Diablo Canyon Power Plant

Receiving Water Monitoring Program – 1995-1997 Progress Report

January 27, 1999

Prepared for:
Pacific Gas and Electric Company
77 Beale Street
San Francisco, CA 94105

TENERA Project Manager:
John R. Steinbeck

TENERA Environmental Services
One Market, Spear Tower, Suite 1850, San Francisco, CA 94105
(415) 536-4744, FAX (415) 536-4714
P.O. Box 400, Avila Beach, California 93424
(805) 595-2407, FAX: (805) 595-2106

9902020227 990129
PDR ADOCK 05000275
R PDR

TABLE OF CONTENTS

Section	Page
List of Tables	ii
List of Figures	iii
Summary	S-1
1.0 Introduction	1-1
1.1 Purpose	1-1
1.2 Study Design and Analysis	1-1
1.4 Report Format	1-10
2.0 Power Plant Operations, Temperature, and Dissolved Oxygen Monitoring	2-1
2.1 Power Plant Operations	2-1
2.2 Receiving Water Temperature Monitoring	2-6
2.3 Dissolved Oxygen Monitoring	2-12
3.0 Intertidal Studies	3-1
3.1 Intertidal Algae	3-1
3.2 Intertidal Invertebrates	3-25
3.3 Intertidal Black Abalone	3-51
3.4 Intertidal Fishes	3-59
4.0 Subtidal Studies	4-1
4.1 Subtidal Algae	4-1
4.2 Subtidal Invertebrates	4-22
4.3 Subtidal Red Abalone	4-47
4.4 Subtidal Fishes	4-54
5.0 Literature Cited	5-1

APPENDIX A - Station Nomenclature

APPENDIX B - Physical Data Summaries (Temperatures and Dissolved Oxygen)

APPENDIX C - Annual Taxa Means by Sampling Method

APPENDIX D - ANOVA Test Results

List of Tables

Section and Table Number **Page**

1.0 INTRODUCTION

1-1 RWMP tasks, stations and survey frequencies 1-2

2.0 POWER PLANT OPERATIONS, TEMPERATURE, and DISSOLVED OXYGEN

2-1 DCPP refueling outage dates and durations from 1995 to 1997 2-5
2-2 Dissolved oxygen measurements, 1995-1997 2-14

3.0 INTERTIDAL STUDIES

3-1 ANOVA results for upper elevation algae 3-10
3-2 ANOVA results for lower elevation algae 3-13
3-3 ANOVA and TEMP Analysis Report comparisons for upper elevation algae 3-21
3-4 ANOVA and TEMP Analysis Report comparisons for lower elevation algae 3-22
3-5 ANOVA results for upper elevation invertebrates 3-32
3-6 ANOVA results for lower elevation invertebrates 3-39
3-7 ANOVA and TEMP Analysis Report comparisons for upper elevation invertebrates 3-48
3-8 ANOVA and TEMP Analysis Report comparisons for lower elevation invertebrates 3-49
3-9 Black abalone abundance in Diablo Cove by area with annual population estimates 3-55
3-10 Total numbers of black abalone counted on 10-meter stations, 1988-1997 3-56
3-11 Black abalone abundance by size for Diablo Cove random surveys 3-57
3-12 Withering syndrome occurrences in qualitative black abalone surveys 3-56
3-13 Mean lengths of *Xiphister mucosus* at Field's Cove and Diablo Cove 3-68

4.0 SUBTIDAL STUDIES

4-1 ANOVA results for subtidal algae 4-10
4-2 ANOVA and TEMP Analysis Report comparisons for subtidal algae 4-20
4-3 ANOVA results for subtidal invertebrates 4-31
4-4 Macroinvertebrate abundances on random red abalone stations 4-35
4-5 ANOVA and TEMP Analysis Report comparisons for subtidal invertebrates 4-44
4-6 Mean densities of red abalone, 1996-1997 4-50
4-7 ANOVA results for subtidal fishes 4-61
4-8 ANOVA and TEMP Analysis Report comparisons for subtidal fishes 4-69

List of Figures

Section and Figure Number — Page

1.0 INTRODUCTION

1-1 Location of Diablo Canyon Power Plant 1-3

2.0 POWER PLANT OPERATION AND THERMAL PLUME CHARACTERISTICS

2-1 Locations of intertidal temperature monitoring stations 2-2
2-2 Locations of subtidal temperature and dissolved oxygen monitoring stations 2-3
2-3 Discharge flow volumes, water temperatures and delta T° values 2-4
2-4 Intertidal temperatures in Diablo Cove, Field's Cove and control areas 2-8
2-5 Subtidal temperatures in Diablo Cove, Field's Cove and control areas 2-9
2-6 Comparison of ambient temperatures in 1995, 1996 and 1997 to long-term means 2-10

3.0 INTERTIDAL STUDIES

3-1 Locations of intertidal horizontal and vertical band transect stations 3-2
3-2 Comparisons of algal abundances at control transects 3-5
3-3 Comparisons of algal abundances at north Diablo Cove transects 3-6
3-4 Comparisons of algal abundances at south Diablo Cove transects 3-7
3-5 Comparisons of algal abundances at Field's Cove transects 3-8
3-6 Correspondence analysis of intertidal algae, +0.9 m MLLW 3-11
3-7 Correspondence analysis of intertidal algae, +0.3 m MLLW 3-15
3-8 *Endocladia muricata*: changes in cover 3-16
3-9 *Pelvetia compressa*: changes in cover 3-18
3-10 *Phyllospadix* spp.: changes in cover 3-19
3-11 *Mazzaella flaccida*: changes in cover 3-20
3-12 Comparisons of invertebrate densities and cover at upper control transects 3-27
3-13 Comparisons of invertebrate densities and cover at upper north Diablo Cove transects 3-29
3-14 Comparisons of invertebrate densities and cover at upper south Diablo Cove transects 3-30
3-15 Comparisons of invertebrate densities and cover at upper Field's Cove transects 3-31
3-16 Correspondence analysis of intertidal invertebrates, upper transects 3-33
3-17 Comparisons of invertebrate densities and cover at lower control transects 3-34
3-18 Comparisons of invertebrate densities and cover at lower north Diablo Cove transects 3-35
3-19 Comparisons of invertebrate densities and cover at lower south Diablo Cove transects 3-37
3-20 Comparisons of invertebrate densities and cover at lower Field's Cove transects 3-38
3-21 Correspondence analysis of intertidal invertebrates, lower transects 3-40
3-22 *Strongylocentrotus purpuratus*: changes in density 3-41
3-23 *Chthamalus fissus*: changes in density 3-43
3-24 *Tegula funebralis*: changes in density 3-44
3-25 *Fissurella volcano*: changes in density 3-45
3-26 *Pista* spp.: changes in cover 3-46
3-27 Locations of black abalone transects 3-52
3-28 *Haliotis cracherodii*: changes in density on horizontal band transects 3-54
3-29 Intertidal fish densities on vertical band transects 3-61

3-30 *Xiphister mucosus*: changes in density 3-63
3-31 *Xiphister atropurpureus*: changes in density 3-64
3-32 *Anoplarchus/Cebidichthys*: changes in density 3-65
3-33 Size frequencies of *Xiphister mucosus* at Field's Cove 3-66
3-34 Size frequencies of *Xiphister mucosus* in north and south Diablo Cove 3-67

4.0 SUBTIDAL STUDIES

4-1 Locations of subtidal benthic stations and habitat-forming kelp surveys 4-3
4-2 Comparisons of algal abundances at the control station 4-6
4-3 Comparisons of algal abundances at Diablo Cove stations 4-7
4-4 Comparisons of algal abundances at the Field's Cove station 4-8
4-5 Correspondence analysis of subtidal algae 4-12
4-6 *Cryptopleura ruprechtiana*: changes in cover 4-14
4-7 *Cryptopleura violacea*: changes in cover 4-15
4-8 *Farlowia/Pikea* spp.-complex: changes in cover 4-16
4-9 *Pterygophora californica*: changes in density 4-17
4-10 Bull kelp and giant kelp maps for Diablo Cove 4-18
4-11 *Macrocystis pyrifera*: changes in density 4-19
4-12 Comparisons of invertebrate abundances: South Control station (SAQ method) 4-25
4-13 Comparisons of invertebrate abundances: Field's Cove station (SAQ method) 4-26
4-14 Comparisons of invertebrate abundances: Diablo Cove stations (SAQ method) 4-27
4-15 Comparisons of invertebrate abundances: South Control station (SFQ method) 4-28
4-16 Comparisons of invertebrate abundances: Field's Cove station (SFQ method) 4-29
4-17 Comparisons of invertebrate abundances: Diablo Cove stations(SFQ method) 4-30
4-18 Correspondence analysis of subtidal invertebrates 4-34
4-19 *Tegula brunnea*: changes in density 4-37
4-20 *Strongylocentrotus purpuratus*: changes in density 4-38
4-21 *Asterina miniata*: changes in density 4-39
4-22 *Homalopoma* spp.: changes in density 4-41
4-23 *Leptasterias* spp.: changes in density 4-42
4-24 *Lithopoma gibberosa*: changes in density 4-43
4-25 Locations of red abalone study areas and subtidal fish observation stations 4-48
4-26 *Haliotis rufescens*: density on 30m^2 random stations in 1996 4-52
4-27 *Haliotis rufescens*: density on 30m^2 random stations in 1997 4-53
4-28 Comparisons of fish abundances: South Control stations 4-57
4-29 Comparisons of fish abundances: North Diablo Cove stations 4-58
4-30 Comparisons of fish abundances: South Diablo Cove stations 4-60
4-31 Correspondence analysis of subtidal fishes 4-62
4-32 Atherinidae: changes in density 4-64
4-33 *Brachyistius frenatus*: changes in density 4-65
4-34 *Embiotoca jacksoni*: changes in density 4-66
4-35 *Sebastes chrysomelas/ S. carnatus* (YOY): changes in density: 4-67

RWMP PROJECT ORGANIZATION

Report Authors (TENERA):

Mr. Jim Blecha
Mr. Jay Carroll
Mr. Scott Kimura
Ms. Carol Raifsnider
Mr. John Steinbeck
Mr. Jeff Tupen

Key Project Personnel (TENERA):

Principal Investigator/ Project Manager:	Mr. John Steinbeck
Project Scientists:	Mr. Mike Behrens Mr. Jim Blecha Mr. Jay Carroll Mr. Scott Kimura Mr. John Steinbeck Mr. Ben Stephens Mr. Jeff Tupen
Project Staff:	Ms. Susan Helberg Mr. Kim Kubasek Mr. John Lindsey Mr. Jim Strampe

Summary

Biological and physical characteristics of the Pacific Gas & Electric Company (PG&E) Diablo Canyon Power Plant (DCPP) discharge receiving waters were monitored from July 1995 through December 1997 under Monitoring and Reporting Program 90-09 modified by the Central Coast Regional Water Quality Control Board (Regional Board) in February 1995. A previous report, "*DCPP Thermal Effects Monitoring Program Analysis Report, Chapter 1 – Changes in the Marine Environment Resulting from the Diablo Canyon Power Plant Discharge*" (TEMP Analysis Report), analyzed biological and temperature data collected from June 1976 through June 1995. Three semi-annual reports (PG&E, 1996a, 1996b, 1997), previously submitted to the RWQCB, presented Receiving Water Monitoring Program (RWMP) data collected from July 1995 through December 1997.

The purpose of this report is to present the RWMP data collected from July 1995 through December 1997 and, based on this data, describe any new or continuing effects of the DCPP discharge on nearshore marine communities. Any new or continuing effects of the discharge are identified in this report by comparing changes detected in the operation period from 1987 through June 1995 that were presented in the TEMP Analysis Report to changes detected during the recent operation period from July 1995 through 1997. Biological data from the intertidal horizontal band transect, subtidal benthic and subtidal fish studies were statistically analyzed using an analysis of variance (ANOVA) model similar to the analysis used in the TEMP Analysis Report. Multivariate analyses were used to describe and contrast community changes among study areas. The results from the intertidal vertical band transects, black and red abalone studies, kelp studies and physical monitoring for temperature and dissolved oxygen were analyzed graphically. The following sections highlight the principal findings from the 1995-1997 biological and physical monitoring.

Biological Studies

Intertidal Algae

Effects from the discharge on intertidal algal communities in Diablo Cove reported in the TEMP Analysis Report continued to occur during the 1995-1997 period. Continued, new or increasing effects were detected in a majority of the algae analyzed. Several of the taxa that increased in abundance during 1995-1997 in Diablo Cove were ephemeral forms that rapidly colonize open substrate. Ephemeral algae typically fluctuate greatly in abundance. The increases in ephemeral algae and other new effects contributed to high interannual variation observed in the Diablo Cove algal assemblage compared to

control areas. While these taxa contributed to an increase in total algal cover during 1995-1997, algal cover in Diablo Cove remained reduced from pre-operation levels. The changes in Diablo Cove continued to form a distinct algal assemblage different in composition and abundance from other areas.

In contrast to Diablo Cove, the algal assemblage in Field's Cove was less variable due to its greater distance from the discharge and similarity with control area algal assemblages. The number and magnitude of effects detected in Field's Cove were reduced compared to Diablo Cove. Increases in total algal cover were detected in Field's Cove during 1995-1997 as a result of increases in perennial foliose algae were more characteristic of control areas. Increases in the abundance of temperature sensitive species like *Mazzaella flaccida* and *Egregia menziesii* provided additional evidence that discharge effects in Field's Cove were reduced compared to Diablo Cove.

Intertidal Invertebrates

Intertidal invertebrates in both Diablo and Field's coves continued to be affected by the discharge during the 1995-1997 study period. Diablo Cove had a greater number of new and increasing effects when compared to Field's Cove. Several species of limpets that increased in Diablo and Field's coves following plant start-up continued to fluctuate in abundance in Diablo Cove, but not in Field's Cove. There was also a greater number of taxa that reversed previous trends associated with discharge effects. For example, acorn barnacles increased rapidly at upper sampling elevations following power plant start-up and have remained abundant in Diablo Cove. However their abundance has decreased over time in Field's Cove. Taxa that showed similar patterns of change in both Diablo and Field's coves provided evidence of continued discharge effects in Field's Cove. These included increases in abundances of purple sea urchins, and continued low abundances of six-armed sea stars and brown turban snails relative to control stations. The continuing changes at both Diablo and Field's cove stations were reflected in higher interannual variation in those invertebrate assemblages compared to control stations.

Black abalone continued to decrease in abundance in Diablo Cove and control areas during 1996 and 1997. The continued low abundances resulted from reductions in the remaining population and the almost complete absence of recruitment. Abalone with withering syndrome (WS) were still present in the Diablo Canyon study. This disease continued to be a factor in coastwide declines in abalone populations.

Intertidal Fishes

Results from the 1995-1997 period were generally similar to previous years of operation although no statistical comparisons were done due to the absence of any adequate control station data. Abundances of several intertidal fish taxa declined at Diablo Cove stations after power plant start-up. Fewer fishes and fewer taxa were found at the north Diablo Cove station than at either south Diablo Cove or Field's Cove stations during 1995-1997. Rock prickleback was the most abundant fish species in Field's Cove. This species declined in Diablo Cove during plant operation and abundances were still low from 1995-1997. Juvenile Stichaeidae/Pholididae recruited at both south and north Diablo Cove stations during the 1995-1997 period. Recruitment also occurred in previous years in Diablo and Field's coves.

Subtidal Algae

Changes in the subtidal algal community in Diablo Cove that occurred following power plant start-up continued through the 1995-1997 period. Losses of overstory canopy kelp species resulted in increased abundances of understory taxa prior to 1995. In contrast to these results, changes during 1995-1997 were characterized by equal numbers of taxa that increased and decreased. These and other changes resulted in an overall decline in understory cover during 1995-1997. The decline in understory cover may have been a response to shading effects from increased densities of giant kelp. The resulting algal assemblage in Diablo Cove was different in composition and abundance from the assemblages of understory algae and overstory kelps at Field's Cove and South Control stations.

In contrast to the continued changes in Diablo Cove, the composition of the Field's Cove algal assemblage remained similar to the control station during 1995-1997. However, there were abundance differences between Field's Cove and South Control stations in kelp and understory taxa. Decreases between the 1987-1992 and 1992-1997 periods were detected in only a few understory taxa in Field's Cove. The statistical results for the majority of the taxa were inconclusive. The large number of inconclusive results was partially due to the small sample sizes in 1995-1997 and increased variation for the abundance estimates from the single Field's Cove station. When sample sizes are small and variation is large for a taxa it is very difficult to detect small effects, if they exist.

Subtidal Invertebrates

Invertebrate assemblages and individual taxa at subtidal stations in Diablo Cove showed continued changes due to the discharge between the 1987-1992 and 1992-1997 periods. The resulting invertebrate

assemblage is different from stations at South Control and Field's Cove stations. The changes were characterized by continued declines in shelled gastropods and previously undetected decreases in sea stars. Some of the decreases in sea star abundance were attributed to an echinoderm wasting disease that was observed in the shallow, warm areas of Diablo Cove in summer 1997. The large interannual variation for stations in Diablo Cove over the period of 1992-1997 was another indicator of continuing discharge.

Most taxa remained unchanged between periods at the Field's Cove station. Many of the discharge effects in Diablo Cove were not observed in Field's Cove. Although there were no new effects observed in Field's Cove, continued changes in some taxa indicated that effects of the discharge did occur. These effects were reduced in magnitude compared to Diablo Cove. Similar to the subtidal algae, statistical results for the majority of the taxa were inconclusive.

Red abalone continued to be low in abundance in Diablo Cove. In 1995-1997, red abalone abundance outside Diablo Cove remained several times higher than abundances inside the cove. The continued low abundance of red abalone in Diablo Cove was most likely the result of WS and low recruitment. Predation by sea otters, humans, and invertebrates may also have contributed to the reduced abundances, but these factors would also be expected to occur in control areas.

Subtidal Fishes

The assemblage of fishes that characterized north and south Diablo Cove after power plant start-up was still present in the 1995-1997 period. No monitoring of subtidal fishes was done in Field's Cove. Variation in benthic fishes among years at north and south Diablo Cove transects was much greater than variation at South Control transects. This was largely due to taxa that increased in abundance in Diablo Cove following power plant start-up and to taxa associated with the sand habitats in south Diablo Cove. Some of differences among areas were also caused by warm-temperate species, such as opaleye and sheephead that were more common in north Diablo Cove.

Results from the analyses of changes in abundance of individual taxa between the 1987-1994 and 1995-1997 periods were inconclusive for most fishes tested. The large number of inconclusive results was attributable to the low power of the tests caused by highly variable data, fewer surveys in the second period, or a combination of these factors. Results were inconclusive for many of the, but it was evident that discharge effects continued in Diablo Cove during 1995-1997. Statistically significant increases

were detected in several taxa that tended to be associated with kelp canopy habitat that also increased in Diablo Cove from 1995-1997. Results also showed increases in three benthic taxa in Diablo Cove, relative to the control area, reversing significant declines observed during the first period.

Water Temperatures and Dissolved Oxygen

Ambient temperature patterns in 1995 and 1996 were relatively normal, with cool upwelling periods in spring and summer followed by warming in fall and cooling in winter. Ambient ocean temperatures during 1997 were warmer than normal, due to northward flowing currents associated with a major El Niño. Ambient temperatures along the coast were periodically 3°C (≈6°F) warmer than normal during the summer months and 4°C (≈8°F) warmer than normal during the fall months. Upwelling conditions that normally result in cool, nutrient-rich waters in nearshore areas were infrequent during 1997 except for brief periods in early March and May.

Temperature increases (delta T°) from 1995-1997 of approximately 11°C (≈20°F) at the point of discharge under normal two-unit operation were the same as previously described in the TEMP Analysis Report. During the 1995-1997 period, water temperatures at north Diablo Cove intertidal and subtidal stations were increased 3-5°C (≈6-9°F) above ambient as a result of the plume and were usually warmer than temperatures in south Diablo Cove. The thermal plume reached depths of at least 4 m (≈15 ft) in Diablo Cove. Water temperatures at Field's Cove stations were increased above ambient by approximately 1°C (≈2°F). While temperature increases in all three areas were similar to those reported in the TEMP Analysis Report, absolute temperatures measured at intertidal and subtidal sampling stations in Diablo Cove were higher in 1997 due to warmer ambient temperatures.

No temperature increases were measured at control sites to the north and south of Diablo Cove. Both power plant units were operational during most of the 1995-1997 period except for three refueling outages which lasted 30-40 days each. Temperatures in Diablo Cove were cooler during the outages due to reduced discharge volumes.

Discharge delta T° values had shown an increasing trend that began after power plant start-up in 1989. This trend was described in the TEMP Analysis Report. The upward trend was largely due to increases in rejected waste heat caused by feedwater nozzle fouling that was eliminated in 1994. Discharge delta T° values did not continue to increase from 1995-1997.

Dissolved oxygen was sampled quarterly from 1995-1997 except during the third quarter of 1997 when samples were not collected due to scheduling problems. Dissolved oxygen concentrations were lower in Diablo Cove than control areas.

1.0 Introduction

This report presents data collected from the Diablo Canyon Power Plant (DCPP) Receiving Water Monitoring Program (RWMP) during July 1995 through December 1997 as required by NPDES Permit Order No. 90-09 issued in February 1995. In July 1995, the RWMP was implemented in accordance with a revised monitoring and reporting program ordered by the Central Coast Regional Water Quality Control Board (RWQCB). Three semi-annual reports (PG&E, 1996a, 1996b, 1997) presented data collected in the RWMP from July 1995 through December 1996. Results of previous monitoring from 1976 through June 1995 were presented in the Thermal Effects Monitoring Program (TEMP) Analysis Report (Tenera, Inc., 1997). The report contained comprehensive analyses and descriptions of changes in the receiving water community resulting from the DCPP discharge.

1.1 Purpose

The purpose of this report is to present the RWMP data collected from July 1995 through December 1997 and, based on this data, describe any new or continuing effects of the DCPP discharge on nearshore marine communities. Any new or continuing effects of the discharge are identified in this report by comparing changes detected in the operation period from 1987 through June 1995 that were presented in the TEMP Analysis Report to changes detected during the recent operation period from July 1995 through 1997. Although the power plant operated continually from 1985 through 1997 two time periods were defined for the purpose of analysis. This separation was based on the completion of the TEMP studies and beginning of the RWMP studies. The terminology used in this report for the two operation periods is 'OpPeriod-1' (January 1987 through June 1995) and 'OpPeriod-2' (July 1995 through December 1997).

1.2 Study Design and Analysis

Table 1-1 shows the study components of the RWMP, sampling frequency, and types of data collected. The study area extends from Point Buchon to Point San Luis (Figure 1-1). Within the study area, stations were located in the areas of Diablo Cove and Field's Cove that were exposed to the thermal discharge, and in control areas beyond the influence of the discharge. The temperatures and abundances of organisms at the control area stations ('control stations') provided baseline information on natural

Table 1-1. Tasks, stations and frequency of surveys for the DCPP Receiving Water Monitoring Program, 1995-1997 (OpPeriod-2).

Task and Sampling Frequency	Stations	Typical Sampling Periods[1] J F M A M J J A S O N D
Intertidal Horizontal Band Transects (algae, invertebrates, substrate)		
Twice per year	NC-1, NDC-2, NDC-3, SDC-1, SDC-3, SC-1	
Four times per year	FC-1, FC-2, FC-3	
Intertidal Vertical Band Transects (algae, invertebrates, fishes, substrate)		
Once per year	NDC 1-V, SDC 2-V	
Four times per year	FC 1-V	
Intertidal Black Abalone Census (abalone, substrate)		
Once per year (random quadrats along transects)	10 - 100 m transects	
Once per year (2x10 m transect)	10 - 2x10 m transects	
Periodic qualitative observations	various areas *(various dates depending on concurrent sampling)*	
Subtidal Benthic Stations (algae, invertebrates, substrate)		
Twice per year	NDC 3 -3m, NDC 4 -4m, NDC 6 -3m, SDC 2 -3m, SDC 3 -4m 1, SC 1 -3m	
Four times per year	FC 1 -3m, FC 2 -9m	
Subtidal Fish Assessment (fishes)		
Twice per year	NDC FO-1, 2, 3, 4; SDC FO-1, 2, 3; SC FO-1, 2, 3	
Subtidal Red Abalone Census (abalone, macroinvertebrates)		
Twice per year	20 sta. (Diablo Cove) + 10 sta. (Field's Cove and South Control combined)	
Habitat-Forming Kelp Survey (bull kelp, giant kelp)		
Once per year	Diablo Cove	
Physical Oceanographic Monitoring		
Intertidal Temperatures (3 times hourly)	Primary stations: [+0.75 m] NC-1, NC-2, NDC-2, NDC-3, SDC-1, SDC-3, SC-1	
Intertidal Temperatures (3 times hourly)	Supplemental stations: 13 in Field's Cove	
Subtidal Temperatures (3 times hourly)	Primary stations: [-3 m] NC 1, FC 1, NDC 3, NDC 6, SDC 1, SC 1; [-4 m] NDC 4, SDC 4	
Subtidal Temperatures (3 times hourly)	Supplemental stations: NDC 5 -8m, SDC 5 -10m, IC 1 -10m	
Dissolved Oxygen (four surveys per year)	[-3 m] NC 1, FC 1, NDC 3, NDC 6, SDC 1, SC 1; [-4 m] NDC 4, SDC 4	

[1] Stations were usually sampled within corresponding shaded months, depending on sea conditions and optimal low-tide periods.

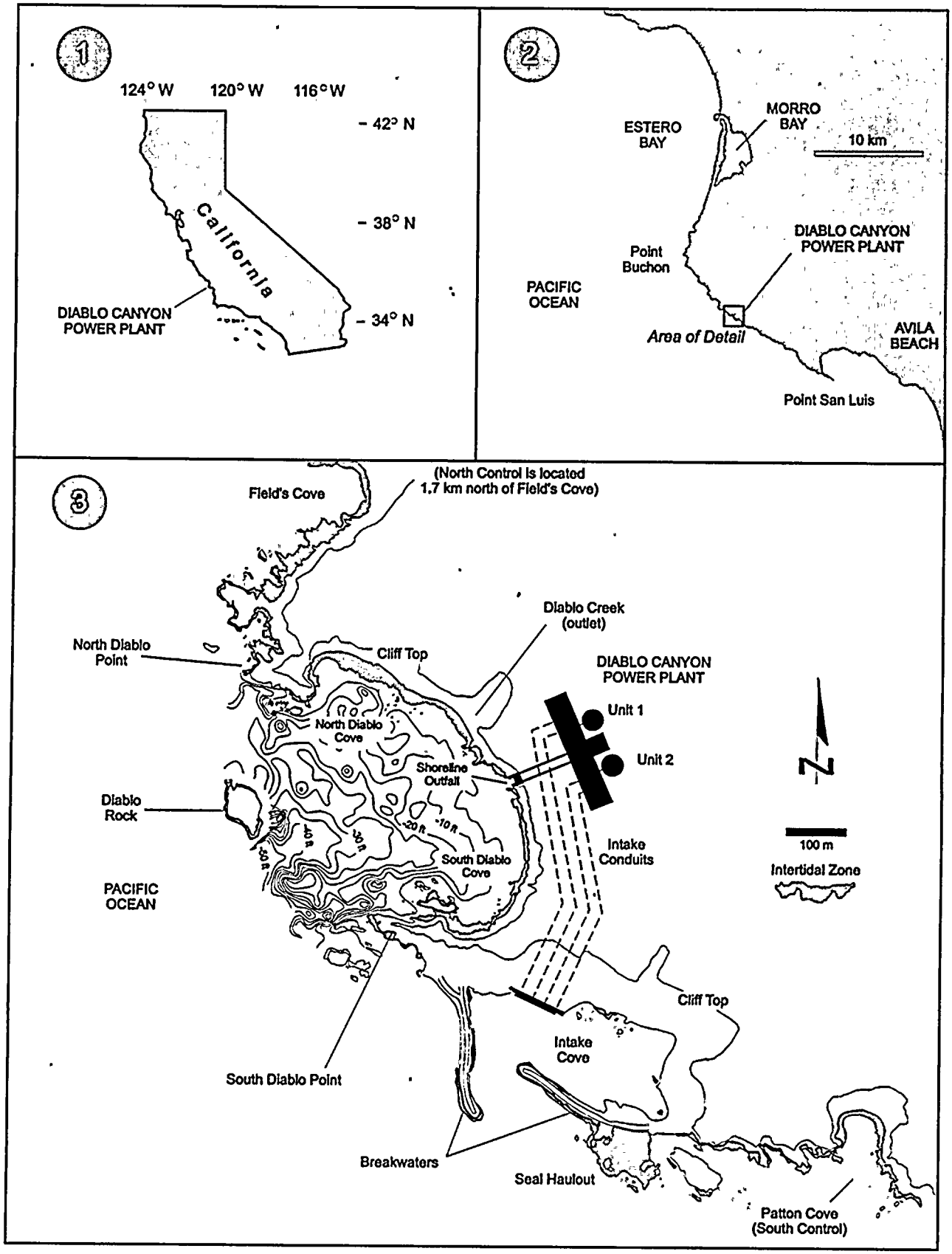


Figure 1-1. Location of Diablo Canyon Power Plant.

changes. These were compared with changes at stations contacted by the discharge plume ('discharge stations') to determine if the changes exceeded natural variation and were effects of the discharge.

Background

The results of modified Before-After/Control-Impact (BACI) (Stewart-Oaten et al., 1986) analyses were used in the TEMP Analysis Report to test the hypothesis that there were no effects resulting from the discharge (Tenera, Inc., 1997). The BACI analyses used paired, concurrent sampling of discharge and control stations to statistically compare the mean differences in abundance ('deltas') between the stations before and after power plant start-up. The paired sampling events were used as replicate measures of the difference between discharge and control stations.

The BACI analysis required that data conform to a set of assumptions common to statistical tests based on the analysis of variance. The data also had to conform to the specific assumptions of the BACI model. The BACI assumption of data additivity required that abundance differences between discharge and control stations were constant during the pre-operation period. The differences were not expected to be constant following plant start-up because abundances may have increased or decreased at discharge stations. Since the purpose of the monitoring was to detect any new or continuing effects of the discharge, the data in this report could not be analyzed using a BACI analysis.

Data Analyzed

The data in this report were analyzed using an analysis of variance (ANOVA) model similar to the BACI design used in the TEMP Analysis Report to test for new or continuing effects of the discharge. Data from OpPeriod-1 were used as a baseline to detect changes in OpPeriod-2. The estimates of the mean differences in abundance between discharge and control stations between the two periods were used to determine if statistically significant changes occurred. Significant effects included changes previously undetected, or existing effects of the discharge that either increased or decreased in magnitude.

Data used in the ANOVA model were obtained by computing a mean abundance for the control station(s) for each survey and then calculating a difference, or delta, for each discharge station using the formula $x_i^C - x_i^I$ (the mean abundance for the control stations (x_i^C) minus the mean abundance for a discharge group station (x_i^I) for each survey i). This convention was used instead of the formula ($x_i^I - x_i^C$) (Stewart-Oaten et al., 1986) so that the sign (positive or negative) of the delta reflected the direction of

change relative to the control. The deltas were also plotted to provide a measure of the absolute magnitude of change between periods.

The data analyzed included abundance estimates for individual taxa based on count and percent cover data, cover estimates for substrates, mean species richness (total number of taxa) and mean species diversity (Shannon-Weiner H'). Mean species richness (# spp/area^2) and diversity values calculated for each station from each survey were analyzed instead of totals to account for differences in sample sizes between the two periods analyzed. Analyses were done to identify the taxa that contributed to the majority (95% or 99%) of the total abundance. Some of these taxa were not analyzed because their abundances were too low or variable among stations.

The numbers of control and discharge stations used in the analyses varied by sampling method. The intertidal horizontal band transect (HBT) and subtidal benthic study analyses used deltas computed for each discharge station and the subtidal fish study data used delta values for areas computed from the means of the transects located within the areas of north and south Diablo Cove. The stations statistically analyzed for each sampling method are shown in the following table.

Sampling Method	Control Stations	Discharge Stations
Intertidal Horizontal Band Transects (algae, invertebrates)	NC-1, SC-1	FC-1, FC-2, FC-3, NDC-2, NDC-3, SDC-1, SDC-3
Subtidal Benthic Studies (algae, invertebrates)	SC-1	FC-1, NDC-2, NDC-3, NDC-6, SDC-2, SDC-3
Subtidal Fish Studies	SC FO-1, -2, and -3	North Diablo Cove: NDC FO-1, -2, and -3 South Diablo Cove: SDC FO-1, -2, and -3

The intertidal HBT and subtidal benthic data were analyzed by summer and winter seasons to account for seasonal variation. The seasons of winter and summer were defined as December through March, and June through September, respectively. The seasons were longer for the subtidal studies because those surveys were scheduled over a longer time period to account for weather and sea conditions that may have precluded sampling. The subtidal fish data were not analyzed by season because after June 1995 sampling occurred only during summer months. The data for fishes from the summer surveys in years prior to 1995 were used to obtain a single mean annual abundance estimate for each area, and those estimates were used in computing the deltas.

Definitions of OpPeriod-1 and OpPeriod-2 also varied by method to account for differences in the scheduling of the intertidal and subtidal studies, and the longer sampling seasons required for the subtidal monitoring tasks. The two periods for the intertidal HBT data were defined as:

- January 1, 1987 through June 30, 1995; and
- July 1, 1995 through December 31, 1997.

The two periods analyzed for the subtidal benthic and fish studies were defined as:

- January 1, 1987 through April 30, 1995; and
- June 1, 1995 through December 31, 1997.

The small sample sizes for OpPeriod-2 increased the likelihood that the estimates were affected by sample bias and that the variances among groups were not equal. While the assumption of equal variances was tested before analyzing the data, additional years of data will provide greater assurance that estimates are unbiased.

Analysis Assumptions

Data analyzed using a BACI or other ANOVA model must conform to certain statistical assumptions. The assumptions include independently sampled data from a population with a normal distribution, and independent and homogeneous errors among groups (Winer et al., 1991). The assumption of homogeneity of variances was tested using the Levene and Cochran tests (Winer et al., 1991).

The assumption tests were performed both on raw data and data that were transformed using either log(x), 1/(x), or $\sqrt{(x)}$ for counts, and additionally arcsine (x) for percentage cover. The transformations of count data required that a constant be added to account for observations with values of zero. The value of the constant used can potentially bias the analysis of the data, therefore assumptions tests were run with constants of 1.0, 0.5 and 0.1. The best combination of constant and type of transformation was chosen based on the homogeneity of variance tests and the power of the data to detect a 50% change between periods. If the homogeneity of variance test results indicated that variances were not equal among groups, Satterthwaite's adjusted degrees of freedom were used in the SAS Proc Mixed procedure (Littell et al., 1996).

Analysis of Variance Model

The following three-way ANOVA model was used to test the hypothesis that discharge group stations were unaffected by the power plant discharge:

$$X_{ijkl} = u + S_i + T_j + P_k + ST_{ij} + SP_{ik} + TP_{jk} + STP_{ijk} + e_l$$

where X_{ijkl} = the delta value for a survey at a station S_i during season T_j within operation period P_k; u = the mean difference across all stations, seasons and periods; S_i = the effect of the ith Station; T_j = the effect of the jth Season; P_k = the effect of the kth Period; ST_{ij} = the effect of the Station x Season interaction, SP_{ik} = the effect of the Station x Period interaction; TP_{jk} = the effect of the Period x Season interaction, and STP_{ijk} = the effect of the Station x Season x Period interaction. The surveys (e_l) within each combination of station, period and season were the replicates for the analysis. The subtidal fish studies were analyzed using a two-way model without a term for season.

Hypothesis Testing

All tests from the analyses used a probability level of 90% to determine significance. A level of 90% was chosen over the more commonly used 95% to increase the statistical power of the tests, thereby decreasing the probability of making a Type II error (Winer et al., 1991). This lower probability level slightly increased the likelihood of finding significant changes where none may have occurred (Type I error). In ecological impact analysis it is important to balance Type I error against the potentially more serious error of not recognizing a significant change when one has occurred (Type II error) (Mapstone, 1995). The power of a test is a measure of the probability of correctly concluding that a change occurred (Winer et al., 1991). In these analyses, power was calculated as the ability of the test to detect a theoretical 50% change between periods (Schroeter et al., 1993). The estimation of power based on a 50% change provided an indication of whether non-significant results correctly indicated little change in the data, or merely reflected low detection power.

The presence of statistically significant interaction terms in an analysis can complicate the detection of discharge effects. Differences in one factor that are not constant or additive across the levels of another factor result in significant interaction terms. If a significant (prob. ≤ 0.10) two- or three-way interaction that included the factor of Period was detected in the analysis of a data set, the results of the individual station-period or season-period combinations were used to examine for discharge effects. In cases where significant interactions were detected, the results of paired comparisons between periods for stations or seasons were examined. If the results showed that a significant difference between periods was caused by

one station with a large change between periods, and this was not evident at other stations, then it was assumed that an alternative hypothesis, other than the discharge, may have been responsible for the result. A discharge effect would be indicated if the paired comparisons showed that the interaction was the result of a general, but variable, change between periods at most stations. Statistically significant differences between periods that were only detected for a particular season or set of stations were noted in the results. If none of the two- or three-way interactions containing the effect of Period were significant (prob. ≤ 0.10), the main factor was used to test for effects between periods.

The analysis used contrasts to test the effect of Period separately for Diablo Cove and Field's Cove stations, or for north and south Diablo Cove areas for the subtidal fish studies. The contrasts tested the hypothesis that there was no significant difference in mean deltas between OpPeriod-1 and OpPeriod-2.

Statistically significant differences between periods could also be detected when there were no actual changes in abundance at Diablo or Field's cove stations. These statistical anomalies could occur because the differences used in the analysis were calculated using control abundances that were changing relative to discharge station abundances. Results showed that some of the taxa affected by the discharge after power plant start-up remained in low abundances in Diablo Cove. A statistically significant increase relative to control abundances could be detected for these taxa if abundances at control stations decreased between periods without any change in discharge station abundances. Taxa with anomalous results are identified in the text.

Qualitative Comparison with Previous Results

Analysis of variance results presented in this report were compared qualitatively with statistical results from the TEMP Analysis Report (Tenera, Inc., 1997). A direct statistical comparison between the two results was not made because the methods of analysis for all studies, and the stations analyzed, were different for all studies with the exception of subtidal fish. The comparisons between OpPeriod-1 and OpPeriod-2 responses formed the basis for categorizing the effects of the DCPP discharge on a taxon into three general responses.

1) Continued discharge effects - taxa identified with statistically significant effects in the TEMP Analysis Report were further categorized into the following four groups based on the results of the statistical analyses in this report:

   - taxa with no effects detected between the two periods were categorized as having continued effects with no change in magnitude;

- taxa with increased differences between the two periods were categorized as having effects with an increasing magnitude, and;
- taxa with decreased differences between the two periods were categorized as having effects with reversed trends.

2) New discharge effects - taxa with no significant effects reported in the TEMP Analysis Report, but with significant differences between operation periods in this report.

3) No discharge effects - taxa with no detectable effects in either report.

Taxa with inconclusive results in this report were not compared to results from the TEMP Analysis Report. Taxa with potentially anomalous results were classified using the changes in their absolute abundances between periods. In most cases these taxa were classified as having continued effects because differences between periods were detected as a result of changes at control stations and continued low abundances at discharge stations.

Multivariate Analyses

Multivariate statistical methods are useful for characterizing communities and measuring responses of communities to natural and human-induced disturbances (Boesch, 1977; Green, 1979). These methods provide representations of community structure and dynamics that can be examined for spatial and temporal responses to disturbances or ecological interactions (Agard et al., 1993; Ardisson et al., 1990; Gray et al., 1990; Olsgard and Gray, 1995). Although typically used to examine gradients and spatial variation among locations, multivariate methods have been used to examine temporal gradients of change (Swaine and Greig-Smith, 1980).

Correspondence analysis (CA) is a multivariate method that is an extension of direct gradient analysis where taxa abundances are examined in relation to an environmental gradient (Digby and Kempton, 1987; ter Braak, 1987). There are two major strengths of using CA over other multivariate methods: 1) CA does not require that data are multivariate normal, an assumption of many other multivariate methods that is rarely met when analyzing ecological data (Gauch, 1982); and 2) CA is a "double ordination" method where taxa abundances across sampling units (called taxa scores) and sampling unit abundances across taxa (station or survey scores) are averaged iteratively until an optimal multi-dimensional solution is achieved that provides the best correspondence between the two sets of scores (Greenacre, 1984). Thus, taxa scores provide a relative measure of changes in taxa abundances across sampling units, while station scores simultaneously provide a relative measure of corresponding sampling unit change across taxa.

The results of CA can be affected by the occurrence of rare taxa within a sample. An analysis was done for each study to eliminate rare taxa that might affect the analyses. The taxa that comprised the majority (95% or 99%) of the total abundance and that occurred in a majority (80% or 90%) of the surveys were used in the analyses. Data for some of the studies were log transformed (log[x+1]) prior to analysis to compensate for scale differences among taxa that can occur when the analysis uses both count and coverage data, or when there are large counts for some taxa. Annual means for the period of 1992 through 1997 were computed and analyzed using CA to derive annual survey and taxa scores. Only these six years were analyzed to eliminate variation due to the initial effects of the discharge. Data from the years following power plant start-up would be expected to account for the majority of the variation, obscuring potential differences among discharge and control areas during the 1995-1997 period. CA annual survey and taxa scores were plotted to examine contrasting patterns of temporal variation among discharge and control stations.

Species Identifications and Coding

The results often refer to 'taxon' rather than 'species'. 'Taxon' is a more general term that may refer to a single species or to several species grouped together. Although most organisms were identified to the species level during the RWMP study, some data were grouped for analysis if they were closely related and difficult to distinguish, or if they formed a logical ecological grouping such as 'filamentous algae'. For example, various species of the algae *Farlowia* and *Pikea* that were usually identified individually in the field were combined for analysis due to the known difficulties in separating these species.

1.4 Report Format

Sections 1 and 2 provide background, temperature, and dissolved oxygen information relevant to results presented in subsequent sections. Results, methods, and discussion of the intertidal and subtidal biological studies follow in Sections 3 and 4.

The names of the sampling stations used in this report follow those used in the TEMP Analysis Report (Tenera, Inc., 1997). A comparison between the present and previous (TEMP) station names is presented in Appendix A.

Only data from the intertidal horizontal band transects (HBT), subtidal benthic stations and subtidal fish assessments were statistically analyzed in this report (Table 1-1). Results from the black and red abalone studies were presented and discussed using graphical and tabular analyses. The vertical band transect

(VBT) study collected data on the presence of intertidal algae and invertebrates, and data on the abundance and lengths of intertidal fishes. Data for VBT fishes were presented and discussed using graphical and tabular analyses. The fish data were not analyzed statistically because the VBT station in Field's Cove is potentially contacted by the discharge plume and could not be used as a control. The other VBT data were not analyzed because of their qualitative nature, and because of the extensive quantitative data on algae and invertebrates in the HBT study. All of the VBT data, as well as the data from the other biological studies, are summarized in Appendix C. Output from all ANOVA analyses are in Appendix D.

Meteorological conditions during the study period were recorded daily and are archived at the Diablo Canyon Power Plant oceanographic laboratory.

2.0 Power Plant Operations, Temperature, and Dissolved Oxygen Monitoring

2.1 Power Plant Operations

2.1.1 Power Plant Intake, Condenser Cooling, and Discharge Systems

Diablo Canyon Power Plant (DCPP) units 1 and 2 have independent cooling systems for condensing steam for the turbine power cycle. Each unit has its own system of intake and discharge conduits, but shares the same intake structure and discharge location (Figures 2-1 and 2-2). During normal operation, seawater is drawn from the Intake Cove through the Unit 1 and Unit 2 intakes and pumped through each unit's condenser system. The steam in the secondary coolant loop is condensed back to water by transferring heat across condenser tubes to the ambient temperature seawater. The warmed seawater is then discharged back into the ocean at the shoreline of Diablo Cove. The first warm water discharges occurred intermittently in 1984 with start-up testing of Unit 1. Commercial operation of Unit 1 began in May 1985 and Unit 2 commercial operation began in March 1986.

2.1.2 Flow Volumes and Point-of-Discharge Water Temperatures

Each of the four condensers is supplied by a main seawater pump. The combined flow rate of the four pumps is between 1.59 million and 1.75 million gallons per minute. The removal of heat by the condensers of both units during normal operation results in a discharge temperature about 11°C (≈20°F) warmer than the incoming seawater temperature. The discharge temperature varies depending on ambient intake temperatures, electrical generation heat load, condenser cooling efficiency, and other operating parameters of the power plant.

Changes in discharge flow volumes, intake and discharge temperatures, and differences between intake and discharge temperatures (referred to as delta T°) are portrayed in Figure 2-3. Discharge flows are about 2.50 billion gallons per day at maximum, but the flows become lower when pumps are taken out of operation (i.e., during unit outages) (Figure 2-3a; Table 2-1). Outages do not necessarily result in lower discharge temperatures unless all four cooling water pumps remain operational (i.e., half the heat load with full cooling water volume). There was a slight increase in recorded discharge flow volumes beginning in 1990 due to changes in the methods of flow measurement and flow computation (Figure 2-3a).

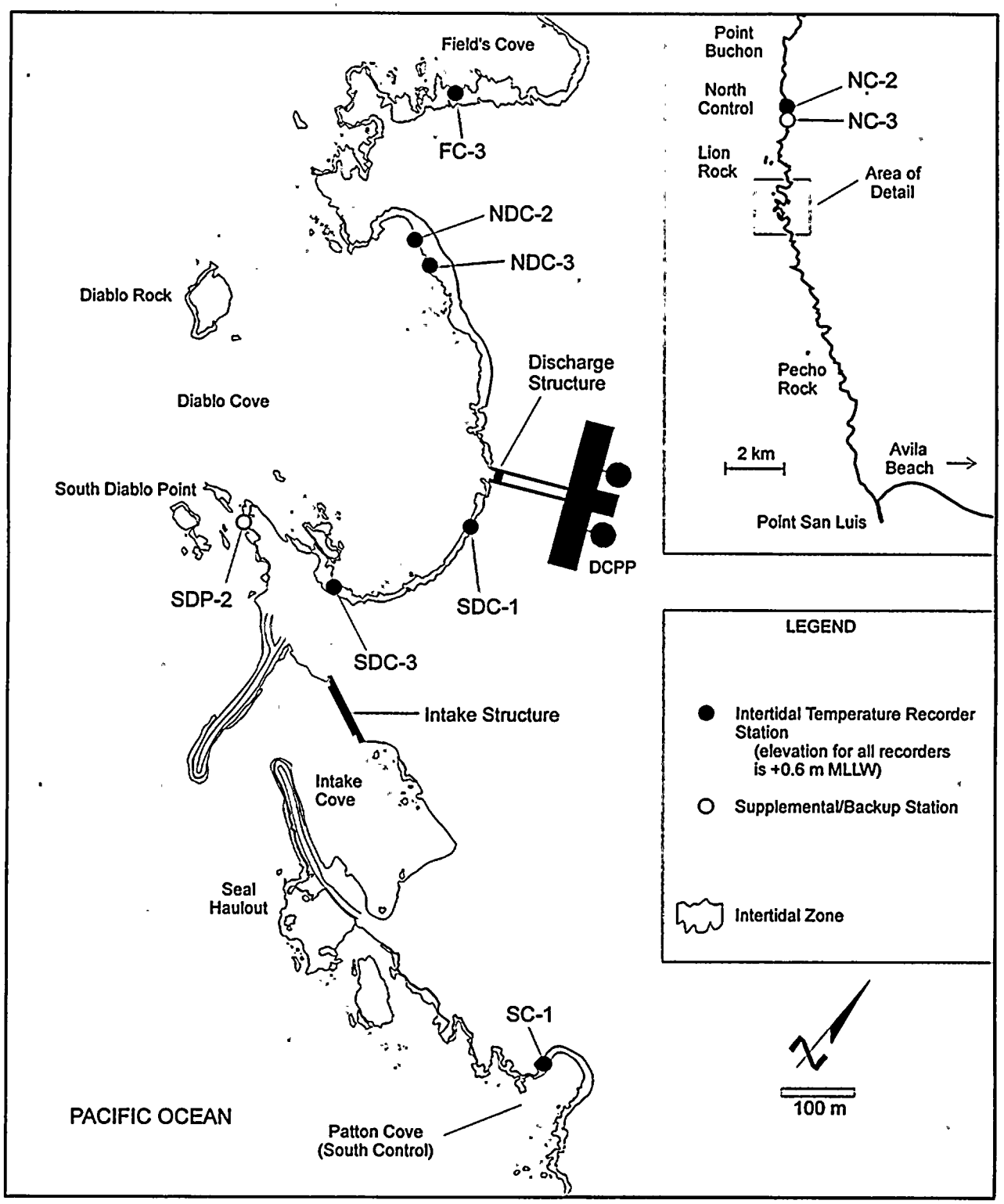


Figure 2-1. Intertidal seawater temperature monitoring stations.

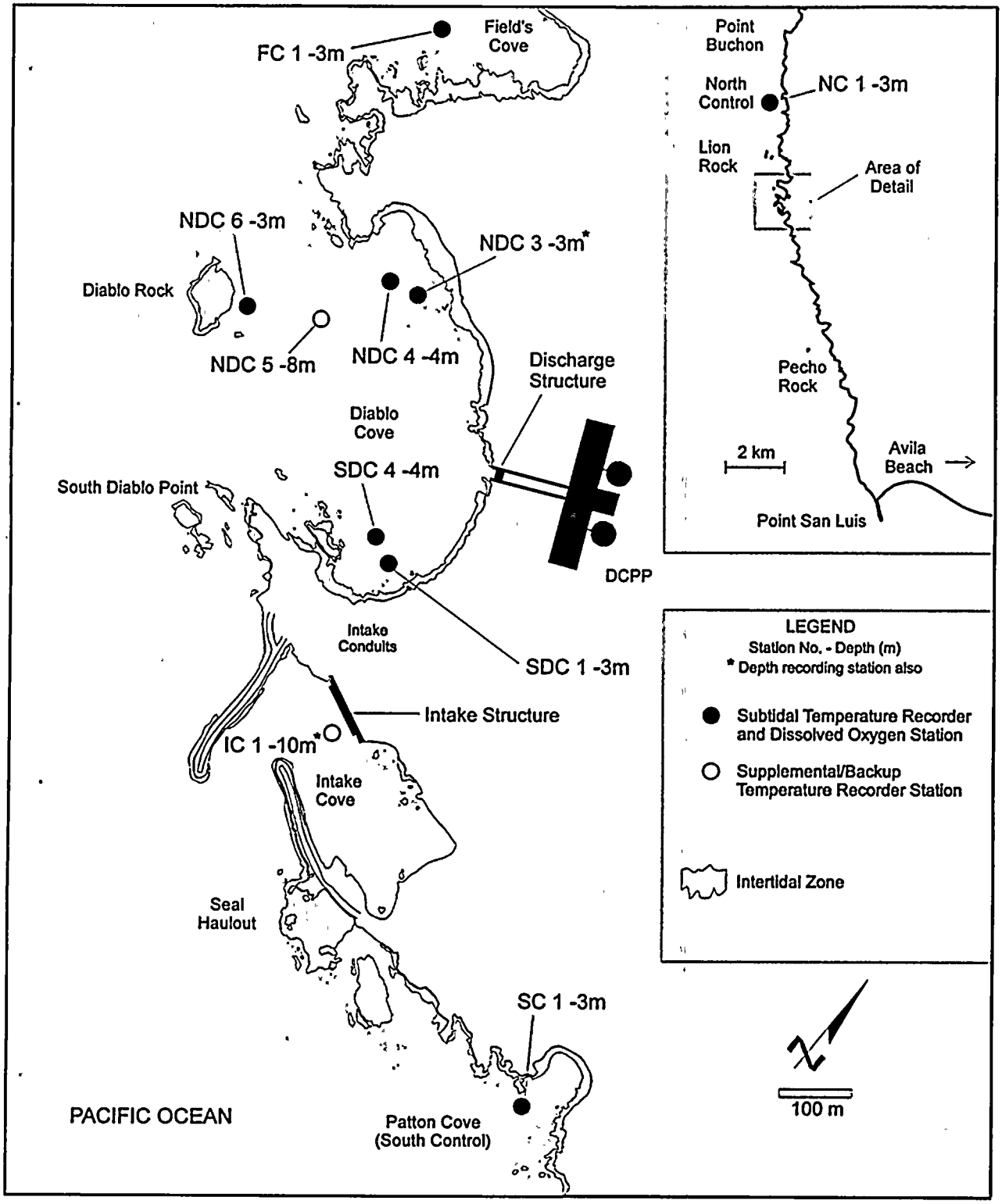


Figure 2-2. Subtidal seawater temperature and dissolved oxygen monitoring stations.

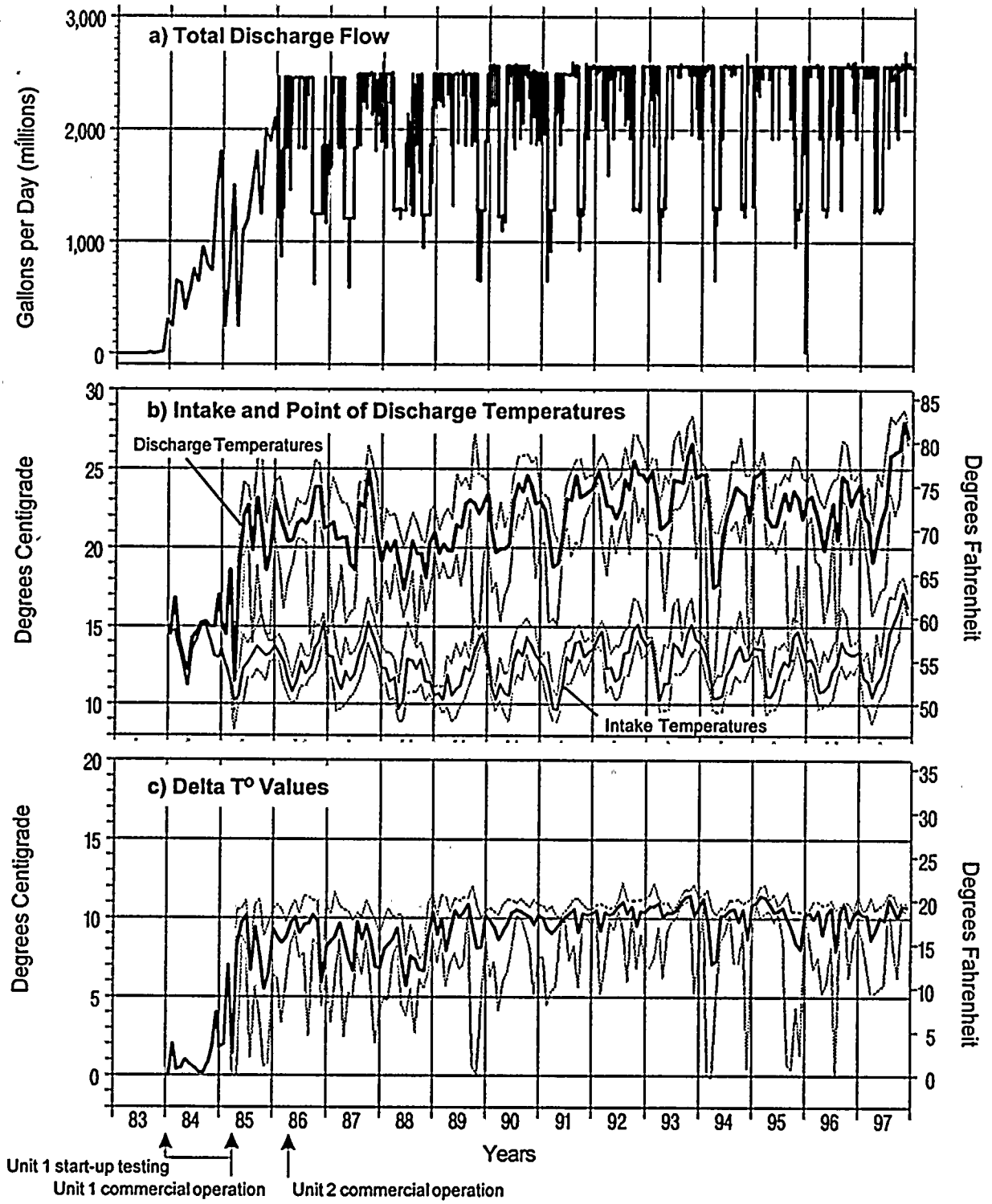


Figure 2-3. Power plant discharge characteristics. (a) Daily discharge flow volumes. (b) Monthly intake and point of discharge temperatures. (c) Monthly differences between intake and discharge temperatures (delta T° values). Monthly data (b,c) are the averages of daily values. Dotted lines (b,c) are highest and lowest daily values by month. Data were obtained from monthly and annual NPDES reports submitted by PG&E to the RWQCB. Flow data prior to January 1986 and temperature data prior to April 1985 were obtained from Figures 1.1.1-2 and -3, respectively (PG&E, 1988).

Table 2-1. DCPP refueling outage dates and durations during OpPeriod-2.

Outage	Start Date	End Date	Duration (days)
1R7	9/30/95	11/26/95	57
2R7	4/6/96	5/24/96	48
1R8	4/19/97	6/2/97	44

Discharge temperatures also fluctuate due to daily and seasonal changes in ambient seawater temperatures (Figure 2-3b). Warmest ambient temperatures normally occur in fall (approximately 15°C/≈59°F) and lowest ambient temperatures normally occur in spring (approximately 9°C/≈48°F). The warmest monthly mean point-of-discharge temperature since 1983 (nearly 28°C/≈82°F) occurred in fall 1997. The maximum daily mean discharge temperature in 1997 was 28.7°C (≈84°F).

Discharge flows, temperatures, and delta T°s varied considerably between 1984 and 1986 with the start-up testing and commercial operation of Unit 1, the start-up testing and commercial operation of Unit 2, and shutdown of Unit 1 for its first refueling outage. From 1988 to 1994, discharge temperatures gradually increased, and this is reflected in delta T° values (Figure 2-3c). The increasing trend was interrupted in spring 1994 as a result of a unit refueling outage (Figure 2-3b, c). The increase in discharge temperatures was due to increased amounts of rejected waste heat generated by normal wear on power plant components associated with the cooling water system. The increase in rejected waste heat was mainly caused by feedwater nozzle fouling. This fouling problem was corrected in 1994, and the units have operated more consistently at higher power through a fuel cycle without a rise in delta T° values.

2.2 Receiving Water Temperature Monitoring

2.2.1 Methods

Digital temperature recorders were placed inside metal canisters at permanent +0.6 m elevation Mean Lower Low Water (MLLW) intertidal stations and at permanent subtidal stations that ranged in depth from -3 to -10 m MLLW (Figures 2-1 and 2-2, respectively). The designation of individual stations reflects the area location and number, followed by elevation or depth, relative to MLLW (e.g., NDC1 -3 m is subtidal station 1 at north Diablo Cove at a depth of -3 m MLLW). A station may be referred to by its location and number only (e.g., NDC-1) in cases where its elevation or depth is previously mentioned. For example, all intertidal temperature recorders were placed at +0.6 m MLLW and are referenced using only their area and number.

Intertidal ambient water temperatures were recorded at stations NC-2 and NC-3 at North Control and station SC-1 at South Control (Figure 2-1). Subtidal ambient water temperatures were recorded at stations NC-1-3m at North Control, IC 1-10m in the Intake Cove, and SC-1 -3 m at South Control (Figure 2-2). These stations were designated as control stations because they had the most complete temperature records from stations located beyond the influence of the discharge.

Recorders synchronously logged temperatures every 20 minutes. Instrument precision was 0.01°C with an accuracy of ± 0.2°C. Instruments were exchanged with serviced and calibrated units approximately every 60 days. Data from the recorders were computer processed and transferred to a database for storage and analysis. Intertidal temperature units recorded air temperatures when tidal levels fell below about +0.6 m MLLW. These air temperatures were extracted from the database during data processing by referencing concurrent tidal height measurements and were not analyzed. Temperatures from simultaneous recordings every 20 minutes at different intertidal and subtidal stations within an area were first averaged before computing monthly means and delta T° values. Delta T° values were computed by subtracting the mean temperature for the pooled control stations, averaged for each 20 minute reading, from the corresponding temperature (or temperature mean for multiple stations) for the impact stations. These data were summarized as monthly means ±99 percentile values.

2.2.2 *Overview of Receiving Water Temperature Changes*

Temperatures recorded at intertidal and shallow subtidal (-3 m MLLW) stations in Diablo Cove, Field's Cove (Figures 2-4 and 2-5), and control areas illustrated the long-term pattern of receiving water temperatures and delta T° values before and during power plant operation. Prior to power plant start-up, water temperatures at the intertidal and shallow subtidal stations were similar to controls, except in the intertidal at south Diablo Cove (Figures 2-4 and 2-5). Solar warming and low water circulation at south Diablo Cove likely caused seasonal temperature increases above control station temperatures. Delta T° values increased after power plant start-up (Figures 2-4 and 2-5). Temperature increases were greater at north Diablo Cove than at either south Diablo Cove or Field's Cove. Although monthly mean point-of-discharge temperatures were as high as 11°C above ambient, receiving water temperatures at all the intertidal and subtidal stations in Diablo Cove never exceeded ambient by more than about 7°C. Intertidal and shallow subtidal temperatures in Diablo Cove averaged about 4°C above ambient.

Coastwide warming periods due to El Niño events occurred in 1987, 1992-1993, and 1997. During OpPeriod-2 an extended period of warm ambient temperatures associated with a strong El Niño event occurred from July-December 1997 (Figure 2-6). The warmest discharge temperatures in OpPeriod-2 were in fall 1997 with maximum temperatures approaching 29°C (Figure 2-3b).

2.2.3 *Intertidal Temperatures*

Mean intertidal water temperatures during OpPeriod-2 were greater than ambient (delta-T values) for stations NDC-2 and -3 at north Diablo Cove and SDC-1 and -3 at south Diablo Cove (Figure 2-4). This was a continuation of the pattern evident since power plant start-up in 1985. The average of monthly mean temperatures at Diablo Cove stations during OpPeriod-2 ranged between about 2.5° and 3.5°C above ambient, with highest monthly mean temperatures between about 5° and 6°C above ambient. Monthly mean intertidal water temperatures of approximately 1°C above ambient were recorded at Field's Cove (FC-3) during OpPeriod-2 (Figure 2-4).

2.2.4 *Subtidal Temperatures*

Temperatures at subtidal stations NDC-3 and SDC-1 in Diablo Cove, and FC-1 at Field's Cove were above ambient during the power plant operation period (Figure 2-5). The average of monthly mean temperatures among stations in Diablo Cove ranged between about 2.5° and 4.0°C above ambient with

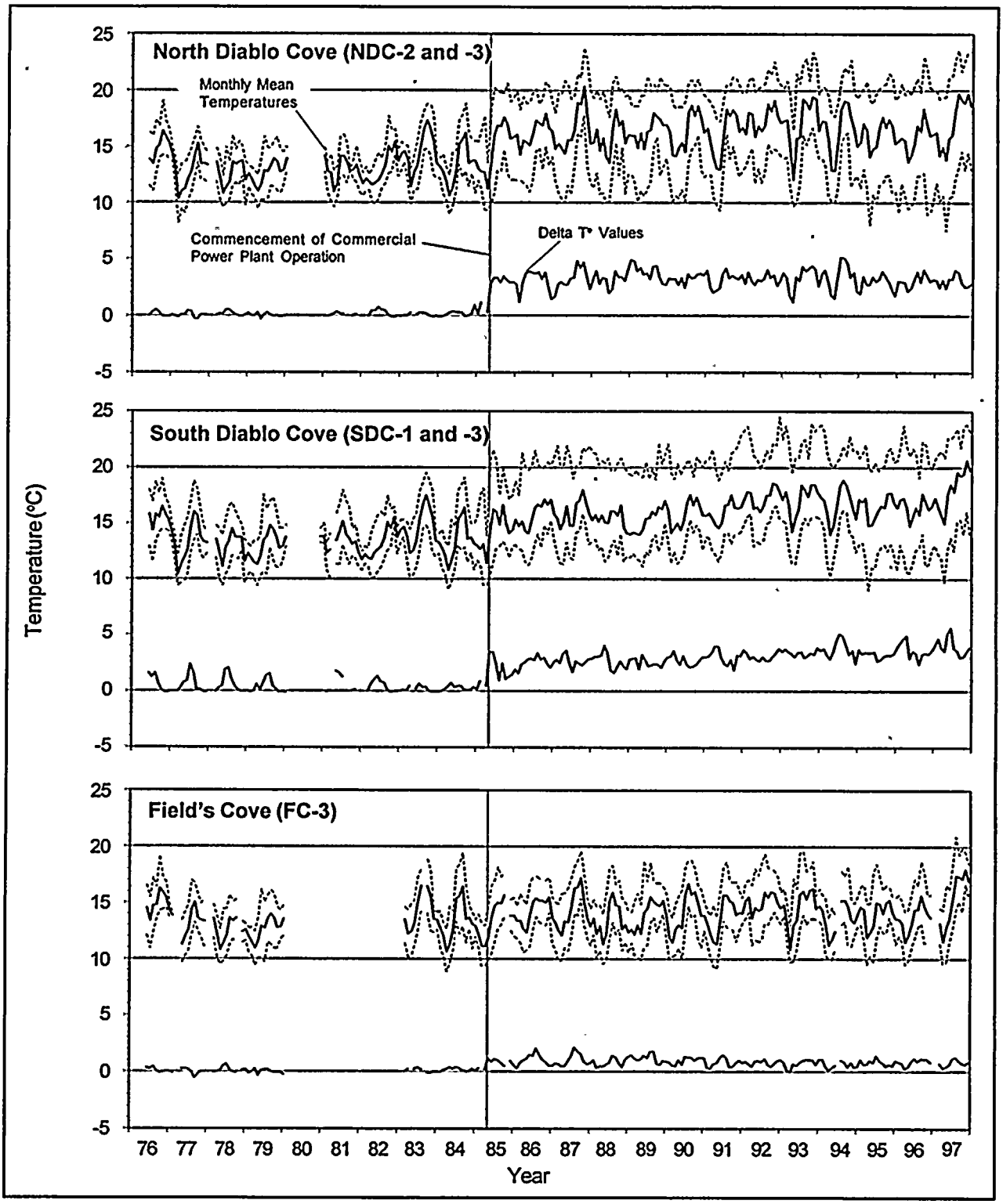


Figure 2-4. Intertidal (+0.6 m MLLW) monthly mean water temperatures and delta T° values for north and south Diablo Cove and Field's Cove. Dotted lines denote the highest and lowest 99 percentile values of recordings taken every 20 minutes in each month. Ambient temperatures were recorded at NC-2 and SC-1.

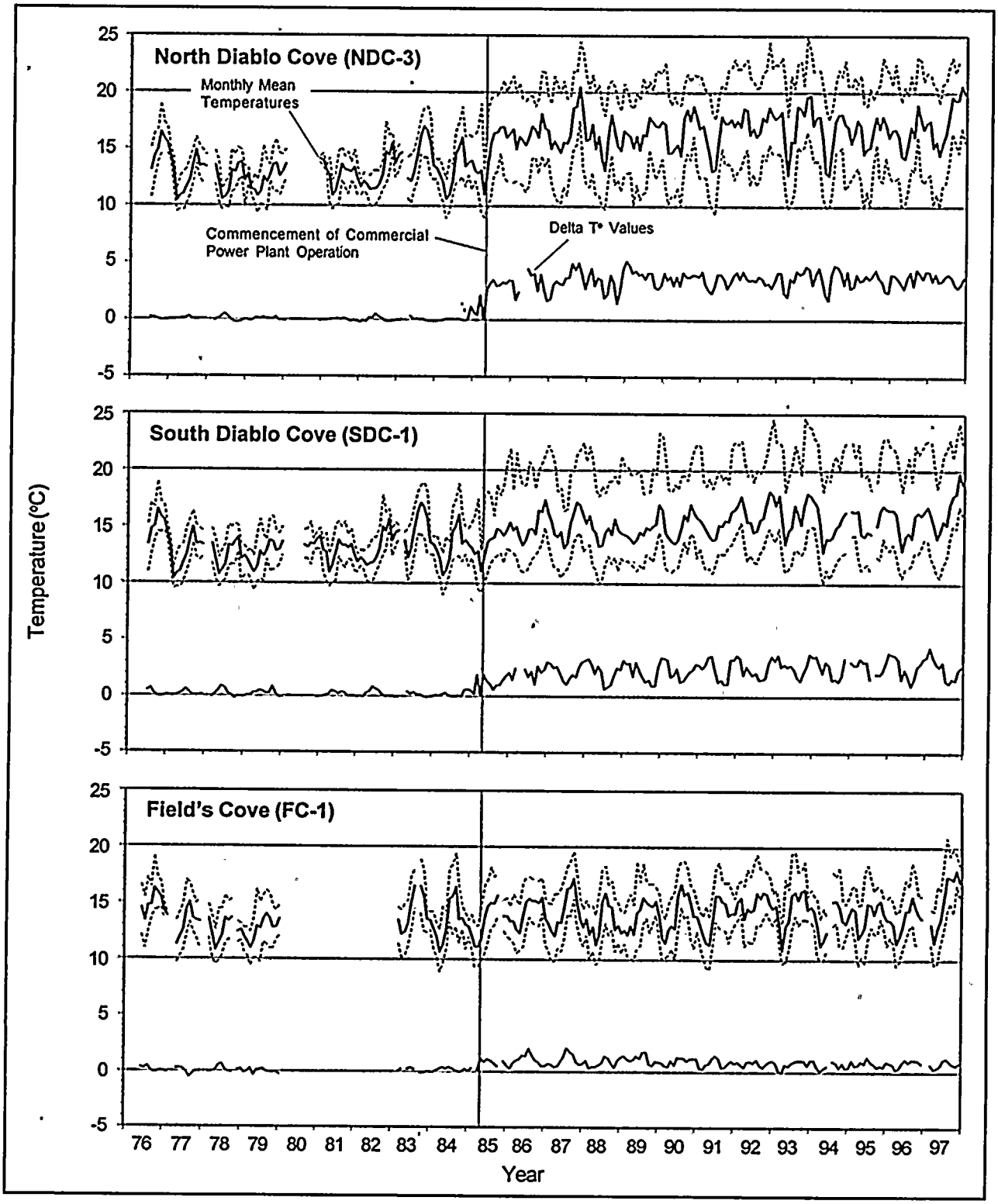


Figure 2-5. Subtidal (-3 m MLLW) monthly mean temperatures and delta T° values for north and south Diablo Cove and Field's Cove. Dotted lines denote the highest and lowest 99 percentile values of recordings taken every 20 minutes during each the month. Ambient temperatures were recorded at NC-1 and SC-1.

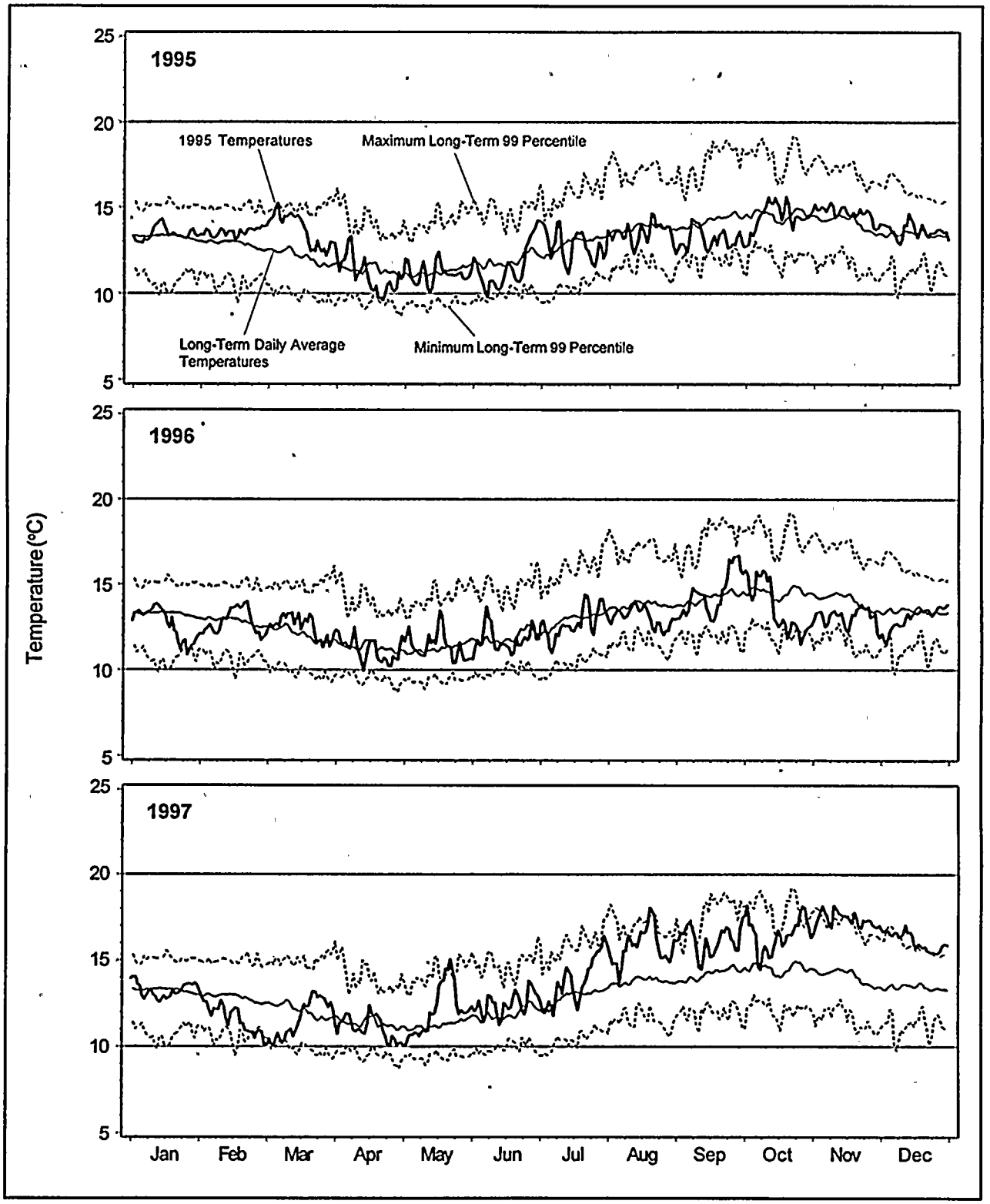


Figure 2-6. Subtidal (-3 m MLLW) ambient temperatures (daily means) from 1995 to 1997 compared with long-term average temperatures (1976-1994). Dotted lines denote the highest and lowest 99 percentile values from all daily recordings taken every 20 minutes (1976-1994). Data were averaged from stations NC-1 and SC-1.

highest monthly mean temperatures between about 4° and 5°C above ambient. Water temperatures at south Diablo Cove during OpPeriod-2 varied more between seasons than temperatures in north Diablo Cove (Figure 2-5). Mean monthly subtidal delta T°s for OpPeriod-2 were approximately 1°C at the subtidal Field's Cove station FC-1.

2.3 Dissolved Oxygen Monitoring

Dissolved oxygen (DO) concentrations were measured at subtidal stations quarterly as part of the DCPP RWMP. The purpose of the following section is to report DO data collected from the third quarter of 1995 through the last quarter of 1997.

2.3.1 Methods

Dissolved oxygen was measured near the surface, mid-depth, and bottom of the water column at eight stations (Figure 2-2) from August 1995 to November 1997. The depth of the stations ranged from -3 m to -4 m MLLW. Biological and temperature data were also collected at these stations as part of other monitoring tasks.

During the reporting period, DO concentrations were determined using two methods. From August 1995 to August 1996, water samples were collected in the field and then chemically tested in the laboratory. From November 1996 through November 1997, concentration measurements were taken *in situ* with a calibrated, submersible oxygen sensor integrated with a conductivity-temperature-depth (CTD) unit. The CTD unit improved the overall efficiency of collecting and processing of dissolved oxygen data. DO concentrations from both methods were reported in units of mg/l of dissolved oxygen.

Water samples for chemical testing were collected from a boat positioned over the designated station. Two Frautschy bottles were lowered on a hydrographic wire to the middle and bottom depths at each station. The middle depth was 1.5 m below the surface for -3 m MLLW stations and 2.0 m below the surface for -4 m MLLW stations. Collection depths for bottom samples were at -3 m or -4 m below the surface for shallow and deep stations, respectively. Water for surface samples was collected in a bucket and carefully transferred to 300 ml glass sample bottles. After immediate preservation with alkaline iodide azide and manganous sulfate, samples were transported to the onsite oceanography laboratory and processed using the modified Winkler titration method (Standard Methods, 1975).

The CTD method measured continuous DO concentrations from surface to bottom with a submersible oxygen sensor. The calibrated sensor was deployed from a boat and allowed to equilibrate for at least three minutes just below the water surface. The CTD unit was then lowered slowly to the bottom and retrieved. Digital data from each station were stored within the memory of the CTD unit. After all stations were sampled, the unit was returned to the laboratory where the data were downloaded into a

computer. The data were processed with computer software in accordance with procedures. Average DO concentrations were calculated from 0.5 m depth ranges within the surface, mid-depth, and bottom of the water column to allow comparison with data collected using the titration method.

Data were summarized quarterly for each station by calculating the mean DO concentration from surface, midwater and bottom depths. Annual means were calculated from quarterly means and compared qualitatively among stations.

2.3.2 Results

Annual mean DO concentrations varied among years (Table 2-2). Lowest annual mean concentrations were measured at most stations in 1995 and highest concentrations were measured in 1997. A complete listing of all data by depth and quarter is presented in Appendix B.

Note: The DO data summarized in this section differ from previously reported data in quarterly NPDES monitoring reports. DO concentrations from December 1996 through December 1997 that were computed from the submersible oxygen sensor data were later found to be incorrect. Most of the previously reported concentrations were considerably lower than the corrected concentrations. There were two reasons for the differences: 1) the computer software used to process the CTD data incorrectly included instrument equilibration data into the calculations of surface DO, and; 2) concentrations were incorrectly reported in units of mg/kg instead of mg/l. All data were corrected by applying a revised processing algorithm. The procedures controlling the DO data processing were amended and approved for use on August 8, 1998. Verbal notification of these changes was made to Michael Thomas of the RWQCB on June 5, 1998. The RWQCB requested that a description of the event and its resolution be included in this report in lieu of submitting a five day report.

2.3.3 Discussion

The lower levels of dissolved oxygen at discharge stations as compared to control stations were probably due, in part, to the inverse relationship between temperature and gas saturation levels in seawater. As the temperature of seawater increases, the saturation level for dissolved gasses decreases. Since all Diablo Cove stations were exposed to increased temperatures from the thermal discharge, they would be expected to have lower gas saturation levels and consequently lower dissolved oxygen concentrations. DO concentrations at the Diablo Rock station were consistently lowest of all stations sampled. This

Table 2-2. Summary of quarterly dissolved oxygen concentrations (mg/l) at subtidal stations. Data from Field's Cove and Diablo Cove stations are compared to control stations as absolute and percent differences. Data for the third quarter of 1997 were not collected due to scheduling difficulties; see discussion included in the NPDES annual summary report issued February 27, 1998 (PG&E Letter DCL-98-513) for corrective actions implemented. For complete data by depth and quarter refer to Appendix Table B-1.

	1995			1996			1997		
Station/Depth	Annual station mean (n=2)	Difference from control mean	Percent difference	Annual station mean (n=4)	Difference from control mean	Percent difference	Annual station mean (n=3)	Difference from control mean	Percent difference
Controls									
NC 1 -3m	7.83	–	–	8.14	–	–	8.90	–	–
SC 1 -3m	7.37	–	–	8.23	–	–	9.31	–	–
control mean	7.60	–	–	8.19	–	–	9.11	–	–
Field's Cove									
FC 1 -3m	7.27	-0.33	-4.34	7.78	-0.41	-5.01	8.23	-0.87	-9.55
Diablo Cove									
NDC 3 -3m	7.15	-0.45	-5.92	7.62	-0.57	-6.96	7.89	-1.22	-13.39
NDC 4 -4m	7.02	-0.58	-7.63	7.32	-0.87	-10.62	7.74	-1.36	-14.93
NDC 6 -3m	6.75	-0.85	-11.18	7.05	-1.14	-13.92	6.98	-2.13	-23.38
SDC 1 -3m	7.10	-0.50	-6.58	7.29	-0.90	-10.99	7.77	-1.34	-14.71
SDC 4 -4m	6.85	-0.75	-9.87	7.07	-1.12	-13.68	7.36	-1.75	-19.21

station also had the warmest temperatures of the benthic stations monitored in Diablo Cove, averaging approximately 4°C above ambient during OpPeriod-1 (Tenera, Inc., 1997).

PG&E and the RWQCB currently are discussing whether to continue DO monitoring.

3.0 Intertidal Studies

Intertidal algae, invertebrates, and fishes were studied at DCPP since 1976. The primary intertidal community study (horizontal band transects, HBT) collected data on the abundance of algae and invertebrates. Counts of intertidal fishes and the presence of algal and invertebrate taxa (regardless of abundance) were collected in vertical band transect (VBT) surveys. Black abalone were counted with other invertebrates in the HBT study and were also studied in Diablo Cove using a random sampling method.

3.1 Intertidal Algae

3.1.1 Introduction

Intertidal algae were sampled at DCPP since 1976. Changes through June 1995 showed decreases in total algal cover, diversity, and mean species richness (number of taxa) at stations in Diablo Cove, Field's Cove, and South Diablo Point relative to controls following power plant start-up (TEMP Analysis Report, Tenera, Inc., 1997). Losses of algal cover resulted in increased amounts of bare rock that became colonized with ephemeral algae. Changes were greatest in magnitude at Diablo Cove stations, while changes at Field's Cove and South Diablo Point stations were reduced in magnitude.

The purpose of this section is to describe any new or continuing effects of the power plant discharge on intertidal algae through analysis of the HBT data collected at Diablo Cove, Field's Cove and control locations from 1995 through 1997. New or continuing effects were determined by comparing the results of OpPeriod-2 to results from OpPeriod-1.

3.1.2 Methods

Sampling Methods

All HBT stations were located on substrate consisting of mixed bedrock and boulders with varying amounts of cobble and sand (Figure 3-1). Stations consisted of ten 1 m^2 quadrats located along upper and lower elevation 'transects' at the +0.3 m (1 ft) and +0.9 m (3 ft) tide levels. The substrate at one station near the discharge (SDC-1) was mostly cobble at the +0.9 m MLLW level and therefore, the upper

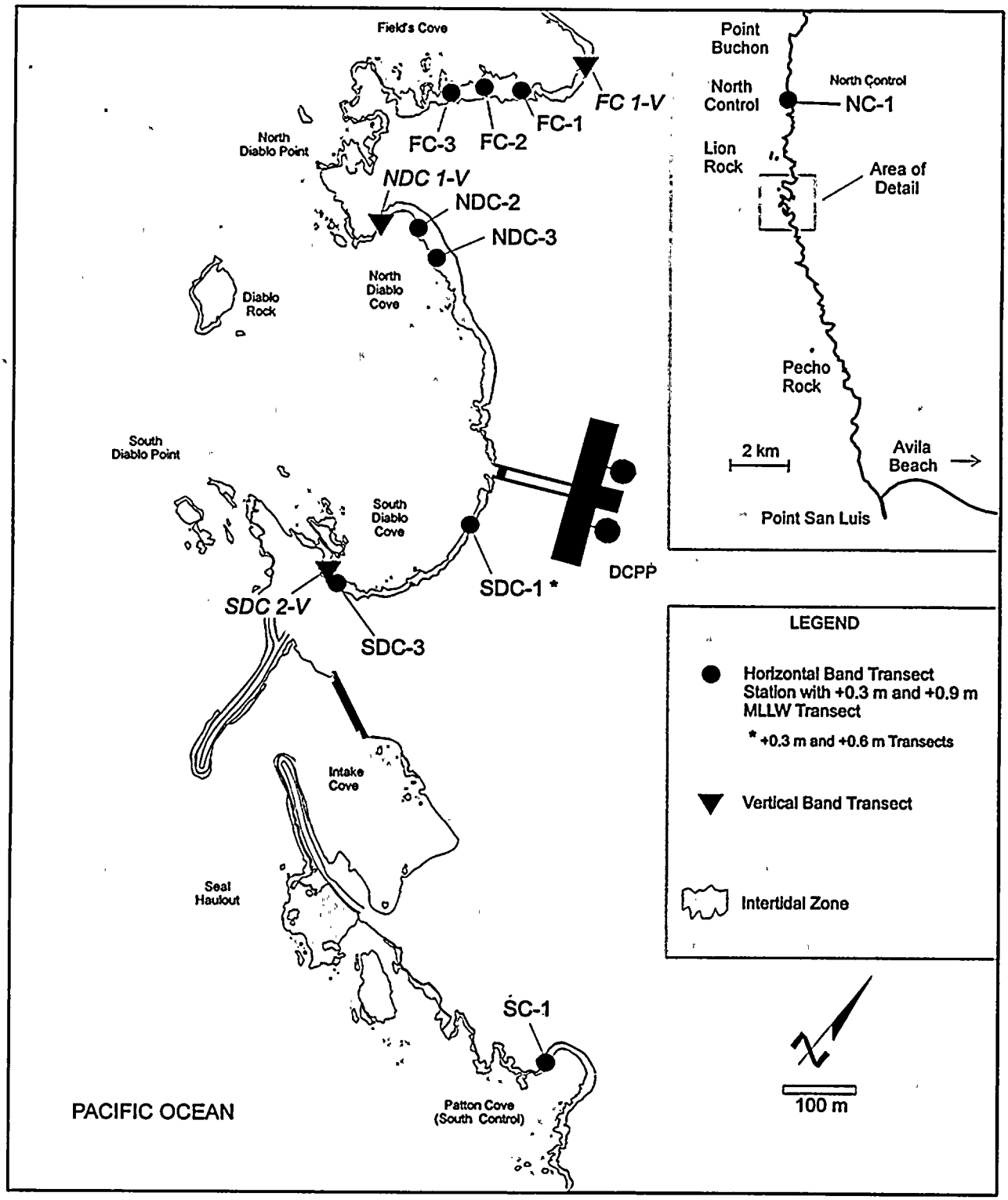


Figure 3-1. Intertidal horizontal and vertical band transect stations.

transect at that station was located at +0.6 m MLLW. Stations were sampled at two-month intervals from 1977 through 1988. From 1989 through June 1995, two summer and two winter surveys were done annually to sample annual maximum and minimum abundances. After June 1995, the sampling frequency was reduced to two surveys per year for stations in Diablo Cove, and remained at four times per year for stations in Field's Cove. All stations were sampled during a survey within 30 days.

Sampling was conducted during low tide by attaching a 30 m line to permanent stainless steel posts located at the transect origin, middle, and terminus. Ten 1 m^2 permanent quadrats were sampled along each transect. The quadrats tilted from horizontal based on the amount of substrate relief within the quadrat. Abundances of organisms were estimated within each quadrat.

Percent cover was estimated for all algal species and bare substrate in each quadrat. The quadrat was a 1 m^2 plastic frame subdivided into sixteen $^1/_{16}$ m^2 sub-quadrats. Algal coverage was recorded as the number of $^1/_{16}$ m^2 sub-quadrats covered by the species and the number of 9th sub-units of $^1/_{16}$ m^2 additionally covered (determined by visually separating a $^1/_{16}$ m^2 sub-quadrat into nine sub-units). Overstory species were estimated first and then moved aside to allow estimates to be made of understory and crustose species. These data were later converted to percent cover for analysis. Total algal cover per quadrat often exceeded 100% due to overlayering of multiple taxa.

Analysis Methods

Abundances of individual taxa were analyzed for changes between OpPeriod-1 and OpPeriod-2 using ANOVA (Section 1.3). The algal taxa analyzed were those that formed 99% of the total algal cover (excluding crustose taxa) in the two periods at the Diablo Cove and Field's Cove stations. Bare rock, mean species richness (numbers of taxa/m^2), total algal cover, and diversity were also analyzed. Data from stations SDC-1 and -3 in south Diablo Cove were included in the ANOVA tests. These stations were excluded from analysis in the TEMP Analysis Report because they were severely impacted by the 1982/83 winter storms. Continued sampling showed a pattern of increases in algal abundance at these stations. Because many algal species common to the area repopulated SDC-1 and -3, the data from these stations were included in the analyses. The upper and lower elevation transect data were analyzed separately.

Correspondence analysis was used to contrast patterns of change in algal assemblages among areas (Section 1.3). The taxa that comprised the majority (95%) of the total abundance and that occurred in at least 10% of the surveys were used in analyses for each elevation. Data for these taxa were combined

into annual means for the stations in the following four areas: Control (NC-1 and SC-1), north Diablo Cove (NDC-2 and -3), south Diablo Cove (SDC-1 and -3), and Field's Cove (FC-3).

Statistical results from this report were compared with statistical results from the TEMP Analysis Report to identify new or continuing effects of the discharge. The comparisons were qualitative because the analyses and study designs differed between the two reports. The TEMP Analysis Report used data from three control stations to derive differences for one Field's Cove station, three north Diablo Cove stations, one south Diablo Cove station, and three South Diablo Point stations. The analyses in this report used data from two control stations to derive differences for three Field's Cove stations, two north Diablo Cove stations, and two south Diablo Cove stations. The comparisons for individual taxa and other data sets were grouped into three general categories described in Section 1.3.

3.1.3 Results

Upper Elevation Transects (+0.9 m MLLW)

There were few changes in algal abundance and composition between OpPeriod-1 and OpPeriod-2 at the two upper elevation control transects (Figure 3-2a). There were declines in the abundance of *Endocladia muricata* (red alga) and increases in *Mastocarpus papillatus* (red alga) and *Pelvetia compressa* (brown rockweed).

Changes in total algal cover (excluding crustose taxa) relative to the control transects were greatest between the pre-operation period and OpPeriod-1 for all areas (Figures 3-3a, 3-4a, and 3-5a). The magnitude of these changes was greatest at the north Diablo Cove stations (Figure 3-3a). Many of the changes observed in OpPeriod-2 were continuations of the trends noted in OpPeriod-1. Total algal cover (excluding crustose taxa) did not change substantially between the two periods, because many of the relative increases were offset by decreases in other taxa. For example, *Endocladia muricata* increased in relative abundance while *Pelvetia compressa* decreased (Figure 3-3a).

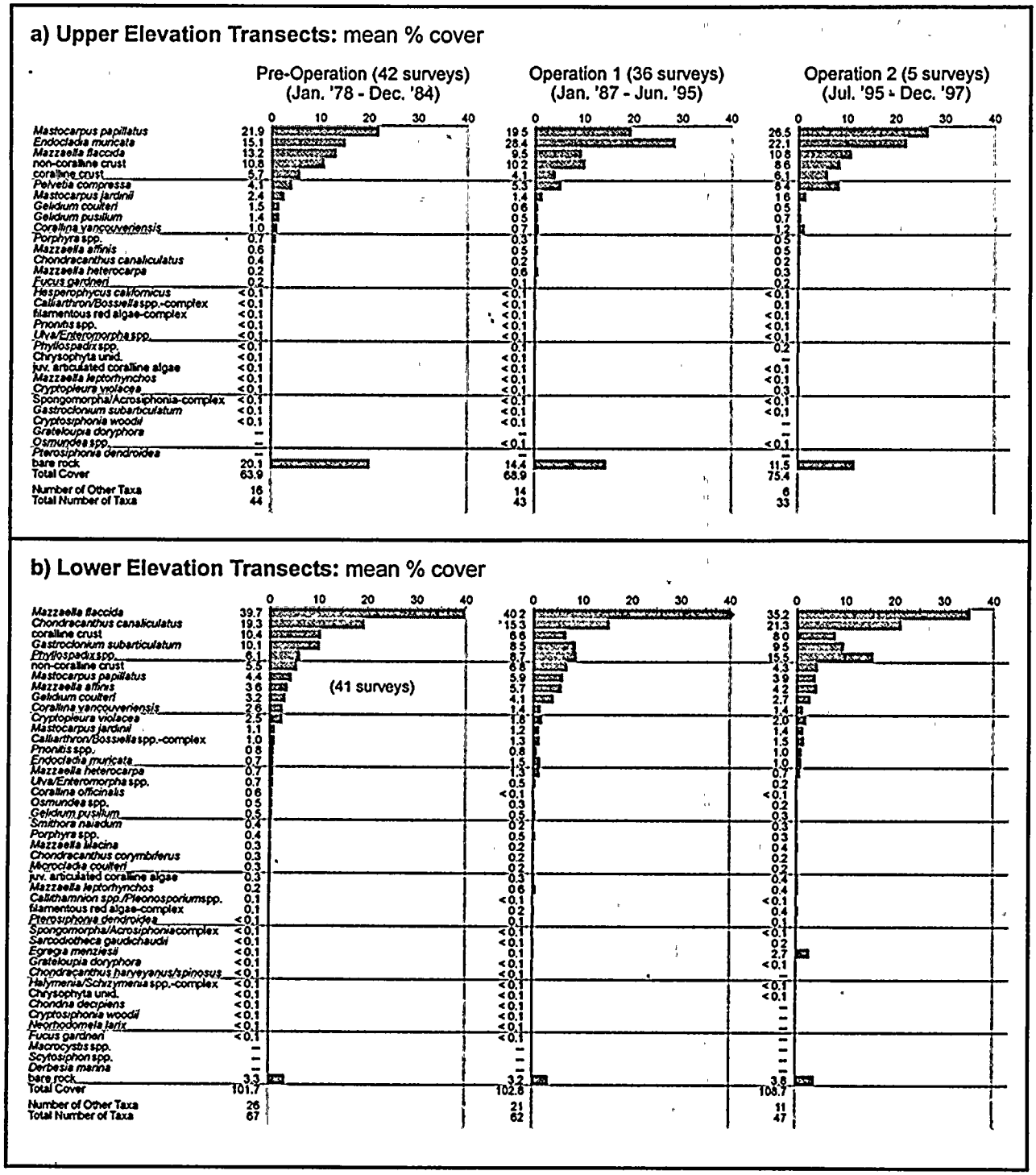


Figure 3-2. Intertidal algal abundances at control horizontal band transects. Study period means (bars and values) were calculated from pooled survey means from NC-1 and SC-1. A dashed line for abundance in all three study periods indicates the taxon occurred at Diablo Cove or Field's Cove transects but not at control transects.

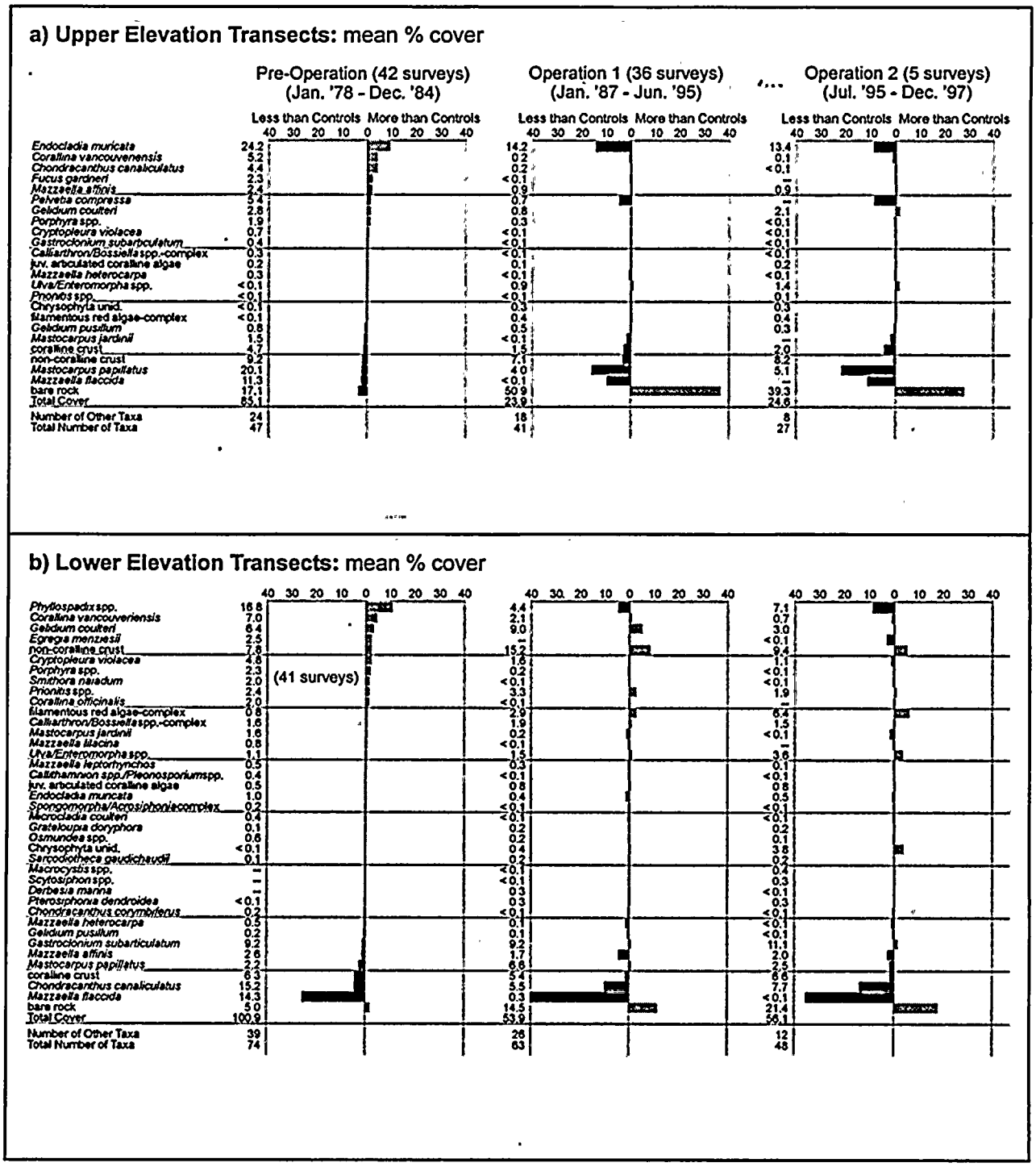


Figure 3-3. Differences in intertidal algal cover between north Diablo Cove and control transects. Study period means (values shown in columns) were calculated from pooled survey means from NDC-2 and -3. Differences in cover from control abundances (shown as bars) were calculated by subtracting the north Diablo Cove period means from corresponding control period means shown in Figure 3-2.

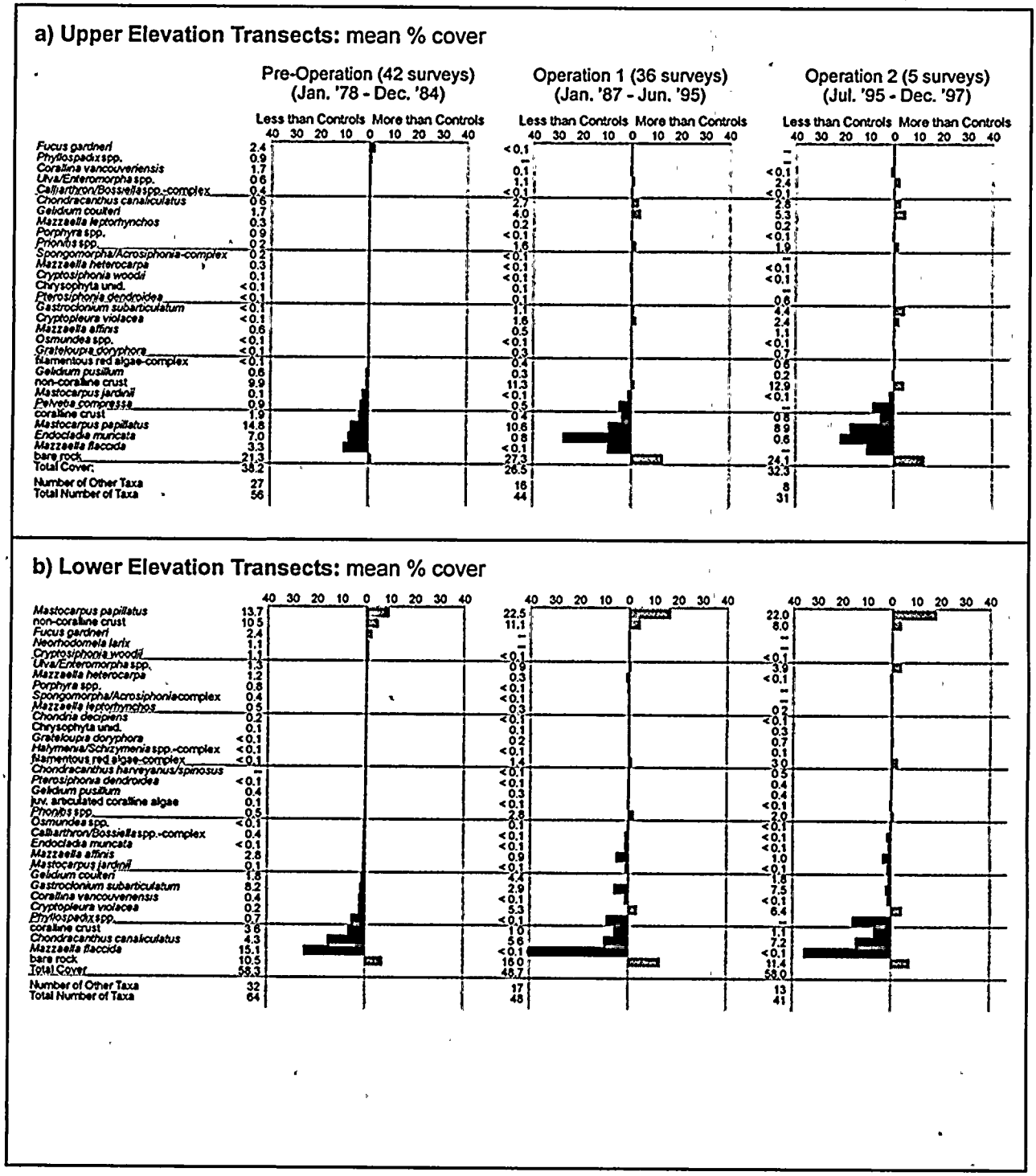


Figure 3-4. Differences in intertidal algal cover between south Diablo Cove and control transects.Study period means (values shown in columns) were calculated from pooled survey means from SDC-1 and -3. Differences in cover from control abundances (shown as bars) were calculated by subtracting the south Diablo Cove period means from corresponding control period means shown in Figure 3-2.

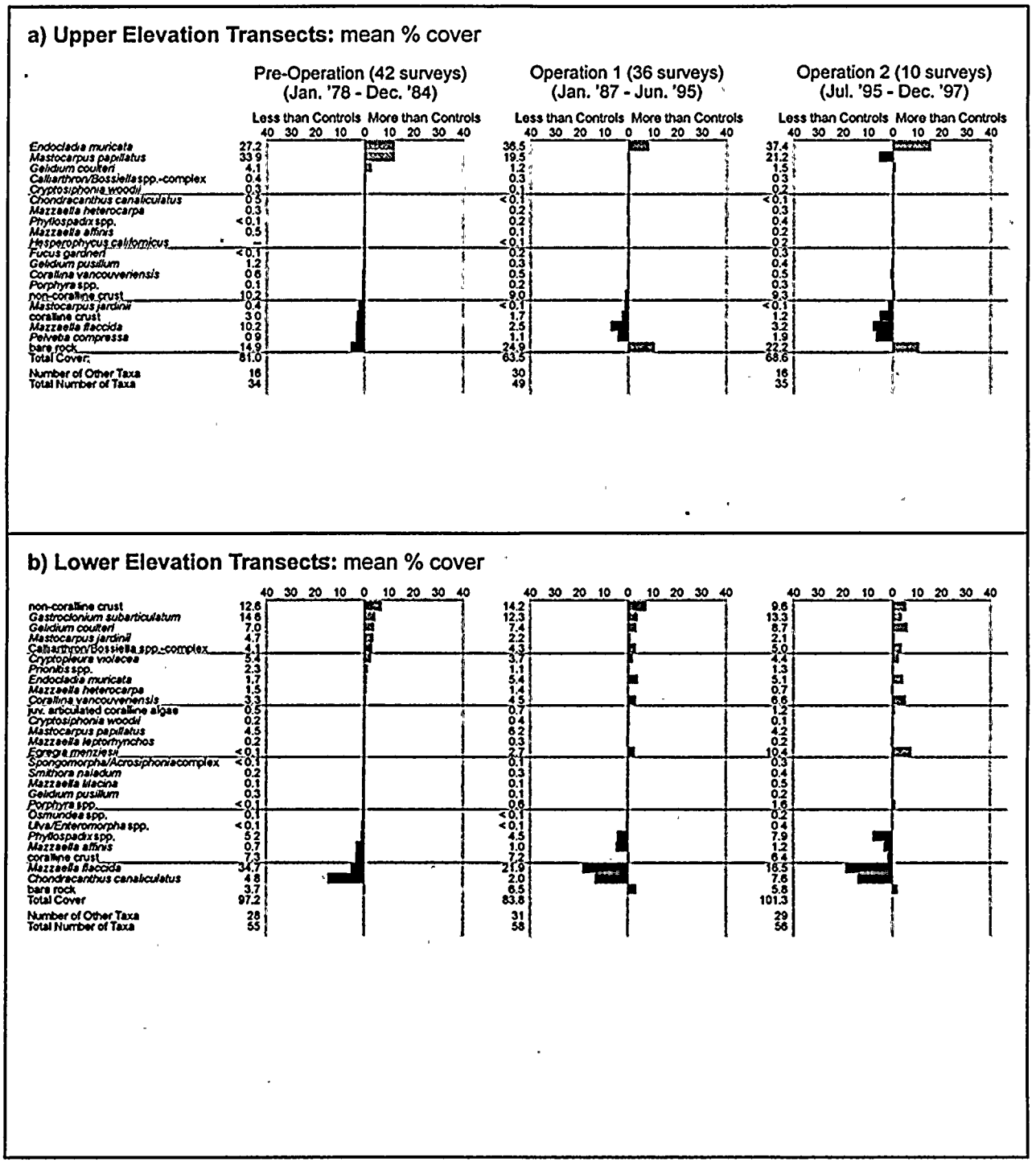


Figure 3-5. Differences in intertidal algal cover between Field's Cove and control transects.Study period means (values shown in columns) were calculated from pooled survey means from FC-1, -2, and -3. Differences in cover from control abundances (shown as bars) were calculated by subtracting the Field's Cove period means from corresponding control period means shown in Figure 3-2.

ANOVA results for 31 algal taxa, bare rock, mean species richness, diversity, and total algal cover are presented in Table 3-1. The analyses detected similar numbers of increases and decreases in abundance between periods for both Diablo and Field's coves. Changes differed in magnitude between the two coves and resulted in a small increase in total algal cover in Field's Cove. Increases were also detected in mean species richness and diversity in Field's Cove. In contrast, total algal cover and diversity remained unchanged in Diablo Cove. A large relative change in *Mastocarpus papillatus* in Field's Cove (Figure 3-5a) was not statistically significant (Table 3-1). Several taxa in both Diablo and Field's coves had inconclusive results due to low or highly variable abundances (Figures 3-3a, 3-4a, and 3-5a).

The first two CA axes accounted for over 80% of the variation in the data for the 13 taxa analyzed (Figure 3-6a). Control and Field's Cove stations remained relatively similar to one another in species composition and abundance over time (Figure 3-6a). This was largely due to the species that remained abundant in both areas (e.g., *Pelvetia compressa*, *Mastocarpus papillatus*, and *Mazzaella flaccida*) (Figure 3-6b). Variation on the first axis contrasted control and Field's Cove annual scores with scores for north and south Diablo Cove stations. The second axis separated annual scores for north Diablo Cove from the other areas. This separation among groups was based on the species scores for *Ulva/Enteromorpha* spp. and filamentous red algae, that occurred in greatest abundance in north Diablo Cove. *Gastroclonium subarticulatum*, *Chondracanthus canaliculatus*, *Prionitis* spp, and *Cryptopleura violacea* accounted for a large part of the similarity among the south Diablo Cove annual survey scores and the differences from scores for north Diablo Cove, Field's Cove, and control areas. The results also showed that variation among years at north and south Diablo Cove stations was greater than the variation at control or Field's Cove stations.

Lower Elevation Transects (+0.3 m MLLW)

There were few changes in algal composition between periods at the control area lower sampling elevations (Figure 3-2b). Increases did occur in surfgrass (*Phyllospadix* spp.), feather boa kelp (*Egregia menziesii*), and total algal cover between OpPeriod-1 and OpPeriod-2.

Changes in algal abundances (mostly declines) relative to controls were greatest between the pre-operation period and OpPeriod-1 for all areas (Figures 3-3b, 3-4b, and 3-5b). Although most changes were greatest at the north Diablo Cove stations (Figure 3-3b), many of the same changes occurred in south Diablo Cove and Field's Cove (Figures 3-4b and 3-5b). Decreases in algal cover occurred in all three areas.

Table 3-1. ANOVA results for changes relative to control for intertidal algae at +0.9 m MLLW elevation horizontal band transects. Data were tested between OpPeriod-1 and OpPeriod-2. Taxa with significant increases or decreases had test results with $p \leq 0.10$. The 'no change' category included taxa with a $p > 0.10$ and a test power to detect a 50% change ≥ 0.70. Results were inconclusive if $p > 0.10$ and test power was < 0.70. 'Winter', 'summer' or 'station (number)' indicate that significant effects were restricted to a specific season or number of stations.

Taxon	Diablo Cove comparisons				Field's Cove comparisons			
	Increase	Decrease	No Change	Results Inconclusive	Increase	Decrease	No Change	Results Inconclusive
Calliarthron/Bossiella		summer				summer		
Chondracanthus canaliculatus			X[1]					X
Chrysophyta unid.				X[2]				X[3]
Corallina vancouveriensis		X				X		
coralline algae (crustose)		X				X		
coralline algae (juv. articulated)				X				X
Cryptopleura violacea		X				X		
Cryptosiphonia woodii[2]				X	X			
Endocladia muricata	X				X			
filamentous red algae - complex[2]				X[3]				X[3]
Fucus gardneri		X				X		
Gastroclonium subarticulatum	station (1)							X
Gelidium coulteri	summer				summer			
Gelidium pusillum				X	summer			
Grateloupia doryphora[2]				X				X
Hesperophycus harveyanus				X[3]				X[2]
Mastocarpus jardinii		X						X
Mastocarpus papillatus		X					X	
Mazzaella affinis	summer							X
Mazzaella flaccida		X						X
Mazzaella heterocarpa	winter				X			
Mazzaella leptorhynchos				X				X
non-coralline crustose algae	summer				summer			
Osmundea spp.				X[2]				X[3]
Pelvetia compressa		X				X		
Phyllospadix spp.		X				X		
Porphyra spp.		summer						X
Prionitis spp.	X						X	
Pterosiphonia dendroidea	win/sta(1)							X[3]
Spongomorpha/Acrosiphonia				X				X[4]
Ulva/Enteromorpha	summer							X
Bare rock			X[1]				X	
Total algal cover			X		X			
Algal diversity			X[1]		station (1)			
Species richness	station (1)				station (1)			
TOTAL (individual taxa only)	9	11	1	10	6	7	2	16
Percent of total taxa	29	36	3	32	19	23	6	52

[1] Designated as 'no change' due to significant increases and decreases at neighboring stations.
[2] Absent at control transects.
[3] May be designated as 'no change' due to continued absence at control and cove transects.
[4] Absent at cove transects.

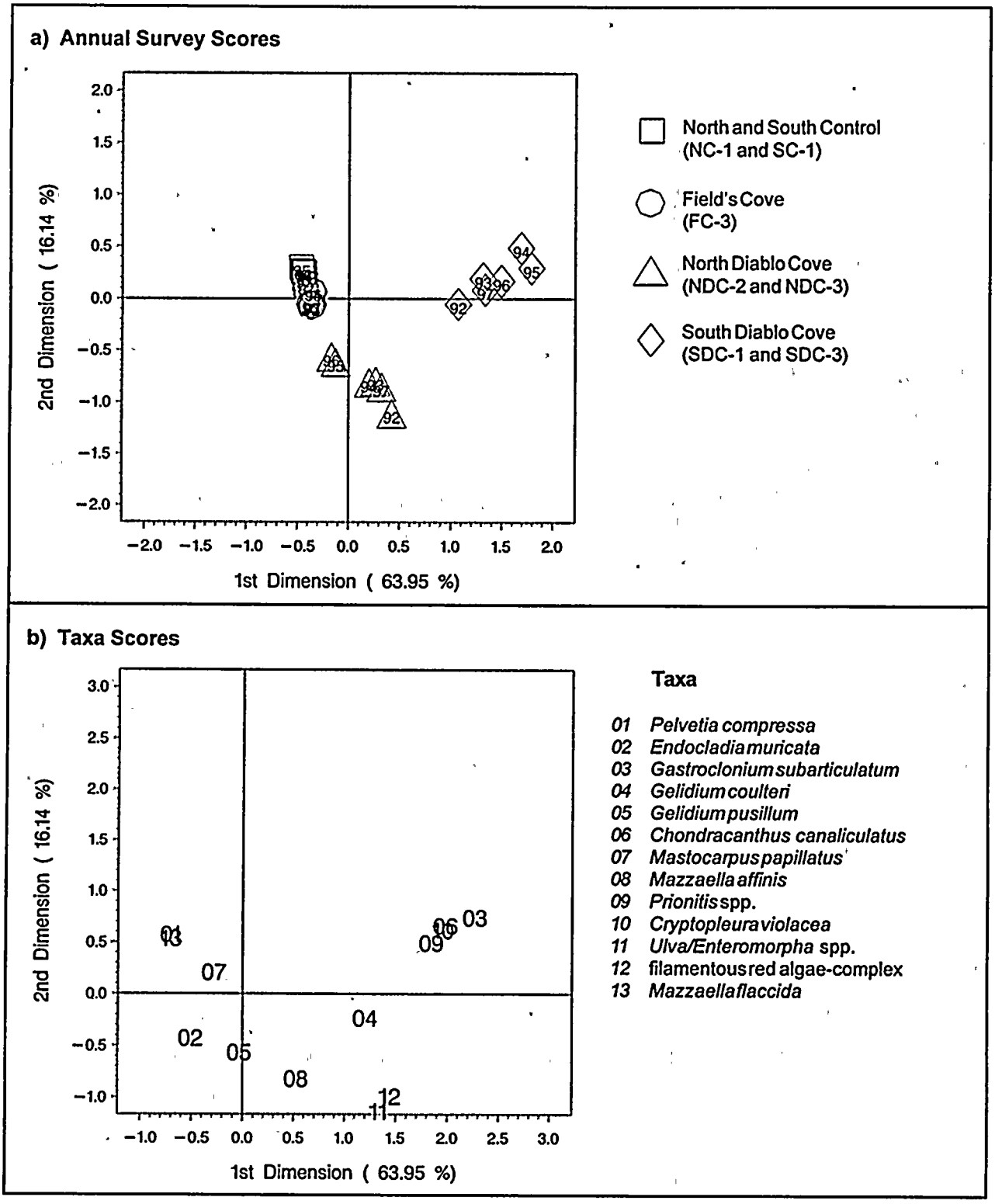


Figure 3-6. First and second dimension scores from correspondence analysis of intertidal algae data from the +0.9 m MLLW transects.

Many of the changes observed in the OpPeriod-2 were continuations of the trends noted in OpPeriod-1, although many of the decreases were reduced in magnitude. Consequently, total algal cover in Diablo Cove and Field's Cove increased between the two periods. Taxa that increased in relative abundance included ephemeral algae, such as filamentous red algae, green sea lettuce (*Ulva/Enteromorpha* spp.), and benthic chained diatoms (Chrysophyta). Surfgrass (*Phyllospadix* spp.) decreased in relative abundance. The feather boa kelp (*Egregia menziesii*) and the red alga *Mazzaella flaccida* declined in Diablo Cove, but increased in relative abundance in Field's Cove.

ANOVA results for 44 algal taxa showed that more taxa increased than decreased in abundance relative to control stations (Table 3-2). The changes resulted in a statistically significant increase in total algal cover in both coves, and a statistically significant increase in mean species richness in Field's Cove. The increase in algal cover in Diablo Cove was the result of increases in ephemeral algae. Increases in ephemeral algae were less in Field's Cove than in Diablo Cove. Increases in algal cover in Field's Cove were more likely the result of increases in perennial taxa including *Mazzaella flaccida* and feather boa kelp. Several taxa in both Diablo and Field's coves had inconclusive results due to low or highly variable abundances (Table 3-2).

The first two CA axes accounted for over 75% of the variation in the data for the 17 taxa analyzed (Figure 3-7a). Annual survey scores showed that the lower elevation control and Field's Cove stations remained relatively similar to each other in species composition and abundance. These scores are contrasted with annual scores for both north and south Diablo Cove stations that showed greater interannual variation. Species scores show that the control and Field's Cove areas were characterized by a variety of red algal species, feather boa kelp (*Egregia menziesii*) and surfgrass (*Phyllospadix* spp.) (Figure 3-7b). The second axis contrasted north and south Diablo Cove scores. Survey scores for north Diablo Cove were characterized by species scores for filamentous red algae and *Ulva/Enteromorpha* spp., while the south Diablo Cove station scores were characterized by species scores for *Mastocarpus papillatus* and *Cryptopleura violacea*. The results also showed that variation among years at north and south Diablo Cove stations was greater than the variation at control or Field's Cove stations.

Select Species Abundances

Endocladia muricata is an example of a common upper intertidal alga that decreased in abundance at north Diablo Cove stations after power plant start-up. This species increased near the end of OpPeriod-1 and continued to increase through OpPeriod-2 (Figure 3-8). Abundances at south Diablo Cove and

Table 3-2. ANOVA results for changes relative to control for intertidal algae at +0.3 m MLLW elevation horizontal band transects. Data were tested between OpPeriod-1 and OpPeriod-2. Taxa with significant increases or decreases had test results with $p \leq 0.10$. The 'no change' category included taxa with a $p > 0.10$ and a test power to detect a 50% change ≥ 0.70. Results were inconclusive if $p > 0.10$ and test power was < 0.70. 'Winter', 'summer' or 'station (number)' indicate that significant effects were restricted to a specific season or number of stations.

Taxon	Diablo Cove comparisons				Field's Cove comparisons			
	Increase	Decrease	No Change	Results Inconclusive	Increase	Decrease	No Change	Results Inconclusive
Calliarthron/Bossiella			X				X	
Callithamnion/Pleonosporium		X[1]						X
Chondracanthus canaliculatus		summer					X	
Chondracanthus corymbiferus		X						X
Chond. harveyanus / C. spinosus	sta (2)[2]							X[3]
Chondria decipiens	station (1)							X[3]
Chrysophyta unid.	X				X			
Corallina officinalis				X	winter			
Corallina vancouveriensis			X				X	
coralline algae (crustose)			X			X		
coralline algae (juv. articulated)			X		winter			
Cryptopleura violacea			X				X	
Cryptosiphonia woodii			X			summer		
Derbesia marina				X[1]				X[3]
Egregia menziesii		summer			X			
Endocladia muricata	winter					summer		
filamentous red algae - complex	station (2)							X
Fucus gardneri[3]				X				X
Gastroclonium subarticulatum	station (3)							X
Gelidium coulteri		station (3)			station (1)			
Gelidium pusillum	station (1)				X			
Grateloupia doryphora				X				X
Halymenia/Schizymenia				X				X
Macrocystis spp.	sta (2)[2]							X[3]
Mastocarpus jardinii		X			station (1)			
Mastocarpus papillatus		station (2)						X
Mazzaella affinis	X				X			
Mazzaella flaccida			X[4]		X			
Mazzaella heterocarpa	winter						X[5]	
Mazzaella leptorhynchos			X		winter			
Mazzaella lilacina				X	X			
Microcladia coulteri				X				X
Neorhodomela larix[3]				X				X
non-coralline crustose algae			X[6]					X
Osmundea spp.		X			station (1)			
Phyllospadix spp.		station (3)				station (1)		
Porphyra spp.	summer				summer			
Prionitis spp.		station (2)			station (1)			
Pterosiphonia dendroidea	station (1)					station (1)		
Sarcodiotheca gaudichaudii		X				summer		
Scytosiphon spp.	sum/sta(1)							X[3]
Smithora naiadum				X				X
Spongomorpha/Acrosiphonia				X	summer			
Ulva/Enteromorpha	X				X			

(table continued)

Table 3-2 (continued). ANOVA results for changes relative to control for intertidal algae at +0.3 m MLLW elevation horizontal band transects.

Taxon	Diablo Cove comparisons				Field's Cove comparisons			
	Increase	Decrease	No Change	Results Inconclusive	Increase	Decrease	No Change	Results Inconclusive
Bare rock				X				X
Total algal cover	winter				X			
Algal diversity			X				X	
Species richness			X[5]		station			
TOTAL (individual taxa only)	14	11	9	10	16	6	5	17
Percent of Total	32	25	20	23	36	14	11	39

[1] Absent at cove transects.

[2] Absent at control transects.

[3] May be designated as 'no change' due to continued absence at control and cove transects.

[4] Statistical test with 'increase' in *Mazzaella flaccida* resulted from continued absent and near-absent populations being compared to a slightly declining control population. Result recategorized as 'no change'.

[5] Designated as 'no change' due to significant increases and decreases between seasons.

[6] Designated as 'no change' due to significant increases and decreases at neighboring stations.

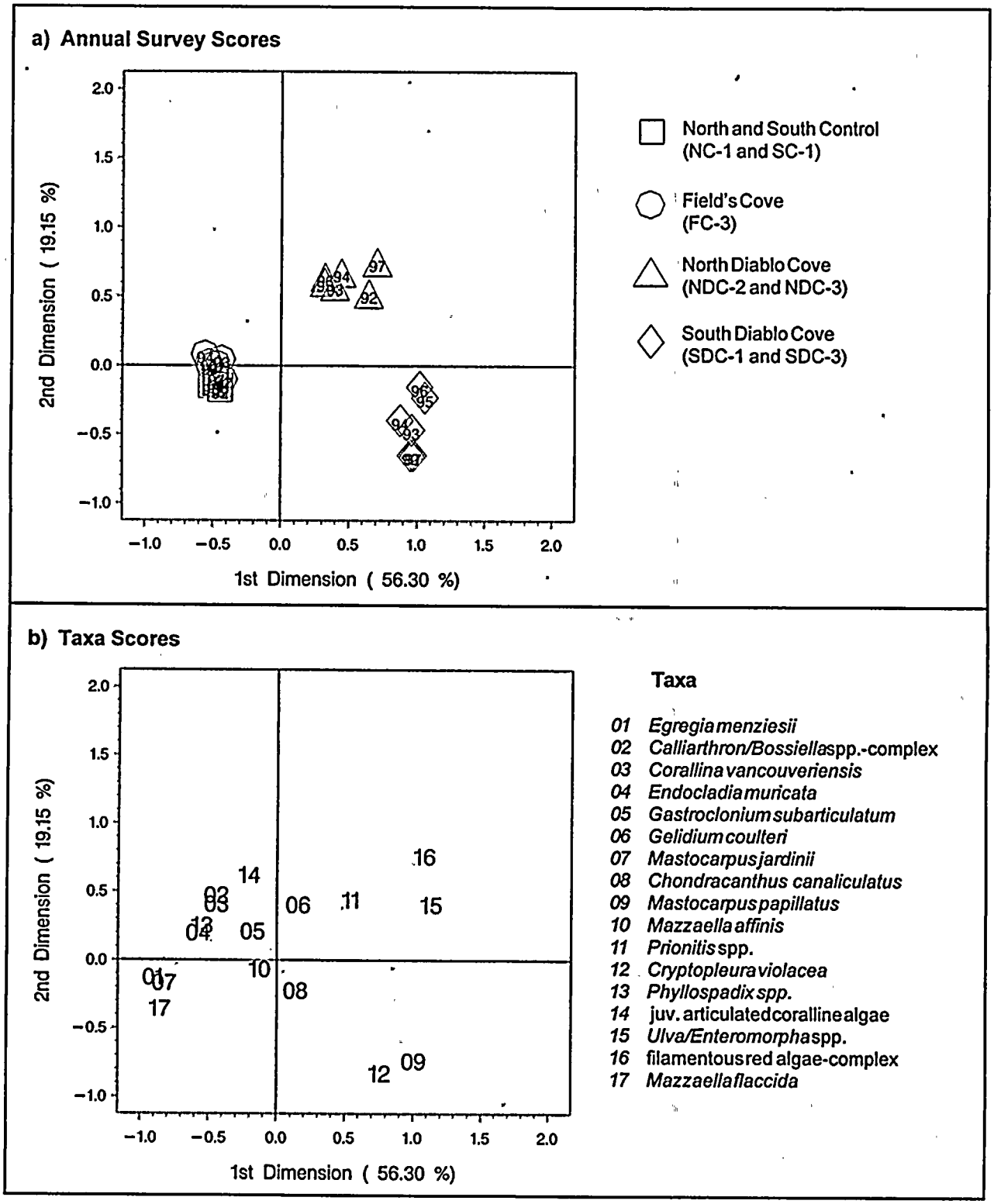


Figure 3-7. First and second dimension scores from correspondence analysis of intertidal algae data from the +0.3 m MLLW transects.

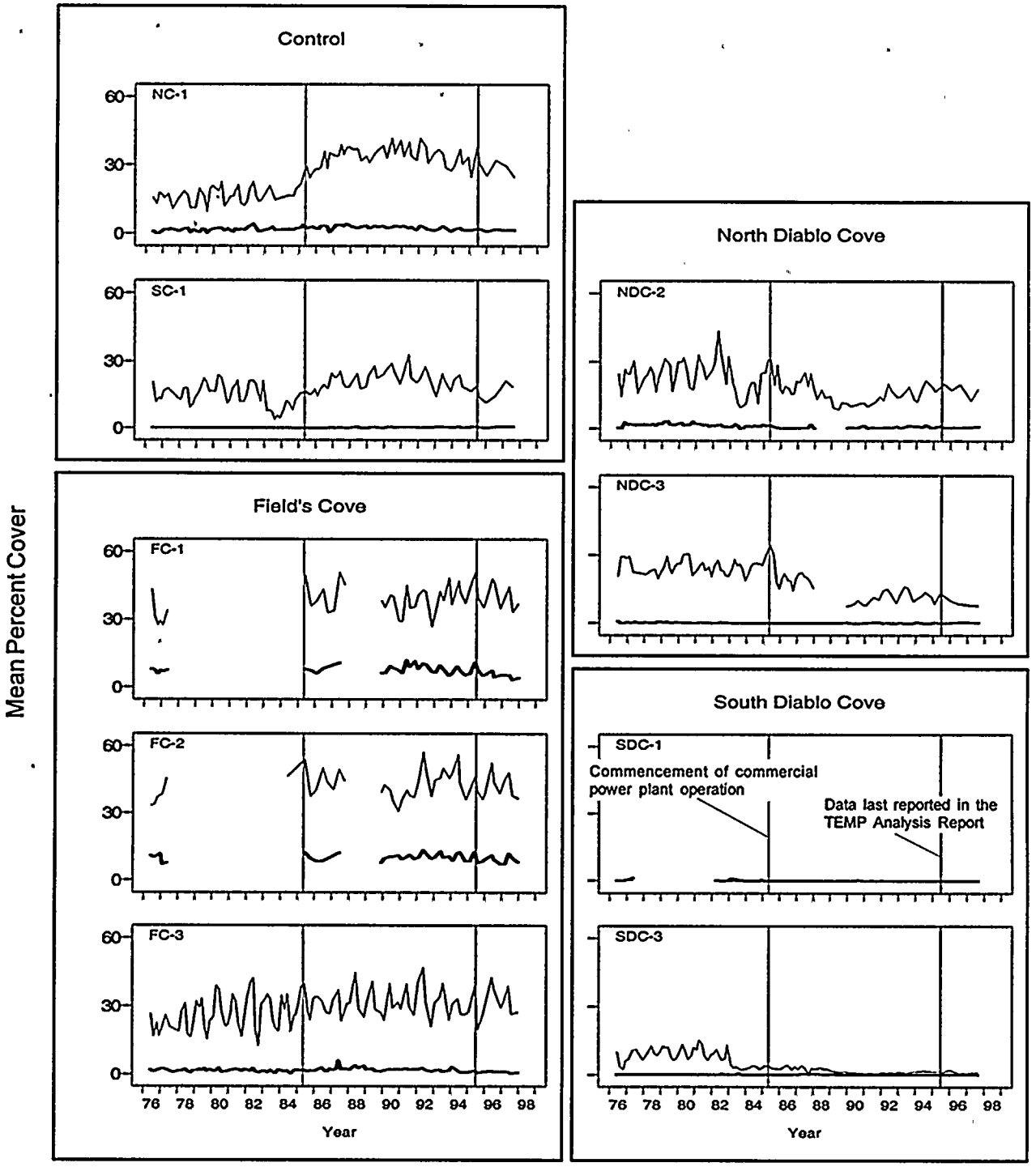


Figure 3-8. *Endocladia muricata* changes in cover at the horizontal band transect stations. Wide and thin lines represent +0.3 m and +0.9 m transect data, respectively.

Field's Cove stations remained unchanged between the two periods. However, decreases in abundance between periods at the control stations resulted in a statistically significant relative increase in this species for Diablo Cove and Field's Cove (Table 3-1).

Rockweed (*Pelvetia compressa*) is a common upper intertidal alga that declined to very low abundances at Diablo Cove stations in OpPeriod-1 and remained at low abundance through OpPeriod-2 (Figure 3-9). The abundance of this species increased at the Field's Cove stations. However, increases at control transects resulted in a significant relative decline for Diablo Cove and Field's Cove (Table 3-1).

Surfgrass (*Phyllospadix* spp.) occurs in the shallow subtidal and low intertidal. Large increases in abundance occurred at control area stations (Figure 3-10). Although increases also occurred at one Diablo Cove station and both Field's Cove stations, the greater increases in control areas resulted in statistically significant relative decreases for both coves (Table 3-1).

Mazzaella flaccida remained in low abundance in Diablo Cove during both OpPeriod-1 and OpPeriod-2 (Figure 3-11). However, abundances at the control stations decreased slightly between periods resulting in a statistically significant relative increase in Diablo Cove (Table 3-1).

3.1.4 Discussion

Comparisons with statistical results from the TEMP Analysis Report showed that taxa with increased magnitude of effects between periods occurred at both sampling elevations in Diablo Cove, but were more common at the upper sampling elevation (Tables 3-3 and 3-4). At the upper sampling elevation in Diablo Cove there were 11 taxa with effects of increasing magnitude. There were 9 taxa with reversals of decreasing trends or new changes with increases in abundance. These two groups of taxa were approximately equal and probably contributed to the absence of any changes in algal cover between periods. At the lower sampling elevation in Diablo Cove taxa with continued increased effects and taxa with reversals were approximately equal in number. The large number of taxa with increases in abundance between periods resulted in a small, but statistically significant increase in total algal cover (Table 3-4).

New, previously undescribed effects occurred in a number of taxa in Diablo Cove at both sampling elevations (Tables 3-3 and 3-4). All involved small changes in algae of low abundance, except *Gastroclonium subarticulatum* (Figures 3-3 and 3-4). *Gastroclonium* was one of the more abundant species that increased in relative abundance in the low elevation transects in Diablo Cove.

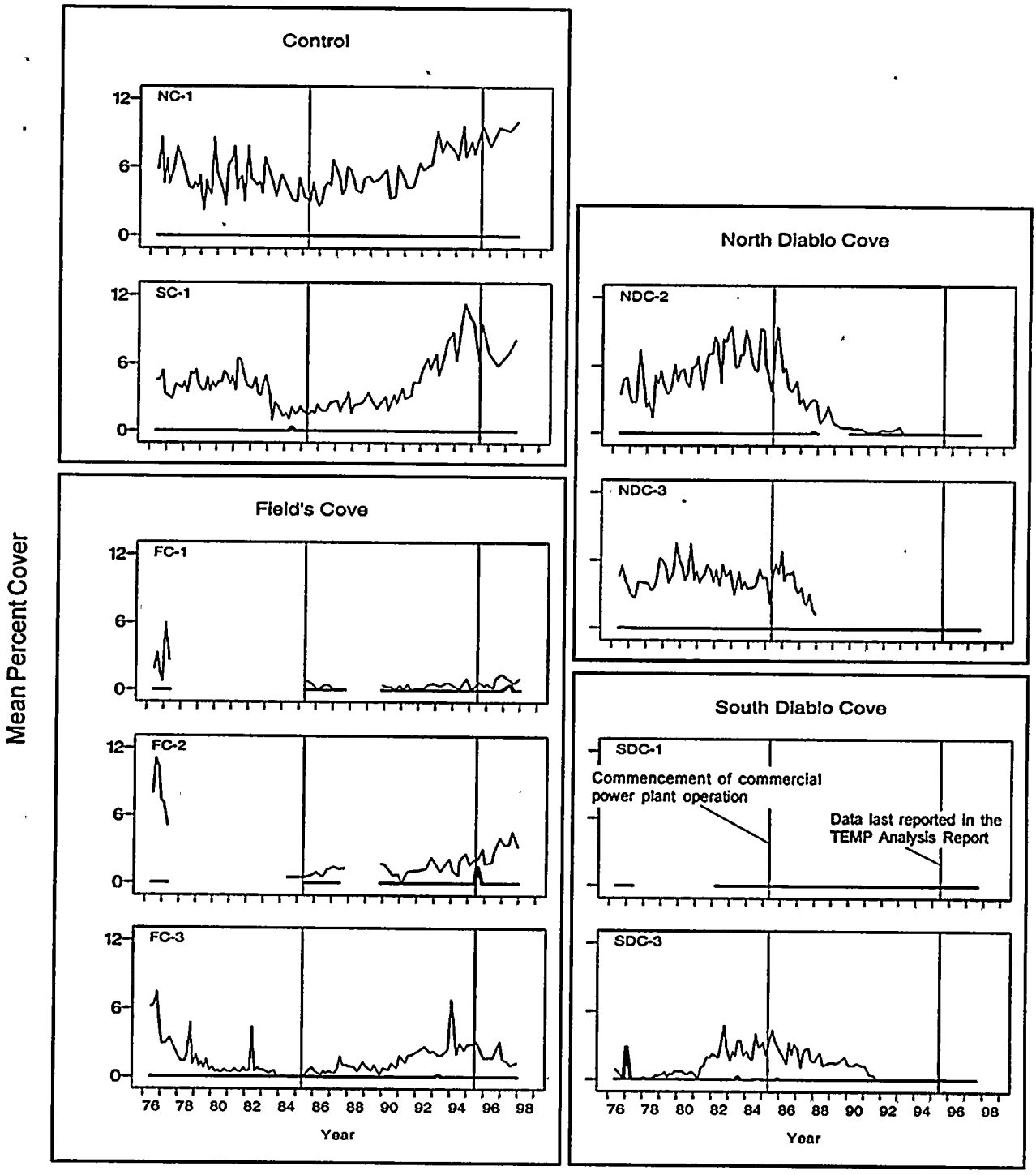


Figure 3-9. *Pelvetia compressa* changes in cover at the horizontal band transect stations. Wide and thin lines represent +0.3 m and +0.9 m transect data, respectively.

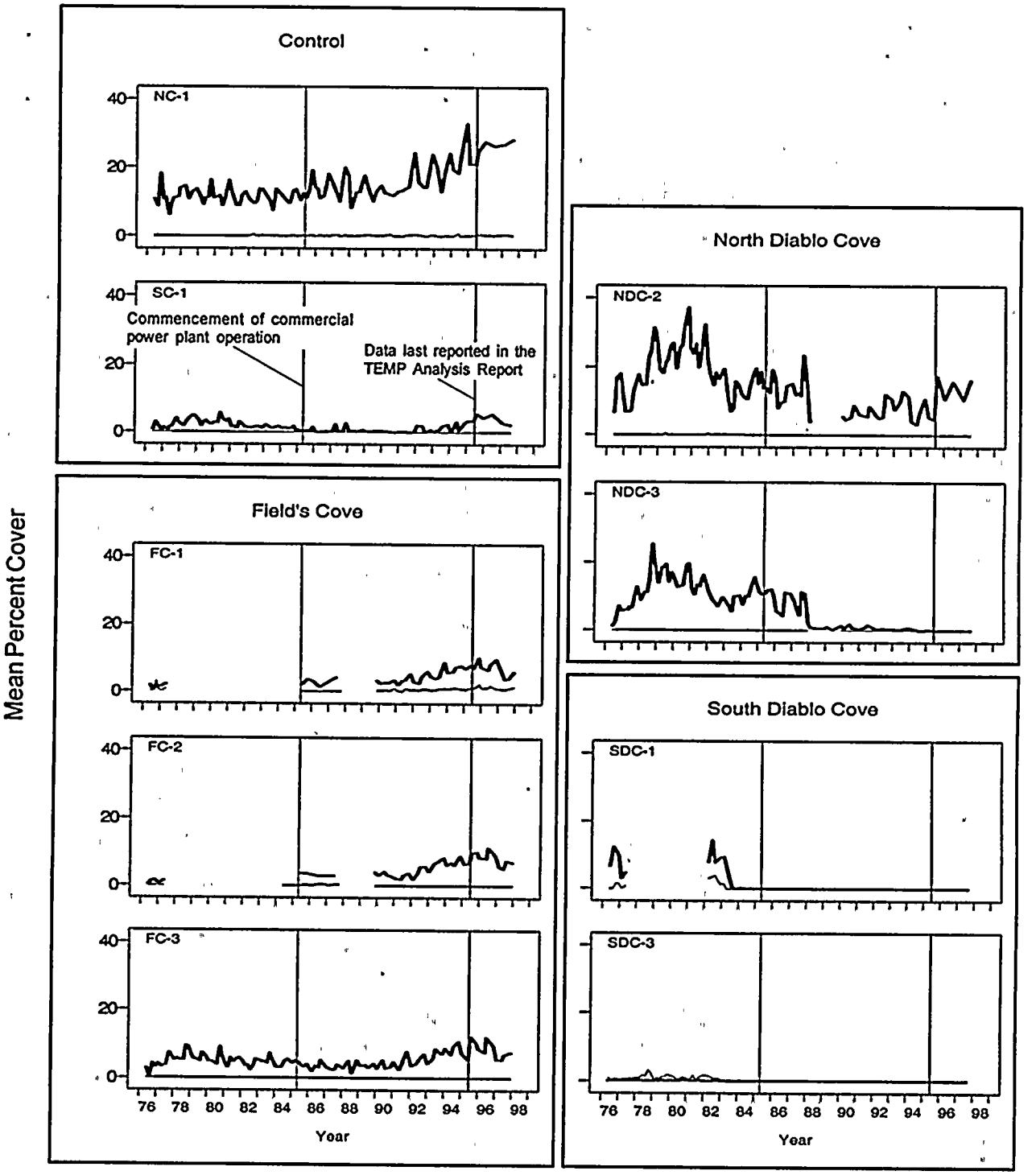


Figure 3-10. *Phyllospadix* spp. changes in cover at the horizontal band transect stations. Wide and thin lines represent +0.3 m and +0.9 m transect data, respectively.

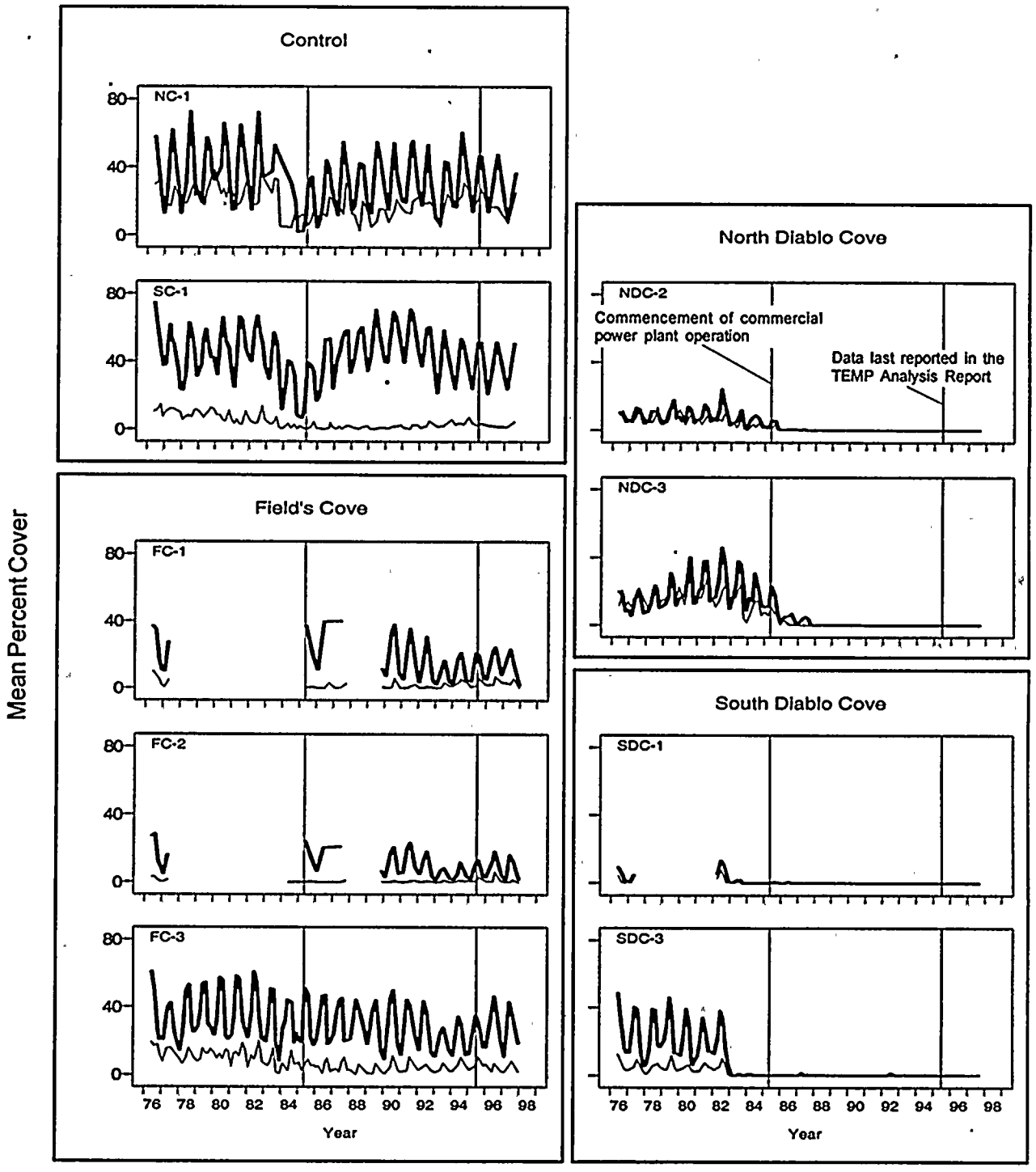


Figure 3-11. *Mazzaella flaccida* changes in cover at the horizontal band transect stations. Wide and thin lines represent +0.3 m and +0.9 m transect data, respectively.

Table 3-3. Comparison of discharge effects between OpPeriod-1 and OpPeriod-2 in intertidal algae at +0.9 m MLLW horizontal band transects. Statistically significant results are compared between the TEMP Analysis Report (Tables 3-5 and 3-6) and this report (Table 3-1).

Category and Taxon	TEMP Analysis Report Results (OpPeriod-1)	Report Results (OpPeriod-2)	
	Diablo Cove, Field's Cove, South Diablo Point	Diablo Cove	Field's Cove
CONTINUED DISCHARGE EFFECTS			
Magnitude of effect unchanged			
bare rock	increase	no change	no change
Chondracanthus canaliculatus	decrease	no change	inconclusive
Magnitude of effect increased			
Calliarthron/Bossiella	decrease	decrease	decrease
Corallina vancouveriensis	decrease	decrease	decrease
coralline crustose algae	decrease	decrease	decrease
Cryptopleura violacea	decrease	decrease	decrease
Fucus gardneri	decrease	decrease	decrease
Gelidium pusillum	increase	inconclusive	increase
Mastocarpus jardinii	decrease	decrease	inconclusive
Mastocarpus papillatus	decrease	decrease	no change
Mazzaella flaccida	decrease	decrease	inconclusive
Pelvetia compressa	decrease	decrease	decrease
Phyllospadix spp.	decrease	decrease	decrease
Porphyra spp.	decrease	decrease	inconclusive
Effect or trend in abundance reversed			
Cryptosiphonia woodii	decrease	inconclusive	increase
Endocladia muricata	decrease	increase	increase
Gastroclonium subarticulatum	decrease	increase	inconclusive
Gelidium coulteri	decrease	increase	increase
Mazzaella affinis	decrease	increase	inconclusive
Mazzaella heterocarpa	decrease	increase	increase
Algal diversity	decrease	no change	increase
Species richness	decrease	increase	increase
Total algal cover	decrease	no change	increase
NEW DISCHARGE EFFECTS			
Previously undescribed effects			
non-coralline crustose algae	no change	increase	increase
Prionitis spp.	inconclusive	increase	no change
Pterosiphonia dendroidea	not tested	increase	inconclusive
Ulva/Enteromorpha	inconclusive	increase	inconclusive
NO DISCHARGE EFFECTS			
None			

Table 3-4. Comparison of discharge effects between OpPeriod-1 and OpPeriod-2 in intertidal algae at +0.3 m MLLW horizontal band transects. Statistically significant results are compared between the TEMP Analysis Report (Tables 3-5 and 3-6) and this report (Table 3-2).

	TEMP Analysis Report Results (OpPeriod-1)	Report Results (OpPeriod-2)	
Category and Taxon	Diablo Cove, Field's Cove, South Diablo Point	Diablo Cove	Field's Cove
CONTINUED DISCHARGE EFFECTS			
Magnitude of effect unchanged			
Calliarthron/Bossiella	decrease	no change	no change
Corallina vancouveriensis	decrease	no change	no change
Non-coralline crustose algae	increase	no change	inconclusive
Algal diversity	decrease	no change	no change
Magnitude of effect increased			
Callithamnion/Pleonosporium	decrease	decrease	inconclusive
Chondracanthus canaliculatus	decrease	decrease	no change
coralline juv. articulated algae	increase	no change	increase
filamentous red algae - complex	increase	increase	inconclusive
Phyllospadix spp.	decrease	decrease	decrease
Ulva/Enteromorpha.	increase	increase	increase
Effect or trend in abundance reversed			
Chrysophyta unid.	decrease	increase	increase
Corallina officinalis	decrease	inconclusive	increase
coralline crustose algae	increase	no change	decrease
Mazzaella affinis	decrease	increase	increase
Mazzaella flaccida	decrease	no change	increase
Mazzaella heterocarpa	decrease	increase	no change
Mazzaella leptorhynchos	decrease	no change	increase
Mazzaella lilacina	decrease	inconclusive	increase
Porphyra spp.	decrease	increase	increase
Species richness	decrease	no change	increase
Total algal cover	decrease	increase	increase
Contrasting trends between DC and FC			
Egregia menziesii	decrease	decrease	increase
Endocladia muricata	decrease	increase	decrease
Gelidium coulteri	increase	decrease	increase
Mastocarpus jardinii	decrease	decrease	increase
Prionitis spp.	increase	decrease	increase
NEW DISCHARGE EFFECTS			
PREVIOUSLY UNDESCRIBED			
Chondracanthus corymbiferus	inconclusive	decrease	inconclusive
Chond. harveyanus/C. spinosus	not tested	increase	inconclusive
Chondria decipiens	not tested	increase	inconclusive
Cryptosiphonia woodii	not tested	no change	decrease
Gastroclonium subarticulatum	inconclusive	increase	inconclusive
Gelidium pusillum	inconclusive	increase	increase
Macrocystis spp.	not tested	increase	inconclusive
Mastocarpus papillatus	no change	decrease	inconclusive
Osmundea spp.	no change	decrease	increase
Pterosiphonia dendroidea	not tested	increase	decrease
Sarcodiotheca gaudichaudii	not tested	decrease	decrease
Scytosiphon spp.	not tested	increase	inconclusive
Spongomorpha/Acrosiphonia	inconclusive	inconclusive	increase
NO DISCHARGE EFFECTS			
Cryptopleura violacea	no change	no change	no change

In comparison to Diablo Cove, Field's Cove had fewer previously undescribed effects. The numbers of taxa with reversals of previous decreasing trends were also greater in Field's Cove at the lower sampling elevation. Both results indicate that discharge effects in Field's Cove were reduced in magnitude and number compared to Diablo Cove. The number of reversals may also indicate that effects in Field's Cove were temporally variable.

The reversals in both areas indicate that previous declines may not have been directly related to the discharge, but may have been related to secondary effects from the discharge. Secondary effects include factors such as competition for space and grazing. Changes in space and grazing pressures may account for how an affected species can reverse its pattern of change when discharge temperatures have not changed.

Contrasting results between Diablo and Field's coves were obtained for five taxa at the low elevation transects. One explanation may be that warmer water conditions (Diablo Cove) caused a decrease, while occasional moderate temperature elevations (Field's Cove) enhanced growth. Another possibility may be that spatial and temporal variations in these taxa are large and this can result in inconsistent findings among sampling areas.

The findings of this report substantiate the conclusions of the TEMP Analysis Report. One of the report's conclusions was that biological changes in Diablo Cove would continue for as long as the power plant operated. Continuing effects were larger in magnitude for some taxa and smaller in magnitude for others. Overall, algal cover in Diablo Cove remained reduced during OpPeriod-2 compared to pre-operation levels, although small increases were detected in certain taxa. The results also emphasized the continued effects that ephemeral algae had in defining community composition in Diablo Cove. Significant increases in many of the ephemeral algae accounted for the majority of the increase detected in total algal cover. Ephemeral algae, however, are often characteristic of disturbed habitats and experience large fluctuations in abundance. In Diablo Cove, increases in ephemeral algae occurred on rocks previously occupied by longer-lived foliose algal species.

Effects in Field's Cove were reduced in number and magnitude compared to Diablo Cove. Many taxa that were affected in Diablo Cove had inconclusive test results for Field's Cove. Discharge effects may have occurred in these taxa in Field's Cove but were difficult to detect, presumably due to diminishing effects with increasing distance from the discharge. Correspondence analyses also indicated Field's Cove was less affected by the discharge, as algal composition and abundance in Field's Cove remained similar

to control area assemblages. Increases in *Mazzaella flaccida* and the temperature-sensitive feather boa kelp (*Egregia menziesii*) in Field's Coves provided further evidence that discharge effects were confined to Diablo Cove for these two species and that Field's Cove was an area with diminishing discharge effects.

3.2 Intertidal Invertebrates

3.2.1 Introduction

Intertidal invertebrates have been studied at DCPP using the horizontal band transect method (HBT) since 1976. Following power plant start-up in 1985, invertebrate species richness at Diablo Cove stations increased at the upper intertidal elevation and did not change at the lower intertidal elevation. Invertebrate community changes were generally characterized by increases in purple urchins, limpets, barnacles, and tube-dwelling polychaetes, and declines in six-armed sea stars and black abalone. Intertidal invertebrate community structure (composition and abundance) at Diablo Cove stations continued to change in response to the discharge from 1985 until late 1992 (Tenera, Inc., 1997). Community structure changes of lesser magnitude were also detected from 1992-1995. A similar pattern of community structure variation was also evident at Field's Cove stations, though effects of the discharge decreased with distance from Diablo Cove.

The purpose of this section is to describe any new or continuing effects of the power plant discharge on intertidal invertebrates through analysis of the HBT data collected at Diablo Cove, Field's Cove and control stations in OpPeriod-2. New or continuing effects are determined by comparing the results of OpPeriod-2 to results from OpPeriod-1.

3.2.2 Methods

Sampling Methods

Invertebrates were sampled in the HBT study in the same quadrats as the algae (Section 3.1.2) at both the +0.3 m and +0.9 m MLLW tidal elevations. In five of 10 quadrats at both elevations, all species were recorded as either present or absent, and individuals larger than 2.5 cm in greatest dimension were counted. In the remaining five quadrats at both elevations, the same method was used except that select species of invertebrates were counted regardless of size. All sizes of black abalone were counted in these 10 quadrats and in an additional five quadrats. The percent cover of encrusting invertebrates, such as sponges and tunicates, was estimated using the same methods that were used for the algae (see Section 3.1.2).

Nine HBT stations were sampled and included in this analysis: NC-1 (North Control), SC-1 (South Control), north Diablo Cove stations NDC-2 and NDC-3, south Diablo Cove stations SDC-1 and SDC-3,

and Field's Cove stations FC-1, FC-2, and FC-3 (Figure 3-1). During OpPeriod-2, the Diablo Cove and control HBT stations were sampled twice annually and the Field's Cove HBT stations were sampled four times annually.

Analysis Methods

Abundances of individual taxa were analyzed for changes between OpPeriod-1 and OpPeriod-2 using ANOVA (Section '1.3). The invertebrate taxa analyzed were those that formed 99% of the total abundance in the two periods at the Diablo Cove and Field's Cove stations. Data from stations SDC-1 and -3 in south Diablo Cove were included in the ANOVA tests. These stations were excluded from analysis in the TEMP Analysis Report because they were severely impacted by the 1982/83 winter storms. The upper and lower elevation transect data were analyzed separately.

Correspondence analysis was used to contrast patterns of change in algal assemblages among areas (Section 1.3). The taxa that comprised the majority (95%) of the total abundance and that occurred in at least 10% of the surveys were used in analyses for each elevation. Data for these taxa were log(x+1) transformed to compensate for scale differences between counted and coverage taxa and then combined into annual means for the stations in the following four areas: Control (NC-1 and SC-1), north Diablo Cove (NDC-2 and -3), south Diablo Cove (SDC-1 and -3), and Field's Cove (FC-3).

Statistical results from this report were compared with statistical results from the TEMP Analysis Report to identify new or continuing effects of the discharge. The comparisons were qualitative because the analyses and study designs differed between the two reports. The TEMP Analysis Report used data from three control stations to derive differences for one Field's Cove station, three north Diablo Cove stations, one south Diablo Cove station, and three South Diablo Point stations. The analyses in this report used data from two control stations to derive differences for three Field's Cove stations, two north Diablo Cove stations, and two south Diablo Cove stations. The comparisons for individual taxa and other data sets were grouped into three general categories described in Section 1.3.

3.2.3 Results

Upper-Elevation Stations

Invertebrate community composition did not change notably between OpPeriod-1 and OpPeriod-2 at the +0.9 m MLLW (upper elevation) control HBT stations. (Figure 3-12). Numerically dominant taxa in both periods included black turban snails (*Tegula funebralis*), hermit crabs (Paguridae), and rough limpets

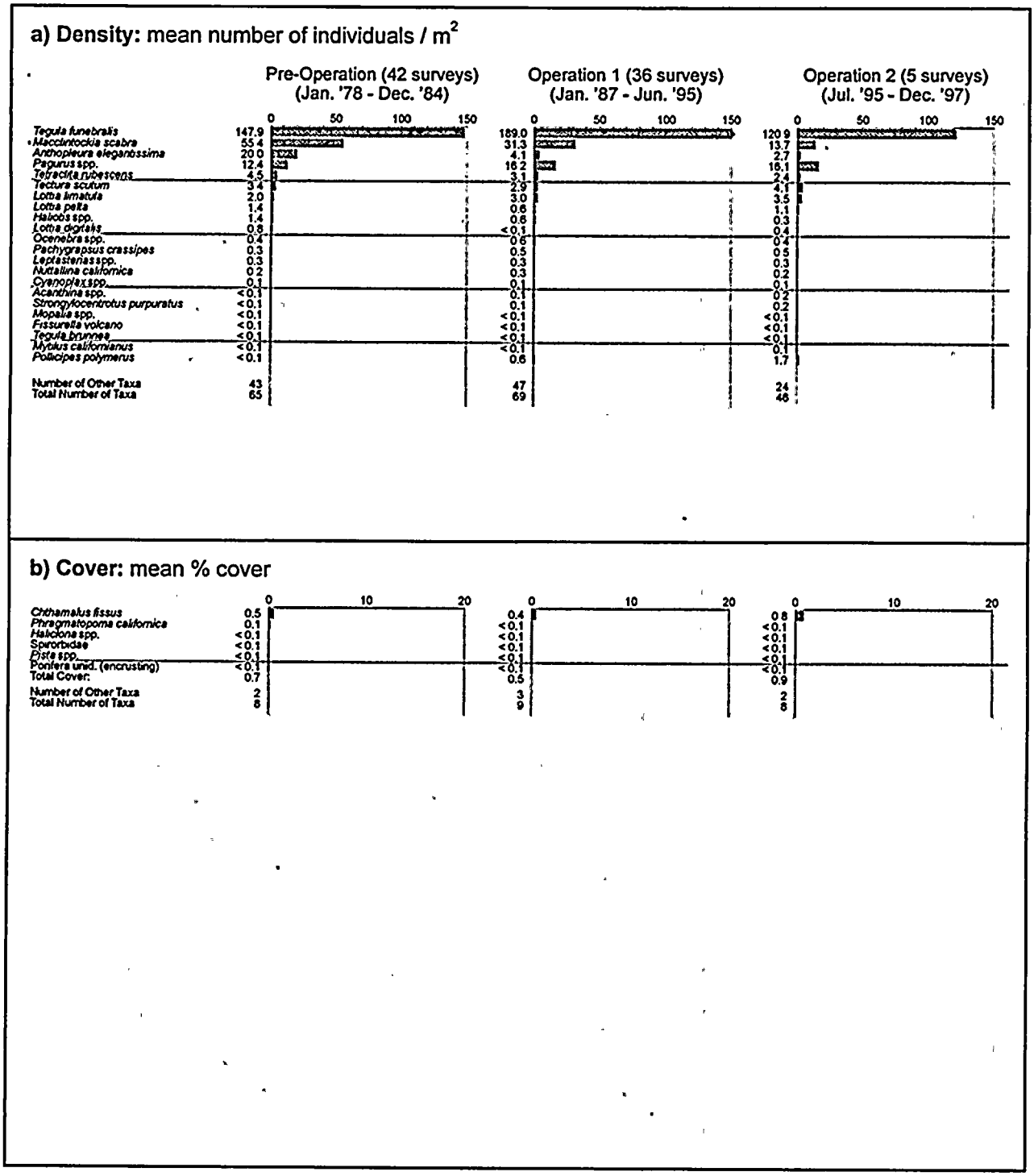


Figure 3-12. Intertidal invertebrate abundances at upper elevation control horizontal band transects. Study period means (bars and values) were calculated from pooled survey means from NC-1 and SC-1 using the five 'count' quadrats per transect for density and all 10 quadrats per transect for cover.

(*Macclintockia scabra*). These same taxa were numerically dominant at north Diablo Cove (Figure 3-13), south Diablo Cove (Figure 3-14), and Field's Cove stations (Figure 3-15). No substantial changes in the abundance of these taxa were observed between periods for these areas. However, fingered limpets (*Lottia digitalis*) and acorn barnacles (*Chthamalus fissus*) increased substantially between periods at north Diablo Cove (Figure 3-13).

Statistically significant changes in abundance between OpPeriod-1 and OpPeriod-2 were detected in 13 of the 28 taxa (46%) analyzed from Diablo Cove at the upper elevation stations (Table 3-5). With the exception of a Diablo Cove-wide increase in the abundance of aggregating anemones (*Anthopleura elegantissima*), all of these were changes confounded by the varying effects of period with season or station. In contrast to Diablo Cove stations, most taxa at upper elevation Field's Cove stations had inconclusive test results. An increase in invertebrate species richness between periods was detected at both Diablo Cove and Field's Cove stations during summer surveys.

The upper-elevation invertebrate assemblages at north Diablo Cove and south Diablo Cove stations differed substantially from each other and from control stations from 1992 through 1997 (Figure 3-16a, first dimension). North Diablo Cove was characterized by more *Lottia digitalis* and keyhole limpets (*Fissurella volcano*) than other locations, and fewer *Anthopleura elegantissima* than south Diablo and Field's coves (Figure 3-16b, first dimension). The assemblage at north Diablo Cove continued to differ and diverge from that of the control through 1997. The abundance of red volcano barnacles (*Tetraclita rubescens*) at south Diablo Cove distinguished these stations from control, north Diablo Cove, and Field's Cove stations during 1992-1997 (Figure 3-16b, second dimension). *T. rubescens* increased in abundance at south Diablo Cove after power plant start-up. Unlike north Diablo Cove, the invertebrate assemblage at south Diablo Cove had slowly converged with that of the control since 1995. The invertebrate assemblage at Field's Cove from 1992-1997 did not differ notably from the control (Figure 3-16a).

Lower-Elevation Stations

Invertebrate community composition did not change substantially between OpPeriod-1 and OpPeriod-2 at the +0.3 m MLLW (lower-elevation) control stations (Figure 3-17). Numerically dominant taxa included *Tetraclita rubescens*, *Tegula funebralis*, and Paguridae. These same taxa were numerically dominant at the other three sampled locations. Unlike the control stations, however, *T. funebralis* declined in abundance between periods at north Diablo Cove (Figure 3-18), south Diablo Cove

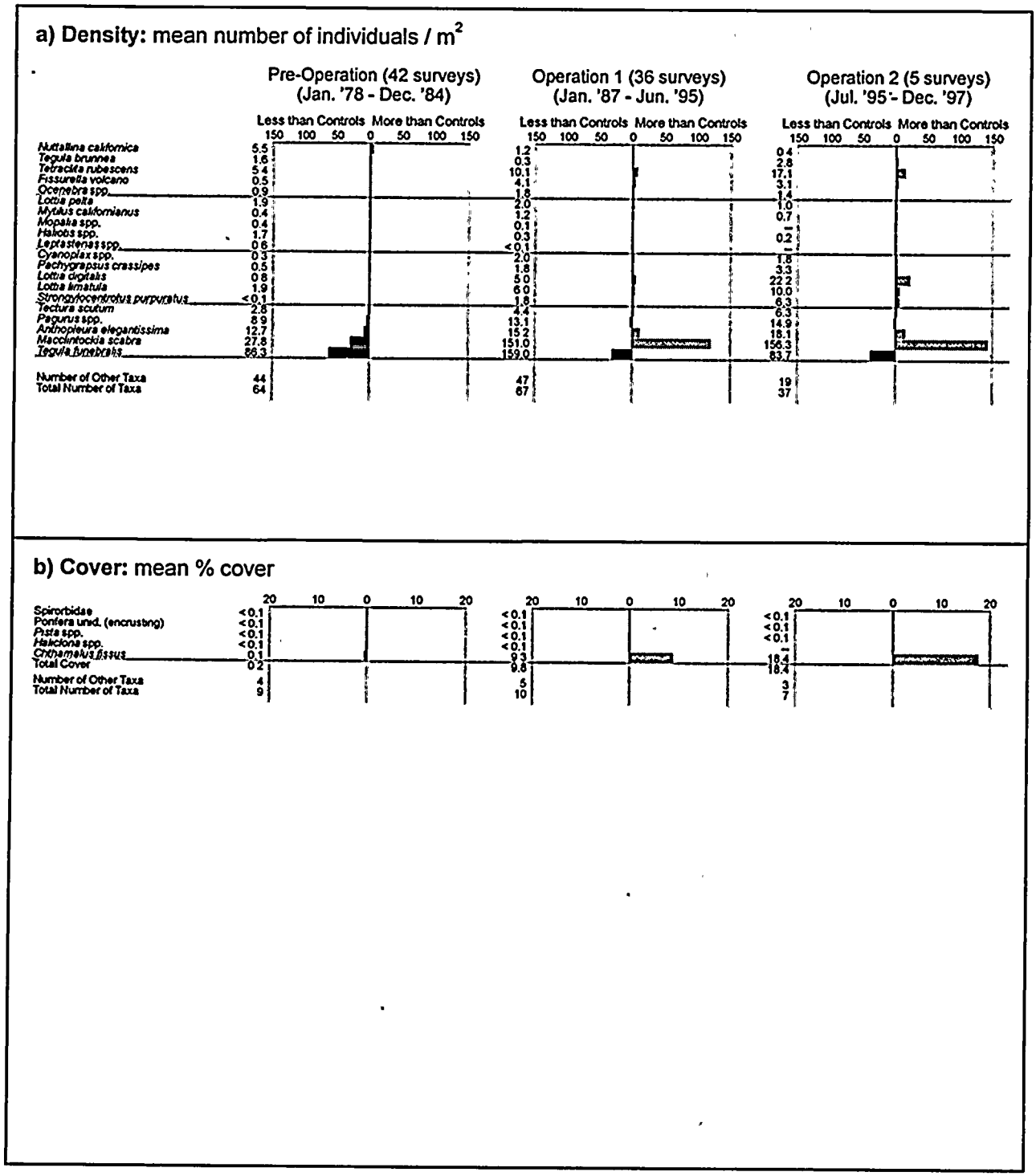


Figure 3-13. Differences in intertidal invertebrate abundances between upper elevation north Diablo Cove and control transects. Study period means (values in columns) were calculated from pooled survey means from NDC-2 and -3 using the five 'count' quadrats per transect for density and all 10 quadrats per transect for cover. Differences in abundance from control abundances (shown as bars) were calculated by subtracting the north Diablo Cove period means from corresponding control period means shown in Figure 3-12.

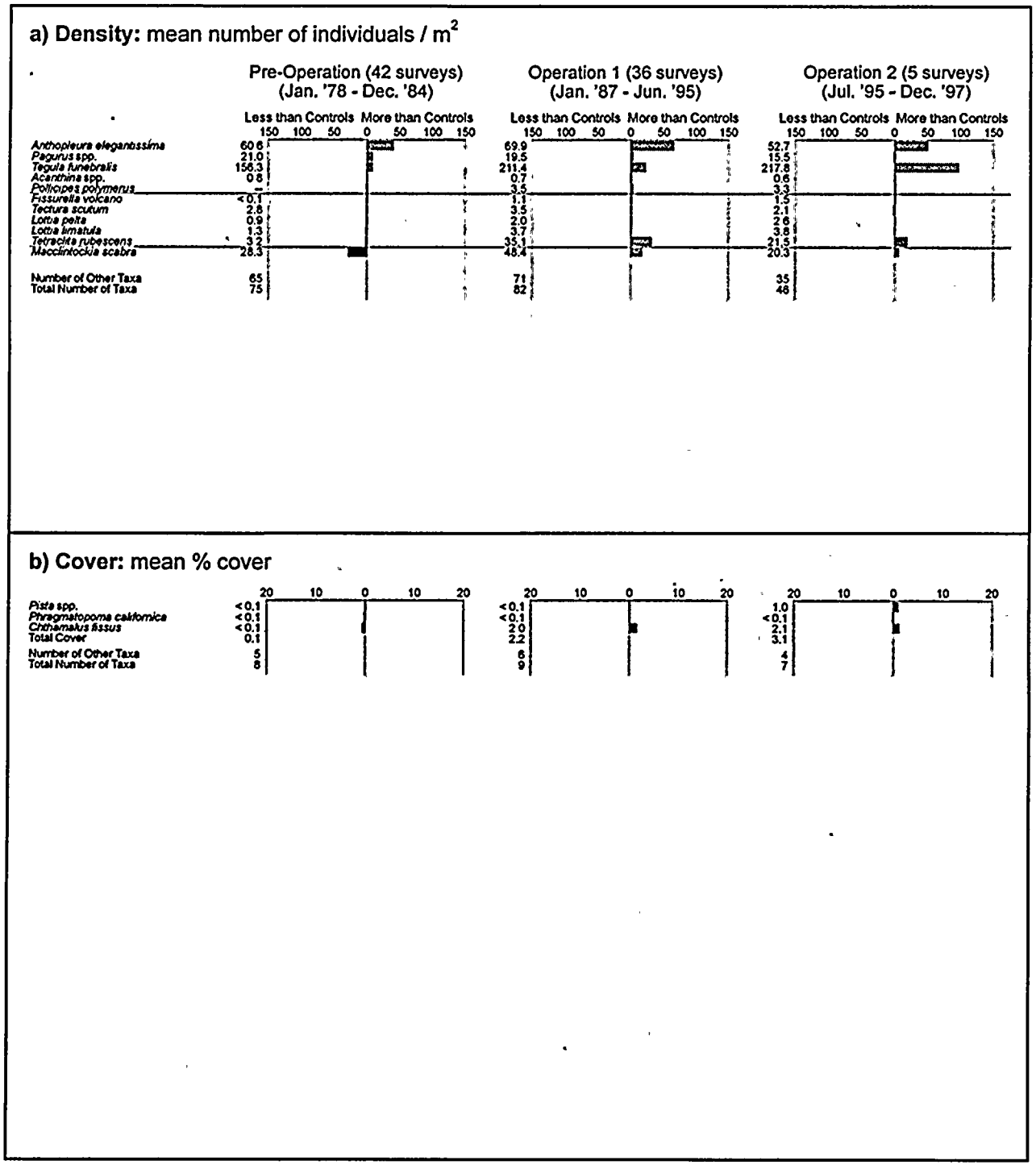


Figure 3-14. Differences in intertidal invertebrate abundances between upper elevation south Diablo Cove and control transects. Study period means (values in columns) were calculated from pooled survey means from SDC-1 and -3 using the five 'count' quadrats per transect for density and all 10 quadrats per transect for cover. Differences in abundance from control abundances (shown as bars) were calculated by subtracting the north Diablo Cove period means from corresponding control period means shown in Figure 3-12.

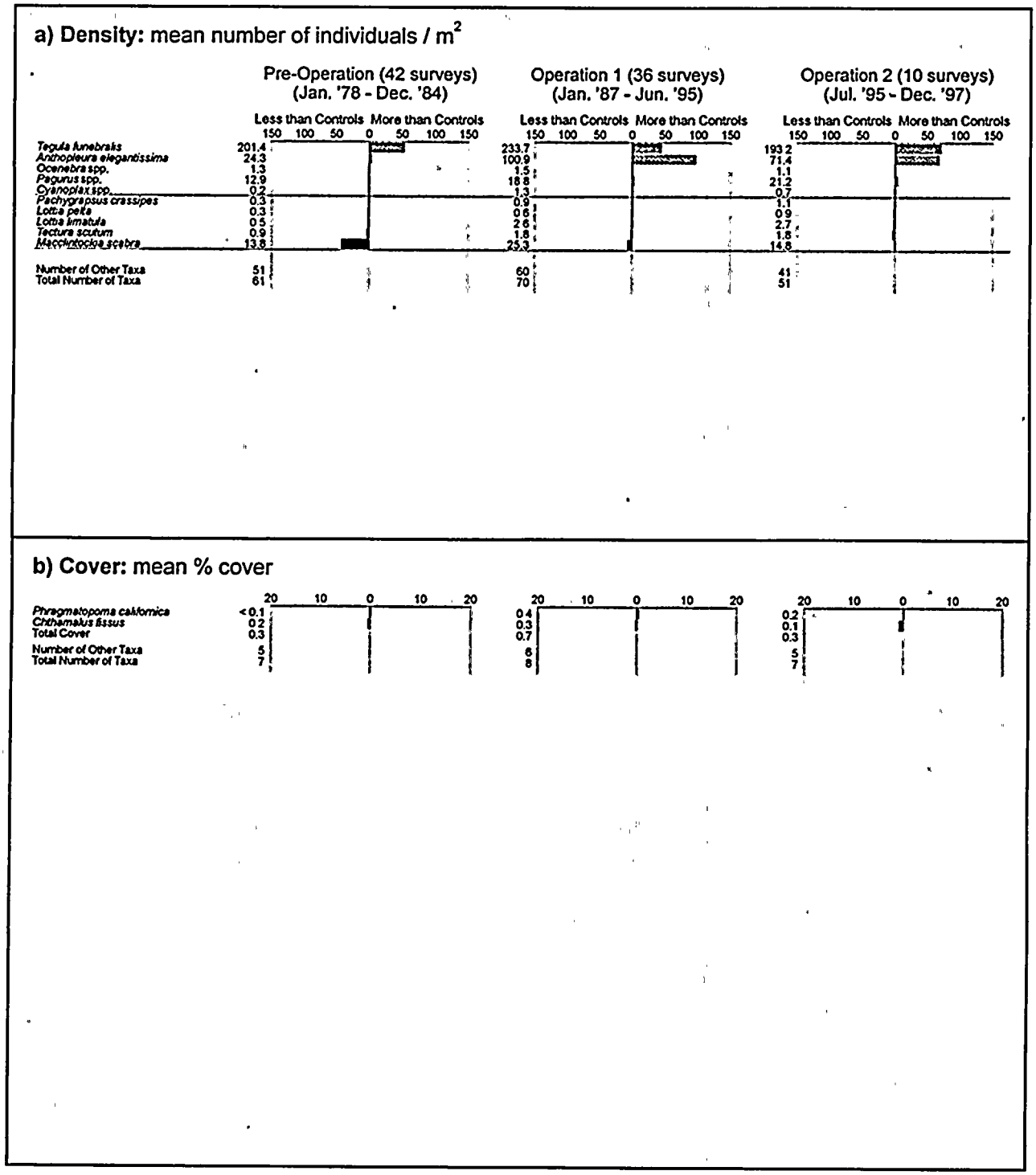


Figure 3-15. Differences in intertidal invertebrate abundances between upper elevation Field's Cove and control transects. Study period means (values in columns) were calculated from pooled survey means from Field's Cove using the five 'count' quadrats for density and all 10 quadrats for cover. Differences in abundance from control abundances (shown as bars) were calculated by subtracting the Field's Cove period means from corresponding control period means shown in Figure 3-12.

Table 3-5. ANOVA results for changes relative to control for intertidal invertebrates at +0.9 m MLLW elevation horizontal band transects. Taxa with significant increases or decreases had test results with $p \leq 0.10$. The 'no change' category included taxa with a $p > 0.10$ and a test power to detect a 50% change ≥ 0.70. Results were inconclusive if $p > 0.10$ and test power was < 0.70. 'Winter', 'summer' or 'station (number)' indicate that significant effects were restricted to a specific season or number of stations.

	Diablo Cove comparisons				Field's Cove comparisons			
Taxon	Increase	Decrease	No Change	Results Inconclusive	Increase	Decrease	No Change	Results Inconclusive
Acanthina spp.	summer					winter		
Anthopleura elegantissima	X						X	
Chthamalus fissus			X			station(1)		
Cyanoplax spp.			X			X		
Fissurella volcano	winter							X[1]
Haliclona spp. [1]				X				X
Haliotis spp.	winter							X
Leptasterias spp.				X	summer			
Lottia digitalis	summer(2)					winter(1)		
Lottia limatula			X				X	
Lottia pelta		winter					X	
Macclintockia scabra			X				X	
Mopalia spp.		winter					X	
Mytilus californianus		winter						X[1]
Nuttalina californica				X				X
Ocenebra spp.	summer				summer			
Pachygrapsus crassipes			X		summer			
Pagurus spp.			X		station(1)			
Phragmatopoma californica		station(2)				station(1)		
Pista spp.	station(1)							X[1]
Pollicipes polymerus [1]				X				X
Porifera, unid. (encrusting) [1]				X				X
Spirorbidae [1]				X				X
Strongylocentrotus purpuratus	station(1)							X
Tectura scutum		winter					X	
Tegula brunnea			X[2]					X
Tegula funebralis			X				X	
Tetraclita rubescens				X				X
Species richness	summer				summer			
TOTAL (w/o species richness)	8	5	8	7	4	5	7	12
Percent of total taxa analyzed	29	18	29	25	14	18	25	43

[1] Taxon abundances were too low between periods for analysis.

[2] No change because of contrasting significant results between stations.

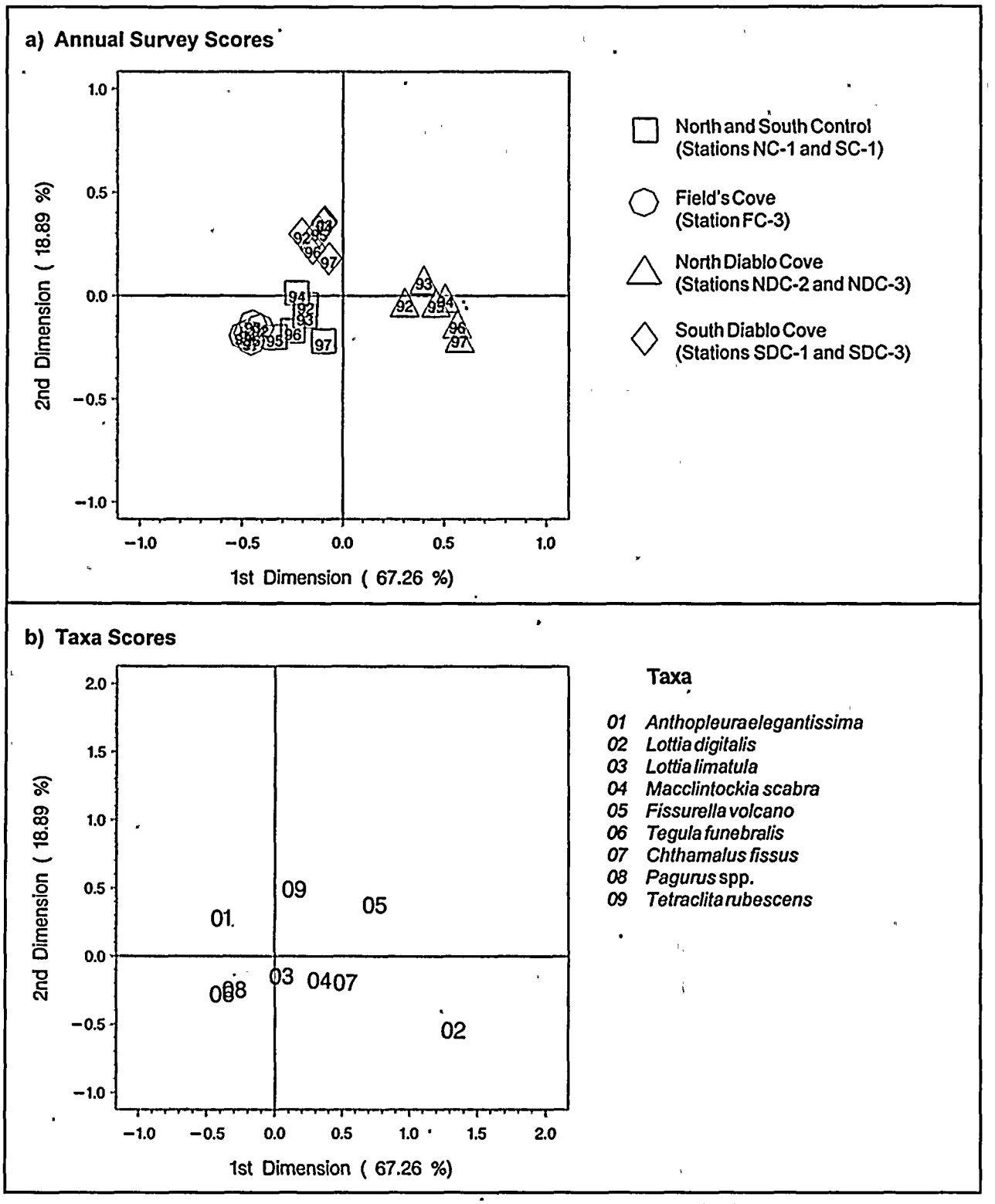


Figure 3-16. First and second dimension scores from correspondence analysis of intertidal invertebrate data from the +0.9 m MLLW transects. The data in 'a' and 'b' were transformed using log (x+1) prior to the analysis.

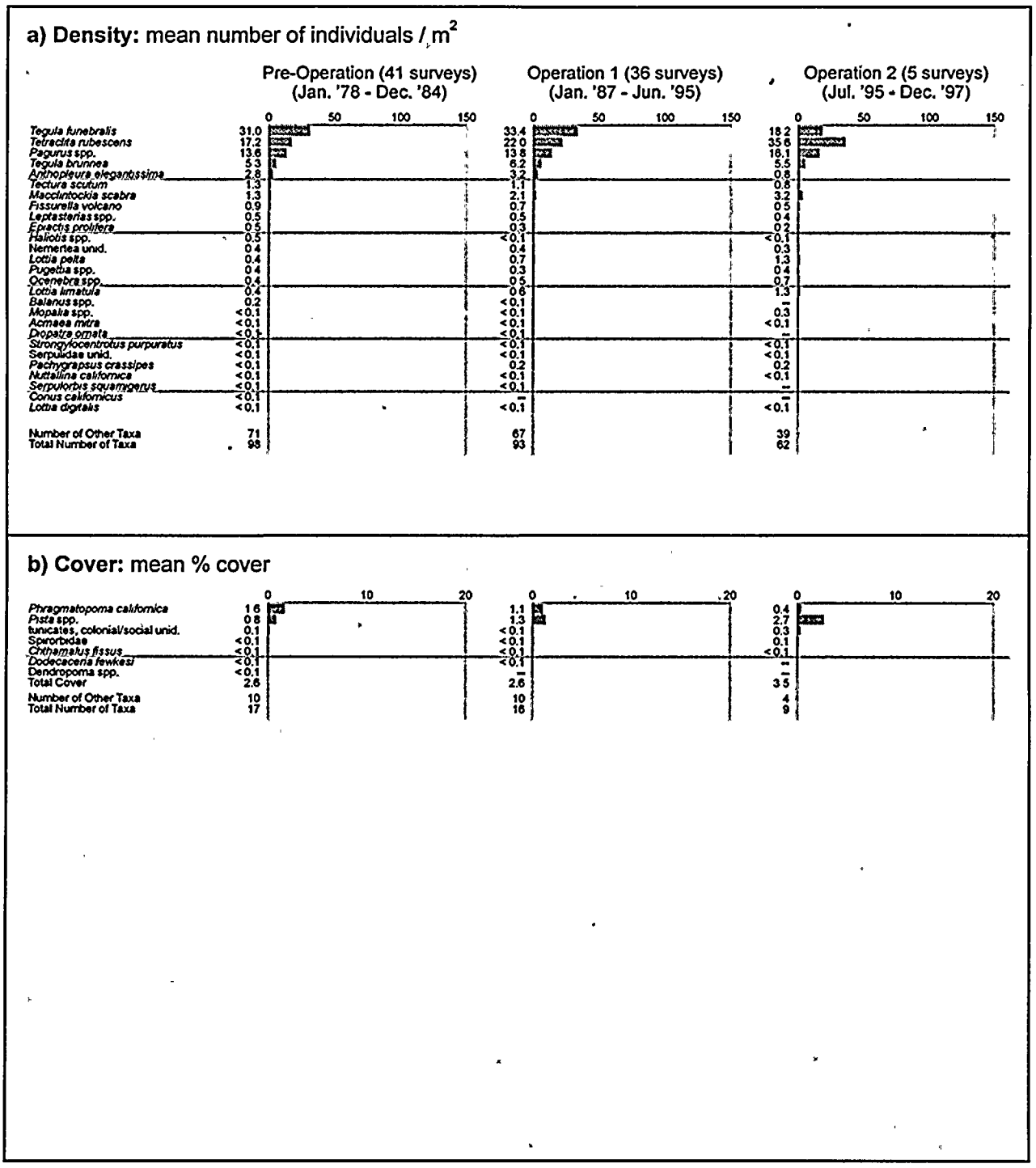


Figure 3-17. Intertidal invertebrate abundances at low elevation control horizontal band transects. Study period means (bars and values) were calculated from pooled survey means from NC-1 and SC-1 using the five 'count' quadrats per transect for density and all 10 quadrats per transect for cover.

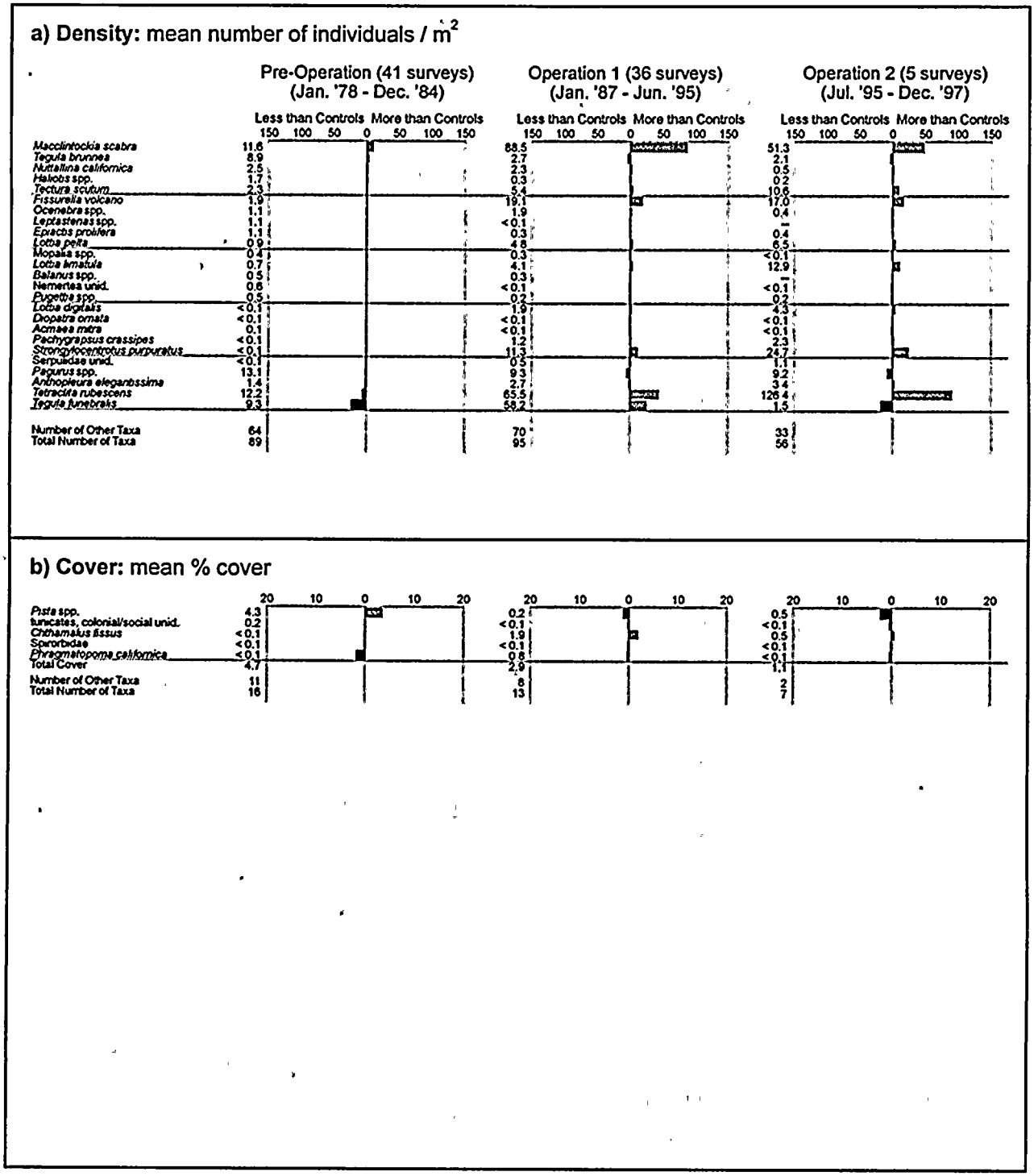


Figure 3-18. Differences in intertidal invertebrate abundances between lower elevation north Diablo Cove and control transects. Study period means (values in columns) were calculated from pooled survey means from NDC-2 and -3 using the five 'count' quadrats per transect for density and all 10 quadrats per transect for cover. Differences in abundance from control abundances (shown as bars) were calculated by subtracting the north Diablo Cove period means from corresponding control period means shown in Figure 3-17.

(Figure 3-19), and Field's Cove stations (Figure 3-20). Declines in this species were greatest at north Diablo Cove and Field's Cove stations.

Nearly one-half of the species tested at Diablo Cove lower-elevation stations were affected by the discharge between periods (Table 3-6). Results were inconclusive for nearly 40% of the taxa analyzed for Diablo Cove. Some of these taxa were determined to have abundances that were too low for analysis and others had analysis results with low test power (see ANOVA results in Appendix D). Of the 16 statistically significant changes in abundance detected between periods, nine had effects of period that varied with season or station. Similar to the results at the upper-elevation, purple urchins (*Strongylocentrotus purpuratus*) and *Anthopleura elegantissima* increased, and mossy chitons (*Mopalia* spp.) declined between periods at Diablo Cove stations. Many taxa at the lower-elevation Field's Cove stations did not change in abundance between periods. Invertebrate species richness declined in Diablo Cove and remained unchanged in Field's Cove between periods at the lower-elevation intertidal stations.

The invertebrate assemblage at lower-elevation north Diablo Cove HBT stations differed notably from that of control, south Diablo Cove, and Field's Cove stations from 1992 through 1997 (Figure 3-21a, first dimension). This difference was primarily a result of greater relative abundances of the limpets *Macclintockia scabra* and *Fissurella volcano* at north Diablo Cove stations (Figure 3-21b, first dimension). The assemblage at north Diablo Cove was relatively stable from 1992 through 1997. Large numbers of particle-tube polychaetes (*Pista* spp.) at south Diablo Cove from 1995-1997 separated this area from control, north Diablo Cove, and Field's Cove area scores (Figure 3-21b, second dimension). The increase in *Pista* spp. largely occurred at a single-station (SDC-1) (see *Pista* spp. ANOVA results in Appendix D). Differences in scores for Field's Cove and control areas were largely the result of presence of purple urchins at Field's Cove. Purple urchins increased substantially in Field's Cove at lower-elevation stations after power plant start-up (Figure 3-20), and have never occurred in large numbers at the controls (Figure 3-17). The invertebrate assemblage was more variable at Field's Cove than other locations from 1992-1997. All four areas retained characteristics throughout 1992-1997 that allowed survey scores for all four areas to remain distinct (Figure 3-21a).

Select Species Abundances

Purple urchins (*Strongylocentrotus purpuratus)* have varied widely in abundance at the north Diablo and Field's cove HBT stations since 1989 (Figure 3-22). Beginning in 1993, purple urchins increased substantially at all Field's Cove stations and at north Diablo Cove stations NDC-2 and NDC-3. Some

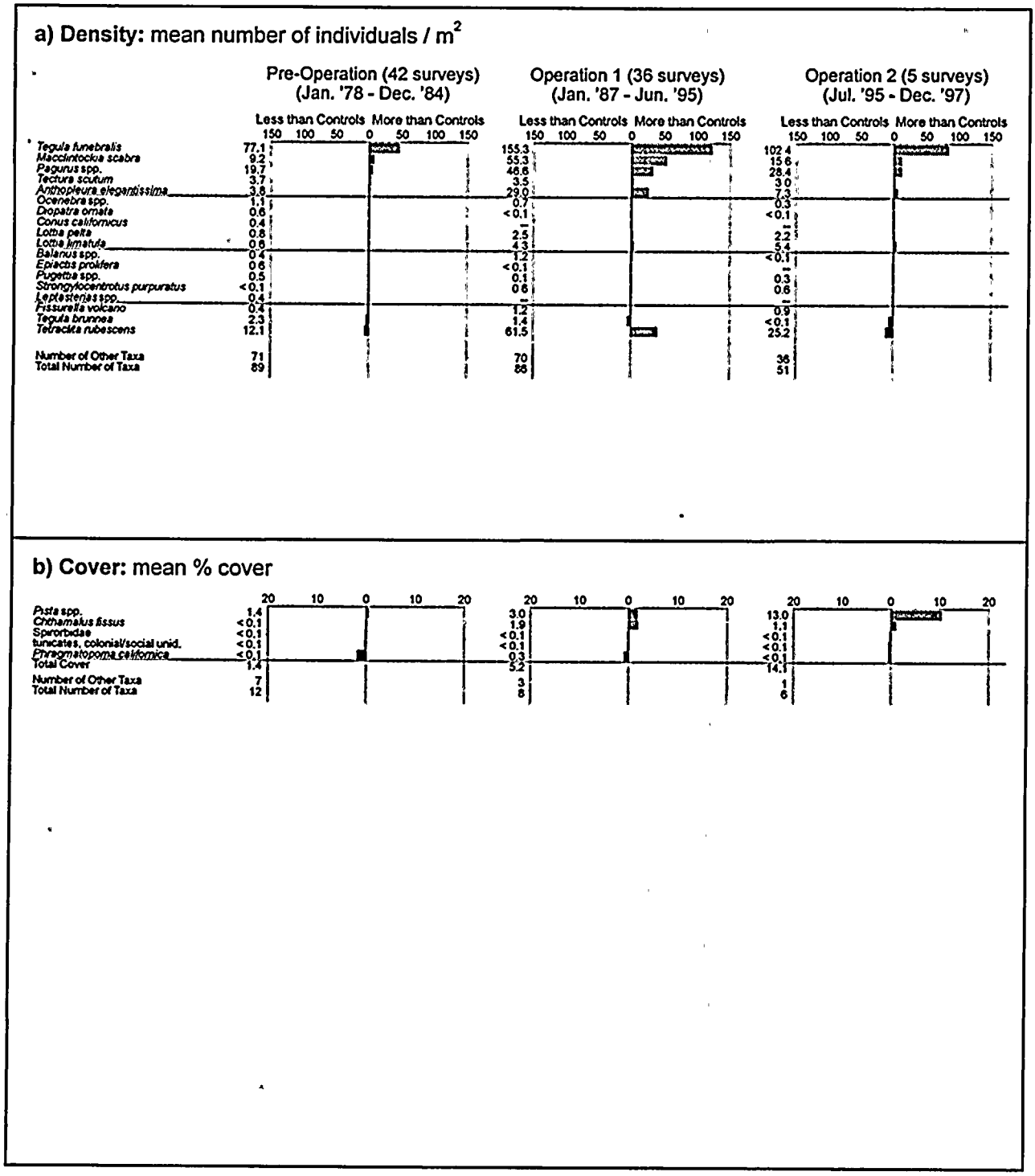


Figure 3-19. Differences in intertidal invertebrate abundances between lower elevation south Diablo Cove and control transects. Study period means (values in columns) were calculated from pooled survey means from SDC-1 and -3 using the five 'count' quadrats per transect for density and all 10 quadrats per transect for cover. Differences in abundance from control abundances (shown as bars) were calculated by subtracting the north Diablo Cove period means from corresponding control period means shown in Figure 3-17.

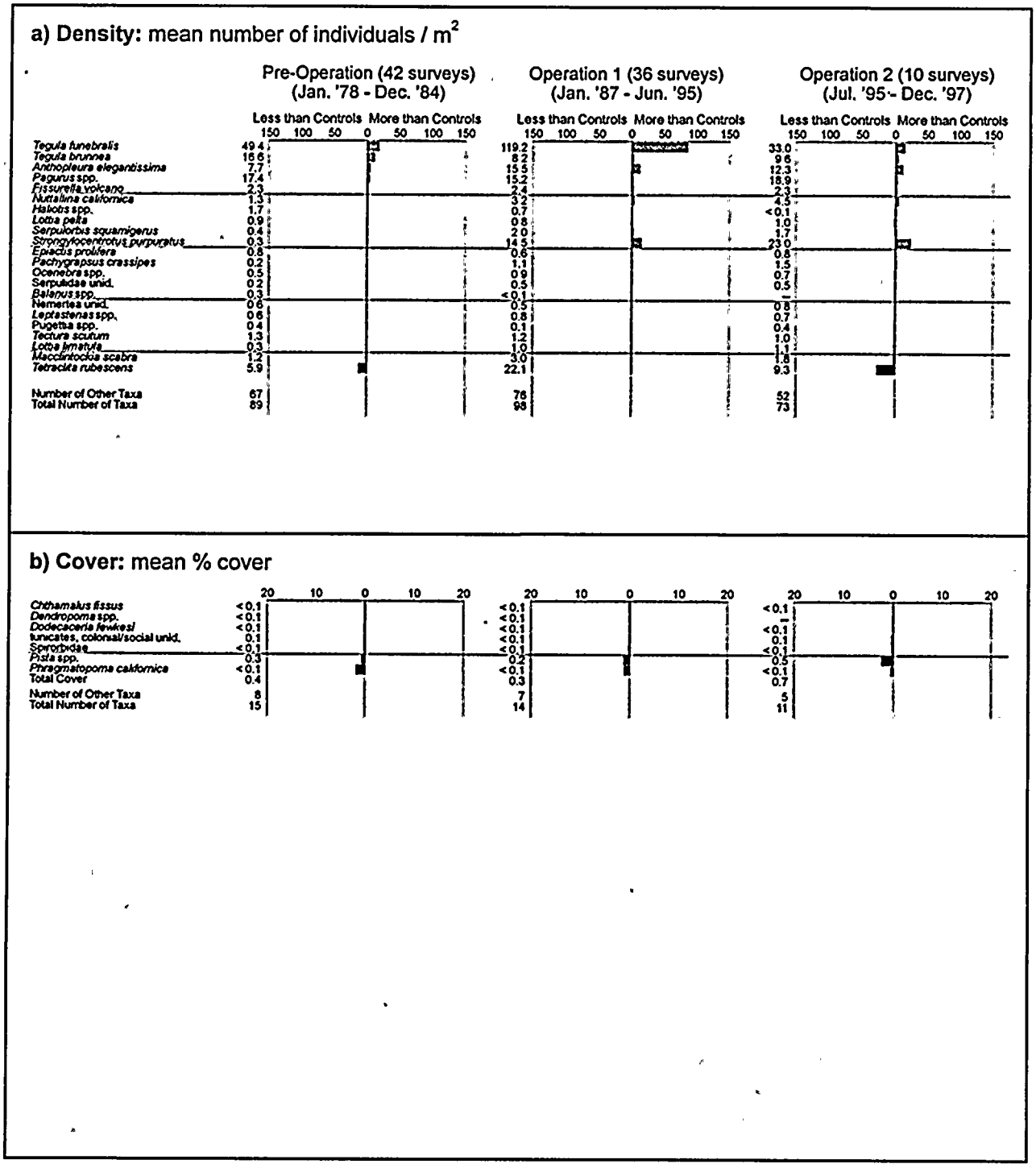


Figure 3-20. Differences in intertidal invertebrate abundances between lower elevation Field's Cove and control transects. Study period means (values in columns) were calculated from pooled survey means from Field's Cove using the five 'count' quadrats for density and all 10 quadrats for cover. Differences in abundance from control abundances (shown as bars) were calculated by subtracting the Field's Cove period means from corresponding control period means shown in Figure 3-17.

Table 3-6. ANOVA results for changes relative to control for intertidal invertebrates at +0.3 m MLLW elevation horizontal band transects. Taxa with significant increases or decreases had test results with $p \leq 0.10$. The 'no change' category included taxa with a $p > 0.10$ and a test power to detect a 50% change ≥ 0.70. Results were inconclusive if $p > 0.10$ and test power was < 0.70. 'Winter', 'summer' or 'station (number)' indicate that significant effects were restricted to a specific season or number of stations.

	Diablo Cove comparisons				Field's Cove comparisons			
Taxon	Increase	Decrease	No Change	Results Inconclusive	Increase	Decrease	No Change	Results Inconclusive
Acmaea mitra				X[1]				X
Anthopleura elegantissima	station(2)				station(2)			
Balanus spp.				X				X
Chthamalus fissus		X						X
Conus californicus [1]				X				X
Dendropoma spp. [1]				X				X
Diopatra ornata [1]				X				X
Dodecaceria fewkesi [1]				X				X
Epiactis prolifera	winter				winter			
Fissurella volcano	summer						X	
Haliotis spp.				X[1]		summer		
Leptasterias spp.			X				X	
Lottia digitalis				X				X
Lottia limatula			X				X	
Lottia pelta		X					X	
Macclintockia scabra		X				X		
Mopalia spp.		X						X
Nemertea unid.	X				X			
Nuttalina californica		station(1)					X	
Ocenebra spp.		X					X	
Pachygrapsus crassipes			X				X	
Pagurus spp.		winter					X	
Phragmatopoma californica				X	X			
Pista spp.		station(3)				station(1)		
Pugettia spp.				X	X			
Serpulidae unid.	station(2)				station(1)			
Serpulorbis squamigerus			X				X	
Spirorbidae [2]				X				X
Strongylocentrotus purpuratus	station(3)				station(1)			
Tectura scutum	summer					winter		
Tegula brunnea			X				X	
Tegula funebralis		X				X		
Tetraclita rubescens				X[2]			X	
tunicates, colonial/social				X[1]			X	
Species richness		station(2)					X	
TOTAL (w/o spp. richness)	7	9	5	13	7	5	12	10
Percent of total taxa analyzed	21	26	15	38	21	15	35	29

[1] Taxon abundances were too low between periods for analysis.

[2] Results inconclusive because of differing results between stations or seasons.

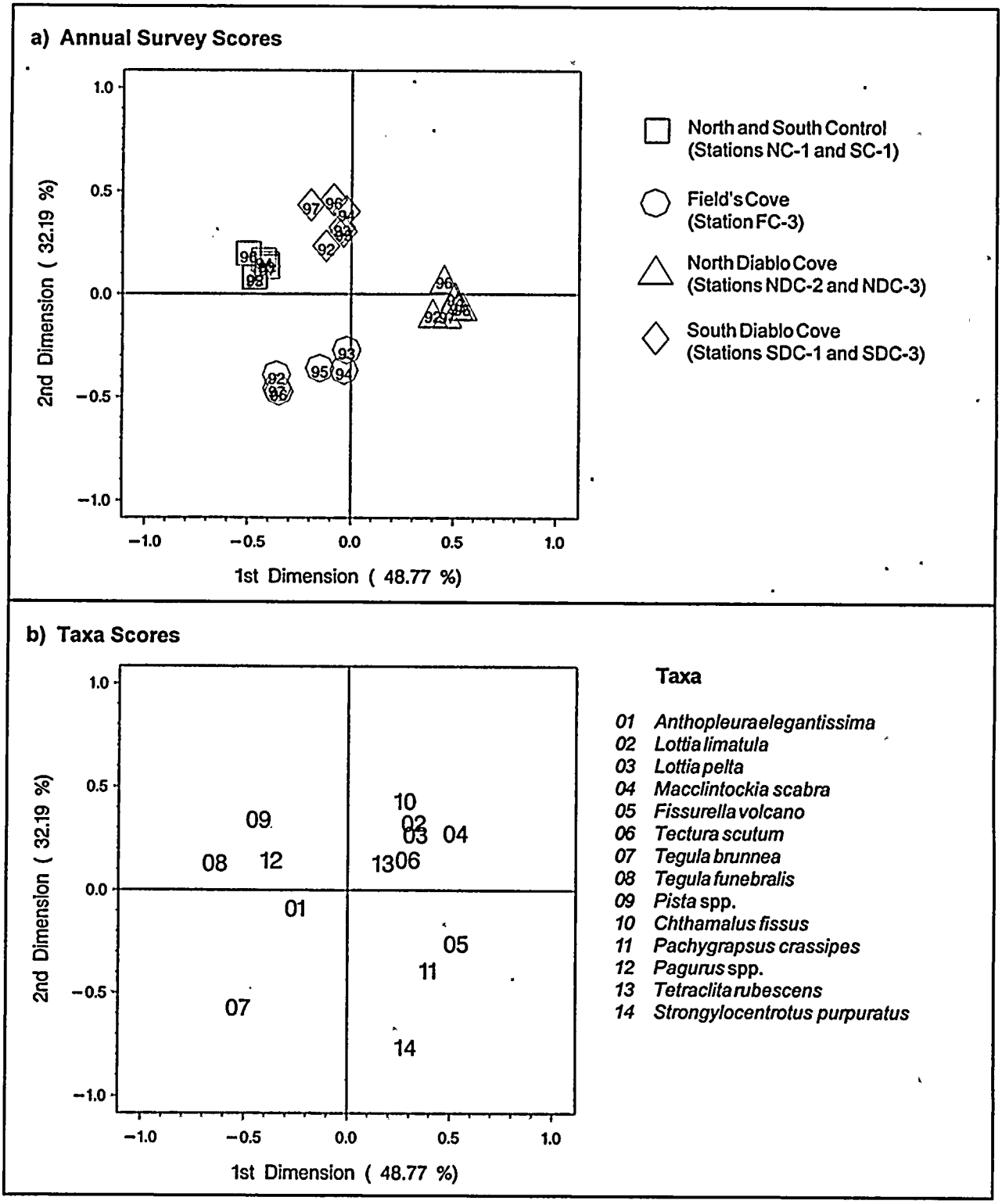


Figure 3-21. First and second dimension scores from correspondence analysis of intertidal invertebrate data from the +0.3 m MLLW transects. The data in 'a' and 'b' were transformed using log (x+1) prior to the analysis.

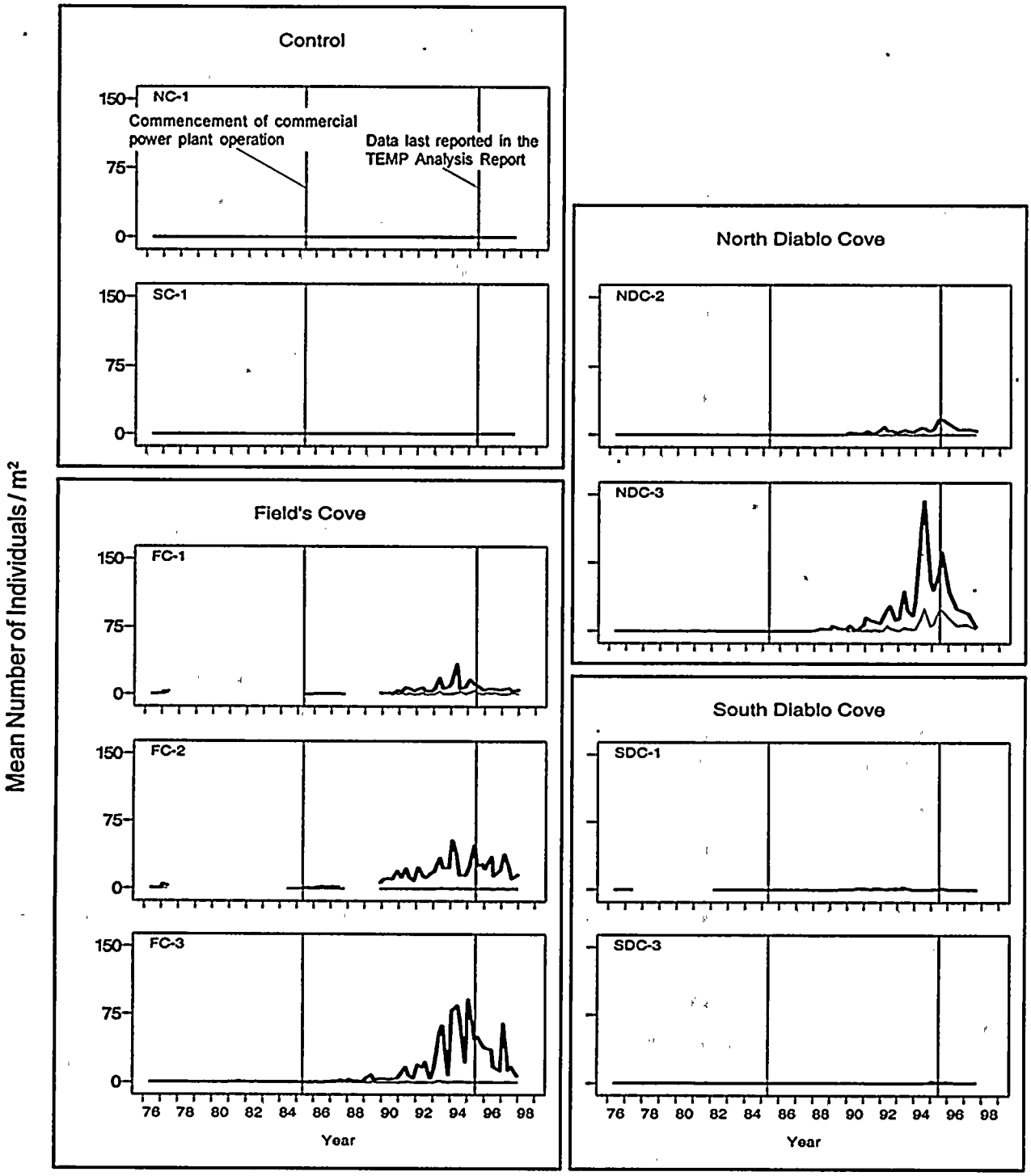


Figure 3-22. *Strongylocentrotus purpuratus* changes in density at the horizontal band transect stations. Wide and thin lines represent +0.3 m and +0.9 m transect data, respectively.

areas of north Diablo Cove were severely overgrazed by purple urchins in 1994-1995. This resulted in the formation of an 'urchin barrens' zone with an algal community comprised mainly of crustose coralline algae (Tenera, Inc., 1997). These overgrazed areas recovered slightly in the 1996-1997 period as densities of *S. purpuratus* declined (Figure 3-22). The urchin barrens were primarily a lower intertidal phenomenon, although some upper- elevation transects were also affected.

Acorn barnacles (*Chthamalus fissus*) increased significantly after power plant start-up at both sampled elevations within Diablo Cove stations relative to control stations (Tenera, Inc., 1997). Episodic recruitment was evident at all Diablo Cove stations, and a trend of increasing abundance has been observed at NDC-2 since 1989 (Figure 3-23) coincident with increases in purple urchins. This species occupies higher intertidal elevations than other barnacles and was the most abundant encrusting invertebrate at north and south Diablo Cove upper elevation stations from 1992-1997. *C. fissus* at the +0.9 m level increased markedly at both north Diablo Cove and south Diablo Cove stations during OpPeriod-2 (Figures 3-13 and 3-14). Percentage increases, however, were similar at control and Diablo Cove stations. No change was detected in *C. fissus* between operation study periods (Table 3-5).

Black turban snails (*Tegula funebralis)* were one of the most abundant intertidal organisms observed in the TEMP and RWMP studies. *T. funebralis* increased in abundance at Diablo Cove relative to control stations following power plant operation, and were highly variable in abundance during both periods (Figure 3-24). At the upper elevations, *T. funebralis* decreased in abundance between periods at all control and plume-contacted stations. Statistically significant decreases relative to control stations were detected at the lower elevation stations at Diablo and Field's coves.

Keyhole limpets (*Fissurella volcano*) were one of the most abundant limpet species at lower-elevation north Diablo Cove HBT stations (Figure 3-18). *F. volcano* increased in abundance beginning in 1990 at north Diablo Cove HBT stations similar in pattern to increases observed in *S. purpuratus* and *C. fissus*. A large recruitment of juveniles was observed at the end of 1992 at north Diablo Cove. Abundance decreases in this taxon at north Diablo Cove stations between the two periods most likely represented natural mortality of this 1992 cohort (Figure 3-25).

The abundance of particle-tube polychaetes (*Pista* spp.) has varied temporally at control, north Diablo Cove, and Field's Cove stations (Figure 3-26). Although significant declines at Diablo Cove stations were reported in the TEMP Analysis Report (Tenera, Inc., 1997), the abundance of *Pista* spp. increased

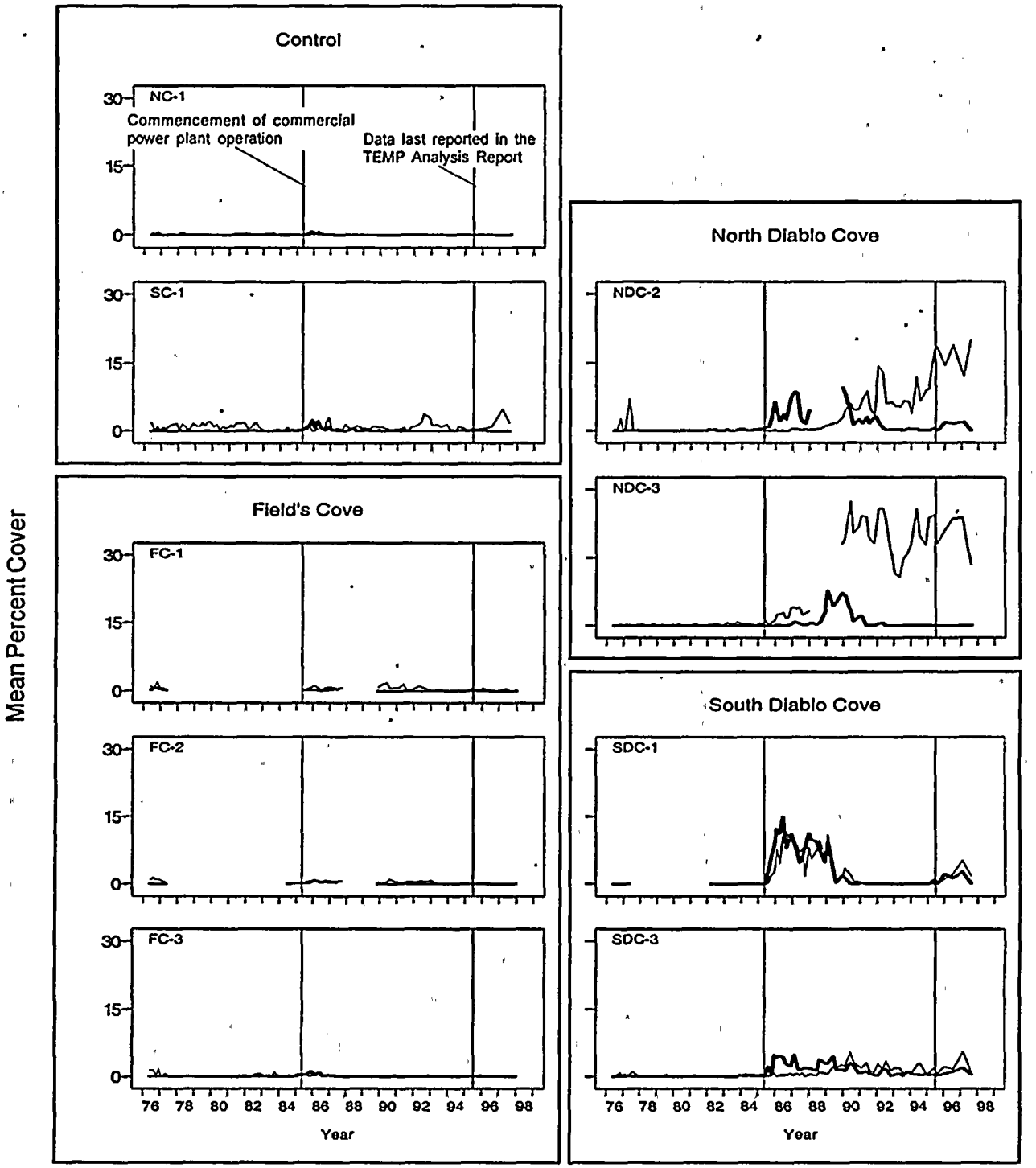


Figure 3-23. *Chthamalus fissus* changes in cover at the horizontal band transect stations. Wide and thin lines represent +0.3 m and +0.9 m transect data, respectively.

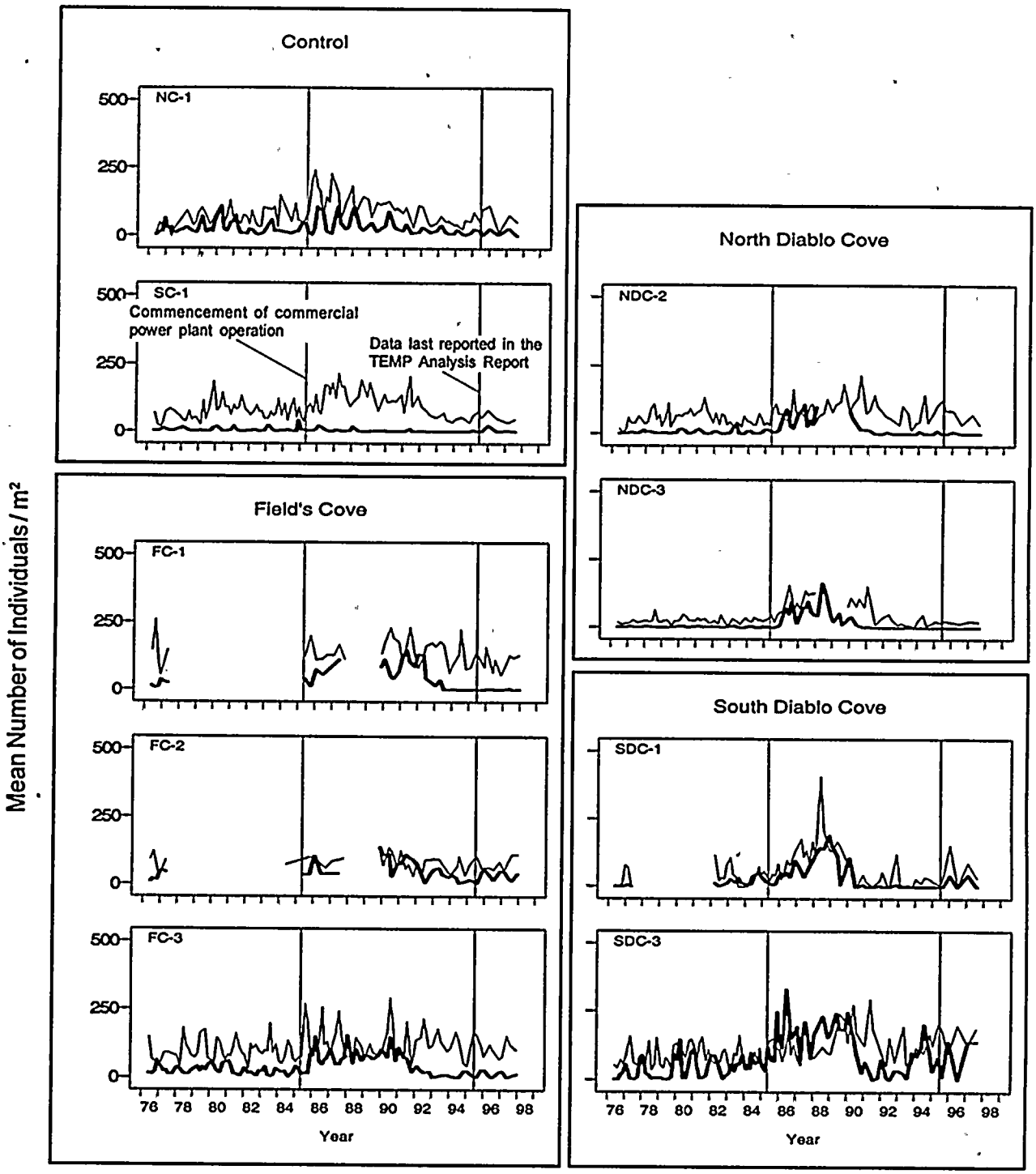


Figure 3-24. *Tegula funebralis* changes in density at the horizontal band transect stations. Wide and thin lines represent +0.3 m and +0.9 m transect data, respectively.

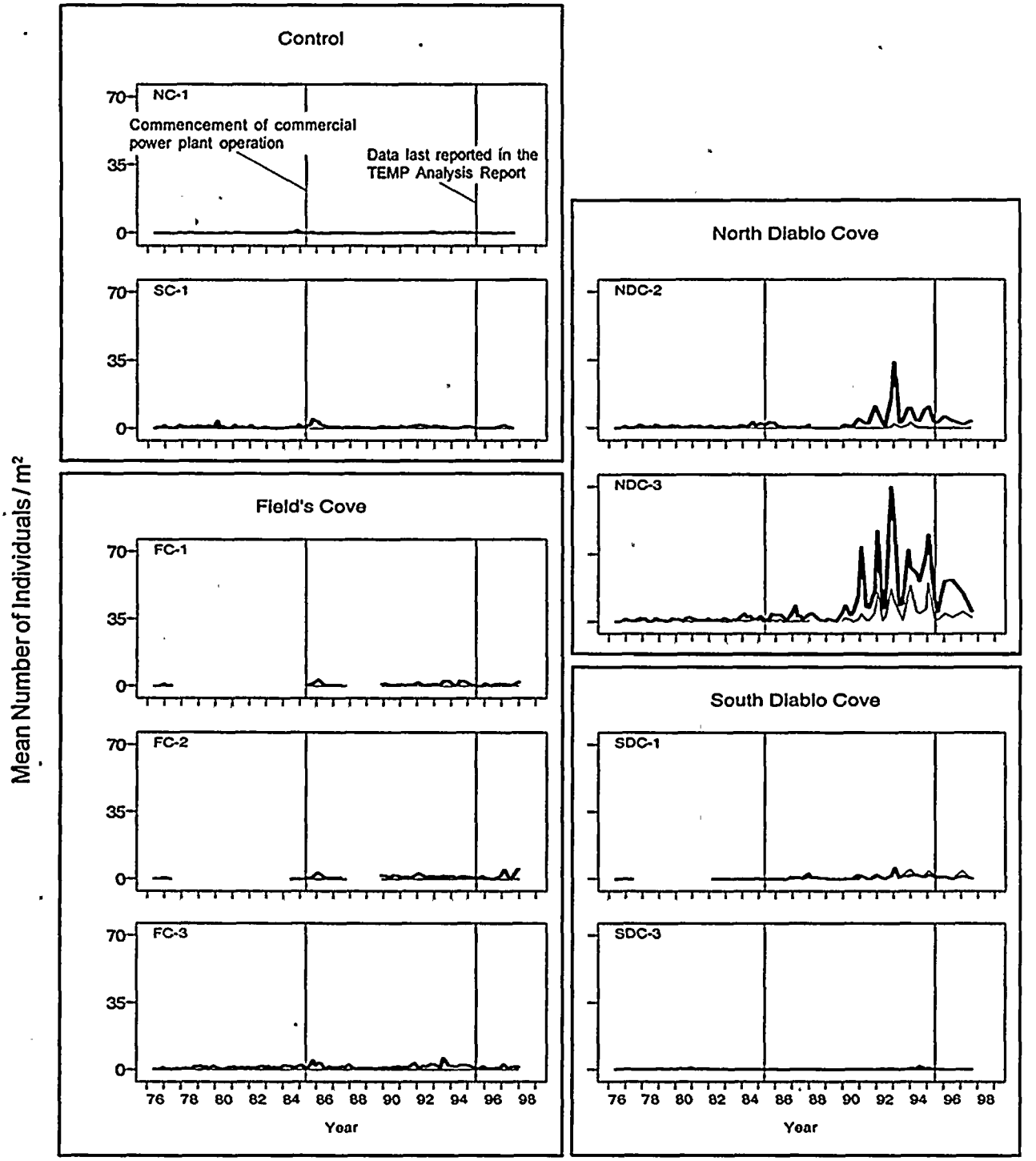


Figure 3-25. *Fissurella volcano* changes in density at the horizontal band transect stations. Wide and thin lines represent +0.3 m and +0.9 m transect data, respectively.

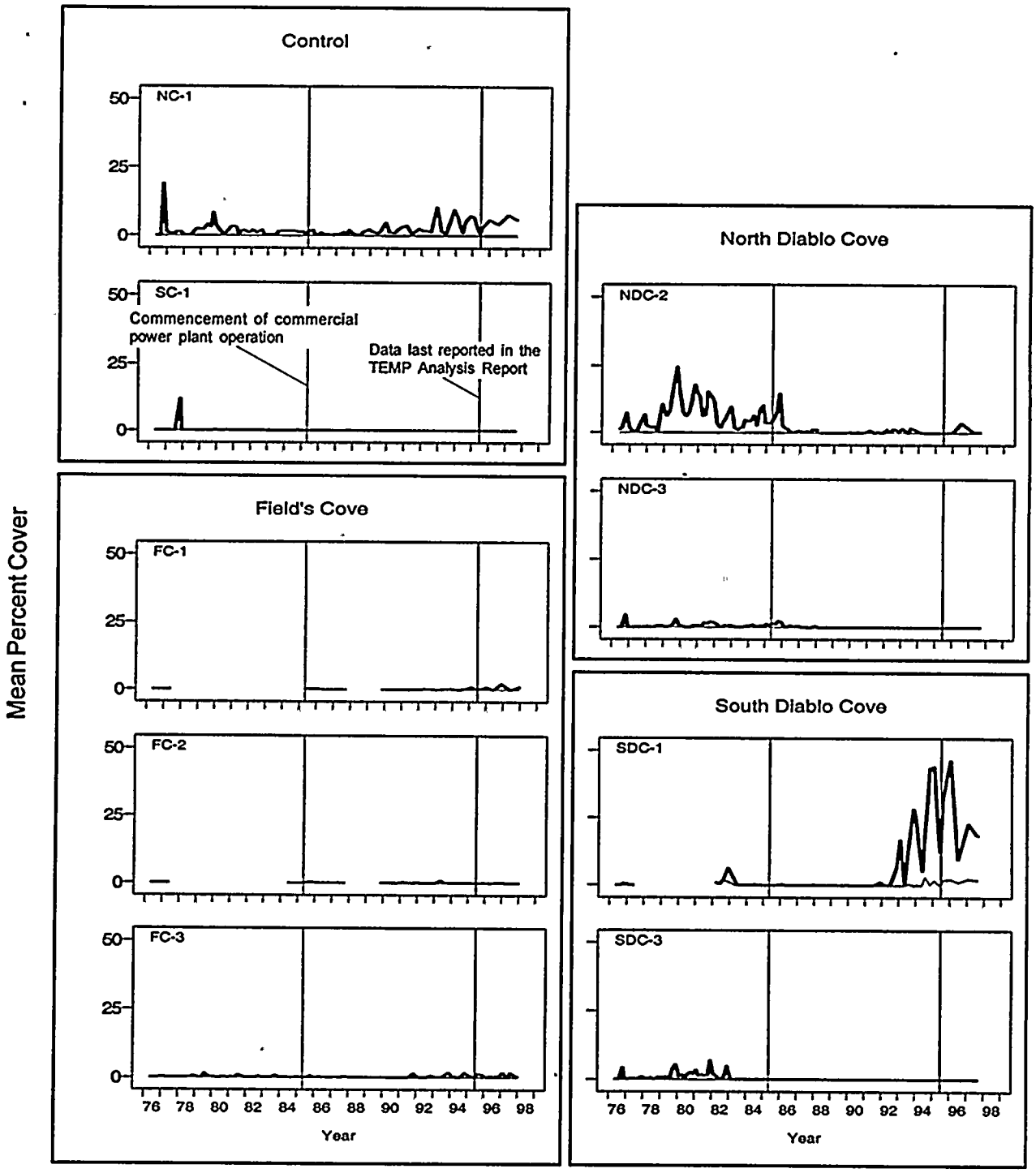


Figure 3-26. *Pista* spp. changes in cover at the horizontal band transect stations. Wide and thin lines represent +0.3 m and +0.9 m transect data, respectively.

at Diablo Cove station SDC-1 beginning in 1992. The abundance of *Pista* spp. at this station peaked in 1995 and subsequently declined significantly between periods (Table 3-6).

3.2.4 Discussion

The results from the univariate analysis of variance and multivariate correspondence analyses indicated that biological changes were still occurring in OpPeriod-2 in response to the DCPP discharge. These changes were different in nature and magnitude from those that occurred at control areas. Qualitative comparisons between the results of this analysis and the results presented in the TEMP Analysis Report (Tenera, Inc., 1997) showed that many taxa continued to be affected by the DCPP discharge.

Several numerically dominant taxa displayed reversals in previously reported discharge effects. Examples included declines in the abundance of sand-tube polychaetes (*Phragmatopoma californica*) at Diablo Cove upper-elevation stations (Table 3-7) and declines in the abundance of acorn barnacles and rough limpets at lower-elevation Diablo Cove stations (Table 3-8). All of these species recruit episodically and rapidly colonize open rock substrate. Declines following statistical increases likely represented natural mortality of cohorts as individuals grew and competed for space and resources. This phenomenon was observed in keyhole limpets following a very large cohort settlement at north Diablo Cove station NDC-3 in 1992 (Tenera, Inc., 1997). Many small individuals were gradually replaced by fewer, larger animals. A different example of a reversal in discharge effects was illustrated by proliferating anemones (*Epiactis prolifera*) in Diablo Cove during OpPeriod-2. *E. prolifera* declined significantly following power plant start-up at lower-elevation Diablo Cove stations (Table 3-8). While the absolute abundance of *E. prolifera* did not change substantially between periods at Diablo Cove stations, a slight decline (0.3 to 0.2 individuals/m^2) in mean absolute abundance at the control stations resulted in a significant increase in this species (see Figures 3-17, 3-18, 3-19).

The magnitudes of the effects remained the same in some taxa and increased or decreased in others. Limpets, as a group, increased significantly at Diablo Cove stations following power plant start-up (Tenera, Inc., 1997). Abundance increases were likely due to discharge-related declines in foliose algal cover and the corresponding increase in open space (bare rock) and algal films. No change between periods was detected in file limpets. This result reflected the continued presence but lack of substantial recruitment in this species at both Diablo and Field's cove stations. Conversely, a large recruitment of keyhole limpets in 1992 supplemented the existing population at Diablo Cove stations and resulted in an increase in the magnitude of a previously documented statistical increase.

Table 3-7. Comparison of discharge effects between OpPeriod-1 and OpPeriod-2 in intertidal invertebrates at +0.9 MLLW horizontal band transects. Statistically significant results are compared between the TEMP Analysis Report (Tables 3-9 and 3-10) and this report (Table 3-5).

Category and Taxon	Analysis Report (OpPeriod-1)	Report Results (OpPeriod-2)		Comments
		Diablo Cove	Field's Cove	
CONTINUED DISCHARGE EFFECTS				
Magnitude of effect unchanged				
Lottia limatula	increase	no change	no change	Abundances at north DC stations continue to be greater than control stations but have not changed between operation periods.
Macclintockia scabra	increase	no change	no change	same as above
Tegula funebralis	increase	no change	no change	Abundances at most stations decreased between periods.
Magnitude of effect increased				
Fissurella volcano	increase	increase	inconclusive	
Lottia digitalis	increase	increase	decrease	Most abundant in DC
Pachygrapsus crassipes	increase	no change	increase	
Species richness	increase	increase	increase	Decrease between periods at control stations.
Effect or trend in abundance reversed				
Chthamalus fissus	increase	no change	decrease	Decrease at one FC station.
Cyanoplax spp.	increase	no change	decrease	
Phragmatopoma californica	increase	decrease	decrease	
NEW DISCHARGE EFFECTS *PREVIOUSLY UNDESCRIBED*				
Acanthina spp.	no change	increase	decrease	
Anthopleura elegantissima	no change	increase	no change	Increases at three DC stations.
Haliotis spp.	no change	increase	inconclusive	Decreases in control areas were larger than changes in DC where abundances continued to decrease.
Leptasterias spp.	not tested	inconclusive	increase	Abundances remained low in DC.
Lottia pelta	no change	decrease	no change	Abundances at DC stations greater than control station but declined at greater rate than control stations.
Mopalia spp.	not tested	decrease	no change	
Mytilus californianus	inconclusive	decrease	decrease	
Ocenebra spp.	no change	increase	increase	Decreases in control areas were larger in magnitude than changes in DC and FC.
Pagurus spp.	no change	no change	increase	Increases at one FC station.
Pista spp.	not tested	increase	inconclusive	
Strongylocentrotus purpuratus	not tested	increase	inconclusive	Increases at north DC stations.
Tectura scutum	no change	decrease	no change	Increases in abundance at control stations.
NO DISCHARGE EFFECTS				
None				

Table 3-8. Comparison of discharge effects between OpPeriod-1 and OpPeriod-2 in intertidal invertebrates at +0.3 MLLW horizontal band transects. Statistically significant results are compared between the TEMP Analysis Report (Tables 3-9 and 3-10) and this report (Table 3-6).

Category and Taxon	Analysis Report (OpPeriod-1)	Report Results (OpPeriod-2)		Comments
		Diablo Cove	Field's Cove	
CONTINUED DISCHARGE EFFECTS				
Magnitude of effect unchanged				
Leptasterias spp.	decrease	no change	no change	
Lottia limatula	increase	no change	no change	Continued relatively high abundances at DC.
Pachygrapsus crassipes	increase	no change	no change	
Tegula brunnea	decrease	no change	no change	Abundances at DC stations continued to be less than FC or control station.
Tunicates, colonial/social	decrease	inconclusive	no change	
Magnitude of effect increased				
Anthopleura elegantissima	increase	increase	increase	General decreases in abundance at all stations, but greater decreases at controls resulted in relative DC and FC increases.
Fissurella volcano	increase	increase	no change	Relative increase at north DC stations.
Haliotis spp.	decrease	inconclusive	decrease	
Lottia pelta	decrease	decrease	no change	Increased at control stations.
Mopalia spp.	decrease	decrease	inconclusive	Low in abundance at all stations, but increased between periods at control stations.
Ocenebra spp.	decrease	decrease	no change	
Pista spp.	decrease	decrease	decrease	
Strongylocentrotus purpuratus	increase	increase	increase	Continued low abundance at control stations and increases at three DC and one FC station.
Effect or trend in abundance reversed				
Chthamalus fissus	increase	decrease	inconclusive	
Epiactis prolifera	decrease	increase	increase	
Macclintockia scabra	increase	decrease	decrease	
Nemertea unid.	decrease	increase	increase	Decreases at control stations accompanied by increases at DC and FC stations.
Pugettia spp.	decrease	inconclusive	increase	
NEW DISCHARGE EFFECTS *PREVIOUSLY UNDESCRIBED*				
Nuttalina californica	no change	decrease	no change	
Tectura scutum	no change	increase	decrease	
Tegula funebralis	no change	decrease	decrease	Decreases at all stations greater in magnitude at DC and FC.
Pagurus spp.	no change	decrease	no change	
Serpulidae unid.	not tested	increase	increase	Low in abundance at most stations.
Phragmatopoma californica	not tested	inconclusive	increase	Low in abundance at all stations.
Species richness	no change	decrease	no change	Increases at control accompanied by decreases at DC.
NO DISCHARGE EFFECTS				
Serpulorbis squamigerus	inconclusive	inconclusive	no change	
Tetraclita rubescens	no change	inconclusive	no change	

The majority of invertebrate taxa that increased or decreased significantly between periods displayed season or station interactions with main period effects. This result demonstrated the temporally and spatially variable effects of the discharge within the relatively small area of Diablo Cove. Seasonal effects are difficult to interpret, particularly in non-annual species such as keyhole limpets. Winter increases at upper-elevation stations (Table 3-5) may have represented periodic winter recruitment events, though summer increases at lower elevation stations (Table 3-6) would confound this hypothesis. More likely, winter increases may have reflected the relative ease of observing species (e.g., keyhole limpets) following winter storms and consequent thinning of foliose algal cover. Seasonal effects, then, would be of greater value in partitioning impacts to non-perennial taxa, such as ephemeral algae (e.g., *Ulva* spp.) ephemeral nudibranchs (e.g., *Elysia* spp.), and temporally transient fishes (e.g., juvenile rockfishes).

More new changes due to the discharge were detected at Diablo Cove than Field's Cove stations in this analysis. Although temperature and biological data do indicate discharge effects in Field's Cove, these are difficult to detect, presumably due to diminishing effect sizes with increasing distance from Diablo Cove. Identified discharge effects at Field's Cove stations from this analysis may have existed previously in the period prior to 1995. The lack of previous analytical results from Field's Cove limits the determination of whether the extent of discharge effects on intertidal invertebrates expanded outside of Diablo Cove in OpPeriod-2. Of the 22 taxa that produced inconclusive test results from higher (Table 3-5) and lower (Table 3-6) Field's Cove sampling elevations, all but five taxa were very low in abundance ($\leq$ 1% cumulative abundance) during either period (Figures 3-15 and 3-20). Low abundances of some taxa and low anticipated effect sizes in Field's Cove reduced the ability of the analyses to detect discharge effects in this area.

3.3 Intertidal Black Abalone

3.3.1 Introduction

Black abalone (*Haliotis cracherodii*) have been the object of special field sampling programs since 1976. Cove-wide census surveys of Diablo Cove between 1981 and 1995 revealed declines in abalone abundance in Diablo Cove between 1981 and 1983 (before power plant start-up) followed by no change from 1985 to 1988 during three years of power plant operation. From early 1989 through mid-1991, however, the abundance of black abalone at all tidal levels in Diablo Cove declined by nearly 90 percent as a result of a disease (abalone withering syndrome or WS) exacerbated by elevated discharge temperatures. In years following this decline, juvenile abalone recruited in Diablo Cove during each summer from 1991 to 1994. The decline in black abalone abundance following 1988 was also detected in analysis of horizontal band transect (HBT) data at lower sampling elevation transects in Diablo Cove. No change was detected at the upper elevation transects (Tenera, Inc., 1997).

In this section, data from the annual Diablo Cove 'cove-wide' abalone surveys, 10-meter transect surveys, and qualitative surveys during 1996 and 1997 are presented and are interpreted in the context of historical data trends. All abalone data collected in 1995 were previously presented (Tenera, Inc.,1997)

3.3.2 Methods

Black abalone abundance was monitored as part of the HBT sampling. Additional information on their distribution, abundance, length-frequency, and condition within Diablo Cove was collected using a random sampling design. Approximately 10% of the 15,500 m^2 of the Diablo Cove intertidal zone between the 0.0 m and +1.3 m levels was sampled during each survey. Transect lines up to 100 m in length were aligned along permanent markers at approximately +0.6 m MLLW in Diablo Cove. Five transects were located north of the discharge structure and five transects were located south of it (Figure 3-27). Random coordinates above and below the transect lines were used to locate 1 m^2 quadrat sampling plots between approximately the 0.0 m and +1.3 m tide levels. Abalone were counted within each quadrat. Since 1991 abalone shell lengths were estimated visually and categorized as juvenile (<25 mm), small (<50 mm), medium (51-100 mm) or large (>100 mm). Surveys were done once per year in 1981/1982, 1983, 1984/1985, 1988, twice per year from 1989-1995, and once per year beginning in 1996. Mean density was calculated for each transect. An estimate of the total number of

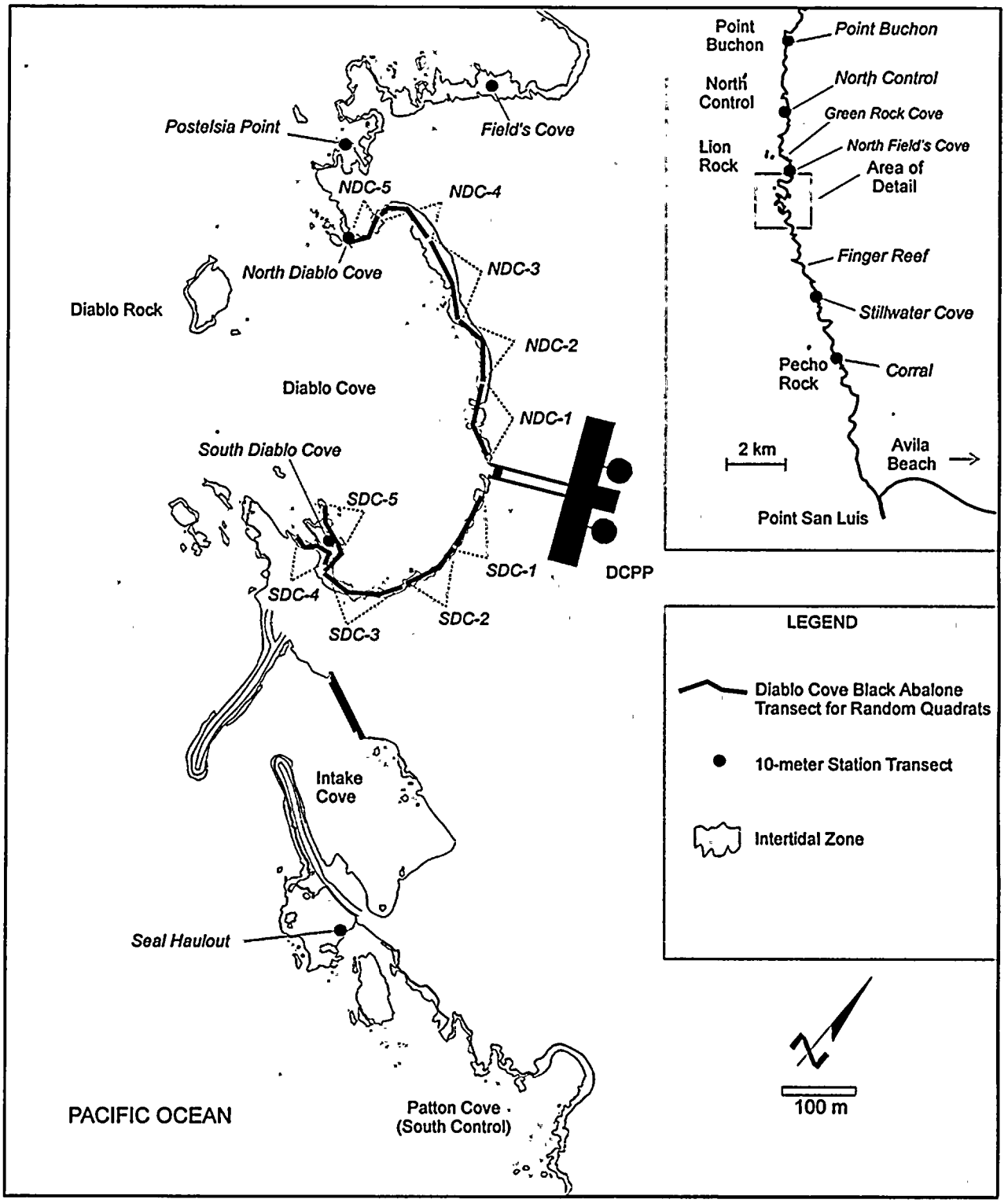


Figure 3-27. Black abalone random quadrat transects and fixed 10-meter transects.

abalone present in Diablo Cove during each survey was the product of the unweighted mean of the individual transect densities and the estimated 15,500 m^2 of potential black abalone habitat within the cove.

The abundance, size distribution, and condition of abalone were monitored within permanent areas (or transects) 2 m wide by approximately 10 m long. Two stations were located within Diablo Cove and five stations were located outside the cove. Two new 10-meter transects were added in 1996 north of Diablo Cove and one transect was added in 1997 south of Diablo Cove (Figure 3-27). Surveys were done twice per year from 1989 through 1996 and once in 1997.

Surveys on abalone condition and abundance were done within several generally defined areas along the approximately 10.0 km (6.2 mi - straight line distance) of coast between Point Buchon and Stillwater Cove (Figure 3-27). Abalone observed during the surveys were manipulated by hand to determine how firmly they were attached to the rock surface. Those easily pulled from the rocks were usually afflicted with WS and had foot muscles that were smaller in size than the circumference of their shell margins. Abalone not accessible were examined for other signs of WS (e.g., retracted epipodium). Abalone not obviously afflicted were considered healthy. The method yielded a rough estimate of the proportion of healthy to unhealthy abalone within each area inspected.

3.3.3 Results

Black abalone abundance either declined or remained unchanged during OpPeriod-2 on all of the HBT transects (Figure 3-28).

During black abalone surveys in Diablo Cove, 1,660 m^2 quadrats were sampled in 1996 and 1,503 quadrats were sampled in 1997 (Table 3-9). All ten transects in Diablo Cove were sampled in both years. Mean abalone density in the quadrats sampled in the 1996 survey was 0.18 abalone per m^2 and was similar to that for the 1995 survey (0.16 per m^2). In 1997 mean density declined to 0.12 abalone per m^2, the lowest mean density for a summer survey. A similar decrease was observed between 1996 and 1997 among abalone at the south Diablo Cove and North Control 10-meter transects (Table 3-10). Abalone at five other 10-meter transects regularly sampled since 1989 did not change substantially between 1996 and 1997. All seven of the transects sampled since 1989 were low in abundance in 1997 compared to their initial levels.

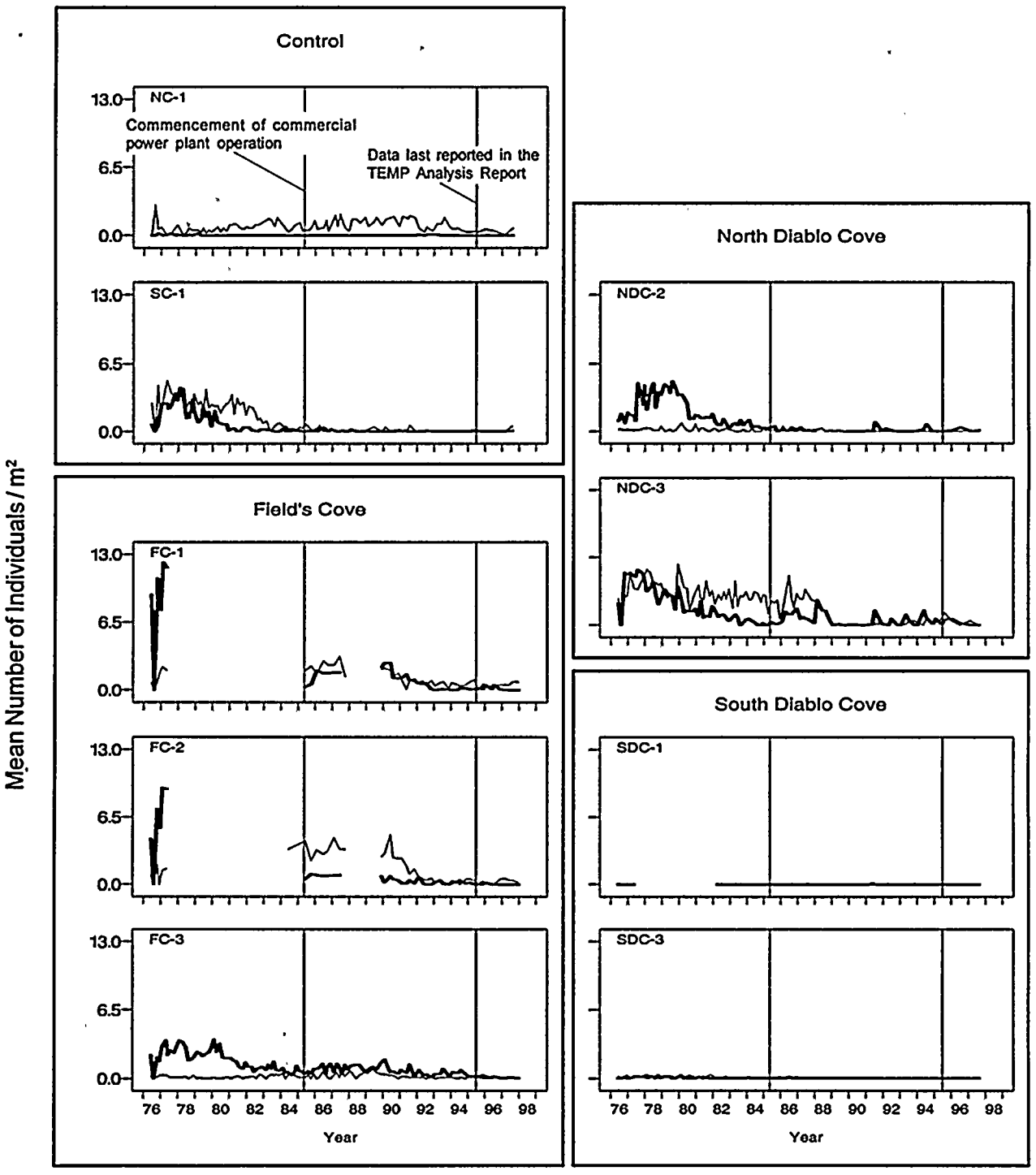


Figure 3-28. *Haliotis cracherodii* changes in density at the horizontal band transect stations. Wide and thin lines represent +0.3 m and +0.9 m transect data, respectively.

Table 3-9. Number of quadrats sampled per transect, mean number of abalone per m^2, and Diablo Cove population estimates for Diablo Cove random surveys from 1981 to June 1995. Surveys from 1981-1985 extended throughout the spring and summer months of each year. Shaded area indicates new data.

	Survey Month/Year																			
Transect	81	83	85	10/88	1/89	7/89	1/90	7/90	1/91	7/91	1/92	7/92	1/93	6/93	2/94	6/94	2/95	6/95	7/96	7/97
Number of quadrats sampled per transect																				
S1	188	179	153	171	166	173	157	138	159	156	168	170	166	161	172	171	166	180	223	169
S2	114	123	109	128	120	123	127	n/s	130	111	130	124	128	134	132	131	138	124	129	125
S3	182	199	125	205	201	195	195	n/s	195	186	195	n/s	195	205	195	202	204	198	197	196
S4	83	88	86	89	93	90	88	96	100	89	93	93	95	94	96	94	96	91	95	92
S5	82	n/s	85	79	87	81	83	89	93	77	86	90	90	88	90	90	82	88	92	88
N1	125	n/s	135	148	157	197	208	170	206	156	105	191	n/s	195	n/s	170	210	210	244	177
N2	183	190	227	225	234	224	228	228	228	230	228	231	231	223	232	231	230	224	226	218
N3	193	222	230	217	225	214	224	231	231	233	n/s	233	233	225	223	234	232	228	232	229
N4	151	154	157	153	161	156	157	156	161	170	158	158	161	157	160	159	160	160	163	159
N5	47	50	50	50	54	46	60	50	55	52	54	52	54	55	57	53	53	55	59	50
Total quadrats	1348	1205	1357	1465	1498	1499	1527	1158	1558	1460	1217	1342	1353	1537	1357	1535	1571	1558	1660	1503
Transect	**Mean number of abalone per m^2**																			
S1	.08	.01	.01	.00	.01	.00	.00	.00	.00	.04	.00	.02	.00	.00	.00	.01	.00	.00	.00	.01
S2	.25	.23	.25	.24	.14	.05	.01	n/s	.01	.09	.02	.02	.01	.07	.08	.11	.01	.02	.06	.01
S3	.21	.08	.08	.08	.02	.01	.02	n/s	.02	.02	.04	n/s	.00	.00	.00	.00	.01	.04	.01	.01
S4	2.27	.85	1.76	1.92	1.23	.68	1.40	.45	.49	.42	.74	.41	.12	.21	.04	.34	.10	.08	.19	.07
S5	.63	n/s	.86	3.00	1.72	1.59	1.41	.38	.40	1.74	.51	1.06	.47	.68	.13	.81	.24	.05	.36	.24
N1	.64	n/s	.19	.14	.00	.00	.01	.00	.00	.10	.00	.02	n/s	.03	n/s	.00	.04	.05	.03	.02
N2	1.21	.26	.78	.21	.09	.10	.03	.07	.03	.87	.17	.19	.07	.35	.21	.36	.40	.25	.15	.17
N3	1.01	.87	.83	.86	.36	.05	.03	.01	.03	.58	n/s	.33	.19	.90	.17	1.59	.60	.54	.63	.29
N4	.73	.30	.58	.15	.11	.01	.03	.01	.00	.11	.11	.22	.06	.44	.15	.30	.28	.09	.07	.09
N5	4.19	1.58	1.12	2.26	.07	.35	.18	.18	.00	1.15	.39	.27	.11	.82	.18	1.00	.42	.45	.27	.30
Mean density	1.12	.51	.64	.89	.37	.28	.33	.14	.10	.51	.22	.28	.11	.35	.11	.45	.21	.16	.18	.12
Total number sampled	1124	490	805	847	409	246	274	107	103	619	200	309	131	495	145	677	341	251	274	165
Diablo Cove population estimate	13064	5092	8359	8900	4054	2568	2802	1032	955	6328	1959	3016	1269	4936	1416	6595	3355	2492	2651	1662

Table 3-10. Total numbers of black abalone counted on 10-meter stations, 1988-1997. The number of quadrats sampled per transect varied among transects but was constant for each transect. 'ns' = not sampled; shading indicates new data.

Transect	Survey month/year																	
	6/88	9/88	7/89	1/90	7/90	1/91	6/91	2/92	7/92	4/93	7/93	2/94	8/94	2/95	10/95	3/96	8/96	7/97
North Diablo Cove	100	63	18	0	0	0	0	0	0	0	2	0	0	0	0	0	0	1
South Diablo Cove			144	115	55	45	44	80	22	9	20	3	36	20	14	7	18	9
Postelsia Point			157	135	49	46	52	58	41	ns	15	19	10	24	20	18	16	20
South Field's Cove			85	113	91	75	61	36	34	27	23	36	28	46	33	20	19	18
Seal Haulout				92	101	85	86	74	84	56	49	30	26	21	19	24	19	18
Stillwater Cove			131	145	113	153	166	143	129	ns	105	104	ns	61	ns	50	49	45
North Control			120	144	184	148	173	127	158	ns	129	68	80	42	38	ns	27	17
Point Buchon																86	82	80
North Field's Cove																78	62	68
Corral																		82

The decreases in abalone abundance observed between the 1996 and 1997 surveys occurred primarily among individuals in the juvenile and small size classes (Table 3-11). The absolute number of small individuals decreased by one-half between 1996 and 1997 while juvenile abalone decreased by a factor of eight. The absolute number of medium sized individuals was nearly identical in 1996 and 1997 but the proportion of the total number increased from 31 % in 1996 to nearly 60% in 1997.

In 1996, a total of 1,535 black abalone in five areas were examined qualitatively for symptoms of WS (Table 3-12). Only three abalone in two areas were observed with WS symptoms. Six areas were surveyed in 1997, and two of the 1,291 abalone examined were observed with WS symptoms. The proportion of abalone in the population affected by WS was approximately 0.2% in both years. The areas (Seal Haulout and Finger Reef/Thumb Rock) where WS was observed were surveyed with equivalent search efforts in both 1996 and 1997.

Table 3-12. Total numbers of abalone with and without withering syndrome from qualitative black abalone surveys outside Diablo Cove, 1996-1997. Refer to Figure 3-27 for locations.

Area of Obsevation	Distance from Diablo Cove	Total number of abalone observed			
		1996		1997	
		no WS	WS	no WS	WS
Postelsia Point	0.1 km north	252	0	84	0
North Field's Cove	0.8 km north	200	0	*ns*	*ns*
Green Rock Cove	3 km north	*ns*	*ns*	223	0
Point Buchon	10 km north	230	0	151	0
Seal Haulout	1 km south	689	1	454	2
Finger Reef/Thumb Rk.	4 km south	164	2	99	0
Corral	10 km south	*ns*	*ns*	280	0
	Totals	1535	3	1291	2

[1] *ns* = not sampled

Table 3-11. Abundance of black abalone by size class (1981 through January 1991) and size range (July 1991 through July 1997) for all Diablo Cove random surveys. Shaded area indicates new data [1].

Size Range (mm)	Size class	Survey Date																		
		81[2]	83[2]	85[2]	88[2]	1/89[2]	7/89[2]	1/90[2]	7/90[2]	1/91	7/91	1/92	7/92	1/93	6/93	2/94	6/94	2/95	6/95	7/96	7/97
1 - 10											13	0	26	13	16	9	18	0	0	4	0
11 - 15	Juv[3]	—	—	—	—	—	—	—	—	6	82	8	77	26	88	20	98	1	5	13	3
16 - 20											188	8	64	20	128	15	233	8	10	22	3
21 - 25											215	28	45	15	123	13	190	11	6	44	4
Total juvenile		—	—	—	—	—	—	—	—	6	498	44	212	74	355	57	539	20	21	83	10
% of total abalone										*5.8*	*80.5*	*22.0*	*68.6*	*56.5*	*71.7*	*39.3*	*79.6*	*5.9*	*8.4*	*30.3*	*6.1*
26 - 30											43	22	12	12	58	16	53	33	10	31	7
31 - 35											5	18	15	4	34	22	30	46	23	21	5
36 - 40	Sm	98	63	185	274	69	84	76	29	36	19	19	12	2	11	11	8	71	27	19	16
41 - 45											8	11	11	4	13	10	11	54	36	16	10
46 - 50											2	7	13	7	2	12	13	28	24	16	15
Total small		98	63	185	274	68	84	76	29	36	77	77	63	29	118	71	115	232	120	103	53
% of total abalone		*8.7*	*12.9*	*23.0*	*32.3*	*16.6*	*34.1*	*27.7*	*27.1*	*35.0*	*12.4*	*38.5*	*20.4*	*22.1*	*23.8*	*49.0*	*17.0*	*68.0*	*47.8*	*37.6*	*32.1*
51 - 60											5	10	13	7	4	11	12	33	78	45	44
61 - 70											1	22	4	5	4	0	5	24	17	25	27
71 - 80	Md	538	285	421	441	217	115	168	66	46	25	13	3	3	6	3	2	26	8	10	18
81 - 90											4	8	4	6	4	0	2	5	3	5	7
91 - 100											0	13	5	1	1	1	1	1	2	1	1
Total medium		539	285	421	441	218	115	168	66	46	35	66	29	22	19	15	22	89	108	86	97
% of total abalone		*48.0*	*58.2*	*52.3*	*52.1*	*53.3*	*46.7*	*61.3*	*61.7*	*44.7*	*5.7*	*33.0*	*9.4*	*16.8*	*3.8*	*10.3*	*3.2*	*26.1*	*43.0*	*31.4*	*58.8*
101 - 110											9	7	4	4	2	0	0	0	1	1	3
111 - 120	Lg	486	142	199	132	123	47	30	12	15		0	1	0	1	1	1	0	1	1	1
>120												6	0	2	0	1	0	0	0	0	1
Total large (<120)		487	142	199	132	123	47	30	12	15	9	13	5	6	3	2	1	0	2	2	5
% of total abalone		*43.3*	*29.0*	*24.7*	*15.6*	*30.1*	*19.1*	*10.9*	*11.2*	*14.6*	*1.5*	*6.5*	*1.6*	*4.6*	*0.6*	*1.4*	*0.1*	*0.0*	*0.8*	*0.7*	*3.0*
Total abalone		1124	490	805	847	409	246	274	107	103	619	200	309	131	495	145	677	341	251	274	165

[1] Minor differences between the size frequency data presented in this table and in PG&E (1997a) are the result of corrections made to the original data files. Total numbers and subsequent pop estimates remain unchanged.

[2] From 1981-1990 abalone were classified into four sizes. The total numbers within these size classes are listed with the median size range for that class.

[3] Juveniles were included in counts of small abalone from 1981-90.

3.3.4 Discussion

Black abalone abundance continued to decline in Diablo Cove and control areas from 1995-1997. The magnitude of the decreases over this period was not as large as the declines observed from 1990-1994. Increased population estimates from the Diablo Cove surveys prior to 1995 were the result of strong juvenile recruitment in the summer, and the survival and growth of these cohorts into larger size classes.

The natural mortality rate of newly recruited and juvenile abalone is known to be very large (McShane, 1992) and is probably increased by the presence of WS in the population. Substantial recruitment was last observed in 1994. The results of the Diablo Cove surveys that contrast the high abalone densities in summer with the low densities in winter were indicative of these mortality factors. Winter densities from 1991-1994 surveys were very close in value to the estimated 1997 survey density. Survival rates for abalone have apparently been very low because large adults over 80 mm shell length are rare in Diablo Cove (Table 3-11).

The presence of abalone in Diablo Cove and other areas indicated that at least some of the population was more resistant to the effects of WS. Abalone abundance at the 10-meter transects remained stable in some areas and declined at others from 1996 to 1997. These changes were less than the declines prior to 1995. Declines of 91% and 70% since 1989 have occurred at the north control and Stillwater Cove 10-meter transects, respectively. Declines at the transects in north and south Diablo Cove over the same time period were 99% and 94%, respectively. WS caused similar declines over this time period in other coastal areas of central and southern California (Altstatt et al., 1996), and at the Channel Islands (Davis et al., 1992). In Diablo Cove the elevated water temperatures increased the mortality rate attributed to WS (Steinbeck, 1992). WS was still present in a small portion of the adult abalone population in 1996 and 1997. Without additional recruitment of juvenile abalone, the abundance of the remaining population can be expected to decrease through natural and WS-related mortality.

3.4 Intertidal Fishes

3.4.1 Introduction

The intertidal fish community in the Diablo vicinity prior to power plant operation was similar to that previously described at other central California rocky coast areas (Horn et al., 1983). It was mainly comprised of eel-like fishes that are typically found beneath shoreline cobbles, boulders or algae during low tides (Kelly et al., 1985). Previous analysis of intertidal fish data (Tenera, Inc., 1997) concluded that the power plant discharge decreased the abundances of some common intertidal fish species but did not substantially alter the relative abundances of the species. However, the Field's Cove station was used as a 'control' in the analysis. Field's Cove was occasionally contacted by power plant discharges and stations there cannot be expected to represent conditions in areas not contacted by the plume. As a result, the analyses may have underestimated the magnitude of some of the observed effects.

The following section describes changes in the composition of the intertidal fish fauna in Diablo Cove and Field's Cove from OpPeriod-2 and compares them to OpPeriod-1. Size frequencies for one of the more abundant species, *Xiphister mucosus* (black prickleback), are also presented to portray recruitment during OpPeriod-2.

3.4.2 Methods

Intertidal fishes were sampled using the same station arrays and basic methods as the vertical band transect (VBT) sampling methodology. At each of the three stations, three transects were positioned perpendicularly to the shoreline at fixed locations. Each transect originated in the high intertidal zone (approximately +1.5 m MLLW) and terminated near the water's edge at low tide (approximately -0.2 m MLLW). Transects within a station were separated by approximately 3 m. Each transect served as a reference line used to position 12-1 m^2 permanent sampling quadrats, for a total of 36-1 m^2 quadrats per station. Foliose algae within the quadrats were examined for fishes that may occur among or beneath the fronds. Moveable rocks were carefully lifted and any fishes seen were captured in small hand nets. Fishes were identified to the lowest practical taxonomic level, measured, and returned to the quadrat after sampling was completed. The field methods did not allow consistent identification of newly settled juvenile fishes to the species level. These were grouped into composite taxa such as

Anoplarchus/Cebidichthys or Pholididae/Stichaeidae. Diablo Cove VBT stations were sampled annually and Field's Cove station FC1-V was sampled quarterly during OpPeriod-2.

Intertidal fish data were not analyzed statistically using the ANOVA analysis model because Field's Cove was not considered a valid control station. Mean period abundances were compared qualitatively for the pre-operation period and the two periods between Field's Cove (FC1-V), north Diablo Cove (NDC1-V) and south Diablo Cove (SDC2-V).

3.4.3 Results

Community Overview

Mean abundances per taxa and numbers of taxa per survey were generally greatest at the Field's Cove station. Twelve fish taxa were sampled at the Field's Cove station during 9 surveys in OpPeriod-2 with an average of 6.9 taxa per survey (Figure 3-29a). This compared to 4.5 taxa per survey at the north Diablo Cove station (Figure 3-29b) and 6.0 per survey at the south Diablo Cove station (Figure 3-29c). *Xiphister mucosus* (rock prickleback) was the most abundant species during the two periods in Field's Cove. It was less abundant at the two stations in Diablo Cove. *Anoplarchus/Cebidichthys* complex (high cockscomb/monkeyface-eel) declined and juvenile Stichaeidae/Pholididae increased between OpPeriod-1 and OpPeriod-2 in Field's Cove. Other common taxa were relatively unchanged.

Two surveys were completed at the north Diablo Cove station during OpPeriod-2. The greatest change between periods was a decline in the *Anoplarchus/Cebidichthys* complex (Figure 3-29b). Stichaeidae/Pholididae increased slightly while other taxa, including *Xiphister mucosus*, remained relatively unchanged in OpPeriod-2. *Xiphister atropurpureus* declined after power plant start-up, and remained at very low abundance levels in north Diablo Cove. The mean number of taxa per survey also declined at this station after plant start-up, but increased slightly during OpPeriod-2.

During two surveys in south Diablo Cove, *Cebidichthys violaceus* and Stichaeidae/Pholididae increased relative to the Field's Cove station and *Anoplarchus purpurescens* declined (Figure 3-29c). *Scytalina cerdale* (graveldiver) were not recorded on the station during OpPeriod-2. This species was typically found in south Diablo Cove and was present in almost all previous surveys. The mean number of taxa per station was nearly equivalent to the Field's Cove transect during OpPeriod-2.

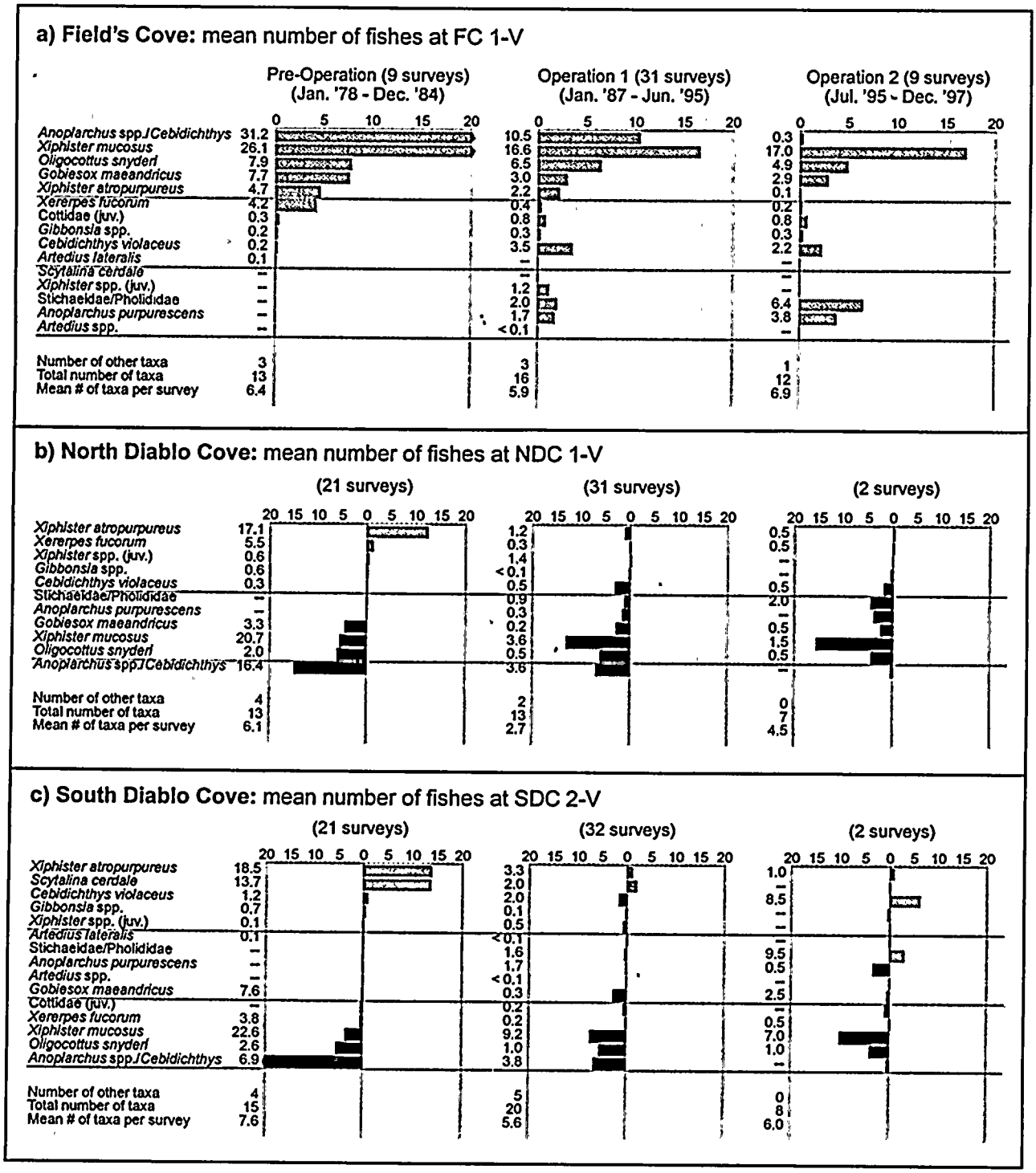


Figure 3-29. Intertidal fish abundances at vertical band transect stations. a) Field's Cove study period means (values and bars). b) Study period mean abundances (values) and differences in abundance (bars) from Field's Cove for north Diablo Cove. c) Study period mean abundances (values) and differences in abundance (bars) from Field's Cove for south Diablo Cove. A dashed line for abundance in all three study periods for Field's Cove denotes the taxon occurred at the north or south Diablo Cove station but not at the Field's Cove station.

Select Species Abundances

Long-term abundance data from 1979 to 1997 are presented for three of the historically most abundant intertidal fishes. The plots illustrate continuations of or departures from previous trends. Mean abundances for all intertidal fish taxa sampled during OpPeriod-2 are presented in Appendix C.

Xiphister mucosus was more abundant at the Field's Cove station than at Diablo Cove stations (Figure 3-30). It increased slightly in both north and south Diablo Cove in 1996 and 1997, as compared to 1995, but varied widely in abundance in Field's Cove. Lowest abundances from 1992 to 1997 tended to occur in early winter, although in 1996 highest abundances were recorded in February.

Xiphister atropurpureus declined in 1996 and 1997 at south Diablo Cove stations and was nearly absent at the north Diablo Cove and Field's Cove stations (Figure 3-31). This species declined significantly after power plant start-up and continued a pattern of low but variable abundance at the stations from 1992 to 1997.

Early juveniles of *Anoplarchus purpurescens* and *Cebidichthys violaceus* were combined into a single category because of difficulties in field identifications of small specimens. This taxonomic complex continued to be rare at all stations in 1996 and 1997 and had not recovered after long-term declines that began in the late 1980's (Figure 3-32).

Length Frequency Analysis

Xiphister mucosus (rock prickleback) was the only species abundant enough to examine seasonal trends in size frequency. Total lengths (TL) at the Field's Cove station ranged from 40 mm to 180 mm (Figure 3-33). Some smaller individuals of this species were likely sampled, but small specimens were included in the Stichaeidae/Pholididae category because of uncertainties in field identification. There was a greater proportion of small *X. mucosus* found during the late fall and winter surveys (November to January) than found in the summer surveys (Table 3-13). At the Field's Cove station, the smallest mean lengths (56.8 mm) occurred during December 1996 and the greatest mean length occurred in July 1995 (93.2 mm). Seasonal trends in mean size could not be assessed at NDC1-V and SDC2-V due to the small number of individuals measured at these stations (Figure 3-34).

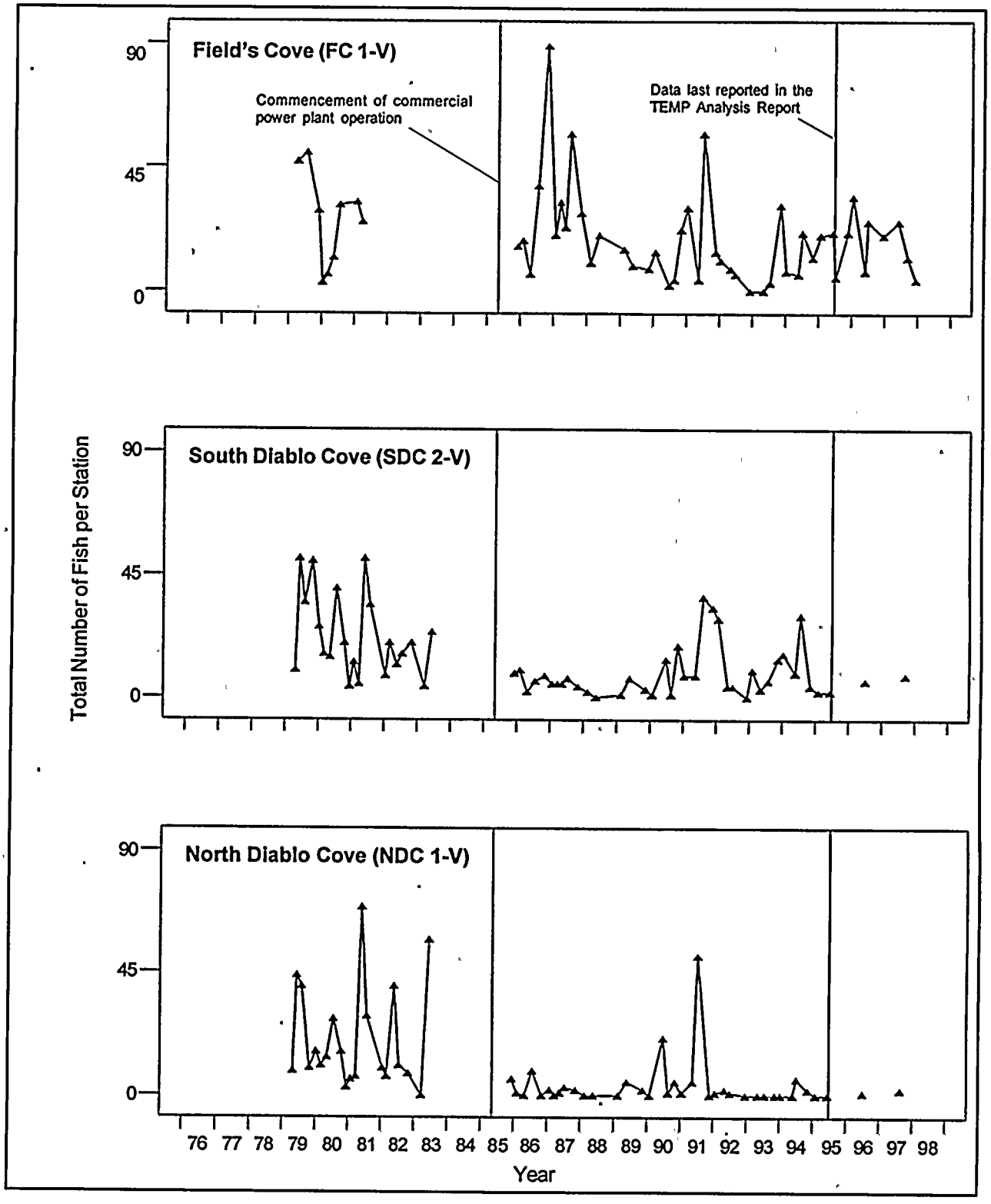


Figure 3-30. *Xipister mucosus* changes in density at the vertical band transect stations.

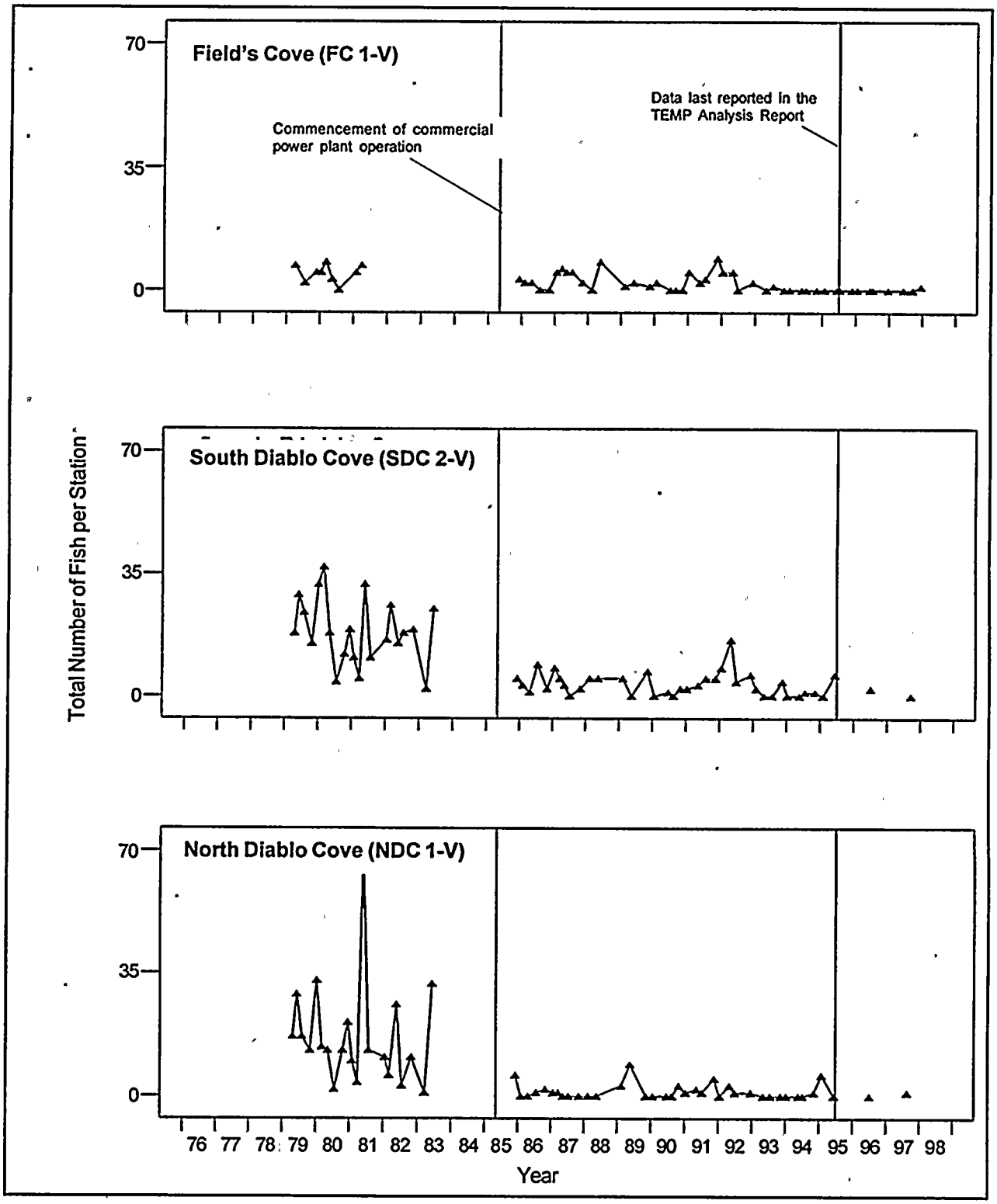


Figure 3-31. *Xipister atropurureus* changes in density at the vertical band transect stations.

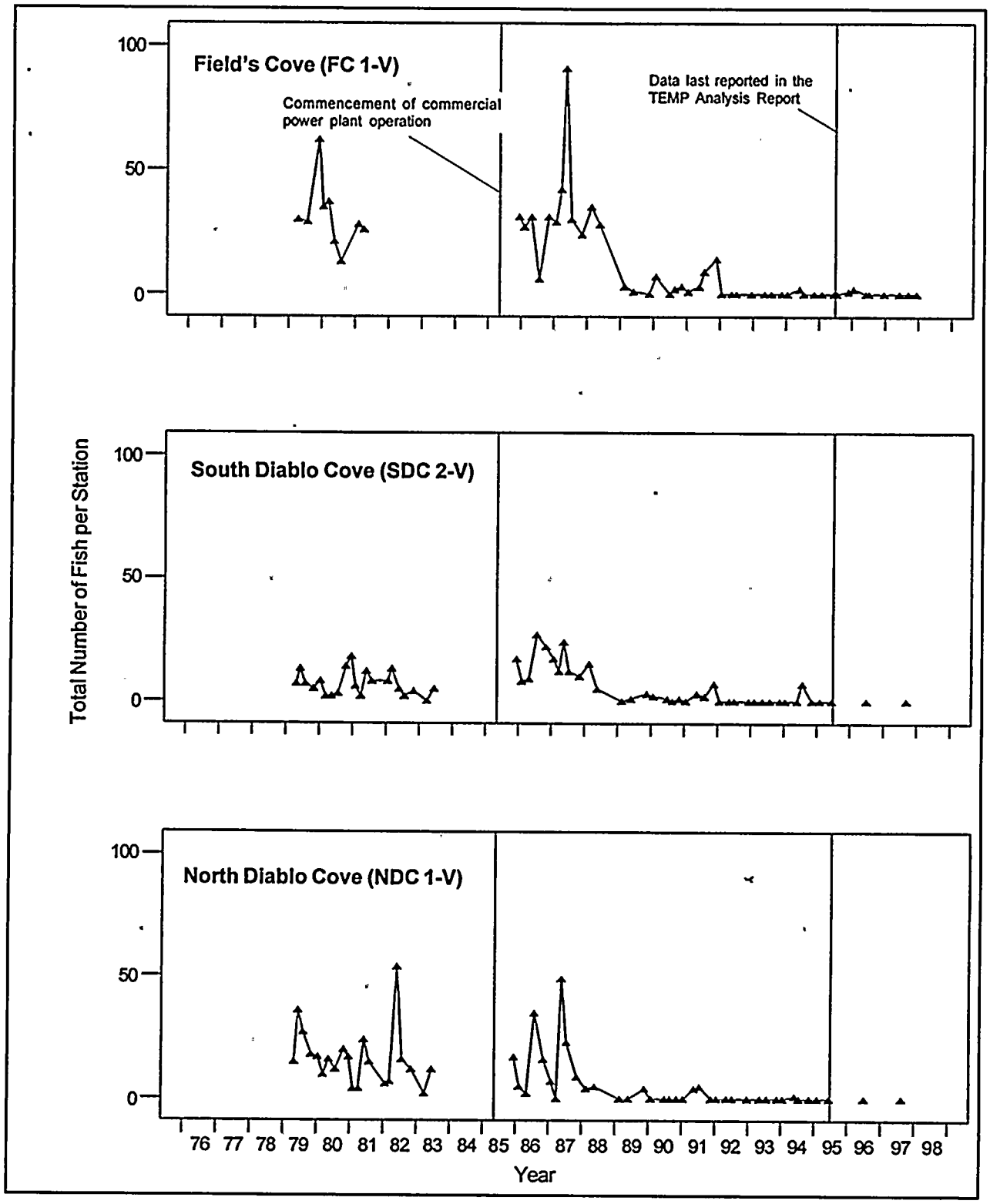


Figure 3-32. *Anoplarchus/Cebidichthys* changes in density at the vertical band transect stations.

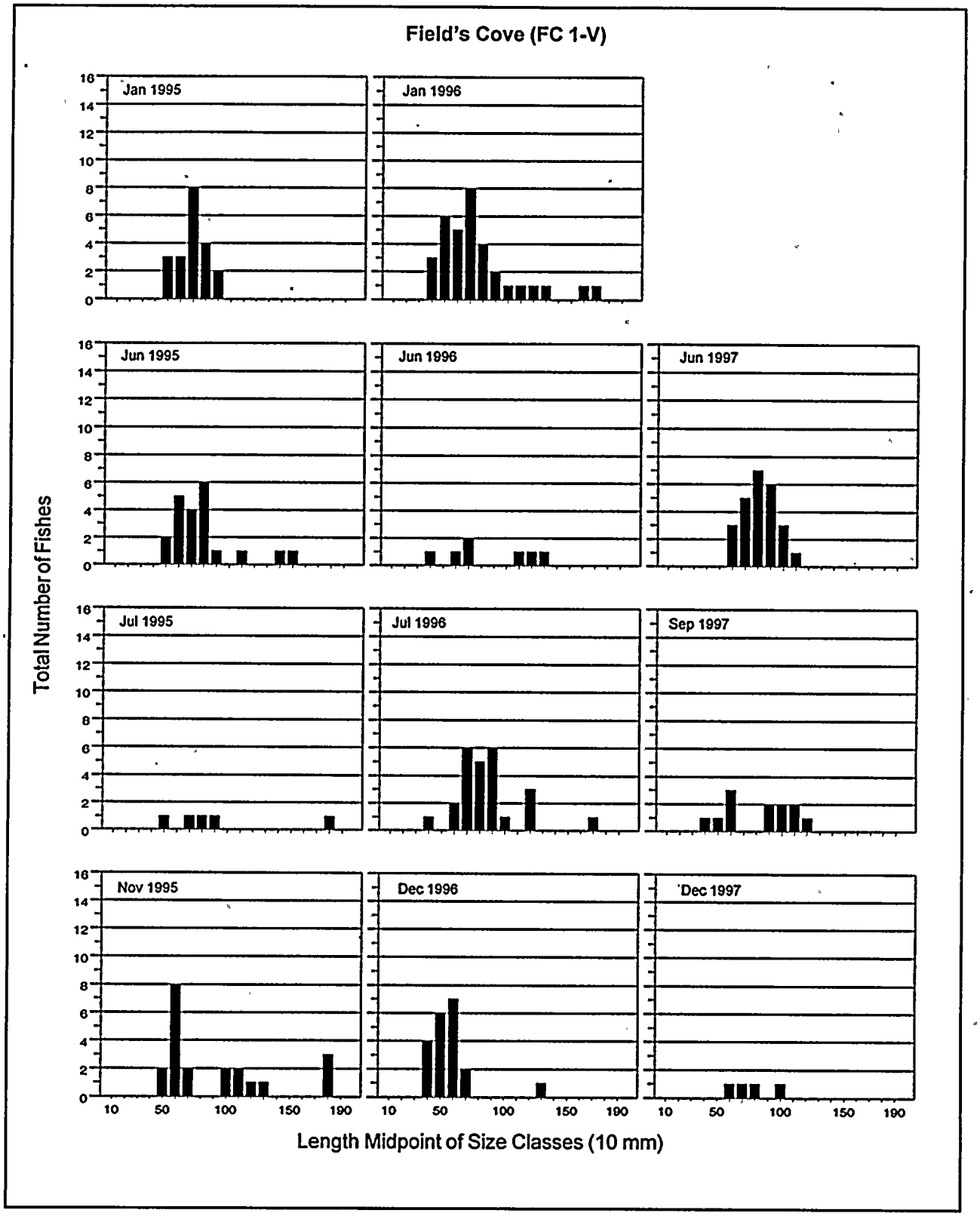


Figure 3-33. *Xiphister mucosus* length frequencies at the Field's Cove station.

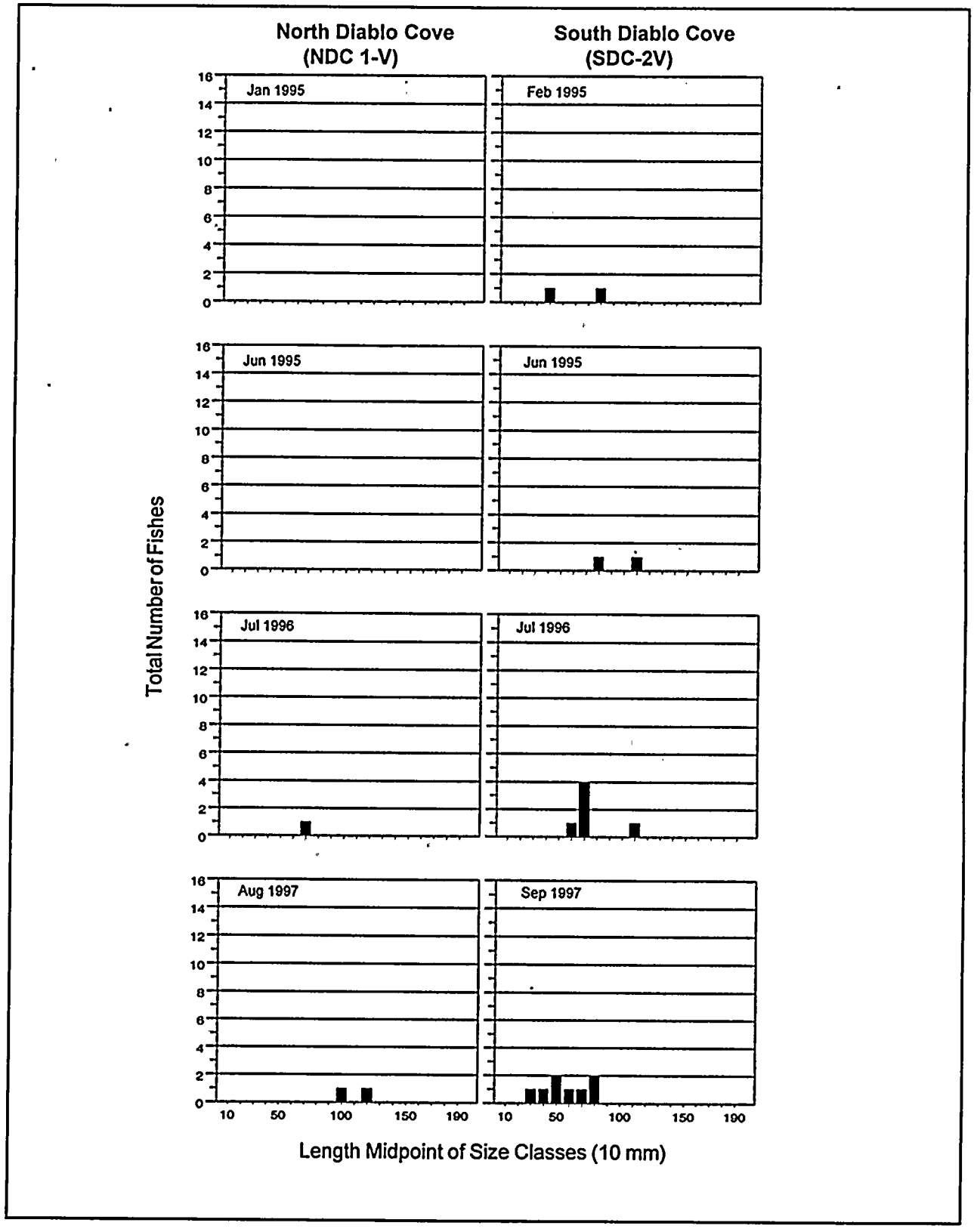


Figure 3-34. *Xiphister mucosus* length frequencies at the north Diablo Cove and south Diablo Cove stations.

Table 3-13. Mean total lengths (mm) of *Xiphister mucosus* at Field's Cove and Diablo Cove stations, 1995-1997. 'n' = number of specimens measured; 'ns' indicates that station was not sampled.

	Field's Cove		North Diablo Cove		South Diablo Cove	
Month/Year	mean	n	mean	n	mean	n
Jan-95	67.5	20	—	0	62.5	2
Jun-95	78.1	21	—	0	92.5	2
Jul-95	93.2	5	ns	—	ns	—
Nov-95	91.3	21	ns	—	ns	—
Jan-96	75.7	34	ns	—	ns	—
Jun-96	84.4	7	ns	—	ns	—
Jul-96	84.5	25	68.0	1	71.3	6
Dec-96	56.8	20	ns	—	ns	—
Jun-97	82.0	25	ns	—	ns	—
Sep-97	83.3	12	107.5	2	56.5	8
Dec-97	75.8	4	ns	—	ns	—

3.4.4 Discussion

Several factors determine the abundance of intertidal fishes in an area, including habitat (e.g., substrate and algal cover), food availability, recruitment success, and physical environmental factors (e.g., temperature and wave exposure). Although these factors vary between stations in Diablo Cove and Field's Cove, analysis of long-term data from 1979 to 1995 demonstrated that abundances of intertidal fishes in Diablo Cove generally declined as a result of power plant operation (Tenera, Inc., 1997). During OpPeriod-2, this trend continued with fewer fishes and fewer taxa found at north Diablo Cove than at either south Diablo Cove or Field's Cove. Field's Cove provided the best habitat for many of the taxa, particularly *Xiphister mucosus,* that has been one of the most abundant taxa in both coves (Kelly et al., 1985). *X. mucosus* declined significantly at the north Diablo Cove station after power plant start-up, and numbers were still depressed at this location in OpPeriod-2.

The fewer number of taxa observed in Diablo Cove during OpPeriod-2 was a result of the fewer number of surveys sampled (2) compared to OpPeriod-1 (32). When multiple surveys are conducted throughout the year over many years, there is a greater opportunity to sample uncommon taxa or taxa that may be present only seasonally.

South Diablo Cove had a wide intertidal zone with varied substrate that provided habitat for intertidal fishes. A catastrophic rock slide in 1983 buried the station under rock fragments, but this new substrate still provided habitat for intertidal fishes throughout plant operation. *Cebidichthys violaceus* was

generally more abundant at this station than elsewhere. It was also the only station where *Scytalina cerdale* (graveldiver) was consistently found, except during the two surveys in OpPeriod-2. Annual recruitment of Stichaeidae/Pholididae occurred at this station during all years after plant start-up. This indicated that the area still functioned as viable settlement habitat for several intertidal fish species.

Changes in size frequency distributions of *X. mucosus* yielded some information on recruitment and growth in the species during those surveys where an adequate number of individuals was sampled at a station (approximately 10-15 fishes). Increasing mean size between winter and summer surveys probably represented growth of annual cohorts of recruits. The mean sizes of fishes at the Field's Cove station increased approximately 20 mm between winter and summer. The data were not adequate to assess variation in growth rates of *X. mucosus* between Diablo Cove and Field's Cove stations. Smaller size classes were not well represented in the length frequency analysis of *X. mucosus* because most of the smaller fishes were classified as Stichaeidae/Pholididae. The larger size classes (>120 mm) were also infrequent on the stations probably due to natural mortality or migration of larger fishes into subtidal habitats. *X. mucosus* and *Cebidichthys violaceus* (> 250 mm) are primarily subtidal as adults (> ca. 250 mm), and juveniles of these species tend to occur higher in the intertidal (Barton, 1981).

4.0 Subtidal Studies

Subtidal algae, invertebrates, and fishes were sampled in several field studies of Diablo Cove, Field's Cove, and control areas. Algae and invertebrate communities were sampled for species composition and abundance at permanent benthic stations, and fishes were identified and enumerated along permanent transects located near the benthic stations. The distribution and abundance of bull kelp (*Nereocystis luetkeana*) and giant kelp (*Macrocystis pyrifera*) in Diablo Cove were mapped in the habitat-forming kelp study. Red abalone and other macroinvertebrates were counted in Diablo Cove, Field's Cove, and South Control using a random sampling design.

4.1 Subtidal Algae

4.1.1 Introduction

Subtidal algae were sampled at DCPP since 1976. An earlier analysis of data collected through June 1995 detected effects from the discharge on algal understory assemblages in Diablo Cove (Tenera, Inc., 1997). The changes consisted of declines in surface canopy bull kelp, species of subcanopy kelp, and some predominant understory species. Coincident with this change were increases in previously uncommon red algal understory species. The spatial extent of change involving the subcanopy kelps and the algal understory was restricted to depths less than about 7 m in Diablo Cove. Discharge effects in bull kelp, detected as early deterioration of surface fronds, extended over the largest area (Field's Cove and areas northward to Lion Rock) during the 1987 warm water El Niño. Giant kelp surface canopies increased in abundance throughout Diablo Cove, beginning in 1990. A geographic information system (GIS) analysis of kelp aerial overflight photographs was used as an additional method to determine the spatial area of discharge effects in surface canopy kelp species. The results were inconclusive, due to the limited number of years available for analysis and high variation in kelp abundance (Tenera, Inc., 1997).

The results below describe what further changes occurred in the algal understory and kelp assemblages with continued operation of the DCPP, through analysis of data collected in Diablo Cove, Field's Cove, and control locations during OpPeriod-2. New or continuing effects are described based on comparisons of results for OpPeriod-2 to results for OpPeriod-1. Results for OpPeriod-1 are described in the TEMP Analysis Report. Results for Field's Cove station FC-2 are not presented in this section because FC-2

was at a depth of -9 m (-30 ft) and no control station at a similar depth was sampled in OpPeriod-2. Results for FC-2 for OpPeriod-2 are presented in Appendix C.

4.1.2 Methods

Sampling Methods

Subtidal algae were monitored at permanent benthic stations (Figure 4-1) using the subtidal arc quadrant (SAQ) and random point contact (RPC) sampling methods. Each circular station had a radius of 3.1 m and a sampling area of 28 m^2. The center 4 m^2 area, which contained a mooring wheel, was not sampled to avoid any unnatural algal and invertebrate growths associated with the mooring. Each station was divided into four equal sections, or 'arc quadrants', 7 m^2 in area. All stations were established on substrates of primarily mixed bedrock and boulders with small amounts of cobble and sand. Depths ranged from -3 m to -10 m (-10 ft to -32 ft) MLLW. Sampling frequency was approximately four times per year from 1988 through June 1995. In June 1995 the sampling frequency was reduced to two surveys per year. The frequency of sampling at Field's Cove stations remained at four times per year.

Kelp species (large brown algae of the order Laminariales and Fucales) and macroinvertebrates (Section 4.2.2) were sampled using the arc quadrant sampling method. Kelp species sampled were the subcanopy kelps *Pterygophora californica, Laminaria setchelli,* and *Egregia menziesii,* and the surface canopy-forming kelps *Nereocystis luetkeana* and *Macrocystis pyrifera.* Juvenile plants of these species (which were not recognizable to the species level) were counted and recorded as 'Laminariales'. The kelps *Sargassum muticum* and *Cystoseira osmundacea* (Fucales) were also counted. *C. osmundacea* was further differentiated into those plants with only a small basal portion, and larger plants with floating reproductive fronds.

The RPC sampling method was used to estimate the percent coverage of algae, sessile invertebrates, and substrates. A line with 10 points positioned at increasing intervals toward the station perimeter was attached to the center of the station and used to locate sampling loci in each quadrant. Fifty points within each quadrant, or 200 points per station, were randomly selected (using a random numbers table) before sampling. A new set of randomly selected points was sampled each survey. The presence of all taxa observed directly under the points was recorded. Species were identified to the lowest taxonomic level practical. Unknown taxa were collected outside the sampling area, if possible, and returned to the laboratory for identification.

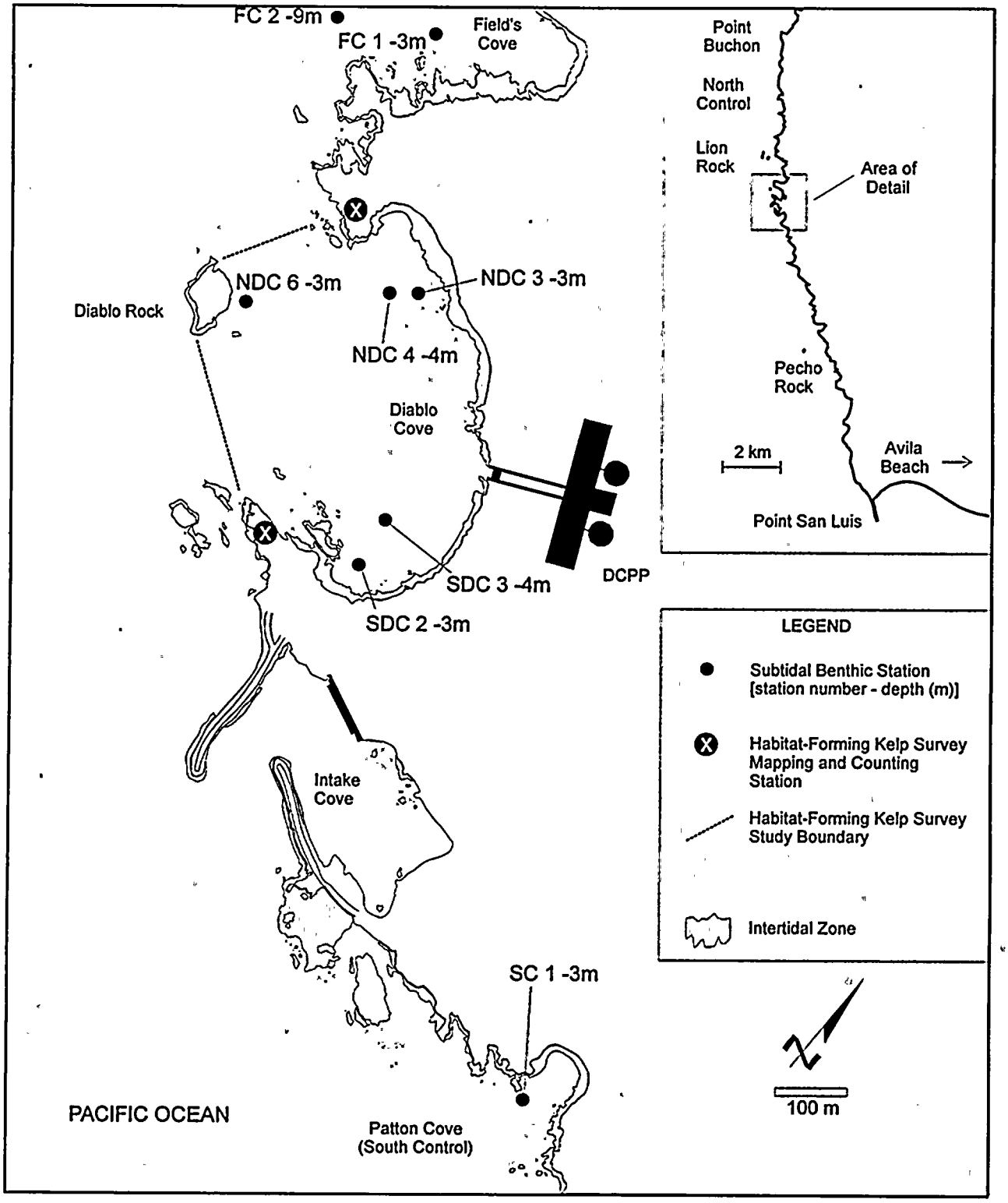


Figure 4-1. Subtidal benthic stations and habitat-forming kelp survey study boundaries and mapping/counting stations.

Annual kelp surveys documented changes in kelp surface-canopy cover through time. Surveys were done from the north and south points of Diablo Cove (Figure 4-1). The kelp surveys from 1971 through 1982 were done by CDF&G. The surveys were conducted in October. October is the end of the growth cycle when the maximum number of bull kelp plants have reached the surface and could be counted. Sub-surface plants not counted using this method were sampled using the arc quadrant method described previously. Two observers at each point counted and mapped the extent of bull kelp plants and giant kelp canopies. The occurrence of bull kelp plants with bare bulbs, indicating early senescence in plants, was also noted when possible. A final annual census total for Diablo Cove and a composite map depicting the locations of bull kelp and giant kelp were developed from the data.

Analysis Methods

Abundances of individual taxa were analyzed for changes between OpPeriod-1 and OpPeriod-2 using ANOVA (Section 1.3). The algal taxa analyzed were those that formed 99% of the total abundance in the two periods at the Diablo Cove and Field's Cove stations. Kelp holdfast, basal frond, and sporophyll cover were included as part of the algal understory in determining the taxa that formed 99% of the total understory algal cover, but crustose taxa were not included. Crustose taxa were abundant, and their omission placed more taxa on the analysis list. Crustose taxa and bare rock coverage were then added back onto the analysis list. The kelp taxa were analyzed separately using the count data obtained from the SAQ sampling method. Field's Cove station FC 2-9 (Figure 4-1) was not statistically analyzed because no comparative, deep water control existed.

Correspondence analysis of subtidal algae used data from the RPC and SAQ sampling methods. Data from understory taxa that comprised 95% of the total algal abundance (excluding crustose taxa) and that occurred in at least 20% of the surveys, and kelp taxa that comprised 99% of the total kelp abundance and that occurred in at least 20% of the surveys were used in the analysis. Data for these taxa were log(x+1) transformed to compensate for scale differences between counted and coverage taxa and then combined into annual means for the stations in the following four areas: Control (SC 1-3m), north Diablo Cove (NDC 3-3m and 4-3m), south Diablo Cove (SDC 2-3m and 3 -3m), and Field's Cove (FC 1-3m).

Statistical results from this report were compared with statistical results from the TEMP Analysis Report to identify new or continuing effects of the discharge. The comparisons were qualitative because the analyses and study designs differed between the two reports. The TEMP Analysis Report used data from two control stations to derive differences for three north Diablo Cove stations and two south Diablo Cove stations. The analyses in this report used data from one control station to derive differences for three

north Diablo Cove stations, two south Diablo Cove stations and one Field's Cove station. The comparisons for individual taxa and other data sets were grouped into three general categories described in Section 1.3.

4.1.3 Results

Understory algae and kelp data from the control station were used as a baseline for describing changes at stations in Diablo Cove and Field's Cove. Articulated coralline algae (*Calliarthron/Bossiella* spp.), coralline crustose algae, and two foliose red algal species (*Cryptopleura ruprechtiana* and *Chondracanthus corymbiferus*) continued to be the most abundant understory taxa at the control station in OpPeriod-2 (Figure 4-2a). The subcanopy kelp species *Pterygophora californica* and *Laminaria setchellii* and juvenile forms of these species (Laminariales) remained in greater numbers at the control station than the surface canopy kelps *Nereocystis luetkeana* and *Cystoseira osmundacea* (Figure 4-2b).

The assemblage of foliose understory algae and kelp at Diablo Cove stations in OpPeriod-2 differed from the control because of shifts in composition and abundance that occurred during OpPeriod-1 (Figure 4-3). *Cryptopleura violacea* and *Farlowia/Pikea* spp. were the dominant foliose understory algae at the stations during OpPeriod-2 (Figure 4-3a). These two species have increased since plant start-up and replaced *Cryptopleura ruprechtiana* as the dominant understory species at the Diablo Cove stations. A decrease in total abundance of understory algae (excluding crustose taxa) occurred between periods.

The composition of kelp species at Diablo Cove stations was different from control and Field's Cove stations. Subcanopy kelp species declined in abundance in Diablo Cove during OpPeriod-1 and remained low in abundance through OpPeriod-2. Two surface canopy kelps in Diablo Cove, *Macrocystis* spp. and *Sargassum muticum*, were not found at control and Field's Cove stations (Figure 4-3b).

Understory algae and kelp composition at the Field's Cove station has remained similar to the control station during power plant operation (Figure 4-4). Although total understory algal cover declined in OpPeriod-2, the algal understory at the Field's Cove station was dominated by *Cryptopleura ruprechtiana* (Figure 4-4a). This species characterized the understory at Diablo Cove stations before plant operation. The foliose red alga *Chondracanthus corymbiferus* and the annual brown alga *Desmarestia* spp. were also dominant understory taxa at the Field's Cove station. These same understory taxa, subcanopy kelps (primarily *Laminaria setchelli*) and bull kelp (*Nereocystis luetkeana*) also occurred at the control station.

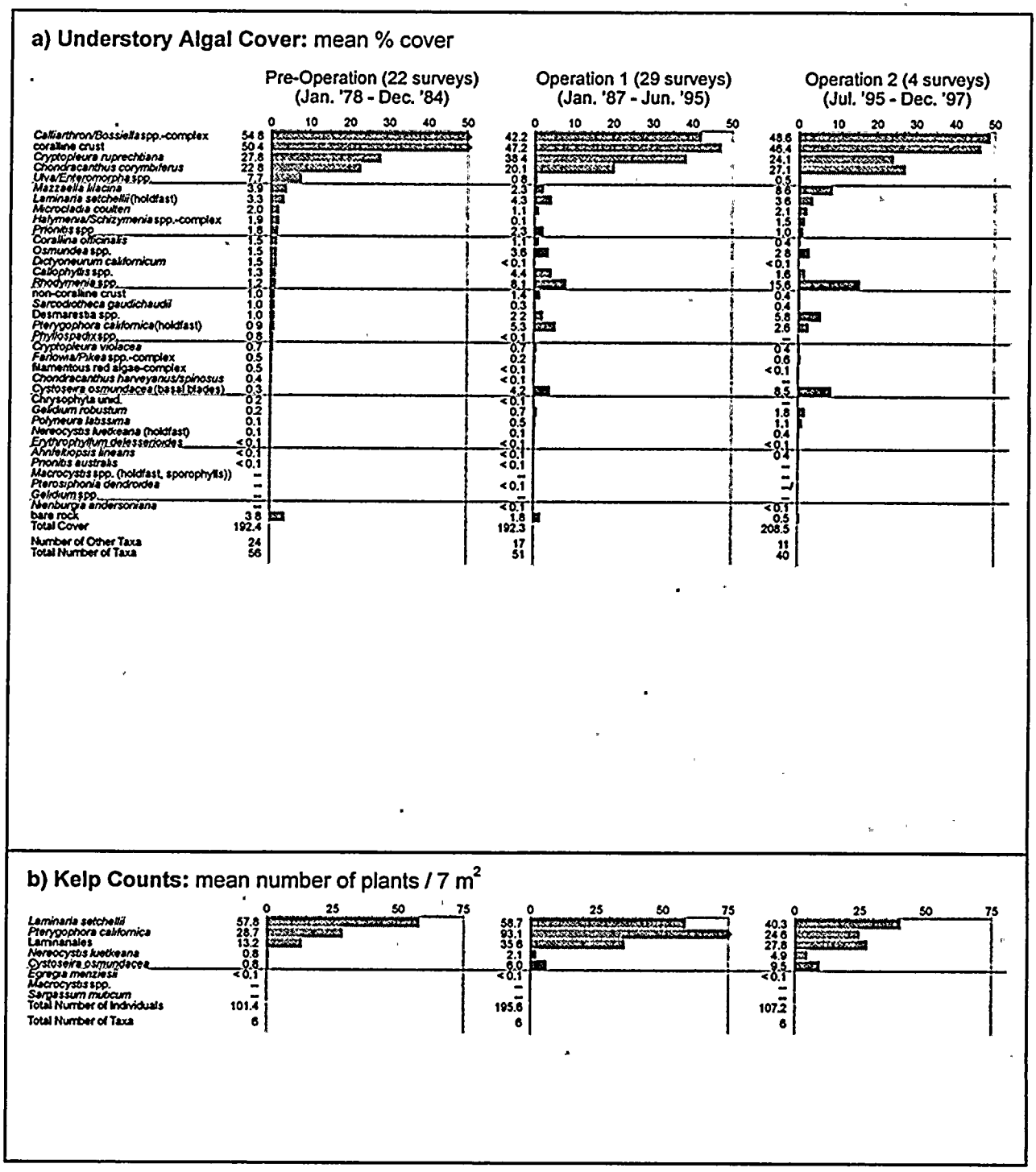


Figure 4-2. Subtidal algal abundances at control benthic station SC-1. Study period means for each taxon for the control station are shown as bars and values. A dashed line for abundance in all three study periods denotes the taxon was found at Diablo Cove or Field's Cove stations but not at the control station.

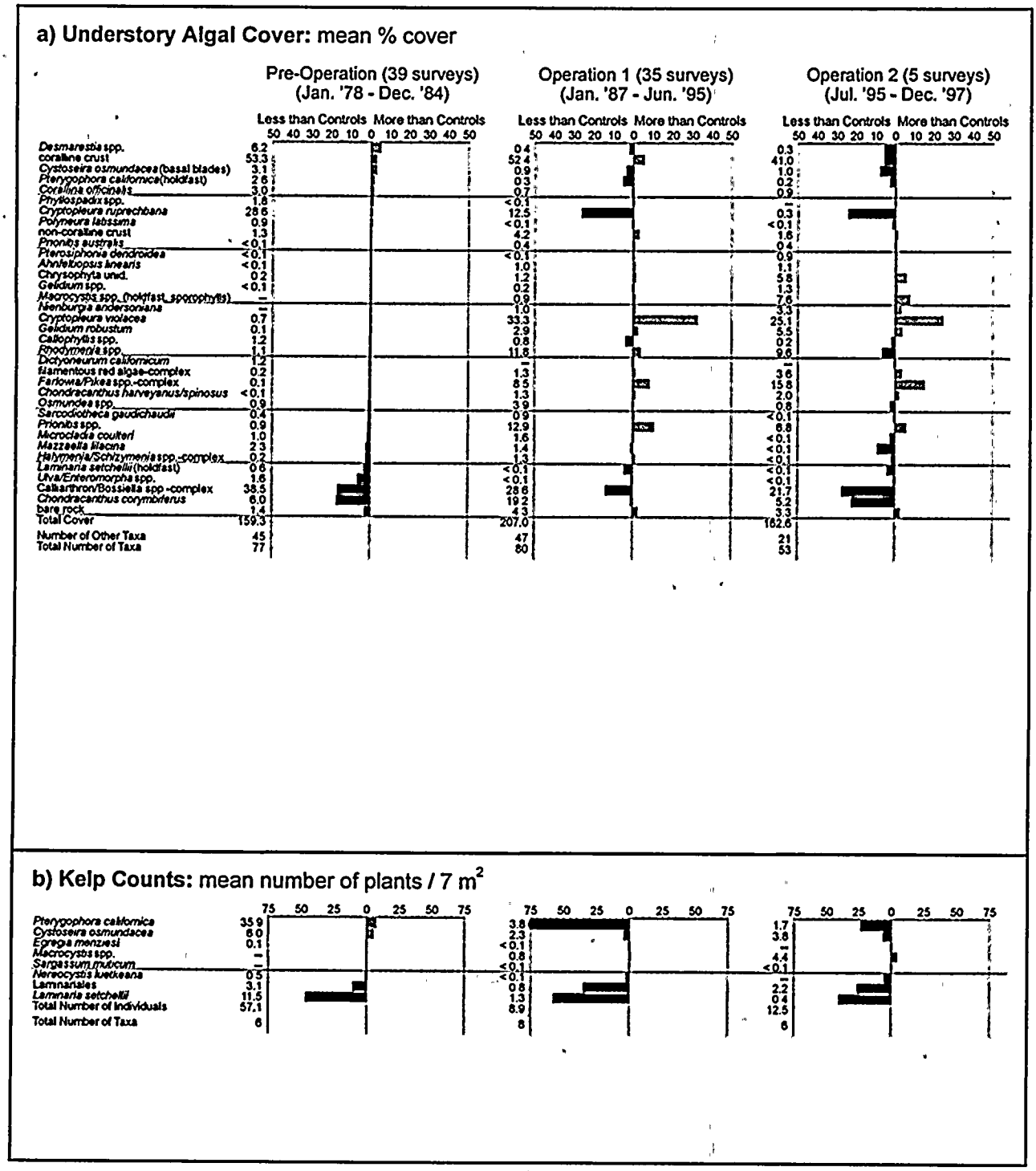


Figure 4-3. Differences in subtidal algal abundances between Diablo Cove stations and the control station. Study period means (values in columns) were calculated from pooled survey means from NDC-2, -3, and -6 and SDC-2 and -3. Differences in abundance from control abundances (shown as bars) were calculated by subtracting the Diablo Cove period means from corresponding control period means shown in Figure 4-2.

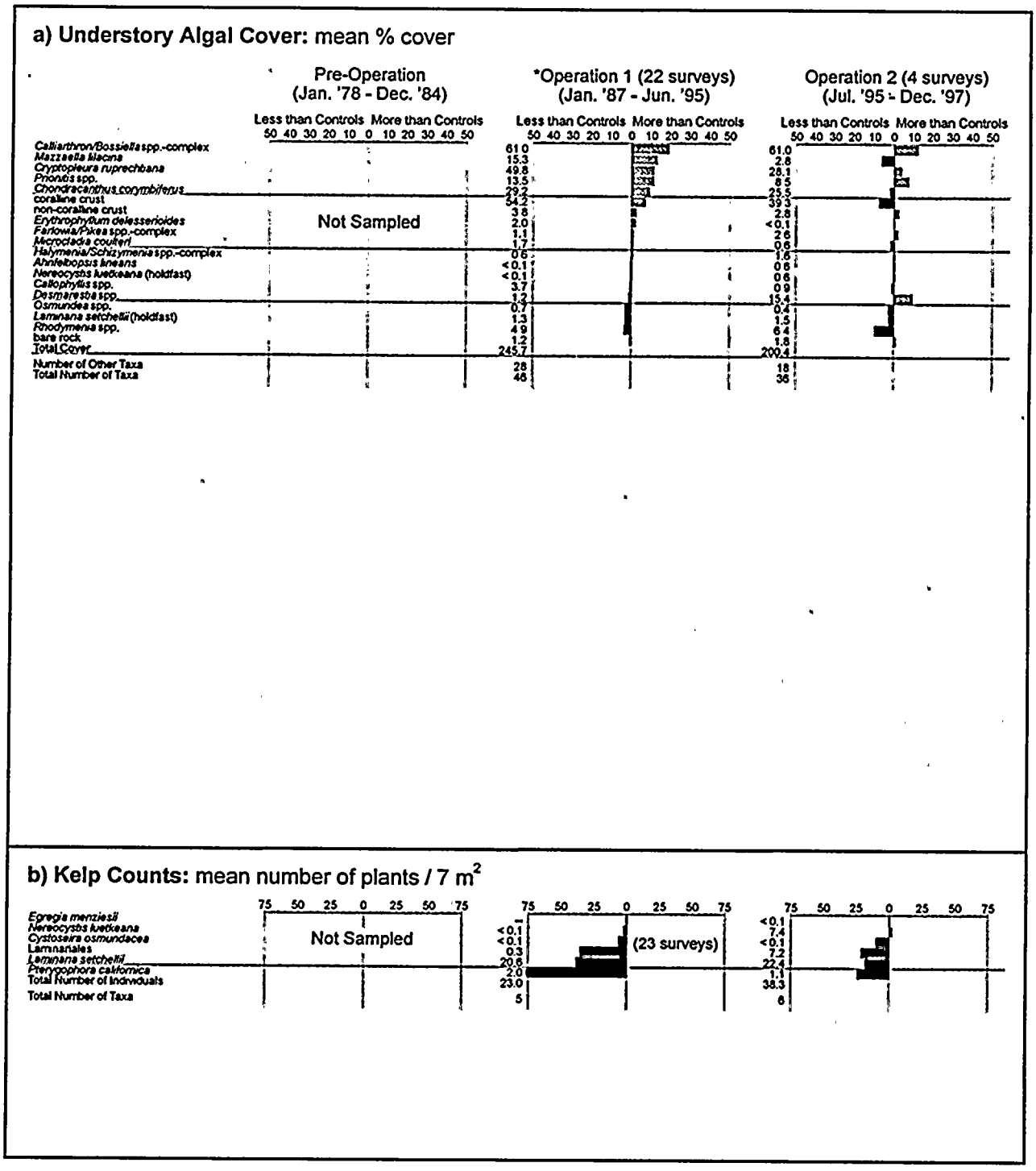


Figure 4-4. Differences in subtidal algal abundances between the Field's Cove station (FC-1) and the control station. Study period means for FC-1 are shown as values in columns. Differences in abundance from control abundances (shown as bars) were calculated by subtracting the Field's Cove period means from corresponding control period means shown in Figure 4-2.

Thirty-nine subtidal algal taxa (31 understory taxa and 8 kelp taxa), bare rock, total understory algal cover, mean species richness (mean no. taxa/7m^2), and algal diversity were statistically analyzed for changes between periods using ANOVA (Table 4-1). Total understory algal cover, diversity, and mean species richness significantly declined at Diablo Cove stations. The decline was associated with a significant increase in bare rock space. Significant decreases were also detected in total understory algal cover and diversity at the Field's Cove station (Table 4-1).

Changes within the algal understory were analyzed for individual taxa. There were no changes detected between periods in the two understory taxa *Cryptopleura violacea* and *Cryptopleura ruprechtiana.* Significant increases between periods in *Farlowia/Pikea* spp. and giant kelp (*Macrocystis* spp.) were detected at the Diablo Cove stations. Bull kelp (*Nereocystis luetkeana*) decreased significantly in Diablo Cove. Overall there were few changes detected at the Field's Cove station. Over half of the taxa analyzed for the Field's Cove station had inconclusive test results, while less than 20% of the taxa analyzed for the Diablo Cove stations had inconclusive test results (Table 4-1).

Analysis of community-level changes from 1992 through 1997 were analyzed using correspondence analysis. The first two CA axes accounted for almost 75% of the variation (Figure 4-5). The analysis clearly separated survey scores of north and south Diablo Cove stations from scores of the control and Field's Cove stations on the first axis (Figure 4-5a). The species scores (Figure 4-5b) characterizing the control and Field's Cove stations in this period were kelp and understory species that had declined at the Diablo Cove stations. The annual survey scores show the north and south Diablo Cove stations remained relatively similar to one another when compared to the control and Field's Cove stations. The north and south Diablo Cove stations were characterized by species scores for *Macrocystis* spp., *Nienburgia andersoniana,* and *Chondracanthus harveyanus/spinosus.* The second axis separated annual survey scores for control and Field's Cove stations. The South Control station was characterized by species scores corresponding to subcanopy kelps, while the Field's Cove station was characterized by a mix of kelp and red algal understory species.

Select Species Abundances

Changes in the algal understory following power plant start-up are characterized by abundance patterns in several taxa. *Cryptopleura ruprechtiana* that was abundant before plant operation decreased to very

Table 4-1. ANOVA results for changes in algae, bare rock, and community indices at subtidal benthic stations in Diablo Cove and Field's Cove. Data were tested between OpPeriod-1 and OpPeriod-2. Taxa with significant increases or decreases had test results with $p \leq 0.10$. The 'no change' category included taxa with a $p > 0.10$ and a test power to detect a 50% change ≥ 0.70. Results were inconclusive if $p > 0.10$ and test power was < 0.70. 'Winter', 'summer' or 'station (number)' indicate that significant effects were restricted to a specific season or number of stations. Asterisk (*) indicates kelp taxon enumerated by counts of individual plants.

Taxon	Diablo Cove comparisons				Field's Cove comparisons			
	Increase	Decrease	No Change	Results Inconclusive	Increase	Decrease	No Change	Results Inconclusive
Ahnfeltiopsis linearis	X							X
Calliarthron/Bossiella		station (2)						X
Callophyllis spp.			X				X	
Chondracanthus corymbiferus		X					X	
Chond. harveyanus / C. spinosus	X[1]							X[2]
Chrysophyta unid.	X							X
Corallina officinalis	X							X
coralline crust			X				X	
Cryptopleura ruprechtiana			X				X	
Cryptopleura violacea			X				X	
*Cystoseira osmundacea**	winter						X	
Desmarestia spp.				X	X			
Dicytoneurum californicum				X[2]	X[1]			
*Egregia menziesii**				X				X
Erythrophyllum delesserioides				X[3]		X		
Farlowia/Pikea	summer						X	
filamentous red algae - complex	station (2)							X
Gelidium robustum			X			X		
Gelidium spp.	sum/sta (1)[1]							X[2]
Halymenia/Schizymenia		X						X
*Laminaria setchellii**				X				X
Laminariales (juvenile)*	X				X			
Macrocystis spp.*	station (4)[1]							X[2]
Mazzaella lilacina		summer				summer		
Microcladia coulteri		X						X
*Nereocystis luetkeana**		summer			X			
Nienburgia andersoniana		station (1)[1]						X[2]
non-coralline crustose algae			X				X	
Osmundea spp.		X						X
Phyllospadix spp.[2]				X				X
Polyneura latissima		winter				winter		
*Pterygophora californica**	X							X
Prionitis australis[1]		X[1]						X[1]
Prionitis spp.		summer					X	
Pterosiphonia dendroidea	station (4)[1]							X[2]
Rhodymenia spp.		X					X	
Sarcodiotheca gaudichaudii		X						X
*Sargassum muticum**[2]				X				X
Ulva/Enteromorpha			X[4]					X

(table continued)

Table 4-1 (continued). ANOVA results for changes in algae, bare rock, and community indices at subtidal benthic stations in Diablo Cove and Field's Cove.

Taxon	Diablo Cove comparisons				Field's Cove comparisons			
	Increase	Decrease	No Change	Results Inconclusive	Increase	Decrease	No Change	Results Inconclusive
Bare rock	X						X	
Total algal cover		X				X		
Algal diversity		X				X		
Species richness		X					X	
TOTAL (individual taxa only)	12	13	7	7	4	4	10	21
Percent of total	31	33	18	18	10	10	26	54

[1] Absent at control station.

[2] May be designated as 'no change' due to continued absence at control and cove stations.

[3] Absent at cove stations.

[4] Designated as 'no change' due to significant increases and decreases at neighboring stations.

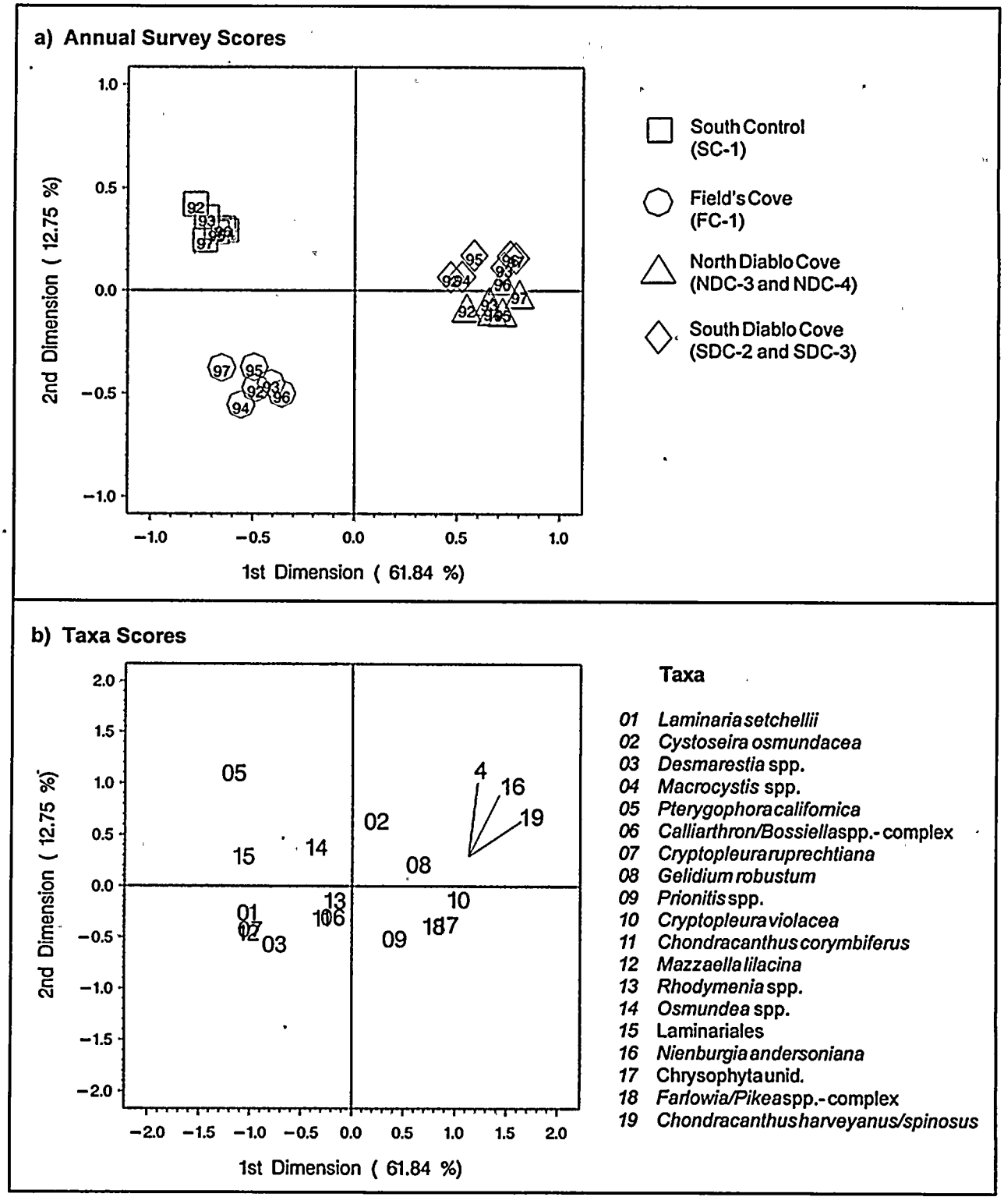


Figure 4-5. First and second dimension scores from correspondence analysis of subtidal kelp and understory algae data from the arc quadrant and random point contact studies. The data in 'a' and 'b' were transformed using log (x+1) prior to the analysis.

low levels of abundance at Diablo Cove stations during OpPeriod-1 and remained low in abundance during OpPeriod-2 (Figures 4-3 and 4-6). No significant difference in abundance was detected for this alga between periods relative to controls (Table 4-1). In contrast, a closely related red alga, *Cryptopleura violacea* was not abundant before operation and then increased in abundance during OpPeriod-1 (Figure 4-3 and 4-7). There was also no significant difference in abundance detected between periods for this alga (Table 4-1). *Farlowia/Pikea* spp. was also not abundant before operation (Figures 4-3 and 4-8). It increased in abundance during OpPeriod-1 and has continued to increase during OpPeriod-2 (Table 4-1).

Changes in the subcanopy kelps in Diablo Cove are represented by *Pterygophora californica* that decreased in abundance during OpPeriod-1 and remained low in abundance at Diablo Cove stations during OpPeriod-2 (Figure 4-9). The statistically significant increase in *P. californica* in Diablo Cove between periods was a result of the continued low abundance being compared to a decrease in abundance at the control station.

Surface-occurring bull kelp continued to be low in abundance in Diablo Cove from 1995 through 1996, and was absent in 1997 (Figure 4-10). A statistically significant increase was detected in bull kelp at the Field's Cove station. In contrast, giant kelp (*Macrocystis* spp.) continued to be abundant in Diablo Cove. Increases in giant kelp abundance in Diablo Cove were also observed at the benthic stations (Figure 4-11).

4.1.4 Discussion

New or continuing effects of the discharge were identified by comparing current analysis results to discharge effects described in the TEMP Analysis Report. The comparisons for all but one taxon indicated continued or new effects from the discharge (Table 4-2). Changes in individual algal taxa during OpPeriod-2 involved more decreases than increases in abundance, accounting for the significant changes from prior trends in mean species richness, mean species diversity, and total understory algal cover. The significant decline in mean species richness in Diablo Cove was a continuation of a previous decline detected in this community index.

Continued changes were not detected in some of the understory taxa that changed following power plant start-up. Continued increases were detected in *Farlowia/Pikea* and giant kelp (*Macrocystis* spp.). There were new changes detected in a large number of taxa. Most of the changes were newly-detected

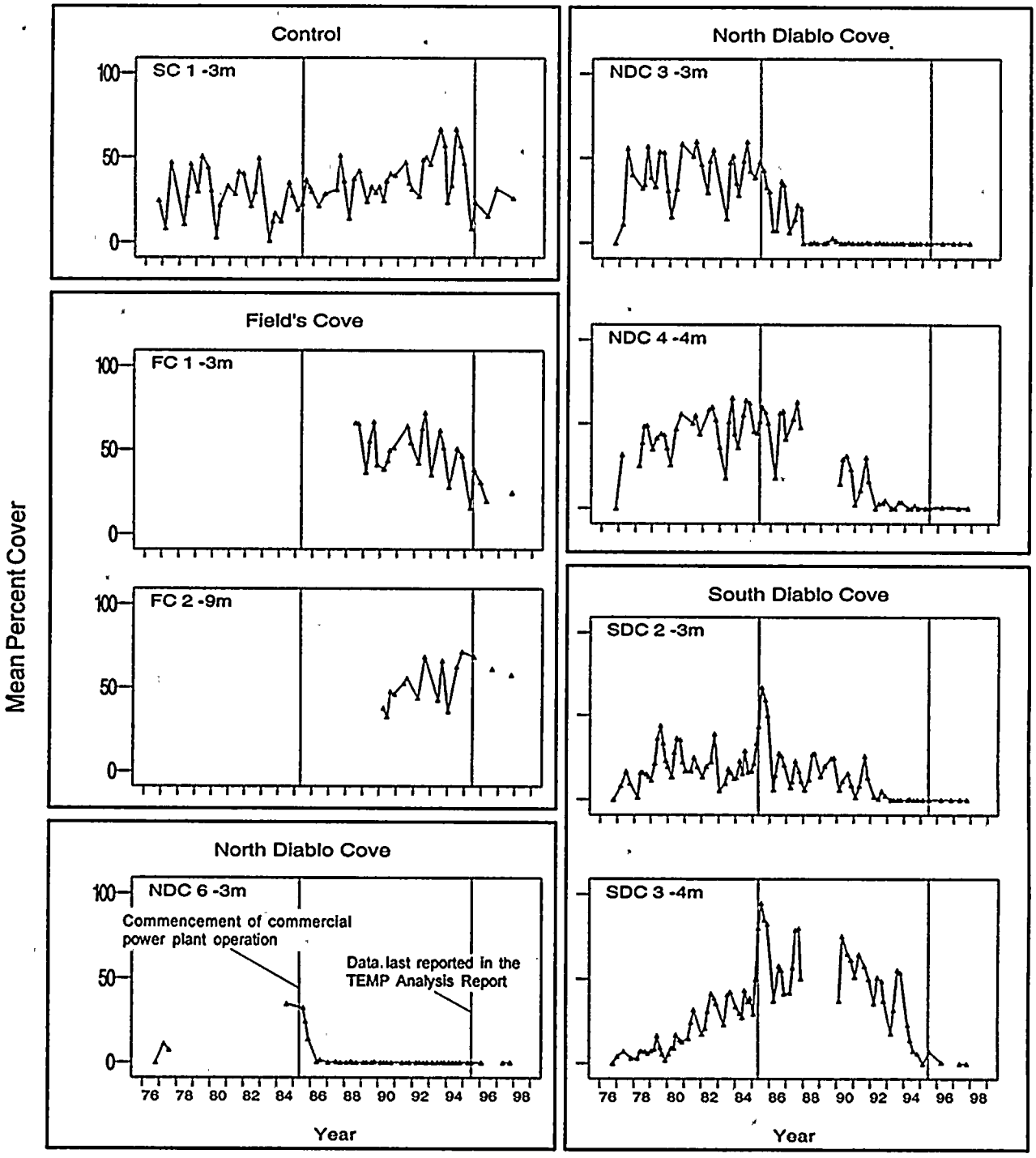


Figure 4-6. *Cryptopleura ruprechtiana* changes in cover at subtidal benthic stations.

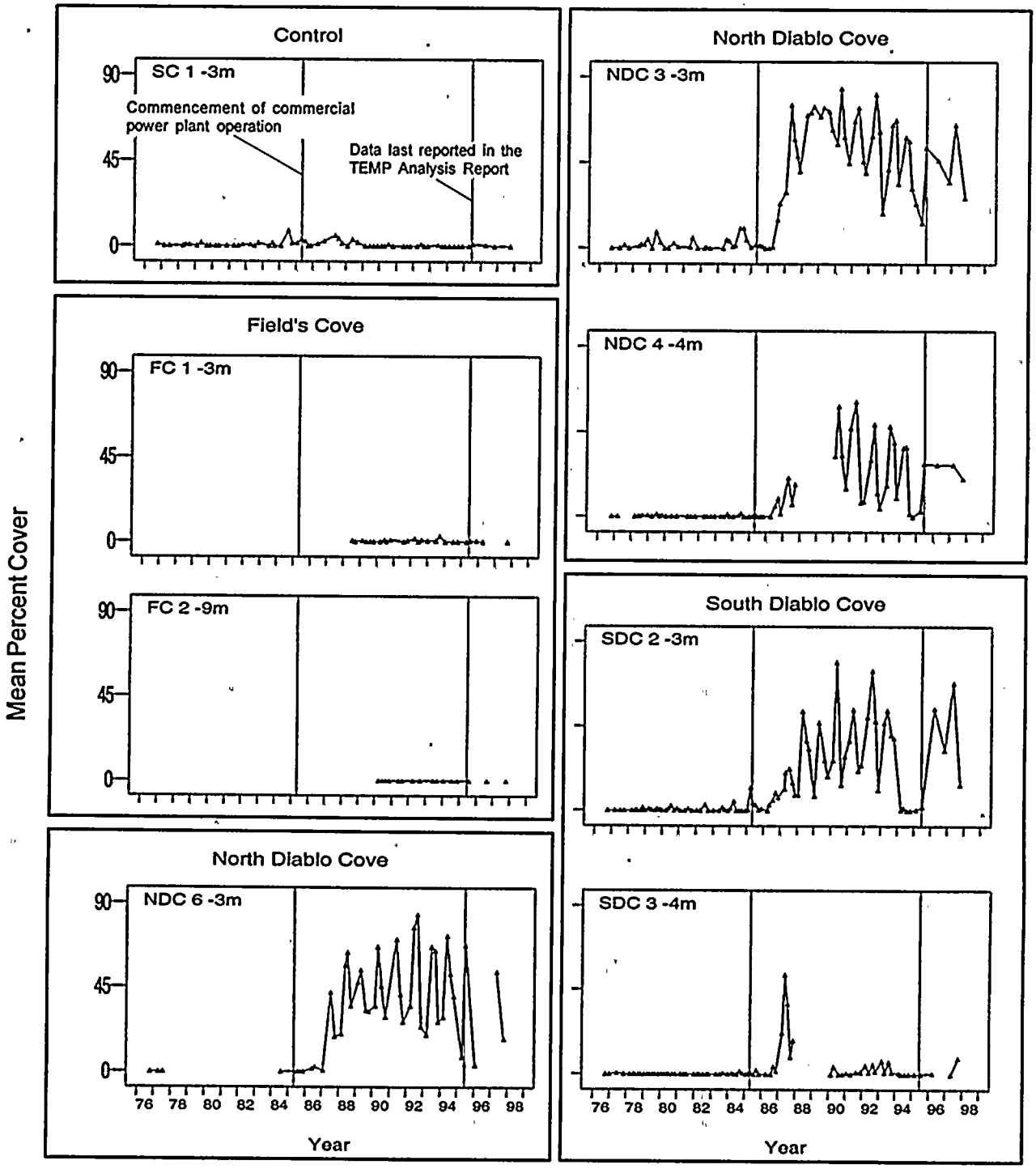


Figure 4-7. *Cryptopleura violacea* changes in cover at subtidal benthic stations.

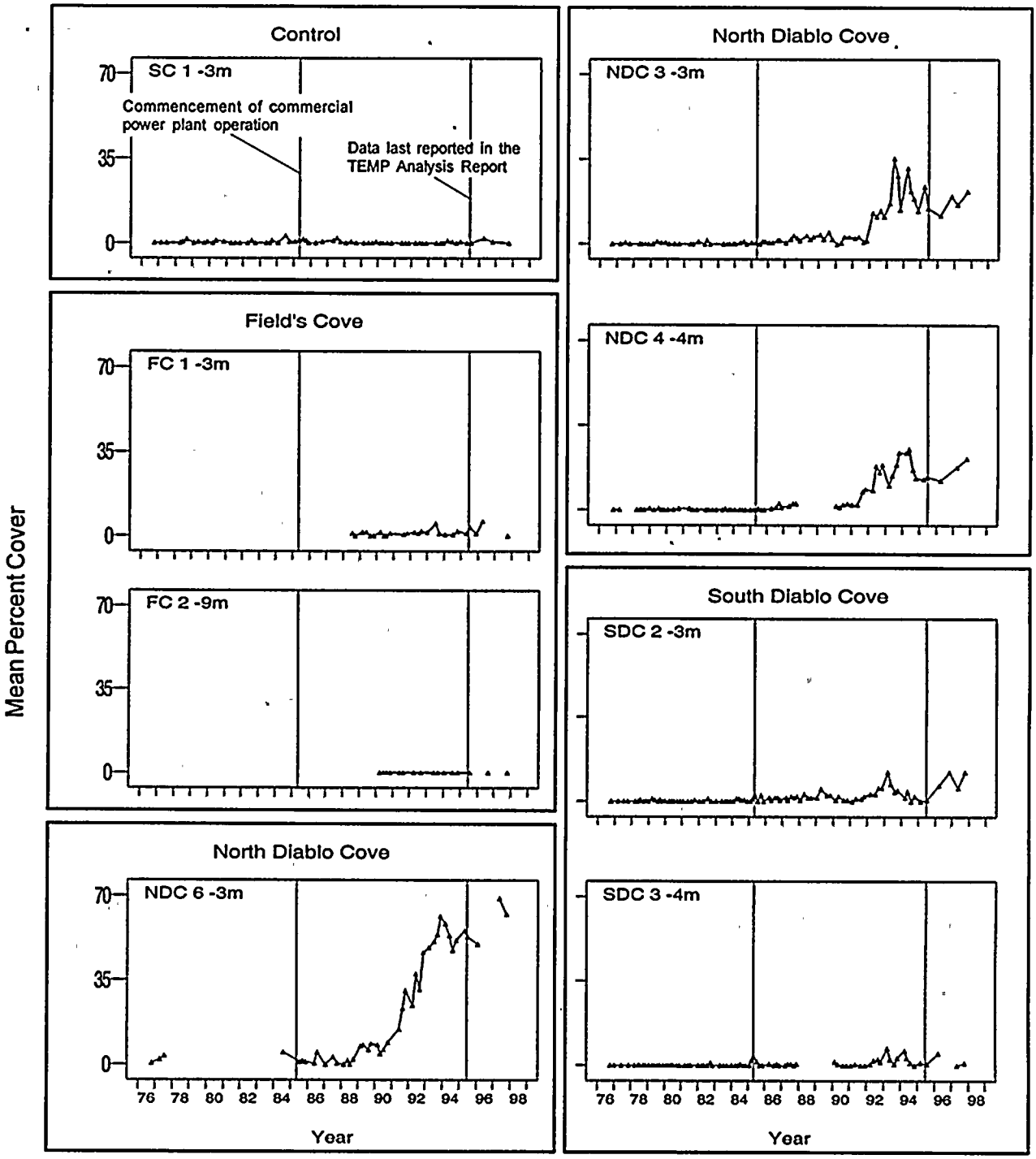


Figure 4-8. *Farlowia/Pikea* spp.-complex changes in cover at subtidal benthic stations.

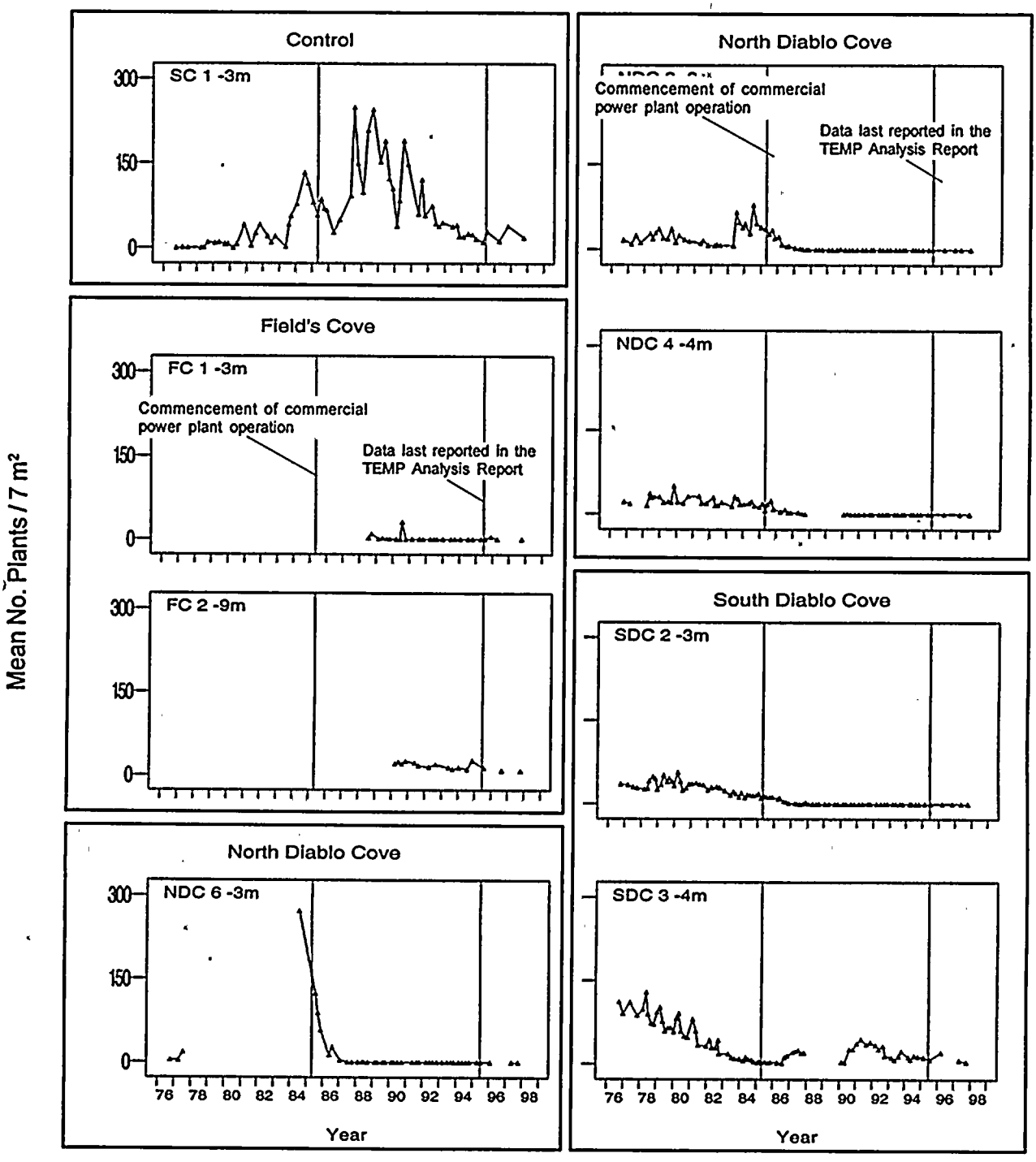


Figure 4-9. *Pterygophora californica* changes in density at subtidal benthic stations.

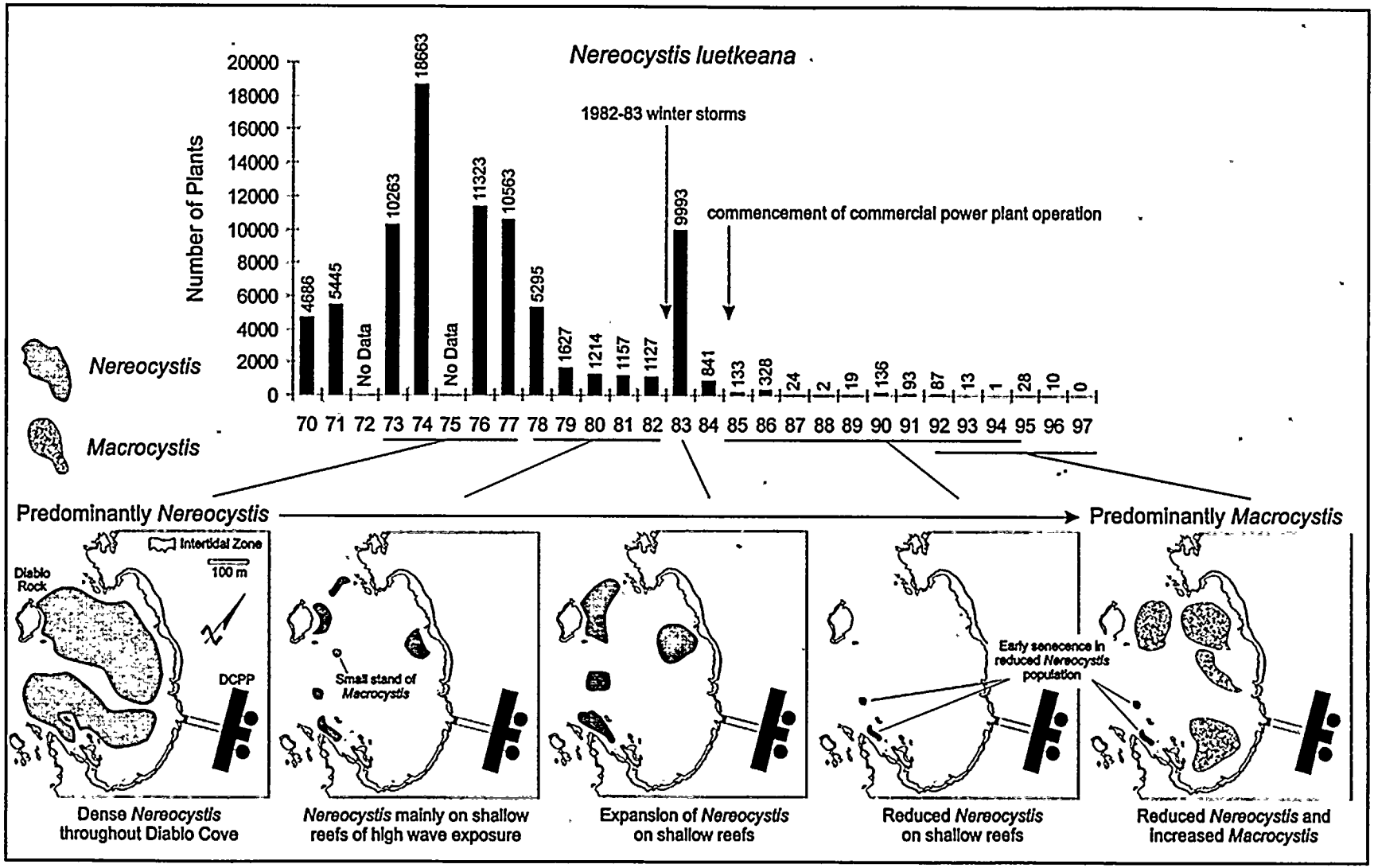


Figure 4-10. Changes in the abundance of *Nereocystis* and *Macrocystis* in Diablo Cove.

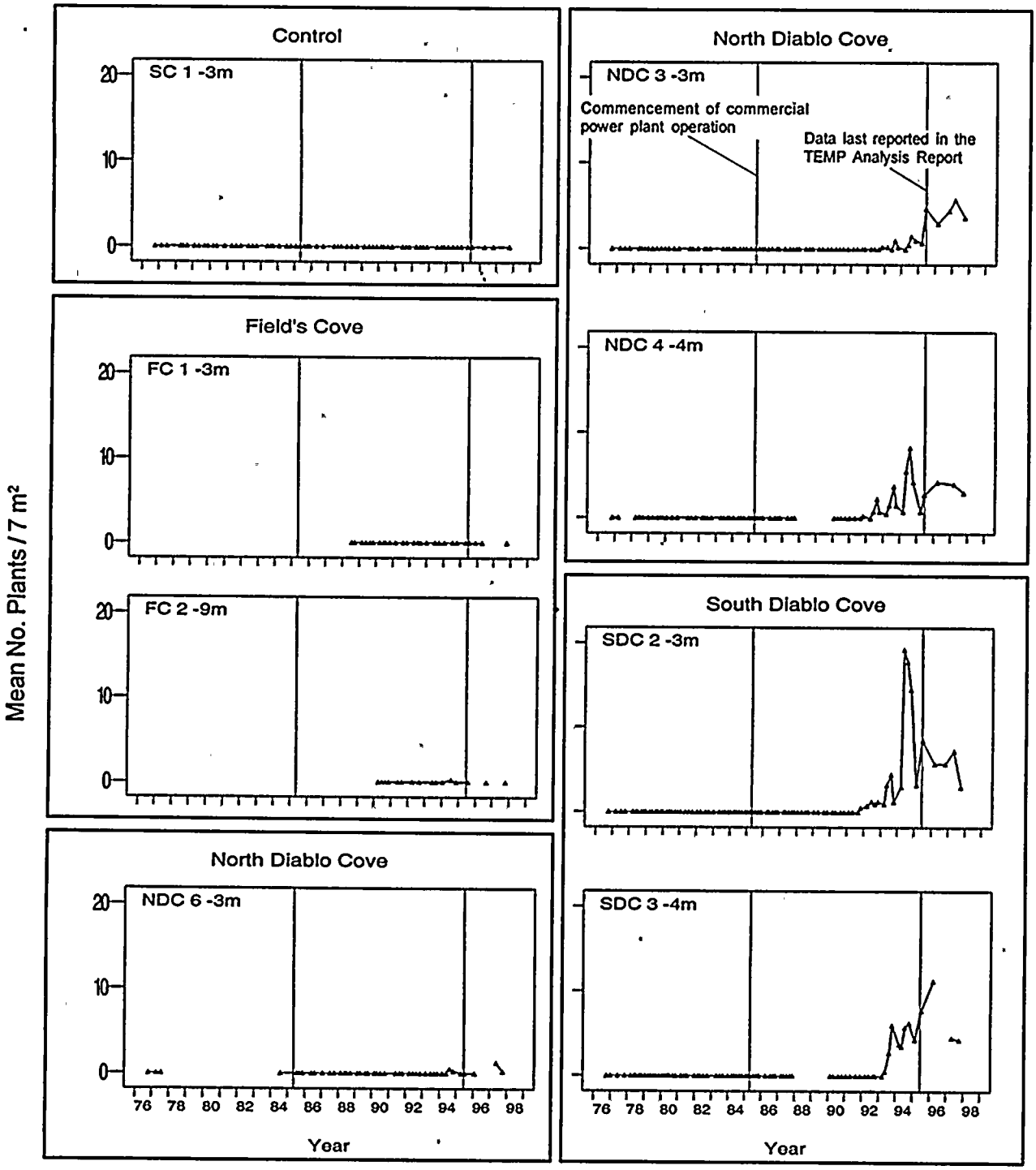


Figure 4-11. *Macrocystis pyrifera* changes in density at subtidal benthic stations.

Table 4-2. Comparison of discharge effects between OpPeriod-1 and OpPeriod-2 in subtidal algae at -3m and -4m MLLW benthic stations. Statistically significant results are compared between the TEMP Analysis Report (Tables 4-4 and 4-5) and this report (Table 4-1).

	TEMP Analysis Report Results (OpPeriod-1)	Report Results (OpPeriod-2)	
Category and Taxon	Diablo Cove	Diablo Cove	Field's Cove
CONTINUED DISCHARGE EFFECTS			
Magnitude of effect unchanged			
Callophyllis spp.	decrease	no change	no change
coralline crustose algae	increase	no change	no change
Cryptopleura ruprechtiana	decrease	no change	no change
Cryptopleura violacea	increase	no change	no change
non-coralline crustose algae	increase	no change	no change
Magnitude of effect increased			
Ahnfeltiopsis linearis	increase	increase	inconclusive
Calliarthron/Bossiella	decrease	decrease	inconclusive
Chondracanthus harveyanus / spinosus	increase	increase	inconclusive
Farlowia/Pikea	increase	increase	no change
filamentous red algae - complex	increase	increase	inconclusive
Macrocystis spp.	increase	increase	inconclusive
Species richness	decrease	decrease	no change
Bare rock	increase	increase	no change
Effect or trend in abundance reversed			
Chondracanthus corymbiferus	increase	decrease	no change
Corallina officinalis	decrease	increase	inconclusive
Cystoseira osmundacea	decrease	increase	no change
Desmarestia spp.	decrease	inconclusive	increase
Gelidium robustum	increase	no change	decrease
Halymenia/Schizymenia - complex	increase	decrease	inconclusive
Prionitis spp.	increase	decrease	no change
Sarcodiotheca gaudichaudii	increase	decrease	inconclusive
Algal diversity	increase	decrease	decrease
Contrasting trends between DC and FC			
Nereocystis luetkeana	decrease	decrease	increase
Pterygophora californica	decrease	increase	inconclusive
NEW DISCHARGE EFFECTS			
Previously undescribed effects			
Chrysophyta unid.	inconclusive	increase	inconclusive
Dictyoneurum californicum	inconclusive	inconclusive	increase
Erythrophyllum delesserioides	not tested	inconclusive	decrease
Gelidium spp.	not tested	increase	inconclusive
Laminariales (juvenile)	inconclusive	increase	increase
Mazzaella lilacina	inconclusive	decrease	decrease
Microcladia coulteri	no change	decrease	inconclusive
Nienburgia andersoniana	inconclusive	decrease	inconclusive
Osmundea spp.	inconclusive	decrease	inconclusive
Polyneura latissima	inconclusive	decrease	decrease
Prionitis australis.	inconclusive	decrease	inconclusive
Pterosiphonia dendroidea	not tested	increase	inconclusive
Rhodymenia spp.	no change	decrease	no change
Understory algal cover	no change	decrease	decrease
NO DISCHARGE EFFECTS			
Ulva/Enteromorpha	inconclusive	no change	inconclusive

decreases in abundance. These declines may have been responses to shading effects from the increased abundance of giant kelp.

Changes in *Cryptopleura ruprechtiana, Cryptopleura violacea, Farlowia/Pikea* spp. and subcanopy kelps were previously used to map seafloor areas of discharge effects to benthic algae in Diablo Cove (Tenera, Inc., 1997). However, using these algae as indicators of discharge effects may be more difficult as continued changes in understory algae occur in Diablo Cove as a result of shading by giant kelp (*Macrocystis* spp.).

There were few effects of the discharge detected at the Field's Cove station during OpPeriod-2. The high percentage of taxa within Field's Cove that had inconclusive test results were probably a result of the absence of discharge effects or their small effect sizes. The Field's Cove station was not sampled before 1990. The absence of any pre-operational data limited the ability to interpret the importance of changes in Field's Cove that were detected between OpPeriod-1 and OpPeriod-2. Effects in Field's Cove were identified by examining taxa that shared similar patterns of change between Diablo and Field's cove stations. The number of inconclusive results, continued abundances of understory taxa characteristic of control areas, absence of giant kelp and increases in temperature-sensitive bull kelp all provide evidence that any discharge effects at the Field's Cove station were much reduced in magnitude compared to Diablo Cove.

4.2 Subtidal Invertebrates

4.2.1 Introduction

Subtidal invertebrates have been studied at DCPP using the subtidal arc quadrant (SAQ) and subtidal fixed quadrat (SFQ) methods since 1976. The subtidal invertebrate community in Diablo Cove changed between 1987 and 1994 as a result of the DCPP discharge (Tenera, Inc., 1997). These changes included increases in the abundance of dunce-cap limpets, several species of nudibranchs, ornate tube worms, and serpulid polychaetes. Purple urchins increased in abundance in Diablo Cove from 1990 through 1994. Shelled gastropods (e.g., turban snails, top snails, and limpets) generally declined in Diablo Cove after power plant start-up Significant decreases also occurred in several sea star species, proliferating anemones and various encrusting tunicates and sponges. Several taxa rarely or never recorded in the study area prior to power plant operation increased in abundance during plant operation in Diablo Cove. These included species of southerly-distributed brittle stars, gumboot chitons, brown sea hares, and Norris' top shell. Despite these changes in species' abundances, mean species richness remained unchanged in Diablo Cove between OpPeriod-1 and OpPeriod-2. Multivariate analysis showed that the subtidal invertebrate community structure in Diablo Cove was still diverging from pre-operation conditions as of 1994.

The purpose of this section is to describe any new or continuing effects of the power plant discharge on subtidal invertebrates through the analysis of the SAQ and SFQ data sets collected at Diablo Cove, Field's Cove, and control stations during OpPeriod-2. New or continuing effects were determined by comparing the results of this analysis to results from OpPeriod-1.

4.2.2 Methods

Sampling Methods

The SAQ method was used to sample macroinvertebrates at eight benthic stations during the current reporting period. Five discharge stations were located within Diablo Cove, two discharge stations were located within Field's Cove, and one control station was located at South Control. During sampling, a station was subdivided into four 7m² quadrants, and macroinvertebrates were counted within these quadrants. All individuals of select invertebrate taxa were counted regardless of their size. All other non-encrusting invertebrates were counted if they were greater than 2.5 cm greatest dimension. A few common species that generally occurred in numbers too high to accurately count were sampled only in

the first one-third (2.33 m^2) of each quadrant. The abundance of macroinvertebrates, including red abalone, was also sampled using randomly-located subtidal stations (see Section 4.3.2 for methods).

The SFQ method was used principally to sample small or encrusting invertebrate taxa that were sampled inadequately using the SAQ method. Four circular quadrats with an area of 0.25 m^2 were sampled at fixed locations at each subtidal station to determine the species composition and abundance of smaller, cryptic, subtidal invertebrates. Each fixed quadrat was located within an SAQ quadrant at a subtidal station, generally on bedrock or boulder substrate. Depending upon the degree of topographical relief, two quadrats were located on horizontal-aspect substrate and two quadrats were located on vertical-aspect substrate. Non-encrusting taxa were identified and counted. The coverage of encrusting taxa (e.g., colonial/social tunicates) was quantified in square inches if the total equaled or exceeded one square inch, or was recorded as 'present' if coverage was less than one square inch. There were no minimum or maximum size limits for the invertebrates recorded in the SFQ study.

Analysis Methods

Abundances of individual taxa were analyzed for changes between OpPeriod-1 and OpPeriod-2 using ANOVA (Section 1.3). The invertebrate taxa analyzed were those that formed 95% of the total abundance in the two periods at the Diablo Cove and Field's Cove stations. SAQ and SFQ species lists were combined so that ANOVA principally treated subtidal invertebrates independent of sampling methods. Field's Cove station FC 2-9 (Figure 4-1) was not statistically analyzed because no comparative, deep water control existed.

Correspondence analysis was used to contrast patterns of change in algal assemblages among areas (Section 1.3). The taxa that comprised the majority (95%) of the total abundance and that occurred in at least 10% of the surveys were used in analyses for each elevation. Data for these taxa were log(x+1) transformed to compensate for scale differences between counted and coverage taxa and then combined into annual means for the stations in the following four areas: Control (SC-1), north Diablo Cove (NDC-3 and -4), south Diablo Cove (SDC-2 and -3), and Field's Cove (FC-1).

Statistical results from this report were compared with statistical results from the TEMP Analysis Report to identify new or continuing effects of the discharge. The comparisons were qualitative because the analyses and study designs differed between the two reports. The TEMP Analysis Report used data from two control stations to derive differences for three north Diablo Cove stations and two south Diablo Cove stations. The analyses in this report used data from one control station to derive differences for three

north Diablo Cove stations, two south Diablo Cove stations and one Field's Cove station. The comparisons for individual taxa and other data sets were grouped into three general categories described in Section 1.3.

4.2.3 Results

Macroinvertebrate community composition and abundance between periods was similar at the benthic control station (Figure 4-12). Numerically dominant taxa at the control station during OpPeriod-2 included brown turban snails (*Tegula brunnea*), lined chitons (*Tonicella lineata*), and dunce cap limpets (*Acmaea mitra*). Between OpPeriod-1 and OpPeriod-2 increases in abundance were evident in *T. lineata* and *A. mitra*. These same taxa were common, but less abundant, at Field's Cove (Figure 4-13) and Diablo Cove (Figure 4-14) stations. Other numerically dominant macroinvertebrate taxa at discharge station locations during OpPeriod-2 included hermit crabs (Paguridae) and bat stars (*Asterina miniata*) at Field's Cove station FC-1, and aggregating anemones (*Anthopleura elegantissima*), ornate tube worms (*Diopatra ornata*), purple urchins (*Strongylocentrotus purpuratus*), and serpulid polychaetes at Diablo Cove stations. With the exception of *S. purpuratus* and serpulid polychaetes, all of these taxa were also common at the control station during OpPeriod-2.

In contrast to macroinvertebrates, there were many changes in the abundances of small, cryptic, or encrusting invertebrates at the control station between periods (Figure 4-15). Numerically dominant species from OpPeriod-2 included tube mollusks (*Dendropoma* spp.), sand-tube polychaetes (*Phragmatopoma californica*), and juvenile barnacles (*Balanus* spp./*Tetraclita rubescens*). Abundant encrusting taxa included bryozoans and sponges. Substantial declines in *Dendropoma* and *P. californica* occurred between periods at the control station. Invertebrate species composition and abundances at Field's Cove and Diablo Cove SFQ discharge stations differed from the control during OpPeriod-2 (Figure 4-16 and 4-17). Numerically dominant taxa at discharge stations included boring clams (Pelecypoda), dove snails (*Alia* spp.), and *Phragmatopoma californica*. There were no large changes in abundances for these taxa between periods at discharge stations.

Statistically significant abundance changes between periods were detected in 40 of the 68 taxa (59%) analyzed from Diablo Cove (Table 4-3). Unlike the HBT intertidal invertebrates (Section 3.2), the majority of these were main effects (period effects) without station or season interactions. Within Diablo

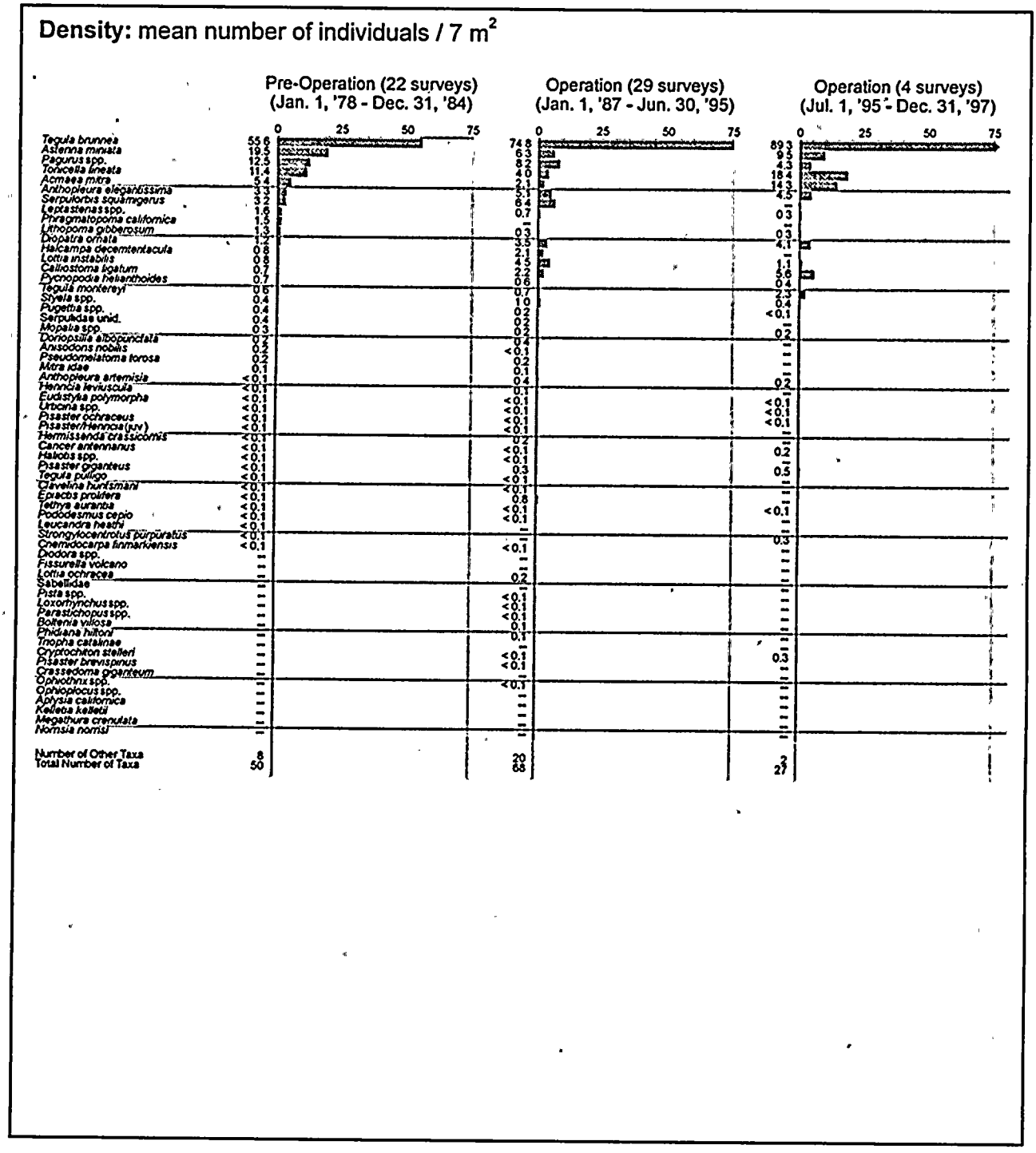


Figure 4-12. Subtidal invertebrate abundances in 7 m^2 arc quadrants at control benthic station SC-1.Period means for each taxon are shown as bars and values. A dashed line for abundance in all three study periods denotes the taxon was found at Diablo Cove or Field's Cove stations but not at the control station.

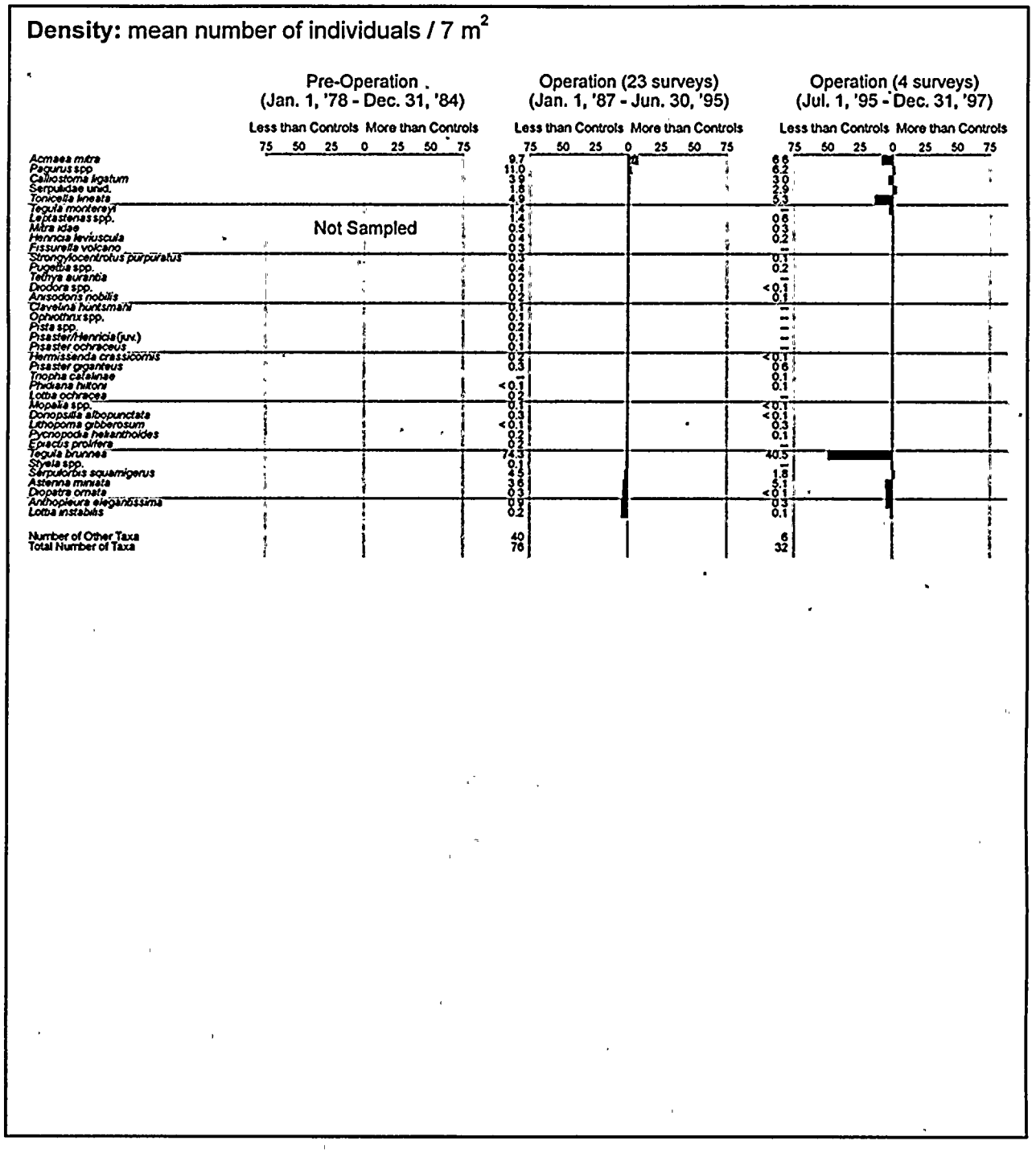


Figure 4-13. Differences in subtidal invertebrate abundances between the Field's Cove station and the control station in 7 m^2 arc quadrants. Study period means for FC-1 are shown as values in columns. Differences in abundance from control abundances (shown as bars) were calculated by subtracting the FC-1 period means from corresponding control period means shown in Figure 4-12.

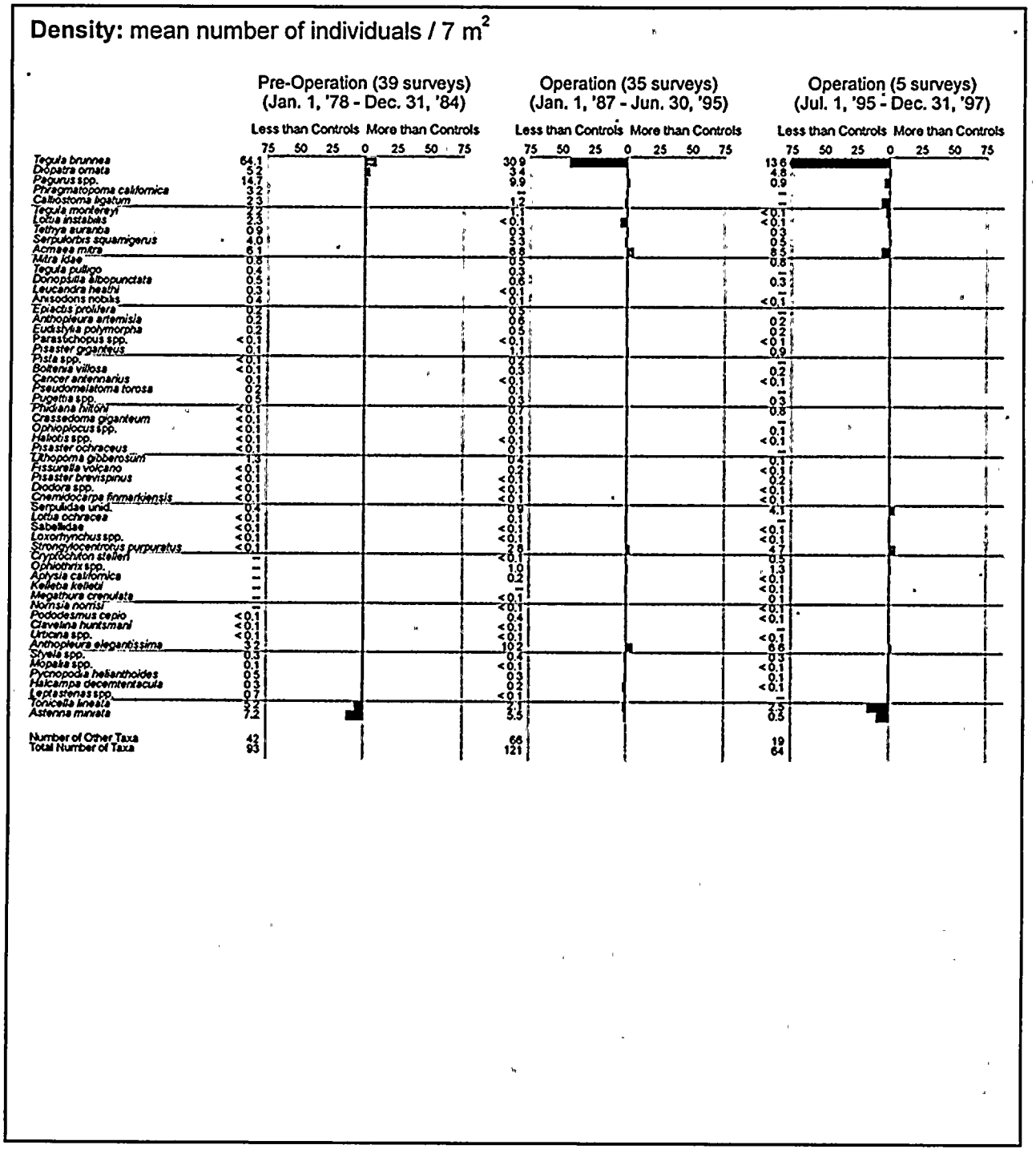


Figure 4-14. Differences in subtidal invertebrate abundances between Diablo Cove stations and the control station in 7 m^2 arc quadrants. Period means (values in columns) were calculated from pooled survey means from NDC-2, -3, and -6, and SDC-2, and -3. Differences in abundance from control abundasnces (shown as bars) were calculated by subtracting the Diablo Cove period means from corresponding control period means shown in Figure 4-12.

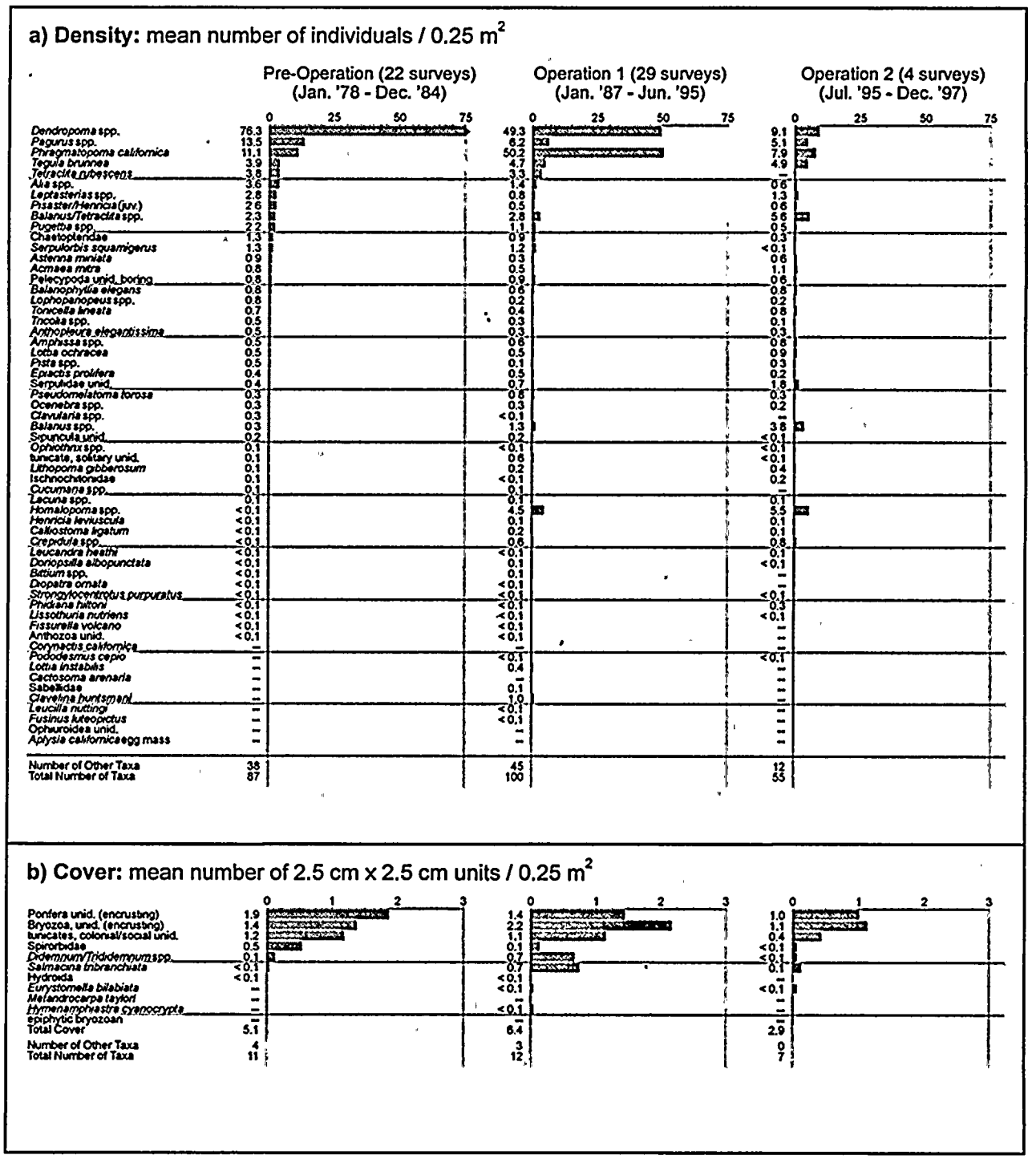


Figure 4-15. Subtidal invertebrate abundances in fixed 0.25 m^2 quadrats at control benthic station SC-1. Study period means for each taxon are shown as bars and values. A dashed line for abundance in all three study periods denotes the taxon was found at Diablo Cove or Field's Cove stations but not at the control station.

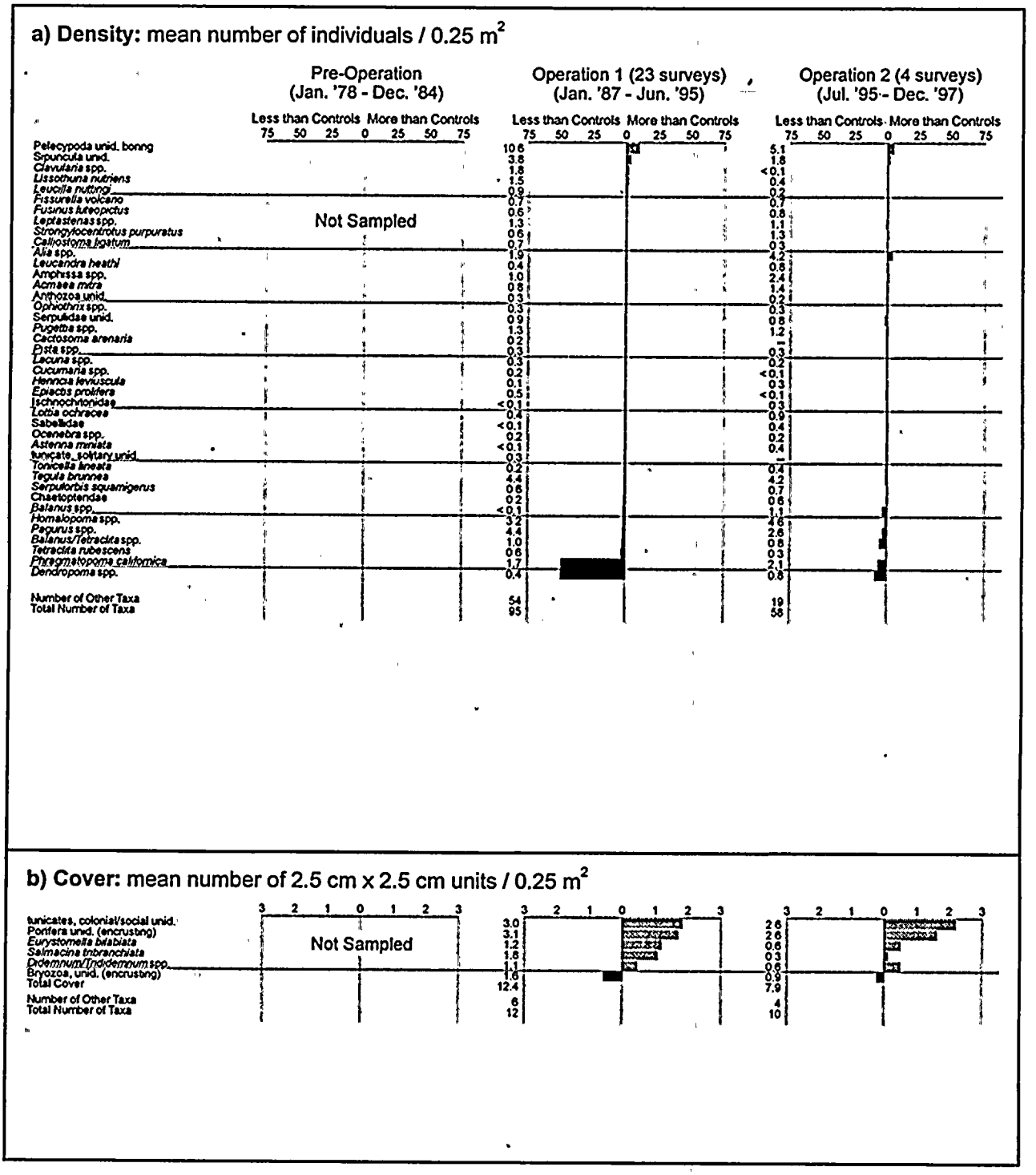


Figure 4-16. Differences in subtidal invertebrate abundances between the Field's Cove station and the control station in 0.25 m^2 quadrats. Study period means for FC-1 are shown as values in columns. Differences in abundance from control abundances (shown as bars) were calculated by subtracting the FC-1 period means from corresponding control period means shown in Figure 4-15.

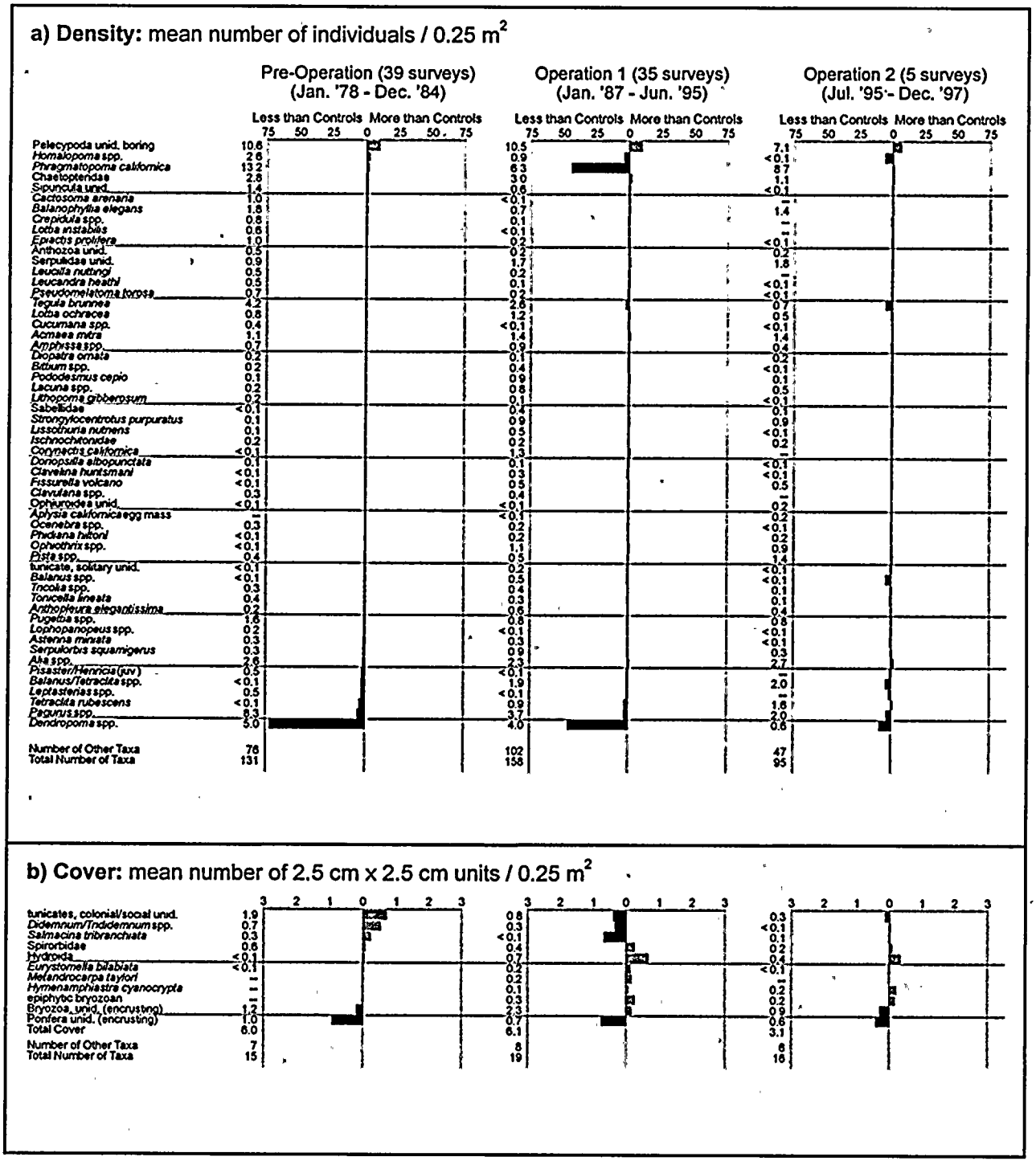


Figure 4-17. Differences in subtidal invertebrate abundances between Diablo Cove stations and the control station in 0.25 m^2 quadrats. Study period means (values in columns) were calculated from pooled survey means from NDC-2, -3, and -6 and SDC-2 and -3. Differences in abundance from control abundances (shown as bars) were calculated by subtracting the Diablo Cove period means from corresponding control period means shown in Figure 4-15.

Table 4-3. ANOVA results for changes relative to control for subtidal invertebrates, SAQ and SFQ methods combined. Data were tested between OpPeriod-1 and OpPeriod-2. Taxa with significant increases or decreases had test results with $p \leq 0.10$. The 'no change' category included taxa with a $p > 0.10$ and a test power to detect a 50% change ≥ 0.70. Results were inconclusive if $p > 0.10$ and test power was < 0.70. 'Winter', 'summer' or 'station (number)' indicate that significant effects were restricted to a specific season or number of stations.

Taxon	Diablo Cove comparisons				Field's Cove comparisons			
	Increase	Decrease	No Change	Results Inconclusive	Increase	Decrease	No Change	Results Inconclusive
Acmaea mitra			X[1]				X	
Alia spp.	X						X	
Amphissa spp.		X						X
Anisodoris nobilis				X	summer			
Anthopleura artemisia				X				X
Anthopleura elegantissima	summer						X	
Asterina miniata		station(4)					X	
Balanophyllia elegans				X				X
Balanus spp.		winter				winter		
Balanus/Tetraclita		X						X
Bryozoa (encrusting)	winter						X	
Bryozoa (epiphytic)[2]				X				X
Cactosoma arenaria[2]				X				X
Calliostoma ligatum		X						X
Chaetopteridae			X				X	
Clavularia spp.				X				X
Corynactis californica[2]				X				X
Crepidula spp.[2]				X				X
Cryptochiton stelleri	winter							X
Dendropoma spp	X							X
Didemnum/Tridemnum	X						X	
Diopatra ornata		X					X	
Doriopsilla albopunctata	X						X	
Epiactis prolifera				X				X
Eudistylia polymorpha				X				X
Eurystomella bilabiata				X				X
Fissurella volcano		winter					X	
Fusinus luteopictus				X				X
Henricia leviscula[2]				X				X
Homalopoma spp.				X				X
Hydroida[2]				X				X
Hymenamphiastra cyanocrypta	X				X			
Lacuna spp.				X				X
Leptasterias spp.		X				X		
Leucandra heathi				X				X
Leucilla nuttingi				X				X
Lissothuria nutriens		X						X
Lithopoma gibberosum	winter				winter			
Lottia instabilis	X							X
Lottia ochracea		winter					X	
Metandrocarpa taylori[1]				X				X
Mitra idae	X							X
Ophiothrix spp.		winter						X
Pagurus spp			X				X	

(table continued)

Table 4-3 (continued). ANOVA results for changes relative to control for subtidal invertebrates, SAQ and SFQ methods combined.

Taxon	Diablo Cove comparisons				Field's Cove comparisons			
	Increase	Decrease	No Change	Results Inconclusive	Increase	Decrease	No Change	Results Inconclusive
Pelecypoda (boring)			X				X	
Phidiana hiltoni				X				X
Phragmatopoma californica	X							X
Pisaster giganteus		X					X	
Pista spp.	X							X
Pododesmus cepio		summer						X
Porifera (encrusting)			X				X	
Pseudomelatoma torosa	winter				winter			
Pugettia spp.	station(2)						X	
Pycnopodia helianthoides				X				X
Salmacina tribranchiata	X							X
Serpulidae unid.	X							X
Serpulorbis squamigerus	X				X			
Sipuncula unid.		X					X	
Spirorbidae		winter				winter		
Strongylocentrotus purpuratus			X		X			
Styela spp.	winter							X
Tegula brunnea		X						X
Tegula montereyi		X				X		
Tegula pulligo				X				X
Tethya aurantia		station(1)					X	
Tetraclita rubescens	X							X
Tonicella lineata		X						X
tunicates (colonial/social)	winter				summer			
Invertebrate diversity (SAQ)		winter					X	
Invertebrate diversity (SFQ)		X					X	
Invertebrate species richness (SAQ)			X				X	
Invertebrate species richness (SFQ)		X					X	
TOTAL (taxa only)	21	19	6	22[3]	7	4	17	40[3]
Percent of total taxa analyzed	32	26	9	32	12	4	25	59

[1] No change due to differing results between seasons.

[2] Taxa with abundances too low to interpret test results (see Appendix C for complete ANOVA results).

[3] 33 additional taxa with low abundances were not analyzed.

Cove, significant increases between periods were detected in the gastropods *Alia* spp., *Mitra idae*, and *Serpulorbis squamigerus*, and in the polychaetes *Phragmatopoma californica* and *Pista* spp. Significant declines between periods were detected in the mollusks *Amphissa* spp., *Calliostoma ligatum*, *Tegula brunnea*, *T. montereyi*, *Tonicella lineata*). Statistically significant differences in abundance between periods were detected in 11 of the 68 (16%) taxa analyzed at the Field's Cove station (Table 4-3). These included significant increases in *S. squamigerus* and purple urchins (*Strongylocentrotus purpuratus*), and significant declines in six-armed sea stars (*Leptasterias* spp.) and Monterey turban snails (*Tegula montereyi*). Most taxa tested from Field's Cove did not change in abundance between periods (25%), or had inconclusive test results (59%).

Macroinvertebrate community structure did not vary substantially from 1992-1997 at Field's Cove station FC-1 or at the control station (Figure 4-18a). In contrast, community structure did change during this same time period at both north and south Diablo Cove. Differences between Diablo Cove and non-Diablo Cove stations, described by the first dimension axis of Figure 4-18a. These differrences reflected greater abundances of purple urchins, spiculate brittle stars (*Ophiothrix spiculata*), and Hilton's nudibranch (*Phidiana hiltoni*), and lesser abundances of bat stars (*Asterina miniata*) and lined top shells (*Calliostoma ligatum*) relative to Field's Cove and control locations (Figure 4-18b, first dimension). Macroinvertebrate community structure at Field's Cove from 1992-1997 differed from that of the control (Figure 4-18a, second dimension) primarily by the greater abundance of *Lottia instabilis* and *A. miniata*, and lesser abundances of *Serpulorbis squamigerus*, *Tonicella lineata*, and hermit crabs at the Field's Cove station (Figure 4-18b, second dimension). No consistent trends of Diablo Cove benthic invertebrate community structure convergence with, or divergence from, the control were evident from 1992-1997. Rather, annual survey scores indicated considerable and continuing interannual variation at both north and south Diablo Cove stations. Overall, invertebrate species richness and diversity declined in Diablo Cove and remained unchanged in Field's Cove between periods (Table 4-3).

The abundances of several invertebrate species at Diablo Cove subtidal random stations differed from the control station (Table 4-4). Abundances of *Tegula brunnea* and *Asterina miniata* were much larger at the control areas from 1992-1997 than Diablo Cove. Similarly, the abundances of *Strongylocentrotus purpuratus*, *Cryptochiton stelleri*, *Megathura crenulata* and *Aplysia californica* at Diablo Cove exceeded abundances at the control station. With increasing depth, however, the abundance of *A. miniata* in Diablo Cove approached that found at the control station. *C. stelleri* were not abundant at shallow areas of either

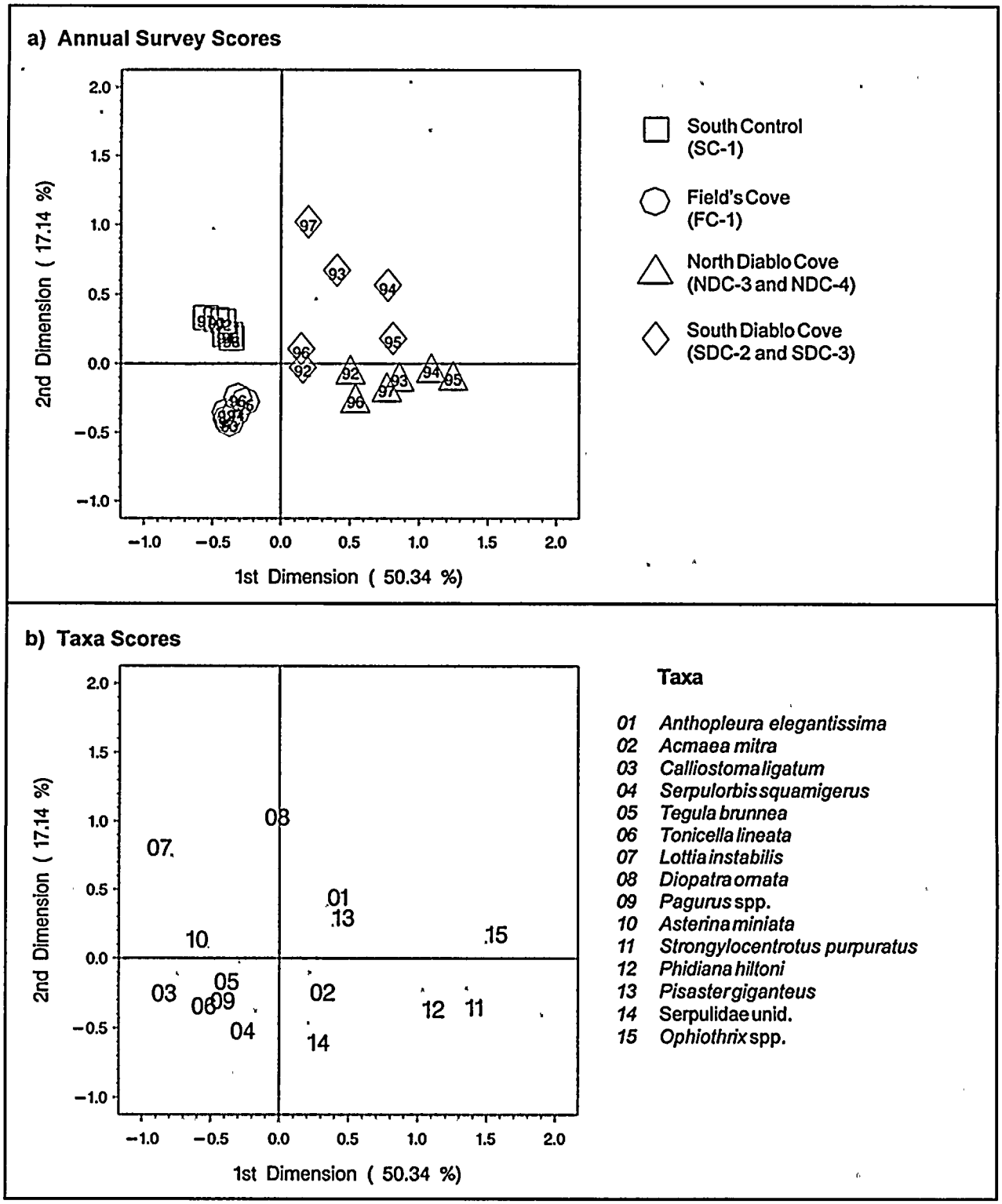


Figure 4-18. First and second dimension scores from correspondence analysis of subtidal invertebrate data from the arc quadrant study. The data in 'a' and 'b' were transformed using log (x+1) prior to the analysis.

Table 4-4. Abundance (mean +/- 1 standard deviation) of eight macroinvertebrates sampled from 1992-1997 at random subtidal stations. Number of stations sampled in parentheses. Control stations were sampled outside of Diablo Cove in Patton Cove and Field's Cove.

Asterina miniata

Diablo Cove

	1992	1993	1994	1995	1996	1997
3 m	9.1±5.7	1.9±3.3	1.4±2.0	1.8±2.4	3.4±5.1	0
	(20)	(21)	(24)	(14)	(14)	(9)
3.1-6 m	15.3±7.3	10.1±16.3	3.5±3.3	9.7±15.2	4.7±3.0	6.7±6.3
	(21)	(27)	(23)	(12)	(12)	(7)
>6 m	55.0±35.6	51.7±39	40.6±25.1	53.6±36.6	56±28.6	57
	(30)	(20)	(18)	(15)	(15)	(1)

Control

	1992	1993	1994	1995	1996	1997
3 m	22.3±18.9	30.8±35.5	16.4±11.6	22.4±16.3	23.7±13.4	44.2±41.5
	(3)	(6)	(5)	(7)	(4)	(12)
3.1-6 m	28.5±37.7	28.3±28.7	41.9±28.4	24.5±21.5	31.9±24.2	53.8±45.6
	(6)	(11)	(7)	(6)	(7)	(5)
>6 m	77.6±46.0	94.0±87.6	71.9±44.3	69.0±38.3	105	14
	(5)	(3)	(8)	(7)	(1)	(1)

Tegula brunnea

Diablo Cove

	1992	1993	1994	1995	1996	1997
3 m	67.6±70.4	17.5±33.0	24.7±39.3	7.4±22.4	26.9±32.2	86.9±91
	(20)	(21)	(24)	(14)	(14)	(9)
3.1-6 m	55.6±92.1	12.1±30.2	17.8±36.5	20.7±40.5	11.2±29.2	5.1±13.6
	(21)	(27)	(23)	(12)	(12)	(7)
>6 m	26.7±54.1	5.0±11.6	4.1±7.1	13.8±36.0	5.5±15.6	0.0
	(30)	(20)	(18)	(15)	(15)	(1)

Control

	1992	1993	1994	1995	1996	1997
3 m	144±221	129±46.6	253±228	542±243	293±245	543±345
	(3)	(6)	(5)	(7)	(4)	(12)
3.1-6 m	171±128	176±170	210±171	630±725	346±253	249±148
	(6)	(11)	(7)	(6)	(7)	(5)
>6 m	112±122	80±68.7	70±72	193±136	0	130
	(5)	(3)	(8)	(7)	(1)	(1)

Strongylocentrotus purpuratus

Diablo Cove

	1992	1993	1994	1995	1996	1997
3 m	73.8±157	191±441	151±274	193±278	163±189	156±652
	(20)	(21)	(24)	(14)	(14)	(9)
3.1-6 m	25.4±32	24.2±71	36.2±66	26.5±23.6	78.6±159	11.6±5.0
	(21)	(27)	(23)	(12)	(12)	(7)
>6 m	6.7±9.1	4.4±7.0	9.9±24.7	5.1±11.3	1.2±1.6	3
	(30)	(20)	(18)	(15)	(15)	(1)

Control

	1992	1993	1994	1995	1996	1997
3 m	1.7±1.5	3.0±1.4	9.2±12.2	4.1±5.1	20.0±8.7	9.5±14.4
	(3)	(6)	(5)	(7)	(4)	(12)
3.1-6 m	2.3±4.3	4.1±3.9	3.9±4.8	2.8±3.5	11.6±12.7	3.2±3.1
	(6)	(11)	(7)	(6)	(7)	(5)
>6 m	1.2±1.6	0.0	4.6±5.7	8.3±11.2	21	8
	(5)	(3)	(8)	(7)	(1)	(1)

Cryptochiton stelleri

Diablo Cove

	1992	1993	1994	1995	1996	1997
3 m	0.2±0.4	0.4±1.2	0	0.2±0.4	2.6±6.5	0
	(20)	(21)	(24)	(14)	(14)	(9)
3.1-6 m	4.0±8.3	4.4±9.7	3.5±7.9	9.5±15.6	8.1±12.0	7.9±10.2
	(21)	(27)	(23)	(12)	(12)	(7)
>6 m	14.6±3.8	10.1±7.7	21.4±25.6	26.4±27.3	27.3±28.7	36
	(30)	(20)	(18)	(15)	(15)	(1)

Control

	1992	1993	1994	1995	1996	1997
3 m	0.7±1.2	1.3±2.2	0.4±0.5	0.7±1	5.3±4.0	5.5±3.9
	(3)	(6)	(5)	(7)	(4)	(12)
3.1-6 m	0.3±0.8	1.1±1.4	1.1±1.8	3.5±4	2.4±3.7	5.6±3.5
	(6)	(11)	(7)	(6)	(7)	(5)
>6 m	1.6±2.1	0.3±0.6	0.3±0.5	1.3±109	4	0
	(5)	(3)	(8)	(7)	(1)	(1)

Pisaster giganteus

Diablo Cove

	1992	1993	1994	1995	1996	1997
3 m	11±5.7	5.3±4.9	6.3±5.7	6.5±8.7	8.7±7.3	2.9±2.3
	(20)	(21)	(24)	(14)	(14)	(9)
3.1-6 m	16±9.4	11.0±6.9	10.3±9.4	10.4±8.6	12.4±6.7	6.7±6.9
	(21)	(27)	(23)	(12)	(12)	(7)
>6 m	15.5±11.9	7.8±9.2	7.7±8.7	5.5±4.2	6.4±5.9	1
	(30)	(20)	(18)	(15)	(15)	(1)

Control

	1992	1993	1994	1995	1996	1997
3 m	4.7±2.9	2.2±4.8	2.5±3.5	1.9±1.6	4.7±2.1	4.6±4.2
	(3)	(6)	(5)	(7)	(4)	(12)
3.1-6 m	7.3±3.7	3.5±3.9	6.3±6.2	2.2±2.7	3.4±4.9	5.0±4.2
	(6)	(11)	(7)	(6)	(7)	(5)
>6 m	1.8±1.3	1.3±2.3	4.3±4.1	7.7±4.2	11	3
	(5)	(3)	(8)	(7)	(1)	(1)

Pycnopodia helianthoides

Diablo Cove

	1992	1993	1994	1995	1996	1997
3 m	2.4±1.8	0.6±0.7	0.4±0.9	0.5±0.7	3.1±5.2	0.3±0.5
	(20)	(21)	(24)	(14)	(14)	(9)
3.1-6 m	2.9±2.2	2.0±2.5	1.6±1.7	2.6±2.0	3.3±3.0	1.4±2.6
	(21)	(27)	(23)	(12)	(12)	(7)
>6 m	1.8±1.9	1.1±1.5	1.1±1.5	0.9±2.0	1.5±2.3	0
	(30)	(20)	(18)	(15)	(15)	(1)

Control

	1992	1993	1994	1995	1996	1997
3 m	1.3±1.5	2.8±1.2	0.4±0.5	1.0±1.4	0.7±0.6	2.7±1.9
	(3)	(6)	(5)	(7)	(4)	(12)
3.1-6 m	1.0±0.9	0.8±0.8	1.1±1.3	1.2±0.8	1.5±1.1	3.0±1.6
	(6)	(11)	(7)	(6)	(7)	(5)
>6 m	1.4±0.9	0.3±0.4	0.2±0.4	0.9±0.7	0.0	0
	(5)	(3)	(8)	(7)	(1)	(1)

Megathura crenulata

Diablo Cove

	1992	1993	1994	1995	1996	1997
3 m	0	0	.1±.3	0.2±0.4	0.5±0.7	1.6±2.3
	(20)	(21)	(24)	(14)	(14)	(9)
3.1-6 m	0.2±0.7	0.1±0.4	0.3±0.6	1.0±1.4	1.3±1.7	1.7±3.3
	(21)	(27)	(23)	(12)	(12)	(7)
>6 m	0.1±0.7	0.1±0.2	0	0	0	0
	(30)	(20)	(18)	(15)	(15)	(1)

Control

	1992	1993	1994	1995	1996	1997
3 m	0	0	0	0	0	0
	(3)	(6)	(5)	(7)	(4)	(12)
3.1-6 m	0	0	0	0	0.2±0.4	.04±0.5
	(6)	(11)	(7)	(6)	(7)	(5)
>6 m	0	0	0	0	0	0
	(5)	(3)	(8)	(7)	(1)	(1)

Aplysia californica

Diablo Cove

	1992	1993	1994	1995	1996	1997
3 m	2.3±2.4	1.8±3.9	3.0±4.4	2.4±5.2	4.8±10.8	0.6±1.3
	(20)	(21)	(24)	(14)	(14)	(9)
3.1-6 m	4.0±5.4	1.6±4.0	3.3±5.6	0.4±0.7	0.2±0.6	0.6±1.0
	(21)	(27)	(23)	(12)	(12)	(7)
>6 m	1.2±3.6	0.6±2.2	6.6±13.4	0.2±0.4	0.3±1.0	0
	(30)	(20)	(18)	(15)	(15)	(1)

Control

	1992	1993	1994	1995	1996	1997
3 m	0	0	0	0	0	0
	(3)	(6)	(5)	(7)	(4)	(12)
3.1-6 m	0	0	0	0	0	0
	(6)	(11)	(7)	(6)	(7)	(5)
>6 m	0	0	0	0	0	0
	(5)	(3)	(8)	(7)	(1)	(1)

Diablo Cove or the control, though this species was common and abundant at deeper areas of Diablo Cove.

Changes in the abundance of some species were evident after 1995 (Table 4-4). These changes did not affect the broad differences in species abundance between Diablo Cove and the control areas noted previously. For example, although *Tegula brunnea* abundance increased considerably in the shallow areas of Diablo Cove from 1996 to 1997, they were still much more abundant at the control areas than in Diablo Cove. *Megathura crenulata* increased consistently in Diablo Cove since 1992, and occurred at the control area (Field's Cove) for the first time in 1996. No *Cryptochiton stelleri* were found in the shallowest areas sampled in Diablo Cove in 1997, though their abundance doubled at depths shallower than -6 m at the control areas during OpPeriod-2. *Pisaster giganteus* abundances decreased in the shallow areas of Diablo Cove in 1997 with no corresponding decline at the control areas. *Aplysia californica* abundances decreased in the shallow areas of Diablo Cove in 1997 and did not occur at the control station during OpPeriod-2.

Select Species Abundances

Brown turban snails (*Tegula brunnea*) were the most abundant macroinvertebrate recorded at Diablo Cove, shallow Field's Cove, and South Control SAQ stations (Figures 4-12 through 4-14). Their abundance during OpPeriod-2 at Field's Cove and control area stations, however, was higher than their abundances at Diablo Cove stations (Figure 4-19). *T. brunnea* abundance declined in OpPeriod-2 at Field's Cove and Diablo Cove but not at control stations (Figures 4-12 through 4-14).

Purple urchins (*Strongylocentrotus purpuratus*) were more abundant during OpPeriod-2 at Diablo Cove stations relative to Field's Cove or control stations (Figure 4-20). *S. purpuratus* reached their highest densities at shallow north Diablo Cove stations between 1994 and 1995 but then declined through 1997. The declines were also evident at south Diablo Cove stations. No declines were observed in Field's Cove.

Bat stars *(Asterina miniata)* remained at low abundances in Diablo Cove and at slightly higher abundances outside Diablo Cove in OpPeriod-2 (Figure 4-21). *A. miniata* were previously very abundant at north Diablo Cove station NDC 6-3m. They declined to very low abundances in 1993 and remained nearly absent through 1997. A similar sharp decline in *A. miniata* abundance occurred at the control station in 1983.

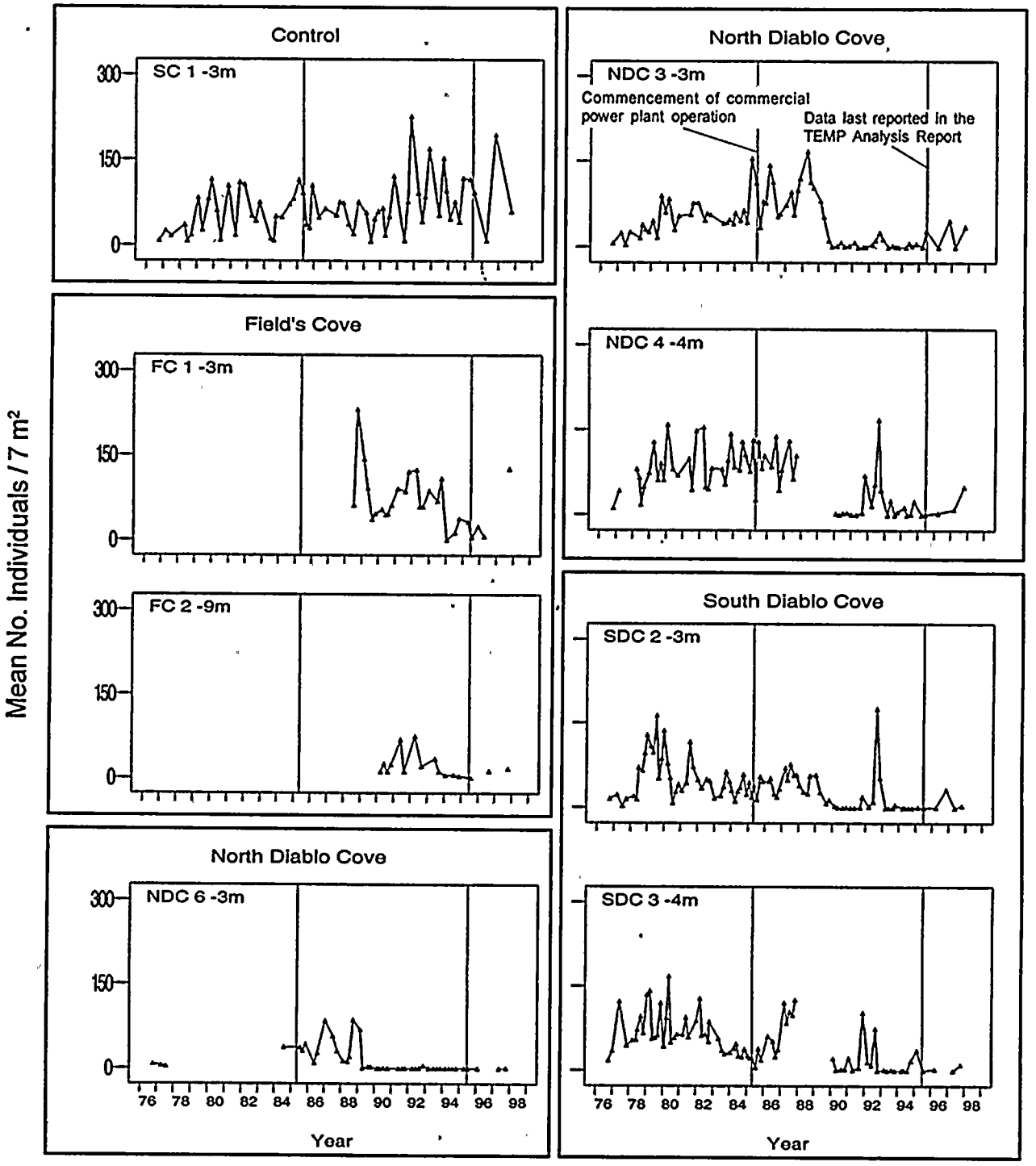


Figure 4-19. *Tegula brunnea* changes in density at subtidal benthic stations (SAQ method).

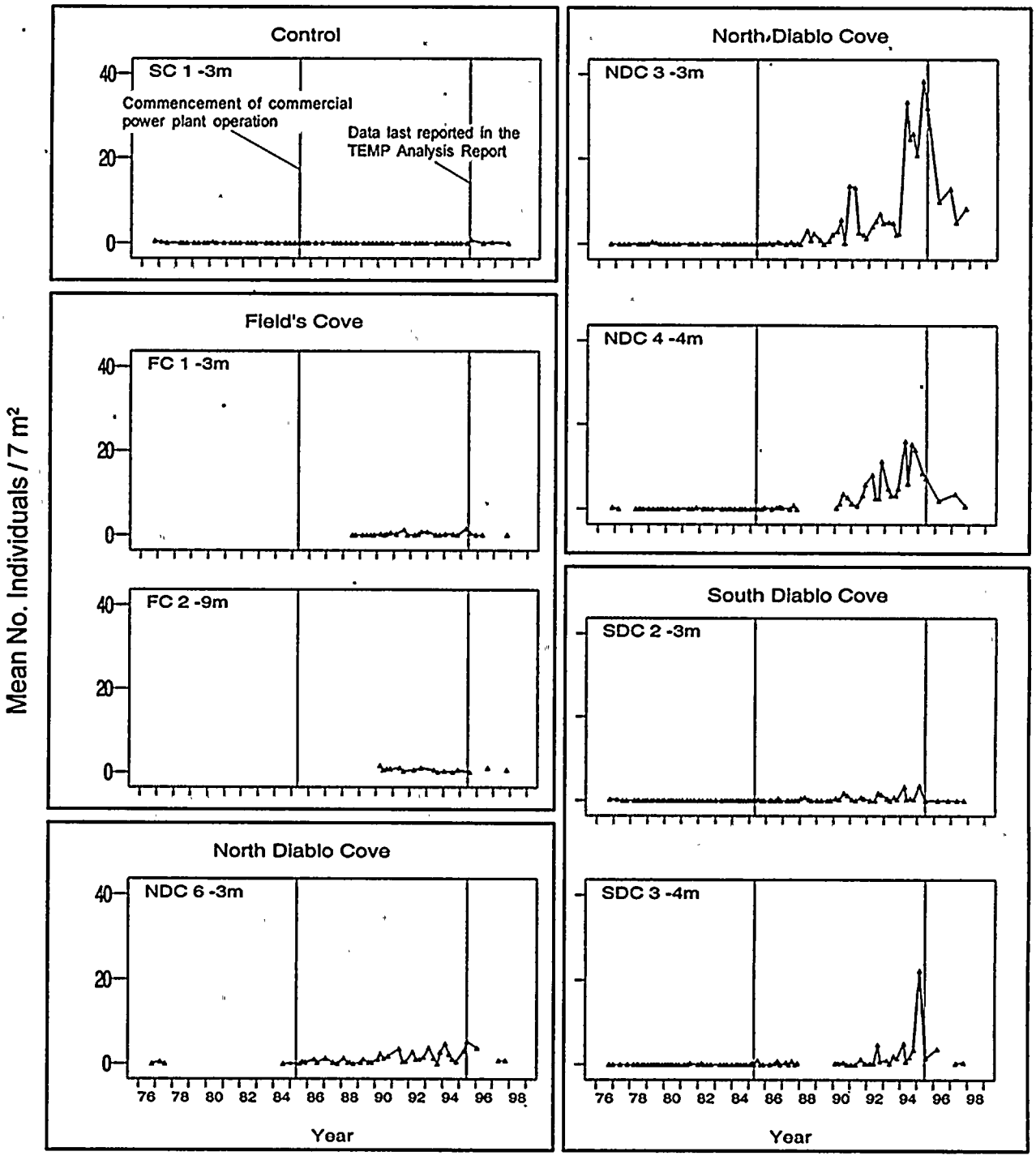


Figure 4-20. *Strongylocentrotus purpuratus* changes in density at subtidal benthic stations (SAQ method).

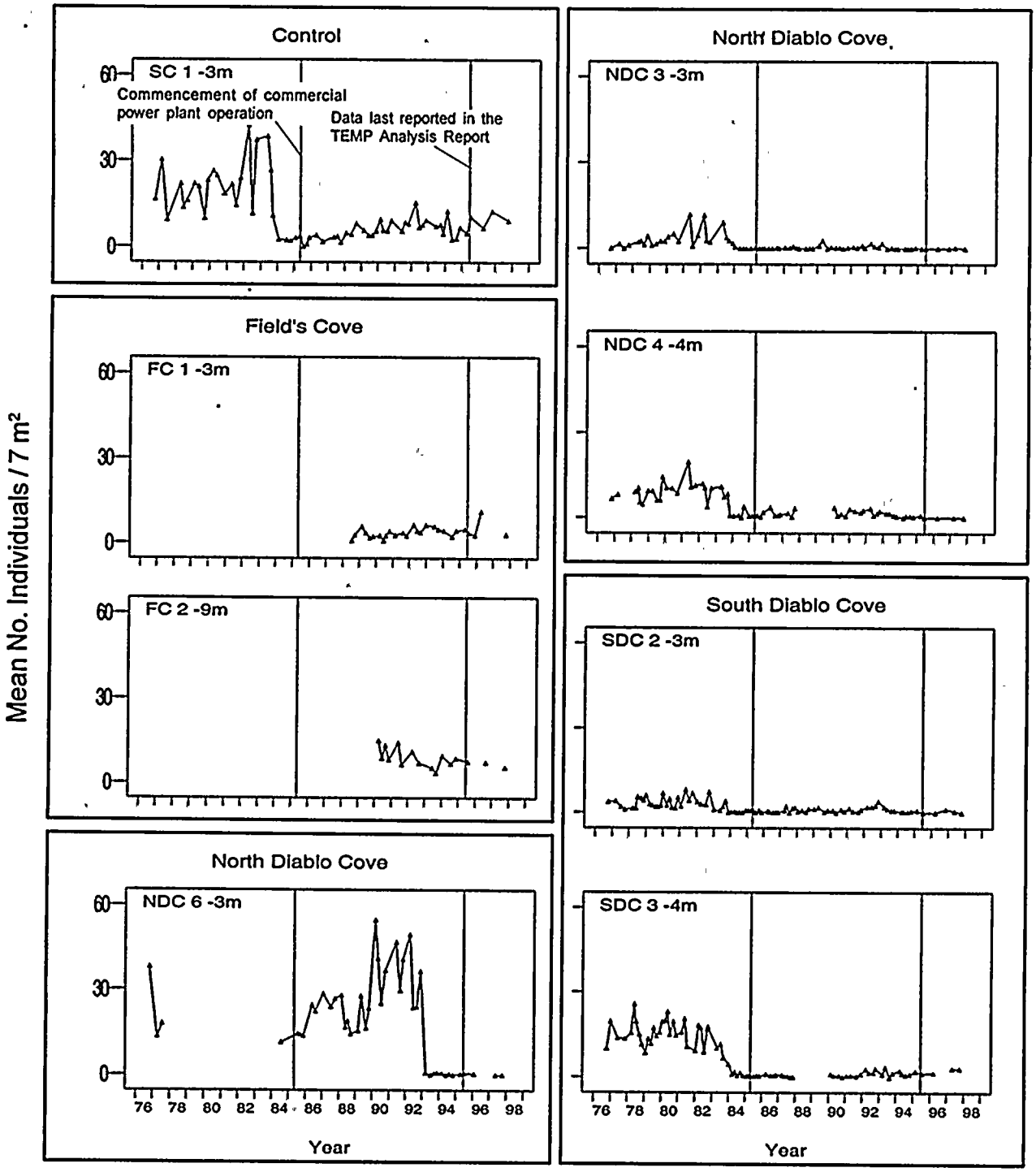


Figure 4-21. *Asterina miniata* changes in density at subtidal benthic stations (SAQ method).

Dwarf turban snails (*Homalopoma* spp., primarily *H. luridum*) were counted using the SFQ method. This taxon was rare at the Diablo Cove benthic stations during OpPeriod-2, and moderately abundant at control and Field's Cove stations (Figure 4-22). Declines in abundance at Diablo Cove stations were not apparent until several years after power plant startup. Patterns of abundance in *Leptasterias* spp. (six-armed sea star) were similar to *Homalopoma*: absent inside Diablo Cove, and moderately abundant outside (Figure 4-23).

Red turban snails (*Lithopoma gibberosum)* were not observed at -3 m depth stations inside Diablo Cove during OpPeriod-2, though they increased slightly at station SDC 3 -4m in south Diablo Cove during 1996 and 1997 (Figure 4-24). *L. gibberosum* was present only in low abundances outside Diablo Cove.

4.2.4 Discussion

There were few new or continuing effects of the discharge detected at Field's Cove station FC-1 during OpPeriod-2 (Table 4-5). The high percentage of taxa within Field's Cove that had inconclusive ANOVA test results were probably a result of the absence of discharge effects or their small effect sizes. The Field's Cove station was not sampled before 1990. The absence of any pre-operational data limited the ability to identify continuing discharge effects in Field's Cove. Effects in Field's Cove were identified by examining taxa that shared similar patterns of change between Diablo and Field's cove stations.

Changes in subtidal macroinvertebrate community structure continued to occur between periods at both north and south Diablo Cove stations. Although changes occurred in the abundances of individual species at both the control and Field's Cove stations between periods, community analysis (CA) did not indicate large differences between the two areas. Much of the interannual community variation at north Diablo Cove was likely due to fluctuations in the size of the purple urchin barrens in shallow subtidal and low intertidal areas near Diablo Cove station NDC 3-3 (see also HBT results). Qualitative observations indicated that a reduction in the urchin barrens began in 1995. Following this reduction, the barrens area was first colonized with diatoms and later by foliose red algae. Urchin barrens have not been observed outside of Diablo Cove.

Shelled gastropods remained relatively rare in Diablo Cove compared to areas outside of Diablo Cove. Predation was suggested as one possible factor explaining the decline of the snails *Tegula brunnea* and *Calliostoma ligatum* in Diablo Cove (Tenera, Inc., 1997). Cracked and broken shells of *Norissia norrisi* observed in Diablo Cove in 1996 and 1997 may have been caused by sea otter predation. Observations

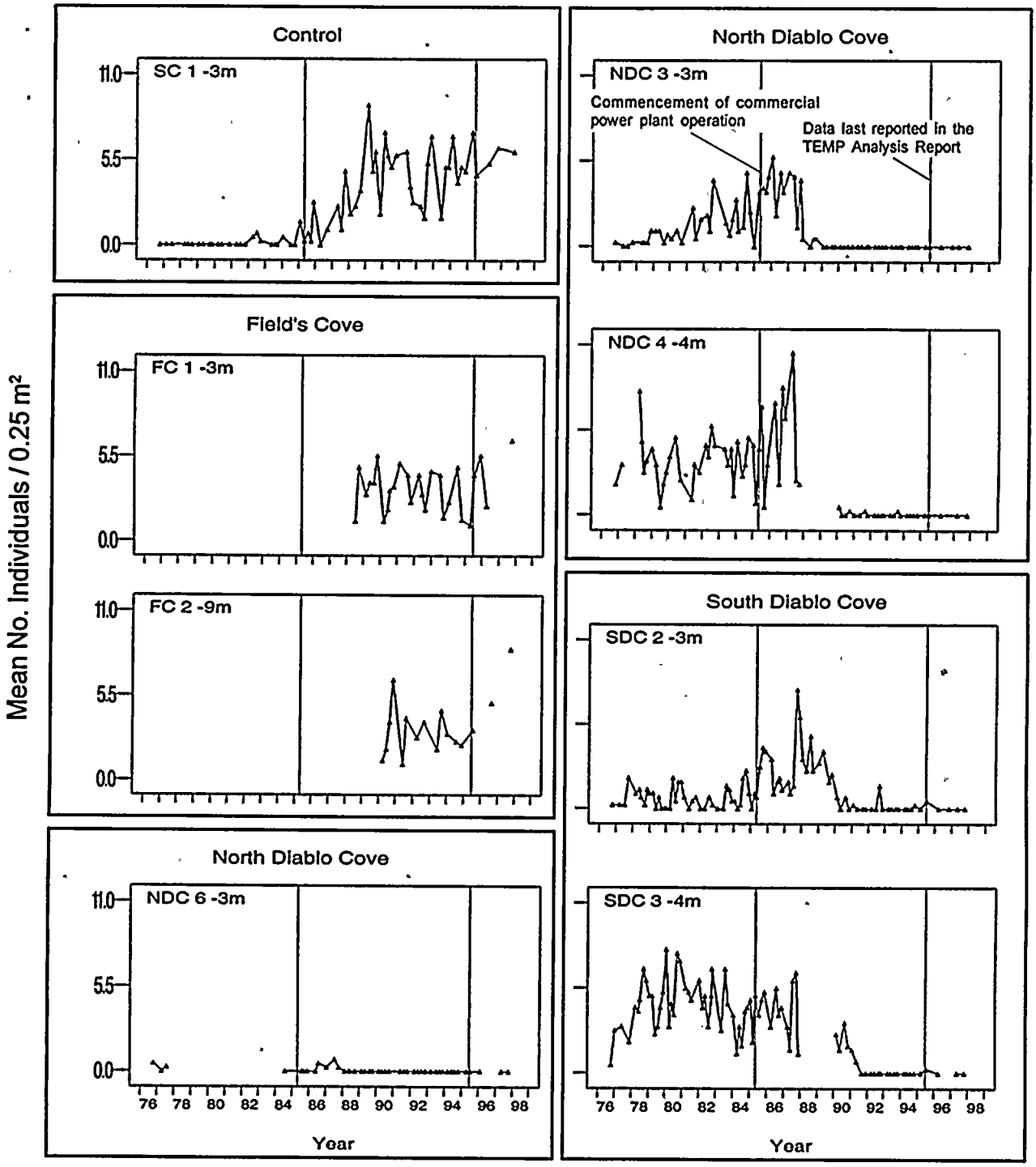


Figure 4-22. *Homalopoma* spp. changes in density at subtidal benthic stations (SFQ method).

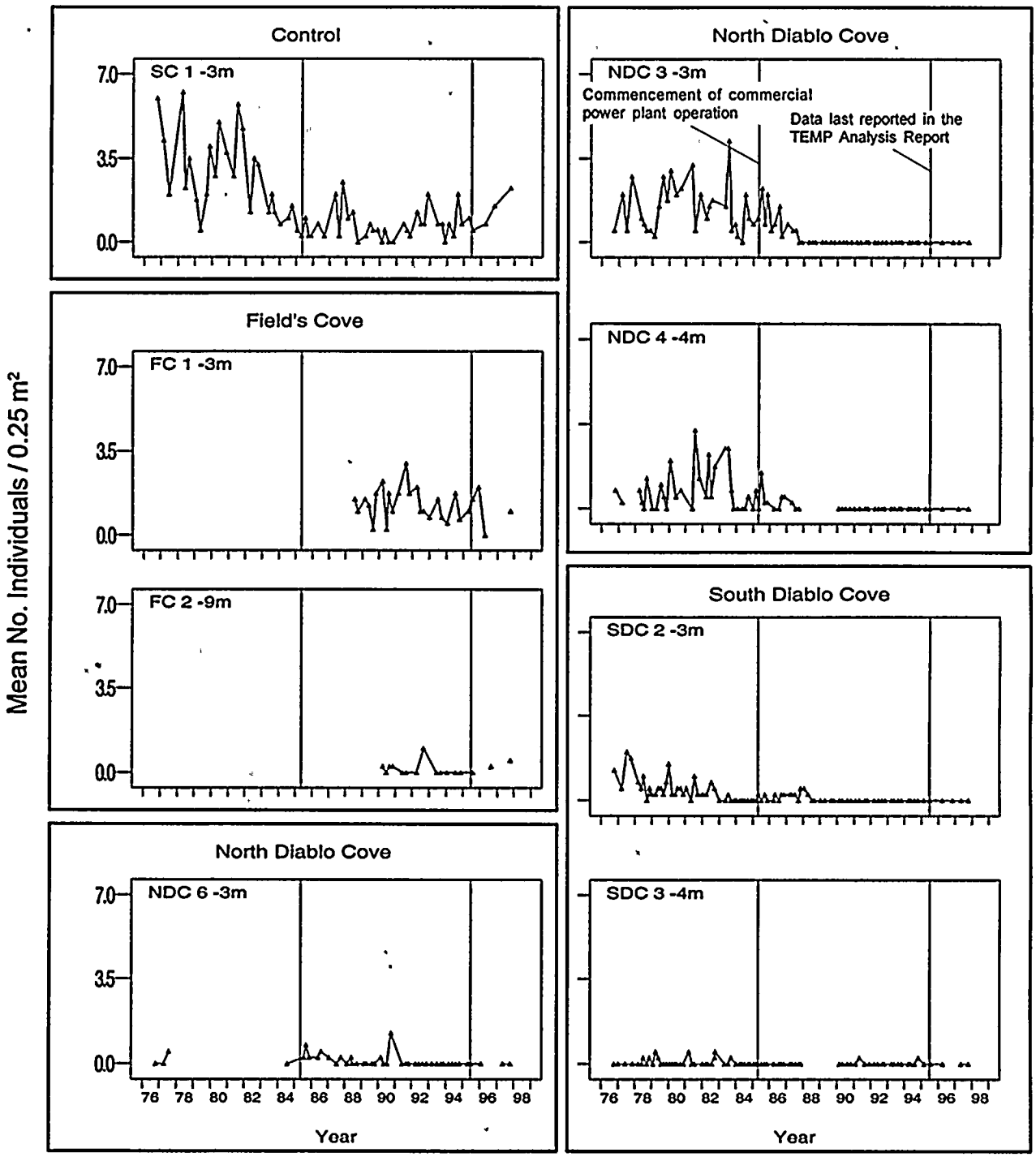


Figure 4-23. *Leptasterias* spp. changes in density at subtidal benthic stations (SFQ method).

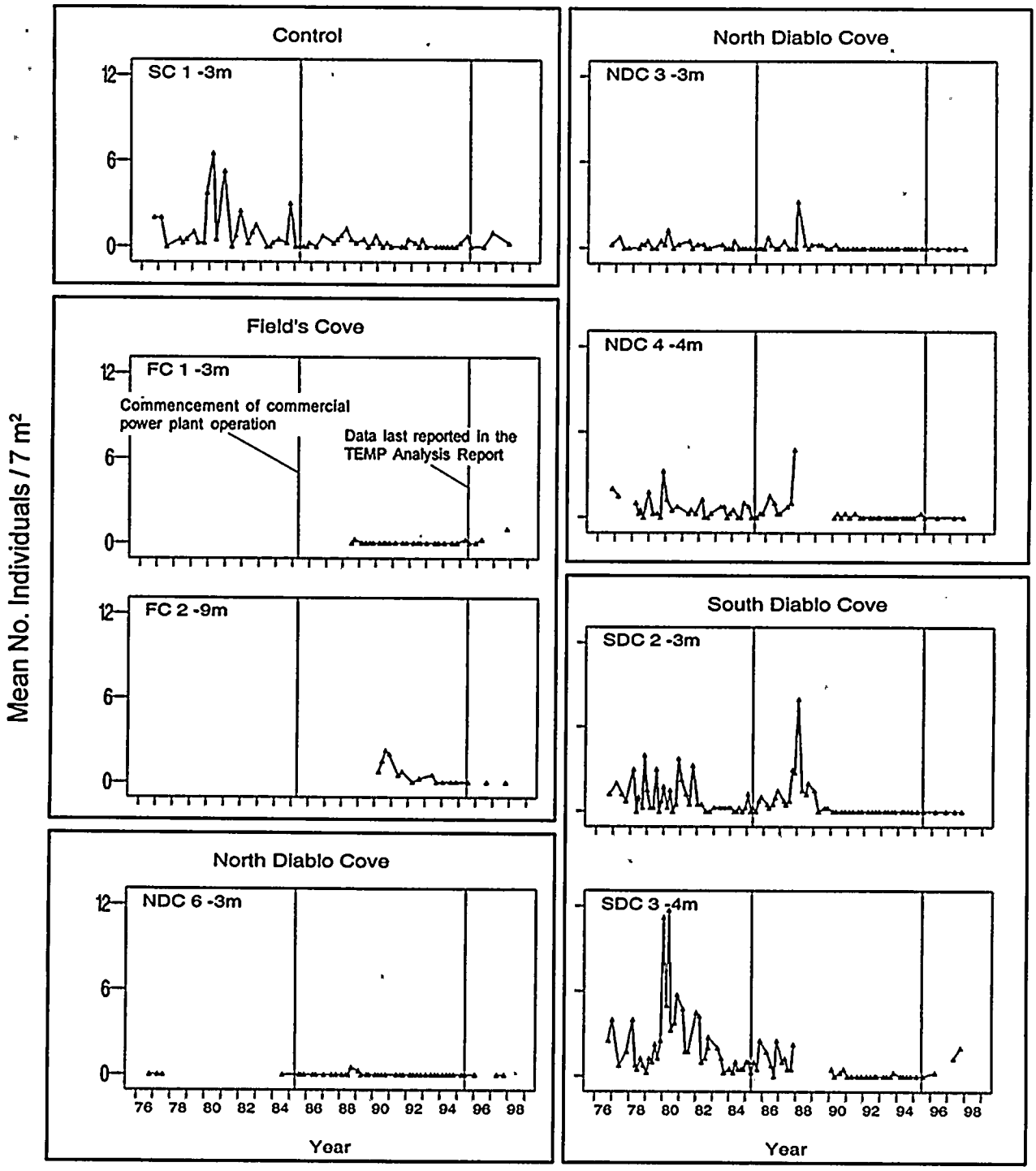


Figure 4-24. *Lithopoma gibberosum* changes in density at subtidal benthic stations (SAQ method).

Table 4-5. Comparison of discharge effects between OpPeriod-1 and OpPeriod-2 in subtidal invertebrates at -3m and -4m MLLW benthic stations. Statistically significant results are compared between the TEMP Analysis Report (Tables 4-9 and 4-10) and this report (Table 4-3).

Category and Taxon	Analysis Report (OpPeriod-1)	Report Results (OpPeriod-2)		Comments
		Diablo Cove	Field's Cove	
CONTINUED DISCHARGE EFFECTS				
Magnitude of effect unchanged				
Acmaea mitra	increase	inconclusive	no change	Abundance increased at control and FC station.
Pagurus spp.	decrease (-3m)	no change	no change	
Pelecypoda (boring)	increase	no change	no change	
Porifera (encrusting)	decrease (-3m)	no change	no change	
Magnitude of effect increased				
Anthopleura elegantissima	increase	increase	no change	Abundance declined in all areas, but relative summer increase at DC stations.
Calliostoma ligatum	decrease	decrease	inconclusive	
Dendropoma spp.	increase	increase	inconclusive	General decreases at all stations, but greater decrease at control resulted in significant DC increases.
Leptasterias spp.	decrease (-3m)	decrease	decrease	
Lithopoma gibberosum	increase	increase	increase	Abundance stable at control station.
Pista spp.	increase	increase	inconclusive	
Serpulidae	increase	increase	inconclusive	
Sipuncula unid.	decrease	decrease	inconclusive	Abundance declined in all areas.
Spirorbidae	increase	increase	increase	Seasonal increases in winter.
Strongylocentrotus purpuratus	increase	no change	increase	
Tegula brunnea	decrease	decrease	inconclusive	
Effect or trend in abundance reversed				
Anisodoris nobilis	decrease	inconclusive	increase	Relative increase in abundance in summer at FC.
Balanus/Tetraclita	increase (-3m)	decrease	inconclusive	Increased abundance at control resulted in a relative decrease at DC.
Bryozoa (encrusting)	decrease (-3m)	increase	no change	General decreases in abundance at all stations but greater decrease at control station resulted in significant increases for DC.
Didemnum/Tridemnum	decrease (-4m)	increase	no change	General decreases in abundance at all stations but greater decrease at control station resulted in significant increases for DC.
Fissurella volcano	increase	decrease	no change	Decrease in abundance at control station accompanied by a strong winter decrease at DC.
Ophiothrix spp.	increase	decrease	inconclusive	Relative winter decrease in abundance at DC.
Pisaster giganteus	increase	decrease	no change	Abundance increased at control station and decreased at DC.

(table continued)

Table 4-5 (continued). Summary of ANOVA results and comparisons with TEMP Analysis Report for subtidal invertebrates.

Category and Taxon	Analysis Report Results	Present Report Results		Comments
		Diablo Cove	Field's Cove	
Effect or trend in abundance reversed *(continued)*				
Pugettia spp.	decrease	increase	no change	Decreased abundance at control resulted in a relative increase at DC.
Serpulorbis squamigerus	decrease (-4m)	increase	increase	General decreases in abundance at all stations; greater decreases at control.
Styela spp.	decrease (-4m)	increase	inconclusive	Relative increase in abundance in winter at DC.
tunicates (colonial/social)	decrease	increase	increase	Relatively greater decreases at control; DC and FC increases in summer.
NEW DISCHARGE EFFECTS				
PREVIOUSLY UNDESCRIBED				
Alia spp.	inconclusive	increase	no change	Decreased abundance at control accompanied by increase at DC.
Amphissa spp.	no change	decrease	inconclusive	Increased abundance at control and FC; decreased at DC.
Asterina miniata	inconclusive	decrease	no change	Increased abundance at control accompanied by decrease at DC.
Cryptochiton stelleri	inconclusive	increase	inconclusive	Increased abundance at both control and DC.
Diopatra ornata	no change	decrease	no change	Increased abundance at control caused relative decline at DC.
Dorlopsilla albopunctata	no change	increase	no change	General decreases in abundance at all stations but greater decrease at control station resulted in significant increases in abundance for DC.
Lottia ochracea	no change	decrease	no change	Increased abundance at control and FC; decreased in winter in DC.
Mitra idae	no change	increase	inconclusive	Decreased abundance at control station and increased at DC.
Phragmatopoma californica	inconclusive	increase	inconclusive	Decreased abundance at control accompanied by increase at DC.
Tonicella lineata	no change	decrease	inconclusive	Increased abundance at control caused relative decline at DC.
Species diversity (SAQ)	not tested	decrease	no change	
Species diversity (SFQ)	not tested	decrease	no change	
Species richness (SFQ)	no change	decrease	no change	
NO DISCHARGE EFFECTS				
Chaetopteridae	not tested	no change	no change	Abundance declined similarly at all stations.
Species richness (SAQ)	no change	no change	no change	

have shown an increase in the number of sea otters using north Diablo Cove as a rafting site. While other large gastropods declined in Diablo Cove through time (Tenera, Inc., 1997), the abundance of Ida's miter (*Mitra idea*) did not change during power plant operation. The continued abundance of miter snails may be explained by its shell morphology. The shape and thickness of the shell is thought to be an effective deterrent to predation by crabs and fishes (Vermeij, 1978).

Sea stars (primarily *Asterina miniata*, but also including *Pycnopodia helianthoides* and *Pisaster* spp.) with echinoderm wasting disease were observed in the shallow, warm areas of Diablo Cove in 1997. A similar condition was also observed in *Cryptochiton stelleri* (gumboot chiton) in 1997. Following these observations, surveys were conducted to more completely document the magnitude and extent of this condition in the Diablo Canyon study area. Ten necrotic *A. miniata*, six necrotic *Pisaster* spp. and one necrotic *P. helianthoides* were observed in 1997 at Diablo Cove, South Control, and Field's Cove stations, respectively. Observations also showed that the condition occurred at depths greater than 7 m in Diablo Cove. Foster and Schiel (1985) suggested a direct relationship between the incidence of echinoderm wasting disease and water temperature.

4.3 Subtidal Red Abalone

4.3.1 Introduction

The nearshore marine environment of the Diablo Canyon study area provides excellent habitat for red abalone (*Haliotis rufescens*). Between 1984 and 1987, a dynamic, viable population of red abalone existed in Diablo Cove. Abalone decreased at all depths in Diablo Cove in 1990 with the largest decreases in the warmer areas at depths of less than 6 m. Between 1991 and 1995, very few abalone were found at depths less than -3 m, and their abundance at intermediate (3 to 6 m) and greater depths (>6 m) continued to decline. After 1991, red abalone were most abundant at depths greater than 6 m in Diablo Cove, although their abundance at this depth was substantially reduced from that measured in surveys prior to 1990. Abalone at Field's Cove and South Control did not decline between 1991 and 1995. The cause of the decline in Diablo Cove was primarily attributed to discharge effects and withering syndrome (WS)

In this section, data are presented that were collected during the random red abalone surveys in Diablo Cove, South Control, and Field's Cove during 1996 and 1997. Abalone data from 1995 were reported in the TEMP Analysis Report (Tenera, Inc., 1997).

4.3.2 Methods

Red abalone were counted at permanent, benthic stations using the SAQ and SFQ invertebrate sampling methods since 1976. However, abalone tended to have patchy distributions and therefore a supplementary study was designed to provide better estimates of the distribution, abundance, and size structure of the subtidal red abalone population in the study area. The red abalone study sampled randomly selected sites over a broader area and a wider range of depths than the SAQ and SFQ benthic surveys. This method included detailed search procedures for juveniles and adult abalone. Red abalone surveys at random station locations were conducted annually in 1984, 1986, and 1987, and semi-annually after 1990.

Potential sample sites were designated as the numbered intersections of a 15 m x 15 m grid inscribed on a 1:1,600 scale bathymetric chart of Diablo Cove. The cove was divided into northern and southern halves (Figure 4-25). A similar number of sites, ranging from 14 to 34 per year, was randomly selected within the northern and southern areas of the cove. Between 70 and 80% of the approximately 16 ha (40

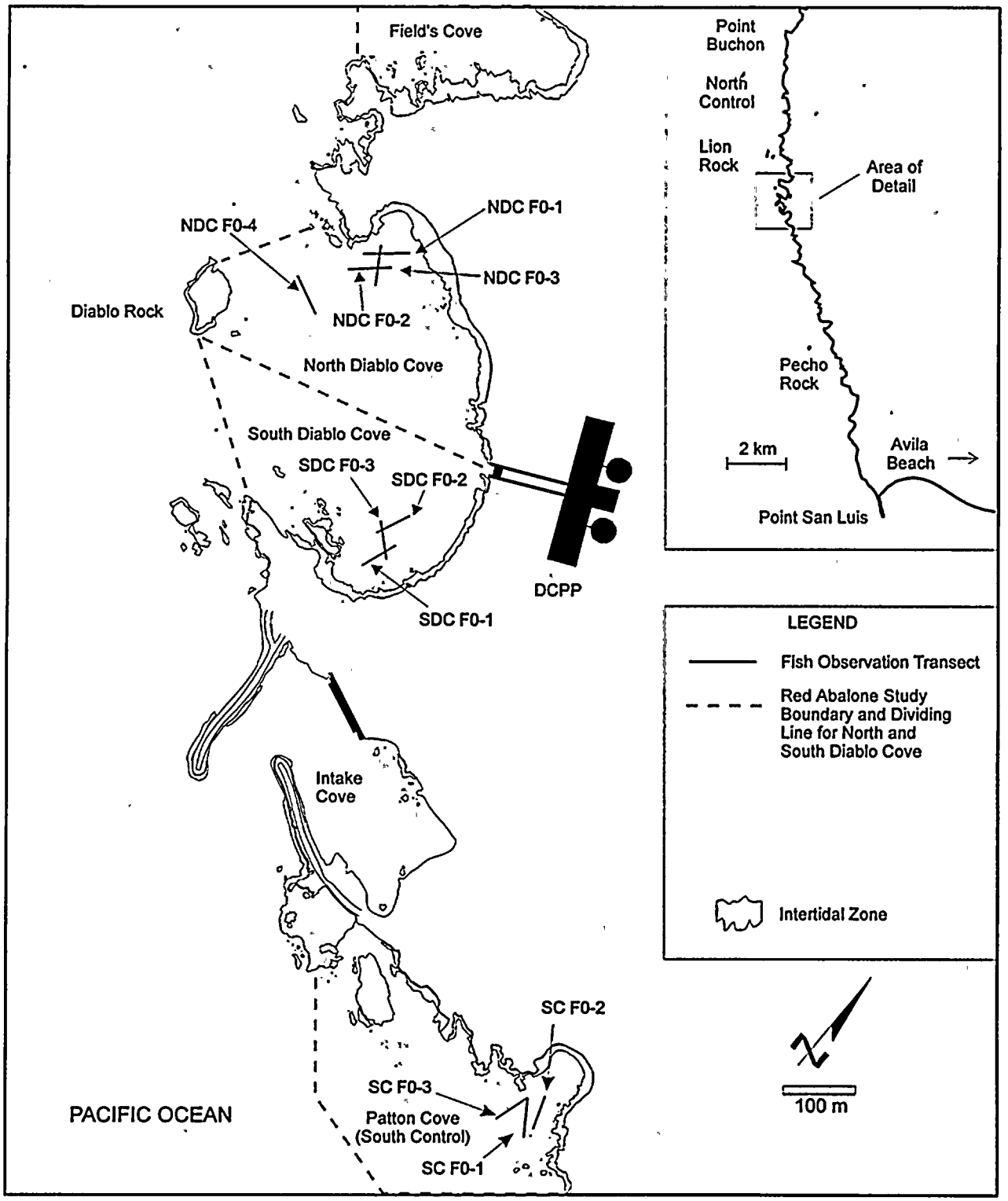


Figure 4-25. Subtidal red abalone study areas and fish observation transects.

ac) area of Diablo Cove is at a depth of 6 m or less, and the number of sites was stratified by depth to approximate this distribution. Ten sites at Field's Cove and ten sites in the South Control area were also sampled at the same time beginning in 1991. At the time of selection, both Field's Cove and South Control were considered controls, although it is now known that the discharge plume causes occasional elevations in temperature at Field's Cove. The large area of shallow subtidal habitat present in Diablo Cove is uncommon in areas outside the cove. Therefore, selection of the sampling sites in Field's Cove and South Control was not strictly random, but based on depth, with the range of sampled depths similar to those sampled in Diablo Cove.

Chart and landmark bearings were used to locate sampling sites which were marked with temporary buoys. Two divers deployed four 4 m long lines attached to a central weight at 90 degree angles to each other. Flagging tape 3.1 m from the central weight on each line marked the outer boundary of a circular 30 m^2 sampling area. The depth of the center weight was the reference depth of the site. Maximum and minimum depths were also recorded as were proportions of substrate types (bedrock, boulder, cobble, sand) and bottom relief.

Abalone were counted in the four quadrats and placed in one of four size classes based on *in situ* estimates or measurements of shell lengths: juvenile (< 25 mm), small (25-50 mm), medium (51-178 mm), and large (>178 mm shell length). Since 1991, the abundances of several taxa of larger invertebrates and kelps were estimated at the sites. These data were used to supplement data from the SAQ and SFQ studies to provide an indication of the areal extent of impacts in areas of Diablo Cove not sampled by other methods.

4.3.3 Results

Red abalone were uncommon at subtidal benthic stations sampled in 1996 and 1997. Only two individuals were recorded at the benthic stations sampled during this period; one juvenile *Haliotis* spp. occurred at station NDC4 -4m in 1996 and one *Haliotis rufescens* occurred at station SDC3 -4m in 1997 (Appendix C). Mean densities of abalone decreased in Diablo Cove from 0.8 per 30 m^2 in 1996 (n=41) to 0.1 per 30 m^2 in 1996 (n=17) (Table 4-6). The total number of random stations sampled in 1997 in Diablo Cove was low compared to the number sampled in 1996. Abalone abundance remained very low in the shallow areas of Diablo Cove in 1996 and 1997. In 1996, as in previous years, the mean number of abalone per station was greater at the deeper stations than at the shallower stations (Table 4-6).

Table 4-6. Total number and mean number of red abalone per random 30 m² station, 1984-1997. Number of stations sampled are in parentheses.

Diablo Cove

depth		1984	1986	1987	1990	1991	1992	1993	1994	1995	1996	1997
≤3 m												
		56(12)	122(12)	119(11)	13(24)	12(23)	2(20)	16(21)	–(24)	5(14)	7(14)	2(9)
	mean	4.7	10.2	10.8	0.5	0.5	0.1	0.8	0.0	0.4	0.5	0.2
3-6 m												
		89(9)	90(10)	167(13)	62(19)	35(22)	19(21)	9(27)	14(23)	55(12)	13(12)	–(7)
	mean	9.9	9.0	12.8	3.3	1.6	0.9	0.3	0.6	4.6	1.1	0.0
>6 m												
		4(7)	49(8)	50(10)	40(20)	65(22)	54(30)	52(20)	23(18)	14(15)	12(15)	–(1)
	mean	0.6	6.1	5.0	2.0	3.0	1.8	2.6	1.3	0.9	0.8	0.0
Total no.		149(28)	261(30)	336(34)	115(63)	112(67)	75(71)	77(68)	37(65)	74(41)	32(41)	2(17)
Mean		5.3	8.7	10.5	1.8	1.7	1.1	1.1	0.6	1.8	0.8	0.1

Field's Cove and Patton Cove (combined)

depth		1984	1986	1987	1990	1991	1992	1993	1994	1995	1996	1997
≤3 m												
		ns	*ns*	*ns*	19(7)	36(9)	8(3)	21(6)	17(5)	30(7)	23(4)	59(12)
	mean				2.7	4.0	2.7	3.5	3.4	4.3	5.3	4.9
3-6 m												
		ns	*ns*	*ns*	21(4)	47(7)	28(6)	90(11)	55(7)	20(6)	18(7)	15(5)
	mean				5.3	6.7	4.7	8.2	7.9	3.3	2.6	3.0
>6 m												
		ns	*ns*	*ns*	9(3)	33(4)	6(5)	1(3)	46(8)	48(7)	11(1)	2(1)
	mean				3.0	8.3	1.2	0.3	5.8	6.9	11.0	2.0
Total no.					49(14)	116(20)	42(14)	112(20)	118(20)	98(20)	50(12)	76(18)
Mean					3.5	5.8	3.0	5.6	6.0	4.9	4.2	4.2

Mean abalone abundance did not change at Field's Cove and South Control between 1996 and 1997 (Table 4-6). Abalone in these areas were more evenly distributed over the range of depths sampled than they were in Diablo Cove (Figures 4-26 and 4-27).

No red abalone were observed with WS in Diablo Cove or areas outside of Diablo Cove in 1996 or 1997.

4.3.4 Discussion

Red abalone abundance in Diablo Cove has remained low at depths of 3 m and less since 1990. Since 1995, red abalone abundance at Field's Cove and South Control remained several times higher than at similar depths in Diablo Cove. The reduced abundance of red abalone in Diablo Cove from 1990 to 1995 was related to power plant operation (Tenera, Inc., 1997). These reductions occurred at all depths but were most pronounced at the shallowest depths. WS was suggested as the likely cause of these reductions based on direct observation of red abalone with the disease, observations of fresh shells without predator damage, and the demonstrated direct relationship between temperature and incidence of WS in laboratory-held abalone (Tenera, Inc., 1997). Although no red abalone with WS were observed in Diablo Cove in 1996 or 1997, this disease was still a potential factor in continued declines in the population because it continued to occur in intertidal black abalone within the Diablo Canyon study area during this period.

Other possible explanations for the continued low abundance of red abalone in Diablo Cove, compared to areas outside of the cove, include increased predation by sea otters, humans, and invertebrates, and physiological stress and mortality from chronic exposure to warm water temperatures. Predation by sea otters and humans would result in the loss of larger individuals at all depths, and does not account for the low abundances of all sizes of abalone from the shallowest areas of the cove. Physiological stress and mortality either as a direct result of stress, or from increased susceptibility to predation by invertebrate predators such as sea stars, could explain the decreased abalone abundances in shallow areas during the 1996-1997 surveys. It is likely that the continued low abundance of red abalone in Diablo Cove resulted from a combination of factors including predation, low recruitment, and the continuing effect of the discharge to exacerbate disease (WS) and increase physiological stress.

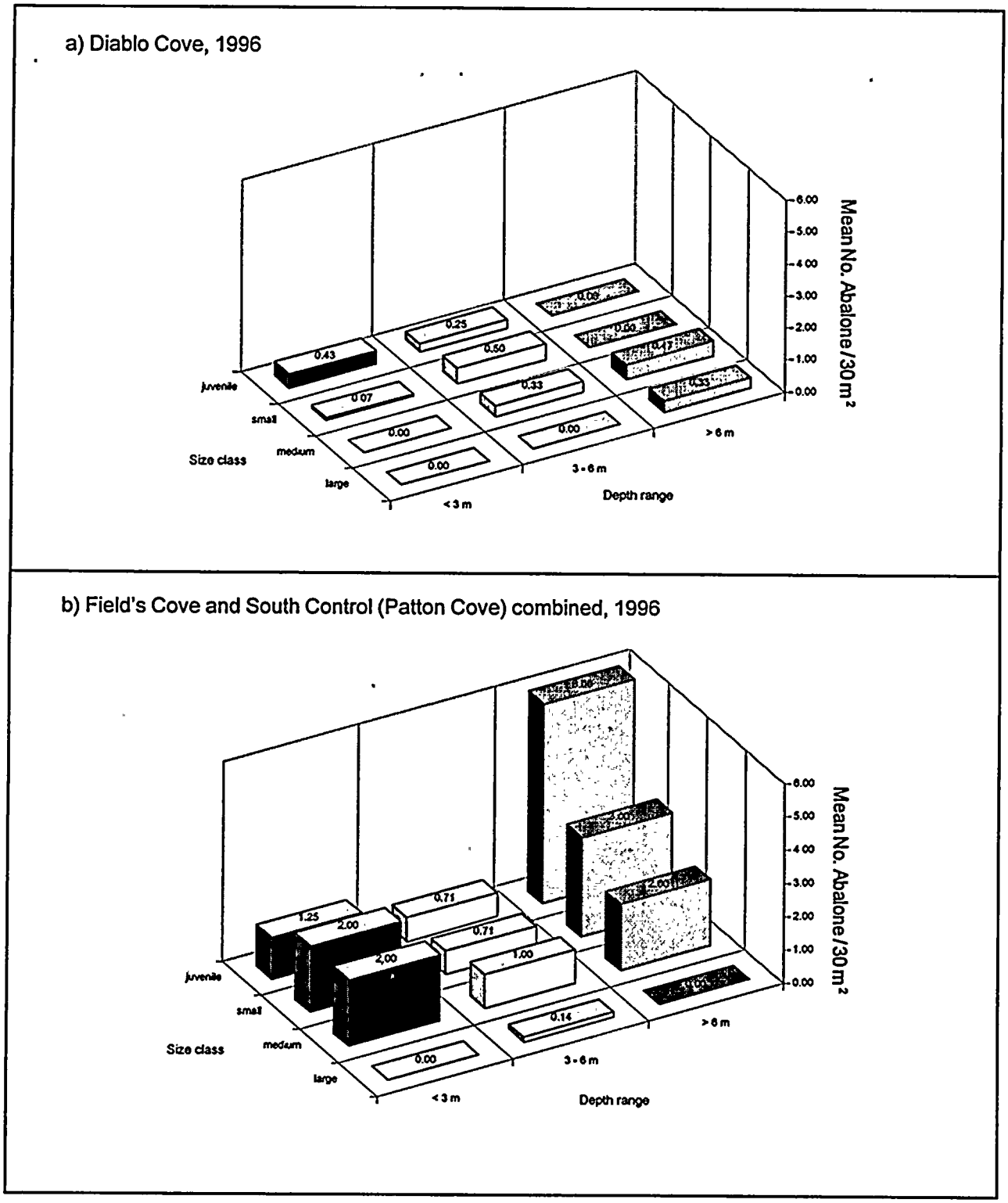


Figure 4-26. Abundance of red abalone by size class and depth range in 1996. Juveniles were less than 25 mm shell length, small were 25-50 mm; medium were 51-178 mm; and large were greater than 178 mm.

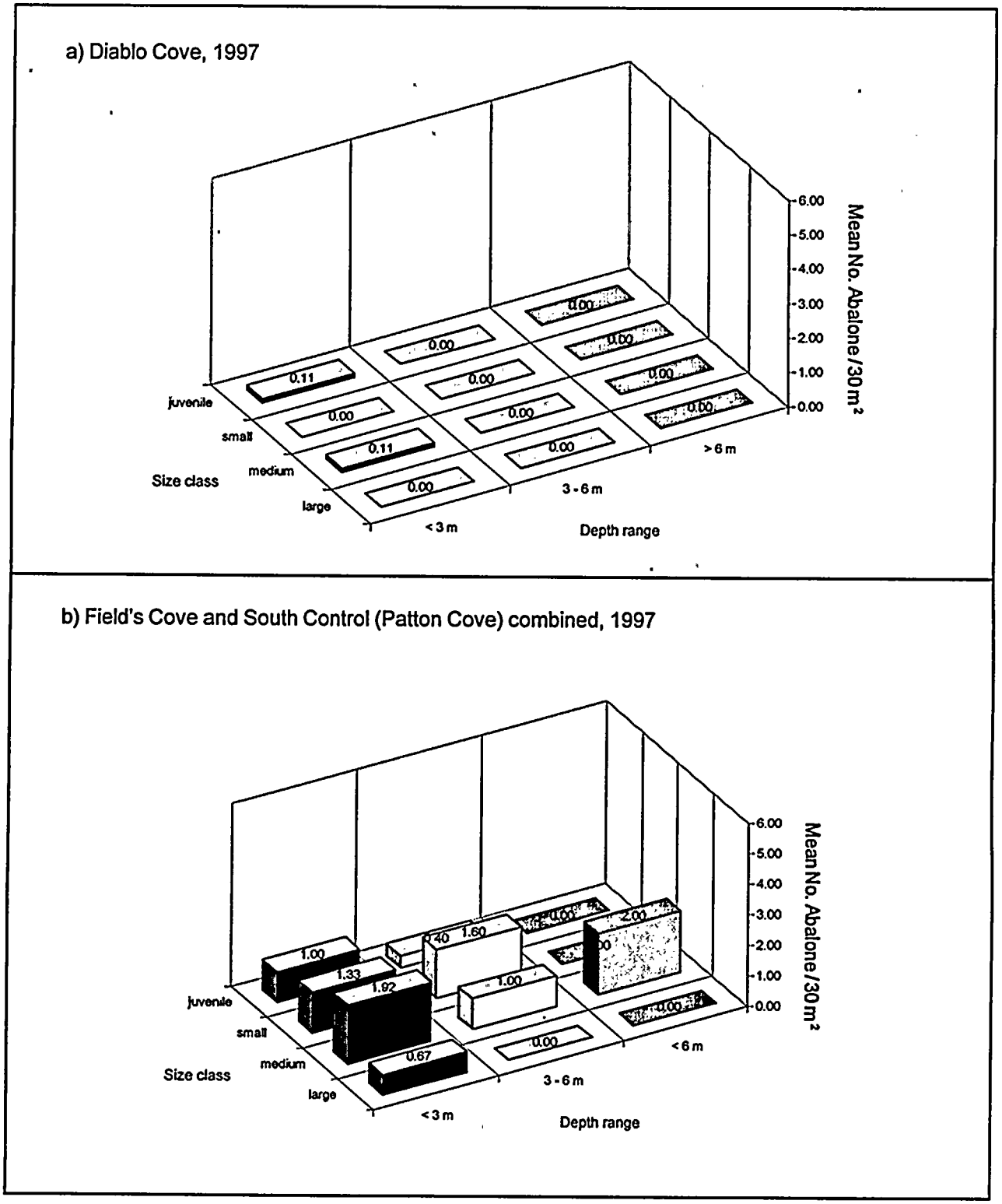


Figure 4-27. Abundance of red abalone by size class and depth range in 1997. Juveniles were less than 25 mm shell length, small were 25-50 mm; medium were 51-178 mm; and large were greater than 178 mm.

4.4 Subtidal Fishes

4.4.1 Introduction

Fishes in the vicinity of DCPP have been censused by direct underwater observations since 1976. In the period after power plant start-up, fish species richness increased at north Diablo Cove and decreased at south Diablo Cove as a result of the discharge (Tenera, Inc., 1997). The warmer water and broader depth gradient of temperatures at north Diablo Cove attracted several species characterized by warm-temperate distributions such as sheephead, opaleye, halfmoon, and kelp bass. These species were rare in Diablo Cove prior to power plant start-up. Other species that were attracted mainly to the turbulence zone of the discharge were leopard shark, bat ray, round ray, and white seabass. Cool-temperate species such as sculpins and greenlings were generally less common in shallow areas of Diablo Cove after power plant start-up than before. These species still persisted below the thermocline and in fringe areas of the plume where cool and warm waters mixed. Changes in several factors other than temperature, such as algal community structure, food availability, and substrate characteristics, also were likely factors contributing to changes in fish community composition and distribution in Diablo Cove after start-up.

Characteristics of the thermal discharge from DCPP did not change substantially between OpPeriod-1 and OpPeriod-2. The fish assemblage in Diablo Cove would also not have been expected to change substantially during OpPeriod-2. However, large-scale differences in oceanographic conditions between periods could have altered the supply of species with planktonic larvae. El Niño conditions, for example, would be expected to facilitate the northward transport and occurrences of some southerly occurring species in the vicinity of DCPP.

Changes in algal community structure are known to affect the distributions and abundance of temperate reef fishes (Carr, 1989). Certain kelp species that were formerly abundant in Diablo Cove declined after plant start-up, while giant kelp increased beginning in the early 1990s. Although the composition of the algal assemblage changed, kelp canopy continued to provide habitat for surfperches, kelp bass and recently settled rockfishes (Tenera Inc., 1997).

The purpose of this section is to describe any new or continuing effects of the power plant on subtidal fishes through the analysis of fish census data collected in Diablo Cove and South Control during OpPeriod-2. New or continuing effects are determined by comparing the results of the analyses of these data to results from OpPeriod-1.

4.4.2 Methods

Sampling Methods

Fishes were counted within fixed subtidal stations three times in 1995 and twice in 1996 and 1997. Sampling locations are shown in Figure 4-25. Each fish assessment station consisted of a permanent midwater and benthic transect. Fishes were counted separately at each transects. A station was sampled by deploying a weighted 50 m transect line from a boat, beginning at a permanent marker buoy and extending along a pre-determined compass course away from the buoy. The benthic sampling corridor was 2 m to either side of the line (4 m width) and 1 m above the bottom. The midwater sampling corridor was a cylinder 4 m in diameter, centered 3 m above the benthic transect. Some transects crossed each other in areas where transects were positioned parallel to depth contours and perpendicular to depth contours. The area common to both transects in these areas was approximately 2%. This small overlap did not affect the analysis because numbers of fishes counted were averaged by area, and the mobility of most fishes added to the independence of transect counts.

A survey team consisted of two divers, each counting fishes along the benthic and midwater portions of a transect independently, but in opposite directions. This sampling technique allowed a more thorough inspection of potential fish habitats from all angles of view than would have been possible by a single diver progressing along a transect in only one direction. Fishes were identified to species if possible, but juveniles of some species with similar appearances were combined into broader categories. The resulting survey data were the combined species counts of both divers, divided by two. This yielded an average count for each taxon per 50 m benthic or midwater transect. During each survey, the stations were usually sampled a second time within approximately one to two weeks of the initial sampling effort, unless adverse sea conditions precluded a second replicate.

Analysis Methods

Fish counts were analyzed separately for benthic and midwater transects because the habitats and fish assemblages differed greatly between depths. Replicate transects were pooled by survey and area for analysis. The areas sampled were north Diablo Cove, south Diablo Cove, and South Control.

ANOVA was used to analyze differences in taxa abundances between periods. Taxa analyzed were the top 99% by cumulative abundance from each period. Because most of the observations during OpPeriod-2 were in the summer-fall months, only surveys occurring between May and October of each year were included in the analysis. This allowed a more balanced comparison between periods.

Correspondence analysis was used to examine natural changes in fish assemblages and changes resulting from the discharge. Only the data from the benthic transects were analyzed because this data included a greater number of taxa and were generally less variable than the midwater data. An analysis was done to identify the taxa that accounted for 95% of the total abundance and occurred in at least 20% of the surveys. These taxa, excluding all young-of-year (YOY) and juvenile fishes, were analyzed. Annual means for individual taxa used in the analysis were computed for Diablo Cove and South Control from survey means for these stations. Data were log transformed (log[x+1]) prior to analysis to compensate for the large-scale differences in counts among taxa. Annual mean survey and taxa scores from the analysis were plotted to examine the temporal patterns of variation at the two areas.

Statistical results from this report were compared with statistical results from the TEMP Analysis Report to identify new or continuing effects of the discharge. The comparisons were qualitative because the analysis methods differed for the two reports. Comparisons for individual taxa and other data sets were grouped into three general categories described in Section 1.3.

4.4.3 Results

Changes at the South Control transects were used as a baseline for changes observed at north and south Diablo Cove transects. In general, fish species composition remained similar at control transects, except for large variations in juvenile rockfish (*Sebastes* spp.) between periods (Figure 4-28). A long-term decline in bocaccio (*Sebastes paucispinis)* was particularly evident. Greater variations in fish abundances occurred within the midwater transects as compared to the benthic transects.

The north Diablo Cove fish assemblage (Figure 4-29) differed from that of the control area by the occurrence or increased abundances of species more typical of temperate warm water conditions. These warm tolerant species included sheephead (*Semicossyphus pulcher*), opaleye (*Girella nigricans*), kelp bass (*Paralabrax clathratus*), and bat ray (*Myliobatis californica*). The greatest abundance increases in north Diablo Cove during OpPeriod-2 occurred in topsmelt (Atherinid unid.), señorita (*Oxyjulis californica*), pile perch (*Damalichthys vacca*), opaleye (*Girella nigricans*), black surfperch (*Embiotoca jacksoni*) and blackeye goby (*Coryphopterus nicholsii*). Taxa associated with kelp were in more abundant in Diablo Cove than at the control area. These fishes included kelp bass (*Paralabrax clathratus*), kelp rockfish (*Sebastes atrovirens),* kelp surfperch *(Brachyistius frenatus)* and juvenile black and yellow/gopher rockfish (*S. chrysomelas/S. carnatus*). Only painted greenling (*Oxylebius pictus*) and

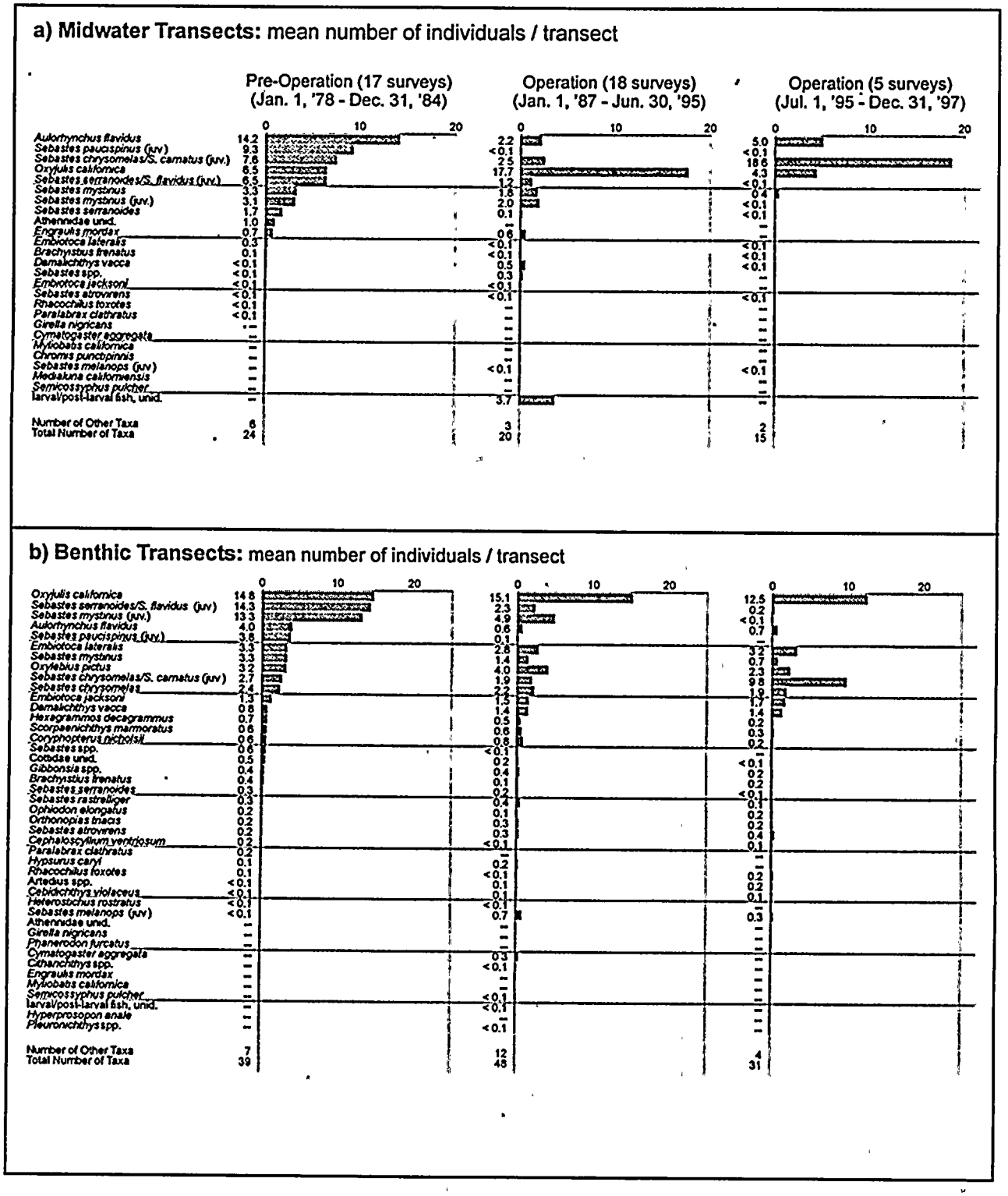


Figure 4-28. Fish abundances at control transects. Study period means (bars and values) were calculated from pooled survey means from SC FO-1, -2, and -3. A dashed line for abundance in all three study periods indicates the taxon occurred at Diablo Cove transects but not at control transects.

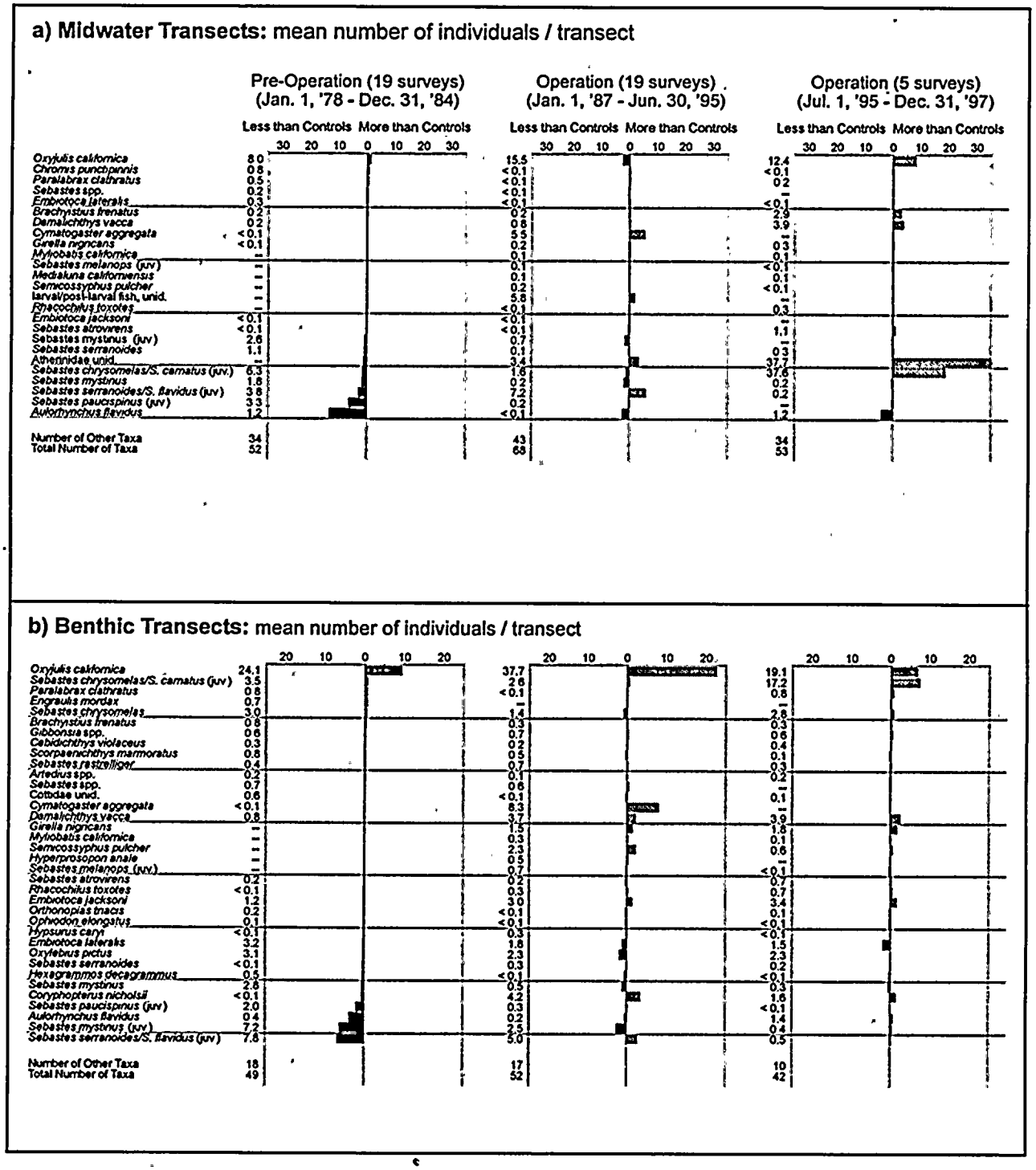


Figure 4-29. Differences in subtidal fish abundances between north Diablo Cove transects and control transects. Study period means (values in columns) were calculated from pooled survey means from NDC FO-1, -2, and -3. Differences in abundance from control abundances (shown as bars) were calculated by subracting the north Diablo Cove period means from corresponding control period means shown in Figure 4-28.

tubesnout (*Aulorhynchus flavidus*) were substantially less abundant in north Diablo Cove than in the control area.

The fish assemblage at both north and south Diablo Cove generally showed similar trends in taxa abundances and species composition. There were, however, greater abundances of benthic fishes associated with the sand substrate at south Diablo Cove such as bat ray, sanddab (*Citharichthys* spp.), and turbot (*Pleuronichthys* spp.) (Figure 4-30). During OpPeriod-2, increases in abundance in south Diablo Cove relative to controls, occurred in Atherinid unid., *Oxyjulis californica, Damalichthys vacca, Citharichthys* spp., and grass rockfish (*Sebastes rastrelliger*). There were greater abundances of *S. chrysomelas/S. carnatus* (juv.) on benthic transects but less on midwater transects when compared to the control area. Other taxa that were less abundant in OpPeriod-2 in south Diablo Cove were *S. chrysomelas,* striped surfperch (*Embiotoca lateralis*), *Oxylebius pictus* and *Aulorhynchus flavidus.*

ANOVA was used to test for statistically significant changes in abundances of 44 fish taxa, total diversity and mean species richness between OpPeriod-1 and OpPeriod-2 (Table 4-7). Total diversity and mean species richness increased on midwater transects in south Diablo Cove but remained unchanged on midwater transects in north Diablo Cove. These measures were also unchanged on benthic transects in both areas during OpPeriod-2. Most of the ANOVA tests on specific taxa were inconclusive (68% in north Diablo Cove and 80% in south Diablo Cove). None of the taxa that were tested decreased between periods in either north or south Diablo Cove, but several taxa either increased or were unchanged in abundance in each area. Only *Brachyistius frenatus* and *Oxylebius pictus* increased significantly in both north and south Diablo Cove from mean abundance levels in OpPeriod-1.

Correspondence analysis of 14 common fish taxa sampled in Diablo Cove and the control area from 1992 through 1997 demonstrated a continuation of the trends in area differences described in Tenera, Inc. (1997). Annual survey scores from 1992 through 1997 (Figure 4-31a) showed south Diablo Cove survey scores were most variable due to species scores for sanddab (*Citharichthys* spp.) and tubesnout (*Aulorhynchus flavidus*). The second axis separated survey scores for north Diablo Cove and South Control areas based on species scores for *Damalichthys vacca, Brachyistius frenatus* and *Girella nigricans.*

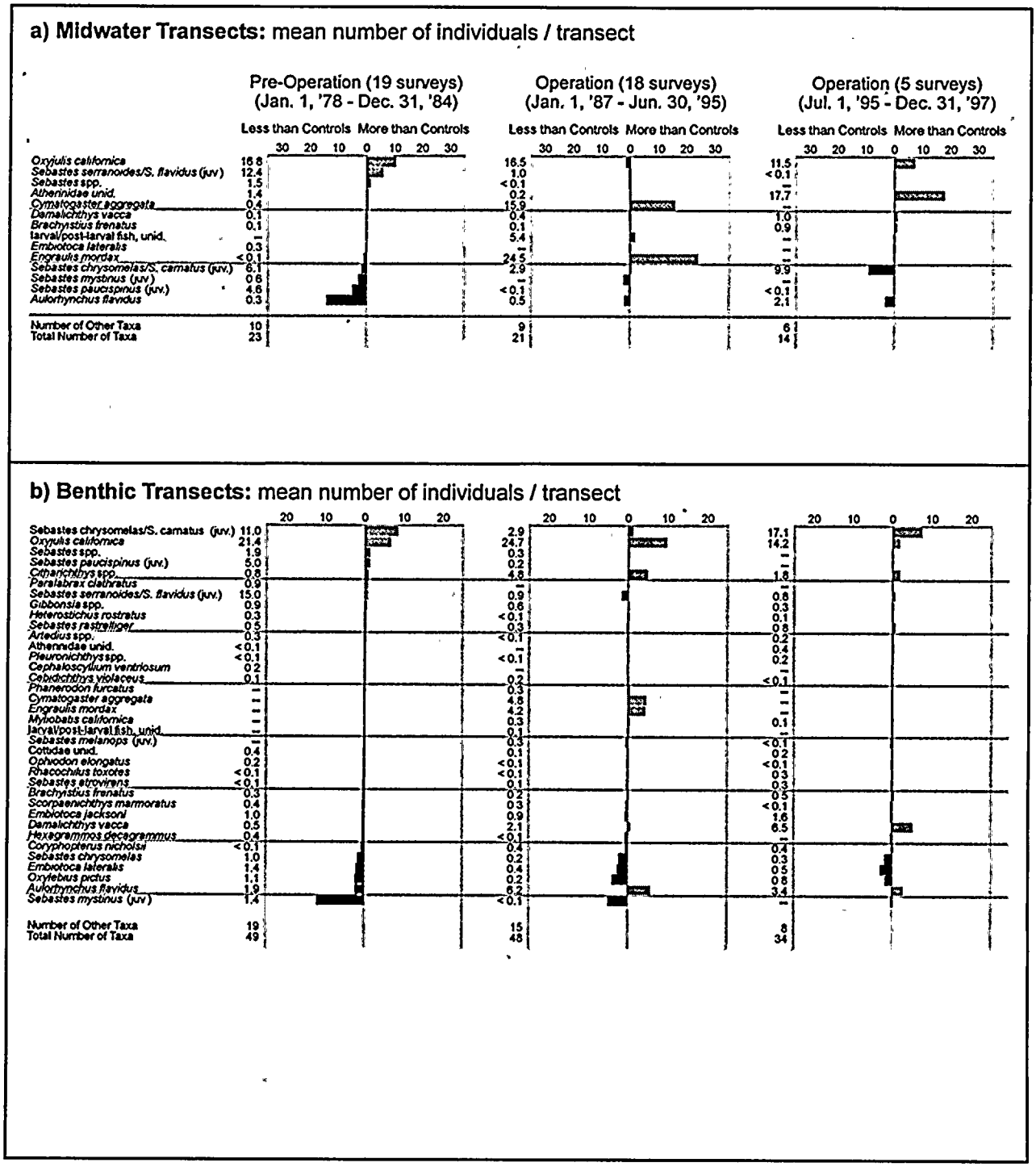


Figure 4-30. Differences in subtidal fish abundances between south Diablo Cove transects and control transects. Study period means (values in columns) were calculated from pooled survey means from SDC FO -1, -2, and -3. Differences in abundance from control abundances (shown as bars) were calculated by subtracting the south Diablo Cove period means from corresponding control period means shown in Figure 4-28.

Table 4-7. Results of ANOVA comparing fish taxa abundances between OpPeriod-1 and OpPeriod-2. Taxa with significant increases or decreases had test results with $p \leq 0.10$. The 'no change' category included taxa with a $p > 0.10$ and a test power to detect a 50% change ≥ 0.70. Results were inconclusive if $p > 0.10$ and test power was < 0.70. (YOY) indicates young-of-year juvenile life stage only.

Taxon	Transect level	North Diablo Cove comparison				South Diablo Cove comparison			
		Increase	Decrease	No change	Results Inconclusive	Increase	Decrease	No change	Results Inconclusive
Artedius spp.	benthic				X				X
Atherinidae unid. [1]	midwater				X	X			
Aulorhynchus flavidus	benthic [2]				X				X
Brachyistius frenatus	midwater [2]	X				X			
Cebidichthys violaceus	benthic				X				X
Cephaloscyllium ventriosum [3]	benthic				X				X
Chromis punctipinnis [1]	midwater				X				X
Citharichthys spp.	benthic				X[3]				X
Coryphopterus nicholsi	benthic			X				X	
Cottidae unid.	benthic				X				X
Cymatogaster aggregata [1]	midwater				X				X
Damalichthys vacca	benthic [2]				X				X
Embiotoca jacksoni	benthic			X				X	
Embiotoca lateralis	benthic			X				X	
Engraulis mordax	midwater				X[3]				X
Gibbonsia spp.	benthic [2]			X				X	
Girella nigricans [1]	benthic [2]				X				X
Hexagrammos decagrammus	benthic	X							X[3]
Hyperprosopon anale	midwater				X				X
Hypsurus caryi	benthic				X				X
larval / post-larval fish, unid.	midwater				X				X[3]
Medialuna californiensis [1]	midwater				X				X
Myliobatis californica [1]	midwater				X				X
Ophiodon elongatus	benthic				X				X
Orthonopias triacis	benthic	X							X[3]
Oxyjulis californica	midwater [2]				X				X
Oxylebius pictus	benthic	X				X			
Paralabrax clathratus [1]	benthic [2]	X							X
Phanerodon furcatus	midwater				X				X
Pleuronichthys spp. [1]	benthic	X							X
Rhacochilus toxotes	benthic [2]				X				X
Scorpaenichthys marmoratus	benthic			X				X	
Sebastes spp. (YOY)	benthic				X				X
Sebastes atrovirens	benthic [2]	X							X
Sebastes chrysomelas	benthic	X						X	
Sebastes chryso./carnatus/atrovir. (YOY)	midwater [2]	X							X
Sebastes melanops (YOY)	midwater				X				X
Sebastes mystinus	midwater				X				X
Sebastes mystinus (YOY)	midwater				X				X[3]
Sebastes paucispinis (YOY)	midwater [2]				X				X[3]
Sebastes rastrelliger	benthic				X				X
Sebastes serranoides / S. flavidus (YOY)	midwater [2]				X				X
Sebastes serranoides	midwater				X				X[3]
Semicossyphus pulcher	benthic [2]				X				X
Fish diversity	midwater			X		X			
Fish diversity	benthic			X				X	
Species richness	midwater			X		X			
Species richness	benthic			X				X	
TOTAL (w/o diversity and spp. richness)		9	0	5	30	3	0	6	35
Percent of total taxa analyzed		20	0	11	68	7	0	14	80

[1] Mean control abundance was zero during both periods.

[2] Taxon also analyzed for other sampling method (midwater or benthic); results are presented for the more appropriate method.

[3] Taxon abundances were too low between periods for analysis.

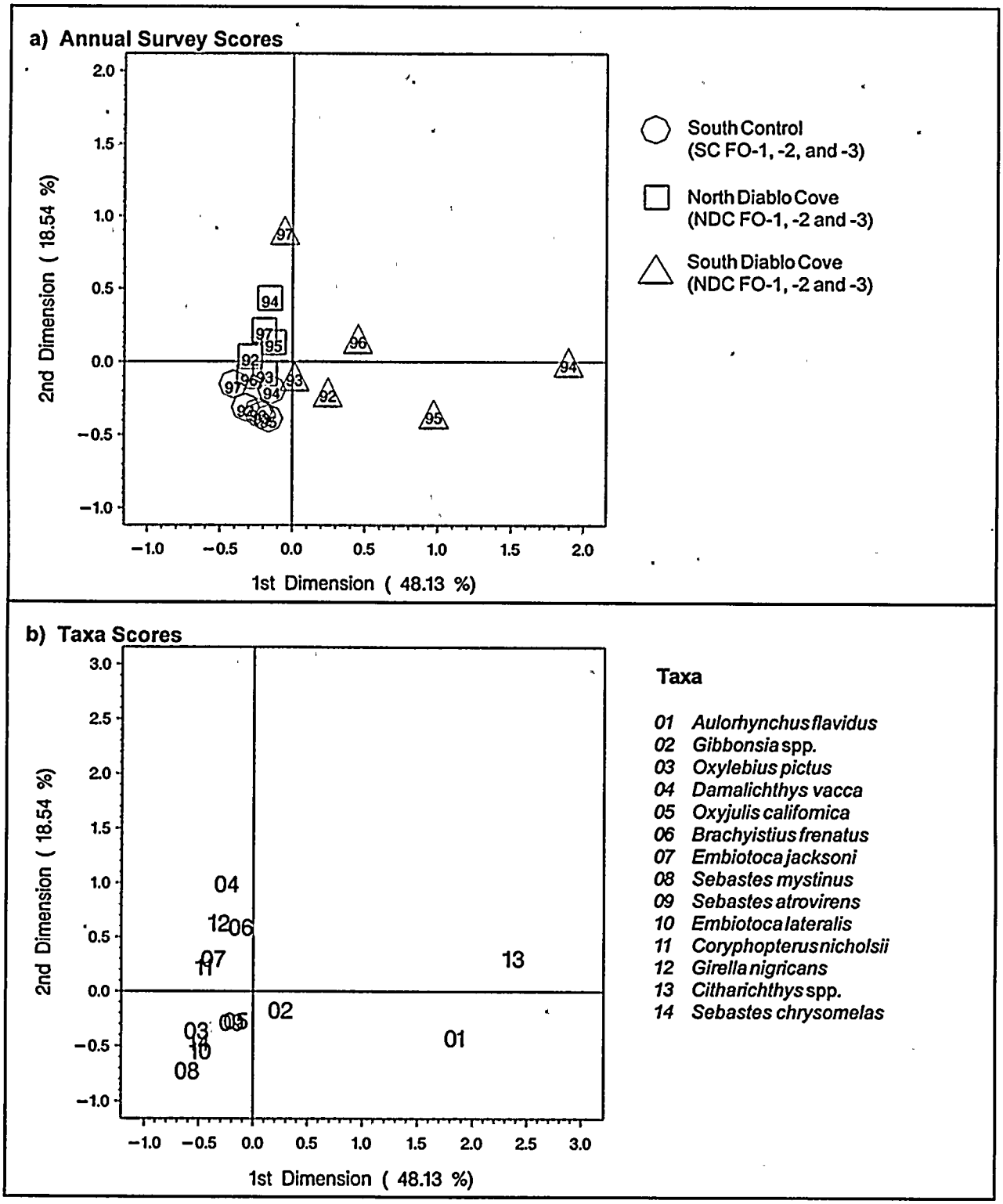


Figure 4-31. First and second dimension scores from correspondence analysis of subtidal fish data from benthic transects.

Select Species Abundances

During OpPeriod-2, several benthic and midwater species either diverged from or continued changes previously noted in Tenera, Inc. (1997) during OpPeriod-1. Long-term abundances from 1976-1997 are presented for several taxa to provide examples of these types of changes and as examples of the results from ANOVA. Many taxa, however, were too variable in abundance to draw definite conclusions regarding abundance changes during the current period. Annual mean abundances for all taxa sampled from OpPeriod-2 are presented in Appendix C.

Topsmelt (Atherinidae [*A. affinis, A. californiensis*, and unid. Atherinidae]) increased in both north and south Diablo Cove in OpPeriod-2 (Figure 4-32), although changes were only statistically significant ($p<0.07$) in south Diablo Cove (Table 4-7). Highest abundances of atherinids occurred in the summer surveys and lowest abundances in winter on the midwater transects. Counts were highly variable depending on location and time surveyed because the fishes tended to form loose schools that moved in and out of the study transects.

Kelp surfperch (*Brachyistius frenatus*) consistently increased at midwater transects in Diablo Cove beginning in 1994 (Figure 4-33). This increase coincided with increases in the *Macrocystis* canopy (see Section 4.1 – *Subtidal Algae*). This surfperch species is normally associated with kelp canopies. Highest densities were recorded at north Diablo Cove in summer 1996. Kelp surfperch significantly increased cove-wide during OpPeriod-2 while remaining at low densities at South Control.

Black surfperch (*Embiotoca jacksoni*) remained abundant at north Diablo Cove in OpPeriod-2, with annual abundance peaks that typically occurred each winter (Figure 4-34). Previous analysis of black surfperch detected significant increases relative to control transects, at north Diablo Cove and significant decreases at south Diablo Cove (Tenera, Inc., 1997). Black surfperch abundances were unchanged, relative to the control, between OpPeriod-1 and OpPeriod-2.

The YOY black-and-yellow/gopher rockfish complex (*Sebastes chrysomelas / S. carnatus*) was very abundant from 1994 through 1997 (Figure 4-35). Highest abundances in this taxon were recorded in the summer surveys when the newly settled fishes were associated with kelp canopies and kelp fronds. This pattern was evident in all areas, with statistically significant ($p<.01$) increases between periods in north Diablo Cove relative to the control area (Table 4-7). This rockfish complex was also abundant in 1978, 1981, and 1982 prior to power plant start-up. Other juvenile rockfish taxa (*S. mystinus, S. melanops,* and

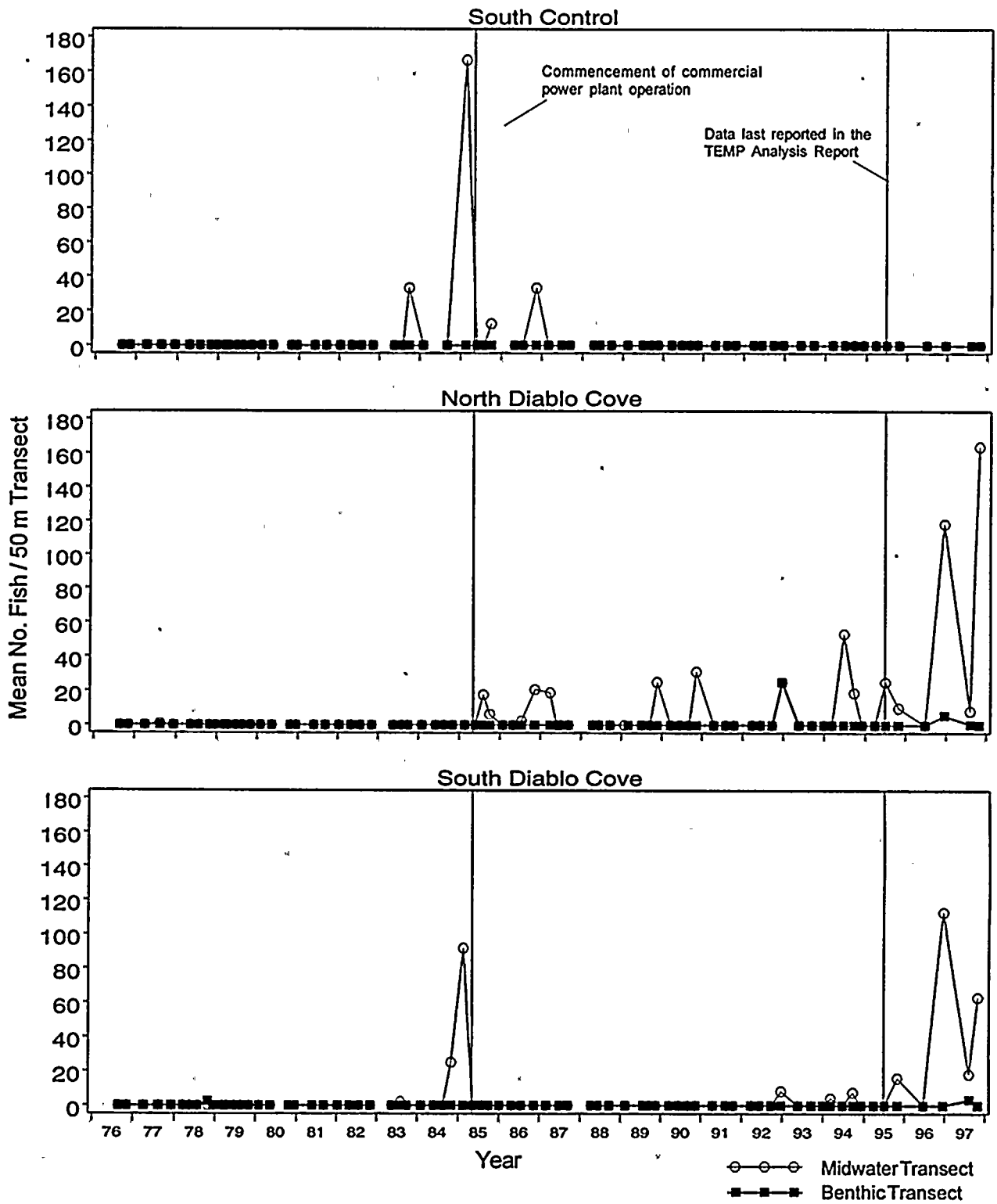


Figure 4-32. *Atherinidae* changes in density at combined subtidal fish observation stations for South Control (SC FO-1, -2, and -3), north Diablo Cove (NDC FO-1, -2, and -3), and south Diablo Cove (SDC FO -1, -2, and -3).

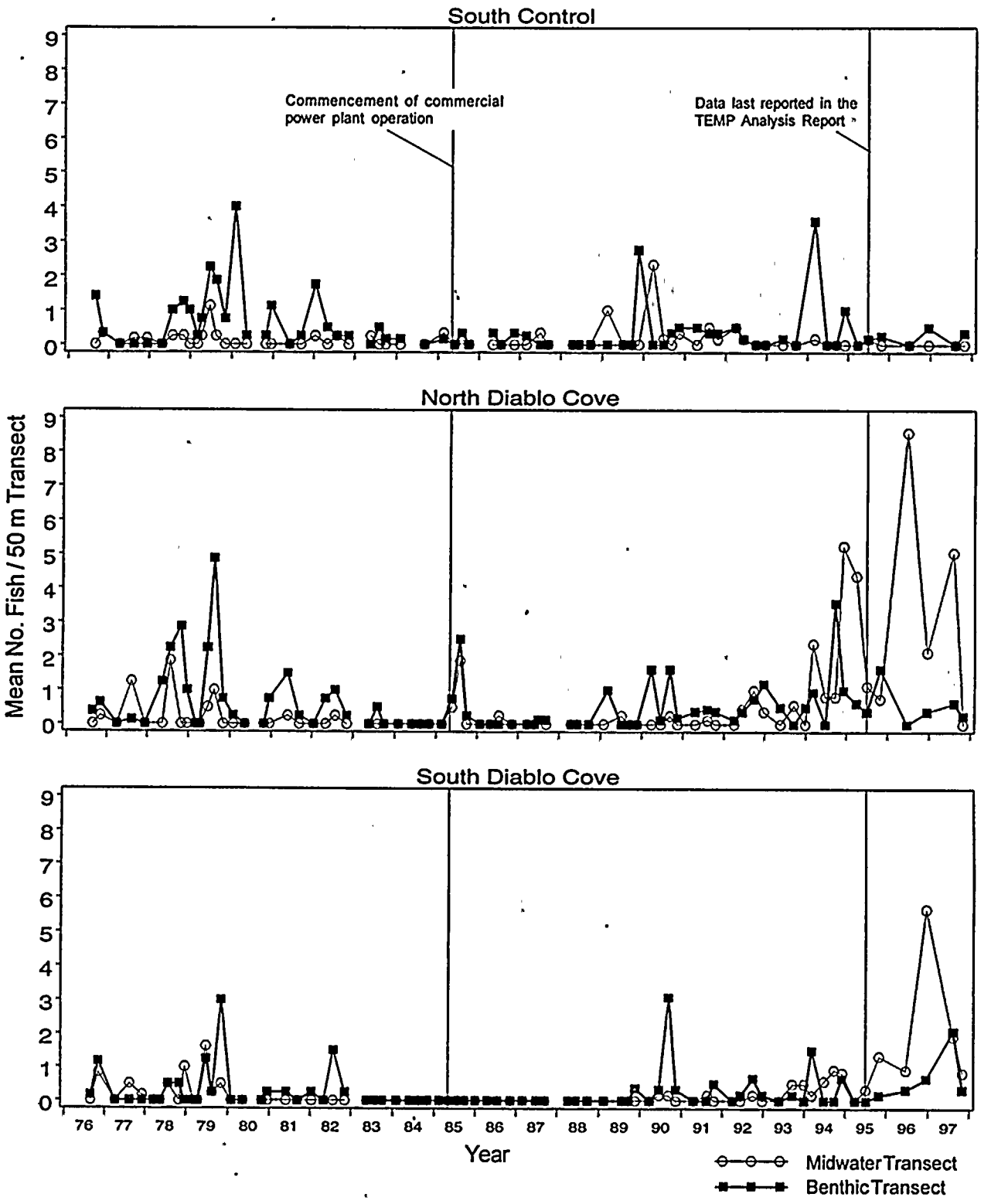


Figure 4-33. *Brachyistius frenatus* changes in density at combined subtidal fish observation stations for South Control (SC FO-1, -2, and -3), north Diablo Cove (NDC FO-1, -2, and -3), and south Diablo Cove (SDC FO-1, -2, and -3).

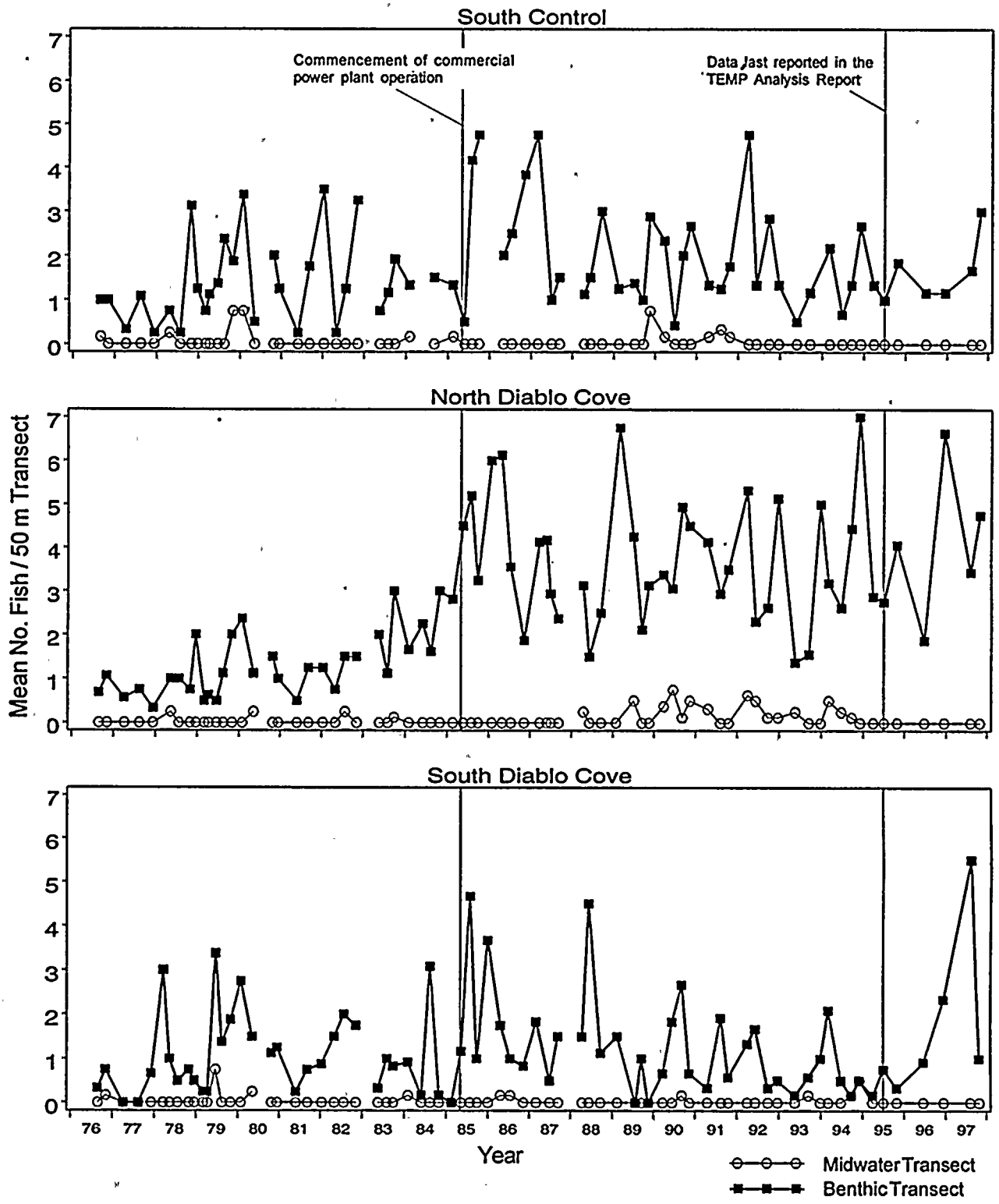


Figure 4-34. *Embiotocajacksoni* changes in density at combined subtidal fish observation stations for South Control (SC FO-1, -2, and -3), north Diablo Cove (NDC FO-1, -2, and -3), and south Diablo Cove (SDC FO-1, -2, and -3).

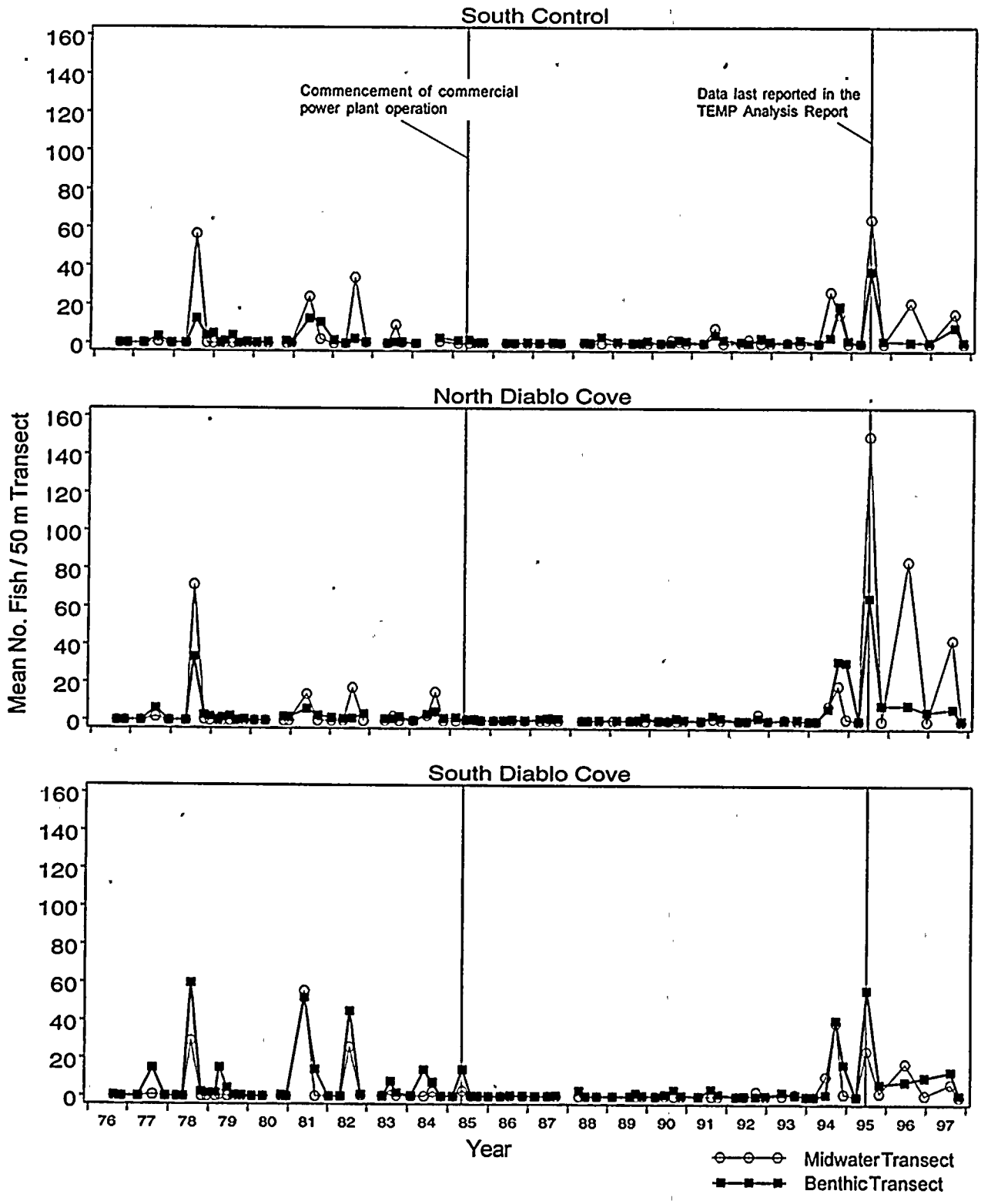


Figure 4-35. *Sebastes chrysomelas/S. carnatus* (YOY) changes in density at combined subtidal fish observation stations for South Control (SC FO-1, -2, and -3), north Diablo Cove (NDC FO-1, -2, and -3), and south Diablo Cove (SDC FO-1, -2, and -3).

S. serranoides/S. flavidus) were also observed in low abundances at transects during OpPeriod-2 (Appendix C).

4.4.4 Discussion

Most of the fishes that previously characterized assemblages in north and south Diablo Cove after power plant start-up were still present in OpPeriod-2. Warm-temperate species such as opaleye and sheephead were still more common at north Diablo Cove than elsewhere. Bat rays, leopard sharks, round rays, and white seabass persisted in the discharge turbulence zone. A notable change, compared to previous years, was the occurrence of large numbers of topsmelt (family Atherinidae). These fishes were not observed in the control area, but were likely present in increased numbers in the nearshore coastal region, and were attracted to the warmer surface waters in Diablo Cove. Also, kelp greenling and painted greenling increased in Diablo Cove relative to the control area, reversing significant declines noted during OpPeriod-1 (Table 4-8).

The results from the ANOVA and multivariate correspondence analyses indicate that changes in the fish assemblage are still occurring in response to the discharge and that these changes are different in nature and magnitude from those in the control area. Results from the ANOVA between periods were compared qualitatively with results from statistical analyses presented in the TEMP Analysis Report (Tenera, Inc., 1997). The results were inconclusive for approximately 75% of the fish taxa tested (Table 4-7). The large number of inconclusive results was attributable to low test powers caused by highly variable data, small sample sizes (n = 5) in OpPeriod-2 or a combination of these factors. Taxa with inconclusive results for both Diablo and Field's cove areas were not compared with TEMP Analysis Report results and are not discussed. For taxa or community measures with definitive test results, comparison of the two analyses were used to identify the same three main categories of changes described in Section 1.3.

Although only a few of the many fish taxa analyzed had statistically conclusive results, it was evident that discharge effects continued in Diablo Cove and, in many cases, changed in nature between periods. There was a wide range in the types of continued responses to the discharge. For example, both kelp greenling and painted greenling declined after power plant start-up but showed trends toward recovery in OpPeriod-2. Topsmelt became even more abundant than in previous years and numerically dominated the midwater counts in south Diablo Cove.

Several new effects of the discharge were also identified, all of which were increases in abundance since OpPeriod-1. Some of these occurred in taxa that tended to be associated with kelp canopy habitat.

Table 4-8. Comparison of discharge effects between OpPeriod-1 and OpPeriod-2 in subtidal fishes at midwater and benthic fish stations. Statistically significant results are compared between the TEMP Analysis Report (Tables 4-14 and 4-15) and this report (Table 4-7).

Category and Taxon	Analysis Report (OpPeriod-1)	Report Results (OpPeriod-2) North Diablo Cove	Report Results (OpPeriod-2) South Diablo Cove	Comments
CONTINUED DISCHARGE EFFECTS				
Magnitude of effect unchanged				
Coryphopterus nicholsi (Blackeye goby)	increase in NDC	no change	no change	
Scorpaenichthys marmoratus (Cabezon)	decrease in NDC	no change	no change	
Total diversity (benthic transects)	decrease in SDC	no change	no change	No discharge effects on benthic diversity at NDC.
Magnitude of effect increased				
Paralabrax clathratus (Kelp bass)	increase in NDC	increase	no change	*P. clathratus* not present at control.
Atherinidae (Topsmelt)	increase in NDC	results inconclusive	increase	Includes topsmelt and jacksmelt.
Effect or trend in abundance reversed				
Sebastes chrysomelas (Black and yellow rockfish)	cove-wide decrease	increase	no change	Analysis included only adults and subadults; YOY analyzed separately.
Hexagrammos decagrammus (Kelp greenling)	cove-wide decrease	increase	results inconclusive	
Oxylebius pictus (Painted greenling)	cove-wide decrease	increase	increase	*O. pictus* was more abundant in NDC than SDC.
NEW DISCHARGE EFFECTS *PREVIOUSLY UNDESCRIBED*				
Brachyistius frenatus (Kelp surfperch)	results inconclusive	increase	increase	Changes possibly related to increased kelp cover.
Orthonopias triacis (Snubnose sculpin)	not tested	increase	results inconclusive	
Pleuronichthys spp. (Turbot)	not tested	increase	results inconclusive	*Pleuronichthys* spp. was not observed at the control area.
Sebastes atrovirens (Kelp rockfish)	not tested	increase	results inconclusive	Changes may be related to increased surface canopy cover of giant kelp in Diablo Cove.
Sebastes chrysomelas/S. carnatus/S. atrovirens (YOY) B&Y/gopher/kelp rockfish	no change	increase	results inconclusive	Combined analysis of YOY for three similar rockfish species.
Total diversity (midwater transects)	no change	no change	increase	
Species richness (midwater transects)	no change	no change	increase	
NO DISCHARGE EFFECTS				
Embiotoca jacksoni (Black surfperch)	no change	no change	no change	Increase in NDC and decrease in SDC interpreted as no net change overall.
Embiotoca lateralis (Striped surfperch)	no change	no change	no change	
Species richness (benthic transects)	no change	no change	no change	Increase in NDC and decrease in SDC interpreted as no net change overall.

Throughout much of OpPeriod-2, giant kelp (*Macrocystis*) canopy increased in Diablo Cove providing habitat for the recruitment of YOY black and yellow/gopher/kelp rockfish, kelp surfperch, and kelp bass. All of these taxa increased significantly between periods. Bull kelp (*Nereocystis*) and bladder chain kelp (*Cystoseira*) provided habitat for seasonal recruitment of YOY blue rockfish and other species prior to power plant operation. However, the combination of warmer water and presence of canopy habitat in the operation period shifted the species composition of fishes associated with canopy habitat in Diablo Cove.

An assumption of the analyses used to test effects of the discharge is that environmental factors such as wave energy or upwelling conditions affect all stations, both control and impact, equally. This assumption also applies to mortality from sport and commercial fishing. Several benthic fish species targeted by the commercial 'live fish' fishery since the early 1990s declined substantially in the control area, but did not decline in Diablo Cove. These included black and yellow rockfish, grass rockfish, cabezon, and kelp greenling. Although some fishing did occur in Diablo Cove, fishing effort in the control area was observed more frequently and often occurred directly on the stations. This may have contributed to the significant relative increases in black and yellow rockfish and kelp greenling in Diablo Cove identified in the analysis.

5.0 Literature Cited

Agard, J.B.R., J. Gobin, and R.M. Warwick. 1993. Analysis of marine macrobenthic community structure in relation to pollution, natural oil seepage and seasonal disturbance in a tropical environment (Trinidad, West Indies). Mar. Ecol. Prog. Ser. 92:233-243.

Altstatt, J.M., R.F. Ambrose, J.M. Engle, P.L. Haaker, K.D. Lafferty, and P.T. Raimondi. 1996. Recent declines of black abalone, *Haliotis cracherodii,* on the mainland coast of central California. Mar. Ecol. Prog. Ser. 142:185-192.

Ardisson, P.L., E. Bourget, and P. Legendre. 1990. Multivariate approach to study species assemblages at large spatiotemporal scales: the community structure of the epibenthic fauna of the estuary and Gulf of St. Lawrence. Can. J. Fish. Aquat. Sci. 47:1364-1377.

Barton, G. M. 1981. Intertidal vertical distribution and diets of five species of central California stichaeoid fishes. Calif. Fish and Game. 68(3):174-182.

Boesch, D.F. 1977. Application of numerical classification in ecological investigations of water pollution. EPA-600/3-77-033. National Technical Information Service, Springfield, VA.

Carr, M. H. 1989. Effects of macroalgal assemblages on the recruitment of temperate zone reef fishes. J. Exp. Mar. Biol. Ecol. 126:59-76.

Davis, G.E., D.V. Richards, P.L. Haaker, and D.O. Parker. 1992. Abalone population declines and fishery management in southern California. *In*: S.A. Shepherd, M.J. Tegner, and S.A. Guzman del Proo (eds.). Abalone of the world: biology, fisheries and culture. Blackwell Scientific Publications Ltd., Oxford. p. 237-249.

Digby, P.G.N. and R.A. Kempton. 1987. Multivariate analysis of ecological communities. Chapman and Hall, Ltd., London, England.

Foster, M. S. and D. R. Schiel. 1985. The ecology of giant kelp forests in California: a community profile. U.S. Fish Wildl. Serv. Biol. Rep. 85(7.2).

Gauch, H.G. 1982. Multivariate analysis in community ecology. Cambridge University Press, Cambridge, MA.

Gray, J.S., K.R. Clarke, R.M. Warwick and G. Hobbs. 1990. Detection of initial effects of pollution on marine benthos: an example from the Ekofisk and Eldfisk oilfields, North Sea. Mar. Ecol. Prog. Ser. 66:285-299.

Green, R.H. 1979. Sampling design and statistical methods for environmental biologists. J. Wiley & Sons, New York.

Greenacre, M.J. 1984. Theory and applications of correspondence analysis. Academic Press, London.

Horn, M. H., S. N. Murray, and R. R. Seapy. 1983. Seasonal structure of a central California rocky intertidal community in relation to environmental variations. Bull. So. Cal. Acad. Sci. 82:79-94.

Kelly, J. L., J. W. Warrick, and D. W. Behrens. 1985. Intertidal fish community study at Diablo Canyon Power Plant. *In:* Environmental investigations at Diablo Canyon, 1984. Vol. 1 - Marine Ecological Studies. Pacific Gas and Electric Company. San Ramon, CA.

Kenzler, E. M. 1987. Comparison of surface foam in Diablo Cove: cold versus heated jet. *In:* Environmental investigations at Diablo Canyon, 1986. Vol. 2 - Oceanographic and Environmental Engineering Studies. Pacific Gas and Electric Company. San Ramon, CA.

Little et al. Mapstone, B.D. 1995. Scalable decision rules for environmental impact studies: effect size, Type I and Type II errors. Ecol. Appl. 5:401-410.

McShane, P. E. 1992. Early life history of abalone: a review. *In*: S.A. Shepherd, M.J. Tegner, and S.A. Guzman del Proo (eds.). Abalone of the world: biology, fisheries and culture. Blackwell Scientific Publications Ltd., Oxford. p. 120-138.

Olsgard, F. and J.S. Gray. 1995. A comprehensive analysis of the effects of offshore oil and gas exploration and production on the benthic communities of the Norwegian continental shelf. Mar. Ecol. Prog. Ser. 122:277-306.

PG&E. 1988. Thermal effects monitoring program: Final Report. Pacific Gas and Electric Company, San Francisco, CA.

PG&E. 1996a. Ecological monitoring program, Diablo Canyon power plant: Status report, summer-fall 1995. Pacific Gas and Electric Company, San Francisco, CA.

PG&E. 1996b. Ecological monitoring program, Diablo Canyon power plant: Status report, winter 1995 and spring 1996 surveys. Pacific Gas and Electric Company, San Francisco, CA.

PG&E. 1997. Receiving water monitoring program, Diablo Canyon power plant: 1996 semi-annual report, 1996 summer-fall surveys. Pacific Gas and Electric Company, San Francisco, CA.

Schroeter, S.C., J.D. Dixon, J.K. Kastendiek, R.O. Smith, and J.R. Bence. 1993. Detecting the ecological effects of environmental impacts: a case study of kelp forest invertebrates. Ecol. Appl. 3:331-350.

Standard Methods for Examination of Water and Wastewater. 1975. Edited by M. C. Rand, A. E. Greenberg, and M. J. Taras. 14th Edition.

Steinbeck, J.R., J.M. Groff, C.S. Friedman, T. McDowell, and R.P. Hedrick. 1992. Investigations into a mortality among populations of the central California black abalone. *In*: S.A. Shepherd, M.J. Tegner, and S.A. Guzman del Proo (eds.). Abalone of the world: biology, fisheries and culture. Blackwell Scientific Publications Ltd., Oxford. p. 203-213.

Swaine, M.D. and P. Greig-Smith. 1980. An application of principal components analysis to vegetation change in permanent plots. J. Ecol. 68:33-41.

Stewart-Oaten

Tenera, Inc. 1997. Thermal effects monitoring program, analysis report: Chapter 1 - Changes in the marine environment resulting from the Diablo Canyon Power Plant discharge. Pacific Gas and Electric Company, San Francisco, CA.

ter Braak, C.J.F. 1987. Ordination. *In:* R.H.G Jongman, C.J.F. ter Braak and O.F.R. Tongeren (eds.). Data analysis in community and landscape ecology. Pudoc, Wageningen, Netherlands. p. 91-173.

Vermeij, G. 1978. Biogeography and Adaptation, Patterns of Marine Life. Harvard University Press: Cambridge, MA., 332 pp.

Winer, B.J., D.R. Brown, and K.M. Michels. 1991. Statistical principles in experimental design. McGraw-Hill Inc. New York.

Appendix A

Station Name Changes

Table A-1. Intertidal station names used in report and tasks that shared the same station. Corresponding TEMP station names are included. Refer to Tenera, Inc. (1997) for map of all stations.

Station Name Used in Report	Area	TEMP Station Name	Horizontal Band Transect	Temperature
NC 1+.3m	North Control	1+1	●	
NC 1+.6m	"	1+2		●
NC 1+.9m	"	1+3	●	
NC 2+.3m	"	2+1	●	
NC 2+.6m	"	2+2		●
NC 2+.9m	"	2+3	●	
NC 3+.3m	"	3+1	●	
NC 3+.6m	"	3+2		●
NC 3+.9m	"	3+3	●	
NC 4+.3m	"	25+1	●	
NC 4+.9m	"	25+3	●	
NC 5+.3m	"	26+1	●	
NC 5+.9m	"	26+3	●	
NC 6+.3m	"	27+1	●	
NC 6+.9m	"	27+3	●	
FC 1+.3m	Field's Cove	4+1	●	
FC 1+.6m	"	4+2		●
FC 1+.9m	"	4+3	●	
FC 2+.3m	"	5+1	●	
FC 2+.6m	"	5+2		●
FC 2+.9m	"	5+3	●	
FC 3+.3m	"	6+1	●	
FC 3+.6m	"	6+2		●
FC 3+.9m	"	6+3	●	
NDC 1+.3m	North Diablo Cove	7+1	●	
NDC 1+.6m	"	7+2		●
NDC 1+.9m	"	7+3	●	
NDC 2+.3m	"	8+1	●	
NDC 2+.6m	"	8+2		●
NDC 2+.9m	"	8+3	●	
NDC 3+.3m	"	9+1	●	
NDC 3+.6m	"	9+2		●
NDC 3+.9m	"	9+3	●	
NDC 4+.3m	"	23+1	●	
NDC 4+.6m	"	23+2		●
NDC 4+.9m	"	23+3	●	
SDC 1+.3m	South Diablo Cove	10+1	●	
SDC 1+.6m	"	10+2	●	●
SDC 2+.3m	"	11+1	●	
SDC 2+.6m	"	11+2		●
SDC 2+.9m	"	11+3	●	
SDC 3+.3m	"	12+1	●	
SDC 3+.6m	"	12+2		●
SDC 3+.9m	"	12+3	●	
SDC 4+.0m	"	24+0		●

(table continued)

Table A-1 (continued). Intertidal station names used in report and tasks that shared the same station. Corresponding TEMP station names are included. Refer to Tenera, Inc. (1997) for map of all stations.

Station Name Used in Report	Area	TEMP Station Name	Horizontal Band Transect	Temperature
SDP 1+.6m	South Diablo Point	22+2		●
SDP 1+.9m	"	22+3	●	
SDP 1+.3m	"	14+1		
SDP 2+.6m	"	14+2		●
SDP 2+.9m	"	14+3	●	
SDP 3+.6m	"	15+2		●
SDP 3+.9m	"	15+3	●	
SDP 4+.6m	"	13+2		●
SDP 4+.9m	"	13+3		
SH 1+.6m	Seal Haulout	17+2		●
SH 1+.9m	"	17+3	●	
SH 2+.6m	"	18+2		●
SH 2+.9m	"	18+3	●	
SH 3+.9m	"	16+3		
SC 1+.3m	South Control	19+1	●	
SC 1+.6m		19+2		●
SC 1+.9m	"	19+3	●	
SC 2+.3m	"	20+1	●	
SC 2+.6m		20+2		●
SC 2+.9m	"	20+3	●	
SC 3+.3m	"	29+1	●	
SC 3+.6m		29+2		●
SC 3+.9m	"	29+3	●	
SC 4+.3m	"	21+1	●	
SC 4+.6m		21+2		
SC 4+.9m	"	21+3	●	
SC 5+.3m	"	28+1	●	
SC 5+.9m	"	28+3	●	
SC 6+.3m	"	30+1	●	
SC 6+.9m	"	30+3	●	

Table A-2. Intertidal vertical band transect station names used in report and corresponding TEMP station names. Refer to Tenera, Inc. (1997) for map of all stations.

Station Name Used in Report	Area	TEMP Station Name
FC 1-V	Field's Cove	C
NDC 1-V	North Diablo Cove	L
NDC 2-V	North Diablo Cove	I
SDC 1-V	South Diablo Cove	M
SDC 2-V	South Diablo Cove	H

Table A-3. Subtidal station names used in report and benthic sampling and temperature tasks that shared the same station. Corresponding TEMP station names are included. Refer to Tenera, Inc. (1997) for map of all stations.

Station Name Used in Report	Area	TEMP Station Name	Benthic Sampling	Temperature
NC 1 -3m	North Control	1-10	●	●
NC 2 -4m	"	1-15	●	
NC 3 -3m	"	2-10	●	
NC 4 -4m	"	2-15	●	
NC 5 -3m	"	3-10	●	
NC 6 -4m	"	3-15	●	
FC 1 -3m	Field's Cove	22-10	●	●
FC 2 -9m	"	22-30	●	●
NDC 1 -3m	North Diablo Cove	7-10	●	●
NDC 2 -3m	"	8-10	●	●
NDC 3 -3m	"	9-10	●	●
NDC 4 -4m	"	9-15	●	●
NDC 5 -8m	"	5-25	●	●
NDC 6 -3m	"	6-11	●	●
NDC 7 -4m	"	7-15	●	
NDC 8 -4m	"	8-15	●	
NDC 9 -9m	"	4-32	●	
SDC 1 -3m	South Diablo Cove	11-10	●	●
SDC 2 -3m	"	12-10	●	●
SDC 3 -4m	"	10-15	●	
SDC 4 -4m	"	11-15	●	●
SDC 5 -10m	"	13-32	●	●
SDC 6 -3m	"	10-10	●	●
SDC 7 -4m	"	12-15	●	
SDC 8 -18m	"	14-55	●	
BW 1 -14m	Breakwater	15-45	●	
SH 1 -3m	Seal Haulout	17-10	●	●
SH 2 -6m	Seal Haulout	17-20	●	
SC 1 -3m	South Control	19-10	●	●
SC 2 -6m	"	20-20	●	
SC 3 -11m	"	20-35	●	●
SC 4 -4m	"	19-15	●	
SC 5 -3m	"	20-10	●	
SC 6 -3m	"	21-10	●	●
SC 7 -8m	"	21-25	●	

Table A-4. Subtidal station names used in report for the fish observation task. Corresponding TEMP station names are included. Refer to Tenera, Inc. (1997) for map of all stations.

Station Name Used in Report	Area	TEMP Station Name
NC FO-1	North Control	1
NC FO-2	"	2
NC FO-3	"	3
NDC FO-1	North Diablo Cove	5
NDC FO-2	"	6
NDC FO-3	"	7
NDC FO-4	"	4
SDC FO-1	South Diablo Cove	8
SDC FO-2	"	9
SDC FO-3	"	10
SDC FO-4	"	11, 15
SC FO-1	South Control	13
SC FO-2	"	12
SC FO-3	"	14

Appendix B

Physical Data

Monthly Mean Temperatures for Station NC-2
from July 1995 through December 1997

Year	Month	Mean	Variance	N
1995	July	13.53	0.913	729
	August	14.09	0.730	1236
	September	13.41	0.649	1251
	October	14.55	0.756	1284
	November	14.68	0.263	1194
	December	13.68	0.222	1193
1996	January	12.68	0.897	1131
	February	12.77	0.649	1010
	March	12.61	0.522	1073
	April	11.45	0.639	1045
	May	11.85	0.880	1109
	June	12.24	0.768	1122
	July	13.31	1.031	1193
	August	13.67	0.571	1226
	September	14.59	1.562	1230
	October	13.67	2.492	1279
	November	12.96	0.401	1173
	December	13.00	0.551	1210
1997	January	13.20	0.341	1116
	February	11.62	0.675	970
	March	11.60	1.431	1060
	April	11.49	0.777	1057
	May	12.68	2.435	1119
	June	13.12	0.757	1117
	July	14.31	1.652	1208
	August	16.25	1.098	1256
	September	16.42	0.852	1234
	October	16.36	1.072	1256
	November	17.30	0.225	1199
	December	16.51	0.032	338

Monthly Mean Temperatures for Station NC-3
from July 1995 through December 1997

Year	Month	Mean	Variance	N
1995	July	13.69	1.143	1472
	August	13.97	0.748	1469
	September	13.34	0.601	1435
	October	14.54	0.729	1470
	November	14.60	0.242	1394
	December	13.61	0.205	1421
1996	January	12.65	0.880	1441
	February	12.69	0.600	1263
	March	12.55	0.484	1304
	April	11.33	0.571	1256
	May	11.86	0.843	1329
	June	12.23	0.750	1362
	July	13.31	1.132	1498
	August	13.59	0.638	1472
	September	14.46	1.593	1411
	October	13.66	2.471	1476
	November	12.97	0.330	1396
	December	13.09	0.519	1460
1997	January	13.33	0.287	1398
	February	11.73	0.692	1191
	March	11.62	1.339	1322
	April	11.36	0.652	1269
	May	12.56	2.463	1333
	June	12.99	0.727	1342
	July	14.37	1.695	1515
	August	16.32	0.947	1532
	September	16.51	0.849	1426
	October	16.46	1.022	1440
	November	17.32	0.206	1394
	December	16.00	0.312	1455

Monthly Mean Temperatures for Station SC-1 from July 1995 through December 1997

Year	Month	Mean	Variance	N
1995	July	13.18	1.146	1335
	August	13.79	0.899	1350
	September	13.16	0.708	1339
	October	14.44	0.770	1376
	November	14.63	0.253	1292
	December	13.59	0.243	1291
1996	January	12.58	0.936	1255
	February	12.63	0.479	1126
	March	12.22	0.653	1179
	April	10.95	0.758	1145
	May	11.31	0.945	1212
	June	12.00	0.842	1238
	July	13.00	1.106	1322
	August	13.28	0.499	1356
	September	14.40	1.455	1312
	October	13.59	2.203	1365
	November	13.03	0.289	1309
	December	12.93	0.394	1323
1997	January	13.20	0.202	1231
	February	11.64	0.676	1059
	March	11.57	1.278	1195
	April	10.90	0.479	1162
	May	11.95	2.371	1229
	June	12.68	0.858	1215
	July	13.96	1.775	1343
	August	15.81	1.237	1386
	September	16.20	0.877	1331
	October	16.40	0.983	1351
	November	17.35	0.196	1297
	December	16.17	0.209	1319

Monthly Mean Temperatures for Station NDC-2
from July 1995 through December 1997

Year	Month	Mean	Variance	N
1995	July	17.52	1.968	1154
	August	18.76	0.846	1207
	September	17.43	4.000	1216
	October	17.94	4.816	1257
	November	17.44	3.261	1162
	December	15.57	2.174	1161
1996	January	16.04	2.848	1097
	February	15.82	3.365	972
	March	15.56	2.607	1029
	April	13.53	5.966	1009
	May	14.41	5.113	1078
	June	16.16	4.076	1094
	July	18.03	2.665	1158
	August	17.37	2.661	1185
	September	19.47	2.184	1199
	October	17.78	5.076	1248
	November	16.52	3.539	1183
	December	16.52	3.101	1176
1997	January	16.48	2.821	1080
	February	14.29	3.707	941
	March	15.06	3.965	1013
	April	14.10	6.477	1026
	May	16.12	6.067	1084
	June	16.68	4.739	1081
	July	18.99	4.163	1163
	August	20.53	2.266	1174
	September	19.69	2.080	1199
	October	19.31	3.095	1233
	November	19.96	2.209	1170
	December	18.97	2.818	1184

Monthly Mean Temperatures for Station NDC-3
from July 1995 through December 1997

Year	Month	Mean	Variance	N
1995	July	17.44	1.577	1478
	August	18.55	0.854	1486
	September	17.36	3.793	1442
	October	17.95	5.031	1477
	November	17.43	3.351	1404
	December	15.66	2.397	1430
1996	January	16.24	2.805	1448
	February	15.96	3.781	1270
	March	15.82	2.989	1311
	April	13.88	5.677	1263
	May	14.43	5.154	1338
	June	16.00	3.677	1367
	July	17.77	2.513	1504
	August	17.07	2.512	1487
	September	19.27	2.334	1419
	October	17.77	5.238	1477
	November	16.55	3.720	1404
	December	16.70	3.156	1471
1997	January	16.73	2.869	1415
	February	14.52	4.419	1200
	March	15.25	4.137	1334
	April	14.26	6.121	1280
	May	16.19	5.792	1345
	June	16.67	4.604	1355
	July	18.90	3.835	1524
	August	20.40	2.082	1500
	September	19.62	2.016	1433
	October	19.35	3.185	1450
	November	20.10	2.411	1402
	December	19.04	3.375	1464

Monthly Mean Temperatures for Station SDC-1
from July 1995 through December 1997

Year	Month	Mean	Variance	N
1995	July	16.87	2.139	1507
	August	17.30	1.523	1513
	September	16.92	2.142	1464
	October	18.12	4.861	1492
	November	18.30	3.226	1419
	December	17.97	8.187	1467
1996	January	17.49	5.759	1485
	February	18.02	5.970	1294
	March	17.21	4.670	1333
	April	16.35	4.133	1282
	May	15.00	4.174	1357
	June	16.17	3.480	1398
	July	17.32	2.677	1524
	August	16.46	2.185	1512
	September	18.32	2.852	1439
	October	17.58	4.921	1490
	November	16.98	3.266	1433
	December	17.36	2.895	1491
1997	January	18.52	6.340	1465
	February	17.21	4.546	1235
	March	16.05	4.349	1344
	April	15.60	5.895	1296
	May	18.33	4.718	1365
	June	18.13	3.411	1389
	July	18.52	4.658	1544
	August	20.20	2.002	1590
	September	19.60	1.393	1461
	October	19.56	1.870	1477
	November	21.10	2.260	1426
	December	20.36	2.766	1481

Monthly Mean Temperatures for Station SDC-3
from July 1995 through December 1997

Year	Month	Mean	Variance	N
1995	July	16.27	1.917	1357
	August	16.63	1.317	1377
	September	16.18	1.790	1363
	October	17.45	3.406	1395
	November	17.45	1.211	1313
	December	15.94	1.431	1312
1996	January	15.80	1.526	1296
	February	15.69	1.247	1156
	March	15.77	0.569	519
	April	.	.	0
	May	.	.	0
	June	.	.	0
	July	16.37	1.826	1269
	August	15.81	1.594	1375
	September	17.49	2.368	1339
	October	16.53	2.637	1380
	November	15.88	0.672	1333
	December	16.04	0.686	1352
1997	January	16.19	0.755	1260
	February	15.08	1.042	1084
	March	14.77	1.573	1223
	April	14.46	2.075	1183
	May	17.30	3.820	1261
	June	19.91	1.956	1245
	July	18.19	4.707	1364
	August	19.73	1.826	1418
	September	19.18	1.136	1345
	October	19.21	1.260	1364
	November	20.20	0.702	1312
	December	19.33	0.653	1338

Monthly Mean Temperatures for Station FC-3
from July 1995 through December 1997

Year	Month	Mean	Variance	N
1995	July	15.01	2.301	1187
	August	14.91	1.032	1236
	September	14.08	0.861	1251
	October	14.98	1.030	1284
	November	15.26	0.431	1194
	December	14.14	0.322	1193
1996	January	13.58	1.159	1131
	February	13.54	0.875	1010
	March	13.19	0.711	1073
	April	11.50	1.078	1045
	May	12.11	1.119	1109
	June	13.04	1.139	1122
	July	14.38	1.401	1193
	August	14.42	0.618	1226
	September	15.64	1.835	1230
	October	14.72	2.844	1279
	November	14.07	0.783	1211
	December	13.70	0.945	1038
1997	January	.	.	0
	February	.	.	0
	March	13.17	0.680	603
	April	11.55	1.282	1057
	May	12.82	2.909	1119
	June	13.58	1.189	1117
	July	15.35	2.275	1208
	August	17.41	1.403	1256
	September	17.34	1.025	1234
	October	17.14	1.334	1256
	November	17.97	0.391	1199
	December	16.95	0.511	1214

Monthly Mean Temperatures for Station NC 1-3m
from July 1995 through December 1997

Year	Month	Mean	Variance	N
1995	July	12.99	0.912	2232
	August	13.58	0.596	2232
	September	13.24	0.566	2160
	October	14.49	0.712	2231
	November	14.63	0.256	2160
	December	13.65	0.186	2232
1996	January	12.66	0.912	2232
	February	12.78	0.609	2088
	March	12.65	0.508	2231
	April	11.35	0.615	2160
	May	11.61	0.753	2232
	June	11.87	0.714	2159
	July	12.82	1.000	2232
	August	13.21	0.518	2232
	September	14.52	1.844	2160
	October	13.65	2.408	2232
	November	13.06	0.369	2160
	December	13.08	0.522	2232
1997	January	13.33	0.254	2231
	February	11.75	0.726	2016
	March	11.67	1.382	2232
	April	11.37	0.706	2148
	May	12.33	2.359	2232
	June	12.65	0.626	2160
	July	13.93	1.908	2231
	August	16.06	1.224	2232
	September	16.29	0.835	2160
	October	16.49	1.064	2232
	November	17.37	0.215	2160
	December	16.13	0.288	2232

Monthly Mean Temperatures for Station SC 1-3m
from July 1995 through December 1997

Year	Month	Mean	Variance	N
1995	July	12.54	1.140	2232
	August	13.37	0.610	2232
	September	13.03	0.577	2158
	October	14.47	0.735	2232
	November	14.67	0.246	2160
	December	13.61	0.217	2232
1996	January	12.66	0.881	2232
	February	12.81	0.491	2088
	March	12.42	0.695	2232
	April	10.99	0.742	2160
	May	11.21	0.942	2232
	June	11.70	0.751	2159
	July	12.70	1.014	2232
	August	12.95	0.508	2232
	September	14.38	1.625	2159
	October	13.59	2.195	2232
	November	13.16	0.293	2160
	December	12.99	0.346	2232
1997	January	13.17	0.184	2232
	February	11.65	0.768	2016
	March	11.52	1.245	2232
	April	10.82	0.529	2159
	May	11.79	2.402	2232
	June	12.32	0.723	2160
	July	13.58	2.057	2231
	August	15.59	1.252	2232
	September	16.04	0.787	2159
	October	16.36	1.090	1915
	November	.	.	0
	December	.	.	0

Monthly Mean Temperatures for Station NDC 3-3m
from July 1995 through December 1997

Year	Month	Mean	Variance	N
1995	July	16.63	1.863	2232
	August	17.75	1.094	2232
	September	16.88	3.653	2160
	October	17.93	5.863	2232
	November	17.24	3.025	2160
	December	16.11	3.602	2232
1996	January	16.73	3.577	2232
	February	16.79	4.976	2088
	March	16.22	3.418	2232
	April	14.47	5.355	2160
	May	14.25	4.926	2230
	June	15.52	3.443	2160
	July	17.02	2.967	2232
	August	16.16	2.940	1800
	September	18.96	3.094	2160
	October	17.78	5.405	2229
	November	16.84	3.790	2160
	December	17.38	3.855	2232
1997	January	17.56	3.251	2231
	February	15.22	6.252	2016
	March	15.72	4.476	2232
	April	14.53	5.295	2160
	May	15.59	4.871	2232
	June	16.39	4.158	2160
	July	17.88	3.372	2232
	August	19.67	2.292	2232
	September	19.37	1.825	2160
	October	19.41	3.254	2232
	November	20.62	3.422	2159
	December	19.94	5.757	2231

Monthly Mean Temperatures for Station NDC 4-4m
from July 1995 through December 1997

Year	Month	Mean	Variance	N
1995	July	16.10	2.271	2232
	August	17.07	1.711	2232
	September	16.17	3.605	2160
	October	17.15	5.071	2232
	November	16.78	2.129	2159
	December	15.85	2.868	2232
1996	January	16.40	3.347	2231
	February	16.39	4.247	2088
	March	16.00	2.951	2231
	April	13.55	4.262	2160
	May	13.64	3.959	2232
	June	15.16	2.831	2160
	July	16.41	2.468	2232
	August	15.76	2.303	2232
	September	18.43	2.751	2160
	October	17.31	5.270	2232
	November	16.46	3.414	2160
	December	16.80	3.130	2232
1997	January	16.93	3.169	2232
	February	14.76	5.205	2016
	March	15.30	3.956	2231
	April	13.90	4.362	2160
	May	14.55	2.845	2232
	June	15.79	3.492	2160
	July	16.99	3.251	2232
	August	18.98	2.290	2232
	September	18.91	1.845	2160
	October	19.16	3.029	2232
	November	20.31	2.840	2160
	December	19.57	4.645	2232

Monthly Mean Temperatures for Station NDC 6-3m
from July 1995 through December 1997

Year	Month	Mean	Variance	N
1995	July	17.58	4.012	2232
	August	18.67	3.549	2232
	September	17.21	5.972	2159
	October	16.86	4.163	2232
	November	17.68	1.645	2160
	December	17.97	6.016	2232
1996	January	18.61	3.262	2232
	February	18.83	4.614	2088
	March	18.03	3.891	2232
	April	13.74	7.269	2160
	May	14.15	5.744	2232
	June	16.65	4.933	2160
	July	17.94	3.316	2232
	August	16.92	4.999	2231
	September	20.09	3.313	2160
	October	19.12	6.747	2232
	November	18.34	4.807	2159
	December	19.18	3.095	2232
1997	January	19.65	2.810	2232
	February	17.32	5.109	2016
	March	17.12	5.045	2231
	April	13.49	8.087	2160
	May	13.57	3.828	2232
	June	16.78	5.083	2160
	July	18.37	5.361	2232
	August	20.54	3.536	2232
	September	20.90	2.364	2160
	October	21.01	3.047	2232
	November	22.76	3.249	2160
	December	21.72	5.001	1706

Monthly Mean Temperatures for Station SDC 1-3m
from July 1995 through December 1997

Year	Month	Mean	Variance	N
1995	July	14.47	2.426	1191
	August	.	.	0
	September	15.15	2.379	900
	October	16.48	4.896	2232
	November	16.93	3.666	2160
	December	16.61	4.366	2232
1996	January	16.55	4.380	2231
	February	16.57	3.208	2088
	March	16.22	3.602	2142
	April	14.55	3.130	2160
	May	13.00	2.561	2229
	June	14.22	3.285	2160
	July	14.56	4.074	2232
	August	14.10	2.085	2232
	September	16.07	4.461	2160
	October	16.31	4.272	2232
	November	16.07	3.182	2160
	December	16.43	2.899	2232
1997	January	16.82	3.033	2232
	February	16.08	4.164	2016
	March	15.16	3.757	2232
	April	14.06	3.291	2160
	May	14.75	5.269	2232
	June	15.57	5.629	2160
	July	15.22	4.375	2232
	August	17.06	3.508	2232
	September	17.79	1.931	2160
	October	17.99	3.832	2232
	November	19.76	3.015	2160
	December	18.82	2.369	2232

Monthly Mean Temperatures for Station SDC 4-4m
from July 1995 through December 1997

Year	Month	Mean	Variance	N
1995	July	12.63	1.128	2232
	August	13.20	1.286	2231
	September	13.56	2.485	2160
	October	15.42	3.583	2231
	November	15.90	2.129	2160
	December	16.00	3.847	2232
1996	January	15.39	4.505	2232
	February	15.78	2.962	2088
	March	14.88	4.478	2232
	April	13.42	2.397	2160
	May	12.23	1.749	2228
	June	12.38	2.205	2160
	July	12.73	2.249	2232
	August	12.91	1.105	2232
	September	14.46	3.540	2160
	October	14.81	4.401	2232
	November	14.71	3.028	2160
	December	15.32	2.812	2232
1997	January	16.07	3.129	2232
	February	15.44	4.685	2016
	March	13.88	4.677	2232
	April	12.85	2.441	2160
	May	12.91	3.249	2232
	June	13.70	5.532	2160
	July	13.73	2.524	2232
	August	15.42	1.745	2232
	September	16.49	2.189	2160
	October	18.50	2.927	2232
	November	20.53	1.610	2160
	December	19.85	2.393	2232

Monthly Mean Temperatures for Station FC 1-3m
from July 1995 through December 1997

Year	Month	Mean	Variance	N
1995	July	13.73	1.286	2229
	August	14.19	0.713	2232
	September	13.76	0.751	2159
	October	14.95	1.004	2232
	November	15.31	0.381	2160
	December	14.20	0.350	2232
1996	January	13.59	1.280	2232
	February	13.58	0.977	2088
	March	13.35	0.698	2230
	April	11.44	1.011	2160
	May	11.89	0.982	2232
	June	12.59	0.809	2160
	July	13.78	1.080	2232
	August	13.83	0.518	2232
	September	15.49	2.069	2160
	October	14.66	2.894	2229
	November	14.09	0.740	2160
	December	13.98	0.827	2232
1997	January	14.09	0.359	2231
	February	12.24	1.066	2016
	March	12.39	1.609	2232
	April	11.50	1.325	2159
	May	12.47	2.667	2232
	June	13.09	0.879	2160
	July	14.67	2.273	2232
	August	17.06	1.332	2051
	September	.	.	0
	October	.	.	0
	November	.	.	0
	December	.	.	0

Table B-1. Dissolved oxygen concentrations (mg/l) measured quarterly from August 1995-December 1997 at Diablo Cove, Field's Cove and control stations. Data for the third quarter of 1997 were not collected due to scheduling difficulties.

			1995		1996				1997			
Station	Depth designation	Sample depth below surface (m)	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
CONTROL												
NC 1 -3m	Surface	–	7.1	7.9	8.4	7.2	7.1	9.2	9.3	8.9	–	7.8
	Mid-depth	1.5	8.2	7.7	8.4	7.4	7.5	9.7	9.6	9.7	–	7.7
	Bottom	3.0	8.3	7.8	8.6	7.3	7.2	9.7	9.7	9.7	–	7.7
		Mean	7.87	7.80	8.47	7.30	7.27	9.53	9.53	9.43		7.73
SC 1 -3m	Surface	–	7.1	7.3	8.9	7.6	7.9	8.8	9.7	10.2	–	7.9
	Mid-depth	1.5	7.8	7.1	8.7	6.4	7.2	9.9	9.9	10.5	–	7.9
	Bottom	3.0	7.5	7.4	8.8	7.3	7.5	9.8	9.9	9.9	–	7.9
		Mean	7.47	7.27	8.80	7.10	7.53	9.50	9.83	10.20		7.90
FIELD'S COVE												
FC 1 -3m	Surface	–	7.7	6.8	8.2	7.0	7.2	9.1	9.5	8.3	–	7.5
	Mid-depth	1.5	7.7	6.7	8.0	7.0	6.9	9.2	8.6	8.4	–	7.5
	Bottom	3.0	7.9	6.8	8.0	6.8	6.8	9.2	8.6	8.3	–	7.4
		Mean	7.77	6.77	8.07	6.93	6.97	9.17	8.90	8.33		7.47
NORTH DIABLO COVE												
NDC 3 -3m	Surface	–	6.8	7.0	7.6	7.5	7.5	8.2	8.8	8.0	–	7.1
	Mid-depth	1.5	7.2	7.2	7.5	6.8	7.1	8.8	8.6	7.7	–	7.3
	Bottom	3.0	7.4	7.3	7.4	6.9	6.7	9.4	8.6	7.5	–	7.4
		Mean	7.13	7.17	7.50	7.07	7.10	8.80	8.67	7.73		7.27
NDC 4 -4m	Surface	–	6.5	7.1	7.3	7.3	7.5	7.4	7.8	7.9	–	7.2
	Mid-depth	2.0	7.4	6.9	7.3	6.3	6.5	8.6	8.5	7.5	–	7.4
	Bottom	4.0	7.4	6.8	7.4	6.7	6.2	9.3	8.5	7.4	–	7.5
		Mean	7.10	6.93	7.33	6.77	6.73	8.43	8.27	7.60		7.37
NDC 6 -3m	Surface	–	6.7	7.0	7.3	7.0	6.9	7.3	6.8	7.1	–	6.7
	Mid-depth	1.5	6.2	6.5	7.5	6.8	7.0	7.2	8.2	6.8	–	6.9
	Bottom	3.0	7.1	7.0	7.4	6.6	6.5	7.1	6.5	6.7	–	7.1
		Mean	6.67	6.83	7.40	6.80	6.80	7.20	7.17	6.87		6.90
SOUTH DIABLO COVE												
SDC 1 -3m	Surface	–	7.4	6.7	8.2	7.5	6.0	7.3	8.3	9.1	nd	7.0
	Mid-depth	1.5	8.0	6.7	8.0	7.1	6.9	7.6	8.3	7.7	nd	7.1
	Bottom	3.0	8.0	5.8	8.1	6.1	6.3	8.4	7.8	7.5	nd	7.1
		Mean	7.80	6.40	8.10	6.90	6.40	7.77	8.13	8.10		7.07
SDC 4 -4m	Surface	–	6.9	6.7	7.8	7.5	7.7	7.8	8.0	7.2	nd	7.0
	Mid-depth	2.0	7.8	6.5	7.6	7.1	6.7	7.7	7.8	7.0	nd	7.0
	Bottom	4.0	7.8	5.4	7.4	4.5	5.9	7.1	7.7	7.2	nd	7.3
		Mean	7.50	6.20	7.60	6.37	6.77	7.53	7.83	7.13		7.10

Appendix C

Biological Data

Horizontal Band Transects - Algal Mean Abundance per 1 square meter - Stations +3 ft Survey 100

Species	Station	01+03	04+03	05+03	06+03	08+03	09+03	10+02	12+03	19+03
	Survey	100	100	100	100	100	100	100	100	100
	# Quads	10	10	10	10	10	10	10	10	10
non-coralline crust		26.3	23.7	18.7	39.0	9.4	32.7	40.3	26.0	25.4
Endocladia muricata		24.7	44.4	40.4	27.6	16.8	8.6	-	1.3	16.5
Mastocarpus papillatus		13.7	10.6	6.7	19.7	1.6	0.7	0.8	4.7	16.9
coralline crust		12.4	2.6	0.6	3.4	4.6	6.7	3.6	0.3	9.1
Mazzaella flaccida		16.0	0.8	0.7	3.1	-	-	-	-	3.8
Pelvetia compressa		7.2	<.1	1.7	2.8	-	-	-	-	9.7
Chondracanthus canaliculatus		0.1	<.1	-	0.1	<.1	0.5	13.3	-	0.8
Gastroclonium subarticulatum		-	-	-	-	-	<.1	8.3	-	<.1
Gelidium pusillum		1.9	<.1	<.1	3.3	1.5	<.1	0.8	0.2	0.6
Corallina vancouveriensis		1.9	0.7	<.1	0.8	0.3	<.1	<.1	-	3.2
Gelidium coulteri		1.1	1.0	0.1	2.1	0.1	0.6	0.4	<.1	0.2
Prionitis spp.		0.5	<.1	<.1	<.1	-	0.1	3.2	-	<.1
Mastocarpus jardinii		1.1	-	-	0.2	-	-	<.1	-	2.3
Cryptopleura violacea		0.1	-	-	-	-	-	2.7	-	0.2
Mazzaella affinis		0.6	-	-	0.1	0.6	<.1	1.1	<.1	0.2
Codium setchellii		2.4	-	-	-	-	-	-	-	-
Calliarthron/Bossiella spp.-complex		0.2	0.8	-	<.1	0.2	0.8	<.1	-	<.1
Pterosiphonia dendroidea		-	-	-	-	-	-	1.9	-	-
Mazzaella heterocarpa		0.5	<.1	0.2	0.3	-	-	<.1	<.1	0.6
Fucus gardneri		-	-	1.0	-	-	-	-	-	0.4
filamentous red algae-complex		-	-	-	-	-	<.1	1.2	-	<.1
Phyllospadix spp.		0.1	0.8	-	-	-	-	-	-	-
juv. articulated coralline algae		<.1	<.1	<.1	<.1	0.4	0.3	<.1	<.1	<.1
Corallina officinalis		-	-	-	-	-	-	0.7	-	-
Analipus japonicus		0.6	-	-	-	-	-	-	-	-
Mazzaella leptorhynchos		<.1	<.1	-	0.2	<.1	<.1	0.2	<.1	<.1
Cryptosiphonia woodii		-	<.1	<.1	0.3	-	-	-	-	-
Porphyra spp.		<.1	-	<.1	<.1	<.1	-	-	-	<.1
Cladophora spp.		<.1	<.1	<.1	<.1	<.1	<.1	<.1	<.1	<.1
Ulva/Enteromorpha spp.		-	<.1	-	<.1	-	<.1	<.1	-	<.1

Horizontal Band Transects - Algal Mean Abundance per 1 square meter - Stations +3 ft Survey 100 (continued)

Species	Station	01+03	04+03	05+03	06+03	08+03	09+03	10+02	12+03	19+03
	Survey	100	100	100	100	100	100	100	100	100
	# Quads	10	10	10	10	10	10	10	10	10
Callithamnion pikeanum		-	<.1	-	-	-	-	-	-	<.1
Ahnfeltiopsis leptophylla		-	-	-	-	-	-	<.1	-	-
Halymenia/Schizymenia spp.-complex		-	-	-	-	-	-	<.1	-	-
Osmundea spp.		-	-	-	-	-	-	<.1	-	-
Farlowia/Pikea spp.-complex		-	-	-	-	-	-	<.1	-	-

Horizontal Band Transects - Algal Mean Abundance per 1 square meter - Stations +3 ft Survey 101

Species	Station	01+03	04+03	05+03	06+03	08+03	09+03	10+02	12+03	19+03
	Survey	101	101	101	101	101	101	101	101	101
	# Quads	10	10	10	10	10	10	10	10	10
Endocladia muricata		37.8	50.8	46.1	38.8	18.8	12.9	-	1.5	18.7
Mastocarpus papillatus		32.6	10.4	15.5	39.2	4.0	0.4	7.5	4.1	28.0
non-coralline crust		10.3	14.7	10.6	11.2	7.7	23.7	16.9	22.8	16.0
Mazzaella flaccida		21.9	1.4	0.6	5.1	-	-	-	-	2.3
Pelvetia compressa		9.2	0.5	2.2	2.9	-	-	-	-	6.2
Chondracanthus canaliculatus		0.1	-	-	<.1	<.1	-	17.8	-	<.1
coralline crust		6.0	2.0	<.1	0.3	1.7	1.9	<.1	<.1	5.7
Gastroclonium subarticulatum		-	-	-	-	-	-	14.8	-	-
Ulva/Enteromorpha spp.		-	-	-	-	-	0.2	12.8	-	-
Gelidium coulteri		0.6	0.6	<.1	0.3	1.7	<.1	8.4	<.1	<.1
Mazzaella affinis		0.6	<.1	<.1	<.1	1.0	-	4.2	-	0.1
filamentous red algae-complex		-	-	-	-	-	<.1	5.0	-	-
Prionitis spp.		0.3	<.1	<.1	<.1	<.1	0.1	4.2	<.1	-
Cryptopleura violacea		0.2	-	-	-	-	-	3.2	-	-
Mazzaella heterocarpa		1.1	0.6	<.1	0.2	-	-	0.2	<.1	1.1
Grateloupia doryphora		-	-	-	-	-	-	2.5	-	-
Corallina vancouveriensis		0.7	0.1	-	<.1	-	-	<.1	-	1.4
Chrysophyta unid.		-	-	-	-	1.2	0.8	-	-	-
Mastocarpus jardinii		0.9	-	-	0.1	-	-	-	-	1.0
Codium setchellii		1.9	-	-	-	-	-	-	-	-
Phyllospadix spp.		0.4	1.3	-	-	-	-	-	-	-
Mazzaella leptorhynchos		<.1	0.4	<.1	<.1	0.3	<.1	0.7	-	<.1
Calliarthron/Bossiella spp.-complex		0.1	0.6	-	-	0.3	0.1	-	-	0.2
Gelidium pusillum		0.1	0.3	<.1	0.6	0.2	<.1	-	<.1	<.1
Porphyra spp.		0.3	0.2	0.3	0.2	<.1	<.1	<.1	-	<.1
Fucus gardneri		-	-	0.5	-	-	-	-	-	0.4
juv. articulated coralline algae		<.1	0.1	<.1	<.1	<.1	0.1	<.1	<.1	<.1
Sarcodiotheca gaudichaudii		-	-	-	-	-	-	0.5	-	-
Spongomorpha/Acrosiphonia-complex		-	-	-	-	-	-	0.3	-	-
Cryptosiphonia woodii		-	0.2	<.1	<.1	-	-	-	-	-

Horizontal Band Transects - Algal Mean Abundance per 1 square meter - Stations +3 ft Survey 101 (continued)

Species	Station	01+03	04+03	05+03	06+03	08+03	09+03	10+02	12+03	19+03
	Survey	101	101	101	101	101	101	101	101	101
	# Quads	10	10	10	10	10	10	10	10	10
Pterosiphonia dendroidea		-	-	-	-	-	-	0.2	-	-
Cladophora spp.		<.1	<.1	<.1	<.1	<.1	<.1	-	<.1	<.1
Analipus japonicus		<.1	-	-	-	-	-	-	-	-
Callithamnion pikeanum		-	<.1	-	-	-	-	-	-	<.1
Halymenia/Schizymenia spp.-complex		-	-	-	-	-	-	<.1	-	-
Hesperophycus californicus		-	-	<.1	-	-	-	-	-	-

Horizontal Band Transects - Algal Mean Abundance per 1 square meter - Stations +3 ft Survey 102

Species	Station	01+03	04+03	05+03	06+03	08+03	09+03	10+02	12+03	19+03
	Survey	102	102	102	102	102	102	102	102	102
	# Quads	10	10	10	10	10	10	10	10	10
Mastocarpus papillatus		35.1	24.7	18.4	55.6	11.1	0.7	3.5	13.1	37.7
Endocladia muricata		30.5	39.7	39.7	19.7	20.2	12.4	-	1.2	13.8
non-coralline crust		10.9	16.9	9.3	7.6	6.3	14.9	20.0	19.9	13.6
Mazzaella flaccida		27.5	5.9	3.0	10.6	-	-	-	-	3.5
Gelidium coulteri		<.1	4.3	0.8	1.4	7.5	0.3	15.0	<.1	<.1
Pelvetia compressa		9.6	0.8	2.1	3.1	-	-	-	-	9.6
Ulva/Enteromorpha spp.		<.1	-	-	-	<.1	6.5	13.6	<.1	-
coralline crust		1.5	0.9	0.3	1.9	0.6	1.7	1.3	<.1	4.2
Gastroclonium subarticulatum		-	-	-	-	<.1	-	11.7	-	-
Chondracanthus canaliculatus		<.1	<.1	-	<.1	<.1	-	8.3	-	<.1
Mazzaella affinis		0.7	0.1	<.1	-	2.5	1.0	3.5	-	<.1
Prionitis spp.		<.1	<.1	<.1	<.1	<.1	0.1	5.4	<.1	-
Cryptopleura violacea		0.1	<.1	-	-	-	-	4.9	-	0.3
Porphyra spp.		0.7	0.5	1.9	1.3	<.1	<.1	0.1	-	0.7
Mazzaella heterocarpa		0.4	0.5	0.6	1.5	-	-	-	-	0.3
Mastocarpus jardinii		1.2	-	-	0.1	-	-	-	-	1.9
filamentous red algae-complex		<.1	-	-	-	-	<.1	2.8	-	-
Codium setchellii		2.1	-	-	-	-	-	-	-	-
Corallina vancouveriensis		0.1	<.1	<.1	0.1	<.1	<.1	<.1	-	1.4
Chrysophyta unid.		-	-	-	-	-	1.9	-	-	-
Phyllospadix spp.		0.6	1.1	-	-	-	-	-	-	-
Halymenia/Schizymenia spp.-complex		-	-	-	-	-	-	1.6	-	-
Mazzaella leptorhynchos		0.1	0.4	<.1	<.1	0.1	<.1	0.5	<.1	<.1
Grateloupia doryphora		-	-	-	-	-	-	1.0	-	-
Calliarthron/Bossiella spp.-complex		<.1	0.8	<.1	<.1	<.1	-	<.1	-	-
Fucus gardneri		-	-	0.7	-	-	-	-	-	0.2
juv. articulated coralline algae		<.1	<.1	<.1	<.1	<.1	0.2	<.1	-	0.2
Gelidium pusillum		<.1	<.1	<.1	0.1	-	<.1	<.1	<.1	<.1
Cryptosiphonia woodii		-	0.2	<.1	0.1	-	-	-	-	-
Cladophora spp.		<.1	<.1	0.2	<.1	<.1	<.1	<.1	<.1	<.1

Horizontal Band Transects - Algal Mean Abundance per 1 square meter - Stations +3 ft Survey 102 (continued)

Species	Station	01+03	04+03	05+03	06+03	08+03	09+03	10+02	12+03	19+03
	Survey	102	102	102	102	102	102	102	102	102
	# Quads	10	10	10	10	10	10	10	10	10
Analipus japonicus		0.1	-	-	-	-	-	-	-	-
Corallina officinalis		-	-	-	-	-	0.1	-	-	-
Sarcodiotheca gaudichaudii		-	-	-	-	-	-	0.1	-	-
Callithamnion pikeanum		<.1	-	-	-	-	-	-	-	-

Horizontal Band Transects - Algal Mean Abundance per 1 square meter - Stations +3 ft Survey 103

Species	Station	04+03	05+03	06+03
	Survey	103	103	103
	# Quads	10	10	10
Endocladia muricata		35.4	36.2	26.7
non-coralline crust		30.0	18.5	32.0
Mastocarpus papillatus		12.4	18.3	35.4
Mazzaella flaccida		2.6	1.6	5.3
Gelidium coulteri		4.2	0.4	4.2
coralline crust		3.2	0.3	3.3
Pelvetia compressa		0.3	3.1	2.0
Phyllospadix spp.		2.3	-	-
Corallina vancouveriensis		0.4	<.1	1.3
Calliarthron/Bossiella spp.-complex		1.3	<.1	0.2
Gelidium pusillum		<.1	<.1	1.0
Mazzaella affinis		0.1	<.1	0.7
Hesperophycus californicus		-	0.6	-
Cryptosiphonia woodii		0.2	0.1	0.1
Fucus gardneri		-	0.5	-
Mazzáella heterocarpa		0.1	<.1	0.2
Cladophora spp.		<.1	0.3	<.1
Porphyra spp.		<.1	0.2	-
Prionitis spp.		0.1	<.1	0.1
Mazzaella leptorhynchos		<.1	<.1	<.1
Mastocarpus jardinii		-	-	0.1
Osmundea spp.		0.1	-	-
juv. articulated coralline algae		<.1	<.1	-
Chondracanthus canaliculatus		<.1	<.1	<.1
Ulva/Enteromorpha spp.		-	<.1	-
filamentous red algae-complex		-	<.1	-

Horizontal Band Transects - Algal Mean Abundance per 1 square meter - Stations +3 ft Survey 104

Species	Station	01+03	04+03	05+03	06+03	08+03	09+03	10+02	12+03	19+03
	Survey	104	104	104	104	104	104	104	104	104
	# Quads	10	10	10	10	10	10	10	10	10
non-coralline crust		21.2	28.7	18.5	23.1	14.4	24.7	44.0	23.0	28.6
Endocladia muricata		25.3	37.4	38.5	30.7	17.3	9.9	-	2.1	11.5
Mastocarpus papillatus		11.7	11.5	5.0	25.8	2.0	1.0	0.9	9.2	12.9
coralline crust		9.6	2.2	0.2	2.4	1.9	5.2	1.9	<.1	10.8
Mazzaella flaccida		16.9	1.9	0.8	6.3	-	-	-	-	2.4
Pelvetia compressa		7.8	0.6	1.7	1.7	-	-	-	-	6.9
Gastroclonium subarticulatum		-	<.1	-	-	0.1	-	9.1	-	-
Gelidium coulteri		1.1	2.8	0.1	1.0	1.3	0.2	2.4	<.1	<.1
Corallina vancouveriensis		1.2	0.8	<.1	1.2	0.5	<.1	<.1	<.1	2.7
Cryptopleura violacea		0.3	<.1	<.1	-	-	-	4.5	<.1	0.3
Gelidium pusillum		1.9	0.5	<.1	0.6	0.4	0.5	<.1	0.2	0.3
Mastocarpus jardinii		1.6	-	-	0.2	-	-	0.1	-	2.2
filamentous red algae-complex		-	-	-	-	<.1	<.1	4.0	-	-
Pterosiphonia dendroidea		-	-	-	-	-	-	3.5	-	-
Mazzaella affinis		1.5	<.1	<.1	0.6	0.3	0.3	0.2	-	0.1
Chondracanthus canaliculatus		0.2	<.1	<.1	<.1	<.1	<.1	2.1	-	0.2
Prionitis spp.		0.2	<.1	<.1	<.1	-	0.3	1.9	-	-
Codium setchellii		2.2	-	-	-	-	-	-	-	-
Calliarthron/Bossiella spp.-complex		<.1	0.8	<.1	0.6	<.1	0.1	<.1	-	<.1
Phyllospadix spp.		0.5	1.2	-	-	-	-	-	-	<.1
Fucus gardneri		-	-	0.6	-	-	-	-	-	0.4
juv. articulated coralline algae		<.1	0.2	<.1	<.1	0.3	0.3	<.1	-	<.1
Mazzaella heterocarpa		0.3	<.1	<.1	0.3	-	-	-	-	0.1
Analipus japonicus		0.4	-	-	-	-	-	-	-	-
Cryptosiphonia woodii		-	<.1	<.1	0.1	-	-	-	-	-
Mazzaella leptorhynchos		<.1	<.1	<.1	0.1	<.1	-	<.1	-	<.1
Cladophora spp.		<.1	<.1	0.1	<.1	<.1	<.1	<.1	<.1	<.1
Osmundea spp.		-	-	-	-	-	-	<.1	-	-
Ulva/Enteromorpha spp.		-	-	-	-	-	<.1	<.1	-	<.1
Porphyra spp.		-	-	<.1	-	-	-	-	-	<.1

Horizontal Band Transects - Algal Mean Abundance per 1 square meter - Stations +3 ft Survey 104 (continued)

Species	Station	01+03	04+03	05+03	06+03	08+03	09+03	10+02	12+03	19+03
	Survey	104	104	104	104	104	104	104	104	104
	# Quads	10	10	10	10	10	10	10	10	10
Halymenia/Schizymenia spp.-complex		-	-	-	-	-	-	<.1	-	-
Fucaceae unid.		-	<.1	-	-	-	-	-	-	-

Horizontal Band Transects - Algal Mean Abundance per 1 square meter - Stations +3 ft Survey 105

Species	Station	04+03	05+03	06+03
	Survey	105	105	105
	# Quads	10	10	10
Endocladia muricata		48.1	52.5	42.6
Mastocarpus papillatus		12.7	11.2	35.0
non-coralline crust		17.5	11.2	18.7
Mazzaella flaccida		2.2	0.3	1.9
Pelvetia compressa		0.2	1.9	1.7
coralline crust		1.6	0.3	0.4
Gelidium pusillum		0.7	<.1	0.8
Gelidium coulteri		1.0	0.3	0.3
Corallina vancouveriensis		0.8	0.1	0.6
Phyllospadix spp.		1.3	-	-
Chondracanthus harveyanus/spinosus		-	1.0	-
Mazzaella heterocarpa		<.1	0.4	0.5
Calliarthron/Bossiella spp.-complex		0.6	-	<.1
Cryptosiphonia woodii		<.1	-	0.3
juv. articulated coralline algae		0.1	<.1	0.1
Porphyra spp.		<.1	0.1	0.1
Mastocarpus jardinii		-	-	0.3
Cladophora spp.		<.1	<.1	<.1
Mazzaella leptorhynchos		0.1	<.1	<.1
Mazzaella affinis		<.1	<.1	<.1
Prionitis spp.		<.1	<.1	<.1
Fucaceae unid.		-	<.1	-
Fucus gardneri		-	<.1	-
Callithamnion pikeanum		-	-	<.1
Chondracanthus canaliculatus		-	<.1	-

Horizontal Band Transects - Algal Mean Abundance per 1 square meter - Stations +3 ft Survey 106

Species	Station	01+03	04+03	05+03	06+03	08+03	09+03	10+02	12+03	19+03
	Survey	106	106	106	106	106	106	106	106	106
	# Quads	10	10	10	10	10	10	10	10	10
Endocladia muricata		32.0	46.5	43.7	37.8	19.9	8.5	-	0.7	14.4
Mastocarpus papillatus		39.9	20.8	19.2	47.6	10.9	0.6	13.2	7.2	29.2
non-coralline crust		7.5	17.1	11.9	11.9	8.7	27.1	24.2	22.7	13.8
Mazzaella flaccida		16.8	6.7	6.0	6.6	-	-	-	-	1.7
Gelidium coulteri		1.3	3.4	0.4	1.1	3.8	0.2	22.6	<.1	<.1
Pelvetia compressa		9.5	1.0	2.8	1.7	-	-	-	-	5.8
Ulva/Enteromorpha spp.		<.1	<.1	<.1	-	-	3.9	11.8	<.1	-
coralline crust		3.5	1.0	<.1	0.7	0.5	1.7	0.1	<.1	3.7
Gastroclonium subarticulatum		-	-	-	-	<.1	-	9.2	-	-
Chondracanthus canaliculatus		<.1	<.1	-	<.1	<.1	-	8.1	-	-
Grateloupia doryphora		-	-	-	-	0.1	-	6.4	-	-
Mazzaella affinis		0.3	<.1	<.1	0.1	0.9	<.1	3.9	-	0.1
Prionitis spp.		<.1	<.1	<.1	<.1	<.1	<.1	3.6	<.1	-
Cryptopleura violacea		0.1	-	-	-	-	-	3.6	-	-
Mastocarpus jardinii		0.9	-	-	0.3	-	-	<.1	-	2.2
filamentous red algae-complex		-	-	<.1	-	0.1	0.1	3.1	<.1	-
Mazzaella heterocarpa		0.6	0.6	0.3	0.9	-	-	<.1	-	0.2
Corallina vancouveriensis		0.8	0.4	0.3	0.2	<.1	-	<.1	-	0.7
Phyllospadix spp.		0.3	1.9	-	-	-	-	-	-	-
Porphyra spp.		0.6	0.8	<.1	0.3	-	<.1	<.1	-	0.2
Calliarthron/Bossiella spp.-complex		<.1	0.8	-	<.1	-	<.1	<.1	-	0.9
Cladophora spp.		0.1	<.1	0.6	0.6	<.1	<.1	0.2	<.1	<.1
Mazzaella leptorhynchos		-	0.3	<.1	<.1	<.1	-	1.3	-	-
Gelidium pusillum		0.3	0.4	<.1	0.6	0.2	<.1	-	<.1	<.1
Chrysophyta unid.		-	-	-	-	-	1.2	-	-	-
Fucus gardneri		-	<.1	0.4	-	-	-	-	-	0.7
Codium setchellii		1.0	-	-	-	-	-	-	-	-
Hesperophycus californicus		-	-	0.7	-	-	-	-	-	-
Cryptosiphonia woodii		-	0.3	<.1	0.3	-	-	-	-	-
juv. articulated coralline algae		0.1	0.1	<.1	0.1	-	<.1	<.1	-	<.1

Horizontal Band Transects - Algal Mean Abundance per 1 square meter - Stations +3 ft Survey 106 (continued)

Species	Station	01+03	04+03	05+03	06+03	08+03	09+03	10+02	12+03	19+03
	Survey	106	106	106	106	106	106	106	106	106
	# Quads	10	10	10	10	10	10	10	10	10
Pterosiphonia dendroidea		-	-	-	-	-	-	0.1	-	-
Spongomorpha/Acrosiphonia-complex		<.1	-	-	-	-	-	-	-	-
Scytosiphon spp.		-	-	-	-	-	<.1	-	-	-
Callithamnion pikeanum		-	-	-	-	-	-	-	-	<.1
Corallina officinalis		-	-	-	-	-	-	<.1	-	-
Colpomenia spp.		-	-	-	-	-	-	<.1	-	-
Halymenia/Schizymenia spp.-complex		-	-	-	-	-	-	<.1	-	-
Fucaceae unid.		-	-	-	<.1	-	-	-	-	-

Horizontal Band Transects - Algal Mean Abundance per 1 square meter - Stations +3 ft Survey 107

Species	Station	04+03	05+03	06+03
	Survey	107	107	107
	# Quads	10	10	10
Endocladia muricata		34.9	38.9	29.2
non-coralline crust		19.2	19.6	26.3
Mastocarpus papillatus		14.8	13.9	25.2
Pelvetia compressa		1.5	4.0	3.1
Mazzaella flaccida		3.7	0.9	2.1
Gelidium coulteri		4.0	<.1	2.4
coralline crust		1.6	0.6	2.4
Corallina vancouveriensis		0.6	<.1	1.6
Fucus gardneri		<.1	1.4	-
Gelidium pusillum		<.1	<.1	1.3
Phyllospadix spp.		1.0	-	-
Calliarthron/Bossiella spp.-complex		0.8	<.1	<.1
Cryptosiphonia woodii		<.1	<.1	0.6
Mazzaella affinis		0.1	<.1	0.3
Hesperophycus californicus		<.1	0.4	-
Cladophora spp.		<.1	<.1	<.1
Mazzaella heterocarpa		<.1	<.1	<.1
Chondracanthus canaliculatus		<.1	<.1	0.1
Porphyra spp.		0.1	<.1	<.1
Prionitis spp.		<.1	<.1	<.1
juv. articulated coralline algae		<.1	<.1	<.1
Mastocarpus jardinii		-	-	<.1
Mazzaella leptorhynchos		<.1	<.1	<.1
Corallina officinalis		<.1	-	-

Horizontal Band Transects - Algal Mean Abundance per 1 square meter - Stations +3 ft Survey 108

Species	Station	01+03	05+03	06+03	08+03	09+03	10+02	12+03	19+03
	Survey	108	108	108	108	108	108	108	108
	# Quads	10	10	10	10	10	10	10	10
non-coralline crust		29.9	14.8	26.7	12.2	30.4	37.8	24.7	21.9
Endocladia muricata		29.4	44.9	32.0	12.7	8.0	-	1.0	21.0
Mastocarpus papillatus		13.3	6.5	22.6	1.7	3.1	3.3	7.7	20.1
coralline crust		9.2	0.5	1.9	2.0	3.6	3.1	<.1	7.0
Pelvetia compressa		9.2	3.4	1.6	-	-	-	-	6.9
Mazzaella flaccida		7.6	<.1	1.5	-	-	-	-	1.5
Gelidium pusillum		2.6	0.2	2.0	0.2	0.8	1.0	0.3	0.7
Gelidium coulteri		1.4	<.1	1.6	0.6	0.2	3.7	<.1	<.1
Chondracanthus canaliculatus		0.3	<.1	0.3	0.5	<.1	4.5	-	0.1
Corallina vancouveriensis		1.7	<.1	1.9	0.3	<.1	0.1	<.1	1.4
Gastroclonium subarticulatum		<.1	-	-	-	-	4.2	-	<.1
Prionitis spp.		0.2	<.1	<.1	<.1	-	3.3	<.1	-
Mastocarpus jardinii		1.7	-	0.1	-	-	-	-	1.1
Cryptopleura violacea		0.3	-	-	-	-	2.3	-	0.1
Codium setchellii		2.4	-	-	-	-	-	-	-
Pterosiphonia dendroidea		-	-	-	-	-	1.7	-	-
filamentous red algae-complex		-	-	-	-	0.2	1.4	-	-
Hesperophycus californicus		-	1.6	-	-	-	-	-	-
juv. articulated coralline algae		0.3	-	<.1	0.6	0.4	<.1	<.1	<.1
Mazzaella affinis		0.6	-	<.1	0.1	0.1	0.4	-	<.1
Cladophora spp.		1.0	<.1	<.1	<.1	<.1	<.1	<.1	<.1
Mazzaella leptorhynchos		0.3	<.1	0.2	<.1	-	0.3	<.1	<.1
Phyllospadix spp.		0.6	-	-	-	-	-	-	-
Fucus gardneri		-	-	-	-	-	-	-	0.5
Osmundea spp.		-	-	-	-	-	0.3	-	-
Chrysophyta unid.		-	-	-	-	0.3	-	-	-
Cryptosiphonia woodii		-	<.1	0.3	-	-	<.1	-	-
Analipus japonicus		0.2	-	-	-	-	-	-	-
Calliarthron/Bossiella spp.-complex		0.1	-	<.1	-	-	<.1	-	<.1
Mazzaella heterocarpa		<.1	-	<.1	-	-	-	-	<.1

Horizontal Band Transects - Algal Mean Abundance per 1 square meter - Stations +3 ft Survey 108 (continued)

Species	Station	01+03	05+03	06+03	08+03	09+03	10+02	12+03	19+03
	Survey	108	108	108	108	108	108	108	108
	# Quads	10	10	10	10	10	10	10	10
Ulva/Enteromorpha spp.		<.1	<.1	<.1	-	<.1	<.1	-	-
Porphyra spp.		<.1	-	-	-	-	-	-	<.1
Callithamnion spp./Pleonosporium spp.		-	-	-	-	-	-	-	<.1
Callithamnion pikeanum		-	-	-	-	-	-	-	<.1
Ahnfeltiopsis leptophylla		-	-	-	-	-	<.1	-	-
Halymenia/Schizymenia spp.-complex		-	-	-	-	-	<.1	-	-

Horizontal Band Transects - Algal Mean Abundance per 1 square meter - Stations +3 ft Survey 109

Species	Station	04+03	05+03	06+03
	Survey	109	109	109
	# Quads	10	10	10
Endocladia muricata		44.4	48.1	38.8
Mastocarpus papillatus		12.9	9.2	26.6
non-coralline crust		11.9	11.8	12.8
Mazzaella flaccida		2.6	0.2	5.3
Pelvetia compressa		0.9	3.5	1.4
coralline crust		2.1	0.1	0.6
Gelidium coulteri		1.1	<.1	0.7
Fucus gardneri		-	1.8	-
Gelidium pusillum		<.1	<.1	1.3
Corallina vancouveriensis		0.8	<.1	0.2
Calliarthron/Bossiella spp.-complex		0.7	-	0.1
Phyllospadix spp.		0.8	-	-
Porphyra spp.		<.1	0.1	0.5
Cryptosiphonia woodii		0.3	<.1	0.2
Mazzaella heterocarpa		0.3	-	<.1
Cladophora spp.		<.1	0.1	<.1
Hesperophycus californicus		0.2	<.1	-
Mazzaella affinis		0.1	-	<.1
Mazzaella leptorhynchos		0.1	<.1	<.1
juv. articulated coralline algae		<.1	<.1	<.1
Gastroclonium subarticulatum		<.1	-	-
Chondracanthus canaliculatus		<.1	-	<.1
Prionitis spp.		-	<.1	-
Ulva/Enteromorpha spp.		<.1	-	<.1
Callithamnion pikeanum		-	-	<.1
Mastocarpus jardinii		-	-	<.1
Callithamnion spp./Pleonosporium spp.		<.1	-	-

Horizontal Band Transects - Algal Mean Abundance per 1 square meter - Stations +3 ft Survey 110

Species	Station	01+03	04+03	05+03	06+03	08+03	09+03	10+02	12+03	19+03
	Survey	110	110	110	110	110	110	110	110	110
	# Quads	10	10	10	10	10	10	10	10	10
Mastocarpus papillatus		33.1	25.1	23.3	50.8	14.7	5.2	4.9	25.8	31.9
Endocladia muricata		24.7	33.3	38.0	26.5	17.7	7.7	-	1.0	18.4
non-coralline crust		10.4	11.5	11.7	9.5	8.5	16.6	19.7	21.0	13.8
Mazzaella flaccida		25.6	5.7	1.4	7.9	-	-	-	-	4.5
Ulva/Enteromorpha spp.		<.1	-	<.1	<.1	4.0	14.2	22.1	-	<.1
Pelvetia compressa		10.1	0.6	4.6	1.0	-	-	-	-	8.1
Gelidium coulteri		1.4	3.5	0.6	1.9	3.7	2.8	7.4	1.5	<.1
coralline crust		7.1	1.4	0.2	1.0	0.3	2.6	1.3	<.1	4.6
Gastroclonium subarticulatum		-	<.1	-	<.1	<.1	0.4	9.6	<.1	<.1
Cryptopleura violacea		1.0	<.1	-	-	-	<.1	8.9	-	<.1
Mazzaella affinis		0.9	0.3	<.1	0.8	1.1	2.3	2.7	0.1	0.2
filamentous red algae-complex		-	-	<.1	-	<.1	7.7	0.2	-	-
Chondracanthus canaliculatus		0.3	<.1	<.1	<.1	<.1	<.1	5.2	-	0.2
Prionitis spp.		0.1	<.1	<.1	<.1	0.5	<.1	4.9	-	-
Porphyra spp.		2.6	0.6	0.6	0.3	<.1	<.1	-	-	0.3
Mastocarpus jardinii		1.5	-	-	-	-	-	-	-	1.8
Cladophora spp.		<.1	0.2	1.0	1.8	<.1	<.1	<.1	<.1	<.1
Corallina vancouveriensis		1.0	0.3	<.1	0.2	<.1	-	<.1	-	1.3
Fucus gardneri		-	<.1	2.3	-	-	-	-	-	0.3
Mazzaella heterocarpa		0.7	0.7	0.1	0.3	-	0.1	<.1	-	0.2
Gelidium pusillum		0.3	0.1	0.2	0.3	0.4	0.1	<.1	0.2	0.3
Codium setchellii		2.0	-	-	-	-	-	-	-	-
Phyllospadix spp.		0.3	1.0	-	-	-	-	-	-	-
Cryptosiphonia woodii		-	<.1	<.1	0.8	-	-	0.1	-	-
Mazzaella leptorhynchos		<.1	0.3	<.1	<.1	<.1	<.1	0.3	<.1	<.1
Calliarthron/Bossiella spp.-complex		<.1	0.7	<.1	-	-	-	<.1	-	<.1
Macrocystis spp.		-	-	-	-	-	0.6	-	-	-
Halymenia/Schizymenia spp.-complex		-	-	-	-	-	<.1	0.6	-	-
Pterosiphonia dendroidea		-	-	-	-	-	-	0.5	-	-
Hesperophycus californicus		-	-	0.3	0.1	-	-	-	-	<.1

Horizontal Band Transects - Algal Mean Abundance per 1 square meter - Stations +3 ft Survey 110 (continued)

Species	Station	01+03	04+03	05+03	06+03	08+03	09+03	10+02	12+03	19+03
	Survey	110	110	110	110	110	110	110	110	110
	# Quads	10	10	10	10	10	10	10	10	10
Analipus japonicus		0.3	-	-	-	-	-	-	-	-
juv. articulated coralline algae		<.1	<.1	<.1	<.1	-	<.1	<.1	-	-
Grateloupia doryphora		-	-	<.1	-	<.1	-	-	-	-
Spongomorpha/Acrosiphonia-complex		-	-	<.1	-	-	-	-	-	-
Microcladia coulteri		-	-	-	-	<.1	-	-	-	-
Smithora naiadum		<.1	-	-	-	-	-	-	-	-
Osmundea spp.		-	-	-	-	-	-	-	-	<.1
Farlowia/Pikea spp.-complex		-	-	-	-	-	-	<.1	-	-

Horizontal Band Transects - Algal Mean Abundance per 1 square meter - Stations +1 ft Survey 100

Species	Station	01+01	04+01	05+01	06+01	08+01	09+01	10+01	12+01	19+01
	Survey	100	100	100	100	100	100	100	100	100
	# Quads	10	10	10	10	10	10	10	10	10
non-coralline crust		14.6	29.7	35.3	35.1	44.0	38.5	16.2	36.9	10.3
coralline crust		6.9	13.9	9.8	10.8	11.0	16.2	2.8	1.0	20.4
Gastroclonium subarticulatum		10.7	13.1	5.8	13.2	4.6	1.0	8.0	3.7	9.8
Mazzaella flaccida		14.1	4.0	1.7	12.5	-	-	-	-	24.2
Chondracanthus canaliculatus		9.1	8.5	1.9	2.4	3.2	1.5	7.2	0.9	21.7
Phyllospadix spp.		21.2	6.9	6.5	7.4	5.4	0.2	-	-	3.4
Corallina vancouveriensis		1.7	11.5	11.3	4.4	<.1	2.2	<.1	<.1	2.8
Calliarthron/Bossiella spp.-complex		3.0	1.8	4.9	6.0	2.8	10.5	0.3	-	2.0
Cryptopleura violacea		2.7	8.9	3.3	3.1	1.0	0.2	2.9	-	1.5
Gelidium coulteri		8.2	2.8	4.3	3.0	0.8	2.0	<.1	0.8	<.1
Mastocarpus papillatus		1.7	2.7	1.5	0.7	0.4	0.4	<.1	13.3	0.7
Endocladia muricata		1.4	6.3	8.5	0.9	0.8	0.3	-	<.1	0.6
Egregia menziesii		-	8.0	3.4	1.5	-	-	-	-	0.8
Prionitis spp.		0.8	0.8	2.0	0.8	1.9	1.6	2.8	<.1	2.9
Pterosiphonia dendroidea		1.9	-	-	-	8.1	-	1.1	0.1	-
juv. articulated coralline algae		<.1	1.5	1.7	0.6	0.3	2.8	<.1	<.1	3.2
filamentous red algae-complex		<.1	<.1	-	-	0.4	0.6	7.7	-	-
Mazzaella affinis		5.0	0.6	0.6	0.3	0.8	0.1	0.9	<.1	0.1
Mastocarpus jardinii		0.3	0.3	0.3	3.1	<.1	0.1	-	-	1.2
Gelidium pusillum		0.6	<.1	0.1	0.3	<.1	-	-	1.3	0.2
Codium setchellii		2.5	-	-	-	-	-	-	-	-
Osmundea spp.		<.1	0.1	0.3	-	0.7	-	0.1	-	1.1
Chondracanthus corymbiferus		<.1	<.1	-	-	<.1	-	<.1	-	1.5
Corallina officinalis		0.2	<.1	0.5	<.1	<.1	-	<.1	<.1	0.4
Derbesia marina		-	-	-	-	-	1.0	-	-	-
Mazzaella heterocarpa		<.1	<.1	-	0.4	<.1	-	<.1	<.1	0.3
Sarcodiotheca gaudichaudii		<.1	<.1	<.1	<.1	0.3	<.1	-	-	0.3
Mazzaella leptorhynchos		0.2	<.1	<.1	0.1	<.1	<.1	-	0.1	-
Ulva/Enteromorpha spp.		<.1	0.1	<.1	<.1	<.1	<.1	0.1	<.1	0.1
Cryptosiphonia woodii		-	0.3	<.1	0.1	-	-	-	-	-

Horizontal Band Transects - Algal Mean Abundance per 1 square meter - Stations +1 ft Survey 100 (continued)

Species	Station	01+01	04+01	05+01	06+01	08+01	09+01	10+01	12+01	19+01
	Survey	100	100	100	100	100	100	100	100	100
	# Quads	10	10	10	10	10	10	10	10	10
Callithamnion spp./Pleonosporium spp.		-	<.1	0.3	-	-	-	-	-	<.1
Halymenia/Schizymenia spp.-complex		-	-	<.1	-	0.1	-	-	-	<.1
Farlowia/Pikea spp.-complex		-	-	-	-	-	-	0.1	-	-
Laminariales		-	-	0.1	-	-	-	-	-	-
Gelidium robustum		-	-	-	-	-	-	<.1	-	-
Grateloupia doryphora		-	-	-	<.1	-	-	-	-	-
Cladophora spp.		<.1	<.1	<.1	<.1	<.1	<.1	<.1	<.1	<.1
Callithamnion pikeanum		-	-	-	<.1	-	-	-	-	<.1
Porphyra spp.		-	<.1	-	<.1	-	-	-	-	<.1
Melobesia mediocris		<.1	<.1	-	<.1	-	-	-	-	<.1
Callophyllis spp.		-	-	-	-	-	-	-	-	<.1
Microcladia borealis		-	-	<.1	-	-	-	-	-	-
Ahnfeltiopsis leptophylla		-	-	-	-	-	-	<.1	-	-
Endarachne/Petalonia-complex		-	-	-	-	-	<.1	-	-	-
Cystoseira osmundacea		-	-	-	<.1	-	-	-	-	-
Macrocystis spp.		-	-	-	-	-	<.1	-	-	-
Cryptopleura ruprechtiana		-	-	-	-	-	-	-	-	<.1

Horizontal Band Transects - Algal Mean Abundance per 1 square meter - Stations +1 ft Survey 101

Species	Station	01+01	04+01	05+01	06+01	08+01	09+01	10+01	12+01	19+01
	Survey	101	101	101	101	101	101	101	101	101
	# Quads	10	10	10	10	10	10	10	10	10
Mazzaella flaccida		46.5	21.0	10.6	35.1	-	-	-	-	51.0
non-coralline crust		6.9	16.2	14.9	12.0	17.9	13.2	6.2	20.2	6.8
Chondracanthus canaliculatus		18.4	11.6	8.9	5.9	10.3	0.9	13.4	1.5	39.0
Gastroclonium subarticulatum		10.8	15.0	8.3	21.6	24.6	0.8	14.6	0.8	11.1
Mastocarpus papillatus		5.6	6.5	6.0	5.8	8.8	-	0.1	44.1	1.7
filamentous red algae-complex		1.5	0.1	0.6	<.1	15.2	0.8	31.1	-	<.1
Phyllospadix spp.		21.0	8.0	6.7	5.5	4.6	-	-	-	3.5
coralline crust		3.5	4.8	8.0	6.2	3.8	7.4	0.6	0.6	8.3
Gelidium coulteri		5.8	6.7	11.9	5.6	0.3	0.8	0.3	0.3	<.1
Endocladia muricata		2.1	11.2	12.6	1.6	1.3	-	-	<.1	0.7
Egregia menziesii		-	16.9	4.0	3.5	-	-	-	-	1.6
Cryptopleura violacea		4.0	5.4	1.9	1.4	0.1	-	8.6	-	2.6
Mazzaella affinis		11.0	3.4	1.0	1.6	4.2	<.1	1.0	0.3	0.3
Calliarthron/Bossiella spp.-complex		0.8	5.4	7.6	2.9	0.2	1.3	<.1	<.1	1.6
Corallina vancouveriensis		0.5	5.9	7.8	1.8	<.1	2.0	-	0.1	0.8
Ulva/Enteromorpha spp.		<.1	2.2	<.1	0.1	1.7	1.0	9.6	<.1	0.6
Chrysophyta unid.		-	-	<.1	<.1	0.6	13.1	0.5	-	<.1
Prionitis spp.		0.7	0.5	1.2	1.2	0.7	-	4.4	-	2.8
Spongomorpha/Acrosiphonia-complex		-	1.1	0.6	4.4	-	-	5.0	-	<.1
Porphyra spp.		0.2	5.0	1.9	1.2	<.1	<.1	-	<.1	1.5
Mastocarpus jardinii		0.7	0.9	0.8	3.3	0.1	-	-	-	1.8
Halymenia/Schizymenia spp.-complex		0.6	0.1	<.1	0.2	2.8	-	3.3	-	-
Mazzaella heterocarpa		0.7	0.8	0.8	1.9	-	-	0.2	0.6	1.0
juv. articulated coralline algae		<.1	1.0	0.8	1.1	0.3	1.6	<.1	<.1	<.1
Mazzaella lilacina		<.1	<.1	0.1	-	-	-	-	-	3.3
Mazzaella leptorhynchos		1.0	<.1	<.1	0.1	1.0	-	<.1	0.3	<.1
Gelidium pusillum		0.1	0.3	<.1	<.1	<.1	0.2	-	0.8	0.2
Codium setchellii		1.4	-	-	-	-	-	-	-	-
Sarcodiotheca gaudichaudii		0.3	0.3	<.1	0.1	0.1	-	<.1	-	0.3
Osmundea spp.		0.1	0.1	<.1	<.1	0.2	-	<.1	-	0.5

Horizontal Band Transects - Algal Mean Abundance per 1 square meter - Stations +1 ft Survey 101 (continued)

Species	Station	01+01	04+01	05+01	06+01	08+01	09+01	10+01	12+01	19+01
	Survey	101	101	101	101	101	101	101	101	101
	# Quads	10	10	10	10	10	10	10	10	10
Chondracanthus harveyanus/spinosus		-	-	-	-	-	-	0.8	-	-
Cryptosiphonia woodii		-	0.1	-	0.5	-	-	-	-	-
Chondracanthus corymbiferus		-	<.1	<.1	-	-	-	-	-	0.5
Callithamnion spp./Pleonosporium spp.		-	0.1	<.1	-	-	0.1	-	-	<.1
Pterosiphonia dendroidea		<.1	-	-	-	<.1	-	0.2	-	-
Polyneura latissima		-	-	-	-	-	-	-	-	0.3
Callithamnion pikeanum		<.1	<.1	<.1	<.1	-	-	-	-	<.1
Callophyllis spp.		-	-	<.1	-	-	-	-	-	<.1
Grateloupia doryphora		-	-	-	-	<.1	-	<.1	-	-
Laminaria setchellii		-	-	<.1	-	-	-	-	-	-
Cladophora spp.		<.1	<.1	<.1	<.1	-	<.1	-	<.1	-
Microcladia coulteri		<.1	-	-	-	-	-	<.1	-	<.1
Melobesia mediocris		-	<.1	-	<.1	-	-	-	-	-
Corallina officinalis		<.1	-	<.1	-	-	-	-	-	<.1
Microcladia borealis		-	<.1	<.1	-	-	-	-	-	-
Chondria decipiens		-	-	-	-	-	-	<.1	<.1	-
Scytosiphon spp.		-	-	-	-	-	<.1	-	-	-
Gelidium robustum		-	-	-	-	-	-	<.1	-	-

Horizontal Band Transects - Algal Mean Abundance per 1 square meter - Stations +1 ft Survey 102

Species	Station	01+01	04+01	05+01	06+01	08+01	09+01	10+01	12+01	19+01
	Survey	102	102	102	102	102	102	102	102	102
	# Quads	10	10	10	10	10	10	10	10	10
Mazzaella flaccida		46.5	19.7	13.2	31.5	-	-	-	-	51.2
Chondracanthus canaliculatus		16.2	17.6	9.0	5.3	10.6	1.7	7.8	2.8	35.8
Gastroclonium subarticulatum		10.8	19.9	8.1	21.5	18.3	1.5	17.4	1.2	4.7
Mastocarpus papillatus		5.5	4.7	5.1	2.9	4.4	0.2	0.3	57.0	3.5
Egregia menziesii		5.7	34.9	11.0	19.9	-	-	-	-	11.8
non-coralline crust		4.4	8.9	8.7	8.1	8.7	12.3	3.8	15.9	8.7
Phyllospadix spp.		24.9	7.1	9.9	12.2	17.4	-	-	-	5.6
Gelidium coulteri		6.8	15.1	21.3	6.4	1.7	3.8	3.5	1.3	0.1
Cryptopleura violacea		5.0	8.5	5.4	3.7	2.4	-	21.0	-	1.9
Ulva/Enteromorpha spp.		0.1	5.2	0.3	0.3	6.6	4.2	24.4	2.7	0.8
filamentous red algae-complex		0.5	-	<.1	<.1	21.2	1.6	15.9	-	<.1
coralline crust		1.4	2.8	4.1	5.0	6.1	8.0	2.3	0.4	8.3
Mazzaella affinis		10.0	2.2	1.5	0.7	3.9	<.1	0.3	1.8	<.1
Endocladia muricata		2.1	7.6	7.7	0.4	0.6	-	-	0.2	0.3
Corallina vancouveriensis		0.3	2.9	9.2	1.0	0.3	1.0	<.1	<.1	1.8
Calliarthron/Bossiella spp.-complex		0.7	2.4	3.4	4.2	0.6	1.2	0.3	-	1.9
Porphyra spp.		1.0	4.0	4.2	0.7	-	-	-	-	1.9
Prionitis spp.		0.3	1.0	1.9	1.4	0.6	-	4.3	-	2.2
Mastocarpus jardinii		1.0	0.4	0.6	3.8	-	-	-	<.1	2.3
Mazzaella lilacina		-	0.5	2.2	1.6	-	-	-	-	1.2
Chrysophyta unid.		<.1	<.1	1.1	0.2	0.3	3.6	-	-	-
Mazzaella heterocarpa		1.0	0.2	0.5	0.4	<.1	-	-	-	1.7
juv. articulated coralline algae		<.1	0.7	0.4	0.6	0.1	0.3	0.1	<.1	1.0
Spongomorpha/Acrosiphonia-complex		<.1	0.3	0.1	2.8	<.1	-	-	-	<.1
Grateloupia doryphora		0.1	-	-	-	2.0	-	1.0	-	-
Mazzaella leptorhynchos		1.3	0.1	-	-	0.1	-	0.1	0.8	-
Halymenia/Schizymenia spp.-complex		<.1	-	-	-	<.1	-	2.2	-	-
Osmundea spp.		0.1	0.6	0.1	<.1	0.1	-	0.2	-	0.6
Pelvetia compressa		-	-	1.5	-	-	-	-	<.1	-
Microcladia coulteri		<.1	<.1	-	0.2	-	-	-	-	1.1

Horizontal Band Transects - Algal Mean Abundance per 1 square meter - Stations +1 ft Survey 102 (continued)

Species	Station	01+01	04+01	05+01	06+01	08+01	09+01	10+01	12+01	19+01
	Survey	102	102	102	102	102	102	102	102	102
	# Quads	10	10	10	10	10	10	10	10	10
Chondracanthus corymbiferus		-	<.1	<.1	-	-	-	-	-	0.8
Codium setchellii		0.9	-	-	-	-	-	-	-	-
Sarcodiotheca gaudichaudii		0.2	0.1	-	-	0.2	-	<.1	-	0.1
Smithora naiadum		-	-	-	0.2	-	-	-	-	0.6
Gelidium pusillum		<.1	<.1	<.1	<.1	-	<.1	-	0.3	0.2
Cryptopleura ruprechtiana		-	-	0.3	-	-	-	-	-	<.1
Callithamnion pikeanum		<.1	-	<.1	0.1	-	-	-	-	<.1
Polyneura latissima		-	-	-	-	-	-	-	-	0.2
Chondria decipiens		-	-	-	-	-	-	0.2	-	-
Melobesia mediocris		<.1	<.1	-	<.1	<.1	-	-	-	<.1
Pterosiphonia dendroidea		-	-	-	-	<.1	-	0.1	-	-
Corallina officinalis		<.1	<.1	-	-	-	-	-	-	0.1
Callophyllis spp.		-	<.1	<.1	-	-	-	-	-	<.1
Microcladia borealis		-	-	<.1	-	-	-	-	-	-
Cladophora spp.		<.1	<.1	<.1	<.1	<.1	<.1	-	-	<.1
Colpomenia spp.		-	-	-	-	<.1	-	<.1	<.1	-
Callithamnion spp./Pleonosporium spp.		-	<.1	<.1	-	-	-	-	-	-
Laminaria setchellii		-	-	<.1	-	-	-	-	-	-
Nereocystis luetkeana		-	-	<.1	-	-	-	-	-	-
Farlowia/Pikea spp.-complex		-	-	-	-	-	-	-	-	<.1
Chondracanthus harveyanus/spinosus		-	-	-	-	<.1	-	-	-	-

Horizontal Band Transects - Algal Mean Abundance per 1 square meter - Stations +1 ft Survey 103

Species	Station	04+01	05+01	06+01
	Survey	103	103	103
	# Quads	10	10	10
non-coralline crust		29.6	25.1	27.1
Gastroclonium subarticulatum		14.0	9.0	19.1
Gelidium coulteri		9.5	16.9	6.2
Egregia menziesii		19.9	7.9	4.9
Phyllospadix spp.		10.1	10.1	10.3
coralline crust		11.6	8.6	5.3
Mazzaella flaccida		5.6	3.5	16.3
Cryptopleura violacea		10.7	9.2	4.9
Corallina vancouveriensis		7.4	9.9	2.6
Chondracanthus canaliculatus		5.6	3.1	7.8
Calliarthron/Bossiella spp.-complex		2.9	7.4	5.3
Endocladia muricata		5.3	8.4	1.1
Mastocarpus papillatus		2.2	1.9	2.7
Mastocarpus jardinii		0.9	0.6	3.9
Prionitis spp.		1.1	2.6	1.2
Ulva/Enteromorpha spp.		3.4	<.1	0.2
Mazzaella affinis		1.5	0.6	0.7
juv. articulated coralline algae		0.6	0.7	0.9
Osmundea spp.		1.0	0.3	<.1
Mazzaella leptorhynchos		<.1	<.1	1.1
Gelidium pusillum		0.2	0.1	0.3
Mazzaella heterocarpa		0.3	<.1	0.1
filamentous red algae-complex		<.1	0.2	0.2
Cryptosiphonia woodii		0.1	0.2	0.1
Sarcodiotheca gaudichaudii		0.1	<.1	0.1
Cryptopleura ruprechtiana		<.1	0.1	-
Corallina officinalis		0.1	<.1	-
Chondracanthus corymbiferus		<.1	<.1	-
Laminaria setchellii		-	0.1	-
Smithora naiadum		0.1	-	<.1

Horizontal Band Transects - Algal Mean Abundance per 1 square meter - Stations +1 ft Survey 103 (continued)

Species	Station	04+01	05+01	06+01
	Survey	103	103	103
	# Quads	10	10	10
Cladophora spp.		<.1	<.1	<.1
Melobesia mediocris		<.1	<.1	<.1
Porphyra spp.		<.1	<.1	<.1
Callithamnion spp./Pleonosporium spp.		<.1	<.1	-
Microcladia borealis		-	<.1	-
Halymenia/Schizymenia spp.-complex		-	-	<.1
Callithamnion pikeanum		-	-	<.1
Microcladia coulteri		<.1	-	-
Callophyllis spp.		<.1	-	-
Mazzaella lilacina		<.1	-	-

Horizontal Band Transects - Algal Mean Abundance per 1 square meter - Stations +1 ft Survey 104

Species	Station	01+01	04+01	05+01	06+01	08+01	09+01	10+01	12+01	19+01
	Survey	104	104	104	104	104	104	104	104	104
	# Quads	10	10	10	10	10	10	10	10	10
non-coralline crust		10.8	26.6	27.3	27.0	22.7	29.9	11.6	31.1	12.5
Gastroclonium subarticulatum		12.9	13.5	6.9	18.6	21.6	1.5	7.8	4.9	11.6
coralline crust		6.3	10.4	9.5	8.1	5.5	13.9	0.6	1.2	16.1
Chondracanthus canaliculatus		10.5	6.5	3.7	6.2	10.2	1.5	8.5	1.0	22.0
Phyllospadix spp.		27.6	7.4	8.5	8.8	10.8	-	-	-	4.4
Mazzaella flaccida		14.0	5.3	3.0	16.4	-	-	-	-	21.1
filamentous red algae-complex		0.9	0.1	<.1	<.1	17.4	3.1	27.0	-	<.1
Corallina vancouveriensis		1.5	10.0	13.4	3.7	0.2	2.4	0.1	-	1.9
Calliarthron/Bossiella spp.-complex		1.6	5.8	6.6	6.1	1.7	5.8	<.1	-	3.7
Mastocarpus papillatus		3.7	2.4	1.0	1.6	2.2	0.7	<.1	16.0	0.7
Cryptopleura violacea		1.7	6.9	6.6	3.4	1.9	-	3.0	-	1.3
Gelidium coulteri		6.4	4.4	3.7	3.9	<.1	2.3	0.2	0.3	<.1
Endocladia muricata		0.8	5.7	9.2	1.1	0.6	0.2	-	0.1	<.1
Egregia menziesii		-	11.0	3.5	1.9	-	-	-	-	<.1
Mazzaella affinis		7.9	1.5	0.4	0.8	3.5	0.5	1.5	0.3	<.1
Prionitis spp.		1.1	1.4	2.6	2.0	4.4	0.8	1.5	-	1.8
Ulva/Enteromorpha spp.		<.1	1.1	-	<.1	0.6	5.7	0.6	<.1	0.4
juv. articulated coralline algae		0.3	1.6	1.0	1.0	0.8	2.1	<.1	<.1	<.1
Mastocarpus jardinii		0.8	0.8	0.7	3.8	-	-	-	-	0.9
Pterosiphonia dendroidea		1.0	-	-	-	2.9	<.1	1.3	0.3	<.1
Gelidium pusillum		0.2	0.5	0.1	0.3	0.1	<.1	<.1	1.5	<.1
Codium setchellii		1.9	-	-	-	-	-	-	-	-
Mazzaella leptorhynchos		0.3	0.2	<.1	0.4	0.4	-	<.1	0.4	<.1
Osmundea spp.		0.2	0.3	0.1	<.1	0.6	-	<.1	-	0.2
Mazzaella heterocarpa		<.1	<.1	<.1	0.9	<.1	-	<.1	<.1	<.1
Sarcodiotheca gaudichaudii		<.1	0.3	<.1	0.2	0.3	-	-	-	0.1
Chondracanthus corymbiferus		-	0.1	<.1	-	-	-	-	-	0.6
Corallina officinalis		<.1	-	0.5	-	-	-	-	-	<.1
Cryptosiphonia woodii		-	0.1	0.3	0.2	-	-	-	<.1	-
Chondria decipiens		-	-	-	-	-	-	0.4	<.1	-

Horizontal Band Transects - Algal Mean Abundance per 1 square meter - Stations +1 ft Survey 104 (continued)

Species	Station	01+01	04+01	05+01	06+01	08+01	09+01	10+01	12+01	19+01
	Survey	104	104	104	104	104	104	104	104	104
	# Quads	10	10	10	10	10	10	10	10	10
Derbesia marina		-	-	-	-	<.1	0.3	<.1	-	-
Chondracanthus harveyanus/spinosus		-	-	-	-	0.2	-	0.1	-	-
Laminaria setchellii		-	-	0.1	-	-	-	-	-	-
Codium fragile		-	-	-	-	-	0.1	-	-	-
Mazzaella lilacina		-	-	<.1	-	-	-	-	-	-
Cladophora spp.		<.1	<.1	<.1	<.1	<.1	-	-	<.1	<.1
Callithamnion spp./Pleonosporium spp.		-	<.1	-	-	-	<.1	-	-	<.1
Porphyra spp.		<.1	<.1	-	<.1	-	-	-	-	-
Callithamnion pikeanum		<.1	-	-	<.1	-	-	-	-	<.1
Colpomenia spp.		-	-	-	-	<.1	<.1	-	-	-
Bryopsis spp.		<.1	-	-	-	<.1	<.1	-	-	-
Melobesia mediocris		<.1	-	-	<.1	-	-	-	-	-
Endarachne/Petalonia-complex		-	-	-	-	<.1	<.1	-	-	-
Halymenia/Schizymenia spp.-complex		<.1	-	-	-	-	-	<.1	-	-
Gelidium robustum		-	-	<.1	-	-	-	-	-	-
Smithora naiadum		-	-	-	<.1	-	-	-	-	-
Callophyllis spp.		-	<.1	-	-	-	-	-	-	-
Rhodophyta (juv.)		-	-	-	-	-	-	<.1	-	-
Antithamnion/Platythamnion spp.-complex		-	-	-	-	<.1	-	-	-	-

Horizontal Band Transects - Algal Mean Abundance per 1 square meter - Stations +1 ft Survey 105

Species	Station	04+01	05+01	06+01
	Survey	105	105	105
	# Quads	10	10	10
Mazzaella flaccida		22.6	12.5	38.8
non-coralline crust		17.5	15.9	13.7
Gastroclonium subarticulatum		15.0	6.2	17.6
Gelidium coulteri		7.4	13.3	8.9
Chondracanthus canaliculatus		14.7	6.0	5.9
Phyllospadix spp.		6.6	8.2	7.6
Mastocarpus papillatus		7.7	6.2	6.7
Endocladia muricata		7.5	11.0	1.4
Corallina vancouveriensis		6.5	8.9	0.5
coralline crust		5.3	5.3	3.6
Egregia menziesii		8.3	3.8	2.1
Cryptopleura violacea		4.9	4.0	1.0
Mastocarpus jardinii		2.4	1.0	5.3
Calliarthron/Bossiella spp.-complex		2.1	4.4	1.7
Mazzaella heterocarpa		1.5	2.2	2.5
Mazzaella affinis		2.4	1.0	1.3
juv. articulated coralline algae		0.8	1.4	0.6
Mazzaella lilacina		2.1	0.5	-
Prionitis spp.		0.4	1.0	0.5
Chrysophyta unid.		0.3	0.5	1.0
Porphyra spp.		0.9	0.5	0.3
Spongomorpha/Acrosiphonia-complex		<.1	1.2	0.1
filamentous red algae-complex		<.1	0.4	0.8
Cryptosiphonia woodii		0.2	0.4	0.6
Mazzaella leptorhynchos		0.5	<.1	0.3
Ulva/Enteromorpha spp.		<.1	0.3	<.1
Osmundea spp.		0.1	0.2	<.1
Callithamnion pikeanum		<.1	-	0.3
Gelidium pusillum		0.3	<.1	<.1
Smithora naiadum		0.1	<.1	<.1

Horizontal Band Transects - Algal Mean Abundance per 1 square meter - Stations +1 ft Survey 105 (continued)

Species	Station	04+01	05+01	06+01
	Survey	105	105	105
	# Quads	10	10	10
Microcladia borealis		-	0.1	<.1
Sarcodiotheca gaudichaudii		<.1	<.1	<.1
Chondracanthus corymbiferus		<.1	<.1	-
Laminaria setchellii		-	<.1	-
Cryptopleura ruprechtiana		-	<.1	-
Halymenia/Schizymenia spp.-complex		-	<.1	-
Cladophora spp.		<.1	<.1	<.1
Callithamnion spp./Pleonosporium spp.		<.1	<.1	<.1
Corallina officinalis		<.1	<.1	-
Callophyllis spp.		-	<.1	-
Microcladia coulteri		-	<.1	-
Halicystis ovalis		-	<.1	-
Rhodymenia spp.		-	<.1	-
Callophyllis firma		-	<.1	-

Horizontal Band Transects - Algal Mean Abundance per 1 square meter - Stations +1 ft Survey 106

Species	Station	01+01	04+01	05+01	06+01	08+01	09+01	10+01	12+01	19+01
	Survey	106	106	106	106	106	106	106	106	106
	# Quads	10	10	10	10	10	10	10	10	10
Mazzaella flaccida		47.5	24.4	18.2	46.3	<.1	<.1	-	-	51.2
Chondracanthus canaliculatus		16.5	16.4	2.9	3.4	20.1	1.7	20.3	0.3	35.1
Gastroclonium subarticulatum		10.3	20.2	8.7	20.5	26.4	2.5	16.6	2.9	6.9
Mastocarpus papillatus		5.1	7.0	8.3	4.5	5.1	<.1	4.0	59.1	3.7
non-coralline crust		4.2	10.1	6.9	10.3	9.0	20.1	3.8	19.2	5.3
Phyllospadix spp.		26.4	8.1	11.4	11.9	15.8	-	-	-	5.5
Gelidium coulteri		5.0	9.9	14.9	9.2	2.2	2.9	7.4	0.6	<.1
Egregia menziesii		0.1	13.1	18.3	7.5	-	-	-	-	0.8
Ulva/Enteromorpha spp.		<.1	0.6	<.1	0.4	0.8	4.2	31.3	0.9	<.1
coralline crust		0.8	1.9	4.4	3.1	2.2	6.5	0.8	0.1	12.4
filamentous red algae-complex		1.9	<.1	0.3	2.5	19.7	0.1	5.5	-	<.1
Cryptopleura violacea		3.8	3.9	4.7	3.1	1.5	-	8.4	-	2.4
Mazzaella affinis		11.8	3.1	1.2	0.9	2.7	<.1	1.2	0.3	0.6
Endocladia muricata		1.9	4.7	9.2	1.0	0.6	0.3	-	<.1	0.6
Corallina vancouveriensis		0.4	4.4	10.1	1.0	0.3	0.9	<.1	-	0.8
Calliarthron/Bossiella spp.-complex		0.7	2.1	6.5	2.4	0.6	2.5	<.1	-	0.5
Prionitis spp.		0.8	0.8	1.5	1.0	2.5	<.1	4.6	-	1.4
Mastocarpus jardinii		1.7	1.2	1.5	5.7	0.1	0.1	-	-	1.9
Smithora naiadum		0.2	1.7	0.3	6.6	-	-	-	-	<.1
Grateloupia doryphora		-	-	-	-	-	-	5.7	-	-
juv. articulated coralline algae		0.1	1.3	1.0	0.2	<.1	2.1	<.1	0.1	0.2
Mazzaella heterocarpa		0.4	0.1	1.1	-	<.1	-	0.8	<.1	2.0
Chrysophyta unid.		-	<.1	<.1	0.8	0.3	<.1	3.1	<.1	-
Mazzaella lilacina		-	-	1.0	0.1	-	-	-	-	2.4
Scytosiphon spp.		-	-	-	-	-	3.4	-	-	-
Porphyra spp.		-	0.7	1.1	1.1	-	-	-	-	<.1
Chondracanthus harveyanus/spinosus		-	-	-	-	0.7	-	2.2	-	-
Sarcodiotheca gaudichaudii		0.1	0.5	-	<.1	0.8	-	0.3	-	0.5
Halymenia/Schizymenia spp.-complex		<.1	-	0.5	-	0.6	-	0.7	-	-
Spongomorpha/Acrosiphonia-complex		<.1	-	1.1	0.6	-	-	-	-	-

Horizontal Band Transects - Algal Mean Abundance per 1 square meter - Stations +1 ft Survey 106 (continued)

Species	Station	01+01	04+01	05+01	06+01	08+01	09+01	10+01	12+01	19+01
	Survey	106	106	106	106	106	106	106	106	106
	# Quads	10	10	10	10	10	10	10	10	10
Cryptosiphonia woodii		-	0.5	0.4	0.4	-	-	-	<.1	-
Codium setchellii		1.3	-	-	-	-	-	-	-	-
Osmundea spp.		<.1	0.5	0.2	-	0.3	-	-	-	<.1
Microcladia coulteri		<.1	0.1	<.1	0.3	-	-	-	-	0.3
Chondracanthus corymbiferus		-	<.1	-	0.1	<.1	-	-	-	0.6
Mazzaella leptorhynchos		0.4	0.1	<.1	-	<.1	-	<.1	<.1	<.1
Callithamnion pikeanum		0.1	0.3	-	0.2	-	-	-	-	<.1
Chondria decipiens		-	-	-	-	-	-	0.3	-	-
Cryptopleura ruprechtiana		-	-	0.3	-	-	-	-	-	-
Cladophora spp.		<.1	<.1	<.1	<.1	<.1	<.1	-	0.1	<.1
Pterosiphonia dendroidea		<.1	-	-	-	-	-	0.2	-	-
Gelidium pusillum		<.1	<.1	<.1	<.1	-	-	-	-	<.1
Corallina officinalis		<.1	<.1	<.1	-	-	-	-	-	-
Microcladia borealis		-	-	0.1	-	-	-	<.1	-	-
Callithamnion spp./Pleonosporium spp.		-	<.1	<.1	<.1	-	-	-	-	<.1
Laminaria setchellii		-	-	<.1	-	-	-	-	-	-
Plocamium violaceum		-	<.1	-	-	-	-	-	-	-
Rhodymenia spp.		-	<.1	-	-	-	-	-	-	-
Melobesia mediocris		<.1	<.1	<.1	<.1	-	-	-	-	<.1
Colpomenia spp.		<.1	-	-	-	<.1	<.1	-	<.1	-
Laminariales		<.1	-	<.1	-	-	<.1	-	-	-
Endarachne/Petalonia-complex		-	-	-	-	-	<.1	-	-	-
Callophyllis firma		-	-	<.1	-	-	-	-	-	-
Pelvetia compressa		-	<.1	-	-	-	-	-	-	-
Macrocystis spp.		-	-	-	-	-	<.1	-	-	-
Callophyllis spp.		-	-	-	-	-	-	-	-	<.1
Polyneura latissima		-	-	-	-	-	-	-	-	<.1
Bryopsis spp.		-	-	-	<.1	-	-	-	-	-
Farlowia/Pikea spp.-complex		-	-	-	-	-	-	<.1	-	-

Horizontal Band Transects - Algal Mean Abundance per 1 square meter - Stations +1 ft Survey 107

Species	Station	04+01	05+01	06+01
	Survey	107	107	107
	# Quads	10	10	10
non-coralline crust		21.3	14.9	19.6
Gastroclonium subarticulatum		16.7	7.5	16.7
Mazzaella flaccida		8.3	4.2	19.4
Phyllospadix spp.		9.7	9.1	9.6
Corallina vancouveriensis		6.7	15.7	3.0
coralline crust		7.2	7.6	7.4
Chondracanthus canaliculatus		10.3	3.5	7.1
Gelidium coulteri		5.9	7.6	4.4
Egregia menziesii		7.5	6.6	1.3
Calliarthron/Bossiella spp.-complex		0.8	8.2	6.3
Endocladia muricata		5.5	7.2	1.0
Cryptopleura violacea		4.6	4.7	2.8
Prionitis spp.		1.9	3.5	1.7
Mastocarpus papillatus		2.6	2.0	2.3
Mastocarpus jardinii		0.9	0.6	4.3
Mazzaella affinis		1.5	0.4	1.2
Ulva/Enteromorpha spp.		2.0	<.1	0.2
juv. articulated coralline algae		0.3	1.5	0.1
Corallina officinalis		0.2	-	1.3
Analipus japonicus		0.5	0.2	0.5
Mazzaella heterocarpa		<.1	0.3	0.8
Osmundea spp.		0.5	0.1	<.1
Gelidium pusillum		0.1	0.3	0.2
Smithora naiadum		<.1	<.1	0.3
Mazzaella leptorhynchos		<.1	-	0.3
Chondracanthus corymbiferus		<.1	<.1	0.2
Microcladia borealis		<.1	0.2	-
Halymenia/Schizymenia spp.-complex		-	-	0.1
Laminaria setchellii		-	0.1	-
Cryptosiphonia woodii		<.1	<.1	<.1

Horizontal Band Transects - Algal Mean Abundance per 1 square meter - Stations +1 ft Survey 107 (continued)

Species	Station	04+01	05+01	06+01
	Survey	107	107	107
	# Quads	10	10	10
Sarcodiotheca gaudichaudii		<.1	<.1	<.1
Cryptopleura ruprechtiana		-	<.1	-
Callophyllis spp.		-	<.1	-
Mazzaella lilacina		-	<.1	-
Callithamnion spp./Pleonosporium spp.		-	-	<.1
Cladophora spp.		<.1	<.1	<.1
filamentous red algae-complex		<.1	<.1	<.1
Melobesia mediocris		<.1	<.1	<.1
Callithamnion pikeanum		-	<.1	<.1
Microcladia coulteri		<.1	-	-
Porphyra spp.		<.1	-	-
Rhodymenia spp.		-	<.1	-
Delesseriaceae (juv.)		<.1	-	-

Horizontal Band Transects - Algal Mean Abundance per 1 square meter - Stations +1 ft Survey 108

Species	Station	01+01	05+01	06+01	08+01	09+01	10+01	12+01	19+01
	Survey	108	108	108	108	108	108	108	108
	# Quads	10	10	10	10	10	10	10	10
non-coralline crust		14.0	29.2	30.4	21.7	33.8	12.6	38.8	14.3
Chondracanthus canaliculatus		10.1	4.6	9.8	9.3	1.3	16.1	1.5	26.7
Phyllospadix spp.		26.9	5.9	5.6	10.6	-	-	-	2.8
Gastroclonium subarticulatum		7.8	2.5	10.2	14.0	0.6	7.6	0.1	6.7
coralline crust		5.0	6.5	7.0	3.9	8.1	3.1	1.2	11.2
Mazzaella flaccida		9.2	1.2	10.8	-	-	-	-	23.9
filamentous red algae-complex		4.0	<.1	0.5	21.9	8.6	8.5	-	0.5
Mastocarpus papillatus		7.6	1.8	3.1	1.5	1.2	<.1	23.7	2.4
Chrysophyta unid.		-	0.3	-	18.0	14.8	0.1	-	-
Corallina vancouveriensis		1.5	15.2	4.7	<.1	1.7	0.1	<.1	2.8
Gelidium coulteri		4.9	4.5	4.9	0.1	3.3	0.7	<.1	0.1
Calliarthron/Bossiella spp.-complex		0.9	7.7	5.3	0.6	0.7	<.1	-	1.5
Ulva/Enteromorpha spp.		<.1	0.5	0.2	1.9	13.4	<.1	-	0.2
Prionitis spp.		0.8	1.2	0.6	1.9	1.3	6.1	<.1	1.5
Cryptopleura violacea		0.8	0.4	0.6	1.1	<.1	9.7	-	0.2
Mazzaella affinis		6.3	0.6	-	3.3	0.6	0.3	0.2	0.3
Endocladia muricata		1.3	7.1	1.2	0.8	0.3	-	<.1	0.6
juv. articulated coralline algae		0.2	3.5	3.3	0.1	2.2	0.2	<.1	1.1
Mastocarpus jardinii		1.0	0.4	5.9	-	-	-	-	1.8
Gelidium pusillum		1.5	0.8	0.3	<.1	<.1	0.5	1.6	0.5
Codium setchellii		3.0	-	-	-	-	-	-	-
Mazzaella leptorhynchos		0.8	<.1	0.7	0.6	<.1	<.1	0.4	-
Mazzaella heterocarpa		<.1	0.7	<.1	0.5	<.1	-	<.1	1.3
Pterosiphonia dendroidea		0.1	-	<.1	0.1	<.1	1.6	-	-
Phaeophyta (juv.)		-	-	-	<.1	0.8	-	-	-
Nienburgia andersoniana		-	-	-	-	-	0.8	-	-
Osmundea spp.		0.1	<.1	<.1	0.1	-	0.1	-	0.2
Sarcodiotheca gaudichaudii		<.1	0.1	0.1	0.1	-	<.1	-	0.2
Callithamnion spp./Pleonosporium spp.		-	0.4	-	-	-	-	-	0.3
Chondracanthus corymbiferus		-	-	<.1	-	-	0.2	-	0.3

Horizontal Band Transects - Algal Mean Abundance per 1 square meter - Stations +1 ft Survey 108 (continued)

Species	Station	01+01	05+01	06+01	08+01	09+01	10+01	12+01	19+01
	Survey	108	108	108	108	108	108	108	108
	# Quads	10	10	10	10	10	10	10	10
Cryptosiphonia woodii		-	-	<.1	-	-	0.4	-	-
Egregia menziesii		-	0.1	0.2	-	-	-	-	<.1
Macrocystis spp.		-	-	-	-	-	0.3	-	-
Endarachne/Petalonia-complex		-	-	-	-	0.3	-	-	-
Grateloupia doryphora		-	-	-	0.2	<.1	-	-	-
Farlowia/Pikea spp.-complex		-	-	-	-	-	0.3	-	-
Callophyllis spp.		-	-	-	-	-	0.1	-	-
Plocamium violaceum		-	<.1	-	-	-	-	-	-
Dictyoneurum californicum		-	<.1	-	-	-	-	-	-
Corallina officinalis		<.1	-	-	-	-	-	-	-
Gelidium robustum		-	-	-	<.1	-	-	-	-
Cladophora spp.		<.1	<.1	-	-	-	<.1	<.1	-
Microcladia coulteri		<.1	-	-	<.1	<.1	-	-	<.1
Halymenia/Schizymenia spp.-complex		<.1	-	-	<.1	-	-	-	<.1
Porphyra spp.		-	<.1	-	-	<.1	-	-	-
Callithamnion pikeanum		<.1	-	-	-	-	-	-	<.1
Laminaria setchellii		-	<.1	-	-	-	-	-	-
Scytosiphon spp.		-	-	-	-	<.1	-	-	-
Smithora naiadum		<.1	-	-	<.1	-	-	-	-
Laminariales		-	-	<.1	-	-	-	-	-
Melobesia mediocris		<.1	-	-	-	-	-	-	-
Ahnfeltiopsis leptophylla		-	-	-	-	-	<.1	-	-
Colpomenia spp.		-	-	-	-	<.1	-	-	-
Mazzaella lilacina		-	<.1	-	-	-	-	-	-
Bryopsis spp.		-	-	-	<.1	-	-	-	-
Codium fragile		-	-	-	-	<.1	-	-	-

Horizontal Band Transects - Algal Mean Abundance per 1 square meter - Stations +1 ft Survey 109

Species	Station	04+01	05+01	06+01
	Survey	109	109	109
	# Quads	10	10	10
Mazzaella flaccida		23.2	16.0	43.1
non-coralline crust		12.8	13.9	15.7
Gastroclonium subarticulatum		15.6	4.9	15.2
Chondracanthus canaliculatus		13.6	6.3	9.9
Gelidium coulteri		7.4	11.5	8.5
Mastocarpus papillatus		9.4	9.5	4.9
Egregia menziesii		14.0	7.6	1.3
Porphyra spp.		13.1	6.0	3.2
Endocladia muricata		5.6	11.9	1.0
Corallina vancouveriensis		7.7	9.7	0.8
Calliarthron/Bossiella spp.-complex		4.2	8.1	4.5
Phyllospadix spp.		3.7	5.1	5.3
coralline crust		3.9	4.8	3.7
Cryptopleura violacea		5.6	1.9	<.1
Mastocarpus jardinii		0.3	0.3	6.8
Mazzaella heterocarpa		0.3	0.2	3.8
juv. articulated coralline algae		0.5	2.2	1.5
Spongomorpha/Acrosiphonia-complex		1.1	3.0	-
Mazzaella affinis		1.9	1.6	0.6
Ulva/Enteromorpha spp.		2.8	<.1	0.7
Prionitis spp.		0.2	1.0	0.5
Mazzaella lilacina		0.6	0.4	-
Microcladia borealis		-	0.3	0.6
Callithamnion pikeanum		0.6	-	0.3
filamentous red algae-complex		-	-	0.8
Mazzaella leptorhynchos		<.1	0.3	0.4
Pelvetia compressa		0.6	-	-
Chrysophyta unid.		-	-	0.3
Osmundea spp.		<.1	<.1	0.2
Sarcodiotheca gaudichaudii		-	0.2	-

Horizontal Band Transects - Algal Mean Abundance per 1 square meter - Stations +1 ft Survey 109 (continued)

Species	Station	04+01	05+01	06+01
	Survey	109	109	109
	# Quads	10	10	10
Gelidium pusillum		<.1	<.1	0.1
Callithamnion spp./Pleonosporium spp.		<.1	<.1	<.1
Cryptosiphonia woodii		<.1	<.1	<.1
Melobesia mediocris		<.1	<.1	<.1
Chondracanthus corymbiferus		<.1	<.1	-
Cladophora spp.		<.1	<.1	<.1
Smithora naiadum		<.1	<.1	<.1
Microcladia coulteri		<.1	-	-
Laminariales		<.1	-	-
Farlowia/Pikea spp.-complex		<.1	-	-

Horizontal Band Transects - Algal Mean Abundance per 1 square meter - Stations +1 ft Survey 110

Species	Station	01+01	04+01	05+01	06+01	08+01	09+01	10+01	12+01	19+01
	Survey	110	110	110	110	110	110	110	110	110
	# Quads	10	10	10	10	10	10	10	10	10
Mazzaella flaccida		36.5	15.0	12.7	36.8	-	-	-	0.3	50.6
non-coralline crust		5.2	11.8	13.3	10.3	9.4	20.4	5.2	18.9	6.4
Gastroclonium subarticulatum		7.2	10.0	7.8	19.0	21.8	2.4	14.7	1.3	16.3
Egregia menziesii		-	53.7	28.0	6.5	-	0.2	-	-	8.7
Chondracanthus canaliculatus		14.4	14.5	4.2	4.2	18.1	2.9	11.3	1.8	25.3
Mastocarpus papillatus		3.5	6.1	6.0	7.8	7.4	2.8	0.2	59.3	3.5
Phyllospadix spp.		28.3	3.9	7.5	6.9	16.2	-	-	-	2.3
Ulva/Enteromorpha spp.		0.5	2.1	1.3	2.8	20.8	14.0	16.0	2.2	1.9
Gelidium coulteri		3.8	7.5	16.9	10.4	3.4	10.4	2.8	0.6	0.2
coralline crust		6.7	5.8	4.6	4.6	6.1	5.6	0.9	0.6	11.5
Cryptopleura violacea		2.1	8.6	4.7	1.6	2.5	1.3	18.2	4.1	0.8
filamentous red algae-complex		0.8	0.1	-	0.1	8.1	26.9	2.5	-	-
Mazzaella affinis		4.6	2.8	1.0	0.8	3.9	1.9	2.1	2.5	0.3
Calliarthron/Bossiella spp.-complex		0.6	1.9	5.5	7.1	0.1	0.9	<.1	-	3.1
Endocladia muricata		1.5	3.4	10.0	0.3	1.0	0.2	-	-	0.6
Prionitis spp.		<.1	0.4	1.4	0.4	3.2	4.0	3.4	0.2	0.4
Corallina vancouveriensis		0.6	2.8	6.0	1.0	0.3	<.1	<.1	-	2.2
Porphyra spp.		-	5.6	3.9	2.8	<.1	-	-	-	-
Mastocarpus jardinii		0.7	0.5	1.0	3.8	<.1	<.1	-	<.1	2.1
Smithora naiadum		1.6	<.1	<.1	3.9	<.1	-	-	-	0.6
Mazzaella lilacina		<.1	5.7	-	-	-	-	-	-	-
Macrocystis spp.		-	-	-	-	-	4.4	-	-	-
juv. articulated coralline algae		<.1	0.8	1.1	0.5	0.3	0.3	<.1	-	0.8
Mazzaella heterocarpa		0.4	0.3	0.7	1.1	-	0.2	<.1	0.1	0.5
Gelidium pusillum		<.1	<.1	-	1.7	-	-	-	0.4	0.2
Chondracanthus harveyanus/spinosus		-	-	-	-	-	-	2.2	-	-
Mazzaella leptorhynchos		1.3	<.1	0.1	0.3	<.1	-	-	0.2	-
Microcladia borealis		-	0.1	1.7	-	-	-	-	-	-
Codium setchellii		1.5	-	-	-	-	-	-	-	-
Sarcodiotheca gaudichaudii		<.1	<.1	<.1	<.1	0.8	<.1	0.1	-	0.2

Horizontal Band Transects - Algal Mean Abundance per 1 square meter - Stations +1 ft Survey 110 (continued)

Species	Station	01+01	04+01	05+01	06+01	08+01	09+01	10+01	12+01	19+01
	Survey	110	110	110	110	110	110	110	110	110
	# Quads	10	10	10	10	10	10	10	10	10
Halymenia/Schizymenia spp.-complex		-	-	-	-	0.4	-	0.8	-	<.1
Nereocystis luetkeana		-	-	1.3	-	-	-	-	-	-
Microcladia coulteri		<.1	0.3	0.2	<.1	<.1	0.2	-	-	0.3
Osmundea spp.		0.2	0.2	<.1	-	0.2	<.1	-	-	0.1
Chondracanthus corymbiferus		-	0.2	<.1	<.1	<.1	0.1	-	-	<.1
Pterosiphonia dendroidea		0.3	-	-	-	<.1	-	0.2	-	-
Chrysophyta unid.		<.1	-	-	-	-	0.5	-	-	-
Corallina officinalis		<.1	<.1	<.1	0.3	-	-	-	-	-
Callithamnion pikeanum		<.1	0.1	-	0.1	-	-	-	-	-
Cladophora spp.		<.1	<.1	<.1	<.1	-	-	<.1	<.1	0.1
Codium fragile		-	-	-	-	-	0.1	-	-	-
Spongomorpha/Acrosiphonia-complex		<.1	<.1	<.1	<.1	-	-	-	-	<.1
Plocamium violaceum		-	-	-	<.1	-	-	-	-	-
Melobesia mediocris		<.1	<.1	-	-	<.1	-	-	-	<.1
Callithamnion spp./Pleonosporium spp.		-	-	<.1	<.1	-	-	-	-	-
Colpomenia spp.		-	-	-	-	-	-	-	-	<.1

Horizontal Band Transects - Invertebrate Mean Abundance per 1 square meter - Stations +3 ft Survey 100.

Species	Station	01+03	04+03	05+03	06+03	08+03	09+03	10+02	12+03	19+03
	Survey	100	100	100	100	100	100	100	100	100
	# Quads	5	5	5	5	5	5	5	5	5
Tegula funebralis		171.4	170.0	138.6	85.6	208.6	48.8	35.4	250.6	118.4
Anthopleura elegantissima		3.2	163.4	75.0	14.0	32.0	-	56.0	55.2	3.2
Tetraclita rubescens		-	0.4	-	-	3.6	61.0	223.4	0.4	1.8
Macclintockia scabra		0.4	4.2	9.0	3.4	63.8	96.8	2.6	15.0	6.2
Pagurus spp.		24.0	50.8	10.6	14.6	6.6	3.6	1.0	15.8	17.6
Fissurella volcano		0.2	-	0.2	-	0.2	40.0	8.2	-	0.8
Lottia limatula		0.2	3.2	1.4	0.6	9.4	5.8	3.2	2.0	2.8
Lottia digitalis		-	0.4	0.6	-	0.8	23.4	-	-	-
Lottia pelta		-	0.4	0.4	2.6	0.2	4.8	5.4	-	2.6
Pollicipes polymerus		3.6	-	0.2	-	-	-	-	8.8	-
Strongylocentrotus purpuratus		0.6	0.2	-	-	-	6.6	2.2	-	0.2
Tectura scutum		-	1.2	0.4	0.2	1.4	2.0	1.4	0.4	2.2
Ocenebra spp.		0.4	0.8	2.2	3.8	0.4	0.2	-	0.2	0.4
Pachygrapsus crassipes		0.6	0.4	1.4	1.0	-	1.4	0.4	0.2	0.6
Cyanoplax spp.		-	1.0	0.8	0.6	0.2	1.4	-	-	<.1
Lottia gigantea		-	-	-	-	0.2	3.0	0.2	-	-
Nuttallina californica		0.6	-	-	0.4	0.8	0.6	1.0	-	-
Acanthina spp.		-	0.8	1.2	0.2	0.2	-	-	0.2	0.4
Mopalia spp.		-	0.6	-	0.2	0.2	0.4	0.4	-	-
Pisaster ochraceus		-	0.6	-	-	-	0.2	-	-	0.2
Hemigrapsus nudus		-	-	-	-	-	-	-	-	0.8
Leptasterias spp.		0.8	-	-	-	-	-	-	-	-
Serpulorbis squamigerus		-	-	-	-	-	-	0.6	-	-
Haliotis spp.		-	-	0.4	-	-	-	-	-	0.2
Mytilus californianus		-	-	-	-	-	-	-	0.4	-
Balanus spp.		-	-	0.4	-	-	-	-	-	-
Pugettia spp.		-	-	-	0.2	-	-	-	-	-
Nemertea unid.		-	-	-	-	-	-	-	-	0.2
Octopus spp.		-	-	-	-	-	-	0.2	-	-
Diopatra ornata		-	-	-	-	-	-	-	0.2	-

Horizontal Band Transects - Invertebrate Mean Abundance per 1 square meter - Stations +3 ft Survey 100. (continued)

Species	Station	01+03	04+03	05+03	06+03	08+03	09+03	10+02	12+03	19+03
	Survey	100	100	100	100	100	100	100	100	100
	# Quads	5	5	5	5	5	5	5	5	5
Acmaeidae unid.		<.1	<.1	<.1	<.1	<.1	<.1	<.1	<.1	<.1
Littorina spp.		-	-	<.1	<.1	<.1	<.1	<.1	<.1	<.1
Lottia asmi		<.1	-	<.1	<.1	<.1	-	<.1	<.1	<.1
Mytilidae		<.1	-	-	-	<.1	<.1	<.1	-	-
Crepidula spp.		-	<.1	-	-	-	-	-	-	<.1
Lacuna spp.		<.1	-	<.1	-	-	-	-	-	-
Grapsidae (juv.)		-	-	<.1	<.1	-	-	-	-	<.1
Homalopoma spp.		-	-	-	<.1	-	-	-	-	<.1
Ischnochitonidae		-	-	<.1	-	-	-	-	<.1	-
Amphissa spp.		-	<.1	<.1	-	-	-	-	-	-
Acmaea mitra		-	-	-	-	-	-	-	-	<.1
Nitidiscala/Opalia spp.		-	-	-	-	-	-	<.1	-	-
Bittium spp.		-	-	-	-	-	-	<.1	-	-
Serpulidae unid.		-	-	-	-	<.1	-	-	-	-
Heptacarpus spp.		-	<.1	-	-	-	-	-	-	-
Lissothuria nutriens		<.1	-	-	-	-	-	-	-	-
Mytilus galloprovincialis		-	-	-	-	-	-	<.1	-	-
Chthamalus fissus		<.1	<.1	<.1	<.1	6.1	20.0	<.1	1.1	<.1
Pista spp.		-	-	-	-	-	-	2.8	-	-
Phragmatopoma californica		<.1	0.4	0.1	0.4	0.6	<.1	<.1	-	<.1
Spirorbidae		<.1	-	-	<.1	<.1	<.1	<.1	<.1	<.1
Haliclona spp.		<.1	-	-	-	-	-	-	-	-

Horizontal Band Transects - Invertebrate Mean Abundance per 1 square meter - Stations +3 ft Survey 101

Species	Station	01+03	04+03	05+03	06+03	08+03	09+03	10+02	12+03	19+03
	Survey	101	101	101	101	101	101	101	101	101
	# Quads	5	5	5	5	5	5	5	5	5
Tegula funebralis		107.6	270.2	190.4	321.2	252.2	35.2	12.6	407.4	148.8
Macclintockia scabra		0.4	2.8	9.2	2.0	70.2	254.0	4.8	10.0	4.6
Anthopleura elegantissima		2.0	143.6	30.4	8.8	29.2	0.2	35.4	79.6	2.0
Pagurus spp.		29.0	21.2	4.0	3.6	4.2	28.2	0.4	10.2	2.6
Tetraclita rubescens		0.8	0.2	-	0.2	1.0	61.4	17.4	0.8	2.0
Strongylocentrotus purpuratus		0.4	0.6	-	-	0.2	31.8	1.8	-	<.1
Tectura scutum		-	0.4	1.2	-	2.8	8.2	0.4	-	11.0
Lottia limatula		0.2	2.4	1.4	0.6	4.8	4.0	4.8	2.2	2.2
Pollicipes polymerus		3.8	-	3.6	-	-	-	-	7.4	-
Pachygrapsus crassipes		0.8	1.6	2.8	0.4	4.0	3.6	0.4	0.2	0.4
Lottia digitalis		-	-	1.0	-	-	11.6	-	-	-
Fissurella volcano		-	-	-	-	0.6	4.2	4.8	-	-
Lottia pelta		-	0.4	0.6	0.2	1.0	0.2	4.2	0.6	1.6
Acanthina spp.		-	1.2	2.2	0.2	1.0	-	0.2	1.6	-
Cyanoplax spp.		0.2	1.0	0.8	0.4	1.8	1.4	0.2	0.2	-
Ocenebra spp.		0.2	1.0	0.4	0.2	0.6	0.8	-	0.4	0.2
Lottia gigantea		-	-	-	-	-	3.4	-	-	-
Balanus spp.		-	-	-	-	2.6	-	-	-	-
Nemertea unid.		0.2	0.8	0.4	0.2	-	-	-	-	0.2
Nuttallina californica		0.6	-	-	-	0.6	0.4	-	-	-
Pisaster ochraceus		-	0.2	-	0.4	0.2	0.2	-	-	0.2
Leptasterias spp.		0.8	-	-	-	-	-	-	-	0.2
Mopalia spp.		-	0.4	-	-	0.2	-	-	-	-
Littorina spp.		-	-	<.1	<.1	0.4	<.1	-	<.1	<.1
Mytilus californianus		-	-	-	-	-	-	-	0.4	-
Tegula brunnea		-	-	-	-	-	0.4	-	-	-
Hemigrapsus nudus		-	-	-	-	-	-	-	-	0.4
Serpulidae unid.		-	-	-	-	-	0.4	-	-	-
Haliotis spp.		-	-	0.2	-	-	0.2	-	-	-
Pugettia spp.		0.2	-	-	-	-	-	-	-	-

Horizontal Band Transects - Invertebrate Mean Abundance per 1 square meter - Stations +3 ft Survey 101 (continued)

Species	Station	01+03	04+03	05+03	06+03	08+03	09+03	10+02	12+03	19+03
	Survey	101	101	101	101	101	101	101	101	101
	# Quads	5	5	5	5	5	5	5	5	5
Ophiothrix spp.		-	-	-	-	-	-	0.2	-	-
Acmaeidae unid.		<.1	<.1	<.1	<.1	<.1	<.1	<.1	<.1	<.1
Lottia asmi		<.1	<.1	<.1	<.1	-	-	-	<.1	<.1
Crepidula spp.		<.1	-	-	<.1	-	-	-	<.1	<.1
Mytilidae		<.1	-	-	-	<.1	<.1	-	-	-
Ischnochitonidae		<.1	-	<.1	<.1	<.1	-	-	-	-
Sipuncula unid.		-	<.1	<.1	-	-	-	-	-	-
Alia spp.		-	<.1	-	-	-	-	<.1	-	-
Petrolisthes spp.		-	-	-	-	-	-	-	-	<.1
Doriopsilla albopunctata		-	-	-	-	-	-	<.1	-	-
Homalopoma spp.		-	<.1	-	-	-	-	-	-	-
Lacuna spp.		-	-	-	<.1	-	-	-	-	-
Amphissa spp.		-	-	-	-	-	-	<.1	-	-
Platyhelminthes unid.		<.1	-	-	-	-	-	-	-	-
Lepidozona spp.		-	-	-	-	-	-	<.1	-	-
Grapsidae (juv.)		<.1	-	-	-	-	-	-	-	-
Cirratulidae/Terebellidae unid.		-	-	<.1	-	-	-	-	-	-
Chthamalus fissus		-	1.3	<.1	0.1	17.1	19.7	<.1	2.2	1.0
Phragmatopoma californica		<.1	0.1	<.1	<.1	<.1	<.1	<.1	-	<.1
Spirorbidae		<.1	<.1	-	-	-	<.1	<.1	<.1	<.1
Pista spp.		-	-	-	-	-	-	<.1	-	-

Horizontal Band Transects - Invertebrate Mean Abundance per 1 square meter - Stations +3 ft Survey 102.

Species	Station	01+03	04+03	05+03	06+03	08+03	09+03	10+02	12+03	19+03
	Survey	102	102	102	102	102	102	102	102	102
	# Quads	5	5	5	5	5	5	5	5	5
Tegula funebralis		192.4	249.0	203.0	320.0	175.2	50.8	45.8	370.8	102.4
Macclintockia scabra		1.2	8.0	8.0	4.2	269.8	183.2	17.4	29.6	8.4
Anthopleura elegantissima		1.0	141.6	51.0	9.2	27.2	0.2	41.8	77.8	2.2
Pagurus spp.		29.0	36.8	4.4	9.4	7.6	19.8	6.8	21.2	19.6
Tectura scutum		-	1.2	5.4	1.0	16.4	12.6	8.8	1.8	8.0
Tetraclita rubescens		-	-	-	-	0.4	29.6	16.2	-	1.4
Lottia limatula		0.8	3.6	2.8	0.2	8.6	6.8	4.2	8.2	6.6
Strongylocentrotus purpuratus		0.6	0.8	-	-	0.6	25.8	1.2	-	0.2
Lottia digitalis		-	-	3.6	-	12.2	12.6	-	-	-
Lottia pelta		-	0.2	0.8	1.2	1.0	1.6	8.2	0.4	2.8
Pachygrapsus crassipes		-	0.4	1.2	1.6	3.0	6.6	0.2	-	0.4
Pollicipes polymerus		3.6	-	<.1	-	-	-	-	8.2	-
Cyanoplax spp.		-	2.0	1.4	1.2	4.0	1.0	0.2	0.4	0.4
Tegula brunnea		-	-	-	-	-	9.4	-	-	-
Fissurella volcano		-	-	-	-	0.4	1.8	3.2	-	0.4
Acanthina spp.		-	0.4	0.8	1.0	0.2	-	-	1.6	-
Ocenebra spp.		-	0.8	-	-	0.8	1.0	-	<.1	-
Lottia gigantea		-	-	-	-	-	2.2	-	-	-
Balanus spp.		-	-	-	-	1.8	-	-	-	-
Pisaster ochraceus		0.2	0.2	-	0.2	-	0.6	-	-	0.6
Haliotis spp.		-	-	-	-	-	1.6	-	-	-
Hemigrapsus nudus		-	-	-	-	-	-	-	-	1.4
Leptasterias spp.		0.8	-	-	0.2	-	-	-	-	0.4
Nuttallina californica		-	-	0.2	-	0.4	0.4	-	-	-
Mytilidae		0.6	-	-	-	-	<.1	-	-	-
Mytilus californianus		-	-	-	-	-	<.1	-	0.4	-
Mopalia spp.		-	0.2	-	0.2	-	-	-	-	-
Nemertea unid.		<.1	-	-	-	-	-	0.2	-	-
Nereididae unid.		-	-	-	-	-	0.2	-	-	-
Polychaeta unid.		0.2	-	-	-	-	-	-	-	-

Horizontal Band Transects - Invertebrate Mean Abundance per 1 square meter - Stations +3 ft Survey 102.
(continued)

Species	Station	01+03	04+03	05+03	06+03	08+03	09+03	10+02	12+03	19+03
	Survey	102	102	102	102	102	102	102	102	102
	# Quads	5	5	5	5	5	5	5	5	5
Pugettia spp.		-	-	-	-	-	-	0.2	-	-
Serpulidae unid.		-	-	-	-	-	0.2	-	-	-
Acmaeidae unid.		<.1	<.1	<.1	<.1	<.1	<.1	<.1	<.1	<.1
Lottia asmi		<.1	<.1	<.1	<.1	<.1	-	<.1	<.1	<.1
Littorina spp.		-	<.1	<.1	<.1	<.1	<.1	-	<.1	<.1
Crepidula spp.		<.1	<.1	-	<.1	-	-	<.1	-	-
Lacuna spp.		-	-	<.1	<.1	-	-	<.1	-	-
Ischnochitonidae		<.1	<.1	<.1	-	-	-	-	-	-
Sipuncula unid.		-	-	-	<.1	<.1	-	-	-	<.1
Alia spp.		-	-	-	-	-	-	<.1	-	-
Hermissenda crassicornis		-	-	-	-	-	-	<.1	-	-
Octopus spp.		-	<.1	-	-	-	-	-	-	-
Pycnogonida unid.		-	-	-	-	-	-	<.1	-	-
Pisaster/Henricia (juv.)		<.1	-	-	-	-	-	-	-	-
Lissothuria nutriens		-	-	-	<.1	-	-	-	-	-
Grapsidae (juv.)		-	-	-	<.1	-	-	-	-	-
Cirratulidae/Terebellidae unid.		-	-	-	<.1	-	-	-	-	-
Chthamalus fissus		-	0.6	<.1	<.1	17.5	11.9	<.1	0.7	0.7
Pista spp.		<.1	-	-	-	-	-	3.9	-	-
Phragmatopoma californica		<.1	<.1	<.1	<.1	-	<.1	<.1	<.1	<.1
Spirorbidae		<.1	-	-	-	<.1	-	<.1	<.1	-

Horizontal Band Transects - Invertebrate Mean Abundance per 1 square meter - Stations +3 ft Survey 103 .

Species	Station	04+03	05+03	06+03
	Survey	103	103	103
	# Quads	5	5	5
Tegula funebralis		168.8	112.2	224.8
Anthopleura elegantissima		157.6	59.2	19.4
Pagurus spp.		56.4	10.0	26.2
Macclintockia scabra		8.2	23.8	5.2
Lottia pelta		0.6	4.4	1.0
Tectura scutum		4.8	0.8	0.2
Lottia limatula		0.6	2.6	0.8
Ocenebra spp.		1.6	1.2	0.4
Pachygrapsus crassipes		1.6	1.0	0.4
Tetraclita rubescens		2.8	-	-
Cyanoplax spp.		0.4	1.2	0.6
Acanthina spp.		0.8	1.2	-
Haliotis spp.		-	0.6	-
Nuttallina californica		-	-	0.4
Hemigrapsus nudus		0.4	-	-
Pisaster ochraceus		0.4	-	-
Nemertea unid.		-	0.2	-
Fissurella volcano		0.2	-	-
Strongylocentrotus purpuratus		-	-	0.2
Acmaeidae unid.		<.1	<.1	<.1
Lottia asmi		<.1	<.1	<.1
Littorina spp.		-	<.1	<.1
Serpulidae unid.		<.1	<.1	<.1
Crepidula spp.		<.1	-	-
Alia spp.		<.1	-	-
Ischnochitonidae		-	-	<.1
Bittium spp.		<.1	-	-
Lacuna spp.		<.1	-	-
Heptacarpus spp.		<.1	-	-

Horizontal Band Transects - Invertebrate Mean Abundance per 1 square meter - Stations +3 ft Survey 103 .
(continued)

Species	Station	04+03	05+03	06+03
	Survey	103	103	103
	# Quads	5	5	5
Chthamalus fissus		0.4	<.1	0.6
Phragmatopoma californica		<.1	<.1	0.3
Spirorbidae		<.1	<.1	<.1
Haliclona spp.		-	-	<.1

Horizontal Band Transects - Invertebrate Mean Abundance per 1 square meter - Stations +3 ft Survey 104 .

Species	Station	01+03	04+03	05+03	06+03	08+03	09+03	10+02	12+03	19+03
	Survey	104	104	104	104	104	104	104	104	104
	# Quads	5	5	5	5	5	5	5	5	5
Tegula funebralis		221.0	313.4	124.6	154.8	170.0	39.8	306.2	192.2	158.4
Anthopleura elegantissima		3.6	173.2	60.8	9.0	48.6	0.4	35.0	79.2	3.6
Macclintockia scabra		-	3.8	15.2	1.0	118.4	116.6	0.8	35.2	8.6
Pagurus spp.		40.0	104.0	11.0	18.4	6.2	7.8	1.4	23.4	7.4
Tetraclita rubescens		-	0.4	-	-	0.4	60.4	109.8	-	16.0
Lottia digitalis		-	-	-	-	16.4	25.2	-	0.4	0.6
Lottia limatula		0.4	2.6	1.0	-	15.4	3.4	4.2	1.6	4.6
Tectura scutum		0.8	0.6	3.6	0.6	0.8	9.8	0.4	3.0	5.0
Strongylocentrotus purpuratus		0.2	0.4	0.2	-	-	17.8	1.0	0.6	0.2
Fissurella volcano		-	-	-	-	0.2	8.6	2.6	-	-
Lottia pelta		-	1.0	0.2	1.2	0.4	0.4	2.2	0.4	4.2
Ocenebra spp.		0.2	1.6	1.6	0.8	1.0	1.4	0.4	1.2	0.8
Pollicipes polymerus		2.4	-	0.4	-	-	-	-	4.8	-
Pachygrapsus crassipes		0.8	0.4	1.0	0.2	0.4	1.8	-	1.0	0.2
Acanthina spp.		0.2	1.4	0.6	-	1.2	-	0.4	1.4	-
Lottia gigantea		-	-	-	-	-	3.0	-	-	-
Nuttallina californica		0.4	0.2	-	-	0.6	0.4	0.2	-	-
Cyanoplax spp.		-	0.2	0.4	-	0.2	0.6	-	0.2	-
Tegula brunnea		-	-	-	-	-	1.6	-	-	-
Mopalia spp.		0.6	0.4	-	0.2	-	-	-	0.2	-
Serpulorbis squamigerus		-	-	-	-	-	0.2	0.8	-	-
Nemertea unid.		-	0.2	-	-	0.2	-	-	-	0.2
Pisaster ochraceus		-	-	-	0.2	-	-	0.2	0.2	-
Haliotis spp.		-	-	-	-	-	0.6	-	-	-
Mytilus californianus		0.4	-	-	-	-	<.1	<.1	-	-
Serpulidae unid.		-	0.2	-	-	-	0.2	-	-	<.1
Hemigrapsus nudus		-	-	-	-	-	-	-	-	0.4
Leptasterias spp.		0.4	-	-	-	-	-	-	-	-
Lottia asmi		0.2	<.1	<.1	<.1	<.1	-	<.1	<.1	<.1
Anthopleura xanthogrammica		-	-	-	-	-	-	-	-	0.2

Horizontal Band Transects - Invertebrate Mean Abundance per 1 square meter - Stations +3 ft Survey 104 (continued)

Species	Station	01+03	04+03	05+03	06+03	08+03	09+03	10+02	12+03	19+03
	Survey	104	104	104	104	104	104	104	104	104
	# Quads	5	5	5	5	5	5	5	5	5
Acmaea mitra		-	-	-	-	-	-	-	0.2	-
Calliostoma ligatum		0.2	-	-	-	-	-	-	-	-
Asterina miniata		-	-	-	-	-	-	-	0.2	-
Pseudomelatoma torosa		-	-	-	-	-	-	-	-	0.2
Cryptochiton stelleri		-	-	-	-	-	-	-	0.2	-
Pugettia spp.		-	-	-	0.2	-	-	-	-	-
Amphissa spp.		-	-	0.2	-	-	-	-	-	-
Acmaeidae unid.		<.1	<.1	<.1	<.1	<.1	<.1	<.1	<.1	<.1
Littorina spp.		-	<.1	<.1	-	<.1	<.1	-	<.1	<.1
Lacuna spp.		<.1	-	-	<.1	-	-	-	<.1	-
Crepidula spp.		<.1	-	-	-	-	-	-	-	<.1
Mytilidae		-	-	-	-	<.1	<.1	-	-	<.1
Ischnochitonidae		-	<.1	-	-	<.1	-	-	-	-
Lissothuria nutriens		<.1	-	-	-	-	<.1	-	-	-
Nitidiscala/Opalia spp.		-	-	-	-	-	-	<.1	-	-
Idotea spp.		-	-	-	-	-	-	-	-	<.1
Homalopoma spp.		-	-	-	-	-	-	-	-	<.1
Bittium spp.		-	<.1	-	-	-	-	-	-	-
Heptacarpus spp.		-	<.1	-	-	-	-	-	-	-
Sipuncula unid.		-	<.1	-	-	-	-	-	-	-
Grapsidae (juv.)		-	-	-	-	-	-	-	-	<.1
Chthamalus fissus		<.1	0.8	<.1	<.1	13.5	16.5	1.4	3.1	1.0
Pista spp.		<.1	-	-	-	-	<.1	2.6	-	-
Phragmatopoma californica		<.1	<.1	<.1	0.3	0.3	<.1	<.1	<.1	<.1
Spirorbidae		<.1	<.1	-	-	-	<.1	<.1	<.1	<.1
Haliclona spp.		-	<.1	-	-	-	-	-	-	-
Bryozoa, unid. (encrusting)		-	-	-	-	-	-	<.1	-	-

Horizontal Band Transects - Invertebrate Mean Abundance per 1 square meter - Stations +3 ft Survey 105 .

Species	Station	04+03	05+03	06+03
	Survey	105	105	105
	# Quads	5	5	5
Tegula funebralis		131.4	119.0	240.6
Anthopleura elegantissima		157.2	52.2	10.0
Pagurus spp.		50.4	7.4	2.0
Macclintockia scabra		15.2	22.8	2.0
Lottia limatula		2.0	2.0	0.4
Pachygrapsus crassipes		1.8	1.6	0.2
Ocenebra spp.		2.0	0.8	0.6
Acanthina spp.		1.8	0.8	-
Lottia pelta		0.4	1.2	0.4
Tectura scutum		0.6	-	-
Leptasterias spp.		-	-	0.6
Cyanoplax spp.		<.1	0.2	0.2
Lottia digitalis		-	0.4	-
Nucella emarginata		-	0.2	-
Nuttallina californica		-	-	0.2
Acmaeidae unid.		<.1	<.1	<.1
Lottia asmi		<.1	<.1	<.1
Littorina spp.		-	<.1	<.1
Serpulidae unid.		<.1	-	<.1
Cirratulidae/Terebellidae unid.		<.1	<.1	-
Nitidiscala/Opalia spp.		-	<.1	-
Pollicipes polymerus		-	<.1	-
Ischnochitonidae		<.1	-	-
Sipuncula unid.		<.1	-	-
Chthamalus fissus		0.4	<.1	<.1
Phragmatopoma californica		<.1	<.1	0.1
Spirorbidae		<.1	-	-

Horizontal Band Transects - Invertebrate Mean Abundance per 1 square meter - Stations +3 ft Survey 106.

Species	Station	01+03	04+03	05+03	06+03	08+03	09+03	10+02	12+03	19+03
	Survey	106	106	106	106	106	106	106	106	106
	# Quads	5	5	5	5	5	5	5	5	5
Tegula funebralis		26.2	222.6	107.4	205.4	70.6	28.4	3.2	396.2	96.8
Macclintockia scabra		0.6	26.0	47.4	8.6	295.6	246.0	8.0	13.2	27.2
Anthopleura elegantissima		0.6	195.0	54.0	13.0	37.6	0.4	35.8	66.0	3.6
Pagurus spp.		15.0	28.2	7.2	4.2	29.6	14.2	8.6	17.2	3.8
Lottia limatula		1.2	11.2	5.0	3.6	22.2	20.2	1.8	3.0	6.2
Tetraclita rubescens		-	-	-	-	0.2	41.2	19.8	0.2	0.4
Lottia digitalis		-	-	-	-	16.2	15.6	-	-	-
Tectura scutum		-	2.8	3.4	-	0.6	11.0	0.6	1.0	10.6
Pachygrapsus crassipes		0.4	3.0	2.0	2.6	3.4	3.6	0.2	0.4	0.2
Lottia pelta		-	0.2	0.8	-	2.8	1.2	4.8	0.4	1.0
Cyanoplax spp.		-	2.4	1.4	1.0	3.2	0.8	0.6	0.2	-
Pollicipes polymerus		3.8	-	0.2	-	-	-	-	4.6	-
Ocenebra spp.		-	1.2	0.6	2.0	1.4	1.4	-	0.2	-
Strongylocentrotus purpuratus		-	0.8	-	-	-	5.4	-	-	-
Fissurella volcano		-	-	-	-	-	4.6	0.2	-	-
Lottia gigantea		-	-	-	-	-	2.8	-	-	-
Acanthina spp.		-	0.2	0.6	-	0.8	0.2	-	-	-
Mytilus californianus		-	-	-	-	-	1.8	-	-	-
Pisaster ochraceus		-	0.2	0.2	-	0.6	0.4	-	0.2	-
Tegula brunnea		-	-	-	0.4	-	0.8	-	-	-
Nuttallina californica		0.2	-	-	-	0.8	0.2	-	-	-
Hemigrapsus nudus		-	-	0.2	-	-	-	-	-	0.6
Serpulidae unid.		-	<.1	-	-	-	0.6	-	-	-
Leptasterias spp.		-	0.4	-	0.2	-	-	-	-	-
Nemertea unid.		0.4	-	-	-	-	-	-	-	-
Serpulorbis squamigerus		-	-	-	-	-	-	0.4	-	-
Epiactis prolifera		-	-	-	-	0.2	-	-	-	-
Nereididae unid.		-	0.2	-	-	-	-	-	-	-
Haliotis spp.		-	0.2	-	-	-	-	-	-	-
Acmaeidae unid.		<.1	<.1	<.1	<.1	<.1	<.1	<.1	<.1	<.1

Horizontal Band Transects - Invertebrate Mean Abundance per 1 square meter - Stations +3 ft Survey 106. (continued)

Species	Station	01+03	04+03	05+03	06+03	08+03	09+03	10+02	12+03	19+03
	Survey	106	106	106	106	106	106	106	106	106
	# Quads	5	5	5	5	5	5	5	5	5
Lottia asmi		<.1	<.1	<.1	<.1	<.1	-	-	<.1	<.1
Littorina spp.		-	<.1	<.1	<.1	<.1	<.1	-	<.1	<.1
Ischnochitonidae		-	<.1	<.1	-	-	-	<.1	-	<.1
Crepidula spp.		<.1	<.1	-	-	-	-	-	-	<.1
Lacuna spp.		-	<.1	-	<.1	-	-	<.1	-	-
Grapsidae (juv.)		-	-	-	-	-	-	-	<.1	<.1
Sipuncula unid.		-	<.1	-	-	-	-	-	-	-
Lophopanopeus spp.		-	<.1	-	-	-	-	-	-	-
Mytilidae		-	-	-	-	<.1	-	-	-	-
Chthamalus fissus		<.1	0.3	<.1	<.1	15.7	17.5	3.6	1.1	1.1
Pista spp.		-	-	-	-	-	<.1	1.9	-	-
Phragmatopoma californica		<.1	<.1	<.1	<.1	<.1	<.1	-	-	<.1
Spirorbidae		<.1	-	-	-	<.1	<.1	<.1	<.1	<.1
Haliclona spp.		<.1	-	-	-	-	-	-	-	-

Horizontal Band Transects - Invertebrate Mean Abundance per 1 square meter - Stations +3 ft Survey 107.

Species	Station	04+03	05+03	06+03
	Survey	107	107	107
	# Quads	5	5	5
Tegula funebralis		111.2	163.8	136.6
Anthopleura elegantissima		122.2	74.2	8.8
Pagurus spp.		65.6	13.6	13.6
Macclintockia scabra		3.8	42.8	6.6
Tectura scutum		1.0	4.8	2.6
Lottia limatula		1.0	2.6	3.0
Ocenebra spp.		0.8	1.4	1.6
Acanthina spp.		1.0	2.0	0.2
Lottia pelta		0.2	2.0	-
Cyanoplax spp.		0.4	1.0	0.6
Pachygrapsus crassipes		0.6	0.4	0.8
Lottia digitalis		-	1.2	-
Haliotis spp.		-	0.4	-
Epiactis prolifera		0.2	-	-
Mopalia spp.		-	0.2	-
Nuttallina californica		-	-	0.2
Pisaster ochraceus		0.2	-	-
Acmaeidae unid.		<.1	<.1	<.1
Littorina spp.		<.1	<.1	<.1
Lottia asmi		<.1	<.1	<.1
Crepidula spp.		-	-	<.1
Nemertea unid.		<.1	-	-
Acmaea mitra		-	-	<.1
Ischnochitonidae		-	-	<.1
Lacuna spp.		-	<.1	-
Sipuncula unid.		<.1	-	-
Cirratulidae/Terebellidae unid.		-	<.1	-
Phragmatopoma californica		<.1	0.1	0.4
Chthamalus fissus		<.1	<.1	0.6
Spirorbidae		<.1	0.4	<.1
Porifera unid. (encrusting)		<.1	-	-

Horizontal Band Transects - Invertebrate Mean Abundance per 1 square meter - Stations +3 ft Survey 108.

Species	Station	01+03	05+03	06+03	08+03	09+03	10+02	12+03	19+03
	Survey	108	108	108	108	108	108	108	108
	# Quads	5	5	5	5	5	5	5	5
Tegula funebralis		152.0	99.6	151.2	142.4	48.2	174.6	253.8	66.0
Macclintockia scabra		0.2	25.2	11.6	75.0	65.8	17.4	39.6	49.6
Anthopleura elegantissima		3.4	50.2	15.4	37.0	0.4	49.6	49.4	6.0
Pagurus spp.		6.8	14.0	7.0	4.0	26.0	6.8	25.6	7.2
Tetraclita rubescens		0.8	-	-	0.4	31.6	52.6	4.8	4.4
Lottia digitalis		0.2	4.2	-	6.8	77.6	-	1.4	3.0
Lottia limatula		0.2	6.0	1.0	11.0	5.2	7.4	4.0	2.8
Fissurella volcano		-	-	-	-	10.2	8.6	-	-
Pollicipes polymerus		4.4	2.8	-	-	0.8	-	8.4	-
Tectura scutum		-	2.6	0.6	1.0	2.0	0.2	1.0	8.2
Lottia pelta		-	1.8	1.6	-	0.4	4.8	1.0	1.8
Pachygrapsus crassipes		0.6	1.8	0.2	1.2	6.0	-	0.2	1.0
Strongylocentrotus purpuratus		-	0.2	-	-	9.0	0.4	-	0.2
Ocenebra spp.		0.2	1.2	2.4	0.8	1.8	-	1.8	1.6
Acanthina spp.		-	2.4	0.2	2.2	-	0.2	1.2	1.8
Lottia gigantea		-	-	-	0.2	3.0	-	-	-
Mytilus californianus		0.6	-	-	-	2.2	-	0.2	-
Cyanoplax spp.		-	<.1	0.2	1.0	0.2	0.2	-	0.2
Tegula brunnea		-	-	-	-	1.6	-	-	-
Serpulorbis squamigerus		-	-	-	-	-	1.0	-	-
Nuttallina californica		0.6	-	-	-	0.2	-	-	-
Serpulidae unid.		-	-	-	-	0.2	0.4	-	-
Mopalia spp.		-	-	0.2	-	-	-	-	0.2
Nucella emarginata		-	0.4	-	-	-	-	-	-
Haliotis spp.		-	0.4	-	-	-	-	-	-
Sipuncula unid.		-	-	<.1	-	-	-	-	0.2
Nemertea unid.		-	0.2	-	-	-	-	-	-
Octopus spp.		-	-	-	-	-	0.2	-	-
Hemigrapsus nudus		-	-	-	-	-	-	-	0.2
Leptasterias spp.		0.2	-	-	-	-	-	-	-

Horizontal Band Transects - Invertebrate Mean Abundance per 1 square meter - Stations +3 ft Survey 108 .
(continued)

Species	Station	01+03	05+03	06+03	08+03	09+03	10+02	12+03	19+03
	Survey	108	108	108	108	108	108	108	108
	# Quads	5	5	5	5	5	5	5	5
Littorina spp.		<.1	<.1	<.1	<.1	<.1	-	<.1	<.1
Acmaeidae unid.		<.1	<.1	<.1	<.1	<.1	<.1	<.1	<.1
Lottia asmi		<.1	<.1	<.1	-	-	<.1	<.1	<.1
Crepidula spp.		<.1	<.1	<.1	-	-	-	-	-
Cirratulidae/Terebellidae unid.		<.1	<.1	-	-	-	<.1	<.1	-
Nitidiscala/Opalia spp.		-	-	-	-	-	-	<.1	-
Calliostoma ligatum		-	<.1	-	-	-	-	-	-
Alia spp.		-	-	<.1	-	-	-	-	-
Idotea spp.		-	<.1	-	-	-	-	-	-
Ischnochitonidae		-	<.1	-	-	-	-	-	-
Mytilidae		-	-	-	-	-	<.1	-	-
Chaetopteridae		<.1	-	-	-	-	-	-	-
Velutina velutina		-	-	-	-	-	-	-	<.1
Chthamalus fissus		<.1	<.1	0.3	11.7	22.6	5.4	5.4	6.5
Pista spp.		-	-	-	-	-	3.1	-	-
Phragmatopoma californica		<.1	0.4	0.4	<.1	<.1	<.1	<.1	0.1
Spirorbidae		<.1	-	-	<.1	<.1	<.1	0.1	<.1
Haliclona spp.		<.1	-	-	-	-	-	-	-
Bryozoa, unid. (encrusting)		<.1	-	-	-	-	<.1	-	-
tunicates, colonial/social unid.		-	-	-	-	<.1	-	-	-
Salmacina tribranchiata		-	-	-	-	<.1	-	-	-

Horizontal Band Transects - Invertebrate Mean Abundance per 1 square meter - Stations +3 ft Survey 109.

Species	Station	04+03	05+03	06+03
	Survey	109	109	109
	# Quads	5	5	5
Tegula funebralis		257.0	172.2	304.2
Anthopleura elegantissima		151.6	69.2	10.6
Macclintockia scabra		19.4	27.6	3.2
Pagurus spp.		15.8	8.4	8.0
Tectura scutum		1.4	5.6	0.2
Lottia limatula		2.6	2.4	0.4
Pachygrapsus crassipes		0.8	1.4	0.8
Cyanoplax spp.		2.2	<.1	0.4
Acanthina spp.		1.8	0.8	-
Ocenebra spp.		1.2	1.0	0.2
Lottia pelta		0.2	0.6	0.2
Nemertea unid.		0.6	0.2	-
Anthopleura xanthogrammica		0.6	-	-
Hemigrapsus nudus		0.4	0.2	-
Leptasterias spp.		-	0.2	0.2
Mopalia spp.		-	0.2	-
Haliotis spp.		-	0.2	-
Lottia asmi		<.1	<.1	<.1
Littorina spp.		<.1	<.1	<.1
Acmaeidae unid.		<.1	<.1	-
Sipuncula unid.		<.1	<.1	<.1
Crepidula spp.		-	-	<.1
Pollicipes polymerus		-	<.1	-
Cirratulidae/Terebellidae unid.		-	<.1	-
Chthamalus fissus		1.3	<.1	0.1
Phragmatopoma californica		0.3	<.1	<.1

Horizontal Band Transects - Invertebrate Mean Abundance per 1 square meter - Stations +3 ft Survey 110 .

Species	Station	01+03	04+03	05+03	06+03	08+03	09+03	10+02	12+03	19+03
	Survey	110	110	110	110	110	110	110	110	110
	# Quads	5	5	5	5	5	5	5	5	5
Tegula funebralis		102.8	237.6	218.6	243.8	70.2	41.6	62.4	372.8	90.6
Macclintockia scabra		0.6	19.6	25.0	9.8	98.0	94.6	13.0	28.6	40.4
Anthopleura elegantissima		0.2	136.2	44.2	8.8	29.2	0.4	28.2	64.4	2.8
Pagurus spp.		15.8	28.6	8.6	21.2	10.8	23.4	14.0	30.2	16.0
Lottia limatula		1.4	4.2	9.8	4.8	4.6	3.0	1.2	2.0	10.6
Lottia digitalis		-	-	<.1	-	7.6	32.0	-	-	-
Tectura scutum		-	1.8	2.6	0.6	6.6	2.2	1.2	2.8	8.0
Tetraclita rubescens		0.8	-	-	-	0.2	6.8	10.4	1.2	-
Tegula brunnea		0.8	-	-	-	3.6	11.2	-	-	-
Pachygrapsus crassipes		0.2	2.0	2.8	1.6	3.6	3.6	-	0.2	0.8
Cyanoplax spp.		-	1.4	0.8	1.2	5.8	1.4	0.8	0.8	0.6
Pollicipes polymerus		2.4	-	2.4	-	-	-	-	7.0	-
Lottia pelta		-	0.6	1.4	-	2.0	0.6	3.2	0.6	1.2
Ocenebra spp.		0.2	1.2	0.6	2.6	2.2	1.8	-	0.4	0.6
Fissurella volcano		0.2	0.2	-	-	0.4	4.6	0.2	-	-
Strongylocentrotus purpuratus		0.4	-	-	0.2	-	4.4	-	-	-
Acanthina spp.		-	0.4	-	0.6	0.4	-	0.4	1.0	-
Mytilus californianus		<.1	-	-	-	-	2.6	-	-	-
Lottia gigantea		-	-	-	-	-	2.0	-	-	-
Nuttallina californica		1.2	-	-	-	0.2	0.4	-	-	-
Pisaster ochraceus		-	-	0.2	0.4	-	0.4	-	0.8	-
Acmaeidae unid.		-	<.1	-	1.4	<.1	<.1	<.1	<.1	<.1
Haliotis spp.		0.2	-	0.2	-	-	-	-	-	1.0
Leptasterias spp.		0.6	0.2	-	0.2	-	-	-	-	0.2
Mopalia spp.		-	0.6	-	-	-	-	0.4	-	-
Pugettia spp.		-	0.2	-	-	-	0.2	0.6	-	-
Nemertea unid.		-	0.2	-	0.2	-	-	0.2	-	0.2
Hemigrapsus nudus		-	-	-	-	-	-	-	0.2	0.6
Hermissenda crassicornis		-	-	-	-	-	-	0.4	-	-
Cirratulidae/Terebellidae unid.		-	0.4	-	-	-	-	-	<.1	-

Horizontal Band Transects - Invertebrate Mean Abundance per 1 square meter - Stations +3 ft Survey 110 (continued)

Species	Station	01+03	04+03	05+03	06+03	08+03	09+03	10+02	12+03	19+03
	Survey	110	110	110	110	110	110	110	110	110
	# Quads	5	5	5	5	5	5	5	5	5
Ischnochitonidae		-	-	-	-	-	-	<.1	-	0.2
Diopatra ornata		-	-	-	-	-	-	0.2	-	-
Cancer antennarius		-	-	-	-	-	-	0.2	-	-
Aeolidia papillosa		-	-	-	-	-	-	0.2	-	-
Lepidozona spp.		-	-	-	-	-	0.2	-	-	-
Lottia asmi		<.1	<.1	<.1	<.1	-	-	-	<.1	<.1
Littorina spp.		-	<.1	<.1	<.1	<.1	<.1	-	<.1	<.1
Crepidula spp.		-	<.1	-	<.1	-	-	-	-	<.1
Nitidiscala/Opalia spp.		-	-	<.1	-	-	-	-	<.1	-
Sipuncula unid.		-	-	<.1	-	-	<.1	-	-	-
Lottia ochracea		-	-	-	-	-	-	<.1	-	-
Homalopoma spp.		<.1	-	-	-	-	-	-	-	-
Lacuna spp.		-	-	-	<.1	-	-	-	-	-
Grapsidae (juv.)		-	<.1	-	-	-	-	-	-	-
Alloioplana californica		-	-	<.1	-	-	-	-	-	-
Chthamalus fissus		-	<.1	<.1	<.1	21.5	9.4	2.5	1.0	2.5
Pista spp.		-	-	-	-	-	-	2.4	-	-
Phragmatopoma californica		<.1	<.1	<.1	<.1	<.1	<.1	-	-	<.1
Spirorbidae		<.1	-	-	-	-	-	<.1	-	<.1
Bryozoa, unid. (encrusting)		-	-	-	-	-	-	<.1	-	<.1
Haliclona spp.		<.1	-	-	-	-	-	-	-	-

Horizontal Band Transects - Invertebrate Mean Abundance per 1 square meter - Stations +1 ft Survey 100.

Species	Station	01+01	04+01	05+01	06+01	08+01	09+01	10+01	12+01	19+01
	Survey	100	100	100	100	100	100	100	100	100
	# Quads	5	5	5	5	5	5	5	5	5
Tetraclita rubescens		-	29.0	5.0	108.2	75.8	168.4	149.2	25.0	81.6
Tegula funebralis		49.4	0.2	32.6	47.4	23.4	0.4	2.4	64.6	10.6
Pagurus spp.		18.0	19.6	20.8	32.0	7.8	7.4	4.2	107.0	0.4
Strongylocentrotus purpuratus		0.6	10.8	27.4	108.8	9.4	32.8	0.4	3.4	-
Fissurella volcano		0.2	1.6	2.0	3.0	22.2	90.0	4.6	2.0	1.8
Tegula brunnea		2.6	13.2	9.2	17.8	2.2	-	-	2.4	16.0
Anthopleura elegantissima		1.6	12.2	17.6	9.2	3.6	0.8	5.6	7.0	2.4
Macclintockia scabra		-	2.2	5.2	8.6	26.4	7.8	3.4	2.0	2.6
Lottia limatula		-	0.2	0.6	0.2	3.4	8.0	3.4	1.6	1.2
Lottia pelta		0.4	3.0	0.4	0.6	1.8	6.6	3.0	0.2	1.8
Nuttallina californica		-	5.4	4.2	1.8	0.6	1.0	-	-	-
Tectura scutum		0.4	1.8	0.2	1.6	1.2	1.0	2.4	1.0	1.2
Pachygrapsus crassipes		-	2.2	1.0	1.2	1.2	2.6	0.4	-	-
Serpulorbis squamigerus		-	0.8	2.6	2.0	-	-	-	-	0.2
Leptasterias spp.		0.4	1.2	0.8	0.8	-	-	-	-	0.2
Epiactis prolifera		0.2	1.2	0.8	0.2	-	0.4	-	0.2	0.2
Mopalia spp.		-	-	0.2	0.4	1.0	0.2	0.8	0.2	0.2
Serpulidae unid.		-	<.1	0.2	1.2	-	0.8	-	-	0.2
Pisaster ochraceus		-	0.2	0.6	0.2	-	0.6	-	0.4	-
Ocenebra spp.		0.2	0.4	-	0.6	-	-	-	0.2	0.4
Lottia gigantea		-	-	-	0.2	-	1.0	-	-	-
Acmaea mitra		-	<.1	<.1	0.4	0.4	<.1	-	-	<.1
Haliotis spp.		-	-	-	0.4	-	0.2	-	-	-
Tonicella lineata		-	-	-	-	-	-	-	-	0.4
Diopatra ornata		-	-	-	-	-	-	-	0.2	0.2
Lacuna spp.		<.1	<.1	<.1	<.1	<.1	-	<.1	0.2	<.1
Idotea spp.		0.2	-	<.1	-	-	-	-	-	-
Pugettia spp.		-	-	-	0.2	-	-	-	-	<.1
Anthopleura xanthogrammica		-	-	-	-	0.2	-	-	-	-
Nemertea unid.		-	-	0.2	-	-	-	-	-	-

Horizontal Band Transects - Invertebrate Mean Abundance per 1 square meter - Stations +1 ft Survey 100 (continued)

Species	Station	01+01	04+01	05+01	06+01	08+01	09+01	10+01	12+01	19+01
	Survey	100	100	100	100	100	100	100	100	100
	# Quads	5	5	5	5	5	5	5	5	5
Calliostoma ligatum		-	-	-	-	-	-	-	-	0.2
Cyanoplax spp.		-	-	-	-	-	0.2	-	-	-
Nucella emarginata		-	-	-	-	-	0.2	-	-	-
Nereididae unid.		-	-	-	-	-	-	-	-	0.2
Balanus spp.		-	-	-	-	-	-	0.2	-	-
Pseudomelatoma torosa		-	-	-	0.2	-	-	-	-	-
Megathura crenulata		-	-	-	-	-	-	0.2	-	-
Acmaeidae unid.		<.1	<.1	<.1	<.1	<.1	<.1	<.1	<.1	<.1
Alia spp.		<.1	-	-	<.1	-	-	-	<.1	<.1
Crepidula spp.		<.1	-	<.1	<.1	-	-	-	-	<.1
Ischnochitonidae		-	-	-	-	-	<.1	-	-	<.1
Lissothuria nutriens		-	<.1	-	-	-	<.1	-	-	<.1
Lottia asmi		<.1	-	-	<.1	-	-	-	-	<.1
Pisaster/Henricia (juv.)		-	-	-	<.1	-	-	-	-	-
Mytilus californianus		-	-	<.1	<.1	-	-	-	-	-
Littorina spp.		-	-	-	-	-	-	-	<.1	<.1
Bittium spp.		-	-	-	-	-	-	-	<.1	<.1
Discurria insessa		-	-	-	<.1	-	-	-	-	-
Tegula pulligo		-	-	-	-	-	-	-	<.1	-
Homalopoma spp.		-	-	-	<.1	-	-	-	-	-
Sipuncula unid.		-	-	<.1	-	-	-	-	-	-
Tricolia spp.		-	-	-	-	-	-	-	-	<.1
Grapsidae (juv.)		-	-	-	<.1	-	-	-	-	-
Nudibranchia unid.		-	-	-	-	-	-	-	-	<.1
Mytilidae		-	-	-	-	-	<.1	-	-	-
Mytilus galloprovincialis		-	-	-	-	-	-	<.1	-	-
Pista spp.		3.6	1.9	<.1	1.8	<.1	-	30.1	0.1	-
Phragmatopoma californica		-	<.1	<.1	<.1	<.1	0.3	-	<.1	0.8
Chthamalus fissus		-	<.1	<.1	<.1	<.1	<.1	<.1	0.7	-
Spirorbidae		<.1	<.1	<.1	<.1	<.1	<.1	<.1	<.1	<.1
tunicates, colonial/social unid.		<.1	<.1	<.1	<.1	-	-	-	-	<.1

Horizontal Band Transects - Invertebrate Mean Abundance per 1 square meter - Stations +1 ft Survey 100 .
(continued)

Species	Station	01+01	04+01	05+01	06+01	08+01	09+01	10+01	12+01	19+01
	Survey	100	100	100	100	100	100	100	100	100
	# Quads	5	5	5	5	5	5	5	5	5
Porifera unid. (encrusting)		-	<.1	<.1	<.1	-	<.1	-	-	<.1
Bryozoa, unid. (encrusting)		-	<.1	-	<.1	-	-	-	-	<.1
Salmacina tribranchiata		<.1	-	<.1	-	-	-	-	-	-
Haliclona spp.		-	-	<.1	-	-	-	-	-	-

Horizontal Band Transects - Invertebrate Mean Abundance per 1 square meter - Stations +1 ft Survey 101

Species	Station	01+01	04+01	05+01	06+01	08+01	09+01	10+01	12+01	19+01
	Survey	101	101	101	101	101	101	101	101	101
	# Quads	5	5	5	5	5	5	5	5	5
Tetraclita rubescens		-	19.0	4.8	15.0	125.0	128.0	43.4	23.8	40.6
Macclintockia scabra		-	3.2	3.2	5.2	159.0	61.0	7.4	7.6	1.4
Tegula funebralis		39.2	3.8	21.2	10.2	-	-	-	162.0	0.6
Strongylocentrotus purpuratus		0.2	9.4	59.0	77.2	29.6	49.4	0.2	2.6	-
Pagurus spp.		12.2	9.6	20.8	9.6	1.2	0.2	2.0	71.2	14.0
Anthopleura elegantissima		2.0	11.8	21.8	7.4	2.8	2.8	1.8	7.6	0.4
Tegula brunnea		1.4	15.0	4.2	12.8	0.4	0.2	-	4.6	6.8
Tectura scutum		-	0.6	0.4	1.6	6.0	34.4	1.0	0.2	0.2
Fissurella volcano		0.2	0.6	1.0	1.8	7.2	24.2	2.2	0.6	0.4
Lottia limatula		0.2	1.4	1.8	0.4	1.0	9.0	2.2	4.0	1.2
Lottia pelta		-	2.6	-	0.6	1.8	2.6	3.2	2.8	2.2
Nuttallina californica		-	4.2	9.0	0.2	-	-	-	-	-
Serpulorbis squamigerus		-	-	7.4	3.4	-	0.4	-	-	-
Pachygrapsus crassipes		-	1.0	1.6	1.2	0.6	1.0	1.2	0.4	-
Epiactis prolifera		0.2	1.6	0.8	-	0.8	0.2	-	-	0.4
Serpulidae unid.		-	1.4	0.6	0.2	0.4	1.2	-	-	-
Nemertea unid.		-	1.0	0.6	0.2	-	1.0	0.2	-	0.8
Leptasterias spp.		0.4	0.6	1.0	0.2	-	-	-	-	1.2
Ocenebra spp.		0.2	-	0.8	0.2	-	-	-	0.2	0.6
Pugettia spp.		0.6	-	-	0.6	-	-	<.1	-	0.4
Pisaster ochraceus		0.2	0.2	-	0.2	-	0.4	-	0.2	-
Acmaea mitra		-	0.4	<.1	0.2	0.2	<.1	-	-	-
Cyanoplax spp.		-	-	0.2	-	0.2	0.4	-	-	-
Lottia gigantea		-	-	-	-	0.4	0.2	-	-	-
Asterina miniata		-	-	-	-	-	-	-	0.2	0.4
Haliotis spp.		-	0.2	-	0.4	-	-	-	-	-
Diodora spp.		-	-	-	-	-	-	0.2	-	-
Tonicella lineata		-	-	-	-	-	-	-	-	0.2
Conus californicus		-	-	-	0.2	-	-	-	-	-
Acmaeidae unid.		<.1	<.1	<.1	<.1	<.1	<.1	<.1	<.1	<.1

Horizontal Band Transects - Invertebrate Mean Abundance per 1 square meter - Stations +1 ft Survey 101 .
(continued)

Species	Station	01+01	04+01	05+01	06+01	08+01	09+01	10+01	12+01	19+01
	Survey	101	101	101	101	101	101	101	101	101
	# Quads	5	5	5	5	5	5	5	5	5
Alia spp.		<.1	<.1	-	<.1	-	-	<.1	-	<.1
Lacuna spp.		<.1	<.1	-	<.1	<.1	-	-	-	<.1
Sipuncula unid.		<.1	<.1	<.1	-	-	<.1	<.1	-	-
Crepidula spp.		<.1	-	<.1	-	-	-	-	-	-
Discurria insessa		-	<.1	-	<.1	-	-	-	-	<.1
Mytilidae		-	-	<.1	-	-	-	<.1	-	-
Lottia ochracea		-	-	-	<.1	-	-	-	-	-
Lottia asmi		-	-	-	<.1	-	-	-	<.1	-
Nitidiscala/Opalia spp.		-	-	-	-	-	-	<.1	<.1	-
Homalopoma spp.		-	<.1	-	-	-	-	-	-	<.1
Ischnochitonidae		-	-	<.1	-	<.1	-	-	-	-
Pelecypoda unid. boring		-	-	<.1	-	-	-	-	-	-
Pisaster/Henricia (juv.)		<.1	-	-	-	-	-	-	-	<.1
Heptacarpus spp.		-	-	-	-	-	-	<.1	-	-
Lissothuria nutriens		-	-	-	<.1	-	<.1	-	-	-
Hermissenda crassicornis		-	-	-	-	-	-	<.1	-	-
Nereididae unid.		-	-	-	<.1	-	-	-	-	-
Pycnogonida unid.		-	-	-	-	-	-	<.1	-	-
Pollicipes polymerus		-	-	<.1	-	-	-	-	-	-
Ophiuroidea unid.		-	-	-	-	-	-	<.1	-	-
Amphissa spp.		-	-	-	<.1	-	-	-	-	-
Tricolia spp.		-	-	-	-	-	-	-	-	<.1
Grapsidae (juv.)		-	-	-	-	-	-	<.1	-	-
Tectura paleacea		-	-	-	-	<.1	-	-	-	-
Pista spp.		0.4	0.4	<.1	<.1	<.1	-	8.6	-	-
Chthamalus fissus		-	<.1	<.1	<.1	1.0	<.1	1.8	0.7	<.1
Spirorbidae		<.1	<.1	-	<.1	-	<.1	<.1	0.3	<.1
tunicates, colonial/social unid.		0.1	<.1	-	<.1	<.1	-	-	-	<.1
Phragmatopoma californica		<.1	<.1	<.1	<.1	<.1	<.1	<.1	<.1	<.1
Porifera unid. (encrusting)		<.1	<.1	<.1	-	-	-	-	-	-

Horizontal Band Transects - Invertebrate Mean Abundance per 1 square meter - Stations +1 ft Survey 101.
(continued)

Species	Station	01+01	04+01	05+01	06+01	08+01	09+01	10+01	12+01	19+01
	Survey	101	101	101	101	101	101	101	101	101
	# Quads	5	5	5	5	5	5	5	5	5
Salmacina tribranchiata		-	<.1	<.1	-	-	-	-	-	-
Dodecaceria fewkesi		-	-	<.1	-	-	-	-	-	-
Bryozoa, unid. (encrusting)		-	-	-	-	-	<.1	-	-	-

Horizontal Band Transects - Invertebrate Mean Abundance per 1 square meter - Stations +1 ft Survey 102

Species	Station	01+01	04+01	05+01	06+01	08+01	09+01	10+01	12+01	19+01
	Survey	102	102	102	102	102	102	102	102	102
	# Quads	5	5	5	5	5	5	5	5	5
Tetraclita rubescens		-	3.2	4.2	4.2	89.0	136.0	20.4	5.4	14.8
Strongylocentrotus purpuratus		-	8.2	38.0	54.2	31.0	95.0	1.0	1.4	-
Macclintockia scabra		-	0.2	5.0	2.6	50.8	80.2	2.4	41.4	2.6
Pagurus spp.		7.4	8.2	44.4	23.0	15.0	1.0	6.0	45.8	7.8
Lottia limatula		-	0.4	0.8	0.4	13.0	29.2	1.0	25.0	0.4
Tectura scutum		<.1	0.6	2.6	2.8	7.4	49.8	-	3.8	3.0
Anthopleura elegantissima		0.2	8.4	25.2	7.6	3.2	3.4	3.8	12.4	0.4
Tegula brunnea		3.2	5.0	3.2	20.8	2.4	2.2	-	-	7.2
Tegula funebralis		5.2	0.2	6.4	1.4	-	-	-	19.0	-
Lottia pelta		-	4.8	0.6	0.6	6.4	5.0	2.4	1.8	5.2
Fissurella volcano		0.2	-	0.8	0.8	5.4	10.4	1.0	0.8	0.2
Pachygrapsus crassipes		0.2	2.0	3.0	1.6	1.0	5.0	0.2	0.2	-
Nuttallina californica		-	6.8	5.0	0.2	0.6	0.6	-	-	-
Epiactis prolifera		-	2.0	1.0	0.2	0.8	0.8	-	-	-
Nemertea unid.		-	1.2	1.6	1.4	-	-	-	-	0.6
Serpulorbis squamigerus		-	0.6	2.8	1.4	-	-	-	-	-
Serpulidae unid.		-	0.2	-	0.2	0.2	3.8	<.1	-	-
Leptasterias spp.		0.8	0.4	1.2	1.0	-	-	-	-	1.0
Pugettia spp.		0.2	0.2	0.2	1.0	0.8	-	-	-	1.6
Cyanoplax spp.		-	-	0.2	-	0.8	0.2	0.4	0.8	-
Ocenebra spp.		-	0.2	-	1.0	-	-	-	-	0.4
Pisaster ochraceus		-	-	0.2	-	0.2	0.8	-	-	-
Haliotis spp.		-	0.4	-	0.4	-	0.4	-	-	-
Mopalia spp.		-	-	-	-	-	-	-	-	1.0
Nereididae unid.		-	0.2	0.2	-	-	-	-	0.4	<.1
Ophiothrix spp.		-	-	0.2	-	-	-	0.4	-	-
Diodora spp.		-	-	-	-	-	0.4	-	-	-
Ischnochitonidae		<.1	<.1	<.1	<.1	<.1	0.2	<.1	-	<.1
Cancer antennarius		-	-	-	-	0.2	-	-	-	-
Tonicella lineata		-	-	-	0.2	-	-	-	-	-

Horizontal Band Transects - Invertebrate Mean Abundance per 1 square meter - Stations +1 ft Survey 102 . (continued)

Species	Station	01+01	04+01	05+01	06+01	08+01	09+01	10+01	12+01	19+01
	Survey	102	102	102	102	102	102	102	102	102
	# Quads	5	5	5	5	5	5	5	5	5
Parastichopus spp.		-	-	-	-	-	0.2	-	-	-
Acmaeidae unid.		<.1	<.1	<.1	<.1	<.1	<.1	<.1	<.1	<.1
Alia spp.		<.1	<.1	-	<.1	<.1	-	<.1	-	<.1
Lacuna spp.		<.1	-	-	<.1	-	-	<.1	<.1	<.1
Acmaea mitra		-	<.1	<.1	<.1	<.1	<.1	-	-	-
Sipuncula unid.		-	<.1	<.1	-	-	<.1	<.1	<.1	-
Discurria insessa		-	-	-	<.1	-	-	-	-	<.1
Lissothuria nutriens		<.1	-	-	<.1	-	<.1	-	-	-
Hermissenda crassicornis		-	-	-	-	-	-	<.1	-	-
Pycnogonida unid.		-	-	-	-	-	-	<.1	-	-
Crepidula spp.		<.1	-	-	<.1	-	-	-	<.1	-
Pisaster/Henricia (juv.)		<.1	<.1	-	-	-	-	-	-	-
Heptacarpus spp.		-	-	-	-	<.1	-	<.1	-	-
Tricolia spp.		-	-	-	<.1	<.1	-	<.1	-	-
Lottia ochracea		-	-	-	-	-	<.1	-	-	-
Pelecypoda unid. boring		-	-	-	-	<.1	<.1	-	-	-
Lottia asmi		-	-	-	<.1	-	-	-	-	-
Nitidiscala/Opalia spp.		-	-	<.1	-	-	-	-	-	-
Asterina miniata		-	-	-	-	-	-	-	-	<.1
Pycnopodia helianthoides		-	-	-	-	-	-	-	-	<.1
Petrolisthes spp.		-	-	-	-	-	-	-	-	<.1
Diaulula sandiegensis		-	-	-	-	-	-	<.1	-	-
Homalopoma spp.		-	-	-	-	-	-	-	<.1	-
Bittium spp.		-	-	-	-	-	-	-	<.1	-
Ophiuroidea unid.		-	-	-	-	-	-	<.1	-	-
Amphissa spp.		-	-	-	-	-	-	<.1	-	-
Lepidozona spp.		<.1	-	-	-	-	-	-	-	-
Chaetopteridae		-	-	-	-	-	<.1	-	-	-
Pista spp.		2.8	0.7	<.1	2.9	<.1	-	27.6	-	-
tunicates, colonial/social unid.		<.1	0.3	<.1	<.1	-	<.1	-	-	<.1
Spirorbidae		<.1	<.1	<.1	<.1	<.1	<.1	<.1	<.1	<.1

Horizontal Band Transects - Invertebrate Mean Abundance per 1 square meter - Stations +1 ft Survey 102 (continued)

Species	Station	01+01	04+01	05+01	06+01	08+01	09+01	10+01	12+01	19+01
	Survey	102	102	102	102	102	102	102	102	102
	# Quads	5	5	5	5	5	5	5	5	5
Chthamalus fissus		-	-	<.1	<.1	<.1	<.1	<.1	<.1	<.1
Phragmatopoma californica		-	<.1	<.1	<.1	<.1	<.1	-	<.1	<.1
Bryozoa, unid. (encrusting)		-	<.1	-	<.1	-	<.1	-	<.1	<.1
Porifera unid. (encrusting)		<.1	-	-	-	-	-	-	-	<.1
Dodecaceria fewkesi		-	-	<.1	<.1	-	-	-	-	-

Horizontal Band Transects - Invertebrate Mean Abundance per 1 square meter - Stations +1 ft Survey 103 .

Species	Station	04+01	05+01	06+01
	Survey	103	103	103
	# Quads	5	5	5
Tegula funebralis		0.4	95.2	56.8
Strongylocentrotus purpuratus		1.6	27.0	52.2
Pagurus spp.		6.2	16.0	27.0
Tetraclita rubescens		6.4	3.2	36.2
Anthopleura elegantissima		11.2	19.4	13.0
Tegula brunnea		15.6	4.2	14.4
Nuttallina californica		3.6	5.2	-
Serpulorbis squamigerus		-	1.0	4.6
Fissurella volcano		0.2	2.0	3.2
Macclintockia scabra		-	3.6	0.2
Pachygrapsus crassipes		1.4	1.4	1.0
Serpulidae unid.		1.2	0.2	1.2
Tectura scutum		0.2	0.2	2.0
Leptasterias spp.		0.4	1.2	0.8
Lottia limatula		-	0.8	1.4
Lottia pelta		1.4	0.8	-
Nemertea unid.		0.4	0.8	0.8
Ocenebra spp.		0.4	0.6	0.4
Epiactis prolifera		0.2	0.4	0.6
Acmaea mitra		<.1	0.4	0.6
Haliotis spp.		0.2	-	0.6
Pugettia spp.		<.1	0.2	-
Idotea spp.		0.2	-	-
Pseudomelatoma torosa		0.2	-	-
Acmaeidae unid.		<.1	<.1	<.1
Alia spp.		<.1	<.1	<.1
Lacuna spp.		<.1	<.1	<.1
Lottia asmi		-	<.1	<.1
Sipuncula unid.		-	<.1	<.1
Discurria insessa		<.1	-	<.1

Horizontal Band Transects - Invertebrate Mean Abundance per 1 square meter - Stations +1 ft Survey 103.
(continued)

Species	Station	04+01	05+01	06+01
	Survey	103	103	103
	# Quads	5	5	5
Crepidula spp.		<.1	-	<.1
Nereididae unid.		-	<.1	-
Ischnochitonidae		-	<.1	<.1
Lissothuria nutriens		-	<.1	<.1
Littorina spp.		-	<.1	-
Nitidiscala/Opalia spp.		<.1	-	-
Pelecypoda unid. boring		-	<.1	-
Pisaster/Henricia (juv.)		<.1	-	-
Tricolia spp.		-	-	<.1
Lepidozona spp.		<.1	-	-
Tectura paleacea		<.1	-	-
Chaetopteridae		-	-	<.1
Pista spp.		1.0	<.1	1.9
Phragmatopoma californica		<.1	<.1	<.1
Spirorbidae		<.1	<.1	<.1
tunicates, colonial/social unid.		<.1	<.1	<.1
Chthamalus fissus		-	<.1	<.1
Bryozoa, unid. (encrusting)		<.1	<.1	<.1
Porifera unid. (encrusting)		-	<.1	-

Horizontal Band Transects - Invertebrate Mean Abundance per 1 square meter - Stations +1 ft Survey 104 .

Species	Station	01+01	04+01	05+01	06+01	08+01	09+01	10+01	12+01	19+01
	Survey	104	104	104	104	104	104	104	104	104
	# Quads	5	5	5	5	5	5	5	5	5
Tetraclita rubescens		0.4	27.8	25.4	25.2	100.0	164.6	94.8	32.6	235.6
Tegula funebralis		53.8	4.8	110.4	57.6	14.8	-	82.0	277.6	45.2
Pagurus spp.		22.8	10.6	37.4	20.4	9.8	5.4	5.0	67.8	17.6
Macclintockia scabra		-	-	5.4	1.4	96.4	20.4	5.2	0.2	1.0
Strongylocentrotus purpuratus		-	1.4	22.0	45.4	14.4	41.0	-	1.6	-
Anthopleura elegantissima		1.0	8.2	33.2	8.8	4.6	5.0	3.8	8.2	1.8
Fissurella volcano		0.6	2.4	1.0	1.6	12.2	41.4	2.4	0.4	0.4
Tegula brunnea		6.8	9.2	5.8	4.8	4.2	0.4	-	-	3.4
Tectura scutum		0.2	0.2	0.6	0.4	6.8	11.2	0.4	2.2	1.6
Lottia limatula		-	1.4	0.8	-	1.4	6.6	3.0	5.4	1.0
Pachygrapsus crassipes		-	3.0	1.0	1.0	1.0	5.8	-	-	-
Lottia pelta		-	2.4	0.2	-	1.2	1.6	2.2	0.4	2.6
Nuttallina californica		-	3.6	2.4	0.6	0.4	-	-	-	0.2
Serpulidae unid.		<.1	2.4	0.6	0.2	1.0	1.2	-	-	0.2
Ocenebra spp.		1.4	1.4	0.2	0.4	0.4	0.2	-	0.6	0.4
Epiactis prolifera		0.2	1.4	0.4	0.4	1.0	0.2	-	-	-
Serpulorbis squamigerus		-	0.8	1.2	1.0	-	-	0.6	-	-
Leptasterias spp.		0.4	0.8	0.4	0.6	-	-	-	-	0.2
Nemertea unid.		0.4	0.2	1.4	-	-	0.2	-	-	0.2
Haliotis spp.		-	1.0	-	0.4	0.2	0.6	-	-	-
Pugettia spp.		0.2	0.6	0.6	0.4	-	-	-	0.2	<.1
Pisaster ochraceus		-	0.2	-	0.2	0.2	0.8	-	0.4	-
Lottia gigantea		-	-	-	-	0.6	0.8	-	-	-
Acmaea mitra		<.1	0.2	0.2	-	<.1	-	-	<.1	0.2
Diopatra ornata		-	-	-	-	0.2	-	-	0.4	-
Littorina spp.		-	-	0.4	-	-	-	-	<.1	<.1
Cyanoplax spp.		-	-	-	-	0.4	<.1	-	-	-
Diodora spp.		-	0.2	-	-	-	0.2	-	-	<.1
Balanus spp.		-	-	-	-	-	-	0.4	-	-
Calliostoma ligatum		-	-	0.2	-	-	-	-	-	<.1

Horizontal Band Transects - Invertebrate Mean Abundance per 1 square meter - Stations +1 ft Survey 104. (continued)

Species	Station	01+01	04+01	05+01	06+01	08+01	09+01	10+01	12+01	19+01
	Survey	104	104	104	104	104	104	104	104	104
	# Quads	5	5	5	5	5	5	5	5	5
Mopalia spp.		-	-	-	-	-	-	-	-	0.2
Anthopleura artemisia		-	-	-	-	-	-	-	-	0.2
Acanthina spp.		-	-	-	-	-	-	-	0.2	-
Octopus spp.		-	-	-	-	-	-	-	0.2	-
Asterina miniata		-	-	-	-	-	-	-	0.2	-
Diaulula sandiegensis		0.2	-	-	-	-	-	-	-	-
Mitra idae		-	0.2	-	-	-	-	-	-	-
Fusinus luteopictus		-	-	0.2	-	-	-	-	-	-
Lepidozona spp.		-	-	-	0.2	-	-	-	-	-
Acmaeidae unid.		-	-	<.1	<.1	<.1	<.1	<.1	<.1	<.1
Alia spp.		<.1	<.1	-	<.1	<.1	-	<.1	<.1	<.1
Lacuna spp.		-	<.1	<.1	<.1	<.1	-	-	<.1	<.1
Lottia asmi		-	-	<.1	<.1	-	-	<.1	-	<.1
Tectura paleacea		<.1	<.1	-	-	-	-	-	-	<.1
Discurria insessa		-	<.1	<.1	<.1	-	-	-	-	-
Crepidula spp.		<.1	-	-	-	-	-	-	-	<.1
Lissothuria nutriens		<.1	-	<.1	-	-	<.1	-	-	-
Ischnochitonidae		<.1	<.1	-	-	-	-	-	<.1	-
Pisaster/Henricia (juv.)		<.1	-	-	-	-	-	-	-	-
Corynactis californica		-	-	-	-	-	-	-	-	<.1
Homalopoma spp.		-	-	<.1	-	-	-	-	-	<.1
Bittium spp.		<.1	<.1	-	-	-	-	-	-	-
Tonicella lineata		-	<.1	-	-	-	-	-	-	-
Nitidiscala/Opalia spp.		-	-	-	-	-	-	<.1	-	-
Pelecypoda unid. boring		-	-	-	-	-	-	-	<.1	-
Majidae		-	-	-	-	-	-	-	<.1	-
Amphissa spp.		-	-	<.1	-	-	-	-	-	-
Tricolia spp.		<.1	-	-	-	-	-	-	-	-
Chaetopteridae		-	-	-	-	-	-	-	-	<.1
Pista spp.		6.3	1.9	<.1	0.6	<.1	<.1	34.6	<.1	-
Chthamalus fissus		<.1	<.1	<.1	<.1	3.8	<.1	4.4	0.7	<.1

Horizontal Band Transects - Invertebrate Mean Abundance per 1 square meter - Stations +1 ft Survey 104 .
(continued)

Species	Station	01+01	04+01	05+01	06+01	08+01	09+01	10+01	12+01	19+01
	Survey	104	104	104	104	104	104	104	104	104
	# Quads	5	5	5	5	5	5	5	5	5
Phragmatopoma californica		<.1	<.1	<.1	<.1	0.1	0.1	-	<.1	0.7
Spirorbidae		<.1	<.1	<.1	<.1	<.1	<.1	<.1	<.1	0.1
Porifera unid. (encrusting)		<.1	<.1	<.1	<.1	<.1	-	-	-	<.1
tunicates, colonial/social unid.		<.1	<.1	<.1	-	<.1	-	-	-	<.1
Bryozoa, unid. (encrusting)		<.1	<.1	<.1	-	-	-	-	-	<.1
Salmacina tribranchiata		<.1	-	-	-	-	-	-	-	-

Horizontal Band Transects - Invertebrate Mean Abundance per 1 square meter - Stations +1 ft Survey 105

Species	Station	04+01	05+01	06+01
	Survey	105	105	105
	# Quads	5	5	5
Strongylocentrotus purpuratus		3.2	30.8	46.6
Tegula funebralis		4.4	53.2	8.2
Anthopleura elegantissima		12.0	19.0	7.4
Pagurus spp.		13.4	10.0	14.6
Tegula brunnea		7.8	1.6	16.4
Tetraclita rubescens		9.6	-	5.0
Nuttallina californica		4.6	4.6	0.2
Macclintockia scabra		6.2	1.0	-
Lottia pelta		1.4	1.6	0.8
Pachygrapsus crassipes		2.8	0.4	0.4
Lottia limatula		2.2	1.2	-
Tectura scutum		1.4	0.6	1.2
Serpulorbis squamigerus		-	1.0	2.2
Leptasterias spp.		1.2	1.0	0.6
Epiactis prolifera		1.8	0.2	0.4
Nemertea unid.		0.8	0.2	0.8
Ocenebra spp.		0.2	0.6	0.6
Fissurella volcano		-	-	1.4
Pugettia spp.		0.8	0.2	0.2
Serpulidae unid.		0.2	0.2	<.1
Nereididae unid.		-	0.2	0.2
Pisaster ochraceus		-	0.2	0.2
Haliotis spp.		0.2	-	0.2
Pycnopodia helianthoides		0.2	-	-
Lissothuria nutriens		0.2	-	-
Acmaeidae unid.		<.1	<.1	<.1
Lacuna spp.		<.1	-	<.1
Sipuncula unid.		<.1	-	<.1
Acmaea mitra		<.1	-	-
Lottia asmi		<.1	<.1	-

Horizontal Band Transects - Invertebrate Mean Abundance per 1 square meter - Stations +1 ft Survey 105 .
(continued)

Species	Station	04+01	05+01	06+01
	Survey	105	105	105
	# Quads	5	5	5
Cyanoplax spp.		<.1	-	-
Alia spp.		<.1	-	-
Mytilus californianus		-	<.1	-
Crepidula spp.		-	<.1	-
Nitidiscala/Opalia spp.		-	-	<.1
Petrolisthes spp.		-	-	<.1
Ischnochitonidae		-	-	<.1
Grapsidae (juv.)		-	-	<.1
Pista spp.		<.1	-	1.3
Chthamalus fissus		<.1	<.1	<.1
tunicates, colonial/social unid.		<.1	-	<.1
Phragmatopoma californica		<.1	<.1	-
Spirorbidae		<.1	<.1	<.1
Bryozoa, unid. (encrusting)		-	-	<.1
Salmacina tribranchiata		-	<.1	-

Horizontal Band Transects - Invertebrate Mean Abundance per 1 square meter - Stations +1 ft Survey 106

Species	Station	01+01	04+01	05+01	06+01	08+01	09+01	10+01	12+01	19+01
	Survey	106	106	106	106	106	106	106	106	106
	# Quads	5	5	5	5	5	5	5	5	5
Tetraclita rubescens		-	13.6	3.6	-	91.8	283.0	21.0	9.2	8.4
Macclintockia scabra		-	1.0	1.2	-	133.0	74.0	21.8	38.2	7.6
Pagurus spp.		16.4	31.0	30.6	11.0	27.4	1.2	62.2	20.0	8.6
Lottia limatula		0.2	4.2	0.6	1.4	24.0	46.6	0.8	5.2	7.0
Strongylocentrotus purpuratus		-	3.6	19.6	21.6	4.8	19.4	0.8	-	-
Anthopleura elegantissima		0.2	18.4	16.0	4.8	4.4	6.2	9.0	7.4	0.6
Fissurella volcano		-	2.0	-	1.2	7.2	43.6	0.4	0.2	0.2
Lottia pelta		0.4	2.2	0.8	-	15.2	27.0	3.2	2.0	1.4
Tegula funebralis		9.8	3.4	32.2	1.2	0.2	0.2	-	2.6	-
Tegula brunnea		2.6	14.4	0.6	8.0	6.2	-	-	-	5.6
Tectura scutum		-	1.6	1.2	0.6	4.4	15.8	-	12.0	1.4
Lottia digitalis		-	-	-	-	15.0	7.0	2.0	-	-
Nuttallina californica		-	7.2	9.2	-	1.8	1.0	-	-	0.4
Pachygrapsus crassipes		0.2	1.6	2.2	0.2	1.2	1.0	0.6	0.4	-
Nemertea unid.		0.6	0.8	2.0	1.2	-	0.4	0.6	0.2	0.2
Serpulidae unid.		-	0.6	<.1	0.8	-	2.4	-	<.1	0.2
Leptasterias spp.		0.6	1.2	1.4	-	-	-	-	-	0.4
Pugettia spp.		0.2	0.4	0.2	1.2	0.6	-	0.8	-	-
Epiactis prolifera		0.2	2.6	-	-	0.6	-	-	-	-
Haliotis spp.		-	1.0	-	0.4	0.8	0.4	-	-	-
Cyanoplax spp.		-	<.1	0.2	-	1.0	-	-	0.6	-
Pisaster ochraceus		-	-	0.6	-	0.6	0.4	0.2	-	-
Ocenebra spp.		-	1.4	-	0.2	-	-	-	-	-
Lottia gigantea		-	-	-	-	-	1.4	-	-	-
Serpulorbis squamigerus		-	0.2	0.4	0.6	-	0.2	-	-	-
Acmaea mitra		<.1	<.1	0.4	-	<.1	<.1	-	-	0.2
Mopalia spp.		-	0.2	-	-	-	-	-	0.2	-
Pycnogonida unid.		-	-	-	-	<.1	-	0.2	-	-
Nereididae unid.		-	0.2	-	-	-	-	-	-	-
Asterina miniata		0.2	-	-	-	-	-	-	-	-

Horizontal Band Transects - Invertebrate Mean Abundance per 1 square meter - Stations +1 ft Survey 106 (continued)

Species	Station	01+01	04+01	05+01	06+01	08+01	09+01	10+01	12+01	19+01
	Survey	106	106	106	106	106	106	106	106	106
	# Quads	5	5	5	5	5	5	5	5	5
Mitra idae		-	-	-	-	0.2	-	-	-	-
Pseudomelatoma torosa		-	0.2	-	-	-	-	-	-	-
Ophiothrix spp.		-	-	-	-	-	-	0.2	-	-
Stenoplax spp.		-	-	-	-	0.2	-	-	-	-
Acmaeidae unid.		<.1	<.1	<.1	-	<.1	<.1	<.1	<.1	<.1
Lacuna spp.		<.1	<.1	<.1	<.1	<.1	-	<.1	-	<.1
Alia spp.		<.1	<.1	<.1	<.1	<.1	-	-	<.1	<.1
Ischnochitonidae		<.1	<.1	-	-	-	<.1	<.1	<.1	<.1
Discurria insessa		-	<.1	<.1	-	-	-	-	-	-
Cancer spp.		-	-	-	-	-	-	<.1	-	-
Sipuncula unid.		<.1	<.1	-	<.1	-	-	-	<.1	-
Crepidula spp.		<.1	<.1	<.1	-	-	-	-	-	-
Lottia ochracea		<.1	-	-	-	-	<.1	-	-	-
Hermissenda crassicornis		-	-	-	-	<.1	-	<.1	-	-
Littorina spp.		-	-	-	-	-	<.1	-	<.1	-
Lottia asmi		<.1	-	-	-	<.1	-	-	-	-
Nitidiscala/Opalia spp.		-	-	-	-	<.1	-	<.1	-	-
Pisaster/Henricia (juv.)		-	<.1	<.1	-	-	-	-	-	-
Cancer antennarius		-	-	<.1	-	-	-	-	-	-
Homalopoma spp.		-	-	-	-	-	-	-	-	<.1
Bittium spp.		-	<.1	-	-	-	-	-	-	-
Pelecypoda unid. boring		-	-	-	-	<.1	-	-	-	-
Lophopanopeus spp.		-	-	<.1	-	-	-	-	-	-
Chama spp.		-	-	-	-	<.1	-	-	-	-
Lissothuria nutriens		<.1	-	-	-	-	-	-	-	-
Grapsidae (juv.)		-	-	<.1	-	-	-	-	-	-
Erato spp.		-	-	<.1	-	-	-	-	-	-
Aeolidiella oliviae		-	-	-	-	-	<.1	-	-	-
Pista spp.		3.2	0.8	-	0.4	6.3	-	8.6	-	-
Chthamalus fissus		-	<.1	<.1	-	3.2	<.1	2.5	1.9	<.1
tunicates, colonial/social unid.		1.0	<.1	<.1	<.1	<.1	-	-	-	<.1

Horizontal Band Transects - Invertebrate Mean Abundance per 1 square meter - Stations +1 ft Survey 106 .
(continued)

Species	Station	01+01	04+01	05+01	06+01	08+01	09+01	10+01	12+01	19+01
	Survey	106	106	106	106	106	106	106	106	106
	# Quads	5	5	5	5	5	5	5	5	5
Spirorbidae		<.1	<.1	<.1	<.1	<.1	<.1	<.1	<.1	<.1
Phragmatopoma californica		-	<.1	<.1	<.1	<.1	<.1	-	<.1	<.1
Bryozoa, unid. (encrusting)		<.1	<.1	<.1	<.1	-	-	<.1	-	-
Porifera unid. (encrusting)		<.1	<.1	<.1	<.1	-	-	-	-	<.1
Salmacina tribranchiata		<.1	-	-	-	-	-	-	-	-

Horizontal Band Transects - Invertebrate Mean Abundance per 1 square meter - Stations +1 ft Survey 107 .

Species	Station	04+01	05+01	06+01
	Survey	107	107	107
	# Quads	5	5	5
Tegula funebralis		0.2	99.4	39.2
Pagurus spp.		5.6	20.4	33.4
Strongylocentrotus purpuratus		1.4	21.4	20.2
Anthopleura elegantissima		4.6	20.4	11.6
Tegula brunnea		12.8	6.0	13.4
Tetraclita rubescens		3.8	8.4	2.4
Fissurella volcano		2.6	3.2	1.8
Nuttallina californica		1.2	5.8	0.4
Tectura scutum		2.6	1.6	1.4
Serpulorbis squamigerus		-	1.2	3.8
Pachygrapsus crassipes		2.0	1.8	1.2
Leptasterias spp.		0.6	2.4	0.6
Nemertea unid.		0.4	1.2	1.4
Macclintockia scabra		0.2	2.4	-
Lottia limatula		1.2	1.2	-
Epiactis prolifera		0.6	1.0	0.4
Ocenebra spp.		0.6	0.8	0.6
Lottia pelta		1.6	0.2	-
Pisaster ochraceus		-	0.4	0.2
Serpulidae unid.		0.2	<.1	0.2
Acmaea mitra		<.1	-	0.4
Mopalia spp.		-	0.4	-
Pugettia spp.		-	0.2	0.2
Nereididae unid.		-	0.2	<.1
Cirratulidae/Terebellidae unid.		-	0.2	-
Tonicella lineata		-	0.2	-
Asterina miniata		-	-	0.2
Pisaster giganteus		-	0.2	-
Haliotis spp.		0.2	-	-
Lacuna spp.		<.1	<.1	<.1

Horizontal Band Transects - Invertebrate Mean Abundance per 1 square meter - Stations +1 ft Survey 107 .
(continued)

Species	Station	04+01	05+01	06+01
	Survey	107	107	107
	# Quads	5	5	5
Alia spp.		<.1	<.1	<.1
Sipuncula unid.		<.1	<.1	-
Ischnochitonidae		<.1	<.1	-
Lottia asmi		-	<.1	-
Lissothuria nutriens		-	<.1	<.1
Cyanoplax spp.		-	<.1	-
Discurria insessa		-	<.1	-
Pelecypoda unid. boring		-	<.1	-
Pisaster/Henricia (juv.)		-	-	<.1
Heptacarpus spp.		-	<.1	-
Pista spp.		4.3	0.3	1.5
Phragmatopoma californica		<.1	<.1	<.1
tunicates, colonial/social unid.		<.1	<.1	<.1
Bryozoa, unid. (encrusting)		<.1	<.1	<.1
Spirorbidae		<.1	-	<.1
Porifera unid. (encrusting)		<.1	<.1	<.1
Chthamalus fissus		-	-	<.1
Dodecaceria fewkesi		-	<.1	-

Horizontal Band Transects - Invertebrate Mean Abundance per 1 square meter - Stations +1 ft Survey 108.

Species	Station	01+01	05+01	06+01	08+01	09+01	10+01	12+01	19+01
	Survey	108	108	108	108	108	108	108	108
	# Quads	5	5	5	5	5	5	5	5
Tegula funebralis		56.8	94.4	46.4	-	-	87.8	276.0	7.0
Tetraclita rubescens		2.8	9.8	16.2	88.8	210.0	15.6	28.8	72.8
Pagurus spp.		24.0	19.6	45.8	5.8	2.8	15.4	22.0	21.4
Strongylocentrotus purpuratus		-	38.6	74.2	9.6	21.4	-	<.1	-
Macclintockia scabra		-	2.8	-	45.2	4.0	5.4	0.4	12.0
Anthopleura elegantissima		0.6	19.2	15.8	3.6	0.2	5.8	9.8	2.6
Fissurella volcano		0.4	8.0	5.0	3.4	28.6	3.0	0.2	3.4
Tegula brunnea		6.2	2.8	10.6	1.2	0.4	-	-	5.2
Lottia digitalis		-	-	-	20.0	1.0	1.0	-	0.6
Nuttallina californica		-	18.2	3.0	-	-	-	-	-
Lottia limatula		-	2.2	0.4	0.2	5.0	3.2	5.8	0.8
Tectura scutum		-	-	0.6	3.4	3.0	0.6	4.8	1.4
Ocenebra spp.		0.2	3.4	2.0	1.6	0.6	-	1.2	4.0
Lottia pelta		0.2	1.2	0.2	1.2	2.4	3.8	0.6	1.8
Serpulorbis squamigerus		-	4.8	3.8	-	-	-	0.8	-
Serpulidae unid.		-	1.6	1.2	0.8	1.6	0.2	<.1	0.4
Pachygrapsus crassipes		-	0.8	-	2.0	1.4	-	0.2	0.6
Epiactis prolifera		-	1.6	0.8	0.4	-	-	-	0.2
Pisaster ochraceus		-	0.6	0.2	-	0.8	-	0.2	0.2
Acmaea mitra		-	0.6	0.2	<.1	<.1	-	-	0.4
Mopalia spp.		-	-	0.4	-	-	-	-	0.6
Leptasterias spp.		-	0.4	-	-	-	-	-	0.6
Cyanoplax spp.		-	-	-	<.1	0.2	-	<.1	0.2
Acanthina spp.		-	-	-	0.2	-	0.2	-	-
Calliostoma ligatum		-	0.4	-	-	-	-	-	-
Asterina miniata		-	-	0.2	-	-	-	-	0.2
Diopatra ornata		-	-	-	0.2	-	-	<.1	-
Lottia gigantea		-	-	-	0.2	-	-	-	-
Tonicella lineata		-	-	0.2	-	-	-	-	-
Conus californicus		-	-	0.2	-	-	-	-	-

Horizontal Band Transects - Invertebrate Mean Abundance per 1 square meter - Stations +1 ft Survey 108 .
(continued)

Species	Station	01+01	05+01	06+01	08+01	09+01	10+01	12+01	19+01
	Survey	108	108	108	108	108	108	108	108
	# Quads	5	5	5	5	5	5	5	5
Hemigrapsus nudus		-	-	-	-	-	-	-	0.2
Fusinus luteopictus		-	0.2	-	-	-	-	-	-
Pugettia spp.		-	-	0.2	-	-	-	-	-
Acmaeidae unid.		<.1	<.1	-	<.1	<.1	<.1	<.1	<.1
Lottia asmi		<.1	<.1	<.1	-	-	-	<.1	<.1
Lacuna spp.		<.1	-	<.1	<.1	-	<.1	<.1	<.1
Alia spp.		<.1	-	<.1	<.1	-	-	-	<.1
Lissothuria nutriens		-	<.1	<.1	<.1	-	-	-	<.1
Sipuncula unid.		-	<.1	<.1	-	-	-	-	-
Homalopoma spp.		-	<.1	-	-	-	-	<.1	<.1
Crepidula spp.		<.1	<.1	-	-	-	-	-	-
Bittium spp.		-	-	-	-	-	-	<.1	<.1
Mytilus californianus		-	<.1	-	-	<.1	-	-	-
Nitidiscala/Opalia spp.		-	-	-	<.1	-	-	<.1	-
Pelecypoda unid. boring		-	<.1	<.1	-	-	-	-	-
Amphissa spp.		-	<.1	-	-	-	-	-	<.1
Chaetopteridae		<.1	-	-	-	-	-	-	-
Diodora spp.		-	-	-	-	-	-	-	<.1
Pollicipes polymerus		-	-	-	-	<.1	-	-	-
Ischnochitonidae		-	<.1	-	-	-	-	-	-
Mytilus galloprovincialis		-	-	-	-	-	<.1	-	-
Pista spp.		7.4	0.1	3.5	0.1	-	22.9	-	<.1
Chthamalus fissus		-	<.1	<.1	3.8	<.1	5.4	1.8	<.1
Phragmatopoma californica		<.1	<.1	<.1	<.1	<.1	<.1	<.1	1.5
tunicates, colonial/social unid.		1.3	<.1	<.1	-	-	<.1	-	<.1
Spirorbidae		<.1	<.1	<.1	<.1	<.1	<.1	<.1	0.8
Bryozoa, unid. (encrusting)		<.1	<.1	<.1	-	-	<.1	-	<.1
Porifera unid. (encrusting)		<.1	<.1	<.1	-	<.1	-	-	<.1
Haliclona spp.		<.1	-	-	-	-	-	-	-
Salmacina tribranchiata		-	<.1	-	-	-	-	-	-

Horizontal Band Transects - Invertebrate Mean Abundance per 1 square meter - Stations +1 ft Survey 109 .

Species	Station	04+01	05+01	06+01
	Survey	109	109	109
	# Quads	5	5	5
Tegula funebralis		9.6	48.4	1.0
Strongylocentrotus purpuratus		2.8	21.6	13.4
Tegula brunnea		18.0	10.4	7.8
Tetraclita rubescens		24.0	5.4	-
Pagurus spp.		4.4	16.2	7.6
Anthopleura elegantissima		11.8	9.8	4.6
Nuttallina californica		7.2	18.6	0.2
Macclintockia scabra		9.2	4.6	-
Pachygrapsus crassipes		4.2	1.8	0.4
Lottia pelta		3.8	1.6	0.4
Epiactis prolifera		4.4	-	-
Serpulorbis squamigerus		-	2.0	1.8
Nemertea unid.		1.0	1.0	1.2
Fissurella volcano		1.4	1.6	0.2
Tectura scutum		1.2	0.6	1.0
Lottia limatula		0.4	2.0	-
Leptasterias spp.		0.6	1.2	0.4
Serpulidae unid.		0.6	0.6	-
Pugettia spp.		-	0.8	0.2
Mopalia spp.		0.2	0.4	0.2
Tonicella lineata		-	0.4	-
Conus californicus		-	-	0.4
Cancer antennarius		0.2	-	0.2
Ocenebra spp.		0.2	-	0.2
Acmaea mitra		<.1	<.1	0.2
Nereididae unid.		-	0.2	-
Platyhelminthes unid.		-	0.2	-
Cyanoplax spp.		0.2	-	-
Pisaster ochraceus		-	-	0.2
Pycnopodia helianthoides		0.2	-	-

Horizontal Band Transects - Invertebrate Mean Abundance per 1 square meter - Stations +1 ft Survey 109 .
(continued)

Species	Station	04+01	05+01	06+01
	Survey	109	109	109
	# Quads	5	5	5
Mitra idae		0.2	-	-
Cryptochiton stelleri		-	0.2	-
Haliotis spp.		-	-	0.2
Acmaeidae unid.		<.1	<.1	<.1
Sipuncula unid.		<.1	<.1	<.1
Calliostoma ligatum		-	<.1	<.1
Lottia asmi		-	<.1	-
Pelecypoda unid. boring		-	<.1	-
Lacuna spp.		<.1	-	-
Crepidula spp.		<.1	-	-
Cirratulidae/Terebellidae unid.		-	<.1	-
Ophiactis simplex		<.1	-	-
Phragmatopoma californica		<.1	<.1	-
Spirorbidae		<.1	<.1	-
tunicates, colonial/social unid.		<.1	<.1	<.1
Pista spp.		<.1	-	-
Chthamalus fissus		-	<.1	-
Bryozoa, unid. (encrusting)		-	<.1	-

Horizontal Band Transects - Invertebrate Mean Abundance per 1 square meter - Stations +1 ft Survey 110 .

Species	Station	01+01	04+01	05+01	06+01	08+01	09+01	10+01	12+01	19+01
	Survey	110	110	110	110	110	110	110	110	110
	# Quads	5	5	5	5	5	5	5	5	5
Tegula funebralis		3.6	-	27.2	9.4	-	-	-	278.6	1.0
Pagurus spp.		20.6	5.0	18.2	28.0	19.8	3.4	12.8	27.0	14.0
Tetraclita rubescens		-	-	1.4	<.1	22.4	78.4	15.4	8.6	21.0
Macclintockia scabra		-	0.4	0.4	0.8	6.4	2.2	2.6	38.0	9.2
Tegula brunnea		4.8	17.8	1.6	17.2	1.8	2.2	-	0.6	9.6
Strongylocentrotus purpuratus		-	-	10.6	23.0	4.8	5.8	-	1.4	0.2
Anthopleura elegantissima		0.6	6.2	6.8	3.2	3.2	0.4	2.2	10.2	0.4
Fissurella volcano		-	0.8	1.2	2.8	6.6	10.8	0.4	-	-
Pachygrapsus crassipes		-	2.4	2.0	1.4	2.0	2.4	-	3.6	0.6
Lottia limatula		-	2.0	1.0	0.8	1.0	1.6	0.6	3.8	3.2
Lottia pelta		-	0.4	0.8	0.6	3.8	1.4	1.4	4.0	1.0
Tectura scutum		0.2	0.4	0.4	1.0	1.0	3.2	0.4	5.8	0.2
Pugettia spp.		0.8	1.6	1.2	1.4	0.2	0.4	1.4	0.2	0.8
Serpulorbis squamigerus		-	-	0.6	4.6	-	-	-	-	-
Nuttallina californica		-	1.6	2.2	0.4	1.0	-	-	-	-
Ocenebra spp.		0.2	1.2	0.4	0.2	0.8	0.8	-	1.0	0.4
Nemertea unid.		0.2	1.8	0.4	1.2	-	-	0.2	-	0.6
Leptasterias spp.		0.4	0.6	1.6	0.8	-	-	-	-	-
Epiactis prolifera		0.4	0.6	0.2	-	-	0.4	-	-	1.0
Mopalia spp.		0.2	0.2	-	0.2	-	0.2	0.2	0.2	1.0
Pisaster ochraceus		-	-	0.4	-	0.2	0.6	0.2	0.2	-
Serpulidae unid.		-	0.4	0.2	0.4	-	0.4	-	-	<.1
Cyanoplax spp.		-	-	-	-	0.6	-	<.1	0.4	<.1
Nereididae unid.		-	-	-	1.0	-	-	-	-	-
Tonicella lineata		-	0.2	-	-	-	-	-	-	0.2
Cancer antennarius		-	-	-	-	-	0.2	-	-	0.2
Haliotis spp.		-	-	-	0.2	0.2	-	-	-	-
Phidiana hiltoni		-	<.1	-	-	-	0.2	-	-	<.1
Hermissenda crassicornis		-	-	-	-	-	-	0.2	-	-
Diodora spp.		-	0.2	-	-	-	-	-	-	-

Horizontal Band Transects - Invertebrate Mean Abundance per 1 square meter - Stations +1 ft Survey 110 .
(continued)

Species	Station	01+01	04+01	05+01	06+01	08+01	09+01	10+01	12+01	19+01
	Survey	110	110	110	110	110	110	110	110	110
	# Quads	5	5	5	5	5	5	5	5	5
Diopatra ornata		-	-	-	-	-	-	-	0.2	-
Asterina miniata		-	-	-	-	-	-	-	-	0.2
Diaulula sandiegensis		-	-	-	-	-	0.2	-	-	-
Stenoplax spp.		-	-	-	-	0.2	-	-	-	-
Panulirus interruptus (puerulus stage)		-	0.2	-	-	-	-	-	-	-
Acmaeidae unid.		-	<.1	-	<.1	<.1	<.1	<.1	<.1	<.1
Alia spp.		<.1	<.1	<.1	-	-	-	-	<.1	<.1
Lacuna spp.		<.1	<.1	-	<.1	<.1	-	-	-	<.1
Ischnochitonidae		-	<.1	<.1	<.1	<.1	<.1	<.1	-	<.1
Acmaea mitra		-	<.1	-	<.1	-	<.1	-	-	<.1
Homalopoma spp.		<.1	-	-	<.1	-	-	-	<.1	<.1
Sipuncula unid.		-	<.1	<.1	<.1	<.1	-	-	-	<.1
Amphissa spp.		-	<.1	-	-	-	-	-	-	<.1
Discurria insessa		-	<.1	<.1	-	-	-	-	-	<.1
Lissothuria nutriens		<.1	-	<.1	<.1	-	-	-	-	-
Calliostoma ligatum		-	-	-	<.1	-	-	-	-	<.1
Littorina spp.		-	-	-	-	<.1	-	-	<.1	-
Pelecypoda unid. boring		-	-	-	<.1	-	-	-	-	<.1
Lophopanopeus spp.		<.1	-	-	<.1	-	-	-	-	-
Crepidula spp.		<.1	-	-	-	-	-	-	-	-
Nitidiscala/Opalia spp.		-	-	-	-	-	-	<.1	-	-
Pycnogonida unid.		<.1	-	-	-	-	-	-	-	-
Clavelina huntsmani		-	-	-	-	-	-	-	-	<.1
Bittium spp.		<.1	-	-	-	-	-	-	-	-
Pisaster/Henricia (juv.)		-	-	-	<.1	-	-	-	-	-
Heptacarpus spp.		<.1	-	-	-	-	-	-	-	-
Lepidozona spp.		-	-	-	-	-	-	-	-	<.1
Grapsidae (juv.)		-	<.1	-	-	-	-	-	-	-
Ophiactis simplex		-	-	-	-	-	<.1	-	-	-
Pista spp.		2.6	0.7	<.1	3.6	<.1	-	15.7	-	-
tunicates, colonial/social unid.		2.8	0.4	0.4	<.1	-	<.1	-	-	<.1

Horizontal Band Transects - Invertebrate Mean Abundance per 1 square meter - Stations +1 ft Survey 110 .
(continued)

Species	Station	01+01	04+01	05+01	06+01	08+01	09+01	10+01	12+01	19+01
	Survey	110	110	110	110	110	110	110	110	110
	# Quads	5	5	5	5	5	5	5	5	5
Phragmatopoma californica		-	<.1	-	<.1	-	<.1	-	<.1	1.4
Chthamalus fissus		-	-	<.1	-	<.1	<.1	0.1	1.0	<.1
Spirorbidae		-	<.1	-	0.1	0.6	<.1	<.1	<.1	0.1
Porifera unid. (encrusting)		0.1	<.1	-	0.3	-	<.1	-	-	<.1
Bryozoa, unid. (encrusting)		-	-	-	<.1	-	-	0.1	-	<.1
Salmacina tribranchiata		<.1	-	-	-	-	-	-	-	-

Vertical Band Transects - Algal Frequency of Occurrence per station - Survey 60-63

Species	Date	JAN95	JUN95	JUL95	NOV95	FEB95	JUN95	JAN95	JUN95
	Station	C	C	C	C	H	H	L	L
	Survey	060	061	062	063	060	061	060	061
	# Quads	36	36	36	36	36	36	36	36
NON-CORALLINE CRUST		100.0	100.0	94.4	100.0	100.0	97.2	100.0	94.4
CORALLINE CRUST		86.1	91.7	86.1	88.9	94.4	91.7	100.0	97.2
MASTOCARPUS PAPILLATUS		80.6	94.4	97.2	86.1	97.2	94.4	91.7	88.9
CLADOPHORA GRAMINEA		69.4	91.7	38.9	86.1	16.7	44.4	36.1	38.9
GELIDIUM COULTERI		72.2	52.8	66.7	77.8	16.7	41.7	27.8	30.6
GIGARTINA LEPTORHYNCHOS		69.4	83.3	75.0	72.2	11.1	13.9	30.6	25.0
RHODOGLOSSUM AFFINE		47.2	38.9	55.6	33.3	30.6	41.7	55.6	44.4
ENDOCLADIA MURICATA		66.7	69.4	63.9	61.1	27.8	19.4	13.9	13.9
GELIDIUM PUSILLUM		44.4	47.2	2.8	25.0	52.8	55.6	58.3	36.1
IRIDAEA HETEROCARPA		72.2	80.6	80.6	13.9	19.4	11.1	33.3	11.1
GASTROCLONIUM COULTERI		41.7	36.1	44.4	38.9	16.7	16.7	44.4	41.7
CRYPTOSIPHONIA WOODII		66.7	69.4	77.8	61.1	-	-	-	-
GIGARTINA CANALICULATA		33.3	22.2	25.0	19.4	38.9	33.3	47.2	36.1
BOSSIELLA SPP.		58.3	47.2	47.2	55.6	5.6	-	8.3	5.6
CORRALLINA SPP. + C.B.S.		47.2	50.0	16.7	44.4	11.1	13.9	30.6	11.1
CORALLINA VANCOUVERIENSIS		72.2	27.8	27.8	55.6	11.1	-	11.1	8.3
PORPHYRA PERFORATA		2.8	72.2	80.6	8.3	-	13.9	-	22.2
ULVA SPP.		11.1	8.3	30.6	22.2	13.9	27.8	5.6	38.9
IRIDAEA FLACCIDA		38.9	47.2	33.3	-	-	2.8	-	-
GIGARTINA AGARDHII		-	-	-	5.6	19.4	11.1	44.4	22.2
PHYLLOSPADIX SPP.		19.4	25.0	30.6	27.8	-	-	-	-
CRYPTOPLEURA VIOLACEA		22.2	25.0	11.1	27.8	-	-	2.8	2.8
PRIONITIS LANCEOLATA		8.3	11.1	5.6	2.8	19.4	8.3	19.4	11.1
SPONGOMORPHA COALITA		-	5.6	63.9	5.6	-	-	-	-
DIATOM CHAINS		-	2.8	-	-	-	13.9	-	38.9
CENTROCERAS CLAVULATUM		-	-	-	-	5.6	5.6	30.6	13.9
LAURENCIA SPECTABILIS		11.1	8.3	8.3	11.1	-	-	8.3	-
NEOAGARDHIELLA GAUDICHAUDII		11.1	13.9	-	8.3	-	-	5.6	5.6
MELOBESIA MEDIOCRIS		5.6	25.0	5.6	-	-	-	-	-
CHONDRIA DECIPIENS		22.2	11.1	-	-	-	-	-	-
DIATOM FILM		-	-	-	-	-	-	-	33.3
CALLIARTHRON SPP.		5.6	22.2	-	-	-	-	2.8	-
SCHIZYMENIA/HALYMENIA SPP.		-	-	5.6	-	-	-	-	13.9
SMITHORA NAIADUM		-	-	16.7	-	-	-	-	-

Vertical Band Transects - Algal Frequency of Occurrence per station - Survey 60-63 (continued)

Species	Date	JAN95	JUN95	JUL95	NOV95	FEB95	JUN95	JAN95	JUN95
	Station	C	C	C	C	H	H	L	L
	Survey	060	061	062	063	060	061	060	061
	# Quads	36	36	36	36	36	36	36	36
COLPOMENIA SPP.		-	-	-	-	-	8.3	-	5.6
PELVETIA FASTIGIATA		-	-	-	-	-	-	5.6	5.6
CERAMIUM SPP.		-	-	5.6	-	-	2.8	2.8	-
GRATELOUPIA DORYPHORA		-	5.6	-	-	-	2.8	-	-
CODIUM SETCHELLII		-	-	-	-	-	-	2.8	2.8
MICROCLADIA COULTERI		-	-	2.8	2.8	-	-	-	-
CORALLINA OFFICINALIS		-	-	-	2.8	-	-	-	-
GIGARTINA EXASPERATA		-	-	-	-	-	-	2.8	-
PTEROSIPHONIA DENDROIDEA		-	-	-	-	-	-	2.8	-
FARLOWIA MOLLIS		2.8	-	-	-	-	-	-	-
POLYSIPHONIA SPP.		-	-	2.8	-	-	-	-	-
MACROCYSTIS PYRIFERA		-	-	-	-	-	-	-	2.8

Vertical Band Transects - Algal Frequency of Occurrence per station - Survey 64-67

Species	Date	JAN96	JUN96	JUL96	DEC96	JUL96	JUL96
	Station	C	C	C	C	H	L
	Survey	064	065	066	067	066	066
	# Quads	36	36	36	36	36	36
NON-CORALLINE CRUST		88.9	91.7	88.9	100.0	97.2	100.0
MASTOCARPUS PAPILLATUS		86.1	91.7	86.1	94.4	97.2	94.4
CORALLINE CRUST		91.7	91.7	91.7	86.1	72.2	88.9
CLADOPHORA GRAMINEA		83.3	80.6	80.6	86.1	8.3	66.7
GELIDIUM COULTERI		69.4	63.9	63.9	69.4	38.9	50.0
GIGARTINA LEPTORHYNCHOS		72.2	63.9	80.6	69.4	13.9	33.3
ENDOCLADIA MURICATA		75.0	69.4	58.3	77.8	11.1	19.4
IRIDAEA HETEROCARPA		72.2	75.0	69.4	63.9	16.7	5.6
CRYPTOSIPHONIA WOODII		75.0	69.4	63.9	69.4	-	-
RHODOGLOSSUM AFFINE		33.3	33.3	38.9	55.6	38.9	55.6
GELIDIUM PUSILLUM		69.4	13.9	27.8	38.9	44.4	58.3
CORRALLINA SPP. + C.B.S.		75.0	25.0	22.2	80.6	5.6	8.3
CORALLINA VANCOUVERIENSIS		61.1	38.9	16.7	58.3	2.8	2.8
GASTROCLONIUM COULTERI		30.6	30.6	33.3	38.9	19.4	27.8
GIGARTINA CANALICULATA		19.4	8.3	36.1	36.1	27.8	36.1
PORPHYRA PERFORATA		-	58.3	75.0	5.6	11.1	5.6
BOSSIELLA SPP.		-	44.4	44.4	52.8	-	2.8
ULVA SPP.		2.8	8.3	36.1	13.9	33.3	27.8
PHYLLOSPADIX SPP.		30.6	30.6	27.8	27.8	-	-
CRYPTOPLEURA VIOLACEA		36.1	22.2	25.0	11.1	5.6	13.9
SPONGOMORPHA COALITA		5.6	2.8	58.3	-	-	-
PRIONITIS LANCEOLATA		8.3	2.8	5.6	5.6	13.9	16.7
IRIDAEA FLACCIDA		11.1	22.2	5.6	8.3	-	2.8
SMITHORA NAIADUM		-	16.7	16.7	13.9	-	-
LAURENCIA SPECTABILIS		13.9	2.8	8.3	8.3	2.8	8.3
CALLIARTHRON SPP.		-	-	-	44.4	-	-
GIGARTINA AGARDHII		-	-	-	5.6	2.8	30.6
CERAMIUM SPP.		2.8	2.8	5.6	-	5.6	16.7
MELOBESIA MEDIOCRIS		-	16.7	13.9	-	-	-
NEOAGARDHIELLA GAUDICHAUDII		2.8	5.6	2.8	2.8	-	8.3
CHONDRIA DECIPIENS		-	5.6	-	16.7	-	-
COLPOMENIA SPP.		-	-	-	-	16.7	5.6
CENTROCERAS CLAVULATUM		-	-	-	-	-	19.4
SCHIZYMENIA/HALYMENIA SPP.		-	-	-	-	-	16.7

Vertical Band Transects - Algal Frequency of Occurrence per station - Survey 64-67 (continued)

Species	Date	JAN96	JUN96	JUL96	DEC96	JUL96	JUL96
	Station	C	C	C	C	H	L
	Survey	064	065	066	067	066	066
	# Quads	36	36	36	36	36	36
MICROCLADIA COULTERI		-	-	11.1	-	-	-
DIATOM CHAINS		-	-	-	-	8.3	2.8
EGREGIA MENZIESII		-	-	5.6	2.8	-	-
PELVETIA FASTIGIATA		-	-	-	-	2.8	5.6
FUCUS GARDNERI		-	2.8	-	-	-	2.8
DIATOM FILM		-	-	-	-	-	5.6
CORALLINA OFFICINALIS		-	-	-	-	-	2.8
GIGARTINA EXASPERATA		-	-	-	-	-	2.8
IRIDAEA CORDATA		-	-	2.8	-	-	-
CALLITHAMNION PIKEANUM		-	2.8	-	-	-	-
BOTRYOGLOSSUM FARLOWIANUM		2.8	-	-	-	-	-
GRATELOUPIA DORYPHORA		-	-	-	-	-	2.8
FARLOWIA MOLLIS		2.8	-	-	-	-	-
ULVA SPP./ENTEROMORPHA SPP.		-	2.8	-	-	-	-
MACROCYSTIS PYRIFERA		-	-	-	-	-	2.8
ENDARACHNE BINGHAMIAE/PETALONIA FASCIA		-	-	-	-	-	2.8
GELIDIUM SPP.		2.8	-	-	-	-	-
SARGASSUM MUTICUM		-	-	-	-	2.8	-
LAMINARIALES		-	-	-	-	2.8	-

Vertical Band Transects - Algal Frequency of Occurrence per station - Survey 68-71

Species	Date	JUN97	SEP97	DEC97	SEP97	AUG97
	Station	C	C	C	H	L
	Survey	069	070	071	070	070
	# Quads	36	36	36	36	36
NON-CORALLINE CRUST		100.0	97.2	88.9	97.2	100.0
MASTOCARPUS PAPILLATUS		97.2	100.0	88.9	97.2	97.2
CORALLINE CRUST		94.4	91.7	88.9	72.2	100.0
GELIDIUM PUSILLUM		77.8	80.6	36.1	66.7	94.4
GELIDIUM COULTERI		61.1	69.4	52.8	72.2	86.1
CLADOPHORA GRAMINEA		94.4	97.2	83.3	11.1	50.0
GIGARTINA LEPTORHYNCHOS		86.1	86.1	69.4	25.0	58.3
RHODOGLOSSUM AFFINE		41.7	66.7	52.8	75.0	77.8
CORRALLINA SPP. + C.B.S.		52.8	72.2	80.6	25.0	47.2
CORALLINA VANCOUVERIENSIS		75.0	77.8	77.8	8.3	30.6
ENDOCLADIA MURICATA		72.2	69.4	77.8	22.2	16.7
ULVA SPP.		33.3	88.9	-	61.1	72.2
CRYPTOSIPHONIA WOODII		77.8	75.0	47.2	-	-
GASTROCLONIUM COULTERI		36.1	41.7	27.8	33.3	52.8
IRIDAEA HETEROCARPA		75.0	22.2	44.4	25.0	11.1
PORPHYRA PERFORATA		94.4	83.3	-	-	-
GIGARTINA CANALICULATA		13.9	30.6	19.4	52.8	58.3
BOSSIELLA SPP.		50.0	47.2	58.3	-	2.8
CRYPTOPLEURA VIOLACEA		19.4	38.9	8.3	55.6	36.1
IRIDAEA FLACCIDA		52.8	33.3	2.8	2.8	-
PHYLLOSPADIX SPP.		27.8	33.3	27.8	-	2.8
MELOBESIA MEDIOCRIS		27.8	33.3	27.8	-	-
PRIONITIS LANCEOLATA		11.1	2.8	8.3	25.0	33.3
CALLIARTHRON SPP.		25.0	22.2	22.2	2.8	2.8
GIGARTINA AGARDHII		5.6	-	5.6	36.1	22.2
CHONDRIA DECIPIENS		-	25.0	38.9	-	-
SMITHORA NAIADUM		27.8	30.6	-	-	-
LAURENCIA SPECTABILIS		5.6	11.1	2.8	16.7	16.7
CENTROCERAS CLAVULATUM		-	-	-	-	36.1
SCHIZYMENIA/HALYMENIA SPP.		11.1	2.8	-	2.8	16.7
NEOAGARDHIELLA GAUDICHAUDII		5.6	5.6	2.8	2.8	13.9
COLPOMENIA SPP.		-	-	-	25.0	-
CORALLINA OFFICINALIS		-	11.1	2.8	-	5.6
SPONGOMORPHA COALITA		-	16.7	-	-	-
GRATELOUPIA DORYPHORA		-	5.6	-	-	8.3

Vertical Band Transects - Algal Frequency of Occurrence per station - Survey 68-71 (continued)

Species	Date	JUN97	SEP97	DEC97	SEP97	AUG97
	Station	C	C	C	H	L
	Survey	069	070	071	070	070
	# Quads	36	36	36	36	36
PELVETIA FASTIGIATA		-	-	-	5.6	5.6
GIGARTINA EXASPERATA		-	-	-	-	8.3
GYMNOGONGRUS SPP.		-	-	-	8.3	-
ULVA SPP./ENTEROMORPHA SPP.		-	-	-	-	8.3
MICROCLADIA COULTERI		2.8	2.8	-	-	-
CERAMIUM SPP.		-	-	-	5.6	-
IRIDAEA CORDATA		2.8	-	-	-	-
CUMAGLOIA ANDERSONII		-	-	-	-	2.8
PRIONITIS LYALLII		-	-	-	-	2.8
PIKEA CALIFORNICA		2.8	-	-	-	-
DIATOM CHAINS		-	-	-	-	2.8
SARGASSUM MUTICUM		-	-	-	2.8	-

Vertical Band Transects - Surface+Under Invertebrate Frequency of Occurrence per station - Survey 60-63

Species	Date	JAN95	JUN95	JUL95	NOV95	FEB95	JUN95	JAN95	JUN95
	Station	C	C	C	C	H	H	L	L
	Survey	060	061	062	063	060	061	060	061
	# Quads	36	36	36	36	36	36	36	36
PAGURUS SPP.		83.3	94.4	80.6	100.0	97.2	97.2	86.1	91.7
TEGULA FUNEBRALIS		100.0	88.9	97.2	100.0	100.0	94.4	83.3	63.9
ANTHOPLEURA ELEGANTISSIMA		94.4	88.9	94.4	100.0	58.3	44.4	80.6	80.6
COLLISELLA LIMATULA		75.0	66.7	22.2	80.6	75.0	94.4	91.7	86.1
CHTHAMALUS SPP.		66.7	58.3	66.7	50.0	91.7	75.0	91.7	88.9
COLLISELLA SCABRA		52.8	61.1	52.8	72.2	47.2	83.3	69.4	75.0
SPIRORBIDAE UNID.		33.3	38.9	38.9	47.2	91.7	75.0	94.4	55.6
ACMAEIDAE UNID.		38.9	61.1	86.1	52.8	30.6	44.4	33.3	61.1
TEGULA BRUNNEA		44.4	33.3	33.3	44.4	63.9	58.3	50.0	44.4
PACHYGRAPSUS CRASSIPES		30.6	16.7	16.7	5.6	47.2	69.4	75.0	66.7
TETRACLITA SQUAMOSA		16.7	19.4	13.9	2.8	66.7	72.2	61.1	55.6
PHRAGMATOPOMA CALIFORNICA		25.0	22.2	-	52.8	50.0	30.6	72.2	41.7
PETROLISTHES CINCTIPES		36.1	36.1	33.3	38.9	33.3	55.6	30.6	22.2
NOTOACMEA SCUTUM		16.7	44.4	38.9	55.6	25.0	22.2	50.0	30.6
CIROLANA HARFORDI		19.4	27.8	16.7	27.8	44.4	75.0	36.1	25.0
STRONGYLOCENTROTUS PURPURATUS		25.0	8.3	2.8	8.3	55.6	50.0	55.6	47.2
COLLISELLA PELTA		33.3	11.1	11.1	66.7	22.2	16.7	44.4	33.3
LITTORINA SCUTULATA		36.1	27.8	19.4	33.3	33.3	25.0	25.0	38.9
OCENEBRA CIRCUMTEXTA		47.2	13.9	22.2	44.4	30.6	16.7	30.6	13.9
FISSURELLA VOLCANO		36.1	2.8	2.8	16.7	33.3	19.4	55.6	38.9
COLLISELLA ASMI		22.2	36.1	25.0	41.7	13.9	41.7	8.3	8.3
ACANTHINA PUNCTULATA		33.3	30.6	30.6	44.4	8.3	13.9	11.1	11.1
NOTOPLANA RUPICOLA		19.4	16.7	2.8	22.2	33.3	36.1	36.1	13.9
TUNICATA UNID.		50.0	36.1	47.2	41.7	-	-	2.8	2.8
HEMIGRAPSUS NUDUS		25.0	41.7	36.1	22.2	2.8	16.7	-	-
HOMALOPOMA BACULUM		-	-	-	5.6	69.4	11.1	47.2	5.6
EPIACTIS PROLIFERA		52.8	33.3	13.9	19.4	2.8	-	2.8	2.8
MITRELLA CARINATA		19.4	11.1	2.8	22.2	69.4	-	2.8	-
PISTA ELONGATA		33.3	36.1	16.7	30.6	5.6	-	-	-
PISASTER OCHRACEUS		8.3	2.8	25.0	8.3	25.0	27.8	8.3	11.1
CYANOPLAX HARTWEGII		11.1	33.3	19.4	-	5.6	8.3	11.1	22.2
LACUNA SPP.		16.7	-	13.9	44.4	13.9	5.6	8.3	-
SPIROBRANCHUS SPINOSUS		-	-	2.8	-	13.9	2.8	52.8	30.6
CREPIDULA ADUNCA		27.8	38.9	13.9	16.7	-	-	-	-

Vertical Band Transects - Surface+Under Invertebrate Frequency of Occurrence per station - Survey 60-63 (continued)

Species	Date	JAN95	JUN95	JUL95	NOV95	FEB95	JUN95	JAN95	JUN95
	Station	C	C	C	C	H	H	L	L
	Survey	060	061	062	063	060	061	060	061
	# Quads	36	36	36	36	36	36	36	36
LEPTASTERIAS HEXACTIS		19:4	8.3	16.7	30.6	-	-	-	-
HEMIGRAPSUS OREGONENSIS		27.8	22.2	11.1	11.1	2.8	-	-	-
BRYOZOA ENCRUSTING		13.9	2.8	19.4	16.7	11.1	-	5.6	2.8
GRAPSIDAE UNID.		13.9	2.8	2.8	5.6	11.1	8.3	2.8	22.2
PHASCOLOSOMA AGASSIZII		-	-	-	2.8	19.4	33.3	-	8.3
PORIFERA ENCRUSTING		13.9	8.3	11.1	19.4	8.3	-	-	-
ISCHNOCHITONOIDAE UNID.		-	-	5.6	38.9	-	8.3	-	2.8
PUGETTIA PRODUCTA		2.8	13.9	13.9	13.9	-	-	2.8	5.6
SERPULIDAE UNID.		-	-	2.8	2.8	13.9	5.6	2.8	25.0
AMPHISSA VERSICOLOR		-	-	-	-	25.0	5.6	11.1	2.8
STENOPLAX HEATHIANA		2.8	5.6	8.3	11.1	2.8	8.3	2.8	-
ACMAEA MITRA		11.1	5.6	-	8.3	11.1	-	-	2.8
ANTHOPLEURA XANTHOGRAMMICA		-	-	-	-	2.8	2.8	25.0	2.8
OPHIOTHRIX SPICULATA		-	-	-	-	8.3	8.3	8.3	8.3
HEPTACARPUS PICTUS		5.6	5.6	-	16.7	-	-	2.8	-
MITRELLA SPP.		5.6	-	-	-	-	-	22.2	2.8
EPITONIUM SPP./OPALIA SPP.		-	-	13.9	11.1	-	-	-	5.6
PATIRIA MINIATA		-	-	-	-	13.9	2.8	2.8	8.3
NEREIDAE UNID.		-	-	-	11.1	-	8.3	5.6	-
CANCER ANTENNARIUS		2.8	11.1	-	8.3	-	2.8	-	-
LOPHOPANOPEUS LEUCOMANUS		2.8	13.9	-	2.8	-	2.8	2.8	-
CYANOPLAX DENTIENS		11.1	2.8	5.6	5.6	-	-	-	-
COLLISELLA DIGITALIS		5.6	-	2.8	8.3	-	-	-	8.3
SERPULORBIS SQUAMIGERUS		-	-	-	2.8	8.3	8.3	5.6	-
LEPIDOZONA COOPERI		2.8	2.8	-	-	2.8	2.8	2.8	8.3
LISSOTHURIA NUTRIENS		8.3	-	2.8	8.3	-	-	2.8	-
MOPALIA MUSCOSA		8.3	-	-	2.8	5.6	-	2.8	-
OCENEBRA FOVEOLATA		11.1	-	-	8.3	-	-	-	-
STRONGYLOCENTROTUS FRANCISCANUS		-	-	-	-	5.6	-	11.1	2.8
AMPHIPHOLIS SQUAMATA		2.8	-	-	-	-	11.1	-	5.6
HALICLONA SPP.		16.7	-	-	-	-	-	-	-
IDOTEA UROTOMA		2.8	-	5.6	5.6	-	-	2.8	-
MYTILUS CALIFORNIANUS		-	-	-	-	5.6	2.8	5.6	2.8
POLYCHAETA UNID.		-	-	2.8	2.8	-	2.8	-	8.3
CYANOPLAX SPP.		-	-	-	16.7	-	-	-	-

Vertical Band Transects - Surface+Under Invertebrate Frequency of Occurrence per station - Survey 60-63 (continued)

Species	Date	JAN95	JUN95	JUL95	NOV95	FEB95	JUN95	JAN95	JUN95
	Station	C	C	C	C	H	H	L	L
	Survey	060	061	062	063	060	061	060	061
	# Quads	36	36	36	36	36	36	36	36
PHIDIANA PUGNAX		8.3	-	-	5.6	-	-	-	-
OCTOPUS SPP.		-	-	-	-	2.8	5.6	5.6	-
OCENEBRA INTERFOSSA		11.1	-	2.8	-	-	-	-	-
NEREIS GRUBEI		5.6	-	2.8	5.6	-	-	-	-
OCENEBRA SPP.		13.9	-	-	-	-	-	-	-
CALLIOSTOMA SPP.		-	-	-	-	13.9	-	-	-
PUGETTIA RICHII		-	5.6	-	2.8	-	-	2.8	-
MOPALIA LIGNOSA		-	-	5.6	2.8	-	-	2.8	-
COLLISELLA OCHRACEA		5.6	-	-	-	-	5.6	-	-
HALIOTIS CRACHERODII		-	-	-	-	2.8	-	5.6	2.8
LOTTIA GIGANTEA		-	-	-	-	-	-	5.6	5.6
NOTOACMEA PALEACEA		-	-	-	11.1	-	-	-	-
IDOTEA SPP.		-	-	-	-	11.1	-	-	-
MYTILIDAE		2.8	-	-	-	5.6	-	2.8	-
SERPULA VERMICULARIS		-	-	-	-	2.8	-	5.6	-
LEPIDOZONA MERTENSII		-	2.8	-	-	2.8	-	2.8	-
BITTIUM ESCHRICHTII		-	2.8	-	-	5.6	-	-	-
EPITONIUM TINCTUM		-	8.3	-	-	-	-	-	-
OPHIOPLOCUS ESMARKI		-	-	-	-	2.8	5.6	-	-
ALLOIOPLANA CALIFORNICA		-	-	-	-	8.3	-	-	-
HOMALOPOMA SPP.		-	-	-	-	-	2.8	-	5.6
CANCER PRODUCTUS		-	-	-	2.8	-	-	2.8	-
NUTTALLINA CALIFORNICA		-	-	-	-	-	-	2.8	2.8
DIODORA ASPERA		-	-	2.8	-	2.8	-	-	-
TEGULA PULLIGO		-	-	-	-	2.8	-	-	2.8
DORIOPSILLA ALBOPUNCTATA		-	-	-	-	2.8	-	2.8	-
AMPHIODIA OCCIDENTALIS		2.8	-	-	-	-	-	2.8	-
PARANEMERTES PEREGRINA		-	2.8	2.8	-	-	-	-	-
PHOLIDIDAE		-	-	-	-	2.8	-	2.8	-
APLYSIA CALIFORNICA		-	-	-	-	-	2.8	2.8	-
LEPIDOZONA SPP.		-	-	-	-	-	-	5.6	-
TRICOLIA SPP.		-	-	-	-	-	2.8	-	2.8
SALMACINA TRIBRANCHIATA		5.6	-	-	-	-	-	-	-
TONICELLA LINEATA		-	2.8	-	-	-	-	-	-
COLLISELLA INSTABILIS		-	-	-	-	2.8	-	-	-

Vertical Band Transects - Surface+Under Invertebrate Frequency of Occurrence per station - Survey 60-63 (continued)

Species	Date	JAN95	JUN95	JUL95	NOV95	FEB95	JUN95	JAN95	JUN95
	Station	C	C	C	C	H	H	L	L
	Survey	060	061	062	063	060	061	060	061
	# Quads	36	36	36	36	36	36	36	36
ROSTANGA PULCHRA		-	-	2.8	-	-	-	-	-
MODIOLUS SPP.		-	-	-	-	-	-	2.8	-
PYCNOPODIA HELIANTHOIDES		-	2.8	-	-	-	-	-	-
DIAULULA SANDIEGENSIS		-	-	-	2.8	-	-	-	-
AEOLIDIA PAPILLOSA		-	2.8	-	-	-	-	-	-
NEMERTEA UNID.		-	-	-	-	-	-	-	2.8
MITRA IDAE		-	-	-	-	2.8	-	-	-
LAMELLARIA DIEGOENSIS		2.8	-	-	-	-	-	-	-
TEGULA MONTEREYI		-	-	-	-	2.8	-	-	-
EUPENTACTA QUINQUESEMITA		-	-	-	-	-	-	2.8	-
SEPTIFER BIFURCATUS		-	-	-	-	2.8	-	-	-
BARLEEIA SPP.		-	-	-	-	-	-	2.8	-
PYCNOGONIDA UNID.		-	-	-	-	2.8	-	-	-
STRONGYLOCENTROTUS SPP.		-	2.8	-	-	-	-	-	-
THEMISTE PYROIDES		-	-	-	-	2.8	-	-	-
MODIOLUS CARPENTERI		-	-	-	-	2.8	-	-	-
PELECYPODA UNID.		-	-	-	-	2.8	-	-	-
BITTIUM SPP.		2.8	-	-	-	-	-	-	-
PUGETTIA SPP.		-	-	-	-	2.8	-	-	-

Vertical Band Transects - Surface+Under Invertebrate Frequency of Occurrence per station - Survey 64-67

Species	Date	JAN96	JUN96	JUL96	DEC96	JUL96	JUL96
	Station	C	C	C	C	H	L
	Survey	064	065	066	067	066	066
	# Quads	36	36	36	36	36	36
TEGULA FUNEBRALIS		97.2	100.0	97.2	100.0	97.2	75.0
PAGURUS SPP.		88.9	55.6	83.3	100.0	97.2	94.4
ANTHOPLEURA ELEGANTISSIMA		94.4	80.6	88.9	94.4	33.3	94.4
CHTHAMALUS SPP.		75.0	77.8	61.1	69.4	88.9	97.2
COLLISELLA SCABRA		58.3	58.3	52.8	77.8	94.4	91.7
NOTOACMEA SCUTUM		63.9	63.9	69.4	63.9	77.8	86.1
ACMAEIDAE UNID.		41.7	83.3	80.6	52.8	69.4	91.7
COLLISELLA LIMATULA		47.2	66.7	63.9	36.1	94.4	88.9
TEGULA BRUNNEA		61.1	38.9	41.7	47.2	36.1	44.4
SPIRORBIDAE UNID.		38.9	33.3	44.4	13.9	72.2	50.0
CIROLANA HARFORDI		38.9	25.0	41.7	30.6	72.2	41.7
PHRAGMATOPOMA CALIFORNICA		55.6	19.4	8.3	36.1	41.7	58.3
PACHYGRAPSUS CRASSIPES		13.9	19.4	19.4	11.1	72.2	83.3
COLLISELLA PELTA		27.8	27.8	13.9	50.0	50.0	41.7
PETROLISTHES CINCTIPES		38.9	25.0	38.9	13.9	41.7	41.7
ACANTHINA PUNCTULATA		38.9	38.9	19.4	47.2	2.8	22.2
TETRACLITA SQUAMOSA		27.8	13.9	11.1	5.6	58.3	50.0
COLLISELLA ASMI		44.4	30.6	47.2	5.6	19.4	16.7
NOTOPLANA RUPICOLA		16.7	16.7	27.8	55.6	38.9	5.6
STRONGYLOCENTROTUS PURPURATUS		25.0	2.8	8.3	11.1	47.2	55.6
PISTA ELONGATA		47.2	27.8	36.1	33.3	-	-
TUNICATA UNID.		25.0	27.8	44.4	41.7	-	5.6
OCENEBRA CIRCUMTEXTA		36.1	13.9	2.8	50.0	11.1	27.8
LITTORINA SCUTULATA		30.6	19.4	13.9	30.6	13.9	33.3
HEMIGRAPSUS NUDUS		19.4	27.8	44.4	22.2	11.1	-
LACUNA SPP.		22.2	16.7	27.8	25.0	8.3	5.6
PUGETTIA PRODUCTA		22.2	19.4	22.2	8.3	8.3	16.7
FISSURELLA VOLCANO		13.9	13.9	2.8	16.7	5.6	41.7
PISASTER OCHRACEUS		13.9	11.1	19.4	2.8	25.0	16.7
MITRELLA CARINATA		25.0	11.1	2.8	25.0	2.8	19.4
LEPTASTERIAS HEXACTIS		19.4	25.0	25.0	13.9	-	-
EPIACTIS PROLIFERA		19.4	16.7	5.6	13.9	-	2.8
CYANOPLAX DENTIENS		2.8	27.8	11.1	11.1	2.8	2.8
LOPHOPANOPEUS LEUCOMANUS		13.9	2.8	16.7	5.6	2.8	13.9
PORIFERA ENCRUSTING		25.0	5.6	8.3	16.7	-	-

Vertical Band Transects - Surface+Under Invertebrate Frequency of Occurrence per station - Survey 64-67 (continued)

Species	Date	JAN96	JUN96	JUL96	DEC96	JUL96	JUL96
	Station	C	C	C	C	H	L
	Survey	064	065	066	067	066	066
	# Quads	36	36	36	36	36	36
ISCHNOCHITONOIDAE UNID.		13.9	25.0	-	5.6	-	5.6
CANCER ANTENNARIUS		13.9	2.8	11.1	8.3	-	11.1
CYANOPLAX HARTWEGII		2.8	2.8	19.4	-	2.8	16.7
SPIROBRANCHUS SPINOSUS		-	-	-	5.6	5.6	30.6
COLLISELLA DIGITALIS		-	2.8	5.6	16.7	5.6	5.6
CREPIDULA ADUNCA		-	8.3	8.3	13.9	2.8	2.8
LISSOTHURIA NUTRIENS		16.7	5.6	2.8	8.3	-	2.8
OCENEBRA INTERFOSSA		13.9	2.8	-	19.4	-	-
AMPHIODIA OCCIDENTALIS		11.1	-	-	5.6	13.9	2.8
PHASCOLOSOMA AGASSIZII		-	11.1	-	2.8	16.7	2.8
HEMIGRAPSUS OREGONENSIS		13.9	-	8.3	8.3	-	-
BRYOZOA ENCRUSTING		2.8	8.3	11.1	5.6	-	2.8
CREPIDULA SPP.		11.1	-	19.4	-	-	-
LEPIDOZONA COOPERI		-	-	5.6	8.3	5.6	8.3
STENOPLAX HEATHIANA		11.1	5.6	2.8	8.3	-	-
POLYCHAETA UNID.		-	-	8.3	11.1	8.3	-
HEPTACARPUS PICTUS		2.8	13.9	-	5.6	-	2.8
NOTOACMEA PALEACEA		2.8	-	8.3	13.9	-	-
NEREIDAE UNID.		2.8	5.6	-	5.6	5.6	2.8
ACMAEA MITRA		2.8	2.8	2.8	5.6	5.6	2.8
EPITONIUM TINCTUM		-	-	16.7	5.6	-	-
HOMALOPOMA BACULUM		-	-	-	-	11.1	11.1
PARANEMERTES PEREGRINA		-	11.1	8.3	-	-	-
MITRELLA SPP.		-	-	19.4	-	-	-
MOPALIA MUSCOSA		-	2.8	-	11.1	2.8	-
GRAPSIDAE UNID.		-	-	5.6	-	11.1	-
AMPHIPORUS IMPARISPINOSUS		-	8.3	-	2.8	2.8	2.8
PYCNOGONIDA UNID.		-	2.8	-	-	11.1	-
EPITONIUM SPP./OPALIA SPP.		11.1	2.8	-	-	-	-
MOPALIA LIGNOSA		5.6	-	2.8	2.8	-	-
OPHIOTHRIX SPICULATA		-	-	-	-	2.8	8.3
PATIRIA MINIATA		-	-	-	-	11.1	-
SERPULIDAE UNID.		-	2.8	2.8	-	5.6	-

Vertical Band Transects - Surface+Under Invertebrate Frequency of Occurrence per station - Survey 64-67 (continued)

Species	Date	JAN96	JUN96	JUL96	DEC96	JUL96	JUL96
	Station	C	C	C	C	H	L
	Survey	064	065	066	067	066	066
	# Quads	36	36	36	36	36	36
ANTHOPLEURA XANTHOGRAMMICA		2.8	-	-	-	2.8	2.8
SERPULA VERMICULARIS		-	-	-	5.6	-	2.8
TRICOLIA PULLOIDES		8.3	-	-	-	-	-
PHIDIANA PUGNAX		-	-	-	8.3	-	-
ALLOIOPLANA CALIFORNICA		-	2.8	5.6	-	-	-
CANCER SPP.		2.8	-	5.6	-	-	-
HEPTACARPUS SPP.		8.3	-	-	-	-	-
PISASTER SPP./HENRICIA SPP.		-	5.6	-	2.8	-	-
BITTIUM SPP.		5.6	-	-	-	-	2.8
LEPIDOZONA MERTENSII		-	-	-	-	2.8	2.8
TONICELLA LINEATA		-	2.8	2.8	-	-	-
HOMALOPOMA LURIDUM/LIRULARIA SUCCINCTA		-	-	-	-	5.6	-
LITTORINA PLANAXIS		-	-	-	-	-	5.6
OCTOPUS SPP.		2.8	-	-	-	2.8	-
NEREIS GRUBEI		-	2.8	-	2.8	-	-
OPHIUROIDEA UNID.		2.8	-	-	-	2.8	-
CREPIDULA SPP.		-	-	5.6	-	-	-
IDOTEA UROTOMA		-	-	-	2.8	-	-
IDOTEA WOSNESENSKII		-	-	2.8	-	-	-
MIMULUS FOLIATUS		-	-	2.8	-	-	-
PUGETTIA RICHII		-	-	-	-	-	2.8
NUTTALLINA CALIFORNICA		-	-	2.8	-	-	-
CALLIOSTOMA LIGATUM		-	-	-	-	2.8	-
COLLISELLA OCHRACEA		-	-	-	2.8	-	-
DIODORA ASPERA		-	-	-	2.8	-	-
HALIOTIS CRACHERODII		-	-	-	-	-	2.8
TEGULA PULLIGO		-	-	-	-	2.8	-
HERMISSENDA CRASSICORNIS		-	2.8	-	-	-	-
MYTILUS CALIFORNIANUS		-	-	-	-	-	2.8
STRONGYLOCENTROTUS FRANCISCANUS		-	-	2.8	-	-	-
AMPHIPHOLIS SQUAMATA		-	2.8	-	-	-	-
OPHIOPLOCUS ESMARKI		-	-	-	-	2.8	-
DIAULULA SANDIEGENSIS		-	-	-	2.8	-	-
CORYPHELLA TRILINEATA		-	-	-	-	-	2.8
MITRA IDAE		-	-	-	-	-	2.8

Vertical Band Transects - Surface+Under Invertebrate Frequency of Occurrence per station - Survey 64-67 (continued)

Species	Date	JAN96	JUN96	JUL96	DEC96	JUL96	JUL96
	Station	C	C	C	C	H	L
	Survey	064	065	066	067	066	066
	# Quads	36	36	36	36	36	36
NOTOACMEA INSESSA		-	-	-	2.8	-	-
ANISODORIS NOBILIS		2.8	-	-	-	-	-
MODIOLUS CARPENTERI		-	-	-	-	-	2.8
OCENEBRA SPP.		-	2.8	-	-	-	-
CIRRATULIDAE/TEREBELLIDAE		-	-	-	2.8	-	-
TRICOLIA SPP.		-	-	-	2.8	-	-
PUGETTIA SPP.		-	2.8	-	-	-	-

Vertical Band Transects - Surface+Under Invertebrate Frequency of Occurrence per station - Survey 68-71

Species	Date	JUN97	SEP97	DEC97	SEP97	AUG97
	Station	C	C	C	H	L
	Survey	069	070	071	070	070
	# Quads	36	36	36	36	36
PAGURUS SPP.		91.7	97.2	72.2	100.0	100.0
ANTHOPLEURA ELEGANTISSIMA		94.4	91.7	97.2	41.7	94.4
TEGULA FUNEBRALIS		86.1	100.0	91.7	77.8	63.9
COLLISELLA LIMATULA		77.8	86.1	50.0	100.0	88.9
CHTHAMALUS SPP.		66.7	75.0	86.1	94.4	72.2
COLLISELLA SCABRA		66.7	77.8	69.4	86.1	94.4
NOTOACMEA SCUTUM		52.8	88.9	58.3	77.8	63.9
SPIRORBIDAE UNID.		25.0	58.3	27.8	97.2	58.3
CIROLANA HARFORDI		36.1	36.1	41.7	75.0	52.8
PACHYGRAPSUS CRASSIPES		33.3	41.7	25.0	75.0	66.7
TEGULA BRUNNEA		38.9	50.0	52.8	47.2	52.8
COLLISELLA PELTA		36.1	58.3	30.6	50.0	58.3
PHRAGMATOPOMA CALIFORNICA		22.2	47.2	52.8	30.6	66.7
ACANTHINA PUNCTULATA		47.2	47.2	44.4	8.3	25.0
OCENEBRA CIRCUMTEXTA		22.2	50.0	38.9	11.1	36.1
ACMAEIDAE UNID.		16.7	55.6	58.3	25.0	-
TETRACLITA SQUAMOSA		13.9	8.3	2.8	72.2	41.7
STRONGYLOCENTROTUS PURPURATUS		5.6	13.9	19.4	50.0	41.7
PETROLISTHES CINCTIPES		22.2	13.9	33.3	41.7	13.9
PISTA ELONGATA		38.9	44.4	36.1	-	-
COLLISELLA ASMI		30.6	47.2	22.2	16.7	2.8
NOTOPLANA RUPICOLA		19.4	-	38.9	30.6	2.8
TUNICATA UNID.		30.6	33.3	8.3	-	19.4
HEMIGRAPSUS NUDUS		36.1	19.4	25.0	8.3	-
PUGETTIA PRODUCTA		8.3	38.9	13.9	-	27.8
FISSURELLA VOLCANO		2.8	16.7	13.9	13.9	36.1
CREPIDULA ADUNCA		19.4	38.9	22.2	-	-
LITTORINA SCUTULATA		19.4	11.1	16.7	22.2	11.1
LACUNA SPP.		19.4	33.3	22.2	2.8	-
CYANOPLAX HARTWEGII		25.0	19.4	-	11.1	16.7
EPIACTIS PROLIFERA		16.7	22.2	27.8	-	-
MITRELLA CARINATA		8.3	19.4	22.2	5.6	5.6
MOPALIA MUSCOSA		13.9	19.4	11.1	5.6	5.6
LEPTASTERIAS HEXACTIS		25.0	27.8	-	-	-
PHASCOLOSOMA AGASSIZII		2.8	2.8	-	38.9	5.6
HEMIGRAPSUS OREGONENSIS		16.7	13.9	13.9	5.6	-

Vertical Band Transects - Surface+Under Invertebrate Frequency of Occurrence per station - Survey 68-71 (continued)

Species	Date	JUN97	SEP97	DEC97	SEP97	AUG97
	Station	C	C	C	H	L
	Survey	069	070	071	070	070
	# Quads	36	36	36	36	36
PISASTER OCHRACEUS		8.3	2.8	5.6	19.4	11.1
SPIROBRANCHUS SPINOSUS		-	-	-	5.6	41.7
LOPHOPANOPEUS LEUCOMANUS		13.9	8.3	2.8	13.9	-
CYANOPLAX DENTIENS		19.4	13.9	2.8	-	-
AMPHISSA VERSICOLOR		5.6	5.6	11.1	8.3	5.6
NEREIS GRUBEI		-	8.3	-	27.8	-
COLLISELLA DIGITALIS		11.1	-	5.6	2.8	8.3
PLATYHELMINTHES UNID.		-	25.0	-	-	2.8
BRYOZOA ENCRUSTING		2.8	2.8	5.6	-	16.7
OCENEBRA INTERFOSSA		-	11.1	13.9	-	-
CANCER ANTENNARIUS		2.8	13.9	5.6	-	-
STENOPLAX HEATHIANA		8.3	5.6	2.8	2.8	2.8
COLLISELLA OCHRACEA		-	-	5.6	8.3	8.3
HOMALOPOMA BACULUM		2.8	-	-	19.4	-
PATIRIA MINIATA		-	-	-	13.9	8.3
PORIFERA ENCRUSTING		8.3	8.3	5.6	-	-
LEPIDOZONA SPP.		2.8	2.8	2.8	11.1	-
TONICELLA LINEATA		2.8	11.1	-	-	2.8
EPITONIUM TINCTUM		5.6	-	11.1	-	-
LISSOTHURIA NUTRIENS		5.6	2.8	2.8	-	5.6
NEREIDAE UNID.		2.8	-	-	-	11.1
LEPIDOZONA COOPERI		5.6	-	-	2.8	5.6
NUTTALLINA CALIFORNICA		-	8.3	-	-	5.6
HERMISSENDA CRASSICORNIS		-	5.6	-	2.8	5.6
PHIDIANA PUGNAX		-	2.8	11.1	-	-
AMPHIPORUS IMPARISPINOSUS		11.1	2.8	-	-	-
ANTHOPLEURA XANTHOGRAMMICA		-	-	-	2.8	8.3
HEPTACARPUS PICTUS		-	2.8	2.8	5.6	-
MOPALIA LIGNOSA		-	8.3	2.8	-	-
ACMAEA MITRA		5.6	2.8	2.8	-	-
AMPHIODIA OCCIDENTALIS		2.8	2.8	2.8	-	2.8
OCTOPUS SPP.		-	-	-	11.1	-
CYANOPLAX SPP.		-	-	5.6	-	5.6
IDOTEA UROTOMA		8.3	-	-	-	-
DIODORA ASPERA		-	-	-	-	8.3
PSEUDOMELATOMA TOROSA		2.8	2.8	2.8	-	-

Vertical Band Transects - Surface+Under Invertebrate Frequency of Occurrence per station - Survey 68-71 (continued)

Species	Date	JUN97	SEP97	DEC97	SEP97	AUG97
	Station	C	C	C	H	L
	Survey	069	070	071	070	070
	# Quads	36	36	36	36	36
OPHIOTHRIX SPICULATA		-	-	2.8	5.6	-
CANCER SPP.		-	5.6	-	-	2.8
MOPALIA SPP.		8.3	-	-	-	-
SERPULIDAE UNID.		5.6	-	2.8	-	-
STYLOCHUS FRANCISCANUS		-	-	-	8.3	-
EPITONIUM SPP./OPALIA SPP.		-	8.3	-	-	-
LITTORINA PLANAXIS		-	-	-	-	5.6
SERPULORBIS SQUAMIGERUS		-	-	-	-	5.6
DIAULULA SANDIEGENSIS		-	-	-	5.6	-
PARANEMERTES PEREGRINA		2.8	-	2.8	-	-
MYTILUS EDULIS		-	-	-	2.8	2.8
OPHIUROIDEA UNID.		-	2.8	-	2.8	-
BITTIUM SPP.		-	5.6	-	-	-
TRICOLIA SPP.		-	-	5.6	-	-
SALMACINA TRIBRANCHIATA		2.8	2.8	-	-	-
CANCER PRODUCTUS		-	-	-	-	2.8
LEPIDOZONA MERTENSII		2.8	-	-	-	-
CALLIOSTOMA LIGATUM		2.8	-	-	-	-
HALIOTIS CRACHERODII		-	-	-	-	2.8
OCENEBRA FOVEOLATA		2.8	-	-	-	-
TEGULA PULLIGO		-	-	-	2.8	-
GLANS SUBQUADRATA		-	-	-	-	2.8
MYTILUS CALIFORNIANUS		-	-	-	2.8	-
AEOLIDIA PAPILLOSA		2.8	-	-	-	-
DIOPATRA ORNATA		-	-	-	-	2.8
CACTOSOMA ARENARIA		-	-	-	2.8	-
LOTTIA GIGANTEA		-	-	-	-	2.8
ISCHNOCHITONOIDAE UNID.		2.8	-	-	-	-
STRONGYLOCENTROTUS SPP.		-	-	-	-	2.8
THEMISTE PYROIDES		-	-	-	-	2.8
NOTOACMEA PALEACEA		2.8	-	-	-	-
APLYSIA CALIFORNICA		-	-	-	2.8	-
IDOTEA SPP.		-	2.8	-	-	-
OCENEBRA SPP.		-	-	2.8	-	-
POLYNOIDAE		-	-	-	-	2.8

Vertical Band Transects - Intertidal Fish: Station Totals - Intertidal Fish Survey 60-63

Species	Station	C	H	L
	# Quads	144	72	72
XIPHISTER MUCOSUS		67.0	4.0	-
STICHAEIDAE/PHOLIDIDAE		20.0	4.0	8.0
ANOPLARCHUS PURPURESCENS		25.0	-	-
CEBIDICHTHYS VIOLACEUS		9.0	10.0	-
OLIGOCOTTUS SNYDERI		16.0	1.0	-
GOBIESOX MAEANDRICUS		13.0	2.0	-
XIPHISTER ATROPURPUREUS		-	6.0	6.0
GIBBONSIA SPP.		5.0	-	-
XERERPES FUCORUM		4.0	-	-
COTTIDAE (JUV.)		2.0	-	-
ANOPLARCHUS SPP./CEBIDICHTHYS		1.0	-	-
SCYTALINA CERDALE		-	1.0	-

Vertical Band Transects - Intertidal Fish: Station Totals - Intertidal Fish Survey 64-67

Species	Station	C	H	L
	# Quads	144	36	36
XIPHISTER MUCOSUS		86.0	6.0	1.0
STICHAEIDAE/PHOLIDIDAE		32.0	15.0	3.0
OLIGOCOTTUS SNYDERI		28.0	-	-
CEBIDICHTHYS VIOLACEUS		11.0	15.0	1.0
GOBIESOX MAEANDRICUS		14.0	3.0	1.0
ANOPLARCHUS PURPURESCENS		17.0	1.0	-
COTTIDAE (JUV.)		6.0	-	-
XERERPES FUCORUM		1.0	1.0	1.0
GIBBONSIA SPP.		3.0	-	-
OLIGOCOTTUS SPP.		3.0	-	-
XIPHISTER ATROPURPUREUS		-	2.0	-
ANOPLARCHUS SPP./CEBIDICHTHYS		2.0	-	-

Vertical Band Transects - Intertidal Fish: Station Totals - Intertidal Fish Survey 68-71

Species	Station	C	H	L
	# Quads	108	36	36
XIPHISTER MUCOSUS		41.0	8.0	2.0
STICHAEIDAE/PHOLIDIDAE		16.0	4.0	1.0
OLIGOCOTTUS SNYDERI		13.0	2.0	1.0
ANOPLARCHUS PURPURESCENS		10.0	-	-
CEBIDICHTHYS VIOLACEUS		6.0	2.0	-
GOBIESOX MAEANDRICUS		5.0	2.0	-
XIPHISTER ATROPURPUREUS		1.0	-	1.0
COTTIDAE (JUV.)		1.0	-	-

Subtidal Line Contact - Algal Mean Abundance per 7 square meters - Survey 93 Results

Species	Station	06-11	09-10	09-15	10-15	12-10	19-10	22-10
	Survey	093	093	093	093	093	093	093
	# Quads	4	4	4	4	4	4	4
coralline crust		15.0	62.0	52.5	62.5	32.5	60.0	53.0
Calliarthron/Bossiella spp.-complex		5.5	14.0	33.0	30.5	9.0	19.5	48.0
Farlowia/Pikea spp.-complex		55.5	24.0	12.5	1.0	<.1	<.1	1.0
Rhodymenia spp.		40.0	7.5	4.0	6.5	3.0	8.0	4.0
Chondracanthus corymbiferus		3.5	5.0	3.5	8.5	2.0	17.0	17.0
Prionitis spp.		0.5	8.5	10.5	3.0	10.0	1.0	8.5
Chrysophyta unid.		24.0	1.0	1.0	<.1	1.5	-	12.0
Gelidium robustum		12.0	10.5	1.5	0.5	0.5	1.0	0.5
Cryptopleura violacea		8.0	13.5	3.0	-	0.5	-	<.1
Cryptopleura ruprechtiana		-	-	-	<.1	-	8.0	15.5
filamentous red algae-complex		6.5	3.5	0.5	6.0	2.5	-	-
Cystoseira osmundacea		-	-	<.1	2.0	3.5	9.0	-
Macrocystis spp.		-	0.5	1.5	5.5	4.5	-	-
non-coralline crust		<.1	4.5	1.0	0.5	<.1	2.0	2.0
Nienburgia andersoniana		-	8.5	0.5	-	0.5	<.1	-
Ahnfeltiopsis linearis		-	1.5	-	3.5	-	<.1	-
Prionitis australis		-	1.0	1.5	-	1.0	-	1.5
Pterygophora californica		-	-	-	2.0	-	2.0	-
Callophyllis spp.		-	-	1.5	<.1	-	<.1	1.5
Gelidium spp.		-	-	-	-	3.0	-	-
Laminaria setchellii		-	-	<.1	0.5	-	1.0	1.0
Halymenia/Schizymenia spp.-complex		-	-	-	-	-	0.5	2.0
Chondracanthus harveyanus/spinosus		-	1.5	0.5	-	<.1	<.1	-
Corallina officinalis		-	0.5	<.1	-	1.0	<.1	<.1
Pterosiphonia dendroidea		-	<.1	1.0	-	0.5	-	-
Polyneura latissima		-	-	-	-	-	0.5	0.5
Osmundea spp.		-	-	-	-	-	0.5	<.1
Sarcodiotheca gaudichaudii		-	-	-	-	0.5	<.1	<.1
Neoptilota densa		-	-	-	-	-	-	0.5
Mazzaella rosea		-	-	0.5	-	-	-	<.1
Antithamnion/Platythamnion spp.-complex		-	<.1	-	<.1	-	-	-
Ulva/Enteromorpha spp.		-	-	-	<.1	<.1	<.1	<.1
Callophyllis flabellulata		-	<.1	-	-	<.1	-	<.1
Microcladia coulteri		-	-	-	-	-	-	<.1
Gastroclonium subarticulatum		-	<.1	-	-	-	<.1	-
Mazzaella lilacina		-	-	-	-	-	<.1	<.1

Subtidal Line Contact - Algal Mean Abundance per 7 square meters - Survey 93 Results (continued)

Species	Station	06-11	09-10	09-15	10-15	12-10	19-10	22-10
	Survey	093	093	093	093	093	093	093
	# Quads	4	4	4	4	4	4	4
Dictyoneurum californicum		-	-	-	-	-	-	<.1
Amplisiphonia pacifica		-	-	-	<.1	-	-	-
Erythrophyllum delesserioides		-	-	-	-	-	-	<.1
Chondracanthus canaliculatus		-	<.1	-	-	-	-	-
Plocamium cartilagineum		-	<.1	-	-	-	-	-
Rhodoptilum plumosum		-	-	-	-	-	<.1	-
Halicystis ovalis		-	-	-	-	-	-	<.1
Callophyllis firma		-	-	-	-	-	-	<.1
Delesseriaceae (juv.)		-	-	-	-	<.1	-	-
Bryopsis spp.		-	-	-	-	<.1	-	-
Delesseria decipiens		-	-	-	-	-	<.1	-
Derbesia marina		-	-	-	-	<.1	-	-
colonized rock		67.0	68.0	54.0	79.5	43.0	71.5	75.5
colonized cobble		2.5	20.5	3.0	11.5	3.0	1.0	22.0
sand (shell gravel)		2.0	3.0	4.0	4.5	38.5	7.0	-
bare cobble		21.5	5.5	10.0	4.0	9.5	6.0	1.0
bare rock		7.0	3.0	17.0	0.5	5.5	14.0	1.5

Subtidal Line Contact - Algal Mean Abundance per 7 square meters - Survey 94 Results

Species	Station	06-11	09-10	09-15	10-15	12-10	19-10	22-10	22-30
	Survey	094	094	094	094	094	094	094	094
	# Quads	4	4	4	4	4	4	4	4
coralline crust		23.0	41.0	48.0	45.0	37.0	46.0	29.5	69.5
Calliarthron/Bossiella spp.-complex		3.5	16.5	40.5	37.0	24.0	50.0	67.0	31.0
Cryptopleura violacea		67.5	53.0	28.0	<.1	2.0	1.0	0.5	-
Cryptopleura ruprechtiana		-	-	-	7.0	-	23.5	38.0	68.5
Chondracanthus corymbiferus		9.0	10.0	9.0	14.5	15.5	35.0	31.0	3.0
Rhodymenia spp.		30.5	6.5	13.0	15.5	18.5	18.5	3.5	7.5
Desmarestia spp.		-	<.1	7.0	2.5	-	21.5	56.0	1.5
Farlowia/Pikea spp.-complex		53.0	15.0	13.5	0.5	0.5	<.1	3.5	<.1
filamentous red algae-complex		16.0	10.0	7.0	2.0	6.0	<.1	-	<.1
Prionitis spp.		<.1	5.5	5.5	2.0	17.0	1.0	6.5	0.5
Gelidium robustum		12.5	10.0	1.5	0.5	3.0	3.0	<.1	0.5
Polyneura latissima		-	-	<.1	<.1	-	1.0	-	28.0
Cystoseira osmundacea		-	<.1	2.0	4.5	5.0	13.5	-	3.0
Chondracanthus harveyanus/spinosus		-	0.5	2.0	-	20.0	-	-	-
Macrocystis spp.		-	3.5	4.0	4.5	9.0	-	-	-
Mazzaella lilacina		-	-	-	<.1	-	16.0	2.5	<.1
Callophyllis spp.		-	0.5	<.1	-	-	2.5	2.5	8.5
Chrysophyta unid.		2.0	4.5	<.1	7.0	<.1	-	-	-
Dictyoneurum californicum		-	-	-	-	-	<.1	0.5	13.0
Nienburgiá andersoniana		-	5.5	1.0	-	6.5	-	-	-
Ahnfeltiopsis linearis		0.5	1.0	0.5	1.0	7.0	-	<.1	-
Corallina officinalis		-	0.5	<.1	<.1	8.0	1.0	-	-
Mazzaella rosea		<.1	3.5	0.5	-	<.1	4.5	<.1	-
Microcladia coulteri		<.1	<.1	<.1	<.1	<.1	6.0	1.0	<.1
non-coralline crust		-	1.5	1.5	0.5	1.0	<.1	2.5	<.1
Pterygophora californica		-	-	-	4.0	<.1	1.5	<.1	1.5
Halymenia/Schizymenia spp.-complex		<.1	-	0.5	-	-	4.0	2.0	-
Osmundea spp.		<.1	0.5	0.5	-	<.1	2.5	0.5	0.5
Laminaria setchellii		-	-	<.1	-	-	1.5	0.5	2.5
Gelidium spp.		-	-	-	<.1	2.5	-	-	-
Prionitis australis		-	0.5	2.0	-	-	-	<.1	-
Callophyllis flabellulata		-	-	<.1	2.0	-	<.1	-	<.1
Pterosiphonia dendroidea		-	1.0	<.1	0.5	0.5	-	-	-
Ulva/Enteromorpha spp.		1.0	0.5	<.1	<.1	<.1	<.1	-	-
Nereocystis luetkeana		-	-	-	-	-	1.0	0.5	-
Sarcodiotheca gaudichaudii		-	<.1	-	-	-	1.0	<.1	-
Neoptilota densa		-	-	-	-	-	<.1	<.1	1.0

Subtidal Line Contact - Algal Mean Abundance per 7 square meters - Survey 94 Results (continued)

Species	Station	06-11	09-10	09-15	10-15	12-10	19-10	22-10	22-30
	Survey	094	094	094	094	094	094	094	094
	# Quads	4	4	4	4	4	4	4	4
Laminariales		-	-	<.1	0.5	<.1	<.1	<.1	-
Colpomenia spp.		-	<.1	<.1	0.5	<.1	-	-	-
Rhodoptilum plumosum		-	-	-	<.1	-	-	-	0.5
Gastroclonium subarticulatum		-	0.5	-	-	-	-	-	-
Dictyota binghamiae		-	-	-	-	-	-	-	0.5
Opuntiella californica		-	-	-	-	-	-	-	0.5
Fryeella gardneri		-	-	-	-	-	-	-	0.5
Hymenena spp.		0.5	-	-	-	-	-	-	-
Antithamnion/Platythamnion spp.-complex		-	-	<.1	<.1	<.1	-	-	-
Callophyllis firma		-	-	-	<.1	-	<.1	<.1	<.1
Erythrophyllum delesserioides		-	-	-	-	-	<.1	<.1	-
Scinaia confusa		-	-	-	<.1	-	<.1	-	-
Halicystis ovalis		-	-	-	<.1	-	-	<.1	-
Gloiosiphonia californica		-	<.1	<.1	-	-	-	-	-
Sargassum muticum		-	-	<.1	-	-	-	-	-
Egregia menziesii		-	-	-	-	-	-	<.1	-
Chondracanthus canaliculatus		-	<.1	-	-	-	-	-	-
Pikea robusta		-	-	-	-	-	-	-	<.1
colonized rock		89.0	79.5	73.0	81.0	68.0	92.0	84.0	97.5
sand (shell gravel)		4.5	-	18.5	10.0	22.0	-	0.5	2.0
bare cobble		1.5	13.5	1.0	3.0	5.0	3.0	10.5	-
colonized cobble		-	6.0	6.5	6.0	5.0	5.0	3.0	-
bare rock		5.0	1.0	1.0	-	-	-	2.0	0.5

Subtidal Line Contact - Algal Mean Abundance per 7 square meters - Survey 95 Results

Species	Station	22-10
	Survey	095
	# Quads	4
Calliarthron/Bossiella spp.-complex		55.5
coralline crust		37.0
Cryptopleura ruprechtiana		30.5
Chondracanthus corymbiferus		23.0
Prionitis spp.		10.5
Desmarestia spp.		5.0
non-coralline crust		5.0
Rhodymenia spp.		5.0
Mazzaella lilacina		3.5
Farlowia/Pikea spp.-complex		1.0
Nereocystis luetkeana		1.0
Pikea robusta		0.5
Gelidium robustum		0.5
Cryptopleura violacea		0.5
Osmundea spp.		0.5
Laminaria setchellii		<.1
Halymenia/Schizymenia spp.-complex		<.1
Mazzaella rosea		<.1
Neoptilota densa		<.1
Microcladia coulteri		<.1
Callophyllis spp.		<.1
Ahnfeltiopsis linearis		<.1
Ulva/Enteromorpha spp.		<.1
Corallina officinalis		<.1
Callophyllis flabellulata		<.1
Erythrophyllum delesserioides		<.1
Sarcodiotheca gaudichaudii		<.1
Prionitis australis		<.1
colonized rock		77.5
bare cobble		11.0
colonized cobble		7.0
bare rock		4.0
sand (shell gravel)		0.5

Subtidal Line Contact - Algal Mean Abundance per 7 square meters - Survey 96 Results

Species	Station	06-11	09-10	09-15	10-15	12-10	19-10	22-10
	Survey	096	096	096	096	096	096	096
	# Quads	4	4	4	4	4	4	4
coralline crust		26.0	45.5	58.0	52.0	31.5	46.5	55.5
Calliarthron/Bossiella spp.-complex		3.0	11.0	47.0	39.0	21.0	43.0	56.0
Cryptopleura violacea		3.5	46.5	27.5	0.5	54.5	0.5	-
Farlowia/Pikea spp.-complex		50.0	12.0	12.0	5.0	6.5	2.0	6.0
Rhodymenia spp.		22.0	5.0	5.5	10.5	6.0	22.0	14.5
Chondracanthus corymbiferus		3.0	5.0	3.5	3.5	7.0	31.5	26.5
Chrysophyta unid.		7.5	12.0	6.5	12.0	1.0	-	2.0
Prionitis spp.		0.5	5.0	8.5	2.5	14.0	0.5	10.0
Gelidium robustum		16.5	12.0	5.0	1.0	1.0	2.0	<.1
Cryptopleura ruprechtiana		-	-	0.5	1.0	-	15.5	19.5
filamentous red algae-complex		13.0	5.5	-	0.5	-	-	-
Nienburgia andersoniana		-	4.5	1.0	-	9.5	-	-
Cystoseira osmundacea		<.1	<.1	1.5	2.5	3.0	6.5	-
Macrocystis spp.		-	2.0	3.0	6.0	2.0	-	-
Pterosiphonia dendroidea		-	0.5	4.5	1.5	4.5	-	-
non-coralline crust		2.0	3.5	-	2.0	0.5	1.0	1.5
Chondracanthus harveyanus/spinosus		-	2.5	-	-	7.0	-	-
Osmundea spp.		<.1	1.5	3.5	-	<.1	2.5	0.5
Mazzaella lilacina		-	-	-	-	-	4.5	3.5
Halymenia/Schizymenia spp.-complex		-	-	-	-	-	2.0	4.5
Laminaria setchellii		-	-	<.1	0.5	-	4.0	0.5
Ahnfeltiopsis linearis		-	-	0.5	1.5	-	0.5	2.0
Callophyllis spp.		-	<.1	1.0	-	-	1.5	1.0
Antithamnion/Platythamnion spp.-complex		-	-	-	3.5	-	-	-
Polyneura latissima		-	-	-	-	-	3.5	-
Pterygophora californica		-	-	-	0.5	-	2.5	-
Gelidium spp.		-	-	-	<.1	3.0	-	-
Corallina officinalis		-	1.0	-	<.1	1.5	<.1	<.1
Microcladia coulteri		-	-	-	-	-	1.0	1.5
Gastroclonium subarticulatum		<.1	0.5	0.5	-	-	1.0	-
Ulva/Enteromorpha spp.		-	<.1	<.1	-	<.1	1.5	<.1
Sarcodiotheca gaudichaudii		-	<.1	-	-	<.1	0.5	0.5
Callophyllis flabellulata		-	-	<.1	<.1	<.1	0.5	0.5
Laminariales		-	-	<.1	0.5	-	<.1	<.1
Nereocystis luetkeana		-	-	-	-	-	<.1	0.5
Neoptilota densa		-	-	-	-	-	<.1	0.5
Desmarestia spp.		-	-	-	<.1	-	-	0.5

Subtidal Line Contact - Algal Mean Abundance per 7 square meters - Survey 96 Results (continued)

Species	Station	06-11	09-10	09-15	10-15	12-10	19-10	22-10
	Survey	096	096	096	096	096	096	096
	# Quads	4	4	4	4	4	4	4
Dictyota binghamiae		-	0.5	-	-	-	-	-
Prionitis australis		-	-	-	-	-	-	0.5
Delesseria decipiens		-	-	-	-	-	0.5	-
Mazzaella rosea		<.1	<.1	-	-	<.1	<.1	<.1
Halicystis ovalis		-	-	-	<.1	-	<.1	<.1
Dictyoneurum californicum		-	-	-	-	-	-	<.1
Erythrophyllum delesserioides		-	-	-	-	-	-	<.1
Ahnfeltiopsis leptophylla		-	-	-	-	<.1	-	-
Colpomenia spp.		-	<.1	-	-	-	-	-
Scinaia confusa		-	-	-	-	<.1	-	-
Callophyllis firma		-	-	-	-	-	-	<.1
Sargassum muticum		-	<.1	-	-	-	-	-
colonized rock		82.5	75.5	78.0	79.0	55.5	87.0	84.5
colonized cobble		3.0	3.5	9.5	10.5	5.0	4.5	12.0
bare cobble		4.5	11.0	4.5	4.0	14.0	4.0	3.5
sand (shell gravel)		2.0	-	4.0	6.5	16.0	4.0	-
bare rock		8.0	10.0	0.5	-	9.5	0.5	-

Subtidal Line Contact - Algal Mean Abundance per 7 square meters - Survey 97 Results

Species	Station	09-10	12-10	19-10	22-30
	Survey	097	097	097	097
	# Quads	4	4	4	4
coralline crust		53.0	49.5	47.5	69.0
Calliarthron/Bossiella spp.-complex		26.0	18.0	53.0	23.0
Cryptopleura ruprechtiana		-	-	31.5	61.0
Cryptopleura violacea		35.0	32.5	-	-
Chondracanthus corymbiferus		6.5	4.5	28.0	5.5
Rhodymenia spp.		7.0	2.0	13.0	12.0
Farlowia/Pikea spp.-complex		20.0	12.0	0.5	-
Prionitis spp.		10.0	11.0	1.5	0.5
Polyneura latissima		-	-	<.1	22.0
Gelidium robustum		15.5	1.0	1.0	-
Chrysophyta unid.		15.0	-	-	-
Dictyoneurum californicum		-	-	<.1	14.0
Macrocystis spp.		5.5	8.5	-	-
Nienburgia andersoniana		0.5	12.5	<.1	-
Callophyllis spp.		1.5	-	2.0	9.0
Osmundea spp.		5.5	-	4.5	<.1
non-coralline crust		3.0	2.5	0.5	4.0
Cystoseira osmundacea		<.1	2.0	6.5	<.1
Mazzaella lilacina		-	-	7.0	0.5
Pterygophora californica		-	<.1	5.0	1.5
Chondracanthus harveyanus/spinosus		1.0	5.0	-	-
Laminaria setchellii		-	<.1	2.5	3.0
Desmarestia spp.		-	-	1.5	3.5
Gelidium spp.		-	4.0	-	-
Corallina officinalis		1.5	1.0	0.5	-
Pterosiphonia dendroidea		0.5	1.5	-	-
Gastroclonium subarticulatum		<.1	-	1.5	-
Neoptilota densa		-	-	-	1.5
Prionitis australis		1.0	-	-	0.5
Microcladia coulteri		-	-	1.0	<.1
Ahnfeltiopsis linearis		0.5	<.1	0.5	-
Callophyllis flabellulata		-	-	-	1.0
Mazzaella rosea		1.0	-	-	-
Ulva/Enteromorpha spp.		<.1	<.1	0.5	-
Nereocystis luetkeana		-	-	0.5	<.1
Opuntiella californica		-	-	-	0.5
Fryeella gardneri		-	-	-	0.5

Subtidal Line Contact - Algal Mean Abundance per 7 square meters - Survey 97 Results (continued)

Species	Station	09-10	12-10	19-10	22-30
	Survey	097	097	097	097
	# Quads	4	4	4	4
Egregia menziesii		-	-	0.5	-
Dictyota binghamiae		-	-	-	0.5
Antithamnion/Platythamnion spp.-complex		<.1	<.1	-	<.1
Rhodoptilum plumosum		-	-	-	<.1
Halymenia/Schizymenia spp.-complex		<.1	-	-	<.1
Callophyllis firma		-	-	<.1	-
filamentous red algae-complex		<.1	-	-	-
Porphyra spp.		-	-	<.1	-
Sarcodiotheca gaudichaudii		<.1	-	-	-
Scinaia confusa		-	-	<.1	-
Laminariales		-	-	-	<.1
Bryopsis spp.		<.1	-	-	-
colonized rock		86.0	66.5	94.0	95.0
sand (shell gravel)		1.0	21.0	1.0	4.5
colonized cobble		8.5	5.0	3.5	-
bare cobble		4.5	6.0	1.0	-
bare rock		-	1.5	0.5	-

Subtidal Line Contact - Algal Mean Abundance per 7 square meters - Survey 98 Results

Species	Station	06-11	09-10	09-15	10-15	12-10
	Survey	098	098	098	098	098
	# Quads	4	4	4	4	4
Cryptopleura violacea		53.5	65.0	27.5	-	68.0
coralline crust		16.5	32.0	39.5	59.5	41.5
Calliarthron/Bossiella spp.-complex		4.0	25.0	40.5	31.5	18.0
Farlowia/Pikea spp.-complex		69.0	16.5	17.5	<.1	5.5
Rhodymenia spp.		34.5	3.5	6.5	5.0	7.5
Chrysophyta unid.		9.5	11.5	12.5	-	2.0
Macrocystis spp.		<.1	5.5	4.0	16.0	4.5
Gelidium robustum		12.5	9.0	1.5	2.0	0.5
filamentous red algae-complex		18.5	2.0	3.5	-	-
Chondracanthus corymbiferus		11.5	3.0	2.5	0.5	2.0
Nienburgia andersoniana		1.0	1.0	-	-	7.0
Prionitis spp.		<.1	3.0	1.5	<.1	1.5
Gelidium spp.		-	-	-	<.1	5.0
non-coralline crust		0.5	1.5	<.1	2.0	0.5
Chondracanthus harveyanus/spinosus		-	3.0	1.0	-	0.5
Cystoseira osmundacea		-	<.1	0.5	1.0	1.0
Osmundea spp.		0.5	1.0	0.5	-	0.5
Corallina officinalis		<.1	<.1	<.1	0.5	1.5
Pterosiphonia dendroidea		0.5	<.1	<.1	-	1.0
Ahnfeltiopsis linearis		<.1	-	1.0	<.1	-
Halymenia/Schizymenia spp.-complex		<.1	0.5	<.1	-	0.5
Delesseriaceae (juv.)		-	0.5	0.5	-	-
Callophyllis spp.		-	0.5	<.1	-	<.1
Pterygophora californica		-	-	-	0.5	-
Laminariales		-	0.5	-	-	<.1
Mazzaella rosea		<.1	<.1	<.1	-	-
Desmarestia spp.		<.1	-	<.1	-	<.1
Ulva/Enteromorpha spp.		<.1	<.1	-	-	<.1
Gastroclonium subarticulatum		<.1	<.1	-	-	-
Cryptopleura ruprechtiana		-	-	<.1	-	-
Sarcodiotheca gaudichaudii		-	<.1	-	-	<.1
Polyneura latissima		-	-	<.1	-	-
Sargassum muticum		-	<.1	<.1	-	-
Laminaria setchellii		-	-	-	<.1	-
Callophyllis flabellulata		<.1	-	-	-	-
Microcladia coulteri		-	-	<.1	-	-
Prionitis australis		-	-	<.1	-	-

Subtidal Line Contact - Algal Mean Abundance per 7 square meters - Survey 98 Results (continued)

Species	Station	06-11	09-10	09-15	10-15	12-10
	Survey	098	098	098	098	098
	# Quads	4	4	4	4	4
Phycodrys spp.		-	-	-	-	<.1
Antithamnion/Platythamnion spp.-complex		-	-	-	<.1	-
colonized rock		93.5	79.5	82.0	78.0	63.5
bare cobble		-	12.0	9.5	8.0	15.5
sand (shell gravel)		4.0	-	2.5	10.0	11.5
bare rock		2.5	5.5	2.5	1.0	4.5
colonized cobble		-	2.5	3.5	3.0	4.0

Subtidal Line Contact - Algal Mean Abundance per 7 square meters - Survey 99 Results

Species	Station	06-11	09-10	09-15	10-15	12-10	19-10	22-10	22-30
	Survey	099	099	099	099	099	099	099	099
	# Quads	4	4	4	4	4	4	4	4
coralline crust		24.5	56.0	39.0	61.0	47.0	45.5	35.0	73.0
Calliarthron/Bossiella spp.-complex		5.0	16.5	38.0	37.0	13.0	48.5	65.5	22.0
Farlowia/Pikea spp.-complex		62.5	22.0	21.0	1.0	12.0	<.1	<.1	-
Cryptopleura ruprechtiana		-	-	<.1	-	-	26.0	24.5	57.5
Cryptopleura violacea		17.5	26.5	20.0	8.5	14.0	-	-	-
Chondracanthus corymbiferus		12.0	3.0	7.5	3.5	1.5	14.0	21.5	9.5
Rhodymenia spp.		29.5	3.0	4.5	6.0	2.5	9.0	2.5	6.0
Prionitis spp.		1.0	8.0	7.0	1.0	8.0	1.0	7.0	<.1
Nienburgia andersoniana		<.1	3.5	4.0	<.1	21.0	-	-	-
Gelidium robustum		13.0	9.0	2.0	1.5	1.0	1.0	0.5	<.1
Macrocystis spp.		-	3.0	1.0	15.5	3.0	-	-	-
filamentous red algae-complex		15.5	2.0	5.0	-	-	<.1	-	-
non-coralline crust		2.5	5.5	<.1	5.0	3.5	<.1	2.0	0.5
Laminaria setchellii		-	-	-	<.1	-	6.5	5.0	2.0
Cystoseira osmundacea		-	<.1	<.1	1.0	2.5	7.5	0.5	<.1
Dictyoneurum californicum		-	-	-	-	-	-	-	9.5
Mazzaella lilacina		-	-	-	-	-	7.0	1.5	-
Callophyllis spp.		<.1	-	-	-	-	0.5	<.1	7.0
Chondracanthus harveyanus/spinosus		-	0.5	2.5	-	4.0	-	-	-
Gelidium spp.		-	-	<.1	-	7.0	-	-	-
Pterosiphonia dendroidea		<.1	1.0	0.5	1.0	3.5	-	-	-
Polyneura latissima		-	-	-	<.1	-	-	-	5.5
Chrysophyta unid.		-	4.0	0.5	-	-	-	-	-
Corallina officinalis		<.1	1.0	<.1	1.0	1.5	-	<.1	<.1
Ahnfeltiopsis linearis		<.1	-	1.0	<.1	1.5	0.5	0.5	<.1
Pterygophora californica		-	-	-	0.5	<.1	1.5	-	0.5
Osmundea spp.		-	0.5	0.5	-	<.1	1.5	<.1	-
Gastroclonium subarticulatum		1.0	<.1	-	-	-	0.5	-	-
Opuntiella californica		-	-	-	-	-	-	-	1.5
Neoptilota densa		-	-	-	-	-	-	<.1	1.0
Mazzaella rosea		-	<.1	1.0	-	-	-	-	-
Antithamnion/Platythamnion spp.-complex		<.1	-	-	0.5	0.5	-	-	-
Prionitis australis		-	-	0.5	-	0.5	-	-	-
Microcladia coulteri		-	-	-	-	-	0.5	<.1	<.1
Ulva/Enteromorpha spp.		<.1	0.5	<.1	-	<.1	-	-	-
Nereocystis luetkeana		-	-	-	-	-	<.1	0.5	-
Desmarestia spp.		-	-	-	-	-	-	-	0.5

Subtidal Line Contact - Algal Mean Abundance per 7 square meters - Survey 99 Results (continued)

Species	Station	06-11	09-10	09-15	10-15	12-10	19-10	22-10	22-30
	Survey	099	099	099	099	099	099	099	099
	# Quads	4	4	4	4	4	4	4	4
Halymenia/Schizymenia spp.-complex		-	-	-	-	-	-	-	0.5
Callophyllis flabellulata		-	-	<.1	<.1	<.1	<.1	-	<.1
Sarcodiotheca gaudichaudii		-	<.1	<.1	-	-	-	<.1	-
Rhodoptilum plumosum		-	-	-	<.1	-	-	-	-
Spongomorpha/Acrosiphonia-complex		<.1	-	-	-	-	-	-	-
Erythrophyllum delesserioides		-	-	-	-	-	-	<.1	-
Dictyota binghamiae		-	-	-	-	-	-	-	<.1
Rhodophyta (juv.)		-	-	-	<.1	-	-	-	-
Sargassum muticum		-	<.1	-	-	-	-	-	-
colonized rock		94.0	73.5	75.0	81.5	72.5	91.5	84.0	91.5
sand (shell gravel)		2.5	0.5	2.5	12.0	12.0	5.0	0.5	8.0
bare rock		1.0	15.0	14.5	0.5	1.5	1.0	1.0	-
bare cobble		0.5	7.0	6.5	1.0	6.5	2.0	10.0	-
colonized cobble		2.0	4.0	1.5	5.0	7.5	0.5	4.5	-

Subtidal Arc Quadrants - Algal Mean Abundance per 7 square meters - Survey 93 Results

Species	Station	06-11	09-10	09-15	10-15	12-10	19-10	22-10
	Survey	093	093	093	093	093	093	093
	# Quadrants	4	4	4	4	4	4	4
Pterygophora californica		-	-	-	12.5	-	10.3	-
Laminaria setchellii		0.5	-	-	5.5	-	10.8	4.8
Cystoseira osmundacea		-	-	3.8	3.0	7.8	5.5	0.5
Macrocystis spp.		-	0.8	0.8	4.3	3.3	-	-
Laminariales		-	-	-	-	-	-	0.8

Subtidal Arc Quadrants - Algal Mean Abundance per 7 square meters - Survey 94 Results

Species	Station	06-11	09-10	09-15	10-15	12-10	19-10	22-10	22-30
	Survey	094	094	094	094	094	094	094	094
	# Quadrants	4	4	4	4	4	4	4	4
Laminariales		0.5	0.3	6.3	32.5	-	76.3	21.3	-
Laminaria setchellii		-	-	0.3	3.5	-	27.0	6.8	14.5
Pterygophora californica		-	-	-	8.0	-	29.0	-	12.8
Nereocystis luetkeana		-	-	-	-	-	18.3	24.3	-
Cystoseira osmundacea		-	-	4.5	5.0	7.5	11.0	-	3.5
Macrocystis spp.		-	4.8	2.8	7.8	8.5	-	-	-
Egregia menziesii		-	-	-	-	-	-	0.3	-

Subtidal Arc Quadrants - Algal Mean Abundance per 7 square meters - Survey 95 Results

Species	Station	22-10
	Survey	095
	# Quadrants	4
Laminaria setchellii		13.0
Pterygophora californica		4.3
Laminariales		3.8
Nereocystis luetkeana		0.8

Subtidal Arc Quadrants - Algal Mean Abundance per 7 square meters - Survey 96 Results

Species	Station	06-11	09-10	09-15	10-15	12-10	19-10	22-10
	Survey	096	096	096	096	096	096	096
	# Quadrants	4	4	4	4	4	4	4
Laminaria setchellii		-	-	0.5	3.8	0.3	44.8	28.8
Cystoseira osmundacea		0.3	4.5	8.8	7.0	10.5	6.8	-
Pterygophora californica		-	-	-	21.5	0.3	12.3	-
Macrocystis spp.		-	3.0	4.3	11.3	5.8	-	-
Laminariales		-	-	0.5	12.8	-	-	-
Nereocystis luetkeana		-	-	-	-	-	-	2.8

Subtidal Arc Quadrants - Algal Mean Abundance per 7 square meters - Survey 97 Results

Species	Station	09-10	12-10	19-10	22-30
	Survey	097	097	097	097
	# Quadrants	4	4	4	4
Pterygophora californica		-	0.3	38.8	8.8
Laminariales		-	0.3	35.0	10.8
Laminaria setchellii		-	-	22.0	14.5
Cystoseira osmundacea		3.3	6.5	15.3	1.0
Macrocystis spp.		4.5	5.8	-	-
Nereocystis luetkeana		-	-	1.3	0.3
Egregia menziesii		-	-	0.3	-

Subtidal Arc Quadrants - Algal Mean Abundance per 7 square meters - Survey 98 Results

Species	Station	06-11	09-10	09-15	10-15	12-10
	Survey	098	098	098	098	098
	# Quadrants	4	4	4	4	4
Macrocystis spp.		1.3	5.8	4.0	4.5	7.3
Cystoseira osmundacea		-	1.3	3.3	0.5	2.5
Pterygophora californica		-	-	-	7.3	-
Laminariales		-	-	-	1.0	-
Laminaria setchellii		-	-	-	-	0.5
Sargassum muticum		-	0.3	0.3	-	-

Subtidal Arc Quadrants - Algal Mean Abundance per 7 square meters - Survey 99 Results

Species	Station	06-11	09-10	09-15	10-15	12-10	19-10	22-10	22-30
	Survey	099	099	099	099	099	099	099	099
	# Quadrants	4	4	4	4	4	4	4	4
Laminaria setchellii		-	-	-	1.0	0.3	67.3	41.3	8.3
Pterygophora californica		-	-	-	4.3	0.3	18.5	-	8.3
Cystoseira osmundacea		-	1.3	2.5	4.3	6.0	5.0	0.3	-
Macrocystis spp.		0.3	3.8	3.0	4.3	3.0	-	-	-
Laminariales		0.3	-	-	-	-	-	3.8	-
Nereocystis luetkeana		-	-	-	-	-	0.3	2.0	-

Subtidal Arc Quadrants - Invertebrate Mean Abundance per 7 square meters - Survey 93 Results

Species	Station	06-11	09-10	09-15	10-15	12-10	19-10	22-10
	Survey	093	093	093	093	093	093	093
	# Quadrants	4	4	4	4	4	4	4
Tegula brunnea		-	0.8	-	36.0	0.8	116.3	32.3
Acmaea mitra		-	20.3	3.8	16.5	14.3	9.8	20.3
Strongylocentrotus purpuratus		3.0	38.5	8.5	22.3	3.5	-	1.5
Anthopleura elegantissima		8.5	4.3	6.0	13.5	1.0	6.8	0.5
Diopatra ornata		0.5	0.5	2.8	26.3	0.5	2.5	-
Pagurus spp.		-	0.3	-	-	0.5	21.8	6.3
Ophiothrix spp.		-	18.8	-	-	2.8	-	-
Tonicella lineata		0.8	-	0.8	-	-	6.8	7.5
Asterina miniata		0.3	-	0.8	2.0	0.8	4.8	4.8
Serpulorbis squamigerus		2.0	-	1.5	1.0	-	4.3	3.3
Serpulidae unid.		-	-	5.5	-	-	-	3.8
Doriopsilla albopunctata		-	0.5	4.0	0.5	1.0	-	0.3
Mitra idae		-	-	0.3	3.3	0.3	0.5	1.3
Norrisia norrisi		0.8	0.3	-	3.5	1.0	-	-
Pisaster giganteus		1.5	0.5	1.0	0.8	1.3	-	0.3
Phidiana hiltoni		-	1.5	2.8	0.3	0.3	-	-
Calliostoma ligatum		-	-	-	-	-	3.0	-
Megathura crenulata		2.3	-	-	-	-	-	-
Tethya aurantia		-	-	1.0	1.0	-	-	-
Cryptochiton stelleri		-	-	-	1.5	-	0.3	-
Lottia instabilis		-	-	-	1.0	-	-	0.5
Anthopleura artemisia		0.3	-	-	0.3	0.3	0.5	-
Lithopoma gibberosum		-	-	0.3	-	-	0.8	0.3
Loxorhynchus spp.		-	-	-	0.3	-	-	1.0
Ophioplocus spp.		-	-	0.5	0.8	-	-	-
Anisodoris nobilis		-	0.5	0.5	-	-	-	-
Octopus spp.		-	-	0.3	0.3	-	-	0.3
Tegula montereyi		-	-	-	0.8	-	-	-
Fissurella volcano		-	-	-	-	-	-	0.5
Mopalia spp.		-	-	-	-	-	0.5	-

Subtidal Arc Quadrants - Invertebrate Mean Abundance per 7 square meters - Survey 93 Results (continued)

Species	Station	06-11	09-10	09-15	10-15	12-10	19-10	22-10
	Survey	093	093	093	093	093	093	093
	# Quadrants	4	4	4	4	4	4	4
Pisaster ochraceus		-	-	-	-	-	0.3	0.3
Pycnopodia helianthoides		-	-	-	0.3	0.3	-	-
Boltenia villosa		-	-	0.3	-	0.3	-	-
Halcampa decemtentacula		-	-	-	-	0.5	-	-
Pisaster brevispinus		-	-	-	0.5	-	-	-
Cucumaria spp.		-	-	0.5	-	-	-	-
Pugettia spp.		-	-	-	-	0.3	-	0.3
Cancer spp.		-	-	-	-	-	-	0.5
Pododesmus cepio		0.3	-	-	-	-	-	-
Cancer productus		-	-	-	-	-	-	0.3
Pseudomelatoma torosa		-	-	-	-	-	0.3	-
Placiphorella velata		-	-	-	-	-	0.3	-
Eudistylia polymorpha		-	-	0.3	-	-	-	-
Crassedoma giganteum		-	-	0.3	-	-	-	-
Haliotis spp.		-	-	-	-	-	-	0.3
Chaetopteridae		0.3	-	-	-	-	-	-
Aplysia californica		-	-	-	-	0.3	-	-
Ophiopteris papillosa		0.3	-	-	-	-	-	-

Subtidal Arc Quadrants - Invertebrate Mean Abundance per 7 square meters - Survey 94 Results

Species	Station	06-11	09-10	09-15	10-15	12-10	19-10	22-10	22-30
	Survey	094	094	094	094	094	094	094	094
	# Quadrants	4	4	4	4	4	4	4	4
Tegula brunnea		-	28.5	-	-	-	93.0	5.3	-
Diopatra ornata		-	0.5	0.3	15.0	1.0	6.5	-	36.3
Strongylocentrotus purpuratus		5.3	32.0	7.3	1.5	-	0.8	0.5	-
Anthopleura elegantissima		12.0	5.0	6.0	16.8	0.8	3.0	-	3.5
Acmaea mitra		2.3	10.5	10.5	3.8	-	10.5	3.8	1.5
Asterina miniata		0.5	-	-	1.3	-	10.3	3.5	7.5
Ophiothrix spp.		-	19.0	1.0	-	-	-	-	-
Serpulorbis squamigerus		-	0.3	0.5	0.3	-	-	1.8	10.0
Pagurus spp.		-	1.0	-	1.0	0.8	8.3	-	1.3
Serpulidae unid.		-	2.5	0.5	2.8	1.3	-	0.5	3.3
Tonicella lineata		-	-	0.8	0.8	-	4.5	2.3	-
Styela spp.		-	-	-	-	-	-	-	4.5
Pisaster giganteus		2.3	0.5	0.3	1.0	-	0.3	0.3	-
Lottia instabilis		-	-	-	-	-	3.8	0.5	-
Mitra idae		-	-	0.5	2.0	1.0	-	-	0.8
Tethya aurantia		-	-	1.5	0.3	-	-	-	1.8
Anthopleura artemisia		2.3	-	-	-	-	-	-	1.0
Tegula montereyi		-	-	-	-	-	3.0	-	-
Doriopsilla albopunctata		-	0.3	1.3	0.8	0.3	-	0.3	0.3
Cryptochiton stelleri		-	-	-	2.8	-	0.3	-	-
Phidiana hiltoni		0.3	0.3	0.8	0.8	0.3	-	-	-
Cnemidocarpa finmarkiensis		-	-	-	1.5	-	-	-	0.5
Hermissenda crassicornis		-	-	-	1.0	-	-	0.3	0.5
Calliostoma ligatum		-	-	-	-	-	1.5	-	-
Pycnopodia helianthoides		-	0.3	-	0.5	-	0.5	0.3	-
Henricia leviuscula		-	-	-	0.3	-	-	0.8	0.3
Diodora spp.		-	0.3	0.5	-	-	-	0.3	-
Ophioplocus spp.		-	-	-	0.3	-	-	0.3	0.5
Megathura crenulata		1.0	-	-	-	-	-	-	-
Loxorhynchus spp.		-	0.3	-	0.3	-	-	0.3	-

Subtidal Arc Quadrants - Invertebrate Mean Abundance per 7 square meters - Survey 94 Results (continued)

Species	Station	06-11	09-10	09-15	10-15	12-10	19-10	22-10	22-30
	Survey	094	094	094	094	094	094	094	094
	# Quadrants	4	4	4	4	4	4	4	4
Boltenia villosa		-	-	0.5	-	-	-	-	0.3
Pyura haustor		-	-	-	0.3	-	-	-	0.5
Pseudomelatoma torosa		-	-	-	-	-	-	0.3	0.5
Norrisia norrisi		-	-	-	0.8	-	-	-	-
Urticina spp.		-	-	-	-	-	0.3	-	0.3
Sabellidae		-	-	-	0.3	0.3	-	-	-
Leptasterias spp.		-	-	-	-	-	0.3	0.3	-
Pisaster brevispinus		-	-	-	0.5	-	-	-	-
Fissurella volcano		0.3	-	-	-	-	-	-	-
Mopalia spp.		-	-	-	-	-	-	0.3	-
Pododesmus cepio		-	0.3	-	-	-	-	-	-
Conus californicus		-	-	0.3	-	-	-	-	-
Cancer antennarius		-	-	-	-	-	-	-	0.3
Eudistylia polymorpha		0.3	-	-	-	-	-	-	-
Cryptolithodes sitchensis		-	-	-	-	-	-	0.3	-
Mimulus foliatus		-	-	-	0.3	-	-	-	-
Pugettia spp.		0.3	-	-	-	-	-	-	-
Aeolidia papillosa		-	0.3	-	-	-	-	-	-
Haliotis spp.		-	-	0.3	-	-	-	-	-
Chromodoris macfarlandi		-	-	-	-	0.3	-	-	-
Aplysia californica		-	-	-	0.3	-	-	-	-

Subtidal Arc Quadrants - Invertebrate Mean Abundance per 7 square meters - Survey 95 Results

Species	Station	22-10
	Survey	095
	# Quadrants	4
Tegula brunnea		24.0
Pagurus spp.		13.8
Acmaea mitra		8.3
Tonicella lineata		6.0
Asterina miniata		2.8
Pisaster giganteus		0.8
Anthopleura elegantissima		0.5
Pycnopodia helianthoides		0.3
Cryptochiton stelleri		0.3

Subtidal Arc Quadrants - Invertebrate Mean Abundance per 7 square meters - Survey 96 Results

Species	Station	06-11	09-10	09-15	10-15	12-10	19-10	22-10
	Survey	096	096	096	096	096	096	096
	# Quadrants	4	4	4	4	4	4	4
Anthopleura elegantissima		16.8	3.5	5.8	11.5	0.8	7.0	0.5
Diopatra ornata		0.3	-	-	26.0	0.5	4.0	-
Acmaea mitra		-	9.8	3.0	2.3	1.5	4.5	6.0
Tegula brunnea		-	-	3.0	3.0	0.8	9.0	6.8
Strongylocentrotus purpuratus		3.8	10.0	2.0	3.8	-	-	-
Serpulidae unid.		15.5	2.3	-	0.3	0.5	-	1.0
Asterina miniata		0.3	-	-	1.5	-	6.5	11.0
Tonicella lineata		-	-	0.8	-	-	8.3	4.5
Pisaster giganteus		0.3	2.5	0.8	2.3	0.8	0.8	0.5
Cryptochiton stelleri		0.8	-	-	4.3	-	-	0.3
Pagurus spp.		-	-	-	-	0.3	0.5	1.8
Mitra idae		-	-	0.3	1.3	0.8	-	0.3
Calliostoma ligatum		-	-	-	-	-	2.3	-
Serpulorbis squamigerus		-	-	-	-	1.0	-	0.8
Tethya aurantia		-	-	1.5	0.3	-	-	-
Eudistylia polymorpha		1.8	-	-	-	-	-	-
Styela spp.		0.3	-	0.3	0.5	-	-	-
Norrisia norrisi		-	-	-	1.0	-	-	-
Anthozoa unid.		-	-	0.8	-	-	-	-
Doriopsilla albopunctata		-	0.3	0.3	0.3	-	-	-
Phidiana hiltoni		-	0.3	-	-	0.3	-	0.3
Ophioplocus spp.		-	-	0.3	0.3	-	-	0.3
Anthopleura artemisia		-	-	-	0.5	-	-	-
Mopalia spp.		-	-	-	-	-	0.5	-
Lithopoma gibberosum		-	-	-	0.3	-	-	0.3
Anisodoris nobilis		-	0.5	-	-	-	-	-
Kelletia kelletii		-	-	0.3	0.3	-	-	-
Megathura crenulata		0.5	-	-	-	-	-	-
Anthopleura xanthogrammica		0.3	-	-	-	-	-	-
Diodora spp.		-	0.3	-	-	-	-	-

Subtidal Arc Quadrants - Invertebrate Mean Abundance per 7 square meters - Survey 96 Results (continued)

Species	Station	06-11	09-10	09-15	10-15	12-10	19-10	22-10
	Survey	096	096	096	096	096	096	096
	# Quadrants	4	4	4	4	4	4	4
Octopus spp.		-	-	-	0.3	-	-	-
Sabellidae		-	-	-	0.3	-	-	-
Pisaster ochraceus		-	-	-	-	-	0.3	-
Loxorhynchus spp.		-	-	-	-	0.3	-	-
Parastichopus spp.		-	-	0.3	-	-	-	-
Triopha catalinae		-	-	-	0.3	-	-	-
Pisaster brevispinus		-	-	-	0.3	-	-	-
Cucumaria spp.		-	-	-	0.3	-	-	-
Cryptolithodes sitchensis		-	-	-	-	-	-	0.3
Paraxanthias taylori		0.3	-	-	-	-	-	-

Subtidal Arc Quadrants - Invertebrate Mean Abundance per 7 square meters - Survey 97 Results

Species	Station	09-10	12-10	19-10	22-30
	Survey	097	097	097	097
	# Quadrants	4	4	4	4
Tegula brunnea		46.5	32.3	195.0	12.0
Acmaea mitra		53.3	3.0	41.3	-
Tonicella lineata		22.5	-	57.8	1.5
Diopatra ornata		1.5	1.3	3.3	41.3
Serpulidae unid.		20.0	1.8	-	2.3
Anthopleura elegantissima		9.3	1.5	7.0	3.3
Asterina miniata		-	1.3	12.3	7.3
Calliostoma ligatum		-	-	15.8	2.3
Strongylocentrotus purpuratus		13.0	-	0.3	1.0
Pagurus spp.		3.0	0.3	7.0	2.0
Serpulorbis squamigerus		1.3	-	-	7.5
Styela spp.		-	0.3	0.8	7.8
Tegula montereyi		-	-	6.0	-
Phidiana hiltoni		3.0	1.5	-	-
Anthopleura artemisia		-	0.8	0.8	2.3
Tethya aurantia		-	-	0.3	3.3
Leptasterias spp.		-	-	1.0	1.0
Pisaster giganteus		0.3	0.8	0.5	0.3
Mitra idae		0.3	0.5	-	0.8
Pugettia spp.		1.3	0.3	-	-
Lithopoma gibberosum		-	-	1.0	-
Hermissenda crassicornis		-	-	-	1.0
Cancer antennarius		-	0.3	0.8	-
Henricia leviuscula		-	-	-	1.0
Boltenia villosa		-	0.5	-	0.5
Pista spp.		-	-	-	0.8
Urticina spp.		-	-	-	0.5
Tegula pulligo		-	-	-	0.5
Pycnopodia helianthoides		-	0.3	0.3	-
Halcampa decemtentacula		0.5	-	-	-

Subtidal Arc Quadrants - Invertebrate Mean Abundance per 7 square meters - Survey 97 Results (continued)

Species	Station	09-10	12-10	19-10	22-30
	Survey	097	097	097	097
	# Quadrants	4	4	4	4
Doriopsilla albopunctata		0.5	-	-	-
Cryptochiton stelleri		-	0.3	-	0.3
Eudistylia polymorpha		-	-	0.3	0.3
Mopalia spp.		0.3	-	-	-
Cancer productus		-	0.3	-	-
Loxorhynchus spp.		-	0.3	-	-
Anisodoris nobilis		0.3	-	-	-
Triopha catalinae		-	0.3	-	-
Cucumaria spp.		-	-	0.3	-
Crassedoma giganteum		-	-	-	0.3
Orthasterias koehleri		-	-	0.3	-

Subtidal Arc Quadrants - Invertebrate Mean Abundance per 7 square meters - Survey 98 Results

Species	Station	06-11	09-10	09-15	10-15	12-10
	Survey	098	098	098	098	098
	# Quadrants	4	4	4	4	4
Anthopleura elegantissima		5.8	3.0	8.3	17.3	2.0
Diopatra ornata		-	-	0.3	22.5	2.5
Serpulidae unid.		6.8	1.5	6.0	3.0	0.8
Acmaea mitra		0.8	3.8	1.5	1.5	2.3
Strongylocentrotus purpuratus		0.8	5.3	3.5	0.3	-
Tegula brunnea		-	-	9.0	-	-
Mitra idae		-	-	0.3	5.8	0.8
Tethya aurantia		-	-	2.3	1.8	-
Asterina miniata		-	0.3	-	3.0	0.5
Styela spp.		-	-	0.3	2.8	0.3
Pisaster giganteus		1.3	1.3	0.5	0.3	-
Serpulorbis squamigerus		1.3	0.3	1.0	0.3	-
Phidiana hiltoni		-	0.8	1.8	0.3	-
Boltenia villosa		-	-	-	2.0	0.5
Cryptochiton stelleri		-	-	-	2.5	-
Pycnopodia helianthoides		-	0.3	-	1.5	-
Doriopsilla albopunctata		-	-	0.3	1.3	-
Eudistylia polymorpha		1.3	-	0.3	-	-
Lithopoma gibberosum		-	-	-	1.3	-
Ophioplocus spp.		-	-	1.0	0.3	-
Parastichopus spp.		-	0.5	0.5	-	-
Pisaster brevispinus		-	-	-	0.8	0.3
Megathura crenulata		0.5	-	0.3	0.3	-
Anthopleura artemisia		-	-	-	0.5	0.3
Sabellidae		0.3	-	0.5	-	-
Cnemidocarpa finmarkiensis		-	-	-	0.8	-
Ophiothrix spp.		0.5	-	-	-	-
Kelletia kelletii		-	-	-	0.5	-
Urticina spp.		-	-	-	0.3	-
Anisodoris nobilis		-	-	0.3	-	-

Subtidal Arc Quadrants - Invertebrate Mean Abundance per 7 square meters - Survey 98 Results (continued)

Species	Station	06-11	09-10	09-15	10-15	12-10
	Survey	098	098	098	098	098
	# Quadrants	4	4	4	4	4
Triopha catalinae		-	-	-	0.3	-
Placiphorella velata		-	-	-	0.3	-
Mimulus foliatus		-	-	-	0.3	-
Pugettia spp.		-	-	-	0.3	-
Haliotis spp.		-	-	-	0.3	-
Eupentacta quinquesemita		-	-	-	0.3	-
Cadlina spp.		-	-	-	0.3	-

Subtidal Arc Quadrants - Invertebrate Mean Abundance per 7 square meters - Survey 99 Results

Species	Station	06-11	09-10	09-15	10-15	12-10	19-10	22-10	22-30
	Survey	099	099	099	099	099	099	099	099
	# Quadrants	4	4	4	4	4	4	4	4
Tegula brunnea		0.8	35.3	48.8	10.5	3.8	60.0	126.0	16.5
Diopatra ornata		-	-	-	34.5	9.3	2.8	0.3	43.8
Acmaea mitra		-	12.8	0.8	3.0	1.5	0.8	8.3	0.8
Anthopleura elegantissima		2.3	7.0	4.5	8.0	1.5	1.0	0.3	2.3
Pagurus spp.		-	8.5	-	2.5	0.8	1.3	9.3	-
Asterina miniata		-	-	-	3.0	-	9.0	3.0	5.5
Calliostoma ligatum		-	-	-	-	-	3.0	12.0	2.3
Serpulidae unid.		3.3	-	1.5	-	-	-	10.0	1.0
Serpulorbis squamigerus		0.3	3.5	-	0.5	-	-	4.8	6.5
Tonicella lineata		-	1.5	1.5	0.8	-	3.0	8.3	-
Ophiothrix spp.		-	10.0	-	1.5	-	-	-	-
Strongylocentrotus purpuratus		0.8	8.5	0.8	0.5	-	-	-	0.5
Styela spp.		-	0.3	-	1.5	1.0	0.8	-	6.5
Pisaster giganteus		0.5	0.8	2.3	1.8	1.3	0.5	1.0	0.3
Mitra idae		0.3	-	-	4.8	0.3	-	0.8	0.3
Tegula montereyi		-	-	-	0.8	-	-	-	3.8
Pugettia spp.		0.3	0.8	-	2.5	-	0.3	0.8	-
Tethya aurantia		-	-	0.5	0.3	-	-	-	2.8
Lithopoma gibberosum		-	-	-	2.0	-	0.3	1.0	-
Phidiana hiltoni		-	2.5	0.3	-	0.3	-	0.3	-
Pisaster brevispinus		-	-	-	1.8	1.0	-	0.3	-
Cryptochiton stelleri		-	-	-	1.5	-	0.8	-	-
Leptasterias spp.		-	-	-	-	-	-	2.0	-
Scyra acutifrons		-	-	0.3	0.8	-	-	-	0.3
Doriopsilla albopunctata		-	0.5	0.3	-	-	-	-	0.3
Eudistylia polymorpha		0.8	-	-	-	0.3	-	-	-
Crassedoma giganteum		-	-	-	-	-	-	-	1.0
Ophioplocus spp.		-	-	0.5	0.5	-	-	-	-
Pododesmus cepio		0.8	-	-	-	-	-	-	-
Lottia instabilis		-	-	-	0.3	-	0.5	-	-

Subtidal Arc Quadrants - Invertebrate Mean Abundance per 7 square meters - Survey 99 Results (continued)

Species	Station	06-11	09-10	09-15	10-15	12-10	19-10	22-10	22-30
	Survey	099	099	099	099	099	099	099	099
	# Quadrants	4	4	4	4	4	4	4	4
Sabellidae		-	-	-	-	-	-	-	0.8
Pycnopodia helianthoides		-	-	-	-	-	0.8	-	-
Anisodoris nobilis		-	-	-	0.3	-	-	0.5	-
Triopha catalinae		-	-	-	-	-	-	0.5	0.3
Kelletia kelletii		-	-	0.3	0.5	-	-	-	-
Megathura crenulata		0.3	0.3	-	0.3	-	-	-	-
Mopalia spp.		-	-	-	-	0.3	0.3	-	-
Loxorhynchus spp.		-	-	-	0.5	-	-	-	-
Parastichopus spp.		-	-	0.5	-	-	-	-	-
Norrisia norrisi		-	-	-	0.5	-	-	-	-
Anthopleura artemisia		-	-	-	0.3	-	-	-	-
Urticina spp.		-	-	-	-	-	-	-	0.3
Diodora spp.		0.3	-	-	-	-	-	-	-
Fissurella volcano		0.3	-	-	-	-	-	-	-
Cancer antennarius		0.3	-	-	-	-	-	-	-
Henricia leviuscula		-	-	-	-	-	-	-	0.3
Pisaster ochraceus		-	-	-	-	-	-	-	0.3
Boltenia villosa		-	-	0.3	-	-	-	-	-
Diaulula sandiegensis		-	0.3	-	-	-	-	-	-
Pseudomelatoma torosa		-	-	-	-	-	-	-	0.3
Mimulus foliatus		-	-	-	0.3	-	-	-	-
Orthasterias koehleri		-	-	-	-	-	-	-	0.3
Cnemidocarpa finmarkiensis		-	-	-	-	-	-	-	0.3

Subtidal Fixed Quadrats - Invertebrate Mean Abundance per 0.25 square meters - Survey 93 Results

Species	Station	06-11	09-10	09-15	10-15	12-10	19-10	22-10
	Survey	093	093	093	093	093	093	093
	# Quads	4	4	4	4	4	4	4
Count Invertebrates								
Phragmatopoma californica		0.8	7.0	6.8	1.3	-	10.8	3.5
Pelecypoda unid. boring		-	3.5	2.3	11.5	-	-	1.3
Pista spp.		-	0.3	2.8	5.0	9.3	0.5	-
Balanus/Tetraclita spp.		-	5.8	1.8	-	-	3.5	4.8
Acmaea mitra		-	4.0	5.5	0.8	1.3	1.8	2.0
Strongylocentrotus purpuratus		0.3	4.5	5.3	2.0	0.3	-	0.5
Pagurus spp.		-	0.8	-	3.8	0.3	3.3	1.3
Tegula brunnea		-	-	-	0.5	-	7.5	0.3
Homalopoma spp.		-	-	-	-	-	7.3	1.0
Serpulidae unid.		-	2.5	2.8	0.3	0.3	1.3	0.5
Balanophyllia elegans		-	-	-	5.0	-	0.8	-
Fissurella volcano		1.3	2.5	1.0	0.3	-	-	0.3
Ophiothrix spp.		0.3	-	2.5	-	2.3	-	-
Chaetopteridae		-	-	0.8	2.0	1.8	0.5	-
Dendropoma spp.		-	-	-	1.0	-	3.3	-
Sabellidae		-	-	-	2.5	1.3	-	-
Anthopleura elegantissima		1.3	-	0.5	1.0	-	0.3	-
Lottia ochracea		-	0.8	1.0	-	-	1.3	-
Sipuncula unid.		-	-	-	1.0	-	0.3	1.8
Serpulorbis squamigerus		-	0.3	0.5	0.3	-	1.0	0.3
Doriopsilla albopunctata		-	0.3	1.0	0.3	0.5	-	0.3
Leptasterias spp.		-	-	-	-	-	1.0	1.0
Lacuna spp.		1.8	0.3	-	-	-	-	-
Ophioplocus spp.		-	1.8	-	-	-	-	-
Lissothuria nutriens		-	1.3	0.5	-	-	-	-
Anthozoa unid.		0.5	-	0.3	0.8	-	-	-
Calliostoma ligatum		1.0	-	-	-	-	0.3	0.3
Asterina miniata		0.3	-	-	-	0.3	0.5	0.5
Phidiana hiltoni		-	0.3	0.5	-	0.5	-	-
Pugettia spp.		-	0.5	-	0.3	-	0.3	0.3
Epiactis prolifera		-	0.3	-	0.3	-	0.5	-
Alia spp.		0.3	-	0.3	-	-	0.5	-
Tonicella lineata		-	-	-	-	-	0.8	0.3
Mitra idae		-	-	-	0.5	0.3	-	0.3
Amphissa spp.		-	-	-	-	-	-	1.0

Subtidal Fixed Quadrats - Invertebrate Mean Abundance per 0.25 square meters - Survey 93 Results (continued)

Species	Station	06-11	09-10	09-15	10-15	12-10	19-10	22-10
	Survey	093	093	093	093	093	093	093
	# Quads	4	4	4	4	4	4	4
Boltenia villosa		-	-	-	0.3	0.5	-	-
Halcampa decemtentacula		-	-	-	-	0.3	-	0.5
Pseudomelatoma torosa		-	-	-	-	-	0.8	-
Cryptochiton stelleri		-	0.3	-	0.3	0.3	-	-
Cryptolithodes sitchensis		-	-	-	-	-	0.5	0.3
Lepidozona spp.		-	0.5	-	-	-	0.3	-
Anthopleura artemisia		0.3	-	-	0.3	-	-	-
Lithopoma gibberosum		-	-	-	0.3	-	0.3	-
Tegula pulligo		-	-	-	0.3	-	-	0.3
Diopatra ornata		-	-	-	0.5	-	-	-
Fusinus luteopictus		-	-	-	-	-	-	0.5
Ocenebra spp.		-	-	-	-	-	-	0.5
Cucumaria spp.		0.3	-	-	0.3	-	-	-
Lophopanopeus spp.		-	-	-	-	-	0.5	-
Cnemidocarpa finmarkiensis		-	-	-	0.5	-	-	-
Norrisia norrisi		-	-	-	0.3	0.3	-	-
Urticina spp.		-	-	-	-	-	0.3	-
Pododesmus cepio		-	-	-	-	-	0.3	-
Hermissenda crassicornis		-	0.3	-	-	-	-	-
Cancer antennarius		-	-	-	-	-	0.3	-
Loxorhynchus spp.		-	-	-	0.3	-	-	-
Idotea spp.		-	-	-	-	-	-	0.3
tunicate, solitary unid.		-	-	0.3	-	-	-	-
Pyura haustor		-	-	-	-	-	0.3	-
Anisodoris nobilis		-	0.3	-	-	-	-	-
Triopha catalinae		-	-	0.3	-	-	-	-
Pisaster giganteus		-	-	0.3	-	-	-	-
Eudistylia polymorpha		-	-	0.3	-	-	-	-
Mimulus foliatus		-	-	-	-	-	-	0.3
Chama spp.		0.3	-	-	-	-	-	-
Chromodoris macfarlandi		-	-	-	-	-	-	0.3

Subtidal Fixed Quadrats - Invertebrate Mean Abundance per 0.25 square meters - Survey 93 Results (continued)

Species	Station	06-11	09-10	09-15	10-15	12-10	19-10	22-10
	Survey	093	093	093	093	093	093	093
	# Quads	4	4	4	4	4	4	4
Percent Cover Invertebrates								
Bryozoa, unid. (encrusting)		0.3	<.1	1.3	0.5	<.1	1.0	1.3
tunicates, colonial/social unid.		<.1	0.3	0.3	1.0	<.1	0.3	1.0
Porifera unid. (encrusting)		<.1	0.5	0.3	0.3	<.1	1.0	0.5
epiphytic bryozoan		2.0	-	-	-	-	-	-
Hymenamphiastra cyanocrypta		-	-	1.3	0.5	-	-	-
Abiet./Sertularella/Sertularia spp.(A.S.		1.3	-	-	-	-	-	-
Hydroida		-	-	-	-	-	0.3	-
Barentsia spp.		-	-	-	0.3	-	-	-
Spirorbidae		<.1	<.1	<.1	<.1	<.1	<.1	<.1
Didemnum/Tridemnum spp.		-	<.1	<.1	<.1	<.1	-	<.1
Salmacina tribranchiata		-	-	-	-	-	-	<.1

Subtidal Fixed Quadrats - Invertebrate Mean Abundance per 0.25 square meters - Survey 94 Results

Species	Station	06-11	09-10	09-15	10-15	12-10	19-10	22-10	22-30
	Survey	094	094	094	094	094	094	094	094
	# Quads	4	4	4	4	4	4	4	4
Count Invertebrates									
Balanus spp.		-	-	-	-	-	-	-	100.0
Phragmatopoma californica		1.0	3.8	20.3	-	1.3	3.0	1.5	36.3
Pelecypoda unid. boring		0.3	2.8	19.5	21.0	11.3	-	3.0	-
Dendropoma spp.		-	-	5.0	6.3	-	30.0	0.8	6.0
Balanophyllia elegans		-	-	-	4.3	0.5	2.0	-	28.8
Balanus/Tetraclita spp.		0.8	-	-	15.0	0.8	7.0	-	-
Pagurus spp.		0.8	0.8	2.3	7.3	2.5	2.3	4.5	2.5
Serpulidae unid.		6.3	0.8	3.3	2.0	2.8	4.8	-	2.3
Acmaea mitra		1.0	2.0	4.3	3.5	1.8	0.3	0.8	-
Alia spp.		5.8	0.3	1.5	0.5	0.5	1.0	3.8	0.3
Homalopoma spp.		-	-	-	0.3	0.5	4.5	4.3	3.3
Ophiothrix spp.		2.0	1.0	3.0	1.3	3.0	-	0.8	-
Serpulorbis squamigerus		-	0.3	0.3	1.0	0.5	0.3	1.0	7.5
Strongylocentrotus purpuratus		0.3	1.3	2.0	2.0	1.3	0.3	2.5	0.5
Tegula brunnea		-	-	0.3	-	-	2.0	6.8	0.3
Chaetopteridae		-	-	2.3	2.5	0.8	0.5	-	3.3
Tetraclita rubescens		-	5.8	2.3	-	-	-	-	-
Amphissa spp.		1.8	-	1.0	1.0	0.8	1.0	0.5	1.0
Lottia ochracea		1.5	1.0	2.3	0.3	0.5	-	0.5	-
Lacuna spp.		1.3	1.3	0.8	-	0.3	-	0.8	0.5
Sipuncula unid.		-	-	0.5	0.3	-	-	3.8	0.3
Fissurella volcano		1.0	1.3	0.8	-	0.5	-	0.5	-
Pugettia spp.		0.8	0.3	1.0	0.8	0.3	0.3	0.5	-
Aplysia californica egg mass		-	-	-	3.8	-	-	-	-
Mitra idae		1.0	-	0.3	0.8	-	0.3	0.5	0.8
Ischnochitonidae		-	-	1.0	0.3	1.5	0.8	-	-
Tonicella lineata		-	0.3	0.8	0.5	0.8	0.5	0.3	0.3
Anthopleura elegantissima		0.5	0.8	-	0.8	-	0.5	-	0.5
Clavelina huntsmani		-	-	-	-	2.3	-	-	0.8
Anthozoa unid.		0.8	-	0.3	1.0	0.3	-	-	0.3
Pista spp.		-	-	0.8	1.0	0.8	-	-	-
Crepidula spp.		-	-	-	-	-	1.3	-	1.0
Leptasterias spp.		-	-	-	-	-	0.5	1.5	-
Tricolia spp.		0.5	-	-	0.5	0.5	0.5	-	-
Sabellidae		-	-	-	0.8	-	-	-	1.0

Subtidal Fixed Quadrats - Invertebrate Mean Abundance per 0.25 square meters - Survey 94 Results (continued)

Species	Station	06-11	09-10	09-15	10-15	12-10	19-10	22-10	22-30
	Survey	094	094	094	094	094	094	094	094
	# Quads	4	4	4	4	4	4	4	4
Asterina miniata		-	-	0.3	-	-	0.3	0.3	1.0
Anthopleura artemisia		-	-	-	-	-	-	-	1.3
Diopatra ornata		-	-	-	0.5	-	-	-	0.8
Leucilla nuttingi		-	-	-	-	-	-	-	1.3
Pisaster/Henricia (juv.)		-	-	-	-	-	0.8	0.3	0.3
Epiactis prolifera		-	-	-	0.3	-	0.3	-	0.5
Lithopoma gibberosum		-	-	0.3	0.5	0.3	-	-	-
Leucandra heathi		0.3	-	-	-	-	-	0.8	-
Doriopsilla albopunctata		-	0.3	0.3	0.5	-	-	-	-
Pseudomelatoma torosa		-	-	-	0.5	-	0.5	-	-
Cryptolithodes sitchensis		-	-	0.3	-	0.3	0.5	-	-
Cirratulidae/Terebellidae unid.		-	-	-	-	0.8	-	-	0.3
Pododesmus cepio		0.8	-	-	-	-	-	-	-
Hermissenda crassicornis		-	-	-	0.3	0.3	-	0.3	-
Boltenia villosa		-	-	0.3	0.3	0.3	-	-	-
Pyura haustor		-	-	-	-	-	-	-	0.8
Isopoda unid.		-	-	0.8	-	-	-	-	-
Haliotis spp.		-	0.3	0.5	-	-	-	-	-
Nereididae unid.		-	-	0.3	-	-	0.3	-	-
Ocenebra spp.		-	-	-	-	-	-	0.3	0.3
Phidiana hiltoni		-	-	0.3	-	-	-	0.3	-
Bittium spp.		-	-	0.5	-	-	-	-	-
Lophopanopeus spp.		0.3	-	-	-	-	0.3	-	-
Lissothuria nutriens		-	0.3	-	-	-	-	0.3	-
Chelyosoma productum		-	-	-	-	-	-	-	0.5
Callistochiton crassicostatus		0.5	-	-	-	-	-	-	-
Urticina spp.		-	-	-	-	-	0.3	-	-
Calliostoma ligatum		-	-	-	-	-	-	-	0.3
Calliostoma annulatum		-	-	-	-	-	-	-	0.3
Mopalia spp.		-	-	-	-	0.3	-	-	-
Pelecypoda unid.		-	-	0.3	-	-	-	-	-
Conus californicus		-	-	-	0.3	-	-	-	-
Tegula pulligo		-	-	-	-	-	0.3	-	-
Pycnogonida unid.		0.3	-	-	-	-	-	-	-

Subtidal Fixed Quadrats - Invertebrate Mean Abundance per 0.25 square meters - Survey 94 Results (continued)

Species	Station	06-11	09-10	09-15	10-15	12-10	19-10	22-10	22-30
	Survey	094	094	094	094	094	094	094	094
	# Quads	4	4	4	4	4	4	4	4
Brachyura unid. (juv.)		-	-	-	0.3	-	-	-	-
Pycnopodia helianthoides		-	-	-	-	-	0.3	-	-
tunicate, solitary unid.		-	-	-	-	-	-	-	0.3
Styela spp.		-	-	-	-	-	-	-	0.3
Tethya aurantia		-	-	-	-	-	-	-	0.3
Fusinus luteopictus		-	-	-	-	-	-	0.3	-
Tritonia festiva		-	-	-	-	0.3	-	-	-
Pisaster giganteus		-	-	0.3	-	-	-	-	-
Ophiuroidea unid.		-	-	-	-	-	-	0.3	-
Cucumaria spp.		-	-	-	0.3	-	-	-	-
Mimulus foliatus		-	-	-	0.3	-	-	-	-
Cancer spp.		-	-	0.3	-	-	-	-	-
Cnemidocarpa finmarkiensis		-	-	-	0.3	-	-	-	-
Lepidozona spp.		-	-	-	-	-	-	0.3	-
Acanthodoris lutea		-	-	-	0.3	-	-	-	-
Megathura crenulata		0.3	-	-	-	-	-	-	-
Percent Cover Invertebrates									
Bryozoa, unid. (encrusting)		0.8	<.1	1.0	<.1	-	2.5	1.0	5.8
tunicates, colonial/social unid.		-	<.1	0.3	0.5	<.1	0.5	1.8	2.5
Hydroida		3.3	-	-	-	-	-	-	0.3
Porifera unid. (encrusting)		0.8	0.3	0.5	<.1	<.1	1.5	0.3	<.1
Didemnum/Tridemnum spp.		-	0.3	<.1	<.1	<.1	0.3	-	1.5
Hymenamphiastra cyanocrypta		-	-	0.8	-	-	-	-	0.8
Salmacina tribranchiata		-	0.3	0.3	-	-	-	<.1	0.5
epiphytic bryozoan		0.8	-	-	-	-	-	-	-
Spirorbidae		<.1	<.1	<.1	<.1	<.1	<.1	<.1	<.1
Bryozoa, unid. (foliose)		<.1	-	-	-	-	-	-	<.1
Bryozoa, unid. (erect)		-	-	-	-	-	-	-	<.1
Barentsia spp.		<.1	-	-	-	-	-	-	-
Abiet./Sertularella/Sertularia spp.(A.S.		-	-	-	-	-	-	-	<.1

Subtidal Fixed Quadrats - Invertebrate Mean Abundance per 0.25 square meters - Survey 95 Results

Species	Station	22-10
	Survey	095
	# Quads	4
Count Invertebrates		
Pelecypoda unid. boring		6.8
Tegula brunnea		6.5
Homalopoma spp.		5.5
Balanus spp.		4.5
Phragmatopoma californica		4.5
Alia spp.		4.0
Pagurus spp.		3.0
Amphissa spp.		2.8
Acmaea mitra		2.5
Leucandra heathi		2.3
Dendropoma spp.		2.3
Leptasterias spp.		2.0
Pugettia spp.		2.0
Serpulorbis squamigerus		1.5
Sabellidae		1.5
Serpulidae unid.		1.5
Sipuncula unid.		1.5
Tetraclita rubescens		1.3
Chaetopteridae		1.3
Fissurella volcano		1.0
Henricia leviuscula		1.0
Calliostoma ligatum		0.8
Fusinus luteopictus		0.8
Anthozoa unid.		0.5
Asterina miniata		0.5
Diodora spp.		0.3
Tonicella lineata		0.3
Lottia ochracea		0.3
Strongylocentrotus purpuratus		0.3
Halcampa decemtentacula		0.3
Ocenebra spp.		0.3
Ophiothrix spp.		0.3
Eupentacta quinquesemita		0.3

Subtidal Fixed Quadrats - Invertebrate Mean Abundance per 0.25 square meters - Survey 95 Results (continued)

Species	Station	22-10
	Survey	095
	# Quads	4
Percent Cover Invertebrates		
Porifera unid. (encrusting)		3.3
tunicates, colonial/social unid.		1.8
Eurystomella bilabiata		1.5
Bryozoa, unid. (encrusting)		1.3
Didemnum/Trididemnum spp.		0.8
Salmacina tribranchiata		0.8
Spirorbidae		0.3
Bryozoa, unid. (foliose)		0.3
Hymenamphiastra cyanocrypta		<.1

Subtidal Fixed Quadrats - Invertebrate Mean Abundance per 0.25 square meters - Survey 96 Results

Species	Station	06-11	09-10	09-15	10-15	12-10	19-10	22-10
	Survey	096	096	096	096	096	096	096
	# Quads	4	4	4	4	4	4	4
Counted Invertebrates								
Phragmatopoma californica		-	7.0	40.0	0.5	3.3	8.3	2.5
Pelecypoda unid. boring		1.0	1.8	13.3	5.8	2.0	0.8	5.0
Balanus spp.		-	-	-	-	-	15.0	-
Pista spp.		-	1.3	2.8	4.3	5.8	-	0.8
Balanus/Tetraclita spp.		-	-	8.5	-	0.3	3.3	2.8
Pagurus spp.		-	-	0.5	0.8	1.3	3.8	3.3
Tetraclita rubescens		-	9.3	-	-	-	-	-
Balanophyllia elegans		-	-	-	9.0	-	0.3	-
Lottia ochracea		2.0	1.5	0.8	-	0.3	1.8	2.8
Serpulidae unid.		1.8	1.3	2.3	-	-	2.3	1.0
Acmaea mitra		0.8	1.5	1.5	1.0	-	2.3	1.3
Homalopoma spp.		-	-	-	-	-	5.3	2.3
Alia spp.		4.3	1.0	0.3	0.3	0.3	0.3	0.8
Strongylocentrotus purpuratus		0.5	1.0	2.3	1.8	0.8	-	0.8
Tegula brunnea		-	0.5	-	-	-	5.3	1.0
Dendropoma spp.		-	-	1.3	-	-	2.8	-
Ophiothrix spp.		-	2.3	1.0	-	0.3	0.3	-
Pugettia spp.		0.3	0.5	0.3	1.0	-	0.5	0.3
Chaetopteridae		0.5	-	1.0	0.3	-	-	1.0
Anthopleura elegantissima		-	0.5	0.3	1.3	-	0.5	-
Amphissa spp.		0.5	-	0.5	-	-	1.0	0.5
Tonicella lineata		-	0.3	0.3	-	-	0.8	1.0
Ischnochitonidae		-	0.3	1.3	-	0.5	-	-
Diopatra ornata		-	-	-	1.0	0.8	-	-
Asterina miniata		-	-	-	-	-	0.8	0.8
Ophiuroidea unid.		1.5	-	-	-	-	-	-
Fissurella volcano		0.3	0.3	-	-	-	-	0.8
Sabellidae		-	-	-	1.3	-	-	-
Lacuna spp.		1.0	-	0.3	-	-	-	-
Mopalia spp.		-	-	-	-	-	0.8	0.3
Lithopoma gibberosum		-	-	0.5	0.5	-	-	-
Mitra idae		-	-	-	0.5	0.3	-	0.3
Epiactis prolifera		-	-	-	-	-	0.5	0.3
Anthozoa unid.		0.3	-	0.3	-	-	-	0.3
Acmaeidae unid.		0.8	-	-	-	-	-	-

Subtidal Fixed Quadrats - Invertebrate Mean Abundance per 0.25 square meters - Survey 96 Results (continued)

Species	Station	06-11	09-10	09-15	10-15	12-10	19-10	22-10
	Survey	096	096	096	096	096	096	096
	# Quads	4	4	4	4	4	4	4
Leptasterias spp.		-	-	-	-	-	0.8	-
Leucilla nuttingi		-	-	-	-	-	-	0.8
Halcampa decemtentacula		-	-	-	-	0.3	0.3	0.3
Fusinus luteopictus		-	-	-	-	-	-	0.8
Ocenebra spp.		-	-	-	0.3	-	0.3	0.3
Pisaster giganteus		-	0.3	-	0.3	-	-	0.3
Calliostoma ligatum		-	-	-	-	-	0.3	0.3
Boltenia villosa		-	-	0.3	-	0.3	-	-
Cucumaria spp.		-	-	-	0.3	-	-	0.3
Cryptolithodes sitchensis		0.3	-	-	-	-	0.3	-
Mimulus foliatus		-	-	-	0.3	-	0.3	-
Sipuncula unid.		-	-	-	0.3	-	0.3	-
Tricolia spp.		0.5	-	-	-	-	-	-
Ophioplocus spp.		-	-	0.3	0.3	-	-	-
Anthopleura artemisia		-	-	-	0.3	-	-	-
Urticina spp.		-	-	-	-	-	0.3	-
Pododesmus cepio		-	-	0.3	-	-	-	-
Serpulorbis squamigerus		-	-	0.3	-	-	-	-
Tegula montereyi		0.3	-	-	-	-	-	-
Cancer antennarius		-	-	-	-	-	0.3	-
Henricia leviuscula		-	-	-	0.3	-	-	-
Anisodoris nobilis		-	0.3	-	-	-	-	-
Doriopsilla albopunctata		-	-	0.3	-	-	-	-
Cryptochiton stelleri		0.3	-	-	-	-	-	-
Pisaster/Henricia (juv.)		-	-	-	-	-	0.3	-
Platyhelminthes unid.		-	-	0.3	-	-	-	-
Aeolidia papillosa		-	0.3	-	-	-	-	-
Cnemidocarpa finmarkiensis		-	-	-	0.3	-	-	-
Lepidozona spp.		-	-	-	-	-	0.3	-
Haliotis spp.		-	-	0.3	-	-	-	-
Norrisia norrisi		-	-	-	0.3	-	-	-
Clavularia spp.		-	-	-	-	-	-	<.1

Subtidal Fixed Quadrats - Invertebrate Mean Abundance per 0.25 square meters - Survey 96 Results (continued)

Species	Station	06-11	09-10	09-15	10-15	12-10	19-10	22-10
	Survey	096	096	096	096	096	096	096
	# Quads	4	4	4	4	4	4	4
Percent Cover Invertebrates								
Bryozoa, unid. (encrusting)		0.5	0.5	4.3	0.5	<.1	0.3	0.3
Porifera unid. (encrusting)		0.8	0.8	0.5	-	-	1.0	2.0
tunicates, colonial/social unid.		-	0.5	0.3	1.0	0.3	<.1	2.3
Hydroida		3.0	-	-	-	-	-	-
Hymenamphiastra cyanocrypta		-	-	2.0	0.3	-	-	0.3
Didemnum/Tridemnum spp.		-	<.1	0.3	0.5	<.1	-	0.5
epiphytic bryozoan		1.3	-	-	-	-	-	-
Eurystomella bilabiata		-	-	-	-	-	-	0.8
Salmacina tribranchiata		-	0.3	0.3	-	-	-	0.3
Spirorbidae		-	<.1	<.1	<.1	0.3	0.3	<.1
Haliclona spp.		0.3	-	-	-	-	-	-
Dodecaceria fewkesi		-	-	<.1	-	-	-	-
Abiet./Sertularella/Sertularia spp.(A.S.		<.1	-	-	-	-	-	-
Bryozoa, unid. (erect)		-	-	-	<.1	-	-	<.1
Bryozoa, unid. (foliose)		<.1	-	-	-	-	-	-

Subtidal Fixed Quadrats - Invertebrate Mean Abundance per 0.25 square meters - Survey 97 Results

Species	Station	09-10	12-10	19-10	22-30
	Survey	097	097	097	097
	# Quads	4	4	4	4
Counted Invertebrates					
Phragmatopoma californica		7.8	4.3	6.5	26.0
Balanus/Tetraclita spp.		-	-	6.5	17.5
Pagurus spp.		3.8	7.5	5.8	3.8
Tegula brunnea		1.3	3.0	7.8	2.8
Balanophyllia elegans		-	-	0.8	12.3
Homalopoma spp.		-	-	6.3	5.0
Alia spp.		-	8.5	-	-
Serpulidae unid.		2.3	1.8	0.3	3.3
Tetraclita rubescens		6.8	-	-	-
Acmaea mitra		2.3	1.0	1.8	-
Serpulorbis squamigerus		-	0.5	-	4.5
Pista spp.		-	2.8	1.0	1.3
Diopatra ornata		0.3	0.3	-	3.8
Pelecypoda unid. boring		0.8	3.0	0.3	-
Pugettia spp.		2.5	-	0.5	-
Chaetopteridae		-	1.8	-	1.3
Strongylocentrotus purpuratus		2.3	-	-	0.5
Amphissa spp.		-	-	0.8	2.0
Dendropoma spp.		-	-	1.3	1.5
Lottia ochracea		0.5	-	1.8	-
Fissurella volcano		1.5	-	-	0.5
Tonicella lineata		0.3	-	1.8	-
Sabellidae		-	-	-	2.0
Anthopleura elegantissima		0.8	-	0.3	0.8
Leptasterias spp.		-	-	1.5	0.3
Crepidula spp.		-	-	1.5	-
Asterina miniata		-	-	0.5	1.0
Anthopleura artemisia		-	-	-	1.3
Pododesmus cepio		0.3	-	0.3	0.8
Leucilla nuttingi		-	-	-	1.3
Phidiana hiltoni		0.8	0.3	0.3	-
Henricia leviuscula		-	-	0.3	0.8
tunicate, solitary unid.		0.3	-	-	0.8
Cryptolithodes sitchensis		-	-	1.0	-
Epiactis prolifera		-	-	-	0.8

Subtidal Fixed Quadrats - Invertebrate Mean Abundance per 0.25 square meters - Survey 97 Results (continued)

Species	Station	09-10	12-10	19-10	22-30
	Survey	097	097	097	097
	# Quads	4	4	4	4
Calliostoma ligatum		-	-	0.3	0.5
Styela spp.		-	-	0.3	0.5
Pisaster/Henricia (juv.)		-	-	0.8	-
Lophopanopeus spp.		-	0.3	0.5	-
Lithopoma gibberosum		-	-	0.5	-
Tegula montereyi		-	-	-	0.5
Tegula pulligo		-	-	-	0.5
Cancer antennarius		-	0.3	0.3	-
Boltenia villosa		-	0.3	-	0.3
Leucandra heathi		-	-	0.5	-
Tethya aurantia		-	-	-	0.5
Mitra idae		-	-	-	0.5
Eudistylia polymorpha		-	-	-	0.5
Lacuna spp.		-	-	0.5	-
Sipuncula unid.		-	-	-	0.5
Anthozoa unid.		0.3	-	-	-
Mopalia spp.		-	-	0.3	-
Balanus spp.		-	0.3	-	-
Pyura haustor		-	-	-	0.3
Anisodoris nobilis		0.3	-	-	-
Doriopsilla albopunctata		-	-	-	0.3
Ocenebra spp.		-	-	0.3	-
Pseudomelatoma torosa		-	-	0.3	-
Tritonia festiva		-	-	-	0.3
Cucumaria spp.		-	-	-	0.3
Mimulus foliatus		-	-	0.3	-
Cnemidocarpa finmarkiensis		-	-	-	0.3
Ophiothrix spp.		-	0.3	-	-
Lissothuria nutriens		0.3	-	-	-
Modiolus spp.		0.3	-	-	-
Chelyosoma productum		-	-	-	0.3

Subtidal Fixed Quadrats - Invertebrate Mean Abundance per 0.25 square meters - Survey 97 Results (continued)

Species	Station	09-10	12-10	19-10	22-30
	Survey	097	097	097	097
	# Quads	4	4	4	4
Percent Cover Invertebrates					
Bryozoa, unid. (encrusting)		0.3	1.8	1.3	2.3
tunicates, colonial/social unid.		0.5	<.1	1.0	3.0
Porifera unid. (encrusting)		1.5	<.1	0.5	<.1
Spirorbidae		0.3	0.5	<.1	<.1
Didemnum/Tridemnum spp.		<.1	<.1	-	0.8
Salmacina tribranchiata		0.3	-	0.5	-
Eurystomella bilabiata		-	-	0.3	-
Bryozoa, unid. (erect)		-	-	-	<.1
Abiet./Sertularella/Sertularia spp.(A.S.		-	-	-	<.1
Bryozoa, unid. (foliose)		-	-	-	<.1
Hymenamphiastra cyanocrypta		-	<.1	-	<.1

Subtidal Fixed Quadrats - Invertebrate Mean Abundance per 0.25 square meters - Survey 98 Results

Species	Station	06-11	09-10	09-15	10-15	12-10
	Survey	098	098	098	098	098
	# Quads	4	4	4	4	4
Counted Invertebrates						
Phragmatopoma californica		-	8.3	31.5	7.0	2.3
Pelecypoda unid. boring		-	-	2.3	4.5	9.5
Balanus/Tetraclita spp.		-	14.8	-	-	-
Balanophyllia elegans		-	-	-	10.5	-
Serpulidae unid.		0.8	2.0	-	0.3	2.8
Pista spp.		-	1.0	1.0	1.5	1.3
Chaetopteridae		-	-	1.0	2.3	1.0
Acmaea mitra		0.3	1.3	0.8	0.8	1.0
Lacuna spp.		1.8	1.3	-	-	-
Pagurus spp.		-	-	0.3	1.0	1.0
Alia spp.		0.5	1.5	-	-	-
Dendropoma spp.		-	1.0	0.8	-	-
Strongylocentrotus purpuratus		-	0.5	0.5	0.3	0.3
Phidiana hiltoni		-	0.3	1.3	-	-
Anthopleura elegantissima		-	0.3	0.3	0.8	-
Serpulorbis squamigerus		-	0.3	0.3	0.5	0.3
Lottia ochracea		1.0	0.3	-	-	-
Ophiothrix spp.		1.0	-	0.3	-	-
Diopatra ornata		-	-	-	0.5	0.5
Pugettia spp.		0.3	-	0.5	0.3	-
Lepidozona spp.		-	0.8	0.3	-	-
Sabellidae		-	-	-	0.5	0.3
Doriopsilla albopunctata		-	0.3	0.3	0.3	-
Anthozoa unid.		0.5	-	-	-	-
Pododesmus cepio		0.5	-	-	-	-
Tegula brunnea		-	0.3	-	0.3	-
Boltenia villosa		-	-	-	0.3	0.3
Majidae		0.3	0.3	-	-	-
Amphissa spp.		-	0.3	0.3	-	-
Sipuncula unid.		-	0.3	-	0.3	-
Chama spp.		0.5	-	-	-	-
Lissothuria nutriens		-	0.5	-	-	-
Fissurella volcano		-	0.3	-	-	-
Conus californicus		0.3	-	-	-	-
Asterina miniata		0.3	-	-	-	-

Subtidal Fixed Quadrats - Invertebrate Mean Abundance per 0.25 square meters - Survey 98 Results (continued)

Species	Station	06-11	09-10	09-15	10-15	12-10
	Survey	098	098	098	098	098
	# Quads	4	4	4	4	4
tunicate, solitary unid.		-	-	-	0.3	-
Tethya aurantia		-	-	-	0.3	-
Pseudomelatoma torosa		-	-	-	-	0.3
Cryptochiton stelleri		-	-	-	0.3	-
Pisaster giganteus		-	-	-	-	0.3
Ophioplocus spp.		-	-	0.3	-	-
Percent Cover Invertebrates						
Porifera unid. (encrusting)		<.1	1.0	1.0	0.8	0.3
Bryozoa, unid. (encrusting)		0.8	<.1	0.5	0.3	0.8
tunicates, colonial/social unid.		<.1	<.1	0.3	1.3	0.3
Hymenamphiastra cyanocrypta		-	-	1.0	0.3	<.1
Didemnum/Tridemnum spp.		-	-	1.0	-	-
Eurystomella bilabiata		-	0.3	0.3	-	-
Spirorbidae		-	<.1	<.1	<.1	0.3
Salmacina tribranchiata		-	-	-	<.1	0.3
Bryozoa, unid. (foliose)		<.1	-	-	-	-

Subtidal Fixed Quadrats - Invertebrate Mean Abundance per 0.25 square meters - Survey 99 Results

Species	Station	06-11	09-10	09-15	10-15	12-10	19-10	22-10	22-30
	Survey	099	099	099	099	099	099	099	099
	# Quads	4	4	4	4	4	4	4	4
Counted Invertebrates									
Phragmatopoma californica		0.3	8.3	40.0	10.0	4.0	13.8	-	23.0
Pelecypoda unid. boring		1.5	57.8	1.3	8.8	5.3	1.3	5.8	0.3
Alia spp.		20.8	0.5	6.5	0.3	1.3	1.3	8.3	-
Balanophyllia elegans		-	-	-	11.5	-	0.3	-	12.3
Homalopoma spp.		-	-	-	-	-	6.0	6.5	8.5
Pagurus spp.		0.3	0.8	1.3	1.3	0.5	8.5	1.5	2.5
Balanus/Tetraclita spp.		-	5.3	-	-	4.0	5.5	0.3	0.8
Chaetopteridae		1.0	3.8	0.3	3.5	2.5	0.8	-	1.5
Tegula brunnea		0.3	0.8	1.5	1.5	0.5	4.8	2.5	1.0
Pugettia spp.		0.8	2.0	2.8	1.5	-	0.8	2.0	-
Serpulidae unid.		-	2.0	0.5	1.3	4.5	-	0.8	0.5
Amphissa spp.		2.5	-	0.5	-	-	0.5	6.0	-
Pista spp.		-	-	0.5	4.5	2.0	-	0.3	0.5
Dendropoma spp.		-	-	-	1.5	-	2.5	-	2.5
Ophiothrix spp.		0.5	0.3	1.8	0.5	3.3	-	0.3	-
Acmaea mitra		-	2.8	0.3	1.0	0.8	-	1.3	0.3
Tetraclita rubescens		-	-	4.8	-	-	-	-	-
Fissurella volcano		0.3	3.0	-	-	0.3	-	0.5	-
Leptasterias spp.		-	-	-	-	-	2.3	1.0	0.5
Lacuna spp.		2.8	1.0	-	-	-	-	-	-
Serpulorbis squamigerus		-	1.0	0.5	-	0.3	-	0.3	1.5
Diopatra ornata		-	0.3	-	0.8	-	-	-	2.5
Strongylocentrotus purpuratus		-	0.3	0.5	0.5	-	-	1.5	-
Ophiuroidea unid.		1.0	0.5	-	-	1.0	-	-	-
Anthopleura elegantissima		-	1.0	0.5	0.3	-	-	-	0.5
Asterina miniata		-	-	-	-	-	1.0	0.3	0.8
Phidiana hiltoni		-	-	0.8	0.3	0.3	0.8	-	-
Sabellidae		-	-	-	0.3	0.5	-	-	1.0
Crepidula spp.		-	-	-	-	-	0.5	0.5	0.5
Tegula pulligo		0.3	-	-	-	-	-	-	1.3
Boltenia villosa		-	-	-	0.5	0.3	-	-	0.8
Fusinus luteopictus		-	-	-	-	-	-	1.3	0.3
Lissothuria nutriens		-	-	-	-	-	0.3	1.3	-
Pododesmus cepio		1.3	-	-	-	-	-	-	-
Lithopoma gibberosum		-	-	-	-	-	1.0	-	0.3

Subtidal Fixed Quadrats - Invertebrate Mean Abundance per 0.25 square meters - Survey 99 Results (continued)

Species	Station	06-11	09-10	09-15	10-15	12-10	19-10	22-10	22-30
	Survey	099	099	099	099	099	099	099	099
	# Quads	4	4	4	4	4	4	4	4
Doriopsilla albopunctata		-	-	-	-	0.3	0.3	-	0.8
Anthopleura artemisia		-	-	-	-	-	-	-	1.0
tunicate, solitary unid.		-	-	0.3	-	-	0.3	-	0.5
Styela spp.		-	-	-	-	0.3	-	-	0.8
Ischnochitonidae		-	-	-	-	-	-	1.0	-
Henricia leviuscula		-	-	-	-	-	0.3	0.3	0.3
Tethya aurantia		-	-	-	0.3	-	-	-	0.5
Mitra idae		-	-	-	0.5	-	-	-	0.3
Pseudomelatoma torosa		-	-	0.3	-	-	0.5	-	-
Tricolia spp.		-	0.8	-	-	-	-	-	-
Epiactis prolifera		-	-	-	0.3	-	-	-	0.3
Calliostoma ligatum		-	-	-	-	-	-	-	0.5
Tonicella lineata		-	-	-	-	-	0.3	0.3	-
Lottia ochracea		-	0.3	0.3	-	-	-	-	-
Tegula montereyi		-	-	-	0.5	-	-	-	-
Loxorhynchus spp.		-	0.3	-	-	0.3	-	-	-
Pyura haustor		-	-	-	-	-	-	-	0.5
Anisodoris nobilis		-	-	-	0.3	0.3	-	-	-
Ocenebra spp.		-	-	-	-	-	0.3	-	0.3
Pisaster/Henricia (juv.)		-	-	-	-	-	0.5	-	-
Scyra acutifrons		-	-	-	-	-	-	0.3	0.3
Cancer spp.		-	0.3	-	-	-	-	0.3	-
Lophopanopeus spp.		-	-	0.3	-	-	-	0.3	-
Cnemidocarpa finmarkiensis		-	-	-	0.3	-	-	-	0.3
Rictaxis punctocaelatus		-	-	-	-	0.5	-	-	-
Calliostoma gloriosum		-	-	-	-	-	-	-	0.5
Anthozoa unid.		-	-	-	0.3	-	-	-	-
Calliostoma annulatum		-	-	-	-	-	-	-	0.3
Mopalia spp.		-	-	-	-	-	-	0.3	-
Pycnopodia helianthoides		-	-	-	-	0.3	-	-	-
Petrolisthes spp.		-	-	-	-	-	-	0.3	-
Calliostoma canaliculatum		-	-	-	-	-	-	-	0.3
Bittium spp.		-	0.3	-	-	-	-	-	-
Pisaster giganteus		-	-	0.3	-	-	-	-	-
Eudistylia polymorpha		-	-	0.3	-	-	-	-	-
Mimulus foliatus		-	-	-	-	-	-	0.3	-

Subtidal Fixed Quadrats - Invertebrate Mean Abundance per 0.25 square meters - Survey 99 Results (continued)

Species	Station	06-11	09-10	09-15	10-15	12-10	19-10	22-10	22-30
	Survey	099	099	099	099	099	099	099	099
	# Quads	4	4	4	4	4	4	4	4
Paracyathus stearnsii		-	-	-	-	-	-	-	0.3
Hopkinsia rosacea		-	-	-	-	0.3	-	-	-
Paraxanthias taylori		-	-	-	-	-	-	0.3	-
Lepidozona spp.		-	-	-	-	-	-	-	0.3
Alpheus spp.		-	-	-	-	-	-	0.3	-
Laila cockerelli		-	-	-	-	-	-	-	0.3
Eupentacta quinquesemita		-	-	-	-	0.3	-	-	-
Aplysia californica		-	-	-	0.3	-	-	-	-
Megathura crenulata		-	-	0.3	-	-	-	-	-
Percent Cover Invertebrates									
Porifera unid. (encrusting)		0.5	1.8	1.3	1.5	0.3	1.0	5.0	0.8
Bryozoa, unid. (encrusting)		2.0	0.5	2.0	1.0	1.3	0.5	1.3	2.8
tunicates, colonial/social unid.		-	0.8	0.5	1.0	<.1	0.3	4.8	<.1
Hydroida		2.8	-	-	-	-	-	-	-
Didemnum/Tridemnum spp.		-	-	-	-	-	-	1.0	1.5
Hymenamphiastra cyanocrypta		-	-	1.3	<.1	-	-	-	1.0
epiphytic bryozoan		2.3	-	-	-	-	-	-	-
Spirorbidae		<.1	1.0	<.1	<.1	0.5	<.1	0.5	<.1
Haliclona spp.		-	2.0	-	-	-	-	-	-
Salmacina tribranchiata		-	-	0.3	1.0	-	<.1	-	-
Eurystomella bilabiata		-	-	-	0.5	0.5	-	-	<.1
Bryozoa, unid. (erect)		-	-	-	-	-	-	-	0.3

Subtidal Fish Observations - Mean Abundance per 50 meter transect - midwater transect Survey 93

Species	Station	04	05	06	07	08	10	12	13
	Survey	093	093	093	093	093	093	093	093
	# Replicates	1	1	1	1	1	1	1	1
Oxyjulis californica		63.0	7.5	0.5	1.0	2.0	3.0	3.5	0.5
Aulorhynchus flavidus		-	-	-	-	-	-	25.0	12.5
Brachyistius frenatus		17.5	-	-	-	-	-	-	-
Damalichthys vacca (=Rhacochilus)		1.5	-	-	0.5	-	-	-	-
Sebastes atrovirens		-	-	-	-	-	-	-	0.5
Embiotoca lateralis		-	-	-	-	-	-	-	0.5

Subtidal Fish Observations - Mean Abundance per 50 meter transect - midwater transect Survey 94

Species	Station	04	05	06	07	08	09	10	12	13	14
	Survey	094	094	094	094	094	094	094	094	094	094
	# Replicates	2	2	2	2	2	2	2	2	2	2
Sebastes chrysomelas/S. carnatus (yoy)		56.3	161.5	38.8	85.0	4.3	8.3	60.0	33.8	42.3	117.3
Damalichthys vacca (=Rhacochilus)		63.0	0.3	0.8	-	-	0.3	0.8	-	-	-
Atherinidae unid.		-	-	50.0	-	-	-	-	-	-	-
Oxyjulis californica		25.0	2.8	3.5	0.3	-	1.3	1.3	2.0	1.5	10.0
Brachyistius frenatus (juv.)		3.0	-	-	0.3	-	-	-	-	-	-
Rhacochilus toxotes		3.0	-	-	-	-	-	-	-	-	-
Brachyistius frenatus		0.5	0.3	-	0.3	-	0.3	0.3	0.3	-	-
Sebastes mystinus		0.3	-	-	-	-	-	-	-	-	0.5
Sebastes melanops (yoy)		-	-	-	0.3	-	-	-	-	-	0.5
Aulorhynchus flavidus		-	-	-	-	-	-	0.3	-	-	0.3
Sebastes serranoides		0.3	-	-	-	-	-	-	-	-	0.3
Paralabrax clathratus		0.5	-	-	-	-	-	-	-	-	-
Sebastes atrovirens		0.3	-	-	-	-	-	-	-	-	-
Sebastes paucispinis (juv.)		-	-	-	-	0.3	-	-	-	-	-
Triakis semifasciata		-	-	-	0.3	-	-	-	-	-	-
Myliobatis californica		-	-	-	0.3	-	-	-	-	-	-
Chromis punctipinnis		0.3	-	-	-	-	-	-	-	-	-
Sebastes mystinus (yoy)		-	-	-	-	-	-	-	-	0.3	-
Sebastes serranoides/S. flavidus (yoy)		-	-	-	0.3	-	-	-	-	-	-

Subtidal Fish Observations - Mean Abundance per 50 meter transect - midwater transect Survey 95

Species	Station	04	05	06	07	08	09	10	12	13	14
	Survey	095	095	095	095	095	095	095	095	095	095
	# Replicates	2	2	2	2	2	2	2	2	2	2
Oxyjulis californica		5.3	7.8	10.3	5.3	9.8	3.0	2.5	17.0	1.3	3.0
Oxyjulis californica (juv.)		15.0	3.0	-	-	-	12.5	23.0	-	-	-
Atherinidae unid.		-	20.0	-	-	16.3	7.5	-	-	-	-
Aulorhynchus flavidus		7.5	-	-	-	-	0.5	0.5	-	-	-
Girella nigricans		-	2.0	4.8	-	-	-	-	-	-	-
Sebastes atrovirens (yoy)		0.3	-	-	-	1.0	0.8	3.3	-	-	-
Brachyistius frenatus		1.5	-	-	-	0.5	0.5	1.0	-	-	-
Damalichthys vacca (=Rhacochilus)		0.3	0.3	0.5	-	-	0.8	0.8	0.3	-	0.3
Paralabrax clathratus		-	1.3	0.8	0.3	-	-	-	-	-	-
Sebastes atrovirens		0.5	-	-	0.5	-	-	0.8	-	0.3	-
Sebastes mystinus		1.0	-	-	-	-	-	-	-	0.3	-
Aulorhynchus flavidus (juv.)		-	-	-	-	1.0	-	-	-	-	-
Sebastes serranoides/S. flavidus (yoy)		-	0.8	-	-	-	-	-	-	-	-
Rhacochilus toxotes		0.5	-	-	-	-	-	-	-	-	-
Myliobatis californica		-	-	-	-	0.3	-	0.3	-	-	-
Sebastes serranoides/S. flavidus (juv.)		-	-	-	0.3	-	-	-	-	-	-

Subtidal Fish Observations - Mean Abundance per 50 meter transect - midwater transect Survey 96

Species	Station	04	05	06	07	08	09	10	12	13	14
	Survey	096	096	096	096	096	096	096	096	096	096
	# Replicates	2	2	2	2	2	2	2	2	2	2
Sebastes chrysomelas/S. carnatus (yoy)		12.3	37.0	64.3	204.5	6.8	33.8	9.3	27.5	15.3	20.3
Oxyjulis californica		19.8	5.0	7.8	3.0	2.5	40.3	6.3	0.8	0.3	0.8
Aulorhynchus flavidus (juv.)		-	-	-	-	-	8.5	-	-	53.8	-
Aulorhynchus flavidus		-	-	-	-	-	19.3	1.0	-	19.8	1.3
Brachyistius frenatus (juv.)		29.0	1.3	0.8	0.5	-	0.8	-	-	-	-
Damalichthys vacca (=Rhacochilus)		6.3	2.3	-	0.3	-	-	-	-	-	-
Sebastes serranoides		4.8	-	-	-	-	-	-	-	-	0.8
Sebastes caurinus (yoy)		0.5	-	-	4.0	-	-	0.8	-	-	-
Sebastes mystinus		3.0	-	-	-	-	-	-	-	0.5	1.3
Sebastes atrovirens		2.5	-	-	-	-	-	0.3	-	0.5	-
Sebastes atrovirens (yoy)		-	0.3	-	1.0	1.5	-	0.5	-	-	-
Brachyistius frenatus		0.3	1.3	-	-	0.5	0.5	0.5	-	-	-
Rhacochilus toxotes		2.8	-	-	-	-	-	-	-	-	-
Sebastes serranoides/S. flavidus (yoy)		-	0.3	-	1.0	-	-	-	-	0.3	-
Gibbonsia spp.		-	0.3	-	-	0.3	-	-	-	0.3	-
Semicossyphus pulcher		0.8	-	-	-	-	-	-	-	-	-
Paralabrax clathratus		0.3	0.3	-	-	-	-	-	-	-	-
Embiotoca lateralis		-	-	0.3	-	-	-	-	-	-	-
Oxyjulis californica (juv.)		-	-	-	0.3	-	-	-	-	-	-
Damalichthys vacca (juv.)		-	-	-	0.3	-	-	-	-	-	-
Triakis semifasciata		-	-	0.3	-	-	-	-	-	-	-
Myliobatis californica		-	-	-	0.3	-	-	-	-	-	-

Subtidal Fish Observations - Mean Abundance per 50 meter transect - midwater transect Survey 97

Species	Station	04	05	06	07	08	09	10	12	13	14
	Survey	097	097	097	097	097	097	097	097	097	097
	# Replicates	1	1	1	1	1	1	1	1	1	1
Atherinidae unid.		120.0	105.0	-	-	20.0	113.5	125.0	-	-	-
Atherinopsis californiensis		-	225.0	22.5	-	75.0	2.5	2.5	-	-	-
Oxyjulis californica		3.5	36.0	1.0	6.0	7.0	11.5	12.5	6.5	3.0	3.0
Oxyjulis californica (juv.)		55.0	-	-	-	-	-	25.0	-	-	10.0
Aulorhynchus flavidus		40.5	-	-	-	-	-	-	-	-	-
Brachyistius frenatus		8.5	-	-	-	-	15.0	2.0	-	-	-
Damalichthys vacca (=Rhacochilus)		-	1.0	-	-	-	0.5	0.5	1.5	-	-
Sebastes atrovirens (yoy)		-	-	-	-	-	-	3.0	-	-	-
Sebastes atrovirens		-	-	-	-	-	-	2.0	-	-	-
Myliobatis californica		2.0	-	-	-	-	-	-	-	-	-

Subtidal Fish Observations - Mean Abundance per 50 meter transect - midwater transect Survey 98

Species	Station	04	05	06	07	08	09	10	12	13	14
	Survey	098	098	098	098	098	098	098	098	098	098
	# Replicates	2	2	2	2	2	2	2	2	2	2
Sebastes atrovirens (yoy)		59.5	17.5	5.0	-	4.3	-	8.8	1.5	-	-
Oxyjulis californica		16.0	2.0	2.8	1.8	10.5	12.0	12.0	3.5	0.3	6.3
Atherinopsis californiensis		-	9.5	-	-	17.5	-	16.0	-	-	-
Atherinidae unid.		-	-	3.5	16.5	16.3	2.5	-	-	-	-
Sebastes chrysomelas/S. carnatus (yoy)		-	-	3.8	-	0.3	2.5	2.0	8.0	10.8	3.0
Oxyjulis californica (juv.)		-	-	0.3	6.0	1.5	1.0	9.0	1.0	6.8	-
Sebastes atrovirens		17.3	-	-	-	-	-	-	-	-	-
Brachyistius frenatus (juv.)		15.8	1.0	-	-	-	-	-	-	-	-
Aulorhynchus flavidus		15.5	-	-	-	-	-	0.5	-	-	-
Damalichthys vacca (juv.)		-	-	2.5	0.3	10.0	-	0.3	-	-	-
Brachyistius frenatus		2.5	-	-	-	-	-	5.8	-	-	-
Phanerodon furcatus		4.3	-	-	-	-	-	-	-	-	-
Damalichthys vacca (=Rhacochilus)		-	-	0.3	-	0.3	-	2.3	-	-	-
Sebastes serranoides/S. flavidus (yoy)		1.8	-	-	-	-	0.5	0.5	-	-	-
Sebastes mystinus		-	-	-	-	-	-	-	0.5	0.8	0.8
Gibbonsia spp.		-	-	-	-	0.3	-	-	0.5	-	-
Triakis semifasciata		-	0.5	0.3	-	-	-	-	-	-	-
Myliobatis californica		-	0.3	0.5	-	-	-	-	-	-	-
Sebastes serranoides		0.3	-	-	-	-	-	-	-	-	0.3
Embiotoca lateralis		-	-	-	-	-	-	-	0.5	-	-
Sebastes melanops		-	-	-	-	-	-	-	-	-	0.3
Sebastes paucispinis (juv.)		-	-	-	-	-	-	-	-	0.3	-
Embiotocidae unid. (juv.)		-	-	-	-	-	0.3	-	-	-	-

Subtidal Fish Observations - Mean Abundance per 50 meter transect - midwater transect Survey 99

Species	Station	04	05	06	07	08	09	10	12	13	14
	Survey	099	099	099	099	099	099	099	099	099	099
	# Replicates	1	1	1	1	1	1	1	1	1	1
Atherinidae unid.		-	210.0	90.0	125.0	2.5	9.5	49.5	-	-	-
Atherinopsis californiensis		-	215.0	15.0	-	105.0	22.5	-	-	-	-
Oxyjulis californica (juv.)		71.5	-	-	0.5	-	2.5	1.0	-	-	-
Oxyjulis californica		22.0	0.5	0.5	-	7.5	5.0	8.0	4.0	4.0	2.5
Brachyistius frenatus		-	-	-	-	0.5	-	2.0	-	-	-
Trachurus symmetricus		-	-	-	-	-	-	2.5	-	-	-
Medialuna californiensis		2.5	-	-	-	-	-	-	-	-	-
Myliobatis californica		-	-	0.5	0.5	0.5	-	-	-	-	-
Damalichthys vacca (=Rhacochilus)		-	-	0.5	-	-	-	-	0.5	-	-
Sebastes mystinus		-	-	-	-	-	-	-	-	1.0	-
Paralabrax clathratus		-	-	-	-	-	0.5	0.5	-	-	-
Sebastes serranoides		0.5	-	-	-	-	-	-	-	-	-
Heterostichus rostratus		-	-	-	0.5	-	-	-	-	-	-
Triakis semifasciata		-	0.5	-	-	-	-	-	-	-	-

Subtidal Fish Observations - Mean Abundance per 50 meter transect - benthic transect Survey 93

Species	Station	04	05	06	07	08	09	10	12	13	14
	Survey	093	093	093	093	093	093	093	093	093	093
	# Replicates	1	1	1	1	1	1	1	1	1	1
Oxyjulis californica		75.5	39.5	29.5	12.5	28.5	7.0	11.0	25.5	0.5	0.5
Damalichthys vacca (juv.)		-	35.5	-	1.0	-	-	-	-	-	-
Oxyjulis californica (juv.)		-	5.5	-	2.0	10.5	2.5	3.0	-	-	-
Oxylebius pictus		4.0	1.5	-	3.5	-	-	0.5	1.0	4.5	1.5
Embiotoca jacksoni		-	2.0	3.5	1.5	-	-	-	1.5	-	1.0
Sebastes chrysomelas		1.5	-	1.0	1.0	-	-	-	0.5	3.0	1.5
Gibbonsia spp.		-	3.0	1.0	1.0	-	-	1.0	0.5	0.5	0.5
Embiotoca jacksoni (juv.)		1.0	0.5	0.5	2.5	-	-	0.5	-	0.5	1.0
Embiotoca lateralis		-	-	-	-	-	-	-	1.5	4.0	0.5
Aulorhynchus flavidus		-	-	-	-	0.5	-	-	-	5.0	-
Coryphopterus nicholsi		-	0.5	2.0	3.0	-	-	-	-	-	-
Sebastes atrovirens		-	-	-	-	-	-	0.5	-	4.0	0.5
Sebastes chrysomelas (juv.)		0.5	-	-	-	-	0.5	-	3.0	-	-
Cottidae unid. a		0.5	1.5	0.5	-	-	-	0.5	0.5	-	-
Sebastes rastrelliger		2.0	0.5	-	-	-	-	-	0.5	0.5	-
Sebastes serranoides		-	-	-	-	-	-	-	-	1.0	2.0
Sebastes mystinus		2.0	-	-	-	-	-	-	-	0.5	0.5
Brachyistius frenatus		2.5	-	-	-	-	-	-	-	-	-
Scorpaenichthys marmoratus		0.5	-	-	-	-	-	-	1.0	0.5	0.5
Girella nigricans		-	1.0	1.5	-	-	-	-	-	-	-
Hexagrammos decagrammus		-	-	-	-	-	-	-	1.5	0.5	-
Artedius spp.		-	-	-	0.5	-	0.5	-	-	-	1.0
Semicossyphus pulcher		0.5	0.5	1.0	-	-	-	-	-	-	-
Sebastes atrovirens (juv.)		-	-	-	1.5	-	-	-	-	-	-
Paralabrax clathratus		-	1.5	-	-	-	-	-	-	-	-
Damalichthys vacca (=Rhacochilus)		-	0.5	-	-	-	-	0.5	-	-	-
Rhacochilus toxotes		-	-	-	-	-	-	-	-	-	1.0
Cebidichthys violaceus		-	0.5	-	-	-	-	-	-	0.5	-
Gobiesocidae unid. a		-	-	-	0.5	-	-	-	-	-	-
Sebastes serranoides/S. flavidus (juv.)		0.5	-	-	-	-	-	-	-	-	-
Sebastes mystinus (juv.)		0.5	-	-	-	-	-	-	-	-	-
Embiotoca lateralis (juv.)		-	-	-	-	-	-	-	0.5	-	-
Cephaloscyllium ventriosum		-	-	-	-	-	-	-	-	-	0.5
Embiotocidae unid. (juv.)		-	-	-	0.5	-	-	-	-	-	-
Paralichthys californicus		-	-	-	-	-	-	-	-	-	0.5

Subtidal Fish Observations - Mean Abundance per 50 meter transect - benthic transect Survey 94

Species	Station	04	05	06	07	08	09	10	12	13	14
	Survey	094	094	094	094	094	094	094	094	094	094
	# Replicates	2	2	2	2	2	2	2	2	2	2
Sebastes chrysomelas/S. carnatus (yoy)		59.5	37.5	3.5	155.5	16.3	75.0	77.8	25.5	30.3	56.3
Oxyjulis californica		33.8	11.3	25.5	2.8	2.8	2.0	0.3	26.0	19.5	9.0
Aulorhynchus flavidus (juv.)		18.0	-	-	-	4.3	22.5	18.3	-	-	5.0
Damalichthys vacca (=Rhacochilus)		16.5	4.0	1.5	1.5	-	0.8	-	2.0	-	0.3
Sebastes chrysomelas		5.0	3.0	2.5	2.3	-	-	0.8	2.5	2.3	1.3
Sebastes serranoides/S. flavidus (yoy)		0.3	4.8	0.3	0.8	0.8	6.0	0.8	0.3	1.0	0.3
Oxyjulis californica (juv.)		-	3.8	-	4.8	-	-	-	6.3	-	-
Embiotoca lateralis		1.3	2.5	2.5	1.3	-	0.5	0.5	1.0	1.3	3.3
Embiotoca jacksoni		0.5	2.0	3.3	2.0	-	1.3	0.3	0.8	1.3	1.0
Rhacochilus toxotes		9.0	0.8	-	-	-	-	-	-	-	-
Oxylebius pictus		2.5	0.8	0.3	0.3	-	-	0.3	1.0	3.0	0.5
Sebastes atrovirens		3.8	-	0.3	0.5	-	0.3	1.0	0.3	-	0.8
Sebastes mystinus		4.3	-	-	-	-	-	-	-	1.0	1.3
Coryphopterus nicholsi		-	-	2.3	3.5	0.3	0.3	-	-	-	-
Sebastes melanops (yoy)		-	1.5	-	-	-	-	0.5	0.5	2.3	0.8
Gibbonsia spp.		-	1.0	1.3	0.3	1.5	0.3	0.3	-	-	0.3
Paralabrax clathratus		-	1.8	0.8	2.0	-	-	-	-	-	-
Semicossyphus pulcher		0.3	1.5	1.0	1.0	-	-	-	-	-	-
Sebastes rastrelliger		-	-	0.3	1.8	0.3	-	0.3	0.3	0.5	-
Sebastes chrysomelas (juv.)		0.5	1.8	0.3	-	-	-	-	-	0.8	-
Girella nigricans		-	1.5	0.8	0.8	-	-	-	-	-	-
Embiotoca jacksoni (juv.)		-	1.3	0.5	1.0	-	-	0.3	-	-	-
Embiotoca lateralis (juv.)		-	-	-	-	-	-	-	2.5	0.3	-
Citharichthys spp.		-	-	-	-	1.8	0.8	-	-	-	-
Hexagrammos decagrammus		0.5	-	-	-	-	-	-	0.5	0.5	0.3
Brachyistius frenatus		0.3	0.5	-	-	-	-	-	-	-	0.5
Sebastes serranoides		0.3	0.5	-	-	-	-	-	-	-	0.5
Scorpaenichthys marmoratus		0.3	0.3	-	0.3	-	0.3	-	-	-	0.3
Ophiodon elongatus		0.5	-	-	-	-	-	-	0.5	0.3	-
Damalichthys vacca (juv.)		-	-	-	1.3	-	-	-	-	-	-
Artedius spp.		0.3	-	-	-	-	-	0.3	0.3	-	0.5
Aulorhynchus flavidus		-	-	0.8	-	-	-	-	-	0.3	-
Cebidichthys violaceus		-	0.3	-	-	-	-	-	0.3	0.5	-
Pleuronichthys coenosus		0.5	-	0.3	-	0.3	-	-	-	-	-
Cottidae unid. a		0.3	-	-	-	-	-	-	-	0.3	0.3
Orthonopias triacis		-	-	-	-	-	-	-	0.3	0.5	-

Subtidal Fish Observations - Mean Abundance per 50 meter transect - benthic transect Survey 94 (continued)

Species	Station	04	05	06	07	08	09	10	12	13	14
	Survey	094	094	094	094	094	094	094	094	094	094
	# Replicates	2	2	2	2	2	2	2	2	2	2
Citharicthys spp. (juv)		-	-	-	-	0.5	-	-	-	-	-
Hexagrammos decagrammus (juv.)		-	-	-	-	-	-	-	-	0.3	-
Sebastes rastrelliger (juv.)		-	-	-	-	-	-	0.3	-	-	-
Jordania zanope		-	-	-	-	-	-	-	0.3	-	-
Scorpaenichthys marmoratus (juv.)		-	-	-	-	-	0.3	-	-	-	-
Chirolophis nugator		0.3	-	-	-	-	-	-	-	-	-
Triakis semifasciata		-	0.3	-	-	-	-	-	-	-	-
Sebastes atrovirens (juv.)		0.3	-	-	-	-	-	-	-	-	-
Urolophus halleri		-	0.3	-	-	-	-	-	-	-	-
Sebastes mystinus (yoy)		-	-	-	-	-	-	-	-	-	0.3
Sebastes atrovirens (yoy)		-	0.3	-	-	-	-	-	-	-	-

Subtidal Fish Observations - Mean Abundance per 50 meter transect - benthic transect Survey 95

Species	Station	04	05	06	07	08	09	10	12	13	14
	Survey	095	095	095	095	095	095	095	095	095	095
	# Replicates	2	2	2	2	2	2	2	2	2	2
Oxyjulis californica		10.5	38.8	36.8	18.5	15.0	3.3	10.0	13.8	22.5	12.0
Sebastes atrovirens (yoy)		13.5	-	0.8	7.3	11.0	5.5	2.8	-	-	0.8
Oxylebius pictus		7.8	1.0	0.3	1.0	-	-	1.0	1.5	4.0	2.5
Embiotoca jacksoni		2.3	3.8	5.0	2.0	-	-	0.5	2.0	1.8	1.0
Embiotoca lateralis		1.5	1.3	2.0	4.0	-	-	-	4.3	1.5	2.5
Damalichthys vacca (=Rhacochilus)		1.3	3.0	2.0	3.3	-	1.0	-	1.3	0.3	0.8
Sebastes chrysomelas		2.3	2.5	1.0	1.0	-	-	-	0.8	1.8	2.3
Oxyjulis californica (juv.)		-	2.8	0.5	2.3	1.0	0.3	-	1.8	0.5	1.3
Sebastes chrysomelas/S. carnatus (yoy)		1.8	-	2.3	2.5	-	-	-	1.3	2.0	0.5
Girella nigricans		-	6.5	2.3	1.0	-	-	-	-	-	-
Paralabrax clathratus		0.5	4.8	1.5	1.0	-	-	-	-	-	-
Coryphopterus nicholsi		-	-	2.3	3.3	-	-	-	0.3	0.3	0.3
Embiotoca lateralis (juv.)		1.0	-	-	0.3	-	-	-	1.5	0.8	1.3
Brachyistius frenatus		0.5	2.8	-	-	0.5	-	-	-	-	0.8
Sebastes atrovirens		1.0	-	-	1.8	-	-	0.5	-	1.0	0.3
Semicossyphus pulcher		-	1.5	1.8	1.0	-	-	-	-	-	-
Gibbonsia spp.		-	0.5	1.5	0.8	-	0.3	0.3	0.5	0.3	-
Embiotoca jacksoni (juv.)		0.5	1.5	0.8	0.5	-	-	-	-	-	0.8
Sebastes chrysomelas/S. carnatus (juv.)		-	2.8	-	-	-	-	1.0	-	-	-
Rhacochilus toxotes		0.3	0.5	0.3	0.5	-	0.3	-	0.5	0.3	0.5
Sebastes mystinus		1.3	-	-	-	-	-	-	-	0.8	1.0
Sebastes rastrelliger		0.5	-	0.3	1.3	-	-	0.3	-	0.3	-
Sebastes serranoides/S. flavidus (yoy)		0.3	0.5	-	0.3	-	-	0.3	0.5	0.5	0.3
Cebidichthys violaceus		0.5	1.5	-	-	-	-	-	0.3	-	-
Artedius spp.		0.8	-	0.5	-	-	0.3	-	-	-	0.8
Scorpaenichthys marmoratus		0.5	-	-	-	-	0.3	-	0.3	-	0.8
Sebastes rastrelliger (juv.)		-	-	-	-	1.0	-	0.5	-	-	-
Cottidae unid. a		-	-	0.3	-	0.3	0.3	-	0.3	-	0.3
Aulorhynchus flavidus		-	-	-	-	0.8	-	0.5	-	-	-
Ophiodon elongatus		0.3	-	-	-	-	-	-	-	0.5	0.5
Sebastes mystinus (yoy)		1.3	-	-	-	-	-	-	-	-	-
Hypsurus caryi (juv.)		0.5	-	-	-	-	-	-	-	-	-
Orthonopias triacis		0.3	-	-	-	-	-	-	-	-	0.3
Hexagrammos decagrammus		-	-	-	0.3	-	-	-	-	-	0.3
Myliobatis californica		-	-	-	-	0.3	-	0.3	-	-	-
Sebastes melanops (yoy)		0.3	-	-	-	-	-	-	0.3	-	-

Subtidal Fish Observations - Mean Abundance per 50 meter transect - benthic transect Survey 95 (continued)

Species	Station	04	05	06	07	08	09	10	12	13	14
	Survey	095	095	095	095	095	095	095	095	095	095
	# Replicates	2	2	2	2	2	2	2	2	2	2
Gobiesocidae unid. a		-	-	-	-	-	0.3	-	-	-	-
Sebastes melanops		-	-	-	-	-	-	-	-	0.3	-
Pleuronichthys coenosus		-	-	-	-	0.3	-	-	-	-	-
Citharichthys spp.		-	-	-	-	0.3	-	-	-	-	-
Urolophus halleri		-	-	0.3	-	-	-	-	-	-	-
Sebastes miniatus (yoy)		-	-	-	-	-	0.3	-	-	-	-

Subtidal Fish Observations - Mean Abundance per 50 meter transect - benthic transect Survey 96

Species	Station	04	05	06	07	08	09	10	12	13	14
	Survey	096	096	096	096	096	096	096	096	096	096
	# Replicates	2	2	2	2	2	2	2	2	2	2
Oxyjulis californica		-	6.0	9.8	9.8	3.0	68.8	-	4.3	13.5	3.5
Sebastes chrysomelas/S. carnatus (yoy)		1.5	8.8	4.8	17.5	10.3	11.0	1.5	1.8	0.3	0.3
Sebastes chrysomelas		8.5	1.0	2.5	1.0	-	-	0.3	0.8	1.3	3.3
Citharichthys spp.		-	-	-	-	0.8	4.0	10.3	-	-	-
Damalichthys vacca (=Rhacochilus)		2.0	3.5	1.5	2.0	2.5	-	0.5	0.3	1.3	0.5
Embiotoca jacksoni		1.5	2.0	1.8	2.0	-	0.8	0.8	0.8	0.8	1.8
Oxylebius pictus		4.0	0.3	0.3	1.3	-	0.3	0.5	0.8	1.5	2.3
Coryphopterus nicholsi		-	-	2.8	5.3	-	-	-	-	0.5	0.3
Embiotoca lateralis		1.5	1.0	1.5	0.5	-	-	-	1.5	0.8	-
Sebastes atrovirens		5.0	-	-	0.5	-	-	0.3	0.5	-	-
Damalichthys vacca (juv.)		-	-	-	0.5	4.3	-	-	-	-	-
Aulorhynchus flavidus (juv.)		-	-	-	-	-	-	1.5	-	2.8	-
Sebastes mystinus		1.0	-	-	-	-	-	-	0.8	0.8	1.3
Aulorhynchus flavidus		0.5	-	-	-	1.0	0.3	0.5	-	0.8	0.5
Sebastes chrysomelas (juv.)		-	0.8	1.0	0.3	-	-	0.3	0.3	0.8	-
Semicossyphus pulcher		0.5	0.5	-	1.5	-	-	-	-	-	-
Sebastes serranoides		1.0	1.3	-	-	-	-	-	-	-	-
Gibbonsia spp.		-	-	0.3	0.3	0.3	0.3	-	0.5	0.3	-
Embiotoca lateralis (juv.)		-	-	-	0.3	-	-	-	0.5	-	1.0
Cebidichthys violaceus		0.5	0.5	0.5	-	-	-	0.3	-	-	-
Cephaloscyllium ventriosum		-	-	-	-	-	-	-	-	-	1.5
Artedius spp.		0.5	0.3	-	-	0.3	0.3	0.3	-	-	-
Sebastes rastrelliger		-	-	-	0.5	-	-	0.3	0.3	0.3	-
Cottidae unid. a		0.3	-	0.3	-	0.3	0.3	-	-	-	-
Scorpaenichthys marmoratus		0.5	-	-	0.3	-	-	-	0.3	-	-
Girella nigricans		-	0.5	0.5	-	-	-	-	-	-	-
Sebastes serranoides/S. flavidus (yoy)		-	-	-	1.0	-	-	-	-	-	-
Sebastes caurinus (yoy)		-	-	-	0.3	-	-	0.8	-	-	-
Hexagrammos decagrammus		0.5	-	-	-	-	-	-	-	-	0.3
Pleuronichthys coenosus		-	-	-	-	-	0.3	0.5	-	-	-
Embiotoca jacksoni (juv.)		-	0.3	-	-	0.3	-	-	-	-	0.3
Brachyistius frenatus		-	-	-	-	0.5	-	-	-	-	-
Ophiodon elongatus		-	-	-	0.3	-	-	0.3	-	-	-
Sebastes atrovirens (yoy)		-	-	-	-	-	0.3	0.3	-	-	-
Hypsurus caryi		-	-	-	-	0.3	-	-	-	-	-
Rhacochilus toxotes		-	-	-	0.3	-	-	-	-	-	-

Subtidal Fish Observations - Mean Abundance per 50 meter transect - benthic transect Survey 96 (continued)

Species	Station	04	05	06	07	08	09	10	12	13	14
	Survey	096	096	096	096	096	096	096	096	096	096
	# Replicates	2	2	2	2	2	2	2	2	2	2
Hypsurus caryi (juv.)		-	-	-	0.3	-	-	-	-	-	-
Orthonopias triacis		0.3	-	-	-	-	-	-	-	-	-
Sebastes melanops		-	-	-	-	-	-	-	-	-	0.3
Embiotocidae		-	-	-	-	-	-	-	0.3	-	-
Embiotocidae unid. (juv.)		-	-	-	-	-	-	-	0.3	-	-
Xererpes fucorum		-	0.3	-	-	-	-	-	-	-	-
Triakis semifasciata		-	-	-	0.3	-	-	-	-	-	-
Paralabrax clathratus		0.3	-	-	-	-	-	-	-	-	-
Myliobatis californica		-	-	0.3	-	-	-	-	-	-	-
Torpedo californica		-	-	0.3	-	-	-	-	-	-	-

Subtidal Fish Observations - Mean Abundance per 50 meter transect - benthic transect Survey 97

Species	Station	04	05	06	07	08	09	10	12	13	14
	Survey	097	097	097	097	097	097	097	097	097	097
	# Replicates	1	1	1	1	1	1	1	1	1	1
Oxyjulis californica		16.0	96.0	23.0	15.0	1.0	21.5	1.5	22.5	11.0	3.0
Sebastes atrovirens (yoy)		11.0	3.5	-	1.5	3.5	15.5	10.5	-	-	2.5
Oxyjulis californica (juv.)		6.0	-	0.5	2.5	-	-	-	1.5	0.5	23.5
Embiotoca jacksoni		4.0	5.5	8.0	2.5	-	1.5	5.5	2.0	-	1.5
Oxylebius pictus		9.5	6.0	0.5	2.0	-	-	1.0	1.5	5.0	2.5
Embiotoca lateralis		2.0	5.0	0.5	1.0	-	1.0	5.5	8.0	2.0	2.5
Atherinopsis californiensis		-	22.5	-	-	-	-	-	-	-	-
Sebastes chrysomelas		11.0	-	0.5	-	-	-	-	0.5	3.0	3.0
Damalichthys vacca (=Rhacochilus)		1.5	3.0	1.5	-	-	5.5	2.0	1.5	1.0	1.0
Sebastes atrovirens		3.0	-	-	1.0	-	0.5	2.5	-	0.5	1.0
Embiotoca lateralis (juv.)		1.5	-	1.0	-	-	-	-	1.0	0.5	2.5
Embiotoca jacksoni (juv.)		5.0	-	1.0	0.5	-	-	-	-	-	-
Sebastes rastrelliger		-	-	-	0.5	0.5	0.5	1.5	0.5	0.5	1.0
Sebastes chrysomelas/S. carnatus (yoy)		-	3.5	0.5	-	-	1.0	-	-	-	-
Brachyistius frenatus		1.5	-	-	-	0.5	-	1.0	-	0.5	1.0
Coryphopterus nicholsi		-	1.5	1.0	0.5	-	-	-	0.5	-	0.5
Citharichthys spp.		-	-	-	-	1.5	-	2.5	-	-	-
Scorpaenichthys marmoratus		-	0.5	1.0	-	-	-	-	1.0	1.0	-
Girella nigricans		-	-	-	3.5	-	-	-	-	-	-
Artedius spp.		1.5	-	-	-	0.5	-	0.5	-	0.5	0.5
Paralabrax clathratus		0.5	1.5	0.5	1.0	-	-	-	-	-	-
Gibbonsia spp.		-	-	0.5	1.5	-	-	0.5	-	-	0.5
Rhacochilus toxotes		-	-	-	0.5	-	-	2.0	0.5	-	-
Sebastes mystinus		2.5	-	-	-	-	-	-	-	0.5	-
Cebidichthys violaceus		-	0.5	0.5	-	-	-	-	0.5	-	1.5
Sebastes mystinus (juv.)		2.0	-	-	-	-	-	-	-	-	-
Semicossyphus pulcher		-	-	0.5	1.5	-	-	-	-	-	-
Damalichthys vacca (juv.)		0.5	0.5	-	0.5	-	-	-	-	-	-
Sebastes mystinus (yoy)		1.5	-	-	-	-	-	-	-	-	-
Hypsurus caryi		-	-	-	-	-	0.5	0.5	-	-	-
Hexagrammos decagrammus		0.5	-	-	-	-	-	-	0.5	-	-
Sebastes carnatus		-	1.0	-	-	-	-	-	-	-	-
Sebastes chrysomelas (juv.)		-	-	0.5	-	-	-	-	-	-	0.5
Sebastes serranoides/S. flavidus (yoy)		-	-	-	1.0	-	-	-	-	-	-
Cottidae unid. a		-	-	-	-	-	-	-	0.5	-	-
Aulorhynchus flavidus		-	-	-	-	-	-	-	-	-	0.5

Subtidal Fish Observations - Mean Abundance per 50 meter transect - benthic transect Survey 97 (continued)

Species	Station	04	05	06	07	08	09	10	12	13	14
	Survey	097	097	097	097	097	097	097	097	097	097
	# Replicates	1	1	1	1	1	1	1	1	1	1
Orthonopias triacis		0.5	-	-	-	-	-	-	-	-	-
Pleuronichthys coenosus		-	-	-	-	-	-	0.5	-	-	-
Brachyistius frenatus (juv.)		-	-	-	-	-	0.5	-	-	-	-
Neoclinus stephensae		-	-	-	-	0.5	-	-	-	-	-
Myliobatis californica		-	-	-	0.5	-	-	-	-	-	-
Urolophus halleri		-	-	-	0.5	-	-	-	-	-	-
Medialuna californiensis		-	-	0.5	-	-	-	-	-	-	-

Subtidal Fish Observations - Mean Abundance per 50 meter transect - benthic transect Survey 98

Species	Station	04	05	06	07	08	09	10	12	13	14
	Survey	098	098	098	098	098	098	098	098	098	098
	# Replicates	2	2	2	2	2	2	2	2	2	2
Damalichthys vacca (juv.)		0.3	2.3	6.0	9.5	46.0	15.3	2.0	0.3	1.5	0.8
Sebastes chrysomelas/S. carnatus (yoy)		2.0	3.3	4.5	8.5	16.0	3.0	11.5	0.5	6.3	18.0
Oxyjulis californica		0.5	13.8	8.0	4.0	10.5	10.3	9.5	3.5	1.3	1.8
Damalichthys vacca (=Rhacochilus)		2.0	1.3	1.5	2.3	12.8	1.3	8.3	0.5	0.8	0.5
Oxylebius pictus		11.8	2.0	0.8	1.3	0.5	5.5	3.0	1.0	2.3	1.5
Embiotoca jacksoni		2.3	1.8	1.5	4.5	1.5	4.0	6.5	1.3	1.5	1.5
Girella nigricans		11.8	-	3.8	4.8	-	-	-	-	-	-
Oxyjulis californica (juv.)		-	-	13.8	-	1.0	-	0.3	-	-	1.0
Embiotoca lateralis		0.5	-	0.3	0.5	0.8	1.0	3.0	1.8	2.5	2.0
Sebastes atrovirens (yoy)		2.3	-	-	0.3	0.8	7.8	0.8	-	0.5	-
Sebastes chrysomelas		3.0	1.0	1.0	0.3	-	1.3	0.3	1.0	3.0	0.3
Aulorhynchus flavidus		9.0	-	-	-	-	-	0.8	-	-	-
Citharichthys spp.		-	-	-	-	2.5	2.3	4.3	-	-	-
Embiotoca jacksoni (juv.)		1.3	0.8	-	1.8	1.8	2.3	0.5	0.5	0.3	-
Embiotoca lateralis (juv.)		1.0	-	0.5	0.3	-	1.3	-	1.3	3.3	0.5
Coryphopterus nicholsi		-	1.8	1.0	-	0.5	3.8	0.5	-	0.3	-
Brachyistius frenatus		0.3	-	0.3	0.8	1.5	0.3	4.0	-	-	-
Sebastes rastrelliger (juv.)		-	-	-	-	-	-	7.0	-	-	-
Sebastes chrysomelas (juv.)		2.3	1.8	0.8	0.5	-	0.5	-	-	1.0	0.3
Sebastes mystinus (yoy)		7.0	-	-	-	-	-	-	-	-	-
Atherinopsis californiensis		-	1.0	-	-	5.3	-	-	-	-	-
Rhacochilus toxotes		0.5	-	-	-	0.5	0.5	2.8	0.3	0.8	0.3
Sebastes serranoides/S. flavidus (yoy)		1.5	-	-	-	-	-	3.0	0.3	0.3	-
Sebastes atrovirens		-	-	-	-	-	1.3	1.5	0.3	-	1.0
Sebastes mystinus		-	-	-	-	-	-	-	0.8	-	3.0
Gibbonsia spp.		-	1.3	1.0	0.3	-	0.5	0.3	-	0.3	-
Paralabrax clathratus		-	1.3	0.3	1.3	-	-	-	-	-	-
Scorpaenichthys marmoratus		0.3	-	-	0.3	-	0.3	-	0.5	0.8	0.3
Pleuronichthys coenosus		-	0.3	-	-	1.8	-	0.3	-	-	-
Artedius spp.		0.3	-	-	0.5	-	1.0	0.3	0.3	-	-
Semicossyphus pulcher		1.5	-	-	-	-	-	0.3	-	-	-
Sebastes serranoides/S. flavidus (juv.)		-	-	-	-	-	0.3	1.3	-	-	-
Sebastes chrysomelas/S. carnatus (juv.)		1.3	-	-	-	-	-	-	-	-	-
Myliobatis californica		-	1.3	-	-	-	-	-	-	-	-
Cottidae unid. a		-	-	-	-	0.3	0.5	-	0.3	-	-
Hypsurus caryi		1.0	-	-	-	-	-	-	-	-	-

Subtidal Fish Observations - Mean Abundance per 50 meter transect - benthic transect Survey 98 (continued)

Species	Station	04	05	06	07	08	09	10	12	13	14
	Survey	098	098	098	098	098	098	098	098	098	098
	# Replicates	2	2	2	2	2	2	2	2	2	2
Sebastes serranoides		0.5	-	-	-	-	-	-	-	0.3	0.3
Orthonopias triacis		1.0	-	-	-	-	-	-	-	-	-
Ophiodon elongatus		-	-	-	-	-	0.3	0.5	0.3	-	-
Triakis semifasciata		-	1.0	-	-	-	-	-	-	-	-
Urolophus halleri		-	0.8	-	-	0.3	-	-	-	-	-
Sebastes melanops		-	-	-	-	-	-	-	-	0.5	0.3
Sebastes rastrelliger		-	-	-	0.3	-	-	0.3	-	-	-
Cebidichthys violaceus		-	0.3	-	-	-	-	-	-	0.3	-
Sebastes auriculatus		-	-	-	-	-	0.5	-	-	-	-
Neoclinus stephensae		-	-	-	-	0.5	-	-	-	-	-
Sebastes miniatus (juv)		-	-	-	-	-	-	0.5	-	-	-
Sebastes melanops (yoy)		-	-	-	-	-	-	-	0.3	0.3	-
Hypsurus caryi (juv.)		-	-	-	-	-	0.3	-	-	-	-
Hexagrammos decagrammus		-	-	-	-	-	-	-	0.3	-	-
Sebastes paucispinis (juv.)		-	-	-	0.3	-	-	-	-	-	-
Cephaloscyllium ventriosum		0.3	-	-	-	-	-	-	-	-	-
Embiotocidae unid. (juv.)		-	-	-	-	-	0.3	-	-	-	-
Sebastes carnatus (juv.)		-	-	-	-	-	-	-	-	-	0.3
Brachyistius frenatus (juv.)		-	-	-	-	0.3	-	-	-	-	-

Subtidal Fish Observations - Mean Abundance per 50 meter transect - benthic transect Survey 99

Species	Station	04	05	06	07	08	09	10	12	13	14
	Survey	099	099	099	099	099	099	099	099	099	099
	# Replicates	1	1	1	1	1	1	1	1	1	1
Oxyjulis californica		15.5	13.5	25.0	25.5	12.0	37.0	13.0	13.5	6.0	6.0
Oxyjulis californica (juv.)		24.0	2.5	10.5	9.0	4.5	1.5	7.5	-	20.0	-
Oxylebius pictus		8.5	-	2.0	1.0	-	-	1.5	2.5	5.0	5.5
Embiotoca jacksoni		7.0	0.5	1.0	5.5	0.5	1.0	1.5	1.5	2.0	3.5
Damalichthys vacca (=Rhacochilus)		0.5	1.5	1.5	1.0	-	0.5	2.0	5.5	1.0	3.0
Sebastes chrysomelas		4.0	-	0.5	2.0	-	-	0.5	1.5	2.0	1.0
Coryphopterus nicholsi		0.5	3.5	2.5	3.5	-	-	-	-	-	1.0
Embiotoca lateralis		1.0	-	-	0.5	-	-	-	1.0	4.0	4.0
Embiotoca lateralis (juv.)		0.5	-	-	2.0	-	0.5	-	1.5	1.5	1.5
Embiotoca jacksoni (juv.)		3.5	-	1.0	0.5	-	-	-	-	2.0	-
Gibbonsia spp.		0.5	1.0	2.0	1.0	0.5	-	0.5	-	0.5	-
Damalichthys vacca (juv.)		0.5	3.0	-	2.0	0.5	-	-	-	-	-
Cebidichthys violaceus		2.0	-	1.0	0.5	-	-	-	-	0.5	-
Sebastes chrysomelas/S. carnatus (yoy)		1.0	0.5	-	-	-	-	-	1.0	-	1.0
Rhacochilus toxotes		2.0	-	-	-	-	0.5	-	-	-	0.5
Sebastes rastrelliger		-	-	-	1.0	0.5	0.5	1.0	-	-	-
Brachyistius frenatus		-	-	-	1.0	-	-	1.0	-	-	1.0
Sebastes atrovirens		0.5	-	-	-	-	-	-	-	1.0	1.0
Sebastes chrysomelas (juv.)		1.5	-	-	-	-	-	-	-	1.0	-
Sebastes atrovirens (yoy)		-	0.5	-	-	1.0	0.5	-	0.5	-	-
Orthonopias triacis		0.5	-	-	-	-	-	-	-	0.5	1.0
Cottidae unid. a		-	-	-	1.0	-	0.5	-	-	-	-
Girella nigricans		-	-	0.5	1.0	-	-	-	-	-	-
Sebastes atrovirens (juv.)		-	-	-	-	-	-	1.5	-	-	-
Paralabrax clathratus		0.5	-	1.0	-	-	-	-	-	-	-
Myliobatis californica		-	0.5	-	-	0.5	-	0.5	-	-	-
Aulorhynchus flavidus		-	-	-	-	-	-	1.0	-	-	-
Scorpaenichthys marmoratus		-	-	-	-	-	-	-	0.5	-	0.5
Artedius spp.		-	-	-	-	-	0.5	-	-	0.5	-
Heterostichus rostratus (juv.)		-	-	-	-	-	-	1.0	-	-	-
Medialuna californiensis		-	-	1.0	-	-	-	-	-	-	-
Sebastes melanops		-	-	-	-	-	-	-	-	-	0.5
Sebastes mystinus		-	-	-	-	-	-	-	-	0.5	-
Hexagrammos decagrammus		-	-	-	-	-	-	-	-	-	0.5
Ophiodon elongatus		-	-	-	-	-	-	-	-	-	0.5
Heterostichus rostratus		-	-	-	-	-	-	0.5	-	-	-

Subtidal Fish Observations - Mean Abundance per 50 meter transect - benthic transect Survey 99 (continued)

Species	Station	04	05	06	07	08	09	10	12	13	14
	Survey	099	099	099	099	099	099	099	099	099	099
	# Replicates	1	1	1	1	1	1	1	1	1	1
Neoclinus stephensae		-	-	-	-	-	0.5	-	-	-	-
Urolophus halleri		-	0.5	-	-	-	-	-	-	-	-
Aulorhynchus flavidus (juv.)		-	-	-	-	-	-	-	-	0.5	-
Semicossyphus pulcher		0.5	-	-	-	-	-	-	-	-	-
Halichoeres semicinctus (YOY)		-	-	-	0.5	-	-	-	-	-	-

Appendix D

Statistical Results

Analysis of Variance for HBT for 0049 - Calliarthron/Bossiella spp.-complex

Stations = 4, 5, 6, 8, 9, 10, 12 level +3 ft MLLW

Data transformed using arcsin.

Results for Analysis of Variance

Source	Source df	Error df	F-value	Prob.
PERIOD	1	162.000	18.61	0.0000
SEASON	1	162.000	0.00	0.9521
STATION	6	162.000	25.92	0.0000
PERIOD*SEASON	1	162.000	6.01	0.0153
STATION*PERIOD	6	162.000	1.06	0.3868
STATION*SEASON	6	162.000	0.76	0.5989
PERIOD*STATION*SEASON	6	162.000	0.48	0.8209

Results for Power Analysis
Power at alpha = .1

Source	Non-Centrality Parameter	Adjusted non-Centrality Parameter	Power	Adjusted Power	Power to Detect 50% Change
PERIOD	18.61	17.38	0.9960	0.9939	0.8813
STATION*PERIOD	6.38	0.30	0.5437	0.1183	0.8391

Estimates for contrasts on combinations of interaction terms

Source	Difference	Std. Err.	T-value	Prob.
Period in DC	-3.6522	1.1805	-3.094	.0023
Period in FC	-3.3741	1.1223	-3.006	.0031
Period in FC-S	-5.2363	1.3578	-3.856	.0002
Period in FC-W	-1.5118	1.7873	-0.846	.3989
Period in DC-S	-5.7824	1.5256	-3.790	.0002
Period in DC-W	-1.5221	1.8020	-0.845	.3995

Least square means & confidence intervals from analysis of variance

Source	LS Mean	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period Op-1	-0.731	0.0962	-7.60	.0000	-0.5721	-0.8904
Period Op-2	0.273	0.2119	1.29	.2002	0.6230	-0.0780
Op-1-04	-4.745	0.2864	-16.57	.0000	-4.2712	-5.2187
Op-2-04	-3.549	0.6805	-5.22	.0000	-2.4233	-4.6749
Op-1-05	0.490	0.2864	1.71	.0888	0.9641	0.0166
Op-2-05	0.694	0.5380	1.29	.1988	1.5842	-0.1959
Op-1-06	-1.468	0.2312	-6.35	.0000	-1.0856	-1.8504
Op-2-06	0.506	0.5380	0.94	.3480	1.3964	-0.3836
Op-1-08	0.200	0.2312	0.86	.3885	0.5823	-0.1825
Op-2-08	1.198	0.5380	2.23	.0274	2.0876	0.3075
Op-1-09	-0.580	0.2708	-2.14	.0336	-0.1324	-1.0284
Op-2-09	0.789	0.5380	1.47	.1442	1.6794	-0.1006
Op-1-10	0.403	0.2359	1.71	.0892	0.7938	0.0132
Op-2-10	0.694	0.5380	1.29	.1988	1.5842	-0.1959
Op-1-12	0.581	0.2312	2.51	.0129	0.9634	0.1985
Op-2-12	1.575	0.5380	2.93	.0039	2.4651	0.6850

Paired comparisons of least square means between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period	-1.0038	0.2327	-4.314	.0000	-0.6188	-1.3887

Paired comparisons of least square means among stations between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Station 04	-1.1959	0.7383	-1.62	.1072	0.0256	-2.4173
Station 05	-0.2038	0.6095	-0.33	.7385	0.8044	-1.2121
Station 06	-1.9744	0.5856	-3.37	.0009	-1.0057	-2.9431
Station 08	-0.9976	0.5856	-1.70	.0904	-0.0289	-1.9664
Station 09	-1.3698	0.6023	-2.27	.0243	-0.3734	-2.3662
Station 10	-0.2907	0.5875	-0.49	.6214	0.6812	-1.2626
Station 12	-0.9941	0.5856	-1.70	.0915	-0.0254	-1.9628

Station-period means and deltas from original data where control n=2

Station-Period	N	Station Mean	Range	Standard Error	Upper 95% c.i.	Lower 95% c.i.	Mean Delta	Delta Range	Upper 95% CIi.	Lower 95% C.I.
04 Op-1	17	0.96	1.74	0.107	1.19	0.73	-0.93	1.70	-0.71	-1.15
04 Op-2	4	0.78	0.14	0.033	0.89	0.68	-0.64	0.38	-0.36	-0.92
05 Op-1	17	0.00	0.07	0.004	0.01	-0.00	0.02	0.21	0.05	-0.00
05 Op-2	5	0.04	0.07	0.017	0.09	-0.01	0.08	0.52	0.35	-0.18
06 Op-1	26	0.17	0.56	0.027	0.23	0.12	-0.15	0.59	-0.09	-0.20
06 Op-2	5	0.11	0.56	0.111	0.42	-0.20	0.01	0.94	0.43	-0.40
08 Op-1	26	0.02	0.21	0.011	0.05	0.00	0.00	0.28	0.02	-0.02
08 Op-2	5	0.01	0.07	0.014	0.05	-0.02	0.11	0.45	0.35	-0.13
09 Op-1	19	0.11	0.76	0.042	0.19	0.02	-0.08	0.73	0.00	-0.16
09 Op-2	5	0.04	0.14	0.028	0.12	-0.04	0.08	0.45	0.30	-0.13
10 Op-1	25	0.01	0.14	0.008	0.03	-0.00	0.01	0.21	0.03	-0.00
10 Op-2	5	0.04	0.07	0.017	0.09	-0.01	0.08	0.42	0.30	-0.13
12 Op-1	26	0.00	0.00	0.000	.	.	0.02	0.14	0.04	0.01
12 Op-2	5	0.00	0.00	0.000	.	.	0.12	0.45	0.35	-0.10

Period means and deltas from original control data where n=2

Period	N	Station Mean	Range	Standard Error	Upper 95% C.I.	Lower 95% C.I.
Op-1	26	0.02	0.14	0.007	0.04	0.01
Op-2	5	0.12	0.45	0.083	0.35	-0.10

Analysis of Variance for HBT for 0077 - Chondracanthus canaliculatus

Stations = 4, 5, 6, 8, 9, 10, 12 level +3 ft MLLW

Data transformed using 1/(x + .1)

Results for Analysis of Variance

Source	Source df	Error df	F-value	Prob.
PERIOD	1	162.000	1.90	0.1704
SEASON	1	162.000	9.45	0.0025
STATION	6	162.000	16.46	0.0000
PERIOD*SEASON	1	162.000	1.72	0.1916
STATION*PERIOD	6	162.000	2.10	0.0561
STATION*SEASON	6	162.000	1.08	0.3783
PERIOD*STATION*SEASON	6	162.000	0.31	0.9315

Results for Power Analysis
Power at alpha = .1

Source	Non-Centrality Parameter	Adjusted non-Centrality Parameter	Power	Adjusted Power	Power to Detect 50% Change
PERIOD	1.90	0.87	0.3935	0.2425	0.3102
STATION*PERIOD	12.59	6.44	0.8364	0.5475	0.1698

Estimates for contrasts on combinations of interaction terms

Source	Difference	Std. Err.	T-value	Prob.
Period in DC	1.6284	2.6951	0.604	.5466
Period in FC	3.4927	2.5621	1.363	.1747
Period in FC-S	5.2627	3.0998	1.698	.0915
Period in FC-W	1.7227	4.0803	0.422	.6734
Period in DC-S	4.7346	3.4829	1.359	.1759
Period in DC-W	-1.4778	4.1139	-0.359	.7199

Least square means & confidence intervals from analysis of variance

Source	LS Mean	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period Op-1	-2.614	0.2196	-11.91	.0000	-2.2510	-2.9775
Period Op-2	-3.346	0.4837	-6.92	.0000	-2.5456	-4.1461
Op-1-04	-4.917	0.6538	-7.52	.0000	-3.8358	-5.9989
Op-2-04	-5.716	1.5536	-3.68	.0003	-3.1463	-8.2867
Op-1-05	-4.917	0.6538	-7.52	.0000	-3.8358	-5.9989
Op-2-05	-5.799	1.2283	-4.72	.0000	-3.7666	-7.8305
Op-1-06	-2.148	0.5277	-4.07	.0001	-1.2749	-3.0210
Op-2-06	-3.960	1.2283	-3.22	.0015	-1.9284	-5.9922
Op-1-08	-2.725	0.5277	-5.16	.0000	-1.8523	-3.5984
Op-2-08	-2.017	1.2283	-1.64	.1024	0.0145	-4.0494
Op-1-09	-0.717	0.6182	-1.16	.2479	0.3058	-1.7396
Op-2-09	-4.091	1.2283	-3.33	.0011	-2.0590	-6.1228
Op-1-10	1.252	0.5386	2.32	.0214	2.1427	0.3606
Op-2-10	3.961	1.2283	3.23	.0015	5.9931	1.9292
Op-1-12	-4.127	0.5277	-7.82	.0000	-3.2536	-4.9998
Op-2-12	-5.799	1.2283	-4.72	.0000	-3.7666	-7.8305

Paired comparisons of least square means between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period	0.7316	0.5312	1.377	.1704	1.6104	-0.1472

Paired comparisons of least square means among stations between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Station 04	0.7991	1.6856	0.47	.6361	3.5876	-1.9894
Station 05	0.8812	1.3914	0.63	.5274	3.1831	-1.4206
Station 06	1.8123	1.3368	1.36	.1771	4.0239	-0.3992
Station 08	-0.7079	1.3368	-0.53	.5971	1.5036	-2.9195
Station 09	3.3740	1.3751	2.45	.0152	5.6488	1.0992
Station 10	-2.7095	1.3412	-2.02	.0450	-0.4908	-4.9283
Station 12	1.6718	1.3368	1.25	.2129	3.8834	-0.5397

Station-period means and deltas from original data where control n=2

Station-Period	N	Station Mean	Range	Standard Error	Upper 95% c.i.	Lower 95% c.i.	Mean Delta	Delta Range	Upper 95% CIi.	Lower 95% C.I.
04 Op-1	17	0.00	0.00	0.000	.	.	0.20	0.69	0.31	0.10
04 Op-2	4	0.00	0.00	0.000	.	.	0.15	0.24	0.33	-0.03
05 Op-1	17	0.00	0.00	0.000	.	.	0.20	0.69	0.31	0.10
05 Op-2	5	0.00	0.00	0.000	.	.	0.17	0.24	0.30	0.03
06 Op-1	26	0.05	0.21	0.013	0.08	0.02	0.10	0.56	0.16	0.05
06 Op-2	5	0.06	0.28	0.056	0.21	-0.10	0.11	0.31	0.27	-0.05
08 Op-1	26	0.12	1.53	0.066	0.25	-0.02	0.03	1.60	0.15	-0.09
08 Op-2	5	0.12	0.49	0.092	0.38	-0.13	0.04	0.52	0.28	-0.20
09 Op-1	19	0.22	0.97	0.072	0.37	0.07	-0.03	1.08	0.10	-0.16
09 Op-2	5	0.03	0.07	0.017	0.08	-0.02	0.14	0.17	0.24	0.04
10 Op-1	25	3.59	21.81	1.271	6.22	0.97	-3.44	21.87	-0.85	-6.03
10 Op-2	5	5.64	6.25	1.166	8.88	2.40	-5.47	6.39	-2.13	-8.81
12 Op-1	26	0.00	0.07	0.003	0.01	-0.00	0.15	0.69	0.22	0.07
12 Op-2	5	0.00	0.00	0.000	.	.	0.17	0.24	0.30	0.03

Period means and deltas from original control data where n=2

Period	N	Station Mean	Range	Standard Error	Upper 95% C.I.	Lower 95% C.I.
Op-1	26	0.15	0.69	0.036	0.23	0.08
Op-2	5	0.17	0.24	0.048	0.30	0.03

Analysis of Variance for HBT for 1302 - Chrysophyta unid.

Stations = 4, 5, 6, 8, 9, 10, 12 level +3 ft MLLW

Data transformed using log base10(x + .1)

Results for Analysis of Variance

Source	Source df	Error df	F-value	Prob.
PERIOD	1	162.000	0.48	0.4891
SEASON	1	162.000	0.69	0.4066
STATION	6	162.000	4.26	0.0005
PERIOD*SEASON	1	162.000	0.18	0.6685
STATION*PERIOD	6	162.000	1.25	0.2836
STATION*SEASON	6	162.000	0.84	0.5376
PERIOD*STATION*SEASON	6	162.000	0.16	0.9869

Results for Power Analysis
Power at alpha = .1

Source	Non-Centrality Parameter	Adjusted non-Centrality Parameter	Power	Adjusted Power	Power to Detect 50% Change
PERIOD	0.48	0.00	0.1797	.	0.1249
STATION*PERIOD	7.50	1.41	0.6124	0.1915	0.1175

Estimates for contrasts on combinations of interaction terms

Source	Difference	Std. Err.	T-value	Prob.
Period in DC	0.2109	0.2734	0.771	.4416
Period in FC	0.0507	0.2599	0.195	.8457
Period in FC-S	0.1013	0.3145	0.322	.7477
Period in FC-N	0.0000	0.4139	0.000	1.000
Period in DC-S	0.3221	0.3533	0.912	.3634
Period in DC-N	0.0997	0.4173	0.239	.8115

Least square means & confidence intervals from analysis of variance

Source	LS Mean	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period Op-1	-0.043	0.0223	-1.93	.0549	-0.0062	-0.0799
Period Op-2	-0.080	0.0491	-1.64	.1031	0.0007	-0.1616
Op-1-04	0.019	0.0663	0.29	.7706	0.1291	-0.0903
Op-2-04	0.000	0.1576	0.00	1.000	0.2607	-0.2607
Op-1-05	0.019	0.0663	0.29	.7706	0.1291	-0.0903
Op-2-05	0.000	0.1246	0.00	1.000	0.2061	-0.2061
Op-1-06	0.012	0.0535	0.22	.8241	0.1005	-0.0766
Op-2-06	-0.000	0.1246	-0.00	1.000	0.2061	-0.2061
Op-1-08	0.012	0.0535	0.22	.8241	0.1005	-0.0766
Op-2-08	-0.000	0.1246	-0.00	1.000	0.2061	-0.2061
Op-1-09	-0.202	0.0627	-3.22	.0015	-0.0982	-0.3057
Op-2-09	-0.563	0.1246	-4.52	.0000	-0.3570	-0.7693
Op-1-10	-0.149	0.0546	-2.73	.0071	-0.0587	-0.2395
Op-2-10	0.000	0.1246	0.00	1.000	0.2061	-0.2061
Op-1-12	-0.013	0.0535	-0.24	.8070	0.0755	-0.1017
Op-2-12	0.000	0.1246	0.00	1.000	0.2061	-0.2061

Paired comparisons of least square means between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period	0.0374	0.0539	0.693	.4891	0.1265	-0.0518

Paired comparisons of least square means among stations between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Station 04	0.0194	0.1710	0.11	.9099	0.3022	-0.2635
Station 05	0.0194	0.1412	0.14	.8910	0.2529	-0.2141
Station 06	0.0119	0.1356	0.09	.9301	0.2363	-0.2124
Station 08	0.0119	0.1356	0.09	.9301	0.2363	-0.2124
Station 09	0.3611	0.1395	2.59	.0105	0.5919	0.1304
Station 10	-0.1491	0.1361	-1.10	.2748	0.0760	-0.3741
Station 12	-0.0131	0.1356	-0.10	.9232	0.2112	-0.2374

Station-period means and deltas from original data where control n=2

Station-Period	N	Station Mean	Range	Standard Error	Upper 95% c.i.	Lower 95% c.i.	Mean Delta	Delta Range	Upper 95% CIi.	Lower 95% C.I.
04 Op-1	17	0.00	0.00	0.000	.	.	0.01	0.10	0.02	-0.01
04 Op-2	4	0.00	0.00	0.000	.	.	0.00	0.00	.	.
05 Op-1	17	0.00	0.00	0.000	.	.	0.01	0.10	0.02	-0.01
05 Op-2	5	0.00	0.00	0.000	.	.	0.00	0.00	.	.
06 Op-1	26	0.00	0.00	0.000	.	.	0.00	0.10	0.01	-0.00
06 Op-2	5	0.00	0.00	0.000	.	.	0.00	0.00	.	.
08 Op-1	26	0.00	0.00	0.000	.	.	0.00	0.10	0.01	-0.00
08 Op-2	5	0.00	0.00	0.000	.	.	0.00	0.00	.	.
09 Op-1	19	0.58	9.10	0.478	1.59	-0.42	-0.58	9.10	0.43	-1.58
09 Op-2	5	0.68	1.88	0.368	1.70	-0.34	-0.68	1.88	0.34	-1.70
10 Op-1	25	0.36	5.76	0.249	0.88	-0.15	-0.36	5.87	0.16	-0.87
10 Op-2	5	0.00	0.00	0.000	.	.	0.00	0.00	.	.
12 Op-1	26	0.01	0.35	0.013	0.04	-0.01	-0.01	0.45	0.02	-0.04
12 Op-2	5	0.00	0.00	0.000	.	.	0.00	0.00	.	.

Period means and deltas from original control data where n=2

Period	N	Station Mean	Range	Standard Error	Upper 95% C.I.	Lower 95% C.I.
Op-1	26	0.00	0.10	0.004	0.01	-0.00
Op-2	5	0.00	0.00	0.000	.	.

Analysis of Variance for HBT for 0056 - Corallina vancouveriensis

Stations = 4, 5, 6, 8, 9, 10, 12 level +3 ft MLLW

Data transformed using arcsin.

Results for Analysis of Variance

Source	Source df	Error df	F-value	Prob.
PERIOD	1	162.000	29.38	0.0000
SEASON	1	162.000	4.78	0.0302
STATION	6	162.000	7.31	0.0000
PERIOD*SEASON	1	162.000	0.15	0.6946
STATION*PERIOD	6	162.000	0.70	0.6533
STATION*SEASON	6	162.000	2.22	0.0436
PERIOD*STATION*SEASON	6	162.000	0.47	0.8283

Results for Power Analysis
Power at alpha = .1

Source	Non-Centrality Parameter	Adjusted non-Centrality Parameter	Power	Adjusted Power	Power to Detect 50% Change
PERIOD	29.38	28.02	0.9999	0.9999	0.8618
STATION*PERIOD	4.18	0.00	0.3920	.	0.2332

Estimates for contrasts on combinations of interaction terms

Source	Difference	Std. Err.	T-value	Prob.
Period in DC	-10.0546	2.1083	-4.769	.0000
Period in FC	-5.7129	2.0042	-2.850	.0049
Period in FC-S	-7.9299	2.4248	-3.270	.0013
Period in FC-W	-3.4959	3.1918	-1.095	.2750
Period in DC-S	-8.9818	2.7245	-3.297	.0012
Period in DC-W	-11.1274	3.2181	-3.458	.0007

Least square means & confidence intervals from analysis of variance

Source	LS Mean	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period Op-1	2.337	0.1718	13.60	.0000	2.6209	2.0526
Period Op-2	4.589	0.3784	12.13	.0000	5.2152	3.9632
Op-1-04	0.285	0.5114	0.56	.5786	1.1307	-0.5614
Op-2-04	2.712	1.2153	2.23	.0270	4.7230	0.7019
Op-1-05	2.663	0.5114	5.21	.0000	3.5095	1.8174
Op-2-05	5.342	0.9608	5.56	.0000	6.9312	3.7523
Op-1-06	1.076	0.4128	2.61	.0100	1.7593	0.3934
Op-2-06	1.683	0.9608	1.75	.0817	3.2726	0.0936
Op-1-08	2.382	0.4128	5.77	.0000	3.0653	1.6994
Op-2-08	4.127	0.9608	4.30	.0000	5.7165	2.5376
Op-1-09	4.043	0.4836	8.36	.0000	4.8428	3.2427
Op-2-09	6.223	0.9608	6.48	.0000	7.8123	4.6333
Op-1-10	2.713	0.4213	6.44	.0000	3.4097	2.0156
Op-2-10	5.563	0.9608	5.79	.0000	7.1525	3.9735
Op-1-12	3.195	0.4128	7.74	.0000	3.8779	2.5120
Op-2-12	6.474	0.9608	6.74	.0000	8.0639	4.8850

Paired comparisons of least square means between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period	-2.2525	0.4156	-5.420	.0000	-1.5650	-2.9400

Paired comparisons of least square means among stations between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Station 04	-2.4278	1.3186	-1.84	.0674	-0.2465	-4.6091
Station 05	-2.6783	1.0884	-2.46	.0149	-0.8777	-4.4789
Station 06	-0.6068	1.0457	-0.58	.5626	1.1232	-2.3368
Station 08	-1.7447	1.0457	-1.67	.0972	-0.0147	-3.4747
Station 09	-2.1800	1.0756	-2.03	.0443	-0.4006	-3.9595
Station 10	-2.8504	1.0491	-2.72	.0073	-1.1148	-4.5860
Station 12	-3.2795	1.0457	-3.14	.0020	-1.5495	-5.0095

Station-period means and deltas from original data where control n=2

Station-Period		N	Station Mean	Range	Standard Error	Upper 95% c.i.	Lower 95% c.i.	Mean Delta	Delta Range	Upper 95% CIi.	Lower 95% C.I.
04	Op-1	17	0.73	1.53	0.113	0.97	0.49	0.08	3.09	0.53	-0.37
04	Op-2	4	0.40	0.76	0.161	0.91	-0.11	0.76	0.76	1.27	0.24
05	Op-1	17	0.26	1.04	0.078	0.42	0.09	0.55	3.09	0.96	0.15
05	Op-2	5	0.08	0.28	0.051	0.23	-0.06	1.15	1.39	1.84	0.45
06	Op-1	26	0.43	1.39	0.071	0.58	0.28	0.24	2.50	0.47	0.00
06	Op-2	5	0.74	1.81	0.359	1.73	-0.26	0.49	1.35	1.15	-0.16
08	Op-1	26	0.22	1.39	0.061	0.35	0.10	0.45	3.02	0.66	0.23
08	Op-2	5	0.19	0.49	0.094	0.46	-0.07	1.03	0.76	1.42	0.65
09	Op-1	19	0.07	0.69	0.040	0.15	-0.02	0.69	2.50	0.99	0.40
09	Op-2	5	0.01	0.07	0.014	0.05	-0.02	1.22	1.25	1.87	0.56
10	Op-1	25	0.14	0.62	0.032	0.21	0.08	0.53	2.74	0.76	0.29
10	Op-2	5	0.04	0.14	0.028	0.12	-0.04	1.19	1.11	1.77	0.61
12	Op-1	26	0.08	0.28	0.016	0.12	0.05	0.58	2.53	0.81	0.36
12	Op-2	5	0.00	0.00	0.000	.	.	1.23	1.18	1.86	0.60

Period means and deltas from original control data where n=2

Period	N	Station Mean	Range	Standard Error	Upper 95% C.I.	Lower 95% C.I.
Op-1	26	0.67	2.29	0.101	0.88	0.46
Op-2	5	1.23	1.18	0.228	1.86	0.60

Analysis of Variance for HBT for 0057 - coralline crust

Stations = 4, 5, 6, 8, 9, 10, 12 level +3 ft MLLW

Data transformed using arcsin.

Results for Analysis of Variance

Source	Source df	Error df	F-value	Prob.
PERIOD	1	162.000	49.41	0.0000
SEASON	1	162.000	36.00	0.0000
STATION	6	162.000	24.13	0.0000
PERIOD*SEASON	1	162.000	3.86	0.0511
STATION*PERIOD	6	162.000	2.79	0.0131
STATION*SEASON	6	162.000	1.11	0.3578
PERIOD*STATION*SEASON	6	162.000	0.32	0.9282

Results for Power Analysis
Power at alpha = .1

Source	Non-Centrality Parameter	Adjusted non-Centrality Parameter	Power	Adjusted Power	Power to Detect 50% Change
PERIOD	49.41	47.80	1.0000	1.0000	1.0000
STATION*PERIOD	16.74	10.54	0.9279	0.7630	0.6539

Estimates for contrasts on combinations of interaction terms

Source	Difference	Std. Err.	T-value	Prob.
Period in DC	-8.5828	2.2034	-3.895	.0001
Period in FC	-12.7876	2.0946	-6.105	.0000
Period in FC-S	-9.2083	2.5342	-3.634	.0004
Period in FC-W	-16.3670	3.3358	-4.906	.0000
Period in DC-S	-6.1889	2.8474	-2.174	.0312
Period in DC-W	-10.9767	3.3633	-3.264	.0013

Least square means & confidence intervals from analysis of variance

Source	LS Mean	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period Op-1	5.777	0.1795	32.18	.0000	6.0738	5.4799
Period Op-2	8.830	0.3955	22.33	.0000	9.4840	8.1756
Op-1-04	3.055	0.5345	5.72	.0000	3.9392	2.1708
Op-2-04	7.782	1.2701	6.13	.0000	9.8834	5.6810
Op-1-05	8.020	0.5345	15.01	.0000	8.9046	7.1362
Op-2-05	11.962	1.0041	11.91	.0000	13.6229	10.3006
Op-1-06	3.171	0.4314	7.35	.0000	3.8844	2.4569
Op-2-06	7.290	1.0041	7.26	.0000	8.9508	5.6285
Op-1-08	6.464	0.4314	14.98	.0000	7.1780	5.7505
Op-2-08	8.570	1.0041	8.53	.0000	10.2307	6.9083
Op-1-09	3.233	0.5054	6.40	.0000	4.0692	2.3970
Op-2-09	4.483	1.0041	4.46	.0000	6.1438	2.8215
Op-1-10	7.393	0.4403	16.79	.0000	8.1212	6.6643
Op-2-10	7.545	1.0041	7.51	.0000	9.2065	5.8841
Op-1-12	9.102	0.4314	21.10	.0000	9.8156	8.3881
Op-2-12	14.177	1.0041	14.12	.0000	15.8385	12.5161

Paired comparisons of least square means between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period	-3.0529	0.4343	-7.030	.0000	-2.3345	-3.7714

Paired comparisons of least square means among stations between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Station 04	-4.7272	1.3780	-3.43	.0008	-2.4475	-7.0069
Station 05	-3.9414	1.1375	-3.46	.0007	-2.0595	-5.8232
Station 06	-4.1190	1.0929	-3.77	.0002	-2.3110	-5.9270
Station 08	-2.1053	1.0929	-1.93	.0558	-0.2973	-3.9133
Station 09	-1.2496	1.1242	-1.11	.2680	0.6101	-3.1093
Station 10	-0.1525	1.0964	-0.14	.8895	1.6613	-1.9664
Station 12	-5.0754	1.0929	-4.64	.0000	-3.2674	-6.8835

Station-period means and deltas from original data where control n=2

Station-Period	N	Station Mean	Range	Standard Error	Upper 95% c.i.	Lower 95% c.i.	Mean Delta	Delta Range	Upper 95% CIi.	Lower 95% C.I.
04 Op-1	17	2.42	3.75	0.268	2.99	1.85	2.00	9.51	3.14	0.86
04 Op-2	4	1.39	1.32	0.296	2.33	0.45	4.23	6.04	8.56	-0.11
05 Op-1	17	0.45	0.76	0.053	0.56	0.33	3.97	8.47	5.10	2.84
05 Op-2	5	0.24	0.49	0.078	0.45	0.02	5.87	7.43	9.61	2.14
06 Op-1	26	2.12	5.07	0.226	2.58	1.65	1.89	7.78	2.56	1.21
06 Op-2	5	1.57	1.67	0.315	2.44	0.70	4.54	6.87	7.89	1.19
08 Op-1	26	0.83	4.44	0.176	1.20	0.47	3.17	5.38	3.73	2.62
08 Op-2	5	1.07	1.67	0.373	2.11	0.03	5.04	5.97	8.02	2.06
09 Op-1	19	2.36	6.60	0.424	3.26	1.47	1.89	4.27	2.48	1.31
09 Op-2	5	2.96	3.54	0.663	4.80	1.12	3.15	3.82	5.19	1.11
10 Op-1	25	0.63	3.61	0.160	0.96	0.30	3.34	6.08	3.93	2.75
10 Op-2	5	1.53	2.92	0.475	2.85	0.21	4.58	6.74	7.66	1.51
12 Op-1	26	0.23	0.83	0.051	0.34	0.13	3.77	9.34	4.60	2.95
12 Op-2	5	0.01	0.07	0.014	0.05	-0.02	6.10	7.29	9.89	2.31

Period means and deltas from original control data where n=2

Period	N	Station Mean	Range	Standard Error	Upper 95% C.I.	Lower 95% C.I.
Op-1	26	4.01	9.62	0.400	4.83	3.18
Op-2	5	6.11	7.36	1.376	9.93	2.29

Analysis of Variance for HBT for 0069 - Cryptosiphonia woodii

Stations = 4, 5, 6, 8, 9, 10, 12 level +3 ft MLLW

Data transformed using arcsin.

Results for Analysis of Variance

Source	Source df	Error df	F-value	Prob.
PERIOD	1	162.000	12.65	0.0005
SEASON	1	162.000	3.94	0.0489
STATION	6	162.000	42.57	0.0000
PERIOD*SEASON	1	162.000	0.59	0.4421
STATION*PERIOD	6	162.000	2.10	0.0564
STATION*SEASON	6	162.000	0.89	0.5043
PERIOD*STATION*SEASON	6	162.000	0.34	0.9156

Results for Power Analysis
Power at alpha = .1

Source	Non-Centrality Parameter	Adjusted non-Centrality Parameter	Power	Adjusted Power	Power to Detect 50% Change
PERIOD	12.65	11.50	0.9711	0.9583	0.5468
STATION*PERIOD	12.58	6.42	0.8358	0.5463	0.8631

Estimates for contrasts on combinations of interaction terms

Source	Difference	Std. Err.	T-value	Prob.
Period in DC	0.2979	0.6150	0.484	.6288
Period in FC	2.7204	0.5847	4.653	.0000
Period in FC-S	2.9601	0.7073	4.185	.0000
Period in FC-W	2.4806	0.9311	2.664	.0085
Period in DC-S	0.7119	0.7948	0.896	.3717
Period in DC-W	-0.1162	0.9388	-0.124	.9017

Least square means & confidence intervals from analysis of variance

Source	LS Mean	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period Op-1	-0.428	0.0501	-8.54	.0000	-0.3449	-0.5107
Period Op-2	-0.859	0.1104	-7.78	.0000	-0.6763	-1.0415
Op-1-04	-0.553	0.1492	-3.71	.0003	-0.3061	-0.7997
Op-2-04	-1.695	0.3545	-4.78	.0000	-1.1081	-2.2811
Op-1-05	-0.000	0.1492	-0.00	1.000	0.2468	-0.2468
Op-2-05	-0.881	0.2803	-3.14	.0020	-0.4172	-1.3445
Op-1-06	-2.383	0.1204	-19.79	.0000	-2.1841	-2.5826
Op-2-06	-3.081	0.2803	-10.99	.0000	-2.6175	-3.5448
Op-1-08	-0.058	0.1204	-0.48	.6303	0.1411	-0.2573
Op-2-08	0.000	0.2803	0.00	1.000	0.4637	-0.4637
Op-1-09	0.000	0.1411	0.00	1.000	0.2334	-0.2334
Op-2-09	0.000	0.2803	0.00	1.000	0.4637	-0.4637
Op-1-10	0.000	0.1229	0.00	1.000	0.2033	-0.2033
Op-2-10	-0.356	0.2803	-1.27	.2059	0.1077	-0.8196
Op-1-12	0.000	0.1204	0.00	1.000	0.1992	-0.1992
Op-2-12	0.000	0.2803	0.00	1.000	0.4637	-0.4637

Paired comparisons of least square means between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period	0.4312	0.1212	3.557	.0005	0.6317	0.2306

Paired comparisons of least square means among stations between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Station 04	1.1417	0.3846	2.97	.0035	1.7780	0.5053
Station 05	0.8809	0.3175	2.77	.0062	1.4061	0.3556
Station 06	0.6978	0.3051	2.29	.0235	1.2025	0.1932
Station 08	-0.0581	0.3051	-0.19	.8492	0.4466	-0.5627
Station 09	-0.0000	0.3138	-0.00	1.000	0.5191	-0.5191
Station 10	0.3560	0.3060	1.16	.2465	0.8623	-0.1503
Station 12	-0.0000	0.3051	-0.00	1.000	0.5047	-0.5047

Station-period means and deltas from original data where control n=2

Station-Period		N	Station Mean	Range	Standard Error	Upper 95% c.i.	Lower 95% c.i.	Mean Delta	Delta Range	Upper 95% CIi.	Lower 95% C.I.
04	Op-1	17	0.04	0.35	0.023	0.09	-0.01	-0.04	0.35	0.01	-0.09
04	Op-2	4	0.14	0.28	0.063	0.34	-0.06	-0.14	0.28	0.06	-0.34
05	Op-1	17	0.00	0.00	0.000	.	.	0.00	0.00	.	.
05	Op-2	5	0.04	0.07	0.017	0.09	-0.01	-0.04	0.07	0.01	-0.09
06	Op-1	26	0.21	0.56	0.029	0.26	0.15	-0.21	0.56	-0.15	-0.26
06	Op-2	5	0.35	0.69	0.128	0.70	-0.01	-0.35	0.69	0.01	-0.70
08	Op-1	26	0.00	0.07	0.003	0.01	-0.00	-0.00	0.07	0.00	-0.01
08	Op-2	5	0.00	0.00	0.000	.	.	0.00	0.00	.	.
09	Op-1	19	0.00	0.00	0.000	.	.	0.00	0.00	.	.
09	Op-2	5	0.00	0.00	0.000	.	.	0.00	0.00	.	.
10	Op-1	25	0.00	0.00	0.000	.	.	0.00	0.00	.	.
10	Op-2	5	0.03	0.14	0.028	0.10	-0.05	-0.03	0.14	0.05	-0.10
12	Op-1	26	0.00	0.00	0.000	.	.	0.00	0.00	.	.
12	Op-2	5	0.00	0.00	0.000	.	.	0.00	0.00	.	.

Period means and deltas from original control data where n=2

Period	N	Station Mean	Range	Standard Error	Upper 95% C.I.	Lower 95% C.I.
Op-1	26	0.00	0.00	0.000	.	.
Op-2	5	0.00	0.00	0.000	.	.

Analysis of Variance for HBT for 0115 - Cryptopleura violacea

Stations = 4, 5, 6, 8, 9, 10, 12 level +3 ft MLLW

Data transformed using 1/(x + .1)

Results for Analysis of Variance

Source	Source df	Error df	F-value	Prob.
PERIOD	1	162.000	106.28	0.0000
SEASON	1	162.000	0.72	0.3960
STATION	6	162.000	26.23	0.0000
PERIOD*SEASON	1	162.000	0.35	0.5552
STATION*PERIOD	6	162.000	0.40	0.8753
STATION*SEASON	6	162.000	0.29	0.9424
PERIOD*STATION*SEASON	6	162.000	0.16	0.9871

Results for Power Analysis
Power at alpha = .1

Source	Non-Centrality Parameter	Adjusted non-Centrality Parameter	Power	Adjusted Power	Power to Detect 50% Change
PERIOD	106.28	103.97	1.0000	1.0000	0.1308
STATION*PERIOD	2.43	0.00	0.2641	.	0.1441

Estimates for contrasts on combinations of interaction terms

Source	Difference	Std. Err.	T-value	Prob.
Period in DC	21.3242	2.5906	8.231	.0000
Period in FC	15.5243	2.4627	6.304	.0000
Period in FC-S	17.0621	2.9795	5.726	.0000
Period in FC-W	13.9866	3.9220	3.566	.0005
Period in DC-S	21.8997	3.3478	6.541	.0000
Period in DC-W	20.7487	3.9543	5.247	.0000

Least square means & confidence intervals from analysis of variance

Source	LS Mean	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period Op-1	0.074	0.2111	0.35	.7250	0.4235	-0.2748
Period Op-2	-5.190	0.4650	-11.16	.0000	-4.4205	-5.9589
Op-1-04	-1.089	0.6284	-1.73	.0851	-0.0491	-2.1284
Op-2-04	-5.001	1.4934	-3.35	.0010	-2.5303	-7.4713
Op-1-05	-1.051	0.6284	-1.67	.0963	-0.0116	-2.0908
Op-2-05	-6.845	1.1806	-5.80	.0000	-4.8921	-8.7983
Op-1-06	-1.027	0.5073	-2.02	.0446	-0.1878	-1.8662
Op-2-06	-6.845	1.1806	-5.80	.0000	-4.8921	-8.7983
Op-1-08	-1.027	0.5073	-2.02	.0446	-0.1878	-1.8662
Op-2-08	-6.845	1.1806	-5.80	.0000	-4.8921	-8.7983
Op-1-09	-1.173	0.5942	-1.97	.0501	-0.1898	-2.1559
Op-2-09	-6.845	1.1806	-5.80	.0000	-4.8921	-8.7983
Op-1-10	6.914	0.5177	13.36	.0000	7.7709	6.0579
Op-2-10	2.899	1.1806	2.46	.0151	4.8521	0.9459
Op-1-12	-1.027	0.5073	-2.02	.0446	-0.1878	-1.8662
Op-2-12	-6.845	1.1806	-5.80	.0000	-4.8921	-8.7983

Paired comparisons of least square means between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period	5.2641	0.5106	10.309	.0000	6.1088	4.4193

Paired comparisons of least square means among stations between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Station 04	3.9120	1.6202	2.41	.0169	6.5924	1.2317
Station 05	5.7941	1.3374	4.33	.0000	8.0066	3.5815
Station 06	5.8182	1.2850	4.53	.0000	7.9440	3.6925
Station 08	5.8182	1.2850	4.53	.0000	7.9440	3.6925
Station 09	5.6724	1.3217	4.29	.0000	7.8589	3.4858
Station 10	4.0154	1.2891	3.11	.0022	6.1480	1.8828
Station 12	5.8182	1.2850	4.53	.0000	7.9440	3.6925

Station-period means and deltas from original data where control n=2

Station-Period	N	Station Mean	Range	Standard Error	Upper 95% c.i.	Lower 95% c.i.	Mean Delta	Delta Range	Upper 95% CIi.	Lower 95% C.I.
04 Op-1	17	0.02	0.42	0.025	0.08	-0.03	0.02	0.28	0.05	-0.01
04 Op-2	4	0.02	0.07	0.017	0.07	-0.04	0.27	0.45	0.57	-0.03
05 Op-1	17	0.04	0.69	0.041	0.13	-0.05	0.00	1.01	0.10	-0.10
05 Op-2	5	0.00	0.00	0.000	.	.	0.27	0.45	0.48	0.07
06 Op-1	26	0.00	0.00	0.000	.	.	0.03	0.31	0.06	-0.00
06 Op-2	5	0.00	0.00	0.000	.	.	0.27	0.45	0.48	0.07
08 Op-1	26	0.00	0.00	0.000	.	.	0.03	0.31	0.06	-0.00
08 Op-2	5	0.00	0.00	0.000	.	.	0.27	0.45	0.48	0.07
09 Op-1	19	0.00	0.07	0.004	0.01	-0.00	0.03	0.38	0.08	-0.01
09 Op-2	5	0.00	0.00	0.000	.	.	0.27	0.45	0.48	0.07
10 Op-1	25	2.45	13.47	0.661	3.81	1.09	-2.42	13.47	-1.07	-3.77
10 Op-2	5	4.83	6.60	1.107	7.91	1.76	-4.56	6.28	-1.66	-7.46
12 Op-1	26	0.00	0.00	0.000	.	.	0.03	0.31	0.06	-0.00
12 Op-2	5	0.00	0.00	0.000	.	.	0.27	0.45	0.48	0.07

Period means and deltas from original control data where n=2

Period	N	Station Mean	Range	Standard Error	Upper 95% C.I.	Lower 95% C.I.
Op-1	26	0.03	0.31	0.014	0.06	-0.00
Op-2	5	0.27	0.45	0.074	0.48	0.07

Analysis of Variance for HBT for 0070 - Endocladia muricata

Stations = 4, 5, 6, 8, 9, 10, 12 level +3 ft MLLW

Data transformed using arcsin.

Results for Analysis of Variance

Source	Source df	Error df	F-value	Prob.
PERIOD	1	162.000	30.21	0.0000
SEASON	1	162.000	0.01	0.9039
STATION	6	162.000	265.32	0.0000
PERIOD*SEASON	1	162.000	0.54	0.4649
STATION*PERIOD	6	162.000	0.79	0.5826
STATION*SEASON	6	162.000	0.31	0.9329
PERIOD*STATION*SEASON	6	162.000	0.34	0.9155

Results for Power Analysis
Power at alpha = .1

Source	Non-Centrality Parameter	Adjusted non-Centrality Parameter	Power	Adjusted Power	Power to Detect 50% Change
PERIOD	30.21	28.84	0.9999	0.9999	1.0000
STATION*PERIOD	4.71	0.00	0.4305	.	1.0000

Estimates for contrasts on combinations of interaction terms

Source	Difference	Std. Err.	T-value	Prob.
Period in DC	15.6147	3.6920	4.229	.0000
Period in FC	12.3842	3.5098	3.528	.0005
Period in FC-S	7.9769	4.2464	1.879	.0621
Period in FC-W	16.7916	5.5896	3.004	.0031
Period in DC-S	16.2906	4.7712	3.414	.0008
Period in DC-W	14.9388	5.6356	2.651	.0088

Least square means & confidence intervals from analysis of variance

Source	LS Mean	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period Op-1	9.022	0.3008	29.99	.0000	9.5198	8.5246
Period Op-2	5.022	0.6626	7.58	.0000	6.1186	3.9261
Op-1-04	-5.970	0.8956	-6.67	.0000	-4.4886	-7.4519
Op-2-04	-11.605	2.1283	-5.45	.0000	-8.0842	-15.1260
Op-1-05	-7.915	0.8956	-8.84	.0000	-6.4329	-9.3962
Op-2-05	-11.887	1.6826	-7.06	.0000	-9.1038	-14.6708
Op-1-06	-2.164	0.7230	-2.99	.0032	-0.9680	-3.3599
Op-2-06	-4.941	1.6826	-2.94	.0038	-2.1570	-7.7241
Op-1-08	10.167	0.7230	14.06	.0000	11.3631	8.9711
Op-2-08	3.599	1.6826	2.14	.0339	6.3823	0.8153
Op-1-09	11.848	0.8469	13.99	.0000	13.2494	10.4474
Op-2-09	10.345	1.6826	6.15	.0000	13.1285	7.5615
Op-1-10	31.928	0.7379	43.27	.0000	33.1490	30.7077
Op-2-10	27.974	1.6826	16.63	.0000	30.7573	25.1903
Op-1-12	25.260	0.7230	34.94	.0000	26.4563	24.0644
Op-2-12	21.672	1.6826	12.88	.0000	24.4553	18.8883

Paired comparisons of least square means between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period	3.9998	0.7277	5.496	.0000	5.2037	2.7960

Paired comparisons of least square means among stations between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Station 04	5.6349	2.3091	2.44	.0158	9.4548	1.8149
Station 05	3.9728	1.9061	2.08	.0387	7.1260	0.8195
Station 06	2.7766	1.8313	1.52	.1314	5.8062	-0.2530
Station 08	6.5683	1.8313	3.59	.0004	9.5978	3.5387
Station 09	1.5034	1.8837	0.80	.4260	4.6196	-1.6128
Station 10	3.9545	1.8373	2.15	.0328	6.9939	0.9151
Station 12	3.5886	1.8313	1.96	.0518	6.6181	0.5590

Station-period means and deltas from original data where control n=2

Station-Period		N	Station Mean	Range	Standard Error	Upper 95% c.i.	Lower 95% c.i.	Mean Delta	Delta Range	Upper 95% CIi.	Lower 95% C.I.
04	Op-1	17	38.55	21.46	1.366	41.45	35.65	-9.70	24.72	-6.43	-12.97
04	Op-2	4	39.20	13.12	2.749	47.95	30.45	-17.88	11.42	-10.37	-25.40
05	Op-1	17	41.96	19.17	1.314	44.75	39.18	-13.11	24.55	-9.26	-16.97
05	Op-2	5	40.97	6.87	1.400	44.86	37.08	-18.87	4.06	-16.67	-21.06
06	Op-1	26	32.14	21.32	1.133	34.47	29.80	-3.53	20.59	-1.53	-5.53
06	Op-2	5	29.36	18.12	3.015	37.73	20.99	-7.26	17.05	1.05	-15.56
08	Op-1	26	14.42	16.32	0.836	16.14	12.70	14.18	22.33	16.71	11.65
08	Op-2	5	17.56	7.50	1.341	21.28	13.83	4.55	11.46	10.26	-1.16
09	Op-1	19	12.55	14.31	1.038	14.74	10.37	16.17	20.17	19.14	13.19
09	Op-2	5	9.29	4.65	0.852	11.66	6.93	12.81	8.75	17.29	8.34
10	Op-1	25	0.02	0.07	0.006	0.03	0.00	28.60	15.80	30.03	27.17
10	Op-2	5	0.00	0.00	0.000	.	.	22.10	6.87	25.23	18.97
12	Op-1	26	1.60	3.06	0.164	1.93	1.26	27.01	16.28	28.45	25.56
12	Op-2	5	1.19	1.39	0.236	1.85	0.54	20.91	7.99	24.61	17.21

Period means and deltas from original control data where n=2

Period	N	Station Mean	Range	Standard Error	Upper 95% C.I.	Lower 95% C.I.
Op-1	26	28.60	15.87	0.670	29.98	27.22
Op-2	5	22.10	6.87	1.127	25.23	18.97

Analysis of Variance for HBT for 1300 - filamentous red algae-complex

Stations = 4, 5, 6, 8, 9, 10, 12 level +3 ft MLLW

Data not transformed.

Results for Analysis of Variance

Source	Source df	Error df	F-value	Prob.
PERIOD	1	162.000	1.22	0.2706
SEASON	1	162.000	0.44	0.5086
STATION	6	162.000	5.47	0.0000
PERIOD*SEASON	1	162.000	0.25	0.6212
STATION*PERIOD	6	162.000	0.86	0.5239
STATION*SEASON	6	162.000	0.59	0.7376
PERIOD*STATION*SEASON	6	162.000	0.97	0.4503

Results for Power Analysis
Power at alpha = .1

Source	Non-Centrality Parameter	Adjusted non-Centrality Parameter	Power	Adjusted Power	Power to Detect 50% Change
PERIOD	1.22	0.21	0.2963	0.1346	0.2790
STATION*PERIOD	5.17	0.00	0.4630	.	0.2729

Estimates for contrasts on combinations of interaction terms

Source	Difference	Std. Err.	T-value	Prob.
Period in DC	1.7791	1.1740	1.515	.1316
Period in FC	0.0116	1.1160	0.010	.9917
Period in FC-S	0.0231	1.3502	0.017	.9863
Period in FC-W	0.0000	1.7773	0.000	1.000
Period in DC-S	2.5694	1.5171	1.694	.0923
Period in DC-W	0.9888	1.7919	0.552	.5819

Least square means & confidence intervals from analysis of variance

Source	LS Mean	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period Op-1	-0.285	0.0956	-2.98	.0033	-0.1266	-0.4431
Period Op-2	-0.541	0.2107	-2.57	.0112	-0.1921	-0.8892
Op-1-04	0.000	0.2848	0.00	1.000	0.4711	-0.4711
Op-2-04	0.000	0.6767	0.00	1.000	1.1195	-1.1195
Op-1-05	0.000	0.2848	0.00	1.000	0.4711	-0.4711
Op-2-05	-0.012	0.5350	-0.02	.9828	0.8735	-0.8966
Op-1-06	-0.000	0.2299	-0.00	1.000	0.3803	-0.3803
Op-2-06	-0.000	0.5350	-0.00	1.000	0.8851	-0.8851
Op-1-08	-0.069	0.2299	-0.30	.7630	0.3108	-0.4497
Op-2-08	-0.041	0.5350	-0.08	.9397	0.8446	-0.9256
Op-1-09	-1.023	0.2693	-3.80	.0002	-0.5777	-1.4686
Op-2-09	-1.372	0.5350	-2.56	.0113	-0.4865	-2.2566
Op-1-10	-0.901	0.2346	-3.84	.0002	-0.5133	-1.2896
Op-2-10	-2.361	0.5350	-4.41	.0000	-1.4760	-3.2462
Op-1-12	0.000	0.2299	0.00	1.000	0.3803	-0.3803
Op-2-12	-0.000	0.5350	-0.00	1.000	0.8851	-0.8851

Paired comparisons of least square means between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period	0.2558	0.2314	1.106	.2706	0.6386	-0.1270

Paired comparisons of least square means among stations between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Station 04	0.0000	0.7342	0.00	1.000	1.2146	-1.2146
Station 05	0.0116	0.6061	0.02	.9848	1.0142	-0.9911
Station 06	0.0000	0.5823	0.00	1.000	0.9633	-0.9633
Station 08	-0.0289	0.5823	-0.05	.9604	0.9344	-0.9922
Station 09	0.3484	0.5990	0.58	.5616	1.3392	-0.6425
Station 10	1.4597	0.5842	2.50	.0135	2.4261	0.4932
Station 12	0.0000	0.5823	0.00	1.000	0.9633	-0.9633

Station-period means and deltas from original data where control n=2

Station-Period	N	Station Mean	Range	Standard Error	Upper 95% C.I.	Lower 95% C.I.	Mean Delta	Delta Range	Upper 95% CII.	Lower 95% C.I.
04 Op-1	17	0.00	0.00	0.000	.	.	0.00	0.00	.	.
04 Op-2	4	0.00	0.00	0.000	.	.	0.00	0.00	.	.
05 Op-1	17	0.00	0.00	0.000	.	.	0.00	0.00	.	.
05 Op-2	5	0.01	0.07	0.014	0.05	-0.02	-0.01	0.07	0.02	-0.05
06 Op-1	26	0.00	0.00	0.000	.	.	0.00	0.00	.	.
06 Op-2	5	0.00	0.00	0.000	.	.	0.00	0.00	.	.
08 Op-1	26	0.07	0.69	0.037	0.14	-0.01	-0.07	0.69	0.01	-0.14
08 Op-2	5	0.04	0.14	0.028	0.12	-0.04	-0.04	0.14	0.04	-0.12
09 Op-1	19	1.03	4.72	0.371	1.81	0.25	-1.03	4.72	-0.25	-1.81
09 Op-2	5	1.62	7.71	1.521	5.85	-2.60	-1.62	7.71	2.60	-5.85
10 Op-1	25	0.91	10.28	0.464	1.87	-0.05	-0.91	10.28	0.05	-1.87
10 Op-2	5	2.29	3.82	0.670	4.15	0.43	-2.29	3.82	-0.43	-4.15
12 Op-1	26	0.00	0.00	0.000	.	.	0.00	0.00	.	.
12 Op-2	5	0.00	0.00	0.000	.	.	0.00	0.00	.	.

Period means and deltas from original control data where n=2

Period	N	Station Mean	Range	Standard Error	Upper 95% C.I.	Lower 95% C.I.
Op-1	26	0.00	0.00	0.000	.	.
Op-2	5	0.00	0.00	0.000	.	.

Analysis of Variance for HBT for 0032 - Fucus gardneri

Stations = 4, 5, 6, 8, 9, 10, 12 level +3 ft MLLW

Data transformed using log base10(x + .1)

Results for Analysis of Variance

Source	Source df	Error df	F-value	Prob.
PERIOD	1	162.000	32.58	0.0000
SEASON	1	162.000	6.94	0.0092
STATION	6	162.000	13.10	0.0000
PERIOD*SEASON	1	162.000	0.18	0.6739
STATION*PERIOD	6	162.000	0.05	0.9993
STATION*SEASON	6	162.000	0.54	0.7758
PERIOD*STATION*SEASON	6	162.000	0.61	0.7211

Results for Power Analysis
Power at alpha = .1

Source	Non-Centrality Parameter	Adjusted non-Centrality Parameter	Power	Adjusted Power	Power to Detect 50% Change
PERIOD	32.58	31.18	1.0000	1.0000	0.2859
STATION*PERIOD	0.33	0.00	0.1200	.	0.3758

Estimates for contrasts on combinations of interaction terms

Source	Difference	Std. Err.	T-value	Prob.
Period in DC	-1.3151	0.2915	-4.512	.0000
Period in FC	-0.9805	0.2771	-3.539	.0005
Period in FC-S	-0.9263	0.3352	-2.763	.0064
Period in FC-W	-1.0348	0.4413	-2.345	.0202
Period in DC-S	-1.5389	0.3767	-4.085	.0001
Period in DC-W	-1.0913	0.4449	-2.453	.0152

Least square means & confidence intervals from analysis of variance

Source	LS Mean	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period Op-1	0.059	0.0237	2.49	.0139	0.0983	0.0197
Period Op-2	0.387	0.0523	7.40	.0000	0.4735	0.3004
Op-1-04	0.190	0.0707	2.69	.0079	0.3072	0.0732
Op-2-04	0.477	0.1680	2.84	.0051	0.7554	0.1995
Op-1-05	-0.574	0.0707	-8.12	.0000	-0.4574	-0.6913
Op-2-05	-0.214	0.1328	-1.61	.1095	0.0060	-0.4335
Op-1-06	0.156	0.0571	2.74	.0068	0.2508	0.0619
Op-2-06	0.489	0.1328	3.68	.0003	0.7088	0.2693
Op-1-08	0.156	0.0571	2.74	.0068	0.2508	0.0619
Op-2-08	0.489	0.1328	3.68	.0003	0.7088	0.2693
Op-1-09	0.209	0.0669	3.13	.0021	0.3197	0.0985
Op-2-09	0.489	0.1328	3.68	.0003	0.7088	0.2693
Op-1-10	0.166	0.0583	2.85	.0049	0.2624	0.0696
Op-2-10	0.489	0.1328	3.68	.0003	0.7088	0.2693
Op-1-12	0.110	0.0571	1.92	.0565	0.2041	0.0152
Op-2-12	0.489	0.1328	3.68	.0003	0.7088	0.2693

Paired comparisons of least square means between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period	-0.3279	0.0575	-5.708	.0000	-0.2329	-0.4230

Paired comparisons of least square means among stations between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Station 04	-0.2873	0.1823	-1.58	.1170	0.0143	-0.5888
Station 05	-0.3606	0.1505	-2.40	.0177	-0.1116	-0.6095
Station 06	-0.3327	0.1446	-2.30	.0227	-0.0935	-0.5719
Station 08	-0.3327	0.1446	-2.30	.0227	-0.0935	-0.5719
Station 09	-0.2799	0.1487	-1.88	.0616	-0.0339	-0.5260
Station 10	-0.3230	0.1450	-2.23	.0273	-0.0831	-0.5630
Station 12	-0.3794	0.1446	-2.62	.0095	-0.1402	-0.6186

Station-period means and deltas from original data where control n=2

Station-Period	N	Station Mean	Range	Standard Error	Upper 95% c.i.	Lower 95% c.i.	Mean Delta	Delta Range	Upper 95% CIi.	Lower 95% C.I.
04 Op-1	17	0.01	0.07	0.007	0.03	-0.00	0.10	0.69	0.19	0.01
04 Op-2	4	0.00	0.00	0.000	.	.	0.21	0.24	0.37	0.05
05 Op-1	17	0.75	1.67	0.127	1.02	0.48	-0.64	1.91	-0.35	-0.92
05 Op-2	5	0.79	2.29	0.393	1.88	-0.30	-0.58	2.36	0.56	-1.71
06 Op-1	26	0.00	0.00	0.000	.	.	0.07	0.62	0.13	0.02
06 Op-2	5	0.00	0.00	0.000	.	.	0.22	0.24	0.33	0.10
08 Op-1	26	0.00	0.00	0.000	.	.	0.07	0.62	0.13	0.02
08 Op-2	5	0.00	0.00	0.000	.	.	0.22	0.24	0.33	0.10
09 Op-1	19	0.00	0.00	0.000	.	.	0.10	0.62	0.18	0.02
09 Op-2	5	0.00	0.00	0.000	.	.	0.22	0.24	0.33	0.10
10 Op-1	25	0.00	0.00	0.000	.	.	0.08	0.62	0.14	0.02
10 Op-2	5	0.00	0.00	0.000	.	.	0.22	0.24	0.33	0.10
12 Op-1	26	0.02	0.14	0.008	0.03	-0.00	0.06	0.76	0.12	-0.00
12 Op-2	5	0.00	0.00	0.000	.	.	0.22	0.24	0.33	0.10

Period means and deltas from original control data where n=2

Period	N	Station Mean	Range	Standard Error	Upper 95% C.I.	Lower 95% C.I.
Op-1	26	0.07	0.62	0.028	0.13	0.02
Op-2	5	0.22	0.24	0.040	0.33	0.10

Analysis of Variance for HBT for 0072 - Gastroclonium subarticulatum

Stations = 4, 5, 6, 8, 9, 10, 12 level +3 ft MLLW

Data transformed using log base10(x + 1)

Results for Analysis of Variance

Source	Source df	Error df	F-value	Prob.
PERIOD	1	162.000	18.31	0.0000
SEASON	1	162.000	0.44	0.5062
STATION	6	162.000	41.07	0.0000
PERIOD*SEASON	1	162.000	0.21	0.6477
STATION*PERIOD	6	162.000	19.71	0.0000
STATION*SEASON	6	162.000	0.32	0.9271
PERIOD*STATION*SEASON	6	162.000	0.27	0.9508

Results for Power Analysis
Power at alpha = .1

Source	Non-Centrality Parameter	Adjusted non-Centrality Parameter	Power	Adjusted Power	Power to Detect 50% Change
PERIOD	18.31	17.09	0.9956	0.9933	0.1918
STATION*PERIOD	118.28	110.82	1.0000	1.0000	0.2262

Estimates for contrasts on combinations of interaction terms

Source	Difference	Std. Err.	T-value	Prob.
Period in DC	0.7682	0.1314	5.845	.0000
Period in FC	0.0078	0.1250	0.063	.9502
Period in FC-S	-0.0013	0.1512	-0.008	.9933
Period in FC-W	0.0169	0.1990	0.085	.9324
Period in DC-S	0.8603	0.1699	5.065	.0000
Period in DC-W	0.6761	0.2006	3.370	.0009

Least square means & confidence intervals from analysis of variance

Source	LS Mean	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period Op-1	-0.030	0.0107	-2.84	.0051	-0.0127	-0.0481
Period Op-2	-0.141	0.0236	-5.99	.0000	-0.1022	-0.1803
Op-1-04	0.001	0.0319	0.04	.9671	0.0541	-0.0514
Op-2-04	-0.002	0.0758	-0.03	.9749	0.1230	-0.1277
Op-1-05	0.003	0.0319	0.10	.9217	0.0559	-0.0496
Op-2-05	0.002	0.0599	0.04	.9672	0.1016	-0.0966
Op-1-06	0.001	0.0257	0.04	.9675	0.0436	-0.0415
Op-2-06	-0.002	0.0599	-0.04	.9682	0.0967	-0.1015
Op-1-08	0.001	0.0257	0.04	.9675	0.0436	-0.0415
Op-2-08	-0.017	0.0599	-0.28	.7832	0.0826	-0.1156
Op-1-09	-0.045	0.0301	-1.48	.1406	0.0052	-0.0945
Op-2-09	-0.023	0.0599	-0.38	.7047	0.0764	-0.1218
Op-1-10	-0.177	0.0263	-6.73	.0000	-0.1334	-0.2204
Op-2-10	-0.950	0.0599	-15.86	.0000	-0.8507	-1.0489
Op-1-12	0.002	0.0257	0.08	.9328	0.0448	-0.0404
Op-2-12	0.002	0.0599	0.04	.9672	0.1016	-0.0966

Paired comparisons of least square means between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period	0.1109	0.0259	4.279	.0000	0.1537	0.0680

Paired comparisons of least square means among stations between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Station 04	0.0037	0.0822	0.05	.9641	0.1397	-0.1323
Station 05	0.0007	0.0679	0.01	.9922	0.1129	-0.1116
Station 06	0.0034	0.0652	0.05	.9580	0.1113	-0.1044
Station 08	0.0176	0.0652	0.27	.7880	0.1254	-0.0903
Station 09	-0.0219	0.0671	-0.33	.7443	0.0890	-0.1328
Station 10	0.7729	0.0654	11.82	.0000	0.8811	0.6647
Station 12	-0.0003	0.0652	-0.00	.9964	0.1076	-0.1082

Station-period means and deltas from original data where control n=2

Station-Period	N	Station Mean	Range	Standard Error	Upper 95% c.i.	Lower 95% c.i.	Mean Delta	Delta Range	Upper 95% CIi.	Lower 95% C.I.
04 Op-1	17	0.00	0.07	0.004	0.01	-0.00	0.00	0.21	0.02	-0.02
04 Op-2	4	0.02	0.07	0.017	0.07	-0.04	-0.01	0.03	0.02	-0.04
05 Op-1	17	0.00	0.00	0.000	.	.	0.01	0.14	0.03	-0.01
05 Op-2	5	0.00	0.00	0.000	.	.	0.01	0.03	0.03	-0.01
06 Op-1	26	0.00	0.07	0.003	0.01	-0.00	0.00	0.21	0.02	-0.01
06 Op-2	5	0.01	0.07	0.014	0.05	-0.02	-0.01	0.03	0.01	-0.03
08 Op-1	26	0.00	0.07	0.003	0.01	-0.00	0.00	0.21	0.02	-0.01
08 Op-2	5	0.04	0.14	0.028	0.12	-0.04	-0.03	0.14	0.04	-0.11
09 Op-1	19	0.15	1.11	0.070	0.29	-0.00	-0.14	1.25	0.01	-0.29
09 Op-2	5	0.08	0.42	0.083	0.31	-0.15	-0.08	0.38	0.14	-0.29
10 Op-1	25	1.19	10.07	0.525	2.27	0.11	-1.18	10.14	-0.10	-2.27
10 Op-2	5	8.75	7.50	1.236	12.18	5.32	-8.74	7.50	-5.31	-12.17
12 Op-1	26	0.00	0.00	0.000	.	.	0.01	0.14	0.02	-0.01
12 Op-2	5	0.00	0.00	0.000	.	.	0.01	0.03	0.03	-0.01

Period means and deltas from original control data where n=2

Period	N	Station Mean	Range	Standard Error	Upper 95% C.I.	Lower 95% C.I.
Op-1	26	0.01	0.14	0.005	0.02	-0.01
Op-2	5	0.01	0.03	0.007	0.03	-0.01

Analysis of Variance for HBT for 0073 - Gelidium coulteri

Stations = 4, 5, 6, 8, 9, 10, 12 level +3 ft MLLW

Data transformed using log base10(x + .1)

Results for Analysis of Variance

Source	Source df	Error df	F-value	Prob.
PERIOD	1	162.000	17.84	0.0000
SEASON	1	162.000	33.90	0.0000
STATION	6	162.000	22.58	0.0000
PERIOD*SEASON	1	162.000	6.70	0.0105
STATION*PERIOD	6	162.000	3.14	0.0061
STATION*SEASON	6	162.000	1.03	0.4065
PERIOD*STATION*SEASON	6	162.000	0.48	0.8207

Results for Power Analysis
Power at alpha = .1

Source	Non-Centrality Parameter	Adjusted non-Centrality Parameter	Power	Adjusted Power	Power to Detect 50% Change
PERIOD	17.84	16.62	0.9948	0.9921	0.9829
STATION*PERIOD	18.85	12.61	0.9540	0.8369	0.3050

Estimates for contrasts on combinations of interaction terms

Source	Difference	Std. Err.	T-value	Prob.
Period in DC	1.3503	0.4202	3.214	.0016
Period in FC	1.0986	0.3994	2.750	.0066
Period in FC-S	1.6381	0.4833	3.390	.0009
Period in FC-W	0.5591	0.6361	0.879	.3808
Period in DC-S	2.3109	0.5430	4.256	.0000
Period in DC-W	0.3897	0.6414	0.608	.5443

Least square means & confidence intervals from analysis of variance

Source	LS Mean	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period Op-1	0.034	0.0342	0.98	.3278	0.0902	-0.0230
Period Op-2	-0.316	0.0754	-4.19	.0000	-0.1915	-0.4410
Op-1-04	-0.102	0.1019	-1.00	.3170	0.0663	-0.2709
Op-2-04	-0.818	0.2422	-3.38	.0009	-0.4174	-1.2187
Op-1-05	0.500	0.1019	4.90	.0000	0.6682	0.3309
Op-2-05	0.217	0.1915	1.13	.2588	0.5338	-0.0998
Op-1-06	-0.343	0.0823	-4.17	.0000	-0.2073	-0.4795
Op-2-06	-0.444	0.1915	-2.32	.0218	-0.1269	-0.7605
Op-1-08	0.413	0.0823	5.02	.0000	0.5492	0.2770
Op-2-08	-0.607	0.1915	-3.17	.0018	-0.2906	-0.9242
Op-1-09	0.004	0.0964	0.04	.9657	0.1636	-0.1553
Op-2-09	0.043	0.1915	0.23	.8217	0.3600	-0.2735
Op-1-10	-0.800	0.0840	-9.53	.0000	-0.6615	-0.9393
Op-2-10	-1.090	0.1915	-5.69	.0000	-0.7736	-1.4071
Op-1-12	0.565	0.0823	6.86	.0000	0.7007	0.4285
Op-2-12	0.486	0.1915	2.54	.0122	0.8024	0.1688

Paired comparisons of least square means between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period	0.3498	0.0828	4.224	.0000	0.4869	0.2128

Paired comparisons of least square means among stations between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Station 04	0.7157	0.2628	2.72	.0072	1.1505	0.2810
Station 05	0.2826	0.2169	1.30	.1946	0.6414	-0.0763
Station 06	0.1003	0.2084	0.48	.6310	0.4451	-0.2445
Station 08	1.0205	0.2084	4.90	.0000	1.3653	0.6757
Station 09	-0.0391	0.2144	-0.18	.8556	0.3156	-0.3937
Station 10	0.2899	0.2091	1.39	.1675	0.6358	-0.0560
Station 12	0.0789	0.2084	0.38	.7053	0.4237	-0.2658

Station-period means and deltas from original data where control n=2

Station-Period		N	Station Mean	Range	Standard Error	Upper 95% c.i.	Lower 95% c.i.	Mean Delta	Delta Range	Upper 95% CIi.	Lower 95% C.I.
04	Op-1	17	1.07	2.64	0.208	1.51	0.63	-0.44	3.33	0.05	-0.92
04	Op-2	4	3.49	1.53	0.314	4.49	2.49	-3.02	2.08	-1.60	-4.45
05	Op-1	17	0.16	0.69	0.047	0.26	0.06	0.47	1.32	0.64	0.30
05	Op-2	5	0.37	0.76	0.138	0.76	-0.01	0.14	1.46	0.82	-0.54
06	Op-1	26	1.43	3.06	0.144	1.73	1.14	-0.86	4.13	-0.51	-1.20
06	Op-2	5	1.42	0.90	0.165	1.88	0.96	-0.90	0.90	-0.38	-1.42
08	Op-1	26	0.58	4.03	0.235	1.07	0.10	-0.01	4.83	0.48	-0.50
08	Op-2	5	3.37	6.94	1.221	6.77	-0.02	-2.86	7.64	0.83	-6.55
09	Op-1	19	0.87	3.89	0.233	1.36	0.38	-0.26	4.62	0.28	-0.80
09	Op-2	5	0.76	2.64	0.522	2.21	-0.68	-0.25	2.64	1.13	-1.63
10	Op-1	25	7.01	27.64	1.439	9.98	4.04	-6.43	27.15	-3.48	-9.38
10	Op-2	5	10.24	20.28	3.798	20.78	-0.31	-9.72	20.21	0.94	-20.38
12	Op-1	26	0.15	1.46	0.062	0.28	0.02	0.43	2.15	0.60	0.26
12	Op-2	5	0.31	1.46	0.289	1.11	-0.50	0.21	1.46	0.98	-0.57

Period means and deltas from original control data where n=2

Period	N	Station Mean	Range	Standard Error	Upper 95% C.I.	Lower 95% C.I.
Op-1	26	0.58	1.08	0.054	0.69	0.46
Op-2	5	0.51	0.69	0.131	0.88	0.15

Analysis of Variance for HBT for 0074 - Gelidium pusillum

Stations = 4, 5, 6, 8, 9, 10, 12 level +3 ft MLLW

Data transformed using log base10(x + .1)

Results for Analysis of Variance

Source	Source df	Error df	F-value	Prob.
PERIOD	1	162.000	1.42	0.2359
SEASON	1	162.000	14.03	0.0003
STATION	6	162.000	5.57	0.0000
PERIOD*SEASON	1	162.000	7.92	0.0055
STATION*PERIOD	6	162.000	1.43	0.2059
STATION*SEASON	6	162.000	2.18	0.0472
PERIOD*STATION*SEASON	6	162.000	0.90	0.4946

Results for Power Analysis
Power at alpha = .1

Source	Non-Centrality Parameter	Adjusted non-Centrality Parameter	Power	Adjusted Power	Power to Detect 50% Change
PERIOD	1.42	0.40	0.3250	0.1661	0.6780
STATION*PERIOD	8.58	2.48	0.6722	0.2679	0.2298

Estimates for contrasts on combinations of interaction terms

Source	Difference	Std. Err.	T-value	Prob.
Period in DC	-0.1688	0.3183	-0.530	.5965
Period in FC	0.6913	0.3026	2.285	.0236
Period in FC-S	1.1917	0.3661	3.255	.0014
Period in FC-W	0.1909	0.4819	0.396	.6926
Period in DC-S	0.5666	0.4113	1.377	.1703
Period in DC-W	-0.9042	0.4859	-1.861	.0645

Least square means & confidence intervals from analysis of variance

Source	LS Mean	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period Op-1	0.358	0.0259	13.81	.0000	0.4011	0.3153
Period Op-2	0.284	0.0571	4.96	.0000	0.3781	0.1890
Op-1-04	0.596	0.0772	7.72	.0000	0.7239	0.4684
Op-2-04	0.128	0.1835	0.70	.4857	0.4318	-0.1753
Op-1-05	0.670	0.0772	8.67	.0000	0.7975	0.5420
Op-2-05	0.496	0.1451	3.42	.0008	0.7363	0.2564
Op-1-06	-0.017	0.0623	-0.27	.7897	0.0865	-0.1198
Op-2-06	-0.067	0.1451	-0.46	.6470	0.1734	-0.3065
Op-1-08	0.211	0.0623	3.39	.0009	0.3144	0.1082
Op-2-08	0.275	0.1451	1.90	.0593	0.5155	0.0355
Op-1-09	0.413	0.0730	5.66	.0000	0.5340	0.2924
Op-2-09	0.287	0.1451	1.98	.0493	0.5273	0.0473
Op-1-10	0.265	0.0636	4.17	.0000	0.3707	0.1602
Op-2-10	0.474	0.1451	3.27	.0013	0.7138	0.2339
Op-1-12	0.368	0.0623	5.90	.0000	0.4711	0.2649
Op-2-12	0.390	0.1451	2.69	.0079	0.6302	0.1502

Paired comparisons of least square means between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period	0.0746	0.0627	1.190	.2359	0.1784	-0.0292

Paired comparisons of least square means among stations between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Station 04	0.4680	0.1991	2.35	.0199	0.7973	0.1386
Station 05	0.1734	0.1643	1.06	.2929	0.4453	-0.0984
Station 06	0.0499	0.1579	0.32	.7523	0.3111	-0.2113
Station 08	-0.0642	0.1579	-0.41	.6849	0.1970	-0.3254
Station 09	0.1259	0.1624	0.78	.4393	0.3946	-0.1427
Station 10	-0.2084	0.1584	-1.32	.1901	0.0536	-0.4704
Station 12	-0.0222	0.1579	-0.14	.8885	0.2390	-0.2833

Station-period means and deltas from original data where control n=2

Station-Period	N	Station Mean	Range	Standard Error	Upper 95% c.i.	Lower 95% c.i.	Mean Delta	Delta Range	Upper 95% CIi.	Lower 95% C.I.
04 Op-1	17	0.04	0.42	0.027	0.10	-0.02	0.51	2.53	0.84	0.19
04 Op-2	4	0.28	0.42	0.102	0.60	-0.05	0.12	0.83	0.69	-0.44
05 Op-1	17	0.00	0.07	0.004	0.01	-0.00	0.55	2.26	0.86	0.25
05 Op-2	5	0.11	0.21	0.042	0.23	-0.00	0.54	1.49	1.38	-0.30
06 Op-1	26	0.51	3.26	0.136	0.79	0.23	-0.09	2.81	0.12	-0.29
06 Op-2	5	0.72	1.87	0.332	1.64	-0.20	-0.07	0.90	0.38	-0.52
08 Op-1	26	0.65	5.83	0.292	1.25	0.05	-0.22	5.59	0.25	-0.69
08 Op-2	5	0.25	0.42	0.078	0.47	0.03	0.40	1.56	1.23	-0.42
09 Op-1	19	0.14	0.83	0.050	0.24	0.03	0.39	1.63	0.61	0.17
09 Op-2	5	0.28	0.76	0.151	0.70	-0.14	0.37	0.87	0.82	-0.07
10 Op-1	25	0.44	4.86	0.220	0.90	-0.01	-0.01	3.23	0.26	-0.29
10 Op-2	5	0.22	1.04	0.205	0.79	-0.35	0.43	1.04	0.95	-0.09
12 Op-1	26	0.17	2.22	0.088	0.35	-0.01	0.25	1.18	0.37	0.14
12 Op-2	5	0.15	0.28	0.051	0.29	0.01	0.50	1.42	1.25	-0.25

Period means and deltas from original control data where n=2

Period	N	Station Mean	Range	Standard Error	Upper 95% C.I.	Lower 95% C.I.
Op-1	26	0.42	2.33	0.101	0.63	0.21
Op-2	5	0.65	1.63	0.311	1.52	-0.21

Analysis of Variance for HBT for 0109 - Grateloupia doryphora

Stations = 4, 5, 6, 8, 9, 10, 12 level +3 ft MLLW

Data not transformed.

Results for Analysis of Variance

Source	Source df	Error df	F-value	Prob.
PERIOD	1	162.000	0.60	0.4389
SEASON	1	162.000	2.74	0.0996
STATION	6	162.000	2.77	0.0136
PERIOD*SEASON	1	162.000	0.60	0.4389
STATION*PERIOD	6	162.000	0.62	0.7139
STATION*SEASON	6	162.000	2.77	0.0136
PERIOD*STATION*SEASON	6	162.000	0.62	0.7139

Results for Power Analysis
Power at alpha = .1

Source	Non-Centrality Parameter	Adjusted non-Centrality Parameter	Power	Adjusted Power	Power to Detect 50% Change
PERIOD	0.60	0.00	0.1994	.	0.1237
STATION*PERIOD	3.72	0.00	0.3590	.	0.1562

Estimates for contrasts on combinations of interaction terms

Source	Difference	Std. Err.	T-value	Prob.
Period in DC	0.8182	0.7588	1.078	.2825
Period in FC	-0.0058	0.7213	-0.008	.9936
Period in FC-S	-0.0116	0.8727	-0.013	.9894
Period in FC-W	-0.0000	1.1487	-0.000	1.000
Period in DC-S	1.6364	0.9806	1.669	.0971
Period in DC-W	-0.0000	1.1582	-0.000	1.000

Least square means & confidence intervals from analysis of variance

Source	LS Mean	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period Op-1	-0.066	0.0618	-1.06	.2886	0.0365	-0.1681
Period Op-2	-0.182	0.1362	-1.34	.1836	0.0434	-0.4072
Op-1-04	-0.017	0.1841	-0.09	.9250	0.2871	-0.3219
Op-2-04	0.000	0.4374	0.00	1.000	0.7236	-0.7236
Op-1-05	0.000	0.1841	0.00	1.000	0.3045	-0.3045
Op-2-05	-0.012	0.3458	-0.03	.9733	0.5605	-0.5836
Op-1-06	0.000	0.1486	0.00	1.000	0.2458	-0.2458
Op-2-06	0.000	0.3458	0.00	1.000	0.5721	-0.5721
Op-1-08	0.000	0.1486	0.00	1.000	0.2458	-0.2458
Op-2-08	-0.023	0.3458	-0.07	.9467	0.5489	-0.5952
Op-1-09	-0.000	0.1740	-0.00	1.000	0.2879	-0.2879
Op-2-09	-0.000	0.3458	-0.00	1.000	0.5721	-0.5721
Op-1-10	-0.443	0.1516	-2.92	.0040	-0.1925	-0.6942
Op-2-10	-1.238	0.3458	-3.58	.0005	-0.6664	-1.8105
Op-1-12	0.000	0.1486	0.00	1.000	0.2458	-0.2458
Op-2-12	-0.000	0.3458	-0.00	1.000	0.5721	-0.5721

Paired comparisons of least square means between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period	0.1161	0.1496	0.776	.4389	0.3635	-0.1314

Paired comparisons of least square means among stations between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Station 04	-0.0174	0.4745	-0.04	.9709	0.7677	-0.8024
Station 05	0.0116	0.3917	0.03	.9765	0.6596	-0.6365
Station 06	0.0000	0.3764	0.00	1.000	0.6226	-0.6226
Station 08	0.0231	0.3764	0.06	.9510	0.6458	-0.5995
Station 09	0.0000	0.3871	0.00	1.000	0.6404	-0.6404
Station 10	0.7950	0.3776	2.11	.0368	1.4197	0.1704
Station 12	0.0000	0.3764	0.00	1.000	0.6226	-0.6226

Station-period means and deltas from original data where control n=2

Station-Period	N	Station Mean	Range	Standard Error	Upper 95% c.i.	Lower 95% c.i.	Mean Delta	Delta Range	Upper 95% CIi.	Lower 95% C.I.
04 Op-1	17	0.02	0.28	0.016	0.05	-0.02	-0.02	0.28	0.02	-0.05
04 Op-2	4	0.00	0.00	0.000	.	.	0.00	0.00	.	.
05 Op-1	17	0.00	0.00	0.000	.	.	0.00	0.00	.	.
05 Op-2	5	0.01	0.07	0.014	0.05	-0.02	-0.01	0.07	0.02	-0.05
06 Op-1	26	0.00	0.00	0.000	.	.	0.00	0.00	.	.
06 Op-2	5	0.00	0.00	0.000	.	.	0.00	0.00	.	.
08 Op-1	26	0.00	0.00	0.000	.	.	0.00	0.00	.	.
08 Op-2	5	0.03	0.14	0.028	0.10	-0.05	-0.03	0.14	0.05	-0.10
09 Op-1	19	0.00	0.00	0.000	.	.	0.00	0.00	.	.
09 Op-2	5	0.00	0.00	0.000	.	.	0.00	0.00	.	.
10 Op-1	25	0.46	8.54	0.352	1.19	-0.27	-0.46	8.54	0.27	-1.19
10 Op-2	5	1.49	6.39	1.242	4.93	-1.96	-1.49	6.39	1.96	-4.93
12 Op-1	26	0.00	0.00	0.000	.	.	0.00	0.00	.	.
12 Op-2	5	0.00	0.00	0.000	.	.	0.00	0.00	.	.

Period means and deltas from original control data where n=2

Period	N	Station Mean	Range	Standard Error	Upper 95% C.I.	Lower 95% C.I.
Op-1	26	0.00	0.00	0.000	.	.
Op-2	5	0.00	0.00	0.000	.	.

Analysis of Variance for HBT for 0033 - Hesperophycus californicus
Stations = 4, 5, 6, 8, 9, 10, 12 level +3 ft MLLW

Data transformed using log base10(x + .1)

Satterthwaite's Adjustment for Degrees of Freedom used in Analysis of Variance.

Results for Analysis of Variance

Source	Source df	Error df	F-value	Prob.
PERIOD	1	162.000	0.66	0.4163
SEASON	1	162.000	0.00	0.9719
STATION	6	162.000	12.64	0.0000
PERIOD*SEASON	1	162.000	0.00	0.9842
STATION*PERIOD	6	162.000	1.69	0.1266
STATION*SEASON	6	162.000	0.33	0.9218
PERIOD*STATION*SEASON	6	162.000	0.17	0.9833

Results for Power Analysis
Power at alpha = .1

Source	Non-Centrality Parameter	Adjusted non-Centrality Parameter	Power	Adjusted Power	Power to Detect 50% Change
PERIOD	0.66	0.00	0.2093	.	0.2615
STATION*PERIOD	10.14	4.01	0.7463	0.3802	0.2434

Estimates for contrasts on combinations of interaction terms

Source	Difference	Std. Err.	T-value	Prob.
Period in DC	-0.0000	0.1694	-0.000	1.000
Period in FC	0.1905	0.1611	1.183	.2386
Period in FC-S	0.1859	0.1948	0.954	.3416
Period in FC-W	0.1951	0.2565	0.761	.4479
Period in DC-S	-0.0000	0.2189	-0.000	1.000
Period in DC-W	-0.0000	0.2586	-0.000	1.000

Least square means & confidence intervals from analysis of variance

Source	LS Mean	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period Op-1	-0.061	0.0138	-4.41	.0000	-0.0381	-0.0837
Period Op-2	-0.088	0.0304	-2.90	.0043	-0.0378	-0.1384
Op-1-04	-0.130	0.0411	-3.16	.0019	-0.0619	-0.1978
Op-2-04	-0.000	0.0977	-0.00	1.000	0.1616	-0.1616
Op-1-05	-0.288	0.0411	-7.00	.0000	-0.2195	-0.3555
Op-2-05	-0.554	0.0772	-7.17	.0000	-0.4259	-0.6814
Op-1-06	-0.009	0.0332	-0.27	.7909	0.0461	-0.0637
Op-2-06	-0.063	0.0772	-0.82	.4155	0.0647	-0.1908
Op-1-08	-0.000	0.0332	-0.00	1.000	0.0549	-0.0549
Op-2-08	0.000	0.0772	0.00	1.000	0.1277	-0.1277
Op-1-09	-0.000	0.0389	-0.00	1.000	0.0643	-0.0643
Op-2-09	0.000	0.0772	0.00	1.000	0.1277	-0.1277
Op-1-10	0.000	0.0339	0.00	1.000	0.0560	-0.0560
Op-2-10	-0.000	0.0772	-0.00	1.000	0.1277	-0.1277
Op-1-12	-0.000	0.0332	-0.00	1.000	0.0549	-0.0549
Op-2-12	0.000	0.0772	0.00	1.000	0.1277	-0.1277

Paired comparisons of least square means between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period	0.0272	0.0334	0.815	.4163	0.0825	-0.0280

Paired comparisons of least square means among stations between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Station 04	-0.1299	0.1060	-1.23	.2221	0.0454	-0.3051
Station 05	0.2661	0.0875	3.04	.0027	0.4108	0.1214
Station 06	0.0542	0.0840	0.65	.5197	0.1932	-0.0848
Station 08	-0.0000	0.0840	-0.00	1.000	0.1390	-0.1390
Station 09	-0.0000	0.0864	-0.00	1.000	0.1430	-0.1430
Station 10	0.0000	0.0843	0.00	1.000	0.1395	-0.1395
Station 12	-0.0000	0.0840	-0.00	1.000	0.1390	-0.1390

Station-period means and deltas from original data where control n=2

Station-Period	N	Station Mean	Range	Standard Error	Upper 95% c.i.	Lower 95% c.i.	Mean Delta	Delta Range	Upper 95% CIi.	Lower 95% C.I.
04 Op-1	17	0.05	0.21	0.020	0.09	0.01	-0.05	0.21	-0.01	-0.09
04 Op-2	4	0.00	0.00	0.000	.	.	0.00	0.00	.	.
05 Op-1	17	0.22	1.04	0.083	0.39	0.04	-0.22	1.04	-0.04	-0.39
05 Op-2	5	0.51	1.60	0.299	1.34	-0.32	-0.51	1.60	0.32	-1.34
06 Op-1	26	0.00	0.07	0.003	0.01	-0.00	-0.00	0.07	0.00	-0.01
06 Op-2	5	0.03	0.14	0.028	0.10	-0.05	-0.03	0.14	0.05	-0.10
08 Op-1	26	0.00	0.00	0.000	.	.	0.00	0.00	.	.
08 Op-2	5	0.00	0.00	0.000	.	.	0.00	0.00	.	.
09 Op-1	19	0.00	0.00	0.000	.	.	0.00	0.00	.	.
09 Op-2	5	0.00	0.00	0.000	.	.	0.00	0.00	.	.
10 Op-1	25	0.00	0.00	0.000	.	.	0.00	0.00	.	.
10 Op-2	5	0.00	0.00	0.000	.	.	0.00	0.00	.	.
12 Op-1	26	0.00	0.00	0.000	.	.	0.00	0.00	.	.
12 Op-2	5	0.00	0.00	0.000	.	.	0.00	0.00	.	.

Period means and deltas from original control data where n=2

Period	N	Station Mean	Range	Standard Error	Upper 95% C.I.	Lower 95% C.I.
Op-1	26	0.00	0.00	0.000	.	.
Op-2	5	0.00	0.00	0.000	.	.

Analysis of Variance for HBT for 0167 - juv. articulated coralline algae

Stations = 4, 5, 6, 8, 9, 10, 12 level +3 ft MLLW

Data transformed using arcsin.

Results for Analysis of Variance

Source	Source df	Error df	F-value	Prob.
PERIOD	1	162.000	3.65	0.0579
SEASON	1	162.000	3.34	0.0693
STATION	6	162.000	8.08	0.0000
PERIOD*SEASON	1	162.000	2.65	0.1052
STATION*PERIOD	6	162.000	0.50	0.8063
STATION*SEASON	6	162.000	2.88	0.0108
PERIOD*STATION*SEASON	6	162.000	0.80	0.5689

Results for Power Analysis
Power at alpha = .1

Source	Non-Centrality Parameter	Adjusted non-Centrality Parameter	Power	Adjusted Power	Power to Detect 50% Change
PERIOD	3.65	2.60	0.6016	0.4852	0.5396
STATION*PERIOD	3.01	0.00	0.3069	.	0.2706

Estimates for contrasts on combinations of interaction terms

Source	Difference	Std. Err.	T-value	Prob.
Period in DC	-1.3026	1.2140	-1.073	.2849
Period in FC	-1.8962	1.1541	-1.643	.1023
Period in FC-S	-3.3973	1.3963	-2.433	.0161
Period in FC-W	-0.3951	1.8379	-0.215	.8301
Period in DC-S	-2.5303	1.5688	-1.613	.1087
Period in DC-W	-0.0749	1.8531	-0.040	.9678

Least square means & confidence intervals from analysis of variance

Source	LS Mean	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period Op-1	-0.127	0.0989	-1.29	.2005	0.0365	-0.2908
Period Op-2	0.330	0.2179	1.51	.1320	0.6903	-0.0306
Op-1-04	-1.607	0.2945	-5.46	.0000	-1.1196	-2.0940
Op-2-04	-0.774	0.6998	-1.11	.2702	0.3835	-1.9319
Op-1-05	0.396	0.2945	1.35	.1803	0.8834	-0.0909
Op-2-05	1.031	0.5533	1.86	.0642	1.9462	0.1157
Op-1-06	0.246	0.2377	1.04	.3019	0.6395	-0.1470
Op-2-06	0.675	0.5533	1.22	.2242	1.5903	-0.2402
Op-1-08	-0.215	0.2377	-0.91	.3665	0.1780	-0.6085
Op-2-08	-0.480	0.5533	-0.87	.3865	0.4349	-1.3956
Op-1-09	-0.942	0.2785	-3.38	.0009	-0.4818	-1.4031
Op-2-09	-0.960	0.5533	-1.73	.0847	-0.0445	-1.8750
Op-1-10	0.521	0.2426	2.15	.0332	0.9225	0.1198
Op-2-10	1.409	0.5533	2.55	.0118	2.3238	0.4933
Op-1-12	0.711	0.2377	2.99	.0032	1.1041	0.3176
Op-2-12	1.409	0.5533	2.55	.0118	2.3238	0.4933

Paired comparisons of least square means between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period	-0.4570	0.2393	-1.910	.0579	-0.0611	-0.8528

Paired comparisons of least square means among stations between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Station 04	-0.8326	0.7593	-1.10	.2744	0.4234	-2.0886
Station 05	-0.6348	0.6267	-1.01	.3127	0.4021	-1.6716
Station 06	-0.4288	0.6022	-0.71	.4774	0.5673	-1.4250
Station 08	0.2651	0.6022	0.44	.6603	1.2613	-0.7310
Station 09	0.0172	0.6194	0.03	.9778	1.0419	-1.0074
Station 10	-0.8873	0.6041	-1.47	.1438	0.1121	-1.8867
Station 12	-0.6976	0.6022	-1.16	.2483	0.2985	-1.6938

Station-period means and deltas from original data where control n=2

Station-Period	N	Station Mean	Range	Standard Error	Upper 95% c.i.	Lower 95% c.i.	Mean Delta	Delta Range	Upper 95% CIi.	Lower 95% C.I.
04 Op-1	17	0.24	1.18	0.068	0.38	0.09	-0.19	1.39	-0.04	-0.34
04 Op-2	4	0.10	0.21	0.045	0.25	-0.04	-0.04	0.31	0.17	-0.25
05 Op-1	17	0.02	0.14	0.009	0.04	-0.00	0.03	0.42	0.08	-0.02
05 Op-2	5	0.01	0.07	0.014	0.05	-0.02	0.06	0.17	0.16	-0.04
06 Op-1	26	0.03	0.28	0.012	0.05	0.00	0.01	0.49	0.04	-0.02
06 Op-2	5	0.04	0.14	0.028	0.12	-0.04	0.03	0.21	0.13	-0.06
08 Op-1	26	0.10	0.90	0.042	0.18	0.01	-0.06	0.69	0.01	-0.13
08 Op-2	5	0.18	0.62	0.123	0.52	-0.16	-0.10	0.62	0.22	-0.42
09 Op-1	19	0.20	0.90	0.064	0.33	0.06	-0.15	0.94	-0.03	-0.27
09 Op-2	5	0.19	0.42	0.074	0.40	-0.01	-0.12	0.28	0.05	-0.28
10 Op-1	25	0.01	0.07	0.005	0.02	-0.00	0.03	0.42	0.06	-0.00
10 Op-2	5	0.00	0.00	0.000	.	.	0.08	0.14	0.15	-0.00
12 Op-1	26	0.00	0.00	0.000	.	.	0.04	0.35	0.07	0.01
12 Op-2	5	0.00	0.00	0.000	.	.	0.08	0.14	0.15	-0.00

Period means and deltas from original control data where n=2

Period	N	Station Mean	Range	Standard Error	Upper 95% C.I.	Lower 95% C.I.
Op-1	26	0.04	0.35	0.014	0.07	0.01
Op-2	5	0.08	0.14	0.028	0.15	-0.00

Analysis of Variance for HBT for 0076 - Mastocarpus jardinii

Stations = 4, 5, 6, 8, 9, 10, 12 level +3 ft MLLW

Data transformed using arcsin.

Results for Analysis of Variance

Source	Source df	Error df	F-value	Prob.
PERIOD	1	162.000	5.01	0.0266
SEASON	1	162.000	1.94	0.1660
STATION	6	162.000	2.47	0.0257
PERIOD*SEASON	1	162.000	2.69	0.1027
STATION*PERIOD	6	162.000	0.48	0.8249
STATION*SEASON	6	162.000	0.30	0.9351
PERIOD*STATION*SEASON	6	162.000	0.08	0.9981

Results for Power Analysis
Power at alpha = .1

Source	Non-Centrality Parameter	Adjusted non-Centrality Parameter	Power	Adjusted Power	Power to Detect 50% Change
PERIOD	5.01	3.95	0.7204	0.6308	0.1636
STATION*PERIOD	2.86	0.00	0.2959	.	0.1225

Estimates for contrasts on combinations of interaction terms

Source	Difference	Std. Err.	T-value	Prob.
Period in DC	-3.5953	1.4615	-2.460	.0149
Period in FC	-0.9177	1.3893	-0.661	.5099
Period in FC-S	-1.8165	1.6809	-1.081	.2815
Period in FC-W	-0.0189	2.2126	-0.009	.9932
Period in DC-S	-6.0060	1.8886	-3.180	.0018
Period in DC-W	-1.1845	2.2308	-0.531	.5962

Least square means & confidence intervals from analysis of variance

Source	LS Mean	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period Op-1	6.333	0.1191	53.19	.0000	6.5304	6.1364
Period Op-2	6.978	0.2623	26.60	.0000	7.4121	6.5442
Op-1-04	6.683	0.3545	18.85	.0000	7.2691	6.0961
Op-2-04	7.565	0.8425	8.98	.0000	8.9587	6.1713
Op-1-05	6.888	0.3545	19.43	.0000	7.4747	6.3017
Op-2-05	7.311	0.6660	10.98	.0000	8.4124	6.2087
Op-1-06	5.650	0.2862	19.74	.0000	6.1236	5.1768
Op-2-06	5.263	0.6660	7.90	.0000	6.3649	4.1613
Op-1-08	6.500	0.2862	22.71	.0000	6.9731	6.0263
Op-2-08	7.311	0.6660	10.98	.0000	8.4124	6.2087
Op-1-09	6.115	0.3352	18.24	.0000	6.6701	5.5609
Op-2-09	7.311	0.6660	10.98	.0000	8.4124	6.2087
Op-1-10	5.998	0.2921	20.54	.0000	6.4812	5.5149
Op-2-10	6.777	0.6660	10.17	.0000	7.8784	5.6748
Op-1-12	6.500	0.2862	22.71	.0000	6.9731	6.0263
Op-2-12	7.311	0.6660	10.98	.0000	8.4124	6.2087

Paired comparisons of least square means between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period	-0.6447	0.2881	-2.238	.0266	-0.1682	-1.1213

Paired comparisons of least square means among stations between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Station 04	-0.8824	0.9140	-0.97	.3358	0.6297	-2.3945
Station 05	-0.4224	0.7545	-0.56	.5764	0.8258	-1.6706
Station 06	0.3871	0.7249	0.53	.5941	1.5863	-0.8121
Station 08	-0.8108	0.7249	-1.12	.2650	0.3884	-2.0101
Station 09	-1.1951	0.7456	-1.60	.1109	0.0385	-2.4286
Station 10	-0.7786	0.7273	-1.07	.2860	0.4246	-1.9817
Station 12	-0.8108	0.7249	-1.12	.2650	0.3884	-2.0101

Station-period means and deltas from original data where control n=2

Station-Period		N	Station Mean	Range	Standard Error	Upper 95% c.i.	Lower 95% c.i.	Mean Delta	Delta Range	Upper 95% CIi.	Lower 95% C.I.
04	Op-1	17	0.02	0.42	0.025	0.08	-0.03	1.49	1.87	1.78	1.19
04	Op-2	4	0.00	0.00	0.000	.	.	1.67	0.31	1.90	1.43
05	Op-1	17	0.00	0.00	0.000	.	.	1.51	1.87	1.82	1.20
05	Op-2	5	0.00	0.00	0.000	.	.	1.62	0.45	1.83	1.41
06	Op-1	26	0.06	0.35	0.017	0.09	0.02	1.30	2.12	1.54	1.07
06	Op-2	5	0.15	0.28	0.046	0.28	0.02	1.47	0.38	1.70	1.23
08	Op-1	26	0.00	0.07	0.003	0.01	-0.00	1.36	2.12	1.59	1.13
08	Op-2	5	0.00	0.00	0.000	.	.	1.62	0.45	1.83	1.41
09	Op-1	19	0.06	0.42	0.028	0.12	-0.00	1.41	1.94	1.70	1.11
09	Op-2	5	0.00	0.00	0.000	.	.	1.62	0.45	1.83	1.41
10	Op-1	25	0.04	0.42	0.020	0.09	0.00	1.32	2.12	1.55	1.08
10	Op-2	5	0.03	0.14	0.028	0.10	-0.05	1.59	0.31	1.74	1.44
12	Op-1	26	0.00	0.07	0.003	0.01	-0.00	1.36	2.12	1.59	1.13
12	Op-2	5	0.00	0.00	0.000	.	.	1.62	0.45	1.83	1.41

Period means and deltas from original control data where n=2

Period	N	Station Mean	Range	Standard Error	Upper 95% C.I.	Lower 95% C.I.
Op-1	26	1.36	2.12	0.113	1.60	1.13
Op-2	5	1.62	0.45	0.075	1.83	1.41

Analysis of Variance for HBT for 0082 - Mastocarpus papillatus

Stations = 4, 5, 6, 8, 9, 10, 12 level +3 ft MLLW

Data transformed using arcsin.

Results for Analysis of Variance

Source	Source df	Error df	F-value	Prob.
PERIOD	1	162.000	1.98	0.1615
SEASON	1	162.000	10.11	0.0018
STATION	6	162.000	32.60	0.0000
PERIOD*SEASON	1	162.000	1.20	0.2749
STATION*PERIOD	6	162.000	5.53	0.0000
STATION*SEASON	6	162.000	2.13	0.0527
PERIOD*STATION*SEASON	6	162.000	1.09	0.3696

Results for Power Analysis
Power at alpha = .1

Source	Non-Centrality Parameter	Adjusted non-Centrality Parameter	Power	Adjusted Power	Power to Detect 50% Change
PERIOD	1.98	0.95	0.4047	0.2551	1.0000
STATION*PERIOD	33.16	26.75	0.9986	0.9927	0.8841

Estimates for contrasts on combinations of interaction terms

Source	Difference	Std. Err.	T-value	Prob.
Period in DC	-18.7085	5.7541	-3.251	.0014
Period in FC	7.5422	5.4701	1.379	.1699
Period in FC-S	6.7643	6.6180	1.022	.3083
Period in FC-W	8.3202	8.7114	0.955	.3410
Period in DC-S	-26.6280	7.4360	-3.581	.0005
Period in DC-W	-10.7891	8.7831	-1.228	.2211

Least square means & confidence intervals from analysis of variance

Source	LS Mean	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period Op-1	8.110	0.4688	17.30	.0000	8.8855	7.3344
Period Op-2	9.705	1.0327	9.40	.0000	11.4136	7.9966
Op-1-04	8.344	1.3958	5.98	.0000	10.6533	6.0350
Op-2-04	3.858	3.3170	1.16	.2465	9.3451	-1.6295
Op-1-05	10.667	1.3958	7.64	.0000	12.9760	8.3577
Op-2-05	8.832	2.6223	3.37	.0009	13.1705	4.4942
Op-1-06	-7.236	1.1267	-6.42	.0000	-5.3720	-9.0999
Op-2-06	-8.457	2.6223	-3.23	.0015	-4.1191	-12.7954
Op-1-08	15.828	1.1267	14.05	.0000	17.6924	13.9645
Op-2-08	15.025	2.6223	5.73	.0000	19.3635	10.6873
Op-1-09	12.358	1.3199	9.36	.0000	14.5418	10.1749
Op-2-09	21.499	2.6223	8.20	.0000	25.8374	17.1611
Op-1-10	4.016	1.1500	3.49	.0006	5.9184	2.1136
Op-2-10	17.695	2.6223	6.75	.0000	22.0335	13.3573
Op-1-12	12.791	1.1267	11.35	.0000	14.6554	10.9275
Op-2-12	9.483	2.6223	3.62	.0004	13.8210	5.1447

Paired comparisons of least square means between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period	-1.5952	1.1342	-1.406	.1615	0.2811	-3.4715

Paired comparisons of least square means among stations between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Station 04	4.4864	3.5987	1.25	.2143	10.4398	-1.4670
Station 05	1.8345	2.9707	0.62	.5377	6.7489	-3.0799
Station 06	1.2213	2.8541	0.43	.6693	5.9429	-3.5003
Station 08	0.8031	2.8541	0.28	.7788	5.5247	-3.9185
Station 09	-9.1409	2.9357	-3.11	.0022	-4.2843	-13.9975
Station 10	-13.6793	2.8634	-4.78	.0000	-8.9424	-18.4163
Station 12	3.3086	2.8541	1.16	.2481	8.0302	-1.4130

Station-period means and deltas from original data where control n=2

Station-Period	N	Station Mean	Range	Standard Error	Upper 95% c.i.	Lower 95% c.i.	Mean Delta	Delta Range	Upper 95% CIi.	Lower 95% C.I.
04 Op-1	17	9.49	15.21	1.192	12.02	6.97	9.90	21.35	12.84	6.97
04 Op-2	4	20.52	13.68	3.178	30.63	10.41	8.42	12.92	17.49	-0.65
05 Op-1	17	7.26	16.18	1.005	9.39	5.13	12.13	19.62	14.88	9.39
05 Op-2	5	14.49	18.33	3.666	24.67	4.31	12.00	10.66	17.57	6.43
06 Op-1	26	29.08	43.82	2.446	34.12	24.04	-10.74	25.76	-7.75	-13.73
06 Op-2	5	40.46	32.99	6.790	59.31	21.61	-13.97	13.26	-7.39	-20.55
08 Op-1	26	3.15	10.62	0.621	4.43	1.87	15.19	33.99	17.95	12.42
08 Op-2	5	8.08	13.06	2.638	15.41	0.76	18.40	14.97	26.06	10.74
09 Op-1	19	5.75	12.15	0.824	7.48	4.02	13.27	39.06	16.99	9.55
09 Op-2	5	2.10	4.65	0.900	4.60	-0.40	24.39	24.34	38.47	10.31
10 Op-1	25	15.32	42.57	2.234	19.93	10.71	3.50	58.65	8.10	-1.10
10 Op-2	5	5.15	12.29	2.112	11.02	-0.71	21.33	21.49	32.68	9.98
12 Op-1	26	5.64	22.64	1.063	7.83	3.45	12.69	33.09	15.90	9.49
12 Op-2	5	12.60	18.61	3.464	22.21	2.98	13.89	24.17	27.22	0.55

Period means and deltas from original control data where n=2

Period	N	Station Mean	Range	Standard Error	Upper 95% C.I.	Lower 95% C.I.
Op-1	26	18.34	34.34	1.487	21.40	15.28
Op-2	5	26.49	24.06	4.981	40.31	12.66

Analysis of Variance for HBT for 0102 - Mazzaella affinis

Stations = 4, 5, 6, 8, 9, 10, 12 level +3 ft MLLW

Data transformed using arcsin.

Results for Analysis of Variance

Source	Source df	Error df	F-value	Prob.
PERIOD	1	162.000	2.48	0.1175
SEASON	1	162.000	26.00	0.0000
STATION	6	162.000	11.57	0.0000
PERIOD*SEASON	1	162.000	3.54	0.0619
STATION*PERIOD	6	162.000	1.67	0.1310
STATION*SEASON	6	162.000	2.21	0.0445
PERIOD*STATION*SEASON	6	162.000	0.68	0.6672

Results for Power Analysis
Power at alpha = .1

Source	Non-Centrality Parameter	Adjusted non-Centrality Parameter	Power	Adjusted Power	Power to Detect 50% Change
PERIOD	2.48	1.45	0.4698	0.3296	0.5796
STATION*PERIOD	10.03	3.91	0.7416	0.3725	0.3082

Estimates for contrasts on combinations of interaction terms

Source	Difference	Std. Err.	T-value	Prob.
Period in DC	4.8136	2.3841	2.019	.0451
Period in FC	0.3638	2.2664	0.161	.8727
Period in FC-S	2.0400	2.7420	0.744	.4580
Period in FC-W	-1.3125	3.6094	-0.364	.7166
Period in DC-S	9.3220	3.0809	3.026	.0029
Period in DC-W	0.3051	3.6391	0.084	.9333

Least square means & confidence intervals from analysis of variance

Source	LS Mean	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period Op-1	1.929	0.1942	9.93	.0000	2.2502	1.6075
Period Op-2	1.189	0.4279	2.78	.0061	1.8971	0.4814
Op-1-04	3.705	0.5783	6.41	.0000	4.6613	2.7478
Op-2-04	3.506	1.3743	2.55	.0117	5.7793	1.2322
Op-1-05	3.799	0.5783	6.57	.0000	4.7557	2.8422
Op-2-05	3.605	1.0865	3.32	.0011	5.4027	1.8079
Op-1-06	1.503	0.4668	3.22	.0015	2.2754	0.7309
Op-2-06	1.532	1.0865	1.41	.1605	3.3292	-0.2657
Op-1-08	1.678	0.4668	3.59	.0004	2.4500	0.9054
Op-2-08	-0.955	1.0865	-0.88	.3808	0.8425	-2.7523
Op-1-09	-0.876	0.5469	-1.60	.1113	0.0290	-1.7804
Op-2-09	0.140	1.0865	0.13	.8974	1.9377	-1.6571
Op-1-10	0.185	0.4765	0.39	.6986	0.9730	-0.6034
Op-2-10	-3.004	1.0865	-2.77	.0063	-1.2071	-4.8019
Op-1-12	3.509	0.4668	7.52	.0000	4.2810	2.7364
Op-2-12	3.501	1.0865	3.22	.0015	5.2984	1.7036

Paired comparisons of least square means between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period	0.7396	0.4699	1.574	.1175	1.5170	-0.0378

Paired comparisons of least square means among stations between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Station 04	0.1988	1.4910	0.13	.8941	2.6654	-2.2679
Station 05	0.1936	1.2308	0.16	.8752	2.2298	-1.8426
Station 06	-0.0286	1.1825	-0.02	.9807	1.9277	-1.9849
Station 08	2.6325	1.1825	2.23	.0274	4.5888	0.6763
Station 09	-1.0159	1.2164	-0.84	.4048	0.9963	-3.0282
Station 10	3.1893	1.1864	2.69	.0079	5.1519	1.2266
Station 12	0.0077	1.1825	0.01	.9948	1.9640	-1.9486

Station-period means and deltas from original data where control n=2

Station-Period	N	Station Mean	Range	Standard Error	Upper 95% c.i.	Lower 95% c.i.	Mean Delta	Delta Range	Upper 95% CIi.	Lower 95% C.I.
04 Op-1	17	0.00	0.07	0.004	0.01	-0.00	0.56	1.87	0.81	0.31
04 Op-2	4	0.10	0.28	0.066	0.32	-0.11	0.39	0.62	0.86	-0.08
05 Op-1	17	0.00	0.00	0.000	.	.	0.57	1.81	0.82	0.32
05 Op-2	5	0.01	0.07	0.014	0.05	-0.02	0.44	0.59	0.75	0.13
06 Op-1	26	0.24	1.46	0.071	0.39	0.10	0.24	2.36	0.44	0.04
06 Op-2	5	0.31	0.76	0.162	0.76	-0.14	0.15	0.56	0.43	-0.12
08 Op-1	26	0.57	5.28	0.288	1.16	-0.02	-0.09	5.73	0.45	-0.64
08 Op-2	5	1.00	2.36	0.415	2.15	-0.15	-0.54	2.64	0.73	-1.81
09 Op-1	19	0.89	2.71	0.223	1.36	0.42	-0.37	2.88	0.04	-0.77
09 Op-2	5	0.75	2.29	0.425	1.93	-0.43	-0.29	2.29	0.86	-1.45
10 Op-1	25	0.64	3.40	0.183	1.02	0.26	-0.15	3.30	0.17	-0.46
10 Op-2	5	2.15	3.68	0.776	4.31	-0.00	-1.69	4.27	0.64	-4.03
12 Op-1	26	0.00	0.07	0.003	0.01	-0.00	0.48	1.81	0.65	0.30
12 Op-2	5	0.03	0.14	0.028	0.10	-0.05	0.43	0.59	0.72	0.14

Period means and deltas from original control data where n=2

Period	N	Station Mean	Range	Standard Error	Upper 95% C.I.	Lower 95% C.I.
Op-1	26	0.48	1.81	0.084	0.65	0.31
Op-2	5	0.46	0.59	0.107	0.76	0.16

Analysis of Variance for HBT for 1324 - Mazzaella flaccida

Stations = 4, 5, 6, 8, 9, 10, 12 level +3 ft MLLW

Data not transformed.

Results for Analysis of Variance

Source	Source df	Error df	F-value	Prob.
PERIOD	1	162.000	0.78	0.3771
SEASON	1	162.000	22.89	0.0000
STATION	6	162.000	5.46	0.0000
PERIOD*SEASON	1	162.000	2.35	0.1269
STATION*PERIOD	6	162.000	0.43	0.8570
STATION*SEASON	6	162.000	1.25	0.2857
PERIOD*STATION*SEASON	6	162.000	0.31	0.9301

Results for Power Analysis
Power at alpha = .1

Source	Non-Centrality Parameter	Adjusted non-Centrality Parameter	Power	Adjusted Power	Power to Detect 50% Change
PERIOD	0.78	0.00	0.2285	.	0.2780
STATION*PERIOD	2.59	0.00	0.2760	.	0.3608

Estimates for contrasts on combinations of interaction terms

Source	Difference	Std. Err.	T-value	Prob.
Period in DC	-5.6960	3.2926	-1.730	.0855
Period in FC	1.6722	3.1301	0.534	.5939
Period in FC-S	1.2222	3.7870	0.323	.7473
Period in FC-W	2.1222	4.9848	0.426	.6709
Period in DC-S	-12.2160	4.2550	-2.871	.0046
Period in DC-W	0.8239	5.0259	0.164	.8700

Least square means & confidence intervals from analysis of variance

Source	LS Mean	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period Op-1	8.073	0.2683	30.09	.0000	8.5164	7.6289
Period Op-2	8.647	0.5910	14.63	.0000	9.6251	7.6699
Op-1-04	7.982	0.7987	9.99	.0000	9.3029	6.6602
Op-2-04	7.465	1.8980	3.93	.0001	10.6052	4.3253
Op-1-05	8.896	0.7987	11.14	.0000	10.2172	7.5745
Op-2-05	8.264	1.5005	5.51	.0000	10.7462	5.7815
Op-1-06	4.563	0.6447	7.08	.0000	5.6299	3.4967
Op-2-06	4.039	1.5005	2.69	.0079	6.5217	1.5570
Op-1-08	8.498	0.6447	13.18	.0000	9.5642	7.4310
Op-2-08	10.191	1.5005	6.79	.0000	12.6733	7.7086
Op-1-09	9.525	0.7553	12.61	.0000	10.7743	8.2755
Op-2-09	10.191	1.5005	6.79	.0000	12.6733	7.7086
Op-1-10	8.545	0.6580	12.99	.0000	9.6337	7.4565
Op-2-10	10.191	1.5005	6.79	.0000	12.6733	7.7086
Op-1-12	8.500	0.6447	13.18	.0000	9.5669	7.4337
Op-2-12	10.191	1.5005	6.79	.0000	12.6733	7.7086

Paired comparisons of least square means between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period	-0.5748	0.6490	-0.886	.3771	0.4988	-1.6485

Paired comparisons of least square means among stations between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Station 04	0.5163	2.0593	0.25	.8024	3.9229	-2.8904
Station 05	0.6320	1.6999	0.37	.7105	3.4441	-2.1801
Station 06	0.5239	1.6332	0.32	.7488	3.2257	-2.1778
Station 08	-1.6934	1.6332	-1.04	.3013	1.0084	-4.3952
Station 09	-0.6661	1.6799	-0.40	.6923	2.1130	-3.4451
Station 10	-1.6459	1.6385	-1.00	.3166	1.0647	-4.3564
Station 12	-1.6907	1.6332	-1.04	.3021	1.0111	-4.3925

Station-period means and deltas from original data where control n=2

Station-Period		N	Station Mean	Range	Standard Error	Upper 95% c.i.	Lower 95% c.i.	Mean Delta	Delta Range	Upper 95% CII.	Lower 95% C.I.
04	Op-1	17	1.22	5.56	0.433	2.14	0.30	7.94	8.19	9.19	6.70
04	Op-2	4	5.05	4.86	1.083	8.50	1.61	7.31	7.12	12.57	2.05
05	Op-1	17	0.35	1.11	0.094	0.55	0.15	8.82	12.43	10.43	7.20
05	Op-2	5	2.24	6.04	1.071	5.21	-0.74	8.57	10.45	14.34	2.80
06	Op-1	26	3.94	10.83	0.623	5.22	2.65	4.56	8.51	5.51	3.62
06	Op-2	5	6.60	9.10	1.479	10.70	2.49	4.21	4.48	6.49	1.93
08	Op-1	26	0.00	0.07	0.003	0.01	-0.00	8.50	15.35	10.05	6.95
08	Op-2	5	0.00	0.00	0.000	.	.	10.81	10.94	16.45	5.16
09	Op-1	19	0.00	0.07	0.004	0.01	-0.00	9.43	13.47	11.19	7.66
09	Op-2	5	0.00	0.00	0.000	.	.	10.81	10.94	16.45	5.16
10	Op-1	25	0.00	0.00	0.000	.	.	8.60	15.35	10.20	6.99
10	Op-2	5	0.00	0.00	0.000	.	.	10.81	10.94	16.45	5.16
12	Op-1	26	0.00	0.00	0.000	.	.	8.50	15.35	10.05	6.95
12	Op-2	5	0.00	0.00	0.000	.	.	10.81	10.94	16.45	5.16

Period means and deltas from original control data where n=2

Period	N	Station Mean	Range	Standard Error	Upper 95% C.I.	Lower 95% C.I.
Op-1	26	8.50	15.35	0.752	10.05	6.95
Op-2	5	10.81	10.94	2.033	16.45	5.16

Analysis of Variance for HBT for 0090 - Mazzaella heterocarpa

Stations = 4, 5, 6, 8, 9, 10, 12 level +3 ft MLLW

Data not transformed.

Results for Analysis of Variance

Source	Source df	Error df	F-value	Prob.
PERIOD	1	162.000	30.88	0.0000
SEASON	1	162.000	6.67	0.0107
STATION	6	162.000	3.39	0.0036
PERIOD*SEASON	1	162.000	7.76	0.0060
STATION*PERIOD	6	162.000	0.65	0.6910
STATION*SEASON	6	162.000	1.45	0.1987
PERIOD*STATION*SEASON	6	162.000	0.69	0.6619

Results for Power Analysis
Power at alpha = .1

Source	Non-Centrality Parameter	Adjusted non-Centrality Parameter	Power	Adjusted Power	Power to Detect 50% Change
PERIOD	30.88	29.50	0.9999	0.9999	0.3574
STATION*PERIOD	3.89	0.00	0.3715	.	0.2366

Estimates for contrasts on combinations of interaction terms

Source	Difference	Std. Err.	T-value	Prob.
Period in DC	1.0874	0.3301	3.294	.0012
Period in FC	1.4438	0.3138	4.601	.0000
Period in FC-S	1.2803	0.3797	3.372	.0009
Period in FC-W	1.6073	0.4998	3.216	.0016
Period in DC-S	-0.0178	0.4266	-0.042	.9668
Period in DC-W	2.1926	0.5039	4.351	.0000

Least square means & confidence intervals from analysis of variance

Source	LS Mean	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period Op-1	0.477	0.0269	17.75	.0000	0.5218	0.4328
Period Op-2	0.116	0.0592	1.95	.0525	0.2138	0.0177
Op-1-04	0.513	0.0801	6.41	.0000	0.6456	0.3806
Op-2-04	0.017	0.1903	0.09	.9274	0.3322	-0.2974
Op-1-05	0.484	0.0801	6.05	.0000	0.6167	0.3517
Op-2-05	0.067	0.1504	0.44	.6588	0.3154	-0.1823
Op-1-06	0.250	0.0646	3.86	.0002	0.3567	0.1428
Op-2-06	-0.281	0.1504	-1.87	.0639	-0.0318	-0.5296
Op-1-08	0.549	0.0646	8.49	.0000	0.6558	0.4419
Op-2-08	0.258	0.1504	1.71	.0889	0.5064	0.0086
Op-1-09	0.610	0.0757	8.06	.0000	0.7352	0.4847
Op-2-09	0.234	0.1504	1.56	.1212	0.4833	-0.0145
Op-1-10	0.392	0.0660	5.94	.0000	0.5011	0.2828
Op-2-10	0.258	0.1504	1.71	.0889	0.5064	0.0086
Op-1-12	0.544	0.0646	8.41	.0000	0.6505	0.4366
Op-2-12	0.258	0.1504	1.71	.0889	0.5064	0.0086

Paired comparisons of least square means between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period	0.3616	0.0651	5.557	.0000	0.4692	0.2540

Paired comparisons of least square means among stations between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Station 04	0.4958	0.2065	2.40	.0175	0.8373	0.1542
Station 05	0.4176	0.1704	2.45	.0153	0.6996	0.1357
Station 06	0.5304	0.1637	3.24	.0015	0.8013	0.2595
Station 08	0.2914	0.1637	1.78	.0771	0.5622	0.0205
Station 09	0.3756	0.1684	2.23	.0271	0.6542	0.0970
Station 10	0.1344	0.1643	0.82	.4143	0.4062	-0.1373
Station 12	0.2860	0.1637	1.75	.0826	0.5569	0.0151

Station-period means and deltas from original data where control n=2

Station	Period	N	Station Mean	Range	Standard Error	Upper 95% C.I.	Lower 95% C.I.	Mean Delta	Delta Range	Upper 95% CIi.	Lower 95% C.I.
04	Op-1	17	0.09	0.42	0.037	0.17	0.01	0.52	1.18	0.71	0.34
04	Op-2	4	0.45	0.69	0.157	0.95	-0.05	-0.10	0.49	0.27	-0.46
05	Op-1	17	0.11	0.49	0.041	0.20	0.03	0.50	1.22	0.69	0.30
05	Op-2	5	0.22	0.62	0.111	0.53	-0.09	0.06	0.59	0.34	-0.21
06	Op-1	26	0.30	0.97	0.062	0.43	0.17	0.25	1.60	0.41	0.09
06	Op-2	5	0.61	1.39	0.253	1.31	-0.09	-0.33	1.22	0.29	-0.94
08	Op-1	26	0.00	0.00	0.000	.	.	0.55	1.46	0.68	0.42
08	Op-2	5	0.00	0.00	0.000	.	.	0.28	0.45	0.50	0.07
09	Op-1	19	0.01	0.07	0.005	0.02	-0.00	0.62	1.22	0.77	0.46
09	Op-2	5	0.03	0.14	0.028	0.10	-0.05	0.26	0.38	0.45	0.07
10	Op-1	25	0.16	1.39	0.074	0.32	0.01	0.38	2.26	0.59	0.18
10	Op-2	5	0.00	0.00	0.000	.	.	0.28	0.45	0.50	0.07
12	Op-1	26	0.01	0.07	0.004	0.01	-0.00	0.54	1.46	0.68	0.41
12	Op-2	5	0.00	0.00	0.000	.	.	0.28	0.45	0.50	0.07

Period means and deltas from original control data where n=2

Period	N	Station Mean	Range	Standard Error	Upper 95% C.I.	Lower 95% C.I.
Op-1	26	0.55	1.46	0.065	0.68	0.42
Op-2	5	0.28	0.45	0.079	0.50	0.07

Analysis of Variance for HBT for 0081 - Mazzaella leptorhynchos

Stations = 4, 5, 6, 8, 9, 10, 12 level +3 ft MLLW

Data transformed using arcsin.

Results for Analysis of Variance

Source	Source df	Error df	F-value	Prob.
PERIOD	1	162.000	0.00	0.9876
SEASON	1	162.000	26.27	0.0000
STATION	6	162.000	11.11	0.0000
PERIOD*SEASON	1	162.000	0.23	0.6336
STATION*PERIOD	6	162.000	0.28	0.9477
STATION*SEASON	6	162.000	1.89	0.0860
PERIOD*STATION*SEASON	6	162.000	1.26	0.2803

Results for Power Analysis
Power at alpha = .1

Source	Non-Centrality Parameter	Adjusted non-Centrality Parameter	Power	Adjusted Power	Power to Detect 50% Change
PERIOD	0.00	0.00	0.1000	.	0.6672
STATION*PERIOD	1.65	0.00	0.2087	.	0.4010

Estimates for contrasts on combinations of interaction terms

Source	Difference	Std. Err.	T-value	Prob.
Period in DC	-0.6989	1.3108	-0.533	.5946
Period in FC	0.6708	1.2461	0.538	.5911
Period in FC-S	-0.3778	1.5076	-0.251	.8024
Period in FC-W	1.7194	1.9844	0.866	.3875
Period in DC-S	1.2133	1.6939	0.716	.4749
Period in DC-W	-2.6111	2.0008	-1.305	.1937

Least square means & confidence intervals from analysis of variance

Source	LS Mean	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period Op-1	-0.367	0.1068	-3.44	.0007	-0.1908	-0.5441
Period Op-2	-0.363	0.2353	-1.54	.1244	0.0258	-0.7526
Op-1-04	-0.911	0.3180	-2.86	.0047	-0.3847	-1.4367
Op-2-04	-1.432	0.7556	-1.89	.0599	-0.1817	-2.6817
Op-1-05	0.403	0.3180	1.27	.2069	0.9290	-0.1231
Op-2-05	0.597	0.5974	1.00	.3191	1.5852	-0.3912
Op-1-06	-0.499	0.2567	-1.94	.0537	-0.0742	-0.9234
Op-2-06	-0.843	0.5974	-1.41	.1603	0.1456	-1.8308
Op-1-08	-0.139	0.2567	-0.54	.5890	0.2857	-0.5635
Op-2-08	-0.136	0.5974	-0.23	.8196	0.8517	-1.1247
Op-1-09	0.331	0.3007	1.10	.2721	0.8287	-0.1660
Op-2-09	0.849	0.5974	1.42	.1573	1.8369	-0.1395
Op-1-10	-2.502	0.2620	-9.55	.0000	-2.0687	-2.9355
Op-2-10	-2.176	0.5974	-3.64	.0004	-1.1876	-3.1640
Op-1-12	0.744	0.2567	2.90	.0043	1.1688	0.3196
Op-2-12	0.597	0.5974	1.00	.3191	1.5852	-0.3912

Paired comparisons of least square means between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period	-0.0040	0.2584	-0.016	.9876	0.4234	-0.4314

Paired comparisons of least square means among stations between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Station 04	0.5210	0.8198	0.64	.5260	1.8772	-0.8352
Station 05	-0.1941	0.6767	-0.29	.7747	0.9254	-1.3135
Station 06	0.3438	0.6502	0.53	.5976	1.4194	-0.7317
Station 08	-0.0025	0.6502	-0.00	.9970	1.0731	-1.0780
Station 09	-0.5173	0.6688	-0.77	.4403	0.5890	-1.6237
Station 10	-0.3263	0.6523	-0.50	.6176	0.7528	-1.4054
Station 12	0.1472	0.6502	0.23	.8212	1.2228	-0.9284

Station-period means and deltas from original data where control n=2

Station	Period	N	Station Mean	Range	Standard Error	Upper 95% c.i.	Lower 95% c.i.	Mean Delta	Delta Range	Upper 95% CIi.	Lower 95% C.I.
04	Op-1	17	0.18	0.90	0.071	0.33	0.03	-0.15	1.01	0.00	-0.31
04	Op-2	4	0.26	0.42	0.091	0.55	-0.03	-0.24	0.35	0.02	-0.51
05	Op-1	17	0.01	0.14	0.009	0.03	-0.01	0.02	0.17	0.04	-0.00
05	Op-2	5	0.01	0.07	0.014	0.05	-0.02	0.03	0.24	0.15	-0.08
06	Op-1	26	0.08	0.42	0.019	0.12	0.04	-0.05	0.38	-0.01	-0.09
06	Op-2	5	0.10	0.21	0.035	0.20	-0.00	-0.05	0.14	0.02	-0.12
08	Op-1	26	0.10	1.67	0.064	0.23	-0.03	-0.07	1.81	0.07	-0.20
08	Op-2	5	0.06	0.14	0.026	0.13	-0.02	-0.01	0.24	0.12	-0.14
09	Op-1	19	0.03	0.21	0.013	0.05	-0.00	0.01	0.28	0.04	-0.02
09	Op-2	5	0.00	0.00	0.000	.	.	0.05	0.17	0.14	-0.05
10	Op-1	25	0.39	1.87	0.077	0.55	0.23	-0.35	1.87	-0.20	-0.51
10	Op-2	5	0.47	1.32	0.225	1.10	-0.15	-0.42	1.32	0.23	-1.08
12	Op-1	26	0.00	0.00	0.000	.	.	0.03	0.14	0.05	0.02
12	Op-2	5	0.01	0.07	0.014	0.05	-0.02	0.03	0.24	0.15	-0.08

Period means and deltas from original control data where n=2

Period	N	Station Mean	Range	Standard Error	Upper 95% C.I.	Lower 95% C.I.
Op-1	26	0.03	0.14	0.008	0.05	0.02
Op-2	5	0.05	0.17	0.034	0.14	-0.05

Analysis of Variance for HBT for 0059 - non-coralline crust

Stations = 4, 5, 6, 8, 9, 10, 12 level +3 ft MLLW

Data transformed using square root(x + 1)

Results for Analysis of Variance

Source	Source df	Error df	F-value	Prob.
PERIOD	1	162.000	23.38	0.0000
SEASON	1	162.000	1.97	0.1621
STATION	6	162.000	34.18	0.0000
PERIOD*SEASON	1	162.000	7.11	0.0084
STATION*PERIOD	6	162.000	3.63	0.0021
STATION*SEASON	6	162.000	3.66	0.0020
PERIOD*STATION*SEASON	6	162.000	0.17	0.9841

Results for Power Analysis
Power at alpha = .1

Source	Non-Centrality Parameter	Adjusted non-Centrality Parameter	Power	Adjusted Power	Power to Detect 50% Change
PERIOD	23.38	22.09	0.9992	0.9988	1.0000
STATION*PERIOD	21.77	15.50	0.9761	0.9070	0.9802

Estimates for contrasts on combinations of interaction terms

Source	Difference	Std. Err.	T-value	Prob.
Period in DC	2.6369	0.5930	4.447	.0000
Period in FC	1.3191	0.5637	2.340	.0205
Period in FC-S	2.1469	0.6820	3.148	.0020
Period in FC-W	0.4913	0.8977	0.547	.5850
Period in DC-S	3.9908	0.7663	5.208	.0000
Period in DC-W	1.2830	0.9051	1.417	.1583

Least square means & confidence intervals from analysis of variance

Source	LS Mean	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period Op-1	0.417	0.0483	8.63	.0000	0.4969	0.3370
Period Op-2	-0.148	0.1064	-1.39	.1656	0.0278	-0.3243
Op-1-04	0.438	0.1438	3.05	.0027	0.6761	0.2001
Op-2-04	-0.405	0.3418	-1.18	.2382	0.1608	-0.9702
Op-1-05	1.226	0.1438	8.52	.0000	1.4637	0.9878
Op-2-05	0.521	0.2702	1.93	.0555	0.9683	0.0742
Op-1-06	-0.046	0.1161	-0.40	.6906	0.1458	-0.2384
Op-2-06	0.182	0.2702	0.67	.5020	0.6289	-0.2652
Op-1-08	1.983	0.1161	17.08	.0000	2.1753	1.7911
Op-2-08	0.976	0.2702	3.61	.0004	1.4229	0.5288
Op-1-09	-0.410	0.1360	-3.01	.0030	-0.1850	-0.6350
Op-2-09	-0.567	0.2702	-2.10	.0373	-0.1204	-1.0145
Op-1-10	-1.133	0.1185	-9.56	.0000	-0.9368	-1.3289
Op-2-10	-1.245	0.2702	-4.61	.0000	-0.7978	-1.6919
Op-1-12	0.861	0.1161	7.41	.0000	1.0528	0.6686
Op-2-12	-0.499	0.2702	-1.85	.0664	-0.0524	-0.9466

Paired comparisons of least square means between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period	0.5651	0.1169	4.835	.0000	0.7585	0.3718

Paired comparisons of least square means among stations between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Station 04	0.8428	0.3709	2.27	.0244	1.4563	0.2292
Station 05	0.7045	0.3061	2.30	.0227	1.2109	0.1980
Station 06	-0.2281	0.2941	-0.78	.4391	0.2584	-0.7147
Station 08	1.0073	0.2941	3.42	.0008	1.4939	0.5207
Station 09	0.1575	0.3025	0.52	.6034	0.6580	-0.3430
Station 10	0.1120	0.2951	0.38	.7049	0.6001	-0.3762
Station 12	1.3602	0.2941	4.62	.0000	1.8467	0.8736

Station-period means and deltas from original data where control n=2

Station	Period	N	Station Mean	Range	Standard Error	Upper 95% C.I.	Lower 95% C.I.	Mean Delta	Delta Range	Upper 95% CIi.	Lower 95% C.I.
04	Op-1	17	16.92	15.35	1.253	19.58	14.27	3.75	8.96	5.21	2.28
04	Op-2	4	18.56	17.15	3.613	30.06	7.06	-3.58	7.01	1.17	-8.33
05	Op-1	17	10.78	14.17	0.897	12.68	8.88	9.89	16.94	12.32	7.47
05	Op-2	5	13.26	9.24	1.580	17.65	8.88	3.91	12.43	10.08	-2.26
06	Op-1	26	22.17	35.49	2.068	26.43	17.91	-1.29	21.46	1.36	-3.94
06	Op-2	5	15.74	19.10	3.830	26.37	5.10	1.44	5.90	4.47	-1.59
08	Op-1	26	6.73	17.92	0.969	8.72	4.73	14.15	22.08	16.27	12.03
08	Op-2	5	10.03	8.13	1.446	14.04	6.01	7.15	11.81	13.23	1.07
09	Op-1	19	25.15	28.54	1.660	28.63	21.66	-4.24	23.72	-1.46	-7.03
09	Op-2	5	22.75	15.49	3.004	31.09	14.41	-5.58	16.60	2.31	-13.47
10	Op-1	25	33.13	45.35	2.607	38.51	27.75	-12.50	41.11	-8.14	-16.85
10	Op-2	5	29.15	24.24	4.958	42.92	15.39	-11.98	11.46	-6.10	-17.86
12	Op-1	26	13.64	19.79	0.882	15.45	11.82	7.24	18.85	9.24	5.25
12	Op-2	5	22.28	4.79	0.828	24.58	19.98	-5.10	13.96	2.71	-12.92

Period means and deltas from original control data where n=2

Period	N	Station Mean	Range	Standard Error	Upper 95% C.I.	Lower 95% C.I.
Op-1	26	20.88	18.02	1.051	23.04	18.71
Op-2	5	17.17	15.28	3.381	26.56	7.79

Analysis of Variance for HBT for 0184 - Osmundea spp.
Stations = 4, 5, 6, 8, 9, 10, 12 level +3 ft MLLW

Data transformed using log base10(x + .1)

Satterthwaite's Adjustment for Degrees of Freedom used in Analysis of Variance.

Results for Analysis of Variance

Source	Source df	Error df	F-value	Prob.
PERIOD	1	162.000	0.00	0.9807
SEASON	1	162.000	1.78	0.1842
STATION	6	162.000	9.50	0.0000
PERIOD*SEASON	1	162.000	2.56	0.1114
STATION*PERIOD	6	162.000	0.00	1.0000
STATION*SEASON	6	162.000	1.93	0.0789
PERIOD*STATION*SEASON	6	162.000	2.78	0.0134

Results for Power Analysis
Power at alpha = .1

Source	Non-Centrality Parameter	Adjusted non-Centrality Parameter	Power	Adjusted Power	Power to Detect 50% Change
PERIOD	0.00	0.00	0.1001	.	0.2339
STATION*PERIOD	0.00	0.00	0.1002	.	0.4920

Estimates for contrasts on combinations of interaction terms

Source	Difference	Std. Err.	T-value	Prob.
Period in DC	-0.0036	0.1086	-0.033	.9734
Period in FC	0.0000	0.1033	0.000	1.000
Period in FC-S	-0.0000	0.1249	-0.000	1.000
Period in FC-W	0.0000	0.1644	0.000	1.000
Period in DC-S	-0.2435	0.1404	-1.735	.0847
Period in DC-W	0.2363	0.1658	1.425	.1561

Least square means & confidence intervals from analysis of variance

Source	LS Mean	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period Op-1	-0.032	0.0088	-3.61	.0004	-0.0173	-0.0466
Period Op-2	-0.031	0.0195	-1.61	.1091	0.0008	-0.0637
Op-1-04	-0.000	0.0263	-0.00	1.000	0.0436	-0.0436
Op-2-04	-0.000	0.0626	-0.00	1.000	0.1036	-0.1036
Op-1-05	-0.000	0.0263	-0.00	1.000	0.0436	-0.0436
Op-2-05	-0.000	0.0495	-0.00	1.000	0.0819	-0.0819
Op-1-06	-0.000	0.0213	-0.00	1.000	0.0352	-0.0352
Op-2-06	-0.000	0.0495	-0.00	1.000	0.0819	-0.0819
Op-1-08	-0.000	0.0213	-0.00	1.000	0.0352	-0.0352
Op-2-08	0.000	0.0495	0.00	1.000	0.0819	-0.0819
Op-1-09	-0.000	0.0249	-0.00	1.000	0.0412	-0.0412
Op-2-09	0.000	0.0495	0.00	1.000	0.0819	-0.0819
Op-1-10	-0.224	0.0217	-10.30	.0000	-0.1876	-0.2594
Op-2-10	-0.220	0.0495	-4.44	.0000	-0.1380	-0.3018
Op-1-12	-0.000	0.0213	-0.00	1.000	0.0352	-0.0352
Op-2-12	0.000	0.0495	0.00	1.000	0.0819	-0.0819

Paired comparisons of least square means between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period	-0.0005	0.0214	-0.024	.9807	0.0349	-0.0359

Paired comparisons of least square means among stations between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Station 04	0.0000	0.0679	0.00	1.000	0.1124	-0.1124
Station 05	0.0000	0.0561	0.00	1.000	0.0928	-0.0928
Station 06	0.0000	0.0539	0.00	1.000	0.0891	-0.0891
Station 08	-0.0000	0.0539	-0.00	1.000	0.0891	-0.0891
Station 09	-0.0000	0.0554	-0.00	1.000	0.0917	-0.0917
Station 10	-0.0036	0.0541	-0.07	.9465	0.0858	-0.0931
Station 12	-0.0000	0.0539	-0.00	1.000	0.0891	-0.0891

Station-period means and deltas from original data where control n=2

Station-Period	N	Station Mean	Range	Standard Error	Upper 95% c.i.	Lower 95% c.i.	Mean Delta	Delta Range	Upper 95% CIi.	Lower 95% C.I.
04 Op-1	17	0.00	0.00	0.000	.	.	0.00	0.00	.	.
04 Op-2	4	0.00	0.00	0.000	.	.	0.00	0.00	.	.
05 Op-1	17	0.00	0.00	0.000	.	.	0.00	0.00	.	.
05 Op-2	5	0.00	0.00	0.000	.	.	0.00	0.00	.	.
06 Op-1	26	0.00	0.00	0.000	.	.	0.00	0.00	.	.
06 Op-2	5	0.00	0.00	0.000	.	.	0.00	0.00	.	.
08 Op-1	26	0.00	0.00	0.000	.	.	0.00	0.00	.	.
08 Op-2	5	0.00	0.00	0.000	.	.	0.00	0.00	.	.
09 Op-1	19	0.00	0.00	0.000	.	.	0.00	0.00	.	.
09 Op-2	5	0.00	0.00	0.000	.	.	0.00	0.00	.	.
10 Op-1	25	0.11	0.56	0.032	0.17	0.04	-0.11	0.56	-0.04	-0.17
10 Op-2	5	0.08	0.35	0.067	0.27	-0.10	-0.08	0.35	0.10	-0.27
12 Op-1	26	0.00	0.00	0.000	.	.	0.00	0.00	.	.
12 Op-2	5	0.00	0.00	0.000	.	.	0.00	0.00	.	.

Period means and deltas from original control data where n=2

Period	N	Station Mean	Range	Standard Error	Upper 95% C.I.	Lower 95% C.I.
Op-1	26	0.00	0.00	0.000	.	.
Op-2	5	0.00	0.00	0.000	.	.

Analysis of Variance for HBT for 0034 - Pelvetia compressa

Stations = 4, 5, 6, 8, 9, 10, 12 level +3 ft MLLW

Data not transformed.

Results for Analysis of Variance

Source	Source df	Error df	F-value	Prob.
PERIOD	1	162.000	75.51	0.0000
SEASON	1	162.000	1.81	0.1807
STATION	6	162.000	2.09	0.0570
PERIOD*SEASON	1	162.000	1.06	0.3037
STATION*PERIOD	6	162.000	1.21	0.3043
STATION*SEASON	6	162.000	0.01	1.0000
PERIOD*STATION*SEASON	6	162.000	0.03	0.9998

Results for Power Analysis
Power at alpha = .1

Source	Non-Centrality Parameter	Adjusted non-Centrality Parameter	Power	Adjusted Power	Power to Detect 50% Change
PERIOD	75.51	73.58	1.0000	1.0000	0.5363
STATION*PERIOD	7.25	1.16	0.5978	0.1747	0.1889

Estimates for contrasts on combinations of interaction terms

Source	Difference	Std. Err.	T-value	Prob.
Period in DC	-16.6438	2.0015	-8.315	.0000
Period in FC	-7.3544	1.9027	-3.865	.0002
Period in FC-S	-8.1571	2.3021	-3.543	.0005
Period in FC-W	-6.5518	3.0302	-2.162	.0321
Period in DC-S	-18.6909	2.5866	-7.226	.0000
Period in DC-W	-14.5966	3.0552	-4.778	.0000

Least square means & confidence intervals from analysis of variance

Source	LS Mean	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period Op-1	4.044	0.1631	24.80	.0000	4.3142	3.7746
Period Op-2	7.473	0.3592	20.80	.0000	8.0670	6.8784
Op-1-04	4.893	0.4855	10.08	.0000	5.6959	4.0895
Op-2-04	7.373	1.1538	6.39	.0000	9.2814	5.4639
Op-1-05	3.927	0.4855	8.09	.0000	4.7300	3.1235
Op-2-05	5.405	0.9122	5.93	.0000	6.9141	3.8961
Op-1-06	3.080	0.3919	7.86	.0000	3.7280	2.4312
Op-2-06	6.476	0.9122	7.10	.0000	7.9847	4.9667
Op-1-08	3.769	0.3919	9.62	.0000	4.4171	3.1203
Op-2-08	8.264	0.9122	9.06	.0000	9.7729	6.7549
Op-1-09	4.487	0.4591	9.77	.0000	5.2470	3.7279
Op-2-09	8.264	0.9122	9.06	.0000	9.7729	6.7549
Op-1-10	4.673	0.4000	11.68	.0000	5.3344	4.0110
Op-2-10	8.264	0.9122	9.06	.0000	9.7729	6.7549
Op-1-12	3.483	0.3919	8.89	.0000	4.1313	2.8345
Op-2-12	8.264	0.9122	9.06	.0000	9.7729	6.7549

Paired comparisons of least square means between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period	-3.4283	0.3945	-8.690	.0000	-2.7757	-4.0810

Paired comparisons of least square means among stations between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Station 04	-2.4800	1.2518	-1.98	.0493	-0.4091	-4.5509
Station 05	-1.4783	1.0333	-1.43	.1545	0.2311	-3.1878
Station 06	-3.3961	0.9928	-3.42	.0008	-1.7537	-5.0385
Station 08	-4.4952	0.9928	-4.53	.0000	-2.8528	-6.1376
Station 09	-3.7764	1.0212	-3.70	.0003	-2.0871	-5.4658
Station 10	-3.5912	0.9960	-3.61	.0004	-1.9435	-5.2389
Station 12	-4.7810	0.9928	-4.82	.0000	-3.1386	-6.4234

Station-period means and deltas from original data where control n=2

Station-Period	N	Station Mean	Range	Standard Error	Upper 95% c.i.	Lower 95% c.i.	Mean Delta	Delta Range	Upper 95% CIi.	Lower 95% C.I.
04 Op-1	17	0.27	0.62	0.052	0.38	0.16	4.89	6.49	5.86	3.92
04 Op-2	4	0.76	0.42	0.098	1.08	0.45	7.67	2.19	9.48	5.87
05 Op-1	17	1.23	2.01	0.119	1.49	0.98	3.92	6.22	4.83	3.01
05 Op-2	5	2.92	2.85	0.506	4.32	1.51	5.45	2.99	6.97	3.93
06 Op-1	26	1.56	6.60	0.260	2.10	1.03	3.08	6.46	3.63	2.53
06 Op-2	5	1.82	2.08	0.347	2.78	0.86	6.55	2.33	7.67	5.43
08 Op-1	26	0.87	3.12	0.201	1.29	0.46	3.77	8.75	4.73	2.81
08 Op-2	5	0.00	0.00	0.000	.	.	8.37	2.19	9.53	7.20
09 Op-1	19	0.53	3.61	0.261	1.08	-0.02	4.48	8.85	5.68	3.28
09 Op-2	5	0.00	0.00	0.000	.	.	8.37	2.19	9.53	7.20
10 Op-1	25	0.00	0.00	0.000	.	.	4.67	6.56	5.40	3.95
10 Op-2	5	0.00	0.00	0.000	.	.	8.37	2.19	9.53	7.20
12 Op-1	26	1.16	2.71	0.176	1.52	0.80	3.48	8.37	4.47	2.49
12 Op-2	5	0.00	0.00	0.000	.	.	8.37	2.19	9.53	7.20

Period means and deltas from original control data where n=2

Period	N	Station Mean	Range	Standard Error	Upper 95% C.I.	Lower 95% C.I.
Op-1	26	4.64	6.56	0.339	5.34	3.94
Op-2	5	8.37	2.19	0.419	9.53	7.20

Analysis of Variance for HBT for 0135 - Phyllospadix spp.
Stations = 4, 5, 6, 8, 9, 10, 12 level +3 ft MLLW

Data transformed using arcsin.

Satterthwaite's Adjustment for Degrees of Freedom used in Analysis of Variance.

Results for Analysis of Variance

Source	Source df	Error df	F-value	Prob.
PERIOD	1	162.000	12.62	0.0005
SEASON	1	162.000	1.00	0.3196
STATION	6	162.000	33.99	0.0000
PERIOD*SEASON	1	162.000	0.37	0.5436
STATION*PERIOD	6	162.000	2.88	0.0107
STATION*SEASON	6	162.000	0.01	1.0000
PERIOD*STATION*SEASON	6	162.000	0.00	1.0000

Results for Power Analysis
Power at alpha = .1

Source	Non-Centrality Parameter	Adjusted non-Centrality Parameter	Power	Adjusted Power	Power to Detect 50% Change
PERIOD	12.62	11.47	0.9708	0.9579	0.3750
STATION*PERIOD	17.30	11.09	0.9359	0.7848	0.6086

Estimates for contrasts on combinations of interaction terms

Source	Difference	Std. Err.	T-value	Prob.
Period in DC	-4.5830	1.0839	-4.228	.0000
Period in FC	-0.7302	1.0304	-0.709	.4796
Period in FC-S	-0.3619	1.2466	-0.290	.7719
Period in FC-W	-1.0984	1.6410	-0.669	.5042
Period in DC-S	-4.0411	1.4007	-2.885	.0044
Period in DC-W	-5.1249	1.6545	-3.098	.0023

Least square means & confidence intervals from analysis of variance

Source	LS Mean	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period Op-1	1.140	0.0883	12.91	.0000	1.2866	0.9944
Period Op-2	1.899	0.1945	9.76	.0000	2.2213	1.5777
Op-1-04	-1.956	0.2629	-7.44	.0000	-1.5207	-2.3907
Op-2-04	-3.730	0.6248	-5.97	.0000	-2.6962	-4.7635
Op-1-05	1.457	0.2629	5.54	.0000	1.8917	1.0217
Op-2-05	2.838	0.4940	5.74	.0000	3.6549	2.0206
Op-1-06	1.714	0.2122	8.08	.0000	2.0655	1.3633
Op-2-06	2.838	0.4940	5.74	.0000	3.6549	2.0206
Op-1-08	1.714	0.2122	8.08	.0000	2.0655	1.3633
Op-2-08	2.838	0.4940	5.74	.0000	3.6549	2.0206
Op-1-09	1.660	0.2486	6.68	.0000	2.0709	1.2483
Op-2-09	2.838	0.4940	5.74	.0000	3.6549	2.0206
Op-1-10	1.680	0.2166	7.75	.0000	2.0379	1.3212
Op-2-10	2.838	0.4940	5.74	.0000	3.6549	2.0206
Op-1-12	1.714	0.2122	8.08	.0000	2.0655	1.3633
Op-2-12	2.838	0.4940	5.74	.0000	3.6549	2.0206

Paired comparisons of least square means between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period	-0.7590	0.2136	-3.553	.0005	-0.4056	-1.1125

Paired comparisons of least square means among stations between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Station 04	1.7742	0.6779	2.62	.0097	2.8956	0.6528
Station 05	-1.3810	0.5596	-2.47	.0146	-0.4553	-2.3067
Station 06	-1.1233	0.5376	-2.09	.0382	-0.2339	-2.0127
Station 08	-1.1233	0.5376	-2.09	.0382	-0.2339	-2.0127
Station 09	-1.1781	0.5530	-2.13	.0346	-0.2633	-2.0930
Station 10	-1.1582	0.5394	-2.15	.0333	-0.2659	-2.0505
Station 12	-1.1233	0.5376	-2.09	.0382	-0.2339	-2.0127

Station-period means and deltas from original data where control n=2

Station	Period	N	Station Mean	Range	Standard Error	Upper 95% c.i.	Lower 95% c.i.	Mean Delta	Delta Range	Upper 95% CIi.	Lower 95% C.I.
04	Op-1	17	0.54	1.18	0.093	0.73	0.34	-0.42	1.35	-0.21	-0.63
04	Op-2	4	1.30	0.90	0.199	1.94	0.67	-1.08	0.90	-0.40	-1.76
05	Op-1	17	0.02	0.28	0.017	0.06	-0.01	0.09	0.52	0.15	0.03
05	Op-2	5	0.00	0.00	0.000	.	.	0.24	0.14	0.33	0.16
06	Op-1	26	0.00	0.00	0.000	.	.	0.11	0.28	0.14	0.08
06	Op-2	5	0.00	0.00	0.000	.	.	0.24	0.14	0.33	0.16
08	Op-1	26	0.00	0.00	0.000	.	.	0.11	0.28	0.14	0.08
08	Op-2	5	0.00	0.00	0.000	.	.	0.24	0.14	0.33	0.16
09	Op-1	19	0.00	0.00	0.000	.	.	0.10	0.28	0.14	0.07
09	Op-2	5	0.00	0.00	0.000	.	.	0.24	0.14	0.33	0.16
10	Op-1	25	0.00	0.00	0.000	.	.	0.10	0.28	0.13	0.07
10	Op-2	5	0.00	0.00	0.000	.	.	0.24	0.14	0.33	0.16
12	Op-1	26	0.00	0.00	0.000	.	.	0.11	0.28	0.14	0.08
12	Op-2	5	0.00	0.00	0.000	.	.	0.24	0.14	0.33	0.16

Period means and deltas from original control data where n=2

Period	N	Station Mean	Range	Standard Error	Upper 95% C.I.	Lower 95% C.I.
Op-1	26	0.11	0.28	0.015	0.14	0.08
Op-2	5	0.24	0.14	0.031	0.33	0.16

Analysis of Variance for HBT for 0099 - Porphyra spp.

Stations = 4, 5, 6, 8, 9, 10, 12 level +3 ft MLLW

Data transformed using arcsin.

Results for Analysis of Variance

Source	Source df	Error df	F-value	Prob.
PERIOD	1	162.000	0.79	0.3765
SEASON	1	162.000	40.89	0.0000
STATION	6	162.000	3.76	0.0016
PERIOD*SEASON	1	162.000	6.39	0.0124
STATION*PERIOD	6	162.000	1.06	0.3873
STATION*SEASON	6	162.000	3.84	0.0013
PERIOD*STATION*SEASON	6	162.000	1.04	0.4045

Results for Power Analysis
Power at alpha = .1

Source	Non-Centrality Parameter	Adjusted non-Centrality Parameter	Power	Adjusted Power	Power to Detect 50% Change
PERIOD	0.79	0.00	0.2289	.	0.6101
STATION*PERIOD	6.37	0.30	0.5433	0.1180	0.1982

Estimates for contrasts on combinations of interaction terms

Source	Difference	Std. Err.	T-value	Prob.
Period in DC	-3.1240	1.7153	-1.821	.0704
Period in FC	1.0250	1.6306	0.629	.5305
Period in FC-S	0.2740	1.9728	0.139	.8897
Period in FC-W	1.7760	2.5969	0.684	.4950
Period in DC-S	-8.3576	2.2167	-3.770	.0002
Period in DC-W	2.1096	2.6183	0.806	.4216

Least square means & confidence intervals from analysis of variance

Source	LS Mean	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period Op-1	1.209	0.1398	8.65	.0000	1.4399	0.9775
Period Op-2	1.509	0.3079	4.90	.0000	2.0178	0.9992
Op-1-04	1.303	0.4161	3.13	.0021	1.9918	0.6151
Op-2-04	0.326	0.9888	0.33	.7424	1.9613	-1.3102
Op-1-05	-0.146	0.4161	-0.35	.7257	0.5421	-0.8346
Op-2-05	0.283	0.7817	0.36	.7176	1.5765	-1.0100
Op-1-06	0.953	0.3359	2.84	.0051	1.5091	0.3978
Op-2-06	0.477	0.7817	0.61	.5427	1.7701	-0.8163
Op-1-08	1.324	0.3359	3.94	.0001	1.8793	0.7680
Op-2-08	2.332	0.7817	2.98	.0033	3.6248	1.0384
Op-1-09	0.685	0.3935	1.74	.0837	1.3356	0.0338
Op-2-09	2.583	0.7817	3.30	.0012	3.8765	1.2901
Op-1-10	1.893	0.3428	5.52	.0000	2.4602	1.3260
Op-2-10	1.976	0.7817	2.53	.0125	3.2689	0.6824
Op-1-12	2.448	0.3359	7.29	.0000	3.0040	1.8927
Op-2-12	2.583	0.7817	3.30	.0012	3.8765	1.2901

Paired comparisons of least square means between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period	-0.2999	0.3381	-0.887	.3765	0.2595	-0.8592

Paired comparisons of least square means among stations between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Station 04	0.9779	1.0728	0.91	.3633	2.7527	-0.7968
Station 05	-0.4295	0.8856	-0.49	.6283	1.0355	-1.8945
Station 06	0.4766	0.8508	0.56	.5762	1.8841	-0.9309
Station 08	-1.0080	0.8508	-1.18	.2379	0.3996	-2.4155
Station 09	-1.8986	0.8752	-2.17	.0315	-0.4508	-3.3463
Station 10	-0.0826	0.8536	-0.10	.9231	1.3295	-1.4946
Station 12	-0.1349	0.8508	-0.16	.8742	1.2726	-1.5424

Station-period means and deltas from original data where control n=2

Station-Period	N	Station Mean	Range	Standard Error	Upper 95% c.i.	Lower 95% c.i.	Mean Delta	Delta Range	Upper 95% CIi.	Lower 95% C.I.
04 Op-1	17	0.12	1.04	0.061	0.25	-0.01	0.20	1.53	0.39	0.01
04 Op-2	4	0.47	0.76	0.166	1.00	-0.06	0.18	1.22	1.00	-0.63
05 Op-1	17	0.47	2.57	0.183	0.85	0.08	-0.15	2.78	0.16	-0.46
05 Op-2	5	0.51	1.94	0.372	1.55	-0.52	0.01	2.19	1.00	-0.99
06 Op-1	26	0.16	0.56	0.040	0.24	0.07	0.17	1.22	0.30	0.04
06 Op-2	5	0.37	1.32	0.244	1.05	-0.30	0.15	1.84	0.97	-0.68
08 Op-1	26	0.20	2.22	0.111	0.43	-0.03	0.13	2.64	0.34	-0.08
08 Op-2	5	0.01	0.07	0.014	0.05	-0.02	0.51	1.42	1.24	-0.23
09 Op-1	19	0.37	2.57	0.168	0.72	0.02	-0.01	3.23	0.30	-0.33
09 Op-2	5	0.00	0.00	0.000	.	.	0.52	1.49	1.29	-0.25
10 Op-1	25	0.04	0.28	0.016	0.07	0.01	0.30	1.42	0.47	0.13
10 Op-2	5	0.04	0.14	0.028	0.12	-0.04	0.48	1.49	1.24	-0.28
12 Op-1	26	0.00	0.00	0.000	.	.	0.33	1.42	0.50	0.16
12 Op-2	5	0.00	0.00	0.000	.	.	0.52	1.49	1.29	-0.25

Period means and deltas from original control data where n=2

Period	N	Station Mean	Range	Standard Error	Upper 95% C.I.	Lower 95% C.I.
Op-1	26	0.33	1.42	0.082	0.50	0.16
Op-2	5	0.52	1.49	0.276	1.29	-0.25

Analysis of Variance for HBT for 0106 - Prionitis spp.

Stations = 4, 5, 6, 8, 9, 10, 12 level +3 ft MLLW

Data transformed using log base10(x + .1)

Results for Analysis of Variance

Source	Source df	Error df	F-value	Prob.
PERIOD	1	162.000	1.80	0.1813
SEASON	1	162.000	29.82	0.0000
STATION	6	162.000	98.87	0.0000
PERIOD*SEASON	1	162.000	2.69	0.1026
STATION*PERIOD	6	162.000	1.30	0.2610
STATION*SEASON	6	162.000	1.23	0.2955
PERIOD*STATION*SEASON	6	162.000	0.63	0.7034

Results for Power Analysis
Power at alpha = .1

Source	Non-Centrality Parameter	Adjusted non-Centrality Parameter	Power	Adjusted Power	Power to Detect 50% Change
PERIOD	1.80	0.78	0.3805	0.2278	0.9909
STATION*PERIOD	7.79	1.69	0.6288	0.2113	0.9132

Estimates for contrasts on combinations of interaction terms

Source	Difference	Std. Err.	T-value	Prob.
Period in DC	0.5291	0.2033	2.603	.0101
Period in FC	-0.1526	0.1932	-0.789	.4310
Period in FC-S	-0.0407	0.2338	-0.174	.8620
Period in FC-W	-0.2644	0.3078	-0.859	.3915
Period in DC-S	0.8777	0.2627	3.341	.0010
Period in DC-W	0.1805	0.3103	0.582	.5615

Least square means & confidence intervals from analysis of variance

Source	LS Mean	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period Op-1	-0.087	0.0166	-5.24	.0000	-0.0594	-0.1142
Period Op-2	-0.141	0.0365	-3.85	.0002	-0.0802	-0.2009
Op-1-04	0.131	0.0493	2.66	.0085	0.2129	0.0498
Op-2-04	0.138	0.1172	1.18	.2393	0.3322	-0.0555
Op-1-05	0.074	0.0493	1.50	.1348	0.1557	-0.0075
Op-2-05	0.119	0.0926	1.29	.1996	0.2726	-0.0339
Op-1-06	-0.115	0.0398	-2.88	.0045	-0.0487	-0.1804
Op-2-06	-0.014	0.0926	-0.15	.8776	0.1390	-0.1675
Op-1-08	0.249	0.0398	6.25	.0000	0.3148	0.1831
Op-2-08	0.010	0.0926	0.11	.9108	0.1637	-0.1429
Op-1-09	0.040	0.0466	0.85	.3939	0.1170	-0.0373
Op-2-09	-0.031	0.0926	-0.33	.7402	0.1225	-0.1840
Op-1-10	-1.174	0.0406	-28.91	.0000	-1.1071	-1.2416
Op-2-10	-1.326	0.0926	-14.32	.0000	-1.1731	-1.4796
Op-1-12	0.187	0.0398	4.70	.0000	0.2531	0.1214
Op-2-12	0.119	0.0926	1.29	.1996	0.2726	-0.0339

Paired comparisons of least square means between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period	0.0538	0.0401	1.343	.1813	0.1201	-0.0125

Paired comparisons of least square means among stations between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Station 04	-0.0071	0.1271	-0.06	.9557	0.2033	-0.2174
Station 05	-0.0452	0.1049	-0.43	.6673	0.1284	-0.2188
Station 06	-0.1003	0.1008	-0.99	.3214	0.0665	-0.2671
Station 08	0.2385	0.1008	2.37	.0192	0.4053	0.0717
Station 09	0.0706	0.1037	0.68	.4968	0.2422	-0.1009
Station 10	0.1520	0.1012	1.50	.1349	0.3193	-0.0154
Station 12	0.0680	0.1008	0.67	.5013	0.2348	-0.0988

Station-period means and deltas from original data where control n=2

Station-Period	N	Station Mean	Range	Standard Error	Upper 95% c.i.	Lower 95% c.i.	Mean Delta	Delta Range	Upper 95% CIi.	Lower 95% C.I.
04 Op-1	17	0.04	0.14	0.010	0.06	0.02	0.05	0.24	0.09	0.02
04 Op-2	4	0.03	0.07	0.020	0.10	-0.03	0.02	0.14	0.11	-0.08
05 Op-1	17	0.07	0.28	0.020	0.11	0.03	0.02	0.38	0.08	-0.03
05 Op-2	5	0.03	0.07	0.017	0.08	-0.02	0.03	0.14	0.10	-0.03
06 Op-1	26	0.15	0.42	0.021	0.19	0.11	-0.07	0.52	-0.01	-0.12
06 Op-2	5	0.07	0.00	0.000	.	.	-0.01	0.10	0.05	-0.06
08 Op-1	26	0.00	0.00	0.000	.	.	0.09	0.24	0.11	0.06
08 Op-2	5	0.12	0.49	0.092	0.38	-0.13	-0.06	0.52	0.20	-0.33
09 Op-1	19	0.09	0.35	0.025	0.14	0.04	0.00	0.45	0.05	-0.05
09 Op-2	5	0.10	0.28	0.052	0.24	-0.05	-0.03	0.28	0.11	-0.18
10 Op-1	25	2.96	6.74	0.315	3.61	2.31	-2.88	6.77	-2.23	-3.53
10 Op-2	5	3.82	3.54	0.629	5.57	2.07	-3.76	3.65	-1.97	-5.55
12 Op-1	26	0.02	0.07	0.006	0.03	0.01	0.07	0.28	0.09	0.04
12 Op-2	5	0.03	0.07	0.017	0.08	-0.02	0.03	0.17	0.12	-0.05

Period means and deltas from original control data where n=2

Period	N	Station Mean	Range	Standard Error	Upper 95% C.I.	Lower 95% C.I.
Op-1	26	0.09	0.24	0.011	0.11	0.06
Op-2	5	0.06	0.10	0.020	0.12	0.01

Analysis of Variance for HBT for 0192 - Pterosiphonia dendroidea
Stations = 4, 5, 6, 8, 9, 10, 12 level +3 ft MLLW

Data transformed using log base10(x + 1)

Satterthwaite's Adjustment for Degrees of Freedom used in Analysis of Variance.

Results for Analysis of Variance

Source	Source df	Error df	F-value	Prob.
PERIOD	1	162.000	11.50	0.0009
SEASON	1	162.000	16.62	0.0001
STATION	6	162.000	30.31	0.0000
PERIOD*SEASON	1	162.000	6.14	0.0142
STATION*PERIOD	6	162.000	12.47	0.0000
STATION*SEASON	6	162.000	18.03	0.0000
PERIOD*STATION*SEASON	6	162.000	6.67	0.0000

Results for Power Analysis
Power at alpha = .1

Source	Non-Centrality Parameter	Adjusted non-Centrality Parameter	Power	Adjusted Power	Power to Detect 50% Change
PERIOD	11.50	10.35	0.9583	0.9406	0.1698
STATION*PERIOD	74.85	67.93	1.0000	1.0000	0.2968

Estimates for contrasts on combinations of interaction terms

Source	Difference	Std. Err.	T-value	Prob.
Period in DC	0.2436	0.0521	4.678	.0000
Period in FC	0.0000	0.0495	0.000	1.000
Period in FC-S	-0.0000	0.0599	-0.000	1.000
Period in FC-W	0.0000	0.0788	0.000	1.000
Period in DC-S	0.0655	0.0673	0.973	.3318
Period in DC-W	0.4217	0.0795	5.305	.0000

Least square means & confidence intervals from analysis of variance

Source	LS Mean	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period Op-1	-0.010	0.0042	-2.29	.0232	-0.0027	-0.0167
Period Op-2	-0.045	0.0093	-4.76	.0000	-0.0291	-0.0600
Op-1-04	-0.000	0.0126	-0.00	1.000	0.0209	-0.0209
Op-2-04	-0.000	0.0300	-0.00	1.000	0.0497	-0.0497
Op-1-05	-0.000	0.0126	-0.00	1.000	0.0209	-0.0209
Op-2-05	-0.000	0.0237	-0.00	1.000	0.0393	-0.0393
Op-1-06	-0.000	0.0102	-0.00	1.000	0.0169	-0.0169
Op-2-06	-0.000	0.0237	-0.00	1.000	0.0393	-0.0393
Op-1-08	-0.000	0.0102	-0.00	1.000	0.0169	-0.0169
Op-2-08	-0.000	0.0237	-0.00	1.000	0.0393	-0.0393
Op-1-09	-0.000	0.0119	-0.00	1.000	0.0198	-0.0198
Op-2-09	-0.000	0.0237	-0.00	1.000	0.0393	-0.0393
Op-1-10	-0.068	0.0104	-6.54	.0000	-0.0508	-0.0853
Op-2-10	-0.312	0.0237	-13.13	.0000	-0.2724	-0.3509
Op-1-12	-0.000	0.0102	-0.00	1.000	0.0169	-0.0169
Op-2-12	0.000	0.0237	0.00	1.000	0.0393	-0.0393

Paired comparisons of least square means between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period	0.0348	0.0103	3.391	.0009	0.0518	0.0178

Paired comparisons of least square means among stations between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Station 04	0.0000	0.0326	0.00	1.000	0.0539	-0.0539
Station 05	-0.0000	0.0269	-0.00	1.000	0.0445	-0.0445
Station 06	0.0000	0.0258	0.00	1.000	0.0427	-0.0427
Station 08	-0.0000	0.0258	-0.00	1.000	0.0427	-0.0427
Station 09	-0.0000	0.0266	-0.00	1.000	0.0440	-0.0440
Station 10	0.2436	0.0259	9.40	.0000	0.2865	0.2007
Station 12	-0.0000	0.0258	-0.00	1.000	0.0427	-0.0427

Station-period means and deltas from original data where control n=2

Station-Period	N	Station Mean	Range	Standard Error	Upper 95% C.I.	Lower 95% C.I.	Mean Delta	Delta Range	Upper 95% CIi.	Lower 95% C.I.
04 Op-1	17	0.00	0.00	0.000	.	.	0.00	0.00	.	.
04 Op-2	4	0.00	0.00	0.000	.	.	0.00	0.00	.	.
05 Op-1	17	0.00	0.00	0.000	.	.	0.00	0.00	.	.
05 Op-2	5	0.00	0.00	0.000	.	.	0.00	0.00	.	.
06 Op-1	26	0.00	0.00	0.000	.	.	0.00	0.00	.	.
06 Op-2	5	0.00	0.00	0.000	.	.	0.00	0.00	.	.
08 Op-1	26	0.00	0.00	0.000	.	.	0.00	0.00	.	.
08 Op-2	5	0.00	0.00	0.000	.	.	0.00	0.00	.	.
09 Op-1	19	0.00	0.00	0.000	.	.	0.00	0.00	.	.
09 Op-2	5	0.00	0.00	0.000	.	.	0.00	0.00	.	.
10 Op-1	25	0.24	1.94	0.110	0.47	0.01	-0.24	1.94	-0.01	-0.47
10 Op-2	5	1.18	3.54	0.665	3.03	-0.67	-1.18	3.54	0.67	-3.03
12 Op-1	26	0.00	0.00	0.000	.	.	0.00	0.00	.	.
12 Op-2	5	0.00	0.00	0.000	.	.	0.00	0.00	.	.

Period means and deltas from original control data where n=2

Period	N	Station Mean	Range	Standard Error	Upper 95% C.I.	Lower 95% C.I.
Op-1	26	0.00	0.00	0.000	.	.
Op-2	5	0.00	0.00	0.000	.	.

Analysis of Variance for HBT for 0013 - Spongomorpha/Acrosiphonia-complex

Stations = 4, 5, 6, 8, 9, 10, 12 level +3 ft MLLW

Data transformed using arcsin.

Results for Analysis of Variance

Source	Source df	Error df	F-value	Prob.
PERIOD	1	162.000	0.00	0.9507
SEASON	1	162.000	4.14	0.0435
STATION	6	162.000	0.39	0.8837
PERIOD*SEASON	1	162.000	0.00	0.9507
STATION*PERIOD	6	162.000	0.39	0.8837
STATION*SEASON	6	162.000	0.39	0.8837
PERIOD*STATION*SEASON	6	162.000	0.39	0.8837

Results for Power Analysis
Power at alpha = .1

Source	Non-Centrality Parameter	Adjusted non-Centrality Parameter	Power	Adjusted Power	Power to Detect 50% Change
PERIOD	0.00	0.00	0.1006	.	0.1161
STATION*PERIOD	2.35	0.00	0.2585	.	0.1424

Estimates for contrasts on combinations of interaction terms

Source	Difference	Std. Err.	T-value	Prob.
Period in DC	0.6663	0.8611	0.774	.4402
Period in FC	-0.7399	0.8186	-0.904	.3674
Period in FC-S	-1.4797	0.9904	-1.494	.1371
Period in FC-W	0.0000	1.3037	0.000	1.000
Period in DC-S	1.3326	1.1128	1.197	.2329
Period in DC-W	0.0000	1.3144	0.000	1.000

Least square means & confidence intervals from analysis of variance

Source	LS Mean	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period Op-1	0.167	0.0702	2.39	.0182	0.2835	0.0514
Period Op-2	0.178	0.1546	1.15	.2513	0.4336	-0.0777
Op-1-04	0.067	0.2089	0.32	.7498	0.4123	-0.2788
Op-2-04	0.178	0.4964	0.36	.7204	0.9991	-0.6432
Op-1-05	0.067	0.2089	0.32	.7498	0.4123	-0.2788
Op-2-05	0.178	0.3924	0.45	.6508	0.8272	-0.4713
Op-1-06	-0.339	0.1686	-2.01	.0457	-0.0605	-0.6184
Op-2-06	0.178	0.3924	0.45	.6508	0.8272	-0.4713
Op-1-08	0.395	0.1686	2.34	.0202	0.6743	0.1164
Op-2-08	0.178	0.3924	0.45	.6508	0.8272	-0.4713
Op-1-09	0.192	0.1975	0.97	.3325	0.5187	-0.1348
Op-2-09	0.178	0.3924	0.45	.6508	0.8272	-0.4713
Op-1-10	0.395	0.1721	2.30	.0229	0.6801	0.1107
Op-2-10	0.178	0.3924	0.45	.6508	0.8272	-0.4713
Op-1-12	0.395	0.1686	2.34	.0202	0.6743	0.1164
Op-2-12	0.178	0.3924	0.45	.6508	0.8272	-0.4713

Paired comparisons of least square means between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period	-0.0105	0.1697	-0.062	.9507	0.2703	-0.2913

Paired comparisons of least square means among stations between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Station 04	-0.1112	0.5385	-0.21	.8366	0.7797	-1.0021
Station 05	-0.1112	0.4446	-0.25	.8028	0.6242	-0.8467
Station 06	-0.5174	0.4271	-1.21	.2275	0.1892	-1.2240
Station 08	0.2174	0.4271	0.51	.6114	0.9240	-0.4892
Station 09	0.0140	0.4393	0.03	.9746	0.7408	-0.7128
Station 10	0.2174	0.4285	0.51	.6126	0.9263	-0.4915
Station 12	0.2174	0.4271	0.51	.6114	0.9240	-0.4892

Station-period means and deltas from original data where control n=2

Station	Period	N	Station Mean	Range	Standard Error	Upper 95% c.i.	Lower 95% c.i.	Mean Delta	Delta Range	Upper 95% CIi.	Lower 95% C.I.
04	Op-1	17	0.00	0.00	0.000	.	.	0.00	0.03	0.01	-0.00
04	Op-2	4	0.00	0.00	0.000	.	.	0.01	0.03	0.04	-0.02
05	Op-1	17	0.00	0.00	0.000	.	.	0.00	0.03	0.01	-0.00
05	Op-2	5	0.00	0.00	0.000	.	.	0.01	0.03	0.03	-0.01
06	Op-1	26	0.07	0.83	0.036	0.15	-0.00	-0.04	1.01	0.03	-0.11
06	Op-2	5	0.00	0.00	0.000	.	.	0.01	0.03	0.03	-0.01
08	Op-1	26	0.00	0.00	0.000	.	.	0.04	0.49	0.08	-0.01
08	Op-2	5	0.00	0.00	0.000	.	.	0.01	0.03	0.03	-0.01
09	Op-1	19	0.00	0.00	0.000	.	.	0.01	0.17	0.03	-0.01
09	Op-2	5	0.00	0.00	0.000	.	.	0.01	0.03	0.03	-0.01
10	Op-1	25	0.00	0.00	0.000	.	.	0.04	0.49	0.08	-0.01
10	Op-2	5	0.00	0.00	0.000	.	.	0.01	0.03	0.03	-0.01
12	Op-1	26	0.00	0.00	0.000	.	.	0.04	0.49	0.08	-0.01
12	Op-2	5	0.00	0.00	0.000	.	.	0.01	0.03	0.03	-0.01

Period means and deltas from original control data where n=2

Period	N	Station Mean	Range	Standard Error	Upper 95% C.I.	Lower 95% C.I.
Op-1	26	0.04	0.49	0.021	0.08	-0.01
Op-2	5	0.01	0.03	0.007	0.03	-0.01

Analysis of Variance for HBT for 1173 - Ulva/Enteromorpha spp.
Stations = 4, 5, 6, 8, 9, 10, 12 level +3 ft MLLW

Data transformed using log base10(x + .1)

Satterthwaite's Adjustment for Degrees of Freedom used in Analysis of Variance.

Results for Analysis of Variance

Source	Source df	Error df	F-value	Prob.
PERIOD	1	162.000	4.44	0.0367
SEASON	1	162.000	23.72	0.0000
STATION	6	162.000	10.48	0.0000
PERIOD*SEASON	1	162.000	5.75	0.0176
STATION*PERIOD	6	162.000	0.79	0.5768
STATION*SEASON	6	162.000	9.32	0.0000
PERIOD*STATION*SEASON	6	162.000	1.14	0.3403

Results for Power Analysis
Power at alpha = .1

Source	Non-Centrality Parameter	Adjusted non-Centrality Parameter	Power	Adjusted Power	Power to Detect 50% Change
PERIOD	4.44	3.38	0.6749	0.5744	0.1484
STATION*PERIOD	4.76	0.00	0.4336	.	0.1354

Estimates for contrasts on combinations of interaction terms

Source	Difference	Std. Err.	T-value	Prob.
Period in DC	1.2016	0.4570	2.630	.0094
Period in FC	0.1267	0.4344	0.292	.7709
Period in FC-S	0.2535	0.5256	0.482	.6303
Period in FC-W	-0.0000	0.6918	-0.000	1.000
Period in DC-S	2.5870	0.5905	4.381	.0000
Period in DC-W	-0.1838	0.6975	-0.263	.7925

Least square means & confidence intervals from analysis of variance

Source	LS Mean	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period Op-1	-0.138	0.0372	-3.70	.0003	-0.0760	-0.1992
Period Op-2	-0.327	0.0820	-3.99	.0001	-0.1917	-0.4630
Op-1-04	0.047	0.1108	0.42	.6751	0.2299	-0.1368
Op-2-04	0.000	0.2634	0.00	1.000	0.4358	-0.4358
Op-1-05	0.047	0.1108	0.42	.6751	0.2299	-0.1368
Op-2-05	0.000	0.2082	0.00	1.000	0.3445	-0.3445
Op-1-06	0.034	0.0895	0.38	.7075	0.1817	-0.1144
Op-2-06	0.000	0.2082	0.00	1.000	0.3445	-0.3445
Op-1-08	-0.050	0.0895	-0.55	.5805	0.0985	-0.1976
Op-2-08	-0.269	0.2082	-1.29	.1978	0.0752	-0.6138
Op-1-09	-0.506	0.1048	-4.83	.0000	-0.3327	-0.6795
Op-2-09	-0.929	0.2082	-4.46	.0000	-0.5845	-1.2735
Op-1-10	-0.568	0.0913	-6.22	.0000	-0.4168	-0.7189
Op-2-10	-1.093	0.2082	-5.25	.0000	-0.7486	-1.4376
Op-1-12	0.034	0.0895	0.38	.7075	0.1817	-0.1144
Op-2-12	-0.000	0.2082	-0.00	1.000	0.3445	-0.3445

Paired comparisons of least square means between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period	0.1898	0.0901	2.107	.0367	0.3388	0.0408

Paired comparisons of least square means among stations between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Station 04	0.0466	0.2858	0.16	.8708	0.5193	-0.4262
Station 05	0.0466	0.2359	0.20	.8438	0.4368	-0.3437
Station 06	0.0336	0.2267	0.15	.8822	0.4086	-0.3413
Station 08	0.2197	0.2267	0.97	.3338	0.5947	-0.1552
Station 09	0.4230	0.2331	1.81	.0715	0.8086	0.0373
Station 10	0.5253	0.2274	2.31	.0221	0.9015	0.1491
Station 12	0.0336	0.2267	0.15	.8822	0.4086	-0.3413

Station-period means and deltas from original data where control n=2

Station-Period	N	Station Mean	Range	Standard Error	Upper 95% c.i.	Lower 95% c.i.	Mean Delta	Delta Range	Upper 95% CIi.	Lower 95% C.I.
04 Op-1	17	0.00	0.00	0.000	.	.	0.02	0.31	0.06	-0.02
04 Op-2	4	0.00	0.00	0.000	.	.	0.00	0.00	.	.
05 Op-1	17	0.00	0.00	0.000	.	.	0.02	0.31	0.06	-0.02
05 Op-2	5	0.00	0.00	0.000	.	.	0.00	0.00	.	.
06 Op-1	26	0.00	0.00	0.000	.	.	0.01	0.31	0.04	-0.01
06 Op-2	5	0.00	0.00	0.000	.	.	0.00	0.00	.	.
08 Op-1	26	0.15	3.75	0.144	0.45	-0.14	-0.14	4.06	0.16	-0.44
08 Op-2	5	0.81	4.03	0.806	3.04	-1.43	-0.81	4.03	1.43	-3.04
09 Op-1	19	3.41	31.32	1.888	7.38	-0.55	-3.40	31.63	0.58	-7.37
09 Op-2	5	4.92	14.24	2.633	12.23	-2.39	-4.92	14.24	2.39	-12.23
10 Op-1	25	4.04	29.31	1.565	7.27	0.81	-4.02	29.31	-0.80	-7.25
10 Op-2	5	9.50	22.08	4.249	21.30	-2.30	-9.50	22.08	2.30	-21.30
12 Op-1	26	0.00	0.00	0.000	.	.	0.01	0.31	0.04	-0.01
12 Op-2	5	0.00	0.00	0.000	.	.	0.00	0.00	.	.

Period means and deltas from original control data where n=2

Period	N	Station Mean	Range	Standard Error	Upper 95% C.I.	Lower 95% C.I.
Op-1	26	0.01	0.31	0.012	0.04	-0.01
Op-2	5	0.00	0.00	0.000	.	.

Analysis of Variance for HBT for 0003 - bare rock

Stations = 4, 5, 6, 8, 9, 10, 12 level +3 ft MLLW

Data transformed using square root(x + 1)

Results for Analysis of Variance

Source	Source df	Error df	F-value	Prob.
PERIOD	1	162.000	1.14	0.2876
SEASON	1	162.000	0.19	0.6666
STATION	6	162.000	64.58	0.0000
PERIOD*SEASON	1	162.000	2.15	0.1449
STATION*PERIOD	6	162.000	2.34	0.0343
STATION*SEASON	6	162.000	0.90	0.4967
PERIOD*STATION*SEASON	6	162.000	0.73	0.6232

Results for Power Analysis
Power at alpha = .1

Source	Non-Centrality Parameter	Adjusted non-Centrality Parameter	Power	Adjusted Power	Power to Detect 50% Change
PERIOD	1.14	0.12	0.2836	0.1209	1.0000
STATION*PERIOD	14.02	7.84	0.8752	0.6320	0.9983

Estimates for contrasts on combinations of interaction terms

Source	Difference	Std. Err.	T-value	Prob.
Period in DC	0.0209	0.6729	0.031	.9753
Period in FC	-1.0114	0.6397	-1.581	.1158
Period in FC-S	0.1676	0.7739	0.217	.8288
Period in FC-W	-2.1904	1.0187	-2.150	.0330
Period in DC-S	0.2017	0.8696	0.232	.8169
Period in DC-W	-0.1600	1.0271	-0.156	.8764

Least square means & confidence intervals from analysis of variance

Source	LS Mean	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period Op-1	-1.772	0.0548	-32.33	.0000	-1.6815	-1.8629
Period Op-2	-1.631	0.1208	-13.50	.0000	-1.4309	-1.8305
Op-1-04	-1.464	0.1632	-8.97	.0000	-1.1938	-1.7338
Op-2-04	-0.980	0.3879	-2.53	.0125	-0.3385	-1.6219
Op-1-05	-2.517	0.1632	-15.42	.0000	-2.2468	-2.7869
Op-2-05	-2.228	0.3067	-7.27	.0000	-1.7208	-2.7354
Op-1-06	-0.298	0.1318	-2.26	.0252	-0.0798	-0.5157
Op-2-06	-0.059	0.3067	-0.19	.8486	0.4487	-0.5659
Op-1-08	-4.148	0.1318	-31.48	.0000	-3.9302	-4.3661
Op-2-08	-3.200	0.3067	-10.44	.0000	-2.6927	-3.7073
Op-1-09	-1.751	0.1543	-11.34	.0000	-1.4953	-2.0059
Op-2-09	-2.404	0.3067	-7.84	.0000	-1.8972	-2.9118
Op-1-10	0.124	0.1345	0.93	.3560	0.3469	-0.0980
Op-2-10	0.094	0.3067	0.31	.7590	0.6015	-0.4131
Op-1-12	-2.353	0.1318	-17.86	.0000	-2.1347	-2.5706
Op-2-12	-2.638	0.3067	-8.60	.0000	-2.1302	-3.1448

Paired comparisons of least square means between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period	-0.1415	0.1326	-1.067	.2876	0.0779	-0.3609

Paired comparisons of least square means among stations between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Station 04	-0.4836	0.4208	-1.15	.2522	0.2126	-1.1797
Station 05	-0.2887	0.3474	-0.83	.4071	0.2860	-0.8634
Station 06	-0.2391	0.3338	-0.72	.4747	0.3130	-0.7913
Station 08	-0.9481	0.3338	-2.84	.0051	-0.3960	-1.5003
Station 09	0.6539	0.3433	1.90	.0586	1.2218	0.0859
Station 10	0.0302	0.3348	0.09	.9282	0.5842	-0.5237
Station 12	0.2849	0.3338	0.85	.3946	0.8370	-0.2673

Station-period means and deltas from original data where control n=2

Station-Period	N	Station Mean	Range	Standard Error	Upper 95% c.i.	Lower 95% c.i.	Mean Delta	Delta Range	Upper 95% CIi.	Lower 95% C.I.
04 Op-1	17	26.75	16.11	1.040	28.96	24.55	-13.04	26.42	-9.86	-16.22
04 Op-2	4	20.97	3.96	0.920	23.90	18.04	-9.62	8.58	-3.29	-15.94
05 Op-1	17	39.14	21.94	1.496	42.31	35.97	-25.42	24.83	-22.39	-28.46
05 Op-2	5	32.85	7.29	1.297	36.45	29.25	-21.33	9.65	-16.92	-25.74
06 Op-1	26	18.09	23.68	1.181	20.52	15.66	-2.57	17.57	-0.89	-4.26
06 Op-2	5	12.39	10.07	1.693	17.09	7.69	-0.87	7.81	3.27	-5.02
08 Op-1	26	66.09	36.67	2.031	70.27	61.90	-50.57	31.70	-46.69	-54.46
08 Op-2	5	43.81	24.31	4.054	55.06	32.55	-32.29	21.94	-22.44	-42.15
09 Op-1	19	30.99	31.25	1.862	34.90	27.08	-16.84	23.23	-13.99	-19.69
09 Op-2	5	34.85	11.25	1.894	40.10	29.59	-23.33	11.56	-17.32	-29.34
10 Op-1	25	15.84	32.01	2.126	20.23	11.45	-0.44	25.69	2.63	-3.52
10 Op-2	5	10.79	13.19	2.319	17.23	4.35	0.72	11.15	6.42	-4.98
12 Op-1	26	39.71	16.11	0.901	41.56	37.85	-24.19	31.25	-21.56	-26.82
12 Op-2	5	37.42	16.18	3.007	45.77	29.07	-25.90	13.82	-17.97	-33.84

Period means and deltas from original control data where n=2

Period	N	Station Mean	Range	Standard Error	Upper 95% C.I.	Lower 95% C.I.
Op-1	26	15.51	20.73	0.991	17.56	13.47
Op-2	5	11.51	4.62	0.851	13.88	9.15

Analysis of Variance for HBT for ACOV - Algal Cover
Stations = 4, 5, 6, 8, 9, 10, 12 level +3 ft MLLW

Data transformed using arcsin.

Source	Source df	Error df	F-value	Prob.
PERIOD	1	161.000	1.13	0.2901
SEASON	1	161.000	0.78	0.3783
STATION	6	161.000	58.45	0.0000
PERIOD*SEASON	1	161.000	0.47	0.4922
STATION*PERIOD	6	161.000	1.22	0.3010
STATION*SEASON	6	161.000	3.97	0.0010
PERIOD*STATION*SEASON	6	161.000	0.14	0.9908

Results for Power Analysis
Power at alpha = .1

Source	Non-Centrality Parameter	Adjusted non-Centrality Parameter	Power	Adjusted Power	Power to Detect 50% Change
PERIOD	1.13	0.11	0.2818	0.1189	1.0000
STATION*PERIOD	7.29	1.20	0.6000	0.1772	0.9998

Estimates for contrasts on combinations of interaction terms

Source	Difference	Std. Err.	T-value	Prob.
Period in DC	-2.6251	7.9275	-0.331	.7410
Period in FC	14.2399	7.5428	1.888	.0608
Period in FC-S	10.6342	9.1397	1.164	.2463
Period in FC-W	17.8455	12.0018	1.487	.1390
Period in DC-S	-6.5527	10.2447	-0.640	.5233
Period in DC-W	1.3025	12.1007	0.108	.9144

Least square means & confidence intervals from analysis of variance

Source	LS Mean	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period Op-1	17.309	0.6475	26.73	.0000	18.3806	16.2382
Period Op-2	15.650	1.4228	11.00	.0000	18.0040	13.2963
Op-1-04	9.273	1.9231	4.82	.0000	12.4548	6.0919
Op-2-04	1.572	4.5699	0.34	.7314	9.1319	-5.9886
Op-1-05	9.824	1.9231	5.11	.0000	13.0058	6.6429
Op-2-05	6.710	3.6128	1.86	.0651	12.6872	0.7334
Op-1-06	-4.326	1.5843	-2.73	.0070	-1.1054	-6.9475
Op-2-06	-7.750	3.6128	-2.15	.0334	-1.7736	-13.7274
Op-1-08	27.456	1.5523	17.69	.0000	30.0240	24.8878
Op-2-08	25.987	3.6128	7.19	.0000	31.9637	20.0099
Op-1-09	25.407	1.8184	13.97	.0000	28.4157	22.3991
Op-2-09	32.984	3.6128	9.13	.0000	38.9606	27.0068
Op-1-10	15.684	1.5843	9.90	.0000	18.3046	13.0625
Op-2-10	12.421	3.6128	3.44	.0007	18.3983	6.4445
Op-1-12	37.848	1.5523	24.38	.0000	40.4158	35.2796
Op-2-12	37.628	3.6128	10.42	.0000	43.6046	31.6508

Paired comparisons of least square means between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period	1.6592	1.5632	1.061	.2901	4.2454	-0.9269

Paired comparisons of least square means among stations between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Station 04	7.7017	4.9580	1.55	.1223	15.9041	-0.5006
Station 05	3.1140	4.0927	0.76	.4478	9.8849	-3.6568
Station 06	3.4241	3.9449	0.87	.3867	9.9504	-3.1023
Station 08	1.4691	3.9322	0.37	.7092	7.9744	-5.0361
Station 09	-7.5763	4.0446	-1.87	.0629	-0.8850	-14.2676
Station 10	3.2621	3.9449	0.83	.4095	9.7885	-3.2642
Station 12	0.2199	3.9322	0.06	.9555	6.7252	-6.2853

Station-period means and deltas from original data where control n=2

Station-Period	N	Station Mean	Range	Standard Error	Upper 95% c.i.	Lower 95% c.i.	Mean Delta	Delta Range	Upper 95% CIi.	Lower 95% C.I.
04 Op-1	17	54.21	35.70	2.508	59.53	48.90	14.59	31.99	19.25	9.93
04 Op-2	4	73.97	26.21	5.687	92.07	55.87	3.93	17.24	17.48	-9.61
05 Op-1	17	53.46	29.58	2.049	57.80	49.11	15.35	30.14	20.27	10.42
05 Op-2	5	64.20	27.41	5.168	78.55	49.85	10.67	15.51	18.74	2.60
06 Op-1	26	71.34	58.28	2.918	77.35	65.33	-5.75	29.93	-2.41	-9.09
06 Op-2	5	84.21	33.86	7.014	103.68	64.73	-9.33	16.12	-1.25	-17.42
08 Op-1	26	21.57	37.14	2.027	25.75	17.40	44.02	43.20	48.74	39.29
08 Op-2	5	32.24	25.86	5.217	46.73	17.76	42.63	13.78	49.45	35.80
09 Op-1	19	27.39	52.49	3.223	34.16	20.62	40.88	55.06	47.67	34.09
09 Op-2	5	21.33	28.87	5.453	36.47	6.19	53.54	22.28	67.20	39.89
10 Op-1	25	41.05	94.59	5.650	52.71	29.39	25.20	68.04	33.14	17.26
10 Op-2	5	56.83	60.38	12.139	90.53	23.12	18.04	42.64	37.82	-1.73
12 Op-1	26	9.06	24.06	1.135	11.40	6.72	56.53	49.07	61.54	51.52
12 Op-2	5	14.50	20.82	3.766	24.95	4.04	60.37	29.87	76.20	44.55

Period means and deltas from original control data where n=2

Period	N	Station Mean	Range	Standard Error	Upper 95% C.I.	Lower 95% C.I.
Op-1	26	65.59	49.75	2.361	70.45	60.73
Op-2	5	74.87	32.84	6.560	93.08	56.66

Analysis of Variance for HBT for ADIV - Algal Diversity
Stations = 4, 5, 6, 8, 9, 10, 12 level +3 ft MLLW

Data transformed using square root(x + 1)

Source	Source df	Error df	F-value	Prob.
PERIOD	1	162.000	1.77	0.1848
SEASON	1	162.000	34.84	0.0000
STATION	6	162.000	44.52	0.0000
PERIOD*SEASON	1	162.000	0.40	0.5287
STATION*PERIOD	6	162.000	6.80	0.0000
STATION*SEASON	6	162.000	1.86	0.0909
PERIOD*STATION*SEASON	6	162.000	0.28	0.9468

Results for Power Analysis
Power at alpha = .1

Source	Non-Centrality Parameter	Adjusted non-Centrality Parameter	Power	Adjusted Power	Power to Detect 50% Change
PERIOD	1.77	0.75	0.3765	0.2234	1.0000
STATION*PERIOD	40.78	34.28	0.9998	0.9989	0.8946

Estimates for contrasts on combinations of interaction terms

Source	Difference	Std. Err.	T-value	Prob.
Period in DC	-0.0082	0.0883	-0.092	.9264
Period in FC	0.1705	0.0840	2.030	.0440
Period in FC-S	0.2119	0.1016	2.086	.0386
Period in FC-W	0.1291	0.1337	0.965	.3358
Period in DC-S	0.0274	0.1142	0.240	.8108
Period in DC-W	-0.0437	0.1348	-0.324	.7462

Least square means & confidence intervals from analysis of variance

Source	LS Mean	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period Op-1	0.166	0.0072	23.03	.0000	0.1777	0.1538
Period Op-2	0.143	0.0159	8.99	.0000	0.1688	0.1163
Op-1-04	0.165	0.0214	7.72	.0000	0.2008	0.1299
Op-2-04	0.059	0.0509	1.15	.2510	0.1429	-0.0256
Op-1-05	0.255	0.0214	11.89	.0000	0.2902	0.2193
Op-2-05	0.198	0.0403	4.93	.0000	0.2650	0.1318
Op-1-06	0.075	0.0173	4.35	.0000	0.1038	0.0466
Op-2-06	0.068	0.0403	1.68	.0944	0.1343	0.0011
Op-1-08	0.162	0.0173	9.39	.0000	0.1910	0.1337
Op-2-08	0.157	0.0403	3.91	.0001	0.2241	0.0909
Op-1-09	0.207	0.0203	10.20	.0000	0.2403	0.1732
Op-2-09	0.279	0.0403	6.93	.0000	0.3457	0.2125
Op-1-10	0.006	0.0177	0.31	.7537	0.0348	-0.0237
Op-2-10	-0.203	0.0403	-5.04	.0000	-0.1364	-0.2696
Op-1-12	0.290	0.0173	16.78	.0000	0.3189	0.2617
Op-2-12	0.439	0.0403	10.92	.0000	0.5061	0.3729

Paired comparisons of least square means between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period	0.0232	0.0174	1.332	.1848	0.0520	-0.0056

Paired comparisons of least square means among stations between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Station 04	0.1067	0.0552	1.93	.0553	0.1981	0.0153
Station 05	0.0564	0.0456	1.24	.2183	0.1318	-0.0191
Station 06	0.0075	0.0438	0.17	.8648	0.0800	-0.0650
Station 08	0.0049	0.0438	0.11	.9118	0.0773	-0.0676
Station 09	-0.0724	0.0451	-1.61	.1103	0.0022	-0.1469
Station 10	0.2085	0.0440	4.74	.0000	0.2812	0.1358
Station 12	-0.1492	0.0438	-3.40	.0008	-0.0767	-0.2217

Station-period means and deltas from original data where control n=2

Station-Period	N	Station Mean	Range	Standard Error	Upper 95% c.i.	Lower 95% c.i.	Mean Delta	Delta Range	Upper 95% CIi.	Lower 95% C.I.
04 Op-1	17	1.21	0.78	0.068	1.35	1.06	0.53	1.13	0.70	0.36
04 Op-2	4	1.72	0.28	0.061	1.92	1.53	0.07	0.58	0.49	-0.35
05 Op-1	17	0.95	0.95	0.061	1.08	0.82	0.79	1.09	0.96	0.62
05 Op-2	5	1.25	0.62	0.137	1.63	0.87	0.54	0.88	1.06	0.03
06 Op-1	26	1.44	0.59	0.027	1.49	1.38	0.24	0.50	0.30	0.18
06 Op-2	5	1.58	0.15	0.027	1.66	1.51	0.21	0.28	0.37	0.06
08 Op-1	26	1.19	1.58	0.079	1.35	1.02	0.49	1.28	0.63	0.36
08 Op-2	5	1.34	0.47	0.089	1.59	1.09	0.46	0.57	0.78	0.14
09 Op-1	19	1.09	1.05	0.077	1.25	0.92	0.64	1.12	0.78	0.49
09 Op-2	5	0.98	0.84	0.139	1.36	0.59	0.82	0.73	1.18	0.47
10 Op-1	25	1.69	1.98	0.115	1.93	1.45	-0.01	1.66	0.18	-0.20
10 Op-2	5	2.56	0.49	0.079	2.78	2.34	-0.77	0.83	-0.37	-1.16
12 Op-1	26	0.81	0.71	0.032	0.88	0.75	0.87	0.97	0.97	0.76
12 Op-2	5	0.53	0.28	0.049	0.66	0.39	1.27	0.32	1.43	1.11

Period means and deltas from original control data where n=2

Period	N	Station Mean	Range	Standard Error	Upper 95% C.I.	Lower 95% C.I.
Op-1	26	1.68	0.74	0.038	1.76	1.60
Op-2	5	1.80	0.35	0.066	1.98	1.61

Analysis of Variance for HBT for ASPP - Spp. Algae
Stations = 4, 5, 6, 8, 9, 10, 12 level +3 ft MLLW

Data not transformed.

Source	Source df	Error df	F-value	Prob.
PERIOD	1	162.000	9.30	0.0027
SEASON	1	162.000	14.24	0.0002
STATION	6	162.000	47.52	0.0000
PERIOD*SEASON	1	162.000	0.13	0.7141
STATION*PERIOD	6	162.000	3.80	0.0014
STATION*SEASON	6	162.000	0.95	0.4639
PERIOD*STATION*SEASON	6	162.000	0.36	0.9056

Results for Power Analysis
Power at alpha = .1

Source	Non-Centrality Parameter	Adjusted non-Centrality Parameter	Power	Adjusted Power	Power to Detect 50% Change
PERIOD	9.30	8.18	0.9180	0.8857	1.0000
STATION*PERIOD	22.81	16.53	0.9812	0.9246	0.9999

Estimates for contrasts on combinations of interaction terms

Source	Difference	Std. Err.	T-value	Prob.
Period in DC	2.4441	1.3914	1.757	.0809
Period in FC	3.4098	1.3227	2.578	.0108
Period in FC-S	2.8734	1.6003	1.796	.0744
Period in FC-W	3.9462	2.1065	1.873	.0628
Period in DC-S	3.6850	1.7981	2.049	.0420
Period in DC-W	1.2032	2.1238	0.567	.5718

Least square means & confidence intervals from analysis of variance

Source	LS Mean	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period Op-1	2.883	0.1134	25.43	.0000	3.0702	2.6952
Period Op-2	2.046	0.2497	8.19	.0000	2.4596	1.6333
Op-1-04	1.977	0.3375	5.86	.0000	2.5358	1.4191
Op-2-04	-0.442	0.8021	-0.55	.5826	0.8852	-1.7685
Op-1-05	2.741	0.3375	8.12	.0000	3.2997	2.1830
Op-2-05	1.625	0.6341	2.56	.0113	2.6740	0.5760
Op-1-06	-0.067	0.2724	-0.25	.8052	0.3834	-0.5180
Op-2-06	0.058	0.6341	0.09	.9268	1.1073	-0.9907
Op-1-08	3.960	0.2724	14.53	.0000	4.4103	3.5089
Op-2-08	2.883	0.6341	4.55	.0000	3.9323	1.8343
Op-1-09	3.828	0.3192	11.99	.0000	4.3558	3.2998
Op-2-09	4.700	0.6341	7.41	.0000	5.7490	3.6510
Op-1-10	1.477	0.2781	5.31	.0000	1.9366	1.0166
Op-2-10	-1.283	0.6341	-2.02	.0446	-0.2343	-2.3323
Op-1-12	6.263	0.2724	22.99	.0000	6.7142	5.8127
Op-2-12	6.783	0.6341	10.70	.0000	7.8323	5.7343

Paired comparisons of least square means between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period	0.8363	0.2743	3.049	.0027	1.2900	0.3826

Paired comparisons of least square means among stations between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Station 04	2.4191	0.8702	2.78	.0061	3.8587	0.9795
Station 05	1.1163	0.7183	1.55	.1221	2.3047	-0.0720
Station 06	-0.1256	0.6901	-0.18	.8558	1.0161	-1.2674
Station 08	1.0763	0.6901	1.56	.1208	2.2180	-0.0654
Station 09	-0.8722	0.7099	-1.23	.2210	0.3021	-2.0466
Station 10	2.7599	0.6924	3.99	.0001	3.9054	1.6145
Station 12	-0.5199	0.6901	-0.75	.4524	0.6218	-1.6616

Station-period means and deltas from original data where control n=2

Station	Period	N	Station Mean	Range	Standard Error	Upper 95% c.i.	Lower 95% c.i.	Mean Delta	Delta Range	Upper 95% CII.	Lower 95% C.I.
04	Op-1	17	8.35	5.00	0.340	9.07	7.63	2.03	4.60	2.76	1.30
04	Op-2	4	10.73	1.40	0.320	11.74	9.71	-0.81	2.40	0.76	-2.39
05	Op-1	17	7.57	4.30	0.283	8.17	6.97	2.81	5.05	3.54	2.07
05	Op-2	5	8.60	2.20	0.365	9.61	7.59	1.45	3.80	3.13	-0.23
06	Op-1	26	9.99	2.70	0.156	10.31	9.67	-0.07	3.40	0.33	-0.47
06	Op-2	5	9.96	1.90	0.333	10.88	9.04	0.09	2.45	1.25	-1.07
08	Op-1	26	5.97	6.80	0.333	6.65	5.28	3.96	5.50	4.57	3.35
08	Op-2	5	7.30	2.40	0.397	8.40	6.20	2.75	2.45	3.96	1.54
09	Op-1	19	6.42	4.80	0.360	7.17	5.66	3.84	6.20	4.66	3.03
09	Op-2	5	5.50	2.10	0.374	6.54	4.46	4.55	2.40	5.80	3.30
10	Op-1	25	8.49	10.30	0.588	9.70	7.28	1.47	8.30	2.37	0.58
10	Op-2	5	11.52	2.80	0.450	12.77	10.27	-1.47	2.55	-0.10	-2.84
12	Op-1	26	3.66	2.90	0.133	3.94	3.39	6.26	4.75	6.75	5.77
12	Op-2	5	3.30	1.20	0.228	3.93	2.67	6.75	0.85	7.19	6.31

Period means and deltas from original control data where n=2

Period	N	Station Mean	Range	Standard Error	Upper 95% C.I.	Lower 95% C.I.
Op-1	26	9.93	3.80	0.223	10.38	9.47
Op-2	5	10.05	1.60	0.298	10.88	9.22

Analysis of Variance for HBT for 0049 - Calliarthron/Bossiella spp.-complex

Stations = 4, 5, 6, 8, 9, 10, 12 level +1 ft MLLW

Data transformed using log base10(x + .5)

Results for Analysis of Variance

Source	Source df	Error df	F-value	Prob.
PERIOD	1	160.000	0.73	0.3954
SEASON	1	160.000	0.58	0.4458
STATION	6	160.000	67.24	0.0000
PERIOD*SEASON	1	160.000	0.06	0.8105
STATION*PERIOD	6	160.000	0.24	0.9608
STATION*SEASON	6	160.000	0.81	0.5656
PERIOD*STATION*SEASON	6	160.000	0.31	0.9324

Results for Power Analysis
Power at alpha = .1

Source	Non-Centrality Parameter	Adjusted non-Centrality Parameter	Power	Adjusted Power	Power to Detect 50% Change
PERIOD	0.73	0.00	0.2193	.	1.0000
STATION*PERIOD	1.47	0.00	0.1957	.	0.9461

Estimates for contrasts on combinations of interaction terms

Source	Difference	Std. Err.	T-value	Prob.
Period in DC	-0.2381	0.2115	-1.125	.2621
Period in FC	-0.0111	0.2019	-0.055	.9561
Period in FC-S	-0.1670	0.2433	-0.687	.4933
Period in FC-W	0.1448	0.3222	0.449	.6537
Period in DC-S	-0.1524	0.2734	-0.557	.5780
Period in DC-W	-0.3237	0.3229	-1.003	.3175

Least square means & confidence intervals from analysis of variance

Source	LS Mean	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period Op-1	-0.022	0.0174	-1.24	.2165	0.0072	-0.0504
Period Op-2	0.014	0.0380	0.37	.7131	0.0768	-0.0488
Op-1-04	-0.188	0.0528	-3.56	.0005	-0.1008	-0.2756
Op-2-04	-0.251	0.1219	-2.06	.0413	-0.0491	-0.4525
Op-1-05	-0.570	0.0528	-10.79	.0000	-0.4824	-0.6571
Op-2-05	-0.517	0.0964	-5.36	.0000	-0.3572	-0.6761
Op-1-06	-0.460	0.0414	-11.09	.0000	-0.3910	-0.5280
Op-2-06	-0.439	0.0964	-4.55	.0000	-0.2794	-0.5984
Op-1-08	0.218	0.0485	4.49	.0000	0.2981	0.1376
Op-2-08	0.214	0.0964	2.22	.0280	0.3732	0.0542
Op-1-09	-0.111	0.0414	-2.68	.0082	-0.0424	-0.1795
Op-2-09	-0.067	0.0964	-0.70	.4855	0.0921	-0.2269
Op-1-10	0.474	0.0423	11.21	.0000	0.5439	0.4040
Op-2-10	0.563	0.0964	5.84	.0000	0.7224	0.4035
Op-1-12	0.485	0.0414	11.72	.0000	0.5538	0.4167
Op-2-12	0.595	0.0964	6.17	.0000	0.7544	0.4354

Paired comparisons of least square means between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period	-0.0356	0.0418	-0.852	.3954	0.0335	-0.1047

Paired comparisons of least square means among stations between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Station 04	0.0626	0.1329	0.47	.6383	0.2824	-0.1572
Station 05	-0.0531	0.1099	-0.48	.6298	0.1288	-0.2349
Station 06	-0.0206	0.1049	-0.20	.8444	0.1530	-0.1942
Station 08	0.0041	0.1079	0.04	.9695	0.1827	-0.1744
Station 09	-0.0435	0.1049	-0.42	.6787	0.1300	-0.2171
Station 10	-0.0890	0.1053	-0.85	.3992	0.0852	-0.2631
Station 12	-0.1097	0.1049	-1.05	.2975	0.0639	-0.2833

Station-period means and deltas from original data where control n=2

Station-Period	N	Station Mean	Range	Standard Error	Upper 95% c.i.	Lower 95% c.i.	Mean Delta	Delta Range	Upper 95% CIi.	Lower 95% C.I.
04 Op-1	16	2.20	4.44	0.342	2.93	1.47	-0.97	2.99	-0.46	-1.47
04 Op-2	4	3.06	3.89	0.930	6.02	0.10	-1.46	3.09	0.60	-3.52
05 Op-1	16	5.71	10.76	0.628	7.05	4.37	-4.47	9.90	-3.21	-5.74
05 Op-2	5	5.94	4.31	0.726	7.96	3.93	-4.42	4.41	-2.20	-6.65
06 Op-1	26	4.19	5.42	0.278	4.76	3.62	-2.98	5.42	-2.48	-3.48
06 Op-2	5	5.03	4.65	0.806	7.27	2.79	-3.51	3.40	-1.91	-5.10
08 Op-1	19	0.67	2.78	0.177	1.05	0.30	0.66	3.96	1.11	0.21
08 Op-2	5	0.74	1.60	0.266	1.47	-0.00	0.78	1.67	1.54	0.03
09 Op-1	26	2.76	12.78	0.703	4.21	1.32	-1.56	10.90	-0.36	-2.76
09 Op-2	5	2.22	5.14	0.956	4.88	-0.43	-0.70	4.13	1.50	-2.90
10 Op-1	25	0.03	0.28	0.013	0.06	0.00	1.18	3.30	1.52	0.84
10 Op-2	5	0.06	0.28	0.056	0.21	-0.10	1.47	2.05	2.45	0.48
12 Op-1	26	0.01	0.28	0.011	0.03	-0.01	1.19	3.30	1.53	0.86
12 Op-2	5	0.00	0.00	0.000	.	.	1.52	2.05	2.47	0.57

Period means and deltas from original control data where n=2

Period	N	Station Mean	Range	Standard Error	Upper 95% C.I.	Lower 95% C.I.
Op-1	26	1.20	3.30	0.161	1.54	0.87
Op-2	5	1.52	2.05	0.343	2.47	0.57

Analysis of Variance for HBT for 0185 - Callithamnion spp./Pleonosporium spp.

Stations = 4, 5, 6, 8, 9, 10, 12 level +1 ft MLLW

Data transformed using arcsin.

Results for Analysis of Variance

Source	Source df	Error df	F-value	Prob.
PERIOD	1	160.000	7.62	0.0065
SEASON	1	160.000	1.78	0.1844
STATION	6	160.000	1.49	0.1840
PERIOD*SEASON	1	160.000	1.10	0.2951
STATION*PERIOD	6	160.000	1.12	0.3552
STATION*SEASON	6	160.000	1.70	0.1243
PERIOD*STATION*SEASON	6	160.000	0.94	0.4712

Results for Power Analysis
Power at alpha = .1

Source	Non-Centrality Parameter	Adjusted non-Centrality Parameter	Power	Adjusted Power	Power to Detect 50% Change
PERIOD	7.62	6.52	0.8651	0.8155	0.1064
STATION*PERIOD	6.70	0.61	0.5636	0.1381	0.1037

Estimates for contrasts on combinations of interaction terms

Source	Difference	Std. Err.	T-value	Prob.
Period in DC	-2.1557	0.6269	-3.439	.0007
Period in FC	-0.2360	0.5983	-0.394	.6937
Period in FC-S	-0.5740	0.7211	-0.796	.4271
Period in FC-W	0.1020	0.9548	0.107	.9150
Period in DC-S	-0.9074	0.8102	-1.120	.2644
Period in DC-W	-3.4041	0.9569	-3.557	.0005

Least square means & confidence intervals from analysis of variance

Source	LS Mean	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period Op-1	0.162	0.0516	3.13	.0021	0.2472	0.0764
Period Op-2	0.503	0.1125	4.47	.0000	0.6896	0.3173
Op-1-04	0.182	0.1565	1.17	.2457	0.4412	-0.0766
Op-2-04	0.178	0.3614	0.49	.6231	0.7759	-0.4200
Op-1-05	0.088	0.1565	0.56	.5752	0.3468	-0.1710
Op-2-05	-0.213	0.2857	-0.75	.4563	0.2593	-0.6860
Op-1-06	0.170	0.1228	1.39	.1673	0.3734	-0.0328
Op-2-06	0.712	0.2857	2.49	.0137	1.1846	0.2392
Op-1-08	0.230	0.1438	1.60	.1121	0.4677	-0.0082
Op-2-08	0.712	0.2857	2.49	.0137	1.1846	0.2392
Op-1-09	0.112	0.1228	0.91	.3621	0.3153	-0.0909
Op-2-09	0.712	0.2857	2.49	.0137	1.1846	0.2392
Op-1-10	0.180	0.1253	1.43	.1536	0.3869	-0.0277
Op-2-10	0.712	0.2857	2.49	.0137	1.1846	0.2392
Op-1-12	0.170	0.1228	1.39	.1673	0.3734	-0.0328
Op-2-12	0.712	0.2857	2.49	.0137	1.1846	0.2392

Paired comparisons of least square means between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period	-0.3417	0.1238	-2.760	.0065	-0.1369	-0.5465

Paired comparisons of least square means among stations between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Station 04	0.0044	0.3938	0.01	.9911	0.6559	-0.6472
Station 05	0.3012	0.3258	0.92	.3565	0.8402	-0.2377
Station 06	-0.5416	0.3110	-1.74	.0835	-0.0271	-1.0561
Station 08	-0.4821	0.3199	-1.51	.1337	0.0470	-1.0113
Station 09	-0.5997	0.3110	-1.93	.0556	-0.0852	-1.1142
Station 10	-0.5323	0.3120	-1.71	.0899	-0.0161	-1.0484
Station 12	-0.5416	0.3110	-1.74	.0835	-0.0271	-1.0561

Station-period means and deltas from original data where control n=2

Station-Period		N	Station Mean	Range	Standard Error	Upper 95% C.I.	Lower 95% C.I.	Mean Delta	Delta Range	Upper 95% CIi.	Lower 95% C.I.
04	Op-1	16	0.00	0.07	0.004	0.01	-0.00	0.01	0.07	0.02	-0.00
04	Op-2	4	0.00	0.00	0.000	.	.	0.01	0.03	0.04	-0.02
05	Op-1	16	0.02	0.28	0.017	0.05	-0.02	-0.00	0.35	0.03	-0.04
05	Op-2	5	0.08	0.42	0.083	0.31	-0.15	-0.05	0.31	0.11	-0.21
06	Op-1	26	0.00	0.00	0.000	.	.	0.01	0.10	0.02	-0.00
06	Op-2	5	0.00	0.00	0.000	.	.	0.03	0.14	0.11	-0.04
08	Op-1	19	0.00	0.00	0.000	.	.	0.01	0.10	0.02	-0.00
08	Op-2	5	0.00	0.00	0.000	.	.	0.03	0.14	0.11	-0.04
09	Op-1	26	0.00	0.07	0.003	0.01	-0.00	0.01	0.17	0.02	-0.01
09	Op-2	5	0.00	0.00	0.000	.	.	0.03	0.14	0.11	-0.04
10	Op-1	25	0.00	0.00	0.000	.	.	0.01	0.10	0.02	-0.00
10	Op-2	5	0.00	0.00	0.000	.	.	0.03	0.14	0.11	-0.04
12	Op-1	26	0.00	0.00	0.000	.	.	0.01	0.10	0.02	-0.00
12	Op-2	5	0.00	0.00	0.000	.	.	0.03	0.14	0.11	-0.04

Period means and deltas from original control data where n=2

Period	N	Station Mean	Range	Standard Error	Upper 95% C.I.	Lower 95% C.I.
Op-1	26	0.01	0.10	0.005	0.02	-0.00
Op-2	5	0.03	0.14	0.027	0.11	-0.04

Analysis of Variance for HBT for 0077 - Chondracanthus canaliculatus

Stations = 4, 5, 6, 8, 9, 10, 12 level +1 ft MLLW

Data not transformed.

Results for Analysis of Variance

Source	Source df	Error df	F-value	Prob.
PERIOD	1	160.000	5.34	0.0221
SEASON	1	160.000	12.63	0.0005
STATION	6	160.000	11.95	0.0000
PERIOD*SEASON	1	160.000	3.13	0.0786
STATION*PERIOD	6	160.000	3.13	0.0064
STATION*SEASON	6	160.000	0.90	0.5001
PERIOD*STATION*SEASON	6	160.000	0.73	0.6237

Results for Power Analysis
Power at alpha = .1

Source	Non-Centrality Parameter	Adjusted non-Centrality Parameter	Power	Adjusted Power	Power to Detect 50% Change
PERIOD	5.34	4.27	0.7442	0.6605	0.9809
STATION*PERIOD	18.75	12.52	0.9530	0.8339	0.6940

Estimates for contrasts on combinations of interaction terms

Source	Difference	Std. Err.	T-value	Prob.
Period in DC	-15.2690	4.2827	-3.565	.0005
Period in FC	1.5899	4.0869	0.389	.6978
Period in FC-S	-2.6649	4.9257	-0.541	.5892
Period in FC-W	5.8447	6.5228	0.896	.3716
Period in DC-S	-21.4942	5.5345	-3.884	.0002
Period in DC-W	-9.0437	6.5372	-1.383	.1685

Least square means & confidence intervals from analysis of variance

Source	LS Mean	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period Op-1	11.259	0.3526	31.93	.0000	11.8427	10.6759
Period Op-2	13.213	0.7687	17.19	.0000	14.4852	11.9418
Op-1-04	14.078	1.0690	13.17	.0000	15.8463	12.3091
Op-2-04	8.721	2.4688	3.53	.0005	12.8055	4.6366
Op-1-05	13.761	1.0690	12.87	.0000	15.5295	11.9922
Op-2-05	15.842	1.9518	8.12	.0000	19.0711	12.6130
Op-1-06	12.762	0.8386	15.22	.0000	14.1492	11.3743
Op-2-06	14.447	1.9518	7.40	.0000	17.6764	11.2183
Op-1-08	7.720	0.9824	7.86	.0000	9.3450	6.0945
Op-2-08	7.590	1.9518	3.89	.0001	10.8187	4.3607
Op-1-09	10.954	0.8386	13.06	.0000	12.3409	9.5661
Op-2-09	18.874	1.9518	9.67	.0000	22.1035	15.6454
Op-1-10	5.917	0.8559	6.91	.0000	7.3332	4.5011
Op-2-10	7.867	1.9518	4.03	.0001	11.0965	4.6384
Op-1-12	13.624	0.8386	16.25	.0000	15.0119	12.2370
Op-2-12	19.152	1.9518	9.81	.0000	22.3812	15.9232

Paired comparisons of least square means between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period	-1.9542	0.8457	-2.311	.0221	-0.5550	-3.3533

Paired comparisons of least square means among stations between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Station 04	5.3566	2.6903	1.99	.0482	9.8076	0.9057
Station 05	-2.0812	2.2253	-0.94	.3511	1.6005	-5.7628
Station 06	-1.6856	2.1243	-0.79	.4287	1.8289	-5.2001
Station 08	0.1300	2.1850	0.06	.9526	3.7450	-3.4850
Station 09	-7.9209	2.1243	-3.73	.0003	-4.4064	-11.4354
Station 10	-1.9503	2.1312	-0.92	.3615	1.5755	-5.4762
Station 12	-5.5277	2.1243	-2.60	.0101	-2.0132	-9.0422

Station-period means and deltas from original data where control n=2

Station-Period	N	Station Mean	Range	Standard Error	Upper 95% c.i.	Lower 95% c.i.	Mean Delta	Delta Range	Upper 95% CIi.	Lower 95% C.I.
04 Op-1	16	2.05	8.47	0.579	3.28	0.81	14.08	14.06	16.24	11.91
04 Op-2	4	13.77	11.11	2.497	21.71	5.82	8.22	4.34	11.37	5.07
05 Op-1	16	2.37	4.31	0.340	3.09	1.64	13.76	17.50	15.82	11.70
05 Op-2	5	4.89	6.11	1.072	7.87	1.91	16.37	10.31	21.36	11.39
06 Op-1	26	1.51	4.72	0.236	2.00	1.03	12.76	15.73	14.21	11.31
06 Op-2	5	5.79	6.39	1.106	8.86	2.72	15.47	13.82	23.12	7.83
08 Op-1	19	7.56	21.60	1.558	10.84	4.29	7.71	15.42	9.93	5.49
08 Op-2	5	13.67	10.83	2.263	19.95	7.38	7.60	13.68	13.93	1.27
09 Op-1	26	3.32	11.67	0.675	4.71	1.93	10.95	12.74	12.14	9.77
09 Op-2	5	1.81	1.67	0.291	2.61	1.00	19.46	9.48	24.96	13.96
10 Op-1	25	8.51	27.29	1.794	12.22	4.81	5.97	23.92	8.61	3.33
10 Op-2	5	12.82	12.57	2.382	19.43	6.21	8.44	15.97	15.88	1.01
12 Op-1	26	0.65	6.46	0.288	1.24	0.06	13.62	15.24	15.09	12.16
12 Op-2	5	1.49	2.50	0.414	2.64	0.34	19.78	10.31	25.23	14.32

Period means and deltas from original control data where n=2

Period	N	Station Mean	Range	Standard Error	Upper 95% C.I.	Lower 95% C.I.
Op-1	26	14.27	18.02	0.836	15.99	12.55
Op-2	5	21.26	9.76	1.981	26.76	15.76

Analysis of Variance for HBT for 0125 - Chondracanthus corymbiferus

Stations = 4, 5, 6, 8, 9, 10, 12 level +1 ft MLLW

Data transformed using arcsin.

Results for Analysis of Variance

Source	Source df	Error df	F-value	Prob.
PERIOD	1	160.000	2.37	0.1260
SEASON	1	160.000	2.23	0.1371
STATION	6	160.000	0.35	0.9074
PERIOD*SEASON	1	160.000	0.99	0.3214
STATION*PERIOD	6	160.000	0.54	0.7793
STATION*SEASON	6	160.000	0.26	0.9538
PERIOD*STATION*SEASON	6	160.000	0.22	0.9688

Results for Power Analysis
Power at alpha = .1

Source	Non-Centrality Parameter	Adjusted non-Centrality Parameter	Power	Adjusted Power	Power to Detect 50% Change
PERIOD	2.37	1.34	0.4557	0.3133	0.1416
STATION*PERIOD	3.22	0.00	0.3225	.	0.1062

Estimates for contrasts on combinations of interaction terms

Source	Difference	Std. Err.	T-value	Prob.
Period in DC	-3.5246	1.5936	-2.212	.0284
Period in FC	0.1365	1.5207	0.090	.9286
Period in FC-S	-0.7118	1.8328	-0.388	.6983
Period in FC-W	0.9847	2.4271	0.406	.6855
Period in DC-S	-4.8675	2.0594	-2.364	.0193
Period in DC-W	-2.1817	2.4325	-0.897	.3711

Least square means & confidence intervals from analysis of variance

Source	LS Mean	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period Op-1	1.584	0.1312	12.07	.0000	1.8012	1.3670
Period Op-2	2.068	0.2860	7.23	.0000	2.5413	1.5949
Op-1-04	1.823	0.3978	4.58	.0000	2.4814	1.1652
Op-2-04	0.898	0.9186	0.98	.3300	2.4174	-0.6222
Op-1-05	1.891	0.3978	4.75	.0000	2.5492	1.2330
Op-2-05	2.008	0.7262	2.77	.0063	3.2100	0.8070
Op-1-06	1.610	0.3120	5.16	.0000	2.1262	1.0937
Op-2-06	2.282	0.7262	3.14	.0020	3.4832	1.0802
Op-1-08	1.548	0.3655	4.23	.0000	2.1526	0.9431
Op-2-08	2.386	0.7262	3.29	.0013	3.5875	1.1845
Op-1-09	1.303	0.3120	4.18	.0000	1.8196	0.7871
Op-2-09	2.282	0.7262	3.14	.0020	3.4832	1.0802
Op-1-10	1.245	0.3185	3.91	.0001	1.7722	0.7184
Op-2-10	1.984	0.7262	2.73	.0070	3.1852	0.7821
Op-1-12	1.668	0.3120	5.35	.0000	2.1843	1.1518
Op-2-12	2.638	0.7262	3.63	.0004	3.8392	1.4362

Paired comparisons of least square means between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period	-0.4840	0.3147	-1.538	.1260	0.0366	-1.0046

Paired comparisons of least square means among stations between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Station 04	0.9257	1.0011	0.92	.3565	2.5819	-0.7305
Station 05	-0.1174	0.8280	-0.14	.8874	1.2525	-1.4874
Station 06	-0.6718	0.7904	-0.85	.3967	0.6359	-1.9795
Station 08	-0.8382	0.8130	-1.03	.3041	0.5069	-2.1833
Station 09	-0.9784	0.7904	-1.24	.2176	0.3293	-2.2861
Station 10	-0.7383	0.7930	-0.93	.3532	0.5736	-2.0503
Station 12	-0.9697	0.7904	-1.23	.2217	0.3381	-2.2774

Station-period means and deltas from original data where control n=2

Station	Period	N	Station Mean	Range	Standard Error	Upper 95% c.i.	Lower 95% c.i.	Mean Delta	Delta Range	Upper 95% CIi.	Lower 95% C.I.
04	Op-1	16	0.03	0.42	0.026	0.09	-0.02	0.19	0.80	0.31	0.07
04	Op-2	4	0.12	0.14	0.033	0.23	0.02	0.14	0.49	0.48	-0.20
05	Op-1	16	0.03	0.28	0.021	0.08	-0.01	0.19	0.87	0.33	0.06
05	Op-2	5	0.03	0.07	0.017	0.08	-0.02	0.21	0.28	0.36	0.06
06	Op-1	26	0.00	0.07	0.003	0.01	-0.00	0.15	0.80	0.23	0.06
06	Op-2	5	0.03	0.14	0.028	0.10	-0.05	0.21	0.35	0.38	0.04
08	Op-1	19	0.03	0.14	0.011	0.05	0.01	0.17	0.83	0.28	0.06
08	Op-2	5	0.01	0.07	0.014	0.05	-0.02	0.22	0.42	0.43	0.01
09	Op-1	26	0.03	0.42	0.017	0.07	-0.01	0.12	1.11	0.21	0.03
09	Op-2	5	0.03	0.14	0.028	0.10	-0.05	0.21	0.49	0.45	-0.04
10	Op-1	25	0.03	0.21	0.015	0.06	0.00	0.12	0.66	0.19	0.05
10	Op-2	5	0.04	0.21	0.042	0.16	-0.07	0.19	0.45	0.44	-0.05
12	Op-1	26	0.00	0.00	0.000	.	.	0.15	0.73	0.23	0.07
12	Op-2	5	0.00	0.00	0.000	.	.	0.24	0.35	0.41	0.06

Period means and deltas from original control data where n=2

Period	N	Station Mean	Range	Standard Error	Upper 95% C.I.	Lower 95% C.I.
Op-1	26	0.15	0.73	0.040	0.23	0.07
Op-2	5	0.24	0.35	0.064	0.41	0.06

Analysis of Variance for HBT for 1305 - Chondracanthus harveyanus/spinosus

Stations = 4, 5, 6, 8, 9, 10, 12 level +1 ft MLLW

Data transformed using log base10(x + .1)

Satterthwaite's Adjustment for Degrees of Freedom used in Analysis of Variance.

Results for Analysis of Variance

Source	Source df	Error df	F-value	Prob.
PERIOD	1	160.000	22.20	0.0000
SEASON	1	160.000	6.39	0.0124
STATION	6	160.000	13.60	0.0000
PERIOD*SEASON	1	160.000	4.45	0.0365
STATION*PERIOD	6	160.000	11.52	0.0000
STATION*SEASON	6	160.000	5.54	0.0000
PERIOD*STATION*SEASON	6	160.000	4.38	0.0004

Results for Power Analysis
Power at alpha = .1

Source	Non-Centrality Parameter	Adjusted non-Centrality Parameter	Power	Adjusted Power	Power to Detect 50% Change
PERIOD	22.20	20.92	0.9988	0.9982	0.1030
STATION*PERIOD	69.11	62.25	1.0000	1.0000	0.1030

Estimates for contrasts on combinations of interaction terms

Source	Difference	Std. Err.	T-value	Prob.
Period in DC	0.7850	0.1205	6.513	.0000
Period in FC	0.0000	0.1150	0.000	1.000
Period in FC-S	0.0000	0.1386	0.000	1.000
Period in FC-W	-0.0000	0.1836	-0.000	1.000
Period in DC-S	1.1364	0.1558	7.296	.0000
Period in DC-W	0.4336	0.1840	2.357	.0196

Least square means & confidence intervals from analysis of variance

Source	LS Mean	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period Op-1	-0.005	0.0099	-0.50	.6158	0.0114	-0.0214
Period Op-2	-0.117	0.0216	-5.41	.0000	-0.0813	-0.1529
Op-1-04	0.000	0.0301	0.00	1.000	0.0498	-0.0498
Op-2-04	0.000	0.0695	0.00	1.000	0.1150	-0.1150
Op-1-05	0.000	0.0301	0.00	1.000	0.0498	-0.0498
Op-2-05	-0.000	0.0549	-0.00	1.000	0.0909	-0.0909
Op-1-06	0.000	0.0236	0.00	1.000	0.0390	-0.0390
Op-2-06	0.000	0.0549	0.00	1.000	0.0909	-0.0909
Op-1-08	-0.013	0.0276	-0.46	.6460	0.0330	-0.0585
Op-2-08	-0.272	0.0549	-4.96	.0000	-0.1814	-0.3631
Op-1-09	0.000	0.0236	0.00	1.000	0.0390	-0.0390
Op-2-09	0.000	0.0549	0.00	1.000	0.0909	-0.0909
Op-1-10	-0.022	0.0241	-0.92	.3581	0.0177	-0.0621
Op-2-10	-0.548	0.0549	-9.97	.0000	-0.4568	-0.6385
Op-1-12	0.000	0.0236	0.00	1.000	0.0390	-0.0390
Op-2-12	-0.000	0.0549	-0.00	1.000	0.0909	-0.0909

Paired comparisons of least square means between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period	0.1121	0.0238	4.712	.0000	0.1515	0.0728

Paired comparisons of least square means among stations between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Station 04	0.0000	0.0757	0.00	1.000	0.1253	-0.1253
Station 05	0.0000	0.0626	0.00	1.000	0.1036	-0.1036
Station 06	-0.0000	0.0598	-0.00	1.000	0.0989	-0.0989
Station 08	0.2595	0.0615	4.22	.0000	0.3613	0.1578
Station 09	-0.0000	0.0598	-0.00	1.000	0.0989	-0.0989
Station 10	0.5255	0.0600	8.76	.0000	0.6247	0.4262
Station 12	0.0000	0.0598	0.00	1.000	0.0989	-0.0989

Station-period means and deltas from original data where control n=2

Station-Period	N	Station Mean	Range	Standard Error	Upper 95% c.i.	Lower 95% c.i.	Mean Delta	Delta Range	Upper 95% CIi.	Lower 95% C.I.
04 Op-1	16	0.00	0.00	0.000	.	.	0.00	0.00	.	.
04 Op-2	4	0.00	0.00	0.000	.	.	0.00	0.00	.	.
05 Op-1	16	0.00	0.00	0.000	.	.	0.00	0.00	.	.
05 Op-2	5	0.00	0.00	0.000	.	.	0.00	0.00	.	.
06 Op-1	26	0.00	0.00	0.000	.	.	0.00	0.00	.	.
06 Op-2	5	0.00	0.00	0.000	.	.	0.00	0.00	.	.
08 Op-1	19	0.00	0.07	0.004	0.01	-0.00	-0.00	0.07	0.00	-0.01
08 Op-2	5	0.18	0.69	0.135	0.55	-0.19	-0.18	0.69	0.19	-0.55
09 Op-1	26	0.00	0.00	0.000	.	.	0.00	0.00	.	.
09 Op-2	5	0.00	0.00	0.000	.	.	0.00	0.00	.	.
10 Op-1	25	0.01	0.28	0.011	0.03	-0.01	-0.01	0.28	0.01	-0.03
10 Op-2	5	0.90	2.22	0.525	2.36	-0.56	-0.90	2.22	0.56	-2.36
12 Op-1	26	0.00	0.00	0.000	.	.	0.00	0.00	.	.
12 Op-2	5	0.00	0.00	0.000	.	.	0.00	0.00	.	.

Period means and deltas from original control data where n=2

Period	N	Station Mean	Range	Standard Error	Upper 95% C.I.	Lower 95% C.I.
Op-1	26	0.00	0.00	0.000	.	.
Op-2	5	0.00	0.00	0.000	.	.

Analysis of Variance for HBT for 0987 - Chondria decipiens

Stations = 4, 5, 6, 8, 9, 10, 12 level +1 ft MLLW

Data transformed using arcsin.

Satterthwaite's Adjustment for Degrees of Freedom used in Analysis of Variance.

Results for Analysis of Variance

Source	Source df	Error df	F-value	Prob.
PERIOD	1	160.000	15.51	0.0001
SEASON	1	160.000	0.73	0.3944
STATION	6	160.000	12.05	0.0000
PERIOD*SEASON	1	160.000	0.37	0.5441
STATION*PERIOD	6	160.000	10.39	0.0000
STATION*SEASON	6	160.000	0.00	1.0000
PERIOD*STATION*SEASON	6	160.000	0.07	0.9987

Results for Power Analysis
Power at alpha = .1

Source	Non-Centrality Parameter	Adjusted non-Centrality Parameter	Power	Adjusted Power	Power to Detect 50% Change
PERIOD	15.51	14.32	0.9886	0.9831	0.1005
STATION*PERIOD	62.35	55.57	1.0000	1.0000	0.1011

Estimates for contrasts on combinations of interaction terms

Source	Difference	Std. Err.	T-value	Prob.
Period in DC	2.1160	0.4340	4.875	.0000
Period in FC	0.2468	0.4142	0.596	.5520
Period in FC-S	0.0000	0.4992	0.000	1.000
Period in FC-W	0.4937	0.6610	0.747	.4563
Period in DC-S	1.9981	0.5609	3.562	.0005
Period in DC-W	2.2338	0.6625	3.372	.0009

Least square means & confidence intervals from analysis of variance

Source	LS Mean	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period Op-1	0.063	0.0357	1.75	.0815	0.1218	0.0035
Period Op-2	-0.275	0.0779	-3.53	.0005	-0.1460	-0.4038
Op-1-04	0.094	0.1083	0.87	.3850	0.2736	-0.0849
Op-2-04	0.000	0.2502	0.00	1.000	0.4139	-0.4139
Op-1-05	0.094	0.1083	0.87	.3850	0.2736	-0.0849
Op-2-05	-0.000	0.1978	-0.00	1.000	0.3272	-0.3272
Op-1-06	0.058	0.0850	0.68	.4953	0.1987	-0.0825
Op-2-06	0.000	0.1978	0.00	1.000	0.3272	-0.3272
Op-1-08	0.076	0.0996	0.76	.4493	0.2402	-0.0892
Op-2-08	-0.000	0.1978	-0.00	1.000	0.3272	-0.3272
Op-1-09	0.058	0.0850	0.68	.4953	0.1987	-0.0825
Op-2-09	0.000	0.1978	0.00	1.000	0.3272	-0.3272
Op-1-10	-0.000	0.0867	-0.00	1.000	0.1435	-0.1435
Op-2-10	-1.924	0.1978	-9.73	.0000	-1.5971	-2.2515
Op-1-12	0.058	0.0850	0.68	.4953	0.1987	-0.0825
Op-2-12	-0.000	0.1978	-0.00	1.000	0.3272	-0.3272

Paired comparisons of least square means between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period	0.3375	0.0857	3.939	.0001	0.4793	0.1958

Paired comparisons of least square means among stations between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Station 04	0.0944	0.2726	0.35	.7297	0.5454	-0.3567
Station 05	0.0944	0.2255	0.42	.6761	0.4675	-0.2787
Station 06	0.0581	0.2153	0.27	.7877	0.4142	-0.2981
Station 08	0.0755	0.2214	0.34	.7336	0.4418	-0.2908
Station 09	0.0581	0.2153	0.27	.7877	0.4142	-0.2981
Station 10	1.9243	0.2160	8.91	.0000	2.2816	1.5670
Station 12	0.0581	0.2153	0.27	.7877	0.4142	-0.2981

Station-period means and deltas from original data where control n=2

Station-Period		N	Station Mean	Range	Standard Error	Upper 95% c.i.	Lower 95% c.i.	Mean Delta	Delta Range	Upper 95% CIi.	Lower 95% C.I.
04	Op-1	16	0.00	0.00	0.000	.	.	0.00	0.07	0.01	-0.00
04	Op-2	4	0.00	0.00	0.000	.	.	0.00	0.00	.	.
05	Op-1	16	0.00	0.00	0.000	.	.	0.00	0.07	0.01	-0.00
05	Op-2	5	0.00	0.00	0.000	.	.	0.00	0.00	.	.
06	Op-1	26	0.00	0.00	0.000	.	.	0.00	0.07	0.01	-0.00
06	Op-2	5	0.00	0.00	0.000	.	.	0.00	0.00	.	.
08	Op-1	19	0.00	0.00	0.000	.	.	0.00	0.07	0.01	-0.00
08	Op-2	5	0.00	0.00	0.000	.	.	0.00	0.00	.	.
09	Op-1	26	0.00	0.00	0.000	.	.	0.00	0.07	0.01	-0.00
09	Op-2	5	0.00	0.00	0.000	.	.	0.00	0.00	.	.
10	Op-1	25	0.00	0.07	0.003	0.01	-0.00	0.00	0.14	0.01	-0.01
10	Op-2	5	0.19	0.42	0.086	0.43	-0.04	-0.19	0.42	0.04	-0.43
12	Op-1	26	0.00	0.00	0.000	.	.	0.00	0.07	0.01	-0.00
12	Op-2	5	0.00	0.00	0.000	.	.	0.00	0.00	.	.

Period means and deltas from original control data where n=2

Period	N	Station Mean	Range	Standard Error	Upper 95% C.I.	Lower 95% C.I.
Op-1	26	0.00	0.07	0.003	0.01	-0.00
Op-2	5	0.00	0.00	0.000	.	.

Analysis of Variance for HBT for 1302 - Chrysophyta unid.

Stations = 4, 5, 6, 8, 9, 10, 12 level +1 ft MLLW

Data transformed using 1/(x + .1)

Results for Analysis of Variance

Source	Source df	Error df	F-value	Prob.
PERIOD	1	160.000	19.52	0.0000
SEASON	1	160.000	1.28	0.2595
STATION	6	160.000	2.32	0.0360
PERIOD*SEASON	1	160.000	0.90	0.3435
STATION*PERIOD	6	160.000	1.41	0.2129
STATION*SEASON	6	160.000	0.63	0.7091
PERIOD*STATION*SEASON	6	160.000	0.19	0.9806

Results for Power Analysis
Power at alpha = .1

Source	Non-Centrality Parameter	Adjusted non-Centrality Parameter	Power	Adjusted Power	Power to Detect 50% Change
PERIOD	19.52	18.28	0.9971	0.9955	0.1291
STATION*PERIOD	8.47	2.37	0.6663	0.2599	0.1032

Estimates for contrasts on combinations of interaction terms

Source	Difference	Std. Err.	T-value	Prob.
Period in DC	-11.4237	3.0151	-3.789	.0002
Period in FC	-6.9906	2.8772	-2.430	.0162
Period in FC-S	-10.0993	3.4678	-2.912	.0041
Period in FC-W	-3.8820	4.5922	-0.845	.3992
Period in DC-S	-12.2750	3.8964	-3.150	.0019
Period in DC-W	-10.5724	4.6023	-2.297	.0229

Least square means & confidence intervals from analysis of variance

Source	LS Mean	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period Op-1	0.379	0.2483	1.53	.1290	0.7895	-0.0319
Period Op-2	3.009	0.5412	5.56	.0000	3.9047	2.1141
Op-1-04	0.032	0.7526	0.04	.9658	1.2775	-1.2128
Op-2-04	0.683	1.7381	0.39	.6948	3.5586	-2.1925
Op-1-05	-0.224	0.7526	-0.30	.7666	1.0213	-1.4690
Op-2-05	4.153	1.3741	3.02	.0029	6.4264	1.8798
Op-1-06	0.637	0.5904	1.08	.2823	1.6137	-0.3399
Op-2-06	2.600	1.3741	1.89	.0603	4.8732	0.3266
Op-1-08	0.726	0.6916	1.05	.2955	1.8700	-0.4184
Op-2-08	5.074	1.3741	3.69	.0003	7.3475	2.8009
Op-1-09	0.877	0.5904	1.49	.1393	1.8541	-0.0995
Op-2-09	5.487	1.3741	3.99	.0001	7.7606	3.2140
Op-1-10	0.672	0.6026	1.11	.2667	1.6686	-0.3253
Op-2-10	3.068	1.3741	2.23	.0269	5.3418	0.7952
Op-1-12	-0.069	0.5904	-0.12	.9077	0.9082	-1.0453
Op-2-12	0.000	1.3741	0.00	1.000	2.2733	-2.2733

Paired comparisons of least square means between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period	-2.6306	0.5954	-4.418	.0000	-1.6456	-3.6156

Paired comparisons of least square means among stations between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Station 04	-0.6507	1.8940	-0.34	.7316	2.4828	-3.7843
Station 05	-4.3769	1.5667	-2.79	.0058	-1.7849	-6.9689
Station 06	-1.9630	1.4955	-1.31	.1912	0.5113	-4.4373
Station 08	-4.3483	1.5383	-2.83	.0053	-1.8033	-6.8934
Station 09	-4.6100	1.4955	-3.08	.0024	-2.1357	-7.0842
Station 10	-2.3968	1.5004	-1.60	.1121	0.0855	-4.8791
Station 12	-0.0685	1.4955	-0.05	.9635	2.4057	-2.5428

Station-period means and deltas from original data where control n=2

Station-Period	N	Station Mean	Range	Standard Error	Upper 95% C.I.	Lower 95% C.I.	Mean Delta	Delta Range	Upper 95% CIi.	Lower 95% C.I.
04 Op-1	16	0.01	0.07	0.006	0.02	-0.00	-0.00	0.17	0.02	-0.02
04 Op-2	4	0.02	0.07	0.017	0.07	-0.04	-0.02	0.07	0.04	-0.07
05 Op-1	16	0.00	0.07	0.004	0.01	-0.00	0.00	0.17	0.02	-0.01
05 Op-2	5	0.31	1.11	0.211	0.89	-0.28	-0.31	1.11	0.28	-0.89
06 Op-1	26	0.03	0.35	0.015	0.06	-0.00	-0.02	0.45	0.01	-0.06
06 Op-2	5	0.19	0.76	0.148	0.61	-0.22	-0.19	0.76	0.22	-0.61
08 Op-1	19	0.13	1.25	0.085	0.31	-0.05	-0.12	1.35	0.06	-0.30
08 Op-2	5	3.74	17.99	3.563	13.63	-6.16	-3.74	17.99	6.16	-13.63
09 Op-1	26	0.47	9.44	0.370	1.24	-0.29	-0.47	9.55	0.30	-1.23
09 Op-2	5	3.78	14.79	2.835	11.65	-4.09	-3.78	14.79	4.09	-11.65
10 Op-1	25	0.11	1.04	0.060	0.23	-0.02	-0.10	1.15	0.02	-0.23
10 Op-2	5	0.65	3.12	0.619	2.37	-1.06	-0.65	3.12	1.06	-2.37
12 Op-1	26	0.02	0.56	0.021	0.07	-0.02	-0.01	0.49	0.02	-0.05
12 Op-2	5	0.00	0.00	0.000	.	.	0.00	0.00	.	.

Period means and deltas from original control data where n=2

Period	N	Station Mean	Range	Standard Error	Upper 95% C.I.	Lower 95% C.I.
Op-1	26	0.01	0.10	0.004	0.02	-0.00
Op-2	5	0.00	0.00	0.000	.	.

Analysis of Variance for HBT for 0055 - Corallina officinalis

Stations = 4, 5, 6, 8, 9, 10, 12 level +1 ft MLLW

Data transformed using arcsin.

Results for Analysis of Variance

Source	Source df	Error df	F-value	Prob.
PERIOD	1	160.000	0.90	0.3452
SEASON	1	160.000	15.62	0.0001
STATION	6	160.000	0.65	0.6905
PERIOD*SEASON	1	160.000	3.02	0.0843
STATION*PERIOD	6	160.000	0.67	0.6724
STATION*SEASON	6	160.000	0.81	0.5662
PERIOD*STATION*SEASON	6	160.000	0.92	0.4853

Results for Power Analysis
Power at alpha = .1

Source	Non-Centrality Parameter	Adjusted non-Centrality Parameter	Power	Adjusted Power	Power to Detect 50% Change
PERIOD	0.90	0.00	0.2461	.	0.1330
STATION*PERIOD	4.03	0.00	0.3815	.	0.1167

Estimates for contrasts on combinations of interaction terms

Source	Difference	Std. Err.	T-value	Prob.
Period in DC	-0.5027	1.0983	-0.458	.6478
Period in FC	1.9399	1.0481	1.851	.0660
Period in FC-S	0.9709	1.2632	0.769	.4432
Period in FC-W	2.9089	1.6728	1.739	.0840
Period in DC-S	-2.1713	1.4194	-1.530	.1280
Period in DC-W	1.1658	1.6765	0.695	.4878

Least square means & confidence intervals from analysis of variance

Source	LS Mean	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period Op-1	1.000	0.0904	11.06	.0000	1.1497	0.8504
Period Op-2	0.795	0.1971	4.03	.0001	1.1209	0.4686
Op-1-04	1.245	0.2742	4.54	.0000	1.6987	0.7916
Op-2-04	0.681	0.6331	1.08	.2835	1.7288	-0.3662
Op-1-05	0.858	0.2742	3.13	.0021	1.3119	0.4048
Op-2-05	0.075	0.5005	0.15	.8818	0.9027	-0.7535
Op-1-06	1.103	0.2151	5.13	.0000	1.4591	0.7475
Op-2-06	0.511	0.5005	1.02	.3088	1.3391	-0.3171
Op-1-08	0.965	0.2519	3.83	.0002	1.3822	0.5486
Op-2-08	1.074	0.5005	2.15	.0334	1.9022	0.2460
Op-1-09	0.551	0.2151	2.56	.0114	0.9064	0.1948
Op-2-09	1.074	0.5005	2.15	.0334	1.9022	0.2460
Op-1-10	1.174	0.2195	5.35	.0000	1.5374	0.8111
Op-2-10	1.074	0.5005	2.15	.0334	1.9022	0.2460
Op-1-12	1.103	0.2151	5.13	.0000	1.4591	0.7475
Op-2-12	1.074	0.5005	2.15	.0334	1.9022	0.2460

Paired comparisons of least square means between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period	0.2053	0.2169	0.947	.3452	0.5641	-0.1535

Paired comparisons of least square means among stations between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Station 04	0.5639	0.6899	0.82	.4150	1.7053	-0.5776
Station 05	0.7838	0.5707	1.37	.1715	1.7280	-0.1604
Station 06	0.5923	0.5448	1.09	.2786	1.4936	-0.3090
Station 08	-0.1086	0.5604	-0.19	.8465	0.8184	-1.0357
Station 09	-0.5235	0.5448	-0.96	.3381	0.3778	-1.4248
Station 10	0.1002	0.5465	0.18	.8548	1.0044	-0.8041
Station 12	0.0292	0.5448	0.05	.9573	0.9305	-0.8721

Station-period means and deltas from original data where control n=2

Station-Period	N	Station Mean	Range	Standard Error	Upper 95% c.i.	Lower 95% c.i.	Mean Delta	Delta Range	Upper 95% CIi.	Lower 95% C.I.
04 Op-1	16	0.00	0.07	0.004	0.01	-0.00	0.08	0.24	0.13	0.04
04 Op-2	4	0.03	0.07	0.020	0.10	-0.03	0.01	0.14	0.12	-0.11
05 Op-1	16	0.06	0.49	0.039	0.14	-0.03	0.03	0.66	0.11	-0.05
05 Op-2	5	0.10	0.49	0.097	0.37	-0.17	-0.06	0.49	0.20	-0.31
06 Op-1	26	0.00	0.00	0.000	.	.	0.07	0.31	0.11	0.03
06 Op-2	5	0.07	0.35	0.069	0.26	-0.12	-0.03	0.42	0.19	-0.25
08 Op-1	19	0.01	0.21	0.011	0.04	-0.01	0.06	0.52	0.12	0.01
08 Op-2	5	0.00	0.00	0.000	.	.	0.04	0.07	0.08	0.01
09 Op-1	26	0.05	0.42	0.021	0.09	0.00	0.02	0.69	0.08	-0.03
09 Op-2	5	0.00	0.00	0.000	.	.	0.04	0.07	0.08	0.01
10 Op-1	25	0.00	0.00	0.000	.	.	0.07	0.31	0.11	0.04
10 Op-2	5	0.00	0.00	0.000	.	.	0.04	0.07	0.08	0.01
12 Op-1	26	0.00	0.00	0.000	.	.	0.07	0.31	0.11	0.03
12 Op-2	5	0.00	0.00	0.000	.	.	0.04	0.07	0.08	0.01

Period means and deltas from original control data where n=2

Period	N	Station Mean	Range	Standard Error	Upper 95% C.I.	Lower 95% C.I.
Op-1	26	0.07	0.31	0.018	0.11	0.03
Op-2	5	0.04	0.07	0.013	0.08	0.01

Analysis of Variance for HBT for 0056 - Corallina vancouveriensis

Stations = 4, 5, 6, 8, 9, 10, 12 level +1 ft MLLW

Data transformed using arcsin.

Results for Analysis of Variance

Source	Source df	Error df	F-value	Prob.
PERIOD	1	160.000	0.00	0.9608
SEASON	1	160.000	0.73	0.3950
STATION	6	160.000	90.45	0.0000
PERIOD*SEASON	1	160.000	2.24	0.1368
STATION*PERIOD	6	160.000	1.64	0.1398
STATION*SEASON	6	160.000	3.29	0.0044
PERIOD*STATION*SEASON	6	160.000	0.88	0.5079

Results for Power Analysis
Power at alpha = .1

Source	Non-Centrality Parameter	Adjusted non-Centrality Parameter	Power	Adjusted Power	Power to Detect 50% Change
PERIOD	0.00	0.00	0.1004	.	1.0000
STATION*PERIOD	9.83	3.71	0.7325	0.3578	0.9937

Estimates for contrasts on combinations of interaction terms

Source	Difference	Std. Err.	T-value	Prob.
Period in DC	-3.9095	2.6633	-1.468	.1441
Period in FC	3.7283	2.5415	1.467	.1444
Period in FC-S	-0.8599	3.0632	-0.281	.7793
Period in FC-W	8.3165	4.0564	2.050	.0420
Period in DC-S	-4.8263	3.4418	-1.402	.1628
Period in DC-W	-2.9928	4.0653	-0.736	.4627

Least square means & confidence intervals from analysis of variance

Source	LS Mean	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period Op-1	-0.881	0.2193	-4.02	.0001	-0.5187	-1.2443
Period Op-2	-0.856	0.4780	-1.79	.0754	-0.0647	-1.6464
Op-1-04	-6.794	0.6648	-10.22	.0000	-5.6941	-7.8938
Op-2-04	-7.916	1.5353	-5.16	.0000	-5.3757	-10.4557
Op-1-05	-10.373	0.6648	-15.60	.0000	-9.2735	-11.4732
Op-2-05	-12.676	1.2137	-10.44	.0000	-10.6677	-14.6838
Op-1-06	-1.638	0.5215	-3.14	.0020	-0.7749	-2.5005
Op-2-06	-1.942	1.2137	-1.60	.1116	0.0663	-3.9498
Op-1-08	1.302	0.6109	2.13	.0346	2.3127	0.2913
Op-2-08	4.222	1.2137	3.48	.0006	6.2301	2.2140
Op-1-09	-1.043	0.5215	-2.00	.0471	-0.1806	-1.9062
Op-2-09	0.624	1.2137	0.51	.6082	2.6316	-1.3845
Op-1-10	6.065	0.5323	11.40	.0000	6.9458	5.1846
Op-2-10	5.252	1.2137	4.33	.0000	7.2605	3.2444
Op-1-12	6.311	0.5215	12.10	.0000	7.1736	5.4480
Op-2-12	6.446	1.2137	5.31	.0000	8.4542	4.4381

Paired comparisons of least square means between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period	-0.0259	0.5259	-0.049	.9608	0.8442	-0.8960

Paired comparisons of least square means among stations between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Station 04	1.1218	1.6730	0.67	.5035	3.8897	-1.6461
Station 05	2.3024	1.3839	1.66	.0981	4.5920	0.0129
Station 06	0.3041	1.3210	0.23	.8183	2.4896	-1.8815
Station 08	-2.9200	1.3588	-2.15	.0331	-0.6720	-5.1681
Station 09	-1.6670	1.3210	-1.26	.2088	0.5186	-3.8525
Station 10	0.8128	1.3253	0.61	.5406	3.0054	-1.3799
Station 12	-0.1353	1.3210	-0.10	.9185	2.0502	-2.3209

Station-period means and deltas from original data where control n=2

Station-Period	N	Station Mean	Range	Standard Error	Upper 95% c.i.	Lower 95% c.i.	Mean Delta	Delta Range	Upper 95% CIi.	Lower 95% C.I.
04 Op-1	16	5.46	9.86	0.666	6.88	4.04	-4.15	9.69	-2.85	-5.45
04 Op-2	4	5.05	7.15	1.690	10.43	-0.33	-3.87	6.81	1.11	-8.85
05 Op-1	16	8.45	9.37	0.638	9.81	7.10	-7.14	8.54	-5.98	-8.31
05 Op-2	5	10.78	9.17	1.613	15.26	6.30	-9.40	8.37	-5.35	-13.45
06 Op-1	26	2.26	4.51	0.239	2.75	1.77	-0.69	3.96	-0.31	-1.08
06 Op-2	5	2.28	3.75	0.802	4.51	0.05	-0.90	2.88	0.70	-2.51
08 Op-1	19	1.39	5.28	0.353	2.13	0.65	0.25	5.66	0.95	-0.45
08 Op-2	5	0.24	0.28	0.047	0.37	0.11	1.14	1.77	1.99	0.29
09 Op-1	26	2.39	12.43	0.540	3.50	1.28	-0.82	12.33	0.20	-1.84
09 Op-2	5	1.21	2.36	0.397	2.31	0.11	0.17	2.01	1.13	-0.79
10 Op-1	25	0.06	0.97	0.039	0.14	-0.02	1.41	5.90	1.90	0.92
10 Op-2	5	0.08	0.14	0.026	0.16	0.01	1.29	1.42	1.96	0.62
12 Op-1	26	0.02	0.21	0.010	0.04	0.00	1.54	5.24	2.04	1.05
12 Op-2	5	0.01	0.07	0.014	0.05	-0.02	1.36	1.49	2.07	0.65

Period means and deltas from original control data where n=2

Period	N	Station Mean	Range	Standard Error	Upper 95% C.I.	Lower 95% C.I.
Op-1	26	1.57	5.24	0.242	2.07	1.07
Op-2	5	1.37	1.56	0.266	2.11	0.64

Analysis of Variance for HBT for 0057 - coralline crust

Stations = 4, 5, 6, 8, 9, 10, 12 level +1 ft MLLW

Data not transformed.

Results for Analysis of Variance

Source	Source df	Error.df	F-value	Prob.
PERIOD	1	160.000	7.60	0.0065
SEASON	1	160.000	1.05	0.3061
STATION	6	160.000	17.62	0.0000
PERIOD*SEASON	1	160.000	2.31	0.1308
STATION*PERIOD	6	160.000	1.46	0.1960
STATION*SEASON	6	160.000	2.01	0.0674
PERIOD*STATION*SEASON	6	160.000	0.46	0.8339

Results for Power Analysis
Power at alpha = .1

Source	Non-Centrality Parameter	Adjusted non-Centrality Parameter	Power	Adjusted Power	Power to Detect 50% Change
PERIOD	7.60	6.51	0.8645	0.8147	1.0000
STATION*PERIOD	8.75	2.64	0.6804	0.2794	0.9875

Estimates for contrasts on combinations of interaction terms

Source	Difference	Std. Err.	T-value	Prob.
Period in DC	-1.2647	2.7563	-0.459	.6470
Period in FC	-9.2399	2.6303	-3.513	.0006
Period in FC-S	-6.3858	3.1701	-2.014	.0456
Period in FC-W	-12.0940	4.1980	-2.881	.0045
Period in DC-S	1.6682	3.5620	0.468	.6402
Period in DC-W	-4.1976	4.2073	-0.998	.3199

Least square means & confidence intervals from analysis of variance

Source	LS Mean	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period Op-1	1.857	0.2269	8.18	.0000	2.2329	1.4820
Period Op-2	3.358	0.4947	6.79	.0000	4.1766	2.5397
Op-1-04	-1.829	0.6880	-2.66	.0086	-0.6912	-2.9677
Op-2-04	2.078	1.5889	1.31	.1929	4.7063	-0.5512
Op-1-05	-1.513	0.6880	-2.20	.0293	-0.3743	-2.6509
Op-2-05	2.072	1.2561	1.65	.1010	4.1499	-0.0064
Op-1-06	0.601	0.5397	1.11	.2672	1.4939	-0.2920
Op-2-06	2.350	1.2561	1.87	.0632	4.4277	0.2714
Op-1-08	4.119	0.6322	6.52	.0000	5.1650	3.0730
Op-2-08	3.501	1.2561	2.79	.0060	5.5793	1.4230
Op-1-09	0.000	0.5397	0.00	1.000	0.8929	-0.8929
Op-2-09	-0.608	1.2561	-0.48	.6292	1.4705	-2.6858
Op-1-10	5.260	0.5508	9.55	.0000	6.1709	4.3482
Op-2-10	6.661	1.2561	5.30	.0000	8.7391	4.5827
Op-1-12	6.365	0.5397	11.79	.0000	7.2578	5.4719
Op-2-12	7.454	1.2561	5.93	.0000	9.5319	5.3755

Paired comparisons of least square means between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period	-1.5007	0.5443	-2.757	.0065	-0.6002	-2.4011

Paired comparisons of least square means among stations between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Station 04	-3.9070	1.7314	-2.26	.0254	-1.0424	-6.7715
Station 05	-3.5843	1.4322	-2.50	.0133	-1.2149	-5.9538
Station 06	-1.7486	1.3672	-1.28	.2028	0.5133	-4.0105
Station 08	0.6179	1.4063	0.44	.6610	2.9444	-1.7087
Station 09	0.6076	1.3672	0.44	.6573	2.8695	-1.6542
Station 10	-1.4014	1.3716	-1.02	.3085	0.8679	-3.6706
Station 12	-1.0889	1.3672	-0.80	.4270	1.1730	-3.3507

Station-period means and deltas from original data where control n=2

Station-Period		N	Station Mean	Range	Standard Error	Upper 95% c.i.	Lower 95% c.i.	Mean Delta	Delta Range	Upper 95% CIi.	Lower 95% C.I.
04	Op-1	16	8.98	11.04	0.990	11.09	6.87	-1.83	14.97	0.43	-4.09
04	Op-2	4	5.21	8.54	1.925	11.33	-0.92	2.72	3.92	5.39	0.04
05	Op-1	16	8.67	11.04	0.950	10.69	6.64	-1.51	15.66	0.88	-3.90
05	Op-2	5	5.81	5.42	1.016	8.63	2.99	2.15	3.75	3.90	0.41
06	Op-1	26	6.20	7.43	0.440	7.10	5.29	0.60	10.49	1.60	-0.40
06	Op-2	5	5.56	5.07	0.901	8.06	3.05	2.40	4.65	4.77	0.04
08	Op-1	19	3.09	10.62	0.629	4.41	1.77	4.08	9.44	5.19	2.97
08	Op-2	5	4.75	3.96	0.766	6.88	2.62	3.21	7.01	6.56	-0.14
09	Op-1	26	6.80	14.31	0.673	8.18	5.41	0.00	12.15	1.20	-1.20
09	Op-2	5	8.42	8.26	1.446	12.43	4.40	-0.46	6.60	2.82	-3.74
10	Op-1	25	1.56	4.86	0.230	2.03	1.08	5.24	9.37	6.17	4.31
10	Op-2	5	1.53	2.57	0.503	2.92	0.13	6.43	8.12	10.29	2.58
12	Op-1	26	0.43	1.11	0.067	0.57	0.29	6.36	9.97	7.38	5.35
12	Op-2	5	0.71	1.04	0.208	1.28	0.13	7.25	5.62	9.88	4.62

Period means and deltas from original control data where n=2

Period	N	Station Mean	Range	Standard Error	Upper 95% C.I.	Lower 95% C.I.
Op-1	26	6.80	10.73	0.514	7.86	5.74
Op-2	5	7.96	6.39	1.084	10.97	4.95

Analysis of Variance for HBT for 0115 - Cryptopleura violacea

Stations = 4, 5, 6, 8, 9, 10, 12 level +1 ft MLLW

Data transformed using log base10(x + 1)

Results for Analysis of Variance

Source	Source df	Error df	F-value	Prob.
PERIOD	1	160.000	0.00	0.9763
SEASON	1	160.000	2.46	0.1188
STATION	6	160.000	26.76	0.0000
PERIOD*SEASON	1	160.000	0.02	0.8781
STATION*PERIOD	6	160.000	1.43	0.2079
STATION*SEASON	6	160.000	0.18	0.9829
PERIOD*STATION*SEASON	6	160.000	0.28	0.9435

Results for Power Analysis
Power at alpha = .1

Source	Non-Centrality Parameter	Adjusted non-Centrality Parameter	Power	Adjusted Power	Power to Detect 50% Change
PERIOD	0.00	0.00	0.1001	.	1.0000
STATION*PERIOD	8.55	2.45	0.6704	0.2655	0.6591

Estimates for contrasts on combinations of interaction terms

Source	Difference	Std. Err.	T-value	Prob.
Period in DC	-0.1303	0.2367	-0.551	.5827
Period in FC	0.1206	0.2259	0.534	.5941
Period in FC-S	0.0553	0.2723	0.203	.8393
Period in FC-W	0.1860	0.3605	0.516	.6067
Period in DC-S	-0.1153	0.3059	-0.377	.7068
Period in DC-W	-0.1454	0.3613	-0.402	.6879

Least square means & confidence intervals from analysis of variance

Source	LS Mean	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period Op-1	-0.101	0.0195	-5.18	.0000	-0.0686	-0.1331
Period Op-2	-0.099	0.0425	-2.34	.0204	-0.0292	-0.1698
Op-1-04	-0.245	0.0591	-4.15	.0001	-0.1472	-0.3427
Op-2-04	-0.419	0.1365	-3.07	.0025	-0.1935	-0.6450
Op-1-05	-0.202	0.0591	-3.42	.0008	-0.1044	-0.2999
Op-2-05	-0.227	0.1079	-2.11	.0368	-0.0487	-0.4056
Op-1-06	-0.156	0.0464	-3.36	.0010	-0.0791	-0.2325
Op-2-06	-0.077	0.1079	-0.72	.4754	0.1013	-0.2557
Op-1-08	-0.004	0.0543	-0.07	.9482	0.0863	-0.0934
Op-2-08	-0.028	0.1079	-0.26	.7972	0.1507	-0.2062
Op-1-09	0.060	0.0464	1.29	.1999	0.1363	-0.0170
Op-2-09	0.348	0.1079	3.23	.0015	0.5264	0.1695
Op-1-10	-0.541	0.0473	-11.44	.0000	-0.4631	-0.6196
Op-2-10	-0.591	0.1079	-5.48	.0000	-0.4128	-0.7697
Op-1-12	0.382	0.0464	8.24	.0000	0.4588	0.3054
Op-2-12	0.298	0.1079	2.76	.0064	0.4767	0.1198

Paired comparisons of least square means between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period	-0.0014	0.0467	-0.030	.9763	0.0759	-0.0787

Paired comparisons of least square means among stations between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Station 04	0.1743	0.1487	1.17	.2428	0.4203	-0.0717
Station 05	0.0250	0.1230	0.20	.8395	0.2285	-0.1785
Station 06	-0.0786	0.1174	-0.67	.5039	0.1156	-0.2729
Station 08	0.0242	0.1208	0.20	.8412	0.2240	-0.1756
Station 09	-0.2883	0.1174	-2.46	.0151	-0.0941	-0.4826
Station 10	0.0499	0.1178	0.42	.6725	0.2448	-0.1450
Station 12	0.0838	0.1174	0.71	.4762	0.2781	-0.1104

Station-period means and deltas from original data where control n=2

Station-Period	N	Station Mean	Range	Standard Error	Upper 95% c.i.	Lower 95% c.i.	Mean Delta	Delta Range	Upper 95% CIi.	Lower 95% C.I.
04 Op-1	16	4.31	9.72	0.716	5.84	2.79	-2.52	8.12	-1.22	-3.82
04 Op-2	4	6.98	4.72	1.105	10.50	3.46	-4.61	6.35	-0.31	-8.90
05 Op-1	16	3.49	8.89	0.475	4.50	2.47	-1.69	5.94	-1.00	-2.38
05 Op-2	5	4.35	6.18	1.045	7.25	1.45	-2.35	5.21	0.06	-4.77
06 Op-1	26	2.86	6.81	0.329	3.53	2.18	-1.28	6.56	-0.64	-1.91
06 Op-2	5	2.49	3.19	0.607	4.17	0.80	-0.49	1.91	0.52	-1.51
08 Op-1	19	1.92	5.14	0.338	2.63	1.21	-0.13	5.07	0.56	-0.82
08 Op-2	5	1.89	1.39	0.258	2.61	1.17	0.10	2.60	1.54	-1.33
09 Op-1	26	1.41	4.51	0.261	1.95	0.87	0.17	5.94	0.75	-0.41
09 Op-2	5	0.28	1.32	0.261	1.00	-0.45	1.72	3.33	3.60	-0.17
10 Op-1	25	9.41	31.87	1.564	12.64	6.19	-7.84	28.26	-4.84	-10.83
10 Op-2	5	12.06	17.99	3.303	21.23	2.88	-10.06	15.97	-1.37	-18.75
12 Op-1	26	0.00	0.07	0.003	0.01	-0.00	1.58	4.86	1.99	1.16
12 Op-2	5	0.82	4.10	0.819	3.09	-1.46	1.17	6.11	4.22	-1.87

Period means and deltas from original control data where n=2

Period	N	Station Mean	Range	Standard Error	Upper 95% C.I.	Lower 95% C.I.
Op-1	26	1.58	4.86	0.202	2.00	1.16
Op-2	5	1.99	2.99	0.558	3.54	0.44

Analysis of Variance for HBT for 0069 - Cryptosiphonia woodii

Stations = 4, 5, 6, 8, 9, 10, 12 level +1 ft MLLW

Data transformed using arcsin.

Results for Analysis of Variance

Source	Source df	Error df	F-value	Prob.
PERIOD	1	160.000	3.05	0.0825
SEASON	1	160.000	2.17	0.1429
STATION	6	160.000	14.46	0.0000
PERIOD*SEASON	1	160.000	14.22	0.0002
STATION*PERIOD	6	160.000	2.49	0.0248
STATION*SEASON	6	160.000	1.39	0.2213
PERIOD*STATION*SEASON	6	160.000	1.54	0.1681

Results for Power Analysis
Power at alpha = .1

Source	Non-Centrality Parameter	Adjusted non-Centrality Parameter	Power	Adjusted Power	Power to Detect 50% Change
PERIOD	3.05	2.01	0.5381	0.4095	0.8856
STATION*PERIOD	14.95	8.76	0.8960	0.6812	0.7631

Estimates for contrasts on combinations of interaction terms

Source	Difference	Std. Err.	T-value	Prob.
Period in DC	1.2657	1.1836	1.069	.2865
Period in FC	-4.1239	1.1294	-3.651	.0004
Period in FC-S	-8.8257	1.3613	-6.483	.0000
Period in FC-W	0.5779	1.8027	0.321	.7489
Period in DC-S	-0.2012	1.5295	-0.132	.8955
Period in DC-W	2.7326	1.8066	1.513	.1324

Least square means & confidence intervals from analysis of variance

Source	LS Mean	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period Op-1	-1.220	0.0975	-12.52	.0000	-1.0585	-1.3810
Period Op-2	-0.811	0.2124	-3.82	.0002	-0.4600	-1.1629
Op-1-04	-3.848	0.2954	-13.03	.0000	-3.3595	-4.3370
Op-2-04	-1.734	0.6823	-2.54	.0120	-0.6054	-2.8630
Op-1-05	-2.685	0.2954	-9.09	.0000	-2.1959	-3.1735
Op-2-05	-1.372	0.5394	-2.54	.0119	-0.4797	-2.2645
Op-1-06	-2.346	0.2318	-10.12	.0000	-1.9622	-2.7291
Op-2-06	-1.648	0.5394	-3.06	.0026	-0.7560	-2.5407
Op-1-08	0.131	0.2715	0.48	.6306	0.5800	-0.3183
Op-2-08	-0.000	0.5394	-0.00	1.000	0.8924	-0.8924
Op-1-09	0.101	0.2318	0.43	.6648	0.4840	-0.2828
Op-2-09	0.000	0.5394	0.00	1.000	0.8924	-0.8924
Op-1-10	0.008	0.2365	0.04	.9718	0.3997	-0.3829
Op-2-10	-0.925	0.5394	-1.72	.0882	-0.0329	-1.8176
Op-1-12	0.101	0.2318	0.43	.6648	0.4840	-0.2828
Op-2-12	-0.000	0.5394	-0.00	1.000	0.8924	-0.8924

Paired comparisons of least square means between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period	-0.4083	0.2337	-1.747	.0825	-0.0217	-0.7950

Paired comparisons of least square means among stations between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Station 04	-2.1140	0.7435	-2.84	.0050	-0.8840	-3.3441
Station 05	-1.3126	0.6150	-2.13	.0343	-0.2951	-2.3301
Station 06	-0.6973	0.5871	-1.19	.2367	0.2740	-1.6686
Station 08	0.1308	0.6039	0.22	.8288	1.1298	-0.8682
Station 09	0.1006	0.5871	0.17	.8641	1.0719	-0.8706
Station 10	0.9336	0.5890	1.59	.1149	1.9080	-0.0408
Station 12	0.1006	0.5871	0.17	.8641	1.0719	-0.8706

Station-period means and deltas from original data where control n=2

Station-Period		N	Station Mean	Range	Standard Error	Upper 95% c.i.	Lower 95% c.i.	Mean Delta	Delta Range	Upper 95% CIi.	Lower 95% C.I.
04	Op-1	16	0.62	1.87	0.144	0.92	0.31	-0.60	1.94	-0.29	-0.92
04	Op-2	4	0.16	0.49	0.115	0.52	-0.21	-0.16	0.49	0.21	-0.52
05	Op-1	16	0.43	2.50	0.158	0.76	0.09	-0.41	2.71	-0.07	-0.76
05	Op-2	5	0.14	0.42	0.088	0.38	-0.10	-0.14	0.42	0.10	-0.38
06	Op-1	26	0.23	0.83	0.040	0.31	0.15	-0.22	0.83	-0.15	-0.30
06	Op-2	5	0.14	0.42	0.079	0.36	-0.08	-0.14	0.42	0.08	-0.36
08	Op-1	19	0.00	0.00	0.000	.	.	0.01	0.21	0.03	-0.01
08	Op-2	5	0.00	0.00	0.000	.	.	0.00	0.00	.	.
09	Op-1	26	0.00	0.00	0.000	.	.	0.01	0.21	0.02	-0.01
09	Op-2	5	0.00	0.00	0.000	.	.	0.00	0.00	.	.
10	Op-1	25	0.01	0.21	0.008	0.03	-0.01	0.00	0.42	0.02	-0.02
10	Op-2	5	0.08	0.42	0.083	0.31	-0.15	-0.08	0.42	0.15	-0.31
12	Op-1	26	0.00	0.00	0.000	.	.	0.01	0.21	0.02	-0.01
12	Op-2	5	0.00	0.00	0.000	.	.	0.00	0.00	.	.

Period means and deltas from original control data where n=2

Period	N	Station Mean	Range	Standard Error	Upper 95% C.I.	Lower 95% C.I.
Op-1	26	0.01	0.21	0.008	0.02	-0.01
Op-2	5	0.00	0.00	0.000	.	.

Analysis of Variance for HBT for 1345 - Derbesia marina

Stations = 4, 5, 6, 8, 9, 10, 12 level +1 ft MLLW

Data not transformed.

Results for Analysis of Variance

Source	Source df	Error df	F-value	Prob.
PERIOD	1	160.000	0.17	0.6763
SEASON	1	160.000	1.29	0.2580
STATION	6	160.000	1.02	0.4164
PERIOD*SEASON	1	160.000	0.17	0.6763
STATION*PERIOD	6	160.000	0.09	0.9976
STATION*SEASON	6	160.000	1.02	0.4164
PERIOD*STATION*SEASON	6	160.000	0.09	0.9976

Results for Power Analysis
Power at alpha = .1

Source	Non-Centrality Parameter	Adjusted non-Centrality Parameter	Power	Adjusted Power	Power to Detect 50% Change
PERIOD	0.17	0.00	0.1293	.	0.1155
STATION*PERIOD	0.51	0.00	0.1317	.	0.1414

Estimates for contrasts on combinations of interaction terms

Source	Difference	Std. Err.	T-value	Prob.
Period in DC	0.0467	0.0808	0.578	.5640
Period in FC	0.0000	0.0772	0.000	1.000
Period in FC-S	-0.0000	0.0930	-0.000	1.000
Period in FC-W	0.0000	0.1231	0.000	1.000
Period in DC-S	-0.0000	0.1045	-0.000	1.000
Period in DC-W	0.0935	0.1234	0.758	.4499

Least square means & confidence intervals from analysis of variance

Source	LS Mean	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period Op-1	-0.006	0.0067	-0.86	.3912	0.0053	-0.0167
Period Op-2	-0.012	0.0145	-0.85	.3940	0.0116	-0.0364
Op-1-04	-0.000	0.0202	-0.00	1.000	0.0334	-0.0334
Op-2-04	-0.000	0.0466	-0.00	1.000	0.0771	-0.0771
Op-1-05	-0.000	0.0202	-0.00	1.000	0.0334	-0.0334
Op-2-05	-0.000	0.0368	-0.00	1.000	0.0610	-0.0610
Op-1-06	-0.000	0.0158	-0.00	1.000	0.0262	-0.0262
Op-2-06	-0.000	0.0368	-0.00	1.000	0.0610	-0.0610
Op-1-08	-0.000	0.0185	-0.00	1.000	0.0307	-0.0307
Op-2-08	-0.000	0.0368	-0.00	1.000	0.0610	-0.0610
Op-1-09	-0.040	0.0158	-2.53	.0123	-0.0139	-0.0663
Op-2-09	-0.069	0.0368	-1.88	.0613	-0.0085	-0.1304
Op-1-10	-0.000	0.0162	-0.00	1.000	0.0267	-0.0267
Op-2-10	-0.017	0.0368	-0.47	.6381	0.0436	-0.0783
Op-1-12	-0.000	0.0158	-0.00	1.000	0.0262	-0.0262
Op-2-12	-0.000	0.0368	-0.00	1.000	0.0610	-0.0610

Paired comparisons of least square means between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period	0.0067	0.0160	0.418	.6763	0.0331	-0.0197

Paired comparisons of least square means among stations between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Station 04	0.0000	0.0508	0.00	1.000	0.0840	-0.0840
Station 05	-0.0000	0.0420	-0.00	1.000	0.0695	-0.0695
Station 06	-0.0000	0.0401	-0.00	1.000	0.0663	-0.0663
Station 08	0.0000	0.0412	0.00	1.000	0.0682	-0.0682
Station 09	0.0294	0.0401	0.73	.4648	0.0957	-0.0370
Station 10	0.0174	0.0402	0.43	.6667	0.0839	-0.0492
Station 12	0.0000	0.0401	0.00	1.000	0.0663	-0.0663

Station-period means and deltas from original data where control n=2

Station-Period	N	Station Mean	Range	Standard Error	Upper 95% c.i.	Lower 95% c.i.	Mean Delta	Delta Range	Upper 95% CIi.	Lower 95% C.I.
04 Op-1	16	0.00	0.00	0.000	.	.	0.00	0.00	.	.
04 Op-2	4	0.00	0.00	0.000	.	.	0.00	0.00	.	.
05 Op-1	16	0.00	0.00	0.000	.	.	0.00	0.00	.	.
05 Op-2	5	0.00	0.00	0.000	.	.	0.00	0.00	.	.
06 Op-1	26	0.00	0.00	0.000	.	.	0.00	0.00	.	.
06 Op-2	5	0.00	0.00	0.000	.	.	0.00	0.00	.	.
08 Op-1	19	0.00	0.00	0.000	.	.	0.00	0.00	.	.
08 Op-2	5	0.00	0.00	0.000	.	.	0.00	0.00	.	.
09 Op-1	26	0.04	1.04	0.040	0.12	-0.04	-0.04	1.04	0.04	-0.12
09 Op-2	5	0.06	0.28	0.056	0.21	-0.10	-0.06	0.28	0.10	-0.21
10 Op-1	25	0.00	0.00	0.000	.	.	0.00	0.00	.	.
10 Op-2	5	0.01	0.07	0.014	0.05	-0.02	-0.01	0.07	0.02	-0.05
12 Op-1	26	0.00	0.00	0.000	.	.	0.00	0.00	.	.
12 Op-2	5	0.00	0.00	0.000	.	.	0.00	0.00	.	.

Period means and deltas from original control data where n=2

Period	N	Station Mean	Range	Standard Error	Upper 95% C.I.	Lower 95% C.I.
Op-1	26	0.00	0.00	0.000	.	.
Op-2	5	0.00	0.00	0.000	.	.

Analysis of Variance for HBT for 0031 - Egregia menziesii

Stations = 4, 5, 6, 8, 9, 10, 12 level +1 ft MLLW

Data transformed using log base10(x + .1)

Results for Analysis of Variance

Source	Source df	Error df	F-value	Prob.
PERIOD	1	160.000	0.58	0.4486
SEASON	1	160.000	30.91	0.0000
STATION	6	160.000	24.21	0.0000
PERIOD*SEASON	1	160.000	19.81	0.0000
STATION*PERIOD	6	160.000	8.32	0.0000
STATION*SEASON	6	160.000	1.88	0.0869
PERIOD*STATION*SEASON	6	160.000	1.02	0.4129

Results for Power Analysis
Power at alpha = .1

Source	Non-Centrality Parameter	Adjusted non-Centrality Parameter	Power	Adjusted Power	Power to Detect 50% Change
PERIOD	0.58	0.00	0.1953	.	0.1784
STATION*PERIOD	49.89	43.27	1.0000	0.9999	0.1402

Estimates for contrasts on combinations of interaction terms

Source	Difference	Std. Err.	T-value	Prob.
Period in DC	-2.4791	0.4558	-5.439	.0000
Period in FC	2.0005	0.4350	4.599	.0000
Period in FC-S	1.4639	0.5243	2.792	.0059
Period in FC-W	2.5370	0.6943	3.654	.0003
Period in DC-S	-4.7472	0.5891	-8.059	.0000
Period in DC-W	-0.2110	0.6958	-0.303	.7621

Least square means & confidence intervals from analysis of variance

Source	LS Mean	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period Op-1	-0.047	0.0375	-1.25	.2140	0.0153	-0.1089
Period Op-2	0.022	0.0818	0.26	.7926	0.1569	-0.1138
Op-1-04	-0.339	0.1138	-2.98	.0033	-0.1512	-0.5277
Op-2-04	-1.464	0.2628	-5.57	.0000	-1.0292	-1.8986
Op-1-05	-0.398	0.1138	-3.50	.0006	-0.2096	-0.5861
Op-2-05	-0.819	0.2077	-3.94	.0001	-0.4752	-1.1626
Op-1-06	-0.199	0.0893	-2.23	.0270	-0.0516	-0.3470
Op-2-06	-0.654	0.2077	-3.15	.0020	-0.3105	-0.9979
Op-1-08	0.195	0.1046	1.87	.0639	0.3681	0.0221
Op-2-08	0.792	0.2077	3.81	.0002	1.1360	0.4487
Op-1-09	0.139	0.0893	1.55	.1222	0.2864	-0.0090
Op-2-09	0.711	0.2077	3.42	.0008	1.0545	0.3672
Op-1-10	0.136	0.0911	1.50	.1365	0.2870	-0.0144
Op-2-10	0.792	0.2077	3.81	.0002	1.1360	0.4487
Op-1-12	0.139	0.0893	1.55	.1222	0.2864	-0.0090
Op-2-12	0.792	0.2077	3.81	.0002	1.1360	0.4487

Paired comparisons of least square means between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period	-0.0684	0.0900	-0.760	.4486	0.0805	-0.2173

Paired comparisons of least square means among stations between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Station 04	1.1244	0.2863	3.93	.0001	1.5982	0.6507
Station 05	0.4211	0.2369	1.78	.0773	0.8130	0.0293
Station 06	0.4549	0.2261	2.01	.0459	0.8290	0.0809
Station 08	-0.5973	0.2326	-2.57	.0111	-0.2125	-0.9820
Station 09	-0.5722	0.2261	-2.53	.0124	-0.1981	-0.9462
Station 10	-0.6560	0.2268	-2.89	.0044	-0.2808	-1.0313
Station 12	-0.6537	0.2261	-2.89	.0044	-0.2796	-1.0277

Station-period means and deltas from original data where control n=2

Station	Period	N	Station Mean	Range	Standard Error	Upper 95% c.i.	Lower 95% c.i.	Mean Delta	Delta Range	Upper 95% CIi.	Lower 95% C.I.
04	Op-1	16	4.75	33.54	2.439	9.95	-0.45	-4.59	32.71	0.46	-9.65
04	Op-2	4	28.19	42.64	10.067	60.23	-3.84	-24.78	38.30	3.39	-52.96
05	Op-1	16	2.20	17.99	1.160	4.67	-0.27	-2.05	17.05	0.28	-4.38
05	Op-2	5	12.19	27.85	5.044	26.20	-1.81	-9.46	23.51	3.65	-22.57
06	Op-1	26	1.12	18.26	0.713	2.59	-0.35	-1.02	17.33	0.36	-2.40
06	Op-2	5	7.19	19.65	3.450	16.77	-2.38	-4.46	10.94	1.14	-10.06
08	Op-1	19	0.00	0.00	0.000	.	.	0.13	1.01	0.27	-0.01
08	Op-2	5	0.00	0.00	0.000	.	.	2.74	8.72	7.48	-2.01
09	Op-1	26	0.00	0.00	0.000	.	.	0.10	1.01	0.20	-0.01
09	Op-2	5	0.04	0.21	0.042	0.16	-0.07	2.69	8.72	7.42	-2.03
10	Op-1	25	0.00	0.00	0.000	.	.	0.10	1.01	0.20	-0.01
10	Op-2	5	0.00	0.00	0.000	.	.	2.74	8.72	7.48	-2.01
12	Op-1	26	0.00	0.00	0.000	.	.	0.10	1.01	0.20	-0.01
12	Op-2	5	0.00	0.00	0.000	.	.	2.74	8.72	7.48	-2.01

Period means and deltas from original control data where n=2

Period	N	Station Mean	Range	Standard Error	Upper 95% C.I.	Lower 95% C.I.
Op-1	26	0.10	1.01	0.050	0.20	-0.01
Op-2	5	2.74	8.72	1.710	7.48	-2.01

Analysis of Variance for HBT for 0070 - Endocladia muricata

Stations = 4, 5, 6, 8, 9, 10, 12 level +1 ft MLLW

Data transformed using arcsin.

Results for Analysis of Variance

Source	Source df	Error df	F-value	Prob.
PERIOD	1	160.000	2.23	0.1371
SEASON	1	160.000	4.96	0.0273
STATION	6	160.000	278.61	0.0000
PERIOD*SEASON	1	160.000	19.18	0.0000
STATION*PERIOD	6	160.000	3.81	0.0014
STATION*SEASON	6	160.000	0.86	0.5227
PERIOD*STATION*SEASON	6	160.000	0.85	0.5302

Results for Power Analysis
Power at alpha = .1

Source	Non-Centrality Parameter	Adjusted non-Centrality Parameter	Power	Adjusted Power	Power to Detect 50% Change
PERIOD	2.23	1.20	0.4385	0.2936	1.0000
STATION*PERIOD	22.86	16.57	0.9813	0.9252	1.0000

Estimates for contrasts on combinations of interaction terms

Source	Difference	Std. Err.	T-value	Prob.
Period in DC	6.1838	1.5684	3.943	.0001
Period in FC	-2.9444	1.4967	-1.967	.0509
Period in FC-S	-9.0412	1.8039	-5.012	.0000
Period in FC-W	3.1524	2.3888	1.320	.1888
Period in DC-S	2.7869	2.0269	1.375	.1711
Period in DC-W	9.5806	2.3941	4.002	.0001

Least square means & confidence intervals from analysis of variance

Source	LS Mean	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period Op-1	-0.396	0.1291	-3.07	.0025	-0.1824	-0.6097
Period Op-2	-0.859	0.2815	-3.05	.0027	-0.3931	-1.3246
Op-1-04	-9.530	0.3915	-24.34	.0000	-8.8819	-10.1773
Op-2-04	-8.385	0.9041	-9.27	.0000	-6.8892	-9.8808
Op-1-05	-11.742	0.3915	-29.99	.0000	-11.0939	-12.3893
Op-2-05	-11.508	0.7148	-16.10	.0000	-10.3253	-12.6904
Op-1-06	-1.282	0.3071	-4.17	.0000	-0.7735	-1.7897
Op-2-06	0.284	0.7148	0.40	.6912	1.4670	-0.8981
Op-1-08	2.478	0.3598	6.89	.0000	3.0727	1.8823
Op-2-08	0.556	0.7148	0.78	.4381	1.7382	-0.6269
Op-1-09	5.925	0.3071	19.29	.0000	6.4328	5.4166
Op-2-09	3.104	0.7148	4.34	.0000	4.2869	1.9218
Op-1-10	6.091	0.3135	19.43	.0000	6.6100	5.5728
Op-2-10	5.453	0.7148	7.63	.0000	6.6358	4.2707
Op-1-12	5.287	0.3071	17.21	.0000	5.7948	4.7786
Op-2-12	4.483	0.7148	6.27	.0000	5.6658	3.3007

Paired comparisons of least square means between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period	0.4628	0.3097	1.494	.1371	0.9752	-0.0496

Paired comparisons of least square means among stations between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Station 04	-1.1446	0.9853	-1.16	.2471	0.4854	-2.7746
Station 05	-0.2338	0.8150	-0.29	.7746	1.1145	-1.5821
Station 06	-1.5660	0.7780	-2.01	.0458	-0.2789	-2.8531
Station 08	1.9218	0.8002	2.40	.0175	3.2457	0.5979
Station 09	2.8203	0.7780	3.63	.0004	4.1074	1.5332
Station 10	0.6382	0.7805	0.82	.4148	1.9295	-0.6531
Station 12	0.8034	0.7780	1.03	.3033	2.0905	-0.4837

Station-period means and deltas from original data where control n=2

Station	Period	N	Station Mean	Range	Standard Error	Upper 95% c.i.	Lower 95% c.i.	Mean Delta	Delta Range	Upper 95% CIi.	Lower 95% C.I.
04	Op-1	16	8.12	5.83	0.455	9.09	7.15	-6.64	6.32	-5.68	-7.60
04	Op-2	4	5.33	4.17	0.881	8.13	2.53	-4.34	3.99	-1.48	-7.20
05	Op-1	16	10.30	4.65	0.327	10.99	9.60	-8.82	5.42	-8.10	-9.53
05	Op-2	5	8.62	2.92	0.534	10.11	7.14	-7.65	2.81	-6.06	-9.23
06	Op-1	26	2.21	5.07	0.208	2.64	1.78	-0.68	4.34	-0.28	-1.08
06	Op-2	5	0.81	0.90	0.190	1.33	0.28	0.17	1.46	0.96	-0.61
08	Op-1	19	0.70	1.67	0.107	0.92	0.47	0.83	2.50	1.16	0.49
08	Op-2	5	0.74	0.35	0.071	0.93	0.54	0.24	0.80	0.68	-0.19
09	Op-1	26	0.09	0.49	0.026	0.14	0.04	1.44	1.35	1.59	1.29
09	Op-2	5	0.19	0.28	0.051	0.34	0.05	0.78	0.97	1.24	0.33
10	Op-1	25	0.07	0.42	0.021	0.11	0.03	1.45	1.08	1.57	1.33
10	Op-2	5	0.00	0.00	0.000	.	.	0.98	0.80	1.38	0.58
12	Op-1	26	0.15	0.56	0.029	0.21	0.09	1.38	0.90	1.51	1.26
12	Op-2	5	0.07	0.21	0.044	0.19	-0.05	0.91	0.94	1.35	0.47

Period means and deltas from original control data where n=2

Period	N	Station Mean	Range	Standard Error	Upper 95% C.I.	Lower 95% C.I.
Op-1	26	1.53	1.08	0.060	1.66	1.41
Op-2	5	0.98	0.80	0.144	1.38	0.58

Analysis of Variance for HBT for 1300 - filamentous red algae-complex

Stations = 4, 5, 6, 8, 9, 10, 12 level +1 ft MLLW

Data transformed using log base10(x + .1)

Results for Analysis of Variance

Source	Source df	Error df	F-value	Prob.
PERIOD	1	160.000	5.94	0.0159
SEASON	1	160.000	0.85	0.3571
STATION	6	160.000	23.41	0.0000
PERIOD*SEASON	1	160.000	0.42	0.5195
STATION*PERIOD	6	160.000	3.26	0.0048
STATION*SEASON	6	160.000	0.40	0.8803
PERIOD*STATION*SEASON	6	160.000	0.39	0.8866

Results for Power Analysis
Power at alpha = .1

Source	Non-Centrality Parameter	Adjusted non-Centrality Parameter	Power	Adjusted Power	Power to Detect 50% Change
PERIOD	5.94	4.86	0.7827	0.7092	0.2685
STATION*PERIOD	19.53	13.29	0.9603	0.8562	0.1710

Estimates for contrasts on combinations of interaction terms

Source	Difference	Std. Err.	T-value	Prob.
Period in DC	1.7817	0.5623	3.168	.0018
Period in FC	0.1122	0.5366	0.209	.8346
Period in FC-S	0.4971	0.6468	0.769	.4433
Period in FC-W	-0.2726	0.8565	-0.318	.7507
Period in DC-S	1.8986	0.7267	2.613	.0098
Period in DC-W	1.6648	0.8584	1.939	.0542

Least square means & confidence intervals from analysis of variance

Source	LS Mean	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period Op-1	0.198	0.0463	4.28	.0000	0.2746	0.1214
Period Op-2	-0.073	0.1009	-0.72	.4732	0.0944	-0.2395
Op-1-04	0.667	0.1404	4.75	.0000	0.8993	0.4348
Op-2-04	0.491	0.3242	1.51	.1318	1.0273	-0.0453
Op-1-05	0.622	0.1404	4.43	.0000	0.8544	0.3899
Op-2-05	0.791	0.2563	3.09	.0024	1.2148	0.3668
Op-1-06	0.475	0.1101	4.31	.0000	0.6572	0.2929
Op-2-06	0.370	0.2563	1.44	.1505	0.7942	-0.0538
Op-1-08	-0.665	0.1290	-5.16	.0000	-0.4520	-0.8788
Op-2-08	-1.336	0.2563	-5.21	.0000	-0.9122	-1.7602
Op-1-09	-0.208	0.1101	-1.89	.0606	-0.0259	-0.3902
Op-2-09	-0.636	0.2563	-2.48	.0141	-0.2123	-1.0602
Op-1-10	0.006	0.1124	0.05	.9572	0.1920	-0.1799
Op-2-10	-1.087	0.2563	-4.24	.0000	-0.6627	-1.5107
Op-1-12	0.489	0.1101	4.44	.0000	0.6714	0.3070
Op-2-12	0.899	0.2563	3.51	.0006	1.3232	0.4752

Paired comparisons of least square means between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period	0.2706	0.1110	2.437	.0159	0.4543	0.0868

Paired comparisons of least square means among stations between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Station 04	0.1761	0.3532	0.50	.6189	0.7605	-0.4084
Station 05	-0.1686	0.2922	-0.58	.5646	0.3148	-0.6521
Station 06	0.1048	0.2789	0.38	.7076	0.5663	-0.3566
Station 08	0.6708	0.2869	2.34	.0206	1.1454	0.1961
Station 09	0.4282	0.2789	1.54	.1267	0.8897	-0.0333
Station 10	1.0928	0.2798	3.91	.0001	1.5557	0.6298
Station 12	-0.4101	0.2789	-1.47	.1435	0.0514	-0.8715

Station-period means and deltas from original data where control n=2

Station	Period	N	Station Mean	Range	Standard Error	Upper 95% c.i.	Lower 95% c.i.	Mean Delta	Delta Range	Upper 95% CIi.	Lower 95% C.I.
04	Op-1	16	0.00	0.00	0.000	.	.	0.54	1.77	0.80	0.27
04	Op-2	4	0.07	0.14	0.040	0.20	-0.06	0.43	0.69	0.97	-0.10
05	Op-1	16	0.02	0.21	0.013	0.05	-0.01	0.52	1.77	0.78	0.26
05	Op-2	5	0.07	0.35	0.069	0.26	-0.12	0.78	1.98	1.79	-0.24
06	Op-1	26	0.02	0.28	0.012	0.05	-0.00	0.36	1.94	0.55	0.17
06	Op-2	5	0.64	2.50	0.473	1.95	-0.67	0.21	3.30	1.67	-1.25
08	Op-1	19	6.69	20.62	1.573	9.99	3.38	-6.22	20.00	-3.05	-9.40
08	Op-2	5	17.64	13.82	2.517	24.63	10.65	-16.79	13.26	-10.21	-23.38
09	Op-1	26	3.69	21.87	1.325	6.42	0.96	-3.31	21.39	-0.71	-5.92
09	Op-2	5	8.08	26.81	4.928	21.77	-5.60	-7.24	27.36	6.57	-21.04
10	Op-1	25	3.15	21.32	1.290	5.81	0.49	-2.76	21.15	-0.21	-5.31
10	Op-2	5	11.87	24.51	4.391	24.07	-0.32	-11.03	24.44	1.50	-23.55
12	Op-1	26	0.02	0.56	0.021	0.07	-0.02	0.36	1.70	0.53	0.18
12	Op-2	5	0.00	0.00	0.000	.	.	0.85	1.98	1.86	-0.16

Period means and deltas from original control data where n=2

Period	N	Station Mean	Range	Standard Error	Upper 95% C.I.	Lower 95% C.I.
Op-1	26	0.38	1.77	0.087	0.56	0.20
Op-2	5	0.85	1.98	0.363	1.86	-0.16

Analysis of Variance for HBT for 0032 - Fucus gardneri

Stations = 4, 5, 6, 8, 9, 10, 12 level +1 ft MLLW

Data transformed using arcsin.

Results for Analysis of Variance

Source	Source df	Error df	F-value	Prob.
PERIOD	1	160.000	0.54	0.4655
SEASON	1	160.000	0.54	0.4655
STATION	6	160.000	0.07	0.9988
PERIOD*SEASON	1	160.000	0.54	0.4655
STATION*PERIOD	6	160.000	0.07	0.9988
STATION*SEASON	6	160.000	0.07	0.9988
PERIOD*STATION*SEASON	6	160.000	0.07	0.9988

Results for Power Analysis
Power at alpha = .1

Source	Non-Centrality Parameter	Adjusted non-Centrality Parameter	Power	Adjusted Power	Power to Detect 50% Change
PERIOD	0.54	0.00	0.1885	.	0.1000
STATION*PERIOD	0.40	0.00	0.1243	.	0.1000

Estimates for contrasts on combinations of interaction terms

Source	Difference	Std. Err.	T-value	Prob.
Period in DC	0.1232	0.1624	0.758	.4493
Period in FC	0.0411	0.1550	0.265	.7914
Period in FC-S	0.0821	0.1868	0.440	.6608
Period in FC-W	0.0000	0.2474	0.000	1.000
Period in DC-S	0.2464	0.2099	1.174	.2423
Period in DC-W	-0.0000	0.2480	-0.000	1.000

Least square means & confidence intervals from analysis of variance

Source	LS Mean	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period Op-1	0.023	0.0134	1.75	.0813	0.0456	0.0013
Period Op-2	0.000	0.0292	0.00	1.000	0.0482	-0.0482
Op-1-04	0.000	0.0405	0.00	1.000	0.0671	-0.0671
Op-2-04	0.000	0.0936	0.00	1.000	0.1549	-0.1549
Op-1-05	-0.000	0.0405	-0.00	1.000	0.0671	-0.0671
Op-2-05	0.000	0.0740	0.00	1.000	0.1225	-0.1225
Op-1-06	0.041	0.0318	1.29	.1986	0.0937	-0.0116
Op-2-06	0.000	0.0740	0.00	1.000	0.1225	-0.1225
Op-1-08	0.000	0.0373	0.00	1.000	0.0616	-0.0616
Op-2-08	0.000	0.0740	0.00	1.000	0.1225	-0.1225
Op-1-09	0.041	0.0318	1.29	.1986	0.0937	-0.0116
Op-2-09	0.000	0.0740	0.00	1.000	0.1225	-0.1225
Op-1-10	0.041	0.0325	1.26	.2077	0.0948	-0.0126
Op-2-10	0.000	0.0740	0.00	1.000	0.1225	-0.1225
Op-1-12	0.041	0.0318	1.29	.1986	0.0937	-0.0116
Op-2-12	0.000	0.0740	0.00	1.000	0.1225	-0.1225

Paired comparisons of least square means between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period	0.0235	0.0321	0.732	.4655	0.0765	-0.0296

Paired comparisons of least square means among stations between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Station 04	0.0000	0.1020	0.00	1.000	0.1688	-0.1688
Station 05	-0.0000	0.0844	-0.00	1.000	0.1396	-0.1396
Station 06	0.0411	0.0806	0.51	.6110	0.1744	-0.0922
Station 08	-0.0000	0.0829	-0.00	1.000	0.1371	-0.1371
Station 09	0.0411	0.0806	0.51	.6110	0.1744	-0.0922
Station 10	0.0411	0.0808	0.51	.6122	0.1748	-0.0927
Station 12	0.0411	0.0806	0.51	.6110	0.1744	-0.0922

Station-period means and deltas from original data where control n=2

Station-Period		N	Station Mean	Range	Standard Error	Upper 95% c.i.	Lower 95% c.i.	Mean Delta	Delta Range	Upper 95% CIi.	Lower 95% C.I.
04	Op-1	16	0.00	0.00	0.000	.	.	0.00	0.00	.	.
04	Op-2	4	0.00	0.00	0.000	.	.	0.00	0.00	.	.
05	Op-1	16	0.00	0.00	0.000	.	.	0.00	0.00	.	.
05	Op-2	5	0.00	0.00	0.000	.	.	0.00	0.00	.	.
06	Op-1	26	0.00	0.00	0.000	.	.	0.00	0.03	0.00	-0.00
06	Op-2	5	0.00	0.00	0.000	.	.	0.00	0.00	.	.
08	Op-1	19	0.00	0.00	0.000	.	.	0.00	0.00	.	.
08	Op-2	5	0.00	0.00	0.000	.	.	0.00	0.00	.	.
09	Op-1	26	0.00	0.00	0.000	.	.	0.00	0.03	0.00	-0.00
09	Op-2	5	0.00	0.00	0.000	.	.	0.00	0.00	.	.
10	Op-1	25	0.00	0.00	0.000	.	.	0.00	0.03	0.00	-0.00
10	Op-2	5	0.00	0.00	0.000	.	.	0.00	0.00	.	.
12	Op-1	26	0.00	0.00	0.000	.	.	0.00	0.03	0.00	-0.00
12	Op-2	5	0.00	0.00	0.000	.	.	0.00	0.00	.	.

Period means and deltas from original control data where n=2

Period	N	Station Mean	Range	Standard Error	Upper 95% C.I.	Lower 95% C.I.
Op-1	26	0.00	0.03	0.001	0.00	-0.00
Op-2	5	0.00	0.00	0.000	.	.

Analysis of Variance for HBT for 0072 - Gastroclonium subarticulatum

Stations = 4, 5, 6, 8, 9, 10, 12 level +1 ft MLLW

Data transformed using arcsin.

Results for Analysis of Variance

Source	Source df	Error df	F-value	Prob.
PERIOD	1	160.000	6.60	0.0111
SEASON	1	160.000	41.09	0.0000
STATION	6	160.000	38.17	0.0000
PERIOD*SEASON	1	160.000	1.51	0.2204
STATION*PERIOD	6	160.000	10.90	0.0000
STATION*SEASON	6	160.000	0.72	0.6334
PERIOD*STATION*SEASON	6	160.000	0.81	0.5667

Results for Power Analysis
Power at alpha = .1

Source	Non-Centrality Parameter	Adjusted non-Centrality Parameter	Power	Adjusted Power	Power to Detect 50% Change
PERIOD	6.60	5.52	0.8196	0.7564	1.0000
STATION*PERIOD	65.39	58.58	1.0000	1.0000	0.9518

Estimates for contrasts on combinations of interaction terms

Source	Difference	Std. Err.	T-value	Prob.
Period in DC	11.3532	4.1250	2.752	.0066
Period in FC	3.2982	3.9364	0.838	.4033
Period in FC-S	4.0040	4.7444	0.844	.4000
Period in FC-W	2.5925	6.2827	0.413	.6804
Period in DC-S	3.6320	5.3308	0.681	.4967
Period in DC-W	19.0745	6.2965	3.029	.0029

Least square means & confidence intervals from analysis of variance

Source	LS Mean	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period Op-1	2.699	0.3396	7.95	.0000	3.2611	2.1373
Period Op-2	0.606	0.7404	0.82	.4142	1.8310	-0.6187
Op-1-04	-1.248	1.0297	-1.21	.2274	0.4559	-2.9512
Op-2-04	-3.605	2.3779	-1.52	.1315	0.3289	-7.5393
Op-1-05	4.259	1.0297	4.14	.0001	5.9625	2.5554
Op-2-05	3.518	1.8799	1.87	.0631	6.6286	-0.4082
Op-1-06	-6.314	0.8077	-7.82	.0000	-4.9777	-7.6504
Op-2-06	-6.514	1.8799	-3.47	.0007	-3.4040	-9.6244
Op-1-08	0.200	0.9462	0.21	.8328	1.7655	-1.3653
Op-2-08	-8.502	1.8799	-4.52	.0000	-5.3921	-11.6125
Op-1-09	0.152	0.8077	0.19	.8506	1.4887	-1.1840
Op-2-09	10.917	1.8799	5.81	.0000	14.0272	7.8069
Op-1-10	7.842	0.8244	9.51	.0000	9.2062	6.4784
Op-2-10	-2.003	1.8799	-1.07	.2884	1.1076	-5.1127
Op-1-12	14.002	0.8077	17.34	.0000	15.3388	12.6661
Op-2-12	10.432	1.8799	5.55	.0000	13.5419	7.3216

Paired comparisons of least square means between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period	2.0931	0.8146	2.570	.0111	3.4407	0.7454

Paired comparisons of least square means among stations between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Station 04	2.3576	2.5913	0.91	.3643	6.6447	-1.9295
Station 05	0.7406	2.1434	0.35	.7302	4.2867	-2.8056
Station 06	0.2001	2.0461	0.10	.9222	3.5852	-3.1850
Station 08	8.7024	2.1046	4.13	.0001	12.1843	5.2205
Station 09	-10.7647	2.0461	-5.26	.0000	-7.3796	-14.1498
Station 10	9.8448	2.0527	4.80	.0000	13.2409	6.4488
Station 12	3.5707	2.0461	1.75	.0829	6.9558	0.1856

Station-period means and deltas from original data where control n=2

Station-Period	N	Station Mean	Range	Standard Error	Upper 95% c.i.	Lower 95% c.i.	Mean Delta	Delta Range	Upper 95% CIi.	Lower 95% C.I.
04 Op-1	16	9.87	14.44	0.947	11.89	7.86	-1.29	17.47	1.10	-3.67
04 Op-2	4	15.92	10.21	2.503	23.89	7.95	-5.82	13.89	5.46	-17.10
05 Op-1	16	4.90	9.86	0.592	6.17	3.64	3.68	9.72	5.15	2.22
05 Op-2	5	6.81	6.18	1.112	9.89	3.72	2.74	5.59	6.08	-0.60
06 Op-1	26	14.69	21.74	1.087	16.93	12.45	-6.95	17.01	-5.22	-8.69
06 Op-2	5	17.96	11.32	2.008	23.53	12.38	-8.42	10.83	-3.00	-13.83
08 Op-1	19	8.81	26.53	1.604	12.18	5.44	-0.28	24.72	3.19	-3.75
08 Op-2	5	20.42	12.36	2.055	26.12	14.71	-10.87	11.01	-5.78	-15.97
09 Op-1	26	8.10	19.72	1.035	10.24	5.97	-0.36	24.83	2.42	-3.15
09 Op-2	5	1.69	1.94	0.359	2.69	0.70	7.85	4.58	10.40	5.30
10 Op-1	25	3.18	15.76	0.934	5.11	1.26	4.43	18.06	6.21	2.66
10 Op-2	5	12.82	9.79	2.135	18.75	6.89	-3.28	14.13	1.84	-10.39
12 Op-1	26	0.46	3.75	0.211	0.89	0.02	7.28	10.56	8.43	6.13
12 Op-2	5	2.08	4.72	0.824	4.37	-0.21	7.46	4.69	9.66	5.26

Period means and deltas from original control data where n=2

Period	N	Station Mean	Range	Standard Error	Upper 95% C.I.	Lower 95% C.I.
Op-1	26	7.74	11.94	0.599	8.97	6.51
Op-2	5	9.54	4.97	1.029	12.40	6.69

Analysis of Variance for HBT for 0073 - Gelidium coulteri

Stations = 4, 5, 6, 8, 9, 10, 12 level +1 ft MLLW

Data transformed using log base10(x + 1)

Results for Analysis of Variance

Source	Source df	Error df	F-value	Prob.
PERIOD	1	160.000	0.52	0.4715
SEASON	1	160.000	84.67	0.0000
STATION	6	160.000	32.26	0.0000
PERIOD*SEASON	1	160.000	1.05	0.3061
STATION*PERIOD	6	160.000	4.79	0.0002
STATION*SEASON	6	160.000	2.31	0.0362
PERIOD*STATION*SEASON	6	160.000	1.13	0.3488

Results for Power Analysis
Power at alpha = .1

Source	Non-Centrality Parameter	Adjusted non-Centrality Parameter	Power	Adjusted Power	Power to Detect 50% Change
PERIOD	0.52	0.00	0.1862	.	1.0000
STATION*PERIOD	28.77	22.41	0.9956	0.9793	0.6144

Estimates for contrasts on combinations of interaction terms

Source	Difference	Std. Err.	T-value	Prob.
Period in DC	-0.6253	0.1980	-3.158	.0019
Period in FC	0.4277	0.1890	2.263	.0250
Period in FC-S	0.6101	0.2278	2.679	.0082
Period in FC-W	0.2453	0.3016	0.813	.4172
Period in DC-S	-0.5266	0.2559	-2.058	.0412
Period in DC-W	-0.7239	0.3023	-2.395	.0178

Least square means & confidence intervals from analysis of variance

Source	LS Mean	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period Op-1	-0.069	0.0163	-4.24	.0000	-0.0421	-0.0961
Period Op-2	-0.041	0.0355	-1.15	.2520	0.0179	-0.0997
Op-1-04	-0.224	0.0494	-4.52	.0000	-0.1418	-0.3053
Op-2-04	-0.304	0.1142	-2.66	.0085	-0.1152	-0.4929
Op-1-05	-0.267	0.0494	-5.41	.0000	-0.1854	-0.3490
Op-2-05	-0.417	0.0902	-4.62	.0000	-0.2678	-0.5664
Op-1-06	-0.086	0.0388	-2.21	.0288	-0.0214	-0.1497
Op-2-06	-0.283	0.0902	-3.13	.0020	-0.1336	-0.4322
Op-1-08	0.048	0.0454	1.05	.2954	0.1228	-0.0275
Op-2-08	0.287	0.0902	3.18	.0018	0.4365	0.1379
Op-1-09	-0.309	0.0388	-7.98	.0000	-0.2452	-0.3735
Op-2-09	-0.104	0.0902	-1.15	.2503	0.0452	-0.2534
Op-1-10	-0.191	0.0396	-4.82	.0000	-0.1252	-0.2562
Op-2-10	0.134	0.0902	1.49	.1392	0.2834	-0.0152
Op-1-12	0.545	0.0388	14.06	.0000	0.6092	0.4809
Op-2-12	0.401	0.0902	4.44	.0000	0.5501	0.2514

Paired comparisons of least square means between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period	-0.0282	0.0391	-0.722	.4715	0.0365	-0.0929

Paired comparisons of least square means among stations between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Station 04	0.0805	0.1244	0.65	.5186	0.2863	-0.1253
Station 05	0.1499	0.1029	1.46	.1471	0.3202	-0.0203
Station 06	0.1973	0.0982	2.01	.0462	0.3598	0.0348
Station 08	-0.2395	0.1010	-2.37	.0190	-0.0724	-0.4067
Station 09	-0.2052	0.0982	-2.09	.0383	-0.0427	-0.3677
Station 10	-0.3249	0.0985	-3.30	.0012	-0.1618	-0.4879
Station 12	0.1443	0.0982	1.47	.1439	0.3068	-0.0182

Station-period means and deltas from original data where control n=2

Station-Period		N	Station Mean	Range	Standard Error	Upper 95% C.I.	Lower 95% C.I.	Mean Delta	Delta Range	Upper 95% CIi.	Lower 95% C.I.
04	Op-1	16	8.45	15.69	1.164	10.93	5.97	-4.26	13.99	-2.01	-6.52
04	Op-2	4	9.22	10.69	2.257	16.40	2.03	-6.42	10.42	0.45	-13.30
05	Op-1	16	9.77	18.33	1.465	12.89	6.65	-5.59	16.46	-2.71	-8.46
05	Op-2	5	12.29	17.57	3.490	21.98	2.60	-9.55	17.29	0.16	-19.26
06	Op-1	26	6.61	14.72	0.811	8.28	4.94	-2.16	16.32	-0.58	-3.74
06	Op-2	5	6.96	6.53	1.239	10.40	3.52	-4.22	7.74	-0.24	-8.19
08	Op-1	19	4.92	16.25	1.068	7.16	2.68	-0.58	16.91	1.53	-2.70
08	Op-2	5	1.50	3.33	0.635	3.26	-0.26	1.24	4.55	3.50	-1.01
09	Op-1	26	13.05	29.31	1.859	16.88	9.22	-8.61	30.94	-4.83	-12.38
09	Op-2	5	4.54	8.12	1.490	8.68	0.41	-1.80	9.34	2.87	-6.47
10	Op-1	25	10.06	24.17	1.502	13.16	6.96	-5.68	23.99	-2.76	-8.59
10	Op-2	5	2.92	7.15	1.272	6.45	-0.61	-0.17	7.81	3.56	-3.91
12	Op-1	26	0.59	2.01	0.112	0.82	0.36	3.85	6.32	4.48	3.23
12	Op-2	5	0.60	1.25	0.208	1.17	0.02	2.15	1.49	2.85	1.44

Period means and deltas from original control data where n=2

Period	N	Station Mean	Range	Standard Error	Upper 95% C.I.	Lower 95% C.I.
Op-1	26	4.44	6.04	0.263	4.99	3.90
Op-2	5	2.74	1.49	0.265	3.48	2.01

Analysis of Variance for HBT for 0074 - Gelidium pusillum

Stations = 4, 5, 6, 8, 9, 10, 12 level +1 ft MLLW

Data transformed using arcsin.

Results for Analysis of Variance

Source	Source df	Error df	F-value	Prob.
PERIOD	1	160.000	34.84	0.0000
SEASON	1	160.000	0.83	0.3629
STATION	6	160.000	2.93	0.0097
PERIOD*SEASON	1	160.000	1.38	0.2426
STATION*PERIOD	6	160.000	2.49	0.0250
STATION*SEASON	6	160.000	0.60	0.7315
PERIOD*STATION*SEASON	6	160.000	1.30	0.2611

Results for Power Analysis
Power at alpha = .1

Source	Non-Centrality Parameter	Adjusted non-Centrality Parameter	Power	Adjusted Power	Power to Detect 50% Change
PERIOD	34.84	33.41	1.0000	1.0000	0.5096
STATION*PERIOD	14.93	8.75	0.8956	0.6803	0.1125

Estimates for contrasts on combinations of interaction terms

Source	Difference	Std. Err.	T-value	Prob.
Period in DC	7.2716	1.9903	3.653	.0004
Period in FC	8.9682	1.8993	4.722	.0000
Period in FC-S	5.9419	2.2892	2.596	.0103
Period in FC-W	11.9945	3.0314	3.957	.0001
Period in DC-S	7.0710	2.5721	2.749	.0067
Period in DC-W	7.4722	3.0381	2.460	.0150

Least square means & confidence intervals from analysis of variance

Source	LS Mean	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period Op-1	2.756	0.1639	16.82	.0000	3.0269	2.4847
Period Op-2	0.436	0.3572	1.22	.2243	1.0268	-0.1552
Op-1-04	3.392	0.4968	6.83	.0000	4.2139	2.5700
Op-2-04	-0.662	1.1473	-0.58	.5649	1.2365	-2.5599
Op-1-05	2.961	0.4968	5.96	.0000	3.7829	2.1390
Op-2-05	0.471	0.9071	0.52	.6040	1.9720	-1.0293
Op-1-06	2.040	0.3897	5.24	.0000	2.6852	1.3956
Op-2-06	-0.385	0.9071	-0.42	.6721	1.1161	-1.8853
Op-1-08	2.973	0.4565	6.51	.0000	3.7281	2.2175
Op-2-08	2.032	0.9071	2.24	.0264	3.5331	0.5318
Op-1-09	2.525	0.3897	6.48	.0000	3.1698	1.8802
Op-2-09	2.189	0.9071	2.41	.0169	3.6895	0.6882
Op-1-10	2.825	-0.3978	7.10	.0000	3.4833	2.1672
Op-2-10	1.567	0.9071	1.73	.0860	3.0676	0.0662
Op-1-12	2.574	0.3897	6.60	.0000	3.2189	1.9294
Op-2-12	-2.163	0.9071	-2.38	.0183	-0.6619	-3.6633

Paired comparisons of least square means between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period	2.3200	0.3930	5.903	.0000	2.9702	1.6697

Paired comparisons of least square means among stations between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Station 04	4.0536	1.2503	3.24	.0014	6.1222	1.9851
Station 05	2.4896	1.0342	2.41	.0172	4.2006	0.7786
Station 06	2.4250	0.9872	2.46	.0151	4.0583	0.7916
Station 08	0.9404	1.0155	0.93	.3558	2.6204	-0.7397
Station 09	0.3361	0.9872	0.34	.7339	1.9695	-1.2972
Station 10	1.2584	0.9904	1.27	.2058	2.8970	-0.3803
Station 12	4.7368	0.9872	4.80	.0000	6.3701	3.1034

Station-period means and deltas from original data where control n=2

Station-Period		N	Station Mean	Range	Standard Error	Upper 95% c.i.	Lower 95% c.i.	Mean Delta	Delta Range	Upper 95% CIi.	Lower 95% C.I.
04	Op-1	16	0.06	0.35	0.027	0.12	0.00	0.53	1.35	0.72	0.34
04	Op-2	4	0.14	0.49	0.117	0.51	-0.23	-0.05	0.52	0.33	-0.43
05	Op-1	16	0.19	2.36	0.146	0.50	-0.12	0.40	3.78	0.81	-0.02
05	Op-2	5	0.21	0.83	0.158	0.65	-0.23	0.06	0.24	0.20	-0.07
06	Op-1	26	0.20	0.83	0.047	0.30	0.11	0.37	1.25	0.51	0.22
06	Op-2	5	0.49	1.74	0.322	1.38	-0.41	-0.22	2.26	0.83	-1.26
08	Op-1	19	0.12	0.69	0.052	0.23	0.01	0.46	1.32	0.64	0.29
08	Op-2	5	0.03	0.14	0.028	0.10	-0.05	0.24	1.04	0.78	-0.29
09	Op-1	26	0.19	1.46	0.069	0.33	0.04	0.38	2.22	0.57	0.20
09	Op-2	5	0.01	0.07	0.014	0.05	-0.02	0.26	1.01	0.78	-0.27
10	Op-1	25	0.17	1.53	0.073	0.32	0.02	0.40	1.94	0.57	0.24
10	Op-2	5	0.10	0.49	0.097	0.37	-0.17	0.17	0.52	0.42	-0.08
12	Op-1	26	0.25	2.08	0.113	0.48	0.01	0.32	2.12	0.54	0.11
12	Op-2	5	0.76	1.60	0.320	1.65	-0.13	-0.49	1.35	0.16	-1.15

Period means and deltas from original control data where n=2

Period	N	Station Mean	Range	Standard Error	Upper 95% C.I.	Lower 95% C.I.
Op-1	26	0.57	1.63	0.083	0.74	0.40
Op-2	5	0.27	1.01	0.185	0.79	-0.24

Analysis of Variance for HBT for 0109 - Grateloupia doryphora

Stations = 4, 5, 6, 8, 9, 10, 12 level +1 ft MLLW

Data transformed using 1/(x + .1)

Results for Analysis of Variance

Source	Source df	Error df	F-value	Prob.
PERIOD	1	160.000	0.20	0.6533
SEASON	1	160.000	0.72	0.3963
STATION	6	160.000	3.62	0.0022
PERIOD*SEASON	1	160.000	0.45	0.5020
STATION*PERIOD	6	160.000	0.22	0.9702
STATION*SEASON	6	160.000	2.17	0.0484
PERIOD*STATION*SEASON	6	160.000	0.64	0.6968

Results for Power Analysis
Power at alpha = .1

Source	Non-Centrality Parameter	Adjusted non-Centrality Parameter	Power	Adjusted Power	Power to Detect 50% Change
PERIOD	0.20	0.00	0.1339	.	0.1381
STATION*PERIOD	1.31	0.00	0.1850	.	0.1260

Estimates for contrasts on combinations of interaction terms

Source	Difference	Std. Err.	T-value	Prob.
Period in DC	-2.3550	2.6108	-0.902	.3684
Period in FC	0.7308	2.4914	0.293	.7696
Period in FC-S	0.7791	3.0028	0.259	.7956
Period in FC-W	0.6826	3.9764	0.172	.8639
Period in DC-S	0.0253	3.3739	0.007	.9940
Period in DC-W	-4.7353	3.9851	-1.188	.2365

Least square means & confidence intervals from analysis of variance

Source	LS Mean	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period Op-1	0.151	0.2150	0.70	.4844	0.5063	-0.2050
Period Op-2	0.383	0.4686	0.82	.4153	1.1579	-0.3926
Op-1-04	-0.635	0.6517	-0.97	.3317	0.4436	-1.7127
Op-2-04	-0.683	1.5050	-0.45	.6505	1.8069	-3.1730
Op-1-05	-0.635	0.6517	-0.97	.3317	0.4436	-1.7127
Op-2-05	-0.683	1.1898	-0.57	.5667	1.2854	-2.6515
Op-1-06	-0.049	0.5112	-0.10	.9235	0.7966	-0.8950
Op-2-06	-0.683	1.1898	-0.57	.5667	1.2854	-2.6515
Op-1-08	1.585	0.5989	2.65	.0089	2.5761	0.5946
Op-2-08	2.594	1.1898	2.18	.0307	4.5624	0.6255
Op-1-09	-0.490	0.5112	-0.96	.3396	0.3562	-1.3354
Op-2-09	0.342	1.1898	0.29	.7744	2.3100	-1.6269
Op-1-10	1.767	0.5218	3.39	.0009	2.6301	0.9037
Op-2-10	2.476	1.1898	2.08	.0391	4.4440	0.5071
Op-1-12	-0.490	0.5112	-0.96	.3396	0.3562	-1.3354
Op-2-12	-0.683	1.1898	-0.57	.5667	1.2854	-2.6515

Paired comparisons of least square means between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period	-0.2320	0.5155	-0.450	.6533	0.6209	-1.0849

Paired comparisons of least square means among stations between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Station 04	0.0485	1.6400	0.03	.9764	2.7618	-2.6648
Station 05	0.0485	1.3566	0.04	.9715	2.2929	-2.1959
Station 06	0.6339	1.2950	0.49	.6252	2.7763	-1.5086
Station 08	-1.0086	1.3320	-0.76	.4500	1.1951	-3.2124
Station 09	-0.8312	1.2950	-0.64	.5219	1.3113	-2.9736
Station 10	-0.7086	1.2992	-0.55	.5862	1.4408	-2.8581
Station 12	0.1934	1.2950	0.15	.8815	2.3359	-1.9490

Station-period means and deltas from original data where control n=2

Station-Period	N	Station Mean	Range	Standard Error	Upper 95% c.i.	Lower 95% c.i.	Mean Delta	Delta Range	Upper 95% CIi.	Lower 95% C.I.
04 Op-1	16	0.00	0.00	0.000	.	.	0.02	0.31	0.06	-0.02
04 Op-2	4	0.00	0.00	0.000	.	.	0.02	0.07	0.07	-0.04
05 Op-1	16	0.00	0.00	0.000	.	.	0.02	0.31	0.06	-0.02
05 Op-2	5	0.00	0.00	0.000	.	.	0.01	0.07	0.05	-0.02
06 Op-1	26	0.01	0.28	0.011	0.04	-0.01	0.00	0.56	0.03	-0.03
06 Op-2	5	0.00	0.00	0.000	.	.	0.01	0.07	0.05	-0.02
08 Op-1	19	0.10	0.56	0.041	0.18	0.01	-0.07	0.87	0.02	-0.17
08 Op-2	5	0.44	2.01	0.394	1.54	-0.65	-0.43	1.94	0.63	-1.49
09 Op-1	26	0.00	0.00	0.000	.	.	0.01	0.31	0.04	-0.01
09 Op-2	5	0.01	0.07	0.014	0.05	-0.02	0.00	0.14	0.06	-0.06
10 Op-1	25	0.20	2.85	0.116	0.44	-0.04	-0.19	3.16	0.06	-0.43
10 Op-2	5	1.35	5.69	1.105	4.42	-1.72	-1.33	5.69	1.74	-4.41
12 Op-1	26	0.00	0.00	0.000	.	.	0.01	0.31	0.04	-0.01
12 Op-2	5	0.00	0.00	0.000	.	.	0.01	0.07	0.05	-0.02

Period means and deltas from original control data where n=2

Period	N	Station Mean	Range	Standard Error	Upper 95% C.I.	Lower 95% C.I.
Op-1	26	0.01	0.31	0.012	0.04	-0.01
Op-2	5	0.01	0.07	0.014	0.05	-0.02

Analysis of Variance for HBT for 0152 - Halymenia/Schizymenia spp.-complex

Stations = 4, 5, 6, 8, 9, 10, 12 level +1 ft MLLW

Data transformed using log base10(x + .1)

Results for Analysis of Variance

Source	Source df	Error df	F-value	Prob.
PERIOD	1	160.000	0.99	0.3219
SEASON	1	160.000	27.25	0.0000
STATION	6	160.000	6.51	0.0000
PERIOD*SEASON	1	160.000	0.15	0.6979
STATION*PERIOD	6	160.000	0.88	0.5127
STATION*SEASON	6	160.000	5.74	0.0000
PERIOD*STATION*SEASON	6	160.000	1.21	0.3036

Results for Power Analysis
Power at alpha = .1

Source	Non-Centrality Parameter	Adjusted non-Centrality Parameter	Power	Adjusted Power	Power to Detect 50% Change
PERIOD	0.99	0.00	0.2603	.	0.4463
STATION*PERIOD	5.27	0.00	0.4692	.	0.1753

Estimates for contrasts on combinations of interaction terms

Source	Difference	Std. Err.	T-value	Prob.
Period in DC	0.2913	0.2491	1.170	.2439
Period in FC	0.0507	0.2377	0.213	.8312
Period in FC-S	0.0448	0.2865	0.156	.8761
Period in FC-W	0.0567	0.3793	0.150	.8813
Period in DC-S	0.4312	0.3219	1.340	.1823
Period in DC-W	0.1515	0.3802	0.398	.6908

Least square means & confidence intervals from analysis of variance

Source	LS Mean	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period Op-1	-0.089	0.0205	-4.34	.0000	-0.0551	-0.1230
Period Op-2	-0.138	0.0447	-3.09	.0024	-0.0640	-0.2119
Op-1-04	-0.024	0.0622	-0.38	.7035	0.0792	-0.1266
Op-2-04	0.000	0.1436	0.00	1.000	0.2375	-0.2375
Op-1-05	-0.052	0.0622	-0.84	.4012	0.0505	-0.1552
Op-2-05	-0.128	0.1135	-1.13	.2612	0.0598	-0.3158
Op-1-06	-0.001	0.0488	-0.03	.9801	0.0795	-0.0819
Op-2-06	0.000	0.1135	0.00	1.000	0.1878	-0.1878
Op-1-08	-0.269	0.0571	-4.72	.0000	-0.1749	-0.3640
Op-2-08	-0.300	0.1135	-2.65	.0089	-0.1126	-0.4882
Op-1-09	-0.078	0.0488	-1.60	.1120	0.0028	-0.1586
Op-2-09	0.000	0.1135	0.00	1.000	0.1878	-0.1878
Op-1-10	-0.247	0.0498	-4.97	.0000	-0.1650	-0.3298
Op-2-10	-0.537	0.1135	-4.73	.0000	-0.3493	-0.7249
Op-1-12	0.049	0.0488	1.00	.3209	0.1292	-0.0321
Op-2-12	0.000	0.1135	0.00	1.000	0.1878	-0.1878

Paired comparisons of least square means between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period	0.0489	0.0492	0.994	.3219	0.1302	-0.0325

Paired comparisons of least square means among stations between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Station 04	-0.0237	0.1565	-0.15	.8798	0.2351	-0.2826
Station 05	0.0757	0.1294	0.58	.5596	0.2898	-0.1385
Station 06	-0.0012	0.1235	-0.01	.9921	0.2032	-0.2056
Station 08	0.0310	0.1271	0.24	.8078	0.2412	-0.1793
Station 09	-0.0779	0.1235	-0.63	.5291	0.1265	-0.2823
Station 10	0.2897	0.1239	2.34	.0206	0.4948	0.0847
Station 12	0.0486	0.1235	0.39	.6948	0.2530	-0.1558

Station-period means and deltas from original data where control n=2

Station-Period		N	Station Mean	Range	Standard Error	Upper 95% c.i.	Lower 95% c.i.	Mean Delta	Delta Range	Upper 95% CIi.	Lower 95% C.I.
04	Op-1	16	0.02	0.21	0.015	0.05	-0.01	-0.01	0.17	0.01	-0.04
04	Op-2	4	0.00	0.00	0.000	.	.	0.00	0.00	.	.
05	Op-1	16	0.03	0.21	0.015	0.06	-0.00	-0.02	0.17	0.01	-0.05
05	Op-2	5	0.10	0.49	0.097	0.37	-0.17	-0.10	0.49	0.17	-0.37
06	Op-1	26	0.02	0.14	0.007	0.03	0.00	0.00	0.31	0.02	-0.02
06	Op-2	5	0.00	0.00	0.000	.	.	0.00	0.00	.	.
08	Op-1	19	0.37	3.40	0.190	0.76	-0.03	-0.34	3.58	0.06	-0.74
08	Op-2	5	0.22	0.62	0.127	0.57	-0.13	-0.22	0.62	0.13	-0.57
09	Op-1	26	0.06	0.56	0.025	0.11	0.01	-0.04	0.73	0.01	-0.10
09	Op-2	5	0.00	0.00	0.000	.	.	0.00	0.00	.	.
10	Op-1	25	0.26	1.60	0.095	0.45	0.06	-0.24	1.77	-0.05	-0.44
10	Op-2	5	0.74	2.15	0.394	1.83	-0.36	-0.74	2.15	0.36	-1.83
12	Op-1	26	0.00	0.07	0.003	0.01	-0.00	0.02	0.24	0.04	-0.00
12	Op-2	5	0.00	0.00	0.000	.	.	0.00	0.00	.	.

Period means and deltas from original control data where n=2

Period	N	Station Mean	Range	Standard Error	Upper 95% C.I.	Lower 95% C.I.
Op-1	26	0.02	0.17	0.009	0.04	0.00
Op-2	5	0.00	0.00	0.000	.	.

Analysis of Variance for HBT for 0167 - juv. articulated coralline algae

Stations = 4, 5, 6, 8, 9, 10, 12 level +1 ft MLLW

Data transformed using arcsin.

Results for Analysis of Variance

Source	Source df	Error df	F-value	Prob.
PERIOD	1	160.000	3.54	0.0618
SEASON	1	160.000	5.78	0.0174
STATION	6	160.000	18.66	0.0000
PERIOD*SEASON	1	160.000	6.19	0.0139
STATION*PERIOD	6	160.000	0.54	0.7809
STATION*SEASON	6	160.000	1.59	0.1545
PERIOD*STATION*SEASON	6	160.000	0.37	0.8994

Results for Power Analysis
Power at alpha = .1

Source	Non-Centrality Parameter	Adjusted non-Centrality Parameter	Power	Adjusted Power	Power to Detect 50% Change
PERIOD	3.54	2.49	0.5906	0.4719	0.9799
STATION*PERIOD	3.21	0.00	0.3215	.	0.5187

Estimates for contrasts on combinations of interaction terms

Source	Difference	Std. Err.	T-value	Prob.
Period in DC	1.1693	2.2033	0.531	.5963
Period in FC	4.5600	2.1025	2.169	.0316
Period in FC-S	-0.2077	2.5341	-0.082	.9348
Period in FC-W	9.3278	3.3557	2.780	.0061
Period in DC-S	-1.6392	2.8473	-0.576	.5656
Period in DC-W	3.9778	3.3631	1.183	.2387

Least square means & confidence intervals from analysis of variance

Source	LS Mean	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period Op-1	-0.167	0.1814	-0.92	.3581	0.1329	-0.4673
Period Op-2	-0.986	0.3954	-2.49	.0137	-0.3314	-1.6399
Op-1-04	-2.494	0.5500	-4.54	.0000	-1.5843	-3.4041
Op-2-04	-3.457	1.2701	-2.72	.0072	-1.3561	-5.5586
Op-1-05	-1.607	0.5500	-2.92	.0040	-0.6973	-2.5171
Op-2-05	-3.335	1.0041	-3.32	.0011	-1.6738	-4.9962
Op-1-06	-0.641	0.4314	-1.48	.1396	0.0732	-1.3543
Op-2-06	-2.510	1.0041	-2.50	.0135	-0.8484	-4.1708
Op-1-08	0.576	0.5054	1.14	.2558	1.4125	-0.2598
Op-2-08	0.544	1.0041	0.54	.5885	2.2055	-1.1169
Op-1-09	-2.177	0.4314	-5.05	.0000	-1.4630	-2.8905
Op-2-09	-3.284	1.0041	-3.27	.0013	-1.6231	-4.9455
Op-1-10	2.518	0.4403	5.72	.0000	3.2470	1.7900
Op-2-10	2.433	1.0041	2.42	.0165	4.0941	0.7717
Op-1-12	2.654	0.4314	6.15	.0000	3.3673	1.9397
Op-2-12	2.709	1.0041	2.70	.0077	4.3706	1.0482

Paired comparisons of least square means between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period	0.8185	0.4351	1.881	.0618	1.5383	0.0987

Paired comparisons of least square means among stations between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Station 04	0.9632	1.3840	0.70	.4875	3.2530	-1.3266
Station 05	1.7279	1.1448	1.51	.1332	3.6219	-0.1662
Station 06	1.8690	1.0929	1.71	.0892	3.6771	0.0610
Station 08	0.0321	1.1241	0.03	.9773	1.8919	-1.8277
Station 09	1.1076	1.0929	1.01	.3124	2.9156	-0.7005
Station 10	0.0856	1.0964	0.08	.9379	1.8995	-1.7283
Station 12	-0.0559	1.0929	-0.05	.9593	1.7521	-1.8640

Station-period means and deltas from original data where control n=2

Station-Period	N	Station Mean	Range	Standard Error	Upper 95% C.I.	Lower 95% C.I.	Mean Delta	Delta Range	Upper 95% CIi.	Lower 95% C.I.
04 Op-1	16	1.22	4.79	0.273	1.80	0.64	-0.73	4.13	-0.25	-1.21
04 Op-2	4	1.08	0.90	0.213	1.75	0.40	-0.76	1.22	0.16	-1.69
05 Op-1	16	0.94	2.43	0.195	1.36	0.53	-0.45	2.95	-0.03	-0.88
05 Op-2	5	1.43	3.12	0.543	2.94	-0.08	-1.05	2.95	0.31	-2.41
06 Op-1	26	0.52	1.53	0.087	0.70	0.34	-0.13	2.88	0.12	-0.39
06 Op-2	5	1.14	3.12	0.565	2.71	-0.43	-0.76	2.64	0.64	-2.15
08 Op-1	19	0.37	1.74	0.108	0.60	0.14	0.10	2.99	0.44	-0.23
08 Op-2	5	0.28	0.69	0.126	0.63	-0.07	0.10	1.11	0.63	-0.42
09 Op-1	26	1.07	2.78	0.184	1.45	0.69	-0.68	2.64	-0.39	-0.97
09 Op-2	5	1.42	1.87	0.437	2.63	0.20	-1.03	2.05	0.27	-2.34
10 Op-1	25	0.02	0.14	0.008	0.03	0.00	0.37	2.57	0.61	0.13
10 Op-2	5	0.07	0.21	0.044	0.19	-0.05	0.31	0.28	0.48	0.15
12 Op-1	26	0.01	0.14	0.007	0.03	-0.00	0.38	2.43	0.60	0.16
12 Op-2	5	0.04	0.14	0.028	0.12	-0.04	0.34	0.62	0.67	0.01

Period means and deltas from original control data where n=2

Period	N	Station Mean	Range	Standard Error	Upper 95% C.I.	Lower 95% C.I.
Op-1	26	0.39	2.50	0.111	0.62	0.16
Op-2	5	0.38	0.49	0.094	0.64	0.12

Analysis of Variance for HBT for 0038 - Macrocystis spp.

Stations = 4, 5, 6, 8, 9, 10, 12 level +1 ft MLLW

Data transformed using 1/(x + .1)

Satterthwaite's Adjustment for Degrees of Freedom used in Analysis of Variance.

Results for Analysis of Variance

Source	Source df	Error df	F-value	Prob.
PERIOD	1	160.000	3.65	0.0578
SEASON	1	160.000	0.01	0.9263
STATION	6	160.000	2.70	0.0161
PERIOD*SEASON	1	160.000	0.10	0.7493
STATION*PERIOD	6	160.000	2.57	0.0212
STATION*SEASON	6	160.000	3.30	0.0043
PERIOD*STATION*SEASON	6	160.000	4.25	0.0005

Results for Power Analysis
Power at alpha = .1

Source	Non-Centrality Parameter	Adjusted non-Centrality Parameter	Power	Adjusted Power	Power to Detect 50% Change
PERIOD	3.65	2.61	0.6019	0.4856	0.1043
STATION*PERIOD	15.40	9.21	0.9050	0.7035	0.1040

Estimates for contrasts on combinations of interaction terms

Source	Difference	Std. Err.	T-value	Prob.
Period in DC	-2.8798	1.0903	-2.641	.0091
Period in FC	0.0000	1.0405	0.000	1.000
Period in FC-S	0.0000	1.2540	0.000	1.000
Period in FC-W	0.0000	1.6607	0.000	1.000
Period in DC-S	-2.3973	1.4091	-1.701	.0908
Period in DC-W	-3.3622	1.6643	-2.020	.0450

Least square means & confidence intervals from analysis of variance

Source	LS Mean	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period Op-1	0.099	0.0898	1.10	.2730	0.2473	-0.0498
Period Op-2	0.510	0.1957	2.61	.0100	0.8339	0.1864
Op-1-04	0.000	0.2722	0.00	1.000	0.4503	-0.4503
Op-2-04	0.000	0.6285	0.00	1.000	1.0399	-1.0399
Op-1-05	0.000	0.2722	0.00	1.000	0.4503	-0.4503
Op-2-05	0.000	0.4969	0.00	1.000	0.8221	-0.8221
Op-1-06	0.000	0.2135	0.00	1.000	0.3532	-0.3532
Op-2-06	0.000	0.4969	0.00	1.000	0.8221	-0.8221
Op-1-08	0.431	0.2501	1.72	.0865	0.8451	0.0176
Op-2-08	0.000	0.4969	0.00	1.000	0.8221	-0.8221
Op-1-09	0.260	0.2135	1.22	.2253	0.6131	-0.0934
Op-2-09	1.630	0.4969	3.28	.0013	2.4521	0.8079
Op-1-10	0.000	0.2179	0.00	1.000	0.3605	-0.3605
Op-2-10	1.941	0.4969	3.91	.0001	2.7631	1.1189
Op-1-12	-0.000	0.2135	-0.00	1.000	0.3532	-0.3532
Op-2-12	0.000	0.4969	0.00	1.000	0.8221	-0.8221

Paired comparisons of least square means between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period	-0.4114	0.2153	-1.911	.0578	-0.0552	-0.7676

Paired comparisons of least square means among stations between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Station 04	-0.0000	0.6849	-0.00	1.000	1.1332	-1.1332
Station 05	0.0000	0.5666	0.00	1.000	0.9373	-0.9373
Station 06	0.0000	0.5408	0.00	1.000	0.8948	-0.8948
Station 08	0.4313	0.5563	0.78	.4393	1.3517	-0.4890
Station 09	-1.3701	0.5408	-2.53	.0123	-0.4754	-2.2649
Station 10	-1.9410	0.5426	-3.58	.0005	-1.0433	-2.8387
Station 12	-0.0000	0.5408	-0.00	1.000	0.8948	-0.8948

Station-period means and deltas from original data where control n=2

Station-Period	N	Station Mean	Range	Standard Error	Upper 95% c.i.	Lower 95% c.i.	Mean Delta	Delta Range	Upper 95% CIi.	Lower 95% C.I.
04 Op-1	16	0.00	0.00	0.000	.	.	0.00	0.00	.	.
04 Op-2	4	0.00	0.00	0.000	.	.	0.00	0.00	.	.
05 Op-1	16	0.00	0.00	0.000	.	.	0.00	0.00	.	.
05 Op-2	5	0.00	0.00	0.000	.	.	0.00	0.00	.	.
06 Op-1	26	0.00	0.00	0.000	.	.	0.00	0.00	.	.
06 Op-2	5	0.00	0.00	0.000	.	.	0.00	0.00	.	.
08 Op-1	19	0.02	0.35	0.018	0.06	-0.02	-0.02	0.35	0.02	-0.06
08 Op-2	5	0.00	0.00	0.000	.	.	0.00	0.00	.	.
09 Op-1	26	0.01	0.21	0.008	0.02	-0.01	-0.01	0.21	0.01	-0.02
09 Op-2	5	0.89	4.44	0.889	3.36	-1.58	-0.89	4.44	1.58	-3.36
10 Op-1	25	0.00	0.00	0.000	.	.	0.00	0.00	.	.
10 Op-2	5	0.07	0.35	0.069	0.26	-0.12	-0.07	0.35	0.12	-0.26
12 Op-1	26	0.00	0.00	0.000	.	.	0.00	0.00	.	.
12 Op-2	5	0.00	0.00	0.000	.	.	0.00	0.00	.	.

Period means and deltas from original control data where n=2

Period	N	Station Mean	Range	Standard Error	Upper 95% C.I.	Lower 95% C.I.
Op-1	26	0.00	0.00	0.000	.	.
Op-2	5	0.00	0.00	0.000	.	.

Analysis of Variance for HBT for 0076 - Mastocarpus jardinii

Stations = 4, 5, 6, 8, 9, 10, 12 level +1 ft MLLW

Data transformed using arcsin.

Results for Analysis of Variance

Source	Source df	Error df	F-value	Prob.
PERIOD	1	160.000	2.16	0.1433
SEASON	1	160.000	2.27	0.1341
STATION	6	160.000	112.33	0.0000
PERIOD*SEASON	1	160.000	2.39	0.1238
STATION*PERIOD	6	160.000	2.96	0.0092
STATION*SEASON	6	160.000	0.87	0.5187
PERIOD*STATION*SEASON	6	160.000	0.80	0.5706

Results for Power Analysis
Power at alpha = .1

Source	Non-Centrality Parameter	Adjusted non-Centrality Parameter	Power	Adjusted Power	Power to Detect 50% Change
PERIOD	2.16	1.14	0.4294	0.2832	0.9999
STATION*PERIOD	17.73	11.51	0.9414	0.8002	0.9994

Estimates for contrasts on combinations of interaction terms

Source	Difference	Std. Err.	T-value	Prob.
Period in DC	-4.7001	1.5408	-3.050	.0027
Period in FC	1.5676	1.4704	1.066	.2880
Period in FC-S	-1.1428	1.7722	-0.645	.5200
Period in FC-W	4.2779	2.3468	1.823	.0702
Period in DC-S	-5.2848	1.9912	-2.654	.0088
Period in DC-W	-4.1154	2.3519	-1.750	.0821

Least square means & confidence intervals from analysis of variance

Source	LS Mean	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period Op-1	2.815	0.1269	22.19	.0000	3.0251	2.6054
Period Op-2	3.263	0.2765	11.80	.0000	3.7203	2.8052
Op-1-04	1.880	0.3846	4.89	.0000	2.5159	1.2433
Op-2-04	1.410	0.8882	1.59	.1144	2.8795	-0.0594
Op-1-05	1.204	0.3846	3.13	.0021	1.8405	0.5679
Op-2-05	1.666	0.7022	2.37	.0189	2.8273	0.5038
Op-1-06	-4.157	0.3017	-13.78	.0000	-3.6580	-4.6564
Op-2-06	-5.717	0.7022	-8.14	.0000	-4.5548	-6.8783
Op-1-08	5.532	0.3534	15.65	.0000	6.1168	4.9473
Op-2-08	6.318	0.7022	9.00	.0000	7.4797	5.1562
Op-1-09	3.298	0.3017	10.93	.0000	3.7976	2.7993
Op-2-09	6.066	0.7022	8.64	.0000	7.2280	4.9045
Op-1-10	5.714	0.3079	18.56	.0000	6.2237	5.2047
Op-2-10	6.674	0.7022	9.50	.0000	7.8356	5.5121
Op-1-12	6.235	0.3017	20.67	.0000	6.7346	5.7362
Op-2-12	6.422	0.7022	9.15	.0000	7.5839	5.2605

Paired comparisons of least square means between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period	-0.4475	0.3043	-1.471	.1433	0.0559	-0.9509

Paired comparisons of least square means among stations between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Station 04	0.4696	0.9679	0.49	.6282	2.0709	-1.1318
Station 05	-0.4613	0.8006	-0.58	.5653	0.8632	-1.7859
Station 06	1.5594	0.7643	2.04	.0430	2.8238	0.2949
Station 08	-0.7859	0.7861	-1.00	.3190	0.5147	-2.0865
Station 09	-2.7678	0.7643	-3.62	.0004	-1.5033	-4.0322
Station 10	-0.9597	0.7667	-1.25	.2125	0.3089	-2.2282
Station 12	-0.1868	0.7643	-0.24	.8072	1.0776	-1.4512

Station-period means and deltas from original data where control n=2

Station-Period	N	Station Mean	Range	Standard Error	Upper 95% c.i.	Lower 95% c.i.	Mean Delta	Delta Range	Upper 95% CIi.	Lower 95% C.I.
04 Op-1	16	0.50	0.63	0.048	0.61	0.40	0.56	1.25	0.70	0.41
04 Op-2	4	0.73	0.83	0.189	1.33	0.13	0.69	1.18	1.50	-0.11
05 Op-1	16	0.70	1.11	0.089	0.89	0.51	0.36	1.49	0.57	0.15
05 Op-2	5	0.85	1.04	0.183	1.36	0.34	0.58	0.90	1.10	0.06
06 Op-1	26	3.44	5.28	0.249	3.96	2.93	-2.19	5.52	-1.70	-2.68
06 Op-2	5	4.61	2.08	0.486	5.96	3.26	-3.19	2.33	-1.97	-4.40
08 Op-1	19	0.03	0.14	0.012	0.05	0.00	1.09	0.97	1.22	0.96
08 Op-2	5	0.03	0.14	0.028	0.10	-0.05	1.40	0.83	1.82	0.97
09 Op-1	26	0.42	1.81	0.094	0.62	0.23	0.83	2.36	1.08	0.58
09 Op-2	5	0.04	0.14	0.028	0.12	-0.04	1.38	0.83	1.81	0.96
10 Op-1	25	0.07	1.11	0.045	0.16	-0.03	1.19	1.67	1.38	1.01
10 Op-2	5	0.00	0.00	0.000	.	.	1.42	0.97	1.89	0.96
12 Op-1	26	0.01	0.07	0.004	0.01	-0.00	1.25	1.32	1.41	1.09
12 Op-2	5	0.01	0.07	0.014	0.05	-0.02	1.41	0.97	1.88	0.94

Period means and deltas from original control data where n=2

Period	N	Station Mean	Range	Standard Error	Upper 95% C.I.	Lower 95% C.I.
Op-1	26	1.25	1.32	0.078	1.41	1.09
Op-2	5	1.42	0.97	0.167	1.89	0.96

Analysis of Variance for HBT for 0082 - Mastocarpus papillatus

Stations = 4, 5, 6, 8, 9, 10, 12 level +1 ft MLLW

Data transformed using log base10(x + .5)

Results for Analysis of Variance

Source	Source df	Error df	F-value	Prob.
PERIOD	1	160.000	7.18	0.0081
SEASON	1	160.000	6.16	0.0141
STATION	6	160.000	16.56	0.0000
PERIOD*SEASON	1	160.000	0.66	0.4185
STATION*PERIOD	6	160.000	3.78	0.0015
STATION*SEASON	6	160.000	0.70	0.6514
PERIOD*STATION*SEASON	6	160.000	0.48	0.8246

Results for Power Analysis
Power at alpha = .1

Source	Non-Centrality Parameter	Adjusted non-Centrality Parameter	Power	Adjusted Power	Power to Detect 50% Change
PERIOD	7.18	6.09	0.8470	0.7919	1.0000
STATION*PERIOD	22.71	16.42	0.9807	0.9229	0.1170

Estimates for contrasts on combinations of interaction terms

Source	Difference	Std. Err.	T-value	Prob.
Period in DC	-1.0860	0.3620	-3.000	.0031
Period in PC	-0.2548	0.3454	-0.738	.4617
Period in PC-S	0.0268	0.4163	0.064	.9488
Period in PC-W	-0.5365	0.5513	-0.973	.3320
Period in DC-S	-0.9618	0.4677	-2.056	.0414
Period in DC-W	-1.2102	0.5525	-2.190	.0299

Least square means & confidence intervals from analysis of variance

Source	LS Mean	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period Op-1	-0.132	0.0298	-4.45	.0000	-0.0832	-0.1818
Period Op-2	0.059	0.0650	0.91	.3646	0.1665	-0.0484
Op-1-04	-0.161	0.0903	-1.79	.0762	-0.0118	-0.3107
Op-2-04	-0.086	0.2086	-0.41	.6824	0.2597	-0.4307
Op-1-05	-0.066	0.0903	-0.73	.4674	0.0837	-0.2153
Op-2-05	0.070	0.1650	0.42	.6723	0.3428	-0.2030
Op-1-06	0.006	0.0709	0.08	.9380	0.1228	-0.1117
Op-2-06	0.049	0.1650	0.30	.7672	0.3218	-0.2240
Op-1-08	-0.209	0.0830	-2.52	.0126	-0.0721	-0.3468
Op-2-08	0.054	0.1650	0.33	.7432	0.3270	-0.2188
Op-1-09	0.242	0.0709	3.41	.0008	0.3590	0.1245
Op-2-09	0.539	0.1650	3.27	.0013	0.8121	0.2663
Op-1-10	-0.147	0.0723	-2.03	.0443	-0.0269	-0.2663
Op-2-10	0.697	0.1650	4.23	.0000	0.9699	0.4241
Op-1-12	-0.591	0.0709	-8.34	.0000	-0.4742	-0.7087
Op-2-12	-0.910	0.1650	-5.52	.0000	-0.6372	-1.1830

Paired comparisons of least square means between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period	-0.1915	0.0715	-2.680	.0081	-0.0733	-0.3098

Paired comparisons of least square means among stations between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Station 04	-0.0757	0.2274	-0.33	.7395	0.3004	-0.4519
Station 05	-0.1357	0.1881	-0.72	.4716	0.1754	-0.4469
Station 06	-0.0434	0.1795	-0.24	.8094	0.2536	-0.3404
Station 08	-0.2636	0.1847	-1.43	.1555	0.0420	-0.5691
Station 09	-0.2975	0.1795	-1.66	.0995	-0.0005	-0.5945
Station 10	-0.8436	0.1801	-4.68	.0000	-0.5456	-1.1416
Station 12	0.3187	0.1795	1.78	.0778	0.6157	0.0217

Station-period means and deltas from original data where control n=2

Station-Period	N	Station Mean	Range	Standard Error	Upper 95% c.i.	Lower 95% c.i.	Mean Delta	Delta Range	Upper 95% CIi.	Lower 95% C.I.
04 Op-1	16	6.87	7.78	0.670	8.30	5.44	-1.94	12.26	-0.20	-3.67
04 Op-2	4	5.05	4.58	1.000	8.23	1.87	-1.40	2.43	0.82	-3.61
05 Op-1	16	6.28	11.53	1.078	8.58	3.99	-1.35	18.23	0.96	-3.66
05 Op-2	5	4.46	7.29	1.351	8.21	0.71	-0.53	7.12	2.98	-4.05
06 Op-1	26	6.20	12.57	0.606	7.45	4.95	0.25	16.39	1.90	-1.40
06 Op-2	5	3.97	6.18	1.058	6.91	1.04	-0.05	6.22	3.05	-3.14
08 Op-1	19	12.15	28.19	2.141	16.64	7.65	-6.55	27.67	-2.05	-11.05
08 Op-2	5	4.11	5.90	1.061	7.06	1.17	-0.19	7.40	3.08	-3.46
09 Op-1	26	4.75	13.82	0.876	6.55	2.94	1.70	21.32	3.61	-0.22
09 Op-2	5	0.97	2.78	0.495	2.35	-0.40	2.95	3.68	5.06	0.84
10 Op-1	25	15.07	46.87	2.701	20.64	9.49	-8.66	43.30	-3.52	-13.80
10 Op-2	5	0.90	3.96	0.765	3.03	-1.22	3.02	4.48	5.20	0.84
12 Op-1	26	28.21	53.82	3.073	34.54	21.88	-21.77	62.60	-14.93	-28.60
12 Op-2	5	43.03	43.26	9.543	69.52	16.53	-39.10	41.98	-13.07	-65.14

Period means and deltas from original control data where n=2

Period	N	Station Mean	Range	Standard Error	Upper 95% C.I.	Lower 95% C.I.
Op-1	26	6.44	15.14	0.756	8.00	4.89
Op-2	5	3.92	2.78	0.488	5.28	2.57

Analysis of Variance for HBT for 0102 - Mazzaella affinis

Stations = 4, 5, 6, 8, 9, 10, 12 level +1 ft MLLW

Data not transformed.

Results for Analysis of Variance

Source	Source df	Error df	F-value	Prob.
PERIOD	1	160.000	28.33	0.0000
SEASON	1	160.000	0.30	0.5819
STATION	6	160.000	2.99	0.0085
PERIOD*SEASON	1	160.000	0.04	0.8338
STATION*PERIOD	6	160.000	0.26	0.9549
STATION*SEASON	6	160.000	0.20	0.9776
PERIOD*STATION*SEASON	6	160.000	0.22	0.9714

Results for Power Analysis
Power at alpha = .1

Source	Non-Centrality Parameter	Adjusted non-Centrality Parameter	Power	Adjusted Power	Power to Detect 50% Change
PERIOD	28.33	26.98	0.9999	0.9998	0.8376
STATION*PERIOD	1.56	0.00	0.2017		0.2297

Estimates for contrasts on combinations of interaction terms

Source	Difference	Std. Err.	T-value	Prob.
Period in DC	8.3189	1.9233	4.325	.0000
Period in FC	5.8313	1.8354	3.177	.0018
Period in FC-S	5.6951	2.2121	2.575	.0109
Period in FC-W	5.9675	2.9294	2.037	.0433
Period in DC-S	7.8965	2.4855	3.177	.0018
Period in DC-W	8.7414	2.9358	2.977	.0034

Least square means & confidence intervals from analysis of variance

Source	LS Mean	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period Op-1	4.780	0.1584	30.19	.0000	5.0422	4.5182
Period Op-2	2.759	0.3452	7.99	.0000	3.3299	2.1877
Op-1-04	4.599	0.4801	9.58	.0000	5.3928	3.8042
Op-2-04	2.170	1.1087	1.96	.0520	4.0044	0.3358
Op-1-05	4.785	0.4801	9.97	.0000	5.5794	3.9909
Op-2-05	3.220	0.8765	3.67	.0003	4.6706	1.7703
Op-1-06	5.337	0.3766	14.17	.0000	5.9596	4.7135
Op-2-06	3.498	0.8765	3.99	.0001	4.9484	2.0481
Op-1-08	3.414	0.4412	7.74	.0000	4.1439	2.6841
Op-2-08	0.645	0.8765	0.74	.4627	2.0954	-0.8049
Op-1-09	5.027	0.3766	13.35	.0000	5.6498	4.4036
Op-2-09	3.521	0.8765	4.02	.0001	4.9716	2.0713
Op-1-10	4.694	0.3844	12.21	.0000	5.3303	4.0585
Op-2-10	3.058	0.8765	3.49	.0006	4.5086	1.6083
Op-1-12	5.606	0.3766	14.89	.0000	6.2294	4.9832
Op-2-12	3.197	0.8765	3.65	.0004	4.6475	1.7472

Paired comparisons of least square means between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period	2.0215	0.3798	5.323	.0000	2.6498	1.3931

Paired comparisons of least square means among stations between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Station 04	2.4284	1.2082	2.01	.0461	4.4273	0.4295
Station 05	1.5647	0.9994	1.57	.1194	3.2181	-0.0887
Station 06	1.8383	0.9540	1.93	.0558	3.4166	0.2599
Station 08	2.7687	0.9813	2.82	.0054	4.3922	1.1452
Station 09	1.5053	0.9540	1.58	.1166	3.0836	-0.0730
Station 10	1.6360	0.9571	1.71	.0893	3.2194	0.0525
Station 12	2.4090	0.9540	2.53	.0125	3.9873	0.8306

Station-period means and deltas from original data where control n=2

Station-Period		N	Station Mean	Range	Standard Error	Upper 95% c.i.	Lower 95% c.i.	Mean Delta	Delta Range	Upper 95% CIi.	Lower 95% C.I.
04	Op-1	16	1.36	2.15	0.167	1.71	1.00	4.60	5.73	5.55	3.65
04	Op-2	4	2.40	1.53	0.337	3.47	1.32	2.02	3.44	4.54	-0.49
05	Op-1	16	1.17	2.57	0.187	1.57	0.77	4.79	6.08	5.75	3.82
05	Op-2	5	0.94	1.04	0.192	1.48	0.41	3.24	3.44	4.83	1.66
06	Op-1	26	0.65	1.39	0.064	0.78	0.52	5.34	5.45	6.02	4.66
06	Op-2	5	0.64	0.90	0.163	1.09	0.19	3.55	3.65	5.25	1.85
08	Op-1	19	2.45	5.83	0.434	3.36	1.54	3.43	9.41	4.69	2.18
08	Op-2	5	3.46	1.18	0.218	4.06	2.85	0.73	4.90	2.97	-1.51
09	Op-1	26	0.96	2.92	0.155	1.28	0.64	5.03	6.11	5.76	4.30
09	Op-2	5	0.58	1.87	0.343	1.54	-0.37	3.60	5.59	6.28	0.93
10	Op-1	25	1.30	2.92	0.168	1.64	0.95	4.70	6.22	5.40	3.99
10	Op-2	5	1.07	1.81	0.342	2.02	0.12	3.12	4.62	5.43	0.81
12	Op-1	26	0.38	2.43	0.120	0.63	0.13	5.61	6.35	6.36	4.86
12	Op-2	5	1.03	2.29	0.473	2.34	-0.28	3.16	5.87	5.77	0.55

Period means and deltas from original control data where n=2

Period	N	Station Mean	Range	Standard Error	Upper 95% C.I.	Lower 95% C.I.
Op-1	26	5.99	5.66	0.326	6.66	5.31
Op-2	5	4.19	3.72	0.654	6.00	2.37

Analysis of Variance for HBT for 1324 - Mazzaella flaccida

Stations = 4, 5, 6, 8, 9, 10, 12 level +1 ft MLLW

Data not transformed.

Results for Analysis of Variance

Source	Source df	Error df	F-value	Prob.
PERIOD	1	160.000	27.55	0.0000
SEASON	1	160.000	319.08	0.0000
STATION	6	160.000	49.17	0.0000
PERIOD*SEASON	1	160.000	2.31	0.1303
STATION*PERIOD	6	160.000	0.35	0.9116
STATION*SEASON	6	160.000	11.89	0.0000
PERIOD*STATION*SEASON	6	160.000	0.21	0.9730

Results for Power Analysis
Power at alpha = .1

Source	Non-Centrality Parameter	Adjusted non-Centrality Parameter	Power	Adjusted Power	Power to Detect 50% Change
PERIOD	27.55	26.21	0.9998	0.9997	1.0000
STATION*PERIOD	2.07	0.00	0.2385	.	1.0000

Estimates for contrasts on combinations of interaction terms

Source	Difference	Std. Err.	T-value	Prob.
Period in DC	30.1439	5.9423	5.073	.0000
Period in FC	12.9704	5.6705	2.287	.0235
Period in FC-S	5.0761	6.8344	0.743	.4587
Period in FC-W	20.8647	9.0505	2.305	.0224
Period in DC-S	25.5467	7.6792	3.327	.0011
Period in DC-W	34.7411	9.0704	3.830	.0002

Least square means & confidence intervals from analysis of variance

Source	LS Mean	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period Op-1	31.644	0.4893	64.67	.0000	32.4531	30.8342
Period Op-2	25.484	1.0665	23.90	.0000	27.2489	23.7200
Op-1-04	22.203	1.4833	14.97	.0000	24.6567	19.7487
Op-2-04	19.896	3.4255	5.81	.0000	25.5630	14.2286
Op-1-05	29.347	1.4833	19.79	.0000	31.8008	26.8928
Op-2-05	23.753	2.7081	8.77	.0000	28.2332	19.2726
Op-1-06	11.317	1.1636	9.73	.0000	13.2418	9.3917
Op-2-06	6.247	2.7081	2.31	.0223	10.7274	1.7668
Op-1-08	39.705	1.3630	29.13	.0000	41.9599	37.4498
Op-2-08	32.133	2.7081	11.87	.0000	36.6128	27.6522
Op-1-09	39.362	1.1636	33.83	.0000	41.2867	37.4366
Op-2-09	32.133	2.7081	11.87	.0000	36.6128	27.6522
Op-1-10	39.840	1.1876	33.55	.0000	41.8046	37.8751
Op-2-10	32.144	2.7081	11.87	.0000	36.6244	27.6638
Op-1-12	39.733	1.1636	34.15	.0000	41.6580	37.8079
Op-2-12	32.086	2.7081	11.85	.0000	36.5665	27.6059

Paired comparisons of least square means between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period	6.1592	1.1734	5.249	.0000	8.1005	4.2179

Paired comparisons of least square means among stations between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Station 04	2.3069	3.7328	0.62	.5375	8.4825	-3.8688
Station 05	5.5939	3.0877	1.81	.0719	10.7022	0.4856
Station 06	5.0697	2.9475	1.72	.0874	9.9460	0.1933
Station 08	7.5723	3.0317	2.50	.0135	12.5882	2.5565
Station 09	7.2291	2.9475	2.45	.0153	12.1055	2.3528
Station 10	7.6958	2.9570	2.60	.0101	12.5879	2.8036
Station 12	7.6467	2.9475	2.59	.0104	12.5231	2.7703

Station-period means and deltas from original data where control n=2

Station-Period	N	Station Mean	Range	Standard Error	Upper 95% c.i.	Lower 95% c.i.	Mean Delta	Delta Range	Upper 95% CIi.	Lower 95% C.I.
04 Op-1	16	17.83	37.78	3.509	25.31	10.35	22.20	24.79	25.95	18.45
04 Op-2	4	16.11	19.17	4.093	29.14	3.08	23.72	16.88	36.23	11.20
05 Op-1	16	10.69	21.74	2.020	14.99	6.38	29.35	31.35	34.25	24.44
05 Op-2	5	9.65	17.01	3.249	18.67	0.63	25.51	21.11	37.73	13.30
06 Op-1	26	28.54	40.69	2.682	34.06	23.02	11.32	26.25	14.20	8.43
06 Op-2	5	28.36	35.56	6.545	46.53	10.19	6.81	16.18	14.61	-1.00
08 Op-1	19	0.02	0.14	0.009	0.04	-0.00	38.96	47.99	46.55	31.37
08 Op-2	5	0.01	0.07	0.014	0.05	-0.02	35.15	32.74	55.89	14.42
09 Op-1	26	0.50	5.00	0.257	1.03	-0.03	39.36	48.40	45.49	33.23
09 Op-2	5	0.01	0.07	0.014	0.05	-0.02	35.15	32.74	55.89	14.42
10 Op-1	25	0.01	0.14	0.006	0.02	-0.00	40.40	48.47	46.75	34.05
10 Op-2	5	0.00	0.00	0.000	.	.	35.17	32.81	55.92	14.42
12 Op-1	26	0.13	1.53	0.063	0.26	-0.00	39.73	48.47	45.91	33.56
12 Op-2	5	0.07	0.35	0.069	0.26	-0.12	35.10	32.81	55.80	14.40

Period means and deltas from original control data where n=2

Period	N	Station Mean	Range	Standard Error	Upper 95% C.I.	Lower 95% C.I.
Op-1	26	39.86	48.47	3.010	46.06	33.66
Op-2	5	35.17	32.81	7.474	55.92	14.42

Analysis of Variance for HBT for 0090 - Mazzaella heterocarpa

Stations = 4, 5, 6, 8, 9, 10, 12 level +1 ft MLLW

Data transformed using log base10(x + .5)

Results for Analysis of Variance

Source	Source df	Error df	F-value	Prob.
PERIOD	1	160.000	4.15	0.0432
SEASON	1	160.000	2.71	0.1015
STATION	6	160.000	8.33	0.0000
PERIOD*SEASON	1	160.000	17.82	0.0000
STATION*PERIOD	6	160.000	1.77	0.1090
STATION*SEASON	6	160.000	2.48	0.0255
PERIOD*STATION*SEASON	6	160.000	1.08	0.3751

Results for Power Analysis
Power at alpha = .1

Source	Non-Centrality Parameter	Adjusted non-Centrality Parameter	Power	Adjusted Power	Power to Detect 50% Change
PERIOD	4.15	3.10	0.6498	0.5436	0.9897
STATION*PERIOD	10.60	4.47	0.7656	0.4132	0.5522

Estimates for contrasts on combinations of interaction terms

Source	Difference	Std. Err.	T-value	Prob.
Period in DC	0.6101	0.1937	3.150	.0019
Period in FC	-0.0645	0.1848	-0.349	.7275
Period in FC-S	-0.8350	0.2228	-3.748	.0002
Period in FC-W	0.7059	0.2950	2.393	.0179
Period in DC-S	0.2505	0.2503	1.001	.3185
Period in DC-W	0.9698	0.2957	3.280	.0013

Least square means & confidence intervals from analysis of variance

Source	LS Mean	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period Op-1	0.281	0.0159	17.63	.0000	0.3076	0.2548
Period Op-2	0.203	0.0348	5.85	.0000	0.2608	0.1457
Op-1-04	0.092	0.0483	1.91	.0579	0.1723	0.0124
Op-2-04	0.184	0.1117	1.65	.1014	0.3687	-0.0008
Op-1-05	0.197	0.0483	4.07	.0001	0.2767	0.1167
Op-2-05	0.041	0.0883	0.47	.6398	0.1874	-0.1046
Op-1-06	-0.036	0.0379	-0.95	.3448	0.0268	-0.0987
Op-2-06	0.092	0.0883	1.05	.2976	0.2383	-0.0538
Op-1-08	0.487	0.0444	10.97	.0000	0.5608	0.4138
Op-2-08	0.245	0.0883	2.78	.0062	0.3910	0.0989
Op-1-09	0.440	0.0379	11.59	.0000	0.5025	0.3770
Op-2-09	0.293	0.0883	3.32	.0011	0.4395	0.1475
Op-1-10	0.377	0.0387	9.74	.0000	0.4411	0.3130
Op-2-10	0.266	0.0883	3.01	.0030	0.4117	0.1197
Op-1-12	0.411	0.0379	10.84	.0000	0.4739	0.3484
Op-2-12	0.301	0.0883	3.41	.0008	0.4470	0.1549

Paired comparisons of least square means between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period	0.0779	0.0382	2.038	.0432	0.1412	0.0147

Paired comparisons of least square means among stations between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Station 04	-0.0916	0.1217	-0.75	.4525	0.1097	-0.2929
Station 05	0.1553	0.1006	1.54	.1248	0.3218	-0.0112
Station 06	-0.1282	0.0961	-1.33	.1840	0.0308	-0.2871
Station 08	0.2423	0.0988	2.45	.0153	0.4058	0.0788
Station 09	0.1462	0.0961	1.52	.1300	0.3052	-0.0127
Station 10	0.1114	0.0964	1.16	.2496	0.2708	-0.0481
Station 12	0.1102	0.0961	1.15	.2530	0.2692	-0.0487

Station-period means and deltas from original data where control n=2

Station-Period	N	Station Mean	Range	Standard Error	Upper 95% c.i.	Lower 95% c.i.	Mean Delta	Delta Range	Upper 95% CIi.	Lower 95% C.I.
04 Op-1	16	1.64	5.35	0.451	2.61	0.68	-0.27	5.49	0.60	-1.14
04 Op-2	4	0.16	0.28	0.059	0.34	-0.03	0.62	1.08	1.53	-0.30
05 Op-1	16	0.94	3.19	0.266	1.51	0.38	0.43	2.36	0.88	-0.02
05 Op-2	5	0.60	1.11	0.181	1.10	0.10	0.15	1.11	0.68	-0.38
06 Op-1	26	1.73	3.75	0.262	2.27	1.19	-0.39	3.37	0.02	-0.80
06 Op-2	5	0.49	1.11	0.228	1.12	-0.15	0.26	2.05	1.43	-0.91
08 Op-1	19	0.12	1.25	0.068	0.27	-0.02	1.27	2.64	1.59	0.95
08 Op-2	5	0.11	0.49	0.095	0.37	-0.15	0.63	1.35	1.40	-0.14
09 Op-1	26	0.16	1.04	0.054	0.27	0.05	1.18	2.08	1.40	0.97
09 Op-2	5	0.06	0.21	0.040	0.17	-0.06	0.69	1.28	1.40	-0.03
10 Op-1	25	0.31	1.53	0.090	0.49	0.12	1.03	2.01	1.25	0.82
10 Op-2	5	0.15	0.76	0.153	0.58	-0.27	0.59	1.28	1.18	0.00
12 Op-1	26	0.23	1.53	0.076	0.39	0.07	1.12	2.01	1.34	0.90
12 Op-2	5	0.04	0.14	0.028	0.12	-0.04	0.70	1.28	1.40	0.00

Period means and deltas from original control data where n=2

Period	N	Station Mean	Range	Standard Error	Upper 95% C.I.	Lower 95% C.I.
Op-1	26	1.35	2.71	0.128	1.61	1.08
Op-2	5	0.74	1.28	0.240	1.41	0.08

Analysis of Variance for HBT for 0081 - Mazzaella leptorhynchos

Stations = 4, 5, 6, 8, 9, 10, 12 level +1 ft MLLW

Data transformed using log base10(x + .5)

Results for Analysis of Variance

Source	Source df	Error df	F-value	Prob.
PERIOD	1	160.000	1.47	0.2275
SEASON	1	160.000	15.08	0.0002
STATION	6	160.000	3.04	0.0077
PERIOD*SEASON	1	160.000	5.66	0.0186
STATION*PERIOD	6	160.000	1.81	0.1009
STATION*SEASON	6	160.000	0.60	0.7264
PERIOD*STATION*SEASON	6	160.000	1.04	0.4026

Results for Power Analysis
Power at alpha = .1

Source	Non-Centrality Parameter	Adjusted non-Centrality Parameter	Power	Adjusted Power	Power to Detect 50% Change
PERIOD	1.47	0.45	0.3326	0.1745	0.8679
STATION*PERIOD	10.84	4.70	0.7751	0.4298	0.3036

Estimates for contrasts on combinations of interaction terms

Source	Difference	Std. Err.	T-value	Prob.
Period in DC	0.1212	0.1726	0.703	.4833
Period in FC	0.1677	0.1647	1.018	.3100
Period in FC-S	-0.2378	0.1985	-1.198	.2326
Period in FC-W	0.5732	0.2628	2.181	.0307
Period in DC-S	-0.0405	0.2230	-0.182	.8561
Period in DC-W	0.2830	0.2634	1.074	.2843

Least square means & confidence intervals from analysis of variance

Source	LS Mean	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period Op-1	0.160	0.0142	11.30	.0000	0.1840	0.1370
Period Op-2	0.119	0.0310	3.85	.0002	0.1705	0.0680
Op-1-04	0.129	0.0431	2.99	.0032	0.2002	0.0577
Op-2-04	0.088	0.0995	0.89	.3767	0.2527	-0.0764
Op-1-05	0.232	0.0431	5.39	.0000	0.3035	0.1610
Op-2-05	0.183	0.0786	2.33	.0211	0.3132	0.0530
Op-1-06	0.124	0.0338	3.67	.0003	0.1798	0.0680
Op-2-06	0.046	0.0786	0.59	.5581	0.1763	-0.0839
Op-1-08	-0.003	0.0396	-0.07	.9431	0.0627	-0.0683
Op-2-08	0.067	0.0786	0.85	.3962	0.1970	-0.0632
Op-1-09	0.292	0.0338	8.63	.0000	0.3474	0.2356
Op-2-09	0.224	0.0786	2.85	.0049	0.3545	0.0943
Op-1-10	0.102	0.0345	2.97	.0035	0.1594	0.0453
Op-2-10	0.221	0.0786	2.81	.0056	0.3509	0.0907
Op-1-12	0.247	0.0338	7.32	.0000	0.3033	0.1915
Op-2-12	0.005	0.0786	0.07	.9481	0.1352	-0.1250

Paired comparisons of least square means between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period	0.0413	0.0341	1.211	.2275	0.0976	-0.0151

Paired comparisons of least square means among stations between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Station 04	0.0408	0.1084	0.38	.7074	0.2201	-0.1386
Station 05	0.0492	0.0897	0.55	.5841	0.1975	-0.0992
Station 06	0.0777	0.0856	0.91	.3651	0.2193	-0.0639
Station 08	-0.0697	0.0880	-0.79	.4295	0.0759	-0.2154
Station 09	0.0671	0.0856	0.78	.4340	0.2087	-0.0745
Station 10	-0.1184	0.0859	-1.38	.1699	0.0237	-0.2605
Station 12	0.2422	0.0856	2.83	.0053	0.3838	0.1006

Station-period means and deltas from original data where control n=2

Station-Period		N	Station Mean	Range	Standard Error	Upper 95% c.i.	Lower 95% c.i.	Mean Delta	Delta Range	Upper 95% CIi.	Lower 95% C.I.
04	Op-1	16	0.23	1.11	0.079	0.40	0.06	0.21	1.42	0.42	0.01
04	Op-2	4	0.12	0.21	0.044	0.26	-0.02	0.29	0.69	0.80	-0.23
05	Op-1	16	0.04	0.14	0.013	0.07	0.01	0.40	1.04	0.53	0.27
05	Op-2	5	0.07	0.14	0.022	0.13	0.01	0.34	0.56	0.62	0.06
06	Op-1	26	0.32	0.83	0.051	0.43	0.22	0.32	2.22	0.51	0.12
06	Op-2	5	0.28	0.69	0.132	0.64	-0.09	0.13	0.90	0.63	-0.36
08	Op-1	19	0.52	1.46	0.097	0.72	0.32	-0.05	1.77	0.16	-0.25
08	Op-2	5	0.24	0.62	0.123	0.58	-0.11	0.17	0.90	0.68	-0.33
09	Op-1	26	0.04	0.21	0.010	0.06	0.02	0.60	1.77	0.81	0.39
09	Op-2	5	0.01	0.07	0.014	0.05	-0.02	0.40	0.49	0.67	0.12
10	Op-1	25	0.38	1.87	0.088	0.56	0.20	0.23	3.06	0.51	-0.05
10	Op-2	5	0.03	0.14	0.028	0.10	-0.05	0.38	0.49	0.62	0.14
12	Op-1	26	0.11	0.90	0.040	0.20	0.03	0.52	2.29	0.75	0.30
12	Op-2	5	0.37	0.69	0.117	0.70	0.05	0.03	0.69	0.37	-0.30

Period means and deltas from original control data where n=2

Period	N	Station Mean	Range	Standard Error	Upper 95% C.I.	Lower 95% C.I.
Op-1	26	0.64	1.77	0.102	0.85	0.43
Op-2	5	0.41	0.49	0.098	0.68	0.14

Analysis of Variance for HBT for 0147 - Mazzaella lilacina

Stations = 4, 5, 6, 8, 9, 10, 12 level +1 ft MLLW

Data transformed using 1/(x + .1)

Results for Analysis of Variance

Source	Source df	Error df	F-value	Prob.
PERIOD	1	160.000	6.19	0.0139
SEASON	1	160.000	88.31	0.0000
STATION	6	160.000	3.60	0.0023
PERIOD*SEASON	1	160.000	0.33	0.5693
STATION*PERIOD	6	160.000	0.67	0.6711
STATION*SEASON	6	160.000	1.33	0.2486
PERIOD*STATION*SEASON	6	160.000	0.92	0.4799

Results for Power Analysis
Power at alpha = .1

Source	Non-Centrality Parameter	Adjusted non-Centrality Parameter	Power	Adjusted Power	Power to Detect 50% Change
PERIOD	6.19	5.11	0.7973	0.7277	0.1275
STATION*PERIOD	<4.04	0.00	0.3822	.	0.1121

Estimates for contrasts on combinations of interaction terms

Source	Difference	Std. Err.	T-value	Prob.
Period in DC	-1.6550	2.6547	-0.623	.5339
Period in FC	-7.4715	2.5333	-2.949	.0037
Period in FC-S	-12.1166	3.0533	-3.968	.0001
Period in FC-W	-2.8265	4.0433	-0.699	.4855
Period in DC-S	0.8975	3.4307	0.262	.7939
Period in DC-W	-4.2076	4.0522	-1.038	.3007

Least square means & confidence intervals from analysis of variance

Source	LS Mean	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period Op-1	-3.325	0.2186	-15.21	.0000	-2.9630	-3.6863
Period Op-2	-2.021	0.4765	-4.24	.0000	-1.2326	-2.8092
Op-1-04	-3.079	0.6626	-4.65	.0000	-1.9824	-4.1750
Op-2-04	-0.386	1.5303	-0.25	.8011	2.1457	-2.9179
Op-1-05	-1.380	0.6626	-2.08	.0388	-0.2840	-2.4766
Op-2-05	0.734	1.2098	0.61	.5450	2.7354	-1.2677
Op-1-06	-3.534	0.5198	-6.80	.0000	-2.6736	-4.3936
Op-2-06	-0.869	1.2098	-0.72	.4737	1.1327	-2.8704
Op-1-08	-3.324	0.6089	-5.46	.0000	-2.3164	-4.3313
Op-2-08	-3.406	1.2098	-2.82	.0055	-1.4047	-5.4079
Op-1-09	-4.023	0.5198	-7.74	.0000	-3.1628	-4.8828
Op-2-09	-3.406	1.2098	-2.82	.0055	-1.4047	-5.4079
Op-1-10	-3.911	0.5305	-7.37	.0000	-3.0330	-4.7885
Op-2-10	-3.406	1.2098	-2.82	.0055	-1.4047	-5.4079
Op-1-12	-4.023	0.5198	-7.74	.0000	-3.1628	-4.8828
Op-2-12	-3.406	1.2098	-2.82	.0055	-1.4047	-5.4079

Paired comparisons of least square means between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period	-1.3038	0.5242	-2.487	.0139	-0.4365	-2.1711

Paired comparisons of least square means among stations between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Station 04	-2.6926	1.6676	-1.61	.1084	0.0664	-5.4516
Station 05	-2.1141	1.3794	-1.53	.1273	0.1680	-4.3963
Station 06	-2.6648	1.3168	-2.02	.0447	-0.4863	-4.8433
Station 08	0.0824	1.3544	0.06	.9515	2.3232	-2.1584
Station 09	-0.6165	1.3168	-0.47	.6403	1.5620	-2.7950
Station 10	-0.5044	1.3210	-0.38	.7031	1.6811	-2.6900
Station 12	-0.6165	1.3168	-0.47	.6403	1.5620	-2.7950

Station-period means and deltas from original data where control n=2

Station-Period	N	Station Mean	Range	Standard Error	Upper 95% c.i.	Lower 95% c.i.	Mean Delta	Delta Range	Upper 95% CIi.	Lower 95% C.I.
04 Op-1	16	0.11	1.74	0.109	0.34	-0.12	0.11	1.60	0.29	-0.08
04 Op-2	4	1.55	5.69	1.388	5.96	-2.87	-1.08	6.87	3.86	-6.01
05 Op-1	16	0.14	1.11	0.075	0.30	-0.02	0.08	0.66	0.17	-0.01
05 Op-2	5	0.67	2.22	0.436	1.88	-0.54	-0.29	1.77	0.62	-1.20
06 Op-1	26	0.03	0.63	0.024	0.08	-0.02	0.17	1.18	0.29	0.06
06 Op-2	5	0.35	1.60	0.314	1.22	-0.52	0.03	2.05	0.93	-0.87
08 Op-1	19	0.01	0.14	0.009	0.03	-0.00	0.21	0.87	0.35	0.07
08 Op-2	5	0.00	0.00	0.000	.	.	0.37	1.22	1.05	-0.30
09 Op-1	26	0.00	0.00	0.000	.	.	0.20	0.94	0.31	0.09
09 Op-2	5	0.00	0.00	0.000	.	.	0.37	1.22	1.05	-0.30
10 Op-1	25	0.00	0.07	0.003	0.01	-0.00	0.21	0.94	0.32	0.10
10 Op-2	5	0.00	0.00	0.000	.	.	0.37	1.22	1.05	-0.30
12 Op-1	26	0.00	0.00	0.000	.	.	0.20	0.94	0.31	0.09
12 Op-2	5	0.00	0.00	0.000	.	.	0.37	1.22	1.05	-0.30

Period means and deltas from original control data where n=2

Period	N	Station Mean	Range	Standard Error	Upper 95% C.I.	Lower 95% C.I.
Op-1	26	0.20	0.94	0.052	0.31	0.09
Op-2	5	0.37	1.22	0.241	1.05	-0.30

Analysis of Variance for HBT for 0095 - Microcladia coulteri

Stations = 4, 5, 6, 8, 9, 10, 12 level +1 ft MLLW

Data transformed using log base10(x + .1)

Results for Analysis of Variance

Source	Source df	Error df	F-value	Prob.
PERIOD	1	160.000	1.59	0.2099
SEASON	1	160.000	33.25	0.0000
STATION	6	160.000	0.87	0.5179
PERIOD*SEASON	1	160.000	2.58	0.1103
STATION*PERIOD	6	160.000	0.32	0.9263
STATION*SEASON	6	160.000	0.84	0.5375
PERIOD*STATION*SEASON	6	160.000	0.32	0.9268

Results for Power Analysis
Power at alpha = .1

Source	Non-Centrality Parameter	Adjusted non-Centrality Parameter	Power	Adjusted Power	Power to Detect 50% Change
PERIOD	1.59	0.57	0.3497	0.1934	0.1719
STATION*PERIOD	1.91	0.00	0.2271	.	0.1226

Estimates for contrasts on combinations of interaction terms

Source	Difference	Std. Err.	T-value	Prob.
Period in DC	-0.4120	0.2911	-1.416	.1588
Period in FC	-0.0945	0.2777	-0.340	.7341
Period in FC-S	-0.2413	0.3348	-0.721	.4721
Period in FC-W	0.0523	0.4433	0.118	.9063
Period in DC-S	-0.9113	0.3761	-2.423	.0165
Period in DC-W	0.0873	0.4443	0.196	.8445

Least square means & confidence intervals from analysis of variance

Source	LS Mean	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period Op-1	0.139	0.0240	5.82	.0000	0.1791	0.0998
Period Op-2	0.212	0.0522	4.06	.0001	0.2983	0.1254
Op-1-04	0.152	0.0727	2.09	.0380	0.2722	0.0318
Op-2-04	0.119	0.1678	0.71	.4792	0.3966	-0.1586
Op-1-05	0.032	0.0727	0.44	.6641	0.1518	-0.0886
Op-2-05	0.209	0.1326	1.58	.1171	0.4284	-0.0105
Op-1-06	0.124	0.0570	2.18	.0305	0.2187	0.0301
Op-2-06	0.075	0.1326	0.56	.5747	0.2940	-0.1449
Op-1-08	0.218	0.0668	3.26	.0014	0.3282	0.1073
Op-2-08	0.290	0.1326	2.19	.0300	0.5099	0.0710
Op-1-09	0.050	0.0570	0.87	.3830	0.1441	-0.0444
Op-2-09	0.209	0.1326	1.58	.1171	0.4284	-0.0105
Op-1-10	0.201	0.0582	3.45	.0007	0.2970	0.1045
Op-2-10	0.290	0.1326	2.19	.0300	0.5099	0.0710
Op-1-12	0.200	0.0570	3.51	.0006	0.2942	0.1056
Op-2-12	0.290	0.1326	2.19	.0300	0.5099	0.0710

Paired comparisons of least square means between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period	-0.0724	0.0575	-1.259	.2099	0.0227	-0.1674

Paired comparisons of least square means among stations between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Station 04	0.0330	0.1828	0.18	.8569	0.3355	-0.2695
Station 05	-0.1773	0.1512	-1.17	.2427	0.0729	-0.4276
Station 06	0.0498	0.1444	0.35	.7304	0.2887	-0.1890
Station 08	-0.0727	0.1485	-0.49	.6252	0.1730	-0.3184
Station 09	-0.1591	0.1444	-1.10	.2721	0.0797	-0.3979
Station 10	-0.0897	0.1448	-0.62	.5366	0.1499	-0.3293
Station 12	-0.0905	0.1444	-0.63	.5315	0.1483	-0.3294

Station-period means and deltas from original data where control n=2

Station	Period	N	Station Mean	Range	Standard Error	Upper 95% c.i.	Lower 95% c.i.	Mean Delta	Delta Range	Upper 95% CIi.	Lower 95% C.I.
04	Op-1	16	0.02	0.21	0.013	0.05	-0.01	0.09	0.49	0.17	0.01
04	Op-2	4	0.12	0.35	0.082	0.38	-0.14	0.11	0.73	0.61	-0.38
05	Op-1	16	0.09	0.62	0.043	0.18	-0.00	0.02	0.73	0.10	-0.07
05	Op-2	5	0.04	0.21	0.042	0.16	-0.07	0.15	0.59	0.45	-0.16
06	Op-1	26	0.03	0.21	0.013	0.06	0.00	0.09	0.90	0.17	0.01
06	Op-2	5	0.11	0.28	0.056	0.27	-0.05	0.08	0.42	0.28	-0.13
08	Op-1	19	0.01	0.14	0.007	0.02	-0.01	0.14	1.01	0.26	0.01
08	Op-2	5	0.00	0.00	0.000	.	.	0.19	0.56	0.47	-0.09
09	Op-1	26	0.12	1.81	0.073	0.27	-0.03	-0.00	2.81	0.18	-0.19
09	Op-2	5	0.04	0.21	0.042	0.16	-0.07	0.15	0.59	0.45	-0.16
10	Op-1	25	0.00	0.00	0.000	.	.	0.12	1.01	0.22	0.02
10	Op-2	5	0.00	0.00	0.000	.	.	0.19	0.56	0.47	-0.09
12	Op-1	26	0.00	0.00	0.000	.	.	0.12	1.01	0.21	0.02
12	Op-2	5	0.00	0.00	0.000	.	.	0.19	0.56	0.47	-0.09

Period means and deltas from original control data where n=2

Period	N	Station Mean	Range	Standard Error	Upper 95% C.I.	Lower 95% C.I.
Op-1	26	0.12	1.01	0.047	0.21	0.02
Op-2	5	0.19	0.56	0.102	0.47	-0.09

Analysis of Variance for HBT for 0103 - Neorhodomela larix

Stations = 4, 5, 6, 8, 9, 10, 12 level +1 ft MLLW

Data transformed using arcsin.

Results for Analysis of Variance

Source	Source df	Error df	F-value	Prob.
PERIOD	1	160.000	1.47	0.2264
SEASON	1	160.000	1.47	0.2264
STATION	6	160.000	0.01	1.0000
PERIOD*SEASON	1	160.000	1.47	0.2264
STATION*PERIOD	6	160.000	0.01	1.0000
STATION*SEASON	6	160.000	0.01	1.0000
PERIOD*STATION*SEASON	6	160.000	0.01	1.0000

Results for Power Analysis
Power at alpha = .1

Source	Non-Centrality Parameter	Adjusted non-Centrality Parameter	Power	Adjusted Power	Power to Detect 50% Change
PERIOD	1.47	0.46	0.3337	0.1757	0.1000
STATION*PERIOD	0.07	0.00	0.1045	.	0.1000

Estimates for contrasts on combinations of interaction terms

Source	Difference	Std. Err.	T-value	Prob.
Period in DC	0.1825	0.2127	0.858	.3922
Period in FC	0.1745	0.2030	0.860	.3912
Period in FC-S	0.3491	0.2447	1.427	.1556
Period in FC-W	0.0000	0.3240	0.000	1.000
Period in DC-S	0.3650	0.2749	1.328	.1861
Period in DC-W	0.0000	0.3247	0.000	1.000

Least square means & confidence intervals from analysis of variance

Source	LS Mean	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period Op-1	0.051	0.0175	2.91	.0041	0.0800	0.0220
Period Op-2	-0.000	0.0382	-0.00	1.000	0.0632	-0.0632
Op-1-04	0.067	0.0531	1.26	.2107	0.1546	-0.0211
Op-2-04	-0.000	0.1226	-0.00	1.000	0.2029	-0.2029
Op-1-05	0.067	0.0531	1.26	.2107	0.1546	-0.0211
Op-2-05	-0.000	0.0969	-0.00	1.000	0.1604	-0.1604
Op-1-06	0.041	0.0417	0.99	.3257	0.1100	-0.0278
Op-2-06	-0.000	0.0969	-0.00	1.000	0.1604	-0.1604
Op-1-08	0.059	0.0488	1.22	.2259	0.1400	-0.0214
Op-2-08	-0.000	0.0969	-0.00	1.000	0.1604	-0.1604
Op-1-09	0.041	0.0417	0.99	.3257	0.1100	-0.0278
Op-2-09	-0.000	0.0969	-0.00	1.000	0.1604	-0.1604
Op-1-10	0.041	0.0425	0.97	.3355	0.1114	-0.0293
Op-2-10	0.000	0.0969	0.00	1.000	0.1604	-0.1604
Op-1-12	0.041	0.0417	0.99	.3257	0.1100	-0.0278
Op-2-12	-0.000	0.0969	-0.00	1.000	0.1604	-0.1604

Paired comparisons of least square means between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period	0.0510	0.0420	1.214	.2264	0.1205	-0.0185

Paired comparisons of least square means among stations between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Station 04	0.0667	0.1336	0.50	.6182	0.2878	-0.1543
Station 05	0.0667	0.1105	0.60	.5469	0.2496	-0.1161
Station 06	0.0411	0.1055	0.39	.6976	0.2156	-0.1335
Station 08	0.0593	0.1085	0.55	.5854	0.2389	-0.1202
Station 09	0.0411	0.1055	0.39	.6976	0.2156	-0.1335
Station 10	0.0411	0.1059	0.39	.6986	0.2162	-0.1341
Station 12	0.0411	0.1055	0.39	.6976	0.2156	-0.1335

Station-period means and deltas from original data where control n=2

Station-Period	N	Station Mean	Range	Standard Error	Upper 95% c.i.	Lower 95% c.i.	Mean Delta	Delta Range	Upper 95% CIi.	Lower 95% C.I.
04 Op-1	16	0.00	0.00	0.000	.	.	0.00	0.03	0.01	-0.00
04 Op-2	4	0.00	0.00	0.000	.	.	0.00	0.00	.	.
05 Op-1	16	0.00	0.00	0.000	.	.	0.00	0.03	0.01	-0.00
05 Op-2	5	0.00	0.00	0.000	.	.	0.00	0.00	.	.
06 Op-1	26	0.00	0.00	0.000	.	.	0.00	0.03	0.00	-0.00
06 Op-2	5	0.00	0.00	0.000	.	.	0.00	0.00	.	.
08 Op-1	19	0.00	0.00	0.000	.	.	0.00	0.03	0.01	-0.00
08 Op-2	5	0.00	0.00	0.000	.	.	0.00	0.00	.	.
09 Op-1	26	0.00	0.00	0.000	.	.	0.00	0.03	0.00	-0.00
09 Op-2	5	0.00	0.00	0.000	.	.	0.00	0.00	.	.
10 Op-1	25	0.00	0.00	0.000	.	.	0.00	0.03	0.00	-0.00
10 Op-2	5	0.00	0.00	0.000	.	.	0.00	0.00	.	.
12 Op-1	26	0.00	0.00	0.000	.	.	0.00	0.03	0.00	-0.00
12 Op-2	5	0.00	0.00	0.000	.	.	0.00	0.00	.	.

Period means and deltas from original control data where n=2

Period	N	Station Mean	Range	Standard Error	Upper 95% C.I.	Lower 95% C.I.
Op-1	26	0.00	0.03	0.001	0.00	-0.00
Op-2	5	0.00	0.00	0.000	.	.

Analysis of Variance for HBT for 0059 - non-coralline crust

Stations = 4, 5, 6, 8, 9, 10, 12 level +1 ft MLLW

Data transformed using log base10(x + .1)

Results for Analysis of Variance

Source	Source df	Error df	F-value	Prob.
PERIOD	1	160.000	0.30	0.5876
SEASON	1	160.000	2.41	0.1223
STATION	6	160.000	9.12	0.0000
PERIOD*SEASON	1	160.000	0.00	0.9886
STATION*PERIOD	6	160.000	3.90	0.0012
STATION*SEASON	6	160.000	0.98	0.4427
PERIOD*STATION*SEASON	6	160.000	0.38	0.8925

Results for Power Analysis
Power at alpha = .1

Source	Non-Centrality Parameter	Adjusted non-Centrality Parameter	Power	Adjusted Power	Power to Detect 50% Change
PERIOD	0.30	0.00	0.1493	.	1.0000
STATION*PERIOD	23.38	17.09	0.9835	0.9329	0.1001

Estimates for contrasts on combinations of interaction terms

Source	Difference	Std. Err.	T-value	Prob.
Period in DC	0.0429	0.1541	0.278	.7813
Period in FC	-0.1586	0.1471	-1.079	.2824
Period in FC-S	-0.2913	0.1773	-1.643	.1023
Period in FC-W	-0.0260	0.2347	-0.111	.9120
Period in DC-S	0.1724	0.1992	0.866	.3879
Period in DC-W	-0.0867	0.2353	-0.369	.7129

Least square means & confidence intervals from analysis of variance

Source	LS Mean	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period Op-1	-0.289	0.0127	-22.74	.0000	-0.2676	-0.3096
Period Op-2	-0.272	0.0277	-9.83	.0000	-0.2263	-0.3178
Op-1-04	-0.401	0.0385	-10.41	.0000	-0.3369	-0.4642
Op-2-04	-0.304	0.0888	-3.43	.0008	-0.1574	-0.4514
Op-1-05	-0.293	0.0385	-7.63	.0000	-0.2298	-0.3571
Op-2-05	-0.276	0.0702	-3.93	.0001	-0.1596	-0.3921
Op-1-06	-0.329	0.0302	-10.92	.0000	-0.2796	-0.3794
Op-2-06	-0.285	0.0702	-4.05	.0001	-0.1684	-0.4008
Op-1-08	-0.207	0.0354	-5.85	.0000	-0.1485	-0.2655
Op-2-08	-0.218	0.0702	-3.10	.0023	-0.1015	-0.3339
Op-1-09	-0.390	0.0302	-12.94	.0000	-0.3406	-0.4404
Op-2-09	-0.434	0.0702	-6.18	.0000	-0.3177	-0.5502
Op-1-10	-0.183	0.0308	-5.96	.0000	-0.1325	-0.2344
Op-2-10	0.075	0.0702	1.07	.2866	0.1913	-0.0411
Op-1-12	-0.216	0.0302	-7.15	.0000	-0.1658	-0.2657
Op-2-12	-0.463	0.0702	-6.59	.0000	-0.3467	-0.5791

Paired comparisons of least square means between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period	-0.0165	0.0304	-0.543	.5876	0.0338	-0.0669

Paired comparisons of least square means among stations between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Station 04	-0.0961	0.0968	-0.99	.3223	0.0641	-0.2563
Station 05	-0.0177	0.0801	-0.22	.8258	0.1148	-0.1501
Station 06	-0.0448	0.0764	-0.59	.5583	0.0816	-0.1713
Station 08	0.0107	0.0786	0.14	.8918	0.1408	-0.1194
Station 09	0.0435	0.0764	0.57	.5705	0.1699	-0.0830
Station 10	-0.2585	0.0767	-3.37	.0009	-0.1316	-0.3854
Station 12	0.2472	0.0764	3.23	.0015	0.3737	0.1207

Station-period means and deltas from original data where control n=2

Station-Period		N	Station Mean	Range	Standard Error	Upper 95% c.i.	Lower 95% c.i.	Mean Delta	Delta Range	Upper 95% CIi.	Lower 95% C.I.
04	Op-1	16	31.44	37.64	2.727	37.25	25.63	-19.02	31.81	-14.73	-23.30
04	Op-2	4	14.36	17.71	4.123	27.48	1.24	-7.16	12.60	1.47	-15.79
05	Op-1	16	25.22	28.19	2.543	30.64	19.80	-12.80	22.36	-8.93	-16.66
05	Op-2	5	17.07	22.22	4.681	30.07	4.07	-8.48	13.51	-0.27	-16.68
06	Op-1	26	30.32	32.85	2.017	34.47	26.16	-16.04	25.69	-13.06	-19.01
06	Op-2	5	17.24	22.36	4.736	30.38	4.09	-8.65	14.76	-0.32	-16.98
08	Op-1	19	25.69	45.07	3.338	32.70	18.68	-11.87	35.00	-7.08	-16.65
08	Op-2	5	14.29	14.03	3.230	23.26	5.33	-5.70	8.92	-1.26	-10.14
09	Op-1	26	36.21	47.85	2.647	41.66	30.76	-21.93	39.48	-17.56	-26.30
09	Op-2	5	23.31	21.53	3.838	33.96	12.65	-14.72	13.92	-7.97	-21.46
10	Op-1	25	24.65	50.28	3.044	30.93	18.37	-10.72	37.50	-6.08	-15.36
10	Op-2	5	7.40	8.75	1.934	12.77	2.03	1.19	2.67	2.47	-0.09
12	Op-1	26	23.03	30.42	1.545	26.21	19.85	-8.75	35.21	-5.36	-12.13
12	Op-2	5	24.79	22.92	4.367	36.92	12.67	-16.20	15.31	-8.81	-23.59

Period means and deltas from original control data where n=2

Period	N	Station Mean	Range	Standard Error	Upper 95% C.I.	Lower 95% C.I.
Op-1	26	14.28	18.61	1.103	16.55	12.01
Op-2	5	8.59	9.41	1.832	13.68	3.50

Analysis of Variance for HBT for 0184 - Osmundea spp.

Stations = 4, 5, 6, 8, 9, 10, 12 level +1 ft MLLW

Data transformed using arcsin.

Results for Analysis of Variance

Source	Source df	Error df	F-value	Prob.
PERIOD	1	160.000	0.18	0.6692
SEASON	1	160.000	4.18	0.0425
STATION	6	160.000	5.62	0.0000
PERIOD*SEASON	1	160.000	1.92	0.1675
STATION*PERIOD	6	160.000	3.42	0.0034
STATION*SEASON	6	160.000	0.27	0.9505
PERIOD*STATION*SEASON	6	160.000	0.14	0.9906

Results for Power Analysis
Power at alpha = .1

Source	Non-Centrality Parameter	Adjusted non-Centrality Parameter	Power	Adjusted Power	Power to Detect 50% Change
PERIOD	0.18	0.00	0.1307	.	0.5812
STATION*PERIOD	20.50	14.25	0.9680	0.8805	0.2714

Estimates for contrasts on combinations of interaction terms

Source	Difference	Std. Err.	T-value	Prob.
Period in DC	-2.6814	1.4954	-1.793	.0748
Period in FC	3.5662	1.4270	2.499	.0135
Period in FC-S	2.7186	1.7199	1.581	.1159
Period in FC-W	4.4138	2.2776	1.938	.0544
Period in DC-S	-4.7001	1.9325	-2.432	.0161
Period in DC-W	-0.6627	2.2826	-0.290	.7719

Least square means & confidence intervals from analysis of variance

Source	LS Mean	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period Op-1	1.245	0.1231	10.11	.0000	1.4488	1.0414
Period Op-2	1.119	0.2684	4.17	.0001	1.5627	0.6746
Op-1-04	2.095	0.3733	5.61	.0000	2.7126	1.4775
Op-2-04	-0.878	0.8620	-1.02	.3098	0.5479	-2.3045
Op-1-05	2.040	0.3733	5.46	.0000	2.6573	1.4222
Op-2-05	1.064	0.6815	1.56	.1204	2.1916	-0.0634
Op-1-06	1.630	0.2928	5.57	.0000	2.1141	1.1452
Op-2-06	2.012	0.6815	2.95	.0036	3.1400	0.8850
Op-1-08	-0.049	0.3430	-0.14	.8857	0.5181	-0.6169
Op-2-08	-0.568	0.6815	-0.83	.4062	0.5599	-1.6951
Op-1-09	1.020	0.2928	3.48	.0006	1.5046	0.5357
Op-2-09	2.390	0.6815	3.51	.0006	3.5175	1.2625
Op-1-10	-0.196	0.2989	-0.66	.5127	0.2983	-0.6905
Op-2-10	1.420	0.6815	2.08	.0388	2.5475	0.2926
Op-1-12	2.176	0.2928	7.43	.0000	2.6609	1.6920
Op-2-12	2.390	0.6815	3.51	.0006	3.5175	1.2625

Paired comparisons of least square means between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period	0.1264	0.2953	0.428	.6692	0.6149	-0.3621

Paired comparisons of least square means among stations between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Station 04	2.9734	0.9394	3.17	.0019	4.5276	1.4193
Station 05	0.9757	0.7770	1.26	.2111	2.2612	-0.3099
Station 06	-0.3829	0.7417	-0.52	.6064	0.8443	-1.6101
Station 08	0.5182	0.7630	0.68	.4980	1.7805	-0.7441
Station 09	-1.3699	0.7417	-1.85	.0666	-0.1427	-2.5970
Station 10	-1.6161	0.7441	-2.17	.0313	-0.3850	-2.8473
Station 12	-0.2136	0.7417	-0.29	.7738	1.0136	-1.4407

Station-period means and deltas from original data where control n=2

Station	Period	N	Station Mean	Range	Standard Error	Upper 95% c.i.	Lower 95% c.i.	Mean Delta	Delta Range	Upper 95% CIi.	Lower 95% C.I.
04	Op-1	16	0.03	0.14	0.011	0.05	0.00	0.24	0.69	0.35	0.13
04	Op-2	4	0.38	0.35	0.083	0.64	0.12	-0.19	0.42	0.11	-0.49
05	Op-1	16	0.03	0.28	0.018	0.07	-0.00	0.23	0.69	0.33	0.12
05	Op-2	5	0.10	0.21	0.042	0.21	-0.02	0.09	0.38	0.28	-0.10
06	Op-1	26	0.03	0.28	0.012	0.06	0.01	0.17	0.69	0.25	0.08
06	Op-2	5	0.01	0.07	0.014	0.05	-0.02	0.17	0.31	0.32	0.03
08	Op-1	19	0.28	0.76	0.061	0.41	0.15	-0.04	0.87	0.08	-0.15
08	Op-2	5	0.28	0.42	0.079	0.50	0.06	-0.09	0.56	0.20	-0.38
09	Op-1	26	0.09	0.83	0.033	0.16	0.02	0.11	1.01	0.20	0.01
09	Op-2	5	0.00	0.00	0.000	.	.	0.19	0.31	0.33	0.05
10	Op-1	25	0.22	0.69	0.034	0.29	0.15	-0.02	0.90	0.07	-0.11
10	Op-2	5	0.07	0.21	0.044	0.19	-0.05	0.12	0.17	0.22	0.02
12	Op-1	26	0.00	0.00	0.000	.	.	0.20	0.62	0.28	0.12
12	Op-2	5	0.00	0.00	0.000	.	.	0.19	0.31	0.33	0.05

Period means and deltas from original control data where n=2

Period	N	Station Mean	Range	Standard Error	Upper 95% C.I.	Lower 95% C.I.
Op-1	26	0.20	0.62	0.038	0.28	0.12
Op-2	5	0.19	0.31	0.050	0.33	0.05

Analysis of Variance for HBT for 0135 - Phyllospadix spp.

Stations = 4, 5, 6, 8, 9, 10, 12 level +1 ft MLLW

Data transformed using square root(x + 1)

Results for Analysis of Variance

Source	Source df	Error df	F-value	Prob.
PERIOD	1	160.000	71.14	0.0000
SEASON	1	160.000	8.43	0.0042
STATION	6	160.000	72.44	0.0000
PERIOD*SEASON	1	160.000	0.28	0.5989
STATION*PERIOD	6	160.000	6.25	0.0000
STATION*SEASON	6	160.000	1.41	0.2124
PERIOD*STATION*SEASON	6	160.000	0.29	0.9390

Results for Power Analysis
Power at alpha = .1

Source	Non-Centrality Parameter	Adjusted non-Centrality Parameter	Power	Adjusted Power	Power to Detect 50% Change
PERIOD	71.14	69.25	1.0000	1.0000	1.0000
STATION*PERIOD	37.50	31.03	0.9996	0.9975	0.9949

Estimates for contrasts on combinations of interaction terms

Source	Difference	Std. Err.	T-value	Prob.
Period in DC	-4.1011	0.4415	-9.289	.0000
Period in FC	-1.0461	0.4213	-2.483	.0141
Period in FC-S	-0.9943	0.5078	-1.958	.0520
Period in FC-W	-1.0980	0.6724	-1.633	.1045
Period in DC-S	-4.4746	0.5705	-7.843	.0000
Period in DC-W	-3.7276	0.6739	-5.531	.0000

Least square means & confidence intervals from analysis of variance

Source	LS Mean	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period Op-1	1.077	0.0364	29.63	.0000	1.1373	1.0171
Period Op-2	1.813	0.0792	22.87	.0000	1.9436	1.6814
Op-1-04	0.785	0.1102	7.12	.0000	0.9673	0.6027
Op-2-04	1.296	0.2545	5.09	.0000	1.7174	0.8753
Op-1-05	0.777	0.1102	7.05	.0000	0.9595	0.5948
Op-2-05	1.008	0.2012	5.01	.0000	1.3404	0.6747
Op-1-06	0.654	0.0864	7.57	.0000	0.7974	0.5113
Op-2-06	0.959	0.2012	4.77	.0000	1.2916	0.6259
Op-1-08	0.030	0.1013	0.29	.7693	0.1973	-0.1378
Op-2-08	0.258	0.2012	1.28	.2013	0.5910	-0.0747
Op-1-09	1.414	0.0864	16.35	.0000	1.5567	1.2706
Op-2-09	3.056	0.2012	15.19	.0000	3.3885	2.7227
Op-1-10	1.944	0.0882	22.03	.0000	2.0901	1.7982
Op-2-10	3.056	0.2012	15.19	.0000	3.3885	2.7227
Op-1-12	1.936	0.0864	22.40	.0000	2.0793	1.7933
Op-2-12	3.056	0.2012	15.19	.0000	3.3885	2.7227

Paired comparisons of least square means between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period	-0.7353	0.0872	-8.435	.0000	-0.5911	-0.8795

Paired comparisons of least square means among stations between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Station 04	-0.5113	0.2773	-1.84	.0671	-0.0525	-0.9702
Station 05	-0.2304	0.2294	-1.00	.3167	0.1491	-0.6099
Station 06	-0.3044	0.2190	-1.39	.1665	0.0579	-0.6667
Station 08	-0.2284	0.2252	-1.01	.3120	0.1442	-0.6011
Station 09	-1.6419	0.2190	-7.50	.0000	-1.2797	-2.0042
Station 10	-1.1114	0.2197	-5.06	.0000	-0.7480	-1.4749
Station 12	-1.1193	0.2190	-5.11	.0000	-0.7570	-1.4816

Station-period means and deltas from original data where control n=2

Station-Period	N	Station Mean	Range	Standard Error	Upper 95% c.i.	Lower 95% c.i.	Mean Delta	Delta Range	Upper 95% CIi.	Lower 95% C.I.
04 Op-1	16	3.99	5.35	0.389	4.82	3.16	4.10	5.03	4.76	3.43
04 Op-2	4	6.61	4.17	0.931	9.58	3.65	9.00	3.54	11.61	6.39
05 Op-1	16	4.06	5.07	0.432	4.98	3.14	4.03	5.38	4.87	3.20
05 Op-2	5	8.62	5.49	0.945	11.25	6.00	6.83	4.38	9.09	4.57
06 Op-1	26	4.38	7.99	0.406	5.21	3.54	3.35	5.80	4.01	2.69
06 Op-2	5	9.08	6.67	1.331	12.78	5.39	6.37	6.28	9.80	2.95
08 Op-1	19	8.17	19.51	1.077	10.44	5.91	-0.02	22.08	2.57	-2.61
08 Op-2	5	14.15	6.88	1.452	18.18	10.12	1.31	7.47	5.38	-2.77
09 Op-1	26	1.66	11.25	0.517	2.72	0.59	6.07	15.14	7.48	4.66
09 Op-2	5	0.00	0.00	0.000	.	.	15.46	1.18	16.08	14.83
10 Op-1	25	0.00	0.00	0.000	.	.	7.76	7.95	8.61	6.91
10 Op-2	5	0.00	0.00	0.000	.	.	15.46	1.18	16.08	14.83
12 Op-1	26	0.00	0.00	0.000	.	.	7.73	7.95	8.54	6.91
12 Op-2	5	0.00	0.00	0.000	.	.	15.46	1.18	16.08	14.83

Period means and deltas from original control data where n=2

Period	N	Station Mean	Range	Standard Error	Upper 95% C.I.	Lower 95% C.I.
Op-1	26	7.73	7.95	0.396	8.54	6.91
Op-2	5	15.46	1.18	0.225	16.08	14.83

Analysis of Variance for HBT for 0099 - Porphyra spp.

Stations = 4, 5, 6, 8, 9, 10, 12 level +1 ft MLLW

Data transformed using 1/(x + .1)

Results for Analysis of Variance

Source	Source df	Error df	F-value	Prob.
PERIOD	1	160.000	15.16	0.0001
SEASON	1	160.000	0.33	0.5652
STATION	6	160.000	3.40	0.0035
PERIOD*SEASON	1	160.000	4.22	0.0415
STATION*PERIOD	6	160.000	0.51	0.7985
STATION*SEASON	6	160.000	3.79	0.0015
PERIOD*STATION*SEASON	6	160.000	0.45	0.8430

Results for Power Analysis
Power at alpha = .1

Source	Non-Centrality Parameter	Adjusted non-Centrality Parameter	Power	Adjusted Power	Power to Detect 50% Change
PERIOD	15.16	13.97	0.9872	0.9811	0.2231
STATION*PERIOD	3.07	0.00	0.3114	.	0.1086

Estimates for contrasts on combinations of interaction terms

Source	Difference	Std. Err.	T-value	Prob.
Period in DC	-7.3518	3.7799	-1.945	.0535
Period in FC	-12.9905	3.6070	-3.601	.0004
Period in FC-S	-21.3192	4.3474	-4.904	.0000
Period in FC-W	-4.6619	5.7570	-0.810	.4193
Period in DC-S	-9.7610	4.8847	-1.998	.0474
Period in DC-W	-4.9426	5.7696	-0.857	.3929

Least square means & confidence intervals from analysis of variance

Source	LS Mean	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period Op-1	-2.354	0.3112	-7.56	.0000	-1.8392	-2.8690
Period Op-2	0.552	0.6784	0.81	.4171	1.6743	-0.5705
Op-1-04	-1.382	0.9435	-1.46	.1450	0.1792	-2.9427
Op-2-04	3.160	2.1789	1.45	.1489	6.7652	-0.4446
Op-1-05	-0.725	0.9435	-0.77	.4434	0.8360	-2.2859
Op-2-05	3.222	1.7226	1.87	.0632	6.0724	0.3725
Op-1-06	-1.465	0.7401	-1.98	.0495	-0.2402	-2.6893
Op-2-06	3.036	1.7226	1.76	.0799	5.8862	0.1864
Op-1-08	-2.049	0.8670	-2.36	.0193	-0.6141	-3.4830
Op-2-08	-0.877	1.7226	-0.51	.6115	1.9733	-3.7266
Op-1-09	-2.964	0.7401	-4.00	.0001	-1.7390	-4.1880
Op-2-09	-1.560	1.7226	-0.91	.3666	1.2902	-4.4096
Op-1-10	-3.836	0.7554	-5.08	.0000	-2.5863	-5.0858
Op-2-10	-1.560	1.7226	-0.91	.3666	1.2902	-4.4096
Op-1-12	-4.059	0.7401	-5.48	.0000	-2.8350	-5.2840
Op-2-12	-1.560	1.7226	-0.91	.3666	1.2902	-4.4096

Paired comparisons of least square means between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period	-2.9060	0.7464	-3.893	.0001	-1.6712	-4.1409

Paired comparisons of least square means among stations between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Station 04	-4.5420	2.3744	-1.91	.0575	-0.6137	-8.4704
Station 05	-3.9474	1.9641	-2.01	.0461	-0.6980	-7.1968
Station 06	-4.5011	1.8749	-2.40	.0175	-1.3992	-7.6029
Station 08	-1.1719	1.9285	-0.61	.5443	2.0186	-4.3625
Station 09	-1.4038	1.8749	-0.75	.4551	1.6981	-4.5056
Station 10	-2.2763	1.8809	-1.21	.2280	0.8356	-5.3882
Station 12	-2.4998	1.8749	-1.33	.1843	0.6021	-5.6016

Station-period means and deltas from original data where control n=2

Station-Period	N	Station Mean	Range	Standard Error	Upper 95% c.i.	Lower 95% c.i.	Mean Delta	Delta Range	Upper 95% CIi.	Lower 95% C.I.
04 Op-1	16	0.96	10.00	0.646	2.34	-0.41	-0.47	11.87	0.87	-1.82
04 Op-2	4	2.57	5.62	1.335	6.82	-1.68	-2.20	5.62	1.79	-6.20
05 Op-1	16	0.50	3.96	0.253	1.04	-0.04	-0.01	5.14	0.53	-0.54
05 Op-2	5	1.85	4.24	0.928	4.43	-0.73	-1.56	3.89	0.59	-3.70
06 Op-1	26	0.24	1.32	0.082	0.41	0.07	0.34	3.06	0.66	0.02
06 Op-2	5	0.93	2.85	0.524	2.39	-0.52	-0.64	3.61	1.10	-2.38
08 Op-1	19	0.18	1.60	0.090	0.36	-0.01	0.37	3.47	0.79	-0.06
08 Op-2	5	0.01	0.07	0.014	0.05	-0.02	0.28	1.53	1.10	-0.54
09 Op-1	26	0.28	4.31	0.180	0.65	-0.10	0.31	6.70	0.80	-0.18
09 Op-2	5	0.00	0.00	0.000	.	.	0.29	1.46	1.10	-0.52
10 Op-1	25	0.02	0.28	0.012	0.05	-0.00	0.58	2.64	0.92	0.24
10 Op-2	5	0.00	0.00	0.000	.	.	0.29	1.46	1.10	-0.52
12 Op-1	26	0.05	0.83	0.035	0.12	-0.02	0.53	3.33	0.88	0.19
12 Op-2	5	0.00	0.00	0.000	.	.	0.29	1.46	1.10	-0.52

Period means and deltas from original control data where n=2

Period	N	Station Mean	Range	Standard Error	Upper 95% C.I.	Lower 95% C.I.
Op-1	26	0.58	2.92	0.165	0.92	0.24
Op-2	5	0.29	1.46	0.292	1.10	-0.52

Analysis of Variance for HBT for 0106 - Prionitis spp.

Stations = 4, 5, 6, 8, 9, 10, 12 level +1 ft MLLW

Data transformed using log base10(x + .1)

Results for Analysis of Variance

Source	Source df	Error df	F-value	Prob.
PERIOD	1	160.000	5.96	0.0157
SEASON	1	160.000	4.26	0.0406
STATION	6	160.000	23.30	0.0000
PERIOD*SEASON	1	160.000	0.08	0.7727
STATION*PERIOD	6	160.000	4.49	0.0003
STATION*SEASON	6	160.000	0.50	0.8094
PERIOD*STATION*SEASON	6	160.000	0.22	0.9714

Results for Power Analysis
Power at alpha = .1

Source	Non-Centrality Parameter	Adjusted non-Centrality Parameter	Power	Adjusted Power	Power to Detect 50% Change
PERIOD	5.96	4.88	0.7841	0.7109	0.9971
STATION*PERIOD	26.92	20.59	0.9930	0.9686	0.4519

Estimates for contrasts on combinations of interaction terms

Source	Difference	Std. Err.	T-value	Prob.
Period in DC	-1.5137	0.4117	-3.677	.0003
Period in FC	0.1246	0.3929	0.317	.7516
Period in FC-S	0.1043	0.4735	0.220	.8259
Period in FC-W	0.1449	0.6270	0.231	.8176
Period in DC-S	-1.6581	0.5320	-3.117	.0022
Period in DC-W	-1.3694	0.6284	-2.179	.0308

Least square means & confidence intervals from analysis of variance

Source	LS Mean	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period Op-1	-0.195	0.0339	-5.76	.0000	-0.1392	-0.2513
Period Op-2	0.003	0.0739	0.04	.9657	0.1254	-0.1191
Op-1-04	0.487	0.1028	4.74	.0000	0.6566	0.3166
Op-2-04	0.012	0.2373	0.05	.9612	0.4042	-0.3811
Op-1-05	-0.283	0.1028	-2.76	.0065	-0.1132	-0.4533
Op-2-05	-0.226	0.1876	-1.20	.2310	0.0848	-0.5360
Op-1-06	-0.306	0.0806	-3.80	.0002	-0.1730	-0.4398
Op-2-06	-0.014	0.1876	-0.07	.9422	0.2968	-0.3240
Op-1-08	-0.251	0.0944	-2.66	.0086	-0.0951	-0.4076
Op-2-08	-0.349	0.1876	-1.86	.0645	-0.0388	-0.6596
Op-1-09	-0.849	0.0806	-10.53	.0000	-0.7153	-0.9820
Op-2-09	0.195	0.1876	1.04	.3003	0.5054	-0.1154
Op-1-10	-0.903	0.0823	-10.98	.0000	-0.7673	-1.0396
Op-2-10	-0.538	0.1876	-2.87	.0047	-0.2273	-0.8481
Op-1-12	0.740	0.0806	9.18	.0000	0.8730	0.6063
Op-2-12	0.942	0.1876	5.02	.0000	1.2522	0.6314

Paired comparisons of least square means between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period	-0.1984	0.0813	-2.441	.0157	-0.0640	-0.3329

Paired comparisons of least square means among stations between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Station 04	0.4750	0.2586	1.84	.0681	0.9029	0.0472
Station 05	-0.0577	0.2139	-0.27	.7879	0.2962	-0.4116
Station 06	-0.2928	0.2042	-1.43	.1536	0.0451	-0.6306
Station 08	0.0979	0.2100	0.47	.6419	0.4454	-0.2496
Station 09	-1.0436	0.2042	-5.11	.0000	-0.7058	-1.3815
Station 10	-0.3658	0.2049	-1.79	.0761	-0.0268	-0.7047
Station 12	-0.2022	0.2042	-0.99	.3236	0.1357	-0.5400

Station-period means and deltas from original data where control n=2

Station-Period	N	Station Mean	Range	Standard Error	Upper 95% c.i.	Lower 95% c.i.	Mean Delta	Delta Range	Upper 95% CIi.	Lower 95% C.I.
04 Op-1	16	0.22	0.76	0.067	0.36	0.08	0.59	1.74	0.84	0.34
04 Op-2	4	0.89	0.97	0.203	1.53	0.24	0.11	0.52	0.49	-0.27
05 Op-1	16	1.40	2.01	0.142	1.71	1.10	-0.59	1.77	-0.27	-0.90
05 Op-2	5	1.72	1.46	0.261	2.45	1.00	-0.69	1.18	-0.05	-1.32
06 Op-1	26	1.15	2.85	0.118	1.40	0.91	-0.52	3.12	-0.20	-0.85
06 Op-2	5	1.10	1.60	0.284	1.89	0.31	-0.06	1.11	0.44	-0.57
08 Op-1	19	1.67	5.56	0.354	2.42	0.93	-0.90	5.59	-0.25	-1.54
08 Op-2	5	2.53	3.75	0.625	4.26	0.79	-1.49	3.61	0.40	-3.38
09 Op-1	26	4.33	7.36	0.387	5.13	3.54	-3.70	7.71	-2.90	-4.51
09 Op-2	5	1.22	3.96	0.726	3.24	-0.79	-0.19	5.00	2.37	-2.74
10 Op-1	25	6.54	15.21	0.973	8.55	4.54	-5.90	15.94	-3.80	-8.00
10 Op-2	5	3.99	4.58	0.754	6.08	1.89	-2.95	4.86	-0.75	-5.16
12 Op-1	26	0.00	0.07	0.003	0.01	-0.00	0.63	2.22	0.85	0.40
12 Op-2	5	0.04	0.21	0.042	0.16	-0.07	0.99	1.46	1.70	0.28

Period means and deltas from original control data where n=2

Period	N	Station Mean	Range	Standard Error	Upper 95% C.I.	Lower 95% C.I.
Op-1	26	0.63	2.29	0.112	0.86	0.40
Op-2	5	1.03	1.25	0.216	1.63	0.44

Analysis of Variance for HBT for 0192 - Pterosiphonia dendroidea

Stations = 4, 5, 6, 8, 9, 10, 12 level +1 ft MLLW

Data transformed using 1/(x + .1)

Results for Analysis of Variance

Source	Source df	Error df	F-value	Prob.
PERIOD	1	160.000	0.83	0.3649
SEASON	1	160.000	10.28	0.0016
STATION	6	160.000	5.74	0.0000
PERIOD*SEASON	1	160.000	0.09	0.7667
STATION*PERIOD	6	160.000	2.61	0.0192
STATION*SEASON	6	160.000	1.57	0.1577
PERIOD*STATION*SEASON	6	160.000	0.58	0.7433

Results for Power Analysis
Power at alpha = .1

Source	Non-Centrality Parameter	Adjusted non-Centrality Parameter	Power	Adjusted Power	Power to Detect 50% Change
PERIOD	0.83	0.00	0.2350	.	0.1279
STATION*PERIOD	15.68	9.48	0.9102	0.7165	0.1139

Estimates for contrasts on combinations of interaction terms

Source	Difference	Std. Err.	T-value	Prob.
Period in DC	-2.6975	3.2097	-0.840	.4019
Period in FC	6.7292	3.0630	2.197	.0295
Period in FC-S	3.0408	3.6916	0.824	.4113
Period in FC-W	10.4175	4.8886	2.131	.0346
Period in DC-S	-0.3276	4.1479	-0.079	.9372
Period in DC-W	-5.0675	4.8994	-1.034	.3026

Least square means & confidence intervals from analysis of variance

Source	LS Mean	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period Op-1	-1.552	0.2643	-5.87	.0000	-1.1148	-1.9893
Period Op-2	-2.128	0.5761	-3.69	.0003	-1.1749	-3.0811
Op-1-04	-2.671	0.8012	-3.33	.0011	-1.3454	-3.9965
Op-2-04	-5.116	1.8503	-2.76	.0064	-2.0548	-8.1771
Op-1-05	-2.671	0.8012	-3.33	.0011	-1.3454	-3.9965
Op-2-05	-4.067	1.4628	-2.78	.0061	-1.6470	-6.4871
Op-1-06	-1.179	0.6285	-1.88	.0625	-0.1391	-2.2187
Op-2-06	-4.067	1.4628	-2.78	.0061	-1.6470	-6.4871
Op-1-08	1.377	0.7362	1.87	.0633	2.5951	0.1590
Op-2-08	-0.196	1.4628	-0.13	.8933	2.2236	-2.6165
Op-1-09	-2.401	0.6285	-3.82	.0002	-1.3616	-3.4413
Op-2-09	-3.042	1.4628	-2.08	.0391	-0.6224	-5.4625
Op-1-10	-1.141	0.6415	-1.78	.0771	-0.0800	-2.2025
Op-2-10	3.822	1.4628	2.61	.0098	6.2418	1.4017
Op-1-12	-2.178	0.6285	-3.47	.0007	-1.1380	-3.2177
Op-2-12	-2.229	1.4628	-1.52	.1296	0.1912	-4.6489

Paired comparisons of least square means between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period	0.5759	0.6338	0.909	.3649	1.6245	-0.4726

Paired comparisons of least square means among stations between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Station 04	2.4450	2.0163	1.21	.2271	5.7808	-0.8908
Station 05	1.3961	1.6678	0.84	.4038	4.1554	-1.3632
Station 06	2.8881	1.5921	1.81	.0715	5.5221	0.2541
Station 08	1.5735	1.6376	0.96	.3381	4.2828	-1.1358
Station 09	0.6410	1.5921	0.40	.6878	3.2750	-1.9930
Station 10	-4.9630	1.5972	-3.11	.0022	-2.3205	-7.6055
Station 12	0.0510	1.5921	0.03	.9745	2.6849	-2.5830

Station-period means and deltas from original data where control n=2

Station-Period	N	Station Mean	Range	Standard Error	Upper 95% C.I.	Lower 95% C.I.	Mean Delta	Delta Range	Upper 95% CIi.	Lower 95% C.I.
04 Op-1	16	0.00	0.00	0.000	.	.	0.15	0.94	0.32	-0.01
04 Op-2	4	0.00	0.00	0.000	.	.	0.16	0.49	0.52	-0.21
05 Op-1	16	0.00	0.00	0.000	.	.	0.15	0.94	0.32	-0.01
05 Op-2	5	0.00	0.00	0.000	.	.	0.14	0.49	0.39	-0.11
06 Op-1	26	0.04	0.35	0.019	0.08	0.00	0.08	1.28	0.19	-0.03
06 Op-2	5	0.00	0.00	0.000	.	.	0.14	0.49	0.39	-0.11
08 Op-1	19	0.82	8.06	0.435	1.74	-0.09	-0.67	7.29	0.14	-1.48
08 Op-2	5	0.61	2.92	0.577	2.21	-0.99	-0.47	2.57	0.89	-1.83
09 Op-1	26	0.00	0.00	0.000	.	.	0.12	0.94	0.22	0.01
09 Op-2	5	0.01	0.07	0.014	0.05	-0.02	0.12	0.42	0.34	-0.09
10 Op-1	25	0.10	1.11	0.060	0.23	-0.02	0.02	0.73	0.07	-0.04
10 Op-2	5	0.68	1.46	0.309	1.54	-0.18	-0.54	1.46	0.22	-1.31
12 Op-1	26	0.01	0.14	0.005	0.02	-0.01	0.11	0.90	0.21	0.02
12 Op-2	5	0.06	0.28	0.056	0.21	-0.10	0.08	0.21	0.20	-0.03

Period means and deltas from original control data where n=2

Period	N	Station Mean	Range	Standard Error	Upper 95% C.I.	Lower 95% C.I.
Op-1	26	0.12	0.94	0.050	0.22	0.01
Op-2	5	0.14	0.49	0.091	0.39	-0.11

Analysis of Variance for HBT for 0104 - Sarcodiotheca gaudichaudii

Stations = 4, 5, 6, 8, 9, 10, 12 level +1 ft MLLW

Data transformed using arcsin.

Results for Analysis of Variance

Source	Source df	Error df	F-value	Prob.
PERIOD	1	160.000	10.05	0.0018
SEASON	1	160.000	0.11	0.7430
STATION	6	160.000	6.49	0.0000
PERIOD*SEASON	1	160.000	6.24	0.0135
STATION*PERIOD	6	160.000	4.56	0.0003
STATION*SEASON	6	160.000	1.75	0.1133
PERIOD*STATION*SEASON	6	160.000	0.56	0.7604

Results for Power Analysis
Power at alpha = .1

Source	Non-Centrality Parameter	Adjusted non-Centrality Parameter	Power	Adjusted Power	Power to Detect 50% Change
PERIOD	10.05	8.93	0.9348	0.9083	0.4852
STATION*PERIOD	27.33	20.99	0.9936	0.9714	0.2356

Estimates for contrasts on combinations of interaction terms

Source	Difference	Std. Err.	T-value	Prob.
Period in DC	-4.8846	1.2033	-4.059	.0001
Period in FC	-0.3887	1.1483	-0.339	.7354
Period in FC-S	-3.1929	1.3839	-2.307	.0223
Period in FC-W	2.4155	1.8327	1.318	.1894
Period in DC-S	-6.2336	1.5550	-4.009	.0001
Period in DC-W	-3.5355	1.8367	-1.925	.0560

Least square means & confidence intervals from analysis of variance

Source	LS Mean	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period Op-1	0.032	0.0991	0.32	.7463	0.1960	-0.1318
Period Op-2	0.785	0.2160	3.64	.0004	1.1427	0.4281
Op-1-04	0.868	0.3004	2.89	.0044	1.3652	0.3714
Op-2-04	-0.320	0.6936	-0.46	.6451	0.8275	-1.4676
Op-1-05	0.201	0.3004	0.67	.5034	0.6984	-0.2955
Op-2-05	1.427	0.5484	2.60	.0101	2.3345	0.5200
Op-1-06	0.170	0.2356	0.72	.4710	0.5601	-0.2195
Op-2-06	0.522	0.5484	0.95	.3430	1.4288	-0.3857
Op-1-08	-0.979	0.2760	-3.55	.0005	-0.5223	-1.4356
Op-2-08	-1.221	0.5484	-2.23	.0274	-0.3138	-2.1283
Op-1-09	-0.890	0.2356	-3.78	.0002	-0.4997	-1.2793
Op-2-09	2.213	0.5484	4.04	.0001	3.1201	1.3056
Op-1-10	0.162	0.2405	0.67	.5024	0.5595	-0.2362
Op-2-10	0.665	0.5484	1.21	.2273	1.5719	-0.2426
Op-1-12	0.692	0.2356	2.94	.0038	1.0814	0.3017
Op-2-12	2.213	0.5484	4.04	.0001	3.1201	1.3056

Paired comparisons of least square means between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period	-0.7533	0.2376	-3.170	.0018	-0.3602	-1.1464

Paired comparisons of least square means among stations between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Station 04	1.1883	0.7559	1.57	.1179	2.4389	-0.0622
Station 05	-1.2258	0.6252	-1.96	.0517	-0.1914	-2.2602
Station 06	-0.3512	0.5969	-0.59	.5570	0.6362	-1.3387
Station 08	0.2421	0.6139	0.39	.6939	1.2577	-0.7736
Station 09	-3.1024	0.5969	-5.20	.0000	-2.1149	-4.0898
Station 10	-0.5030	0.5988	-0.84	.4022	0.4877	-1.4936
Station 12	-1.5213	0.5969	-2.55	.0117	-0.5338	-2.5087

Station-period means and deltas from original data where control n=2

Station-Period	N	Station Mean	Range	Standard Error	Upper 95% c.i.	Lower 95% c.i.	Mean Delta	Delta Range	Upper 95% CIi.	Lower 95% C.I.
04 Op-1	16	0.00	0.07	0.004	0.01	-0.00	0.05	0.28	0.09	0.01
04 Op-2	4	0.23	0.49	0.104	0.56	-0.10	-0.04	0.31	0.21	-0.29
05 Op-1	16	0.05	0.35	0.023	0.10	0.00	0.00	0.45	0.06	-0.05
05 Op-2	5	0.04	0.14	0.028	0.12	-0.04	0.12	0.35	0.29	-0.04
06 Op-1	26	0.03	0.21	0.012	0.06	0.01	0.01	0.42	0.04	-0.03
06 Op-2	5	0.10	0.21	0.035	0.20	-0.00	0.07	0.35	0.25	-0.11
08 Op-1	19	0.18	0.63	0.046	0.28	0.09	-0.13	0.63	-0.04	-0.22
08 Op-2	5	0.44	0.69	0.147	0.85	0.04	-0.28	0.59	0.07	-0.62
09 Op-1	26	0.13	0.63	0.032	0.20	0.07	-0.10	0.76	-0.02	-0.17
09 Op-2	5	0.00	0.00	0.000	.	.	0.17	0.21	0.27	0.06
10 Op-1	25	0.04	0.28	0.016	0.07	0.01	-0.00	0.42	0.04	-0.04
10 Op-2	5	0.12	0.35	0.060	0.29	-0.04	0.04	0.14	0.12	-0.04
12 Op-1	26	0.00	0.00	0.000	.	.	0.04	0.21	0.06	0.01
12 Op-2	5	0.00	0.00	0.000	.	.	0.17	0.21	0.27	0.06

Period means and deltas from original control data where n=2

Period	N	Station Mean	Range	Standard Error	Upper 95% C.I.	Lower 95% C.I.
Op-1	26	0.04	0.21	0.011	0.06	0.01
Op-2	5	0.17	0.21	0.039	0.27	0.06

Analysis of Variance for HBT for 0044 - Scytosiphon spp.

Stations = 4, 5, 6, 8, 9, 10, 12 level +1 ft MLLW

Data transformed using arcsin.

Satterthwaite's Adjustment for Degrees of Freedom used in Analysis of Variance.

Results for Analysis of Variance

Source	Source df	Error df	F-value	Prob.
PERIOD	1	160.000	3.48	0.0640
SEASON	1	160.000	3.48	0.0640
STATION	6	160.000	3.81	0.0014
PERIOD*SEASON	1	160.000	3.48	0.0640
STATION*PERIOD	6	160.000	3.81	0.0014
STATION*SEASON	6	160.000	3.81	0.0014
PERIOD*STATION*SEASON	6	160.000	3.81	0.0014

Results for Power Analysis
Power at alpha = .1

Source	Non-Centrality Parameter	Adjusted non-Centrality Parameter	Power	Adjusted Power	Power to Detect 50% Change
PERIOD	3.48	2.43	0.5843	0.4644	.
STATION*PERIOD	22.84	16.55	0.9813	0.9250	.

Estimates for contrasts on combinations of interaction terms

Source	Difference	Std. Err.	T-value	Prob.
Period in DC	1.7717	0.6872	2.578	.0108
Period in FC	0.0000	0.6558	0.000	1.000
Period in FC-S	0.0000	0.7904	0.000	1.000
Period in FC-W	-0.0000	1.0467	-0.000	1.000
Period in DC-S	3.5433	0.8881	3.990	.0001
Period in DC-W	-0.0000	1.0490	-0.000	1.000

Least square means & confidence intervals from analysis of variance

Source	LS Mean	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period Op-1	0.000	0.0566	0.00	1.000	0.0936	-0.0936
Period Op-2	-0.253	0.1233	-2.05	.0418	-0.0490	-0.4572
Op-1-04	0.000	0.1715	0.00	1.000	0.2838	-0.2838
Op-2-04	0.000	0.3962	0.00	1.000	0.6554	-0.6554
Op-1-05	0.000	0.1715	0.00	1.000	0.2838	-0.2838
Op-2-05	-0.000	0.3132	-0.00	1.000	0.5182	-0.5182
Op-1-06	0.000	0.1346	0.00	1.000	0.2226	-0.2226
Op-2-06	0.000	0.3132	0.00	1.000	0.5182	-0.5182
Op-1-08	0.000	0.1576	0.00	1.000	0.2608	-0.2608
Op-2-08	-0.000	0.3132	-0.00	1.000	0.5182	-0.5182
Op-1-09	-0.000	0.1346	-0.00	1.000	0.2226	-0.2226
Op-2-09	-1.772	0.3132	-5.66	.0000	-1.2535	-2.2898
Op-1-10	0.000	0.1373	0.00	1.000	0.2272	-0.2272
Op-2-10	-0.000	0.3132	-0.00	1.000	0.5182	-0.5182
Op-1-12	0.000	0.1346	0.00	1.000	0.2226	-0.2226
Op-2-12	0.000	0.3132	0.00	1.000	0.5182	-0.5182

Paired comparisons of least square means between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period	0.2531	0.1357	1.865	.0640	0.4776	0.0286

Paired comparisons of least square means among stations between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Station 04	0.0000	0.4317	0.00	1.000	0.7142	-0.7142
Station 05	0.0000	0.3571	0.00	1.000	0.5908	-0.5908
Station 06	-0.0000	0.3409	-0.00	1.000	0.5640	-0.5640
Station 08	0.0000	0.3506	0.00	1.000	0.5801	-0.5801
Station 09	1.7717	0.3409	5.20	.0000	2.3356	1.2077
Station 10	0.0000	0.3420	0.00	1.000	0.5658	-0.5658
Station 12	-0.0000	0.3409	-0.00	1.000	0.5640	-0.5640

Station-period means and deltas from original data where control n=2

Station-Period	N	Station Mean	Range	Standard Error	Upper 95% c.i.	Lower 95% c.i.	Mean Delta	Delta Range	Upper 95% CIi.	Lower 95% C.I.
04 Op-1	16	0.00	0.00	0.000	.	.	0.00	0.00	.	.
04 Op-2	4	0.00	0.00	0.000	.	.	0.00	0.00	.	.
05 Op-1	16	0.00	0.00	0.000	.	.	0.00	0.00	.	.
05 Op-2	5	0.00	0.00	0.000	.	.	0.00	0.00	.	.
06 Op-1	26	0.00	0.00	0.000	.	.	0.00	0.00	.	.
06 Op-2	5	0.00	0.00	0.000	.	.	0.00	0.00	.	.
08 Op-1	19	0.00	0.00	0.000	.	.	0.00	0.00	.	.
08 Op-2	5	0.00	0.00	0.000	.	.	0.00	0.00	.	.
09 Op-1	26	0.00	0.00	0.000	.	.	0.00	0.00	.	.
09 Op-2	5	0.68	3.40	0.681	2.57	-1.21	-0.68	3.40	1.21	-2.57
10 Op-1	25	0.00	0.00	0.000	.	.	0.00	0.00	.	.
10 Op-2	5	0.00	0.00	0.000	.	.	0.00	0.00	.	.
12 Op-1	26	0.00	0.00	0.000	.	.	0.00	0.00	.	.
12 Op-2	5	0.00	0.00	0.000	.	.	0.00	0.00	.	.

Period means and deltas from original control data where n=2

Period	N	Station Mean	Range	Standard Error	Upper 95% C.I.	Lower 95% C.I.
Op-1	26	0.00	0.00	0.000	.	.
Op-2	5	0.00	0.00	0.000	.	.

Analysis of Variance for HBT for 0110 - Smithora naiadum

Stations = 4, 5, 6, 8, 9, 10, 12 level +1 ft MLLW

Data transformed using log base10(x + .5)

Results for Analysis of Variance

Source	Source df	Error df	F-value	Prob.
PERIOD	1	160.000	0.83	0.3638
SEASON	1	160.000	3.57	0.0607
STATION	6	160.000	4.17	0.0006
PERIOD*SEASON	1	160.000	0.80	0.3722
STATION*PERIOD	6	160.000	1.14	0.3403
STATION*SEASON	6	160.000	4.11	0.0007
PERIOD*STATION*SEASON	6	160.000	1.17	0.3229

Results for Power Analysis
Power at alpha = .1

Source	Non-Centrality Parameter	Adjusted non-Centrality Parameter	Power	Adjusted Power	Power to Detect 50% Change
PERIOD	0.83	0.00	0.2356	.	0.2407
STATION*PERIOD	6.85	0.77	0.5733	0.1481	0.1770

Estimates for contrasts on combinations of interaction terms

Source	Difference	Std. Err.	T-value	Prob.
Period in DC	-0.1808	0.1973	-0.916	.3608
Period in FC	-0.0676	0.1883	-0.359	.7202
Period in FC-S	-0.1308	0.2269	-0.576	.5652
Period in FC-W	-0.0043	0.3005	-0.014	.9885
Period in DC-S	-0.3616	0.2550	-1.418	.1580
Period in DC-W	0.0000	0.3011	0.000	1.000

Least square means & confidence intervals from analysis of variance

Source	LS Mean	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period Op-1	0.019	0.0162	1.15	.2503	0.0456	-0.0081
Period Op-2	0.054	0.0354	1.53	.1277	0.1128	-0.0044
Op-1-04	-0.031	0.0492	-0.63	.5278	0.0503	-0.1126
Op-2-04	0.023	0.1137	0.20	.8423	0.2108	-0.1655
Op-1-05	-0.100	0.0492	-2.04	.0429	-0.0190	-0.1820
Op-2-05	0.087	0.0899	0.97	.3325	0.2361	-0.0613
Op-1-06	-0.072	0.0386	-1.85	.0659	-0.0076	-0.1354
Op-2-06	-0.246	0.0899	-2.73	.0070	-0.0969	-0.3944
Op-1-08	0.080	0.0453	1.76	.0803	0.1545	0.0048
Op-2-08	0.129	0.0899	1.43	.1540	0.2775	-0.0200
Op-1-09	0.085	0.0386	2.20	.0294	0.1488	0.0210
Op-2-09	0.129	0.0899	1.43	.1540	0.2775	-0.0200
Op-1-10	0.085	0.0394	2.15	.0328	0.1501	0.0197
Op-2-10	0.129	0.0899	1.43	.1540	0.2775	-0.0200
Op-1-12	0.085	0.0386	2.20	.0294	0.1488	0.0210
Op-2-12	0.129	0.0899	1.43	.1540	0.2775	-0.0200

Paired comparisons of least square means between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period	-0.0355	0.0390	-0.911	.3638	0.0290	-0.0999

Paired comparisons of least square means among stations between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Station 04	-0.0538	0.1239	-0.43	.6647	0.1512	-0.2589
Station 05	-0.1879	0.1025	-1.83	.0687	-0.0183	-0.3575
Station 06	0.1741	0.0979	1.78	.0771	0.3360	0.0122
Station 08	-0.0491	0.1007	-0.49	.6260	0.1174	-0.2157
Station 09	-0.0439	0.0979	-0.45	.6544	0.1180	-0.2058
Station 10	-0.0439	0.0982	-0.45	.6554	0.1185	-0.2063
Station 12	-0.0439	0.0979	-0.45	.6544	0.1180	-0.2058

Station-period means and deltas from original data where control n=2

Station-Period		N	Station Mean	Range	Standard Error	Upper 95% C.I.	Lower 95% C.I.	Mean Delta	Delta Range	Upper 95% CIi.	Lower 95% C.I.
04	Op-1	16	0.20	2.22	0.137	0.49	-0.09	-0.09	3.23	0.24	-0.42
04	Op-2	4	0.42	1.67	0.417	1.74	-0.91	-0.05	2.64	1.71	-1.81
05	Op-1	16	0.37	2.92	0.187	0.77	-0.03	-0.26	3.09	0.13	-0.65
05	Op-2	5	0.07	0.28	0.054	0.22	-0.08	0.22	1.18	0.80	-0.36
06	Op-1	26	0.42	4.31	0.184	0.80	0.04	-0.24	4.65	0.11	-0.59
06	Op-2	5	2.14	6.60	1.338	5.85	-1.58	-1.85	6.56	1.72	-5.41
08	Op-1	19	0.01	0.14	0.007	0.02	-0.01	0.16	1.35	0.36	-0.03
08	Op-2	5	0.00	0.00	0.000	.	.	0.29	1.08	0.85	-0.27
09	Op-1	26	0.00	0.00	0.000	.	.	0.18	1.49	0.36	0.01
09	Op-2	5	0.00	0.00	0.000	.	.	0.29	1.08	0.85	-0.27
10	Op-1	25	0.00	0.00	0.000	.	.	0.19	1.49	0.37	0.01
10	Op-2	5	0.00	0.00	0.000	.	.	0.29	1.08	0.85	-0.27
12	Op-1	26	0.00	0.00	0.000	.	.	0.18	1.49	0.36	0.01
12	Op-2	5	0.00	0.00	0.000	.	.	0.29	1.08	0.85	-0.27

Period means and deltas from original control data where n=2

Period	N	Station Mean	Range	Standard Error	Upper 95% C.I.	Lower 95% C.I.
Op-1	26	0.18	1.49	0.086	0.36	0.01
Op-2	5	0.29	1.08	0.203	0.85	-0.27

Analysis of Variance for HBT for 0013 - Spongomorpha/Acrosiphonia-complex

Stations = 4, 5, 6, 8, 9, 10, 12 level +1 ft MLLW

Data transformed using 1/(x + .1)

Results for Analysis of Variance

Source	Source df	Error df	F-value	Prob.
PERIOD	1	160.000	6.18	0.0140
SEASON	1	160.000	1.56	0.2142
STATION	6	160.000	3.88	0.0012
PERIOD*SEASON	1	160.000	6.18	0.0140
STATION*PERIOD	6	160.000	1.47	0.1907
STATION*SEASON	6	160.000	3.88	0.0012
PERIOD*STATION*SEASON	6	160.000	1.47	0.1907

Results for Power Analysis
Power at alpha = .1

Source	Non-Centrality Parameter	Adjusted non-Centrality Parameter	Power	Adjusted Power	Power to Detect 50% Change
PERIOD	6.18	5.10	0.7967	0.7270	0.1530
STATION*PERIOD	8.84	2.73	0.6850	0.2859	0.1143

Estimates for contrasts on combinations of interaction terms

Source	Difference	Std. Err.	T-value	Prob.
Period in DC	-0.4182	1.7143	-0.244	.8076
Period in FC	-5.4710	1.6360	-3.344	.0010
Period in FC-S	-10.9420	1.9717	-5.549	.0000
Period in FC-W	-0.0000	2.6111	-0.000	1.000
Period in DC-S	-0.8364	2.2154	-0.378	.7063
Period in DC-W	0.0000	2.6168	0.000	1.000

Least square means & confidence intervals from analysis of variance

Source	LS Mean	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period Op-1	-0.210	0.1412	-1.48	.1396	0.0240	-0.4431
Period Op-2	0.632	0.3077	2.05	.0417	1.1408	0.1227
Op-1-04	0.428	0.4279	1.00	.3192	1.1355	-0.2804
Op-2-04	1.479	0.9882	1.50	.1365	3.1140	-0.1560
Op-1-05	0.356	0.4279	0.83	.4063	1.0643	-0.3517
Op-2-05	2.068	0.7813	2.65	.0089	3.3611	0.7759
Op-1-06	-0.114	0.3357	-0.34	.7337	0.4410	-0.6698
Op-2-06	2.593	0.7813	3.32	.0011	3.8856	1.3004
Op-1-08	-0.334	0.3932	-0.85	.3966	0.3163	-0.9848
Op-2-08	-0.430	0.7813	-0.55	.5832	0.8630	-1.7221
Op-1-09	-0.496	0.3357	-1.48	.1418	0.0597	-1.0510
Op-2-09	-0.430	0.7813	-0.55	.5832	0.8630	-1.7221
Op-1-10	-0.653	0.3426	-1.91	.0583	-0.0864	-1.2201
Op-2-10	-0.430	0.7813	-0.55	.5832	0.8630	-1.7221
Op-1-12	-0.653	0.3357	-1.95	.0534	-0.0979	-1.2086
Op-2-12	-0.430	0.7813	-0.55	.5832	0.8630	-1.7221

Paired comparisons of least square means between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period	-0.8413	0.3385	-2.485	.0140	-0.2813	-1.4014

Paired comparisons of least square means among stations between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Station 04	-1.0514	1.0769	-0.98	.3304	0.7303	-2.8331
Station 05	-1.7122	0.8908	-1.92	.0564	-0.2385	-3.1860
Station 06	-2.7074	0.8503	-3.18	.0017	-1.3006	-4.1142
Station 08	0.0953	0.8747	0.11	.9134	1.5424	-1.3518
Station 09	-0.0661	0.8503	-0.08	.9382	1.3408	-1.4729
Station 10	-0.2237	0.8531	-0.26	.7935	1.1877	-1.6351
Station 12	-0.2237	0.8503	-0.26	.7928	1.1831	-1.6306

Station-period means and deltas from original data where control n=2

Station-Period		N	Station Mean	Range	Standard Error	Upper 95% c.i.	Lower 95% c.i.	Mean Delta	Delta Range	Upper 95% CIi.	Lower 95% C.I.
04	Op-1	16	0.06	0.69	0.046	0.16	-0.04	-0.05	0.73	0.04	-0.15
04	Op-2	4	0.09	0.28	0.066	0.30	-0.12	-0.08	0.24	0.10	-0.26
05	Op-1	16	0.02	0.21	0.014	0.05	-0.01	-0.01	0.24	0.01	-0.04
05	Op-2	5	0.25	1.11	0.217	0.85	-0.35	-0.24	1.11	0.36	-0.85
06	Op-1	26	0.01	0.14	0.006	0.02	-0.00	-0.00	0.17	0.01	-0.01
06	Op-2	5	0.68	2.85	0.552	2.21	-0.85	-0.67	2.81	0.84	-2.19
08	Op-1	19	0.01	0.14	0.007	0.02	-0.01	0.00	0.10	0.01	-0.01
08	Op-2	5	0.00	0.00	0.000	.	.	0.01	0.03	0.03	-0.01
09	Op-1	26	0.00	0.07	0.003	0.01	-0.00	0.01	0.14	0.02	-0.00
09	Op-2	5	0.00	0.00	0.000	.	.	0.01	0.03	0.03	-0.01
10	Op-1	25	0.00	0.00	0.000	.	.	0.01	0.07	0.02	0.00
10	Op-2	5	0.00	0.00	0.000	.	.	0.01	0.03	0.03	-0.01
12	Op-1	26	0.00	0.00	0.000	.	.	0.01	0.07	0.02	0.00
12	Op-2	5	0.00	0.00	0.000	.	.	0.01	0.03	0.03	-0.01

Period means and deltas from original control data where n=2

Period	N	Station Mean	Range	Standard Error	Upper 95% C.I.	Lower 95% C.I.
Op-1	26	0.01	0.07	0.004	0.02	0.00
Op-2	5	0.01	0.03	0.007	0.03	-0.01

Analysis of Variance for HBT for 1173 - Ulva/Enteromorpha spp.

Stations = 4, 5, 6, 8, 9, 10, 12 level +1 ft MLLW

Data transformed using log base10(x + .1)

Results for Analysis of Variance

Source	Source df	Error df	F-value	Prob.
PERIOD	1	160.000	69.51	0.0000
SEASON	1	160.000	10.79	0.0013
STATION	6	160.000	8.31	0.0000
PERIOD*SEASON	1	160.000	0.00	0.9755
STATION*PERIOD	6	160.000	0.65	0.6931
STATION*SEASON	6	160.000	1.88	0.0864
PERIOD*STATION*SEASON	6	160.000	1.28	0.2699

Results for Power Analysis
Power at alpha = .1

Source	Non-Centrality Parameter	Adjusted non-Centrality Parameter	Power	Adjusted Power	Power to Detect 50% Change
PERIOD	69.51	67.64	1.0000	1.0000	0.2938
STATION*PERIOD	3.88	0.00	0.3703	.	0.1472

Estimates for contrasts on combinations of interaction terms

Source	Difference	Std. Err.	T-value	Prob.
Period in DC	3.9733	0.6095	6.519	.0000
Period in FC	3.0507	0.5816	5.245	.0000
Period in FC-S	3.0082	0.7010	4.291	.0000
Period in FC-W	3.0933	0.9283	3.332	.0011
Period in DC-S	3.9899	0.7877	5.065	.0000
Period in DC-W	3.9567	0.9304	4.253	.0000

Least square means & confidence intervals from analysis of variance

Source	LS Mean	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period Op-1	0.487	0.0502	9.70	.0000	0.5700	0.4040
Period Op-2	-0.516	0.1094	-4.72	.0000	-0.3355	-0.6974
Op-1-04	0.823	0.1521	5.41	.0000	1.0743	0.5709
Op-2-04	-0.591	0.3514	-1.68	.0944	-0.0099	-1.1725
Op-1-05	0.945	0.1521	6.21	.0000	1.1971	0.6937
Op-2-05	0.076	0.2778	0.27	.7852	0.5354	-0.3837
Op-1-06	0.739	0.1193	6.19	.0000	0.9368	0.5419
Op-2-06	-0.028	0.2778	-0.10	.9196	0.4315	-0.4876
Op-1-08	0.037	0.1398	0.27	.7910	0.2684	-0.1942
Op-2-08	-0.832	0.2778	-3.00	.0032	-0.3726	-1.2917
Op-1-09	-0.029	0.1193	-0.24	.8072	0.1683	-0.2266
Op-2-09	-1.322	0.2778	-4.76	.0000	-0.8627	-1.7818
Op-1-10	0.245	0.1218	2.01	.0459	0.4466	0.0436
Op-2-10	-0.834	0.2778	-3.00	.0031	-0.3742	-1.2933
Op-1-12	0.649	0.1193	5.43	.0000	0.8460	0.4511
Op-2-12	-0.084	0.2778	-0.30	.7641	0.3761	-0.5431

Paired comparisons of least square means between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period	1.0034	0.1204	8.337	.0000	1.2026	0.8043

Paired comparisons of least square means among stations between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Station 04	1.4138	0.3829	3.69	.0003	2.0472	0.7803
Station 05	0.8696	0.3167	2.75	.0067	1.3935	0.3456
Station 06	0.7674	0.3023	2.54	.0121	1.2676	0.2672
Station 08	0.8693	0.3110	2.80	.0058	1.3838	0.3548
Station 09	1.2931	0.3023	4.28	.0000	1.7933	0.7929
Station 10	1.0788	0.3033	3.56	.0005	1.5806	0.5770
Station 12	0.7321	0.3023	2.42	.0166	1.2322	0.2319

Station-period means and deltas from original data where control n=2

Station-Period	N	Station Mean	Range	Standard Error	Upper 95% c.i.	Lower 95% c.i.	Mean Delta	Delta Range	Upper 95% CII.	Lower 95% C.I.
04 Op-1	16	0.19	2.64	0.164	0.54	-0.16	1.03	5.73	1.77	0.29
04 Op-2	4	2.24	4.65	1.039	5.55	-1.07	-1.74	4.24	1.43	-4.92
05 Op-1	16	0.01	0.14	0.009	0.03	-0.01	1.21	3.47	1.79	0.63
05 Op-2	5	0.40	1.25	0.231	1.04	-0.24	0.01	0.59	0.32	-0.29
06 Op-1	26	0.05	0.62	0.027	0.10	-0.01	0.86	3.72	1.25	0.46
06 Op-2	5	0.74	2.78	0.515	2.17	-0.69	-0.32	1.77	0.59	-1.23
08 Op-1	19	2.36	8.68	0.663	3.76	0.97	-1.25	7.53	-0.06	-2.45
08 Op-2	5	6.15	20.28	3.828	16.78	-4.48	-5.74	19.27	4.31	-15.78
09 Op-1	26	3.72	27.43	1.278	6.35	1.09	-2.81	30.00	-0.19	-5.44
09 Op-2	5	8.28	9.79	2.225	14.46	2.10	-7.86	9.62	-1.95	-13.77
10 Op-1	25	2.29	17.29	0.915	4.18	0.41	-1.38	20.38	0.51	-3.28
10 Op-2	5	14.44	31.32	6.274	31.86	-2.97	-14.03	31.35	3.32	-31.38
12 Op-1	26	1.69	29.72	1.245	4.25	-0.88	-0.78	30.97	1.70	-3.26
12 Op-2	5	1.17	2.71	0.560	2.72	-0.39	-0.75	2.43	0.47	-1.97

Period means and deltas from original control data where n=2

Period	N	Station Mean	Range	Standard Error	Upper 95% C.I.	Lower 95% C.I.
Op-1	26	0.91	3.54	0.188	1.29	0.52
Op-2	5	0.42	1.15	0.213	1.01	-0.17

Analysis of Variance for HBT for 0003 - bare rock

Stations = 4, 5, 6, 8, 9, 10, 12 level +1 ft MLLW

Data transformed using log base10(x + .1)

Results for Analysis of Variance

Source	Source df	Error df	F-value	Prob.
PERIOD	1	160.000	2.78	0.0973
SEASON	1	160.000	0.46	0.5000
STATION	6	160.000	9.40	0.0000
PERIOD*SEASON	1	160.000	0.10	0.7582
STATION*PERIOD	6	160.000	1.63	0.1416
STATION*SEASON	6	160.000	0.84	0.5414
PERIOD*STATION*SEASON	6	160.000	0.87	0.5205

Results for Power Analysis
Power at alpha = .1

Source	Non-Centrality Parameter	Adjusted non-Centrality Parameter	Power	Adjusted Power	Power to Detect 50% Change
PERIOD	2.78	1.75	0.5069	0.3728	1.0000
STATION*PERIOD	9.79	3.67	0.7307	0.3550	0.1007

Estimates for contrasts on combinations of interaction terms

Source	Difference	Std. Err.	T-value	Prob.
Period in DC	-0.3676	0.2985	-1.231	.2200
Period in FC	-0.3207	0.2849	-1.126	.2620
Period in FC-S	-0.6126	0.3433	-1.784	.0763
Period in FC-W	-0.0288	0.4547	-0.063	.9496
Period in DC-S	-0.2030	0.3858	-0.526	.5995
Period in DC-W	-0.5322	0.4557	-1.168	.2445

Least square means & confidence intervals from analysis of variance

Source	LS Mean	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period Op-1	-0.460	0.0246	-18.69	.0000	-0.4188	-0.5002
Period Op-2	-0.361	0.0536	-6.74	.0000	-0.2725	-0.4498
Op-1-04	-0.238	0.0745	-3.19	.0017	-0.1145	-0.3611
Op-2-04	-0.174	0.1721	-1.01	.3144	0.1110	-0.4584
Op-1-05	-0.477	0.0745	-6.40	.0000	-0.3539	-0.6005
Op-2-05	-0.307	0.1360	-2.26	.0252	-0.0824	-0.5326
Op-1-06	-0.107	0.0585	-1.84	.0681	-0.0107	-0.2041
Op-2-06	-0.021	0.1360	-0.15	.8803	0.2046	-0.2456
Op-1-08	-0.592	0.0685	-8.64	.0000	-0.4783	-0.7048
Op-2-08	-0.313	0.1360	-2.30	.0226	-0.0881	-0.5382
Op-1-09	-0.546	0.0585	-9.34	.0000	-0.4490	-0.6425
Op-2-09	-0.843	0.1360	-6.20	.0000	-0.6180	-1.0682
Op-1-10	-0.445	0.0597	-7.47	.0000	-0.3468	-0.5442
Op-2-10	-0.297	0.1360	-2.18	.0306	-0.0716	-0.5218
Op-1-12	-0.811	0.0585	-13.88	.0000	-0.7147	-0.9081
Op-2-12	-0.574	0.1360	-4.22	.0000	-0.3485	-0.7987

Paired comparisons of least square means between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period	-0.0983	0.0589	-1.668	.0973	-0.0008	-0.1959

Paired comparisons of least square means among stations between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Station 04	-0.0641	0.1875	-0.34	.7329	0.2461	-0.3744
Station 05	-0.1697	0.1551	-1.09	.2755	0.0869	-0.4264
Station 06	-0.0868	0.1481	-0.59	.5583	0.1581	-0.3318
Station 08	-0.2784	0.1523	-1.83	.0694	-0.0264	-0.5304
Station 09	0.2973	0.1481	2.01	.0463	0.5423	0.0524
Station 10	-0.1488	0.1486	-1.00	.3181	0.0970	-0.3945
Station 12	-0.2378	0.1481	-1.61	.1103	0.0072	-0.4827

Station-period means and deltas from original data where control n=2

Station-Period	N	Station Mean	Range	Standard Error	Upper 95% c.i.	Lower 95% c.i.	Mean Delta	Delta Range	Upper 95% CIi.	Lower 95% C.I.
04 Op-1	16	5.99	7.99	0.505	7.07	4.91	-2.53	5.80	-1.74	-3.31
04 Op-2	4	4.88	4.79	1.011	8.10	1.66	-1.22	4.72	1.94	-4.39
05 Op-1	16	10.50	12.99	0.935	12.50	8.51	-7.04	11.56	-5.14	-8.94
05 Op-2	5	7.76	5.83	1.072	10.74	4.79	-3.94	6.53	-0.71	-7.18
06 Op-1	26	4.74	12.08	0.556	5.88	3.59	-1.42	11.70	-0.31	-2.54
06 Op-2	5	4.37	8.19	1.472	8.46	0.29	-0.56	8.47	3.31	-4.42
08 Op-1	19	15.52	28.19	2.028	19.78	11.25	-11.99	27.67	-7.88	-16.10
08 Op-2	5	8.72	9.10	1.595	13.15	4.29	-4.90	10.42	-0.01	-9.79
09 Op-1	26	12.68	22.85	1.289	15.34	10.03	-9.37	22.50	-6.67	-12.07
09 Op-2	5	34.14	45.83	9.672	60.99	7.29	-30.32	47.85	-2.23	-58.41
10 Op-1	25	11.69	29.03	1.691	15.18	8.20	-8.46	27.74	-4.94	-11.98
10 Op-2	5	8.06	10.97	2.017	13.66	2.46	-4.24	9.65	0.60	-9.08
12 Op-1	26	21.90	30.97	1.715	25.43	18.37	-18.59	33.44	-14.93	-22.25
12 Op-2	5	14.74	12.43	2.718	22.28	7.19	-10.92	14.20	-2.84	-19.00

Period means and deltas from original control data where n=2

Period	N	Station Mean	Range	Standard Error	Upper 95% C.I.	Lower 95% C.I.
Op-1	26	3.31	5.21	0.259	3.85	2.78
Op-2	5	3.82	2.74	0.481	5.16	2.48

Analysis of Variance for HBT for ACOV - Algal Cover
Stations = 4, 5, 6, 8, 9, 10, 12 level +1 ft MLLW

Data not transformed.

Source	Source df	Error df	F-value	Prob.
PERIOD	1	160.000	15.44	0.0001
SEASON	1	160.000	0.22	0.6366
STATION	6	160.000	26.30	0.0000
PERIOD*SEASON	1	160.000	2.87	0.0920
STATION*PERIOD	6	160.000	3.60	0.0023
STATION*SEASON	6	160.000	2.32	0.0353
PERIOD*STATION*SEASON	6	160.000	1.71	0.1223

Results for Power Analysis
Power at alpha = .1

Source	Non-Centrality Parameter	Adjusted non-Centrality Parameter	Power	Adjusted Power	Power to Detect 50% Change
PERIOD	15.44	14.24	0.9883	0.9827	1.0000
STATION*PERIOD	21.58	15.31	0.9750	0.9033	0.9709

Estimates for contrasts on combinations of interaction terms

Source	Difference	Std. Err.	T-value	Prob.
Period in DC	28.2698	16.4285	1.721	.0872
Period in FC	60.9504	15.6773	3.888	.0001
Period in FC-S	59.6825	18.8951	3.159	.0019
Period in FC-W	62.2183	25.0217	2.487	.0139
Period in DC-S	-8.9540	21.2306	-0.422	.6738
Period in DC-W	65.4936	25.0768	2.612	.0099

Least square means & confidence intervals from analysis of variance

Source	LS Mean	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period Op-1	36.682	1.3527	27.12	.0000	38.9196	34.4437
Period Op-2	23.936	2.9486	8.12	.0000	28.8142	19.0577
Op-1-04	20.908	4.1008	5.10	.0000	27.6925	14.1236
Op-2-04	-10.607	9.4703	-1.12	.2644	5.0609	-26.2752
Op-1-05	26.927	4.1008	6.57	.0000	33.7114	20.1424
Op-2-05	9.920	7.4870	1.33	.1870	22.3072	-2.4662
Op-1-06	16.660	3.2169	5.18	.0000	21.9826	11.3383
Op-2-06	4.232	7.4870	0.57	.5727	16.6183	-8.1550
Op-1-08	38.657	3.7684	10.26	.0000	44.8913	32.4223
Op-2-08	11.912	7.4870	1.59	.1136	24.2987	-0.4746
Op-1-09	46.568	3.2169	14.48	.0000	51.8900	41.2456
Op-2-09	65.584	7.4870	8.76	.0000	77.9705	53.1971
Op-1-10	39.449	3.2833	12.02	.0000	44.8807	34.0169
Op-2-10	29.843	7.4870	3.99	.0001	42.2297	17.4563
Op-1-12	67.603	3.2169	21.01	.0000	72.9252	62.2809
Op-2-12	56.668	7.4870	7.57	.0000	69.0544	44.2810

Paired comparisons of least square means between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period	12.7458	3.2441	3.929	.0001	18.1128	7.3787

Paired comparisons of least square means among stations between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Station 04	31.5152	10.3201	3.05	.0026	48.5891	14.4414
Station 05	17.0064	8.5365	1.99	.0480	31.1294	2.8834
Station 06	12.4288	8.1488	1.53	.1292	25.9105	-1.0529
Station 08	26.7447	8.3818	3.19	.0017	40.6119	12.8775
Station 09	-19.0160	8.1488	-2.33	.0209	-5.5343	-32.4977
Station 10	9.6058	8.1752	1.17	.2417	23.1312	-3.9196
Station 12	10.9353	8.1488	1.34	.1815	24.4170	-2.5463

Station-period means and deltas from original data where control n=2

Station-Period	N	Station Mean	Range	Standard Error	Upper 95% c.i.	Lower 95% c.i.	Mean Delta	Delta Range	Upper 95% CIi.	Lower 95% C.I.
04 Op-1	16	81.86	90.58	7.108	97.01	66.71	20.91	57.77	29.82	11.99
04 Op-2	4	129.42	68.67	15.284	178.06	80.78	-13.62	32.26	9.54	-36.78
05 Op-1	16	75.84	62.07	5.571	87.72	63.97	26.93	33.22	32.07	21.78
05 Op-2	5	100.16	65.41	13.948	138.88	61.43	8.76	28.93	23.74	-6.22
06 Op-1	26	84.24	68.29	4.073	92.63	75.85	16.66	32.22	20.52	12.80
06 Op-2	5	105.25	63.78	12.626	140.30	70.19	3.67	20.13	15.66	-8.32
08 Op-1	19	63.25	93.74	6.499	76.90	49.59	38.81	67.11	48.37	29.26
08 Op-2	5	94.22	28.20	5.036	108.20	80.24	14.70	51.66	40.45	-11.06
09 Op-1	26	54.33	84.33	4.849	64.32	44.34	46.57	72.35	53.64	39.50
09 Op-2	5	38.75	55.11	10.595	68.16	9.33	70.17	88.35	119.32	21.02
10 Op-1	25	62.06	96.28	5.480	73.37	50.75	39.34	74.03	47.02	31.66
10 Op-2	5	78.84	60.44	12.028	112.23	45.44	30.08	26.64	43.08	17.08
12 Op-1	26	33.30	76.48	3.914	41.36	25.23	67.60	69.00	75.39	59.82
12 Op-2	5	52.01	48.23	10.445	81.01	23.01	56.91	26.95	69.49	44.33

Period means and deltas from original control data where n=2

Period	N	Station Mean	Range	Standard Error	Upper 95% C.I.	Lower 95% C.I.
Op-1	26	100.90	48.00	3.294	107.68	94.11
Op-2	5	108.92	56.07	11.462	140.74	77.09

Analysis of Variance for HBT for ADIV - Algal Diversity
Stations = 4, 5, 6, 8, 9, 10, 12 level +1 ft MLLW

Data not transformed.

Source	Source df	Error df	F-value	Prob.
PERIOD	1	160.000	1.03	0.3120
SEASON	1	160.000	11.25	0.0010
STATION	6	160.000	79.85	0.0000
PERIOD*SEASON	1	160.000	1.19	0.2770
STATION*PERIOD	6	160.000	1.66	0.1348
STATION*SEASON	6	160.000	1.07	0.3814
PERIOD*STATION*SEASON	6	160.000	0.54	0.7738

Results for Power Analysis
Power at alpha = .1

Source	Non-Centrality Parameter	Adjusted non-Centrality Parameter	Power	Adjusted Power	Power to Detect 50% Change
PERIOD	1.03	0.02	0.2667	0.1027	1.0000
STATION*PERIOD	9.94	3.82	0.7376	0.3661	1.0000

Estimates for contrasts on combinations of interaction terms

Source	Difference	Std. Err.	T-value	Prob.
Period in DC	0.1650	0.2858	0.577	.5645
Period in FC	0.2356	0.2727	0.864	.3888
Period in FC-S	-0.0439	0.3287	-0.134	.8939
Period in FC-W	0.5152	0.4352	1.184	.2383
Period in DC-S	0.0137	0.3693	0.037	.9705
Period in DC-W	0.3163	0.4362	0.725	.4695

Least square means & confidence intervals from analysis of variance

Source	LS Mean	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period Op-1	0.177	0.0235	7.52	.0000	0.2158	0.1380
Period Op-2	0.120	0.0513	2.33	.0209	0.2045	0.0348
Op-1-04	-0.345	0.0713	-4.83	.0000	-0.2269	-0.4629
Op-2-04	-0.588	0.1647	-3.57	.0005	-0.3153	-0.8604
Op-1-05	-0.293	0.0713	-4.10	.0001	-0.1747	-0.4108
Op-2-05	-0.245	0.1302	-1.88	.0619	-0.0294	-0.4603
Op-1-06	-0.018	0.0560	-0.32	.7458	0.0744	-0.1107
Op-2-06	-0.059	0.1302	-0.45	.6527	0.1567	-0.2742
Op-1-08	0.001	0.0655	0.02	.9858	0.1096	-0.1073
Op-2-08	-0.132	0.1302	-1.01	.3130	0.0836	-0.3473
Op-1-09	0.092	0.0560	1.64	.1019	0.1846	-0.0005
Op-2-09	0.405	0.1302	3.11	.0022	0.6200	0.1891
Op-1-10	0.180	0.0571	3.15	.0019	0.2746	0.0856
Op-2-10	-0.000	0.1302	-0.00	.9985	0.2152	-0.2157
Op-1-12	1.621	0.0560	28.96	.0000	1.7133	1.5282
Op-2-12	1.457	0.1302	11.18	.0000	1.6720	1.2411

Paired comparisons of least square means between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period	0.0572	0.0564	1.014	.3120	0.1506	-0.0361

Paired comparisons of least square means among stations between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Station 04	0.2430	0.1795	1.35	.1778	0.5400	-0.0540
Station 05	-0.0479	0.1485	-0.32	.7476	0.1978	-0.2935
Station 06	0.0405	0.1417	0.29	.7752	0.2751	-0.1940
Station 08	0.1330	0.1458	0.91	.3630	0.3742	-0.1082
Station 09	-0.3125	0.1417	-2.20	.0289	-0.0780	-0.5470
Station 10	0.1803	0.1422	1.27	.2067	0.4156	-0.0550
Station 12	0.1642	0.1417	1.16	.2485	0.3987	-0.0703

Station-period means and deltas from original data where control n=2

Station-Period	N	Station Mean	Range	Standard Error	Upper 95% c.i.	Lower 95% c.i.	Mean Delta	Delta Range	Upper 95% CIi.	Lower 95% C.I.
04 Op-1	16	2.69	0.47	0.036	2.76	2.61	-0.34	0.68	-0.23	-0.46
04 Op-2	4	2.98	0.40	0.081	3.24	2.72	-0.61	0.38	-0.33	-0.88
05 Op-1	16	2.64	0.42	0.036	2.71	2.56	-0.29	0.91	-0.13	-0.45
05 Op-2	5	2.67	0.23	0.043	2.79	2.55	-0.27	0.43	-0.05	-0.49
06 Op-1	26	2.36	0.75	0.036	2.44	2.29	-0.02	1.06	0.08	-0.12
06 Op-2	5	2.46	0.23	0.046	2.59	2.33	-0.06	0.31	0.09	-0.20
08 Op-1	19	2.37	0.74	0.045	2.47	2.28	0.01	1.02	0.14	-0.12
08 Op-2	5	2.54	0.18	0.032	2.63	2.45	-0.14	0.29	0.00	-0.28
09 Op-1	26	2.25	1.34	0.074	2.41	2.10	0.09	1.55	0.25	-0.07
09 Op-2	5	2.00	0.45	0.088	2.24	1.75	0.40	0.61	0.68	0.13
10 Op-1	25	2.16	1.13	0.058	2.28	2.04	0.18	1.11	0.30	0.05
10 Op-2	5	2.46	0.91	0.147	2.87	2.05	-0.06	1.05	0.43	-0.54
12 Op-1	26	0.72	1.52	0.087	0.90	0.55	1.62	1.47	1.78	1.47
12 Op-2	5	0.93	0.82	0.134	1.31	0.56	1.47	0.68	1.82	1.12

Period means and deltas from original control data where n=2

Period	N	Station Mean	Range	Standard Error	Upper 95% C.I.	Lower 95% C.I.
Op-1	26	2.35	0.75	0.041	2.43	2.26
Op-2	5	2.40	0.21	0.043	2.52	2.28

Analysis of Variance for HBT for ASPP - Spp. Algae
Stations = 4, 5, 6, 8, 9, 10, 12 level +1 ft MLLW

Data not transformed.

Source	Source df	Error df	F-value	Prob.
PERIOD	1	160.000	2.61	0.1081
SEASON	1	160.000	0.02	0.8863
STATION	6	160.000	44.94	0.0000
PERIOD*SEASON	1	160.000	0.00	0.9796
STATION*PERIOD	6	160.000	3.93	0.0011
STATION*SEASON	6	160.000	1.17	0.3270
PERIOD*STATION*SEASON	6	160.000	0.80	0.5678

Results for Power Analysis
Power at alpha = .1

Source	Non-Centrality Parameter	Adjusted non-Centrality Parameter	Power	Adjusted Power	Power to Detect 50% Change
PERIOD	2.61	1.58	0.4863	0.3487	1.0000
STATION*PERIOD	23.57	17.27	0.9842	0.9354	1.0000

Estimates for contrasts on combinations of interaction terms

Source	Difference	Std. Err.	T-value	Prob.
Period in DC	0.0946	1.7130	0.055	.9560
Period in FC	3.7314	1.6347	2.283	.0238
Period in FC-S	4.0013	1.9702	2.031	.0439
Period in FC-W	3.4615	2.6090	1.327	.1865
Period in DC-S	-0.1145	2.2137	-0.052	.9588
Period in DC-W	0.3037	2.6148	0.116	.9077

Least square means & confidence intervals from analysis of variance

Source	LS Mean	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period Op-1	3.511	0.1410	24.89	.0000	3.7442	3.2775
Period Op-2	2.964	0.3075	9.64	.0000	3.4729	2.4556
Op-1-04	1.441	0.4276	3.37	.0009	2.1480	0.7332
Op-2-04	-1.350	0.9875	-1.37	.1735	0.2837	-2.9837
Op-1-05	2.009	0.4276	4.70	.0000	2.7168	1.3020
Op-2-05	0.938	0.7807	1.20	.2316	2.2291	-0.3541
Op-1-06	0.848	0.3354	2.53	.0124	1.4030	0.2931
Op-2-06	0.979	0.7807	1.25	.2116	2.2707	-0.3124
Op-1-08	2.795	0.3929	7.11	.0000	3.4448	2.1446
Op-2-08	2.363	0.7807	3.03	.0029	3.6541	1.0709
Op-1-09	3.344	0.3354	9.97	.0000	3.8992	2.7893
Op-2-09	6.254	0.7807	8.01	.0000	7.5457	4.9626
Op-1-10	4.533	0.3423	13.24	.0000	5.0996	3.9668
Op-2-10	3.588	0.7807	4.60	.0000	4.8791	2.2959
Op-1-12	9.606	0.3354	28.64	.0000	10.1607	9.0508
Op-2-12	7.979	0.7807	10.22	.0000	9.2707	6.6876

Paired comparisons of least square means between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period	0.5466	0.3383	1.616	.1081	1.1062	-0.0131

Paired comparisons of least square means among stations between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Station 04	2.7906	1.0761	2.59	.0104	4.5709	1.0103
Station 05	1.0719	0.8901	1.20	.2303	2.5445	-0.4007
Station 06	-0.1311	0.8497	-0.15	.8776	1.2746	-1.5368
Station 08	0.4322	0.8740	0.49	.6216	1.8782	-1.0137
Station 09	-2.9099	0.8497	-3.42	.0008	-1.5042	-4.3157
Station 10	0.9457	0.8524	1.11	.2689	2.3560	-0.4646
Station 12	1.6266	0.8497	1.91	.0574	3.0323	0.2209

Station-period means and deltas from original data where control n=2

Station-Period	N	Station Mean	Range	Standard Error	Upper 95% C.I.	Lower 95% C.I.	Mean Delta	Delta Range	Upper 95% CIi.	Lower 95% C.I.
04 Op-1	16	13.93	6.20	0.456	14.90	12.96	1.44	6.35	2.37	0.51
04 Op-2	4	17.08	4.50	1.051	20.42	13.73	-1.70	5.15	1.90	-5.30
05 Op-1	16	13.36	7.40	0.476	14.38	12.35	2.01	4.70	2.79	1.23
05 Op-2	5	14.40	3.40	0.654	16.22	12.58	0.82	2.65	2.14	-0.50
06 Op-1	26	14.34	4.60	0.174	14.70	13.98	0.85	4.75	1.37	0.33
06 Op-2	5	14.32	3.20	0.574	15.91	12.73	0.90	2.70	2.18	-0.38
08 Op-1	19	12.72	5.20	0.303	13.36	12.09	2.79	5.85	3.59	1.98
08 Op-2	5	12.80	1.70	0.332	13.72	11.88	2.42	2.70	3.79	1.05
09 Op-1	26	11.84	8.60	0.465	12.80	10.88	3.34	8.70	4.19	2.50
09 Op-2	5	8.74	5.80	1.017	11.56	5.92	6.48	8.05	10.42	2.54
10 Op-1	25	10.53	9.20	0.399	11.35	9.70	4.57	8.85	5.40	3.74
10 Op-2	5	11.66	4.40	0.797	13.87	9.45	3.56	3.65	5.56	1.56
12 Op-1	26	5.58	6.40	0.350	6.30	4.86	9.61	5.10	10.23	8.98
12 Op-2	5	7.20	3.00	0.585	8.82	5.58	8.02	4.60	10.26	5.78

Period means and deltas from original control data where n=2

Period	N	Station Mean	Range	Standard Error	Upper 95% C.I.	Lower 95% C.I.
Op-1	26	15.19	4.65	0.254	15.71	14.66
Op-2	5	15.22	2.25	0.406	16.35	14.09

Analysis of Variance for HBT for 0287 - Acanthina spp.

Stations = 4, 5, 6, 8, 9, 10, 12 level +3 ft MLLW

Data transformed using log base10(x + .1)

Results for Analysis of Variance

Source	Source df	Error df	F-value	Prob.
PERIOD	1	162.000	0.06	0.8092
SEASON	1	162.000	4.24	0.0410
STATION	6	162.000	13.03	0.0000
PERIOD*SEASON	1	162.000	5.00	0.0267
STATION*PERIOD	6	162.000	1.33	0.2468
STATION*SEASON	6	162.000	0.66	0.6853
PERIOD*STATION*SEASON	6	162.000	1.71	0.1219

Results for Power Analysis
Power at alpha = .1

Source	Non-Centrality Parameter	Adjusted non-Centrality Parameter	Power	Adjusted Power	Power to Detect 50% Change
PERIOD	0.06	0.00	0.1098	.	0.9760
STATION*PERIOD	7.98	1.88	0.6395	0.2247	0.3245

Estimates for contrasts on combinations of interaction terms

Source	Difference	Std. Err.	T-value	Prob.
Period in DC	0.4706	0.4065	1.158	.2487
Period in FC	-0.6063	0.3864	-1.569	.1186
Period in FC-S	0.0528	0.4675	0.113	.9102
Period in FC-W	-1.2654	0.6154	-2.056	.0414
Period in DC-S	1.0660	0.5253	2.029	.0441
Period in DC-W	-0.1248	0.6205	-0.201	.8409

Least square means & confidence intervals from analysis of variance

Source	LS Mean	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period Op-1	-0.378	0.0331	-11.40	.0000	-0.3229	-0.4325
Period Op-2	-0.358	0.0730	-4.91	.0000	-0.2376	-0.4790
Op-1-04	-0.905	0.0986	-9.18	.0000	-0.7417	-1.0680
Op-2-04	-0.750	0.2343	-3.20	.0016	-0.3624	-1.1377
Op-1-05	-0.861	0.0986	-8.73	.0000	-0.6975	-1.0237
Op-2-05	-0.535	0.1853	-2.89	.0044	-0.2289	-0.8419
Op-1-06	-0.235	0.0796	-2.95	.0037	-0.1030	-0.3664
Op-2-06	-0.108	0.1853	-0.59	.5591	0.1980	-0.4149
Op-1-08	-0.213	0.0796	-2.68	.0082	-0.0814	-0.3448
Op-2-08	-0.649	0.1853	-3.50	.0006	-0.3422	-0.9552
Op-1-09	0.231	0.0932	2.48	.0142	0.3855	0.0770
Op-2-09	0.246	0.1853	1.33	.1866	0.5522	-0.0607
Op-1-10	-0.011	0.0812	-0.13	.8972	0.1239	-0.1449
Op-2-10	-0.085	0.1853	-0.46	.6460	0.2212	-0.3917
Op-1-12	-0.651	0.0796	-8.18	.0000	-0.5194	-0.7828
Op-2-12	-0.626	0.1853	-3.38	.0009	-0.3194	-0.9324

Paired comparisons of least square means between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period	-0.0194	0.0801	-0.242	.8092	0.1132	-0.1519

Paired comparisons of least square means among stations between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Station 04	-0.1548	0.2542	-0.61	.5434	0.2658	-0.5754
Station 05	-0.3252	0.2099	-1.55	.1232	0.0220	-0.6724
Station 06	-0.1263	0.2016	-0.63	.5320	0.2073	-0.4599
Station 08	0.4356	0.2016	2.16	.0322	0.7692	0.1020
Station 09	-0.0145	0.2074	-0.07	.9443	0.3286	-0.3576
Station 10	0.0747	0.2023	0.37	.7122	0.4094	-0.2599
Station 12	-0.0252	0.2016	-0.13	.9006	0.3084	-0.3588

Station-period means and deltas from original data where control n=2

Station-Period		N	Station Mean	Range	Standard Error	Upper 95% c.i.	Lower 95% c.i.	Mean Delta	Delta Range	Upper 95% CIi.	Lower 95% C.I.
04	Op-1	17	1.58	3.60	0.253	2.11	1.04	-1.48	3.60	-0.93	-2.03
04	Op-2	4	0.60	1.20	0.271	1.46	-0.26	-0.58	1.10	0.21	-1.36
05	Op-1	17	1.31	2.00	0.159	1.64	0.97	-1.21	2.10	-0.85	-1.57
05	Op-2	5	0.88	2.40	0.403	2.00	-0.24	-0.68	1.50	-0.00	-1.36
06	Op-1	26	0.38	1.60	0.080	0.55	0.22	-0.25	2.10	-0.07	-0.43
06	Op-2	5	0.36	1.00	0.194	0.90	-0.18	-0.16	1.70	0.66	-0.98
08	Op-1	26	0.35	1.20	0.070	0.50	0.21	-0.22	1.50	-0.05	-0.38
08	Op-2	5	0.96	2.00	0.354	1.94	-0.02	-0.76	1.10	-0.19	-1.33
09	Op-1	19	0.02	0.20	0.014	0.05	-0.01	0.09	0.30	0.14	0.05
09	Op-2	5	0.04	0.20	0.040	0.15	-0.07	0.16	1.10	0.69	-0.37
10	Op-1	25	0.32	2.20	0.129	0.59	0.05	-0.18	2.30	0.06	-0.42
10	Op-2	5	0.20	0.40	0.089	0.45	-0.05	-0.00	1.10	0.53	-0.53
12	Op-1	26	1.07	5.40	0.201	1.48	0.65	-0.93	5.30	-0.52	-1.35
12	Op-2	5	1.04	1.60	0.279	1.81	0.27	-0.84	1.60	-0.00	-1.68

Period means and deltas from original control data where n=2

Period	N	Station Mean	Range	Standard Error	Upper 95% C.I.	Lower 95% C.I.
Op-1	26	0.13	0.60	0.029	0.19	0.08
Op-2	5	0.20	0.90	0.176	0.69	-0.29

Analysis of Variance for HBT for 0264 - Anthopleura elegantissima

Stations = 4, 5, 6, 8, 9, 10, 12 level +3 ft MLLW

Data transformed using log base10(x + .1)

Results for Analysis of Variance

Source	Source df	Error df	F-value	Prob.
PERIOD	1	162.000	6.79	0.0100
SEASON	1	162.000	14.16	0.0002
STATION	6	162.000	192.28	0.0000
PERIOD*SEASON	1	162.000	4.23	0.0413
STATION*PERIOD	6	162.000	7.02	0.0000
STATION*SEASON	6	162.000	0.20	0.9778
PERIOD*STATION*SEASON	6	162.000	0.19	0.9787

Results for Power Analysis
Power at alpha = .1

Source	Non-Centrality Parameter	Adjusted non-Centrality Parameter	Power	Adjusted Power	Power to Detect 50% Change
PERIOD	6.79	5.71	0.8291	0.7687	1.0000
STATION*PERIOD	42.13	35.61	0.9999	0.9993	0.6771

Estimates for contrasts on combinations of interaction terms

Source	Difference	Std. Err.	T-value	Prob.
Period in DC	1.2580	0.2619	4.803	.0000
Period in FC	-0.3162	0.2490	-1.270	.2059
Period in FC-S	-0.0562	0.3012	-0.187	.8522
Period in FC-W	-0.5762	0.3965	-1.453	.1481
Period in DC-S	1.7414	0.3385	5.145	.0000
Period in DC-W	0.7745	0.3998	1.937	.0544

Least square means & confidence intervals from analysis of variance

Source	LS Mean	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period Op-1	-0.799	0.0213	-37.46	.0000	-0.7640	-0.8346
Period Op-2	-0.934	0.0470	-19.87	.0000	-0.8561	-1.0116
Op-1-04	-1.825	0.0635	-28.72	.0000	-1.7197	-1.9299
Op-2-04	-1.802	0.1510	-11.93	.0000	-1.5521	-2.0516
Op-1-05	-1.432	0.0635	-22.54	.0000	-1.3272	-1.5374
Op-2-05	-1.278	0.1194	-10.70	.0000	-1.0802	-1.4752
Op-1-06	-0.740	0.0513	-14.43	.0000	-0.6551	-0.8248
Op-2-06	-0.601	0.1194	-5.04	.0000	-0.4039	-0.7988
Op-1-08	-0.765	0.0513	-14.91	.0000	-0.6799	-0.8496
Op-2-08	-1.119	0.1194	-9.37	.0000	-0.9215	-1.3164
Op-1-09	1.503	0.0601	25.02	.0000	1.6024	1.4037
Op-2-09	0.780	0.1194	6.53	.0000	0.9773	0.5824
Op-1-10	-1.337	0.0523	-25.54	.0000	-1.2505	-1.4236
Op-2-10	-1.140	0.1194	-9.55	.0000	-0.9426	-1.3375
Op-1-12	-0.999	0.0513	-19.48	.0000	-0.9144	-1.0841
Op-2-12	-1.377	0.1194	-11.53	.0000	-1.1794	-1.5743

Paired comparisons of least square means between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period	0.1345	0.0516	2.606	.0100	0.2199	0.0491

Paired comparisons of least square means among stations between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Station 04	-0.0230	0.1638	-0.14	.8886	0.2480	-0.2940
Station 05	-0.1546	0.1352	-1.14	.2546	0.0691	-0.3783
Station 06	-0.1386	0.1299	-1.07	.2876	0.0763	-0.3535
Station 08	0.3542	0.1299	2.73	.0071	0.5691	0.1393
Station 09	0.7232	0.1336	5.41	.0000	0.9442	0.5021
Station 10	-0.1970	0.1303	-1.51	.1327	0.0186	-0.4126
Station 12	0.3776	0.1299	2.91	.0042	0.5925	0.1627

Station-period means and deltas from original data where control n=2

Station	Period	N	Station Mean	Range	Standard Error	Upper 95% C.I.	Lower 95% C.I.	Mean Delta	Delta Range	Upper 95% CIi.	Lower 95% C.I.
04	Op-1	17	271.44	192.40	12.243	297.39	245.48	-267.12	192.30	-241.13	-293.12
04	Op-2	4	161.50	58.80	13.830	205.51	117.49	-159.30	58.20	-116.09	-202.51
05	Op-1	17	113.22	137.20	8.025	130.24	96.21	-108.91	138.20	-92.10	-125.72
05	Op-2	5	52.04	16.60	2.707	59.55	44.53	-49.34	14.50	-42.34	-56.34
06	Op-1	26	23.58	37.00	1.752	27.19	19.97	-19.33	33.70	-16.10	-22.56
06	Op-2	5	11.08	6.60	1.331	14.77	7.39	-8.38	5.50	-5.44	-11.32
08	Op-1	26	25.02	32.20	1.700	28.52	21.52	-20.78	32.80	-17.13	-24.43
08	Op-2	5	35.92	21.40	3.781	46.42	25.42	-33.22	19.40	-23.74	-42.70
09	Op-1	19	0.06	0.80	0.043	0.15	-0.03	4.25	9.80	5.23	3.27
09	Op-2	5	0.36	0.20	0.040	0.47	0.25	2.34	3.20	4.03	0.65
10	Op-1	25	101.11	163.00	11.388	124.62	77.61	-97.12	162.30	-73.72	-120.53
10	Op-2	5	38.08	21.40	3.598	48.07	28.09	-35.38	18.20	-26.43	-44.33
12	Op-1	26	47.42	88.60	4.805	57.31	37.52	-43.17	89.60	-32.99	-53.35
12	Op-2	5	67.36	29.80	5.396	82.34	52.38	-64.66	31.50	-48.77	-80.55

Period means and deltas from original control data where n=2

Period	N	Station Mean	Range	Standard Error	Upper 95% C.I.	Lower 95% C.I.
Op-1	26	4.25	9.00	0.348	4.96	3.53
Op-2	5	2.70	3.20	0.625	4.44	0.96

Analysis of Variance for HBT for 0395 - Chthamalus fissus

Stations = 4, 5, 6, 8, 9, 10, 12 level +3 ft MLLW

Data transformed using 1/(x + .5)

Results for Analysis of Variance

Source	Source df	Error df	F-value	Prob.
PERIOD	1	162.000	4.36	0.0384
SEASON	1	162.000	0.20	0.6526
STATION	6	162.000	20.45	0.0000
PERIOD*SEASON	1	162.000	0.11	0.7379
STATION*PERIOD	6	162.000	2.11	0.0548
STATION*SEASON	6	162.000	0.38	0.8879
PERIOD*STATION*SEASON	6	162.000	0.57	0.7525

Results for Power Analysis
Power at alpha = .1

Source	Non-Centrality Parameter	Adjusted non-Centrality Parameter	Power	Adjusted Power	Power to Detect 50% Change
PERIOD	4.36	3.31	0.6680	0.5660	0.8871
STATION*PERIOD	12.66	6.51	0.8384	0.5517	0.1910

Estimates for contrasts on combinations of interaction terms

Source	Difference	Std. Err.	T-value	Prob.
Period in DC	-0.0078	0.5666	-0.014	.9890
Period in FC	1.6400	0.5386	3.045	.0027
Period in FC-S	1.9605	0.6517	3.008	.0030
Period in FC-W	1.3195	0.8578	1.538	.1259
Period in DC-S	-0.0663	0.7322	-0.090	.9280
Period in DC-W	0.0506	0.8649	0.059	.9534

Least square means & confidence intervals from analysis of variance

Source	LS Mean	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period Op-1	0.329	0.0462	7.13	.0000	0.4054	0.2526
Period Op-2	0.096	0.1017	0.94	.3475	0.2641	-0.0724
Op-1-04	0.196	0.1374	1.43	.1550	0.4238	-0.0310
Op-2-04	-0.011	0.3266	-0.03	.9722	0.5289	-0.5517
Op-1-05	0.045	0.1374	0.33	.7446	0.2722	-0.1825
Op-2-05	-1.026	0.2582	-3.97	.0001	-0.5990	-1.4533
Op-1-06	-0.556	0.1109	-5.01	.0000	-0.3727	-0.7398
Op-2-06	-0.917	0.2582	-3.55	.0005	-0.4903	-1.3446
Op-1-08	0.660	0.1109	5.95	.0000	0.8437	0.4766
Op-2-08	0.911	0.2582	3.53	.0005	1.3386	0.4843
Op-1-09	1.125	0.1100	8.65	.0000	1.3396	0.9096
Op-2-09	0.924	0.2582	3.58	.0005	1.3515	0.4971
Op-1-10	0.256	0.1132	2.26	.0252	0.4432	0.0686
Op-2-10	0.309	0.2582	1.20	.2333	0.7361	-0.1183
Op-1-12	0.577	0.1109	5.20	.0000	0.7608	0.3937
Op-2-12	0.481	0.2582	1.86	.0643	0.9083	0.0539

Paired comparisons of least square means between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period	0.2332	0.1117	2.088	.0384	0.4179	0.0484

Paired comparisons of least square means among stations between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Station 04	0.2078	0.3544	0.59	.5585	0.7940	-0.3785
Station 05	1.0710	0.2925	3.66	.0003	1.5549	0.5871
Station 06	0.3612	0.2810	1.29	.2005	0.8262	-0.1037
Station 08	-0.2513	0.2810	-0.89	.3726	0.2137	-0.7162
Station 09	0.2003	0.2891	0.69	.4893	0.6786	-0.2779
Station 10	-0.0530	0.2820	-0.19	.8511	0.4134	-0.5195
Station 12	0.0961	0.2810	0.34	.7328	0.5611	-0.3688

Station-period means and deltas from original data where control n=2

Station-Period	N	Station Mean	Range	Standard Error	Upper 95% c.i.	Lower 95% c.i.	Mean Delta	Delta Range	Upper 95% CIi.	Lower 95% C.I.
04 Op-1	17	0.66	1.81	0.127	0.93	0.39	-0.26	2.60	0.06	-0.58
04 Op-2	4	0.28	0.62	0.136	0.71	-0.15	0.15	1.25	1.03	-0.73
05 Op-1	17	0.42	0.97	0.065	0.56	0.28	-0.02	2.12	0.22	-0.25
05 Op-2	5	0.00	0.00	0.000	.	.	0.82	2.22	1.96	-0.33
06 Op-1	26	0.08	0.49	0.021	0.12	0.04	0.32	2.22	0.47	0.16
06 Op-2	5	0.03	0.14	0.028	0.10	-0.05	0.79	2.08	1.86	-0.28
08 Op-1	26	3.93	14.10	0.698	5.37	2.49	-3.53	14.31	-2.10	-4.97
08 Op-2	5	16.71	7.85	1.503	20.88	12.53	-15.89	9.37	-10.89	-20.88
09 Op-1	19	17.15	25.07	1.886	21.11	13.19	-16.74	25.00	-12.78	-20.70
09 Op-2	5	20.07	10.42	1.946	25.47	14.67	-19.25	10.66	-14.08	-24.42
10 Op-1	25	3.07	10.90	0.735	4.59	1.55	-2.67	12.57	-1.13	-4.21
10 Op-2	5	2.04	5.21	0.867	4.45	-0.37	-1.22	2.99	0.15	-2.59
12 Op-1	26	1.72	5.28	0.254	2.24	1.19	-1.32	5.56	-0.82	-1.83
12 Op-2	5	2.17	5.00	0.881	4.61	-0.28	-1.35	2.99	0.18	-2.88

Period means and deltas from original control data where n=2

Period	N	Station Mean	Range	Standard Error	Upper 95% C.I.	Lower 95% C.I.
Op-1	26	0.40	1.94	0.070	0.54	0.25
Op-2	5	0.82	2.22	0.412	1.96	-0.33

Analysis of Variance for HBT for 0298 - Cyanoplax spp.

Stations = 4, 5, 6, 8, 9, 10, 12 level +3 ft MLLW

Data transformed using log base10(x + .1)

Results for Analysis of Variance

Source	Source df	Error df	F-value	Prob.
PERIOD	1	162.000	2.87	0.0920
SEASON	1	162.000	15.19	0.0001
STATION	6	162.000	5.75	0.0000
PERIOD*SEASON	1	162.000	2.00	0.1594
STATION*PERIOD	6	162.000	1.06	0.3907
STATION*SEASON	6	162.000	0.93	0.4777
PERIOD*STATION*SEASON	6	162.000	0.13	0.9929

Results for Power Analysis
Power at alpha = .1

Source	Non-Centrality Parameter	Adjusted non-Centrality Parameter	Power	Adjusted Power	Power to Detect 50% Change
PERIOD	2.87	1.84	0.5175	0.3853	0.9956
STATION*PERIOD	6.34	0.26	0.5412	0.1160	0.1463

Estimates for contrasts on combinations of interaction terms

Source	Difference	Std. Err.	T-value	Prob.
Period in DC	-0.0760	0.4194	-0.181	.8563
Period in FC	-0.9046	0.3987	-2.269	.0246
Period in FC-S	-0.3769	0.4823	-0.781	.4357
Period in FC-W	-1.4323	0.6349	-2.256	.0254
Period in DC-S	0.2142	0.5419	0.395	.6931
Period in DC-W	-0.3663	0.6401	-0.572	.5679

Least square means & confidence intervals from analysis of variance

Source	LS Mean	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period Op-1	-0.654	0.0342	-19.14	.0000	-0.5973	-0.7104
Period Op-2	-0.514	0.0753	-6.83	.0000	-0.3892	-0.6383
Op-1-04	-0.885	0.1017	-8.70	.0000	-0.7168	-1.0534
Op-2-04	-0.708	0.2417	-2.93	.0039	-0.3081	-1.1080
Op-1-05	-1.041	0.1017	-10.23	.0000	-0.8724	-1.2090
Op-2-05	-0.471	0.1911	-2.46	.0148	-0.1545	-0.7869
Op-1-06	-0.567	0.0821	-6.90	.0000	-0.4307	-0.7024
Op-2-06	-0.409	0.1911	-2.14	.0338	-0.0929	-0.7252
Op-1-08	-0.910	0.0821	-11.08	.0000	-0.7741	-1.0458
Op-2-08	-0.942	0.1911	-4.93	.0000	-0.6254	-1.2577
Op-1-09	-0.531	0.0962	-5.52	.0000	-0.3720	-0.6903
Op-2-09	-0.604	0.1911	-3.16	.0019	-0.2879	-0.9202
Op-1-10	-0.221	0.0838	-2.63	.0093	-0.0819	-0.3592
Op-2-10	-0.244	0.1911	-1.27	.2043	0.0726	-0.5597
Op-1-12	-0.423	0.0821	-5.15	.0000	-0.2869	-0.5586
Op-2-12	-0.219	0.1911	-1.15	.2531	0.0970	-0.5354

Paired comparisons of least square means between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period	-0.1401	0.0827	-1.695	.0920	-0.0033	-0.2768

Paired comparisons of least square means among stations between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Station 04	-0.1770	0.2623	-0.68	.5006	0.2568	-0.6109
Station 05	-0.5700	0.2165	-2.63	.0093	-0.2119	-0.9282
Station 06	-0.1575	0.2080	-0.76	.4499	0.1866	-0.5017
Station 08	0.0316	0.2080	0.15	.8796	0.3757	-0.3126
Station 09	0.0729	0.2140	0.34	.7338	0.4268	-0.2811
Station 10	0.0231	0.2087	0.11	.9122	0.3683	-0.3222
Station 12	-0.2035	0.2080	-0.98	.3293	0.1406	-0.5477

Station-period means and deltas from original data where control n=2

Station	Period	N	Station Mean	Range	Standard Error	Upper 95% c.i.	Lower 95% c.i.	Mean Delta	Delta Range	Upper 95% CIi.	Lower 95% C.I.
04	Op-1	17	1.75	6.00	0.403	2.61	0.90	-1.66	5.80	-0.83	-2.49
04	Op-2	4	1.50	2.20	0.480	3.03	-0.03	-1.38	2.20	0.13	-2.88
05	Op-1	17	2.24	7.60	0.471	3.23	1.24	-2.14	7.40	-1.17	-3.11
05	Op-2	5	0.80	1.40	0.276	1.57	0.03	-0.68	1.50	0.08	-1.44
06	Op-1	26	0.98	3.60	0.215	1.43	0.54	-0.87	3.40	-0.44	-1.30
06	Op-2	5	0.72	1.20	0.258	1.44	0.00	-0.60	1.00	0.03	-1.23
08	Op-1	26	2.85	10.00	0.614	4.12	1.59	-2.74	10.10	-1.51	-3.97
08	Op-2	5	2.84	5.60	1.015	5.66	0.02	-2.72	5.30	-0.03	-5.41
09	Op-1	19	1.04	4.40	0.316	1.71	0.38	-0.92	4.60	-0.26	-1.58
09	Op-2	5	0.80	1.20	0.200	1.36	0.24	-0.68	1.00	-0.22	-1.14
10	Op-1	25	0.33	1.00	0.072	0.48	0.18	-0.21	1.20	-0.09	-0.32
10	Op-2	5	0.36	0.80	0.147	0.77	-0.05	-0.24	0.60	0.12	-0.60
12	Op-1	26	0.58	2.60	0.135	0.86	0.31	-0.47	2.80	-0.21	-0.73
12	Op-2	5	0.32	0.80	0.136	0.70	-0.06	-0.20	0.60	0.06	-0.46

Period means and deltas from original control data where n=2

Period	N	Station Mean	Range	Standard Error	Upper 95% C.I.	Lower 95% C.I.
Op-1	26	0.12	0.60	0.035	0.19	0.04
Op-2	5	0.12	0.30	0.058	0.28	-0.04

Analysis of Variance for HBT for 0300 - Fissurella volcano

Stations = 4, 5, 6, 8, 9, 10, 12 level +3 ft MLLW

Data transformed using 1/(x + .1)

Results for Analysis of Variance

Source	Source df	Error df	F-value	Prob.
PERIOD	1	162.000	5.07	0.0257
SEASON	1	162.000	7.10	0.0085
STATION	6	162.000	17.03	0.0000
PERIOD*SEASON	1	162.000	5.39	0.0215
STATION*PERIOD	6	162.000	0.51	0.8030
STATION*SEASON	6	162.000	0.36	0.9015
PERIOD*STATION*SEASON	6	162.000	0.08	0.9983

Results for Power Analysis
Power at alpha = .1

Source	Non-Centrality Parameter	Adjusted non-Centrality Parameter	Power	Adjusted Power	Power to Detect 50% Change
PERIOD	5.07	4.01	0.7251	0.6367	0.1547
STATION*PERIOD	3.04	0.00	0.3088	.	0.1124

Estimates for contrasts on combinations of interaction terms

Source	Difference	Std. Err.	T-value	Prob.
Period in DC	-8.1891	3.6765	-2.227	.0273
Period in FC	-3.2356	3.4951	-0.926	.3560
Period in FC-S	2.0118	4.2285	0.476	.6349
Period in FC-W	-8.4829	5.5661	-1.524	.1295
Period in DC-S	-1.6565	4.7512	-0.349	.7278
Period in DC-W	-14.7217	5.6119	-2.623	.0095

Least square means & confidence intervals from analysis of variance

Source	LS Mean	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period Op-1	-0.155	0.2995	-0.52	.6052	0.3404	-0.6507
Period Op-2	1.477	0.6599	2.24	.0266	2.5686	0.3853
Op-1-04	-3.411	0.8919	-3.82	.0002	-1.9355	-4.8863
Op-2-04	-0.833	2.1194	-0.39	.6947	2.6728	-4.3394
Op-1-05	-2.124	0.8919	-2.38	.0184	-0.6484	-3.5993
Op-2-05	-1.944	1.6755	-1.16	.2475	0.8274	-4.7163
Op-1-06	-2.423	0.7199	-3.37	.0010	-1.2321	-3.6140
Op-2-06	-1.944	1.6755	-1.16	.2475	0.8274	-4.7163
Op-1-08	-0.216	0.7199	-0.30	.7648	0.9752	-1.4067
Op-2-08	2.389	1.6755	1.43	.1559	5.1607	-0.3829
Op-1-09	6.292	0.8433	7.46	.0000	7.6868	4.8966
Op-2-09	7.844	1.6755	4.68	.0000	10.6157	5.0721
Op-1-10	3.168	0.7348	4.31	.0000	4.3832	1.9521
Op-2-10	6.773	1.6755	4.04	.0001	9.5444	4.0008
Op-1-12	-2.372	0.7199	-3.29	.0012	-1.1808	-3.5628
Op-2-12	-1.944	1.6755	-1.16	.2475	0.8274	-4.7163

Paired comparisons of least square means between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period	-1.6321	0.7247	-2.252	.0257	-0.4333	-2.8309

Paired comparisons of least square means among stations between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Station 04	-2.5775	2.2994	-1.12	.2640	1.2263	-6.3814
Station 05	-0.1794	1.8981	-0.09	.9248	2.9606	-3.3194
Station 06	-0.4786	1.8236	-0.26	.7933	2.5382	-3.4955
Station 08	-2.6046	1.8236	-1.43	.1551	0.4122	-5.6215
Station 09	-1.5522	1.8758	-0.83	.4092	1.5509	-4.6553
Station 10	-3.6049	1.8295	-1.97	.0505	-0.5783	-6.6316
Station 12	-0.4274	1.8236	-0.23	.8150	2.5895	-3.4442

Station-period means and deltas from original data where control n=2

Station-Period	N	Station Mean	Range	Standard Error	Upper 95% c.i.	Lower 95% c.i.	Mean Delta	Delta Range	Upper 95% CIi.	Lower 95% C.I.
04 Op-1	17	0.00	0.00	0.000	.	.	0.12	0.50	0.21	0.04
04 Op-2	4	0.05	0.20	0.050	0.21	-0.11	0.03	0.30	0.23	-0.18
05 Op-1	17	0.05	0.40	0.027	0.10	-0.01	0.08	0.50	0.15	0.01
05 Op-2	5	0.00	0.00	0.000	.	.	0.06	0.20	0.17	-0.05
06 Op-1	26	0.01	0.20	0.008	0.02	-0.01	0.08	0.50	0.14	0.03
06 Op-2	5	0.00	0.00	0.000	.	.	0.06	0.20	0.17	-0.05
08 Op-1	26	0.47	5.20	0.256	1.00	-0.06	-0.38	5.20	0.13	-0.89
08 Op-2	5	0.20	0.40	0.089	0.45	-0.05	-0.14	0.30	0.03	-0.31
09 Op-1	19	8.86	39.80	2.993	15.15	2.57	-8.75	39.30	-2.50	-15.00
09 Op-2	5	5.96	8.40	1.516	10.17	1.75	-5.90	8.60	-1.60	-10.20
10 Op-1	25	1.85	11.40	0.621	3.13	0.57	-1.76	11.50	-0.50	-3.01
10 Op-2	5	2.96	8.40	1.537	7.23	-1.31	-2.90	8.50	1.39	-7.19
12 Op-1	26	0.02	0.40	0.015	0.05	-0.02	0.08	0.70	0.14	0.02
12 Op-2	5	0.00	0.00	0.000	.	.	0.06	0.20	0.17	-0.05

Period means and deltas from original control data where n=2

Period	N	Station Mean	Range	Standard Error	Upper 95% C.I.	Lower 95% C.I.
Op-1	26	0.09	0.50	0.028	0.15	0.04
Op-2	5	0.06	0.20	0.040	0.17	-0.05

Analysis of Variance for HBT for 0484 - Haliclona spp.

Stations = 4, 5, 6, 8, 9, 10, 12 level +3 ft MLLW

Data not transformed.

Results for Analysis of Variance

Source	Source df	Error df	F-value	Prob.
PERIOD	1	162.000	0.32	0.5700
SEASON	1	162.000	12.27	0.0006
STATION	6	162.000	0.09	0.9972
PERIOD*SEASON	1	162.000	0.51	0.4773
STATION*PERIOD	6	162.000	0.07	0.9985
STATION*SEASON	6	162.000	0.07	0.9987
PERIOD*STATION*SEASON	6	162.000	0.04	0.9998

Results for Power Analysis
Power at alpha = .1

Source	Non-Centrality Parameter	Adjusted non-Centrality Parameter	Power	Adjusted Power	Power to Detect 50% Change
PERIOD	0.32	0.00	0.1540	.	0.1057
STATION*PERIOD	0.43	0.00	0.1267	.	0.1144

Estimates for contrasts on combinations of interaction terms

Source	Difference	Std. Err.	T-value	Prob.
Period in DC	0.0060	0.0271	0.220	.8258
Period in FC	0.0153	0.0257	0.594	.5532
Period in FC-S	-0.0000	0.0311	-0.000	1.000
Period in FC-W	0.0306	0.0410	0.746	.4566
Period in DC-S	-0.0053	0.0350	-0.153	.8788
Period in DC-W	0.0173	0.0413	0.418	.6763

Least square means & confidence intervals from analysis of variance

Source	LS Mean	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period Op-1	0.010	0.0022	4.75	.0000	0.0141	0.0068
Period Op-2	0.007	0.0049	1.53	.1274	0.0155	-0.0006
Op-1-04	0.010	0.0066	1.47	.1436	0.0205	-0.0012
Op-2-04	-0.000	0.0156	-0.00	1.000	0.0258	-0.0258
Op-1-05	0.010	0.0066	1.47	.1436	0.0205	-0.0012
Op-2-05	0.009	0.0123	0.70	.4824	0.0291	-0.0117
Op-1-06	0.013	0.0053	2.52	.0127	0.0221	0.0046
Op-2-06	0.009	0.0123	0.70	.4824	0.0291	-0.0117
Op-1-08	0.005	0.0053	1.01	.3148	0.0141	-0.0034
Op-2-08	0.009	0.0123	0.70	.4824	0.0291	-0.0117
Op-1-09	0.010	0.0062	1.68	.0952	0.0207	0.0002
Op-2-09	0.009	0.0123	0.70	.4824	0.0291	-0.0117
Op-1-10	0.012	0.0054	2.14	.0338	0.0205	0.0026
Op-2-10	0.009	0.0123	0.70	.4824	0.0291	-0.0117
Op-1-12	0.013	0.0053	2.52	.0127	0.0221	0.0046
Op-2-12	0.009	0.0123	0.70	.4824	0.0291	-0.0117

Paired comparisons of least square means between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period	0.0030	0.0053	0.569	.5700	0.0119	-0.0058

Paired comparisons of least square means among stations between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Station 04	0.0096	0.0169	0.57	.5695	0.0376	-0.0183
Station 05	0.0010	0.0140	0.07	.9450	0.0241	-0.0221
Station 06	0.0047	0.0134	0.35	.7281	0.0269	-0.0175
Station 08	-0.0033	0.0134	-0.25	.8038	0.0189	-0.0255
Station 09	0.0017	0.0138	0.13	.9001	0.0246	-0.0211
Station 10	0.0029	0.0135	0.21	.8301	0.0252	-0.0194
Station 12	0.0047	0.0134	0.35	.7281	0.0269	-0.0175

Station-period means and deltas from original data where control n=2

Station-Period	N	Station Mean	Range	Standard Error	Upper 95% c.i.	Lower 95% c.i.	Mean Delta	Delta Range	Upper 95% CII.	Lower 95% C.I.
04 Op-1	17	0.00	0.00	0.000	.	.	0.01	0.10	0.03	-0.00
04 Op-2	4	0.00	0.00	0.000	.	.	0.00	0.00	.	.
05 Op-1	17	0.00	0.00	0.000	.	.	0.01	0.10	0.03	-0.00
05 Op-2	5	0.00	0.00	0.000	.	.	0.01	0.03	0.03	-0.01
06 Op-1	26	0.00	0.00	0.000	.	.	0.01	0.10	0.03	0.00
06 Op-2	5	0.00	0.00	0.000	.	.	0.01	0.03	0.03	-0.01
08 Op-1	26	0.01	0.14	0.006	0.02	-0.00	0.01	0.17	0.02	-0.01
08 Op-2	5	0.00	0.00	0.000	.	.	0.01	0.03	0.03	-0.01
09 Op-1	19	0.00	0.00	0.000	.	.	0.01	0.10	0.02	-0.00
09 Op-2	5	0.00	0.00	0.000	.	.	0.01	0.03	0.03	-0.01
10 Op-1	25	0.00	0.00	0.000	.	.	0.01	0.10	0.02	-0.00
10 Op-2	5	0.00	0.00	0.000	.	.	0.01	0.03	0.03	-0.01
12 Op-1	26	0.00	0.00	0.000	.	.	0.01	0.10	0.03	0.00
12 Op-2	5	0.00	0.00	0.000	.	.	0.01	0.03	0.03	-0.01

Period means and deltas from original control data where n=2

Period	N	Station Mean	Range	Standard Error	Upper 95% C.I.	Lower 95% C.I.
Op-1	26	0.01	0.10	0.006	0.03	0.00
Op-2	5	0.01	0.03	0.007	0.03	-0.01

Analysis of Variance for HBT for 0838 - Haliotis spp.

Stations = 4, 5, 6, 8, 9, 10, 12 level +3 ft MLLW

Data transformed using 1/(x + .1)

Results for Analysis of Variance

Source	Source df	Error df	F-value	Prob.
PERIOD	1	162.000	0.88	0.3495
SEASON	1	162.000	10.03	0.0018
STATION	6	162.000	15.21	0.0000
PERIOD*SEASON	1	162.000	6.56	0.0113
STATION*PERIOD	6	162.000	1.37	0.2296
STATION*SEASON	6	162.000	1.25	0.2856
PERIOD*STATION*SEASON	6	162.000	1.21	0.3034

Results for Power Analysis
Power at alpha = .1

Source	Non-Centrality Parameter	Adjusted non-Centrality Parameter	Power	Adjusted Power	Power to Detect 50% Change
PERIOD	0.88	0.00	0.2437	.	0.5795
STATION*PERIOD	8.22	2.12	0.6529	0.2419	0.1839

Estimates for contrasts on combinations of interaction terms

Source	Difference	Std. Err.	T-value	Prob.
Period in DC	-7.1821	2.8360	-2.532	.0123
Period in FC	3.5105	2.6960	1.302	.1947
Period in FC-S	5.2823	3.2618	1.619	.1073
Period in FC-W	1.7386	4.2935	0.405	.6861
Period in DC-S	1.0685	3.6649	0.292	.7710
Period in DC-W	-15.4326	4.3289	-3.565	.0005

Least square means & confidence intervals from analysis of variance

Source	LS Mean	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period Op-1	-4.108	0.2311	-17.78	.0000	-3.7261	-4.4906
Period Op-2	-3.584	0.5090	-7.04	.0000	-2.7418	-4.4259
Op-1-04	0.285	0.6880	0.41	.6796	1.4227	-0.8535
Op-2-04	-0.530	1.6348	-0.32	.7460	2.1741	-3.2349
Op-1-05	-0.712	0.6880	-1.03	.3023	0.4262	-1.8500
Op-2-05	-1.216	1.2924	-0.94	.3481	0.9218	-3.3544
Op-1-06	-2.501	0.5553	-4.50	.0000	-1.5827	-3.4201
Op-2-06	-4.692	1.2924	-3.63	.0004	-2.5544	-6.8306
Op-1-08	-6.615	0.5553	-11.91	.0000	-5.6967	-7.5341
Op-2-08	-5.109	1.2924	-3.95	.0001	-2.9710	-7.2472
Op-1-09	-3.262	0.6505	-5.01	.0000	-2.1855	-4.3378
Op-2-09	-0.821	1.2924	-0.63	.5263	1.3174	-2.9588
Op-1-10	-8.024	0.5668	-14.16	.0000	-7.0859	-8.9611
Op-2-10	-6.359	1.2924	-4.92	.0000	-4.2210	-8.4972
Op-1-12	-7.930	0.5553	-14.28	.0000	-7.0108	-8.8482
Op-2-12	-6.359	1.2924	-4.92	.0000	-4.2210	-8.4972

Paired comparisons of least square means between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period	-0.5245	0.5590	-0.938	.3495	0.4002	-1.4493

Paired comparisons of least square means among stations between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Station 04	0.8150	1.7737	0.46	.6465	3.7492	-2.1192
Station 05	0.5044	1.4641	0.34	.7309	2.9265	-1.9177
Station 06	2.1911	1.4067	1.56	.1213	4.5182	-0.1360
Station 08	-1.5063	1.4067	-1.07	.2859	0.8208	-3.8334
Station 09	-2.4410	1.4469	-1.69	.0935	-0.0473	-4.8347
Station 10	-1.6644	1.4113	-1.18	.2400	0.6703	-3.9990
Station 12	-1.5704	1.4067	-1.12	.2659	0.7567	-3.8975

Station-period means and deltas from original data where control n=2

Station	Period	N	Station Mean	Range	Standard Error	Upper 95% C.I.	Lower 95% C.I.	Mean Delta	Delta Range	Upper 95% CIi.	Lower 95% C.I.
04	Op-1	17	1.23	3.10	0.206	1.67	0.79	-0.53	3.00	-0.13	-0.92
04	Op-2	4	0.43	0.80	0.165	0.95	-0.10	-0.10	0.50	0.24	-0.44
05	Op-1	17	1.81	4.80	0.383	2.62	0.99	-1.11	4.85	-0.37	-1.84
05	Op-2	5	0.24	0.60	0.117	0.56	-0.08	0.03	0.75	0.44	-0.38
06	Op-1	26	0.29	0.90	0.048	0.39	0.19	0.41	1.45	0.55	0.27
06	Op-2	5	0.04	0.10	0.024	0.11	-0.03	0.23	0.55	0.51	-0.05
08	Op-1	26	0.05	0.30	0.018	0.09	0.02	0.65	1.25	0.77	0.53
08	Op-2	5	0.02	0.10	0.020	0.08	-0.04	0.25	0.65	0.54	-0.04
09	Op-1	19	0.71	3.40	0.262	1.26	0.16	-0.03	3.55	0.53	-0.60
09	Op-2	5	0.40	1.20	0.219	1.01	-0.21	-0.13	1.60	0.62	-0.88
10	Op-1	25	0.01	0.20	0.009	0.03	-0.01	0.68	1.05	0.80	0.56
10	Op-2	5	0.00	0.00	0.000	.	.	0.27	0.55	0.52	0.02
12	Op-1	26	0.01	0.10	0.006	0.02	-0.00	0.69	1.05	0.81	0.57
12	Op-2	5	0.00	0.00	0.000	.	.	0.27	0.55	0.52	0.02

Period means and deltas from original control data where n=2

Period	N	Station Mean	Range	Standard Error	Upper 95% C.I.	Lower 95% C.I.
Op-1	26	0.70	1.05	0.057	0.82	0.58
Op-2	5	0.27	0.55	0.092	0.52	0.02

Analysis of Variance for HBT for 0423 - Leptasterias spp.

Stations = 4, 5, 6, 8, 9, 10, 12 level +3 ft MLLW

Data transformed using log base10(x + .1)

Results for Analysis of Variance

Source	Source df	Error df	F-value	Prob.
PERIOD	1	162.000	0.33	0.5643
SEASON	1	162.000	2.72	0.1010
STATION	6	162.000	0.51	0.7986
PERIOD*SEASON	1	162.000	3.29	0.0714
STATION*PERIOD	6	162.000	0.18	0.9812
STATION*SEASON	6	162.000	0.45	0.8410
PERIOD*STATION*SEASON	6	162.000	0.37	0.8978

Results for Power Analysis
Power at alpha = .1

Source	Non-Centrality Parameter	Adjusted non-Centrality Parameter	Power	Adjusted Power	Power to Detect 50% Change
PERIOD	0.33	0.00	0.1556	.	0.1228
STATION*PERIOD	1.10	0.00	0.1702	.	0.1046

Estimates for contrasts on combinations of interaction terms

Source	Difference	Std. Err.	T-value	Prob.
Period in DC	-0.3432	0.3418	-1.004	.3167
Period in FC	0.0709	0.3249	0.218	.8276
Period in FC-S	0.6990	0.3931	1.778	.0772
Period in FC-W	-0.5573	0.5174	-1.077	.2830
Period in DC-S	-0.1157	0.4417	-0.262	.7938
Period in DC-W	-0.5708	0.5217	-1.094	.2755

Least square means & confidence intervals from analysis of variance

Source	LS Mean	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period Op-1	0.357	0.0278	12.83	.0000	0.4032	0.3111
Period Op-2	0.396	0.0613	6.46	.0000	0.4976	0.2946
Op-1-04	0.364	0.0829	4.39	.0000	0.5011	0.2268
Op-2-04	0.300	0.1970	1.52	.1299	0.6258	-0.0260
Op-1-05	0.378	0.0829	4.56	.0000	0.5150	0.2407
Op-2-05	0.452	0.1558	2.90	.0042	0.7095	0.1942
Op-1-06	0.294	0.0669	4.40	.0000	0.4049	0.1834
Op-2-06	0.213	0.1558	1.37	.1727	0.4710	-0.0443
Op-1-08	0.349	0.0669	5.22	.0000	0.4599	0.2385
Op-2-08	0.452	0.1558	2.90	.0042	0.7095	0.1942
Op-1-09	0.352	0.0784	4.49	.0000	0.4820	0.2226
Op-2-09	0.452	0.1558	2.90	.0042	0.7095	0.1942
Op-1-10	0.377	0.0683	5.52	.0000	0.4898	0.2639
Op-2-10	0.452	0.1558	2.90	.0042	0.7095	0.1942
Op-1-12	0.386	0.0669	5.77	.0000	0.4966	0.2752
Op-2-12	0.452	0.1558	2.90	.0042	0.7095	0.1942

Paired comparisons of least square means between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period	-0.0389	0.0674	-0.578	.5643	0.0725	-0.1504

Paired comparisons of least square means among stations between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Station 04	0.0641	0.2137	0.30	.7647	0.4177	-0.2895
Station 05	-0.0740	0.1764	-0.42	.6753	0.2178	-0.3659
Station 06	0.0808	0.1695	0.48	.6342	0.3613	-0.1996
Station 08	-0.1027	0.1695	-0.61	.5455	0.1778	-0.3831
Station 09	-0.0996	0.1744	-0.57	.5688	0.1889	-0.3880
Station 10	-0.0750	0.1701	-0.44	.6597	0.2063	-0.3564
Station 12	-0.0660	0.1695	-0.39	.6976	0.2145	-0.3464

Station-period means and deltas from original data where control n=2

Station	Period	N	Station Mean	Range	Standard Error	Upper 95% c.i.	Lower 95% c.i.	Mean Delta	Delta Range	Upper 95% CIi.	Lower 95% C.I.
04	Op-1	17	0.02	0.40	0.024	0.07	-0.03	0.21	0.90	0.34	0.08
04	Op-2	4	0.15	0.40	0.096	0.45	-0.15	0.15	1.00	0.81	-0.51
05	Op-1	17	0.01	0.20	0.012	0.04	-0.01	0.22	1.00	0.35	0.08
05	Op-2	5	0.00	0.00	0.000	.	.	0.26	0.60	0.56	-0.04
06	Op-1	26	0.04	0.20	0.016	0.07	0.01	0.17	1.10	0.27	0.07
06	Op-2	5	0.12	0.20	0.049	0.26	-0.02	0.14	0.60	0.41	-0.13
08	Op-1	26	0.02	0.20	0.011	0.04	-0.01	0.19	1.10	0.28	0.10
08	Op-2	5	0.00	0.00	0.000	.	.	0.26	0.60	0.56	-0.04
09	Op-1	19	0.03	0.40	0.023	0.08	-0.02	0.20	0.90	0.32	0.08
09	Op-2	5	0.00	0.00	0.000	.	.	0.26	0.60	0.56	-0.04
10	Op-1	25	0.01	0.20	0.008	0.02	-0.01	0.21	1.00	0.30	0.11
10	Op-2	5	0.00	0.00	0.000	.	.	0.26	0.60	0.56	-0.04
12	Op-1	26	0.00	0.00	0.000	.	.	0.21	0.90	0.30	0.12
12	Op-2	5	0.00	0.00	0.000	.	.	0.26	0.60	0.56	-0.04

Period means and deltas from original control data where n=2

Period	N	Station Mean	Range	Standard Error	Upper 95% C.I.	Lower 95% C.I.
Op-1	26	0.21	0.90	0.043	0.30	0.12
Op-2	5	0.26	0.60	0.108	0.56	-0.04

Analysis of Variance for HBT for 0292 - Lottia digitalis

Stations = 4, 5, 6, 8, 9, 10, 12 level +3 ft MLLW

Data transformed using log base10(x + .1)

Results for Analysis of Variance

Source	Source df	Error df	F-value	Prob.
PERIOD	1	162.000	0.01	0.9356
SEASON	1	162.000	1.14	0.2874
STATION	6	162.000	31.19	0.0000
PERIOD*SEASON	1	162.000	30.98	0.0000
STATION*PERIOD	6	162.000	7.16	0.0000
STATION*SEASON	6	162.000	1.15	0.3356
PERIOD*STATION*SEASON	6	162.000	1.16	0.3306

Results for Power Analysis
Power at alpha = .1

Source	Non-Centrality Parameter	Adjusted non-Centrality Parameter	Power	Adjusted Power	Power to Detect 50% Change
PERIOD	0.01	0.00	0.1011	.	0.6543
STATION*PERIOD	42.97	36.44	0.9999	0.9994	0.2459

Estimates for contrasts on combinations of interaction terms

Source	Difference	Std. Err.	T-value	Prob.
Period in DC	0.9933	0.4944	2.009	.0462
Period in FC	-1.0486	0.4700	-2.231	.0270
Period in FC-S	0.3653	0.5686	0.642	.5215
Period in FC-W	-2.4625	0.7485	-3.290	.0012
Period in DC-S	3.3761	0.6389	5.284	.0000
Period in DC-W	-1.3894	0.7547	-1.841	.0674

Least square means & confidence intervals from analysis of variance

Source	LS Mean	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period Op-1	-0.378	0.0403	-9.39	.0000	-0.3115	-0.4448
Period Op-2	-0.370	0.0887	-4.17	.0000	-0.2235	-0.5171
Op-1-04	0.124	0.1199	1.03	.3035	0.3222	-0.0746
Op-2-04	0.301	0.2850	1.06	.2924	0.7725	-0.1704
Op-1-05	-0.745	0.1199	-6.21	.0000	-0.5462	-0.9430
Op-2-05	-0.212	0.2253	-0.94	.3490	0.1611	-0.5843
Op-1-06	0.120	0.0968	1.24	.2180	0.2799	-0.0404
Op-2-06	0.458	0.2253	2.03	.0437	0.8309	0.0854
Op-1-08	-0.599	0.0968	-6.19	.0000	-0.4391	-0.7594
Op-2-08	-1.587	0.2253	-7.05	.0000	-1.2147	-1.9601
Op-1-09	-1.095	0.1134	-9.66	.0000	-0.9076	-1.2828
Op-2-09	-2.000	0.2253	-8.87	.0000	-1.6269	-2.3724
Op-1-10	-0.126	0.0988	-1.27	.2044	0.0375	-0.2894
Op-2-10	0.458	0.2253	2.03	.0437	0.8309	0.0854
Op-1-12	-0.326	0.0968	-3.37	.0010	-0.1657	-0.4860
Op-2-12	-0.011	0.2253	-0.05	.9624	0.3621	-0.3834

Paired comparisons of least square means between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period	-0.0079	0.0974	-0.081	.9356	0.1533	-0.1691

Paired comparisons of least square means among stations between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Station 04	-0.1772	0.3092	-0.57	.5673	0.3343	-0.6888
Station 05	-0.5329	0.2552	-2.09	.0384	-0.1107	-0.9552
Station 06	-0.3384	0.2452	-1.38	.1695	0.0673	-0.7441
Station 08	0.9881	0.2452	4.03	.0001	1.3938	0.5825
Station 09	0.9044	0.2522	3.59	.0004	1.3217	0.4871
Station 10	-0.5840	0.2460	-2.37	.0188	-0.1770	-0.9910
Station 12	-0.3152	0.2452	-1.29	.2005	0.0905	-0.7209

Station-period means and deltas from original data where control n=2

Station-Period		N	Station Mean	Range	Standard Error	Upper 95% C.I.	Lower 95% C.I.	Mean Delta	Delta Range	Upper 95% CIi.	Lower 95% C.I.
04	Op-1	17	0.02	0.40	0.024	0.07	-0.03	0.04	0.70	0.12	-0.04
04	Op-2	4	0.00	0.00	0.000	.	.	0.08	0.30	0.31	-0.16
05	Op-1	17	1.00	2.00	0.164	1.35	0.65	-0.94	2.00	-0.61	-1.26
05	Op-2	5	1.56	4.20	0.960	4.23	-1.11	-1.18	3.90	1.05	-3.41
06	Op-1	26	0.01	0.20	0.008	0.02	-0.01	0.05	0.50	0.09	0.01
06	Op-2	5	0.00	0.00	0.000	.	.	0.38	1.60	1.24	-0.48
08	Op-1	26	1.17	4.80	0.279	1.74	0.59	-1.11	5.00	-0.53	-1.69
08	Op-2	5	11.84	9.60	2.041	17.51	6.17	-11.46	11.00	-5.29	-17.63
09	Op-1	19	5.48	23.40	1.511	8.66	2.31	-5.42	23.60	-2.23	-8.60
09	Op-2	5	32.60	65.00	11.767	65.27	-0.07	-32.22	63.40	-0.37	-64.07
10	Op-1	25	0.75	13.80	0.555	1.90	-0.39	-0.69	14.10	0.46	-1.84
10	Op-2	5	0.00	0.00	0.000	.	.	0.38	1.60	1.24	-0.48
12	Op-1	26	0.38	1.40	0.090	0.56	0.19	-0.32	1.60	-0.13	-0.51
12	Op-2	5	0.36	1.40	0.271	1.11	-0.39	0.02	0.30	0.16	-0.12

Period means and deltas from original control data where n=2

Period	N	Station Mean	Range	Standard Error	Upper 95% C.I.	Lower 95% C.I.
Op-1	26	0.06	0.30	0.019	0.10	0.02
Op-2	5	0.38	1.60	0.310	1.24	-0.48

Analysis of Variance for HBT for 0293 - Lottia limatula

Stations = 4, 5, 6, 8, 9, 10, 12 level +3 ft MLLW

Data transformed using log base10(x + .5)

Results for Analysis of Variance

Source	Source df	Error df	F-value	Prob.
PERIOD	1	162.000	0.07	0.7846
SEASON	1	162.000	13.69	0.0003
STATION	6	162.000	11.01	0.0000
PERIOD*SEASON	1	162.000	0.73	0.3956
STATION*PERIOD	6	162.000	1.02	0.4133
STATION*SEASON	6	162.000	2.19	0.0469
PERIOD*STATION*SEASON	6	162.000	1.48	0.1871

Results for Power Analysis
Power at alpha = .1

Source	Non-Centrality Parameter	Adjusted non-Centrality Parameter	Power	Adjusted Power	Power to Detect 50% Change
PERIOD	0.07	0.00	0.1126	.	1.0000
STATION*PERIOD	6.13	0.05	0.5274	0.1032	0.1782

Estimates for contrasts on combinations of interaction terms

Source	Difference	Std. Err.	T-value	Prob.
Period in DC	0.0451	0.2785	0.162	.8716
Period in FC	-0.1503	0.2648	-0.568	.5710
Period in FC-S	0.0963	0.3203	0.301	.7640
Period in FC-W	-0.3970	0.4217	-0.941	.3479
Period in DC-S	0.1258	0.3599	0.350	.7272
Period in DC-W	-0.0356	0.4251	-0.084	.9334

Least square means & confidence intervals from analysis of variance

Source	LS Mean	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period Op-1	-0.107	0.0227	-4.70	.0000	-0.0691	-0.1442
Period Op-2	-0.092	0.0500	-1.83	.0686	-0.0090	-0.1744
Op-1-04	-0.156	0.0676	-2.31	.0221	-0.0444	-0.2679
Op-2-04	-0.056	0.1606	-0.35	.7274	0.2095	-0.3217
Op-1-05	-0.039	0.0676	-0.58	.5597	0.0723	-0.1513
Op-2-05	-0.088	0.1269	-0.69	.4886	0.1219	-0.2981
Op-1-06	0.273	0.0545	5.01	.0000	0.3634	0.1829
Op-2-06	0.372	0.1269	2.93	.0039	0.5820	0.1620
Op-1-08	-0.266	0.0545	-4.88	.0000	-0.1760	-0.3565
Op-2-08	-0.532	0.1269	-4.19	.0000	-0.3215	-0.7415
Op-1-09	-0.376	0.0639	-5.89	.0000	-0.2704	-0.4818
Op-2-09	-0.253	0.1269	-1.99	.0480	-0.0429	-0.4628
Op-1-10	-0.043	0.0557	-0.78	.4379	0.0488	-0.1354
Op-2-10	-0.065	0.1269	-0.52	.6072	0.1446	-0.2753
Op-1-12	-0.139	0.0545	-2.54	.0119	-0.0485	-0.2289
Op-2-12	-0.020	0.1269	-0.15	.8770	0.1903	-0.2297

Paired comparisons of least square means between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period	-0.0150	0.0549	-0.274	.7846	0.0758	-0.1058

Paired comparisons of least square means among stations between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Station 04	-0.1001	0.1742	-0.57	.5664	0.1881	-0.3883
Station 05	0.0486	0.1438	0.34	.7358	0.2865	-0.1893
Station 06	-0.0988	0.1381	-0.72	.4753	0.1297	-0.3274
Station 08	0.2653	0.1381	1.92	.0566	0.4938	0.0367
Station 09	-0.1232	0.1421	-0.87	.3871	0.1118	-0.3583
Station 10	0.0221	0.1386	0.16	.8736	0.2514	-0.2072
Station 12	-0.1190	0.1381	-0.86	.3903	0.1095	-0.3475

Station-period means and deltas from original data where control n=2

Station	Period	N	Station Mean	Range	Standard Error	Upper 95% c.i.	Lower 95% c.i.	Mean Delta	Delta Range	Upper 95% CIi.	Lower 95% C.I.
04	Op-1	17	3.79	6.20	0.448	4.74	2.84	-0.91	7.60	-0.01	-1.80
04	Op-2	4	5.40	8.60	1.961	11.64	-0.84	-1.43	9.30	5.16	-8.01
05	Op-1	17	3.69	11.60	0.855	5.51	1.88	-0.81	10.30	0.49	-2.11
05	Op-2	5	4.92	8.80	1.497	9.08	0.76	-1.44	6.00	1.91	-4.79
06	Op-1	26	1.42	6.40	0.274	1.99	0.86	1.65	10.80	2.67	0.63
06	Op-2	5	1.92	4.80	0.965	4.60	-0.76	1.56	3.40	3.32	-0.20
08	Op-1	26	5.64	14.20	0.657	6.99	4.29	-2.57	22.00	-0.80	-4.33
08	Op-2	5	12.36	17.60	3.019	20.74	3.98	-8.88	19.90	0.55	-18.31
09	Op-1	19	6.47	11.40	0.707	7.96	4.99	-3.71	15.70	-1.84	-5.57
09	Op-2	5	7.72	17.20	3.193	16.58	-1.14	-4.24	19.50	4.87	-13.35
10	Op-1	25	3.42	12.20	0.584	4.62	2.21	-0.24	13.80	0.84	-1.33
10	Op-2	5	3.76	6.20	1.096	6.80	0.72	-0.28	10.70	4.69	-5.25
12	Op-1	26	4.32	11.40	0.643	5.65	3.00	-1.25	13.40	0.06	-2.56
12	Op-2	5	3.76	6.60	1.186	7.05	0.47	-0.28	8.50	3.81	-4.37

Period means and deltas from original control data where n=2

Period	N	Station Mean	Range	Standard Error	Upper 95% C.I.	Lower 95% C.I.
Op-1	26	3.07	9.00	0.501	4.11	2.04
Op-2	5	3.48	4.50	0.753	5.57	1.39

Analysis of Variance for HBT for 0294 - Lottia pelta

Stations = 4, 5, 6, 8, 9, 10, 12 level +3 ft MLLW

Data transformed using log base10(x + .1)

Results for Analysis of Variance

Source	Source df	Error df	F-value	Prob.
PERIOD	1	162.000	3.24	0.0737
SEASON	1	162.000	0.14	0.7071
STATION	6	162.000	5.60	0.0000
PERIOD*SEASON	1	162.000	7.65	0.0063
STATION*PERIOD	6	162.000	0.43	0.8609
STATION*SEASON	6	162.000	2.14	0.0514
PERIOD*STATION*SEASON	6	162.000	0.84	0.5434

Results for Power Analysis
Power at alpha = .1

Source	Non-Centrality Parameter	Adjusted non-Centrality Parameter	Power	Adjusted Power	Power to Detect 50% Change
PERIOD	3.24	2.20	0.5589	0.4342	0.9755
STATION*PERIOD	2.56	0.00	0.2736	.	0.1441

Estimates for contrasts on combinations of interaction terms

Source	Difference	Std. Err.	T-value	Prob.
Period in DC	-0.9877	0.4835	-2.043	.0427
Period in FC	-0.2130	0.4596	-0.463	.6436
Period in FC-S	0.2285	0.5561	0.411	.6816
Period in FC-W	-0.6546	0.7320	-0.894	.3725
Period in DC-S	0.4161	0.6248	0.666	.5063
Period in DC-W	-2.3915	0.7380	-3.241	.0014

Least square means & confidence intervals from analysis of variance

Source	LS Mean	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period Op-1	-0.059	0.0394	-1.51	.1339	0.0058	-0.1245
Period Op-2	0.112	0.0868	1.29	.1979	0.2557	-0.0314
Op-1-04	0.400	0.1173	3.41	.0008	0.5937	0.2056
Op-2-04	0.317	0.2787	1.14	.2568	0.7783	-0.1439
Op-1-05	-0.093	0.1173	-0.79	.4309	0.1014	-0.2866
Op-2-05	0.099	0.2203	0.45	.6535	0.4636	-0.2654
Op-1-06	0.177	0.0947	1.87	.0639	0.3332	0.0200
Op-2-06	0.280	0.2203	1.27	.2050	0.6449	-0.0841
Op-1-08	-0.056	0.0947	-0.59	.5575	0.1010	-0.2123
Op-2-08	0.240	0.2203	1.09	.2782	0.6043	-0.1248
Op-1-09	-0.243	0.1109	-2.19	.0297	-0.0598	-0.4267
Op-2-09	0.171	0.2203	0.78	.4386	0.5356	-0.1934
Op-1-10	-0.583	0.0966	-6.04	.0000	-0.4233	-0.7430
Op-2-10	-0.565	0.2203	-2.57	.0112	-0.2009	-0.9300
Op-1-12	-0.017	0.0947	-0.18	.8575	0.1396	-0.1736
Op-2-12	0.243	0.2203	1.10	.2713	0.6077	-0.1213

Paired comparisons of least square means between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period	-0.1715	0.0953	-1.800	.0737	-0.0139	-0.3292

Paired comparisons of least square means among stations between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Station 04	0.0825	0.3024	0.27	.7854	0.5827	-0.4178
Station 05	-0.1917	0.2496	-0.77	.4436	0.2212	-0.6046
Station 06	-0.1038	0.2398	-0.43	.6657	0.2929	-0.5005
Station 08	-0.2954	0.2398	-1.23	.2198	0.1013	-0.6921
Station 09	-0.4143	0.2467	-1.68	.0950	-0.0062	-0.8224
Station 10	-0.0177	0.2406	-0.07	.9414	0.3803	-0.4157
Station 12	-0.2603	0.2398	-1.09	.2794	0.1365	-0.6570

Station-period means and deltas from original data where control n=2

Station-Period	N	Station Mean	Range	Standard Error	Upper 95% c.i.	Lower 95% c.i.	Mean Delta	Delta Range	Upper 95% CIi.	Lower 95% C.I.
04 Op-1	17	0.28	1.00	0.084	0.46	0.10	0.32	1.80	0.60	0.05
04 Op-2	4	0.50	0.80	0.191	1.11	-0.11	0.65	1.20	1.59	-0.29
05 Op-1	17	0.85	1.80	0.156	1.18	0.52	-0.24	2.60	0.15	-0.63
05 Op-2	5	1.00	1.60	0.276	1.77	0.23	0.10	2.80	1.55	-1.35
06 Op-1	26	0.52	2.60	0.123	0.77	0.26	0.10	2.40	0.33	-0.13
06 Op-2	5	0.80	1.60	0.335	1.73	-0.13	0.30	1.60	1.06	-0.46
08 Op-1	26	1.72	12.60	0.544	2.84	0.60	-1.10	12.70	-0.00	-2.20
08 Op-2	5	1.24	2.80	0.515	2.67	-0.19	-0.14	4.00	1.92	-2.20
09 Op-1	19	2.02	10.20	0.613	3.31	0.73	-1.41	9.80	-0.20	-2.62
09 Op-2	5	0.84	1.20	0.240	1.51	0.17	0.26	2.40	1.39	-0.87
10 Op-1	25	3.50	15.40	0.709	4.96	2.03	-2.86	14.70	-1.44	-4.28
10 Op-2	5	4.64	6.00	1.019	7.47	1.81	-3.54	6.70	-0.50	-6.58
12 Op-1	26	1.02	4.60	0.203	1.44	0.60	-0.41	5.00	0.06	-0.88
12 Op-2	5	0.56	0.60	0.117	0.88	0.24	0.54	1.80	1.51	-0.43

Period means and deltas from original control data where n=2

Period	N	Station Mean	Range	Standard Error	Upper 95% C.I.	Lower 95% C.I.
Op-1	26	0.62	1.50	0.074	0.77	0.46
Op-2	5	1.10	1.60	0.295	1.92	0.28

Analysis of Variance for HBT for 0295 - Macclintockia scabra

Stations = 4, 5, 6, 8, 9, 10, 12 level +3 ft MLLW

Data transformed using square root(x + .1)

Results for Analysis of Variance

Source	Source df	Error df	F-value	Prob.
PERIOD	1	162.000	0.60	0.4396
SEASON	1	162.000	4.09	0.0448
STATION	6	162.000	30.24	0.0000
PERIOD*SEASON	1	162.000	0.46	0.4976
STATION*PERIOD	6	162.000	0.91	0.4920
STATION*SEASON	6	162.000	1.10	0.3650
PERIOD*STATION*SEASON	6	162.000	0.45	0.8455

Results for Power Analysis
Power at alpha = .1

Source	Non-Centrality Parameter	Adjusted non-Centrality Parameter	Power	Adjusted Power	Power to Detect 50% Change
PERIOD	0.60	0.00	0.1991	.	1.0000
STATION*PERIOD	5.44	0.00	0.4811	.	0.7463

Estimates for contrasts on combinations of interaction terms

Source	Difference	Std. Err.	T-value	Prob.
Period in DC	2.8450	2.6648	1.068	.2873
Period in FC	0.0038	2.5333	0.002	.9988
Period in FC-S	1.5859	3.0649	0.517	.6056
Period in FC-W	-1.5782	4.0344	-0.391	.6962
Period in DC-S	3.7623	3.4438	1.092	.2762
Period in DC-W	1.9276	4.0677	0.474	.6362

Least square means & confidence intervals from analysis of variance

Source	LS Mean	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period Op-1	-2.190	0.2171	-10.09	.0000	-1.8310	-2.5494
Period Op-2	-2.597	0.4783	-5.43	.0000	-1.8060	-3.3884
Op-1-04	-1.414	0.6464	-2.19	.0302	-0.3444	-2.4833
Op-2-04	-0.255	1.5362	-0.17	.8683	2.2861	-2.7965
Op-1-05	-1.341	0.6464	-2.07	.0396	-0.2716	-2.4104
Op-2-05	-1.170	1.2144	-0.96	.3368	0.8391	-3.1790
Op-1-06	2.378	0.5218	4.56	.0000	3.2413	1.5148
Op-2-06	1.044	1.2144	0.86	.3910	3.0535	-0.9646
Op-1-08	-5.747	0.5218	-11.01	.0000	-4.8841	-6.6106
Op-2-08	-8.619	1.2144	-7.10	.0000	-6.6103	-10.6285
Op-1-09	-8.056	0.6113	-13.18	.0000	-7.0444	-9.0669
Op-2-09	-7.700	1.2144	-6.34	.0000	-5.6907	-9.7088
Op-1-10	0.388	0.5326	0.73	.4671	1.2692	-0.4929
Op-2-10	0.466	1.2144	0.38	.7019	2.4747	-1.5435
Op-1-12	-1.540	0.5218	-2.95	.0036	-0.6767	-2.4031
Op-2-12	-1.946	1.2144	-1.60	.1110	0.0629	-3.9552

Paired comparisons of least square means between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period	0.4070	0.5253	0.775	.4396	1.2759	-0.4620

Paired comparisons of least square means among stations between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Station 04	-1.1587	1.6666	-0.70	.4879	1.5985	-3.9158
Station 05	-0.1711	1.3758	-0.12	.9012	2.1049	-2.4470
Station 06	1.3336	1.3218	1.01	.3145	3.5203	-0.8531
Station 08	2.8721	1.3218	2.17	.0312	5.0587	0.6854
Station 09	-0.3559	1.3596	-0.26	.7938	1.8933	-2.6051
Station 10	-0.0774	1.3261	-0.06	.9535	2.1163	-2.2712
Station 12	0.4062	1.3218	0.31	.7590	2.5929	-1.7805

Station-period means and deltas from original data where control n=2

Station-Period	N	Station Mean	Range	Standard Error	Upper 95% c.i.	Lower 95% c.i.	Mean Delta	Delta Range	Upper 95% CIi.	Lower 95% C.I.
04 Op-1	17	42.33	107.00	6.814	56.78	27.88	-17.26	105.90	-2.60	-31.93
04 Op-2	4	14.35	22.20	5.123	30.65	-1.95	-3.48	13.00	6.13	-13.08
05 Op-1	17	42.06	137.80	9.162	61.48	22.64	-16.99	165.50	2.51	-36.49
05 Op-2	5	24.16	39.40	6.646	42.61	5.71	-10.48	33.20	6.21	-27.17
06 Op-1	26	10.93	23.20	1.294	13.60	8.27	24.08	66.90	32.48	15.68
06 Op-2	5	7.04	10.60	1.942	12.43	1.65	6.64	12.70	13.16	0.12
08 Op-1	26	133.12	225.20	11.327	156.44	109.79	-98.10	260.50	-74.15	-122.06
08 Op-2	5	171.36	220.60	46.151	299.49	43.23	-157.68	231.60	-23.37	-291.99
09 Op-1	19	174.18	268.40	17.336	210.60	137.76	-146.06	238.70	-110.09	-182.04
09 Op-2	5	141.24	180.20	32.564	231.65	50.83	-127.56	191.20	-31.15	-223.97
10 Op-1	25	50.76	313.60	17.321	86.51	15.01	-17.35	307.20	12.99	-47.69
10 Op-2	5	11.32	16.60	3.150	20.07	2.57	2.36	20.10	12.94	-8.22
12 Op-1	26	55.50	162.20	7.230	70.39	40.61	-20.49	138.20	-9.71	-31.26
12 Op-2	5	29.24	26.40	4.476	41.67	16.81	-15.56	31.60	0.16	-31.28

Period means and deltas from original control data where n=2

Period	N	Station Mean	Range	Standard Error	Upper 95% C.I.	Lower 95% C.I.
Op-1	26	35.01	86.00	4.681	44.65	25.37
Op-2	5	13.68	20.60	4.119	25.12	2.24

Analysis of Variance for HBT for 0308 - Mopalia spp.

Stations = 4, 5, 6, 8, 9, 10, 12 level +3 ft MLLW

Data transformed using square root(x + 1)

Results for Analysis of Variance

Source	Source df	Error df	F-value	Prob.
PERIOD	1	162.000	1.72	0.1921
SEASON	1	162.000	7.68	0.0062
STATION	6	162.000	1.70	0.1249
PERIOD*SEASON	1	162.000	3.26	0.0731
STATION*PERIOD	6	162.000	0.70	0.6509
STATION*SEASON	6	162.000	0.31	0.9317
PERIOD*STATION*SEASON	6	162.000	0.32	0.9252

Results for Power Analysis
Power at alpha = .1

Source	Non-Centrality Parameter	Adjusted non-Centrality Parameter	Power	Adjusted Power	Power to Detect 50% Change
PERIOD	1.72	0.69	0.3684	0.2143	0.8245
STATION*PERIOD	4.19	0.00	0.3933	.	0.2218

Estimates for contrasts on combinations of interaction terms

Source	Difference	Std. Err.	T-value	Prob.
Period in DC	-0.1309	0.0941	-1.392	.1659
Period in FC	-0.0391	0.0894	-0.437	.6624
Period in FC-S	0.0590	0.1082	0.545	.5864
Period in FC-W	-0.1372	0.1424	-0.963	.3368
Period in DC-S	0.0052	0.1216	0.043	.9661
Period in DC-W	-0.2670	0.1436	-1.859	.0648

Least square means & confidence intervals from analysis of variance

Source	LS Mean	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period Op-1	-0.012	0.0077	-1.61	.1103	0.0004	-0.0250
Period Op-2	0.012	0.0169	0.71	.4789	0.0399	-0.0159
Op-1-04	-0.080	0.0228	-3.48	.0006	-0.0418	-0.1173
Op-2-04	-0.082	0.0542	-1.50	.1344	0.0081	-0.1713
Op-1-05	-0.020	0.0228	-0.90	.3717	0.0173	-0.0582
Op-2-05	0.047	0.0429	1.10	.2720	0.1182	-0.0237
Op-1-06	0.010	0.0184	0.55	.5835	0.0406	-0.0204
Op-2-06	-0.016	0.0429	-0.38	.7028	0.0545	-0.0873
Op-1-08	-0.014	0.0184	-0.77	.4397	0.0162	-0.0447
Op-2-08	0.047	0.0429	1.10	.2720	0.1182	-0.0237
Op-1-09	-0.019	0.0216	-0.86	.3894	0.0171	-0.0543
Op-2-09	0.047	0.0429	1.10	.2720	0.1182	-0.0237
Op-1-10	0.002	0.0188	0.10	.9205	0.0330	-0.0292
Op-2-10	0.017	0.0429	0.39	.6972	0.0876	-0.0542
Op-1-12	0.035	0.0184	1.88	.0614	0.0652	0.0042
Op-2-12	0.023	0.0429	0.55	.5861	0.0943	-0.0475

Paired comparisons of least square means between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period	-0.0243	0.0185	-1.310	.1921	0.0064	-0.0550

Paired comparisons of least square means among stations between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Station 04	0.0021	0.0588	0.04	.9720	0.0994	-0.0953
Station 05	-0.0677	0.0486	-1.39	.1653	0.0127	-0.1480
Station 06	0.0265	0.0467	0.57	.5708	0.1037	-0.0507
Station 08	-0.0615	0.0467	-1.32	.1892	0.0157	-0.1387
Station 09	-0.0659	0.0480	-1.37	.1718	0.0135	-0.1453
Station 10	-0.0148	0.0468	-0.32	.7518	0.0626	-0.0923
Station 12	0.0113	0.0467	0.24	.8087	0.0885	-0.0659

Station-period means and deltas from original data where control n=2

Station-Period		N	Station Mean	Range	Standard Error	Upper 95% c.i.	Lower 95% c.i.	Mean Delta	Delta Range	Upper 95% CIi.	Lower 95% C.I.
04	Op-1	17	0.28	0.60	0.057	0.40	0.16	-0.18	0.90	-0.03	-0.33
04	Op-2	4	0.30	0.60	0.129	0.71	-0.11	-0.23	0.60	0.19	-0.64
05	Op-1	17	0.15	0.80	0.063	0.29	0.02	-0.05	1.00	0.07	-0.18
05	Op-2	5	0.00	0.00	0.000	.	.	0.08	0.30	0.24	-0.08
06	Op-1	26	0.08	0.60	0.032	0.15	0.02	0.02	0.70	0.09	-0.05
06	Op-2	5	0.12	0.20	0.049	0.26	-0.02	-0.04	0.30	0.10	-0.18
08	Op-1	26	0.14	0.80	0.040	0.22	0.06	-0.03	0.70	0.05	-0.12
08	Op-2	5	0.00	0.00	0.000	.	.	0.08	0.30	0.24	-0.08
09	Op-1	19	0.14	1.00	0.057	0.26	0.02	-0.05	0.80	0.06	-0.16
09	Op-2	5	0.00	0.00	0.000	.	.	0.08	0.30	0.24	-0.08
10	Op-1	25	0.10	0.80	0.042	0.18	0.01	-0.00	0.90	0.09	-0.10
10	Op-2	5	0.08	0.40	0.080	0.30	-0.14	0.00	0.70	0.32	-0.32
12	Op-1	26	0.03	0.40	0.018	0.07	-0.01	0.07	0.50	0.13	0.02
12	Op-2	5	0.04	0.20	0.040	0.15	-0.07	0.04	0.10	0.11	-0.03

Period means and deltas from original control data where n=2

Period	N	Station Mean	Range	Standard Error	Upper 95% C.I.	Lower 95% C.I.
Op-1	26	0.10	0.40	0.024	0.15	0.05
Op-2	5	0.08	0.30	0.058	0.24	-0.08

Analysis of Variance for HBT for 0309 - Mytilus californianus

Stations = 4, 5, 6, 8, 9, 10, 12 level +3 ft MLLW

Data transformed using 1/(x + .1)

Results for Analysis of Variance

Source	Source df	Error df	F-value	Prob.
PERIOD	1	162.000	6.21	0.0137
SEASON	1	162.000	31.31	0.0000
STATION	6	162.000	5.52	0.0000
PERIOD*SEASON	1	162.000	13.39	0.0003
STATION*PERIOD	6	162.000	0.09	0.9975
STATION*SEASON	6	162.000	0.10	0.9962
PERIOD*STATION*SEASON	6	162.000	0.07	0.9987

Results for Power Analysis
Power at alpha = .1

Source	Non-Centrality Parameter	Adjusted non-Centrality Parameter	Power	Adjusted Power	Power to Detect 50% Change
PERIOD	6.21	5.13	0.7987	0.7296	0.1381
STATION*PERIOD	0.52	0.00	0.1322	.	0.1222

Estimates for contrasts on combinations of interaction terms

Source	Difference	Std. Err.	T-value	Prob.
Period in DC	8.7833	3.9225	2.239	.0265
Period in FC	4.7038	3.7289	1.261	.2090
Period in FC-S	-3.6593	4.5114	-0.811	.4185
Period in FC-W	13.0670	5.9384	2.200	.0292
Period in DC-S	-2.6559	5.0690	-0.524	.6010
Period in DC-W	20.2226	5.9873	3.378	.0009

Least square means & confidence intervals from analysis of variance

Source	LS Mean	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period Op-1	-0.360	0.3196	-1.13	.2614	0.1686	-0.8888
Period Op-2	-2.287	0.7040	-3.25	.0014	-1.1222	-3.4515
Op-1-04	-1.704	0.9515	-1.79	.0752	-0.1296	-3.2778
Op-2-04	-3.333	2.2611	-1.47	.1424	0.4073	-7.0740
Op-1-05	-1.333	0.9515	-1.40	.1630	0.2408	-2.9074
Op-2-05	-3.542	1.7876	-1.98	.0493	-0.5844	-6.4989
Op-1-06	-2.676	0.7681	-3.48	.0006	-1.4052	-3.9465
Op-2-06	-3.542	1.7876	-1.98	.0493	-0.5844	-6.4989
Op-1-08	-1.907	0.7681	-2.48	.0141	-0.6360	-3.1772
Op-2-08	-3.542	1.7876	-1.98	.0493	-0.5844	-6.4989
Op-1-09	4.424	0.8997	4.92	.0000	5.9124	2.9356
Op-2-09	2.034	1.7876	1.14	.2570	4.9907	-0.9237
Op-1-10	-1.049	0.7839	-1.34	.1828	0.2481	-2.3455
Op-2-10	-3.542	1.7876	-1.98	.0493	-0.5844	-6.4989
Op-1-12	1.723	0.7681	2.24	.0262	2.9938	0.4525
Op-2-12	-0.542	1.7876	-0.30	.7623	2.4156	-3.4989

Paired comparisons of least square means between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period	1.9267	0.7731	2.492	.0137	3.2058	0.6477

Paired comparisons of least square means among stations between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Station 04	1.6296	2.4532	0.66	.5074	5.6880	-2.4287
Station 05	2.2083	2.0251	1.09	.2771	5.5584	-1.1417
Station 06	0.8658	1.9456	0.45	.6569	4.0845	-2.3528
Station 08	1.6351	1.9456	0.84	.4019	4.8537	-1.5836
Station 09	2.3905	2.0012	1.19	.2340	5.7012	-0.9202
Station 10	2.4930	1.9519	1.28	.2034	5.7221	-0.7361
Station 12	2.2648	1.9456	1.16	.2461	5.4835	-0.9538

Station-period means and deltas from original data where control n=2

Station-Period	N	Station Mean	Range	Standard Error	Upper 95% c.i.	Lower 95% c.i.	Mean Delta	Delta Range	Upper 95% CIi.	Lower 95% C.I.
04 Op-1	17	0.00	0.00	0.000	.	.	0.05	0.40	0.11	-0.00
04 Op-2	4	0.00	0.00	0.000	.	.	0.05	0.20	0.21	-0.11
05 Op-1	17	0.01	0.20	0.012	0.04	-0.01	0.04	0.60	0.10	-0.02
05 Op-2	5	0.00	0.00	0.000	.	.	0.10	0.30	0.28	-0.08
06 Op-1	26	0.00	0.00	0.000	.	.	0.10	0.60	0.17	0.03
06 Op-2	5	0.00	0.00	0.000	.	.	0.10	0.30	0.28	-0.08
08 Op-1	26	0.02	0.20	0.013	0.05	-0.00	0.08	0.80	0.16	0.00
08 Op-2	5	0.00	0.00	0.000	.	.	0.10	0.30	0.28	-0.08
09 Op-1	19	4.25	13.60	0.960	6.27	2.24	-4.17	13.50	-2.16	-6.18
09 Op-2	5	1.32	2.60	0.554	2.86	-0.22	-1.22	2.80	0.33	-2.77
10 Op-1	25	0.09	0.80	0.040	0.17	0.01	0.02	1.40	0.12	-0.09
10 Op-2	5	0.00	0.00	0.000	.	.	0.10	0.30	0.28	-0.08
12 Op-1	26	0.23	1.20	0.055	0.34	0.12	-0.13	1.70	0.01	-0.27
12 Op-2	5	0.12	0.40	0.080	0.34	-0.10	-0.02	0.60	0.26	-0.30

Period means and deltas from original control data where n=2

Period	N	Station Mean	Range	Standard Error	Upper 95% C.I.	Lower 95% C.I.
Op-1	26	0.10	0.60	0.034	0.17	0.03
Op-2	5	0.10	0.30	0.063	0.28	-0.08

Analysis of Variance for HBT for 0362 - Nuttallina californica

Stations = 4, 5, 6, 8, 9, 10, 12 level +3 ft MLLW

Data transformed using log base10(x + .1)

Results for Analysis of Variance

Source	Source df	Error df	F-value	Prob.
PERIOD	1	162.000	2.93	0.0890
SEASON	1	162.000	2.21	0.1387
STATION	6	162.000	5.31	0.0001
PERIOD*SEASON	1	162.000	0.12	0.7297
STATION*PERIOD	6	162.000	0.61	0.7222
STATION*SEASON	6	162.000	0.26	0.9547
PERIOD*STATION*SEASON	6	162.000	0.20	0.9766

Results for Power Analysis
Power at alpha = .1

Source	Non-Centrality Parameter	Adjusted non-Centrality Parameter	Power	Adjusted Power	Power to Detect 50% Change
PERIOD	2.93	1.89	0.5238	0.3927	0.5794
STATION*PERIOD	3.66	0.00	0.3544	.	0.2510

Estimates for contrasts on combinations of interaction terms

Source	Difference	Std. Err.	T-value	Prob.
Period in DC	-0.5957	0.5130	-1.161	.2473
Period in FC	-0.6152	0.4876	-1.262	.2089
Period in FC-S	-0.7906	0.5900	-1.340	.1821
Period in FC-W	-0.4397	0.7766	-0.566	.5720
Period in DC-S	-0.6652	0.6629	-1.004	.3171
Period in DC-W	-0.5261	0.7830	-0.672	.5026

Least square means & confidence intervals from analysis of variance

Source	LS Mean	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period Op-1	0.053	0.0418	1.28	.2036	0.1225	-0.0158
Period Op-2	0.226	0.0921	2.46	.0150	0.3786	0.0740
Op-1-04	0.300	0.1244	2.41	.0171	0.5056	0.0939
Op-2-04	0.191	0.2957	0.65	.5192	0.6802	-0.2982
Op-1-05	0.008	0.1244	0.06	.9485	0.2139	-0.1978
Op-2-05	0.381	0.2338	1.63	.1048	0.7680	-0.0054
Op-1-06	0.110	0.1004	1.10	.2742	0.2764	-0.0560
Op-2-06	0.461	0.2338	1.97	.0504	0.8476	0.0741
Op-1-08	-0.503	0.1004	-5.01	.0000	-0.3371	-0.6694
Op-2-08	-0.106	0.2338	-0.45	.6523	0.2812	-0.4922
Op-1-09	-0.356	0.1177	-3.03	.0029	-0.1618	-0.5511
Op-2-09	-0.146	0.2338	-0.62	.5339	0.2410	-0.5325
Op-1-10	0.391	0.1025	3.81	.0002	0.5606	0.2214
Op-2-10	0.342	0.2338	1.46	.1460	0.7283	-0.0452
Op-1-12	0.424	0.1004	4.22	.0000	0.5904	0.2580
Op-2-12	0.461	0.2338	1.97	.0504	0.8476	0.0741

Paired comparisons of least square means between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period	-0.1730	0.1011	-1.711	.0890	-0.0057	-0.3402

Paired comparisons of least square means among stations between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Station 04	0.1087	0.3208	0.34	.7352	0.6394	-0.4220
Station 05	-0.3733	0.2648	-1.41	.1606	0.0649	-0.8114
Station 06	-0.3506	0.2544	-1.38	.1701	0.0703	-0.7715
Station 08	-0.3977	0.2544	-1.56	.1200	0.0232	-0.8186
Station 09	-0.2108	0.2617	-0.81	.4218	0.2222	-0.6437
Station 10	0.0494	0.2553	0.19	.8467	0.4717	-0.3729
Station 12	-0.0366	0.2544	-0.14	.8858	0.3843	-0.4575

Station-period means and deltas from original data where control n=2

Station	Period	N	Station Mean	Range	Standard Error	Upper 95% c.i.	Lower 95% c.i.	Mean Delta	Delta Range	Upper 95% CIi.	Lower 95% C.I.
04	Op-1	17	0.13	0.80	0.057	0.25	0.01	0.18	1.30	0.36	-0.01
04	Op-2	4	0.05	0.20	0.050	0.21	-0.11	0.18	0.60	0.63	-0.28
05	Op-1	17	0.36	1.40	0.097	0.57	0.16	-0.06	2.00	0.21	-0.33
05	Op-2	5	0.04	0.20	0.040	0.15	-0.07	0.20	0.80	0.56	-0.16
06	Op-1	26	0.24	1.80	0.083	0.41	0.07	-0.00	2.30	0.20	-0.20
06	Op-2	5	0.00	0.00	0.000	.	.	0.24	0.60	0.53	-0.05
08	Op-1	26	1.27	6.40	0.286	1.86	0.68	-1.03	6.80	-0.42	-1.65
08	Op-2	5	0.40	0.80	0.141	0.79	0.01	-0.16	1.10	0.44	-0.76
09	Op-1	19	1.15	4.80	0.328	1.84	0.46	-0.87	5.00	-0.13	-1.60
09	Op-2	5	0.32	0.20	0.049	0.46	0.18	-0.08	0.60	0.22	-0.38
10	Op-1	25	0.04	1.00	0.040	0.12	-0.04	0.20	1.40	0.32	0.08
10	Op-2	5	0.04	0.20	0.040	0.15	-0.07	0.20	0.60	0.52	-0.12
12	Op-1	26	0.00	0.00	0.000	.	.	0.23	0.70	0.32	0.15
12	Op-2	5	0.00	0.00	0.000	.	.	0.24	0.60	0.53	-0.05

Period means and deltas from original control data where n=2

Period	N	Station Mean	Range	Standard Error	Upper 95% C.I.	Lower 95% C.I.
Op-1	26	0.23	0.70	0.043	0.32	0.15
Op-2	5	0.24	0.60	0.103	0.53	-0.05

Analysis of Variance for HBT for 0528 - Ocenebra spp.

Stations = 4, 5, 6, 8, 9, 10, 12 level +3 ft MLLW

Data transformed using log base10(x + .1)

Results for Analysis of Variance

Source	Source df	Error df	F-value	Prob.
PERIOD	1	162.000	5.09	0.0254
SEASON	1	162.000	5.32	0.0223
STATION	6	162.000	11.14	0.0000
PERIOD*SEASON	1	162.000	3.25	0.0733
STATION*PERIOD	6	162.000	0.15	0.9894
STATION*SEASON	6	162.000	0.68	0.6621
PERIOD*STATION*SEASON	6	162.000	0.63	0.7051

Results for Power Analysis
Power at alpha = .1

Source	Non-Centrality Parameter	Adjusted non-Centrality Parameter	Power	Adjusted Power	Power to Detect 50% Change
PERIOD	5.09	4.03	0.7265	0.6385	0.9985
STATION*PERIOD	0.88	0.00	0.1557	.	0.2498

Estimates for contrasts on combinations of interaction terms

Source	Difference	Std. Err.	T-value	Prob.
Period in DC	0.8957	0.4224	2.120	.0355
Period in FC	0.4195	0.4016	1.045	.2977
Period in FC-S	0.8684	0.4858	1.787	.0757
Period in FC-W	-0.0294	0.6395	-0.046	.9634
Period in DC-S	1.4975	0.5459	2.743	.0068
Period in DC-W	0.2938	0.6448	0.456	.6492

Least square means & confidence intervals from analysis of variance

Source	LS Mean	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period Op-1	-0.160	0.0344	-4.65	.0000	-0.1030	-0.2169
Period Op-2	-0.348	0.0758	-4.59	.0000	-0.2224	-0.4733
Op-1-04	-0.554	0.1025	-5.40	.0000	-0.3841	-0.7232
Op-2-04	-0.640	0.2435	-2.63	.0094	-0.2372	-1.0428
Op-1-05	-0.188	0.1025	-1.83	.0686	-0.0183	-0.3574
Op-2-05	-0.307	0.1925	-1.59	.1130	0.0117	-0.6252
Op-1-06	-0.272	0.0827	-3.28	.0013	-0.1349	-0.4085
Op-2-06	-0.486	0.1925	-2.52	.0126	-0.1675	-0.8044
Op-1-08	-0.171	0.0827	-2.07	.0403	-0.0341	-0.3078
Op-2-08	-0.520	0.1925	-2.70	.0077	-0.2014	-0.8384
Op-1-09	-0.451	0.0969	-4.66	.0000	-0.2909	-0.6115
Op-2-09	-0.635	0.1925	-3.30	.0012	-0.3169	-0.9539
Op-1-10	0.594	0.0844	7.04	.0000	0.7336	0.4543
Op-2-10	0.386	0.1925	2.01	.0465	0.7048	0.0678
Op-1-12	-0.078	0.0827	-0.95	.3454	0.0586	-0.2151
Op-2-12	-0.233	0.1925	-1.21	.2276	0.0853	-0.5516

Paired comparisons of least square means between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period	0.1879	0.0833	2.257	.0254	0.3256	0.0501

Paired comparisons of least square means among stations between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Station 04	0.0864	0.2642	0.33	.7441	0.5234	-0.3507
Station 05	0.1189	0.2181	0.55	.5863	0.4797	-0.2419
Station 06	0.2142	0.2095	1.02	.3081	0.5609	-0.1324
Station 08	0.3489	0.2095	1.67	.0978	0.6956	0.0023
Station 09	0.1842	0.2155	0.85	.3940	0.5407	-0.1723
Station 10	0.2077	0.2102	0.99	.3246	0.5554	-0.1401
Station 12	0.1549	0.2095	0.74	.4609	0.5015	-0.1918

Station-period means and deltas from original data where control n=2

Station-Period		N	Station Mean	Range	Standard Error	Upper 95% c.i.	Lower 95% c.i.	Mean Delta	Delta Range	Upper 95% CIi.	Lower 95% C.I.
04	Op-1	17	2.86	5.40	0.360	3.62	2.10	-2.18	5.10	-1.44	-2.92
04	Op-2	4	1.20	0.80	0.163	1.72	0.68	-0.98	0.40	-0.65	-1.30
05	Op-1	17	1.22	3.40	0.198	1.64	0.80	-0.55	3.50	-0.09	-1.00
05	Op-2	5	0.80	1.60	0.276	1.57	0.03	-0.44	1.10	0.09	-0.97
06	Op-1	26	1.25	3.60	0.144	1.54	0.95	-0.63	3.80	-0.31	-0.95
06	Op-2	5	1.56	2.60	0.500	2.95	0.17	-1.20	2.20	0.04	-2.44
08	Op-1	26	1.03	3.20	0.137	1.31	0.75	-0.42	4.00	-0.09	-0.74
08	Op-2	5	1.24	1.40	0.264	1.97	0.51	-0.88	1.90	0.05	-1.81
09	Op-1	19	3.26	9.20	0.597	4.52	2.01	-2.61	9.30	-1.31	-3.90
09	Op-2	5	1.48	0.80	0.150	1.90	1.06	-1.12	0.50	-0.80	-1.44
10	Op-1	25	0.13	1.20	0.054	0.24	0.02	0.48	2.30	0.67	0.28
10	Op-2	5	0.08	0.40	0.080	0.30	-0.14	0.28	0.90	0.76	-0.20
12	Op-1	26	0.92	3.20	0.155	1.24	0.60	-0.31	4.30	0.05	-0.67
12	Op-2	5	0.72	1.80	0.338	1.66	-0.22	-0.36	0.90	0.16	-0.88

Period means and deltas from original control data where n=2

Period	N	Station Mean	Range	Standard Error	Upper 95% C.I.	Lower 95% C.I.
Op-1	26	0.62	1.70	0.075	0.77	0.46
Op-2	5	0.36	0.90	0.169	0.83	-0.11

Analysis of Variance for HBT for 0397 - Pachygrapsus crassipes

Stations = 4, 5, 6, 8, 9, 10, 12 level +3 ft MLLW

Data transformed using log base10(x + .1)

Results for Analysis of Variance

Source	Source df	Error df	F-value	Prob.
PERIOD	1	162.000	0.39	0.5349
SEASON	1	162.000	18.81	0.0000
STATION	6	162.000	10.80	0.0000
PERIOD*SEASON	1	162.000	5.18	0.0241
STATION*PERIOD	6	162.000	1.67	0.1322
STATION*SEASON	6	162.000	1.07	0.3804
PERIOD*STATION*SEASON	6	162.000	1.31	0.2556

Results for Power Analysis
Power at alpha = .1

Source	Non-Centrality Parameter	Adjusted non-Centrality Parameter	Power	Adjusted Power	Power to Detect 50% Change
PERIOD	0.39	0.00	0.1643	.	0.9987
STATION*PERIOD	10.00	3.88	0.7404	0.3705	0.1254

Estimates for contrasts on combinations of interaction terms

Source	Difference	Std. Err.	T-value	Prob.
Period in DC	-0.0741	0.4136	-0.179	.8580
Period in FC	0.4290	0.3932	1.091	.2769
Period in FC-S	1.2339	0.4757	2.594	.0104
Period in FC-W	-0.3759	0.6262	-0.600	.5491
Period in DC-S	0.4202	0.5345	0.786	.4329
Period in DC-W	-0.5684	0.6313	-0.900	.3693

Least square means & confidence intervals from analysis of variance

Source	LS Mean	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period Op-1	-0.156	0.0337	-4.62	.0000	-0.1001	-0.2116
Period Op-2	-0.207	0.0742	-2.78	.0060	-0.0837	-0.3293
Op-1-04	-0.157	0.1003	-1.56	.1198	0.0091	-0.3229
Op-2-04	-0.236	0.2384	-0.99	.3232	0.1582	-0.6307
Op-1-05	-0.217	0.1003	-2.16	.0322	-0.0507	-0.3827
Op-2-05	-0.487	0.1885	-2.58	.0106	-0.1753	-0.7990
Op-1-06	-0.065	0.0810	-0.81	.4203	0.0685	-0.1994
Op-2-06	-0.145	0.1885	-0.77	.4441	0.1672	-0.4564
Op-1-08	-0.266	0.0810	-3.29	.0012	-0.1323	-0.4002
Op-2-08	-0.478	0.1885	-2.54	.0122	-0.1660	-0.7897
Op-1-09	-0.526	0.0949	-5.54	.0000	-0.3686	-0.6825
Op-2-09	-0.850	0.1885	-4.51	.0000	-0.5386	-1.1623
Op-1-10	0.164	0.0827	1.98	.0494	0.3004	0.0269
Op-2-10	0.584	0.1885	3.10	.0023	0.8954	0.2718
Op-1-12	-0.024	0.0810	-0.29	.7705	0.1103	-0.1577
Op-2-12	0.167	0.1885	0.89	.3769	0.4788	-0.1448

Paired comparisons of least square means between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period	0.0507	0.0815	0.622	.5349	0.1856	-0.0842

Paired comparisons of least square means among stations between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Station 04	0.0794	0.2587	0.31	.7593	0.5073	-0.3486
Station 05	0.2704	0.2135	1.27	.2072	0.6237	-0.0828
Station 06	0.0792	0.2052	0.39	.7001	0.4186	-0.2602
Station 08	0.2116	0.2052	1.03	.3039	0.5510	-0.1278
Station 09	0.3249	0.2110	1.54	.1256	0.6740	-0.0242
Station 10	-0.4200	0.2058	-2.04	.0429	-0.0795	-0.7605
Station 12	-0.1907	0.2052	-0.93	.3540	0.1487	-0.5301

Station-period means and deltas from original data where control n=2

Station	Period	N	Station Mean	Range	Standard Error	Upper 95% c.i.	Lower 95% c.i.	Mean Delta	Delta Range	Upper 95% CIi.	Lower 95% C.I.
04	Op-1	17	1.16	3.40	0.228	1.65	0.68	-0.52	2.70	-0.05	-0.98
04	Op-2	4	1.45	2.60	0.640	3.49	-0.59	-1.08	2.80	0.97	-3.12
05	Op-1	17	1.53	4.00	0.298	2.16	0.90	-0.88	3.20	-0.33	-1.44
05	Op-2	5	1.76	1.80	0.319	2.64	0.88	-1.30	1.80	-0.43	-2.17
06	Op-1	26	0.76	2.80	0.121	1.01	0.51	-0.20	2.90	0.06	-0.46
06	Op-2	5	1.24	2.40	0.462	2.52	-0.04	-0.78	2.90	0.72	-2.28
08	Op-1	26	1.25	3.80	0.199	1.66	0.84	-0.69	3.30	-0.31	-1.07
08	Op-2	5	2.32	3.20	0.641	4.10	0.54	-1.86	3.20	0.10	-3.82
09	Op-1	19	2.36	6.60	0.361	3.12	1.60	-1.77	6.00	-1.05	-2.49
09	Op-2	5	4.32	4.80	0.878	6.76	1.88	-3.86	5.10	-1.40	-6.32
10	Op-1	25	0.47	1.60	0.097	0.67	0.27	0.10	2.90	0.35	-0.15
10	Op-2	5	0.08	0.20	0.049	0.22	-0.06	0.38	0.80	0.79	-0.03
12	Op-1	26	0.65	2.20	0.100	0.86	0.45	-0.09	2.70	0.14	-0.33
12	Op-2	5	0.36	1.00	0.172	0.84	-0.12	0.10	1.10	0.62	-0.42

Period means and deltas from original control data where n=2

Period	N	Station Mean	Range	Standard Error	Upper 95% C.I.	Lower 95% C.I.
Op-1	26	0.56	1.40	0.079	0.72	0.40
Op-2	5	0.46	0.60	0.103	0.75	0.17

Analysis of Variance for HBT for 0398 - Pagurus spp.

Stations = 4, 5, 6, 8, 9, 10, 12 level +3 ft MLLW

Data not transformed.

Results for Analysis of Variance

Source	Source df	Error df	F-value	Prob.
PERIOD	1	162.000	2.12	0.1469
SEASON	1	162.000	5.54	0.0198
STATION	6	162.000	9.92	0.0000
PERIOD*SEASON	1	162.000	0.39	0.5325
STATION*PERIOD	6	162.000	2.09	0.0566
STATION*SEASON	6	162.000	2.78	0.0134
PERIOD*STATION*SEASON	6	162.000	1.44	0.2013

Results for Power Analysis
Power at alpha = .1

Source	Non-Centrality Parameter	Adjusted non-Centrality Parameter	Power	Adjusted Power	Power to Detect 50% Change
PERIOD	2.12	1.10	0.4244	0.2775	0.9998
STATION*PERIOD	12.57	6.41	0.8355	0.5456	0.5246

Estimates for contrasts on combinations of interaction terms

Source	Difference	Std. Err.	T-value	Prob.
Period in DC	-3.5786	15.1843	-0.236	.8140
Period in FC	34.1188	14.4348	2.364	.0193
Period in FC-S	13.1487	17.4641	0.753	.4526
Period in FC-W	55.0889	22.9883	2.396	.0177
Period in DC-S	4.2846	19.6227	0.218	.8274
Period in DC-W	-11.4418	23.1777	-0.494	.6222

Least square means & confidence intervals from analysis of variance

Source	LS Mean	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period Op-1	-0.323	1.2372	-0.26	.7945	1.7238	-2.3695
Period Op-2	-4.686	2.7253	-1.72	.0875	-0.1772	-9.1942
Op-1-04	-14.778	3.6834	-4.01	.0001	-8.6849	-20.8720
Op-2-04	-47.483	8.7531	-5.42	.0000	-33.0029	-61.9638
Op-1-05	11.523	3.6834	3.13	.0021	17.6165	5.4294
Op-2-05	6.325	6.9200	0.91	.3621	17.7728	-5.1228
Op-1-06	0.008	2.9733	0.00	.9979	4.9264	-4.9111
Op-2-06	3.792	6.9200	0.55	.5845	15.2394	-7.6561
Op-1-08	7.792	2.9733	2.62	.0096	12.7111	2.8736
Op-2-08	5.392	6.9200	0.78	.4370	16.8394	-6.0561
Op-1-09	0.282	3.4830	0.08	.9356	6.0436	-5.4803
Op-2-09	-2.075	6.9200	-0.30	.7647	9.3728	-13.5228
Op-1-10	3.299	3.0346	1.09	.2786	8.3189	-1.7215
Op-2-10	8.992	6.9200	1.30	.1957	20.4394	-2.4561
Op-1-12	-10.385	2.9733	-3.49	.0006	-5.4659	-15.3034
Op-2-12	-7.742	6.9200	-1.12	.2649	3.7061	-19.1894

Paired comparisons of least square means between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period	4.3629	2.9929	1.458	.1469	9.3142	-0.5884

Paired comparisons of least square means among stations between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Station 04	32.7049	9.4966	3.44	.0007	48.4152	16.9945
Station 05	5.1979	7.8392	0.66	.5082	18.1665	-7.7706
Station 06	-3.7840	7.5317	-0.50	.6161	8.6758	-16.2437
Station 08	2.4006	7.5317	0.32	.7503	14.8604	-10.0591
Station 09	2.3567	7.7471	0.30	.7614	15.1727	-10.4594
Station 10	-5.6929	7.5561	-0.75	.4523	6.8072	-18.1931
Station 12	-2.6429	7.5317	-0.35	.7261	9.8168	-15.1027

Station-period means and deltas from original data where control n=2

Station-Period	N	Station Mean	Range	Standard Error	Upper 95% c.i.	Lower 95% c.i.	Mean Delta	Delta Range	Upper 95% CIi.	Lower 95% C.I.
04 Op-1	17	35.26	52.40	3.386	42.44	28.08	-15.21	62.70	-6.85	-23.56
04 Op-2	4	49.40	75.80	18.308	107.66	-8.86	-31.08	67.80	21.35	-83.50
05 Op-1	17	8.75	14.60	1.026	10.93	6.58	11.30	40.90	17.55	5.05
05 Op-2	5	9.04	9.60	1.636	13.58	4.50	7.02	26.90	19.71	-5.67
06 Op-1	26	16.50	25.00	1.544	19.68	13.32	0.01	42.40	4.57	-4.56
06 Op-2	5	12.04	17.00	3.303	21.21	2.87	4.02	20.20	13.32	-5.28
08 Op-1	26	8.72	20.80	0.979	10.73	6.70	7.79	25.90	10.76	4.83
08 Op-2	5	11.64	25.60	4.624	24.48	-1.20	4.42	37.70	23.36	-14.52
09 Op-1	19	18.83	80.80	4.312	27.89	9.77	0.17	68.40	8.17	-7.84
09 Op-2	5	18.24	18.20	3.276	27.33	9.15	-2.18	34.90	14.12	-18.48
10 Op-1	25	13.62	40.40	1.966	17.67	9.56	3.32	56.80	10.28	-3.64
10 Op-2	5	7.52	12.60	2.020	13.13	1.91	8.54	22.10	21.61	-4.53
12 Op-1	26	26.89	125.40	5.269	37.74	16.04	-10.38	119.20	-0.96	-19.81
12 Op-2	5	23.52	13.00	2.171	29.55	17.49	-7.46	21.70	4.03	-18.95

Period means and deltas from original control data where n=2

Period	N	Station Mean	Range	Standard Error	Upper 95% C.I.	Lower 95% C.I.
Op-1	26	16.51	30.00	1.915	20.45	12.56
Op-2	5	16.06	17.30	3.555	25.93	6.19

Analysis of Variance for HBT for 0735 - Phragmatopoma californica

Stations = 4, 5, 6, 8, 9, 10, 12 level +3 ft MLLW

Data transformed using arcsin.

Results for Analysis of Variance

Source	Source df	Error df	F-value	Prob.
PERIOD	1	162.000	24.61	0.0000
SEASON	1	162.000	0.29	0.5927
STATION	6	162.000	7.30	0.0000
PERIOD*SEASON	1	162.000	0.01	0.9104
STATION*PERIOD	6	162.000	3.02	0.0081
STATION*SEASON	6	162.000	1.32	0.2510
PERIOD*STATION*SEASON	6	162.000	0.27	0.9519

Results for Power Analysis
Power at alpha = .1

Source	Non-Centrality Parameter	Adjusted non-Centrality Parameter	Power	Adjusted Power	Power to Detect 50% Change
PERIOD	24.61	23.30	0.9995	0.9992	0.9899
STATION*PERIOD	18.09	11.87	0.9458	0.8129	0.5645

Estimates for contrasts on combinations of interaction terms

Source	Difference	Std. Err.	T-value	Prob.
Period in DC	-4.9397	1.6444	-3.004	.0031
Period in FC	-6.3152	1.5632	-4.040	.0001
Period in FC-S	-6.9038	1.8913	-3.650	.0004
Period in FC-W	-5.7266	2.4896	-2.300	.0227
Period in DC-S	-4.6069	2.1251	-2.168	.0316
Period in DC-W	-5.2725	2.5101	-2.101	.0372

Least square means & confidence intervals from analysis of variance

Source	LS Mean	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period Op-1	-1.815	0.1340	-13.54	.0000	-1.5930	-2.0363
Period Op-2	-0.207	0.2951	-0.70	.4844	0.2814	-0.6951
Op-1-04	-4.238	0.3989	-10.62	.0000	-3.5781	-4.8979
Op-2-04	-0.000	0.9479	-0.00	1.000	1.5682	-1.5682
Op-1-05	-2.295	0.3989	-5.75	.0000	-1.6350	-2.9548
Op-2-05	-0.649	0.7494	-0.87	.3880	0.5910	-1.8885
Op-1-06	-2.180	0.3220	-6.77	.0000	-1.6469	-2.7122
Op-2-06	-1.749	0.7494	-2.33	.0209	-0.5088	-2.9883
Op-1-08	-3.476	0.3220	-10.80	.0000	-2.9433	-4.0087
Op-2-08	-0.479	0.7494	-0.64	.5238	0.7610	-1.7185
Op-1-09	-1.038	0.3772	-2.75	.0066	-0.4142	-1.6622
Op-2-09	0.654	0.7494	0.87	.3841	1.8938	-0.5857
Op-1-10	-0.251	0.3286	-0.76	.4463	0.2928	-0.7946
Op-2-10	0.120	0.7494	0.16	.8729	1.3598	-1.1197
Op-1-12	0.775	0.3220	2.41	.0173	1.3074	0.2420
Op-2-12	0.654	0.7494	0.87	.3841	1.8938	-0.5857

Paired comparisons of least square means between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period	-1.6078	0.3241	-4.961	.0000	-1.0716	-2.1440

Paired comparisons of least square means among stations between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Station 04	-4.2380	1.0284	-4.12	.0001	-2.5366	-5.9394
Station 05	-1.6462	0.8490	-1.94	.0542	-0.2417	-3.0506
Station 06	-0.4310	0.8157	-0.53	.5980	0.9184	-1.7803
Station 08	-2.9972	0.8157	-3.67	.0003	-1.6478	-4.3465
Station 09	-1.6922	0.8390	-2.02	.0453	-0.3043	-3.0802
Station 10	-0.3710	0.8183	-0.45	.6509	0.9828	-1.7247
Station 12	0.1207	0.8157	0.15	.8826	1.4700	-1.2287

Station-period means and deltas from original data where control n=2

Station	Period	N	Station Mean	Range	Standard Error	Upper 95% c.i.	Lower 95% c.i.	Mean Delta	Delta Range	Upper 95% CIi.	Lower 95% C.I.
04	Op-1	17	0.93	2.22	0.165	1.28	0.58	-0.89	2.19	-0.56	-1.23
04	Op-2	4	0.00	0.00	0.000	.	.	0.00	0.00	.	.
05	Op-1	17	0.36	1.74	0.098	0.57	0.16	-0.32	1.63	-0.12	-0.52
05	Op-2	5	0.10	0.42	0.081	0.32	-0.13	-0.06	0.21	0.06	-0.17
06	Op-1	26	0.36	1.04	0.060	0.48	0.23	-0.32	0.94	-0.20	-0.43
06	Op-2	5	0.28	1.11	0.211	0.86	-0.31	-0.24	0.90	0.23	-0.71
08	Op-1	26	0.73	2.01	0.114	0.96	0.49	-0.69	1.94	-0.46	-0.92
08	Op-2	5	0.07	0.28	0.054	0.22	-0.08	-0.03	0.42	0.16	-0.22
09	Op-1	19	0.22	0.97	0.072	0.37	0.07	-0.18	1.11	-0.03	-0.33
09	Op-2	5	0.00	0.00	0.000	.	.	0.04	0.21	0.16	-0.07
10	Op-1	25	0.10	0.49	0.032	0.17	0.03	-0.06	0.66	0.01	-0.13
10	Op-2	5	0.03	0.14	0.028	0.10	-0.05	0.01	0.07	0.05	-0.02
12	Op-1	26	0.00	0.00	0.000	.	.	0.04	0.24	0.06	0.02
12	Op-2	5	0.00	0.00	0.000	.	.	0.04	0.21	0.16	-0.07

Period means and deltas from original control data where n=2

Period	N	Station Mean	Range	Standard Error	Upper 95% C.I.	Lower 95% C.I.
Op-1	26	0.04	0.24	0.011	0.06	0.02
Op-2	5	0.04	0.21	0.042	0.16	-0.07

Analysis of Variance for HBT for 0389 - Pista spp.

Stations = 4, 5, 6, 8, 9, 10, 12 level +3 ft MLLW

Data not transformed.

Results for Analysis of Variance

Source	Source df	Error df	F-value	Prob.
PERIOD	1	162.000	21.53	0.0000
SEASON	1	162.000	0.58	0.4466
STATION	6	162.000	36.50	0.0000
PERIOD*SEASON	1	162.000	1.23	0.2697
STATION*PERIOD	6	162.000	23.36	0.0000
STATION*SEASON	6	162.000	0.63	0.7047
PERIOD*STATION*SEASON	6	162.000	1.33	0.2460

Results for Power Analysis
Power at alpha = .1

Source	Non-Centrality Parameter	Adjusted non-Centrality Parameter	Power	Adjusted Power	Power to Detect 50% Change
PERIOD	21.53	20.26	0.9985	0.9977	0.1411
STATION*PERIOD	140.18	132.45	1.0000	1.0000	0.2106

Estimates for contrasts on combinations of interaction terms

Source	Difference	Std. Err.	T-value	Prob.
Period in DC	1.7800	0.2780	6.402	.0000
Period in FC	0.0000	0.2643	0.000	1.000
Period in FC-S	-0.0000	0.3198	-0.000	1.000
Period in FC-W	0.0000	0.4209	0.000	1.000
Period in DC-S	1.3551	0.3593	3.771	.0002
Period in DC-W	2.2049	0.4244	5.195	.0000

Least square means & confidence intervals from analysis of variance

Source	LS Mean	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period Op-1	-0.032	0.0227	-1.40	.1627	0.0057	-0.0692
Period Op-2	-0.286	0.0499	-5.73	.0000	-0.2035	-0.3686
Op-1-04	-0.000	0.0674	-0.00	1.000	0.1116	-0.1116
Op-2-04	-0.000	0.1603	-0.00	1.000	0.2651	-0.2651
Op-1-05	-0.000	0.0674	-0.00	1.000	0.1116	-0.1116
Op-2-05	-0.000	0.1267	-0.00	1.000	0.2096	-0.2096
Op-1-06	-0.000	0.0544	-0.00	1.000	0.0901	-0.0901
Op-2-06	-0.000	0.1267	-0.00	1.000	0.2096	-0.2096
Op-1-08	-0.000	0.0544	-0.00	1.000	0.0901	-0.0901
Op-2-08	-0.000	0.1267	-0.00	1.000	0.2096	-0.2096
Op-1-09	-0.000	0.0638	-0.00	1.000	0.1055	-0.1055
Op-2-09	0.000	0.1267	0.00	1.000	0.2096	-0.2096
Op-1-10	-0.222	0.0556	-4.00	.0001	-0.1304	-0.3143
Op-2-10	-2.002	0.1267	-15.80	.0000	-1.7927	-2.2119
Op-1-12	-0.000	0.0544	-0.00	1.000	0.0901	-0.0901
Op-2-12	0.000	0.1267	0.00	1.000	0.2096	-0.2096

Paired comparisons of least square means between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period	0.2543	0.0548	4.640	.0000	0.3449	0.1636

Paired comparisons of least square means among stations between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Station 04	0.0000	0.1739	0.00	1.000	0.2877	-0.2877
Station 05	0.0000	0.1435	0.00	1.000	0.2375	-0.2375
Station 06	0.0000	0.1379	0.00	1.000	0.2281	-0.2281
Station 08	-0.0000	0.1379	-0.00	1.000	0.2281	-0.2281
Station 09	-0.0000	0.1418	-0.00	1.000	0.2347	-0.2347
Station 10	1.7800	0.1384	12.87	.0000	2.0088	1.5511
Station 12	-0.0000	0.1379	-0.00	1.000	0.2281	-0.2281

Station-period means and deltas from original data where control n=2

Station-Period	N	Station Mean	Range	Standard Error	Upper 95% c.i.	Lower 95% c.i.	Mean Delta	Delta Range	Upper 95% CIi.	Lower 95% C.I.
04 Op-1	17	0.00	0.00	0.000	.	.	0.00	0.00	.	.
04 Op-2	4	0.00	0.00	0.000	.	.	0.00	0.00	.	.
05 Op-1	17	0.00	0.00	0.000	.	.	0.00	0.00	.	.
05 Op-2	5	0.00	0.00	0.000	.	.	0.00	0.00	.	.
06 Op-1	26	0.00	0.00	0.000	.	.	0.00	0.00	.	.
06 Op-2	5	0.00	0.00	0.000	.	.	0.00	0.00	.	.
08 Op-1	26	0.00	0.00	0.000	.	.	0.00	0.00	.	.
08 Op-2	5	0.00	0.00	0.000	.	.	0.00	0.00	.	.
09 Op-1	19	0.00	0.00	0.000	.	.	0.00	0.00	.	.
09 Op-2	5	0.00	0.00	0.000	.	.	0.00	0.00	.	.
10 Op-1	25	0.22	3.12	0.142	0.52	-0.07	-0.22	3.12	0.07	-0.52
10 Op-2	5	1.93	1.32	0.230	2.57	1.29	-1.93	1.32	-1.29	-2.57
12 Op-1	26	0.00	0.00	0.000	.	.	0.00	0.00	.	.
12 Op-2	5	0.00	0.00	0.000	.	.	0.00	0.00	.	.

Period means and deltas from original control data where n=2

Period	N	Station Mean	Range	Standard Error	Upper 95% C.I.	Lower 95% C.I.
Op-1	26	0.00	0.00	0.000	.	.
Op-2	5	0.00	0.00	0.000	.	.

Analysis of Variance for HBT for 0400 - Pollicipes polymerus

Stations = 4, 5, 6, 8, 9, 10, 12 level +3 ft MLLW

Data transformed using 1/(x + .1)

Results for Analysis of Variance

Source	Source df	Error df	F-value	Prob.
PERIOD	1	162.000	22.33	0.0000
SEASON	1	162.000	0.06	0.8127
STATION	6	162.000	13.84	0.0000
PERIOD*SEASON	1	162.000	1.40	0.2382
STATION*PERIOD	6	162.000	0.30	0.9337
STATION*SEASON	6	162.000	0.28	0.9442
PERIOD*STATION*SEASON	6	162.000	0.24	0.9640

Results for Power Analysis
Power at alpha = .1

Source	Non-Centrality Parameter	Adjusted non-Centrality Parameter	Power	Adjusted Power	Power to Detect 50% Change
PERIOD	22.33	21.05	0.9989	0.9983	0.1475
STATION*PERIOD	1.83	0.00	0.2210	.	0.1253

Estimates for contrasts on combinations of interaction terms

Source	Difference	Std. Err.	T-value	Prob.
Period in DC	17.4007	4.0997	4.244	.0000
Period in FC	9.3290	3.8974	2.394	.0178
Period in FC-S	11.0812	4.7153	2.350	.0200
Period in FC-W	7.5767	6.2068	1.221	.2240
Period in DC-S	22.3445	5.2981	4.217	.0000
Period in DC-W	12.4569	6.2579	1.991	.0482

Least square means & confidence intervals from analysis of variance

Source	LS Mean	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period Op-1	-2.828	0.3340	-8.47	.0000	-2.2756	-3.3808
Period Op-2	-6.647	0.7358	-9.03	.0000	-5.4294	-7.8640
Op-1-04	-6.842	0.9945	-6.88	.0000	-5.1964	-8.4869
Op-2-04	-9.316	2.3633	-3.94	.0001	-5.4064	-13.2258
Op-1-05	0.323	0.9945	0.32	.7456	1.9684	-1.3221
Op-2-05	-2.275	1.8684	-1.22	.2252	0.8160	-5.3657
Op-1-06	-5.143	0.8028	-6.41	.0000	-3.8152	-6.4713
Op-2-06	-9.400	1.8684	-5.03	.0000	-6.3089	-12.4906
Op-1-08	-5.143	0.8028	-6.41	.0000	-3.8152	-6.4713
Op-2-08	-9.400	1.8684	-5.03	.0000	-6.3089	-12.4906
Op-1-09	-1.237	0.9404	-1.32	.1902	0.3187	-2.7927
Op-2-09	-7.178	1.8684	-3.84	.0002	-4.0866	-10.2684
Op-1-10	-5.378	0.8193	-6.56	.0000	-4.0228	-6.7337
Op-2-10	-9.400	1.8684	-5.03	.0000	-6.3089	-12.4906
Op-1-12	3.623	0.8028	4.51	.0000	4.9510	2.2949
Op-2-12	0.441	1.8684	0.24	.8138	3.5317	-2.6501

Paired comparisons of least square means between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period	3.8185	0.8081	4.725	.0000	5.1553	2.4817

Paired comparisons of least square means among stations between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Station 04	2.4744	2.5641	0.97	.3360	6.7162	-1.7673
Station 05	2.5980	2.1166	1.23	.2214	6.0995	-0.9035
Station 06	4.2565	2.0335	2.09	.0379	7.6206	0.8924
Station 08	4.2565	2.0335	2.09	.0379	7.6206	0.8924
Station 09	5.9405	2.0917	2.84	.0051	9.4008	2.4802
Station 10	4.0215	2.0401	1.97	.0504	7.3965	0.6465
Station 12	3.1822	2.0335	1.56	.1196	6.5463	-0.1819

Station-period means and deltas from original data where control n=2

Station	Period	N	Station Mean	Range	Standard Error	Upper 95% c.i.	Lower 95% c.i.	Mean Delta	Delta Range	Upper 95% CIi.	Lower 95% C.I.
04	Op-1	17	0.00	0.00	0.000	.	.	0.74	2.00	1.10	0.37
04	Op-2	4	0.00	0.00	0.000	.	.	1.53	0.70	2.13	0.92
05	Op-1	17	1.79	11.20	0.682	3.23	0.34	-1.05	12.70	0.53	-2.63
05	Op-2	5	1.16	2.80	0.595	2.81	-0.49	0.50	3.00	2.18	-1.18
06	Op-1	26	0.00	0.00	0.000	.	.	0.50	2.00	0.77	0.23
06	Op-2	5	0.00	0.00	0.000	.	.	1.66	1.00	2.21	1.11
08	Op-1	26	0.00	0.00	0.000	.	.	0.50	2.00	0.77	0.23
08	Op-2	5	0.00	0.00	0.000	.	.	1.66	1.00	2.21	1.11
09	Op-1	19	0.38	1.40	0.098	0.58	0.17	0.28	2.80	0.72	-0.15
09	Op-2	5	0.16	0.80	0.160	0.60	-0.28	1.50	0.70	1.91	1.09
10	Op-1	25	0.00	0.00	0.000	.	.	0.52	2.00	0.79	0.25
10	Op-2	5	0.00	0.00	0.000	.	.	1.66	1.00	2.21	1.11
12	Op-1	26	6.43	23.60	1.128	8.75	4.11	-5.93	23.40	-3.69	-8.17
12	Op-2	5	6.60	3.80	0.812	8.86	4.34	-4.94	3.70	-2.86	-7.02

Period means and deltas from original control data where n=2

Period	N	Station Mean	Range	Standard Error	Upper 95% C.I.	Lower 95% C.I.
Op-1	26	0.50	2.00	0.129	0.77	0.23
Op-2	5	1.66	1.00	0.199	2.21	1.11

Analysis of Variance for HBT for 0492 - Porifera unid. (encrusting)

Stations = 4, 5, 6, 8, 9, 10, 12 level +3 ft MLLW

Data transformed using arcsin.

Results for Analysis of Variance

Source	Source df	Error df	F-value	Prob.
PERIOD	1	162.000	0.16	0.6891
SEASON	1	162.000	0.16	0.6891
STATION	6	162.000	0.17	0.9834
PERIOD*SEASON	1	162.000	0.16	0.6891
STATION*PERIOD	6	162.000	0.17	0.9834
STATION*SEASON	6	162.000	0.17	0.9834
PERIOD*STATION*SEASON	6	162.000	0.17	0.9834

Results for Power Analysis
Power at alpha = .1

Source	Non-Centrality Parameter	Adjusted non-Centrality Parameter	Power	Adjusted Power	Power to Detect 50% Change
PERIOD	0.16	0.00	0.1269	.	0.1068
STATION*PERIOD	1.05	0.00	0.1667	.	0.1167

Estimates for contrasts on combinations of interaction terms

Source	Difference	Std. Err.	T-value	Prob.
Period in DC	-0.0629	0.1138	-0.553	.5810
Period in FC	-0.0000	0.1082	-0.000	1.000
Period in FC-S	0.0000	0.1308	0.000	1.000
Period in FC-W	-0.0000	0.1722	-0.000	1.000
Period in DC-S	-0.0000	0.1470	-0.000	1.000
Period in DC-W	-0.1258	0.1737	-0.725	.4697

Least square means & confidence intervals from analysis of variance

Source	LS Mean	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period Op-1	-0.009	0.0093	-0.97	.3336	0.0063	-0.0243
Period Op-2	0.000	0.0204	0.00	1.000	0.0338	-0.0338
Op-1-04	0.000	0.0276	0.00	1.000	0.0457	-0.0457
Op-2-04	0.000	0.0656	0.00	1.000	0.1085	-0.1085
Op-1-05	0.000	0.0276	0.00	1.000	0.0457	-0.0457
Op-2-05	0.000	0.0518	0.00	1.000	0.0858	-0.0858
Op-1-06	0.000	0.0223	0.00	1.000	0.0369	-0.0369
Op-2-06	0.000	0.0518	0.00	1.000	0.0858	-0.0858
Op-1-08	0.000	0.0223	0.00	1.000	0.0369	-0.0369
Op-2-08	0.000	0.0518	0.00	1.000	0.0858	-0.0858
Op-1-09	0.000	0.0261	0.00	1.000	0.0432	-0.0432
Op-2-09	-0.000	0.0518	-0.00	1.000	0.0858	-0.0858
Op-1-10	-0.063	0.0227	-2.77	.0063	-0.0253	-0.1005
Op-2-10	0.000	0.0518	0.00	1.000	0.0858	-0.0858
Op-1-12	0.000	0.0223	0.00	1.000	0.0369	-0.0369
Op-2-12	-0.000	0.0518	-0.00	1.000	0.0858	-0.0858

Paired comparisons of least square means between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period	-0.0090	0.0224	-0.401	.6891	0.0281	-0.0461

Paired comparisons of least square means among stations between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Station 04	-0.0000	0.0712	-0.00	1.000	0.1177	-0.1177
Station 05	-0.0000	0.0587	-0.00	1.000	0.0972	-0.0972
Station 06	-0.0000	0.0564	-0.00	1.000	0.0934	-0.0934
Station 08	-0.0000	0.0564	-0.00	1.000	0.0934	-0.0934
Station 09	0.0000	0.0580	0.00	1.000	0.0960	-0.0960
Station 10	-0.0629	0.0566	-1.11	.2680	0.0307	-0.1566
Station 12	0.0000	0.0564	0.00	1.000	0.0934	-0.0934

Station-period means and deltas from original data where control n=2

Station-Period	N	Station Mean	Range	Standard Error	Upper 95% c.i.	Lower 95% c.i.	Mean Delta	Delta Range	Upper 95% CIi.	Lower 95% C.I.
04 Op-1	17	0.00	0.00	0.000	.	.	0.00	0.00	.	.
04 Op-2	4	0.00	0.00	0.000	.	.	0.00	0.00	.	.
05 Op-1	17	0.00	0.00	0.000	.	.	0.00	0.00	.	.
05 Op-2	5	0.00	0.00	0.000	.	.	0.00	0.00	.	.
06 Op-1	26	0.00	0.00	0.000	.	.	0.00	0.00	.	.
06 Op-2	5	0.00	0.00	0.000	.	.	0.00	0.00	.	.
08 Op-1	26	0.00	0.00	0.000	.	.	0.00	0.00	.	.
08 Op-2	5	0.00	0.00	0.000	.	.	0.00	0.00	.	.
09 Op-1	19	0.00	0.00	0.000	.	.	0.00	0.00	.	.
09 Op-2	5	0.00	0.00	0.000	.	.	0.00	0.00	.	.
10 Op-1	25	0.00	0.07	0.003	0.01	-0.00	-0.00	0.07	0.00	-0.01
10 Op-2	5	0.00	0.00	0.000	.	.	0.00	0.00	.	.
12 Op-1	26	0.00	0.00	0.000	.	.	0.00	0.00	.	.
12 Op-2	5	0.00	0.00	0.000	.	.	0.00	0.00	.	.

Period means and deltas from original control data where n=2

Period	N	Station Mean	Range	Standard Error	Upper 95% C.I.	Lower 95% C.I.
Op-1	26	0.00	0.00	0.000	.	.
Op-2	5	0.00	0.00	0.000	.	.

Analysis of Variance for HBT for 1120 - Spirorbidae

Stations = 4, 5, 6, 8, 9, 10, 12 level +3 ft MLLW

Data transformed using arcsin.

Results for Analysis of Variance

Source	Source df	Error df	F-value	Prob.
PERIOD	1	162.000	5.71	0.0180
SEASON	1	162.000	7.30	0.0076
STATION	6	162.000	0.89	0.5057
PERIOD*SEASON	1	162.000	7.36	0.0074
STATION*PERIOD	6	162.000	0.28	0.9476
STATION*SEASON	6	162.000	0.86	0.5294
PERIOD*STATION*SEASON	6	162.000	0.41	0.8686

Results for Power Analysis
Power at alpha = .1

Source	Non-Centrality Parameter	Adjusted non-Centrality Parameter	Power	Adjusted Power	Power to Detect 50% Change
PERIOD	5.71	4.64	0.7689	0.6918	0.1373
STATION*PERIOD	1.66	0.00	0.2088	.	0.1137

Estimates for contrasts on combinations of interaction terms

Source	Difference	Std. Err.	T-value	Prob.
Period in DC	-0.8992	0.4346	-2.069	.0401
Period in FC	-0.5339	0.4131	-1.292	.1981
Period in FC-S	-1.0677	0.4998	-2.136	.0342
Period in FC-W	-0.0000	0.6579	-0.000	1.000
Period in DC-S	-1.9915	0.5616	-3.546	.0005
Period in DC-W	0.1931	0.6633	0.291	.7714

Least square means & confidence intervals from analysis of variance

Source	LS Mean	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period Op-1	-0.081	0.0354	-2.28	.0239	-0.0221	-0.1393
Period Op-2	0.124	0.0780	1.59	.1138	0.2530	-0.0050
Op-1-04	0.000	0.1054	0.00	1.000	0.1744	-0.1744
Op-2-04	0.178	0.2505	0.71	.4785	0.5924	-0.2365
Op-1-05	0.000	0.1054	0.00	1.000	0.1744	-0.1744
Op-2-05	0.178	0.1980	0.90	.3702	0.5056	-0.1497
Op-1-06	-0.000	0.0851	-0.00	1.000	0.1408	-0.1408
Op-2-06	0.178	0.1980	0.90	.3702	0.5056	-0.1497
Op-1-08	-0.058	0.0851	-0.68	.4959	0.0827	-0.1988
Op-2-08	0.178	0.1980	0.90	.3702	0.5056	-0.1497
Op-1-09	-0.168	0.0997	-1.68	.0943	-0.0029	-0.3327
Op-2-09	0.178	0.1980	0.90	.3702	0.5056	-0.1497
Op-1-10	-0.141	0.0868	-1.62	.1070	0.0029	-0.2844
Op-2-10	0.178	0.1980	0.90	.3702	0.5056	-0.1497
Op-1-12	-0.198	0.0851	-2.33	.0210	-0.0575	-0.3391
Op-2-12	-0.200	0.1980	-1.01	.3151	0.1281	-0.5272

Paired comparisons of least square means between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period	-0.2047	0.0857	-2.390	.0180	-0.0630	-0.3464

Paired comparisons of least square means among stations between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Station 04	-0.1780	0.2718	-0.65	.5135	0.2717	-0.6276
Station 05	-0.1780	0.2243	-0.79	.4288	0.1932	-0.5491
Station 06	-0.1780	0.2155	-0.83	.4103	0.1786	-0.5345
Station 08	-0.2360	0.2155	-1.10	.2751	0.1206	-0.5926
Station 09	-0.3457	0.2217	-1.56	.1209	0.0210	-0.7125
Station 10	-0.3187	0.2162	-1.47	.1425	0.0390	-0.6764
Station 12	0.0013	0.2155	0.01	.9953	0.3578	-0.3553

Station-period means and deltas from original data where control n=2

Station	Period	N	Station Mean	Range	Standard Error	Upper 95% c.i.	Lower 95% c.i.	Mean Delta	Delta Range	Upper 95% CIi.	Lower 95% C.I.
04	Op-1	17	0.00	0.00	0.000	.	.	0.00	0.00	.	.
04	Op-2	4	0.00	0.00	0.000	.	.	0.01	0.03	0.04	-0.02
05	Op-1	17	0.00	0.00	0.000	.	.	0.00	0.00	.	.
05	Op-2	5	0.00	0.00	0.000	.	.	0.01	0.03	0.03	-0.01
06	Op-1	26	0.00	0.00	0.000	.	.	0.00	0.00	.	.
06	Op-2	5	0.00	0.00	0.000	.	.	0.01	0.03	0.03	-0.01
08	Op-1	26	0.00	0.07	0.003	0.01	-0.00	-0.00	0.07	0.00	-0.01
08	Op-2	5	0.00	0.00	0.000	.	.	0.01	0.03	0.03	-0.01
09	Op-1	19	0.01	0.07	0.005	0.02	-0.00	-0.01	0.07	0.00	-0.02
09	Op-2	5	0.00	0.00	0.000	.	.	0.01	0.03	0.03	-0.01
10	Op-1	25	0.01	0.35	0.014	0.04	-0.01	-0.01	0.35	0.01	-0.04
10	Op-2	5	0.00	0.00	0.000	.	.	0.01	0.03	0.03	-0.01
12	Op-1	26	0.01	0.14	0.006	0.02	-0.00	-0.01	0.14	0.00	-0.02
12	Op-2	5	0.01	0.07	0.014	0.05	-0.02	-0.01	0.10	0.04	-0.05

Period means and deltas from original control data where n=2

Period	N	Station Mean	Range	Standard Error	Upper 95% C.I.	Lower 95% C.I.
Op-1	26	0.00	0.00	0.000	.	.
Op-2	5	0.01	0.03	0.007	0.03	-0.01

Analysis of Variance for HBT for 0427 - Strongylocentrotus purpuratus

Stations = 4, 5, 6, 8, 9, 10, 12 level +3 ft MLLW

Data transformed using log base10(x + .1)

Results for Analysis of Variance

Source	Source df	Error df	F-value	Prob.
PERIOD	1	162.000	4.45	0.0364
SEASON	1	162.000	0.62	0.4317
STATION	6	162.000	20.32	0.0000
PERIOD*SEASON	1	162.000	1.35	0.2475
STATION*PERIOD	6	162.000	4.35	0.0004
STATION*SEASON	6	162.000	0.70	0.6523
PERIOD*STATION*SEASON	6	162.000	0.59	0.7418

Results for Power Analysis
Power at alpha = .1

Source	Non-Centrality Parameter	Adjusted non-Centrality Parameter	Power	Adjusted Power	Power to Detect 50% Change
PERIOD	4.45	3.40	0.6762	0.5760	0.5171
STATION*PERIOD	26.13	19.80	0.9915	0.9627	0.2162

Estimates for contrasts on combinations of interaction terms

Source	Difference	Std. Err.	T-value	Prob.
Period in DC	0.8746	0.4178	2.093	.0379
Period in FC	0.3421	0.3972	0.861	.3904
Period in FC-S	0.2399	0.4806	0.499	.6183
Period in FC-W	0.4443	0.6326	0.702	.4835
Period in DC-S	0.3077	0.5400	0.570	.5696
Period in DC-W	1.4415	0.6378	2.260	.0251

Least square means & confidence intervals from analysis of variance

Source	LS Mean	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period Op-1	0.002	0.0340	0.06	.9489	0.0585	-0.0541
Period Op-2	-0.172	0.0750	-2.29	.0234	-0.0476	-0.2957
Op-1-04	0.072	0.1014	0.71	.4813	0.2392	-0.0961
Op-2-04	-0.233	0.2409	-0.97	.3348	0.1655	-0.6315
Op-1-05	0.346	0.1014	3.42	.0008	0.5140	0.1787
Op-2-05	0.152	0.1904	0.80	.4259	0.4670	-0.1630
Op-1-06	0.154	0.0818	1.89	.0612	0.2896	0.0189
Op-2-06	0.311	0.1904	1.63	.1043	0.6261	-0.0040
Op-1-08	-0.013	0.0818	-0.15	.8777	0.1227	-0.1480
Op-2-08	0.250	0.1904	1.31	.1916	0.5647	-0.0653
Op-1-09	-0.553	0.0958	-5.77	.0000	-0.3949	-0.7120
Op-2-09	-1.630	0.1904	-8.56	.0000	-1.3152	-1.9453
Op-1-10	-0.227	0.0835	-2.72	.0073	-0.0888	-0.3651
Op-2-10	-0.230	0.1904	-1.21	.2285	0.0848	-0.5452
Op-1-12	0.236	0.0818	2.89	.0044	0.3715	0.1008
Op-2-12	0.179	0.1904	0.94	.3479	0.4943	-0.1357

Paired comparisons of least square means between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period	0.1738	0.0824	2.110	.0364	0.3101	0.0376

Paired comparisons of least square means among stations between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Station 04	0.3045	0.2613	1.17	.2456	0.7369	-0.1278
Station 05	0.1944	0.2157	0.90	.3689	0.5512	-0.1625
Station 06	-0.1568	0.2073	-0.76	.4505	0.1861	-0.4997
Station 08	-0.2623	0.2073	-1.27	.2075	0.0806	-0.6052
Station 09	1.0767	0.2132	5.05	.0000	1.4294	0.7241
Station 10	0.0033	0.2079	0.02	.9874	0.3473	-0.3407
Station 12	0.0569	0.2073	0.27	.7840	0.3998	-0.2860

Station-period means and deltas from original data where control n=2

Station-Period	N	Station Mean	Range	Standard Error	Upper 95% c.i.	Lower 95% c.i.	Mean Delta	Delta Range	Upper 95% CIi.	Lower 95% C.I.
04 Op-1	17	0.13	0.60	0.038	0.21	0.05	0.04	0.80	0.15	-0.06
04 Op-2	4	0.50	0.80	0.191	1.11	-0.11	-0.30	1.00	0.36	-0.96
05 Op-1	17	0.00	0.00	0.000	.	.	0.17	0.50	0.26	0.08
05 Op-2	5	0.08	0.20	0.049	0.22	-0.06	0.10	0.50	0.35	-0.15
06 Op-1	26	0.07	0.80	0.035	0.14	-0.00	0.06	0.90	0.13	-0.01
06 Op-2	5	0.04	0.20	0.040	0.15	-0.07	0.14	0.40	0.35	-0.07
08 Op-1	26	0.18	0.60	0.051	0.29	0.08	-0.05	1.10	0.07	-0.18
08 Op-2	5	0.12	0.60	0.120	0.45	-0.21	0.06	0.40	0.27	-0.15
09 Op-1	19	2.42	22.20	1.174	4.89	-0.05	-2.26	22.60	0.20	-4.72
09 Op-2	5	12.48	21.40	4.082	23.81	1.15	-12.30	21.20	-1.12	-23.48
10 Op-1	25	0.52	2.80	0.156	0.84	0.20	-0.38	2.80	-0.08	-0.69
10 Op-2	5	0.52	1.20	0.250	1.21	-0.17	-0.34	1.00	0.23	-0.91
12 Op-1	26	0.02	0.20	0.011	0.04	-0.01	0.12	0.70	0.18	0.05
12 Op-2	5	0.12	0.60	0.120	0.45	-0.21	0.06	0.80	0.43	-0.31

Period means and deltas from original control data where n=2

Period	N	Station Mean	Range	Standard Error	Upper 95% C.I.	Lower 95% C.I.
Op-1	26	0.13	0.50	0.030	0.19	0.07
Op-2	5	0.18	0.40	0.066	0.36	-0.00

Analysis of Variance for HBT for 0311 - Tectura scutum

Stations = 4, 5, 6, 8, 9, 10, 12 level +3 ft MLLW

Data transformed using log base10(x + .1)

Results for Analysis of Variance

Source	Source df	Error df	F-value	Prob.
PERIOD	1	162.000	7.29	0.0077
SEASON	1	162.000	0.50	0.4826
STATION	6	162.000	5.18	0.0001
PERIOD*SEASON	1	162.000	4.90	0.0283
STATION*PERIOD	6	162.000	0.54	0.7751
STATION*SEASON	6	162.000	1.11	0.3587
PERIOD*STATION*SEASON	6	162.000	0.29	0.9406

Results for Power Analysis
Power at alpha = .1

Source	Non-Centrality Parameter	Adjusted non-Centrality Parameter	Power	Adjusted Power	Power to Detect 50% Change
PERIOD	7.29	6.20	0.8519	0.7983	0.9962
STATION*PERIOD	3.26	0.00	0.3249	.	0.1173

Estimates for contrasts on combinations of interaction terms

Source	Difference	Std. Err.	T-value	Prob.
Period in DC	-1.1782	0.4918	-2.396	.0177
Period in FC	-0.6545	0.4675	-1.400	.1634
Period in FC-S	-0.1614	0.5657	-0.285	.7758
Period in FC-W	-1.1477	0.7446	-1.541	.1252
Period in DC-S	-0.1694	0.6356	-0.267	.7902
Period in DC-W	-2.1870	0.7507	-2.913	.0041

Least square means & confidence intervals from analysis of variance

Source	LS Mean	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period Op-1	0.105	0.0401	2.61	.0099	0.1709	0.0383
Period Op-2	0.366	0.0883	4.15	.0001	0.5124	0.2204
Op-1-04	0.106	0.1193	0.89	.3753	0.3034	-0.0913
Op-2-04	0.500	0.2835	1.76	.0798	0.9688	0.0308
Op-1-05	0.084	0.1193	0.70	.4844	0.2810	-0.1138
Op-2-05	0.066	0.2241	0.29	.7703	0.4363	-0.3052
Op-1-06	0.586	0.0963	6.08	.0000	0.7450	0.4263
Op-2-06	0.864	0.2241	3.86	.0002	1.2352	0.4937
Op-1-08	-0.038	0.0963	-0.40	.6912	0.1210	-0.1976
Op-2-08	0.288	0.2241	1.28	.2011	0.6585	-0.0831
Op-1-09	-0.187	0.1128	-1.65	.1002	0.0001	-0.3731
Op-2-09	-0.147	0.2241	-0.65	.5142	0.2243	-0.5173
Op-1-10	0.154	0.0983	1.57	.1191	0.3166	-0.0086
Op-2-10	0.656	0.2241	2.93	.0039	1.0268	0.2852
Op-1-12	0.028	0.0963	0.29	.7744	0.1870	-0.1317
Op-2-12	0.338	0.2241	1.51	.1337	0.7086	-0.0330

Paired comparisons of least square means between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period	-0.2618	0.0969	-2.701	.0077	-0.1015	-0.4222

Paired comparisons of least square means among stations between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Station 04	-0.3937	0.3076	-1.28	.2023	0.1151	-0.9026
Station 05	0.0180	0.2539	0.07	.9434	0.4381	-0.4020
Station 06	-0.2788	0.2439	-1.14	.2547	0.1247	-0.6824
Station 08	-0.3261	0.2439	-1.34	.1832	0.0775	-0.7296
Station 09	-0.0400	0.2509	-0.16	.8735	0.3751	-0.4551
Station 10	-0.5020	0.2447	-2.05	.0419	-0.0971	-0.9069
Station 12	-0.3102	0.2439	-1.27	.2054	0.0934	-0.7137

Station-period means and deltas from original data where control n=2

Station-Period	N	Station Mean	Range	Standard Error	Upper 95% C.I.	Lower 95% C.I.	Mean Delta	Delta Range	Upper 95% CII.	Lower 95% C.I.
04 Op-1	17	2.24	7.40	0.483	3.26	1.21	0.18	6.40	1.13	-0.78
04 Op-2	4	1.60	2.20	0.469	3.09	0.11	2.45	0.60	2.87	2.03
05 Op-1	17	2.65	8.20	0.599	3.92	1.38	-0.24	8.90	0.91	-1.38
05 Op-2	5	3.52	2.80	0.512	4.94	2.10	0.54	3.30	2.38	-1.30
06 Op-1	26	1.02	5.20	0.233	1.50	0.54	1.80	11.20	2.71	0.88
06 Op-2	5	0.56	1.00	0.160	1.00	0.12	3.50	3.00	4.88	2.12
08 Op-1	26	4.05	13.80	0.676	5.45	2.66	-1.24	11.40	-0.03	-2.46
08 Op-2	5	5.08	15.80	3.045	13.54	-3.38	-1.02	17.10	7.57	-9.61
09 Op-1	19	4.94	12.00	0.777	6.57	3.31	-2.17	13.40	-0.64	-3.70
09 Op-2	5	7.52	10.60	2.257	13.79	1.25	-3.46	10.70	2.81	-9.73
10 Op-1	25	4.17	19.60	1.084	6.41	1.93	-1.37	21.20	0.47	-3.21
10 Op-2	5	2.24	8.60	1.649	6.82	-2.34	1.82	9.50	6.54	-2.90
12 Op-1	26	3.39	14.20	0.762	4.96	1.82	-0.58	14.90	0.81	-1.97
12 Op-2	5	1.92	2.00	0.427	3.11	0.73	2.14	4.40	4.24	0.04

Period means and deltas from original control data where n=2

Period	N	Station Mean	Range	Standard Error	Upper 95% C.I.	Lower 95% C.I.
Op-1	26	2.81	9.40	0.409	3.65	1.97
Op-2	5	4.06	2.40	0.380	5.12	3.00

Analysis of Variance for HBT for 0319 - Tegula brunnea

Stations = 4, 5, 6, 8, 9, 10, 12 level +3 ft MLLW

Data transformed using log base10(x + .1)

Results for Analysis of Variance

Source	Source df	Error df	F-value	Prob.
PERIOD	1	162.000	2.61	0.1081
SEASON	1	162.000	0.83	0.3638
STATION	6	162.000	12.53	0.0000
PERIOD*SEASON	1	162.000	0.00	0.9526
STATION*PERIOD	6	162.000	7.94	0.0000
STATION*SEASON	6	162.000	0.60	0.7335
PERIOD*STATION*SEASON	6	162.000	0.42	0.8665

Results for Power Analysis
Power at alpha = .1

Source	Non-Centrality Parameter	Adjusted non-Centrality Parameter	Power	Adjusted Power	Power to Detect 50% Change
PERIOD	2.61	1.58	0.4862	0.3487	0.1815
STATION*PERIOD	47.62	41.03	1.0000	0.9998	0.1227

Estimates for contrasts on combinations of interaction terms

Source	Difference	Std. Err.	T-value	Prob.
Period in DC	0.9409	0.3316	2.837	.0051
Period in FC	-0.2017	0.3152	-0.640	.5231
Period in FC-S	-0.3444	0.3814	-0.903	.3678
Period in FC-W	-0.0590	0.5020	-0.118	.9065
Period in DC-S	1.0563	0.4285	2.465	.0147
Period in DC-W	0.8255	0.5062	1.631	.1049

Least square means & confidence intervals from analysis of variance

Source	LS Mean	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period Op-1	-0.038	0.0270	-1.42	.1564	0.0062	-0.0832
Period Op-2	-0.144	0.0595	-2.42	.0166	-0.0456	-0.2425
Op-1-04	-0.001	0.0804	-0.01	.9926	0.1323	-0.1338
Op-2-04	0.116	0.1912	0.61	.5431	0.4327	-0.1997
Op-1-05	-0.001	0.0804	-0.01	.9926	0.1323	-0.1338
Op-2-05	0.116	0.1511	0.77	.4419	0.3665	-0.1335
Op-1-06	0.033	0.0649	0.50	.6145	0.1402	-0.0747
Op-2-06	-0.000	0.1511	-0.00	1.000	0.2500	-0.2500
Op-1-08	0.024	0.0649	0.37	.7095	0.1317	-0.0832
Op-2-08	-0.145	0.1511	-0.96	.3392	0.1051	-0.3949
Op-1-09	-0.194	0.0761	-2.56	.0115	-0.0686	-0.3202
Op-2-09	-1.330	0.1511	-8.80	.0000	-1.0796	-1.5796
Op-1-10	-0.200	0.0663	-3.02	.0030	-0.0902	-0.3095
Op-2-10	0.116	0.1511	0.77	.4419	0.3665	-0.1335
Op-1-12	0.069	0.0649	1.07	.2863	0.1769	-0.0379
Op-2-12	0.116	0.1511	0.77	.4419	0.3665	-0.1335

Paired comparisons of least square means between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period	0.1056	0.0654	1.616	.1081	0.2137	-0.0025

Paired comparisons of least square means among stations between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Station 04	-0.1172	0.2074	-0.57	.5726	0.2258	-0.4603
Station 05	-0.1172	0.1712	-0.68	.4944	0.1660	-0.4005
Station 06	0.0328	0.1645	0.20	.8423	0.3049	-0.2393
Station 08	0.1691	0.1645	1.03	.3054	0.4412	-0.1030
Station 09	1.1352	0.1692	6.71	.0000	1.4150	0.8553
Station 10	-0.3164	0.1650	-1.92	.0570	-0.0434	-0.5893
Station 12	-0.0470	0.1645	-0.29	.7753	0.2251	-0.3191

Station-period means and deltas from original data where control n=2

Station-Period		N	Station Mean	Range	Standard Error	Upper 95% c.i.	Lower 95% c.i.	Mean Delta	Delta Range	Upper 95% CIi.	Lower 95% C.I.
04	Op-1	17	0.02	0.20	0.016	0.06	-0.01	-0.01	0.30	0.03	-0.04
04	Op-2	4	0.00	0.00	0.000	.	.	0.10	0.40	0.42	-0.22
05	Op-1	17	0.02	0.20	0.016	0.06	-0.01	-0.01	0.30	0.03	-0.04
05	Op-2	5	0.00	0.00	0.000	.	.	0.08	0.40	0.30	-0.14
06	Op-1	26	0.02	0.20	0.011	0.04	-0.01	0.01	0.50	0.04	-0.02
06	Op-2	5	0.08	0.40	0.080	0.30	-0.14	0.00	0.80	0.35	-0.35
08	Op-1	26	0.02	0.40	0.017	0.06	-0.01	0.00	0.40	0.03	-0.03
08	Op-2	5	0.72	3.60	0.720	2.72	-1.28	-0.64	3.20	1.14	-2.42
09	Op-1	19	0.81	13.40	0.702	2.29	-0.67	-0.79	13.50	0.68	-2.27
09	Op-2	5	4.92	10.40	2.220	11.08	-1.24	-4.84	10.00	1.17	-10.85
10	Op-1	25	0.32	3.20	0.162	0.65	-0.01	-0.30	3.40	0.04	-0.63
10	Op-2	5	0.00	0.00	0.000	.	.	0.08	0.40	0.30	-0.14
12	Op-1	26	0.00	0.00	0.000	.	.	0.03	0.30	0.05	-0.00
12	Op-2	5	0.00	0.00	0.000	.	.	0.08	0.40	0.30	-0.14

Period means and deltas from original control data where n=2

Period	N	Station Mean	Range	Standard Error	Upper 95% C.I.	Lower 95% C.I.
Op-1	26	0.03	0.30	0.013	0.05	-0.00
Op-2	5	0.08	0.40	0.080	0.30	-0.14

Analysis of Variance for HBT for 0320 - Tegula funebralis

Stations = 4, 5, 6, 8, 9, 10, 12 level +3 ft MLLW

Data transformed using square root(x + 1)

Results for Analysis of Variance

Source	Source df	Error df	F-value	Prob.
PERIOD	1	162.000	2.57	0.1108
SEASON	1	162.000	7.08	0.0086
STATION	6	162.000	9.83	0.0000
PERIOD*SEASON	1	162.000	0.03	0.8545
STATION*PERIOD	6	162.000	0.80	0.5674
STATION*SEASON	6	162.000	2.99	0.0085
PERIOD*STATION*SEASON	6	162.000	1.12	0.3551

Results for Power Analysis
Power at alpha = .1

Source	Non-Centrality Parameter	Adjusted non-Centrality Parameter	Power	Adjusted Power	Power to Detect 50% Change
PERIOD	2.57	1.54	0.4814	0.3431	1.0000
STATION*PERIOD	4.83	0.00	0.4388	.	0.2896

Estimates for contrasts on combinations of interaction terms

Source	Difference	Std. Err.	T-value	Prob.
Period in DC	5.1103	3.6812	1.388	.1670
Period in FC	3.0339	3.4995	0.867	.3872
Period in FC-S	3.6362	4.2339	0.859	.3917
Period in FC-W	2.4317	5.5731	0.436	.6632
Period in DC-S	3.5754	4.7572	0.752	.4534
Period in DC-W	6.6452	5.6190	1.183	.2387

Least square means & confidence intervals from analysis of variance

Source	LS Mean	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period Op-1	-0.250	0.2999	-0.83	.4050	0.2458	-0.7466
Period Op-2	-1.414	0.6607	-2.14	.0339	-0.3209	-2.5069
Op-1-04	-4.389	0.8930	-4.92	.0000	-2.9120	-5.8665
Op-2-04	-4.668	2.1220	-2.20	.0293	-1.1570	-8.1780
Op-1-05	0.089	0.8930	0.10	.9205	1.5665	-1.3881
Op-2-05	-0.825	1.6776	-0.49	.6235	1.9502	-3.6004
Op-1-06	-1.282	0.7208	-1.78	.0772	-0.0894	-2.4744
Op-2-06	-3.123	1.6776	-1.86	.0645	-0.3479	-5.8985
Op-1-08	0.790	0.7208	1.10	.2745	1.9828	-0.4022
Op-2-08	-0.222	1.6776	-0.13	.8948	2.5532	-2.9975
Op-1-09	2.805	0.8444	3.32	.0011	4.2021	1.4083
Op-2-09	4.528	1.6776	2.70	.0077	7.3035	1.7529
Op-1-10	2.723	0.7357	3.70	.0003	3.9404	1.5063
Op-2-10	0.566	1.6776	0.34	.7361	3.3416	-2.2091
Op-1-12	-2.490	0.7208	-3.45	.0007	-1.2971	-3.6821
Op-2-12	-6.153	1.6776	-3.67	.0003	-3.3781	-8.9288

Paired comparisons of least square means between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period	1.1635	0.7256	1.603	.1108	2.3638	-0.0369

Paired comparisons of least square means among stations between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Station 04	0.2783	2.3023	0.12	.9040	4.0870	-3.5304
Station 05	0.9143	1.9005	0.48	.6311	4.0583	-2.2297
Station 06	1.8413	1.8259	1.01	.3147	4.8620	-1.1793
Station 08	1.0124	1.8259	0.55	.5800	4.0331	-2.0082
Station 09	-1.7230	1.8781	-0.92	.3603	1.3840	-4.8301
Station 10	2.1571	1.8318	1.18	.2407	5.1875	-0.8734
Station 12	3.6638	1.8259	2.01	.0465	6.6845	0.6432

Station-period means and deltas from original data where control n=2

Station-Period		N	Station Mean	Range	Standard Error	Upper 95% C.I.	Lower 95% C.I.	Mean Delta	Delta Range	Upper 95% CIi.	Lower 95% C.I.
04	Op-1	17	313.35	297.20	23.343	362.84	263.87	-132.32	375.50	-71.79	-192.85
04	Op-2	4	255.65	90.80	19.995	319.28	192.02	-131.83	59.50	-91.58	-172.07
05	Op-1	17	175.15	189.20	12.659	201.99	148.32	5.88	237.40	44.39	-32.64
05	Op-2	5	150.64	119.00	25.013	220.09	81.19	-29.78	187.00	57.91	-117.47
06	Op-1	26	248.12	494.20	23.070	295.64	200.61	-43.54	484.40	13.17	-100.24
06	Op-2	5	215.04	168.80	31.338	302.05	128.03	-94.18	207.50	14.75	-203.11
08	Op-1	26	187.45	406.60	17.567	223.63	151.27	17.13	416.00	55.02	-20.76
08	Op-2	5	125.68	105.00	23.246	190.22	61.14	-4.82	59.90	28.87	-38.51
09	Op-1	19	135.60	287.40	21.915	181.64	89.56	56.02	271.20	86.94	25.10
09	Op-2	5	41.76	22.40	3.909	52.61	30.91	79.10	116.80	135.82	22.38
10	Op-1	25	173.36	813.40	37.381	250.51	96.21	28.13	816.40	92.64	-36.38
10	Op-2	5	118.44	303.00	54.820	270.65	-33.77	2.42	218.10	114.76	-109.92
12	Op-1	26	286.38	475.60	23.820	335.44	237.33	-81.80	463.20	-29.15	-134.45
12	Op-2	5	317.16	204.00	39.906	427.96	206.36	-196.30	332.20	-36.24	-356.36

Period means and deltas from original control data where n=2

Period	N	Station Mean	Range	Standard Error	Upper 95% C.I.	Lower 95% C.I.
Op-1	26	204.58	246.10	13.324	232.03	177.14
Op-2	5	120.86	128.20	22.013	181.98	59.74

Analysis of Variance for HBT for 0404 - Tetraclita rubescens

Stations = 4, 5, 6, 8, 9, 10, 12 level +3 ft MLLW

Data transformed using log base10(x + .1)

Results for Analysis of Variance

Source	Source df	Error df	F-value	Prob.
PERIOD	1	162.000	0.10	0.7464
SEASON	1	162.000	9.62	0.0023
STATION	6	162.000	38.00	0.0000
PERIOD*SEASON	1	162.000	4.92	0.0279
STATION*PERIOD	6	162.000	1.16	0.3323
STATION*SEASON	6	162.000	0.45	0.8469
PERIOD*STATION*SEASON	6	162.000	0.07	0.9988

Results for Power Analysis
Power at alpha = .1

Source	Non-Centrality Parameter	Adjusted non-Centrality Parameter	Power	Adjusted Power	Power to Detect 50% Change
PERIOD	0.10	0.00	0.1176	.	0.6419
STATION*PERIOD	6.94	0.85	0.5787	0.1538	0.2596

Estimates for contrasts on combinations of interaction terms

Source	Difference	Std. Err.	T-value	Prob.
Period in DC	-0.1998	0.6646	-0.301	.7641
Period in FC	-0.0972	0.6318	-0.154	.8779
Period in FC-S	0.8723	0.7644	1.141	.2555
Period in FC-W	-1.0667	1.0062	-1.060	.2907
Period in DC-S	0.8650	0.8589	1.007	.3154
Period in DC-W	-1.2646	1.0145	-1.247	.2143

Least square means & confidence intervals from analysis of variance

Source	LS Mean	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period Op-1	0.204	0.0541	3.76	.0002	0.2933	0.1141
Period Op-2	0.246	0.1193	2.06	.0407	0.4434	0.0488
Op-1-04	1.047	0.1612	6.49	.0000	1.3133	0.7799
Op-2-04	0.951	0.3831	2.48	.0140	1.5851	0.3175
Op-1-05	1.158	0.1612	7.18	.0000	1.4249	0.8915
Op-2-05	1.181	0.3029	3.90	.0001	1.6826	0.6804
Op-1-06	1.012	0.1301	7.78	.0000	1.2276	0.7970
Op-2-06	1.181	0.3029	3.90	.0001	1.6826	0.6804
Op-1-08	0.615	0.1301	4.72	.0000	0.8300	0.3994
Op-2-08	0.556	0.3029	1.84	.0680	1.0575	0.0554
Op-1-09	-0.769	0.1524	-5.04	.0000	-0.5164	-1.0208
Op-2-09	-1.294	0.3029	-4.27	.0000	-0.7927	-1.7949
Op-1-10	-1.449	0.1328	-10.91	.0000	-1.2298	-1.6692
Op-2-10	-1.348	0.3029	-4.45	.0000	-0.8469	-1.8490
Op-1-12	-0.188	0.1301	-1.44	.1508	0.0274	-0.4032
Op-2-12	0.494	0.3029	1.63	.1050	0.9948	-0.0073

Paired comparisons of least square means between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period	-0.0424	0.1310	-0.324	.7464	0.1743	-0.2591

Paired comparisons of least square means among stations between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Station 04	0.0953	0.4157	0.23	.8189	0.7830	-0.5923
Station 05	-0.0233	0.3431	-0.07	.9459	0.5443	-0.5909
Station 06	-0.1692	0.3297	-0.51	.6084	0.3761	-0.7146
Station 08	0.0582	0.3297	0.18	.8601	0.6035	-0.4872
Station 09	0.5252	0.3391	1.55	.1233	1.0862	-0.0357
Station 10	-0.1016	0.3307	-0.31	.7591	0.4455	-0.6487
Station 12	-0.6816	0.3297	-2.07	.0403	-0.1363	-1.2270

Station-period means and deltas from original data where control n=2

Station-Period		N	Station Mean	Range	Standard Error	Upper 95% c.i.	Lower 95% c.i.	Mean Delta	Delta Range	Upper 95% CIi.	Lower 95% C.I.
04	Op-1	17	0.15	1.00	0.070	0.30	0.01	3.54	15.40	5.71	1.36
04	Op-2	4	0.10	0.40	0.100	0.42	-0.22	2.22	7.40	7.94	-3.49
05	Op-1	17	0.06	0.60	0.037	0.14	-0.02	3.63	15.40	5.82	1.43
05	Op-2	5	0.00	0.00	0.000	.	.	2.38	7.80	6.46	-1.70
06	Op-1	26	0.02	0.40	0.017	0.06	-0.01	2.56	15.60	4.08	1.04
06	Op-2	5	0.00	0.00	0.000	.	.	2.38	7.80	6.46	-1.70
08	Op-1	26	0.50	3.60	0.173	0.86	0.14	2.08	16.30	3.56	0.60
08	Op-2	5	0.32	0.20	0.049	0.46	0.18	2.06	7.60	6.06	-1.94
09	Op-1	19	19.74	67.40	5.073	30.40	9.08	-16.42	62.40	-6.57	-26.26
09	Op-2	5	33.92	53.60	8.700	58.07	9.77	-31.54	46.00	-10.30	-52.78
10	Op-1	25	71.30	265.20	15.740	103.78	38.81	-68.62	264.90	-36.38	-100.86
10	Op-2	5	41.76	99.40	18.528	93.20	-9.68	-39.38	91.80	8.04	-86.80
12	Op-1	26	2.59	9.40	0.513	3.65	1.54	-0.01	20.80	1.51	-1.53
12	Op-2	5	1.24	4.80	0.917	3.79	-1.31	1.14	10.20	6.09	-3.81

Period means and deltas from original control data where n=2

Period	N	Station Mean	Range	Standard Error	Upper 95% C.I.	Lower 95% C.I.
Op-1	26	2.58	15.40	0.738	4.10	1.06
Op-2	5	2.38	7.80	1.468	6.46	-1.70

Analysis of Variance for HBT for ISPP - Spp. Inverts
Stations = 4, 5, 6, 8, 9, 10, 12 level +3 ft MLLW

Data not transformed.

Source	Source df	Error df	F-value	Prob.
PERIOD	1	162.000	17.43	0.0000
SEASON	1	162.000	0.70	0.4052
STATION	6	162.000	16.75	0.0000
PERIOD*SEASON	1	162.000	7.83	0.0058
STATION*PERIOD	6	162.000	1.49	0.1858
STATION*SEASON	6	162.000	1.58	0.1568
PERIOD*STATION*SEASON	6	162.000	1.76	0.1095

Results for Power Analysis
Power at alpha = .1

Source	Non-Centrality Parameter	Adjusted non-Centrality Parameter	Power	Adjusted Power	Power to Detect 50% Change
PERIOD	17.43	16.21	0.9940	0.9910	1.0000
STATION*PERIOD	8.92	2.81	0.6894	0.2921	0.8284

Estimates for contrasts on combinations of interaction terms

Source	Difference	Std. Err.	T-value	Prob.
Period in DC	6.5522	1.4334	4.571	.0000
Period in FC	1.7038	1.3626	1.250	.2129
Period in FC-S	3.5654	1.6486	2.163	.0320
Period in FC-W	-0.1577	2.1700	-0.073	.9422
Period in DC-S	10.2235	1.8523	5.519	.0000
Period in DC-W	2.8808	2.1879	1.317	.1898

Least-square means & confidence intervals from analysis of variance

Source	LS Mean	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period Op-1	-1.519	0.1168	-13.01	.0000	-1.3262	-1.7126
Period Op-2	-2.699	0.2573	-10.49	.0000	-2.2732	-3.1244
Op-1-04	-2.355	0.3477	-6.77	.0000	-1.7796	-2.9301
Op-2-04	-3.650	0.8263	-4.42	.0000	-2.2831	-5.0169
Op-1-05	-2.220	0.3477	-6.39	.0000	-1.6449	-2.7954
Op-2-05	-2.925	0.6532	-4.48	.0000	-1.8444	-4.0056
Op-1-06	0.054	0.2807	0.19	.8481	0.5182	-0.4105
Op-2-06	0.350	0.6532	0.54	.5928	1.4306	-0.7306
Op-1-08	-1.642	0.2807	-5.85	.0000	-1.1780	-2.1066
Op-2-08	-3.550	0.6532	-5.43	.0000	-2.4694	-4.6306
Op-1-09	-3.255	0.3288	-9.90	.0000	-2.7108	-3.7986
Op-2-09	-4.925	0.6532	-7.54	.0000	-3.8444	-6.0056
Op-1-10	-1.121	0.2865	-3.91	.0001	-0.6474	-1.5952
Op-2-10	-3.375	0.6532	-5.17	.0000	-2.2944	-4.4556
Op-1-12	-0.096	0.2807	-0.34	.7324	0.3682	-0.5605
Op-2-12	-0.817	0.6532	-1.25	.2130	0.2640	-1.8973

Paired comparisons of least square means between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period	1.1794	0.2825	4.175	.0000	1.6468	0.7120

Paired comparisons of least square means among stations between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Station 04	1.2951	0.8964	1.44	.1505	2.7781	-0.1879
Station 05	0.7049	0.7400	0.95	.3423	1.9291	-0.5193
Station 06	-0.2962	0.7110	-0.42	.6776	0.8800	-1.4723
Station 08	1.9077	0.7110	2.68	.0080	3.0839	0.7315
Station 09	1.6703	0.7313	2.28	.0237	2.8801	0.4605
Station 10	2.2537	0.7133	3.16	.0019	3.4337	1.0737
Station 12	0.7205	0.7110	1.01	.3124	1.8967	-0.4557

Station-period means and deltas from original data where control n=2

Station-Period	N	Station Mean	Range	Standard Error	Upper 95% c.i.	Lower 95% c.i.	Mean Delta	Delta Range	Upper 95% CIi.	Lower 95% C.I.
04 Op-1	17	13.87	5.10	0.326	14.56	13.18	-2.37	4.50	-1.79	-2.94
04 Op-2	4	13.75	3.50	0.758	16.16	11.34	-3.75	5.05	-0.44	-7.06
05 Op-1	17	13.73	4.70	0.325	14.42	13.04	-2.23	4.45	-1.71	-2.74
05 Op-2	5	13.08	3.20	0.588	14.71	11.45	-2.87	3.30	-1.05	-4.69
06 Op-1	26	11.43	4.20	0.228	11.90	10.96	0.05	5.20	0.54	-0.43
06 Op-2	5	10.16	5.00	0.808	12.40	7.92	0.05	4.65	2.45	-2.35
08 Op-1	26	13.13	4.30	0.240	13.62	12.63	-1.64	6.70	-1.08	-2.20
08 Op-2	5	14.10	3.80	0.709	16.07	12.13	-3.89	6.25	-0.97	-6.81
09 Op-1	19	14.77	5.80	0.325	15.45	14.09	-3.28	7.95	-2.48	-4.07
09 Op-2	5	15.14	2.00	0.333	16.06	14.22	-4.93	3.50	-3.31	-6.55
10 Op-1	25	12.57	5.70	0.335	13.26	11.88	-1.10	6.75	-0.36	-1.83
10 Op-2	5	13.80	4.90	0.867	16.21	11.39	-3.59	4.10	-1.50	-5.68
12 Op-1	26	11.58	5.40	0.248	12.09	11.07	-0.10	5.40	0.51	-0.70
12 Op-2	5	10.90	3.00	0.623	12.63	9.17	-0.69	2.20	0.40	-1.78

Period means and deltas from original control data where n=2

Period	N	Station Mean	Range	Standard Error	Upper 95% C.I.	Lower 95% C.I.
Op-1	26	11.48	4.45	0.223	11.94	11.02
Op-2	5	10.21	2.45	0.431	11.41	9.01

Analysis of Variance for HBT for 0288 - Acmaea mitra

Stations = 4, 5, 6, 8, 9, 10, 12 level +1 ft MLLW

Data transformed using log base10(x + .1)

Results for Analysis of Variance

Source	Source df	Error df	F-value	Prob.
PERIOD	1	160.000	7.22	0.0080
SEASON	1	160.000	1.34	0.2483
STATION	6	160.000	4.31	0.0005
PERIOD*SEASON	1	160.000	1.21	0.2724
STATION*PERIOD	6	160.000	1.31	0.2557
STATION*SEASON	6	160.000	0.76	0.6021
PERIOD*STATION*SEASON	6	160.000	0.72	0.6362

Results for Power Analysis
Power at alpha = .1

Source	Non-Centrality Parameter	Adjusted non-Centrality Parameter	Power	Adjusted Power	Power to Detect 50% Change
PERIOD	7.22	6.13	0.8487	0.7941	0.3526
STATION*PERIOD	7.86	1.76	0.6327	0.2161	0.2306

Estimates for contrasts on combinations of interaction terms

Source	Difference	Std. Err.	T-value	Prob.
Period in DC	-0.6769	0.2527	-2.679	.0082
Period in FC	-0.2616	0.2411	-1.085	.2796
Period in FC-S	-0.4473	0.2906	-1.539	.1257
Period in FC-W	-0.0758	0.3848	-0.197	.8441
Period in DC-S	-0.1065	0.3265	-0.326	.7447
Period in DC-W	-1.2473	0.3857	-3.234	.0015

Least square means & confidence intervals from analysis of variance

Source	LS Mean	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period Op-1	-0.011	0.0208	-0.51	.6100	0.0238	-0.0450
Period Op-2	0.123	0.0453	2.72	.0072	0.1985	0.0484
Op-1-04	-0.033	0.0631	-0.52	.6013	0.0713	-0.1374
Op-2-04	-0.038	0.1456	-0.26	.7952	0.2031	-0.2788
Op-1-05	-0.104	0.0631	-1.66	.0997	-0.0001	-0.2088
Op-2-05	-0.202	0.1151	-1.76	.0808	-0.0118	-0.3928
Op-1-06	-0.239	0.0495	-4.83	.0000	-0.1571	-0.3208
Op-2-06	0.125	0.1151	1.09	.2776	0.3159	-0.0651
Op-1-08	0.068	0.0580	1.18	.2390	0.1644	-0.0274
Op-2-08	0.245	0.1151	2.13	.0351	0.4352	0.0542
Op-1-09	0.019	0.0495	0.39	.6981	0.1011	-0.0626
Op-2-09	0.245	0.1151	2.13	.0351	0.4352	0.0542
Op-1-10	0.103	0.0505	2.04	.0425	0.1868	0.0197
Op-2-10	0.245	0.1151	2.13	.0351	0.4352	0.0542
Op-1-12	0.111	0.0495	2.24	.0263	0.1928	0.0291
Op-2-12	0.245	0.1151	2.13	.0351	0.4352	0.0542

Paired comparisons of least square means between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period	-0.1341	0.0499	-2.687	.0080	-0.0515	-0.2166

Paired comparisons of least square means among stations between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Station 04	0.0049	0.1587	0.03	.9756	0.2674	-0.2577
Station 05	0.0979	0.1313	0.75	.4569	0.3151	-0.1193
Station 06	-0.3643	0.1253	-2.91	.0042	-0.1570	-0.5717
Station 08	-0.1762	0.1289	-1.37	.1735	0.0370	-0.3895
Station 09	-0.2255	0.1253	-1.80	.0739	-0.0182	-0.4328
Station 10	-0.1415	0.1257	-1.13	.2622	0.0666	-0.3495
Station 12	-0.1337	0.1253	-1.07	.2875	0.0736	-0.3411

Station-period means and deltas from original data where control n=2

Station-Period	N	Station Mean	Range	Standard Error	Upper 95% C.I.	Lower 95% C.I.	Mean Delta	Delta Range	Upper 95% CIi.	Lower 95% C.I.
04 Op-1	16	0.08	0.80	0.051	0.18	-0.03	-0.04	0.90	0.07	-0.16
04 Op-2	4	0.05	0.20	0.050	0.21	-0.11	0.00	0.20	0.13	-0.13
05 Op-1	16	0.10	0.40	0.041	0.19	0.01	-0.07	0.50	0.01	-0.15
05 Op-2	5	0.24	0.60	0.117	0.56	-0.08	-0.16	0.40	0.07	-0.39
06 Op-1	26	0.21	1.00	0.055	0.32	0.09	-0.17	1.00	-0.06	-0.28
06 Op-2	5	0.04	0.20	0.040	0.15	-0.07	0.04	0.10	0.11	-0.03
08 Op-1	19	0.02	0.40	0.021	0.07	-0.02	0.02	0.60	0.07	-0.04
08 Op-2	5	0.00	0.00	0.000	.	.	0.08	0.20	0.18	-0.02
09 Op-1	26	0.04	0.20	0.016	0.07	0.01	-0.00	0.40	0.05	-0.05
09 Op-2	5	0.00	0.00	0.000	.	.	0.08	0.20	0.18	-0.02
10 Op-1	25	0.00	0.00	0.000	.	.	0.04	0.20	0.06	0.01
10 Op-2	5	0.00	0.00	0.000	.	.	0.08	0.20	0.18	-0.02
12 Op-1	26	0.00	0.00	0.000	.	.	0.04	0.20	0.06	0.02
12 Op-2	5	0.00	0.00	0.000	.	.	0.08	0.20	0.18	-0.02

Period means and deltas from original control data where n=2

Period	N	Station Mean	Range	Standard Error	Upper 95% C.I.	Lower 95% C.I.
Op-1	26	0.04	0.20	0.011	0.06	0.02
Op-2	5	0.08	0.20	0.037	0.18	-0.02

Analysis of Variance for HBT for 0264 - Anthopleura elegantissima

Stations = 4, 5, 6, 8, 9, 10, 12 level +1 ft MLLW

Data transformed using log base10(x + .1)

Results for Analysis of Variance

Source	Source df	Error df	F-value	Prob.
PERIOD	1	160.000	40.50	0.0000
SEASON	1	160.000	19.36	0.0000
STATION	6	160.000	34.54	0.0000
PERIOD*SEASON	1	160.000	3.25	0.0734
STATION*PERIOD	6	160.000	10.41	0.0000
STATION*SEASON	6	160.000	0.36	0.9043
PERIOD*STATION*SEASON	6	160.000	0.33	0.9226

Results for Power Analysis
Power at alpha = .1

Source	Non-Centrality Parameter	Adjusted non-Centrality Parameter	Power	Adjusted Power	Power to Detect 50% Change
PERIOD	40.50	38.99	1.0000	1.0000	1.0000
STATION*PERIOD	62.47	55.69	1.0000	1.0000	0.4134

Estimates for contrasts on combinations of interaction terms

Source	Difference	Std. Err.	T-value	Prob.
Period in DC	2.0867	0.3715	5.617	.0000
Period in FC	1.1812	0.3545	3.332	.0011
Period in FC-S	1.3107	0.4273	3.067	.0025
Period in FC-W	1.0517	0.5658	1.859	.0649
Period in DC-S	2.8825	0.4801	6.004	.0000
Period in DC-W	1.2908	0.5671	2.276	.0242

Least square means & confidence intervals from analysis of variance

Source	LS Mean	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period Op-1	-0.383	0.0306	-12.51	.0000	-0.3320	-0.4332
Period Op-2	-0.849	0.0667	-12.74	.0000	-0.7391	-0.9597
Op-1-04	-0.585	0.0927	-6.31	.0000	-0.4317	-0.7386
Op-2-04	-1.024	0.2142	-4.78	.0000	-0.6700	-1.3786
Op-1-05	-1.107	0.0927	-11.93	.0000	-0.9532	-1.2600
Op-2-05	-1.329	0.1693	-7.85	.0000	-1.0485	-1.6087
Op-1-06	-0.419	0.0727	-5.76	.0000	-0.2983	-0.5390
Op-2-06	-0.939	0.1693	-5.54	.0000	-0.6586	-1.2188
Op-1-08	-0.348	0.0852	-4.09	.0001	-0.2073	-0.4892
Op-2-08	-0.644	0.1693	-3.80	.0002	-0.3635	-0.9237
Op-1-09	1.313	0.0727	18.05	.0000	1.4331	1.1924
Op-2-09	-0.272	0.1693	-1.61	.1105	0.0084	-0.5518
Op-1-10	-1.121	0.0742	-15.10	.0000	-0.9982	-1.2439
Op-2-10	-0.711	0.1693	-4.20	.0000	-0.4309	-0.9911
Op-1-12	-0.411	0.0727	-5.65	.0000	-0.2907	-0.5314
Op-2-12	-1.028	0.1693	-6.07	.0000	-0.7479	-1.3081

Paired comparisons of least square means between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period	0.4668	0.0734	6.364	.0000	0.5882	0.3455

Paired comparisons of least square means among stations between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Station 04	0.4391	0.2334	1.88	.0617	0.8252	0.0530
Station 05	0.2220	0.1930	1.15	.2518	0.5414	-0.0974
Station 06	0.5201	0.1843	2.82	.0054	0.8249	0.2152
Station 08	0.2954	0.1895	1.56	.1211	0.6090	-0.0182
Station 09	1.5845	0.1843	8.60	.0000	1.8894	1.2796
Station 10	-0.4101	0.1849	-2.22	.0279	-0.1043	-0.7160
Station 12	0.6169	0.1843	3.35	.0010	0.9218	0.3121

Station-period means and deltas from original data where control n=2

Station-Period		N	Station Mean	Range	Standard Error	Upper 95% c.i.	Lower 95% c.i.	Mean Delta	Delta Range	Upper 95% CIi.	Lower 95% C.I.
04	Op-1	16	10.96	16.80	0.931	12.95	8.98	-7.80	14.50	-5.89	-9.71
04	Op-2	4	10.30	12.20	2.745	19.04	1.56	-9.65	12.30	-0.66	-18.64
05	Op-1	16	37.06	44.20	3.279	44.05	30.07	-33.90	40.60	-27.22	-40.58
05	Op-2	5	20.08	26.40	4.428	32.37	7.79	-19.24	25.50	-7.25	-31.23
06	Op-1	26	8.49	11.40	0.518	9.56	7.42	-4.95	11.70	-3.95	-5.94
06	Op-2	5	8.04	12.60	2.178	14.09	1.99	-7.20	11.50	-1.75	-12.65
08	Op-1	19	7.43	14.80	1.026	9.59	5.28	-4.16	12.80	-2.36	-5.95
08	Op-2	5	3.80	1.40	0.297	4.62	2.98	-2.96	2.00	-2.05	-3.87
09	Op-1	26	0.12	0.80	0.045	0.21	0.02	3.43	6.80	4.17	2.70
09	Op-2	5	3.04	6.00	1.204	6.38	-0.30	-2.20	7.20	1.42	-5.82
10	Op-1	25	59.45	115.20	7.317	74.55	44.35	-56.03	110.20	-41.21	-70.85
10	Op-2	5	4.92	6.80	1.169	8.17	1.67	-4.08	6.90	-0.72	-7.44
12	Op-1	26	11.33	34.40	1.891	15.23	7.44	-7.78	36.00	-3.90	-11.67
12	Op-2	5	9.60	5.00	0.867	12.01	7.19	-8.76	5.30	-6.03	-11.49

Period means and deltas from original control data where n=2

Period	N	Station Mean	Range	Standard Error	Upper 95% C.I.	Lower 95% C.I.
Op-1	26	3.55	6.40	0.336	4.24	2.85
Op-2	5	0.84	1.30	0.273	1.60	0.08

Analysis of Variance for HBT for 0394 - Balanus spp.

Stations = 4, 5, 6, 8, 9, 10, 12 level +1 ft MLLW

Data transformed using 1/(x + .1)

Results for Analysis of Variance

Source	Source df	Error df	P-value	Prob.
PERIOD	1	160.000	4.18	0.0425
SEASON	1	160.000	0.00	0.9722
STATION	6	160.000	3.03	0.0078
PERIOD*SEASON	1	160.000	0.98	0.3237
STATION*PERIOD	6	160.000	0.67	0.6700
STATION*SEASON	6	160.000	0.20	0.9772
PERIOD*STATION*SEASON	6	160.000	0.45	0.8457

Results for Power Analysis
Power at alpha = .1

Source	Non-Centrality Parameter	Adjusted non-Centrality Parameter	Power	Adjusted Power	Power to Detect 50% Change
PERIOD	4.18	3.13	0.6525	0.5469	0.1276
STATION*PERIOD	4.05	0.00	0.3828	.	0.1103

Estimates for contrasts on combinations of interaction terms

Source	Difference	Std. Err.	T-value	Prob.
Period in DC	6.4174	2.8234	2.273	.0244
Period in FC	1.5643	2.6943	0.581	.5623
Period in FC-S	2.0175	3.2473	0.621	.5353
Period in FC-W	1.1111	4.3002	0.258	.7964
Period in DC-S	9.8277	3.6487	2.693	.0078
Period in DC-W	3.0070	4.3097	0.698	.4864

Least square means & confidence intervals from analysis of variance

Source	LS Mean	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period Op-1	1.426	0.2325	6.13	.0000	1.8106	1.0413
Period Op-2	0.286	0.5067	0.56	.5737	1.1241	-0.5527
Op-1-04	0.000	0.7048	0.00	1.000	1.1660	-1.1660
Op-2-04	-0.000	1.6276	-0.00	1.000	2.6927	-2.6927
Op-1-05	1.564	0.7048	2.22	.0278	2.7303	0.3983
Op-2-05	0.000	1.2867	0.00	1.000	2.1288	-2.1288
Op-1-06	0.000	0.5529	0.00	1.000	0.9147	-0.9147
Op-2-06	0.000	1.2867	0.00	1.000	2.1288	-2.1288
Op-1-08	0.533	0.6476	0.82	.4114	1.6048	-0.5381
Op-2-08	-0.000	1.2867	-0.00	1.000	2.1288	-2.1288
Op-1-09	2.370	0.5529	4.29	.0000	3.2851	1.4558
Op-2-09	-0.000	1.2867	-0.00	1.000	2.1288	-2.1288
Op-1-10	5.001	0.5643	8.86	.0000	5.9343	4.0673
Op-2-10	2.000	1.2867	1.55	.1221	4.1288	-0.1288
Op-1-12	0.513	0.5529	0.93	.3550	1.4275	-0.4018
Op-2-12	-0.000	1.2867	-0.00	1.000	2.1288	-2.1288

Paired comparisons of least square means between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period	1.1402	0.5575	2.045	.0425	2.0626	0.2179

Paired comparisons of least square means among stations between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Station 04	0.0000	1.7736	0.00	1.000	2.9343	-2.9343
Station 05	1.5643	1.4671	1.07	.2879	3.9915	-0.8629
Station 06	-0.0000	1.4005	-0.00	1.000	2.3170	-2.3170
Station 08	0.5333	1.4405	0.37	.7117	2.9166	-1.8499
Station 09	2.3704	1.4005	1.69	.0925	4.6874	0.0535
Station 10	3.0008	1.4050	2.14	.0342	5.3253	0.6763
Station 12	0.5128	1.4005	0.37	.7147	2.8298	-1.8041

Station-period means and deltas from original data where control n=2

Station	Period	N	Station Mean	Range	Standard Error	Upper 95% c.i.	Lower 95% c.i.	Mean Delta	Delta Range	Upper 95% CIi.	Lower 95% C.I.
04	Op-1	16	0.00	0.00	0.000	.	.	0.00	0.00	.	.
04	Op-2	4	0.00	0.00	0.000	.	.	0.00	0.00	.	.
05	Op-1	16	0.18	1.80	0.120	0.43	-0.08	-0.18	1.80	0.08	-0.43
05	Op-2	5	0.00	0.00	0.000	.	.	0.00	0.00	.	.
06	Op-1	26	0.00	0.00	0.000	.	.	0.00	0.00	.	.
06	Op-2	5	0.00	0.00	0.000	.	.	0.00	0.00	.	.
08	Op-1	19	0.13	2.40	0.126	0.39	-0.14	-0.13	2.40	0.14	-0.39
08	Op-2	5	0.00	0.00	0.000	.	.	0.00	0.00	.	.
09	Op-1	26	0.35	2.80	0.144	0.65	0.06	-0.35	2.80	-0.06	-0.65
09	Op-2	5	0.00	0.00	0.000	.	.	0.00	0.00	.	.
10	Op-1	25	3.03	33.20	1.493	6.11	-0.05	-3.03	33.20	0.05	-6.11
10	Op-2	5	0.08	0.40	0.080	0.30	-0.14	-0.08	0.40	0.14	-0.30
12	Op-1	26	0.02	0.20	0.011	0.04	-0.01	-0.02	0.20	0.01	-0.04
12	Op-2	5	0.00	0.00	0.000	.	.	0.00	0.00	.	.

Period means and deltas from original control data where n=2

Period	N	Station Mean	Range	Standard Error	Upper 95% C.I.	Lower 95% C.I.
Op-1	26	0.00	0.00	0.000	.	.
Op-2	5	0.00	0.00	0.000	.	.

Analysis of Variance for HBT for 0395 - Chthamalus fissus

Stations = 4, 5, 6, 8, 9, 10, 12 level +1 ft MLLW

Data transformed using log base10(x + .1)

Results for Analysis of Variance

Source	Source df	Error df	F-value	Prob.
PERIOD	1	160.000	1.31	0.2546
SEASON	1	160.000	3.35	0.0692
STATION	6	160.000	12.42	0.0000
PERIOD*SEASON	1	160.000	1.62	0.2052
STATION*PERIOD	6	160.000	1.45	0.2002
STATION*SEASON	6	160.000	1.01	0.4219
PERIOD*STATION*SEASON	6	160.000	0.58	0.7449

Results for Power Analysis
Power at alpha = .1

Source	Non-Centrality Parameter	Adjusted non-Centrality Parameter	Power	Adjusted Power	Power to Detect 50% Change
PERIOD	1.31	0.29	0.3090	0.1485	0.6725
STATION*PERIOD	8.68	2.57	0.6768	0.2744	0.2880

Estimates for contrasts on combinations of interaction terms

Source	Difference	Std. Err.	T-value	Prob.
Period in DC	-0.8559	0.5090	-1.681	.0946
Period in FC	0.0515	0.4857	0.106	.9157
Period in FC-S	-0.0373	0.5854	-0.064	.9492
Period in FC-W	0.1403	0.7753	0.181	.8566
Period in DC-S	-1.6621	0.6578	-2.527	.0125
Period in DC-W	-0.0496	0.7770	-0.064	.9492

Least square means & confidence intervals from analysis of variance

Source	LS Mean	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period Op-1	-0.500	0.0419	-11.94	.0000	-0.4309	-0.5696
Period Op-2	-0.385	0.0914	-4.22	.0000	-0.2342	-0.5365
Op-1-04	0.015	0.1271	0.12	.9035	0.2256	-0.1948
Op-2-04	0.000	0.2934	0.00	1.000	0.4854	-0.4854
Op-1-05	-0.028	0.1271	-0.22	.8289	0.1827	-0.2377
Op-2-05	0.000	0.2320	0.00	1.000	0.3838	-0.3838
Op-1-06	0.064	0.0997	0.64	.5246	0.2285	-0.1013
Op-2-06	-0.000	0.2320	-0.00	1.000	0.3838	-0.3838
Op-1-08	-1.029	0.1168	-8.81	.0000	-0.8357	-1.2221
Op-2-08	-0.853	0.2320	-3.68	.0003	-0.4690	-1.2365
Op-1-09	-0.753	0.0997	-7.56	.0000	-0.5884	-0.9182
Op-2-09	-0.000	0.2320	-0.00	1.000	0.3838	-0.3838
Op-1-10	-0.739	0.1017	-7.26	.0000	-0.5707	-0.9073
Op-2-10	-0.930	0.2320	-4.01	.0001	-0.5464	-1.3139
Op-1-12	-1.032	0.0997	-10.35	.0000	-0.8670	-1.1968
Op-2-12	-0.914	0.2320	-3.94	.0001	-0.5305	-1.2981

Paired comparisons of least square means between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period	-0.1149	0.1005	-1.143	.2546	0.0514	-0.2812

Paired comparisons of least square means among stations between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Station 04	0.0154	0.3197	0.05	.9616	0.5444	-0.5136
Station 05	-0.0275	0.2645	-0.10	.9173	0.4101	-0.4651
Station 06	0.0636	0.2525	0.25	.8016	0.4813	-0.3541
Station 08	-0.1762	0.2597	-0.68	.4985	0.2535	-0.6058
Station 09	-0.7533	0.2525	-2.98	.0033	-0.3356	-1.1710
Station 10	0.1912	0.2533	0.75	.4515	0.6102	-0.2279
Station 12	-0.1176	0.2525	-0.47	.6420	0.3001	-0.5353

Station-period means and deltas from original data where control n=2

Station-Period		N	Station Mean	Range	Standard Error	Upper 95% c.i.	Lower 95% c.i.	Mean Delta	Delta Range	Upper 95% CIi.	Lower 95% C.I.
04	Op-1	16	0.02	0.35	0.022	0.07	-0.02	-0.00	0.42	0.04	-0.05
04	Op-2	4	0.00	0.00	0.000	.	.	0.00	0.00	.	.
05	Op-1	16	0.03	0.35	0.022	0.08	-0.01	-0.02	0.38	0.03	-0.06
05	Op-2	5	0.00	0.00	0.000	.	.	0.00	0.00	.	.
06	Op-1	26	0.01	0.21	0.008	0.03	-0.01	0.02	0.35	0.05	-0.00
06	Op-2	5	0.00	0.00	0.000	.	.	0.00	0.00	.	.
08	Op-1	19	2.70	9.51	0.686	4.14	1.26	-2.68	9.48	-1.25	-4.11
08	Op-2	5	1.07	1.88	0.440	2.29	-0.15	-1.07	1.88	0.15	-2.29
09	Op-1	26	1.79	7.71	0.482	2.78	0.80	-1.76	7.74	-0.76	-2.75
09	Op-2	5	0.00	0.00	0.000	.	.	0.00	0.00	.	.
10	Op-1	25	2.78	11.25	0.769	4.37	1.20	-2.76	11.28	-1.18	-4.33
10	Op-2	5	1.25	2.71	0.549	2.77	-0.27	-1.25	2.71	0.27	-2.77
12	Op-1	26	1.68	4.65	0.258	2.21	1.15	-1.65	4.51	-1.12	-2.17
12	Op-2	5	0.86	1.81	0.313	1.73	-0.01	-0.86	1.81	0.01	-1.73

Period means and deltas from original control data where n=2

Period	N	Station Mean	Range	Standard Error	Upper 95% C.I.	Lower 95% C.I.
Op-1	26	0.03	0.28	0.012	0.06	0.01
Op-2	5	0.00	0.00	0.000	.	.

Analysis of Variance for HBT for 0358 - Conus californicus

Stations = 4, 5, 6, 8, 9, 10, 12 level +1 ft MLLW

Data transformed using log base10(x + 1)

Satterthwaite's Adjustment for Degrees of Freedom used in Analysis of Variance.

Results for Analysis of Variance

Source	Source df	Error df	F-value	Prob.
PERIOD	1	160.000	0.49	0.4869
SEASON	1	160.000	1.20	0.2751
STATION	6	160.000	3.92	0.0011
PERIOD*SEASON	1	160.000	2.23	0.1373
STATION*PERIOD	6	160.000	0.53	0.7838
STATION*SEASON	6	160.000	1.31	0.2546
PERIOD*STATION*SEASON	6	160.000	2.44	0.0277

Results for Power Analysis
Power at alpha = .1

Source	Non-Centrality Parameter	Adjusted non-Centrality Parameter	Power	Adjusted Power	Power to Detect 50% Change
PERIOD	0.49	0.00	0.1805	.	0.1391
STATION*PERIOD	3.19	0.00	0.3198	.	0.2106

Estimates for contrasts on combinations of interaction terms

Source	Difference	Std. Err.	T-value	Prob.
Period in DC	0.0000	0.0111	0.000	1.000
Period in FC	0.0107	0.0106	1.009	.3143
Period in FC-S	-0.0122	0.0127	-0.957	.3399
Period in FC-W	0.0335	0.0169	1.988	.0486
Period in DC-S	-0.0000	0.0143	-0.000	1.000
Period in DC-W	0.0000	0.0169	0.000	1.000

Least square means & confidence intervals from analysis of variance

Source	LS Mean	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period Op-1	-0.001	0.0009	-1.43	.1540	0.0002	-0.0028
Period Op-2	-0.003	0.0020	-1.42	.1564	0.0005	-0.0061
Op-1-04	0.000	0.0028	0.00	1.000	0.0046	-0.0046
Op-2-04	-0.000	0.0064	-0.00	1.000	0.0106	-0.0106
Op-1-05	0.000	0.0028	0.00	1.000	0.0046	-0.0046
Op-2-05	-0.000	0.0050	-0.00	1.000	0.0083	-0.0083
Op-1-06	-0.009	0.0022	-4.22	.0000	-0.0056	-0.0127
Op-2-06	-0.020	0.0050	-3.93	.0001	-0.0115	-0.0281
Op-1-08	-0.000	0.0025	-0.00	1.000	0.0042	-0.0042
Op-2-08	-0.000	0.0050	-0.00	1.000	0.0083	-0.0083
Op-1-09	-0.000	0.0022	-0.00	1.000	0.0036	-0.0036
Op-2-09	-0.000	0.0050	-0.00	1.000	0.0083	-0.0083
Op-1-10	-0.000	0.0022	-0.00	1.000	0.0037	-0.0037
Op-2-10	0.000	0.0050	0.00	1.000	0.0083	-0.0083
Op-1-12	0.000	0.0022	0.00	1.000	0.0036	-0.0036
Op-2-12	-0.000	0.0050	-0.00	1.000	0.0083	-0.0083

Paired comparisons of least square means between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period	0.0015	0.0022	0.697	.4869	0.0051	-0.0021

Paired comparisons of least square means among stations between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Station 04	0.0000	0.0070	0.00	1.000	0.0115	-0.0115
Station 05	0.0000	0.0058	0.00	1.000	0.0095	-0.0095
Station 06	0.0107	0.0055	1.94	.0539	0.0197	0.0016
Station 08	0.0000	0.0056	0.00	1.000	0.0093	-0.0093
Station 09	0.0000	0.0055	0.00	1.000	0.0091	-0.0091
Station 10	-0.0000	0.0055	-0.00	1.000	0.0091	-0.0091
Station 12	0.0000	0.0055	0.00	1.000	0.0091	-0.0091

Station-period means and deltas from original data where control n=2

Station-Period	N	Station Mean	Range	Standard Error	Upper 95% C.I.	Lower 95% C.I.	Mean Delta	Delta Range	Upper 95% CII.	Lower 95% C.I.
04 Op-1	16	0.00	0.00	0.000	.	.	0.00	0.00	.	.
04 Op-2	4	0.00	0.00	0.000	.	.	0.00	0.00	.	.
05 Op-1	16	0.00	0.00	0.000	.	.	0.00	0.00	.	.
05 Op-2	5	0.00	0.00	0.000	.	.	0.00	0.00	.	.
06 Op-1	26	0.02	0.20	0.013	0.05	-0.00	-0.02	0.20	0.00	-0.05
06 Op-2	5	0.04	0.20	0.040	0.15	-0.07	-0.04	0.20	0.07	-0.15
08 Op-1	19	0.00	0.00	0.000	.	.	0.00	0.00	.	.
08 Op-2	5	0.00	0.00	0.000	.	.	0.00	0.00	.	.
09 Op-1	26	0.00	0.00	0.000	.	.	0.00	0.00	.	.
09 Op-2	5	0.00	0.00	0.000	.	.	0.00	0.00	.	.
10 Op-1	25	0.00	0.00	0.000	.	.	0.00	0.00	.	.
10 Op-2	5	0.00	0.00	0.000	.	.	0.00	0.00	.	.
12 Op-1	26	0.00	0.00	0.000	.	.	0.00	0.00	.	.
12 Op-2	5	0.00	0.00	0.000	.	.	0.00	0.00	.	.

Period means and deltas from original control data where n=2

Period	N	Station Mean	Range	Standard Error	Upper 95% C.I.	Lower 95% C.I.
Op-1	26	0.00	0.00	0.000	.	.
Op-2	5	0.00	0.00	0.000	.	.

Analysis of Variance for HBT for 0683 - Dendropoma spp.

Stations = 4, 5, 6, 8, 9, 10, 12 level +1 ft MLLW

Data transformed using arcsin.

Results for Analysis of Variance

Source	Source df	Error df	F-value	Prob.
PERIOD	1	160.000	0.37	0.5424
SEASON	1	160.000	0.37	0.5424
STATION	6	160.000	0.38	0.8924
PERIOD*SEASON	1	160.000	0.37	0.5424
STATION*PERIOD	6	160.000	0.38	0.8924
STATION*SEASON	6	160.000	0.38	0.8924
PERIOD*STATION*SEASON	6	160.000	0.38	0.8924

Results for Power Analysis
Power at alpha = .1

Source	Non-Centrality Parameter	Adjusted non-Centrality Parameter	Power	Adjusted Power	Power to Detect 50% Change
PERIOD	0.37	0.00	0.1620	.	0.1155
STATION*PERIOD	2.27	0.00	0.2524	.	0.1270

Estimates for contrasts on combinations of interaction terms

Source	Difference	Std. Err.	T-value	Prob.
Period in DC	0.0000	0.3358	0.000	1.000
Period in FC	-0.2834	0.3205	-0.884	.3779
Period in FC-S	-0.5668	0.3863	-1.467	.1442
Period in FC-W	0.0000	0.5115	0.000	1.000
Period in DC-S	0.0000	0.4340	0.000	1.000
Period in DC-W	-0.0000	0.5126	-0.000	1.000

Least square means & confidence intervals from analysis of variance

Source	LS Mean	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period Op-1	-0.040	0.0277	-1.46	.1451	0.0053	-0.0862
Period Op-2	0.000	0.0603	0.00	1.000	0.0997	-0.0997
Op-1-04	0.000	0.0838	0.00	1.000	0.1387	-0.1387
Op-2-04	0.000	0.1936	0.00	1.000	0.3203	-0.3203
Op-1-05	-0.283	0.0838	-3.38	.0009	-0.1447	-0.4221
Op-2-05	-0.000	0.1531	-0.00	1.000	0.2532	-0.2532
Op-1-06	0.000	0.0658	0.00	1.000	0.1088	-0.1088
Op-2-06	0.000	0.1531	0.00	1.000	0.2532	-0.2532
Op-1-08	0.000	0.0770	0.00	1.000	0.1274	-0.1274
Op-2-08	0.000	0.1531	0.00	1.000	0.2532	-0.2532
Op-1-09	0.000	0.0658	0.00	1.000	0.1088	-0.1088
Op-2-09	0.000	0.1531	0.00	1.000	0.2532	-0.2532
Op-1-10	0.000	0.0671	0.00	1.000	0.1110	-0.1110
Op-2-10	-0.000	0.1531	-0.00	1.000	0.2532	-0.2532
Op-1-12	0.000	0.0658	0.00	1.000	0.1088	-0.1088
Op-2-12	0.000	0.1531	0.00	1.000	0.2532	-0.2532

Paired comparisons of least square means between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period	-0.0405	0.0663	-0.610	.5424	0.0692	-0.1502

Paired comparisons of least square means among stations between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Station 04	0.0000	0.2110	0.00	1.000	0.3490	-0.3490
Station 05	-0.2834	0.1745	-1.62	.1063	0.0053	-0.5721
Station 06	-0.0000	0.1666	-0.00	1.000	0.2756	-0.2756
Station 08	-0.0000	0.1713	-0.00	1.000	0.2835	-0.2835
Station 09	0.0000	0.1666	0.00	1.000	0.2756	-0.2756
Station 10	0.0000	0.1671	0.00	1.000	0.2765	-0.2765
Station 12	0.0000	0.1666	0.00	1.000	0.2756	-0.2756

Station-period means and deltas from original data where control n=2

Station-Period	N	Station Mean	Range	Standard Error	Upper 95% c.i.	Lower 95% c.i.	Mean Delta	Delta Range	Upper 95% CIi.	Lower 95% C.I.
04 Op-1	16	0.00	0.00	0.000	.	.	0.00	0.00	.	.
04 Op-2	4	0.00	0.00	0.000	.	.	0.00	0.00	.	.
05 Op-1	16	0.04	0.63	0.039	0.12	-0.04	-0.04	0.63	0.04	-0.12
05 Op-2	5	0.00	0.00	0.000	.	.	0.00	0.00	.	.
06 Op-1	26	0.00	0.00	0.000	.	.	0.00	0.00	.	.
06 Op-2	5	0.00	0.00	0.000	.	.	0.00	0.00	.	.
08 Op-1	19	0.00	0.00	0.000	.	.	0.00	0.00	.	.
08 Op-2	5	0.00	0.00	0.000	.	.	0.00	0.00	.	.
09 Op-1	26	0.00	0.00	0.000	.	.	0.00	0.00	.	.
09 Op-2	5	0.00	0.00	0.000	.	.	0.00	0.00	.	.
10 Op-1	25	0.00	0.00	0.000	.	.	0.00	0.00	.	.
10 Op-2	5	0.00	0.00	0.000	.	.	0.00	0.00	.	.
12 Op-1	26	0.00	0.00	0.000	.	.	0.00	0.00	.	.
12 Op-2	5	0.00	0.00	0.000	.	.	0.00	0.00	.	.

Period means and deltas from original control data where n=2

Period	N	Station Mean	Range	Standard Error	Upper 95% C.I.	Lower 95% C.I.
Op-1	26	0.00	0.00	0.000	.	.
Op-2	5	0.00	0.00	0.000	.	.

Analysis of Variance for HBT for 0388 - Diopatra ornata

Stations = 4, 5, 6, 8, 9, 10, 12 level +1 ft MLLW

Data transformed using log base10(x + .1)

Results for Analysis of Variance

Source	Source df	Error df	F-value	Prob.
PERIOD	1	160.000	10.65	0.0013
SEASON	1	160.000	1.85	0.1754
STATION	6	160.000	4.22	0.0006
PERIOD*SEASON	1	160.000	3.44	0.0654
STATION*PERIOD	6	160.000	1.22	0.2966
STATION*SEASON	6	160.000	1.38	0.2270
PERIOD*STATION*SEASON	6	160.000	2.44	0.0277

Results for Power Analysis
Power at alpha = .1

Source	Non-Centrality Parameter	Adjusted non-Centrality Parameter	Power	Adjusted Power	Power to Detect 50% Change
PERIOD	10.65	9.52	0.9458	0.9233	0.1262
STATION*PERIOD	7.34	1.25	0.6030	0.1807	0.1283

Estimates for contrasts on combinations of interaction terms

Source	Difference	Std. Err.	T-value	Prob.
Period in DC	0.5492	0.1502	3.657	.0003
Period in FC	0.1283	0.1433	0.896	.3718
Period in FC-S	0.0599	0.1727	0.347	.7294
Period in FC-W	0.1968	0.2287	0.861	.3908
Period in DC-S	0.2326	0.1941	1.198	.2325
Period in DC-W	0.8657	0.2292	3.777	.0002

Least square means & confidence intervals from analysis of variance

Source	LS Mean	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period Op-1	0.026	0.0124	2.13	.0344	0.0468	0.0059
Period Op-2	-0.070	0.0270	-2.61	.0099	-0.0258	-0.1150
Op-1-04	0.038	0.0375	1.00	.3170	0.0996	-0.0244
Op-2-04	0.000	0.0866	0.00	1.000	0.1432	-0.1432
Op-1-05	0.038	0.0375	1.00	.3170	0.0996	-0.0244
Op-2-05	0.000	0.0684	0.00	1.000	0.1132	-0.1132
Op-1-06	0.053	0.0294	1.81	.0729	0.1017	0.0044
Op-2-06	-0.000	0.0684	-0.00	1.000	0.1132	-0.1132
Op-1-08	-0.023	0.0344	-0.67	.5070	0.0341	-0.0799
Op-2-08	-0.239	0.0684	-3.49	.0006	-0.1253	-0.3518
Op-1-09	0.053	0.0294	1.81	.0729	0.1017	0.0044
Op-2-09	-0.000	0.0684	-0.00	1.000	0.1132	-0.1132
Op-1-10	0.055	0.0300	1.83	.0687	0.1047	0.0054
Op-2-10	0.000	0.0684	0.00	1.000	0.1132	-0.1132
Op-1-12	-0.029	0.0294	-0.98	.3280	0.0198	-0.0775
Op-2-12	-0.254	0.0684	-3.72	.0003	-0.1410	-0.3675

Paired comparisons of least square means between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period	0.0968	0.0297	3.264	.0013	0.1458	0.0477

Paired comparisons of least square means among stations between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Station 04	0.0376	0.0943	0.40	.6905	0.1937	-0.1184
Station 05	0.0376	0.0780	0.48	.6303	0.1667	-0.0915
Station 06	0.0531	0.0745	0.71	.4771	0.1763	-0.0702
Station 08	0.2157	0.0766	2.81	.0055	0.3424	0.0889
Station 09	0.0531	0.0745	0.71	.4771	0.1763	-0.0702
Station 10	0.0550	0.0747	0.74	.4627	0.1787	-0.0686
Station 12	0.2254	0.0745	3.03	.0029	0.3487	0.1022

Station-period means and deltas from original data where control n=2

Station	Period	N	Station Mean	Range	Standard Error	Upper 95% c.i.	Lower 95% c.i.	Mean Delta	Delta Range	Upper 95% CIi.	Lower 95% C.I.
04	Op-1	16	0.00	0.00	0.000	.	.	0.01	0.10	0.03	-0.01
04	Op-2	4	0.00	0.00	0.000	.	.	0.00	0.00	.	.
05	Op-1	16	0.00	0.00	0.000	.	.	0.01	0.10	0.03	-0.01
05	Op-2	5	0.00	0.00	0.000	.	.	0.00	0.00	.	.
06	Op-1	26	0.00	0.00	0.000	.	.	0.02	0.20	0.04	-0.00
06	Op-2	5	0.00	0.00	0.000	.	.	0.00	0.00	.	.
08	Op-1	19	0.02	0.20	0.014	0.05	-0.01	-0.01	0.30	0.03	-0.05
08	Op-2	5	0.08	0.20	0.049	0.22	-0.06	-0.08	0.20	0.06	-0.22
09	Op-1	26	0.00	0.00	0.000	.	.	0.02	0.20	0.04	-0.00
09	Op-2	5	0.00	0.00	0.000	.	.	0.00	0.00	.	.
10	Op-1	25	0.00	0.00	0.000	.	.	0.02	0.20	0.04	-0.00
10	Op-2	5	0.00	0.00	0.000	.	.	0.00	0.00	.	.
12	Op-1	26	0.04	0.40	0.019	0.08	-0.00	-0.02	0.60	0.03	-0.06
12	Op-2	5	0.12	0.40	0.080	0.34	-0.10	-0.12	0.40	0.10	-0.34

Period means and deltas from original control data where n=2

Period	N	Station Mean	Range	Standard Error	Upper 95% C.I.	Lower 95% C.I.
Op-1	26	0.02	0.20	0.010	0.04	-0.00
Op-2	5	0.00	0.00	0.000	.	.

Analysis of Variance for HBT for 0387 - Dodecaceria fewkesi

Stations = 4, 5, 6, 8, 9, 10, 12 level +1 ft MLLW

Data transformed using log base10(x + .1)

Satterthwaite's Adjustment for Degrees of Freedom used in Analysis of Variance.

Results for Analysis of Variance

Source	Source df	Error df	F-value	Prob.
PERIOD	1	160.000	0.27	0.6045
SEASON	1	160.000	0.32	0.5736
STATION	6	160.000	7.52	0.0000
PERIOD*SEASON	1	160.000	0.01	0.9328
STATION*PERIOD	6	160.000	0.27	0.9490
STATION*SEASON	6	160.000	0.32	0.9246
PERIOD*STATION*SEASON	6	160.000	0.01	1.0000

Results for Power Analysis
Power at alpha = .1

Source	Non-Centrality Parameter	Adjusted non-Centrality Parameter	Power	Adjusted Power	Power to Detect 50% Change
PERIOD	0.27	0.00	0.1450	.	0.1669
STATION*PERIOD	1.64	0.00	0.2074	.	0.2276

Estimates for contrasts on combinations of interaction terms

Source	Difference	Std. Err.	T-value	Prob.
Period in DC	0.0000	0.0909	0.000	1.000
Period in FC	0.0652	0.0868	0.752	.4534
Period in FC-S	0.0546	0.1046	0.522	.6023
Period in FC-W	0.0758	0.1385	0.548	.5847
Period in DC-S	-0.0000	0.1175	-0.000	1.000
Period in DC-W	0.0000	0.1388	0.000	1.000

Least square means & confidence intervals from analysis of variance

Source	LS Mean	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period Op-1	-0.020	0.0075	-2.64	.0090	-0.0074	-0.0322
Period Op-2	-0.029	0.0163	-1.78	.0764	-0.0021	-0.0561
Op-1-04	0.000	0.0227	0.00	1.000	0.0376	-0.0376
Op-2-04	0.000	0.0524	0.00	1.000	0.0867	-0.0867
Op-1-05	-0.139	0.0227	-6.10	.0000	-0.1010	-0.1761
Op-2-05	-0.204	0.0414	-4.92	.0000	-0.1352	-0.2723
Op-1-06	0.000	0.0178	0.00	1.000	0.0295	-0.0295
Op-2-06	-0.000	0.0414	-0.00	1.000	0.0686	-0.0686
Op-1-08	0.000	0.0209	0.00	1.000	0.0345	-0.0345
Op-2-08	-0.000	0.0414	-0.00	1.000	0.0686	-0.0686
Op-1-09	0.000	0.0178	0.00	1.000	0.0295	-0.0295
Op-2-09	-0.000	0.0414	-0.00	1.000	0.0686	-0.0686
Op-1-10	0.000	0.0182	0.00	1.000	0.0301	-0.0301
Op-2-10	0.000	0.0414	0.00	1.000	0.0686	-0.0686
Op-1-12	0.000	0.0178	0.00	1.000	0.0295	-0.0295
Op-2-12	-0.000	0.0414	-0.00	1.000	0.0686	-0.0686

Paired comparisons of least square means between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period	0.0093	0.0180	0.519	.6045	0.0390	-0.0204

Paired comparisons of least square means among stations between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Station 04	0.0000	0.0571	0.00	1.000	0.0945	-0.0945
Station 05	0.0652	0.0472	1.38	.1694	0.1434	-0.0129
Station 06	0.0000	0.0451	0.00	1.000	0.0746	-0.0746
Station 08	0.0000	0.0464	0.00	1.000	0.0768	-0.0768
Station 09	0.0000	0.0451	0.00	1.000	0.0746	-0.0746
Station 10	0.0000	0.0452	0.00	1.000	0.0749	-0.0749
Station 12	0.0000	0.0451	0.00	1.000	0.0746	-0.0746

Station-period means and deltas from original data where control n=2

Station-Period	N	Station Mean	Range	Standard Error	Upper 95% c.i.	Lower 95% c.i.	Mean Delta	Delta Range	Upper 95% CIi.	Lower 95% C.I.
04 Op-1	16	0.00	0.00	0.000	.	.	0.00	0.00	.	.
04 Op-2	4	0.00	0.00	0.000	.	.	0.00	0.00	.	.
05 Op-1	16	0.07	0.63	0.041	0.16	-0.01	-0.07	0.63	0.01	-0.16
05 Op-2	5	0.08	0.21	0.051	0.23	-0.06	-0.08	0.21	0.06	-0.23
06 Op-1	26	0.00	0.00	0.000	.	.	0.00	0.00	.	.
06 Op-2	5	0.00	0.00	0.000	.	.	0.00	0.00	.	.
08 Op-1	19	0.00	0.00	0.000	.	.	0.00	0.00	.	.
08 Op-2	5	0.00	0.00	0.000	.	.	0.00	0.00	.	.
09 Op-1	26	0.00	0.00	0.000	.	.	0.00	0.00	.	.
09 Op-2	5	0.00	0.00	0.000	.	.	0.00	0.00	.	.
10 Op-1	25	0.00	0.00	0.000	.	.	0.00	0.00	.	.
10 Op-2	5	0.00	0.00	0.000	.	.	0.00	0.00	.	.
12 Op-1	26	0.00	0.00	0.000	.	.	0.00	0.00	.	.
12 Op-2	5	0.00	0.00	0.000	.	.	0.00	0.00	.	.

Period means and deltas from original control data where n=2

Period	N	Station Mean	Range	Standard Error	Upper 95% C.I.	Lower 95% C.I.
Op-1	26	0.00	0.00	0.000	.	.
Op-2	5	0.00	0.00	0.000	.	.

Analysis of Variance for HBT for 0266 - Epiactis prolifera

Stations = 4, 5, 6, 8, 9, 10, 12 level +1 ft MLLW

Data transformed using log base10(x + .5)

Results for Analysis of Variance

Source	Source df	Error df	F-value	Prob.
PERIOD	1	160.000	10.20	0.0017
SEASON	1	160.000	0.75	0.3867
STATION	6	160.000	11.90	0.0000
PERIOD*SEASON	1	160.000	7.66	0.0063
STATION*PERIOD	6	160.000	0.66	0.6812
STATION*SEASON	6	160.000	1.03	0.4064
PERIOD*STATION*SEASON	6	160.000	0.42	0.8655

Results for Power Analysis
Power at alpha = .1

Source	Non-Centrality Parameter	Adjusted non-Centrality Parameter	Power	Adjusted Power	Power to Detect 50% Change
PERIOD	10.20	9.07	0.9376	0.9122	0.9546
STATION*PERIOD	3.97	0.00	0.3767	.	0.5427

Estimates for contrasts on combinations of interaction terms

Source	Difference	Std. Err.	T-value	Prob.
Period in DC	0.4658	0.1925	2.420	.0166
Period in FC	0.3839	0.1837	2.090	.0382
Period in FC-S	0.0205	0.2214	0.093	.9263
Period in FC-W	0.7473	0.2932	2.549	.0117
Period in DC-S	0.0926	0.2487	0.372	.7103
Period in DC-W	0.8389	0.2938	2.855	.0049

Least square means & confidence intervals from analysis of variance

Source	LS Mean	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period Op-1	0.013	0.0158	0.85	.3970	0.0397	-0.0128
Period Op-2	-0.108	0.0345	-3.12	.0021	-0.0508	-0.1651
Op-1-04	-0.328	0.0480	-6.84	.0000	-0.2490	-0.4080
Op-2-04	-0.479	0.1110	-4.32	.0000	-0.2958	-0.6629
Op-1-05	-0.080	0.0480	-1.68	.0959	-0.0010	-0.1600
Op-2-05	-0.207	0.0877	-2.36	.0193	-0.0622	-0.3525
Op-1-06	0.030	0.0377	0.81	.4218	0.0927	-0.0320
Op-2-06	-0.076	0.0877	-0.86	.3891	0.0694	-0.2209
Op-1-08	0.089	0.0442	2.02	.0448	0.1623	0.0162
Op-2-08	-0.193	0.0877	-2.20	.0291	-0.0481	-0.3383
Op-1-09	0.027	0.0377	0.72	.4726	0.0895	-0.0352
Op-2-09	-0.032	0.0877	-0.37	.7150	0.1130	-0.1772
Op-1-10	0.176	0.0385	4.57	.0000	0.2396	0.1123
Op-2-10	0.116	0.0877	1.32	.1873	0.2613	-0.0290
Op-1-12	0.180	0.0377	4.79	.0000	0.2428	0.1181
Op-2-12	0.116	0.0877	1.32	.1873	0.2613	-0.0290

Paired comparisons of least square means between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period	0.1214	0.0380	3.194	.0017	0.1843	0.0585

Paired comparisons of least square means among stations between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Station 04	0.1509	0.1209	1.25	.2138	0.3509	-0.0491
Station 05	0.1269	0.1000	1.27	.2064	0.2923	-0.0386
Station 06	0.1061	0.0955	1.11	.2680	0.2641	-0.0518
Station 08	0.2824	0.0982	2.88	.0046	0.4449	0.1200
Station 09	0.0592	0.0955	0.62	.5360	0.2172	-0.0987
Station 10	0.0598	0.0958	0.62	.5334	0.2182	-0.0987
Station 12	0.0643	0.0955	0.67	.5015	0.2223	-0.0936

Station-period means and deltas from original data where control n=2

Station	Period	N	Station Mean	Range	Standard Error	Upper 95% c.i.	Lower 95% c.i.	Mean Delta	Delta Range	Upper 95% CIi.	Lower 95% C.I.
04	Op-1	16	1.43	2.40	0.153	1.75	1.10	-1.03	2.20	-0.70	-1.35
04	Op-2	4	1.65	2.00	0.427	3.01	0.29	-1.43	2.60	0.37	-3.22
05	Op-1	16	0.66	2.00	0.147	0.98	0.35	-0.26	2.40	0.11	-0.63
05	Op-2	5	0.64	1.60	0.293	1.45	-0.17	-0.44	2.00	0.57	-1.45
06	Op-1	26	0.28	1.00	0.059	0.41	0.16	0.04	1.60	0.19	-0.11
06	Op-2	5	0.28	0.80	0.150	0.70	-0.14	-0.08	1.40	0.57	-0.73
08	Op-1	19	0.18	0.40	0.037	0.26	0.10	0.18	1.10	0.32	0.04
08	Op-2	5	0.56	1.00	0.172	1.04	0.08	-0.36	1.60	0.43	-1.15
09	Op-1	26	0.27	1.00	0.046	0.36	0.18	0.05	1.50	0.19	-0.08
09	Op-2	5	0.28	0.80	0.150	0.70	-0.14	-0.08	1.10	0.45	-0.61
10	Op-1	25	0.03	0.20	0.015	0.06	0.00	0.29	0.90	0.40	0.19
10	Op-2	5	0.00	0.00	0.000	.	.	0.20	0.70	0.55	-0.15
12	Op-1	26	0.02	0.20	0.013	0.05	-0.00	0.30	0.70	0.39	0.21
12	Op-2	5	0.00	0.00	0.000	.	.	0.20	0.70	0.55	-0.15

Period means and deltas from original control data where n=2

Period	N	Station Mean	Range	Standard Error	Upper 95% C.I.	Lower 95% C.I.
Op-1	26	0.32	0.80	0.048	0.42	0.22
Op-2	5	0.20	0.70	0.126	0.55	-0.15

Analysis of Variance for HBT for 0300 - Fissurella volcano

Stations = 4, 5, 6, 8, 9, 10, 12 level +1 ft MLLW

Data transformed using log base10(x + .1)

Results for Analysis of Variance

Source	Source df	Error df	F-value	Prob.
PERIOD	1	160.000	9.57	0.0023
SEASON	1	160.000	1.49	0.2235
STATION	6	160.000	25.18	0.0000
PERIOD*SEASON	1	160.000	8.06	0.0051
STATION*PERIOD	6	160.000	0.67	0.6730
STATION*SEASON	6	160.000	0.52	0.7905
PERIOD*STATION*SEASON	6	160.000	0.93	0.4741

Results for Power Analysis
Power at alpha = .1

Source	Non-Centrality Parameter	Adjusted non-Centrality Parameter	Power	Adjusted Power	Power to Detect 50% Change
PERIOD	9.57	8.45	0.9245	0.8945	0.9993
STATION*PERIOD	4.03	0.00	0.3812	.	0.2197

Estimates for contrasts on combinations of interaction terms

Source	Difference	Std. Err.	T-value	Prob.
Period in DC	1.5016	0.4326	3.471	.0007
Period in FC	0.3488	0.4128	0.845	.3995
Period in FC-S	0.4743	0.4976	0.953	.3419
Period in FC-W	0.2233	0.6589	0.339	.7352
Period in DC-S	3.0741	0.5591	5.499	.0000
Period in DC-W	-0.0709	0.6604	-0.107	.9146

Least square means & confidence intervals from analysis of variance

Source	LS Mean	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period Op-1	-0.440	0.0356	-12.34	.0000	-0.3808	-0.4986
Period Op-2	-0.704	0.0776	-9.07	.0000	-0.5756	-0.8325
Op-1-04	-0.316	0.1080	-2.92	.0040	-0.1370	-0.4943
Op-2-04	-0.560	0.2494	-2.24	.0262	-0.1470	-0.9722
Op-1-05	-0.448	0.1080	-4.15	.0001	-0.2695	-0.6269
Op-2-05	-0.433	0.1972	-2.19	.0296	-0.1065	-0.7589
Op-1-06	-0.553	0.0847	-6.53	.0000	-0.4130	-0.6933
Op-2-06	-0.673	0.1972	-3.42	.0008	-0.3473	-0.9996
Op-1-08	-0.703	0.0992	-7.09	.0000	-0.5392	-0.8675
Op-2-08	-1.164	0.1972	-5.90	.0000	-0.8378	-1.4902
Op-1-09	-1.238	0.0847	-14.61	.0000	-1.0975	-1.3778
Op-2-09	-1.736	0.1972	-8.81	.0000	-1.4098	-2.0622
Op-1-10	-0.239	0.0865	-2.76	.0064	-0.0958	-0.3819
Op-2-10	-0.479	0.1972	-2.43	.0161	-0.1532	-0.8056
Op-1-12	0.419	0.0847	4.95	.0000	0.5592	0.2788
Op-2-12	0.117	0.1972	0.59	.5541	0.4431	-0.2093

Paired comparisons of least square means between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period	0.2643	0.0854	3.094	.0023	0.4057	0.1230

Paired comparisons of least square means among stations between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Station 04	0.2440	0.2718	0.90	.3706	0.6936	-0.2056
Station 05	-0.0155	0.2248	-0.07	.9450	0.3564	-0.3874
Station 06	0.1203	0.2146	0.56	.5758	0.4753	-0.2347
Station 08	0.4606	0.2207	2.09	.0385	0.8258	0.0955
Station 09	0.4984	0.2146	2.32	.0215	0.8534	0.1433
Station 10	0.2405	0.2153	1.12	.2656	0.5967	-0.1157
Station 12	0.3021	0.2146	1.41	.1611	0.6571	-0.0529

Station-period means and deltas from original data where control n=2

Station	Period	N	Station Mean	Range	Standard Error	Upper 95% c.i.	Lower 95% c.i.	Mean Delta	Delta Range	Upper 95% CIi.	Lower 95% C.I.
04	Op-1	16	2.01	4.60	0.356	2.77	1.25	-1.19	4.60	-0.46	-1.91
04	Op-2	4	1.30	2.40	0.551	3.05	-0.45	-1.10	2.10	0.51	-2.71
05	Op-1	16	2.54	5.00	0.313	3.20	1.87	-1.71	4.10	-1.10	-2.33
05	Op-2	5	2.20	8.00	1.464	6.27	-1.87	-1.66	6.20	1.47	-4.79
06	Op-1	26	2.72	11.80	0.428	3.60	1.83	-2.08	11.30	-1.23	-2.93
06	Op-2	5	2.28	4.20	0.758	4.38	0.18	-1.74	2.50	-0.34	-3.14
08	Op-1	19	9.26	67.40	3.550	16.72	1.81	-8.48	66.30	-1.11	-15.85
08	Op-2	5	6.96	8.80	1.462	11.02	2.90	-6.42	10.20	-1.85	-10.99
09	Op-1	26	24.45	101.60	6,183	37.18	11.71	-23.81	100.30	-11.20	-36.43
09	Op-2	5	26.96	33.20	7.154	46.82	7.10	-26.42	33.30	-6.70	-46.14
10	Op-1	25	2.05	11.60	0.511	3.10	0.99	-1.42	11.30	-0.44	-2.39
10	Op-2	5	1.44	2.60	0.534	2.92	-0.04	-0.90	1.60	-0.10	-1.70
12	Op-1	26	0.40	3.60	0.162	0.73	0.07	0.23	4.50	0.58	-0.11
12	Op-2	5	0.32	0.80	0.136	0.70	-0.06	0.22	2.30	1.30	-0.86

Period means and deltas from original control data where n=2

Period	N	Station Mean	Range	Standard Error	Upper 95% C.I.	Lower 95% C.I.
Op-1	26	0.63	1.70	0.082	0.80	0.47
Op-2	5	0.54	1.90	0.350	1.51	-0.43

Analysis of Variance for HBT for 0838 - Haliotis spp.

Stations = 4, 5, 6, 8, 9, 10, 12 level +1 ft MLLW

Data transformed using 1/(x + .1)

Results for Analysis of Variance

Source	Source df	Error df	F-value	Prob.
PERIOD	1	160.000	3.50	0.0631
SEASON	1	160.000	0.04	0.8503
STATION	6	160.000	13.27	0.0000
PERIOD*SEASON	1	160.000	3.95	0.0485
STATION*PERIOD	6	160.000	2.18	0.0475
STATION*SEASON	6	160.000	0.80	0.5719
PERIOD*STATION*SEASON	6	160.000	0.56	0.7578

Results for Power Analysis
Power at alpha = .1

Source	Non-Centrality Parameter	Adjusted non-Centrality Parameter	Power	Adjusted Power	Power to Detect 50% Change
PERIOD	3.50	2.46	0.5867	0.4674	0.5395
STATION*PERIOD	13.08	6.92	0.8505	0.5773	0.2036

Estimates for contrasts on combinations of interaction terms

Source	Difference	Std. Err.	T-value	Prob.
Period in DC	-1.4468	3.0301	-0.477	.6337
Period in FC	9.2848	2.8915	3.211	.0016
Period in FC-S	14.0746	3.4850	4.039	.0001
Period in FC-W	4.4950	4.6150	0.974	.3315
Period in DC-S	2.0906	3.9158	0.534	.5942
Period in DC-W	-4.9841	4.6252	-1.078	.2828

Least square means & confidence intervals from analysis of variance

Source	LS Mean	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period Op-1	3.581	0.2495	14.35	.0000	3.9934	3.1678
Period Op-2	2.461	0.5438	4.53	.0000	3.3606	1.5611
Op-1-04	6.679	0.7563	8.83	.0000	7.9303	5.4276
Op-2-04	6.111	1.7467	3.50	.0006	9.0009	3.2213
Op-1-05	6.168	0.7563	8.16	.0000	7.4197	4.9171
Op-2-05	1.111	1.3809	0.80	.4222	3.3957	-1.1735
Op-1-06	7.826	0.5933	13.19	.0000	8.8079	6.8447
Op-2-06	4.167	1.3809	3.02	.0030	6.4513	1.8821
Op-1-08	2.131	0.6950	3.07	.0025	3.2814	0.9816
Op-2-08	2.861	1.3809	2.07	.0399	5.1457	0.5765
Op-1-09	3.963	0.5933	6.68	.0000	4.9447	2.9815
Op-2-09	4.087	1.3809	2.96	.0035	6.3719	1.8027
Op-1-10	-0.807	0.6056	-1.33	.1847	0.1952	-1.8085
Op-2-10	-0.556	1.3809	-0.40	.6880	1.7290	-2.8402
Op-1-12	-0.897	0.5933	-1.51	.1324	0.0842	-1.8791
Op-2-12	-0.556	1.3809	-0.40	.6880	1.7290	-2.8402

Paired comparisons of least square means between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period	1.1197	0.5983	1.871	.0631	2.1096	0.1298

Paired comparisons of least square means among stations between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Station 04	0.5678	1.9034	0.30	.7658	3.7169	-2.5813
Station 05	5.0573	1.5745	3.21	.0016	7.6621	2.4524
Station 06	3.6596	1.5030	2.43	.0160	6.1462	1.1731
Station 08	-0.7296	1.5459	-0.47	.6376	1.8280	-3.2873
Station 09	-0.1242	1.5030	-0.08	.9342	2.3624	-2.6108
Station 10	-0.2511	1.5078	-0.17	.8680	2.2436	-2.7457
Station 12	-0.3419	1.5030	-0.23	.8203	2.1447	-2.8284

Station-period means and deltas from original data where control n=2

Station-Period	N	Station Mean	Range	Standard Error	Upper 95% c.i.	Lower 95% c.i.	Mean Delta	Delta Range	Upper 95% CIi.	Lower 95% C.I.
04 Op-1	16	1.06	2.60	0.222	1.53	0.58	-1.04	2.65	-0.57	-1.52
04 Op-2	4	0.30	0.50	0.122	0.69	-0.09	-0.29	0.55	0.14	-0.71
05 Op-1	16	0.38	0.90	0.071	0.53	0.23	-0.37	1.00	-0.21	-0.53
05 Op-2	5	0.04	0.20	0.040	0.15	-0.07	-0.03	0.25	0.09	-0.15
06 Op-1	26	0.84	1.60	0.076	1.00	0.68	-0.82	1.60	-0.66	-0.98
06 Op-2	5	0.14	0.20	0.040	0.25	0.03	-0.13	0.20	-0.01	-0.25
08 Op-1	19	0.15	0.90	0.059	0.27	0.02	-0.13	0.95	-0.01	-0.26
08 Op-2	5	0.12	0.40	0.073	0.32	-0.08	-0.11	0.40	0.10	-0.32
09 Op-1	26	0.44	2.40	0.119	0.69	0.20	-0.43	2.35	-0.19	-0.67
09 Op-2	5	0.26	0.60	0.125	0.61	-0.09	-0.25	0.65	0.11	-0.61
10 Op-1	25	0.00	0.00	0.000	.	.	0.01	0.10	0.03	0.00
10 Op-2	5	0.00	0.00	0.000	.	.	0.01	0.05	0.04	-0.02
12 Op-1	26	0.00	0.00	0.000	.	.	0.02	0.10	0.03	0.00
12 Op-2	5	0.00	0.00	0.000	.	.	0.01	0.05	0.04	-0.02

Period means and deltas from original control data where n=2

Period	N	Station Mean	Range	Standard Error	Upper 95% C.I.	Lower 95% C.I.
Op-1	26	0.02	0.10	0.006	0.03	0.00
Op-2	5	0.01	0.05	0.010	0.04	-0.02

Analysis of Variance for HBT for 0423 - Leptasterias spp.

Stations = 4, 5, 6, 8, 9, 10, 12 level +1 ft MLLW

Data transformed using log base10(x + .1)

Results for Analysis of Variance

Source	Source df	Error df	F-value	Prob.
PERIOD	1	160.000	0.04	0.8486
SEASON	1	160.000	0.06	0.8053
STATION	6	160.000	23.08	0.0000
PERIOD*SEASON	1	160.000	1.18	0.2800
STATION*PERIOD	6	160.000	0.27	0.9497
STATION*SEASON	6	160.000	1.11	0.3565
PERIOD*STATION*SEASON	6	160.000	0.21	0.9733

Results for Power Analysis
Power at alpha = .1

Source	Non-Centrality Parameter	Adjusted non-Centrality Parameter	Power	Adjusted Power	Power to Detect 50% Change
PERIOD	0.04	0.00	0.1061	.	0.8016
STATION*PERIOD	1.63	0.00	0.2067	.	0.5706

Estimates for contrasts on combinations of interaction terms

Source	Difference	Std. Err.	T-value	Prob.
Period in DC	-0.0449	0.3448	-0.130	.8966
Period in FC	-0.0462	0.3290	-0.140	.8884
Period in FC-S	-0.3799	0.3966	-0.958	.3396
Period in FC-W	0.2874	0.5251	0.547	.5849
Period in DC-S	-0.2279	0.4456	-0.511	.6097
Period in DC-W	0.1381	0.5263	0.262	.7934

Least square means & confidence intervals from analysis of variance

Source	LS Mean	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period Op-1	0.321	0.0284	11.31	.0000	0.3680	0.2740
Period Op-2	0.334	0.0619	5.40	.0000	0.4364	0.2316
Op-1-04	-0.111	0.0861	-1.29	.1982	0.0312	-0.2536
Op-2-04	-0.243	0.1988	-1.22	.2229	0.0856	-0.5720
Op-1-05	-0.259	0.0861	-3.00	.0031	-0.1161	-0.4009
Op-2-05	-0.259	0.1571	-1.65	.1008	0.0006	-0.5193
Op-1-06	-0.046	0.0675	-0.68	.4964	0.0657	-0.1577
Op-2-06	0.133	0.1571	0.85	.3985	0.3930	-0.1269
Op-1-08	0.653	0.0791	8.26	.0000	0.7842	0.5226
Op-2-08	0.677	0.1571	4.31	.0000	0.9369	0.4169
Op-1-09	0.601	0.0675	8.91	.0000	0.7131	0.4897
Op-2-09	0.677	0.1571	4.31	.0000	0.9369	0.4169
Op-1-10	0.705	0.0689	10.23	.0000	0.8189	0.5909
Op-2-10	0.677	0.1571	4.31	.0000	0.9369	0.4169
Op-1-12	0.703	0.0675	10.41	.0000	0.8148	0.5914
Op-2-12	0.677	0.1571	4.31	.0000	0.9369	0.4169

Paired comparisons of least square means between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period	-0.0130	0.0681	-0.191	.8486	0.0996	-0.1257

Paired comparisons of least square means among stations between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Station 04	0.1320	0.2166	0.61	.5431	0.4904	-0.2263
Station 05	0.0008	0.1792	0.00	.9964	0.2972	-0.2956
Station 06	-0.1791	0.1710	-1.05	.2967	0.1039	-0.4620
Station 08	-0.0235	0.1759	-0.13	.8939	0.2675	-0.3145
Station 09	-0.0755	0.1710	-0.44	.6594	0.2074	-0.3585
Station 10	0.0279	0.1716	0.16	.8708	0.3118	-0.2559
Station 12	0.0262	0.1710	0.15	.8785	0.3091	-0.2568

Station-period means and deltas from original data where control n=2

Station-Period		N	Station Mean	Range	Standard Error	Upper 95% c.i.	Lower 95% c.i.	Mean Delta	Delta Range	Upper 95% CIi.	Lower 95% C.I.
04	Op-1	16	0.79	2.80	0.197	1.21	0.37	-0.33	3.00	0.14	-0.79
04	Op-2	4	0.75	0.80	0.171	1.29	0.21	-0.28	1.20	0.57	-1.12
05	Op-1	16	1.04	2.60	0.206	1.48	0.60	-0.58	3.20	-0.10	-1.05
05	Op-2	5	1.00	1.20	0.253	1.70	0.30	-0.56	1.30	0.15	-1.27
06	Op-1	26	0.67	2.40	0.123	0.92	0.42	-0.18	3.00	0.10	-0.45
06	Op-2	5	0.48	1.00	0.206	1.05	-0.09	-0.04	1.10	0.51	-0.59
08	Op-1	19	0.01	0.20	0.011	0.03	-0.01	0.44	1.00	0.58	0.29
08	Op-2	5	0.00	0.00	0.000	.	.	0.44	0.70	0.79	0.09
09	Op-1	26	0.08	0.80	0.043	0.17	-0.01	0.42	1.70	0.59	0.24
09	Op-2	5	0.00	0.00	0.000	.	.	0.44	0.70	0.79	0.09
10	Op-1	25	0.00	0.00	0.000	.	.	0.50	1.20	0.64	0.36
10	Op-2	5	0.00	0.00	0.000	.	.	0.44	0.70	0.79	0.09
12	Op-1	26	0.00	0.00	0.000	.	.	0.49	1.20	0.63	0.36
12	Op-2	5	0.00	0.00	0.000	.	.	0.44	0.70	0.79	0.09

Period means and deltas from original control data where n=2

Period	N	Station Mean	Range	Standard Error	Upper 95% C.I.	Lower 95% C.I.
Op-1	26	0.49	1.20	0.066	0.63	0.36
Op-2	5	0.44	0.70	0.125	0.79	0.09

Analysis of Variance for HBT for 0292 - Lottia digitalis

Stations = 4, 5, 6, 8, 9, 10, 12 level +1 ft MLLW

Data transformed using log base10(x + .1)

Results for Analysis of Variance

Source	Source df	Error df	F-value	Prob.
PERIOD	1	160.000	0.08	0.7812
SEASON	1	160.000	1.07	0.3036
STATION	6	160.000	7.84	0.0000
PERIOD*SEASON	1	160.000	1.85	0.1757
STATION*PERIOD	6	160.000	1.09	0.3686
STATION*SEASON	6	160.000	0.14	0.9906
PERIOD*STATION*SEASON	6	160.000	0.27	0.9498

Results for Power Analysis
Power at alpha = .1

Source	Non-Centrality Parameter	Adjusted non-Centrality Parameter	Power	Adjusted Power	Power to Detect 50% Change
PERIOD	0.08	0.00	0.1130	.	0.1599
STATION*PERIOD	6.56	0.48	0.5550	0.1294	0.1472

Estimates for contrasts on combinations of interaction terms

Source	Difference	Std. Err.	T-value	Prob.
Period in DC	0.4794	0.4226	1.134	.2583
Period in FC	-0.3169	0.4033	-0.786	.4331
Period in FC-S	-0.0318	0.4861	-0.065	.9480
Period in FC-W	-0.6021	0.6437	-0.935	.3510
Period in DC-S	0.9887	0.5461	1.810	.0721
Period in DC-W	-0.0299	0.6451	-0.046	.9630

Least square means & confidence intervals from analysis of variance

Source	LS Mean	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period Op-1	-0.132	0.0348	-3.79	.0002	-0.0743	-0.1894
Period Op-2	-0.155	0.0758	-2.04	.0425	-0.0296	-0.2806
Op-1-04	-0.046	0.1055	-0.44	.6615	0.1282	-0.2208
Op-2-04	-0.000	0.2436	-0.00	1.000	0.4030	-0.4030
Op-1-05	0.019	0.1055	0.18	.8587	0.1933	-0.1557
Op-2-05	0.151	0.1926	0.78	.4357	0.4691	-0.1681
Op-1-06	0.012	0.0828	0.14	.8889	0.1485	-0.1253
Op-2-06	0.151	0.1926	0.78	.4357	0.4691	-0.1681
Op-1-08	-0.733	0.0969	-7.56	.0000	-0.5728	-0.8936
Op-2-08	-0.788	0.1926	-4.09	.0001	-0.4698	-1.1071
Op-1-09	-0.118	0.0828	-1.42	.1574	0.0194	-0.2544
Op-2-09	-0.418	0.1926	-2.17	.0313	-0.0997	-0.7370
Op-1-10	0.012	0.0845	0.14	.8911	0.1513	-0.1282
Op-2-10	-0.330	0.1926	-1.71	.0884	-0.0116	-0.6488
Op-1-12	-0.068	0.0828	-0.82	.4127	0.0689	-0.2049
Op-2-12	0.151	0.1926	0.78	.4357	0.4691	-0.1681

Paired comparisons of least square means between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period	0.0232	0.0834	0.278	.7812	0.1613	-0.1148

Paired comparisons of least square means among stations between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Station 04	-0.0463	0.2655	-0.17	.8618	0.3929	-0.4855
Station 05	-0.1317	0.2196	-0.60	.5495	0.2316	-0.4950
Station 06	-0.1389	0.2096	-0.66	.5084	0.2079	-0.4857
Station 08	0.0553	0.2156	0.26	.7981	0.4120	-0.3015
Station 09	0.3008	0.2096	1.44	.1532	0.6476	-0.0460
Station 10	0.3418	0.2103	1.63	.1061	0.6897	-0.0061
Station 12	-0.2185	0.2096	-1.04	.2988	0.1283	-0.5653

Station-period means and deltas from original data where control n=2

Station-Period		N	Station Mean	Range	Standard Error	Upper 95% c.i.	Lower 95% c.i.	Mean Delta	Delta Range	Upper 95% CIi.	Lower 95% C.I.
04	Op-1	16	0.06	1.00	0.063	0.20	-0.07	-0.06	1.10	0.08	-0.19
04	Op-2	4	0.00	0.00	0.000	.	.	0.00	0.00	.	.
05	Op-1	16	0.00	0.00	0.000	.	.	0.01	0.10	0.02	-0.01
05	Op-2	5	0.00	0.00	0.000	.	.	0.06	0.30	0.23	-0.11
06	Op-1	26	0.00	0.00	0.000	.	.	0.00	0.10	0.01	-0.00
06	Op-2	5	0.00	0.00	0.000	.	.	0.06	0.30	0.23	-0.11
08	Op-1	19	2.92	14.20	1.089	5.20	0.63	-2.91	14.20	-0.62	-5.20
08	Op-2	5	7.00	20.00	4.359	19.10	-5.10	-6.94	19.70	5.04	-18.92
09	Op-1	26	0.10	1.20	0.053	0.21	-0.01	-0.10	1.30	0.01	-0.21
09	Op-2	5	1.60	7.00	1.364	5.39	-2.19	-1.54	7.00	2.27	-5.35
10	Op-1	25	0.00	0.00	0.000	.	.	0.00	0.10	0.01	-0.00
10	Op-2	5	0.60	2.00	0.400	1.71	-0.51	-0.54	2.00	0.54	-1.62
12	Op-1	26	0.08	1.20	0.054	0.19	-0.04	-0.07	1.30	0.04	-0.19
12	Op-2	5	0.00	0.00	0.000	.	.	0.06	0.30	0.23	-0.11

Period means and deltas from original control data where n=2

Period	N	Station Mean	Range	Standard Error	Upper 95% C.I.	Lower 95% C.I.
Op-1	26	0.00	0.10	0.004	0.01	-0.00
Op-2	5	0.06	0.30	0.060	0.23	-0.11

Analysis of Variance for HBT for 0293 - Lottia limatula

Stations = 4, 5, 6, 8, 9, 10, 12 level +1 ft MLLW

Data transformed using log base10(x + .1)

Results for Analysis of Variance

Source	Source df	Error df	F-value	Prob.
PERIOD	1	160.000	2.17	0.1423
SEASON	1	160.000	0.97	0.3250
STATION	6	160.000	10.04	0.0000
PERIOD*SEASON	1	160.000	0.29	0.5907
STATION*PERIOD	6	160.000	0.43	0.8585
STATION*SEASON	6	160.000	0.98	0.4436
PERIOD*STATION*SEASON	6	160.000	1.71	0.1212

Results for Power Analysis
Power at alpha = .1

Source	Non-Centrality Parameter	Adjusted non-Centrality Parameter	Power	Adjusted Power	Power to Detect 50% Change
PERIOD	2.17	1.15	0.4309	0.2849	0.9976
STATION*PERIOD	2.58	0.00	0.2750	.	0.1241

Estimates for contrasts on combinations of interaction terms

Source	Difference	Std. Err.	T-value	Prob.
Period in DC	-0.3920	0.4940	-0.793	.4287
Period in FC	-0.6150	0.4714	-1.304	.1940
Period in FC-S	-0.7942	0.5682	-1.398	.1641
Period in FC-W	-0.4358	0.7525	-0.579	.5633
Period in DC-S	-0.5808	0.6384	-0.910	.3644
Period in DC-W	-0.2032	0.7541	-0.270	.7879

Least square means & confidence intervals from analysis of variance

Source	LS Mean	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period Op-1	-0.545	0.0407	-13.39	.0000	-0.4775	-0.6121
Period Op-2	-0.401	0.0887	-4.52	.0000	-0.2543	-0.5477
Op-1-04	-0.279	0.1233	-2.26	.0252	-0.0745	-0.4826
Op-2-04	-0.262	0.2848	-0.92	.3588	0.2091	-0.7333
Op-1-05	-0.475	0.1233	-3.85	.0002	-0.2708	-0.6789
Op-2-05	-0.137	0.2251	-0.61	.5431	0.2353	-0.5097
Op-1-06	0.008	0.0967	0.08	.9336	0.1681	-0.1520
Op-2-06	0.269	0.2251	1.19	.2340	0.6414	-0.1035
Op-1-08	-0.719	0.1133	-6.35	.0000	-0.5318	-0.9067
Op-2-08	-0.422	0.2251	-1.87	.0630	-0.0490	-0.7940
Op-1-09	-0.923	0.0967	-9.54	.0000	-0.7626	-1.0827
Op-2-09	-1.029	0.2251	-4.57	.0000	-0.6568	-1.4018
Op-1-10	-0.474	0.0987	-4.80	.0000	-0.3104	-0.6371
Op-2-10	-0.311	0.2251	-1.38	.1695	0.0618	-0.6832
Op-1-12	-0.953	0.0967	-9.85	.0000	-0.7928	-1.1129
Op-2-12	-0.915	0.2251	-4.06	.0001	-0.5426	-1.2876

Paired comparisons of least square means between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period	-0.1439	0.0976	-1.475	.1423	0.0175	-0.3053

Paired comparisons of least square means among stations between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Station 04	-0.0164	0.3103	-0.05	.9578	0.4970	-0.5299
Station 05	-0.3376	0.2567	-1.32	.1903	0.0871	-0.7624
Station 06	-0.2609	0.2451	-1.06	.2887	0.1445	-0.6663
Station 08	-0.2977	0.2521	-1.18	.2393	0.1193	-0.7148
Station 09	0.1066	0.2451	0.44	.6641	0.5120	-0.2988
Station 10	-0.1631	0.2458	-0.66	.5080	0.2436	-0.5699
Station 12	-0.0378	0.2451	-0.15	.8778	0.3677	-0.4432

Station-period means and deltas from original data where control n=2

Station-Period	N	Station Mean	Range	Standard Error	Upper 95% C.I.	Lower 95% C.I.	Mean Delta	Delta Range	Upper 95% CIi.	Lower 95% C.I.
04 Op-1	16	0.96	2.20	0.164	1.31	0.61	-0.47	2.40	-0.07	-0.87
04 Op-2	4	2.00	3.80	0.804	4.56	-0.56	-0.53	0.70	-0.05	-1.00
05 Op-1	16	1.71	4.00	0.339	2.43	0.99	-1.22	4.10	-0.53	-1.91
05 Op-2	5	1.08	1.60	0.287	1.88	0.28	0.18	4.80	2.41	-2.05
06 Op-1	26	0.60	2.40	0.126	0.86	0.34	-0.12	3.30	0.19	-0.42
06 Op-2	5	0.60	1.40	0.237	1.26	-0.06	0.66	2.40	1.84	-0.52
08 Op-1	19	2.59	5.00	0.328	3.28	1.90	-2.12	5.30	-1.43	-2.80
08 Op-2	5	7.92	23.80	4.660	20.86	-5.02	-6.66	21.00	5.11	-18.43
09 Op-1	26	4.74	10.40	0.527	5.82	3.65	-4.25	10.60	-3.15	-5.36
09 Op-2	5	17.80	45.00	8.692	41.93	-6.33	-16.54	43.00	6.53	-39.61
10 Op-1	25	1.82	4.60	0.246	2.32	1.31	-1.32	5.30	-0.79	-1.85
10 Op-2	5	1.72	2.60	0.568	3.30	0.14	-0.46	5.60	2.49	-3.41
12 Op-1	26	6.19	22.40	1.101	8.46	3.93	-5.71	22.40	-3.48	-7.94
12 Op-2	5	9.04	21.20	4.004	20.16	-2.08	-7.78	23.20	4.21	-19.77

Period means and deltas from original control data where n=2

Period	N	Station Mean	Range	Standard Error	Upper 95% C.I.	Lower 95% C.I.
Op-1	26	0.48	1.50	0.073	0.64	0.33
Op-2	5	1.26	3.40	0.634	3.02	-0.50

Analysis of Variance for HBT for 0294 - Lottia pelta

Stations = 4, 5, 6, 8, 9, 10, 12 level +1 ft MLLW

Data transformed using log base10(x + .1)

Results for Analysis of Variance

Source	Source df	Error df	F-value	Prob.
PERIOD	1	160.000	3.83	0.0520
SEASON	1	160.000	3.91	0.0499
STATION	6	160.000	10.90	0.0000
PERIOD*SEASON	1	160.000	2.15	0.1449
STATION*PERIOD	6	160.000	1.37	0.2292
STATION*SEASON	6	160.000	0.79	0.5798
PERIOD*STATION*SEASON	6	160.000	0.36	0.9007

Results for Power Analysis
Power at alpha = .1

Source	Non-Centrality Parameter	Adjusted non-Centrality Parameter	Power	Adjusted Power	Power to Detect 50% Change
PERIOD	3.83	2.78	0.6198	0.5072	0.9873
STATION*PERIOD	8.23	2.13	0.6531	0.2423	0.1696

Estimates for contrasts on combinations of interaction terms

Source	Difference	Std. Err.	T-value	Prob.
Period in DC	-0.9913	0.4723	-2.099	.0374
Period in FC	-0.2869	0.4507	-0.636	.5254
Period in FC-S	0.0627	0.5433	0.115	.9082
Period in FC-W	-0.6365	0.7194	-0.885	.3777
Period in DC-S	-0.3845	0.6104	-0.630	.5296
Period in DC-W	-1.5981	0.7210	-2.217	.0281

Least square means & confidence intervals from analysis of variance

Source	LS Mean	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period Op-1	-0.257	0.0389	-6.62	.0000	-0.1930	-0.3217
Period Op-2	-0.075	0.0848	-0.88	.3793	0.0655	-0.2150
Op-1-04	0.234	0.1179	1.98	.0489	0.4291	0.0389
Op-2-04	-0.216	0.2723	-0.79	.4285	0.2343	-0.6666
Op-1-05	0.049	0.1179	0.42	.6763	0.2444	-0.1458
Op-2-05	0.225	0.2153	1.05	.2973	0.5812	-0.1310
Op-1-06	0.120	0.0925	1.29	.1979	0.2726	-0.0334
Op-2-06	0.681	0.2153	3.16	.0019	1.0370	0.3247
Op-1-08	-0.740	0.1083	-6.83	.0000	-0.5605	-0.9190
Op-2-08	-0.407	0.2153	-1.89	.0607	-0.0505	-0.7628
Op-1-09	-0.744	0.0925	-8.05	.0000	-0.5913	-0.8974
Op-2-09	-0.461	0.2153	-2.14	.0336	-0.1053	-0.8175
Op-1-10	-0.659	0.0944	-6.98	.0000	-0.5030	-0.8153
Op-2-10	-0.338	0.2153	-1.57	.1178	0.0176	-0.6946
Op-1-12	-0.061	0.0925	-0.66	.5099	0.0919	-0.2141
Op-2-12	-0.007	0.2153	-0.03	.9759	0.3496	-0.3626

Paired comparisons of least square means between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period	-0.1826	0.0933	-1.958	.0520	-0.0283	-0.3369

Paired comparisons of least square means among stations between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Station 04	0.4501	0.2967	1.52	.1312	0.9410	-0.0408
Station 05	-0.1758	0.2454	-0.72	.4749	0.2303	-0.5819
Station 06	-0.5612	0.2343	-2.40	.0178	-0.1736	-0.9488
Station 08	-0.3331	0.2410	-1.38	.1688	0.0656	-0.7318
Station 09	-0.2829	0.2343	-1.21	.2290	0.1047	-0.6706
Station 10	-0.3207	0.2350	-1.36	.1744	0.0682	-0.7095
Station 12	-0.0546	0.2343	-0.23	.8161	0.3330	-0.4422

Station-period means and deltas from original data where control n=2

Station-Period	N	Station Mean	Range	Standard Error	Upper 95% c.i.	Lower 95% c.i.	Mean Delta	Delta Range	Upper 95% CIi.	Lower 95% C.I.
04 Op-1	16	0.84	4.60	0.380	1.65	0.03	-0.30	4.80	0.44	-1.04
04 Op-2	4	2.45	4.40	0.903	5.32	-0.42	-1.13	2.30	0.38	-2.63
05 Op-1	16	0.60	1.80	0.152	0.92	0.28	-0.06	2.20	0.26	-0.39
05 Op-2	5	0.72	1.00	0.162	1.17	0.27	0.54	2.30	1.76	-0.68
06 Op-1	26	0.72	7.20	0.284	1.31	0.14	-0.13	7.70	0.45	-0.72
06 Op-2	5	0.28	0.60	0.136	0.66	-0.10	0.98	2.10	1.93	0.03
08 Op-1	19	3.96	12.80	0.838	5.72	2.20	-3.42	12.70	-1.68	-5.15
08 Op-2	5	5.56	14.00	2.596	12.77	-1.65	-4.30	14.40	2.98	-11.58
09 Op-1	26	5.75	42.20	1.685	9.22	2.28	-5.17	41.20	-1.76	-8.57
09 Op-2	5	7.48	25.60	4.922	21.15	-6.19	-6.22	25.80	7.61	-20.05
10 Op-1	25	3.82	16.40	0.789	5.45	2.20	-3.22	15.50	-1.69	-4.74
10 Op-2	5	2.60	2.40	0.415	3.75	1.45	-1.34	3.00	0.16	-2.84
12 Op-1	26	1.24	6.20	0.328	1.91	0.56	-0.65	6.50	0.03	-1.33
12 Op-2	5	1.76	3.60	0.643	3.55	-0.03	-0.50	4.40	1.81	-2.81

Period means and deltas from original control data where n=2

Period	N	Station Mean	Range	Standard Error	Upper 95% C.I.	Lower 95% C.I.
Op-1	26	0.59	1.60	0.095	0.79	0.39
Op-2	5	1.26	2.10	0.359	2.26	0.26

Analysis of Variance for HBT for 0295 - Macclintockia scabra

Stations = 4, 5, 6, 8, 9, 10, 12 level +1 ft MLLW

Data transformed using log base10(x + 1)

Results for Analysis of Variance

Source	Source df	Error df	F-value	Prob.
PERIOD	1	160.000	28.43	0.0000
SEASON	1	160.000	2.54	0.1127
STATION	6	160.000	24.44	0.0000
PERIOD*SEASON	1	160.000	0.21	0.6447
STATION*PERIOD	6	160.000	0.93	0.4746
STATION*SEASON	6	160.000	3.02	0.0081
PERIOD*STATION*SEASON	6	160.000	1.09	0.3698

Results for Power Analysis
Power at alpha = .1

Source	Non-Centrality Parameter	Adjusted non-Centrality Parameter	Power	Adjusted Power	Power to Detect 50% Change
PERIOD	28.43	27.07	0.9999	0.9998	0.9867
STATION*PERIOD	5.58	0.00	0.4909	.	0.2730

Estimates for contrasts on combinations of interaction terms

Source	Difference	Std. Err.	T-value	Prob.
Period in DC	-2.3387	0.4543	-5.148	.0000
Period in FC	-1.0094	0.4335	-2.328	.0211
Period in FC-S	-1.4113	0.5225	-2.701	.0077
Period in FC-W	-0.6075	0.6919	-0.878	.3813
Period in DC-S	-2.2269	0.5871	-3.793	.0002
Period in DC-W	-2.4505	0.6934	-3.534	.0005

Least square means & confidence intervals from analysis of variance

Source	LS Mean	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period Op-1	-0.729	0.0374	-19.48	.0000	-0.6668	-0.7905
Period Op-2	-0.250	0.0815	-3.07	.0025	-0.1155	-0.3852
Op-1-04	0.008	0.1134	0.07	.9420	0.1959	-0.1793
Op-2-04	0.299	0.2619	1.14	.2555	0.7321	-0.1344
Op-1-05	-0.512	0.1134	-4.52	.0000	-0.3248	-0.7000
Op-2-05	-0.004	0.2070	-0.02	.9854	0.3387	-0.3463
Op-1-06	0.113	0.0890	1.27	.2046	0.2605	-0.0339
Op-2-06	0.324	0.2070	1.56	.1201	0.6660	-0.0190
Op-1-08	-1.681	0.1042	-16.13	.0000	-1.5084	-1.8532
Op-2-08	-1.145	0.2070	-5.53	.0000	-0.8021	-1.4871
Op-1-09	-1.166	0.0890	-13.11	.0000	-1.0191	-1.3135
Op-2-09	-0.668	0.2070	-3.23	.0015	-0.3260	-1.0110
Op-1-10	-0.655	0.0908	-7.22	.0000	-0.5052	-0.8056
Op-2-10	-0.253	0.2070	-1.22	.2227	0.0891	-0.5959
Op-1-12	-1.207	0.0890	-13.57	.0000	-1.0600	-1.3544
Op-2-12	-0.304	0.2070	-1.47	.1434	0.0381	-0.6470

Paired comparisons of least square means between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period	-0.4783	0.0897	-5.332	.0000	-0.3299	-0.6267

Paired comparisons of least square means among stations between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Station 04	-0.2906	0.2854	-1.02	.3101	0.1815	-0.7627
Station 05	-0.5086	0.2360	-2.15	.0327	-0.1181	-0.8991
Station 06	-0.2102	0.2253	-0.93	.3523	0.1626	-0.5830
Station 08	-0.5362	0.2318	-2.31	.0220	-0.1528	-0.9196
Station 09	-0.4978	0.2253	-2.21	.0286	-0.1250	-0.8706
Station 10	-0.4020	0.2261	-1.78	.0773	-0.0280	-0.7760
Station 12	-0.9028	0.2253	-4.01	.0001	-0.5300	-1.2755

Station-period means and deltas from original data where control n=2

Station-Period		N	Station Mean	Range	Standard Error	Upper 95% C.I.	Lower 95% C.I.	Mean Delta	Delta Range	Upper 95% CIi.	Lower 95% C.I.
04	Op-1	16	1.35	11.40	0.720	2.89	-0.19	-0.11	21.30	2.06	-2.27
04	Op-2	4	0.40	1.00	0.216	1.09	-0.29	2.15	3.70	4.82	-0.52
05	Op-1	16	5.78	14.40	1.038	7.99	3.56	-4.53	13.90	-2.63	-6.43
05	Op-2	5	2.96	5.00	0.995	5.72	0.20	0.28	9.10	5.55	-4.99
06	Op-1	26	1.86	10.40	0.601	3.10	0.62	0.42	18.30	2.07	-1.23
06	Op-2	5	0.96	2.60	0.487	2.31	-0.39	2.28	7.30	6.27	-1.71
08	Op-1	19	136.71	296.00	20.342	179.44	93.97	-134.79	292.60	-92.82	-176.77
08	Op-2	5	66.36	126.60	21.941	127.28	5.44	-63.12	127.40	-1.16	-125.08
09	Op-1	26	62.16	226.80	13.032	89.00	35.32	-59.88	223.30	-33.29	-86.46
09	Op-2	5	36.16	78.00	17.040	83.47	-11.15	-32.92	81.30	15.73	-81.57
10	Op-1	25	55.58	336.20	20.401	97.69	13.48	-53.54	333.30	-12.21	-94.86
10	Op-2	5	7.48	19.40	3.635	17.57	-2.61	-4.24	20.00	5.80	-14.28
12	Op-1	26	66.12	206.60	11.453	89.70	42.53	-63.83	201.40	-40.72	-86.95
12	Op-2	5	23.64	41.20	9.548	50.15	-2.87	-20.40	45.70	6.36	-47.16

Period means and deltas from original control data where n=2

Period	N	Station Mean	Range	Standard Error	Upper 95% C.I.	Lower 95% C.I.
Op-1	26	2.28	11.20	0.550	3.42	1.15
Op-2	5	3.24	5.50	1.026	6.09	0.39

Analysis of Variance for HBT for 0308 - Mopalia spp.

Stations = 4, 5, 6, 8, 9, 10, 12 level +1 ft MLLW

Data transformed using log base10(x + .1)

Results for Analysis of Variance

Source	Source df	Error df	F-value	Prob.
PERIOD	1	160.000	12.56	0.0005
SEASON	1	160.000	0.04	0.8448
STATION	6	160.000	0.26	0.9527
PERIOD*SEASON	1	160.000	0.03	0.8626
STATION*PERIOD	6	160.000	0.70	0.6486
STATION*SEASON	6	160.000	0.27	0.9520
PERIOD*STATION*SEASON	6	160.000	0.42	0.8675

Results for Power Analysis
Power at alpha = .1

Source	Non-Centrality Parameter	Adjusted non-Centrality Parameter	Power	Adjusted Power	Power to Detect 50% Change
PERIOD	12.56	11.40	0.9702	0.9571	0.3302
STATION*PERIOD	4.21	0.00	0.3944	.	0.1186

Estimates for contrasts on combinations of interaction terms

Source	Difference	Std. Err.	T-value	Prob.
Period in DC	-1.5005	0.4283	-3.503	.0006
Period in FC	-0.5978	0.4087	-1.463	.1455
Period in FC-S	-0.8712	0.4926	-1.769	.0789
Period in FC-W	-0.3243	0.6523	-0.497	.6198
Period in DC-S	-1.1244	0.5535	-2.031	.0439
Period in DC-W	-1.8766	0.6538	-2.870	.0047

Least square means & confidence intervals from analysis of variance

Source	LS Mean	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period Op-1	0.081	0.0353	2.31	.0224	0.1397	0.0230
Period Op-2	0.381	0.0769	4.96	.0000	0.5083	0.2539
Op-1-04	0.207	0.1069	1.94	.0543	0.3842	0.0304
Op-2-04	0.262	0.2469	1.06	.2902	0.6705	-0.1465
Op-1-05	0.104	0.1069	0.97	.3323	0.2808	-0.0729
Op-2-05	0.496	0.1952	2.54	.0119	0.8192	0.1734
Op-1-06	0.091	0.0839	1.09	.2778	0.2301	-0.0474
Op-2-06	0.242	0.1952	1.24	.2168	0.5650	-0.0809
Op-1-08	-0.009	0.0982	-0.10	.9233	0.1531	-0.1720
Op-2-08	0.496	0.1952	2.54	.0119	0.8192	0.1734
Op-1-09	-0.124	0.0839	-1.48	.1420	0.0150	-0.2625
Op-2-09	0.417	0.1952	2.14	.0343	0.7397	0.0939
Op-1-10	0.104	0.0856	1.21	.2262	0.2456	-0.0376
Op-2-10	0.417	0.1952	2.14	.0343	0.7397	0.0939
Op-1-12	0.196	0.0839	2.34	.0207	0.3347	0.0572
Op-2-12	0.337	0.1952	1.73	.0859	0.6602	0.0143

Paired comparisons of least square means between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period	-0.2997	0.0846	-3.544	.0005	-0.1598	-0.4397

Paired comparisons of least square means among stations between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Station 04	-0.0547	0.2691	-0.20	.8391	0.3904	-0.4999
Station 05	-0.3923	0.2226	-1.76	.0798	-0.0241	-0.7605
Station 06	-0.1507	0.2124	-0.71	.4791	0.2008	-0.5022
Station 08	-0.5058	0.2185	-2.31	.0219	-0.1443	-0.8673
Station 09	-0.5405	0.2124	-2.54	.0119	-0.1891	-0.8920
Station 10	-0.3128	0.2131	-1.47	.1442	0.0398	-0.6654
Station 12	-0.1413	0.2124	-0.67	.5069	0.2102	-0.4928

Station-period means and deltas from original data where control n=2

Station	Period	N	Station Mean	Range	Standard Error	Upper 95% c.i.	Lower 95% c.i.	Mean Delta	Delta Range	Upper 95% CIi.	Lower 95% C.I.
04	Op-1	16	0.05	0.40	0.029	0.11	-0.01	0.09	0.70	0.18	-0.00
04	Op-2	4	0.10	0.20	0.058	0.28	-0.08	0.20	0.70	0.70	-0.30
05	Op-1	16	0.10	0.40	0.037	0.18	0.02	0.04	0.70	0.14	-0.07
05	Op-2	5	0.00	0.00	0.000	.	.	0.30	0.60	0.62	-0.02
06	Op-1	26	0.08	0.60	0.032	0.15	0.02	0.03	0.90	0.11	-0.06
06	Op-2	5	0.12	0.40	0.080	0.34	-0.10	0.18	0.60	0.50	-0.14
08	Op-1	19	0.22	1.40	0.088	0.41	0.04	-0.09	1.90	0.12	-0.30
08	Op-2	5	0.00	0.00	0.000	.	.	0.30	0.60	0.62	-0.02
09	Op-1	26	0.39	3.00	0.142	0.68	0.10	-0.28	3.50	0.02	-0.59
09	Op-2	5	0.04	0.20	0.040	0.15	-0.07	0.26	0.50	0.52	0.00
10	Op-1	25	0.10	0.80	0.042	0.18	0.01	0.02	1.20	0.12	-0.08
10	Op-2	5	0.04	0.20	0.040	0.15	-0.07	0.26	0.50	0.52	0.00
12	Op-1	26	0.02	0.20	0.013	0.05	-0.00	0.09	0.60	0.14	0.03
12	Op-2	5	0.08	0.20	0.049	0.22	-0.06	0.22	0.70	0.56	-0.12

Period means and deltas from original control data where n=2

Period	N	Station Mean	Range	Standard Error	Upper 95% C.I.	Lower 95% C.I.
Op-1	26	0.11	0.50	0.026	0.16	0.06
Op-2	5	0.30	0.60	0.114	0.62	-0.02

Analysis of Variance for HBT for 0273 - Nemertea unid.

Stations = 4, 5, 6, 8, 9, 10, 12 level +1 ft MLLW

Data transformed using log base10(x + .1)

Results for Analysis of Variance

Source	Source df	Error df	F-value	Prob.
PERIOD	1	160.000	13.66	0.0003
SEASON	1	160.000	0.02	0.8790
STATION	6	160.000	9.42	0.0000
PERIOD*SEASON	1	160.000	1.98	0.1612
STATION*PERIOD	6	160.000	0.76	0.5996
STATION*SEASON	6	160.000	4.28	0.0005
PERIOD*STATION*SEASON	6	160.000	0.45	0.8418

Results for Power Analysis
Power at alpha = .1

Source	Non-Centrality Parameter	Adjusted non-Centrality Parameter	Power	Adjusted Power	Power to Detect 50% Change
PERIOD	13.66	12.49	0.9791	0.9695	0.4546
STATION*PERIOD	4.58	0.00	0.4211	.	0.2776

Estimates for contrasts on combinations of interaction terms

Source	Difference	Std. Err.	T-value	Prob.
Period in DC	0.8990	0.3486	2.579	.0108
Period in FC	0.8819	0.3327	2.651	.0088
Period in FC-S	1.2556	0.4010	3.131	.0021
Period in FC-W	0.5083	0.5310	0.957	.3399
Period in DC-S	1.2036	0.4506	2.671	.0083
Period in DC-W	0.5945	0.5322	1.117	.2657

Least square means & confidence intervals from analysis of variance

Source	LS Mean	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period Op-1	0.369	0.0287	12.85	.0000	0.4165	0.3215
Period Op-2	0.115	0.0626	1.83	.0689	0.2181	0.0111
Op-1-04	0.084	0.0870	0.97	.3342	0.2283	-0.0597
Op-2-04	-0.162	0.2010	-0.81	.4214	0.1705	-0.4945
Op-1-05	0.193	0.0870	2.22	.0278	0.3372	0.0492
Op-2-05	-0.352	0.1589	-2.22	.0281	-0.0892	-0.6150
Op-1-06	0.007	0.0683	0.10	.9208	0.1197	-0.1062
Op-2-06	-0.083	0.1589	-0.53	.6000	0.1794	-0.3464
Op-1-08	0.577	0.0800	7.21	.0000	0.7089	0.4443
Op-2-08	0.484	0.1589	3.05	.0027	0.7467	0.2210
Op-1-09	0.525	0.0683	7.70	.0000	0.6384	0.4125
Op-2-09	0.248	0.1589	1.56	.1204	0.5109	-0.0148
Op-1-10	0.589	0.0697	8.46	.0000	0.7046	0.4741
Op-2-10	0.263	0.1589	1.66	.0992	0.5263	0.0006
Op-1-12	0.607	0.0683	8.90	.0000	0.7203	0.4944
Op-2-12	0.404	0.1589	2.54	.0119	0.6672	0.1415

Paired comparisons of least square means between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period	0.2544	0.0688	3.696	.0003	0.3683	0.1405

Paired comparisons of least square means among stations between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Station 04	0.2463	0.2190	1.12	.2624	0.6087	-0.1160
Station 05	0.5453	0.1812	3.01	.0030	0.8451	0.2456
Station 06	0.0903	0.1729	0.52	.6024	0.3764	-0.1958
Station 08	0.0928	0.1779	0.52	.6028	0.3871	-0.2015
Station 09	0.2774	0.1729	1.60	.1107	0.5635	-0.0087
Station 10	0.3259	0.1735	1.88	.0622	0.6129	0.0388
Station 12	0.2031	0.1729	1.17	.2421	0.4892	-0.0831

Station-period means and deltas from original data where control n=2

Station	Period	N	Station Mean	Range	Standard Error	Upper 95% c.i.	Lower 95% c.i.	Mean Delta	Delta Range	Upper 95% CIi.	Lower 95% C.I.
04	Op-1	16	0.51	3.60	0.229	1.00	0.02	-0.15	3.70	0.30	-0.60
04	Op-2	4	1.00	1.60	0.337	2.07	-0.07	-0.65	1.50	0.38	-1.68
05	Op-1	16	0.31	1.80	0.125	0.58	0.05	0.05	2.10	0.31	-0.21
05	Op-2	5	1.08	2.00	0.377	2.13	0.03	-0.80	1.60	0.13	-1.73
06	Op-1	26	0.55	2.00	0.116	0.79	0.31	-0.13	2.20	0.09	-0.36
06	Op-2	5	0.76	1.40	0.312	1.63	-0.11	-0.48	1.40	0.26	-1.22
08	Op-1	19	0.02	0.40	0.021	0.07	-0.02	0.40	1.40	0.56	0.24
08	Op-2	5	0.00	0.00	0.000	.	.	0.28	0.40	0.48	0.08
09	Op-1	26	0.04	0.40	0.019	0.08	-0.00	0.38	1.10	0.51	0.25
09	Op-2	5	0.12	0.40	0.080	0.34	-0.10	0.16	0.40	0.39	-0.07
10	Op-1	25	0.00	0.00	0.000	.	.	0.41	1.40	0.56	0.26
10	Op-2	5	0.16	0.60	0.117	0.48	-0.16	0.12	0.50	0.39	-0.15
12	Op-1	26	0.00	0.00	0.000	.	.	0.42	1.40	0.56	0.28
12	Op-2	5	0.04	0.20	0.040	0.15	-0.07	0.24	0.40	0.43	0.05

Period means and deltas from original control data where n=2

Period	N	Station Mean	Range	Standard Error	Upper 95% C.I.	Lower 95% C.I.
Op-1	26	0.42	1.40	0.070	0.56	0.28
Op-2	5	0.28	0.40	0.073	0.48	0.08

Analysis of Variance for HBT for 0362 - Nuttallina californica

Stations = 4, 5, 6, 8, 9, 10, 12 level +1 ft MLLW

Data transformed using log base10(x + .1)

Results for Analysis of Variance

Source	Source df	Error df	F-value	Prob.
PERIOD	1	160.000	12.41	0.0006
SEASON	1	160.000	0.28	0.5987
STATION	6	160.000	45.89	0.0000
PERIOD*SEASON	1	160.000	2.61	0.1084
STATION*PERIOD	6	160.000	2.61	0.0194
STATION*SEASON	6	160.000	1.54	0.1671
PERIOD*STATION*SEASON	6	160.000	2.59	0.0202

Results for Power Analysis
Power at alpha = .1

Source	Non-Centrality Parameter	Adjusted non-Centrality Parameter	Power	Adjusted Power	Power to Detect 50% Change
PERIOD	12.41	11.26	0.9688	0.9551	0.9902
STATION*PERIOD	15.65	9.45	0.9096	0.7151	0.5484

Estimates for contrasts on combinations of interaction terms

Source	Difference	Std. Err.	T-value	Prob.
Period in DC	-1.4644	0.3821	-3.833	.0002
Period in FC	-0.3965	0.3646	-1.087	.2785
Period in FC-S	-0.5685	0.4395	-1.294	.1977
Period in FC-W	-0.2244	0.5820	-0.386	.7003
Period in DC-S	-0.4397	0.4938	-0.891	.3745
Period in DC-W	-2.4892	0.5833	-4.268	.0000

Least square means & confidence intervals from analysis of variance

Source	LS Mean	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period Op-1	-0.837	0.0315	-26.61	.0000	-0.7851	-0.8892
Period Op-2	-0.571	0.0686	-8.33	.0000	-0.4578	-0.6848
Op-1-04	-1.432	0.0954	-15.01	.0000	-1.2742	-1.5898
Op-2-04	-1.376	0.2203	-6.25	.0000	-1.0117	-1.7406
Op-1-05	-1.839	0.0954	-19.28	.0000	-1.6816	-1.9972
Op-2-05	-1.600	0.1741	-9.19	.0000	-1.3118	-1.8881
Op-1-06	-0.727	0.0748	-9.71	.0000	-0.6028	-0.8504
Op-2-06	-0.625	0.1741	-3.59	.0004	-0.3373	-0.9135
Op-1-08	-0.775	0.0876	-8.84	.0000	-0.6300	-0.9201
Op-2-08	-0.548	0.1741	-3.14	.0020	-0.2594	-0.8356
Op-1-09	-1.114	0.0748	-14.88	.0000	-0.9898	-1.2374
Op-2-09	-0.160	0.1741	-0.92	.3607	0.1285	-0.4477
Op-1-10	-0.020	0.0764	-0.26	.7970	0.1067	-0.1460
Op-2-10	0.155	0.1741	0.89	.3754	0.4429	-0.1333
Op-1-12	0.046	0.0748	0.62	.5368	0.1701	-0.0775
Op-2-12	0.155	0.1741	0.89	.3754	0.4429	-0.1333

Paired comparisons of least square means between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period	-0.2658	0.0755	-3.523	.0006	-0.1410	-0.3907

Paired comparisons of least square means among stations between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Station 04	-0.0558	0.2400	-0.23	.8164	0.3413	-0.4529
Station 05	-0.2394	0.1985	-1.21	.2297	0.0891	-0.5679
Station 06	-0.1012	0.1895	-0.53	.5940	0.2123	-0.4148
Station 08	-0.2275	0.1950	-1.17	.2449	0.0950	-0.5501
Station 09	-0.9540	0.1895	-5.03	.0000	-0.6404	-1.2676
Station 10	-0.1745	0.1901	-0.92	.3603	0.1401	-0.4890
Station 12	-0.1085	0.1895	-0.57	.5679	0.2051	-0.4220

Station-period means and deltas from original data where control n=2

Station-Period		N	Station Mean	Range	Standard Error	Upper 95% c.i.	Lower 95% c.i.	Mean Delta	Delta Range	Upper 95% CIi.	Lower 95% C.I.
04	Op-1	16	3.50	7.20	0.544	4.66	2.34	-3.49	7.20	-2.33	-4.64
04	Op-2	4	4.80	5.60	1.337	9.05	0.55	-4.73	5.40	-0.54	-8.91
05	Op-1	16	9.06	28.00	1.797	12.89	5.23	-9.05	28.00	-5.22	-12.88
05	Op-2	5	7.40	16.00	2.981	15.68	-0.88	-7.34	16.00	0.94	-15.62
06	Op-1	26	0.72	1.80	0.113	0.95	0.48	-0.70	1.80	-0.47	-0.93
06	Op-2	5	0.84	3.00	0.549	2.36	-0.68	-0.78	3.20	0.80	-2.36
08	Op-1	19	0.95	4.20	0.234	1.44	0.45	-0.94	4.20	-0.44	-1.43
08	Op-2	5	0.76	1.80	0.306	1.61	-0.09	-0.70	1.60	0.08	-1.48
09	Op-1	26	2.94	11.80	0.576	4.13	1.75	-2.92	11.80	-1.73	-4.11
09	Op-2	5	0.32	1.00	0.206	0.89	-0.25	-0.26	0.90	0.25	-0.77
10	Op-1	25	0.03	0.40	0.019	0.07	-0.01	-0.02	0.40	0.02	-0.05
10	Op-2	5	0.00	0.00	0.000	.	.	0.06	0.20	0.17	-0.05
12	Op-1	26	0.00	0.00	0.000	.	.	0.02	0.10	0.03	0.00
12	Op-2	5	0.00	0.00	0.000	.	.	0.06	0.20	0.17	-0.05

Period means and deltas from original control data where n=2

Period	N	Station Mean	Range	Standard Error	Upper 95% C.I.	Lower 95% C.I.
Op-1	26	0.02	0.10	0.007	0.03	0.00
Op-2	5	0.06	0.20	0.040	0.17	-0.05

Analysis of Variance for HBT for 0528 - Ocenebra spp.

Stations = 4, 5, 6, 8, 9, 10, 12 level +1 ft MLLW

Data transformed using log base10(x + .1)

Results for Analysis of Variance

Source	Source df	Error df	F-value	Prob.
PERIOD	1	160.000	11.19	0.0010
SEASON	1	160.000	11.19	0.0010
STATION	6	160.000	6.33	0.0000
PERIOD*SEASON	1	160.000	0.42	0.5169
STATION*PERIOD	6	160.000	1.58	0.1570
STATION*SEASON	6	160.000	0.62	0.7172
PERIOD*STATION*SEASON	6	160.000	0.33	0.9185

Results for Power Analysis
Power at alpha = .1

Source	Non-Centrality Parameter	Adjusted non-Centrality Parameter	Power	Adjusted Power	Power to Detect 50% Change
PERIOD	11.19	10.05	0.9541	0.9347	0.9894
STATION*PERIOD	9.46	3.34	0.7156	0.3313	0.1927

Estimates for contrasts on combinations of interaction terms

Source	Difference	Std. Err.	T-value	Prob.
Period in DC	-2.0486	0.4547	-4.505	.0000
Period in FC	-0.0536	0.4339	-0.123	.9019
Period in FC-S	0.0916	0.5230	0.175	.8611
Period in FC-W	-0.1988	0.6925	-0.287	.7744
Period in DC-S	-1.7856	0.5876	-3.039	.0028
Period in DC-W	-2.3116	0.6940	-3.331	.0011

Least square means & confidence intervals from analysis of variance

Source	LS Mean	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period Op-1	-0.162	0.0374	-4.32	.0000	-0.0999	-0.2238
Period Op-2	0.138	0.0816	1.70	.0916	0.2735	0.0035
Op-1-04	-0.122	0.1135	-1.07	.2855	0.0661	-0.3094
Op-2-04	-0.369	0.2621	-1.41	.1607	0.0643	-0.8030
Op-1-05	-0.058	0.1135	-0.51	.6127	0.1302	-0.2453
Op-2-05	0.144	0.2072	0.69	.4891	0.4865	-0.1991
Op-1-06	-0.173	0.0890	-1.94	.0544	-0.0252	-0.3198
Op-2-06	-0.072	0.2072	-0.35	.7271	0.2704	-0.4153
Op-1-08	-0.456	0.1043	-4.38	.0000	-0.2839	-0.6290
Op-2-08	0.124	0.2072	0.60	.5502	0.4669	-0.2187
Op-1-09	-0.396	0.0890	-4.44	.0000	-0.2484	-0.5430
Op-2-09	0.276	0.2072	1.33	.1850	0.6187	-0.0669
Op-1-10	0.467	0.0909	5.14	.0000	0.6175	0.3168
Op-2-10	0.765	0.2072	3.69	.0003	1.1083	0.4226
Op-1-12	-0.396	0.0890	-4.45	.0000	-0.2487	-0.5433
Op-2-12	0.102	0.2072	0.49	.6227	0.4450	-0.2407

Paired comparisons of least square means between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period	-0.3003	0.0898	-3.345	.0010	-0.1518	-0.4489

Paired comparisons of least square means among stations between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Station 04	0.2477	0.2856	0.87	.3870	0.7203	-0.2248
Station 05	-0.2012	0.2363	-0.85	.3956	0.1896	-0.5921
Station 06	-0.1001	0.2255	-0.44	.6578	0.2730	-0.4732
Station 08	-0.5805	0.2320	-2.50	.0133	-0.1967	-0.9643
Station 09	-0.6715	0.2255	-2.98	.0034	-0.2984	-1.0447
Station 10	-0.2983	0.2263	-1.32	.1892	0.0760	-0.6727
Station 12	-0.4982	0.2255	-2.21	.0286	-0.1251	-0.8713

Station-period means and deltas from original data where control n=2

Station-Period		N	Station Mean	Range	Standard Error	Upper 95% c.i.	Lower 95% c.i.	Mean Delta	Delta Range	Upper 95% CIi.	Lower 95% C.I.
04	Op-1	16	0.80	2.40	0.157	1.13	0.47	-0.27	3.20	0.12	-0.66
04	Op-2	4	1.05	1.20	0.287	1.96	0.14	-0.70	1.40	0.25	-1.65
05	Op-1	16	0.79	2.00	0.161	1.13	0.44	-0.26	2.60	0.09	-0.60
05	Op-2	5	0.80	3.40	0.654	2.62	-1.02	-0.10	2.00	0.82	-1.02
06	Op-1	26	0.89	2.40	0.138	1.18	0.61	-0.39	3.20	-0.08	-0.71
06	Op-2	5	0.76	1.80	0.343	1.71	-0.19	-0.06	1.30	0.54	-0.66
08	Op-1	19	2.16	6.20	0.379	2.95	1.36	-1.63	5.80	-0.86	-2.39
08	Op-2	5	0.56	1.60	0.299	1.39	-0.27	0.14	1.00	0.66	-0.38
09	Op-1	26	2.18	12.00	0.472	3.16	1.21	-1.68	12.50	-0.73	-2.64
09	Op-2	5	0.32	0.80	0.162	0.77	-0.13	0.38	2.00	1.32	-0.56
10	Op-1	25	0.15	0.80	0.051	0.26	0.05	0.34	1.60	0.50	0.19
10	Op-2	5	0.00	0.00	0.000	.	.	0.70	2.10	1.76	-0.36
12	Op-1	26	1.52	3.80	0.202	1.94	1.11	-1.02	3.80	-0.60	-1.45
12	Op-2	5	0.56	1.20	0.248	1.25	-0.13	0.14	1.60	0.86	-0.58

Period means and deltas from original control data where n=2

Period	N	Station Mean	Range	Standard Error	Upper 95% C.I.	Lower 95% C.I.
Op-1	26	0.50	1.20	0.062	0.63	0.37
Op-2	5	0.70	2.10	0.381	1.76	-0.36

Analysis of Variance for HBT for 0397 - Pachygrapsus crassipes

Stations = 4, 5, 6, 8, 9, 10, 12 level +1 ft MLLW

Data transformed using log base10(x + .1)

Results for Analysis of Variance

Source	Source df	Error df	F-value	Prob.
PERIOD	1	160.000	1.23	0.2699
SEASON	1	160.000	0.08	0.7745
STATION	6	160.000	11.24	0.0000
PERIOD*SEASON	1	160.000	0.63	0.4287
STATION*PERIOD	6	160.000	1.06	0.3860
STATION*SEASON	6	160.000	0.97	0.4459
PERIOD*STATION*SEASON	6	160.000	0.60	0.7309

Results for Power Analysis
Power at alpha = .1

Source	Non-Centrality Parameter	Adjusted non-Centrality Parameter	Power	Adjusted Power	Power to Detect 50% Change
PERIOD	1.23	0.21	0.2968	0.1352	0.9928
STATION*PERIOD	6.39	0.31	0.5440	0.1188	0.1848

Estimates for contrasts on combinations of interaction terms

Source	Difference	Std. Err.	T-value	Prob.
Period in DC	0.4189	0.4417	0.948	.3444
Period in FC	0.2571	0.4215	0.610	.5428
Period in FC-S	0.3434	0.5081	0.676	.5001
Period in FC-W	0.1708	0.6728	0.254	.7999
Period in DC-S	0.8171	0.5709	1.431	.1543
Period in DC-W	0.0206	0.6743	0.031	.9756

Least square means & confidence intervals from analysis of variance

Source	LS Mean	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period Op-1	-0.536	0.0364	-14.73	.0000	-0.4757	-0.5961
Period Op-2	-0.632	0.0793	-7.98	.0000	-0.5013	-0.7637
Op-1-04	-0.819	0.1103	-7.43	.0000	-0.6367	-1.0015
Op-2-04	-1.203	0.2546	-4.73	.0000	-0.7821	-1.6247
Op-1-05	-0.780	0.1103	-7.08	.0000	-0.5978	-0.9626
Op-2-05	-0.844	0.2013	-4.19	.0000	-0.5105	-1.1767
Op-1-06	-0.580	0.0865	-6.71	.0000	-0.4373	-0.7235
Op-2-06	-0.390	0.2013	-1.94	.0546	-0.0567	-0.7228
Op-1-08	-0.645	0.1013	-6.37	.0000	-0.4773	-0.8126
Op-2-08	-0.819	0.2013	-4.07	.0001	-0.4862	-1.1524
Op-1-09	-0.703	0.0865	-8.13	.0000	-0.5598	-0.8460
Op-2-09	-1.077	0.2013	-5.35	.0000	-0.7436	-1.4097
Op-1-10	-0.074	0.0883	-0.84	.4014	0.0718	-0.2203
Op-2-10	0.131	0.2013	0.65	.5167	0.4639	-0.2022
Op-1-12	-0.150	0.0865	-1.73	.0858	-0.0064	-0.2927
Op-2-12	-0.225	0.2013	-1.12	.2644	0.1076	-0.5585

Paired comparisons of least square means between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period	0.0966	0.0872	1.107	.2699	0.2409	-0.0477

Paired comparisons of least square means among stations between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Station 04	0.3843	0.2775	1.38	.1680	0.8434	-0.0748
Station 05	0.0634	0.2295	0.28	.7827	0.4432	-0.3163
Station 06	-0.1906	0.2191	-0.87	.3856	0.1719	-0.5531
Station 08	0.1743	0.2254	0.77	.4404	0.5472	-0.1986
Station 09	0.3738	0.2191	1.71	.0900	0.7363	0.0113
Station 10	-0.2051	0.2198	-0.93	.3522	0.1586	-0.5688
Station 12	0.0759	0.2191	0.35	.7295	0.4384	-0.2866

Station-period means and deltas from original data where control n=2

Station-Period	N	Station Mean	Range	Standard Error	Upper 95% c.i.	Lower 95% c.i.	Mean Delta	Delta Range	Upper 95% CIi.	Lower 95% C.I.
04 Op-1	16	1.51	3.00	0.191	1.92	1.11	-1.36	3.20	-0.91	-1.80
04 Op-2	4	2.25	1.40	0.299	3.20	1.30	-2.13	1.50	-1.12	-3.13
05 Op-1	16	1.53	3.20	0.248	2.05	1.00	-1.37	2.90	-0.85	-1.89
05 Op-2	5	1.80	2.20	0.405	2.92	0.68	-1.64	2.40	-0.48	-2.80
06 Op-1	26	0.95	4.60	0.182	1.33	0.58	-0.82	4.70	-0.43	-1.20
06 Op-2	5	0.84	1.60	0.319	1.72	-0.04	-0.68	1.80	0.25	-1.61
08 Op-1	19	1.05	2.60	0.176	1.42	0.68	-0.91	2.40	-0.55	-1.26
08 Op-2	5	1.44	1.00	0.232	2.08	0.80	-1.28	0.80	-0.80	-1.76
09 Op-1	26	1.42	3.80	0.230	1.90	0.95	-1.28	3.70	-0.82	-1.75
09 Op-2	5	3.12	4.80	0.967	5.80	0.44	-2.96	4.90	-0.16	-5.76
10 Op-1	25	0.26	1.60	0.074	0.41	0.10	-0.12	2.00	0.06	-0.29
10 Op-2	5	0.16	0.60	0.117	0.48	-0.16	0.00	0.80	0.41	-0.41
12 Op-1	26	0.31	1.80	0.083	0.48	0.14	-0.17	2.10	0.00	-0.34
12 Op-2	5	0.88	3.60	0.683	2.78	-1.02	-0.72	3.40	1.08	-2.52

Period means and deltas from original control data where n=2

Period	N	Station Mean	Range	Standard Error	Upper 95% C.I.	Lower 95% C.I.
Op-1	26	0.14	0.60	0.031	0.20	0.07
Op-2	5	0.16	0.30	0.060	0.33	-0.01

Analysis of Variance for HBT for 0398 - Pagurus spp.

Stations = 4, 5, 6, 8, 9, 10, 12 level +1 ft MLLW

Data transformed using log base10(x + .5)

Results for Analysis of Variance

Source	Source df	Error df	F-value	Prob.
PERIOD	1	160.000	1.70	0.1948
SEASON	1	160.000	5.11	0.0251
STATION	6	160.000	15.51	0.0000
PERIOD*SEASON	1	160.000	3.36	0.0687
STATION*PERIOD	6	160.000	1.22	0.2982
STATION*SEASON	6	160.000	0.55	0.7688
PERIOD*STATION*SEASON	6	160.000	1.02	0.4141

Results for Power Analysis
Power at alpha = .1

Source	Non-Centrality Parameter	Adjusted non-Centrality Parameter	Power	Adjusted Power	Power to Detect 50% Change
PERIOD	1.70	0.67	0.3654	0.2109	1.0000
STATION*PERIOD	7.33	1.23	0.6019	0.1794	0.1113

Estimates for contrasts on combinations of interaction terms

Source	Difference	Std. Err.	T-value	Prob.
Period in DC	-0.8169	0.3218	-2.539	.0121
Period in FC	0.2378	0.3071	0.774	.4399
Period in FC-S	0.6011	0.3701	1.624	.1063
Period in FC-W	-0.1255	0.4901	-0.256	.7982
Period in DC-S	-0.3650	0.4158	-0.878	.3814
Period in DC-W	-1.2688	0.4912	-2.583	.0107

Least square means & confidence intervals from analysis of variance

Source	LS Mean	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period Op-1	-0.032	0.0265	-1.20	.2306	0.0119	-0.0757
Period Op-2	0.051	0.0578	0.88	.3800	0.1464	-0.0447
Op-1-04	0.098	0.0803	1.21	.2264	0.2304	-0.0354
Op-2-04	0.151	0.1855	0.81	.4165	0.4580	-0.1558
Op-1-05	-0.084	0.0803	-1.04	.2991	0.0492	-0.2166
Op-2-05	-0.241	0.1466	-1.64	.1026	0.0019	-0.4834
Op-1-06	-0.044	0.0630	-0.70	.4851	0.0602	-0.1483
Op-2-06	-0.178	0.1466	-1.22	.2257	0.0643	-0.4210
Op-1-08	0.017	0.0738	0.22	.8232	0.1386	-0.1056
Op-2-08	0.106	0.1466	0.72	.4727	0.3482	-0.1371
Op-1-09	0.434	0.0630	6.89	.0000	0.5381	0.3296
Op-2-09	0.727	0.1466	4.96	.0000	0.9698	0.4846
Op-1-10	-0.054	0.0643	-0.83	.4062	0.0528	-0.1600
Op-2-10	0.108	0.1466	0.74	.4623	0.3507	-0.1346
Op-1-12	-0.590	0.0630	-9.36	.0000	-0.4855	-0.6940
Op-2-12	-0.317	0.1466	-2.16	.0322	-0.0743	-0.5595

Paired comparisons of least square means between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period	-0.0827	0.0635	-1.302	.1948	0.0224	-0.1879

Paired comparisons of least square means among stations between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Station 04	-0.0536	0.2021	-0.27	.7913	0.2809	-0.3880
Station 05	0.1571	0.1672	0.94	.3489	0.4337	-0.1195
Station 06	0.1343	0.1596	0.84	.4015	0.3983	-0.1298
Station 08	-0.0890	0.1642	-0.54	.5883	0.1826	-0.3607
Station 09	-0.2934	0.1596	-1.84	.0679	-0.0293	-0.5574
Station 10	-0.1616	0.1601	-1.01	.3144	0.1033	-0.4265
Station 12	-0.2729	0.1596	-1.71	.0893	-0.0088	-0.5369

Station-period means and deltas from original data where control n=2

Station-Period	N	Station Mean	Range	Standard Error	Upper 95% c.i.	Lower 95% c.i.	Mean Delta	Delta Range	Upper 95% CIi.	Lower 95% C.I.
04 Op-1	16	12.91	21.40	1.670	16.47	9.35	2.44	28.80	7.07	-2.18
04 Op-2	4	13.70	26.00	5.880	32.41	-5.01	0.70	30.80	22.90	-21.50
05 Op-1	16	18.75	21.80	1.674	22.32	15.18	-3.39	25.90	0.26	-7.05
05 Op-2	5	30.04	26.20	5.049	44.06	16.02	-13.98	39.90	5.76	-33.72
06 Op-1	26	16.03	26.20	1.453	19.02	13.04	-2.05	34.90	1.50	-5.59
06 Op-2	5	25.64	34.80	5.748	41.60	9.68	-9.58	24.60	3.27	-22.43
08 Op-1	19	14.98	21.60	1.410	17.94	12.02	0.25	33.60	4.49	-3.99
08 Op-2	5	15.56	21.60	3.788	26.08	5.04	0.50	31.80	16.64	-15.64
09 Op-1	26	6.41	25.60	1.210	8.90	3.92	7.58	32.90	11.07	4.09
09 Op-2	5	2.76	4.40	0.803	4.99	0.53	13.30	13.30	19.35	7.25
10 Op-1	25	18.57	53.60	2.565	23.86	13.27	-4.53	55.30	1.17	-10.24
10 Op-2	5	20.28	57.20	10.664	49.89	-9.33	-4.22	64.90	27.97	-36.41
12 Op-1	26	80.54	349.60	16.490	114.50	46.58	-66.55	342.50	-33.62	-99.49
12 Op-2	5	36.52	47.80	9.052	61.65	11.39	-20.46	48.30	5.75	-46.67

Period means and deltas from original control data where n=2

Period	N	Station Mean	Range	Standard Error	Upper 95% C.I.	Lower 95% C.I.
Op-1	26	13.98	19.50	1.025	16.10	11.87
Op-2	5	16.06	15.10	2.711	23.59	8.53

Analysis of Variance for HBT for 0735 - Phragmatopoma californica

Stations = 4, 5, 6, 8, 9, 10, 12 level +1 ft MLLW

Data not transformed.

Results for Analysis of Variance

Source	Source df	Error df	F-value	Prob.
PERIOD	1	160.000	3.82	0.0525
SEASON	1	160.000	0.51	0.4760
STATION	6	160.000	0.45	0.8443
PERIOD*SEASON	1	160.000	0.01	0.9410
STATION*PERIOD	6	160.000	0.44	0.8527
STATION*SEASON	6	160.000	0.07	0.9985
PERIOD*STATION*SEASON	6	160.000	0.07	0.9988

Results for Power Analysis
Power at alpha = .1

Source	Non-Centrality Parameter	Adjusted non-Centrality Parameter	Power	Adjusted Power	Power to Detect 50% Change
PERIOD	3.82	2.77	0.6184	0.5055	0.2964
STATION*PERIOD	2.63	0.00	0.2787	.	0.2612

Estimates for contrasts on combinations of interaction terms

Source	Difference	Std. Err.	T-value	Prob.
Period in DC	1.1947	1.2741	0.938	.3498
Period in FC	2.2466	1.2159	1.848	.0665
Period in FC-S	2.0179	1.4654	1.377	.1704
Period in FC-W	2.4753	1.9406	1.276	.2040
Period in DC-S	1.5539	1.6466	0.944	.3467
Period in DC-W	0.8354	1.9449	0.430	.6681

Least square means & confidence intervals from analysis of variance

Source	LS Mean	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period Op-1	0.869	0.1049	8.28	.0000	1.0422	0.6950
Period Op-2	0.377	0.2287	1.65	.1012	0.7553	-0.0014
Op-1-04	1.061	0.3180	3.34	.0011	1.5874	0.5350
Op-2-04	0.330	0.7345	0.45	.6540	1.5450	-0.8853
Op-1-05	1.079	0.3180	3.39	.0009	1.6047	0.5524
Op-2-05	0.391	0.5807	0.67	.5021	1.3513	-0.5700
Op-1-06	1.218	0.2495	4.88	.0000	1.6307	0.8052
Op-2-06	0.391	0.5807	0.67	.5021	1.3513	-0.5700
Op-1-08	0.813	0.2923	2.78	.0060	1.2968	0.3297
Op-2-08	0.373	0.5807	0.64	.5213	1.3339	-0.5874
Op-1-09	0.032	0.2495	0.13	.8979	0.4448	-0.3807
Op-2-09	0.373	0.5807	0.64	.5213	1.3339	-0.5874
Op-1-10	0.651	0.2546	2.56	.0115	1.0724	0.2299
Op-2-10	0.391	0.5807	0.67	.5021	1.3513	-0.5700
Op-1-12	1.226	0.2495	4.91	.0000	1.6387	0.8132
Op-2-12	0.391	0.5807	0.67	.5021	1.3513	-0.5700

Paired comparisons of least square means between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period	0.4916	0.2516	1.954	.0525	0.9079	0.0754

Paired comparisons of least square means among stations between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Station 04	0.7313	0.8004	0.91	.3622	2.0555	-0.5928
Station 05	0.6879	0.6621	1.04	.3003	1.7833	-0.4074
Station 06	0.8273	0.6320	1.31	.1924	1.8729	-0.2183
Station 08	0.4400	0.6501	0.68	.4995	1.5155	-0.6355
Station 09	-0.3412	0.6320	-0.54	.5900	0.7044	-1.3868
Station 10	0.2605	0.6340	0.41	.6817	1.3095	-0.7884
Station 12	0.8353	0.6320	1.32	.1881	1.8809	-0.2102

Station-period means and deltas from original data where control n=2

Station-Period		N	Station Mean	Range	Standard Error	Upper 95% c.i.	Lower 95% c.i.	Mean Delta	Delta Range	Upper 95% CIi.	Lower 95% C.I.
04	Op-1	16	0.03	0.35	0.025	0.09	-0.02	1.06	4.41	1.77	0.35
04	Op-2	4	0.00	0.00	0.000	.	.	0.30	0.83	0.93	-0.33
05	Op-1	16	0.02	0.21	0.013	0.05	-0.01	1.08	4.41	1.79	0.37
05	Op-2	5	0.00	0.00	0.000	.	.	0.37	0.83	0.83	-0.09
06	Op-1	26	0.04	0.28	0.015	0.07	0.01	1.22	4.41	1.70	0.74
06	Op-2	5	0.00	0.00	0.000	.	.	0.37	0.83	0.83	-0.09
08	Op-1	19	0.29	1.74	0.112	0.53	0.06	0.81	4.10	1.30	0.32
08	Op-2	5	0.01	0.07	0.014	0.05	-0.02	0.35	0.83	0.82	-0.11
09	Op-1	26	1.23	5.21	0.256	1.76	0.70	0.03	6.22	0.57	-0.50
09	Op-2	5	0.01	0.07	0.014	0.05	-0.02	0.35	0.83	0.82	-0.11
10	Op-1	25	0.66	4.44	0.250	1.18	0.14	0.64	7.99	1.38	-0.09
10	Op-2	5	0.00	0.00	0.000	.	.	0.37	0.83	0.83	-0.09
12	Op-1	26	0.03	0.42	0.019	0.07	-0.00	1.23	4.34	1.69	0.76
12	Op-2	5	0.00	0.00	0.000	.	.	0.37	0.83	0.83	-0.09

Period means and deltas from original control data where n=2

Period	N	Station Mean	Range	Standard Error	Upper 95% C.I.	Lower 95% C.I.
Op-1	26	1.26	4.41	0.232	1.74	0.78
Op-2	5	0.37	0.83	0.166	0.83	-0.09

Analysis of Variance for HBT for 0389 - Pista spp.

Stations = 4, 5, 6, 8, 9, 10, 12 level +1 ft MLLW

Data transformed using log base10(x + 1)

Results for Analysis of Variance

Source	Source df	Error df	F-value	Prob.
PERIOD	1	160.000	0.58	0.4485
SEASON	1	160.000	3.52	0.0626
STATION	6	160.000	25.58	0.0000
PERIOD*SEASON	1	160.000	0.04	0.8498
STATION*PERIOD	6	160.000	10.97	0.0000
STATION*SEASON	6	160.000	0.52	0.7902
PERIOD*STATION*SEASON	6	160.000	0.16	0.9876

Results for Power Analysis
Power at alpha = .1

Source	Non-Centrality Parameter	Adjusted non-Centrality Parameter	Power	Adjusted Power	Power to Detect 50% Change
PERIOD	0.58	0.00	0.1954	.	0.2633
STATION*PERIOD	65.84	59.02	1.0000	1.0000	0.1663

Estimates for contrasts on combinations of interaction terms

Source	Difference	Std. Err.	T-value	Prob.
Period in DC	0.0316	0.2403	0.132	.8955
Period in FC	-0.2839	0.2293	-1.238	.2174
Period in FC-S	-0.3229	0.2763	-1.169	.2443
Period in FC-W	-0.2450	0.3659	-0.669	.5042
Period in DC-S	0.1336	0.3105	0.430	.6676
Period in DC-W	-0.0704	0.3667	-0.192	.8481

Least square means & confidence intervals from analysis of variance

Source	LS Mean	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period Op-1	0.225	0.0198	11.38	.0000	0.2579	0.1924
Period Op-2	0.261	0.0431	6.06	.0000	0.3325	0.1899
Op-1-04	0.310	0.0600	5.17	.0000	0.4093	0.2109
Op-2-04	0.331	0.1385	2.39	.0180	0.5602	0.1019
Op-1-05	0.338	0.0600	5.63	.0000	0.4371	0.2387
Op-2-05	0.563	0.1095	5.14	.0000	0.7439	0.3816
Op-1-06	0.240	0.0470	5.10	.0000	0.3177	0.1620
Op-2-06	0.278	0.1095	2.54	.0121	0.4591	0.0968
Op-1-08	0.140	0.0551	2.54	.0121	0.2311	0.0487
Op-2-08	0.351	0.1095	3.20	.0016	0.5317	0.1694
Op-1-09	0.273	0.0470	5.81	.0000	0.3512	0.1955
Op-2-09	0.570	0.1095	5.21	.0000	0.7512	0.3889
Op-1-10	-0.006	0.0480	-0.13	.8999	0.0734	-0.0855
Op-2-10	-0.834	0.1095	-7.62	.0000	-0.6529	-1.0151
Op-1-12	0.281	0.0470	5.97	.0000	0.3588	0.2032
Op-2-12	0.570	0.1095	5.21	.0000	0.7512	0.3889

Paired comparisons of least square means between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period	-0.0360	0.0474	-0.760	.4485	0.0424	-0.1145

Paired comparisons of least square means among stations between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Station 04	-0.0210	0.1509	-0.14	.8895	0.2287	-0.2707
Station 05	-0.2248	0.1248	-1.80	.0736	-0.0183	-0.4314
Station 06	-0.0381	0.1192	-0.32	.7496	0.1591	-0.2353
Station 08	-0.2107	0.1226	-1.72	.0876	-0.0079	-0.4135
Station 09	-0.2967	0.1192	-2.49	.0138	-0.0995	-0.4938
Station 10	0.8280	0.1196	6.93	.0000	1.0257	0.6302
Station 12	-0.2890	0.1192	-2.43	.0164	-0.0918	-0.4862

Station-period means and deltas from original data where control n=2

Station	Period	N	Station Mean	Range	Standard Error	Upper 95% C.I.	Lower 95% C.I.	Mean Delta	Delta Range	Upper 95% CIi.	Lower 95% C.I.
04	Op-1	16	0.13	0.97	0.059	0.26	0.00	1.33	3.16	1.82	0.84
04	Op-2	4	0.52	0.62	0.151	1.00	0.04	1.87	1.49	2.85	0.88
05	Op-1	16	0.05	0.35	0.024	0.10	-0.00	1.41	3.30	1.97	0.86
05	Op-2	5	0.01	0.07	0.014	0.05	-0.02	2.67	2.33	3.78	1.56
06	Op-1	26	0.12	0.90	0.041	0.21	0.03	0.97	2.92	1.31	0.63
06	Op-2	5	1.11	1.60	0.360	2.11	0.11	1.58	2.64	2.83	0.32
08	Op-1	19	0.59	1.88	0.141	0.89	0.30	0.68	4.20	1.31	0.05
08	Op-2	5	1.01	3.75	0.691	2.93	-0.91	1.67	4.90	4.10	-0.75
09	Op-1	26	0.03	0.49	0.019	0.07	-0.01	1.06	3.68	1.46	0.66
09	Op-2	5	0.00	0.00	0.000	.	.	2.69	2.40	3.82	1.55
10	Op-1	25	4.69	44.17	2.145	9.12	0.27	-3.57	43.02	0.56	-7.70
10	Op-2	5	26.04	36.81	6.323	43.60	8.49	-23.35	35.97	-5.77	-40.94
12	Op-1	26	0.01	0.07	0.004	0.01	-0.00	1.08	3.40	1.47	0.70
12	Op-2	5	0.00	0.00	0.000	.	.	2.69	2.40	3.82	1.55

Period means and deltas from original control data where n=2

Period	N	Station Mean	Range	Standard Error	Upper 95% C.I.	Lower 95% C.I.
Op-1	26	1.09	3.40	0.189	1.48	0.70
Op-2	5	2.69	2.40	0.409	3.82	1.55

Analysis of Variance for HBT for 0612 - Pugettia spp.

Stations = 4, 5, 6, 8, 9, 10, 12 level +1 ft MLLW

Data transformed using log base10(x + .1)

Results for Analysis of Variance

Source	Source df	Error df	F-value	Prob.
PERIOD	1	160.000	23.84	0.0000
SEASON	1	160.000	9.73	0.0022
STATION	6	160.000	2.05	0.0617
PERIOD*SEASON	1	160.000	0.00	0.9694
STATION*PERIOD	6	160.000	2.13	0.0530
STATION*SEASON	6	160.000	1.18	0.3204
PERIOD*STATION*SEASON	6	160.000	0.46	0.8406

Results for Power Analysis
Power at alpha = .1

Source	Non-Centrality Parameter	Adjusted non-Centrality Parameter	Power	Adjusted Power	Power to Detect 50% Change
PERIOD	23.84	22.55	0.9994	0.9990	0.3390
STATION*PERIOD	12.76	6.60	0.8412	0.5576	0.1185

Estimates for contrasts on combinations of interaction terms

Source	Difference	Std. Err.	T-value	Prob.
Period in DC	0.6173	0.3871	1.595	.1128
Period in FC	1.9956	0.3694	5.402	.0000
Period in FC-S	1.7903	0.4452	4.021	.0001
Period in FC-W	2.2009	0.5896	3.733	.0003
Period in DC-S	0.8021	0.5003	1.603	.1109
Period in DC-W	0.4326	0.5909	0.732	.4652

Least square means & confidence intervals from analysis of variance

Source	LS Mean	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period Op-1	0.367	0.0319	11.51	.0000	0.4195	0.3140
Period Op-2	-0.006	0.0695	-0.09	.9257	0.1085	-0.1214
Op-1-04	0.406	0.0966	4.21	.0000	0.5663	0.2466
Op-2-04	-0.297	0.2232	-1.33	.1848	0.0720	-0.6664
Op-1-05	0.464	0.0966	4.80	.0000	0.6239	0.3041
Op-2-05	-0.105	0.1764	-0.59	.5532	0.1870	-0.3967
Op-1-06	0.325	0.0758	4.29	.0000	0.4504	0.1995
Op-2-06	-0.398	0.1764	-2.26	.0254	-0.1062	-0.6900
Op-1-08	0.355	0.0888	4.00	.0001	0.5024	0.2085
Op-2-08	0.072	0.1764	0.41	.6849	0.3636	-0.2202
Op-1-09	0.307	0.0758	4.04	.0001	0.4320	0.1812
Op-2-09	0.335	0.1764	1.90	.0597	0.6265	0.0428
Op-1-10	0.223	0.0774	2.89	.0044	0.3513	0.0953
Op-2-10	0.096	0.1764	0.54	.5868	0.3880	-0.1958
Op-1-12	0.487	0.0758	6.42	.0000	0.6121	0.3613
Op-2-12	0.252	0.1764	1.43	.1546	0.5442	-0.0395

Paired comparisons of least square means between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period	0.3733	0.0764	4.883	.0000	0.4997	0.2468

Paired comparisons of least square means among stations between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Station 04	0.7037	0.2432	2.89	.0043	1.1060	0.3014
Station 05	0.5688	0.2012	2.83	.0053	0.9016	0.2360
Station 06	0.7231	0.1920	3.77	.0002	1.0408	0.4054
Station 08	0.2837	0.1975	1.44	.1528	0.6105	-0.0430
Station 09	-0.0280	0.1920	-0.15	.8841	0.2896	-0.3457
Station 10	0.1272	0.1926	0.66	.5099	0.4459	-0.1915
Station 12	0.2344	0.1920	1.22	.2240	0.5521	-0.0833

Station-period means and deltas from original data where control n=2

Station	Period	N	Station Mean	Range	Standard Error	Upper 95% c.i.	Lower 95% c.i.	Mean Delta	Delta Range	Upper 95% CIi.	Lower 95% C.I.
04	Op-1	16	0.10	0.40	0.041	0.19	0.01	0.28	1.40	0.45	0.10
04	Op-2	4	0.70	1.40	0.311	1.69	-0.29	-0.23	1.50	0.81	-1.26
05	Op-1	16	0.06	0.40	0.030	0.13	-0.00	0.31	1.20	0.47	0.15
05	Op-2	5	0.44	1.20	0.214	1.03	-0.15	-0.06	1.20	0.53	-0.65
06	Op-1	26	0.13	1.60	0.066	0.27	-0.00	0.19	2.20	0.36	0.02
06	Op-2	5	0.84	1.20	0.232	1.48	0.20	-0.46	1.00	0.04	-0.96
08	Op-1	19	0.13	0.80	0.053	0.24	0.01	0.23	1.30	0.40	0.07
08	Op-2	5	0.32	0.80	0.162	0.77	-0.13	0.06	1.10	0.55	-0.43
09	Op-1	26	0.14	1.60	0.065	0.27	0.00	0.18	2.00	0.34	0.03
09	Op-2	5	0.08	0.40	0.080	0.30	-0.14	0.30	0.90	0.76	-0.16
10	Op-1	25	0.22	1.20	0.073	0.38	0.07	0.11	1.80	0.27	-0.04
10	Op-2	5	0.44	1.40	0.286	1.23	-0.35	-0.06	1.60	0.74	-0.86
12	Op-1	26	0.01	0.20	0.008	0.02	-0.01	0.32	1.30	0.44	0.19
12	Op-2	5	0.08	0.20	0.049	0.22	-0.06	0.30	1.00	0.83	-0.23

Period means and deltas from original control data where n=2

Period	N	Station Mean	Range	Standard Error	Upper 95% C.I.	Lower 95% C.I.
Op-1	26	0.32	1.10	0.059	0.44	0.20
Op-2	5	0.38	0.90	0.193	0.92	-0.16

Analysis of Variance for HBT for 0615 - Serpulidae unid.

Stations = 4, 5, 6, 8, 9, 10, 12 level +1 ft MLLW

Data transformed using log base10(x + .1)

Results for Analysis of Variance

Source	Source df	Error df	F-value	Prob.
PERIOD	1	160.000	4.14	0.0434
SEASON	1	160.000	0.86	0.3558
STATION	6	160.000	16.27	0.0000
PERIOD*SEASON	1	160.000	0.40	0.5297
STATION*PERIOD	6	160.000	2.18	0.0478
STATION*SEASON	6	160.000	1.30	0.2584
PERIOD*STATION*SEASON	6	160.000	1.42	0.2115

Results for Power Analysis
Power at alpha = .1

Source	Non-Centrality Parameter	Adjusted non-Centrality Parameter	Power	Adjusted Power	Power to Detect 50% Change
PERIOD	4.14	3.09	0.6489	0.5426	0.8267
STATION*PERIOD	13.07	6.90	0.8501	0.5765	0.4135

Estimates for contrasts on combinations of interaction terms

Source	Difference	Std. Err.	T-value	Prob.
Period in DC	0.5691	0.3606	1.578	.1165
Period in FC	0.4455	0.3441	1.295	.1973
Period in FC-S	0.0914	0.4147	0.220	.8259
Period in FC-W	0.7997	0.5492	1.456	.1473
Period in DC-S	0.6093	0.4660	1.308	.1929
Period in DC-W	0.5288	0.5504	0.961	.3381

Least square means & confidence intervals from analysis of variance

Source	LS Mean	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period Op-1	-0.229	0.0297	-7.71	.0000	-0.1797	-0.2780
Period Op-2	-0.374	0.0647	-5.78	.0000	-0.2667	-0.4809
Op-1-04	-0.271	0.0900	-3.01	.0030	-0.1225	-0.4203
Op-2-04	-0.835	0.2079	-4.02	.0001	-0.4913	-1.1790
Op-1-05	-0.437	0.0900	-4.85	.0000	-0.2877	-0.5856
Op-2-05	-0.354	0.1643	-2.15	.0329	-0.0818	-0.6256
Op-1-06	-0.543	0.0706	-7.70	.0000	-0.4266	-0.6603
Op-2-06	-0.508	0.1643	-3.09	.0023	-0.2362	-0.7800
Op-1-08	0.127	0.0827	1.54	.1255	0.2642	-0.0095
Op-2-08	-0.334	0.1643	-2.03	.0439	-0.0618	-0.6056
Op-1-09	-0.659	0.0706	-9.33	.0000	-0.5418	-0.7754
Op-2-09	-0.956	0.1643	-5.82	.0000	-0.6842	-1.2279
Op-1-10	0.040	0.0721	0.55	.5821	0.1590	-0.0795
Op-2-10	0.125	0.1643	0.76	.4464	0.3973	-0.1464
Op-1-12	0.141	0.0706	2.00	.0477	0.2577	0.0241
Op-2-12	0.245	0.1643	1.49	.1384	0.5166	-0.0272

Paired comparisons of least square means between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period	0.1449	0.0712	2.036	.0434	0.2627	0.0271

Paired comparisons of least square means among stations between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Station 04	0.5638	0.2265	2.49	.0138	0.9385	0.1890
Station 05	-0.0830	0.1874	-0.44	.6586	0.2270	-0.3929
Station 06	-0.0353	0.1789	-0.20	.8437	0.2606	-0.3312
Station 08	0.4611	0.1840	2.51	.0132	0.7655	0.1567
Station 09	0.2975	0.1789	1.66	.0982	0.5934	0.0016
Station 10	-0.0857	0.1794	-0.48	.6336	0.2112	-0.3826
Station 12	-0.1038	0.1789	-0.58	.5625	0.1921	-0.3997

Station-period means and deltas from original data where control n=2

Station-Period	N	Station Mean	Range	Standard Error	Upper 95% C.I.	Lower 95% c.i.	Mean Delta	Delta Range	Upper 95% CIi.	Lower 95% C.I.
04 Op-1	16	0.23	0.40	0.044	0.32	0.13	-0.17	0.50	-0.08	-0.26
04 Op-2	4	0.90	2.20	0.507	2.51	-0.71	-0.85	2.10	0.70	-2.40
05 Op-1	16	0.45	1.60	0.118	0.70	0.20	-0.39	1.70	-0.15	-0.64
05 Op-2	5	0.48	1.60	0.301	1.31	-0.35	-0.40	1.50	0.35	-1.15
06 Op-1	26	0.57	1.80	0.095	0.77	0.37	-0.52	2.00	-0.32	-0.71
06 Op-2	5	0.56	1.00	0.194	1.10	0.02	-0.48	0.90	-0.02	-0.94
08 Op-1	19	0.02	0.20	0.014	0.05	-0.01	0.05	0.50	0.11	-0.01
08 Op-2	5	0.40	1.00	0.210	0.98	-0.18	-0.32	1.00	0.20	-0.84
09 Op-1	26	0.77	2.20	0.117	1.01	0.53	-0.72	2.40	-0.47	-0.96
09 Op-2	5	1.88	3.40	0.578	3.49	0.27	-1.80	3.40	-0.17	-3.43
10 Op-1	25	0.07	0.80	0.045	0.16	-0.02	-0.02	1.10	0.08	-0.12
10 Op-2	5	0.04	0.20	0.040	0.15	-0.07	0.04	0.10	0.11	-0.03
12 Op-1	26	0.00	0.00	0.000	.	.	0.05	0.30	0.09	0.02
12 Op-2	5	0.00	0.00	0.000	.	.	0.08	0.20	0.18	-0.02

Period means and deltas from original control data where n=2

Period	N	Station Mean	Range	Standard Error	Upper 95% C.I.	Lower 95% C.I.
Op-1	26	0.05	0.30	0.016	0.09	0.02
Op-2	5	0.08	0.20	0.037	0.18	-0.02

Analysis of Variance for HBT for 0318 - Serpulorbis squamigerus

Stations = 4, 5, 6, 8, 9, 10, 12 level +1 ft MLLW

Data transformed using log base10(x + .5)

Results for Analysis of Variance

Source	Source df	Error df	F-value	Prob.
PERIOD	1	160.000	2.00	0.1590
SEASON	1	160.000	3.66	0.0575
STATION	6	160.000	38.15	0.0000
PERIOD*SEASON	1	160.000	3.16	0.0775
STATION*PERIOD	6	160.000	0.68	0.6693
STATION*SEASON	6	160.000	0.88	0.5090
PERIOD*STATION*SEASON	6	160.000	0.40	0.8786

Results for Power Analysis
Power at alpha = .1

Source	Non-Centrality Parameter	Adjusted non-Centrality Parameter	Power	Adjusted Power	Power to Detect 50% Change
PERIOD	2.00	0.98	0.4080	0.2588	0.9762
STATION*PERIOD	4.06	0.00	0.3832	.	0.9027

Estimates for contrasts on combinations of interaction terms

Source	Difference	Std. Err.	T-value	Prob.
Period in DC	0.1627	0.1863	0.873	.3838
Period in FC	0.2017	0.1778	1.135	.2582
Period in FC-S	-0.0299	0.2143	-0.139	.8894
Period in FC-W	0.4333	0.2838	1.527	.1287
Period in DC-S	-0.0632	0.2408	-0.263	.7932
Period in DC-W	0.3887	0.2844	1.367	.1737

Least square means & confidence intervals from analysis of variance

Source	LS Mean	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period Op-1	-0.205	0.0153	-13.39	.0000	-0.1801	-0.2308
Period Op-2	-0.258	0.0334	-7.70	.0000	-0.2022	-0.3129
Op-1-04	-0.142	0.0465	-3.06	.0026	-0.0652	-0.2191
Op-2-04	-0.289	0.1074	-2.69	.0079	-0.1112	-0.4666
Op-1-05	-0.521	0.0465	-11.20	.0000	-0.4438	-0.5977
Op-2-05	-0.625	0.0849	-7.37	.0000	-0.4849	-0.7659
Op-1-06	-0.724	0.0365	-19.86	.0000	-0.6640	-0.7848
Op-2-06	-0.675	0.0849	-7.95	.0000	-0.5342	-0.8152
Op-1-08	0.040	0.0427	0.95	.3450	0.1112	-0.0302
Op-2-08	-0.000	0.0849	-0.00	1.000	0.1405	-0.1405
Op-1-09	0.012	0.0365	0.32	.7488	0.0721	-0.0487
Op-2-09	-0.024	0.0849	-0.29	.7746	0.1161	-0.1648
Op-1-10	-0.132	0.0372	-3.54	.0005	-0.0701	-0.1933
Op-2-10	-0.086	0.0849	-1.01	.3149	0.0549	-0.2261
Op-1-12	0.029	0.0365	0.78	.4348	0.0889	-0.0318
Op-2-12	-0.104	0.0849	-1.22	.2236	0.0367	-0.2442

Paired comparisons of least square means between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period	0.0521	0.0368	1.415	.1590	0.1129	-0.0088

Paired comparisons of least square means among stations between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Station 04	0.1468	0.1170	1.25	.2117	0.3404	-0.0469
Station 05	0.1047	0.0968	1.08	.2813	0.2648	-0.0555
Station 06	-0.0497	0.0924	-0.54	.5915	0.1032	-0.2026
Station 08	0.0405	0.0951	0.43	.6708	0.1978	-0.1168
Station 09	0.0361	0.0924	0.39	.6969	0.1890	-0.1168
Station 10	-0.0461	0.0927	-0.50	.6195	0.1073	-0.1995
Station 12	0.1323	0.0924	1.43	.1542	0.2852	-0.0206

Station-period means and deltas from original data where control n=2

Station-Period		N	Station Mean	Range	Standard Error	Upper 95% c.i.	Lower 95% c.i.	Mean Delta	Delta Range	Upper 95% CIi.	Lower 95% C.I.
04	Op-1	16	0.31	0.80	0.075	0.47	0.15	-0.25	1.10	-0.07	-0.43
04	Op-2	4	0.40	0.80	0.183	0.98	-0.18	-0.40	0.80	0.18	-0.98
05	Op-1	16	1.74	4.00	0.318	2.41	1.06	-1.68	4.00	-1.02	-2.33
05	Op-2	5	1.96	4.40	0.826	4.25	-0.33	-1.96	4.40	0.33	-4.25
06	Op-1	26	2.92	10.00	0.407	3.75	2.08	-2.87	10.00	-2.03	-3.70
06	Op-2	5	2.28	4.00	0.804	4.51	0.05	-2.28	4.00	-0.05	-4.51
08	Op-1	19	0.00	0.00	0.000	.	.	0.06	0.50	0.13	-0.00
08	Op-2	5	0.00	0.00	0.000	.	.	0.00	0.00	.	.
09	Op-1	26	0.03	0.20	0.014	0.06	0.00	0.02	0.50	0.06	-0.03
09	Op-2	5	0.04	0.20	0.040	0.15	-0.07	-0.04	0.20	0.07	-0.15
10	Op-1	25	0.29	1.20	0.065	0.42	0.15	-0.24	1.50	-0.10	-0.37
10	Op-2	5	0.12	0.60	0.120	0.45	-0.21	-0.12	0.60	0.21	-0.45
12	Op-1	26	0.01	0.20	0.008	0.02	-0.01	0.04	0.70	0.09	-0.01
12	Op-2	5	0.16	0.80	0.160	0.60	-0.28	-0.16	0.80	0.28	-0.60

Period means and deltas from original control data where n=2

Period	N	Station Mean	Range	Standard Error	Upper 95% C.I.	Lower 95% C.I.
Op-1	26	0.05	0.50	0.023	0.10	0.00
Op-2	5	0.00	0.00	0.000	.	.

Analysis of Variance for HBT for 1120 - Spirorbidae

Stations = 4, 5, 6, 8, 9, 10, 12 level +1 ft MLLW

Data transformed using arcsin.

Results for Analysis of Variance

Source	Source df	Error df	F-value	Prob.
PERIOD	1	160.000	1.72	0.1918
SEASON	1	160.000	49.97	0.0000
STATION	6	160.000	0.21	0.9737
PERIOD*SEASON	1	160.000	16.88	0.0001
STATION*PERIOD	6	160.000	0.14	0.9914
STATION*SEASON	6	160.000	0.34	0.9150
PERIOD*STATION*SEASON	6	160.000	0.10	0.9965

Results for Power Analysis
Power at alpha = .1

Source	Non-Centrality Parameter	Adjusted non-Centrality Parameter	Power	Adjusted Power	Power to Detect 50% Change
PERIOD	1.72	0.70	0.3686	0.2145	0.1041
STATION*PERIOD	0.82	0.00	0.1514	.	0.1044

Estimates for contrasts on combinations of interaction terms

Source	Difference	Std. Err.	T-value	Prob.
Period in DC	-1.1501	1.2185	-0.944	.3467
Period in FC	-1.0575	1.1628	-0.909	.3645
Period in FC-S	2.0281	1.4015	1.447	.1498
Period in FC-W	-4.1432	1.8559	-2.232	.0270
Period in DC-S	2.6834	1.5747	1.704	.0903
Period in DC-W	-4.9837	1.8600	-2.679	.0081

Least square means & confidence intervals from analysis of variance

Source	LS Mean	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period Op-1	1.169	0.1003	11.66	.0000	1.3355	1.0035
Period Op-2	1.485	0.2187	6.79	.0000	1.8467	1.1230
Op-1-04	1.234	0.3042	4.06	.0001	1.7373	0.7309
Op-2-04	1.689	0.7024	2.40	.0174	2.8507	0.5264
Op-1-05	1.234	0.3042	4.06	.0001	1.7373	0.7309
Op-2-05	1.640	0.5553	2.95	.0036	2.5585	0.7210
Op-1-06	1.191	0.2386	4.99	.0000	1.5853	0.7958
Op-2-06	1.388	0.5553	2.50	.0134	2.3068	0.4693
Op-1-08	1.289	0.2795	4.61	.0000	1.7510	0.8261
Op-2-08	1.136	0.5553	2.05	.0424	2.0549	0.2174
Op-1-09	1.249	0.2386	5.23	.0000	1.6434	0.8538
Op-2-09	1.640	0.5553	2.95	.0036	2.5585	0.7210
Op-1-10	1.101	0.2435	4.52	.0000	1.5039	0.6981
Op-2-10	1.640	0.5553	2.95	.0036	2.5585	0.7210
Op-1-12	0.889	0.2386	3.73	.0003	1.2842	0.4947
Op-2-12	1.262	0.5553	2.27	.0244	2.1809	0.3434

Paired comparisons of least square means between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period	-0.3154	0.2406	-1.311	.1918	0.0827	-0.7135

Paired comparisons of least square means among stations between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Station 04	-0.4544	0.7655	-0.59	.5536	0.8120	-1.7208
Station 05	-0.4056	0.6332	-0.64	.5227	0.6419	-1.4531
Station 06	-0.1975	0.6044	-0.33	.7443	0.8025	-1.1975
Station 08	0.1524	0.6217	0.25	.8067	1.1809	-0.8762
Station 09	-0.3911	0.6044	-0.65	.5185	0.6089	-1.3911
Station 10	-0.5387	0.6064	-0.89	.3757	0.4645	-1.5419
Station 12	-0.3727	0.6044	-0.62	.5383	0.6273	-1.3727

Station-period means and deltas from original data where control n=2

Station-Period	N	Station Mean	Range	Standard Error	Upper 95% c.i.	Lower 95% c.i.	Mean Delta	Delta Range	Upper 95% CIi.	Lower 95% C.I.
04 Op-1	16	0.00	0.00	0.000	.	.	0.10	0.49	0.18	0.02
04 Op-2	4	0.00	0.00	0.000	.	.	0.08	0.28	0.29	-0.14
05 Op-1	16	0.00	0.00	0.000	.	.	0.10	0.49	0.18	0.02
05 Op-2	5	0.00	0.00	0.000	.	.	0.11	0.28	0.28	-0.06
06 Op-1	26	0.00	0.07	0.003	0.01	-0.00	0.09	0.49	0.14	0.04
06 Op-2	5	0.01	0.07	0.014	0.05	-0.02	0.10	0.31	0.28	-0.09
08 Op-1	19	0.00	0.00	0.000	.	.	0.11	0.49	0.17	0.04
08 Op-2	5	0.06	0.28	0.056	0.21	-0.10	0.06	0.52	0.32	-0.21
09 Op-1	26	0.00	0.00	0.000	.	.	0.09	0.49	0.15	0.04
09 Op-2	5	0.00	0.00	0.000	.	.	0.11	0.28	0.28	-0.06
10 Op-1	25	0.01	0.21	0.008	0.03	-0.01	0.08	0.49	0.13	0.03
10 Op-2	5	0.00	0.00	0.000	.	.	0.11	0.28	0.28	-0.06
12 Op-1	26	0.03	0.42	0.018	0.07	-0.01	0.07	0.66	0.12	0.01
12 Op-2	5	0.01	0.07	0.014	0.05	-0.02	0.10	0.28	0.25	-0.06

Period means and deltas from original control data where n=2

Period	N	Station Mean	Range	Standard Error	Upper 95% C.I.	Lower 95% C.I.
Op-1	26	0.09	0.49	0.025	0.15	0.04
Op-2	5	0.11	0.28	0.062	0.28	-0.06

Analysis of Variance for HBT for 0427 - Strongylocentrotus purpuratus

Stations = 4, 5, 6, 8, 9, 10, 12 level +1 ft MLLW

Data transformed using log base10(x + .1)

Results for Analysis of Variance

Source	Source df	Error df	F-value	Prob.
PERIOD	1	160.000	18.50	0.0000
SEASON	1	160.000	0.67	0.4143
STATION	6	160.000	30.84	0.0000
PERIOD*SEASON	1	160.000	0.01	0.9357
STATION*PERIOD	6	160.000	2.26	0.0407
STATION*SEASON	6	160.000	0.33	0.9192
PERIOD*STATION*SEASON	6	160.000	0.33	0.9189

Results for Power Analysis
Power at alpha = .1

Source	Non-Centrality Parameter	Adjusted non-Centrality Parameter	Power	Adjusted Power	Power to Detect 50% Change
PERIOD	18.50	17.27	0.9958	0.9937	0.9564
STATION*PERIOD	13.53	7.36	0.8628	0.6041	0.2240

Estimates for contrasts on combinations of interaction terms

Source	Difference	Std. Err.	T-value	Prob.
Period in DC	2.2263	0.5648	3.942	.0001
Period in FC	1.1311	0.5389	2.099	.0374
Period in FC-S	0.8999	0.6496	1.385	.1679
Period in FC-W	1.3624	0.8602	1.584	.1152
Period in DC-S	2.5207	0.7298	3.454	.0007
Period in DC-W	1.9320	0.8621	2.241	.0264

Least square means & confidence intervals from analysis of variance

Source	LS Mean	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period Op-1	-1.132	0.0465	-24.34	.0000	-1.0550	-1.2089
Period Op-2	-1.612	0.1014	-15.90	.0000	-1.4439	-1.7793
Op-1-04	-1.149	0.1410	-8.15	.0000	-0.9162	-1.3827
Op-2-04	-1.119	0.3256	-3.44	.0007	-0.5805	-1.6577
Op-1-05	-1.999	0.1410	-14.18	.0000	-1.7657	-2.2322
Op-2-05	-2.334	0.2574	-9.07	.0000	-1.9078	-2.7595
Op-1-06	-1.744	0.1106	-15.77	.0000	-1.5615	-1.9274
Op-2-06	-2.571	0.2574	-9.99	.0000	-2.1454	-2.9970
Op-1-08	-0.994	0.1295	-7.67	.0000	-0.7799	-1.2085
Op-2-08	-1.966	0.2574	-7.64	.0000	-1.5399	-2.3915
Op-1-09	-1.542	0.1106	-13.95	.0000	-1.3595	-1.7254
Op-2-09	-2.360	0.2574	-9.17	.0000	-1.9338	-2.7854
Op-1-10	-0.444	0.1129	-3.93	.0001	-0.2572	-0.6307
Op-2-10	-0.282	0.2574	-1.10	.2741	0.1434	-0.7083
Op-1-12	-0.050	0.1106	-0.45	.6499	0.1327	-0.2333
Op-2-12	-0.649	0.2574	-2.52	.0126	-0.2237	-1.0753

Paired comparisons of least square means between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period	0.4796	0.1115	4.301	.0000	0.6641	0.2951

Paired comparisons of least square means among stations between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Station 04	-0.0303	0.3548	-0.09	.9320	0.5566	-0.6173
Station 05	0.3347	0.2935	1.14	.2557	0.8202	-0.1508
Station 06	0.8268	0.2801	2.95	.0036	1.2902	0.3633
Station 08	0.9715	0.2881	3.37	.0009	1.4482	0.4948
Station 09	0.8171	0.2801	2.92	.0040	1.2806	0.3537
Station 10	-0.1615	0.2810	-0.57	.5663	0.3035	-0.6265
Station 12	0.5992	0.2801	2.14	.0340	1.0626	0.1357

Station-period means and deltas from original data where control n=2

Station-Period	N	Station Mean	Range	Standard Error	Upper 95% c.i.	Lower 95% c.i.	Mean Delta	Delta Range	Upper 95% CIi.	Lower 95% C.I.
04 Op-1	16	3.18	10.60	0.716	4.70	1.65	-3.09	10.30	-1.58	-4.61
04 Op-2	4	3.30	8.20	1.794	9.01	-2.41	-3.28	8.30	2.48	-9.03
05 Op-1	16	18.60	55.60	3.124	25.26	11.94	-18.52	55.60	-11.85	-25.18
05 Op-2	5	25.76	28.00	5.462	40.92	10.60	-25.74	28.10	-10.54	-40.94
06 Op-1	26	21.65	117.00	6.829	35.72	7.59	-21.60	117.00	-7.54	-35.65
06 Op-2	5	43.68	52.60	9.900	71.17	16.19	-43.66	52.60	-16.14	-71.18
08 Op-1	19	3.34	10.80	0.753	4.92	1.76	-3.26	11.00	-1.69	-4.82
08 Op-2	5	12.92	26.20	4.858	26.41	-0.57	-12.90	26.30	0.61	-26.41
09 Op-1	26	13.07	108.80	4.358	22.04	4.09	-13.01	108.80	-4.04	-21.98
09 Op-2	5	36.52	89.20	15.661	80.00	-6.96	-36.50	89.30	7.01	-80.01
10 Op-1	25	0.81	4.00	0.229	1.28	0.34	-0.75	4.10	-0.29	-1.21
10 Op-2	5	0.36	1.00	0.223	0.98	-0.26	-0.34	1.10	0.30	-0.98
12 Op-1	26	0.21	3.40	0.134	0.48	-0.07	-0.15	3.40	0.11	-0.41
12 Op-2	5	0.88	1.60	0.361	1.88	-0.12	-0.86	1.60	0.12	-1.84

Period means and deltas from original control data where n=2

Period	N	Station Mean	Range	Standard Error	Upper 95% C.I.	Lower 95% C.I.
Op-1	26	0.06	0.30	0.019	0.10	0.02
Op-2	5	0.02	0.10	0.020	0.08	-0.04

Analysis of Variance for HBT for 0311 - Tectura scutum

Stations = 4, 5, 6, 8, 9, 10, 12 level +1 ft MLLW

Data transformed using log base10(x + .5)

Results for Analysis of Variance

Source	Source df	Error df	F-value	Prob.
PERIOD	1	160.000	0.08	0.7711
SEASON	1	160.000	0.60	0.4385
STATION	6	160.000	12.63	0.0000
PERIOD*SEASON	1	160.000	5.28	0.0229
STATION*PERIOD	6	160.000	2.68	0.0167
STATION*SEASON	6	160.000	0.31	0.9328
PERIOD*STATION*SEASON	6	160.000	0.90	0.4978

Results for Power Analysis
Power at alpha = .1

Source	Non-Centrality Parameter	Adjusted non-Centrality Parameter	Power	Adjusted Power	Power to Detect 50% Change
PERIOD	0.08	0.00	0.1143	.	0.9987
STATION*PERIOD	16.06	9.86	0.9169	0.7339	0.1507

Estimates for contrasts on combinations of interaction terms

Source	Difference	Std. Err.	T-value	Prob.
Period in DC	0.4755	0.3358	1.416	.1587
Period in FC	-0.3403	0.3205	-1.062	.2900
Period in FC-S	0.4135	0.3863	1.070	.2860
Period in FC-W	-1.0940	0.5115	-2.139	.0340
Period in DC-S	0.7881	0.4340	1.816	.0713
Period in DC-W	0.1629	0.5126	0.318	.7510

Least square means & confidence intervals from analysis of variance

Source	LS Mean	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period Op-1	-0.225	0.0277	-8.15	.0000	-0.1797	-0.2712
Period Op-2	-0.245	0.0603	-4.06	.0001	-0.1451	-0.3445
Op-1-04	-0.075	0.0838	-0.90	.3692	0.0632	-0.2142
Op-2-04	0.135	0.1936	0.70	.4863	0.4554	-0.1852
Op-1-05	-0.165	0.0838	-1.97	.0506	-0.0265	-0.3038
Op-2-05	0.046	0.1531	0.30	.7636	0.2993	-0.2071
Op-1-06	0.054	0.0658	0.82	.4137	0.1627	-0.0549
Op-2-06	-0.028	0.1531	-0.18	.8566	0.2255	-0.2809
Op-1-08	-0.351	0.0770	-4.56	.0000	-0.2237	-0.4786
Op-2-08	-0.564	0.1531	-3.68	.0003	-0.3105	-0.8169
Op-1-09	-0.503	0.0658	-7.64	.0000	-0.3939	-0.6115
Op-2-09	-0.890	0.1531	-5.81	.0000	-0.6363	-1.1427
Op-1-10	-0.158	0.0671	-2.36	.0195	-0.0474	-0.2695
Op-2-10	0.203	0.1531	1.33	.1867	0.4562	-0.0503
Op-1-12	-0.379	0.0658	-5.76	.0000	-0.2703	-0.4879
Op-2-12	-0.617	0.1531	-4.03	.0001	-0.3634	-0.8699

Paired comparisons of least square means between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period	0.0193	0.0663	0.291	.7711	0.1290	-0.0904

Paired comparisons of least square means among stations between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Station 04	-0.2106	0.2110	-1.00	.3197	0.1384	-0.5596
Station 05	-0.2113	0.1745	-1.21	.2278	0.0774	-0.5000
Station 06	0.0816	0.1666	0.49	.6249	0.3572	-0.1940
Station 08	0.2125	0.1713	1.24	.2166	0.4960	-0.0709
Station 09	0.3868	0.1666	2.32	.0215	0.6624	0.1112
Station 10	-0.3614	0.1671	-2.16	.0321	-0.0849	-0.6378
Station 12	0.2376	0.1666	1.43	.1558	0.5132	-0.0380

Station-period means and deltas from original data where control n=2

Station	Period	N	Station Mean	Range	Standard Error	Upper 95% C.I.	Lower 95% C.I.	Mean Delta	Delta Range	Upper 95% CIi.	Lower 95% C.I.
04	Op-1	16	1.14	3.00	0.220	1.61	0.67	-0.29	3.60	0.24	-0.82
04	Op-2	4	0.70	1.40	0.311	1.69	-0.29	0.13	1.80	1.45	-1.20
05	Op-1	16	1.75	5.40	0.372	2.54	0.96	-0.90	5.80	-0.16	-1.64
05	Op-2	5	0.96	2.60	0.453	2.22	-0.30	-0.16	1.80	0.71	-1.03
06	Op-1	26	0.95	4.60	0.219	1.40	0.50	0.18	4.90	0.64	-0.28
06	Op-2	5	1.08	2.40	0.441	2.30	-0.14	-0.28	1.80	0.64	-1.20
08	Op-1	19	3.47	13.00	0.805	5.16	1.78	-2.64	11.60	-1.14	-4.13
08	Op-2	5	4.60	6.40	1.164	7.83	1.37	-3.80	5.10	-1.09	-6.51
09	Op-1	26	5.90	18.60	1.170	8.31	3.49	-4.78	16.80	-2.63	-6.92
09	Op-2	5	16.60	46.80	8.650	40.62	-7.42	-15.80	46.00	7.70	-39.30
10	Op-1	25	2.09	7.20	0.401	2.92	1.26	-0.93	9.20	-0.11	-1.75
10	Op-2	5	0.28	0.60	0.120	0.61	-0.05	0.52	1.70	1.33	-0.29
12	Op-1	26	5.16	36.80	1.596	8.45	1.88	-4.04	40.80	-0.77	-7.30
12	Op-2	5	5.72	9.80	1.679	10.38	1.06	-4.92	10.00	-0.04	-9.80

Period means and deltas from original control data where n=2

Period	N	Station Mean	Range	Standard Error	Upper 95% C.I.	Lower 95% C.I.
Op-1	26	1.12	7.70	0.291	1.72	0.52
Op-2	5	0.80	1.30	0.210	1.38	0.22

Analysis of Variance for HBT for 0319 - Tegula brunnea

Stations = 4, 5, 6, 8, 9, 10, 12 level +1 ft MLLW

Data transformed using log base10(x + 1)

Results for Analysis of Variance

Source	Source df	Error df	F-value	Prob.
PERIOD	1	160.000	0.00	0.9449
SEASON	1	160.000	1.68	0.1964
STATION	6	160.000	15.04	0.0000
PERIOD*SEASON	1	160.000	4.25	0.0409
STATION*PERIOD	6	160.000	1.32	0.2519
STATION*SEASON	6	160.000	0.55	0.7723
PERIOD*STATION*SEASON	6	160.000	0.14	0.9905

Results for Power Analysis
Power at alpha = .1

Source	Non-Centrality Parameter	Adjusted non-Centrality Parameter	Power	Adjusted Power	Power to Detect 50% Change
PERIOD	0.00	0.00	0.1008	.	0.9806
STATION*PERIOD	7.91	1.81	0.6355	0.2197	0.3144

Estimates for contrasts on combinations of interaction terms

Source	Difference	Std. Err.	T-value	Prob.
Period in DC	-0.2501	0.3584	-0.698	.4863
Period in FC	0.2844	0.3420	0.832	.4069
Period in FC-S	0.6597	0.4122	1.600	.1115
Period in FC-W	-0.0909	0.5459	-0.167	.8679
Period in DC-S	0.3957	0.4632	0.854	.3942
Period in DC-W	-0.8959	0.5471	-1.638	.1035

Least square means & confidence intervals from analysis of variance

Source	LS Mean	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period Op-1	0.309	0.0295	10.46	.0000	0.3575	0.2598
Period Op-2	0.304	0.0643	4.72	.0000	0.4102	0.1973
Op-1-04	0.053	0.0895	0.59	.5577	0.2006	-0.0954
Op-2-04	-0.249	0.2066	-1.21	.2293	0.0925	-0.5911
Op-1-05	0.105	0.0895	1.17	.2436	0.2527	-0.0433
Op-2-05	0.245	0.1633	1.50	.1356	0.5152	-0.0252
Op-1-06	-0.121	0.0702	-1.73	.0863	-0.0050	-0.2372
Op-2-06	-0.244	0.1633	-1.49	.1373	0.0263	-0.5142
Op-1-08	0.452	0.0822	5.50	.0000	0.5884	0.3164
Op-2-08	0.235	0.1633	1.44	.1530	0.5048	-0.0357
Op-1-09	0.431	0.0702	6.15	.0000	0.5475	0.3153
Op-2-09	0.564	0.1633	3.45	.0007	0.8339	0.2935
Op-1-10	0.491	0.0716	6.85	.0000	0.6092	0.3722
Op-2-10	0.805	0.1633	4.93	.0000	1.0754	0.5349
Op-1-12	0.750	0.0702	10.68	.0000	0.8660	0.6338
Op-2-12	0.771	0.1633	4.72	.0000	1.0414	0.5009

Paired comparisons of least square means between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period	0.0049	0.0708	0.069	.9449	0.1220	-0.1122

Paired comparisons of least square means among stations between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Station 04	0.3019	0.2251	1.34	.1819	0.6744	-0.0706
Station 05	-0.1403	0.1862	-0.75	.4523	0.1678	-0.4484
Station 06	0.1228	0.1778	0.69	.4906	0.4169	-0.1713
Station 08	0.2179	0.1829	1.19	.2352	0.5204	-0.0846
Station 09	-0.1323	0.1778	-0.74	.4579	0.1618	-0.4264
Station 10	-0.3144	0.1784	-1.76	.0798	-0.0193	-0.6095
Station 12	-0.0213	0.1778	-0.12	.9050	0.2729	-0.3154

Station-period means and deltas from original data where control n=2

Station-Period	N	Station Mean	Range	Standard Error	Upper 95% C.I.	Lower 95% C.I.	Mean Delta	Delta Range	Upper 95% CIi.	Lower 95% C.I.
04 Op-1	16	7.36	18.60	1.503	10.57	4.16	-0.36	26.50	3.67	-4.38
04 Op-2	4	11.60	12.80	2.823	20.58	2.62	-6.20	10.80	2.10	-14.50
05 Op-1	16	6.21	15.60	1.197	8.76	3.66	0.79	20.00	4.00	-2.42
05 Op-2	5	2.80	5.20	0.879	5.24	0.36	2.66	6.30	5.51	-0.19
06 Op-1	26	11.33	32.40	1.793	15.02	7.64	-4.73	32.20	-1.13	-8.34
06 Op-2	5	12.28	16.00	2.949	20.47	4.09	-6.82	15.90	0.79	-14.43
08 Op-1	19	2.57	13.40	0.842	4.34	0.80	4.36	17.90	6.87	1.85
08 Op-2	5	3.16	5.00	0.911	5.69	0.63	2.30	7.50	6.03	-1.43
09 Op-1	26	2.66	14.00	0.662	4.03	1.30	3.93	16.00	5.71	2.16
09 Op-2	5	1.04	2.20	0.479	2.37	-0.29	4.42	2.30	5.55	3.29
10 Op-1	25	2.63	12.60	0.768	4.22	1.05	4.11	17.60	5.97	2.25
10 Op-2	5	0.00	0.00	0.000	.	.	5.46	3.10	6.87	4.05
12 Op-1	26	0.48	6.40	0.267	1.03	-0.07	6.12	11.20	7.48	4.76
12 Op-2	5	0.12	0.60	0.120	0.45	-0.21	5.34	2.50	6.47	4.21

Period means and deltas from original control data where n=2

Period	N	Station Mean	Range	Standard Error	Upper 95% C.I.	Lower 95% C.I.
Op-1	26	6.60	10.60	0.624	7.88	5.31
Op-2	5	5.46	3.10	0.507	6.87	4.05

Analysis of Variance for HBT for 0320 - Tegula funebralis

Stations = 4, 5, 6, 8, 9, 10, 12 level +1 ft MLLW

Data transformed using log base10(x + .5)

Results for Analysis of Variance

Source	Source df	Error df	F-value	Prob.
PERIOD	1	160.000	7.71	0.0061
SEASON	1	160.000	0.77	0.3820
STATION	6	160.000	10.96	0.0000
PERIOD*SEASON	1	160.000	0.00	0.9894
STATION*PERIOD	6	160.000	1.77	0.1087
STATION*SEASON	6	160.000	1.31	0.2566
PERIOD*STATION*SEASON	6	160.000	0.83	0.5486

Results for Power Analysis
Power at alpha = .1

Source	Non-Centrality Parameter	Adjusted non-Centrality Parameter	Power	Adjusted Power	Power to Detect 50% Change
PERIOD	7.71	6.62	0.8687	0.8203	0.9012
STATION*PERIOD	10.61	4.48	0.7660	0.4138	0.1155

Estimates for contrasts on combinations of interaction terms

Source	Difference	Std. Err.	T-value	Prob.
Period in DC	-1.3189	0.7341	-1.797	.0743
Period in FC	-1.4992	0.7006	-2.140	.0339
Period in FC-S	-1.6446	0.8444	-1.948	.0532
Period in FC-W	-1.3538	1.1182	-1.211	.2278
Period in DC-S	-1.1871	0.9487	-1.251	.2127
Period in DC-W	-1.4507	1.1206	-1.295	.1973

Least square means & confidence intervals from analysis of variance

Source	LS Mean	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period Op-1	-0.128	0.0604	-2.12	.0356	-0.0281	-0.2281
Period Op-2	0.274	0.1318	2.08	.0388	0.4925	0.0565
Op-1-04	-0.329	0.1833	-1.80	.0744	-0.0259	-0.6322
Op-2-04	0.743	0.4232	1.76	.0809	1.4435	0.0431
Op-1-05	-0.570	0.1833	-3.11	.0022	-0.2671	-0.8735
Op-2-05	-0.557	0.3346	-1.67	.0977	-0.0038	-1.1109
Op-1-06	-0.443	0.1438	-3.08	.0024	-0.2048	-0.6805
Op-2-06	-0.029	0.3346	-0.09	.9316	0.5247	-0.5823
Op-1-08	0.301	0.1684	1.79	.0754	0.5799	0.0227
Op-2-08	0.986	0.3346	2.95	.0037	1.5396	0.4326
Op-1-09	0.411	0.1438	2.86	.0048	0.6485	0.1729
Op-2-09	1.358	0.3346	4.06	.0001	1.9111	0.8040
Op-1-10	0.385	0.1467	2.62	.0095	0.6279	0.1424
Op-2-10	0.266	0.3346	0.79	.4282	0.8193	-0.2878
Op-1-12	-0.652	0.1438	-4.53	.0000	-0.4140	-0.8896
Op-2-12	-0.845	0.3346	-2.53	.0125	-0.2916	-1.3987

Paired comparisons of least square means between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period	-0.4026	0.1450	-2.777	.0061	-0.1627	-0.6424

Paired comparisons of least square means among stations between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Station 04	-1.0724	0.4612	-2.33	.0213	-0.3094	-1.8353
Station 05	-0.0130	0.3815	-0.03	.9729	0.6181	-0.6441
Station 06	-0.4139	0.3641	-1.14	.2574	0.1886	-1.0163
Station 08	-0.6848	0.3746	-1.83	.0694	-0.0651	-1.3045
Station 09	-0.9468	0.3641	-2.60	.0102	-0.3444	-1.5493
Station 10	0.1194	0.3653	0.33	.7443	0.7238	-0.4850
Station 12	0.1934	0.3641	0.53	.5962	0.7958	-0.4091

Station-period means and deltas from original data where control n=2

Station-Period		N	Station Mean	Range	Standard Error	Upper 95% c.i.	Lower 95% c.i.	Mean Delta	Delta Range	Upper 95% CIi.	Lower 95% C.I.
04	Op-1	16	129.56	292.80	25.872	184.71	74.42	-100.09	303.90	-48.03	-152.16
04	Op-2	4	2.10	4.80	1.190	5.89	-1.69	12.73	43.20	46.65	-21.20
05	Op-1	16	125.71	265.00	20.788	170.02	81.40	-96.24	233.10	-55.64	-136.85
05	Op-2	5	54.12	104.00	20.338	110.59	-2.35	-35.88	58.70	-4.48	-67.28
06	Op-1	26	128.95	303.20	16.045	162.00	95.91	-90.45	305.60	-62.29	-118.61
06	Op-2	5	23.20	56.40	11.982	56.47	-10.07	-4.96	18.20	4.21	-14.13
08	Op-1	19	53.84	199.60	15.212	85.80	21.88	-17.25	165.50	5.06	-39.56
08	Op-2	5	3.00	14.80	2.950	11.19	-5.19	15.24	32.40	35.78	-5.30
09	Op-1	26	64.23	326.00	16.810	98.85	29.61	-25.73	330.90	8.65	-60.11
09	Op-2	5	0.04	0.20	0.040	0.15	-0.07	18.20	47.20	44.87	-8.47
10	Op-1	25	99.86	381.80	25.360	152.21	47.52	-64.33	386.30	-16.03	-112.63
10	Op-2	5	33.96	87.80	20.816	91.76	-23.84	-15.72	60.80	18.18	-49.62
12	Op-1	26	249.06	491.40	32.514	316.02	182.10	-210.56	480.00	-146.23	-274.89
12	Op-2	5	170.76	276.00	65.356	352.22	-10.70	-152.52	278.60	13.97	-319.01

Period means and deltas from original control data where n=2

Period	N	Station Mean	Range	Standard Error	Upper 95% C.I.	Lower 95% C.I.
Op-1	26	38.50	119.80	6.033	50.93	26.08
Op-2	5	18.24	47.20	9.593	44.87	-8.39

Analysis of Variance for HBT for 0404 - Tetraclita rubescens

Stations = 4, 5, 6, 8, 9, 10, 12 level +1 ft MLLW

Data transformed using log base10(x + 1)

Results for Analysis of Variance

Source	Source df	Error df	F-value	Prob.
PERIOD	1	160.000	0.24	0.6239
SEASON	1	160.000	11.74	0.0008
STATION	6	160.000	10.28	0.0000
PERIOD*SEASON	1	160.000	0.55	0.4602
STATION*PERIOD	6	160.000	2.38	0.0317
STATION*SEASON	6	160.000	0.75	0.6083
PERIOD*STATION*SEASON	6	160.000	0.38	0.8906

Results for Power Analysis
Power at alpha = .1

Source	Non-Centrality Parameter	Adjusted non-Centrality Parameter	Power	Adjusted Power	Power to Detect 50% Change
PERIOD	0.24	0.00	0.1403	.	0.9921
STATION*PERIOD	14.26	8.08	0.8807	0.6449	0.1384

Estimates for contrasts on combinations of interaction terms

Source	Difference	Std. Err.	T-value	Prob.
Period in DC	0.4551	0.5170	0.880	.3801
Period in FC	-0.8061	0.4934	-1.634	.1043
Period in FC-S	-1.0551	0.5946	-1.774	.0779
Period in FC-W	-0.5570	0.7874	-0.707	.4803
Period in DC-S	1.2332	0.6681	1.846	.0668
Period in DC-W	-0.3230	0.7892	-0.409	.6828

Least square means & confidence intervals from analysis of variance

Source	LS Mean	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period Op-1	-0.019	0.0426	-0.46	.6482	0.0510	-0.0899
Period Op-2	0.031	0.0928	0.33	.7413	0.1842	-0.1228
Op-1-04	0.057	0.1291	0.44	.6581	0.2707	-0.1563
Op-2-04	0.460	0.2980	1.54	.1244	0.9534	-0.0328
Op-1-05	0.214	0.1291	1.66	.0996	0.4273	0.0003
Op-2-05	0.459	0.2356	1.95	.0530	0.8491	0.0695
Op-1-06	0.426	0.1012	4.21	.0000	0.5935	0.2585
Op-2-06	0.583	0.2356	2.48	.0143	0.9733	0.1937
Op-1-08	-0.140	0.1186	-1.18	.2407	0.0566	-0.3358
Op-2-08	-0.505	0.2356	-2.14	.0336	-0.1152	-0.8948
Op-1-09	-0.310	0.1012	-3.06	.0026	-0.1424	-0.4773
Op-2-09	-0.851	0.2356	-3.61	.0004	-0.4614	-1.2410
Op-1-10	-0.657	0.1033	-6.35	.0000	-0.4856	-0.8275
Op-2-10	-0.082	0.2356	-0.35	.7281	0.3078	-0.4719
Op-1-12	0.273	0.1012	2.69	.0078	0.4403	0.1053
Op-2-12	0.150	0.2356	0.64	.5254	0.5398	-0.2399

Paired comparisons of least square means between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period	-0.0501	0.1021	-0.491	.6239	0.1188	-0.2191

Paired comparisons of least square means among stations between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Station 04	-0.4031	0.3248	-1.24	.2164	0.1342	-0.9404
Station 05	-0.2456	0.2686	-0.91	.3621	0.1989	-0.6900
Station 06	-0.1575	0.2564	-0.61	.5401	0.2668	-0.5817
Station 08	0.3653	0.2638	1.39	.1680	0.8017	-0.0711
Station 09	0.5414	0.2564	2.11	.0363	0.9656	0.1171
Station 10	-0.5745	0.2573	-2.23	.0269	-0.1489	-1.0002
Station 12	0.1229	0.2564	0.48	.6325	0.5472	-0.3014

Station-period means and deltas from original data where control n=2

Station-Period		N	Station Mean	Range	Standard Error	Upper 95% c.i.	Lower 95% c.i.	Mean Delta	Delta Range	Upper 95% CIi.	Lower 95% C.I.
04	Op-1	16	33.13	125.80	8.781	51.84	14.41	-2.66	92.80	11.23	-16.56
04	Op-2	4	11.15	27.80	6.263	31.08	-8.78	23.88	99.60	95.46	-47.71
05	Op-1	16	23.16	158.00	9.817	44.09	2.24	7.30	114.80	21.73	-7.13
05	Op-2	5	8.88	24.00	4.356	20.97	-3.21	26.70	92.00	74.34	-20.94
06	Op-1	26	27.12	223.40	9.976	47.66	6.57	-4.36	180.20	9.39	-18.10
06	Op-2	5	9.12	25.20	4.996	22.99	-4.75	26.46	89.60	73.40	-20.48
08	Op-1	19	45.51	113.80	9.194	64.82	26.19	-17.34	132.30	-0.11	-34.57
08	Op-2	5	78.40	77.60	14.147	117.68	39.12	-42.82	105.60	13.51	-99.15
09	Op-1	26	81.33	364.60	20.870	124.31	38.35	-58.57	381.40	-19.58	-97.57
09	Op-2	5	174.40	204.60	34.531	270.27	78.53	-138.82	232.20	-23.76	-253.88
10	Op-1	25	121.51	368.00	21.827	166.56	76.46	-98.50	380.20	-55.69	-141.31
10	Op-2	5	33.44	79.40	15.384	76.15	-9.27	2.14	40.00	26.05	-21.77
12	Op-1	26	17.87	80.40	4.251	26.63	9.11	4.89	56.80	9.84	-0.06
12	Op-2	5	16.92	27.20	5.694	32.73	1.11	18.66	90.40	65.39	-28.07

Period means and deltas from original control data where n=2

Period	N	Station Mean	Range	Standard Error	Upper 95% C.I.	Lower 95% C.I.
Op-1	26	22.76	85.90	4.302	31.62	13.90
Op-2	5	35.58	113.80	21.454	95.15	-23.99

Analysis of Variance for HBT for 0480 - tunicates, colonial/social unid.

Stations = 4, 5, 6, 8, 9, 10, 12 level +1 ft MLLW

Data transformed using log base10(x + .5)

Results for Analysis of Variance

Source	Source df	Error df	F-value	Prob.
PERIOD	1	160.000	23.33	0.0000
SEASON	1	160.000	8.21	0.0047
STATION	6	160.000	2.11	0.0554
PERIOD*SEASON	1	160.000	3.21	0.0749
STATION*PERIOD	6	160.000	1.04	0.4019
STATION*SEASON	6	160.000	0.43	0.8570
PERIOD*STATION*SEASON	6	160.000	0.19	0.9793

Results for Power Analysis
Power at alpha = .1

Source	Non-Centrality Parameter	Adjusted non-Centrality Parameter	Power	Adjusted Power	Power to Detect 50% Change
PERIOD	23.33	22.04	0.9992	0.9988	0.1174
STATION*PERIOD	6.24	0.16	0.5342	0.1095	0.1089

Estimates for contrasts on combinations of interaction terms

Source	Difference	Std. Err.	T-value	Prob.
Period in DC	-0.4919	0.1001	-4.912	.0000
Period in FC	-0.1768	0.0956	-1.850	.0662
Period in FC-S	-0.2501	0.1152	-2.172	.0314
Period in FC-W	-0.1034	0.1525	-0.678	.4986
Period in DC-S	-0.6667	0.1294	-5.151	.0000
Period in DC-W	-0.3171	0.1529	-2.074	.0397

Least square means & confidence intervals from analysis of variance

Source	LS Mean	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period Op-1	0.033	0.0082	4.04	.0001	0.0469	0.0196
Period Op-2	0.129	0.0180	7.17	.0000	0.1586	0.0991
Op-1-04	0.020	0.0250	0.82	.4156	0.0618	-0.0210
Op-2-04	-0.010	0.0577	-0.18	.8575	0.0851	-0.1059
Op-1-05	0.006	0.0250	0.26	.7954	0.0479	-0.0349
Op-2-05	0.073	0.0456	1.60	.1115	0.1485	-0.0025
Op-1-06	0.027	0.0196	1.37	.1741	0.0592	-0.0057
Op-2-06	0.168	0.0456	3.68	.0003	0.2433	0.0923
Op-1-08	0.044	0.0230	1.89	.0600	0.0815	0.0055
Op-2-08	0.168	0.0456	3.68	.0003	0.2433	0.0923
Op-1-09	0.045	0.0196	2.31	.0221	0.0778	0.0129
Op-2-09	0.168	0.0456	3.68	.0003	0.2433	0.0923
Op-1-10	0.045	0.0200	2.26	.0253	0.0783	0.0121
Op-2-10	0.168	0.0456	3.68	.0003	0.2433	0.0923
Op-1-12	0.045	0.0196	2.31	.0221	0.0778	0.0129
Op-2-12	0.168	0.0456	3.68	.0003	0.2433	0.0923

Paired comparisons of least square means between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period	-0.0955	0.0198	-4.830	.0000	-0.0628	-0.1282

Paired comparisons of least square means among stations between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Station 04	0.0308	0.0629	0.49	.6253	0.1349	-0.0733
Station 05	-0.0665	0.0520	-1.28	.2029	0.0196	-0.1526
Station 06	-0.1410	0.0497	-2.84	.0051	-0.0589	-0.2232
Station 08	-0.1243	0.0511	-2.43	.0161	-0.0398	-0.2088
Station 09	-0.1225	0.0497	-2.47	.0147	-0.0403	-0.2047
Station 10	-0.1226	0.0498	-2.46	.0149	-0.0402	-0.2051
Station 12	-0.1225	0.0497	-2.47	.0147	-0.0403	-0.2047

Station-period means and deltas from original data where control n=2

Station-Period	N	Station Mean	Range	Standard Error	Upper 95% c.i.	Lower 95% c.i.	Mean Delta	Delta Range	Upper 95% CIi.	Lower 95% C.I.
04 Op-1	16	0.02	0.14	0.010	0.04	-0.00	0.03	0.24	0.06	-0.01
04 Op-2	4	0.40	1.32	0.314	1.40	-0.60	-0.06	0.56	0.35	-0.47
05 Op-1	16	0.04	0.35	0.024	0.09	-0.01	0.00	0.45	0.06	-0.05
05 Op-2	5	0.14	0.21	0.038	0.24	0.03	0.19	1.08	0.73	-0.34
06 Op-1	26	0.03	0.83	0.032	0.10	-0.03	0.03	1.11	0.10	-0.05
06 Op-2	5	0.00	0.00	0.000	.	.	0.33	1.08	0.88	-0.21
08 Op-1	19	0.00	0.00	0.000	.	.	0.05	0.17	0.09	0.02
08 Op-2	5	0.00	0.00	0.000	.	.	0.33	1.08	0.88	-0.21
09 Op-1	26	0.00	0.00	0.000	.	.	0.06	0.35	0.09	0.03
09 Op-2	5	0.00	0.00	0.000	.	.	0.33	1.08	0.88	-0.21
10 Op-1	25	0.00	0.00	0.000	.	.	0.06	0.35	0.10	0.03
10 Op-2	5	0.00	0.00	0.000	.	.	0.33	1.08	0.88	-0.21
12 Op-1	26	0.00	0.00	0.000	.	.	0.06	0.35	0.09	0.03
12 Op-2	5	0.00	0.00	0.000	.	.	0.33	1.08	0.88	-0.21

Period means and deltas from original control data where n=2

Period	N	Station Mean	Range	Standard Error	Upper 95% C.I.	Lower 95% C.I.
Op-1	26	0.06	0.35	0.016	0.09	0.03
Op-2	5	0.33	1.08	0.197	0.88	-0.21

Analysis of Variance for HBT for ISPP - Spp. Inverts
Stations = 4, 5, 6, 8, 9, 10, 12 level +1 ft MLLW

Data transformed using log base10(x + .1)

Source	Source df	Error df	F-value	Prob.
PERIOD	1	160.000	4.12	0.0440
SEASON	1	160.000	11.46	0.0009
STATION	6	160.000	12.76	0.0000
PERIOD*SEASON	1	160.000	0.32	0.5717
STATION*PERIOD	6	160.000	2.36	0.0328
STATION*SEASON	6	160.000	1.21	0.3049
PERIOD*STATION*SEASON	6	160.000	1.62	0.1440

Results for Power Analysis
Power at alpha = .1

Source	Non-Centrality Parameter	Adjusted non-Centrality Parameter	Power	Adjusted Power	Power to Detect 50% Change
PERIOD	4.12	3.07	0.6468	0.5400	1.0000
STATION*PERIOD	14.15	7.97	0.8783	0.6391	0.1002

Estimates for contrasts on combinations of interaction terms

Source	Difference	Std. Err.	T-value	Prob.
Period in DC	-0.1540	0.0625	-2.464	.0148
Period in FC	-0.0213	0.0596	-0.358	.7210
Period in FC-S	-0.1162	0.0719	-1.616	.1080
Period in FC-W	0.0735	0.0952	0.772	.4411
Period in DC-S	-0.0102	0.0807	-0.126	.8996
Period in DC-W	-0.2977	0.0954	-3.122	.0021

Least square means & confidence intervals from analysis of variance

Source	LS Mean	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period Op-1	-0.033	0.0051	-6.37	.0000	-0.0243	-0.0413
Period Op-2	-0.008	0.0112	-0.69	.4919	0.0108	-0.0263
Op-1-04	-0.068	0.0156	-4.36	.0000	-0.0422	-0.0938
Op-2-04	-0.118	0.0360	-3.28	.0013	-0.0584	-0.1776
Op-1-05	-0.095	0.0156	-6.11	.0000	-0.0695	-0.1211
Op-2-05	-0.065	0.0285	-2.28	.0236	-0.0180	-0.1122
Op-1-06	-0.073	0.0122	-5.99	.0000	-0.0530	-0.0935
Op-2-06	-0.032	0.0285	-1.13	.2603	0.0149	-0.0793
Op-1-08	-0.002	0.0143	-0.16	.8734	0.0214	-0.0260
Op-2-08	0.016	0.0285	0.57	.5689	0.0634	-0.0309
Op-1-09	-0.074	0.0122	-6.07	.0000	-0.0541	-0.0945
Op-2-09	0.024	0.0285	0.84	.4009	0.0711	-0.0231
Op-1-10	0.021	0.0125	1.67	.0974	0.0415	0.0002
Op-2-10	0.087	0.0285	3.04	.0028	0.1336	0.0394
Op-1-12	0.063	0.0122	5.14	.0000	0.0831	0.0427
Op-2-12	0.034	0.0285	1.21	.2293	0.0815	-0.0127

Paired comparisons of least square means between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period	-0.0250	0.0123	-2.030	.0440	-0.0046	-0.0455

Paired comparisons of least square means among stations between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Station 04	0.0500	0.0392	1.27	.2044	0.1149	-0.0149
Station 05	-0.0303	0.0325	-0.93	.3524	0.0234	-0.0840
Station 06	-0.0411	0.0310	-1.33	.1870	0.0102	-0.0923
Station 08	-0.0185	0.0319	-0.58	.5616	0.0342	-0.0713
Station 09	-0.0983	0.0310	-3.17	.0018	-0.0470	-0.1496
Station 10	-0.0657	0.0311	-2.11	.0362	-0.0143	-0.1171
Station 12	0.0285	0.0310	0.92	.3584	0.0798	-0.0227

Station-period means and deltas from original data where control n=2

Station-Period		N	Station Mean	Range	Standard Error	Upper 95% c.i.	Lower 95% c.i.	Mean Delta	Delta Range	Upper 95% CIi.	Lower 95% C.I.
04	Op-1	16	17.00	6.40	0.536	18.14	15.86	-2.55	9.65	-1.12	-3.99
04	Op-2	4	18.08	9.20	2.128	24.85	11.30	-4.09	9.25	2.86	-11.03
05	Op-1	16	18.12	9.90	0.607	19.41	16.82	-3.67	8.65	-2.30	-5.05
05	Op-2	5	16.52	9.10	1.480	20.63	12.41	-2.30	8.40	1.66	-6.26
06	Op-1	26	16.83	10.50	0.394	17.65	16.02	-2.67	10.05	-1.76	-3.58
06	Op-2	5	15.48	4.90	0.904	17.99	12.97	-1.26	4.20	0.67	-3.19
08	Op-1	19	14.67	5.30	0.357	15.42	13.92	-0.07	6.15	0.71	-0.85
08	Op-2	5	14.14	4.80	0.763	16.26	12.02	0.08	8.45	4.05	-3.89
09	Op-1	26	16.83	5.90	0.307	17.46	16.20	-2.66	6.25	-1.97	-3.36
09	Op-2	5	13.80	3.70	0.644	15.59	12.01	0.42	7.35	3.92	-3.08
10	Op-1	25	13.59	9.30	0.407	14.43	12.75	0.56	9.05	1.46	-0.33
10	Op-2	5	11.94	4.40	0.797	14.15	9.73	2.28	8.45	6.42	-1.86
12	Op-1	26	12.25	5.20	0.248	12.77	11.74	1.91	7.25	2.56	1.27
12	Op-2	5	13.22	3.40	0.583	14.84	11.60	1.00	2.40	2.24	-0.24

Period means and deltas from original control data where n=2

Period	N	Station Mean	Range	Standard Error	Upper 95% C.I.	Lower 95% C.I.
Op-1	26	14.17	4.10	0.256	14.70	13.64
Op-2	5	14.22	4.75	0.796	16.43	12.01

Analysis of Variance for SLC for 0981 - Ahnfeltiopsis linearis

Stations = 2210, 0611, 0910, 0915, 1015, 1210

Data transformed using log base10(x + .1)

Results for Analysis of Variance

Source	Source df	Error df	F-value	Prob.
PERIOD	1	96.000	6.04	0.0158
SEASON	1	96.000	1.99	0.1615
STATION	5	96.000	1.25	0.2939
PERIOD*SEASON	1	96.000	1.14	0.2890
STATION*PERIOD	5	96.000	1.61	0.1647
STATION*SEASON	5	96.000	1.06	0.3891
PERIOD*STATION*SEASON	5	96.000	0.47	0.7981

Results for Power Analysis
Power at alpha = .1

Source	Non-Centrality Parameter	Adjusted non-Centrality Parameter	Power	Adjusted Power	Power to Detect 50% Change
PERIOD	6.04	4.92	0.7869	0.7112	0.3728
STATION*PERIOD	8.05	2.88	0.6673	0.3125	0.1434

Estimates for contrasts on combinations of interaction terms

Source	Difference	Std. Err.	T-value	Prob.
Period in DC	-2.9693	0.9567	-3.104	.0025
Period in FC	0.3852	0.4358	0.884	.3789
Period in FC-S	0.0707	0.5007	0.141	.8879
Period in FC-W	0.6997	0.7135	0.981	.3292
Period in DC-S	-1.5339	1.0497	-1.461	.1472
Period in DC-W	-4.4048	1.5998	-2.753	.0071

Least square means & confidence intervals from analysis of variance

Source	LS Mean	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period Op-1	-0.420	0.0719	-5.85	.0000	-0.3009	-0.5397
Period Op-2	0.010	0.1598	0.07	.9483	0.2758	-0.2550
Op-1 0611	-0.141	0.1607	-0.88	.3822	0.1259	-0.4080
Op-2 0611	0.389	0.3988	0.98	.3318	1.0515	-0.2734
Op-1 0910	-0.424	0.1714	-2.47	.0151	-0.1393	-0.7085
Op-2 0910	0.345	0.3760	0.92	.3609	0.9698	-0.2793
Op-1 0915	-0.569	0.1927	-2.95	.0040	-0.2490	-0.8889
Op-2 0915	-0.260	0.3988	-0.65	.5155	0.4021	-0.9228
Op-1 1015	-0.452	0.1927	-2.35	.0209	-0.1324	-0.7724
Op-2 1015	-0.279	0.3988	-0.70	.4862	0.3836	-0.9412
Op-1 1210	-1.049	0.1607	-6.52	.0000	-0.7817	-1.3156
Op-2 1210	0.139	0.3760	0.37	.7120	0.7638	-0.4853
Op-1 2210	0.113	0.1756	0.64	.5209	0.4049	-0.1785
Op-2 2210	-0.272	0.3988	-0.68	.4968	0.3904	-0.9345

Paired comparisons of least square means between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period	-0.4307	0.1752	-2.458	.0158	-0.1397	-0.7217

Paired comparisons of least square means for stations between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Station 0611	-0.5302	0.4300	-1.23	.2206	0.1840	-1.2444
Station 0910	-0.7691	0.4132	-1.86	.0658	-0.0828	-1.4555
Station 0915	-0.3086	0.4429	-0.70	.4877	0.4271	-1.0443
Station 1015	-0.1736	0.4429	-0.39	.6960	0.5621	-0.9093
Station 1210	-1.1878	0.4089	-2.90	.0046	-0.5086	-1.8671
Station 2210	0.3852	0.4358	0.88	.3789	1.1090	-0.3386

Station-period means and deltas from original data where control n=1

Station-Period	N	Station Mean	Range	Standard Error	Upper 95% c.i.	Lower 95% c.i.	Mean Delta	Delta Range	Upper 95% CIi.	Lower 95% C.I.
0611 Op-1	19	0.24	1.50	0.096	0.44	0.03	-0.13	2.00	0.11	-0.37
0611 Op-2	3	0.17	0.50	0.167	0.88	-0.55	0.17	1.00	1.60	-1.27
0910 Op-1	18	0.64	2.00	0.150	0.96	0.32	-0.53	3.00	-0.15	-0.90
0910 Op-2	4	0.38	1.00	0.239	1.14	-0.39	0.00	1.50	1.13	-1.13
0915 Op-1	14	0.93	3.50	0.286	1.55	0.31	-0.79	4.50	-0.10	-1.47
0915 Op-2	3	0.67	0.50	0.167	1.38	-0.05	-0.33	0.50	0.38	-1.05
1015 Op-1	14	0.82	4.00	0.354	1.59	0.06	-0.68	5.00	0.12	-1.48
1015 Op-2	3	0.83	1.50	0.441	2.73	-1.06	-0.50	1.50	1.65	-2.65
1210 Op-1	19	2.47	7.50	0.452	3.42	1.52	-2.37	7.50	-1.42	-3.32
1210 Op-2	4	2.13	7.00	1.663	7.42	-3.17	-1.75	7.50	3.93	-7.43
2210 Op-1	16	0.00	0.00	0.000	.	.	0.06	0.50	0.15	-0.03
2210 Op-2	3	0.83	2.00	0.601	3.42	-1.75	-0.50	1.50	1.65	-2.65

Period means and deltas from original control data where n=1

Period	N	Station Mean	Range	Standard Error	Upper 95% C.I.	Lower 95% C.I.
Op-1	19	0.11	1.00	0.061	0.23	-0.02
Op-2	4	0.38	0.50	0.125	0.77	-0.02

Analysis of Variance for SLC for 0049 - Calliarthron/Bossiella spp.-complex

Stations = 2210, 0611, 0910, 0915, 1015, 1210

Data transformed using arcsin.

Results for Analysis of Variance

Source	Source df	Error df	F-value	Prob.
PERIOD	1	96.000	23.30	0.0000
SEASON	1	96.000	2.85	0.0948
STATION	5	96.000	41.79	0.0000
PERIOD*SEASON	1	96.000	0.03	0.8629
STATION*PERIOD	5	96.000	7.00	0.0000
STATION*SEASON	5	96.000	0.73	0.6021
PERIOD*STATION*SEASON	5	96.000	0.43	0.8251

Results for Power Analysis
Power at alpha = .1

Source	Non-Centrality Parameter	Adjusted non-Centrality Parameter	Power	Adjusted Power	Power to Detect 50% Change
PERIOD	23.30	21.82	0.9992	0.9986	0.1000
STATION*PERIOD	35.02	29.29	0.9993	0.9970	0.1000

Estimates for contrasts on combinations of interaction terms

Source	Difference	Std. Err.	T-value	Prob.
Period in DC	-38.6545	7.8305	-4.936	.0000
Period in FC	-2.8833	3.5670	-0.808	.4209
Period in FC-S	-1.4340	4.0978	-0.350	.7271
Period in FC-W	-4.3326	5.8396	-0.742	.4599
Period in DC-S	-41.5932	8.5915	-4.841	.0000
Period in DC-W	-35.7158	13.0940	-2.728	.0076

Least square means & confidence intervals from analysis of variance

Source	LS Mean	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period Op-1	4.222	0.5885	7.17	.0000	5.1997	3.2448
Period Op-2	11.145	1.3078	8.52	.0000	13.3173	8.9731
Op-1 0611	9.878	1.3155	7.51	.0000	12.0627	7.6929
Op-2 0611	31.860	3.2644	9.76	.0000	37.2820	26.4383
Op-1 0910	7.667	1.4026	5.47	.0000	9.9969	5.3377
Op-2 0910	20.348	3.0778	6.61	.0000	25.4600	15.2364
Op-1 0915	-3.306	1.5769	-2.10	.0386	-0.6874	-5.9255
Op-2 0915	1.738	3.2644	0.53	.5957	7.1599	-3.6838
Op-1 1015	10.210	1.5769	6.47	.0000	12.8292	7.5911
Op-2 1015	4.718	3.2644	1.45	.1516	10.1398	-0.7039
Op-1 1210	12.460	1.3155	9.47	.0000	14.6446	10.2748
Op-2 1210	16.899	3.0778	5.49	.0000	22.0105	11.7869
Op-1 2210	-11.575	1.4376	-8.05	.0000	-9.1875	-13.9629
Op-2 2210	-8.692	3.2644	-2.66	.0091	-3.2700	-14.1138

Paired comparisons of least square means between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period	-6.9230	1.4341	-4.827	.0000	-4.5411	-9.3048

Paired comparisons of least square means for stations between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Station 0611	-21.9823	3.5195	-6.25	.0000	-16.1368	-27.8279
Station 0910	-12.6809	3.3823	-3.75	.0003	-7.0633	-18.2985
Station 0915	-5.0445	3.6254	-1.39	.1673	0.9768	-11.0657
Station 1015	5.4922	3.6254	1.51	.1331	11.5135	-0.5291
Station 1210	-4.4390	3.3471	-1.33	.1879	1.1201	-9.9982
Station 2210	-2.8833	3.5670	-0.81	.4209	3.0411	-8.8076

Station-period means and deltas from original data where control n=1

Station-Period	N	Station Mean	Range	Standard Error	Upper 95% c.i.	Lower 95% c.i.	Mean Delta	Delta Range	Upper 95% CII.	Lower 95% C.I.
0611 Op-1	19	25.32	32.50	2.116	29.76	20.87	16.71	44.50	22.05	11.37
0611 Op-2	3	3.83	2.00	0.601	6.42	1.25	43.33	6.50	51.41	35.25
0910 Op-1	18	29.94	32.50	1.921	34.00	25.89	12.83	42.00	17.34	8.32
0910 Op-2	4	17.50	15.00	3.116	27.42	7.58	31.13	6.50	35.64	26.61
0915 Op-1	14	47.71	22.00	1.569	51.10	44.33	-3.93	29.50	0.58	-8.44
0915 Op-2	3	41.83	9.00	2.682	53.37	30.29	5.33	14.50	25.45	-14.78
1015 Op-1	14	25.07	21.50	1.548	28.41	21.73	18.71	40.00	24.22	13.21
1015 Op-2	3	37.67	2.00	0.667	40.54	34.80	9.50	9.00	21.48	-2.48
1210 Op-1	19	22.97	39.00	2.134	27.46	18.49	19.05	32.00	22.87	15.23
1210 Op-2	4	19.00	11.00	2.345	26.46	11.54	29.63	13.50	40.29	18.96
2210 Op-1	16	62.47	32.50	2.636	68.09	56.85	-19.41	26.50	-15.53	-23.28
2210 Op-2	3	62.83	11.00	3.444	77.65	48.02	-15.67	4.00	-9.93	-21.40

Period means and deltas from original control data where n=1

Period	N	Station Mean	Range	Standard Error	Upper 95% C.I.	Lower 95% C.I.
Op-1	19	42.03	40.00	2.112	46.46	37.59
Op-2	4	48.63	10.00	2.095	55.29	41.96

Analysis of Variance for SLC for 0112 - Callophyllis spp.

Stations = 2210, 0611, 0910, 0915, 1015, 1210

Data transformed using log base10(x + .5)

Results for Analysis of Variance

Source	Source df	Error df	F-value	Prob.
PERIOD	1	96.000	0.09	0.7706
SEASON	1	96.000	2.15	0.1460
STATION	5	96.000	3.65	0.0046
PERIOD*SEASON	1	96.000	2.17	0.1438
STATION*PERIOD	5	96.000	0.59	0.7057
STATION*SEASON	5	96.000	0.58	0.7159
PERIOD*STATION*SEASON	5	96.000	0.24	0.9445

Results for Power Analysis
Power at alpha = .1

Source	Non-Centrality Parameter	Adjusted non-Centrality Parameter	Power	Adjusted Power	Power to Detect 50% Change
PERIOD	0.09	0.00	0.1143	.	0.7241
STATION*PERIOD	2.96	0.00	0.3188	.	0.2085

Estimates for contrasts on combinations of interaction terms

Source	Difference	Std. Err.	T-value	Prob.
Period in DC	0.2614	0.4773	0.548	.5851
Period in FC	-0.1081	0.2174	-0.497	.6202
Period in FC-S	-0.0413	0.2498	-0.165	.8691
Period in FC-W	-0.1749	0.3559	-0.491	.6242
Period in DC-S	0.9676	0.5236	1.848	.0677
Period in DC-W	-0.4448	0.7981	-0.557	.5786

Least square means & confidence intervals from analysis of variance

Source	LS Mean	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period Op-1	0.468	0.0359	13.05	.0000	0.5278	0.4086
Period Op-2	0.443	0.0797	5.55	.0000	0.5750	0.3103
Op-1 0611	0.630	0.0802	7.86	.0000	0.7635	0.4972
Op-2 0611	0.571	0.1990	2.87	.0051	0.9013	0.2404
Op-1 0910	0.707	0.0855	8.27	.0000	0.8493	0.5653
Op-2 0910	0.447	0.1876	2.38	.0192	0.7584	0.1353
Op-1 0915	0.424	0.0961	4.41	.0000	0.5835	0.2642
Op-2 0915	0.332	0.1990	1.67	.0982	0.6627	0.0018
Op-1 1015	0.360	0.0961	3.74	.0003	0.5194	0.2002
Op-2 1015	0.571	0.1990	2.87	.0051	0.9013	0.2404
Op-1 1210	0.658	0.0802	8.21	.0000	0.7915	0.5252
Op-2 1210	0.597	0.1876	3.18	.0020	0.9089	0.2858
Op-1 2210	0.030	0.0876	0.34	.7359	0.1752	-0.1159
Op-2 2210	0.138	0.1990	0.69	.4905	0.4682	-0.1927

Paired comparisons of least square means between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period	0.0256	0.0874	0.292	.7706	0.1707	-0.1196

Paired comparisons of least square means for stations between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Station 0611	0.0595	0.2145	0.28	.7820	0.4158	-0.2968
Station 0910	0.2604	0.2061	1.26	.2095	0.6028	-0.0819
Station 0915	0.0916	0.2210	0.41	.6795	0.4586	-0.2754
Station 1015	-0.2110	0.2210	-0.96	.3419	0.1559	-0.5780
Station 1210	0.0610	0.2040	0.30	.7657	0.3998	-0.2779
Station 2210	-0.1081	0.2174	-0.50	.6202	0.2530	-0.4692

Station-period means and deltas from original data where control n=1

Station-Period	N	Station Mean	Range	Standard Error	Upper 95% c.i.	Lower 95% c.i.	Mean Delta	Delta Range	Upper 95% CIi.	Lower 95% C.I.
0611 Op-1	19	0.53	2.50	0.181	0.91	0.15	3.63	8.00	4.64	2.62
0611 Op-2	3	0.00	0.00	0.000	.	.	1.50	2.00	3.98	-0.98
0910 Op-1	18	0.44	2.50	0.156	0.77	0.12	3.92	8.00	4.87	2.97
0910 Op-2	4	0.50	1.50	0.354	1.63	-0.63	1.13	1.50	2.32	-0.07
0915 Op-1	14	1.32	7.00	0.504	2.41	0.23	2.89	9.00	4.29	1.50
0915 Op-2	3	0.33	1.00	0.333	1.77	-1.10	1.17	2.00	4.04	-1.70
1015 Op-1	14	1.54	5.50	0.501	2.62	0.45	2.68	9.00	4.09	1.27
1015 Op-2	3	0.00	0.00	0.000	.	.	1.50	2.00	3.98	-0.98
1210 Op-1	19	0.45	4.50	0.245	0.96	-0.07	3.71	8.00	4.77	2.65
1210 Op-2	4	0.00	0.00	0.000	.	.	1.63	2.00	2.98	0.27
2210 Op-1	16	3.81	9.00	0.694	5.29	2.33	0.47	9.50	1.85	-0.91
2210 Op-2	3	1.17	2.50	0.726	4.29	-1.96	0.33	0.50	1.05	-0.38

Period means and deltas from original control data where n=1

Period	N	Station Mean	Range	Standard Error	Upper 95% C.I.	Lower 95% C.I.
Op-1	19	4.16	8.50	0.534	5.28	3.04
Op-2	4	1.63	2.00	0.427	2.98	0.27

Analysis of Variance for SLC for 0125 - Chondracanthus corymbiferus

Stations = 2210, 0611, 0910, 0915, 1015, 1210

Data transformed using log base10(x + .1)

Results for Analysis of Variance

Source	Source df	Error df	F-value	Prob.
PERIOD	1	96.000	34.96	0.0000
SEASON	1	96.000	13.48	0.0004
STATION	5	96.000	5.47	0.0002
PERIOD*SEASON	1	96.000	0.36	0.5497
STATION*PERIOD	5	96.000	1.05	0.3955
STATION*SEASON	5	96.000	1.03	0.4065
PERIOD*STATION*SEASON	5	96.000	0.36	0.8742

Results for Power Analysis
Power at alpha = .1

Source	Non-Centrality Parameter	Adjusted non-Centrality Parameter	Power	Adjusted Power	Power to Detect 50% Change
PERIOD	34.96	33.23	1.0000	1.0000	1.0000
STATION*PERIOD	5.23	0.12	0.4890	0.1078	0.1001

Estimates for contrasts on combinations of interaction terms

Source	Difference	Std. Err.	T-value	Prob.
Period in DC	-2.5209	0.4117	-6.123	.0000
Period in FC	-0.1539	0.1875	-0.821	.4138
Period in FC-S	-0.1253	0.2154	-0.582	.5622
Period in FC-W	-0.1826	0.3070	-0.595	.5535
Period in DC-S	-2.2779	0.4517	-5.043	.0000
Period in DC-W	-2.7638	0.6884	-4.015	.0001

Least square means & confidence intervals from analysis of variance

Source	LS Mean	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period Op-1	0.128	0.0309	4.14	.0001	0.1796	0.0768
Period Op-2	0.574	0.0688	8.35	.0000	0.6882	0.4598
Op-1 0611	-0.055	0.0692	-0.79	.4324	0.0603	-0.1694
Op-2 0611	0.667	0.1716	3.89	.0002	0.9524	0.3823
Op-1 0910	0.181	0.0737	2.46	.0158	0.3037	0.0587
Op-2 0910	0.701	0.1618	4.33	.0000	0.9695	0.4320
Op-1 0915	0.309	0.0829	3.73	.0003	0.4469	0.1715
Op-2 0915	0.685	0.1716	3.99	.0001	0.9704	0.4003
Op-1 1015	0.195	0.0829	2.36	.0204	0.3331	0.0577
Op-2 1015	0.715	0.1716	4.17	.0001	1.0002	0.4301
Op-1 1210	0.288	0.0692	4.16	.0001	0.4027	0.1729
Op-2 1210	0.671	0.1618	4.15	.0001	0.9402	0.4027
Op-1 2210	-0.150	0.0756	-1.98	.0505	-0.0242	-0.2752
Op-2 2210	0.004	0.1716	0.02	.9804	0.2893	-0.2808

Paired comparisons of least square means between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period	-0.4458	0.0754	-5.913	.0000	-0.3206	-0.5710

Paired comparisons of least square means for stations between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Station 0611	-0.7219	0.1850	-3.90	.0002	-0.4145	-1.0292
Station 0910	-0.5196	0.1778	-2.92	.0043	-0.2242	-0.8149
Station 0915	-0.3761	0.1906	-1.97	.0513	-0.0596	-0.6927
Station 1015	-0.5197	0.1906	-2.73	.0076	-0.2032	-0.8363
Station 1210	-0.3836	0.1760	-2.18	.0317	-0.0913	-0.6759
Station 2210	-0.1539	0.1875	-0.82	.4138	0.1575	-0.4654

Station-period means and deltas from original data where control n=1

Station-Period	N	Station Mean	Range	Standard Error	Upper 95% c.i.	Lower 95% c.i.	Mean Delta	Delta Range	Upper 95% CII.	Lower 95% C.I.
0611 Op-1	19	32.71	75.50	5.265	43.77	21.65	-13.03	81.00	-0.67	-25.38
0611 Op-2	3	8.00	9.00	2.646	19.38	-3.38	18.83	26.50	55.18	-17.51
0910 Op-1	18	16.36	29.50	1.972	20.52	12.20	3.47	35.50	8.93	-1.99
0910 Op-2	4	6.13	7.00	1.477	10.83	1.42	21.00	15.50	32.12	9.88
0915 Op-1	14	15.36	25.50	2.458	20.67	10.05	5.46	33.00	11.14	-0.21
0915 Op-2	3	6.67	5.50	1.641	13.73	-0.40	20.17	21.50	49.67	-9.34
1015 Op-1	14	15.00	18.50	1.567	18.39	11.61	5.82	25.00	9.24	2.40
1015 Op-2	3	7.17	11.00	3.667	22.94	-8.61	19.67	17.50	41.48	-2.14
1210 Op-1	19	12.55	34.00	1.848	16.43	8.67	7.13	47.50	12.32	1.95
1210 Op-2	4	7.13	14.00	3.010	16.70	-2.45	20.00	12.00	28.67	11.33
2210 Op-1	16	29.09	24.00	1.691	32.70	25.49	-9.00	20.00	-5.72	-12.28
2210 Op-2	3	26.33	9.50	2.744	38.14	14.53	0.50	12.50	17.76	-16.76

Period means and deltas from original control data where n=1

Period	N	Station Mean	Range	Standard Error	Upper 95% C.I.	Lower 95% C.I.
Op-1	19	19.68	18.50	1.213	22.23	17.13
Op-2	4	27.13	21.00	4.602	41.77	12.48

Analysis of Variance for SLC for 1305 - Chondracanthus harveyanus/spinosus

Stations = 2210, 0611, 0910, 0915, 1015, 1210

Data transformed using log base10(x + .5)

Results for Analysis of Variance

Source	Source df	Error df	F-value	Prob.
PERIOD	1	96.000	4.20	0.0432
SEASON	1	96.000	0.23	0.6356
STATION	5	96.000	15.30	0.0000
PERIOD*SEASON	1	96.000	0.07	0.7909
STATION*PERIOD	5	96.000	1.58	0.1726
STATION*SEASON	5	96.000	1.11	0.3613
PERIOD*STATION*SEASON	5	96.000	0.81	0.5471

Results for Power Analysis
Power at alpha = .1

Source	Non-Centrality Parameter	Adjusted non-Centrality Parameter	Power	Adjusted Power	Power to Detect 50% Change
PERIOD	4.20	3.11	0.6518	0.5429	0.3515
STATION*PERIOD	7.91	2.74	0.6594	0.3017	0.2689

Estimates for contrasts on combinations of interaction terms

Source	Difference	Std. Err.	T-value	Prob.
Period in DC	0.9588	0.4258	2.252	.0266
Period in FC	-0.0000	0.1939	-0.000	1.000
Period in FC-S	0.0000	0.2228	0.000	1.000
Period in FC-W	-0.0000	0.3175	-0.000	1.000
Period in DC-S	1.0832	0.4671	2.319	.0225
Period in DC-W	0.8344	0.7120	1.172	.2441

Least square means & confidence intervals from analysis of variance

Source	LS Mean	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period Op-1	-0.195	0.0320	-6.09	.0000	-0.1417	-0.2480
Period Op-2	-0.355	0.0711	-4.99	.0000	-0.2365	-0.4727
Op-1 0611	0.000	0.0715	0.00	1.000	0.1188	-0.1188
Op-2 0611	-0.000	0.1775	-0.00	1.000	0.2948	-0.2948
Op-1 0910	-0.192	0.0763	-2.51	.0136	-0.0650	-0.3183
Op-2 0910	-0.569	0.1673	-3.40	.0010	-0.2910	-0.8469
Op-1 0915	-0.320	0.0857	-3.73	.0003	-0.1776	-0.4624
Op-2 0915	-0.369	0.1775	-2.08	.0401	-0.0745	-0.6641
Op-1 1015	0.000	0.0857	0.00	1.000	0.1424	-0.1424
Op-2 1015	-0.000	0.1775	-0.00	1.000	0.2948	-0.2948
Op-1 1210	-0.657	0.0715	-9.19	.0000	-0.5384	-0.7760
Op-2 1210	-1.189	0.1673	-7.11	.0000	-0.9115	-1.4674
Op-1 2210	-0.000	0.0782	-0.00	1.000	0.1298	-0.1298
Op-2 2210	0.000	0.1775	0.00	1.000	0.2948	-0.2948

Paired comparisons of least square means between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period	0.1598	0.0780	2.049	.0432	0.2893	0.0303

Paired comparisons of least square means for stations between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Station 0611	0.0000	0.1914	0.00	1.000	0.3178	-0.3178
Station 0910	0.3773	0.1839	2.05	.0429	0.6827	0.0718
Station 0915	0.0493	0.1971	0.25	.8032	0.3767	-0.2781
Station 1015	0.0000	0.1971	0.00	1.000	0.3274	-0.3274
Station 1210	0.5322	0.1820	2.92	.0043	0.8345	0.2300
Station 2210	-0.0000	0.1939	-0.00	1.000	0.3221	-0.3221

Station-period means and deltas from original data where control n=1

Station-Period	N	Station Mean	Range	Standard Error	Upper 95% c.i.	Lower 95% c.i.	Mean Delta	Delta Range	Upper 95% CIi.	Lower 95% C.I.
0611 Op-1	19	0.00	0.00	0.000	.	.	0.00	0.00	.	.
0611 Op-2	3	0.00	0.00	0.000	.	.	0.00	0.00	.	.
0910 Op-1	18	0.47	2.50	0.174	0.84	0.11	-0.47	2.50	-0.11	-0.84
0910 Op-2	4	1.13	2.00	0.473	2.63	-0.38	-1.13	2.00	0.38	-2.63
0915 Op-1	14	1.14	4.50	0.417	2.04	0.24	-1.14	4.50	-0.24	-2.04
0915 Op-2	3	1.50	2.50	0.764	4.79	-1.79	-1.50	2.50	1.79	-4.79
1015 Op-1	14	0.00	0.00	0.000	.	.	0.00	0.00	.	.
1015 Op-2	3	0.00	0.00	0.000	.	.	0.00	0.00	.	.
1210 Op-1	19	3.47	16.00	0.985	5.54	1.40	-3.47	16.00	-1.40	-5.54
1210 Op-2	4	9.00	16.00	3.719	20.84	-2.84	-9.00	16.00	2.84	-20.84
2210 Op-1	16	0.00	0.00	0.000	.	.	0.00	0.00	.	.
2210 Op-2	3	0.00	0.00	0.000	.	.	0.00	0.00	.	.

Period means and deltas from original control data where n=1

Period	N	Station Mean	Range	Standard Error	Upper 95% C.I.	Lower 95% C.I.
Op-1	19	0.00	0.00	0.000	.	.
Op-2	4	0.00	0.00	0.000	.	.

Analysis of Variance for SLC for 1302 - Chrysophyta unid.

Stations = 2210, 0611, 0910, 0915, 1015, 1210

Data not transformed.

Results for Analysis of Variance

Source	Source df	Error df	F-value	Prob.
PERIOD	1	102.000	5.55	0.0204
SEASON	1	102.000	8.47	0.0044
STATION	5	102.000	1.63	0.1598
PERIOD*SEASON	1	102.000	1.20	0.2763
STATION*PERIOD	5	102.000	1.24	0.2967
STATION*SEASON	5	102.000	0.55	0.7390
PERIOD*STATION*SEASON	5	102.000	0.77	0.5771

Results for Power Analysis
Power at alpha = .1

Source	Non-Centrality Parameter	Adjusted non-Centrality Parameter	Power	Adjusted Power	Power to Detect 50% Change
PERIOD	5.55	4.44	0.7568	0.6734	0.3645
STATION*PERIOD	6.19	1.07	0.5562	0.1746	0.1389

Estimates for contrasts on combinations of interaction terms

Source	Difference	Std. Err.	T-value	Prob.
Period in DC	16.5769	6.3341	2.617	.0102
Period in FC	-0.2000	2.8605	-0.070	.9444
Period in FC-S	0.0000	2.9238	0.000	1.000
Period in FC-W	-0.4000	4.9174	-0.081	.9353
Period in DC-S	8.7705	6.2375	1.406	.1627
Period in DC-W	24.3833	11.0261	2.211	.0292

Least square means & confidence intervals from analysis of variance

Source	LS Mean	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period Op-1	-1.784	0.4956	-3.60	.0005	-0.9618	-2.6070
Period Op-2	-4.514	1.0470	-4.31	.0000	-2.7760	-6.2518
Op-1 0611	-3.538	1.1078	-3.19	.0019	-1.6997	-5.3773
Op-2 0611	-4.667	2.5917	-1.80	.0747	-0.3646	-8.9687
Op-1 0910	-2.485	1.1811	-2.10	.0379	-0.5240	-4.4452
Op-2 0910	-9.125	2.5094	-3.64	.0004	-4.9596	-13.2904
Op-1 0915	-1.837	1.3279	-1.38	.1694	0.3666	-4.0416
Op-2 0915	-3.417	2.5917	-1.32	.1904	0.8854	-7.7187
Op-1 1015	-0.437	1.3279	-0.33	.7425	1.7666	-2.6416
Op-2 1015	-7.250	2.5917	-2.80	.0062	-2.9480	-11.5520
Op-1 1210	-1.208	1.1078	-1.09	.2779	0.6305	-3.0471
Op-2 1210	-1.625	2.5094	-0.65	.5187	2.5404	-5.7904
Op-1 2210	-1.200	1.2106	-0.99	.3239	0.8095	-3.2095
Op-2 2210	-1.000	2.5917	-0.39	.7004	3.3020	-5.3020

Paired comparisons of least square means between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period	2.7295	1.1583	2.356	.0204	4.6522	0.8067

Paired comparisons of least square means for stations between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Station 0611	1.1282	2.8185	0.40	.6898	5.8067	-3.5503
Station 0910	6.6404	2.7735	2.39	.0185	11.2442	2.0366
Station 0915	1.5792	2.9121	0.54	.5888	6.4130	-3.2546
Station 1015	6.8125	2.9121	2.34	.0213	11.6463	1.9787
Station 1210	0.4167	2.7430	0.15	.8796	4.9699	-4.1366
Station 2210	-0.2000	2.8605	-0.07	.9444	4.5482	-4.9482

Station-period means and deltas from original data where control n=1

Station-Period	N	Station Mean	Range	Standard Error	Upper 95% C.I.	Lower 95% C.I.	Mean Delta	Delta Range	Upper 95% CIi.	Lower 95% C.I.
0611 Op-1	19	2.34	24.00	1.390	5.26	-0.58	-2.26	25.50	0.68	-5.20
0611 Op-2	4	3.25	7.50	1.588	8.30	-1.80	-3.25	7.50	1.80	-8.30
0910 Op-1	18	2.61	32.00	1.788	6.38	-1.16	-2.61	32.00	1.16	-6.38
0910 Op-2	5	7.40	13.50	2.586	14.58	0.22	-7.40	13.50	-0.22	-14.58
0915 Op-1	14	1.71	10.00	0.827	3.50	-0.07	-1.71	10.00	0.07	-3.50
0915 Op-2	4	1.88	6.50	1.546	6.80	-3.05	-1.88	6.50	3.05	-6.80
1015 Op-1	14	0.25	3.50	0.250	0.79	-0.29	-0.25	3.50	0.29	-0.79
1015 Op-2	4	4.88	12.00	2.860	13.98	-4.23	-4.88	12.00	4.23	-13.98
1210 Op-1	19	0.84	13.50	0.709	2.33	-0.65	-0.76	15.00	0.75	-2.27
1210 Op-2	5	2.00	9.00	1.761	6.89	-2.89	-2.00	9.00	2.89	-6.89
2210 Op-1	16	0.75	12.00	0.750	2.35	-0.85	-0.75	12.00	0.85	-2.35
2210 Op-2	4	0.50	2.00	0.500	2.09	-1.09	-0.50	2.00	1.09	-2.09

Period means and deltas from original control data where n=1

Period	N	Station Mean	Range	Standard Error	Upper 95% C.I.	Lower 95% C.I.
Op-1	19	0.08	1.50	0.079	0.24	-0.09
Op-2	5	0.00	0.00	0.000	.	.

Analysis of Variance for SLC for 0055 - Corallina officinalis

Stations = 2210, 0611, 0910, 0915, 1015, 1210

Data transformed using square root(x + 1)

Results for Analysis of Variance

Source	Source df	Error df	F-value	Prob.
PERIOD	1	96.000	8.60	0.0042
SEASON	1	96.000	0.01	0.9238
STATION	5	96.000	2.45	0.0391
PERIOD*SEASON	1	96.000	0.57	0.4529
STATION*PERIOD	5	96.000	0.40	0.8488
STATION*SEASON	5	96.000	0.10	0.9920
PERIOD*STATION*SEASON	5	96.000	0.23	0.9471

Results for Power Analysis
Power at alpha = .1

Source	Non-Centrality Parameter	Adjusted non-Centrality Parameter	Power	Adjusted Power	Power to Detect 50% Change
PERIOD	8.60	7.42	0.8975	0.8555	0.2298
STATION*PERIOD	1.99	0.00	0.2436	.	0.1602

Estimates for contrasts on combinations of interaction terms

Source	Difference	Std. Err.	T-value	Prob.
Period in DC	1.8783	0.6828	2.751	.0071
Period in FC	0.3223	0.3110	1.036	.3027
Period in FC-S	0.2203	0.3573	0.616	.5390
Period in FC-W	0.4243	0.5092	0.833	.4068
Period in DC-S	1.4147	0.7492	1.888	.0620
Period in DC-W	2.3418	1.1418	2.051	.0430

Least square means & confidence intervals from analysis of variance

Source	LS Mean	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period Op-1	0.254	0.0513	4.95	.0000	0.3392	0.1688
Period Op-2	-0.113	0.1140	-0.99	.3252	0.0766	-0.3022
Op-1 0611	0.401	0.1147	3.49	.0007	0.5913	0.2102
Op-2 0611	0.104	0.2847	0.36	.7168	0.5763	-0.3692
Op-1 0910	0.123	0.1223	1.00	.3186	0.3257	-0.0805
Op-2 0910	-0.304	0.2684	-1.13	.2602	0.1418	-0.7497
Op-1 0915	0.286	0.1375	2.08	.0405	0.5139	0.0572
Op-2 0915	0.104	0.2847	0.36	.7168	0.5763	-0.3692
Op-1 1015	0.257	0.1375	1.87	.0642	0.4858	0.0291
Op-2 1015	0.000	0.2847	0.00	1.000	0.4728	-0.4728
Op-1 1210	0.032	0.1147	0.28	.7825	0.2223	-0.1588
Op-2 1210	-0.683	0.2684	-2.55	.0125	-0.2376	-1.1290
Op-1 2210	0.426	0.1254	3.40	.0010	0.6340	0.2176
Op-2 2210	0.104	0.2847	0.36	.7168	0.5763	-0.3692

Paired comparisons of least square means between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period	0.3668	0.1251	2.933	.0042	0.5745	0.1591

Paired comparisons of least square means for stations between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Station 0611	0.2972	0.3069	0.97	.3353	0.8069	-0.2125
Station 0910	0.4266	0.2949	1.45	.1513	0.9164	-0.0633
Station 0915	0.1820	0.3161	0.58	.5662	0.7070	-0.3431
Station 1015	0.2574	0.3161	0.81	.4174	0.7825	-0.2676
Station 1210	0.7151	0.2919	2.45	.0161	1.1998	0.2303
Station 2210	0.3223	0.3110	1.04	.3027	0.8389	-0.1943

Station-period means and deltas from original data where control n=1

Station-Period	N	Station Mean	Range	Standard Error	Upper 95% c.i.	Lower 95% c.i.	Mean Delta	Delta Range	Upper 95% CIi.	Lower 95% C.I.
0611 Op-1	19	0.05	0.50	0.036	0.13	-0.02	1.08	3.50	1.59	0.56
0611 Op-2	3	0.00	0.00	0.000	.	.	0.33	1.00	1.77	-1.10
0910 Op-1	18	1.06	3.50	0.265	1.61	0.50	0.08	6.50	0.94	-0.77
0910 Op-2	4	1.00	1.00	0.204	1.65	0.35	-0.63	1.50	0.57	-1.82
0915 Op-1	14	0.11	0.50	0.057	0.23	-0.02	0.75	3.00	1.28	0.22
0915 Op-2	3	0.00	0.00	0.000	.	.	0.33	1.00	1.77	-1.10
1015 Op-1	14	0.14	0.50	0.063	0.28	0.01	0.71	3.00	1.27	0.16
1015 Op-2	3	0.33	1.00	0.333	1.77	-1.10	0.00	2.00	2.48	-2.48
1210 Op-1	19	1.05	3.00	0.253	1.58	0.52	0.08	6.50	0.98	-0.82
1210 Op-2	4	3.00	7.00	1.671	8.32	-2.32	-2.63	6.50	2.08	-7.33
2210 Op-1	16	0.09	0.50	0.050	0.20	-0.01	1.19	3.00	1.74	0.64
2210 Op-2	3	0.00	0.00	0.000	.	.	0.33	1.00	1.77	-1.10

Period means and deltas from original control data where n=1

Period	N	Station Mean	Range	Standard Error	Upper 95% C.I.	Lower 95% C.I.
Op-1	19	1.13	3.50	0.250	1.66	0.61
Op-2	4	0.38	1.00	0.239	1.14	-0.39

Analysis of Variance for SLC for 0057 - coralline crust

Stations = 2210, 0611, 0910, 0915, 1015, 1210

Data not transformed.

Results for Analysis of Variance

Source	Source df	Error df	F-value	Prob.
PERIOD	1	96.000	2.74	0.1013
SEASON	1	96.000	0.10	0.7513
STATION	5	96.000	5.36	0.0002
PERIOD*SEASON	1	96.000	0.99	0.3216
STATION*PERIOD	5	96.000	0.45	0.8127
STATION*SEASON	5	96.000	0.53	0.7499
PERIOD*STATION*SEASON	5	96.000	0.26	0.9353

Results for Power Analysis
Power at alpha = .1

Source	Non-Centrality Parameter	Adjusted non-Centrality Parameter	Power	Adjusted Power	Power to Detect 50% Change
PERIOD	2.74	1.68	0.4996	0.3619	1.0000
STATION*PERIOD	2.25	0.00	0.2633	.	0.6824

Estimates for contrasts on combinations of interaction terms

Source	Difference	Std. Err.	T-value	Prob.
Period in DC	-35.5109	24.3659	-1.457	.1483
Period in FC	-8.7818	11.0993	-0.791	.4308
Period in FC-S	-23.3636	12.7511	-1.832	.0700
Period in FC-W	5.8000	18.1710	0.319	.7503
Period in DC-S	-47.6051	26.7338	-1.781	.0781
Period in DC-W	-23.4167	40.7443	-0.575	.5668

Least square means & confidence intervals from analysis of variance

Source	LS Mean	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period Op-1	-4.118	1.8312	-2.25	.0268	-1.0767	-7.1597
Period Op-2	3.264	4.0694	0.80	.4245	10.0227	-3.4949
Op-1 0611	23.798	4.0934	5.81	.0000	30.5968	16.9994
Op-2 0611	21.250	10.1579	2.09	.0391	38.1211	4.3789
Op-1 0910	-10.385	4.3645	-2.38	.0193	-3.1356	-17.6336
Op-2 0910	-1.333	9.5770	-0.14	.8896	14.5729	-17.2395
Op-1 0915	-4.925	4.9067	-1.00	.3180	3.2245	-13.0745
Op-2 0915	-4.625	10.1579	-0.46	.6499	12.2461	-21.4961
Op-1 1015	-24.400	4.9067	-4.97	.0000	-16.2505	-32.5495
Op-2 1015	-6.375	10.1579	-0.63	.5318	10.4961	-23.2461
Op-1 1210	-2.266	4.0934	-0.55	.5812	4.5327	-9.0647
Op-2 1210	8.417	9.5770	0.88	.3817	24.3229	-7.4895
Op-1 2210	-6.532	4.4734	-1.46	.1475	0.8980	-13.9616
Op-2 2210	2.250	10.1579	0.22	.8252	19.1211	-14.6211

Paired comparisons of least square means between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period	-7.3821	4.4625	-1.654	.1013	0.0295	-14.7938

Paired comparisons of least square means for stations between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Station 0611	2.5481	10.9517	0.23	.8165	20.7375	-15.6414
Station 0910	-9.0513	10.5246	-0.86	.3919	8.4288	-26.5314
Station 0915	-0.3000	11.2809	-0.03	.9788	18.4363	-19.0363
Station 1015	-18.0250	11.2809	-1.60	.1134	0.7113	-36.7613
Station 1210	-10.6827	10.4151	-1.03	.3076	6.6156	-27.9809
Station 2210	-8.7818	11.0993	-0.79	.4308	9.6528	-27.2164

Station-period means and deltas from original data where control n=1

Station-Period	N	Station Mean	Range	Standard Error	Upper 95% c.i.	Lower 95% c.i.	Mean Delta	Delta Range	Upper 95% CIi.	Lower 95% C.I.
0611 Op-1	19	24.76	29.50	2.050	29.07	20.46	22.89	69.00	31.39	14.40
0611 Op-2	3	24.50	3.00	0.866	28.23	20.77	21.50	2.50	24.79	18.21
0910 Op-1	18	58.75	32.00	2.410	63.83	53.67	-11.44	49.50	-4.20	-18.68
0910 Op-2	4	48.88	15.00	3.430	59.79	37.96	-2.50	15.50	8.43	-13.43
0915 Op-1	14	52.86	36.50	2.489	58.23	47.48	-4.79	61.00	4.32	-13.89
0915 Op-2	3	48.33	19.00	5.487	71.94	24.72	-2.33	18.00	20.04	-24.70
1015 Op-1	14	73.93	24.50	2.025	78.30	69.55	-25.86	71.50	-15.32	-36.39
1015 Op-2	3	52.67	16.00	4.631	72.59	32.74	-6.67	16.50	13.98	-27.31
1210 Op-1	19	52.26	49.00	3.284	59.16	45.36	-4.61	80.50	5.18	-14.39
1210 Op-2	4	41.25	18.00	4.225	54.70	27.80	5.13	17.00	18.35	-8.10
2210 Op-1	16	53.31	37.50	2.962	59.63	47.00	-7.78	43.00	-0.28	-15.29
2210 Op-2	3	40.00	26.00	7.911	74.04	5.96	6.00	25.50	39.12	-27.12

Period means and deltas from original control data where n=1

Period	N	Station Mean	Range	Standard Error	Upper 95% C.I.	Lower 95% C.I.
Op-1	19	47.66	51.50	2.755	53.45	41.87
Op-2	4	46.38	2.00	0.427	47.73	45.02

Analysis of Variance for SLC for 0052 - Cryptopleura ruprechtiana

Stations = 2210, 0611, 0910, 0915, 1015, 1210

Data not transformed.

Results for Analysis of Variance

Source	Source df	Error df	F-value	Prob.
PERIOD	1	96.000	0.07	0.7966
SEASON	1	96.000	3.81	0.0538
STATION	5	96.000	6.23	0.0000
PERIOD*SEASON	1	96.000	0.06	0.8094
STATION*PERIOD	5	96.000	1.23	0.3011
STATION*SEASON	5	96.000	0.49	0.7832
PERIOD*STATION*SEASON	5	96.000	0.12	0.9872

Results for Power Analysis
Power at alpha = .1

Source	Non-Centrality Parameter	Adjusted non-Centrality Parameter	Power	Adjusted Power	Power to Detect 50% Change
PERIOD	0.07	0.00	0.1112	.	0.9429
STATION*PERIOD	6.15	1.02	0.5523	0.1708	0.8168

Estimates for contrasts on combinations of interaction terms

Source	Difference	Std. Err.	T-value	Prob.
Period in DC	12.3173	24.6056	0.501	.6178
Period in FC	-5.3273	11.2085	-0.475	.6357
Period in FC-S	-5.9545	12.8765	-0.462	.6448
Period in FC-W	-4.7000	18.3497	-0.256	.7984
Period in DC-S	19.4846	26.9968	0.722	.4722
Period in DC-W	5.1500	41.1451	0.125	.9007

Least square means & confidence intervals from analysis of variance

Source	LS Mean	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period Op-1	17.019	1.8493	9.20	.0000	20.0906	13.9478
Period Op-2	15.854	4.1095	3.86	.0002	22.6795	9.0289
Op-1 0611	32.897	4.1337	7.96	.0000	39.7630	26.0319
Op-2 0611	20.125	10.2578	1.96	.0527	37.1620	3.0880
Op-1 0910	32.623	4.4075	7.40	.0000	39.9434	25.3028
Op-2 0910	21.250	9.6712	2.20	.0304	37.3126	5.1874
Op-1 0915	25.188	4.9550	5.08	.0000	33.4172	16.9578
Op-2 0915	19.875	10.2578	1.94	.0556	36.9120	2.8380
Op-1 1015	-2.638	4.9550	-0.53	.5958	5.5922	-10.8672
Op-2 1015	17.875	10.2578	1.74	.0846	34.9120	0.8380
Op-1 1210	24.622	4.1337	5.96	.0000	31.4874	17.7562
Op-2 1210	21.250	9.6712	2.20	.0304	37.3126	5.1874
Op-1 2210	-10.577	4.5174	-2.34	.0213	-3.0744	-18.0801
Op-2 2210	-5.250	10.2578	-0.51	.6100	11.7870	-22.2870

Paired comparisons of least square means between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period	1.1650	4.5064	0.259	.7966	8.6495	-6.3195

Paired comparisons of least square means for stations between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Station 0611	12.7724	11.0594	1.15	.2510	31.1408	-5.5959
Station 0910	11.3731	10.6281	1.07	.2873	29.0251	-6.2790
Station 0915	5.3125	11.3919	0.47	.6420	24.2330	-13.6080
Station 1015	-20.5125	11.3919	-1.80	.0749	-1.5920	-39.4330
Station 1210	3.3718	10.5175	0.32	.7492	20.8402	-14.0966
Station 2210	-5.3273	11.2085	-0.48	.6357	13.2886	-23.9432

Station-period means and deltas from original data where control n=1

Station-Period	N	Station Mean	Range	Standard Error	Upper 95% c.i.	Lower 95% c.i.	Mean Delta	Delta Range	Upper 95% CIi.	Lower 95% C.I.
0611 Op-1	19	0.05	0.50	0.036	0.13	-0.02	36.97	58.50	44.40	29.55
0611 Op-2	3	0.00	0.00	0.000	.	.	21.67	10.50	35.29	8.04
0910 Op-1	18	1.58	22.50	1.243	4.21	-1.04	36.72	58.50	44.04	29.40
0910 Op-2	4	0.00	0.00	0.000	.	.	24.13	16.00	34.71	13.54
0915 Op-1	14	12.54	63.00	4.923	23.17	1.90	27.57	78.50	40.96	14.18
0915 Op-2	3	0.17	0.50	0.167	0.88	-0.55	21.50	11.00	35.82	7.18
1015 Op-1	14	43.50	79.00	5.944	56.34	30.66	-3.39	80.00	10.23	-17.02
1015 Op-2	3	2.67	7.00	2.186	12.07	-6.74	19.00	11.50	34.26	3.74
1210 Op-1	19	9.66	27.50	2.433	14.77	4.55	27.37	61.50	36.62	18.12
1210 Op-2	4	0.00	0.00	0.000	.	.	24.13	16.00	34.71	13.54
2210 Op-1	16	49.72	56.50	3.882	57.99	41.45	-11.28	43.50	-4.46	-18.10
2210 Op-2	3	27.33	18.50	5.525	51.11	3.56	-5.67	16.00	14.53	-25.86

Period means and deltas from original control data where n=1

Period	N	Station Mean	Range	Standard Error	Upper 95% C.I.	Lower 95% C.I.
Op-1	19	37.03	58.50	3.538	44.46	29.59
Op-2	4	24.13	16.00	3.325	34.71	13.54

Analysis of Variance for SLC for 0115 - Cryptopleura violacea

Stations = 2210, 0611, 0910, 0915, 1015, 1210

Data transformed using log base10(x + 1)

Results for Analysis of Variance

Source	Source df	Error df	F-value	Prob.
PERIOD	1	96.000	1.20	0.2757
SEASON	1	96.000	0.42	0.5194
STATION	5	96.000	24.75	0.0000
PERIOD*SEASON	1	96.000	0.23	0.6317
STATION*PERIOD	5	96.000	0.96	0.4433
STATION*SEASON	5	96.000	0.95	0.4539
PERIOD*STATION*SEASON	5	96.000	1.39	0.2362

Results for Power Analysis
Power at alpha = .1

Source	Non-Centrality Parameter	Adjusted non-Centrality Parameter	Power	Adjusted Power	Power to Detect 50% Change
PERIOD	1.20	0.18	0.2921	0.1294	0.9573
STATION*PERIOD	4.82	0.00	0.4599	.	0.2788

Estimates for contrasts on combinations of interaction terms

Source	Difference	Std. Err.	T-value	Prob.
Period in DC	-0.5028	0.5687	-0.884	.3789
Period in FC	-0.1824	0.2591	-0.704	.4832
Period in FC-S	-0.0738	0.2976	-0.248	.8046
Period in FC-W	-0.2909	0.4241	-0.686	.4945
Period in DC-S	-0.3108	0.6240	-0.498	.6196
Period in DC-W	-0.6948	0.9510	-0.731	.4668

Least square means & confidence intervals from analysis of variance

Source	LS Mean	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period Op-1	-0.948	0.0427	-22.17	.0000	-0.8767	-1.0187
Period Op-2	-0.833	0.0950	-8.77	.0000	-0.6757	-0.9913
Op-1 0611	-1.469	0.0955	-15.38	.0000	-1.3108	-1.6282
Op-2 0611	-0.939	0.2371	-3.96	.0001	-0.5452	-1.3328
Op-1 0910	-1.634	0.1019	-16.04	.0000	-1.4652	-1.8036
Op-2 0910	-1.488	0.2235	-6.66	.0000	-1.1169	-1.8594
Op-1 0915	-1.179	0.1145	-10.30	.0000	-0.9892	-1.3696
Op-2 0915	-1.260	0.2371	-5.32	.0000	-0.8665	-1.6541
Op-1 1015	-0.263	0.1145	-2.29	.0239	-0.0726	-0.4531
Op-2 1015	-0.169	0.2371	-0.71	.4773	0.2246	-0.5630
Op-1 1210	-1.077	0.0955	-11.27	.0000	-0.9182	-1.2356
Op-2 1210	-1.264	0.2235	-5.65	.0000	-0.8924	-1.6349
Op-1 2210	-0.063	0.1044	-0.60	.5472	0.1103	-0.2365
Op-2 2210	0.119	0.2371	0.50	.6161	0.5131	-0.2745

Paired comparisons of least square means between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period	-0.1142	0.1042	-1.096	.2757	0.0588	-0.2872

Paired comparisons of least square means for stations between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Station 0611	-0.5305	0.2556	-2.08	.0406	-0.1059	-0.9550
Station 0910	-0.1463	0.2457	-0.60	.5530	0.2618	-0.5543
Station 0915	0.0809	0.2633	0.31	.7594	0.5182	-0.3564
Station 1015	-0.0937	0.2633	-0.36	.7228	0.3437	-0.5310
Station 1210	0.1867	0.2431	0.77	.4443	0.5905	-0.2170
Station 2210	-0.1824	0.2591	-0.70	.4832	0.2479	-0.6127

Station-period means and deltas from original data where control n=1

Station-Period	N	Station Mean	Range	Standard Error	Upper 95% c.i.	Lower 95% c.i.	Mean Delta	Delta Range	Upper 95% CIi.	Lower 95% C.I.
0611 Op-1	19	42.21	76.00	4.457	51.57	32.85	-41.76	76.00	-32.43	-51.09
0611 Op-2	3	29.50	64.00	19.425	113.08	-54.08	-29.00	63.50	53.66	-111.66
0910 Op-1	18	56.22	67.50	3.972	64.60	47.84	-55.75	66.50	-47.48	-64.02
0910 Op-2	4	40.25	26.50	5.904	59.04	21.46	-39.88	25.50	-21.80	-57.95
0915 Op-1	14	23.11	47.50	4.505	32.84	13.37	-22.64	46.50	-12.84	-32.44
0915 Op-2	3	25.17	8.00	2.587	36.30	14.03	-24.67	7.00	-14.63	-34.71
1015 Op-1	14	4.14	37.50	2.629	9.82	-1.54	-3.68	34.50	1.45	-8.80
1015 Op-2	3	3.00	8.50	2.754	14.85	-8.85	-2.50	9.50	10.47	-15.47
1210 Op-1	19	27.13	74.50	4.659	36.92	17.34	-26.68	73.50	-16.94	-36.43
1210 Op-2	4	25.75	52.50	11.454	62.20	-10.70	-25.38	53.00	11.30	-62.05
2210 Op-1	16	0.47	3.00	0.207	0.91	0.03	-0.19	5.00	0.41	-0.79
2210 Op-2	3	0.17	0.50	0.167	0.88	-0.55	0.33	0.50	1.05	-0.38

Period means and deltas from original control data where n=1

Period	N	Station Mean	Range	Standard Error	Upper 95% C.I.	Lower 95% C.I.
Op-1	19	0.45	4.00	0.232	0.94	-0.04
Op-2	4	0.38	1.00	0.239	1.14	-0.39

Analysis of Variance for SAQ for 0036 - Cystoseira osmundacea

Stations = 2210, 0611, 0910, 0915, 1015, 1210

Data transformed using square root(x + 1)

Results for Analysis of Variance

Source	Source df	Error df	F-value	Prob.
PERIOD	1	96.000	1.23	0.2711
SEASON	1	96.000	5.49	0.0212
STATION	5	96.000	9.53	0.0000
PERIOD*SEASON	1	96.000	4.52	0.0360
STATION*PERIOD	5	96.000	0.66	0.6576
STATION*SEASON	5	96.000	0.44	0.8200
PERIOD*STATION*SEASON	5	96.000	0.47	0.7952

Results for Power Analysis
Power at alpha = .1

Source	Non-Centrality Parameter	Adjusted non-Centrality Parameter	Power	Adjusted Power	Power to Detect 50% Change
PERIOD	1.23	0.20	0.2957	0.1333	0.7769
STATION*PERIOD	3.28	0.00	0.3434	.	0.3606

Estimates for contrasts on combinations of interaction terms

Source	Difference	Std. Err.	T-value	Prob.
Period in DC	1.3475	0.9640	1.398	.1654
Period in FC	-0.1749	0.4391	-0.398	.6913
Period in FC-S	-0.2009	0.5045	-0.398	.6914
Period in FC-W	-0.1489	0.7189	-0.207	.8363
Period in DC-S	-0.8792	1.0577	-0.831	.4079
Period in DC-W	3.5743	1.6120	2.217	.0290

Least square means & confidence intervals from analysis of variance

Source	LS Mean	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period Op-1	1.073	0.0724	14.81	.0000	1.1933	0.9526
Period Op-2	0.878	0.1610	5.45	.0000	1.1449	0.6101
Op-1 0611	1.495	0.1619	9.23	.0000	1.7642	1.2262
Op-2 0611	1.811	0.4019	4.51	.0000	2.4788	1.1439
Op-1 0910	1.408	0.1727	8.15	.0000	1.6947	1.1212
Op-2 0910	1.117	0.3789	2.95	.0040	1.7458	0.4872
Op-1 0915	0.740	0.1941	3.81	.0002	1.0629	0.4181
Op-2 0915	0.255	0.4019	0.63	.5271	0.9225	-0.4124
Op-1 1015	0.678	0.1941	3.49	.0007	1.0008	0.3559
Op-2 1015	0.271	0.4019	0.67	.5018	0.9384	-0.3965
Op-1 1210	0.450	0.1619	2.78	.0066	0.7189	0.1809
Op-2 1210	-0.029	0.3789	-0.08	.9381	0.5998	-0.6588
Op-1 2210	1.666	0.1770	9.41	.0000	1.9599	1.3720
Op-2 2210	1.841	0.4019	4.58	.0000	2.5083	1.1734

Paired comparisons of least square means between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period	0.1954	0.1765	1.107	.2711	0.4887	-0.0978

Paired comparisons of least square means for stations between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Station 0611	-0.3161	0.4333	-0.73	.4674	0.4035	-1.0357
Station 0910	0.2914	0.4164	0.70	.4857	0.9830	-0.4001
Station 0915	0.4854	0.4463	1.09	.2795	1.2267	-0.2559
Station 1015	0.4074	0.4463	0.91	.3636	1.1487	-0.3338
Station 1210	0.4794	0.4121	1.16	.2475	1.1638	-0.2050
Station 2210	-0.1749	0.4391	-0.40	.6913	0.5544	-0.9042

Station-period means and deltas from original data where control n=1

Station-Period	N	Station Mean	Range	Standard Error	Upper 95% c.i.	Lower 95% c.i.	Mean Delta	Delta Range	Upper 95% CIi.	Lower 95% C.I.
0611 Op-1	19	0.18	2.25	0.124	0.44	-0.08	5.92	13.00	7.44	4.40
0611 Op-2	3	0.08	0.25	0.083	0.44	-0.28	7.50	6.00	15.26	-0.26
0910 Op-1	18	0.54	1.50	0.146	0.85	0.23	5.86	10.50	7.26	4.46
0910 Op-2	4	2.25	4.50	1.005	5.45	-0.95	7.25	9.75	15.15	-0.65
0915 Op-1	14	3.48	4.50	0.408	4.36	2.60	3.23	10.75	5.02	1.44
0915 Op-2	3	5.25	6.25	1.843	13.18	-2.68	2.33	8.50	12.90	-8.23
1015 Op-1	14	3.54	5.75	0.465	4.54	2.53	3.18	13.00	5.04	1.31
1015 Op-2	3	5.42	2.75	0.821	8.95	1.89	2.17	6.25	10.51	-6.17
1210 Op-1	19	4.32	11.50	0.949	6.31	2.32	1.79	14.75	3.66	-0.08
1210 Op-2	4	7.63	4.50	1.008	10.83	4.42	1.88	12.50	10.58	-6.83
2210 Op-1	16	0.09	0.50	0.039	0.18	0.01	6.55	10.50	8.05	5.05
2210 Op-2	3	0.08	0.25	0.083	0.44	-0.28	7.50	6.25	15.43	-0.43

Period means and deltas from original control data where n=1

Period	N	Station Mean	Range	Standard Error	Upper 95% C.I.	Lower 95% C.I.
Op-1	19	6.11	12.25	0.677	7.53	4.68
Op-2	4	9.50	10.25	2.294	16.80	2.20

Analysis of Variance for SLC for 0037 - Desmarestia spp.

Stations = 2210, 0611, 0910, 0915, 1015, 1210

Data transformed using log base10(x + .1)

Results for Analysis of Variance

Source	Source df	Error df	F-value	Prob.
PERIOD	1	96.000	0.00	0.9803
SEASON	1	96.000	6.74	0.0109
STATION	5	96.000	0.99	0.4291
PERIOD*SEASON	1	96.000	2.00	0.1610
STATION*PERIOD	5	96.000	0.79	0.5562
STATION*SEASON	5	96.000	0.31	0.9086
PERIOD*STATION*SEASON	5	96.000	0.11	0.9894

Results for Power Analysis
Power at alpha = .1

Source	Non-Centrality Parameter	Adjusted non-Centrality Parameter	Power	Adjusted Power	Power to Detect 50% Change
PERIOD	0.00	0.00	0.1001	.	0.1131
STATION*PERIOD	3.97	0.00	0.3965	.	0.1011

Estimates for contrasts on combinations of interaction terms

Source	Difference	Std. Err.	T-value	Prob.
Period in DC	-0.9154	1.0893	-0.840	.4028
Period in FC	0.8858	0.4962	1.785	.0774
Period in FC-S	0.7526	0.5701	1.320	.1899
Period in FC-W	1.0190	0.8124	1.254	.2128
Period in DC-S	-2.4730	1.1952	-2.069	.0412
Period in DC-W	0.6422	1.8216	0.353	.7252

Least square means & confidence intervals from analysis of variance

Source	LS Mean	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period Op-1	0.265	0.0819	3.24	.0016	0.4012	0.1293
Period Op-2	0.270	0.1819	1.49	.1408	0.5724	-0.0320
Op-1 0611	0.413	0.1830	2.26	.0263	0.7168	0.1089
Op-2 0611	0.584	0.4541	1.29	.2018	1.3379	-0.1707
Op-1 0910	0.367	0.1951	1.88	.0631	0.6909	0.0427
Op-2 0910	0.590	0.4282	1.38	.1716	1.3009	-0.1214
Op-1 0915	0.037	0.2194	0.17	.8671	0.4012	-0.3275
Op-2 0915	0.121	0.4541	0.27	.7908	0.8751	-0.6335
Op-1 1015	0.029	0.2194	0.13	.8956	0.3932	-0.3355
Op-2 1015	0.230	0.4541	0.51	.6139	0.9841	-0.5244
Op-1 1210	0.353	0.1830	1.93	.0567	0.6570	0.0491
Op-2 1210	0.590	0.4282	1.38	.1716	1.3009	-0.1214
Op-1 2210	0.393	0.2000	1.97	.0523	0.7252	0.0609
Op-2 2210	-0.493	0.4541	-1.08	.2807	0.2616	-1.2470

Paired comparisons of least square means between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period	-0.0049	0.1995	-0.025	.9803	0.3264	-0.3363

Paired comparisons of least square means for stations between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Station 0611	-0.1707	0.4896	-0.35	.7281	0.6425	-0.9839
Station 0910	-0.2229	0.4705	-0.47	.6367	0.5586	-1.0044
Station 0915	-0.0840	0.5043	-0.17	.8681	0.7537	-0.9216
Station 1015	-0.2010	0.5043	-0.40	.6911	0.6366	-1.0387
Station 1210	-0.2367	0.4656	-0.51	.6123	0.5366	-1.0101
Station 2210	0.8858	0.4962	1.79	.0774	1.7099	0.0616

Station-period means and deltas from original data where control n=1

Station-Period	N	Station Mean	Range	Standard Error	Upper 95% c.i.	Lower 95% c.i.	Mean Delta	Delta Range	Upper 95% CIi.	Lower 95% C.I.
0611 Op-1	19	0.05	1.00	0.053	0.16	-0.06	1.42	16.50	3.23	-0.39
0611 Op-2	3	0.00	0.00	0.000	.	.	-7.17	21.50	38.00	-23.67
0910 Op-1	18	0.14	1.50	0.089	0.33	-0.05	1.42	17.00	3.34	-0.50
0910 Op-2	4	0.00	0.00	0.000	.	.	5.75	21.50	22.50	-11.00
0915 Op-1	14	0.82	9.00	0.639	2.20	-0.56	-0.32	7.50	0.66	-1.30
0915 Op-2	3	2.33	7.00	2.333	12.37	-7.71	4.83	14.50	25.63	-15.96
1015 Op-1	14	1.50	19.00	1.349	4.41	-1.41	-1.00	17.50	1.51	-3.51
1015 Op-2	3	0.83	2.50	0.833	4.42	-2.75	6.33	19.00	33.58	-20.92
1210 Op-1	19	0.11	1.00	0.061	0.23	-0.02	1.37	17.00	3.20	-0.46
1210 Op-2	4	0.00	0.00	0.000	.	.	5.75	21.50	22.50	-11.00
2210 Op-1	16	1.56	24.50	1.529	4.82	-1.70	0.19	40.50	4.25	-3.87
2210 Op-2	3	18.83	56.00	18.584	98.79	-61.13	-11.67	34.50	37.46	-60.79

Period means and deltas from original control data where n=1

Period	N	Station Mean	Range	Standard Error	Upper 95% C.I.	Lower 95% C.I.
Op-1	19	1.47	16.50	0.866	3.29	-0.34
Op-2	4	5.75	21.50	5.262	22.50	-11.00

Analysis of Variance for SLC for 0030 - Dictyoneurum californicum

Stations = 2210, 0611, 0910, 0915, 1015, 1210

Data not transformed.

Satterthwaite's Adjustment for Degrees of Freedom used in Analysis of Variance.

Results for Analysis of Variance

Source	Source df	Error df	F-value	Prob.
PERIOD	1	96.000	1.09	0.2982
SEASON	1	96.000	2.28	0.1341
STATION	5	96.000	2.23	0.0575
PERIOD*SEASON	1	96.000	1.09	0.2982
STATION*PERIOD	5	96.000	1.07	0.3828
STATION*SEASON	5	96.000	2.23	0.0575
PERIOD*STATION*SEASON	5	96.000	1.07	0.3828

Results for Power Analysis
Power at alpha = .1

Source	Non-Centrality Parameter	Adjusted non-Centrality Parameter	Power	Adjusted Power	Power to Detect 50% Change
PERIOD	1.09	0.07	0.2758	0.1119	0.1067
STATION*PERIOD	5.34	0.23	0.4970	0.1152	0.1133

Estimates for contrasts on combinations of interaction terms

Source	Difference	Std. Err.	T-value	Prob.
Period in DC	0.0000	0.0890	0.000	1.000
Period in FC	0.1023	0.0405	2.523	.0133
Period in FC-S	0.2045	0.0466	4.393	.0000
Period in FC-W	-0.0000	0.0664	-0.000	1.000
Period in DC-S	-0.0000	0.0976	-0.000	1.000
Period in DC-W	0.0000	0.1488	0.000	1.000

Least square means & confidence intervals from analysis of variance

Source	LS Mean	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period Op-1	-0.004	0.0067	-0.57	.5724	0.0073	-0.0149
Period Op-2	-0.021	0.0149	-1.40	.1642	0.0038	-0.0455
Op-1 0611	-0.000	0.0149	-0.00	1.000	0.0248	-0.0248
Op-2 0611	-0.000	0.0371	-0.00	1.000	0.0616	-0.0616
Op-1 0910	-0.000	0.0159	-0.00	1.000	0.0265	-0.0265
Op-2 0910	-0.000	0.0350	-0.00	1.000	0.0581	-0.0581
Op-1 0915	-0.000	0.0179	-0.00	1.000	0.0298	-0.0298
Op-2 0915	-0.000	0.0371	-0.00	1.000	0.0616	-0.0616
Op-1 1015	0.000	0.0179	0.00	1.000	0.0298	-0.0298
Op-2 1015	-0.000	0.0371	-0.00	1.000	0.0616	-0.0616
Op-1 1210	-0.000	0.0149	-0.00	1.000	0.0248	-0.0248
Op-2 1210	0.000	0.0350	0.00	1.000	0.0581	-0.0581
Op-1 2210	-0.023	0.0163	-1.39	.1674	0.0044	-0.0499
Op-2 2210	-0.125	0.0371	-3.37	.0011	-0.0634	-0.1866

Paired comparisons of least square means between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period	0.0170	0.0163	1.046	.2982	0.0441	-0.0100

Paired comparisons of least square means for stations between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Station 0611	-0.0000	0.0400	-0.00	1.000	0.0664	-0.0664
Station 0910	0.0000	0.0384	0.00	1.000	0.0638	-0.0638
Station 0915	0.0000	0.0412	0.00	1.000	0.0684	-0.0684
Station 1015	0.0000	0.0412	0.00	1.000	0.0684	-0.0684
Station 1210	-0.0000	0.0380	-0.00	1.000	0.0632	-0.0632
Station 2210	0.1023	0.0405	2.52	.0133	0.1696	0.0350

Station-period means and deltas from original data where control n=1

Station-Period	N	Station Mean	Range	Standard Error	Upper 95% c.i.	Lower 95% c.i.	Mean Delta	Delta Range	Upper 95% CIi.	Lower 95% C.I.
0611 Op-1	19	0.00	0.00	0.000	.	.	0.00	0.00	.	.
0611 Op-2	3	0.00	0.00	0.000	.	.	0.00	0.00	.	.
0910 Op-1	18	0.00	0.00	0.000	.	.	0.00	0.00	.	.
0910 Op-2	4	0.00	0.00	0.000	.	.	0.00	0.00	.	.
0915 Op-1	14	0.00	0.00	0.000	.	.	0.00	0.00	.	.
0915 Op-2	3	0.00	0.00	0.000	.	.	0.00	0.00	.	.
1015 Op-1	14	0.00	0.00	0.000	.	.	0.00	0.00	.	.
1015 Op-2	3	0.00	0.00	0.000	.	.	0.00	0.00	.	.
1210 Op-1	19	0.00	0.00	0.000	.	.	0.00	0.00	.	.
1210 Op-2	4	0.00	0.00	0.000	.	.	0.00	0.00	.	.
2210 Op-1	16	0.03	0.50	0.031	0.10	-0.04	-0.03	0.50	0.04	-0.10
2210 Op-2	3	0.17	0.50	0.167	0.88	-0.55	-0.17	0.50	0.55	-0.88

Period means and deltas from original control data where n=1

Period	N	Station Mean	Range	Standard Error	Upper 95% C.I.	Lower 95% C.I.
Op-1	19	0.00	0.00	0.000	.	.
Op-2	4	0.00	0.00	0.000	.	.

Analysis of Variance for SAQ for 0031 - Egregia menziesii

Stations = 2210, 0611, 0910, 0915, 1015, 1210

Data transformed using log base10(x + .1)

Results for Analysis of Variance

Source	Source df	Error df	F-value	Prob.
PERIOD	1	96.000	0.06	0.8010
SEASON	1	96.000	0.18	0.6761
STATION	5	96.000	0.14	0.9835
PERIOD*SEASON	1	96.000	0.06	0.8010
STATION*PERIOD	5	96.000	0.27	0.9301
STATION*SEASON	5	96.000	0.14	0.9835
PERIOD*STATION*SEASON	5	96.000	0.27	0.9301

Results for Power Analysis
Power at alpha = .1

Source	Non-Centrality Parameter	Adjusted non-Centrality Parameter	Power	Adjusted Power	Power to Detect 50% Change
PERIOD	0.06	0.00	0.1107	.	0.1044
STATION*PERIOD	1.33	0.00	0.1938	.	0.1063

Estimates for contrasts on combinations of interaction terms

Source	Difference	Std. Err.	T-value	Prob.
Period in DC	-0.0496	0.4962	-0.100	.9207
Period in FC	0.1874	0.2260	0.829	.4091
Period in FC-S	0.3748	0.2597	1.443	.1522
Period in FC-W	-0.0000	0.3700	-0.000	1.000
Period in DC-S	-0.0991	0.5444	-0.182	.8559
Period in DC-W	0.0000	0.8297	0.000	1.000

Least square means & confidence intervals from analysis of variance

Source	LS Mean	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period Op-1	0.031	0.0373	0.82	.4150	0.0925	-0.0314
Period Op-2	0.008	0.0829	0.09	.9275	0.1452	-0.1301
Op-1 0611	0.073	0.0834	0.88	.3807	0.2119	-0.0650
Op-2 0611	-0.000	0.2069	-0.00	1.000	0.3436	-0.3436
Op-1 0910	0.073	0.0889	0.83	.4109	0.2210	-0.0742
Op-2 0910	0.091	0.1950	0.46	.6430	0.4146	-0.2332
Op-1 0915	0.012	0.0999	0.12	.9070	0.1777	-0.1543
Op-2 0915	-0.000	0.2069	-0.00	1.000	0.3436	-0.3436
Op-1 1015	0.039	0.0999	0.39	.6979	0.2049	-0.1270
Op-2 1015	-0.000	0.2069	-0.00	1.000	0.3436	-0.3436
Op-1 1210	-0.066	0.0834	-0.79	.4331	0.0728	-0.2041
Op-2 1210	0.091	0.1950	0.46	.6430	0.4146	-0.2332
Op-1 2210	0.051	0.0911	0.56	.5741	0.2027	-0.0999
Op-2 2210	-0.136	0.2069	-0.66	.5124	0.2075	-0.4796

Paired comparisons of least square means between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period	0.0230	0.0909	0.253	.8010	0.1739	-0.1280

Paired comparisons of least square means for stations between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Station 0611	0.0734	0.2230	0.33	.7428	0.4438	-0.2970
Station 0910	-0.0173	0.2143	-0.08	.9359	0.3387	-0.3732
Station 0915	0.0117	0.2297	0.05	.9595	0.3932	-0.3698
Station 1015	0.0389	0.2297	0.17	.8659	0.4205	-0.3426
Station 1210	-0.1563	0.2121	-0.74	.4630	0.1960	-0.5086
Station 2210	0.1874	0.2260	0.83	.4091	0.5628	-0.1880

Station-period means and deltas from original data where control n=1

Station-Period	N	Station Mean	Range	Standard Error	Upper 95% c.i.	Lower 95% c.i.	Mean Delta	Delta Range	Upper 95% CIi.	Lower 95% C.I.
0611 Op-1	19	0.00	0.00	0.000	.	.	0.09	1.25	0.24	-0.05
0611 Op-2	3	0.00	0.00	0.000	.	.	0.00	0.00	.	.
0910 Op-1	18	0.00	0.00	0.000	.	.	0.10	1.25	0.25	-0.06
0910 Op-2	4	0.00	0.00	0.000	.	.	0.06	0.25	0.26	-0.14
0915 Op-1	14	0.02	0.25	0.018	0.06	-0.02	0.02	0.75	0.11	-0.07
0915 Op-2	3	0.00	0.00	0.000	.	.	0.00	0.00	.	.
1015 Op-1	14	0.00	0.00	0.000	.	.	0.04	0.50	0.11	-0.04
1015 Op-2	3	0.00	0.00	0.000	.	.	0.00	0.00	.	.
1210 Op-1	19	0.14	1.50	0.082	0.32	-0.03	-0.05	2.75	0.19	-0.29
1210 Op-2	4	0.00	0.00	0.000	.	.	0.06	0.25	0.26	-0.14
2210 Op-1	16	0.00	0.00	0.000	.	.	0.08	1.25	0.24	-0.09
2210 Op-2	3	0.08	0.25	0.083	0.44	-0.28	-0.08	0.25	0.28	-0.44

Period means and deltas from original control data where n=1

Period	N	Station Mean	Range	Standard Error	Upper 95% C.I.	Lower 95% C.I.
Op-1	19	0.09	1.25	0.069	0.24	-0.05
Op-2	4	0.06	0.25	0.063	0.26	-0.14

Analysis of Variance for SLC for 0071 - Erythrophyllum delesserioides

Stations = 2210, 0611, 0910, 0915, 1015, 1210

Data transformed using log base10(x + .1)

Results for Analysis of Variance

Source	Source df	Error df	F-value	Prob.
PERIOD	1	96.000	1.72	0.1924
SEASON	1	96.000	0.53	0.4671
STATION	5	96.000	2.61	0.0292
PERIOD*SEASON	1	96.000	0.53	0.4671
STATION*PERIOD	5	96.000	2.61	0.0292
STATION*SEASON	5	96.000	1.09	0.3720
PERIOD*STATION*SEASON	5	96.000	1.09	0.3720

Results for Power Analysis
Power at alpha = .1

Source	Non-Centrality Parameter	Adjusted non-Centrality Parameter	Power	Adjusted Power	Power to Detect 50% Change
PERIOD	1.72	0.69	0.3680	0.2124	0.1639
STATION*PERIOD	13.07	7.80	0.8666	0.6533	0.2402

Estimates for contrasts on combinations of interaction terms

Source	Difference	Std. Err.	T-value	Prob.
Period in DC	0.1202	0.4131	0.291	.7718
Period in FC	-0.7160	0.1882	-3.805	.0002
Period in FC-S	-1.1676	0.2162	-5.401	.0000
Period in FC-W	-0.2644	0.3081	-0.858	.3929
Period in DC-S	0.2403	0.4533	0.530	.5972
Period in DC-W	-0.0000	0.6908	-0.000	1.000

Least square means & confidence intervals from analysis of variance

Source	LS Mean	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period Op-1	-0.099	0.0310	-3.20	.0019	-0.0477	-0.1509
Period Op-2	0.000	0.0690	0.00	1.000	0.1146	-0.1146
Op-1 0611	0.040	0.0694	0.58	.5652	0.1553	-0.0752
Op-2 0611	0.000	0.1722	0.00	1.000	0.2861	-0.2861
Op-1 0910	0.040	0.0740	0.54	.5896	0.1630	-0.0829
Op-2 0910	0.000	0.1624	0.00	1.000	0.2697	-0.2697
Op-1 0915	0.000	0.0832	0.00	1.000	0.1382	-0.1382
Op-2 0915	-0.000	0.1722	-0.00	1.000	0.2861	-0.2861
Op-1 1015	0.000	0.0832	0.00	1.000	0.1382	-0.1382
Op-2 1015	-0.000	0.1722	-0.00	1.000	0.2861	-0.2861
Op-1 1210	0.040	0.0694	0.58	.5652	0.1553	-0.0752
Op-2 1210	0.000	0.1624	0.00	1.000	0.2697	-0.2697
Op-1 2210	-0.716	0.0758	-9.44	.0000	-0.5901	-0.8420
Op-2 2210	-0.000	0.1722	-0.00	1.000	0.2861	-0.2861

Paired comparisons of least square means between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period	-0.0993	0.0757	-1.313	.1924	0.0264	-0.2250

Paired comparisons of least square means for stations between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Station 0611	0.0401	0.1857	0.22	.8297	0.3485	-0.2684
Station 0910	0.0401	0.1784	0.22	.8229	0.3364	-0.2563
Station 0915	0.0000	0.1913	0.00	1.000	0.3177	-0.3177
Station 1015	0.0000	0.1913	0.00	1.000	0.3177	-0.3177
Station 1210	0.0401	0.1766	0.23	.8210	0.3333	-0.2532
Station 2210	-0.7160	0.1882	-3.80	.0002	-0.4035	-1.0286

Station-period means and deltas from original data where control n=1

Station-Period	N	Station Mean	Range	Standard Error	Upper 95% C.I.	Lower 95% C.I.	Mean Delta	Delta Range	Upper 95% CIi.	Lower 95% C.I.
0611 Op-1	19	0.00	0.00	0.000	.	.	0.05	1.00	0.16	-0.06
0611 Op-2	3	0.00	0.00	0.000	.	.	0.00	0.00	.	.
0910 Op-1	18	0.00	0.00	0.000	.	.	0.06	1.00	0.17	-0.06
0910 Op-2	4	0.00	0.00	0.000	.	.	0.00	0.00	.	.
0915 Op-1	14	0.00	0.00	0.000	.	.	0.00	0.00	.	.
0915 Op-2	3	0.00	0.00	0.000	.	.	0.00	0.00	.	.
1015 Op-1	14	0.00	0.00	0.000	.	.	0.00	0.00	.	.
1015 Op-2	3	0.00	0.00	0.000	.	.	0.00	0.00	.	.
1210 Op-1	19	0.00	0.00	0.000	.	.	0.05	1.00	0.16	-0.06
1210 Op-2	4	0.00	0.00	0.000	.	.	0.00	0.00	.	.
2210 Op-1	16	1.69	4.50	0.413	2.57	0.81	-1.63	5.00	-0.71	-2.54
2210 Op-2	3	0.00	0.00	0.000	.	.	0.00	0.00	.	.

Period means and deltas from original control data where n=1

Period	N	Station Mean	Range	Standard Error	Upper 95% C.I.	Lower 95% C.I.
Op-1	19	0.05	1.00	0.053	0.16	-0.06
Op-2	4	0.00	0.00	0.000	.	.

Analysis of Variance for SLC for 1304 - Farlowia/Pikea spp.-complex

Stations = 2210, 0611, 0910, 0915, 1015, 1210

Data transformed using log base10(x + .1)

Results for Analysis of Variance

Source	Source df	Error df	F-value	Prob.
PERIOD	1	96.000	0.23	0.6321
SEASON	1	96.000	7.64	0.0069
STATION	5	96.000	5.17	0.0003
PERIOD*SEASON	1	96.000	5.57	0.0202
STATION*PERIOD	5	96.000	0.11	0.9899
STATION*SEASON	5	96.000	0.55	0.7385
PERIOD*STATION*SEASON	5	96.000	0.12	0.9884

Results for Power Analysis
Power at alpha = .1

Source	Non-Centrality Parameter	Adjusted non-Centrality Parameter	Power	Adjusted Power	Power to Detect 50% Change
PERIOD	0.23	0.00	0.1383	.	0.7321
STATION*PERIOD	0.55	0.00	0.1370	.	0.1038

Estimates for contrasts on combinations of interaction terms

Source	Difference	Std. Err.	T-value	Prob.
Period in DC	-0.4136	1.0367	-0.399	.6908
Period in FC	-0.1335	0.4722	-0.283	.7780
Period in FC-S	0.1480	0.5425	0.273	.7857
Period in FC-W	-0.4150	0.7731	-0.537	.5927
Period in DC-S	1.9945	1.1374	1.753	.0827
Period in DC-W	-2.8217	1.7335	-1.628	.1069

Least square means & confidence intervals from analysis of variance

Source	LS Mean	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period Op-1	-1.285	0.0779	-16.49	.0000	-1.1557	-1.4145
Period Op-2	-1.194	0.1731	-6.90	.0000	-0.9063	-1.4815
Op-1 0611	-1.908	0.1742	-10.95	.0000	-1.6183	-2.1968
Op-2 0611	-2.069	0.4322	-4.79	.0000	-1.3514	-2.7870
Op-1 0910	-1.590	0.1857	-8.56	.0000	-1.2820	-1.8988
Op-2 0910	-1.388	0.4075	-3.41	.0010	-0.7116	-2.0651
Op-1 0915	-1.727	0.2088	-8.27	.0000	-1.3800	-2.0735
Op-2 0915	-1.495	0.4322	-3.46	.0008	-0.7769	-2.2126
Op-1 1015	-0.817	0.2088	-3.91	.0002	-0.4702	-1.1636
Op-2 1015	-0.648	0.4322	-1.50	.1373	0.0703	-1.3654
Op-1 1210	-0.915	0.1742	-5.25	.0000	-0.6255	-1.2041
Op-2 1210	-0.943	0.4075	-2.31	.0228	-0.2662	-1.6197
Op-1 2210	-0.754	0.1903	-3.96	.0001	-0.4380	-1.0703
Op-2 2210	-0.621	0.4322	-1.44	.1542	0.0972	-1.3384

Paired comparisons of least square means between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period	-0.0912	0.1899	-0.480	.6321	0.2242	-0.4065

Paired comparisons of least square means for stations between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Station 0611	0.1617	0.4660	0.35	.7294	0.9356	-0.6122
Station 0910	-0.2021	0.4478	-0.45	.6528	0.5417	-0.9458
Station 0915	-0.2320	0.4800	-0.48	.6300	0.5652	-1.0292
Station 1015	-0.1693	0.4800	-0.35	.7250	0.6278	-0.9665
Station 1210	0.0281	0.4431	0.06	.9495	0.7641	-0.7079
Station 2210	-0.1335	0.4722	-0.28	.7780	0.6508	-0.9179

Station-period means and deltas from original data where control n=1

Station-Period	N	Station Mean	Range	Standard Error	Upper 95% c.i.	Lower 95% c.i.	Mean Delta	Delta Range	Upper 95% CIi.	Lower 95% C.I.
0611 Op-1	19	26.00	61.50	5.150	36.82	15.18	-25.82	61.50	-14.97	-36.66
0611 Op-2	3	55.17	12.50	3.768	71.38	38.96	-54.50	14.50	-36.20	-72.80
0910 Op-1	18	12.00	35.50	2.683	17.66	6.34	-11.81	35.50	-6.13	-17.48
0910 Op-2	4	17.25	10.00	2.287	24.53	9.97	-16.63	12.00	-8.22	-25.03
0915 Op-1	14	11.86	22.00	2.105	16.40	7.31	-11.64	23.00	-7.04	-16.24
0915 Op-2	3	15.50	9.00	2.784	27.48	3.52	-14.83	11.00	-0.87	-28.79
1015 Op-1	14	1.50	6.00	0.439	2.45	0.55	-1.29	6.50	-0.35	-2.22
1015 Op-2	3	2.17	4.50	1.424	8.29	-3.96	-1.50	2.50	1.79	-4.79
1210 Op-1	19	2.18	7.00	0.446	3.12	1.25	-2.00	7.00	-1.02	-2.98
1210 Op-2	4	7.75	11.50	2.742	16.48	-0.98	-7.13	11.50	1.77	-16.02
2210 Op-1	16	1.06	5.00	0.306	1.71	0.41	-0.97	5.50	-0.27	-1.67
2210 Op-2	3	3.17	6.00	1.740	10.65	-4.32	-2.50	4.00	2.91	-7.91

Period means and deltas from original control data where n=1

Period	N	Station Mean	Range	Standard Error	Upper 95% C.I.	Lower 95% C.I.
Op-1	19	0.18	2.00	0.116	0.43	-0.06
Op-2	4	0.63	2.00	0.473	2.13	-0.88

Analysis of Variance for SLC for 1300 - filamentous red algae-complex

Stations = 2210, 0611, 0910, 0915, 1015, 1210

Data not transformed.

Results for Analysis of Variance

Source	Source df	Error df	F-value	Prob.
PERIOD	1	96.000	17.25	0.0001
SEASON	1	96.000	0.71	0.4019
STATION	5	96.000	19.52	0.0000
PERIOD*SEASON	1	96.000	3.03	0.0847
STATION*PERIOD	5	96.000	6.58	0.0000
STATION*SEASON	5	96.000	0.76	0.5775
PERIOD*STATION*SEASON	5	96.000	0.77	0.5761

Results for Power Analysis
Power at alpha = .1

Source	Non-Centrality Parameter	Adjusted non-Centrality Parameter	Power	Adjusted Power	Power to Detect 50% Change
PERIOD	17.25	15.89	0.9934	0.9896	0.6127
STATION*PERIOD	32.90	27.22	0.9988	0.9948	0.3908

Estimates for contrasts on combinations of interaction terms

Source	Difference	Std. Err.	T-value	Prob.
Period in DC	15.6500	3.4339	4.558	.0000
Period in FC	0.0227	1.5642	0.015	.9884
Period in FC-S	0.0455	1.7970	0.025	.9799
Period in FC-W	0.0000	2.5608	0.000	1.000
Period in DC-S	22.2000	3.7676	5.892	.0000
Period in DC-W	9.1000	5.7421	1.585	.1163

Least square means & confidence intervals from analysis of variance

Source	LS Mean	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period Op-1	-1.367	0.2581	-5.30	.0000	-0.9384	-1.7957
Period Op-2	-3.979	0.5735	-6.94	.0000	-3.0267	-4.9317
Op-1 0611	-4.170	0.5769	-7.23	.0000	-3.2117	-5.1280
Op-2 0611	-14.375	1.4315	-10.04	.0000	-11.9974	-16.7526
Op-1 0910	-1.431	0.6151	-2.33	.0221	-0.4092	-2.4524
Op-2 0910	-4.750	1.3497	-3.52	.0007	-2.5084	-6.9916
Op-1 0915	-1.013	0.6915	-1.46	.1464	0.1360	-2.1610
Op-2 0915	-3.000	1.4315	-2.10	.0387	-0.6224	-5.3776
Op-1 1015	-1.138	0.6915	-1.64	.1032	0.0110	-2.2860
Op-2 1015	-0.750	1.4315	-0.52	.6015	1.6276	-3.1276
Op-1 1210	-0.474	0.5769	-0.82	.4130	0.4838	-1.4325
Op-2 1210	-1.000	1.3497	-0.74	.4605	1.2416	-3.2416
Op-1 2210	0.023	0.6304	0.04	.9713	1.0698	-1.0243
Op-2 2210	-0.000	1.4315	-0.00	1.000	2.3776	-2.3776

Paired comparisons of least square means between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period	2.6121	0.6289	4.154	.0001	3.6566	1.5676

Paired comparisons of least square means for stations between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Station 0611	10.2051	1.5434	6.61	.0000	12.7685	7.6417
Station 0910	3.3192	1.4832	2.24	.0275	5.7827	0.8558
Station 0915	1.9875	1.5898	1.25	.2143	4.6280	-0.6530
Station 1015	-0.3875	1.5898	-0.24	.8080	2.2530	-3.0280
Station 1210	0.5256	1.4678	0.36	.7210	2.9635	-1.9122
Station 2210	0.0227	1.5642	0.01	.9884	2.6207	-2.5752

Station-period means and deltas from original data where control n=1

Station-Period	N	Station Mean	Range	Standard Error	Upper 95% c.i.	Lower 95% c.i.	Mean Delta	Delta Range	Upper 95% CIi.	Lower 95% C.I.
0611 Op-1	19	4.13	14.00	0.947	6.12	2.14	-4.08	13.50	-2.11	-6.05
0611 Op-2	3	14.83	3.00	0.928	18.83	10.84	-14.83	3.00	-10.84	-18.83
0910 Op-1	18	1.50	7.00	0.510	2.58	0.42	-1.44	7.50	-0.36	-2.53
0910 Op-2	4	4.38	10.00	2.193	11.35	-2.60	-4.38	10.00	2.60	-11.35
0915 Op-1	14	1.00	4.50	0.359	1.78	0.22	-0.96	4.50	-0.21	-1.72
0915 Op-2	3	4.00	7.00	2.082	12.96	-4.96	-4.00	7.00	4.96	-12.96
1015 Op-1	14	0.75	6.00	0.444	1.71	-0.21	-0.71	6.00	0.25	-1.68
1015 Op-2	3	0.83	2.00	0.601	3.42	-1.75	-0.83	2.00	1.75	-3.42
1210 Op-1	19	0.39	2.50	0.201	0.82	-0.03	-0.34	3.00	0.10	-0.78
1210 Op-2	4	1.50	6.00	1.500	6.27	-3.27	-1.50	6.00	3.27	-6.27
2210 Op-1	16	0.03	0.50	0.031	0.10	-0.04	0.03	1.00	0.15	-0.09
2210 Op-2	3	0.00	0.00	0.000	.	.	0.00	0.00	.	.

Period means and deltas from original control data where n=1

Period	N	Station Mean	Range	Standard Error	Upper 95% C.I.	Lower 95% C.I.
Op-1	19	0.05	0.50	0.036	0.13	-0.02
Op-2	4	0.00	0.00	0.000	.	.

Analysis of Variance for SLC for 0075 - Gelidium robustum

Stations = 2210, 0611, 0910, 0915, 1015, 1210

Data transformed using log base10(x + .5)

Results for Analysis of Variance

Source	Source df	Error df	F-value	Prob.
PERIOD	1	96.000	2.18	0.1427
SEASON	1	96.000	0.09	0.7605
STATION	5	96.000	25.32	0.0000
PERIOD*SEASON	1	96.000	0.21	0.6484
STATION*PERIOD	5	96.000	1.43	0.2219
STATION*SEASON	5	96.000	0.36	0.8740
PERIOD*STATION*SEASON	5	96.000	0.52	0.7599

Results for Power Analysis
Power at alpha = .1

Source	Non-Centrality Parameter	Adjusted non-Centrality Parameter	Power	Adjusted Power	Power to Detect 50% Change
PERIOD	2.18	1.14	0.4306	0.2826	0.9778
STATION*PERIOD	7.13	1.98	0.6143	0.2428	0.3223

Estimates for contrasts on combinations of interaction terms

Source	Difference	Std. Err.	T-value	Prob.
Period in DC	-0.2988	0.4138	-0.722	.4719
Period in FC	-0.3731	0.1885	-1.980	.0506
Period in FC-S	-0.2984	0.2165	-1.378	.1714
Period in FC-W	-0.4479	0.3086	-1.452	.1499
Period in DC-S	-0.1656	0.4540	-0.365	.7160
Period in DC-W	-0.4320	0.6919	-0.624	.5338

Least square means & confidence intervals from analysis of variance

Source	LS Mean	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period Op-1	-0.240	0.0311	-7.71	.0000	-0.1880	-0.2913
Period Op-2	-0.128	0.0691	-1.85	.0679	-0.0129	-0.2424
Op-1 0611	-0.830	0.0695	-11.94	.0000	-0.7145	-0.9454
Op-2 0611	-0.797	0.1725	-4.62	.0000	-0.5108	-1.0838
Op-1 0910	-0.507	0.0741	-6.84	.0000	-0.3835	-0.6297
Op-2 0910	-0.734	0.1626	-4.51	.0000	-0.4638	-1.0041
Op-1 0915	-0.249	0.0833	-2.99	.0035	-0.1111	-0.3879
Op-2 0915	-0.166	0.1725	-0.96	.3385	0.1206	-0.4524
Op-1 1015	0.126	0.0833	1.51	.1335	0.2645	-0.0123
Op-2 1015	0.216	0.1725	1.25	.2141	0.5022	-0.0708
Op-1 1210	-0.209	0.0695	-3.01	.0033	-0.0940	-0.3249
Op-2 1210	0.111	0.1626	0.68	.4968	0.3810	-0.1592
Op-1 2210	0.232	0.0760	3.05	.0030	0.3578	0.1055
Op-2 2210	0.605	0.1725	3.51	.0007	0.8913	0.3183

Paired comparisons of least square means between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period	-0.1120	0.0758	-1.478	.1427	0.0139	-0.2379

Paired comparisons of least square means for stations between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Station 0611	-0.0327	0.1860	-0.18	.8609	0.2762	-0.3416
Station 0910	0.2273	0.1787	1.27	.2064	0.5242	-0.0695
Station 0915	-0.0836	0.1916	-0.44	.6637	0.2346	-0.4017
Station 1015	-0.0896	0.1916	-0.47	.6410	0.2285	-0.4078
Station 1210	-0.3203	0.1769	-1.81	.0732	-0.0266	-0.6141
Station 2210	-0.3731	0.1885	-1.98	.0506	-0.0601	-0.6862

Station-period means and deltas from original data where control n=1

Station-Period	N	Station Mean	Range	Standard Error	Upper 95% c.i.	Lower 95% c.i.	Mean Delta	Delta Range	Upper 95% CII.	Lower 95% C.I.
0611 Op-1	19	9.21	19.00	1.441	12.24	6.18	-8.53	17.50	-5.68	-11.38
0611 Op-2	3	14.00	4.00	1.258	19.41	8.59	-12.00	5.00	-5.79	-18.21
0910 Op-1	18	4.19	11.50	0.930	6.16	2.23	-3.47	11.50	-1.68	-5.26
0910 Op-2	4	11.63	6.50	1.434	16.19	7.06	-9.88	7.50	-4.58	-15.17
0915 Op-1	14	1.82	4.00	0.346	2.57	1.07	-1.04	3.00	-0.44	-1.63
0915 Op-2	3	2.83	3.50	1.093	7.54	-1.87	-0.83	4.50	4.77	-6.43
1015 Op-1	14	0.43	1.00	0.103	0.65	0.21	0.36	2.00	0.67	0.05
1015 Op-2	3	1.00	1.00	0.289	2.24	-0.24	1.00	3.00	4.73	-2.73
1210 Op-1	19	1.34	5.50	0.291	1.95	0.73	-0.66	4.00	-0.13	-1.18
1210 Op-2	4	1.50	2.00	0.500	3.09	-0.09	0.25	1.00	1.05	-0.55
2210 Op-1	16	0.16	0.50	0.060	0.28	0.03	0.53	2.50	0.87	0.19
2210 Op-2	3	0.17	0.50	0.167	0.88	-0.55	1.83	2.50	4.96	-1.29

Period means and deltas from original control data where n=1

Period	N	Station Mean	Range	Standard Error	Upper 95% C.I.	Lower 95% C.I.
Op-1	19	0.68	2.50	0.149	1.00	0.37
Op-2	4	1.75	2.00	0.479	3.27	0.23

Analysis of Variance for SLC for 0206 - Gelidium spp.

Stations = 2210, 0611, 0910, 0915, 1015, 1210

Data transformed using square root(x + 1)

Satterthwaite's Adjustment for Degrees of Freedom used in Analysis of Variance.

Results for Analysis of Variance

Source	Source df	Error df	F-value	Prob.
PERIOD	1	96.000	8.76	0.0039
SEASON	1	96.000	0.04	0.8407
STATION	5	96.000	36.91	0.0000
PERIOD*SEASON	1	96.000	1.93	0.1680
STATION*PERIOD	5	96.000	9.46	0.0000
STATION*SEASON	5	96.000	0.04	0.9989
PERIOD*STATION*SEASON	5	96.000	2.08	0.0740

Results for Power Analysis
Power at alpha = .1

Source	Non-Centrality Parameter	Adjusted non-Centrality Parameter	Power	Adjusted Power	Power to Detect 50% Change
PERIOD	8.76	7.57	0.9021	0.8617	0.2834
STATION*PERIOD	47.29	41.30	1.0000	0.9999	0.5832

Estimates for contrasts on combinations of interaction terms

Source	Difference	Std. Err.	T-value	Prob.
Period in DC	0.7769	0.2389	3.252	.0016
Period in FC	-0.0000	0.1088	-0.000	1.000
Period in FC-S	0.0000	0.1250	0.000	1.000
Period in FC-W	-0.0000	0.1782	-0.000	1.000
Period in DC-S	1.1416	0.2621	4.355	.0000
Period in DC-W	0.4122	0.3995	1.032	.3048

Least square means & confidence intervals from analysis of variance

Source	LS Mean	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period Op-1	-0.063	0.0180	-3.52	.0007	-0.0333	-0.0930
Period Op-2	-0.193	0.0399	-4.83	.0000	-0.1264	-0.2589
Op-1 0611	0.000	0.0401	0.00	1.000	0.0667	-0.0667
Op-2 0611	0.000	0.0996	0.00	1.000	0.1654	-0.1654
Op-1 0910	-0.000	0.0428	-0.00	1.000	0.0711	-0.0711
Op-2 0910	0.000	0.0939	0.00	1.000	0.1560	-0.1560
Op-1 0915	-0.000	0.0481	-0.00	1.000	0.0799	-0.0799
Op-2 0915	-0.000	0.0996	-0.00	1.000	0.1654	-0.1654
Op-1 1015	0.000	0.0481	0.00	1.000	0.0799	-0.0799
Op-2 1015	-0.000	0.0996	-0.00	1.000	0.1654	-0.1654
Op-1 1210	-0.379	0.0401	-9.44	.0000	-0.3123	-0.4456
Op-2 1210	-1.156	0.0939	-12.31	.0000	-0.9999	-1.3119
Op-1 2210	-0.000	0.0439	-0.00	1.000	0.0729	-0.0729
Op-2 2210	0.000	0.0996	0.00	1.000	0.1654	-0.1654

Paired comparisons of least square means between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period	0.1295	0.0438	2.959	.0039	0.2022	0.0568

Paired comparisons of least square means for stations between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Station 0611	-0.0000	0.1074	-0.00	1.000	0.1784	-0.1784
Station 0910	-0.0000	0.1032	-0.00	1.000	0.1714	-0.1714
Station 0915	-0.0000	0.1106	-0.00	1.000	0.1837	-0.1837
Station 1015	0.0000	0.1106	0.00	1.000	0.1837	-0.1837
Station 1210	0.7769	0.1021	7.61	.0000	0.9465	0.6073
Station 2210	-0.0000	0.1088	-0.00	1.000	0.1808	-0.1808

Station-period means and deltas from original data where control n=1

Station-Period	N	Station Mean	Range	Standard Error	Upper 95% c.i.	Lower 95% c.i.	Mean Delta	Delta Range	Upper 95% CIi.	Lower 95% C.I.
0611 Op-1	19	0.00	0.00	0.000	.	.	0.00	0.00	.	.
0611 Op-2	3	0.00	0.00	0.000	.	.	0.00	0.00	.	.
0910 Op-1	18	0.00	0.00	0.000	.	.	0.00	0.00	.	.
0910 Op-2	4	0.00	0.00	0.000	.	.	0.00	0.00	.	.
0915 Op-1	14	0.00	0.00	0.000	.	.	0.00	0.00	.	.
0915 Op-2	3	0.00	0.00	0.000	.	.	0.00	0.00	.	.
1015 Op-1	14	0.00	0.00	0.000	.	.	0.00	0.00	.	.
1015 Op-2	3	0.00	0.00	0.000	.	.	0.00	0.00	.	.
1210 Op-1	19	0.84	4.50	0.284	1.44	0.25	-0.84	4.50	-0.25	-1.44
1210 Op-2	4	4.13	4.50	1.008	7.33	0.92	-4.13	4.50	-0.92	-7.33
2210 Op-1	16	0.00	0.00	0.000	.	.	0.00	0.00	.	.
2210 Op-2	3	0.00	0.00	0.000	.	.	0.00	0.00	.	.

Period means and deltas from original control data where n=1

Period	N	Station Mean	Range	Standard Error	Upper 95% C.I.	Lower 95% C.I.
Op-1	19	0.00	0.00	0.000	.	.
Op-2	4	0.00	0.00	0.000	.	.

Analysis of Variance for SLC for 0152 - Halymenia/Schizymenia spp.-complex

Stations = 2210, 0611, 0910, 0915, 1015, 1210

Data not transformed.

Results for Analysis of Variance

Source	Source df	Error df	F-value	Prob.
PERIOD	1	96.000	21.38	0.0000
SEASON	1	96.000	0.55	0.4607
STATION	5	96.000	1.97	0.0895
PERIOD*SEASON	1	96.000	0.00	0.9604
STATION*PERIOD	5	96.000	1.09	0.3720
STATION*SEASON	5	96.000	1.09	0.3690
PERIOD*STATION*SEASON	5	96.000	0.37	0.8656

Results for Power Analysis
Power at alpha = .1

Source	Non-Centrality Parameter	Adjusted non-Centrality Parameter	Power	Adjusted Power	Power to Detect 50% Change
PERIOD	21.38	19.94	0.9984	0.9974	0.3207
STATION*PERIOD	5.44	0.33	0.5039	0.1217	0.2003

Estimates for contrasts on combinations of interaction terms

Source	Difference	Std. Err.	T-value	Prob.
Period in DC	-11.1215	2.2067	-5.040	.0000
Period in FC	-0.0909	1.0052	-0.090	.9281
Period in FC-S	-1.1818	1.1548	-1.023	.3087
Period in FC-W	1.0000	1.6456	0.608	.5448
Period in DC-S	-10.1513	2.4211	-4.193	.0001
Period in DC-W	-12.0917	3.6899	-3.277	.0015

Least square means & confidence intervals from analysis of variance

Source	LS Mean	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period Op-1	-0.459	0.1658	-2.77	.0068	-0.1836	-0.7345
Period Op-2	1.410	0.3685	3.83	.0002	2.0218	0.7976
Op-1 0611	-0.654	0.3707	-1.76	.0810	-0.0381	-1.2696
Op-2 0611	2.000	0.9199	2.17	.0322	3.5279	0.4721
Op-1 0910	-1.419	0.3953	-3.59	.0005	-0.7627	-2.0757
Op-2 0910	1.667	0.8673	1.92	.0576	3.1072	0.2262
Op-1 0915	0.025	0.4444	0.06	.9553	0.7630	-0.7130
Op-2 0915	1.875	0.9199	2.04	.0443	3.4029	0.3471
Op-1 1015	0.112	0.4444	0.25	.8007	0.8505	-0.6255
Op-2 1015	2.000	0.9199	2.17	.0322	3.5279	0.4721
Op-1 1210	0.022	0.3707	0.06	.9519	0.6381	-0.5933
Op-2 1210	1.667	0.8673	1.92	.0576	3.1072	0.2262
Op-1 2210	-0.841	0.4051	-2.08	.0406	-0.1680	-1.5138
Op-2 2210	-0.750	0.9199	-0.82	.4169	0.7779	-2.2779

Paired comparisons of least square means between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period	-1.8687	0.4041	-4.624	.0000	-1.1975	-2.5400

Paired comparisons of least square means for stations between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Station 0611	-2.6538	0.9918	-2.68	.0088	-1.0066	-4.3011
Station 0910	-3.0859	0.9531	-3.24	.0017	-1.5028	-4.6690
Station 0915	-1.8500	1.0216	-1.81	.0733	-0.1532	-3.5468
Station 1015	-1.8875	1.0216	-1.85	.0678	-0.1907	-3.5843
Station 1210	-1.6442	0.9432	-1.74	.0845	-0.0776	-3.2108
Station 2210	-0.0909	1.0052	-0.09	.9281	1.5786	-1.7604

Station-period means and deltas from original data where control n=1

Station-Period	N	Station Mean	Range	Standard Error	Upper 95% c.i.	Lower 95% c.i.	Mean Delta	Delta Range	Upper 95% CIi.	Lower 95% C.I.
0611 Op-1	19	0.79	5.00	0.351	1.53	0.05	-0.71	6.00	0.06	-1.48
0611 Op-2	3	0.00	0.00	0.000	.	.	2.00	4.00	6.97	-2.97
0910 Op-1	18	1.33	9.50	0.598	2.60	0.07	-1.25	10.50	0.04	-2.54
0910 Op-2	4	0.00	0.00	0.000	.	.	1.50	4.00	4.55	-1.55
0915 Op-1	14	0.07	0.50	0.049	0.18	-0.03	0.04	1.50	0.25	-0.18
0915 Op-2	3	0.17	0.50	0.167	0.88	-0.55	1.83	3.50	6.20	-2.53
1015 Op-1	14	0.00	0.00	0.000	.	.	0.11	1.00	0.27	-0.06
1015 Op-2	3	0.00	0.00	0.000	.	.	2.00	4.00	6.97	-2.97
1210 Op-1	19	0.08	1.00	0.058	0.20	-0.04	0.00	2.00	0.18	-0.18
1210 Op-2	4	0.00	0.00	0.000	.	.	1.50	4.00	4.55	-1.55
2210 Op-1	16	0.69	2.50	0.232	1.18	0.19	-0.59	3.50	-0.08	-1.11
2210 Op-2	3	2.17	4.50	1.302	7.77	-3.43	-0.17	4.50	5.43	-5.77

Period means and deltas from original control data where n=1

Period	N	Station Mean	Range	Standard Error	Upper 95% C.I.	Lower 95% C.I.
Op-1	19	0.08	1.00	0.058	0.20	-0.04
Op-2	4	1.50	4.00	0.957	4.55	-1.55

Analysis of Variance for SAQ for 0035 - Laminaria setchellii

Stations = 2210, 0611, 0910, 0915, 1015, 1210

Data transformed using log base10(x + 1)

Results for Analysis of Variance

Source	Source df	Error df	F-value	Prob.
PERIOD	1	96.000	0.06	0.8099
SEASON	1	96.000	0.61	0.4375
STATION	5	96.000	19.20	0.0000
PERIOD*SEASON	1	96.000	0.06	0.8045
STATION*PERIOD	5	96.000	0.44	0.8167
STATION*SEASON	5	96.000	0.15	0.9799
PERIOD*STATION*SEASON	5	96.000	0.06	0.9976

Results for Power Analysis
Power at alpha = .1

Source	Non-Centrality Parameter	Adjusted non-Centrality Parameter	Power	Adjusted Power	Power to Detect 50% Change
PERIOD	0.06	0.00	0.1097	.	0.5020
STATION*PERIOD	2.22	0.00	0.2612	.	0.3886

Estimates for contrasts on combinations of interaction terms

Source	Difference	Std. Err.	T-value	Prob.
Period in DC	-0.0781	0.5193	-0.150	.8807
Period in FC	0.2158	0.2366	0.912	.3640
Period in FC-S	0.2306	0.2718	0.849	.3982
Period in FC-W	0.2009	0.3873	0.519	.6052
Period in DC-S	0.0487	0.5698	0.085	.9321
Period in DC-W	-0.2049	0.8684	-0.236	.8140

Least square means & confidence intervals from analysis of variance

Source	LS Mean	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period Op-1	1.305	0.0390	33.43	.0000	1.3696	1.2399
Period Op-2	1.282	0.0867	14.78	.0000	1.4259	1.1377
Op-1 0611	1.622	0.0872	18.59	.0000	1.7666	1.4768
Op-2 0611	1.651	0.2165	7.62	.0000	2.0101	1.2909
Op-1 0910	1.657	0.0930	17.81	.0000	1.8112	1.5022
Op-2 0910	1.604	0.2041	7.86	.0000	1.9430	1.2650
Op-1 0915	1.564	0.1046	14.95	.0000	1.7374	1.3901
Op-2 0915	1.538	0.2165	7.11	.0000	1.8978	1.1787
Op-1 1015	0.824	0.1046	7.87	.0000	0.9972	0.6498
Op-2 1015	1.074	0.2165	4.96	.0000	1.4332	0.7140
Op-1 1210	1.662	0.0872	19.05	.0000	1.8068	1.5170
Op-2 1210	1.539	0.2041	7.54	.0000	1.8784	1.2004
Op-1 2210	0.501	0.0953	5.25	.0000	0.6591	0.3424
Op-2 2210	0.285	0.2165	1.32	.1912	0.6446	-0.0746

Paired comparisons of least square means between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period	0.0229	0.0951	0.241	.8099	0.1809	-0.1350

Paired comparisons of least square means for stations between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Station 0611	-0.0288	0.2334	-0.12	.9021	0.3589	-0.4165
Station 0910	0.0527	0.2243	0.23	.8147	0.4253	-0.3199
Station 0915	0.0255	0.2404	0.11	.9157	0.4248	-0.3738
Station 1015	-0.2501	0.2404	-1.04	.3009	0.1493	-0.6494
Station 1210	0.1225	0.2220	0.55	.5823	0.4912	-0.2462
Station 2210	0.2158	0.2366	0.91	.3640	0.6087	-0.1771

Station-period means and deltas from original data where control n=1

Station-Period	N	Station Mean	Range	Standard Error	Upper 95% c.i.	Lower 95% c.i.	Mean Delta	Delta Range	Upper 95% CII.	Lower 95% C.I.
0611 Op-1	19	0.33	5.00	0.262	0.88	-0.22	61.97	170.25	82.48	41.47
0611 Op-2	3	0.00	0.00	0.000	.	.	46.33	40.25	96.44	-3.78
0910 Op-1	18	0.03	0.50	0.028	0.09	-0.03	62.13	170.25	84.00	40.25
0910 Op-2	4	0.00	0.00	0.000	.	.	40.25	45.25	72.83	7.67
0915 Op-1	14	0.14	0.50	0.051	0.25	0.03	50.89	101.75	69.06	32.73
0915 Op-2	3	0.25	0.50	0.144	0.87	-0.37	46.08	40.50	96.54	-4.37
1015 Op-1	14	5.09	8.00	0.517	6.21	3.97	45.95	103.50	64.20	27.69
1015 Op-2	3	2.75	2.75	0.878	6.53	-1.03	43.58	42.75	96.97	-9.81
1210 Op-1	19	0.05	0.25	0.024	0.10	0.00	62.25	170.25	82.87	41.63
1210 Op-2	4	0.13	0.25	0.072	0.35	-0.10	40.13	45.00	72.50	7.75
2210 Op-1	16	18.77	51.00	3.484	26.19	11.34	44.61	148.50	64.77	24.45
2210 Op-2	3	25.58	34.50	10.084	68.97	-17.81	20.75	10.00	33.22	8.28

Period means and deltas from original control data where n=1

Period	N	Station Mean	Range	Standard Error	Upper 95% C.I.	Lower 95% C.I.
Op-1	19	62.30	170.25	9.814	82.92	41.68
Op-2	4	40.25	45.25	10.238	72.83	7.67

Analysis of Variance for SAQ for 0233 - Laminariales

Stations = 2210, 0611, 0910, 0915, 1015, 1210

Data transformed using log base10(x + .1)

Results for Analysis of Variance

Source	Source df	Error df	F-value	Prob.
PERIOD	1	96.000	13.21	0.0004
SEASON	1	96.000	3.69	0.0576
STATION	5	96.000	1.62	0.1612
PERIOD*SEASON	1	96.000	2.07	0.1536
STATION*PERIOD	5	96.000	0.19	0.9670
STATION*SEASON	5	96.000	0.20	0.9598
PERIOD*STATION*SEASON	5	96.000	0.45	0.8109

Results for Power Analysis
Power at alpha = .1

Source	Non-Centrality Parameter	Adjusted non-Centrality Parameter	Power	Adjusted Power	Power to Detect 50% Change
PERIOD	13.21	11.94	0.9753	0.9629	0.1078
STATION*PERIOD	0.93	0.00	0.1644		0.1029

Estimates for contrasts on combinations of interaction terms

Source	Difference	Std. Err.	T-value	Prob.
Period in DC	5.9364	1.9314	3.074	.0028
Period in FC	1.7784	0.8798	2.021	.0460
Period in FC-S	2.2731	1.0107	2.249	.0268
Period in FC-W	1.2836	1.4403	0.891	.3750
Period in DC-S	2.3889	2.1191	1.127	.2624
Period in DC-W	9.4839	3.2296	2.937	.0042

Least square means & confidence intervals from analysis of variance

Source	LS Mean	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period Op-1	1.399	0.1452	9.64	.0000	1.6401	1.1579
Period Op-2	0.113	0.3226	0.35	.7265	0.6489	-0.4226
Op-1 0611	1.774	0.3245	5.47	.0000	2.3131	1.2353
Op-2 0611	0.390	0.8052	0.48	.6291	1.7274	-0.9472
Op-1 0910	1.683	0.3460	4.86	.0000	2.2576	1.1084
Op-2 0910	0.814	0.7591	1.07	.2863	2.0748	-0.4468
Op-1 0915	1.149	0.3889	2.95	.0039	1.7949	0.5030
Op-2 0915	-0.119	0.8052	-0.15	.8827	1.2182	-1.4564
Op-1 1015	0.595	0.3889	1.53	.1295	1.2408	-0.0512
Op-2 1015	-0.962	0.8052	-1.19	.2351	0.3752	-2.2994
Op-1 1210	1.672	0.3245	5.15	.0000	2.2114	1.1336
Op-2 1210	0.814	0.7591	1.07	.2863	2.0748	-0.4468
Op-1 2210	1.520	0.3546	4.29	.0000	2.1093	0.9314
Op-2 2210	-0.258	0.8052	-0.32	.7493	1.0793	-1.5953

Paired comparisons of least square means between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period	1.2858	0.3537	3.635	.0004	1.8733	0.6983

Paired comparisons of least square means for stations between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Station 0611	1.3840	0.8681	1.59	.1141	2.8258	-0.0578
Station 0910	0.8690	0.8342	1.04	.3002	2.2546	-0.5166
Station 0915	1.2680	0.8942	1.42	.1594	2.7532	-0.2171
Station 1015	1.5569	0.8942	1.74	.0849	3.0420	0.0717
Station 1210	0.8585	0.8256	1.04	.3010	2.2296	-0.5127
Station 2210	1.7784	0.8798	2.02	.0460	3.2396	0.3171

Station-period means and deltas from original data where control n=1

Station-Period	N	Station Mean	Range	Standard Error	Upper 95% c.i.	Lower 95% c.i.	Mean Delta	Delta Range	Upper 95% CIi.	Lower 95% C.I.
0611 Op-1	19	0.00	0.00	0.000	.	.	32.03	122.50	50.05	14.01
0611 Op-2	3	0.25	0.50	0.144	0.87	-0.37	25.17	76.00	133.99	-83.66
0910 Op-1	18	0.00	0.00	0.000	.	.	31.78	122.50	50.90	12.65
0910 Op-2	4	0.06	0.25	0.063	0.26	-0.14	27.75	76.00	85.27	-29.77
0915 Op-1	14	0.39	2.50	0.219	0.87	-0.08	18.32	106.25	34.72	1.92
0915 Op-2	3	2.25	6.25	2.005	10.88	-6.38	23.17	70.50	123.92	-77.59
1015 Op-1	14	3.66	13.75	1.312	6.50	0.83	15.05	113.75	31.44	-1.33
1015 Op-2	3	15.08	32.50	9.454	55.76	-25.59	10.33	56.50	83.95	-63.28
1210 Op-1	19	0.08	0.50	0.038	0.16	-0.00	31.95	122.75	49.97	13.92
1210 Op-2	4	0.06	0.25	0.063	0.26	-0.14	27.75	76.25	85.43	-29.93
2210 Op-1	16	0.42	5.75	0.358	1.19	-0.34	28.84	128.25	47.94	9.74
2210 Op-2	3	8.33	21.25	6.548	36.51	-19.84	17.08	58.75	98.79	-64.62

Period means and deltas from original control data where n=1

Period	N	Station Mean	Range	Standard Error	Upper 95% C.I.	Lower 95% C.I.
Op-1	19	32.03	122.50	8.577	50.05	14.01
Op-2	4	27.81	76.25	18.131	85.51	-29.89

Analysis of Variance for SAQ for 0038 - Macrocystis spp.

Stations = 2210, 0611, 0910, 0915, 1015, 1210

Data transformed using square root(x + 1)

Results for Analysis of Variance

Source	Source df	Error df	F-value	Prob.
PERIOD	1	96.000	32.21	0.0000
SEASON	1	96.000	0.09	0.7698
STATION	5	96.000	10.31	0.0000
PERIOD*SEASON	1	96.000	0.64	0.4252
STATION*PERIOD	5	96.000	3.62	0.0048
STATION*SEASON	5	96.000	0.55	0.7380
PERIOD*STATION*SEASON	5	96.000	0.39	0.8512

Results for Power Analysis
Power at alpha = .1

Source	Non-Centrality Parameter	Adjusted non-Centrality Parameter	Power	Adjusted Power	Power to Detect 50% Change
PERIOD	32.21	30.54	1.0000	0.9999	0.3611
STATION*PERIOD	18.10	12.73	0.9539	0.8573	0.1971

Estimates for contrasts on combinations of interaction terms

Source	Difference	Std. Err.	T-value	Prob.
Period in DC	4.5117	0.7234	6.237	.0000
Period in FC	-0.0000	0.3295	-0.000	1.000
Period in FC-S	-0.0000	0.3786	-0.000	1.000
Period in FC-W	-0.0000	0.5395	-0.000	1.000
Period in DC-S	3.8751	0.7937	4.882	.0000
Period in DC-W	5.1483	1.2097	4.256	.0000

Least square means & confidence intervals from analysis of variance

Source	LS Mean	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period Op-1	-0.240	0.0544	-4.42	.0000	-0.1502	-0.3308
Period Op-2	-0.992	0.1208	-8.21	.0000	-0.7917	-1.1931
Op-1 0611	-0.009	0.1215	-0.07	.9434	0.1932	-0.2105
Op-2 0611	-0.030	0.3016	-0.10	.9223	0.4714	-0.5304
Op-1 0910	-0.075	0.1296	-0.58	.5635	0.1401	-0.2903
Op-2 0910	-1.154	0.2843	-4.06	.0001	-0.6815	-1.6260
Op-1 0915	-0.356	0.1457	-2.44	.0163	-0.1142	-0.5981
Op-2 0915	-1.130	0.3016	-3.75	.0003	-0.6289	-1.6307
Op-1 1015	-0.529	0.1457	-3.63	.0005	-0.2871	-0.7711
Op-2 1015	-2.062	0.3016	-6.84	.0000	-1.5614	-2.5632
Op-1 1210	-0.474	0.1215	-3.90	.0002	-0.2719	-0.6756
Op-2 1210	-1.579	0.2843	-5.55	.0000	-1.1068	-2.0513
Op-1 2210	-0.000	0.1328	-0.00	1.000	0.2206	-0.2206
Op-2 2210	0.000	0.3016	0.00	1.000	0.5009	-0.5009

Paired comparisons of least square means between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period	0.7520	0.1325	5.676	.0000	0.9720	0.5319

Paired comparisons of least square means for stations between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Station 0611	0.0209	0.3252	0.06	.9490	0.5609	-0.5192
Station 0910	1.0787	0.3125	3.45	.0008	1.5976	0.5597
Station 0915	0.7736	0.3349	2.31	.0230	1.3299	0.2173
Station 1015	1.5332	0.3349	4.58	.0000	2.0895	0.9770
Station 1210	1.1053	0.3092	3.57	.0006	1.6189	0.5918
Station 2210	-0.0000	0.3295	-0.00	1.000	0.5473	-0.5473

Station-period means and deltas from original data where control n=1

Station-Period	N	Station Mean	Range	Standard Error	Upper 95% c.i.	Lower 95% c.i.	Mean Delta	Delta Range	Upper 95% CIi.	Lower 95% C.I.
0611 Op-1	19	0.03	0.50	0.026	0.08	-0.03	-0.03	0.50	0.03	-0.08
0611 Op-2	3	0.08	0.25	0.083	0.44	-0.28	-0.08	0.25	0.28	-0.44
0910 Op-1	18	0.19	1.50	0.102	0.41	-0.02	-0.19	1.50	0.02	-0.41
0910 Op-2	4	4.00	1.75	0.395	5.26	2.74	-4.00	1.75	-2.74	-5.26
0915 Op-1	14	1.39	8.25	0.603	2.70	0.09	-1.39	8.25	-0.09	-2.70
0915 Op-2	3	3.33	1.50	0.464	5.33	1.34	-3.33	1.50	-1.34	-5.33
1015 Op-1	14	1.64	6.00	0.626	2.99	0.29	-1.64	6.00	-0.29	-2.99
1015 Op-2	3	7.75	7.00	2.021	16.44	-0.94	-7.75	7.00	0.94	-16.44
1210 Op-1	19	1.89	17.75	0.940	3.87	-0.08	-1.89	17.75	0.08	-3.87
1210 Op-2	4	5.75	5.50	1.123	9.32	2.18	-5.75	5.50	-2.18	-9.32
2210 Op-1	16	0.00	0.00	0.000	.	.	0.00	0.00	.	.
2210 Op-2	3	0.00	0.00	0.000	.	.	0.00	0.00	.	.

Period means and deltas from original control data where n=1

Period	N	Station Mean	Range	Standard Error	Upper 95% C.I.	Lower 95% C.I.
Op-1	19	0.00	0.00	0.000	.	.
Op-2	4	0.00	0.00	0.000	.	.

Analysis of Variance for SLC for 0147 - Mazzaella lilacina

Stations = 2210, 0611, 0910, 0915, 1015, 1210

Data not transformed.

Results for Analysis of Variance

Source	Source df	Error df	F-value	Prob.
PERIOD	1	96.000	52.74	0.0000
SEASON	1	96.000	8.06	0.0055
STATION	5	96.000	3.81	0.0034
PERIOD*SEASON	1	96.000	9.10	0.0033
STATION*PERIOD	5	96.000	1.54	0.1833
STATION*SEASON	5	96.000	0.53	0.7493
PERIOD*STATION*SEASON	5	96.000	0.96	0.4442

Results for Power Analysis
Power at alpha = .1

Source	Non-Centrality Parameter	Adjusted non-Centrality Parameter	Power	Adjusted Power	Power to Detect 50% Change
PERIOD	52.74	50.64	1.0000	1.0000	0.6356
STATION*PERIOD	7.72	2.56	0.6490	0.2877	0.7374

Estimates for contrasts on combinations of interaction terms

Source	Difference	Std. Err.	T-value	Prob.
Period in DC	-34.6792	6.2934	-5.510	.0000
Period in FC	-15.5409	2.8668	-5.421	.0000
Period in FC-S	-24.6818	3.2934	-7.494	.0000
Period in FC-W	-6.4000	4.6933	-1.364	.1759
Period in DC-S	-46.4000	6.9049	-6.720	.0000
Period in DC-W	-22.9583	10.5236	-2.182	.0316

Least square means & confidence intervals from analysis of variance

Source	LS Mean	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period Op-1	-1.078	0.4730	-2.28	.0248	-0.2928	-1.8639
Period Op-2	7.292	1.0511	6.94	.0000	9.0374	5.5460
Op-1 0611	1.385	1.0573	1.31	.1935	3.1406	-0.3714
Op-2 0611	8.000	2.6236	3.05	.0030	12.3575	3.6425
Op-1 0910	0.846	1.1273	0.75	.4547	2.7185	-1.0261
Op-2 0910	7.250	2.4736	2.93	.0042	11.3583	3.1417
Op-1 0915	1.450	1.2673	1.14	.2554	3.5549	-0.6549
Op-2 0915	8.000	2.6236	3.05	.0030	12.3575	3.6425
Op-1 1015	0.538	1.2673	0.42	.6724	2.6424	-1.5674
Op-2 1015	8.000	2.6236	3.05	.0030	12.3575	3.6425
Op-1 1210	-0.397	1.0573	-0.38	.7078	1.3586	-2.1534
Op-2 1210	7.250	2.4736	2.93	.0042	11.3583	3.1417
Op-1 2210	-10.291	1.1554	-8.91	.0000	-8.3719	-12.2099
Op-2 2210	5.250	2.6236	2.00	.0482	9.6075	0.8925

Paired comparisons of least square means between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period	-8.3700	1.1526	-7.262	.0000	-6.4557	-10.2843

Paired comparisons of least square means for stations between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Station 0611	-6.6154	2.8287	-2.34	.0214	-1.9173	-11.3134
Station 0910	-6.4038	2.7183	-2.36	.0205	-1.8890	-10.9187
Station 0915	-6.5500	2.9137	-2.25	.0269	-1.7107	-11.3893
Station 1015	-7.4625	2.9137	-2.56	.0120	-2.6232	-12.3018
Station 1210	-7.6474	2.6901	-2.84	.0055	-3.1796	-12.1153
Station 2210	-15.5409	2.8668	-5.42	.0000	-10.7795	-20.3023

Station-period means and deltas from original data where control n=1

Station-Period	N	Station Mean	Range	Standard Error	Upper 95% c.i.	Lower 95% c.i.	Mean Delta	Delta Range	Upper 95% CIi.	Lower 95% C.I.
0611 Op-1	19	0.24	4.00	0.211	0.68	-0.21	1.89	7.00	2.94	0.85
0611 Op-2	3	0.00	0.00	0.000	.	.	9.17	11.50	24.19	-5.86
0910 Op-1	18	1.03	9.00	0.602	2.30	-0.24	1.22	10.00	2.56	-0.12
0910 Op-2	4	0.00	0.00	0.000	.	.	8.63	11.50	16.67	0.58
0915 Op-1	14	0.43	5.00	0.359	1.20	-0.35	2.07	7.00	3.43	0.71
0915 Op-2	3	0.00	0.00	0.000	.	.	9.17	11.50	24.19	-5.86
1015 Op-1	14	1.68	5.00	0.459	2.67	0.69	0.82	7.50	2.12	-0.48
1015 Op-2	3	0.00	0.00	0.000	.	.	9.17	11.50	24.19	-5.86
1210 Op-1	19	2.55	21.50	1.249	5.18	-0.07	-0.42	22.50	2.07	-2.91
1210 Op-2	4	0.00	0.00	0.000	.	.	8.63	11.50	16.67	0.58
2210 Op-1	16	14.13	30.50	2.192	18.80	9.45	-12.13	26.50	-7.62	-16.63
2210 Op-2	3	2.50	2.00	0.577	4.98	0.02	6.67	12.50	22.39	-9.06

Period means and deltas from original control data where n=1

Period	N	Station Mean	Range	Standard Error	Upper 95% C.I.	Lower 95% C.I.
Op-1	19	2.13	7.00	0.542	3.27	0.99
Op-2	4	8.63	11.50	2.528	16.67	0.58

Analysis of Variance for SLC for 0095 - Microcladia coulteri

Stations = 2210, 0611, 0910, 0915, 1015, 1210

Data transformed using arcsin.

Results for Analysis of Variance

Source	Source df	Error df	F-value	Prob.
PERIOD	1	96.000	11.24	0.0011
SEASON	1	96.000	0.97	0.3260
STATION	5	96.000	0.59	0.7090
PERIOD*SEASON	1	96.000	1.28	0.2600
STATION*PERIOD	5	96.000	0.14	0.9830
STATION*SEASON	5	96.000	0.17	0.9720
PERIOD*STATION*SEASON	5	96.000	0.15	0.9789

Results for Power Analysis
Power at alpha = .1

Source	Non-Centrality Parameter	Adjusted non-Centrality Parameter	Power	Adjusted Power	Power to Detect 50% Change
PERIOD	11.24	10.01	0.9540	0.9327	0.1000
STATION*PERIOD	0.69	0.00	0.1470	.	0.1000

Estimates for contrasts on combinations of interaction terms

Source	Difference	Std. Err.	T-value	Prob.
Period in DC	-31.1517	9.5187	-3.273	.0015
Period in FC	-3.9205	4.3360	-0.904	.3682
Period in FC-S	-8.2121	4.9813	-1.649	.1025
Period in FC-W	0.3710	7.0986	0.052	.9584
Period in DC-S	-38.7120	10.4437	-3.707	.0004
Period in DC-W	-23.5913	15.9170	-1.482	.1416

Least square means & confidence intervals from analysis of variance

Source	LS Mean	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period Op-1	0.570	0.7154	0.80	.4279	1.7578	-0.6186
Period Op-2	6.415	1.5897	4.04	.0001	9.0554	3.7746
Op-1 0611	1.931	1.5991	1.21	.2302	4.5868	-0.7251
Op-2 0611	7.428	3.9682	1.87	.0643	14.0188	0.8372
Op-1 0910	-1.632	1.7050	-0.96	.3410	1.2003	-4.4634
Op-2 0910	6.865	3.7413	1.83	.0696	13.0789	0.6512
Op-1 0915	0.780	1.9168	0.41	.6849	3.9639	-2.4034
Op-2 0915	7.428	3.9682	1.87	.0643	14.0188	0.8372
Op-1 1015	2.199	1.9168	1.15	.2542	5.3824	-0.9849
Op-2 1015	7.428	3.9682	1.87	.0643	14.0188	0.8372
Op-1 1210	1.584	1.5991	0.99	.3243	4.2402	-1.0718
Op-2 1210	6.865	3.7413	1.83	.0696	13.0789	0.6512
Op-1 2210	-1.445	1.7476	-0.83	.4104	1.4577	-4.3473
Op-2 2210	2.476	3.9682	0.62	.5342	9.0665	-4.1151

Paired comparisons of least square means between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period	-5.8454	1.7433	-3.353	.0011	-2.9500	-8.7408

Paired comparisons of least square means for stations between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Station 0611	-5.4971	4.2783	-1.28	.2019	1.6087	-12.6030
Station 0910	-8.4966	4.1115	-2.07	.0415	-1.6679	-15.3254
Station 0915	-6.6478	4.4070	-1.51	.1347	0.6717	-13.9672
Station 1015	-5.2292	4.4070	-1.19	.2383	2.0902	-12.5487
Station 1210	-5.2809	4.0687	-1.30	.1974	1.4768	-12.0385
Station 2210	-3.9205	4.3360	-0.90	.3682	3.2811	-11.1221

Station-period means and deltas from original data where control n=1

Station-Period	N	Station Mean	Range	Standard Error	Upper 95% C.I.	Lower 95% C.I.	Mean Delta	Delta Range	Upper 95% CIi.	Lower 95% C.I.
0611 Op-1	19	0.53	9.00	0.474	1.52	-0.47	0.11	11.50	1.20	-0.99
0611 Op-2	3	0.00	0.00	0.000	.	.	2.50	5.50	10.06	-5.06
0910 Op-1	18	3.56	22.00	1.685	7.11	0.00	-2.89	25.00	0.73	-6.50
0910 Op-2	4	0.00	0.00	0.000	.	.	2.13	5.50	6.25	-2.00
0915 Op-1	14	0.50	6.00	0.426	1.42	-0.42	0.07	8.00	1.07	-0.93
0915 Op-2	3	0.00	0.00	0.000	.	.	2.50	5.50	10.06	-5.06
1015 Op-1	14	0.00	0.00	0.000	.	.	0.57	3.00	1.09	0.05
1015 Op-2	3	0.00	0.00	0.000	.	.	2.50	5.50	10.06	-5.06
1210 Op-1	19	0.63	11.00	0.577	1.84	-0.58	0.00	13.50	1.28	-1.28
1210 Op-2	4	0.00	0.00	0.000	.	.	2.13	5.50	6.25	-2.00
2210 Op-1	16	1.75	8.00	0.658	3.15	0.35	-1.03	11.00	0.55	-2.62
2210 Op-2	3	0.83	1.50	0.441	2.73	-1.06	1.67	5.50	8.94	-5.61

Period means and deltas from original control data where n=1

Period	N	Station Mean	Range	Standard Error	Upper 95% C.I.	Lower 95% C.I.
Op-1	19	0.63	3.00	0.187	1.02	0.24
Op-2	4	2.13	5.50	1.297	6.25	-2.00

Analysis of Variance for SAQ for 0041 - Nereocystis luetkeana

Stations = 2210, 0611, 0910, 0915, 1015, 1210

Data transformed using log base10(x + .1)

Results for Analysis of Variance

Source	Source df	Error df	F-value	Prob.
PERIOD	1	96.000	1.47	0.2277
SEASON	1	96.000	32.94	0.0000
STATION	5	96.000	3.44	0.0067
PERIOD*SEASON	1	96.000	7.05	0.0093
STATION*PERIOD	5	96.000	2.59	0.0306
STATION*SEASON	5	96.000	0.04	0.9990
PERIOD*STATION*SEASON	5	96.000	0.04	0.9991

Results for Power Analysis
Power at alpha = .1

Source	Non-Centrality Parameter	Adjusted non-Centrality Parameter	Power	Adjusted Power	Power to Detect 50% Change
PERIOD	1.47	0.44	0.3324	0.1731	0.1012
STATION*PERIOD	12.94	7.67	0.8631	0.6460	0.1015

Estimates for contrasts on combinations of interaction terms

Source	Difference	Std. Err.	T-value	Prob.
Period in DC	-2.2120	0.8500	-2.602	.0107
Period in FC	1.0781	0.3872	2.784	.0065
Period in FC-S	0.8102	0.4448	1.821	.0717
Period in FC-W	1.3460	0.6339	2.123	.0363
Period in DC-S	-4.4241	0.9326	-4.744	.0000
Period in DC-W	-0.0000	1.4214	-0.000	1.000

Least square means & confidence intervals from analysis of variance

Source	LS Mean	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period Op-1	0.222	0.0639	3.47	.0008	0.3281	0.1159
Period Op-2	0.411	0.1420	2.89	.0047	0.6468	0.1752
Op-1 0611	0.250	0.1428	1.75	.0832	0.4872	0.0128
Op-2 0611	0.702	0.3544	1.98	.0505	1.2905	0.1134
Op-1 0910	0.250	0.1523	1.64	.1039	0.5029	-0.0029
Op-2 0910	0.656	0.3341	1.96	.0524	1.2112	0.1014
Op-1 0915	0.242	0.1712	1.41	.1609	0.5261	-0.0425
Op-2 0915	0.702	0.3544	1.98	.0505	1.2905	0.1134
Op-1 1015	0.215	0.1712	1.25	.2129	0.4989	-0.0697
Op-2 1015	0.702	0.3544	1.98	.0505	1.2905	0.1134
Op-1 1210	0.250	0.1428	1.75	.0832	0.4872	0.0128
Op-2 1210	0.656	0.3341	1.96	.0524	1.2112	0.1014
Op-1 2210	0.125	0.1561	0.80	.4235	0.3846	-0.1338
Op-2 2210	-0.953	0.3544	-2.69	.0085	-0.3641	-1.5412

Paired comparisons of least square means between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period	-0.1890	0.1557	-1.214	.2277	0.0696	-0.4475

Paired comparisons of least square means for stations between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Station 0611	-0.4519	0.3821	-1.18	.2398	0.1826	-1.0865
Station 0910	-0.4064	0.3672	-1.11	.2712	0.2035	-1.0162
Station 0915	-0.4601	0.3935	-1.17	.2453	0.1935	-1.1137
Station 1015	-0.4873	0.3935	-1.24	.2187	0.1663	-1.1409
Station 1210	-0.4064	0.3633	-1.12	.2662	0.1971	-1.0098
Station 2210	1.0781	0.3872	2.78	.0065	1.7212	0.4350

Station-period means and deltas from original data where control n=1

Station-Period	N	Station Mean	Range	Standard Error	Upper 95% c.i.	Lower 95% c.i.	Mean Delta	Delta Range	Upper 95% CIi.	Lower 95% C.I.
0611 Op-1	19	0.00	0.00	0.000	.	.	0.53	4.50	1.09	-0.04
0611 Op-2	3	0.00	0.00	0.000	.	.	6.17	18.25	32.16	-19.83
0910 Op-1	18	0.00	0.00	0.000	.	.	0.56	4.50	1.15	-0.04
0910 Op-2	4	0.00	0.00	0.000	.	.	4.94	18.25	19.09	-9.21
0915 Op-1	14	0.00	0.00	0.000	.	.	0.39	2.75	0.84	-0.06
0915 Op-2	3	0.00	0.00	0.000	.	.	6.17	18.25	32.16	-19.83
1015 Op-1	14	0.02	0.25	0.018	0.06	-0.02	0.38	2.75	0.81	-0.06
1015 Op-2	3	0.00	0.00	0.000	.	.	6.17	18.25	32.16	-19.83
1210 Op-1	19	0.00	0.00	0.000	.	.	0.53	4.50	1.09	-0.04
1210 Op-2	4	0.00	0.00	0.000	.	.	4.94	18.25	19.09	-9.21
2210 Op-1	16	0.05	0.25	0.025	0.10	-0.01	0.41	4.75	1.03	-0.21
2210 Op-2	3	9.67	22.25	7.295	41.05	-21.72	-3.50	4.25	2.02	-9.02

Period means and deltas from original control data where n=1

Period	N	Station Mean	Range	Standard Error	Upper 95% C.I.	Lower 95% C.I.
Op-1	19	0.53	4.50	0.270	1.09	-0.04
Op-2	4	4.94	18.25	4.446	19.09	-9.21

Analysis of Variance for SLC for 1154 - Nienburgia andersoniana

Stations = 2210, 0611, 0910, 0915, 1015, 1210

Data transformed using log base10(x + .5)

Results for Analysis of Variance

Source	Source df	Error df	F-value	Prob.
PERIOD	1	102.000	4.07	0.0464
SEASON	1	102.000	0.00	0.9620
STATION	5	102.000	6.59	0.0000
PERIOD*SEASON	1	102.000	0.16	0.6910
STATION*PERIOD	5	102.000	1.99	0.0857
STATION*SEASON	5	102.000	0.45	0.8119
PERIOD*STATION*SEASON	5	102.000	0.19	0.9663

Results for Power Analysis
Power at alpha = .1

Source	Non-Centrality Parameter	Adjusted non-Centrality Parameter	Power	Adjusted Power	Power to Detect 50% Change
PERIOD	4.07	2.99	0.6400	0.5289	0.2648
STATION*PERIOD	9.97	4.78	0.7619	0.4573	0.1365

Estimates for contrasts on combinations of interaction terms

Source	Difference	Std. Err.	T-value	Prob.
Period in DC	1.2672	0.5728	2.212	.0292
Period in FC	-0.0000	0.2587	-0.000	1.000
Period in FC-S	0.0000	0.2644	0.000	1.000
Period in FC-W	-0.0000	0.4447	-0.000	1.000
Period in DC-S	1.0166	0.5641	1.802	.0744
Period in DC-W	1.5178	0.9971	1.522	.1311

Least square means & confidence intervals from analysis of variance

Source	LS Mean	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period Op-1	-0.228	0.0448	-5.10	.0000	-0.1541	-0.3028
Period Op-2	-0.440	0.0947	-4.64	.0000	-0.2825	-0.5968
Op-1 0611	-0.062	0.1002	-0.62	.5345	0.1039	-0.2287
Op-2 0611	-0.141	0.2344	-0.60	.5492	0.2482	-0.5299
Op-1 0910	-0.524	0.1068	-4.91	.0000	-0.3472	-0.7017
Op-2 0910	-0.845	0.2269	-3.72	.0003	-0.4684	-1.2217
Op-1 0915	-0.345	0.1201	-2.88	.0049	-0.1461	-0.5447
Op-2 0915	-0.477	0.2344	-2.04	.0444	-0.0881	-0.8662
Op-1 1015	-0.133	0.1201	-1.11	.2689	0.0658	-0.3328
Op-2 1015	-0.000	0.2344	-0.00	1.000	0.3890	-0.3890
Op-1 1210	-0.305	0.1002	-3.04	.0030	-0.1386	-0.4712
Op-2 1210	-1.175	0.2269	-5.18	.0000	-0.7982	-1.5515
Op-1 2210	-0.000	0.1095	-0.00	1.000	0.1817	-0.1817
Op-2 2210	0.000	0.2344	0.00	1.000	0.3890	-0.3890

Paired comparisons of least square means between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period	0.2112	0.1047	2.016	.0464	0.3851	0.0373

Paired comparisons of least square means for stations between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Station 0611	0.0784	0.2549	0.31	.7590	0.5015	-0.3447
Station 0910	0.3206	0.2508	1.28	.2041	0.7369	-0.0957
Station 0915	0.1317	0.2633	0.50	.6179	0.5689	-0.3054
Station 1015	-0.1335	0.2633	-0.51	.6133	0.3036	-0.5706
Station 1210	0.8699	0.2481	3.51	.0007	1.2817	0.4582
Station 2210	-0.0000	0.2587	-0.00	1.000	0.4294	-0.4294

Station-period means and deltas from original data where control n=1

Station-Period	N	Station Mean	Range	Standard Error	Upper 95% c.i.	Lower 95% c.i.	Mean Delta	Delta Range	Upper 95% CII.	Lower 95% C.I.
0611 Op-1	19	0.29	3.00	0.200	0.71	-0.13	-0.29	3.00	0.13	-0.71
0611 Op-2	4	0.75	3.00	0.750	3.14	-1.64	-0.75	3.00	1.64	-3.14
0910 Op-1	18	2.83	13.00	1.008	4.96	0.71	-2.83	13.00	-0.71	-4.96
0910 Op-2	5	3.00	5.00	0.975	5.71	0.29	-3.00	5.00	-0.29	-5.71
0915 Op-1	14	1.50	7.00	0.618	2.84	0.16	-1.50	7.00	-0.16	-2.84
0915 Op-2	4	1.50	4.00	0.866	4.26	-1.26	-1.50	4.00	1.26	-4.26
1015 Op-1	14	0.32	2.00	0.162	0.67	-0.03	-0.32	2.00	0.03	-0.67
1015 Op-2	4	0.00	0.00	0.000	.	.	0.00	0.00	.	.
1210 Op-1	19	1.76	10.50	0.681	3.19	0.33	-1.76	10.50	-0.33	-3.19
1210 Op-2	5	9.90	21.00	3.462	19.51	0.29	-9.90	21.00	-0.29	-19.51
2210 Op-1	16	0.00	0.00	0.000	.	.	0.00	0.00	.	.
2210 Op-2	4	0.00	0.00	0.000	.	.	0.00	0.00	.	.

Period means and deltas from original control data where n=1

Period	N	Station Mean	Range	Standard Error	Upper 95% C.I.	Lower 95% C.I.
Op-1	19	0.00	0.00	0.000	.	.
Op-2	5	0.00	0.00	0.000	.	.

Analysis of Variance for SLC, for 0059 - non-coralline crust

Stations = 2210, 0611, 0910, 0915, 1015, 1210

Data transformed using log base10(x + 1)

Results for Analysis of Variance

Source	Source df	Error df	F-value	Prob.
PERIOD	1	96.000	1.15	0.2852
SEASON	1	96.000	5.01	0.0276
STATION	5	96.000	2.22	0.0580
PERIOD*SEASON	1	96.000	1.64	0.2032
STATION*PERIOD	5	96.000	0.87	0.5052
STATION*SEASON	5	96.000	0.16	0.9775
PERIOD*STATION*SEASON	5	96.000	0.14	0.9832

Results for Power Analysis
Power at alpha = .1

Source	Non-Centrality Parameter	Adjusted non-Centrality Parameter	Power	Adjusted Power	Power to Detect 50% Change
PERIOD	1.15	0.13	0.2850	0.1218	0.8568
STATION*PERIOD	4.34	0.00	0.4244	.	0.1708

Estimates for contrasts on combinations of interaction terms

Source	Difference	Std. Err.	T-value	Prob.
Period in DC	0.5325	0.5259	1.013	.3138
Period in FC	0.0885	0.2396	0.369	.7127
Period in FC-S	0.2367	0.2752	0.860	.3920
Period in FC-W	-0.0597	0.3922	-0.152	.8792
Period in DC-S	1.1247	0.5770	1.949	.0542
Period in DC-W	-0.0596	0.8794	-0.068	.9461

Least square means & confidence intervals from analysis of variance

Source	LS Mean	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period Op-1	-0.128	0.0395	-3.25	.0016	-0.0629	-0.1941
Period Op-2	-0.232	0.0878	-2.64	.0096	-0.0861	-0.3779
Op-1 0611	0.123	0.0883	1.39	.1663	0.2700	-0.0235
Op-2 0611	-0.224	0.2192	-1.02	.3094	0.1401	-0.5882
Op-1 0910	-0.457	0.0942	-4.85	.0000	-0.3004	-0.6133
Op-2 0910	-0.449	0.2067	-2.17	.0323	-0.1056	-0.7922
Op-1 0915	0.040	0.1059	0.37	.7092	0.2155	-0.1363
Op-2 0915	0.051	0.2192	0.23	.8164	0.4152	-0.3131
Op-1 1015	0.053	0.1059	0.50	.6185	0.2288	-0.1230
Op-2 1015	-0.327	0.2192	-1.49	.1396	0.0375	-0.6907
Op-1 1210	-0.315	0.0883	-3.56	.0006	-0.1679	-0.4613
Op-2 1210	-0.140	0.2067	-0.68	.5007	0.2036	-0.4830
Op-1 2210	-0.215	0.0966	-2.23	.0281	-0.0549	-0.3757
Op-2 2210	-0.304	0.2192	-1.39	.1691	0.0604	-0.6679

Paired comparisons of least square means between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period	0.1035	0.0963	1.075	.2852	0.2635	-0.0565

Paired comparisons of least square means for stations between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Station 0611	0.3473	0.2364	1.47	.1450	0.7399	-0.0453
Station 0910	-0.0079	0.2272	-0.03	.9722	0.3693	-0.3852
Station 0915	-0.0114	0.2435	-0.05	.9627	0.3930	-0.4158
Station 1015	0.3795	0.2435	1.56	.1224	0.7839	-0.0249
Station 1210	-0.1749	0.2248	-0.78	.4385	0.1985	-0.5482
Station 2210	0.0885	0.2396	0.37	.7127	0.4863	-0.3094

Station-period means and deltas from original data where control n=1

Station-Period	N	Station Mean	Range	Standard Error	Upper 95% c.i.	Lower 95% c.i.	Mean Delta	Delta Range	Upper 95% CIi.	Lower 95% C.I.
0611 Op-1	19	1.37	7.50	0.510	2.44	0.30	0.32	9.00	1.63	-1.00
0611 Op-2	3	1.50	2.50	0.764	4.79	-1.79	-1.17	2.50	1.96	-4.29
0910 Op-1	18	6.56	14.50	0.888	8.43	4.68	-4.94	11.00	-3.27	-6.62
0910 Op-2	4	3.38	4.00	0.826	6.00	0.75	-3.00	4.00	-0.24	-5.76
0915 Op-1	14	0.93	3.50	0.261	1.49	0.36	0.32	4.00	0.91	-0.26
0915 Op-2	3	0.50	1.50	0.500	2.65	-1.65	-0.17	2.50	2.96	-3.29
1015 Op-1	14	0.93	2.50	0.215	1.39	0.46	0.32	7.00	1.35	-0.71
1015 Op-2	3	2.50	4.50	1.323	8.19	-3.19	-2.17	4.50	3.96	-8.29
1210 Op-1	19	5.21	10.50	0.829	6.95	3.47	-3.53	13.50	-1.62	-5.43
1210 Op-2	4	1.63	2.00	0.515	3.27	-0.02	-1.25	3.00	0.85	-3.35
2210 Op-1	16	3.44	9.00	0.698	4.93	1.95	-1.91	8.50	-0.36	-3.46
2210 Op-2	3	2.00	1.00	0.289	3.24	0.76	-1.67	2.00	0.92	-4.25

Period means and deltas from original control data where n=1

Period	N	Station Mean	Range	Standard Error	Upper 95% C.I.	Lower 95% C.I.
Op-1	19	1.68	4.50	0.355	2.43	0.94
Op-2	4	0.38	1.00	0.239	1.14	-0.39

Analysis of Variance for SLC for 0184 - Osmundea spp.

Stations = 2210, 0611, 0910, 0915, 1015, 1210

Data transformed using log base10(x + .1)

Results for Analysis of Variance

Source	Source df	Error df	F-value	Prob.
PERIOD	1	96.000	3.65	0.0591
SEASON	1	96.000	0.74	0.3915
STATION	5	96.000	1.81	0.1175
PERIOD*SEASON	1	96.000	0.05	0.8303
STATION*PERIOD	5	96.000	1.25	0.2906
STATION*SEASON	5	96.000	0.11	0.9902
PERIOD*STATION*SEASON	5	96.000	0.14	0.9835

Results for Power Analysis
Power at alpha = .1

Source	Non-Centrality Parameter	Adjusted non-Centrality Parameter	Power	Adjusted Power	Power to Detect 50% Change
PERIOD	3.65	2.57	0.5996	0.4798	0.3121
STATION*PERIOD	6.27	1.14	0.5599	0.1791	0.1094

Estimates for contrasts on combinations of interaction terms

Source	Difference	Std. Err.	T-value	Prob.
Period in DC	-2.4609	1.2296	-2.001	.0482
Period in FC	-0.1202	0.5601	-0.215	.8305
Period in FC-S	-0.1622	0.6435	-0.252	.8015
Period in FC-W	-0.0782	0.9170	-0.085	.9322
Period in DC-S	-2.1285	1.3491	-1.578	.1179
Period in DC-W	-2.7933	2.0562	-1.358	.1775

Least square means & confidence intervals from analysis of variance

Source	LS Mean	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period Op-1	0.468	0.0924	5.06	.0000	0.6212	0.3143
Period Op-2	0.898	0.2054	4.37	.0000	1.2390	0.5569
Op-1 0611	0.991	0.2066	4.80	.0000	1.3340	0.6478
Op-2 0611	1.362	0.5126	2.66	.0092	2.2137	0.5109
Op-1 0910	0.030	0.2203	0.14	.8908	0.3961	-0.3355
Op-2 0910	0.268	0.4833	0.56	.5801	1.0710	-0.5344
Op-1 0915	0.583	0.2476	2.36	.0205	0.9947	0.1722
Op-2 0915	0.195	0.5126	0.38	.7044	1.0464	-0.6564
Op-1 1015	0.483	0.2476	1.95	.0541	0.8941	0.0715
Op-2 1015	1.362	0.5126	2.66	.0092	2.2137	0.5109
Op-1 1210	0.061	0.2066	0.29	.7699	0.4037	-0.2825
Op-2 1210	1.421	0.4833	2.94	.0041	2.2238	0.6184
Op-1 2210	0.658	0.2257	2.92	.0044	1.0334	0.2835
Op-2 2210	0.779	0.5126	1.52	.1321	1.6300	-0.0727

Paired comparisons of least square means between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period	-0.4302	0.2252	-1.910	.0591	-0.0562	-0.8042

Paired comparisons of least square means for stations between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Station 0611	-0.3713	0.5527	-0.67	.5033	0.5466	-1.2893
Station 0910	-0.2380	0.5311	-0.45	.6551	0.6441	-1.1201
Station 0915	0.3884	0.5693	0.68	.4967	1.3340	-0.5571
Station 1015	-0.8795	0.5693	-1.54	.1257	0.0661	-1.8250
Station 1210	-1.3605	0.5256	-2.59	.0111	-0.4876	-2.2335
Station 2210	-0.1202	0.5601	-0.21	.8305	0.8101	-1.0505

Station-period means and deltas from original data where control n=1

Station-Period	N	Station Mean	Range	Standard Error	Upper 95% c.i.	Lower 95% c.i.	Mean Delta	Delta Range	Upper 95% CIi.	Lower 95% C.I.
0611 Op-1	19	0.61	5.00	0.280	1.19	0.02	2.53	7.00	3.48	1.57
0611 Op-2	3	0.00	0.00	0.000	.	.	2.17	1.00	3.60	0.73
0910 Op-1	18	6.94	31.00	2.039	11.25	2.64	-3.86	33.50	0.51	-8.23
0910 Op-2	4	2.00	5.00	1.190	5.79	-1.79	0.75	3.00	2.75	-1.25
0915 Op-1	14	2.54	10.50	1.016	4.73	0.34	0.43	15.50	3.03	-2.18
0915 Op-2	3	1.50	3.00	1.000	5.80	-2.80	0.67	3.00	4.46	-3.13
1015 Op-1	14	1.21	4.00	0.381	2.04	0.39	1.75	8.00	2.90	0.60
1015 Op-2	3	0.00	0.00	0.000	.	.	2.17	1.00	3.60	0.73
1210 Op-1	19	5.95	20.50	1.546	9.20	2.70	-2.82	24.50	0.60	-6.23
1210 Op-2	4	0.00	0.00	0.000	.	.	2.75	3.00	4.75	0.75
2210 Op-1	16	0.75	1.50	0.171	1.11	0.39	2.31	7.50	3.41	1.22
2210 Op-2	3	0.33	0.50	0.167	1.05	-0.38	1.83	0.50	2.55	1.12

Period means and deltas from original control data where n=1

Period	N	Station Mean	Range	Standard Error	Upper 95% C.I.	Lower 95% C.I.
Op-1	19	3.13	6.50	0.393	3.96	2.31
Op-2	4	2.75	3.00	0.629	4.75	0.75

Analysis of Variance for SLC for 0135 - Phyllospadix spp.

Stations = 2210, 0611, 0910, 0915, 1015, 1210

Data transformed using arcsin.

Results for Analysis of Variance

Source	Source df	Error df	F-value	Prob.
PERIOD	0	96.000	.	.
SEASON	0	96.000	.	.
STATION	0	96.000	.	.
PERIOD*SEASON	0	96.000	.	.
STATION*PERIOD	0	96.000	.	.
STATION*SEASON	0	96.000	.	.
PERIOD*STATION*SEASON	0	96.000	.	.

Results for Power Analysis
Power at alpha = .1

Source	Non-Centrality Parameter	Adjusted non-Centrality Parameter	Power	Adjusted Power	Power to Detect 50% Change
PERIOD	.	0.00	.	.	.
STATION*PERIOD	.	0.00	.	.	.

Estimates for contrasts on combinations of interaction terms

Source	Difference	Std. Err.	T-value	Prob.
Period in DC	0.0000	.	.	.
Period in FC	0.0000	.	.	.
Period in FC-S	0.0000	.	.	.
Period in FC-W	0.0000	.	.	.
Period in DC-S	0.0000	.	.	.
Period in DC-W	0.0000	.	.	.

Least square means & confidence intervals from analysis of variance

Source	LS Mean	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period Op-1	0.000	.	.	.	.	.
Period Op-2	0.000	.	.	.	.	.
Op-1 0611	0.000	.	.	.	.	.
Op-2 0611	0.000	.	.	.	.	.
Op-1 0910	0.000	.	.	.	.	.
Op-2 0910	0.000	.	.	.	.	.
Op-1 0915	0.000	.	.	.	.	.
Op-2 0915	0.000	.	.	.	.	.
Op-1 1015	0.000	.	.	.	.	.
Op-2 1015	0.000	.	.	.	.	.
Op-1 1210	0.000	.	.	.	.	.
Op-2 1210	0.000	.	.	.	.	.
Op-1 2210	0.000	.	.	.	.	.
Op-2 2210	0.000	.	.	.	.	.

Paired comparisons of least square means between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period	0.0000	.	.	.	.	.

Paired comparisons of least square means for stations between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Station 0611	0.0000	.	.	.	.	.
Station 0910	0.0000	.	.	.	.	.
Station 0915	0.0000	.	.	.	.	.
Station 1015	0.0000	.	.	.	.	.
Station 1210	0.0000	.	.	.	.	.
Station 2210	0.0000	.	.	.	.	.

Station-period means and deltas from original data where control n=1

Station-Period	N	Station Mean	Range	Standard Error	Upper 95% c.i.	Lower 95% c.i.	Mean Delta	Delta Range	Upper 95% CIi.	Lower 95% C.I.
0611 Op-1	19	0.00	0.00	0.000	.	.	0.00	0.00	.	.
0611 Op-2	3	0.00	0.00	0.000	.	.	0.00	0.00	.	.
0910 Op-1	18	0.00	0.00	0.000	.	.	0.00	0.00	.	.
0910 Op-2	4	0.00	0.00	0.000	.	.	0.00	0.00	.	.
0915 Op-1	14	0.00	0.00	0.000	.	.	0.00	0.00	.	.
0915 Op-2	3	0.00	0.00	0.000	.	.	0.00	0.00	.	.
1015 Op-1	14	0.00	0.00	0.000	.	.	0.00	0.00	.	.
1015 Op-2	3	0.00	0.00	0.000	.	.	0.00	0.00	.	.
1210 Op-1	19	0.00	0.00	0.000	.	.	0.00	0.00	.	.
1210 Op-2	4	0.00	0.00	0.000	.	.	0.00	0.00	.	.
2210 Op-1	16	0.00	0.00	0.000	.	.	0.00	0.00	.	.
2210 Op-2	3	0.00	0.00	0.000	.	.	0.00	0.00	.	.

Period means and deltas from original control data where n=1

Period	N	Station Mean	Range	Standard Error	Upper 95% C.I.	Lower 95% C.I.
Op-1	19	0.00	0.00	0.000	.	.
Op-2	4	0.00	0.00	0.000	.	.

Analysis of Variance for SLC for 0118 - Polyneura latissima

Stations = 2210, 0611, 0910, 0915, 1015, 1210

Data transformed using log base10(x + .1)

Results for Analysis of Variance

Source	Source df	Error df	F-value	Prob.
PERIOD	1	96.000	29.36	0.0000
SEASON	1	96.000	22.84	0.0000
STATION	5	96.000	0.08	0.9952
PERIOD*SEASON	1	96.000	14.55	0.0002
STATION*PERIOD	5	96.000	0.05	0.9987
STATION*SEASON	5	96.000	0.05	0.9987
PERIOD*STATION*SEASON	5	96.000	0.04	0.9992

Results for Power Analysis
Power at alpha = .1

Source	Non-Centrality Parameter	Adjusted non-Centrality Parameter	Power	Adjusted Power	Power to Detect 50% Change
PERIOD	29.36	27.75	0.9999	0.9998	0.1017
STATION*PERIOD	0.23	0.00	0.1152	.	0.1009

Estimates for contrasts on combinations of interaction terms

Source	Difference	Std. Err.	T-value	Prob.
Period in DC	-3.3365	0.6947	-4.803	.0000
Period in FC	-0.8000	0.3164	-2.528	.0131
Period in FC-S	-0.2845	0.3635	-0.783	.4357
Period in FC-W	-1.3155	0.5181	-2.539	.0127
Period in DC-S	-0.9398	0.7622	-1.233	.2206
Period in DC-W	-5.7332	1.1616	-4.935	.0000

Least square means & confidence intervals from analysis of variance

Source	LS Mean	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period Op-1	0.320	0.0522	6.13	.0000	0.4069	0.2334
Period Op-2	1.010	0.1160	8.70	.0000	1.2023	0.8169
Op-1 0611	0.295	0.1167	2.53	.0131	0.4889	0.1012
Op-2 0611	1.038	0.2896	3.59	.0005	1.5195	0.5575
Op-1 0910	0.298	0.1244	2.40	.0185	0.5048	0.0915
Op-2 0910	0.952	0.2730	3.49	.0007	1.4052	0.4982
Op-1 0915	0.417	0.1399	2.98	.0037	0.6489	0.1842
Op-2 0915	1.038	0.2896	3.59	.0005	1.5195	0.5575
Op-1 1015	0.378	0.1399	2.70	.0082	0.6100	0.1453
Op-2 1015	1.038	0.2896	3.59	.0005	1.5195	0.5575
Op-1 1210	0.295	0.1167	2.53	.0131	0.4889	0.1012
Op-2 1210	0.952	0.2730	3.49	.0007	1.4052	0.4982
Op-1 2210	0.238	0.1275	1.87	.0645	0.4503	0.0267
Op-2 2210	1.038	0.2896	3.59	.0005	1.5195	0.5575

Paired comparisons of least square means between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period	-0.6894	0.1272	-5.419	.0000	-0.4781	-0.9007

Paired comparisons of least square means for stations between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Station 0611	-0.7435	0.3122	-2.38	.0192	-0.2249	-1.2621
Station 0910	-0.6536	0.3001	-2.18	.0318	-0.1552	-1.1519
Station 0915	-0.6219	0.3216	-1.93	.0561	-0.0877	-1.1561
Station 1015	-0.6608	0.3216	-2.05	.0426	-0.1266	-1.1950
Station 1210	-0.6567	0.2969	-2.21	.0294	-0.1635	-1.1499
Station 2210	-0.8000	0.3164	-2.53	.0131	-0.2744	-1.3256

Station-period means and deltas from original data where control n=1

Station-Period	N	Station Mean	Range	Standard Error	Upper 95% c.i.	Lower 95% c.i.	Mean Delta	Delta Range	Upper 95% CIi.	Lower 95% C.I.
0611 Op-1	19	0.00	0.00	0.000	.	.	0.24	1.50	0.44	0.03
0611 Op-2	3	0.00	0.00	0.000	.	.	1.50	3.50	5.98	-2.98
0910 Op-1	18	0.03	0.50	0.028	0.09	-0.03	0.22	1.50	0.42	0.03
0910 Op-2	4	0.00	0.00	0.000	.	.	1.13	3.50	3.75	-1.50
0915 Op-1	14	0.00	0.00	0.000	.	.	0.32	1.50	0.59	0.05
0915 Op-2	3	0.00	0.00	0.000	.	.	1.50	3.50	5.98	-2.98
1015 Op-1	14	0.04	0.50	0.036	0.11	-0.04	0.29	1.50	0.56	0.02
1015 Op-2	3	0.00	0.00	0.000	.	.	1.50	3.50	5.98	-2.98
1210 Op-1	19	0.00	0.00	0.000	.	.	0.24	1.50	0.44	0.03
1210 Op-2	4	0.00	0.00	0.000	.	.	1.13	3.50	3.75	-1.50
2210 Op-1	16	0.03	0.50	0.031	0.10	-0.04	0.22	1.50	0.46	-0.02
2210 Op-2	3	0.00	0.00	0.000	.	.	1.50	3.50	5.98	-2.98

Period means and deltas from original control data where n=1

Period	N	Station Mean	Range	Standard Error	Upper 95% C.I.	Lower 95% C.I.
Op-1	19	0.24	1.50	0.096	0.44	0.03
Op-2	4	1.13	3.50	0.826	3.75	-1.50

Analysis of Variance for SAQ for 0042 - Pterygophora californica

Stations = 2210, 0611, 0910, 0915, 1015, 1210

Data transformed using log base10(x + .5)

Results for Analysis of Variance

Source	Source df	Error df	F-value	Prob.
PERIOD	1	96.000	16.45	0.0001
SEASON	1	96.000	8.49	0.0044
STATION	5	96.000	22.92	0.0000
PERIOD*SEASON	1	96.000	1.03	0.3130
STATION*PERIOD	5	96.000	0.35	0.8802
STATION*SEASON	5	96.000	0.17	0.9729
PERIOD*STATION*SEASON	5	96.000	0.25	0.9392

Results for Power Analysis
Power at alpha = .1

Source	Non-Centrality Parameter	Adjusted non-Centrality Parameter	Power	Adjusted Power	Power to Detect 50% Change
PERIOD	16.45	15.11	0.9914	0.9866	0.3000
STATION*PERIOD	1.76	0.00	0.2257	.	0.2925

Estimates for contrasts on combinations of interaction terms

Source	Difference	Std. Err.	T-value	Prob.
Period in DC	2.1525	0.5461	3.942	.0002
Period in FC	0.2815	0.2488	1.131	.2607
Period in FC-S	0.1662	0.2858	0.581	.5623
Period in FC-W	0.3968	0.4073	0.974	.3324
Period in DC-S	1.6591	0.5992	2.769	.0068
Period in DC-W	2.6459	0.9132	2.897	.0047

Least square means & confidence intervals from analysis of variance

Source	LS Mean	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period Op-1	1.705	0.0410	41.55	.0000	1.7735	1.6372
Period Op-2	1.300	0.0912	14.25	.0000	1.4512	1.1482
Op-1 0611	2.070	0.0917	22.56	.0000	2.2222	1.9174
Op-2 0611	1.541	0.2277	6.77	.0000	1.9191	1.1628
Op-1 0910	2.010	0.0978	20.55	.0000	2.1724	1.8475
Op-2 0910	1.578	0.2146	7.35	.0000	1.9340	1.2210
Op-1 0915	1.904	0.1100	17.32	.0000	2.0871	1.7218
Op-2 0915	1.541	0.2277	6.77	.0000	1.9191	1.1628
Op-1 1015	0.392	0.1100	3.57	.0006	0.5751	0.2098
Op-2 1015	0.167	0.2277	0.73	.4646	0.5453	-0.2110
Op-1 1210	2.033	0.0917	22.16	.0000	2.1855	1.8808
Op-2 1210	1.431	0.2146	6.67	.0000	1.7873	1.0743
Op-1 2210	1.822	0.1003	18.18	.0000	1.9889	1.6559
Op-2 2210	1.541	0.2277	6.77	.0000	1.9191	1.1628

Paired comparisons of least square means between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period	0.4057	0.1000	4.056	.0001	0.5718	0.2395

Paired comparisons of least square means for stations between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Station 0611	0.5289	0.2455	2.15	.0337	0.9366	0.1212
Station 0910	0.4324	0.2359	1.83	.0699	0.8242	0.0407
Station 0915	0.3635	0.2528	1.44	.1537	0.7835	-0.0564
Station 1015	0.2253	0.2528	0.89	.3752	0.6452	-0.1947
Station 1210	0.6024	0.2334	2.58	.0114	0.9901	0.2147
Station 2210	0.2815	0.2488	1.13	.2607	0.6946	-0.1317

Station-period means and deltas from original data where control n=1

Station-Period	N	Station Mean	Range	Standard Error	Upper 95% c.i.	Lower 95% c.i.	Mean Delta	Delta Range	Upper 95% CII.	Lower 95% C.I.
0611 Op-1	19	0.01	0.25	0.013	0.04	-0.01	93.41	239.00	129.78	57.04
0611 Op-2	3	0.00	0.00	0.000	.	.	19.92	16.75	40.94	-1.11
0910 Op-1	18	0.10	1.00	0.067	0.24	-0.05	93.07	238.50	131.64	54.50
0910 Op-2	4	0.00	0.00	0.000	.	.	24.63	26.50	43.21	6.04
0915 Op-1	14	0.07	1.00	0.071	0.23	-0.08	75.11	238.25	117.47	32.75
0915 Op-2	3	0.00	0.00	0.000	.	.	19.92	16.75	40.94	-1.11
1015 Op-1	14	21.43	31.25	2.691	27.24	15.61	53.75	227.25	93.97	13.53
1015 Op-2	3	11.25	17.25	5.238	33.79	-11.29	8.67	30.25	48.11	-30.78
1210 Op-1	19	0.07	0.50	0.037	0.14	-0.01	93.36	239.00	129.72	56.99
1210 Op-2	4	0.19	0.25	0.063	0.39	-0.01	24.44	26.50	43.07	5.80
2210 Op-1	16	2.63	30.50	1.948	6.78	-1.53	85.31	225.75	120.12	50.51
2210 Op-2	3	0.00	0.00	0.000	.	.	19.92	16.75	40.94	-1.11

Period means and deltas from original control data where n=1

Period	N	Station Mean	Range	Standard Error	Upper 95% C.I.	Lower 95% C.I.
Op-1	19	93.42	239.25	17.317	129.80	57.04
Op-2	4	24.63	26.50	5.840	43.21	6.04

Analysis of Variance for SLC for 0220 - Prionitis australis

Stations = 2210, 0611, 0910, 0915, 1015, 1210

Data not transformed.

Results for Analysis of Variance

Source	Source df	Error df	F-value	Prob.
PERIOD	1	102.000	2.39	0.1249
SEASON	1	102.000	1.17	0.2816
STATION	5	102.000	1.50	0.1970
PERIOD*SEASON	1	102.000	0.01	0.9370
STATION*PERIOD	5	102.000	0.53	0.7517
STATION*SEASON	5	102.000	1.53	0.1863
PERIOD*STATION*SEASON	5	102.000	0.14	0.9833

Results for Power Analysis
Power at alpha = .1

Source	Non-Centrality Parameter	Adjusted non-Centrality Parameter	Power	Adjusted Power	Power to Detect 50% Change
PERIOD	2.39	1.35	0.4578	0.3139	0.6857
STATION*PERIOD	2.66	0.00	0.2958	.	0.3054

Estimates for contrasts on combinations of interaction terms

Source	Difference	Std. Err.	T-value	Prob.
Period in DC	-1.7192	0.9806	-1.753	.0826
Period in FC	0.0545	0.4428	0.123	.9022
Period in FC-S	-0.0909	0.4526	-0.201	.8412
Period in FC-W	0.2000	0.7613	0.263	.7933
Period in DC-S	-1.4885	0.9656	-1.541	.1263
Period in DC-W	-1.9500	1.7070	-1.142	.2560

Least square means & confidence intervals from analysis of variance

Source	LS Mean	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period Op-1	-0.465	0.0767	-6.06	.0000	-0.3376	-0.5923
Period Op-2	-0.187	0.1621	-1.16	.2500	0.0815	-0.4565
Op-1 0611	-0.000	0.1715	-0.00	1.000	0.2847	-0.2847
Op-2 0611	0.000	0.4012	0.00	1.000	0.6660	-0.6660
Op-1 0910	-0.312	0.1828	-1.70	.0915	-0.0080	-0.6151
Op-2 0910	-0.188	0.3885	-0.48	.6304	0.4573	-0.8323
Op-1 0915	-1.150	0.2056	-5.59	.0000	-0.8088	-1.4912
Op-2 0915	-0.500	0.4012	-1.25	.2155	0.1660	-1.1660
Op-1 1015	-0.700	0.2056	-3.41	.0009	-0.3588	-1.0412
Op-2 1015	0.000	0.4012	0.00	1.000	0.6660	-0.6660
Op-1 1210	-0.433	0.1715	-2.52	.0132	-0.1480	-0.7174
Op-2 1210	-0.187	0.3885	-0.48	.6304	0.4573	-0.8323
Op-1 2210	-0.195	0.1874	-1.04	.2994	0.1156	-0.5065
Op-2 2210	-0.250	0.4012	-0.62	.5346	0.4160	-0.9160

Paired comparisons of least square means between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period	-0.2774	0.1793	-1.547	.1249	0.0202	-0.5751

Paired comparisons of least square means for stations between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Station 0611	-0.0000	0.4363	-0.00	1.000	0.7243	-0.7243
Station 0910	-0.1240	0.4294	-0.29	.7733	0.5887	-0.8367
Station 0915	-0.6500	0.4508	-1.44	.1524	0.0983	-1.3983
Station 1015	-0.7000	0.4508	-1.55	.1236	0.0483	-1.4483
Station 1210	-0.2452	0.4246	-0.58	.5649	0.4597	-0.9501
Station 2210	0.0545	0.4428	0.12	.9022	0.7896	-0.6805

Station-period means and deltas from original data where control n=1

Station-Period	N	Station Mean	Range	Standard Error	Upper 95% c.i.	Lower 95% c.i.	Mean Delta	Delta Range	Upper 95% CIi.	Lower 95% C.I.
0611 Op-1	19	0.00	0.00	0.000	.	.	0.00	0.00	.	.
0611 Op-2	4	0.00	0.00	0.000	.	.	0.00	0.00	.	.
0910 Op-1	18	0.36	1.50	0.139	0.65	0.07	-0.36	1.50	-0.07	-0.65
0910 Op-2	5	0.30	1.00	0.200	0.86	-0.26	-0.30	1.00	0.26	-0.86
0915 Op-1	14	1.43	4.00	0.327	2.13	0.72	-1.43	4.00	-0.72	-2.13
0915 Op-2	4	0.75	2.00	0.433	2.13	-0.63	-0.75	2.00	0.63	-2.13
1015 Op-1	14	0.57	2.00	0.221	1.05	0.09	-0.57	2.00	-0.09	-1.05
1015 Op-2	4	0.00	0.00	0.000	.	.	0.00	0.00	.	.
1210 Op-1	19	0.50	3.50	0.220	0.96	0.04	-0.50	3.50	-0.04	-0.96
1210 Op-2	5	0.30	1.00	0.200	0.86	-0.26	-0.30	1.00	0.26	-0.86
2210 Op-1	16	0.16	1.50	0.099	0.37	-0.06	-0.16	1.50	0.06	-0.37
2210 Op-2	4	0.13	0.50	0.125	0.52	-0.27	-0.13	0.50	0.27	-0.52

Period means and deltas from original control data where n=1

Period	N	Station Mean	Range	Standard Error	Upper 95% C.I.	Lower 95% C.I.
Op-1	19	0.00	0.00	0.000	.	.
Op-2	5	0.00	0.00	0.000	.	.

Analysis of Variance for SLC for 0106 - Prionitis spp.

Stations = 2210, 0611, 0910, 0915, 1015, 1210

Data transformed using log base10(x + .1)

Results for Analysis of Variance

Source	Source df	Error df	F-value	Prob.
PERIOD	1	96.000	0.11	0.7359
SEASON	1	96.000	0.02	0.8801
STATION	5	96.000	5.76	0.0001
PERIOD*SEASON	1	96.000	8.19	0.0052
STATION*PERIOD	5	96.000	1.00	0.4228
STATION*SEASON	5	96.000	0.09	0.9930
PERIOD*STATION*SEASON	5	96.000	0.04	0.9990

Results for Power Analysis
Power at alpha = .1

Source	Non-Centrality Parameter	Adjusted non-Centrality Parameter	Power	Adjusted Power	Power to Detect 50% Change
PERIOD	0.11	0.00	0.1191	.	0.9511
STATION*PERIOD	4.99	0.00	0.4722	.	0.1040

Estimates for contrasts on combinations of interaction terms

Source	Difference	Std. Err.	T-value	Prob.
Period in DC	-0.3658	0.8021	-0.456	.6494
Period in FC	0.0676	0.3654	0.185	.8536
Period in FC-S	-0.4029	0.4197	-0.960	.3396
Period in FC-W	0.5381	0.5982	0.900	.3706
Period in DC-S	-2.4184	0.8800	-2.748	.0072
Period in DC-W	1.6869	1.3412	1.258	.2116

Least square means & confidence intervals from analysis of variance

Source	LS Mean	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period Op-1	-0.737	0.0603	-12.23	.0000	-0.6371	-0.8373
Period Op-2	-0.687	0.1340	-5.13	.0000	-0.4650	-0.9100
Op-1 0611	-0.434	0.1347	-3.22	.0017	-0.2104	-0.6580
Op-2 0611	0.260	0.3344	0.78	.4381	0.8157	-0.2950
Op-1 0910	-0.980	0.1437	-6.82	.0000	-0.7413	-1.2185
Op-2 0910	-0.860	0.3153	-2.73	.0076	-0.3368	-1.3840
Op-1 0915	-1.055	0.1615	-6.53	.0000	-0.7865	-1.3230
Op-2 0915	-0.957	0.3344	-2.86	.0052	-0.4020	-1.5127
Op-1 1015	-0.071	0.1615	-0.44	.6606	0.1971	-0.3394
Op-2 1015	-0.389	0.3344	-1.16	.2480	0.1668	-0.9440
Op-1 1210	-0.941	0.1347	-6.98	.0000	-0.7169	-1.1645
Op-2 1210	-1.169	0.3153	-3.71	.0004	-0.6452	-1.6925
Op-1 2210	-0.942	0.1473	-6.40	.0000	-0.6979	-1.1871
Op-2 2210	-1.010	0.3344	-3.02	.0032	-0.4547	-1.5655

Paired comparisons of least square means between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period	-0.0497	0.1469	-0.338	.7359	0.1943	-0.2937

Paired comparisons of least square means for stations between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Station 0611	-0.6945	0.3605	-1.93	.0570	-0.0957	-1.2933
Station 0910	-0.1195	0.3465	-0.34	.7309	0.4559	-0.6949
Station 0915	-0.0974	0.3714	-0.26	.7937	0.5194	-0.7142
Station 1015	0.3175	0.3714	0.85	.3947	0.9342	-0.2993
Station 1210	0.2282	0.3428	0.67	.5073	0.7976	-0.3413
Station 2210	0.0676	0.3654	0.19	.8536	0.6744	-0.5392

Station-period means and deltas from original data where control n=1

Station-Period	N	Station Mean	Range	Standard Error	Upper 95% c.i.	Lower 95% c.i.	Mean Delta	Delta Range	Upper 95% CIi.	Lower 95% C.I.
0611 Op-1	19	12.13	30.00	2.474	17.33	6.93	-10.16	28.50	-5.41	-14.90
0611 Op-2	3	0.50	1.00	0.289	1.74	-0.74	0.33	1.00	1.77	-1.10
0910 Op-1	18	18.14	21.00	1.793	21.92	14.36	-16.25	22.50	-12.30	-20.20
0910 Op-2	4	7.13	5.00	1.161	10.82	3.43	-6.13	4.00	-2.98	-9.27
0915 Op-1	14	16.61	21.50	1.510	19.87	13.34	-15.07	25.00	-11.43	-18.72
0915 Op-2	3	7.00	3.00	0.866	10.73	3.27	-6.17	3.50	-1.80	-10.53
1015 Op-1	14	1.93	4.50	0.388	2.77	1.09	-0.39	7.50	0.82	-1.60
1015 Op-2	3	1.83	1.50	0.441	3.73	-0.06	-1.00	2.00	1.48	-3.48
1210 Op-1	19	15.61	22.00	1.444	18.64	12.57	-13.63	26.00	-10.65	-16.62
1210 Op-2	4	12.50	9.00	1.936	18.66	6.34	-11.50	9.00	-5.10	-17.90
2210 Op-1	16	13.72	11.00	0.641	15.08	12.35	-11.94	11.50	-10.38	-13.49
2210 Op-2	3	7.83	3.50	1.093	12.54	3.13	-7.00	4.00	-1.59	-12.41

Period means and deltas from original control data where n=1

Period	N	Station Mean	Range	Standard Error	Upper 95% C.I.	Lower 95% C.I.
Op-1	19	1.97	5.50	0.351	2.71	1.24
Op-2	4	1.00	1.00	0.204	1.65	0.35

Analysis of Variance for SLC for 0192 - Pterosiphonia dendroidea

Stations = 2210, 0611, 0910, 0915, 1015, 1210

Data transformed using log base10(x + 1)

Results for Analysis of Variance

Source	Source df	Error df	F-value	Prob.
PERIOD	1	96.000	67.85	0.0000
SEASON	1	96.000	19.00	0.0000
STATION	5	96.000	14.48	0.0000
PERIOD*SEASON	1	96.000	5.72	0.0187
STATION*PERIOD	5	96.000	12.43	0.0000
STATION*SEASON	5	96.000	6.07	0.0001
PERIOD*STATION*SEASON	5	96.000	3.41	0.0070

Results for Power Analysis
Power at alpha = .1

Source	Non-Centrality Parameter	Adjusted non-Centrality Parameter	Power	Adjusted Power	Power to Detect 50% Change
PERIOD	67.85	65.43	1.0000	1.0000	0.2672
STATION*PERIOD	62.15	55.86	1.0000	1.0000	0.1469

Estimates for contrasts on combinations of interaction terms

Source	Difference	Std. Err.	T-value	Prob.
Period in DC	1.2930	0.1429	9.051	.0000
Period in FC	-0.0000	0.0651	-0.000	1.000
Period in FC-S	-0.0000	0.0748	-0.000	1.000
Period in FC-W	-0.0000	0.1065	-0.000	1.000
Period in DC-S	0.9176	0.1567	5.854	.0000
Period in DC-W	1.6685	0.2389	6.985	.0000

Least square means & confidence intervals from analysis of variance

Source	LS Mean	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period Op-1	-0.039	0.0107	-3.60	.0005	-0.0208	-0.0565
Period Op-2	-0.254	0.0239	-10.65	.0000	-0.2145	-0.2938
Op-1 0611	-0.026	0.0240	-1.09	.2768	0.0136	-0.0661
Op-2 0611	0.000	0.0596	0.00	1.000	0.0989	-0.0989
Op-1 0910	-0.073	0.0256	-2.84	.0055	-0.0303	-0.1153
Op-2 0910	-0.218	0.0561	-3.88	.0002	-0.1245	-0.3110
Op-1 0915	-0.096	0.0288	-3.34	.0012	-0.0484	-0.1440
Op-2 0915	-0.414	0.0596	-6.95	.0000	-0.3153	-0.5131
Op-1 1015	-0.022	0.0288	-0.77	.4461	0.0258	-0.0698
Op-2 1015	-0.318	0.0596	-5.34	.0000	-0.2193	-0.4172
Op-1 1210	-0.015	0.0240	-0.61	.5424	0.0252	-0.0545
Op-2 1210	-0.575	0.0561	-10.24	.0000	-0.4815	-0.6680
Op-1 2210	-0.000	0.0262	-0.00	1.000	0.0436	-0.0436
Op-2 2210	0.000	0.0596	0.00	1.000	0.0989	-0.0989

Paired comparisons of least square means between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period	0.2155	0.0262	8.237	.0000	0.2590	0.1721

Paired comparisons of least square means for stations between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Station 0611	-0.0263	0.0642	-0.41	.6836	0.0804	-0.1329
Station 0910	0.1450	0.0617	2.35	.0208	0.2475	0.0425
Station 0915	0.3180	0.0661	4.81	.0000	0.4279	0.2082
Station 1015	0.2962	0.0661	4.48	.0000	0.4061	0.1864
Station 1210	0.5600	0.0611	9.17	.0000	0.6615	0.4586
Station 2210	-0.0000	0.0651	-0.00	1.000	0.1081	-0.1081

Station-period means and deltas from original data where control n=1

Station-Period	N	Station Mean	Range	Standard Error	Upper 95% c.i.	Lower 95% c.i.	Mean Delta	Delta Range	Upper 95% CIi.	Lower 95% C.I.
0611 Op-1	19	0.08	1.00	0.058	0.20	-0.04	-0.08	1.00	0.04	-0.20
0611 Op-2	3	0.00	0.00	0.000	.	.	0.00	0.00	.	.
0910 Op-1	18	0.25	2.50	0.173	0.61	-0.11	-0.25	2.50	0.11	-0.61
0910 Op-2	4	0.75	0.50	0.144	1.21	0.29	-0.75	0.50	-0.29	-1.21
0915 Op-1	14	0.21	1.50	0.125	0.48	-0.06	-0.21	1.50	0.06	-0.48
0915 Op-2	3	1.67	4.50	1.424	7.79	-4.46	-1.67	4.50	4.46	-7.79
1015 Op-1	14	0.04	0.50	0.036	0.11	-0.04	-0.04	0.50	0.04	-0.11
1015 Op-2	3	1.00	1.00	0.289	2.24	-0.24	-1.00	1.00	0.24	-2.24
1210 Op-1	19	0.03	0.50	0.026	0.08	-0.03	-0.03	0.50	0.03	-0.08
1210 Op-2	4	2.50	4.00	0.913	5.41	-0.41	-2.50	4.00	0.41	-5.41
2210 Op-1	16	0.00	0.00	0.000	.	.	0.00	0.00	.	.
2210 Op-2	3	0.00	0.00	0.000	.	.	0.00	0.00	.	.

Period means and deltas from original control data where n=1

Period	N	Station Mean	Range	Standard Error	Upper 95% C.I.	Lower 95% C.I.
Op-1	19	0.00	0.00	0.000	.	.
Op-2	4	0.00	0.00	0.000	.	.

Analysis of Variance for SLC for 0159 - Rhodymenia spp.

Stations = 2210, 0611, 0910, 0915, 1015, 1210

Data transformed using square root(x + .1)

Results for Analysis of Variance

Source	Source df	Error df	F-value	Prob.
PERIOD	1	96.000	34.71	0.0000
SEASON	1	96.000	0.44	0.5098
STATION	5	96.000	19.59	0.0000
PERIOD*SEASON	1	96.000	11.65	0.0009
STATION*PERIOD	5	96.000	1.52	0.1920
STATION*SEASON	5	96.000	1.10	0.3634
PERIOD*STATION*SEASON	5	96.000	0.76	0.5801

Results for Power Analysis
Power at alpha = .1

Source	Non-Centrality Parameter	Adjusted non-Centrality Parameter	Power	Adjusted Power	Power to Detect 50% Change
PERIOD	34.71	32.99	1.0000	1.0000	1.0000
STATION*PERIOD	7.58	2.42	0.6409	0.2768	0.7777

Estimates for contrasts on combinations of interaction terms

Source	Difference	Std. Err.	T-value	Prob.
Period in DC	-7.2556	1.2490	-5.809	.0000
Period in FC	-0.8308	0.5690	-1.460	.1475
Period in FC-S	-0.9169	0.6536	-1.403	.1639
Period in FC-W	-0.7446	0.9315	-0.799	.4261
Period in DC-S	-2.4841	1.3704	-1.813	.0730
Period in DC-W	-12.0272	2.0886	-5.758	.0000

Least square means & confidence intervals from analysis of variance

Source	LS Mean	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period Op-1	-0.258	0.0939	-2.75	.0071	-0.1023	-0.4141
Period Op-2	1.090	0.2086	5.22	.0000	1.4360	0.7431
Op-1 0611	-3.196	0.2098	-15.23	.0000	-2.8473	-3.5443
Op-2 0611	-0.911	0.5207	-1.75	.0835	-0.0459	-1.7756
Op-1 0910	0.597	0.2237	2.67	.0089	0.9687	0.2255
Op-2 0910	1.880	0.4909	3.83	.0002	2.6958	1.0651
Op-1 0915	-0.491	0.2515	-1.95	.0537	-0.0736	-0.9092
Op-2 0915	1.559	0.5207	2.99	.0035	2.4235	0.6938
Op-1 1015	0.495	0.2515	1.97	.0521	0.9125	0.0770
Op-2 1015	0.950	0.5207	1.82	.0712	1.8150	0.0853
Op-1 1210	0.482	0.2098	2.30	.0238	0.8306	0.1336
Op-2 1210	1.664	0.4909	3.39	.0010	2.4793	0.8485
Op-1 2210	0.564	0.2293	2.46	.0157	0.9450	0.1833
Op-2 2210	1.395	0.5207	2.68	.0087	2.2598	0.5301

Paired comparisons of least square means between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period	-1.3477	0.2288	-5.892	.0000	-0.9678	-1.7277

Paired comparisons of least square means for stations between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Station 0611	-2.2851	0.5614	-4.07	.0001	-1.3527	-3.2175
Station 0910	-1.2834	0.5395	-2.38	.0193	-0.3873	-2.1794
Station 0915	-2.0500	0.5783	-3.55	.0006	-1.0896	-3.0105
Station 1015	-0.4554	0.5783	-0.79	.4329	0.5051	-1.4158
Station 1210	-1.1818	0.5339	-2.21	.0292	-0.2950	-2.0685
Station 2210	-0.8308	0.5690	-1.46	.1475	0.1142	-1.7758

Station-period means and deltas from original data where control n=1

Station-Period	N	Station Mean	Range	Standard Error	Upper 95% c.i.	Lower 95% c.i.	Mean Delta	Delta Range	Upper 95% CIi.	Lower 95% C.I.
0611 Op-1	19	33.82	23.50	1.557	37.09	30.55	-25.61	30.00	-21.39	-29.82
0611 Op-2	3	27.33	8.50	2.682	38.87	15.79	-10.83	20.50	14.75	-36.42
0910 Op-1	18	4.92	12.50	0.885	6.78	3.05	3.64	15.00	5.91	1.37
0910 Op-2	4	5.38	4.00	0.898	8.23	2.52	10.25	11.00	18.71	1.79
0915 Op-1	14	12.75	16.50	1.232	15.41	10.09	-3.46	16.50	-0.54	-6.39
0915 Op-2	3	7.67	8.50	2.682	19.21	-3.87	8.83	12.00	25.37	-7.71
1015 Op-1	14	6.04	11.50	1.010	8.22	3.85	3.25	10.50	5.18	1.32
1015 Op-2	3	10.67	9.50	2.744	22.47	-1.14	5.83	8.50	18.02	-6.36
1210 Op-1	19	5.39	11.50	0.858	7.20	3.59	2.82	13.00	4.60	1.03
1210 Op-2	4	7.50	16.50	3.758	19.46	-4.46	8.13	16.00	19.12	-2.87
2210 Op-1	16	4.75	8.00	0.627	6.09	3.41	3.75	15.00	6.14	1.36
2210 Op-2	3	6.83	12.00	3.844	23.37	-9.71	9.67	8.50	21.21	-1.87

Period means and deltas from original control data where n=1

Period	N	Station Mean	Range	Standard Error	Upper 95% C.I.	Lower 95% C.I.
Op-1	19	8.21	12.00	0.896	10.09	6.33
Op-2	4	15.63	13.00	2.882	24.80	6.45

Analysis of Variance for SLC for 0104 - Sarcodiotheca gaudichaudii

Stations = 2210, 0611, 0910, 0915, 1015, 1210

Data transformed using log base10(x + 1)

Results for Analysis of Variance

Source	Source df	Error df	F-value	Prob.
PERIOD	1	96.000	12.42	0.0007
SEASON	1	96.000	0.08	0.7782
STATION	5	96.000	0.37	0.8669
PERIOD*SEASON	1	96.000	0.32	0.5734
STATION*PERIOD	5	96.000	0.38	0.8614
STATION*SEASON	5	96.000	0.26	0.9356
PERIOD*STATION*SEASON	5	96.000	0.07	0.9970

Results for Power Analysis
Power at alpha = .1

Source	Non-Centrality Parameter	Adjusted non-Centrality Parameter	Power	Adjusted Power	Power to Detect 50% Change
PERIOD	12.42	11.16	0.9682	0.9528	0.2759
STATION*PERIOD	1.90	0.00	0.2366	.	0.1522

Estimates for contrasts on combinations of interaction terms

Source	Difference	Std. Err.	T-value	Prob.
Period in DC	-0.9136	0.2503	-3.650	.0004
Period in FC	-0.0557	0.1140	-0.489	.6261
Period in FC-S	-0.0865	0.1310	-0.660	.5107
Period in FC-W	-0.0250	0.1867	-0.134	.8938
Period in DC-S	-0.7274	0.2746	-2.649	.0094
Period in DC-W	-1.0997	0.4185	-2.628	.0100

Least square means & confidence intervals from analysis of variance

Source	LS Mean	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period Op-1	-0.021	0.0188	-1.13	.2607	0.0100	-0.0525
Period Op-2	0.140	0.0418	3.36	.0011	0.2097	0.0708
Op-1 0611	-0.018	0.0420	-0.43	.6675	0.0517	-0.0880
Op-2 0611	0.163	0.1043	1.57	.1209	0.3366	-0.0100
Op-1 0910	-0.064	0.0448	-1.43	.1553	0.0103	-0.1387
Op-2 0910	0.138	0.0984	1.41	.1632	0.3016	-0.0252
Op-1 0915	0.026	0.0504	0.52	.6014	0.1101	-0.0573
Op-2 0915	0.163	0.1043	1.57	.1209	0.3366	-0.0100
Op-1 1015	0.026	0.0504	0.52	.6014	0.1101	-0.0573
Op-2 1015	0.163	0.1043	1.57	.1209	0.3366	-0.0100
Op-1 1210	-0.118	0.0420	-2.80	.0062	-0.0479	-0.1876
Op-2 1210	0.138	0.0984	1.41	.1632	0.3016	-0.0252
Op-1 2210	0.020	0.0460	0.42	.6719	0.0958	-0.0568
Op-2 2210	0.075	0.1043	0.72	.4725	0.2486	-0.0980

Paired comparisons of least square means between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period	-0.1616	0.0458	-3.524	.0007	-0.0854	-0.2377

Paired comparisons of least square means for stations between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Station 0611	-0.1814	0.1125	-1.61	.1101	0.0054	-0.3683
Station 0910	-0.2024	0.1081	-1.87	.0642	-0.0229	-0.3820
Station 0915	-0.1369	0.1159	-1.18	.2404	0.0556	-0.3293
Station 1015	-0.1369	0.1159	-1.18	.2404	0.0556	-0.3293
Station 1210	-0.2559	0.1070	-2.39	.0187	-0.0783	-0.4336
Station 2210	-0.0557	0.1140	-0.49	.6261	0.1336	-0.2451

Station-period means and deltas from original data where control n=1

Station-Period	N	Station Mean	Range	Standard Error	Upper 95% c.i.	Lower 95% c.i.	Mean Delta	Delta Range	Upper 95% CIi.	Lower 95% C.I.
0611 Op-1	19	0.29	2.50	0.145	0.59	-0.01	-0.11	3.00	0.21	-0.42
0611 Op-2	3	0.00	0.00	0.000	.	.	0.50	1.00	1.74	-0.74
0910 Op-1	18	0.61	5.50	0.315	1.27	-0.05	-0.42	5.50	0.20	-1.03
0910 Op-2	4	0.00	0.00	0.000	.	.	0.38	1.00	1.14	-0.39
0915 Op-1	14	0.04	0.50	0.036	0.11	-0.04	0.11	0.50	0.23	-0.02
0915 Op-2	3	0.00	0.00	0.000	.	.	0.50	1.00	1.74	-0.74
1015 Op-1	14	0.04	0.50	0.036	0.11	-0.04	0.11	0.50	0.23	-0.02
1015 Op-2	3	0.00	0.00	0.000	.	.	0.50	1.00	1.74	-0.74
1210 Op-1	19	0.82	7.00	0.369	1.59	0.04	-0.63	7.00	0.13	-1.39
1210 Op-2	4	0.00	0.00	0.000	.	.	0.38	1.00	1.14	-0.39
2210 Op-1	16	0.09	1.00	0.068	0.24	-0.05	0.09	1.50	0.29	-0.11
2210 Op-2	3	0.17	0.50	0.167	0.88	-0.55	0.33	1.00	1.77	-1.10

Period means and deltas from original control data where n=1

Period	N	Station Mean	Range	Standard Error	Upper 95% C.I.	Lower 95% C.I.
Op-1	19	0.18	0.50	0.057	0.30	0.06
Op-2	4	0.38	1.00	0.239	1.14	-0.39

Analysis of Variance for SAQ for 1326 - Sargassum muticum

Stations = 2210, 0611, 0910, 0915, 1015, 1210

Data not transformed.

Results for Analysis of Variance

Source	Source df	Error df	F-value	Prob.
PERIOD	0	96.000	.	.
SEASON	0	96.000	.	.
STATION	0	96.000	.	.
PERIOD*SEASON	0	96.000	.	.
STATION*PERIOD	0	96.000	.	.
STATION*SEASON	0	96.000	.	.
PERIOD*STATION*SEASON	0	96.000	.	.

Results for Power Analysis
Power at alpha = .1

Source	Non-Centrality Parameter	Adjusted non-Centrality Parameter	Power	Adjusted Power	Power to Detect 50% Change
PERIOD	.	0.00	.	.	.
STATION*PERIOD	.	0.00	.	.	.

Estimates for contrasts on combinations of interaction terms

Source	Difference	Std. Err.	T-value	Prob.
Period in DC	0.0000	.	.	.
Period in FC	0.0000	.	.	.
Period in FC-S	0.0000	.	.	.
Period in FC-W	0.0000	.	.	.
Period in DC-S	0.0000	.	.	.
Period in DC-W	0.0000	.	.	.

Least square means & confidence intervals from analysis of variance

Source	LS Mean	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period Op-1	0.000	.	.	.	.	.
Period Op-2	0.000	.	.	.	.	.
Op-1 0611	0.000	.	.	.	.	.
Op-2 0611	0.000	.	.	.	.	.
Op-1 0910	0.000	.	.	.	.	.
Op-2 0910	0.000	.	.	.	.	.
Op-1 0915	0.000	.	.	.	.	.
Op-2 0915	0.000	.	.	.	.	.
Op-1 1015	0.000	.	.	.	.	.
Op-2 1015	0.000	.	.	.	.	.
Op-1 1210	0.000	.	.	.	.	.
Op-2 1210	0.000	.	.	.	.	.
Op-1 2210	0.000	.	.	.	.	.
Op-2 2210	0.000	.	.	.	.	.

Paired comparisons of least square means between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period	0.0000	.	.	.	.	.

Paired comparisons of least square means for stations between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Station 0611	0.0000	.	.	.	.	.
Station 0910	0.0000	.	.	.	.	.
Station 0915	0.0000	.	.	.	.	.
Station 1015	0.0000	.	.	.	.	.
Station 1210	0.0000	.	.	.	.	.
Station 2210	0.0000	.	.	.	.	.

Station-period means and deltas from original data where control n=1

Station-Period	N	Station Mean	Range	Standard Error	Upper 95% c.i.	Lower 95% c.i.	Mean Delta	Delta Range	Upper 95% CIi.	Lower 95% C.I.
0611 Op-1	19	0.00	0.00	0.000	.	.	0.00	0.00	.	.
0611 Op-2	3	0.00	0.00	0.000	.	.	0.00	0.00	.	.
0910 Op-1	18	0.00	0.00	0.000	.	.	0.00	0.00	.	.
0910 Op-2	4	0.00	0.00	0.000	.	.	0.00	0.00	.	.
0915 Op-1	14	0.00	0.00	0.000	.	.	0.00	0.00	.	.
0915 Op-2	3	0.00	0.00	0.000	.	.	0.00	0.00	.	.
1015 Op-1	14	0.00	0.00	0.000	.	.	0.00	0.00	.	.
1015 Op-2	3	0.00	0.00	0.000	.	.	0.00	0.00	.	.
1210 Op-1	19	0.00	0.00	0.000	.	.	0.00	0.00	.	.
1210 Op-2	4	0.00	0.00	0.000	.	.	0.00	0.00	.	.
2210 Op-1	16	0.00	0.00	0.000	.	.	0.00	0.00	.	.
2210 Op-2	3	0.00	0.00	0.000	.	.	0.00	0.00	.	.

Period means and deltas from original control data where n=1

Period	N	Station Mean	Range	Standard Error	Upper 95% C.I.	Lower 95% C.I.
Op-1	19	0.00	0.00	0.000	.	.
Op-2	4	0.00	0.00	0.000	.	.

Analysis of Variance for SLC for 1173 - Ulva/Enteromorpha spp.

Stations = 2210, 0611, 0910, 0915, 1015, 1210

Data transformed using log base10(x + .1)

Results for Analysis of Variance

Source	Source df	Error df	F-value	Prob.
PERIOD	1	96.000	3.76	0.0556
SEASON	1	96.000	7.92	0.0059
STATION	5	96.000	0.17	0.9716
PERIOD*SEASON	1	96.000	23.79	0.0000
STATION*PERIOD	5	96.000	0.17	0.9736
STATION*SEASON	5	96.000	0.10	0.9916
PERIOD*STATION*SEASON	5	96.000	0.13	0.9845

Results for Power Analysis
Power at alpha = .1

Source	Non-Centrality Parameter	Adjusted non-Centrality Parameter	Power	Adjusted Power	Power to Detect 50% Change
PERIOD	3.76	2.68	0.6102	0.4925	0.1049
STATION*PERIOD	0.84	0.00	0.1578	.	0.1039

Estimates for contrasts on combinations of interaction terms

Source	Difference	Std. Err.	T-value	Prob.
Period in DC	-1.6769	0.9163	-1.830	.0704
Period in FC	-0.2744	0.4174	-0.657	.5126
Period in FC-S	0.4998	0.4795	1.042	.2999
Period in FC-W	-1.0485	0.6834	-1.534	.1282
Period in DC-S	2.4601	1.0054	2.447	.0162
Period in DC-W	-5.8139	1.5323	-3.794	.0003

Least square means & confidence intervals from analysis of variance

Source	LS Mean	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period Op-1	0.233	0.0689	3.39	.0010	0.3478	0.1191
Period Op-2	0.559	0.1530	3.65	.0004	0.8129	0.3045
Op-1 0611	0.334	0.1539	2.17	.0327	0.5893	0.0780
Op-2 0611	0.342	0.3820	0.89	.3733	0.9762	-0.2928
Op-1 0910	0.088	0.1641	0.54	.5925	0.3608	-0.1845
Op-2 0910	0.472	0.3602	1.31	.1928	1.0706	-0.1258
Op-1 0915	0.145	0.1845	0.79	.4329	0.4518	-0.1612
Op-2 0915	0.602	0.3820	1.58	.1183	1.2365	-0.0324
Op-1 1015	0.223	0.1845	1.21	.2296	0.5296	-0.0833
Op-2 1015	0.602	0.3820	1.58	.1183	1.2365	-0.0324
Op-1 1210	0.283	0.1539	1.84	.0693	0.5385	0.0271
Op-2 1210	0.732	0.3602	2.03	.0449	1.3299	0.1336
Op-1 2210	0.328	0.1682	1.95	.0543	0.6071	0.0483
Op-2 2210	0.602	0.3820	1.58	.1183	1.2365	-0.0324

Paired comparisons of least square means between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period	-0.3252	0.1678	-1.938	.0556	-0.0465	-0.6039

Paired comparisons of least square means for stations between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Station 0611	-0.0081	0.4119	-0.02	.9844	0.6760	-0.6921
Station 0910	-0.3842	0.3958	-0.97	.3341	0.2732	-1.0416
Station 0915	-0.4567	0.4242	-1.08	.2844	0.2479	-1.1614
Station 1015	-0.3789	0.4242	-0.89	.3740	0.3257	-1.0836
Station 1210	-0.4490	0.3917	-1.15	.2546	0.2016	-1.0995
Station 2210	-0.2744	0.4174	-0.66	.5126	0.4189	-0.9676

Station-period means and deltas from original data where control n=1

Station-Period	N	Station Mean	Range	Standard Error	Upper 95% c.i.	Lower 95% c.i.	Mean Delta	Delta Range	Upper 95% CIi.	Lower 95% C.I.
0611 Op-1	19	0.00	0.00	0.000	.	.	0.55	3.00	1.01	0.09
0611 Op-2	3	0.33	1.00	0.333	1.77	-1.10	0.17	2.50	3.29	-2.96
0910 Op-1	18	0.31	2.50	0.152	0.63	-0.02	0.28	5.50	0.92	-0.37
0910 Op-2	4	0.25	0.50	0.144	0.71	-0.21	0.25	2.00	1.77	-1.27
0915 Op-1	14	0.07	0.50	0.049	0.18	-0.03	0.39	3.50	0.98	-0.20
0915 Op-2	3	0.00	0.00	0.000	.	.	0.50	1.50	2.65	-1.65
1015 Op-1	14	0.00	0.00	0.000	.	.	0.46	3.00	1.04	-0.11
1015 Op-2	3	0.00	0.00	0.000	.	.	0.50	1.50	2.65	-1.65
1210 Op-1	19	0.11	2.00	0.105	0.33	-0.12	0.45	3.00	0.88	0.02
1210 Op-2	4	0.00	0.00	0.000	.	.	0.50	1.50	1.63	-0.63
2210 Op-1	16	0.00	0.00	0.000	.	.	0.47	2.50	0.90	0.04
2210 Op-2	3	0.00	0.00	0.000	.	.	0.50	1.50	2.65	-1.65

Period means and deltas from original control data where n=1

Period	N	Station Mean	Range	Standard Error	Upper 95% C.I.	Lower 95% C.I.
Op-1	19	0.55	3.00	0.219	1.01	0.09
Op-2	4	0.50	1.50	0.354	1.63	-0.63

Analysis of Variance for SLC for 0003 - bare rock

Stations = 2210, 0611, 0910, 0915, 1015, 1210

Data transformed using log base10(x + .5)

Results for Analysis of Variance

Source	Source df	Error df	F-value	Prob.
PERIOD	1	96.000	8.98	0.0035
SEASON	1	96.000	0.04	0.8359
STATION	5	96.000	4.62	0.0008
PERIOD*SEASON	1	96.000	0.38	0.5404
STATION*PERIOD	5	96.000	0.75	0.5913
STATION*SEASON	5	96.000	1.50	0.1984
PERIOD*STATION*SEASON	5	96.000	1.79	0.1216

Results for Power Analysis
Power at alpha = .1

Source	Non-Centrality Parameter	Adjusted non-Centrality Parameter	Power	Adjusted Power	Power to Detect 50% Change
PERIOD	8.98	7.79	0.9084	0.8702	0.7869
STATION*PERIOD	3.73	0.00	0.3778		0.1334

Estimates for contrasts on combinations of interaction terms

Source	Difference	Std. Err.	T-value	Prob.
Period in DC	2.0285	0.6469	3.136	.0023
Period in FC	0.1019	0.2947	0.346	.7302
Period in FC-S	0.4782	0.3386	1.412	.1611
Period in FC-W	-0.2744	0.4825	-0.569	.5709
Period in DC-S	1.2155	0.7098	1.712	.0900
Period in DC-W	2.8415	1.0818	2.627	.0100

Least square means & confidence intervals from analysis of variance

Source	LS Mean	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period Op-1	-0.012	0.0486	-0.25	.8014	0.0685	-0.0930
Period Op-2	-0.367	0.1080	-3.40	.0010	-0.1879	-0.5468
Op-1 0611	-0.520	0.1087	-4.78	.0000	-0.3395	-0.7006
Op-2 0611	-0.725	0.2697	-2.69	.0085	-0.2771	-1.1730
Op-1 0910	-0.170	0.1159	-1.47	.1445	0.0220	-0.3630
Op-2 0910	-0.709	0.2543	-2.79	.0064	-0.2867	-1.1313
Op-1 0915	0.116	0.1303	0.89	.3735	0.3328	-0.0999
Op-2 0915	-0.369	0.2697	-1.37	.1741	0.0787	-0.8172
Op-1 1015	0.306	0.1303	2.35	.0209	0.5223	0.0895
Op-2 1015	0.195	0.2697	0.72	.4725	0.6425	-0.2534
Op-1 1210	0.117	0.1087	1.08	.2849	0.2974	-0.0636
Op-2 1210	-0.571	0.2543	-2.25	.0270	-0.1487	-0.9933
Op-1 2210	0.078	0.1188	0.65	.5147	0.2749	-0.1196
Op-2 2210	-0.024	0.2697	-0.09	.9286	0.4237	-0.4722

Paired comparisons of least square means between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period	0.3551	0.1185	2.997	.0035	0.5519	0.1583

Paired comparisons of least square means for stations between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Station 0611	0.2050	0.2908	0.71	.4825	0.6879	-0.2779
Station 0910	0.5385	0.2794	1.93	.0569	1.0026	0.0744
Station 0915	0.4858	0.2995	1.62	.1081	0.9832	-0.0117
Station 1015	0.1114	0.2995	0.37	.7108	0.6088	-0.3861
Station 1210	0.6879	0.2765	2.49	.0146	1.1472	0.2286
Station 2210	0.1019	0.2947	0.35	.7302	0.5914	-0.3875

Station-period means and deltas from original data where control n=1

Station-Period	N	Station Mean	Range	Standard Error	Upper 95% c.i.	Lower 95% c.i.	Mean Delta	Delta Range	Upper 95% CIi.	Lower 95% C.I.
0611 Op-1	19	8.84	23.00	1.770	12.56	5.12	-6.92	30.50	-2.74	-11.11
0611 Op-2	3	4.67	7.00	2.028	13.39	-4.06	-4.17	7.50	5.32	-13.65
0910 Op-1	18	2.61	17.00	0.924	4.56	0.66	-0.86	25.50	1.48	-3.20
0910 Op-2	4	6.50	15.00	3.617	18.01	-5.01	-6.00	14.50	5.01	-17.01
0915 Op-1	14	2.25	17.00	1.191	4.82	-0.32	-0.11	5.50	0.92	-1.13
0915 Op-2	3	5.33	14.00	4.586	25.06	-14.40	-4.83	13.50	13.85	-23.52
1015 Op-1	14	0.96	3.50	0.285	1.58	0.35	1.18	16.00	3.34	-0.98
1015 Op-2	3	0.17	0.50	0.167	0.88	-0.55	0.33	0.50	1.05	-0.38
1210 Op-1	19	1.24	5.50	0.325	1.92	0.55	0.68	11.50	1.88	-0.51
1210 Op-2	4	3.13	9.50	2.154	9.98	-3.73	-2.63	9.00	4.17	-9.42
2210 Op-1	16	1.16	4.00	0.328	1.86	0.46	0.66	15.00	2.49	-1.18
2210 Op-2	3	1.00	2.00	0.577	3.48	-1.48	-0.50	2.50	2.79	-3.79

Period means and deltas from original control data where n=1

Period	N	Station Mean	Range	Standard Error	Upper 95% C.I.	Lower 95% C.I.
Op-1	19	1.92	14.00	0.721	3.44	0.41
Op-2	4	0.50	1.00	0.204	1.15	-0.15

Analysis of Variance for SLC for ACOV - Total Cover

Stations = 2210, 0611, 0910, 0915, 1015, 1210

Data transformed using log base10(x + 1)

Results for Analysis of Variance

Source	Source df	Error df	F-value	Prob.
PERIOD	1	96.000	35.57	0.0000
SEASON	1	96.000	0.97	0.3272
STATION	5	96.000	10.67	0.0000
PERIOD*SEASON	1	96.000	0.15	0.6967
STATION*PERIOD	5	96.000	1.35	0.2498
STATION*SEASON	5	96.000	0.27	0.9280
PERIOD*STATION*SEASON	5	96.000	1.20	0.3145

Results for Power Analysis
Power at alpha = .1

Source	Non-Centrality Parameter	Adjusted non-Centrality Parameter	Power	Adjusted Power	Power to Detect 50% Change
PERIOD	35.57	33.83	1.0000	1.0000	1.0000
STATION*PERIOD	6.75	1.61	0.5913	0.2148	0.1003

Estimates for contrasts on combinations of interaction terms

Source	Difference	Std. Err.	T-value	Prob.
Period in DC	-0.6588	0.1185	-5.561	.0000
Period in FC	-0.1176	0.0540	-2.179	.0318
Period in FC-S	-0.1093	0.0620	-1.762	.0812
Period in FC-W	-0.1259	0.0883	-1.425	.1574
Period in DC-S	-0.6163	0.1300	-4.741	.0000
Period in DC-W	-0.7014	0.1981	-3.541	.0006

Least square means & confidence intervals from analysis of variance

Source	LS Mean	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period Op-1	-0.048	0.0089	-5.34	.0000	-0.0328	-0.0623
Period Op-2	0.082	0.0198	4.14	.0001	0.1147	0.0490
Op-1 0611	-0.167	0.0199	-8.37	.0000	-0.1335	-0.1996
Op-2 0611	0.032	0.0494	0.65	.5155	0.1143	-0.0498
Op-1 0910	-0.091	0.0212	-4.28	.0000	-0.0557	-0.1262
Op-2 0910	0.077	0.0466	1.66	.1003	0.1546	-0.0001
Op-1 0915	-0.056	0.0239	-2.35	.0207	-0.0165	-0.0957
Op-2 0915	0.081	0.0494	1.63	.1054	0.1628	-0.0013
Op-1 1015	0.097	0.0239	4.07	.0001	0.1367	0.0575
Op-2 1015	0.229	0.0494	4.64	.0000	0.3111	0.1471
Op-1 1210	0.058	0.0199	2.90	.0047	0.0907	0.0246
Op-2 1210	0.081	0.0466	1.73	.0866	0.1580	0.0033
Op-1 2210	-0.126	0.0217	-5.81	.0000	-0.0903	-0.1625
Op-2 2210	-0.009	0.0494	-0.18	.8584	0.0732	-0.0909

Paired comparisons of least square means between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period	-0.1294	0.0217	-5.964	.0000	-0.0934	-0.1654

Paired comparisons of least square means for stations between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Station 0611	-0.1988	0.0532	-3.73	.0003	-0.1104	-0.2872
Station 0910	-0.1682	0.0512	-3.29	.0014	-0.0832	-0.2532
Station 0915	-0.1368	0.0548	-2.50	.0143	-0.0458	-0.2279
Station 1015	-0.1320	0.0548	-2.41	.0180	-0.0409	-0.2231
Station 1210	-0.0230	0.0506	-0.45	.6510	0.0611	-0.1071
Station 2210	-0.1176	0.0540	-2.18	.0318	-0.0280	-0.2072

Station-period means and deltas from original data where control n=1

Station-Period	N	Station Mean	Range	Standard Error	Upper 95% c.i.	Lower 95% c.i.	Mean Delta	Delta Range	Upper 95% CIi.	Lower 95% C.I.
0611 Op-1	19	192.05	107.50	6.172	205.02	179.09	-53.66	79.50	-43.19	-64.12
0611 Op-2	3	157.33	77.00	22.229	252.98	61.69	4.17	62.00	83.75	-75.42
0910 Op-1	18	169.94	138.50	8.787	188.48	151.41	-28.39	142.00	-11.95	-44.83
0910 Op-2	4	133.38	49.50	11.375	169.58	97.17	28.38	51.50	63.83	-7.08
0915 Op-1	14	159.29	134.00	8.911	178.54	140.03	-15.96	100.00	-1.93	-29.99
0915 Op-2	3	128.67	21.50	6.366	156.06	101.28	32.83	62.50	116.77	-51.10
1015 Op-1	14	112.75	90.50	7.348	128.62	96.88	30.57	101.00	47.09	14.06
1015 Op-2	3	92.00	28.00	8.083	126.78	57.22	69.50	56.00	143.69	-4.69
1210 Op-1	19	124.16	124.00	7.803	140.55	107.76	14.24	134.00	27.39	1.08
1210 Op-2	4	125.00	47.00	11.149	160.48	89.52	36.75	56.50	75.59	-2.09
2210 Op-1	16	188.16	115.00	9.046	207.44	168.88	-46.22	85.50	-35.70	-56.73
2210 Op-2	3	165.50	86.50	26.002	277.38	53.62	-4.00	5.00	2.21	-10.21

Period means and deltas from original control data where n=1

Period	N	Station Mean	Range	Standard Error	Upper 95% C.I.	Lower 95% C.I.
Op-1	19	138.39	116.00	7.604	154.37	122.42
Op-2	4	161.75	84.00	17.665	217.97	105.53

Analysis of Variance for SLC for ADIV - Diversity

Stations = 2210, 0611, 0910, 0915, 1015, 1210

Data transformed using square root(x + 1)

Results for Analysis of Variance

Source	Source df	Error df	F-value	Prob.
PERIOD	1	96.000	23.80	0.0000
SEASON	1	96.000	0.11	0.7409
STATION	5	96.000	3.66	0.0045
PERIOD*SEASON	1	96.000	1.15	0.2871
STATION*PERIOD	5	96.000	1.13	0.3510
STATION*SEASON	5	96.000	0.50	0.7768
PERIOD*STATION*SEASON	5	96.000	0.51	0.7715

Results for Power Analysis
Power at alpha = .1

Source	Non-Centrality Parameter	Adjusted non-Centrality Parameter	Power	Adjusted Power	Power to Detect 50% Change
PERIOD	23.80	22.30	0.9993	0.9988	1.0000
STATION*PERIOD	5.64	0.52	0.5176	0.1350	0.2128

Estimates for contrasts on combinations of interaction terms

Source	Difference	Std. Err.	T-value	Prob.
Period in DC	-0.4357	0.0963	-4.527	.0000
Period in FC	-0.0802	0.0438	-1.830	.0704
Period in FC-S	-0.1097	0.0504	-2.177	.0319
Period in FC-W	-0.0508	0.0718	-0.708	.4808
Period in DC-S	-0.2931	0.1056	-2.775	.0066
Period in DC-W	-0.5784	0.1610	-3.593	.0005

Least square means & confidence intervals from analysis of variance

Source	LS Mean	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period Op-1	-0.013	0.0072	-1.76	.0818	-0.0007	-0.0247
Period Op-2	0.073	0.0161	4.56	.0000	0.1000	0.0466
Op-1 0611	-0.029	0.0162	-1.77	.0798	-0.0018	-0.0555
Op-2 0611	0.142	0.0401	3.54	.0006	0.2088	0.0755
Op-1 0910	-0.037	0.0172	-2.12	.0364	-0.0079	-0.0652
Op-2 0910	0.014	0.0378	0.38	.7051	0.0772	-0.0485
Op-1 0915	-0.046	0.0194	-2.38	.0192	-0.0140	-0.0784
Op-2 0915	0.043	0.0401	1.06	.2897	0.1094	-0.0239
Op-1 1015	0.053	0.0194	2.73	.0076	0.0851	0.0207
Op-2 1015	0.134	0.0401	3.35	.0012	0.2011	0.0678
Op-1 1210	-0.022	0.0162	-1.39	.1674	0.0044	-0.0494
Op-2 1210	0.021	0.0378	0.56	.5784	0.0839	-0.0417
Op-1 2210	0.005	0.0177	0.26	.7930	0.0340	-0.0247
Op-2 2210	0.085	0.0401	2.12	.0370	0.1515	0.0182

Paired comparisons of least square means between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period	-0.0860	0.0176	-4.878	.0000	-0.0567	-0.1153

Paired comparisons of least square means for stations between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Station 0611	-0.1708	0.0433	-3.95	.0002	-0.0989	-0.2426
Station 0910	-0.0509	0.0416	-1.23	.2234	0.0181	-0.1200
Station 0915	-0.0889	0.0446	-1.99	.0489	-0.0149	-0.1629
Station 1015	-0.0816	0.0446	-1.83	.0703	-0.0075	-0.1556
Station 1210	-0.0436	0.0411	-1.06	.2920	0.0247	-0.1119
Station 2210	-0.0802	0.0438	-1.83	.0704	-0.0074	-0.1531

Station-period means and deltas from original data where control n=1

Station-Period	N	Station Mean	Range	Standard Error	Upper 95% c.i.	Lower 95% c.i.	Mean Delta	Delta Range	Upper 95% CIi.	Lower 95% C.I.
0611 Op-1	19	2.13	0.55	0.032	2.20	2.07	-0.07	0.82	0.03	-0.17
0611 Op-2	3	1.89	0.30	0.089	2.27	1.50	0.46	0.59	1.29	-0.38
0910 Op-1	18	2.21	0.86	0.058	2.33	2.08	-0.12	1.07	0.02	-0.27
0910 Op-2	4	2.30	0.36	0.081	2.56	2.05	0.02	0.47	0.37	-0.32
0915 Op-1	14	2.21	0.74	0.053	2.33	2.10	-0.17	0.60	-0.08	-0.25
0915 Op-2	3	2.19	0.21	0.060	2.45	1.93	0.15	0.50	0.77	-0.46
1015 Op-1	14	1.81	0.80	0.056	1.94	1.69	0.23	0.79	0.38	0.08
1015 Op-2	3	1.86	0.51	0.150	2.51	1.21	0.48	0.19	0.72	0.24
1210 Op-1	19	2.14	1.09	0.064	2.27	2.01	-0.08	0.87	0.03	-0.18
1210 Op-2	4	2.28	0.35	0.083	2.55	2.02	0.04	0.38	0.33	-0.25
2210 Op-1	16	2.04	0.65	0.038	2.12	1.96	0.03	0.75	0.15	-0.09
2210 Op-2	3	1.99	0.55	0.172	2.73	1.25	0.35	0.39	0.84	-0.14

Period means and deltas from original control data where n=1

Period	N	Station Mean	Range	Standard Error	Upper 95% C.I.	Lower 95% C.I.
Op-1	19	2.06	0.78	0.048	2.17	1.96
Op-2	4	2.33	0.70	0.144	2.79	1.87

Analysis of Variance for SLC for ASPP - Spp. Algae

Stations = 2210, 0611, 0910, 0915, 1015, 1210

Data not transformed.

Results for Analysis of Variance

Source	Source df	Error df	F-value	Prob.
PERIOD	1	96.000	6.49	0.0124
SEASON	1	96.000	0.01	0.9201
STATION	5	96.000	7.31	0.0000
PERIOD*SEASON	1	96.000	0.02	0.8814
STATION*PERIOD	5	96.000	0.60	0.7034
STATION*SEASON	5	96.000	0.93	0.4638
PERIOD*STATION*SEASON	5	96.000	0.74	0.5934

Results for Power Analysis
Power at alpha = .1

Source	Non-Centrality Parameter	Adjusted non-Centrality Parameter	Power	Adjusted Power	Power to Detect 50% Change
PERIOD	6.49	5.36	0.8121	0.7434	1.0000
STATION*PERIOD	2.98	0.00	0.3199	.	0.5195

Estimates for contrasts on combinations of interaction terms

Source	Difference	Std. Err.	T-value	Prob.
Period in DC	-10.3901	3.8704	-2.685	.0086
Period in FC	-0.4489	1.7631	-0.255	.7996
Period in FC-S	-2.6477	2.0254	-1.307	.1943
Period in FC-W	1.7500	2.8864	0.606	.5457
Period in DC-S	-7.5551	4.2465	-1.779	.0784
Period in DC-W	-13.2250	6.4720	-2.043	.0438

Least square means & confidence intervals from analysis of variance

Source	LS Mean	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period Op-1	0.926	0.2909	3.18	.0020	1.4093	0.4430
Period Op-2	2.733	0.6464	4.23	.0001	3.8062	1.6590
Op-1 0611	4.756	0.6502	7.32	.0000	5.8363	3.6765
Op-2 0611	8.313	1.6135	5.15	.0000	10.9924	5.6326
Op-1 0910	0.046	0.6933	0.07	.9471	1.1976	-1.1053
Op-2 0910	0.542	1.5212	0.36	.7226	3.0683	-1.9849
Op-1 0915	0.488	0.7794	0.63	.5331	1.7820	-0.8070
Op-2 0915	1.500	1.6135	0.93	.3549	4.1799	-1.1799
Op-1 1015	0.150	0.7794	0.19	.8478	1.4445	-1.1445
Op-2 1015	2.563	1.6135	1.59	.1155	5.2424	-0.1174
Op-1 1210	-0.872	0.6502	-1.34	.1832	0.2081	-1.9517
Op-2 1210	2.042	1.5212	1.34	.1827	4.5683	-0.4849
Op-1 2210	0.989	0.7106	1.39	.1673	2.1688	-0.1915
Op-2 2210	1.437	1.6135	0.89	.3752	4.1174	-1.2424

Paired comparisons of least square means between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period	-1.8065	0.7088	-2.549	.0124	-0.6292	-2.9838

Paired comparisons of least square means for stations between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Station 0611	-3.5561	1.7396	-2.04	.0437	-0.6668	-6.4454
Station 0910	-0.4955	1.6718	-0.30	.7676	2.2811	-3.2721
Station 0915	-1.0125	1.7919	-0.57	.5734	1.9636	-3.9886
Station 1015	-2.4125	1.7919	-1.35	.1814	0.5636	-5.3886
Station 1210	-2.9135	1.6544	-1.76	.0814	-0.1657	-5.6612
Station 2210	-0.4489	1.7631	-0.25	.7996	2.4794	-3.3771

Station-period means and deltas from original data where control n=1

Station-Period	N	Station Mean	Range	Standard Error	Upper 95% c.i.	Lower 95% c.i.	Mean Delta	Delta Range	Upper 95% CIi.	Lower 95% C.I.
0611 Op-1	19	12.37	11.50	0.670	13.78	10.96	4.88	10.25	6.25	3.51
0611 Op-2	3	10.25	1.25	0.382	11.89	8.61	8.00	8.75	19.20	-3.20
0910 Op-1	18	17.39	10.50	0.619	18.70	16.08	0.00	10.25	1.34	-1.34
0910 Op-2	4	17.88	2.25	0.545	19.61	16.14	0.69	6.75	5.12	-3.75
0915 Op-1	14	17.39	10.00	0.781	19.08	15.71	-0.27	8.75	1.34	-1.88
0915 Op-2	3	17.08	3.00	0.961	21.22	12.95	1.17	6.00	9.15	-6.82
1015 Op-1	14	16.54	8.25	0.593	17.82	15.25	0.59	7.50	1.98	-0.80
1015 Op-2	3	16.00	7.75	2.268	25.76	6.24	2.25	2.50	5.36	-0.86
1210 Op-1	19	17.74	12.50	0.705	19.22	16.26	-0.49	9.00	0.76	-1.73
1210 Op-2	4	16.38	4.50	0.971	19.46	13.29	2.19	7.25	7.18	-2.81
2210 Op-1	16	16.25	5.50	0.383	17.07	15.43	0.98	8.25	1.99	-0.02
2210 Op-2	3	16.08	8.00	2.382	26.33	5.83	2.17	6.00	9.63	-5.29

Period means and deltas from original control data where n=1

Period	N	Station Mean	Range	Standard Error	Upper 95% C.I.	Lower 95% C.I.
Op-1	19	17.25	7.50	0.432	18.16	16.34
Op-2	4	18.56	9.00	1.872	24.52	12.61

Analysis of Variance for SFQ for 0288 - Acmaea mitra

Stations = 2210, 0611, 0910, 0915, 1015, 1210

Data transformed using log base10(x + .1)

Results for Analysis of Variance

Source	Source df	Error df	F-value	Prob.
PERIOD	1	102.000	2.16	0.1449
SEASON	1	102.000	24.60	0.0000
STATION	5	102.000	2.00	0.0846
PERIOD*SEASON	1	102.000	14.32	0.0003
STATION*PERIOD	5	102.000	1.69	0.1442
STATION*SEASON	5	102.000	0.54	0.7474
PERIOD*STATION*SEASON	5	102.000	0.37	0.8669

Results for Power Analysis
Power at alpha = .1

Source	Non-Centrality Parameter	Adjusted non-Centrality Parameter	Power	Adjusted Power	Power to Detect 50% Change
PERIOD	2.16	1.12	0.4273	0.2792	0.9341
STATION*PERIOD	8.44	3.27	0.6893	0.3436	0.1263

Estimates for contrasts on combinations of interaction terms

Source	Difference	Std. Err.	T-value	Prob.
Period in DC	-1.1698	0.7102	-1.647	.1026
Period in FC	0.0234	0.3235	0.072	.9425
Period in FC-S	0.4929	0.3700	1.332	.1858
Period in FC-W	-0.4461	0.5307	-0.841	.4026
Period in DC-S	1.3141	0.7756	1.694	.0933
Period in DC-W	-3.6537	1.1900	-3.070	.0027

Least square means & confidence intervals from analysis of variance

Source	LS Mean	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period Op-1	-0.307	0.0528	-5.81	.0000	-0.2192	-0.3946
Period Op-2	-0.116	0.1189	-0.97	.3320	0.0814	-0.3131
Op-1 0611	0.202	0.1182	1.71	.0898	0.3986	0.0062
Op-2 0611	0.096	0.2967	0.33	.7457	0.5890	-0.3960
Op-1 0910	-0.317	0.1262	-2.51	.0135	-0.1079	-0.5268
Op-2 0910	-0.306	0.2797	-1.09	.2765	0.1583	-0.7703
Op-1 0915	-0.584	0.1414	-4.13	.0001	-0.3489	-0.8184
Op-2 0915	-0.326	0.2967	-1.10	.2742	0.1663	-0.8186
Op-1 1015	-0.387	0.1414	-2.74	.0073	-0.1527	-0.6222
Op-2 1015	-0.349	0.2967	-1.17	.2428	0.1439	-0.8410
Op-1 1210	-0.520	0.1182	-4.40	.0000	-0.3241	-0.7165
Op-2 1210	0.448	0.2797	1.60	.1125	0.9120	-0.0166
Op-1 2210	-0.235	0.1289	-1.82	.0711	-0.0211	-0.4492
Op-2 2210	-0.259	0.2967	-0.87	.3855	0.2339	-0.7510

Paired comparisons of least square means between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period	-0.1911	0.1301	-1.469	.1449	0.0248	-0.4070

Paired comparisons of least square means for stations between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Station 0611	0.1059	0.3194	0.33	.7408	0.6361	-0.4242
Station 0910	-0.0113	0.3069	-0.04	.9706	0.4980	-0.5207
Station 0915	-0.2575	0.3287	-0.78	.4351	0.2880	-0.8031
Station 1015	-0.0389	0.3287	-0.12	.9060	0.5067	-0.5845
Station 1210	-0.9680	0.3037	-3.19	.0019	-0.4640	-1.4721
Station 2210	0.0234	0.3235	0.07	.9425	0.5604	-0.5136

Station-period means and deltas from original data where control n=1

Station-Period	N	Station Mean	Range	Standard Error	Upper 95% c.i.	Lower 95% c.i.	Mean Delta	Delta Range	Upper 95% CIi.	Lower 95% C.I.
0611 Op-1	20	0.30	1.00	0.072	0.45	0.15	0.25	2.00	0.47	0.03
0611 Op-2	3	0.58	1.00	0.300	1.88	-0.71	0.25	2.25	3.10	-2.60
0910 Op-1	19	1.46	6.25	0.336	2.17	0.75	-0.88	6.25	-0.23	-1.53
0910 Op-2	4	2.13	1.25	0.260	2.95	1.30	-1.06	3.50	1.35	-3.48
0915 Op-1	15	2.40	6.25	0.489	3.45	1.35	-1.78	5.00	-0.96	-2.60
0915 Op-2	3	2.00	4.00	1.181	7.08	-3.08	-1.17	4.75	5.05	-7.39
1015 Op-1	15	1.72	4.75	0.361	2.49	0.94	-1.10	5.75	-0.26	-1.94
1015 Op-2	3	1.83	2.50	0.833	5.42	-1.75	-1.00	4.50	4.59	-6.59
1210 Op-1	20	1.86	4.00	0.244	2.37	1.35	-1.31	3.75	-0.76	-1.86
1210 Op-2	4	0.88	1.75	0.361	2.02	-0.27	0.19	3.75	2.83	-2.46
2210 Op-1	17	0.88	2.00	0.119	1.13	0.62	-0.30	1.75	-0.08	-0.53
2210 Op-2	3	1.08	0.50	0.167	1.80	0.37	-0.25	2.25	2.60	-3.10

Period means and deltas from original control data where n=1

Period	N	Station Mean	Range	Standard Error	Upper 95% C.I.	Lower 95% C.I.
Op-1	20	0.55	1.75	0.122	0.81	0.29
Op-2	4	1.06	2.25	0.553	2.82	-0.70

Analysis of Variance for SFQ for 0306 - Alia spp.

Stations = 2210, 0611, 0910, 0915, 1015, 1210

Data transformed using log base10(x + 1)

Results for Analysis of Variance

Source	Source df	Error df	F-value	Prob.
PERIOD	1	102.000	6.87	0.0101
SEASON	1	102.000	1.74	0.1901
STATION	5	102.000	2.84	0.0191
PERIOD*SEASON	1	102.000	0.06	0.8062
STATION*PERIOD	5	102.000	1.11	0.3575
STATION*SEASON	5	102.000	0.86	0.5117
PERIOD*STATION*SEASON	5	102.000	0.31	0.9089

Results for Power Analysis
Power at alpha = .1

Source	Non-Centrality Parameter	Adjusted non-Centrality Parameter	Power	Adjusted Power	Power to Detect 50% Change
PERIOD	6.87	5.74	0.8313	0.7687	0.7384
STATION*PERIOD	5.57	0.46	0.5142	0.1311	0.1231

Estimates for contrasts on combinations of interaction terms

Source	Difference	Std. Err.	T-value	Prob.
Period in DC	1.0199	0.4710	2.166	.0327
Period in FC	0.3368	0.2145	1.570	.1195
Period in FC-S	0.3692	0.2454	1.505	.1355
Period in FC-W	0.3044	0.3519	0.865	.3891
Period in DC-S	0.8602	0.5143	1.673	.0975
Period in DC-W	1.1796	0.7891	1.495	.1381

Least square means & confidence intervals from analysis of variance

Source	LS Mean	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period Op-1	0.018	0.0350	0.50	.6168	0.0757	-0.0406
Period Op-2	-0.209	0.0788	-2.65	.0094	-0.0777	-0.3394
Op-1 0611	-0.122	0.0784	-1.55	.1235	0.0084	-0.2518
Op-2 0611	-0.690	0.1967	-3.51	.0007	-0.3634	-1.0166
Op-1 0910	-0.100	0.0837	-1.19	.2357	0.0391	-0.2387
Op-2 0910	-0.039	0.1855	-0.21	.8352	0.2692	-0.3466
Op-1 0915	0.137	0.0938	1.46	.1482	0.2923	-0.0190
Op-2 0915	-0.155	0.1967	-0.79	.4328	0.1716	-0.4815
Op-1 1015	0.182	0.0938	1.94	.0548	0.3379	0.0265
Op-2 1015	0.095	0.1967	0.48	.6300	0.4216	-0.2315
Op-1 1210	-0.008	0.0784	-0.10	.9171	0.1219	-0.1383
Op-2 1210	-0.142	0.1855	-0.77	.4453	0.1658	-0.4500
Op-1 2210	0.016	0.0855	0.19	.8488	0.1583	-0.1256
Op-2 2210	-0.320	0.1967	-1.63	.1064	0.0061	-0.6470

Paired comparisons of least square means between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period	0.2261	0.0863	2.622	.0101	0.3693	0.0829

Paired comparisons of least square means for stations between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Station 0611	0.5683	0.2118	2.68	.0085	0.9198	0.2168
Station 0910	-0.0611	0.2035	-0.30	.7645	0.2766	-0.3989
Station 0915	0.2916	0.2179	1.34	.1839	0.6534	-0.0702
Station 1015	0.0872	0.2179	0.40	.6900	0.4489	-0.2746
Station 1210	0.1340	0.2014	0.67	.5074	0.4682	-0.2003
Station 2210	0.3368	0.2145	1.57	.1195	0.6929	-0.0193

Station-period means and deltas from original data where control n=1

Station-Period	N	Station Mean	Range	Standard Error	Upper 95% c.i.	Lower 95% c.i.	Mean Delta	Delta Range	Upper 95% CIi.	Lower 95% C.I.
0611 Op-1	20	3.00	14.00	0.736	4.54	1.46	-1.78	18.25	0.02	-3.57
0611 Op-2	3	10.25	16.50	5.268	32.92	-12.42	-9.42	15.50	12.30	-31.13
0910 Op-1	19	1.93	6.25	0.440	2.86	1.01	-0.67	6.75	0.09	-1.43
0910 Op-2	4	0.44	1.00	0.213	1.12	-0.24	0.19	1.50	1.33	-0.96
0915 Op-1	15	0.68	2.50	0.197	1.11	0.26	0.70	6.25	1.68	-0.28
0915 Op-2	3	2.75	6.25	1.909	10.97	-5.47	-1.92	5.25	5.28	-9.11
1015 Op-1	15	0.63	2.75	0.233	1.13	0.13	0.75	6.00	1.66	-0.16
1015 Op-2	3	0.33	0.25	0.083	0.69	-0.03	0.50	1.00	1.74	-0.74
1210 Op-1	20	1.28	3.00	0.180	1.65	0.90	-0.05	5.75	0.65	-0.75
1210 Op-2	4	2.63	8.25	1.970	8.89	-3.64	-2.00	9.00	4.91	-8.91
2210 Op-1	17	1.87	8.00	0.536	3.00	0.73	-0.50	9.50	0.85	-1.85
2210 Op-2	3	4.25	7.50	2.179	13.63	-5.13	-3.42	6.50	4.78	-11.62

Period means and deltas from original control data where n=1

Period	N	Station Mean	Range	Standard Error	Upper 95% C.I.	Lower 95% C.I.
Op-1	20	1.23	4.50	0.282	1.82	0.63
Op-2	4	0.63	1.25	0.298	1.57	-0.32

Analysis of Variance for SPQ for 0631 - Amphissa spp.

Stations = 2210, 0611, 0910, 0915, 1015, 1210

Data transformed using log base10(x + .1)

Results for Analysis of Variance

Source	Source df	Error df	F-value	Prob.
PERIOD	1	102.000	8.88	0.0036
SEASON	1	102.000	1.99	0.1618
STATION	5	102.000	2.42	0.0411
PERIOD*SEASON	1	102.000	2.29	0.1332
STATION*PERIOD	5	102.000	1.15	0.3403
STATION*SEASON	5	102.000	0.18	0.9696
PERIOD*STATION*SEASON	5	102.000	0.10	0.9918

Results for Power Analysis
Power at alpha = .1

Source	Non-Centrality Parameter	Adjusted non-Centrality Parameter	Power	Adjusted Power	Power to Detect 50% Change
PERIOD	8.88	7.71	0.9059	0.8672	0.5848
STATION*PERIOD	5.74	0.63	0.5256	0.1425	0.1098

Estimates for contrasts on combinations of interaction terms

Source	Difference	Std. Err.	T-value	Prob.
Period in DC	-2.6109	0.8734	-2.989	.0035
Period in FC	-0.2495	0.3978	-0.627	.5319
Period in FC-S	0.1187	0.4550	0.261	.7947
Period in FC-W	-0.6178	0.6527	-0.947	.3461
Period in DC-S	-1.5264	0.9538	-1.600	.1126
Period in DC-W	-3.6955	1.4634	-2.525	.0131

Least square means & confidence intervals from analysis of variance

Source	LS Mean	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period Op-1	-0.058	0.0650	-0.90	.3725	0.0497	-0.1661
Period Op-2	0.419	0.1462	2.86	.0051	0.6612	0.1759
Op-1 0611	-0.217	0.1454	-1.49	.1385	0.0243	-0.4583
Op-2 0611	-0.084	0.3648	-0.23	.8183	0.5216	-0.6896
Op-1 0910	0.201	0.1552	1.29	.1984	0.4586	-0.0567
Op-2 0910	0.979	0.3440	2.85	.0054	1.5498	0.4079
Op-1 0915	0.193	0.1739	1.11	.2689	0.4821	-0.0954
Op-2 0915	0.132	0.3648	0.36	.7190	0.7372	-0.4740
Op-1 1015	-0.118	0.1739	-0.68	.5008	0.1712	-0.4062
Op-2 1015	0.715	0.3648	1.96	.0527	1.3209	0.1096
Op-1 1210	-0.105	0.1454	-0.72	.4715	0.1362	-0.3463
Op-2 1210	0.824	0.3440	2.40	.0184	1.3949	0.2530
Op-1 2210	-0.304	0.1586	-1.92	.0581	-0.0407	-0.5671
Op-2 2210	-0.054	0.3648	-0.15	.8818	0.5513	-0.6600

Paired comparisons of least square means between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period	-0.4767	0.1600	-2.980	.0036	-0.2112	-0.7423

Paired comparisons of least square means for stations between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Station 0611	-0.1330	0.3927	-0.34	.7356	0.5189	-0.7849
Station 0910	-0.7779	0.3774	-2.06	.0418	-0.1515	-1.4043
Station 0915	0.0617	0.4042	0.15	.8789	0.7326	-0.6092
Station 1015	-0.8327	0.4042	-2.06	.0419	-0.1618	-1.5037
Station 1210	-0.9290	0.3734	-2.49	.0145	-0.3091	-1.5489
Station 2210	-0.2495	0.3978	-0.63	.5319	0.4108	-0.9099

Station-period means and deltas from original data where control n=1

Station-Period	N	Station Mean	Range	Standard Error	Upper 95% c.i.	Lower 95% c.i.	Mean Delta	Delta Range	Upper 95% CIi.	Lower 95% C.I.
0611 Op-1	20	1.11	3.75	0.218	1.57	0.66	-0.49	5.75	0.10	-1.08
0611 Op-2	3	1.58	2.00	0.583	4.09	-0.93	-0.75	2.50	2.36	-3.86
0910 Op-1	19	0.32	1.75	0.099	0.52	0.11	0.33	4.25	0.77	-0.12
0910 Op-2	4	0.00	0.00	0.000	.	.	0.81	0.50	1.19	0.43
0915 Op-1	15	0.52	2.75	0.180	0.90	0.13	0.20	5.00	0.86	-0.46
0915 Op-2	3	0.67	0.50	0.167	1.38	-0.05	0.17	0.50	0.88	-0.55
1015 Op-1	15	1.37	4.50	0.371	2.16	0.57	-0.65	5.50	0.23	-1.53
1015 Op-2	3	0.33	1.00	0.333	1.77	-1.10	0.50	1.00	1.74	-0.74
1210 Op-1	20	1.01	3.50	0.238	1.51	0.52	-0.39	4.25	0.06	-0.84
1210 Op-2	4	0.19	0.75	0.188	0.78	-0.41	0.63	0.75	1.14	0.11
2210 Op-1	17	1.08	2.50	0.179	1.46	0.70	-0.46	4.25	0.07	-0.99
2210 Op-2	3	2.33	5.50	1.833	10.22	-5.55	-1.50	6.00	7.11	-10.11

Period means and deltas from original control data where n=1

Period	N	Station Mean	Range	Standard Error	Upper 95% C.I.	Lower 95% C.I.
Op-1	20	0.63	2.75	0.162	0.96	0.29
Op-2	4	0.81	0.50	0.120	1.19	0.43

Analysis of Variance for SAQ for 0510 - Anisodoris nobilis

Stations = 2210, 0611, 0910, 0915, 1015, 1210

Data transformed using log base10(x + .1)

Results for Analysis of Variance

Source	Source df	Error df	F-value	Prob.
PERIOD	1	96.000	0.04	0.8454
SEASON	1	96.000	5.66	0.0194
STATION	5	96.000	0.98	0.4367
PERIOD*SEASON	1	96.000	6.18	0.0146
STATION*PERIOD	5	96.000	0.81	0.5452
STATION*SEASON	5	96.000	0.28	0.9232
PERIOD*STATION*SEASON	5	96.000	0.91	0.4756

Results for Power Analysis
Power at alpha = .1

Source	Non-Centrality Parameter	Adjusted non-Centrality Parameter	Power	Adjusted Power	Power to Detect 50% Change
PERIOD	0.04	0.00	0.1064	.	0.3431
STATION*PERIOD	4.05	0.00	0.4024	.	0.1209

Estimates for contrasts on combinations of interaction terms

Source	Difference	Std. Err.	T-value	Prob.
Period in DC	-0.1114	0.5451	-0.204	.8385
Period in FC	-0.0057	0.2483	-0.023	.9816
Period in FC-S	0.5093	0.2853	1.785	.0774
Period in FC-W	-0.5208	0.4065	-1.281	.2033
Period in DC-S	0.8628	0.5981	1.442	.1524
Period in DC-W	-1.0855	0.9116	-1.191	.2366

Least square means & confidence intervals from analysis of variance

Source	LS Mean	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period Op-1	-0.155	0.0410	-3.77	.0003	-0.0865	-0.2226
Period Op-2	-0.135	0.0910	-1.48	.1413	0.0162	-0.2863
Op-1 0611	0.047	0.0916	0.52	.6062	0.1995	-0.1047
Op-2 0611	-0.000	0.2273	-0.00	1.000	0.3775	-0.3775
Op-1 0910	-0.147	0.0976	-1.50	.1365	0.0156	-0.3088
Op-2 0910	-0.480	0.2143	-2.24	.0275	-0.1239	-0.8356
Op-1 0915	-0.340	0.1098	-3.09	.0026	-0.1573	-0.5219
Op-2 0915	-0.000	0.2273	-0.00	1.000	0.3775	-0.3775
Op-1 1015	-0.193	0.1098	-1.76	.0813	-0.0111	-0.3757
Op-2 1015	-0.136	0.2273	-0.60	.5509	0.2414	-0.5135
Op-1 1210	-0.095	0.0916	-1.04	.3025	0.0572	-0.2470
Op-2 1210	0.000	0.2143	0.00	1.000	0.3559	-0.3559
Op-1 2210	-0.200	0.1001	-2.00	.0482	-0.0341	-0.3665
Op-2 2210	-0.195	0.2273	-0.86	.3941	0.1829	-0.5720

Paired comparisons of least square means between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period	-0.0195	0.0998	-0.196	.8454	0.1463	-0.1853

Paired comparisons of least square means for stations between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Station 0611	0.0474	0.2450	0.19	.8471	0.4543	-0.3596
Station 0910	0.3331	0.2355	1.41	.1604	0.7242	-0.0580
Station 0915	-0.3396	0.2524	-1.35	.1816	0.0796	-0.7588
Station 1015	-0.0574	0.2524	-0.23	.8207	0.3618	-0.4765
Station 1210	-0.0949	0.2330	-0.41	.6846	0.2921	-0.4819
Station 2210	-0.0057	0.2483	-0.02	.9816	0.4067	-0.4182

Station-period means and deltas from original data where control n=1

Station-Period	N	Station Mean	Range	Standard Error	Upper 95% c.i.	Lower 95% c.i.	Mean Delta	Delta Range	Upper 95% CIi.	Lower 95% C.I.
0611 Op-1	19	0.01	0.25	0.013	0.04	-0.01	0.05	0.75	0.13	-0.02
0611 Op-2	3	0.00	0.00	0.000	.	.	0.00	0.00	.	.
0910 Op-1	18	0.11	0.50	0.042	0.20	0.02	-0.04	0.75	0.06	-0.15
0910 Op-2	4	0.19	0.50	0.120	0.57	-0.19	-0.19	0.50	0.19	-0.57
0915 Op-1	14	0.27	1.00	0.103	0.49	0.05	-0.21	1.25	0.04	-0.47
0915 Op-2	3	0.00	0.00	0.000	.	.	0.00	0.00	.	.
1015 Op-1	14	0.16	1.50	0.110	0.40	-0.08	-0.11	1.75	0.15	-0.36
1015 Op-2	3	0.08	0.25	0.083	0.44	-0.28	-0.08	0.25	0.28	-0.44
1210 Op-1	19	0.08	0.75	0.047	0.18	-0.02	-0.01	1.25	0.12	-0.14
1210 Op-2	4	0.00	0.00	0.000	.	.	0.00	0.00	.	.
2210 Op-1	16	0.17	1.25	0.088	0.36	-0.01	-0.09	1.50	0.11	-0.30
2210 Op-2	3	0.17	0.50	0.167	0.88	-0.55	-0.17	0.50	0.55	-0.88

Period means and deltas from original control data where n=1

Period	N	Station Mean	Range	Standard Error	Upper 95% C.I.	Lower 95% C.I.
Op-1	19	0.07	0.50	0.032	0.13	-0.00
Op-2	4	0.00	0.00	0.000	.	.

Analysis of Variance for SAQ for 0263 - Anthopleura artemisia

Stations = 2210, 0611, 0910, 0915, 1015, 1210

Data transformed using log base10(x + .1)

Results for Analysis of Variance

Source	Source df	Error df	F-value	Prob.
PERIOD	1	96.000	3.06	0.0833
SEASON	1	96.000	0.39	0,5345
STATION	5	96.000	2.82	0.0201
PERIOD*SEASON	1	96.000	0.21	0.6494
STATION*PERIOD	5	96.000	0.44	0.8203
STATION*SEASON	5	96.000	1.15	0.3381
PERIOD*STATION*SEASON	5	96.000	0.12	0.9881

Results for Power Analysis
Power at alpha = .1

Source	Non-Centrality Parameter	Adjusted non-Centrality Parameter	Power	Adjusted Power	Power to Detect 50% Change
PERIOD	3.06	2.00	0.5373	0.4059	0.3968
STATION*PERIOD	2.19	0.00	0.2592	.	0.1764

Estimates for contrasts on combinations of interaction terms

Source	Difference	Std. Err.	T-value	Prob.
Period in DC	0.9625	0.7085	1.358	.1775
Period in FC	0.4000	0.3228	1.239	.2183
Period in FC-S	0.4887	0.3708	1.318	.1906
Period in FC-W	0.3113	0.5284	0.589	.5572
Period in DC-S	1.2288	0.7774	1.581	.1172
Period in DC-W	0.6962	1.1848	0.588	.5582

Least square means & confidence intervals from analysis of variance

Source	LS Mean	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period Op-1	0.108	0.0533	2.03	.0448	0.1967	0.0198
Period Op-2	-0.119	0.1183	-1.00	.3178	0.0777	-0.3154
Op-1 0611	-0.305	0.1190	-2.56	.0119	-0.1076	-0.5030
Op-2 0611	-0.343	0.2954	-1.16	.2488	0.1478	-0.8334
Op-1 0910	0.415	0.1269	3.27	.0015	0.6258	0.2043
Op-2 0910	0.155	0.2785	0.56	.5794	0.6174	-0.3076
Op-1 0915	0.344	0.1427	2.41	.0179	0.5806	0.1066
Op-2 0915	-0.000	0.2954	-0.00	1.000	0.4906	-0.4906
Op-1 1015	-0.113	0.1427	-0.79	.4305	0.1240	-0.3499
Op-2 1015	-0.525	0.2954	-1.78	.0786	-0.0345	-1.0157
Op-1 1210	-0.091	0.1190	-0.76	.4474	0.1069	-0.2885
Op-2 1210	-0.000	0.2785	-0.00	1.000	0.4625	-0.4625
Op-1 2210	0.400	0.1301	3.07	.0027	0.6160	0.1839
Op-2 2210	0.000	0.2954	0.00	1.000	0.4906	-0.4906

Paired comparisons of least square means between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period	0.2271	0.1298	1.750	.0833	0.4426	0.0116

Paired comparisons of least square means for stations between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Station 0611	0.0375	0.3185	0.12	.9066	0.5664	-0.4915
Station 0910	0.2601	0.3060	0.85	.3974	0.7684	-0.2482
Station 0915	0.3436	0.3280	1.05	.2975	0.8885	-0.2012
Station 1015	0.4121	0.3280	1.26	.2120	0.9570	-0.1327
Station 1210	-0.0908	0.3029	-0.30	.7650	0.4122	-0.5938
Station 2210	0.4000	0.3228	1.24	.2183	0.9360	-0.1361

Station-period means and deltas from original data where control n=1

Station-Period	N	Station Mean	Range	Standard Error	Upper 95% c.i.	Lower 95% c.i.	Mean Delta	Delta Range	Upper 95% CIi.	Lower 95% C.I.
0611 Op-1	19	1.51	5.50	0.356	2.26	0.77	-1.09	5.75	-0.37	-1.82
0611 Op-2	3	0.75	2.25	0.750	3.98	-2.48	-0.75	2.25	2.48	-3.98
0910 Op-1	18	0.06	1.00	0.056	0.17	-0.06	0.32	1.75	0.54	0.09
0910 Op-2	4	0.00	0.00	0.000	.	.	0.19	0.75	0.78	-0.41
0915 Op-1	14	0.16	1.00	0.085	0.35	-0.02	0.27	1.50	0.50	0.03
0915 Op-2	3	0.00	0.00	0.000	.	.	0.00	0.00	.	.
1015 Op-1	14	0.45	1.00	0.088	0.64	0.26	-0.02	1.75	0.26	-0.29
1015 Op-2	3	0.25	0.50	0.144	0.87	-0.37	-0.25	0.50	0.37	-0.87
1210 Op-1	19	0.59	3.00	0.184	0.98	0.21	-0.17	2.75	0.17	-0.51
1210 Op-2	4	0.19	0.75	0.188	0.78	-0.41	0.00	0.00	.	.
2210 Op-1	16	0.03	0.25	0.021	0.08	-0.01	0.34	1.25	0.57	0.12
2210 Op-2	3	0.00	0.00	0.000	.	.	0.00	0.00	.	.

Period means and deltas from original control data where n=1

Period	N	Station Mean	Range	Standard Error	Upper 95% C.I.	Lower 95% C.I.
Op-1	19	0.42	1.25	0.094	0.62	0.22
Op-2	4	0.19	0.75	0.188	0.78	-0.41

Analysis of Variance for SAQ for 0264 - Anthopleura elegantissima

Stations = 2210, 0611, 0910, 0915, 1015, 1210

Data transformed using log base10(x + .1)

Results for Analysis of Variance

Source	Source df	Error df	F-value	Prob.
PERIOD	1	96.000	1.47	0.2289
SEASON	1	96.000	2.51	0.1161
STATION	5	96.000	24.12	0.0000
PERIOD*SEASON	1	96.000	6.39	0.0131
STATION*PERIOD	5	96.000	0.84	0.5239
STATION*SEASON	5	96.000	0.44	0.8189
PERIOD*STATION*SEASON	5	96.000	0.37	0.8664

Results for Power Analysis
Power at alpha = .1

Source	Non-Centrality Parameter	Adjusted non-Centrality Parameter	Power	Adjusted Power	Power to Detect 50% Change
PERIOD	1.47	0.44	0.3313	0.1719	0.9964
STATION*PERIOD	4.20	0.00	0.4140	.	0.1468

Estimates for contrasts on combinations of interaction terms

Source	Difference	Std. Err.	T-value	Prob.
Period in DC	0.6782	0.5627	1.205	.2311
Period in FC	0.0706	0.2563	0.275	.7836
Period in FC-S	0.3084	0.2945	1.047	.2976
Period in FC-W	-0.1672	0.4197	-0.399	.6911
Period in DC-S	2.0033	0.6174	3.245	.0016
Period in DC-W	-0.6470	0.9410	-0.688	.4934

Least square means & confidence intervals from analysis of variance

Source	LS Mean	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period Op-1	0.210	0.0423	4.97	.0000	0.2806	0.1402
Period Op-2	0.086	0.0940	0.91	.3646	0.2417	-0.0705
Op-1 0611	-0.680	0.0945	-7.19	.0000	-0.5229	-0.8369
Op-2 0611	-0.418	0.2346	-1.78	.0780	-0.0283	-0.8076
Op-1 0910	0.374	0.1008	3.71	.0003	0.5412	0.2064
Op-2 0910	-0.043	0.2212	-0.20	.8446	0.3239	-0.4108
Op-1 0915	0.009	0.1133	0.08	.9341	0.1976	-0.1788
Op-2 0915	-0.187	0.2346	-0.80	.4279	0.2029	-0.5764
Op-1 1015	-0.252	0.1133	-2.22	.0285	-0.0639	-0.4403
Op-2 1015	-0.507	0.2346	-2.16	.0331	-0.1175	-0.8968
Op-1 1210	0.707	0.0945	7.48	.0000	0.8639	0.5499
Op-2 1210	0.635	0.2212	2.87	.0050	1.0027	0.2680
Op-1 2210	1.104	0.1033	10.69	.0000	1.2759	0.9327
Op-2 2210	1.034	0.2346	4.41	.0000	1.4234	0.6441

Paired comparisons of least square means between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period	0.1248	0.1031	1.211	.2289	0.2960	-0.0464

Paired comparisons of least square means for stations between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Station 0611	-0.2620	0.2529	-1.04	.3029	0.1581	-0.6821
Station 0910	0.4173	0.2431	1.72	.0893	0.8210	0.0136
Station 0915	0.1962	0.2605	0.75	.4533	0.6289	-0.2365
Station 1015	0.2551	0.2605	0.98	.3299	0.6878	-0.1776
Station 1210	0.0716	0.2405	0.30	.7666	0.4711	-0.3279
Station 2210	0.0706	0.2563	0.28	.7836	0.4963	-0.3552

Station-period means and deltas from original data where control n=1

Station-Period	N	Station Mean	Range	Standard Error	Upper 95% c.i.	Lower 95% c.i.	Mean Delta	Delta Range	Upper 95% CII.	Lower 95% C.I.
0611 Op-1	19	30.07	56.00	3.816	38.08	22.05	-24.57	58.25	-16.15	-32.98
0611 Op-2	3	10.33	14.50	4.268	28.70	-8.03	-6.67	8.50	5.02	-18.36
0910 Op-1	18	2.19	4.00	0.309	2.85	1.54	3.15	11.25	4.73	1.57
0910 Op-2	4	6.19	5.75	1.247	10.16	2.22	-1.69	9.50	4.54	-7.91
0915 Op-1	14	4.82	6.50	0.547	6.00	3.64	0.23	10.00	1.84	-1.37
0915 Op-2	3	5.42	1.50	0.464	7.41	3.42	-1.75	4.75	4.73	-8.23
1015 Op-1	14	9.16	12.25	1.201	11.76	6.57	-4.11	12.75	-1.78	-6.44
1015 Op-2	3	12.08	8.75	2.543	23.02	1.14	-8.42	9.25	3.47	-20.30
1210 Op-1	19	1.16	3.25	0.197	1.57	0.74	4.34	8.75	5.61	3.07
1210 Op-2	4	1.13	0.75	0.217	1.81	0.44	3.38	6.75	8.33	-1.58
2210 Op-1	16	1.03	7.75	0.579	2.26	-0.20	4.58	12.25	6.15	3.01
2210 Op-2	3	0.25	0.50	0.144	0.87	-0.37	3.42	5.75	10.61	-3.78

Period means and deltas from original control data where n=1

Period	N	Station Mean	Range	Standard Error	Upper 95% C.I.	Lower 95% C.I.
Op-1	19	5.50	9.00	0.689	6.95	4.05
Op-2	4	4.50	6.00	1.500	9.27	-0.27

Analysis of Variance for SAQ for 0424 - Asterina miniata

Stations = 2210, 0611, 0910, 0915, 1015, 1210

Data transformed using log base10(x + .1)

Results for Analysis of Variance

Source	Source df	Error df	F-value	Prob.
PERIOD	1	96.000	17.32	0.0001
SEASON	1	96.000	0.59	0.4436
STATION	5	96.000	10.27	0.0000
PERIOD*SEASON	1	96.000	0.57	0.4531
STATION*PERIOD	5	96.000	3.60	0.0050
STATION*SEASON	5	96.000	0.22	0.9548
PERIOD*STATION*SEASON	5	96,000	0.25	0.9408

Results for Power Analysis
Power at alpha = .1

Source	Non-Centrality Parameter	Adjusted non-Centrality Parameter	Power	Adjusted Power	Power to Detect 50% Change
PERIOD	17.32	15.96	0.9936	0.9899	0.8884
STATION*PERIOD	18.02	12.64	0.9530	0.8549	0.1248

Estimates for contrasts on combinations of interaction terms

Source	Difference	Std. Err.	T-value	Prob.
Period in DC	-3.6265	0.7576	-4.787	.0000
Period in FC	0.1621	0.3451	0.470	.6396
Period in FC-S	-0.1823	0.3965	-0.460	.6467
Period in FC-W	0.5065	0.5650	0.897	.3722
Period in DC-S	-3.9091	0.8312	-4.703	.0000
Period in DC-W	-3.3438	1.2668	-2.640	.0097

Least square means & confidence intervals from analysis of variance

Source	LS Mean	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period Op-1	0.716	0.0569	12.57	.0000	0.8101	0.6210
Period Op-2	1.293	0.1265	10.22	.0000	1.5031	1.0828
Op-1 0611	-0.022	0.1273	-0.17	.8654	0.1898	-0.2330
Op-2 0611	1.437	0.3158	4.55	.0000	1.9612	0.9121
Op-1 0910	1.359	0.1357	10.01	.0000	1.5841	1.1333
Op-2 0910	1.921	0.2978	6.45	.0000	2.4153	1.4262
Op-1 0915	0.903	0.1526	5.92	.0000	1.1563	0.6496
Op-2 0915	1.903	0.3158	6.03	.0000	2.4278	1.3787
Op-1 1015	0.838	0.1526	5.49	.0000	1.0916	0.5848
Op-2 1015	0.646	0.3158	2.04	.0436	1.1703	0.1212
Op-1 1210	0.934	0.1273	7.34	.0000	1.1455	0.7227
Op-2 1210	1.732	0.2978	5.82	.0000	2.2269	1.2378
Op-1 2210	0.281	0.1391	2.02	.0463	0.5118	0.0498
Op-2 2210	0.119	0.3158	0.38	.7079	0.6432	-0.4059

Paired comparisons of least square means between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period	-0.5774	0.1387	-4.162	.0001	-0.3470	-0.8078

Paired comparisons of least square means for stations between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Station 0611	-1.4583	0.3405	-4.28	.0000	-0.8928	-2.0239
Station 0910	-0.5620	0.3272	-1.72	.0891	-0.0185	-1.1055
Station 0915	-1.0003	0.3507	-2.85	.0053	-0.4178	-1.5829
Station 1015	0.1924	0.3507	0.55	.5845	0.7750	-0.3901
Station 1210	-0.7982	0.3238	-2.46	.0155	-0.2604	-1.3360
Station 2210	0.1621	0.3451	0.47	.6396	0.7353	-0.4110

Station-period means and deltas from original data where control n=1

Station-Period	N	Station Mean	Range	Standard Error	Upper 95% C.I.	Lower 95% C.I.	Mean Delta	Delta Range	Upper 95% CIi.	Lower 95% C.I.
0611 Op-1	19	19.37	54.75	3.812	27.38	11.36	-12.41	57.00	-4.94	-19.88
0611 Op-2	3	0.25	0.50	0.144	0.87	-0.37	8.33	3.50	12.91	3.76
0910 Op-1	18	0.39	1.75	0.116	0.63	0.14	6.69	10.75	8.15	5.23
0910 Op-2	4	0.00	0.00	0.000	.	.	9.50	5.75	13.33	5.67
0915 Op-1	14	1.20	3.50	0.281	1.80	0.59	6.25	10.00	7.96	4.54
0915 Op-2	3	0.00	0.00	0.000	.	.	8.58	3.75	13.33	3.84
1015 Op-1	14	1.25	3.50	0.287	1.87	0.63	6.20	10.50	8.02	4.37
1015 Op-2	3	1.92	1.75	0.546	4.27	-0.43	6.67	4.00	11.84	1.50
1210 Op-1	19	0.89	2.50	0.156	1.22	0.57	6.07	10.75	7.47	4.66
1210 Op-2	4	0.31	1.25	0.313	1.31	-0.68	9.19	4.50	12.33	6.05
2210 Op-1	16	3.81	4.50	0.350	4.56	3.07	3.66	9.00	5.11	2.20
2210 Op-2	3	5.83	8.00	2.587	16.97	-5.30	2.75	11.25	18.37	-12.87

Period means and deltas from original control data where n=1

Period	N	Station Mean	Range	Standard Error	Upper 95% C.I.	Lower 95% C.I.
Op-1	19	6.96	12.50	0.708	8.45	5.47
Op-2	4	9.50	5.75	1.203	13.33	5.67

Analysis of Variance for SFQ for 0495 - Balanophyllia elegans

Stations = 2210, 0611, 0910, 0915, 1015, 1210

Data transformed using log base10(x + .1)

Results for Analysis of Variance

Source	Source df	Error df	F-value	Prob.
PERIOD	1	102.000	0.14	0.7140
SEASON	1	102.000	4.06	0.0465
STATION	5	102.000	18.89	0.0000
PERIOD*SEASON	1	102.000	1.17	0.2828
STATION*PERIOD	5	102.000	0.86	0.5134
STATION*SEASON	5	102.000	0.16	0.9774
PERIOD*STATION*SEASON	5	102.000	0.17	0.9724

Results for Power Analysis
Power at alpha = .1

Source	Non-Centrality Parameter	Adjusted non-Centrality Parameter	Power	Adjusted Power	Power to Detect 50% Change
PERIOD	0.14	0.00	0.1225	.	0.3391
STATION*PERIOD	4.28	0.00	0.4206	.	0.2158

Estimates for contrasts on combinations of interaction terms

Source	Difference	Std. Err.	T-value	Prob.
Period in DC	0.3421	0.6410	0.534	.5947
Period in FC	-0.0833	0.2920	-0.285	.7761
Period in FC-S	-0.2493	0.3340	-0.747	.4571
Period in FC-W	0.0828	0.4790	0.173	.8631
Period in DC-S	-0.2524	0.7000	-0.361	.7192
Period in DC-W	0.9365	1.0740	0.872	.3852

Least square means & confidence intervals from analysis of variance

Source	LS Mean	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period Op-1	0.442	0.0477	9.28	.0000	0.5215	0.3632
Period Op-2	0.399	0.1073	3.72	.0003	0.5773	0.2212
Op-1 0611	0.655	0.1067	6.14	.0000	0.8320	0.4778
Op-2 0611	0.739	0.2678	2.76	.0069	1.1831	0.2941
Op-1 0910	0.772	0.1139	6.78	.0000	0.9609	0.5828
Op-2 0910	0.738	0.2524	2.92	.0043	1.1570	0.3189
Op-1 0915	0.524	0.1276	4.11	.0001	0.7359	0.3121
Op-2 0915	0.739	0.2678	2.76	.0069	1.1831	0.2941
Op-1 1015	-0.598	0.1276	-4.68	.0000	-0.3857	-0.8095
Op-2 1015	-1.167	0.2678	-4.36	.0000	-0.7222	-1.6111
Op-1 1210	0.646	0.1067	6.05	.0000	0.8228	0.4687
Op-2 1210	0.608	0.2524	2.41	.0178	1.0273	0.1893
Op-1 2210	0.655	0.1164	5.63	.0000	0.8485	0.4622
Op-2 2210	0.739	0.2678	2.76	.0069	1.1831	0.2941

Paired comparisons of least square means between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period	0.0431	0.1174	0.367	.7140	0.2380	-0.1517

Paired comparisons of least square means for stations between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Station 0611	-0.0837	0.2882	-0.29	.7721	0.3948	-0.5621
Station 0910	0.0338	0.2770	0.12	.9030	0.4936	-0.4259
Station 0915	-0.2146	0.2966	-0.72	.4711	0.2778	-0.7070
Station 1015	0.5690	0.2966	1.92	.0579	1.0614	0.0767
Station 1210	0.0375	0.2741	0.14	.8916	0.4924	-0.4175
Station 2210	-0.0833	0.2920	-0.29	.7761	0.4014	-0.5679

Station-period means and deltas from original data where control n=1

Station-Period	N	Station Mean	Range	Standard Error	Upper 95% c.i.	Lower 95% c.i.	Mean Delta	Delta Range	Upper 95% CIi.	Lower 95% C.I.
0611 Op-1	20	0.29	4.50	0.226	0.76	-0.19	0.39	6.00	0.94	-0.17
0611 Op-2	3	0.00	0.00	0.000	.	.	0.83	1.75	3.34	-1.68
0910 Op-1	19	0.01	0.25	0.013	0.04	-0.01	0.68	1.75	0.89	0.48
0910 Op-2	4	0.00	0.00	0.000	.	.	0.81	1.75	2.13	-0.50
0915 Op-1	15	0.17	0.75	0.053	0.28	0.05	0.50	1.75	0.73	0.27
0915 Op-2	3	0.00	0.00	0.000	.	.	0.83	1.75	3.34	-1.68
1015 Op-1	15	2.37	5.00	0.343	3.10	1.63	-1.70	5.75	-0.90	-2.50
1015 Op-2	3	8.25	7.25	2.126	17.40	-0.90	-7.42	9.00	4.12	-18.96
1210 Op-1	20	0.05	0.25	0.023	0.10	0.00	0.63	1.75	0.83	0.42
1210 Op-2	4	0.13	0.50	0.125	0.52	-0.27	0.69	1.25	1.63	-0.25
2210 Op-1	17	0.07	0.25	0.028	0.13	0.01	0.65	1.50	0.86	0.44
2210 Op-2	3	0.00	0.00	0.000	.	.	0.83	1.75	3.34	-1.68

Period means and deltas from original control data where n=1

Period	N	Station Mean	Range	Standard Error	Upper 95% C.I.	Lower 95% C.I.
Op-1	20	0.68	1.75	0.094	0.87	0.48
Op-2	4	0.81	1.75	0.413	2.13	-0.50

Analysis of Variance for SFQ for 0394 - Balanus spp.

Stations = 2210, 0611, 0910, 0915, 1015, 1210

Data transformed using log base10(x + 1)

Results for Analysis of Variance

Source	Source df	Error df	F-value	Prob.
PERIOD	1	102.000	17.15	0.0001
SEASON	1	102.000	28.96	0.0000
STATION	5	102.000	0.04	0.9990
PERIOD*SEASON	1	102.000	23.50	0.0000
STATION*PERIOD	5	102.000	0.03	0.9996
STATION*SEASON	5	102.000	0.01	1.0000
PERIOD*STATION*SEASON	5	102.000	0.02	0.9999

Results for Power Analysis
Power at alpha = .1

Source	Non-Centrality Parameter	Adjusted non-Centrality Parameter	Power	Adjusted Power	Power to Detect 50% Change
PERIOD	17.15	15.81	0.9932	0.9894	0.1197
STATION*PERIOD	0.14	0.00	0.1091	.	0.1029

Estimates for contrasts on combinations of interaction terms

Source	Difference	Std. Err.	T-value	Prob.
Period in DC	-2.4735	0.6456	-3.831	.0002
Period in FC	-0.4642	0.2941	-1.578	.1176
Period in FC-S	0.0899	0.3364	0.267	.7897
Period in FC-W	-1.0182	0.4825	-2.111	.0373
Period in DC-S	0.4118	0.7051	0.584	.5605
Period in DC-W	-5.3588	1.0818	-4.954	.0000

Least square means & confidence intervals from analysis of variance

Source	LS Mean	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period Op-1	0.110	0.0480	2.29	.0244	0.1895	0.0300
Period Op-2	0.599	0.1080	5.55	.0000	0.7787	0.4200
Op-1 0611	0.079	0.1075	0.73	.4656	0.2571	-0.0997
Op-2 0611	0.602	0.2697	2.23	.0278	1.0497	0.1544
Op-1 0910	0.126	0.1147	1.10	.2757	0.3162	-0.0647
Op-2 0910	0.602	0.2543	2.37	.0198	1.0241	0.1800
Op-1 0915	0.108	0.1286	0.84	.4047	0.3210	-0.1059
Op-2 0915	0.602	0.2697	2.23	.0278	1.0497	0.1544
Op-1 1015	0.181	0.1286	1.41	.1614	0.3948	-0.0321
Op-2 1015	0.602	0.2697	2.23	.0278	1.0497	0.1544
Op-1 1210	0.027	0.1075	0.25	.7998	0.2057	-0.1510
Op-2 1210	0.586	0.2543	2.30	.0232	1.0080	0.1638
Op-1 2210	0.138	0.1172	1.18	.2421	0.3325	-0.0567
Op-2 2210	0.602	0.2697	2.23	.0278	1.0497	0.1544

Paired comparisons of least square means between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period	-0.4896	0.1182	-4.141	.0001	-0.2933	-0.6859

Paired comparisons of least square means for stations between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Station 0611	-0.5234	0.2903	-1.80	.0744	-0.0415	-1.0053
Station 0910	-0.4763	0.2790	-1.71	.0908	-0.0133	-0.9394
Station 0915	-0.4945	0.2988	-1.66	.1010	0.0015	-0.9904
Station 1015	-0.4207	0.2988	-1.41	.1621	0.0752	-0.9167
Station 1210	-0.5586	0.2760	-2.02	.0456	-0.1004	-1.0168
Station 2210	-0.4642	0.2941	-1.58	.1176	0.0240	-0.9523

Station-period means and deltas from original data where control n=1

Station-Period	N	Station Mean	Range	Standard Error	Upper 95% C.I.	Lower 95% C.I.	Mean Delta	Delta Range	Upper 95% CIi.	Lower 95% C.I.
0611 Op-1	20	0.64	8.75	0.443	1.56	-0.29	1.23	32.50	4.06	-1.61
0611 Op-2	3	0.00	0.00	0.000	.	.	5.00	15.00	26.51	-16.51
0910 Op-1	19	0.66	11.25	0.589	1.90	-0.58	1.30	12.75	2.92	-0.32
0910 Op-2	4	0.00	0.00	0.000	.	.	3.75	15.00	15.68	-8.18
0915 Op-1	15	0.55	5.50	0.374	1.35	-0.25	1.87	29.25	5.57	-1.83
0915 Op-2	3	0.00	0.00	0.000	.	.	5.00	15.00	26.51	-16.51
1015 Op-1	15	0.17	1.50	0.108	0.40	-0.07	2.25	25.25	5.77	-1.27
1015 Op-2	3	0.00	0.00	0.000	.	.	5.00	15.00	26.51	-16.51
1210 Op-1	20	1.09	12.50	0.693	2.54	-0.36	0.78	36.25	3.88	-2.33
1210 Op-2	4	0.06	0.25	0.063	0.26	-0.14	3.69	15.25	15.69	-8.31
2210 Op-1	17	0.00	0.00	0.000	.	.	0.79	7.50	1.88	-0.29
2210 Op-2	3	0.00	0.00	0.000	.	.	5.00	15.00	26.51	-16.51

Period means and deltas from original control data where n=1

Period	N	Station Mean	Range	Standard Error	Upper 95% C.I.	Lower 95% C.I.
Op-1	20	1.86	23.75	1.232	4.44	-0.72
Op-2	4	3.75	15.00	3.750	15.68	-8.18

Analysis of Variance for SPQ for 0773 - Balanus/Tetraclita spp.

Stations = 2210, 0611, 0910, 0915, 1015, 1210

Data transformed using log base10(x + 1)

Results for Analysis of Variance

Source	Source df	Error df	F-value	Prob.
PERIOD	1	102.000	6.25	0.0140
SEASON	1	102.000	0.84	0.3628
STATION	5	102.000	0.37	0.8701
PERIOD*SEASON	1	102.000	0.83	0.3650
STATION*PERIOD	5	102.000	0.77	0.5757
STATION*SEASON	5	102.000	0.69	0.6290
PERIOD*STATION*SEASON	5	102.000	0.53	0.7529

Results for Power Analysis
Power at alpha = .1

Source	Non-Centrality Parameter	Adjusted non-Centrality Parameter	Power	Adjusted Power	Power to Detect 50% Change
PERIOD	6.25	5.13	0.7992	0.7273	0.2030
STATION*PERIOD	3.83	0.00	0.3868	.	0.1239

Estimates for contrasts on combinations of interaction terms

Source	Difference	Std. Err.	T-value	Prob.
Period in DC	-2.0160	0.8414	-2.396	.0184
Period in FC	-0.2953	0.3832	-0.771	.4428
Period in FC-S	-0.6794	0.4383	-1.550	.1243
Period in FC-W	0.0888	0.6287	0.141	.8879
Period in DC-S	-2.4733	0.9188	-2.692	.0083
Period in DC-W	-1.5588	1.4097	-1.106	.2714

Least square means & confidence intervals from analysis of variance

Source	LS Mean	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period Op-1	0.109	0.0626	1.74	.0848	0.2128	0.0050
Period Op-2	0.494	0.1408	3.51	.0007	0.7279	0.2604
Op-1 0611	0.252	0.1400	1.80	.0749	0.4844	0.0196
Op-2 0611	0.682	0.3515	1.94	.0549	1.2658	0.0990
Op-1 0910	-0.297	0.1495	-1.98	.0498	-0.0486	-0.5449
Op-2 0910	0.613	0.3314	1.85	.0670	1.1634	0.0634
Op-1 0915	0.221	0.1676	1.32	.1900	0.4992	-0.0571
Op-2 0915	0.254	0.3515	0.72	.4709	0.8377	-0.3291
Op-1 1015	0.365	0.1676	2.18	.0317	0.6430	0.0868
Op-2 1015	0.442	0.3515	1.26	.2112	1.0256	-0.1412
Op-1 1210	-0.024	0.1400	-0.17	.8626	0.2081	-0.2567
Op-2 1210	0.541	0.3314	1.63	.1059	1.0906	-0.0095
Op-1 2210	0.137	0.1527	0.89	.3730	0.3902	-0.1169
Op-2 2210	0.432	0.3515	1.23	.2219	1.0153	-0.1514

Paired comparisons of least square means between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period	-0.3852	0.1541	-2.500	.0140	-0.1294	-0.6410

Paired comparisons of least square means for stations between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Station 0611	-0.4304	0.3783	-1.14	.2579	0.1976	-1.0584
Station 0910	-0.9102	0.3635	-2.50	.0139	-0.3067	-1.5136
Station 0915	-0.0333	0.3894	-0.09	.9320	0.6130	-0.6796
Station 1015	-0.0773	0.3894	-0.20	.8431	0.5690	-0.7236
Station 1210	-0.5649	0.3597	-1.57	.1194	0.0322	-1.1620
Station 2210	-0.2953	0.3832	-0.77	.4428	0.3408	-0.9314

Station-period means and deltas from original data where control n=1

Station-Period	N	Station Mean	Range	Standard Error	Upper 95% c.i.	Lower 95% c.i.	Mean Delta	Delta Range	Upper 95% CII.	Lower 95% C.I.
0611 Op-1	20	0.24	1.75	0.106	0.46	0.01	2.63	21.00	5.07	0.18
0611 Op-2	3	0.25	0.75	0.250	1.33	-0.83	5.00	3.00	8.88	1.12
0910 Op-1	19	5.28	16.25	1.250	7.90	2.65	-2.26	34.50	1.38	-5.91
0910 Op-2	4	1.31	5.25	1.313	5.49	-2.86	4.25	6.75	9.25	-0.75
0915 Op-1	15	0.48	1.75	0.165	0.84	0.13	3.23	21.00	6.45	0.02
0915 Op-2	3	2.83	8.50	2.833	15.02	-9.36	2.42	12.25	19.02	-14.18
1015 Op-1	15	0.08	0.50	0.047	0.18	-0.02	3.63	19.75	6.82	0.44
1015 Op-2	3	5.00	15.00	5.000	26.51	-16.51	0.25	13.50	18.22	-17.72
1210 Op-1	20	4.34	40.50	2.108	8.75	-0.07	-1.48	54.25	3.75	-6.70
1210 Op-2	4	1.25	4.00	0.930	4.21	-1.71	4.31	5.00	8.23	0.40
2210 Op-1	17	1.18	10.75	0.673	2.60	-0.25	1.65	30.00	4.94	-1.65
2210 Op-2	3	1.00	2.75	0.878	4.78	-2.78	4.25	6.50	12.61	-4.11

Period means and deltas from original control data where n=1

Period	N	Station Mean	Range	Standard Error	Upper 95% C.I.	Lower 95% C.I.
Op-1	20	2.86	19.25	1.159	5.29	0.44
Op-2	4	5.56	3.75	0.832	8.21	2.92

Analysis of Variance for SFQ for 0507 - Bryozoa, unid. (encrusting)

Stations = 2210, 0611, 0910, 0915, 1015, 1210

Data transformed using log base10(x + .1)

Results for Analysis of Variance

Source	Source df	Error df	F-value	Prob.
PERIOD	1	102.000	2.97	0.0880
SEASON	1	102.000	2.49	0.1178
STATION	5	102.000	3.58	0.0050
PERIOD*SEASON	1	102.000	3.83	0.0530
STATION*PERIOD	5	102.000	0.89	0.4917
STATION*SEASON	5	102.000	0.94	0.4579
PERIOD*STATION*SEASON	5	102.000	0.84	0.5215

Results for Power Analysis
Power at alpha = .1

Source	Non-Centrality Parameter	Adjusted non-Centrality Parameter	Power	Adjusted Power	Power to Detect 50% Change
PERIOD	2.97	1.91	0.5267	0.3939	0.9364
STATION*PERIOD	4.44	0.00	0.4327	.	0.1166

Estimates for contrasts on combinations of interaction terms

Source	Difference	Std. Err.	T-value	Prob.
Period in DC	1.2077	0.6951	1.737	.0853
Period in FC	0.1079	0.3166	0.341	.7338
Period in FC-S	0.1537	0.3622	0.424	.6722
Period in FC-W	0.0622	0.5194	0.120	.9049
Period in DC-S	-0.3337	0.7591	-0.440	.6612
Period in DC-W	2.7490	1.1647	2.360	.0202

Least square means & confidence intervals from analysis of variance

Source	LS Mean	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period Op-1	0.236	0.0517	4.55	.0000	0.3214	0.1497
Period Op-2	0.016	0.1163	0.14	.8891	0.2094	-0.1768
Op-1 0611	-0.269	0.1157	-2.32	.0221	-0.0768	-0.4609
Op-2 0611	-0.132	0.2904	-0.45	.6512	0.3503	-0.6137
Op-1 0910	0.540	0.1235	4.37	.0000	0.7453	0.3353
Op-2 0910	0.216	0.2738	0.79	.4309	0.6709	-0.2379
Op-1 0915	0.156	0.1384	1.12	.2638	0.3853	-0.0742
Op-2 0915	-0.590	0.2904	-2.03	.0448	-0.1078	-1.0718
Op-1 1015	0.366	0.1384	2.65	.0094	0.5960	0.1365
Op-2 1015	0.171	0.2904	0.59	.5575	0.6529	-0.3111
Op-1 1210	0.507	0.1157	4.38	.0000	0.6987	0.3146
Op-2 1210	0.426	0.2738	1.56	.1225	0.8808	-0.0281
Op-1 2210	0.113	0.1262	0.90	.3714	0.3228	-0.0962
Op-2 2210	0.005	0.2904	0.02	.9853	0.4873	-0.4766

Paired comparisons of least square means between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period	0.2193	0.1273	1.722	.0880	0.4306	0.0080

Paired comparisons of least square means for stations between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Station 0611	-0.1372	0.3126	-0.44	.6616	0.3816	-0.6560
Station 0910	0.3238	0.3003	1.08	.2835	0.8224	-0.1747
Station 0915	0.7454	0.3217	2.32	.0225	1.2793	0.2114
Station 1015	0.1954	0.3217	0.61	.5450	0.7293	-0.3386
Station 1210	0.0803	0.2972	0.27	.7875	0.5737	-0.4130
Station 2210	0.1079	0.3166	0.34	.7338	0.6335	-0.4176

Station-period means and deltas from original data where control n=1

Station-Period	N	Station Mean	Range	Standard Error	Upper 95% c.i.	Lower 95% c.i.	Mean Delta	Delta Range	Upper 95% CIi.	Lower 95% C.I.
0611 Op-1	20	7.61	27.25	1.549	10.85	4.37	-5.16	25.50	-1.91	-8.42
0611 Op-2	3	1.08	1.50	0.464	3.08	-0.91	0.00	3.25	4.07	-4.07
0910 Op-1	19	1.01	4.50	0.294	1.63	0.40	1.13	6.50	1.77	0.49
0910 Op-2	4	0.31	0.50	0.120	0.69	-0.07	0.81	2.75	2.80	-1.17
0915 Op-1	15	1.42	3.75	0.272	2.00	0.83	0.43	5.75	1.20	-0.34
0915 Op-2	3	2.42	3.25	0.961	6.55	-1.72	-1.33	5.50	5.51	-8.17
1015 Op-1	15	0.82	2.50	0.170	1.18	0.45	1.03	3.75	1.60	0.47
1015 Op-2	3	0.50	1.00	0.289	1.74	-0.74	0.58	3.00	4.72	-3.55
1210 Op-1	20	0.96	5.00	0.255	1.50	0.43	1.49	4.50	2.05	0.92
1210 Op-2	4	0.75	1.75	0.445	2.17	-0.67	0.38	3.25	2.73	-1.98
2210 Op-1	17	1.53	4.42	0.244	2.05	1.02	0.64	5.17	1.34	-0.05
2210 Op-2	3	0.83	1.00	0.300	2.13	-0.46	0.25	2.25	3.10	-2.60

Period means and deltas from original control data where n=1

Period	N	Station Mean	Range	Standard Error	Upper 95% C.I.	Lower 95% C.I.
Op-1	20	2.45	7.75	0.412	3.31	1.59
Op-2	4	1.13	2.25	0.505	2.73	-0.48

Analysis of Variance for SFQ for 1259 - bryozoan (epiphytic)

Stations = 2210, 0611, 0910, 0915, 1015, 1210

Data transformed using log base10(x + .1)

Satterthwaite's Adjustment for Degrees of Freedom used in Analysis of Variance.

Results for Analysis of Variance

Source	Source df	Error df	F-value	Prob.
PERIOD	1	102.000	0.74	0.3914
SEASON	1	102.000	0.16	0.6879
STATION	5	102.000	14.59	0.0000
PERIOD*SEASON	1	102.000	0.13	0.7189
STATION*PERIOD	5	102.000	0.94	0.4600
STATION*SEASON	5	102.000	0.10	0.9927
PERIOD*STATION*SEASON	5	102.000	0.07	0.9962

Results for Power Analysis
Power at alpha = .1

Source	Non-Centrality Parameter	Adjusted non-Centrality Parameter	Power	Adjusted Power	Power to Detect 50% Change
PERIOD	0.74	0.00	0.2210	.	0.1613
STATION*PERIOD	4.69	0.00	0.4509	.	0.2306

Estimates for contrasts on combinations of interaction terms

Source	Difference	Std. Err.	T-value	Prob.
Period in DC	0.4097	0.4332	0.946	.3465
Period in FC	-0.0000	0.1973	-0.000	1.000
Period in FC-S	0.0000	0.2257	0.000	1.000
Period in FC-W	-0.0000	0.3237	-0.000	1.000
Period in DC-S	0.2379	0.4730	0.503	.6162
Period in DC-W	0.5815	0.7258	0.801	.4249

Least square means & confidence intervals from analysis of variance

Source	LS Mean	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period Op-1	-0.122	0.0322	-3.78	.0003	-0.0683	-0.1753
Period Op-2	-0.190	0.0725	-2.62	.0101	-0.0697	-0.3104
Op-1 0611	-0.688	0.0721	-9.55	.0000	-0.5687	-0.8080
Op-2 0611	-1.140	0.1810	-6.30	.0000	-0.8399	-1.4407
Op-1 0910	-0.000	0.0770	-0.00	1.000	0.1278	-0.1278
Op-2 0910	-0.000	0.1706	-0.00	1.000	0.2832	-0.2832
Op-1 0915	-0.000	0.0863	-0.00	1.000	0.1432	-0.1432
Op-2 0915	0.000	0.1810	0.00	1.000	0.3004	-0.3004
Op-1 1015	-0.042	0.0863	-0.49	.6254	0.1009	-0.1854
Op-2 1015	0.000	0.1810	0.00	1.000	0.3004	-0.3004
Op-1 1210	-0.000	0.0721	-0.00	1.000	0.1197	-0.1197
Op-2 1210	-0.000	0.1706	-0.00	1.000	0.2832	-0.2832
Op-1 2210	0.000	0.0786	0.00	1.000	0.1305	-0.1305
Op-2 2210	0.000	0.1810	0.00	1.000	0.3004	-0.3004

Paired comparisons of least square means between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period	0.0683	0.0793	0.861	.3914	0.2000	-0.0634

Paired comparisons of least square means for stations between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Station 0611	0.4519	0.1948	2.32	.0223	0.7753	0.1286
Station 0910	0.0000	0.1872	0.00	1.000	0.3107	-0.3107
Station 0915	-0.0000	0.2005	-0.00	1.000	0.3328	-0.3328
Station 1015	-0.0422	0.2005	-0.21	.8335	0.2905	-0.3750
Station 1210	0.0000	0.1852	0.00	1.000	0.3074	-0.3074
Station 2210	-0.0000	0.1973	-0.00	1.000	0.3275	-0.3275

Station-period means and deltas from original data where control n=1

Station-Period	N	Station Mean	Range	Standard Error	Upper 95% c.i.	Lower 95% c.i.	Mean Delta	Delta Range	Upper 95% CIi.	Lower 95% C.I.
0611 Op-1	20	1.31	9.25	0.470	2.30	0.33	-1.31	9.25	-0.33	-2.30
0611 Op-2	3	1.42	1.50	0.441	3.31	-0.48	-1.42	1.50	0.48	-3.31
0910 Op-1	19	0.00	0.00	0.000	.	.	0.00	0.00	.	.
0910 Op-2	4	0.00	0.00	0.000	.	.	0.00	0.00	.	.
0915 Op-1	15	0.00	0.00	0.000	.	.	0.00	0.00	.	.
0915 Op-2	3	0.00	0.00	0.000	.	.	0.00	0.00	.	.
1015 Op-1	15	0.05	0.75	0.050	0.16	-0.06	-0.05	0.75	0.06	-0.16
1015 Op-2	3	0.00	0.00	0.000	.	.	0.00	0.00	.	.
1210 Op-1	20	0.00	0.00	0.000	.	.	0.00	0.00	.	.
1210 Op-2	4	0.00	0.00	0.000	.	.	0.00	0.00	.	.
2210 Op-1	17	0.00	0.00	0.000	.	.	0.00	0.00	.	.
2210 Op-2	3	0.00	0.00	0.000	.	.	0.00	0.00	.	.

Period means and deltas from original control data where n=1

Period	N	Station Mean	Range	Standard Error	Upper 95% C.I.	Lower 95% C.I.
Op-1	20	0.00	0.00	0.000	.	.
Op-2	4	0.00	0.00	0.000	.	.

Analysis of Variance for SFQ for 0371 - Cactosoma arenaria

Stations = 2210, 0611, 0910, 0915, 1015, 1210

Data not transformed.

Results for Analysis of Variance

Source	Source df	Error df	F-value	Prob.
PERIOD	1	102.000	1.23	0.2697
SEASON	1	102.000	0.01	0.9402
STATION	5	102.000	0.43	0.8278
PERIOD*SEASON	1	102.000	0.01	0.9402
STATION*PERIOD	5	102.000	0.43	0.8278
STATION*SEASON	5	102.000	0.07	0.9961
PERIOD*STATION*SEASON	5	102.000	0.07	0.9961

Results for Power Analysis
Power at alpha = .1

Source	Non-Centrality Parameter	Adjusted non-Centrality Parameter	Power	Adjusted Power	Power to Detect 50% Change
PERIOD	1.23	0.21	0.2968	0.1346	0.2512
STATION*PERIOD	2.14	0.00	0.2557	.	0.2201

Estimates for contrasts on combinations of interaction terms

Source	Difference	Std. Err.	T-value	Prob.
Period in DC	-0.1335	0.3008	-0.444	.6581
Period in FC	-0.2333	0.1370	-1.703	.0916
Period in FC-S	-0.1667	0.1567	-1.064	.2901
Period in FC-W	-0.3000	0.2248	-1.335	.1850
Period in DC-S	-0.1753	0.3285	-0.534	.5947
Period in DC-W	-0.0917	0.5040	-0.182	.8560

Least square means & confidence intervals from analysis of variance

Source	LS Mean	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period Op-1	-0.061	0.0224	-2.73	.0074	-0.0240	-0.0983
Period Op-2	-0.000	0.0503	-0.00	1.000	0.0836	-0.0836
Op-1 0611	-0.021	0.0501	-0.42	.6782	0.0623	-0.1039
Op-2 0611	0.000	0.1257	0.00	1.000	0.2086	-0.2086
Op-1 0910	-0.079	0.0535	-1.47	.1446	0.0102	-0.1673
Op-2 0910	0.000	0.1185	0.00	1.000	0.1966	-0.1966
Op-1 0915	-0.000	0.0599	-0.00	1.000	0.0994	-0.0994
Op-2 0915	0.000	0.1257	0.00	1.000	0.2086	-0.2086
Op-1 1015	-0.034	0.0599	-0.57	.5705	0.0653	-0.1335
Op-2 1015	0.000	0.1257	0.00	1.000	0.2086	-0.2086
Op-1 1210	-0.000	0.0501	-0.00	1.000	0.0831	-0.0831
Op-2 1210	0.000	0.1185	0.00	1.000	0.1966	-0.1966
Op-1 2210	-0.233	0.0546	-4.27	.0000	-0.1427	-0.3240
Op-2 2210	-0.000	0.1257	-0.00	1.000	0.2086	-0.2086

Paired comparisons of least square means between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period	-0.0611	0.0551	-1.110	.2697	0.0303	-0.1526

Paired comparisons of least square means for stations between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Station 0611	-0.0208	0.1353	-0.15	.8779	0.2037	-0.2453
Station 0910	-0.0786	0.1300	-0.60	.5468	0.1372	-0.2943
Station 0915	-0.0000	0.1392	-0.00	1.000	0.2311	-0.2311
Station 1015	-0.0341	0.1392	-0.24	.8070	0.1970	-0.2652
Station 1210	-0.0000	0.1286	-0.00	1.000	0.2135	-0.2135
Station 2210	-0.2333	0.1370	-1.70	.0916	-0.0059	-0.4608

Station-period means and deltas from original data where control n=1

Station-Period	N	Station Mean	Range	Standard Error	Upper 95% c.i.	Lower 95% c.i.	Mean Delta	Delta Range	Upper 95% CIi.	Lower 95% C.I.
0611 Op-1	20	0.01	0.25	0.013	0.04	-0.01	-0.01	0.25	0.01	-0.04
0611 Op-2	3	0.00	0.00	0.000	.	.	0.00	0.00	.	.
0910 Op-1	19	0.09	0.75	0.048	0.19	-0.01	-0.09	0.75	0.01	-0.19
0910 Op-2	4	0.00	0.00	0.000	.	.	0.00	0.00	.	.
0915 Op-1	15	0.00	0.00	0.000	.	.	0.00	0.00	.	.
0915 Op-2	3	0.00	0.00	0.000	.	.	0.00	0.00	.	.
1015 Op-1	15	0.05	0.75	0.050	0.16	-0.06	-0.05	0.75	0.06	-0.16
1015 Op-2	3	0.00	0.00	0.000	.	.	0.00	0.00	.	.
1210 Op-1	20	0.00	0.00	0.000	.	.	0.00	0.00	.	.
1210 Op-2	4	0.00	0.00	0.000	.	.	0.00	0.00	.	.
2210 Op-1	17	0.21	1.25	0.106	0.43	-0.02	-0.21	1.25	0.02	-0.43
2210 Op-2	3	0.00	0.00	0.000	.	.	0.00	0.00	.	.

Period means and deltas from original control data where n=1

Period	N	Station Mean	Range	Standard Error	Upper 95% C.I.	Lower 95% C.I.
Op-1	20	0.00	0.00	0.000	.	.
Op-2	4	0.00	0.00	0.000	.	.

Analysis of Variance for SAQ for 0290 - Calliostoma ligatum

Stations = 2210, 0611, 0910, 0915, 1015, 1210

Data transformed using log base10(x + 1)

Results for Analysis of Variance

Source	Source df	Error df	F-value	Prob.
PERIOD	1	96.000	5.44	0.0218
SEASON	1	96.000	1.73	0.1915
STATION	5	96.000	2.42	0.0411
PERIOD*SEASON	1	96.000	1.06	0.3065
STATION*PERIOD	5	96.000	0.13	0.9853
STATION*SEASON	5	96.000	0.78	0.5693
PERIOD*STATION*SEASON	5	96.000	0.33	0.8955

Results for Power Analysis
Power at alpha = .1

Source	Non-Centrality Parameter	Adjusted non-Centrality Parameter	Power	Adjusted Power	Power to Detect 50% Change
PERIOD	5.44	4.32	0.7488	0.6628	0.2419
STATION*PERIOD	0.65	0.00	0.1440	.	0.1727

Estimates for contrasts on combinations of interaction terms

Source	Difference	Std. Err.	T-value	Prob.
Period in DC	-0.8837	0.4610	-1.917	.0583
Period in FC	-0.2977	0.2100	-1.417	.1596
Period in FC-S	-0.1681	0.2413	-0.697	.4877
Period in FC-W	-0.4273	0.3438	-1.243	.2170
Period in DC-S	-1.5342	0.5058	-3.033	.0031
Period in DC-W	-0.2332	0.7709	-0.302	.7630

Least square means & confidence intervals from analysis of variance

Source	LS Mean	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period Op-1	0.303	0.0347	8.74	.0000	0.3604	0.2453
Period Op-2	0.500	0.0770	6.49	.0000	0.6276	0.3719
Op-1 0611	0.354	0.0775	4.57	.0000	0.4829	0.2256
Op-2 0611	0.506	0.1922	2.63	.0099	0.8252	0.1867
Op-1 0910	0.415	0.0826	5.03	.0000	0.5522	0.2779
Op-2 0910	0.627	0.1812	3.46	.0008	0.9276	0.3256
Op-1 0915	0.388	0.0928	4.18	.0001	0.5422	0.2338
Op-2 0915	0.506	0.1922	2.63	.0099	0.8252	0.1867
Op-1 1015	0.374	0.0928	4.02	.0001	0.5278	0.2194
Op-2 1015	0.506	0.1922	2.63	.0099	0.8252	0.1867
Op-1 1210	0.357	0.0775	4.60	.0000	0.4851	0.2279
Op-2 1210	0.627	0.1812	3.46	.0008	0.9276	0.3256
Op-1 2210	-0.070	0.0846	-0.83	.4087	0.0703	-0.2108
Op-2 2210	0.227	0.1922	1.18	.2396	0.5467	-0.0918

Paired comparisons of least square means between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period	-0.1969	0.0844	-2.332	.0218	-0.0567	-0.3371

Paired comparisons of least square means for stations between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Station 0611	-0.1517	0.2072	-0.73	.4661	0.1925	-0.4958
Station 0910	-0.2116	0.1991	-1.06	.2907	0.1192	-0.5423
Station 0915	-0.1180	0.2135	-0.55	.5818	0.2365	-0.4725
Station 1015	-0.1323	0.2135	-0.62	.5367	0.2222	-0.4869
Station 1210	-0.2701	0.1971	-1.37	.1737	0.0572	-0.5974
Station 2210	-0.2977	0.2100	-1.42	.1596	0.0511	-0.6465

Station-period means and deltas from original data where control n=1

Station-Period	N	Station Mean	Range	Standard Error	Upper 95% c.i.	Lower 95% c.i.	Mean Delta	Delta Range	Upper 95% CIi.	Lower 95% C.I.
0611 Op-1	19	0.51	3.75	0.250	1.04	-0.01	1.82	9.00	2.83	0.81
0611 Op-2	3	0.00	0.00	0.000	.	.	2.25	1.50	4.11	0.39
0910 Op-1	18	0.17	1.50	0.097	0.37	-0.04	1.96	9.00	2.99	0.93
0910 Op-2	4	0.00	0.00	0.000	.	.	5.63	14.25	16.41	-5.16
0915 Op-1	14	0.21	3.00	0.214	0.68	-0.25	1.82	8.25	3.04	0.60
0915 Op-2	3	0.00	0.00	0.000	.	.	2.25	1.50	4.11	0.39
1015 Op-1	14	0.48	6.75	0.482	1.52	-0.56	1.55	10.50	2.93	0.18
1015 Op-2	3	0.00	0.00	0.000	.	.	2.25	1.50	4.11	0.39
1210 Op-1	19	0.47	6.00	0.326	1.16	-0.21	1.86	8.25	2.78	0.93
1210 Op-2	4	0.00	0.00	0.000	.	.	5.63	14.25	16.41	-5.16
2210 Op-1	16	3.38	9.75	0.787	5.05	1.70	-1.36	11.25	0.50	-3.22
2210 Op-2	3	4.00	12.00	4.000	21.21	-13.21	-1.75	11.25	13.87	-17.37

Period means and deltas from original control data where n=1

Period	N	Station Mean	Range	Standard Error	Upper 95% C.I.	Lower 95% C.I.
Op-1	19	2.33	8.25	0.496	3.37	1.29
Op-2	4	5.63	14.25	3.389	16.41	-5.16

Analysis of Variance for SFQ for 1113 - Chaetopteridae

Stations = 2210, 0611, 0910, 0915, 1015, 1210

Data transformed using log base10(x + .5)

Results for Analysis of Variance

Source	Source df	Error df	F-value	Prob.
PERIOD	1	102.000	0.00	0.9827
SEASON	1	102.000	0.08	0.7770
STATION	5	102.000	1.78	0.1229
PERIOD*SEASON	1	102.000	2.42	0.1228
STATION*PERIOD	5	102.000	0.77	0.5745
STATION*SEASON	5	102.000	1.38	0.2384
PERIOD*STATION*SEASON	5	102.000	0.55	0.7354

Results for Power Analysis
Power at alpha = .1

Source	Non-Centrality Parameter	Adjusted non-Centrality Parameter	Power	Adjusted Power	Power to Detect 50% Change
PERIOD	0.00	0.00	0.1001	.	0.7747
STATION*PERIOD	3.84	0.00	0.3874	.	0.1786

Estimates for contrasts on combinations of interaction terms

Source	Difference	Std. Err.	T-value	Prob.
Period in DC	-0.2117	0.5998	-0.353	.7249
Period in FC	0.1974	0.2732	0.723	.4716
Period in FC-S	-0.1425	0.3125	-0.456	.6494
Period in FC-W	0.5373	0.4482	1.199	.2334
Period in DC-S	-0.8973	0.6550	-1.370	.1737
Period in DC-W	0.4739	1.0050	0.471	.6383

Least square means & confidence intervals from analysis of variance

Source	LS Mean	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period Op-1	-0.171	0.0446	-3.83	.0002	-0.0970	-0.2452
Period Op-2	-0.169	0.1004	-1.68	.0959	-0.0021	-0.3353
Op-1 0611	-0.148	0.0998	-1.48	.1406	0.0175	-0.3139
Op-2 0611	-0.095	0.2506	-0.38	.7052	0.3209	-0.5110
Op-1 0910	0.040	0.1066	0.37	.7088	0.2168	-0.1370
Op-2 0910	-0.038	0.2362	-0.16	.8712	0.3537	-0.4305
Op-1 0915	-0.081	0.1195	-0.68	.4979	0.1170	-0.2795
Op-2 0915	-0.293	0.2506	-1.17	.2451	0.1230	-0.7089
Op-1 1015	-0.368	0.1195	-3.08	.0026	-0.1701	-0.5666
Op-2 1015	-0.334	0.2506	-1.33	.1860	0.0823	-0.7495
Op-1 1210	-0.602	0.0998	-6.03	.0000	-0.4365	-0.7679
Op-2 1210	-0.188	0.2362	-0.80	.4270	0.2037	-0.5805
Op-1 2210	0.134	0.1089	1.23	.2227	0.3144	-0.0472
Op-2 2210	-0.064	0.2506	-0.25	.7995	0.3521	-0.4797

Paired comparisons of least square means between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period	-0.0024	0.1099	-0.022	.9827	0.1800	-0.1847

Paired comparisons of least square means for stations between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Station 0611	-0.0532	0.2697	-0.20	.8441	0.3945	-0.5009
Station 0910	0.0783	0.2592	0.30	.7631	0.5085	-0.3519
Station 0915	0.2117	0.2776	0.76	.4475	0.6724	-0.2491
Station 1015	-0.0347	0.2776	-0.13	.9007	0.4260	-0.4955
Station 1210	-0.4138	0.2565	-1.61	.1097	0.0119	-0.8395
Station 2210	0.1974	0.2732	0.72	.4716	0.6509	-0.2561

Station-period means and deltas from original data where control n=1

Station-Period	N	Station Mean	Range	Standard Error	Upper 95% c.i.	Lower 95% c.i.	Mean Delta	Delta Range	Upper 95% CIi.	Lower 95% C.I.
0611 Op-1	20	1.93	6.50	0.424	2.81	1.04	-1.14	7.50	-0.14	-2.13
0611 Op-2	3	0.50	1.00	0.289	1.74	-0.74	-0.08	1.00	1.21	-1.38
0910 Op-1	19	1.41	5.50	0.389	2.22	0.59	-0.63	7.75	0.32	-1.58
0910 Op-2	4	0.94	3.75	0.938	3.92	-2.05	-0.63	3.50	1.92	-3.17
0915 Op-1	15	1.40	5.50	0.373	2.20	0.60	-0.47	7.00	0.46	-1.39
0915 Op-2	3	1.17	2.00	0.583	3.68	-1.34	-0.75	2.25	2.10	-3.60
1015 Op-1	15	4.50	24.00	1.547	7.82	1.18	-3.57	23.75	-0.21	-6.92
1015 Op-2	3	2.08	3.25	0.961	6.22	-2.05	-1.67	2.50	1.52	-4.85
1210 Op-1	20	5.01	10.00	0.697	6.47	3.55	-4.23	10.25	-2.70	-5.75
1210 Op-2	4	1.25	2.50	0.550	3.00	-0.50	-0.94	1.75	0.56	-2.44
2210 Op-1	17	0.26	1.25	0.096	0.46	0.06	0.45	4.00	0.93	-0.03
2210 Op-2	3	0.33	1.00	0.333	1.77	-1.10	0.08	1.75	2.43	-2.27

Period means and deltas from original control data where n=1

Period	N	Station Mean	Range	Standard Error	Upper 95% C.I.	Lower 95% C.I.
Op-1	20	0.79	3.00	0.172	1.15	0.43
Op-2	4	0.31	0.75	0.188	0.91	-0.28

Analysis of Variance for SFQ for 1139 - Clavularia spp.

Stations = 2210, 0611, 0910, 0915, 1015, 1210.

Data transformed using square root(x + .1)

Results for Analysis of Variance

Source	Source df	Error df	F-value	Prob.
PERIOD	1	102.000	0.78	0.3781
SEASON	1	102.000	0.03	0.8615
STATION	5	102.000	0.27	0.9276
PERIOD*SEASON	1	102.000	0.03	0.8615
STATION*PERIOD	5	102.000	0.27	0.9276
STATION*SEASON	5	102.000	0.03	0.9996
PERIOD*STATION*SEASON	5	102.000	0.03	0.9996

Results for Power Analysis
Power at alpha = .1

Source	Non-Centrality Parameter	Adjusted non-Centrality Parameter	Power	Adjusted Power	Power to Detect 50% Change
PERIOD	0.78	0.00	0.2278	.	0.1623
STATION*PERIOD	1.36	0.00	0.1959	.	0.1305

Estimates for contrasts on combinations of interaction terms

Source	Difference	Std. Err.	T-value	Prob.
Period in DC	-0.4040	0.8581	-0.471	.6388
Period in FC	-0.4308	0.3908	-1.102	.2729
Period in FC-S	-0.4959	0.4471	-1.109	.2699
Period in FC-W	-0.3657	0.6412	-0.570	.5697
Period in DC-S	-0.5037	0.9371	-0.538	.5921
Period in DC-W	-0.3042	1.4378	-0.212	.8329

Least square means & confidence intervals from analysis of variance

Source	LS Mean	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period Op-1	-0.139	0.0638	-2.18	.0316	-0.0332	-0.2451
Period Op-2	-0.000	0.1436	-0.00	1.000	0.2384	-0.2384
Op-1 0611	0.037	0.1428	0.26	.7946	0.2743	-0.1998
Op-2 0611	0.000	0.3584	0.00	1.000	0.5950	-0.5950
Op-1 0910	0.037	0.1525	0.24	.8073	0.2904	-0.2158
Op-2 0910	0.000	0.3379	0.00	1.000	0.5610	-0.5610
Op-1 0915	-0.130	0.1709	-0.76	.4483	0.1536	-0.4137
Op-2 0915	0.000	0.3584	0.00	1.000	0.5950	-0.5950
Op-1 1015	-0.337	0.1709	-1.97	.0515	-0.0531	-0.6204
Op-2 1015	0.000	0.3584	0.00	1.000	0.5950	-0.5950
Op-1 1210	-0.012	0.1428	-0.08	.9348	0.2253	-0.2488
Op-2 1210	0.000	0.3379	0.00	1.000	0.5610	-0.5610
Op-1 2210	-0.431	0.1558	-2.77	.0067	-0.1722	-0.6894
Op-2 2210	-0.000	0.3584	-0.00	1.000	0.5950	-0.5950

Paired comparisons of least square means between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period	-0.1391	0.1572	-0.885	.3781	0.1217	-0.4000

Paired comparisons of least square means for stations between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Station 0611	0.0373	0.3858	0.10	.9232	0.6778	-0.6032
Station 0910	0.0373	0.3708	0.10	.9201	0.6527	-0.5781
Station 0915	-0.1301	0.3971	-0.33	.7439	0.5291	-0.7892
Station 1015	-0.3367	0.3971	-0.85	.3984	0.3224	-0.9959
Station 1210	-0.0117	0.3669	-0.03	.9746	0.5973	-0.6207
Station 2210	-0.4308	0.3908	-1.10	.2729	0.2179	-1.0796

Station-period means and deltas from original data where control n=1

Station-Period	N	Station Mean	Range	Standard Error	Upper 95% c.i.	Lower 95% c.i.	Mean Delta	Delta Range	Upper 95% CIi.	Lower 95% C.I.
0611 Op-1	20	0.00	0.00	0.000	.	.	0.09	1.75	0.27	-0.10
0611 Op-2	3	0.00	0.00	0.000	.	.	0.00	0.00	.	.
0910 Op-1	19	0.00	0.00	0.000	.	.	0.09	1.75	0.29	-0.10
0910 Op-2	4	0.00	0.00	0.000	.	.	0.00	0.00	.	.
0915 Op-1	15	0.67	10.00	0.667	2.10	-0.76	-0.67	10.00	0.76	-2.10
0915 Op-2	3	0.00	0.00	0.000	.	.	0.00	0.00	.	.
1015 Op-1	15	0.70	3.75	0.327	1.40	-0.00	-0.70	3.75	0.00	-1.40
1015 Op-2	3	0.00	0.00	0.000	.	.	0.00	0.00	.	.
1210 Op-1	20	0.14	2.75	0.138	0.43	-0.15	-0.05	4.50	0.30	-0.40
1210 Op-2	4	0.00	0.00	0.000	.	.	0.00	0.00	.	.
2210 Op-1	17	1.49	8.33	0.692	2.96	0.02	-1.39	10.08	0.12	-2.90
2210 Op-2	3	0.00	0.00	0.000	.	.	0.00	0.00	.	.

Period means and deltas from original control data where n=1

Period	N	Station Mean	Range	Standard Error	Upper 95% C.I.	Lower 95% C.I.
Op-1	20	0.09	1.75	0.088	0.27	-0.10
Op-2	4	0.00	0.00	0.000	.	.

Analysis of Variance for SFQ for 0272 - Corynactis californica

Stations = 2210, 0611, 0910, 0915, 1015, 1210

Data not transformed.

Satterthwaite's Adjustment for Degrees of Freedom used in Analysis of Variance.

Results for Analysis of Variance

Source	Source df	Error df	F-value	Prob.
PERIOD	1	102.000	0.88	0.3511
SEASON	1	102.000	0.02	0.8920
STATION	5	102.000	0.87	0.5009
PERIOD*SEASON	1	102.000	0.02	0.8920
STATION*PERIOD	5	102.000	0.87	0.5009
STATION*SEASON	5	102.000	0.02	0.9999
PERIOD*STATION*SEASON	5	102.000	0.02	0.9999

Results for Power Analysis
Power at alpha = .1

Source	Non-Centrality Parameter	Adjusted non-Centrality Parameter	Power	Adjusted Power	Power to Detect 50% Change
PERIOD	0.88	0.00	0.2425	.	0.2089
STATION*PERIOD	4.37	0.00	0.4276	.	0.3877

Estimates for contrasts on combinations of interaction terms

Source	Difference	Std. Err.	T-value	Prob.
Period in DC	-3.8512	3.7417	-1.029	.3058
Period in FC	-0.0000	1.7043	-0.000	1.000
Period in FC-S	-0.0000	1.9494	-0.000	1.000
Period in FC-W	-0.0000	2.7960	-0.000	1.000
Period in DC-S	-4.4107	4.0860	-1.079	.2829
Period in DC-W	-3.2917	6.2694	-0.525	.6007

Least square means & confidence intervals from analysis of variance

Source	LS Mean	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period Op-1	-0.642	0.2784	-2.31	.0231	-0.1798	-1.1039
Period Op-2	-0.000	0.6262	-0.00	1.000	1.0394	-1.0394
Op-1 0611	-3.851	0.6227	-6.18	.0000	-2.8175	-4.8849
Op-2 0611	-0.000	1.5630	-0.00	1.000	2.5945	-2.5945
Op-1 0910	0.000	0.6649	0.00	1.000	1.1037	-1.1037
Op-2 0910	0.000	1.4736	0.00	1.000	2.4461	-2.4461
Op-1 0915	0.000	0.7451	0.00	1.000	1.2369	-1.2369
Op-2 0915	-0.000	1.5630	-0.00	1.000	2.5945	-2.5945
Op-1 1015	0.000	0.7451	0.00	1.000	1.2369	-1.2369
Op-2 1015	-0.000	1.5630	-0.00	1.000	2.5945	-2.5945
Op-1 1210	0.000	0.6227	0.00	1.000	1.0337	-1.0337
Op-2 1210	0.000	1.4736	0.00	1.000	2.4461	-2.4461
Op-1 2210	-0.000	0.6793	-0.00	1.000	1.1276	-1.1276
Op-2 2210	0.000	1.5630	0.00	1.000	2.5945	-2.5945

Paired comparisons of least square means between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period	-0.6419	0.6853	-0.937	.3511	0.4956	-1.7793

Paired comparisons of least square means for stations between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Station 0611	-3.8512	1.6825	-2.29	.0241	-1.0584	-6.6440
Station 0910	-0.0000	1.6167	-0.00	1.000	2.6836	-2.6836
Station 0915	0.0000	1.7315	0.00	1.000	2.8742	-2.8742
Station 1015	0.0000	1.7315	0.00	1.000	2.8742	-2.8742
Station 1210	0.0000	1.5998	0.00	1.000	2.6556	-2.6556
Station 2210	-0.0000	1.7043	-0.00	1.000	2.8289	-2.8289

Station-period means and deltas from original data where control n=1

Station-Period	N	Station Mean	Range	Standard Error	Upper 95% c.i.	Lower 95% c.i.	Mean Delta	Delta Range	Upper 95% CIi.	Lower 95% C.I.
0611 Op-1	20	4.08	17.00	1.328	6.85	1.30	-4.08	17.00	-1.30	-6.85
0611 Op-2	3	0.00	0.00	0.000	.	.	0.00	0.00	.	.
0910 Op-1	19	0.00	0.00	0.000	.	.	0.00	0.00	.	.
0910 Op-2	4	0.00	0.00	0.000	.	.	0.00	0.00	.	.
0915 Op-1	15	0.00	0.00	0.000	.	.	0.00	0.00	.	.
0915 Op-2	3	0.00	0.00	0.000	.	.	0.00	0.00	.	.
1015 Op-1	15	0.00	0.00	0.000	.	.	0.00	0.00	.	.
1015 Op-2	3	0.00	0.00	0.000	.	.	0.00	0.00	.	.
1210 Op-1	20	0.00	0.00	0.000	.	.	0.00	0.00	.	.
1210 Op-2	4	0.00	0.00	0.000	.	.	0.00	0.00	.	.
2210 Op-1	17	0.00	0.00	0.000	.	.	0.00	0.00	.	.
2210 Op-2	3	0.00	0.00	0.000	.	.	0.00	0.00	.	.

Period means and deltas from original control data where n=1

Period	N	Station Mean	Range	Standard Error	Upper 95% C.I.	Lower 95% C.I.
Op-1	20	0.00	0.00	0.000	.	.
Op-2	4	0.00	0.00	0.000	.	.

Analysis of Variance for SFQ for 0346 - Crepidula spp.

Stations = 2210, 0611, 0910, 0915, 1015, 1210

Data not transformed.

Results for Analysis of Variance

Source	Source df	Error df	F-value	Prob.
PERIOD	1	102.000	0.71	0.4007
SEASON	1	102.000	2.26	0.1359
STATION	5	102.000	0.10	0.9914
PERIOD*SEASON	1	102.000	11.52	0.0010
STATION*PERIOD	5	102.000	0.16	0.9771
STATION*SEASON	5	102.000	0.10	0.9919
PERIOD*STATION*SEASON	5	102.000	0.04	0.9991

Results for Power Analysis
Power at alpha = .1

Source	Non-Centrality Parameter	Adjusted non-Centrality Parameter	Power	Adjusted Power	Power to Detect 50% Change
PERIOD	0.71	0.00	0.2165	.	0.1087
STATION*PERIOD	0.79	0.00	0.1542	.	0.1055

Estimates for contrasts on combinations of interaction terms

Source	Difference	Std. Err.	T-value	Prob.
Period in DC	0.4820	1.0065	0.479	.6330
Period in FC	0.4514	0.4584	0.985	.3271
Period in FC-S	-0.0972	0.5244	-0.185	.8533
Period in FC-W	1.0000	0.7521	1.330	.1866
Period in DC-S	-2.7235	1.0991	-2.478	.0149
Period in DC-W	3.6875	1.6864	2.187	.0311

Least square means & confidence intervals from analysis of variance

Source	LS Mean	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period Op-1	0.607	0.0749	8.11	.0000	0.7312	0.4827
Period Op-2	0.451	0.1684	2.68	.0086	0.7310	0.1718
Op-1 0611	0.676	0.1675	4.03	.0001	0.9536	0.3975
Op-2 0611	0.437	0.4204	1.04	.3005	1.1354	-0.2604
Op-1 0910	0.750	0.1788	4.19	.0001	1.0469	0.4531
Op-2 0910	0.542	0.3964	1.37	.1748	1.1996	-0.1163
Op-1 0915	0.460	0.2004	2.30	.0237	0.7929	0.1275
Op-2 0915	0.437	0.4204	1.04	.3005	1.1354	-0.2604
Op-1 1015	0.480	0.2004	2.40	.0184	0.8128	0.1474
Op-2 1015	0.437	0.4204	1.04	.3005	1.1354	-0.2604
Op-1 1210	0.512	0.1675	3.06	.0029	0.7900	0.2339
Op-2 1210	0.542	0.3964	1.37	.1748	1.1996	-0.1163
Op-1 2210	0.764	0.1827	4.18	.0001	1.0672	0.4606
Op-2 2210	0.313	0.4204	0.74	.4590	1.0104	-0.3854

Paired comparisons of least square means between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period	0.1556	0.1843	0.844	.4007	0.4615	-0.1504

Paired comparisons of least square means for stations between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Station 0611	0.2381	0.4526	0.53	.6000	0.9893	-0.5131
Station 0910	0.2083	0.4349	0.48	.6329	0.9302	-0.5135
Station 0915	0.0227	0.4658	0.05	.9612	0.7959	-0.7504
Station 1015	0.0426	0.4658	0.09	.9273	0.8158	-0.7305
Station 1210	-0.0298	0.4303	-0.07	.9450	0.6846	-0.7441
Station 2210	0.4514	0.4584	0.98	.3271	1.2123	-0.3096

Station-period means and deltas from original data where control n=1

Station-Period	N	Station Mean	Range	Standard Error	Upper 95% c.i.	Lower 95% c.i.	Mean Delta	Delta Range	Upper 95% CIi.	Lower 95% C.I.
0611 Op-1	20	0.01	0.25	0.013	0.04	-0.01	0.61	2.50	0.95	0.27
0611 Op-2	3	0.00	0.00	0.000	.	.	0.58	1.25	2.15	-0.98
0910 Op-1	19	0.03	0.50	0.026	0.08	-0.03	0.63	3.00	1.00	0.26
0910 Op-2	4	0.00	0.00	0.000	.	.	0.81	1.50	1.91	-0.28
0915 Op-1	15	0.02	0.25	0.017	0.05	-0.02	0.38	1.00	0.61	0.16
0915 Op-2	3	0.00	0.00	0.000	.	.	0.58	1.25	2.15	-0.98
1015 Op-1	15	0.02	0.25	0.017	0.05	-0.02	0.38	1.00	0.62	0.14
1015 Op-2	3	0.00	0.00	0.000	.	.	0.58	1.25	2.15	-0.98
1210 Op-1	20	0.13	1.00	0.064	0.26	-0.01	0.50	3.50	0.87	0.13
1210 Op-2	4	0.00	0.00	0.000	.	.	0.81	1.50	1.91	-0.28
2210 Op-1	17	0.07	0.67	0.042	0.16	-0.02	0.67	3.17	1.09	0.24
2210 Op-2	3	0.17	0.50	0.167	0.88	-0.55	0.42	1.25	2.21	-1.38

Period means and deltas from original control data where n=1

Period	N	Station Mean	Range	Standard Error	Upper 95% C.I.	Lower 95% C.I.
Op-1	20	0.63	2.50	0.163	0.97	0.28
Op-2	4	0.81	1.50	0.344	1.91	-0.28

Analysis of Variance for SAQ for 0538 - Cryptochiton stelleri

Stations = 2210, 0611, 0910, 0915, 1015, 1210

Data transformed using log base10(x + .5)

Results for Analysis of Variance

Source	Source df	Error df	F-value	Prob.
PERIOD	1	96.000	5.17	0.0253
SEASON	1	96.000	11.12	0.0012
STATION	5	96.000	12.26	0.0000
PERIOD*SEASON	1	96.000	21.53	0.0000
STATION*PERIOD	5	96.000	3.01	0.0145
STATION*SEASON	5	96.000	1.11	0.3617
PERIOD*STATION*SEASON	5	96.000	0.69	0.6303

Results for Power Analysis
Power at alpha = .1

Source	Non-Centrality Parameter	Adjusted non-Centrality Parameter	Power	Adjusted Power	Power to Detect 50% Change
PERIOD	5.17	4.06	0.7298	0.6391	0.2007
STATION*PERIOD	15.03	9.72	0.9105	0.7497	0.2356

Estimates for contrasts on combinations of interaction terms

Source	Difference	Std. Err.	T-value	Prob.
Period in DC	0.6206	0.2643	2.348	.0209
Period in FC	0.0396	0.1204	0.328	.7433
Period in FC-S	-0.2276	0.1383	-1.646	.1031
Period in FC-W	0.3067	0.1971	1.556	.1230
Period in DC-S	-0.4599	0.2900	-1.586	.1161
Period in DC-W	1.7012	0.4420	3.849	.0002

Least square means & confidence intervals from analysis of variance

Source	LS Mean	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period Op-1	0.044	0.0199	2.24	.0276	0.0774	0.0114
Period Op-2	-0.066	0.0441	-1.49	.1405	0.0077	-0.1389
Op-1 0611	0.086	0.0444	1.94	.0548	0.1601	0.0126
Op-2 0611	-0.055	0.1102	-0.50	.6159	0.1275	-0.2385
Op-1 0910	0.097	0.0473	2.05	.0428	0.1759	0.0186
Op-2 0910	0.096	0.1039	0.92	.3594	0.2682	-0.0769
Op-1 0915	0.099	0.0532	1.86	.0653	0.1877	0.0109
Op-2 0915	0.144	0.1102	1.30	.1959	0.3265	-0.0395
Op-1 1015	-0.179	0.0532	-3.37	.0011	-0.0908	-0.2676
Op-2 1015	-0.699	0.1102	-6.34	.0000	-0.5161	-0.8821
Op-1 1210	0.068	0.0444	1.53	.1291	0.1417	-0.0058
Op-2 1210	0.066	0.1039	0.64	.5247	0.2389	-0.1062
Op-1 2210	0.095	0.0485	1.96	.0531	0.1756	0.0144
Op-2 2210	0.055	0.1102	0.50	.6159	0.2385	-0.1275

Paired comparisons of least square means between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period	0.1100	0.0484	2.273	.0253	0.1904	0.0296

Paired comparisons of least square means for stations between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Station 0611	0.1418	0.1188	1.19	.2356	0.3391	-0.0555
Station 0910	0.0015	0.1142	0.01	.9892	0.1912	-0.1881
Station 0915	-0.0442	0.1224	-0.36	.7185	0.1590	-0.2475
Station 1015	0.5199	0.1224	4.25	.0000	0.7231	0.3167
Station 1210	0.0017	0.1130	0.01	.9883	0.1893	-0.1860
Station 2210	0.0396	0.1204	0.33	.7433	0.2395	-0.1604

Station-period means and deltas from original data where control n=1

Station-Period	N	Station Mean	Range	Standard Error	Upper 95% c.i.	Lower 95% c.i.	Mean Delta	Delta Range	Upper 95% CIi.	Lower 95% C.I.
0611 Op-1	19	0.00	0.00	0.000	.	.	0.13	1.00	0.25	0.01
0611 Op-2	3	0.25	0.75	0.250	1.33	-0.83	0.08	1.50	1.98	-1.81
0910 Op-1	18	0.00	0.00	0.000	.	.	0.14	1.00	0.27	0.01
0910 Op-2	4	0.00	0.00	0.000	.	.	0.25	0.75	0.81	-0.31
0915 Op-1	14	0.05	0.50	0.039	0.14	-0.03	0.13	1.50	0.33	-0.08
0915 Op-2	3	0.00	0.00	0.000	.	.	0.33	0.75	1.28	-0.62
1015 Op-1	14	0.57	1.75	0.145	0.88	0.26	-0.39	2.25	-0.04	-0.75
1015 Op-2	3	2.83	2.75	0.795	6.25	-0.59	-2.50	3.50	1.85	-6.85
1210 Op-1	19	0.04	0.50	0.029	0.10	-0.02	0.09	1.50	0.24	-0.05
1210 Op-2	4	0.06	0.25	0.063	0.26	-0.14	0.19	1.00	0.87	-0.49
2210 Op-1	16	0.00	0.00	0.000	.	.	0.14	1.00	0.29	-0.01
2210 Op-2	3	0.08	0.25	0.083	0.44	-0.28	0.25	1.00	1.49	-0.99

Period means and deltas from original control data where n=1

Period	N	Station Mean	Range	Standard Error	Upper 95% C.I.	Lower 95% C.I.
Op-1	19	0.13	1.00	0.059	0.25	0.01
Op-2	4	0.25	0.75	0.177	0.81	-0.31

Analysis of Variance for SFQ for 0683 - Dendropoma spp.

Stations = 2210, 0611, 0910, 0915, 1015, 1210

Data transformed using log base10(x + .5)

Results for Analysis of Variance

Source	Source df	Error df	F-value	Prob.
PERIOD	1	102.000	6.23	0.0142
SEASON	1	102.000	0.25	0.6206
STATION	5	102.000	0.96	0.4434
PERIOD*SEASON	1	102.000	0.45	0.5036
STATION*PERIOD	5	102.000	0.53	0.7544
STATION*SEASON	5	102.000	0.11	0.9908
PERIOD*STATION*SEASON	5	102.000	0.19	0.9653

Results for Power Analysis
Power at alpha = .1

Source	Non-Centrality Parameter	Adjusted non-Centrality Parameter	Power	Adjusted Power	Power to Detect 50% Change
PERIOD	6.23	5.10	0.7979	0.7256	0.2418
STATION*PERIOD	2.64	0.00	0.2944	.	0.1242

Estimates for contrasts on combinations of interaction terms

Source	Difference	Std. Err.	T-value	Prob.
Period in DC	2.1455	0.9970	2.152	.0338
Period in FC	0.5884	0.4541	1.296	.1980
Period in FC-S	0.4427	0.5195	0.852	.3961
Period in FC-W	0.7341	0.7450	0.985	.3268
Period in DC-S	1.5558	1.0888	1.429	.1561
Period in DC-W	2.7352	1.6706	1.637	.1047

Least square means & confidence intervals from analysis of variance

Source	LS Mean	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period Op-1	1.285	0.0742	17.32	.0000	1.4076	1.1614
Period Op-2	0.829	0.1669	4.97	.0000	1.1058	0.5519
Op-1 0611	1.012	0.1659	6.10	.0000	1.2872	0.7363
Op-2 0611	1.047	0.4165	2.51	.0135	1.7387	0.3560
Op-1 0910	1.656	0.1772	9.35	.0000	1.9504	1.3622
Op-2 0910	0.924	0.3927	2.35	.0205	1.5762	0.2726
Op-1 0915	1.319	0.1986	6.64	.0000	1.6489	0.9898
Op-2 0915	0.515	0.4165	1.24	.2192	1.2063	-0.1764
Op-1 1015	0.788	0.1986	3.97	.0001	1.1180	0.4588
Op-2 1015	0.614	0.4165	1.47	.1434	1.3056	-0.0771
Op-1 1210	1.395	0.1659	8.41	.0000	1.6705	1.1196
Op-2 1210	0.924	0.3927	2.35	.0205	1.5762	0.2726
Op-1 2210	1.536	0.1810	8.49	.0000	1.8367	1.2358
Op-2 2210	0.948	0.4165	2.28	.0250	1.6392	0.2565

Paired comparisons of least square means between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period	0.4557	0.1826	2.495	.0142	0.7588	0.1526

Paired comparisons of least square means for stations between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Station 0611	-0.0356	0.4483	-0.08	.9369	0.7086	-0.7798
Station 0910	0.7319	0.4308	1.70	.0924	1.4470	0.0168
Station 0915	0.8044	0.4614	1.74	.0843	1.5703	0.0385
Station 1015	0.1741	0.4614	0.38	.7066	0.9400	-0.5917
Station 1210	0.4707	0.4263	1.10	.2722	1.1783	-0.2370
Station 2210	0.5884	0.4541	1.30	.1980	1.3422	-0.1654

Station-period means and deltas from original data where control n=1

Station-Period	N	Station Mean	Range	Standard Error	Upper 95% c.i.	Lower 95% c.i.	Mean Delta	Delta Range	Upper 95% CIi.	Lower 95% C.I.
0611 Op-1	20	5.26	29.50	1.648	8.71	1.81	43.80	132.50	63.50	24.10
0611 Op-2	3	0.00	0.00	0.000	.	.	11.75	27.50	51.01	-27.51
0910 Op-1	19	0.08	1.50	0.079	0.24	-0.09	47.39	135.00	69.06	25.73
0910 Op-2	4	0.00	0.00	0.000	.	.	9.13	28.75	31.29	-13.04
0915 Op-1	15	1.15	5.00	0.417	2.05	0.25	39.45	138.00	64.82	14.08
0915 Op-2	3	2.08	5.00	1.502	8.55	-4.38	9.67	23.50	42.68	-23.34
1015 Op-1	15	6.92	26.50	2.293	11.84	2.00	33.68	149.00	58.89	8.48
1015 Op-2	3	2.58	6.25	1.884	10.69	-5.52	9.17	22.75	40.62	-22.28
1210 Op-1	20	1.16	5.50	0.400	2.00	0.33	47.90	135.00	68.62	27.18
1210 Op-2	4	0.00	0.00	0.000	.	.	9.13	28.75	31.29	-13.04
2210 Op-1	17	0.50	3.25	0.239	1.01	-0.01	47.91	134.75	71.75	24.07
2210 Op-2	3	0.25	0.75	0.250	1.33	-0.83	11.50	26.75	49.69	-26.69

Period means and deltas from original control data where n=1

Period	N	Station Mean	Range	Standard Error	Upper 95% C.I.	Lower 95% C.I.
Op-1	20	49.06	135.00	9.896	69.77	28.35
Op-2	4	9.13	28.75	6.966	31.29	-13.04

Analysis of Variance for SFQ for 0699 - Didemnum/Trididemnum spp.

Stations = 2210, 0611, 0910, 0915, 1015, 1210

Data transformed using square root(x + 1)

Results for Analysis of Variance

Source	Source df	Error df	F-value	Prob.
PERIOD	1	102.000	5.34	0.0229
SEASON	1	102.000	1.98	0.1627
STATION	5	102.000	1.54	0.1848
PERIOD*SEASON	1	102.000	0.19	0.6645
STATION*PERIOD	5	102.000	0.30	0.9096
STATION*SEASON	5	102.000	0.25	0.9391
PERIOD*STATION*SEASON	5	102.000	0.30	0.9099

Results for Power Analysis
Power at alpha = .1

Source	Non-Centrality Parameter	Adjusted non-Centrality Parameter	Power	Adjusted Power	Power to Detect 50% Change
PERIOD	5.34	4.23	0.7422	0.6551	0.7015
STATION*PERIOD	1.52	0.00	0.2080	.	0.2643

Estimates for contrasts on combinations of interaction terms

Source	Difference	Std. Err.	T-value	Prob.
Period in DC	0.6842	0.3143	2.177	.0318
Period in FC	0.1136	0.1431	0.794	.4293
Period in FC-S	0.0432	0.1637	0.264	.7924
Period in FC-W	0.1840	0.2348	0.783	.4352
Period in DC-S	0.6044	0.3432	1.761	.0812
Period in DC-W	0.7640	0.5266	1.451	.1499

Least square means & confidence intervals from analysis of variance

Source	LS Mean	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period Op-1	0.091	0.0234	3.91	.0002	0.1302	0.0526
Period Op-2	-0.042	0.0526	-0.79	.4308	0.0457	-0.1289
Op-1 0611	0.253	0.0523	4.83	.0000	0.3393	0.1657
Op-2 0611	0.030	0.1313	0.22	.8226	0.2474	-0.1884
Op-1 0910	0.124	0.0558	2.21	.0290	0.2164	0.0310
Op-2 0910	0.000	0.1238	0.00	1.000	0.2054	-0.2054
Op-1 0915	0.061	0.0626	0.97	.3337	0.1647	-0.0431
Op-2 0915	-0.030	0.1313	-0.22	.8226	0.1884	-0.2474
Op-1 1015	0.139	0.0626	2.21	.0291	0.2424	0.0346
Op-2 1015	-0.083	0.1313	-0.63	.5293	0.1350	-0.3008
Op-1 1210	0.045	0.0523	0.87	.3865	0.1323	-0.0413
Op-2 1210	0.020	0.1238	0.16	.8740	0.2251	-0.1858
Op-1 2210	-0.073	0.0571	-1.28	.2047	0.0219	-0.1675
Op-2 2210	-0.186	0.1313	-1.42	.1586	0.0315	-0.4043

Paired comparisons of least square means between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period	0.1330	0.0576	2.310	.0229	0.2285	0.0374

Paired comparisons of least square means for stations between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Station 0611	0.2230	0.1413	1.58	.1176	0.4576	-0.0115
Station 0910	0.1237	0.1358	0.91	.3645	0.3491	-0.1017
Station 0915	0.0903	0.1454	0.62	.5361	0.3317	-0.1511
Station 1015	0.2214	0.1454	1.52	.1311	0.4628	-0.0200
Station 1210	0.0258	0.1344	0.19	.8480	0.2488	-0.1972
Station 2210	0.1136	0.1431	0.79	.4293	0.3512	-0.1240

Station-period means and deltas from original data where control n=1

Station-Period	N	Station Mean	Range	Standard Error	Upper 95% c.i.	Lower 95% c.i.	Mean Delta	Delta Range	Upper 95% CIi.	Lower 95% C.I.
0611 Op-1	20	0.00	0.00	0.000	.	.	0.70	1.50	0.95	0.45
0611 Op-2	3	0.00	0.00	0.000	.	.	0.08	0.25	0.44	-0.28
0910 Op-1	19	0.36	1.25	0.084	0.53	0.18	0.37	1.75	0.62	0.12
0910 Op-2	4	0.06	0.25	0.063	0.26	-0.14	0.00	0.00	.	.
0915 Op-1	15	0.57	1.75	0.147	0.88	0.25	0.10	2.50	0.47	-0.27
0915 Op-2	3	0.08	0.25	0.083	0.44	-0.28	0.00	0.50	0.62	-0.62
1015 Op-1	15	0.23	0.75	0.067	0.38	0.09	0.43	1.75	0.76	0.11
1015 Op-2	3	0.17	0.50	0.167	0.88	-0.55	-0.08	0.75	0.87	-1.03
1210 Op-1	20	0.55	2.00	0.135	0.83	0.27	0.15	2.25	0.36	-0.06
1210 Op-2	4	0.00	0.00	0.000	.	.	0.06	0.25	0.26	-0.14
2210 Op-1	17	1.05	3.00	0.209	1.50	0.61	-0.27	2.75	0.12	-0.66
2210 Op-2	3	0.50	1.00	0.289	1.74	-0.74	-0.42	1.25	1.15	-1.98

Period means and deltas from original control data where n=1

Period	N	Station Mean	Range	Standard Error	Upper 95% C.I.	Lower 95% C.I.
Op-1	20	0.70	1.50	0.118	0.95	0.45
Op-2	4	0.06	0.25	0.063	0.26	-0.14

Analysis of Variance for SAQ for 0388 - Diopatra ornata

Stations = 2210, 0611, 0910, 0915, 1015, 1210

Data transformed using log base10(x + .1)

Results for Analysis of Variance

Source	Source df	Error df	F-value	Prob.
PERIOD	1	96.000	10.25	0.0019
SEASON	1	96.000	0.01	0.9030
STATION	5	96.000	14.81	0.0000
PERIOD*SEASON	1	96.000	1.72	0.1929
STATION*PERIOD	5	96.000	1.39	0.2332
STATION*SEASON	5	96.000	0.68	0.6403
PERIOD*STATION*SEASON	5	96.000	0.24	0.9418

Results for Power Analysis
Power at alpha = .1

Source	Non-Centrality Parameter	Adjusted non-Centrality Parameter	Power	Adjusted Power	Power to Detect 50% Change
PERIOD	10.25	9.04	0.9375	0.9099	0.6982
STATION*PERIOD	6.97	1.83	0.6048	0.2310	0.1294

Estimates for contrasts on combinations of interaction terms

Source	Difference	Std. Err.	T-value	Prob.
Period in DC	-2.5896	0.8681	-2.983	.0036
Period in FC	-0.4650	0.3955	-1.176	.2426
Period in FC-S	-0.2915	0.4543	-0.642	.5226
Period in FC-W	-0.6385	0.6474	-0.986	.3265
Period in DC-S	-1.5123	0.9525	-1.588	.1156
Period in DC-W	-3.6668	1.4517	-2.526	.0132

Least square means & confidence intervals from analysis of variance

Source	LS Mean	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period Op-1	0.386	0.0652	5.92	.0000	0.4944	0.2777
Period Op-2	0.895	0.1450	6.17	.0000	1.1359	0.6543
Op-1 0611	0.613	0.1458	4.20	.0001	0.8548	0.3703
Op-2 0611	1.353	0.3619	3.74	.0003	1.9541	0.7519
Op-1 0910	0.843	0.1555	5.42	.0000	1.1008	0.5842
Op-2 0910	1.276	0.3412	3.74	.0003	1.8426	0.7092
Op-1 0915	0.207	0.1748	1.19	.2382	0.4978	-0.0829
Op-2 0915	1.489	0.3619	4.11	.0001	2.0901	0.8879
Op-1 1015	-0.937	0.1748	-5.36	.0000	-0.6467	-1.2274
Op-2 1015	-0.763	0.3619	-2.11	.0377	-0.1617	-1.3639
Op-1 1210	0.567	0.1458	3.89	.0002	0.8090	0.3246
Op-2 1210	0.527	0.3412	1.54	.1259	1.0935	-0.0399
Op-1 2210	1.024	0.1594	6.42	.0000	1.2887	0.7593
Op-2 2210	1.489	0.3619	4.11	.0001	2.0901	0.8879

Paired comparisons of least square means between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period	-0.5091	0.1590	-3.202	.0019	-0.2450	-0.7732

Paired comparisons of least square means for stations between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Station 0611	-0.7404	0.3902	-1.90	.0608	-0.0923	-1.3885
Station 0910	-0.4334	0.3750	-1.16	.2506	0.1894	-1.0562
Station 0915	-1.2815	0.4019	-3.19	.0019	-0.6139	-1.9490
Station 1015	-0.1742	0.4019	-0.43	.6656	0.4933	-0.8418
Station 1210	0.0400	0.3711	0.11	.9144	0.6563	-0.5763
Station 2210	-0.4650	0.3955	-1.18	.2426	0.1918	-1.1218

Station-period means and deltas from original data where control n=1

Station-Period	N	Station Mean	Range	Standard Error	Upper 95% c.i.	Lower 95% c.i.	Mean Delta	Delta Range	Upper 95% CII.	Lower 95% C.I.
0611 Op-1	19	0.96	2.50	0.211	1.40	0.52	2.82	11.00	4.21	1.43
0611 Op-2	3	0.08	0.25	0.083	0.44	-0.28	4.33	3.75	9.16	-0.49
0910 Op-1	18	0.50	2.50	0.162	0.84	0.16	3.18	13.25	4.94	1.42
0910 Op-2	4	0.50	1.50	0.354	1.63	-0.63	3.63	4.25	6.54	0.71
0915 Op-1	14	1.27	2.50	0.244	1.79	0.74	1.71	10.75	3.60	-0.17
0915 Op-2	3	0.08	0.25	0.083	0.44	-0.28	4.33	3.50	8.74	-0.07
1015 Op-1	14	16.86	27.75	2.403	22.05	11.67	-13.88	34.00	-7.82	-19.93
1015 Op-2	3	25.17	19.50	5.645	49.45	0.88	-20.75	23.25	8.25	-49.75
1210 Op-1	19	1.57	8.75	0.529	2.68	0.45	2.21	19.00	4.43	-0.01
1210 Op-2	4	3.00	8.75	2.089	9.65	-3.65	1.13	12.00	9.53	-7.28
2210 Op-1	16	0.31	1.75	0.122	0.57	0.05	3.23	11.50	4.90	1.57
2210 Op-2	3	0.08	0.25	0.083	0.44	-0.28	4.33	4.00	9.35	-0.69

Period means and deltas from original control data where n=1

Period	N	Station Mean	Range	Standard Error	Upper 95% C.I.	Lower 95% C.I.
Op-1	19	3.78	11.75	0.747	5.34	2.21
Op-2	4	4.13	3.75	0.832	6.77	1.48

Analysis of Variance for SAQ for 0515 - Doriopsilla albopunctata

Stations = 2210, 0611, 0910, 0915, 1015, 1210

Data transformed using log base10(x + .5)

Results for Analysis of Variance

Source	Source df	Error df	F-value	Prob.
PERIOD	1	96.000	3.98	0.0490
SEASON	1	96.000	0.16	0.6942
STATION	5	96.000	2.32	0.0490
PERIOD*SEASON	1	96.000	2.19	0.1424
STATION*PERIOD	5	96.000	0.67	0.6444
STATION*SEASON	5	96.000	0.38	0.8601
PERIOD*STATION*SEASON	5	96.000	0.59	0.7090

Results for Power Analysis
Power at alpha = .1

Source	Non-Centrality Parameter	Adjusted non-Centrality Parameter	Power	Adjusted Power	Power to Detect 50% Change
PERIOD	3.98	2.89	0.6314	0.5181	0.7314
STATION*PERIOD	3.37	0.00	0.3502	.	0.1779

Estimates for contrasts on combinations of interaction terms

Source	Difference	Std. Err.	T-value	Prob.
Period in DC	0.6860	0.3665	1.872	.0643
Period in FC	0.1171	0.1669	0.701	.4847
Period in FC-S	0.1955	0.1918	1.019	.3107
Period in FC-W	0.0388	0.2733	0.142	.8875
Period in DC-S	1.2033	0.4021	2.993	.0035
Period in DC-W	0.1686	0.6128	0.275	.7838

Least square means & confidence intervals from analysis of variance

Source	LS Mean	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period Op-1	0.009	0.0275	0.34	.7337	0.0551	-0.0364
Period Op-2	-0.124	0.0612	-2.03	.0448	-0.0228	-0.2261
Op-1 0611	0.216	0.0616	3.51	.0007	0.3186	0.1141
Op-2 0611	0.000	0.1528	0.00	1.000	0.2538	-0.2538
Op-1 0910	0.140	0.0656	2.13	.0357	0.2489	0.0308
Op-2 0910	-0.218	0.1440	-1.51	.1339	0.0215	-0.4570
Op-1 0915	-0.195	0.0738	-2.64	.0097	-0.0722	-0.3173
Op-2 0915	-0.268	0.1528	-1.75	.0825	-0.0143	-0.5218
Op-1 1015	-0.181	0.0738	-2.46	.0157	-0.0589	-0.3040
Op-2 1015	-0.188	0.1528	-1.23	.2227	0.0662	-0.4413
Op-1 1210	0.003	0.0616	0.05	.9578	0.1055	-0.0990
Op-2 1210	-0.029	0.1440	-0.20	.8390	0.2099	-0.2686
Op-1 2210	0.073	0.0673	1.09	.2801	0.1848	-0.0387
Op-2 2210	-0.044	0.1528	-0.29	.7739	0.2097	-0.2978

Paired comparisons of least square means between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period	0.1339	0.0671	1.994	.0490	0.2453	0.0224

Paired comparisons of least square means for stations between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Station 0611	0.2164	0.1647	1.31	.1921	0.4900	-0.0572
Station 0910	0.3576	0.1583	2.26	.0261	0.6205	0.0947
Station 0915	0.0733	0.1697	0.43	.6666	0.3551	-0.2085
Station 1015	0.0061	0.1697	0.04	.9715	0.2879	-0.2757
Station 1210	0.0326	0.1567	0.21	.8355	0.2928	-0.2276
Station 2210	0.1171	0.1669	0.70	.4847	0.3944	-0.1602

Station-period means and deltas from original data where control n=1

Station-Period	N	Station Mean	Range	Standard Error	Upper 95% c.i.	Lower 95% c.i.	Mean Delta	Delta Range	Upper 95% CIi.	Lower 95% C.I.
0611 Op-1	19	0.13	1.75	0.092	0.33	-0.06	0.37	2.75	0.65	0.09
0611 Op-2	3	0.00	0.00	0.000	.	.	0.00	0.00	.	.
0910 Op-1	18	0.22	1.25	0.073	0.38	0.07	0.26	2.75	0.58	-0.06
0910 Op-2	4	0.38	0.25	0.072	0.60	0.15	-0.38	0.25	-0.15	-0.60
0915 Op-1	14	0.89	4.00	0.304	1.55	0.24	-0.46	4.75	0.23	-1.16
0915 Op-2	3	0.58	1.00	0.333	2.02	-0.85	-0.58	1.00	0.85	-2.02
1015 Op-1	14	1.36	11.00	0.781	3.04	-0.33	-0.93	10.25	0.53	-2.39
1015 Op-2	3	0.33	0.75	0.220	1.28	-0.62	-0.33	0.75	0.62	-1.28
1210 Op-1	19	0.46	2.25	0.138	0.75	0.17	0.04	1.75	0.28	-0.20
1210 Op-2	4	0.06	0.25	0.063	0.26	-0.14	-0.06	0.25	0.14	-0.26
2210 Op-1	16	0.31	1.75	0.111	0.55	0.08	0.19	1.25	0.40	-0.03
2210 Op-2	3	0.08	0.25	0.083	0.44	-0.28	-0.08	0.25	0.28	-0.44

Period means and deltas from original control data where n=1

Period	N	Station Mean	Range	Standard Error	Upper 95% C.I.	Lower 95% C.I.
Op-1	19	0.50	1.75	0.110	0.73	0.27
Op-2	4	0.00	0.00	0.000	.	.

Analysis of Variance for SFQ for 0266 - Epiactis prolifera

Stations = 2210, 0611, 0910, 0915, 1015, 1210

Data transformed using log base10(x + .1)

Results for Analysis of Variance

Source	Source df	Error df	F-value	Prob.
PERIOD	1	102.000	0.56	0.4544
SEASON	1	102.000	9.25	0.0030
STATION	5	102.000	1.08	0.3768
PERIOD*SEASON	1	102.000	1.86	0.1760
STATION*PERIOD	5	102.000	0.42	0.8361
STATION*SEASON	5	102.000	0.16	0.9750
PERIOD*STATION*SEASON	5	102.000	0.74	0.5977

Results for Power Analysis
Power at alpha = .1

Source	Non-Centrality Parameter	Adjusted non-Centrality Parameter	Power	Adjusted Power	Power to Detect 50% Change
PERIOD	0.56	0.00	0.1928	.	0.3512
STATION*PERIOD	2.08	0.00	0.2512	.	0.1367

Estimates for contrasts on combinations of interaction terms

Source	Difference	Std. Err.	T-value	Prob.
Period in DC	-0.2907	0.6650	-0.437	.6629
Period in FC	-0.2580	0.3029	-0.852	.3963
Period in FC-S	-0.5298	0.3465	-1.529	.1293
Period in FC-W	0.0138	0.4969	0.028	.9779
Period in DC-S	0.9767	0.7262	1.345	.1816
Period in DC-W	-1.5582	1.1142	-1.398	.1650

Least square means & confidence intervals from analysis of variance

Source	LS Mean	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period Op-1	0.328	0.0495	6.63	.0000	0.4100	0.2457
Period Op-2	0.419	0.1113	3.77	.0003	0.6040	0.2346
Op-1 0611	0.566	0.1107	5.11	.0000	0.7498	0.3824
Op-2 0611	0.525	0.2778	1.89	.0616	0.9862	0.0640
Op-1 0910	0.139	0.1182	1.18	.2407	0.3356	-0.0567
Op-2 0910	0.480	0.2619	1.83	.0699	0.9145	0.0450
Op-1 0915	0.353	0.1324	2.67	.0089	0.5731	0.1335
Op-2 0915	0.525	0.2778	1.89	.0616	0.9862	0.0640
Op-1 1015	0.384	0.1324	2.90	.0046	0.6039	0.1642
Op-2 1015	0.253	0.2778	0.91	.3645	0.7142	-0.2080
Op-1 1210	0.529	0.1107	4.78	.0000	0.7128	0.3454
Op-2 1210	0.480	0.2619	1.83	.0699	0.9145	0.0450
Op-1 2210	-0.005	0.1207	-0.04	.9675	0.1955	-0.2053
Op-2 2210	0.253	0.2778	0.91	.3645	0.7142	-0.2080

Paired comparisons of least square means between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period	-0.0915	0.1218	-0.751	.4544	0.1107	-0.2936

Paired comparisons of least square means for stations between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Station 0611	0.0410	0.2990	0.14	.8912	0.5374	-0.4554
Station 0910	-0.3403	0.2873	-1.18	.2390	0.1366	-0.8172
Station 0915	-0.1718	0.3077	-0.56	.5780	0.3391	-0.6826
Station 1015	0.1310	0.3077	0.43	.6713	0.6418	-0.3799
Station 1210	0.0494	0.2843	0.17	.8625	0.5213	-0.4226
Station 2210	-0.2580	0.3029	-0.85	.3963	0.2448	-0.7608

Station-period means and deltas from original data where control n=1

Station-Period	N	Station Mean	Range	Standard Error	Upper 95% c.i.	Lower 95% c.i.	Mean Delta	Delta Range	Upper 95% CIi.	Lower 95% C.I.
0611 Op-1	20	0.05	0.50	0.029	0.11	-0.01	0.44	1.75	0.65	0.22
0611 Op-2	3	0.00	0.00	0.000	.	.	0.25	0.50	0.87	-0.37
0910 Op-1	19	0.41	2.00	0.130	0.68	0.13	0.04	3.00	0.35	-0.27
0910 Op-2	4	0.00	0.00	0.000	.	.	0.19	0.50	0.57	-0.19
0915 Op-1	15	0.22	1.25	0.100	0.43	0.00	0.18	2.25	0.46	-0.09
0915 Op-2	3	0.00	0.00	0.000	.	.	0.25	0.50	0.87	-0.37
1015 Op-1	15	0.08	0.25	0.031	0.15	0.02	0.32	1.75	0.56	0.07
1015 Op-2	3	0.17	0.25	0.083	0.53	-0.19	0.08	0.75	1.03	-0.87
1210 Op-1	20	0.05	0.25	0.023	0.10	0.00	0.44	2.00	0.66	0.21
1210 Op-2	4	0.00	0.00	0.000	.	.	0.19	0.50	0.57	-0.19
2210 Op-1	17	0.59	2.25	0.137	0.88	0.30	-0.15	3.75	0.26	-0.55
2210 Op-2	3	0.08	0.25	0.083	0.44	-0.28	0.17	0.25	0.53	-0.19

Period means and deltas from original control data where n=1

Period	N	Station Mean	Range	Standard Error	Upper 95% C.I.	Lower 95% C.I.
Op-1	20	0.49	1.75	0.105	0.71	0.27
Op-2	4	0.19	0.50	0.120	0.57	-0.19

Analysis of Variance for SAQ for 0564 - Eudistylia polymorpha

Stations = 2210, 0611, 0910, 0915, 1015, 1210

Data transformed using log base10(x + .1)

Results for Analysis of Variance

Source	Source df	Error df	F-value	Prob.
PERIOD	1	96.000	0.02	0.8907
SEASON	1	96.000	1.10	0.2968
STATION	5	96.000	5.53	0.0002
PERIOD*SEASON	1	96.000	0.00	0.9855
STATION*PERIOD	5	96.000	0.63	0.6806
STATION*SEASON	5	96.000	0.12	0.9866
PERIOD*STATION*SEASON	5	96.000	0.24	0.9458

Results for Power Analysis
Power at alpha = .1

Source	Non-Centrality Parameter	Adjusted non-Centrality Parameter	Power	Adjusted Power	Power to Detect 50% Change
PERIOD	0.02	0.00	0.1032	.	0.2166
STATION*PERIOD	3.13	0.00	0.3316	.	0.1352

Estimates for contrasts on combinations of interaction terms

Source	Difference	Std. Err.	T-value	Prob.
Period in DC	0.0862	0.6069	0.142	.8874
Period in FC	0.0057	0.2765	0.021	.9836
Period in FC-S	0.1202	0.3176	0.378	.7059
Period in FC-W	-0.1088	0.4526	-0.240	.8105
Period in DC-S	-0.0405	0.6659	-0.061	.9516
Period in DC-W	0.2128	1.0149	0.210	.8344

Least square means & confidence intervals from analysis of variance

Source	LS Mean	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period Op-1	-0.137	0.0456	-2.99	.0035	-0.0608	-0.2123
Period Op-2	-0.152	0.1014	-1.50	.1373	0.0165	-0.3202
Op-1 0611	-0.578	0.1020	-5.67	.0000	-0.4089	-0.7476
Op-2 0611	-1.002	0.2530	-3.96	.0001	-0.5817	-1.4222
Op-1 0910	-0.013	0.1087	-0.12	.9083	0.1680	-0.1931
Op-2 0910	0.091	0.2386	0.38	.7047	0.4869	-0.3055
Op-1 0915	-0.210	0.1222	-1.72	.0894	-0.0067	-0.4127
Op-2 0915	0.000	0.2530	0.00	1.000	0.4202	-0.4202
Op-1 1015	0.012	0.1222	0.10	.9239	0.2147	-0.1913
Op-2 1015	0.000	0.2530	0.00	1.000	0.4202	-0.4202
Op-1 1210	-0.036	0.1020	-0.36	.7224	0.1330	-0.2057
Op-2 1210	-0.000	0.2386	-0.00	1.000	0.3962	-0.3962
Op-1 2210	0.006	0.1114	0.05	.9594	0.1908	-0.1794
Op-2 2210	0.000	0.2530	0.00	1.000	0.4202	-0.4202

Paired comparisons of least square means between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period	0.0153	0.1112	0.138	.8907	0.1999	-0.1693

Paired comparisons of least square means for stations between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Station 0611	0.4237	0.2728	1.55	.1237	0.8768	-0.0294
Station 0910	-0.1032	0.2622	-0.39	.6946	0.3322	-0.5386
Station 0915	-0.2097	0.2810	-0.75	.4573	0.2570	-0.6764
Station 1015	0.0117	0.2810	0.04	.9669	0.4784	-0.4550
Station 1210	-0.0363	0.2594	-0.14	.8889	0.3945	-0.4672
Station 2210	0.0057	0.2765	0.02	.9836	0.4649	-0.4535

Station-period means and deltas from original data where control n=1

Station-Period	N	Station Mean	Range	Standard Error	Upper 95% c.i.	Lower 95% c.i.	Mean Delta	Delta Range	Upper 95% CIi.	Lower 95% C.I.
0611 Op-1	19	1.82	16.75	0.911	3.73	-0.10	-1.76	17.00	0.14	-3.67
0611 Op-2	3	0.92	1.50	0.441	2.81	-0.98	-0.92	1.50	0.98	-2.81
0910 Op-1	18	0.04	0.50	0.030	0.11	-0.02	0.01	1.00	0.11	-0.09
0910 Op-2	4	0.00	0.00	0.000	.	.	0.06	0.25	0.26	-0.14
0915 Op-1	14	0.14	0.75	0.063	0.28	0.01	-0.11	0.50	-0.01	-0.20
0915 Op-2	3	0.00	0.00	0.000	.	.	0.00	0.00	.	.
1015 Op-1	14	0.02	0.25	0.018	0.06	-0.02	0.02	0.75	0.11	-0.07
1015 Op-2	3	0.00	0.00	0.000	.	.	0.00	0.00	.	.
1210 Op-1	19	0.05	0.25	0.024	0.10	0.00	0.00	0.50	0.07	-0.07
1210 Op-2	4	0.06	0.25	0.063	0.26	-0.14	0.00	0.50	0.32	-0.32
2210 Op-1	16	0.03	0.25	0.021	0.08	-0.01	0.03	0.75	0.11	-0.05
2210 Op-2	3	0.00	0.00	0.000	.	.	0.00	0.00	.	.

Period means and deltas from original control data where n=1

Period	N	Station Mean	Range	Standard Error	Upper 95% C.I.	Lower 95% C.I.
Op-1	19	0.05	0.50	0.031	0.12	-0.01
Op-2	4	0.06	0.25	0.063	0.26	-0.14

Analysis of Variance for SFQ for 0449 - Eurystomella bilabiata

Stations = 2210, 0611, 0910, 0915, 1015, 1210

Data transformed using log base10(x + .1)

Results for Analysis of Variance

Source	Source df	Error df	F-value	Prob.
PERIOD	1	102.000	1.28	0.2605
SEASON	1	102.000	0.60	0.4399
STATION	5	102.000	3.18	0.0105
PERIOD*SEASON	1	102.000	0.06	0.8083
STATION*PERIOD	5	102.000	0.59	0.7083
STATION*SEASON	5	102.000	0.50	0.7783
PERIOD*STATION*SEASON	5	102.000	1.48	0.2041

Results for Power Analysis
Power at alpha = .1

Source	Non-Centrality Parameter	Adjusted non-Centrality Parameter	Power	Adjusted Power	Power to Detect 50% Change
PERIOD	1.28	0.26	0.3041	0.1424	0.3218
STATION*PERIOD	2.95	0.00	0.3181	.	0.1967

Estimates for contrasts on combinations of interaction terms

Source	Difference	Std. Err.	T-value	Prob.
Period in DC	-0.4105	0.5751	-0.714	.4770
Period in FC	-0.3046	0.2620	-1.163	.2476
Period in FC-S	-0.9024	0.2996	-3.012	.0033
Period in FC-W	0.2932	0.4298	0.682	.4966
Period in DC-S	0.0336	0.6280	0.054	.9574
Period in DC-W	-0.8546	0.9636	-0.887	.3773

Least square means & confidence intervals from analysis of variance

Source	LS Mean	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period Op-1	-0.220	0.0428	-5.15	.0000	-0.1494	-0.2915
Period Op-2	-0.101	0.0962	-1.05	.2952	0.0585	-0.2610
Op-1 0611	-0.348	0.0957	-3.64	.0004	-0.1896	-0.5074
Op-2 0611	-0.000	0.2402	-0.00	1.000	0.3988	-0.3988
Op-1 0910	-0.101	0.1022	-0.99	.3239	0.0683	-0.2709
Op-2 0910	0.091	0.2265	0.40	.6897	0.4667	-0.2853
Op-1 0915	-0.043	0.1145	-0.38	.7063	0.1468	-0.2334
Op-2 0915	0.000	0.2402	0.00	1.000	0.3988	-0.3988
Op-1 1015	-0.011	0.1145	-0.09	.9262	0.1795	-0.2008
Op-2 1015	-0.195	0.2402	-0.81	.4200	0.2042	-0.5933
Op-1 1210	-0.050	0.0957	-0.52	.6050	0.1092	-0.2085
Op-2 1210	-0.039	0.2265	-0.17	.8636	0.3370	-0.4150
Op-1 2210	-0.769	0.1044	-7.37	.0000	-0.5960	-0.9426
Op-2 2210	-0.465	0.2402	-1.93	.0558	-0.0659	-0.8635

Paired comparisons of least square means between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period	-0.1192	0.1053	-1.132	.2605	0.0557	-0.2940

Paired comparisons of least square means for stations between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Station 0611	-0.3485	0.2586	-1.35	.1808	0.0808	-0.7778
Station 0910	-0.1920	0.2485	-0.77	.4416	0.2205	-0.6045
Station 0915	-0.0433	0.2661	-0.16	.8711	0.3985	-0.4851
Station 1015	0.1839	0.2661	0.69	.4912	0.6257	-0.2579
Station 1210	-0.0106	0.2459	-0.04	.9655	0.3975	-0.4188
Station 2210	-0.3046	0.2620	-1.16	.2476	0.1302	-0.7394

Station-period means and deltas from original data where control n=1

Station-Period	N	Station Mean	Range	Standard Error	Upper 95% c.i.	Lower 95% c.i.	Mean Delta	Delta Range	Upper 95% CIi.	Lower 95% C.I.
0611 Op-1	20	0.23	1.25	0.075	0.38	0.07	-0.19	1.75	-0.01	-0.37
0611 Op-2	3	0.00	0.00	0.000	.	.	0.00	0.00	.	.
0910 Op-1	19	0.22	2.00	0.127	0.49	-0.04	-0.18	2.25	0.09	-0.46
0910 Op-2	4	0.00	0.00	0.000	.	.	0.06	0.25	0.26	-0.14
0915 Op-1	15	0.02	0.25	0.017	0.05	-0.02	0.00	0.50	0.05	-0.05
0915 Op-2	3	0.00	0.00	0.000	.	.	0.00	0.00	.	.
1015 Op-1	15	0.03	0.50	0.033	0.10	-0.04	-0.02	0.75	0.07	-0.10
1015 Op-2	3	0.17	0.50	0.167	0.88	-0.55	-0.17	0.50	0.55	-0.88
1210 Op-1	20	0.05	0.75	0.039	0.13	-0.03	-0.01	1.25	0.09	-0.12
1210 Op-2	4	0.13	0.50	0.125	0.52	-0.27	-0.06	0.75	0.44	-0.56
2210 Op-1	17	1.27	6.67	0.390	2.10	0.45	-1.23	6.42	-0.42	-2.04
2210 Op-2	3	0.25	0.75	0.250	1.33	-0.83	-0.25	0.75	0.83	-1.33

Period means and deltas from original control data where n=1

Period	N	Station Mean	Range	Standard Error	Upper 95% C.I.	Lower 95% C.I.
Op-1	20	0.04	0.50	0.027	0.09	-0.02
Op-2	4	0.06	0.25	0.063	0.26	-0.14

Analysis of Variance for SFQ for 0300 - Fissurella volcano

Stations = 2210, 0611, 0910, 0915, 1015, 1210

Data transformed using log base10(x + .5)

Results for Analysis of Variance

Source	Source df	Error df	F-value	Prob.
PERIOD	1	102.000	2.18	0.1429
SEASON	1	102.000	0.33	0.5696
STATION	5	102.000	8.10	0.0000
PERIOD*SEASON	1	102.000	5.48	0.0212
STATION*PERIOD	5	102.000	1.65	0.1524
STATION*SEASON	5	102.000	0.45	0.8108
PERIOD*STATION*SEASON	5	102.000	1.03	0.4023

Results for Power Analysis
Power at alpha = .1

Source	Non-Centrality Parameter	Adjusted non-Centrality Parameter	Power	Adjusted Power	Power to Detect 50% Change
PERIOD	2.18	1.14	0.4302	0.2824	0.9558
STATION*PERIOD	8.27	3.11	0.6805	0.3309	0.4698

Estimates for contrasts on combinations of interaction terms

Source	Difference	Std. Err.	T-value	Prob.
Period in DC	-0.4196	0.2812	-1.492	.1387
Period in FC	-0.0365	0.1281	-0.285	.7760
Period in FC-S	-0.0372	0.1465	-0.254	.8003
Period in FC-W	-0.0359	0.2101	-0.171	.8646
Period in DC-S	0.3040	0.3070	0.990	.3244
Period in DC-W	-1.1432	0.4711	-2.427	.0170

Least square means & confidence intervals from analysis of variance

Source	LS Mean	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period Op-1	-0.276	0.0209	-13.19	.0000	-0.2413	-0.3107
Period Op-2	-0.200	0.0471	-4.25	.0000	-0.1219	-0.2781
Op-1 0611	-0.149	0.0468	-3.18	.0019	-0.0711	-0.2265
Op-2 0611	-0.251	0.1175	-2.14	.0347	-0.0564	-0.4463
Op-1 0910	-0.551	0.0500	-11.03	.0000	-0.4682	-0.6341
Op-2 0910	-0.420	0.1107	-3.79	.0003	-0.2361	-0.6037
Op-1 0915	-0.468	0.0560	-8.36	.0000	-0.3754	-0.5613
Op-2 0915	-0.099	0.1175	-0.85	.3990	0.0955	-0.2944
Op-1 1015	-0.060	0.0560	-1.07	.2862	0.0329	-0.1530
Op-2 1015	-0.000	0.1175	-0.00	1.000	0.1950	-0.1950
Op-1 1210	-0.041	0.0468	-0.89	.3776	0.0362	-0.1191
Op-2 1210	-0.080	0.1107	-0.72	.4743	0.1043	-0.2633
Op-1 2210	-0.386	0.0510	-7.56	.0000	-0.3013	-0.4708
Op-2 2210	-0.349	0.1175	-2.98	.0037	-0.1545	-0.5444

Paired comparisons of least square means between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period	-0.0760	0.0515	-1.476	.1429	0.0095	-0.1615

Paired comparisons of least square means for stations between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Station 0611	0.1025	0.1264	0.81	.4193	0.3124	-0.1073
Station 0910	-0.1313	0.1215	-1.08	.2825	0.0704	-0.3329
Station 0915	-0.3689	0.1301	-2.84	.0055	-0.1529	-0.5849
Station 1015	-0.0600	0.1301	-0.46	.6455	0.1560	-0.2760
Station 1210	0.0381	0.1202	0.32	.7522	0.2376	-0.1615
Station 2210	-0.0365	0.1281	-0.29	.7760	0.1760	-0.2491

Station-period means and deltas from original data where control n=1

Station-Period	N	Station Mean	Range	Standard Error	Upper 95% c.i.	Lower 95% c.i.	Mean Delta	Delta Range	Upper 95% CIi.	Lower 95% C.I.
0611 Op-1	20	0.25	1.25	0.085	0.43	0.07	-0.24	1.50	-0.05	-0.42
0611 Op-2	3	0.50	0.75	0.250	1.58	-0.58	-0.50	0.75	0.58	-1.58
0910 Op-1	19	1.41	4.00	0.256	1.95	0.87	-1.39	4.00	-0.86	-1.93
0910 Op-2	4	1.50	2.75	0.568	3.31	-0.31	-1.50	2.75	0.31	-3.31
0915 Op-1	15	1.12	2.50	0.218	1.58	0.65	-1.12	2.50	-0.65	-1.58
0915 Op-2	3	0.25	0.75	0.250	1.33	-0.83	-0.25	0.75	0.83	-1.33
1015 Op-1	15	0.07	0.25	0.030	0.13	0.00	-0.07	0.25	-0.00	-0.13
1015 Op-2	3	0.00	0.00	0.000	.	.	0.00	0.00	.	.
1210 Op-1	20	0.09	0.75	0.042	0.17	0.00	-0.08	1.00	0.02	-0.17
1210 Op-2	4	0.19	0.50	0.120	0.57	-0.19	-0.19	0.50	0.19	-0.57
2210 Op-1	17	0.82	2.00	0.163	1.16	0.47	-0.80	2.00	-0.46	-1.15
2210 Op-2	3	0.58	0.25	0.083	0.94	0.22	-0.58	0.25	-0.22	-0.94

Period means and deltas from original control data where n=1

Period	N	Station Mean	Range	Standard Error	Upper 95% C.I.	Lower 95% C.I.
Op-1	20	0.01	0.25	0.013	0.04	-0.01
Op-2	4	0.00	0.00	0.000	.	.

Analysis of Variance for SFQ for 0526 - Fusinus luteopictus

Stations = 2210, 0611, 0910, 0915, 1015, 1210

Data transformed using log base10(x + .1)

Results for Analysis of Variance

Source	Source df	Error df	F-value	Prob.
PERIOD	1	102.000	0.00	0.9636
SEASON	1	102.000	0.21	0.6479
STATION	5	102.000	9.58	0.0000
PERIOD*SEASON	1	102.000	0.07	0.7911
STATION*PERIOD	5	102.000	0.48	0.7899
STATION*SEASON	5	102.000	0.21	0.9558
PERIOD*STATION*SEASON	5	102.000	0.09	0.9928

Results for Power Analysis
Power at alpha = .1

Source	Non-Centrality Parameter	Adjusted non-Centrality Parameter	Power	Adjusted Power	Power to Detect 50% Change
PERIOD	0.00	0.00	0.1004	.	0.2855
STATION*PERIOD	2.40	0.00	0.2759	.	0.2508

Estimates for contrasts on combinations of interaction terms

Source	Difference	Std. Err.	T-value	Prob.
Period in DC	-0.2487	0.4362	-0.570	.5699
Period in FC	0.2268	0.1987	1.141	.2564
Period in FC-S	0.3383	0.2273	1.489	.1397
Period in FC-W	0.1152	0.3260	0.353	.7246
Period in DC-S	-0.2330	0.4764	-0.489	.6259
Period in DC-W	-0.2644	0.7309	-0.362	.7183

Least square means & confidence intervals from analysis of variance

Source	LS Mean	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period Op-1	-0.151	0.0325	-4.65	.0000	-0.0970	-0.2047
Period Op-2	-0.147	0.0730	-2.02	.0464	-0.0260	-0.2684
Op-1 0611	-0.000	0.0726	-0.00	1.000	0.1205	-0.1205
Op-2 0611	-0.000	0.1822	-0.00	1.000	0.3025	-0.3025
Op-1 0910	-0.191	0.0775	-2.46	.0157	-0.0618	-0.3192
Op-2 0910	-0.000	0.1718	-0.00	1.000	0.2852	-0.2852
Op-1 0915	-0.035	0.0869	-0.41	.6848	0.1088	-0.1796
Op-2 0915	0.000	0.1822	0.00	1.000	0.3025	-0.3025
Op-1 1015	-0.042	0.0869	-0.49	.6278	0.1020	-0.1865
Op-2 1015	-0.000	0.1822	-0.00	1.000	0.3025	-0.3025
Op-1 1210	0.019	0.0726	0.27	.7895	0.1399	-0.1011
Op-2 1210	0.000	0.1718	0.00	1.000	0.2852	-0.2852
Op-1 2210	-0.657	0.0792	-8.29	.0000	-0.5251	-0.7880
Op-2 2210	-0.883	0.1822	-4.85	.0000	-0.5808	-1.1858

Paired comparisons of least square means between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period	-0.0037	0.0799	-0.046	.9636	0.1290	-0.1363

Paired comparisons of least square means for stations between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Station 0611	0.0000	0.1962	0.00	1.000	0.3256	-0.3256
Station 0910	-0.1905	0.1885	-1.01	.3145	0.1224	-0.5034
Station 0915	-0.0354	0.2019	-0.18	.8613	0.2997	-0.3705
Station 1015	-0.0422	0.2019	-0.21	.8347	0.2929	-0.3773
Station 1210	0.0194	0.1865	0.10	.9172	0.3290	-0.2902
Station 2210	0.2268	0.1987	1.14	.2564	0.5566	-0.1031

Station-period means and deltas from original data where control n=1

Station-Period	N	Station Mean	Range	Standard Error	Upper 95% c.i.	Lower 95% c.i.	Mean Delta	Delta Range	Upper 95% CIi.	Lower 95% C.I.
0611 Op-1	20	0.01	0.25	0.013	0.04	-0.01	0.00	0.50	0.04	-0.04
0611 Op-2	3	0.00	0.00	0.000	.	.	0.00	0.00	.	.
0910 Op-1	19	0.09	0.50	0.034	0.16	0.02	-0.08	0.75	0.00	-0.16
0910 Op-2	4	0.00	0.00	0.000	.	.	0.00	0.00	.	.
0915 Op-1	15	0.13	2.00	0.133	0.42	-0.15	-0.12	2.25	0.17	-0.41
0915 Op-2	3	0.00	0.00	0.000	.	.	0.00	0.00	.	.
1015 Op-1	15	0.07	0.75	0.052	0.18	-0.04	-0.05	1.00	0.07	-0.17
1015 Op-2	3	0.00	0.00	0.000	.	.	0.00	0.00	.	.
1210 Op-1	20	0.00	0.00	0.000	.	.	0.01	0.25	0.04	-0.01
1210 Op-2	4	0.00	0.00	0.000	.	.	0.00	0.00	.	.
2210 Op-1	17	0.50	2.25	0.137	0.79	0.21	-0.50	2.25	-0.21	-0.79
2210 Op-2	3	0.75	1.00	0.289	1.99	-0.49	-0.75	1.00	0.49	-1.99

Period means and deltas from original control data where n=1

Period	N	Station Mean	Range	Standard Error	Upper 95% C.I.	Lower 95% C.I.
Op-1	20	0.01	0.25	0.013	0.04	-0.01
Op-2	4	0.00	0.00	0.000	.	.

Analysis of Variance for SAQ for 0422 - Henricia leviuscula

Stations = 2210, 0611, 0910, 0915, 1015, 1210

Data transformed using log base10(x + 1)

Results for Analysis of Variance

Source	Source df	Error df	F-value	Prob.
PERIOD	1	96.000	3.87	0.0520
SEASON	1	96.000	0.44	0.5074
STATION	5	96.000	1.02	0.4121
PERIOD*SEASON	1	96.000	0.06	0.8052
STATION*PERIOD	5	96.000	0.18	0.9702
STATION*SEASON	5	96.000	0.27	0.9281
PERIOD*STATION*SEASON	5	96.000	0.02	0.9998

Results for Power Analysis
Power at alpha = .1

Source	Non-Centrality Parameter	Adjusted non-Centrality Parameter	Power	Adjusted Power	Power to Detect 50% Change
PERIOD	3.87	2.79	0.6213	0.5058	0.1714
STATION*PERIOD	0.89	0.00	0.1613	.	0.2014

Estimates for contrasts on combinations of interaction terms

Source	Difference	Std. Err.	T-value	Prob.
Period in DC	0.3681	0.1695	2.172	.0323
Period in FC	-0.0018	0.0772	-0.023	.9815
Period in FC-S	0.0274	0.0887	0.309	.7581
Period in FC-W	-0.0310	0.1264	-0.245	.8069
Period in DC-S	0.3850	0.1859	2.071	.0411
Period in DC-W	0.3513	0.2834	1.240	.2182

Least square means & confidence intervals from analysis of variance

Source	LS Mean	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period Op-1	0.047	0.0127	3.68	.0004	0.0680	0.0257
Period Op-2	-0.014	0.0283	-0.50	.6179	0.0328	-0.0612
Op-1 0611	0.063	0.0285	2.22	.0289	0.1104	0.0159
Op-2 0611	-0.000	0.0707	-0.00	1.000	0.1173	-0.1173
Op-1 0910	0.069	0.0304	2.27	.0257	0.1192	0.0184
Op-2 0910	-0.000	0.0666	-0.00	1.000	0.1106	-0.1106
Op-1 0915	0.083	0.0341	2.43	.0170	0.1396	0.0262
Op-2 0915	-0.000	0.0707	-0.00	1.000	0.1173	-0.1173
Op-1 1015	0.066	0.0341	1.93	.0564	0.1226	0.0092
Op-2 1015	-0.024	0.0707	-0.34	.7324	0.0931	-0.1416
Op-1 1210	0.063	0.0285	2.22	.0289	0.1104	0.0159
Op-2 1210	0.000	0.0666	0.00	1.000	0.1106	-0.1106
Op-1 2210	-0.063	0.0311	-2.01	.0472	-0.0109	-0.1142
Op-2 2210	-0.061	0.0707	-0.86	.3919	0.0566	-0.1781

Paired comparisons of least square means between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period	0.0611	0.0310	1.967	.0520	0.1126	0.0095

Paired comparisons of least square means for stations between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Station 0611	0.0631	0.0762	0.83	.4092	0.1897	-0.0634
Station 0910	0.0688	0.0732	0.94	.3496	0.1904	-0.0528
Station 0915	0.0829	0.0785	1.06	.2933	0.2132	-0.0474
Station 1015	0.0901	0.0785	1.15	.2535	0.2205	-0.0402
Station 1210	0.0631	0.0724	0.87	.3856	0.1835	-0.0572
Station 2210	-0.0018	0.0772	-0.02	.9815	0.1264	-0.1300

Station-period means and deltas from original data where control n=1

Station-Period	N	Station Mean	Range	Standard Error	Upper 95% c.i.	Lower 95% c.i.	Mean Delta	Delta Range	Upper 95% CIi.	Lower 95% C.I.
0611 Op-1	19	0.00	0.00	0.000	.	.	0.20	0.75	0.35	0.04
0611 Op-2	3	0.00	0.00	0.000	.	.	0.00	0.00	.	.
0910 Op-1	18	0.00	0.00	0.000	.	.	0.21	0.75	0.37	0.05
0910 Op-2	4	0.00	0.00	0.000	.	.	0.00	0.00	.	.
0915 Op-1	14	0.02	0.25	0.018	0.06	-0.02	0.25	0.75	0.45	0.05
0915 Op-2	3	0.00	0.00	0.000	.	.	0.00	0.00	.	.
1015 Op-1	14	0.09	0.75	0.056	0.21	-0.03	0.18	1.50	0.43	-0.08
1015 Op-2	3	0.08	0.25	0.083	0.44	-0.28	-0.08	0.25	0.28	-0.44
1210 Op-1	19	0.00	0.00	0.000	.	.	0.20	0.75	0.35	0.04
1210 Op-2	4	0.00	0.00	0.000	.	.	0.00	0.00	.	.
2210 Op-1	16	0.48	1.25	0.115	0.73	0.24	-0.25	1.75	-0.01	-0.49
2210 Op-2	3	0.25	0.75	0.250	1.33	-0.83	-0.25	0.75	0.83	-1.33

Period means and deltas from original control data where n=1

Period	N	Station Mean	Range	Standard Error	Upper 95% C.I.	Lower 95% C.I.
Op-1	19	0.20	0.75	0.073	0.35	0.04
Op-2	4	0.00	0.00	0.000	.	.

Analysis of Variance for SFQ for 0518 - Homalopoma spp.

Stations = 2210, 0611, 0910, 0915, 1015, 1210

Data transformed using square root(x + 1)

Results for Analysis of Variance

Source	Source df	Error df	F-value	Prob.
PERIOD	1	102.000	1.15	0.2863
SEASON	1	102.000	3.86	0.0523
STATION	5	102.000	4.18	0.0017
PERIOD*SEASON	1	102.000	1.37	0.2441
STATION*PERIOD	5	102.000	0.33	0.8924
STATION*SEASON	5	102.000	0.32	0.8972
PERIOD*STATION*SEASON	5	102.000	0.07	0.9962

Results for Power Analysis
Power at alpha = .1

Source	Non-Centrality Parameter	Adjusted non-Centrality Parameter	Power	Adjusted Power	Power to Detect 50% Change
PERIOD	1.15	0.13	0.2843	0.1211	0.3688
STATION*PERIOD	1.66	0.00	0.2187	.	0.2705

Estimates for contrasts on combinations of interaction terms

Source	Difference	Std. Err.	T-value	Prob.
Period in DC	-1.1887	0.8519	-1.395	.1659
Period in FC	0.1853	0.3880	0.478	.6340
Period in FC-S	0.1619	0.4438	0.365	.7161
Period in FC-W	0.2087	0.6366	0.328	.7437
Period in DC-S	-2.2619	0.9303	-2.431	.0168
Period in DC-W	-0.1155	1.4274	-0.081	.9357

Least square means & confidence intervals from analysis of variance

Source	LS Mean	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period Op-1	1.137	0.0634	17.94	.0000	1.2424	1.0320
Period Op-2	1.304	0.1426	9.15	.0000	1.5410	1.0677
Op-1 0611	1.363	0.1418	9.62	.0000	1.5985	1.1279
Op-2 0611	1.498	0.3559	4.21	.0001	2.0884	0.9070
Op-1 0910	1.431	0.1514	9.46	.0000	1.6825	1.1800
Op-2 0910	1.531	0.3355	4.56	.0000	2.0875	0.9737
Op-1 0915	1.325	0.1696	7.81	.0000	1.6066	1.0434
Op-2 0915	1.498	0.3559	4.21	.0001	2.0884	0.9070
Op-1 1015	1.144	0.1696	6.74	.0000	1.4254	0.8622
Op-2 1015	1.468	0.3559	4.13	.0001	2.0589	0.8775
Op-1 1210	1.035	0.1418	7.30	.0000	1.2708	0.8001
Op-2 1210	1.493	0.3355	4.45	.0000	2.0500	0.9362
Op-1 2210	0.524	0.1547	3.39	.0010	0.7809	0.2675
Op-2 2210	0.339	0.3559	0.95	.3432	0.9296	-0.2518

Paired comparisons of least square means between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period	-0.1672	0.1560	-1.072	.2863	0.0917	-0.4262

Paired comparisons of least square means for stations between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Station 0611	-0.1345	0.3831	-0.35	.7261	0.5013	-0.7704
Station 0910	-0.0993	0.3681	-0.27	.7878	0.5117	-0.7103
Station 0915	-0.1727	0.3942	-0.44	.6622	0.4816	-0.8271
Station 1015	-0.3244	0.3942	-0.82	.4125	0.3300	-0.9788
Station 1210	-0.4576	0.3642	-1.26	.2118	0.1469	-1.0622
Station 2210	0.1853	0.3880	0.48	.6340	0.8294	-0.4588

Station-period means and deltas from original data where control n=1

Station-Period	N	Station Mean	Range	Standard Error	Upper 95% c.i.	Lower 95% c.i.	Mean Delta	Delta Range	Upper 95% CIi.	Lower 95% C.I.
0611 Op-1	20	0.04	0.75	0.038	0.12	-0.04	4.49	8.75	5.55	3.42
0611 Op-2	3	0.00	0.00	0.000	.	.	5.25	1.50	7.11	3.39
0910 Op-1	19	0.09	1.25	0.069	0.24	-0.05	4.57	9.25	5.69	3.44
0910 Op-2	4	0.00	0.00	0.000	.	.	5.50	1.75	6.76	4.24
0915 Op-1	15	0.23	2.25	0.149	0.55	-0.09	4.30	8.50	5.57	3.03
0915 Op-2	3	0.00	0.00	0.000	.	.	5.25	1.50	7.11	3.39
1015 Op-1	15	0.90	6.00	0.456	1.88	-0.08	3.63	12.25	5.27	2.00
1015 Op-2	3	0.08	0.25	0.083	0.44	-0.28	5.17	1.75	7.35	2.99
1210 Op-1	20	0.88	3.25	0.253	1.40	0.35	3.65	8.50	4.83	2.47
1210 Op-2	4	0.13	0.50	0.125	0.52	-0.27	5.38	2.25	6.98	3.77
2210 Op-1	17	3.17	4.50	0.337	3.88	2.45	1.69	9.75	3.29	0.08
2210 Op-2	3	4.33	4.25	1.228	9.62	-0.95	0.92	3.50	5.49	-3.66

Period means and deltas from original control data where n=1

Period	N	Station Mean	Range	Standard Error	Upper 95% C.I.	Lower 95% C.I.
Op-1	20	4.53	8.00	0.493	5.56	3.49
Op-2	4	5.50	1.75	0.395	6.76	4.24

Analysis of Variance for SFQ for 0259 - Hydroida

Stations = 2210, 0611, 0910, 0915, 1015, 1210

Data not transformed.

Results for Analysis of Variance

Source	Source df	Error df	F-value	Prob.
PERIOD	1	102.000	0.00	0.9982
SEASON	1	102.000	0.18	0.6711
STATION	5	102.000	1.45	0.2132
PERIOD*SEASON	1	102.000	0.18	0.6711
STATION*PERIOD	5	102.000	0.00	1.0000
STATION*SEASON	5	102.000	0.16	0.9780
PERIOD*STATION*SEASON	5	102.000	0.16	0.9780

Results for Power Analysis
Power at alpha = .1

Source	Non-Centrality Parameter	Adjusted non-Centrality Parameter	Power	Adjusted Power	Power to Detect 50% Change
PERIOD	0.00	0.00	0.1000	.	0.1478
STATION*PERIOD	0.00	0.00	0.1003	.	0.2190

Estimates for contrasts on combinations of interaction terms

Source	Difference	Std. Err.	T-value	Prob.
Period in DC	-0.0137	4.6412	-0.003	.9977
Period in FC	0.0250	2.1140	0.012	.9906
Period in FC-S	-0.0000	2.4181	-0.000	1.000
Period in FC-W	0.0500	3.4682	0.014	.9885
Period in DC-S	-2.1607	5.0683	-0.426	.6708
Period in DC-W	2.1333	7.7766	0.274	.7844

Least square means & confidence intervals from analysis of variance

Source	LS Mean	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period Op-1	-0.498	0.3453	-1.44	.1522	0.0750	-1.0713
Period Op-2	-0.500	0.7767	-0.64	.5212	0.7893	-1.7893
Op-1 0611	-3.122	0.7724	-4.04	.0001	-1.8399	-4.4042
Op-2 0611	-3.000	1.9388	-1.55	.1249	0.2182	-6.2182
Op-1 0910	0.025	0.8247	0.03	.9759	1.3940	-1.3440
Op-2 0910	0.000	1.8279	0.00	1.000	3.0342	-3.0342
Op-1 0915	0.031	0.9243	0.03	.9731	1.5655	-1.5030
Op-2 0915	0.000	1.9388	0.00	1.000	3.2182	-3.2182
Op-1 1015	0.031	0.9243	0.03	.9731	1.5655	-1.5030
Op-2 1015	0.000	1.9388	0.00	1.000	3.2182	-3.2182
Op-1 1210	0.021	0.7724	0.03	.9785	1.3030	-1.2613
Op-2 1210	-0.000	1.8279	-0.00	1.000	3.0342	-3.0342
Op-1 2210	0.025	0.8426	0.03	.9764	1.4237	-1.3737
Op-2 2210	-0.000	1.9388	-0.00	1.000	3.2182	-3.2182

Paired comparisons of least square means between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period	0.0019	0.8500	0.002	.9982	1.4128	-1.4090

Paired comparisons of least square means for stations between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Station 0611	-0.1220	2.0870	-0.06	.9535	3.3422	-3.5863
Station 0910	0.0250	2.0053	0.01	.9901	3.3537	-3.3037
Station 0915	0.0312	2.1478	0.01	.9884	3.5965	-3.5340
Station 1015	0.0312	2.1478	0.01	.9884	3.5965	-3.5340
Station 1210	0.0208	1.9844	0.01	.9916	3.3148	-3.2731
Station 2210	0.0250	2.1140	0.01	.9906	3.5340	-3.4840

Station-period means and deltas from original data where control n=1

Station-Period	N	Station Mean	Range	Standard Error	Upper 95% C.I.	Lower 95% C.I.	Mean Delta	Delta Range	Upper 95% CIi.	Lower 95% C.I.
0611 Op-1	20	3.95	33.75	1.694	7.49	0.41	-3.94	34.00	-0.39	-7.49
0611 Op-2	3	3.00	0.50	0.144	3.62	2.38	-3.00	0.50	-2.38	-3.62
0910 Op-1	19	0.00	0.00	0.000	.	.	0.01	0.25	0.04	-0.01
0910 Op-2	4	0.00	0.00	0.000	.	.	0.00	0.00	.	.
0915 Op-1	15	0.00	0.00	0.000	.	.	0.02	0.25	0.05	-0.02
0915 Op-2	3	0.00	0.00	0.000	.	.	0.00	0.00	.	.
1015 Op-1	15	0.00	0.00	0.000	.	.	0.02	0.25	0.05	-0.02
1015 Op-2	3	0.00	0.00	0.000	.	.	0.00	0.00	.	.
1210 Op-1	20	0.00	0.00	0.000	.	.	0.01	0.25	0.04	-0.01
1210 Op-2	4	0.00	0.00	0.000	.	.	0.00	0.00	.	.
2210 Op-1	17	0.00	0.00	0.000	.	.	0.01	0.25	0.05	-0.02
2210 Op-2	3	0.00	0.00	0.000	.	.	0.00	0.00	.	.

Period means and deltas from original control data where n=1

Period	N	Station Mean	Range	Standard Error	Upper 95% C.I.	Lower 95% C.I.
Op-1	20	0.01	0.25	0.013	0.04	-0.01
Op-2	4	0.00	0.00	0.000	.	.

Analysis of Variance for SFQ for 0608 - Hymenamphiastra cyanocrypta

Stations = 2210, 0611, 0910, 0915, 1015, 1210

Data transformed using log base10(x + .1)

Results for Analysis of Variance

Source	Source df	Error df	F-value	Prob.
PERIOD	1	102.000	5.85	0.0173
SEASON	1	102.000	10.35	0.0017
STATION	5	102.000	28.04	0.0000
PERIOD*SEASON	1	102.000	0.30	0.5846
STATION*PERIOD	5	102.000	0.84	0.5252
STATION*SEASON	5	102.000	1.48	0.2021
PERIOD*STATION*SEASON	5	102.000	0.50	0.7785

Results for Power Analysis
Power at alpha = .1

Source	Non-Centrality Parameter	Adjusted non-Centrality Parameter	Power	Adjusted Power	Power to Detect 50% Change
PERIOD	5.85	4.74	0.7759	0.6976	0.4003
STATION*PERIOD	4.19	0.00	0.4141	.	0.4892

Estimates for contrasts on combinations of interaction terms

Source	Difference	Std. Err.	T-value	Prob.
Period in DC	0.5694	0.3336	1.707	.0909
Period in FC	0.3174	0.1519	2.089	.0392
Period in FC-S	0.0907	0.1738	0.522	.6030
Period in FC-W	0.5441	0.2493	2.183	.0313
Period in DC-S	0.5950	0.3643	1.634	.1054
Period in DC-W	0.5437	0.5589	0.973	.3330

Least square means & confidence intervals from analysis of variance

Source	LS Mean	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period Op-1	-0.139	0.0248	-5.60	.0000	-0.0977	-0.1801
Period Op-2	-0.287	0.0558	-5.14	.0000	-0.1940	-0.3793
Op-1 0611	0.039	0.0555	0.70	.4855	0.1310	-0.0533
Op-2 0611	-0.000	0.1393	-0.00	1.000	0.2313	-0.2313
Op-1 0910	0.039	0.0593	0.66	.5135	0.1373	-0.0595
Op-2 0910	-0.000	0.1314	-0.00	1.000	0.2181	-0.2181
Op-1 0915	-0.855	0.0664	-12.87	.0000	-0.7445	-0.9650
Op-2 0915	-1.176	0.1393	-8.44	.0000	-0.9448	-1.4073
Op-1 1015	-0.141	0.0664	-2.12	.0368	-0.0303	-0.2508
Op-2 1015	-0.272	0.1393	-1.95	.0536	-0.0407	-0.5033
Op-1 1210	0.039	0.0555	0.70	.4855	0.1310	-0.0533
Op-2 1210	-0.000	0.1314	-0.00	1.000	0.2181	-0.2181
Op-1 2210	0.045	0.0606	0.75	.4558	0.1459	-0.0552
Op-2 2210	-0.272	0.1393	-1.95	.0536	-0.0407	-0.5033

Paired comparisons of least square means between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period	0.1478	0.0611	2.419	.0173	0.2492	0.0464

Paired comparisons of least square means for stations between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Station 0611	0.0389	0.1500	0.26	.7961	0.2878	-0.2101
Station 0910	0.0389	0.1441	0.27	.7880	0.2781	-0.2004
Station 0915	0.3213	0.1544	2.08	.0399	0.5775	0.0651
Station 1015	0.1315	0.1544	0.85	.3963	0.3877	-0.1247
Station 1210	0.0389	0.1426	0.27	.7858	0.2756	-0.1979
Station 2210	0.3174	0.1519	2.09	.0392	0.5696	0.0652

Station-period means and deltas from original data where control n=1

Station-Period	N	Station Mean	Range	Standard Error	Upper 95% c.i.	Lower 95% c.i.	Mean Delta	Delta Range	Upper 95% CIi.	Lower 95% C.I.
0611 Op-1	20	0.00	0.00	0.000	.	.	0.03	0.25	0.06	-0.01
0611 Op-2	3	0.00	0.00	0.000	.	.	0.00	0.00	.	.
0910 Op-1	19	0.00	0.00	0.000	.	.	0.03	0.25	0.06	-0.01
0910 Op-2	4	0.00	0.00	0.000	.	.	0.00	0.00	.	.
0915 Op-1	15	0.85	1.50	0.133	1.14	0.56	-0.82	1.50	-0.54	-1.09
0915 Op-2	3	1.33	1.25	0.363	2.90	-0.23	-1.33	1.25	0.23	-2.90
1015 Op-1	15	0.07	0.50	0.038	0.15	-0.02	-0.03	0.75	0.07	-0.14
1015 Op-2	3	0.08	0.25	0.083	0.44	-0.28	-0.08	0.25	0.28	-0.44
1210 Op-1	20	0.00	0.00	0.000	.	.	0.03	0.25	0.06	-0.01
1210 Op-2	4	0.00	0.00	0.000	.	.	0.00	0.00	.	.
2210 Op-1	17	0.00	0.00	0.000	.	.	0.03	0.25	0.07	-0.01
2210 Op-2	3	0.08	0.25	0.083	0.44	-0.28	-0.08	0.25	0.28	-0.44

Period means and deltas from original control data where n=1

Period	N	Station Mean	Range	Standard Error	Upper 95% C.I.	Lower 95% C.I.
Op-1	20	0.03	0.25	0.017	0.06	-0.01
Op-2	4	0.00	0.00	0.000	.	.

Analysis of Variance for SFQ for 0611 - Lacuna spp.

Stations = 2210, 0611, 0910, 0915, 1015, 1210

Data transformed using log base10(x + .5)

Results for Analysis of Variance

Source	Source df	Error df	F-value	Prob.
PERIOD	1	102.000	0.17	0.6797
SEASON	1	102.000	2.07	0.1534
STATION	5	102.000	4.38	0.0012
PERIOD*SEASON	1	102.000	0.00	0.9528
STATION*PERIOD	5	102.000	0.45	0.8140
STATION*SEASON	5	102.000	0.26	0.9321
PERIOD*STATION*SEASON	5	102.000	0.62	0.6874

Results for Power Analysis
Power at alpha = .1

Source	Non-Centrality Parameter	Adjusted non-Centrality Parameter	Power	Adjusted Power	Power to Detect 50% Change
PERIOD	0.17	0.00	0.1286	.	0.6771
STATION*PERIOD	2.24	0.00	0.2631	.	0.1857

Estimates for contrasts on combinations of interaction terms

Source	Difference	Std. Err.	T-value	Prob.
Period in DC	0.0519	0.4103	0.127	.8995
Period in FC	0.1348	0.1869	0.721	.4724
Period in FC-S	0.0751	0.2137	0.352	.7259
Period in FC-W	0.1944	0.3066	0.634	.5274
Period in DC-S	0.0848	0.4480	0.189	.8503
Period in DC-W	0.0190	0.6874	0.028	.9780

Least square means & confidence intervals from analysis of variance

Source	LS Mean	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period Op-1	-0.130	0.0305	-4.24	.0000	-0.0789	-0.1802
Period Op-2	-0.161	0.0687	-2.34	.0212	-0.0467	-0.2746
Op-1 0611	-0.459	0.0683	-6.73	.0000	-0.3460	-0.5727
Op-2 0611	-0.578	0.1714	-3.37	.0011	-0.2933	-0.8623
Op-1 0910	-0.226	0.0729	-3.10	.0025	-0.1051	-0.3471
Op-2 0910	-0.120	0.1616	-0.74	.4593	0.1482	-0.3882
Op-1 0915	-0.027	0.0817	-0.33	.7386	0.1083	-0.1630
Op-2 0915	-0.188	0.1714	-1.09	.2764	0.0969	-0.4720
Op-1 1015	-0.018	0.0817	-0.22	.8298	0.1180	-0.1532
Op-2 1015	-0.000	0.1714	-0.00	1.000	0.2845	-0.2845
Op-1 1210	-0.082	0.0683	-1.20	.2313	0.0311	-0.1955
Op-2 1210	0.021	0.1616	0.13	.8977	0.2890	-0.2474
Op-1 2210	0.035	0.0745	0.47	.6368	0.1589	-0.0884
Op-2 2210	-0.099	0.1714	-0.58	.5628	0.1850	-0.3840

Paired comparisons of least square means between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period	0.0311	0.0751	0.414	.6797	0.1558	-0.0936

Paired comparisons of least square means for stations between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Station 0611	0.1185	0.1845	0.64	.5222	0.4247	-0.1877
Station 0910	-0.1061	0.1773	-0.60	.5508	0.1881	-0.4003
Station 0915	0.1602	0.1899	0.84	.4008	0.4753	-0.1549
Station 1015	-0.0176	0.1899	-0.09	.9263	0.2975	-0.3327
Station 1210	-0.1030	0.1754	-0.59	.5582	0.1881	-0.3942
Station 2210	0.1348	0.1869	0.72	.4724	0.4449	-0.1754

Station-period means and deltas from original data where control n=1

Station-Period	N	Station Mean	Range	Standard Error	Upper 95% c.i.	Lower 95% c.i.	Mean Delta	Delta Range	Upper 95% CIi.	Lower 95% C.I.
0611 Op-1	20	1.81	8.25	0.455	2.77	0.86	-1.65	8.00	-0.75	-2.55
0611 Op-2	3	1.67	1.75	0.546	4.02	-0.68	-1.67	1.75	0.68	-4.02
0910 Op-1	19	0.67	1.75	0.139	0.96	0.38	-0.50	2.25	-0.21	-0.79
0910 Op-2	4	0.56	1.25	0.329	1.61	-0.48	-0.44	1.75	0.88	-1.75
0915 Op-1	15	0.43	1.50	0.128	0.71	0.16	-0.22	2.25	0.10	-0.53
0915 Op-2	3	0.33	0.75	0.220	1.28	-0.62	-0.33	0.75	0.62	-1.28
1015 Op-1	15	0.45	1.75	0.153	0.78	0.12	-0.23	2.25	0.17	-0.63
1015 Op-2	3	0.00	0.00	0.000	.	.	0.00	0.00	.	.
1210 Op-1	20	0.38	1.50	0.103	0.59	0.16	-0.21	2.25	0.05	-0.48
1210 Op-2	4	0.06	0.25	0.063	0.26	-0.14	0.06	0.75	0.56	-0.44
2210 Op-1	17	0.20	1.25	0.087	0.39	0.02	-0.07	2.00	0.16	-0.30
2210 Op-2	3	0.25	0.75	0.250	1.33	-0.83	-0.25	0.75	0.83	-1.33

Period means and deltas from original control data where n=1

Period	N	Station Mean	Range	Standard Error	Upper 95% C.I.	Lower 95% C.I.
Op-1	20	0.16	0.75	0.058	0.28	0.04
Op-2	4	0.13	0.50	0.125	0.52	-0.27

Analysis of Variance for SFQ for 0423 - Leptasterias spp.

Stations = 2210, 0611, 0910, 0915, 1015, 1210

Data transformed using log base10(x + .1)

Results for Analysis of Variance

Source	Source df	Error df	F-value	Prob.
PERIOD	1	102.000	9.82	0.0023
SEASON	1	102.000	0.22	0.6429
STATION	5	102.000	3.83	0.0032
PERIOD*SEASON	1	102.000	0.07	0.7915
STATION*PERIOD	5	102.000	0.37	0.8710
STATION*SEASON	5	102.000	0.36	0.8741
PERIOD*STATION*SEASON	5	102.000	0.59	0.7041

Results for Power Analysis
Power at alpha = .1

Source	Non-Centrality Parameter	Adjusted non-Centrality Parameter	Power	Adjusted Power	Power to Detect 50% Change
PERIOD	9.82	8.62	0.9289	0.8984	0.1815
STATION*PERIOD	1.83	0.00	0.2315	.	0.1996

Estimates for contrasts on combinations of interaction terms

Source	Difference	Std. Err.	T-value	Prob.
Period in DC	-1.7440	0.7518	-2.320	.0223
Period in FC	-0.8443	0.3424	-2.466	.0153
Period in FC-S	-0.3449	0.3917	-0.881	.3806
Period in FC-W	-1.3438	0.5618	-2.392	.0186
Period in DC-S	-2.4623	0.8210	-2.999	.0034
Period in DC-W	-1.0256	1.2597	-0.814	.4174

Least square means & confidence intervals from analysis of variance

Source	LS Mean	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period Op-1	0.484	0.0559	8.66	.0000	0.5771	0.3914
Period Op-2	0.916	0.1258	7.28	.0000	1.1245	0.7068
Op-1 0611	0.621	0.1251	4.96	.0000	0.8285	0.4131
Op-2 0611	1.002	0.3141	3.19	.0019	1.5233	0.4807
Op-1 0910	0.653	0.1336	4.89	.0000	0.8745	0.4310
Op-2 0910	1.024	0.2961	3.46	.0008	1.5151	0.5321
Op-1 0915	0.719	0.1497	4.80	.0000	0.9676	0.4706
Op-2 0915	1.002	0.3141	3.19	.0019	1.5233	0.4807
Op-1 1015	0.694	0.1497	4.64	.0000	0.9429	0.4458
Op-2 1015	1.002	0.3141	3.19	.0019	1.5233	0.4807
Op-1 1210	0.622	0.1251	4.97	.0000	0.8300	0.4146
Op-2 1210	1.024	0.2961	3.46	.0008	1.5151	0.5321
Op-1 2210	-0.404	0.1365	-2.96	.0039	-0.1771	-0.6303
Op-2 2210	0.441	0.3141	1.40	.1636	0.9619	-0.0807

Paired comparisons of least square means between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period	-0.4314	0.1377	-3.133	.0023	-0.2028	-0.6599

Paired comparisons of least square means for stations between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Station 0611	-0.3812	0.3381	-1.13	.2622	0.1800	-0.9423
Station 0910	-0.3709	0.3248	-1.14	.2562	0.1683	-0.9101
Station 0915	-0.2829	0.3479	-0.81	.4180	0.2946	-0.8605
Station 1015	-0.3077	0.3479	-0.88	.3786	0.2698	-0.8852
Station 1210	-0.4013	0.3214	-1.25	.2147	0.1322	-0.9349
Station 2210	-0.8443	0.3424	-2.47	.0153	-0.2759	-1.4128

Station-period means and deltas from original data where control n=1

Station-Period	N	Station Mean	Range	Standard Error	Upper 95% c.i.	Lower 95% c.i.	Mean Delta	Delta Range	Upper 95% CIi.	Lower 95% C.I.
0611 Op-1	20	0.08	1.25	0.063	0.21	-0.06	0.51	3.25	0.82	0.21
0611 Op-2	3	0.00	0.00	0.000	.	.	1.17	1.75	3.52	-1.18
0910 Op-1	19	0.03	0.50	0.026	0.08	-0.03	0.54	2.25	0.80	0.28
0910 Op-2	4	0.00	0.00	0.000	.	.	1.25	1.75	2.51	-0.01
0915 Op-1	15	0.00	0.00	0.000	.	.	0.63	2.00	0.94	0.33
0915 Op-2	3	0.00	0.00	0.000	.	.	1.17	1.75	3.52	-1.18
1015 Op-1	15	0.02	0.25	0.017	0.05	-0.02	0.62	2.00	0.92	0.31
1015 Op-2	3	0.00	0.00	0.000	.	.	1.17	1.75	3.52	-1.18
1210 Op-1	20	0.04	0.50	0.027	0.09	-0.02	0.55	2.00	0.79	0.31
1210 Op-2	4	0.00	0.00	0.000	.	.	1.25	1.75	2.51	-0.01
2210 Op-1	17	1.33	2.75	0.170	1.69	0.97	-0.72	2.75	-0.27	-1.17
2210 Op-2	3	0.83	1.50	0.441	2.73	-1.06	0.33	2.25	3.27	-2.60

Period means and deltas from original control data where n=1

Period	N	Station Mean	Range	Standard Error	Upper 95% C.I.	Lower 95% C.I.
Op-1	20	0.59	2.00	0.114	0.83	0.35
Op-2	4	1.25	1.75	0.395	2.51	-0.01

Analysis of Variance for SFQ for 0486 - Leucandra heathi

Stations = 2210, 0611, 0910, 0915, 1015, 1210

Data transformed using log base10(x + .5)

Results for Analysis of Variance

Source	Source df	Error df	F-value	Prob.
PERIOD	1	102.000	0.03	0.8640
SEASON	1	102.000	0.00	0.9599
STATION	5	102.000	1.15	0.3385
PERIOD*SEASON	1	102.000	0.10	0.7516
STATION*PERIOD	5	102.000	0.11	0.9903
STATION*SEASON	5	102.000	0.46	0.8072
PERIOD*STATION*SEASON	5	102.000	0.33	0.8944

Results for Power Analysis
Power at alpha = .1

Source	Non-Centrality Parameter	Adjusted non-Centrality Parameter	Power	Adjusted Power	Power to Detect 50% Change
PERIOD	0.03	0.00	0.1049	.	0.1633
STATION*PERIOD	0.54	0.00	0.1366	.	0.1354

Estimates for contrasts on combinations of interaction terms

Source	Difference	Std. Err.	T-value	Prob.
Period in DC	-0.0303	0.2137	-0.142	.8875
Period in FC	-0.0100	0.0973	-0.103	.9184
Period in FC-S	0.0948	0.1113	0.852	.3963
Period in FC-W	-0.1148	0.1597	-0.719	.4737
Period in DC-S	-0.0606	0.2333	-0.260	.7956
Period in DC-W	-0.0000	0.3580	-0.000	1.000

Least square means & confidence intervals from analysis of variance

Source	LS Mean	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period Op-1	-0.014	0.0159	-0.88	.3835	0.0125	-0.0403
Period Op-2	-0.007	0.0358	-0.20	.8409	0.0522	-0.0665
Op-1 0611	0.008	0.0356	0.23	.8199	0.0671	-0.0509
Op-2 0611	-0.044	0.0893	-0.49	.6229	0.1041	-0.1922
Op-1 0910	0.025	0.0380	0.66	.5091	0.0882	-0.0379
Op-2 0910	0.050	0.0841	0.60	.5523	0.1898	-0.0895
Op-1 0915	-0.001	0.0425	-0.02	.9866	0.0699	-0.0713
Op-2 0915	0.000	0.0893	0.00	1.000	0.1482	-0.1482
Op-1 1015	-0.021	0.0425	-0.49	.6236	0.0497	-0.0916
Op-2 1015	0.000	0.0893	0.00	1.000	0.1482	-0.1482
Op-1 1210	0.014	0.0356	0.41	.6863	0.0734	-0.0446
Op-2 1210	0.050	0.0841	0.60	.5523	0.1898	-0.0895
Op-1 2210	-0.109	0.0388	-2.82	.0057	-0.0451	-0.1739
Op-2 2210	-0.099	0.0893	-1.11	.2676	0.0487	-0.2476

Paired comparisons of least square means between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period	-0.0067	0.0391	-0.172	.8640	0.0582	-0.0717

Paired comparisons of least square means for stations between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Station 0611	0.0521	0.0961	0.54	.5885	0.2116	-0.1073
Station 0910	-0.0250	0.0923	-0.27	.7870	0.1282	-0.1783
Station 0915	-0.0007	0.0989	-0.01	.9942	0.1634	-0.1648
Station 1015	-0.0209	0.0989	-0.21	.8327	0.1432	-0.1851
Station 1210	-0.0358	0.0914	-0.39	.6962	0.1159	-0.1874
Station 2210	-0.0100	0.0973	-0.10	.9184	0.1515	-0.1715

Station-period means and deltas from original data where control n=1

Station-Period	N	Station Mean	Range	Standard Error	Upper 95% c.i.	Lower 95% c.i.	Mean Delta	Delta Range	Upper 95% CIi.	Lower 95% C.I.
0611 Op-1	20	0.04	0.50	0.027	0.09	-0.02	0.01	0.50	0.07	-0.05
0611 Op-2	3	0.08	0.25	0.083	0.44	-0.28	-0.08	0.25	0.28	-0.44
0910 Op-1	19	0.00	0.00	0.000	.	.	0.05	0.25	0.10	0.00
0910 Op-2	4	0.00	0.00	0.000	.	.	0.13	0.50	0.52	-0.27
0915 Op-1	15	0.08	1.25	0.083	0.26	-0.10	-0.03	1.25	0.12	-0.19
0915 Op-2	3	0.00	0.00	0.000	.	.	0.00	0.00	.	.
1015 Op-1	15	0.20	2.75	0.183	0.59	-0.19	-0.15	2.75	0.22	-0.52
1015 Op-2	3	0.00	0.00	0.000	.	.	0.00	0.00	.	.
1210 Op-1	20	0.03	0.50	0.025	0.08	-0.03	0.03	0.50	0.08	-0.03
1210 Op-2	4	0.00	0.00	0.000	.	.	0.13	0.50	0.52	-0.27
2210 Op-1	17	0.32	2.00	0.150	0.64	0.01	-0.28	2.25	0.04	-0.59
2210 Op-2	3	0.25	0.75	0.250	1.33	-0.83	-0.25	0.75	0.83	-1.33

Period means and deltas from original control data where n=1

Period	N	Station Mean	Range	Standard Error	Upper 95% C.I.	Lower 95% C.I.
Op-1	20	0.05	0.25	0.023	0.10	0.00
Op-2	4	0.13	0.50	0.125	0.52	-0.27

Analysis of Variance for SFQ for 0485 - Leucilla nuttingi

Stations = 2210, 0611, 0910, 0915, 1015, 1210

Data transformed using square root(x + 1)

Results for Analysis of Variance

Source	Source df	Error df	F-value	Prob.
PERIOD	1	102.000	0.20	0.6587
SEASON	1	102.000	0.16	0.6893
STATION	5	102.000	0.65	0.6624
PERIOD*SEASON	1	102.000	0.07	0.7858
STATION*PERIOD	5	102.000	0.12	0.9879
STATION*SEASON	5	102.000	0.03	0.9995
PERIOD*STATION*SEASON	5	102.000	0.25	0.9383

Results for Power Analysis
Power at alpha = .1

Source	Non-Centrality Parameter	Adjusted non-Centrality Parameter	Power	Adjusted Power	Power to Detect 50% Change
PERIOD	0.20	0.00	0.1327	.	0.2326
STATION*PERIOD	0.59	0.00	0.1403	.	0.1545

Estimates for contrasts on combinations of interaction terms

Source	Difference	Std. Err.	T-value	Prob.
Period in DC	-0.1519	0.4364	-0.348	.7285
Period in FC	-0.0605	0.1988	-0.304	.7615
Period in FC-S	-0.2833	0.2274	-1.246	.2156
Period in FC-W	0.1623	0.3261	0.498	.6197
Period in DC-S	-0.0597	0.4765	-0.125	.9005
Period in DC-W	-0.2441	0.7312	-0.334	.7392

Least square means & confidence intervals from analysis of variance

Source	LS Mean	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period Op-1	-0.062	0.0325	-1.92	.0578	-0.0084	-0.1162
Period Op-2	-0.027	0.0730	-0.37	.7133	0.0943	-0.1481
Op-1 0611	0.014	0.0726	0.19	.8488	0.1344	-0.1067
Op-2 0611	-0.000	0.1823	-0.00	1.000	0.3026	-0.3026
Op-1 0910	-0.015	0.0775	-0.20	.8428	0.1133	-0.1441
Op-2 0910	-0.000	0.1719	-0.00	1.000	0.2853	-0.2853
Op-1 0915	0.012	0.0869	0.14	.8878	0.1565	-0.1320
Op-2 0915	0.000	0.1823	0.00	1.000	0.3026	-0.3026
Op-1 1015	-0.165	0.0869	-1.89	.0611	-0.0203	-0.3088
Op-2 1015	-0.000	0.1823	-0.00	1.000	0.3026	-0.3026
Op-1 1210	0.002	0.0726	0.03	.9790	0.1225	-0.1186
Op-2 1210	0.000	0.1719	0.00	1.000	0.2853	-0.2853
Op-1 2210	-0.222	0.0792	-2.80	.0061	-0.0904	-0.3534
Op-2 2210	-0.161	0.1823	-0.89	.3779	0.1411	-0.4640

Paired comparisons of least square means between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period	-0.0354	0.0799	-0.443	.6587	0.0973	-0.1681

Paired comparisons of least square means for stations between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Station 0611	0.0139	0.1962	0.07	.9438	0.3396	-0.3118
Station 0910	-0.0154	0.1885	-0.08	.9350	0.2976	-0.3284
Station 0915	0.0123	0.2019	0.06	.9516	0.3475	-0.3229
Station 1015	-0.1646	0.2019	-0.81	.4170	0.1706	-0.4998
Station 1210	0.0019	0.1866	0.01	.9918	0.3116	-0.3078
Station 2210	-0.0605	0.1988	-0.30	.7615	0.2694	-0.3904

Station-period means and deltas from original data where control n=1

Station-Period	N	Station Mean	Range	Standard Error	Upper 95% c.i.	Lower 95% c.i.	Mean Delta	Delta Range	Upper 95% CII.	Lower 95% C.I.
0611 Op-1	20	0.05	1.00	0.050	0.15	-0.05	0.06	3.25	0.33	-0.20
0611 Op-2	3	0.00	0.00	0.000	.	.	0.00	0.00	.	.
0910 Op-1	19	0.13	1.50	0.086	0.31	-0.05	-0.01	1.50	0.11	-0.14
0910 Op-2	4	0.00	0.00	0.000	.	.	0.00	0.00	.	.
0915 Op-1	15	0.08	1.00	0.068	0.23	-0.06	0.07	3.25	0.43	-0.30
0915 Op-2	3	0.00	0.00	0.000	.	.	0.00	0.00	.	.
1015 Op-1	15	0.53	2.00	0.189	0.94	0.13	-0.38	4.25	0.18	-0.95
1015 Op-2	3	0.00	0.00	0.000	.	.	0.00	0.00	.	.
1210 Op-1	20	0.05	0.50	0.034	0.12	-0.02	0.06	2.75	0.31	-0.19
1210 Op-2	4	0.00	0.00	0.000	.	.	0.00	0.00	.	.
2210 Op-1	17	0.88	4.75	0.370	1.67	0.10	-0.75	7.00	0.12	-1.62
2210 Op-2	3	0.25	0.75	0.250	1.33	-0.83	-0.25	0.75	0.83	-1.33

Period means and deltas from original control data where n=1

Period	N	Station Mean	Range	Standard Error	Upper 95% C.I.	Lower 95% C.I.
Op-1	20	0.11	2.25	0.113	0.35	-0.12
Op-2	4	0.00	0.00	0.000	.	.

Analysis of Variance for SFQ for 0744 - Lissothuria nutriens

Stations = 2210, 0611, 0910, 0915, 1015, 1210

Data transformed using log base10(x + .1)

Results for Analysis of Variance

Source	Source df	Error df	F-value	Prob.
PERIOD	1	102.000	11.68	0.0009
SEASON	1	102.000	0.64	0.4262
STATION	5	102.000	3.29	0.0086
PERIOD*SEASON	1	102.000	1.27	0.2617
STATION*PERIOD	5	102.000	1.25	0.2922
STATION*SEASON	5	102.000	0.75	0.5915
PERIOD*STATION*SEASON	5	102.000	0.20	0.9619

Results for Power Analysis
Power at alpha = .1

Source	Non-Centrality Parameter	Adjusted non-Centrality Parameter	Power	Adjusted Power	Power to Detect 50% Change
PERIOD	11.68	10.45	0.9599	0.9413	0.5662
STATION*PERIOD	6.24	1.12	0.5595	0.1782	0.2138

Estimates for contrasts on combinations of interaction terms

Source	Difference	Std. Err.	T-value	Prob.
Period in DC	-2.1031	0.6926	-3.037	.0030
Period in FC	-0.4977	0.3154	-1.578	.1178
Period in FC-S	-0.5560	0.3608	-1.541	.1264
Period in FC-W	-0.4393	0.5175	-0.849	.3979
Period in DC-S	-2.9037	0.7563	-3.839	.0002
Period in DC-W	-1.3025	1.1604	-1.122	.2643

Least square means & confidence intervals from analysis of variance

Source	LS Mean	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period Op-1	-0.413	0.0515	-8.01	.0000	-0.3270	-0.4981
Period Op-2	0.021	0.1159	0.18	.8572	0.2133	-0.1715
Op-1 0611	0.079	0.1153	0.68	.4972	0.2699	-0.1128
Op-2 0611	0.136	0.2893	0.47	.6393	0.6162	-0.3442
Op-1 0910	-0.868	0.1231	-7.05	.0000	-0.6636	-1.0722
Op-2 0910	-0.091	0.2728	-0.33	.7402	0.3621	-0.5434
Op-1 0915	-0.764	0.1379	-5.54	.0000	-0.5349	-0.9928
Op-2 0915	0.136	0.2893	0.47	.6393	0.6162	-0.3442
Op-1 1015	-0.021	0.1379	-0.15	.8816	0.2084	-0.2495
Op-2 1015	0.136	0.2893	0.47	.6393	0.6162	-0.3442
Op-1 1210	-0.121	0.1153	-1.05	.2954	0.0701	-0.3126
Op-2 1210	0.091	0.2728	0.33	.7402	0.5434	-0.3621
Op-1 2210	-0.780	0.1257	-6.21	.0000	-0.5715	-0.9890
Op-2 2210	-0.283	0.2893	-0.98	.3310	0.1976	-0.7628

Paired comparisons of least square means between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period	-0.4335	0.1268	-3.417	.0009	-0.2229	-0.6440

Paired comparisons of least square means for stations between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Station 0611	-0.0575	0.3114	-0.18	.8539	0.4595	-0.5744
Station 0910	-0.7772	0.2992	-2.60	.0108	-0.2805	-1.2739
Station 0915	-0.8999	0.3205	-2.81	.0060	-0.3678	-1.4319
Station 1015	-0.1566	0.3205	-0.49	.6262	0.3754	-0.6886
Station 1210	-0.2119	0.2961	-0.72	.4758	0.2796	-0.7034
Station 2210	-0.4977	0.3154	-1.58	.1178	0.0260	-1.0213

Station-period means and deltas from original data where control n=1

Station-Period	N	Station Mean	Range	Standard Error	Upper 95% c.i.	Lower 95% c.i.	Mean Delta	Delta Range	Upper 95% CIi.	Lower 95% C.I.
0611 Op-1	20	0.01	0.25	0.013	0.04	-0.01	0.05	1.00	0.14	-0.04
0611 Op-2	3	0.00	0.00	0.000	.	.	0.08	0.25	0.44	-0.28
0910 Op-1	19	1.37	5.25	0.327	2.06	0.68	-1.32	5.75	-0.61	-2.03
0910 Op-2	4	0.13	0.25	0.072	0.35	-0.10	-0.06	0.50	0.32	-0.44
0915 Op-1	15	1.10	3.50	0.274	1.69	0.51	-1.03	4.00	-0.42	-1.65
0915 Op-2	3	0.00	0.00	0.000	.	.	0.08	0.25	0.44	-0.28
1015 Op-1	15	0.12	0.50	0.054	0.23	0.00	-0.05	1.25	0.13	-0.23
1015 Op-2	3	0.00	0.00	0.000	.	.	0.08	0.25	0.44	-0.28
1210 Op-1	20	0.19	0.75	0.060	0.31	0.06	-0.13	1.00	-0.00	-0.25
1210 Op-2	4	0.00	0.00	0.000	.	.	0.06	0.25	0.26	-0.14
2210 Op-1	17	1.58	6.25	0.403	2.43	0.72	-1.52	6.50	-0.68	-2.36
2210 Op-2	3	0.50	1.25	0.382	2.14	-1.14	-0.42	1.00	0.88	-1.71

Period means and deltas from original control data where n=1

Period	N	Station Mean	Range	Standard Error	Upper 95% C.I.	Lower 95% C.I.
Op-1	20	0.06	0.75	0.040	0.15	-0.02
Op-2	4	0.06	0.25	0.063	0.26	-0.14

Analysis of Variance for SAQ for 0344 - Lithopoma gibberosum

Stations = 2210, 0611, 0910, 0915, 1015, 1210

Data transformed using log base10(x + .1)

Results for Analysis of Variance

Source	Source df	Error df	F-value	Prob.
PERIOD	1	96.000	5.64	0.0195
SEASON	1	96.000	0.30	0.5842
STATION	5	96.000	1.74	0.1332
PERIOD*SEASON	1	96.000	6.54	0.0121
STATION*PERIOD	5	96.000	1.70	0.1411
STATION*SEASON	5	96.000	0.27	0.9264
PERIOD*STATION*SEASON	5	96.000	0.01	1.0000

Results for Power Analysis
Power at alpha = .1

Source	Non-Centrality Parameter	Adjusted non-Centrality Parameter	Power	Adjusted Power	Power to Detect 50% Change
PERIOD	5.64	4.53	0.7624	0.6800	0.2006
STATION*PERIOD	8.52	3.34	0.6922	0.3481	0.1079

Estimates for contrasts on combinations of interaction terms

Source	Difference	Std. Err.	T-value	Prob.
Period in DC	0.8199	0.6008	1.365	.1756
Period in FC	0.7486	0.2737	2.735	.0074
Period in FC-S	0.5028	0.3144	1.599	.1131
Period in FC-W	0.9944	0.4481	2.219	.0288
Period in DC-S	-0.6232	0.6592	-0.945	.3469
Period in DC-W	2.2630	1.0047	2.252	.0266

Least square means & confidence intervals from analysis of variance

Source	LS Mean	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period Op-1	0.251	0.0452	5.56	.0000	0.3260	0.1760
Period Op-2	-0.010	0.1003	-0.10	.9177	0.1563	-0.1771
Op-1 0611	0.410	0.1009	4.06	.0001	0.5779	0.2426
Op-2 0611	0.136	0.2505	0.54	.5884	0.5520	-0.2800
Op-1 0910	0.308	0.1076	2.86	.0051	0.4870	0.1295
Op-2 0910	0.264	0.2362	1.12	.2660	0.6565	-0.1280
Op-1 0915	0.210	0.1210	1.74	.0859	0.4109	0.0090
Op-2 0915	0.136	0.2505	0.54	.5884	0.5520	-0.2800
Op-1 1015	0.128	0.1210	1.06	.2938	0.3287	-0.0732
Op-2 1015	-0.467	0.2505	-1.86	.0656	-0.0505	-0.8826
Op-1 1210	0.098	0.1009	0.97	.3355	0.2654	-0.0699
Op-2 1210	0.264	0.2362	1.12	.2660	0.6565	-0.1280
Op-1 2210	0.352	0.1103	3.19	.0019	0.5355	0.1690
Op-2 2210	-0.396	0.2505	-1.58	.1169	0.0197	-0.8124

Paired comparisons of least square means between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period	0.2614	0.1100	2.376	.0195	0.4442	0.0787

Paired comparisons of least square means for stations between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Station 0611	0.2743	0.2701	1.02	.3124	0.7228	-0.1743
Station 0910	0.0440	0.2595	0.17	.8658	0.4750	-0.3871
Station 0915	0.0739	0.2782	0.27	.7910	0.5359	-0.3881
Station 1015	0.5943	0.2782	2.14	.0352	1.0563	0.1323
Station 1210	-0.1665	0.2568	-0.65	.5183	0.2600	-0.5931
Station 2210	0.7486	0.2737	2.74	.0074	1.2032	0.2940

Station-period means and deltas from original data where control n=1

Station-Period	N	Station Mean	Range	Standard Error	Upper 95% c.i.	Lower 95% c.i.	Mean Delta	Delta Range	Upper 95% CIi.	Lower 95% C.I.
0611 Op-1	19	0.04	0.50	0.029	0.10	-0.02	0.25	1.50	0.43	0.07
0611 Op-2	3	0.00	0.00	0.000	.	.	0.08	0.25	0.44	-0.28
0910 Op-1	18	0.04	0.25	0.023	0.09	-0.01	0.19	0.75	0.33	0.06
0910 Op-2	4	0.00	0.00	0.000	.	.	0.31	1.00	1.07	-0.44
0915 Op-1	14	0.11	1.00	0.073	0.26	-0.05	0.07	1.00	0.23	-0.08
0915 Op-2	3	0.00	0.00	0.000	.	.	0.08	0.25	0.44	-0.28
1015 Op-1	14	0.14	0.50	0.057	0.27	0.02	0.04	1.25	0.21	-0.14
1015 Op-2	3	0.75	2.00	0.629	3.46	-1.96	-0.67	1.75	1.68	-3.02
1210 Op-1	19	0.67	8.00	0.427	1.57	-0.23	-0.38	7.50	0.41	-1.17
1210 Op-2	4	0.00	0.00	0.000	.	.	0.31	1.00	1.07	-0.44
2210 Op-1	16	0.03	0.25	0.021	0.08	-0.01	0.20	0.75	0.33	0.07
2210 Op-2	3	0.42	1.00	0.300	1.71	-0.88	-0.33	0.75	0.62	-1.28

Period means and deltas from original control data where n=1

Period	N	Station Mean	Range	Standard Error	Upper 95% C.I.	Lower 95% C.I.
Op-1	19	0.29	1.25	0.079	0.46	0.12
Op-2	4	0.31	1.00	0.237	1.07	-0.44

Analysis of Variance for SAQ for 0353 - Lottia instabilis

Stations = 2210, 0611, 0910, 0915, 1015, 1210

Data transformed using log base10(x + 1)

Results for Analysis of Variance

Source	Source df	Error df	F-value	Prob.
PERIOD	1	96.000	13.73	0.0004
SEASON	1	96.000	6.04	0.0158
STATION	5	96.000	0.18	0.9682
PERIOD*SEASON	1	96.000	1.12	0.2936
STATION*PERIOD	5	96.000	0.26	0.9357
STATION*SEASON	5	96.000	0.04	0.9988
PERIOD*STATION*SEASON	5	96.000	0.04	0.9990

Results for Power Analysis
Power at alpha = .1

Source	Non-Centrality Parameter	Adjusted non-Centrality Parameter	Power	Adjusted Power	Power to Detect 50% Change
PERIOD	13.73	12.45	0.9791	0.9684	0.1111
STATION*PERIOD	1.28	0.00	0.1899	.	0.1097

Estimates for contrasts on combinations of interaction terms

Source	Difference	Std. Err.	T-value	Prob.
Period in DC	1.8579	0.5537	3.355	.0011
Period in FC	0.3971	0.2522	1.574	.1187
Period in FC-S	0.3347	0.2898	1.155	.2509
Period in FC-W	0.4595	0.4129	1.113	.2686
Period in DC-S	1.2777	0.6075	2.103	.0381
Period in DC-W	2.4381	0.9259	2.633	.0099

Least square means & confidence intervals from analysis of variance

Source	LS Mean	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period Op-1	0.554	0.0416	13.31	.0000	0.6231	0.4848
Period Op-2	0.178	0.0925	1.93	.0570	0.3317	0.0245
Op-1 0611	0.651	0.0930	7.00	.0000	0.8059	0.4969
Op-2 0611	0.213	0.2308	0.92	.3580	0.5966	-0.1702
Op-1 0910	0.594	0.0992	5.99	.0000	0.7592	0.4297
Op-2 0910	0.142	0.2176	0.65	.5153	0.5036	-0.2193
Op-1 0915	0.510	0.1115	4.58	.0000	0.6954	0.3250
Op-2 0915	0.213	0.2308	0.92	.3580	0.5966	-0.1702
Op-1 1015	0.350	0.1115	3.14	.0022	0.5353	0.1649
Op-2 1015	0.189	0.2308	0.82	.4150	0.5724	-0.1944
Op-1 1210	0.651	0.0930	7.00	.0000	0.8059	0.4969
Op-2 1210	0.142	0.2176	0.65	.5153	0.5036	-0.2193
Op-1 2210	0.566	0.1017	5.57	.0000	0.7351	0.3974
Op-2 2210	0.169	0.2308	0.73	.4654	0.5526	-0.2142

Paired comparisons of least square means between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period	0.3758	0.1014	3.706	.0004	0.5443	0.2074

Paired comparisons of least square means for stations between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Station 0611	0.4382	0.2489	1.76	.0815	0.8515	0.0248
Station 0910	0.4523	0.2392	1.89	.0616	0.8495	0.0550
Station 0915	0.2970	0.2564	1.16	.2495	0.7228	-0.1287
Station 1015	0.1612	0.2564	0.63	.5310	0.5870	-0.2646
Station 1210	0.5092	0.2367	2.15	.0339	0.9023	0.1161
Station 2210	0.3971	0.2522	1.57	.1187	0.8160	-0.0218

Station-period means and deltas from original data where control n=1

Station-Period	N	Station Mean	Range	Standard Error	Upper 95% C.I.	Lower 95% c.i.	Mean Delta	Delta Range	Upper 95% CIi.	Lower 95% C.I.
0611 Op-1	19	0.00	0.00	0.000	.	.	5.09	14.75	7.09	3.09
0611 Op-2	3	0.00	0.00	0.000	.	.	1.42	3.75	6.47	-3.64
0910 Op-1	18	0.00	0.00	0.000	.	.	4.56	12.50	6.31	2.80
0910 Op-2	4	0.00	0.00	0.000	.	.	1.06	3.75	3.94	-1.81
0915 Op-1	14	0.00	0.00	0.000	.	.	3.59	8.50	5.35	1.83
0915 Op-2	3	0.00	0.00	0.000	.	.	1.42	3.75	6.47	-3.64
1015 Op-1	14	0.52	2.00	0.184	0.92	0.12	3.07	9.50	4.87	1.27
1015 Op-2	3	0.08	0.25	0.083	0.44	-0.28	1.33	3.75	6.54	-3.87
1210 Op-1	19	0.00	0.00	0.000	.	.	5.09	14.75	7.09	3.09
1210 Op-2	4	0.00	0.00	0.000	.	.	1.06	3.75	3.94	-1.81
2210 Op-1	16	0.19	1.25	0.081	0.36	0.02	4.73	13.00	6.68	2.79
2210 Op-2	3	0.17	0.50	0.167	0.88	-0.55	1.25	3.25	5.60	-3.10

Period means and deltas from original control data where n=1

Period	N	Station Mean	Range	Standard Error	Upper 95% C.I.	Lower 95% C.I.
Op-1	19	5.09	14.75	0.952	7.09	3.09
Op-2	4	1.06	3.75	0.904	3.94	-1.81

Analysis of Variance for SFQ for 0354 - Lottia ochracea

Stations = 2210, 0611, 0910, 0915, 1015, 1210

Data transformed using log base10(x + .5)

Results for Analysis of Variance

Source	Source df	Error df	F-value	Prob.
PERIOD	1	102.000	0.51	0.4767
SEASON	1	102.000	5.59	0.0200
STATION	5	102.000	1.35	0.2512
PERIOD*SEASON	1	102.000	3.44	0.0667
STATION*PERIOD	5	102.000	1.78	0.1245
STATION*SEASON	5	102.000	0.61	0.6906
PERIOD*STATION*SEASON	5	102.000	0.41	0.8418

Results for Power Analysis
Power at alpha = .1

Source	Non-Centrality Parameter	Adjusted non-Centrality Parameter	Power	Adjusted Power	Power to Detect 50% Change
PERIOD	0.51	0.00	0.1841	.	0.7070
STATION*PERIOD	8.88	3.70	0.7115	0.3767	0.1570

Estimates for contrasts on combinations of interaction terms

Source	Difference	Std. Err.	T-value	Prob.
Period in DC	-0.5390	0.4772	-1.129	.2614
Period in FC	0.1645	0.2174	0.757	.4510
Period in FC-S	0.1865	0.2486	0.750	.4550
Period in FC-W	0.1425	0.3566	0.400	.6903
Period in DC-S	0.4111	0.5212	0.789	.4320
Period in DC-W	-1.4892	0.7996	-1.862	.0654

Least square means & confidence intervals from analysis of variance

Source	LS Mean	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period Op-1	-0.042	0.0355	-1.17	.2446	0.0174	-0.1005
Period Op-2	0.021	0.0799	0.26	.7943	0.1535	-0.1117
Op-1 0611	0.112	0.0794	1.41	.1610	0.2440	-0.0197
Op-2 0611	-0.173	0.1994	-0.87	.3865	0.1575	-0.5043
Op-1 0910	-0.255	0.0848	-3.01	.0033	-0.1144	-0.3960
Op-2 0910	-0.025	0.1880	-0.13	.8961	0.2874	-0.3366
Op-1 0915	-0.067	0.0950	-0.70	.4843	0.0911	-0.2245
Op-2 0915	-0.101	0.1994	-0.51	.6118	0.2294	-0.4324
Op-1 1015	0.132	0.0950	1.39	.1671	0.2900	-0.0255
Op-2 1015	0.283	0.1994	1.42	.1594	0.6135	-0.0483
Op-1 1210	-0.181	0.0794	-2.28	.0246	-0.0493	-0.3130
Op-2 1210	0.297	0.1880	1.58	.1169	0.6093	-0.0147
Op-1 2210	0.009	0.0866	0.11	.9141	0.1532	-0.1345
Op-2 2210	-0.155	0.1994	-0.78	.4384	0.1758	-0.4860

Paired comparisons of least square means between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period	-0.0624	0.0874	-0.714	.4767	0.0827	-0.2075

Paired comparisons of least square means for stations between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Station 0611	0.2855	0.2146	1.33	.1863	0.6418	-0.0707
Station 0910	-0.2306	0.2062	-1.12	.2660	0.1117	-0.5729
Station 0915	0.0348	0.2209	0.16	.8752	0.4014	-0.3318
Station 1015	-0.1503	0.2209	-0.68	.4976	0.2163	-0.5169
Station 1210	-0.4784	0.2041	-2.34	.0210	-0.1397	-0.8171
Station 2210	0.1645	0.2174	0.76	.4510	0.5253	-0.1963

Station-period means and deltas from original data where control n=1

Station-Period	N	Station Mean	Range	Standard Error	Upper 95% c.i.	Lower 95% c.i.	Mean Delta	Delta Range	Upper 95% CIi.	Lower 95% C.I.
0611 Op-1	20	0.29	1.25	0.082	0.46	0.12	0.20	2.25	0.45	-0.05
0611 Op-2	3	1.17	2.00	0.601	3.75	-1.42	-0.58	1.50	1.41	-2.58
0910 Op-1	19	1.28	3.00	0.201	1.70	0.85	-0.80	3.50	-0.30	-1.31
0910 Op-2	4	0.81	1.25	0.277	1.69	-0.07	0.06	2.25	1.56	-1.44
0915 Op-1	15	0.68	2.00	0.183	1.08	0.29	-0.20	2.25	0.15	-0.55
0915 Op-2	3	1.08	2.00	0.601	3.67	-1.50	-0.50	3.25	3.57	-4.57
1015 Op-1	15	0.25	1.50	0.112	0.49	0.01	0.23	2.75	0.64	-0.18
1015 Op-2	3	0.08	0.25	0.083	0.44	-0.28	0.50	2.00	3.21	-2.21
1210 Op-1	20	1.19	4.75	0.267	1.75	0.63	-0.70	5.00	-0.13	-1.27
1210 Op-2	4	0.19	0.50	0.120	0.57	-0.19	0.69	2.25	2.45	-1.07
2210 Op-1	17	0.40	1.50	0.119	0.65	0.15	0.05	3.25	0.44	-0.33
2210 Op-2	3	1.08	2.75	0.846	4.72	-2.56	-0.50	1.00	0.74	-1.74

Period means and deltas from original control data where n=1

Period	N	Station Mean	Range	Standard Error	Upper 95% C.I.	Lower 95% C.I.
Op-1	20	0.49	1.75	0.113	0.72	0.25
Op-2	4	0.88	1.75	0.505	2.48	-0.73

Analysis of Variance for SFQ for 0475 - Metandrocarpa taylori

Stations = 2210, 0611, 0910, 0915, 1015, 1210

Data not transformed.

Results for Analysis of Variance

Source	Source df	Error df	F-value	Prob.
PERIOD	1	102.000	0.08	0.7727
SEASON	1	102.000	0.05	0.8231
STATION	5	102.000	0.09	0.9938
PERIOD*SEASON	1	102.000	0.05	0.8231
STATION*PERIOD	5	102.000	0.09	0.9938
STATION*SEASON	5	102.000	0.05	0.9982
PERIOD*STATION*SEASON	5	102.000	0.05	0.9982

Results for Power Analysis
Power at alpha = .1

Source	Non-Centrality Parameter	Adjusted non-Centrality Parameter	Power	Adjusted Power	Power to Detect 50% Change
PERIOD	0.08	0.00	0.1140	.	0.1106
STATION*PERIOD	0.45	0.00	0.1299	.	0.1221

Estimates for contrasts on combinations of interaction terms

Source	Difference	Std. Err.	T-value	Prob.
Period in DC	-0.6643	2.0878	-0.318	.7510
Period in FC	0.0000	0.9509	0.000	1.000
Period in FC-S	0.0000	1.0877	0.000	1.000
Period in FC-W	0.0000	1.5601	0.000	1.000
Period in DC-S	-1.1786	2.2799	-0.517	.6063
Period in DC-W	-0.1500	3.4981	-0.043	.9659

Least square means & confidence intervals from analysis of variance

Source	LS Mean	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period Op-1	-0.111	0.1553	-0.71	.4776	0.1471	-0.3685
Period Op-2	-0.000	0.3494	-0.00	1.000	0.5800	-0.5800
Op-1 0611	0.000	0.3475	0.00	1.000	0.5768	-0.5768
Op-2 0611	0.000	0.8721	0.00	1.000	1.4476	-1.4476
Op-1 0910	-0.664	0.3710	-1.79	.0763	-0.0485	-1.2801
Op-2 0910	0.000	0.8222	0.00	1.000	1.3649	-1.3649
Op-1 0915	-0.000	0.4158	-0.00	1.000	0.6901	-0.6901
Op-2 0915	0.000	0.8721	0.00	1.000	1.4476	-1.4476
Op-1 1015	-0.000	0.4158	-0.00	1.000	0.6901	-0.6901
Op-2 1015	0.000	0.8721	0.00	1.000	1.4476	-1.4476
Op-1 1210	-0.000	0.3475	-0.00	1.000	0.5768	-0.5768
Op-2 1210	0.000	0.8222	0.00	1.000	1.3649	-1.3649
Op-1 2210	0.000	0.3790	0.00	1.000	0.6292	-0.6292
Op-2 2210	-0.000	0.8721	-0.00	1.000	1.4476	-1.4476

Paired comparisons of least square means between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period	-0.1107	0.3824	-0.290	.7727	0.5240	-0.7454

Paired comparisons of least square means for stations between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Station 0611	-0.0000	0.9388	-0.00	1.000	1.5583	-1.5583
Station 0910	-0.6643	0.9021	-0.74	.4632	0.8331	-2.1616
Station 0915	-0.0000	0.9661	-0.00	1.000	1.6037	-1.6037
Station 1015	-0.0000	0.9661	-0.00	1.000	1.6037	-1.6037
Station 1210	-0.0000	0.8926	-0.00	1.000	1.4817	-1.4817
Station 2210	0.0000	0.9509	0.00	1.000	1.5785	-1.5785

Station-period means and deltas from original data where control n=1

Station-Period	N	Station Mean	Range	Standard Error	Upper 95% c.i.	Lower 95% c.i.	Mean Delta	Delta Range	Upper 95% CIi.	Lower 95% C.I.
0611 Op-1	20	0.00	0.00	0.000	.	.	0.00	0.00	.	.
0611 Op-2	3	0.00	0.00	0.000	.	.	0.00	0.00	.	.
0910 Op-1	19	0.91	15.00	0.785	2.56	-0.74	-0.91	15.00	0.74	-2.56
0910 Op-2	4	0.00	0.00	0.000	.	.	0.00	0.00	.	.
0915 Op-1	15	0.00	0.00	0.000	.	.	0.00	0.00	.	.
0915 Op-2	3	0.00	0.00	0.000	.	.	0.00	0.00	.	.
1015 Op-1	15	0.00	0.00	0.000	.	.	0.00	0.00	.	.
1015 Op-2	3	0.00	0.00	0.000	.	.	0.00	0.00	.	.
1210 Op-1	20	0.00	0.00	0.000	.	.	0.00	0.00	.	.
1210 Op-2	4	0.00	0.00	0.000	.	.	0.00	0.00	.	.
2210 Op-1	17	0.00	0.00	0.000	.	.	0.00	0.00	.	.
2210 Op-2	3	0.00	0.00	0.000	.	.	0.00	0.00	.	.

Period means and deltas from original control data where n=1

Period	N	Station Mean	Range	Standard Error	Upper 95% C.I.	Lower 95% C.I.
Op-1	20	0.00	0.00	0.000	.	.
Op-2	4	0.00	0.00	0.000	.	.

Analysis of Variance for SAQ for 0523 - Mitra idae

Stations = 2210, 0611, 0910, 0915, 1015, 1210

Data transformed using log base10(x + .1)

Results for Analysis of Variance

Source	Source df	Error df	F-value	Prob.
PERIOD	1	96.000	5.32	0.0232
SEASON	1	96.000	0.03	0.8576
STATION	5	96.000	6.68	0.0000
PERIOD*SEASON	1	96.000	0.58	0.4470
STATION*PERIOD	5	96.000	0.19	0.9640
STATION*SEASON	5	96.000	0.19	0.9645
PERIOD*STATION*SEASON	5	96.000	0.35	0.8836

Results for Power Analysis
Power at alpha = .1

Source	Non-Centrality Parameter	Adjusted non-Centrality Parameter	Power	Adjusted Power	Power to Detect 50% Change
PERIOD	5.32	4.21	0.7410	0.6531	0.5595
STATION*PERIOD	0.97	0.00	0.1671	.	0.1720

Estimates for contrasts on combinations of interaction terms

Source	Difference	Std. Err.	T-value	Prob.
Period in DC	1.6340	0.7033	2.323	.0223
Period in FC	0.1492	0.3204	0.466	.6424
Period in FC-S	0.2213	0.3680	0.601	.5491
Period in FC-W	0.0772	0.5245	0.147	.8833
Period in DC-S	2.1521	0.7716	2.789	.0064
Period in DC-W	1.1159	1.1760	0.949	.3451

Least square means & confidence intervals from analysis of variance

Source	LS Mean	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period Op-1	-0.265	0.0529	-5.01	.0000	-0.1773	-0.3528
Period Op-2	-0.562	0.1175	-4.79	.0000	-0.3672	-0.7573
Op-1 0611	0.149	0.1182	1.26	.2097	0.3454	-0.0470
Op-2 0611	-0.136	0.2932	-0.46	.6438	0.3509	-0.6230
Op-1 0910	0.095	0.1260	0.75	.4542	0.3039	-0.1146
Op-2 0910	-0.091	0.2764	-0.33	.7436	0.3684	-0.5498
Op-1 0915	-0.235	0.1416	-1.66	.1001	0.0000	-0.4704
Op-2 0915	-0.467	0.2932	-1.59	.1148	0.0204	-0.9535
Op-1 1015	-0.836	0.1416	-5.90	.0000	-0.6004	-1.0709
Op-2 1015	-1.317	0.2932	-4.49	.0000	-0.8302	-1.8041
Op-1 1210	-0.408	0.1182	-3.45	.0008	-0.2119	-0.6044
Op-2 1210	-0.859	0.2764	-3.11	.0025	-0.3995	-1.3178
Op-1 2210	-0.355	0.1291	-2.75	.0071	-0.1407	-0.5696
Op-2 2210	-0.504	0.2932	-1.72	.0886	-0.0174	-0.9913

Paired comparisons of least square means between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period	0.2972	0.1288	2.307	.0232	0.5111	0.0833

Paired comparisons of least square means for stations between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Station 0611	0.2852	0.3161	0.90	.3692	0.8102	-0.2398
Station 0910	0.1854	0.3038	0.61	.5432	0.6899	-0.3192
Station 0915	0.2314	0.3256	0.71	.4790	0.7722	-0.3094
Station 1015	0.4815	0.3256	1.48	.1425	1.0223	-0.0593
Station 1210	0.4505	0.3006	1.50	.1372	0.9498	-0.0488
Station 2210	0.1492	0.3204	0.47	.6424	0.6813	-0.3829

Station-period means and deltas from original data where control n=1

Station-Period	N	Station Mean	Range	Standard Error	Upper 95% c.i.	Lower 95% c.i.	Mean Delta	Delta Range	Upper 95% CIi.	Lower 95% C.I.
0611 Op-1	19	0.11	1.50	0.080	0.27	-0.06	0.05	0.75	0.14	-0.03
0611 Op-2	3	0.08	0.25	0.083	0.44	-0.28	-0.08	0.25	0.28	-0.44
0910 Op-1	18	0.08	0.75	0.050	0.19	-0.02	0.07	1.75	0.26	-0.12
0910 Op-2	4	0.06	0.25	0.063	0.26	-0.14	-0.06	0.25	0.14	-0.26
0915 Op-1	14	0.23	0.50	0.055	0.35	0.11	-0.14	0.75	0.01	-0.30
0915 Op-2	3	0.25	0.50	0.144	0.87	-0.37	-0.25	0.50	0.37	-0.87
1015 Op-1	14	1.04	3.25	0.241	1.56	0.51	-0.95	2.75	-0.44	-1.45
1015 Op-2	3	2.67	3.50	1.064	7.24	-1.91	-2.67	3.50	1.91	-7.24
1210 Op-1	19	0.61	3.25	0.179	0.98	0.23	-0.45	4.00	-0.04	-0.85
1210 Op-2	4	0.63	0.75	0.161	1.14	0.11	-0.63	0.75	-0.11	-1.14
2210 Op-1	16	0.42	1.50	0.109	0.65	0.19	-0.25	2.50	0.04	-0.54
2210 Op-2	3	0.33	0.75	0.220	1.28	-0.62	-0.33	0.75	0.62	-1.28

Period means and deltas from original control data where n=1

Period	N	Station Mean	Range	Standard Error	Upper 95% C.I.	Lower 95% C.I.
Op-1	19	0.16	1.25	0.069	0.30	0.01
Op-2	4	0.00	0.00	0.000	.	.

Analysis of Variance for SFQ for 0716 - Ophiothrix spp.

Stations = 2210, 0611, 0910, 0915, 1015, 1210

Data transformed using log base10(x + .1)

Results for Analysis of Variance

Source	Source df	Error df	F-value	Prob.
PERIOD	1	102.000	2.10	0.1503
SEASON	1	102.000	17.98	0.0000
STATION	5	102.000	3.05	0.0132
PERIOD*SEASON	1	102.000	8.22	0.0050
STATION*PERIOD	5	102.000	0.27	0.9285
STATION*SEASON	5	102.000	0.90	0.4820
PERIOD*STATION*SEASON	5	102.000	1.31	0.2658

Results for Power Analysis
Power at alpha = .1

Source	Non-Centrality Parameter	Adjusted non-Centrality Parameter	Power	Adjusted Power	Power to Detect 50% Change
PERIOD	2.10	1.06	0.4198	0.2707	0.6753
STATION*PERIOD	1.35	0.00	0.1953		0.1292

Estimates for contrasts on combinations of interaction terms

Source	Difference	Std. Err.	T-value	Prob.
Period in DC	-1.1221	0.7867	-1.426	.1568
Period in FC	-0.1308	0.3583	-0.365	.7158
Period in FC-S	0.4381	0.4099	1.069	.2876
Period in FC-W	-0.6997	0.5878	-1.190	.2367
Period in DC-S	0.7871	0.8591	0.916	.3617
Period in DC-W	-3.0314	1.3181	-2.300	.0235

Least square means & confidence intervals from analysis of variance

Source	LS Mean	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period Op-1	-0.669	0.0585	-11.44	.0000	-0.5723	-0.7666
Period Op-2	-0.461	0.1316	-3.50	.0007	-0.2421	-0.6792
Op-1 0611	-0.701	0.1309	-5.35	.0000	-0.4835	-0.9182
Op-2 0611	-0.253	0.3286	-0.77	.4430	0.2924	-0.7985
Op-1 0910	-0.584	0.1398	-4.18	.0001	-0.3524	-0.8165
Op-2 0910	-0.678	0.3098	-2.19	.0310	-0.1635	-1.1920
Op-1 0915	-1.192	0.1567	-7.61	.0000	-0.9315	-1.4516
Op-2 0915	-0.938	0.3286	-2.86	.0052	-0.3928	-1.4838
Op-1 1015	-0.483	0.1567	-3.08	.0026	-0.2232	-0.7433
Op-2 1015	-0.205	0.3286	-0.62	.5340	0.3404	-0.7506
Op-1 1210	-0.830	0.1309	-6.34	.0000	-0.6123	-1.0470
Op-2 1210	-0.593	0.3098	-1.92	.0582	-0.0791	-1.1077
Op-1 2210	-0.227	0.1428	-1.59	.1148	0.0099	-0.4642
Op-2 2210	-0.096	0.3286	-0.29	.7700	0.4491	-0.6418

Paired comparisons of least square means between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period	-0.2088	0.1441	-1.449	.1503	0.0303	-0.4480

Paired comparisons of least square means for stations between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Station 0611	-0.4478	0.3537	-1.27	.2084	0.1394	-1.0350
Station 0910	0.0933	0.3399	0.27	.7843	0.6575	-0.4709
Station 0915	-0.2532	0.3640	-0.70	.4882	0.3510	-0.8575
Station 1015	-0.2781	0.3640	-0.76	.4466	0.3261	-0.8824
Station 1210	-0.2362	0.3363	-0.70	.4840	0.3221	-0.7946
Station 2210	-0.1308	0.3583	-0.37	.7158	0.4640	-0.7256

Station-period means and deltas from original data where control n=1

Station-Period	N	Station Mean	Range	Standard Error	Upper 95% c.i.	Lower 95% c.i.	Mean Delta	Delta Range	Upper 95% CIi.	Lower 95% C.I.
0611 Op-1	20	0.81	2.75	0.175	1.18	0.45	-0.78	2.75	-0.41	-1.14
0611 Op-2	3	0.83	2.00	0.601	3.42	-1.75	-0.75	2.25	2.10	-3.60
0910 Op-1	19	0.95	3.50	0.231	1.43	0.46	-0.91	3.50	-0.42	-1.39
0910 Op-2	4	0.88	2.25	0.505	2.48	-0.73	-0.81	2.00	0.62	-2.24
0915 Op-1	15	2.83	6.50	0.480	3.86	1.80	-2.78	6.25	-1.76	-3.80
0915 Op-2	3	1.92	2.00	0.583	4.43	-0.59	-1.83	2.25	0.97	-4.63
1015 Op-1	15	0.75	2.75	0.210	1.20	0.30	-0.70	3.00	-0.24	-1.16
1015 Op-2	3	0.58	1.25	0.363	2.15	-0.98	-0.50	1.50	1.36	-2.36
1210 Op-1	20	2.11	8.50	0.577	3.32	0.91	-2.08	8.75	-0.88	-3.27
1210 Op-2	4	1.69	3.00	0.832	4.33	-0.96	-1.63	3.25	1.14	-4.39
2210 Op-1	17	0.20	0.75	0.063	0.33	0.06	-0.17	1.00	-0.02	-0.31
2210 Op-2	3	0.33	0.75	0.220	1.28	-0.62	-0.25	1.00	0.99	-1.49

Period means and deltas from original control data where n=1

Period	N	Station Mean	Range	Standard Error	Upper 95% C.I.	Lower 95% C.I.
Op-1	20	0.04	0.25	0.020	0.08	-0.01
Op-2	4	0.06	0.25	0.063	0.26	-0.14

Analysis of Variance for SFQ for 0398 - Pagurus spp.

Stations = 2210, 0611, 0910, 0915, 1015, 1210

Data transformed using log base10(x + .5)

Results for Analysis of Variance

Source	Source df	Error df	F-value	Prob.
PERIOD	1	102.000	1.81	0.1819
SEASON	1	102.000	4.51	0.0361
STATION	5	102.000	3.36	0.0075
PERIOD*SEASON	1	102.000	0.42	0.5183
STATION*PERIOD	5	102.000	0.32	0.8981
STATION*SEASON	5	102.000	0.07	0.9968
PERIOD*STATION*SEASON	5	102.000	0.27	0.9294

Results for Power Analysis
Power at alpha = .1

Source	Non-Centrality Parameter	Adjusted non-Centrality Parameter	Power	Adjusted Power	Power to Detect 50% Change
PERIOD	1.81	0.77	0.3798	0.2258	0.9565
STATION*PERIOD	1.62	0.00	0.2152	.	0.1540

Estimates for contrasts on combinations of interaction terms

Source	Difference	Std. Err.	T-value	Prob.
Period in DC	-0.6768	0.5483	-1.235	.2198
Period in FC	-0.1328	0.2497	-0.532	.5959
Period in FC-S	-0.0544	0.2856	-0.191	.8492
Period in FC-W	-0.2112	0.4097	-0.516	.6073
Period in DC-S	-0.3647	0.5987	-0.609	.5438
Period in DC-W	-0.9890	0.9186	-1.077	.2842

Least square means & confidence intervals from analysis of variance

Source	LS Mean	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period Op-1	0.357	0.0408	8.76	.0000	0.4252	0.2897
Period Op-2	0.492	0.0918	5.37	.0000	0.6447	0.3401
Op-1 0611	0.713	0.0912	7.82	.0000	0.8647	0.5618
Op-2 0611	0.820	0.2290	3.58	.0005	1.2003	0.4399
Op-1 0910	0.397	0.0974	4.07	.0001	0.5584	0.2350
Op-2 0910	0.693	0.2159	3.21	.0018	1.0510	0.3342
Op-1 0915	0.537	0.1092	4.92	.0000	0.7179	0.3554
Op-2 0915	0.492	0.2290	2.15	.0341	0.8722	0.1118
Op-1 1015	0.306	0.1092	2.80	.0061	0.4871	0.1246
Op-2 1015	0.331	0.2290	1.45	.1514	0.7112	-0.0491
Op-1 1210	0.034	0.0912	0.37	.7108	0.1854	-0.1175
Op-2 1210	0.328	0.2159	1.52	.1324	0.6860	-0.0309
Op-1 2210	0.158	0.0995	1.59	.1150	0.3235	-0.0070
Op-2 2210	0.291	0.2290	1.27	.2066	0.6712	-0.0891

Paired comparisons of least square means between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period	-0.1349	0.1004	-1.344	.1819	0.0317	-0.3016

Paired comparisons of least square means for stations between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Station 0611	-0.1068	0.2465	-0.43	.6657	0.3024	-0.5161
Station 0910	-0.2959	0.2369	-1.25	.2145	0.0973	-0.6891
Station 0915	0.0447	0.2537	0.18	.8607	0.4658	-0.3765
Station 1015	-0.0252	0.2537	-0.10	.9212	0.3960	-0.4463
Station 1210	-0.2936	0.2344	-1.25	.2132	0.0955	-0.6827
Station 2210	-0.1328	0.2497	-0.53	.5959	0.2817	-0.5473

Station-period means and deltas from original data where control n=1

Station-Period	N	Station Mean	Range	Standard Error	Upper 95% c.i.	Lower 95% c.i.	Mean Delta	Delta Range	Upper 95% CIi.	Lower 95% C.I.
0611 Op-1	20	1.33	8.00	0.438	2.24	0.41	4.74	18.25	6.60	2.87
0611 Op-2	3	0.33	0.75	0.220	1.28	-0.62	4.50	6.75	13.04	-4.04
0910 Op-1	19	2.42	7.00	0.445	3.36	1.49	3.83	15.25	5.62	2.04
0910 Op-2	4	1.31	3.75	0.832	3.96	-1.33	3.75	6.25	8.26	-0.76
0915 Op-1	15	3.05	14.50	0.996	5.19	0.91	3.82	16.50	6.03	1.60
0915 Op-2	3	1.33	1.75	0.507	3.51	-0.85	3.50	7.25	12.52	-5.52
1015 Op-1	15	4.53	12.50	1.012	6.70	2.36	2.33	18.25	4.92	-0.26
1015 Op-2	3	3.08	6.50	2.088	12.07	-5.90	1.75	12.25	17.20	-13.70
1210 Op-1	20	7.31	14.25	0.892	9.18	5.45	-1.25	18.00	1.00	-3.50
1210 Op-2	4	2.94	7.00	1.576	7.95	-2.08	2.13	9.75	8.96	-4.71
2210 Op-1	17	4.43	9.50	0.704	5.92	2.93	1.54	16.00	3.25	-0.17
2210 Op-2	3	2.42	3.25	1.044	6.91	-2.08	2.42	9.25	13.91	-9.07

Period means and deltas from original control data where n=1

Period	N	Station Mean	Range	Standard Error	Upper 95% C.I.	Lower 95% C.I.
Op-1	20	6.06	15.00	0.763	7.66	4.47
Op-2	4	5.06	6.25	1.352	9.36	0.76

Analysis of Variance for SFQ for 0544 - Pelecypoda unid. boring

Stations = 2210, 0611, 0910, 0915, 1015, 1210

Data transformed using log base10(x + .5)

Results for Analysis of Variance

Source	Source df	Error df	F-value	Prob.
PERIOD	1	102.000	0.14	0.7065
SEASON	1	102.000	3.08	0.0823
STATION	5	102.000	4.74	0.0006
PERIOD*SEASON	1	102.000	0.01	0.9144
STATION*PERIOD	5	102.000	0.78	0.5663
STATION*SEASON	5	102.000	0.12	0.9867
PERIOD*STATION*SEASON	5	102.000	0.59	0.7087

Results for Power Analysis
Power at alpha = .1

Source	Non-Centrality Parameter	Adjusted non-Centrality Parameter	Power	Adjusted Power	Power to Detect 50% Change
PERIOD	0.14	0.00	0.1238	.	0.9174
STATION*PERIOD	3.90	0.00	0.3918	.	0.1633

Estimates for contrasts on combinations of interaction terms

Source	Difference	Std. Err.	T-value	Prob.
Period in DC	-0.2229	0.7234	-0.308	.7586
Period in FC	-0.0773	0.3295	-0.234	.8151
Period in FC-S	-0.2538	0.3769	-0.673	.5023
Period in FC-W	0.0992	0.5406	0.184	.8547
Period in DC-S	0.0393	0.7900	0.050	.9604
Period in DC-W	-0.4851	1.2122	-0.400	.6898

Least square means & confidence intervals from analysis of variance

Source	LS Mean	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period Op-1	-0.677	0.0538	-12.57	.0000	-0.5873	-0.7660
Period Op-2	-0.627	0.1211	-5.18	.0000	-0.4256	-0.8276
Op-1 0611	0.180	0.1204	1.50	.1378	0.3799	-0.0198
Op-2 0611	-0.098	0.3022	-0.32	.7461	0.4035	-0.5997
Op-1 0910	-0.899	0.1286	-6.99	.0000	-0.6858	-1.1125
Op-2 0910	-0.554	0.2849	-1.94	.0547	-0.0809	-1.0267
Op-1 0915	-0.619	0.1441	-4.29	.0000	-0.3794	-0.8577
Op-2 0915	-0.921	0.3022	-3.05	.0029	-0.4196	-1.4228
Op-1 1015	-1.066	0.1441	-7.40	.0000	-0.8265	-1.3048
Op-2 1015	-0.939	0.3022	-3.11	.0025	-0.4370	-1.4403
Op-1 1210	-0.908	0.1204	-7.54	.0000	-0.7081	-1.1079
Op-2 1210	-0.577	0.2849	-2.02	.0456	-0.1037	-1.0496
Op-1 2210	-0.748	0.1313	-5.70	.0000	-0.5305	-0.9665
Op-2 2210	-0.671	0.3022	-2.22	.0286	-0.1696	-1.1728

Paired comparisons of least square means between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period	-0.0500	0.1325	-0.378	.7065	0.1699	-0.2700

Paired comparisons of least square means for stations between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Station 0611	0.2782	0.3253	0.86	.3944	0.8182	-0.2618
Station 0910	-0.3453	0.3126	-1.10	.2718	0.1735	-0.8642
Station 0915	0.3027	0.3348	0.90	.3681	0.8584	-0.2530
Station 1015	-0.1271	0.3348	-0.38	.7051	0.4287	-0.6828
Station 1210	-0.3314	0.3093	-1.07	.2866	0.1821	-0.8448
Station 2210	-0.0773	0.3295	-0.23	.8151	0.4697	-0.6242

Station-period means and deltas from original data where control n=1

Station-Period	N	Station Mean	Range	Standard Error	Upper 95% c.i.	Lower 95% c.i.	Mean Delta	Delta Range	Upper 95% CIi.	Lower 95% C.I.
0611 Op-1	20	0.50	2.00	0.127	0.77	0.23	0.66	7.00	1.48	-0.15
0611 Op-2	3	0.92	1.25	0.363	2.48	-0.65	-0.25	0.00	.	.
0910 Op-1	19	10.28	19.00	1.285	12.98	7.58	-9.12	24.50	-6.13	-12.11
0910 Op-2	4	15.75	57.00	14.006	60.32	-28.82	-15.19	56.00	28.66	-59.04
0915 Op-1	15	6.63	14.25	1.007	8.79	4.47	-5.43	18.75	-2.98	-7.89
0915 Op-2	3	11.33	18.25	5.355	34.37	-11.71	-10.67	19.50	13.87	-35.21
1015 Op-1	15	18.48	51.75	3.670	26.35	10.61	-17.28	51.75	-9.16	-25.41
1015 Op-2	3	11.83	15.25	4.664	31.90	-8.24	-11.17	16.00	10.21	-32.55
1210 Op-1	20	13.61	25.25	1.648	17.06	10.16	-12.45	25.25	-8.98	-15.92
1210 Op-2	4	5.38	9.25	2.073	11.97	-1.22	-4.81	10.00	2.25	-11.87
2210 Op-1	17	9.60	17.00	1.287	12.33	6.87	-8.35	18.00	-5.48	-11.22
2210 Op-2	3	4.58	2.75	0.821	8.11	1.05	-3.92	1.50	-1.92	-5.91

Period means and deltas from original control data where n=1

Period	N	Station Mean	Range	Standard Error	Upper 95% C.I.	Lower 95% C.I.
Op-1	20	1.16	5.75	0.361	1.92	0.41
Op-2	4	0.56	1.25	0.277	1.44	-0.32

Analysis of Variance for SAQ for 0529 - Phidiana hiltoni

Stations = 2210, 0611, 0910, 0915, 1015, 1210

Data transformed using log base10(x + .1)

Results for Analysis of Variance

Source	Source df	Error df	F-value	Prob.
PERIOD	1	96.000	0.28	0.5981
SEASON	1	96.000	1.03	0.3128
STATION	5	96.000	2.25	0.0558
PERIOD*SEASON	1	96.000	1.49	0.2253
STATION*PERIOD	5	96.000	0.60	0.6962
STATION*SEASON	5	96.000	0.33	0.8938
PERIOD*STATION*SEASON	5	96.000	0.20	0.9609

Results for Power Analysis
Power at alpha = .1

Source	Non-Centrality Parameter	Adjusted non-Centrality Parameter	Power	Adjusted Power	Power to Detect 50% Change
PERIOD	0.28	0.00	0.1464	.	0.4038
STATION*PERIOD	3.02	0.00	0.3236	.	0.1474

Estimates for contrasts on combinations of interaction terms

Source	Difference	Std. Err.	T-value	Prob.
Period in DC	0.1039	0.8256	0.126	.9001
Period in FC	0.3759	0.3761	1.000	.3200
Period in FC-S	0.2546	0.4320	0.589	.5571
Period in FC-W	0.4973	0.6157	0.808	.4213
Period in DC-S	1.3323	0.9058	1.471	.1446
Period in DC-W	-1.1245	1.3805	-0.815	.4174

Least square means & confidence intervals from analysis of variance

Source	LS Mean	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period Op-1	-0.361	0.0620	-5.82	.0000	-0.2580	-0.4641
Period Op-2	-0.441	0.1379	-3.20	.0019	-0.2120	-0.6700
Op-1 0611	0.155	0.1387	1.12	.2663	0.3854	-0.0753
Op-2 0611	-0.136	0.3442	-0.40	.6936	0.4356	-0.7077
Op-1 0910	-0.653	0.1479	-4.42	.0000	-0.4076	-0.8988
Op-2 0910	-0.847	0.3245	-2.61	.0105	-0.3082	-1.3860
Op-1 0915	-0.735	0.1663	-4.42	.0000	-0.4589	-1.0111
Op-2 0915	-0.368	0.3442	-1.07	.2872	0.2033	-0.9400
Op-1 1015	-0.431	0.1663	-2.59	.0110	-0.1548	-0.7071
Op-2 1015	-0.232	0.3442	-0.68	.5012	0.3393	-0.8040
Op-1 1210	-0.470	0.1387	-3.39	.0010	-0.2396	-0.7003
Op-2 1210	-0.654	0.3245	-2.02	.0466	-0.1151	-1.1930
Op-1 2210	-0.032	0.1516	-0.21	.8326	0.2196	-0.2839
Op-2 2210	-0.408	0.3442	-1.19	.2387	0.1636	-0.9797

Paired comparisons of least square means between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period	0.0800	0.1512	0.529	.5981	0.3311	-0.1712

Paired comparisons of least square means for stations between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Station 0611	0.2911	0.3711	0.78	.4347	0.9074	-0.3252
Station 0910	0.1939	0.3566	0.54	.5879	0.7862	-0.3984
Station 0915	-0.3666	0.3822	-0.96	.3398	0.2682	-1.0015
Station 1015	-0.1986	0.3822	-0.52	.6046	0.4363	-0.8334
Station 1210	0.1842	0.3529	0.52	.6030	0.7703	-0.4020
Station 2210	0.3759	0.3761	1.00	.3200	1.0005	-0.2487

Station-period means and deltas from original data where control n=1

Station-Period	N	Station Mean	Range	Standard Error	Upper 95% c.i.	Lower 95% c.i.	Mean Delta	Delta Range	Upper 95% CIi.	Lower 95% C.I.
0611 Op-1	19	0.00	0.00	0.000	.	.	0.11	1.25	0.25	-0.04
0611 Op-2	3	0.08	0.25	0.083	0.44	-0.28	-0.08	0.25	0.28	-0.44
0910 Op-1	18	1.31	7.00	0.416	2.18	0.43	-1.19	7.25	-0.33	-2.06
0910 Op-2	4	1.50	2.75	0.729	3.82	-0.82	-1.50	2.75	0.82	-3.82
0915 Op-1	14	1.32	5.25	0.393	2.17	0.47	-1.29	5.50	-0.42	-2.16
0915 Op-2	3	0.33	0.75	0.220	1.28	-0.62	-0.33	0.75	0.62	-1.28
1015 Op-1	14	0.43	2.00	0.173	0.80	0.06	-0.39	2.25	-0.01	-0.78
1015 Op-2	3	0.25	0.75	0.250	1.33	-0.83	-0.25	0.75	0.83	-1.33
1210 Op-1	19	0.71	2.75	0.216	1.16	0.26	-0.61	3.00	-0.20	-1.01
1210 Op-2	4	0.56	1.25	0.313	1.56	-0.43	-0.56	1.25	0.43	-1.56
2210 Op-1	16	0.09	0.50	0.045	0.19	-0.00	0.02	1.75	0.22	-0.19
2210 Op-2	3	0.17	0.25	0.083	0.53	-0.19	-0.17	0.25	0.19	-0.53

Period means and deltas from original control data where n=1

Period	N	Station Mean	Range	Standard Error	Upper 95% C.I.	Lower 95% C.I.
Op-1	19	0.11	1.25	0.067	0.25	-0.04
Op-2	4	0.00	0.00	0.000	.	.

Analysis of Variance for SFQ for 0735 - Phragmatopoma californica

Stations = 2210, 0611, 0910, 0915, 1015, 1210

Data transformed using log base10(x + 1)

Results for Analysis of Variance

Source	Source df	Error df	F-value	Prob.
PERIOD	1	102.000	15.08	0.0002
SEASON	1	102.000	0.18	0.6685
STATION	5	102.000	2.95	0.0156
PERIOD*SEASON	1	102.000	0.01	0.9269
STATION*PERIOD	5	102.000	1.26	0.2849
STATION*SEASON	5	102.000	0.23	0.9505
PERIOD*STATION*SEASON	5	102.000	0.07	0.9963

Results for Power Analysis
Power at alpha = .1

Source	Non-Centrality Parameter	Adjusted non-Centrality Parameter	Power	Adjusted Power	Power to Detect 50% Change
PERIOD	15.08	13.78	0.9865	0.9795	0.6507
STATION*PERIOD	6.32	1.20	0.5648	0.1841	0.1046

Estimates for contrasts on combinations of interaction terms

Source	Difference	Std. Err.	T-value	Prob.
Period in DC	2.9926	0.8159	3.668	.0004
Period in FC	0.4889	0.3716	1.315	.1913
Period in FC-S	0.4546	0.4251	1.069	.2874
Period in FC-W	0.5232	0.6097	0.858	.3929
Period in DC-S	3.1094	0.8910	3.490	.0007
Period in DC-W	2.8759	1.3672	2.104	.0379

Least square means & confidence intervals from analysis of variance

Source	LS Mean	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period Op-1	0.863	0.0607	14.22	.0000	0.9641	0.7626
Period Op-2	0.283	0.1365	2.07	.0407	0.5098	0.0564
Op-1 0611	0.912	0.1358	6.72	.0000	1.1376	0.6868
Op-2 0611	0.826	0.3408	2.42	.0171	1.3921	0.2605
Op-1 0910	0.816	0.1450	5.63	.0000	1.0565	0.5752
Op-2 0910	0.042	0.3214	0.13	.8970	0.5751	-0.4917
Op-1 0915	0.604	0.1625	3.72	.0003	0.8740	0.3345
Op-2 0915	-0.616	0.3408	-1.81	.0738	-0.0499	-1.1814
Op-1 1015	0.762	0.1625	4.69	.0000	1.0318	0.4923
Op-2 1015	0.577	0.3408	1.69	.0933	1.1432	0.0116
Op-1 1210	1.043	0.1358	7.68	.0000	1.2680	0.8172
Op-2 1210	0.315	0.3214	0.98	.3298	0.8481	-0.2188
Op-1 2210	1.043	0.1481	7.04	.0000	1.2890	0.7973
Op-2 2210	0.554	0.3408	1.63	.1070	1.1200	-0.0115

Paired comparisons of least square means between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period	0.5803	0.1494	3.883	.0002	0.8283	0.3322

Paired comparisons of least square means for stations between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Station 0611	0.0859	0.3669	0.23	.8153	0.6950	-0.5231
Station 0910	0.7742	0.3525	2.20	.0304	1.3594	0.1890
Station 0915	1.2199	0.3776	3.23	.0017	1.8467	0.5931
Station 1015	0.1847	0.3776	0.49	.6258	0.8115	-0.4421
Station 1210	0.7280	0.3489	2.09	.0394	1.3070	0.1489
Station 2210	0.4889	0.3716	1.32	.1913	1.1058	-0.1280

Station-period means and deltas from original data where control n=1

Station-Period	N	Station Mean	Range	Standard Error	Upper 95% c.i.	Lower 95% c.i.	Mean Delta	Delta Range	Upper 95% CIi.	Lower 95% C.I.
0611 Op-1	20	8.23	76.25	4.028	16.66	-0.21	40.44	190.25	62.75	18.12
0611 Op-2	3	0.42	1.00	0.300	1.71	-0.88	7.92	11.50	22.22	-6.39
0910 Op-1	19	3.92	12.00	0.731	5.46	2.38	43.09	138.00	65.37	20.82
0910 Op-2	4	6.69	4.50	1.012	9.91	3.47	1.19	6.75	6.07	-3.70
0915 Op-1	15	5.15	12.25	0.994	7.28	3.02	23.40	106.25	42.03	4.77
0915 Op-2	3	33.42	19.75	6.583	61.74	5.09	-25.08	14.50	-6.90	-43.27
1015 Op-1	15	3.47	9.50	0.810	5.20	1.73	25.08	92.75	41.67	8.49
1015 Op-2	3	3.50	10.00	3.253	17.50	-10.50	4.83	4.75	11.18	-1.51
1210 Op-1	20	2.03	5.75	0.329	2.71	1.34	46.64	136.25	67.93	25.34
1210 Op-2	4	3.19	3.00	0.680	5.35	1.02	4.69	8.00	10.52	-1.14
2210 Op-1	17	1.84	5.00	0.382	2.65	1.03	49.29	132.75	73.68	24.89
2210 Op-2	3	1.33	2.50	0.726	4.46	-1.79	7.00	12.25	22.45	-8.45

Period means and deltas from original control data where n=1

Period	N	Station Mean	Range	Standard Error	Upper 95% C.I.	Lower 95% C.I.
Op-1	20	48.66	133.50	10.253	70.12	27.20
Op-2	4	7.88	10.75	2.242	15.01	0.74

Analysis of Variance for SAQ for 0558 - Pisaster giganteus

Stations = 2210, 0611, 0910, 0915, 1015, 1210

Data transformed using log base10(x + .5)

Results for Analysis of Variance

Source	Source df	Error df	F-value	Prob.
PERIOD	1	96.000	2.69	0.1046
SEASON	1	96.000	0.27	0.6070
STATION	5	96.000	1.15	0.3391
PERIOD*SEASON	1	96.000	0.61	0.4364
STATION*PERIOD	5	96.000	1.17	0.3275
STATION*SEASON	5	96.000	0.89	0.4901
PERIOD*STATION*SEASON	5	96.000	0.75	0.5897

Results for Power Analysis
Power at alpha = .1

Source	Non-Centrality Parameter	Adjusted non-Centrality Parameter	Power	Adjusted Power	Power to Detect 50% Change
PERIOD	2.69	1.63	0.4935	0.3547	0.9639
STATION*PERIOD	5.87	0.75	0.5336	0.1511	0.1512

Estimates for contrasts on combinations of interaction terms

Source	Difference	Std. Err.	T-value	Prob.
Period in DC	-0.7543	0.4204	-1.794	.0759
Period in FC	-0.0027	0.1915	-0.014	.9886
Period in FC-S	0.0720	0.2200	0.327	.7441
Period in FC-W	-0.0775	0.3135	-0.247	.8052
Period in DC-S	-0.4680	0.4613	-1.015	.3129
Period in DC-W	-1.0406	0.7030	-1.480	.1421

Least square means & confidence intervals from analysis of variance

Source	LS Mean	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period Op-1	-0.243	0.0316	-7.70	.0000	-0.1910	-0.2959
Period Op-2	-0.117	0.0702	-1.67	.0981	-0.0007	-0.2339
Op-1 0611	-0.456	0.0706	-6.45	.0000	-0.3385	-0.5731
Op-2 0611	-0.030	0.1753	-0.17	.8638	0.2610	-0.3212
Op-1 0910	-0.136	0.0753	-1.81	.0734	-0.0112	-0.2614
Op-2 0910	-0.206	0.1652	-1.25	.2150	0.0682	-0.4807
Op-1 0915	-0.307	0.0847	-3.62	.0005	-0.1663	-0.4475
Op-2 0915	-0.110	0.1753	-0.63	.5324	0.1813	-0.4009
Op-1 1015	-0.266	0.0847	-3.14	.0023	-0.1252	-0.4064
Op-2 1015	-0.335	0.1753	-1.91	.0593	-0.0434	-0.6256
Op-1 1210	-0.298	0.0706	-4.21	.0001	-0.1803	-0.4149
Op-2 1210	-0.027	0.1652	-0.17	.8691	0.2471	-0.3018
Op-1 2210	0.002	0.0772	0.02	.9826	0.1299	-0.1265
Op-2 2210	0.004	0.1753	0.03	.9799	0.2955	-0.2867

Paired comparisons of least square means between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period	-0.1262	0.0770	-1.639	.1046	0.0017	-0.2541

Paired comparisons of least square means for stations between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Station 0611	-0.4256	0.1890	-2.25	.0266	-0.1118	-0.7395
Station 0910	0.0699	0.1816	0.39	.7009	0.3716	-0.2317
Station 0915	-0.1970	0.1946	-1.01	.3139	0.1262	-0.5203
Station 1015	0.0687	0.1946	0.35	.7247	0.3920	-0.2545
Station 1210	-0.2703	0.1797	-1.50	.1359	0.0282	-0.5687
Station 2210	-0.0027	0.1915	-0.01	.9886	0.3153	-0.3208

Station-period means and deltas from original data where control n=1

Station-Period	N	Station Mean	Range	Standard Error	Upper 95% c.i.	Lower 95% c.i.	Mean Delta	Delta Range	Upper 95% CIi.	Lower 95% C.I.
0611 Op-1	19	2.03	5.00	0.295	2.65	1.41	-1.70	5.75	-0.97	-2.42
0611 Op-2	3	1.00	2.00	0.629	3.71	-1.71	-0.50	2.50	2.79	-3.79
0910 Op-1	18	0.67	1.75	0.116	0.91	0.42	-0.32	2.25	-0.05	-0.59
0910 Op-2	4	1.00	2.25	0.510	2.62	-0.62	-0.50	2.00	0.88	-1.88
0915 Op-1	14	1.32	3.00	0.246	1.85	0.79	-0.89	2.50	-0.42	-1.37
0915 Op-2	3	1.08	2.00	0.601	3.67	-1.50	-0.58	1.75	1.93	-3.09
1015 Op-1	14	1.27	6.50	0.465	2.27	0.26	-0.84	7.00	0.10	-1.78
1015 Op-2	3	1.67	1.25	0.363	3.23	0.10	-1.17	0.75	-0.22	-2.12
1210 Op-1	19	1.30	2.75	0.186	1.69	0.91	-0.97	3.25	-0.58	-1.37
1210 Op-2	4	0.69	1.25	0.258	1.51	-0.13	-0.19	1.00	0.49	-0.87
2210 Op-1	16	0.31	0.75	0.058	0.44	0.19	0.05	2.25	0.35	-0.25
2210 Op-2	3	0.58	0.75	0.220	1.53	-0.37	-0.08	0.75	0.87	-1.03

Period means and deltas from original control data where n=1

Period	N	Station Mean	Range	Standard Error	Upper 95% C.I.	Lower 95% C.I.
Op-1	19	0.33	1.50	0.096	0.53	0.13
Op-2	4	0.50	0.50	0.102	0.82	0.18

Analysis of Variance for SFQ for 0389 - Pista spp.

Stations = 2210, 0611, 0910, 0915, 1015, 1210

Data transformed using log base10(x + .1)

Results for Analysis of Variance

Source	Source df	Error df	F-value	Prob.
PERIOD	1	102.000	16.29	0.0001
SEASON	1	102.000	14.82	0.0002
STATION	5	102.000	10.35	0.0000
PERIOD*SEASON	1	102.000	1.82	0.1799
STATION*PERIOD	5	102.000	0.74	0.5946
STATION*SEASON	5	102.000	1.02	0.4094
PERIOD*STATION*SEASON	5	102.000	0.79	0.5615

Results for Power Analysis
Power at alpha = .1

Source	Non-Centrality Parameter	Adjusted non-Centrality Parameter	Power	Adjusted Power	Power to Detect 50% Change
PERIOD	16.29	14.97	0.9910	0.9860	0.5852
STATION*PERIOD	3.70	0.00	0.3768	.	0.1967

Estimates for contrasts on combinations of interaction terms

Source	Difference	Std. Err.	T-value	Prob.
Period in DC	2.6189	0.6826	3.836	.0002
Period in FC	0.4082	0.3109	1.313	.1922
Period in FC-S	0.0484	0.3557	0.136	.8920
Period in FC-W	0.7680	0.5101	1.505	.1353
Period in DC-S	1.9657	0.7455	2.637	.0097
Period in DC-W	3.2722	1.1438	2.861	.0051

Least square means & confidence intervals from analysis of variance

Source	LS Mean	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period Op-1	-0.324	0.0508	-6.38	.0000	-0.2395	-0.4081
Period Op-2	-0.828	0.1142	-7.25	.0000	-0.6386	-1.0179
Op-1 0611	0.168	0.1136	1.48	.1431	0.3562	-0.0209
Op-2 0611	-0.000	0.2852	-0.00	1.000	0.4733	-0.4733
Op-1 0910	-0.053	0.1213	-0.44	.6617	0.1481	-0.2546
Op-2 0910	-0.392	0.2689	-1.46	.1483	0.0547	-0.8379
Op-1 0915	-0.219	0.1359	-1.61	.1104	0.0068	-0.4446
Op-2 0915	-1.154	0.2852	-4.05	.0001	-0.6810	-1.6277
Op-1 1015	-0.958	0.1359	-7.05	.0000	-0.7323	-1.1836
Op-2 1015	-1.495	0.2852	-5.24	.0000	-1.0219	-1.9686
Op-1 1210	-0.688	0.1136	-6.05	.0000	-0.4990	-0.8762
Op-2 1210	-1.328	0.2689	-4.94	.0000	-0.8815	-1.7740
Op-1 2210	-0.193	0.1239	-1.55	.1234	0.0132	-0.3983
Op-2 2210	-0.601	0.2852	-2.11	.0376	-0.1274	-1.0741

Paired comparisons of least square means between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period	0.5045	0.1250	4.035	.0001	0.7120	0.2970

Paired comparisons of least square means for stations between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Station 0611	0.1677	0.3070	0.55	.5861	0.6772	-0.3419
Station 0910	0.3384	0.2950	1.15	.2540	0.8280	-0.1512
Station 0915	0.9354	0.3159	2.96	.0038	1.4598	0.4110
Station 1015	0.5373	0.3159	1.70	.0920	1.0617	0.0129
Station 1210	0.6402	0.2919	2.19	.0306	1.1247	0.1557
Station 2210	0.4082	0.3109	1.31	.1922	0.9243	-0.1079

Station-period means and deltas from original data where control n=1

Station-Period	N	Station Mean	Range	Standard Error	Upper 95% c.i.	Lower 95% c.i.	Mean Delta	Delta Range	Upper 95% CIi.	Lower 95% C.I.
0611 Op-1	20	0.01	0.25	0.013	0.04	-0.01	0.11	0.50	0.21	0.02
0611 Op-2	3	0.00	0.00	0.000	.	.	0.00	0.00	.	.
0910 Op-1	19	0.11	0.50	0.040	0.19	0.02	0.03	1.00	0.15	-0.10
0910 Op-2	4	0.31	1.25	0.313	1.31	-0.68	-0.06	2.25	1.40	-1.53
0915 Op-1	15	0.35	2.75	0.189	0.75	-0.05	-0.18	2.75	0.20	-0.57
0915 Op-2	3	1.33	2.25	0.712	4.40	-1.73	-1.33	2.25	1.73	-4.40
1015 Op-1	15	1.68	4.75	0.352	2.44	0.93	-1.52	4.75	-0.75	-2.28
1015 Op-2	3	3.25	3.50	1.127	8.10	-1.60	-3.25	3.50	1.60	-8.10
1210 Op-1	20	1.43	9.25	0.516	2.50	0.35	-1.30	9.00	-0.26	-2.34
1210 Op-2	4	2.81	5.00	1.063	6.19	-0.57	-2.56	5.00	0.93	-6.05
2210 Op-1	17	0.30	1.00	0.081	0.47	0.13	-0.15	1.50	0.06	-0.36
2210 Op-2	3	0.33	0.75	0.220	1.28	-0.62	-0.33	0.75	0.62	-1.28

Period means and deltas from original control data where n=1

Period	N	Station Mean	Range	Standard Error	Upper 95% C.I.	Lower 95% C.I.
Op-1	20	0.13	0.50	0.046	0.22	0.03
Op-2	4	0.25	1.00	0.250	1.05	-0.55

Analysis of Variance for SFQ for 0317 - Pododesmus cepio

Stations = 2210, 0611, 0910, 0915, 1015, 1210

Data transformed using log base10(x + .1)

Results for Analysis of Variance

Source	Source df	Error df	F-value	Prob.
PERIOD	1	102.000	0.37	0.5433
SEASON	1	102.000	9.16	0.0031
STATION	5	102.000	3.12	0.0116
PERIOD*SEASON	1	102.000	6.76	0.0107
STATION*PERIOD	5	102.000	0.46	0.8023
STATION*SEASON	5	102.000	1.42	0.2216
PERIOD*STATION*SEASON	5	102.000	0.54	0.7462

Results for Power Analysis
Power at alpha = .1

Source	Non-Centrality Parameter	Adjusted non-Centrality Parameter	Power	Adjusted Power	Power to Detect 50% Change
PERIOD	0.37	0.00	0.1616	.	0.5047
STATION*PERIOD	2.32	0.00	0.2694	.	0.1536

Estimates for contrasts on combinations of interaction terms

Source	Difference	Std. Err.	T-value	Prob.
Period in DC	-0.5917	0.6508	-0.909	.3654
Period in FC	0.1556	0.2964	0.525	.6007
Period in FC-S	0.0000	0.3391	0.000	1.000
Period in FC-W	0.3113	0.4863	0.640	.5236
Period in DC-S	-2.2961	0.7107	-3.231	.0017
Period in DC-W	1.1126	1.0905	1.020	.3100

Least square means & confidence intervals from analysis of variance

Source	LS Mean	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period Op-1	-0.189	0.0484	-3.90	.0002	-0.1084	-0.2691
Period Op-2	-0.116	0.1089	-1.07	.2892	0.0647	-0.2968
Op-1 0611	-0.652	0.1083	-6.02	.0000	-0.4719	-0.8314
Op-2 0611	-0.515	0.2719	-1.89	.0610	-0.0637	-0.9662
Op-1 0910	-0.173	0.1156	-1.49	.1387	0.0194	-0.3646
Op-2 0910	0.000	0.2563	0.00	1.000	0.4255	-0.4255
Op-1 0915	-0.397	0.1296	-3.06	.0028	-0.1816	-0.6119
Op-2 0915	-0.272	0.2719	-1.00	.3194	0.1792	-0.7233
Op-1 1015	0.173	0.1296	1.34	.1844	0.3883	-0.0420
Op-2 1015	-0.000	0.2719	-0.00	1.000	0.4513	-0.4513
Op-1 1210	-0.240	0.1083	-2.22	.0288	-0.0604	-0.4200
Op-2 1210	0.091	0.2563	0.35	.7242	0.5161	-0.3348
Op-1 2210	0.156	0.1182	1.32	.1907	0.3518	-0.0405
Op-2 2210	-0.000	0.2719	-0.00	1.000	0.4513	-0.4513

Paired comparisons of least square means between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period	-0.0727	0.1192	-0.610	.5433	0.1252	-0.2705

Paired comparisons of least square means for stations between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Station 0611	-0.1367	0.2926	-0.47	.6414	0.3491	-0.6225
Station 0910	-0.1726	0.2812	-0.61	.5407	0.2942	-0.6394
Station 0915	-0.1247	0.3012	-0.41	.6796	0.3752	-0.6247
Station 1015	0.1732	0.3012	0.58	.5665	0.6731	-0.3268
Station 1210	-0.3309	0.2783	-1.19	.2372	0.1310	-0.7928
Station 2210	0.1556	0.2964	0.53	.6007	0.6477	-0.3364

Station-period means and deltas from original data where control n=1

Station-Period	N	Station Mean	Range	Standard Error	Upper 95% c.i.	Lower 95% c.i.	Mean Delta	Delta Range	Upper 95% CIi.	Lower 95% C.I.
0611 Op-1	20	1.96	5.50	0.390	2.78	1.15	-1.86	5.75	-1.03	-2.69
0611 Op-2	3	0.67	1.25	0.363	2.23	-0.90	-0.67	1.25	0.90	-2.23
0910 Op-1	19	0.55	1.75	0.141	0.85	0.26	-0.46	2.25	-0.16	-0.76
0910 Op-2	4	0.06	0.25	0.063	0.26	-0.14	0.00	0.00	.	.
0915 Op-1	15	0.75	2.50	0.201	1.18	0.32	-0.67	2.25	-0.28	-1.06
0915 Op-2	3	0.08	0.25	0.083	0.44	-0.28	-0.08	0.25	0.28	-0.44
1015 Op-1	15	0.07	0.50	0.038	0.15	-0.02	0.02	0.75	0.13	-0.09
1015 Op-2	3	0.00	0.00	0.000	.	.	0.00	0.00	.	.
1210 Op-1	20	0.64	4.25	0.228	1.12	0.16	-0.54	4.25	-0.08	-1.00
1210 Op-2	4	0.00	0.00	0.000	.	.	0.06	0.25	0.26	-0.14
2210 Op-1	17	0.04	0.25	0.024	0.09	-0.01	0.06	0.75	0.17	-0.05
2210 Op-2	3	0.00	0.00	0.000	.	.	0.00	0.00	.	.

Period means and deltas from original control data where n=1

Period	N	Station Mean	Range	Standard Error	Upper 95% C.I.	Lower 95% C.I.
Op-1	20	0.10	0.50	0.038	0.18	0.02
Op-2	4	0.06	0.25	0.063	0.26	-0.14

Analysis of Variance for SFQ for 0492 - Porifera unid. (encrusting)

Stations = 2210, 0611, 0910, 0915, 1015, 1210

Data transformed using log base10(x + .5)

Results for Analysis of Variance

Source	Source df	Error df	F-value	Prob.
PERIOD	1	102.000	0.06	0.8054
SEASON	1	102.000	0.56	0.4568
STATION	5	102.000	4.43	0.0011
PERIOD*SEASON	1	102.000	0.16	0.6863
STATION*PERIOD	5	102.000	0.31	0.9057
STATION*SEASON	5	102.000	0.14	0.9818
PERIOD*STATION*SEASON	5	102.000	0.33	0.8933

Results for Power Analysis
Power at alpha = .1

Source	Non-Centrality Parameter	Adjusted non-Centrality Parameter	Power	Adjusted Power	Power to Detect 50% Change
PERIOD	0.06	0.00	0.1102	.	0.9070
STATION*PERIOD	1.55	0.00	0.2104	.	0.1911

Estimates for contrasts on combinations of interaction terms

Source	Difference	Std. Err.	T-value	Prob.
Period in DC	0.0964	0.4191	0.230	.8186
Period in FC	0.0174	0.1909	0.091	.9276
Period in FC-S	-0.1090	0.2184	-0.499	.6188
Period in FC-W	0.1438	0.3132	0.459	.6472
Period in DC-S	0.0363	0.4577	0.079	.9370
Period in DC-W	0.1565	0.7022	0.223	.8241

Least square means & confidence intervals from analysis of variance

Source	LS Mean	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period Op-1	0.184	0.0312	5.89	.0000	0.2354	0.1319
Period Op-2	0.165	0.0701	2.35	.0208	0.2811	0.0483
Op-1 0611	0.219	0.0698	3.15	.0022	0.3352	0.1036
Op-2 0611	0.159	0.1751	0.91	.3663	0.4495	-0.1317
Op-1 0910	0.224	0.0745	3.01	.0033	0.3477	0.1004
Op-2 0910	0.031	0.1651	0.19	.8511	0.3051	-0.2429
Op-1 0915	0.084	0.0835	1.01	.3155	0.2227	-0.0543
Op-2 0915	0.147	0.1751	0.84	.4045	0.4372	-0.1440
Op-1 1015	0.254	0.0835	3.04	.0030	0.3921	0.1150
Op-2 1015	0.358	0.1751	2.04	.0435	0.6485	0.0672
Op-1 1210	0.449	0.0698	6.43	.0000	0.5645	0.3330
Op-2 1210	0.439	0.1651	2.66	.0090	0.7132	0.1653
Op-1 2210	-0.128	0.0761	-1.68	.0953	-0.0018	-0.2544
Op-2 2210	-0.146	0.1751	-0.83	.4079	0.1451	-0.4361

Paired comparisons of least square means between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period	0.0190	0.0768	0.247	.8054	0.1464	-0.1084

Paired comparisons of least square means for stations between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Station 0611	0.0606	0.1885	0.32	.7486	0.3734	-0.2523
Station 0910	0.1930	0.1811	1.07	.2890	0.4936	-0.1076
Station 0915	-0.0624	0.1940	-0.32	.7484	0.2596	-0.3843
Station 1015	-0.1043	0.1940	-0.54	.5920	0.2177	-0.4262
Station 1210	0.0095	0.1792	0.05	.9579	0.3069	-0.2880
Station 2210	0.0174	0.1909	0.09	.9276	0.3343	-0.2995

Station-period means and deltas from original data where control n=1

Station-Period	N	Station Mean	Range	Standard Error	Upper 95% c.i.	Lower 95% c.i.	Mean Delta	Delta Range	Upper 95% CIi.	Lower 95% C.I.
0611 Op-1	20	0.91	2.75	0.174	1.28	0.55	0.68	5.25	1.22	0.13
0611 Op-2	3	0.58	0.25	0.083	0.94	0.22	0.58	0.75	1.53	-0.37
0910 Op-1	19	0.75	1.75	0.138	1.04	0.46	0.78	3.75	1.33	0.23
0910 Op-2	4	1.06	1.50	0.344	2.16	-0.03	-0.06	2.25	1.57	-1.70
0915 Op-1	15	1.27	3.50	0.248	1.80	0.73	0.28	4.50	1.01	-0.45
0915 Op-2	3	0.75	0.75	0.250	1.83	-0.33	0.42	1.25	1.98	-1.15
1015 Op-1	15	0.78	2.75	0.226	1.27	0.30	0.77	4.25	1.46	0.07
1015 Op-2	3	0.50	1.50	0.500	2.65	-1.65	0.67	2.00	3.25	-1.92
1210 Op-1	20	0.18	1.00	0.060	0.30	0.05	1.41	4.00	1.93	0.90
1210 Op-2	4	0.06	0.25	0.063	0.26	-0.14	0.94	1.00	1.62	0.26
2210 Op-1	17	2.63	6.00	0.460	3.61	1.66	-1.04	7.50	-0.04	-2.05
2210 Op-2	3	2.42	4.75	1.387	8.38	-3.55	-1.25	5.25	5.29	-7.79

Period means and deltas from original control data where n=1

Period	N	Station Mean	Range	Standard Error	Upper 95% C.I.	Lower 95% C.I.
Op-1	20	1.59	3.50	0.235	2.08	1.10
Op-2	4	1.00	1.00	0.204	1.65	0.35

Analysis of Variance for SFQ for 0530 - Pseudomelatoma torosa

Stations = 2210, 0611, 0910, 0915, 1015, 1210

Data not transformed.

Results for Analysis of Variance

Source	Source df	Error df	F-value	Prob.
PERIOD	1	102.000	32.58	0.0000
SEASON	1	102.000	1.73	0.1911
STATION	5	102.000	0.48	0.7880
PERIOD*SEASON	1	102.000	26.19	0.0000
STATION*PERIOD	5	102.000	0.15	0.9790
STATION*SEASON	5	102.000	0.21	0.9559
PERIOD*STATION*SEASON	5	102.000	0.05	0.9982

Results for Power Analysis
Power at alpha = .1

Source	Non-Centrality Parameter	Adjusted non-Centrality Parameter	Power	Adjusted Power	Power to Detect 50% Change
PERIOD	32.58	30.94	1.0000	0.9999	0.2392
STATION*PERIOD	0.76	0.00	0.1521	.	0.1594

Estimates for contrasts on combinations of interaction terms

Source	Difference	Std. Err.	T-value	Prob.
Period in DC	3.0135	0.5885	5.121	.0000
Period in FC	0.6771	0.2680	2.526	.0131
Period in FC-S	0.1042	0.3066	0.340	.7347
Period in FC-W	1.2500	0.4397	2.843	.0054
Period in DC-S	0.2771	0.6426	0.431	.6673
Period in DC-W	5.7500	0.9860	5.832	.0000

Least square means & confidence intervals from analysis of variance

Source	LS Mean	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period Op-1	0.820	0.0438	18.73	.0000	0.8926	0.7473
Period Op-2	0.205	0.0985	2.08	.0400	0.3683	0.0414
Op-1 0611	0.896	0.0979	9.15	.0000	1.0584	0.7333
Op-2 0611	0.250	0.2458	1.02	.3115	0.6580	-0.1580
Op-1 0910	0.946	0.1046	9.05	.0000	1.1200	0.7729
Op-2 0910	0.208	0.2318	0.90	.3708	0.5930	-0.1764
Op-1 0915	0.784	0.1172	6.69	.0000	0.9786	0.5896
Op-2 0915	0.187	0.2458	0.76	.4474	0.5955	-0.2205
Op-1 1015	0.557	0.1172	4.75	.0000	0.7513	0.3623
Op-2 1015	0.125	0.2458	0.51	.6122	0.5330	-0.2830
Op-1 1210	0.810	0.0979	8.27	.0000	0.9721	0.6470
Op-2 1210	0.208	0.2318	0.90	.3708	0.5930	-0.1764
Op-1 2210	0.927	0.1068	8.68	.0000	1.1044	0.7497
Op-2 2210	0.250	0.2458	1.02	.3115	0.6580	-0.1580

Paired comparisons of least square means between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period	0.6151	0.1078	5.708	.0000	0.7940	0.4362

Paired comparisons of least square means for stations between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Station 0611	0.6458	0.2646	2.44	.0164	1.0851	0.2066
Station 0910	0.7381	0.2543	2.90	.0045	1.1601	0.3161
Station 0915	0.5966	0.2723	2.19	.0307	1.0486	0.1446
Station 1015	0.4318	0.2723	1.59	.1159	0.8838	-0.0202
Station 1210	0.6012	0.2516	2.39	.0187	1.0188	0.1836
Station 2210	0.6771	0.2680	2.53	.0131	1.1220	0.2322

Station-period means and deltas from original data where control n=1

Station-Period	N	Station Mean	Range	Standard Error	Upper 95% c.i.	Lower 95% c.i.	Mean Delta	Delta Range	Upper 95% CIi.	Lower 95% C.I.
0611 Op-1	20	0.03	0.25	0.017	0.06	-0.01	0.79	1.25	1.00	0.58
0611 Op-2	3	0.00	0.00	0.000	.	.	0.33	0.50	1.05	-0.38
0910 Op-1	19	0.00	0.00	0.000	.	.	0.80	1.25	1.02	0.58
0910 Op-2	4	0.00	0.00	0.000	.	.	0.31	0.50	0.69	-0.07
0915 Op-1	15	0.20	1.25	0.104	0.42	-0.02	0.57	2.25	0.92	0.22
0915 Op-2	3	0.08	0.25	0.083	0.44	-0.28	0.25	0.50	0.87	-0.37
1015 Op-1	15	0.42	1.00	0.093	0.62	0.22	0.35	2.00	0.71	-0.01
1015 Op-2	3	0.17	0.50	0.167	0.88	-0.55	0.17	0.50	0.88	-0.55
1210 Op-1	20	0.11	0.75	0.046	0.21	0.02	0.70	1.50	0.92	0.48
1210 Op-2	4	0.00	0.00	0.000	.	.	0.31	0.50	0.69	-0.07
2210 Op-1	17	0.06	0.25	0.027	0.12	0.00	0.79	1.50	1.03	0.56
2210 Op-2	3	0.00	0.00	0.000	.	.	0.33	0.50	1.05	-0.38

Period means and deltas from original control data where n=1

Period	N	Station Mean	Range	Standard Error	Upper 95% C.I.	Lower 95% C.I.
Op-1	20	0.81	1.25	0.099	1.02	0.61
Op-2	4	0.31	0.50	0.120	0.69	-0.07

Analysis of Variance for SPQ for 0612 - Pugettia spp.

Stations = 2210, 0611, 0910, 0915, 1015, 1210

Data transformed using square root(x + .1)

Results for Analysis of Variance

Source	Source df	Error df	F-value	Prob.
PERIOD	1	102.000	3.75	0.0555
SEASON	1	102.000	5.76	0.0182
STATION	5	102.000	0.66	0.6550
PERIOD*SEASON	1	102.000	0.87	0.3532
STATION*PERIOD	5	102.000	2.40	0.0425
STATION*SEASON	5	102.000	0.82	0.5401
PERIOD*STATION*SEASON	5	102.000	0.09	0.9943

Results for Power Analysis
Power at alpha = .1

Source	Non-Centrality Parameter	Adjusted non-Centrality Parameter	Power	Adjusted Power	Power to Detect 50% Change
PERIOD	3.75	2.68	0.6101	0.4928	0.8969
STATION*PERIOD	11.98	6.74	0.8360	0.5916	0.1889

Estimates for contrasts on combinations of interaction terms

Source	Difference	Std. Err.	T-value	Prob.
Period in DC	1.3784	0.6285	2.193	.0306
Period in FC	-0.0408	0.2863	-0.142	.8870
Period in FC-S	0.2183	0.3275	0.667	.5065
Period in FC-W	-0.2999	0.4697	-0.639	.5246
Period in DC-S	1.7635	0.6864	2.569	.0116
Period in DC-W	0.9934	1.0532	0.943	.3478

Least square means & confidence intervals from analysis of variance

Source	LS Mean	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period Op-1	0.153	0.0468	3.28	.0014	0.2309	0.0757
Period Op-2	-0.070	0.1052	-0.66	.5094	0.1050	-0.2443
Op-1 0611	0.361	0.1046	3.45	.0008	0.5342	0.1870
Op-2 0611	0.009	0.2626	0.03	.9730	0.4447	-0.4269
Op-1 0910	0.373	0.1117	3.34	.0012	0.5585	0.1877
Op-2 0910	-0.228	0.2475	-0.92	.3602	0.1834	-0.6384
Op-1 0915	0.144	0.1252	1.15	.2536	0.3515	-0.0641
Op-2 0915	-0.214	0.2626	-0.82	.4161	0.2215	-0.6502
Op-1 1015	0.267	0.1252	2.14	.0350	0.4752	0.0597
Op-2 1015	-0.305	0.2626	-1.16	.2474	0.1304	-0.7413
Op-1 1210	-0.098	0.1046	-0.94	.3498	0.0754	-0.2719
Op-2 1210	0.407	0.2475	1.64	.1036	0.8174	-0.0044
Op-1 2210	-0.127	0.1141	-1.11	.2689	0.0626	-0.3163
Op-2 2210	-0.086	0.2626	-0.33	.7438	0.3498	-0.5219

Paired comparisons of least square means between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period	0.2229	0.1151	1.937	.0555	0.4140	0.0319

Paired comparisons of least square means for stations between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Station 0611	0.3517	0.2826	1.24	.2162	0.8208	-0.1175
Station 0910	0.6006	0.2716	2.21	.0292	1.0514	0.1498
Station 0915	0.3581	0.2909	1.23	.2211	0.8409	-0.1247
Station 1015	0.5729	0.2909	1.97	.0516	1.0557	0.0900
Station 1210	-0.5048	0.2687	-1.88	.0632	-0.0587	-0.9509
Station 2210	-0.0408	0.2863	-0.14	.8870	0.4344	-0.5160

Station-period means and deltas from original data where control n=1

Station-Period	N	Station Mean	Range	Standard Error	Upper 95% c.i.	Lower 95% c.i.	Mean Delta	Delta Range	Upper 95% CII.	Lower 95% C.I.
0611 Op-1	20	0.54	2.50	0.142	0.83	0.24	0.49	2.50	0.83	0.15
0611 Op-2	3	0.58	0.50	0.167	1.30	-0.13	-0.08	0.75	0.87	-1.03
0910 Op-1	19	0.62	3.00	0.183	1.00	0.23	0.42	3.50	0.85	-0.01
0910 Op-2	4	1.31	2.25	0.553	3.07	-0.45	-0.81	2.00	0.76	-2.38
0915 Op-1	15	1.13	3.25	0.269	1.71	0.56	-0.13	3.50	0.51	-0.77
0915 Op-2	3	1.33	2.50	0.741	4.52	-1.85	-0.83	2.25	1.97	-3.63
1015 Op-1	15	0.58	2.00	0.165	0.94	0.23	0.42	2.50	0.80	0.03
1015 Op-2	3	1.08	0.75	0.220	2.03	0.13	-0.58	0.25	-0.22	-0.94
1210 Op-1	20	1.28	3.75	0.226	1.75	0.80	-0.25	4.75	0.32	-0.82
1210 Op-2	4	0.06	0.25	0.063	0.26	-0.14	0.44	0.75	0.94	-0.06
2210 Op-1	17	1.29	2.50	0.166	1.65	0.94	-0.28	2.25	0.02	-0.58
2210 Op-2	3	0.92	1.75	0.546	3.27	-1.43	-0.42	1.50	1.48	-2.31

Period means and deltas from original control data where n=1

Period	N	Station Mean	Range	Standard Error	Upper 95% C.I.	Lower 95% C.I.
Op-1	20	1.03	1.75	0.126	1.29	0.76
Op-2	4	0.50	0.50	0.102	0.82	0.18

Analysis of Variance for SAQ for 0426 - Pycnopodia helianthoides

Stations = 2210, 0611, 0910, 0915, 1015, 1210

Data transformed using square root(x + .5)

Results for Analysis of Variance

Source	Source df	Error df	F-value	Prob.
PERIOD	1	96.000	0.39	0.5362
SEASON	1	96.000	4.00	0.0483
STATION	5	96.000	0.14	0.9821
PERIOD*SEASON	1	96.000	4.72	0.0322
STATION*PERIOD	5	96.000	0.11	0.9895
STATION*SEASON	5	96.000	0.05	0.9982
PERIOD*STATION*SEASON	5	96.000	0.11	0.9896

Results for Power Analysis
Power at alpha = .1

Source	Non-Centrality Parameter	Adjusted non-Centrality Parameter	Power	Adjusted Power	Power to Detect 50% Change
PERIOD	0.39	0.00	0.1637	.	0.5096
STATION*PERIOD	0.56	0.00	0.1377	.	0.1102

Estimates for contrasts on combinations of interaction terms

Source	Difference	Std. Err.	T-value	Prob.
Period in DC	0.1573	0.3600	0.437	.6631
Period in FC	0.0883	0.1640	0.538	.5917
Period in FC-S	0.0030	0.1884	0.016	.9874
Period in FC-W	0.1736	0.2685	0.646	.5195
Period in DC-S	-0.6172	0.3950	-1.563	.1215
Period in DC-W	0.9318	0.6020	1.548	.1249

Least square means & confidence intervals from analysis of variance

Source	LS Mean	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period Op-1	0.179	0.0271	6.60	.0000	0.2234	0.1336
Period Op-2	0.138	0.0601	2.29	.0243	0.2374	0.0377
Op-1 0611	0.208	0.0605	3.44	.0009	0.3083	0.1074
Op-2 0611	0.176	0.1501	1.17	.2440	0.4252	-0.0733
Op-1 0910	0.228	0.0645	3.54	.0006	0.3356	0.1213
Op-2 0910	0.117	0.1415	0.83	.4092	0.3523	-0.1177
Op-1 0915	0.136	0.0725	1.88	.0635	0.2565	0.0157
Op-2 0915	0.176	0.1501	1.17	.2440	0.4252	-0.0733
Op-1 1015	0.113	0.0725	1.56	.1218	0.2336	-0.0072
Op-2 1015	0.103	0.1501	0.68	.4953	0.3520	-0.1465
Op-1 1210	0.161	0.0605	2.66	.0091	0.2615	0.0606
Op-2 1210	0.117	0.1415	0.83	.4092	0.3523	-0.1177
Op-1 2210	0.224	0.0661	3.40	.0010	0.3343	0.1147
Op-2 2210	0.136	0.1501	0.91	.3663	0.3855	-0.1131

Paired comparisons of least square means between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period	0.0409	0.0659	0.621	.5362	0.1504	-0.0686

Paired comparisons of least square means for stations between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Station 0611	0.0318	0.1618	0.20	.8444	0.3006	-0.2369
Station 0910	0.1111	0.1555	0.71	.4765	0.3694	-0.1471
Station 0915	-0.0398	0.1667	-0.24	.8116	0.2370	-0.3167
Station 1015	0.0105	0.1667	0.06	.9501	0.2873	-0.2664
Station 1210	0.0437	0.1539	0.28	.7770	0.2993	-0.2119
Station 2210	0.0883	0.1640	0.54	.5917	0.3606	-0.1841

Station-period means and deltas from original data where control n=1

Station-Period	N	Station Mean	Range	Standard Error	Upper 95% c.i.	Lower 95% c.i.	Mean Delta	Delta Range	Upper 95% CIi.	Lower 95% C.I.
0611 Op-1	19	0.28	1.50	0.105	0.50	0.06	0.37	2.25	0.61	0.12
0611 Op-2	3	0.00	0.00	0.000	.	.	0.42	0.75	1.37	-0.53
0910 Op-1	18	0.24	1.50	0.084	0.41	0.06	0.42	2.50	0.70	0.13
0910 Op-2	4	0.06	0.25	0.063	0.26	-0.14	0.31	0.75	0.81	-0.19
0915 Op-1	14	0.34	1.25	0.100	0.56	0.12	0.25	2.25	0.58	-0.08
0915 Op-2	3	0.00	0.00	0.000	.	.	0.42	0.75	1.37	-0.53
1015 Op-1	14	0.36	1.25	0.097	0.57	0.15	0.23	1.50	0.49	-0.03
1015 Op-2	3	0.17	0.50	0.167	0.88	-0.55	0.25	0.75	1.33	-0.83
1210 Op-1	19	0.30	1.00	0.062	0.43	0.17	0.34	1.50	0.54	0.14
1210 Op-2	4	0.06	0.25	0.063	0.26	-0.14	0.31	0.75	0.91	-0.28
2210 Op-1	16	0.16	0.50	0.050	0.26	0.05	0.48	2.00	0.77	0.19
2210 Op-2	3	0.08	0.25	0.083	0.44	-0.28	0.33	0.75	1.28	-0.62

Period means and deltas from original control data where n=1

Period	N	Station Mean	Range	Standard Error	Upper 95% C.I.	Lower 95% C.I.
Op-1	19	0.64	1.75	0.104	0.86	0.43
Op-2	4	0.38	0.75	0.161	0.89	-0.14

Analysis of Variance for SFQ for 0934 - Salmacina tribranchiata

Stations = 2210, 0611, 0910, 0915, 1015, 1210

Data transformed using square root(x + .1)

Results for Analysis of Variance

Source	Source df	Error df	F-value	Prob.
PERIOD	1	102.000	22.61	0.0000
SEASON	1	102.000	1.33	0.2515
STATION	5	102.000	2.07	0.0755
PERIOD*SEASON	1	102.000	0.39	0.5363
STATION*PERIOD	5	102.000	1.32	0.2631
STATION*SEASON	5	102.000	0.35	0.8814
PERIOD*STATION*SEASON	5	102.000	0.58	0.7119

Results for Power Analysis
Power at alpha = .1

Source	Non-Centrality Parameter	Adjusted non-Centrality Parameter	Power	Adjusted Power	Power to Detect 50% Change
PERIOD	22.61	21.16	0.9990	0.9983	0.3505
STATION*PERIOD	6.58	1.45	0.5814	0.2029	0.3415

Estimates for contrasts on combinations of interaction terms

Source	Difference	Std. Err.	T-value	Prob.
Period in DC	2.8114	0.5236	5.370	.0000
Period in FC	-0.0761	0.2385	-0.319	.7502
Period in FC-S	-0.3478	0.2728	-1.275	.2052
Period in FC-W	0.1956	0.3912	0.500	.6182
Period in DC-S	3.4401	0.5717	6.017	.0000
Period in DC-W	2.1827	0.8772	2.488	.0145

Least square means & confidence intervals from analysis of variance

Source	LS Mean	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period Op-1	0.344	0.0389	8.82	.0000	0.4084	0.2791
Period Op-2	-0.112	0.0876	-1.28	.2034	0.0333	-0.2576
Op-1 0611	0.530	0.0871	6.08	.0000	0.6747	0.3855
Op-2 0611	0.000	0.2187	0.00	1.000	0.3630	-0.3630
Op-1 0910	0.388	0.0930	4.17	.0001	0.5422	0.2334
Op-2 0910	-0.153	0.2062	-0.74	.4595	0.1892	-0.4954
Op-1 0915	0.386	0.1043	3.70	.0003	0.5594	0.2132
Op-2 0915	-0.275	0.2187	-1.26	.2108	0.0877	-0.6384
Op-1 1015	0.465	0.1043	4.46	.0000	0.6379	0.2918
Op-2 1015	-0.183	0.2187	-0.84	.4043	0.1799	-0.5462
Op-1 1210	0.507	0.0871	5.82	.0000	0.6518	0.3625
Op-2 1210	0.076	0.2062	0.37	.7118	0.4187	-0.2659
Op-1 2210	-0.214	0.0951	-2.25	.0266	-0.0560	-0.3716
Op-2 2210	-0.138	0.2187	-0.63	.5304	0.2253	-0.5007

Paired comparisons of least square means between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period	0.4559	0.0959	4.755	.0000	0.6150	0.2967

Paired comparisons of least square means for stations between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Station 0611	0.5301	0.2354	2.25	.0265	0.9209	0.1393
Station 0910	0.5409	0.2262	2.39	.0186	0.9164	0.1654
Station 0915	0.6617	0.2423	2.73	.0074	1.0638	0.2595
Station 1015	0.6480	0.2423	2.67	.0087	1.0502	0.2458
Station 1210	0.4308	0.2238	1.92	.0571	0.8023	0.0592
Station 2210	-0.0761	0.2385	-0.32	.7502	0.3197	-0.4720

Station-period means and deltas from original data where control n=1

Station-Period	N	Station Mean	Range	Standard Error	Upper 95% c.i.	Lower 95% c.i.	Mean Delta	Delta Range	Upper 95% CIi.	Lower 95% C.I.
0611 Op-1	20	0.00	0.00	0.000	.	.	0.81	2.00	1.09	0.54
0611 Op-2	3	0.00	0.00	0.000	.	.	0.00	0.00	.	.
0910 Op-1	19	0.16	1.00	0.064	0.29	0.02	0.68	2.00	0.96	0.41
0910 Op-2	4	0.19	0.25	0.063	0.39	-0.01	-0.06	0.50	0.32	-0.44
0915 Op-1	15	0.15	0.75	0.064	0.29	0.01	0.63	2.50	1.01	0.26
0915 Op-2	3	0.25	0.00	0.000	.	.	-0.25	0.00	.	.
1015 Op-1	15	0.05	0.25	0.027	0.11	-0.01	0.73	1.75	1.05	0.42
1015 Op-2	3	0.33	1.00	0.333	1.77	-1.10	-0.33	1.00	1.10	-1.77
1210 Op-1	20	0.01	0.25	0.013	0.04	-0.01	0.80	2.00	1.08	0.52
1210 Op-2	4	0.00	0.00	0.000	.	.	0.13	0.50	0.52	-0.27
2210 Op-1	17	1.73	7.25	0.441	2.67	0.80	-0.83	7.00	0.01	-1.68
2210 Op-2	3	0.08	0.25	0.083	0.44	-0.28	-0.08	0.25	0.28	-0.44

Period means and deltas from original control data where n=1

Period	N	Station Mean	Range	Standard Error	Upper 95% C.I.	Lower 95% C.I.
Op-1	20	0.81	2.00	0.132	1.09	0.54
Op-2	4	0.13	0.50	0.125	0.52	-0.27

Analysis of Variance for SAQ for 0615 - Serpulidae unid.

Stations = 2210, 0611, 0910, 0915, 1015, 1210

Data transformed using log base10(x + .1)

Results for Analysis of Variance

Source	Source df	Error df	F-value	Prob.
PERIOD	1	96.000	6.93	0.0099
SEASON	1	96.000	0.86	0.3572
STATION	5	96.000	1.03	0.4022
PERIOD*SEASON	1	96.000	0.83	0.3653
STATION*PERIOD	5	96.000	1.39	0.2363
STATION*SEASON	5	96.000	0.36	0.8753
PERIOD*STATION*SEASON	5	96.000	1.63	0.1589

Results for Power Analysis
Power at alpha = .1

Source	Non-Centrality Parameter	Adjusted non-Centrality Parameter	Power	Adjusted Power	Power to Detect 50% Change
PERIOD	6.93	5.78	0.8336	0.7713	0.3944
STATION*PERIOD	6.93	1.79	0.6022	0.2279	0.1110

Estimates for contrasts on combinations of interaction terms

Source	Difference	Std. Err.	T-value	Prob.
Period in DC	2.3837	0.9956	2.394	.0186
Period in FC	0.4958	0.4535	1.093	.2770
Period in FC-S	0.9134	0.5210	1.753	.0828
Period in FC-W	0.0782	0.7424	0.105	.9164
Period in DC-S	2.9612	1.0923	2.711	.0079
Period in DC-W	1.8062	1.6648	1.085	.2807

Least square means & confidence intervals from analysis of variance

Source	LS Mean	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period Op-1	-0.507	0.0748	-6.77	.0000	-0.3824	-0.6309
Period Op-2	-0.987	0.1663	-5.93	.0000	-0.7104	-1.2627
Op-1 0611	-0.482	0.1673	-2.88	.0049	-0.2041	-0.7597
Op-2 0611	-1.478	0.4150	-3.56	.0006	-0.7885	-2.1672
Op-1 0910	-0.363	0.1783	-2.04	.0445	-0.0669	-0.6593
Op-2 0910	-1.305	0.3913	-3.34	.0012	-0.6553	-1.9551
Op-1 0915	-0.985	0.2005	-4.91	.0000	-0.6523	-1.3182
Op-2 0915	-0.496	0.4150	-1.19	.2354	0.1938	-1.1849
Op-1 1015	-0.220	0.2005	-1.10	.2748	0.1128	-0.5532
Op-2 1015	-0.636	0.4150	-1.53	.1289	0.0536	-1.3251
Op-1 1210	-0.269	0.1673	-1.61	.1112	0.0089	-0.5467
Op-2 1210	-0.789	0.3913	-2.02	.0467	-0.1387	-1.4386
Op-1 2210	-0.721	0.1828	-3.94	.0002	-0.4170	-1.0241
Op-2 2210	-1.216	0.4150	-2.93	.0042	-0.5270	-1.9056

Paired comparisons of least square means between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period	0.4799	0.1823	2.632	.0099	0.7827	0.1771

Paired comparisons of least square means for stations between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Station 0611	0.9959	0.4475	2.23	.0284	1.7391	0.2527
Station 0910	0.9421	0.4300	2.19	.0309	1.6564	0.2279
Station 0915	-0.4897	0.4609	-1.06	.2907	0.2759	-1.2552
Station 1015	0.4155	0.4609	0.90	.3696	1.1811	-0.3500
Station 1210	0.5198	0.4256	1.22	.2249	1.2266	-0.1870
Station 2210	0.4958	0.4535	1.09	.2770	1.2490	-0.2574

Station-period means and deltas from original data where control n=1

Station-Period	N	Station Mean	Range	Standard Error	Upper 95% c.i.	Lower 95% c.i.	Mean Delta	Delta Range	Upper 95% CIi.	Lower 95% C.I.
0611 Op-1	19	1.66	9.00	0.552	2.82	0.50	-1.34	7.75	-0.32	-2.36
0611 Op-2	3	6.25	15.50	4.719	26.56	-14.06	-6.25	15.50	14.06	-26.56
0910 Op-1	18	0.69	2.50	0.207	1.13	0.26	-0.36	4.25	0.10	-0.82
0910 Op-2	4	6.19	20.00	4.638	20.95	-8.57	-6.19	20.00	8.57	-20.95
0915 Op-1	14	2.20	9.50	0.756	3.83	0.56	-1.93	10.00	-0.32	-3.54
0915 Op-2	3	0.67	1.50	0.441	2.56	-1.23	-0.67	1.50	1.23	-2.56
1015 Op-1	14	0.52	2.00	0.204	0.96	0.08	-0.25	2.25	0.06	-0.56
1015 Op-2	3	1.00	2.75	0.878	4.78	-2.78	-1.00	2.75	2.78	-4.78
1210 Op-1	19	0.57	3.75	0.222	1.03	0.10	-0.25	6.00	0.31	-0.81
1210 Op-2	4	0.88	1.75	0.389	2.11	-0.36	-0.88	1.75	0.36	-2.11
2210 Op-1	16	1.94	8.50	0.635	3.29	0.58	-1.67	8.50	-0.40	-2.94
2210 Op-2	3	3.83	9.50	3.087	17.11	-9.45	-3.83	9.50	9.45	-17.11

Period means and deltas from original control data where n=1

Period	N	Station Mean	Range	Standard Error	Upper 95% C.I.	Lower 95% C.I.
Op-1	19	0.32	2.25	0.160	0.65	-0.02
Op-2	4	0.00	0.00	0.000	.	.

Analysis of Variance for SAQ for 0318 - Serpulorbis squamigerus

Stations = 2210, 0611, 0910, 0915, 1015, 1210

Data transformed using log base10(x + .1)

Results for Analysis of Variance

Source	Source df	Error df	F-value	Prob.
PERIOD	1	96.000	13.67	0.0004
SEASON	1	96.000	0.04	0.8382
STATION	5	96.000	1.56	0.1802
PERIOD*SEASON	1	96.000	2.53	0.1148
STATION*PERIOD	5	96.000	0.67	0.6494
STATION*SEASON	5	96.000	0.68	0.6429
PERIOD*STATION*SEASON	5	96.000	0.95	0.4535

Results for Power Analysis
Power at alpha = .1

Source	Non-Centrality Parameter	Adjusted non-Centrality Parameter	Power	Adjusted Power	Power to Detect 50% Change
PERIOD	13.67	12.38	0.9786	0.9678	0.7645
STATION*PERIOD	3.34	0.00	0.3476	.	0.1056

Estimates for contrasts on combinations of interaction terms

Source	Difference	Std. Err.	T-value	Prob.
Period in DC	2.8679	0.9650	2.972	.0037
Period in FC	1.0527	0.4396	2.395	.0186
Period in FC-S	1.4694	0.5050	2.910	.0045
Period in FC-W	0.6361	0.7197	0.884	.3790
Period in DC-S	4.1388	1.0588	3.909	.0002
Period in DC-W	1.5969	1.6137	0.990	.3249

Least square means & confidence intervals from analysis of variance

Source	LS Mean	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period Op-1	0.166	0.0725	2.29	.0241	0.2867	0.0458
Period Op-2	-0.487	0.1612	-3.02	.0032	-0.2195	-0.7549
Op-1 0611	0.280	0.1621	1.73	.0872	0.5494	0.0109
Op-2 0611	-0.136	0.4023	-0.34	.7360	0.5322	-0.8042
Op-1 0910	0.530	0.1729	3.06	.0028	0.8166	0.2424
Op-2 0910	-0.538	0.3793	-1.42	.1590	0.0915	-1.1684
Op-1 0915	-0.030	0.1943	-0.16	.8766	0.2925	-0.3530
Op-2 0915	-0.195	0.4023	-0.48	.6298	0.4736	-0.8627
Op-1 1015	0.296	0.1943	1.52	.1313	0.6186	-0.0270
Op-2 1015	-0.331	0.4023	-0.82	.4133	0.3376	-0.9987
Op-1 1210	0.072	0.1621	0.45	.6562	0.3417	-0.1969
Op-2 1210	-0.521	0.3793	-1.37	.1730	0.1093	-1.1507
Op-1 2210	-0.150	0.1772	-0.85	.3987	0.1441	-0.4445
Op-2 2210	-1.203	0.4023	-2.99	.0035	-0.5348	-1.8711

Paired comparisons of least square means between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period	0.6534	0.1767	3.697	.0004	0.9470	0.3599

Paired comparisons of least square means for stations between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Station 0611	0.4162	0.4337	0.96	.3397	1.1366	-0.3042
Station 0910	1.0680	0.4168	2.56	.0120	1.7603	0.3757
Station 0915	0.1643	0.4468	0.37	.7139	0.9063	-0.5778
Station 1015	0.6263	0.4468	1.40	.1642	1.3684	-0.1157
Station 1210	0.5931	0.4125	1.44	.1537	1.2782	-0.0920
Station 2210	1.0527	0.4396	2.39	.0186	1.7828	0.3226

Station-period means and deltas from original data where control n=1

Station-Period	N	Station Mean	Range	Standard Error	Upper 95% c.i.	Lower 95% c.i.	Mean Delta	Delta Range	Upper 95% CIi.	Lower 95% C.I.
0611 Op-1	19	2.87	19.75	1.099	5.18	0.56	2.89	30.25	5.82	-0.03
0611 Op-2	3	0.08	0.25	0.083	0.44	-0.28	-0.08	0.25	0.28	-0.44
0910 Op-1	18	1.54	6.50	0.435	2.46	0.62	3.57	26.50	6.55	0.59
0910 Op-2	4	1.25	3.50	0.797	3.79	-1.29	-1.25	3.50	1.29	-3.79
0915 Op-1	14	2.82	10.25	0.709	4.35	1.29	-0.02	7.50	1.29	-1.32
0915 Op-2	3	0.17	0.50	0.167	0.88	-0.55	-0.17	0.50	0.55	-0.88
1015 Op-1	14	2.50	14.75	1.031	4.73	0.27	0.30	15.75	2.49	-1.88
1015 Op-2	3	0.25	0.50	0.144	0.87	-0.37	-0.25	0.50	0.37	-0.87
1210 Op-1	19	6.42	27.50	1.799	10.20	2.64	-0.66	33.50	2.66	-3.98
1210 Op-2	4	0.25	1.00	0.250	1.05	-0.55	-0.25	1.00	0.55	-1.05
2210 Op-1	16	4.42	9.50	0.729	5.98	2.87	0.77	25.75	4.04	-2.51
2210 Op-2	3	2.42	4.00	1.202	7.59	-2.75	-2.42	4.00	2.75	-7.59

Period means and deltas from original control data where n=1

Period	N	Station Mean	Range	Standard Error	Upper 95% C.I.	Lower 95% C.I.
Op-1	19	5.76	28.00	1.567	9.06	2.47
Op-2	4	0.00	0.00	0.000	.	.

Analysis of Variance for SFQ for 0667 - Sipuncula unid.

Stations = 2210, 0611, 0910, 0915, 1015, 1210

Data transformed using log base10(x + .1)

Results for Analysis of Variance

Source	Source df	Error df	F-value	Prob.
PERIOD	1	102.000	4.82	0.0305
SEASON	1	102.000	12.21	0.0007
STATION	5	102.000	8.18	0.0000
PERIOD*SEASON	1	102.000	0.09	0.7681
STATION*PERIOD	5	102.000	0.63	0.6774
STATION*SEASON	5	102.000	0.29	0.9178
PERIOD*STATION*SEASON	5	102.000	0.29	0.9184

Results for Power Analysis
Power at alpha = .1

Source	Non-Centrality Parameter	Adjusted non-Centrality Parameter	Power	Adjusted Power	Power to Detect 50% Change
PERIOD	4.82	3.72	0.7038	0.6072	0.7300
STATION*PERIOD	3.15	0.00	0.3339	.	0.1986

Estimates for contrasts on combinations of interaction terms

Source	Difference	Std. Err.	T-value	Prob.
Period in DC	-1.2994	0.6848	-1.897	.0606
Period in FC	-0.3521	0.3119	-1.129	.2616
Period in FC-S	-0.6225	0.3568	-1.745	.0841
Period in FC-W	-0.0818	0.5118	-0.160	.8734
Period in DC-S	-0.8066	0.7479	-1.078	.2834
Period in DC-W	-1.7923	1.1475	-1.562	.1214

Least square means & confidence intervals from analysis of variance

Source	LS Mean	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period Op-1	-0.280	0.0509	-5.49	.0000	-0.1953	-0.3645
Period Op-2	-0.005	0.1146	-0.04	.9678	0.1856	-0.1949
Op-1 0611	0.283	0.1140	2.48	.0146	0.4722	0.0939
Op-2 0611	0.272	0.2861	0.95	.3439	0.7469	-0.2028
Op-1 0910	-0.066	0.1217	-0.54	.5894	0.1361	-0.2679
Op-2 0910	0.272	0.2697	1.01	.3156	0.7197	-0.1757
Op-1 0915	0.059	0.1364	0.44	.6643	0.2857	-0.1670
Op-2 0915	0.077	0.2861	0.27	.7870	0.5524	-0.3974
Op-1 1015	-0.456	0.1364	-3.34	.0012	-0.2294	-0.6821
Op-2 1015	-0.136	0.2861	-0.48	.6355	0.3389	-0.6109
Op-1 1210	-0.363	0.1140	-3.18	.0019	-0.1734	-0.5518
Op-2 1210	0.272	0.2697	1.01	.3156	0.7197	-0.1757
Op-1 2210	-1.138	0.1243	-9.15	.0000	-0.9312	-1.3439
Op-2 2210	-0.785	0.2861	-2.75	.0071	-0.3106	-1.2603

Paired comparisons of least square means between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period	-0.2753	0.1254	-2.195	.0305	-0.0671	-0.4834

Paired comparisons of least square means for stations between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Station 0611	0.0110	0.3079	0.04	.9715	0.5222	-0.5002
Station 0910	-0.3379	0.2959	-1.14	.2561	0.1532	-0.8291
Station 0915	-0.0181	0.3169	-0.06	.9545	0.5079	-0.5442
Station 1015	-0.3197	0.3169	-1.01	.3154	0.2064	-0.8458
Station 1210	-0.6347	0.2928	-2.17	.0325	-0.1486	-1.1207
Station 2210	-0.3521	0.3119	-1.13	.2616	0.1657	-0.8699

Station-period means and deltas from original data where control n=1

Station-Period	N	Station Mean	Range	Standard Error	Upper 95% c.i.	Lower 95% c.i.	Mean Delta	Delta Range	Upper 95% CIi.	Lower 95% C.I.
0611 Op-1	20	0.04	0.25	0.020	0.08	-0.01	0.15	0.75	0.25	0.05
0611 Op-2	3	0.00	0.00	0.000	.	.	0.08	0.25	0.44	-0.28
0910 Op-1	19	0.38	2.00	0.121	0.64	0.13	-0.21	2.50	0.07	-0.50
0910 Op-2	4	0.00	0.00	0.000	.	.	0.06	0.25	0.26	-0.14
0915 Op-1	15	0.20	0.50	0.050	0.31	0.09	-0.02	1.50	0.20	-0.23
0915 Op-2	3	0.17	0.50	0.167	0.88	-0.55	-0.08	0.75	0.87	-1.03
1015 Op-1	15	0.85	2.50	0.176	1.23	0.47	-0.67	2.75	-0.30	-1.04
1015 Op-2	3	0.17	0.25	0.083	0.53	-0.19	-0.08	0.25	0.28	-0.44
1210 Op-1	20	0.66	2.00	0.122	0.92	0.41	-0.48	2.50	-0.19	-0.76
1210 Op-2	4	0.00	0.00	0.000	.	.	0.06	0.25	0.26	-0.14
2210 Op-1	17	3.88	7.00	0.469	4.88	2.89	-3.71	7.25	-2.64	-4.77
2210 Op-2	3	1.92	3.75	1.083	6.58	-2.74	-1.83	3.75	2.83	-6.49

Period means and deltas from original control data where n=1

Period	N	Station Mean	Range	Standard Error	Upper 95% C.I.	Lower 95% C.I.
Op-1	20	0.19	1.00	0.057	0.31	0.07
Op-2	4	0.06	0.25	0.063	0.26	-0.14

Analysis of Variance for SFQ for 1120 - Spirorbidae

Stations = 2210, 0611, 0910, 0915, 1015, 1210

Data transformed using log base10(x + .1)

Results for Analysis of Variance

Source	Source df	Error df	F-value	Prob.
PERIOD	1	102.000	7.71	0.0065
SEASON	1	102.000	9.69	0.0024
STATION	5	102.000	2.19	0.0614
PERIOD*SEASON	1	102.000	12.64	0.0006
STATION*PERIOD	5	102.000	0.65	0.6652
STATION*SEASON	5	102.000	0.35	0.8801
PERIOD*STATION*SEASON	5	102.000	0.26	0.9323

Results for Power Analysis
Power at alpha = .1

Source	Non-Centrality Parameter	Adjusted non-Centrality Parameter	Power	Adjusted Power	Power to Detect 50% Change
PERIOD	7.71	6.56	0.8672	0.8157	0.6063
STATION*PERIOD	3.23	0.00	0.3402	.	0.1678

Estimates for contrasts on combinations of interaction terms

Source	Difference	Std. Err.	T-value	Prob.
Period in DC	-1.4261	0.5672	-2.514	.0135
Period in FC	-0.3045	0.2584	-1.179	.2412
Period in FC-S	0.1994	0.2955	0.675	.5013
Period in FC-W	-0.8085	0.4239	-1.907	.0593
Period in DC-S	0.2859	0.6194	0.461	.6454
Period in DC-W	-3.1381	0.9504	-3.302	.0013

Least square means & confidence intervals from analysis of variance

Source	LS Mean	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period Op-1	-0.181	0.0422	-4.30	.0000	-0.1114	-0.2515
Period Op-2	0.107	0.0949	1.13	.2623	0.2646	-0.0506
Op-1 0611	0.231	0.0944	2.45	.0160	0.3880	0.0746
Op-2 0611	0.272	0.2370	1.15	.2536	0.6654	-0.1213
Op-1 0910	-0.236	0.1008	-2.34	.0213	-0.0683	-0.4030
Op-2 0910	0.008	0.2234	0.03	.9722	0.3786	-0.3630
Op-1 0915	-0.296	0.1130	-2.62	.0102	-0.1081	-0.4831
Op-2 0915	0.272	0.2370	1.15	.2536	0.6654	-0.1213
Op-1 1015	-0.204	0.1130	-1.81	.0740	-0.0164	-0.3914
Op-2 1015	0.272	0.2370	1.15	.2536	0.6654	-0.1213
Op-1 1210	-0.358	0.0944	-3.79	.0003	-0.2010	-0.5145
Op-2 1210	-0.259	0.2234	-1.16	.2483	0.1114	-0.6302
Op-1 2210	-0.227	0.1030	-2.20	.0297	-0.0561	-0.3980
Op-2 2210	0.077	0.2370	0.33	.7443	0.4708	-0.3158

Paired comparisons of least square means between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period	-0.2884	0.1039	-2.777	.0065	-0.1160	-0.4609

Paired comparisons of least square means for stations between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Station 0611	-0.0408	0.2551	-0.16	.8733	0.3826	-0.4642
Station 0910	-0.2434	0.2451	-0.99	.3229	0.1634	-0.6503
Station 0915	-0.5676	0.2625	-2.16	.0329	-0.1319	-1.0034
Station 1015	-0.4759	0.2625	-1.81	.0728	-0.0402	-0.9117
Station 1210	-0.0984	0.2425	-0.41	.6859	0.3042	-0.5009
Station 2210	-0.3045	0.2584	-1.18	.2412	0.1243	-0.7334

Station-period means and deltas from original data where control n=1

Station-Period	N	Station Mean	Range	Standard Error	Upper 95% c.i.	Lower 95% c.i.	Mean Delta	Delta Range	Upper 95% CIi.	Lower 95% C.I.
0611 Op-1	20	0.00	0.00	0.000	.	.	0.16	0.75	0.26	0.06
0611 Op-2	3	0.00	0.00	0.000	.	.	-0.08	0.25	0.44	-0.28
0910 Op-1	19	0.46	3.00	0.159	0.79	0.13	-0.29	3.25	0.05	-0.63
0910 Op-2	4	0.31	1.00	0.237	1.07	-0.44	-0.25	1.25	0.61	-1.11
0915 Op-1	15	0.35	1.25	0.100	0.56	0.14	-0.23	0.75	-0.08	-0.39
0915 Op-2	3	0.00	0.00	0.000	.	.	0.08	0.25	0.44	-0.28
1015 Op-1	15	0.32	1.00	0.102	0.54	0.10	-0.20	1.00	-0.02	-0.38
1015 Op-2	3	0.00	0.00	0.000	.	.	0.08	0.25	0.44	-0.28
1210 Op-1	20	0.66	4.50	0.216	1.12	0.21	-0.50	4.50	-0.06	-0.94
1210 Op-2	4	0.31	0.50	0.120	0.69	-0.07	-0.25	0.50	0.21	-0.71
2210 Op-1	17	0.36	1.50	0.103	0.58	0.14	-0.20	1.75	0.01	-0.41
2210 Op-2	3	0.17	0.50	0.167	0.88	-0.55	-0.08	0.75	0.87	-1.03

Period means and deltas from original control data where n=1

Period	N	Station Mean	Range	Standard Error	Upper 95% C.I.	Lower 95% C.I.
Op-1	20	0.16	0.75	0.049	0.26	0.06
Op-2	4	0.06	0.25	0.063	0.26	-0.14

Analysis of Variance for SFQ for 0427 - Strongylocentrotus purpuratus

Stations = 2210, 0611, 0910, 0915, 1015, 1210

Data transformed using log base10(x + .5)

Results for Analysis of Variance

Source	Source df	Error df	F-value	Prob.
PERIOD	1	102.000	0.95	0.3328
SEASON	1	102.000	1.30	0.2572
STATION	5	102.000	5.93	0.0001
PERIOD*SEASON	1	102.000	2.51	0.1160
STATION*PERIOD	5	102.000	1.19	0.3187
STATION*SEASON	5	102.000	0.83	0.5290
PERIOD*STATION*SEASON	5	102.000	0.96	0.4444

Results for Power Analysis
Power at alpha = .1

Source	Non-Centrality Parameter	Adjusted non-Centrality Parameter	Power	Adjusted Power	Power to Detect 50% Change
PERIOD	0.95	0.00	0.2533	.	0.9797
STATION*PERIOD	5.96	0.84	0.5405	0.1578	0.2748

Estimates for contrasts on combinations of interaction terms

Source	Difference	Std. Err.	T-value	Prob.
Period in DC	0.0409	0.3309	0.124	.9018
Period in FC	0.3129	0.1507	2.076	.0404
Period in FC-S	0.4030	0.1724	2.337	.0214
Period in FC-W	0.2229	0.2473	0.901	.3695
Period in DC-S	-0.6256	0.3614	-1.731	.0865
Period in DC-W	0.7075	0.5545	1.276	.2049

Least square means & confidence intervals from analysis of variance

Source	LS Mean	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period Op-1	-0.353	0.0246	-14.34	.0000	-0.3122	-0.3939
Period Op-2	-0.412	0.0554	-7.44	.0000	-0.3201	-0.5040
Op-1 0611	-0.143	0.0551	-2.60	.0106	-0.0520	-0.2349
Op-2 0611	-0.151	0.1382	-1.09	.2788	0.0790	-0.3800
Op-1 0910	-0.435	0.0588	-7.40	.0000	-0.3378	-0.5330
Op-2 0910	-0.453	0.1303	-3.47	.0008	-0.2363	-0.6690
Op-1 0915	-0.758	0.0659	-11.50	.0000	-0.6483	-0.8671
Op-2 0915	-0.576	0.1382	-4.17	.0001	-0.3467	-0.8056
Op-1 1015	-0.374	0.0659	-5.67	.0000	-0.2643	-0.4831
Op-2 1015	-0.533	0.1382	-3.85	.0002	-0.3031	-0.7621
Op-1 1210	-0.221	0.0551	-4.01	.0001	-0.1296	-0.3124
Op-2 1210	-0.260	0.1303	-2.00	.0485	-0.0439	-0.4767
Op-1 2210	-0.187	0.0601	-3.11	.0024	-0.0873	-0.2868
Op-2 2210	-0.500	0.1382	-3.62	.0005	-0.2705	-0.7295

Paired comparisons of least square means between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period	0.0590	0.0606	0.973	.3328	0.1596	-0.0416

Paired comparisons of least square means for stations between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Station 0611	0.0070	0.1488	0.05	.9623	0.2541	-0.2400
Station 0910	0.0172	0.1430	0.12	.9044	0.2546	-0.2201
Station 0915	-0.1815	0.1532	-1.19	.2386	0.0727	-0.4358
Station 1015	0.1589	0.1532	1.04	.3019	0.4131	-0.0953
Station 1210	0.0393	0.1415	0.28	.7817	0.2742	-0.1956
Station 2210	0.3129	0.1507	2.08	.0404	0.5632	0.0627

Station-period means and deltas from original data where control n=1

Station-Period	N	Station Mean	Range	Standard Error	Upper 95% c.i.	Lower 95% c.i.	Mean Delta	Delta Range	Upper 95% CIi.	Lower 95% C.I.
0611 Op-1	20	0.31	1.50	0.096	0.51	0.11	-0.25	1.75	-0.03	-0.47
0611 Op-2	3	0.25	0.50	0.144	0.87	-0.37	-0.17	0.50	0.55	-0.88
0910 Op-1	19	1.28	4.50	0.263	1.83	0.72	-1.21	4.50	-0.65	-1.77
0910 Op-2	4	1.19	2.00	0.413	2.50	-0.13	-1.13	2.00	0.19	-2.44
0915 Op-1	15	3.00	4.50	0.393	3.84	2.16	-2.93	4.25	-2.11	-3.76
0915 Op-2	3	1.58	1.75	0.546	3.93	-0.77	-1.50	1.75	0.74	-3.74
1015 Op-1	15	0.83	2.00	0.168	1.19	0.47	-0.77	2.50	-0.37	-1.16
1015 Op-2	3	1.42	1.50	0.464	3.41	-0.58	-1.33	1.25	0.46	-3.13
1210 Op-1	20	0.79	3.25	0.180	1.16	0.41	-0.73	3.00	-0.36	-1.09
1210 Op-2	4	0.50	1.25	0.306	1.47	-0.47	-0.44	1.00	0.38	-1.26
2210 Op-1	17	0.47	1.50	0.113	0.70	0.23	-0.39	1.75	-0.14	-0.65
2210 Op-2	3	1.58	1.75	0.507	3.76	-0.60	-1.50	1.50	0.36	-3.36

Period means and deltas from original control data where n=1

Period	N	Station Mean	Range	Standard Error	Upper 95% C.I.	Lower 95% C.I.
Op-1	20	0.06	0.50	0.031	0.13	-0.00
Op-2	4	0.06	0.25	0.063	0.26	-0.14

Analysis of Variance for SAQ for 0479 - Styela spp.

Stations = 2210, 0611, 0910, 0915, 1015, 1210

Data transformed using log base10(x + .5)

Results for Analysis of Variance

Source	Source df	Error df	F-value	Prob.
PERIOD	1	96.000	7.19	0.0086
SEASON	1	96.000	1.15	0.2865
STATION	5	96.000	1.26	0.2879
PERIOD*SEASON	1	96.000	4.05	0.0470
STATION*PERIOD	5	96.000	0.11	0.9895
STATION*SEASON	5	96.000	0.16	0.9758
PERIOD*STATION*SEASON	5	96.000	0.20	0.9607

Results for Power Analysis
Power at alpha = .1

Source	Non-Centrality Parameter	Adjusted non-Centrality Parameter	Power	Adjusted Power	Power to Detect 50% Change
PERIOD	7.19	6.04	0.8455	0.7868	0.2371
STATION*PERIOD	0.56	0.00	0.1377	.	0.1432

Estimates for contrasts on combinations of interaction terms

Source	Difference	Std. Err.	T-value	Prob.
Period in DC	1.0765	0.4137	2.602	.0107
Period in FC	0.1425	0.1885	0.756	.4514
Period in FC-S	0.0571	0.2165	0.264	.7924
Period in FC-W	0.2279	0.3085	0.739	.4620
Period in DC-S	0.2469	0.4539	0.544	.5878
Period in DC-W	1.9060	0.6918	2.755	.0070

Least square means & confidence intervals from analysis of variance

Source	LS Mean	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period Op-1	0.211	0.0311	6.79	.0000	0.2628	0.1595
Period Op-2	0.008	0.0691	0.12	.9083	0.1227	-0.1068
Op-1 0611	0.297	0.0695	4.27	.0000	0.4124	0.1815
Op-2 0611	0.011	0.1725	0.07	.9473	0.2979	-0.2750
Op-1 0910	0.277	0.0741	3.74	.0003	0.4004	0.1542
Op-2 0910	0.103	0.1626	0.64	.5268	0.3734	-0.1668
Op-1 0915	0.278	0.0833	3.34	.0012	0.4167	0.1400
Op-2 0915	0.011	0.1725	0.07	.9473	0.2979	-0.2750
Op-1 1015	0.007	0.0833	0.08	.9342	0.1453	-0.1315
Op-2 1015	-0.202	0.1725	-1.17	.2455	0.0849	-0.4880
Op-1 1210	0.165	0.0695	2.38	.0193	0.2808	0.0499
Op-2 1210	0.024	0.1626	0.15	.8840	0.2939	-0.2463
Op-1 2210	0.242	0.0760	3.19	.0019	0.3681	0.1158
Op-2 2210	0.099	0.1725	0.58	.5654	0.3859	-0.1870

Paired comparisons of least square means between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period	0.2032	0.0758	2.681	.0086	0.3290	0.0773

Paired comparisons of least square means for stations between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Station 0611	0.2855	0.1859	1.54	.1279	0.5944	-0.0233
Station 0910	0.1740	0.1787	0.97	.3327	0.4708	-0.1228
Station 0915	0.2669	0.1915	1.39	.1667	0.5850	-0.0512
Station 1015	0.2084	0.1915	1.09	.2792	0.5266	-0.1097
Station 1210	0.1416	0.1768	0.80	.4254	0.4353	-0.1522
Station 2210	0.1425	0.1885	0.76	.4514	0.4555	-0.1705

Station-period means and deltas from original data where control n=1

Station-Period	N	Station Mean	Range	Standard Error	Upper 95% c.i.	Lower 95% c.i.	Mean Delta	Delta Range	Upper 95% CIi.	Lower 95% C.I.
0611 Op-1	19	0.29	3.25	0.189	0.69	-0.11	0.80	4.00	1.34	0.26
0611 Op-2	3	0.08	0.25	0.083	0.44	-0.28	0.17	1.00	1.46	-1.13
0910 Op-1	18	0.07	0.50	0.039	0.15	-0.01	0.89	5.75	1.61	0.17
0910 Op-2	4	0.06	0.25	0.063	0.26	-0.14	0.31	0.75	0.91	-0.28
0915 Op-1	14	0.00	0.00	0.000	.	.	0.64	3.75	1.22	0.07
0915 Op-2	3	0.08	0.25	0.083	0.44	-0.28	0.17	1.00	1.46	-1.13
1015 Op-1	14	0.57	2.00	0.160	0.92	0.23	0.07	4.75	0.72	-0.58
1015 Op-2	3	0.67	1.50	0.441	2.56	-1.23	-0.42	0.75	0.53	-1.37
1210 Op-1	19	0.49	2.75	0.155	0.81	0.16	0.61	6.75	1.35	-0.14
1210 Op-2	4	0.31	1.00	0.237	1.07	-0.44	0.06	0.75	0.56	-0.44
2210 Op-1	16	0.08	0.50	0.044	0.17	-0.02	0.73	5.50	1.43	0.04
2210 Op-2	3	0.00	0.00	0.000	.	.	0.25	0.75	1.33	-0.83

Period means and deltas from original control data where n=1

Period	N	Station Mean	Range	Standard Error	Upper 95% C.I.	Lower 95% C.I.
Op-1	19	1.09	5.75	0.358	1.84	0.34
Op-2	4	0.38	0.75	0.217	1.06	-0.31

Analysis of Variance for SPQ for 0319 - Tegula brunnea

Stations = 2210, 0611, 0910, 0915, 1015, 1210

Data transformed using log base10(x + .1)

Results for Analysis of Variance

Source	Source df	Error df	F-value	Prob.
PERIOD	1	102.000	3.87	0.0518
SEASON	1	102.000	6.41	0.0129
STATION	5	102.000	3.09	0.0123
PERIOD*SEASON	1	102.000	1.61	0.2077
STATION*PERIOD	5	102.000	0.36	0.8769
STATION*SEASON	5	102.000	0.60	0.7032
PERIOD*STATION*SEASON	5	102.000	0.14	0.9834

Results for Power Analysis
Power at alpha = .1

Source	Non-Centrality Parameter	Adjusted non-Centrality Parameter	Power	Adjusted Power	Power to Detect 50% Change
PERIOD	3.87	2.80	0.6219	0.5071	0.6023
STATION*PERIOD	1.78	0.00	0.2281		0.1265

Estimates for contrasts on combinations of interaction terms

Source	Difference	Std. Err.	T-value	Prob.
Period in DC	-1.9600	0.9780	-2.004	.0477
Period in FC	-0.1549	0.4454	-0.348	.7288
Period in FC-S	0.1862	0.5095	0.365	.7156
Period in FC-W	-0.4959	0.7308	-0.679	.4989
Period in DC-S	-0.9386	1.0680	-0.879	.3815
Period in DC-W	-2.9814	1.6386	-1.819	.0718

Least square means & confidence intervals from analysis of variance

Source	LS Mean	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period Op-1	0.732	0.0728	10.07	.0000	0.8532	0.6116
Period Op-2	1.085	0.1637	6.63	.0000	1.3565	0.8132
Op-1 0611	1.265	0.1628	7.77	.0000	1.5347	0.9944
Op-2 0611	1.480	0.4085	3.62	.0005	2.1583	0.8020
Op-1 0910	0.743	0.1738	4.27	.0000	1.0313	0.4544
Op-2 0910	0.949	0.3852	2.46	.0154	1.5883	0.3096
Op-1 0915	0.958	0.1948	4.92	.0000	1.2811	0.6345
Op-2 0915	1.179	0.4085	2.89	.0048	1.8572	0.5010
Op-1 1015	0.801	0.1948	4.11	.0001	1.1242	0.4776
Op-2 1015	1.315	0.4085	3.22	.0017	1.9933	0.6370
Op-1 1210	0.500	0.1628	3.07	.0027	0.7705	0.2302
Op-2 1210	1.303	0.3852	3.38	.0010	1.9424	0.6637
Op-1 2210	0.128	0.1775	0.72	.4728	0.4227	-0.1668
Op-2 2210	0.283	0.4085	0.69	.4903	0.9609	-0.3953

Paired comparisons of least square means between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period	-0.3525	0.1791	-1.968	.0518	-0.0552	-0.6498

Paired comparisons of least square means for stations between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Station 0611	-0.2156	0.4397	-0.49	.6249	0.5143	-0.9456
Station 0910	-0.2061	0.4225	-0.49	.6267	0.4953	-0.9075
Station 0915	-0.2213	0.4526	-0.49	.6259	0.5299	-0.9725
Station 1015	-0.5142	0.4526	-1.14	.2585	0.2370	-1.2655
Station 1210	-0.8027	0.4181	-1.92	.0577	-0.1086	-1.4968
Station 2210	-0.1549	0.4454	-0.35	.7288	0.5845	-0.8943

Station-period means and deltas from original data where control n=1

Station-Period	N	Station Mean	Range	Standard Error	Upper 95% c.i.	Lower 95% c.i.	Mean Delta	Delta Range	Upper 95% CIi.	Lower 95% C.I.
0611 Op-1	20	0.49	4.75	0.251	1.01	-0.04	4.29	11.50	5.83	2.74
0611 Op-2	3	0.08	0.25	0.083	0.44	-0.28	3.92	3.25	8.14	-0.31
0910 Op-1	19	1.80	9.00	0.604	3.07	0.53	3.11	15.00	5.21	1.00
0910 Op-2	4	0.63	1.25	0.260	1.45	-0.20	4.31	4.50	7.28	1.35
0915 Op-1	15	1.30	4.25	0.343	2.03	0.57	3.93	11.50	6.06	1.81
0915 Op-2	3	0.58	1.50	0.464	2.58	-1.41	3.42	3.50	7.78	-0.95
1015 Op-1	15	1.07	4.25	0.282	1.67	0.46	4.17	10.00	6.12	2.21
1015 Op-2	3	0.50	1.50	0.500	2.65	-1.65	3.50	3.25	7.57	-0.57
1210 Op-1	20	2.45	12.75	0.683	3.88	1.02	2.33	13.25	4.19	0.46
1210 Op-2	4	0.88	3.00	0.718	3.16	-1.41	4.06	3.25	6.34	1.78
2210 Op-1	17	4.15	7.75	0.640	5.50	2.79	0.66	13.00	2.84	-1.51
2210 Op-2	3	3.42	5.75	1.722	10.83	-3.99	0.58	9.00	12.32	-11.16

Period means and deltas from original control data where n=1

Period	N	Station Mean	Range	Standard Error	Upper 95% C.I.	Lower 95% C.I.
Op-1	20	4.78	9.00	0.626	6.08	3.47
Op-2	4	4.94	5.75	1.179	8.69	1.19

Analysis of Variance for SAQ for 0360 - Tegula montereyi

Stations = 2210, 0611, 0910, 0915, 1015, 1210

Data transformed using square root(x + .5)

Results for Analysis of Variance

Source	Source df	Error df	F-value	Prob.
PERIOD	1	96.000	9.74	0.0024
SEASON	1	96.000	10.76	0.0014
STATION	5	96.000	0.40	0.8461
PERIOD*SEASON	1	96.000	1.08	0.3003
STATION*PERIOD	5	96.000	0.21	0.9570
STATION*SEASON	5	96.000	0.22	0.9512
PERIOD*STATION*SEASON	5	96.000	0.32	0.8988

Results for Power Analysis
Power at alpha = .1

Source	Non-Centrality Parameter	Adjusted non-Centrality Parameter	Power	Adjusted Power	Power to Detect 50% Change
PERIOD	9.74	8.54	0.9271	0.8956	0.2798
STATION*PERIOD	1.06	0.00	0.1733	.	0.1279

Estimates for contrasts on combinations of interaction terms

Source	Difference	Std. Err.	T-value	Prob.
Period in DC	-2.2375	0.8688	-2.575	.0115
Period in FC	-0.7426	0.3958	-1.876	.0637
Period in FC-S	-0.5907	0.4547	-1.299	.1970
Period in FC-W	-0.8944	0.6479	-1.380	.1707
Period in DC-S	-3.3836	0.9533	-3.550	.0006
Period in DC-W	-1.0914	1.4528	-0.751	.4544

Least square means & confidence intervals from analysis of variance

Source	LS Mean	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period Op-1	-0.153	0.0653	-2.34	.0213	-0.0444	-0.2613
Period Op-2	0.344	0.1451	2.37	.0198	0.5848	0.1028
Op-1 0611	-0.238	0.1460	-1.63	.1069	0.0049	-0.4800
Op-2 0611	0.291	0.3622	0.80	.4238	0.8925	-0.3106
Op-1 0910	0.016	0.1556	0.10	.9198	0.2742	-0.2428
Op-2 0910	0.501	0.3415	1.47	.1456	1.0682	-0.0662
Op-1 0915	0.000	0.1750	0.00	1.000	0.2906	-0.2906
Op-2 0915	0.291	0.3622	0.80	.4238	0.8925	-0.3106
Op-1 1015	-0.105	0.1750	-0.60	.5486	0.1853	-0.3959
Op-2 1015	0.188	0.3622	0.52	.6045	0.7898	-0.4134
Op-1 1210	-0.138	0.1460	-0.95	.3459	0.1042	-0.3807
Op-2 1210	0.501	0.3415	1.47	.1456	1.0682	-0.0662
Op-1 2210	-0.452	0.1595	-2.83	.0056	-0.1867	-0.7166
Op-2 2210	0.291	0.3622	0.80	.4238	0.8925	-0.3106

Paired comparisons of least square means between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period	-0.4967	0.1591	-3.121	.0024	-0.2324	-0.7610

Paired comparisons of least square means for stations between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Station 0611	-0.5285	0.3905	-1.35	.1791	0.1201	-1.1770
Station 0910	-0.4853	0.3753	-1.29	.1990	0.1380	-1.1086
Station 0915	-0.2909	0.4022	-0.72	.4713	0.3772	-0.9590
Station 1015	-0.2935	0.4022	-0.73	.4673	0.3746	-0.9616
Station 1210	-0.6393	0.3714	-1.72	.0884	-0.0225	-1.2561
Station 2210	-0.7426	0.3958	-1.88	.0637	-0.0853	-1.3999

Station-period means and deltas from original data where control n=1

Station-Period	N	Station Mean	Range	Standard Error	Upper 95% c.i.	Lower 95% c.i.	Mean Delta	Delta Range	Upper 95% CIi.	Lower 95% C.I.
0611 Op-1	19	0.99	11.25	0.671	2.40	-0.42	-0.71	13.50	0.73	-2.15
0611 Op-2	3	0.00	0.00	0.000	.	.	1.00	3.00	5.30	-3.30
0910 Op-1	18	0.17	1.50	0.097	0.37	-0.04	0.13	3.00	0.47	-0.22
0910 Op-2	4	0.00	0.00	0.000	.	.	2.25	6.00	6.82	-2.32
0915 Op-1	14	0.27	2.25	0.169	0.63	-0.10	0.00	3.75	0.48	-0.48
0915 Op-2	3	0.00	0.00	0.000	.	.	1.00	3.00	5.30	-3.30
1015 Op-1	14	0.38	1.50	0.152	0.70	0.05	-0.11	3.75	0.37	-0.58
1015 Op-2	3	0.25	0.75	0.250	1.33	-0.83	0.75	3.75	5.68	-4.18
1210 Op-1	19	0.59	5.25	0.322	1.27	-0.09	-0.32	7.50	0.43	-1.06
1210 Op-2	4	0.00	0.00	0.000	.	.	2.25	6.00	6.82	-2.32
2210 Op-1	16	1.17	7.50	0.530	2.30	0.04	-0.89	9.75	0.37	-2.15
2210 Op-2	3	0.00	0.00	0.000	.	.	1.00	3.00	5.30	-3.30

Period means and deltas from original control data where n=1

Period	N	Station Mean	Range	Standard Error	Upper 95% C.I.	Lower 95% C.I.
Op-1	19	0.28	2.25	0.131	0.55	0.00
Op-2	4	2.25	6.00	1.436	6.82	-2.32

Analysis of Variance for SAQ for 0361 - Tegula pulligo

Stations = 2210, 0611, 0910, 0915, 1015, 1210

Data transformed using log base10(x + .1)

Results for Analysis of Variance

Source	Source df	Error df	F-value	Prob.
PERIOD	1	96.000	0.28	0.5964
SEASON	1	96.000	0.41	0.5240
STATION	5	96.000	0.10	0.9923
PERIOD*SEASON	1	96.000	0.41	0.5240
STATION*PERIOD	5	96.000	0.10	0.9923
STATION*SEASON	5	96.000	0.07	0.9960
PERIOD*STATION*SEASON	5	96.000	0.07	0.9960

Results for Power Analysis
Power at alpha = .1

Source	Non-Centrality Parameter	Adjusted non-Centrality Parameter	Power	Adjusted Power	Power to Detect 50% Change
PERIOD	0.28	0.00	0.1469	.	0.1680
STATION*PERIOD	0.49	0.00	0.1328	.	0.1071

Estimates for contrasts on combinations of interaction terms

Source	Difference	Std. Err.	T-value	Prob.
Period in DC	-0.2409	0.5994	-0.402	.6886
Period in FC	-0.1091	0.2730	-0.400	.6904
Period in FC-S	0.0989	0.3137	0.315	.7532
Period in FC-W	-0.3171	0.4470	-0.709	.4798
Period in DC-S	-0.0277	0.6576	-0.042	.9665
Period in DC-W	-0.4541	1.0022	-0.453	.6515

Least square means & confidence intervals from analysis of variance

Source	LS Mean	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period Op-1	-0.058	0.0450	-1.29	.1985	0.0165	-0.1331
Period Op-2	-0.000	0.1001	-0.00	1.000	0.1663	-0.1663
Op-1 0611	-0.117	0.1007	-1.16	.2469	0.0499	-0.2845
Op-2 0611	-0.000	0.2499	-0.00	1.000	0.4150	-0.4150
Op-1 0910	0.084	0.1074	0.78	.4375	0.2620	-0.0946
Op-2 0910	-0.000	0.2356	-0.00	1.000	0.3913	-0.3913
Op-1 0915	-0.000	0.1207	-0.00	1.000	0.2005	-0.2005
Op-2 0915	-0.000	0.2499	-0.00	1.000	0.4150	-0.4150
Op-1 1015	-0.119	0.1207	-0.98	.3282	0.0818	-0.3191
Op-2 1015	-0.000	0.2499	-0.00	1.000	0.4150	-0.4150
Op-1 1210	-0.089	0.1007	-0.88	.3807	0.0786	-0.2559
Op-2 1210	-0.000	0.2356	-0.00	1.000	0.3913	-0.3913
Op-1 2210	-0.109	0.1100	-0.99	.3240	0.0737	-0.2918
Op-2 2210	0.000	0.2499	0.00	1.000	0.4150	-0.4150

Paired comparisons of least square means between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period	-0.0583	0.1098	-0.531	.5964	0.1240	-0.2406

Paired comparisons of least square means for stations between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Station 0611	-0.1173	0.2694	-0.44	.6642	0.3301	-0.5647
Station 0910	0.0837	0.2589	0.32	.7472	0.5137	-0.3463
Station 0915	0.0000	0.2775	0.00	1.000	0.4609	-0.4609
Station 1015	-0.1186	0.2775	-0.43	.6700	0.3423	-0.5795
Station 1210	-0.0887	0.2562	-0.35	.7300	0.3368	-0.5142
Station 2210	-0.1091	0.2730	-0.40	.6904	0.3444	-0.5625

Station-period means and deltas from original data where control n=1

Station-Period	N	Station Mean	Range	Standard Error	Upper 95% c.i.	Lower 95% c.i.	Mean Delta	Delta Range	Upper 95% CII.	Lower 95% C.I.
0611 Op-1	19	0.25	2.75	0.155	0.58	-0.08	-0.20	3.00	0.14	-0.54
0611 Op-2	3	0.00	0.00	0.000	.	.	0.00	0.00	.	.
0910 Op-1	18	0.00	0.00	0.000	.	.	0.06	0.25	0.11	0.00
0910 Op-2	4	0.00	0.00	0.000	.	.	0.00	0.00	.	.
0915 Op-1	14	0.05	0.25	0.028	0.12	-0.01	0.00	0.50	0.08	-0.08
0915 Op-2	3	0.00	0.00	0.000	.	.	0.00	0.00	.	.
1015 Op-1	14	0.21	2.00	0.143	0.52	-0.10	-0.16	2.25	0.17	-0.49
1015 Op-2	3	0.00	0.00	0.000	.	.	0.00	0.00	.	.
1210 Op-1	19	0.12	0.75	0.052	0.23	0.01	-0.07	1.00	0.06	-0.19
1210 Op-2	4	0.00	0.00	0.000	.	.	0.00	0.00	.	.
2210 Op-1	16	0.09	1.00	0.064	0.23	-0.04	-0.05	1.25	0.11	-0.20
2210 Op-2	3	0.00	0.00	0.000	.	.	0.00	0.00	.	.

Period means and deltas from original control data where n=1

Period	N	Station Mean	Range	Standard Error	Upper 95% C.I.	Lower 95% C.I.
Op-1	19	0.05	0.25	0.024	0.10	0.00
Op-2	4	0.00	0.00	0.000	.	.

Analysis of Variance for SAQ for 0491 - Tethya aurantia

Stations = 2210, 0611, 0910, 0915, 1015, 1210

Data transformed using log base10(x + .5)

Results for Analysis of Variance

Source	Source df	Error df	F-value	Prob.
PERIOD	1	96.000	3.47	0.0655
SEASON	1	96.000	3.23	0.0754
STATION	5	96.000	18.27	0.0000
PERIOD*SEASON	1	96.000	0.37	0.5442
STATION*PERIOD	5	96.000	1.95	0.0936
STATION*SEASON	5	96.000	0.17	0.9736
PERIOD*STATION*SEASON	5	96.000	0.27	0.9291

Results for Power Analysis
Power at alpha = .1

Source	Non-Centrality Parameter	Adjusted non-Centrality Parameter	Power	Adjusted Power	Power to Detect 50% Change
PERIOD	3.47	2.40	0.5816	0.4582	0.9563
STATION*PERIOD	9.73	4.53	0.7504	0.4384	0.6564

Estimates for contrasts on combinations of interaction terms

Source	Difference	Std. Err.	T-value	Prob.
Period in DC	-0.3251	0.2051	-1.585	.1162
Period in FC	-0.0948	0.0934	-1.015	.3128
Period in FC-S	-0.0146	0.1073	-0.136	.8923
Period in FC-W	-0.1750	0.1529	-1.144	.2553
Period in DC-S	-0.2682	0.2250	-1.192	.2362
Period in DC-W	-0.3821	0.3429	-1.114	.2680

Least square means & confidence intervals from analysis of variance

Source	LS Mean	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period Op-1	-0.177	0.0154	-11.51	.0000	-0.1518	-0.2030
Period Op-2	-0.107	0.0343	-3.13	.0023	-0.0505	-0.1643
Op-1 0611	-0.025	0.0345	-0.73	.4683	0.0321	-0.0823
Op-2 0611	-0.000	0.0855	-0.00	1.000	0.1420	-0.1420
Op-1 0910	0.014	0.0367	0.39	.7009	0.0752	-0.0469
Op-2 0910	0.029	0.0806	0.36	.7166	0.1632	-0.1045
Op-1 0915	-0.408	0.0413	-9.88	.0000	-0.3393	-0.4764
Op-2 0915	-0.527	0.0855	-6.16	.0000	-0.3848	-0.6688
Op-1 1015	-0.450	0.0413	-10.90	.0000	-0.3816	-0.5188
Op-2 1015	-0.176	0.0855	-2.06	.0421	-0.0341	-0.3181
Op-1 1210	-0.100	0.0345	-2.91	.0045	-0.0431	-0.1576
Op-2 1210	0.029	0.0806	0.36	.7166	0.1632	-0.1045
Op-1 2210	-0.095	0.0377	-2.52	.0135	-0.0323	-0.1573
Op-2 2210	0.000	0.0855	0.00	1.000	0.1420	-0.1420

Paired comparisons of least square means between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period	-0.0700	0.0376	-1.863	.0655	-0.0076	-0.1324

Paired comparisons of least square means for stations between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Station 0611	-0.0251	0.0922	-0.27	.7861	0.1280	-0.1782
Station 0910	-0.0152	0.0886	-0.17	.8642	0.1319	-0.1623
Station 0915	0.1190	0.0950	1.25	.2133	0.2767	-0.0387
Station 1015	-0.2741	0.0950	-2.89	.0048	-0.1164	-0.4318
Station 1210	-0.1297	0.0877	-1.48	.1422	0.0159	-0.2753
Station 2210	-0.0948	0.0934	-1.01	.3128	0.0604	-0.2500

Station-period means and deltas from original data where control n=1

Station-Period	N	Station Mean	Range	Standard Error	Upper 95% c.i.	Lower 95% c.i.	Mean Delta	Delta Range	Upper 95% CIi.	Lower 95% C.I.
0611 Op-1	19	0.09	1.25	0.069	0.24	-0.05	-0.03	0.50	0.03	-0.08
0611 Op-2	3	0.00	0.00	0.000	.	.	0.00	0.00	.	.
0910 Op-1	18	0.01	0.25	0.014	0.04	-0.02	0.06	1.50	0.21	-0.10
0910 Op-2	4	0.00	0.00	0.000	.	.	0.06	0.25	0.26	-0.14
0915 Op-1	14	0.80	1.25	0.095	1.01	0.60	-0.80	1.25	-0.60	-1.01
0915 Op-2	3	1.17	1.00	0.333	2.60	-0.27	-1.17	1.00	0.27	-2.60
1015 Op-1	14	0.91	1.25	0.107	1.14	0.68	-0.91	1.25	-0.68	-1.14
1015 Op-2	3	0.25	0.00	0.000	.	.	-0.25	0.00	.	.
1210 Op-1	19	0.16	1.00	0.058	0.28	0.04	-0.09	2.00	0.08	-0.27
1210 Op-2	4	0.00	0.00	0.000	.	.	0.06	0.25	0.26	-0.14
2210 Op-1	16	0.16	0.75	0.055	0.27	0.04	-0.08	2.00	0.14	-0.30
2210 Op-2	3	0.00	0.00	0.000	.	.	0.00	0.00	.	.

Period means and deltas from original control data where n=1

Period	N	Station Mean	Range	Standard Error	Upper 95% C.I.	Lower 95% C.I.
Op-1	19	0.07	1.25	0.066	0.20	-0.07
Op-2	4	0.06	0.25	0.063	0.26	-0.14

Analysis of Variance for SFQ for 0404 - Tetraclita rubescens

Stations = 2210, 0611, 0910, 0915, 1015, 1210

Data transformed using square root(x + 1)

Results for Analysis of Variance

Source	Source df	Error df	F-value	Prob.
PERIOD	1	102.000	10.31	0.0018
SEASON	1	102.000	0.11	0.7447
STATION	5	102.000	0.85	0.5179
PERIOD*SEASON	1	102.000	0.10	0.7530
STATION*PERIOD	5	102.000	0.34	0.8886
STATION*SEASON	5	102.000	0.09	0.9942
PERIOD*STATION*SEASON	5	102.000	0.23	0.9505

Results for Power Analysis
Power at alpha = .1

Source	Non-Centrality Parameter	Adjusted non-Centrality Parameter	Power	Adjusted Power	Power to Detect 50% Change
PERIOD	10.31	9.11	0.9387	0.9119	0.1265
STATION*PERIOD	1.69	0.00	0.2210	.	0.1060

Estimates for contrasts on combinations of interaction terms

Source	Difference	Std. Err.	T-value	Prob.
Period in DC	6.7051	2.1430	3.129	.0023
Period in FC	0.8553	0.9761	0.876	.3829
Period in FC-S	0.8728	1.1165	0.782	.4362
Period in FC-W	0.8378	1.6014	0.523	.6020
Period in DC-S	5.9446	2.3402	2.540	.0126
Period in DC-W	7.4656	3.5907	2.079	.0401

Least square means & confidence intervals from analysis of variance

Source	LS Mean	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period Op-1	0.891	0.1594	5.59	.0000	1.1556	0.6263
Period Op-2	-0.369	0.3586	-1.03	.3058	0.2262	-0.9644
Op-1 0611	0.879	0.3567	2.46	.0154	1.4711	0.2870
Op-2 0611	0.000	0.8952	0.00	1.000	1.4860	-1.4860
Op-1 0910	0.509	0.3808	1.34	.1845	1.1408	-0.1234
Op-2 0910	-1.664	0.8440	-1.97	.0513	-0.2635	-3.0654
Op-1 0915	1.020	0.4268	2.39	.0187	1.7280	0.3112
Op-2 0915	-0.550	0.8952	-0.61	.5402	0.9358	-2.0361
Op-1 1015	1.316	0.4268	3.08	.0026	2.0248	0.6079
Op-2 1015	0.000	0.8952	0.00	1.000	1.4860	-1.4860
Op-1 1210	0.767	0.3567	2.15	.0339	1.3587	0.1747
Op-2 1210	-0.000	0.8440	-0.00	1.000	1.4010	-1.4010
Op-1 2210	0.855	0.3891	2.20	.0302	1.5011	0.2095
Op-2 2210	-0.000	0.8952	-0.00	1.000	1.4860	-1.4860

Paired comparisons of least square means between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period	1.2601	0.3925	3.211	.0018	1.9115	0.6086

Paired comparisons of least square means for stations between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Station 0611	0.8791	0.9636	0.91	.3638	2.4786	-0.7205
Station 0910	2.1732	0.9259	2.35	.0209	3.7102	0.6362
Station 0915	1.5698	0.9917	1.58	.1165	3.2160	-0.0764
Station 1015	1.3164	0.9917	1.33	.1874	2.9625	-0.3298
Station 1210	0.7667	0.9163	0.84	.4047	2.2876	-0.7542
Station 2210	0.8553	0.9761	0.88	.3829	2.4755	-0.7649

Station-period means and deltas from original data where control n=1

Station-Period	N	Station Mean	Range	Standard Error	Upper 95% C.I.	Lower 95% C.I.	Mean Delta	Delta Range	Upper 95% CIi.	Lower 95% C.I.
0611 Op-1	20	0.11	1.25	0.067	0.25	-0.03	4.44	30.00	8.23	0.65
0611 Op-2	3	0.00	0.00	0.000	.	.	0.00	0.00	.	.
0910 Op-1	19	2.41	10.25	0.822	4.13	0.68	2.38	31.25	5.90	-1.14
0910 Op-2	4	5.44	9.25	1.956	11.66	-0.79	-5.44	9.25	0.79	-11.66
0915 Op-1	15	0.72	4.75	0.350	1.47	-0.03	5.35	33.50	10.41	0.29
0915 Op-2	3	2.33	4.75	1.372	8.24	-3.57	-2.33	4.75	3.57	-8.24
1015 Op-1	15	0.00	0.00	0.000	.	.	6.07	28.75	10.94	1.19
1015 Op-2	3	0.00	0.00	0.000	.	.	0.00	0.00	.	.
1210 Op-1	20	0.45	5.25	0.280	1.04	-0.14	4.10	34.00	8.02	0.18
1210 Op-2	4	0.00	0.00	0.000	.	.	0.00	0.00	.	.
2210 Op-1	17	0.73	7.75	0.484	1.75	-0.30	4.63	30.25	8.95	0.30
2210 Op-2	3	0.00	0.00	0.000	.	.	0.00	0.00	.	.

Period means and deltas from original control data where n=1

Period	N	Station Mean	Range	Standard Error	Upper 95% C.I.	Lower 95% C.I.
Op-1	20	4.55	28.75	1.794	8.30	0.80
Op-2	4	0.00	0.00	0.000	.	.

Analysis of Variance for SAQ for 0341 - Tonicella lineata

Stations = 2210, 0611, 0910, 0915, 1015, 1210

Data transformed using log base10(x + .5)

Results for Analysis of Variance

Source	Source df	Error df	F-value	Prob.
PERIOD	1	96.000	11.44	0.0010
SEASON	1	96.000	3.91	0.0510
STATION	5	96.000	4.84	0.0005
PERIOD*SEASON	1	96.000	1.77	0.1871
STATION*PERIOD	5	96.000	0.79	0.5591
STATION*SEASON	5	96.000	0.42	0.8368
PERIOD*STATION*SEASON	5	96.000	0.21	0.9580

Results for Power Analysis
Power at alpha = .1

Source	Non-Centrality Parameter	Adjusted non-Centrality Parameter	Power	Adjusted Power	Power to Detect 50% Change
PERIOD	11.44	10.20	0.9567	0.9366	0.6424
STATION*PERIOD	3.95	0.00	0.3949	.	0.1457

Estimates for contrasts on combinations of interaction terms

Source	Difference	Std. Err.	T-value	Prob.
Period in DC	-2.2314	0.6628	-3.367	.0011
Period in FC	-0.2321	0.3019	-0.769	.4438
Period in FC-S	-0.0230	0.3468	-0.066	.9472
Period in FC-W	-0.4412	0.4943	-0.893	.3742
Period in DC-S	-1.4729	0.7272	-2.025	.0456
Period in DC-W	-2.9900	1.1082	-2.698	.0082

Least square means & confidence intervals from analysis of variance

Source	LS Mean	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period Op-1	0.399	0.0498	8.01	.0000	0.4816	0.3161
Period Op-2	0.809	0.1107	7.31	.0000	0.9933	0.6256
Op-1 0611	0.574	0.1113	5.16	.0000	0.7593	0.3895
Op-2 0611	1.083	0.2763	3.92	.0002	1.5417	0.6239
Op-1 0910	0.565	0.1187	4.76	.0000	0.7618	0.3674
Op-2 0910	0.896	0.2605	3.44	.0009	1.3286	0.4633
Op-1 0915	0.579	0.1335	4.34	.0000	0.8009	0.3576
Op-2 0915	0.634	0.2763	2.29	.0240	1.0927	0.1749
Op-1 1015	0.349	0.1335	2.62	.0103	0.5709	0.1276
Op-2 1015	0.884	0.2763	3.20	.0019	1.3427	0.4249
Op-1 1210	0.471	0.1113	4.23	.0001	0.6558	0.2860
Op-2 1210	1.273	0.2605	4.89	.0000	1.7061	0.8408
Op-1 2210	-0.145	0.1217	-1.19	.2357	0.0569	-0.3473
Op-2 2210	0.087	0.2763	0.31	.7537	0.5458	-0.3720

Paired comparisons of least square means between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period	-0.4106	0.1214	-3.383	.0010	-0.2090	-0.6122

Paired comparisons of least square means for stations between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Station 0611	-0.5084	0.2979	-1.71	.0911	-0.0136	-1.0031
Station 0910	-0.3314	0.2863	-1.16	.2499	0.1441	-0.8068
Station 0915	-0.0546	0.3068	-0.18	.8592	0.4550	-0.5642
Station 1015	-0.5345	0.3068	-1.74	.0847	-0.0249	-1.0442
Station 1210	-0.8025	0.2833	-2.83	.0056	-0.3320	-1.2731
Station 2210	-0.2321	0.3019	-0.77	.4438	0.2693	-0.7336

Station-period means and deltas from original data where control n=1

Station-Period	N	Station Mean	Range	Standard Error	Upper 95% c.i.	Lower 95% c.i.	Mean Delta	Delta Range	Upper 95% CIi.	Lower 95% C.I.
0611 Op-1	19	2.33	22.50	1.411	5.29	-0.63	2.45	22.50	4.72	0.17
0611 Op-2	3	0.00	0.00	0.000	.	.	5.25	5.25	11.97	-1.47
0910 Op-1	18	1.17	5.25	0.434	2.08	0.25	3.38	21.00	5.52	1.23
0910 Op-2	4	6.00	22.50	5.511	23.54	-11.54	12.38	33.75	37.04	-12.29
0915 Op-1	14	0.91	3.00	0.251	1.45	0.37	2.95	6.00	4.01	1.88
0915 Op-2	3	1.00	0.75	0.250	2.08	-0.08	4.25	6.00	11.78	-3.28
1015 Op-1	14	2.25	9.00	0.729	3.83	0.67	1.61	10.50	3.13	0.08
1015 Op-2	3	0.50	0.75	0.250	1.58	-0.58	4.75	6.00	12.51	-3.01
1210 Op-1	19	1.54	6.00	0.439	2.46	0.62	3.24	23.25	5.45	1.02
1210 Op-2	4	0.00	0.00	0.000	.	.	18.38	54.75	60.29	-23.54
2210 Op-1	16	4.97	15.75	0.938	6.97	2.97	-0.52	33.00	2.88	-3.91
2210 Op-2	3	5.00	6.00	1.750	12.53	-2.53	0.25	9.00	12.23	-11.73

Period means and deltas from original control data where n=1

Period	N	Station Mean	Range	Standard Error	Upper 95% C.I.	Lower 95% C.I.
Op-1	19	4.78	23.25	1.146	7.18	2.37
Op-2	4	18.38	54.75	13.171	60.29	-23.54

Analysis of Variance for SFQ for 0480 - tunicates, colonial/social unid.

Stations = 2210, 0611, 0910, 0915, 1015, 1210

Data transformed using log base10(x + 1)

Results for Analysis of Variance

Source	Source df	Error df	F-value	Prob.
PERIOD	1	102.000	9.58	0.0025
SEASON	1	102.000	7.48	0.0073
STATION	5	102.000	11.05	0.0000
PERIOD*SEASON	1	102.000	0.59	0.4454
STATION*PERIOD	5	102.000	0.17	0.9721
STATION*SEASON	5	102.000	0.21	0.9558
PERIOD*STATION*SEASON	5	102.000	0.41	0.8383

Results for Power Analysis
Power at alpha = .1

Source	Non-Centrality Parameter	Adjusted non-Centrality Parameter	Power	Adjusted Power	Power to Detect 50% Change
PERIOD	9.58	8.40	0.9237	0.8913	0.9814
STATION*PERIOD	0.86	0.00	0.1596	.	0.3671

Estimates for contrasts on combinations of interaction terms

Source	Difference	Std. Err.	T-value	Prob.
Period in DC	0.6257	0.2466	2.537	.0127
Period in FC	0.2131	0.1123	1.897	.0606
Period in FC-S	0.2361	0.1285	1.838	.0690
Period in FC-W	0.1901	0.1843	1.032	.3047
Period in DC-S	0.3951	0.2693	1.467	.1454
Period in DC-W	0.8563	0.4132	2.073	.0407

Least square means & confidence intervals from analysis of variance

Source	LS Mean	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period Op-1	0.022	0.0183	1.18	.2390	0.0522	-0.0087
Period Op-2	-0.118	0.0413	-2.86	.0051	-0.0496	-0.1866
Op-1 0611	0.194	0.0410	4.73	.0000	0.2623	0.1261
Op-2 0611	0.044	0.1030	0.43	.6700	0.2150	-0.1270
Op-1 0910	0.088	0.0438	2.00	.0485	0.1602	0.0148
Op-2 0910	-0.062	0.0971	-0.64	.5231	0.0990	-0.2234
Op-1 0915	0.038	0.0491	0.77	.4441	0.1192	-0.0438
Op-2 0915	-0.048	0.1030	-0.47	.6391	0.1225	-0.2194
Op-1 1015	-0.055	0.0491	-1.12	.2661	0.0266	-0.1364
Op-2 1015	-0.202	0.1030	-1.96	.0531	-0.0306	-0.3725
Op-1 1210	0.140	0.0410	3.42	.0009	0.2083	0.0721
Op-2 1210	0.047	0.0971	0.49	.6279	0.2084	-0.1140
Op-1 2210	-0.274	0.0448	-6.13	.0000	-0.2000	-0.3487
Op-2 2210	-0.487	0.1030	-4.73	.0000	-0.3165	-0.6584

Paired comparisons of least square means between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period	0.1398	0.0452	3.096	.0025	0.2148	0.0648

Paired comparisons of least square means for stations between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Station 0611	0.1502	0.1109	1.35	.1787	0.3342	-0.0339
Station 0910	0.1497	0.1065	1.41	.1629	0.3266	-0.0271
Station 0915	0.0862	0.1141	0.76	.4519	0.2756	-0.1032
Station 1015	0.1466	0.1141	1.28	.2017	0.3360	-0.0428
Station 1210	0.0930	0.1054	0.88	.3798	0.2680	-0.0820
Station 2210	0.2131	0.1123	1.90	.0606	0.3995	0.0267

Station-period means and deltas from original data where control n=1

Station-Period	N	Station Mean	Range	Standard Error	Upper 95% c.i.	Lower 95% c.i.	Mean Delta	Delta Range	Upper 95% CIi.	Lower 95% C.I.
0611 Op-1	20	0.33	1.25	0.081	0.50	0.15	0.86	2.75	1.24	0.49
0611 Op-2	3	0.08	0.25	0.083	0.44	-0.28	0.17	0.25	0.53	-0.19
0910 Op-1	19	0.78	2.25	0.143	1.08	0.48	0.41	3.25	0.84	-0.03
0910 Op-2	4	0.44	0.75	0.157	0.94	-0.06	0.00	1.00	0.92	-0.92
0915 Op-1	15	0.55	2.00	0.127	0.82	0.28	0.40	3.50	0.90	-0.10
0915 Op-2	3	0.33	0.25	0.083	0.69	-0.03	-0.08	0.50	0.63	-0.80
1015 Op-1	15	1.22	3.25	0.251	1.76	0.68	-0.27	4.25	0.29	-0.82
1015 Op-2	3	0.83	0.50	0.167	1.55	0.12	-0.58	1.00	0.71	-1.88
1210 Op-1	20	0.46	1.75	0.091	0.65	0.27	0.73	2.50	1.07	0.38
1210 Op-2	4	0.06	0.25	0.063	0.26	-0.14	0.38	1.25	1.20	-0.45
2210 Op-1	17	3.03	4.50	0.323	3.72	2.35	-1.77	3.92	-1.21	-2.33
2210 Op-2	3	2.92	3.00	0.928	6.91	-1.08	-2.67	3.25	1.47	-6.80

Period means and deltas from original control data where n=1

Period	N	Station Mean	Range	Standard Error	Upper 95% C.I.	Lower 95% C.I.
Op-1	20	1.19	2.50	0.179	1.56	0.81
Op-2	4	0.44	1.00	0.213	1.12	-0.24

Analysis of Variance for SAQ for IDIV - Diversity

Stations = 2210, 0611, 0910, 0915, 1015, 1210

Data transformed using log base10(x + .1)

Results for Analysis of Variance

Source	Source df	Error df	F-value	Prob.
PERIOD	1	96.000	0.79	0.3766
SEASON	1	96.000	4.20	0.0431
STATION	5	96.000	1.43	0.2199
PERIOD*SEASON	1	96.000	5.90	0.0170
STATION*PERIOD	5	96.000	0.61	0.6933
STATION*SEASON	5	96.000	0.75	0.5879
PERIOD*STATION*SEASON	5	96.000	0.33	0.8924

Results for Power Analysis
Power at alpha = .1

Source	Non-Centrality Parameter	Adjusted non-Centrality Parameter	Power	Adjusted Power	Power to Detect 50% Change
PERIOD	0.79	0.00	0.2285	.	1.0000
STATION*PERIOD	3.04	0.00	0.3251	.	0.1007

Estimates for contrasts on combinations of interaction terms

Source	Difference	Std. Err.	T-value	Prob.
Period in DC	-0.2292	0.1903	-1.205	.2312
Period in FC	0.0435	0.0867	0.502	.6168
Period in FC-S	0.1610	0.0996	1.617	.1092
Period in FC-W	-0.0739	0.1419	-0.521	.6035
Period in DC-S	0.1612	0.2087	0.772	.4419
Period in DC-W	-0.6196	0.3181	-1.948	.0544

Least square means & confidence intervals from analysis of variance

Source	LS Mean	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period Op-1	-0.081	0.0143	-5.64	.0000	-0.0570	-0.1045
Period Op-2	-0.050	0.0318	-1.57	.1206	0.0030	-0.1025
Op-1 0611	0.020	0.0320	0.62	.5379	0.0728	-0.0333
Op-2 0611	-0.004	0.0793	-0.05	.9606	0.1278	-0.1357
Op-1 0910	-0.069	0.0341	-2.02	.0460	-0.0123	-0.1255
Op-2 0910	-0.026	0.0748	-0.34	.7338	0.0987	-0.1497
Op-1 0915	-0.173	0.0383	-4.52	.0000	-0.1094	-0.2367
Op-2 0915	-0.026	0.0793	-0.33	.7446	0.1058	-0.1576
Op-1 1015	-0.166	0.0383	-4.33	.0000	-0.1024	-0.2297
Op-2 1015	-0.113	0.0793	-1.42	.1583	0.0190	-0.2445
Op-1 1210	-0.083	0.0320	-2.60	.0109	-0.0299	-0.1361
Op-2 1210	-0.074	0.0748	-0.99	.3254	0.0503	-0.1981
Op-1 2210	-0.013	0.0349	-0.37	.7098	0.0450	-0.0710
Op-2 2210	-0.057	0.0793	-0.71	.4776	0.0752	-0.1883

Paired comparisons of least square means between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period	-0.0310	0.0348	-0.888	.3766	0.0269	-0.0888

Paired comparisons of least square means for stations between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Station 0611	0.0237	0.0855	0.28	.7824	0.1657	-0.1183
Station 0910	-0.0434	0.0822	-0.53	.5986	0.0931	-0.1799
Station 0915	-0.1471	0.0881	-1.67	.0981	-0.0008	-0.2934
Station 1015	-0.0533	0.0881	-0.60	.5467	0.0930	-0.1996
Station 1210	-0.0091	0.0813	-0.11	.9111	0.1260	-0.1442
Station 2210	0.0435	0.0867	0.50	.6168	0.1875	-0.1004

Station-period means and deltas from original data where control n=1

Station-Period	N	Station Mean	Range	Standard Error	Upper 95% c.i.	Lower 95% c.i.	Mean Delta	Delta Range	Upper 95% CIi.	Lower 95% C.I.
0611 Op-1	19	2.39	1.62	0.127	2.66	2.12	0.06	2.27	0.39	-0.28
0611 Op-2	3	2.57	1.16	0.342	4.04	1.10	-0.30	2.32	2.58	-3.18
0910 Op-1	18	2.94	2.02	0.166	3.29	2.59	-0.56	3.08	-0.13	-0.99
0910 Op-2	4	2.64	0.36	0.086	2.91	2.36	-0.39	1.52	0.61	-1.39
0915 Op-1	14	3.33	2.82	0.203	3.77	2.89	-1.09	3.39	-0.56	-1.62
0915 Op-2	3	2.50	1.58	0.521	4.74	0.26	-0.24	1.21	1.29	-1.76
1015 Op-1	14	3.31	1.49	0.101	3.53	3.10	-1.07	1.77	-0.81	-1.34
1015 Op-2	3	3.20	0.48	0.158	3.88	2.52	-0.93	1.64	1.21	-3.08
1210 Op-1	19	3.04	2.69	0.154	3.36	2.72	-0.60	3.42	-0.16	-1.03
1210 Op-2	4	2.74	1.24	0.259	3.56	1.92	-0.50	0.97	0.22	-1.21
2210 Op-1	16	2.40	1.91	0.123	2.66	2.14	0.00	2.85	0.35	-0.35
2210 Op-2	3	2.75	1.31	0.379	4.38	1.11	-0.48	1.37	1.27	-2.23

Period means and deltas from original control data where n=1

Period	N	Station Mean	Range	Standard Error	Upper 95% C.I.	Lower 95% C.I.
Op-1	19	2.44	1.84	0.107	2.67	2.22
Op-2	4	2.25	1.16	0.244	3.02	1.47

Analysis of Variance for SFQ for IDIV - Diversity

Stations = 2210, 0611, 0910, 0915, 1015, 1210

Data transformed using square root(x + 1)

Results for Analysis of Variance

Source	Source df	Error df	F-value	Prob.
PERIOD	1	102.000	21.61	0.0000
SEASON	1	102.000	2.50	0.1172
STATION	5	102.000	0.69	0.6290
PERIOD*SEASON	1	102.000	0.15	0.7028
STATION*PERIOD	5	102.000	0.46	0.8075
STATION*SEASON	5	102.000	0.16	0.9761
PERIOD*STATION*SEASON	5	102.000	0.17	0.9722

Results for Power Analysis
Power at alpha = .1

Source	Non-Centrality Parameter	Adjusted non-Centrality Parameter	Power	Adjusted Power	Power to Detect 50% Change
PERIOD	21.61	20.18	0.9985	0.9976	1.0000
STATION*PERIOD	2.28	0.00	0.2666	.	0.1126

Estimates for contrasts on combinations of interaction terms

Source	Difference	Std. Err.	T-value	Prob.
Period in DC	-1.5689	0.3394	-4.622	.0000
Period in FC	-0.1647	0.1546	-1.066	.2892
Period in FC-S	-0.1568	0.1768	-0.887	.3772
Period in FC-W	-0.1726	0.2536	-0.681	.4977
Period in DC-S	-1.4342	0.3707	-3.869	.0002
Period in DC-W	-1.7037	0.5687	-2.996	.0034

Least square means & confidence intervals from analysis of variance

Source	LS Mean	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period Op-1	-0.226	0.0253	-8.96	.0000	-0.1844	-0.2683
Period Op-2	0.063	0.0568	1.10	.2731	0.1569	-0.0317
Op-1 0611	-0.199	0.0565	-3.53	.0006	-0.1056	-0.2932
Op-2 0611	0.062	0.1418	0.44	.6609	0.2977	-0.1730
Op-1 0910	-0.197	0.0603	-3.26	.0015	-0.0966	-0.2968
Op-2 0910	0.138	0.1337	1.03	.3042	0.3599	-0.0838
Op-1 0915	-0.251	0.0676	-3.72	.0003	-0.1392	-0.3636
Op-2 0915	0.182	0.1418	1.28	.2020	0.4174	-0.0533
Op-1 1015	-0.174	0.0676	-2.58	.0114	-0.0619	-0.2863
Op-2 1015	0.009	0.1418	0.06	.9486	0.2445	-0.2262
Op-1 1210	-0.249	0.0565	-4.41	.0000	-0.1551	-0.3427
Op-2 1210	0.107	0.1337	0.80	.4267	0.3286	-0.1152
Op-1 2210	-0.288	0.0616	-4.67	.0000	-0.1853	-0.3898
Op-2 2210	-0.123	0.1418	-0.87	.3884	0.1125	-0.3582

Paired comparisons of least square means between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period	-0.2889	0.0622	-4.648	.0000	-0.1858	-0.3921

Paired comparisons of least square means for stations between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Station 0611	-0.2618	0.1526	-1.72	.0894	-0.0084	-0.5151
Station 0910	-0.3348	0.1467	-2.28	.0245	-0.0913	-0.5782
Station 0915	-0.4335	0.1571	-2.76	.0069	-0.1728	-0.6942
Station 1015	-0.1833	0.1571	-1.17	.2459	0.0774	-0.4440
Station 1210	-0.3556	0.1451	-2.45	.0160	-0.1147	-0.5965
Station 2210	-0.1647	0.1546	-1.07	.2892	0.0919	-0.4213

Station-period means and deltas from original data where control n=1

Station-Period	N	Station Mean	Range	Standard Error	Upper 95% c.i.	Lower 95% c.i.	Mean Delta	Delta Range	Upper 95% CIi.	Lower 95% C.I.
0611 Op-1	20	3.66	1.57	0.100	3.87	3.45	-0.87	3.64	-0.43	-1.30
0611 Op-2	3	3.31	1.68	0.520	5.55	1.07	0.25	1.92	2.63	-2.14
0910 Op-1	19	3.70	1.45	0.089	3.89	3.52	-0.88	2.93	-0.40	-1.36
0910 Op-2	4	3.18	1.19	0.281	4.07	2.28	0.52	1.43	1.47	-0.43
0915 Op-1	15	4.19	0.88	0.060	4.32	4.06	-1.16	2.53	-0.66	-1.66
0915 Op-2	3	2.96	1.38	0.414	4.74	1.18	0.60	1.67	2.95	-1.76
1015 Op-1	15	3.79	1.34	0.102	4.01	3.57	-0.76	2.24	-0.35	-1.17
1015 Op-2	3	3.64	0.41	0.126	4.18	3.10	-0.08	1.05	1.22	-1.39
1210 Op-1	20	3.84	1.87	0.089	4.03	3.66	-1.05	3.67	-0.58	-1.52
1210 Op-2	4	3.55	1.24	0.297	4.50	2.61	0.14	1.88	1.64	-1.36
2210 Op-1	17	3.99	0.81	0.056	4.11	3.88	-1.18	2.72	-0.72	-1.65
2210 Op-2	3	4.12	0.47	0.136	4.71	3.54	-0.57	0.42	-0.01	-1.12

Period means and deltas from original control data where n=1

Period	N	Station Mean	Range	Standard Error	Upper 95% C.I.	Lower 95% C.I.
Op-1	20	2.79	2.30	0.172	3.15	2.43
Op-2	4	3.69	0.85	0.192	4.30	3.08

Analysis of Variance for SFQ for ISPP - Spp. Inverts

Stations = 2210, 0611, 0910, 0915, 1015, 1210

Data transformed using square root(x + 1)

Results for Analysis of Variance

Source	Source df	Error df	F-value	Prob.
PERIOD	1	102.000	5.90	0.0169
SEASON	1	102.000	16.67	0.0001
STATION	5	102.000	3.78	0.0035
PERIOD*SEASON	1	102.000	1.25	0.2668
STATION*PERIOD	5	102.000	1.26	0.2865
STATION*SEASON	5	102.000	0.60	0.6970
PERIOD*STATION*SEASON	5	102.000	0.49	0.7825

Results for Power Analysis
Power at alpha = .1

Source	Non-Centrality Parameter	Adjusted non-Centrality Parameter	Power	Adjusted Power	Power to Detect 50% Change
PERIOD	5.90	4.78	0.7788	0.7013	1.0000
STATION*PERIOD	6.31	1.18	0.5637	0.1828	0.1544

Estimates for contrasts on combinations of interaction terms

Source	Difference	Std. Err.	T-value	Prob.
Period in DC	-1.8543	0.6921	-2.679	.0086
Period in FC	0.0071	0.3152	0.023	.9821
Period in FC-S	-0.0449	0.3606	-0.125	.9012
Period in FC-W	0.0591	0.5172	0.114	.9092
Period in DC-S	-0.9531	0.7558	-1.261	.2101
Period in DC-W	-2.7554	1.1596	-2.376	.0194

Least square means & confidence intervals from analysis of variance

Source	LS Mean	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period Op-1	0.185	0.0515	3.60	.0005	0.2708	0.0999
Period Op-2	0.493	0.1158	4.26	.0000	0.6855	0.3010
Op-1 0611	0.587	0.1152	5.10	.0000	0.7785	0.3961
Op-2 0611	0.813	0.2891	2.81	.0059	1.2927	0.3329
Op-1 0910	0.275	0.1230	2.23	.0277	0.4789	0.0706
Op-2 0910	0.710	0.2726	2.61	.0105	1.1627	0.2579
Op-1 0915	-0.023	0.1378	-0.17	.8663	0.2055	-0.2520
Op-2 0915	0.036	0.2891	0.12	.9011	0.5159	-0.4439
Op-1 1015	-0.035	0.1378	-0.26	.7974	0.1933	-0.2643
Op-2 1015	0.172	0.2891	0.59	.5536	0.6517	-0.3081
Op-1 1210	0.164	0.1152	1.42	.1582	0.3549	-0.0274
Op-2 1210	1.090	0.2726	4.00	.0001	1.5429	0.6380
Op-1 2210	0.145	0.1256	1.16	.2506	0.3537	-0.0634
Op-2 2210	0.138	0.2891	0.48	.6340	0.6179	-0.3418

Paired comparisons of least square means between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period	-0.3079	0.1267	-2.429	.0169	-0.0975	-0.5183

Paired comparisons of least square means for stations between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Station 0611	-0.2255	0.3112	-0.72	.4704	0.2911	-0.7420
Station 0910	-0.4355	0.2990	-1.46	.1483	0.0608	-0.9319
Station 0915	-0.0593	0.3203	-0.19	.8535	0.4723	-0.5909
Station 1015	-0.2073	0.3203	-0.65	.5189	0.3243	-0.7389
Station 1210	-0.9267	0.2959	-3.13	.0023	-0.4355	-1.4178
Station 2210	0.0071	0.3152	0.02	.9821	0.5304	-0.5161

Station-period means and deltas from original data where control n=1

Station-Period	N	Station Mean	Range	Standard Error	Upper 95% c.i.	Lower 95% c.i.	Mean Delta	Delta Range	Upper 95% CII.	Lower 95% C.I.
0611 Op-1	20	16.54	18.50	1.096	18.83	14.24	4.08	19.00	6.40	1.75
0611 Op-2	3	13.25	7.25	2.268	23.01	3.49	5.67	8.25	16.18	-4.84
0910 Op-1	19	18.62	13.75	0.762	20.22	17.02	1.91	18.00	3.90	-0.09
0910 Op-2	4	14.25	2.50	0.568	16.06	12.44	5.25	4.75	8.35	2.15
0915 Op-1	15	21.72	10.75	0.871	23.59	19.85	-1.32	17.25	1.19	-3.82
0915 Op-2	3	19.33	8.00	2.347	29.43	9.24	-0.42	7.25	9.49	-10.32
1015 Op-1	15	21.63	16.00	1.182	24.17	19.10	-1.23	18.00	1.75	-4.21
1015 Op-2	3	18.83	7.00	2.022	27.54	10.13	0.08	9.00	11.94	-11.77
1210 Op-1	20	20.03	16.00	0.988	22.09	17.96	0.59	17.50	2.74	-1.57
1210 Op-2	4	13.63	10.25	2.260	20.82	6.43	5.88	12.25	15.22	-3.47
2210 Op-1	17	19.94	8.50	0.658	21.34	18.55	0.71	11.00	2.26	-0.85
2210 Op-2	3	18.00	1.25	0.382	19.64	16.36	0.92	2.25	3.85	-2.02

Period means and deltas from original control data where n=1

Period	N	Station Mean	Range	Standard Error	Upper 95% C.I.	Lower 95% C.I.
Op-1	20	20.61	11.25	0.515	21.69	19.54
Op-2	4	19.50	4.00	0.924	22.44	16.56

Analysis of Variance for SAQ for ISPP - Spp. Inverts

Stations = 2210, 0611, 0910, 0915, 1015, 1210

Data not transformed.

Results for Analysis of Variance

Source	Source df	Error df	F-value	Prob.
PERIOD	1	96.000	2.83	0.0961
SEASON	1	96.000	2.44	0.1213
STATION	5	96.000	6.93	0.0000
PERIOD*SEASON	1	96.000	0.00	0.9465
STATION*PERIOD	5	96.000	1.06	0.3850
STATION*SEASON	5	96.000	0.20	0.9620
PERIOD*STATION*SEASON	5	96.000	0.16	0.9758

Results for Power Analysis
Power at alpha = .1

Source	Non-Centrality Parameter	Adjusted non-Centrality Parameter	Power	Adjusted Power	Power to Detect 50% Change
PERIOD	2.83	1.77	0.5101	0.3740	1.0000
STATION*PERIOD	5.32	0.21	0.4956	0.1139	0.4745

Estimates for contrasts on combinations of interaction terms

Source	Difference	Std. Err.	T-value	Prob.
Period in DC	10.8865	7.3487	1.481	.1418
Period in FC	2.6864	3.3475	0.802	.4243
Period in FC-S	3.7727	3.8457	0.981	.3290
Period in FC-W	1.6000	5.4803	0.292	.7710
Period in DC-S	9.2564	8.0629	1.148	.2538
Period in DC-W	12.5167	12.2884	1.019	.3110

Least square means & confidence intervals from analysis of variance

Source	LS Mean	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period Op-1	-0.474	0.5523	-0.86	.3929	0.4433	-1.3913
Period Op-2	-2.736	1.2273	-2.23	.0281	-0.6977	-4.7746
Op-1 0611	5.071	1.2346	4.11	.0001	7.1210	3.0200
Op-2 0611	0.500	3.0636	0.16	.8707	5.5883	-4.5883
Op-1 0910	3.723	1.3163	2.83	.0057	5.9094	1.5368
Op-2 0910	0.333	2.8884	0.12	.9084	5.1306	-4.4639
Op-1 0915	-3.675	1.4799	-2.48	.0147	-1.2171	-6.1329
Op-2 0915	-1.750	3.0636	-0.57	.5692	3.3383	-6.8383
Op-1 1015	-5.700	1.4799	-3.85	.0002	-3.2421	-8.1579
Op-2 1015	-12.250	3.0636	-4.00	.0001	-7.1617	-17.3383
Op-1 1210	-0.199	1.2346	-0.16	.8725	1.8518	-2.2492
Op-2 1210	1.500	2.8884	0.52	.6047	6.2973	-3.2973
Op-1 2210	-2.064	1.3492	-1.53	.1294	0.1772	-4.3044
Op-2 2210	-4.750	3.0636	-1.55	.1243	0.3383	-9.8383

Paired comparisons of least square means between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period	2.2622	1.3459	1.681	.0961	4.4975	0.0268

Paired comparisons of least square means for stations between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Station 0611	4.5705	3.3030	1.38	.1696	10.0564	-0.9154
Station 0910	3.3897	3.1742	1.07	.2882	8.6617	-1.8822
Station 0915	-1.9250	3.4023	-0.57	.5729	3.7258	-7.5758
Station 1015	6.5500	3.4023	1.93	.0572	12.2008	0.8992
Station 1210	-1.6987	3.1412	-0.54	.5899	3.5184	-6.9158
Station 2210	2.6864	3.3475	0.80	.4243	8.2462	-2.8735

Station-period means and deltas from original data where control n=1

Station-Period	N	Station Mean	Range	Standard Error	Upper 95% c.i.	Lower 95% c.i.	Mean Delta	Delta Range	Upper 95% CIi.	Lower 95% C.I.
0611 Op-1	19	17.16	19.00	1.398	20.10	14.22	5.16	20.00	8.10	2.21
0611 Op-2	3	13.00	4.00	1.155	17.97	8.03	1.33	7.00	10.06	-7.39
0910 Op-1	18	18.33	17.00	1.060	20.57	16.10	3.78	18.00	5.92	1.64
0910 Op-2	4	15.50	7.00	1.555	20.45	10.55	0.50	6.00	4.50	-3.50
0915 Op-1	14	24.86	13.00	0.948	26.91	22.81	-3.21	18.00	-0.03	-6.39
0915 Op-2	3	15.67	4.00	1.202	20.84	10.50	-1.33	4.00	3.84	-6.50
1015 Op-1	14	26.79	22.00	1.403	29.82	23.75	-5.14	19.00	-2.18	-8.10
1015 Op-2	3	26.67	7.00	2.028	35.39	17.94	-12.33	3.00	-8.54	-16.13
1210 Op-1	19	21.79	23.00	1.321	24.57	19.01	0.53	19.00	2.74	-1.68
1210 Op-2	4	13.25	11.00	2.358	20.76	5.74	2.75	8.00	8.32	-2.82
2210 Op-1	16	23.44	12.00	0.940	25.44	21.43	-1.56	18.00	1.08	-4.20
2210 Op-2	3	19.00	5.00	1.528	25.57	12.43	-4.67	1.00	-3.23	-6.10

Period means and deltas from original control data where n=1

Period	N	Station Mean	Range	Standard Error	Upper 95% C.I.	Lower 95% C.I.
Op-1	19	22.32	16.00	0.940	24.29	20.34
Op-2	4	16.00	10.00	2.041	22.50	9.50

Benthic Transects ANOVA Results for SFO for 1020 - Artedius spp.

Data transformed using log base10(x + .1)

Results for Analysis of Variance

Source	Source df	Error df	F-value	Prob.
AREA	1	18.000	0.01	0.9053
PERIOD	1	18.000	0.74	0.4025
AREA*PERIOD	1	18.000	0.29	0.5983

Results for Power Analysis
Power at alpha = .1

Source	Non-Centrality Parameter	Adjusted non-Centrality Parameter	Power	Adjusted Power	Power to Detect 50% Change
AREA*PERIOD	0.29	0.00	0.1449	.	0.1031
PERIOD	0.74	0.00	0.2130	.	0.2785

Estimates for contrasts on combinations of interaction terms

Source	Difference	Std. Err.	T-value	Prob.
Period in NDC	0.0504	0.2219	0.227	.8229
Period in SDC	0.2187	0.2219	0.986	.3374

Least square means & confidence intervals from analysis of variance

Source	LS Mean	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period Op-1	-0.001	0.0820	-0.01	.9922	0.1413	-0.1429
Period Op-2	-0.135	0.1338	-1.01	.3251	0.0967	-0.3674
Op-1 NDC	-0.052	0.1159	-0.45	.6568	0.1486	-0.2533
Op-2 NDC	-0.103	0.1893	-0.54	.5938	0.2254	-0.4309
Op-1 SDC	0.051	0.1159	0.44	.6668	0.2517	-0.1502
Op-2 SDC	-0.168	0.1893	-0.89	.3864	0.1602	-0.4962

Paired comparisons of least square means between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period	0.1346	0.1569	0.857	.4025	0.4067	-0.1376

Paired comparisons of least square means for areas between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Area NDC	0.0504	0.2219	0.23	.8229	0.4352	-0.3344
Area SDC	0.2187	0.2219	0.99	.3374	0.6036	-0.1661

Area-period means and deltas from original data

Area-Period	N	Area Mean	Area Range	Standard Error	Upper 95% c.i.	Lower 95% c.i.	Mean Delta	Delta Range	Upper 95% CIi.	Lower 95% C.I.
NDC Op-1	8	0.15	0.25	0.030	0.22	0.08	-0.02	0.46	0.12	-0.15
NDC Op-2	3	0.16	0.09	0.031	0.29	0.02	-0.03	0.25	0.31	-0.37
SDC Op-1	8	0.09	0.14	0.020	0.14	0.05	0.04	0.46	0.17	-0.09
SDC Op-2	3	0.21	0.21	0.064	0.48	-0.07	-0.08	0.42	0.46	-0.63

Period means and deltas from original control data

Period	N	Area Mean	Area Range	Standard Error	Upper 95% C.I.	Lower 95% C.I.
Op-1	20	0.13	0.50	0.034	0.20	0.06
Op-2	5	0.15	0.25	0.049	0.28	0.02

Midwater Transectsce for SFO for 0582 - Atherinidae unid.

Data transformed using log base10(x + .1)

Results for Analysis of Variance

Source	Source df	Error df	F-value	Prob.
AREA	1	18.000	0.70	0.4123
PERIOD	1	18.000	5.71	0.0281
AREA*PERIOD	1	18.000	0.12	0.7304

Results for Power Analysis
Power at alpha = .1

Source	Non-Centrality Parameter	Adjusted non-Centrality Parameter	Power	Adjusted Power	Power to Detect 50% Change
AREA*PERIOD	0.12	0.00	0.1192	.	0.1020
PERIOD	5.71	4.07	0.7431	0.6167	0.1074

Estimates for contrasts on combinations of interaction terms

Source	Difference	Std. Err.	T-value	Prob.
Period in NDC	0.9251	0.6417	1.442	.1666
Period in SDC	1.2426	0.6417	1.937	.0687

Least square means & confidence intervals from analysis of variance

Source	LS Mean	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period Op-1	-0.432	0.2369	-1.82	.0851	-0.0208	-0.8426
Period Op-2	-1.516	0.3869	-3.92	.0010	-0.8446	-2.1865
Op-1 NDC	-0.701	0.3351	-2.09	.0507	-0.1204	-1.2826
Op-2 NDC	-1.627	0.5472	-2.97	.0082	-0.6777	-2.5755
Op-1 SDC	-0.162	0.3351	-0.48	.6347	0.4191	-0.7430
Op-2 SDC	-1.405	0.5472	-2.57	.0194	-0.4557	-2.3535

Paired comparisons of least square means between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period	1.0839	0.4537	2.389	.0281	1.8706	0.2971

Paired comparisons of least square means for areas between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Area NDC	0.9251	0.6417	1.44	.1666	2.0377	-0.1876
Area SDC	1.2426	0.6417	1.94	.0687	2.3553	0.1300

Area-period means and deltas from original data

Area-Period	N	Area Mean	Area Range	Standard Error	Upper 95% c.i.	Lower 95% c.i.	Mean Delta	Delta Range	Upper 95% CIi.	Lower 95% C.I.
NDC Op-1	8	3.42	17.97	2.212	8.65	-1.81	-3.42	17.97	1.81	-8.65
NDC Op-2	3	31.44	85.56	27.180	148.38	-85.51	-31.44	85.56	85.51	-148.38
SDC Op-1	8	0.23	1.88	0.234	0.79	-0.32	-0.23	1.88	0.32	-0.79
SDC Op-2	3	14.72	40.21	12.794	69.77	-40.33	-14.72	40.21	40.33	-69.77

Period means and deltas from original control data

Period	N	Area Mean	Area Range	Standard Error	Upper 95% C.I.	Lower 95% C.I.
Op-1	20	0.00	0.00	0.000	.	.
Op-2	5	0.00	0.00	0.000	.	.

Benthic Transects ANOVA Results for SFO for 0580 - Aulorhynchus flavidus

Data transformed using log base10(x + 1)

Results for Analysis of Variance

Source	Source df	Error df	F-value	Prob.
AREA	1	18.000	6.67	0.0188
PERIOD	1	18.000	0.24	0.6306
AREA*PERIOD	1	18.000	2.29	0.1480

Results for Power Analysis
Power at alpha = .1

Source	Non-Centrality Parameter	Adjusted non-Centrality Parameter	Power	Adjusted Power	Power to Detect 50% Change
AREA*PERIOD	2.29	1.03	0.4256	0.2566	0.1853
PERIOD	0.24	0.00	0.1374	.	0.2623

Estimates for contrasts on combinations of interaction terms

Source	Difference	Std. Err.	T-value	Prob.
Period in NDC	0.1487	0.2056	0.723	.4790
Period in SDC	-0.2909	0.2056	-1.415	.1742

Least square means & confidence intervals from analysis of variance

Source	LS Mean	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period Op-1	-0.225	0.0759	-2.96	.0084	-0.0930	-0.3563
Period Op-2	-0.154	0.1240	-1.24	.2316	0.0615	-0.3685
Op-1 NDC	0.073	0.1074	0.68	.5053	0.2592	-0.1132
Op-2 NDC	-0.076	0.1753	-0.43	.6712	0.2284	-0.3797
Op-1 SDC	-0.522	0.1074	-4.86	.0001	-0.3361	-0.7085
Op-2 SDC	-0.231	0.1753	-1.32	.2035	0.0727	-0.5354

Paired comparisons of least square means between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period	-0.0711	0.1454	-0.489	.6306	0.1810	-0.3232

Paired comparisons of least square means for areas between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Area NDC	0.1487	0.2056	0.72	.4790	0.5052	-0.2079
Area SDC	-0.2909	0.2056	-1.41	.1742	0.0656	-0.6475

Area-period means and deltas from original data

Area-Period	N	Area Mean	Area Range	Standard Error	Upper 95% c.i.	Lower 95% c.i.	Mean Delta	Delta Range	Upper 95% CI1.	Lower 95% C.I.
NDC Op-1	8	0.20	0.88	0.106	0.45	-0.05	0.36	2.66	1.13	-0.41
NDC Op-2	3	1.20	2.22	0.642	3.96	-1.56	-0.43	2.68	3.14	-4.01
SDC Op-1	8	5.88	20.83	2.444	11.66	0.10	-5.32	19.13	0.11	-10.75
SDC Op-2	3	3.03	7.42	2.351	13.15	-7.09	-2.26	7.08	7.58	-12.11

Period means and deltas from original control data

Period	N	Area Mean	Area Range	Standard Error	Upper 95% C.I.	Lower 95% C.I.
Op-1	20	0.59	6.83	0.371	1.36	-0.19
Op-2	5	0.65	1.75	0.371	1.68	-0.38

Midwater Transectsce for SFO for 0592 - Brachyistius frenatus

Data transformed using log base10(x + .1)

Results for Analysis of Variance

Source	Source df	Error df	F-value	Prob.
AREA	1	18.000	2.31	0.1457
PERIOD	1	18.000	26.34	0.0001
AREA*PERIOD	1	18.000	0.90	0.3562

Results for Power Analysis
Power at alpha = .1

Source	Non-Centrality Parameter	Adjusted non-Centrality Parameter	Power	Adjusted Power	Power to Detect 50% Change
AREA*PERIOD	0.90	0.00	0.2369	.	0.1024
PERIOD	26.34	22.42	0.9995	0.9982	0.1647

Estimates for contrasts on combinations of interaction terms

Source	Difference	Std. Err.	T-value	Prob.
Period in NDC	1.1681	0.2717	4.299	.0004
Period in SDC	0.8042	0.2717	2.960	.0084

Least square means & confidence intervals from analysis of variance

Source	LS Mean	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period Op-1	-0.138	0.1003	-1.37	.1870	0.0364	-0.3116
Period Op-2	-1.124	0.1639	-6.86	.0000	-0.8397	-1.4079
Op-1 NDC	-0.193	0.1419	-1.36	.1911	0.0533	-0.4388
Op-2 NDC	-1.361	0.2317	-5.87	.0000	-0.9590	-1.7627
Op-1 SDC	-0.082	0.1419	-0.58	.5683	0.1636	-0.3285
Op-2 SDC	-0.887	0.2317	-3.83	.0012	-0.4849	-1.2885

Paired comparisons of least square means between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period	0.9862	0.1921	5.133	.0001	1.3193	0.6530

Paired comparisons of least square means for areas between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Area NDC	1.1681	0.2717	4.30	.0004	1.6393	0.6969
Area SDC	0.8042	0.2717	2.96	.0084	1.2754	0.3331

Area-period means and deltas from original data

Area-Period	N	Area Mean	Area Range	Standard Error	Upper 95% c.i.	Lower 95% c.i.	Mean Delta	Delta Range	Upper 95% CIi.	Lower 95% C.I.
NDC Op-1	8	0.17	0.66	0.084	0.37	-0.03	-0.13	0.75	0.08	-0.35
NDC Op-2	3	3.79	7.53	2.282	13.61	-6.03	-3.78	7.57	6.08	-13.64
SDC Op-1	8	0.11	0.63	0.075	0.29	-0.07	-0.07	0.71	0.13	-0.26
SDC Op-2	3	0.85	0.96	0.281	2.06	-0.36	-0.83	1.00	0.42	-2.09

Period means and deltas from original control data

Period	N	Area Mean	Area Range	Standard Error	Upper 95% C.I.	Lower 95% C.I.
Op-1	20	0.04	0.25	0.017	0.08	0.01
Op-2	5	0.02	0.08	0.017	0.06	-0.03

Benthic Transects ANOVA Results for SFO for 0643 - Cebidichthys violaceus

Data not transformed.

Results for Analysis of Variance

Source	Source df	Error df	F-value	Prob.
AREA	1	18.000	10.15	0.0051
PERIOD	1	18.000	0.07	0.7908
AREA*PERIOD	1	18.000	3.32	0.0851

Results for Power Analysis
Power at alpha = .1

Source	Non-Centrality Parameter	Adjusted non-Centrality Parameter	Power	Adjusted Power	Power to Detect 50% Change
AREA*PERIOD	3.32	1.95	0.5433	0.3831	0.1334
PERIOD	0.07	0.00	0.1114	.	0.6666

Estimates for contrasts on combinations of interaction terms

Source	Difference	Std. Err.	T-value	Prob.
Period in NDC	0.1450	0.0980	1.479	.1565
Period in SDC	-0.1076	0.0980	-1.098	.2867

Least square means & confidence intervals from analysis of variance

Source	LS Mean	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period Op-1	-0.086	0.0362	-2.36	.0297	-0.0227	-0.1483
Period Op-2	-0.104	0.0591	-1.76	.0951	-0.0016	-0.2067
Op-1 NDC	-0.133	0.0512	-2.59	.0183	-0.0440	-0.2216
Op-2 NDC	-0.278	0.0836	-3.32	.0038	-0.1328	-0.4228
Op-1 SDC	-0.038	0.0512	-0.75	.4653	0.0506	-0.1270
Op-2 SDC	0.069	0.0836	0.83	.4171	0.2144	-0.0755

Paired comparisons of least square means between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period	0.0187	0.0693	0.269	.7908	0.1389	-0.1016

Paired comparisons of least square means for areas between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Area NDC	0.1450	0.0980	1.48	.1565	0.3150	-0.0250
Area SDC	-0.1076	0.0980	-1.10	.2867	0.0624	-0.2777

Area-period means and deltas from original data

Area-Period	N	Mean	Area Range	Standard Error	Upper 95% c.i.	Lower 95% c.i.	Mean Delta	Delta Range	Upper 95% CIi.	Lower 95% C.I.
NDC Op-1	8	0.27	0.63	0.070	0.43	0.10	-0.13	0.50	0.00	-0.27
NDC Op-2	3	0.38	0.19	0.054	0.61	0.14	-0.28	0.26	0.08	-0.63
SDC Op-1	8	0.17	0.33	0.045	0.28	0.07	-0.04	0.40	0.07	-0.14
SDC Op-2	3	0.03	0.08	0.028	0.15	-0.09	0.07	0.25	0.40	-0.26

Period means and deltas from original control data

Period	N	Mean	Area Range	Standard Error	Upper 95% C.I.	Lower 95% C.I.
Op-1	20	0.15	0.83	0.043	0.24	0.06
Op-2	5	0.12	0.25	0.042	0.23	-0.00

Benthic Transects ANOVA Results for SFO for 0652 - Cephaloscyllium ventriosum

Data transformed using log base10(x + .1)

Results for Analysis of Variance

Source	Source df	Error df	F-value	Prob.
AREA	1	18.000	0.02	0.8970
PERIOD	1	18.000	0.49	0.4950
AREA*PERIOD	1	18.000	0.02	0.8970

Results for Power Analysis
Power at alpha = .1

Source	Non-Centrality Parameter	Adjusted non-Centrality Parameter	Power	Adjusted Power	Power to Detect 50% Change
AREA*PERIOD	0.02	0.00	0.1027	.	0.1000
PERIOD	0.49	0.00	0.1752	.	0.1000

Estimates for contrasts on combinations of interaction terms

Source	Difference	Std. Err.	T-value	Prob.
Period in NDC	-0.0848	0.2121	-0.400	.6941
Period in SDC	-0.1241	0.2121	-0.585	.5656

Least square means & confidence intervals from analysis of variance

Source	LS Mean	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period Op-1	0.135	0.0783	1.73	.1013	0.2711	-0.0006
Period Op-2	0.240	0.1279	1.87	.0772	0.4615	0.0179
Op-1 NDC	0.135	0.1108	1.22	.2378	0.3273	-0.0568
Op-2 NDC	0.220	0.1809	1.22	.2395	0.5337	-0.0936
Op-1 SDC	0.135	0.1108	1.22	.2378	0.3273	-0.0568
Op-2 SDC	0.259	0.1809	1.43	.1687	0.5730	-0.0543

Paired comparisons of least square means between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period	-0.1045	0.1500	-0.697	.4950	0.1556	-0.3645

Paired comparisons of least square means for areas between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Area NDC	-0.0848	0.2121	-0.40	.6941	0.2830	-0.4526
Area SDC	-0.1241	0.2121	-0.59	.5656	0.2436	-0.4919

Area-period means and deltas from original data

Area-Period	N	Area Mean	Area Range	Standard Error	Upper 95% c.i.	Lower 95% c.i.	Mean Delta	Delta Range	Upper 95% CIi.	Lower 95% C.I.
NDC Op-1	8	0.00	0.00	0.000	.	.	0.06	0.29	0.16	-0.04
NDC Op-2	3	0.01	0.03	0.010	0.06	-0.03	0.16	0.53	0.90	-0.58
SDC Op-1	8	0.00	0.00	0.000	.	.	0.06	0.29	0.16	-0.04
SDC Op-2	3	0.00	0.00	0.000	.	.	0.17	0.50	0.88	-0.55

Period means and deltas from original control data

Period	N	Area Mean	Area Range	Standard Error	Upper 95% C.I.	Lower 95% C.I.
Op-1	20	0.06	0.50	0.036	0.14	-0.01
Op-2	5	0.10	0.50	0.100	0.38	-0.18

Midwater Transectsce for SFO for 1183 - Chromis punctipinnis

Data transformed using log base10(x + .1)

Results for Analysis of Variance

Source	Source df	Error df	F-value	Prob.
AREA	1	18.000	2.47	0.1334
PERIOD	1	18.000	1.46	0.2424
AREA*PERIOD	1	18.000	1.05	0.3198

Results for Power Analysis
Power at alpha = .1

Source	Non-Centrality Parameter	Adjusted non-Centrality Parameter	Power	Adjusted Power	Power to Detect 50% Change
AREA*PERIOD	1.05	0.00	0.2589	.	0.1666
PERIOD	1.46	0.30	0.3175	0.1466	0.1922

Estimates for contrasts on combinations of interaction terms

Source	Difference	Std. Err.	T-value	Prob.
Period in NDC	-0.1601	0.1015	-1.578	.1319
Period in SDC	-0.0133	0.1015	-0.131	.8971

Least square means & confidence intervals from analysis of variance

Source	LS Mean	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period Op-1	-0.106	0.0375	-2.84	.0109	-0.0414	-0.1714
Period Op-2	-0.020	0.0612	-0.32	.7514	0.0864	-0.1258
Op-1 NDC	-0.200	0.0530	-3.76	.0014	-0.1076	-0.2914
Op-2 NDC	-0.039	0.0865	-0.45	.6546	0.1107	-0.1894
Op-1 SDC	-0.013	0.0530	-0.25	.8046	0.0786	-0.1052
Op-2 SDC	-0.000	0.0865	-0.00	1.000	0.1501	-0.1501

Paired comparisons of least square means between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period	-0.0867	0.0718	-1.209	.2424	0.0377	-0.2112

Paired comparisons of least square means for areas between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Area NDC	-0.1601	0.1015	-1.58	.1319	0.0158	-0.3361
Area SDC	-0.0133	0.1015	-0.13	.8971	0.1627	-0.1893

Area-period means and deltas from original data

Area-Period	N	Mean	Area Range	Standard Error	Upper 95% c.i.	Lower 95% c.i.	Mean Delta	Delta Range	Upper 95% CIi.	Lower 95% C.I.
NDC Op-1	8	0.08	0.25	0.036	0.17	-0.00	-0.08	0.25	0.00	-0.17
NDC Op-2	3	0.01	0.03	0.010	0.06	-0.03	-0.01	0.03	0.03	-0.06
SDC Op-1	8	0.00	0.03	0.003	0.01	-0.00	-0.00	0.03	0.00	-0.01
SDC Op-2	3	0.00	0.00	0.000	.	.	0.00	0.00	.	.

Period means and deltas from original control data

Period	N	Mean	Area Range	Standard Error	Upper 95% C.I.	Lower 95% C.I.
Op-1	20	0.00	0.00	0.000	.	.
Op-2	5	0.00	0.00	0.000	.	.

Benthic Transects ANOVA Results for SPO for 0647 - Citharichthys spp.

Data transformed using log base10(x + .1)

Results for Analysis of Variance

Source	Source df	Error df	F-value	Prob.
AREA	1	18.000	64.50	0.0000
PERIOD	1	18.000	0.00	0.9956
AREA*PERIOD	1	18.000	0.34	0.5644

Results for Power Analysis
Power at alpha = .1

Source	Non-Centrality Parameter	Adjusted non-Centrality Parameter	Power	Adjusted Power	Power to Detect 50% Change
AREA*PERIOD	0.34	0.00	0.1537	.	0.2863
PERIOD	0.00	0.00	0.1000	.	0.2863

Estimates for contrasts on combinations of interaction terms

Source	Difference	Std. Err.	T-value	Prob.
Period in NDC	0.0987	0.2355	0.419	.6801
Period in SDC	-0.0969	0.2355	-0.411	.6857

Least square means & confidence intervals from analysis of variance

Source	LS Mean	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period Op-1	-0.619	0.0870	-7.12	.0000	-0.4681	-0.7697
Period Op-2	-0.620	0.1420	-4.36	.0004	-0.3736	-0.8661
Op-1 NDC	0.099	0.1230	0.80	.4327	0.3120	-0.1146
Op-2 NDC	0.000	0.2008	0.00	1.000	0.3483	-0.3483
Op-1 SDC	-1.337	0.1230	-10.87	.0000	-1.1233	-1.5498
Op-2 SDC	-1.240	0.2008	-6.17	.0000	-0.8914	-1.5879

Paired comparisons of least square means between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period	0.0009	0.1665	0.006	.9956	0.2897	-0.2878

Paired comparisons of least square means for areas between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Area NDC	0.0987	0.2355	0.42	.6801	0.5071	-0.3097
Area SDC	-0.0969	0.2355	-0.41	.6857	0.3115	-0.5052

Area-period means and deltas from original data

Area-Period	N	Area Mean	Area Range	Standard Error	Upper 95% c.i.	Lower 95% c.i.	Mean Delta	Delta Range	Upper 95% CIi.	Lower 95% C.I.
NDC Op-1	8	0.00	0.00	0.000	.	.	0.03	0.08	0.07	-0.00
NDC Op-2	3	0.00	0.00	0.000	.	.	0.00	0.00	.	.
SDC Op-1	8	4.98	17.61	2.102	9.95	0.01	-4.95	17.53	-0.00	-9.90
SDC Op-2	3	2.35	4.46	1.355	8.18	-3.48	-2.35	4.46	3.48	-8.18

Period means and deltas from original control data

Period	N	Area Mean	Area Range	Standard Error	Upper 95% C.I.	Lower 95% C.I.
Op-1	20	0.03	0.17	0.014	0.05	-0.00
Op-2	5	0.00	0.00	0.000	.	.

Benthic Transects ANOVA Results for SPO for 0620 - Coryphopterus nicholsii

Data transformed using square root(x + .5)

Results for Analysis of Variance

Source	Source df	Error df	F-value	Prob.
AREA	1	18.000	27.16	0.0001
PERIOD	1	18.000	0.24	0.6317
AREA*PERIOD	1	18.000	2.64	0.1217

Results for Power Analysis
Power at alpha = .1

Source	Non-Centrality Parameter	Adjusted non-Centrality Parameter	Power	Adjusted Power	Power to Detect 50% Change
AREA*PERIOD	2.64	1.35	0.4680	0.3014	0.4954
PERIOD	0.24	0.00	0.1372	.	0.7809

Estimates for contrasts on combinations of interaction terms

Source	Difference	Std. Err.	T-value	Prob.
Period in NDC	-0.3535	0.2367	-1.493	.1526
Period in SDC	0.1902	0.2367	0.804	.4320

Least square means & confidence intervals from analysis of variance

Source	LS Mean	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period Op-1	-0.418	0.0874	-4.78	.0001	-0.2667	-0.5698
Period Op-2	-0.337	0.1427	-2.36	.0299	-0.0891	-0.5841
Op-1 NDC	-0.990	0.1236	-8.01	.0000	-0.7760	-1.2047
Op-2 NDC	-0.637	0.2019	-3.15	.0055	-0.2868	-0.9869
Op-1 SDC	0.154	0.1236	1.24	.2292	0.3682	-0.0605
Op-2 SDC	-0.036	0.2019	-0.18	.8590	0.3137	-0.3864

Paired comparisons of least square means between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period	-0.0816	0.1674	-0.488	.6317	0.2086	-0.3719

Paired comparisons of least square means for areas between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Area NDC	-0.3535	0.2367	-1.49	.1526	0.0570	-0.7640
Area SDC	0.1902	0.2367	0.80	.4320	0.6007	-0.2202

Area-period means and deltas from original data

Area-Period	N	Area Mean	Area Range	Standard Error	Upper 95% c.i.	Lower 95% c.i.	Mean Delta	Delta Range	Upper 95% CIi.	Lower 95% C.I.
NDC Op-1	8	4.03	8.19	0.923	6.21	1.85	-3.28	6.81	-1.38	-5.19
NDC Op-2	3	1.67	0.59	0.175	2.42	0.91	-1.47	0.47	-0.86	-2.08
SDC Op-1	8	0.38	0.81	0.086	0.58	0.17	0.38	1.67	1.00	-0.24
SDC Op-2	3	0.29	0.79	0.251	1.37	-0.79	-0.10	0.83	0.98	-1.17

Period means and deltas from original control data

Period	N	Area Mean	Area Range	Standard Error	Upper 95% C.I.	Lower 95% C.I.
Op-1	20	0.86	2.38	0.186	1.25	0.47
Op-2	5	0.18	0.33	0.061	0.35	0.01

Benthic Transects ANOVA Results for SFO for 2068 - Cottidae unid.

Data transformed using log base10(x + 1)

Results for Analysis of Variance

Source	Source df	Error df	F-value	Prob.
AREA	1	18.000	0.38	0.5473
PERIOD	1	18.000	3.63	0.0729
AREA*PERIOD	1	18.000	0.00	0.9833

Results for Power Analysis
Power at alpha = .1

Source	Non-Centrality Parameter	Adjusted non-Centrality Parameter	Power	Adjusted Power	Power to Detect 50% Change
AREA*PERIOD	0.00	0.00	0.1001	.	0.1050
PERIOD	3.63	2.23	0.5747	0.4182	0.2636

Estimates for contrasts on combinations of interaction terms

Source	Difference	Std. Err.	T-value	Prob.
Period in NDC	0.0547	0.0411	1.332	.1995
Period in SDC	0.0559	0.0411	1.362	.1900

Least square means & confidence intervals from analysis of variance

Source	LS Mean	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period Op-1	0.031	0.0152	2.07	.0528	0.0577	0.0051
Period Op-2	-0.024	0.0248	-0.96	.3478	0.0191	-0.0668
Op-1 NDC	0.040	0.0214	1.87	.0783	0.0772	0.0029
Op-2 NDC	-0.015	0.0350	-0.42	.6805	0.0461	-0.0754
Op-1 SDC	0.023	0.0214	1.07	.3008	0.0600	-0.0143
Op-2 SDC	-0.033	0.0350	-0.94	.3573	0.0276	-0.0938

Paired comparisons of least square means between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period	0.0553	0.0290	1.905	.0729	0.1056	0.0050

Paired comparisons of least square means for areas between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Area NDC	0.0547	0.0411	1.33	.1995	0.1259	-0.0165
Area SDC	0.0559	0.0411	1.36	.1900	0.1271	-0.0153

Area-period means and deltas from original data

Area-Period	N	Area Mean	Area Range	Standard Error	Upper 95% c.i.	Lower 95% c.i.	Mean Delta	Delta Range	Upper 95% CIi.	Lower 95% C.I.
NDC Op-1	8	0.09	0.15	0.018	0.14	0.05	0.11	0.48	0.24	-0.02
NDC Op-2	3	0.10	0.06	0.021	0.19	0.01	-0.03	0.23	0.27	-0.34
SDC Op-1	8	0.14	0.46	0.050	0.26	0.02	0.06	0.63	0.23	-0.10
SDC Op-2	3	0.15	0.13	0.037	0.31	-0.01	-0.08	0.25	0.28	-0.44

Period means and deltas from original control data

Period	N	Area Mean	Area Range	Standard Error	Upper 95% C.I.	Lower 95% C.I.
Op-1	20	0.22	0.63	0.044	0.32	0.13
Op-2	5	0.08	0.17	0.037	0.19	-0.02

Midwater Transectsce for SFO for 0645 - Cymatogaster aggregata

Data transformed using log base10(x + .1)

Results for Analysis of Variance

Source	Source df	Error df	F-value	Prob.
AREA	1	18.000	0.00	0.9980
PERIOD	1	18.000	1.74	0.2042
AREA*PERIOD	1	18.000	0.00	0.9980

Results for Power Analysis
Power at alpha = .1

Source	Non-Centrality Parameter	Adjusted non-Centrality Parameter	Power	Adjusted Power	Power to Detect 50% Change
AREA*PERIOD	0.00	0.00	0.1000	.	0.1001
PERIOD	1.74	0.54	0.3549	0.1840	0.1099

Estimates for contrasts on combinations of interaction terms

Source	Difference	Std. Err.	T-value	Prob.
Period in NDC	-0.6023	0.6453	-0.933	.3630
Period in SDC	-0.6000	0.6453	-0.930	.3648

Least square means & confidence intervals from analysis of variance

Source	LS Mean	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period Op-1	-0.601	0.2383	-2.52	.0213	-0.1879	-1.0144
Period Op-2	0.000	0.3892	0.00	1.000	0.6748	-0.6748
Op-1 NDC	-0.602	0.3370	-1.79	.0908	-0.0179	-1.1867
Op-2 NDC	0.000	0.5503	0.00	1.000	0.9543	-0.9543
Op-1 SDC	-0.600	0.3370	-1.78	.0919	-0.0156	-1.1844
Op-2 SDC	0.000	0.5503	0.00	1.000	0.9543	-0.9543

Paired comparisons of least square means between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period	-0.6012	0.4563	-1.317	.2042	0.1901	-1.3925

Paired comparisons of least square means for areas between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Area NDC	-0.6023	0.6453	-0.93	.3630	0.5167	-1.7214
Area SDC	-0.6000	0.6453	-0.93	.3648	0.5191	-1.7191

Area-period means and deltas from original data

Area-Period	N	Mean	Area Range	Standard Error	Upper 95% c.i.	Lower 95% c.i.	Mean Delta	Delta Range	Upper 95% CIi.	Lower 95% C.I.
NDC Op-1	8	4.36	21.88	2.968	11.38	-2.66	-4.36	21.88	2.66	-11.38
NDC Op-2	3	0.00	0.00	0.000	.	.	0.00	0.00	.	.
SDC Op-1	8	11.89	88.08	10.919	37.71	-13.93	-11.89	88.08	13.93	-37.71
SDC Op-2	3	0.00	0.00	0.000	.	.	0.00	0.00	.	.

Period means and deltas from original control data

Period	N	Mean	Area Range	Standard Error	Upper 95% C.I.	Lower 95% C.I.
Op-1	20	0.00	0.00	0.000	.	.
Op-2	5	0.00	0.00	0.000	.	.

Benthic Transects ANOVA Results for SFO for 0585 - Damalichthys vacca

Data transformed using log base10(x + .1)

Results for Analysis of Variance

Source	Source df	Error df	F-value	Prob.
AREA	1	18.000	2.63	0.1222
PERIOD	1	18.000	0.90	0.3546
AREA*PERIOD	1	18.000	0.69	0.4183

Results for Power Analysis
Power at alpha = .1

Source	Non-Centrality Parameter	Adjusted non-Centrality Parameter	Power	Adjusted Power	Power to Detect 50% Change
AREA*PERIOD	0.69	0.00	0.2057	.	0.1022
PERIOD	0.90	0.00	0.2379	.	0.4849

Estimates for contrasts on combinations of interaction terms

Source	Difference	Std. Err.	T-value	Prob.
Period in NDC	0.0266	0.3092	0.086	.9323
Period in SDC	0.3888	0.3092	1.258	.2246

Least square means & confidence intervals from analysis of variance

Source	LS Mean	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period Op-1	-0.203	0.1142	-1.78	.0919	-0.0053	-0.4012
Period Op-2	-0.411	0.1864	-2.20	.0407	-0.0877	-0.7343
Op-1 NDC	-0.471	0.1614	-2.92	.0092	-0.1911	-0.7511
Op-2 NDC	-0.498	0.2636	-1.89	.0753	-0.0406	-0.9549
Op-1 SDC	0.065	0.1614	0.40	.6939	0.3445	-0.2154
Op-2 SDC	-0.324	0.2636	-1.23	.2346	0.1329	-0.7814

Paired comparisons of least square means between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period	0.2077	0.2186	0.950	.3546	0.5868	-0.1713

Paired comparisons of least square means for areas between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Area NDC	0.0266	0.3092	0.09	.9323	0.5627	-0.5094
Area SDC	0.3888	0.3092	1.26	.2246	0.9249	-0.1473

Area-period means and deltas from original data

Area-Period	N	Area Mean	Area Range	Standard Error	Upper 95% c.i.	Lower 95% c.i.	Mean Delta	Delta Range	Upper 95% CIi.	Lower 95% C.I.
NDC Op-1	8	4.11	7.00	0.780	5.95	2.26	-2.53	6.26	-0.87	-4.18
NDC Op-2	3	3.68	2.00	0.652	6.48	0.87	-2.44	1.82	-0.05	-4.83
SDC Op-1	8	1.75	7.94	0.919	3.93	-0.42	-0.17	11.61	2.60	-2.94
SDC Op-2	3	5.82	14.46	4.507	25.21	-13.57	-4.58	12.92	12.58	-21.75

Period means and deltas from original control data

Period	N	Area Mean	Area Range	Standard Error	Upper 95% C.I.	Lower 95% C.I.
Op-1	20	1.46	9.83	0.505	2.52	0.41
Op-2	5	1.35	2.50	0.474	2.67	0.03

Benthic Transects ANOVA Results for SFO for 0595 - Embiotoca jacksoni

Data transformed using log base10(x + 1)

Results for Analysis of Variance

Source	Source df	Error df	F-value	Prob.
AREA	1	18.000	23.88	0.0001
PERIOD	1	18.000	0.06	0.8030
AREA*PERIOD	1	18.000	0.21	0.6495

Results for Power Analysis
Power at alpha = .1

Source	Non-Centrality Parameter	Adjusted non-Centrality Parameter	Power	Adjusted Power	Power to Detect 50% Change
AREA*PERIOD	0.21	0.00	0.1334	.	0.2714
PERIOD	0.06	0.00	0.1101	.	0.9182

Estimates for contrasts on combinations of interaction terms

Source	Difference	Std. Err.	T-value	Prob.
Period in NDC	-0.0132	0.0892	-0.148	.8842
Period in SDC	0.0451	0.0892	0.506	.6191

Least square means & confidence intervals from analysis of variance

Source	LS Mean	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period Op-1	-0.032	0.0329	-0.96	.3487	0.0254	-0.0888
Period Op-2	-0.048	0.0538	-0.89	.3872	0.0456	-0.1410
Op-1 NDC	-0.200	0.0466	-4.30	.0004	-0.1196	-0.2812
Op-2 NDC	-0.187	0.0761	-2.46	.0242	-0.0553	-0.3191
Op-1 SDC	0.137	0.0466	2.94	.0087	0.2178	0.0562
Op-2 SDC	0.092	0.0761	1.21	.2428	0.2238	-0.0400

Paired comparisons of least square means between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period	0.0160	0.0631	0.253	.8030	0.1254	-0.0934

Paired comparisons of least square means for areas between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Area NDC	-0.0132	0.0892	-0.15	.8842	0.1415	-0.1679
Area SDC	0.0451	0.0892	0.51	.6191	0.1998	-0.1096

Area-period means and deltas from original data

Area-Period	N	Area Mean	Area Range	Standard Error	Upper 95% C.I.	Lower 95% C.I.	Mean Delta	Delta Range	Upper 95% CIi.	Lower 95% C.I.
NDC Op-1	8	2.88	2.92	0.322	3.64	2.12	-1.45	2.49	-0.65	-2.26
NDC Op-2	3	3.10	2.22	0.652	5.91	0.30	-1.47	1.22	0.18	-3.11
SDC Op-1	8	0.85	2.08	0.261	1.47	0.23	0.58	1.88	1.13	0.03
SDC Op-2	3	1.40	2.88	0.926	5.39	-2.58	0.24	1.96	2.78	-2.31

Period means and deltas from original control data

Period	N	Area Mean	Area Range	Standard Error	Upper 95% C.I.	Lower 95% C.I.
Op-1	20	1.48	2.67	0.182	1.86	1.10
Op-2	5	1.73	2.00	0.352	2.71	0.76

Benthic Transects ANOVA Results for SFO for 0604 - Embiotoca lateralis

Data transformed using log base10(x + .5)

Results for Analysis of Variance

Source	Source df	Error df	F-value	Prob.
AREA	1	18.000	19.91	0.0003
PERIOD	1	18.000	0.05	0.8224
AREA*PERIOD	1	18.000	0.17	0.6827

Results for Power Analysis
Power at alpha = .1

Source	Non-Centrality Parameter	Adjusted non-Centrality Parameter	Power	Adjusted Power	Power to Detect 50% Change
AREA*PERIOD	0.17	0.00	0.1270	.	0.2318
PERIOD	0.05	0.00	0.1081	.	0.6950

Estimates for contrasts on combinations of interaction terms

Source	Difference	Std. Err.	T-value	Prob.
Period in NDC	-0.0568	0.1249	-0.455	.6547
Period in SDC	0.0166	0.1249	0.133	.8959

Least square means & confidence intervals from analysis of variance

Source	LS Mean	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period Op-1	0.391	0.0461	8.47	.0000	0.4709	0.3109
Period Op-2	0.411	0.0753	5.46	.0000	0.5417	0.2804
Op-1 NDC	0.175	0.0652	2.69	.0150	0.2886	0.0623
Op-2 NDC	0.232	0.1065	2.18	.0428	0.4170	0.0475
Op-1 SDC	0.606	0.0652	9.29	.0000	0.7195	0.4932
Op-2 SDC	0.590	0.1065	5.54	.0000	0.7745	0.4050

Paired comparisons of least square means between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period	-0.0201	0.0883	-0.228	.8224	0.1331	-0.1733

Paired comparisons of least square means for areas between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Area NDC	-0.0568	0.1249	-0.45	.6547	0.1598	-0.2735
Area SDC	0.0166	0.1249	0.13	.8959	0.2332	-0.2001

Area-period means and deltas from original data

Area-Period	N	Mean	Area Range	Standard Error	Upper 95% c.i.	Lower 95% c.i.	Mean Delta	Delta Range	Upper 95% CIi.	Lower 95% C.I.
NDC Op-1	8	1.77	2.46	0.269	2.41	1.14	1.00	2.71	1.79	0.21
NDC Op-2	3	1.42	1.31	0.396	3.12	-0.29	1.49	3.19	5.51	-2.54
SDC Op-1	8	0.34	0.89	0.104	0.59	0.09	2.43	1.92	2.97	1.90
SDC Op-2	3	0.42	1.08	0.337	1.87	-1.03	2.49	1.92	5.15	-0.18

Period means and deltas from original control data

Period	N	Mean	Area Range	Standard Error	Upper 95% C.I.	Lower 95% C.I.
Op-1	20	2.72	4.42	0.252	3.25	2.19
Op-2	5	3.23	3.25	0.570	4.82	1.65

Midwater Transectsce for SFO for 0919 - Engraulis mordax

Data not transformed.

Results for Analysis of Variance

Source	Source df	Error df	F-value	Prob.
AREA	1	18.000	0.37	0.5493
PERIOD	1	18.000	0.35	0.5613
AREA*PERIOD	1	18.000	0.37	0.5493

Results for Power Analysis
Power at alpha = .1

Source	Non-Centrality Parameter	Adjusted non-Centrality Parameter	Power	Adjusted Power	Power to Detect 50% Change
AREA*PERIOD	0.37	0.00	0.1580	.	0.1267
PERIOD	0.35	0.00	0.1546	.	0.1267

Estimates for contrasts on combinations of interaction terms

Source	Difference	Std. Err.	T-value	Prob.
Period in NDC	0.4167	31.9903	0.013	.9898
Period in SDC	-27.1910	31.9903	-0.850	.4065

Least square means & confidence intervals from analysis of variance

Source	LS Mean	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period Op-1	-13.387	11.8132	-1.13	.2720	7.0977	-33.8720
Period Op-2	0.000	19.2909	0.00	1.000	33.4516	-33.4516
Op-1 NDC	0.417	16.7064	0.02	.9804	29.3866	-28.5533
Op-2 NDC	-0.000	27.2814	-0.00	1.000	47.3077	-47.3077
Op-1 SDC	-27.191	16.7064	-1.63	.1210	1.7790	-56.1609
Op-2 SDC	0.000	27.2814	0.00	1.000	47.3077	-47.3077

Paired comparisons of least square means between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period	-13.3872	22.6206	-0.592	.5613	25.8383	-52.6127

Paired comparisons of least square means for areas between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Area NDC	0.4167	31.9903	0.01	.9898	55.8899	-55.0566
Area SDC	-27.1910	31.9903	-0.85	.4065	28.2823	-82.6642

Area-period means and deltas from original data

Area-Period	N	Area Mean	Area Range	Standard Error	Upper 95% c.i.	Lower 95% c.i.	Mean Delta	Delta Range	Upper 95% CIi.	Lower 95% C.I.
NDC Op-1	8	0.00	0.00	0.000	.	.	0.42	3.33	1.40	-0.57
NDC Op-2	3	0.00	0.00	0.000	.	.	0.00	0.00	.	.
SDC Op-1	8	27.61	214.58	26.722	90.80	-35.58	-27.19	217.89	36.15	-90.53
SDC Op-2	3	0.00	0.00	0.000	.	.	0.00	0.00	.	.

Period means and deltas from original control data

Period	N	Area Mean	Area Range	Standard Error	Upper 95% C.I.	Lower 95% C.I.
Op-1	20	0.50	10.00	0.500	1.55	-0.55
Op-2	5	0.00	0.00	0.000	.	.

Benthic Transects ANOVA Results for SFO for 0581 - Gibbonsia spp.

Data transformed using square root(x + .5)

Results for Analysis of Variance

Source	Source df	Error df	F-value	Prob.
AREA	1	18.000	2.24	0.1514
PERIOD	1	18.000	0.03	0.8584
AREA*PERIOD	1	18.000	0.31	0.5827

Results for Power Analysis
Power at alpha = .1

Source	Non-Centrality Parameter	Adjusted non-Centrality Parameter	Power	Adjusted Power	Power to Detect 50% Change
AREA*PERIOD	0.31	0.00	0.1488	.	0.1108
PERIOD	0.03	0.00	0.1051	.	0.9547

Estimates for contrasts on combinations of interaction terms

Source	Difference	Std. Err.	T-value	Prob.
Period in NDC	0.0230	0.0859	0.268	.7920
Period in SDC	-0.0450	0.0859	-0.524	.6069

Least square means & confidence intervals from analysis of variance

Source	LS Mean	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period Op-1	-0.137	0.0317	-4.32	.0004	-0.0820	-0.1920
Period Op-2	-0.126	0.0518	-2.43	.0256	-0.0362	-0.2158
Op-1 NDC	-0.165	0.0448	-3.69	.0017	-0.0877	-0.2432
Op-2 NDC	-0.188	0.0732	-2.57	.0191	-0.0615	-0.3154
Op-1 SDC	-0.108	0.0448	-2.42	.0263	-0.0307	-0.1862
Op-2 SDC	-0.064	0.0732	-0.87	.3970	0.0634	-0.1905

Paired comparisons of least square means between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period	-0.0110	0.0607	-0.181	.8584	0.0943	-0.1163

Paired comparisons of least square means for areas between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Area NDC	0.0230	0.0859	0.27	.7920	0.1719	-0.1259
Area SDC	-0.0450	0.0859	-0.52	.6069	0.1039	-0.1938

Area-period means and deltas from original data

Area-Period	N	Area Mean	Area Range	Standard Error	Upper 95% c.i.	Lower 95% c.i.	Mean Delta	Delta Range	Upper 95% CIi.	Lower 95% C.I.
NDC Op-1	8	0.68	0.60	0.081	0.87	0.49	-0.34	0.65	-0.14	-0.54
NDC Op-2	3	0.55	0.75	0.223	1.51	-0.41	-0.37	0.88	0.74	-1.49
SDC Op-1	8	0.56	0.63	0.072	0.73	0.39	-0.22	0.54	-0.05	-0.38
SDC Op-2	3	0.29	0.25	0.072	0.60	-0.02	-0.11	0.33	0.32	-0.54

Period means and deltas from original control data

Period	N	Area Mean	Area Range	Standard Error	Upper 95% C.I.	Lower 95% C.I.
Op-1	20	0.35	1.13	0.055	0.46	0.23
Op-2	5	0.17	0.17	0.037	0.27	0.06

Benthic Transects ANOVA Results for SFO for 0637 - Girella nigricans

Data transformed using log base10(x + .1)

Satterthwaite's Adjustment for Degrees of Freedom used in Analysis of Variance.

Results for Analysis of Variance

Source	Source df	Error df	F-value	Prob.
AREA	1	18.000	40.23	0.0000
PERIOD	1	18.000	0.07	0.7909
AREA*PERIOD	1	18.000	0.07	0.7909

Results for Power Analysis
Power at alpha = .1

Source	Non-Centrality Parameter	Adjusted non-Centrality Parameter	Power	Adjusted Power	Power to Detect 50% Change
AREA*PERIOD	0.07	0.00	0.1114	.	0.2451
PERIOD	0.07	0.00	0.1114	.	0.2451

Estimates for contrasts on combinations of interaction terms

Source	Difference	Std. Err.	T-value	Prob.
Period in NDC	0.0875	0.2298	0.381	.7080
Period in SDC	-0.0000	0.2298	-0.000	1.000

Least square means & confidence intervals from analysis of variance

Source	LS Mean	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period Op-1	-0.493	0.0849	-5.81	.0000	-0.3463	-0.6406
Period Op-2	-0.537	0.1386	-3.88	.0011	-0.2969	-0.7775
Op-1 NDC	-0.987	0.1200	-8.22	.0000	-0.7788	-1.1950
Op-2 NDC	-1.074	0.1960	-5.48	.0000	-0.7345	-1.4142
Op-1 SDC	-0.000	0.1200	-0.00	1.000	0.2081	-0.2081
Op-2 SDC	0.000	0.1960	0.00	1.000	0.3398	-0.3398

Paired comparisons of least square means between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period	0.0437	0.1625	0.269	.7909	0.3255	-0.2380

Paired comparisons of least square means for areas between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Area NDC	0.0875	0.2298	0.38	.7080	0.4859	-0.3110
Area SDC	-0.0000	0.2298	-0.00	1.000	0.3985	-0.3985

Area-period means and deltas from original data

Area-Period	N	Mean	Area Range	Standard Error	Upper 95% c.i.	Lower 95% c.i.	Mean Delta	Delta Range	Upper 95% CIi.	Lower 95% C.I.
NDC Op-1	8	1.39	3.88	0.451	2.46	0.32	-1.39	3.88	-0.32	-2.46
NDC Op-2	3	1.52	2.47	0.714	4.59	-1.55	-1.52	2.47	1.55	-4.59
SDC Op-1	8	0.00	0.00	0.000	.	.	0.00	0.00	.	.
SDC Op-2	3	0.00	0.00	0.000	.	.	0.00	0.00	.	.

Period means and deltas from original control data

Period	N	Mean	Area Range	Standard Error	Upper 95% C.I.	Lower 95% C.I.
Op-1	20	0.00	0.00	0.000	.	.
Op-2	5	0.00	0.00	0.000	.	.

Benthic Transects ANOVA Results for SFO for 0601 - Hexagrammos decagrammus

Data transformed using log base10(x + .1)

Results for Analysis of Variance

Source	Source df	Error df	F-value	Prob.
AREA	1	18.000	4.48	0.0484
PERIOD	1	18.000	16.04	0.0008
AREA*PERIOD	1	18.000	0.19	0.6644

Results for Power Analysis
Power at alpha = .1

Source	Non-Centrality Parameter	Adjusted non-Centrality Parameter	Power	Adjusted Power	Power to Detect 50% Change
AREA*PERIOD	0.19	0.00	0.1304	.	0.1396
PERIOD	16.04	13.26	0.9862	0.9682	0.1570

Estimates for contrasts on combinations of interaction terms

Source	Difference	Std. Err.	T-value	Prob.
Period in NDC	0.3705	0.1178	3.144	.0056
Period in SDC	0.2970	0.1178	2.520	.0214

Least square means & confidence intervals from analysis of variance

Source	LS Mean	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period Op-1	0.630	0.0435	14.48	.0000	0.7054	0.5545
Period Op-2	0.296	0.0711	4.17	.0006	0.4194	0.1730
Op-1 NDC	0.560	0.0615	9.10	.0000	0.6668	0.4534
Op-2 NDC	0.190	0.1005	1.89	.0754	0.3639	0.0154
Op-1 SDC	0.700	0.0615	11.37	.0000	0.8065	0.5931
Op-2 SDC	0.403	0.1005	4.01	.0008	0.5770	0.2285

Paired comparisons of least square means between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period	0.3337	0.0833	4.005	.0008	0.4782	0.1892

Paired comparisons of least square means for areas between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Area NDC	0.3705	0.1178	3.14	.0056	0.5748	0.1661
Area SDC	0.2970	0.1178	2.52	.0214	0.5013	0.0927

Area-period means and deltas from original data

Area-Period	N	Area Mean	Area Range	Standard Error	Upper 95% c.i.	Lower 95% c.i.	Mean Delta	Delta Range	Upper 95% CIi.	Lower 95% C.I.
NDC Op-1	8	0.04	0.08	0.009	0.07	0.02	0.42	0.77	0.60	0.23
NDC Op-2	3	0.07	0.13	0.038	0.23	-0.09	0.09	0.24	0.40	-0.21
SDC Op-1	8	0.00	0.03	0.003	0.01	-0.00	0.46	0.79	0.65	0.26
SDC Op-2	3	0.00	0.00	0.000	.	.	0.17	0.21	0.44	-0.11

Period means and deltas from original control data

Period	N	Area Mean	Area Range	Standard Error	Upper 95% C.I.	Lower 95% C.I.
Op-1	20	0.48	1.00	0.065	0.61	0.34
Op-2	5	0.18	0.42	0.081	0.41	-0.04

Benthic Transects ANOVA Results for SFO for 0583 - Hypsurus caryi

Data transformed using log base10(x + .1)

Results for Analysis of Variance

Source	Source df	Error df	F-value	Prob.
AREA	1	18.000	2.67	0.1194
PERIOD	1	18.000	1.17	0.2947
AREA*PERIOD	1	18.000	1.07	0.3151

Results for Power Analysis
Power at alpha = .1

Source	Non-Centrality Parameter	Adjusted non-Centrality Parameter	Power	Adjusted Power	Power to Detect 50% Change
AREA*PERIOD	1.07	0.00	0.2619	.	0.1493
PERIOD	1.17	0.04	0.2759	0.1056	0.2583

Estimates for contrasts on combinations of interaction terms

Source	Difference	Std. Err.	T-value	Prob.
Period in NDC	0.0075	0.2307	0.032	.9744
Period in SDC	0.3446	0.2307	1.494	.1525

Least square means & confidence intervals from analysis of variance

Source	LS Mean	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period Op-1	-0.011	0.0852	-0.13	.8969	0.1365	-0.1589
Period Op-2	-0.187	0.1391	-1.35	.1950	0.0540	-0.4284
Op-1 NDC	-0.229	0.1205	-1.90	.0736	-0.0199	-0.4377
Op-2 NDC	-0.236	0.1967	-1.20	.2452	0.1048	-0.5774
Op-1 SDC	0.206	0.1205	1.71	.1038	0.4153	-0.0025
Op-2 SDC	-0.138	0.1967	-0.70	.4914	0.2029	-0.4793

Paired comparisons of least square means between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period	0.1760	0.1631	1.079	.2947	0.4589	-0.1068

Paired comparisons of least square means for areas between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Area NDC	0.0075	0.2307	0.03	.9744	0.4075	-0.3925
Area SDC	0.3446	0.2307	1.49	.1525	0.7446	-0.0554

Area-period means and deltas from original data

Area-Period	N	Area Mean	Area Range	Standard Error	Upper 95% c.i.	Lower 95% c.i.	Mean Delta	Delta Range	Upper 95% CIi.	Lower 95% C.I.
NDC Op-1	8	0.35	0.75	0.088	0.56	0.14	-0.17	0.97	0.09	-0.43
NDC Op-2	3	0.07	0.03	0.010	0.12	0.03	-0.07	0.03	-0.03	-0.12
SDC Op-1	8	0.07	0.38	0.049	0.19	-0.04	0.11	0.68	0.30	-0.09
SDC Op-2	3	0.04	0.08	0.024	0.15	-0.06	-0.04	0.08	0.06	-0.15

Period means and deltas from original control data

Period	N	Area Mean	Area Range	Standard Error	Upper 95% C.I.	Lower 95% C.I.
Op-1	20	0.20	0.88	0.065	0.34	0.06
Op-2	5	0.00	0.00	0.000	.	.

Midwater Transectsce for SFO for 1272 - larval/post-larval fish, unid.

Data not transformed.

Results for Analysis of Variance

Source	Source df	Error df	F-value	Prob.
AREA	1	18.000	0.01	0.9375
PERIOD	1	18.000	0.20	0.6595
AREA*PERIOD	1	18.000	0.01	0.9375

Results for Power Analysis
Power at alpha = .1

Source	Non-Centrality Parameter	Adjusted non-Centrality Parameter	Power	Adjusted Power	Power to Detect 50% Change
AREA*PERIOD	0.01	0.00	0.1010	.	0.1005
PERIOD	0.20	0.00	0.1314	.	0.2138

Estimates for contrasts on combinations of interaction terms

Source	Difference	Std. Err.	T-value	Prob.
Period in NDC	-2.6693	7.1568	-0.373	.7135
Period in SDC	-1.8646	7.1568	-0.261	.7974

Least square means & confidence intervals from analysis of variance

Source	LS Mean	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period Op-1	-2.267	2.6428	-0.86	.4023	2.3159	-6.8498
Period Op-2	0.000	4.3157	0.00	1.000	7.4838	-7.4838
Op-1 NDC	-2.669	3.7375	-0.71	.4843	3.8119	-9.1504
Op-2 NDC	0.000	6.1034	0.00	1.000	10.5836	-10.5836
Op-1 SDC	-1.865	3.7375	-0.50	.6239	4.6166	-8.3457
Op-2 SDC	0.000	6.1034	0.00	1.000	10.5836	-10.5836

Paired comparisons of least square means between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period	-2.2669	5.0607	-0.448	.6595	6.5086	-11.0424

Paired comparisons of least square means for areas between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Area NDC	-2.6693	7.1568	-0.37	.7135	9.7412	-15.0797
Area SDC	-1.8646	7.1568	-0.26	.7974	10.5458	-14.2750

Area-period means and deltas from original data

Area-Period	N	Mean	Area Range	Standard Error	Upper 95% c.i.	Lower 95% c.i.	Mean Delta	Delta Range	Upper 95% CIi.	Lower 95% C.I.
NDC Op-1	8	6.84	53.13	6.616	22.48	-8.81	-2.67	51.56	9.57	-14.91
NDC Op-2	3	0.00	0.00	0.000	.	.	0.00	0.00	.	.
SDC Op-1	8	6.03	38.75	4.820	17.43	-5.37	-1.86	29.25	5.28	-9.01
SDC Op-2	3	0.00	0.00	0.000	.	.	0.00	0.00	.	.

Period means and deltas from original control data

Period	N	Mean	Area Range	Standard Error	Upper 95% C.I.	Lower 95% C.I.
Op-1	20	3.33	33.33	2.041	7.61	-0.94
Op-2	5	0.00	0.00	0.000	.	.

Midwater Transectsce for SFO for 1266 - Medialuna californiensis

Data transformed using log base10(x + .5)

Results for Analysis of Variance

Source	Source df	Error df	F-value	Prob.
AREA	1	18.000	2.57	0.1262
PERIOD	1	18.000	0.01	0.9048
AREA*PERIOD	1	18.000	0.01	0.9048

Results for Power Analysis
Power at alpha = .1

Source	Non-Centrality Parameter	Adjusted non-Centrality Parameter	Power	Adjusted Power	Power to Detect 50% Change
AREA*PERIOD	0.01	0.00	0.1023	.	0.1366
PERIOD	0.01	0.00	0.1023	.	0.1366

Estimates for contrasts on combinations of interaction terms

Source	Difference	Std. Err.	T-value	Prob.
Period in NDC	-0.0115	0.0671	-0.172	.8657
Period in SDC	0.0000	0.0671	0.000	1.000

Least square means & confidence intervals from analysis of variance

Source	LS Mean	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period Op-1	-0.041	0.0248	-1.65	.1160	0.0020	-0.0838
Period Op-2	-0.035	0.0404	-0.87	.3962	0.0350	-0.1053
Op-1 NDC	-0.082	0.0350	-2.34	.0313	-0.0211	-0.1425
Op-2 NDC	-0.070	0.0572	-1.23	.2348	0.0289	-0.1694
Op-1 SDC	0.000	0.0350	0.00	1.000	0.0607	-0.0607
Op-2 SDC	-0.000	0.0572	-0.00	1.000	0.0992	-0.0992

Paired comparisons of least square means between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period	-0.0058	0.0474	-0.121	.9048	0.0765	-0.0880

Paired comparisons of least square means for areas between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Area NDC	-0.0115	0.0671	-0.17	.8657	0.1048	-0.1278
Area SDC	0.0000	0.0671	0.00	1.000	0.1163	-0.1163

Area-period means and deltas from original data

Area-Period	N	Mean	Area Range	Standard Error	Upper 95% c.i.	Lower 95% c.i.	Mean Delta	Delta Range	Upper 95% CIi.	Lower 95% C.I.
NDC Op-1	8	0.14	0.78	0.096	0.37	-0.09	-0.14	0.78	0.09	-0.37
NDC Op-2	3	0.10	0.31	0.104	0.55	-0.34	-0.10	0.31	0.34	-0.55
SDC Op-1	8	0.00	0.00	0.000	.	.	0.00	0.00	.	.
SDC Op-2	3	0.00	0.00	0.000	.	.	0.00	0.00	.	.

Period means and deltas from original control data

Period	N	Mean	Area Range	Standard Error	Upper 95% C.I.	Lower 95% C.I.
Op-1	20	0.00	0.00	0.000	.	.
Op-2	5	0.00	0.00	0.000	.	.

Midwater Transectsce for SFO for 1171 - Myliobatis californica

Data transformed using log base10(x + .1)

Results for Analysis of Variance

Source	Source df	Error df	F-value	Prob.
AREA	1	18.000	1.42	0.2494
PERIOD	1	18.000	0.38	0.5453
AREA*PERIOD	1	18.000	0.04	0.8398

Results for Power Analysis
Power at alpha = .1

Source	Non-Centrality Parameter	Adjusted non-Centrality Parameter	Power	Adjusted Power	Power to Detect 50% Change
AREA*PERIOD	0.04	0.00	0.1066	.	0.1189
PERIOD	0.38	0.00	0.1591	.	0.3927

Estimates for contrasts on combinations of interaction terms

Source	Difference	Std. Err.	T-value	Prob.
Period in NDC	-0.0850	0.1464	-0.581	.5685
Period in SDC	-0.0426	0.1464	-0.291	.7745

Least square means & confidence intervals from analysis of variance

Source	LS Mean	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period Op-1	-0.290	0.0541	-5.37	.0000	-0.1966	-0.3840
Period Op-2	-0.226	0.0883	-2.57	.0194	-0.0734	-0.3795
Op-1 NDC	-0.363	0.0764	-4.74	.0002	-0.2299	-0.4951
Op-2 NDC	-0.277	0.1248	-2.22	.0393	-0.0610	-0.4939
Op-1 SDC	-0.218	0.0764	-2.85	.0106	-0.0855	-0.3506
Op-2 SDC	-0.175	0.1248	-1.41	.1768	0.0410	-0.3920

Paired comparisons of least square means between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period	-0.0638	0.1035	-0.616	.5453	0.1157	-0.2433

Paired comparisons of least square means for areas between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Area NDC	-0.0850	0.1464	-0.58	.5685	0.1688	-0.3389
Area SDC	-0.0426	0.1464	-0.29	.7745	0.2113	-0.2964

Area-period means and deltas from original data

Area-Period	N	Area Mean	Area Range	Standard Error	Upper 95% c.i.	Lower 95% c.i.	Mean Delta	Delta Range	Upper 95% CIi.	Lower 95% C.I.
NDC Op-1	8	0.15	0.38	0.041	0.25	0.06	-0.15	0.38	-0.06	-0.25
NDC Op-2	3	0.10	0.19	0.058	0.35	-0.15	-0.10	0.19	0.15	-0.35
SDC Op-1	8	0.09	0.36	0.044	0.20	-0.01	-0.09	0.36	0.01	-0.20
SDC Op-2	3	0.06	0.08	0.028	0.18	-0.06	-0.06	0.08	0.06	-0.18

Period means and deltas from original control data

Period	N	Area Mean	Area Range	Standard Error	Upper 95% C.I.	Lower 95% C.I.
Op-1	20	0.00	0.00	0.000	.	.
Op-2	5	0.00	0.00	0.000	.	.

Benthic Transects ANOVA Results for SFO for 0603 - Ophiodon elongatus

Data transformed using log base10(x + .1)

Results for Analysis of Variance

Source	Source df	Error df	F-value	Prob.
AREA	1	18.000	0.02	0.8943
PERIOD	1	18.000	0.45	0.5122
AREA*PERIOD	1	18.000	0.23	0.6368

Results for Power Analysis
Power at alpha = .1

Source	Non-Centrality Parameter	Adjusted non-Centrality Parameter	Power	Adjusted Power	Power to Detect 50% Change
AREA*PERIOD	0.23	0.00	0.1360	.	0.1051
PERIOD	0.45	0.00	0.1694	.	0.1603

Estimates for contrasts on combinations of interaction terms

Source	Difference	Std. Err.	T-value	Prob.
Period in NDC	0.0213	0.1601	0.133	.8955
Period in SDC	0.1300	0.1601	0.812	.4272

Least square means & confidence intervals from analysis of variance

Source	LS Mean	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period Op-1	0.205	0.0591	3.47	.0027	0.3076	0.1026
Period Op-2	0.129	0.0965	1.34	.1966	0.2968	-0.0379
Op-1 NDC	0.170	0.0836	2.04	.0566	0.3153	0.0254
Op-2 NDC	0.149	0.1365	1.09	.2895	0.3857	-0.0877
Op-1 SDC	0.240	0.0836	2.87	.0102	0.3849	0.0950
Op-2 SDC	0.110	0.1365	0.80	.4313	0.3466	-0.1268

Paired comparisons of least square means between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period	0.0757	0.1132	0.669	.5122	0.2720	-0.1206

Paired comparisons of least square means for areas between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Area NDC	0.0213	0.1601	0.13	.8955	0.2989	-0.2563
Area SDC	0.1300	0.1601	0.81	.4272	0.4076	-0.1475

Area-period means and deltas from original data

Area-Period	N	Area Mean	Area Range	Standard Error	Upper 95% c.i.	Lower 95% c.i.	Mean Delta	Delta Range	Upper 95% CIi.	Lower 95% C.I.
NDC Op-1	8	0.05	0.15	0.017	0.09	0.01	0.07	0.21	0.12	0.02
NDC Op-2	3	0.05	0.09	0.028	0.17	-0.07	0.09	0.26	0.42	-0.25
SDC Op-1	8	0.03	0.13	0.016	0.07	-0.01	0.09	0.26	0.16	0.02
SDC Op-2	3	0.07	0.13	0.037	0.23	-0.09	0.07	0.38	0.56	-0.42

Period means and deltas from original control data

Period	N	Area Mean	Area Range	Standard Error	Upper 95% C.I.	Lower 95% C.I.
Op-1	20	0.13	0.63	0.035	0.20	0.05
Op-2	5	0.17	0.33	0.059	0.33	0.00

Benthic Transects ANOVA Results for SFO for 0594 - Orthonopias triacis

Data not transformed.

Results for Analysis of Variance

Source	Source df	Error df	F-value	Prob.
AREA	1	18.000	1.45	0.2439
PERIOD	1	18.000	10.35	0.0048
AREA*PERIOD	1	18.000	0.26	0.6143

Results for Power Analysis
Power at alpha = .1

Source	Non-Centrality Parameter	Adjusted non-Centrality Parameter	Power	Adjusted Power	Power to Detect 50% Change
AREA*PERIOD	0.26	0.00	0.1411	.	0.1086
PERIOD	10.35	8.20	0.9261	0.8660	0.1140

Estimates for contrasts on combinations of interaction terms

Source	Difference	Std. Err.	T-value	Prob.
Period in NDC	0.2036	0.0772	2.637	.0167
Period in SDC	0.1476	0.0772	1.912	.0720

Least square means & confidence intervals from analysis of variance

Source	LS Mean	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period Op-1	0.268	0.0285	9.39	.0000	0.3170	0.2181
Period Op-2	0.092	0.0465	1.98	.0636	0.1727	0.0113
Op-1 NDC	0.249	0.0403	6.17	.0000	0.3186	0.1788
Op-2 NDC	0.045	0.0658	0.69	.5016	0.1593	-0.0690
Op-1 SDC	0.286	0.0403	7.11	.0000	0.3564	0.2166
Op-2 SDC	0.139	0.0658	2.11	.0491	0.2530	0.0247

Paired comparisons of least square means between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period	0.1756	0.0546	3.216	.0048	0.2702	0.0809

Paired comparisons of least square means for areas between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Area NDC	0.2036	0.0772	2.64	.0167	0.3374	0.0697
Area SDC	0.1476	0.0772	1.91	.0720	0.2814	0.0137

Area-period means and deltas from original data

Area-Period	N	Mean	Area Range	Standard Error	Upper 95% c.i.	Lower 95% c.i.	Mean Delta	Delta Range	Upper 95% CIi.	Lower 95% C.I.
NDC Op-1	8	0.04	0.09	0.012	0.07	0.02	0.25	0.36	0.35	0.15
NDC Op-2	3	0.09	0.16	0.048	0.30	-0.11	0.05	0.20	0.29	-0.20
SDC Op-1	8	0.01	0.04	0.005	0.02	-0.01	0.29	0.35	0.38	0.19
SDC Op-2	3	0.00	0.00	0.000	..	.	0.14	0.25	0.46	-0.18

Period means and deltas from original control data

Period	N	Mean	Area Range	Standard Error	Upper 95% C.I.	Lower 95% C.I.
Op-1	20	0.31	0.75	0.041	0.39	0.22
Op-2	5	0.17	0.50	0.095	0.43	-0.10

Midwater Transectsce for SFO for 0587 - Oxyjulis californica

Data transformed using square root(x + .5)

Results for Analysis of Variance

Source	Source df	Error df	F-value	Prob.
AREA	1	18.000	0.02	0.9022
PERIOD	1	18.000	2.49	0.1322
AREA*PERIOD	1	18.000	0.00	0.9649

Results for Power Analysis
Power at alpha = .1

Source	Non-Centrality Parameter	Adjusted non-Centrality Parameter	Power	Adjusted Power	Power to Detect 50% Change
AREA*PERIOD	0.00	0.00	0.1003	.	0.1002
PERIOD	2.49	1.21	0.4501	0.2825	0.5533

Estimates for contrasts on combinations of interaction terms

Source	Difference	Std. Err.	T-value	Prob.
Period in NDC	1.4249	1.2425	1.147	.2665
Period in SDC	1.3465	1.2425	1.084	.2928

Least square means & confidence intervals from analysis of variance

Source	LS Mean	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period Op-1	-0.186	0.4588	-0.41	.6895	0.6093	-0.9820
Period Op-2	-1.572	0.7493	-2.10	.0503	-0.2727	-2.8713
Op-1 NDC	-0.112	0.6489	-0.17	.8649	1.0132	-1.2372
Op-2 NDC	-1.537	1.0596	-1.45	.1642	0.3006	-3.3744
Op-1 SDC	-0.261	0.6489	-0.40	.6926	0.8646	-1.3859
Op-2 SDC	-1.607	1.0596	-1.52	.1467	0.2303	-3.4446

Paired comparisons of least square means between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period	1.3857	0.8786	1.577	.1322	2.9093	-0.1379

Paired comparisons of least square means for areas between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Area NDC	1.4249	1.2425	1.15	.2665	3.5795	-0.7298
Area SDC	1.3465	1.2425	1.08	.2928	3.5011	-0.8082

Area-period means and deltas from original data

Area-Period	N	Mean	Area Range	Standard Error	Upper 95% c.i.	Lower 95% c.i.	Mean Delta	Delta Range	Upper 95% CIi.	Lower 95% C.I.
NDC Op-1	8	17.49	19.22	2.338	23.02	11.96	0.97	42.31	12.31	-10.37
NDC Op-2	3	11.85	7.94	2.521	22.70	1.01	-8.16	8.21	2.04	-18.36
SDC Op-1	8	19.55	34.42	3.948	28.88	10.21	-1.08	69.08	17.39	-19.55
SDC Op-2	3	12.29	7.46	2.176	21.65	2.93	-8.60	12.67	7.53	-24.72

Period means and deltas from original control data

Period	N	Mean	Area Range	Standard Error	Upper 95% C.I.	Lower 95% C.I.
Op-1	20	17.33	63.21	3.759	25.20	9.46
Op-2	5	4.32	6.50	1.115	7.41	1.22

Benthic Transects ANOVA Results for SFO for 0584 - Oxylebius pictus

Data not transformed.

Results for Analysis of Variance

Source	Source df	Error df	F-value	Prob.
AREA	1	18.000	15.70	0.0009
PERIOD	1	18.000	15.72	0.0009
AREA*PERIOD	1	18.000	0.54	0.4730

Results for Power Analysis
Power at alpha = .1

Source	Non-Centrality Parameter	Adjusted non-Centrality Parameter	Power	Adjusted Power	Power to Detect 50% Change
AREA*PERIOD	0.54	0.00	0.1832	.	0.4548
PERIOD	15.72	12.97	0.9848	0.9654	0.5869

Estimates for contrasts on combinations of interaction terms

Source	Difference	Std. Err.	T-value	Prob.
Period in NDC	1.4523	0.6355	2.285	.0347
Period in SDC	2.1111	0.6355	3.322	.0038

Least square means & confidence intervals from analysis of variance

Source	LS Mean	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period Op-1	2.500	0.2347	10.65	.0000	2.9074	2.0935
Period Op-2	0.719	0.3832	1.88	.0770	1.3833	0.0542
Op-1 NDC	1.445	0.3319	4.35	.0004	2.0208	0.8698
Op-2 NDC	-0.007	0.5420	-0.01	.9899	0.9329	-0.9468
Op-1 SDC	3.556	0.3319	10.71	.0000	4.1311	2.9800
Op-2 SDC	1.444	0.5420	2.67	.0158	2.3843	0.5046

Paired comparisons of least square means between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period	1.7817	0.4494	3.965	.0009	2.5609	1.0024

Paired comparisons of least square means for areas between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Area NDC	1.4523	0.6355	2.29	.0347	2.5543	0.3502
Area SDC	2.1111	0.6355	3.32	.0038	3.2131	1.0091

Area-period means and deltas from original data

Area-Period	N	Area Mean	Area Range	Standard Error	Upper 95% c.i.	Lower 95% c.i.	Mean Delta	Delta Range	Upper 95% CIi.	Lower 95% C.I.
NDC Op-1	8	2.34	2.66	0.310	3.08	1.61	1.45	1.96	2.06	0.83
NDC Op-2	3	2.19	1.97	0.615	4.83	-0.46	-0.01	0.81	1.01	-1.03
SDC Op-1	8	0.23	0.40	0.055	0.36	0.10	3.56	3.71	4.63	2.48
SDC Op-2	3	0.74	1.54	0.507	2.92	-1.45	1.44	0.67	2.37	0.52

Period means and deltas from original control data

Period	N	Area Mean	Area Range	Standard Error	Upper 95% C.I.	Lower 95% C.I.
Op-1	20	3.93	6.58	0.410	4.78	3.07
Op-2	5	2.32	2.83	0.551	3.85	0.79

Benthic Transects ANOVA Results for SFO for 1166 - Paralabrax clathratus

Data transformed using log base10(x + .1)

Results for Analysis of Variance

Source	Source df	Error df	F-value	Prob.
AREA	1	18.000	18.33	0.0004
PERIOD	1	18.000	7.84	0.0118
AREA*PERIOD	1	18.000	7.84	0.0118

Results for Power Analysis
Power at alpha = .1

Source	Non-Centrality Parameter	Adjusted non-Centrality Parameter	Power	Adjusted Power	Power to Detect 50% Change
AREA*PERIOD	7.84	5.97	0.8527	0.7598	0.1226
PERIOD	7.84	5.97	0.8527	0.7598	0.1226

Estimates for contrasts on combinations of interaction terms

Source	Difference	Std. Err.	T-value	Prob.
Period in NDC	0.5862	0.1480	3.961	.0009
Period in SDC	0.0000	0.1480	0.000	1.000

Least square means & confidence intervals from analysis of variance

Source	LS Mean	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period Op-1	-0.077	0.0547	-1.42	.1733	0.0173	-0.1723
Period Op-2	-0.371	0.0892	-4.15	.0006	-0.2158	-0.5254
Op-1 NDC	-0.155	0.0773	-2.01	.0602	-0.0210	-0.2890
Op-2 NDC	-0.741	0.1262	-5.87	.0000	-0.5223	-0.9601
Op-1 SDC	-0.000	0.0773	-0.00	1.000	0.1340	-0.1340
Op-2 SDC	-0.000	0.1262	-0.00	1.000	0.2189	-0.2189

Paired comparisons of least square means between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period	0.2931	0.1047	2.801	.0118	0.4746	0.1116

Paired comparisons of least square means for areas between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Area NDC	0.5862	0.1480	3.96	.0009	0.8428	0.3296
Area SDC	0.0000	0.1480	0.00	1.000	0.2566	-0.2566

Area-period means and deltas from original data

Area-Period	N	Area Mean	Area Range	Standard Error	Upper 95% c.i.	Lower 95% c.i.	Mean Delta	Delta Range	Upper 95% CIi.	Lower 95% C.I.
NDC Op-1	8	0.06	0.25	0.034	0.14	-0.02	-0.06	0.25	0.02	-0.14
NDC Op-2	3	0.71	1.47	0.433	2.57	-1.16	-0.71	1.47	1.16	-2.57
SDC Op-1	8	0.00	0.00	0.000	.	.	0.00	0.00	.	.
SDC Op-2	3	0.00	0.00	0.000	.	.	0.00	0.00	.	.

Period means and deltas from original control data

Period	N	Area Mean	Area Range	Standard Error	Upper 95% C.I.	Lower 95% C.I.
Op-1	20	0.00	0.00	0.000	.	.
Op-2	5	0.00	0.00	0.000	.	.

Benthic Transects ANOVA Results for SFO for 3107 - Pleuronichthys spp.

Data transformed using log base10(x + .1)

Satterthwaite's Adjustment for Degrees of Freedom used in Analysis of Variance.

Results for Analysis of Variance

Source	Source df	Error df	F-value	Prob.
AREA	1	18.000	14.55	0.0013
PERIOD	1	18.000	6.10	0.0238
AREA*PERIOD	1	18.000	0.52	0.4810

Results for Power Analysis
Power at alpha = .1

Source	Non-Centrality Parameter	Adjusted non-Centrality Parameter	Power	Adjusted Power	Power to Detect 50% Change
AREA*PERIOD	0.52	0.00	0.1802	.	0.1969
PERIOD	6.10	4.42	0.7674	0.6473	0.2280

Estimates for contrasts on combinations of interaction terms

Source	Difference	Std. Err.	T-value	Prob.
Period in NDC	0.1337	0.1080	1.237	.2318
Period in SDC	0.2436	0.1080	2.255	.0368

Least square means & confidence intervals from analysis of variance

Source	LS Mean	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period Op-1	-0.120	0.0399	-3.00	.0077	-0.0505	-0.1888
Period Op-2	-0.308	0.0651	-4.73	.0002	-0.1953	-0.4212
Op-1 NDC	-0.001	0.0564	-0.03	.9797	0.0964	-0.0993
Op-2 NDC	-0.135	0.0921	-1.47	.1597	0.0246	-0.2948
Op-1 SDC	-0.238	0.0564	-4.22	.0005	-0.1400	-0.3356
Op-2 SDC	-0.481	0.0921	-5.23	.0001	-0.3216	-0.6411

Paired comparisons of least square means between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period	0.1886	0.0764	2.470	.0238	0.3211	0.0562

Paired comparisons of least square means for areas between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Area NDC	0.1337	0.1080	1.24	.2318	0.3210	-0.0536
Area SDC	0.2436	0.1080	2.26	.0368	0.4309	0.0563

Area-period means and deltas from original data

Area-Period	N	Mean	Range	Standard Error	Upper 95% c.i.	Lower 95% c.i.	Mean Delta	Delta Range	Upper 95% CIi.	Lower 95% C.I.
NDC Op-1	8	0.00	0.03	0.004	0.01	-0.01	-0.00	0.06	0.01	-0.01
NDC Op-2	3	0.04	0.09	0.028	0.16	-0.08	-0.04	0.09	0.08	-0.16
SDC Op-1	8	0.10	0.29	0.038	0.19	0.01	-0.10	0.29	-0.01	-0.18
SDC Op-2	3	0.22	0.25	0.073	0.54	-0.09	-0.22	0.25	0.09	-0.54

Period means and deltas from original control data

Period	N	Mean	Range	Standard Error	Upper 95% C.I.	Lower 95% C.I.
Op-1	20	0.00	0.08	0.004	0.01	-0.00
Op-2	5	0.00	0.00	0.000	.	.

Benthic Transects ANOVA Results for SFO for 0586 - Rhacochilus toxotes

Data transformed using log base10(x + 1)

Results for Analysis of Variance

Source	Source df	Error df	F-value	Prob.
AREA	1	18.000	2.53	0.1289
PERIOD	1	18.000	1.29	0.2706
AREA*PERIOD	1	18.000	0.08	0.7745

Results for Power Analysis
Power at alpha = .1

Source	Non-Centrality Parameter	Adjusted non-Centrality Parameter	Power	Adjusted Power	Power to Detect 50% Change
AREA*PERIOD	0.08	0.00	0.1133	.	0.1211
PERIOD	1.29	0.15	0.2939	0.1233	0.1481

Estimates for contrasts on combinations of interaction terms

Source	Difference	Std. Err.	T-value	Prob.
Period in NDC	0.0696	0.0690	1.009	.3262
Period in SDC	0.0413	0.0690	0.598	.5572

Least square means & confidence intervals from analysis of variance

Source	LS Mean	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period Op-1	-0.009	0.0255	-0.37	.7148	0.0347	-0.0536
Period Op-2	-0.065	0.0416	-1.56	.1361	0.0072	-0.1370
Op-1 NDC	-0.041	0.0360	-1.14	.2679	0.0213	-0.1036
Op-2 NDC	-0.111	0.0588	-1.88	.0759	-0.0088	-0.2128
Op-1 SDC	0.022	0.0360	0.62	.5442	0.0847	-0.0402
Op-2 SDC	-0.019	0.0588	-0.32	.7506	0.0830	-0.1210

Paired comparisons of least square means between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period	0.0554	0.0488	1.137	.2706	0.1400	-0.0291

Paired comparisons of least square means for areas between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Area NDC	0.0696	0.0690	1.01	.3262	0.1892	-0.0500
Area SDC	0.0413	0.0690	0.60	.5572	0.1609	-0.0784

Area-period means and deltas from original data

Area-Period	N	Mean	Area Range	Standard Error	Upper 95% c.i.	Lower 95% c.i.	Mean Delta	Delta Range	Upper 95% CIi.	Lower 95% C.I.
NDC Op-1	8	0.25	1.35	0.161	0.63	-0.14	-0.16	1.40	0.23	-0.54
NDC Op-2	3	0.59	1.34	0.413	2.37	-1.18	-0.43	1.18	1.23	-2.09
SDC Op-1	8	0.03	0.08	0.013	0.06	0.00	0.06	0.25	0.12	-0.01
SDC Op-2	3	0.25	0.71	0.229	1.24	-0.74	-0.08	0.58	0.66	-0.83

Period means and deltas from original control data

Period	N	Mean	Area Range	Standard Error	Upper 95% C.I.	Lower 95% C.I.
Op-1	20	0.09	0.50	0.027	0.15	0.03
Op-2	5	0.20	0.42	0.094	0.46	-0.06

Benthic Transects ANOVA Results for SFO for 0599 - Scorpaenichthys marmoratus

Data not transformed.

Results for Analysis of Variance

Source	Source df	Error df	F-value	Prob.
AREA	1	18.000	1.93	0.1814
PERIOD	1	18.000	1.08	0.3116
AREA*PERIOD	1	18.000	0.36	0.5579

Results for Power Analysis
Power at alpha = .1

Source	Non-Centrality Parameter	Adjusted non-Centrality Parameter	Power	Adjusted Power	Power to Detect 50% Change
AREA*PERIOD	0.36	0.00	0.1555	.	0.1703
PERIOD	1.08	0.00	0.2643	.	0.7678

Estimates for contrasts on combinations of interaction terms

Source	Difference	Std. Err.	T-value	Prob.
Period in NDC	0.0447	0.1424	0.314	.7571
Period in SDC	0.1649	0.1424	1.158	.2618

Least square means & confidence intervals from analysis of variance

Source	LS Mean	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period Op-1	0.245	0.0526	4.67	.0002	0.3366	0.1543
Period Op-2	0.141	0.0859	1.64	.1188	0.2895	-0.0082
Op-1 NDC	0.145	0.0744	1.96	.0662	0.2743	0.0165
Op-2 NDC	0.101	0.1214	0.83	.4178	0.3112	-0.1098
Op-1 SDC	0.345	0.0744	4.65	.0002	0.4744	0.2166
Op-2 SDC	0.181	0.1214	1.49	.1543	0.3911	-0.0300

Paired comparisons of least square means between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period	0.1048	0.1007	1.041	.3116	0.2794	-0.0698

Paired comparisons of least square means for areas between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Area NDC	0.0447	0.1424	0.31	.7571	0.2916	-0.2022
Area SDC	0.1649	0.1424	1.16	.2618	0.4118	-0.0820

Area-period means and deltas from original data

Area-Period	N	Area Mean	Area Range	Standard Error	Upper 95% c.i.	Lower 95% c.i.	Mean Delta	Delta Range	Upper 95% CIi.	Lower 95% C.I.
NDC Op-1	8	0.47	0.81	0.093	0.69	0.25	0.15	0.54	0.31	-0.02
NDC Op-2	3	0.14	0.13	0.038	0.30	-0.03	0.10	0.46	0.68	-0.48
SDC Op-1	8	0.27	0.50	0.058	0.40	0.13	0.35	0.56	0.54	0.16
SDC Op-2	3	0.06	0.13	0.037	0.21	-0.10	0.18	0.29	0.60	-0.24

Period means and deltas from original control data

Period	N	Area Mean	Area Range	Standard Error	Upper 95% C.I.	Lower 95% C.I.
Op-1	20	0.66	1.50	0.092	0.85	0.46
Op-2	5	0.27	0.42	0.081	0.49	0.04

Midwater Transectsce for SFO for 1184 - Sebastes melanops (juv.)

Data transformed using log base10(x + .1)

Results for Analysis of Variance

Source	Source df	Error df	F-value	Prob.
AREA	1	18.000	0.23	0.6352
PERIOD	1	18.000	0.51	0.4856
AREA*PERIOD	1	18.000	0.00	0.9593

Results for Power Analysis
Power at alpha = .1

Source	Non-Centrality Parameter	Adjusted non-Centrality Parameter	Power	Adjusted Power	Power to Detect 50% Change
AREA*PERIOD	0.00	0.00	0.1004	.	0.1031
PERIOD	0.51	0.00	0.1786	.	0.1031

Estimates for contrasts on combinations of interaction terms

Source	Difference	Std. Err.	T-value	Prob.
Period in NDC	0.0603	0.1292	0.467	.6462
Period in SDC	0.0698	0.1292	0.540	.5957

Least square means & confidence intervals from analysis of variance

Source	LS Mean	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period Op-1	0.133	0.0477	2.79	.0121	0.2159	0.0504
Period Op-2	0.068	0.0779	0.87	.3940	0.2032	-0.0671
Op-1 NDC	0.109	0.0675	1.61	.1246	0.2258	-0.0083
Op-2 NDC	0.048	0.1102	0.44	.6659	0.2395	-0.1427
Op-1 SDC	0.158	0.0675	2.33	.0314	0.2746	0.0405
Op-2 SDC	0.088	0.1102	0.80	.4363	0.2789	-0.1034

Paired comparisons of least square means between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period	0.0651	0.0914	0.712	.4856	0.2235	-0.0934

Paired comparisons of least square means for areas between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Area NDC	0.0603	0.1292	0.47	.6462	0.2845	-0.1638
Area SDC	0.0698	0.1292	0.54	.5957	0.2939	-0.1543

Area-period means and deltas from original data

Area-Period	N	Area Mean	Area Range	Standard Error	Upper 95% c.i.	Lower 95% c.i.	Mean Delta	Delta Range	Upper 95% CIi.	Lower 95% C.I.
NDC Op-1	8	0.02	0.15	0.018	0.06	-0.02	0.05	0.21	0.11	-0.02
NDC Op-2	3	0.01	0.03	0.010	0.06	-0.03	0.02	0.05	0.09	-0.06
SDC Op-1	8	0.00	0.00	0.000	.	.	0.06	0.22	0.15	-0.02
SDC Op-2	3	0.00	0.00	0.000	.	.	0.03	0.08	0.15	-0.09

Period means and deltas from original control data

Period	N	Area Mean	Area Range	Standard Error	Upper 95% C.I.	Lower 95% C.I.
Op-1	20	0.06	0.67	0.039	0.14	-0.02
Op-2	5	0.03	0.17	0.033	0.13	-0.06

Midwater Transectsce for SFO for 0597 - Sebastes mystinus

Data transformed using log base10(x + .1)

Results for Analysis of Variance

Source	Source df	Error df	F-value	Prob.
AREA	1	18.000	4.47	0.0488
PERIOD	1	18.000	3.83	0.0661
AREA*PERIOD	1	18.000	0.00	0.9706

Results for Power Analysis
Power at alpha = .1

Source	Non-Centrality Parameter	Adjusted non-Centrality Parameter	Power	Adjusted Power	Power to Detect 50% Change
AREA*PERIOD	0.00	0.00	0.1002	.	0.1388
PERIOD	3.83	2.40	0.5941	0.4400	0.1388

Estimates for contrasts on combinations of interaction terms

Source	Difference	Std. Err.	T-value	Prob.
Period in NDC	0.4124	0.3039	1.357	.1915
Period in SDC	0.4285	0.3039	1.410	.1756

Least square means & confidence intervals from analysis of variance

Source	LS Mean	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period Op-1	0.852	0.1122	7.60	.0000	1.0470	0.6578
Period Op-2	0.432	0.1832	2.36	.0299	0.7497	0.1142
Op-1 NDC	0.621	0.1587	3.92	.0010	0.8965	0.3462
Op-2 NDC	0.209	0.2591	0.81	.4306	0.6583	-0.2404
Op-1 SDC	1.083	0.1587	6.83	.0000	1.3587	0.8083
Op-2 SDC	0.655	0.2591	2.53	.0211	1.1044	0.2056

Paired comparisons of least square means between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period	0.4204	0.2149	1.957	.0661	0.7930	0.0478

Paired comparisons of least square means for areas between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Area NDC	0.4124	0.3039	1.36	.1915	0.9393	-0.1145
Area SDC	0.4285	0.3039	1.41	.1756	0.9554	-0.0984

Area-period means and deltas from original data

Area-Period	N	Area Mean	Area Range	Standard Error	Upper 95% c.i.	Lower 95% c.i.	Mean Delta	Delta Range	Upper 95% CIi.	Lower 95% C.I.
NDC Op-1	8	0.24	0.50	0.065	0.39	0.08	1.42	3.67	2.64	0.20
NDC Op-2	3	0.30	0.75	0.228	1.29	-0.68	0.10	0.67	0.98	-0.77
SDC Op-1	8	0.00	0.00	0.000	.	.	1.65	3.63	2.87	0.44
SDC Op-2	3	0.00	0.00	0.000	.	.	0.40	0.46	1.01	-0.20

Period means and deltas from original control data

Period	N	Area Mean	Area Range	Standard Error	Upper 95% C.I.	Lower 95% C.I.
Op-1	20	1.64	10.38	0.533	2.75	0.52
Op-2	5	0.37	0.58	0.114	0.68	0.05

Benthic Transects ANOVA Results for SFO for 1121 - Sebastes spp.

Data transformed using log base10(x + .1)

Results for Analysis of Variance

Source	Source df	Error df	F-value	Prob.
AREA	1	18.000	0.03	0.8733
PERIOD	1	18.000	0.43	0.5179
AREA*PERIOD	1	18.000	0.03	0.8733

Results for Power Analysis
Power at alpha = .1

Source	Non-Centrality Parameter	Adjusted non-Centrality Parameter	Power	Adjusted Power	Power to Detect 50% Change
AREA*PERIOD	0.03	0.00	0.1041	.	0.1000
PERIOD	0.43	0.00	0.1676	.	0.1596

Estimates for contrasts on combinations of interaction terms

Source	Difference	Std. Err.	T-value	Prob.
Period in NDC	-0.1707	0.2939	-0.581	.5686
Period in SDC	-0.1034	0.2939	-0.352	.7290

Least square means & confidence intervals from analysis of variance

Source	LS Mean	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period Op-1	-0.137	0.1085	-1.26	.2228	0.0511	-0.3252
Period Op-2	0.000	0.1772	0.00	1.000	0.3073	-0.3073
Op-1 NDC	-0.171	0.1535	-1.11	.2808	0.0955	-0.4368
Op-2 NDC	0.000	0.2506	0.00	1.000	0.4346	-0.4346
Op-1 SDC	-0.103	0.1535	-0.67	.5090	0.1627	-0.3696
Op-2 SDC	-0.000	0.2506	-0.00	1.000	0.4346	-0.4346

Paired comparisons of least square means between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period	-0.1370	0.2078	-0.659	.5179	0.2233	-0.4974

Paired comparisons of least square means for areas between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Area NDC	-0.1707	0.2939	-0.58	.5686	0.3390	-0.6803
Area SDC	-0.1034	0.2939	-0.35	.7290	0.4062	-0.6131

Area-period means and deltas from original data

Area-Period	N	Area Mean	Area Range	Standard Error	Upper 95% c.i.	Lower 95% c.i.	Mean Delta	Delta Range	Upper 95% CIi.	Lower 95% C.I.
NDC Op-1	8	0.44	2.13	0.273	1.09	-0.20	-0.34	2.25	0.32	-1.00
NDC Op-2	3	0.00	0.00	0.000	.	.	0.00	0.00	.	.
SDC Op-1	8	0.30	1.96	0.238	0.87	-0.26	-0.20	2.25	0.38	-0.78
SDC Op-2	3	0.00	0.00	0.000	.	.	0.00	0.00	.	.

Period means and deltas from original control data

Period	N	Area Mean	Area Range	Standard Error	Upper 95% C.I.	Lower 95% C.I.
Op-1	20	0.09	0.92	0.047	0.19	-0.01
Op-2	5	0.00	0.00	0.000	.	.

Benthic Transects ANOVA Results for SFO for 0602 - Sebastes atrovirens

Data transformed using log base10(x + .1)

Results for Analysis of Variance

Source	Source df	Error df	F-value	Prob.
AREA	1	18.000	2.75	0.1143
PERIOD	1	18.000	5.09	0.0368
AREA*PERIOD	1	18.000	0.14	0.7135

Results for Power Analysis
Power at alpha = .1

Source	Non-Centrality Parameter	Adjusted non-Centrality Parameter	Power	Adjusted Power	Power to Detect 50% Change
AREA*PERIOD	0.14	0.00	0.1218	.	0.1192
PERIOD	5.09	3.52	0.7003	0.5642	0.2569

Estimates for contrasts on combinations of interaction terms

Source	Difference	Std. Err.	T-value	Prob.
Period in NDC	0.3969	0.2135	1.859	.0795
Period in SDC	0.2843	0.2135	1.331	.1997

Least square means & confidence intervals from analysis of variance

Source	LS Mean	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period Op-1	0.289	0.0788	3.67	.0017	0.4262	0.1527
Period Op-2	-0.051	0.1288	-0.40	.6960	0.1721	-0.2744
Op-1 NDC	0.192	0.1115	1.72	.1017	0.3857	-0.0010
Op-2 NDC	-0.205	0.1821	-1.12	.2760	0.1112	-0.5203
Op-1 SDC	0.387	0.1115	3.47	.0028	0.5799	0.1932
Op-2 SDC	0.102	0.1821	0.56	.5812	0.4181	-0.2135

Paired comparisons of least square means between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period	0.3406	0.1510	2.256	.0368	0.6024	0.0788

Paired comparisons of least square means for areas between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Area NDC	0.3969	0.2135	1.86	.0795	0.7672	0.0266
Area SDC	0.2843	0.2135	1.33	.1997	0.6545	-0.0860

Area-period means and deltas from original data

Area-Period	N	Area Mean	Area Range	Standard Error	Upper 95% c.i.	Lower 95% c.i.	Mean Delta	Delta Range	Upper 95% CIi.	Lower 95% C.I.
NDC Op-1	8	0.18	0.31	0.035	0.27	0.10	0.14	0.35	0.23	0.05
NDC Op-2	3	0.80	1.25	0.365	2.37	-0.77	-0.44	1.63	1.59	-2.47
SDC Op-1	8	0.12	0.50	0.068	0.28	-0.04	0.20	0.79	0.41	-0.00
SDC Op-2	3	0.28	0.38	0.108	0.74	-0.19	0.08	0.00	.	.

Period means and deltas from original control data

Period	N	Area Mean	Area Range	Standard Error	Upper 95% C.I.	Lower 95% C.I.
Op-1	20	0.33	1.00	0.053	0.44	0.22
Op-2	5	0.40	0.50	0.081	0.62	0.18

Benthic Transects ANOVA Results for SFO for 0654 - Sebastes chrysomelas

Data transformed using square root(x + 1)

Results for Analysis of Variance

Source	Source df	Error df	F-value	Prob.
AREA	1	18.000	104.49	0.0000
PERIOD	1	18.000	21.26	0.0002
AREA*PERIOD	1	18.000	7.61	0.0129

Results for Power Analysis
Power at alpha = .1

Source	Non-Centrality Parameter	Adjusted non-Centrality Parameter	Power	Adjusted Power	Power to Detect 50% Change
AREA*PERIOD	7.61	5.76	0.8431	0.7466	0.6839
PERIOD	21.26	17.90	0.9973	0.9922	0.8844

Estimates for contrasts on combinations of interaction terms

Source	Difference	Std. Err.	T-value	Prob.
Period in NDC	0.4930	0.0946	5.211	.0001
Period in SDC	0.1240	0.0946	1.310	.2066

Least square means & confidence intervals from analysis of variance

Source	LS Mean	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period Op-1	0.480	0.0349	13.73	.0000	0.5402	0.4191
Period Op-2	0.171	0.0570	3.00	.0077	0.2701	0.0722
Op-1 NDC	0.230	0.0494	4.66	.0002	0.3157	0.1443
Op-2 NDC	-0.263	0.0807	-3.26	.0044	-0.1231	-0.4029
Op-1 SDC	0.729	0.0494	14.76	.0000	0.8150	0.6436
Op-2 SDC	0.605	0.0807	7.50	.0000	0.7452	0.4654

Paired comparisons of least square means between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period	0.3085	0.0669	4.611	.0002	0.4245	0.1925

Paired comparisons of least square means for areas between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Area NDC	0.4930	0.0946	5.21	.0001	0.6570	0.3289
Area SDC	0.1240	0.0946	1.31	.2066	0.2880	-0.0401

Area-period means and deltas from original data

Area-Period	N	Mean	Area Range	Standard Error	Upper 95% c.i.	Lower 95% c.i.	Mean Delta	Delta Range	Upper 95% CIi.	Lower 95% C.I.
NDC Op-1	8	1.49	1.09	0.138	1.82	1.17	0.80	1.20	1.17	0.43
NDC Op-2	3	2.94	1.44	0.425	4.77	1.11	-0.99	1.19	0.52	-2.51
SDC Op-1	8	0.16	0.29	0.039	0.25	0.07	2.13	1.88	2.67	1.60
SDC Op-2	3	0.24	0.29	0.091	0.63	-0.16	1.71	0.50	2.35	1.06

Period means and deltas from original control data

Period	N	Mean	Area Range	Standard Error	Upper 95% C.I.	Lower 95% C.I.
Op-1	20	2.33	3.33	0.187	2.72	1.94
Op-2	5	1.92	0.67	0.115	2.24	1.60

Midwater Transectsce for SFO for 0600 - Sebastes chrysomelas/S. carnatus (juv.)

Data transformed using log base10(x + 1)

Results for Analysis of Variance

Source	Source df	Error df	F-value	Prob.
AREA	1	18.000	7.93	0.0114
PERIOD	1	18.000	2.20	0.1549
AREA*PERIOD	1	18.000	7.92	0.0115

Results for Power Analysis
Power at alpha = .1

Source	Non-Centrality Parameter	Adjusted non-Centrality Parameter	Power	Adjusted Power	Power to Detect 50% Change
AREA*PERIOD	7.92	6.04	0.8556	0.7638	0.1014
PERIOD	2.20	0.96	0.4155	0.2462	0.2299

Estimates for contrasts on combinations of interaction terms

Source	Difference	Std. Err.	T-value	Prob.
Period in NDC	0.4110	0.1352	3.040	.0070
Period in SDC	-0.1271	0.1352	-0.940	.3597

Least square means & confidence intervals from analysis of variance

Source	LS Mean	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period Op-1	0.054	0.0499	1.08	.2940	0.1406	-0.0326
Period Op-2	-0.088	0.0815	-1.08	.2948	0.0534	-0.2294
Op-1 NDC	0.054	0.0706	0.76	.4553	0.1763	-0.0686
Op-2 NDC	-0.357	0.1153	-3.10	.0062	-0.1572	-0.5571
Op-1 SDC	0.054	0.0706	0.77	.4539	0.1765	-0.0684
Op-2 SDC	0.181	0.1153	1.57	.1336	0.3811	-0.0188

Paired comparisons of least square means between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period	0.1420	0.0956	1.485	.1549	0.3078	-0.0238

Paired comparisons of least square means for areas between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Area NDC	0.4110	0.1352	3.04	.0070	0.6455	0.1765
Area SDC	-0.1271	0.1352	-0.94	.3597	0.1074	-0.3616

Area-period means and deltas from original data

Area-Period	N	Mean	Area Range	Standard Error	Upper 95% c.i.	Lower 95% c.i.	Mean Delta	Delta Range	Upper 95% CIi.	Lower 95% C.I.
NDC Op-1	8	1.83	12.63	1.546	5.48	-1.83	0.84	5.25	2.36	-0.68
NDC Op-2	3	44.79	70.22	20.297	132.12	-42.54	-25.76	53.09	47.90	-99.42
SDC Op-1	8	3.24	24.79	3.080	10.52	-4.04	-0.58	9.93	1.83	-2.98
SDC Op-2	3	11.13	14.54	4.292	29.59	-7.34	7.90	18.38	32.61	-16.81

Period means and deltas from original control data

Period	N	Mean	Area Range	Standard Error	Upper 95% C.I.	Lower 95% C.I.
Op-1	20	2.29	26.75	1.399	5.22	-0.64
Op-2	5	18.63	64.42	12.072	52.15	-14.88

Midwater Transectsce for SFO for 0598 - Sebastes mystinus (juv.)

Data transformed using log base10(x + .1)

Results for Analysis of Variance

Source	Source df	Error df	F-value	Prob.
AREA	1	18.000	0.73	0.4046
PERIOD	1	18.000	3.77	0.0679
AREA*PERIOD	1	18.000	0.73	0.4046

Results for Power Analysis
Power at alpha = .1

Source	Non-Centrality Parameter	Adjusted non-Centrality Parameter	Power	Adjusted Power	Power to Detect 50% Change
AREA*PERIOD	0.73	0.00	0.2120	.	0.1164
PERIOD	3.77	2.35	0.5888	0.4339	0.1164

Estimates for contrasts on combinations of interaction terms

Source	Difference	Std. Err.	T-value	Prob.
Period in NDC	0.3157	0.4101	0.770	.4513
Period in SDC	0.8107	0.4101	1.977	.0636

Least square means & confidence intervals from analysis of variance

Source	LS Mean	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period Op-1	0.614	0.1514	4.05	.0007	0.8762	0.3511
Period Op-2	0.050	0.2473	0.20	.8407	0.4792	-0.3784
Op-1 NDC	0.366	0.2142	1.71	.1045	0.7375	-0.0052
Op-2 NDC	0.050	0.3497	0.14	.8870	0.6569	-0.5560
Op-1 SDC	0.861	0.2142	4.02	.0008	1.2325	0.4898
Op-2 SDC	0.050	0.3497	0.14	.8870	0.6569	-0.5560

Paired comparisons of least square means between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period	0.5632	0.2900	1.942	.0679	1.0661	0.0604

Paired comparisons of least square means for areas between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Area NDC	0.3157	0.4101	0.77	.4513	1.0269	-0.3954
Area SDC	0.8107	0.4101	1.98	.0636	1.5218	0.0996

Area-period means and deltas from original data

Area-Period	N	Mean	Area Range	Standard Error	Upper 95% c.i.	Lower 95% c.i.	Mean Delta	Delta Range	Upper 95% CIi.	Lower 95% C.I.
NDC Op-1	8	0.58	3.29	0.396	1.52	-0.36	1.08	3.90	2.21	-0.05
NDC Op-2	3	0.00	0.00	0.000	.	.	0.01	0.04	0.07	-0.05
SDC Op-1	8	0.00	0.00	0.000	.	.	1.66	4.14	3.12	0.20
SDC Op-2	3	0.00	0.00	0.000	.	.	0.01	0.04	0.07	-0.05

Period means and deltas from original control data

Period	N	Mean	Area Range	Standard Error	Upper 95% C.I.	Lower 95% C.I.
Op-1	20	1.76	6.67	0.500	2.81	0.72
Op-2	5	0.02	0.08	0.017	0.06	-0.03

Midwater Transectsce for SFO for 0642 - Sebastes paucispinus (juv.)

Data transformed using square root(x + .1)

Results for Analysis of Variance

Source	Source df	Error df	F-value	Prob.
AREA	1	18.000	1.16	0.2956
PERIOD	1	18.000	0.46	0.5082
AREA*PERIOD	1	18.000	2.33	0.1443

Results for Power Analysis
Power at alpha = .1

Source	Non-Centrality Parameter	Adjusted non-Centrality Parameter	Power	Adjusted Power	Power to Detect 50% Change
AREA*PERIOD	2.33	1.07	0.4310	0.2623	0.1830
PERIOD	0.46	0.00	0.1708	.	0.2592

Estimates for contrasts on combinations of interaction terms

Source	Difference	Std. Err.	T-value	Prob.
Period in NDC	-0.0983	0.0632	-1.557	.1370
Period in SDC	0.0380	0.0632	0.602	.5548

Least square means & confidence intervals from analysis of variance

Source	LS Mean	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period Op-1	-0.020	0.0233	-0.86	.3995	0.0203	-0.0606
Period Op-2	0.010	0.0381	0.26	.7954	0.0761	-0.0560
Op-1 NDC	-0.078	0.0330	-2.37	.0290	-0.0211	-0.1355
Op-2 NDC	0.020	0.0539	0.37	.7141	0.1135	-0.0734
Op-1 SDC	0.038	0.0330	1.15	.2643	0.0952	-0.0192
Op-2 SDC	-0.000	0.0539	-0.00	1.000	0.0934	-0.0934

Paired comparisons of least square means between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period	-0.0302	0.0447	-0.675	.5082	0.0473	-0.1076

Paired comparisons of least square means for areas between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Area NDC	-0.0983	0.0632	-1.56	.1370	0.0112	-0.2079
Area SDC	0.0380	0.0632	0.60	.5548	0.1476	-0.0715

Area-period means and deltas from original data

Area-Period	N	Area Mean	Area Range	Standard Error	Upper 95% c.i.	Lower 95% c.i.	Mean Delta	Delta Range	Upper 95% CIi.	Lower 95% C.I.
NDC Op-1	8	0.13	0.47	0.061	0.28	-0.01	-0.08	0.44	0.04	-0.21
NDC Op-2	3	0.00	0.00	0.000	.	.	0.01	0.04	0.07	-0.05
SDC Op-1	8	0.02	0.14	0.017	0.06	-0.02	0.03	0.08	0.06	0.00
SDC Op-2	3	0.01	0.04	0.014	0.07	-0.05	0.00	0.08	0.10	-0.10

Period means and deltas from original control data

Period	N	Area Mean	Area Range	Standard Error	Upper 95% C.I.	Lower 95% C.I.
Op-1	20	0.05	0.58	0.030	0.11	-0.01
Op-2	5	0.02	0.08	0.017	0.06	-0.03

Benthic Transects ANOVA Results for SFO for 0589 - Sebastes rastrelliger

Data transformed using log base10(x + .1)

Results for Analysis of Variance

Source	Source df	Error df	F-value	Prob.
AREA	1	18.000	0.01	0.9287
PERIOD	1	18.000	3.11	0.0950
AREA*PERIOD	1	18.000	1.62	0.2194

Results for Power Analysis
Power at alpha = .1

Source	Non-Centrality Parameter	Adjusted non-Centrality Parameter	Power	Adjusted Power	Power to Detect 50% Change
AREA*PERIOD	1.62	0.44	0.3392	0.1682	0.1025
PERIOD	3.11	1.76	0.5207	0.3583	0.5512

Estimates for contrasts on combinations of interaction terms

Source	Difference	Std. Err.	T-value	Prob.
Period in NDC	0.0782	0.2257	0.347	.7330
Period in SDC	0.4844	0.2257	2.146	.0458

Least square means & confidence intervals from analysis of variance

Source	LS Mean	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period Op-1	-0.056	0.0834	-0.68	.5065	0.0880	-0.2010
Period Op-2	-0.338	0.1361	-2.48	.0232	-0.1018	-0.5739
Op-1 NDC	-0.151	0.1179	-1.28	.2171	0.0536	-0.3552
Op-2 NDC	-0.229	0.1925	-1.19	.2496	0.1048	-0.5628
Op-1 SDC	0.038	0.1179	0.32	.7522	0.2422	-0.1666
Op-2 SDC	-0.447	0.1925	-2.32	.0323	-0.1128	-0.7804

Paired comparisons of least square means between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period	0.2813	0.1596	1.762	.0950	0.5581	0.0045

Paired comparisons of least square means for areas between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Area NDC	0.0782	0.2257	0.35	.7330	0.4697	-0.3132
Area SDC	0.4844	0.2257	2.15	.0458	0.8758	0.0930

Area-period means and deltas from original data

Area-Period	N	Area Mean	Area Range	Standard Error	Upper 95% c.i.	Lower 95% c.i.	Mean Delta	Delta Range	Upper 95% CIi.	Lower 95% C.I.
NDC Op-1	8	0.58	0.75	0.106	0.83	0.33	-0.13	0.54	0.02	-0.29
NDC Op-2	3	0.26	0.38	0.120	0.78	-0.26	-0.15	0.38	0.32	-0.62
SDC Op-1	8	0.32	0.35	0.043	0.42	0.22	0.13	1.04	0.40	-0.14
SDC Op-2	3	0.68	1.46	0.441	2.58	-1.22	-0.57	1.63	1.56	-2.70

Period means and deltas from original control data

Period	N	Area Mean	Area Range	Standard Error	Upper 95% C.I.	Lower 95% C.I.
Op-1	20	0.50	2.13	0.118	0.74	0.25
Op-2	5	0.10	0.25	0.049	0.23	-0.03

Midwater Transectsce for SFO for 0593 - Sebastes serranoides

Data transformed using log base10(x + .5)

Results for Analysis of Variance

Source	Source df	Error df	F-value	Prob.
AREA	1	18.000	5.42	0.0318
PERIOD	1	18.000	0.90	0.3553
AREA*PERIOD	1	18.000	1.44	0.2464

Results for Power Analysis
Power at alpha = .1

Source	Non-Centrality Parameter	Adjusted non-Centrality Parameter	Power	Adjusted Power	Power to Detect 50% Change
AREA*PERIOD	1.44	0.28	0.3140	0.1431	0.1180
PERIOD	0.90	0.00	0.2374	.	0.1255

Estimates for contrasts on combinations of interaction terms

Source	Difference	Std. Err.	T-value	Prob.
Period in NDC	0.1244	0.0819	1.518	.1464
Period in SDC	-0.0145	0.0819	-0.176	.8620

Least square means & confidence intervals from analysis of variance

Source	LS Mean	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period Op-1	0.035	0.0303	1.15	.2665	0.0872	-0.0178
Period Op-2	-0.020	0.0494	-0.41	.6865	0.0654	-0.1060
Op-1 NDC	0.002	0.0428	0.05	.9635	0.0762	-0.0722
Op-2 NDC	-0.122	0.0699	-1.75	.0968	-0.0012	-0.2436
Op-1 SDC	0.067	0.0428	1.58	.1326	0.1416	-0.0068
Op-2 SDC	0.082	0.0699	1.17	.2566	0.2031	-0.0393

Paired comparisons of least square means between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period	0.0550	0.0579	0.949	.3553	0.1554	-0.0455

Paired comparisons of least square means for areas between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Area NDC	0.1244	0.0819	1.52	.1464	0.2665	-0.0177
Area SDC	-0.0145	0.0819	-0.18	.8620	0.1276	-0.1565

Area-period means and deltas from original data

Area-Period	N	Area Mean	Area Range	Standard Error	Upper 95% c.i.	Lower 95% c.i.	Mean Delta	Delta Range	Upper 95% CIi.	Lower 95% C.I.
NDC Op-1	8	0.10	0.50	0.058	0.24	-0.03	-0.00	0.81	0.19	-0.19
NDC Op-2	3	0.42	1.09	0.355	1.94	-1.11	-0.31	0.89	0.92	-1.53
SDC Op-1	8	0.01	0.06	0.007	0.02	-0.01	0.09	0.38	0.20	-0.01
SDC Op-2	3	0.00	0.00	0.000	.	.	0.11	0.21	0.41	-0.19

Period means and deltas from original control data

Period	N	Area Mean	Area Range	Standard Error	Upper 95% C.I.	Lower 95% C.I.
Op-1	20	0.10	0.42	0.033	0.16	0.03
Op-2	5	0.08	0.25	0.046	0.21	-0.04

Midwater Transectsce for SFO for 0579 - Sebastes serranoides/S. flavidus (juv.)

Data transformed using log base10(x + .1)

Results for Analysis of Variance

Source	Source df	Error df	F-value	Prob.
AREA	1	18.000	1.75	0.2029
PERIOD	1	18.000	0.27	0.6075
AREA*PERIOD	1	18.000	0.00	0.9970

Results for Power Analysis
Power at alpha = .1

Source	Non-Centrality Parameter	Adjusted non-Centrality Parameter	Power	Adjusted Power	Power to Detect 50% Change
AREA*PERIOD	0.00	0.00	0.1000	.	0.1066
PERIOD	0.27	0.00	0.1427	.	0.2158

Estimates for contrasts on combinations of interaction terms

Source	Difference	Std. Err.	T-value	Prob.
Period in NDC	0.1540	0.4136	0.372	.7140
Period in SDC	0.1518	0.4136	0.367	.7180

Least square means & confidence intervals from analysis of variance

Source	LS Mean	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period Op-1	-0.095	0.1527	-0.62	.5410	0.1697	-0.3600
Period Op-2	-0.248	0.2494	-0.99	.3332	0.1845	-0.6806
Op-1 NDC	-0.288	0.2160	-1.33	.1993	0.0867	-0.6624
Op-2 NDC	-0.442	0.3527	-1.25	.2264	0.1698	-1.0535
Op-1 SDC	0.098	0.2160	0.45	.6570	0.4721	-0.2770
Op-2 SDC	-0.054	0.3527	-0.15	.8795	0.5574	-0.6659

Paired comparisons of least square means between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period	0.1529	0.2925	0.523	.6075	0.6600	-0.3543

Paired comparisons of least square means for areas between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Area NDC	0.1540	0.4136	0.37	.7140	0.8712	-0.5632
Area SDC	0.1518	0.4136	0.37	.7180	0.8690	-0.5655

Area-period means and deltas from original data

Area-Period	N	Area Mean	Area Range	Standard Error	Upper 95% c.i.	Lower 95% c.i.	Mean Delta	Delta Range	Upper 95% CIi.	Lower 95% C.I.
NDC Op-1	8	1.87	3.97	0.560	3.19	0.54	-0.74	5.72	0.77	-2.24
NDC Op-2	3	0.25	0.22	0.065	0.53	-0.03	-0.22	0.14	-0.05	-0.39
SDC Op-1	8	1.73	6.42	0.981	4.05	-0.60	-0.60	9.54	2.24	-3.43
SDC Op-2	3	0.06	0.17	0.056	0.29	-0.18	-0.03	0.25	0.29	-0.34

Period means and deltas from original control data

Period	N	Area Mean	Area Range	Standard Error	Upper 95% C.I.	Lower 95% C.I.
Op-1	20	1.14	5.83	0.428	2.03	0.24
Op-2	5	0.02	0.08	0.017	0.06	-0.03

Benthic Transects ANOVA Results for SFO for 1267 - Semicossyphus pulcher

Data transformed using log base10(x + .1)

Results for Analysis of Variance

Source	Source df	Error df	F-value	Prob.
AREA	1	18.000	30.45	0.0000
PERIOD	1	18.000	0.00	0.9457
AREA*PERIOD	1	18.000	1.06	0.3170

Results for Power Analysis
Power at alpha = .1

Source	Non-Centrality Parameter	Adjusted non-Centrality Parameter	Power	Adjusted Power	Power to Detect 50% Change
AREA*PERIOD	1.06	0.00	0.2607	.	0.2239
PERIOD	0.00	0.00	0.1008	.	0.2913

Estimates for contrasts on combinations of interaction terms

Source	Difference	Std. Err.	T-value	Prob.
Period in NDC	-0.1636	0.2410	-0.679	.5059
Period in SDC	0.1871	0.2410	0.777	.4475

Least square means & confidence intervals from analysis of variance

Source	LS Mean	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period Op-1	-0.421	0.0890	-4.73	.0002	-0.2668	-0.5754
Period Op-2	-0.433	0.1453	-2.98	.0080	-0.1809	-0.6848
Op-1 NDC	-0.979	0.1258	-7.78	.0000	-0.7606	-1.1971
Op-2 NDC	-0.815	0.2055	-3.97	.0009	-0.4589	-1.1716
Op-1 SDC	0.137	0.1258	1.09	.2917	0.3549	-0.0815
Op-2 SDC	-0.050	0.2055	-0.25	.8089	0.3059	-0.4068

Paired comparisons of least square means between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period	0.0118	0.1704	0.069	.9457	0.3072	-0.2837

Paired comparisons of least square means for areas between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Area NDC	-0.1636	0.2410	-0.68	.5059	0.2543	-0.5814
Area SDC	0.1871	0.2410	0.78	.4475	0.6050	-0.2307

Area-period means and deltas from original data

Area-Period	N	Mean	Area Range	Standard Error	Upper 95% c.i.	Lower 95% c.i.	Mean Delta	Delta Range	Upper 95% CIi.	Lower 95% C.I.
NDC Op-1	8	2.18	4.08	0.587	3.57	0.79	-2.10	4.01	-0.74	-3.47
NDC Op-2	3	0.63	0.75	0.217	1.56	-0.31	-0.63	0.75	0.31	-1.56
SDC Op-1	8	0.02	0.08	0.011	0.04	-0.01	0.06	0.25	0.13	-0.02
SDC Op-2	3	0.01	0.04	0.014	0.07	-0.05	-0.01	0.04	0.05	-0.07

Period means and deltas from original control data

Period	N	Mean	Area Range	Standard Error	Upper 95% C.I.	Lower 95% C.I.
Op-1	20	0.08	0.38	0.025	0.13	0.03
Op-2	5	0.00	0.00	0.000	.	.

Midwater Transectsce for SFO for TDIV - Tot. Diversity

Data transformed using square root(x + 1)

Results for Analysis of Variance

Source	Source df	Error df	F-value	Prob.
AREA	1	18.000	1.45	0.2448
PERIOD	1	18.000	11.51	0.0032
AREA*PERIOD	1	18.000	3.79	0.0673

Results for Power Analysis
Power at alpha = .1

Source	Non-Centrality Parameter	Adjusted non-Centrality Parameter	Power	Adjusted Power	Power to Detect 50% Change
AREA*PERIOD	3.79	2.37	0.5906	0.4360	0.2300
PERIOD	11.51	9.23	0.9470	0.8991	0.9102

Estimates for contrasts on combinations of interaction terms

Source	Difference	Std. Err.	T-value	Prob.
Period in NDC	0.1011	0.0988	1.022	.3201
Period in SDC	0.3732	0.0988	3.776	.0014

Least square means & confidence intervals from analysis of variance

Source	LS Mean	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period Op-1	0.075	0.0365	2.04	.0558	0.1379	0.0113
Period Op-2	-0.163	0.0596	-2.73	.0138	-0.0592	-0.2659
Op-1 NDC	-0.035	0.0516	-0.69	.5013	0.0541	-0.1249
Op-2 NDC	-0.136	0.0843	-1.62	.1228	0.0097	-0.2826
Op-1 SDC	0.185	0.0516	3.58	.0021	0.2742	0.0952
Op-2 SDC	-0.189	0.0843	-2.24	.0382	-0.0424	-0.3347

Paired comparisons of least square means between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period	0.2372	0.0699	3.393	.0032	0.3584	0.1160

Paired comparisons of least square means for areas between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Area NDC	0.1011	0.0988	1.02	.3201	0.2725	-0.0703
Area SDC	0.3732	0.0988	3.78	.0014	0.5446	0.2019

Area-period means and deltas from original data

Area-Period	N	Area Mean	Area Range	Standard Error	Upper 95% c.i.	Lower 95% c.i.	Mean Delta	Delta Range	Upper 95% CIi.	Lower 95% C.I.
NDC Op-1	8	1.15	1.07	0.136	1.47	0.83	-0.11	1.06	0.23	-0.45
NDC Op-2	3	1.04	0.25	0.075	1.37	0.72	-0.37	0.63	0.45	-1.19
SDC Op-1	8	0.55	0.82	0.101	0.79	0.31	0.49	1.09	0.85	0.12
SDC Op-2	3	1.20	0.47	0.139	1.80	0.60	-0.52	0.41	-0.01	-1.04

Period means and deltas from original control data

Period	N	Area Mean	Area Range	Standard Error	Upper 95% C.I.	Lower 95% C.I.
Op-1	20	1.05	1.99	0.107	1.27	0.82
Op-2	5	0.68	1.01	0.186	1.19	0.16

Benthic Transects ANOVA Results for SFO for TDIV - Tot. Diversity

Data transformed using log base10(x + .1)

Results for Analysis of Variance

Source	Source df	Error df	F-value	Prob.
AREA	1	18.000	14.71	0.0012
PERIOD	1	18.000	2.33	0.1442
AREA*PERIOD	1	18.000	0.00	0.9801

Results for Power Analysis
Power at alpha = .1

Source	Non-Centrality Parameter	Adjusted non-Centrality Parameter	Power	Adjusted Power	Power to Detect 50% Change
AREA*PERIOD	0.00	0.00	0.1001	.	0.1018
PERIOD	2.33	1.07	0.4312	0.2625	1.0000

Estimates for contrasts on combinations of interaction terms

Source	Difference	Std. Err.	T-value	Prob.
Period in NDC	0.0544	0.0496	1.097	.2869
Period in SDC	0.0526	0.0496	1.062	.3024

Least square means & confidence intervals from analysis of variance

Source	LS Mean	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period Op-1	0.123	0.0183	6.72	.0000	0.1548	0.0913
Period Op-2	0.070	0.0299	2.33	.0319	0.1214	0.0177
Op-1 NDC	0.056	0.0259	2.17	.0432	0.1012	0.0114
Op-2 NDC	0.002	0.0423	0.04	.9647	0.0752	-0.0714
Op-1 SDC	0.190	0.0259	7.33	.0000	0.2347	0.1449
Op-2 SDC	0.137	0.0423	3.25	.0045	0.2105	0.0639

Paired comparisons of least square means between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period	0.0535	0.0350	1.527	.1442	0.1143	-0.0073

Paired comparisons of least square means for areas between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Area NDC	0.0544	0.0496	1.10	.2869	0.1403	-0.0315
Area SDC	0.0526	0.0496	1.06	.3024	0.1386	-0.0333

Area-period means and deltas from original data

Area-Period	N	Area Mean	Area Range	Standard Error	Upper 95% c.i.	Lower 95% c.i.	Mean Delta	Delta Range	Upper 95% CIi.	Lower 95% C.I.
NDC Op-1	8	2.58	1.20	0.169	2.98	2.19	0.35	1.76	0.85	-0.15
NDC Op-2	3	2.70	0.43	0.145	3.32	2.07	0.02	0.49	0.66	-0.63
SDC Op-1	8	1.86	0.89	0.089	2.07	1.65	1.07	1.10	1.40	0.75
SDC Op-2	3	1.95	0.46	0.137	2.54	1.36	0.76	0.40	1.31	0.21

Period means and deltas from original control data

Period	N	Area Mean	Area Range	Standard Error	Upper 95% C.I.	Lower 95% C.I.
Op-1	20	3.00	2.19	0.133	3.28	2.72
Op-2	5	2.67	0.91	0.157	3.11	2.24

Midwater Transectsce for SFO for FSPP - Spp. Richness

Data transformed using square root(x + .1)

Results for Analysis of Variance

Source	Source df	Error df	F-value	Prob.
AREA	1	18.000	9.51	0.0064
PERIOD	1	18.000	8.89	0.0080
AREA*PERIOD	1	18.000	1.64	0.2163

Results for Power Analysis
Power at alpha = .1

Source	Non-Centrality Parameter	Adjusted non-Centrality Parameter	Power	Adjusted Power	Power to Detect 50% Change
AREA*PERIOD	1.64	0.46	0.3423	0.1713	0.2223
PERIOD	8.89	6.90	0.8892	0.8111	0.9999

Estimates for contrasts on combinations of interaction terms

Source	Difference	Std. Err.	T-value	Prob.
Period in NDC	0.2340	0.1946	1.202	.2448
Period in SDC	0.5866	0.1946	3.015	.0074

Least square means & confidence intervals from analysis of variance

Source	LS Mean	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period Op-1	0.024	0.0719	0.33	.7426	0.1486	-0.1006
Period Op-2	-0.386	0.1173	-3.29	.0040	-0.1829	-0.5898
Op-1 NDC	-0.276	0.1016	-2.72	.0141	-0.1002	-0.4526
Op-2 NDC	-0.510	0.1660	-3.08	.0065	-0.2226	-0.7982
Op-1 SDC	0.324	0.1016	3.19	.0051	0.5005	0.1481
Op-2 SDC	-0.262	0.1660	-1.58	.1314	0.0255	-0.5501

Paired comparisons of least square means between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period	0.4103	0.1376	2.982	.0080	0.6489	0.1717

Paired comparisons of least square means for areas between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Area NDC	0.2340	0.1946	1.20	.2448	0.5714	-0.1035
Area SDC	0.5866	0.1946	3.01	.0074	0.9241	0.2492

Area-period means and deltas from original data

Area-Period	N	Area Mean	Area Range	Standard Error	Upper 95% c.i.	Lower 95% c.i.	Mean Delta	Delta Range	Upper 95% CIi.	Lower 95% C.I.
NDC Op-1	8	5.35	2.63	0.335	6.14	4.56	-1.21	2.58	-0.39	-2.03
NDC Op-2	3	5.92	2.63	0.758	9.18	2.66	-2.25	1.25	-0.54	-3.96
SDC Op-1	8	2.95	2.50	0.351	3.78	2.12	1.19	4.00	2.32	0.06
SDC Op-2	3	4.72	0.67	0.200	5.58	3.86	-1.06	2.17	1.94	-4.05

Period means and deltas from original control data

Period	N	Area Mean	Area Range	Standard Error	Upper 95% C.I.	Lower 95% C.I.
Op-1	20	4.18	9.17	0.424	5.07	3.30
Op-2	5	3.47	3.00	0.620	5.19	1.75

Benthic Transects ANOVA Results for SFO for PSPP - Spp. Richness

Data transformed using square root(x + .1)

Results for Analysis of Variance

Source	Source df	Error df	F-value	Prob.
AREA	1	18.000	16.74	0.0007
PERIOD	1	18.000	1.41	0.2501
AREA*PERIOD	1	18.000	0.22	0.6438

Results for Power Analysis
Power at alpha = .1

Source	Non-Centrality Parameter	Adjusted non-Centrality Parameter	Power	Adjusted Power	Power to Detect 50% Change
AREA*PERIOD	0.22	0.00	0.1346	.	0.2274
PERIOD	1.41	0.26	0.3108	0.1399	1.0000

Estimates for contrasts on combinations of interaction terms

Source	Difference	Std. Err.	T-value	Prob.
Period in NDC	0.1036	0.2040	0.508	.6177
Period in SDC	0.2393	0.2040	1.173	.2561

Least square means & confidence intervals from analysis of variance

Source	LS Mean	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period Op-1	0.259	0.0753	3.44	.0029	0.3899	0.1287
Period Op-2	0.088	0.1230	0.71	.4841	0.3012	-0.1254
Op-1 NDC	-0.070	0.1065	-0.65	.5213	0.1150	-0.2544
Op-2 NDC	-0.173	0.1740	-1.00	.3324	0.1284	-0.4749
Op-1 SDC	0.588	0.1065	5.52	.0000	0.7730	0.4036
Op-2 SDC	0.349	0.1740	2.01	.0601	0.6507	0.0474

Paired comparisons of least square means between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Period	0.1714	0.1442	1.188	.2501	0.4216	-0.0787

Paired comparisons of least square means for areas between periods

Source	Difference	Std. Err.	T-value	Prob.	Upper 95%	Lower 95%
Area NDC	0.1036	0.2040	0.51	.6177	0.4573	-0.2501
Area SDC	0.2393	0.2040	1.17	.2561	0.5930	-0.1145

Area-period means and deltas from original data

Area-Period	N	Area Mean	Area Range	Standard Error	Upper 95% c.i.	Lower 95% c.i.	Mean Delta	Delta Range	Upper 95% CIi.	Lower 95% C.I.
NDC Op-1	8	17.39	5.08	0.656	18.94	15.84	-0.56	6.58	1.32	-2.43
NDC Op-2	3	15.96	4.38	1.267	21.41	10.51	-1.35	3.21	2.68	-5.37
SDC Op-1	8	12.33	4.00	0.557	13.64	11.01	4.51	6.00	6.29	2.72
SDC Op-2	3	12.06	3.83	1.164	17.06	7.05	2.56	7.00	11.64	-6.53

Period means and deltas from original control data

Period	N	Area Mean	Area Range	Standard Error	Upper 95% C.I.	Lower 95% C.I.
Op-1	20	17.14	12.17	0.738	18.69	15.60
Op-2	5	15.00	5.33	1.070	17.97	12.03