

**CONSTRUCTION PHASE ECOLOGICAL
MONITORING PROGRAM**

**MARBLE HILL
NUCLEAR GENERATING STATION
UNITS 1 AND 2**

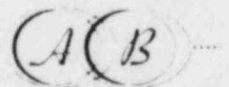
**FINAL REPORT
FEBRUARY-NOVEMBER 1977**

Volume 2: Appendix

JANUARY 1978

APPLIED BIOLOGY, INC.

Ecological Consultants



5891 NEW PEACHTREE ROAD
ATLANTA, GEORGIA 30340

8304250290 830421
PDR ADDCK 05000546
C PDR

CONTENTS
VOLUME 2: APPENDIX

APPENDIX A:	CHEMICAL AND PHYSICAL PARAMETERS
APPENDIX B:	BACTERIA
APPENDIX C.1:	PHYTOPLANKTON
APPENDIX C.2:	ZOOPLANKTON
APPENDIX D:	PERIPHYTON
APPENDIX E:	BENTHOS AND MACROINVERTEBRATES
APPENDIX F:	FISH
APPENDIX G:	FISH EGGS AND LARVAE
APPENDIX H:	MAMMALS

A P P E N D I X A

CHEMICAL AND PHYSICAL PAPAMETERS

APPENDIX TABLE A-1
WATER CHEMISTRY PARAMETERS AND PROCEDURES
MARBLE HILL PLANT

Parameter	1 liter preservative	Holding time	95% confidence level on detection limit	Method	Page ^a
pH	none	none ^b	0.1 pH	Electronic pH meter	424
Alkalinity	none	6 hours	1.0 mg/l as CaCO ₃	Potentiometric titration	278
Dissolved oxygen	none	none ^b	0.1 mg/l	Electronic dissolved oxygen meter	84
Specific conductance	none	7 days ^b	1 umho/cm	Electronic conductance meter	73
Total dissolved solids	none	7 days	1.0 mg/l	Gravimetric	93
Total suspended solids ^c	none	7 days	1.0 mg/l	Gravimetric	94
Calcium	HNO ₃ to <pH2	6 months	0.01 mg/l	Atomic absorption spectrometric method	148
Magnesium	5 ml HNO ₃	7 days	0.01 mg/l	Atomic absorption spectrometric method	148
Sodium	5 ml HNO ₃	7 days	0.01 mg/l	Flame photometric method	250
Chloride	none	7 days	0.5 mg/l	Argentometric method	303
Sulfate	4°C	7 days	0.2 mg/l	Turbidimetric method with spectrophotometer	496

^a Procedures are described in APHA (1976) on given page numbers.

^b Field determined.

^c Station 8 only.

APPENDIX TABLE A-1
(continued)
WATER CHEMISTRY PARAMETERS AND PROCEDURES
MARBLE HILL PLANT

Parameter	1 liter preservative	Holding time	95% confidence level on detection limit	Method	Page ^a
Chemical oxygen demand	H ₂ SO ₄ to <pH2	24 hours	0.1 mg/l	Dichromate reflux method	550
Biochemical oxygen demand	4°C	6 hours	0.1 mg/l	Azide method	548
Total organic carbon	H ₂ SO ₄ to <pH2	24 hours	1.0 mg/l	Combustion-infrared method	532
Orthophosphate ^d	4°C	24 hours	0.01 mg/l	Vanadomolybdophosphoric acid method with spectrophotometer	476
Total phosphorus	4°C	24 hours	0.01 mg/l	Vanadomolybdophosphoric acid method with spectrophotometer	476
Nitrate nitrogen	H ₂ SO ₄ to <pH2, 4°C	24 hours	0.01 mg/l N	Cadmium reduction with diazotization	423
Ammonia nitrogen	H ₂ SO ₄ to <pH2, 4°C	24 hours	0.01 mg/l N	Nesslerization method with spectrophotometer	412
Organic nitrogen	H ₂ SO ₄ to <pH2, 4°C	24 hours	0.01 mg/l N	Kjeldahl method minus ammonia nitrogen	406
Silica	4°C	7 days	0.2 mg/l	Heteropoly blue method with a spectrophotometer	490
Phenol	5 ml H ₃ PO ₄ , 1 g. CuSO ₄ , 4°C	24 hours	0.001 mg/l	Chloroform extraction method	577

^a Procedures are described in APHA (1976) on given page numbers.

^b Field determined.

^c Station 8 only.

^d Filtered in the field.

APPENDIX TABLE A-1
 (continued)
 WATER CHEMISTRY PARAMETERS AND PROCEDURES
 MARBLE HILL PLANT

Parameter	1 liter preservative	Holding time	95% confidence level on detection limit	Method	Page ^a
Hexane-soluble materials	HCl to <pH2, 4°C	24 hours	variable	Soxhlet extraction method	518
Free residual chlorine	none	none ^b	0.01 mg/l	Amperometric titration	322
Chloramines	none	none ^b	0.01 mg/l	Amperometric titration	322

^a Procedures are described in APHA (1976) on given page numbers.

^b Field determined.

^c Station 8 only.

^d Filtered in the field.

APPENDIX TABLE A-2

RESULTS OF WATER CHEMISTRY ANALYSIS
MARBLE HILL PLANT
24 MARCH 1977

Station and replicate	Organic nitrogen (mg/l)	Nitrate nitrogen (NO ₃ -N mg/l)	Ammonia nitrogen (NH ₃ -N mg/l)	Total phosphorous (PO ₄ -P mg/l)	Ortho-phosphate (PO ₄ -P mg/l)
1A	0.16	1.29	0.12	0.09	0.03
1B	0.15	1.27	0.11	0.13	0.03
Avg.	0.16	1.28	0.12	0.11	0.03
3A	0.18	1.34	0.09	0.18	0.04
3B	0.17	1.32	0.06	0.16	0.04
Avg.	0.18	1.33	0.08	0.17	0.04
5A	0.16	1.34	0.08	0.15	0.04
5B	0.17	1.32	0.08	0.15	0.04
Avg.	0.17	1.33	0.08	0.15	0.04
6A	0.06	1.52	<0.02	0.04	0.02
6B	0.06	1.46	0.02	0.03	0.02
Avg.	0.06	1.49	<0.02	0.04	0.02

APPENDIX TABLE A-2
 (continued)
 RESULTS OF WATER CHEMISTRY ANALYSIS
 MARBLE HILL PLANT
 24 MARCH 1977

Station and replicate	Chlorides (mg/l)	Silica (SiO ₂ mg/l)	Sulfate (mg/l)	Hexane-soluble materials (mg/l)	Phenols (mg/l)
1A	17.9	6.02	55.0	13.5	<0.003
1B	17.9	6.12	52.6	14.9	<0.003
Avg.	17.9	6.07	53.8	14.2	<0.003
3A	18.4	5.96	55.0	27.2	<0.003
3B	18.8	6.16	55.0	18.9	0.003
Avg.	18.6	6.06	55.0	23.1	0.003
5A	18.8	6.20	55.0	11.4	0.004
5B	18.8	6.20	53.0	12.7	<0.003
Avg.	18.8	6.20	54.0	12.1	<0.004
6A	5.2	6.50	38.0	17.3	<0.003
6B	5.2	6.82	38.0	16.2	<0.003
Avg.	5.2	6.66	38.0	16.8	<0.003

APPENDIX TABLE A-2
 (continued)
 RESULTS OF WATER CHEMISTRY ANALYSIS
 MARBLE HILL PLANT
 24 MARCH 1977

Station and replicate	Alkalinity (mg/l)	Free residual chlorine (mg/l)	Chloramines (mg/l)
1A	46.0	<0.01	<0.01
1B	45.8	<0.01	<0.01
Avg.	45.9	<0.01	<0.01
3A	45.4	<0.01	<0.01
3B	45.9	<0.01	<0.01
Avg.	45.7	<0.01	<0.01
5A	44.8	<0.01	<0.01
5B	45.5	<0.01	<0.01
Avg.	45.1	<0.01	<0.01
6A	192.8	<0.01	<0.01
6B	192.4	<0.01	<0.01
Avg.	192.6	<0.01	<0.01

APPENDIX TABLE A-2
(continued)
RESULTS OF WATER CHEMISTRY ANALYSIS
MARBLE HILL PLANT
24 MARCH 1977

Station and replicate	Chemical oxygen demand (mg/l)	Biochemical oxygen demand (mg/l)	Total organic carbon (mg/l)
1A	16.1	3.5	7.39
1B	12.1	2.9	6.90
Avg.	14.1	3.2	7.15
3A	6.7	3.0	7.13
3B	9.4	4.0	7.65
Avg.	8.1	3.5	7.39
5A	8.0	4.0	6.53
5B	6.7	3.6	6.83
Avg.	7.4	3.8	6.68
6A	5.3	1.0	5.33
6B	4.0	2.9	4.72
Avg.	4.7	2.0	5.03

APPENDIX TABLE A-2
(continued)
RESULTS OF WATER CHEMISTRY ANALYSIS
MARBLE HILL PLANT
24 MARCH 1977

Station and replicate	Calcium (mg/l)	Magnesium (mg/l)	Sodium (mg/l)
1A	24.07	9.62	15.04
1B	24.14	9.62	15.85
Avg.	24.11	9.62	15.45
3A	23.50	9.64	15.81
3B	24.24	9.63	14.64
Avg.	23.87	9.64	15.23
5A	24.02	9.53	15.61
5B	23.38	9.68	15.88
Avg.	23.70	9.61	15.75
6A	59.02	31.00	6.91
6B	59.66	30.46	6.91
Avg.	59.34	30.73	6.91

APPENDIX TABLE A-2
(continued)
RESULTS OF WATER CHEMISTRY ANALYSIS
MARBLE HILL PLANT
24 MARCH 1977

Station and replicate	Total dissolved solids (mg/l)	Total suspended solids (mg/l)
1A	255	196
1B	183	187
Avg.	219	192
3A	242	146
3B	163	143
Avg.	203	145
5A	263	154
5B	197	148
Avg.	230	151
6A	347	5
6B	230	7
Avg.	289	6
8	364	7

APPENDIX TABLE A-2
(continued)
RESULTS OF WATER CHEMISTRY ANALYSIS
MARBLE HILL PLANT
24 MARCH 1977

Station	Dissolved oxygen (ppm)	% Saturation	pH	Specific Conductance (umho)
1	10.8	124	7.1	170
3	10.6	126	7.4	169
5	10.8	94	7.8	178
6	10.2	125	7.5	218

APPENDIX TABLE A-3

RESULTS OF WATER CHEMISTRY ANALYSIS
MARBLE HILL PLANT
6 MAR 1977

Station and replicate	Organic nitrogen (mg/l)	Nitrate nitrogen (NO ₃ -N mg/l)	Ammonia nitrogen (NH ₃ -N mg/l)	Total phosphorous (PO ₄ -P mg/l)	Ortho-phosphate (PO ₄ -P mg/l)
1A	1.21	1.14	0.07	0.10	0.03
1B	1.57	1.18	0.11	0.09	0.03
Avg.	1.39	1.16	0.09	0.10	0.03
3A	0.63	1.13	0.06	0.09	0.03
3B	0.75	1.13	0.07	0.09	0.03
Avg.	0.69	1.13	0.07	0.09	0.03
5A	0.62	1.08	0.06	0.10	0.03
5B	0.67	1.17	0.07	0.10	0.03
Avg.	0.65	1.13	0.07	0.10	0.03
6A	1.00	1.16	0.06	0.04	<0.01
6B	0.58	1.14	0.04	0.03	<0.01
Avg.	0.79	1.15	0.05	0.04	<0.01

APPENDIX TABLE A-3
 (continued)
 RESULTS OF WATER CHEMISTRY ANALYSIS
 MARBLE HILL PLANT
 6 MAY 1977

Station and replicate	Chlorides (mg/l)	Silica (SiO ₂ mg/l)	Sulfate (mg/l)	Hexane-soluble materials (mg/l)	Phenols (mg/l)
1A	18.4	3.34	75.6	11.7	<0.003
1B	20.0	3.36	73.0	11.4	0.003
Avg.	19.2	3.35	74.3	11.6	<0.003
3A	18.8	3.60	73.0	14.3	0.003
3B	18.4	3.38	73.0	22.4	0.003
Avg.	18.6	3.49	73.0	18.4	0.003
5A	17.9	3.36	75.0	16.1	0.002
5B	18.4	3.46	73.0	13.8	0.002
Avg.	18.2	3.41	74.0	14.9	0.002
6A	4.4	8.80	33.6	10.2	<0.003
6A	5.2	8.82	33.6	9.4	<0.003
Avg.	4.8	8.81	33.6	9.8	<0.003

APPENDIX TABLE A-3
 (continued)
 RESULTS OF WATER CHEMISTRY ANALYSIS
 MARBLE HILL PLANT
 6 MAY 1977

Station and replicate	Alkalinity (mg/l)	Free residual chlorine (mg/l)	Chloramines (mg/l)
1A	66.8	<0.01	<0.01
1B	62.6	<0.01	<0.01
Avg.	64.7	<0.01	<0.01
3A	64.5	<0.01	<0.01
3B	64.3	<0.01	<0.01
Avg.	64.4	<0.01	<0.01
5A	65.0	<0.01	<0.01
5B	65.9	<0.01	<0.01
Avg.	65.5	<0.01	<0.01
6A	228.4	<0.01	<0.01
6B	228.8	<0.01	<0.01
Avg.	228.6	<0.01	<0.01

APPENDIX TABLE A-3
 (continued)
 RESULTS OF WATER CHEMISTRY ANALYSIS
 MARBLE HILL PLANT
 6 MAY 1977

Station and replicate	Chemical oxygen demand (mg/l)	Biochemical oxygen demand (mg/l)	Total organic carbon (mg/l)
1A	3.7	3.7	4.52
1B	3.7	3.4	3.98
Avg.	3.7	3.5	4.25
3A	7.5	2.5	4.34
3B	8.5	3.6	4.61
Avg.	8.0	3.1	4.48
5A	5.0	3.5	4.25
5B	5.0	2.6	4.16
Avg.	5.0	3.1	4.21
6A	4.0	2.0	1.53
6B	2.6	1.9	1.71
Avg.	3.3	1.9	1.62

APPENDIX TABLE A-3
(continued)
RESULTS OF WATER CHEMISTRY ANALYSIS
MARBLE HILL PLANT
6 MAY 1977

Station and replicate	Calcium (mg/l)	Magnesium (mg/l)	Sodium (mg/l)
1A	36.19	11.44	15.36
1B	35.81	11.33	15.74
Avg.	36.00	11.38	15.55
3A	35.22	11.11	15.08
3B	35.32	10.84	14.84
Avg.	35.27	10.98	14.96
5A	34.58	10.94	14.83
5B	35.12	11.14	14.88
Avg.	34.85	11.04	14.86
6A	59.72	27.41	3.92
6B	60.22	27.62	3.74
Avg.	60.97	27.52	3.83

APPENDIX TABLE A-3
 (continued)
 RESULTS OF WATER CHEMISTRY ANALYSIS
 MARBLE HILL PLANT
 6 MAY 1977

Station and replicate	Total dissolved solids (mg/l)	Total suspended solids (mg/l)
1A	222	9
1B	224	13
Avg.	223	11
3A	227	13
3B	226	13
Avg.	227	13
5A	241	11
5B	211	13
Avg.	226	12
6A	328	7
6B	316	8
Avg.	322	8
^a 8	-	-

^a No water at station during sampling period.

APPENDIX TABLE A-3
(continued)
RESULTS OF WATER CHEMISTRY ANALYSIS
MARBLE HILL PLANT
6 MAY 1977

Station	Dissolved oxygen (ppm)	% Saturation	pH	Specific conductance (μ mho)
1	8.8	104	6.8	332
3	8.8	105	7.1	335
5	8.7	104	6.8	334
6	8.4	95	8.0	433

APPENDIX TABLE A-4
 RESULTS OF WATER CHEMISTRY ANALYSIS
 MARBLE HILL PLANT
 18 AUGUST 1977

Station and replicate	Organic nitrogen (mg/l)	Nitrate nitrogen (NO ₃ -N mg/l)	Ammonia nitrogen (NH ₃ -N mg/l)	Total phosphorous (PO ₄ -P mg/l)	Ortho-phosphate (PO ₄ -P mg/l)
1A	0.28	1.27	0.09	0.20	0.03
1B	0.98	1.32	0.09	0.21	0.03
Avg.	0.63	1.30	0.09	0.21	0.03
3A	0.34	1.32	0.11	0.25	0.03
3B	0.50	1.32	0.14	0.21	0.03
Avg.	0.42	1.32	0.13	0.23	0.03
5A	0.60	1.57	0.18	0.24	0.03
5B	0.58	1.26	0.13	0.21	0.03
Avg.	0.59	1.42	0.16	0.23	0.03
6A	<0.03	0.66	0.08	0.03	0.01
6B	0.08	0.66	0.08	0.02	0.01
Avg.	<0.06	0.66	0.08	0.03	0.01

APPENDIX TABLE A-4
 (continued)
 RESULTS OF WATER CHEMISTRY ANALYSIS
 MARBLE HILL PLANT
 18 AUGUST 1977

Station and replicate	Chlorides (mg/l)	Silica (SiO ₂ mg/l)	Sulfate (mg/l)	Hexane-soluble Analysis (mg/l)	Phenols (mg/l)
1A	23.2	4.38	86.0	<1.0	<0.003
1B	22.9	4.58	88.0	<1.0	0.007
Avg.	23.1	4.48	87.0	<1.0	<0.005
3A	23.2	4.54	88.0	<1.0	0.004
3B	23.2	4.66	90.0	<1.0	0.007
Avg.	23.2	4.60	89.0	<1.0	0.006
5A	22.7	4.52	86.0	<1.0	0.010
5B	22.9	4.66	86.0	<1.0	<0.003
Avg.	22.8	4.59	86.0	<1.0	<0.007
6A	8.7	7.70	33.0	2.8	0.006
6B	8.7	7.84	33.0	1.4	0.006
Avg.	8.7	7.77	33.0	2.1	0.006

APPENDIX TABLE A-4
 (continued)
 RESULTS OF WATER CHEMISTRY ANALYSIS
 MARBLE HILL PLANT
 18 AUGUST 1977

Station and replicate	Alkalinity (mg/l)	Free residual chlorine (mg/l)	Chloramines (mg/l)
1A	43.6	<0.01	<0.01
1B	43.4	<0.01	<0.01
Avg.	43.5	<0.01	<0.01
3A	44.1	<0.01	<0.01
3B	43.3	<0.01	<0.01
Avg.	43.7	<0.01	<0.01
5A	44.4	<0.01	<0.01
5B	43.7	<0.01	<0.01
Avg.	44.1	<0.01	<0.01
6A	240.5	<0.01	<0.01
6B	245.0	<0.01	<0.01
Avg.	242.8	<0.01	<0.01

APPENDIX TABLE A-4
 (continued)
 RESULTS OF WATER CHEMISTRY ANALYSIS
 MARBLE HILL PLANT
 18 AUGUST 1977

Station and replicate	Chemical oxygen demand (mg/l)	Biochemical oxygen demand (mg/l)	Total organic carbon (mg/l)
1A	12.8	3.8	8.36
1B	12.8	2.5	7.41
Avg.	12.8	3.2	7.89
3A	14.5	2.8	7.51
3B	12.8	1.8	8.47
Avg.	13.7	2.3	7.99
5A	14.0	2.1	6.91
5B	12.2	2.1	6.32
Avg.	13.1	2.1	6.62
6A	3.5	1.7	5.13
6B	4.1	1.6	4.18
Avg.	3.8	1.7	4.66

APPENDIX TABLE A-4
 (continued)
 RESULTS OF WATER CHEMISTRY ANALYSIS
 MARBLE HILL PLANT
 18 AUGUST 1977

Station and replicate	Calcium (mg/l)	Magnesium (mg/l)	Sodium (mg/l)
1A	35.56	8.45	16.81
1B	35.56	8.73	20.30
Avg.	35.56	8.59	18.56
3A	36.25	8.65	17.54
3B	35.99	8.78	13.84
Avg.	36.12	8.72	15.69
5A	36.68	8.65	16.02
5B	37.02	8.60	17.07
Avg.	36.85	8.63	16.55
6A	71.58	26.72	2.11
6B	70.63	27.10	1.38
Avg.	71.11	26.91	1.75

APPENDIX TABLE A-4
(continued)
RESULTS OF WATER CHEMISTRY ANALYSIS
MARBLE HILL PLANT
18 AUGUST 1977

Station and replicate	Total dissolved solids (mg/l)	Total suspended solids (mg/l)
1A	224	60
1B	225	68
Avg.	225	64
3A	218	55
3B	224	66
Avg.	221	61
5A	208	59
5B	221	64
Avg.	215	62
6A	248	10
6B	261	12
Avg.	255	11
8	291	184

APPENDIX TABLE A-4
(continued)
RESULTS OF WATER CHEMISTRY ANALYSIS
MARBLE HILL PLANT
18 AUGUST 1977

Station	Dissolved oxygen (ppm)	% Saturation	pH	Specific conductance (μ mho)
1	6.1	76	7.4	340
	6.0	75	7.6	345
	6.0	74	7.3	332
6	9.2	102	8.0	445

APPENDIX TABLE A-5
 RESULTS OF WATER CHEMISTRY ANALYSIS
 MARBLE HILL PLANT
 10 NOVEMBER 1977

Station and replicate	Organic nitrogen (mg/l)	Nitrate nitrogen (NO ₃ -N mg/l)	Ammonia nitrogen (NH ₃ -N mg/l)	Total phosphorous (PO ₄ -P mg/l)	Ortho-phosphate (PO ₄ -P mg/l)
1A	<0.03	0.74	0.12	0.17	0.03
1B	<0.03	0.83	0.08	0.17	0.04
Avg.	<0.03	0.79	0.10	0.17	0.04
3A	0.04	0.86	0.07	0.17	0.03
3B	<0.03	0.83	0.07	0.16	0.04
Avg.	<0.04	0.85	0.07	0.17	0.04
5A	<0.03	0.83	0.07	0.17	0.03
5B	0.05	0.86	0.07	0.17	0.04
Avg.	<0.04	0.85	0.07	0.17	0.04
6A	<0.03	1.25	0.02	0.09	0.01
6B	<0.03	1.27	0.02	0.09	0.01
Avg.	<0.03	1.26	0.02	0.09	0.01

APPENDIX TABLE A-5
 (continued)
 RESULTS OF WATER CHEMISTRY ANALYSIS
 MARBLE HILL PLANT
 10 NOVEMBER 1977

Station and replicate	Chlorides (mg/l)	Silica (SiO ₂ mg/l)	Sulfate (mg/l)	Hexane-soluble materials (mg/l)	Phenols (mg/l)
1A	20.7	4.60	75.0	24.9	0.004
1B	21.2	4.78	75.0	15.0	<0.003
Avg.	21.0	4.69	75.0	20.0	<0.004
3A	21.2	4.84	73.0	27.6	0.005
3B	21.2	4.88	76.0	19.7	0.005
Avg.	21.2	4.86	74.5	23.7	0.005
5A	20.7	4.90	75.0	14.2	0.003
5B	21.2	4.60	73.0	12.8	0.004
Avg.	21.0	4.75	74.0	13.5	0.004
6A	13.8	8.86	64.0	13.5	<0.003
6B	13.3	9.14	64.0	11.8	<0.003
Avg.	13.6	9.00	64.0	12.7	<0.003

APPENDIX TABLE A-5
 (continued)
 RESULTS OF WATER CHEMISTRY ANALYSIS
 MARBLE HILL PLANT
 10 NOVEMBER 1977

Station and replicate	Alkalinity (mg/l)	Residual chlorine (mg/l)	Chloramines (mg/l)
1A	50.8	<0.01	<0.01
1B	52.3	<0.01	<0.01
Avg.	51.6	<0.01	<0.01
3A	51.3	<0.01	<0.01
3B	51.2	<0.01	<0.01
Avg.	51.3	<0.01	<0.01
5A	52.4	<0.01	<0.01
5B	51.9	<0.01	<0.01
Avg.	52.2	<0.01	<0.01
6A	212.2	<0.01	<0.01
6B	212.5	<0.01	<0.01
Avg.	212.4	<0.01	<0.01

APPENDIX TABLE A-5
 (continued)
 RESULTS OF WATER CHEMISTRY ANALYSIS
 MARBLE HILL PLANT
 10 NOVEMBER 1977

Station and replicate	Chemical oxygen demand (mg/l)	Biochemical oxygen demand (mg/l)	Total organic carbon (mg/l)
1A	9.3	3.6	5.37
1B	6.2	3.1	4.97
Avg.	7.8	3.4	5.17
3A	6.2	3.6	4.25
3B	6.2	2.8	4.25
Avg.	6.2	3.2	4.25
5A	7.7	4.2	6.43
5B	6.2	2.5	6.17
Avg.	7.0	3.4	6.30
6A	3.1	2.4	7.71
6B	3.1	1.4	5.75
Avg.	3.1	1.9	6.73

APPENDIX TABLE A-5
 (continued)
 RESULTS OF WATER CHEMISTRY ANALYSIS
 MARBLE HILL PLANT
 10 NOVEMBER 1977

Station and replicate	Calcium (mg/l)	Magnesium (mg/l)	Sodium (mg/l)
1A	29.98	7.67	14.44
1B	28.26	7.44	14.33
Avg.	29.12	7.56	14.39
3A	27.11	7.74	14.92
3B	28.33	7.72	13.81
Avg.	27.72	7.73	14.37
5A	29.46	7.69	14.44
5B	29.21	7.87	14.71
Avg.	29.34	7.78	14.58
6A	64.07	25.54	5.44
6B	64.35	25.80	5.44
Avg.	64.21	25.67	5.44

APPENDIX TABLE A-5
(continued)
RESULTS OF WATER CHEMISTRY ANALYSIS
MARBLE HILL PLANT
10 NOVEMBER 1977

Station and replicate	Total dissolved solids (mg/l)	Total suspended solids (mg/l)
1A	225	67
1B	226	55
Avg.	226	61
3A	209	46
3B	221	43
Avg.	215	45
5A	222	53
5B	229	45
Avg.	226	49
6A	352	39
6B	359	38
Avg.	356	39
8	443	1006

APPENDIX TABLE A-5
(continued)
RESULTS OF WATER CHEMISTRY ANALYSIS
MARBLE HILL PLANT
10 NOVEMBER 1977

Station	Dissolved oxygen (ppm)	% Saturation	pH	Specific conductance (μ mho)
1	9.7	96	6.9	275
3	9.5	94	6.9	285
5	9.6	95	6.9	290
6	10.6	92	7.6	410

APPENDIX TABLE A-6

RESULTS OF PHYSICAL PARAMETER MEASUREMENTS
 MARBLE HILL PLANT
 24 MARCH 1977

Parameter	Station				
	1	3	5	6	8
Temperature (°C)	11.0	12.0	9.5	13.0	NA
Current velocity (cm/sec)	150	135	120	<10	NA
Secchi depth (cm)	15	15	15	bottom visible	NA
Water depth (m)	3.6	3.7	3.1	0.4	NA
Turbidity (JTU)	NA	NA	NA	NA	3.5

APPENDIX TABLE A-7

RESULTS OF PHYSICAL PARAMETER MEASUREMENTS
 MARBLE HILL PLANT
 26 MAY 1977

Parameter	Station				
	1	3	5	6	8
Temperature (°C)	24.2	24.8	25.0	21.8	NA
Current velocity (cm/sec)	40	30	35	<10	NA
Secchi depth (cm)	92	90	85	bottom visible	NA
Water depth (m)	3.9	4.0	3.6	0.4	NA
Turbidity (JTU)	NA	NA	NA	NA	- ^a

^aNo water at station during sampling period.

APPENDIX TABLE A-8

RESULTS OF PHYSICAL PARAMETER MEASUREMENTS
 MARBLE HILL PLANT
 18 AUGUST 1977

Parameter	Station				
	1	3	5	6	8
Temperature (°C)	26.0	26.0	26.5	20.0	NA
Current velocity (cm/sec)	145	135	138	<10	NA
Secchi depth (cm)	27	28	28	bottom visible	NA
Water depth (m)	6.0	6.7	6.0	0.5	NA
Turbidity (JTU)	NA	NA	NA	NA	5.5

APPENDIX TABLE A-9

RESULTS OF PHYSICAL PARAMETER MEASUREMENTS
MARBLE HILL PLANT
10 NOVEMBER 1977

Parameter	Station				
	1	3	5	6	8
Temperature (°C)	14.5	14.5	14.5	11.6	NA
Current velocity (cm/sec)	190	150	165	<10	NA
Secchi depth (cm)	50	50	50	60	NA
Water depth (m)	6.9	6.6	6.1	1.0	NA
Turbidity (JTU)	NA	NA	NA	NA	125

A P P E N D I X B

BACTERIA

APPENDIX TABLE B-1

RESULTS OF BACTERIAL ANALYSES
MARBLE HILL
24 MARCH 1977

Station and replicate	Total coliforms (counts/100 ml)	Fecal coliforms (counts/100 ml)	Fecal streptococcus (counts/100 ml)	FC/FS
1A	48,000	900	500	1.80
1B	52,000	500	300	1.67
Avg.	50,000	700	400	1.75
3A	19,000	900	300	3.00
3B	24,000	800	400	2.00
Avg.	21,500	850	350	2.43
6A	2,700	<10	20	<0.50
6B	1,800	<10	10	<1.00
Avg.	2,200	<10	15	<0.67
8A	1,400	10	10	1.00
8B	1,600	<10	10	<1.00
Avg.	1,500	<10	10	<1.00

APPENDIX TABLE B-2

RESULTS OF BACTERIAL ANALYSES
 MARBLE HILL
 26 MAY 1977

Station and replicate	Total coliforms (counts/100 ml)	Fecal coliforms (counts/100 ml)	Fecal streptococcus (counts/100 ml)	FC/FS
1A	5,900	90	10	9.00
1B	4,900	70	10	7.00
Avg.	5,400	80	10	8.00
3A	5,100	90	< 10	> 9.00
3B	4,500	60	< 10	> 6.00
Avg.	4,800	75	< 10	> 7.50
6A	2,600	80	95	0.84
6B	4,500	40	74	0.54
Avg.	3,550	60	85	0.71
8A ^a	-	-	-	-
8B	-	-	-	-
Avg.	-	-	-	-

^a No water at Station 8 during sampling period.

APPENDIX TABLE B-3

RESULTS OF BACTERIAL ANALYSES
MARBLE HILL
18 AUGUST 1977

Station and replicate	Total coliforms (counts/100 ml)	Fecal coliforms (counts/100 ml)	Fecal streptococcus (counts/100 ml)	FC/FS
1A	13,300	400	420	0.95
1B	11,800	390	380	1.03
Avg.	12,600	395	400	0.99
3A	10,100	410	340	1.21
3B	9,400	480	420	1.14
Avg.	9,800	445	380	1.17
6A	2,400	108	400	0.27
6B	4,800	33	270	0.12
Avg.	3,600	71	335	0.21
8A	16,000	450	360	1.25
8B	19,000	440	370	1.19
Avg.	17,500	445	365	1.22

APPENDIX TABLE B-4
 RESULTS OF BACTERIAL ANALYSES
 MARBLE HILL
 10 NOVEMBER 1977

Station and replicate	Total coliforms (counts/ 100 ml)	Fecal coliforms (counts/ 100 ml)	Fecal streptococcus (counts/ 100 ml)	FC/FS
1A	53,000	4,600	240	19.17
1B	49,000	3,000	290	10.34
Avg.	51,000	3,800	265	14.33
3A	47,000	3,800	210	18.10
3B	69,000	4,900	310	15.81
Avg.	58,000	4,350	260	16.73
6A	18,000	350	9,500	0.04
6B	17,000	340	7,300	0.05
Avg.	17,500	345	8,800	0.04
8A	34,000	230	3,600	0.06
8B	20,000	290	4,000	0.07
Avg.	27,000	260	3,800	0.07

A P P E N D I X C.1

PHYTOPLANKTON

APPENDIX TABLE C.1-1

 PHYTOPLANKTON COMPOSITION AND ABUNDANCE (no./ml)
 MARBLE HILL PLANT
 21 MARCH 1977

Species	Station and replicate											
	1			3			5			6		
	A	B	\bar{x}	A	B	\bar{x}	A	B	\bar{x}	A	B	\bar{x}
BACILLARIOPHYTA												
Centrales												
<i>Cyclotella bodanica</i> ?				81.3	43.0	62.2				0.0	5.6	2.8
<i>C. Meneghiniana</i>	423.7	418.9	421.3	650.4	537.4	593.9	306.4	525.4	415.9	190.9	142.4	166.7
<i>C. stelligera</i>				27.1	0.0	13.6						
<i>Cyclotella</i> sp. 1	291.3	197.1	244.2	216.8	171.8	194.3	102.3	105.2	103.8	72.4	49.3	60.9
<i>Cyclotella</i> sp. 3	53.0	24.5	38.8									
<i>Melosira distans</i>	26.5	0.0	13.3	54.2	21.5	37.9	76.5	34.9	55.7	6.6	0.0	3.3
<i>M. granulata</i>							178.8	0.0	89.4	0.0	5.6	2.8
<i>M. granulata</i> v. <i>angustissima</i>	26.5	0.0	13.3	0.0	21.5	10.8	0.0	175.1	87.6	6.6	11.0	8.8
<i>M. islandica</i> subsp. <i>helvetica</i>	26.5	0.0	13.3									
<i>M. varians</i>				0.0	43.0	21.5				0.0	11.0	5.5
<i>Melosira</i> sp. 1	53.0	0.0	26.5	54.2	0.0	27.1						
<i>Stephanodiscus</i> sp. 1	53.0	98.4	75.7	0.0	64.5	32.3	178.8	140.2	159.5	13.1	5.6	9.4
Pennales												
<i>Achnanthes lanceolata</i> v. <i>dubia</i>										6.6	0.0	3.3
<i>A. minutissima</i>	0.0	172.5	86.3	189.7	86.0	137.9	204.2	34.9	119.6	59.2	21.9	40.6
<i>Achnanthes</i> sp. 1	317.8	369.5	343.7	135.5	21.5	78.5	76.5	34.9	55.7	39.5	27.4	33.5
<i>Achnanthes</i> sp. 2	105.9	49.4	77.7	27.1	0.0	13.6	0.0	34.9	17.5			
<i>Achnanthes</i> sp. 3	26.5	24.5	25.5	108.4	0.0	54.2				19.8	0.0	9.9
<i>Amphiprora</i> ? sp. 1	26.5	0.0	13.3									
<i>Asterionella formosa</i> v. <i>gracillima</i>	0.0	49.4	24.7	27.1	43.0	35.1	51.1	34.9	43.0	32.9	5.6	19.3
<i>Cocconeis placentula</i> v. <i>lineata</i> ?	0.0	24.5	12.3				25.4	0.0	12.7			
<i>Cymbella affinis</i>	0.0	49.4	24.7	27.1	0.0	13.6	25.4	34.9	30.2			
<i>C. minuta</i> v. <i>silesiaca</i>							51.1	0.0	25.6			
<i>C. prostrata</i> v. <i>auerswaldii</i>	53.0	49.4	51.2	0.0	43.0	21.5				6.6	21.9	14.3
<i>Diatoma vulgare</i>	0.0	24.5	12.3	102.4	21.5	65.0	76.5	34.9	55.7	6.6	5.6	6.1

APPENDIX TABLE C.1-1
 (continued)
 PHYTOPLANKTON COMPOSITION AND ABUNDANCE (no./ml)
 MARBLE HILL PLANT
 21 MARCH 1977

Species	Station and replicate											
	1			3			5			6		
	A	B	\bar{x}	A	B	\bar{x}	A	B	\bar{x}	A	B	\bar{x}
BACILLARIOPHYTA (continued)												
Pennales (continued)												
<i>Eunotia exigua</i>				0.0	21.5	10.8	25.4	0.0	12.7			
<i>Fragilaria capucina</i>				81.3	21.5	51.4	127.7	840.4	484.1	6.6	11.0	8.8
<i>F. crotonensis</i>	132.4	0.0	66.2				25.4	175.1	100.3			
<i>Fragilaria</i> sp. 1	53.0	0.0	26.5									
<i>Gomphonema acuminatum</i>										6.6	0.0	3.3
<i>G. olivaceum</i>	26.5	24.5	25.5	0.0	21.5	10.8	0.0	69.9	35.0	0.0	5.6	2.8
<i>G. parvulum</i>	105.9	221.9	163.9	189.7	107.5	148.6	127.7	69.9	98.8	19.8	27.4	23.6
<i>Meridion circulare</i> v. <i>constrictum</i>							0.0	34.9	17.5	6.6	0.0	3.3
<i>Navicula cryptocephala</i>	158.9	123.2	141.1	108.4	107.5	108.0	102.3	140.2	121.3	13.1	21.9	17.5
<i>N. cryptocephala</i> v. <i>veneta</i>				0.0	43.0	21.5	51.1	69.9	60.5	19.8	38.4	29.1
<i>N. gysingensis</i>				27.1	21.5	24.3						
<i>N. viridula</i> v. <i>avenacea</i>	26.5	172.5	99.5	135.5	21.5	78.5	0.0	34.9	17.5	13.1	11.0	12.1
<i>Navicula</i> sp. 1	79.4	24.5	52.0									
<i>Navicula</i> sp. 2				54.2	21.5	37.9				0.0	16.5	8.3
<i>Navicula</i> sp. 3				27.1	0.0	13.6						
<i>Navicula</i> sp. 4							25.4	34.9	30.2	0.0	11.0	15.5
<i>Navicula</i> sp. 5							0.0	105.2	52.6	13.1	5.6	9.4
<i>Nitzschia acicularis</i> v. <i>closterioides</i>	132.4	73.9	103.2	0.0	64.5	32.3	0.0	34.9	17.5	0.0	5.6	2.8
<i>N. acuta</i>							51.1	0.0	25.6			
<i>N. amphibia</i>				0.0	43.0	21.5				6.6	11.0	8.8
<i>N. communis</i>										0.0	5.6	2.8
<i>N. communis</i> v. <i>abbreviata</i>	0.0	73.9	37.0	27.1	129.0	78.1	25.4	34.9	30.2			
<i>N. dissipata</i>	79.4	0.0	39.7	0.0	21.5	10.8	51.1	34.9	43.0	26.4	5.6	16.0
<i>N. filiformis</i>	26.5	0.0	13.3	0.0	21.5	10.8						
<i>N. Kutzingiana</i>	26.5	0.0	13.3									
<i>N. palea</i>	158.9	295.5	227.2	216.8	150.4	183.6	255.3	245.0	250.2	19.8	21.9	20.9
<i>N. sublinearis</i>	26.5	0.0	13.3	0.0	21.5	10.8				6.6	0.0	3.3

APPENDIX TABLE C.1-1
 (continued)
 PHYTOPLANKTON COMPOSITION AND ABUNDANCE (no./ml)
 MARBLE HILL PLANT
 21 MARCH 1977

Species	Station and replicate											
	1			3			5			6		
	A	B	\bar{x}	A	B	\bar{x}	A	B	\bar{x}	A	B	\bar{x}
BACILLARIOPHYTA (continued)												
Pennales (continued)												
<i>Rhizosolenia curvata</i>							51.1	0.0	25.6	6.6	0.0	3.3
<i>Surirella ovata</i>	0.0	49.4	24.7	27.1	64.5	45.8				0.0	11.0	5.5
<i>Synedra delicatissima</i>	26.5	0.0	13.3				25.4	0.0	12.7			
<i>S. roosa</i>	53.0	0.0	26.5	27.1	43.0	35.1	25.4	105.7	65.3	13.1	0.0	6.6
<i>S. ulna</i>	0.0	24.5	12.3	27.1	21.5	24.3	51.1	0.0	25.6			
unidentified pennate sp. 1	53.0	24.5	38.8	27.1	21.5	24.3	25.4	69.9	47.7	6.6	0.0	3.3
unidentified pennate sp. 2							0.0	69.9	35.0			
unidentified pennate sp. 3	0.0	98.4	49.2									
TOTAL BACILLARIOPHYTA	2648.7	2758.7	2704.6	2682.9	2100.6	2395.8	2399.3	3360.2	2980.8	645.2	522.0	584.2
CHRYSOPHYTA												
<i>Dinobryon cylindricum</i>	0.0	9.1	4.6									
<i>Mallomonas</i> ? sp.	0.0	9.1	4.6									
<i>Stipitococcus vasiformis</i>							10.7	0.0	5.4			
TOTAL CHRYSOPHYTA	0.0	18.2	9.2	0.0	0.0	0.0	10.7	0.0	5.4	0.0	0.0	0.0
CHLOROPHYTA												
<i>Ankistrodesmus convolutus</i>	18.1	9.1	13.6	0.0	10.6	5.3	0.0	10.2	5.1	7.8	7.7	7.8
<i>A. falcatus</i>	18.1	54.4	36.3	26.7	21.2	24.0	64.3	51.1	57.7	46.6	23.0	34.8
<i>A. falcatus</i> v. <i>mirabilis</i>							32.1	10.2	21.2	7.8	7.7	7.8
<i>A. fractus</i>										7.8	0.0	3.9
<i>Carteria cordiformis</i>	9.1	9.0	9.1				10.7	0.0	5.4			
<i>Chlamydomonas globosa</i> ?										0.0	23.0	11.5
<i>Chlamydomonas</i> sp. 1	9.1	27.1	18.1				10.7	0.0	5.4			
<i>Chlamydomonas</i> ? sp. 2	9.1	0.0	4.6	8.9	10.6	9.8						
<i>Chlamydomonas</i> sp. 3							0.0	10.2	5.1			
<i>Golenkinia radiata</i>										0.0	7.7	3.9
<i>Kirchneriella contorta</i>							21.4	20.5	21.0			
<i>K. lunaris</i>	0.0	27.2	13.6	17.8	0.0	8.9						
<i>K. obesa</i> v. <i>major</i>				0.0	10.6	5.3	10.7	0.0	5.4	7.8	0.0	3.9
<i>Micractinium pusillum</i>				8.9	0.0	4.5				15.5	0.0	7.8
<i>Oocystis</i> sp. 1										15.6	0.0	7.8
<i>Oocystis</i> ? sp. 2				0.0	21.2	10.6	0.0	10.2	5.1	15.6	7.7	11.7

APPENDIX TABLE C.1-1
 (continued)
 PHYTOPLANKTON COMPOSITION AND ABUNDANCE (no./ml)
 MARBLE HILL PLANT
 21 MARCH 1977

Species	Station and replicate											
	1			3			5			6		
	A	B	\bar{x}	A	B	\bar{x}	A	B	\bar{x}	A	B	\bar{x}
CHLOROPHYTA (continued)												
<i>Scenedesmus abundans</i> v.												
<i>brevicauda</i>	9.1	0.0	4.6									
<i>S. quadricauda</i>	0.0	9.1	4.6	0.0	10.6	5.3	10.7	0.0	5.4	0.0	15.3	7.7
<i>Scenedesmus</i> sp. 1										0.0	7.7	3.9
<i>Schroederia Judayi</i>							10.7	0.0	5.4			
<i>S. setigera</i>	9.1	0.0	4.6							7.8	0.0	3.9
<i>Stigeoclonium</i> sp. 1				15.1	7.8	11.5						
<i>Tetraedron caudatum</i>	0.0	9.1	4.6									
coccoïd green 1	9.1	0.0	4.6							0.0	7.7	3.9
coccoïd green 2	9.1	0.0	4.6									
coccoïd green 3										15.5	15.3	15.4
coccoïd green 4										7.8	15.3	11.6
unidentified green 1										7.8	0.0	3.9
TOTAL CHLOROPHYTA	99.9	145.0	122.9	77.4	92.6	85.2	171.3	112.4	142.2	163.4	138.1	151.2
CYANOPHYTA												
<i>Anacystis rupestris</i> v.												
<i>prasina</i>				0.0	21.2	10.6	0.0	10.2	5.1			
<i>Anabaena</i> sp. 1							1.4	0.0	0.7			
<i>Chroococcus dispersus</i> v.												
<i>minor</i>	18.1	0.0	9.1	17.8	0.0	8.9	0.0	10.2	5.1	0.0	7.7	3.9
<i>Dactylococcopsis</i>												
<i>fascicularis</i> ?	45.4	18.0	31.7	35.6	0.0	17.8				7.8	23.0	15.4
<i>D. smithii</i>							10.7	20.4	15.6	7.8	0.0	3.9
<i>Lyngbya contorta</i>							7.3	11.3	9.3			
<i>Merismopedia tenuissima</i>							10.7	0.0	5.4			
<i>Microcystis incerta</i>				8.9	10.6	9.8						
<i>Nostoc</i> sp. 1	20.5	0.0	10.3	3.6	1.1	2.4	4.2	0.0	2.1			
<i>Oscillatoria</i> sp. 1	61.6	81.4	71.5	124.8	13.9	69.4	105.1	76.8	91.0	36.9	37.6	37.3
<i>Oscillatoria</i> sp. 2	31.5	19.4	25.5	25.7	15.6	20.7	65.8	9.2	37.5	6.1	0.0	3.1
<i>Oscillatoria</i> sp. 3	0.0	6.6	3.3									

APPENDIX TABLE C.1-1
 (continued)
 PHYTOPLANKTON COMPOSITION AND ABUNDANCE (no./ml)
 MARBLE HILL PLANT
 21 MARCH 1977

Species	Station and replicate											
	1			3			5			6		
	A	B	\bar{x}	A	B	\bar{x}	A	B	\bar{x}	A	B	\bar{x}
CYANOPHYTA (continued)												
<i>Phormidium minnesotense</i>				0.0	4.9	2.5	17.9	8.1	13.0			
<i>Rhabdoderma lineare</i>							32.1	10.2	21.2	23.3	0.0	11.7
coccoid blue-green 1										0.0	15.3	7.7
TOTAL CYANOPHYTA	177.1	125.4	151.4	216.4	67.3	142.1	255.2	156.4	206.0	81.9	83.6	83.0
EUGLENOPHYTA												
<i>Euglena</i> sp. 1	0.0	9.1	4.6									
<i>Euglena</i> sp. 2				8.9	10.6	9.8						
<i>Lepocinclis sphaerophila</i> ?										23.3	0.0	11.7
<i>Trachelomonas</i> sp. 1	54.4	36.2	45.3	62.2	42.4	52.3	85.7	71.6	78.7	38.9	30.6	34.8
<i>Trachelomonas</i> sp. 2	9.1	18.2	13.7	0.0	10.6	5.3	10.7	10.2	10.5			
<i>Trachelomonas</i> sp. 3	9.1	0.0	4.6	8.9	10.6	9.8						
euglenoid sp. 1										0.0	7.7	3.9
TOTAL EUGLENOPHYTA	72.6	63.5	68.2	80.0	74.2	77.2	96.4	81.8	89.2	62.2	38.3	50.4
PYRRHOPHYTA												
dinoflagellate sp. 1	9.1	0.0	4.6							0.0	7.7	3.9
TOTAL PYRRHOPHYTA	9.1	0.0	4.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	7.7	3.9
OTHERS												
phytoflagellate sp. 1										0.0	7.7	3.9
unidentified algal cell 1										23.3	23.0	23.2
unidentified algal cell 2	9.1	9.1	9.1									
TOTAL OTHERS	9.1	9.1	9.1	0.0	0.0	0.0	0.0	0.0	0.0	23.3	30.7	27.1
TOTAL PHYTOPLANKTON	3016.3	3119.9	3070.0 +446.5	3056.7	2340.7	2700.3 +522.8	2932.9	3710.8	3323.6 +622.8	976.0	820.4	899.8 +142.8

APPENDIX TABLE C.1-2

 PHYTOPLANKTON COMPOSITION AND ABUNDANCE (no./ml)
 MARBLE HILL PLANT
 26 MAY 1977

Species	Station and replicate											
	4			5			6			A	B	X
	A	B	X	A	B	X	A	B	X			
BACILLARIOPHYTA												
Centrales												
<i>Cocconeidiscus lacustris</i>	222.7	123.9	173.3	243.0	229.3	236.2	86.0	136.4	111.2			
<i>C. Reneghiniensis</i>	1981.5	1919.3	1950.4	1888.7	2107.6	1998.2	1981.1	2025.8	2003.5	0.0	0.3	0.2
<i>C. stelligera</i>	24.5	20.7	22.6	0.0	22.8	11.4						
<i>Cyclotella</i> sp. 1	1065.0	1052.5	1058.8	523.5	458.1	490.8	495.3	340.3	417.8			
<i>Melosira distans</i>	1189.0	887.1	1038.1	841.2	939.5	890.4	624.3	612.8	618.6			
<i>M. granulata</i>	643.8	928.8	786.3	748.2	893.9	821.1	1313.8	783.0	1048.4	1.8	0.0	0.9
<i>M. granulata</i> v. <i>angustissima</i>	470.7	82.8	276.8	243.0	504.4	373.7	387.5	204.4	296.0			
<i>M. islandica</i> subsp. <i>helvetica</i>	0.0	62.2	31.1									
<i>M. varians</i>				74.9	229.3	152.1						
<i>Stephanodiscus astrea</i>	74.0	186.0	130.0	74.9	0.0	37.5	107.9	34.2	71.1			
<i>Stephanodiscus</i> sp. 1	24.5	41.1	32.8	0.0	45.8	22.9	0.0	51.1	25.6			
unidentified centric sp. 1				0.0	412.3	206.2	256.3	238.1	248.2			
Pennales												
<i>Achnanthes lanceolata</i>				0.0	22.8	11.4				0.0	0.3	0.2
<i>A. lanceolata</i> v. <i>fubia</i>										2.9	1.3	2.1
<i>A. minutissima</i>										14.2	24.5	19.4
<i>Achnanthes</i> sp. 1										0.7	1.6	1.2
<i>Amphora ovalis</i> v. <i>pediculus</i>	24.5	20.7	22.6							3.2	1.6	2.4
<i>Asterionella formosa</i> v. <i>tracillima</i>	140.6	0.0	74.3	130.9	0.0	65.5	0.0	16.9	8.5			
<i>Cocconeis pediculus</i>										4.7	1.0	2.9
<i>C. placentula</i> v. <i>lineata</i>										1.1	1.6	1.4
<i>Cymbella affinis</i>										0.4	0.3	0.4
<i>C. minuta</i> v. <i>silesiaca</i>	24.5	0.0	12.3									
<i>C. prostrata</i> v. <i>auerswaldii</i>										1.4	0.3	0.9
<i>Diatoma vulgare</i>										0.4	1.0	0.7
<i>Fragilaria crotonensis</i>	49.4	0.0	24.7									
<i>Gomphonema parvulum</i>										55.5	47.0	51.3
<i>Navicula cryptocephala</i> v. <i>veneta</i>	24.5	0.0	12.3							0.4	0.0	0.2
<i>Nitzschia oculularis</i> v. <i>closterioides</i>	24.5	41.1	32.8	74.9	22.8	48.9	129.2	51.1	90.2	0.4	0.0	0.2
<i>N. amphibia</i>										0.7	0.6	0.4

APPENDIX TABLE C.1-2
(continued)
PHYTOPLANKTON COMPOSITION AND ABUNDANCE (no./ml)
MARBLE HILL PLANT
26 MAY 1977

Species	Station and replicate											
	3			4			5			6		
	A	B	X	A	B	X	A	B	X	A	B	X
BACILLARIOPHYTA (continued)												
<i>Nitzschia communis</i> v. <i>abbreviata</i>										1.1	0.0	0.6
<i>N. dissipata</i>				0.0	22.8	11.4						
<i>N. palea</i>	99.3	20.7	60.0	56.2	0.0	28.1	21.8	16.9	19.4	0.7	0.3	0.5
<i>N. sublinearis</i>										0.4	1.0	0.7
<i>Nitzschia</i> sp. 1										0.7	0.0	0.4
<i>Rhoicosphenia curvata</i>										1.8	1.3	1.6
<i>Surirella ovalis</i>	0.0	20.7	10.4	18.5	0.0	9.3						
<i>Synedra delicatissima</i>	24.5	0.0	12.3	37.7	69.1	53.4	21.8	0.0	10.9	0.4	0.0	0.2
<i>S. radians</i>	24.5	0.0	12.3									
<i>S. socia</i>				18.5	0.0	9.3						
permate sp. 2	24.5	0.0	12.3	37.7	22.8	30.3	21.8	51.1	36.5			
TOTAL BACILLARIOPHYTA	6164.5	5407.6	5786.5	5011.8	6003.3	5508.1	5448.8	4562.1	5005.9	92.9	83.4	88.8
CHRYSOPHYTA												
chrysophyte sp. 1				207.9	19.3	113.6						
chrysophyte statospore	16.6	0.0	8.3									
TOTAL CHRYSOPHYTA	16.6	0.0	8.3	207.9	19.3	113.6	0.0	0.0	0.0	0.0	0.0	0.0
CRYPTOPHYTA												
cryptophyte sp. 1	16.6	0.0	8.3									
cryptophyte sp. 2	845.5	781.6	813.6	484.9	38.6	261.8	506.9	499.1	503.0			
TOTAL CRYPTOPHYTA	862.1	781.6	821.9	484.9	38.6	261.8	506.9	499.1	503.0	0.0	0.0	0.0
XANTHOPHYTA												
xanthophyte sp. 1	33.2	0.0	16.6	23.1	0.0	11.6	21.1	0.0	10.6			
TOTAL XANTHOPHYTA	33.2	0.0	16.6	23.1	0.0	11.6	21.1	0.0	10.6	0.0	0.0	0.0
CHLOROPHYTA												
<i>Ankistrodesmus convolutus</i>	16.6	32.6	24.6	0.0	19.3	9.7	42.2	0.0	21.1			
<i>A. falcatus</i>	33.2	65.1	49.2	0.0	38.6	19.3	42.2	0.0	21.1			
<i>A. falcatus</i> v. <i>acicularis</i>				23.1	0.0	11.6						
<i>A. falcatus</i> v. <i>mirabilis</i>	33.2	0.0	16.6	23.1	19.3	21.2	21.1	23.8	22.5			
<i>Carteria</i> sp. 1	16.6	16.3	16.5									
<i>Characium</i> sp. 1										0.7	0.7	0.7
<i>Characium</i> ? sp. 2										0.0	0.7	0.4
<i>Characium</i> sp. ?							0.0	23.8	11.9			
<i>Chlamydomonas globosa</i> ?	116.1	130.3	123.2	184.7	0.0	92.4	42.3	23.8	33.1			
<i>Chlamydomonas</i> sp. 3	0.0	16.3	8.2				21.1	0.0	10.6	7.9	18.8	13.4
<i>Chlamydomonas</i> sp. 4	16.6	16.3	16.5							4.0	6.3	5.2
<i>Chlamydomonas</i> sp. 5	99.5	32.6	66.1	46.2	0.0	23.1	21.1	23.8	22.5			

APPENDIX TABLE C.1-2
(continued)
PHYTOPLANKTON COMPOSITION AND ABUNDANCE (no./ml)
MARBLE HILL PLANT
26 MAY 1977

Species	Station and replicate											
	1			3			5			6		
	A	B	X	A	B	X	A	B	X	A	B	X
CHLOROPHYTA (continued)												
<i>Chlorella</i> ? sp.	1608.1	1807.4	1707.8	738.9	154.4	446.7	1267.1	831.7	1049.4			
<i>Closteriopsis longissima</i>				0.0	19.3	9.7						
<i>Coelastrum sphaericum</i>	33.2	16.3	24.8	23.1	0.0	11.6	21.1	0.0	10.6			
<i>Crucigenia fenestrata</i>				115.5	0.0	57.8	84.5	118.9	101.7			
<i>C. tetrapedia</i>							21.1	0.0	10.6			
<i>Dictyosphaerium Ehrenbergianum</i>							0.0	47.5	23.8			
<i>D. pulchellum</i>	16.6	0.0	8.3									
<i>Franceia</i> sp.	16.6	16.3	16.5									
<i>Kirchneriella contorta</i>	66.3	48.9	57.6									
<i>K. lunaris</i>	49.8	32.6	41.2	0.0	19.3	9.7						
<i>K. lunaris</i> v. <i>irregularis</i>	0.0	16.3	8.2	23.1	0.0	11.6	42.3	0.0	21.2			
<i>K. obesa</i>	16.6	65.2	40.9	23.1	0.0	11.6	21.1	0.0	10.6			
<i>K. obesa</i> v. <i>major</i>	16.6	0.0	8.3									
<i>Lagerheimia quadriseta</i>	33.2	81.4	57.3	115.5	19.3	67.4	84.5	71.3	77.9			
<i>L. subsalsa</i>				0.0	38.6	19.3	42.2	0.0	21.1			
<i>Micractinium pusillum</i>	0.0	16.3	8.2	23.1	0.0	11.6	21.1	0.0	10.6			
<i>Oocystis Borgei</i>				46.2	0.0	23.1	21.1	47.6	34.4			
<i>Oocystis</i> sp.	0.0	32.6	16.3									
<i>Pediastrum tetras</i>	0.0	16.3	8.2	23.1	0.0	11.6	42.3	0.0	21.2			
<i>Scenedesmus abundans</i>							21.1	0.0	10.6			
<i>S. abundans</i> v. <i>brevicauda</i>	16.6	0.0	8.3				21.1	0.0	10.6			
<i>S. abundans</i> v.				0.0	19.3	9.7						
<i>S. acuminatus</i>							21.1	0.0	10.6			
<i>S. arcuatus</i> v.							21.1	0.0	10.6			
<i>S. dimorphus</i>	66.3	48.9	57.6	23.1	0.0	11.6						
<i>S. quadricauda</i>	49.8	16.3	33.1	92.4	38.6	65.5	63.4	0.0	31.7			
<i>Scenedesmus</i> sp. 2	82.9	0.0	41.5	46.2	19.3	32.8	42.3	23.8	33.1			
<i>Selenastrum minutum</i>	0.0	16.3	8.2									
<i>Schroederia Judayii</i>										17.2	13.3	15.3
<i>S. setigera</i>				23.1	19.3	21.2						
<i>Stichococcus</i> ? sp.	646.6	1025.8	836.2	508.0	19.3	263.7	359.0	261.4	310.2			
<i>Tetraedron caudatum</i>				23.1	19.3	21.2	21.1	0.0	10.6			
<i>T. minimum</i>	16.6	0.0	8.3									
<i>T. muticum</i>	49.8	0.0	24.9	0.0	19.3	9.7	0.0	23.8	11.9			
<i>Tetrastrum anomalum</i>	16.6	0.0	8.3				0.0	23.8	11.9			
<i>T. elegans</i>	33.2	65.2	49.2	69.3	0.0	34.7	42.3	23.8	33.1			
<i>T. punctatum</i>	16.6	0.0	8.3									
<i>T. staurogeniaeforme</i>	16.6	65.2	40.9	23.1	38.6	30.9	105.6	23.8	64.7			
<i>Treubaria setigerum</i>				23.1	0.0	11.6						

APPENDIX TABLE G.1-2
(continued)
PHYTOPLANKTON COMPOSITION AND ABUNDANCE (no./ml)
MARBLE HILL PLANT
26 MAY 1977

Species	Station			Station			Station			Station		
	A	J	Average	A	J	Average	A	J	Average	A	J	Average
CHLOROPHYTA (continued)												
coccoid green 1	0.0	16.3	8.2	46.2	0.0	23.1	0.0	23.8	11.9			
coccoid green 6				138.6	0.0	69.3						
coccoid green 7				69.3	38.6	54.0	887.0	617.8	752.4			
coccoid green 8										0.7	2.9	1.8
coccoid green 9										4.0	1.5	2.8
unidentified green 2	116.1	130.3	123.2	46.2	57.9	52.1	169.0	95.1	132.1			
TOTAL CHLOROPHYTA	3316.5	3843.4	3580.7	2540.4	617.6	1580.1	3632.5	2329.3	2981.9	34.5	44.2	39.6
CYANOPHYTA												
<i>Anabaena flos-aquae</i>										0.0	3.6	1.8
<i>Chroococcus dispersus</i> v. minor	199.0	162.9	181.0	161.6	57.9	109.8	549.1	95.1	322.1			
<i>C. limneticus</i>	33.2	32.6	32.9	46.2	0.0	23.1	21.1	0.0	10.6			
<i>Dactylococcopsis</i> fascicularis ?	33.2	65.1	49.2									
<i>D. Smithii</i>							21.1	0.0	10.6	8.6	7.7	8.2
<i>Lunghya Diguettii</i>										0.5	1.9	1.2
<i>Merismopedia tenuissima</i>	0.0	32.6	16.3									
<i>Oscillatoria</i> sp. 1	13.1	3.4	8.3	4.9	0.0	2.5	2.9	0.0	1.5	10.2	10.2	10.2
<i>Oscillatoria</i> sp. 2										0.1	0.0	0.1
<i>Oscillatoria</i> sp. 4	16.6	0.0	8.3	0.0	13.2	6.6						
<i>Phormidium minnesotense</i>	3.5	0.0	1.8	41.2	0.0	20.6				0.0	0.4	0.2
TOTAL CYANOPHYTA	298.6	296.6	297.8	253.9	71.1	162.6	594.2	95.1	344.8	19.4	23.8	21.7
EUGLENOPHYTA												
<i>Trachelomonas</i> sp. 1	49.8	65.2	57.5	23.1	0.0	11.6	21.1	0.0	10.6	0.7	1.5	1.1
<i>Trachelomonas</i> sp. 2	16.6	0.0	8.3									
<i>Trachelomonas</i> sp. 4				23.1	0.0	11.6						
<i>Trachelomonas</i> sp. 5				0.0	19.3	9.7						
<i>Trachelomonas</i> sp. 6										3.3	2.1	2.7
<i>Trachelomonas</i> sp. 7										1.4	1.4	1.4
euglenoid sp. 1										43.6	39.0	41.3
euglenoid sp. 2										0.0	0.7	0.4
TOTAL EUGLENOPHYTA	66.4	65.2	65.8	46.2	19.3	32.9	21.1	0.0	10.6	49.0	44.7	46.9
PYRRHOPHYTA												
dinoflagellate sp. 2	33.2	0.0	16.6									
TOTAL PYRRHOPHYTA	33.2	0.0	16.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
OTHER												
phytoflagellate sp. 2				46.2	0.0	23.1	0.0	47.5	23.8			

APPENDIX TABLE C.1-2
 (continued)
 PHYTOPLANKTON COMPOSITION AND ABUNDANCE (no./ml)
 MARBLE HILL PLANT
 26 MAY 1977

Species	Station and replicate												
	A	B	X	A	S	Y	A	S	X	A	S	X	
OTHER (Continued)													
phytoflagellate sp. 3	149.2	114.0	131.6	161.7	0.0	80.9	42.2	118.9	80.6				
phytoflagellate sp. 5				46.2	19.3	32.8							
phytoflagellate sp. 6	99.5	48.9	74.2	23.1	0.0	11.6	42.2	0.0	21.1				
phytoflagellate sp. 7	33.2	16.3	24.8										
TOTAL OTHER	281.9	179.2	230.6	277.2	19.3	148.4	84.4	166.4	125.5	0.0	0.0	0.0	
 TOTAL PHYTOPLANKTON	 11073.0	 10573.6	 10824.8 -1116.9	 8845.4	 6788.5	 7819.1 -1208.4	 10309.0	 7652.0	 8992.3 -1670.6	 195.8	 196.1	 197.0 -6.8	

APPENDIX TABLE C.1-3

 PHYTOPLANKTON COMPOSITION AND ABUNDANCE (no./ml)
 MARBLE HILL PLANT
 18 AUGUST 1977

Species	Station and replicate											
	1			3			5			6		
	A	B	\bar{x}	A	B	\bar{x}	A	B	\bar{x}	A	B	\bar{x}
BACILLARIOPHYTA												
Centrales												
<i>Coscinodiscus lacustris</i>	35.2	87.4	61.3	41.4	0.0	20.7	80.7	0.0	40.4			
<i>Cyclotella Meneghiniana</i>	3980.9	5121.5	4551.2	4896.7	5618.5	5257.6	4678.0	2900.2	3789.1	11.8	10.0	10.9
<i>C. stelligera</i>	70.6	0.0	35.3	83.1	0.0	41.6						
<i>Cyclotella</i> sp. 1	1303.5	1707.1	1505.3	1120.3	1856.4	1488.4	1088.6	874.7	981.7	1.0	0.3	0.7
<i>Melosira distans</i>	599.0	568.9	584.0	705.4	732.9	719.2	725.8	253.2	489.5	7.2	4.7	6.0
<i>M. granulata</i>	634.2	875.6	754.9	1078.9	1367.8	1223.4	967.8	575.5	771.7	2.6	0.6	1.6
<i>M. granulata</i> v. <i>angustissima</i>	70.6	175.2	122.9	249.2	195.4	222.3	161.3	46.1	103.7			
<i>Stephanodiscus astraes</i>				0.0	48.9	24.5						
Pennales												
<i>Achnanthes lanceolata</i>				41.4	0.0	20.7	40.2	0.0	20.1	3.3	0.6	1.0
<i>A. minutissima</i>				0.0	48.9	24.5	0.0	23.0	11.5	43.9	44.7	44.3
<i>Achnanthes</i> sp. 1	246.7	87.4	167.1	0.0	48.9	24.5	120.8	0.0	60.4	5.9	6.5	6.2
<i>Amphora</i> sp. 1				41.4	0.0	20.7				0.7	0.0	0.4
<i>Asterionella formosa</i> v. <i>gracillima</i>				41.4	48.9	45.2	40.2	0.0	20.1			
<i>Caloneis lewisii</i> v. <i>inflata</i>										0.7	0.0	0.4
<i>Cocconeis pediculus</i>										0.7	0.0	0.4
<i>C. piacentula</i>										3.3	1.8	2.6
<i>Cymbella minuta</i> v. <i>silesiaca</i>										0.0	0.6	0.3
<i>C. prostrata</i> v. <i>auerswaldii</i>										0.7	0.6	0.7
<i>Diatoma vulgare</i>				0.0	48.9	24.5	40.2	0.0	20.1			
<i>D. vulgare</i> v. <i>grande</i>							0.0	23.0	11.5			
<i>Eunotia exigua</i>	0.0	43.7	21.9									
<i>Fragilaria crotonensis</i>	70.6	131.3	101.0	0.0	146.5	73.3	0.0	46.1	23.1			
<i>Gomphonema acuminatum</i>										0.0	0.6	0.3
<i>G. dichotomum</i>										2.6	1.2	1.9
<i>G. parvulum</i>	35.2	0.0	17.6							21.6	21.8	21.7
<i>Gyrosigma acuminatum</i>							0.0	23.0	11.5			
<i>Navicula cryptocephala</i>				0.0	48.9	24.5				4.6	0.6	2.6
<i>N. hungarica</i> v. <i>capitata</i>							40.2	0.0	20.1			
<i>N. viridula</i> v. <i>avenacea</i>	70.6	0.0	35.3	83.1	48.9	66.0				0.0	1.2	0.6
<i>Navicula</i> sp. 2				41.4	0.0	20.7				5.3	7.0	6.2
<i>Navicula</i> sp. 3										0.0	0.6	0.3
<i>Navicula</i> sp. 5										0.0	0.6	0.3
<i>Navicula</i> ? sp. 6	35.2	0.0	17.6				0.0	23.0	11.5			
<i>Nitzschia acicularis</i> v. <i>closterioides</i>	246.7	131.3	189.0	83.1	195.4	139.3	40.2	23.0	31.6			

APPENDIX TABLE C.1-3
(continued)
PHYTOPLANKTON COMPOSITION AND ABUNDANCE (no./ml)
MARBLE HILL PLANT
18 AUGUST 1977

Species	1			3			5			6		
	A	B	\bar{x}	A	B	\bar{x}	A	B	\bar{x}	A	B	\bar{x}
CHLOROPHYTA (continued)												
coccoid green 7							0.0	30.7	15.4			
unidentified green 1							31.4	0.0	15.7			
unidentified green 2	313.6	227.7	270.7	287.1	386.2	336.7	502.1	184.2	343.2			
TOTAL CHLOROPHYTA	1344.0	972.9	1159.1	1312.1	1181.3	1269.2	1506.7	644.7	1076.2	1.9	1.5	1.7
CYANOPHYTA												
<i>Anabaena spiruloides</i> V. GRASSA				0.0	43.2	21.6						
<i>Calothrix</i> sp.	9.0	26.9	18.0	0.0	52.3	26.2	56.5	0.0	28.7			
<i>Chroococcus dispersus</i> V. minor	67.2	41.4	54.3	61.5	113.6	87.6	31.4	0.0	15.7			
<i>C. limneticus</i>							31.4	0.0	15.7			
<i>Dactylococopsis acicularis</i>	22.4	20.7	21.6	0.0	22.7	11.4	62.8	0.0	31.4			
<i>D. fascicularis</i> ?	67.2	0.0	33.6	61.5	22.7	42.1						
<i>Dactylococopsis</i> ? sp.										0.4	0.4	0.4
<i>Gomphosphaeria lacustris</i> V. compacta				61.5	22.7	42.1	31.4	0.0	15.7			
<i>Lyngbya diguetii</i>										0.3	0.1	0.2
<i>L. limnetica</i>				0.0	15.9	8.0						
<i>Merismopedia tenuissima</i>	179.2	124.2	151.7	82.0	45.5	63.8	125.5	30.7	78.1			
<i>Microcystis incerta</i>	0.0	62.1	31.1	102.5	22.7	62.6	188.3	30.7	109.5			
<i>Oscillatoria</i> sp. 1	0.0	8.3	4.2	14.4	15.9	15.2	9.5	0.0	4.8	5.1	4.8	5.0
<i>Oscillatoria</i> sp. 2	78.4	0.0	39.2	0.0	40.9	20.5						
<i>Phormidium minnesotense</i>	4.5	12.4	8.5	10.3	13.7	12.0	9.4	0.0	4.7			
<i>Raphidiopsis curvata</i>	44.8	0.0	22.4	0.0	102.2	51.1						
<i>Rhabdoderma irregulare</i>							125.6	0.0	62.8	1.8	1.7	1.6
coccoid blue-green 1												
filamentous blue-green	0.0	20.7	10.4	393.7	534.0	464.2	671.8	61.4	366.7	7.6	7.0	7.4
TOTAL CYANOPHYTA	472.7	316.7	395.0									
EUGLENOPHYTA												
<i>Euglena</i> sp. 3				0.0	22.7	11.4						
<i>Euglena</i> sp. 4				0.0	22.7	11.4						
<i>Phacus helioides</i>				0.0	22.7	11.4						
<i>Trachelomonas robusta</i>							0.0	30.7	15.4	0.4	0.4	0.4
<i>T. vermiculosa</i>												
<i>T. volvocina</i>	22.4	0.0	11.2	20.5	0.0	10.3	62.8	61.4	62.1	0.7	0.4	0.6
<i>Trachelomonas</i> sp. 1	0.0	20.7	10.4	41.0	45.4	43.2	62.8	30.7	46.8			
<i>Trachelomonas</i> sp. 2							62.8	30.7	46.8			
<i>Trachelomonas</i> sp. 8	0.0	20.7	10.4	0.0	22.7	11.4	0.0	61.4	30.7			

APPENDIX TABLE C.1-3
 (continued)
 PHYTOPLANKTON COMPOSITION AND ABUNDANCE (no./ml)
 MARBLE HILL PLANT
 18 AUGUST 1977

Species	Station and replicate											
	1			3			5			6		
	A	B	\bar{x}	A	B	\bar{x}	A	B	\bar{x}	A	B	\bar{x}
EUGLENOPHYTA (continued)												
unidentified euglenoid sp. 1										17.9	20.5	19.2
TOTAL EUGLENOPHYTA	22.4	41.4	32.0	61.5	136.2	99.1	125.6	184.2	155.0	19.0	21.3	20.2
PYRRHOPHYTA												
dinoflagellate sp. 2	22.4	0.0	11.2									
TOTAL PYRRHOPHYTA	22.4	0.0	11.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
OTHERS												
phytoflagellate sp. 3	0.0	20.7	10.4									
phytoflagellate sp. 4										7.2	6.1	6.7
phytoflagellate sp. 11										2.5	1.7	2.1
TOTAL OTHERS	0.0	20.7	10.4	0.0	0.0	0.0	0.0	0.0	0.0	9.7	7.8	8.8
TOTAL PHYTOPLANKTON	9747.4	10667.9	10209.1 +829.1	10871.0	12778.3	11827.0 ±1647.6	11092.5	5862.2	8478.3 ±3127.2	183.6	162.3	173.7 ±14.7

APPENDIX TABLE C.1-4

 PHYTOPLANKTON COMPOSITION AND ABUNDANCE (no./ml)
 MARBLE HILL PLANT
 10 NOVEMBER 1977

Species	Station and replicate											
	1			3			5			6		
	A	B	\bar{x}	A	B	\bar{x}	A	B	\bar{x}	A	B	\bar{x}
BACILLARIOPHYTA												
Centrales												
<i>Cyclotella comta</i>							0.0	18.6	9.3			
<i>C. Meneghiniana</i>	1121.3	2159.6	1640.5	2204.5	2185.4	2195.0	1482.5	1621.3	1551.9	23.7	32.4	28.1
<i>C. pseudostelligera</i>	15.6	28.0	21.8	0.0	59.2	29.6	17.9	13.6	18.3			
<i>C. stelligera</i>	15.6	0.0	7.8				17.9	0.0	9.0			
<i>Cyclotella</i> sp.1	350.6	581.5	466.1	770.1	723.8	747.0	452.2	443.2	447.7	6.0	0.0	3.0
<i>Melosira ambigua</i>	46.9	82.9	64.9	0.0	88.8	44.4	0.0	94.4	47.2			
<i>M. distans</i>	599.5	1135.2	867.4	916.3	1122.5	1019.4	705.0	612.6	658.8	31.6	27.8	29.7
<i>M. granulata</i>	77.8	110.9	94.4	451.7	590.9	521.3	126.7	132.0	129.4	11.8	9.3	10.6
<i>M. granulata</i> v. <i>angustissima</i>	46.9	166.5	106.7	79.8	59.2	69.5	90.3	37.9	64.1			
<i>M. islandica</i> Subsp. <i>helvetica</i>	155.6	138.6	147.1	106.5	236.5	171.5	90.3	207.1	148.7			
<i>Stephanodiscus astraea</i>	15.6	55.7	35.7	27.0	0.0	13.5	36.4	18.6	27.5			
<i>Stephanodiscus</i> sp.1	264.7	415.2	340.0	106.5	295.3	200.9	199.1	377.0	288.1			
unidentified centric sp.1	62.3	28.0	45.2	159.5	88.8	124.2	0.0	18.6	9.3	4.0	0.0	2.0
Pennales												
<i>Achnanthes lanceolata</i>	31.3	55.7	43.5	27.0	59.2	43.1				11.8	13.9	12.9
<i>A. minutissima</i>	15.6	55.7	35.7	0.0	59.2	29.6	17.9	0.0	9.0	201.1	259.6	230.4
<i>Achnanthes</i> sp.1	15.6	0.0	7.8	0.0	29.6	14.8	0.0	18.6	9.3	55.2	83.4	69.3
<i>Achnanthes</i> sp.3	0.0	28.0	14.0									
<i>Amphora</i> sp.1										4.0	37.1	20.6
<i>Asterionella formosa</i>	77.8	0.0	38.9	79.8	29.6	54.7	72.4	18.6	45.5			
<i>Cocconeis pediculus</i>										7.9	4.6	6.3
<i>C. placentula</i>										7.9	0.0	4.0
<i>Cymbella prostrata</i> v. <i>auerswaldii</i>	15.6	0.0	7.8				17.9	18.6	18.3	7.9	4.6	6.3
<i>Diatoma vulgare</i>	15.6	0.0	7.8	0.0	29.6	14.8				4.0	0.0	2.0
<i>D. vulgare</i> v. <i>grande</i>										11.8	9.3	10.6
<i>Fragilaria capucina</i>										0.0	9.3	4.7
<i>F. crotonensis</i>	0.0	28.0	14.0									
<i>Gomphonema olivaceum</i>							17.9	0.0	9.0			
<i>G. parvulum</i>	62.3	28.0	45.2	0.0	59.2	29.6	17.9	18.6	18.3	78.9	69.6	74.3
<i>Hantzschia</i> sp.1				27.0	29.6	28.3				0.0	4.6	2.3
<i>Navicula cryptocephala</i>				53.0	29.6	41.3				23.7	9.3	16.5
<i>N. cryptocephala</i> v. <i>veneta</i>										31.6	23.2	27.4
<i>N. cysingensis</i>				27.0	0.0	13.5						
<i>N. viridula</i> v. <i>avenacea</i>	15.6	28.0	21.8	27.0	59.2	43.1	54.3	37.9	46.1	0.0	18.6	9.3
<i>Navicula</i> sp.1							0.0	18.6	9.3			
<i>Navicula</i> sp.2	31.3	0.0	15.7	53.0	29.6	41.3	17.9	18.6	18.3	11.8	32.4	22.1

APPENDIX TABLE C.1-4
(continued)
PHYTOPLANKTON COMPOSITION AND ABUNDANCE (no./ml)
MARBLE HILL PLANT
10 NOVEMBER 1977

Species	Station and replicate											
	1			3			5			6		
	A	B	\bar{x}	A	B	\bar{x}	A	B	\bar{x}	A	B	\bar{x}
BACILLARIOPHYTA												
Pennales (continued)												
<i>Navicula</i> sp.3				27.0	0.0	13.5						
<i>Navicula</i> sp.7				27.0	0.0	13.5						
<i>Mitsuschia acicularis</i> v. <i>closterioides</i>	31.3	55.7	43.5	27.0	88.8	57.9	0.0	18.6	9.3			
<i>N. communis</i>										4.0	0.0	2.0
<i>N. communis</i> v. <i>abbreviata</i>	15.6	0.0	7.8	27.0	29.6	28.3	90.3	56.5	73.4	0.0	4.6	2.3
<i>N. dissipata</i>	0.0	28.0	14.0				0.0	18.6	9.3	67.0	41.7	54.4
<i>N. hungarica</i>										11.8	4.6	8.2
<i>N. palea</i>	109.1	332.2	220.7	79.8	236.5	158.2	126.7	132.0	129.4	86.8	92.7	89.8
<i>Rhoicosphenia curvata</i>				27.0	0.0	13.5				15.8	9.3	12.6
<i>Sarirella angustata</i>										0.0	9.3	4.7
<i>S. ovalis</i>	15.6	0.0	7.8	27.0	59.2	43.1				4.0	0.0	2.0
<i>S. ovata</i>										59.2	32.4	45.8
<i>Synedra delicatissima</i>	0.0	28.0	14.0									
<i>S. rumpens</i>	31.3	0.0	15.7				17.9	0.0	9.0			
<i>S. ulna</i> v. <i>obtusa</i>										4.0	9.3	6.7
unidentified pennate sp.4				0.0	29.6	14.8						
TOTAL BACILLARIOPHYTA	3256.0	5569.4	4413.3	5357.5	6308.5	5833.2	3669.4	3975.1	3822.8	787.3	852.9	820.9
CHRYSOPHYTA												
<i>Mallomonas</i> ? sp.1	0.0	23.9	12.0	18.0	0.0	9.0	51.7	0.0	25.9			
TOTAL CHRYSOPHYTA	0.0	23.9	12.0	18.0	0.0	9.0	51.7	0.0	25.9	0.0	0.0	0.0
CRYPTOPHYTA												
<i>Cryptomonas ovata</i>	51.9	71.6	61.8	0.0	36.8	18.4	86.2	68.3	77.3			
cryptophyte sp.1	116.7	191.1	153.9	125.8	165.5	145.7	51.7	153.7	102.7	4.9	4.6	4.8
cryptophyte sp.2	194.5	250.8	222.7	161.6	92.0	126.8	344.7	341.5	343.1			
TOTAL CRYPTOPHYTA	363.1	513.5	438.4	287.4	294.3	290.9	482.6	563.5	523.1	4.9	4.6	4.8
XANTHOPHYTA												
<i>Characiopsis acuta</i>	13.0	0.0	6.5									
TOTAL XANTHOPHYTA	13.0	0.0	6.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CHLOROPHYTA												
<i>Actinastrum gracillimum</i>	0.0	12.0	6.0									
<i>A. hantzschii</i> v. <i>fluviale</i>				0.0	18.4	9.2						
<i>Ankistrodesmus convolutus</i>							17.3	0.0	8.7			
<i>A. falcatus</i>	90.8	143.3	117.1	107.8	294.2	201.0	206.8	221.9	214.4	2.5	4.6	3.6
<i>A. falcatus</i> v. <i>mirabilis</i>	0.0	35.9	18.0	0.0	55.2	27.6	34.5	17.1	25.8			

APPENDIX TABLE C.1-4
 (continued)
 PHYTOPLANKTON COMPOSITION AND ABUNDANCE (no./ml)
 MARBLE HILL PLANT
 10 NOVEMBER 1977

Species	Station and replicate											
	1			3			5			6		
	A	B	\bar{x}	A	B	\bar{x}	A	B	\bar{x}	A	B	\bar{x}
CHLOROPHYTA (continued)												
<i>Characium</i> ? sp.										9.8	20.6	15.2
<i>Chlamydomonas globosa</i> ?	38.9	71.6	55.3	71.8	147.1	109.5	69.0	119.5	94.3	0.0	4.6	2.3
<i>Chlamydomonas</i> sp.1				18.0	18.4	18.2						
<i>Chlamydomonas</i> sp.3	13.0	12.0	12.5	53.9	36.8	45.4						
<i>Chlamydomonas</i> sp.5	64.9	12.0	38.5	18.0	0.0	9.0	0.0	34.2	17.1			
<i>Chlorella</i> ? sp.	116.7	107.5	112.1	215.6	257.4	236.5	206.8	119.5	163.2	0.0	6.9	3.5
<i>Crucigenia tetrapedia</i>	0.0	23.9	12.0	0.0	18.4	9.2	17.3	0.0	8.7			
<i>Dictyosphaerium Ehrenbergianum</i>	0.0	12.0	6.0				17.3	34.2	25.8			
<i>D. pulchellum</i>				0.0	18.4	9.2						
<i>Franceia droescheri</i>				18.0	0.0	9.0						
<i>Golenkinia radiata</i>	0.0	23.9	12.0	18.0	18.4	18.2	0.0	17.1	8.6			
<i>Kirchneriella contorta</i>	0.0	12.0	6.0	0.0	18.4	9.2	17.3	51.2	34.3			
<i>K. lunaris</i> V. <i>irregularis</i>	13.0	71.6	42.3	35.9	18.4	27.2	69.0	51.2	60.1			
<i>K. obesa</i>				0.0	18.4	9.2						
<i>K. obesa</i> V. <i>major</i>	13.0	0.0	6.5									
<i>K. subsolitaria</i>	0.0	23.9	12.0				34.5	17.1	25.8			
<i>Lagerheimia quadriseta</i>	0.0	47.8	23.9	107.8	183.9	145.9	51.7	17.1	34.4			
<i>L. subsalsa</i>							34.5	17.1	25.8			
<i>Oocystis pusilla</i> ?				35.9	36.8	36.4	17.3	17.1	17.2			
<i>Pediastrum duplex</i> V. <i>clathratum</i>							17.3	0.0	8.7			
<i>Scenedesmus abundans</i> V.												
<i>longicauda</i>	0.0	47.8	23.9									
<i>S. acuminatus</i>	0.0	12.0	6.0	18.0	36.8	27.4	17.3	17.1	17.2			
<i>S. arcuatus</i>	0.0	12.0	6.0									
<i>S. bijuga</i> V.	13.0	12.0	12.5	53.9	0.0	27.0	0.0	17.1	8.6			
<i>S. denticulatus</i>	0.0	12.0	6.0									
<i>S. dimorphus</i>							0.0	17.1	8.6			
<i>S. incrassatus</i> V. <i>mononae</i>							0.0	17.1	8.6			
<i>S. quadricauda</i>	26.0	59.7	42.9	35.9	128.7	82.3	17.3	85.4	51.4			
<i>Selenastrum Westii</i>							34.5	0.0	17.3			
<i>Sphaerocystis Schroeteri</i>				18.0	18.4	18.2						
<i>Tetraedron caudatum</i>	0.0	23.9	12.0									
<i>T. minimum</i>							0.0	17.1	8.6			
<i>Tetrastrum elegans</i>	0.0	23.9	12.0									
<i>T. heteracanthum</i>							0.0	17.1	8.6			
<i>T. punctatum</i>	0.0	12.0	6.0	0.0	36.8	18.4						
<i>T. staurogeniaeforme</i>	0.0	23.9	12.0	18.0	36.8	27.4	34.5	0.0	17.3			
<i>Westella</i> ? sp.	0.0	23.9	12.0									
coccoid green ?	0.0	35.8	17.9	18.0	18.4	18.2	0.0	17.1	8.6			

APPENDIX TABLE C.1-4
(continued)
PHYTOPLANKTON COMPOSITION AND ABUNDANCE (no./ml)
MARBLE HILL PLANT
10 NOVEMBER 1977

Species	Station and replicate											
	1			3			5			6		
	A	B	\bar{x}	A	B	\bar{x}	A	B	\bar{x}	A	B	\bar{x}
CHLOROPHYTA (continued)												
unidentified green 2	13.0	83.6	48.3	71.9	73.5	72.7	69.0	136.6	102.8			
TOTAL CHLOROPHYTA	402.3	991.9	697.7	934.4	1508.0	1221.5	983.2	1076.0	1030.5	12.3	36.7	24.6
CYANOPHYTA												
<i>Anabaena</i> sp.1				0.0	18.4	9.2						
<i>Chroococcus dispersus</i> v. <i>minor</i>	13.0	12.0	12.5									
<i>Dactylococcopsis fascicularis</i>							17.3	0.0	8.7			
<i>D. Smithii</i>										0.0	4.6	2.3
<i>Dactylococcopsis</i> ? sp.										12.3	6.9	9.6
<i>Gomphosphaeria lacustris</i> v. <i>compacta</i>				18.0	0.0	9.0						
<i>Merismopedia tenuissima</i>				0.0	36.8	18.4						
<i>Microcystis incerta</i>	0.0	12.0	6.0									
<i>Oscillatoria</i> sp.1				0.0	9.2	4.6				85.3	49.6	67.5
<i>Oscillatoria</i> sp.2				30.6	0.0	15.3						
<i>Phormidium minnesotense</i> coccoid blue-green 1	0.0	2.4	1.2				36.2	0.0	18.1			
TOTAL CYANOPHYTA	13.0	26.4	19.7	48.6	64.4	56.5	53.5	0.0	26.8	124.5	74.8	99.7
EUGLENOPHYTA												
<i>Lepocinclis</i> sp.1	13.0	0.0	6.5									
<i>Trachelomonas superba</i> v.	0.0	12.0	6.0				0.0	34.1	17.1			
<i>Trachelomonas</i> sp.1	64.8	119.4	92.1	89.8	55.2	72.5	51.7	204.9	128.3	22.0	11.4	16.7
<i>Trachelomonas</i> sp.2	13.0	0.0	6.5				68.9	0.0	34.5			
<i>Trachelomonas</i> sp.4							0.0	17.1	8.6			
<i>Trachelomonas</i> sp.8				18.0	0.0	9.0	0.0	17.1	8.6			
euglenoid sp.1										0.0	9.1	4.6
TOTAL EUGLENOPHYTA	90.8	131.4	111.1	107.8	55.2	81.5	120.6	273.2	197.1	22.0	20.5	21.3
PYRRHOPHYTA												
dinoflagellate sp.2	13.0	12.0	12.5									
TOTAL PYRRHOPHYTA	13.0	12.0	12.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
OTHERS												
phytoflagellate sp.3				89.8	0.0	44.9						
phytoflagellate sp.6	13.0	12.0	12.5	0.0	18.4	9.2						
phytoflagellate sp.8	0.0	12.0	6.0									
phytoflagellate sp.9										39.1	36.6	37.9
phytoflagellate sp.10										2.5	2.3	2.4

APPENDIX TABLE C.1-4
 (continued)
 PHYTOPLANKTON COMPOSITION AND ABUNDANCE (no./ml)
 MARBLE HILL PLANT
 10 NOVEMBER 1977

Species	Station and replicate											
	1			3			5			6		
	A	B	\bar{x}	A	B	\bar{x}	A	B	\bar{x}	A	B	\bar{x}
OTHERS (continued)												
unidentified algal cell 1	13.0	0.0	6.5									
TOTAL OTHERS	26.0	24.0	25.0	89.8	18.4	54.1	0.0	0.0	0.0	41.6	38.9	40.3
TOTAL PHYTOPLANKTON	4177.2	7292.5	5736.2	6843.5	8248.8	7546.7	5361.0	5827.8	5626.2	992.6	1028.4	1011.6
			‡ 1877.5			‡ 1002.7			‡ 409.3			‡ 80.1

APPENDIX TABLE C.1-5

 PHYTOPLANKTON BIOVOLUME, RELATIVE ABUNDANCE AND BIOMASS
 MARBLE HILL PLANT
 21 MARCH 1977

Species	Station and Parameter								
	Average biovolume (μ^3)	1		3		5		6	
		Relative abundance (%)	Biomass ^b ($\mu\text{g/l}$)	Relative abundance (%)	Biomass ($\mu\text{g/l}$)	Relative abundance (%)	Biomass ($\mu\text{g/l}$)	Relative abundance (%)	Biomass ($\mu\text{g/l}$)
BACILLARIOPHYTA									
Centrales									
<i>Cyclotella bodanica</i> ?	251.3			2.3	15.63			0.3	0.70
<i>C. Meneghiniana</i>	195.9	13.7	32.53	21.8	116.35	12.5	81.47	18.8	32.66
<i>C. stelligera</i>	706.9			0.5	9.61				
<i>Cyclotella</i> sp.1	58.1	8.0	14.19	7.2	11.29	3.1	6.03	6.8	3.54
<i>Cyclotella</i> sp.3	665.2	1.3	25.81						
<i>Melosira distans</i>	184.1	0.4	2.45	1.4	6.98	1.7	10.25	0.4	0.61
<i>M. granulata</i>	921.4					2.7	82.37	0.3	2.58
<i>M. granulata</i> v. <i>angustissima</i>	194.4	0.4	2.59	0.4	2.10	2.6	17.03	1.0	1.71
<i>M. islandica</i> subspec. <i>helvetica</i>	88.0	0.4	1.17						
<i>M. varians</i>	6242.0			0.8	134.20			0.6	34.33
<i>Melosira</i> sp.1	141.4	0.9	3.75	1.0	3.83				
<i>Stephanodiscus</i> sp.1	274.9	2.5	20.81	1.2	8.88	4.8	43.85	1.0	2.58
Pennales									
<i>Achnanthes lanceolata</i> v. <i>dubia</i>	55.0							0.4	0.18
<i>A. minutissima</i>	65.3	2.8	5.64	5.1	9.00	3.6	7.81	4.5	2.65
<i>Achnanthes</i> sp.1	74.2	11.2	25.50	2.9	5.82	1.7	4.13	3.7	2.49
<i>Achnanthes</i> sp.2	354.4	2.5	27.54	0.5	4.82	0.5	6.20		
<i>Achnanthes</i> sp.3	184.5	0.8	4.70	2.0	10.00			1.1	1.83
<i>Amphiprora</i> ? sp.1	565.5	0.4	7.52						
<i>Asterionella formosa</i> v. <i>gracillima</i>	210.1	0.8	5.19	1.3	7.37	1.3	9.03	2.1	4.05
<i>Cocconeis placentula</i> v. <i>lineata</i> ?	636.2	0.4	7.83			0.4	3.08		
<i>Cymbella affinis</i>	1940.4	0.8	47.93	0.5	26.39	0.9	26.39		
<i>C. minuta</i> v. <i>silesiaca</i>	1161.4					0.8	29.73		
<i>C. prostrata</i> v. <i>auerswaldii</i>	1352.9	1.7	69.27	0.8	29.09			1.6	19.35
<i>Diatoma vulgare</i>	3749.8	0.4	46.12	2.4	243.74	1.7	208.86	0.7	22.87

^a Values represent the relative percentage of the total phytoplankton and are based on the average of duplicate samples.

^b Biomass was calculated from biovolume by the conversion factor, $1 \mu\text{g} = 1 \text{cm}^3$. Biovolume per species was derived by multiplying the average biovolume for each species by the average density of that species at each station.

APPENDIX TABLE C.1-5
(continued)
PHYTOPLANKTON BIOVOLUME, RELATIVE ABUNDANCE AND BIOMASS
MARBLE HILL PLANT
21 MARCH 1977

Species	Average biovolume (μ^3)	Station and Parameter							
		1		3		5		6	
		Relative abundance ^a (%)	Biomass ^b ($\mu\text{g/l}$)	Relative abundance (%)	Biomass ($\mu\text{g/l}$)	Relative abundance (%)	Biomass ($\mu\text{g/l}$)	Relative abundance (%)	Biomass ($\mu\text{g/l}$)
BACILLARIOPHYTA									
Pennales (continued)									
<i>Eunotia exigua</i>	83.4			0.4	0.90	0.4	1.06		
<i>Fragilaria capucina</i>	392.0			1.9	20.15	14.1	189.77	1.0	3.45
<i>F. crotonensis</i>	1507.7	2.2	99.81			3.0	151.22		
<i>Fragilaria</i> sp.1	607.9	0.9	16.11						
<i>Gomphonema acuminatum</i>	3920.0							0.4	12.94
<i>G. olivaceum</i>	871.4	0.8	22.22	0.4	9.41	1.1	30.50	0.3	2.44
<i>G. parvulum</i>	206.9	5.3	33.91	5.5	30.75	3.0	20.44	2.6	4.88
<i>Meridion circulare</i> v. <i>constrictum</i>	98.2					0.5	1.72	0.4	0.32
<i>Navicula cryptocephala</i>	327.7	4.6	46.24	4.0	35.39	3.6	39.75	1.9	5.73
<i>N. cryptocephala</i> v. <i>veneta</i>	177.4			0.8	3.81	1.8	10.73	3.2	5.16
<i>N. gysingensis</i>	138.2			0.9	3.36				
<i>N. viridula</i> v. <i>avenacea</i>	1324.8	3.2	131.82	2.9	104.00	0.5	23.18	1.3	16.03
<i>Navicula</i> sp.1	106.0	1.7	5.51						
<i>Navicula</i> sp.2	138.2			1.4	5.24			0.9	1.15
<i>Navicula</i> sp.3	432.0			0.5	5.88				
<i>Navicula</i> sp.4	113.1					0.9	3.42	0.6	0.62
<i>Navicula</i> sp.5	168.0					1.6	8.84	1.0	1.58
<i>Nitzschia acicularis</i> v. <i>closterioides</i>	133.0	3.4	13.73	1.2	4.30	0.5	2.33	0.3	0.37
<i>N. acuta</i>	2474.0					0.8	63.33		
<i>N. amphibia</i>	638.3			0.8	13.72			1.0	5.62
<i>N. communis</i>	100.0							0.3	0.28
<i>N. communis</i> v. <i>abbreviata</i>	34.1	1.2	1.26	2.9	2.69	0.9	1.03		
<i>N. dissipata</i>	201.6	1.3	8.00	0.4	2.18	1.3	8.67	1.8	3.23
<i>N. filiformis</i>	821.6	0.4	10.93	0.4	8.87				
<i>N. Kutzingiana</i>	31.4	0.4	0.42						

^a Values represent the relative percentage of the total phytoplankton and are based on the average of duplicate samples.

^b Biomass was calculated from biovolume by the conversion factor, $1\text{g}=1\text{cm}^3$. Biovolume per species was derived by multiplying the average biovolume for each species by the average density of that species at each station.

APPENDIX TABLE C.1-5
(continued)
PHYTOPLANKTON BIOVOLUME, RELATIVE ABUNDANCE AND BIOMASS
MARBLE HILL PLANT
21 MARCH 1977

Species	Average biovolume (L ³)	Station and Parameter							
		1		3		5		6	
		Relative abundance ^a (%)	Biomass ^b (µg/l)	Relative abundance (%)	Biomass (µg/l)	Relative abundance (%)	Biomass (µg/l)	Relative abundance (%)	Biomass (µg/l)
BACILLARIOPHYTA (continued)									
Pennales (continued)									
<i>N. palea</i>	77.7	7.4	17.65	6.8	14.27	7.5	19.44	2.3	1.62
<i>N. sublinearis</i>	2398.8	0.4	31.90	0.4	25.91			0.4	7.32
<i>Rhoicosphenia curvata</i>	567.3					0.8	14.52	0.4	1.87
<i>Suirelia ovata</i>	1447.3	0.8	35.75	1.7	66.29			0.6	7.96
<i>Synedra delicatissima</i>	918.0	0.4	12.21			0.4	11.66		
<i>S. socia</i>	158.2	0.9	4.19	1.3	5.55	2.0	10.33	0.7	1.04
<i>S. ulna</i>	1191.8	0.4	14.66	0.9	28.96	0.8	30.51		
unidentified pennate sp.1	290.3	1.3	11.26	0.9	7.05	1.4	13.85	0.4	0.96
unidentified pennate sp.2	257.8					1.1	9.02		
unidentified pennate sp.3	77.8	1.6	3.83						
TOTAL BACILLARIOPHYTA		88.0	921.95	88.5	1043.78	86.3	1206.55	65.1	217.30
CHRYSOPHYTA									
<i>Dinobryon cylindricum</i>	3078.9 ^c	0.2	14.16						
<i>Mallomonas</i> ? sp.	385.6	0.2	1.77						
<i>Stipitococcus vasiformis</i>	165.5					0.2	0.89		
TOTAL CHRYSOPHYTA		0.4	15.93	0.0	0.0	0.2	0.89	0.0	0.0
CHLOROPHYTA									
<i>Ankistrodesmus convolutus</i>	29.5 ^c	0.4	0.46	0.2	0.16	0.2	0.15	0.9	1.79
<i>A. falcatus</i>	25.0 ^c	1.2	0.91	0.9	0.60	1.7	1.44	3.9	0.87
<i>A. falcatus</i> v. <i>mirabilis</i>	80.5 ^c					0.6	1.71	0.9	0.63
<i>A. fractus</i>	49.5 ^c							0.4	0.19
<i>Carteria cordiformis</i>	346.0	0.3	3.15			0.2	1.87		
<i>Chlamydomonas globosa</i> ?	606.1							1.3	6.97
<i>Chlamydomonas</i> sp.1	460.0	0.6	8.33			0.2	2.48		

^a Values represent the relative percentage of the total phytoplankton and are based on the average of duplicate samples.

^b Biomass was calculated from biovolume by the conversion factor, 1 µg = 1 cm³. Biovolume per species was derived by multiplying the average biovolume for each species by the average density of that species at each station.

^c Quantity represents colony volume.

APPENDIX TABLE C.1-5
(continued)
PHYTOPLANKTON BIOVOLUME, RELATIVE ABUNDANCE AND BIOMASS
MARBLE HILL PLANT
21 MARCH 1977

Species	Average biovolume (μ^3)	Station and Parameter							
		1		3		5		6	
		Relative abundance ^a (%)	Biomass ^b ($\mu\text{g/l}$)	Relative abundance (%)	Biomass ($\mu\text{g/l}$)	Relative abundance (%)	Biomass ($\mu\text{g/l}$)	Relative abundance (%)	Biomass ($\mu\text{g/l}$)
CHLOROPHYTA (continued)									
<i>Chlamydomonas</i> ? sp.2	97.8	0.2	0.45	0.4	0.96				
<i>Chlamydomonas</i> sp.3	50.3					0.2	0.26		
<i>Golenkinia radiata</i>	99.5 ^c							0.4	0.39
<i>Kirchneriella contorta</i>	5.5 ^c					0.6	0.12		
<i>K. lunaris</i>	17.6 ^c	0.4	0.24	0.3	0.16				
<i>K. obesa</i> v. <i>major</i>	12.8 ^c			0.2	0.07	0.2	0.07		0.05
<i>Micractinium pusillum</i>	12.8 ^c			0.2	0.06			0.9	0.10
<i>Oocystis</i> sp.1	1739.0 ^c							0.9	13.56
<i>Oocystis</i> ? sp.2	141.4 ^c			0.4	1.50	0.2	0.72	1.3	1.65
<i>Scenedesmus abundans</i> v. <i>brevicauda</i>	118.6 ^c	0.2	0.55						
<i>S. quadricauda</i>	164.1 ^c	0.2	0.75	0.2	0.87	0.2	0.89	0.9	1.26
<i>Scenedesmus</i> sp.1	397.1							0.4	1.55
<i>Schroederia Judaui</i>	13.7					0.2	0.07		
<i>S. setigera</i>	40.4	0.2	0.19					0.4	0.16
<i>Stigeoclonium</i> sp.1	706.9 ^d			0.4	8.13				
<i>Tetraedron caudatum</i>	7.2	0.2	0.03						
cocoid green 1	1531.1	0.2	7.04					0.4	5.97
cocoid green 2	150.5	0.2	0.69						
cocoid green 3	61.1							1.7	0.94
cocoid green 4	87.5							1.3	1.02
unidentified green 1	198.5							0.4	0.77
TOTAL CHLOROPHYTA		4.3	22.79	3.2	12.51	4.5	9.78	16.8	37.87
CYANOPHYTA									
<i>Anabaena</i> sp.1	176.7 ^d					<0.05	0.12		
<i>Anacystis rupestris</i> v. <i>prasina</i>	4849.0 ^c			0.4	51.40	0.2	24.73		

^a Values represent the relative percentage of the total phytoplankton and are based on the average of duplicate samples.

^b Biomass was calculated from biovolume by the conversion factor, $1 \text{ g} = 1 \text{ cm}^3$. Biovolume per species was derived by multiplying the average biovolume for each species by the average density of that species at each station.

^c Quantity represents colony volume.

^d Quantity represents 100 μ filament volume.

APPENDIX TABLE C.1-5
(continued)
PHYTOPLANKTON BIOVOLUME, RELATIVE ABUNDANCE AND BIOMASS
MARBLE HILL PLANT
21 MARCH 1977

Species	Average biovolume (μ^3)	Station and Parameter							
		1		3		5		6	
		Relative abundance ^a (%)	Biomass ^b ($\mu\text{g/l}$)	Relative abundance (%)	Biomass ($\mu\text{g/l}$)	Relative abundance (%)	Biomass ($\mu\text{g/l}$)	Relative abundance (%)	Biomass ($\mu\text{g/l}$)
CYANOPHYTA (continued)									
<i>Chroococcus dispersus</i> v. <i>minor</i>	4.0 ^c	0.3	0.04	0.3	0.04	0.2	0.02	0.4	0.02
<i>Dactylococcopsis fascicularis</i> ?	2.6 ^c	1.0	0.08	0.7	0.05			1.7	0.04
<i>D. Smithii</i>	8.2 ^c					0.5	0.13	0.4	0.03
<i>Lyngbya contorta</i>	176.7 ^d					0.3	1.64		
<i>Merismopedia tenuissima</i>	17.9 ^c					0.2	0.10		
<i>Microcystis incerta</i>	8682.0 ^c			0.4	85.08				
<i>Nostoc</i> sp.1	70.9 ^d	0.3	0.73	0.1	0.17	0.1	0.15		
<i>Oscillatoria</i> sp.1	122.7 ^d	2.3	8.77	2.6	8.52	2.7	11.17	4.1	4.58
<i>Oscillatoria</i> sp.2	52.3 ^d	0.8	1.33	0.8	1.08	1.1	1.96	0.3	0.36
<i>Oscillatoria</i> sp.3	188.7 ^d	0.1	0.62						
<i>Phormidium minnesotense</i>	333.3 ^d			0.1	0.83	0.4	4.33		
<i>Rhabdoderma lineare</i>	45.2 ^c					0.6	0.96	1.3	0.53
coccoid blue-green 1	23.4							0.9	0.18
TOTAL CYANOPHYTA		4.8	11.57	5.4	147.17	6.2	45.31	9.1	5.54
EUGLENOPHYTA									
<i>Euglena</i> sp.1	2502.5	0.1	11.51						
<i>Euglena</i> sp.2	2104.2			0.4	20.62				
<i>Lepocinclis sphagnophila</i> ?	172.2							1.3	2.01
<i>Trachelomonas</i> sp.1	139.1	1.5	6.30	1.9	7.27	2.4	10.95	3.9	4.84
<i>Trachelomonas</i> sp.2	187.4	0.4	2.57	0.2	0.99	0.3	1.97		
<i>Trachelomonas</i> sp.3	90.0	0.1	0.41	0.4	0.88				
euglenoid sp.1	423.3							0.4	1.65
TOTAL EUGLENOPHYTA		2.1	20.79	2.9	29.76	2.7	12.92	5.6	8.50
PYRRHOPHYTA									
dinoflagellate sp.1	258.2	0.1	1.19					0.4	1.00
TOTAL PYRRHOPHYTA		0.1	1.19	0.0	0.0	0.0	0.0	0.4	1.00

^a Values represent the relative percentage of the total phytoplankton and are based on the average of duplicate samples.

^b Biomass was calculated from biovolume by the conversion factor, $1\text{g}=\text{1cm}^3$. Biovolume per species was derived by multiplying the average biovolume for each species by the average density of that species at each station.

^c Quantity represents colony volume.

^d Quantity represents 100% filament volume.

APPENDIX TABLE C.1-5
 (continued)
 PHYTOPLANKTON BIOVOLUME, RELATIVE ABUNDANCE AND BIOMASS
 MARBLE HILL PLANT
 21 MARCH 1977

Species	Average biovolume (μ^3)	Station and Parameter							
		1		3		5		6	
		Relative abundance ^a (%)	Biomass ^b ($\mu\text{g/l}$)	Relative abundance (%)	Biomass ($\mu\text{g/l}$)	Relative abundance (%)	Biomass ($\mu\text{g/l}$)	Relative abundance (%)	Biomass ($\mu\text{g/l}$)
OTHERS									
phytoflagellate sp.1	141.4							0.4	0.55
unidentified algal cell 1	822.6							2.6	19.08
unidentified algal cell 2	53.8	0.3	0.49						
TOTAL OTHERS		0.3	0.49	0.0	0.0	0.0	0.0	3.0	19.63
TOTAL BIOMASS		-	994.71	-	1233.22	-	1275.45	-	289.84

^a Values represent the relative percentage of the total phytoplankton and are based on the average of duplicate samples.

^b Biomass was calculated from biovolume by the conversion factor, $1\text{g}=\text{1cm}^3$. Biovolume per species was derived by multiplying the average biovolume for each species by the average density of that species at each station.

APPENDIX TABLE C.1-6

 PHYTOPLANKTON BIOVOLUME, RELATIVE ABUNDANCE AND BIOMASS
 MARBLE HILL PLANT
 26 MAY 1977

Species	Average biovolume (μ^3)	Station and Parameter							
		1		3		5		6	
		Relative abundance ^a (%)	Biomass ^b ($\mu\text{g/l}$)	Relative abundance (%)	Biomass ($\mu\text{g/l}$)	Relative abundance (%)	Biomass ($\mu\text{g/l}$)	Relative abundance (%)	Biomass ($\mu\text{g/l}$)
BACILLARIOPHYTA									
Centrales									
<i>Coscinodiscus lacustris</i>	2216.9	1.6	384.19	3.0	523.63	1.2	246.52		
<i>Cyclotella Meneghiniana</i>	286.2	18.0	558.20	26.0	571.88	22.4	573.40	0.1	0.06
<i>C. stelligera</i>	567.1	0.2	12.82	0.1	6.46				
<i>Cyclotella</i> sp. 1	115.5	9.8	122.29	6.4	56.69	4.7	48.26		
<i>Melosira distans</i>	152.7	9.6	158.52	11.6	135.96	6.9	94.46		
<i>M. granulata</i>	864.3	7.3	679.60	10.7	709.68	11.7	906.13	0.5	0.78
<i>M. granulata</i> v. <i>angustissima</i>	214.4	2.6	59.35	4.9	80.12	3.3	63.46		
<i>M. islandica</i> subsp. <i>helvetica</i>	54.4	0.3	1.69						
<i>M. varians</i>	6399.2			1.9	973.32				
<i>Stephanodiscus astraea</i>	995.5	1.2	129.42	0.5	37.33	0.8	70.78		
<i>Stephanodiscus</i> sp. 1	208.1	0.3	6.83	0.3	4.77	0.3	5.33		
unidentified centric sp. 1	23.4			2.6	4.33	2.8	5.81		
Pennales									
<i>Achnanthes lanceolata</i>	126.4			0.1	1.44			0.1	0.03
<i>A. lanceolata</i> v. <i>dubia</i>	204.8							1.1	0.43
<i>A. minutissima</i>	37.1							9.8	0.72
<i>Achnanthes</i> sp. 1	54.7							0.6	0.07
<i>Amphora ovalis</i> v. <i>pediculus</i>	279.5	0.2	6.32					1.2	0.67
<i>Asterionella formosa</i> v. <i>gracillina</i>	362.5	0.7	26.93	0.8	23.74	0.1	3.08		
<i>Cocconeis pediculus</i>	1814.8							1.5	5.26
<i>C. piacentula</i> v. <i>lineata</i>	1084.3							0.7	1.52
<i>Cymbella affinis</i>	1760.9							0.2	0.70
<i>C. minuta</i> v. <i>silesiaca</i>	397.6	0.1	4.89						

^a Values represent the relative percentage of the total phytoplankton and are based on the average of duplicate samples.

^b Biomass was calculated from biovolume by the conversion factor, $1 \text{ g} = 1 \text{ cm}^3$. Biovolume per species was derived by multiplying the average biovolume for each species by the average density of that species at each station.

APPENDIX TABLE C.1-6
 (continued)
 PHYTOPLANKTON BIOVOLUME, RELATIVE ABUNDANCE AND BIOMASS
 MARBLE HILL PLANT
 26 MAY 1977

Species	Average biovolume (μ^3)	Station and Parameter							
		1		3		5		6	
		Relative abundance ^a (%)	Biomass ^b ($\mu\text{g/l}$)	Relative abundance (%)	Biomass ($\mu\text{g/l}$)	Relative abundance (%)	Biomass ($\mu\text{g/l}$)	Relative abundance (%)	Biomass ($\mu\text{g/l}$)
BACILLARIOPHYTA									
Pennales (continued)									
<i>C. prostrata</i> v. <i>auerswaldii</i>	1475.9							0.5	1.33
<i>Diatoma vulgare</i>	1977.1							0.4	1.38
<i>Fragilaria crotonensis</i>	1356.0	0.2	34.23					22.7	13.30
<i>Gomphonema parvulum</i>	259.2							0.1	0.06
<i>Navicula cryptocephala</i> v. <i>veneta</i>	277.5	0.1	3.41						
<i>Nitzschia acicularis</i> v. <i>closterioides</i>	654.2	0.3	21.46	0.6	31.99	1.0	59.01	0.1	0.13
<i>N. amphibia</i>	820.0							0.2	0.33
<i>N. communis</i> v. <i>abbreviata</i>	79.8							0.3	0.05
<i>N. dissipata</i>	73.5		0.10	0.84					
<i>N. palea</i>	110.2	0.6	6.61	0.4	3.10	0.2	2.14	0.3	0.06
<i>N. sublinearis</i>	3202.3							0.4	2.24
<i>Nitzschia</i> sp. 1	462.4							0.2	0.18
<i>Rhoicosphenia curvata</i>	1000.0							0.8	1.60
<i>Surirella ovalis</i>	572.6	0.1	5.96	0.1	5.33				
<i>Synedra delicatissima</i>	2184.0	0.1	26.86	0.7	116.63	0.1	23.81	0.1	0.44
<i>S. radians</i>	219.0	0.1	2.69						
<i>S. socia</i>	243.0			0.1	2.26				
pennate sp. 2	142.3	0.1	1.75	0.4	4.31	0.4	5.19		
TOTAL BACILLARIOPHYTA		53.5	2254.02	71.2	3294.31	55.9	2107.38	44.9	31.34
CHRYSOPHYTA									
chrysophyte sp. 1	220.9			1.5	25.09				
chrysophyte statospore	606.1	0.1	5.03						
TOTAL CHRYSOPHYTA		0.1	5.03	1.5	25.09	0.0	0.0	0.0	0.0

¹ Values represent the relative percentage of the total phytoplankton and are based on the average of duplicate samples.

² Biomass was calculated from biovolume by the conversion factor, $1 \mu^3 = 1 \text{ cm}^3$. Biovolume per species was derived by multiplying the average biovolume for each species by the average density of that species at each station.

APPENDIX TABLE C.1- 6
 (continued)
 PHYTOPLANKTON BIOVOLUME, RELATIVE ABUNDANCE AND BIOMASS
 MARBLE HILL PLANT
 26 MAY 1977

Species	Average biovolume (μ^3)	Station and Parameter							
		1		3		5		6	
		Relative abundance ^a (%)	Biomass ^b ($\mu\text{g/l}$)	Relative abundance (%)	Biomass ($\mu\text{g/l}$)	Relative abundance (%)	Biomass ($\mu\text{g/l}$)	Relative abundance (%)	Biomass ($\mu\text{g/l}$)
CRYPTOPHYTA									
cryptophyte sp. 1	23.6	0.1	0.20						
cryptophyte sp. 2	54.0	7.5	43.94	3.3	14.14	5.6	27.16		
TOTAL CRYPTOPHYTA		7.6	44.14	3.3	14.14	5.6	27.16	0.0	0.0
XANTHOPHYTA									
xanthophyte sp. 1	3202.4	0.2	53.16	0.1	37.15	0.1	33.95		
TOTAL XANTHOPHYTA		0.2	53.16	0.1	37.15	0.1	33.95	0.0	0.0
CHLOROPHYTA									
<i>Ankistrodesmus convolutus</i>	28.4 ^C	0.2	0.70	0.1	0.28	0.2	0.60		
<i>A. falcatus</i>	23.8 ^C	0.5	1.17	0.2	0.46	0.2	0.50		
<i>A. falcatus</i> v. <i>acicularis</i>	60.5 ^C			0.1	0.70				
<i>A. falcatus</i> v. <i>mirabilis</i>	80.5 ^C	0.2	1.34	0.3	1.71	0.3	1.81		
<i>Carteria</i> sp. 1	2034.6	0.2	33.57						
<i>Characium</i> sp. 1	162.4							0.4	0.11
<i>Characium</i> ? sp. 2	32.7							0.2	0.01
<i>Characium</i> sp. ?	32.7					0.1	0.39		
<i>Chlamydomonas globosa</i> ?	381.7	1.1	47.03	1.2	35.27	0.4	12.63		
<i>Chlamydomonas</i> sp. 3	26.8	0.1	0.22			0.1	0.28	6.8	0.36
<i>Chlamydomonas</i> sp. 4	150.8	0.2	2.49					2.6	0.78
<i>Chlamydomonas</i> sp. 5	111.2	0.6	7.35	0.3	2.57	0.3	2.50		
<i>Chlorella</i> ? sp.	9.2	15.1	15.71	5.7	4.11	11.7	9.65		
<i>Closteriopsis longissima</i>	795.9			0.1	7.72				
<i>Coelastrum sphaericum</i>	3746.7 ^C	0.2	92.92	0.1	43.46	0.1	39.72		
<i>Crucigenia fenestrata</i>	28.1 ^C			0.7	1.62	1.1	2.86		
<i>C. tetrapedia</i>	56.2 ^C					0.1	0.60		
<i>Dictyosphaerium Ehrenbergianum</i>	4849.0 ^C					0.3	115.41		

¹ Values represent the relative percentage of the total phytoplankton and are based on the average of duplicate samples.

² Biomass was calculated from biovolume by the conversion factor, 1 g = 1 cm³. Biovolume per species was derived by multiplying the average biovolume for each species by the average density of that species at each station.

^C Quantity represents colony volume.

APPENDIX TABLE C.1-6
(continued)
PHYTOPLANKTON BIOVOLUME, RELATIVE ABUNDANCE AND BIOMASS
MARBLE HILL PLANT
26 MAY 1977

Species	Average biovolume (μ^3)	Station and Parameter							
		1		3		5		6	
		Relative abundance ^a (%)	Biomass ^b ($\mu\text{g/l}$)	Relative abundance (%)	Biomass ($\mu\text{g/l}$)	Relative abundance (%)	Biomass ($\mu\text{g/l}$)	Relative abundance (%)	Biomass ($\mu\text{g/l}$)
CHLOROPHYTA (continued)									
<i>D. pulchellum</i>	16365.5 ^c	0.1	135.83						
<i>Franceia</i> Sp.	207.3 ^c	0.2	3.42						
<i>Kirchneriella contorta</i>	4.2 ^c	0.5	0.24						
<i>K. lunaris</i>	17.7 ^c	0.4	0.73	0.1	0.17				
<i>K. lunaris</i> v. <i>irregularis</i>	17.1 ^c	0.1	0.14	0.1	0.20	0.2	0.36		
<i>K. obesa</i>	131.9 ^c	0.4	5.39	0.1	1.53	0.1	1.40		
<i>K. obesa</i> v. <i>major</i>	14.0 ^c	0.1	0.12						
<i>Lagerheimia quadriseta</i>	54.5	0.5	3.12	0.9	3.67	0.9	4.25		
<i>L. subsalsa</i>	25.0			0.2	0.48	0.2	0.53		
<i>Micractinium pusillum</i>	606.1 ^c	0.1	4.97	0.1	7.03	0.1	6.42		
<i>Oocystis Borgei</i>	593.8 ^c			0.3	13.72	0.4	20.43		
<i>Oocystis</i> Sp.	411.8 ^c	0.2	6.71						
<i>Pediastrum tetras</i>	4849.0 ^c	0.1	39.76	0.1	56.25	0.2	102.80		
<i>Scenedesmus abundans</i>	234.6 ^c					0.1	2.49		
<i>S. abundans</i> v. <i>brevicauda</i>	127.4 ^c	0.1	1.06			0.1	1.35		
<i>S. abundans</i> v.	141.4 ^c			0.1	1.37				
<i>S. acuminatus</i>	197.9 ^c					0.1	2.10		
<i>S. arcuatus</i> v.	1570.8 ^c					0.1	16.65		
<i>S. dimorphus</i>	148.4 ^c	0.5	8.55	0.1	1.72				
<i>S. quadricauda</i>	151.4 ^c	0.3	5.01	0.8	9.92	0.4	4.80		
<i>Scenedesmus</i> Sp. 2	98.6 ^c	0.4	4.09	0.4	3.23	0.4	3.26		
<i>Schroederia Judayi</i>	87.5							7.8	1.34
<i>S. setigera</i>	37.2			0.3	0.79				
<i>Selenastrum minutum</i>	28.9	0.1	0.24						
<i>Stichococcus</i> ? Sp.	4.7	7.7	3.93	3.4	1.24	3.5	1.46		
<i>Tetraedron caudatum</i>	7.1			0.3	0.15	0.1	0.08		
<i>T. minimum</i>	36.5	0.1	0.30						
<i>T. muticum</i>	17.6	0.2	0.44	0.1	0.17	0.1	0.21		

^a Values represent the relative percentage of the total phytoplankton and are based on the average of duplicate samples.

^b Biomass was calculated from biovolume by the conversion factor, 1 g = 1 cm³. Biovolume per species was derived by multiplying the average biovolume for each species by the average density of that species at each station.

^c Quantity represents colony volume.

APPENDIX TABLE C.1-6
 (continued)
 PHYTOPLANKTON BIOVOLUME, RELATIVE ABUNDANCE AND BIOMASS
 MARBLE HILL PLANT
 26 MAY 1977

Species	Average biovolume (μ^3)	Station and Parameter							
		1		3		5		6	
		Relative abundance ^a (%)	Biomass ^b ($\mu\text{g/l}$)	Relative abundance (%)	Biomass ($\mu\text{g/l}$)	Relative abundance (%)	Biomass ($\mu\text{g/l}$)	Relative abundance (%)	Biomass ($\mu\text{g/l}$)
CHLOROPHYTA (continued)									
<i>Tetrastrum anomalum</i>	56.2 ^c	0.1	0.47			0.1	0.67		
<i>T. elegans</i>	45.9 ^c	0.5	2.26	0.4	1.59	0.4	1.52		
<i>T. punctatum</i>	450.0 ^c	0.1	3.74						
<i>T. staurogeniaeforme</i>	9.4	0.4	0.38	0.4	0.29	0.7	0.61		
<i>Treubaria setigerum</i>	14.2			0.1	0.16				
coccoloid green 1	1531.1	0.1	12.56	0.3	35.37	0.1	18.22		
coccoloid green 6	113.1			0.9	7.84				
coccoloid green 7	207.1			0.7	11.18	8.4	155.82		
coccoloid green 8	229.8							0.9	0.41
coccoloid green 9	161.0							1.4	0.45
unidentified green 2	36.8 ^c	1.1	4.53	0.7	1.92	1.5	4.86		
TOTAL CHLOROPHYTA		32.8	450.49	19.7	257.89	33.1	537.24	20.1	3.46
CYANOPHYTA									
<i>Anabaena flos-aquae</i>	2206.2 ^d							0.9	3.97
<i>Chroococcus dispersus</i> v. minor	2.9 ^c	1.7	0.52	1.4	0.32	3.6	0.93		
<i>C. limneticus</i>	1436.8 ^c	0.3	47.27	0.3	33.19	0.1	15.23		
<i>Dactylococcopsis fascicularis</i> ?	2.6 ^c	0.5	0.13						
<i>D. Smithii</i>	77.8 ^c					0.1	0.82		
<i>Lynqbya Diquetii</i>	490.9 ^d							4.2	0.64
<i>Merismopedia tenuissima</i>	17.9 ^d	0.2	0.29					0.6	0.59
<i>Oscillatoria</i> sp. 1	78.5 ^d	0.1	0.65	<0.05	0.20	<0.05	0.12		
<i>Oscillatoria</i> sp. 2	50.3 ^d							5.2	0.80
<i>Oscillatoria</i> sp. 4	1963.5 ^d	0.1	16.30	0.1	12.96			0.1	0.01
<i>Phormidium minnesotense</i>	314.2 ^d	<0.05	0.57	0.3	6.47			0.1	0.06
TOTAL CYANOPHYTA		2.9	65.73	2.1	53.14	3.8	17.10	11.1	6.07

^a Values represent the relative percentage of the total phytoplankton and are based on the average of duplicate samples.

^b Biomass was calculated from biovolume by the conversion factor, 1 g = 1 cm³. Biovolume per species was derived by multiplying the average biovolume for each species by the average density of that species at each station.

^c Quantity represents colony volume.

^d Quantity represents 100 μ filament volume.

APPENDIX TABLE C.1- 6
 (continued)
 PHYTOPLANKTON BIOVOLUME, RELATIVE ABUNDANCE AND BIOMASS
 MARBLE HILL PLANT
 26 MAY 1977

Species	Average biovolume (μ^3)	Station and Parameter							
		1		3		5		6	
		Relative abundance ^a (%)	Biomass ^b ($\mu\text{g/l}$)	Relative abundance (%)	Biomass ($\mu\text{g/l}$)	Relative abundance (%)	Biomass ($\mu\text{g/l}$)	Relative abundance (%)	Biomass ($\mu\text{g/l}$)
EUGLENOPHYTA									
Trachelomonas sp. 1	212.2	0.5	12.20	0.1	2.46	0.1	2.25	0.6	0.23
Trachelomonas sp. 2	187.4	0.1	1.56						
Trachelomonas sp. 4	103.0			0.1	1.19				
Trachelomonas sp. 5	2065.2			0.1	20.03				
Trachelomonas sp. 6	78.0							1.4	0.21
Trachelomonas sp. 7	31.2							0.7	0.04
euglenoid sp. 1	587.1							21.0	0.23
euglenoid sp. 2	121.1							0.2	0.05
TOTAL EUGLENOPHYTA		0.6	13.76	0.3	23.68	0.1	2.25	23.9	0.76
PYRRHOPHYTA									
dinoflagellate sp. 2	3053.6	0.2	50.69						
TOTAL PYRRHOPHYTA		0.2	50.69	0.0	0.0	0.0	0.0	0.0	0.0
OTHERS									
phytoflagellate sp. 2	1099.6			0.3	25.40	0.3	26.17		
phytoflagellate sp. 3	2963.8	1.2	390.04	1.0	239.77	0.9	238.88		
phytoflagellate sp. 5	523.6			0.4	17.17				
phytoflagellate sp. 6	9.2	0.7	0.68	0.1	0.11	0.2	0.19		
phytoflagellate sp. 7	44.5	0.2	1.10						
TOTAL OTHERS		2.1	391.82	1.8	282.45	1.4	265.24	0.0	0.0
TOTAL BIOMASS			3328.84		3987.85		2990.32		41.63

^a Values represent the relative percentage of the total phytoplankton and are based on the average of duplicate samples.

^b Biomass was calculated from biovolume by the conversion factor, $1 \text{ g} = 1 \text{ cm}^3$. Biovolume per species was derived by multiplying the average biovolume for each species by the average density of that species at each station.

APPENDIX TABLE C.1-7

 PHYTOPLANKTON BIOVOLUME, RELATIVE ABUNDANCE AND BIOMASS
 MARBLE HILL PLANT
 18 AUGUST 1977

Species	Average biovolume (u ³)	Station and Parameter							
		1		3		5		6	
		Relative abundance ^a (%)	Biomass ^b (ug/l)	Relative abundance (%)	Biomass (ug/l)	Relative abundance (%)	Biomass (ug/l)	Relative abundance (%)	Biomass (ug/l)
BACILLARIOPHYTA									
Centrales									
<i>Coccinodiscus lacustris</i>	6361.7	0.6	389.97	0.2	131.69	0.5	257.01		
<i>Cyclotella Meneghiniana</i>	359.0	44.6	1633.88	44.5	1887.48	44.7	1360.29	6.3	3.91
<i>C. stelligera</i>	353.4	0.3	12.48	0.4	14.70				
<i>Cyclotella</i> sp. 1	58.9	14.7	88.66	12.6	87.67	11.6	57.82	0.4	0.04
<i>Melosira distans</i>	239.5	5.7	139.87	6.1	172.25	5.8	117.24	3.5	1.44
<i>M. granulata</i>	627.7	7.4	473.85	10.3	767.93	9.1	484.40	0.9	1.00
<i>M. granulata</i> v. <i>angustissima</i>	190.9	1.2	23.46	1.9	42.44	1.2	19.20		
<i>Stephanodiscus astraes</i>	597.3			0.2	14.63				
Pennales									
<i>Achnanthes lanceolata</i>	99.0			0.2	2.05	0.2	1.99	0.6	0.10
<i>A. minutissima</i>	64.8			0.2	1.59	0.1	0.75	25.5	2.87
<i>Achnanthes</i> sp. 1	52.2	1.6	8.72	0.2	1.28	0.7	3.15	3.6	0.32
<i>Amphora</i> sp. 1	212.1			0.2	4.39			0.2	0.08
<i>Asterionella formosa</i> v. <i>gracillima</i>	212.0			0.4	9.58	0.2	4.26		
<i>Caloneis lewisii</i> v. <i>inflata</i>	980.0							0.2	0.39
<i>Cocconeis pediculus</i>	2405.0							0.2	0.96
<i>C. placentula</i>	1470.3							1.5	3.82
<i>Cymbella minuta</i> v. <i>silesiaca</i>	712.7							0.2	0.21
<i>C. prostrata</i> v. <i>auerswaldii</i>	1465.2							0.4	1.03
<i>Diatoma vulgare</i>	3024.0			0.2	74.09	0.2	60.78		
<i>D. vulgare</i> v. <i>grande</i>	1134.0					0.1	13.04		
<i>Eunotia exigua</i>	226.2	0.2	4.95						
<i>Fragilaria crotonensis</i>	600.0	1.0	60.60	0.6	43.98	0.3	13.86		
<i>Gomphonema acuminatum</i>	1404.0							0.2	0.42
<i>G. dichotomum</i>	364.5							1.1	0.69
<i>G. parvulum</i>	185.1	0.2						12.5	4.02

^a Values represent the relative percentage of the total phytoplankton and are based on the average of duplicate samples.

^b Biomass was calculated from biovolume by the conversion factor, 1 g = 1 cm³. Biovolume per species was derived by multiplying the average biovolume for each species by the average density of that species at each station.

APPENDIX TABLE C.1-7
(continued)
PHYTOPLANKTON BIOVOLUME, RELATIVE ABUNDANCE AND BIOMASS
MARBLE HILL PLANT
18 AUGUST 1977

Species	Average biovolume (μ^3)	Station and Parameter							
		1		3		5		6	
		Relative abundance ^a (%)	Biomass ^b ($\mu\text{g/l}$)	Relative abundance (%)	Biomass ($\mu\text{g/l}$)	Relative abundance (%)	Biomass ($\mu\text{g/l}$)	Relative abundance (%)	Biomass ($\mu\text{g/l}$)
BACILLARIOPHYTA									
Pennales (continued)									
<i>Gyrosigma acuminatum</i>	14202.4					0.1	163.33		
<i>Navicula cryptocephala</i>	405.0			0.2	9.92			1.5	1.38
<i>N. hungarica</i> v. <i>capitata</i>	191.3					0.2	3.85		
<i>N. viridula</i> v. <i>avenacea</i>	624.4	0.3	22.04	0.6	41.21			0.3	0.57
<i>Navicula</i> sp. 2	150.8			0.2	3.12			3.6	0.33
<i>Navicula</i> sp. 3	451.6							0.2	0.14
<i>Navicula</i> sp. 5	126.0							0.2	0.04
<i>Navicula</i> ? sp. 6	292.5	0.2	5.15			0.1	3.36		
<i>Nitzschia acicularis</i> v. <i>closterioides</i>	427.6	1.9	80.82	1.2	59.56	0.4	13.51		
<i>N. communis</i>	251.3							0.2	0.09
<i>N. communis</i> v. <i>abbreviata</i>	26.3	0.2	0.58	0.2	0.54	0.2	0.53	0.2	0.01
<i>N. dissipata</i>	141.8			0.6	9.87	0.2	2.85	0.2	0.06
<i>N. palea</i>	228.2	1.9	44.13	0.4	10.31	2.5	48.36	4.7	1.87
<i>N. tryblionella</i> v. <i>levidensis</i>	373.1	0.4	14.74						
<i>Rhoicosphenia curvata</i>	2170.0					0.1	24.96	8.7	32.77
<i>Surirella angustata</i>	6361.7			0.2	131.69				
<i>S. ovata</i>	848.2			0.2	17.56				
<i>S. tenera</i>	8058.2					0.2	161.97		
<i>Synedra delicatissima</i>	1890.0	0.3	66.72	0.2	46.31	0.7	114.16		
<i>S. rumpens</i> v. <i>familiaris</i>	324.0	0.2	5.70						
<i>S. socia</i>	243.0					0.2	4.88		
<i>S. uina</i>	410.6			0.4	18.56				
unidentified pennate sp. 4	894.2					0.2	17.97	0.7	1.16
unidentified pennate sp. 5	1526.8							0.3	0.92
TOTAL BACILLARIOPHYTA		82.9	3076.32	82.6	3604.40	79.8	2954.12	78.1	60.70

^a Values represent the relative percentage of the total phytoplankton and are based on the average of duplicate samples.

^b Biomass was calculated from biovolume by the conversion factor, $1\mu^3 = 1\text{cm}^3$. Biovolume per species was derived by multiplying the average biovolume for each species by the average density of that species at each station.

^c Quantity represents colony volume.

^d Quantity represents 100 μ filament volume.

APPENDIX TABLE C.1-7
(continued)
PHYTOPLANKTON BIOVOLUME, RELATIVE ABUNDANCE AND BIOMASS
MARBLE HILL PLANT
18 AUGUST 1977

Species	Average biovolume (μ^3)	Station and Parameter							
		1		3		5		6	
		Relative abundance ^a (%)	Biomass ^b ($\mu\text{g/l}$)	Relative abundance (%)	Biomass ($\mu\text{g/l}$)	Relative abundance (%)	Biomass ($\mu\text{g/l}$)	Relative abundance (%)	Biomass ($\mu\text{g/l}$)
CHRYSOPHYTA									
<i>Mallomonas</i> ? sp. 1	410.1	0.9	39.25	0.5	26.12				
TOTAL CHRYSOPHYTA		0.9	39.25	0.5	26.12	0.0	0.0	0.0	0.0
CRYPTOPHYTA									
<i>Cryptomonas ovata</i>	920.8	0.1	10.31	0.2	18.88	0.2	14.46		
cryptophyte sp. 1	183.7	0.2	4.11	0.8	17.56				
cryptophyte sp. 2	62.5			0.7	5.41	0.7	3.93		
TOTAL CRYPTOPHYTA		0.3	14.42	1.7	41.85	0.9	18.39	0.0	0.0
CHLOROPHYTA									
<i>Ankistrodesmus falcatus</i>	18.8 ^c	0.6	1.23	0.5	1.05	0.7	1.18	0.1	-0.005
<i>A. falcatus</i> v. <i>mirabilis</i>	71.6 ^c	0.1	0.80			0.2	1.10		
<i>Carteria cordiformis</i>	439.0	0.2	9.48						
<i>C. klebsii</i>	428.1			0.2	9.25				
<i>Characium</i> ? sp.	79.2								
<i>Chlamydomonas globosa</i> ?	815.9	0.7	54.83	0.3	26.03	1.5	101.91	0.1	0.16
<i>C. sphagnicola</i>	2065.2			0.2	42.34				
<i>Chlorella</i> ? sp.	18.8	0.6	1.23	0.6	1.26	0.2	0.30		
<i>Closterium acutum</i> v. <i>tenuius</i>	385.4	0.1	4.01						
<i>Cosmarium aphanichoustrum</i> ?	4948.0					0.2	76.20		
<i>Crucigenia alternans</i>	345.6 ^c	0.1	3.59						
<i>C. apiculata</i> v.	753.6 ^c			0.1	8.59				
<i>C. quadrata</i>	478.0 ^c	0.1	4.97						
<i>C. rectangularis</i>	1130.4 ^c	0.1	11.76	0.1	11.64				
<i>C. tetrapedia</i>	499.3 ^c			0.2	10.24				
<i>Dictyosphaerium Ehrenbergianum</i>	1317.1 ^c	0.1	14.75	0.2	30.03	0.4	40.96		

^a Values represent the relative percentage of the total phytoplankton and are based on the average of duplicate samples.

^b Biomass was calculated from biovolume by the conversion factor, 1 $\mu\text{g} = 1 \text{ cm}^3$. Biovolume per species was derived by multiplying the average biovolume for each species by the average density of that species at each station.

^c Quantity represents colony volume.

APPENDIX TABLE C.1-7
(continued)
PHYTOPLANKTON BIOVOLUME, RELATIVE ABUNDANCE AND BIOMASS
MARBLE HILL PLANT
18 AUGUST 1977

Species	Average biovolume (μ ³)	Station and Parameter							
		1		3		5		6	
		Relative abundance ^a (%)	Biomass ^b (μg/l)	Relative abundance (%)	Biomass (μg/l)	Relative abundance (%)	Biomass (μg/l)	Relative abundance (%)	Biomass (μg/l)
CHLOROPHYTA (continued)									
<i>Franceia Droescheri</i>	217.7			0.1	2.24				
<i>Gloeoecystis planctonica</i>	373.2 ^c	0.5	19.63	0.3	12.32				
<i>Golenkinia radiata</i>	268.1	0.5	14.56	0.1	3.06				
<i>G. radiata</i> v. <i>brevispina</i>	4849.0	0.2	100.37						
<i>Kirchneriella contorta</i>	25.1 ^c	0.4	1.06	0.3	0.80	0.4	0.79		
<i>K. lunaris</i> v. <i>irregularis</i>	52.8 ^c	0.1	0.55	0.3	1.68	0.4	1.64		
<i>K. subsolitaria</i>	48.4 ^c	0.5	2.63	0.7	4.13	0.7	3.03		
<i>Lagerheimia subsalsa</i>	35.0	0.3	1.15	0.5	2.23	0.2	0.55		
<i>Microactinium pusillum</i>	606.1 ^c			0.1	6.91				
<i>Oocystis Borgei</i>	538.8 ^c	0.1	6.03	0.2	11.64				
<i>O. pusilla</i>	38.9 ^c			0.3	1.59	0.4	1.22		
<i>Pandorina morum</i>	3052.6 ^c			0.1	31.44	0.2	47.93		
<i>Pediastrum tetras</i>	259.8 ^c			0.1	2.68				
<i>Phacotus</i> ? sp.	1019.8 ^c							0.2	0.41
<i>Scenedesmus abundans</i> v. <i>brevicauda</i>	100.6 ^c			0.1	1.04				
<i>S. abundans</i> v. <i>longicauda</i>	139.1 ^c	1.1	14.99	0.2	3.00	0.5	6.45		
<i>S. acuminatus</i>	202.8 ^c	0.1	2.27						
<i>S. denticulatus</i>	393.3 ^c			0.2	8.50				
<i>S. quadricauda</i>	494.9 ^c	1.3	65.28	1.4	79.93	1.3	53.89		
<i>Schroederia setigera</i>	30.9 ^c			0.2	0.64				
<i>Selenastrum Westii</i>	13.7 ^c			0.2	0.30				
<i>Tetraedron caudatum</i>	210.8					0.2	3.31		
<i>T. muticum</i>	36.0	0.1	0.37	0.2	0.74				
<i>Tetrastrum elegans</i>	37.7 ^c					0.4	1.18		
<i>T. heteracanthum</i>	112.5 ^c	0.3	3.69	0.2	2.31				
<i>T. punctatum</i>	154.9 ^c			0.1	1.60	0.4	4.76		

^a Values represent the relative percentage of the total phytoplankton and are based on the average of duplicate samples.

^b Biomass was calculated from biovolume by the conversion factor, 1 g = 1 cm³. Biovolume per species was derived by multiplying the average biovolume for each species by the average density of that species at each station.

^c Quantity represents colony volume.

APPENDIX TABLE C.1-7
(continued)
PHYTOPLANKTON BIOVOLUME, RELATIVE ABUNDANCE AND BIOMASS
MARBLE HILL PLANT
18 AUGUST 1977

Species	Station and Parameter								
	Average biovolume (μ^3)	1		3		5		6	
		Relative abundance ^a (%)	Biomass ^b ($\mu\text{g/l}$)	Relative abundance (%)	Biomass ($\mu\text{g/l}$)	Relative abundance (%)	Biomass ($\mu\text{g/l}$)	Relative abundance (%)	Biomass ($\mu\text{g/l}$)
CHLOROPHYTA (continued)									
<i>Tetrastrum staurogeniaeforme</i>	29.3 ^c					0.2	0.46		
<i>Treubaria setigerum</i>	168.7	0.1	1.89						
cocoid green 1	1177.1	0.2	24.37						
cocoid green 7	78.0					0.2	1.20		
unidentified green 1	131.9					0.2	2.07		
unidentified green 2	31.9	2.7	8.64	2.8	10.74	4.0	10.95		
TOTAL CHLOROPHYTA		11.2	374.13	11.1	329.95	12.9	361.08	0.9	0.64
CYANOPHYTA									
<i>Anabaena spiroides</i> v. <i>crassa</i>	7854.0 ^d			0.2	169.65				
<i>Calothrix</i> sp.	418.9 ^d	0.2	7.54	0.2	10.98	0.3	11.85		
<i>Chroococcus dispersus</i> v. <i>minor</i>	5.2 ^c	0.5	0.28	0.7	0.46	0.2	0.08		
<i>C. limneticus</i>	78.0 ^c					0.2	1.22		
<i>Dactylococcopsis acicularis</i>	16.5 ^c	0.2	0.36	0.1	0.19				
<i>D. fascicularis</i> ?	2.6 ^c	0.3	0.09	0.4	0.11	0.4	0.08		
<i>Dactylococcopsis</i> ? sp.	268.6 ^c							0.2	0.11
<i>Gomphosphaeria lacustris</i> v. <i>compacta</i>	1346.4 ^d			0.4	56.68	0.2	21.14		
<i>Lyngbya Diguetti</i>	530.9 ^d							0.1	0.11
<i>L. limnetica</i>	530.9 ^d			0.1	4.25				
<i>Merismopedia tenuissima</i>	66.3 ^c	1.5	10.06	0.5	4.23	0.9	5.18		
<i>Microcystis incerta</i>	394.6 ^d	0.3	105.57	0.5	212.50	1.3	371.71		
<i>Oscillatoria</i> sp. 1	78.5 ^d	<0.05	0.33	0.1	1.19	0.1	0.38	2.9	0.39
<i>Oscillatoria</i> sp. 2	176.7 ^d	0.4	6.93	0.2	3.62				
<i>Phormidium minnesotense</i>	240.5 ^d	0.1	2.04	0.1	2.89	0.1	1.13		
<i>Raphidiopsis curvata</i>	418.9 ^d			0.4	21.41				
<i>Rhabdoderma irregulare</i>	101.2 ^c	0.2	2.27						
cocoid blue-green 1	11.5					0.7	0.72	1.0	0.02

^a Values represent the relative percentage of the total phytoplankton and are based on the average of duplicate samples.

^b Biomass was calculated from biovolume by the conversion factor, 1 $\mu^3 = 1 \text{ cm}^3$. Biovolume per species was derived by multiplying the average biovolume for each species by the average density of that species at each station.

^c Quantity represents colony volume.

^d Quantity represents 100 μ filament volume.

APPENDIX TABLE C-1-7
(continued)
PHYTOPLANKTON BIOVOLUME, RELATIVE ABUNDANCE AND BIOMASS
MARBLE HILL PLANT
18 AUGUST 1977

Species	Average biovolume (μ^3)	Station and Parameter							
		1		3		5		6	
		Relative abundance ^a (%)	Biomass ^b ($\mu\text{g/l}$)	Relative abundance (%)	Biomass ($\mu\text{g/l}$)	Relative abundance (%)	Biomass ($\mu\text{g/l}$)	Relative abundance (%)	Biomass ($\mu\text{g/l}$)
CYANOPHYTA (continued)									
filamentous blue-green	314.2 ^d	0.1	3.27						
TOTAL CYANOPHYTA		3.8	138.74	3.9	488.16	4.4	413.49	4.2	0.63
EUGLENOPHYTA									
<i>Euglena</i> sp. 3	3437.7			0.1	39.19				
<i>Euglena</i> sp. 4	1289.1			0.1	14.70				
<i>Phacus helikoides</i>	38792.4			0.1	442.23				
<i>Trachelomonas robusta</i>	4849.0							0.2	1.94
<i>T. vermiculosa</i>	4849.0					0.2	74.67		
<i>T. vivocina</i>	3053.6	0.1	34.20	0.1	31.45			0.3	1.83
<i>Trachelomonas</i> sp. 1	113.1	0.1	1.18	0.4	4.89	0.7	7.02		
<i>Trachelomonas</i> sp. 2	65.4					0.6	3.06		
<i>Trachelomonas</i> sp. 8	169.6	0.1	1.76	0.1	1.93	0.4	5.21		
unidentified euglenoid sp. 1	653.1							11.1	12.54
TOTAL EUGLENOPHYTA		0.3	37.14	0.9	534.39	1.9	89.96	11.6	16.31
PYRRHOPHYTA									
dinoflagellate sp. 2	4849.0	0.1	54.31						
TOTAL PYRRHOPHYTA		0.1	54.31	0.0	0.0	0.0	0.0	0.0	0.0
OTHERS									
phytoflagellate sp. 3	2963.8	0.1	30.82						
phytoflagellate sp. 4	97.4							3.9	0.65
phytoflagellate sp. 11	131.9							1.2	0.28
TOTAL OTHERS		0.1	30.82	0.0	0.0	0.0	0.0	5.1	0.93
TOTAL BIOMASS			3765.13		5024.87		3837.04		79.21

^a Values represent the relative percentage of the total phytoplankton and are based on the average of duplicate samples.

^b Biomass was calculated from biovolume by the conversion factor, $1 \mu\text{g} = 1 \text{cm}^3$. Biovolume per species was derived by multiplying the average biovolume for each species by the average density of that species at each station.

^c Quantity represents colony volume.

^d Quantity represents 100μ filament volume.

APPENDIX TABLE C.1-8

 PHYTOPLANKTON BIOVOLUME, RELATIVE ABUNDANCE AND BIOMASS
 MARBLE HILL PLANT
 10 NOVEMBER 1977

Species	Average biovolume (μ^3)	Station and Parameter							
		1		3		5		6	
		Relative abundance ^a (%)	Biomass ^b ($\mu\text{g/l}$)	Relative abundance (%)	Biomass ($\mu\text{g/l}$)	Relative abundance (%)	Biomass ($\mu\text{g/l}$)	Relative abundance (%)	Biomass ($\mu\text{g/l}$)
BACILLARIOPHYTA									
Centrales									
<i>Cyclotella comta</i>	1017.9					0.2	9.47		
<i>C. Meneghiniana</i>	656.2	28.6	1076.50	29.1	1440.36	27.6	1018.36	2.8	18.44
<i>C. pseudostelligera</i>	84.8	0.4	1.85	0.4	2.51	0.3	1.55		
<i>C. stelligera</i>	226.2	0.1	1.76			0.2	2.04		
<i>Cyclotella</i> sp. 1	101.8	8.1	47.45	9.9	76.04	8.0	45.58	0.3	0.31
<i>Melosira ambigua</i>	1005.3	1.1	65.24	0.6	44.64	0.8	47.45		
<i>M. distans</i>	217.4	15.1	188.57	13.5	221.62	11.7	143.22	2.9	6.46
<i>M. granulata</i>	615.8	1.7	58.13	6.9	321.02	2.3	79.68	1.1	6.53
<i>M. granulata</i> v. <i>angustissima</i>	212.1	1.9	22.63	0.9	14.74	1.1	13.60		
<i>M. islandica</i> subsp. <i>helvetica</i>	113.1	2.6	16.64	2.3	19.40	2.6	16.82		
<i>Stephanodiscus astraea</i>	1021.4	0.6	36.46	0.2	13.79	0.5	28.09		
<i>Stephanodiscus</i> sp. 1	603.8	5.9	205.29	2.7	121.30	5.1	173.95		
unidentified centric sp. 1	23.4	0.8	1.06	1.7	2.91	0.2	0.22	0.2	0.05
Pennales									
<i>Achnanthes lanceolata</i>	78.8	0.8	3.43	0.6	3.40			1.3	1.02
<i>A. minutissima</i>	96.6	0.6	3.45	0.4	2.86	0.2	0.87	22.8	22.26
<i>Achnanthes</i> sp. 1	56.5	0.1	0.44	0.2	0.84	0.2	0.53	6.9	3.92
<i>Achnanthes</i> sp. 3	72.0	0.2	1.01						
<i>Amphora</i> sp. 1	70.7							2.0	2.91
<i>Asterionella formosa</i>	268.0	0.7	10.43	0.7	14.66	0.8	12.19		
<i>Cocconeis pediculus</i>	3053.6							0.6	19.24
<i>C. placentula</i>	1056.8							0.4	4.23
<i>Cymbella prostrata</i> v. <i>auerswaldii</i>	565.5	0.1	4.41			0.3	10.33	0.6	3.56
<i>Distoma vulgare</i>	3240.0	0.1	25.27	0.2	47.95			0.2	6.48
<i>D. vulgare</i> v. <i>grande</i>	675.0							1.1	7.16

^a Values represent the relative percentage of the total phytoplankton and are based on the average of duplicate samples.

^b Biomass was calculated from biovolume by the conversion factor, $1 \mu\text{g} = 1 \text{cm}^3$. Biovolume per species was derived by multiplying the average biovolume for each species by the average density of that species at each station.

APPENDIX TABLE C.1-8
(continued)
PHYTOPLANKTON BIOVOLUME, RELATIVE ABUNDANCE AND BIOMASS
MARBLE HILL PLANT
10 NOVEMBER 1977

Species	Average biovolume (μ^3)	Station and Parameter							
		1		3		5		6	
		Relative abundance ^a (%)	Biomass ^b ($\mu\text{g/l}$)	Relative abundance (%)	Biomass ($\mu\text{g/l}$)	Relative abundance (%)	Biomass ($\mu\text{g/l}$)	Relative abundance (%)	Biomass ($\mu\text{g/l}$)
BACILLARIOPHYTA									
Pennales (continued)									
<i>Fragilaria capucina</i>	1323.0							0.5	6.2 ^a
<i>F. crotonensis</i>	355.0	0.2	4.97						
<i>Gomphonema olivaceum</i>	315.0					0.2	2.84		
<i>G. parvulum</i>	407.6	0.8	18.42	0.4	12.06	0.3	7.46	7.3	30.28
<i>Hantzschia</i> sp. 1	2047.5			0.4	57.94			0.2	4.71
<i>Navicula cryptocephala</i>	270.0			0.6	11.15			1.6	4.46
<i>N. cryptocephala</i> v. <i>veneta</i>	208.8							2.7	5.72
<i>N. gysingensis</i>	226.2			0.2	3.05				
<i>N. viridula</i> v. <i>avenacea</i>	759.5	0.4	16.56	0.6	32.73	0.8	35.01	0.9	7.06
<i>Navicula</i> sp. 1	113.1					0.2	1.05		
<i>Navicula</i> sp. 2	138.2	0.3	2.17	0.6	5.71	0.3	2.53	2.2	3.05
<i>Navicula</i> sp. 3	226.2			0.2	3.05				
<i>Navicula</i> sp. 7	486.0			0.2	6.56				
<i>Witzschia acicularis</i> v. <i>closterioides</i>	351.0	0.8	15.27	0.8	20.32	0.2	3.76		
<i>N. communis</i>	301.6							0.2	0.60
<i>N. communis</i> v. <i>abbreviata</i>	63.0	0.1	0.49	0.4	1.78	1.3	4.62	0.2	0.14
<i>N. dissipata</i>	442.8	0.2	6.20			0.2	4.12	5.4	24.09
<i>N. hungarica</i>	742.5							0.8	6.09
<i>N. palea</i>	161.5	3.9	35.64	2.1	25.55	2.3	20.90	8.9	14.50
<i>Rhoicosphenia curvata</i>	1687.5			0.2	22.78			1.3	21.26
<i>Surirella angustata</i>	961.3							0.5	4.52
<i>S. ovalis</i>	763.4	0.1	5.95	0.6	32.90			0.2	1.53
<i>S. ovata</i>	1287.3							4.5	58.96
<i>Synedra delicatissima</i>	1395.0	0.2	19.53						

^a Values represent the relative percentage of the total phytoplankton and are based on the average of duplicate samples.

^b Biomass was calculated from biovolume by the conversion factor, $1 \mu\text{g} = 1 \text{cm}^3$. Biovolume per species was derived by multiplying the average biovolume for each species by the average density of that species at each station.

APPENDIX TABLE C.1- B
(continued)
PHYTOPLANKTON BIOVOLUME, RELATIVE ABUNDANCE AND BIOMASS
MARBLE HILL PLANT
10 NOVEMBER 1977

Species	Average biovolume (μ^3)	Station and Parameter							
		1		3		5		6	
		Relative abundance ^a (%)	Biomass ^b ($\mu\text{g/l}$)	Relative abundance (%)	Biomass ($\mu\text{g/l}$)	Relative abundance (%)	Biomass ($\mu\text{g/l}$)	Relative abundance (%)	Biomass ($\mu\text{g/l}$)
BACILLARIOPHYTA									
Pennales (continued)									
<i>S. rumpens</i>	317.3	0.3	4.98			0.2	2.86		
<i>S. ulna</i> v. <i>obtusa</i>	7632.0			0.2	6.28			0.7	51.13
unidentified pennate sp. 4	424.1								
TOTAL BACILLARIOPHYTA		76.8	1900.2	77.8	2589.90	68.1	1688.62	81.3	346.89
CHRYSOPHYTA									
<i>Mallomonas</i> ? sp. 1	557.6	0.2	6.69	0.1	5.02	0.5	14.44		
TOTAL CHRYSOPHYTA		0.2	6.69	0.1	5.02	0.5	14.44	0.0	0.0
CRYPTOPHYTA									
<i>Cryptomonas ovata</i>	952.5	1.1	58.86	0.2	17.53	1.4	73.63		
cryptophyte sp. 1	82.1	2.7	12.64	1.9	11.96	1.8	8.43	0.5	0.39
cryptophyte sp. 2	61.6	3.9	13.72	1.7	7.81	6.1	21.13		
TOTAL CRYPTOPHYTA		7.7	85.22	3.8	37.30	9.3	103.19	0.5	0.39
XANTHOPHYTA									
<i>Characiopsis acuta</i>	37.1	0.1	0.24						
TOTAL XANTHOPHYTA		0.1	0.24	0.0	0.0	0.0	0.0	0.0	0.0
CHLOROPHYTA									
<i>Actinastrum gracilimum</i>	756.0	0.1	4.54						
<i>A. hantzschii</i> v. <i>fluviale</i>	49.5			0.1	0.46				
<i>Ankistrodesmus convolutus</i>	22.0					0.2	0.19		
<i>A. falcatus</i>	53.3	2.0	6.24	2.7	10.71	3.8	11.43	0.4	0.19

^a Values represent the relative percentage of the total phytoplankton and are based on the average of duplicate samples.

^b Biomass was calculated from biovolume by the conversion factor, $1 \text{ g} = 1 \text{ cm}^3$. Biovolume per species was derived by multiplying the average biovolume for each species by the average density of that species at each station.

^c Quantity represents colony volume.

^d Quantity represents 100 μ filament volume.

APPENDIX TABLE C.1-8
(continued)
PHYTOPLANKTON BIOVOLUME, RELATIVE ABUNDANCE AND BIOMASS
MARBLE HILL PLANT
10 NOVEMBER 1977

Species	Average biovolume (μ^3)	Station and Parameter							
		1		3		5		6	
		Relative abundance ^a (%)	Biomass ^b ($\mu\text{g/l}$)	Relative abundance (%)	Biomass ($\mu\text{g/l}$)	Relative abundance (%)	Biomass ($\mu\text{g/l}$)	Relative abundance (%)	Biomass ($\mu\text{g/l}$)
CHLOROPHYTA (continued)									
<i>A. falcatus</i> v. <i>mirabilis</i>	44.5 ^c	0.3	0.80	0.4	1.23	0.5	1.15		
<i>Characium</i> ? sp.	67.3							1.5	1.92
<i>Chlamydomonas globosa</i> ?	860.3	1.0	47.57	1.5	94.20	1.7	61.13	0.2	1.95
<i>Chlamydomonas</i> sp. 1	139.1			0.2	2.53				
<i>Chlamydomonas</i> sp. 3	50.3	0.2	0.63	0.6	2.28				
<i>Chlamydomonas</i> sp. 5	97.1	0.7	3.74	0.1	0.87	0.3	1.66		
<i>Chlorella</i> ? sp.	33.5	2.0	2.31	3.1	4.87	2.9	3.36	0.4	0.07
<i>Crucigenia tetrapedia</i>	56.2 ^c	0.2	0.67	0.1	0.52	0.2	0.49		
<i>Dictyosphaerium Ehrenbergianum</i>	523.6 ^c	0.1	3.14			0.5	13.51		
<i>D. pulchellum</i>	65.4 ^c			0.1	0.60				
<i>Franceia droescheri</i>	104.7			0.1	0.94				
<i>Golenkinia radiata</i>	150.5	0.2	1.81	0.2	2.74	0.2	1.29		
<i>Kirchneriella contorta</i>	7.0 ^c	0.1	0.04	0.1	0.06	0.6	0.24		
<i>K. lunaris</i> v. <i>irregularis</i>	32.1 ^c	0.7	1.36	0.4	0.87	1.1	1.93		
<i>K. obesa</i>	131.9 ^c			0.1	1.21				
<i>K. obesa</i> v. <i>major</i>	93.8 ^c	0.1	0.61						
<i>K. subsolitaria</i>	62.2 ^c	0.2	0.75			0.5	1.60		
<i>Lagerheimia quadriseta</i>	49.0	0.4	1.17	1.9	7.15	0.6	1.69		
<i>L. subsalsa</i>	34.0					0.5	0.88		
<i>Oocystis pusilla</i> ?	162.6 ^c			0.5	5.92	0.3	2.80		
<i>Pediastrum duplex</i> v. <i>clathratum</i>	4071.5 ^c					0.2	35.42		
<i>Scenedesmus abundans</i> v. <i>longicauda</i>	96.5 ^c	0.4	2.31						
<i>S. acuminatus</i>	487.9 ^c	0.1	2.93	0.4	13.37	0.3	8.39		
<i>S. arcuatus</i>	538.8 ^c	0.1	3.23						
<i>S. bijuga</i> v.	28.9 ^c	0.2	0.36	0.4	0.78	0.2	0.25		
<i>S. denticulatus</i>	617.7 ^c	0.1	3.71						
<i>S. dimorphus</i>	148.9 ^c					0.2	1.28		

^a Values represent the relative percentage of the total phytoplankton and are based on the average of duplicate samples.

^b Biomass was calculated from biovolume by the conversion factor, 1 g = 1 cm³. Biovolume per species was derived by multiplying the average biovolume for each species by the average density of that species at each station.

^c Quantity represents colony volume.

^d Quantity represents 100 μ filament volume.

APPENDIX TABLE C.1-8
(continued)
PHYTOPLANKTON BIOVOLUME, RELATIVE ABUNDANCE AND BIOMASS
MARBLE HILL PLANT
10 NOVEMBER 1977

Species	Average biovolume (μ^3)	Station and Parameter							
		1		3		5		6	
		Relative abundance (%)	Biomass ^b ($\mu\text{g/l}$)	Relative abundance (%)	Biomass ($\mu\text{g/l}$)	Relative abundance (%)	Biomass ($\mu\text{g/l}$)	Relative abundance (%)	Biomass ($\mu\text{g/l}$)
CHLOROPHYTA (continued)									
<i>S. incrassatus</i> v. <i>mononae</i>	529.5 ^c					0.2	4.55		
<i>S. quadricauda</i>	374.2 ^c	0.8	16.05	1.1	30.80	0.9	19.23		
<i>Selenastrum Westii</i>	43.0 ^c					0.3	0.74		
<i>Sphaerocystis Schroeteri</i>	258.2 ^c			0.2	4.70				
<i>Tetraedron caudatum</i>	214.7	0.2	2.58						
<i>T. minimum</i>	300.0					0.2	2.58		
<i>Tetrastrum elegans</i>	34.2 ^c	0.2	0.41						
<i>T. heteracanthum</i>	243.0 ^c					0.2	2.09		
<i>T. punctatum</i>	128.0 ^c	0.1	0.77	0.2	2.36				
<i>T. staurogeniaeforme</i>	79.6 ^c	0.2	0.96	0.4	2.18	0.3	1.38		
<i>Westella</i> ? sp.	84.8	0.2	1.02						
cocoid green 7	113.1	0.3	2.02	0.2	2.06	0.2	0.97		
unidentified green 2	36.8 ^c	0.8	1.78	1.0	2.68	1.8	3.78		
TOTAL CHLOROPHYTA		12.0	113.51	16.1	196.09	18.9	204.01	2.5	3.26
CYANOPHYTA									
<i>Anabaena</i> sp. 1	132.7 ^d			0.1	1.22				
<i>Chroococcus dispersus</i> v. <i>minor</i>	6.3 ^c	0.2	0.08						
<i>Dactylococcopsis fascicularis</i>	2.6 ^c					0.2	0.02		
<i>D. Smithii</i>	134.7 ^c							0.2	0.31
<i>Dactylococcopsis</i> ? sp.	354.8 ^c							1.0	3.41
<i>Gomphosphaeria lacustris</i> v. <i>compacta</i>	904.8 ^c					0.1	8.14		
<i>Merismopedia tenuissima</i>	42.8 ^c			0.2	0.79				
<i>Microcystis incerta</i>	14.1	0.1	0.08						
<i>Oscillatoria</i> sp. 1	78.5 ^d			0.1	0.36			6.7	5.30
<i>Oscillatoria</i> sp. 2	38.5 ^d			0.2	0.59				

^a Values represent the relative percentage of the total phytoplankton and are based on the average of duplicate samples.

^b Biomass was calculated from biovolume by the conversion factor, $1 \text{ g} = 1 \text{ cm}^3$. Biovolume per species was derived by multiplying the average biovolume for each species by the average density of that species at each station.

^c Quantity represents colony volume.

^d Quantity represents 100 μ filament volume.

APPENDIX TABLE C.1- B
 (continued)
 PHYTOPLANKTON BIOVOLUME, RELATIVE ABUNDANCE AND BIOMASS
 MARBLE HILL PLANT
 10 NOVEMBER 1977

Species	Average biovolume (μ^3)	Station and Parameter							
		1		3		5		6	
		Relative abundance ^a (%)	Biomass ^b ($\mu\text{g/l}$)	Relative abundance (%)	Biomass ($\mu\text{g/l}$)	Relative abundance (%)	Biomass ($\mu\text{g/l}$)	Relative abundance (%)	Biomass ($\mu\text{g/l}$)
CYANOPHYTA (continued)									
<i>Phormidium minnesotense</i>	314.2 ^d	<0.05	0.38			0.3	5.69		
coccoid blue-green 1	14.9							2.0	0.30
TOTAL CYANOPHYTA		0.3	0.54	0.7	11.1	0.5	5.71	9.9	9.32
EUGLENOPHYTA									
<i>Lepocinclis</i> sp.	2091.4	0.1	13.59						
<i>Trachelomonas superba</i> v. ?	1943.9	0.1	11.66			0.3	33.24		
<i>Trachelomonas</i> sp. 1	102.2	1.6	9.41	1.0	7.41	2.3	13.11	1.7	1.71
<i>Trachelomonas</i> sp. 2	78.0	0.1	0.51			0.6	2.69		
<i>Trachelomonas</i> sp. 4	103.0					0.2	0.89		
<i>Trachelomonas</i> sp. 8	343.1			0.1	3.09	0.2	2.95		
euglenoid sp. 1	733.0							0.5	3.37
TOTAL EUGLENOPHYTA		1.9	35.17	1.1	10.50	3.6	52.88	2.2	5.08
PYRRHOPHYTA									
dinoflagellate sp. 2	2065.2	0.2	25.82						
TOTAL PYRRHOPHYTA		0.2	25.82	0.0	0.0	0.0	0.0	0.0	0.0
OTHERS									
phytoflagellate sp. 3	1062.3			0.6	47.70				
phytoflagellate sp. 6	14.1	0.2	0.18	0.1	0.13				
phytoflagellate sp. 8	44.4	0.1	0.27						
phytoflagellate sp. 9	190.0								
phytoflagellate sp. 10	34.0							3.8	7.24
unidentified algal cell 1	606.1	0.1	3.94					0.2	0.08
TOTAL OTHERS		0.4	4.39	0.7	47.83	0.0	0.0	4.0	7.32
TOTAL BIOMASS			2171.78		2897.74		2068.85		372.26

^a Values represent the relative percentage of the total phytoplankton and are based on the average of duplicate samples.

^b Biomass was calculated from biovolume by the conversion factor, $1 \mu\text{g} = 1 \text{cm}^3$. Biovolume per species was derived by multiplying the average biovolume for each species by the average density of that species at each station.

^d Quantity represents 100μ filament volume.

A P P E N D I X C.2

ZOOPLANKTON

APPENDIX TABLE C.2-1

ZOOPLANKTON COMPOSITION AND ABUNDANCE (No./liter)
 MARBLE HILL PLANT
 21 MARCH 1977

Taxon	Station and replicate											
	1			3			5			6		
	A	B	\bar{x}	A	B	\bar{x}	A	B	\bar{x}	A	B	\bar{x}
UNDAMAGED PROTOZOA												
<i>Carchesium</i> sp.	1.1	3.7	2.4	1.4	3.0	2.2	3.5	3.8	3.7	0.0	0.1	0.1
<i>Diffugia</i> spp.	5.3	6.1	5.7	7.3	8.4	7.9	4.8	7.6	6.2	0.2	0.4	0.3
<i>Epistylis</i> sp.	0.2	0.2	0.2	0.0	0.1	0.1	0.1	0.3	0.2			
<i>Podophrya</i> sp.							0.0	0.1	0.1			
<i>Vorticella</i> sp.	6.1	41.2	23.7	14.1	13.1	13.6	10.8	23.0	16.9	0.3	0.6	0.5
unidentified Diffugiidae	12.2	5.4	8.8	14.5	9.1	11.8	28.5	6.0	17.3	0.1	0.1	0.1
TOTAL PROTOZOA	24.9	56.6	40.8	37.3	33.7	35.6	47.7	40.8	44.4	0.6	1.2	1.0
ROTIFERA												
<i>Brachionus</i> spp.	0.2	0.0	0.1	0.4	0.3	0.4	0.1	0.2	0.2			
<i>B. bidentata</i>	0.2	0.2	0.2	0.3	0.2	0.3	0.0	0.1	0.1			
<i>Filinia</i> sp.	0.0	0.2	0.1	0.0	0.2	0.1	0.1	0.1	0.1			
<i>Keratella</i> sp.	0.3	0.3	0.3	0.2	0.5	0.4	0.4	0.2	0.3			
<i>K. cochlearis</i>							0.2	0.1	0.2			
<i>K. quadrata</i>				0.1	0.0	0.1	0.2	0.0	0.1	0.1	0.0	0.1
<i>K. valga</i>							0.1	0.0	0.1	0.1	0.0	0.1
<i>Monostyla lunaris</i>	0.0	0.2	0.1									
<i>Notholca</i> sp.	0.6	0.5	0.6	0.8	0.5	0.7	0.5	0.2	0.4			
<i>Polyarthra</i> sp.							0.0	0.2	0.1			
unidentified Rotifera	2.2	4.9	3.6	2.3	2.5	2.4	4.1	3.8	4.0	0.9	0.5	0.7
TOTAL ROTIFERA	3.5	6.3	5.0	4.1	4.2	4.4	5.7	4.9	5.6	1.1	0.5	0.9

APPENDIX TABLE C.2-1
 (continued)
 ZOOPLANKTON COMPOSITION AND ABUNDANCE (No./liter)
 MARBLE HILL PLANT
 21 MARCH 1977

Taxon	Station and replicate												
	1		3		5		6		5		6		
	A	B	A	B	A	B	A	B	A	B	A	B	
UNDAMAGED (continued)													
CLADOCERA													
<i>Bosmina longirostris</i>	0.1	0.0	0.1	0.1	0.1	0.1	0.0	0.1	0.1	0.1	0.1	0.1	0.1
<i>Chydorus</i> sp.			0.0	0.2	0.1	0.0	0.0	0.2	0.1	0.0	0.1	0.1	0.1
<i>C. sphaericus</i>	0.1	0.1	0.1	0.2	0.0	0.1							
immature Cladocera			0.0	0.3	0.2	0.1	0.0	0.1	0.0	0.1	0.0	0.1	0.1
TOTAL CLADOCERA	0.2	0.1	0.2	0.3	0.6	0.5	0.1	0.3	0.3	0.0	0.1	0.1	0.1
COPEPODA													
Calanoida													
unidentified Calanoida			0.3	0.0	0.2								
Cyclopoida													
<i>Cyclops bicuspidatus thomasi</i>							0.0	0.1	0.1				
unidentified Cyclopoida							0.1	0.0	0.1				
Harpacticoida													
unidentified Harpacticoida	0.0	0.1	0.1				0.4	0.3	0.2	0.3	0.3	0.1	0.0
copepodites	0.3	0.5	0.4				1.6	1.2	2.1	2.1	2.1	0.3	0.3
nauplii	1.0	0.0	0.5	0.8			2.0	1.7	2.4	2.5	2.6	0.4	0.3
TOTAL COPEPODA	1.3	0.6	1.0	1.2									0.4
OTHERS													
Nematoda													
<i>Criconema</i> sp.							0.1	0.1	0.0	0.2	0.1		
unidentified Nematoda	2.1	3.0	2.6	0.7	0.2	0.5	0.7	1.7	1.2	0.5	0.0	0.3	0.3
Ectoprocta statoblasts	0.1	1.2	0.7	0.0	0.2	0.1	0.3	0.4	0.4	0.0	0.1	0.1	0.1
Tardigrada	0.3	0.3	0.3	0.1	0.2	0.2	0.2	0.1	0.2	0.1	0.2	0.1	0.2
Oligochaeta	0.8	0.4	0.6	0.0	0.2	0.1	0.2	0.1	0.2	0.5	0.4	0.4	0.4

APPENDIX TABLE C.2-1
 (continued)
 ZOOPLANKTON COMPOSITION AND ABUNDANCE (No./liter)
 MARBLE HILL PLANT
 21 MARCH 1977

Taxon	Station and replicate											
	1			3			5			6		
	A	B	\bar{x}	A	B	\bar{x}	A	B	\bar{x}	A	B	\bar{x}
<u>UNDAMAGED</u>												
OTHERS (continued)												
Hydracarina												
adults	0.0	0.1	0.1									
immatures	0.0	0.1	0.1	0.0	0.2	0.1						
Diptera larvae				0.0	0.1	0.1				0.1	0.0	0.1
TOTAL OTHERS	3.3	5.1	4.4	0.8	1.2	1.2	1.4	2.9	2.3	0.6	0.1	0.5
TOTAL UNDAMAGED PER LITER	33.2	68.7	51.4	43.7	41.7	43.4	57.3	51.4	55.2	2.7	2.2	2.9
			± 10.1			± 5.1			± 7.5			± 3.8
<u>DAMAGED</u>												
Cladocera	8.9	10.6	9.8	10.7	8.7	9.7	7.6	5.9	6.8	0.5	0.1	0.3
Copepoda	0.0	0.1	0.1	0.0	0.2	0.1	0.1	0.1	0.1			
TOTAL DAMAGED PER LITER	8.9	10.7	9.9	10.7	8.9	9.8	7.7	6.0	6.9	0.5	0.1	0.3
TOTAL UNDAMAGED AND DAMAGED PER LITER	42.1	79.4	61.3	54.4	50.6	53.2	65.0	57.4	62.1	3.2	2.3	3.2

APPENDIX TABLE C.2-2
 ZOOPLANKTON RELATIVE ABUNDANCE^a
 MARBLE HILL PLANT
 21 MARCH 1977

Taxon	Station			
	1	3	5	6
PROTOZOA				
<i>Carchesium</i> sp.	4.7	5.1	6.7	4.0
<i>Diffugia</i> spp.	11.0	18.2	11.2	10.0
<i>Epistylis</i> sp.	0.4	0.2	0.4	
<i>Podophrya</i> sp.			0.2	
<i>Vorticella</i> sp.	55.9	31.5	30.6	16.0
unidentified Diffugiidae	17.1	27.2	31.7	4.0
TOTAL PROTOZOA	79.1	82.2	80.8	34.0
ROTIFERA				
<i>Brachionus</i> spp.	0.2	0.9	0.3	
<i>B. bidentata</i>	0.4	0.7	0.1	
<i>Filinia</i> sp.	0.2	0.2	0.2	
<i>Keratella</i> sp.	0.6	0.9	0.5	
<i>K. cochlearis</i>			0.3	
<i>K. quadrata</i>		0.2	0.2	4.0
<i>K. valga</i>			0.1	4.0
<i>Monostyla lunaris</i>	0.2			
<i>Notholca</i> sp.	1.2	1.6	0.7	
<i>Polyarthra</i> sp.			0.2	
unidentified Rotifera	7.0	5.5	7.2	23.0
TOTAL ROTIFERA	9.8	10.0	9.8	31.0

^a Relative abundance represents the average undamaged organisms of replicates A and B.

APPENDIX TABLE C.2-2
 (continued)
 ZOOPLANKTON RELATIVE ABUNDANCE^a
 MARBLE HILL PLANT
 21 MARCH 1977

Taxon	Station			
	1	3	5	6
CLADOCERA				
<i>Bosmina longirostris</i>	0.2	0.2	0.2	
<i>Chydorus</i> sp.		0.2	0.2	4.0
<i>C. sphaericus</i>	0.2	0.2		
immature Cladocera		0.5	0.2	
TOTAL CLADOCERA	0.4	1.1	0.6	4.0
COPEPODA				
Calanoida				
unidentified Calanoida		0.5		
Cyclopoida				
<i>Cyclops bicuspidatus thomasi</i>			0.2	
unidentified Cyclopoida			0.2	
Harpacticoida				
unidentified Harpacticoida	0.2			
copepodites	0.8	0.7	0.5	4.0
nauplii	1.0	2.8	3.8	10.0
TOTAL COPEPODA	2.0	4.0	4.7	14.0
OTHERS				
Nematoda				
<i>Criconema</i> sp.		0.2	0.2	
unidentified Nematoda	5.1	1.2	2.2	10.0

^a Relative abundance represents the average undamaged organisms of replicates A and B.

APPENDIX TABLE C.2-2
 (continued)
 ZOOPLANKTON RELATIVE ABUNDANCE^a
 MARBLE HILL PLANT
 21 MARCH 1977

Taxon	Station			
	1	3	5	6
OTHERS (continued)				
Ectoprocta statoblasts	1.4	0.2	0.7	4.0
Tardigrada	0.6	0.5	0.3	
Oligochaeta	1.2	0.2	0.7	
Hydracarina				
adults	0.2			
immatures	0.2	0.2		
Diptera larvae		0.2		3.0
TOTAL OTHERS	8.7	2.7	4.1	17.0

^a Relative abundance represents the average undamaged organisms of replicates A and B.

APPENDIX TABLE C.2-3

ZOOPLANKTON COMPOSITION AND ABUNDANCE (No./liter)
 MARBLE HILL PLANT
 26 MAY 1977

Taxon	Station and replicate											
	1			3			5			6		
	A	B	\bar{x}	A	B	\bar{x}	A	B	\bar{x}	A	B	\bar{x}
UNDAMAGED												
PROTOZOA												
<i>Arcella</i> spp.	0.0	0.3	0.2							0.2	<0.1	0.1
<i>Diffugia</i> spp.	1.0	1.0	1.0	1.9	0.6	1.3	1.0	1.0	1.0	0.1	0.1	0.1
unidentified Diffugiidae							0.3	0.0	0.2			
TOTAL PROTOZOA	1.0	1.3	1.2	1.9	0.6	1.3	1.3	1.0	1.2	0.3	0.1	0.2
ROTIFERA												
<i>Asplanchna</i> sp.	2.6	1.9	2.3	0.0	0.3	0.2	0.7	0.7	0.7			
<i>Brachionus</i> spp.	1.6	0.0	0.8	0.0	4.1	2.1	3.8	0.0	1.9	0.0	0.2	0.1
<i>B. angularis</i>	0.0	3.5	1.8				2.6	0.3	1.5			
<i>B. bidentata</i>	0.3	0.3	0.3	0.0	1.0	0.5	1.0	1.6	1.3	<0.1	0.0	<0.1
<i>B. calyciflorus</i>	1.6	6.7	4.2	3.2	2.6	2.9	4.2	3.2	3.7	0.1	0.0	0.1
<i>B. diversicornis</i>				0.3	0.0	0.2						
<i>B. havanaensis</i>	0.3	0.0	0.2				0.3	0.0	0.2			
<i>B. quadridentata</i>	3.8	5.4	4.6	2.9	1.6	2.3	3.5	6.4	5.0	0.1	<0.1	0.1
<i>Filinia</i> sp.	0.6	0.0	0.3	0.0	0.3	0.2	0.3	0.0	0.2			
<i>Kellicottia</i> sp.	0.7	0.0	0.4	0.7	1.0	0.9						
<i>K. bostoniensis</i>	1.3	1.3	1.3				1.3	0.0	0.7			
<i>K. longispina</i>							1.0	0.3	0.7			
<i>Keratella</i> sp.				0.6	9.2	4.9	2.9	0.3	1.6	0.0	<0.1	<0.1
<i>K. cochlearis</i>	81.6	76.9	79.3	131.8	56.9	94.4	74.9	84.8	79.9	0.6	0.3	0.5
<i>K. quadrata</i>	6.7	10.8	8.8	10.2	6.4	8.3	6.4	9.6	8.0	0.1	<0.1	0.1
<i>K. valga</i>				0.3	0.0	0.2	0.7	0.0	0.4			
<i>Notholca</i> sp.				0.3	0.0	0.2						
<i>Polyarthra</i> sp.	13.7	28.0	20.9	15.3	19.4	17.4	14.9	13.4	14.2			
unidentified Rotifera	6.7	15.3	11.0	6.4	10.8	8.6	25.1	9.6	17.4	0.4	0.3	0.4
TOTAL ROTIFERA	121.5	150.1	136.2	172.0	113.6	143.3	143.6	130.2	137.4	1.3	0.8	1.3

APPENDIX TABLE C.2-3
 (continued)
 ZOOPLANKTON COMPOSITION AND ABUNDANCE (No./liter)
 MARBLE HILL PLANT
 26 MAY 1977

Taxon	Station and replicate											
	1			3			5			6		
	A	B	\bar{x}	A	B	\bar{x}	A	B	\bar{x}	A	B	\bar{x}
UNDAMAGED (continued)												
CLADOCERA												
<i>Chydorus</i> sp.							0.6	0.0	0.3			
<i>C. sphaericus</i>	0.0	0.3	0.2									
<i>Daphnia</i> sp.	0.6	0.0	0.3	0.3	0.7	0.5	0.6	0.0	0.3			
<i>D. ambigua</i>				1.3	0.0	0.7				0.1	0.0	0.1
<i>D. parvula</i>	0.6	1.3	1.0				0.0	0.3	0.2	0.4	0.1	0.3
<i>Eubosmina</i> sp.	3.8	0.0	1.9				1.3	0.0	0.7			
<i>E. longispina</i>	4.2	4.5	4.4	2.2	5.7	4.0	8.9	4.1	6.5	0.2	-0.1	0.1
immature Cladocer:				0.0	0.3	0.2	1.0	0.0	0.5			
unidentified Bosminidae	2.2	5.7	4.0	18.8	10.8	14.8	6.4	8.9	7.7	0.1	-0.1	0.1
TOTAL CLADOCERA	11.4	11.8	11.8	22.6	17.5	20.2	18.8	13.3	16.2	0.8	0.1	0.6
COPEPODA												
Calanoida												
<i>Diaptomus</i> sp.	0.0	0.3	0.2	0.7	0.0	0.4	1.3	0.7	1.0	<0.1	0.0	<0.1
unidentified Calanoida							0.3	0.0	0.2			
Cyclopoida												
<i>Cyclops</i> sp.	0.0	4.2	2.1	0.0	0.7	0.4	0.0	1.0	0.5			
<i>C. bicuspidatus thomasi</i>	0.0	1.0	0.5	1.6	0.0	0.8	0.3	0.3	0.3			
<i>C. vernalis</i>	0.0	0.6	0.3	1.0	0.0	0.5	0.0	1.0	0.5	0.1	<0.1	0.1
unidentified Cyclopoida				0.7	0.3	0.5	1.0	0.0	0.5			
copepodites	5.7	15.3	10.5	15.2	15.9	15.6	21.6	17.8	19.7	0.7	0.2	0.5
nauplii	66.1	92.1	79.1	76.5	92.1	84.3	138.8	78.8	108.8	1.3	0.3	0.8
TOTAL COPEPODA	71.8	113.5	92.7	95.7	109.0	102.5	163.3	99.6	131.5	2.1	0.5	1.4

APPENDIX TABLE C.2-3
 (continued)
 ZOOPLANKTON COMPOSITION AND ABUNDANCE (No./liter)
 MARBLE HILL PLANT
 26 MAY 1977

Taxon	Station and replicate											
	1			3			5			6		
	A	B	\bar{x}	A	B	\bar{x}	A	B	\bar{x}	A	B	\bar{x}
<u>UNDAMAGED (continued)</u>												
OTHERS												
Ectoprocta statoblasts				0.0	0.7	0.4	0.7	0.3	0.5	<0.1	0.0	<0.1
Hydracarina adults										1.2	0.8	1.0
Diptera larvae				0.0	0.7	0.4	0.7	0.3	0.5	1.2	0.8	1.0
TOTAL OTHERS												
TOTAL UNDAMAGED PER LITER	205.7	276.7	241.9 ±20.9	292.2	241.4	267.7 ±33.9	327.7	244.4	286.8 ±48.3	5.7	2.3	4.5 ±1.8
<u>DAMAGED</u>												
Cladocera	9.9	1.9	5.9	7.0	7.6	7.3	7.3	0.7	4.0			
Copepoda	1.3	0.0	0.7	2.5	1.0	1.8	1.3	2.6	2.0	0.1	0.1	0.1
TOTAL DAMAGED PER LITER	11.2	1.9	6.6	9.5	8.6	9.1	8.6	3.3	6.0	0.1	0.1	0.1
TOTAL UNDAMAGED AND DAMAGED PER LITER	216.9	278.6	248.5	301.7	250.0	276.8	336.3	247.7	292.8	5.8	2.4	4.6

APPENDIX TABLE C.2-4

 ZOOPLANKTON RELATIVE ABUNDANCE^a
 MARBLE HILL PLANT
 26 MAY 1977

Taxon	Station			
	1	3	5	6
PROTOZA				
<i>Arcella</i> spp.	0.1			2.2
<i>Diffugia</i> spp.	0.4	0.4	0.3	2.2
unidentified Diffugiidae			0.1	
TOTAL PROTOZOA	0.5	0.4	0.4	4.4
ROTIFERA				
<i>Asplanchna</i> sp.	1.0	0.1	0.2	
<i>Brachionus</i> spp.	0.3	0.7	0.5	2.2
<i>B. angularis</i>	0.7		0.5	
<i>B. bidentata</i>	0.1	0.2	0.5	<0.1
<i>B. calyciflorus</i>	1.7	1.1	1.3	2.2
<i>B. diversicornis</i>		0.1		
<i>B. havanaensis</i>	0.1		0.1	
<i>B. quadridentata</i>	1.9	0.9	1.6	2.2
<i>Filinia</i> sp.	0.1	0.1	0.6	
<i>Kellicottia</i> sp.	0.2	0.3		
<i>K. bostoniensis</i>	0.5		0.2	
<i>K. longispina</i>			0.2	
<i>Keratella</i> sp.		1.8	0.6	<0.1
<i>K. cochlearis</i>	32.8	35.2	27.4	11.2
<i>K. quadrata</i>	3.6	3.0	2.8	2.2
<i>K. valga</i>		0.1	0.1	
<i>Notholca</i> sp.		0.1		
<i>Polyarthra</i> sp.	8.6	6.5	5.0	
unidentified Rotifera	4.6	3.1	6.1	8.9
TOTAL ROTIFERA	56.2	53.3	47.7	28.9

^a Relative abundance represents the average undamaged organisms of replicates A and B.

APPENDIX TABLE C.2-4
 (continued)
 ZOOPLANKTON RELATIVE ABUNDANCE^a
 MARBLE HILL PLANT
 26 MAY 1977

Taxon	Station			
	1	3	5	6
CLADOCERA				
<i>Chydorus</i> sp.			0.1	
<i>C. sphaericus</i>	0.1			
<i>Daphnia</i> sp.	0.1	0.2	0.1	
<i>D. ambigua</i>		0.2		2.2
<i>D. parvula</i>	0.4		0.1	6.7
<i>Eubosmina</i> sp.	0.8		0.2	
<i>E. longispina</i>	1.8	1.5	2.3	2.2
immature Cladocera		0.1	0.2	
unidentified Bosminidae	1.7	5.5	2.7	2.2
TOTAL CLADOCERA	4.9	7.5	5.7	13.3
COPEPODA				
Calanoida				
<i>Diaptomus</i> sp.	0.1	0.2	0.4	<0.1
unidentified Calanoida			0.1	
Cyclopoida				
<i>Cyclops</i> sp.	1.0	0.2	0.2	
<i>C. bicuspidatus thomasi</i>	0.2	0.3	0.1	
<i>C. vernalis</i>	0.1	0.2	0.2	2.2
unidentified Cyclopoida		0.2	0.2	
copepodites	4.3	5.8	6.9	11.1
nauplii	32.7	31.4	37.9	17.9
TOTAL COPEPODA	38.4	38.3	46.0	31.2
OTHERS				
Ectoprocta statoblasts		0.5	0.2	
Hydracarina adults				<0.1
Diptera larvae				22.2
TOTAL OTHERS		0.5	0.2	22.2

^a Relative abundance represents the average undamaged organisms of replicates A and B.

APPENDIX TABLE C.2-5

ZOOPLANKTON COMPOSITION AND ABUNDANCE (No./liter)
 MARBLE HILL PLANT
 17 AUGUST 1977

Taxon	Station and replicate											
	1			3			5			6		
	A	B	\bar{x}	A	B	\bar{x}	A	B	\bar{x}	A	B	\bar{x}
UNDAMAGED PROTOZOA												
<i>Arcella</i> sp.	1.4	2.6	2.0	1.7	1.5	1.6	2.8	0.4	1.6	0.0	<0.1	<0.1
<i>Carchesium</i> sp.	0.0	0.2	0.1				0.1	0.0	0.1			
<i>Centropyxis</i> spp.	3.0	14.3	8.7	6.1	5.6	5.9	9.8	4.3	7.1	0.9	0.8	0.9
<i>Diffugia</i> spp.	2.2	6.5	4.4	5.2	4.0	4.6	7.6	2.5	5.1	0.4	0.4	0.4
<i>Epistylis</i> sp.	0.0	0.3	0.2	0.1	0.0	0.1	0.1	0.3	0.2			
<i>Pyxicola</i> sp.				0.0	1.9	1.0	0.4	0.0	0.2			
<i>Squalorophrya</i> sp.				0.0	0.1	0.1	0.0	0.1	0.1			
<i>Vorticella</i> sp.	3.3	0.5	1.9	0.0	1.4	0.7	0.8	0.0	0.4			
unidentified Arcellidae				0.0	0.9	0.5						
unidentified Suctorida	0.0	0.7	0.4	0.1	0.3	0.2	0.2	0.3	0.3			
unidentified Protozoa							0.4	0.0	0.2			
TOTAL PROTOZOA	9.9	25.1	17.7	13.2	15.7	14.7	22.2	7.9	15.3	1.3	1.2	1.3
ROTIFERA												
<i>Brachionus</i> spp.	0.3	0.0	0.2									
<i>B. angularis</i>							0.0	0.2	0.1			
<i>B. bidentata</i>				0.0	0.8	0.4	0.2	0.5	0.4	<0.1	0.0	<0.1
<i>B. calyciflorus</i>	10.7	17.6	14.2	16.5	16.1	16.3	21.7	14.4	18.1	0.5	0.3	0.4
<i>B. havanaensis</i>	0.3	0.4	0.4	0.3	0.1	0.2	0.1	0.2	0.2	<0.1	0.1	0.1
<i>B. quadridentata</i>	0.1	1.0	0.6	0.1	0.0	0.1	0.0	0.1	0.1			
<i>Filinia</i> sp.				0.1	0.0	0.1						
<i>Kellicottia bostoniensis</i>	0.0	0.3	0.2				0.1	0.0	0.1			
<i>Keratella cochlearis</i>	0.8	10.8	5.8	7.0	2.0	4.5	12.6	0.9	6.8			
<i>K. quadrata</i>				0.1	0.0	0.1						
<i>K. valga</i>				0.0	0.2	0.1	0.6	0.0	0.3			
<i>Lecane</i> sp.				0.2	0.0	0.1				<0.1	<0.1	<0.1

APPENDIX TABLE C.2-5
(continued)
ZOOPLANKTON COMPOSITION AND ABUNDANCE (No./liter)
MARBLE HILL PLANT
17 AUGUST 1977

Taxon	Station and replicate											
	1			3			5			6		
	A	B	\bar{x}	A	B	\bar{x}	A	B	\bar{x}	A	B	\bar{x}
UNDAMAGED												
ROTIFERA (continued)												
<i>Monostyla</i> sp.										<0.1	0.0	<0.1
<i>Notholca</i> sp.	0.1	0.0	0.1									
<i>Platylabus patulus</i>	1.9	1.2	1.6	0.7	0.7	0.7	1.6	1.1	1.4	0.1	<0.1	0.1
<i>P. quadricornis</i>				0.0	0.1	0.1						
<i>Polyarthra</i> sp.	0.0	0.2	0.1	0.3	0.0	0.2						
<i>Trichocerca</i> sp.										<0.1	0.0	<0.1
unidentified Rotifera	1.2	2.4	1.8	1.8	2.4	2.1	2.6	2.4	2.5	0.2	0.2	0.2
TOTAL ROTIFERA	15.4	33.9	25.0	27.1	22.4	25.0	39.5	19.8	30.0	0.8	0.6	0.8
CLADOCERA												
<i>Alona</i> sp.				0.0	0.2	0.1						
<i>Bosmina longirostris</i>	0.0	0.5	0.3	0.0	0.5	0.3	0.3	0.3	0.3	<0.1	0.0	<0.1
<i>Ceriodaphnia</i> sp.							0.0	0.2	0.1			
<i>C. quadrangula</i>	0.2	0.7	0.5	1.4	1.0	1.2	1.8	0.9	1.4	0.1	0.1	0.1
<i>Chydorus sphaericus</i>										<0.1	<0.1	<0.1
<i>Daphnia</i> sp.	0.1	0.0	0.1									
<i>D. ambigua</i>	0.2	0.0	0.1									
<i>D. parvula</i>	0.2	0.2	0.2									
<i>Diaphanosoma brachyurum</i>							0.0	0.1	0.1			
<i>D. leuchtenbergianum</i>	0.0	0.2	0.1	0.0	0.5	0.3	0.3	0.4	0.4			
<i>Eubosmina coregoni</i>				0.1	0.0	0.1						
<i>Ilyocryptus</i> sp.				0.1	0.0	0.1	0.1	0.1	0.1			
<i>I. spinifer</i>				0.0	0.2	0.1	0.0	0.1	0.1			
<i>Leydigia quadrangularis</i>				0.0	0.1	0.1	0.1	0.0	0.1			
<i>Sida crystallina</i>	0.0	0.3	0.2	0.0	0.1	0.1						
immature Cladocera	1.4	1.6	1.5	0.9	1.9	1.4	1.7	1.4	1.6	0.1	0.1	0.1
unidentified Bosminidae	0.1	0.0	0.1				0.2	0.1	0.2			
unidentified Cladocera	0.0	0.3	0.2	0.3	0.0	0.2	0.5	0.2	0.4			
TOTAL CLADOCERA	2.2	3.8	3.3	2.8	4.5	4.0	5.0	3.8	4.8	0.2	0.2	0.2

APPENDIX TABLE C.2-5
 (continued)
 ZOOPLANKTON COMPOSITION AND ABUNDANCE (No./liter)
 MARBLE HILL PLANT
 17 AUGUST 1977

Taxon	Station and replicate											
	1			3			5			6		
	A	B	\bar{x}	A	B	\bar{x}	A	B	\bar{x}	A	B	\bar{x}
UNDAMAGED (continued)												
COPEPODA												
Calanoida												
<i>Diaptomus</i> sp.	0.1	0.3	0.2				0.0	0.1	0.1	0.0	<0.1	<0.1
<i>D. ashlandi</i>							0.0	0.1	0.1			
<i>D. pallidus</i>				0.0	0.1	0.1	0.0	0.3	0.2	<0.1	<0.1	<0.1
Cyclopoida												
<i>Cyclops</i> sp.							0.2	0.0	0.1	<0.1	<0.1	<0.1
<i>C. bicuspidatus thomasi</i>	0.1	0.0	0.1	0.0	0.4	0.2						
<i>C. vernalis</i>							0.0	0.1	0.1	<0.1	0.0	<0.1
<i>Eucyclops agilis</i>				0.0	0.1	0.1				<0.1	<0.1	<0.1
unidentified Cyclopoida	0.0	0.2	0.1									
Harpacticoida												
<i>Nitocra</i> sp.	0.1	0.0	0.1									
copepodites	1.4	1.7	1.6	1.4	3.1	2.3	1.6	1.8	1.7	0.2	0.1	0.2
nauplii	2.1	7.3	4.7	5.2	4.8	5.0	7.4	4.3	5.9	0.6	0.7	0.7
TOTAL COPEPODA	3.8	9.5	6.8	6.6	8.5	7.7	9.2	6.7	8.2	0.8	0.8	0.9
OTHERS												
Cnidaria												
<i>Hydra</i> sp.	0.0	0.3	0.2	0.0	0.1	0.1	0.1	0.1	0.1			
Nematoda	0.1	0.7	0.4	0.4	0.4	0.4	0.7	0.2	0.5			
Ectoprocta statoblasts	0.0	0.3	0.2	0.1	0.1	0.1	0.1	0.2	0.2			
Tardigrada							0.1	0.0	0.1			
Oligochaeta							0.1	0.0	0.1	0.1	0.0	0.1
Hydracarina												
adults										<0.1	0.0	<0.1
immatures	0.1	0.0	0.1									

APPENDIX TABLE C.2-5
 (continued)
 ZOOPLANKTON COMPOSITION AND ABUNDANCE (No./liter)
 MARBLE HILL PLANT
 17 AUGUST 1977

Taxon	Station and replicate											
	1			3			5			6		
	A	B	\bar{x}	A	B	\bar{x}	A	B	\bar{x}	A	B	\bar{x}
<u>UNDAMAGED</u>												
OTHERS (continued)												
Oribatoidae adults							0.0	0.1	0.1			
Diptera												
Chironomidae larvae							0.0	0.3	0.2			
unidentified larvae	0.2	0.2	0.2				0.0	0.2	0.1	0.0	<0.1	<0.1
Thysanoptera adults							0.1	0.0	0.1			
Hydropsychidae larvae							0.0	0.1	0.1			
TOTAL OTHERS	0.4	1.5	1.1	0.5	0.6	0.6	1.2	1.2	1.6	0.1	0.0	0.1
TOTAL UNDAMAGED PER LITER	31.7	73.8	53.9	50.2	51.7	52.0	77.1	39.4	59.9	3.2	2.8	3.3
			+46.5			+ 2.9			+22.2			+0.2
<u>DAMAGED</u>												
Cladocera	46.4	85.0	65.7	73.0	72.4	72.7	85.8	59.6	72.7	1.6	1.4	1.5
TOTAL DAMAGED PER LITER	46.4	85.0	65.7	73.0	72.4	72.7	85.8	59.6	72.7	1.6	1.4	1.5
TOTAL UNDAMAGED AND DAMAGED PER LITER	78.1	158.8	119.6	123.2	124.1	124.7	162.9	99.0	132.6	4.8	4.2	4.8

APPENDIX TABLE C.2-6

ZOOPLANKTON RELATIVE ABUNDANCE^a
MARBLE HILL PLANT
17 AUGUST 1977

Taxon	Station			
	1	3	5	6
PROTOZOA				
<i>Arcella</i> sp.	3.7	3.1	2.7	<0.1
<i>Carchesium</i> sp.	0.2		0.2	
<i>Centropyxis</i> spp.	16.1	11.3	11.8	27.4
<i>Diffflugia</i> spp.	8.2	8.8	3.5	12.1
<i>Epistylis</i> sp.	0.4	0.2	0.3	
<i>Pyxicola</i> sp.		1.9	0.3	
<i>Squalorophrya</i> sp.		0.2	0.2	
<i>Vorticella</i> sp.	3.5	1.3	0.7	
unidentified Arcellidae		1.0		
unidentified Suctorida	0.7	0.4	0.5	
unidentified Protozoa			0.3	
TOTAL PROTOZOA	32.8	28.2	25.5	39.5
ROTIFERA				
<i>Brachionus</i> spp.	0.4			
<i>B. angularis</i>			0.2	
<i>B. bidentata</i>		0.8	0.7	<0.1
<i>B. calyciflorus</i>	26.1	31.2	29.9	12.1
<i>B. havanaensis</i>	0.7	0.4	0.3	3.0
<i>B. quadridentata</i>	1.1	0.2	0.2	
<i>Filinia</i> sp.		0.2		
<i>Kellicottia bostoniensis</i>	0.4		0.2	
<i>Keratella cochlearis</i>	10.7	8.7	11.3	
<i>K. quadrata</i>		0.2		
<i>K. valga</i>		0.2	0.5	
<i>Lecane</i> sp.		0.2		<0.1

^a Relative abundance represents the average undamaged organisms of replicates A and B.

APPENDIX TABLE C.2-6
 (continued)
 ZOOPLANKTON RELATIVE ABUNDANCE^a
 MARBLE HILL PLANT
 17 AUGUST 1977

Taxon	Station			
	1	3	5	6
ROTIFERA (continued)				
<i>Monostyla</i> sp.				<0.1
<i>Notholca</i> sp.	0.2			
<i>Platylabus patulus</i>	3.0	1.3	2.3	3.0
<i>P. quadricornis</i>		0.2		
<i>Polyarthra</i> sp.	0.2	0.4		
<i>Trichocerca</i> sp.				<0.1
unidentified Rotifera	3.3	4.0	4.2	6.0
TOTAL ROTIFERA	46.1	48.0	49.8	24.1
CLADOCERA				
<i>Alona</i> sp.		0.2		
<i>Bosmina longirostris</i>	0.6	0.6	0.5	<0.1
<i>Ceriodaphnia</i> sp.			0.2	
<i>C. quadrangula</i>	0.9	2.3	2.3	3.0
<i>Chydorus sphaericus</i>				<0.1
<i>Daphnia</i> sp.	0.2			
<i>D. ambigua</i>	0.2			
<i>D. parvula</i>	0.4			
<i>Diaphanosoma brachyurum</i>			0.2	
<i>D. leuchtenbergianum</i>	0.2	0.6	0.7	
<i>Eubosmina coregoni</i>		0.2		
<i>Ilyocryptus</i> sp.		0.2	0.2	
<i>I. spinifer</i>		0.2	0.2	
<i>Leydigia quadrangularis</i>		0.2	0.2	
<i>Sida crystallina</i>	0.4	0.2		
immature Cladocera	2.8	2.7	2.7	3.0
unidentified Bosminidae	0.2		0.3	
unidentified Cladocera	0.4	0.4	0.7	
TOTAL CLADOCERA	6.3	7.8	8.2	6.0

^a Relative abundance represents the average undamaged organisms of replicates A and B.

APPENDIX TABLE C.2-6
 (continued)
 ZOOPLANKTON RELATIVE ABUNDANCE^a
 MARBLE HILL PLANT
 17 AUGUST 1977

Taxon	Station			
	1	3	5	6
COPEPODA				
Calanoida				
<i>Diaptomus</i> sp.	0.4		0.2	<0.1
<i>D. ashlandi</i>			0.2	
<i>D. pallidus</i>		0.2	0.3	<0.1
Cyclopoida				
<i>Cyclops</i> sp.			0.2	<0.1
<i>C. bicuspidatus thomasi</i>	0.2	0.4		
<i>C. vernalis</i>			0.2	<0.1
<i>Eucyclops agilis</i>		0.2		<0.1
unidentified Cyclopoida	0.2			
Harpacticoida				
<i>Nitocra</i>	0.2			
copepodites	3.0	4.4	2.8	6.1
nauplii	8.7	9.6	9.8	21.3
TOTAL COPEPODA	12.7	14.8	13.7	27.4
OTHERS				
Cnidaria				
<i>Hydra</i> sp.	0.4	0.2	0.2	
Nematoda	0.7	0.8	0.8	
Ectoprocta statoblasts	0.4	0.2	0.3	
Tardigrada			0.2	
Oligochaeta			0.2	3.0
Hydracarina				
adults				<0.1
immatures	0.2			
Oribatoidea adults			0.2	

^a Relative abundance represents the average undamaged organisms of replicates A and B.

APPENDIX TABLE C.2-6
 (continued)
 ZOOPLANKTON RELATIVE ABUNDANCE^a
 MARBLE HILL PLANT
 17 AUGUST 1977

Taxon	Station			
	1	3	5	6
OTHERS (continued)				
Diptera			0.3	
Chironomidae larvae			0.2	<0.1
unidentified larvae	0.4		0.2	
Thysanoptera adults			0.2	
Hydropsychidae larvae			0.2	
TOTAL OTHERS	2.1	1.2	2.8	3.0

^a Relative abundance represents the average undamaged organisms of replicates A and B.

APPENDIX TABLE C.2-7

ZOOPLANKTON COMPOSITION AND ABUNDANCE (No./liter)
 MARBLE HILL PLANT
 9 NOVEMBER 1977

Taxon	Station and replicate											
	1			3			5			6		
	A	B	\bar{x}	A	B	\bar{x}	A	B	\bar{x}	A	B	\bar{x}
<u>UNDAMAGED</u>												
<u>PROTOZOA</u>												
<i>Acineta</i> sp.	0.4	0.4	0.4	0.9	0.3	0.6	0.8	0.4	0.6	<0.1	0.0	<0.1
<i>Arcella</i> spp.	0.3	0.3	0.3	0.5	0.3	0.4	0.3	0.3	0.3	0.1	<0.1	0.1
<i>Carchesium</i> sp.	0.2	0.1	0.2	0.0	0.1	0.1	0.2	0.2	0.2			
<i>Centropyxis</i> sp.	3.3	1.2	2.3	1.9	1.4	1.7	2.5	1.8	2.2	0.2	0.1	0.2
<i>Diffugia</i> spp.	1.4	0.8	1.1	1.2	0.4	0.8	0.9	0.7	0.8	0.4	0.1	0.3
<i>Epistylis</i> sp.				0.0	0.1	0.1	0.0	0.1	0.1			
<i>Tokophrya</i> sp.	0.1	0.1	0.1	0.2	0.1	0.2	0.1	0.1	0.1			
<i>Vorticella</i> sp.	0.1	0.0	0.1	0.0	0.1	0.1	0.0	0.2	0.1			
unidentified Protozoa				0.2	0.2	0.2						
TOTAL PROTOZOA	5.8	2.9	4.5	4.9	3.0	4.2	4.8	3.8	4.4	0.7	0.2	0.6
<u>ROTIFERA</u>												
<i>Brachionus</i>												
<i>bidentata</i>	0.1	0.1	0.1	0.2	0.1	0.2	0.1	0.0	0.1			
<i>B. calyciflorus</i>	1.1	1.6	1.4	1.7	0.9	1.3	1.4	1.7	1.6	0.2	0.1	0.2
<i>Kellicottia</i>												
<i>bostoniensis</i>							0.0	0.1	0.1			
<i>K. longispina</i>	0.1	0.0	0.1	0.1	0.0	0.1	0.1	0.0	0.1			
<i>Keratella</i>												
<i>cochlearis</i>	2.5	0.6	1.6	2.6	0.9	1.8	2.2	0.9	1.6	0.1	0.0	0.1
<i>K. quadrata</i>				0.1	0.0	0.1						
<i>Monostyla bulla</i>	0.1	<0.1	0.1	0.1	0.0	0.1	0.1	0.0	0.1			

APPENDIX TABLE C.2-7
 (continued)
 ZOOPLANKTON COMPOSITION AND ABUNDANCE (No./liter)
 MARBLE HILL PLANT
 9 NOVEMBER 1977

Taxon	Station and replicate											
	1			3			5			6		
	A	B	\bar{x}	A	B	\bar{x}	A	B	\bar{x}	A	B	\bar{x}
UNDAMAGED												
ROTIFERA (cont.)												
<i>Platygias patulus</i>	0.0	0.1	0.1									
<i>Polyarthra</i> sp.				0.1	0.0	0.1	0.1	0.1	0.1			
<i>Trichotria</i> sp. unidentified										0.1	0.2	0.2
Rotifera	0.7	0.5	0.6	1.0	0.5	0.8	0.9	0.8	0.9	0.7	0.3	0.5
TOTAL ROTIFERA	4.6	2.9	4.0	5.9	2.4	4.5	4.9	3.6	4.6	1.1	0.6	1.0
CLADOCERA												
<i>Alona</i> sp.							0.0	0.1	0.1			
<i>A. costata</i>	0.1	0.0	0.1									
<i>A. rectangularis</i>				0.0	0.1	0.1						
<i>Chydorus sphaericus</i>										0.2	<0.1	0.1
<i>Eubosmina</i> sp.	0.1	0.1	0.1	0.3	0.1	0.2	0.3	0.2	0.3	<0.1	0.0	0.1
<i>Leydigia</i> <i>quadrangularis</i>							0.0	0.1	0.1			
<i>Moina micrura</i> immature							0.0	0.1	0.1			
cladocera unidentified	0.1	0.0	0.1	0.0	0.1	0.1	0.1	0.0	0.1	0.1	0.0	0.1
Bosminidae unidentified	0.1	0.0	0.1									
Cladocera	0.1	0.0	0.1				0.1	0.0	0.1			
TOTAL CLADOCERA	0.5	0.1	0.5	0.3	0.3	0.4	0.5	0.5	0.8	0.3	0.0	0.2

APPENDIX TABLE C.2-7
 (continued)
 ZOOPLANKTON COMPOSITION AND ABUNDANCE (No./liter)
 MARBLE HILL PLANT
 9 NOVEMBER 1977

Taxon	Station and replicate											
	1			3			5			6		
	A	B	\bar{x}	A	B	\bar{x}	A	B	\bar{x}	A	B	\bar{x}
UNDAMAGED (cont.)												
COPEPODA												
Calanoida												
<i>Diaptomus</i> sp.	0.0	<0.1	<0.1	0.1	0.0	0.1	0.0	0.1	0.1			
<i>D. pallidus</i>	0.1	0.0	0.1				0.1	0.0	0.1	0.0	<0.1	<0.1
Cyclopoida												
<i>Cyclops bicus-</i> <i>pidatus thomasi</i>	0.0	<0.1	<0.1				0.1	0.1	0.1			
<i>Macrocyclus</i> <i>albidus</i> unidentified										<0.1	0.0	<0.1
Cyclopoida										0.1	0.0	0.1
copepodites	0.2	0.2	0.2	0.1	0.2	0.2	0.1	0.3	0.2	0.4	0.1	0.3
nauplii	0.3	0.3	0.3	0.5	0.3	0.4	0.4	0.3	0.4	0.8	0.4	0.6
TOTAL COPEPODA	0.6	0.5	0.6	0.7	0.5	0.7	0.7	0.8	0.9	1.3	0.5	1.0
OTHERS												
Nematoda												
<i>Criconema</i> sp. unidentified	0.1	0.0	0.1				0.1	0.0	0.1			
Nematoda	0.2	0.1	0.2				0.1	0.1	0.1	0.0	<0.1	<0.1
Ectoprocta												
statoblasts	0.7	1.0	0.9	0.5	0.4	0.5	0.6	0.7	0.7	0.1	<0.1	<0.1
Tardigrada	0.0	0.1	0.1	0.0	0.1	0.1						
Oligochaeta							0.1	0.0	0.1	0.1	<0.1	<0.1
Isopoda												
<i>Lirceus fontinalis</i>										0.1	0.0	0.1

APPENDIX TABLE C.2-7
 (continued)
 ZOOPLANKTON COMPOSITION AND ABUNDANCE (No./liter)
 MARBLE HILL PLANT
 9 NOVEMBER 1977

Taxon	Station and replicate											
	1			3			5			6		
	A	B	\bar{x}	A	B	\bar{x}	A	B	\bar{x}	A	B	\bar{x}
<u>UNDAMAGED</u>												
OTHERS (cont.)												
Hydracarina												
adults	0.1	<0.1	0.1				0.1	0.0	0.1			
immatures	0.0	0.1	0.1				0.0	0.1	0.1	0.1	0.0	0.1
Insecta larvae										0.0	<0.1	<0.1
Diptera												
Chironomidae												
larvae	0.1	0.0	0.1							<0.1	0.1	0.1
unidentified										<0.1	<0.1	<0.1
larvae	0.0	<0.1	<0.1							<0.1	<0.1	<0.1
Hemiptera adults				0.0	0.1	0.1						
TOTAL OTHERS	1.2	1.3	1.6	0.5	0.6	0.7	1.0	0.9	1.2	0.3	0.1	0.4
TOTAL UNDAMAGED PER LITER	12.7	7.7	11.2 ±2.6	12.3	6.8	10.5 ±3.3	11.9	9.6	11.9 ±1.3	3.7	1.4	3.2 ±1.1
<u>DAMAGED</u>												
CLADOCERA	6.2	5.1	5.7	4.5	4.5	4.5	4.3	5.3	4.8	1.0	0.3	0.7
TOTAL UNDAMAGED AND DAMAGED PER LITER	18.9	12.8	16.9	16.8	11.3	15.0	16.2	14.9	16.7	4.7	1.7	3.9

APPENDIX TABLE C.2-8

ZOOPLANKTON RELATIVE ABUNDANCE^a
MARBLE HILL PLANT
9 NOVEMBER 1977

	Station			
	1	3	5	6
PROTOZOA				
<i>Acineta</i> sp.	3.6	5.7	5.0	<0.1
<i>Arcella</i> spp.	2.7	3.8	2.5	3.1
<i>Carchesium</i> sp.	1.9	1.0	1.7	
<i>Centropyxis</i> sp.	20.4	16.1	19.0	6.3
<i>Diffugia</i> spp.	9.7	7.5	6.7	9.4
<i>Epistylis</i> sp.		1.0	0.8	
<i>Tokophrya</i> sp.	0.9	1.9	0.8	
<i>Vorticella</i> sp.	0.9	1.0	0.8	
unidentified Protozoa		1.9		
TOTAL PROTOZOA	40.1	39.9	37.3	18.8
ROTIFERA				
<i>Brachionus bidentata</i>	0.9	1.9	0.8	
<i>B. calyciflorus</i>	12.5	12.3	13.6	6.3
<i>Kellicottia bostoniensis</i>			0.8	
<i>K. longispina</i>	0.9	1.0	0.8	
<i>Keratella cochlearis</i>	14.2	17.0	13.6	3.1
<i>K. quadrata</i>		1.0		
<i>Monostyla bulla</i>	0.9	1.0	0.8	
<i>Platyias patulus</i>	0.9			
<i>Polyarthra</i> sp.		1.0	0.8	
<i>Trichotria</i> sp.				6.3
unidentified Rotifera	5.4	7.5	7.6	15.6
TOTAL ROTIFERA	35.7	42.7	38.8	31.3
CLADOCERA				
<i>Alona</i> sp.			0.8	
<i>A. costata</i>	0.9			
<i>A. rectangula</i>		1.0		
<i>Chydorus sphaericus</i>				3.1
<i>Eubosmina</i> sp.	0.9	1.9	2.5	<0.1
<i>Leydigia quadrangularis</i>			0.8	
<i>Moina micrura</i>			0.8	
immature Cladocera	0.9	1.0	0.8	3.1
unidentified Bosminidae	0.9			
unidentified Cladocera	0.9		0.8	
TOTAL CLADOCERA	4.5	3.9	6.5	6.2

^aRelative abundance represents the average undamaged organisms of replicates A and B.

APPENDIX TABLE C.2-8
 (continued)
 ZOOPLANKTON RELATIVE ABUNDANCE^a
 MARBLE HILL PLANT
 9 NOVEMBER 1977

	Station			
	1	3	5	6
COPEPODA				
Calanoida				
<i>Diaptomus</i> sp.	< 0.1	1.0	0.8	
<i>D. pallidus</i>	0.9		0.8	< 0.1
Cyclopoida				
<i>Cyclops bicuspidatus</i>				
<i>thomasi</i>	< 0.1		0.8	
<i>Macrocyclus albidus</i>				< 0.1
unidentified Cyclopoida				3.1
copepodites	1.8	1.9	1.7	9.4
nauplii	2.7	3.8	3.4	18.8
TOTAL COPEPODA	5.4	6.7	7.5	31.3
OTHERS				
Nematoda				
<i>Criconema</i> sp.	0.9		0.8	
unidentified Nematoda	1.8		0.8	< 0.1
Ectoprocta statoblasts	8.0	4.8	5.9	3.1
Tardigrada	0.9	1.0		
Oligochaeta			0.8	< 0.1
Isopoda				
<i>Lirceus fontinalis</i>				3.1
Hydracarina				
adults	0.9		0.8	
immatures	0.9		0.8	3.1
Insecta larvae				< 0.1
Diptera				
Chironomidae larvae	0.9			3.1
unidentified larvae	< 0.1			< 0.1
Hemiptera adults		1.0		
TOTAL OTHERS	14.3	6.8	9.9	12.4

^aRelative abundance represents the average undamaged organisms of replicates A and B.

A P P E N D I X D

PERIPHYTON

APPENDIX TABLE D-1

PERIPHYTON COMPOSITION AND ABUNDANCE (individuals $\times 10^3/10 \text{ cm}^2$)
OHIO RIVER STATIONS 1, 3 AND 5 (ARTIFICIAL SUBSTRATES)
MARBLE HILL PLANT
21 MARCH 1977

Taxon	Station and replicate											
	1		3		5		RA	A	B	PA		
A	B	A	B	A	B	A					B	A
BACILLARIOPHYTA												
Centrales												
<i>Cyclotella Meneghiniana</i>	0.17	0.41	0.29	14.62	0.00	0.05	0.03	2.61	0.05	0.02	0.04	3.64
<i>C. pseudostelligera</i>	0.14	0.22	0.18	9.06	0.05	0.00	0.03	2.61	0.07	0.05	0.06	5.42
<i>C. stelligera</i>					0.02	0.00	0.01	0.87	0.01	0.01	0.01	0.91
<i>Melosira distans</i>									0.00	0.06	0.03	2.73
<i>M. granulata</i>					0.02	0.01	0.02	1.74	0.04	0.00	0.02	1.82
<i>M. varians</i>									0.03	0.00	0.02	1.82
Pennales												
<i>Achnanthes lanceolata</i> V.									0.00	0.02	0.01	0.91
<i>dubia</i>	0.00	0.04	0.02	1.01	0.02	0.00	0.01	0.87	0.03	0.04	0.04	3.64
<i>A. minutissima</i>					0.02	0.00	0.01	0.37				
<i>A. montana</i>	0.00	0.07	0.04	2.02	0.00	0.05	0.03	2.61	0.00	0.01	0.01	0.91
<i>Achnanthes</i> Sp.	0.00	0.04	0.02	1.01					0.04	0.04	0.04	3.64
<i>Amphora ovalis</i> V. <i>pediculus</i>	0.06	0.11	0.09	4.55								
<i>Asterionella formosa</i>												
<i>Cocconeis placentula</i> V.												
<i>lineatus</i>	0.00	0.04	0.02	1.01	0.02	0.00	0.01	0.87	0.00	0.02	0.01	0.91
<i>Cymbella</i> Sp.	0.03	0.00	0.02	1.01	0.02	0.07	0.10	8.70	0.00	0.01	0.01	0.91
<i>Eunotia</i> Sp.					0.02	0.00	0.01	0.87	0.08	0.02	0.05	4.53
<i>Fragilaria capucina</i>					0.12	0.07	0.10	8.70	0.00	0.02	0.01	0.91
<i>F. crotonensis</i>									0.01	0.00	0.01	0.91
<i>F. gracillima</i>									0.04	0.00	0.02	1.82
<i>F. intermedia</i>	0.11	0.07	0.09	4.55	0.04	0.03	0.04	3.48	0.04	0.00	0.02	1.82
<i>Gomphonema angustatum</i>					0.04	0.01	0.03	2.61	0.03	0.05	0.04	3.64
<i>G. olivaceum</i>	0.09	0.04	0.07	3.54	0.17	0.07	0.12	10.43	0.03	0.05	0.04	3.64
<i>Gomphonema</i> Sp.	0.00	0.04	0.02	1.01								
<i>Gyrosigma obtusatum</i>	0.03	0.00	0.02	1.01								
<i>G. scalprides</i>	0.03	0.00	0.02	1.01								
<i>Hantzschia amphioxys</i>	0.03	0.00	0.02	1.01								
<i>Meridion circulare</i>					0.05	0.04	0.05	4.33	0.01	0.00	0.01	0.91

APPENDIX TABLE D-1
 (continued)
 PERIPHYTON COMPOSITION AND ABUNDANCE (individuals x 10³/10 cm²)
 OHIO RIVER STATIONS 1, 3 AND 5 (ARTIFICIAL SUBSTRATES)
 MARBLE HILL PLANT
 21 MARCH 1977

Taxon	Station and replicate									
	1		3		5		RA		SA	
	A	B	A	B	A	B	A	B	A	B
CYANOPHYTA										
<i>Aphanothece nidulans</i>	0.00	0.05	0.03	0.01	0.01	0.01	0.01	0.87	0.14	0.19
<i>Oscillatoria</i> sp. 1	0.09	0.17	0.13	0.14	0.11	0.14	0.13	11.30	0.01	0.01
<i>Oscillatoria</i> sp. 2	0.01	0.00	0.01	0.01	0.11	0.15	0.14	12.17	0.00	0.01
<i>Spirulina major</i>	0.10	0.22	0.17	0.15	0.11	0.15	0.14	12.17	0.00	0.01
TOTAL CYANOPHYTA									0.24	0.21
EUGLENOPHYTA									0.24	0.16
<i>Euglena</i> sp.	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.87	0.01	0.01
<i>Tracheomonas</i> sp.	0.02	0.01	0.02	0.01	0.01	0.01	0.01	0.87	0.01	0.01
TOTAL EUGLENOPHYTA	0.03	0.02	0.03	0.01	0.01	0.01	0.01	0.87	0.01	0.01
PROTOZOA										
<i>Astrophya arenaria</i>	0.00	0.01	0.01	0.01	0.01	<0.01	0.01	0.87	0.01	0.01
Ciliated protozoan	0.00	0.01	0.01	0.01	0.01	<0.01	0.01	0.87	0.01	0.01
<i>Paracinetes crenata</i>	0.00	0.01	0.01	0.01	0.01	<0.01	0.01	0.87	0.01	0.01
TOTAL PROTOZOA									0.01	0.01
TOTAL PERIPHYTON	1.57	2.21	1.98±0.41	1.15	0.92	0.92	1.15±0.14	1.17	0.82	1.10±0.23
TOTAL SPECIES (s)		35					32			40
DIVERSITY INDEX (d)		4.3428					4.3904			4.5482
EQUITABILITY (e)		0.85					0.97			0.87

^a Relative abundance as percentage of total periphyton.

APPENDIX TABLE D-2

PERIPHYTON COMPOSITION AND ABUNDANCE (individuals x 10³/10 cm²)
OHIO RIVER STATIONS 1, 3 AND 5 (ARTIFICIAL SUBSTRATES)
MARBLE HILL PLANT
26 MAY 1977

Taxon	Station and replicate											
	1				3				5			
	A	B	\bar{x}	RA ^a	A	B	\bar{x}	RA	A	B	\bar{x}	RA
BACILLARIOPHYTA												
Centrales												
<i>Coscinodiscus lacustris</i>	68.48	27.30	47.89	1.02								
<i>Cyclotella catenata</i>	98.96	54.60	76.78	1.64	27.45	80.67	54.06	1.20	29.65	0.00	14.83	0.33
<i>C. kutzingiana</i> V.												
<i>planetophora</i>	41.86	54.60	48.23	1.03	54.84	66.49	60.67	1.34	12.66	12.98	12.82	0.29
<i>C. Meneghiniana</i>	182.63	27.30	104.97	2.24	54.84	0.00	27.42	0.61	29.65	0.00	14.83	0.33
<i>C. pseudostelligera</i>	110.34	124.76	117.55	2.51	109.73	151.88	130.81	2.90	109.99	25.95	67.97	1.53
<i>C. stelligera</i>	11.43	0.00	5.72	0.12	0.00	14.25	7.13	0.16	12.66	0.00	6.33	0.14
<i>Melosira distans</i>	0.00	27.30	13.65	0.29	11.79	14.25	13.02	0.29	29.65	25.95	27.80	0.63
<i>M. granulata</i>	41.86	38.99	40.43	0.86	11.79	14.25	13.02	0.29	46.53	25.95	36.24	0.82
<i>M. varians</i>	53.24	93.59	73.42	1.57	54.84	132.85	93.85	2.08	12.66	43.28	27.97	0.63
<i>Stephanodiscus astrea</i>					0.00	33.22	16.61	0.37	12.66	0.00	6.33	0.14
Pennales												
<i>Achnanthes exigua</i>									12.66	0.00	6.33	0.14
<i>A. lanceolata</i>	11.43	11.69	11.56	0.25	11.79	14.25	13.02	0.29				
<i>A. minutissima</i>	110.34	54.60	82.47	1.76	617.40	469.83	538.62	11.94	1556.83	1838.24	1697.53	38.18
<i>Achnanthes</i> sp.					0.00	14.25	7.13	0.16				
<i>Amphora ovalis</i> V.												
<i>pediculus</i>									12.66	0.00	6.33	0.14
<i>A. veneta</i>	11.43	0.00	5.72	0.12								
<i>Asterionella formosa</i>					0.00	33.22	16.61	0.37				
<i>Cocconeis placentula</i> V.												
<i>euglypta</i>					97.99	132.85	115.42	2.56				
<i>Cymbella affinis</i>	239.72	66.29	153.01	3.27	239.07	113.94	176.51	3.91	109.99	194.75	152.37	3.43
<i>C. minuta</i> V. <i>silesiaca</i>					70.55	166.12	118.34	2.62	173.45	116.87	145.16	3.26
<i>C. prostrata</i> V. <i>auerswaldii</i>	11.43	27.30	19.37	0.41	141.09	33.22	87.16	1.93				
<i>Gomphonema angustatum</i>	68.48	38.99	53.74	1.15	39.19	33.22	36.21	0.80	93.11	134.14	113.63	2.56
<i>G. angustatum</i> V. <i>citera</i>	83.72	27.30	55.51	1.19	109.73	33.22	71.48	1.58	236.91	315.92	276.42	6.22
<i>G. gracile</i>					0.00	14.25	7.13	0.16	12.66	0.00	6.33	0.14
<i>G. olivaceum</i>	68.48	66.29	67.39	1.44	97.99	284.73	191.36	4.24	283.48	359.20	321.34	7.23
<i>G. parvulum</i>	1651.29	2355.06	2003.18	42.81	1046.26	2258.82	1652.54	36.62	858.78	813.61	836.20	18.81

APPENDIX TABLE D-2
 (continued)
 PERIPHYTON COMPOSITION AND ABUNDANCE (individuals x 10³/10 cm²)
 OHIO RIVER STATIONS 1, 3 AND 5 (ARTIFICIAL SUBSTRATES)
 MARBLE HILL PLANT
 26 MAY 1977

Taxon	Station and replicate											
	1				3				5			
	A	B	\bar{x}	RA ^a	A	B	\bar{x}	RA	A	B	\bar{x}	RA
CHLOROPHYTA (continued)												
<i>Pseudovella americana</i>	9.23	9.86	9.55	0.20					5.29	0.00	2.65	0.06
<i>Scenedesmus dimorphus</i>	4.62	0.00	2.31	0.05								
<i>S. quadricauda</i>	18.53	18.78	18.66	0.40	14.79	5.70	10.25	0.23	5.14	0.00	2.57	0.06
<i>Tetraedron caudatum</i> v. <i>longispinum</i>	4.62	0.00	2.31	0.05	0.00	5.70	2.85	0.06				
TOTAL CHLOROPHYTA	297.10	1238.53	767.83	16.41	125.64	169.45	147.56	3.27	93.51	245.01	169.27	3.81
CYANOPHYTA												
<i>Oscillatoria</i> sp. 1	26.05	40.78	33.42	0.71	34.85	29.46	32.16	0.71	20.14	27.25	23.70	0.53
<i>Phormidium minnesotense</i>	14.61	3.29	8.95	0.19	13.53	13.45	13.49	0.30	5.47	4.99	5.23	0.12
TOTAL CYANOPHYTA	40.66	44.07	42.37	0.90	48.38	42.91	45.65	1.01	26.61	32.24	28.93	0.65
PYRRHOPHYTA												
<i>Glenodinium pulvisculus</i>	4.68	0.00	2.34	0.05								
TOTAL PYRRHOPHYTA	4.68	0.00	2.34	0.05								
OTHERS												
unidentified flagellate 1	97.53	42.79	70.16	1.50	28.99	52.68	40.84	0.91	26.28	32.29	29.29	0.66
TOTAL OTHERS	97.53	42.79	70.16	1.50	28.99	52.68	40.84	0.91	26.28	32.29	29.29	0.66
TOTAL PERIPHYTON	4191.66	5166.07	4679.01	569.49	4074.96	4949.06	4512.14	516.19	4309.06	4584.23	4446.22	311.03
TOTAL SPECIES (s)			48				42				36	
DIVERSITY INDEX (d)			3.5246				3.7333				3.2480	
EQUITABILITY (e)			0.35				0.46				0.38	

^a Relative abundance as percentage of total periphyton.

APPENDIX TABLE D-3

PERIPHYTON COMPOSITION AND ABUNDANCE (individuals x 10³/10 cm²)
OHIO RIVER STATIONS 1, 3 AND 5 (ARTIFICIAL SUBSTRATES)
MARBLE HILL PLANT
18 AUGUST 1977

Taxon	Station and replicate											
	1				3				5			
	A	B	\bar{x}	RA ^a	A	B	\bar{x}	RA	A	B	\bar{x}	RA
BACILLARIOPHYTA												
Centrales												
<i>Cyclotella glomerata</i>	43.20	22.66	32.93	4.75	26.69	41.40	34.05	6.07	24.67	41.18	32.93	0.99
<i>C. kutzingiana</i>	2.05	2.06	2.06	0.30	5.84	4.63	5.24	0.93	3.74	6.70	5.22	0.16
<i>C. Meneghiniana</i>	13.04	3.71	8.38	1.21	6.67	2.32	4.50	0.80	1.87	0.00	0.94	0.03
<i>C. pseudostelligera</i>	56.24	31.74	43.99	6.34	21.06	22.89	21.98	3.92	17.69	41.18	29.44	0.88
<i>C. stelligera</i>	0.00	2.06	1.03	0.15								
<i>Cyclotella</i> sp.	2.05	0.00	1.03	0.15								
<i>Melosira ambigua</i>					30.65	40.10	35.38	6.30	1.87	19.15	10.51	0.32
<i>M. distans</i>	13.04	24.31	18.68	2.69	21.06	24.17	22.62	4.03	17.69	0.00	8.85	0.27
<i>M. granulata</i>	26.08	22.66	24.37	3.51	15.22	14.92	15.07	2.68	0.00	2.87	1.44	0.04
<i>M. granulata</i> v.												
<i>angustissima</i>	3.67	5.78	4.73	0.68	6.67	13.89	10.28	1.83	5.15	0.00	2.58	0.08
<i>M. varians</i>	0.00	16.90	8.45	1.22	21.06	20.57	20.82	3.71	0.00	22.03	11.02	0.33
<i>Stephanodiscus astrea</i>	0.00	2.06	1.03	0.15	0.00	1.03	0.52	0.09				
Pennales												
<i>Achnanthes exigua</i>	2.05	0.00	1.03	0.15	0.00	1.03	0.52	0.09	5.15	0.00	2.58	0.08
<i>A. microcephala</i>	2.05	0.00	1.03	0.15								
<i>A. minutissima</i>	2.05	0.00	1.03	0.15	0.00	1.03	0.52	0.09	10.72	2.87	6.80	0.20
<i>Asterionella formosa</i>	3.67	2.06	2.87	0.41	3.76	3.35	3.56	0.63				
<i>Cocconeis placentula</i> v.												
<i>euglypta</i>	187.05	187.49	187.27	27.01	11.47	7.98	9.73	1.73	209.31	316.01	262.66	7.89
<i>Cymbella tumida</i>					0.00	1.03	0.52	0.09				
<i>Diatoma vulgare</i>	2.05	2.06	2.06	0.30	0.00	1.03	0.52	0.09				
<i>Fragilaria capucina</i>					3.76	0.00	1.88	0.33				
<i>F. crotonensis</i>	0.00	3.71	1.86	0.27	0.00	2.32	1.16	0.21				
<i>F. vaucheriae</i>					0.00	3.35	1.68	0.30				
<i>F. virescens</i>					1.87	0.00	0.94	0.17				
<i>Gomphonema angustatum</i> v.												
<i>citera</i>	0.00	2.06	1.03	0.15					1.87	0.00	0.94	0.03
<i>G. parvulum</i>	9.37	18.55	13.96	2.01	7.71	5.66	6.69	1.19	60.47	113.96	87.22	2.67

APPENDIX TABLE D-3
 (continued)
 PERIPHYTON COMPOSITION AND ABUNDANCE (individuals x 10³/10 cm²)
 OHIO RIVER STATIONS 1, 3 AND 5 (ARTIFICIAL SUBSTRATES)
 MARBLE HILL PLANT
 18 AUGUST 1977

Taxon	Station and replicate											
	1				3				5			
	A	B	\bar{x}	RA ^a	A	B	\bar{x}	RA	A	B	\bar{x}	RA
BACILLARIOPHYTA (continued)												
Pennales (continued)												
<i>Gyrosigma obtusatum</i>					1.87	2.32	2.10	0.37	0.00	2.87	1.44	0.04
<i>Navicula cineta</i>	2.05	0.00	1.03	0.15								
<i>N. cryptocephala</i>	3.67	3.71	3.69	0.53	1.87	3.35	2.61	0.46	0.00	19.15	9.58	0.29
<i>N. cryptocephala</i> v. <i>veneta</i>					1.05	0.00	0.53	0.09	1.87	6.70	4.29	0.13
<i>N. minima</i>	5.70	13.19	9.45	1.36	1.87	4.63	3.25	0.58	23.26	31.60	27.43	0.82
<i>N. viridula</i> v. <i>avenacea</i>	0.00	2.06	1.03	0.15	1.87	2.32	2.10	0.37	7.03	24.90	15.97	0.48
<i>Navicula</i> sp.2									1.87	0.00	0.94	0.03
<i>Navicula</i> sp.3	0.00	2.06	1.03	0.15								
<i>Nitzschia acicularis</i>	3.67	2.06	2.87	0.41	1.05	1.03	1.04	0.19	0.00	2.87	1.44	0.04
<i>N. amphibia</i>	2.05	5.78	3.92	0.57	2.92	7.98	5.45	0.97	1.87	16.28	9.08	0.27
<i>N. communis</i> v. <i>abbreviata</i>	0.00	3.71	1.86	0.27	0.00	1.03	0.52	0.09	1.87	6.70	4.29	0.13
<i>N. filiformis</i>	0.00	2.06	1.03	0.15	1.05	1.03	1.04	0.19	0.00	2.87	1.44	0.04
<i>N. palea</i>	11.42	22.66	17.04	2.46	3.76	10.29	7.03	1.25	53.54	271.96	162.75	4.89
<i>N. tryblionella</i> v. <i>levidensis</i>									0.00	2.87	1.44	0.04
<i>Rhoicosphenia curvata</i>					1.05	0.00	0.53	0.09				
<i>Synedra delicatissima</i>	11.42	3.71	7.57	1.09	1.87	6.95	4.41	0.79	14.46	2.87	8.67	0.26
<i>S. rumpens</i> v. <i>familiaris</i>					1.05	1.03	1.04	0.19				
<i>S. ulna</i>	2.05	0.00	1.03	0.15	1.82	1.03	1.43	0.25				
<i>Synedra</i> sp.	0.00	3.71	1.86	0.27	1.87	0.00	0.94	0.18				
TOTAL BACILLARIOPHYTA	409.69	414.58	412.23	59.46	208.46	255.69	232.20	41.34	465.97	957.59	711.89	21.35
CHRYSOPHYTA												
<i>Ophiocytium capitatum</i> v. <i>longispinum</i>	0.00	0.91	0.46	0.07								
TOTAL CHRYSOPHYTA	0.00	0.91	0.46	0.07								
CHLOROPHYTA												
<i>Ankistrodesmus falcatus</i>					0.61	0.91	0.76	0.14	0.00	4.56	2.28	0.07
<i>Characium ambiguum</i>	4.56	8.21	6.39	0.92					100.32	22.80	61.56	1.85

APPENDIX TABLE D-3
 (continued)
 PERIPHYTON COMPOSITION AND ABUNDANCE (individuals x 10³/10 cm²)
 OHIO RIVER STATIONS 1, 3 AND 5 (ARTIFICIAL SUBSTRATES)
 MARBLE HILL PLANT
 18 AUGUST 1977

Taxon	Station and replicate											
	1				3				5			
	A	B	\bar{x}	RA	A	B	\bar{x}	RA	A	B	\bar{x}	RA
CHLOROPHYTA (continued)												
<i>Characium obtusum</i>	0.00	0.91	0.46	0.07					127.68	9.12	68.40	2.05
<i>Chlamydomonas</i> sp.					0.00	0.91	0.46	0.08				
<i>Cosmarium</i> sp.									0.00	4.56	2.28	0.07
<i>Dictyosphaerium</i>												
<i>Ehrenbergianum</i>	8.21	3.65	5.93	0.86					50.16	0.00	25.08	0.75
<i>Mougeotia</i> sp.					3.29	0.00	1.65	0.29				
<i>Pseudovella americana</i>	2.74	5.47	4.11	0.59	1.22	0.91	1.07	0.19	4.56	0.00	2.28	0.07
<i>Scenedesmus quadricauda</i>	0.91	0.91	0.91	0.13	0.61	1.83	1.22	0.22	0.00	13.68	6.84	0.21
<i>Scenedesmus</i> sp.					0.61	0.00	0.31	0.06				
<i>Spirogyra</i> sp.					3.22	1.64	2.43	0.43				
TOTAL CHLOROPHYTA	16.42	19.15	17.80	2.57	9.56	6.20	7.90	1.41	282.72	57.72	168.72	5.07
CYANOPHYTA												
<i>Anabaena</i> sp.	0.55	0.00	0.28	0.04								
<i>Chamaesiphon</i> ? sp.	136.75	216.98	176.87	25.51	221.23	311.79	266.51	47.47	2485.20	1696.32	2090.76	62.79
<i>Lyngbya</i> sp. 1	37.66	59.71	48.69	7.02	15.86	18.51	17.19	3.06	246.70	250.80	248.75	7.47
<i>Merismopedia tenuissima</i>					1.22	0.00	0.61	0.11				
<i>Oscillatoria</i> sp. 1	15.59	17.41	16.50	2.38	16.41	26.81	21.61	3.85	51.07	57.00	54.04	1.62
<i>Phormidium minnesotense</i>					0.43	2.28	1.36	0.24	0.00	3.65	1.83	0.05
<i>Spirulina major</i>					0.43	1.10	0.77	0.14	19.61	10.95	15.28	0.46
unidentified coccoid sp.	13.68	20.06	16.87	2.43	7.29	10.03	8.66	1.54	45.60	27.36	36.48	1.10
TOTAL CYANOPHYTA	204.23	314.16	259.21	37.38	262.87	370.52	316.71	56.41	2848.18	2046.08	2447.14	73.49
EUGLENOPHYTA												
<i>Trachelomonas</i> sp.	0.91	1.82	1.37	0.20	1.83	1.82	1.83	0.33	4.56	0.00	2.28	0.07
unidentified euglenoid sp.					0.61	0.91	0.76	0.14				
TOTAL EUGLENOPHYTA	0.91	1.82	1.37	0.20	2.44	2.73	2.59	0.47	4.56	0.00	2.28	0.07
PROTOZOA												
<i>Paracineta crenata</i>	1.82	1.83	1.83	0.26	1.83	0.91	1.37	0.24				
<i>Vorticella</i> sp.	0.00	0.91	0.46	0.07	1.22	0.00	0.61	0.11				

APPENDIX TABLE D-3
 (continued)
 PERIPHYTON COMPOSITION AND ABUNDANCE (individuals x 10³/10 cm²)
 OHIO RIVER STATIONS 1, 3 AND 5 (ARTIFICIAL SUBSTRATES)
 MARBLE HILL PLANT
 18 AUGUST 1977

Taxon	Station and replicate											
	1				3				5			
	A	B	\bar{x}	RA ^a	A	B	\bar{x}	RA	A	B	\bar{x}	RA
PROTOZOA (continued)												
TOTAL PROTOZOA	1.82	2.74	2.29	0.33	3.05	0.91	1.98	0.35				
TOTAL PERIPHYTON	633.07	753.36	693.36±79.79		486.38	636.05	561.38±105.73		3601.43	3058.39	3330.03±401.67	
TOTAL SPECIES (s)			47				54				41	
DIVERSITY INDEX (\bar{d})			3.5936				3.3956				2.3459	
EQUITABILITY (e)			0.3705				0.2790				0.1676	

^a Relative abundance as percentage of total periphyton.

APPENDIX TABLE D-4

PERIPHYTON COMPOSITION AND ABUNDANCE (individuals x 10³/10cm²)
OHIO RIVER STATIONS 1, 3, AND 5 (ARTIFICIAL SUBSTRATES)
MARBLE HILL PLANT
8 NOVEMBER 1977

Taxon	Station and replicate											
	1				3				5			
	A	B	\bar{x}	RA ^d	A	B	\bar{x}	RA	A	B	\bar{x}	R
BACILLARIOPHYTA												
Centrales												
<i>Cyclotella glomerata</i>	9.08	0.00	4.54	0.19	0.00	19.26	9.63	0.19	30.20	0.00	15.10	0.19
<i>C. Kutzingiana</i> v.												
<i>planetophora</i>	15.89	19.98	17.94	0.74	77.38	19.26	48.32	0.97	143.43	64.11	103.77	1.30
<i>C. Meneghiniana</i>									60.39	0.00	30.20	0.38
<i>C. pseudostelligera</i>	15.89	10.00	12.95	0.54	77.38	57.84	67.61	1.36	369.88	280.72	325.30	4.07
<i>C. stelligera</i>					19.33	0.00	9.67	0.19	30.20	0.00	15.10	0.19
<i>Melosira ambigua</i>	31.80	37.51	34.66	1.44	38.73	0.00	19.37	0.39				
<i>M. granulata</i>	31.80	19.98	25.89	1.07	38.73	19.26	20.00	0.58				
<i>M. granulata</i> v.	15.89	10.00	12.95	0.54					30.20	0.00	15.10	0.19
<i>angustissima</i>												
<i>M. varians</i>	392.92	442.26	417.59	17.30	261.10	366.41	313.76	6.32	1019.16	882.08	950.62	11.88
<i>Stephanodiscus</i>												
<i>astraea</i>									60.39	32.06	46.23	0.58
Pennales												
<i>Achnanthes</i>												
<i>minutissima</i>	9.08	0.00	4.54	0.19								
<i>Asterionella formosa</i>					19.33	0.00	9.67	0.19				
<i>Cocconeis placentula</i>												
v. <i>euglypta</i>	24.99	77.46	51.23	2.12	19.33	19.26	19.30	0.39				
<i>Cymbella tumida</i>	9.08	19.98	14.53	0.60	0.00	38.58	19.29	0.39	30.20	0.00	15.10	0.19
<i>Diatoma vulgare</i>	15.89	10.00	12.95	0.54	0.00	19.26	9.63	0.19				
<i>Gomphonema angustatum</i>	56.78	67.46	62.12	2.57	130.55	96.42	113.49	2.28	339.79	473.15	406.77	5.08
<i>G. gracile</i>	0.00	19.98	9.99	0.41					0.00	64.11	32.06	0.40
<i>G. olivaceum</i>	0.00	10.00	5.00	0.21	638.23	482.09	560.16	11.28	0.00	32.06	16.03	0.20
<i>G. olivaceum</i> v.												
<i>calcareo</i>	9.08	0.00	4.54	0.19								
<i>G. parvulum</i>	1253.64	1469.20	1361.42	56.40	2296.86	2371.83	2334.35	47.00	3577.98	4209.98	3893.98	48.68

APPENDIX TABLE D-4
 (continued)
 PERIPHYTON COMPOSITION AND ABUNDANCE (individuals x 10³/10cm²)
 OHIO RIVER STATIONS 1, 3, AND 5 (ARTIFICIAL SUBSTRATES)
 MARBLE HILL PLANT
 8 NOVEMBER 1977

Taxon	Station and replicate											
	1				3				5			
	A	B	\bar{x}	RA ^a	A	B	\bar{x}	RA	A	B	\bar{x}	R _c
BACILLARIOPHYTA												
Pennales (continued)												
<i>Navicula cryptocephala</i>	15.89	19.98	17.94	0.74	77.38	77.16	77.27	1.56	196.26	192.43	194.35	2.43
<i>N. cryptocephala</i> v. <i>veneta</i>									0.00	32.06	16.03	0.20
<i>N. graciloides</i>	71.35	19.98	45.67	1.89	657.63	694.17	675.90	13.61	626.52	569.31	597.92	7.47
<i>N. viridula</i> v. <i>avenacea</i>	40.90	19.98	30.44	1.26	207.93	231.42	219.68	4.42	626.52	569.31	597.92	7.47
<i>Nitzschia amphibia</i>	31.80	19.98	25.89	1.07	0.00	19.26	9.63	0.19	30.20	32.06	31.13	0.39
<i>N. communis</i> v. <i>abbreviata</i>					19.33	0.00	0.67	0.19				
<i>N. palea</i>	90.85	37.51	64.18	2.66	130.55	57.84	94.20	1.90	113.34	192.43	152.89	1.91
<i>Surirella ovata</i>	0.00	10.00	5.00	0.21	19.33	0.00	9.67	0.19	0.00	64.11	32.06	0.40
<i>Synedra delicatissima</i>	15.89	10.00	12.95	0.54	19.33	0.00	9.67	0.19				
<i>S. fasciculata</i> v. <i>truncata</i>	31.80	30.00	30.90	1.28	38.73	57.84	48.29	0.97	30.20	96.27	63.24	0.79
<i>S. rumpens</i> v. <i>familiaris</i>					0.00	19.26	9.63	0.19	60.39	0.00	30.20	0.38
<i>S. socia</i>									0.00	32.06	16.03	0.20
<i>S. ulna</i>	72.67	94.94	83.81	3.47	57.98	115.68	86.83	1.75	256.65	216.50	236.58	2.96
<i>S. ulna</i> v. <i>oxyrhynchus</i> f. <i>mediocontracta</i>	0.00	30.00	15.00	0.62	0.00	38.58	19.29	0.39				
TOTAL BACILLARIOPHYTA	2262.96	2506.18	2384.62	98.78	4845.14	4820.68	4832.98	97.32	7631.9	8034.81	7833.41	97.92
CHLOROPHYTA												
<i>Ankistrodesmus falcatus</i>	2.19	2.19	2.19	0.09	14.59	14.59	14.59	0.29	32.82	0.00	16.41	0.21
<i>Characium ambiguum</i>					7.30	0.00	3.65	0.07				
<i>Closterium</i> Sp.					7.30	0.00	3.65	0.07				

APPENDIX TABLE D-4
 (continued)
 PERIPHYTON COMPOSITION AND ABUNDANCE (individuals x 10³/10cm²)
 OHIO RIVER STATIONS 1, 3, AND 5 (ARTIFICIAL SUBSTRATES)
 MARBLE HILL PLANT
 8 NOVEMBER 1977

Taxon	Station and replicate											
	1				3				5			
	A	B	\bar{x}	RA ^a	A	B	\bar{x}	RA	A	B	\bar{x}	RA
CHLOROPHYTA (continued)												
<i>Mougeotia</i> sp.					0.00	30.63	15.32	0.31				
<i>Scenedesmus quadricauda</i>	0.00	2.19	1.10	0.05	0.00	7.30	3.65	0.07	10.94	0.00	5.47	0.07
<i>Scenedesmus</i> sp. unidentified coccoid sp. (6-7 μ diam.)									10.94	0.00	5.47	0.07
TOTAL CHLOROPHYTA	2.19	4.38	3.29	0.14	29.19	52.52	40.86	0.81	54.70	43.76	49.23	0.62
CYANOPHYTA												
<i>Oscillatoria</i> sp. 1	10.72	8.10	9.41	0.39	51.78	39.38	45.58	0.92	103.93	51.42	77.68	0.97
<i>Spirulina major</i>	0.00	0.44	0.22	0.01	7.30	14.59	10.95	0.22	2.19	0.00	1.10	0.01
TOTAL CYANOPHYTA	10.72	8.54	9.63	0.40	59.08	53.97	56.53	1.14	106.12	51.42	78.78	0.98
EUGLENOPHYTA												
<i>Trachelomonas</i> sp. unidentified euglenoid sp.	2.19	2.19	2.19	0.09	29.18	14.59	21.89	0.44	0.00	32.82	16.41	0.21
TOTAL EUGLENOPHYTA	2.19	2.19	2.19	0.09	43.77	21.89	32.84	0.66	0.00	32.82	16.41	0.21
PROTOZOA												
<i>Paracineta crenata</i> ciliated protozoan	0.00	4.38	2.19	0.09								
unidentified protozoan 1	4.38	2.19	3.29	0.14								
TOTAL PROTOZOA	10.94	6.57	8.76	0.36	7.30	0.00	3.65	0.07	21.88	21.88	21.88	0.27
	15.32	13.14	14.24	0.59	7.30	0.00	3.65	0.07	21.88	21.88	21.88	0.27

APPENDIX TABLE D-4
 (continued)
 PERIPHYTON COMPOSITION AND ABUNDANCE (individuals x 10³/10cm²)
 OHIO RIVER STATIONS 1, 3, AND 5 (ARTIFICIAL SUBSTRATES)
 MARBLE HILL PLANT
 8 NOVEMBER 1977

Taxon	Station and replicate											
	1				3				5			
	A	B	\bar{x}	RA ^a	A	B	\bar{x}	RA	A	B	\bar{x}	RA
TOTAL PERIPHYTON	2293.38	2534.43	2413.97	±202.99	4984.48	4949.06	4966.86	+115.64	7814.60	8184.69	7999.71	±347.81
TOTAL SPECIES (s)			34				36				32	
DIVERSITY INDEX (\bar{d})			2.5468				2.8942				2.8478	
EQUITABILITY (e)			0.2354				0.2890				0.3138	

^aRelative abundance as percentage of total periphyton.

APPENDIX TABLE D-5

PERIPHYTON COMPOSITION AND ABUNDANCE (individuals x 10³/10 cm²)
LITTLE SALUDA CREEK STATION 6 (NATURAL SUBSTRATES)
MARBLE HILL PLANT
21 MARCH 1977

Taxon	Replicate			RA ^a
	A	B	\bar{x}	

No data were collected at Station 6
on this date due to lack of suitable
substrate.

APPENDIX TABLE D-6

PERIPHYTON COMPOSITION AND ABUNDANCE (individuals x 10³/10 cm²)
 LITTLE SALUDA CREEK STATION 6 (NATURAL SUBSTRATES)
 MARBLE HILL PLANT
 26 MAY 1977

Taxon	Replicate			RA ^a
	A	B	\bar{x}	
BACILLARIOPHYTA				
Pennales				
<i>Achnanthes minutissima</i>	3438.94	5223.82	4331.38	53.32
<i>Comphonema angustatum</i>	150.01	207.66	178.84	2.20
<i>G. angustatum</i> v. <i>citera</i>	288.26	397.30	342.78	4.22
<i>G. gracile</i>	0.00	18.01	9.01	0.11
<i>G. olivaceum</i>	11.88	18.01	14.95	0.18
<i>G. parvulum</i>	43.45	0.00	21.73	0.27
<i>Navicula miniscula</i>	0.00	41.54	20.77	0.26
TOTAL BACILLARIOPHYTA	3932.54	5906.34	4919.46	60.56
CHLOROPHYTA				
<i>Stigeoclonium</i> sp.	66.29	198.18	132.24	1.63
TOTAL CHLOROPHYTA	66.29	198.18	132.24	1.63
CYANOPHYTA				
<i>Lyngbya diquetii</i>	1498.70	4151.94	2825.32	34.78
<i>Oscillatoria</i> sp. 1	50.68	443.09	246.89	3.04
TOTAL CYANOPHYTA	1549.38	4595.03	3072.21	37.82
TOTAL PERIPHYTON	5548.21	10699.55	8123.91	+2996.43
TOTAL SPECIES (s)			10	
DIVERSITY INDEX (\bar{d})			1.6500	
EQUITABILITY (e)			0.40	

^aRelative abundance as percentage of total periphyton.

APPENDIX TABLE D-7

PERIPHYTON COMPOSITION AND ABUNDANCE (individuals x 10³/10 cm²)
 LITTLE SALUDA CREEK STATION 6 (NATURAL SUBSTRATES)
 MARBLE HILL PLANT
 18 AUGUST 1977

Taxon	Replicate			RA ^a
	A	B	\bar{x}	
BACILLARIOPHYTA				
Centrales				
<i>Melosira distans</i>	6.21	0.00	3.11	0.17
Pennales				
<i>Achnanthes minutissima</i>	1043.04	731.28	887.16	49.92
<i>Amphora ovalis</i> v. <i>pediculus</i>	20.16	13.88	17.02	0.96
<i>Cocconeis pediculus</i>	6.21	33.93	20.07	1.13
<i>C. placentula</i> v. <i>euglypta</i>	34.11	40.11	37.11	2.09
<i>Cymatopleura elliptica</i>	0.00	6.18	3.09	0.17
<i>Cymbella tumida</i>	20.16	13.88	17.02	0.96
<i>Gomphonema olivaceum</i>	20.16	33.93	27.05	1.52
<i>G. parvulum</i>	61.99	274.63	168.31	9.47
<i>G. tenellum</i>	125.54	87.94	106.74	6.01
<i>Gyrosigma obtusatum</i>	0.00	13.88	6.94	0.39
<i>Navicula cryptocephala</i>	20.16	0.00	10.08	0.57
<i>N. cryptocephala</i> v. <i>veneta</i>	6.21	0.00	3.11	0.17
<i>N. minima</i>	34.11	20.05	27.08	1.52
<i>N. secreta</i> v. <i>apiculata</i>	0.00	6.18	3.09	0.17
<i>N. viridula</i> v. <i>avenacea</i>	13.98	13.88	13.93	0.78
<i>Nitzschia amphibia</i>	89.89	87.94	88.92	5.00
<i>N. communis</i> v. <i>abbreviata</i>	6.21	0.00	3.11	0.17
<i>N. filiformis</i>	0.00	6.18	3.09	0.17
<i>N. palea</i>	6.21	46.29	26.25	1.48
<i>Rhoicosphenia curvata</i>	20.16	114.18	67.17	3.78
<i>Surirella linearis</i>	6.21	0.00	3.11	0.17
TOTAL BACILLARIOPHYTA	1540.72	1544.34	1542.56	86.77
CHLOROPHYTA				
<i>Oedogonium</i> sp.	12.71	21.54	17.13	0.96
unidentified coccoid sp.	162.40	88.26	125.33	7.05
TOTAL CHLOROPHYTA	175.11	109.80	142.46	8.01

^aRelative abundance as percentage of total periphyton.

APPENDIX TABLE D-7
 (continued)
 PERIPHYTON COMPOSITION AND ABUNDANCE (individuals x 10³/10 cm²)
 LITTLE SALUDA CREEK STATION 6 (NATURAL SUBSTRATES)
 MARBLE HILL PLANT
 18 AUGUST 1977

Taxon	Replicate			RA ^a
	A	B	\bar{x}	
CYANOPHYTA				
<i>Lunghya</i> sp.1	23.30	17.65	20.48	1.15
<i>Oscillatoria</i> sp.1	64.61	71.67	68.14	3.83
TOTAL CYANOPHYTA	87.91	89.32	88.62	4.98
EUGLENOPHYTA				
<i>Trachelomonas</i> sp.	3.53	3.53	3.53	0.20
TOTAL EUGLENOPHYTA	3.53	3.53	3.53	0.20
TOTAL PERIPHYTON	1807.27	1746.99	1777.17±56.87	
TOTAL SPECIES (s)			27	
DIVERSITY INDEX (\bar{d})			2.8998	
EQUITABILITY (e)			0.3870	

^aRelative abundance as percentage of total periphyton.

APPENDIX TABLE D-8

PERIPHYTON COMPOSITION AND ABUNDANCE (Individuals x 10³/10 cm²)
 LITTLE SALUDA CREEK STATION 6 (NATURAL SUBSTRATES)
 MARBLE HILL PLANT
 10 NOVEMBER 1977

Taxon	Replicate			RA ^a
	A	B	\bar{x}	
BACILLARIOPHYTA				
Pennales				
<i>Achnanthes lanceolata</i>	0.00	44.61	22.31	0.14
<i>A. minutissima</i>	7427.48	8668.57	8048.03	50.35
<i>Cocconeis pediculus</i>	0.00	44.61	22.31	0.14
<i>Cymbella tumida</i>	0.00	89.03	44.52	0.28
<i>Gomphonema angustatum</i>	39.34	44.61	41.98	0.26
<i>G. intricatum</i>	78.49	0.00	39.25	0.25
<i>G. parvulum</i>	373.23	378.88	376.06	2.35
<i>G. tenellum</i>	1316.56	1192.34	1254.45	7.85
<i>Navicula cryptocephala</i>	0.00	44.61	22.31	0.14
<i>Nitzschia palea</i>	39.34	89.03	64.19	0.40
<i>Rhoicosphenia curvata</i>	520.79	557.12	538.96	3.37
<i>Surirella ovata</i>	39.34	0.00	19.67	0.12
TOTAL BACILLARIOPHYTA	9834.57	11153.41	10494.04	65.67
CHLOROPHYTA				
unidentified coccoid sp. (6-7 μ diam.)	244.68	207.04	225.86	1.41
TOTAL CHLOROPHYTA	244.68	207.04	225.86	1.41
CYANOPHYTA				
<i>Lyngbya diguetii</i>	4665.82	4810.75	4738.29	29.64
<i>Oscillatoria</i> sp. 1	489.36	355.73	422.55	2.64
unidentified coccoids sp. 1	75.29	37.64	56.47	0.35
TOTAL CYANOPHYTA	5230.47	5204.12	5217.31	32.64
EUGLENOPHYTA				
<i>Trachelomonas</i> sp.				
TOTAL EUGLENOPHYTA	18.82	75.29	47.06	0.29
TOTAL PERIPHYTON	15328.54	16639.86	15984.27	± 786.46
TOTAL SPECIES (s)			17	
DIVERSITY INDEX (\bar{d})			2.0287	
EQUITABILITY (e)			0.3171	

^aRelative abundance as percentage of total periphyton.

APPENDIX TABLE D-9

PERIPHYTON BIOMASS (mg/10 cm²)
 MARBLE HILL PLANT
 21 MARCH 1977

Replicate	Station			
	1	3	5	6

Periphyton growth on artificial substrates collected on this date (Stations 1, 3, and 5) was extremely sparse, resulting in less than detectable biomass. Suitable natural substrates were not obtained at Station 6.

APPENDIX TABLE D-10

PERIPHYTON BIOMASS (mg/10 cm²)
 MARBLE HILL PLANT
 26 MAY 1977

Replicate	Station			
	1	3	5	6 ^a
C	2.5	2.1	2.3	1.8
D	2.7	3.0	1.9	4.2
E	2.0	2.5	1.6	
Mean (±std. dev.)	2.4±0.4	2.5±0.5	1.9±0.4	3.0±1.7

^aTwo Station 6 replicates were scraped from rocks in a partially shaded environment.

APPENDIX TABLE D-11

PERIPHYTON BIOMASS (mg/10 cm²)
 MARBLE HILL PLANT
 18 AUGUST 1977

Replicate	Station			
	1	3	5	6 ^a
C	0.6	2.4	2.6	3.2
D	0.5	2.0	1.3	3.7
E	1.2	2.5	2.8	2.5
Mean (±std. dev.)	0.8±0.4	2.3±0.3	2.2±0.8	3.1±0.6

^aAll Station 6 replicates were scraped from 100-cm² quarry tiles in a partially shaded environment.

APPENDIX TABLE D-12

PERIPHYTON BIOMASS (mg/10 cm²)
 MARBLE HILL PLANT
 9 NOVEMBER 1977

Replicate	Station			
	1	3	5	6 ^a
C	1.4	3.3	5.0	35.9
D	1.8	4.2	4.5	38.3
E	1.4	4.3	5.2	9.3
Mean (±std. dev.)	1.5±0.2	3.9±0.6	4.9±0.4	27.8±16.1

^aAll Station 6 replicates were scraped from rocks in a partially shaded environment. Replicates C and D were scraped from one large rock, and replicate E was scraped from a separate rock taken from the same area. The weighted mean = $\bar{x}_{C+D} + E = 23.2 \text{ mg/10 cm}^2$.

A P P E N D I X E

BENTHOS AND MACROINVERTEBRATES

APPENDIX TABLE E-1

BENTHOS COMPOSITION, ABUNDANCE, AND BIOMASS
STATION 1, MARBLE HILL PLANT
MARCH 1977

Species	Number of individuals (biomass in grams)					
	Shallow Water			Deep Water		
	Replicate A	Replicate B	\bar{x}	Replicate A	Replicate B	\bar{x}
Mollusca						
Gastropoda						
<i>Gundlachia</i> sp.	No samples taken in shallow water			-	1 (<0.001)	0.5 (<0.001)
Total Individuals				0	1 (<0.001)	0.5 (<0.001)
Total Biomass (g)				0		
Density (No./m ²)						10
Biomass (g/m ²)						<0.004
Index of Diversity						0.00
Equitability						1.00

APPENDIX TABLE E-2

BENTHOS COMPOSITION, ABUNDANCE, AND BIOMASS
STATION 3, MARBLE HILL PLANT
MARCH 1977

Species	Number of individuals (biomass in grams)					
	Shallow Water			Deep Water		
	Replicate A	Replicate B	\bar{x}	Replicate A	Replicate B	\bar{x}
ANNELIDA						
Oligochaeta						
<i>Branchiura sowerbyi</i>	No samples taken in shallow water			1 (0.001)	1 (0.001)	1.0 (0.001)
<i>Limnodrilus hoffmeisteri</i>				2 (0.001)	-	1.0 (<0.001)
immature tubificids				2 (0.001)	2 (0.001)	2.0 (0.001)
ARTHROPODA						
Crustacea						
<i>Gammarus pseudolimnaeus</i>				-	1 (0.001)	0.5 (0.001)
Total Individuals				5	4	4.5
Total Biomass (g)				0.003	0.003	0.003
Density (No./m ²)						86
Biomass (g/m ²)						0.057
Index of Diversity						1.84
Equitability						1.16

APPENDIX TABLE E-3

BENTHOS COMPOSITION, ABUNDANCE, AND BIOMASS
STATION 5, MARBLE HILL PLANT
MARCH 1977

Species	Number of individuals (biomass in grams)					
	Shallow Water			Deep Water		
	Replicate A	Replicate B	\bar{x}	Replicate A	Replicate B	\bar{x}
ANNELIDA						
Oligochaeta						
<i>Branchiura sowerbyi</i>	No samples taken in shallow water			7 (0.010)	6 (0.009)	6.5 (0.009)
<i>Limnodrilus hoffmeisteri</i>				36 (0.040)	21 (0.019)	28.5 (0.030)
ARTHROPODA						
Crustacea						
<i>Gammarus pseudolimnaeus</i>				6 (0.005)	-	3.0 (0.003)
Total Individuals				49	27	38.0
Total Biomass (g)				0.055	0.028	0.042
Density (No./m ²)						727
Biomass (g/m ²)						0.803
Index of Diversity						1.04
Equitability						0.82

APPENDIX TABLE E- 4

BENTHOS COMPOSITION, ABUNDANCE, AND BIOMASS
STATION 1, MARBLE HILL PLANT
MAY 1977

Species	Number of individuals (biomass in grams)					
	Shallow Water			Deep Water		
	Replicate A	Replicate B	\bar{x}	Replicate A	Replicate B	\bar{x}
ANNELIDA						
Oligochaeta						
<i>Limnodrilus hoffmeisteri</i>	4 (0.011)	2 (0.002)	1.5 (0.007)	23 (0.013)	36 (0.009)	18.5 (0.011)
immature tubificids	-	3 (0.001)	3.0 (<0.001)	16 (0.005)	21 (0.005)	29.5 (0.005)
ARTHROPODA						
Crustacea						
<i>Gammarus pseudolimnaeus</i>	-	1 (0.003)	0.5 (0.001)	7 (0.007)	5 (0.002)	6.0 (0.005)
Insecta						
Diptera						
<i>Cryptochironemus fulvus</i>	1 (<0.001)	-	0.5 (<0.001)	4 (0.001)	8 (0.001)	6.0 (0.001)
<i>Dicrotendipes modestus</i>	3 (<0.001)	1 (<0.001)	2.0 (<0.001)	-	-	-
<i>Polypedilum halterale</i>	3 (<0.001)	-	1.5 (<0.001)	-	-	-
<i>Procladius</i> sp.	1 (<0.001)	-	0.5 (<0.001)	-	-	-
Total Individuals	12	7	9.5	50	70	60
Total Biomass (g)	0.012	0.006	0.009	0.026	0.017	0.022
Density (No./m ²)			182			1147
Biomass (g/m ²)			0.172			0.421
Index of Diversity			2.51			1.69
Equitability			1.11			1.03

APPENDIX TABLE E-5

BENTHOS COMPOSITION, ABUNDANCE, AND BIOMASS
STATION 3, MARBLE HILL PLANT
MAY 1977

Species	Number of individuals (biomass in grams)					
	Shallow Water			Deep Water		
	Replicate A	Replicate B	\bar{x}	Replicate A	Replicate B	\bar{x}
PLATYHELMINTHES						
Turbellaria						
<i>Phagocata velata</i>	-	1 (0.001)	0.5 (<0.001)	-	-	-
ANNELIDA						
Oligochaeta						
<i>Limnodrilus hoffmeisteri</i>	27 (0.021)	67 (0.035)	47.0 (0.028)	19 (0.008)	17 (0.008)	18.0 (0.008)
immature tubificids	47 (0.017)	109 (0.024)	78.0 (0.020)	32 (0.006)	30 (0.005)	31.0 (0.006)
Hirudinea						
<i>Pisicola</i> sp.	-	1 (0.001)	0.5 (<0.001)	-	-	-
<i>Erpobdella punctata</i>	-	5 (0.006)	2.5 (0.003)	-	-	-
ARTHROPODA						
Crustacea						
<i>Gammarus pseudolimnaeus</i>	13 (0.002)	11 (0.005)	12.0 (0.004)	-	18 (0.011)	9.0 (0.005)
Insecta						
<i>Cryptochironomus fulvus</i>	3 (<0.001)	6 (0.001)	4.5 (<0.001)	-	-	-
<i>Probezzia</i> sp.	-	1 (<0.001)	0.5 (<0.001)	-	-	-
Total Individuals	90	201	145.5	51	65	58
Total Biomass (g)	0.040	0.073	0.057	0.014	0.024	0.019
Density (No./m ²)			2782			1109
Biomass (g/m ²)			1.090			0.363
Index of Diversity			1.65			1.47
Equitability			0.50			1.16

APPENDIX TABLE E-6

BENTHOS COMPOSITION, ABUNDANCE, AND BIOMASS
STATION 5, MARBLE HILL PLANT
MAY 1977

Species	Number of individuals (biomass in grams)					
	Shallow Water			Deep Water		
	Replicate A	Replicate B	\bar{x}	Replicate A	Replicate B	\bar{x}
ANNELIDA						
Oligochaeta						
<i>Branchiura sowerbyi</i>	-	1 (0.001)	0.5 (<0.001)	-	-	-
<i>Limnodrilus hoffmeisteri</i>	19 (0.008)	17 (0.006)	18.0 (0.007)	13 (0.002)	39 (0.013)	26.0 (0.007)
immature tubificids	23 (0.004)	17 (0.004)	20.0 (0.004)	16 (0.003)	52 (0.020)	34.0 (0.012)
MOLLUSCA						
Pelecypoda						
<i>Sphaerium transversum</i>	-	2 (0.002)	1.0 (0.001)	-	-	-
ARTHROPODA						
Crustacea						
<i>Lirceus fontinalis</i>	-	-	-	-	8 (0.002)	4.0 (0.001)
<i>Gammarus pseudolimnaeus</i>	-	4 (0.001)	2.0 (<0.001)	15 (0.013)	20 (0.004)	17.5 (0.009)
Insecta						
Diptera						
<i>Cryptochironomus fulvus</i>	-	-	-	-	7 (0.001)	3.5 (0.001)
<i>Dicrotendipes modestus</i>	-	1 (<0.001)	0.5 (<0.001)	-	-	-
<i>Procladius</i> sp.	-	1 (<0.001)	0.5 (<0.001)	-	-	-
Ephemeroptera						
<i>Hexagenia limbata</i>	1 (0.002)	1 (0.002)	1.0 (0.002)	-	-	-
<i>Tricorythodes</i> sp.	-	-	-	-	1 (0.002)	0.5 (0.001)
Total Individuals	43	44	43.5	44	127	85.5
Total Biomass (g)	0.014	0.016	0.015	0.018	0.042	0.030
Density (No./m ²)			832			1635
Biomass (g/m ²)			0.287			0.574
Index of Diversity			1.72			1.96
Equitability			0.53			0.85

APPENDIX TABLE E-7

BENTHOS COMPOSITION, ABUNDANCE, AND BIOMASS
STATION 1, MARBLE HILL PLANT
AUGUST 1977

Species	Number of individuals (biomass in grams)					
	Shallow Water			Deep Water		
	Replicate A	Replicate B	\bar{x}	Replicate A	Replicate B	\bar{x}
PLATYHELMINTHES						
Turbellaria						
<i>Phagocata velata</i>	-	-	-	3 (0.002)	5 (0.002)	4.0 (0.002)
ANNELIDA						
Oligochaeta						
<i>Branchiura sowerbyi</i>	3 (0.015)	-	1.5 (0.007)	-	-	-
<i>Limnodrilus hoffmeisteri</i>	1 (0.002)	4 (0.006)	2.5 (0.004)	12 (0.006)	2 (0.052)	7.0 (0.004)
immature tubificids	6 (0.004)	30 (0.027)	18.0 (0.016)	33 (0.016)	11 (0.004)	22.0 (0.010)
MOLLUSCA						
Gastropoda						
<i>Somatogyrus</i> sp.	1 (0.002)	-	0.5 (0.001)	4 (0.005)	13 (0.004)	8.5 (0.005)
Pelecypoda						
<i>Corbicula manilensis</i>	1 (0.002)	-	0.5 (0.001)	1 (0.002)	2 (0.002)	1.5 (0.002)
<i>Sphaerium transversum</i>	2 (0.004)	2 (0.004)	2.0 (0.004)	-	1 (0.001)	0.5 (0.001)
ARTHROPODA						
Crustacea						
<i>Gammarus pseudolimnaeus</i>	1 (0.001)	-	0.5 (<0.001)	-	-	-
Insecta						
Diptera						
<i>Ablabesmya rhamphe</i>	-	1 (<0.001)	0.5 (<0.001)	-	-	-
<i>Cricotopus</i> sp.	1 (<0.001)	-	0.5 (<0.001)	-	-	-
<i>Dicrotendipes modestus</i>	1 (<0.001)	-	0.5 (<0.001)	-	1 (<0.001)	0.5 (<0.001)
<i>Micropsectra</i> sp.	2 (<0.001)	1 (<0.001)	1.5 (<0.001)	1 (0.001)	1 (<0.001)	1.0 (<0.001)
<i>Phaenopsectra</i> sp.	3 (<0.001)	2 (<0.001)	2.5 (<0.001)	-	-	-
<i>Polypedilum halterale</i>	7 (0.001)	7 (0.001)	7.0 (0.001)	2 (<0.001)	1 (<0.001)	1.5 (<0.001)
<i>Procladius</i> sp.	12 (0.002)	6 (0.001)	9.0 (0.001)	3 (<0.001)	3 (<0.001)	3.0 (<0.001)

APPENDIX TABLE E-7
(continued)
BENTHOS COMPOSITION, ABUNDANCE, AND BIOMASS
STATION 1, MARBLE HILL PLANT
AUGUST 1977

Species	Number of individuals (biomass in grams)					
	Shallow Water			Deep Water		
	Replicate A	Replicate B	\bar{x}	Replicate A	Replicate B	\bar{x}
ARTHROPODA (continued)						
Trichoptera						
<i>Hydroptila waubesiana</i>	-	-	-	1 (0.001)	1 (<0.001)	1.0 (<0.001)
<i>Neophylax (ayanus?)</i>	-	-	-	1 (0.001)	1 (<0.001)	1.0 (<0.001)
Plecoptera						
<i>Isoperla clio</i>	1 (0.002)	-	-	-	-	-
Total Individuals	42	53	47.5	61	42	51.5
Total Biomass (g)	0.036	0.040	0.038	0.032	0.015	0.024
Density (No./m ²)			908			985
Biomass (g/m ²)			0.727			0.459
Index of Diversity			2.83			2.63
Equitability			0.65			0.71

APPENDIX TABLE E-8

BENTHOS COMPOSITION, ABUNDANCE, AND BIOMASS
STATION 3, MARBLE HILL PLANT
AUGUST 1977

Species	Number of individuals (biomass in grams)					
	Shallow Water			Deep Water		
	Replicate A	Replicate B	\bar{x}	Replicate A	Replicate B	\bar{x}
PLATYHELMINTHES						
Turbellaria						
<i>Phagocata velata</i>	5 (<0.001)	1 (<0.001)	3.0 (<0.001)	-	-	-
ANNELIDA						
Oligochaeta						
<i>Limnodrilus hoffmeisteri</i>	7 (0.006)	15 (0.011)	11.0 (0.009)	11 (0.008)	4 (0.002)	7.5 (0.005)
<i>L. maumeensis</i>	-	5 (0.002)	2.5 (0.001)	-	-	-
immature tubificids	23 (0.012)	27 (0.016)	25.0 (0.014)	58 (0.011)	37 (0.010)	47.5 (0.010)
MOLLUSCA						
Gastropoda						
<i>Somatogyrus</i> sp.	11 (0.009)	-	5.5 (0.004)	-	5 (0.002)	2.5 (0.001)
Pelecypoda						
<i>Corbicula manilensis</i>	-	-	-	1 (<0.001)	2 (<0.001)	1.5 (<0.001)
<i>Sphaerium transversum</i>	1 (0.002)	-	0.5 (0.001)	1 (<0.001)	-	0.5 (<0.001)
ARTHROPODA						
Crustacea						
<i>Gammarus pseudolimnaeus</i>	-	-	-	1 (<0.001)	-	0.5 (<0.001)
<i>Orconectes sloanii</i>	-	-	-	1 (0.341)	-	0.5 (0.171)
Insecta						
Diptera						
<i>Cardiocladius</i> sp.	-	-	-	1 (<0.001)	-	0.5 (<0.001)
<i>Coelotanypus</i> sp.	1 (<0.001)	-	0.5 (<0.001)	-	2 (<0.001)	1.0 (<0.001)
<i>Dicrotendipes modestus</i>	-	1 (<0.001)	0.5 (<0.001)	-	-	-
<i>Eukiefferiella</i> sp.	-	2 (<0.001)	1 (<0.001)	-	-	-
<i>Micropsectra</i> sp.	-	-	-	1 (<0.001)	-	0.5 (<0.001)
<i>Phaenopsectra</i> sp.	1 (<0.001)	-	0.5 (<0.001)	-	-	-
<i>Polypedilum halterale</i>	1 (<0.001)	1 (<0.001)	1.0 (<0.001)	-	1 (<0.001)	0.5 (<0.001)
<i>Procladius</i> sp.	7 (<0.001)	-	3.5 (<0.001)	6 (<0.001)	7 (<0.001)	6.5 (<0.001)

APPENDIX TABLE E-8
 (continued)
 BENTHOS COMPOSITION, ABUNDANCE, AND BIOMASS
 STATION 3, MARBLE HILL PLANT
 AUGUST 1977

Species	Number of individuals (biomass in grams)					
	Shallow Water			Deep Water		
	Replicate A	Replicate B	\bar{x}	Replicate A	Replicate B	\bar{x}
ARTHROPODA (continued)						
Trichoptera						
<i>Hydroptila waubesiana</i>	1 (<0.001)	-	0.5 (<0.001)	-	-	-
Ephemeroptera						
<i>Stenonema interpunctatum</i>	1 (<0.001)	-	0.5 (<0.001)	2 (0.001)	-	1.0 (<0.001)
Total Individuals	59	52	55.5	83	58	70.5
Total Biomass (g)	0.031	0.030	0.031	0.363	0.014	0.189
Density (No./m ²)			1061			1348
Biomass (g/m ²)			0.593			3.614
Index of Diversity			2.57			1.81
Equitability			0.58			0.34

APPENDIX TABLE E-9

BENTHOS COMPOSITION, ABUNDANCE, AND BIOMASS
STATION 5, MARBLE HILL PLANT
AUGUST 1977

Species	Number of individuals (biomass in grams)					
	Shallow Water			Deep Water		
	Replicate A	Replicate B	\bar{x}	Replicate A	Replicate B	\bar{x}
PLATYHELMINTHES						
Turbellaria						
<i>Phagocata velata</i>	-	-	-	1 (<0.001)	-	0.5 (<0.001)
ANNELIDA						
Oligochaeta						
<i>Limnodrilus hoffmeisteri</i>	10 (0.008)	7 (0.004)	8.5 (0.006)	-	-	-
immature tubificids	147 (0.075)	74 (0.011)	110.5 (0.043)	1 (<0.001)	-	0.5 (<0.001)
MOLLUSCA						
Gastropoda						
<i>Somatogyrus</i> sp.	-	1 (0.001)	0.5 (<0.001)	4 (0.003)	-	2.0 (0.002)
Pelecypoda						
<i>Amblema costata</i>	-	1 (0.221)	0.5 (0.111)	1 (0.001)	-	0.5 (<0.001)
ARTHROPODA						
Crustacea						
<i>Gammarus pseudolimnaeus</i>	-	1 (<0.001)	0.5 (<0.001)	-	-	-
<i>Orconectes sloanii</i>	-	-	-	-	1 (0.097)	0.5 (0.049)
Insecta						
Diptera						
<i>Ablabesmyia rhamphe</i>	1 (<0.001)	2 (<0.001)	1.5 (<0.001)	-	-	-
<i>Chaoborus punctipennis</i>	2 (<0.001)	-	1.0 (<0.001)	-	-	-
<i>Phaenopsectra</i> sp.	2 (<0.001)	4 (<0.001)	3.0 (<0.001)	-	-	-
<i>Polypedilum halterale</i>	-	6 (<0.001)	3.0 (<0.001)	-	-	-
<i>Procladius</i> sp.	5 (<0.001)	10 (0.001)	7.5 (<0.001)	-	1 (<0.001)	0.5 (<0.001)
Trichoptera						
<i>Hydroptila waubesiana</i>	-	-	-	2 (<0.001)	-	1.0 (<0.001)
Ephemeroptera						
<i>Hexagenia limbata</i>	-	1 (0.001)	0.5 (<0.001)	-	-	-
<i>Stenonema interpunctatum</i>	-	-	-	1 (<0.001)	3 (<0.001)	2.0 (<0.001)

APPENDIX TABLE E-9
 (continued)
 BENTHOS COMPOSITION, ABUNDANCE, AND BIOMASS
 STATION 5, MARBLE HILL PLANT
 AUGUST 1977

Species	Number of individuals (biomass in grams)					
	Shallow Water			Deep Water		
	Replicate A	Replicate B	\bar{x}	Replicate A	Replicate B	\bar{x}
Total Individuals	168	107	87.5	16	6	11.0
Total Biomass (g)	0.084	0.240	0.162	0.005	0.098	0.052
Density (No./m ²)			1673			210
Biomass (g/m ²)			3.098			0.994
Index of Diversity			1.23			2.11
Equitability			0.26			0.80

APPENDIX TABLE E-10

BENTHOS COMPOSITION, ABUNDANCE, AND BIOMASS
STATION 1, MARBLE HILL PLANT
NOVEMBER 1977

Species	Number of individuals (biomass in grams)					
	Shallow Water			Deep Water		
	Replicate A	Replicate B	\bar{x}	Replicate A	Replicate B	\bar{x}
ANNELIDA						
Oligochaeta						
<i>Limnodrilus hoffmeisteri</i> - immature tubificids	5 (0.001)	2 (<0.001) 9 (0.001)	1.0 (<0.001) 7.0 (0.001)	- 37 (0.012)	- 5 (0.001)	- 21.0 (0.007)
MOLLUSCA						
Gastropoda						
<i>Pleurocera acutum</i>	2 (0.312)	-	1.0 (0.156)	-	-	-
<i>Somatogyrus</i> sp.	-	-	-	-	2 (0.021)	1.0 (0.010)
Pelecypoda						
<i>Corbicula manilensis</i>	7 (0.003)	3 (0.001)	5.0 (0.002)	6 (0.052)	3 (0.037)	4.5 (0.045)
ARTHROPODA						
Crustacea						
<i>Gammarus pseudolimnaeus</i>	-	-	-	1 (<0.001)	1 (<0.001)	1.0 (<0.001)
Insecta						
Diptera						
<i>Chaoborus punctipennis</i>	-	-	-	1 (<0.001)	-	0.5 (<0.001)
<i>Cricotopus</i> sp.	-	1 (<0.001)	0.5 (<0.001)	-	-	-
<i>Dicrotendipes modestus</i>	-	1 (<0.001)	0.5 (<0.001)	-	-	-
<i>Eukiefferiella</i> sp.	-	-	-	3 (<0.001)	1 (<0.001)	2.0 (<0.001)
<i>Phaenopsectia</i> sp.	-	1 (<0.001)	0.5 (<0.001)	-	-	-
<i>Polypedilum halterale</i>	-	2 (<0.001)	1.0 (<0.001)	1 (<0.001)	-	0.5 (<0.001)
<i>Procladius</i> sp.	-	-	-	13 (0.002)	-	6.5 (0.001)
<i>Xenochironomus</i> sp.	1 (<0.001)	2 (<0.001)	1.5 (<0.001)	-	-	-
Trichoptera						
<i>Agraylea</i> sp.	-	1 (0.004)	0.5 (0.002)	-	-	-
<i>Cheumatopsyche</i> sp.	1 (0.005)	-	0.5 (0.003)	-	1 (0.001)	0.5 (<0.001)

APPENDIX TABLE E-10
 (continued)
 BENTHOS COMPOSITION, ABUNDANCE, AND BIOMASS
 STATION 1, MARBLE HILL PLANT
 NOVEMBER 1977

Species	Number of individuals (biomass in grams)					
	Shallow Water			Deep Water		
	Replicate A	Replicate B	\bar{x}	Replicate A	Replicate B	\bar{x}
Total Individuals	16	22	19.0	62	13	37.5
Total Biomass (g)	0.321	0.008	0.0171	0.065	0.060	0.063
Density (No./m ²)			363			716
Biomass (g/m ²)			0.315			1.203
Index of Diversity			2.69			2.03
Equitability			0.81			0.60

APPENDIX TABLE E-11

BENTHOS COMPOSITION, ABUNDANCE, AND BIOMASS
STATION 3, MARBLE HILL PLANT
NOVEMBER 1977

Species	Number of individuals (biomass in grams)					
	Shallow Water			Deep Water		
	Replicate A	Replicate B	\bar{x}	Replicate A	Replicate B	\bar{x}
ANNELIDA						
Oligochaeta						
immature tubificids	37 (0.005)	18 (0.004)	27.5 (0.005)	2 (<0.001)	25 (0.002)	13.5 (0.001)
MOLLUSCA						
Pelecypoda						
<i>Corbicula manilensis</i>	2 (0.011)	3 (0.007)	2.5 (0.009)	4 (0.002)	2 (0.003)	3.0 (0.003)
<i>Sphaerium transversum</i>	1 (0.003)	-	0.5 (0.001)	-	-	-
ARTHROPODA						
Crustacea						
<i>Gammarus pseudolimnaeus</i>	1 (<0.001)	-	0.5 (<0.001)	-	-	-
Insecta						
Diptera						
<i>Cricotopus</i> sp.	-	-	-	-	1 (<0.001)	0.5 (<0.001)
<i>Eukiefferiella</i> sp.	-	1 (<0.001)	0.5 (<0.001)	1 (<0.001)	-	0.5 (<0.001)
<i>Polypedilum halterale</i>	1 (<0.001)	2 (<0.001)	1.5 (<0.001)	-	-	-
<i>Procladius</i> sp.	2 (<0.001)	1 (<0.001)	1.5 (<0.001)	2 (<0.001)	14 (0.001)	8.0 (<0.001)
Trichoptera						
<i>Cheumatopsyche</i> sp.	-	-	-	7 (0.003)	-	3.5 (0.002)
Ephemeroptera						
<i>Hexagenia limbata</i>	1 (0.002)	-	0.5 (0.001)	-	-	-
Total Individuals	45	25	35.0	16	42	29.0
Total Biomass (g)	0.020	0.011	0.016	0.005	0.006	0.006
Density (No./m ²)			669			554
Biomass (g/m ²)			0.306			0.115
Index of Diversity			1.29			1.93
Equitability			0.37			0.83

APPENDIX TABLE E-12

BENTHOS COMPOSITION, ABUNDANCE, AND BIOMASS
STATION 5, MARBLE HILL PLANT
NOVEMBER 1977

Species	Number of individuals (biomass in grams)					
	Shallow Water			Deep Water		
	Replicate A	Replicate B	\bar{x}	Replicate A	Replicate B	\bar{x}
ANNELIDA						
Oligochaeta						
immature tubificids	45 (0.017)	83 (0.030)	74.0 (0.023)	45 (0.004)	4 (0.004)	24.5 (0.004)
<i>Branchiua sowerbyi</i>	3 (0.004)	1 (0.001)	4.0 (0.003)	-	-	-
<i>Limnodrilus hoffmeisteri</i>	-	-	-	-	3 (0.001)	1.5 (<0.001)
MOLLUSCA						
Gastropoda						
<i>Somatogyrus</i> sp.	-	-	-	-	1 (0.002)	0.5 (0.001)
Pelecypoda						
<i>Corbicula manilensis</i>	3 (0.009)	4 (0.017)	3.5 (0.013)	7 (0.012)	3 (0.011)	5.0 (0.012)
<i>Sphaerium transversum</i>	2 (0.005)	1 (0.002)	1.5 (0.004)	-	-	-
ARTHROPODA						
Arachnida						
<i>Limnochara</i> sp.	-	1 (<0.001)	0.5 (<0.001)	-	-	-
Crustacea						
<i>Gammarus pseudolimnaeus</i>	2 (<0.001)	11 (0.003)	6.5 (0.002)	1 (<0.001)	3 (0.001)	2.0 (<0.012)
Insecta						
Diptera						
<i>Cricotopus</i> sp.	-	2 (<0.001)	1.0 (<0.001)	-	-	-
<i>Dicrotendipes modestus</i>	1 (<0.001)	1 (<0.001)	1.0 (<0.001)	-	-	-
<i>Eukiefferiella</i> sp.	-	-	-	2 (<0.001)	-	1.0 (<0.001)
<i>Polypedilum halterale</i>	3 (<0.001)	-	1.5 (<0.001)	-	-	-
<i>Procladius</i> sp.	4 (<0.001)	4 (<0.001)	4.0 (<0.001)	7 (0.001)	-	3.5 (<0.001)
Trichoptera						
<i>Cheumatopsyche</i> sp.	-	-	-	1 (0.001)	5 (0.007)	3.0 (0.004)
<i>Hydroptila waubesiana</i>	1 (<0.001)	-	0.5 (<0.001)	-	-	-
Ephemeroptera						
<i>Stenonema interpunctatum</i>	-	-	-	1 (<0.001)	14 (0.012)	7.5 (0.006)

APPENDIX TABLE E-12
 (continued)
 BENTHOS COMPOSITION, ABUNDANCE, AND BIOMASS
 STATION 5, MARBLE HILL PLANT
 NOVEMBER 1977

Species	Number of individuals (biomass in grams)					
	Shallow Water			Deep Water		
	Replicate A	Replicate B	\bar{x}	Replicate A	Replicate B	\bar{x}
Total Individuals	64	108	86.0	64	33	48.5
Total Biomass (g)	0.036	0.054	0.045	0.018	0.037	0.028
Density (No./m ²)			1643			926
Biomass (g/m ²)			0.860			0.535
Index of Diversity			1.56			2.30
Equitability			0.34			0.74

APPENDIX TABLE E-13

BENTHOS COMPOSITION, ABUNDANCE, AND BIOMASS
STATION 6, MARBLE HILL PLANT
MARCH 1977

Species	Number of individuals (biomass in grams)					
	Shallow Water			Deep Water		
	Replicate A	Replicate B	\bar{x}	Replicate A	Replicate B	\bar{x}
PLATYHELMINTHES						
Turbellaria						
<i>Phagocata velata</i>	-	-	-	2 (0.001)	4 (0.003)	3.0 (0.002)
ANNELIDA						
Oligochaeta						
<i>Branchiura sowerbyi</i>	-	1 (0.013)	0.5 (0.007)	-	1 (0.012)	0.5 (0.006)
<i>Limnodrilus maumeensis</i>	1 (<0.001)	8 (0.006)	4.5 (0.003)	2 (0.002)	-	1.0 (<0.001)
ARTHROPODA						
Crustacea						
<i>Lirceus fontinalis</i>	8 (0.003)	6 (0.005)	7.0 (0.004)	137 (0.144)	154 (0.170)	145.5 (0.157)
<i>Synurella dentata</i>	1 (<0.001)	1 (<0.001)	1.0 (<0.001)	-	-	-
Insecta						
Diptera						
<i>Cardiocladius</i> sp.	-	-	-	1 (<0.001)	-	0.5 (<0.001)
Ephemeroptera						
<i>Baetis (intercalaris?)</i>	1 (<0.001)	-	0.5 (<0.001)	1 (<0.001)	-	0.5 (<0.001)
<i>Epeorus (namatus?)</i>	-	-	-	1 (0.001)	1 (0.001)	1.0 (0.001)
Plecoptera						
<i>Isoperla clio</i>	-	-	-	1 (<0.001)	1 (<0.001)	1.0 (<0.001)
Total Individuals	11	16	13.5	145	161	153.0
Total Biomass (g)	0.005	0.027	0.016	0.148	0.183	0.166
Density (No./m ²)			258			1646
Biomass (g/m ²)			0.172			1.786
Index of Diversity			1.65			0.40
Equitability			0.80			0.19

APPENDIX TABLE E- 14

BENTHOS COMPOSITION, ABUNDANCE, AND BIOMASS
 STATION 6, MARBLE HILL PLANT
 MAY 1977

Species	Number of individuals (biomass in grams)					
	Pool Habitat			Riffle Habitat		
	Replicate A	Replicate B	\bar{x}	Replicate A	Replicate B	\bar{x}
PLATYHELMINTHES						
Turbellaria						
<i>Phagocata velata</i>	Due to the low water level, pool habitats were indistinguishable from riffle habitats, and no pool samples were taken.			14 (0.052)	-	7.0 (0.026)
ANNELIDA						
Oligochaeta						
<i>Limnodrilus maumeensis</i>				2 (<0.001)	-	1.0 (<0.001)
ARTHROPODA						
Crustacea						
<i>Lirceus fontinalis</i>				478 (0.768)	145 (0.290)	311.5 (0.529)
<i>Synurella dentata</i>				4 (0.002)	1 (<0.001)	2.5 (0.001)
Insecta						
Diptera						
<i>Cardiocladius</i> sp.				4 (<0.001)	-	2.0 (<0.001)
<i>Chaoborus punctipennis</i>				2 (<0.001)	-	1.0 (<0.001)
<i>Polypedilum halterale</i>				2 (<0.001)	-	1.0 (<0.001)
Ephemeroptera						
<i>Baetis</i> sp.				3 (0.001)	-	1.5 (<0.001)
<i>Baetis (intercalaris?)</i>				5 (0.002)	-	2.5 (0.001)
<i>Stenonema interpunctatum</i>				2 (0.001)	13 (0.031)	7.5 (0.016)
<i>S. heterotarsale</i>				-	3 (0.004)	1.5 (0.002)
Trichoptera						
<i>Cheumatopsyche</i> sp.				1 (0.001)	-	0.5 (<0.001)
Plecoptera						
<i>Isoperla clio</i>				1 (<0.001)	-	0.5 (<0.001)

APPENDIX TABLE E-14
 (continued)
 BENTHOS COMPOSITION, ABUNDANCE, AND BIOMASS
 STATION 6, MARBLE HILL PLANT
 MAY 1977

Species	Number of individuals (biomass in grams)					
	Pool Habitat			Riffle Habitat		
	Replicate A	Replicate B	\bar{x}	Replicate A	Replicate B	\bar{x}
Total Individuals				518	162	340.0
Total Biomass (g)				0.828	0.325	0.577
Density (No./m ²)						3658
Biomass (g/m ²)						6.209
Index of Diversity						0.67
Equitability						0.14

APPENDIX TABLE E- 15

BENTHOS COMPOSITION, ABUNDANCE, AND BIOMASS
STATION 6, MARBLE HILL PLANT
MAY 1977

Species	Number of individuals (biomass in grams)					
	Pool Habitat			Riffle Habitat		
	Replicate A	Replicate B	\bar{x}	Replicate A	Replicate B	\bar{x}
PLATYHELMINTHES						
Turbellaria						
<i>Phagocata velata</i>	Due to the low water level, pool habitats were indistinguishable from riffle habitats, and no pool samples were taken.			13 (0.011)	36 (0.034)	24.5 (0.023)
MOLLUSCA						
Gastropoda						
<i>Physa gyrina</i>				15 (0.062)	14 (0.047)	14.5 (0.054)
ARTHROPODA						
Crustacea						
<i>Lirceus fontinalis</i>				141 (0.077)	267 (0.193)	204.0 (0.135)
<i>Synurella dentata</i>				7 (0.004)	4 (0.002)	5.5 (0.003)
Insecta						
Diptera						
<i>Ablabesmyia rhamphe</i>				1 (<0.001)	1 (<0.001)	1.0 (<0.001)
<i>Cardiocladius</i> sp.				3 (<0.001)	4 (<0.001)	3.5 (<0.001)
<i>Dicrotendipes modestus</i>				2 (<0.001)	-	1.0 (<0.001)
<i>Micropsectra</i> sp.				1 (<0.001)	-	0.5 (<0.001)
<i>Procladius</i> sp.				-	2 (<0.001)	1.0 (<0.001)

APPENDIX TABLE E- 15
(continued)
BENTHOS COMPOSITION, ABUNDANCE, AND BIOMASS
STATION 6, MARBLE HILL PLANT
MAY 1977

Species	Number of individuals (biomass in grams)					
	Pool Habitat			Riffle Habitat		
	Replicate A	Replicate B	\bar{x}	Replicate A	Replicate B	\bar{x}
Trichoptera				2 (0.001)	4 (0.002)	3.0 (0.001)
<i>Cheumatopsyche</i> sp.						
Ephemeroptera				3 (0.001)	-	1.5 (<0.001)
<i>Baetis (intercalaris?)</i>						
Coleoptera				33 (0.006)	47 (0.012)	40.0 (0.009)
<i>Psephenus herricki</i>						
Total Individuals				221	379	300.0
Total Biomass (g)				0.163	0.292	0.228
Density (No./m ²)						3228
Biomass (g/m ²)						2.453
Index of Diversity						1.66
Equitability						0.33

APPENDIX TABLE E-16

BENTHOS COMPOSITION, ABUNDANCE, AND BIOMASS
STATION 6, MARBLE HILL PLANT
NOVEMBER 1977

Species	Number of individuals (biomass in grams)					
	Pool Habitat			Riffle Habitat		
	Replicate A	Replicate B	\bar{x}	Replicate A	Replicate B	\bar{x}
PLATYHELMINTHES						
Turbellaria						
<i>Phagocata velata</i>	-	2 (0.005)	1.0 (0.002)	16 (0.023)	17 (0.023)	16.5 (0.023)
ANNELIDA						
Oligochaeta						
immature tubificids	-	2 (<0.001)	1.0 (<0.001)	-	-	-
ARTHROPODA						
Crustacea						
<i>Lirceus fontinalis</i>	35 (0.020)	69 (0.061)	52.0 (0.041)	295 (0.155)	310 (0.159)	302.5 (0.157)
<i>Synurella dentata</i>	-	-	-	2 (0.002)	2 (0.002)	2.0 (0.002)
Insecta						
Diptera						
<i>Dicrotendipes modestus</i>	-	-	-	1 (<0.001)	-	0.5 (<0.001)
<i>Polypedilum halterale</i>	1 (<0.001)	-	0.5 (<0.001)	-	-	-
Trichoptera						
<i>Hydropsyche orris</i>	1 (0.003)	-	0.5 (0.002)	3 (0.005)	-	1.5 (0.003)
<i>Hydroptila waubesiana</i>	-	-	-	1 (0.001)	-	0.5 (<0.001)
Ephemeroptera						
<i>Stenonema heterotarsale</i>	1 (0.004)	-	0.5 (0.002)	-	1 (0.001)	0.5 (<0.001)
Coleoptera						
<i>Hydroporus</i> sp.	-	-	-	-	1 (0.001)	0.5 (<0.001)
<i>Psephenus herricki</i>	1 (0.001)	-	0.5 (<0.001)	-	1 (0.001)	0.5 (<0.001)
Total Individuals	39	73	56.0	318	332	325.0
Total Biomass (g)	0.029	0.066	0.048	0.187	0.187	0.187
Density (No./m ²)			603			3497
Biomass (g/m ²)			0.516			2.012
Index of Diversity			0.53			0.47
Equitability			0.24			0.18

APPENDIX TABLE E-17

MACROINVERTEBRATE COMPOSITION, ABUNDANCE, AND
BIOMASS (ARTIFICIAL SUBSTRATES) AT OHIO RIVER STATIONS
MARBLE HILL PLANT
MARCH 1977

Species	Number of individuals (biomass in grams)								
	Station 1			Station 3			Station 5		
	Replicate A	Replicate B	\bar{x}	Replicate A	Replicate B	\bar{x}	Replicate A	Replicate B	\bar{x}
ARTHROPODA									
Insecta									
Diptera									
Coelotanypus sp.	-	3 (+0.001)	1.5 (+0.001)	-	2 (-0.001)	1.0 (-0.001)	3 (-0.001)	2 (-0.001)	2.5 (-0.001)
Cricotopus sp.	1 (-0.001)	-	0.5 (-0.001)	1 (-0.001)	2 (+0.001)	1.5 (+0.001)	1 (-0.001)	3 (-0.001)	2.5 (-0.001)
Plecoptera									
Isoperla clio	-	-	-	1 (-0.001)	-	0.5 (-0.001)	-	-	-
Total Individuals	1	3	2.0	2	4	3.0	4	5	4.5
Total Biomass (g)	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Density (No./m ²)			12			18			28
Biomass (g/m ²)			ca. 0.001			ca. 0.001			ca. 0.001
Index of Diversity			0.81			1.46			0.99
Equitability			1.00			1.15			1.18

APPENDIX TABLE E-18

MACROINVERTEBRATE COMPOSITION, ABUNDANCE, AND
BIOMASS (ARTIFICIAL SUBSTRATES) AT OHIO RIVER STATIONS
MARBLE HILL PLANT
MAY 1977

Species	Number of individuals (biomass in grams)								
	Station 1			Station 3			Station 5		
	Replicate A	Replicate B	\bar{x}	Replicate A	Replicate B	\bar{x}	Replicate A	Replicate B	\bar{x}
ARTHROPODA									
Crustacea									
<i>Lirceus fontinalis</i>	-	-	-	1 (0.003)	- ^a	-	-	-	-
<i>Gammarus pseudolimnaeus</i>	48 (0.049)	33 (0.046)	40.5 (0.048)	53 (0.088)	-	-	44 (0.046)	65 (0.189)	54.5 (0.118)
Insecta									
Diptera									
<i>Ablabesmyia rhanphe</i>	5 (+0.001)	2 (+0.001)	3.5 (+0.001)	3 (-0.001)	-	-	-	-	-
<i>Cricotopus</i> sp.	7 (0.001)	3 (+0.001)	5.0 (+0.001)	17 (0.004)	-	-	16 (0.002)	19 (0.003)	17.5 (0.002)
<i>Cryptochironomus fulvus</i>	93 (0.014)	47 (0.008)	70.0 (0.011)	80 (0.015)	-	-	89 (0.012)	49 (0.006)	69.0 (0.009)
<i>Dictotendipes modestus</i>	27 (0.004)	23 (0.004)	25.0 (0.004)	38 (0.007)	-	-	27 (0.003)	43 (0.005)	35.0 (0.004)
<i>Polypedilum halterale</i>	-	-	-	6 (0.002)	-	-	9 (0.001)	7 (0.001)	8.0 (0.001)
Ephemeroptera									
<i>Stenonema interpunctatum</i>	5 (0.005)	4 (0.003)	4.5 (0.004)	3 (0.003)	-	-	3 (0.002)	4 (0.002)	3.5 (0.002)
<i>S. heterotarsale</i>	-	-	-	-	-	-	-	2 (0.001)	1.0 (+0.001)
Trichoptera									
<i>Agrayia</i> sp.	-	1 (0.001)	0.5 (+0.001)	-	-	-	-	-	-
<i>Cheumatopsyche</i> sp.	-	1 (0.001)	0.5 (+0.001)	1 (0.003)	-	-	1 (0.001)	2 (0.002)	1.5 (0.002)
<i>Neureclipsis crepuscularis</i>	-	-	-	-	-	-	1 (0.001)	1 (0.001)	1.0 (0.001)
Plecoptera									
<i>Isoperla clio</i>	4 (0.003)	-	2.0 (0.002)	-	-	-	-	-	-
Total Individuals	189	114	151.5	202			190	192	191
Total Biomass (g)	0.075	0.064	0.070	0.126			0.068	0.210	0.139
Density (No./m ²)			573	1242					1175
Biomass (g/m ²)			0.431	0.775					0.855
Index of Diversity			2.03	2.20					2.24
Equitability			0.60	0.68					0.71

^a Of the five samplers placed at this station, only one was recovered.

APPENDIX TABLE E-19
 (continued)
 MACROINVERTEBRATE COMPOSITION, ABUNDANCE, AND
 BIOMASS (ARTIFICIAL SUBSTRATES) AT OHIO RIVER STATIONS
 MARBLE HILL PLANT
 AUGUST 1977

Species	Number of individuals (biomass in grams)								
	Station 1			Station 3			Station 5		
	Replicate A	Replicate B	\bar{x}	Replicate A	Replicate B	\bar{x}	Replicate A	Replicate B	\bar{x}
Total Individuals	234	272	257.5	178	187	182.5	127	104	115.5
Total Biomass (g)	0.243	0.444	0.344	0.308	0.244	0.276	0.091	0.095	0.093
Density (No./m ²)			1584			1122			710
Biomass (g/m ²)			2.116			1.697			0.572
Index of Diversity			2.54			2.80			2.12
Equitability			0.78			0.74			0.51

APPENDIX TABLE E-20

MACROINVERTEBRATE COMPOSITION, ABUNDANCE, AND
BIOMASS (ARTIFICIAL SUBSTRATES) AT OHIO RIVER STATIONS
MARBLE HILL PLANT
NOVEMBER 1977

Species	Station 1		Station 3		Station 5	
	Replicate A	Replicate B	Replicate A	Replicate B	Replicate A	Replicate B
ARTHROPODA						
Crustacea						
<i>Gammarus pseudolimnaeus</i>	11 (0.006)	27 (0.008)	7 (0.003)	3 (0.003)	23 (0.009)	29 (0.008)
Insecta						
Diptera						
<i>Cricotopus</i> sp.	2 (<0.001)	-	1.0 (<0.001)	-	3 (<0.001)	5 (<0.001)
<i>Dicorendipes modestus</i>	13 (0.001)	10 (0.001)	8 (0.001)	3 (<0.001)	-	5.5 (<0.001)
<i>Endochironomus</i> sp.	2 (<0.001)	2 (<0.001)	2.0 (<0.001)	1 (<0.001)	-	0.5 (<0.001)
<i>Microspectra</i> sp.	-	-	-	-	-	-
<i>Polipedium bilobale</i>	6 (0.001)	5 (<0.001)	5.5 (<0.001)	3 (<0.001)	-	1.5 (<0.001)
<i>Procladius</i> sp.	3 (<0.001)	-	1.5 (<0.001)	5 (<0.001)	-	2.5 (<0.001)
<i>Xenochironomus</i> sp.	1 (<0.001)	2 (<0.001)	1.5 (<0.001)	1 (<0.001)	1 (<0.001)	1.0 (<0.001)
Trichoptera						
<i>Agraylea</i> sp.	-	-	-	-	1 (0.001)	2 (<0.001)
<i>Chematopsyche</i>	88 (0.015)	11 (0.003)	49.5 (0.009)	37 (0.019)	34 (0.009)	46 (0.018)
<i>Hydropsyche nrisis</i>	5 (0.006)	-	2.5 (0.003)	3 (0.004)	2 (0.001)	3 (0.002)
<i>Hydropsyche waubesiana</i>	3 (0.001)	2 (<0.001)	2.5 (0.001)	1 (<0.001)	1 (<0.001)	1.0 (<0.001)
<i>Neuseclipsis</i>	-	-	-	-	-	-
<i>crepuscularis</i>	6 (0.003)	5 (0.001)	5.5 (0.002)	2 (0.001)	1 (0.001)	1 (0.001)
Plecoptera						
<i>Isoperla cilio</i>	6 (0.002)	1 (<0.001)	3.5 (0.001)	2 (0.001)	1 (<0.001)	1 (<0.001)
Ephemeroptera						
<i>Stenonema</i>	-	-	-	-	-	-
<i>interpunctatum</i>	9 (0.004)	2 (0.001)	5.5 (0.003)	9 (0.004)	7 (0.003)	4 (0.002)
Total Individuals	155	67	111.0	71	75	99
Total Biomass (g)	0.040	0.014	0.027	0.033	0.023	0.029
Density (No./m²)			683		535	
Biomass (g/m²)			0.166		0.431	
Index of Diversity			2.68		1.92	
Equitability			0.76		0.41	

APPENDIX TABLE E-21

MACROINVERTEBRATE COMPOSITION, ABUNDANCE, AND
BIOMASS (ARTIFICIAL SUBSTRATES) AT LITTLE SALUDA CREEK STATION 6
MARBLE HILL PLANT
MARCH 1977

Species	Number of individuals (biomass in grams)		
	Replicate A	Replicate B	\bar{x}
ARTHROPODA			
Crustacea			
<i>Lirceus fontinalis</i>	1 (0.004)	-	0.5 (0.002)
Insecta			
Diptera			
<i>Cricotopus</i> sp.	1 (<0.001)	-	0.5 (<0.001)
Ephemeroptera			
<i>Baetis (intercalaris?)</i>	1 (0.002)	-	0.5 (0.001)
Total Individuals	3	0	1.5
Total Biomass (g)	0.006	0	0.003
Density (No./m ²)			9
Biomass (g/m ²)			0.018
Index of diversity			1.59
Equitability			1.27

APPENDIX TABLE E-22

MACROINVERTEBRATE COMPOSITION, ABUNDANCE, AND
BIOMASS (ARTIFICIAL SUBSTRATES) AT LITTLE SALUDA CREEK STATION 6
MARBLE HILL PLANT
MARCH 1977

Species	Number of individuals (biomass in grams)		
	Replicate A	Replicate B	\bar{x}
PLATYHELMINTHES			
Turbellaria			
<i>Phagocata velata</i>	21 (0.076)	19 (0.066)	20.0 (0.071)
ANNELIDA			
Oligochaeta			
<i>Limnodrilus maumeensis</i>	3 (0.001)	3 (0.001)	3.0 (0.001)
ARTHROPODA			
Crustacea			
<i>Lirceus fontinalis</i>	217 (0.224)	235 (0.394)	226.0 (0.309)
<i>Synurella dentata</i>	7 (0.005)	2 (0.001)	4.5 (0.003)
Insecta			
Diptera			
<i>Chaoborus punctipennis</i>	-	1 (<0.001)	0.5 (<0.001)
<i>Cryptochironomus fulvus</i>	-	1 (<0.001)	0.5 (<0.001)
<i>Polypedilum halterale</i>		2 (<0.001)	1.0 (<0.001)
Ephemeroptera			
<i>Stenonema interpunctatum</i>	5 (0.029)	-	2.5 (0.015)
<i>S. heterotarsale</i>	4 (0.015)	-	2.0 (0.008)
Coleoptera			
<i>Stenelmis (sexlineata?)</i>	-	1 (<0.001)	0.5 (<0.001)
Total individuals	257	264	260.5
Total biomass (g)	0.350	0.463	0.407
Density (No./m ²)			1602
Biomass (g/m ²)			2.503
Index of diversity			0.84
Equitability			0.21

APPENDIX TABLE E-23

MACROINVERTEBRATE COMPOSITION, ABUNDANCE, AND
BIOMASS (ARTIFICIAL SUBSTRATES) AT LITTLE SALUDA CREEK STATION 6
MARBLE HILL PLANT
MARCH 1977

Species	Number of individuals (biomass in grams)		
	Replicate A	Replicate B	\bar{x}
MOLLUSCA			
Gastropoda			
<i>Ferrissia dalli</i>	1 (0.001)	-	0.5 (<0.001)
<i>Physa gyrina</i>	-	1 (0.001)	0.5 (<0.001)
ARTHROPODA			
Crustacea			
<i>Lirceus fontinalis</i>	5 (0.002)	18 (0.007)	11.5 (0.004)
<i>Synurella dentata</i>	-	3 (0.002)	1.5 (0.001)
Insecta			
Diptera			
<i>Ablabesmyia rhamphe</i>	-	1 (<0.001)	0.5 (<0.001)
<i>Cardiocladius</i> sp.	1 (<0.001)	1 (<0.001)	1.0 (<0.001)
<i>Dicrotendipes</i>			
<i>modestus</i>	1 (<0.001)	-	0.5 (<0.001)
<i>Procladius</i> sp.	1 (<0.001)	-	0.5 (<0.001)
<i>Tipula</i> sp.	-	1 (0.001)	0.5 (<0.001)
Trichoptera			
<i>Neureclipsis</i>			
<i>vascularis</i>	1 (0.002)	-	0.5 (0.001)
Plecoptera			
<i>Isoperla clio</i>	-	1 (0.002)	0.5 (<0.001)
Ephemeroptera			
<i>Stenonema</i>			
<i>interpunctatum</i>	1 (0.002)	9 (0.015)	5.0 (<0.009)
Total individuals			
	11	35	23.0
Total biomass			
	0.007	0.029	0.018
Density (No./m ²)			
			141
Biomass (g/m ²)			
			0.111
Index of diversity			
			2.39
Equitability			
			0.59

APPENDIX TABLE E-24

MACROINVERTEBRATE COMPOSITION, ABUNDANCE, AND
BIOMASS (ARTIFICIAL SUBSTRATES) AT LITTLE SALUDA CREEK STATION 6
MARBLE HILL PLANT
MARCH 1977

Species	Number of individuals (biomass in grams)		
	Replicate A	Replicate B	\bar{x}
ARTHROPODA			
Crustacea			
<i>Lirceus fontinalis</i>	29 (0.026)	61 (0.050)	45.0 (0.038)
<i>Synurella dentata</i>	3 (0.002)	1 (0.001)	2.0 (0.002)
Insecta			
Diptera			
<i>Cardiocladius</i> sp.	1 (<0.001)	-	0.5 (<0.001)
<i>Chaoborus punctipennis</i>	1 (<0.001)	-	0.5 (<0.001)
Ephemeroptera			
<i>Stenonema</i> <i>heterotarsale</i>	3 (0.002)	-	1.5 (<0.001)
<hr/>			
Total individuals	37	62	49.5
Total biomass (g)	0.031	0.051	0.041
Density (No./m ²)			304
Biomass (m/m ²)			0.252
Index of diversity			0.60
Equitability			0.35
<hr/>			

A P P E N D I X F

FISH

APPENDIX TABLE F-1A

RESULTS OF 24-HOUR GILL NETTING AT
OHIO RIVER STATIONS 1,3 & 5
MARBLE HILL PLANT
21-22 MARCH 1977

Station and replicate	Species	Standard length (mm)	Weight (g)	Condition factor (k)
1A	nothing collected	-	-	-
1B	nothing collected	-	-	-
3A	nothing collected	-	-	-
3B	nothing collected	-	-	-
5A	nothing collected	-	-	-
5B	nothing collected	-	-	-

APPENDIX TABLE F-1B

RESULTS OF 24-HOUR GILL NETTING AT
OHIO RIVER STATIONS 1,3 & 5
MARBLE HILL PLANT
22-23 MARCH 1977

Station and replicate	Species	Standard length (mm)	Weight (g)	Condition factor (k)
1A	nothing collected	-	-	-
1B	nothing collected	-	-	-
3A	nothing collected	-	-	-
3B	nothing collected	-	-	-
5A	carp	415	2200	3.08
	freshwater drum	196	210	2.79
		238	395	2.93
	Individuals/replicate	3	-	-
5B	flathead catfish	294	340	1.34
	Individuals/replicate	1	-	-
	Total individuals	4	-	-

APPENDIX TABLE F-2A

RESULTS OF 24-HOUR GILL NETTING AT
OHIO RIVER STATIONS 1,3 & 5
MARBLE HILL PLANT
24-25 May 1977

Station and replicate	Species	Standard length (mm)	Weight (g)	Condition factor (k)
1A	skipjack herring	205	110	1.28
		275	255	1.23
	gizzard shad	145	40	1.31
		155	45	1.21
		170	50	1.02
		175	55	1.03
	goldeye	281	350	1.58
	black buffalo	337	1200	3.14
	silver redhorse	221	235	2.18
		232	350	2.80
		245	340	2.31
	golden redhorse	158	70	1.77
		159	75	1.87
		171	110	2.20
		171	90	1.80
		240	320	2.31
		274	365	1.77
	channel catfish	377	1250	2.33
	flathead catfish	320	510	1.56
		354	600	1.35
Individuals/replicate		20	-	-
1B	longnose gar	660	1000	0.35
		690	1400	0.43
		700	1250	0.36
		754	1500	0.35
		1020	5700	0.53

APPENDIX TABLE F-2A
 (continued)
 RESULTS OF 24-HOUR GILL NETTING AT
 OHIO RIVER STATIONS 1,3 & 5
 MARBLE HILL PLANT
 24-25 MAY 1977

Station and replicate	Species	Standard length (mm)	Weight (g)	Condition factor (k)
1B (cont.)	skipjack herring	310	550	1.85
	gizzard shad	135	20	0.81
		147	20	0.63
		147	20	0.63
		155	40	1.07
		155	30	0.81
		212	160	1.68
	goldeye	290	700	2.87
		323	900	2.67
	highfin carpsucker	305	1000	3.52
	spotted sucker	192	140	1.98
	golden redhorse	230	310	2.55
	flathead catfish	320	520	1.59
		405	1300	1.96
Individuals/replicate		19	-	-
3A	longnose gar	640	1100	0.42
	gizzard shad	176	80	1.47
		(7) 143-158	-	-
	carp	324	1000	2.94
	highfin carpsucker	265	750	4.03
	golden redhorse	170	85	1.73
		238	315	2.34
		245	350	2.38
277		400	1.88	
	350	1250	2.92	

APPENDIX TABLE F-2A
 (continued)
 RESULTS OF 24-HOUR GILL NETTING AT
 OHIO RIVER STATIONS 1,3 & 5
 MARBLE HILL PLANT
 24-25 MAY 1977

Station and replicate	Species	Standard length (mm)	Weight (g)	Condition factor (k)
3A (cont.)	channel catfish	178	55	0.98
		365	1250	2.57
	white bass	207	190	2.14
	warmouth	115	30	1.97
	smallmouth bass	187	150	2.29
	spotted bass	171	85	1.70
		175	140	2.61
		200	140	1.75
	freshwater drum	244	360	2.48
	Individuals/replicate		25	-
3B	longnose gar	870	2750	0.42
	gizzard shad (3)	151-155	^a	-
	highfin carpsucker	280	800	3.64
	golden redhorse	200	170	2.13
	channel catfish	330	900	2.50
		345	950	2.31
		415	1750	2.45
	flathead catfish	300	600	2.22
		340	1000	2.54
	largemouth bass	241	600	4.29
265		700	3.76	
Individuals/replicate		13	-	-

^aDecomposed

APPENDIX TABLE F-2A
 (continued)
 RESULTS OF 24-HOUR GILL NETTING AT
 OHIO RIVER STATIONS 1,3 & 5
 MARBLE HILL PLANT
 24-25 MAY 1977

Station and replicate	Species	Standard length (mm)	Weight (g)	Condition factor (k)
5A	longnose gar	1110	7000	0.51
	gizzard shad	155	25	0.67
		230	200	1.64
		295	425	1.66
	river redhorse	170	105	2.14
		270	525	2.67
	channel catfish	395	1250	2.03
		446	1800	2.03
	flathead catfish	322	450	1.35
	smallmouth bass	240	300	2.17
	spotted bass	190	150	2.19
		202	175	2.12
freshwater drum	190	150	2.19	
Individuals/replicate		12	-	-
5B	longnose gar	580	750	0.38
		645	1000	0.37
	skipjack herring	203	60	0.72
		320	425	1.30
	gizzard shad	145	25	0.82
		322	620	1.86
	carp	340	1250	3.18
	channel catfish	257	225	1.33
		435	1600	1.94
		465	2000	1.99

APPENDIX TABLE F-2A
 (continued)
 RESULTS OF 24-HOUR GILL NETTING AT
 OHIO RIVER STATIONS 1,3 & 5
 MARBLE HILL PLANT
 24-25 MAY 1977

Station and replicate	Species	Standard length (mm)	Weight (g)	Condition factor (k)
5B (cont.)	flathead catfish	285	320	1.38
		334	510	1.37
	pumpkinseed	95	15	1.75
	bluegill	110	25	1.88
	freshwater drum	253	320	1.98
		255	410	2.47
Individuals/replicate		15	-	-
Total individuals		104		

APPENDIX TABLE F-2B

RESULTS OF 24-HOUR GILL NETTING AT
OHIO RIVER STATIONS 1,3 & 5
MARBLE HILL PLANT
25-26 MAY 1977

Station and replicate	Species	Standard length (mm)	Weight (g)	Condition factor (k)
1A	gizzard shad	155	68	1.83
	carp	287	700	2.96
		325	1150	3.35
		435	2600	3.16
		515	3200	2.34
	river carpsucker	310	1000	3.36
		313	1100	3.59
	highfin carpsucker	206	275	3.15
	golden redhorse	223	330	2.98
		335	1150	3.06
	shorthead redhorse	263	445	2.45
	channel catfish	350	998	2.33
	flathead catfish	285	400	1.73
480		2300	2.08	
Individuals/replicate		14	-	-
1B	longnose gar	860	1600	0.25
		922	3150	0.40
	gizzard shad	150	69	2.04
		197	150	1.96
	carp	440	2500	2.93
	river carpsucker	357	1300	2.86
	golden redhorse	240	335	2.42

APPENDIX TABLE F-2B
 (continued)
 RESULTS OF 24-HOUR GILL NETTING AT
 OHIO RIVER STATIONS 1,3 & 5
 MARBLE HILL PLANT
 25-26 MAY 1977

Station and replicate	Species	Standard length (mm)	Weight (g)	Condition factor (k)
1B (cont.)	flathead catfish	285	400	1.73
		345	850	2.07
		360	750	1.61
Individuals/replicate		10		
3A	longnose gar	640	1150	0.44
		700	1260	0.37
	gizzard shad	155	70	1.88
		172	92	1.81
	goldeye	266	345	1.83
	shorthead redhorse	200	185	2.31
	sauger	310	370	1.24
freshwater drum	175	130	2.43	
Individuals/replicate		8	-	-
3B	longnose gar	640	1000	0.38
	gizzard shad	140	50	1.82
		150	55	1.63
		153	65	1.81
		155	70	1.88
		160	60	1.46
		162	70	1.65
	170	82	1.67	
	golden redhorse	160	98	2.39
		224	285	2.54
channel catfish	390	1000	1.69	
Individuals/replicate		11	-	-

APPENDIX TABLE F-2B
 (continued)
 RESULTS OF 24-HOUR GILL NETTING AT
 OHIO RIVER STATIONS 1,3 & 5
 MARBLE HILL PLANT
 25-26 MAY 1977

Station and replicate	Species	Standard length (mm)	Weight (g)	Condition factor (k)
5A	gizzard shad	160	70	1.71
		225	170	1.49
	goldeye	295	440	1.71
	river carpsucker	297	950	3.63
		320	1200	3.66
		365	1500	3.08
	spotted sucker	325	1100	3.20
	golden redhorse	240	390	2.82
	channel catfish	228	190	1.60
		323	550	1.63
		440	2000	2.35
	white bass	168	110	2.32
	warmouth	110	45	3.38
		111	50	3.66
	longear sunfish	92	40	5.14
	sauger	255	200	1.21
	freshwater drum	283	700	0.99
		300	750	0.73
Individuals/replicate		18	-	-
5B	skipjack herring	309	375	1.27
	gizzard shad	200	200	2.50
	river carpsucker	290	760	3.12
		305	950	3.35
	golden redhorse	170	110	2.24
	shorthead redhorse	202	175	2.12

APPENDIX TABLE F-2B
 (continued)
 RESULTS OF 24-HOUR GILL NETTING AT
 OHIO RIVER STATIONS 1,3 & 5
 MARBLE HILL PLANT
 25-26 MAY 1977

Station and replicate	Species	Standard length (mm)	Weight (g)	Condition factor (k)
5B (cont.)	channel catfish	285	370	1.60
	flathead catfish	410	1500	2.18
		445	1750	1.99
	longear sunfish	93	45	5.59
	Individuals/replicate	10	-	-
	Total individuals	71		

APPENDIX TABLE F- 3A

RESULTS OF 24-HOUR GILL NETTING AT
OHIO RIVER STATIONS 1,3 & 5
MARBLE HILL PLANT
16-17 AUGUST 1977

Station and replicate	Species	Standard length (mm.)	Weight (g)	Condition factor (k)
1A	channel catfish	275	290	1.39
	freshwater drum	148	75	2.31
Individuals/replicate		2	-	-
1B	channel catfish	262	305	1.69
		297	445	1.69
	freshwater drum	200	225	2.81
Individuals/replicate		3	-	-
3A	longnose gar	1120	5450	0.38
	channel catfish	253	650	1.47
	Individuals/replicate		2	-
3C	channel catfish	318	645	2.00
		415	1200	1.67
	sauger	319	425	1.30
	Individuals/replicate		3	-
5A	channel catfish	237	215	1.61
		238	210	1.55
		265	295	1.58
		360	825	1.76
		458	1675	1.72
	flathead catfish	281	370	1.66
	sauger	230	170	1.39
		244	220	1.51
		277	305	1.43
		278	300	1.39

APPENDIX TABLE F- 3A
 (continued)
 RESULTS OF 24-HOUR GILL NETTING AT
 OHIO RIVER STATIONS 1,3 & 5
 MARBLE HILL PLANT
 16-17 AUGUST 1977

Station and replicate	Species	Standard length (mm)	Weight (g)	Condition factor (k)
5A (cont.)	freshwater drum	152	75	2.13
	Individuals/replicate	11	-	-
5B	longnose gar	545	520	0.32
	gizzard shad	178	85	1.50
		206	180	2.05
		216	225	2.23
		221	230	2.13
	carp	404	1600	2.42
	spotted sucker	306	650	2.26
	shorthead redhorse	170	100	2.03
	channel catfish	264	350	1.90
		331	630	1.73
		451	1850	2.01
		475	2200	2.05
		533	2950	1.94
	white bass	229	-	-
	sauger	208	110	1.22
		212	125	1.31
		228	170	1.43
		239	185	1.35
		240	185	1.35
		241	200	1.42
		319	470	1.44

APPENDIX TABLE F-3A
 (continued)
 RESULTS OF 24-HOUR GILL NETTING AT
 OHIO RIVER STATIONS 1,3 & 5
 MARBLE HILL PLANT
 16-17 AUGUST 1977

Station and replicate	Species	Standard length (mm)	Weight (g)	Condition factor (k)
5B (cont.)	freshwater drum	87	15	2.27
		162	95	2.23
		194	170	2.32
		198	195	2.51
		205	195	2.26
		211	240	2.55
		215	265	2.66
Individuals/replicate		28	-	-
Total individuals		49		

APPENDIX TABLE F-3B

RESULTS OF 24-HOUR GILL NETTING AT
OHIO RIVER STATIONS 1,3 & 5
MARBLE HILL PLANT
17-18 AUGUST 1977

Station and replicate	Species	Standard length (mm)	Weight (g)	Condition factor (k)
1A	sauger	246	205	1.37
	Individuals/replicate	1	-	-
1B	sauger	231	175	1.41
	freshwater drum	196	175	2.32
		225	250	2.19
	Individuals/replicate	3	-	-
3A	channel catfish	242	195	1.37
	flathead catfish	383	900	1.60
	smallmouth bass	231	330	2.67
	sauger	227	145	1.23
		232	170	1.36
		238	165	1.22
	freshwater drum	216	225	2.23
	Individuals/replicate	7	-	-
3B	carp	132	55	2.39
	sauger	219	115	1.09
		227	150	1.28
		291	325	1.31
	(1) fragment	fragment	fragment	-
	Individuals/replicate	5	-	-

APPENDIX TABLE F-38
 (continued)
 RESULTS OF 24-HOUR GILL NETTING AT
 OHIO RIVER STATIONS 1,3 & 5
 MARBLE HILL PLANT
 17-18 AUGUST 1977

Station and replicate	Species	Standard length (mm)	Weight (g)	Condition factor (k)
5A	no collection ^a	-	-	-
5B	no collection ^a	-	-	-
Individuals/replicate		0	-	-
Total individuals		16		

^a Nets lost due to vandalism.

APPENDIX TABLE F-4A

RESULTS OF 24-HOUR GILL NETTING AT
OHIO RIVER STATIONS 1,3 & 5
MARBLE HILL PLANT
8-9 NOVEMBER 1977

Station and replicate	Species	Standard length (mm)	Weight (g)	Condition factor (k)
1A	goldeye	318	660	2.05
	river carpsucker	315	880	2.81
	spotted sucker	333	1000	2.70
	shorthead redhorse	200	185	2.31
	white bass	154	100	2.73
		193	210	2.92
	sauger	315	460	1.47
		328	510	1.44
		355	650	1.45
	Individuals/replicate		9	-
1B	longnose gar	518	455	0.32
	gizzard shad	133	35	1.48
		140	40	1.45
		250	290	1.85
	spotted sucker	348	1050	2.49
	shorthead redhorse	255	425	2.56
	channel catfish	270	295	1.49
		292	390	1.56
		318	490	1.52
		330	670	1.86
		393	1000	1.64
		425	1350	1.75
	white bass	155	85	2.28
173		160	3.09	

APPENDIX TABLE F-4A
 (continued)
 RESULTS OF 24-HOUR GILL NETTING AT
 OHIO RIVER STATIONS 1,3 & 5
 MARBLE HILL PLANT
 8-9 NOVEMBER 1977

Station and replicate	Species	Standard length (mm)	Weight (g)	Condition factor (k)
1B (cont.)	sauger	274	285	1.38
		310	520	1.74
		327	565	1.61
		345	710	1.72
Individuals/replicate		18	-	-
3A	channel catfish	282	315	1.40
		386	950	1.65
Individuals/replicate		2	-	-
3B	gizzard shad	140	45	1.63
		374	850	1.62
	channel catfish	147	70	2.20
		152	85	2.42
	sauger	292	405	1.62
		300	455	1.68
		320	600	1.83
		410	1300	1.88
Individuals/replicate		8	-	-
5A	gizzard shad	215	130	1.30
		340	750	1.90
	goldeye	295	500	1.94
		305	450	1.58
	channel catfish	310	500	1.67
		380	1000	1.82

APPENDIX TABLE F-4A
 (continued)
 RESULTS OF 24-HOUR GILL NETTING AT
 OHIO RIVER STATIONS 1,3 & 5
 MARBLE HILL PLANT
 8-9 NOVEMBER 1977

Station and replicate	Species	Standard length (mm)	Weight (g)	Condition factor (k)
5A (cont.)	sauger	223	140	1.26
		295	410	1.59
		297	340	1.29
		420	1350	1.82
	freshwater drum	192	150	2.11
Individuals/replicate		11	-	-
5B	white bass	147	65	2.04
		150	70	2.07
		152	75	2.13
		156	75	1.97
		157	75	1.93
		157	75	1.93
		157	80	2.06
		157	80	2.06
		157	85	2.19
		158	80	2.02
		160	80	1.95
		245	515	3.50
		250	450	2.88
		sauger	295	405
	305		390	1.37
320	490		1.49	
355	670		1.49	
Individuals/replicate		17	-	-
Total individuals		65	-	-

APPENDIX TABLE F-4B

RESULTS OF 24-HOUR GILL NETTING AT
OHIO RIVER STATIONS 1,3 & 5
MARBLE HILL PLANT
9-10 NOVEMBER 1977

Station and replicate	Species	Standard length (mm)	Weight (g)	Condition factor (k)
1A	gizzard shad	150	45	1.33
	white bass	143	55	1.88
		145	55	1.80
		223	305	2.75
largemouth bass	275	600	2.88	
Individuals/replicate		5	-	-
1B	channel catfish	300	450	1.66
	flathead catfish	265	265	1.42
	white bass	168	105	2.21
	freshwater drum	205	175	2.03
277		455	2.14	
Individuals/replicate		5	-	-
3A	white bass	141	55	1.96
Individuals/replicate		1	-	-
3B	freshwater drum	210	200	2.15
Individuals/replicate		1	-	-
5A	golden redhorse	260	420	2.38
	white bass	175	150	2.79

APPENDIX TABLE F-4B
 (continued)
 RESULTS OF 24-HOUR GILL NETTING AT
 OHIO RIVER STATIONS 1,3 & 5
 MARBLE HILL PLANT
 9-10 NOVEMBER 1977

Station and replicate	Species	Standard length (mm)	Weight (g)	Condition factor (k)
5A (cont.)	sauger	233	140	1.10
		275	305	1.46
		278	315	1.46
		308	480	1.64
		312	472	1.55
		317	650	2.04
		383	950	1.69
Individuals/replicate		9	-	-
5B	sauger	274	303	1.47
		297	410	1.56
		300	435	1.61
		367	800	1.61
	freshwater drum	190	170	2.47
Individuals/replicate		5	-	-
Total individuals		26	-	-

APPENDIX TABLE F-5

RESULTS OF ELECTROFISHING
OHIO RIVER STATIONS 1,3 AND 5
MARBLE HILL PLANT
23 MARCH 1977^a

Station and replicate	Species	Standard length (mm)	Weight (g)	Condition factor (k)
1A	nothing collected	-	-	-
1B	nothing collected	-	-	-
3A	emerald shiner	82	8	1.45
3B	nothing collected	-	-	-
5A	river carpsucker	360	1550	3.32
5B	nothing collected	-	-	-

^aEach electrofishing replicate covered a shoreline distance of 150 meters.

APPENDIX TABLE F-6

RESULTS OF ELECTROFISHING
OHIO RIVER STATIONS 1,3 AND 5
MARBLE HILL PLANT
24 MAY 1977^a

Station and replicate	Species	Standard length (mm)	Weight (g)	Condition factor (k)
1A	highfin carpsucker	210	280	3.02
1B	nothing collected	-	-	-
3A	white bass	205	180	2.09
3B	nothing collected	-	-	-
5A	gizzard shad	211	150	1.60
5B	nothing collected	-	-	-

^a Each electrofishing replicate covered a shoreline distance of 150 meters.

APPENDIX TABLE F-7
 RESULTS OF ELECTROFISHING
 OHIO RIVER STATIONS 1,3 AND 5
 MARBLE HILL PLANT
 17 AUGUST 1977^a

Station and replicate	Species	Standard length (mm)	Weight (g)	Condition factor (k)
1A	nothing collected	-	-	-
1B	nothing collected	-	-	-
3A	emerald shiner	<50	ca.2	-
3B	emerald shiner (2)	60-61	ca.6	-
5A	gizzard shad	119	35	2.07
		240	305	2.20
5B	skipjack herring	72	ca.5	-
		80	10	1.95
		93	20	2.48
		94	20	2.40
	211	200	2.12	
	emerald shiner (2)	53-56	ca. 5	-

^a Each electrofishing replicate covered a shoreline distance of 150 meters.

APPENDIX TABLE F- 8

RESULTS OF ELECTROFISHING
OHIO RIVER STATIONS 1,3 AND 5
MARBLE HILL PLANT
8 NOVEMBER 1977^a

Station and replicate	Species	Standard length (mm)	Weight (g)	Condition factor (k)
1A	gizzard shad	113	35	2.42
	emerald shiner (2)	<50	ca.3	-
1B	gizzard shad	105	30	2.59
	emerald shiner (3)	<50	ca.4	-
	smallmouth buffalo	98	30	3.18
3A	gizzard shad	107	30	2.44
		128	40	1.90
	emerald shiner (3)	<50	ca.4	-
3B	gizzard shad	92	20	2.56
		114	35	2.36
		118	35	2.13
		120	35	2.02
	emerald shiner	50	ca.2	-
5A	gizzard shad	114	30	2.02
	emerald shiner (3)	<50	ca.4	-
	smallmouth buffalo	96	25	2.82
5B	gizzard shad	110	30	2.25
		113	30	2.07
		123	40	2.14
		124	40	2.09
		128	45	2.14
	freshwater drum	93	10	1.24

^a Each electrofishing replicate covered a shoreline distance of 150 meters.

APPENDIX TABLE F- 9

RESULTS OF ELECTROFISHING
 LITTLE SALUDA CREEK STATION 6
 MARBLE HILL PLANT
 22 MARCH 1977^a

Replicate	Species	Number of individuals	Range of standard lengths (mm)	Total weight (g)
A	mimic shiner	3	26-29	1.4
B	nothing collected	-	-	-

^a Each electrofishing replicate covered a distance of 100 meters.

APPENDIX TABLE F-10

RESULTS OF ELECTROFISHING
 LITTLE SALUDA CREEK STATION 6
 MARBLE HILL PLANT
 24 MAY 1977^a

Replicate	Species	Number of individuals	Range of standard lengths (mm)	Total weight (g)
A	nothing collected ^b	-	-	-
B	nothing collected ^b	-	-	-

^a Each electrofishing replicate covered a distance of 100 meters.

^b Equipment malfunction.

APPENDIX TABLE F-11

RESULTS OF ELECTROFISHING
 LITTLE SALUDA CREEK STATION 6
 MARBLE HILL PLANT
 16 AUGUST 1977^a

Replicate	Species	Number of individuals	Range of standard lengths (mm)	Total weight (g)
A	emerald shiner	252	30-52	217.0
	shiner (<i>Notropis</i> sp.)	2	23-24	0.5
	pugnose minnow	1	37	0.9
	blacknose dace	1	27	0.3
	creek chub	4	29-36	3.5
B	stoneroller	1	39	1.4
	emerald shiner	133	31-47	112.0
	striped shiner	1	36	0.9
	creek chub	4	26-45	4.4
	bluegill	1	29	0.9
Total		400	-	341.8

^a Each electrofishing replicate covered a distance of 100 meters.

APPENDIX TABLE 7-12

RESULTS ELECTROFISHING
 LITTLE SALUDA CREEK STATION 6
 MARBLE HILL PLANT
 6 NOVEMBER 1977^a

Replicate	Species	Number of individuals	Range of standard lengths (mm)	Total weight (g)
A	emerald shiner	2	50-54	3.7
	blacknose dace	8	30-58	19.0
	creek chub	8	25-40	12.3
B	emerald shiner	1	43	1.4
	striped shiner	1	31	0.8
	blacknose dace	1	48	3.4
	creek chub	5	43-51	11.7
Total		26	-	52.3

^a Each electrofishing replicate covered a distance of 100 meters.

APPENDIX TABLE F-13

RESULTS OF SEINING
 LITTLE SALUDA CREEK STATION 6
 MARBLE HILL PLANT
 22 MARCH 1977^a

Replicate	Species	Number of individuals	Range of standard lengths (mm)	Total weight (g)
A	nothing collected	-	-	-
B	nothing collected	-	-	-

^a Each seining replicate covered a distance of 50 meters.

APPENDIX TABLE F-14

RESULTS OF SEINING
LITTLE SALUDA CREEK STATION 6
MARBLE HILL PLANT
24 MAY 1977^a

Replicate	Species	Number of individuals	Range of standard lengths (mm)	Total weight (g)
A	blacknose dace	4	27-53	6.2
	creek chub	1	47	2.8
	black bullhead	1	70	13.6
B	stoneroller	2	35-36	2.2
	bluntnose minnow	1	63	5.3
	blacknose dace	14	24-31	8.2
	creek chub	1	43	2.2
	black bullhead	1	92	33.8
	Total	25	-	74.3

^a Each seining replicate covered a distance of 50 meters.

APPENDIX TABLE F-15

RESULTS OF SEINING
 LITTLE SALUDA CREEK STATION 6
 MARBLE HILL PLANT
 16 AUGUST 1977^a

Replicate	Species	Number of individuals	Range of standard lengths (mm)	Total weight (g)
A	emerald shiner	112	29-52	83.7
B	emerald shiner	54	27-50	38.3
Total		166	-	122.0

^a Each seining replicate covered a distance of 50 meters.

APPENDIX TABLE F-16

RESULTS OF SEINING
LITTLE SALUDA CREEK STATION 6
MARBLE HILL PLANT
8 NOVEMBER 1977^a

Replicate	Species	Number of individuals	Range of standard lengths (mm)	Total weight (g)
A	emerald shiner	45	32-55	88.1
	pugnose minnow	1	45	1.9
	smallmouth buffalo	1	51	4.7
	bluegill	1	37	2.2
B	emerald shiner	1	52	2.4
	creek chub	5	49-67	20.3
	smallmouth bass	1	86	16.2
Total		55	-	135.8

^a Each seining replicate covered a distance of 50 meters.

A P P E N D I X G

FISH EGGS AND LARVAE

APPENDIX TABLE G-2
 (continued)
 RESULTS OF SECOND FISH EGG AND LARVAE COLLECTION (No./m³)
 MARBLE HILL PLANT
 17 MAY 1977

Station	Category	Surface			Mid-depth			Bottom		
		Replicate		\bar{x}	Replicate		\bar{x}	Replicate		\bar{x}
		A	B		A	B		A	B	
5	Freshwater drum				0.04	0.02				
(cont.)	Damaged larvae							0.07	0.04	
	Eggs (viable)	0.33	0.19	0.26	0.29	0.65	0.47	0.82	0.73	0.78
	Eggs (non-viable)	0.07	0.13	0.10	0.07		0.04	0.07	0.07	0.07
	Total: Larvae	0.38	0.13	0.26	0.15	0.07	0.11	0.22	0.51	0.48
	Eggs	0.40	0.32	0.36	0.37	0.64	0.51	0.89	0.80	0.85

APPENDIX TABLE G-3

RESULTS OF THIRD FISH EGG AND LARVAE COLLECTION (No./m³)MARBLE HILL PLANT
25 MAY 1977

Station	Category	Surface			Mid-depth			Bottom			
		Replicate		\bar{x}	Replicate		\bar{x}	Replicate		\bar{x}	
		A	B		A	B		A	B		
1	Gizzard shad	0.06	0.17	0.12	0.17			0.06	0.62	0.34	
	Carp	0.06	0.17	0.12	0.17			0.06	0.07	0.07	
	Shiners	0.06	0.22	0.14		Lost					
	Suckers	0.06		0.03	0.06	Replicate			0.07	0.04	
	White bass							0.06	0.07	0.07	
	Sunfishes	0.06	0.06	0.03							
	Yellow perch		0.06	0.03							
	Freshwater drum	0.06		0.03	0.11			0.06	0.14	0.10	
	Damaged larvae		0.06	0.03	0.06						
	Eggs (viable)	0.18	0.11	0.15	0.06			0.12	0.21	0.17	
	Total: Larvae		0.36	0.72	0.54	0.56		0.24	0.97	0.61	
	Eggs		0.18	0.11	0.15	0.06		0.12	0.21	0.17	
3	Gizzard shad	0.28	0.06	0.17		0.06	0.03	0.12	0.17	0.15	
	Carp		0.28	0.14	0.06		0.03	0.06		0.03	
	Shiners								0.06	0.03	
	White bass		0.06	0.03							
	Sunfishes					0.12	0.06				
	Freshwater drum				0.06		0.03				
	Eggs (viable)	0.11		0.06	0.18	0.24	0.21	0.18	0.06	0.12	
	Eggs (non-viable)								0.06	0.03	
	Total: Larvae		0.28	0.39	0.34	0.12	0.18	0.15	0.18	0.23	0.21
	Eggs		0.11	0.00	0.06	0.18	0.24	0.21	0.18	0.11	0.15

APPENDIX TABLE G-3
 (continued)
 RESULTS OF THIRD FISH EGG AND LARVAE COLLECTION (No./m³)
 MARBLE HILL PLANT
 25 MAY 1977

Station	Category	Surface			Mid-depth			Bottom		
		Replicate A	B	\bar{x}	Replicate A	B	\bar{x}	Replicate A	B	\bar{x}
5	Gizzard shad	0.05		0.03					0.06	0.03
	Carp							0.12	0.11	0.12
	Suckers							0.12	0.06	0.09
	Freshwater drum	0.16		0.08	0.12		0.06		0.11	0.06
	Damaged larvae		0.11	0.06	0.06	0.18	0.12		0.06	0.03
	Eggs (viable)	0.16	0.16	0.16		0.06	0.03	0.23	0.17	0.20
	Eggs (non- viable)	0.05	0.05	0.05						
	Total: Larvae	0.22	0.11	0.17	0.18	0.18	0.18	0.23	0.40	0.32
Eggs	0.21	0.21	0.21	0.00	0.06	0.03	0.23	0.17	0.20	

APPENDIX TABLE G-10

RESULTS OF TENTH FISH EGG AND LARVAE COLLECTION (No./m³)
 MARBLE HILL PLANT
 26 JULY 1977

Station	Category	Surface		Mid-depth		Bottom	
		Replicate A	Replicate B	Replicate A	Replicate B	Replicate A	Replicate B
		\bar{x}		\bar{x}		\bar{x}	
1	Nothing collected						
3	Sunfishes	0.06	0.03				
	Total: Larvae	0.00	0.06	0.00	0.00	0.00	0.00
	Eggs	0.00	0.00	0.00	0.00	0.00	0.00
5	Minnows	0.09	0.05				
	Sunfishes	0.04	0.02				
	Eggs (viable)	0.05	0.03				
	Total: Larvae	0.00	0.13	0.00	0.00	0.00	0.00
	Eggs	0.05	0.00	0.00	0.00	0.00	0.00

APPENDIX TABLE G-11

DRIFT MACROINVERTEBRATES TAKEN DURING FISH EGG AND LARVAE SAMPLING
 MARBLE HILL PLANT
 30 APRIL 1977

Depth	Species	Station 1				Station 3				Station 5			
		A	B	\bar{x}	RA	A	B	\bar{x}	RA	A	B	\bar{x}	RA
Surface	Insecta												
	Diptera												
	<i>Cricotopus</i> sp.	-	20	10	100	-	-	-	-	-	-	-	-
	Total individuals	0	20	10	-	-	-	-	-	-	-	-	-
Volume filtered (m ³)	25.3	25.7	25.5	-	23.5	24.1	23.8	-	20.1	20.4	20.3	-	
Individuals/m ³	0	0.8	0.4	-	0	0	0	-	0	0	0	-	
Mid-depth	Crustacea												
	Cladocera												
	<i>Daphnia ambigua</i>	-	-	-	-	20	40	30	75.0	-	-	-	-
	<i>D. galeata</i>	-	-	-	-	-	20	10	25.0	-	40	20	66.7
	<i>Leptodora kindti</i>	20	-	10	100	-	-	-	-	-	20	10	33.3
	Total individuals	20	0	10	-	20	60	40	-	0	60	30	-
	Volume filtered (m ³)	25.2	25.2	25.2	-	23.1	23.2	23.2	-	24.3	24.5	24.4	-
Individuals/m ³	0.8	0	0.4	-	0.9	2.6	1.8	-	0	2.4	1.2	-	
Bottom	Crustacea												
	Cladocera												
	<i>Daphnia ambigua</i>	-	40	20	50.0	-	40	20	100.0	80	80	80	64.0
	<i>D. galeata</i>	20	-	10	25.0	-	-	-	-	40	-	20	16.0
	<i>Leptodora kindti</i>	-	20	10	25.0	-	-	-	-	20	30	25	20.0
	Total individuals	20	60	40	-	0	40	20	-	140	110	125	-
	Volume filtered (m ³)	24.3	24.4	24.4	-	22.0	22.2	22.1	-	22.4	22.5	22.5	-
Individuals/m ³	0.8	2.5	1.7	-	0	1.8	0.9	-	6.3	4.9	5.6	-	

APPENDIX TABLE G-12

DRIFT MICROINVERTEBRATES TAKEN DURING FISH EGG AND LARVAE SAMPLING
MARBLE HILL PLANT
17 MAY 1977

Depth	Species	Station 1				Station 3				Station 5			
		A	B	\bar{x}	RA	A	B	\bar{x}	RA	A	B	\bar{x}	RA
Surface	Crustacea												
	Cladocera												
	<i>Daphnia ambigua</i>	40	40	40	61.5	40	80	60	85.7	40	80	60	63.2
	<i>D. pulex</i>	-	20	10	15.4	20	-	10	14.3	-	30	15	15.8
	<i>D. retrocurva</i>	-	20	10	15.4	-	-	-	-	40	-	20	21.0
	Insecta												
	Diptera												
	<i>Dicrotendipes modestus</i>	10	-	5	7.7	-	-	-	-	-	-	-	-
	Total individuals	50	80	65		60	80	70		80	110	95	
	Volume filtered (m ³)	16.9	16.6	16.8		20.4	15.5	18.0		15.1	15.5	15.3	
Individuals/m ³	3.0	4.8	3.9		2.9	5.2	4.1		5.3	7.1	6.2		
Mid-depth	Crustacea												
	Cladocera												
	<i>Ceriodaphnia quadrangula</i>	-	-	-	-	40	60	50	8.5	30	-	15	8.1
	<i>Daphnia ambigua</i>	440	440	440	89.8	440	560	500	84.7	180	160	170	91.9
	<i>D. galeata</i>	40	-	20	4.1	-	-	-	-	-	-	-	-
	<i>D. pulex</i>	40	-	20	4.1	20	-	10	1.7	-	-	-	-
	<i>D. retrocurva</i>	-	20	10	2.0	-	40	20	3.4	-	-	-	-
	<i>Leptodora kindti</i>	-	-	-	-	20	-	10	1.7	-	-	-	-
	Total individuals	520	460	490		520	660	590		210	160	185	
	Volume filtered(m ³)	15.7	13.4	14.6		13.9	17.5	15.7		13.7	13.8	13.8	
Individuals/m ³	33.1	34.3	33.7		37.4	37.7	37.6		15.2	11.6	13.5		

APPENDIX TABLE G-12
 (continued)
 DRIFT MACROINVERTEBRATES TAKEN DURING FISH EGG AND LARVAE SAMPLING
 MARBLE HILL PLANT
 17 MAY 1977

Depth	Species	Station 1				Station 3				Station 5			
		A	B	\bar{x}	RA	A	B	\bar{x}	RA	A	B	\bar{x}	RA
Bottom	Crustacea												
	Cladocera												
	<i>Daphnia ambigua</i>	1080	1320	1200	100.0	1760	2640	2230	98.7	130	90	135	81.3
	<i>Leptodora kindtii</i>	-	-	-	-	60	-	30	1.3	40	20	30	18.2
	Total individuals	1080	1320	1200		1820	2640	2260		220	110	165	
	Volume filtered (m ³)	15.2	18.2	16.7		14.8	15.2	15.0		13.4	13.8	13.6	
	Individuals/m ³	71.1	72.5	71.8		122.9	173.7	148.3		16.4	8.0	12.2	

APPENDIX TABLE G-13

DRIFT MACROINVERTEBRATES TAKEN DURING FISH EGG AND LARVAE SAMPLING
MARBLE HILL PLANT
25 MAY 1977

Depth	Species	Station 1				Station 3				Station 5			
		A	B	\bar{x}	RA	A	B	\bar{x}	RA	A	B	\bar{x}	RA
Surface	Crustacea												
	Cladocera												
	<i>Ceriodaphnia quadrangula</i>	880	-	440	5.5	220	440	330	11.1	220	220	220	9.5
	<i>Daphnia ambigua</i>	2640	2640	2640	33.1	880	1760	1320	44.3	880	1760	1320	57.1
	<i>D. pulex</i>	1760	2640	2200	27.6	1760	-	880	29.5	440	880	660	28.6
	<i>D. retrocurva</i>	3520	1760	2640	33.1	440	440	440	14.8	220	-	110	4.8
	<i>Leptodora kindti</i>	60	60	60	0.7	-	20	10	0.3	-	-	-	-
	Total individuals	8860	7100	7980		2300	2660	2980		1760	2860	2310	
	Volume filtered (m ³)	16.8	18.0	17.4		17.7	18.1	17.9		18.6	19.1	18.9	
	Individuals/m ³	527.4	394.4	460.9		126.4	147.0	166.7		94.6	149.7	122.2	
	Mid-depth	Crustacea											
		Cladocera											
<i>Daphnia ambigua</i>		3520	3520	3520	42.1	1760	880	1320	31.6	1760	880	1320	85.2
<i>D. galeata</i>		880	-	440	5.3	-	880	440	10.5	-	-	-	-
<i>D. pulex</i>		880	1760	1320	15.8	1760	1760	1760	42.1	-	220	110	7.1
<i>D. retrocurva</i>		2640	3520	3080	36.8	440	880	660	15.8	-	220	110	7.1
<i>Leptodora kindti</i>		-	-	-	-	-	-	-	-	20	-	10	0.6
Total individuals		7920	8800	8360		3960	4400	4180		1780	1320	1550	
Volume filtered (m ³)		17.8	19.0	17.9		16.9	16.9	16.9		16.4	16.9	16.7	
Individuals/m ³		444.9	463.2	454.1		234.3	260.4	494.7		108.5	78.1	93.3	

APPENDIX TABLE G-13
(continued)
DRIFT MACROINVERTEBRATES TAKEN DURING FISH EGG AND LARVAE SAMPLING
MARBLE HILL PLANT
25 MAY 1977

Depth	Species	Station 1				Station 3				Station 5			
		A	B	\bar{x}	RA	A	B	\bar{x}	RA	A	B	\bar{x}	RA
Bottom	Crustacea												
	Cladocera												
	<i>Daphnia ambigua</i>	3520	4400	3960	52.8	880	3520	2200	50.0	1760	1760	1760	61.0
	<i>D. galeata</i>	880	880	880	11.7	880	440	660	15.0	440	-	220	7.6
	<i>D. pulex</i>	880	1760	1320	17.6	880	440	660	15.0	220	880	550	19.1
	<i>D. retrocurva</i>	1760	880	1320	17.6	880	880	880	20.0	220	440	330	11.4
	<i>Leptodora kindti</i>	20	20	20	0.3	-	-	-	-	30	20	25	0.9
Total individuals	7060	7940	7500		3520	5280	4400		2670	3100	2885		
Volume filtered (m ³)	16.4	14.5	15.5		17.1	17.4	17.3		17.2	17.6	17.4		
Individuals/m ³	430.5	547.6	489.1		205.8	303.4	254.6		155.2	176.1	165.7		

APPENDIX TABLE G- 14

DRIFT MACROINVERTEBRATES TAKEN DURING FISH EGG AND LARVAE SAMPLING
MARBLE HILL PLANT
8 JUNE 1977

Depth	Species	Station 1				Station 3				Station 5			
		A	B	\bar{x}	RA	A	B	\bar{x}	RA	A	B	\bar{x}	RA
Surface	Crustacea												
	Cladocera												
	<i>Ceriodaphnia quadrangula</i>	880	880	880	5.1	10	40	25	16.7	110	110	110	22.2
	<i>Daphnia ambigua</i>	2640	3520	3080	17.8	9	-	4.5	3.0	-	-	-	-
	<i>D. galeata</i>	1760	1760	1760	10.1	4	-	2	1.3	-	-	-	-
	<i>D. parvula</i>	2640	2640	2640	15.2	13	30	21.5	14.3	220	110	165	33.5
	<i>D. pulex</i>	880	-	440	2.5	-	-	-	-	-	-	-	-
	<i>D. retrocurva</i>	6160	10,560	8360	48.2	64	130	97	64.7	220	220	220	44.4
	<i>Leptodora kindti</i>	180	200	190	1.1	-	-	-	-	-	-	-	-
	Total individuals	15,140	19,560	17,350		100	200	150		550	440	495	
	Volume filtered (m ³)	14.2	13.8	14.0		11.4	11.7	11.6		11.7	12.1	11.9	
	Individuals/m ³	1,066.2	1,417.4	1,241.8		8.8	17.1	13.0		47.0	36.4	41.9	
Mid-depth	Crustacea												
	Cladocera												
	<i>Daphnia ambigua</i>	1760	1760	1760	9.5	1760	-	880	11.1	-	-	-	-
	<i>D. galeata</i>	3520	1760	2640	14.2	-	1760	880	11.1	-	-	-	-
	<i>D. parvula</i>	880	2640	1760	9.5	880	-	440	5.6	1320	440	880	26.0
	<i>D. retrocurva</i>	9680	14,960	12,320	66.3	5280	6160	5720	72.2	-	4840	2420	71.6
	<i>Leptodora kindti</i>	-	-	-	-	-	-	-	-	80	80	80	2.4
	Ostracoda	-	-	-	-	-	-	-	-	-	-	-	-
	<i>Cypridopsis</i> sp.	200	-	100	0.5	-	-	-	-	-	-	-	-
	Total individuals	16,040	21,120	18,580		7920	7920	7920		1400	5360	3380	
Volume filtered (m ³)	16.5	15.3	15.7		10.8	11.0	10.9		12.4	11.9	12.2		
Individuals/m ³	972.1	1,380.4	1,176.2		733.3	720.0	726.7		112.9	450.4	281.7		

APPENDIX TABLE G-14
 (continued)
 DRIFT MACROINVERTEBRATES TAKEN DURING FISH EGG AND LARVAE SAMPLING
 MARBLE HILL PLANT
 8 JUNE 1977

Depth	Species	Station 1				Station 3				Station 5			
		A	B	\bar{x}	RA	A	B	\bar{x}	RA	A	B	\bar{x}	RA
Bottom	Crustacea												
	Cladocera												
	<i>Ceriodaphnia quadrangula</i>	-	880	440	2.8	-	-	-	-	-	-	-	-
	<i>Daphnia ambigua</i>	2640	4400	3520	22.2	440	-	220	2.8	-	-	-	-
	<i>D. galeata</i>	1760	3520	2640	16.6	440	-	220	2.8	440	-	220	4.6
	<i>D. parvula</i>	1760	2640	2200	13.9	880	880	880	11.1	880	220	550	11.6
	<i>D. retrocurva</i>	2640	11,440	7040	44.4	7480	5720	6600	83.2	3960	3960	3960	83.5
	<i>Leptodora kindtii</i>	20	20	20	0.1	-	20	10	0.1	20	10	15	0.3
Total individuals	8820	22,900	15,860		9240	6620	7930		5300	4190	4745		
Volume filtered (m ³)	20.0	17.1	18.6		12.6	13.0	12.8		12.0	12.1	12.1		
Individuals/m ³	441.0	1339.2	890.1		733.3	509.2	621.3		441.7	346.3	394.0		

APPENDIX TABLE G-15
 (continued)
 DRIFT MACROINVERTEBRATES TAKEN DURING FISH EGG AND LARVAE SAMPLING
 MARBLE HILL PLANT
 15 JUNE 1977

Depth	Species	Station 1				Station 3				Station 5			
		A	B	\bar{x}	RA	A	B	\bar{x}	RA	A	B	\bar{x}	RA
Bottom	Crustacea												
	Cladocera												
	<i>Daphnia galeata</i>	30	-	15	1.2	-	440	220	6.2	-	-	-	-
	<i>D. retrocurva</i>	1080	1320	1200	98.8	2200	4400	3300	93.4	140	70	105	95.5
	<i>Leptodora kindtii</i>	-	-	-	-	-	-	-	-	-	10	5	4.5
	Copepoda												
	<i>Cyclops</i>												
	<i>bicuspidatus thomasi</i>	-	-	-	-	20	-	10	0.3	-	-	-	-
	Hydrozoa												
	<i>Hydra</i> sp.	-	-	-	-	-	10	5	0.1	-	-	-	-
Total individuals	1110	1320	1215		2230	4840	3535		140	80	110		
Volume filtered (m ³)	11.1	11.5	11.3		17.7	17.7	17.7		18.2	18.8	18.5		
Individuals/m ³	100.0	114.8	107.4		126.0	273.4	199.7		7.7	4.3	6.0		

APPENDIX TABLE G-15

DRIFT MACROINVERTEBRATES TAKEN DURING FISH EGG AND LARVAE SAMPLING
MARBLE HILL PLANT
15 JUNE 1977

Depth	Species	Station 1				Station 3				Station 5			
		A	B	\bar{x}	RA	A	B	\bar{x}	RA	A	B	\bar{x}	RA
Surface	Crustacea												
	Cladocera												
	<i>Ceriodaphnia quadrangula</i>	-	-	-	-	-	-	-	-	-	10	5	-
	<i>Daphnia retrocurva</i>	-	30	15	75.0	60	100	80	100.0	80	120	100	-
	Insecta												
	Diptera												
	<i>Cricotopus</i> sp.	-	10	5	25.0	-	-	-	-	-	-	-	-
	Total individuals	-	40	20		60	100	80		80	130	105	
	Volume filtered (m ³)	14.0	14.6	14.3		14.9	15.6	15.3		19.2	19.8	19.5	
	Individuals/m ³	0	2.7	1.4		4.0	6.4	5.2		4.2	6.6	5.4	
Mid-depth	Crustacea												
	Cladocera												
	<i>Ceriodaphnia quadrangula</i>	-	-	-	-	20	-	10	1.4	-	-	-	-
	<i>Daphnia ambigua</i>	80	-	40	4.5	-	-	-	-	-	-	-	-
	<i>D. parvula</i>	-	-	-	-	-	30	15	2.1	-	-	-	-
	<i>D. retrocurva</i>	860	810	835	93.8	530	790	660	94.3	180	150	165	100.0
	<i>Leptodora kindtii</i>	-	20	10	1.1	10	-	5	0.8	-	-	-	-
	Copepoda												
	<i>Cyclops bicuspidatus thomasi</i>	-	-	-	-	10	10	10	1.4	-	-	-	-
	Insecta												
	Ephemeroptera												
	<i>Baetis</i> sp.	10	-	5	0.6	-	-	-	-	-	-	-	-
	Total individuals	950	830	890		570	830	700		180	150	165	
Volume filtered (m ³)	13.1	13.6	13.4		12.0	12.5	12.3		19.9	20.5	20.2		
Individuals/m ³	72.5	61.0	66.8		47.5	66.4	57.0		9.0	7.4	8.2		

APPENDIX TABLE G-16

DRIFT MACROINVERTEBRATES TAKEN DURING FISH EGG AND LARVAE SAMPLING
MARBLE HILL PLANT
24 JUNE 1977

Depth	Species	Station 1				Station 3				Station 5			
		A	B	\bar{x}	RA	A	B	\bar{x}	RA	A	B	\bar{x}	RA
Surface	Crustacea												
	Cladocera					380	-	190	14.6	-	20	10	20.0
	<i>Daphnia parvula</i>	-	-	-	-	2200	30	1115	85.4	20	60	40	80.0
	<i>D. retrocurva</i>	80	20	50	90.9	-	-	-	-	-	-	-	-
	Hydrozoa												
	<i>Hydra</i> sp.	10	-	5	9.1	-	-	-	-	-	-	-	-
	Total individuals	90	20	55		2580	30	1305		20	80	50	
	Volume filtered (m ³)	23.5	24.2	23.9		20.4	20.9	20.7		19.5	20.2	19.9	
	Individuals/m ³	3.8	0.8	2.3		126.5	1.4	72.0		1.0	4.0	2.5	
	Mid-depth	Crustacea											
Cladocera													
<i>Daphnia ambigua</i>		440	60	250	13.9	-	-	-	-	-	-	-	-
<i>D. retrocurva</i>		1760	1320	1540	85.2	480	480	480	97.0	40	40	40	100.0
<i>Leptodora kindti</i>		-	-	-	-	10	-	5	1.0	-	-	-	-
Copepoda													
<i>Cyclops</i>													
<i>bicuspidatus thomasi</i>		-	20	10	0.6	-	-	-	-	-	-	-	-
Hydrozoa													
<i>Hydra</i> sp.		-	10	5	0.3	-	20	10	2.0	-	-	-	-
Total individuals	2200	1410	1805		490	500	495		40	40	40		
Volume filtered (m ³)	20.9	21.5	21.3		19.4	19.9	19.7		21.7	22.3	22.0		
Individuals/m ³	105.3	65.6	185.5		25.3	25.1	25.2		1.8	1.8	1.8		

APPENDIX TABLE G-16
 (continued)
 DRIFT MACROINVERTEBRATES TAKEN DURING FISH EGG AND LARVAE SAMPLING
 MARBLE HILL PLANT
 24 JUNE 1977

Depth	Species	Station 1				Station 3				Station 5			
		A	B	\bar{x}	RA	A	B	\bar{x}	RA	A	B	\bar{x}	RA
Bottom	Crustacea												
	Cladocera									20	30	25	26.3
	<i>Daphnia ambigua</i>	-	-	-	-	-	-	-	-	-	-	-	-
	<i>D. parvula</i>	880	-	440	12.9	-	-	-	-	-	-	-	-
	<i>D. retrocurva</i>	2640	3200	2920	85.5	240	260	250	98.0	70	60	65	68.4
	<i>Leptodora kindtii</i>	10	-	5	0.1	-	-	-	-	-	-	-	-
	Copepoda												
	<i>Cyclops</i>												
	<i>bicuspidatus thomasi</i>	90	10	50	1.5	-	-	-	-	-	-	-	-
	Hydrozoa												
<i>Hydra</i> sp.	-	-	-	-	10	-	5	2.0	10	-	5	5.3	
Total individuals	3620	3210	3415		250	260	255		100	90	95		
Volume filtered (m ³)	27.0	27.5	27.3		19.6	20.2	19.9		19.4	20.1	19.8		
Individuals/m ³	134.1	116.7	125.4		12.8	12.9	12.9		5.2	4.5	4.9		

APPENDIX TABLE G-17

DRIFT MACROINVERTEBRATES TAKEN DURING FISH EGG AND LARVAE SAMPLING
MARBLE HILL PLANT
30 JUNE 1977

Depth	Species	Station 1				Station 3				Station 5			
		A	B	\bar{x}	RA	A	B	\bar{x}	RA	A	B	\bar{x}	RA
Surface	Insecta												
	Diptera												
	<i>Dicrotendipes modestus</i>	-	20	10	100	-	-	-	-	-	-	-	-
	Total individuals	-	20	10		0	0	0		0	0	0	
	Volume filtered (m ³)	21.9	22.6	21.3		15.9	16.5	16.2		17.6	18.2	17.9	
Individuals/m ³	0	0.9	0.5		0	0	0		0	0	0		
Mid-depth	Crustacea												
	Cladocera												
	<i>Daphnia parvula</i>	-	-	-	-	20	60	40	80.0	40	-	20	66.7
	<i>D. retrocurva</i>	-	-	-	-	-	20	10	20.0	20	-	10	33.3
	<i>Leptocera kindtii</i>	20	-	10	100	-	-	-	-	-	-	-	-
Total individuals	20	0	10		20	30	50		60	0	30		
Volume filtered (m ³)	21.8	22.5	22.2		16.1	16.7	16.4		15.1	15.5	15.3		
Individuals/m ³	0.9	0	0.5		1.2	4.8	3.0		4.0	0	2.0		
Bottom	Crustacea												
	Cladocera												
	<i>Daphnia parvula</i>	-	40	20	40.0	-	40	20	100	140	100	120	100.0
	<i>D. retrocurva</i>	20	40	30	60.0	-	-	-	-	-	-	-	-
	Total individuals	20	80	50		0	40	20		140	100	120	
Volume filtered (m ³)	22.4	21.2	21.8		22.4	21.2	21.8		15.4	15.9	15.7		
Individuals/m ³	0.9	3.8	2.4		0	1.9	1.0		9.1	6.3	7.7		

APPENDIX TABLE G-18

DRIFT MACROINVERTEBRATES TAKEN DURING FISH EGG AND LARVAE SAMPLING
MARBLE HILL PLANT
8 JULY 1977

Depth	Species	Station 1				Station 3				Station 5			
		A	B	\bar{x}	RA	A	B	\bar{x}	RA	A	B	\bar{x}	RA
Surface	Insecta												
	Diptera												
	<i>Dicrotendipes modestus</i>	-	-	-	-	-	20	10	100	-	-	-	-
	Total individuals	0	0	0		0	20	10		0	0	0	
Volume filtered (m ³)	18.8	19.6	19.1		21.9	22.9	22.4		22.6	23.5	23.0		
Individuals/m ³	0	0	0		0	0.9	0.5		0	0	0		
Mid-depth	Crustacea												
	Cladocera												
	<i>Daphnia ambigua</i>	-	-	-	-	-	20	10	100	-	-	-	-
	Total individuals	0	0	0		0	20	10		0	0	0	
Volume filtered (m ³)	17.5	18.3	17.9		16.0	16.9	16.5		19.2	20.2	19.7		
Individuals/m ³	0	0	0		0	1.2	0.6		0	0	0		
Bottom		None taken				None taken				None taken			

APPENDIX TABLE G-19

DRIFT MACROINVERTEBRATES TAKEN DURING FISH EGG AND LARVAE SAMPLING
MARBLE HILL PLANT
15 JULY 1977

Depth	Species	Station 1				Station 3				Station 5			
		A	B	\bar{x}	RA	A	B	\bar{x}	RA	A	B	\bar{x}	RA
Surface	Insecta												
	Diptera												
	<i>Polypedilum halterale</i>	-	20	10	100	-	-	-	-	-	-	-	-
	Total individuals	0	20	10		0	0	0		0	0	0	
	Volume filtered (m ³)	18.2	19.3	18.8		27.2	28.8	28.0		23.8	25.0	24.4	
Individuals/m ³	0	1.0	0.5		0	0	0		0	0	0		
Mid-depth	Crustacea												
	Cladocera												
	<i>Daphnia retrocurva</i>	-	20	10	33.3	-	-	-	-	-	-	-	-
	<i>Leptodora kindti</i>	-	-	-	-	20	-	10	50.0	-	-	-	-
	Insecta												
	Diptera												
	<i>Dicrotendipes modestus</i>	40	-	20	66.7	-	20	10	50.0	-	-	-	-
	Total individuals	40	20	30		20	20	20		0	0	0	
	Volume filtered (m ³)	26.7	28.2	27.5		21.7	22.9	22.3		27.5	29.3	28.4	
	Individuals/m ³	1.5	0.7	1.1		0.9	0.9	0.9		0	0	0	
Bottom	Crustacea												
	Cladocera												
	<i>Leptodora kindti</i>	20	-	10	100	-	-	-	-	-	-	-	-
	Total individuals	20	0	10		0	0	0		0	0	0	
Volume filtered (m ³)	16.1	16.9	16.5		22.6	23.5	23.1		26.5	28.1	27.3		
Individuals/m ³	1.2	0	0.6		0	0	0		0	0	0		

APPENDIX TABLE G-20

DRIFT MACROINVERTEBRATES TAKEN DURING FISH EGG AND LARVAE SAMPLING
 MARBLE HILL PLANT
 26 JULY 1977

Depth	Species	Station 1				Station 3				Station 5			
		A	B	\bar{x}	RA	A	B	\bar{x}	RA	A	B	\bar{x}	RA
Surface		None taken				None taken				None taken			
Mid-depth	Crustacea												
	Cladocera												
	<i>Daphnia parvula</i>	20	20	20	66.7	-	-	-	-	-	-	-	-
	Insecta												
	Diptera												
	<i>Dicrotendipes modestus</i>	-	20	10	33.3	-	-	-	-	-	-	-	-
	Arachnida												
<i>Limnochares</i> sp.	-	-	-	-	-	-	-	-	-	40	20	100	
	Total individuals	20	40	30		0	0	0		0	40	20	
	Volume filtered (m ³)	18.1	19.9	18.6		17.6	18.4	18.0		18.3	19.1	18.7	
	Individuals/m ³	1.1	2.1	1.6		0	0	0		0	2.1	1.1	
Bottom	Crustacea												
	Cladocera												
	<i>Daphnia parvula</i>	-	-	-	-	-	-	-	-	20	-	10	100
	Total individuals	0	0	0		0	0	0		20	0	10	
	Volume filtered (m ³)	16.0	17.0	16.5		18.0	18.9	18.5		17.3	18.2	17.8	
	Individuals/m ³	0	0	0		0	0	0		1.2	0	0.6	

A P P E N D I X H

MAMMALS

APPENDIX TABLE H-1
 RESULTS OF RABBIT SURVEY^a
 MARBLE HILL PLANT
 MAY 1977

Date	Mile point of sighting	Total counted	Time	Weather Data		
				Wind direction and speed (mph)	Rain	Temperature (°F)
23 May	-	-	6:00 pm	SE - 8	None	83
24 May	3.8	6	6:00 am	SE - 5	None	64
	4.3		6:00 pm	calm	None	85
	6.6					
	6.7					
	6.8					
25 May ^b	7.1					
	4.6		6:00 am	N - 6	None	68
	7.1	2	6:00 pm	NW - 6	None	73
26 May	2.1	4	6:00 am	N - 7	None	65
	2.1					
	3.0					
	6.4					

^aSurvey was begun at approximately 5:05 a.m. each day and terminated by 5:45 a.m.

^bRoute was followed in opposite direction on this day.

APPENDIX TABLE H-2

RESULTS OF SQUIRREL SURVEY
 MARBLE HILL PLANT
 MARCH 1977

Observation number	Squirrels observed	Species	Distance to observed squirrel (ft)
<u>1st day - 23 March 1977</u>			
1	1	Eastern fox squirrel	135
2	1	Eastern fox squirrel	105
3	0	-	-
4	1	Eastern fox squirrel	132
5	0	-	-
<u>2nd day - 24 March 1977</u>			
6	0	-	-
7	0	-	-
8	0	-	-
9	0	-	-
10	0	-	-
Total observed 3		Mean distance 124	
Area observed (acres) 8.32			
Squirrels/acre 0.36			

APPENDIX TABLE H-3

RESULTS OF SQUIRREL SURVEY
MARBLE HILL PLANT
NOVEMBER 1977

Observation number	Squirrels observed	Species	Distance to observed squirrel (ft)
<u>1st day - 8 Nov. 1977</u>			
1	1	Eastern fox squirrel	105
2	0	-	-
3	0	-	-
4	0	-	-
5	0	-	-
<u>2nd day - 9 Nov. 1977</u>			
6	0	-	-
7	1	Eastern fox squirrel	141
8	0	-	-
9	0	-	-
10	0	-	-
<hr/>			
Total observed	2		Mean distance 123
Area observed (acres)	8.18		
Squirrels/acre	0.24		
<hr/>			