



WINTER 1981 QUARTERLY REPORT
BAILLY NUCLEAR-1 SITE
ENCOMPASSING
January - March 1981

April 1981

Prepared for
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EXECUTIVE SUMMARY

Aquatic

Fall-winter 1980 sampling was performed in November 1980 and January 1981. November 1980 results for phytoplankton, periphyton, benthos, fish, and water quality were presented in the Fall 1980 Quarterly Report (Texas Instruments, 1981). This winter quarterly contains the results for zooplankton, ichthyoplankton, and trace-elements in nearshore pond sediments.

Zooplankton collections in Lake Michigan during November 1980 yielded generally similar taxa and densities as were found in November 1979. Samples from Pond C and Cowles Bog showed slightly higher densities and numbers of taxa compared to those of November 1979. Dominant organisms were similar between the two periods except that in Cowles Bog ostracods were replaced by copepods as the dominant organism group.

No ichthyoplankton were collected during November 1980 sampling.

Sediment samples were collected at ash-settling pond stations 13 through 16 and from Pond C (stations 19 and 20). Stations 17 and 18 (Pond B) were dry. The sealing of the ash ponds associated with stations 14 and 15 was complete and samples were taken at these locations. Pond B was dry, possibly a result of ash pond sealing.

Summary of Construction Activities, Bailly Generating Station, November 1980 - January 1981

Construction of Bailly N-1 has been suspended pending completion of review and concurrence by the Nuclear Regulatory Commission of the pile design. The new precipitators and Balance Draft Conversion for Unit 8 has been completed as well as construction on the Coal Dust Elimination System for the Crusher House. The sealing of the ash ponds by stations 14 and 15 has been completed, returning the ponds to operation. The remaining ash ponds will be sealed in spring, 1981.



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SECTION 1
AQUATIC ECOLOGY

1.1 STATUS

Samples were collected in November 1980 and January 1981 by a Texas Instruments field crew under the direction of Joe Strube and Joe Saga, respectively. Samples were collected both in Lake Michigan and the interdunal and ash-settling ponds (Figure 1.1).

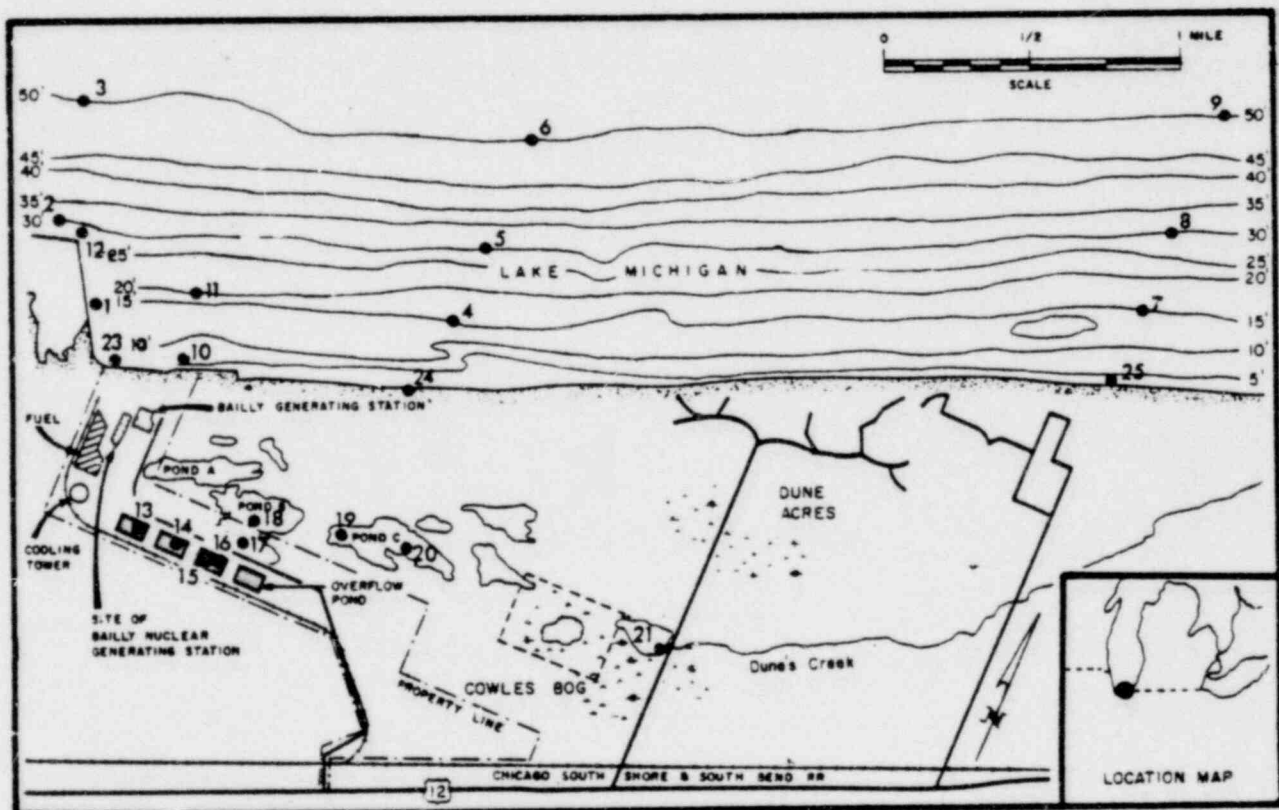


Figure 1.1. Aquatic Sampling Stations in Baily Study Area

Dredging activities in Lake Michigan noted during previous months had been concluded prior to sampling. No samples were taken at pond stations 17 and 18 as Pond B was dry. Sediment samples collected from stations 15 and 16 in the ash-settling ponds contained only large rocks and could not be appropriately analyzed. The dates and purposes of field trips and the status of collected samples are presented in Tables 1.1 and 1.2.



Table 1.1
Dates and Purposes of Aquatic Field Trips,
Bailly Study Area, Winter Quarter, 1981

<u>Date</u>	<u>Personnel</u>	<u>Parameters Sampled</u>
17 March	Ray Wronkiewiez	Periphyton (Samplers set)
14-20 April	Kendall Brown Ralph Feeny Jim Krueger	Phytoplankton Zooplankton Periphyton Benthos Fish Ichthyoplankton Water quality
15 May	Ralph Feeny	Periphyton (Samplers set)
9-17 June	Kendall Brown Joe Strube Ralph Feeny Dave Mueller	Phytoplankton Zooplankton Periphyton Benthos Fish Ichthyoplankton Water quality Aquatic macrophytes
16 July	Dave Mueller Steve Garbarino	Periphyton (Samplers set)
18-25 August	Kendall Brown Joe Strube Steve Garbarino	Phytoplankton Zooplankton Periphyton Benthos Fish Ichthyoplankton Water quality Sediments
20 October	Steve Garbarino	Periphyton (Samplers set)
15-22 November	Joe Strube Steve Garbarino David Ward	Phytoplankton Zooplankton Periphyton Benthos Fish Ichthyoplankton Water quality
30 January 1981	Joe Saga David Ward	Sediments, trace-elements



Table 1.2
Status of Laboratory Analyses for Bailly Study Area

Parameter	Sampling Station	April			June			August			November		
		Sampling Scheduled	Analyses		Sampling Scheduled	Analyses		Sampling Scheduled	Analyses		Sampling Scheduled	Analyses	
			Complete	Continuing		Complete	Continuing		Complete	Continuing		Complete	Continuing
Phytoplankton													
Identification, enumeration	1-10, 17-21	x	x		x	x		x	x		x	x	
Productivity	1-10, 17-21	x	x		x	x		x	x		x	x	
Chlorophyll <i>a</i>	1-10, 17-21	x	x		x	x		x			x	x	
Zooplankton													
Identification, enumeration	1-10, 17-21	x	x		x	x		x	x		x	x	
Periphyton													
Identification, enumeration	1,10,11,12,25 17, 19, 21	x	x		x	x		x	x		x	x	
Chlorophyll <i>a</i>	1,10,11,12,25 17,19,21	x	x		x	x		x	x		x	x	
Benthos													
Identification, enumeration	1-10, 17-21	x	x		x	x		x	x		x	x	
Sediment particle size	1-10, 17-21							x	x				
Fish													
Gill netting	4, 7	x	x		x	x		x	x		x	x	
Beach seining	23, 24, 25	x	x		x	x		x	x		x	x	
Pond electroshocking	17, 18	x	x					x	x				
Food habits	1-10	x		x*	x		x*	x		x*	x		x*
Ichthyoplankton	1-10	x	x		x	x		x	x		x	x	
Water Quality													
General water quality	1-22	x	x		x	x		x	x		x	x	
Aquatic nutrients	1-22	x	x		x	x		x	x		x	x	
Trace elements	13-21	x	x		x	x		x	x		x	x	
Indicators of contamination	13-21	x	x		x			x	x		x	x	
Sediments-Trace elements **	17-21	x	x					x	x		x	x	
Aquatic Macrophytes	17-21				x	x							

*Since the objective of the food-habits study is to collect 50 specimens each of six taxa over the course of a year, analyses cannot be performed until all fish are collected. Results will be in the annual report.

**Sediment samples also collected in January 1981.



1.2 ZOOPLANKTON

Summary data for November 1980 zooplankton are presented in Tables 1.3, 1.4, and 1.5 while replicate data by station are contained in Appendix A.

Table 1.3
Zooplankton Density, NIPSCO Baily Station Vicinity,
November 1980 (Page 1 of 2)

LS	TAXA	Nearfield 1-6 & 10	Farfield 7-9	Mean - x	S.E.	REL AB%
0	CNIDARIA (TOTAL)	39.36	0.0	19.68	19.68	0.1
0	HYDROZOA					
19	HYDRA (LPIL)	27.01	0.0	13.51	13.51	0.1
1	HYDRA (LPIL)	12.35	0.0	6.17	6.17	0.0
0	NEMATODA (TOTAL)	6.17	0.0	3.09	3.09	0.0
1	NEMATODA (LPIL)	6.17	0.0	3.09	3.09	0.0
0	ANNELIDA (TOTAL)	5.95	0.0	2.98	2.98	0.0
1	ANNELIDA (LPIL)	5.95	0.0	2.98	2.98	0.0
0	CLADOCERA (TOTAL)	9227.25	6643.32	7935.28	1291.96	31.8
0	BOSMINIDAE					
1	BOSMINIDAE (LPIL)	8387.93	5339.19	6863.55	1524.37	27.5
0	CHYDORIDAE					
1	CHYDORIDAE (LPIL)	9.26	0.0	4.63	4.63	0.0
0	DAPHNIDAE					
1	DAPHNIA GALEATA MENDOTAE	148.12	312.62	230.37	82.25	0.9
1	DAPHNIA RETROCURVA	355.11	627.64	491.37	136.27	2.0
1	DAPHNIA PULEX	20.31	0.0	10.16	10.16	0.0
1	DAPHNIA (LPIL)	51.05	35.64	43.34	7.71	0.2
6	DAPHNIA (LPIL)	87.97	61.64	74.80	13.16	0.3
0	HOLOPEDIDAE					
1	HOLOPEDIDIUM GIBBERUM	152.11	266.60	209.36	57.24	0.8
6	CLADOCERA (LPIL)	15.40	0.0	7.70	7.70	0.0
0	COPEPODA (TOTAL)	11240.38	22703.36	16971.87	5731.49	58.1
0	CALANOIDA (TOTAL)					
1	DIAPTOMUS OREGONENSIS	300.29	1105.02	702.66	402.37	2.8
1	DIAPTOMUS ASHLANDI	729.98	2951.17	1840.57	1110.59	7.4
1	DIAPTOMUS SICIOLOIDES	3.09	0.0	1.54	1.54	0.0
1	DIAPTOMUS PALLIDUS	6.17	0.0	3.09	3.09	0.0
1	DIAPTOMUS SICILIS	194.34	1094.78	644.56	450.22	2.6
1	DIAPTOMUS MINUTUS	87.02	237.01	162.02	74.99	0.6
1	EURYTEMORA AFFINIS	8.13	0.0	4.06	4.06	0.0
1	EPISCHURA LACUSTRIS	153.00	157.17	155.09	2.08	0.6
14	CALANOIDA (LPIL)	2388.50	6133.05	4260.77	1872.27	17.1
0	CYCLOPOIDA (TOTAL)					
1	CYCLOPS BICUSPIDATUS THOMASI	999.28	1409.67	1204.48	205.20	4.8
1	TROPOCYCLOPS PRASINUS MEXICANA	42.96	90.36	66.66	23.70	0.3
14	CYCLOPOIDA (LPIL)	6327.62	9525.12	7926.37	1598.75	31.8
	TOTAL	20519.11	29346.67	24932.89	4413.78	100.0
	DIVERSITY (H PRIME)	2.13	2.60	2.36	0.23	
	DIVERSITY (J PRIME)	0.60	0.73	0.67	0.06	
	NUMBER OF TAXA	23	14	23		
	ABOVE COMPUTED USING SAMPLE IDS					
	11	12	13	14		
	21	22	23	24		
	31	32	33	34		
	41	42	43	44		
	51	52	53	54		
	61	62	63	64		
	101	102	103	104		
	71	72	73	74		
	81	82	83	84		
	91	92	93	94		



Table 1.3 (Page 2 of 2)

LS	TAXA	Nearshore Ponds			Mean x	S.E.	REL ABX
		B	C	Cowles Bog			
0	CNIDARIA (TOTAL)	0.0	38.69	0.83	19.76	18.93	1.0
0	HYDROZOA						
19	HYDRA (LPIL)	0.0	38.69	0.83	19.76	18.93	1.0
0	NEMATODA (TOTAL)	0.0	99.15	0.0	49.58	49.58	2.6
1	NEMATODA (LPIL)	0.0	99.15	0.0	49.58	49.58	2.6
0	OLIGOCHAETA (TOTAL)	0.0	106.33	4.17	55.25	51.08	2.9
0	NAIDIAE						
1	CHAETOGASTER (LPIL)	0.0	2.09	0.0	1.05	1.05	0.1
1	OLIGOCHAETA (LPIL)	0.0	104.23	4.17	54.20	50.03	2.8
0	ANNELIDA (TOTAL)	0.0	61.13	0.83	30.98	30.15	1.6
1	ANNELIDA (LPIL)	0.0	61.13	0.83	30.98	30.15	1.6
0	GASTROPODA (TOTAL)	0.0	0.0	0.42	0.21	0.21	0.0
2	GASTROPODA (LPIL)	0.0	0.0	0.42	0.21	0.21	0.0
0	ARACHNIDA (TOTAL)	0.0	0.0	0.42	0.21	0.21	0.0
19	ARACHNIDA (LPIL)	0.0	0.0	0.42	0.21	0.21	0.0
0	CLADOCERA (TOTAL)	0.0	2126.00	22.50	1074.25	1051.75	55.4
0	BOSMINIDAE						
1	BOSMINIDAE (LPIL)	0.0	29.08	0.33	14.96	14.12	0.8
0	CHYDORIDAE						
1	ALONA RECTANGULA	0.0	19.37	0.0	9.69	9.69	0.5
1	ALONA AFFINIS	0.0	67.01	0.0	33.50	33.50	1.7
1	ALONA GUTTATA	0.0	3.12	0.0	1.56	1.56	0.1
20	ALONA (LPIL)	0.0	32.71	0.0	16.35	16.35	0.8
1	ALONA (LPIL)	0.0	512.35	0.0	256.17	256.17	13.2
1	CAMPTOCERCUS RECTIROSTRIS	0.0	28.98	0.0	14.49	14.49	0.7
1	CHYDORUS (LPIL)	0.0	1180.62	0.83	590.73	589.89	30.5
1	PLEUROXUS DENTICULATUS	0.0	85.73	10.42	48.07	37.66	2.5
1	PLEUROXUS (LPIL)	0.0	51.15	5.00	28.07	23.07	1.4
0	DAPHNIDAE						
1	DAPHNIA RETROCURVA	0.0	1.89	0.0	0.95	0.95	0.0
1	SIMOCEPHALUS (LPIL)	0.0	97.02	0.83	48.93	48.09	2.5
1	SCAPHOLEBERIS KINGI	0.0	0.0	1.25	0.62	0.62	0.0
1	SCAPHOLEBERIS (LPIL)	0.0	6.94	2.50	4.72	2.22	0.2
0	MACROTHRICIDAE						
1	ILYCRYPTUS SPINIFER	0.0	0.21	0.0	0.10	0.10	0.0
6	CLADOCERA (LPIL)	0.0	5.65	0.0	2.82	2.82	0.1
3	CLADOCERA (LPIL)	0.0	4.17	0.83	2.50	1.67	0.1
0	OSTRACODA (TOTAL)	0.0	55.97	1.25	28.61	27.36	1.5
19	OSTRACODA (LPIL)	0.0	55.97	1.25	28.61	27.36	1.5
0	COPEPODA (TOTAL)	0.0	1219.84	88.33	654.09	565.75	33.7
0	CALANOIDA (TOTAL)						
14	CALANOIDA (LPIL)	0.0	3.35	0.0	1.67	1.67	0.1
0	CYCLOPOIDA (TOTAL)						
1	CYCLOPS VERNALIS	0.0	54.85	2.08	28.47	26.39	1.3
1	EUCYCLOPS AGILIS	0.0	139.02	0.83	69.93	69.18	3.6
1	EUCYCLOPS SPERATUS	0.0	5.42	0.0	2.71	2.71	0.1
1	MACROCYCLOPS ALBIDUS	0.0	220.21	1.25	110.73	109.48	5.7
1	ORTHOCYCLOPS MODESTUS	0.0	0.0	0.42	0.21	0.21	0.0
14	CYCLOPOIDA (LPIL)	0.0	786.42	18.33	402.38	384.05	20.8
0	HARPACTICOIDA (TOTAL)						
1	HARPACTICOIDA (LPIL)	0.0	9.72	53.33	31.53	21.81	1.6
14	HARPACTICOIDA (LPIL)	0.0	0.83	12.08	6.46	5.62	0.3
0	EPHEMEROPTERA (TOTAL)	0.0	2.50	0.42	1.46	1.04	0.1
13	EPHEMEROPTERA (LPIL)	0.0	2.50	0.42	1.46	1.04	0.1
0	TRICHOPTERA (TOTAL)	0.0	0.0	0.42	0.21	0.21	0.0
2	TRICHOPTERA (LPIL)	0.0	0.0	0.42	0.21	0.21	0.0
0	DIPTERA NEMATOCERA (TOTAL)	0.0	46.61	0.42	23.51	23.10	1.2
0	CHIRONOMIDAE						
2	CHIRONOMIDAE (LPIL)	0.0	46.61	0.42	23.51	23.10	1.2
0	DIPTERA (TOTAL)	0.0	0.0	0.42	0.21	0.21	0.0
2	DIPTERA (LPIL)	0.0	0.0	0.42	0.21	0.21	0.0
TOTAL		-0.00	3756.22	120.42	1938.32	1817.90	100.0
	DIVERSITY (H PRIME)	0.0	2.96	2.26	2.61	0.35	
	DIVERSITY (J PRIME)	0.0	0.70	0.65	0.67	0.03	
	NUMBER OF TAXA	0	29	24	35		
ABOVE COMPUTED USING SAMPLE IDS							
	191	192	193	194			
	201	202	203	204			
	211	212	213	214			
MISSED SAMPLE IDS							
	171	172	173	174			
	181	182	183	184			



Table 1.4

Summary Data for Lake Michigan Zooplankton,
Bailly Study Area, November 1980

<u>Station</u>	<u>No. of Taxa</u>	<u>Density (No./m³)</u>	<u>Diversity (H')</u>	<u>Evenness (J')</u>
1	13	33,542	1.95	0.59
2	15	31,465	2.07	0.62
3	14	18,470	2.34	0.65
4	17	21,121	2.17	0.61
5	16	22,539	2.37	0.67
6	13	16,664	2.52	0.74
7	14	36,405	2.87	0.79
8	14	27,146	2.43	0.70
9	14	24,490	2.50	0.70
10	19	13,623	1.92	0.52
Lake Michigan	23	24,933	2.32	0.66

Table 1.5

Summary Data for Nearshore Ponds Zooplankton,
Bailly Study Area, November 1980

<u>Station</u>	<u>No. of Taxa</u>	<u>Density (No./l)</u>	<u>Diversity (H')</u>	<u>Evenness (J')</u>
17*				
18*				
Pond B (17, 18)*				
19	27	2,210	3.11	0.71
20	23	5,302	2.80	0.68
Pond C (19, 20)	29	3,756	2.96	0.70
Cowles Bog (21)	24	120	2.26	0.65
All Pond Samples	35	1,938	2.61	0.67

*Pond was dry.



November 1980 samples yielded 23 taxa of zooplankton in Lake Michigan with an average density of 20,519 per cubic meter. These numbers represent slight increases from November 1979 (21 taxa and 19,562 organisms per cubic meter). Cyclopoid copepods were the dominant organisms present in 1980 as was the case in November 1979 samples. Cladocerans were the second most numerous group encountered. Nearfield densities (stations 1 through 6 and 10) were slightly lower than farfield densities (stations 7, 8, and 9) with 20,519 and 29,347 organisms per cubic meter, respectively. Cladocerans comprised a greater percentage of the total population at the nearfield stations.

Densities within Pond C and Cowles Bog were slightly higher than noted in November 1979. Pond C averaged 3756 organisms per liter with 29 taxa represented, while Cowles Bog had 120 organisms per liter and 24 taxa (Table 1.5). Cladocerans dominated the zooplankton in Pond C with copepods dominant in Cowles Bog. Dominance in Pond C was similar to that noted in 1979; however, ostracods had been dominant in Cowles Bog during the previous November. The ostracod dominance was unusual and its nonrecurrence alludes to its rare occurrence.

1.3 ICHTHYOPLANKTON

Ichthyoplankton collections with the zooplankton net at stations 1 through 10 and the epibenthic pump at stations 4 and 7 yielded no fish eggs or larvae as usually has been the case during prior years of November sampling (Texas Instruments, 1980).

1.4 TRACE-ELEMENTS IN SEDIMENTS

Sediment trace-element concentrations were measured from samples collected in January from the ash-settling ponds and Pond C. Ash-settling pond station 15 and 16 samples contained only rock substrate, inappropriate for analysis. Because Pond B was dry, no samples were collected there. Results for the January 1981 samples are provided in Table 1.6.

Lead, mercury, selenium, and vanadium were undetectable in sediment samples from the ash-settling ponds as was the case in January 1980 samples (Texas Instruments,



1980). Detectable concentrations (although relatively low) were noted for cadmium, chromium, copper, and nickel in January, 1981; these had been below detection in January 1980.

Table 1.6

Trace-Element Concentrations (mg/kg Dry Weight) in Sediment Samples from Nearshore Pond Stations, Bailly Study Area, January 1981

Parameter*	Replicate	13	14	15**	16**	17***	18***	19	20
Cadmium	a	0.022	0.033					0.029	0.025
	b	0.020	0.020					0.040	0.040
Chromium	a	0.011	0.011					0.117	0.125
	b	0.007	0.014					0.319	0.126
Copper	a	0.014	0.011					0.496	0.150
	b	0.017	0.017					0.239	0.210
Iron	a	1.36	1.43					75.9+	128.0+
	b	1.29	0.068					150.0+	86.8+
Lead	a	<0.003	<0.004					<0.030	<0.020
	b	<0.003	<0.003					<0.040	<0.040
Manganese	a	0.464	1.16					2.98	0.576
	b	0.647	0.801					34.0	7.63
Mercury	a	<0.001	<0.012					<0.015	<0.010
	b	<0.002	<0.026					<0.020	<0.020
Nickel	a	0.033	0.041					0.029	0.050
	b	0.034	0.037					0.199	0.126
Selenium	a	<0.003	<0.004					<0.03	<0.02
	b	<0.003	<0.003					0.24	<0.04
Vanadium	a	<0.003	<0.004					0.175	0.200
	b	<0.003	<0.003					0.239	0.545
Zinc	a	0.029	0.056					0.146	0.125
	b	0.068	0.051					<0.040	0.168
Phosphorus	a	<0.006	<0.007					7.32	4.76
	b	<0.020	<0.007					62.2	4.40
Percent Solids	a	76.5	65.5					8.4	9.6
	b	74.4	70.5					5.6	5.8

* Variable minimum detection limits based on concentration necessary for analysis.

** Rock substrate; samples inappropriate for analysis.

*** Pond dry.

† Unusually high levels.



In natural Pond C, lead, mercury, and selenium generally were below levels of detection (a single selenium value was above the detection limit). However, increases in the concentrations of cadmium, chromium, copper, iron (unusually high level), manganese, nickel, vanadium, and zinc were observed when compared to the previous January samples. The increase in iron is notable; its source presently cannot be identified. Other value changes are within the range observed during past years of study. None of the trace-element concentrations observed appear to be exerting additional stress on the aquatic ecosystem in Pond C.

January 1981 sediment concentrations of percent solids were higher in the ash-settling ponds and lower in Pond C than during January 1980. Phosphorus levels were generally similar in the ash-settling ponds during January of the 2 years while concentrations in Pond C in January 1981 were elevated over those of the same month in 1980. The types of variations observed are typical of past years' comparisons.

1.5 LITERATURE CITED

Texas Instruments Incorporated. 1980. 1979-1980 Annual Report, Baily Nuclear-1 Site, Encompassing April 1979-March 1980. NIPSCo.

Texas Instruments Incorporated. 1981. Fall 1980 Quarterly Report, Baily Nuclear-1 Site, Encompassing October-December 1980. NIPSCo.

1.6 HOW TO READ TI COMPUTER PRINTOUTS

On the following two pages are detailed instructions for reading the TI computer printouts which appear in Appendix A.



II Project No.

NORTHERN INDIANA PUBLIC SERVICE COMPANY (49720)

BAILY GENERATING PLANT ← site

BENTHIC MACROINVERTEBRATE NUMERICAL ABUNDANCE (NO/30 M) ← Parameter

REPLICATE REPORT ←

PC TC GC LOC
5 71 71 1 1 00

SID DATE
181 6/14/78
182 6/14/78

SID = Station ID:
11 = Station 1, Replicate 1
12 = Station 1, Replicate 2

Type of Report:

Replicate = 1 station
Station/within site = multiple stations within an area of interest (e.g., Pond B, Lake Michigan, etc.)

PC = Project Code; 5 = NTPSCO
TC GC = Task Code/Gear Code:
51 51 = Zooplankton/Net
56 56 = Phytoplankton/Van Dorn
66 66 = Periphyton/Substrate
71 71 = Benthos/Ponar or Ekman

LS	TAXA
0	OLIGOCHAETA (TOTAL)
0	NAIDIDAE
1	NAIDIDAE (LPIL)
0	BIVALVIA (TOTAL)
0	SPHAERIIDAE
1	SPHAERIUM (LPIL)
6	BIVALVIA (LPIL)
0	EPIHEMEROPTERA (TOTAL)
0	CAENIDAE
10	CAENIS (LPIL)
0	DIPTERA NEMATOCERA (TOTAL)
0	CERATOPOGONIDAE
2	CERATOPOGONIDAE (LPIL)
0	CHIRONOMIDAE
2	CHIRONOMUS (LPIL)
2	CRYPTOCHIRONOMUS (LPIL)
2	TANYTARSUS (LPIL)
2	DICROTENDIPES (LPIL)
2	ADLABESHYIA (LPIL)
2	FROCLADIUS (LPIL)
2	PSECTROCLADIUS (LPIL)
3	CHIRONOMIDAE (LPIL)

LS	Life Stage	Benthos
0	Summary Level	
1	Adult	
2	Larvae	
3	Pupae	
4	Egg	
5-20	Zooplankton	Benthos
5	Nestling	5 Immature
6	Immature	6 Juvenile
7	Juvenile	7 Ehippium
8	No Code	8 Statoblast
9	Trocophore	9 Nauplius
10	Ehippium	10 Nymph
11	Statoblast	11 Colony
12	Nauplius	12 Undetermined
13	Nymph	
14	Copepodid	
15	Protozoa	
16	Zooi	
17	Postlarvae	
18	Colony	
19	Undetermined	
20	Mixed	

TOTAL DIVERSITY (H PRIME) ← Shannon-Weaver Index
DIVERSITY (J PRIME) ← Evenness Index
NUMBER OF TAXA
BOTTOM TYPE 0

ABOVE COMPUTED USING SAMPLE IDS
181 182

POOR ORIGINAL

science services division



APPENDIX A

ZOOPLANKTON DENSITY REPLICATE REPORTS,
BAILLY STUDY AREA, NOVEMBER 1980

NORTHERN INDIANA PUBLIC SERVICE COMPANY (49720)

BAILEY GENERATING PLANT

ZOOPLANKTON DENSITY

REPLICATE REPORT

PC TC GC LOC
5 51 51 0 0 00

SID	DATE	TIME	D/H	DURATION		SD	WD	TOW				WIND				CURRENT				TEMP		BT	TURBD	COND	DO	PH	SALN	P					
				UNITS	C			SP	D	UNITS	C	SECH	M	T	SC	DI	CL	SP	DI	AIR	WAT												
11	11/17/80	1055	0	0.0	0	4.6	4.6	0.0	0	3.6	3	2.0	0	0	0	0.0	0	5.0	6.0	0	0.0	0	0.0	0	12.4	0.0	0.0	0					
12	11/17/80	1055	0	0.0	0	4.6	4.6	0.0	0	3.6	3	2.0	0	0	0	0.0	0	5.0	5.6	0	0.0	0	0.0	0	12.4	0.0	0.0	0					
13	11/17/80	1055	0	0.0	0	4.6	4.6	0.0	0	3.6	3	2.0	0	0	0	0.0	0	5.0	6.0	0	0.0	0	0.0	0	12.4	0.0	0.0	0					
14	11/17/80	1055	0	0.0	0	4.6	4.6	0.0	0	3.6	3	2.0	0	0	0	0.0	0	5.0	6.0	0	0.0	0	0.0	0	12.4	0.0	0.0	0					
LS	TAXA																				X	REL											
										1	2	3	4																S.E.	AB%			
0	CLADOCERA (TOTAL)									388.89	23111.10	18148.14	18444.43	15023.14	5008.72	44.8																	
0	BOSMINIDAE																																
1	BOSMINIDAE (LPIL)									0.0	20666.66	17592.59	16888.88	13787.03	4668.29	41.1																	
0	DAPHNIDAE																																
1	DAPHNIA RETROCURVA									111.11	2000.00	185.19	1333.33	907.41	459.24	2.7																	
1	DAPHNIA (LPIL)									222.22	0.0	0.0	0.0	55.56	55.56	0.2																	
0	HOLOPEIDAE																																
1	HOLOPEIDIUM GIBBERUM									55.56	444.44	370.37	222.22	273.15	85.99	0.8																	
0	COPEPODA (TOTAL)									12222.21	22888.88	16296.29	22666.66	18518.51	2596.29	55.2																	
0	CALANOIDA (TOTAL)																																
1	DIAPYCNUS OREGONENSIS									388.89	444.44	555.56	444.44	458.33	34.95	1.4																	
1	DIAPYCNUS ASHLANDI									222.22	444.44	370.37	0.0	259.26	97.99	0.8																	
1	DIAPYCNUS PALLIDUS									0.0	222.22	0.0	0.0	55.56	55.56	0.2																	
1	DIAPYCNUS SICILIS									166.67	0.0	370.37	666.67	300.93	143.52	0.9																	
1	DIAPYCNUS MINUTUS									111.11	0.0	0.0	0.0	27.78	27.78	0.1																	
1	EPISCHURA LACUSTRIS									166.67	444.44	370.37	666.67	412.04	103.21	1.2																	
14	CALANOIDA (LPIL)									2111.11	3333.33	4074.07	4444.44	3490.77	514.62	10.4																	
0	CYCLOPOIDA (TOTAL)																																
1	CYCLOPS BICUSPIDATUS THOMASI									611.11	3111.11	740.74	2444.44	1726.85	622.39	5.1																	
14	CYCLOPOIDA (LPIL)									8444.44	14888.88	9814.81	14000.00	11787.03	1570.07	35.1																	
TOTAL										12611.08	45999.96	34444.41	41111.08	33541.63	7367.77	100.0																	
DIVERSITY (H PRIME)										1.71	2.08	1.91	2.11	1.95	0.09																		
DIVERSITY (J PRIME)										0.49	0.62	0.58	0.67	0.59	0.04																		
NUMBER OF TAXA										11	10	10	9	13																			

ABOVE COMPUTED USING SAMPLE IDS

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PAGE NO 1
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NORTHERN INDIANA PUBLIC SERVICE COMPANY (49720)

BAILEY GENERATING PLANT

ZOOPLANKTON DENSITY

REPLICATE REPORT

PC TC GC LOC
5 51 51 0 0 00

SID	DATE	TIME	D/H	DURATION		SD	WD	TOW				WIND				CURRENT		TEMP		WT	TURBD	COND	DO	PH	SALN	P
				UNITS	C			SP	D	UNITS	C	SECH	W	T	SC	DI	CL	SP	DI							
21	11/17/80	1005	0	0.0	0	9.1	9.1	0.0	0	7.1	3	2.0	0	0	0	0.0	0	4.0	7.0	0	0.0	0	12.6	0.0	0.0	0
22	11/17/80	1005	0	0.0	0	9.1	9.1	0.0	0	7.1	3	2.0	0	0	0.0	0	4.0	7.0	0	0.0	0	12.6	0.0	0.0	0	0
23	11/17/80	1005	0	0.0	0	9.1	9.1	0.0	0	7.1	3	2.0	0	0	0.0	0	4.0	7.0	0	0.0	0	12.6	0.0	0.0	0	0
24	11/17/80	1005	0	0.0	0	9.1	9.1	0.0	0	7.1	3	2.0	0	0	0.0	0	4.0	7.0	0	0.0	0	12.6	0.0	0.0	0	0
LS	TAXA																						X	S.E.	ABZ	
								1	2	3	4															
0	CLADOCERA (TOTAL)							9126.75	11943.66	11267.60	12957.74	11323.94	810.56	36.0												
0	BOSMINIDAE																									
1	BOSMINIDAE (LPIL)							8901.40	11267.60	9802.81	12845.07	10704.22	864.26	34.0												
0	DAPHNIDAE																									
1	DAPHNIA GALEATA MENDOTAE							0.0	0.0	563.38	0.0	140.85	140.85	0.4												
1	DAPHNIA RETROCURVA							225.35	563.38	450.70	112.68	338.03	102.86	1.1												
6	DAPHNIA (LPIL)							0.0	0.0	450.70	0.0	112.68	112.68	0.4												
0	HOLOPEIDIDAE																									
1	HOLOPEIDIUM GIBBERUM							0.0	112.68	0.0	0.0	28.17	28.17	0.1												
0	COPEPODA (TOTAL)							21633.79	19605.62	20169.00	19154.92	20140.83	539.15	64.0												
0	CALANOIDA (TOTAL)																									
1	DIAPTONIUS OREGONENSIS							450.70	338.03	338.03	112.68	309.86	70.89	1.0												
1	DIAPTONIUS ASHLANDI							338.03	901.41	563.38	338.03	535.21	133.12	1.7												
1	DIAPTONIUS SICILIS							676.06	788.73	563.38	338.03	591.55	96.22	1.9												
1	DIAPTONIUS MINUTUS							0.0	225.35	0.0	0.0	56.34	56.34	0.2												
1	EURYTENORA AFFINIS							112.68	0.0	0.0	0.0	28.17	28.17	0.1												
1	EPISCHURA LACUSTRIS							0.0	225.35	112.68	338.03	169.01	72.73	0.5												
14	CALANOIDA (LPIL)							5183.09	2929.58	3042.25	1690.14	3211.27	725.13	10.2												
0	CYCLOPOIDA (TOTAL)																									
1	CYCLOPS DICUSPIDATUS THOMASI							2140.84	1802.82	1352.11	1915.49	1802.82	165.85	5.7												
1	TROPOCYCLOPS FRASINUS MEXICANA							0.0	0.0	0.0	112.68	28.17	28.17	0.1												
14	CYCLOPOIDA (LPIL)							12732.39	12394.36	14197.18	14309.85	13408.44	493.29	42.6												
TOTAL								30760.54	31549.27	31436.59	32112.66	31464.77	277.43	100.0												
DIVERSITY (H PRIME)								2.11	2.20	2.15	1.81	2.07	0.09													
DIVERSITY (J PRIME)								0.67	0.64	0.62	0.54	0.62	0.03													
NUMBER OF TAXA								9	11	11	10	15														

ABOVE COMPUTED USING SAMPLE IDS

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NORTHERN INDIANA PUBLIC SERVICE COMPANY (49720)

BAILEY GENERATING PLANT

ZOOPLANKTON DENSITY

REPLICATE REPORT

PC TC GC LOC
5 51 51 0 0 00

SID	DATE	TIME	D/N	DURATION		SD	WD	TOW				WIND				CURRENT				TEMP		BT	TURBD	COND	DO	PH	SALN P
				UNITS	C			SP	D	UNITS	C	SECH	WT	SC	DI	CL	SP	DI	AIR	WAT							
31	11/17/80	855	0	0.0	0	15.2	15.2	0.0	0	11.9	3	2.0	0.0	0	0	0	0.0	0	3.0	7.5	0	0.0	0	12.4	0.0	0.0	0.0
32	11/17/80	855	0	0.0	0	15.2	15.2	0.0	0	11.9	3	2.0	0.0	0	0	0	0.0	0	3.0	7.5	0	0.0	0	12.4	0.0	0.0	0.0
33	11/17/80	855	0	0.0	0	15.2	15.2	0.0	0	11.9	3	2.0	0.0	0	0	0	0.0	0	3.0	7.5	0	0.0	0	12.4	0.0	0.0	0.0
34	11/17/80	855	0	0.0	0	15.2	15.2	0.0	0	11.9	3	2.0	0.0	0	0	0	0.0	0	3.0	7.5	0	0.0	0	12.4	0.0	0.0	0.0

LS	TAXA	1	2	3	4	X	S.E.	AB%
0	CLADOCERA (TOTAL)	3966.38	3831.93	4773.10	3428.57	4000.00	281.90	21.7
0	BOSMINIDAE							
1	BOSMINIDAE (LPIL)	3831.93	3361.34	4302.52	2823.53	3579.83	316.96	19.4
0	DAPHNIDAE							
1	DAPHNIA GALEATA MENDOTAE	67.23	0.0	134.45	268.91	117.65	57.41	0.6
1	DAPHNIA RETROCURVA	67.23	268.91	134.45	201.68	168.07	43.39	0.9
6	DAPHNIA (LPIL)	0.0	201.68	201.68	134.45	134.45	47.54	0.7
0	COPEPODA (TOTAL)	14924.36	11563.02	17210.07	14184.86	14470.57	1163.55	78.3
0	CALANOIDA (TOTAL)							
1	DIAPTONUS OREGONENSIS	403.36	470.59	470.59	336.13	420.17	32.18	2.3
1	DIAPTONUS ASHLANDI	1075.63	605.04	1344.54	1210.08	1058.82	160.91	5.7
1	DIAPTONUS SICILIS	605.04	134.45	537.81	268.91	386.55	111.06	2.1
1	DIAPTONUS MINUTUS	67.23	134.45	268.91	201.68	168.07	43.39	0.9
1	EURYTEMORA AFFINIS	67.23	0.0	0.0	0.0	16.81	16.81	0.1
1	EPISCHIURA LACUSTRIS	67.23	0.0	134.45	0.0	50.42	32.18	0.3
14	CALANOIDA (LPIL)	2689.07	2285.71	3092.44	3092.44	2789.91	193.09	15.1
0	CYCLOPOIDA (TOTAL)							
1	CYCLOPS BICUSPIDATUS THOMASI	806.72	537.81	1344.54	672.27	840.34	176.80	4.5
1	TROPOCYCLOPS PRASINUS MEXICANA	67.23	67.23	67.23	336.13	134.45	67.23	0.7
14	CYCLOPOIDA (LPIL)	9075.62	7327.73	9949.57	8067.22	8605.04	573.73	46.6
TOTAL		18890.73	15394.94	21983.16	17613.42	18470.56	1375.65	100.0
	DIVERSITY (H PRIME)	2.26	2.24	2.42	2.43	2.34	0.05	
	DIVERSITY (J PRIME)	0.61	0.65	0.65	0.68	0.65	0.01	
	NUMBER OF TAXA	13	11	13	12	14		

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NORTHERN INDIANA PUBLIC SERVICE COMPANY (49720)

BAILEY GENERATING PLANT

ZOOPLANKTON DENSITY

REPLICATE REPORT

PC TC GC LOC
5 51 51 0 0 10

SID	DATE	TIME	D/N	DURATION			SD	WD	TOW				WIND				CURRENT				TEMP		BT	TURBO	COND	DO	PH	SALN P
				UNITS	C				SP	D	UNITS	C	SECH	W	T	SC	DI	CL	SP	DI	AIR	WAT						
41	11/17/80	1138	0	0.0	0	4.6	4.6	0.0	0	3.6	3	1.5	0.0	0	0	0	0.0	0	5.0	7.5	0	0.0	0	11.2	0.0	0.0	0	
42	11/17/80	1138	0	0.0	0	4.6	4.6	0.0	0	3.6	3	1.5	0.0	0	0	0	0.0	0	5.0	7.5	0	0.0	0	11.2	0.0	0.0	0	
43	11/17/80	1138	0	0.0	0	4.6	4.6	0.0	0	3.6	3	1.5	0.0	0	0	0	0.0	0	5.0	7.5	0	0.0	0	11.2	0.0	0.0	0	
44	11/17/80	1138	0	0.0	0	4.6	4.6	0.0	0	3.6	3	1.5	0.0	0	0	0	0.0	0	5.0	7.5	0	0.0	0	11.2	0.0	0.0	0	
LS	TAXA																							X	S.E.	AB%		
										1	2	3	4															
0	CLADOCERA (TOTAL)									3361.11	13999.99	14555.54	13703.68	11405.08	2687.13	54.0												
0	BOSMINIDAE																											
1	BOSMINIDAE (LPIL)									3277.78	13777.77	13222.22	12962.96	10810.18	2516.55	51.2												
0	CHYDORIDAE																											
1	CHYDORIDAE (LPIL)									0.0	0.0	111.11	0.0	27.78	27.78	0.1												
0	DAPHNIDAE																											
1	DAPHNIA GALEATA MENDOTAE									0.0	0.0	444.44	0.0	111.11	111.11	0.5												
1	DAPHNIA RETROCURVA									0.0	0.0	0.0	246.91	61.73	61.73	0.3												
1	DAPHNIA (LPIL)									0.0	0.0	222.22	246.91	117.28	67.90	0.6												
0	HOLOPEIDAE																											
1	HOLOPEIDIUM GIBBERUM									83.33	222.22	555.56	123.46	246.14	107.19	1.2												
6	CLADOCERA (LPIL)									0.0	0.0	0.0	123.46	30.86	30.86	0.1												
0	COPEPODA (TOTAL)									3222.22	13666.66	9999.99	11975.30	9716.04	2290.60	46.0												
0	CALANOIDA (TOTAL)																											
1	DIAPTONIUS GREGOENSES									55.56	222.22	111.11	246.91	158.95	45.39	0.8												
1	DIAPTONIUS ASHLANDI									277.78	2000.00	555.56	1481.48	1078.70	400.64	5.1												
1	DIAPTONIUS SICILOIDES									0.0	111.11	0.0	0.0	27.78	27.78	0.1												
1	DIAPTONIUS SICILIS									83.33	0.0	0.0	370.37	113.43	87.87	0.5												
1	DIAPTONIUS MINUTUS									111.11	333.33	111.11	370.37	231.48	69.91	1.1												
1	EPISCHURA LACUSTRIS									138.89	666.67	444.44	0.0	312.50	150.18	1.5												
14	CALANOIDA (LPIL)									1055.56	3111.11	3888.89	3827.16	2970.68	662.32	14.1												
0	CYCLOPOIDA (TOTAL)																											
1	CYCLOPS BICUSPIDATUS THOMASI									111.11	1222.22	1000.00	493.83	706.79	250.30	3.3												
1	TROPOCYCLOPS PRASINUS MEXICANA									27.78	111.11	0.0	123.46	65.59	30.49	0.3												
14	CYCLOPOIDA (LPIL)									1361.11	5888.89	3888.89	5061.73	4050.15	985.78	19.2												
TOTAL										6583.32	27666.64	24555.53	25678.97	21121.11	4888.42	100.0												
DIVERSITY (H PRIME)										2.15	2.19	2.14	2.20	2.17	0.01													
DIVERSITY (J PRIME)										0.62	0.63	0.60	0.59	0.61	0.01													
NUMBER OF TAXA										11	11	12	13	17														

ABOVE COMPUTED USING SAMPLE IDS

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DATE 02/25/81
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T600AC1A 9/28/77

NORTHERN INDIANA PUBLIC SERVICE COMPANY (49720)

BAILEY GENERATING PLANT

ZOOPLANKTON DENSITY

REPLICATE REPORT

PC TC GC LOC
5 51 51 0 0 10

SID	DATE	TIME	D/N	DURATION		SD	WD	TOW			WIND				CURRENT		TEMP		BT	TURBD	COND	DO	PH	SALN	P		
				UNITS	C			SP	D	UNITS	C	SECH	WT	SC	DI	CL	SP	DI								AIR	WAT
51	11/17/80	1210	0	0.0	0	9.1	9.1	0.0	0	7.1	3	1.5	0.0	0	0	0	0.0	0	6.0	7.5	0	0.0	0	11.9	0.0	0.0	0
52	11/17/80	1210	0	0.0	0	9.1	9.1	0.0	0	7.1	3	1.5	0.0	0	0	0	0.0	0	6.0	7.5	0	0.0	0	11.9	0.0	0.0	0
53	11/ 7/80	1210	0	0.0	0	9.1	9.1	0.0	0	7.1	3	1.5	0.0	0	0	0	0.0	0	6.0	7.5	0	0.0	0	11.9	0.0	0.0	0
54	11/17/80	1210	0	0.0	0	9.1	9.1	0.0	0	7.1	3	1.5	0.0	0	0	0	0.0	0	6.0	7.5	0	0.0	0	11.9	0.0	0.0	0

LS	TAXA	1	2	3	4	X	S.F	REL	ABZ
0	CLADOCERA (TOTAL)	11187.11	6197.18	8450.70	7774.64	8402.41	1041.39	37.3	
0	BOSMINIDAE								
1	BOSMINIDAE (LPIL)	8255.53	5070.42	7774.64	6535.21	7158.95	890.96	31.8	
0	DAPHNIDAE								
1	DAPHNIA RETROCURVA	965.79	450.70	450.70	788.73	663.98	128.33	2.9	
1	DAPHNIA PULEX	80.48	0.0	0.0	0.0	20.12	20.12	0.1	
1	DAPHNIA (LPIL)	724.35	0.0	0.0	338.03	265.59	172.43	1.2	
6	DAPHNIA (LPIL)	0.0	450.70	225.35	0.0	169.01	107.88	0.7	
0	HOLOPEIDAE								
1	HOLOPEIDIUM GIBBERUM	160.97	225.35	0.0	0.0	96.58	57.29	0.4	
6	CLADOCERA (LPIL)	0.0	0.0	0.0	112.68	28.17	28.17	0.1	
0	COPEPODA (TOTAL)	20040.23	11154.93	11943.65	13408.45	14136.81	2022.42	62.7	
0	CALANOIDA (TOTAL)								
1	DIAPTONUS OREGONENSIS	965.79	225.35	563.38	225.35	494.97	176.01	2.2	
1	DIAPTONUS ASHLANDI	885.31	901.41	1577.46	1690.14	1263.58	215.01	5.6	
1	DIAPTONUS SICILIS	583.38	0.0	112.68	0.0	169.01	134.11	0.7	
1	DIAPTONUS MINUTUS	80.48	0.0	112.68	112.68	76.46	26.59	0.3	
1	EURYTENORA AFFINIS	0.0	112.68	0.0	0.0	28.17	28.17	0.1	
1	EPISCHURA LACUSTRIS	0.0	225.35	112.68	0.0	84.51	53.94	0.4	
14	CALANOIDA (LPIL)	3058.35	1802.82	2140.84	2028.17	2257.54	276.03	10.0	
0	CYCLOPOIDA (TOTAL)								
1	CYCLOPS BICUSPIDATUS THOMASI	1529.17	450.70	1014.08	1352.11	1086.52	237.34	4.8	
1	TROPOCYCLOPS PRASINUS NEXICANA	160.97	0.0	112.68	112.68	96.58	34.15	0.4	
14	CYCLOPOIDA (LPIL)	12796.77	7436.62	6197.18	7887.32	8579.47	1450.46	30.1	
TOTAL		31227.33	17352.10	20394.35	21183.08	22539.21	3011.49	100.0	
	DIVERSITY (H PRIME)	2.40	2.31	2.40	2.38	2.37	0.02		
	DIVERSITY (J PRIME)	0.65	0.67	0.67	0.69	0.67	0.01		
	NUMBER OF TAXA	13	11	12	11	16			

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NORTHERN INDIANA PUBLIC SERVICE COMPANY (49720)

B/LEY GENERATING PLANT

ZOOPLANKTON DENSITY

REPLICATE REPORT

PC TC GC LOC
5 51 51 0 0 10

SID	DATE	TIME	D/	DURATION			TOW			SAMP VOL			WIND			CURRENT			TEMP			BT	TURBD	COND	DO	PH	SALIN P
				MIN	SEC	THIRD	SP	D	UNITS	C	SECH	WT	SC	DI	CL	SP	DI	AIR	WAT								
61	11/17/80	1300	0	0.0	0	15.2	15.2	0.0	0	11.9	3	1.5	0	0	0	0.0	0	7.0	6.5	0	0.0	0	10.8	0.0	0.0	0	0.0
62	11/17/80	1300	0	0.0	0	15.2	15.2	0.0	0	11.9	3	1.5	0	0	0.0	0	7.0	6.5	0	0.0	0	10.8	0.0	0.0	0	0.0	
63	11/17/80	1300	0	0.0	0	15.2	15.2	0.0	0	11.9	3	1.5	0	0	0.0	0	7.0	6.5	0	0.0	0	10.8	0.0	0.0	0	0.0	
64	11/17/80	1300	0	0.0	0	15.2	15.2	0.0	0	11.9	3	1.5	0	0	0.0	0	7.0	6.5	0	0.0	0	10.8	0.0	0.0	0	0.0	
LS	TAXA																				X	S.E.	ABZ				
								1		2		3		4													
0	CLADOCERA (TOTAL)							3159.66	3745.50	2521.01	3649.46	3268.91	280.36	19.6													
0	BOSMINIDAE																										
1	BOSMINIDAE (LPIL)							3025.21	3361.34	2016.81	2881.15	2821.13	286.36	16.9													
0	DAPHNIDAE																										
1	DAPHNIA GALEATA MENDOTAE							0.0	0.0	168.07	288.11	114.05	70.26	0.7													
1	DAPHNIA RETROCURVA							134.45	288.11	252.10	288.11	240.70	36.42	1.4													
1	DAPHNIA (LPIL)							0.0	0.0	84.03	0.0	21.01	21.01	0.1													
6	DAPHNIA (LPIL)							0.0	0.0	0.0	192.08	48.02	48.02	0.3													
6	CLADOCERA (LPIL)							0.0	96.04	0.0	0.0	24.01	24.01	0.1													
0	COPEPODA (TOTAL)							10689.06	14597.82	13697.47	14597.83	13395.54	926.78	80.4													
0	CALANOIDA (TOTAL)																										
1	DIAPYCNUS OREGONENSIS							403.36	480.19	1008.40	576.23	617.05	135.16	3.7													
1	DIAPYCNUS ASHLANDI							1344.54	1344.54	2941.18	2208.88	1959.78	385.38	11.8													
1	DIAPYCNUS SICILIS							336.13	192.08	0.0	0.0	132.05	81.71	0.8													
1	DIAPYCNUS MINUTUS							67.23	384.15	84.03	192.08	181.87	72.88	1.1													
14	CALANOIDA (LPIL)							3025.21	4033.61	3865.55	3361.34	3571.43	231.41	21.4													
0	CYCLOPOIDA (TOTAL)																										
1	CYCLOPS BICUSPIDATUS THOMASI							1008.40	672.27	924.37	1536.61	1035.41	181.69	6.2													
1	TROPICOCYCLIPS FRASERUS MEXICANA							67.23	96.04	84.03	0.0	61.82	21.44	0.4													
14	CYCLOPOIDA (LPIL)							4436.97	7394.95	4789.91	6722.68	5836.13	722.73	35.0													
TOTAL								13848.72	18343.30	16218.46	18247.27	16664.44	1059.74	100.0													
DIVERSITY (H PRIME)								2.51	2.41	2.60	2.55	2.52	0.04														
DIVERSITY (J PRIME)								0.75	0.70	0.75	0.77	0.74	0.02														
NUMBER OF TAXA								10	11	11	10	13															

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ZOOPLANKTON DENSITY

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SID	DATE	TIME	D/N	DURATION		SD	WD	TOW			WIND			CURRENT		TEMP		BT	TURBD	COND	DO	PH	SALN P	
				UNITS	C			SP	D	UNITS	C	SECH	WT	SC	DI	CL	SP							DI
101	11/17/80	1750	0	0.0	0	0.0	0.0	0.0	0	2.8	3	0.0	0	0	0.0	0	6.0	10.5	0	0.0	0	10.0	0.0	0.0
102	11/17/80	1750	0	0.0	0	0.0	0.0	0.0	0	2.9	3	0.0	0	0	0.0	0	6.0	10.5	0	0.0	0	10.0	0.0	0.0
103	11/17/80	1750	0	0.0	0	0.0	0.0	0.0	0	2.8	3	0.0	0	0	0.0	0	6.0	10.5	0	0.0	0	10.0	0.0	0.0
104	11/17/80	1750	0	0.0	0	0.0	0.0	0.0	0	2.7	3	0.0	0	0	0.0	0	6.0	10.5	0	0.0	0	10.0	0.0	0.0

LS	TAXA	1	2	3	4	X	S.E.	ABX
0	CNIDARIA (TOTAL)	214.29	0.0	109.89	148.15	118.08	44.88	0.9
0	HYDROZOA							
19	HYDRA (LPIL)	214.29	0.0	109.89	0.0	81.04	51.41	0.6
1	HYDRA (LPIL)	0.0	0.0	0.0	148.15	37.04	37.04	0.3
0	NEMATODA (TOTAL)	0.0	0.0	0.0	74.07	18.52	18.52	0.1
1	NEMATODA (LPIL)	0.0	0.0	0.0	74.07	18.52	18.52	0.1
0	ANNELIDA (TOTAL)	71.43	0.0	0.0	0.0	17.86	17.86	0.1
1	ANNELIDA (LPIL)	71.43	0.0	0.0	0.0	17.86	17.86	0.1
0	CLADOCERA (TOTAL)	9785.70	11793.10	7472.51	10444.42	9873.93	902.92	72.5
0	BOSMINIDAE							
1	BOSMINIDAE (LPIL)	8785.71	11310.34	6373.62	9037.04	8876.68	1009.21	65.2
0	CHYDORIDAE							
1	CHYDORIDAE (LPIL)	0.0	0.0	0.0	74.07	18.52	18.52	0.1
0	DAPHNIDAE							
1	DAPHNIA GALEATA MENDOTAE	285.71	275.86	274.73	296.30	283.15	5.03	2.1
1	DAPHNIA RETROCURVA	142.86	206.90	219.78	518.52	272.01	83.87	2.0
1	DAPHNIA PULEX	142.86	0.0	0.0	74.07	54.23	34.32	0.4
6	DAPHNIA (LPIL)	142.86	0.0	219.78	74.07	109.18	47.01	0.8
0	HOLOPEDIDAE							
1	HOLOPEDIDUM GIBBERUM	285.71	0.0	384.62	296.30	241.66	83.55	1.8
6	CLADOCERA (LPIL)	0.0	0.0	0.0	74.07	18.52	18.52	0.1
0	COPEPODA (TOTAL)	4285.71	3103.45	2472.53	4518.52	3595.05	485.76	26.4
0	CALANOIDA (TOTAL)							
1	DIAPYTHUS GREGORIENSIS	71.43	68.97	109.89	74.07	81.09	9.66	0.6
1	DIAPYTHUS ASHLANDI	285.71	137.93	54.95	74.07	138.17	52.28	1.0
1	DIAPYTHUS SICILIS	0.0	0.0	0.0	74.07	18.52	18.52	0.1
1	DIAPYTHUS MINUTUS	0.0	0.0	54.95	0.0	13.74	13.74	0.1
1	EPISCHURA LACUSTRIS	142.86	137.93	109.89	74.07	116.19	15.80	0.9
14	CALANOIDA (LPIL)	1357.14	758.62	824.18	1333.33	1068.32	160.51	7.8
0	CYCLOPOIDA (TOTAL)							
1	CYCLOPS BICUSPIDATUS THOMASI	428.57	413.79	439.56	1111.11	598.26	171.03	4.4
14	CYCLOPOIDA (LPIL)	2000.00	1586.21	879.12	1777.78	1560.78	242.44	11.5
	TOTAL	14357.12	14896.54	10054.93	15185.14	13623.43	1201.81	100.0
	DIVERSITY (H PRIME)	2.07	1.36	2.08	2.18	1.92	0.19	
	DIVERSITY (J PRIME)	0.54	0.43	0.56	0.53	0.52	0.03	
	NUMBER OF TAXA	14	9	13	17	19		

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LS	TAXA	1	2	3	4	- X	S.E.	REL ABZ
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LS	TAXA	3	6	10	X	S.E.	REL AB%
0	CHIDARIA (TOTAL)	0.0	0.0	118.08	34.36	39.36	0.2
0	HYDROZOA						
19	HYDRA (LPIL)	0.0	0.0	81.04	27.01	27.01	0.1
1	HYDRA (LPIL)	0.0	0.0	37.04	12.35	12.35	0.1
0	NEMATODA (TOTAL)	0.0	0.0	18.52	6.17	6.17	0.0
1	NEMATODA (LPIL)	0.0	0.0	18.52	6.17	6.17	0.0
0	AMPHIELIDA (TOTAL)	0.0	0.0	17.86	5.95	5.95	0.0
1	AMPHIELIDA (LPIL)	0.0	0.0	17.86	5.95	5.95	0.0
0	CLADOCERA (TOTAL)	10115.69	7692.13	9873.93	9227.25	770.73	45.0
0	BOSMINIDAE						
1	BOSMINIDAE (LPIL)	9357.02	6930.08	8876.68	8387.93	741.99	40.9
0	CHYDORIDAE						
1	CHYDORIDAE (LPIL)	0.0	9.26	18.52	9.26	5.35	0.0
0	DAPHNIDAE						
1	DAPHNIA GALEATA MENDOTAE	86.16	75.05	283.15	148.12	67.59	0.7
1	DAPHNIA RETROCURVA	471.17	322.14	272.01	355.11	59.81	1.7
1	DAPHNIA PULEX	0.0	6.71	54.23	20.31	17.07	0.1
1	DAPHNIA (LPIL)	18.52	134.63	0.0	51.05	42.13	0.2
6	DAPHNIA (LPIL)	82.38	72.34	109.18	87.97	10.99	0.4
0	HOLOPEDIDAE						
1	HOLOPEDIUM GIBBERUM	100.44	114.24	241.66	152.11	44.95	0.7
6	CLADOCERA (LPIL)	0.0	27.68	18.52	15.40	8.14	0.1
0	COPEPODA (TOTAL)	17709.97	12416.13	3595.05	11240.38	4116.81	54.3
0	CALANOIDA (TOTAL)						
1	DIAPYCNUS OREGONENSIS	396.12	423.66	81.09	366.29	109.89	1.5
1	DIAPYCNUS ASHLANDI	617.76	1434.02	138.17	729.98	378.27	3.6
1	DIAPYCNUS SICILOIDES	0.0	9.26	0.0	3.09	3.09	0.0
1	DIAPYCNUS PALLIDUS	18.52	0.0	0.0	6.17	6.17	0.0
1	DIAPYCNUS SICILIS	426.34	138.16	18.52	194.34	121.03	0.9
1	DIAPYCNUS MINUTUS	64.06	163.27	13.74	87.02	43.19	0.4
1	EURYTEMORA AFFINIS	14.99	9.39	0.0	8.13	4.37	0.0
1	EPISCHURA LACUSTRIS	210.49	132.34	116.19	153.00	29.12	0.7
14	CALANOIDA (LPIL)	3163.97	2933.22	1068.32	2388.50	663.44	11.6
0	CYCLOPOIDA (TOTAL)						
1	CYCLOPS BICUSPIDATUS THOMASI	1456.67	942.91	598.26	999.28	249.40	4.9
1	TROPYCYCLOPS PRASINUS MEXICANA	54.21	74.66	0.0	42.96	22.28	0.2
14	CYCLOPOIDA (LPIL)	11266.84	6155.25	1560.78	6327.62	2803.22	30.8
	TOTAL	27025.65	20108.25	13623.43	20519.11	4104.97	100.0
	DIVERSITY (H PRIME)	2.12	2.35	1.92	2.13	0.12	
	DIVERSITY (J PRIME)	0.62	0.67	0.52	0.60	0.05	
	NUMBER OF TAXA	16	19	19	23		

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21	22	23	24
31	32	33	34
41	42	43	44
51	52	53	54
61	62	63	64
101	102	103	104

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5 51 51 0 1 00

SID	DATE	TIME	D/N	DURATION		WD	TOW				WIND				CURRENT				TEMP																		
				UNITS	C		SP	D	UNITS	C	SECH	WT	SC	DI	CL	SP	DI	AIR	WAT	BT	TURBD	COND	DO	PH	SALN	P											
71	11/17/80	1300	0	0.0	0	15.2	15.2	0.0	0	3.6	3	1.5	0.0	0	0	0	0.0	0	7.0	6.5	0	0.0	0	10.8	0.0	0.0	0										
72	11/17/80	1300	0	0.0	0	15.2	15.2	0.0	0	3.6	3	1.5	0.0	0	0	0	0.0	0	7.0	6.5	0	0.0	0	10.8	0.0	0.0	0										
73	11/17/80	1300	0	0.0	0	15.2	15.2	0.0	0	3.6	3	1.5	0.0	0	0	0	0.0	0	7.0	6.5	0	0.0	0	10.8	0.0	0.0	0										
74	11/17/80	1300	0	0.0	0	15.2	15.2	0.0	0	3.6	3	1.5	0.0	0	0	0	0.0	0	7.0	6.5	0	0.0	0	10.8	0.0	0.0	0										
LS	TAXA																		REL																		
0	CLADOCERA (TOTAL)						15555.55				6999.99								7777.77																		
0	BOSMINIDAE																																				
1	BOSMINIDAE (LPIL)						11111.11				6000.00								5079.36																		
0	DAPHNIDAE																																				
1	DAPHNIA GALEATA HENDCTAE						1555.56				444.44								634.92																		
1	DAPHNIA RETROCURVA						1555.56				444.44								1587.30																		
1	DAPHNIA (LPIL)						0.0				0.0								0.0																		
0	HOLOPEDIIDAE																																				
1	HOLOPEDIUM GIBBERUM						1333.33				111.11								476.19																		
0	COPEPODA (TOTAL)						30444.42				23888.87								26031.73																		
0	CALANOIDA (TOTAL)																																				
1	DIAPTOIUS OREGONENSIS						2222.22				1000.00								2539.68																		
1	DIAPTOIUS ASHLANDI						4888.89				2333.33								3968.25																		
1	DIAPTOIUS SICILIS						2666.67				1111.11								1587.30																		
1	DIAPTOIUS MINUTUS						444.44				111.11								158.73																		
1	EPISCHURA LACUSTRIS						1111.11				222.22								0.0																		
14	CALANOIDA (LPIL)						9111.11				9444.44								10476.19																		
0	CYCLOPOIDA (TOTAL)																																				
1	CYCLOPS BICUSPIDATUS THOMASI						2888.89				1777.78								1428.57																		
1	TROPOCYCLOPS FRASINUS MEXICANA						444.44				111.11								0.0																		
14	CYCLOPOIDA (LPIL)						6666.66				7777.77								5873.01																		
TOTAL							45999.97				30888.86								33809.50																		
DIVERSITY (H PRIME)							3.14				2.65								2.85																		
DIVERSITY (J PRIME)							0.85				0.72								0.83																		
NUMBER OF TAXA							13				13								11																		

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SID	DATE	TIME D/H	DURATION			TOW			SAMP VOL			WIND			CURRENT			TEMP			BT	TURBD	COND	DO	PH	SALN P
			UNITS	C	SD	WD	SP	D	UNITS	C	SECH	WT	SC	DI	CL	SP	DI	AIR	WAT							
81	11/17/80	1445	0	0.0	0	9.1	9.1	0.0	0	7.1	3	2.0	0	0	0	0.0	0	607.0	0.0	0	0.0	0	8.4	0.0	0.0	0.0
82	11/17/80	1445	0	0.0	0	9.1	9.1	0.0	0	7.1	3	2.0	0	0	0	0	6.0	7.0	0	0.0	0	8.4	0.0	0.0	0.0	0.0
83	11/17/80	1445	0	0.0	0	9.1	9.1	0.0	0	7.1	3	2.0	0	0	0	0	6.0	7.0	0	0.0	0	8.4	0.0	0.0	0.0	0.0
84	11/17/80	1445	0	0.0	0	9.1	9.1	0.0	0	7.1	3	2.0	0	0	0	0	6.0	7.0	0	0.0	0	8.4	0.0	0.0	0.0	0.0
LS	TAXA																				X	S.E.	REL	ASZ		
0	CLADOCERA (TOTAL)					1			2			3			4											
0	BOSMINIDAE					3605.63			6948.35			5774.64			3605.63			4983.56				830.84	18.4			
1	BOSMINIDAE (LPIL)					3267.60			6384.97			4507.04			3154.93			4328.63				750.76	15.9			
0	DAPHNIDAE					0.0			0.0			422.54			112.68			133.80				99.84	0.5			
1	DAPHNIA GALEATA MENDOTAE					0.0			0.0			422.54			112.68			133.80				99.84	0.5			
1	DAPHNIA RETROCURVA					0.0			187.79			845.07			225.35			314.55				183.53	1.2			
6	DAPHNIA (LPIL)					225.35			187.79			0.0			0.0			103.29				60.12	0.4			
0	HOLOPEIDIDAE					112.68			187.79			0.0			112.68			103.29				38.71	0.4			
1	HOLOPEIDIUM GIBBERUM					112.68			187.79			0.0			112.68			103.29				38.71	0.4			
0	COPEPODA (TOTAL)					17915.48			29295.75			22394.36			19042.24			22161.96				2561.09	81.6			
0	CALANOIDA (TOTAL)					338.03			1502.35			422.54			676.06			734.74				265.76	2.7			
1	DIAPTOMUS OREGONENSIS					338.03			1502.35			422.54			676.06			734.74				265.76	2.7			
1	DIAPTOMUS ASHLANDI					2253.52			4131.45			2394.37			1690.14			2617.37				527.12	9.6			
1	DIAPTOMUS SICILIS					225.35			938.97			422.54			1577.46			791.08				302.23	2.9			
1	DIAPTOMUS MINUTUS					0.0			375.59			140.85			225.35			185.45				78.59	0.7			
1	EPISCHURA LACUSTRIS					0.0			187.79			0.0			0.0			46.95				46.95	0.2			
14	CALANOIDA (LPIL)					5295.77			5821.59			4225.35			4056.34			4849.76				424.54	17.9			
0	CYCLOPOIDA (TOTAL)					901.41			1502.35			1690.14			1239.44			1333.33				171.09	4.9			
1	CYCLOPS BICUSPIDATUS THOMASI					901.41			1502.35			1690.14			1239.44			1333.33				171.09	4.9			
1	TROPOCYCLOPS FRASINUS MEXICANA					112.68			0.0			281.69			0.0			98.59				66.56	0.4			
14	CYCLOPOIDA (LPIL)					8788.73			14835.68			12816.90			9577.46			11504.69				1411.50	42.4			
TOTAL						21521.11			36244.11			28169.00			22647.86			27145.52				3362.72	100.0			
DIVERSITY (H PRIME)						2.28			2.49			2.43			2.50			2.43				0.05				
DIVERSITY (J PRIME)						0.69			0.70			0.70			0.72			0.70				0.01				
NUMBER OF TAXA						16			12			11			11			14								

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NORTHERN INDIANA PUBLIC SERVICE COMPANY (49720)

BATLEY GENERATING PLANT

ZOOPLANKTON DENSITY

REPLICATE REPORT

PC TC GC LOC
5 51 51 0 1 00

SID	DATE	TIME	D/N	DURATION			TOW				WIND				CURENT		TEMP		BT	TURBD	COND	DO	PH	SALN	P			
				UNITS	C	SD	WD	SP	D	UNITS	C	SECH	WT	SC	DI	CL	SP	DI								AIR	WAT	
91	11/17/80	1400	0	0.0	0	15.2	15.2	0.0	0	11.9	3	2.0	0.0	0	0	0	0.0	0	7.0	7.5	0	0.0	0	9.2	0.0	0.0	0	
92	11/17/80	1400	0	0.0	0	15.2	15.2	0.0	0	11.9	3	2.0	0.0	0	0	0	0.0	0	7.0	7.5	0	0.0	0	9.2	0.0	0.0	0	0
93	11/17/80	1400	0	0.0	0	15.2	15.2	0.0	0	11.9	3	2.0	0.0	0	0	0	0.0	0	7.0	7.5	0	0.0	0	9.2	0.0	0.0	0	0
94	11/17/80	1400	0	0.0	0	15.2	15.2	0.0	0	11.9	3	2.0	0.0	0	0	0	0.0	0	7.0	7.5	0	0.0	0	9.2	0.0	0.0	0	0

LS	TAXA	REL				S.E.	AB%
		1	2	3	4		
0	CLADOCERA (TOTAL)	5109.23	3361.34	4417.76	6722.68	4902.75	705.10 20.0
0	BOSMINIDAE						
1	BOSMINIDAE (LPIL)	4168.06	2785.11	3649.46	6184.87	4196.87	721.44 17.1
0	DAPHNIDAE						
1	DAPHNIA GALEATA HENDOTAE	0.0	96.04	192.08	134.45	105.64	40.37 0.4
1	DAPHNIA RETROCURVA	537.81	288.11	480.19	268.91	393.76	67.68 1.6
1	DAPHNIA (LPIL)	268.91	0.0	0.0	0.0	67.23	67.23 0.3
6	DAPHNIA (LPIL)	0.0	192.08	0.0	134.45	81.63	48.58 0.3
0	HOLOPEDIDAE						
1	HOLOPEDIDIUM GIBBERUM	134.45	0.0	96.04	0.0	57.62	34.18 0.2
0	COPEPODA (TOTAL)	18420.16	19495.79	18919.56	21512.59	19587.02	678.43 80.0
0	CALANOIDA (TOTAL)						
1	DIAPTONIUS OREGONENSIS	806.72	864.35	384.15	1075.63	782.71	144.88 3.2
1	DIAPTONIUS ASHLANDI	2554.62	2304.92	2689.07	2554.62	2525.81	80.16 10.3
1	DIAPTONIUS SICILIS	672.27	480.19	768.31	941.18	715.49	96.16 2.9
1	DIAPTONIUS MINUTUS	403.36	192.08	96.04	537.81	307.32	100.11 1.3
1	EPISCHURA LACUSTRIS	134.45	96.04	0.0	134.45	91.24	31.73 0.4
14	CALANOIDA (LPIL)	4436.97	4321.73	4033.61	4436.97	4307.32	95.19 17.6
0	CYCLOPOIDA (TOTAL)						
1	CYCLOPS BICUSPIDATUS THOMASI	537.81	1440.58	480.19	806.72	816.33	219.91 3.3
1	TROPOCYCLOPS FRASINUS MEXICANA	134.45	0.0	0.0	0.0	33.61	33.61 0.1
14	CYCLOPOIDA (LPIL)	8739.49	9795.91	10468.18	11025.21	10007.20	491.64 40.9
	TOTAL	23529.38	22857.11	23337.31	28235.27	24489.77	1256.48 100.0
	DIVERSITY (H PRIME)	2.64	2.49	2.35	2.52	2.50	0.06
	DIVERSITY (J PRIME)	0.71	0.69	0.68	0.70	0.70	0.01
	NUMBER OF TAXA	13	12	11	12	14	

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LS	TAXA	7	8	9	X	S.E.	REL AB%
0	CLADOCERA (TOTAL)	10043.64	4983.56	4902.75	6643.32	1700.32	22.6
0	BOSMINIDAE						
1	BOSMINIDAE (LPIL)	7492.06	4328.63	4196.87	5339.19	1077.11	18.2
0	DAPHNIDAE						
1	DAPHNIA GALEATA MENDOTAE	698.41	133.80	105.64	312.62	193.07	1.1
1	DAPHNIA RETROCURVA	1174.60	314.55	393.76	627.64	274.44	2.1
1	DAPHNIA (LPIL)	39.68	0.0	67.23	35.64	19.51	0.1
6	DAPHNIA (LPIL)	0.0	103.29	81.63	61.64	31.45	0.2
0	HOLOPEIDIDAE						
1	HOLOPEIDIUM GIBBERUM	638.89	103.29	57.62	266.60	186.61	0.9
0	COPEPODA (TOTAL)	26361.09	22161.96	19587.02	22703.36	1974.15	77.4
0	CALANOIDA (TOTAL)						
1	DIAPYCNUS OREGONENSIS	1797.62	734.74	782.71	1105.02	346.57	3.8
1	DIAPYCNUS ASHLANDI	3710.32	2617.37	2525.81	2951.17	380.49	10.1
1	DIAPYCNUS SICILIS	1777.78	791.08	715.49	1094.78	342.19	3.7
1	DIAPYCNUS MINUTUS	218.25	185.45	307.32	237.01	36.41	0.8
1	EPISCHIURA LACUSTRIS	333.33	46.95	91.24	157.17	69.00	0.5
14	CALANOIDA (LPIL)	9242.06	4849.76	4307.32	6133.05	1562.37	20.9
0	CYCLOPOIDA (TOTAL)						
1	CYCLOPS BICUSPIDATUS THOMASI	2079.36	1333.33	816.33	1409.67	366.60	4.8
1	TROPOCYCLOPS PRASINUS MEXICANA	138.89	98.59	33.61	90.36	30.67	0.3
14	CYCLOPOIDA (LPIL)	7063.49	11504.69	10007.20	9525.12	1304.53	32.5
	TOTAL	36404.73	27145.52	24489.77	29346.67	3611.34	100.0
	DIVERSITY (H PRIME)	2.87	2.43	2.50	2.60	0.14	
	DIVERSITY (J PRIME)	0.79	0.70	0.70	0.73	0.03	
	NUMBER OF TAXA	14	14	14	14		

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71	72	73	74
81	82	83	84
91	92	93	94

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SID	DATE	TIME	DURATION			TOW			WIND			CURRENT			TEMP			BY	TURBD	COND	DO	PH	SALN	P
			UNITS	D/N	UNITS	C	SD	WD	SP	D	UNITS	C	SECH	M	T	SC	DI							
171	0/0/0	0	0	0	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
172	0/0/0	0	0	0	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
173	0/0/0	0	0	0	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
174	0/0/0	0	0	0	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

LS TAXA 171 172 173 174

TOTAL DIVERSITY (H PRIME) -0.00 0.00 0.00 0.00

DIVERSITY (J PRIME) 0.00 0.00 0.00 0.00

NUMBER OF TAXA 0 0 0 0

MISSED SAMPLE IDS 171 172 173 174

S.E. AB% REL

-1.00 100.0 0.0 0.0

0.0 0.0 0.0 0.0

0.0 0.0 0.0 0.0

0.0 0.0 0.0 0.0

0.0 0.0 0.0 0.0

0.0 0.0 0.0 0.0

0.0 0.0 0.0 0.0

0.0 0.0 0.0 0.0

0.0 0.0 0.0 0.0

0.0 0.0 0.0 0.0

0.0 0.0 0.0 0.0

0.0 0.0 0.0 0.0

0.0 0.0 0.0 0.0

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SID	DATE	TIME	D/H	UNITS	C	DURATION		SD	WD	SP	D	TOW		SAMP VOL		WIND	CURRENT		TEMP		BT	TURBD	COND	DO	PH	SALN	P		
						0	1					UNITS	C	SC	DI		CL	SP	DI	AIR								WAT	
181	0/0/0	0	0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
182	0/0/0	0	0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
183	0/0/0	0	0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
184	0/0/0	0	0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

LS TAXA

TOTAL
DIVERSITY (H PRIME)
DIVERSITY (J PRIME)
NUMBER OF TAXA

MISSED SAMPLE IDS

181 182 183 184

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S.E. ABZ
REL
- X

NORTHERN INDIANA PUBLIC SERVICE COMPANY (49720)

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LS	TAXA	16	17	18	S.E.	REL
TOTAL		-0.00	-0.00	-0.00	-1.00	100.0
DIVERSITY (H PRIME)		0.0	0.0	0.0	0.0	
DIVERSITY (J PRIME)		0.0	0.0	0.0	0.0	
NUMBER OF TAXA		0	0	0		

MISSSED SAMPLE IDS

171	173	174
181	183	184

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SID	DATE	TIME	D/N	DURATION		SD	WD	TOW				WIND				CURRENT				TEMP		BT	TURBO	COND	DO	PH	SALN P
				UNITS	C			SP	D	UNITS	C	SECH	WT	SC	DI	CL	SP	DI	AIR	WAT							
191	11/15/80	1710	0	0.0	0	1.0	1.0	0.0	0	0.6	3	1.0	0.0	0	0	0	0.0	0	4.0	4.0	0	0.0	0	10.9	0.0	0.0	0
192	11/15/80	1710	0	0.0	0	1.0	1.0	0.0	0	0.6	3	1.0	0.0	0	0	0	0.0	0	4.0	4.0	0	0.0	0	10.9	0.0	0.0	0
193	11/15/80	1710	0	0.0	0	1.0	1.0	0.0	0	0.6	3	1.0	0.0	0	0	0	0.0	0	4.0	4.0	0	0.0	0	10.9	0.0	0.0	0
194	11/15/80	1710	0	0.0	0	1.0	1.0	0.0	0	0.6	3	1.0	0.0	0	0	0	0.0	0	4.0	4.0	0	0.0	0	10.9	0.0	0.0	0

LS	TAXA	1	2	3	4	X	S.E.	AB%
0	CNIDARIA (TOTAL)	23.33	0.0	66.67	25.13	28.78	13.86	1.3
0	HYDROZOA							
19	HYDRA (LPIL)	23.33	0.0	66.67	25.13	28.78	13.86	1.3
0	NEMATODA (TOTAL)	6.67	0.0	0.0	8.38	3.76	2.20	0.2
1	NEMATODA (LPIL)	6.67	0.0	0.0	8.38	3.76	2.20	0.2
0	OLIGOCHAETA (TOTAL)	116.67	66.67	160.00	159.13	125.62	22.10	5.7
0	HAIDIDAE							
1	CHAETOGASTER (LPIL)	0.0	0.0	0.0	16.75	4.19	4.19	0.2
1	OLIGOCHAETA (LPIL)	116.67	66.67	160.00	142.38	121.43	20.31	5.5
0	ANNELIDA (TOTAL)	8.33	46.67	13.33	25.13	23.36	8.53	1.1
1	ANNELIDA (LPIL)	8.33	46.67	13.33	25.13	23.36	8.53	1.1
0	CLADOCERA (TOTAL)	476.67	1926.67	2386.67	1247.91	1509.48	416.20	68.3
0	BOSMINIDAE							
1	BOSMINIDAE (LPIL)	1.67	13.33	26.67	50.25	22.98	10.43	1.0
0	CHYDORIDAE							
1	ALONA RECTANGULA	41.67	60.00	0.0	0.0	25.42	15.14	1.1
1	ALONA AFFINIS	30.00	66.67	93.33	41.88	57.97	14.05	2.6
1	ALONA GUTTATA	25.00	0.0	0.0	0.0	6.25	6.25	0.3
20	ALONA (LPIL)	261.67	0.0	0.0	0.0	65.42	65.42	3.0
1	ALONA (LPIL)	0.0	453.33	906.67	737.02	524.25	198.20	23.7
1	CANPTOCERCUS RECTIROSTRIS	3.33	26.67	26.67	0.0	14.17	7.25	0.6
1	CHYDORUS (LPIL)	45.00	893.33	933.33	309.88	545.39	219.36	24.7
1	PLEUROXUS DENTICULATUS	0.0	220.00	293.33	41.88	138.80	70.20	6.3
1	PLEUROXUS (LPIL)	20.00	73.33	40.00	25.13	39.61	12.01	1.8
0	DAPHNIDAE							
1	SINOCEPHALUS (LPIL)	13.33	93.33	66.67	41.88	53.80	17.10	2.4
0	MACROTHRICIDAE							
1	LYCRIPTUS SPINIFER	1.67	0.0	0.0	0.0	0.42	0.42	0.0
6	CLADOCERA (LPIL)	0.0	26.67	0.0	0.0	6.67	6.67	0.3
3	CLADOCERA (LPIL)	33.33	0.0	0.0	0.0	8.33	8.33	0.4
0	OSTRACODA (TOTAL)	13.33	33.33	13.33	16.75	19.19	4.78	0.9
19	OSTRACODA (LPIL)	13.33	33.33	13.33	16.75	19.19	4.78	0.9
0	COPEPODA (TOTAL)	86.67	1233.33	506.67	293.13	479.95	256.12	21.7
0	CALANOIDA (TOTAL)							
14	CALANOIDA (LPIL)	1.67	0.0	0.0	25.13	6.70	6.16	0.3
0	CYCLOPOIDA (TOTAL)							

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BAILEY GENERATING PLANT

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LS	TAXA	1	2	3	4	X	S.E.	REL AB%
1	CYCLOPS VERNALIS	0.0	33.33	40.00	16.75	22.52	8.96	1.0
1	EUCYCLOPS ASILIS	8.33	266.67	26.67	50.25	87.98	60.18	4.0
1	EUCYCLOPS SPERATUS	1.67	20.00	13.33	8.38	10.84	3.88	0.5
1	MACROCYCLOPS ALBIDUS	6.67	260.00	40.00	33.50	85.04	58.76	3.8
14	CYCLOPOIDA (LPIL)	65.00	646.67	186.67	159.13	264.37	130.07	12.0
0	HARPACTICOIDA (TOTAL)							
1	HARPACTICOIDA (LPIL)	3.33	0.0	0.0	0.0	0.83	0.83	0.0
14	HARPACTICOIDA (LPIL)	0.0	6.67	0.0	0.0	1.67	1.67	0.1
0	EPHEMEROPTERA (TOTAL)	0.0	6.67	13.33	0.0	5.00	3.19	0.2
13	EPHEMEROPTERA (LPIL)	0.0	6.67	13.33	0.0	5.00	3.19	0.2
0	DIPTERA NEMATOCERA (TOTAL)	11.67	13.33	26.67	8.38	15.01	4.02	0.7
0	CHIRONOMIDAE							
2	CHIRONOMIDAE (LPIL)	11.67	13.33	26.67	8.38	15.01	4.02	0.7
TOTAL		743.33	3326.66	2986.66	1783.92	2210.14	590.40	100.0
	DIVERSITY (H PRIME)	3.30	3.27	2.89	2.99	3.11	0.10	
	DIVERSITY (J PRIME)	0.73	0.74	0.68	0.69	0.71	0.02	
	NUMBER OF TAXA	23	21	19	20	27		

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191 192 193 194

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SID	DATE	TIME	D/H	DURATION		SD	WD	TOW				WIND				CURRENT				TEMP		BT	TURBD	COND	DO	PH	SALN P
				UNITS	C			SP	D	UNITS	C	SECH	W	T	SC	DI	CL	SP	DI	AIR	WAT						
201	11/15/80	1710	0	0.0	0	1.0	1.0	0.0	0	0.6	3	1.0	0.0	0	0	0	0.0	0	3.0	4.0	0	0.0	0	10.2	0.0	0.0	0
202	11/15/80	1710	0	0.0	0	1.0	1.0	0.0	0	0.6	3	1.0	0.0	0	0	0	0.0	0	3.0	4.0	0	0.0	0	10.2	0.0	0.0	0
203	11/15/80	1710	0	0.0	0	1.0	1.0	0.0	0	0.6	3	1.0	0.0	0	0	0	0.0	0	3.0	4.0	0	0.0	0	10.2	0.0	0.0	0
204	11/15/80	1710	0	0.0	0	1.0	1.0	0.0	0	0.6	3	1.0	0.0	0	0	0	0.0	0	3.0	4.0	0	0.0	0	10.2	0.0	0.0	0

LS	TAXA	1	2	3	4	X	S.E.	AB%
0	CHIDARIA (TOTAL)	53.33	15.15	88.89	37.04	48.60	15.54	0.9
0	HYDROZOA							
19	HYDRA (LPIL)	53.33	15.15	88.89	37.04	48.60	15.54	0.9
0	NEMATODA (TOTAL)	426.67	151.52	88.89	111.11	194.55	78.45	3.7
1	NEMATODA (LPIL)	426.67	151.52	88.89	111.11	194.55	78.45	3.7
0	OLIGOCHAETA (TOTAL)	266.67	0.0	44.44	37.04	87.04	60.66	1.6
1	OLIGOCHAETA (LPIL)	266.67	0.0	44.44	37.04	87.04	60.66	1.6
0	ANNELIDA (TOTAL)	373.33	0.0	22.22	0.0	98.89	91.63	1.9
1	ANNELIDA (LPIL)	373.33	0.0	22.22	0.0	98.89	91.63	1.9
0	CLADOCERA (TOTAL)	4160.00	1787.88	2688.89	2333.33	2742.52	507.52	51.7
0	BOSMINIDAE							
1	BOSMINIDAE (LPIL)	0.0	0.0	66.67	74.07	35.19	20.37	0.7
0	CHYDORIDAE							
1	ALONA RECTANGULA	53.33	0.0	0.0	0.0	13.33	13.33	0.3
1	ALONA AFFINIS	53.33	121.21	111.11	18.52	76.04	24.32	1.4
1	ALONA (LPIL)	960.00	545.45	511.11	185.19	500.44	170.40	9.4
1	CAMPTOCERCUS RECTIROSTRIS	160.00	15.15	0.0	0.0	43.79	30.90	0.8
1	CHYDORUS (LPIL)	2453.33	954.55	2022.22	1833.33	1815.86	315.06	34.2
1	PLEUROXUS DENTICULATUS	0.0	45.45	66.67	18.52	32.66	14.68	0.6
1	PLEUROXUS (LPIL)	213.33	15.15	22.22	0.0	62.68	50.43	1.2
0	DAPHNIDAE							
1	DAPHNIA RETROCURVA	0.0	15.15	0.0	0.0	3.79	3.79	0.1
1	SINDOCEPHALUS (LPIL)	266.67	75.76	88.89	129.63	140.24	43.68	2.6
1	SCAPHOLEBERIS (LPIL)	0.0	0.0	0.0	55.56	13.89	13.89	0.3
6	CLADOCERA (LPIL)	0.0	0.0	0.0	18.52	4.63	4.63	0.1
0	OSTRACODA (TOTAL)	266.67	30.30	0.0	74.07	92.76	59.93	1.7
19	OSTRACODA (LPIL)	266.67	30.30	0.0	74.07	92.76	59.93	1.7
0	COPEPODA (TOTAL)	5280.00	818.18	1000.00	740.74	1959.73	1108.09	37.0
0	CYCLOPOIDA (TOTAL)							
1	CYCLOPS VERHALIS	106.67	60.61	88.89	92.59	87.19	9.65	1.6
1	EUCYCLOPS AGILIS	533.33	45.45	88.89	92.59	190.07	114.92	3.6
1	MACROCYCLOPS ALBIDUS	800.00	136.36	244.44	240.74	355.39	150.31	6.7
14	CYCLOPOIDA (LPIL)	3840.00	560.61	555.56	277.78	1308.48	846.42	24.7
0	HARPACTICOIDA (TOTAL)							
1	HARPACTICOIDA (LPIL)	0.0	15.15	22.22	37.04	18.60	7.70	0.4
0	DIPTERA NEMATOCERA (TOTAL)	160.00	45.45	88.89	18.52	78.22	30.88	1.5

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NORTHERN INDIANA PUBLIC SERVICE COMPANY (49720)

BAILEY GENERATING PLANT

ZOOPLANKTON DENSITY

REPLICATE REPORT

LS	TAXA					-		REL
		1	2	3	4	X	S.E.	AB%
0	CHIRONOMIDAE							
2	CHIRONOMIDAE (LPIL)	160.00	45.45	88.89	18.52	78.22	30.88	1.5
TOTAL		10986.64	2848.48	4022.22	3351.85	5302.29	1909.97	100.0
DIVERSITY (H PRIME)		3.01	2.89	2.69	2.63	2.80	0.09	
DIVERSITY (J PRIME)		0.74	0.71	0.66	0.63	0.68	0.02	
NUMBER OF TAXA		17	17	17	18	23		

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STATION REPORT

LS	TAXA	19	20	X	S.E.	REL AB%
0	CHIDARIA (TOTAL)	28.78	48.60	38.69	9.91	1.0
0	HYDROZOA					
19	HYDRA (LPIL)	28.78	48.60	38.69	9.91	1.0
0	NEMATODA (TOTAL)	3.76	194.55	99.15	95.39	2.6
1	NEMATODA (LPIL)	3.76	194.55	99.15	95.39	2.6
0	OLIGOCHAETA (TOTAL)	125.62	87.04	106.33	19.29	2.8
0	HAIDIDAE					
1	CHAETOGASTER (LPIL)	4.19	0.0	2.09	2.09	0.1
1	OLIGOCHAETA (LPIL)	121.43	87.04	104.23	17.20	2.8
0	ANNELIDA (TOTAL)	23.36	98.89	61.13	37.76	1.6
1	ANNELIDA (LPIL)	23.36	98.89	61.13	37.76	1.6
0	CLADOCERA (TOTAL)	1509.48	2742.52	2126.00	616.52	56.6
0	BOSMINIDAE					
1	BOSMINIDAE (LPIL)	22.98	35.19	29.08	6.10	0.8
0	CHYDORIDAE					
1	ALONA RECTANGULA	25.42	13.33	19.37	6.04	0.5
1	ALONA AFFINIS	57.97	76.04	67.01	9.04	1.8
1	ALONA GUTTATA	6.25	0.0	3.12	3.12	0.1
20	ALONA (LPIL)	65.42	0.0	32.71	32.71	0.9
1	ALONA (LPIL)	524.25	500.44	512.35	11.91	13.6
1	CANPTOCERCUS RECTIROSTRIS	14.17	43.79	28.98	14.81	0.8
1	CHYDORUS (LPIL)	545.39	1815.86	1180.62	635.24	31.4
1	PLEUROXUS DENTICULATUS	130.80	32.66	85.73	53.07	2.3
1	PLEUROXUS (LPIL)	39.61	62.68	51.15	11.53	1.4
0	DAPHNIDAE					
1	DAPHNIA RETROCURVA	0.0	3.79	1.89	1.89	0.1
1	SINOCEPHALUS (LPIL)	53.80	140.24	97.02	43.22	2.6
1	SCAPHOLEBERIS (LPIL)	0.0	13.89	6.94	6.94	0.2
0	MACROTHRICIDAE					
1	ILYCRYPTUS SPINIFER	0.42	0.0	0.21	0.21	0.0
6	CLADOCERA (LPIL)	6.67	4.63	5.65	1.02	0.2
3	CLADOCERA (LPIL)	8.33	0.0	4.17	4.17	0.1
0	OSTRACODA (TOTAL)	19.19	92.76	55.97	36.79	1.5
19	OSTRACODA (LPIL)	19.19	92.76	55.97	36.79	1.5
0	COPEPODA (TOTAL)	479.95	1959.73	1219.84	739.89	32.5
0	CALANOIDA (TOTAL)					
14	CALANOIDA (LPIL)	6.70	0.0	3.35	3.35	0.1
0	CYCLOPOIDA (TOTAL)					
1	CYCLOPS VERNALIS	22.52	87.19	54.85	32.33	1.5
1	EUCYCLOPS AGILIS	87.98	190.07	139.02	51.04	3.7
1	EUCYCLOPS SPERATUS	10.84	0.0	5.42	5.42	0.1
1	MACROCYCLOPS ALBIDUS	85.04	355.39	220.21	135.17	5.9
14	CYCLOPOIDA (LPIL)	264.37	1308.48	786.42	522.06	20.9
0	HARPACTICOIDA (TOTAL)					

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BAILEY GENERATING PLANT

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STATION REPORT

LS	TAXA	19	20	- X	S.E.	REL AB%
1	HARPACTICOIDA (LPIL)	0.83	18.60	9.72	8.88	0.3
14	HARPACTICOIDA (LPIL)	1.67	0.0	0.83	0.83	0.0
0	EPHENEROPTERA (TOTAL)	5.00	3.0	2.50	2.50	0.1
13	EPHENEROPTERA (LPIL)	5.00	0.0	2.50	2.50	0.1
0	DIPTERA NEMATOCERA (TOTAL)	15.01	78.22	46.61	31.60	1.2
0	CHIRONOMIDAE					
2	CHIRONOMIDAE (LPIL)	15.01	78.22	46.61	31.60	1.2
TOTAL		2210.14	5302.29	3756.22	1546.07	100.0
DIVERSITY (H PRIME)		3.11	2.80	2.96	0.15	
DIVERSITY (J PRIME)		0.71	0.68	0.70	0.01	
NUMBER OF TAXA		27	23	29		

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NOTHERN INDIANA PUBLIC SERVICE COMPANY (49720)

EATLEY GENERATING PLANT

ZOOPLANKTON DENSITY

REPLICATE REPORT

LS	TAXA	1	2	3	4	X	S.E.	REL ABZ
13	EPHEMEROPTERA (LPIL)	0.0	1.67	0.0	0.0	0.42	0.42	0.3
0	TRICHOPTERA (TOTAL)	0.0	1.67	0.0	0.0	0.42	0.42	0.3
2	TRICHOPTERA (LPI)	0.0	1.67	0.0	0.0	0.42	0.42	0.3
0	DIPTERA NEMATOCERA (TOTAL)	0.0	0.0	1.67	0.0	0.42	0.42	0.3
0	CHIRONOMIDAE	0.0	0.0	1.67	0.0	0.42	0.42	0.3
2	CHIRONOMIDAE (LPIL)	1.67	0.0	0.0	0.0	0.42	0.42	0.3
0	DIPTERA (TOTAL)	1.67	0.0	0.0	0.0	0.42	0.42	0.3
2	DIPTERA (LPIL)	1.67	0.0	0.0	0.0	0.42	0.42	0.3
	TOTAL	63.33	183.33	75.00	160.00	120.42	30.06	100.0
	DIVERSITY (H PRIME)	2.41	2.31	2.25	2.05	2.26	0.07	
	DIVERSITY (J PRIME)	0.72	0.59	0.65	0.62	0.65	0.03	
	NUMBER OF TAXA	10	15	11	10	24		

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