

L. E. S. - 12 - 7/11/77

LABORATORY REPORT
Biological and Chemical Findings

I. Sampling Location

Central Illinois Public Service Company
Coffee Power Station
Coffee, Illinois
(See Figure 1 for sampling sites)

II. Dates of Survey

May 24-25, 1977

III. Participants

USEPA

Max A. Anderson - Aquatic Biologist, CEI
Charles S. Steiner, Jr. - Aquatic Biologist, CEI

CIPS

Janet Fanning - Biologist
Allan Guthrie - Laboratory Technician

IV. Purpose of Survey

To gather biological and chemical data for the purpose of evaluating the impact of the power plant on the Lake's phytoplankton and macroinvertebrate populations.

V. Sampling Procedure

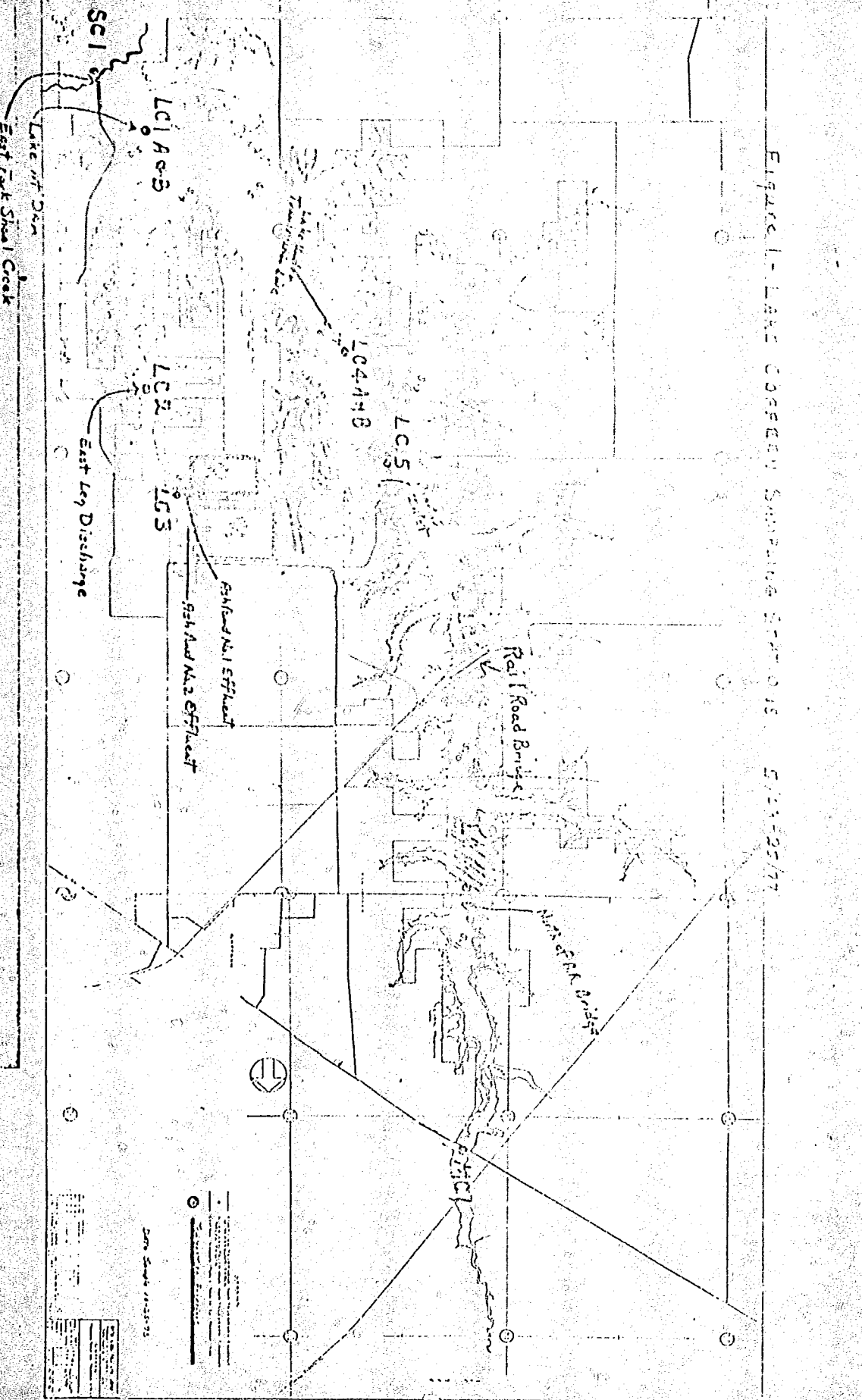
1. Chemistry - Chemistry samples were collected from the surface by filling the sample bottles directly at 1 or 2 inches beneath the surface, and from near the bottom by use of a Kemmerer non metallic water bottle.
2. Phytoplankton - Same as for chemistry.
3. Macroinvertebrates - Samples were collected from the lake bottom by means of a ponar dredge. Qualitative samples were collected by cleaning rocks and sticks from the shallow littoral areas. Hester-Dendy multiple plate samplers were also installed, for a period of six weeks, on monitoring floats at stations LC 1, 2, 3, and 5.

All samples were properly labeled, preserved and/or stored on ice as necessary.

Table 1 Lake Coffeen Sampling Station Description

SC 1	Sheal Creek
LC 1A	Lake Coffeen Dam (Surface)
B	Lake Coffeen Dam (Bottom)
LC 2	Lake Coffeen East Leg Discharge
LC 3	Lake Coffeen 100 yards Below Condenser Discharge
LC 4A	Lake Coffeen Under Transmission Line (Surface)
B	Lake Coffeen Under Transmission Line (Bottom)
LC 5	Lake Coffeen B Reactor Inlet
LC 6	Lake Coffeen B Rail Road Bridge
MC 1	Mc Davids Branch U.S. Hwy 185

FIGURE 1 - LAKE COFFEEBERRY SURVEY STATIONS 5/13-25/77



Sampling Stations from 20. Temp 20 Temp 20 Temp 20 Temp 20 Temp 20 Temp 20 Temp 20 Temp 20 Temp 20 Temp 20 Temp 20 Temp 20 Temp 20 Temp 20

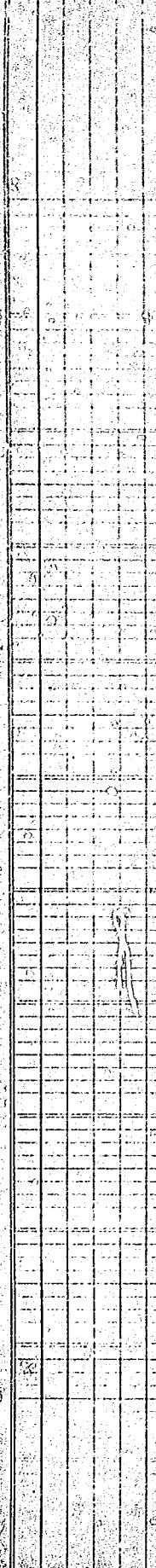
Surface 1.8m (6.2ft) 2.7m (8.9ft) 3.7m (12.1ft) 4.6m (15.1ft) 5.5m (18.0ft) 6.4m (21.0ft) 7.3m (24.0ft) 8.2m (27.0ft) 10m (33.0ft) 11m (36.0ft) 13.7m (45.0ft)

LC 1 } 30.5 6.72 25.1 4.50 27.0 6.50 26.5 4.00 26.0 5.90 25.5 5.50 24.2 5.40 21.9 3.69 19.3 2.80 16.2 1.58 15.6 0.58 14.0 0.15
 LC 1.5 }
 LC 2 } 53.0 6.39 22.5 5.50 26.5 5.49 25.6 5.10 25.3 4.31 24.3 2.38
 LC 3 } 33.0 6.70 32.2 6.70

LC 4 } 20.5 7.19 28.3 7.01 27.3 7.01 25.5 5.05 25.5 6.95 25.0 6.29 25.0 5.14 23.3 5.01 25.0 4.91
 LC 4.5 }
 LC 5 } 29.9 7.45 23.2 7.39 26.8 6.35 26.1 6.29 25.1 5.10 23.5 4.39 22.3 3.70 19.1 1.58 18.1 0.20
 LC 6 } 28.5 7.99 25.4 8.09 25.3 7.99 23.0 7.99 27.0 7.53 Total depth not determined

SC 1 } 24.0 12.8
 MC 1 } 22.9 2.57

Temp: °C
 Dissolved Oxygen: mg/L



Lake Colless, Macromvertebrates, Continued

	LC1		LC2		LC3			LC4		LC5		SC1		SC2
	Specs	Count	Specs	Count	Specs	Count	Specs	Count	Specs	Count	Specs	Count	Specs	Count
<i>Coeloptera</i>														
<i>Dubiraphia</i> sp.														
<i>Helichus lithophilus</i>													1	2
<i>Hemiptera</i>														
<i>Mecynoptera</i> sp.						1								
<i>Corixidae</i>													1	
<i>Collembola</i>														
<i>Isotomurus palustris</i>						1							1	
<i>Oligochaeta</i>														
<i>Tubificoides</i> sp.														
<i>Limnodrilus</i> sp.			1			2							1	1
<i>Amphipoda</i>														
<i>Hyalomma azteca</i>														
<i>Gammarus pseudolimnacus</i>														
<i>Gastropoda</i>														
<i>Physa integra</i>						1							1	1
<i>Tubellaria</i>														
Total Taxa	3	3	6	7	6	15	3	6	11	5	7	9	13	17
Total Number	15	22	50	73	7	1543	5	145	570	220	56	378	233	723

Lake Colleen Phytoplankton

Taxa - No./ml.	1019	1013	1012	1011	1010	1009	1008	1007	1006	1005
Blue-green algae										
<i>Oscillatoria limnetica</i>	1100	1000	1010	1170	810	50	110	110	0	40
Green algae										
<i>Ankistrodesmus salentus</i>	830	670	130	110	50	20	150	1200	530	120
<i>Crucigenia quadrata</i>	20							20		
<i>Crucigenia</i> sp.									170	
<i>Scenedesmus quadrangula</i>	100	40	270	150	40	50	100	220	10	40
<i>Scenedesmus bifuga</i>	40	20	15	130	0		170			
<i>Scenedesmus</i> sp.	170	20	120	130			60	40	170	
<i>Selinastrum</i> sp.										500
<i>Tetraodon minimum</i>	20	20	20	20			20	20		
<i>Tetraodon</i> sp.					60					
Flagellates										
<i>Carteria</i> sp.		20		20				40		
<i>Chlamydomonas</i> sp.	40		60	40	20		40	20	300	270
<i>Chrysoleucus</i> sp.	20		100	10	40		60	20		
<i>Cryptomonas ovata</i>	40			60	60		20	50	400	150
<i>Cryptomonas crassa</i>		40			20		40		110	40
<i>Cryptomonas</i> sp.			150	100	50		40	400	500	
<i>Euglena</i> sp.					20				110	220
<i>Mallomonas</i> sp.	20	60	20	20	20			60		
<i>Trachelomonas</i> sp.		40				20		40		20
Unidentified flagellates	50	100	170	50	350	120	100	90	290	100
Ce. tric. Diatoms										
<i>Cyclotella</i> sp.			40				60		550	300
<i>Melosira</i> sp.	40		40				60	60	60	
<i>Microsiphon potamos</i>									200	220
Pennate Diatoms										
<i>Asterionella formosa</i>		60						40	170	
<i>Cymbella</i> sp.							20			
<i>Eunotia</i> sp.		20						20		
<i>Gomphonema</i> sp.										20
<i>Navicula</i> sp.	20			20						20
<i>Nitzschia acicularis</i>			40	80	20			60	40	
<i>Nitzschia palea</i>	40	20	20	20			80	40	170	40
<i>Nitzschia</i> sp.	50	20	100	100	20	100	150	20		
<i>Synedra</i> sp.		20		40						
<i>Tabellaria fenestrata</i>		60						20		
Total Taxa	16	17	16	18	15	6	17	21	18	14
Total No./ml	18190	2500	22,640	14,150	16,430	1570	1120	24140	25120	2710