

LAKE ERIE LIMNOLOGY
CRUISE ABOARD THE R/V
INLAND SEAS SEPTEMBER
6-13, 1972
PRELIMINARY FIELD RESULTS

CLEAR TECHNICAL REPORT NO. 8

by

Charles E. Herdendorf

CENTER FOR LAKE ERIE AREA RESEARCH
THE OHIO STATE UNIVERSITY
COLUMBUS, OHIO

October 1972

LAKE ERIE LIMNOLOGY CRUISE
ABOARD THE R/V INLAND SEAS
SEPTEMBER 6-13, 1972

PRELIMINARY FIELD RESULTS

Compiled by

Charles E. Herdendorf

October 1972

Center for Lake Erie Area Research
The Ohio State University
Columbus, Ohio

TABLE OF CONTENTS

	Page
Introduction.....	1
Cruise Participants.....	2
Sampling and Instrumentation.....	3
Station Locations.....	5
Water, Biological, and Sediment Samples.....	7
Water Property Determinations.....	8
Remote Sensor Measurements.....	13
Optical Measurements.....	32
Temperature and Meteorological Observations.....	108
Bathythermograph Recordings.....	109
Sediment Core Descriptions.....	113
FIGURE	
Figure 1. Lake Erie Station Location Map.....	6

INTRODUCTION

This report contains preliminary field results of a Lake Erie limnology cruise aboard the R/V Inland Seas from 6 to 13 September 1972. The 114-ft. Inland Seas was made available to the Center for Lake Erie Area Research by the Great Lakes Division, University of Michigan. Approximately \$15,000 was provided by the National Science Foundation for the operation of the ship. The eight-day research cruise on Lake Erie originated at Monroe, Michigan with stations from the mouth of the Detroit River eastward to near the head of the Niagara River at Buffalo, New York. The scientific crew consisted of 12 investigators and students from three universities and a state agency: The Ohio State University, Bowling Green State University, University of Toledo, and the Ohio Department of Natural Resources, Division of Geological Survey.

The objective of the cruise was to collect water, biological and sediment samples and obtain field measurements throughout the lake for the purpose of characterizing the lake environment, particularly the state of eutrophication in the lake's three basins: western, central and eastern and determining the extent of heavy metals contamination in the sediment and water of the lake. The cruise course covered over 700 miles and included 38 sampling stations. The station locations, sampling techniques and types of measurement instrumentation are listed later in this report.

We anticipate that the biological samples will yield information on the diversity and density of benthic and planktonic populations and thereby provide a method of comparing the state of eutrophication throughout Lake Erie. Optical, thermal and other water property measurements will be used to represent the physical structure of the lake and the relationship of this structure to biological productivity. The water samples will be tested for chloride and mercury content. These parameters and others determined on shipboard will be useful in obtaining flow patterns and diffusion rates from known sources of pollution. Mercury in the bottom grabs and sediment cores will also be tested to yield projections of the amount of this substance in the sediment reservoir of the lake. Radiocarbon-dating, x-ray radiography, radiological counting grain-size analysis, pollen analysis and other sedimentological techniques will be used to determine the age of deposition and the interrelationships of various physical and chemical characteristics of Lake Erie sediments.

CRUISE PARTICIPANTS

Chief Scientist

Dr. Charles E. Herdendorf¹
Center for Lake Erie Area Research
The Ohio State University

Scientific Crew

Mr. Robert Bastian
Department of Biology
Bowling Green State University

Mr. Lawrence L. Braidech
Division of Geological Survey
Ohio Department of Natural Resources

Prof. Edward K. Damon¹
ElectroScience Laboratory
The Ohio State University

Mr. Keith Grant¹
Department of Geology
Bowling Green State University

Mr. David B. Gruet¹
Center for Lake Erie Area Research
The Ohio State University

Dr. Elizabeth M. Hair¹
Center for Lake Erie Area Research
The Ohio State University

Ms. Patricia B. Herdendorf¹
Center for Lake Erie Area Research
The Ohio State University

Dr. Richard O. Moore
College of Biological Sciences
The Ohio State University

Mr. John W. Sinkovic¹
Department of Geology
University of Toledo

Dr. Lester J. Walters, Jr.
Department of Geology
Bowling Green State University

Mr. Thomas Wollery
Department of Geology
Bowling Green State University

¹ participants for entire cruise

SAMPLING AND INSTRUMENTATION

Biological Samples

1. Benthos - 3 sediment grabs with a Ponar dredge, screened through a sieve. Samples at Stations 1-5 taken with a dredge having a collection area of 0.055m^2 ; samples at Stations 6-38 with another dredge having an area of 0.051m^2 . Two sieves were used; Station 1-13, 15 mesh size 0.83mm and stations 14A, 16-38 mesh size 0.50mm.
2. Plankton - 2 vertical net tows. Conical net, diameter 50cm at opening, length 190cm, mesh size no. 20. Net towed vertically from 140cm above the bottom to the surface.

Water Samples

1. Surface - 1 sample with a 5-liter Niskin sampler. Sample taken in uppermost meter of water.
2. Mid-water - 1 sample with a 5-liter Niskin sampler. Samples taken approximately midway between surface and bottom.
3. Bottom - 1 sample with a 5-liter Niskin sampler. Samples taken 1.5 meters above bottom.

Sediment Samples

1. Surface - 1 grab per station with a Ponar dredge.
2. Subsurface - 1 to 4 cores per station. Cores up to 4 meters in length taken with a gravity corer containing 2 inch diameter plastic liners. A weight of 400 lbs. of

lead was used to drive a galvanized steel core tube 12 and 24 feet in length, into the bottom.

Remote Sensor Measurements

1. Water temperature - surface to bottom at 1 meter intervals with a thermister mounted in a Beckman RB-3 conductivity meter. Bathythermograph (BT serial no. 6724B) casts made at Stations 14, 29, 30, 31, 35, and 36.
2. Specific conductance - surface to bottom at 1 meter intervals with a Beckman RB-3 conductivity meter.
3. Light transmission - surface to bottom at 1 meter intervals with an experimental transmissometer developed by the ElectroScience Laboratory, OSU (see section on optical measurements).

Meteorological Observation

1. Air temperature - 15 ft. above water level with a mercury thermometer.
2. Wind - 35 ft. above water level with an electronic anemometer permanently mounted aboard the Inland Seas.
3. Waves - visual estimation from 15 feet above water level.

Shipboard Determinations

1. Dissolved oxygen - surface, mid-water and bottom water samples with a Yellow Springs Instrument model 51 dissolved oxygen meter.
2. pH - surface, mid-water and bottom water samples with a Portomatic Instrumentation Laboratory model 175 pH meter.
3. Alkalinity - surface, mid-water and bottom water samples using a standard acid titration.
4. Sediment temperature - in Ponar sediment samples with a mercury thermometer.
5. Water transparency - Secchi disc, 20cm diameter, lowered from surface to point of disappearance.

STATION LOCATIONS

<u>STATION NO.</u>	<u>LATITUDE</u>	<u>LONGITUDE</u>	<u>DEPTH (m)</u>	<u>DATE</u>	<u>TIME (EST)</u>
1	45°50.0'N	83°15.0'W	8.2	6 Sept. 72	0652
2	41°57.5'N	83°12.0'W	6.4	6 Sept. 72	0851
3	41°57.5'N	83°02.5'W	9.1	6 Sept. 72	1020
4	41°57.5'N	83°00.0'W	9.1	6 Sept. 72	1103
5	41°57.5'N	82°52.5'W	10.7	6 Sept. 72	1201
6	41°52.0'N	83°00.0'W	10.7	6 Sept. 72	1325
7	41°50.0'N	83°05.0'W	10.7	6 Sept. 72	1420
9	41°42.0'N	83°00.0'W	10.1	6 Sept. 72	1545
10	41°40.3'N	82°51.0'W	11.0	6 Sept. 72	1655
11	41°41.0'N	82°45.0'W	11.0	7 Sept. 72	0655
12	41°38.5'N	82°42.0'W	15.2	7 Sept. 72	0750
13	41°40.0'N	82°29.0'W	14.3	7 Sept. 72	0915
14	42°00.0'N	82°10.0'W	22.6	8 Sept. 72	1030
14A	41°30.0'N	82°30.0'W	14.3	7 Sept. 72	1340
15	41°40.0'N	82°10.0'W	19.8	7 Sept. 72	1115
16	41°30.7'N	82°15.0'W	17.1	7 Sept. 72	1518
17	41°45.0'N	81°55.0'W	23.2	8 Sept. 72	0805
18	42°00.0'N	81°40.0'W	25.0	8 Sept. 72	1330
19	41°40.0'N	81°40.0'W	20.7	8 Sept. 72	1612
20	41°31.7'N	81°40.0'W	7.0	8 Sept. 72	1743
21	41°50.0'N	81°20.0'W	20.1	10 Sept. 72	0830
22	42°00.0'N	81°10.0'W	23.2	10 Sept. 72	1005
24	42°05.0'N	80°40.0'W	22.9	10 Sept. 72	1145
25	42°00.0'N	80°40.0'W	16.5	12 Sept. 72	1617
26	42°20.0'N	80°40.0'W	21.3	10 Sept. 72	1354
27	42°20.0'N	80°20.0'W	17.7	10 Sept. 72	1557
28	42°15.0'N	80°00.0'W	18.9	10 Sept. 72	1747
28A	42°08.3'N	80°05.5'W	7.6	10 Sept. 72	2300
29	42°30.1'N	79°53.5'W	64.6	11 Sept. 72	0835
30	42°40.0'N	79°53.5'W	37.5	11 Sept. 72	1023
31	42°40.0'N	79°40.0'W	32.5	11 Sept. 72	1155
32	42°52.7'N	78°53.3'W	8.2	11 Sept. 72	1658
33	42°45.0'N	79°05.0'W	18.9	11 Sept. 72	1526
34	42°40.0'N	79°20.0'W	25.9	11 Sept. 72	1350
35	42°30.0'N	79°30.0'W	38.1	12 Sept. 72	0930
36	42°20.0'N	79°50.0'W	37.5	12 Sept. 72	1145
37	41°57.5'N	82°42.5'W	11.0	13 Sept. 72	1415
38	41°52.8'N	83°10.0'W	8.5	13 Sept. 72	1647

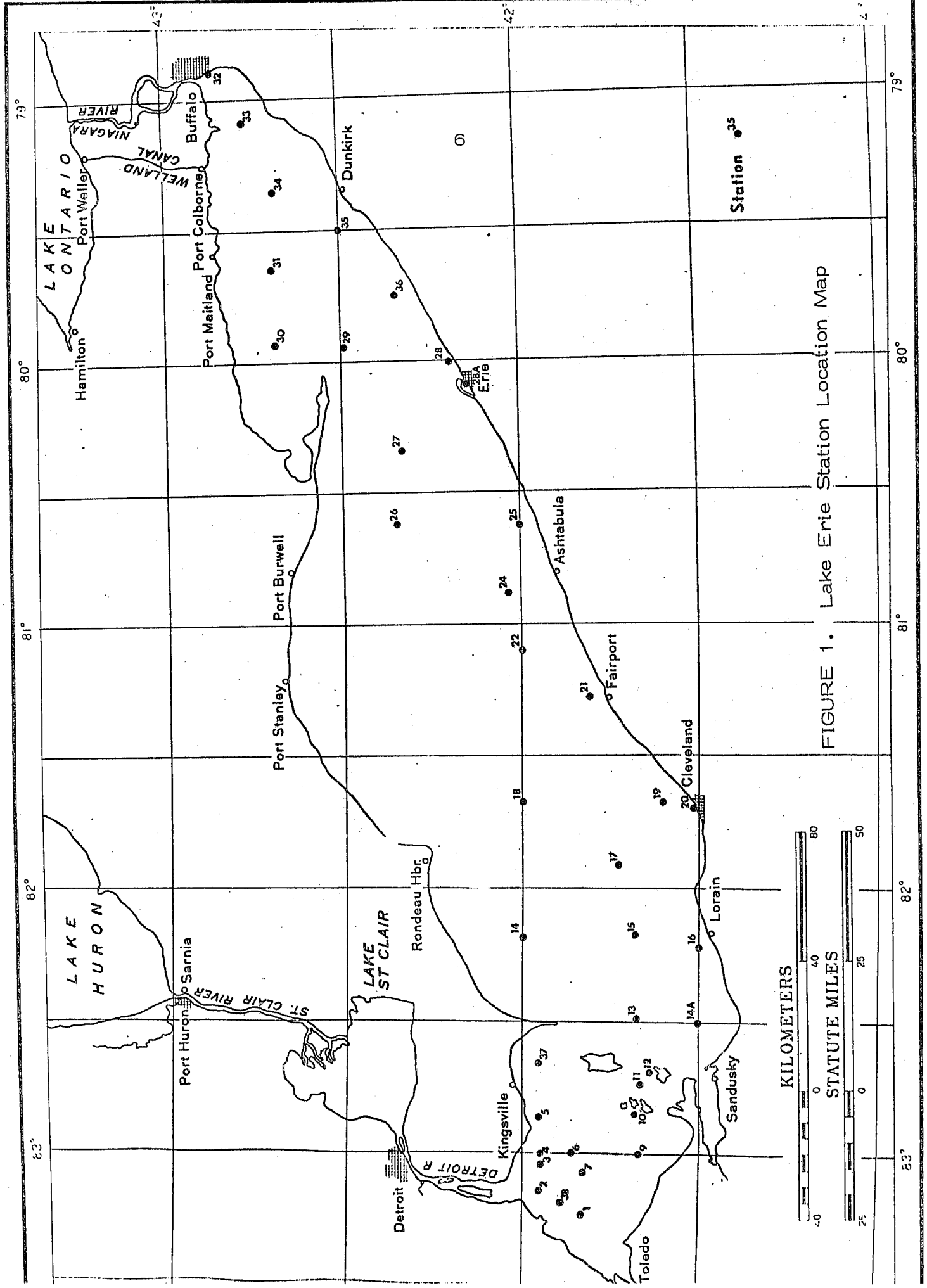


FIGURE 1. Lake Erie Station Location Map

WATER, BIOLOGICAL, AND SEDIMENT
SAMPLES

Station No.	Water		Plankton		Benthos		Sediment	
	Niskin Bottles		Vertical Tows		Ponar Drops		Grab	Cores
1	3		2		3		1	plug
2	3		2		3		1	1
3	3		2		3		1	1
4	3		2		3		1	2
5	3		2		3		1	3
6	3		2		3		1	2
7	3		2		3		1	2
9	3		2		3		1	2
10	3		2		3		1	2
11	3		2		3		1	2
12	3		2		3		1	2
13	3		2		3		1	2
14	3		2		3		1	2
14A	3		2		3		1	2
15	3		2		3		1	2
16	3		2		3		1	2
17	3		2		3		1	2
18	3		2		3		1	2
19	3		2		3		1	2
20	3		2		3		1	2
21	3		2		3		1	2
22	3		2		3		1	2
24	3		2		3		1	2
25	3		2		3		1	3
26	3		2		3		1	4
27	3		2		3		1	-
28	3		2		3		1	-
28A								
29	5		2		3		1	2
30	4		2		3		1	2
31	3		2		3		1	2
32	3		2		3		1	2
33	3		2		3		1	-
34	3		2		3		1	2
35	3		2		3		1	2
36	3		2		3		1	2
37	3		2		3		1	2
38	3		2		-		-	-

WATER PROPERTY DETERMINATIONS

STATION 1

DEPTH (m)	TEMP (C°)	COND ¹ (umhos)	DISSOLVED OXYGEN (ppm)	pH	ALKALINITY (ppm)	SODIUM (ppm)
S	21.6	255	8.4	8.76	85.0	7.80
4.0	21.9	260	8.3	8.73	86.5	8.30
6.7	21.9	260	8.2	8.33	85.0	7.90

STATION 2

S	20.8	210	8.0	8.00	82.2	6.65
3.0	20.8	225	7.8	8.02	81.3	6.30
4.9	20.8	228	7.7	7.62	82.0	6.40

STATION 3

S	20.8	275	8.9	8.20	79.2	8.52
4.5	20.3	275	9.0	8.32	80.2	8.50
7.6	20.3	275	8.7	8.28	80.1	8.60

STATION 4

S	23.3	250	8.9	8.50	77.8	9.48
4.5	22.6	265	9.1	8.54	78.8	9.04
7.6	22.2	270	9.0	8.53	79.0	9.18

STATION 5

S	21.4	240	9.3	8.62	78.1	6.08
5.0	21.6	237	9.5	8.63	79.0	6.02
9.2	21.8	237	9.3	8.56	77.8	6.41

STATION 6

S	20.5	212	10.4	8.52	79.7	5.16
5.0	21.1	215	10.5	8.60	79.2	5.08
9.2	21.4	225	9.8	8.49	79.0	5.56

STATION 7

S	21.6	210	10.5	8.60	78.6	5.42
5.0	22.2	210	10.6	8.63	80.2	5.16
9.2	21.3		9.5	8.41	78.8	5.47

¹ Conductivity referenced to 25°C.

DEPTH (m)	TEMP (C°)	COND (umhos)	DISSOLVED OXYGEN (ppm)	pH	ALKALINITY (ppm)	SODIUM (ppm)
<u>STATION 9</u>						
S	21.4	325	10.0	8.98	83.0	6.75
4.5	21.5	325	7.7	8.70	83.0	6.63
8.6	21.6	320	7.65	8.70	82.2	6.93
<u>STATION 10</u>						
S	20.1	305	10.3	8.84	82.8	7.74
5.0	20.3	310	8.5	8.57	81.7	7.60
9.5	20.5	315	8.1	8.48	82.0	7.87
<u>STATION 11</u>						
S	21.1	265	8.3	8.20	85.0	8.66
5.0	21.9	270	8.0	8.40	86.5	8.55
9.5	21.9	270	7.9	8.40	85.9	8.66
<u>STATION 12</u>						
S	21.4	260	7.7	8.33	84.8	8.00
7.0	22.1	260	7.65	8.32	86.6	7.82
13.7	22.1	260	7.6	8.18	86.0	7.88
<u>STATION 13</u>						
S	21.8	270	8.0	8.25	88.0	8.70
7.0	21.9	275	7.8	8.37	89.0	8.60
12.8	21.9	275	7.4	8.37	87.4	9.00
<u>STATION 14</u>						
S	21.5	290	8.1	8.61	89.6	10.30
11.0	21.5	290	8.2	8.65	88.0	10.10
21.1	13.4	305	0.6	7.57	94.1	10.20
<u>STATION 14A</u>						
S	22.2	285	7.95	8.20	88.5	9.60
7.0	22.1	285	7.7	8.21	89.0	9.87
12.8	21.8	285	7.3	8.13	89.0	9.54
<u>STATION 15</u>						
S	22.1	275	9.7	8.78	90.5	10.20
9.5	21.8	290	9.65	8.85	91.0	10.35
18.3	14.7	305	0.6	7.52	95.5	10.46

DEPTH (m)	TEMP (C°)	COND (umhos)	DISSOLVED OXYGEN (ppm)	pH	ALKALINITY (ppm)	SODIUM (ppm)
<u>STATION 16</u>						
S	22.9	285	8.9	8.57	89.4	10.20
7.5	22.5	290	8.7	8.56	90.0	10.53
15.6	21.1		5.15	7.98	91.3	10.40
<u>STATION 17</u>						
S	21.8	285	9.5	8.64	89.0	10.06
11.5	21.9	290	9.3	8.69	90.6	9.90
21.7	13.8		2.4	7.69	93.7	9.88
<u>STATION 18</u>						
S	21.6	288	8.2	8.52	90.0	10.14
12.0	21.8	290	8.3	8.58	88.8	10.18
23.5	13.4	306	0.7	7.50	90.6	10.18
<u>STATION 19</u>						
S	21.8	292	8.9	8.76	89.0	10.57
10.0	21.8	295	8.9	8.80	90.0	10.92
19.2	14.7		0.6	7.48	96.0	10.53
<u>STATION 20</u>						
S	22.5	330	7.8	8.48	90.7	14.15
3.5	22.6	325	7.6	8.42	89.6	14.00
5.5	22.7	325	7.3	8.42	89.8	13.95
<u>STATION 21</u>						
S	21.0	286	8.6	8.58	90.0	10.20
10.0	21.0	285	8.4	8.63	89.1	10.05
18.6	13.5	315	1.1	7.58	96.9	10.65
<u>STATION 22</u>						
S	20.2	278	8.3	8.48	89.0	9.85
11.5	21.1	280	8.2	8.57	89.0	10.00
21.7	15.5	305	8.1	8.53	91.4	9.83
<u>STATION 24</u>						
S	20.8	285	8.2	8.48	90.0	10.15
11.0	21.0	298	8.2	8.53	91.2	10.47
21.4	15.4	305	1.0	7.60	96.7	10.78

DEPTH (m)	TEMP (C°)	COND (umhos)	DISSOLVED OXYGEN (ppm)	pH	ALKALINITY (ppm)	SODIUM (ppm)
<u>STATION 25</u>						
S	21.6	275	9.4	8.70	91.0	10.85
8.0	21.1	285	9.0	8.60	91.3	10.87
15.0	21.1	290	8.8	8.51	91.4	10.58
<u>STATION 26</u>						
S	20.8	295	8.7	8.52	90.8	10.35
10.0	20.8	290	8.6	8.55	91.1	10.36
19.8	14.8	309	1.0	7.60	95.7	10.58
<u>STATION 27</u>						
S	20.4	280	8.8	8.44	92.2	10.57
8.0	20.5	285	8.75	8.50	91.8	10.26
16.2	19.6	295	8.2	8.34	91.0	10.20
<u>STATION 28</u>						
S	20.8	285	8.7	8.55	92.8	10.48
9.0	21.2	295	8.6	8.61	92.0	10.51
17.4	21.0	295	8.1	8.48	91.8	10.61
<u>STATION 29</u>						
S	21.0	295	8.8	8.55	90.6	10.90
16.0	21.0	290	8.45	8.58	91.4	10.78
32.0	14.4	298	7.85	7.88	92.5	10.83
48.0	11.6	315	7.7	7.78	95.6	10.79
63.1	10.3	320	7.7	7.64	95.4	10.98
<u>STATION 30</u>						
S	20.2	298	8.9	8.58	91.3	10.89
19.0	9.0	305	7.1	7.97	93.3	11.00
26.0	6.6	320	8.0	7.72	94.1	10.80
36.0	4.7	320	8.2	7.62	95.0	11.15
<u>STATION 31</u>						
S	20.6	298	8.6	8.58	91.4	11.02
16.0	20.9	295	8.8	8.60	90.8	10.90
31.0	8.5	310	5.5	7.80	94.6	11.02
<u>STATION 32</u>						
S	20.1	300	8.5	8.50	91.5	11.03
4.0	21.0	300	8.5	8.50	92.5	11.14
6.7	21.0	300	8.5	8.50	92.3	11.04

DEPTH (m)	TEMP (C°)	COND (umhos)	DISSOLVED OXYGEN (ppm)	pH	ALKALINITY (ppm)	SODIUM (ppm)
<u>STATION 33</u>						
S	20.8	298	8.6	8.48	91.2	11.04
9.0	21.1	298	8.4	8.50	91.4	10.86
17.4	20.4	300	7.3	8.38	92.2	11.27
<u>STATION 34</u>						
S	21.1	280	8.75	8.50	90.2	11.12
12.5	21.0	290	8.6	8.50	91.5	11.10
24.5	11.3	315	4.2	7.78	93.9	11.04
<u>STATION 35*</u>						
S	21.1	295	8.7	8.51	93.1	10.80
18.0	20.8	298	8.6	8.42	93.2	10.83
36.6	6.2 (from BT reading)					10.78
<u>STATION 36</u>						
S	21.4	290	8.9	8.43	91.5	10.96
18.5	20.7	295	9.1	8.42	91.8	10.87
36.0	11.1	320	5.95	7.67	94.3	11.00
<u>STATION 37</u>						
S	21.1	210	9.1	8.30	80.8	6.50
6.0	21.1	225	9.0	8.42	80.9	6.40
9.5	21.1	228	8.9	8.44	80.8	6.51
<u>STATION 38</u>						
S	21.0	210	8.9	7.69	80.1	4.87
4.5	20.0	210	8.5	7.99	78.2	4.69
7.0	19.9	210	8.2	7.94	79.1	4.70

* Bottom sampler may have tripped at a depth between Surface and Mid

REMOTE SENSOR MEASUREMENTS

<u>DEPTH</u> <u>(m)</u>	<u>TEMPERATURE</u> <u>(C°)</u>	<u>CONDUCTIVITY</u> ¹ <u>(micromhos/cm)</u>	<u>LIGHT</u> <u>TRANSMISSION</u>	
			<u>(%)</u>	<u>(Alpha)</u>
<u>STATION 1</u>				
S	21.6	255		
1	21.9	255		
2	21.9	260		
3	21.9	260		
4	21.9	260		
5	21.9	260		
6	21.9	260		
7	21.9	260		
8	21.9	260		
<u>STATION 2</u>				
S	20.8	210		
1	20.8	210		
2	20.8	220		
3	20.8	225		
4	20.8	225		
5	20.8	228		
6	20.8	230		
<u>STATION 3</u>				
S	20.8	275	17.07	1.77
1	20.3	275	12.14	2.11
2	20.3	275	9.26	2.38
3	20.3	275	7.30	2.62
4	20.3	275	6.22	2.78
5	20.3	275	5.71	2.86
6	20.3	275	5.17	2.96
7	20.3	275	5.03	2.99
8	20.3	275	4.89	3.02
8.75	20.3	300	6.47	2.74

¹ Conductivity referenced to 25°C.

DEPTH (m)	TEMPERATURE (C°)	CONDUCTIVITY (micromhos/cm)	LIGHT TRANSMISSION	
			(%)	(Alpha)
<u>STATION 4</u>				
S	23.3	250	13.97	1.97
1	23.2	250	14.43	1.94
2	23.0	255	13.50	2.00
3	22.8	262	12.44	2.08
4	22.6	265	11.94	2.13
5	22.5	265	11.53	2.16
6	22.3	265	9.38	2.37
7	22.2	270	10.38	2.27
8	22.2	270	9.60	2.34
<u>STATION 5</u>				
S	21.4	240	13.02	2.04
1	21.4	240	12.48	2.08
2	21.6	240	11.57	2.16
3	21.6	240	10.63	2.24
4	21.6	240	10.27	2.28
5	21.6	237	9.90	2.31
6	21.6	238	10.14	2.29
7	21.6	237	9.52	2.35
8	21.8	238	8.48	2.47
9	21.8	237	10.14	2.29
10	21.8	237		
<u>STATION 6</u>				
S	20.5	212		
1	20.8	212	5.39	2.92
2	20.8	212		
3	21.0	212	4.52	3.10
4	21.1	215	4.11	3.19
5	21.1	215	3.69	3.30
6	21.2	222	3.40	3.38
7	21.4	225	4.65	3.07
8	21.4	225	5.15	2.97
9	21.4	225	5.39	2.92
10	21.4	225	2.23	3.20

<u>DEPTH</u> <u>(m)</u>	<u>TEMPERATURE</u> <u>(C°)</u>	<u>CONDUCTIVITY</u> <u>(micromhos/cm)</u>	<u>LIGHT</u> <u>TRANSMISSION</u>	
			<u>(%)</u>	<u>(Alpha)</u>
<u>STATION 7</u>				
S	21.6	210	6.29	2.77
1	22.2	210	5.03	2.99
2	22.2	210	4.15	3.18
3	22.2	210	3.58	3.33
4	22.3	212	3.17	3.45
5	22.2	210	2.73	3.45
6	22.1	212	4.15	3.18
7	21.6	212	6.29	2.77
8	21.4	215	9.02	2.41
9	21.4	215	6.29	2.77
9.5	21.2	330 (in bottom)		
<u>STATION 9</u>				
S	21.4	325	2.43	3.72
1	21.4	325	1.94	3.94
2	21.4	325	1.94	3.94
3	21.4	325	1.94	3.94
4	21.5	325	1.94	3.94
5	21.5	325	1.94	3.94
6	21.5	325	1.94	3.94
7	21.6	320	1.68	4.09
8	21.6	320	1.68	4.09
9	21.6	320	1.06	4.55
<u>STATION 10</u>				
S	20.1	305	3.50	3.35
1	20.1	308	4.51	3.10
2	20.1	310	5.56	2.89
3	20.1	310	5.56	2.89
4	20.1	310	5.27	2.94
5	20.3	310	4.97	3.00
6	20.3	310	3.68	3.30
7	20.3	310	1.59	4.14
8	20.5	310	1.85	3.99
9	20.5	310	1.32	4.33
10	20.6	320	1.32	4.33

DEPTH (m)	TEMPERATURE (C°)	CONDUCTIVITY (micromhos/cm)	LIGHT TRANSMISSION	
			(%)	(Alpha)
<u>STATION 11</u>				
S	21.1	265	3.07	3.48
1	21.9	270	3.07	3.48
2	21.8	270	3.07	3.48
3	21.9	270	3.07	3.48
4	21.9	270	2.84	3.56
5	21.9	270	2.84	3.56
6	21.9	270	2.84	3.56
7	21.9	270	2.84	3.56
8	21.9	270	2.84	3.56
9	21.9	270	3.07	3.48
10	21.9	270	2.84	3.56
11	21.6	360 (in bottom)	2.07	3.88
<u>STATION 12</u>				
S	21.4	260	6.00	2.81
1	21.9	260	4.77	3.04
2	21.9	260	4.39	3.13
3	22.1	260	4.19	3.17
4	22.1	260	4.39	3.13
5	22.1	260	4.39	3.13
6	22.1	260	4.39	3.13
7	22.1	260	4.39	3.13
8	22.1	260	4.58	3.08
9	22.1	260	4.77	3.04
10	22.1	260	4.96	3.00
11	22.1	260	4.96	3.00
12	22.1	260	4.96	3.00
13	22.1	260	4.58	3.08
14	22.1	260	3.35	3.40
15	22.1	362 (in bottom)	1.82	4.01
<u>STATION 13</u>				
S	21.8	270	10.08	1.66
1	21.9	270	19.08	1.66
2	21.8	272	18.09	1.71
3	21.8	272	17.78	1.73
4	21.8	272	17.88	1.72
5	21.8	272	17.78	1.73
6	21.9	275	17.78	1.73
7	21.9	275	17.78	1.73
8	22.1	275	17.88	1.72
9	22.1	275	17.78	1.73
10	22.1	275	17.78	1.73

<u>DEPTH</u> <u>(m)</u>	<u>TEMPERATURE</u> <u>(C°)</u>	<u>CONDUCTIVITY</u> <u>(micromhos/cm)</u>	<u>LIGHT</u> <u>TRANSMISSION</u>	
			<u>(%)</u>	<u>(Alpha)</u>
<u>STATION 13 continued</u>				
11	22.1	275	18.09	1.71
12	22.1	275	17.88	1.72
13	21.9	275	18.09	1.71
14	21.9	295	1.87	3.98
<u>STATION 14</u>				
S	21.5	290	51.75	0.66
1	21.5	290	52.01	0.65
2	21.5	290	51.22	0.67
3	21.5	290	50.70	0.68
4	21.5	290	50.70	0.68
5	21.5	290	50.70	0.68
6	21.5	290	50.43	0.68
7	21.5	290	50.43	0.68
8	21.5	290	50.43	0.68
9	21.5	290	50.70	0.68
10	21.5	290	50.70	0.68
11	21.5	290	50.96	0.67
12	21.5	290	51.48	0.66
13	21.5	290	53.05	0.63
14	21.5	290	55.09	0.60
15	21.5	290	57.60	0.55
16	14.5	322	33.90	1.08
17	13.9	308	56.35	0.57
18	13.6	305	56.60	0.57
19	13.6	305	56.60	0.57
20	13.5	305	55.85	0.58
21	13.4	305	5585.	0.58
<u>STATION 14A</u>				
S	22.2	282	11.62	2.15
1	22.1	285	11.08	2.20
2	22.1	285	10.08	2.29
3	22.1	285	9.62	2.34
4	22.1	285	9.50	2.35
5	22.1	285	9.15	2.39
6	22.1	285	9.15	2.39
7	22.1	285	9.03	2.41
8	22.1	285	8.78	2.43

DEPTH (m)	TEMPERATURE (C°)	CONDUCTIVITY (micromhos/cm)	LIGHT TRANSMISSION	
			(%)	(Alpha)
<u>STATION 14A continued</u>				
9	22.1	285	8.66	2.45
10	21.8	285	7.65	2.57
11	21.8	285	5.99	2.82
12	21.8	285	5.69	2.87
13	21.8	285	5.22	2.95
14	21.6	345 (in bottom)	1.38	4.28

STATION 15

S	22.1	275		
1	21.8	275		
2	21.9	278		
3	21.9	278		
4	21.8	278		
5	21.8	280		
6	21.8	282		
7	21.8	282		
8	21.8	288		
9	21.8	290		
10	21.8	290		
11	21.8	290		
12	21.8	290		
13	21.8	290		
14	18.3-21.6 oscillation	290		
15	17.2	300		
16	15.0	305		
17	14.7	305		
18	14.7	305		
19	14.7	370 (in bottom)		

STATION 16

S	22.9	285	35.50	1.04
1	22.9	285	34.84	1.05
2	22.9	285	34.84	1.05
3	22.8	285	34.17	1.07
4	22.8	290	34.17	1.07
5	22.8	290	33.50	1.09
6	22.8	290	32.82	1.11
7	22.6	290	32.47	1.12
8	22.5	290	30.38	1.19

<u>DEPTH</u> <u>(m)</u>	<u>TEMPERATURE</u> <u>(C°)</u>	<u>CONDUCTIVITY</u> <u>(micromhos/cm)</u>	<u>LIGHT</u> <u>TRANSMISSION</u> <u>(%)</u>	<u>(Alpha)</u>
----------------------------	-----------------------------------	--	---	----------------

STATION 16 continued

9	22.3	290	28.87	1.24
10	22.3	290	26.71	1.32
11	22.3	290	16.59	1.80
12	22.3	285	8.48	2.47
13	22.2	285	6.77	2.69
14	22.1	288	5.51	2.90
15	22.1	288	4.07	3.90
15.5	21.1	370 (in bottom)		

STATION 17

S	21.8	285	52.43	0.65
1	21.8	285	52.43	0.65
2	21.9	285	52.43	0.65
3	21.9	285	52.43	0.65
4	21.9	285	52.43	0.65
5	21.9	290	52.43	0.65
6	21.9	290	52.43	0.65
7	21.9	290	52.43	0.65
8	21.9	290	52.43	0.65
9	21.9	290	52.43	0.65
10	21.9	290	52.43	0.65
11	21.9	290	52.43	0.65
12	21.8	290	52.93	0.64
13	21.8	290	53.17	0.63
14	21.8	290	53.42	0.63
15	21.8	290	53.92	0.62
16	21.8	290	54.41	0.61
17	21.8	290	55.14	0.60
18	21.8	290	39.05	0.94
18.5	14.1	305	41.89	0.87
19	14.0	305	42.45	0.86
20	13.9	305	42.45	0.86
21	14.0	305	42.45	0.86
22	13.8	345 (in bottom)	36.70	1.00

DEPTH (m)	TEMPERATURE (C°)	CONDUCTIVITY (micromhos/cm)	LIGHT TRANSMISSION	
			(%)	(Alpha)
<u>STATION 18</u>				
S	21.6	288		
1	21.8	290		
2	21.8	290		
3	21.8	290		
4	21.8	290		
5	21.8	290		
6	21.8	290		
7	21.8	290		
8	21.8	290		
9	21.8	290		
10	21.8	290		
11	21.8	290		
12	21.8	290		
13	21.8	290		
14	21.8	290		
15	21.8	290		
16	21.8	290		
17	21.6	290		
18	21.5	290		
19	21.1	290		
20	16.9	300		
21	13.6	305		
22	13.6	305		
23	13.4	308		
24	13.4	305		

STATION 19

S	21.8	292	44.65	0.81
1	21.8	292	44.65	0.81
2	21.8	292	44.49	0.81
3	22.0	295	44.49	0.81
4	21.9	295	44.49	0.81
5	21.9	295	44.33	0.81
6	21.8	295	44.16	0.82
7	21.8	295	44.00	0.82
8	21.8	295	44.00	0.82
9	21.8	295	44.00	0.82
10	21.8	295	43.83	0.82
11	21.8	295	44.00	0.82
12	21.8	295	44.00	0.82
13	21.8	295	43.83	0.82
14	21.8	295	43.83	0.82

DEPTH (m)	TEMPERATURE (C°)	CONDUCTIVITY (micromhos/cm)	LIGHT TRANSMISSION	
			(%)	(Alpha)
<u>STATION 19 continued</u>				
15	21.0	295	43.34	0.84
16	21.0	295	42.00	0.87
17	15.1	305	53.70	0.62
18	14.9	305	53.70	0.62
19	14.8	308	52.50	0.64
19.5	14.7	375 (in bottom)		

STATION 20

S	22.5	330	3.88	3.25
1	22.8	328	3.14	3.46
2	22.8	330	3.14	3.46
3	22.6	325	4.00	3.22
4	22.6	325	4.00	3.22
5	22.6	325	3.88	3.25
6	22.8	325	2.44	3.71
6.5	22.7	325	2.14	3.85

STATION 21

S	21.0	286	50.71	0.68
1	21.0	286	50.71	0.68
2	21.0	290	49.41	0.70
3	21.1	285	50.06	0.69
4	21.1	285	50.39	0.69
5	21.0	285	50.39	0.69
6	21.0	285	50.39	0.69
7	21.0	285	50.71	0.68
8	21.0	285	50.39	0.69
9	21.0	285	50.06	0.69
10	21.0	285	49.41	0.70
11	21.0	285	49.41	0.70
12	21.0	285	49.74	0.70
13	21.0	285	49.74	0.70
14	21.0	285	49.74	0.70
15	21.0	290	49.41	0.70
16	21.0	290	50.39	0.69
17	13.6	315	33.35	1.10
18	13.5	315	33.55	1.09
19	13.5	315	33.35	1.10
20	13.5	390 (in bottom)		

DEPTH (m)	TEMPERATURE (C°)	CONDUCTIVITY (micromhos/cm)	LIGHT TRANSMISSION	
			(%)	(Alpha)
<u>STATION 22</u>				
S	20.2	278	55.01	0.60
1	21.0	280	55.01	0.60
2	21.1	280	54.36	0.61
3	21.1	280	54.04	0.62
4	21.1	280	53.71	0.62
5	21.1	280	53.06	0.63
6	21.1	280	52.73	0.64
7	21.1	280	52.73	0.64
8	21.1	280	52.40	0.65
9	21.1	280	52.73	0.64
10	21.1	280	53.06	0.63
11	21.1	280	53.39	0.63
12	21.1	280	53.71	0.62
13	21.1	280	54.36	0.61
14	21.1	280	54.36	0.61
15	21.1	280	54.36	0.61
16	21.1	280	54.36	0.61
17	21.1	285	55.01	0.60
18	21.1	285	55.33	0.59
19	21.1	285	56.60	0.57
20	18.6	295	27.36	0.30
21	15.5	305	10.12	2.29
22	15.5	305	8.96	2.41
22.5	15.4	305	8.56	2.46

STATION 24

S	20.8	285	57.99	0.54
1	21.1	285	58.63	0.53
2	21.1	285	58.31	0.54
3	21.1	285	57.66	0.55
4	21.1	285	58.31	0.54
5	21.1	285	56.35	0.57
6	21.1	285	56.68	0.57
7	21.1	285	55.02	0.60
8	21.1	285	55.02	0.60
9	21.0	298	55.69	0.59
10	21.0	298	56.68	0.57
11	21.0	298	57.66	0.55
12	21.0	298	57.66	0.55
13	21.0	298	58.31	0.54

DEPTH (m)	TEMPERATURE (C°)	CONDUCTIVITY (micromhos/cm)	LIGHT	
			TRANSMISSION (%)	(Alpha)
<u>STATION 24 continued</u>				
14	21.0	298	58.63	0.53
15	21.0	298	59.92	0.51
16	21.0	298	59.92	0.51
17	21.0	298	59.92	0.51
18	21.0	298	62.76	0.47
19	15.6	305	11.12	2.20
20	15.5	305	35.50	1.04
21	15.4	305	35.29	1.04
22	15.3	305	35.29	1.04

STATION 25

S	21.6	275	33.51	1.09
1	21.6	278	34.55	1.06
2	21.6	278	33.51	1.09
3	21.3	280	28.48	1.26
4	21.2	285	28.97	1.24
5	21.1	285	29.78	1.21
6	21.1	285	31.51	1.15
7	21.1	285	34.11	1.08
8	21.1	285	35.88	1.03
9	21.1	285	36.18	1.02
10	21.1	285	37.89	0.97
11	21.1	290	38.60	0.95
12	21.1	290	38.74	0.95
13	21.1	290	38.46	0.96
14	21.1	290	39.30	0.93
15	21.1	290	42.04	0.87
16	20.6	290	20.34	1.59

STATION 26

S	20.8	295	59.82	0.51
1	21.1	290	58.55	0.54
2	21.0	290	55.96	0.58
3	21.0	290	49.90	0.70
4	21.0	290	49.21	0.71
5	21.0	290	49.55	0.70
6	21.0	290	51.28	0.67
7	20.9	290	51.96	0.65
8	20.9	290	53.64	0.62

<u>DEPTH</u> <u>(m)</u>	<u>TEMPERATURE</u> <u>(C°)</u>	<u>CONDUCTIVITY</u> <u>(micromhos/cm)</u>	<u>LIGHT</u> <u>TRANSMISSION</u>	
			<u>(%)</u>	<u>(Alpha)</u>

STATION 26 continued

9	20.9	290	55.30	0.59
10	20.8	290	57.26	0.56
11	20.8	290	59.18	0.52
12	20.8	295	60.14	0.51
13	20.8	295	62.63	0.47
14	20.8	295	63.56	0.45
15	20.8	295	64.17	0.44
16	20.8	295	64.17	0.44
17	17.8	295	28.76	1.25
18	15.5	305	12.48	2.08
19	14.9	305	12.13	2.11
20	14.8	310	12.48	2.08
20.5	14.5	310	12.48	2.08

STATION 27

S	20.4	280	56.41	0.57
1	20.5	280	57.29	0.56
2	20.8	280	56.11	0.58
3	20.8	280	55.52	0.59
4	20.8	280	55.52	0.59
5	20.8	280	54.93	0.60
6	20.8	280	53.73	0.62
7	20.8	285	51.91	0.66
8	20.5	285	50.68	0.68
9	20.5	285	50.68	0.68
10	20.5	285	51.30	0.67
11	20.5	290	53.43	0.63
12	20.4	290	56.11	0.58
13	20.4	290	58.16	0.54
14	20.4	290	59.88	0.51
15	20.0	290	57.29	0.56
16	19.7	295	47.21	0.75
17	19.2	298	12.28	2.10

<u>DEPTH</u> (m)	<u>TEMPERATURE</u> (C°)	<u>CONDUCTIVITY</u> (micromhos/cm)	<u>LIGHT TRANSMISSION</u>	
			(%)	(Alpha)
<u>STATION 28</u>				
S	20.8	285	45.95	0.78
1	21.1	286	46.95	0.76
2	21.1	286	46.95	0.76
3	21.1	286	46.95	0.76
4	21.1	286	46.95	0.76
5	21.1	286	46.28	0.77
6	21.1	290	45.95	0.78
7	21.2	290	45.95	0.78
8	21.2	290	45.27	0.79
9	21.2	295	45.61	0.79
10	21.2	295	47.61	0.74
11	21.0	295	48.93	0.71
12	21.0	295	50.22	0.69
13	21.0	295	51.82	0.66
14	21.0	295	52.14	0.65
15	21.0	295	53.39	0.63
16	21.0	295	55.25	0.59
17	21.0	295	55.25	0.59
18	21.0	295	45.61	0.79

STATION 29

S	21.0	295	61.41	0.49
1	21.0	290	61.41	0.49
2	21.0	290	61.41	0.49
3	21.0	290	61.20	0.49
4	21.0	290	61.20	0.49
5	21.0	290	61.20	0.49
6	21.0	290	61.00	0.49
7	21.0	290	61.00	0.49
8	21.0	290	60.38	0.50
9	21.0	290	61.00	0.49
10	21.0	290	61.00	0.49
11	21.0	290	61.00	0.49
12	21.0	290	61.00	0.49
13	21.0	290	60.79	0.50
14	21.0	290	61.00	0.49
15	21.0	290	61.20	0.49
16	21.0	290	61.00	0.49
17	21.0	290	61.41	0.49
18	21.0	290	61.61	0.48
19	21.0	290	62.02	0.48
20	21.0	290	63.04	0.46

DEPTH (m)	TEMPERATURE (C°)	CONDUCTIVITY (micromhos/cm)	LIGHT TRANSMISSION	
			(%)	(Alpha)
<u>STATION 29 continued</u>				
21	21.0	290	64.84	0.43
22	20.5	295	67.60	0.39
23	17.5	300	62.02	0.48
24	16.9	300	67.01	0.40
25	16.4	300	71.45	0.34
26	15.5	300	71.83	0.33
27	13.9	305	74.64	0.29
28	12.2	310	74.64	0.29
32	14.4	298		
48	11.6	315		
64	10.3	320		

STATION 30

S	20.2	298	56.90	0.56
1	20.4	296	57.54	0.55
2	20.4	296	57.33	0.56
3	20.4	296	57.33	0.56
4	20.4	296	56.90	0.56
5	20.4	296	56.69	0.57
6	20.5	296	56.69	0.57
7	20.5	295	56.69	0.57
8	20.5	295	55.84	0.58
9	20.5	295	55.84	0.58
10	20.5	295	55.84	0.58
11	20.5	295	55.84	0.58
12	20.4	295	55.84	0.58
13	20.4	295	56.90	0.56
14	19.9	295	57.96	0.55
15	15.9	300	60.45	0.50
16	14.6	295	66.08	0.41
17	12.3	295	66.08	0.41
18	10.0	295	57.11	0.56
19	9.0	305	61.47	0.49
20	8.3	310	55.84	0.58
21	7.8	310	44.55	0.81
22	7.4	310	33.81	1.22
23	6.8	320	29.55	1.30
24	6.6	320	27.15	1.30
25	6.6	320	25.60	1.36
26	6.6	320	25.28	1.38

<u>DEPTH</u> <u>(m)</u>	<u>TEMPERATURE</u> <u>(C°)</u>	<u>CONDUCTIVITY</u> <u>(micromhos/cm)</u>	<u>LIGHT</u> <u>TRANSMISSION</u>	
			<u>(%)</u>	<u>(Alpha)</u>

STATION 30 continued

27	6.6	325	25.12	1.38
28	6.6	320	25.60	1.36
38	10.0 reading taken from Niskin jar	320		

STATION 31

S	20.6	298	58.02	0.54
1	20.9	298	58.26	0.54
2	20.9	298	58.50	0.54
3	20.9	298	58.50	0.54
4	20.9	298	57.79	0.55
5	20.9	298	57.55	0.55
6	20.9	298	57.31	0.56
7	20.9	295	57.55	0.55
8	20.9	295	57.55	0.55
9	20.9	295	57.55	0.55
10	20.9	295	57.55	0.55
11	20.9	295	58.26	0.54
12	20.9	295	58.73	0.53
13	20.9	295	58.73	0.53
14	20.9	295	58.73	0.53
15	20.9	295	61.07	0.49
16	20.9	295	62.22	0.47
17	20.9	295	63.36	0.46
18	20.5	295	65.16	0.43
19	20.0	295	66.72	0.40
20	15.5	300	67.82	0.39
21	11.3	295	47.31	0.75
22	10.3	305	24.24	1.42
23	10.0	315	22.36	1.50
24	9.9	315	18.27	1.70
25	9.6	315	18.69	1.68
26	9.7	320	17.84	1.72
27	9.7	320	17.33	1.75
28	9.4	320	17.20	1.76
32	12.2 reading taken from Niskin jar	285		

<u>DEPTH</u> <u>(m)</u>	<u>TEMPERATURE</u> <u>(C°)</u>	<u>CONDUCTIVITY</u> <u>(micromhos/cm)</u>	<u>LIGHT</u> <u>TRANSMISSION</u>	
			<u>(%)</u>	<u>(Alpha)</u>

STATION 32

S	20.1	300	37.79	0.97
1	20.8	300	32.00	0.14
2	21.1	300	34.49	1.06
3	21.0	300	35.71	1.03
4	21.0	300	35.71	1.03
5	21.0	300	28.39	1.26
6	21.0	300	32.63	1.12
7	21.0	300	22.31	1.50
8	21.0	300		

STATION 33

S	20.8	298	48.71	0.72
1	20.8	298	48.22	0.73
2	21.0	298	48.46	0.72
3	21.0	298	48.46	0.72
4	21.1	298	48.46	0.72
5	21.1	298	47.98	0.73
6	21.1	298	47.50	0.74
7	21.1	298	47.50	0.74
8	21.1	298	47.50	0.74
9	21.1	298	48.71	0.72
10	21.1	298	56.36	0.57
11	21.0	298	58.56	0.54
12	21.0	298	59.44	0.52
13	21.0	298	59.44	0.52
14	20.8	300	59.00	0.53
15	20.8	300	58.78	0.53
16	20.8	300	59.00	0.53
17	20.8	300	51.08	0.67
18	20.1	300	38.53	0.95
18.5	20.0	300	35.78	1.03

DEPTH (m)	TEMPERATURE (C°)	CONDUCTIVITY (micromhos/cm)	LIGHT	
			TRANSMISSION (%)	(Alpha)
<u>STATION 34</u>				
S	21.1	280	54.14	0.61
1	21.1	282	53.90	0.62
2	21.1	285	54.14	0.61
3	21.1	285	54.14	0.61
4	21.1	285	53.43	0.63
5	21.1	285	52.71	0.64
6	21.1	285	52.71	0.64
7	21.1	290	52.71	0.64
8	21.1	290	52.95	0.64
9	21.0	290	52.95	0.64
10	21.0	290	53.43	0.63
11	21.0	290	54.14	0.61
12	21.0	290	56.49	0.57
13	21.0	290	58.33	0.54
14	21.0	295	59.92	0.51
15	21.0	295	61.72	0.48
16	21.0	295	62.60	0.47
17	21.0	295	63.26	0.46
18	21.0	295	63.70	0.45
19	20.7	300	64.14	0.44
20	20.7	300	64.36	0.44
21	12.8	320	46.76	0.76
22	11.9	315	34.40	1.07
23	11.4	315	33.81	1.08
24	11.3	315	33.81	1.08
24.5	11.3	315	34.11	1.08

STATION 35

S	21.1	295	56.40	0.57
1	21.0	295	56.63	0.57
2	21.0	295	56.63	0.57
3	21.0	295	56.16	0.58
4	20.9	295	56.16	0.58
5	20.9	295	56.63	0.57
6	20.9	295	56.40	0.57
7	20.9	295	55.93	0.58
8	20.9	295	57.33	0.56
9	20.9	295	57.33	0.56
10	20.8	295	57.33	0.56
11	20.8	298	57.79	0.55
12	20.8	298	58.02	0.54

DEPTH (m)	TEMPERATURE (C°)	CONDUCTIVITY (micromhos/cm)	LIGHT	
			TRANSMISSION (%)	(Alpha)
<u>STATION 35 continued</u>				
13	20.8	298	58.25	0.54
14	20.8	298	58.48	0.54
15	20.8	298	58.48	0.54
16	20.8	298	58.48	0.54
17	20.8	298	58.48	0.54
18	20.8	298	58.48	0.54
19	20.8	298	59.62	0.52
20	20.8	298	62.76	0.47
21	20.8	298	62.98	0.46
22	18.8	300	56.16	0.58
23	18.0	300	52.11	0.65
24	15.5	305	50.15	0.69
25	14.4	305	56.16	0.58
26	13.5	305	54.75	0.60
27	12.2	310	52.60	0.84
28	11.1	310	52.11	0.65
37	20.0	reading not valid sampler tripped early	300	

STATION 36

S	21.4	290	60.90	0.50
1	21.2	290	56.58	0.57
2	21.0	295	55.89	0.58
3	21.0	295	53.05	0.63
4	21.0	295	53.05	0.63
5	21.0	295	52.58	0.64
6	21.0	295	52.34	0.65
7	21.0	295	51.85	0.66
8	21.0	295	51.85	0.66
9	21.0	295	52.58	0.64
10	21.0	295	53.53	0.62
11	21.0	295	54.71	0.60
12	21.0	295	56.58	0.57
13	21.0	295	57.50	0.55
14	21.0	295	57.73	0.55
15	21.0	295	58.87	0.53
16	21.0	295	59.55	0.52
17	21.0	295	59.78	0.51
18	21.0	295	61.12	0.49

DEPTH (m)	TEMPERATURE (C°)	CONDUCTIVITY (micromhos/cm)	LIGHT	
			TRANSMISSION (%)	(Alpha)
<u>STATION 36 continued</u>				
19	20.4	295	62.45	0.47
20	20.4	295	60.45	0.50
21	18.6	300	48.66	0.72
22	15.1	305	52.82	0.64
23	12.3	305	49.41	0.71
24	12.1	305	49.16	0.71
25	11.1	310	44.32	0.81
26	10.5	310	38.64	0.95
27	9.7	320	41.93	0.87
28	9.1	320	45.62	0.78
37	11.1 reading taken from Niskin jar		320	

STATION 37

S	22.1	210	6.64	2.71
1	21.2	215	5.40	2.92
2	21.1	215	4.57	3.09
3	21.1	220	3.89	3.25
4	21.1	225	3.40	3.38
5	21.1	225	2.74	3.60
6	21.1	225	3.77	3.28
7	21.1	225	3.77	3.28
8	21.1	225	3.53	3.34
9	21.1	225	3.28	3.42
10	21.1	230	2.45	3.71
11	21.1	275 (in bottom)		

STATION 38

S	21.0	210	4.86	3.02
1	20.4	210	4.78	3.04
2	20.2	210	4.54	3.09
3	21.1	210	4.37	3.13
4	20.0	210	3.94	3.23
5	20.0	210	4.37	3.13
6	19.9	210	4.94	3.01
7	19.9	210	6.12	2.79
8	19.9	215	6.40	2.75
8.5	19.9	275 (in bottom)		4.45
				3.11

OPTICAL MEASUREMENTS

TEMPERATURE AND METEOROLOGICAL OBSERVATIONS

STATION NO.	TEMPERATURE			WIND		WAVE	SECCHI DISC
	AIR (C°)	WATER (C°)	SED (C°)	DIRECTION (compass°)	SPEED (km/hr)	HEIGHT (m)	TRANSPARENCY (m)
1	18.7	21.8	-	240	13	0.3-0.6	1.1
2	21.4	20.8	-	210	15	0.3-0.6	.67
3	24.0	20.8	19.8	210	15	0.3-0.6	1.3
4	24.7	23.3	20.3	235	15	0.3-0.6	2.22
5	22.0	21.4	20.6	210	15	0.3-0.6	1.9
6	23.0	20.6	20.2	160	11	0.3-0.6	1.6
7	23.0	21.6	20.0	157	15	0.3-0.6	1.3
9	23.5	21.4	20.5	140	15	0.3-0.6	.91
10	23.0	20.1	20.9	110	17	0.3-0.6	1.2
11	18.0	21.1	20.5	210	28	0.9	1.04
12	19.0	21.4	20.0	210	32	0.9	1.64
13	21.0	21.8	20.5	205	33	0.9	2.57
14	19.4	21.5	12.0	214	33	0.4	5.0
14A	24.2	22.2	19.5	214	22	0.3	2.08
15	23.0	22.1	13.4	210	19	0.4	4.3
16	23.2	22.9	18.0	205	19	0.4	3.8
17	21.0	21.8	12.5	215	6	0.3	5.285
18	19.0	21.6	11.3	350	28	0.6	5.13
19	20.6	21.8	13.2	005	26	0.6-0.9	4.37
20	20.8	22.5	20.9	005	19	0.1	2.83
21	16.4	21.0	12.8	140	15	0.3	4.5
22	17.8	20.2	12.0	140	13	0.3	4.0
24	19.9	20.8	13.5	140	13	0.1	5.67
25	20.9	21.6	17.3	035	0	calm	3.55
26	21.2	20.8	13.5	060	9	0.1	5.18
27	19.0	20.3		055	19	0.3	6.6
28	17.8	20.8	12.4	050	15	0.3	4.18
28A							
29	20.8	21.0	6.5	210	20	0.3	5.65
30	20.3	20.2	5.5	225	22	0.4	4.78
31	22.9	20.6	8.1	220	19	0.6	6.0
32	21.1	20.1	20.0	230	19	0.1	3.86
33	20.9	20.8	19.0	235	20	0.3	4.84
34	22.3	21.1	10.0	230	22	0.3	5.0
35	22.5	21.1	6.0	355	4	calm	5.37
36	24.9	21.4	6.5	300	0	calm	4.64
37	22.4	22.1	19.8	240	7	0.3	1.73
38	22.2	21.0	-	245	15	calm	1.58

BATHYTHERMOGRAPH RECORDINGS

STATION 14Cast # 3354S Time 1045 BT # 6724B Calib. temp. 21.5^oc

<u>DEPTH</u> (m)	<u>RECORDED</u> <u>TEMP</u> (c ^o)	<u>ADJUSTED</u> <u>TEMP</u> (c ^o)
S	20.5	21.5
15	20.0	21.0
16	19.8	20.8
17	19.0	20.0
17.5	15.0	16.0
17.75	11.75	12.75
22	11.5	12.5

STATION 29Cast # 3355S Time 0845 BT # 6724B Calib. temp. 21.0^oc

<u>DEPTH</u> (m)	<u>RECORDED</u> <u>TEMP</u> (c ^o)	<u>ADJUSTED</u> <u>TEMP</u> (c ^o)
S	19.6	21.0
10	19.5	20.9
20	19.4	20.8
24	19.0	20.4
26	15.3	16.7
28	13.0	14.4
30	10.4	11.8
32	8.8	10.2
36	6.9	8.3
39	4.8	6.2
40	4.6	6.0
42	4.4	5.8
50	4.3	5.7
60	4.2	5.6
64	4.1	5.5

STATION 30

Cast # 3356S Time 1035 BT # 6724B Calib. temp. 20.4°C

<u>DEPTH</u> (m)	<u>RECORDED</u> <u>TEMP</u> (c°)	<u>ADJUSTED</u> <u>TEMP</u> (c°)
1	19.5	20.4
1.5	19.2	20.1
12.5	18.7	19.6
17.5	7.3	8.2
19.9	6.2	7.1
21.0	4.3	5.2
37.2	3.8	4.7

STATION 31

Cast # 3357S Time 1155 BT # 6724B Calib. temp. 20.6°C

<u>DEPTH</u> (m)	<u>RECORDED</u> <u>TEMP</u> (c°)	<u>ADJUSTED</u> <u>TEMP</u> (c°)
0	19.4	20.6
10	19.3	20.5
16	19.2	20.4
18	18.8	20.0
20	17.5	18.7
21	16.0	17.2
22	8.2	9.4
23	7.6	8.8
24	7.5	8.7
26	7.4	8.6
30	7.4	8.6
32.5	7.3	8.5

STATION 35

Cast # 3358S Time 0940 BT # 6724B Calib. temp. 21.1°C

<u>DEPTH</u> (m)	<u>RECORDED</u> <u>TEMP</u> (c°)	<u>ADJUSTED</u> <u>TEMP</u> (c°)
0	19.8	21.1
10	19.6	20.9
18	19.4	20.7
29	19.3	20.6
21	19.2	20.5
21.5	19.0	20.3
22.5	17.0	18.3
23	16.4	17.7
24	15.5	16.8
24.5	13.0	14.3
27	10.0	11.3
28	8.8	10.1
29.5	8.0	9.3
30	7.5	8.8
31.3	5.4	6.7
32	5.2	6.5
34	5.0	6.3
36	4.9	6.2
38	4.8	6.1

STATION 36

Cast # 3359S Time 1200 BT # 6724B Calib temp. 21.2°C

<u>DEPTH</u> (m)	<u>RECORDED</u> <u>TEMP</u> (c°)	<u>ADJUSTED</u> <u>TEMP</u> (c°)
1	19.7	21.2
2	19.6	21.1
3	19.6	21.1
4	19.5	21.0
14	19.4	20.9
18	19.3	20.8
20	19.2	20.7
20.7	19.1	20.6
21	19.0	20.5
22	16.3	17.8
23	13.0	14.5
24	9.4	10.9

STATION 36 continued

<u>DEPTH</u> (m)	<u>RECORDED</u> <u>TEMP</u> (c°)	<u>ADJUSTED</u> <u>TEMP</u> (c°)
25	8.5	10.0
26	7.7	9.2
27	7.1	8.6
28	6.9	8.4
29	6.8	8.3
30	6.5	8.0
31	6.3	7.8
32	6.2	7.7
33	6.0	7.5
34	5.9	7.4
35	5.9	7.4
36	5.8	7.3
37	5.8	7.3

SEDIMENT CORE DESCRIPTIONS

STATION No.	CORE NO. 1 (m)	CORE NO. 2 (m)	CORE NO. 3 (m)	CORE NO. 4 (m)
1	.03	-	-	-
2	.215	-	-	-
3	.65	-	-	-
4	.71	.68	-	-
5	.89	.88	.89	-
6	1.50	1.59	-	-
7	1.26	1.39	-	-
9	1.36	1.66	-	-
10	1.31	1.32	-	-
11	1.33	1.69	-	-
12	.35	.42	-	-
13	2.35	2.11	-	-
14	2.92	2.36	-	-
14A	2.74	1.94	-	-
15	2.50	2.35	-	-
16	1.93	2.14	-	-
17	2.47	3.60	-	-
18	3.28	3.41	-	-
19	.82	.78	-	-
20	1.27	1.30	-	-
21	2.28	2.36	-	-
22	2.36	2.70	-	-
24	2.52	2.55	-	-
25	.03	.09	.02	-
26	.55	.39	.17	.51
27		sandy bottom - no cores obtained		
28		sandy bottom - no cores obtained		
28A		no core attempted		
29	3.97	3.07	-	-
30	2.73	2.44	-	-
31	3.16	3.40	-	-
32	.29	.54	-	-
33		sandy bottom - no cores obtained		
34	2.62	2.65	-	-
35	3.32	2.33	-	-
36	2.71	1.92	-	-
37	1.33	1.62	-	-
38		no core attempted		

SEDIMENT CORE RECORD LAKE ERIE

Survey R/V Inland Seas - 6-13 Sept./'72

Cores logged by K. Grant Geology Department

Bowling Green State University.

Station 1-1 - no core recovered, grab sample showed surface sediments to be dark grey mud with much fragmented and whole shell material.

Station 2-1 - recovered 21.5cm 1 1/2" diameter core using hand corer; bottom 6cm light grey/brown clay, top 15.5cm fine grained light grey/brown sand; many shell fragments in sand fraction; sediment/water interface was not preserved; approximately 3cm light grey/brown clay from nose-cone bagged separately; core catcher used.

Station 3-1 - recovered 65cm 2" diameter core; sediment is medium grey clay with some inclusions of shell material in bottom 25cm, increasing amount of shell fragments towards top; sediment/water interface not preserved.

Station 4-1 1; recovered 71cm 2" diameter core; sediment is light grey clay with no obvious inclusions of shelly material; sediment/water interface not preserved.

Station 4-1 2; recovered 68cm 2" diameter core; sediment is light grey clay with no obvious inclusions of shelly material; sediment/water interface not preserved.

Station 5-1 1; recovered 88.5cm 2" diameter core; sediment is alternating light grey and light brown sandy clay, bands approximately 10-15cm; minor amount of shell fragments present increasing to top of core; traces of other organic material (dark brown black) in uppermost section of core; sediment/water interface not preserved.

Station 5-1 2; recovered 88cm 2" diameter core; sediment is alternating light grey and light brown sandy clay, bands approximately 10-15cm; minor shelly material present throughout and increasing towards top; traces of other organic material in uppermost section of core; small (0.5cm) internal cavities present, probably washout cavities from coring operation; sediment/water interface not preserved.

Station 5-1 3; recovered 89cm 1 1/2" diameter core using hand corer; sediment is alternately light grey and light brown sandy clay, bands approximately 10-15cm; minor shelly material present throughout; small (0.5cm) internal cavities present in top 35cm of core; traces of other organic material in uppermost section of core; sediment/water interface not preserved; nose-cone samples for cores 1 and 2 are bagged separately.

Station 6-1 2; recovered 1.5m 2" diameter core; sediment is light grey clay; shelly material present in top 50cm; sediment/water interface preserved, but a good proportion of the top unconsolidated algae/mud material has settled out along the insides of the core lines.

Station 6-1 2; recovered 1.59m 2" diameter core; sediment is light grey clay; minor shelly material present in top 59cms; occasional internal cavities (0.5 - 1cm); sediment/water interface preserved but settling out down core liner has occurred.

nose cone samples for both cores bagged separately.

Station 7-1 - 1; recovered 1.26 m 2" diameter core; sediment is light grey soft clay, shelly material present throughout and increasing towards top of core; minor amounts of other organic material present in upper 50cm; sediment/water interface well preserved but settling out of top mud has occurred.

Station 7-1 - 2; recovered 1.39m 2" diameter core; sediment is light grey soft clay, shelly material present throughout and increasing towards top of core; apparent mottling or banding is due to unconsolidated surface sediment settling down sides of core; sediment/water interface well preserved.

nose-cone sample for 7-1 1 bagged separately.

Station 8-1; no core recovered.

Station 9-1 - 1; recovered 1.36 m 2" diameter core; sediment is light grey clay, bottom 5cm of core is dark brown organic material, nose-cone sample (approx. 4cm) is light grey firm clay; good sediment/water interface.

Station 9-1 - 2; recovered 1.66m 2" diameter core; core is light grey clay; worms and shelly material present in top 40cm; good sediment/water interface; mottling effect caused by sediment settling.

Station 10-1 - 1; recovered 1.31m 2" diameter core; core is light grey clay; 9cm from bottom is a 4cm thick layer of fine sand and organic matter; sediment generally has organic matter scattered throughout, shelly material is more abundant in top 30cm of core; good sediment/water interface.

Station 10-1 - 2; recovered 1.32m 2" diameter core; core is light grey clay 12cm from bottom is 15cm thick layer of fine sand and organic matter; organic matter and shelly material present throughout and increasing towards top; sediment/water interface well preserved.

Station 11-2 - 1; recovered 1.33m 2" diameter core; sediment is light grey clay; 19cm from bottom is a 3cm band of brown organic matter; top 40 cms is rich in shelly material; sediment/water interface is well preserved.

Station 11-2 - 2; recovered 1.69m 2" diameter core; core is light grey clay; 38cm from bottom is a 3cm band of brown organic material; sediment is disturbed below organic layer; abundant shelly material present above organic layer; good sediment/water interface.

Station 12-2 - 1; recovered 35cm 2" diameter core; sediment is medium grey clay, minor shelly and other organic material throughout; good sediment/water interface.

Station 12-2 - 2; recovered 42cm 2" diameter core; core is medium grey clay; bottom 10cm has mottled appearance due to inclusions of light brown hard clay inclusions; sediment/water interface is not preserved.

Station 13-2 - 1; recovered 2.35m 2" diameter core; sediment is medium grey clay; approximately 1.6m from bottom of core organic material is present and increases towards top; sparse shelly material present in top 45cms of core; good sediment/water interface.

Station 13-2-2; recovered 2.12m 2" diameter core; sediment is medium grey clay; approximately 1.35m from bottom of core organic material present in top 40cms of core; good sediment/water interface; 4cms of core lost from part b of core.

Station 14A-2-1; recovered 2.74cm 2" diameter core; core is medium grey clay; shelly material present 1.4m from bottom and increases to top of core; good sediment/water interface.

Station 14A-2-2; recovered 1.94 2" diameter core; sediment is medium grey clay; 1.31m from bottom is 9cm band of abundant shelly material, sparse shelly material present above this; good sediment/water interface

nose-cone samples for cores 1 and 2 bagged separately.

Station 15-2 1; recovered 2.5m 2" diameter core; core is medium grey clay; 1.5m from bottom of core shelly material is present throughout remainder of core; good sediment/water interface.

Station 15-2 2; recovered 2.35 2" diameter core; core is medium grey clay; 1.6m from bottom of core shelly material is present throughout remainder of core; 15cm of core lost from bottom of part b, but bagged separately; good sediment/water interface.

nose-cone samples for both 1 and 2 bagged separately.

Station 16-2 1; recovered 1.93m 2" diameter core; sediment is medium grey clay; 1.4m from bottom of core is 3cm band of dark brown organic matter, sparse shelly material also present; good sediment/water interface.

Station 16-2 2; recovered 2.14m 2" diameter core; sediment is medium grey clay; minor organic matter towards top of core; good sediment/water interface;

nose-cone samples for cores 1 & 2 bagged separately.

Station 17-3 1; recovered 2.47m 2" diameter core; core is medium gray clay with patches of lighter grey clay throughout; from 1.47m core is rich in finely disseminated organic matter; good sediment/water interface.

Station 17-3 2; recovered 3.6m 2" diameter core, sediment is medium grey clay with patches of lighter grey clay below 1.52 from bottom; above 1.52m core has finely disseminated organic matter present; approximately 9cm of core was lost from part b; sediment/water interface not preserved.

Station 14-3 1; recovered 2.92m 2" diameter; sediment is mottled medium and light grey clay; bottom 3cm of core (nose-cone sample) is a harder brownish colored clay; 1.52m from bottom finely disseminated organic matter (dark brown) is present and continues to top of core; sediment/water interface preserved.

Station 14-3 2; recovered 2.36m 2" diameter core; sediment is mottled light medium clay; bottom 5cm of core is firmer clay with small (1-2mm) pebbles included, -pebbles are black or brown in

color and are very hard, may be siliceous; 1.2m from bottom organic matter is present and continues to top of core; sediment/water interface is well preserved.

Station 18-3-1; recovered 3.28m 2" diameter core; sediment is mottled light/medium grey clay; 1.58m from bottom of core organic matter is present and continues to top; good sediment/water interface.

Station 18 -3 2; recovered 3.42m 2" diameter core; sediment is mottled light/medium grey clay; 1.42m from bottom organic matter is present and continues to top; good sediment/water interface.

Nose-cone samples for cores 1 and 2 bagged separately.

NOTE A Sample 18-3 was taken using a 24ft. core barrel and utilizing two 12ft plastic liners. Considering the % core recovery and the handling and storing problems it would seem that 6ft. liners would be less wasteful and more practicable in future use of the 24ft. core barrel.

NOTE B The 'a' sections of cores 18-3 1 and 18-3 2 have undergone considerable expansion since packaging and a certain % of the core has been lost. The cause of the expansion is probably due to the interaction of pressure and temperature differences between the lake bottom and the surface atmosphere acting on gas present in the sediment. The sudden release of confining pressure may be enough in the early stages of expansion which has been observed as fairly rapid, but temperature probably keeps expansion going at a slower rate when pressure has become equalized.

During and after expansion, the core becomes riddled with tension cracks which range in size from 0.5cm - 3cm in length and from 1-2mm wide. The cracks are mostly aligned at 90° to the core axis.

Station 19-3 1; recovered 82cm 2" diameter core; sediment is medium grey clay; organic matter present throughout; approximately 3cm of algae-mud suspension on top of core, a lot of this material has settled around sides of core; good sediment/water interface.

Station 19 -3 2; recovered 78cm 2" diameter core; sediment is medium grey clay, fairly compact at bottom of core; organic matter is present throughout; sediment/water interface is not preserved.

Station 20 -3 1; recovered 1.27 m 2" diameter; sediment is dark grey/black mud; many gas/air pockets; core has somewhat mottled appearance toward top; good sediment/water interface.

Station 20- 3 2; recovered 1.3m 2" diameter core; sediment is dark grey/black mud; gas/air pockets present mottled appearance toward top; bottom 6cm very gritty; good sediment/water interface.

Station 21 -5 1; recovered 2.2cm 2" diameter core; sediment is medium grey clay; 1.22m from bottom disseminated organic matter is present and continues to top of core; approximately 2-3cm algae-mud material on top of core; good sediment/water interface.

Station 21 -5 2; recovered 2.36m 2" diameter core; sediment is medium grey clay; 1.39m from bottom organic matter is present and increases to top; approximate 2-3cm algae-mud material on top of core; good sediment/water interface.

Nose-cone sample for 2 bagged separately.

Station 22 -5 1; recovered 2.36m 2" diameter core; sediment is medium grey clay, slightly mottled appearance in parts; 1.25m from bottom organic matter is present and increases toward top; approximately 3-5cm algae material on top of core, much of this has settled around the sides of the core; good sediment/water interface.

Station 22 -5 2; recovered 2.7m 2" diameter core; core is medium grey clay, slightly mottled appearance in parts; 1.5m from bottom organic matter is present and increases to top; 5-7cm algae material on top of core; good sediment/water interface.

Nose-cone samples for 1 and 2 bagged separately.

Station 24 -5 1; recovered 2.52m 2" diameter core; sediment is medium grey/brown clay; 1.35m from bottom core takes on mottled appearance and organic matter is present and increases to top of core; 36cm from top of core shelly material is present; 2-3cm algae material on top of core; good sediment/water interface.

Station 24 -5 2; recovered 2.55cm 2" diameter core; sediment is medium grey/brown clay; 1.42m from bottom core becomes mottled and organic material is present and increases to top of core; shelly material present in top 32cm; 3-4cm algae material on top of core; sediment/water interface preserved.

Station 26 -5 1; recovered 51cm 2" diameter core; bottom 5cm is firm light brown clay followed by 42cm fine grained grey/brown silty sand with 4cm fine flocculant mud on top; sediment/water interface is not preserved;

Nose-cone sample of hard packed clay is packed separately.

Station 26 -5 2; recovered 39cm 2" diameter core; core is hard packed light brown clay; the sand/silt layers above the clay were washed out during the core recovery process; sediment/water interface not preserved.

Station 26 -5 3; recovered 17cm 2" diameter core; bottom 10cm is light brown hard packed clay followed by 3cm gravel (sandstone pebbles, quartz pebbles, shells) with 4cm of fine grained grey/brown silty, sand; sediment/water interface is not preserved.

Station 26 -5 4; recovered 62cm 2" diameter core; sediment is approximately 55cm light brown hard packed clay with 7cm fine grained grey/brown silty sand on top; contact between clay and sand is disturbed, and much of the sand has settled around edges of the core tube; sediment/water interface is not preserved.

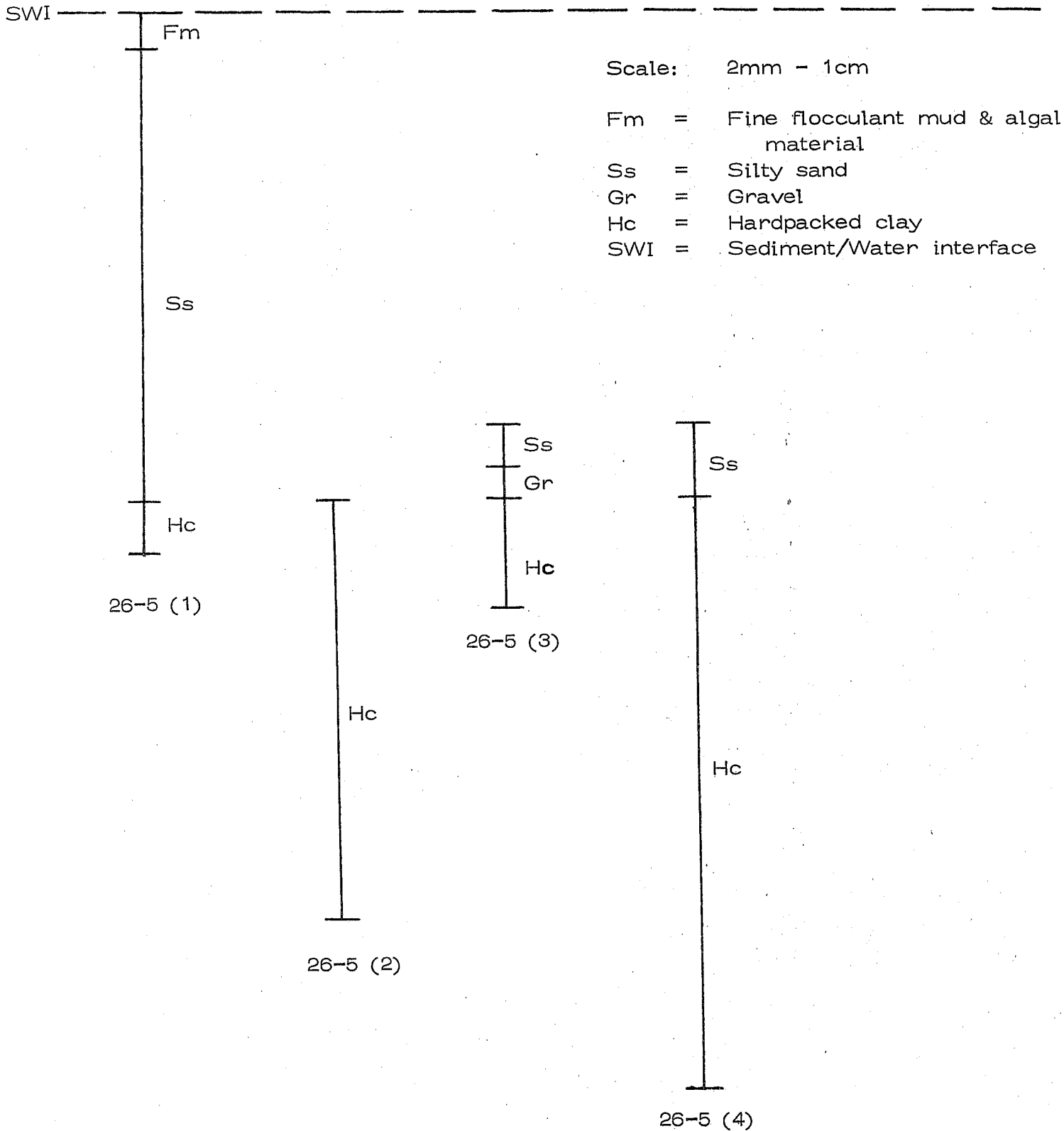
See figure 1 for vertical relationship of sediment types at station 26 -5.

Station 27 -5; no core recovered, obtained small sample in a plastic bag; sediment is fine grained quartzose sand.

Station 28 -5; no core recovered; grab samples showed bottom sediment to be fine grained silty quartzose sand.

Station 29 -6 l; recovered 3.97 m 2" diameter core before expansion; sediment is medium grey clay; expansion causes tension cracks (see previous NOTE B) which are mostly 90° to C/A; color of sediment tends to darken towards top because of inclusions of fine organic matter; 2-3cm of algae-mud material on top.

Figure 1 showing vertical relationship of cores taken at station 26 -5.



Station 29-6 2; recovered 3.07m 2" diameter core before expansion; notation as for 29-6 1.

Lengths of cores after expansion

29 -6 1	4.1m	(+13cm)
29 -6 2	3.2m	(+13cm)

Station 30 -6 1; recovered 2.73m 2" diameter core; sediment is light to medium grey clay; 1.33m from bottom of core organic matter is present and increases to top; 2-3cm of algae material on top; good sediment/water interface.

Station 30 -6 2; recovered 2.44m 2" diameter core; sediment is light medium grey clay; 1.25m from bottom of core organic matter is present and increases to top; sediment/water interface well preserved.

Station 31 -6 1; recovered 3.16m 2" diameter core before expansion; sediment is light to medium grey clay (darker at top); 1.56m from bottom of core finely disseminated organic matter is present and increases to top; approximately 6-9cm of core was removed from the top of part 'b' due to expansion disrupting packaging; this section of core is bagged separately in a plastic bag marked "31 -6 1 top b"

Station 31 -6 2; recovered 3.4m 2: diameter core before expansion; sediment is light to medium grey clay, darker colored at top; 1.26m from bottom of core organic matter is present and increases to top.

Sediment/water interface are not preserved in either core; nose-cone samples for 1 and 2 are bagged separately.

Length of cores after expansion

31 -6 1	3.23m	(+7cm)
31 -6 2	3.48m	(+8cm)

Station 32 -6 1; recovered 29cm 2" diameter core; bottom 10cm is light brown hard packed clay followed by 16cm of medium grey gravelly clay; top 3cm is black oily mud with some algae material; other organic matter is present in top 19cm of core;

Nose-cone sample for 1 is bagged separately.

Station 32 -6 2; recovered 54cm 2" diameter core; bottom 30cm is light brown hard packed clay followed by 21cm medium grey gravelly clay; top 3cm is black-oily mud with algae material present; other organic matter is present in top 24cm; sediment/water interface for both cores is well preserved.

Station 34 -6 1; recovered 2.58m 2" diameter core before expansion; core is light to medium grey clay/ 1.16m from bottom of core clay becomes silty and is darker in color, organic matter is also present in this section; 3-4cm of algae material on top of core; due to the expansion, tension cracks occur throughout the core especially towards the bottom; good sediment/water interface.

Station 34 -6 2; recovered 2.6m 2" diameter core before expansion; sediment is light to medium grey clay; 1.3m from bottom clay becomes silty and contains organic matter; tension cracks present due to expansion; good sediment/water interface.

Nose-cone samples bagged separately.

Lengths of core after expansion

34 -6 1	2.62m	(+4cm)
34 -6 2	2.65m	(+5cm)

Station 35 -7 1; recovered 3.32m 2" diameter core before expansion; sediment is medium grey clay; 1.37m from bottom of core organic matter present and increasing to top; tension fractures present; 2-3cm algae material on top of core; good sediment/water interface.

Station 35 -7 2; recovered 2.33m 2" diameter before expansion; sediment is medium grey clay; 1.4m from bottom of core organic matter is present and increases to top; tension cracks present mostly 90° to C/A.

Nose-cone samples for 1 and 2 bagged separately.

Lengths of cores after expansion

35 -7 1	3.47m	(+15cm)
35 -7 2	2.43m	(+10cm)

Station 36 -7 1; recovered 2.71m 2" diameter core; sediment is light to medium grey clay; 1.07m from bottom of core organic matter is present and increases to top; increased content of organic matter gives core a darker color towards top; good sediment/water interface.

Station 36 -7 2; recovered 1.92m 2" diameter core; sediment is light to medium grey clay; 1.04m from bottom organic matter present and increases toward top; 76cm from bottom there appears to be a contact between a lighter and darker colored clay, however contact is not distinct; approximately 2-3cm algae material on top of core; good sediment/water interface.

Nose-cone samples for 1 and 2 bagged separately.

Station 25 -7 1; recovered 3cm of sample from nose-cone; sediment is dark grey sandy silt with a few well rounded spherical pebbles; sediment/water interface not preserves; core catcher used.

Station 25 -7 2; recovered 9cm 2" diameter core; sediment is dark grey sandy silt; sediment/water interface not preserved, core catcher used.

Station 25 -7 3; recovered 2cm from nose-cone; sample is dark-grey sandy silt; sediment/water interface not preserved.

Station 37 -8 1; recovered 1.33m 2" diameter core; sediment is light grey clay; 2cm from bottom there appears to be a somewhat disturbed contact, (very subtle change in color); 70cm from bottom organic matter is present in increasing amounts to top; 4-5cm of algae material on top of core; good sediment/water interface.

Station 37 -8 2; recovered 1.62 on 2" diameter core; core is light grey clay; 20cm from bottom is contact between light and dark grey clay, contact is not distinct; 76cm from bottom organic matter is present in increasing amount to top; 4-5cm of algae material on top of core; good sediment/water interface.

Nose-cone samples for 1 and 2 bagged separately.

APPENDIX I

Quick glance comparison of core length at station

<u>Station</u>	<u>Core Numbers</u>	<u>Diameter (Inches)</u>	<u>Length Before Expansion</u>	<u>Length After Expansion</u>	<u>Increase CMS</u>
1-1	-		-----	-----	-----
2-1	1	1-1/2	21.5cm	-----	-----
3-1	1	2	65.0cm	-----	-----
4-1	1	2	71.0cm	-----	-----
4-1	2	2	68.0cm	-----	-----
5-1	1	2	88.5cm	-----	-----
5-1	2	2	88.0cm	-----	-----
5-1	3	1-1/2	89.0cm	-----	-----
6-1	1	2	1.5cm	-----	-----
6-1	2	2	1.59m	-----	-----
7-1	1	2	1.26m	-----	-----
7-1	2	2	1.39m	-----	-----
8-1	-	-	No Recovery	-----	-----
9-1	1	2	1.36m	-----	-----
10-1	1	2	1.31m	-----	-----
10-1	2	2	1.32m	-----	-----
11-2	1	2	1.33m	-----	-----
11-2	2	2	1.69m	-----	-----
12-2	1	2	35m	-----	-----
12-2	2	2	42cm	-----	-----
13-2	1	2	2.35m	-----	-----
13-2	2	2	2.12m	-----	-----
14A-2	1	2	2.74m	-----	-----
14A-2	2	2	1.94m	-----	-----
15-2	1	2	2.5m	-----	-----
15-2	2	2	2.35m	-----	-----
16-2	1	2	1.93m	-----	-----
16-2	2	2	2.14m	-----	-----
17-3	1	2	2.47m	-----	-----
17-3	2	2	3.60m	-----	-----
14-3	1	2	2.92	-----	-----
14-3	2	2	2.36	-----	-----
18-3	1	2	3.28	-----	-----
18-3	2	2	3.42	-----	-----
19-3	1	2	82cm	-----	-----
19-3	2	2	78cm	-----	-----
20-3	1	2	1.27m	-----	-----
20-3	2	2	1.30m	-----	-----
21-5	1	2	2.28m	-----	-----
21-5	2	2	2.36m	-----	-----
22-5	1	2	2.36m	-----	-----
22-5	2	2	2.70m	-----	-----
24-5	1	2	2.52m	-----	-----
24-5	1	2	2.55m	-----	-----
26-5	1	2	51cm	-----	-----
26-5	2	2	39cm	-----	-----
26-5	3	2	17cm	-----	-----
26-5	4	2	62cm	-----	-----

Appendix I cont.

27-5		No recovery	-----	-----
28-5		No recovery	-----	-----
29-6	1	2 3.97m	4.10m	13cm
29-6	2	2 3.07m	3.20m	13cm
30-6	1	2 2.73m	-----	-----
30-6	2	2 2.44m	-----	-----
31-6	1	2 3.16m	-----	7cm
31-6	2	2 3.40m	-----	8cm
32-6	1	2 29cm	-----	-----
32-6	2	2 54cm	-----	-----
34-6	1	2 2.58m	2.62m	4cm
34-6	2	2 2.60m	2.65m	5cm
35-7	1	2 3.32	3.47	15cm
35-7	2	2 2.33	2.43	10cm
36-7	1	2 2.71	-----	-----
36-7	2	2 1.92	-----	-----
25-7	1	NOSE CONE SAMPLE	-----	-----
25-7	2	2 9cm	-----	-----
25-7	3	NOSE CONE SAMPLE	-----	-----
37-8	1	2 1.33m	-----	-----
37-8	2	2 1.62m	-----	-----

APPENDIX II

- 1 All 2" diameter cores were made using a gravity corer with either a 12ft. or 24ft. barrel. At no time was a core taken without winch controlled descent of the corer.
- 2 1 1/2" diameter cores were made using a hand corer.
- 3 Unless otherwise stated in the descriptions, no core catcher was fitted to nose-cone.
- 4 In all cases where core is topped by algae-mud material, contamination of cores has certainly taken place through settling of the algae material around the sides of the core. This will be especially significant in those cores that have tension cracks allowing entry of contaminating particles.
- 5 Expansion of core did not take place in all samples that were recovered from deep water. Therefore, expansion is probably largely due to the amount of gas present in each sample.
- 6 Below is a comparison of colors used in the description and those specified in the G.S.A. Rock Color Card.

<u>Description</u>	<u>Color Card Comparison</u>
light brown	10 YR 6/2
dark brown	10 YR 4/2
light grey	5 Y 6/1
medium grey	N5
Dark grey	N4
Black	N2