

1966

LIMNOLOGICAL DATA REPORT NO. 3

LAKE ONTARIO

CRUISE 66 - 4, JUNE 21 - 25

PUBLISHED BY
CANADIAN OCEANOGRAPHIC DATA CENTRE

CANADA CENTRE FOR INLAND WATERS

BURLINGTON • ONTARIO

Programmed by

GREAT LAKES DIVISION

INLAND WATERS BRANCH

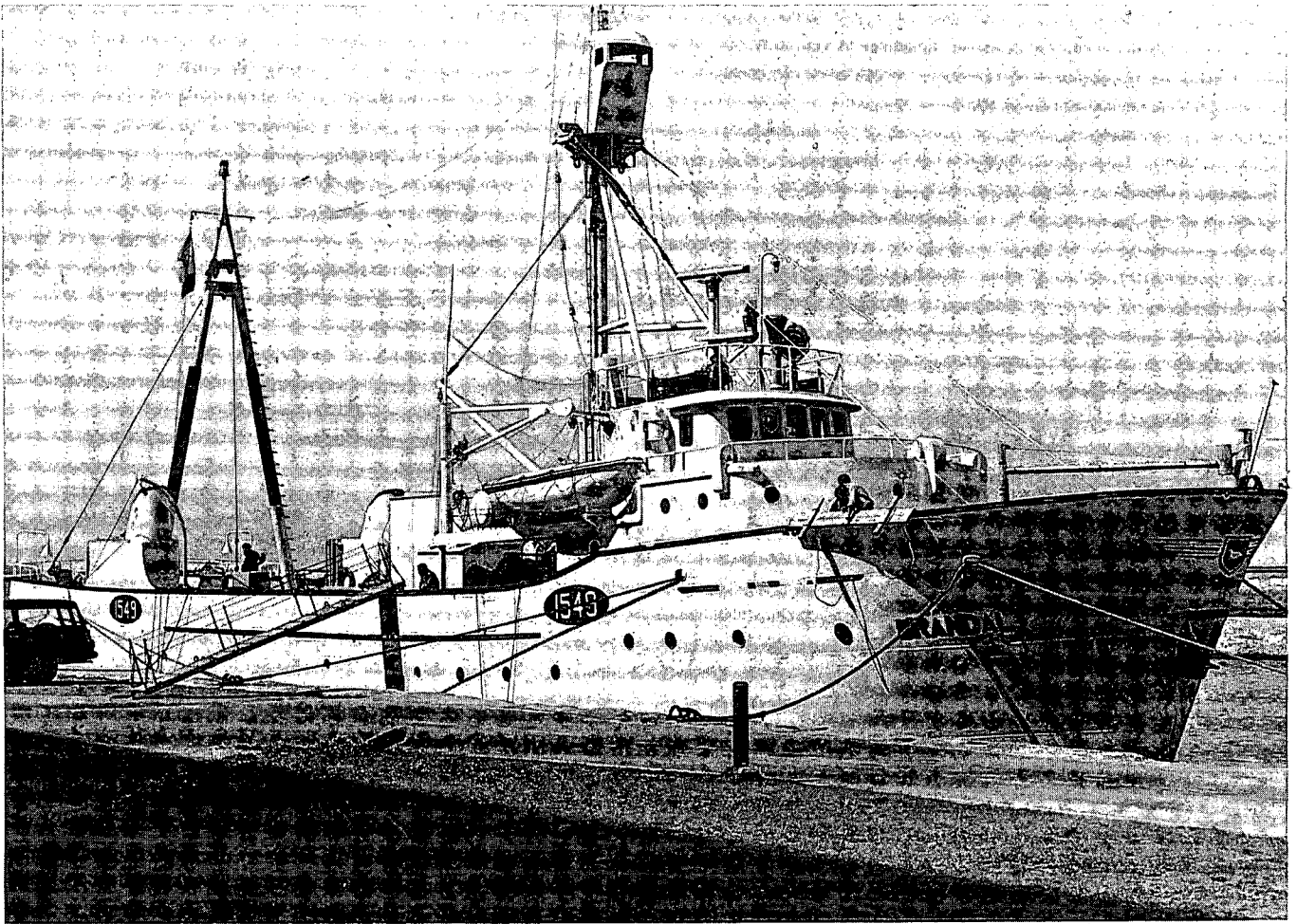
DEPARTMENT of ENERGY, MINES & RESOURCES

and

PUBLIC HEALTH ENGINEERING DIVISION

DEPARTMENT of NATIONAL HEALTH & WELFARE

CANADA



M.V. "Brandal"



LIMNOLOGICAL DATA REPORT NO. 3

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**CANADA CENTRE FOR INLAND WATERS
BURLINGTON, ONTARIO**

Published by
CANADIAN OCEANOGRAPHIC DATA CENTRE
1969

FOREWORD

This report contains limnological data gathered for research and monitoring purposes, primarily to provide data required in connection with the IJC reference on pollution of Lakes Erie and Ontario.

The agencies involved were:

Department of Energy, Mines and Resources
Department of National Health and Welfare

The joint reference of the Governments of Canada and the United States to the International Joint Commission was for information on the following questions:

- (1) Are the waters of Lake Erie, Lake Ontario and the International Section of the St. Lawrence River being polluted on either side of the boundary to an extent which is causing or is likely to cause injury to health or property on the other side of the boundary?
- (2) If the foregoing question is answered in the affirmative, to what extent, by what causes, and in what localities is such pollution taking place?
- (3) If the Commission should find that pollution of the character just referred to is taking place, what remedial measures would, in its judgement, be most practicable from the economic, sanitary and other points of view and what would be the probable cost thereof?

These data have been made available to International Joint Commission agencies, federal and provincial, operating under the respective Boards: The International Lake Erie Water Pollution Board and the International Lake Ontario - St. Lawrence River Water Pollution Board.

In view of their interest to limnological research workers who are not formally charged with studies on behalf of the International Joint Commission, these data are distributed widely in this report. Because of difficulties in interpretation, anyone using these data in the preparation of a paper or report which draws conclusions pertaining to the three questions posed above, is requested by the IJC Pollution Reference Boards to discuss the data interpretation with the agencies concerned before publishing the report or paper. Such discussion can be arranged through the Canada Centre for Inland Waters, P.O. Box 5050, Burlington, Ontario.

In all other respects, the data are free to be used for scientific research and studies and should be acknowledged in accordance with the usual scientific practice.

INTRODUCTION

This report is one of a series listing chemical, bacteriological and physical data for waters of Lake Ontario and Lake Erie, observed by Government of Canada agencies. The first twelve reports cover the year 1966, during which Lake Ontario was surveyed from June 1 to October 3, and Lake Erie, from August 8 to August 14.

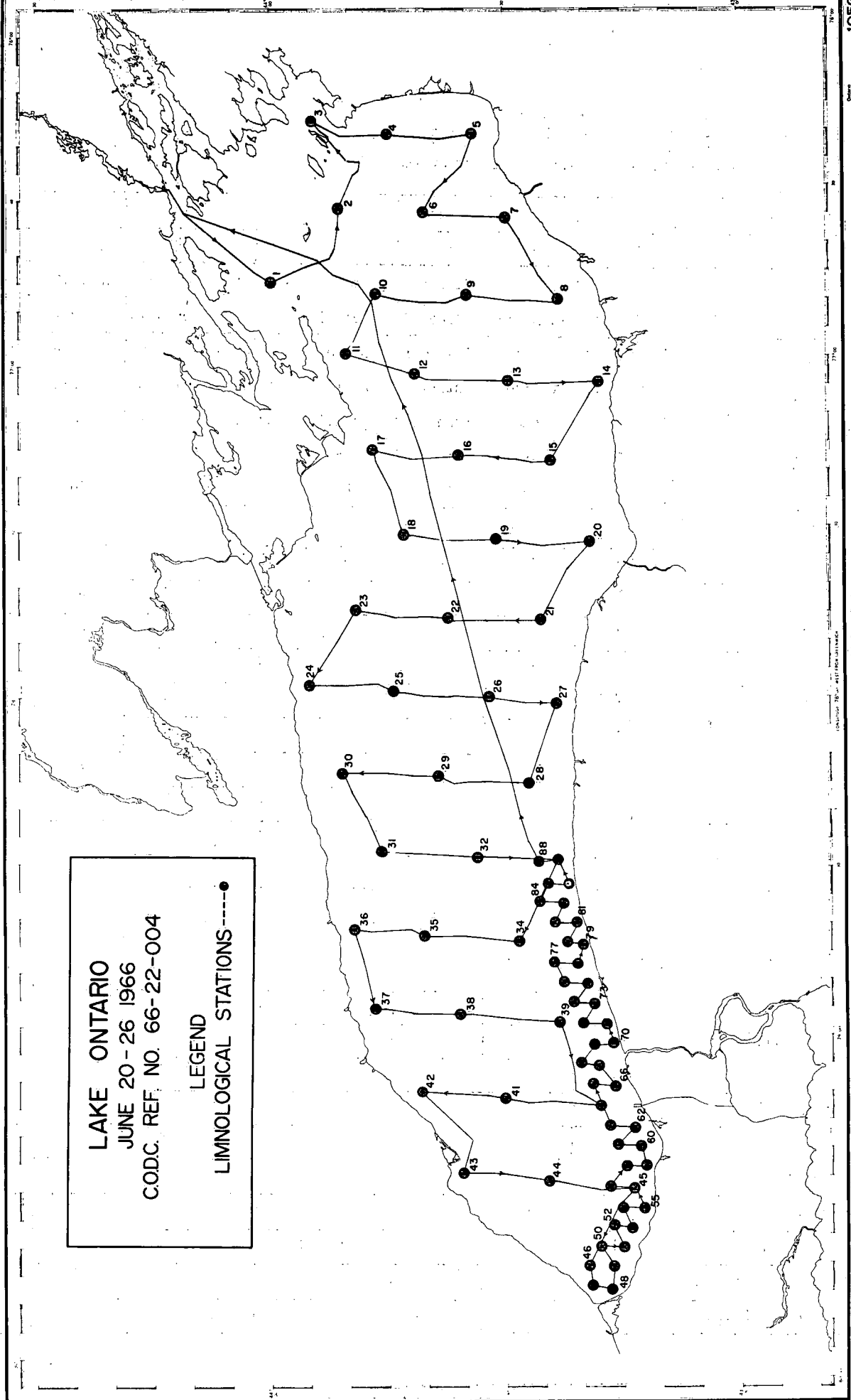
The 1966 surveys were carried out by the Great Lakes Division (Inland Waters Branch) and the Canadian Hydrographic Service (Marine Sciences Branch), both of which are Branches of the Department of Energy, Mines and Resources, and by the Public Health Engineering Division of the Department of National Health and Welfare. Staff from the three agencies carried out the work aboard the 140-foot stern trawler "Brandal", chartered by the Department of Energy, Mines and Resources.

Water-quality data gathered during eighteen cruises in 1966 are contained in twelve separate reports in the present series. Not reported on is a nineteenth cruise, from August 23 to 28, which was for seismic purposes only. Supplementary bathythermograph data and weather data are available on request from the Canada Centre for Inland Waters, P.O. Box 5050, Burlington, Ontario.

The Canadian Government's program developed in response to a request directed to the International Joint Commission by the Governments of Canada and the United States, that information relating to pollution of Lake Ontario, Lake Erie, and the international section of the St. Lawrence River be gathered. Preliminary listings of the data have already been made available to agencies preparing a report for the International Joint Commission.

The bacteriological data have already been published in Manuscript Report No. 67-1 of the Public Health Engineering Division, Department of National Health and Welfare. These data are again published in the present series of reports to facilitate comparison with the chemical and physical data.

Figure 1 shows the geographical locations of the observations listed in this data record, together with the vessel's track and the locations of bathythermograph lowerings.



LAKE ONTARIO
 JUNE 20-26 1966
 CODC. REF. NO. 66-22-004
 LEGEND
 LIMNOLICAL STATIONS-----●

Summary of the cruises and data listed in Data Reports Nos. 1 to 12. (An "X" indicates that the parameter is reported for one or more stations in the particular cruise).

Data Report No.	1		2	3	4	5	6	
Cruise No.	66-1	66-2	66-3	66-4	66-5	66-6	66-7	66-8
Dates (1966)	June 1 -June 5	June 7 -June 10	June 15 -June 19	June 21 -June 25	June 26 -June 30	July 4 -July 10	July 12 -July 15	July 19 -July 24
Cruise type	Physical	Monitor	Physical	Monitor	Coastal	Monitor	Geology	Monitor
Lake	Ontario	Ontario	Ontario	Ontario	Ontario	Ontario	Ontario	Ontario
Vessel	Brandal	Brandal	Brandal	Brandal	Brandal	Brandal	Brandal	Brandal
No. of stations	35	39	107	88	113	125	75	88
No. of BT slides	133	39	120	88	115	125	76	116

Station data:

Date/time	X	X	X	X	X	X	X	X
Sounding	X	X	X	X	X	X	X	X
BT slide no.	X	X	X	X	X	X	X	X
Secchi depth	X	X	X	X	X	X		X
Sample depth	X	X	X	X	X	X	X	X
Temperature	X	X	X	X	X	X		X
Conductance, 18°C.	X	X		X	X	X	X	X
Dissolved oxygen				X	X	X	X	X
pH at 25°C.				X	X	X	X	X
Turbidity					X			X
B.O.D.						X		X
Total alkalinity		X		X	X	X		X
Hardness					X	X		X
Chloride					X	X		X
Nitrate + nitrite								
Nitrite				X	X	X		X
Reactive phosphate								
Phenol					X	X		X
Total residue								
MF coliforms	X	X		X	X	X		X
MF enterococci	X	X		X	X	X		X
20°C standard plate count		X			X	X		X
35°C standard plate count		X			X	X		X

7		8	9		10		11	12	
66-9	66-10	66-11	66-12	66-14	66-15	66-16	66-17	66-18	66-19
July 26 -July 29	Aug. 2 -Aug. 7	Aug. 8 -Aug. 14	Aug. 15 -Aug. 19	Aug. 29 -Sept. 2	Sept. 6 -Sept. 11	Sept. 12 -Sept. 16	Sept. 20 -Sept. 24	Sept. 26 -Sept. 29	Oct. 1 -Oct. 3
Physical Ontario Brandal 62 105	Monitor Ontario Brandal 79 106	Monitor Erie Brandal 105 97	Monitor Ontario Brandal 69 96	Monitor Ontario Brandal 47 70	Geology Ontario Brandal 92 92	Monitor Ontario Brandal 54 81	Coastal Ontario Brandal 109 109	Monitor Ontario Brandal 47 72	Physical Ontario Brandal 45 94

X	X	X	X	X	X	X	X	X	X
X	X	X	X	X	X	X	X	X	X
X	X	X	X	X	X	X	X	X	X
X	X	X	X	X		X	X	X	X
X	X	X	X	X	X	X	X	X	X
X	X	X	X	X		X	X	X	X
	X	X	X	X	X	X	X	X	
	X	X	X	X	X	X	X	X	X
	X	X	X	X	X	X	X	X	
	X	X	X	X		X	X	X	
	X	X	X	X		X	X	X	
	X	X	X	X		X	X	X	
	X	X	X	X		X	X	X	
	X	X	X	X		X	X	X	
	X	X	X	X		X	X	X	
	X	X	X	X		X	X	X	
	X	X	X	X		X	X	X	
	X	X	X	X		X	X	X	
	X	X	X	X		X	X	X	
	X	X	X	X		X	X	X	

Description of the Data Record

Information in the headings for each station:

1. C-REF-No.	5. LAT.	7. YEAR	11. No. DEPTHS
2. CONS. No.	6. LON.	8. MONTH	12. SOUNDING
3. COUNTRY		9. DAY	13. BT SLIDE No.
4. INSTITUTE		10. TIME	

Explanations:

- (1) Cruise number: the 1966 cruises are numbered consecutively from 01 to 19, without regard for the lake involved. (In following years, consecutive numbers will be assigned to each lake separately).
- (2) Consecutive station number: the stations within each cruise are numbered in chronological order.
- (4) Institute: For filing purposes, the institute code was 22 (Inland Waters Branch, Department of Energy, Mines and Resources).
- (5) and (6) indicate the latitude and longitude of the vessel, in degrees, minutes and seconds, at the time of the observations.
- (7), (8) and (9) indicate the date of the observations, according to Greenwich Mean Time.
- (10) Indicates the messenger time in hours and minutes (Greenwich Mean Time) for the first bottle cast at the station. The hours of each day are numbered from 00 to 23.
- (11) The number of depths at which observations were made. This should correspond to the number of depths actually listed. The count is listed to reveal omissions due to the loss of punch-cards.
- (12) The sounding is listed in meters, to the nearest meter.
- (13) Indicates the bathythermograph slide number corresponding to the particular station. The slides are numbered consecutively within each cruise.

Explanation of the data listing for each station

Parameter Name	Abbreviation (column heading)	Units used in the Data Reports	No. of decimals printed	1966 processing code	1967 (Star System) code
Secchi depth	SECCHI	meters	1	026	030
Sample depth	DEPTH	meters	1	998	001
Temperature	TEMP	°C	2	004	100
Conductance, 18°C.	CON 18	umhos	0	014	no equivalent
Dissolved oxygen	D O2	mg/L	2	003	245
pH at 25°C.	PH 25	pH units	3	055	215
Turbidity	TURB	Jackson units	1	015	123
B.O.D.	BOD	mg O ₂ /L/5 days	1	001	239
Total alkalinity	T ALK	mg CaCO ₃ /L	1	051	220
Hardness	HARD	mg CaCO ₃ /L	1	050	300
Chloride	CL	mg/L	1	057	290
Nitrate + nitrite	NO3NO2	mg N/L	3	022	275
Nitrite	NO2	mg N/L	3	021	273
Reactive phosphate	R PO4	mg PO ₄ /L	3	028	262
Phenol	PHEN	mg C ₆ H ₅ OH/L	3	024	410
MF coliforms	MF COL	colonies/100 ml.	*	080	700
MF enterococci	MF ENT	colonies/100 ml.	*	084	706
20°C standard plate count	SPC 20	colonies/ml.	*	082	720
35°C standard plate count	SPC 35	colonies/ml.	*	083	721

Note: The four bacteriological parameters are listed in exponential form: * Exponential Notation

130E02 = $1.30 \times 10^2 = 130$.
 100E00 = $1.00 \times 10^0 = 1$.
 000E00 = $0.00 \times 10^0 = 0$.

Note: For some parameters, the analytical methods listed in the Star System manual (Glennie and MacLeod 1967, pp. 23-33) are not the methods used for Data Reports Nos. 1-12.

Methods of Sampling and Measurement

Water sampling was carried out on the port side of the vessel, amidships, where a davit and a "chains" platform were installed. A small wooden deckhouse provided shelter for reading the thermometers and for transferring water from the primary sampling devices to small bottles which were taken to the shipboard laboratory. The sampling procedure together with photographs of the equipment are published in Manuscript Report No. 67-1 of the Public Health Division, Department of National Health and Welfare.

Samples were collected at standard depths of 1, 10, 20, 30, 50, 75, 100, 150 and 200 meters, where the depth of water permitted. The water sampling devices were metal Knudsen bottles with a capacity of 1.2 liters, and polyvinylchloride Van Dorn bottles with capacities of 2 and 3 liters. Oceanographic reversing thermometers, and rubber bulbs for bacteriological sampling, were mounted on the Knudsen bottles.

For bacteriological sampling, a sterile deflated pear-shaped rubber bulb was attached to a Knudsen bottle. A brass plug in the opening of the rubber bulb was pulled out by the reversing Knudsen bottle. (I.J.C. agencies 1966, pp 88-90).

Position (Latitude and longitude) was determined using radar ranges and bearings on identifiable shoreline features. Occasionally, dead-reckoning had to be used when the vessel was far from shore.

Sounding The depth of water at each station was measured with the ship's echo sounder. Corrections for the transducer depth have been applied.

Secchi depth is the depth of disappearance of a white disc, 30 centimeters in diameter, when it is lowered slowly into the water.

Sample depth The length of wire was measured with a meter wheel, using the water surface as the reference level. Wire-angle corrections were applied whenever depths were one meter or more.

Temperature Oceanographic reversing thermometers manufactured by Yoshino Keiko Co. of Japan were lowered in series to all the required depths, and were turned over after five minutes. Later, each thermometer was read twice in the vessel's deckhouse. Scale corrections and thermal-expansion corrections were applied to the readings. There were usually two thermometers on each Knudsen bottle. A single mean temperature value is reported in this final data record, but the individual readings are kept on file at the Canada Centre for Inland Waters. The difference between readings of paired thermometers was usually less than 0.05°C. (U.S. hydrographic Office 1955).

Additional temperature measurements were made with bathythermographs, and with a thermistor thermometer towed at a depth of one meter while the ship was underway. The BT and thermistor data are available on request from the Canada Centre for Inland Waters.

Storage conditions for the chemical samples Most of the analyses reported here were done in the ship's laboratory and were completed within about 12 hours after sampling.

Conductance at 18°C The electrical conductance was measured at laboratory temperature with an "Industrial Instruments" Model RC 16 B2 bridge and a dip cell with cell constant 1.00. At the time of the measurement, the temperature of the sample was measured with a mercury thermometer and recorded to the nearest 0.1°C. These temperature readings varied throughout the survey period, with a range of from 15 to 28°C.

Conductance at 18.0°C listed in the Data Reports Nos. 1 to 12, was computed from Dr. G.K. Rodgers' correction tables for Great Lakes Waters (I.J.C. agencies 1966, p. 51). However, 25°C will be the reference temperature used in future data reports in this series. To convert the conductance at 18.0°C to conductance at 25.0°C, multiply by 1.176.

Dissolved oxygen was measured using the Winkler iodometric method. One milliliter of each reagent was added to each sample. In 1966, the alkaline iodide solution contained 700 grams potassium hydroxide and 150 grams potassium iodide per liter. Azide was not used. (I.J.C. agencies 1968, pp. 67-78).

Oxygen percent saturation may be computed (Dobson 1967) from the measured oxygen concentration and the temperature, using the following equations:

Oxygen percent saturation (Lake Erie and upper Great Lakes)

$$= \frac{100 \text{ (oxygen in mg/L)}}{(14.380 - 0.4105 T + 0.008800 T^2 - 0.00009500 T^3)} \%$$

Oxygen percent saturation (Lake Ontario)

$$= \frac{98.8 \text{ (oxygen in mg/L)}}{(14.380 - 0.4105 T + 0.008800 T^2 - 0.00009500 T^3)} \%$$

A graph showing percent saturation as a function of oxygen concentration and temperature, according to either of these equations, provides a convenient way to evaluate percent saturation.

pH The pH is an approximate measure of $(-\log H^+)$ where H^+ is the hydrogen ion concentration.

<u>pH</u>	<u>H⁺</u>	
7.0	100. X 10 ⁻⁹	gm atoms/liter
7.2	63. X 10 ⁻⁹	gm atoms/liter
7.5	32. X 10 ⁻⁹	gm atoms/liter
8.0	10. X 10 ⁻⁹	gm atoms/liter
8.2	6.3 X 10 ⁻⁹	gm atoms/liter
8.5	3.2 X 10 ⁻⁹	gm atoms/liter
9.0	1.0 X 10 ⁻⁹	gm atoms/liter

Samples were analysed for pH about 10 to 20 hours after sampling. Changes in pH during the storage interval were probably ±0.1 to 0.3 pH units.

The pH near 25°C was measured using a Corning Model 10 meter, and glass and reference electrodes, calibrated with pH 7.4 (phosphate) and pH 9.2 (borax) standard solution. (I.J.C. agencies 1966, pp. 112-120).

Turbidity was measured within 24 hours after sampling, using a Hellige turbidimeter.

B.O.D. (Biochemical oxygen demand) One-liter samples were stored for a few hours so that they attained laboratory temperature. Then air was bubbled through each sample to produce oxygen concentrations near the equilibrium value for that temperature. Two 300-ml B.O.D. bottles were filled from each sample by means of a siphon. Dissolved oxygen in the sample of one of the B.O.D. bottles was measured immediately by the Winkler method. The sample in the other bottle was stored in the dark at 20°C, and after 5 days, its final oxygen concentration was measured. The "B.O.D." was the difference between the initial and final oxygen concentrations. A water seal was maintained around the top of each bottle during incubation. The dilution and seeding procedures of the American Public Health Association (1965, p. 415), were not included.

Alkalinity was measured using an Auto-Analyzer colorimetric instrument system. Samples were mixed with a buffered acidic methyl orange indicator solution. The final color was measured at 550 millimicrons. Standard solutions contained sodium bicarbonate. (I.J.C. agencies 1968, pp. 34-36). The unit for alkalinity in this report is mg CaCO₃/liter. The constituents reacting with the hydrogen ion during the alkalinity measurement were assumed to be CO₃⁻², and an equivalent amount of Ca⁺⁺ was arbitrarily assumed to be present. Actually most of the alkalinity in Great Lakes waters is HCO₃⁻. Conversion factor for alkalinity: 1 mg CaCO₃/liter = 1.219 mg HCO₃⁻/liter.

Hardness (Ca⁺⁺ + Mg⁺⁺) was measured using an Auto-Analyzer. The sample was mixed with disodium magnesium EDTA + disodium EDTA, then with Eriochrome Black T + pH 10.3 buffer. The resulting color was measured at 520 millimicrons. Standard solutions contained calcium. (I.J.C. agencies 1966, pp. 91-93). Lake-water samples contained some magnesium as well as calcium. The conventional unit, mg CaCO₃/L, used in Data Reports Nos. 1 to 12, gives information for (Ca⁺⁺ + Mg⁺⁺), but not for Ca⁺⁺ or CO₃⁻². Conversion factor for hardness: 1 mg CaCO₃/L = 0.0200 milliequivalents (Ca⁺⁺ + Mg⁺⁺)/L.

Chloride was measured using an Auto-Analyzer. Unfiltered samples were mixed with ferric ammonium sulfate + nitric acid + mercuric thiocyanate. The resulting color was measured at 480 millimicrons. (I.J.C. agencies 1966, pp. 97-98).

Nitrate + nitrite was measured using an Auto-Analyzer. Samples were not filtered. Nitrate was reduced to nitrite by adding sodium hydroxide, hydrazine sulfate, and copper sulfate. The mixture was passed through a 38°C heating bath. Then total nitrite was measured by adding orthophosphoric acid + sulfanilamide + N-(1-naphthyl) ethylenediamine dihydrochloride, and measuring the resulting color at 520 millimicrons. (I.J.C. agencies 1966, pp. 102-104).

(NO₃ + NO₂) was sampled on cruises 5, 6, 8 and 10, but the results for the 4°C water in Lake Ontario on those cruises were near 0.5 mg N/L, about 2½ times the values found on cruise 66-12 and subsequent cruises in 1966 and 1967. The (NO₃ + NO₂) results for cruises 5, 6, 8 and 10 are probably in error and have been omitted from these final Data Reports. The (NO₃ + NO₂) data for cruise 66-11 on Lake Erie include values near 0.1 mg N/L for the eastern bottom water, which is in agreement with the 1967 data. Therefore the (NO₃ + NO₂) data from cruise 66-11 are probably correct, and have been printed in Data Report No. 8. For cruise 66-12 and following cruises on Lake Ontario, the (NO₃ + NO₂) data for the 4°C water have values near 0.2 mg N/L, which is also in agreement with 1967 results. Therefore the data for cruise 66-12 and later cruises are probably correct, and are included in the final Data Reports.

Nitrite Nitrite in unfiltered samples was measured, using an Auto-Analyzer, by adding sodium hydroxide + ortho-phosphoric acid + sulfanilamide + N-(1-naphthyl) ethylenediamine dihydrochloride. The resulting color was measured at 520 millimicrons. (I.J.C. agencies 1966, pp. 102-104).

Reactive phosphate Phosphate in unfiltered samples was measured, using an Auto-Analyzer, by adding ammonium molybdate + hydrochloric acid + stannous chloride, and measuring the resulting color at 660 millimicrons. (I.J.C. agencies 1966, pp. 94-96).

Ammonia was measured during 1966 on cruises 8, 10, 11, 12, 14, 16, 17 and 18. The maximum value was .072 mg N/L. There were very many results of .000 mg N/L, except for cruise 10 for which the minimum was .020 mg N/L. There was no obvious spatial distribution of the higher values. These data have not been included in the Data Reports Nos. 1 to 12.

Phenol and related substances. The pH of the sample was adjusted to 4.0 by adding ortho-phosphoric acid, and copper sulfate was also added, immediately after sampling. Analyses were done up to one week later. The sample was distilled, and phenol in the distillate was measured by adding ammonium chloride; then, ammonium hydroxide (to produce pH 10.0 ± 0.2), 4-aminoantipyrine and potassium ferricyanide were also added. The resulting color was extracted into chloroform and measured at 460 millimicrons (American Public Health Association 1965, pp. 516-520, distillation step and method A).

Storage conditions for bacteriological samples The analyses began within one or two hours after sampling, except for samples collected between midnight and 7.30 a.m. These night-time samples were stored at 10°C for up to 8 hours before their analyses commenced.

Total coliform density determinations were obtained by membrane filtration techniques using Bacto-m Endo MF Broth. Membranes were incubated at 35°C for 20±2 hours (American Public Health Association 1965, p. 616, Method A).

Fecal Streptococcus density determinations were obtained by membrane filtration techniques using Bacto-m Enterococcus Agar. Membranes were

incubated at 39°C for 48±3 hours (American Public Health Association 1965, p. 619).

20°C and 35°C Standard Plate Counts were made using 1 ml samples mixed with liquified (45°C) Bacto-Plate Count Agar, allowed to solidify and then incubated at 20°C for 48±3 hours or at 35°C for 24±2 hours. (American Public Health Association 1965, p. 592).

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The Canadian Oceanographic Data Centre produced and distributed the preliminary data records, and published final reports in the present series.

The Meteorological Branch of the Department of Transport provided meteorological instruments, and trained the personnel who carried out the weather observations.

Captain R. Caldwell and the crew of the "Brandal" operated the vessel in support of the limnological program.

References

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CRUISE 66-4, LAKE ONTARIO

C-REF-NO 004
 CONS. NO 001
 COUNTRY 18
 INSTITUTE 22

LAT 44-00-27N
 LON 076-45-21W

YEAR 1966
 MONTH 06
 DAY 21
 TIME 0055

NO. DEPTHS 03
 SOUNDING 0031
 BT SLIDE NO 001

DEPTH	SECCHI	TEMP	CON 18	D O2	PH 25	T ALK	HARD	NO2
1.0		14.38	274	11.14		97.0	131.5	
10.0		12.22	274	11.31		96.0	134.0	
20.0		8.21	280	10.71		97.0	133.5	

DEPTH	MF CCL	MF ENT	SPC 20	SPC 35
1.0	000E00	000E00	110E02	200E01
10.0	000E00			
20.0	000E00	000E00	300E01	200E00

C-REF-NO 004	LAT 43-51-45N	YEAR 1966	NO. DEPTHS 03
CONS. NO 002	LCN 076-32-18W	MONTH 06	SOUNDING 0030
COUNTRY 18		DAY 21	BT SLIDE NO 002
INSTITUTE 22		TIME 0252	

DEPTH	SECCHI	TEMP	CON 18	D O2	PH 25	T ALK	HARD	NO2
1.0		14.76	276	12.33		94.5	133.5	
10.0		14.40	278	12.50		94.0	134.0	
20.0		11.32	280	10.99		94.0	134.0	

DEPTH	MF COL	MF ENT	SPC 20	SPC 35
1.0	100E00		400E01	200E00
10.0				
20.0	000E00	000E00	550E01	300E00

C-REF-NO 004
 CONS. NO 003
 COUNTRY 18
 INSTITUTE 22

LAT 43-55-00N
 LON 076-16-09W

YEAR 1966
 MONTH 06
 DAY 21
 TIME 0455

NO. DEPTHS 02
 SOUNDING 0022
 BT SLIDE NO 003

DEPTH	SECCHI	TEMP	CON 18	D O2	PH 25	T ALK	HARD	NO2
5.0		15.87	274	10.60		89.0	130.0	
10.0		13.82	280	10.49		92.5	133.0	

DEPTH	MF COL	MF ENT	SPC 20	SPC 35
5.0	000E00		320E02	800E00
10.0	300E00			

C-REF-NO 004
 CONS. NO 004
 COUNTRY 18
 INSTITUTE 22

LAT 43-46-06N
 LON 076-19-03W

YEAR 1966
 MONTH 06
 DAY 21
 TIME 0628

NO. DEPTHS 04
 SOUNDING 0037
 BT SLIDE NO 004

DEPTH	SECCHI	TEMP	CON 18	D O2	PH 25	T ALK	HARD	NO2
1.0		14.04	281	12.60		94.5	134.5	
10.0		12.21	286	11.80		95.0	135.5	
20.0		9.98	278	12.91		95.0	133.5	
30.0		5.45	287	12.16		96.0	135.0	

DEPTH	MF COL	MF ENT	SPC 20	SPC 35
1.0	000E00		800E01	150E01
10.0	000E00			
20.0	100E00			
30.0	200E00	000E00	230E02	650E01

C-REF-NO 004
 CONS. NO 005
 COUNTRY 18
 INSTITUTE 22

LAT 43-34-12N
 LON 076-19-45W

YEAR 1966
 MONTH 06
 DAY 21
 TIME 0817

NO. DEPTHS 04
 SOUNDING 0040
 BT SLIDE NO 005

DEPTH	SECCHI	TEMP	CCN 18	D O2	PH 25	T ALK	HARD	NO2
1.0		11.82	273	12.75		96.0	133.5	
10.0		11.25	272	12.60		95.0	133.5	
20.0		9.59	274	12.20		95.0	133.5	
35.0		6.67	276	12.39		95.0	133.5	

DEPTH	MF COL	MF ENT	SPC 2C	SPC 35
1.0	000E00		950E01	800E00
10.0	600E00			
20.0	000E00			
35.0	000E00	200E00	600E01	200E01

C-REF-NO 004
 CONS. NO 006
 COUNTRY 18
 INSTITUTE 22

LAT 43-41-12N
 LON 076-33-33W

YEAR 1966
 MONTH 06
 DAY 21
 TIME 1036

NO. DEPTHS 08
 SOUNDING 0121
 BT SLIDE NC 006

DEPTH	SECCHI	TEMP	CON 18	D 02	PH 25	T ALK	HARD.	NO2
1.0	2.5	14.39	271	12.88		94.5	133.0	0.002
10.0		7.70	274	13.26		96.0	134.5	0.002
20.0		4.64						
30.0		3.99						
50.0		3.89						
75.0		3.85						
100.0		3.85						
110.0		3.80	274	12.63		96.0	134.5	0.002

DEPTH	MF COL	MF ENT	SPC 20	SPC 35
1.0	000E00	000E00	100E03	800E00
10.0	000E00			
20.0				
30.0				
50.0				
75.0				
100.0				
110.0	000E00	000E00	900E01	500E00

C-REF-NO 004
 CONS. NO 007
 COUNTRY 18
 INSTITUTE 22

LAT 43-30-06N
 LON 076-34-06W

YEAR 1966
 MONTH 06
 DAY 21
 TIME 1224

NO. DEPTHS 06
 SOUNDING 0078
 BT SLIDE NO 007

DEPTH	SECCHI	TEMP	CON 18	D 02	PH 25	T ALK	HARD	NO2
1.0	3.0	11.43	272	14.40		95.0	134.0	0.005
10.0		10.25	272	15.06		96.0	134.0	0.005
20.0		6.74	274	13.30		95.0	134.0	0.002
30.0		5.94	275	12.90		95.0	134.5	0.003
50.0		4.86	275	12.58		95.0	134.5	0.002
75.0		4.59	278	12.58		95.0	135.0	0.002

DEPTH	MF COL	MF ENT	SPC 20	SPC 35
1.0		200E00	700E02	520E02
10.0	730E01			
20.0	000E00			
30.0	900E00			
50.0	000E00			
75.0	000E00	000E00	200E01	150E01

C-REF-NO 004
 CONS. NO 008
 COUNTRY 18
 INSTITUTE 22

LAT 43-23-27N
 LON 076-49-15W

YEAR 1966
 MONTH 06
 DAY 21
 TIME 1418

NO. DEPTHS 05
 SOUNDING 0065
 BT SLIDE NO 008

DEPTH	SECCHI	TEMP	CON 18	D 02	PH 25	T ALK	HARD	NO2
1.0	3.5		273	14.61		96.0	134.0	0.005
10.0		10.89	272	15.40		96.0	134.0	0.003
20.0		7.06	272	13.33		96.0	134.5	0.002
30.0		6.44	278	13.12		96.0	134.5	0.002
50.0		5.33	280	12.62		96.5	134.5	0.003

DEPTH	MF CCL	MF ENT	SPC 20	SPC 35
1.0	100E00		400E01	500E00
10.0	100E00			
20.0	000E00			
30.0	000E00			
50.0	000E00	100E00	400E01	120E01

C-REF-NO 004
 CONS. NO 009
 COUNTRY 18
 INSTITUTE 22

LAT 43-35-09N
 LCN 076-48-33W

YEAR 1966
 MONTH 06
 DAY 21
 TIME 1609

NO. DEPTHS 08
 SOUNDING 0207
 BT SLIDE NO 009

DEPTH	SECCHI	TEMP	CON 18	D 02	PH 25	T ALK	HARD	NO2
1.0	4.0	13.67	274	13.52		94.0	132.5	0.002
10.0		6.56	274	14.34		94.5	134.5	0.004
20.0		5.03						
30.0		4.82						
49.0		4.62						
74.0		4.56						
98.0		4.27						
147.0		3.88	277	12.86		94.5	134.5	0.002

DEPTH	MF CCL	MF ENT	SPC 20	SPC 35
1.0	000E00			
10.0	000E00	000E00	250E01	300E00
20.0				
30.0				
49.0				
74.0				
98.0				
147.0	000E00	000E00	400E01	200E00

C-REF-NO 004
 CONS. NC 010
 COUNTRY 18
 INSTITUTE 22

LAT 43-47-03N
 LCN 076-48-03W

YEAR 1966
 MONTH 06
 DAY 21
 TIME 1809

NO. DEPTHS 06
 SOUNDING 0071
 BT SLIDE NC 010

DEPTH	SECCHI	TEMP	CON 18	D O2	PH 25	T ALK	HARD	NO2
1.0	3.8	14.82	276	12.50		94.5	135.0	0.006
10.0		11.36	281	12.39		94.0	135.0	0.005
20.0		10.48						
30.0		6.21						
50.0		5.27						
60.0		4.80	282	12.68		94.0	134.5	0.003

DEPTH	MF CCL	MF ENT	SPC 20	SPC 35
1.0	100E00	000E00	600E01	600E00
10.0	000E00			
20.0				
30.0				
50.0				
60.0	000E00	000E00	110E02	150E01

C-REF-NC 004	LAT 43-51-03N	YEAR 1966	NO. DEPTHS 03
CONS. NC 011	LCN 076-58-15W	MONTH 06	SOUNDING 0026
COUNTRY 18		DAY 21	BT SLIDE NC 011
INSTITUTE 22		TIME 1922	

DEPTH	SECCHI	TEMP	CON 12	D 02	PH 25	T ALK	HARD	NO2
1.0	3.5	14.90	276	12.01		94.5	135.0	0.006
10.0		10.09	280	11.87		94.0	135.0	0.004
20.0		8.56	280	10.80		95.0	135.5	0.005

DEPTH	MF COL	MF ENT	SPC 20	SPC 35
1.0	000E00	000E00	200E01	200E00
10.0	000E00			
20.0	000E00	000E00	550E01	800E00

C-REF-NO 004
 CONS. NO 012
 COUNTRY 18
 INSTITUTE 22

LAT 43-42-15N
 LON 077-01-45W

YEAR 1966
 MONTH 06
 DAY 21
 TIME 2054

NO. DEPTHS 07
 SOUNDING 0097
 BT SLIDE NO 012

DEPTH	SECCHI	TEMP	CON 18	D 02	PH 25	T ALK	HARD	NO2
1.0	3.0	15.85	276	12.93		94.0	134.5	0.002
10.0		11.09	276	12.85		94.0	134.5	0.006
20.0		7.95						
30.0		6.20						
50.0		5.15						
75.0		4.65						
85.0		4.37	282	12.46		94.5	134.0	0.004

DEPTH	MF CCL	MF ENT	SPC 20	SPC 35
1.0	000E00	000E00	450E01	300E00
10.0	000E00			
20.0				
30.0				
50.0				
75.0				
85.0	000E00	000E00	170E02	700E00

C-REF-NC 004
 CONS. NO 013
 COUNTRY 18
 INSTITUTE 22

LAT 43-30-18N
 LCN 077-C3-24W

YEAR 1966
 MONTH 06
 DAY 21
 TIME 2247

NO. DEPTHS 09
 SOUNDING 0226
 BT SLIDE NO 013

DEPTH	SECCHI	TEMP	CON 18	D 02	PH 25	T ALK	HARD	NO2
1.0	3.0	13.44	275	14.60		94.0	134.5	0.002
10.0		5.85	275	12.96		94.5	134.5	0.002
20.0		5.13						
30.0		5.04						
50.0		3.92						
75.0		3.89						
100.0		3.83						
150.0		3.75						
200.0		3.67	281	12.50		94.0	134.5	0.002

DEPTH	MF COL	MF ENT	SPC 20	SPC 35
1.0	000E00	000E00		
10.0	000E00			
20.0				
30.0				
50.0				
75.0				
100.0				
150.0				
200.0	000E00	200E00		

C-REF-NO 004
CONS. NO 014
COUNTRY 18
INSTITUTE 22

LAT 43-18-33N
LON 077-03-57W

YEAR 1966
MONTH 06
DAY 22
TIME 0036

NO. DEPTHS 03
SOUNDING 0037
BT SLIDE NO 014

DEPTH	SECCHI	TEMP	CON 18	D 02	PH 25	T ALK	HARD	NO2
1.0		12.86	272	14.26		94.0	133.0	0.004
10.0		10.53	276	12.30		91.0	134.0	0.005
20.0		9.60	276	12.03		92.0	134.0	0.004

DEPTH	MF CCL	MF ENT	SPC 20	SPC 35
1.0	000E00	000E00		
10.0	100E00			
20.0	300E00	000E00		

C-REF-NO 004
 CONS. NO 015
 COUNTRY 18
 INSTITUTE 22

LAT 43-25-00N
 LON 077-17-51W

YEAR 1966
 MONTH 06
 DAY 22
 TIME 0219

NO. DEPTHS 09
 SOUNDING 0220
 BT SLIDE NO 015

DEPTH	SECCHI	TEMP	CON 18	D 02	PH 25	T ALK	HARD	NO2
1.0		11.48	273	14.66		94.0	134.0	0.005
10.0		6.38	276	14.18		25.0	150.0	0.022
20.0		5.33						
30.0		4.48						
50.0		4.05						
75.0		3.86						
100.0		3.83						
150.0		3.78						
200.0		3.66	280	12.42		92.0	134.5	0.003

DEPTH	MF COL	MF ENT	SPC 20	SPC 35
1.0	200E00			
10.0	000E00			
20.0				
30.0				
50.0				
75.0				
100.0				
150.0				
200.0	000E00	000E00		

C-REF-NO 004	LAT 43-37-00N	YEAR 1966	NO. DEPTHS 08
CONS. NO 016	LCN 077-16-54W	MONTH 06	SOUNDING 0141
COUNTRY 18		DAY 22	BT SLIDE NO 016
INSTITUTE 22		TIME 0418	

DEPTH	SECCHI	TEMP	CON 18	D O2	PH 25	T ALK	HARD	NO2
1.0		14.70	278	13.32		94.5	134.5	0.002
10.0		9.49	281	13.06		96.5	134.5	0.004
20.0		7.58						
30.0		5.79						
50.0		4.40						
75.0		4.18						
100.0		4.08						
125.0		3.97	280	12.63		96.5	134.5	0.002

DEPTH	MF CCL	MF ENT	SPC 20	SPC 35
1.0	000E00	000E00		
10.0	000E00			
20.0				
30.0				
50.0				
75.0				
100.0				
125.0	000E00	000E00		

C-REF-NC 004
 CONS. NO 017
 COUNTRY 18
 INSTITUTE 22

LAT 43-47-39N
 LON 077-15-18W

YEAR 1966
 MONTH 06
 DAY 22
 TIME 0546

NO. DEPTHS 04
 SOUNDING 0040
 BT SLIDE NO 017

DEPTH	SECCHI	TEMP	CON 18	D O2	PH 25	T ALK	HARD	NO2
1.0		15.22	276	12.24		96.0	135.0	0.003
10.0		10.87	280	12.48		97.0	135.0	0.004
20.0		6.94						
30.0		5.95	284	11.60		97.0	136.0	0.003

DEPTH	MF CCL	MF ENT	SPC 20	SPC 35
1.0	000E00	000E00		
10.0	000E00			
20.0				
30.0	000E00	000E00		

C-REF-NO 004
 CONS. NO 018
 COUNTRY 18
 INSTITUTE 22

LAT 43-43-45N
 LON 077-30-51W

YEAR 1966
 MONTH 06
 DAY 22
 TIME 0726

NO. DEPTHS 06
 SOUNDING 0079
 BT SLIDE NO 018

DEPTH	SECCHI	TEMP	CON 18	D O2	PH 25	T ALK	HARD	NO2
1.0		15.29	275	12.58		97.0	135.0	0.002
10.0		10.39	278	12.97		96.0	135.0	0.004
20.0		8.02						
30.0		6.63						
50.0		5.40						
75.0		4.32	282	12.45		97.0	137.0	0.004

DEPTH	MF COL	MF ENT	SPC 20	SPC 35
1.0	000E00	000E00		
10.0	000E00			
20.0				
30.0				
50.0				
75.0	000E00	100E00		

C-REF-NO 004
 CONS. NO 019
 COUNTRY 18
 INSTITUTE 22

LAT 43-31-30N
 LON 077-31-42W

YEAR 1966
 MONTH 06
 DAY 22
 TIME 0909

NO. DEPTHS 08
 SOUNDING 0174
 BT SLIDE NO 019

DEPTH	SECCHI	TEMP	CON 18	D 02	PH 25	T ALK	HARD	NO2
1.0		12.26	275	14.99		96.0	134.5	0.006
10.0		6.31		14.03		95.0	135.0	0.003
20.0		5.76						
30.0		5.13						
50.0		4.62						
75.0		4.13						
100.0		3.83						
150.0		3.74	281	13.21		95.5	135.0	0.002

DEPTH	MF COL	MF ENT	SPC 20	SPC 35
1.0	000E00	000E00		
10.0	000E00			
20.0				
30.0				
50.0				
75.0				
100.0				
150.0	000E00	000E00		

C-REF-NO 004
 CONS. NO 020
 COUNTRY 18
 INSTITUTE 22

LAT 43-19-45N
 LON 077-32-09W

YEAR 1966
 MONTH 06
 DAY 22
 TIME 1055

NO. DEPTHS 05
 SOUNDING 0055
 BT SLIDE NC 020

DEPTH	SECCHI	TEMP	CON 18	D 02	PH 25	T ALK	HARD	NO2
1.0	3.0	13.63	272	13.20		95.5	135.0	0.003
10.0		9.52	276	11.57		95.5	134.5	0.004
20.0		7.85	277	11.70		95.5	135.0	0.004
30.0		6.54	277	11.92		96.0	135.0	0.002
50.0		4.70	278	12.66		97.0	135.5	0.002

DEPTH	MF COL	MF ENT	SPC 20	SPC 35
1.0	000E00	000E00		
10.0	100E00			
20.0	000E00			
30.0	000E00			
50.0	000E00	000E00		

C-REF-NC 004
 CONS. NC 021
 COUNTRY 13
 INSTITUTE 22

LAT 43-26-24N
 LCN 077-46-12W

YEAR 1966
 MONTH 06
 DAY 22
 TIME 1245

NO. DEPTHS 07
 SOUNDING 0131
 BT SLIDE NO 021

DEPTH	SECCHI	TEMP	CON 18	D 02	PH 25	T ALK	HARD	NO2
1.0	3.5	12.74	274	14.11		95.0	135.0	0.006
10.0		6.74	277	14.43		73.5	139.0	0.010
20.0		4.73						
30.0		4.08						
50.0		3.95						
75.0		3.86						
100.0		3.82	279	13.22		95.0	135.0	0.002

DEPTH	MF COL	MF ENT	SPC 20	SPC 35
1.0	000E00	000E00		
10.0	000E00			
20.0				
30.0				
50.0				
75.0				
100.0	000E00	000E00		

C-REF-NO 004	LAT 43-38-30N	YEAR 1966	NO. DEPTHS 07
CONS. NO 022	LON 077-45-39W	MONTH 06	SOUNDING 0154
COUNTRY 18		DAY 22	BT SLIDE NO 022
INSTITUTE 22		TIME 1428	

DEPTH	SECCHI	TEMP	CON 18	D 02	PH 25	T ALK	HARD	NO2
1.0	3.5	13.98	274	13.62		95.5	136.0	0.002
10.0		7.94	278	12.97		94.0	136.0	0.003
20.0		6.78						
30.0		4.01						
50.0		3.88						
75.0		3.82						
100.0		3.79	281	12.85		95.5	136.5	0.002

DEPTH	MF COL	MF ENT	SPC 20	SPC 35
1.0	000E00			
10.0	100E00			
20.0				
30.0				
50.0				
75.0				
100.0	000E00			

C-REF-NO 004
 CONS. NO 023
 COUNTRY 18
 INSTITUTE 22

LAT 43-50-00N
 LON 077-44-24W

YEAR 1966
 MONTH 06
 DAY 22
 TIME 1611

NO. DEPTHS 06
 SOUNDING 0075
 BT SLIDE NO 023

DEPTH	SECCHI	TEMP	CON 18	D O2	PH 25	T ALK	HARD	NO2
1.0	3.2	15.48	272	12.67		90.0	134.5	0.003
10.0		10.32	278	12.20		91.0	136.0	0.004
20.0		6.67	279	11.99		94.0	136.0	0.004
30.0		5.80	280	12.31		94.0	136.5	0.003
50.0		5.18	280	12.46		94.5	136.0	0.003
60.0		4.96	280	12.36		94.0	136.5	0.004

DEPTH	MF COL	MF ENT	SPC 2C	SPC 35
1.0	000E00	000E00		
10.0	000E00			
20.0	000E00			
30.0	000E00			
50.0	000E00			
60.0	000E00	000E00		

C-REF-NO 004
 CONS. NO 024
 COUNTRY 18
 INSTITUTE 22

LAT 43-56-00N
 LCN 077-57-36W

YEAR 1966
 MONTH 06
 DAY 22
 TIME 1737

NO. DEPTHS 04
 SOUNDING 0039
 BT SLIDE NO 024

DEPTH	SECCHI	TEMP	CON 18	D 02	PH 25	T ALK	HARD	NO2
1.0		16.18	274	12.82		97.0	135.0	0.006
10.0		8.22	275	14.03		97.0	136.0	0.004
20.0		5.97	280	12.43		97.0	136.5	0.003
30.0		5.24	282	11.81		97.0	136.5	0.003

DEPTH	MF CCL	MF ENT	SPC 20	SPC 35
1.0	000E00			
10.0	000E00			
20.0	000E00			
30.0	000E00	000E00		

C-REF-NO 004
 CONS. NO 025
 COUNTRY 18
 INSTITUTE 22

LAT 43-45-03N
 LCN 077-58-51W

YEAR 1966
 MONTH 06
 DAY 22
 TIME 1906

NO. DEPTHS 07
 SOUNDING 0115
 BT SLIDE NO 025

DEPTH	SECCHI	TEMP	CGN 18	D 02	PH 25	T ALK	HARD	NO2
1.0	3.3	15.79	274	12.72		96.0	135.0	0.002
10.0		9.44	282	12.93		96.0	136.0	0.003
20.0		5.22						
30.0		4.55						
50.0		4.20						
75.0		4.13						
100.0		3.96	281	13.12		95.0	136.0	0.006

DEPTH	MF COL	MF ENT	SPC 20	SPC 35
1.0	100E00			
10.0	000E00			
20.0				
30.0				
50.0				
75.0				
100.0	000E00	000E00		

C-REF-NO 004
 CONS. NO 026
 COUNTRY 18
 INSTITUTE 22

LAT 43-33-00N
 LON 078-00-09W

YEAR 1966
 MONTH 06
 DAY 22
 TIME 2047

NO. DEPTHS 08
 SOUNDING 0181
 BT SLIDE NC 026

DEPTH	SECCHI	TEMP	CON 18	D 02	PH 25	T ALK	HARD	NO2
1.0	5.5	12.20	275	13.47		96.0	135.0	0.005
10.0		5.52	277	13.89		96.0	135.5	0.003
20.0		4.85						
30.0		4.45						
50.0		4.18						
75.0		4.09						
100.0		3.99						
150.0		3.78	278	13.27		96.5	134.5	0.004

DEPTH	MF CCL	MF ENT	SPC 20	SPC 35
1.0	800E00	800E00		
10.0	000E00			
20.0				
30.0				
50.0				
75.0				
100.0				
150.0	000E00	000E00		

C-REF-NO 004
 CONS. NO 027
 COUNTRY 18
 INSTITUTE 22

LAT 43-24-27N
 LON 078-00-54W

YEAR 1966
 MONTH 06
 DAY 22
 TIME 2212

NO. DEPTHS 05
 SOUNDING 0060
 BT SLIDE NO 027

DEPTH	SECCHI	TEMP	CON 18	D 02	PH 25	T ALK	HARD	NO2
1.0	2.5		272	12.40		94.5	132.0	0.007
10.0		10.43	275	13.68		96.0	134.5	0.006
20.0		8.02	277	12.84		97.0	135.0	0.006
30.0		4.63	278	13.24		96.0	135.0	0.003
50.0		4.17	278	12.98		97.0	135.0	0.004

DEPTH	MF COL	MF ENT	SPC 20	SPC 35
1.0	000E00	000E00		
10.0	000E00			
20.0	000E00			
30.0	300E00			
50.0	100E00	000E00		

C-REF-NO 004
 CONS. NO 028
 COUNTRY 18
 INSTITUTE 22

LAT 43-28-03N
 LON 078-15-15W

YEAR 1966
 MONTH 06
 DAY 22
 TIME 2354

NO. DEPTHS 08
 SOUNDING 0143
 BT SLIDE NC 028

DEPTH	SECCHI	TEMP	CON 18	D 02	PH 25	T ALK	HARD	NO2
1.0	3.3	18.02	272	12.64		96.0	134.0	0.002
10.0		7.32	274	15.18		95.0	135.0	0.006
20.0		5.08						
30.0		4.21						
50.0		3.92						
75.0		3.85						
100.0		3.83						
130.0		3.75	278	13.21		94.5	135.5	0.002

DEPTH	MF COL	MF ENT	SPC 20	SPC 35
1.0	000E00	000E00		
10.0	000E00			
20.0				
30.0				
50.0				
75.0				
100.0				
130.0	000E00	000E00		

C-REF-NO 004
 CONS. NO 029
 COUNTRY 18
 INSTITUTE 22

LAT 43-39-48N
 LON 078-13-57W

YEAR 1966
 MONTH 06
 DAY 23
 TIME 0134

NO. DEPTHS 07
 SOUNDING 0152
 BT SLIDE NO 029

DEPTH	SECCHI	TEMP	CON 18	D 02	PH 25	T ALK	HARD	NO2
1.0		16.40	272	13.10		94.0	135.0	0.004
10.0		9.42	275	13.93		95.0	135.0	0.006
20.0		5.82						
30.0		4.44						
50.0		3.94						
75.0		3.89						
100.0		3.83	281	13.59		79.0	137.5	0.006

DEPTH	MF CCL	MF ENT	SPC 20	SPC 35
1.0	000E00	100E00		
10.0	000E00			
20.0				
30.0				
50.0				
75.0				
100.0	000E00	000E00		

C-REF-NO 004	LAT 43-51-51N	YEAR 1966	NO. DEPTHS 04
CONS. NO 030	LCN 078-12-15W	MONTH 06	SOUNDING 0052
COUNTRY 18		DAY 23	BT SLIDE NO 030
INSTITUTE 22		TIME 0312	

DEPTH	SECCHI	TEMP	CON 18	D 02	PH 25	T ALK	HARD	NO2
1.0		16.71	274	12.33		96.0	135.0	0.004
10.0		6.41	276	13.77		88.0	137.0	0.006
20.0		5.53	278	12.94		97.0	135.5	0.003
30.0		4.81	278	12.81		97.0		0.002

DEPTH	MF COL	MF ENT	SPC 2C	SPC 35
1.0	000E00	000E00		
10.0	000E00			
20.0	000E00			
30.0	000E00	000E00		

C-REF-NO 004
 CONS. NO 031
 COUNTRY 18
 INSTITUTE 22

LAT 43-46-30N
 LON 078-27-18W

YEAR 1966
 MONTH 06
 DAY 23
 TIME 0441

NO. DEPTHS 06
 SOUNDING 0077
 BT SLIDE NO 031

DEPTH	SECCHI	TEMP	CON 18	D O2	PH 25	T ALK	HARD	NO2
1.0		16.40	273	13.01	8.770	95.0		0.002
10.0		9.60	275	14.32	8.600	96.5		0.004
20.0		5.62	278	13.03	8.190	96.0		0.002
30.0		4.93	279	13.21	8.170	96.0		0.002
50.0		4.55	279	13.39	8.150	96.5		0.002
65.0		4.11	278	13.14	8.140	96.5		0.004

DEPTH	MF COL	MF ENT	SPC 20	SPC 35
1.0	000E00	000E00		
10.0	000E00			
20.0	000E00			
30.0	000E00			
50.0	000E00			
65.0	000E00	100E00		

C-REF-NO 004
 CONS. NO 032
 COUNTRY 18
 INSTITUTE 22

LAT 43-34-30N
 LON 078-28-24W

YEAR 1966
 MONTH 06
 DAY 23
 TIME 0619

NO. DEPTHS 08
 SOUNDING 0175
 BT SLIDE NO 032

DEPTH	SECCHI	TEMP	CON 18	D 02	PH 25	T ALK	HARD	NO2
1.0		16.18	273	12.95	8.770	96.0		0.002
10.0		9.75	273	15.36	8.650	96.0		0.002
20.0		5.36						
30.0		4.56						
50.0		4.01						
75.0		3.88						
100.0		3.83						
150.0		3.76	279	13.24	8.130	96.5		0.002

DEPTH	MF COL	MF ENT	SPC 20	SPC 35
1.0	000E00	100E00		
10.0	000E00			
20.0				
30.0				
50.0				
75.0				
100.0				
150.0	000E00	000E00		

C-REF-NO 004
 CONS. NO 033
 COUNTRY 18
 INSTITUTE 22

LAT 43-24-12N
 LGN 078-29-00W

YEAR 1966
 MONTH 06
 DAY 23
 TIME 0744

NO. DEPTHS 05
 SOUNDING 0055
 BT SLIDE NO 033

DEPTH	SECCHI	TEMP	CON 18	D 02	PH 25	T ALK	HARD	NO2
1.0		17.40	272	11.86	8.570	93.5		0.006
10.0		9.96	277	11.35	8.200	96.0		0.006
20.0		6.08	278	12.82	8.190	94.5		0.002
30.0		5.03	279	12.64	8.100	88.0		0.006
45.0		4.13	282	12.43	8.080	92.5		0.005

DEPTH	MF COL	MF ENT	SPC 20	SPC 35
1.0	100ECO	000E00		
10.0	000E00			
20.0	100ECO			
30.0	000ECO			
45.0	700E00	100E00		

C-REF-NO 004
 CONS. NO 034
 COUNTRY 18
 INSTITUTE 22

LAT 43-28-54N
 LON 078-42-51W

YEAR 1966
 MONTH 06
 DAY 23
 TIME 0926

NO. DEPTHS 08
 SOUNDING 0154
 BT SLIDE NC 034

DEPTH	SECCHI	TEMP	CON 18	D 02	PH 25	T ALK.	HARD	NO2
1.0		16.50	272	12.78	8.720	96.5		0.002
10.0		6.50	273	14.87	8.370	97.5		0.004
20.0		4.58						
30.0		4.13						
50.0		4.02						
75.0		3.89						
100.0		3.80						
130.0		3.72	277	13.27	8.180	97.0		0.002

DEPTH	MF COL	MF ENT	SPC 20	SPC 35
1.0	000E00	000E00		
10.0	000E00			
20.0				
30.0				
50.0				
75.0				
100.0				
130.0	000E00	000E00		

C-REF-NO 004
 CONS. NO 035
 COUNTRY 18
 INSTITUTE 22

LAT 43-41-00N
 LON 078-42-48W

YEAR 1966
 MONTH 06
 DAY 23
 TIME 1112

NO. DEPTHS 07
 SOUNDING 0113
 BT SLIDE NO 035

DEPTH	SECCHI	TEMP	CON 18	D O2	PH 25	T ALK	HARD	NO2
1.0	3.2	16.53	272	12.74	8.840	97.0		0.006
10.0		9.67	272	15.12	8.710	96.5		0.004
20.0		5.67						
30.0		4.65						
50.0		3.88						
75.0		3.84						
100.0		3.80	278	13.45	8.300	97.0		0.002

DEPTH	MF COL	MF ENT	SPC 20	SPC 35
1.0	000E00			
10.0	000E00			
20.0				
30.0				
50.0				
75.0				
100.0	000E00	100E00		

C-REF-NO 004
 CONS. NO 036
 COUNTRY 18
 INSTITUTE 22

LAT 43-50-21N
 LON 078-41-45W

YEAR 1966
 MONTH 06
 DAY 23
 TIME 1227

NO. DEPTHS 03
 SOUNDING 0032
 BT SLIDE NO 036

DEPTH	SECCHI	TEMP	CON 18	D O2	PH 25	T ALK	HARD	NO2
1.0		15.29	275	13.47	8.650	81.0		0.010
10.0		6.21	276	13.00	8.360	91.5		0.004
20.0		5.33		12.69		94.0		0.003

DEPTH	MF COL	MF ENT	SPC 20	SPC 35
1.0	000E00	100E00		
10.0	000E00			
20.0	000E00	000E00		

C-REF-NG 004
 CONS. NO 037
 COUNTRY 18
 INSTITUTE 22

LAT 43-47-45N
 LCN 078-56-00W

YEAR 1966
 MONTH 06
 DAY 23
 TIME 1349

NO. DEPTHS 04
 SOUNDING 0044
 BT SLIDE NO 037

DEPTH	SECCHI	TEMP	CON 18	D 02	PH 25	T ALK	HARD	NO2
1.0		15.91	272	13.45	8.790	94.0		0.005
10.0		7.81	276	14.09	8.520	94.5		0.004
20.0		5.24	279	12.77	8.240	58.0		0.009
30.0		4.48	275	12.65	8.160	95.0		0.003

DEPTH	MF CCL	MF ENT	SPC 20	SPC 35
1.0	000E00	400E00		
10.0	000E00			
20.0	000E00			
30.0	100E00	000E00		

C-REF-NO 004
 CONS. NO 038
 COUNTRY 18
 INSTITUTE 22

LAT 43-35-48N
 LON 078-57-00W

YEAR 1966
 MONTH 06
 DAY 23
 TIME 1520

NO. DEPTHS 07
 SOUNDING 0128
 BT SLIDE NC 038

DEPTH	SECCHI	TEMP	CON 18	D 02	PH 25	T ALK	HARD	NO2
1.0	3.5	16.97	255	12.69	8.790	94.0		0.002
10.0		8.14	264	14.01	8.560	97.5		0.004
20.0		4.28						
30.0		4.07						
50.0		3.93						
75.0		3.84						
100.0		3.79	280	13.32	8.160	97.5		0.003

DEPTH	MF COL	MF ENT	SPC 20	SPC 35
1.0	000E00	100E00		
10.0	000E00			
20.0				
30.0				
50.0				
75.0				
100.0	200E00			

C-REF-NO 004
 CONS. NO 039
 COUNTRY 18
 INSTITUTE 22

LAT 43-24-00N
 LON 078-58-03W

YEAR 1966
 MONTH 06
 DAY 23
 TIME 1659

NO. DEPTHS 07
 SOUNDING 0108
 BT SLIDE NO 039

DEPTH	SECCHI	TEMP	CON 18	D 02	PH 25	T ALK	HARD	NO2
1.0	3.0	19.35	279	11.84	8.750	95.0		0.005
10.0		11.01	272	13.47	8.600	94.5		0.004
20.0		6.42	280	12.70	8.250	94.5		0.002
30.0		4.84	280	12.35	8.190	97.5		0.003
50.0		4.38	277	12.82	8.160	97.0		0.003
75.0		3.89	280	12.61	8.160	97.5		0.002
95.0		3.83	277	12.64	8.130	97.5		0.002

DEPTH	MF COL	MF ENT	SPC 20	SPC 35
1.0	100E00	000E00		
10.0	200E00			
20.0	000E00			
30.0	000E00			
50.0	000E00			
75.0	000E00			
95.0	000E00	000E00		

C-REF-NO 004
 CONS. NO 040
 COUNTRY 18
 INSTITUTE 22

LAT 43-18-30N
 LCN 079-13-06W

YEAR 1966
 MONTH 06
 DAY 23
 TIME 1855

NO. DEPTHS 06
 SOUNDING 0084
 BT SLIDE NO 040

DEPTH	SECCHI	TEMP	CON 18	D 02	PH 25	T ALK	HARD	NO2
1.0	2.8	19.46	275	9.56	8.370	92.0		0.009
10.0		9.35	279	11.68	8.260	95.5		0.005
20.0		6.41	278	12.44	8.190	72.5		0.009
30.0		5.30	278	12.74	8.180	94.5		0.006
50.0		4.19	280	12.90	8.160	95.5		0.006
75.0		3.94	279	12.38	8.100	97.5		0.006

DEPTH	MF COL	MF ENT	SPC 20	SPC 35
1.0				
10.0				
20.0				
30.0				
50.0	270E01			
75.0	230E01			

C-REF-NO 004
 CONS. NO 041
 COUNTRY 18
 INSTITUTE 22

LAT 43-30-30N
 LON 079-12-06W

YEAR 1966
 MONTH 06
 DAY 23
 TIME 2034

NO. DEPTHS 08
 SOUNDING 0135
 BT SLIDE NO 041

DEPTH	SECCHI	TEMP	CON 18	D 02	PH 25	T ALK	HARD	NO2
1.0	3.5	16.91	252	12.75	8.760	93.0		0.002
10.0		7.26	276	12.85	8.370	96.0		0.003
20.0		4.61						
30.0		4.21						
50.0		4.09						
75.0		3.95						
100.0		3.83						
120.0		3.82	279	12.54	8.140	96.0		0.003

DEPTH	MF CCL	MF ENT	SPC 20	SPC 35
1.0	000E00	200E00		
10.0	000E00			
20.0				
30.0				
50.0				
75.0				
100.0				
120.0	000E00	000E00		

C-REF-NO 004
 CONS. NO 042
 COUNTRY 18
 INSTITUTE 22

LAT 43-41-30N
 LCN 079-11-12W

YEAR 1966
 MONTH 06
 DAY 23
 TIME 2206

NO. DEPTHS 04
 SOUNDING 0037
 BT SLIDE NO 042

DEPTH	SECCHI	TEMP	CON 18	D O2	PH 25	T ALK	HARD	NO2
1.0	2.0	16.85	270	14.49	8.800	92.0		0.004
10.0		5.75	278	12.73	8.250	96.5		0.004
20.0		4.25	278	12.66	8.130	96.5		0.004
30.0		4.25	278	12.69	8.180	96.5		0.004

DEPTH	MF COL	MF ENT	SPC 20	SPC 35
1.0	000E00	000E00		
10.0	000E00			
20.0	000E00			
30.0	000E00	000E00		

C-REF-NO 004
 CONS. NO 043
 COUNTRY 18
 INSTITUTE 22

LAT 43-36-06N
 LON 079-25-42W

YEAR 1966
 MONTH 06
 DAY 23
 TIME 2350

NO. DEPTHS 04
 SOUNDING 0037
 BT SLIDE NO 043

DEPTH	SECCHI	TEMP	CON 18	D O2	PH 25	T ALK	HARD	NO2
1.0	2.0	17.21	270	14.01	8.720	92.5		0.004
10.0		7.87	284	13.41	8.220	97.5		0.007
20.0		5.56	279	13.98	8.180	96.5		0.003
30.0		5.22	279	12.74	8.100	92.5		0.008

DEPTH	MF COL	MF ENT	SPC 20	SPC 35
1.0				
10.0				
20.0				
30.0				

C-REF-NO 004
 CONS. NO 044
 COUNTRY 18
 INSTITUTE 22

LAT 43-25-12N
 LON 079-26-30W

YEAR 1966
 MONTH 06
 DAY 24
 TIME 0119

NO. DEPTHS 06
 SOUNDING 0108
 BT SLIDE NO 044

DEPTH	SECCHI	TEMP	CON 18	D O2	PH 25	T ALK	HARD	NO2
1.0		17.14	270	13.15	8.640	92.5		0.004
10.0		6.84	279	12.92	8.370	96.5		0.004
20.0		4.96						
30.0		4.63						
50.0		4.16						
75.0		3.91	279	12.88	8.110	96.5		0.006

DEPTH	MF COL	MF ENT	SPC 20	SPC 35
1.0	000E00	000E00		
10.0	000E00			
20.0				
30.0				
50.0				
75.0	000E00	000E00		

C-REF-NO 004
 CONS. NO 045
 COUNTRY 18
 INSTITUTE 22

LAT 43-14-21N
 LON. 079-27-39W
 YEAR 1966
 MONTH 06
 DAY 24
 TIME 0245

NO. DEPTHS 03
 SOUNDING 0029
 BT SLIDE NO 045

DEPTH	SECCHI	TEMP	CON 18	D 02	PH 25	T ALK	HARD	NO2
1.0		18.25	265	12.97	8.620	64.0		0.017
10.0		7.58	279	11.78	8.180	96.0		0.004
20.0		4.25	279	12.07	8.070	92.0		0.006

DEPTH	MF CCL	MF ENT	SPC 20	SPC 35
1.0	000E00			
10.0	400E00			
20.0	100E00	000E00		

C-REF-NO 004
 CONS. NO 046
 COUNTRY 18
 INSTITUTE 22

LAT 43-19-51N
 LON 079-41-15W

YEAR 1966
 MONTH 06
 DAY 24
 TIME 0414

NO. DEPTHS 05
 SOUNDING 0048
 BT SLIDE NO 046

DEPTH	SECCHI	TEMP	CON 18	D 02	PH 25	T ALK	HARD	NO2
1.0		17.59	269	13.08	8.680	90.5		0.002
10.0		8.17	279	12.65	8.250	96.0		0.004
20.0		6.08	279	12.59	8.150	96.0		0.003
30.0		4.99	279	12.46	8.120	97.0		0.004
40.0		4.31	280	12.36	8.070	96.5		0.004

DEPTH	MF COL	MF ENT	SPC 20	SPC 35
1.0	000E00	000E00		
10.0	000E00			
20.0	000E00			
30.0	000E00			
40.0	000E00	000E00		

C-REF-NC 004	LAT 43-19-21N	YEAR 1966	NO. DEPTHS 03
CONS. NC 047	LCN 079-44-42W	MONTH 06	SOUNDING 0027
COUNTRY 18		DAY 24	BT SLIDE NO 047
INSTITUTE 22		TIME 0450	

DEPTH	SECCHI	TEMP	CON 18	D O2	PH 25	T ALK	HARD	NO2
1.0		17.45	289	12.58	8.520	94.0		0.070
10.0		8.58	281	13.02	8.340	93.0		0.005
20.0		4.84	278	12.95	8.140	93.0		0.002

DEPTH	MF COL	MF ENT	SPC 20	SPC 35
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1.0				
10.0				
20.0				

C-REF-NO 004
CONS. NO 048
COUNTRY 18
INSTITUTE 22

LAT 43-16-57N
LCN 079-45-18W

YEAR 1966
MONTH 06
DAY 24
TIME 0535

NO. DEPTHS 02
SOUNDING 0011
BT SLIDE NO 048

DEPTH	SECCHI	TEMP	CON 18	D 02	PH 25	T ALK	HARD	NO2
1.0		17.47	269	13.14	8.710	92.0		0.005
5.0		9.35	278	13.43	8.400	96.5		0.005

DEPTH	MF CCL	MF ENT	SPC 20	SPC 35
1.0				
5.0				

C-REF-NC 004
 CONS. NO 049
 COUNTRY 18
 INSTITUTE 22

LAT 43-16-48N
 LON 079-41-09W

YEAR 1966
 MONTH 06
 DAY 24
 TIME 0617

NO. DEPTHS 02
 SOUNDING 0026
 BT SLIDE NO 049

DEPTH	SECCHI	TEMP	CON 18	D 02	PH 25	T ALK	HARD	NO2
1.0		17.61	268	12.85	8.720	93.0		0.004
10.0		7.40	279	14.22	8.240	92.0		0.004

DEPTH	MF CCL	MF ENT	SPC 20	SPC 35
1.0	000E00	200E00		
10.0	000E00			

C-REF-NO 004
 CONS. NO 050
 COUNTRY 18
 INSTITUTE 22

LAT 43-18-27N
 LCN 079-37-36W

YEAR 1966
 MONTH 06
 DAY 24
 TIME 0658

NO. DEPTHS 05
 SOUNDING 0055
 BT SLIDE NO 050

DEPTH	SECCHI	TEMP	CON 18	D 02	PH 25	T ALK	HARD	NO2
1.0		16.43	268	13.70	8.820	92.0		0.002
10.0		9.19		13.41	8.420	96.5		0.006
20.0		5.80	279	12.97	8.210	59.0		0.015
30.0		4.64		12.95	8.160	96.0		0.002
50.0		3.95	281	12.30	8.060	96.0		0.004

DEPTH	MF CUL	MF ENT	SPC 20	SPC 35
1.0	000E00			
10.0	000E00			
20.0	000E00			
30.0	000E00			
50.0	000E00	000E00		

C-REF-NC 004
 CONS. NC 051
 COUNTRY 18
 INSTITUTE 22

LAT 43-15-24N
 LCN 079-37-51W

YEAR 1966
 MONTH 06
 DAY 24
 TIME 0741

NO. DEPTHS 02
 SOUNDING 0016
 BT SLIDE NO 051

DEPTH	SECCHI	TEMP	CON 18	D 02	PH 25	T ALK	HARD	NO2
1.0		19.98	269	12.44	8.800	92.0		0.037
10.0		7.92	279	12.45	8.210	96.0		0.005

DEPTH	MF CCL	MF ENT	SPC 20	SPC 35
1.0				
10.0				

1.0
 10.0

C-REF-NO 004
 CONS. NO 052
 COUNTRY 18
 INSTITUTE 22

LAT 43-17-09N
 LCN 079-34-09W

YEAR 1966
 MONTH 06
 DAY 24
 TIME 0827

NO. DEPTHS 05
 SOUNDING 0051
 BT SLIDE NO 052

DEPTH	SECCHI	TEMP	CON 18	D 02	PH 25	T ALK	HARD	NO2
1.0		18.19	269	13.01	8.770	92.0		
10.0		8.01	278	12.75	8.350	96.5		
20.0		5.20	279	12.44	8.190	96.5		
30.0		4.82	279	12.29	8.140	96.5		
45.0		4.04	279	12.60	8.170	95.0		

DEPTH	MF COL	MF ENT	SPC 20	SPC 35
1.0	000E00	000E00		
10.0	000E00			
20.0	000E00			
30.0	000E00			
45.0	000E00	000E0C		

C-REF-NC 004
 CONS. NC 053
 COUNTRY 18
 INSTITUTE 22

LAT 43-14-36N
 LCN 079-34-39W

YEAR 1966
 MONTH 06
 DAY 24
 TIME 0919

NO. DEPTHS 03
 SOUNDING 0020
 BT SLIDE NO 053

DEPTH	SECCHI	TEMP	CON 18	D.02	PH 25	T ALK	HARD	NO2
1.0		20.18	269	11.72	8.730	92.0		
10.0		7.14	279	12.04	8.210	96.5		
15.0		4.60	280	11.40	8.050	96.5		

DEPTH	MF CCL	MF ENT	SPC 20	SPC 35
1.0	000E00	000E00		
10.0	100E00			
15.0	000E00			

C-REF-NO 004
 CONS. NO 054
 COUNTRY 18
 INSTITUTE 22

LAT 43-15-48N
 LON 079-30-51W

YEAR 1966
 MONTH 06
 DAY 24
 TIME 1018

NO. DEPTHS 05
 SOUNDING 0040
 BT SLIDE NO 054

DEPTH	SECCHI	TEMP	CON 18	D 02	PH. 25	T ALK	HARD	ND2
1.0	3.4	19.51	269	11.60	8.720	92.0		
10.0		8.78	277	12.47	8.390	96.0		
20.0		5.27	279	11.63	8.180	95.0		
30.0		4.73	278	12.70	8.120	95.0		
35.0		4.53	279	12.21	8.140	95.0		

DEPTH	MF CCL	MF ENT	SPC 20	SPC 35
1.0	100E00	000E00		
10.0	000E00			
20.0	000E00			
30.0	000E00			
35.0	000E00	000E00		

C-REF-NO 004
 CONS. NO 055
 COUNTRY 18
 INSTITUTE 22

LAT 43-12-57N
 LCN 079-31-00W

YEAR 1966
 MONTH 06
 DAY 24
 TIME 1053

NO. DEPTHS 02
 SOUNDING 0011
 BT SLIDE NO 055

DEPTH	SECCHI	TEMP	CON 18	D 02	PH 25	T ALK	HARD	NO2
1.0	2.5	18.18	266	12.87	8.710	88.0		
8.0		6.93	281	11.21	8.210	95.5		

DEPTH	MF CCL	MF ENT	SPC 20	SPC 35
1.0				
8.0				

C-REF-NO 004
 CONS. NO 056
 COUNTRY 18
 INSTITUTE 22

LAT 43-14-18N
 LON 079-27-24W

YEAR 1966
 MONTH 06
 DAY 24
 TIME 1142

NO. DEPTHS 04
 SOUNDING 0027
 BT SLIDE NO 056

DEPTH	SECCHI	TEMP	CON 18	D O2	PH 25	T ALK	HARD	NO2
1.0	2.5	17.44	266	12.69		92.0		
10.0		8.90	278	11.78	8.390	95.0		
20.0		5.34	280	12.32	8.220	95.0		
25.0		4.53	280	12.10	8.150	95.5		

DEPTH	MF CQL	MF ENT	SPC 20	SPC 35
1.0	000E00	200E00		
10.0	000E00			
20.0	000E00			
25.0	100E00	200E00		

C-REF-NC 004
 CONS. NO 057
 COUNTRY 18
 INSTITUTE 22

LAT 43-17-24N
 LON 079-27-06W

YEAR 1966
 MONTH 06
 DAY 24
 TIME 1225

NO. DEPTHS 05
 SOUNDING 0073
 BT SLIDE NO 057

DEPTH	SECCHI	TEMP	CON 18	D 02	PH 25	T ALK	HARD	NO2
1.0	4.0	19.41	269	11.99	8.740	92.0		
10.0		8.00	278	12.85	8.390	95.0		
20.0		5.58	280	12.76	8.220	95.0		
30.0		4.94	278	12.97	8.200	96.0		
50.0		4.19	280	12.55	8.130	95.0		

DEPTH	MF CCL	MF ENT	SPC 20	SPC 35
1.0	400E00	000E00		
10.0	000E00			
20.0	100E00			
30.0	100E00			
50.0	100E00	000E00		

C-REF-NO 004
 CONS. NO 058
 COUNTRY 18
 INSTITUTE 22

LAT 43-15-24N
 LON 079-23-45W

YEAR 1966
 MONTH 06
 DAY 24
 TIME 1308

NO. DEPTHS 04
 SOUNDING 0049
 BT SLIDE NO 058

DEPTH	SECCHI	TEMP	CON 18	D O2	PH 25	T ALK	HARD	NO2
1.0	4.0	19.17	269	11.94		92.0		
10.0		7.20	278	13.19		95.0		
20.0		4.68	280	12.94		96.0		
30.0		3.91	278	12.94		95.0		

DEPTH	MF COL	MF ENT	SPC 20	SPC 35
1.0	000E00	200E00		
10.0	500E00			
20.0	000E00			
30.0	000E00	200E00		

C-REF-NO 004
 CONS. NO 059
 COUNTRY 18
 INSTITUTE 22

LAT 43-13-00N
 LGN 079-23-54W

YEAR 1966
 MONTH 06
 DAY 24
 TIME 1340

NO. DEPTHS 02
 SOUNDING 0016
 BT SLIDE NO 059

DEPTH	SECCHI	TEMP	CON 18	D O2	PH 25	T ALK	HARD	NO2
1.0	3.5	16.99	267	13.12	8.720	90.5		
10.0		8.73	277	12.08		95.5		

DEPTH	MF CCL	MF ENT	SPC 20	SPC 35
1.0				
10.0				

1.0
 10.0

C-REF-NO 004
 CONS. NO 060
 COUNTRY 18
 INSTITUTE 22

LAT 43-13-30N
 LON 079-20-18W

YEAR 1966
 MONTH 06
 DAY 24
 TIME 1413

NO. DEPTHS 03
 SOUNDING 0023
 BT SLIDE NO 060

DEPTH	SECCHI	TEMP	CON 18	D O2	PH 25	T ALK	HARD	NO2
1.0	1.5	19.68	274	11.38	8.610	92.0		
10.0		6.52	278	11.42	8.200	96.0		
20.0		4.28	282	11.38	8.090	96.0		

DEPTH	MF CCL	MF ENT	SPC 20	SPC 35
1.0		800EQ0		
10.0				
20.0				

C-REF-NC 004
 CONS. NO 061
 COUNTRY 18
 INSTITUTE 22

LAT 43-16-27N
 LON 079-20-03W

YEAR 1966
 MONTH 06
 DAY 24
 TIME 1445

NO. DEPTHS 05
 SOUNDING 0070
 BT SLIDE NO 061

DEPTH	SECCHI	TEMP	CON 18	D O2	PH 25	T ALK	HARD	NO2
1.0	2.5	19.39	267	12.02	8.720	91.0		
10.0		9.05	276	11.45	8.470	72.0		
20.0		6.19	278	12.56	8.200	93.0		
30.0		4.87	277	12.72	8.200	92.5		
50.0		4.37	280	12.87	8.170	91.0		

DEPTH	MF COL	MF ENT	SPC 20	SPC 35
1.0		200E00		
10.0				
20.0				
30.0				
50.0		200E00		

C-REF-NO 004
CONS. NO 062
COUNTRY 18
INSTITUTE 22

LAT 43-14-24N
LON 079-16-48W

YEAR 1966
MONTH 06
DAY 24
TIME 1528

NO. DEPTHS 03
SOUNDING 0025
BT SLIDE NO 062

DEPTH	SECCHI	TEMP	CON 18	D 02	PH 25	T ALK	HARD	NO2
1.0	1.5	20.71	272	10.99	8.610	85.0		
10.0		5.43	280	11.62	8.140	94.0		
20.0		4.25	278	12.24	8.090	77.0		

DEPTH	MF COL	MF ENT	SPC 20	SPC 35
1.0		000E00		
10.0				
20.0				

C-REF-NO 004
 CONS. NO 063
 COUNTRY 18
 INSTITUTE 22

LAT 43-17-30N
 LON 079-16-30W

YEAR 1966
 MONTH 06
 DAY 24
 TIME 1609

NO. DEPTHS 05
 SOUNDING 0082
 BT SLIDE NO 063

DEPTH	SECCHI	TEMP	CON 18	D O2	PH 25	T ALK	HARD	NO2
1.0	2.0	19.27	272	11.90	8.710	87.0		
10.0		8.82	276	11.49	8.270	95.5		
20.0		5.47	262	12.76	8.190	94.5		
30.0		4.59	278	12.70	8.070	95.0		
50.0		4.17	279	12.46	8.100	94.5		

DEPTH	MF CCL	MF ENT	SPC 20	SPC 35
1.0	190E01	000E00		
10.0	900E00			
20.0	250E01			
30.0	160E01			
50.0	900E00	100E00		

C-REF-NO 004
 CONS. NC 064
 COUNTRY 18
 INSTITUTE 22

LAT 43-18-24N
 LON 079-12-51W

YEAR 1966
 MONTH 06
 DAY 24
 TIME 1651

NO. DEPTHS 06
 SOUNDING 0084
 BT SLIDE NO 064

DEPTH	SECCHI	TEMP	CON 18	D O2	PH 25	T ALK	HARD	NO2
1.0	2.9	19.36	277	9.46	8.390	94.5		
10.0		7.24	278	11.29	8.160	92.0		
20.0		5.65	279	12.43	8.200	93.0		
30.0		4.57	278	12.53	8.140	89.0		
50.0		4.18	279	11.82	8.110	91.0		
75.0		4.02	278	11.71		85.0		

DEPTH	MF COL	MF ENT	SPC 20	SPC 35
1.0		300E00		
10.0	220E01			
20.0	900E00			
30.0	200E01			
50.0	120E01			
75.0	170E01	100E00		

C-REF-NO 004
 CONS. NO 065
 COUNTRY 18
 INSTITUTE 22

LAT 43-19-48N
 LON 079-08-57W

YEAR 1966
 MONTH 06
 DAY 24
 TIME 1736

NO. DEPTHS 05
 SOUNDING 0082
 BT SLIDE NO 065

DEPTH	SECCHI	TEMP	CON 18	D O2	PH 25	T ALK	HARD	NO2
1.0	2.0	20.86	273	11.53	8.610	88.0		
10.0		17.96		9.95		92.0		
20.0		9.13	279	12.28	8.230	92.0		
50.0			279	12.66	8.150	94.0		
75.0			278	12.69	8.090	94.5		

DEPTH	MF CCL	MF ENT	SPC 20	SPC 35
1.0		200E00		
10.0				
20.0	130EC1			
50.0	900E00			
75.0	900E00	100E00		

C-REF-NO 004
 CONS. NO 066
 COUNTRY 18
 INSTITUTE 22

LAT 43-16-45N
 LON 079-09-27W

YEAR 1966
 MONTH 06
 DAY 24
 TIME 1825

NO. DEPTHS 02
 SOUNDING 0014
 BT SLIDE NO 066

DEPTH	SECCHI	TEMP	CON 18	D 02	PH 25	T ALK	HARD	NO2
1.0		20.75	275	9.58	8.420	91.0		
10.0		8.59	277	11.11	8.330	94.0		

DEPTH	MF COL	MF ENT	SPC 20	SPC 35
1.0				
10.0				

C-REF-NC 004
 CONS. NC 067
 COUNTRY 18
 INSTITUTE 22

LAT 43-18-45N
 LGN 079-05-54W

YEAR 1966
 MONTH 06
 DAY 24
 TIME 1906

NO. DEPTHS 02
 SOUNDING 0013
 BT SLIDE NO 067

DEPTH	SECCHI	TEMP	CON 18	D 02	PH 25	T ALK	HARD	NO2
1.0	2.9	21.61	273	10.79	8.610	82.5		
5.0		20.52	275	10.46	8.570	90.5		

DEPTH	MF COL	MF ENT	SPC 20	SPC 35
1.0		000E0C		
5.0				

C-REF-NO 004
 CONS. NO 068
 COUNTRY 18
 INSTITUTE 22

LAT 43-21-18N
 LON 079-05-06W

YEAR 1966
 MONTH 06
 DAY 24
 TIME 1945

NO. DEPTHS 07
 SOUNDING 0093
 BT SLIDE NO 068

DEPTH	SECCHI	TEMP	CON 18	D 02	PH 25	T ALK	HARD	NO2
1.0	2.8	18.74	273	9.98	8.430	92.0		
10.0		16.12	273	10.29	8.520	93.0		
20.0		7.30	276	12.34	8.260	94.0		
30.0		5.23	279	11.47	8.180	91.5		
50.0		4.23	278	11.85	8.160	94.0		
75.0		3.97	280	11.66	8.140	93.0		
85.0		3.88	278	12.39	8.080	93.0		

DEPTH	MF COL	MF ENT	SPC 20	SPC 35
1.0		000E00		
10.0	200E01			
20.0	900E00			
30.0	100E01			
50.0	700E00			
75.0	600E00			
85.0	500E00			

C-REF-NO 004
 CONS. NO 069
 COUNTRY 18
 INSTITUTE 22

LAT 43-19-36N
 LCN 079-02-12W

YEAR 1966
 MONTH 06
 DAY 24
 TIME 2030

NO. DEPTHS 03
 SOUNDING 0019
 BT SLIDE NO 069

DEPTH	SECCHI	TEMP	CCN 18	D 02	PH 25	T ALK	HARD	NO2
1.0	2.0	19.91	271	10.57	8.690	92.0		
10.0		17.21	273	9.42	8.330	92.0		
15.0		6.72	278	11.01	8.190	94.0		

DEPTH	MF CCL	MF ENT	SPC 20	SPC 35
1.0	220E01	000E00		
10.0	180E01			
15.0	140E01			

C-REF-NO 004
 CONS. NO 070
 COUNTRY 18
 INSTITUTE 22

LAT 43-17-15N
 LON 079-01-51W

YEAR 1966
 MONTH 06
 DAY 24
 TIME 2109

NO. DEPTHS 02
 SOUNDING 0007
 BT SLIDE NO 070

DEPTH	SECCHI	TEMP	CON 18	D O2	PH 25	T ALK	HARD	NO2
1.0	2.0	22.56	270	10.38	8.720	92.0		
5.0		20.52	270	11.77	8.660	87.5		

DEPTH	MF CCL	MF ENT	SPC 20	SPC 35
1.0	100E00	000E00		
5.0	600E00			

C-REF-NO 004
 CONS. NO 071
 COUNTRY 18
 INSTITUTE 22

LAT 43-18-00N
 LCN 078-58-39W

YEAR 1966
 MONTH 06
 DAY 24
 TIME 2200

NO. DEPTHS 02
 SOUNDING 0012
 BT SLIDE NO 071

DEPTH	SECCHI	TEMP	CON 18	D 02	PH 25	T ALK	HARD	NO2
1.0	2.5	21.95	270	11.22	8.730	92.0		
10.0		16.73	272	9.35	8.270	93.0		

DEPTH	MF CGL	MF ENT	SPC 20	SPC 35
1.0	300E00	000E00		
10.0	110E01			

C-REF-NO 004
 CONS. NO 072
 COUNTRY 18
 INSTITUTE 22

LAT 43-21-06N
 LON 078-58-18W

YEAR 1966
 MONTH 06
 DAY 24
 TIME 2240

NO. DEPTHS 06
 SOUNDING 0073
 BT SLIDE NO 072

DEPTH	SECCHI	TEMP	CON 18	D 02	PH 25	T ALK	HARD	NO2
1.0	2.0	20.78	268	11.78	8.650	92.0		
10.0		15.51	275	10.64	8.580	92.5		
20.0		6.97	277	12.36	8.190	94.5		
30.0		5.06	279	12.36	8.100	94.0		
50.0		4.35	279	12.39	8.110	94.5		
65.0		3.93	275	12.61	8.630	94.5		

DEPTH	MF CUL	MF ENT	SPC 20	SPC 35
1.0	800E00	000E00		
10.0	180E01			
20.0	700E00			
30.0	100E01			
50.0	200E00			
65.0	400E00	000E00		

C-REF-NO 004
 CONS. NO 073
 COUNTRY 18
 INSTITUTE 22

LAT 43-19-30N
 LON 078-54-48W

YEAR 1966
 MONTH 06
 DAY 24
 TIME 2320

NO. DEPTHS 02
 SOUNDING 0016
 BT SLIDE NO 073

DEPTH	SECCHI	TEMP	CON 18	D O2	PH 25	T ALK	HARD	NO2
1.0	2.0	20.55	271	11.62	8.670	92.0		
10.0		15.64	274	9.73	8.310	93.0		

DEPTH	MF CCL	MF ENT	SPC 20	SPC 35
1.0	400E00	000E00		
10.0	400E00			

C-REF-NO 004
 CONS. NO 074
 COUNTRY 18
 INSTITUTE 22

LAT 43-22-15N
 LCN 078-54-30W

YEAR 1966
 MONTH 06
 DAY 25
 TIME 0000

NO. DEPTHS 06
 SOUNDING 0091
 BT SLIDE NC 074

DEPTH	SECCHI	TEMP	CON 18	D 02	PH 25	T ALK	HARD	NO2
1.0	2.8	21.35	266	11.38	8.710	90.0		
10.0		10.78	277	10.58	8.290	94.5		
20.0		6.57	278	11.86	8.140	90.0		
30.0		5.10	278	12.35	8.110	93.0		
50.0		4.29	277	12.79	8.110	92.0		
75.0		3.86		12.54		90.0		

DEPTH	MF COL	MF ENT	SPC 20	SPC 35
1.0	000E00	000E00		
10.0	400E00			
20.0	100E00			
30.0	100E00			
50.0	000E00			
75.0	000E00	210E02		

C-REF-NO 004
 CONS. NO 075
 COUNTRY 18
 INSTITUTE 22

LAT 43-20-36N
 LON 078-51-06W

YEAR 1966
 MONTH 06
 DAY 25
 TIME 0040

NO. DEPTHS 04
 SOUNDING 0034
 BT SLIDE NO 075

DEPTH	SECCHI	TEMP	CON 18	D 02	PH 25	T ALK	HARD	NO2
1.0		21.40						
10.0		16.75	274	9.62	8.290	86.0		
20.0		8.90	279	11.25	8.100	66.5		
30.0		6.05	279	12.09	8.160	94.4		

DEPTH	MF COL	MF ENT	SPC 20	SPC 35
1.0				
10.0	000E00	000E00		
20.0	200E00			
30.0	100E00			

C-REF-NO 004
 CONS. NO 076
 COUNTRY 18
 INSTITUTE 22

LAT 43-23-30N
 LCN 078-50-57W

YEAR 1966
 MONTH 06
 DAY 25
 TIME 0130

NO. DEPTHS 06
 SOUNDING 0102
 BT SLIDE NO 076

DEPTH	SECCHI	TEMP	CON 18	D 02	PH 25	T ALK	HARD	NO2
1.0		20.84	268	11.23	8.660	90.5		
10.0		13.05	274	11.29	8.380	93.0		
20.0		6.76	278	12.47	8.200	94.0		
30.0		4.79	283	12.51	8.120	94.0		
50.0		4.09	278	12.76	8.130	93.0		
75.0		3.87	278	12.80	8.150	93.0		

DEPTH	MF COL	MF ENT	SPC 20	SPC 35
1.0	200E00	300E00		
10.0	600E00			
20.0	100E00			
30.0	000E00			
50.0	100E00			
75.0	300E00	200E00		

C-REF-NO 004
 CONS. NO 077
 COUNTRY 18
 INSTITUTE 22

LAT 43-24-54N
 LON 078-47-09W

YEAR 1966
 MONTH 06
 DAY 25
 TIME 0214

NO. DEPTHS 07
 SOUNDING 0116
 BT SLIDE NO 077

DEPTH	SECCHI	TEMP	CON 18	D 02	PH 25	T ALK	HARD	NO2
1.0		19.15	272	11.48	8.790	94.0		
10.0		10.02	278	10.99	8.130	94.0		
20.0		6.18	277	12.53	8.160	93.5		
30.0		5.21	279	12.36	8.160	95.5		
50.0		4.14	278	12.70	8.120	95.0		
75.0		3.89	278	12.47	8.100	95.0		
100.0		3.82	279	12.51	8.060	99.5		

DEPTH	MF COL	MF ENT	SPC 20	SPC 35
1.0	000E00	000E00		
10.0	400E00			
20.0	000E00			
30.0	100E00			
50.0	000E00			
75.0	000E00			
100.0	000E00	300E00		

C-REF-NO 004
 CONS. NO 078
 COUNTRY 18
 INSTITUTE 22

LAT 43-21-48N
 LON 078-47-21W

YEAR 1966
 MONTH 06
 DAY 25
 TIME 0256

NO. DEPTHS 04
 SOUNDING 0051
 BT SLIDE NO 078

DEPTH	SECCHI	TEMP	CON 18	D O2	PH 25	T ALK	HARD	NO2
1.0		20.38	269	11.70	8.710	93.5		
10.0		13.33	272	12.05	8.600	94.0		
20.0		7.28	279	11.71	8.170			
30.0		5.47	279	11.95	8.080			

DEPTH	MF CCL	MF ENT	SPC 20	SPC 35
1.0	600E00	000E00		
10.0	600E00			
20.0	100E00			
30.0	000E00	200E00		

C-REF-NC 004
 CONS. NO 079
 COUNTRY 18
 INSTITUTE 22

LAT 43-21-06N
 LON 078-43-54W

YEAR 1966
 MONTH 06
 DAY 25
 TIME 0333

NO. DEPTHS 02
 SOUNDING 0015
 BT SLIDE NO 079

DEPTH	SECCHI	TEMP.	CCN 18	D 02	PH 25	T ALK	HARD	ND2
1.0		21.13	281	11.55	8.740	95.5		
10.0		15.91	280	11.01	8.530	96.0		

DEPTH	MF COL	MF ENT	SPC 20	SPC 35
1.0	600E00	000E00		
10.0	200E00			

C-REF-NC 004
 CONS. NO 080
 COUNTRY 18
 INSTITUTE 22

LAT 43-23-15N
 LON 078-43-39W

YEAR 1966
 MONTH 06
 DAY 25
 TIME 0405

NO. DEPTHS 05
 SOUNDING 0076
 BT SLIDE NO 080

DEPTH	SECCHI	TEMP	CON 18	D O2	PH 25	T ALK	HARD	NO2
1.0		20.63	271	11.27	8.740	94.0		
10.0		12.03	274	11.42	8.360	93.5		
20.0		6.38	277	12.14	8.140	93.0		
30.0		5.86	280	12.20	8.150	95.0		
50.0		4.50						

DEPTH	MF COL	MF ENT	SPC 20	SPC 35
1.0	300E00	000E00		
10.0	130E01			
20.0	100E00			
30.0	000E00			
50.0	100E00	000E00		

C-REF-NC 004	LAT 43-21-54N	YEAR 1966	NO. DEPTHS 03
CONS. NC 081	LGN 078-40-12W	MONTH 06	SOUNDING 0023
COUNTRY 18		DAY 25	BT SLIDE NO 081
INSTITUTE 22		TIME 0436	

DEPTH	SECCHI	TEMP	CON 18	D. 02	PH 25	T ALK	HARD	NO2
1.0		21.46	272	11.36	8.760	93.5		
10.0		16.91	274	10.85	8.480	96.0		
15.0		11.89	276	10.47	8.130	96.0		

DEPTH	MF COL	MF ENT	SPC 20	SPC 35
1.0	800E00	000E00		
10.0	100E00			
15.0	400E00			

C-REF-NO 004
 CONS. NO 082
 COUNTRY 18
 INSTITUTE 22

LAT 43-24-48N
 LON 078-40-06W

YEAR 1966
 MONTH 06
 DAY 25
 TIME 0512

NO. DEPTHS 07
 SOUNDING 0109
 BT SLIDE NO 082

DEPTH	SECCHI	TEMP	CON 18	D 02	PH 25	T ALK	HARD	NO2
1.0		19.97	279	11.38	8.080	94.5		
10.0		12.45	276	11.39	8.400	95.5		
20.0		7.64	278	12.54	8.220	92.0		
30.0		6.11	277	13.02	8.210	95.5		
50.0		4.33	277	13.26	8.090	95.5		
75.0		4.04	278	13.09	8.060	95.5		
100.0		3.83	267	12.97	8.020	95.5		

DEPTH	MF CCL	MF ENT	SPC 20	SPC 35
1.0	000E00	000E00		
10.0	200E00			
20.0	000E00			
30.0	000E00			
50.0	200E00			
75.0	000E00			
100.0	100E00	000E00		

C-REF-NO 004	LAT 43-23-45N	YEAR 1966	NO. DEPTHS 05
CONS. NO 083	LCN 078-36-42W	MONTH 06	SOUNDING 0068
COUNTRY 18		DAY 25	BT SLIDE NO 083
INSTITUTE 22		TIME 0548	

DEPTH	SECCHI	TEMP	CON 18	D 02	PH 25	T ALK	HARD	NO2
1.0		20.25	268	11.93	8.770	93.0		
10.0		12.85	276	11.63	8.440	93.5		
20.0		7.20	279	12.82	8.140	95.5		
30.0		5.62	278	12.57	8.120	96.0		
50.0		4.55	278	12.49	8.080	95.4		

DEPTH	MF COL	MF ENT	SPC 20	SPC 35
1.0	000E00	000E00		
10.0	000E00			
20.0	200E00			
30.0	100E00			
50.0	000E00	000E00		

C-REF-NO 004
 CONS. NO 084
 COUNTRY 18
 INSTITUTE 22

LAT 43-26-42N
 LCN 078-36-18W

YEAR 1966
 MONTH 06
 DAY 25
 TIME 0629

NO. DEPTHS 08
 SOUNDING 0137
 BT SLIDE NO 084

DEPTH	SECCHI	TEMP	CON 18	D 02	PH 25	T ALK	HARD	NO2
1.0		18.26	269	12.57	8.810	94.5		
10.0		9.08		15.45		93.5		
20.0		5.03		13.16		95.5		
30.0			279	12.96	8.130	95.5		
50.0			278	13.22	8.110	95.5		
75.0		4.15	279	13.20	8.090	94.5		
100.0		4.04	277	12.94	8.080	94.5		
125.0		4.01	279	12.87	8.040	95.5		

DEPTH	MF COL	MF ENT	SPC 20	SPC 35
1.0	000E00	100E00		
10.0	000E00			
20.0	000E00			
30.0	000E00			
50.0	400E00			
75.0	000E00			
100.0	000E00			
125.0	300E00	100E00		

C-REF-NO 004
 CONS. NO 085
 COUNTRY 18
 INSTITUTE 22

LAT 43-25-15N
 LON 078-33-00W

YEAR 1966
 MONTH 06
 DAY 25
 TIME 0715

NO. DEPTHS 07
 SOUNDING 0099
 BT SLIDE NO 085

DEPTH	SECCHI	TEMP	CON 18	D O2	PH 25	T ALK	HARD	NO2
1.0		17.57		12.40	8.570	91.0		
10.0		9.93	280	12.51	8.260	95.0		
20.0		7.12	277	12.94	8.240	96.5		
30.0		4.45	279	12.67	8.130	96.0		
50.0		4.08	278	13.22	8.110	96.0		
75.0		3.87	279	13.09	8.090	95.0		
90.0		3.85	279	12.93	8.090	93.5		

DEPTH	MF CCL	MF ENT	SPC 20	SPC 35
1.0	100E00	000E00		
10.0	300E00			
20.0	100E00			
30.0	000E00			
50.0	100E00			
75.0	000E00			
90.0	000E00	000E00		

C-REF-NO 004
 CONS. NO 086
 COUNTRY 18
 INSTITUTE 22

LAT 43-22-54N
 LCN 078-33-12W

YEAR 1966
 MONTH 06
 DAY 25
 TIME 0751

NO. DEPTHS 03
 SOUNDING 0022
 BT SLIDE NO 086

DEPTH	SECCHI	TEMP	CON 18	D 02	PH 25	T ALK	HARD	NO2
1.0		20.99	272	11.70	8.770	93.5		
10.0		14.40	277	10.70	8.290	95.0		
15.0		9.42	279	10.63	8.100	94.0		

DEPTH	MF CCL	MF ENT	SPC 20	SPC 35
1.0	300E00	700E00		
10.0	100E00			
15.0	200E00			

C-REF-NO 004
 CONS. NO 087
 COUNTRY 18
 INSTITUTE 22

LAT 43-24-06N
 LON 078-29-24W

YEAR 1966
 MONTH 06
 DAY 25
 TIME 0832

NO. DEPTHS 05
 SOUNDING 0053
 BT SLIDE NO 087

DEPTH	SECCHI	TEMP	CON 18	D 02	PH 25	T ALK	HARD	NO2
1.0		20.11	270	12.08	8.770	94.5		
10.0		13.23	260	10.72	8.310	96.0		
20.0		6.67	280	12.34	8.160	96.5		
30.0		5.20	281	12.54	8.100	95.5		
45.0		4.15	279	12.31	8.040	96.5		

DEPTH	MF COL	MF ENT	SPC 20	SPC 35
1.0	100E01	400E00		
10.0	700E00			
20.0	000E00			
30.0	000E00			
45.0	100E00	000E00		

C-REF-NO 004
 CONS: NO 088
 COUNTRY 18
 INSTITUTE 22

LAT 43-27-12N
 LON 078-29-00W

YEAR 1966
 MONTH 06
 DAY 25
 TIME 0922

NO. DEPTHS 08
 SOUNDING 0143
 BT SLIDE NO 088

DEPTH	SECCHI	TEMP	CON 18	D 02	PH 25	T ALK	HARD	NO2
1.0		18.38	272	12.62	8.770	95.0		
10.0		7.56		15.00		96.0		
20.0		5.14	278	12.74	8.150	96.5		
30.0		4.41	278	12.91	8.120	96.0		
50.0		4.01	278	13.15	8.150	95.0		
75.0		3.92	279	13.16	8.110	96.5		
100.0		3.85	278	13.14	8.110	95.0		
130.0		3.83	281	12.52	8.110	95.0		

DEPTH	MF COL	MF ENT	SPC 20	SPC 35
1.0	000E00	000E00		
10.0	000E00			
20.0	000E00			
30.0	000E00			
50.0	000E00			
75.0	000E00			
100.0	000E00			
130.0	000E00	000E00		