

NOAA Data Report ERL GLERL-4

LAKE ERIE CHEMICAL AND PHYSICAL  
CHARACTERISTICS DATA FOR 1967

Gerald L. Bell

Great Lakes Environmental Research Laboratory  
Ann Arbor, Michigan  
January 1980



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# LAKE ERIE CHEMICAL AND PHYSICAL CHARACTERISTICS DATA FOR 1967\*

Gerald L. Bell

Water samples at standard depths, bottom sediment and meteorological data were collected in Lake Erie at established stations in the course of three cruises during the 1967 open-water season. The sampling program and analytical methods are described. Chemical characteristics of the water and bottom sediment are listed by cruise for each station and sampling depth. Wind, wave, and sediment biological oxygen demand (BOD) data are listed by cruise for each station. The statistical summaries showing lake-wide means, standard deviations, and sample sizes of selected variables are presented by depth for each cruise period.

## 1. INTRODUCTION

This basic data report presents data collected aboard the Research Vessel *Shenehon* by the Water Characteristics Branch of the Great Lakes Research Center, U.S. Army Corps of Engineers, Lake Survey District, between 14 April and 11 December 1967.

Data was collected systematically so that the vertical and lateral distribution of the chemical and physical characteristics of water in Lake Erie, as well as their variations with respect to time, were measured and examined. The sampling program was designed to provide the basic data that, together with other available data, are necessary for defining relationships of significant water characteristics, determining the rate and extent of mixing of introduced contaminants, forecasting water quality, estimating the nature and magnitude of past events, and developing simulation models for use in management and development of the lake (Great Lakes Research Center, 1969).

Interpretations of the data are not within the scope of this report and will be presented in subsequent publications. Meteorological conditions, as well as profiles of water temperature and transparency recorded at each station, are not included in this report.

## 2. METHODS

### 2.1 Sampling Program

Water characteristics, bottom sediment, and meteorological data were collected at 63 established stations (Figure 1, Table 1). Station

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\*GLERL Contribution No. 170.

## FIGURE

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38 was never occupied. Note that station 64 is at the same location as station 1: it was used to identify data obtained by resampling at the end of the cruises. Three cruises were made during the survey season (Table 2). A cruise is defined as the time period starting when the *Sheneham* left home port at the Corps of Engineers Boatyard, Detroit, Mich., and ending upon the return to the home port. A full cruise normally required 11 days, however these cruises were separated by surveys at eleven different harbors in Lakes Erie, Huron, and Michigan (U.S. Army Corps of Engineers, 1969). Shipboard and laboratory determinations made during each cruise are summarized in Table 3.

The ship was navigated and stations were established by using a gyro compass, radar, a sextant, and visual fixes. Polystyrene floats were used to mark the deep-water stations and to facilitate the return to the same location. Water sample depths in feet were determined by a meter wheel and converted to the nearest meter. The water depth to the bottom was determined by a Raytheon Precision Survey Fathometer, Model DE-723B, with a range of 0 to 250 in feet or fathoms and the depth presented as a graphic record on a calibrated paper chart.

Water samples were taken at multiple levels at each station. The samples, collected in Fjarlie bottles, were spaced at 5- or 10-m intervals, depending upon the depth of the water. Bottom sediment samples were taken with a Shipek Sampler.

Water temperatures were recorded at sampling depth to the nearest hundredth degree Celsius by protected reversing thermometers ( $\pm 0.02^\circ$  accuracy) attached to each Fjarlie bottle. The temperature of the water circulating through the sea chest, approximately 1.5 m below the surface, was recorded to the nearest tenth degree Celsius and printed with the meteorological data at 6-min intervals. Temperature profiles were recorded at each station to a maximum depth of 80 m with a Marine Advisors, Inc., Electronic Bathythermograph, Model 0-5a. The bathythermograph profiles were corrected by adding or subtracting the average difference between the reversing thermometer and bathythermograph temperatures.

Transparency profiles were made to a maximum depth of 80 m with a G.M. Mfg. and Instrument Corp. Deep-Water Turbidity Meter, Model 17-M-11, modified by the U.S. Lake Survey. Color filters were not used. Transparency was determined by relating light transmission along a 1-m path through the water to the transmission along the same path through air, expressed as a percent.

Meteorological observations were recorded automatically at 0.1-hr intervals by a digital system employing solid state data gathering modules. Wind and wave observations were made while on station. The wave direction was not reported at all stations and in such cases the wind direction was used. Wave height observations were made with a damped staff-type gage or by estimating and periodically checking with the gage. The period is based on an average time of 10 successive waves.

Table 2. Cruise Schedule

| Cruise | Day             |
|--------|-----------------|
| 1      | 14 Apr.-1 May   |
| 2      | 25 May-14 June  |
| 3      | 20 Nov.-11 Dec. |

## 2.2 Chemical Analyses

The methods used in the water analysis are those described in Standard Methods (American Public Health Association, 1965), Rainwater and Thatcher (1960) and Fishman and Skougstad (1965).

Water samples were analyzed immediately in the *Shenehon* laboratory for dissolved oxygen, specific conductance, chloride, phenolphthalein and total alkalinity, pH, Eh (oxidation-reduction potential), the pH and Eh of the interstitial water of the bottom sediment, and total coliforms.

Dissolved oxygen values were determined with a Beckman Dissolved Oxygen Analyzer, Model 777. After two separate tests were made on each sample, the highest partial pressure and the lowest sample temperature readings were used for calculating the dissolved oxygen. *In situ* temperature was recorded by the reversing thermometer at the sampling depth.

Specific conductance was measured with an Industrial Instruments Conductivity Bridge, Model RC-16B2J. Two separate tests were made on each sample and the average expressed in micromhos at 25°C.

Chloride concentrations were determined by the argentometric method and titration of a 50-ml sample of lake water. The silver nitrate was standardized and the reagent blank value determined at the beginning of each day.

Phenolphthalein and total alkalinity values were determined by titrating 100-ml water samples with standard acid ( $H_2SO_4$ ) to the end-points of pH 8.2 and 4.5, respectively. The end-points were determined with the pH meter and the results expressed in mg/l of calcium carbonate.

Measurements of pH and Eh were made with a Beckman Zeromatic pH Meter, a glass pH electrode, calomel fiber junction reference electrode, and a platinum Eh electrode. As a means of avoiding contamination, the electrodes were rinsed in a sample of the lake water to be tested. Between tests, the electrodes were immersed in distilled water. Tests of the interstitial water of the bottom sediment were made by inserting the electrodes into the soft sample.

Unpreserved water samples in 500-ml plastic bottles were stored in a dark area below deck and transferred at the end of each cruise to the



*Table 3. Shipboard and Laboratory Measurements in Connection with Limnological Studies*

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Shipboard Measurements

Meteorological data (printout each 6 min)

Wind speed (m/sec) (10 m above water)  
 Wind direction (10 m above water)  
 Barometric pressure (millibars) (3 m above water)  
 Air temperature (°C) (10 m above water)  
 Water temperature (1.5 m below water surface)  
 Solar radiation (incident) (gram-calories per sq. cm, 10 m above water)  
 Relative humidity (3 m above water)

On station

Water

Water temperature (°C)  
 Reversing thermometers at sample depth  
 Electronic bathythermograph  
 Infrared thermometer for surface temperature  
 Air-water interface temperatures  
 Transparency (relative to 100% in air)  
 pH  
 Eh (volts)  
 Total and phenolphthalein alkalinity (mg/l CaCO<sub>3</sub>)  
 Chloride (mg/l)  
 Specific conductance (micromhos at 25°C)  
 Dissolved oxygen (mg/l and pct. sat.)  
 Coliform bacteria (membrane filter proc.)

Waves

Height (m)  
 Period (sec)  
 Direction (nearest 10°)

Bottom Sediment

Description (physical)  
 pH  
 Eh  
 Biochemical oxygen demand

Chemistry Laboratory

Dissolved ions (Beckman DU-2 Spectrophotometer)

|           |   |
|-----------|---|
| Nitrate   | (Brucine method, A.P.H.A.*, 1965)             |
| Phosphate | (Ammonium molybdate method, U.S.G.S.**, 1965) |
| Sulfate   | (Turbidimetric method, U.S.G.S.**, 1965)      |
| Silica    | (Molybdate blue method, U.S.G.S.**, 1960)     |
| Magnesium | (Eriochrome black T method, U.S.G.S.**, 1960) |
| Calcium   | (Flame photo tech, A.P.H.A.*, 1965)           |
| Sodium    | (Flame photo tech, A.P.H.A.*, 1965)           |
| Potassium | (Flame photo tech, A.P.H.A.*, 1965)           |

Suspended sediment (mg/l)

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\*American Public Health Association.

\*\*U.S. Geological Survey.

Appendix A. LIMNOLOGICAL DATA

(Printed in  
Norway)

## LIMNOLOGICAL DATA

LAKE ERIE

CRUISE 6701

| SAMPLE DEPTH | WATER TEMP | NO3 MG/L | PO4 MG/L  | SO4 MG/L       | CL MG/L          | SIO2 MG/L         | CA MG/L | MG MG/L | NA MG/L | P MG/L | T.ALR P6/L | P.ALR P6/L | SPEC. COND. MICRO-MOS | PH   | EM VOLTS | OD MG/L | DO PCT. SAT. | TOT. SUSP. MATR 100ML | TOTAL COLT 100ML |  |
|--------------|------------|----------|-----------|----------------|------------------|-------------------|---------|---------|---------|--------|------------|------------|-----------------------|------|----------|---------|--------------|-----------------------|------------------|--|
| STATION 2    | MONTH 4    | DAY 28   | HOUR 12.5 | JULIAN DAY 118 | LATITUDE 41.900N | LONGITUDE 83.080W |         |         |         |        |            |            |                       |      |          |         |              |                       |                  |  |
| 0.           | 7.90       | .77      | .007      | 15.            | 11.2             |                   |         | 8.6     | 6.4     |        | 89.        | 0.0        | 239.                  | 7.89 |          | 10.76   | 94.          | 12.2                  |                  |  |
| 9.           | 6.92       | .50      | .002      | 15.            | 12.3             | 1.5               |         | 8.5     | 6.5     |        | 70.        | 0.0        | 248.                  | 7.92 |          | 11.03   | 94.          | 31.8                  |                  |  |
| 9.1B         |            |          |           |                |                  |                   |         |         |         |        |            |            |                       | 6.91 |          |         |              |                       |                  |  |
| STATION 3    | MONTH 4    | DAY 28   | HOUR 11.7 | JULIAN DAY 118 | LATITUDE 41.800N | LONGITUDE 83.130W |         |         |         |        |            |            |                       |      |          |         |              |                       |                  |  |
| 0.           | 7.19       | 1.08     | .002      | 22.            | 20.4             |                   |         | 9.8     | 9.7     |        | 77.        | 0.0        | 306.                  | 8.09 | .002     | 11.00   | 98.          | 11.4                  |                  |  |
| 8.           | 8.09       | .36      | .004      | 24.            | 20.2             | 1.6               |         | 9.7     | 11.3    |        | 77.        | 0.0        | 311.                  | 8.01 | .100     | 11.05   | 96.          | 13.8                  |                  |  |
| 9.1B         |            |          |           |                |                  |                   |         |         |         |        |            |            |                       | 7.21 |          |         |              |                       |                  |  |
| STATION 5    | MONTH 4    | DAY 28   | HOUR 10.2 | JULIAN DAY 118 | LATITUDE 41.640N | LONGITUDE 82.990W |         |         |         |        |            |            |                       |      |          |         |              |                       |                  |  |
| 0.           | 8.99       | 1.00     | .004      | 21.            | 19.7             |                   |         | 9.6     | 9.5     |        | 71.        | 0.0        | 284.                  | 8.16 | .068     | 10.66   | 95.          | 16.4                  |                  |  |
| 7.           | 8.31       | 1.54     | .004      | 20.            | 20.0             | .1                |         | 9.2     | 9.4     |        | 71.        | 0.0        | 284.                  | 8.10 | .075     | 11.15   | 98.          | 24.4                  |                  |  |
| 8.20         |            |          |           |                |                  |                   |         |         |         |        |            |            |                       | 6.62 |          |         |              |                       |                  |  |
| STATION 6    | MONTH 5    | DAY 1    | HOUR 13.0 | JULIAN DAY 121 | LATITUDE 41.680N | LONGITUDE 82.540W |         |         |         |        |            |            |                       |      |          |         |              |                       |                  |  |
| 0.           | 9.05       | 1.23     | .014      | 25.            | 21.3             |                   |         | 9.8     | 10.4    |        | 79.        | 0.0        | 306.                  | 8.27 | .103     | 10.69   | 96.          |                       |                  |  |
| 11.          | 6.14       | 0.60     | .017      | 26.            | 23.1             | 0.0               |         | 9.8     | 12.9    |        | 76.        | 0.0        | 320.                  | 7.90 | .206     | 10.90   | 91.          |                       |                  |  |
| 12.2B        |            |          |           |                |                  |                   |         |         |         |        |            |            |                       | 7.16 |          |         |              |                       |                  |  |
| STATION 7    | MONTH 5    | DAY 1    | HOUR 15.2 | JULIAN DAY 121 | LATITUDE 41.530N | LONGITUDE 82.590W |         |         |         |        |            |            |                       |      |          |         |              |                       |                  |  |
| 0.           | 7.45       | 2.46     | .021      | 27.            | 20.0             |                   |         | 9.1     | 10.0    |        | 74.        | 0.0        | 300.                  | 8.17 | .203     | 10.32   | 93.          |                       |                  |  |
| 11.          | 6.87       | .19      | .017      | 30.            | 21.9             | 0.0               |         | 8.8     | 10.2    |        | 77.        | 1.4        | 300.                  | 8.24 | .241     | 10.53   | 89.          |                       |                  |  |
| 13.1B        |            |          |           |                |                  |                   |         |         |         |        |            |            |                       | 7.31 |          |         |              |                       |                  |  |
| STATION 8    | MONTH 5    | DAY 1    | HOUR 16.4 | JULIAN DAY 121 | LATITUDE 41.520N | LONGITUDE 82.410W |         |         |         |        |            |            |                       |      |          |         |              |                       |                  |  |
| 0.           |            | .012     |           | 26.            | 22.7             |                   |         | 9.0     | 11.2    |        | 79.        | 0.0        | 308.                  | 8.20 | .189     | 10.44   | 92.          |                       |                  |  |
| 8.           |            | .05      | .012      | 26.            | 22.7             |                   |         | 8.9     | 11.7    |        | 79.        | 1.8        | 308.                  | 8.27 | .205     | 10.55   | 92.          |                       |                  |  |
| 12.          |            | .19      | .012      | 27.            | 23.5             | 1.0               |         | 9.2     | 10.6    |        | 78.        | 0.0        | 311.                  | 8.10 | .205     | 10.54   | 91.          |                       |                  |  |
| 14.6B        |            |          |           |                |                  |                   |         |         |         |        |            |            |                       | 7.48 |          |         |              |                       |                  |  |
| STATION 9    | MONTH 4    | DAY 14   | HOUR 10.3 | JULIAN DAY 104 | LATITUDE 41.540N | LONGITUDE 82.210W |         |         |         |        |            |            |                       |      |          |         |              |                       |                  |  |
| 0.           |            | 1.23     |           |                |                  |                   |         |         |         |        |            |            |                       |      |          |         |              |                       |                  |  |
| 14.          |            | 1.08     |           |                |                  |                   |         |         |         |        |            |            |                       |      |          |         |              |                       |                  |  |
| 15.5B        |            | .50      |           |                |                  |                   |         |         |         |        |            |            |                       |      |          |         |              |                       |                  |  |
| STATION 10   | MONTH 4    | DAY 18   | HOUR 14.7 | JULIAN DAY 108 | LATITUDE 41.570N | LONGITUDE 82.050W |         |         |         |        |            |            |                       |      |          |         |              |                       |                  |  |
| 0.           | 7.76       | 2.62     | .012      | 34.            | 19.5             |                   |         | 10.5    | 11.9    |        | 77.        | 1.8        | 320.                  | 8.40 | .054     | 11.58   | 95.          | 12.7                  |                  |  |
| 8.           | 7.16       | 2.85     | .012      | 38.            | 21.0             |                   |         | 9.3     | 11.7    |        | 78.        | 2.7        | 322.                  | 8.42 | .082     | 11.70   | 103.         | 10.4                  |                  |  |
| 15.          | 7.13       | 3.85     | .010      | 30.            | 20.9             | 0.0               |         | 8.1     | 12.3    |        | 79.        | 2.7        | 321.                  | 8.52 | .099     | 11.45   | 99.          | 19.6                  |                  |  |
| 16.80        |            |          |           |                |                  |                   |         |         |         |        |            |            |                       | 7.60 |          |         |              |                       |                  |  |
| STATION 11   | MONTH 4    | DAY 18   | HOUR 16.2 | JULIAN DAY 108 | LATITUDE 41.610N | LONGITUDE 81.820W |         |         |         |        |            |            |                       |      |          |         |              |                       |                  |  |
| 0.           | 5.26       | .19      | .010      | 26.            | 20.2             |                   |         | 9.8     | 11.2    |        | 77.        | 0.0        | 306.                  | 8.20 | .306     | 12.09   | 98.          | 12.4                  |                  |  |
| 10.          | 5.28       | .36      | .008      | 25.            | 20.4             |                   |         | 9.3     | 10.9    |        | 78.        | .7         | 301.                  | 8.26 | .240     | 12.37   | 101.         | 7.3                   |                  |  |
| 17.          | 5.25       | .19      | .010      | 26.            | 20.9             | .1                |         | 9.0     | 10.7    |        | 80.        | .9         | 301.                  | 8.25 | .201     | 12.22   | 99.          | 10.9                  |                  |  |
| 18.6B        |            |          |           |                |                  |                   |         |         |         |        |            |            |                       | 7.12 |          |         |              |                       |                  |  |
| STATION 12   | MONTH 4    | DAY 18   | HOUR 17.2 | JULIAN DAY 108 | LATITUDE 41.540N | LONGITUDE 81.790W |         |         |         |        |            |            |                       |      |          |         |              |                       |                  |  |
| 0.           | 6.57       | .92      | .008      | 29.            | 21.6             |                   |         | 9.1     | 11.2    |        | 75.        | .9         | 321.                  | 8.28 | .075     | 11.57   | 97.          | 11.6                  |                  |  |
| 8.           | 4.59       | 1.38     | .014      | 29.            | 21.2             |                   |         | 9.0     | 12.0    |        | 78.        | .9         | 322.                  | 8.32 | .100     | 11.57   | 97.          | 13.1                  |                  |  |
| 14.          | 6.48       | 1.85     | .010      | 30.            | 20.6             | .1                |         | 10.3    | 11.9    |        | 79.        | .9         | 322.                  | 8.25 | .120     | 11.66   | 98.          | 3.3                   |                  |  |
| 16.20        |            |          |           |                |                  |                   |         |         |         |        |            |            |                       | 7.35 |          |         |              |                       |                  |  |
| STATION 13   | MONTH 4    | DAY 19   | HOUR 8.7  | JULIAN DAY 109 | LATITUDE 41.640N | LONGITUDE 81.620W |         |         |         |        |            |            |                       |      |          |         |              |                       |                  |  |
| 0.           | 6.66       | 2.08     | .010      | 29.            | 20.1             |                   |         | 9.5     | 13.5    |        | 75.        | .9         | 307.                  | 8.27 | .055     | 11.80   | 100.         | 4.4                   |                  |  |
| 8.           | 6.46       | 1.62     | .010      | 29.            | 21.2             |                   |         | 9.3     | 11.9    |        | 75.        | .9         | 308.                  | 8.26 | .086     | 11.99   | 101.         | 4.0                   |                  |  |
| 14.          | 6.63       | 2.15     | .012      | 28.            | 21.0             | 1.1               |         | 9.9     | 11.9    |        | 75.        | 0.0        | 308.                  | 8.19 | .092     | 11.87   | 100.         | 5.6                   |                  |  |
| 16.8B        |            |          |           |                |                  |                   |         |         |         |        |            |            |                       | 7.20 |          |         |              |                       |                  |  |
| STATION 14   | MONTH 4    | DAY 19   | HOUR 10.0 | JULIAN DAY 109 | LATITUDE 41.780N | LONGITUDE 81.450W |         |         |         |        |            |            |                       |      |          |         |              |                       |                  |  |
| 0.           | 7.15       | 1.92     | .012      | 30.            |                  |                   |         | 10.8    | 12.4    |        |            |            |                       |      |          |         |              |                       |                  |  |
| 14.          | 7.12       | 1.77     | .014      | 30.            |                  | .1                |         | 9.6     | 13.5    |        |            |            |                       |      |          |         |              |                       |                  |  |
| 13.7B        |            |          |           |                |                  |                   |         |         |         |        |            |            |                       |      |          |         |              |                       |                  |  |
| STATION 15   | MONTH 4    | DAY 19   | HOUR 11.0 | JULIAN DAY 109 | LATITUDE 41.780N | LONGITUDE 81.520W |         |         |         |        |            |            |                       |      |          |         |              |                       |                  |  |
| 0.           | 5.33       | 2.23     | .012      | 33.            | 19.5             |                   |         | 8.9     | 11.0    |        | 75.        |            | 314.                  | 8.21 | .220     | 11.61   | 95.          | 2.0                   |                  |  |
| 10.          | 5.29       | 1.62     | .014      | 27.            | 19.3             |                   |         | 9.5     | 14.7    |        | 76.        | 0.0        | 315.                  | 8.20 | .218     | 11.89   | 97.          | 1.3                   |                  |  |
| 19.          | 5.22       | 1.69     | .012      | 29.            | 20.4             | .1                |         | 8.7     | 10.9    |        | 75.        | .9         | 315.                  | 8.25 | .215     | 11.98   | 97.          | 1.3                   |                  |  |
| 21.60        |            |          |           |                |                  |                   |         |         |         |        |            |            |                       |      |          |         |              |                       |                  |  |
| STATION 16   | MONTH 4    | DAY 19   | HOUR 11.9 | JULIAN DAY 109 | LATITUDE 41.870N | LONGITUDE 81.580W |         |         |         |        |            |            |                       |      |          |         |              |                       |                  |  |
| 0.           | 3.44       | 2.49     | .014      | 27.            | 20.7             |                   |         | 9.2     | 11.7    |        | 75.        | 0.0        | 310.                  | 8.19 | .092     | 11.91   | 92.          | 1.3                   |                  |  |
| 10.          | 3.32       | 1.77     | .010      | 28.            | 19.6             |                   |         | 9.6     | 10.9    |        | 75.        | 0.0        | 311.                  | 8.15 | .123     | 12.05   | 92.          | 1.6                   |                  |  |
| 21.          | 3.30       | 2.54     | .012      | 26.            | 20.4             | 0.0               |         | 9.9     | 15.9    |        | 76.        | 0.0        | 310.                  | 8.00 | .126     | 12.12   | 94.          | .9                    |                  |  |
| 23.8B        |            |          |           |                |                  |                   |         |         |         |        |            |            |                       | 7.01 |          |         |              |                       |                  |  |

LIMNOLOGICAL DATA  
LAKE ERIE

CRUISE 6701

| SAMPLE DEPTH | WATER TEMP | NO3 N  | PO4 P     | SO4            | CL               | SI02              | CA   | MG   | NA   | K    | TALK | P-TALK | SPEC. COND. | PH | EM VOLTS | DO   | DO PCT. | TOT. SUSP MAT | TOTAL CHL |  |
|--------------|------------|--------|-----------|----------------|------------------|-------------------|------|------|------|------|------|--------|-------------|----|----------|------|---------|---------------|-----------|--|
| F            | C          | MG/L   | MG/L      | MG/L           | MG/L             | MG/L              | MG/L | MG/L | MG/L | MG/L | MG/L | MG/L   | MG/L        |    |          | MG/L | MG/L    | MG/L          | MG/L      |  |
| STATION 17   | MONTH 4    | DAY 19 | HOUR 13.3 | JULIAN DAY 109 | LATITUDE 41.780N | LONGITUDE 81.280W |      |      |      |      |      |        |             |    |          |      |         |               |           |  |
| 0.           | 8.01       | 2.08   | .010      | 31.            | 23.1             |                   |      |      |      |      |      |        |             |    |          |      |         |               |           |  |
| 11.          | 7.39       | 2.69   | .010      | 32.            | 22.8             | 1.1               |      |      |      |      |      |        |             |    |          |      |         |               |           |  |
| 12.2B        |            |        |           |                |                  |                   |      |      |      |      |      |        |             |    |          |      |         |               |           |  |
| STATION 18   | MONTH 4    | DAY 19 | HOUR 15.5 | JULIAN DAY 109 | LATITUDE 41.870N | LONGITUDE 81.100W |      |      |      |      |      |        |             |    |          |      |         |               |           |  |
| 0.           | 5.72       | 2.15   | .010      | 30.            | 21.4             |                   |      |      |      |      |      |        |             |    |          |      |         |               |           |  |
| 8.           | 5.53       | 2.92   | .012      | 29.            | 20.9             |                   |      |      |      |      |      |        |             |    |          |      |         |               |           |  |
| 16.          | 5.36       | 1.54   | .010      | 31.            | 21.4             | .1                |      |      |      |      |      |        |             |    |          |      |         |               |           |  |
| 18.0B        |            |        |           |                |                  |                   |      |      |      |      |      |        |             |    |          |      |         |               |           |  |
| STATION 19   | MONTH 4    | DAY 20 | HOUR 7.6  | JULIAN DAY 110 | LATITUDE 41.950N | LONGITUDE 80.250W |      |      |      |      |      |        |             |    |          |      |         |               |           |  |
| 0.           | 4.62       | 1.85   | .015      | 30.            | 23.7             |                   |      |      |      |      |      |        |             |    |          |      |         |               |           |  |
| 10.          | 4.59       | 1.85   | .012      | 29.            | 23.2             |                   |      |      |      |      |      |        |             |    |          |      |         |               |           |  |
| 17.          | 4.61       | 1.85   | .014      | 28.            | 24.9             | .1                |      |      |      |      |      |        |             |    |          |      |         |               |           |  |
| 18.6B        |            |        |           |                |                  |                   |      |      |      |      |      |        |             |    |          |      |         |               |           |  |
| STATION 20   | MONTH 4    | DAY 20 | HOUR 9.2  | JULIAN DAY 110 | LATITUDE 42.170N | LONGITUDE 80.770W |      |      |      |      |      |        |             |    |          |      |         |               |           |  |
| 0.           | 2.83       | .19    | .010      | 26.            | 20.2             |                   |      |      |      |      |      |        |             |    |          |      |         |               |           |  |
| 10.          | 2.81       | 0.00   | .010      | 26.            | 20.2             |                   |      |      |      |      |      |        |             |    |          |      |         |               |           |  |
| 22.          | 2.78       | .57    | .008      | 27.            | 20.0             | 0.0               |      |      |      |      |      |        |             |    |          |      |         |               |           |  |
| 23.5B        |            |        |           |                |                  |                   |      |      |      |      |      |        |             |    |          |      |         |               |           |  |
| STATION 21   | MONTH 4    | DAY 20 | HOUR 10.9 | JULIAN DAY 110 | LATITUDE 41.980N | LONGITUDE 80.680W |      |      |      |      |      |        |             |    |          |      |         |               |           |  |
| 0.           | 4.61       | 2.15   | .012      | 28.            | 28.2             |                   |      |      |      |      |      |        |             |    |          |      |         |               |           |  |
| 8.           | 4.71       | 1.31   | .010      | 29.            | 27.7             |                   |      |      |      |      |      |        |             |    |          |      |         |               |           |  |
| 15.          | 4.83       | 1.32   | .010      | 29.            | 27.9             | .7                |      |      |      |      |      |        |             |    |          |      |         |               |           |  |
| 16.5B        |            |        |           |                |                  |                   |      |      |      |      |      |        |             |    |          |      |         |               |           |  |
| STATION 22   | MONTH 4    | DAY 20 | HOUR 12.9 | JULIAN DAY 110 | LATITUDE 42.050N | LONGITUDE 80.400W |      |      |      |      |      |        |             |    |          |      |         |               |           |  |
| 0.           | 5.94       | 1.15   | .010      | 30.            |                  |                   |      |      |      |      |      |        |             |    |          |      |         |               |           |  |
| 12.          | 5.67       | 1.15   | .010      | 28.            |                  | 0.0               |      |      |      |      |      |        |             |    |          |      |         |               |           |  |
| 13.7B        |            |        |           |                |                  |                   |      |      |      |      |      |        |             |    |          |      |         |               |           |  |
| STATION 23   | MONTH 4    | DAY 20 | HOUR 14.0 | JULIAN DAY 110 | LATITUDE 42.100N | LONGITUDE 80.250W |      |      |      |      |      |        |             |    |          |      |         |               |           |  |
| 0.           | 6.63       | 1.31   | .010      | 29.            | 22.5             |                   |      |      |      |      |      |        |             |    |          |      |         |               |           |  |
| 9.           | 6.50       | 1.15   | .010      | 28.            | 21.6             | .1                |      |      |      |      |      |        |             |    |          |      |         |               |           |  |
| 10.1B        |            |        |           |                |                  |                   |      |      |      |      |      |        |             |    |          |      |         |               |           |  |
| STATION 24   | MONTH 4    | DAY 21 | HOUR 7.6  | JULIAN DAY 111 | LATITUDE 42.180N | LONGITUDE 80.020W |      |      |      |      |      |        |             |    |          |      |         |               |           |  |
| 0.           | 6.49       | .43    | .008      | 28.            |                  |                   |      |      |      |      |      |        |             |    |          |      |         |               |           |  |
| 12.          | 6.31       | 1.15   | .014      | 27.            |                  | .2                |      |      |      |      |      |        |             |    |          |      |         |               |           |  |
| 13.7B        |            |        |           |                |                  |                   |      |      |      |      |      |        |             |    |          |      |         |               |           |  |
| STATION 25   | MONTH 4    | DAY 21 | HOUR 8.9  | JULIAN DAY 111 | LATITUDE 42.270N | LONGITUDE 79.830W |      |      |      |      |      |        |             |    |          |      |         |               |           |  |
| 0.           | 4.98       | 1.00   | .010      | 28.            | 19.0             |                   |      |      |      |      |      |        |             |    |          |      |         |               |           |  |
| 8.           | 4.97       | .43    | .012      | 26.            | 18.6             |                   |      |      |      |      |      |        |             |    |          |      |         |               |           |  |
| 14.          | 4.96       | .70    | .008      | 28.            | 19.1             | .1                |      |      |      |      |      |        |             |    |          |      |         |               |           |  |
| 15.8B        |            |        |           |                |                  |                   |      |      |      |      |      |        |             |    |          |      |         |               |           |  |
| STATION 26   | MONTH 4    | DAY 21 | HOUR 10.3 | JULIAN DAY 111 | LATITUDE 42.350N | LONGITUDE 79.630W |      |      |      |      |      |        |             |    |          |      |         |               |           |  |
| 0.           | 4.89       | .63    | .012      | 26.            | 19.5             |                   |      |      |      |      |      |        |             |    |          |      |         |               |           |  |
| 10.          | 4.86       | .77    | .010      | 26.            | 19.2             |                   |      |      |      |      |      |        |             |    |          |      |         |               |           |  |
| 16.          | 4.72       | .50    | .010      | 26.            | 19.0             | .1                |      |      |      |      |      |        |             |    |          |      |         |               |           |  |
| 18.3B        |            |        |           |                |                  |                   |      |      |      |      |      |        |             |    |          |      |         |               |           |  |
| STATION 27   | MONTH 4    | DAY 21 | HOUR 11.8 | JULIAN DAY 111 | LATITUDE 42.460N | LONGITUDE 79.520W |      |      |      |      |      |        |             |    |          |      |         |               |           |  |
| 0.           | 2.93       | 1.92   | .007      | 25.            | 20.4             |                   |      |      |      |      |      |        |             |    |          |      |         |               |           |  |
| 10.          | 2.93       | .15    | .010      | 25.            | 20.6             |                   |      |      |      |      |      |        |             |    |          |      |         |               |           |  |
| 25.          | 3.29       | .50    | .010      | 25.            | 20.9             | .2                |      |      |      |      |      |        |             |    |          |      |         |               |           |  |
| 26.5B        |            |        |           |                |                  |                   |      |      |      |      |      |        |             |    |          |      |         |               |           |  |
| STATION 28   | MONTH 4    | DAY 24 | HOUR 8.3  | JULIAN DAY 114 | LATITUDE 42.560N | LONGITUDE 79.540W |      |      |      |      |      |        |             |    |          |      |         |               |           |  |
| 0.           | 1.51       | .63    | .007      | 28.            | 21.2             |                   |      |      |      |      |      |        |             |    |          |      |         |               |           |  |
| 10.          | 1.55       | .10    | .008      | 26.            | 21.0             |                   |      |      |      |      |      |        |             |    |          |      |         |               |           |  |
| 30.          | 1.97       | .63    | .008      | 26.            | 21.2             |                   |      |      |      |      |      |        |             |    |          |      |         |               |           |  |
| 41.          | 1.48       | 1.08   | .008      | 26.            | 20.9             | .1                |      |      |      |      |      |        |             |    |          |      |         |               |           |  |
| 44.2B        |            |        |           |                |                  |                   |      |      |      |      |      |        |             |    |          |      |         |               |           |  |
| STATION 29   | MONTH 4    | DAY 21 | HOUR 13.0 | JULIAN DAY 111 | LATITUDE 42.530N | LONGITUDE 79.330W |      |      |      |      |      |        |             |    |          |      |         |               |           |  |
| 0.           | 3.30       | .43    | .012      | 24.            | 21.4             |                   |      |      |      |      |      |        |             |    |          |      |         |               |           |  |
| 10.          | 3.25       | .28    | .007      | 27.            | 21.6             |                   |      |      |      |      |      |        |             |    |          |      |         |               |           |  |
| 19.          | 3.27       | .70    | .010      | 25.            | 21.6             | .2                |      |      |      |      |      |        |             |    |          |      |         |               |           |  |
| 21.0B        |            |        |           |                |                  |                   |      |      |      |      |      |        |             |    |          |      |         |               |           |  |

LIMNOLOGICAL DATA  
LAKE ERIE

CRUISE 6781

| SAMPLE DEPTH | WATER TEMP | NO3 MG/L | PO4 PG/L  | SO4 MG/L       | CL MG/L          | SI02 MG/L         | CA MG/L | MG MG/L | NA MG/L | K MG/L | T.ALK MG/L | P.ALK MG/L | SPEC. COND. | PH | KH VOLTS | DO PS/L | NO PCT. | TOT. SUSP. MAT. 100ML | TOTAL COLT 100ML |  |
|--------------|------------|----------|-----------|----------------|------------------|-------------------|---------|---------|---------|--------|------------|------------|-------------|----|----------|---------|---------|-----------------------|------------------|--|
| M            | C          | K        | P         |                |                  |                   |         |         |         |        |            |            | MGOS        |    |          |         |         | MG/L                  |                  |  |
| STATION 36   | MONTH 4    | DAY 21   | HOUR 14.1 | JULIAN DAY 111 | LATITUDE 42.600N | LONGITUDE 79.180W |         |         |         |        |            |            |             |    |          |         |         |                       |                  |  |
| 0.           | 3.17       | 1.67     | .010      | 26.            | 20.6             |                   |         | 9.1     | 10.5    |        |            |            |             |    |          |         |         |                       |                  |  |
| 10.          | 3.08       | 1.51     | .012      | 26.            | 20.4             |                   |         | 9.4     | 10.6    |        |            |            |             |    |          |         |         |                       |                  |  |
| 17.          | 3.02       | .70      | .009      | 26.            | 20.8             | .1                |         | 9.0     | 11.2    |        |            |            |             |    |          |         |         |                       |                  |  |
| 18.99        |            |          |           |                |                  |                   |         |         |         |        |            |            |             |    |          |         |         |                       |                  |  |
| STATION 34   | MONTH 4    | DAY 21   | HOUR 15.1 | JULIAN DAY 111 | LATITUDE 42.720N | LONGITUDE 79.220W |         |         |         |        |            |            |             |    |          |         |         |                       |                  |  |
| 0.           | 2.66       | .70      | .007      | 25.            | 21.9             |                   |         | 8.8     | 10.3    |        |            |            |             |    |          |         |         |                       |                  |  |
| 10.          | 2.61       | .70      | .011      | 28.            | 21.3             |                   |         | 9.3     | 9.9     |        |            |            |             |    |          |         |         |                       |                  |  |
| 20.          | 2.56       | .28      | .007      | 26.            | 21.4             | .2                |         | 8.8     | 10.3    |        |            |            |             |    |          |         |         |                       |                  |  |
| 22.38        |            |          |           |                |                  |                   |         |         |         |        |            |            |             |    |          |         |         |                       |                  |  |
| STATION 37   | MONTH 4    | DAY 24   | HOUR 10.3 | JULIAN DAY 114 | LATITUDE 42.600N | LONGITUDE 79.680W |         |         |         |        |            |            |             |    |          |         |         |                       |                  |  |
| 0.           | 3.29       | .97      | .007      | 25.            | 19.5             |                   |         | 9.6     | 9.9     |        |            |            |             |    |          |         |         |                       |                  |  |
| 10.          | 3.28       | .36      | .008      | 27.            | 19.3             |                   |         | 9.7     | 9.9     |        |            |            |             |    |          |         |         |                       |                  |  |
| 20.          | 3.26       | .63      | .012      | 31.            | 20.0             |                   |         | 8.8     | 10.0    |        |            |            |             |    |          |         |         |                       |                  |  |
| 31.          | 3.27       | 1.23     | .012      | 27.            | 19.8             | .1                |         | 8.5     | 9.9     |        |            |            |             |    |          |         |         |                       |                  |  |
| 32.94        |            |          |           |                |                  |                   |         |         |         |        |            |            |             |    |          |         |         |                       |                  |  |
| STATION 39   | MONTH 4    | DAY 24   | HOUR 12.3 | JULIAN DAY 114 | LATITUDE 42.620N | LONGITUDE 80.000W |         |         |         |        |            |            |             |    |          |         |         |                       |                  |  |
| 0.           | 1.89       | .36      | .007      | 28.            | 28.4             |                   |         | 8.0     | 10.1    |        |            |            |             |    |          |         |         |                       |                  |  |
| 10.          | 1.88       | .78      | .012      | 28.            | 29.2             |                   |         | 9.0     | 10.1    |        |            |            |             |    |          |         |         |                       |                  |  |
| 30.          | 3.96       | 0.00     | .012      | 28.            | 29.2             |                   |         | 9.3     | 9.9     |        |            |            |             |    |          |         |         |                       |                  |  |
| 40.          | 3.94       | .43      | .014      | 26.            | 29.8             | .1                |         | 9.3     | 9.8     |        |            |            |             |    |          |         |         |                       |                  |  |
| 43.03        |            |          |           |                |                  |                   |         |         |         |        |            |            |             |    |          |         |         |                       |                  |  |
| STATION 48   | MONTH 4    | DAY 24   | HOUR 13.4 | JULIAN DAY 114 | LATITUDE 42.520N | LONGITUDE 79.940W |         |         |         |        |            |            |             |    |          |         |         |                       |                  |  |
| 0.           | 1.66       | .85      | .007      | 27.            | 19.0             |                   |         | 9.7     | 10.2    |        |            |            |             |    |          |         |         |                       |                  |  |
| 10.          | 1.57       | .57      | .010      | 26.            | 19.5             |                   |         | 9.1     | 10.0    |        |            |            |             |    |          |         |         |                       |                  |  |
| 30.          | 2.05       | .05      | .008      | 28.            | 20.2             |                   |         | 8.6     | 9.9     |        |            |            |             |    |          |         |         |                       |                  |  |
| 60.          | 2.88       | .28      | .019      | 26.            | 20.4             | .2                |         | 8.6     | 10.0    |        |            |            |             |    |          |         |         |                       |                  |  |
| 63.18        |            |          |           |                |                  |                   |         |         |         |        |            |            |             |    |          |         |         |                       |                  |  |
| STATION 41   | MONTH 4    | DAY 24   | HOUR 14.6 | JULIAN DAY 114 | LATITUDE 42.430N | LONGITUDE 79.960W |         |         |         |        |            |            |             |    |          |         |         |                       |                  |  |
| 0.           | 1.54       | .43      | .007      | 25.            | 20.4             |                   |         | 8.8     | 10.1    |        |            |            |             |    |          |         |         |                       |                  |  |
| 10.          | 1.94       | 1.31     | .010      | 26.            | 20.1             |                   |         | 9.3     | 9.9     |        |            |            |             |    |          |         |         |                       |                  |  |
| 30.          | 1.51       | .63      | .012      | 26.            | 19.7             |                   |         | 9.1     | 9.8     |        |            |            |             |    |          |         |         |                       |                  |  |
| 43.          | 1.52       | .50      | .012      | 26.            | 20.4             | .3                |         | 9.1     | 10.0    |        |            |            |             |    |          |         |         |                       |                  |  |
| 46.38        |            |          |           |                |                  |                   |         |         |         |        |            |            |             |    |          |         |         |                       |                  |  |
| STATION 42   | MONTH 4    | DAY 24   | HOUR 15.8 | JULIAN DAY 114 | LATITUDE 42.370N | LONGITUDE 79.920W |         |         |         |        |            |            |             |    |          |         |         |                       |                  |  |
| 0.           | 1.81       | .10      | .009      | 27.            |                  |                   |         | 8.8     | 10.1    |        |            |            |             |    |          |         |         |                       |                  |  |
| 10.          | 2.00       | .10      | .007      | 26.            |                  |                   |         | 9.2     | 10.3    |        |            |            |             |    |          |         |         |                       |                  |  |
| 30.          | 1.80       | 0.00     | .009      | 21.            |                  |                   |         | 8.6     | 11.3    |        |            |            |             |    |          |         |         |                       |                  |  |
| 36.          | 1.79       | .36      | .007      | 23.            |                  | .1                |         | 9.3     | 10.3    |        |            |            |             |    |          |         |         |                       |                  |  |
| 39.08        |            |          |           |                |                  |                   |         |         |         |        |            |            |             |    |          |         |         |                       |                  |  |
| STATION 43   | MONTH 4    | DAY 25   | HOUR 9.0  | JULIAN DAY 115 | LATITUDE 42.100N | LONGITUDE 80.330W |         |         |         |        |            |            |             |    |          |         |         |                       |                  |  |
| 0.           | 3.38       | .63      | .011      | 25.            | 19.3             |                   |         | 8.7     | 9.9     |        |            |            |             |    |          |         |         |                       |                  |  |
| 10.          | 3.40       | .36      | .006      | 25.            | 19.0             |                   |         | 8.1     | 10.0    |        |            |            |             |    |          |         |         |                       |                  |  |
| 22.          | 3.91       | .77      | .016      | 26.            | 19.3             | .1                |         | 8.2     | 9.5     |        |            |            |             |    |          |         |         |                       |                  |  |
| 23.88        |            |          |           |                |                  |                   |         |         |         |        |            |            |             |    |          |         |         |                       |                  |  |
| STATION 44   | MONTH 4    | DAY 25   | HOUR 10.0 | JULIAN DAY 115 | LATITUDE 42.250N | LONGITUDE 80.330W |         |         |         |        |            |            |             |    |          |         |         |                       |                  |  |
| 0.           | 2.25       | .10      | .013      | 26.            | 20.1             |                   |         | 8.2     | 9.8     |        |            |            |             |    |          |         |         |                       |                  |  |
| 10.          | 2.21       | .57      | .013      | 25.            | 29.3             |                   |         | 7.7     | 9.8     |        |            |            |             |    |          |         |         |                       |                  |  |
| 18.          | 2.17       | .36      | .011      | 24.            | 28.8             | .2                |         | 9.1     | 9.9     |        |            |            |             |    |          |         |         |                       |                  |  |
| 20.18        |            |          |           |                |                  |                   |         |         |         |        |            |            |             |    |          |         |         |                       |                  |  |
| STATION 45   | MONTH 4    | DAY 25   | HOUR 10.9 | JULIAN DAY 115 | LATITUDE 42.330N | LONGITUDE 80.400W |         |         |         |        |            |            |             |    |          |         |         |                       |                  |  |
| 0.           | 2.06       | .57      | .013      | 26.            | 20.5             |                   |         | 9.3     | 9.8     |        |            |            |             |    |          |         |         |                       |                  |  |
| 10.          | 1.98       | .10      | .016      | 24.            | 20.1             |                   |         | 9.0     | 9.9     |        |            |            |             |    |          |         |         |                       |                  |  |
| 18.          | 1.95       | .50      | .011      | 24.            | 20.4             | .3                |         | 9.4     | 10.2    |        |            |            |             |    |          |         |         |                       |                  |  |
| 19.88        |            |          |           |                |                  |                   |         |         |         |        |            |            |             |    |          |         |         |                       |                  |  |
| STATION 46   | MONTH 4    | DAY 25   | HOUR 12.4 | JULIAN DAY 115 | LATITUDE 42.470N | LONGITUDE 80.460W |         |         |         |        |            |            |             |    |          |         |         |                       |                  |  |
| 0.           | 4.67       | .77      | .013      | 25.            | 20.2             |                   |         | 9.4     | 9.9     |        |            |            |             |    |          |         |         |                       |                  |  |
| 10.          | 4.56       | .43      | .014      | 26.            | 20.2             |                   |         | 9.1     | 9.9     |        |            |            |             |    |          |         |         |                       |                  |  |
| 18.          | 4.40       | .77      | .014      | 25.            | 20.6             | .1                |         | 9.1     | 9.7     |        |            |            |             |    |          |         |         |                       |                  |  |
| 19.58        |            |          |           |                |                  |                   |         |         |         |        |            |            |             |    |          |         |         |                       |                  |  |
| STATION 47   | MONTH 4    | DAY 25   | HOUR 13.9 | JULIAN DAY 115 | LATITUDE 42.520N | LONGITUDE 80.600W |         |         |         |        |            |            |             |    |          |         |         |                       |                  |  |
| 0.           | 4.62       | .43      | .014      | 26.            | 20.4             |                   |         | 8.7     | 9.9     |        |            |            |             |    |          |         |         |                       |                  |  |
| 8.           | 4.51       | .19      | .014      | 25.            | 20.4             |                   |         | 8.4     | 9.8     |        |            |            |             |    |          |         |         |                       |                  |  |
| 16.          | 4.46       | .38      | .014      | 26.            | 20.2             | 0.8               |         | 8.7     | 10.0    |        |            |            |             |    |          |         |         |                       |                  |  |
| 17.79        |            |          |           |                |                  |                   |         |         |         |        |            |            |             |    |          |         |         |                       |                  |  |

## LIMNOLOGICAL DATA

LAKE ERIE

CRUISE 6701

| SAMPLE DEPTH  | WATER TEMP | NO3 MG/L | PO4 MG/L | SO4 MG/L | CL MG/L | SIG2 MG/L | CA MG/L | MG MG/L | NA MG/L | K MG/L | T.ALK CAEQ3 MG/L | P.ALK CAEQ3 MG/L | SPEC. COND. MICRO-MHOS | PH VOLTS | CM  | DO MG/L | DO PCT. SAT. | TOT. SUSP. MATR MG/L | TOTAL COLI FC/ML |      |      |
|---|------------|----------|----------|----------|---------|-----------|---------|---------|---------|--------|------------------|------------------|------------------------|----------|-----|---------|--------------|----------------------|------------------|------|------|
| M   | C          | N        | P        |          |         |           |         |         |         |        |                  |                  |                        |          |     |         |              |                      |                  |      |      |
| STATION 48 MONTH 4 DAY 26 HOUR 6.9 JULIAN DAY 116 LATITUDE 42.520N LONGITUDE 80.930W  |            |          |          |          |         |           |         |         |         |        |                  |                  |                        |          |     |         |              |                      |                  |      |      |
| 0.  | 4.17       | 0.00     | .016     | 25.      | 20.4    |           |         |         | 9.2     | 10.6   |                  |                  |                        | 78.      | 0.0 | 318.    | 8.09         | .033                 | 12.23            | 97.  | 14.4 |
| 10.   | 4.18       | .19      | .015     | 25.      | 20.9    |           |         |         | 8.5     | 10.2   |                  |                  |                        | 78.      | 0.0 | 321.    | 8.10         | .060                 | 12.60            | 100. | 8.4  |
| 17.   | 4.16       | .10      | .018     | 25.      | 20.2    | .1        |         |         | 9.4     | 10.4   |                  |                  |                        | 78.      | 0.0 | 322.    | 8.05         | .075                 | 12.34            | 98.  | 16.7 |
| 18.9B   |            |          |          |          |         |           |         |         |         |        |                  |                  |                        |          |     | 7.20    | .135         |                      |                  |      |      |
| STATION 49 MONTH 4 DAY 26 HOUR 8.3 JULIAN DAY 116 LATITUDE 41.350N LONGITUDE 80.950W  |            |          |          |          |         |           |         |         |         |        |                  |                  |                        |          |     |         |              |                      |                  |      |      |
| 0.  | 3.72       | .19      | .022     | 25.      | 20.4    |           |         |         | 8.0     | 10.2   |                  |                  |                        | 78.      | 0.0 | 322.    | 8.12         | .075                 | 12.50            | 94.  | 1.6  |
| 10.   | 3.71       | 0.00     | .018     | 24.      | 20.0    |           |         |         | 9.3     | 10.3   |                  |                  |                        | 79.      | 0.0 | 323.    | 8.10         | .078                 | 12.44            | 97.  | 5.6  |
| 20.   | 3.72       | .36      | .018     | 25.      | 20.1    | .1        |         |         | 9.4     | 10.4   |                  |                  |                        | 79.      | 0.0 | 322.    | 8.11         | .083                 | 12.50            | 98.  | 7.3  |
| 21.3B   |            |          |          |          |         |           |         |         |         |        |                  |                  |                        |          |     | 7.15    | .140         |                      |                  |      |      |
| STATION 50 MONTH 4 DAY 26 HOUR 9.7 JULIAN DAY 116 LATITUDE 42.310N LONGITUDE 81.000W  |            |          |          |          |         |           |         |         |         |        |                  |                  |                        |          |     |         |              |                      |                  |      |      |
| 0.  | 3.96       | 0.00     | .024     | 25.      | 19.5    |           |         |         | 9.2     | 9.8    |                  |                  |                        | 77.      | 0.0 | 321.    | 8.09         | .043                 | 11.99            | 94.  | 8.2  |
| 10.   | 3.91       | .10      | .027     | 25.      | 20.0    |           |         |         | 7.6     | 9.9    |                  |                  |                        | 79.      | 0.0 | 321.    | 8.10         | .059                 | 12.40            | 97.  | 1.1  |
| 20.   | 3.91       | .43      | .022     | 27.      | 20.3    | .2        |         |         | 8.8     | 10.3   |                  |                  |                        | 78.      | 0.0 | 321.    | 8.00         | .068                 | 12.10            | 95.  | 19.9 |
| 21.9B   |            |          |          |          |         |           |         |         |         |        |                  |                  |                        |          |     | 7.47    | .109         |                      |                  |      |      |
| STATION 51 MONTH 4 DAY 26 HOUR 11.1 JULIAN DAY 116 LATITUDE 42.250N LONGITUDE 81.020W |            |          |          |          |         |           |         |         |         |        |                  |                  |                        |          |     |         |              |                      |                  |      |      |
| 0.  | 3.80       | .70      | .022     | 26.      | 20.0    |           |         |         | 8.0     | 9.8    |                  |                  |                        | 79.      | 0.0 | 310.    | 8.09         | .062                 | 11.01            | 92.  | 7.1  |
| 10.   | 3.77       | .43      | .024     | 24.      | 20.1    |           |         |         | 9.3     | 10.9   |                  |                  |                        | 79.      | 0.0 | 310.    | 8.10         | .070                 | 11.87            | 93.  | 9.1  |
| 21.   | 3.77       | 1.69     | .006     | 27.      | 19.8    | .1        |         |         | 9.1     | 10.6   |                  |                  |                        | 79.      | 0.0 | 310.    | 7.49         | .081                 | 11.86            | 92.  | 8.4  |
| 22.9B   |            |          |          |          |         |           |         |         |         |        |                  |                  |                        |          |     | 1.09    | .088         |                      |                  |      |      |
| STATION 52 MONTH 4 DAY 26 HOUR 12.2 JULIAN DAY 116 LATITUDE 42.350N LONGITUDE 81.370W |            |          |          |          |         |           |         |         |         |        |                  |                  |                        |          |     |         |              |                      |                  |      |      |
| 0.  | 3.79       | 0.00     | .014     | 24.      | 21.2    |           |         |         | 8.5     | 10.8   |                  |                  |                        | 78.      | 0.0 | 322.    | 8.08         | .042                 | 12.16            | 95.  | 2.7  |
| 10.   | 3.79       | 1.23     | .006     | 25.      | 21.4    |           |         |         | 9.4     | 10.3   |                  |                  |                        | 78.      | 0.0 | 325.    | 8.05         | .048                 | 12.37            | 97.  | 6.0  |
| 20.   | 3.75       | 3.08     | .007     | 25.      | 21.4    | .1        |         |         | 9.0     | 10.5   |                  |                  |                        | 78.      | 0.0 | 325.    | 8.03         | .038                 | 12.15            | 95.  | 4.0  |
| 21.9B   |            |          |          |          |         |           |         |         |         |        |                  |                  |                        |          |     | 7.19    | .090         |                      |                  |      |      |
| STATION 53 MONTH 4 DAY 26 HOUR 14.1 JULIAN DAY 116 LATITUDE 42.380N LONGITUDE 81.610W |            |          |          |          |         |           |         |         |         |        |                  |                  |                        |          |     |         |              |                      |                  |      |      |
| 0.  | 3.74       | .10      | .013     | 23.      | 20.8    |           |         |         | 8.8     | 10.9   |                  |                  |                        | 79.      | 0.0 | 321.    | 8.09         | .026                 | 12.38            | 97.  | 4.4  |
| 10.   | 3.72       | .36      | .013     | 28.      | 20.2    |           |         |         | 9.6     | 10.7   |                  |                  |                        | 79.      | 0.0 | 321.    | 8.10         | .038                 | 12.53            | 98.  | 1.0  |
| 19.   | 3.72       | .43      | .013     | 26.      | 20.4    | .2        |         |         | 8.8     | 10.3   |                  |                  |                        | 79.      | 0.0 | 321.    | 8.15         | .051                 | 12.25            | 96.  | 1.8  |
| 20.7B   |            |          |          |          |         |           |         |         |         |        |                  |                  |                        |          |     | 7.18    | .086         |                      |                  |      |      |
| STATION 54 MONTH 4 DAY 26 HOUR 15.8 JULIAN DAY 116 LATITUDE 42.240N LONGITUDE 81.810W |            |          |          |          |         |           |         |         |         |        |                  |                  |                        |          |     |         |              |                      |                  |      |      |
| 0.  | 5.27       | 3.08     | .007     | 23.      | 20.4    |           |         |         | 9.0     | 10.1   |                  |                  |                        | 79.      | 0.0 | 321.    | 8.10         | .020                 | 11.82            | 96.  | 2.2  |
| 10.   | 5.24       | .50      | .016     | 28.      | 20.9    |           |         |         | 8.7     | 10.4   |                  |                  |                        | 79.      | 0.0 | 322.    | 8.11         | .035                 | 12.14            | 99.  | 1.3  |
| 17.   | 5.21       | 1.62     | .004     | 24.      | 20.4    |           |         |         | 9.3     | 8.5    |                  |                  |                        | 78.      | 0.0 | 322.    | 7.92         | .049                 | 12.19            | 99.  | 1.1  |
| 18.6B   |            |          |          |          |         |           |         |         |         |        |                  |                  |                        |          |     | 7.25    | .100         |                      |                  |      |      |
| STATION 55 MONTH 4 DAY 27 HOUR 7.4 JULIAN DAY 117 LATITUDE 42.130N LONGITUDE 81.740W  |            |          |          |          |         |           |         |         |         |        |                  |                  |                        |          |     |         |              |                      |                  |      |      |
| 0.  | 4.06       | .50      | .006     | 25.      | 20.9    |           |         |         | 9.2     | 8.8    |                  |                  |                        | 78.      | 0.0 | 307.    | 8.01         | .094                 | 12.30            | 97.  | 2.7  |
| 10.   | 4.08       | .57      | .004     | 29.      | 20.2    |           |         |         | 9.3     | 8.4    |                  |                  |                        | 78.      | 0.0 | 310.    | 8.09         | .090                 | 12.34            | 97.  | 2.0  |
| 21.   | 4.07       | 1.23     | .004     | 25.      | 20.9    | .1        |         |         | 9.1     | 8.2    |                  |                  |                        | 79.      | 0.0 | 309.    | 7.98         | .092                 | 12.19            | 96.  | 2.4  |
| 22.9D   |            |          |          |          |         |           |         |         |         |        |                  |                  |                        |          |     | 6.85    | .055         |                      |                  |      |      |
| STATION 56 MONTH 4 DAY 27 HOUR 8.7 JULIAN DAY 117 LATITUDE 41.990N LONGITUDE 81.660W  |            |          |          |          |         |           |         |         |         |        |                  |                  |                        |          |     |         |              |                      |                  |      |      |
| 0.  | 3.71       | 1.08     | .006     | 24.      | 19.5    |           |         |         | 9.3     | 8.5    |                  |                  |                        | 79.      | 0.0 | 296.    | 7.93         | .018                 | 12.46            | 97.  | 4.2  |
| 10.   | 3.71       | 1.31     | .004     | 24.      | 19.7    |           |         |         | 7.1     | 8.7    |                  |                  |                        | 75.      | 0.0 | 300.    | 7.90         | .028                 | 12.51            | 98.  | 3.6  |
| 23.   | 3.71       | .19      | .004     | 24.      | 19.5    | .2        |         |         | 9.3     | 4.9    |                  |                  |                        | 73.      | 0.0 | 300.    | 7.85         | .038                 | 12.33            | 98.  | 2.4  |
| 24.4B   |            |          |          |          |         |           |         |         |         |        |                  |                  |                        |          |     | 6.72    | -.113        |                      |                  |      |      |
| STATION 57 MONTH 4 DAY 27 HOUR 11.0 JULIAN DAY 117 LATITUDE 42.040N LONGITUDE 82.040W |            |          |          |          |         |           |         |         |         |        |                  |                  |                        |          |     |         |              |                      |                  |      |      |
| 0.  | 4.42       | .19      | .006     | 24.      | 20.0    |           |         |         | 8.5     | 9.3    |                  |                  |                        | 77.      | 0.0 | 316.    | 8.00         | .015                 | 12.15            | 97.  | 3.1  |
| 10.   | 4.32       | .50      | .007     | 24.      | 20.0    |           |         |         | 8.8     | 9.6    |                  |                  |                        | 78.      | 0.0 | 316.    | 8.03         | .025                 | 12.30            | 95.  | 1.3  |
| 20.   | 4.31       | .63      | .006     | 25.      | 20.1    | .2        |         |         | 8.1     | 9.2    |                  |                  |                        | 78.      | 0.0 | 311.    | 8.00         | .040                 | 11.95            | 85.  | 1.3  |
| 22.3B   |            |          |          |          |         |           |         |         |         |        |                  |                  |                        |          |     | 6.97    | -.109        |                      |                  |      |      |
| STATION 58 MONTH 4 DAY 27 HOUR 12.7 JULIAN DAY 117 LATITUDE 42.070N LONGITUDE 82.300W |            |          |          |          |         |           |         |         |         |        |                  |                  |                        |          |     |         |              |                      |                  |      |      |
| 0.  | 4.25       | .36      | .004     | 24.      | 27.5    |           |         |         | 6.7     | 6.6    |                  |                  |                        | 78.      | 0.0 | 321.    | 8.02         | .050                 | 12.15            | 99.  | 4.2  |
| 10.   | 4.66       | .10      | .007     | 26.      | 28.3    |           |         |         | 7.1     | 7.3    |                  |                  |                        | 78.      | 0.0 | 322.    | 8.02         | .062                 | 12.27            | 98.  | 1.1  |
| 16.   | 4.63       | .43      | .007     | 23.      | 28.3    | .2        |         |         | 7.7     | 7.2    |                  |                  |                        | 79.      | 0.0 | 321.    | 7.55         | .071                 | 12.09            | 97.  | 1.8  |
| 18.3B   |            |          |          |          |         |           |         |         |         |        |                  |                  |                        |          |     | 7.01    | .085         |                      |                  |      |      |
| STATION 59 MONTH 4 DAY 27 HOUR 14.1 JULIAN DAY 117 LATITUDE 41.860N LONGITUDE 82.380W |            |          |          |          |         |           |         |         |         |        |                  |                  |                        |          |     |         |              |                      |                  |      |      |
| 0.  | 5.28       | .43      | .007     | 29.      | 20.9    |           |         |         | 8.3     | 7.4    |                  |                  |                        | 78.      | 0.0 | 316.    | 8.81         | .030                 | 12.89            | 100. | 1.8  |
| 8.  | 5.67       | .70      | .006     | 24.      | 20.9    |           |         |         | 8.4     | 7.8    |                  |                  |                        | 79.      | 0.0 | 319.    | 8.00         | .043                 | 12.30            | 100. | 2.2  |
| 12.   | 5.05       | .57      | .007     | 29.      | 21.2    | .1        |         |         | 8.1     | 7.4    |                  |                  |                        | 79.      | 0.0 | 319.    | 8.00         | .060                 | 12.24            | 99.  | 1.6  |
| 13.7B   |            |          |          |          |         |           |         |         |         |        |                  |                  |                        |          |     | 6.49    | -.070        |                      |                  |      |      |
| STATION 60 MONTH 4 DAY 27 HOUR 15.2 JULIAN DAY 117 LATITUDE 41.840N LONGITUDE 82.350W |            |          |          |          |         |           |         |         |         |        |                  |                  |                        |          |     |         |              |                      |                  |      |      |
| 0.  | 7.28       | .85      | .009     | 25.      | 20.6    |           |         |         | 8.5     | 7.6    |                  |                  |                        | 77.      | 0.0 | 321.    | 8.00         | .031                 | 11.69            | 100. | 1.6  |
| 10.   | 8.25       | 1.00     | .007     | 25.      | 21.0    | .1        |         |         | 8.4     | 8.8    |                  |                  |                        | 79.      | 0.0 | 323.    | 8.01         | .049                 | 12.04            | 100. | 3.1  |
| 11.3B   |            |          |          |          |         |           |         |         |         |        |                  |                  |                        |          |     |         |              |                      |                  |      |      |

LIMNOLOGICAL DATA  
LAKE ERIC  
CRUISE 6701

| SAMPLE DEPTH | WATER TEMP | NO3 MG/L | PO4 MG/L  | SG4 MG/L       | CL MG/L          | SIOP MG/L         | CA MG/L | MG MG/L | NA MG/L | K MG/L | T.ALK MG/L | P.ALK MG/L | SPEC. COND. | PH  | EM VOLTS | OR MG/L | DO PCT. | TOT. SUSP MATR | TOTAL COLY 100ML |     |
|--------------|------------|----------|-----------|----------------|------------------|-------------------|---------|---------|---------|--------|------------|------------|-------------|-----|----------|---------|---------|----------------|------------------|-----|
| STATION 61   | MONTH 4    | DAY 27   | HOUR 16.3 | JULIAN DAY 117 | LATITUDE 41.950N | LONGITUDE 82.630W |         |         |         |        |            |            |             |     |          |         |         |                |                  |     |
| 0.           | 7.85       | 1.88     | .008      | 19.            | 19.3             |                   |         |         | 8.1     | 9.8    |            |            | 75.         | 0.0 | 318.     | 7.95    | .072    | 11.57          | 89.              | 1.0 |
| 9.           | 7.30       | .85      | .009      | 23.            | 19.7             | .1                |         |         | 7.6     | 10.6   |            |            | 76.         | 0.0 | 315.     | 7.92    | .083    | 11.37          | 97.              | 4.0 |
| 10.74        |            |          |           |                |                  |                   |         |         |         |        |            |            |             |     |          | 7.60    | -.070   |                |                  |     |
| STATION 62   | MONTH 4    | DAY 28   | HOUR 8.9  | JULIAN DAY 118 | LATITUDE 41.880N | LONGITUDE 82.820W |         |         |         |        |            |            |             |     |          |         |         |                |                  |     |
| 0.           | 7.76       | .85      | .007      | 18.            | 21.4             |                   |         |         | 8.2     | 9.1    |            |            | 73.         | 0.0 | 288.     | 8.21    | .041    | 11.44          | 99.              | 2.9 |
| 9.           | 7.17       | .70      | .007      | 19.            | 21.4             | .3                |         |         | 7.7     | 9.1    |            |            | 73.         | 0.0 | 294.     | 8.19    | .045    | 11.49          | 9A.              | 2.4 |
| 10.19        |            |          |           |                |                  |                   |         |         |         |        |            |            |             |     |          | 7.28    | .090    |                |                  |     |
| STATION 63   | MONTH 4    | DAY 28   | HOUR 13.3 | JULIAN DAY 118 | LATITUDE 41.970N | LONGITUDE 83.000W |         |         |         |        |            |            |             |     |          |         |         |                |                  |     |
| 0.           | 9.09       | 1.38     | .004      | 20.            | 21.4             |                   |         |         | 7.9     | 10.0   |            |            | 72.         | 0.0 | 309.     | 7.96    | .067    | 10.91          | 9A.              | 2.2 |
| 7.           | 7.83       | .10      | .007      | 18.            | 14.4             | .5                |         |         | 7.4     | 8.0    |            |            | 71.         | 0.0 | 284.     | 7.89    | .065    | 11.11          | 97.              | 3.5 |
| 8.88         |            |          |           |                |                  |                   |         |         |         |        |            |            |             |     |          | 6.61    | .125    |                |                  |     |

CRUISE 6702

|            |         |       |           |                |                  |                   |     |  |      |      |     |  |      |     |      |      |       |      |      |      |
|------------|---------|-------|-----------|----------------|------------------|-------------------|-----|--|------|------|-----|--|------|-----|------|------|-------|------|------|------|
| STATION 1  | MONTH 4 | DAY 1 | HOUR 10.2 | JULIAN DAY 152 | LATITUDE 42.000N | LONGITUDE 83.140W |     |  |      |      |     |  |      |     |      |      |       |      |      |      |
| 0.         | 14.29   | 2.75  | .003      | 17.            | 7.9              |                   |     |  | 7.6  |      |     |  | 91.  | 1.7 | 228. | 8.24 | .100  | 9.44 | 95.  | 10.5 |
| 7.         | 14.08   | 1.00  | .010      | 18.            | 8.9              | .3                |     |  | 8.3  |      |     |  | 92.  | 2.6 | 226. | 8.42 | .094  | 9.46 | 75.  | 15.3 |
| 9.18       |         |       |           |                |                  |                   |     |  |      |      |     |  |      |     |      | 7.72 | .115  |      |      |      |
| STATION 2  | MONTH 6 | DAY 6 | HOUR 12.4 | JULIAN DAY 157 | LATITUDE 41.900N | LONGITUDE 83.040W |     |  |      |      |     |  |      |     |      |      |       |      |      |      |
| 0.         | 18.04   | 0.00  | .011      | 19.            | 19.6             | .7                | 42. |  | 8.8  | 8.8  | 1.4 |  | 90.  | 3.5 | 268. | 8.35 | .142  | 9.47 | 103. | 14.0 |
| 8.         | 16.21   | .32   | .016      | 17.            | 19.0             | .5                | 42. |  | 8.6  | 6.8  | 1.0 |  | 89.  |     | 248. | 8.21 | .130  | 9.46 | 99.  | 20.0 |
| 9.88       |         |       |           |                |                  |                   |     |  |      |      |     |  |      |     |      | 6.25 | -.122 |      |      |      |
| STATION 3  | MONTH 6 | DAY 6 | HOUR 13.5 | JULIAN DAY 157 | LATITUDE 41.800N | LONGITUDE 83.130W |     |  |      |      |     |  |      |     |      |      |       |      |      |      |
| 0.         | 18.26   | .22   | .012      | 23.            | 14.0             | .3                | 41. |  | 9.4  | 7.4  | 1.7 |  | 95.  | 4.3 | 270. | 8.45 | -.018 | 9.36 | 103. | 12.4 |
| 7.         | 14.96   | 0.00  | .011      | 18.            | 13.6             | .8                | 43. |  | 8.8  | 6.3  | 1.2 |  | 93.  | 0.0 | 265. | 8.10 | .020  | 9.33 | 96.  | 14.4 |
| 9.48       |         |       |           |                |                  |                   |     |  |      |      |     |  |      |     |      | 6.49 | -.140 |      |      |      |
| STATION 4  | MONTH 6 | DAY 6 | HOUR 14.4 | JULIAN DAY 157 | LATITUDE 41.720N | LONGITUDE 83.160W |     |  |      |      |     |  |      |     |      |      |       |      |      |      |
| 0.         | 18.63   | .67   | .004      | 34.            | 19.7             | .1                | 43. |  | 10.4 | 11.1 | 2.2 |  | 103. | 3.5 | 334. | 8.45 | -.002 | 8.15 | 101. | 16.0 |
| 6.         | 17.72   | .41   | .005      | 33.            | 19.7             | .2                | 44. |  | 10.8 | 10.9 | 2.0 |  | 104. | 2.6 | 326. | 8.39 | .021  | 9.29 | 101. | 12.7 |
| 7.68       |         |       |           |                |                  |                   |     |  |      |      |     |  |      |     |      | 7.18 | -.142 |      |      |      |
| STATION 5  | MONTH 6 | DAY 6 | HOUR 16.9 | JULIAN DAY 157 | LATITUDE 41.640N | LONGITUDE 82.950W |     |  |      |      |     |  |      |     |      |      |       |      |      |      |
| 0.         | 17.43   | 0.00  | .002      | 23.            | 20.1             | .3                | 41. |  | 9.4  | 10.6 | 1.6 |  | 96.  | 7.8 | 290. | 8.72 | -.040 | 9.58 | 104. | 12.7 |
| 4.         | 15.03   | .50   | .007      | 25.            | 19.7             | .8                | 44. |  | 9.5  | 10.8 | 1.7 |  | 101. |     | 309. | 8.22 | -.017 | 9.24 | 95.  | 12.4 |
| 8.28       |         |       |           |                |                  |                   |     |  |      |      |     |  |      |     |      | 7.18 | -.121 |      |      |      |
| STATION 6  | MONTH 6 | DAY 7 | HOUR 8.3  | JULIAN DAY 158 | LATITUDE 41.670N | LONGITUDE 82.540W |     |  |      |      |     |  |      |     |      |      |       |      |      |      |
| 0.         | 17.75   | 0.00  | .004      | 23.            | 20.5             | .3                | 42. |  | 8.8  | 11.4 | 1.3 |  | 93.  | 4.3 | 285. | 8.49 | -.033 | 9.51 | 103. | 3.6  |
| 10.        | 15.87   | .67   | .007      | 18.            | 18.6             | .4                | 42. |  | 8.6  | 10.7 | 1.5 |  | 94.  | 2.6 | 270. | 8.28 | -.034 | 9.40 | 94.  | 10.9 |
| 12.28      |         |       |           |                |                  |                   |     |  |      |      |     |  |      |     |      | 6.91 | -.112 |      |      |      |
| STATION 7  | MONTH 6 | DAY 7 | HOUR 8.7  | JULIAN DAY 160 | LATITUDE 41.530N | LONGITUDE 82.590W |     |  |      |      |     |  |      |     |      |      |       |      |      |      |
| 0.         | 18.62   | 0.00  | .002      | 28.            | 21.6             | .4                | 42. |  | 9.2  | 11.4 | 2.1 |  | 96.  | 1.7 | 301. | 8.30 | .050  | 9.22 | 102. | .7   |
| 12.        | 13.80   | .50   | .011      | 20.            | 20.7             | 1.0               | 43. |  | 9.0  | 11.4 | 1.3 |  | 99.  |     | 294. | 8.22 | .062  | 9.17 | 92.  | 2.0  |
| 13.78      |         |       |           |                |                  |                   |     |  |      |      |     |  |      |     |      | 6.48 | -.092 |      |      |      |
| STATION 8  | MONTH 6 | DAY 7 | HOUR 9.9  | JULIAN DAY 160 | LATITUDE 41.525N | LONGITUDE 82.410W |     |  |      |      |     |  |      |     |      |      |       |      |      |      |
| 0.         | 18.60   | 0.30  | .004      | 24.            | 20.6             | .8                | 42. |  | 9.1  | 11.6 | 1.7 |  | 95.  | .9  | 295. | 8.25 | .004  | 9.16 | 101. | 0.6  |
| 8.         | 14.44   | 0.00  | .005      | 30.            | 20.7             | .5                | 41. |  | 9.3  | 11.6 | 1.3 |  | 98.  | 0.0 | 307. | 7.83 | .050  | 9.25 | 94.  | 5.3  |
| 12.        | 13.67   | 0.00  | .000      | 25.            | 20.8             | 1.2               | 42. |  | 8.2  | 11.8 | 1.6 |  | 98.  | 0.0 | 300. | 7.92 | .068  | 9.18 | 91.  | 9.8  |
| 14.30      |         |       |           |                |                  |                   |     |  |      |      |     |  |      |     |      | 7.18 | -.151 |      |      |      |
| STATION 9  | MONTH 6 | DAY 9 | HOUR 11.1 | JULIAN DAY 160 | LATITUDE 41.540N | LONGITUDE 82.210W |     |  |      |      |     |  |      |     |      |      |       |      |      |      |
| 0.         | 18.95   | .50   | .011      | 26.            | 23.5             | .7                | 41. |  | 9.1  | 11.6 | 1.3 |  | 91.  | 3.8 | 298. | 8.35 | -.019 | 9.17 |      | 9.8  |
| 8.         | 13.63   | 0.00  | .005      | 31.            | 23.3             | .2                | 42. |  | 9.5  | 12.5 | 1.1 |  | 95.  | 0.8 | 326. | 7.85 | .018  | 9.26 |      | 4.4  |
| 14.        | 13.13   | .41   | .004      | 26.            | 22.4             | .9                | 43. |  | 8.6  | 11.6 | 1.1 |  | 98.  | 3.0 | 311. | 7.92 | .042  | 9.05 |      | 8.4  |
| 14.88      |         |       |           |                |                  |                   |     |  |      |      |     |  |      |     |      | 6.80 | -.121 |      |      |      |
| STATION 10 | MONTH 6 | DAY 9 | HOUR 12.1 | JULIAN DAY 160 | LATITUDE 41.570N | LONGITUDE 82.050W |     |  |      |      |     |  |      |     |      |      |       |      |      |      |
| 0.         | 19.17   | .92   | 0.000     | 24.            | 23.2             | .4                | 41. |  | 8.8  | 11.3 | 1.4 |  | 91.  | 4.3 | 299. | 8.55 | -.011 | 9.27 | 103. | 2.5  |
| 8.         | 13.49   | .32   | .009      | 25.            | 23.2             | .3                | 43. |  | 8.2  | 11.0 | .9  |  | 95.  | 0.0 | 309. | 7.93 | .053  | 9.19 | 91.  | 2.9  |
| 15.        | 11.20   | 1.54  | 0.000     | 30.            | 24.6             | .5                | 42. |  | 8.8  | 12.8 | 0.2 |  | 98.  | 0.0 | 329. | 8.08 | .072  | 9.11 | 86.  | 5.3  |
| 16.88      |         |       |           |                |                  |                   |     |  |      |      |     |  |      |     |      | 7.00 | -.132 |      |      |      |

LIMNOLOGICAL DATA  
LAKE ERIE

CRUISE 6702

| SAMPLE DEPTH  | WATER TEMP | NO3  | PO4   | SO4  | CL   | SIO2 | CA   | MG   | NA   | K    | T.ALK  | P.ALK | SPEC.      | PH   | EM    | DO    | CO        | TOT. SUSP. | TOTAL COLI |
|---|------------|------|-------|------|------|------|------|------|------|------|--------|-------|------------|------|-------|-------|-----------|------------|------------|
| M   | C          | MG/L | MG/L  | MG/L | MG/L | MG/L | MG/L | MG/L | MG/L | MG/L | MG/L   | MG/L  | MG/L       |      | VOLTS | MG/L  | PER. SAT. | MG/L       | 100ML      |
|   |            | N    | P     |      |      |      |      |      |      |      | CACCO3 | CACOS | MICRO-MGOS |      |       |       |           |            |            |
| STATION 11 MONTH 6 DAY 9 HOUR 13.6 JULIAN DAY 160 LATITUDE 41.610N LONGITUDE 81.420W  |            |      |       |      |      |      |      |      |      |      |        |       |            |      |       |       |           |            |            |
| 0.  | 18.37      | 0.00 | .002  | 28.  | 27.6 | .1   | 44.  | 9.3  | 12.5 | 1.7  | 89.    | 3.5   | 313.       | 8.29 | -.211 | 9.34  | 102.      | 5.6        |            |
| 8.  | 11.99      | 0.00 | 0.000 | 30.  | 28.1 | .1   | 42.  | 9.3  | 12.6 | 2.1  | 94.    | 0.0   | 327.       | 8.03 | -.322 | 9.69  | 93.       | 3.3        |            |
| 17.   | 10.46      | .04  | .007  | 28.  | 28.8 | .5   | 43.  | 9.3  | 13.0 | 2.0  | 98.    | 0.0   | 331.       | 8.09 | -.054 | 9.34  | 86.       | 5.1        |            |
| 18.6B 6.76 -.152  |            |      |       |      |      |      |      |      |      |      |        |       |            |      |       |       |           |            |            |
| STATION 12 MONTH 6 DAY 9 HOUR 14.4 JULIAN DAY 160 LATITUDE 41.540N LONGITUDE 81.790W  |            |      |       |      |      |      |      |      |      |      |        |       |            |      |       |       |           |            |            |
| 0.  | 17.67      | 0.00 | .002  | 29.  | 25.6 | .1   | 44.  | 9.2  | 13.1 | 2.1  | 89.    | 6.9   | 305.       | 8.69 | -.124 | 9.31  | 105.      | 2.4        |            |
| 8.  | 14.51      | 0.00 | 0.002 | 29.  | 28.2 | .1   | 45.  | 9.3  | 13.5 | 1.9  | 93.    | .9    | 327.       | 8.25 | -.121 | 9.53  | 97.       | 5.3        |            |
| 15.   | 11.52      | 0.00 | 0.000 | 28.  | 28.6 | .3   | 42.  | 9.0  | 14.1 | 1.5  | 98.    |       | 330.       | 8.20 | -.135 | 9.21  | 87.       | 2.7        |            |
| 16.5A 6.88 -.140  |            |      |       |      |      |      |      |      |      |      |        |       |            |      |       |       |           |            |            |
| STATION 13 MONTH 6 DAY 13 HOUR 9.3 JULIAN DAY 164 LATITUDE 41.640N LONGITUDE 81.620W  |            |      |       |      |      |      |      |      |      |      |        |       |            |      |       |       |           |            |            |
| 0.  | 21.96      | 0.00 | .007  | 27.  | 28.4 | .4   | 42.  | 9.4  | 13.1 | 2.2  | 86.    |       | 310.       | 8.25 | -.225 | 8.80  | 103.      | 6.2        |            |
| 8.  | 13.07      | 0.00 | 0.000 | 25.  | 29.6 | .2   | 41.  | 9.2  | 13.5 | 1.9  | 94.    | 0.0   | 332.       | 8.19 | -.179 | 9.94  | 88.       | 6.4        |            |
| 15.   | 10.34      | 0.00 | 0.000 | 29.  | 28.1 | .4   | 39.  | 9.2  | 12.5 | 1.6  | 96.    | 0.0   | 324.       | 8.01 | -.178 | 9.55  | ER.       | 4.7        |            |
| 16.5B 7.08 -.099  |            |      |       |      |      |      |      |      |      |      |        |       |            |      |       |       |           |            |            |
| STATION 14 MONTH 6 DAY 13 HOUR 10.4 JULIAN DAY 164 LATITUDE 41.700N LONGITUDE 81.450W |            |      |       |      |      |      |      |      |      |      |        |       |            |      |       |       |           |            |            |
| 0.  | 23.06      | 0.00 | 0.000 | 30.  | 26.6 | .3   | 40.  | 9.2  | 12.2 | 1.8  | 89.    | 8.5   | 308.       | 8.72 | -.040 | 8.93  | 107.      | 3.1        |            |
| 9.  | 18.14      | 0.00 | .005  | 31.  | 27.1 | .6   | 42.  | 9.3  | 14.1 | 1.4  | 96.    | 1.7   | 331.       | 8.33 | -.833 | 8.97  | 98.       | 5.6        |            |
| 11.   | 14.54      | 0.00 | 0.000 | 26.  | 30.6 | .1   | 41.  | 9.2  | 14.2 | .9   | 96.    | 2.5   | 339.       | 8.39 | -.839 | 9.06  | 92.       | 4.9        |            |
| 12.5B   |            |      |       |      |      |      |      |      |      |      |        |       |            |      |       |       |           |            |            |
| STATION 15 MONTH 6 DAY 13 HOUR 11.6 JULIAN DAY 164 LATITUDE 41.780N LONGITUDE 81.520W |            |      |       |      |      |      |      |      |      |      |        |       |            |      |       |       |           |            |            |
| 0.  | 20.19      | .41  | 0.000 | 25.  | 24.1 | .1   | 44.  | 8.6  | 11.5 | 2.9  | 96.    | 2.5   | 314.       | 8.30 | -.013 | 9.15  | 104.      | .4         |            |
| 10.   | 10.58      | 0.00 | 0.002 | 27.  | 24.6 | 0.0  | 43.  | 8.5  | 12.2 | 3.0  | 96.    | 1.7   | 316.       | 8.25 | -.045 | 10.02 | 93.       | .0         |            |
| 20.   | 9.64       | 0.00 | .005  | 27.  | 24.8 | .4   | 42.  | 8.7  | 11.9 | 3.2  | 97.    | 0.0   | 317.       | 8.09 | -.070 | 9.63  | 87.       | 5.8        |            |
| 21.3B 7.03 -.100  |            |      |       |      |      |      |      |      |      |      |        |       |            |      |       |       |           |            |            |
| STATION 16 MONTH 6 DAY 13 HOUR 12.8 JULIAN DAY 164 LATITUDE 41.870N LONGITUDE 81.580W |            |      |       |      |      |      |      |      |      |      |        |       |            |      |       |       |           |            |            |
| 0.  | 20.31      | 0.00 | 0.000 | 24.  | 24.6 | 0.0  | 43.  | 8.9  | 11.4 | 3.0  | 95.    | 2.5   | 315.       | 8.35 | -.020 | 9.01  | 102.      | 1.3        |            |
| 10.   | 12.78      | 0.00 | 0.000 | 25.  | 24.4 | .3   | 44.  | 8.3  | 11.6 | 3.0  | 97.    | 0.0   | 315.       | 8.12 | -.074 | 9.91  | 92.       | 7.7        |            |
| 22.   | 9.16       | 0.00 | 0.000 | 30.  | 23.7 | .7   | 40.  | 8.1  | 11.5 | 3.4  | 100.   | 0.0   | 315.       | 7.95 | -.109 | 9.61  | 84.       | 6.4        |            |
| 23.5B 8.82 -.130  |            |      |       |      |      |      |      |      |      |      |        |       |            |      |       |       |           |            |            |
| STATION 17 MONTH 6 DAY 13 HOUR 14.5 JULIAN DAY 164 LATITUDE 41.780N LONGITUDE 81.280W |            |      |       |      |      |      |      |      |      |      |        |       |            |      |       |       |           |            |            |
| 0.  | 23.36      | 0.00 | .007  | 28.  | 29.1 | .6   | 39.  | 8.8  | 13.2 | 1.6  | 89.    | 4.2   | 325.       | 8.50 | -.021 | 8.90  | 104.      | 10.0       |            |
| 11.   | 13.29      | 0.00 | .005  | 31.  | 17.6 | .3   | 43.  | 8.6  | 12.8 | 2.8  | 98.    | 0.0   | 802.       | 8.08 | -.070 | 9.27  | 92.       |            |            |
| 12.5B 6.82 -.158  |            |      |       |      |      |      |      |      |      |      |        |       |            |      |       |       |           |            |            |
| STATION 18 MONTH 6 DAY 13 HOUR 16.0 JULIAN DAY 164 LATITUDE 41.870N LONGITUDE 81.100W |            |      |       |      |      |      |      |      |      |      |        |       |            |      |       |       |           |            |            |
| 0.  | 22.45      | 0.00 | .005  | 30.  | 29.1 | .1   | 42.  | 9.9  | 11.3 | 2.5  | 94.    | 4.2   | 324.       | 8.43 | -.016 | 8.68  | 103.      |            |            |
| 10.   | 11.99      | 0.00 | .002  | 29.  | 40.4 | .4   | 41.  | 9.8  | 13.9 | 2.3  | 97.    | 0.0   | 365.       | 7.95 | -.025 | 9.52  | 91.       |            |            |
| 16.   | 9.31       | 0.00 | .011  | 27.  | 24.6 | 1.0  | 44.  | 9.2  | 9.3  | 3.0  | 100.   | 0.0   | 314.       | 7.86 | -.065 | 9.29  | 83.       |            |            |
| 18.3A 7.10 -.103  |            |      |       |      |      |      |      |      |      |      |        |       |            |      |       |       |           |            |            |
| STATION 19 MONTH 6 DAY 14 HOUR 8.5 JULIAN DAY 165 LATITUDE 41.950N LONGITUDE 80.850W  |            |      |       |      |      |      |      |      |      |      |        |       |            |      |       |       |           |            |            |
| 0.  | 21.73      | 0.00 | .005  | 27.  | 24.7 | .6   | 41.  | 9.2  | 11.0 | 2.3  | 97.    | 2.5   | 323.       | 8.40 | -.011 | 8.80  | 103.      |            |            |
| 10.   | 10.74      | 0.00 | .005  | 26.  | 24.6 | .5   | 43.  | 9.0  | 10.4 | 2.6  | 99.    | 2.5   | 320.       | 8.40 | -.018 | 9.89  | 92.       |            |            |
| 17.   | 9.14       | .32  | .002  | 25.  | 24.4 | .5   | 43.  | 8.5  | 12.0 | 2.5  | 101.   | 0.0   | 316.       | 8.09 | -.042 | 9.45  | 85.       |            |            |
| 18.6B 7.53 -.112  |            |      |       |      |      |      |      |      |      |      |        |       |            |      |       |       |           |            |            |
| STATION 20 MONTH 6 DAY 14 HOUR 10.2 JULIAN DAY 165 LATITUDE 42.170N LONGITUDE 80.770W |            |      |       |      |      |      |      |      |      |      |        |       |            |      |       |       |           |            |            |
| 0.  | 18.91      | 0.00 | .011  | 25.  | 24.6 | 1.0  | 44.  | 8.4  | 9.7  | 2.8  | 97.    | 0.0   | 308.       | 8.16 | -.005 | 9.29  | 103.      |            |            |
| 10.   | 11.40      | 0.00 | 0.004 | 25.  | 23.7 | 0.0  | 42.  | 7.9  | 9.8  | 1.1  | 97.    |       | 312.       | 8.27 | -.004 | 9.80  | 93.       |            |            |
| 21.   | 9.16       | 0.00 | .005  | 24.  | 23.8 | .8   | 42.  | 8.3  | 9.5  | 1.8  | 101.   | 1.7   | 313.       | 8.35 | -.014 | 9.81  | 88.       |            |            |
| 22.6B 7.70 -.060  |            |      |       |      |      |      |      |      |      |      |        |       |            |      |       |       |           |            |            |
| STATION 21 MONTH 6 DAY 14 HOUR 11.8 JULIAN DAY 165 LATITUDE 41.980N LONGITUDE 80.680W |            |      |       |      |      |      |      |      |      |      |        |       |            |      |       |       |           |            |            |
| 0.  | 21.84      | 0.00 | 0.000 | 28.  | 26.2 | 1.1  | 44.  | 8.9  | 10.8 | 1.3  | 96.    | 4.2   | 314.       | 8.45 | -.025 | 8.64  | 101.      |            |            |
| 8.  | 17.68      | .22  | .011  | 27.  | 24.3 | 1.2  | 43.  | 8.8  | 11.3 | 1.4  | 99.    | 3.4   | 320.       | 8.46 | -.027 | 9.66  | 105.      |            |            |
| 16.   | 9.35       | 0.00 | .005  | 24.  | 24.1 | 1.4  | 42.  | 8.9  | 10.9 | 1.3  | 99.    | 0.0   | 315.       | 8.08 | -.048 | 9.26  | 84.       |            |            |
| 16.8B 7.40 -.050  |            |      |       |      |      |      |      |      |      |      |        |       |            |      |       |       |           |            |            |
| STATION 22 MONTH 6 DAY 14 HOUR 13.4 JULIAN DAY 165 LATITUDE 42.050N LONGITUDE 80.460W |            |      |       |      |      |      |      |      |      |      |        |       |            |      |       |       |           |            |            |
| 0.  | 21.63      | 0.00 | .004  | 24.  | 24.4 | 1.2  | 43.  | 8.6  | 11.2 | 1.1  | 97.    | 2.5   | 313.       | 8.42 | -.012 | 8.50  | 100.      |            |            |
| 8.  | 12.79      | .22  | .002  | 24.  | 24.6 | 1.4  | 42.  | 8.9  | 11.3 | 1.6  | 97.    | 1.7   | 315.       | 8.40 | -.035 | 9.50  | 95.       |            |            |
| 12.   | 9.99       | .50  | .011  | 24.  | 24.5 | 1.5  | 42.  | 8.7  | 11.0 | 1.3  | 101.   |       | 313.       | 8.25 | -.065 | 9.53  | 87.       |            |            |
| 13.4B 7.25 -.040  |            |      |       |      |      |      |      |      |      |      |        |       |            |      |       |       |           |            |            |
| STATION 23 MONTH 6 DAY 14 HOUR 14.5 JULIAN DAY 165 LATITUDE 42.100N LONGITUDE 80.250W |            |      |       |      |      |      |      |      |      |      |        |       |            |      |       |       |           |            |            |
| 0.  | 22.27      | 0.00 | .002  | 27.  | 24.9 | 0.0  | 43.  | 8.6  | 11.5 | 1.5  | 96.    | 4.2   | 314.       | 8.50 | -.160 | 8.40  | 100.      |            |            |
| 9.  | 13.91      | .59  | .004  | 26.  | 24.5 | .1   | 42.  | 8.0  | 11.3 | 1.2  | 101.   | 4.2   | 317.       | 8.48 | -.152 | 9.40  | 84.       |            |            |
| 9.8B 7.22 -.140   |            |      |       |      |      |      |      |      |      |      |        |       |            |      |       |       |           |            |            |



LIMNOLOGICAL DATA  
LAKE ERIE

CRUISE 4702

| SAMPLE DEPTH | WATER TEMP | NO3 MG/L | PO4 MG/L  | SO4 MG/L       | CL MG/L          | SI02 MG/L         | CA MG/L | MG MG/L | NA MG/L | K MG/L | TALK CICC3 | PALK CACC3 | SPEC. COND. MICRO-MOS | PH VOLTS | CH MG/L | DO PCT. | TOT. SUSP. SAT. | TOTAL COLI MATR | DOORL |  |
|--------------|------------|----------|-----------|----------------|------------------|-------------------|---------|---------|---------|--------|------------|------------|-----------------------|----------|---------|---------|-----------------|-----------------|-------|--|
| M            | C          | M        | P         | M              | M                | M                 | M       | M       | M       | M      | M          | M          | M                     | M        | M       | M       | M               | M               | M     |  |
| STATION 24   | MONTH 5    | DAY 25   | HOUR 9.4  | JULIAN DAY 145 | LATITUDE 42.140N | LONGITUDE 79.020W |         |         |         |        |            |            |                       |          |         |         |                 |                 |       |  |
| 0.           | 9.62       | .32      | .004      | 29.            | 25.7             |                   |         |         |         |        |            |            |                       |          |         |         |                 |                 |       |  |
| 8.           | 9.03       | .04      | .006      | 27.            | 26.4             |                   |         |         |         |        |            |            |                       |          |         |         |                 |                 |       |  |
| 12.          | 7.59       | 1.14     | .004      | 27.            | 26.3             | .1                |         |         |         |        |            |            |                       |          |         |         |                 |                 |       |  |
| 13.48        |            |          |           |                |                  |                   |         |         |         |        |            |            |                       |          |         |         |                 |                 |       |  |
| STATION 25   | MONTH 5    | DAY 25   | HOUR 10.8 | JULIAN DAY 145 | LATITUDE 42.270N | LONGITUDE 79.820W |         |         |         |        |            |            |                       |          |         |         |                 |                 |       |  |
| 0.           | 8.27       | .41      | 0.000     | 27.            | 25.7             |                   |         |         |         |        |            |            |                       |          |         |         |                 |                 |       |  |
| 8.           | 7.19       | .22      | .001      | 28.            | 25.7             |                   |         |         |         |        |            |            |                       |          |         |         |                 |                 |       |  |
| 14.          | 6.23       | .50      | .010      | 25.            | 26.9             | .1                |         |         |         |        |            |            |                       |          |         |         |                 |                 |       |  |
| 17.78        |            |          |           |                |                  |                   |         |         |         |        |            |            |                       |          |         |         |                 |                 |       |  |
| STATION 26   | MONTH 5    | DAY 25   | HOUR 12.3 | JULIAN DAY 145 | LATITUDE 42.350N | LONGITUDE 79.630W |         |         |         |        |            |            |                       |          |         |         |                 |                 |       |  |
| 0.           | 8.11       | 1.07     | 0.000     | 25.            | 25.1             |                   |         |         |         |        |            |            |                       |          |         |         |                 |                 |       |  |
| 8.           | 5.98       | .59      | .003      | 28.            | 25.1             |                   |         |         |         |        |            |            |                       |          |         |         |                 |                 |       |  |
| 16.          | 5.62       | .50      | .003      | 25.            | 25.3             | .1                |         |         |         |        |            |            |                       |          |         |         |                 |                 |       |  |
| 18.08        |            |          |           |                |                  |                   |         |         |         |        |            |            |                       |          |         |         |                 |                 |       |  |
| STATION 27   | MONTH 5    | DAY 25   | HOUR 13.5 | JULIAN DAY 145 | LATITUDE 42.460N | LONGITUDE 79.520W |         |         |         |        |            |            |                       |          |         |         |                 |                 |       |  |
| 0.           | 8.53       | .59      | .006      | 25.            | 25.6             |                   |         |         |         |        |            |            |                       |          |         |         |                 |                 |       |  |
| 10.          | 6.85       | .22      | 0.000     | 25.            | 26.4             |                   |         |         |         |        |            |            |                       |          |         |         |                 |                 |       |  |
| 25.          | 5.60       | 0.00     | .004      | 26.            | 24.6             | .1                |         |         |         |        |            |            |                       |          |         |         |                 |                 |       |  |
| 27.18        |            |          |           |                |                  |                   |         |         |         |        |            |            |                       |          |         |         |                 |                 |       |  |
| STATION 28   | MONTH 5    | DAY 25   | HOUR 14.6 | JULIAN DAY 145 | LATITUDE 42.560N | LONGITUDE 79.540W |         |         |         |        |            |            |                       |          |         |         |                 |                 |       |  |
| 0.           | 8.75       | .50      | .004      | 24.            | 23.8             |                   |         |         |         |        |            |            |                       |          |         |         |                 |                 |       |  |
| 10.          | 4.99       | .59      | .010      | 24.            | 23.5             |                   |         |         |         |        |            |            |                       |          |         |         |                 |                 |       |  |
| 30.          | 4.66       | .59      | 0.000     | 24.            | 22.7             |                   |         |         |         |        |            |            |                       |          |         |         |                 |                 |       |  |
| 41.          | 4.64       | .32      | .003      | 24.            | 23.4             | .2                |         |         |         |        |            |            |                       |          |         |         |                 |                 |       |  |
| 43.98        |            |          |           |                |                  |                   |         |         |         |        |            |            |                       |          |         |         |                 |                 |       |  |
| STATION 29   | MONTH 5    | DAY 26   | HOUR 1.7  | JULIAN DAY 146 | LATITUDE 42.530N | LONGITUDE 79.330W |         |         |         |        |            |            |                       |          |         |         |                 |                 |       |  |
| 0.           | 8.78       | .41      | 0.000     | 24.            | 23.6.            |                   |         |         |         |        |            |            |                       |          |         |         |                 |                 |       |  |
| 10.          | 8.65       | .76      | .004      | 26.            | 22.8             |                   |         |         |         |        |            |            |                       |          |         |         |                 |                 |       |  |
| 19.          | 6.56       | .59      | .002      | 26.            | 22.3             | .1                |         |         |         |        |            |            |                       |          |         |         |                 |                 |       |  |
| 20.74        |            |          |           |                |                  |                   |         |         |         |        |            |            |                       |          |         |         |                 |                 |       |  |
| STATION 30   | MONTH 5    | DAY 26   | HOUR 9.0  | JULIAN DAY 146 | LATITUDE 42.600N | LONGITUDE 79.180W |         |         |         |        |            |            |                       |          |         |         |                 |                 |       |  |
| 0.           | 8.61       | .76      | .004      | 26.            | 24.1             |                   |         |         |         |        |            |            |                       |          |         |         |                 |                 |       |  |
| 10.          | 7.49       | .92      | .005      | 26.            | 25.8             |                   |         |         |         |        |            |            |                       |          |         |         |                 |                 |       |  |
| 17.          | 6.77       | 1.91     | .007      | 25.            | 25.9             | .1                |         |         |         |        |            |            |                       |          |         |         |                 |                 |       |  |
| 19.28        |            |          |           |                |                  |                   |         |         |         |        |            |            |                       |          |         |         |                 |                 |       |  |
| STATION 31   | MONTH 5    | DAY 26   | HOUR 10.4 | JULIAN DAY 146 | LATITUDE 42.730N | LONGITUDE 79.050W |         |         |         |        |            |            |                       |          |         |         |                 |                 |       |  |
| 0.           | 9.56       | 0.00     | 0.000     | 28.            | 28.1             |                   |         |         |         |        |            |            |                       |          |         |         |                 |                 |       |  |
| 8.           | 9.08       | .98      | 0.003     | 27.            | 27.6             |                   |         |         |         |        |            |            |                       |          |         |         |                 |                 |       |  |
| 14.          | 7.61       | .10      | .002      | 27.            | 26.6             | 0.0               |         |         |         |        |            |            |                       |          |         |         |                 |                 |       |  |
| 16.28        |            |          |           |                |                  |                   |         |         |         |        |            |            |                       |          |         |         |                 |                 |       |  |
| STATION 32   | MONTH 5    | DAY 26   | HOUR 11.5 | JULIAN DAY 146 | LATITUDE 42.840N | LONGITUDE 78.920W |         |         |         |        |            |            |                       |          |         |         |                 |                 |       |  |
| 0.           | 9.00       | .76      | .002      | 26.            | 27.2             |                   |         |         |         |        |            |            |                       |          |         |         |                 |                 |       |  |
| 12.          | 7.84       | 2.10     | .005      | 26.            | 26.4             |                   |         |         |         |        |            |            |                       |          |         |         |                 |                 |       |  |
| 12.48        |            |          |           |                |                  |                   |         |         |         |        |            |            |                       |          |         |         |                 |                 |       |  |
| STATION 33   | MONTH 5    | DAY 26   | HOUR 12.4 | JULIAN DAY 146 | LATITUDE 42.820N | LONGITUDE 79.070W |         |         |         |        |            |            |                       |          |         |         |                 |                 |       |  |
| 0.           | 9.34       | .10      | .007      | 25.            | 25.2             |                   |         |         |         |        |            |            |                       |          |         |         |                 |                 |       |  |
| 10.          | 7.87       | 1.14     | .004      | 28.            | 25.6             |                   |         |         |         |        |            |            |                       |          |         |         |                 |                 |       |  |
| 16.          | 7.45       | 1.91     | .009      | 25.            | 24.7             | .1                |         |         |         |        |            |            |                       |          |         |         |                 |                 |       |  |
| 18.08        |            |          |           |                |                  |                   |         |         |         |        |            |            |                       |          |         |         |                 |                 |       |  |
| STATION 34   | MONTH 5    | DAY 26   | HOUR 13.7 | JULIAN DAY 146 | LATITUDE 42.720N | LONGITUDE 79.220W |         |         |         |        |            |            |                       |          |         |         |                 |                 |       |  |
| 0.           | 9.37       | .32      | 0.000     | 25.            | 25.7             |                   |         |         |         |        |            |            |                       |          |         |         |                 |                 |       |  |
| 8.           | 8.22       | 4.68     | .002      | 24.            | 24.9             |                   |         |         |         |        |            |            |                       |          |         |         |                 |                 |       |  |
| 20.          | 7.05       | 3.92     | .002      | 25.            | 24.4             | .1                |         |         |         |        |            |            |                       |          |         |         |                 |                 |       |  |
| 21.98        |            |          |           |                |                  |                   |         |         |         |        |            |            |                       |          |         |         |                 |                 |       |  |
| STATION 35   | MONTH 5    | DAY 26   | HOUR 15.0 | JULIAN DAY 146 | LATITUDE 42.820N | LONGITUDE 79.200W |         |         |         |        |            |            |                       |          |         |         |                 |                 |       |  |
| 0.           | 9.77       | 1.91     | .007      | 27.            | 24.1             |                   |         |         |         |        |            |            |                       |          |         |         |                 |                 |       |  |
| 10.          | 8.25       | 2.83     | .002      | 28.            | 23.8             |                   |         |         |         |        |            |            |                       |          |         |         |                 |                 |       |  |
| 17.          | 7.45       | 3.41     | 0.000     | 27.            | 23.7             | .1                |         |         |         |        |            |            |                       |          |         |         |                 |                 |       |  |
| 19.28        |            |          |           |                |                  |                   |         |         |         |        |            |            |                       |          |         |         |                 |                 |       |  |
| STATION 36   | MONTH 5    | DAY 27   | HOUR 8.7  | JULIAN DAY 147 | LATITUDE 42.800N | LONGITUDE 79.580W |         |         |         |        |            |            |                       |          |         |         |                 |                 |       |  |
| 0.           | 9.36       | 3.08     | 0.000     | 28.            | 22.5             |                   |         |         |         |        |            |            |                       |          |         |         |                 |                 |       |  |
| 10.          | 7.25       | 2.75     | 0.000     | 25.            | 22.7             |                   |         |         |         |        |            |            |                       |          |         |         |                 |                 |       |  |
| 20.          | .65        | 3.08     | 0.000     | 28.            | 23.2             | .1                |         |         |         |        |            |            |                       |          |         |         |                 |                 |       |  |
| 21.38        |            |          |           |                |                  |                   |         |         |         |        |            |            |                       |          |         |         |                 |                 |       |  |

LIMNOLOGICAL DATA  
LAKE ERIE

CRUISE 6702

| SAMPLE DEPTH | WATER TEMP | NO3 MG/L | PO4 MG/L  | SO4 MG/L       | CL MG/L          | SIO2 MG/L         | CA MG/L | MG MG/L | NA MG/L | K MG/L | T.ALK CAEQ3 MG/L | P.ALK CAEQ3 MG/L | SPEC. COND. MICRO-MOS | PH   | CH VOLTS | DO MG/L | DO PCT. | TOT. SUSP MATR MG/L | TOTAL ECLL 100ML |
|--------------|------------|----------|-----------|----------------|------------------|-------------------|---------|---------|---------|--------|------------------|------------------|-----------------------|------|----------|---------|---------|---------------------|------------------|
| STATION 37   | MONTH 5    | DAY 27   | HOUR 9.8  | JULIAN DAY 147 | LATITUDE 42.680N | LONGITUDE 79.680W |         |         |         |        |                  |                  |                       |      |          |         |         |                     |                  |
| 0.           | 4.19       | .84      | 0.000     | 25.            | 22.3             | 9.2               | 96.     | 2.6     | 306.    | 8.49   | .062             | 11.28            | 101.                  | 1.1  |          |         |         |                     |                  |
| 10.          | 6.11       | 1.00     | 0.000     | 27.            | 22.7             | 9.0               | 97.     | 0.0     | 314.    | 8.12   | .092             | 11.78            | 99.                   | 1.6  |          |         |         |                     |                  |
| 20.          | 6.05       | .67      | .011      | 27.            | 23.2             | 9.2               | 96.     | 0.0     | 314.    | 8.09   | .115             | 11.59            | 96.                   | .2   |          |         |         |                     |                  |
| 31.          | 5.60       | 1.14     | .004      | 24.            | 23.2             | .2                | 99.     | 0.0     | 315.    | 8.19   | .128             | 11.41            | 94.                   | 5.1  |          |         |         |                     |                  |
| 33.2B        |            |          |           |                |                  |                   |         |         |         |        |                  |                  |                       |      |          |         |         |                     |                  |
| STATION 39   | MONTH 5    | DAY 27   | HOUR 11.7 | JULIAN DAY 147 | LATITUDE 42.620N | LONGITUDE 80.000W |         |         |         |        |                  |                  |                       |      |          |         |         |                     |                  |
| 0.           | 9.55       | .41      | .010      | 26.            | 23.2             | 8.4               | 97.     | 2.6     | 312.    | 8.35   | .047             | 11.13            | 101.                  | 9.3  |          |         |         |                     |                  |
| 10.          | 5.81       | .92      | .010      | 25.            | 23.7             | 8.9               | 97.     |         | 313.    | 8.22   | .068             | 11.76            | 97.                   | 4.7  |          |         |         |                     |                  |
| 30.          | 4.99       | 1.00     | .013      | 26.            | 23.5             | 8.8               | 97.     | 0.0     | 315.    | 8.11   | .089             | 11.40            | 95.                   | 2.2  |          |         |         |                     |                  |
| 41.          | 4.71       | .41      | .003      | 25.            | 23.7             | .2                | 99.     | 0.0     | 317.    | 8.04   | .103             | 11.83            | 95.                   | 6.4  |          |         |         |                     |                  |
| 42.49        |            |          |           |                |                  |                   |         |         |         |        |                  |                  |                       |      |          |         |         |                     |                  |
| STATION 40   | MONTH 5    | DAY 27   | HOUR 12.7 | JULIAN DAY 147 | LATITUDE 42.520N | LONGITUDE 79.940W |         |         |         |        |                  |                  |                       |      |          |         |         |                     |                  |
| 0.           | 8.42       | .41      | .008      | 26.            | 23.5             | 8.7               | 97.     |         | 318.    | 8.22   | .070             | 11.45            | 101.                  | 7.1  |          |         |         |                     |                  |
| 10.          | 5.68       | .41      | .013      | 26.            | 23.8             | 8.8               | 99.     | 0.0     | 318.    | 8.06   | .062             | 11.86            | 98.                   | 2.4  |          |         |         |                     |                  |
| 30.          | 5.48       | .57      | .016      | 26.            | 23.7             | 9.0               | 99.     | 0.0     | 318.    | 8.00   | .097             | 11.07            | 97.                   | 3.3  |          |         |         |                     |                  |
| 59.          | 4.86       | 1.91     | .004      | 23.            | 23.8             | .1                | 99.     | 0.0     | 318.    | 7.99   | .112             | 11.00            | 96.                   | 6.4  |          |         |         |                     |                  |
| 61.6B        |            |          |           |                |                  |                   |         |         |         |        |                  |                  |                       |      |          |         |         |                     |                  |
| STATION 41   | MONTH 5    | DAY 27   | HOUR 13.6 | JULIAN DAY 147 | LATITUDE 42.430N | LONGITUDE 79.960W |         |         |         |        |                  |                  |                       |      |          |         |         |                     |                  |
| 0.           | 8.43       | 1.45     | .015      | 25.            | 23.4             | 8.7               | 98.     | 2.6     | 314.    | 8.32   | .065             | 11.51            | 101.                  | 4.4  |          |         |         |                     |                  |
| 10.          | 6.12       | 3.98     | .008      | 25.            | 23.4             | 6.6               | 99.     | .3      | 314.    | 8.24   | .088             | 11.90            | 99.                   | 5.6  |          |         |         |                     |                  |
| 30.          | 4.79       | 3.00     | .013      | 25.            | 23.8             | 8.9               | 98.     | 0.0     | 314.    | 8.12   | .105             | 12.10            | 97.                   | 5.8  |          |         |         |                     |                  |
| 44.          | 4.68       | 2.58     | .008      | 25.            | 24.1             | .1                | 99.     | 0.0     | 315.    | 8.04   | .121             | 12.03            | 96.                   | 3.1  |          |         |         |                     |                  |
| 46.0B        |            |          |           |                |                  |                   |         |         |         |        |                  |                  |                       |      |          |         |         |                     |                  |
| STATION 42   | MONTH 5    | DAY 27   | HOUR 14.4 | JULIAN DAY 147 | LATITUDE 42.370N | LONGITUDE 79.920W |         |         |         |        |                  |                  |                       |      |          |         |         |                     |                  |
| 0.           | 11.32      | .50      | .006      | 26.            | 23.6             | 9.4               | 97.     | 5.2     | 314.    | 8.62   | .080             | 10.77            | 102.                  | .9   |          |         |         |                     |                  |
| 10.          | 5.55       | 2.30     | .008      | 25.            | 24.1             | 8.2               | 97.     |         | 314.    | 8.20   | .101             | 11.55            | 95.                   | 6.4  |          |         |         |                     |                  |
| 30.          | 4.60       | .32      | .001      | 24.            | 24.5             | 7.9               | 99.     | 0.0     | 314.    | 8.15   | .125             | 11.64            | 93.                   | 4.0  |          |         |         |                     |                  |
| 37.          | 4.29       | .10      | 0.000     | 23.            | 23.8             | .1                | 99.     | 0.0     | 314.    | 8.12   | .134             | 11.66            | 93.                   | 6.7  |          |         |         |                     |                  |
| 39.0B        |            |          |           |                |                  |                   |         |         |         |        |                  |                  |                       |      |          |         |         |                     |                  |
| STATION 43   | MONTH 5    | DAY 29   | HOUR 11.0 | JULIAN DAY 149 | LATITUDE 42.160N | LONGITUDE 80.330W |         |         |         |        |                  |                  |                       |      |          |         |         |                     |                  |
| 0.           | 9.22       | 1.37     | .001      | 23.            | 23.4             | 8.4               | 98.     |         | 316.    | 8.20   | .049             | 11.72            | 105.                  | 9.8  |          |         |         |                     |                  |
| 10.          | 9.26       | .76      | .003      | 23.            | 23.7             | 8.9               | 98.     | 1.7     | 311.    | 8.32   | .040             | 11.40            | 107.                  | 3.3  |          |         |         |                     |                  |
| 20.          | 7.93       | .67      | .006      | 24.            | 23.8             | .1                | 98.     | 1.7     | 311.    | 8.35   | .042             | 11.48            | 103.                  | 6.4  |          |         |         |                     |                  |
| 23.5B        |            |          |           |                |                  |                   |         |         |         |        |                  |                  |                       |      |          |         |         |                     |                  |
| STATION 44   | MONTH 5    | DAY 29   | HOUR 11.8 | JULIAN DAY 149 | LATITUDE 42.250N | LONGITUDE 80.330W |         |         |         |        |                  |                  |                       |      |          |         |         |                     |                  |
| 0.           | 8.85       | 0.00     | 0.000     | 24.            | 22.7             | 9.1               | 99.     | 2.6     | 304.    | 8.38   | .098             | 11.84            | 106.                  | 6.7  |          |         |         |                     |                  |
| 8.           | 8.88       | 1.21     | 0.000     | 23.            | 22.9             | 8.9               | 98.     | 2.6     | 308.    | 8.26   | .070             | 11.95            | 106.                  | 10.7 |          |         |         |                     |                  |
| 16.          | 8.76       | 0.00     | .001      | 22.            | 23.0             | .1                | 98.     | 3.5     | 305.    | 8.46   | .080             | 12.03            | 107.                  | 8.4  |          |         |         |                     |                  |
| 18.9B        |            |          |           |                |                  |                   |         |         |         |        |                  |                  |                       |      |          |         |         |                     |                  |
| STATION 45   | MONTH 5    | DAY 29   | HOUR 12.7 | JULIAN DAY 149 | LATITUDE 42.330N | LONGITUDE 80.400W |         |         |         |        |                  |                  |                       |      |          |         |         |                     |                  |
| 0.           | 9.45       | .50      | .004      | 24.            | 23.3             | 9.1               | 96.     | 0.0     | 306.    | 8.13   | .076             | 11.74            | 106.                  | 16.4 |          |         |         |                     |                  |
| 8.           | 9.45       | 0.00     | 0.000     | 23.            | 23.3             | 9.0               | 96.     |         | 308.    | 8.25   | .100             | 11.91            | 104.                  | 10.6 |          |         |         |                     |                  |
| 16.          | 9.27       | 1.00     | .006      | 21.            | 23.7             | .1                | 97.     | .9      | 308.    | 8.38   | .111             | 11.78            | 106.                  | 11.6 |          |         |         |                     |                  |
| 18.9B        |            |          |           |                |                  |                   |         |         |         |        |                  |                  |                       |      |          |         |         |                     |                  |
| STATION 46   | MONTH 5    | DAY 29   | HOUR 14.2 | JULIAN DAY 149 | LATITUDE 42.470N | LONGITUDE 80.460W |         |         |         |        |                  |                  |                       |      |          |         |         |                     |                  |
| 0.           | 9.43       | 0.00     | .003      | 21.            | 23.7             | 8.7               | 96.     | 0.0     | 304.    | 8.12   | .065             | 11.37            | 104.                  | 11.2 |          |         |         |                     |                  |
| 8.           | 9.75       | .50      | .006      | 23.            | 22.7             | 9.0               | 95.     |         | 306.    | 8.22   | .080             | 11.45            | 104.                  | 3.1  |          |         |         |                     |                  |
| 16.          | 8.87       | 0.00     | 0.000     | 21.            | 22.7             | .1                | 96.     | 1.7     | 306.    | 8.30   | .093             | 11.51            | 103.                  | 3.3  |          |         |         |                     |                  |
| 18.3B        |            |          |           |                |                  |                   |         |         |         |        |                  |                  |                       |      |          |         |         |                     |                  |
| STATION 47   | MONTH 5    | DAY 29   | HOUR 15.6 | JULIAN DAY 149 | LATITUDE 42.520N | LONGITUDE 80.480W |         |         |         |        |                  |                  |                       |      |          |         |         |                     |                  |
| 0.           | 10.07      | 1.07     | .004      | 22.            | 22.7             | 9.1               | 97.     |         | 307.    | 8.22   | .088             | 11.69            | 102.                  | 8.1  |          |         |         |                     |                  |
| 8.           | 9.99       | 0.00     | .004      | 22.            | 22.9             | 8.8               | 97.     | .9      | 308.    | 8.27   | .100             | 11.19            | 102.                  | 6.4  |          |         |         |                     |                  |
| 15.          | 9.32       | .32      | 0.003     | 23.            | 23.5             | .1                | 98.     | .9      | 308.    | 8.28   | .129             | 11.30            | 102.                  | 9.4  |          |         |         |                     |                  |
| 16.8B        |            |          |           |                |                  |                   |         |         |         |        |                  |                  |                       |      |          |         |         |                     |                  |
| STATION 48   | MONTH 5    | DAY 30   | HOUR 7.0  | JULIAN DAY 150 | LATITUDE 42.520N | LONGITUDE 80.490W |         |         |         |        |                  |                  |                       |      |          |         |         |                     |                  |
| 0.           | 9.78       | 0.00     | 0.000     | 23.            | 24.1             | 9.2               | 94.     | 0.0     | 302.    | 8.12   | .085             | 10.96            | 100.                  | 4.0  |          |         |         |                     |                  |
| 10.          | 9.65       | .10      | .008      | 23.            | 24.6             | 8.7               | 94.     | 0.0     | 304.    | 8.10   | .086             | 11.04            | 104.                  | 9.3  |          |         |         |                     |                  |
| 17.          | 8.08       | .84      | .001      | 22.            | 24.2             | .1                | 97.     | 0.0     | 305.    | 8.00   | .099             | 11.23            | 98.                   | 6.4  |          |         |         |                     |                  |
| 18.9B        |            |          |           |                |                  |                   |         |         |         |        |                  |                  |                       |      |          |         |         |                     |                  |
| STATION 49   | MONTH 5    | DAY 30   | HOUR 8.3  | JULIAN DAY 150 | LATITUDE 42.350N | LONGITUDE 80.850W |         |         |         |        |                  |                  |                       |      |          |         |         |                     |                  |
| 0.           | 9.42       | 0.00     | .008      | 24.            | 23.8             | 9.3               | 95.     | 0.0     | 301.    | 8.18   | .075             | 11.06            | 103.                  | 6.0  |          |         |         |                     |                  |
| 10.          | 10.28      | 1.14     | 0.000     | 24.            | 24.1             | 9.1               | 95.     | 0.0     | 304.    | 8.12   | .092             | 11.23            | 103.                  | 2.0  |          |         |         |                     |                  |
| 20.          | 8.06       | 0.00     | .003      | 23.            | 24.1             | .1                | 96.     | 0.0     | 307.    | 8.00   | .113             | 11.36            | 99.                   | 9.6  |          |         |         |                     |                  |
| 21.39        |            |          |           |                |                  |                   |         |         |         |        |                  |                  |                       |      |          |         |         |                     |                  |

LIMNOLOGICAL DATA  
LAKE ERYE

CRUISE 6702

| SAMPLE DEPTH<br>M   | WATER TEMP<br>C | NO3<br>MG/L | PO4<br>MO/L | SO4<br>MG/L | CL<br>MG/L | SI02<br>MG/L | CA<br>MG/L | MG<br>MG/L | NA<br>MG/L | K<br>MG/L | TOTAL<br>CAC03<br>MG/L | POTAL<br>CAC03<br>MG/L | SPEC.<br>COND.<br>MICRO-<br>MHOS | PH | EH<br>VOLTS | DO<br>MG/L | CO<br>PCT. | TOT.<br>SUSP<br>ML | TOTAL<br>COLI<br>100ML<br>NO/L |
|---|-----------------|-------------|-------------|-------------|------------|--------------|------------|------------|------------|-----------|------------------------|------------------------|----------------------------------|----|-------------|------------|------------|--------------------|--------------------------------|
| STATION 50 MONTH 5 DAY 30 HOUR 9.7 JULIAN DAY 150 LATITUDE 42.310N LONGITUDE 81.320W  |                 |             |             |             |            |              |            |            |            |           |                        |                        |                                  |    |             |            |            |                    |                                |
| 0.  | 9.45            | .10         | 0.000       | 24.         | 24.1       |              |            |            |            |           |                        |                        |                                  |    |             |            |            |                    |                                |
| 10.   | 9.02            | 0.00        | 0.000       | 23.         | 23.7       |              |            |            |            |           |                        |                        |                                  |    |             |            |            |                    |                                |
| 20.   | 7.93            | .92         | 0.000       | 21.         | 23.5       | .1           |            |            |            |           |                        |                        |                                  |    |             |            |            |                    |                                |
| 22.3M   |                 |             |             |             |            |              |            |            |            |           |                        |                        |                                  |    |             |            |            |                    |                                |
| STATION 51 MONTH 5 DAY 30 HOUR 11.1 JULIAN DAY 150 LATITUDE 42.250N LONGITUDE 81.320W |                 |             |             |             |            |              |            |            |            |           |                        |                        |                                  |    |             |            |            |                    |                                |
| 0.  | 9.58            | 0.00        | 0.003       | 22.         | 24.2       |              |            |            |            |           |                        |                        |                                  |    |             |            |            |                    |                                |
| 10.   | 8.87            | .32         | 0.004       | 23.         | 24.1       |              |            |            |            |           |                        |                        |                                  |    |             |            |            |                    |                                |
| 21.   | 7.82            | 0.00        | 0.008       | 24.         | 24.6       | .1           |            |            |            |           |                        |                        |                                  |    |             |            |            |                    |                                |
| 23.2M   |                 |             |             |             |            |              |            |            |            |           |                        |                        |                                  |    |             |            |            |                    |                                |
| STATION 52 MONTH 5 DAY 30 HOUR 12.3 JULIAN DAY 150 LATITUDE 42.350N LONGITUDE 81.370W |                 |             |             |             |            |              |            |            |            |           |                        |                        |                                  |    |             |            |            |                    |                                |
| 0.  | 10.07           | .32         | 0.000       | 24.         | 24.0       |              |            |            |            |           |                        |                        |                                  |    |             |            |            |                    |                                |
| 10.   | 9.06            | 0.00        | 0.003       | 24.         | 23.8       |              |            |            |            |           |                        |                        |                                  |    |             |            |            |                    |                                |
| 20.   | 7.91            | 0.00        | 0.000       | 24.         | 24.1       | .1           |            |            |            |           |                        |                        |                                  |    |             |            |            |                    |                                |
| 22.3M   |                 |             |             |             |            |              |            |            |            |           |                        |                        |                                  |    |             |            |            |                    |                                |
| STATION 53 MONTH 5 DAY 30 HOUR 14.3 JULIAN DAY 150 LATITUDE 42.380N LONGITUDE 81.610W |                 |             |             |             |            |              |            |            |            |           |                        |                        |                                  |    |             |            |            |                    |                                |
| 0.  | 11.98           | 0.00        | 0.003       | 23.         | 23.7       |              |            |            |            |           |                        |                        |                                  |    |             |            |            |                    |                                |
| 10.   | 9.82            | 0.00        | 0.000       | 23.         | 24.1       |              |            |            |            |           |                        |                        |                                  |    |             |            |            |                    |                                |
| 19.   | 9.16            | 0.00        | 0.001       | 24.         | 24.0       | .1           |            |            |            |           |                        |                        |                                  |    |             |            |            |                    |                                |
| 21.0M   |                 |             |             |             |            |              |            |            |            |           |                        |                        |                                  |    |             |            |            |                    |                                |
| STATION 54 MONTH 5 DAY 30 HOUR 16.1 JULIAN DAY 150 LATITUDE 42.240N LONGITUDE 81.810W |                 |             |             |             |            |              |            |            |            |           |                        |                        |                                  |    |             |            |            |                    |                                |
| 0.  | 12.20           | 0.00        | 0.001       | 25.         | 23.6       |              |            |            |            |           |                        |                        |                                  |    |             |            |            |                    |                                |
| 8.  | 12.33           | .22         | 0.006       | 24.         | 22.7       |              |            |            |            |           |                        |                        |                                  |    |             |            |            |                    |                                |
| 17.   | 9.99            | 0.00        | 0.000       | 23.         | 23.7       | .2           |            |            |            |           |                        |                        |                                  |    |             |            |            |                    |                                |
| 19.2M   |                 |             |             |             |            |              |            |            |            |           |                        |                        |                                  |    |             |            |            |                    |                                |
| STATION 55 MONTH 5 DAY 31 HOUR 7.4 JULIAN DAY 151 LATITUDE 42.120N LONGITUDE 81.740W  |                 |             |             |             |            |              |            |            |            |           |                        |                        |                                  |    |             |            |            |                    |                                |
| 0.  | 10.35           | .32         | 0.006       | 23.         | 23.8       |              |            |            |            |           |                        |                        |                                  |    |             |            |            |                    |                                |
| 10.   | 10.37           | 0.00        | 0.000       | 24.         | 24.3       |              |            |            |            |           |                        |                        |                                  |    |             |            |            |                    |                                |
| 21.   | 8.90            | .67         | 0.004       | 25.         | 23.9       | .1           |            |            |            |           |                        |                        |                                  |    |             |            |            |                    |                                |
| 23.8M   |                 |             |             |             |            |              |            |            |            |           |                        |                        |                                  |    |             |            |            |                    |                                |
| STATION 56 MONTH 5 DAY 31 HOUR 8.5 JULIAN DAY 151 LATITUDE 43.090N LONGITUDE 81.660W  |                 |             |             |             |            |              |            |            |            |           |                        |                        |                                  |    |             |            |            |                    |                                |
| 0.  | 10.09           | 2.10        | 0.000       | 23.         | 24.0       |              |            |            |            |           |                        |                        |                                  |    |             |            |            |                    |                                |
| 10.   | 10.10           | 0.00        | 0.003       | 23.         | 24.3       |              |            |            |            |           |                        |                        |                                  |    |             |            |            |                    |                                |
| 22.   | 9.93            | 1.29        | 0.006       | 24.         | 24.4       | .2           |            |            |            |           |                        |                        |                                  |    |             |            |            |                    |                                |
| 25.0M   |                 |             |             |             |            |              |            |            |            |           |                        |                        |                                  |    |             |            |            |                    |                                |
| STATION 57 MONTH 5 DAY 31 HOUR 10.5 JULIAN DAY 151 LATITUDE 42.040N LONGITUDE 82.040W |                 |             |             |             |            |              |            |            |            |           |                        |                        |                                  |    |             |            |            |                    |                                |
| 0.  | 10.66           | 0.00        | 0.004       | 24.         | 23.5       |              |            |            |            |           |                        |                        |                                  |    |             |            |            |                    |                                |
| 10.   | 10.87           | .84         | 0.000       | 25.         | 23.7       |              |            |            |            |           |                        |                        |                                  |    |             |            |            |                    |                                |
| 22.   | 9.90            | .22         | 0.001       | 23.         | 23.6       | .1           |            |            |            |           |                        |                        |                                  |    |             |            |            |                    |                                |
| 25.3M   |                 |             |             |             |            |              |            |            |            |           |                        |                        |                                  |    |             |            |            |                    |                                |
| STATION 58 MONTH 5 DAY 31 HOUR 12.2 JULIAN DAY 151 LATITUDE 42.070N LONGITUDE 82.300W |                 |             |             |             |            |              |            |            |            |           |                        |                        |                                  |    |             |            |            |                    |                                |
| 0.  | 10.71           | 1.29        | 0.010       | 24.         | 23.6       |              |            |            |            |           |                        |                        |                                  |    |             |            |            |                    |                                |
| 8.  | 10.95           | .22         | 0.008       | 25.         | 23.0       |              |            |            |            |           |                        |                        |                                  |    |             |            |            |                    |                                |
| 15.   | 11.31           | .59         | 0.000       | 22.         | 23.2       | .1           |            |            |            |           |                        |                        |                                  |    |             |            |            |                    |                                |
| 18.0M   |                 |             |             |             |            |              |            |            |            |           |                        |                        |                                  |    |             |            |            |                    |                                |
| STATION 59 MONTH 5 DAY 31 HOUR 14.1 JULIAN DAY 151 LATITUDE 41.880N LONGITUDE 82.380W |                 |             |             |             |            |              |            |            |            |           |                        |                        |                                  |    |             |            |            |                    |                                |
| 0.  | 12.12           | 0.00        | 0.004       | 22.         | 23.4       |              |            |            |            |           |                        |                        |                                  |    |             |            |            |                    |                                |
| 11.   | 12.06           | .67         | 0.004       | 22.         | 23.6       | .1           |            |            |            |           |                        |                        |                                  |    |             |            |            |                    |                                |
| 14.3M   |                 |             |             |             |            |              |            |            |            |           |                        |                        |                                  |    |             |            |            |                    |                                |
| STATION 60 MONTH 5 DAY 31 HOUR 15.3 JULIAN DAY 151 LATITUDE 41.840N LONGITUDE 82.550W |                 |             |             |             |            |              |            |            |            |           |                        |                        |                                  |    |             |            |            |                    |                                |
| 0.  | 13.07           | .50         | 0.013       | 18.         | 22.7       |              |            |            |            |           |                        |                        |                                  |    |             |            |            |                    |                                |
| 9.  | 13.03           | 0.00        | 0.000       | 17.         | 23.7       | .1           |            |            |            |           |                        |                        |                                  |    |             |            |            |                    |                                |
| 11.8M   |                 |             |             |             |            |              |            |            |            |           |                        |                        |                                  |    |             |            |            |                    |                                |
| STATION 61 MONTH 5 DAY 31 HOUR 16.5 JULIAN DAY 151 LATITUDE 41.950N LONGITUDE 82.630W |                 |             |             |             |            |              |            |            |            |           |                        |                        |                                  |    |             |            |            |                    |                                |
| 0.  | 13.39           | 1.45        | 0.006       | 19.         | 21.0       |              |            |            |            |           |                        |                        |                                  |    |             |            |            |                    |                                |
| 8.  | 13.56           | .10         | 0.000       | 18.         | 19.1       | 0.0          |            |            |            |           |                        |                        |                                  |    |             |            |            |                    |                                |
| 11.0M   |                 |             |             |             |            |              |            |            |            |           |                        |                        |                                  |    |             |            |            |                    |                                |
| STATION 62 MONTH 4 DAY 1 HOUR 8.1 JULIAN DAY 152 LATITUDE 41.850N LONGITUDE 82.880W   |                 |             |             |             |            |              |            |            |            |           |                        |                        |                                  |    |             |            |            |                    |                                |
| 0.  | 14.06           | .50         | 0.004       | 21.         | 18.7       |              |            |            |            |           |                        |                        |                                  |    |             |            |            |                    |                                |
| 9.  | 14.84           | .10         | 0.008       | 20.         | 18.2       | .1           |            |            |            |           |                        |                        |                                  |    |             |            |            |                    |                                |
| 10.7M   |                 |             |             |             |            |              |            |            |            |           |                        |                        |                                  |    |             |            |            |                    |                                |
| STATION 63 MONTH 4 DAY 1 HOUR 9.2 JULIAN DAY 152 LATITUDE 41.970N LONGITUDE 83.080W   |                 |             |             |             |            |              |            |            |            |           |                        |                        |                                  |    |             |            |            |                    |                                |
| 0.  | 14.18           | 2.49        | 0.011       | 20.         | 24.1       |              |            |            |            |           |                        |                        |                                  |    |             |            |            |                    |                                |
| 7.  | 14.08           | 3.00        | 0.001       | 19.         | 24.6       | .1           |            |            |            |           |                        |                        |                                  |    |             |            |            |                    |                                |
| 8.8M  |                 |             |             |             |            |              |            |            |            |           |                        |                        |                                  |    |             |            |            |                    |                                |

## LIMNOLOGICAL DATA

LAKE ERIE

CRUISE 6703

| SAMPLE DEPTH | WATER TEMP | NO3    | PO4        | SD             | CL               | SI02              | CA   | MG   | NA   | K    | T.ALK | P.ALK | SPEC. COND. | PH   | EM    | DO    | DO SAT. | TOT. SUSP MATR | TOTAL COLI 100ML |
|--------------|------------|--------|------------|----------------|------------------|-------------------|------|------|------|------|-------|-------|-------------|------|-------|-------|---------|----------------|------------------|
| M            | C          | MG/L   | MG/L       | MG/L           | MG/L             | MG/L              | MG/L | MG/L | MG/L | MG/L | MG/L  | MG/L  | MG/L        |      | VOLTS | MG/L  | PERCENT |                |                  |
| STATION 1    | MONTH 12   | DAY 11 | HOURL 14.4 | JULIAN DAY 345 | LATITUDE 42.000N | LONGITUDE 83.140W |      |      |      |      |       |       |             |      |       |       |         |                |                  |
| 0.           | 3.45       | .024   | 16.        | .8             | 28.              | 7.0               | 5.7  | 1.5  |      |      | 225.  |       |             |      | 13.78 | 107.  | 12.9    |                |                  |
| 9.           | 3.48       | .017   | 17.        | .8             | 29.              | 7.2               | 5.3  | 1.2  |      |      | 221.  |       |             |      | 13.52 | 105.  | 12.2    | 2316.          |                  |
| 10.48        |            |        |            |                |                  |                   |      |      |      |      |       |       |             |      |       |       |         |                |                  |
| STATION 2    | MONTH 12   | DAY 11 | HOURL 13.4 | JULIAN DAY 345 | LATITUDE 41.900N | LONGITUDE 83.090W |      |      |      |      |       |       |             |      |       |       |         |                |                  |
| 0.           | 1.92       | .027   | 23.        | 1.4            | 34.              | 7.0               | 10.4 | 1.4  |      |      | 290.  |       |             |      | 14.47 | 108.  | 22.2    |                |                  |
| 8.           | 1.90       | .020   | 20.        | 1.3            | 35.              | 8.0               | 10.4 | 1.3  |      |      | 290.  |       |             |      | 14.64 | 109.  | 22.9    | 2190.          |                  |
| 10.18        |            |        |            |                |                  |                   |      |      |      |      |       |       |             |      |       |       |         |                |                  |
| STATION 3    | MONTH 11   | DAY 23 | HOURL 11.7 | JULIAN DAY 324 | LATITUDE 41.800N | LONGITUDE 83.130W |      |      |      |      |       |       |             |      |       |       |         |                |                  |
| 0.           | 4.22       | 0.000  | 18.        | 19.5           | 1.3              | 29.               | 6.3  | 8.7  | 1.5  |      | 86.   | 0.0   | 253.        | 7.78 | .210  | 13.14 | 104.    | 12.2           |                  |
| 8.           | 4.33       | .004   | 20.        | 17.8           | 1.2              | 32.               | 7.8  | 8.7  | 1.9  |      | 91.   | 0.0   | 257.        | 7.81 | .205  | 13.17 | 105.    | 19.1           | 3436.            |
| 9.48         |            |        |            |                |                  |                   |      |      |      |      |       |       |             | 7.32 | -.028 |       |         |                |                  |
| STATION 4    | MONTH 11   | DAY 20 | HOURL 10.8 | JULIAN DAY 324 | LATITUDE 41.726N | LONGITUDE 83.160W |      |      |      |      |       |       |             |      |       |       |         |                |                  |
| 0.           | 4.06       | .018   | 19.        | 18.5           | 1.2              | 32.               | 7.0  | 8.5  | 1.6  |      | 84.   | 0.0   | 260.        | 7.91 | .195  | 13.08 | 103.    | 20.0           |                  |
| 6.           | 4.33       | .011   | 18.        | 18.5           | 1.2              | 31.               | 7.5  | 8.8  | 1.4  |      | 88.   | 0.0   | 265.        | 8.05 | .188  | 12.99 | 103.    | 19.3           | 1880.            |
| 7.90         |            |        |            |                |                  |                   |      |      |      |      |       |       |             | 7.22 | -.070 |       |         |                |                  |
| STATION 5    | MONTH 11   | DAY 20 | HOURL 13.4 | JULIAN DAY 324 | LATITUDE 41.640N | LONGITUDE 83.950W |      |      |      |      |       |       |             |      |       |       |         |                |                  |
| 0.           | 3.71       | .011   | 22.        | 21.2           | .6               | 33.               | 7.7  | 10.3 | 1.2  |      | 91.   | 0.0   | 286.        | 8.10 | .109  | 13.20 | 107.    | 22.4           |                  |
| 6.           | 3.71       | .004   | 21.        | 21.7           | .8               | 32.               | 7.6  | 10.1 | 1.3  |      | 92.   | 1.6   | 289.        | 8.32 | .121  | 13.20 | 103.    | 22.9           | 644.             |
| 8.28         |            |        |            |                |                  |                   |      |      |      |      |       |       |             | 7.40 | -.025 |       |         |                |                  |
| STATION 6    | MONTH 11   | DAY 21 | HOURL 8.2  | JULIAN DAY 325 | LATITUDE 41.680N | LONGITUDE 82.580W |      |      |      |      |       |       |             |      |       |       |         |                |                  |
| 0.           | 4.59       | .008   | 21.        | 19.8           | .1               | 32.               | 7.4  | 9.1  | 1.2  |      | 87.   | 0.0   | 269.        | 7.95 | -.287 | 13.23 | 106.    | 5.1            |                  |
| 11.          | 4.72       | 0.000  | 21.        | 19.2           | 0.0              | 35.               | 7.8  | 9.1  | 1.5  |      | 91.   | 0.0   | 270.        | 8.22 | -.210 | 13.43 | 108.    | 4.4            | 1400.            |
| 12.58        |            |        |            |                |                  |                   |      |      |      |      |       |       |             | 7.09 | .090  |       |         |                |                  |
| STATION 7    | MONTH 11   | DAY 21 | HOURL 9.4  | JULIAN DAY 325 | LATITUDE 41.530N | LONGITUDE 82.540W |      |      |      |      |       |       |             |      |       |       |         |                |                  |
| 0.           | 5.77       | 0.000  | 20.        | 21.2           | .1               | 33.               | 7.5  | 10.3 | 1.2  |      | 90.   | 0.0   | 279.        | 8.02 | .127  | 12.44 | 103.    | 7.8            |                  |
| 12.          | 5.92       | .004   | 21.        | 21.5           | 0.0              | 33.               | 7.1  | 9.5  | 1.5  |      | 91.   | 0.0   | 280.        | 8.00 | .132  | 12.32 | 102.    | 8.9            | 7060.            |
| 13.48        |            |        |            |                |                  |                   |      |      |      |      |       |       |             | 7.11 | -.020 |       |         |                |                  |
| STATION 8    | MONTH 11   | DAY 21 | HOURL 10.6 | JULIAN DAY 325 | LATITUDE 41.520N | LONGITUDE 82.410W |      |      |      |      |       |       |             |      |       |       |         |                |                  |
| 0.           | 5.53       | .025   | 26.        | 21.2           | 0.0              | 34.               | 7.0  | 9.8  | 1.4  |      | 91.   | 0.0   | 285.        | 7.98 | .116  | 12.45 | 104.    | 7.3            |                  |
| 8.           | 5.66       | .022   | 24.        | 20.5           | 0.0              | 32.               | 7.2  | 10.0 | 1.4  |      | 92.   | 0.0   | 285.        | 7.96 | .142  | 12.70 | 104.    | 7.3            |                  |
| 12.          | 5.63       | .033   | 24.        | 20.7           | .1               | 33.               | 6.5  | 9.7  | 1.3  |      | 92.   | 0.0   | 287.        | 8.02 | .161  | 12.64 | 104.    | 1.1            | 5100.            |
| 14.08        |            |        |            |                |                  |                   |      |      |      |      |       |       |             | 6.92 | -.216 |       |         |                |                  |
| STATION 9    | MONTH 11   | DAY 21 | HOURL 11.8 | JULIAN DAY 325 | LATITUDE 41.540N | LONGITUDE 82.210W |      |      |      |      |       |       |             |      |       |       |         |                |                  |
| 0.           | 5.08       | .022   | 19.        | 20.9           | 0.0              | 30.               | 7.7  | 9.5  | 1.3  |      | 88.   | 0.0   | 282.        | 7.96 | .118  | 12.89 | 104.    | 5.2            |                  |
| 8.           | 5.21       | .022   | 20.        | 20.2           | 0.0              | 33.               | 7.5  | 8.7  | 1.1  |      | 90.   | 0.0   | 283.        | 7.94 | .145  | 12.92 | 105.    | 6.4            |                  |
| 14.          | 5.26       | 0.000  | 21.        | 20.5           | 0.0              | 32.               | 7.0  | 10.1 | 1.2  |      | 92.   | 0.0   | 283.        | 8.00 | .158  | 13.20 | 108.    | 5.8            | 7480.            |
| 16.28        |            |        |            |                |                  |                   |      |      |      |      |       |       |             | 7.20 | .031  |       |         |                |                  |
| STATION 10   | MONTH 11   | DAY 21 | HOURL 12.9 | JULIAN DAY 325 | LATITUDE 41.570N | LONGITUDE 82.050W |      |      |      |      |       |       |             |      |       |       |         |                |                  |
| 0.           | 5.48       | .018   | 22.        | 19.9           | .1               | 34.               | 7.2  | 9.5  | 1.2  |      | 89.   | 0.0   | 292.        | 7.98 | .148  | 12.67 | 104.    | 9.8            |                  |
| 8.           | 5.56       | .027   | 21.        | 20.3           | .1               | 33.               | 8.1  | 9.3  | 1.1  |      | 90.   | 0.0   | 294.        | 7.97 | .158  | 12.65 | 104.    | 8.9            |                  |
| 15.          | 5.67       | .029   | 21.        | 20.2           | .4               | 32.               | 7.8  | 9.8  | 1.2  |      | 90.   | 0.0   | 294.        | 7.96 | .162  | 12.63 | 104.    | 5.8            | 20000.           |
| 16.88        |            |        |            |                |                  |                   |      |      |      |      |       |       |             | 7.00 | -.056 |       |         |                |                  |
| STATION 11   | MONTH 11   | DAY 21 | HOURL 14.2 | JULIAN DAY 325 | LATITUDE 41.610N | LONGITUDE 81.820W |      |      |      |      |       |       |             |      |       |       |         |                |                  |
| 0.           | 7.29       | .008   | 24.        | 28.6           | .1               | 37.               | 9.0  | 11.5 | 1.9  |      | 92.   | 0.0   | 313.        | 7.90 | .111  | 11.76 | 101.    | 3.3            |                  |
| 8.           | 7.34       | .034   | 24.        | 25.6           | .3               | 37.               | 8.9  | 11.2 | 1.4  |      | 93.   | 0.0   | 309.        | 7.95 | .138  | 12.18 | 104.    | 12.0           |                  |
| 17.          | 7.42       | .018   | 23.        | 27.6           | 0.0              | 35.               | 8.8  | 10.9 | 1.4  |      | 95.   | 0.0   | 308.        | 7.98 | .144  | 12.06 | 104.    | 6.2            | 6000.            |
| 18.68        |            |        |            |                |                  |                   |      |      |      |      |       |       |             | 7.08 | -.073 |       |         |                |                  |
| STATION 12   | MONTH 11   | DAY 21 | HOURL 15.1 | JULIAN DAY 325 | LATITUDE 41.540N | LONGITUDE 81.790W |      |      |      |      |       |       |             |      |       |       |         |                |                  |
| 0.           | 6.28       | .025   | 24.        | 24.1           | .2               | 34.               | 8.1  | 9.5  | 1.1  |      | 89.   | 0.0   | 301.        | 7.93 | .110  | 12.01 | 103.    | 5.1            |                  |
| 8.           | 6.28       | .011   | 20.        | 23.5           | 0.0              | 33.               | 8.3  | 9.7  | 1.3  |      | 90.   | 2.0   | 299.        | 7.92 | .135  | 12.44 | 104.    | 7.8            |                  |
| 14.          | 6.42       | .025   | 22.        | 23.9           | 0.0              | 32.               | 8.4  | 9.5  | 1.1  |      | 92.   | 0.0   | 288.        | 8.25 | .196  | 12.36 | 104.    | 8.4            | 6600.            |
| 16.28        |            |        |            |                |                  |                   |      |      |      |      |       |       |             | 7.36 | -.057 |       |         |                |                  |
| STATION 13   | MONTH 11   | DAY 22 | HOURL 11.9 | JULIAN DAY 326 | LATITUDE 41.640N | LONGITUDE 81.620W |      |      |      |      |       |       |             |      |       |       |         |                |                  |
| 0.           | 6.09       | .008   | 21.        | 24.1           | .1               | 32.               | 8.3  | 9.8  | 1.2  |      | 88.   | 0.0   | 295.        | 8.10 | .132  | 12.48 | 104.    | 8.0            |                  |
| 8.           | 6.04       | .008   | 22.        | 23.2           | 0.0              | 33.               | 8.3  | 10.0 | 1.3  |      | 91.   | 0.0   | 296.        | 7.99 | .128  | 12.44 | 103.    | 8.2            |                  |
| 15.          | 6.18       | 0.000  | 19.        | 22.9           | 0.0              | 32.               | 7.8  | 10.3 | 1.2  |      | 89.   | 0.0   | 292.        | 8.15 | .134  | 12.40 | 103.    | 8.0            | 14250.           |
| 16.59        |            |        |            |                |                  |                   |      |      |      |      |       |       |             | 7.22 | -.118 |       |         |                |                  |
| STATION 14   | MONTH 11   | DAY 22 | HOURL 13.7 | JULIAN DAY 326 | LATITUDE 41.700N | LONGITUDE 81.450W |      |      |      |      |       |       |             |      |       |       |         |                |                  |
| 0.           | 5.37       | .040   | 24.        | 25.6           | .1               | 33.               | 8.5  | 11.3 | 1.4  |      | 91.   | 0.0   | 295.        | 7.98 | .092  | 12.53 | 102.    | 16.2           |                  |
| 10.          | 5.44       | .036   | 20.        | 23.9           | .2               | 33.               | 7.9  | 11.2 | 1.3  |      | 93.   | 0.0   | 293.        | 8.05 | .105  | 12.42 | 101.    | 17.6           | 5950.            |
| 12.28        |            |        |            |                |                  |                   |      |      |      |      |       |       |             |      |       |       |         |                |                  |

LIMNOLOGICAL DATA  
LAKE ERIE

CRUISE 673

| SAMPLE DEPTH   | WATER TEMP | NO3 NG/L | PO4 NG/L | SO4 MG/L | CL MG/L | SI02 MG/L | CA MG/L | MG MG/L | NA MG/L | X MG/L | T.ALK P-ALK | SPEC. COND. | PH   | EM VOLTS | DO MG/L | CO PCT. | TDT. SUSP | TOTAL COLI |        |
|--|------------|----------|----------|----------|---------|-----------|---------|---------|---------|--------|-------------|-------------|------|----------|---------|---------|-----------|------------|--------|
| M  | C          | N        | P        |          |         |           |         |         |         |        | MG/L        | MG/L        |      |          |         | SAT.    | MG/L      | 100ML      |        |
| STATION 15 MONTH 11 DAY 22 HOUR 13.9 JULIAN DAY 326 LATITUDE 41.780N LONGITUDE 81.520W |            |          |          |          |         |           |         |         |         |        |             |             |      |          |         |         |           |            |        |
| 0.   | 6.76       | .018     |          | 22.      | 25.1    | .1        | 33.     | 8.5     | 11.2    | 1.4    | 93.         | 0.0         | 300. | 7.91     | .135    | 12.66   | 109.      | 7.3        |        |
| 10.  | 6.74       | .015     |          | 24.      | 24.4    | 0.0       | 34.     | 8.4     | 11.2    | 1.4    | 93.         | 0.0         | 299. | 7.88     | .140    | 12.31   | 104.      | 5.8        |        |
| 18.  | 6.78       | .025     |          | 26.      | 24.6    | 0.0       | 34.     | 8.8     | 12.2    | 1.3    | 93.         | 0.0         | 302. | 7.85     | .155    | 12.47   | 116.      | 8.2        | 690.   |
| 20.78  |            |          |          |          |         |           |         |         |         |        |             |             |      |          |         |         |           |            |        |
| STATION 16 MONTH 11 DAY 24 HOUR 9.6 JULIAN DAY 328 LATITUDE 41.870N LONGITUDE 81.580W  |            |          |          |          |         |           |         |         |         |        |             |             |      |          |         |         |           |            |        |
| 0.   | 7.00       | .008     |          | 24.      | 26.8    | .3        | 33.     | 7.0     | 11.9    | 1.3    | 94.         | 0.0         | 303. | 8.13     | .100    | 11.34   | 96.       | 4.4        |        |
| 11.  | 7.17       | .015     |          | 25.      | 27.6    | .2        | 33.     | 7.5     | 12.3    | 2.2    | 94.         | 0.0         | 304. | 8.03     | .089    | 11.42   | 98.       | 2.9        |        |
| 21.  | 7.10       | .004     |          | 23.      | 27.1    | 0.0       | 34.     | 7.0     | 11.3    | 1.2    | 96.         |             | 307. | 8.22     | .098    | 11.46   | 98.       | 4.2        | TNTC   |
| 23.88  |            |          |          |          |         |           |         |         |         |        |             |             |      |          |         |         |           |            |        |
| STATION 17 MONTH 11 DAY 24 HOUR 12.6 JULIAN DAY 328 LATITUDE 41.780N LONGITUDE 81.580W |            |          |          |          |         |           |         |         |         |        |             |             |      |          |         |         |           |            |        |
| 0.   | 4.82       | .008     |          | 24.      | 26.6    | 0.0       | 33.     | 7.6     | 12.5    | 1.5    | 92.         | 0.0         | 326. | 7.85     | .132    | 12.64   | 102.      | 10.0       |        |
| 9.   | 4.87       | .021     |          | 25.      | 37.4    | .3        | 36.     | 8.6     | 14.2    | 1.5    | 93.         | 0.0         | 370. | 8.09     | .135    | 12.64   | 102.      | 18.2       | 91480. |
| 11.08  |            |          |          |          |         |           |         |         |         |        |             |             |      |          |         |         |           |            |        |
| STATION 18 MONTH 11 DAY 24 HOUR 14.9 JULIAN DAY 328 LATITUDE 41.870N LONGITUDE 81.580W |            |          |          |          |         |           |         |         |         |        |             |             |      |          |         |         |           |            |        |
| 0.   | 5.77       | .018     |          | 24.      | 30.4    | .2        | 35.     | 8.5     | 11.3    | 1.6    | 91.         | 0.0         | 335. | 7.96     | .085    | 12.30   | 101.      | 1.0        |        |
| 10.  | 5.81       | .004     |          | 24.      | 29.1    | .1        | 35.     | 8.1     | 11.8    | 1.5    | 92.         | 0.0         | 335. | 7.93     | .122    | 12.52   | 103.      | 4.7        |        |
| 15.  | 5.93       | .008     |          | 23.      | 29.6    | 0.0       | 34.     | 8.2     | 11.0    | 1.3    | 93.         | 0.0         | 341. | 8.10     | .132    | 12.52   | 104.      | 7.1        | 23000. |
| 18.38  |            |          |          |          |         |           |         |         |         |        |             |             |      |          |         |         |           |            |        |
| STATION 19 MONTH 11 DAY 24 HOUR 15.2 JULIAN DAY 328 LATITUDE 41.950N LONGITUDE 80.950W |            |          |          |          |         |           |         |         |         |        |             |             |      |          |         |         |           |            |        |
| 0.   | 6.17       | .004     |          | 25.      | 24.6    | 0.0       | 34.     | 9.0     | 11.0    | 1.3    | 92.         | 0.0         | 310. | 7.90     | .069    | 12.22   | 102.      | 4.4        |        |
| 10.  | 6.22       | .004     |          | 23.      | 24.5    | .2        | 33.     | 9.3     | 10.5    | 1.7    | 92.         | 0.0         | 313. | 7.87     | .092    | 12.37   | 102.      | 3.8        |        |
| 16.  | 6.26       | .011     |          | 24.      | 24.6    | .1        | 33.     | 8.1     | 10.4    | 1.7    | 95.         | 0.0         | 312. | 7.95     | .120    | 12.44   | 104.      | 7.3        | 12100. |
| 18.98  |            |          |          |          |         |           |         |         |         |        |             |             |      |          |         |         |           |            |        |
| STATION 20 MONTH 11 DAY 25 HOUR 9.4 JULIAN DAY 329 LATITUDE 42.170N LONGITUDE 80.770W  |            |          |          |          |         |           |         |         |         |        |             |             |      |          |         |         |           |            |        |
| 0.   | 6.65       | .008     |          | 25.      | 26.1    | 0.0       | 34.     | 7.5     | 10.5    | 1.8    | 98.         | 0.0         | 305. | 8.01     | .088    | 13.95   | 118.      | 6.0        |        |
| 10.  | 6.50       | .025     |          | 25.      | 26.6    | 0.0       | 34.     | 9.0     | 12.7    | 1.4    | 96.         | 0.0         | 310. | 8.40     | .101    | 13.81   | 116.      | 5.3        |        |
| 20.  | 6.55       | .008     |          | 23.      | 26.1    | .3        | 34.     | 8.8     | 10.9    | 1.4    | 97.         | 0.0         | 311. | 8.05     | .106    | 12.85   | 108.      | 4.4        | 30000. |
| 23.28  |            |          |          |          |         |           |         |         |         |        |             |             |      |          |         |         |           |            |        |
| STATION 21 MONTH 11 DAY 25 HOUR 7.9 JULIAN DAY 329 LATITUDE 41.960N LONGITUDE 80.680W  |            |          |          |          |         |           |         |         |         |        |             |             |      |          |         |         |           |            |        |
| 0.   | 5.97       | .011     |          | 24.      | 24.4    | .3        | 34.     | 8.0     | 9.8     | 1.1    | 91.         | 0.0         | 298. | 7.92     | .091    | 13.00   | 106.      | 10.4       |        |
| 10.  | 5.96       | .004     |          | 22.      | 24.8    | .1        | 34.     | 8.4     | 10.4    | 1.4    | 91.         | 0.0         | 299. | 7.86     | .092    | 12.86   | 107.      | 6.9        |        |
| 15.  | 6.12       | .008     |          | 24.      | 24.4    | 0.0       | 32.     | 8.1     | 10.0    | 1.3    | 94.         | 0.0         | 297. | 8.12     | .100    | 12.47   | 104.      | 5.1        | 50000. |
| 18.58  |            |          |          |          |         |           |         |         |         |        |             |             |      |          |         |         |           |            |        |
| STATION 22 MONTH 11 DAY 25 HOUR 11.3 JULIAN DAY 329 LATITUDE 42.050N LONGITUDE 80.400W |            |          |          |          |         |           |         |         |         |        |             |             |      |          |         |         |           |            |        |
| 0.   | 5.58       | .011     |          | 25.      | 27.6    | 0.0       | 35.     | 8.2     | 12.4    | 1.1    | 95.         | 0.0         | 324. | 8.05     | .050    | 13.56   | 111.      | 7.3        |        |
| 12.  | 5.67       | .008     |          | 24.      | 27.1    | 0.0       | 34.     | 7.5     | 11.9    | 1.8    | 96.         | 0.0         | 323. | 8.12     | .075    | 14.05   | 116.      | 4.7        | 1550.  |
| 13.48  |            |          |          |          |         |           |         |         |         |        |             |             |      |          |         |         |           |            |        |
| STATION 23 MONTH 11 DAY 25 HOUR 12.3 JULIAN DAY 329 LATITUDE 42.100N LONGITUDE 80.250W |            |          |          |          |         |           |         |         |         |        |             |             |      |          |         |         |           |            |        |
| 0.   | 5.49       | .004     |          | 27.      | 27.4    | 0.0       | 34.     | 7.9     | 11.6    | 1.8    | 93.         | 0.0         | 316. | 8.16     | .148    | 13.44   | 102.      | 8.7        |        |
| 4.   | 5.48       | .004     |          | 22.      | 27.1    | .1        | 35.     | 8.5     | 11.7    | 2.0    | 97.         | 0.0         | 318. | 8.12     | .148    | 12.70   | 104.      | 13.1       | 15400. |
| 10.18  |            |          |          |          |         |           |         |         |         |        |             |             |      |          |         |         |           |            |        |
| STATION 24 MONTH 11 DAY 27 HOUR 9.1 JULIAN DAY 333 LATITUDE 42.180N LONGITUDE 79.020W  |            |          |          |          |         |           |         |         |         |        |             |             |      |          |         |         |           |            |        |
| 0.   | 3.92       | .004     |          | 25.      | 27.1    | .4        | 33.     | 8.2     | 11.7    | 1.9    | 94.         | 0.0         | 303. | 8.13     | .131    | 12.90   | 101.      | 27.2       |        |
| 14.  | 3.89       | .008     |          | 24.      | 27.8    | .3        | 33.     | 7.8     | 10.8    | 1.9    | 94.         | 0.0         | 307. | 8.11     | .160    | 13.22   | 104.      | 28.3       | 2100.  |
| 14.09  |            |          |          |          |         |           |         |         |         |        |             |             |      |          |         |         |           |            |        |
| STATION 25 MONTH 11 DAY 29 HOUR 10.5 JULIAN DAY 333 LATITUDE 42.270N LONGITUDE 79.830W |            |          |          |          |         |           |         |         |         |        |             |             |      |          |         |         |           |            |        |
| 0.   | 4.47       | .015     |          | 22.      | 27.9    | .7        | 33.     | 4.1     | 10.7    | 1.9    | 97.         | 0.0         | 311. | 8.05     | .058    | 12.82   | 102.      | 16.0       |        |
| 8.   | 4.47       | .004     |          | 27.      | 27.4    | 0.0       | 35.     | 7.8     | 11.2    | 2.0    | 97.         | 0.0         | 317. | 8.03     | .063    | 12.98   | 104.      | 19.1       |        |
| 14.  | 4.41       | .004     |          | 26.      | 27.6    | .1        | 34.     | 7.6     | 10.8    | 2.0    | 97.         | .8          | 314. | 7.33     | .085    | 13.22   | 103.      | 18.4       | TNTC   |
| 16.88  |            |          |          |          |         |           |         |         |         |        |             |             |      |          |         |         |           |            |        |
| STATION 26 MONTH 11 DAY 29 HOUR 11.8 JULIAN DAY 333 LATITUDE 42.350N LONGITUDE 79.630W |            |          |          |          |         |           |         |         |         |        |             |             |      |          |         |         |           |            |        |
| 0.   | 4.10       | .008     |          | 26.      | 26.6    | .1        | 33.     | 7.9     | 13.2    | 1.9    | 95.         | 0.0         | 305. | 8.05     | .090    | 12.74   | 101.      | 14.4       |        |
| 8.   | 4.10       | 0.000    |          | 24.      | 26.6    | .2        | 34.     | 7.9     | 10.8    | 2.1    | 96.         | 0.0         | 306. | 8.06     | .145    | 13.01   | 103.      | 18.3       |        |
| 15.  | 4.10       | .010     |          | 24.      | 26.3    | .1        | 34.     | 8.6     | 11.9    | 1.3    | 98.         | 0.0         | 308. | 8.12     | .158    | 12.82   | 101.      | 31.2       | TNTC   |
| 17.78  |            |          |          |          |         |           |         |         |         |        |             |             |      |          |         |         |           |            |        |
| STATION 29 MONTH 11 DAY 30 HOUR 7.9 JULIAN DAY 334 LATITUDE 42.530N LONGITUDE 79.330W  |            |          |          |          |         |           |         |         |         |        |             |             |      |          |         |         |           |            |        |
| 0.   | 4.62       | .010     |          | 23.      | 28.1    | .2        | 34.     | 8.4     | 11.5    | 1.5    | 98.         | 0.0         | 314. | 8.06     | .168    | 12.95   | 104.      | 9.6        |        |
| 19.  | 4.62       | .013     |          | 25.      | 28.6    | .3        | 34.     | 9.1     | 11.2    | 1.4    | 94.         | 0.0         | 315. | 8.08     | .178    | 13.47   | 104.      | 11.8       |        |
| 19.  | 4.43       | .006     |          | 26.      | 28.1    | .3        | 34.     | 9.1     | 12.6    | 1.5    | 100.        |             | 316. | 8.20     | .178    | 13.44   | 107.      | 15.8       | 1300.  |
| 20.48  |            |          |          |          |         |           |         |         |         |        |             |             |      |          |         |         |           |            |        |
| STATION 30 MONTH 11 DAY 30 HOUR 9.3 JULIAN DAY 334 LATITUDE 42.600N LONGITUDE 79.180W  |            |          |          |          |         |           |         |         |         |        |             |             |      |          |         |         |           |            |        |
| 0.   | 6.03       | .010     |          | 24.      | 27.1    | .1        | 35.     | 8.4     | 11.7    | 1.4    | 99.         | 0.0         | 311. | 8.05     | .100    | 12.72   | 105.      | 15.3       |        |
| 8.   | 6.01       | .006     |          | 22.      | 27.6    | 0.0       | 34.     | 8.0     | 12.0    | 1.5    | 99.         | 0.0         | 317. | 8.08     | .150    | 12.88   | 107.      | 16.7       |        |
| 16.  | 5.98       | .013     |          | 23.      | 27.4    | 0.0       | 34.     | 8.0     | 11.3    | 1.5    | 100.        | 0.0         | 316. | 8.12     | .158    | 12.88   | 107.      | 13.3       | 500.   |
| 19.29  |            |          |          |          |         |           |         |         |         |        |             |             |      |          |         |         |           |            |        |

LIMNOLOGICAL DATA  
LAKE ERIC

CRUISE 6703

| SAMPLE<br>DEPTH<br>M | WATER<br>TEMP<br>C | NO3<br>MG/L<br>M | PO4<br>MG/L<br>P | SO4<br>MG/L    | CL<br>MG/L       | SiO2<br>MG/L      | Ca<br>MG/L | Mg<br>MG/L | Na<br>MG/L | K<br>MG/L | T.ALK<br>MG/L<br>CACON | P.ALK<br>MG/L<br>CACDS | SPEC.<br>COND.<br>MICRO-<br>MOS | PH   | EM<br>VOLTS | OD<br>MG/L | CO<br>SAT. | TDI.<br>PCT. | TOTAL<br>SUSP<br>MTR | COLI<br>100ML |
|----------------------|--------------------|------------------|------------------|----------------|------------------|-------------------|------------|------------|------------|-----------|------------------------|------------------------|---------------------------------|------|-------------|------------|------------|--------------|----------------------|---------------|
|                      |                    |                  |                  |                |                  |                   |            |            |            |           |                        |                        |                                 |      |             |            |            |              |                      |               |
| STATION 31           | MONTH 11           | DAY 30           | HR 10.8          | JULIAN DAY 334 | LATITUDE 42.730N | LONGITUDE 79.050W |            |            |            |           |                        |                        |                                 |      |             |            |            |              |                      |               |
| 0.                   | 4.89               | .002             | 25.              | 27.7           | .2               | 35.               | 8.6        | 11.2       | 1.6        | 99.       | 0.0                    | 313.                   | 8.02                            | .091 | 13.21       | 106.       | 15.6       |              |                      |               |
| 8.                   | 4.89               | .013             | 23.              | 27.1           | .1               | 35.               | 8.7        | 11.1       | 1.5        | 100.      | 0.0                    | 316.                   | 8.00                            | .109 | 13.50       | 109.       | 12.0       |              |                      |               |
| 13.                  | 4.89               | .013             | 24.              | 27.2           | 0.0              | 35.               | 9.1        | 11.0       | 1.6        | 101.      | 0.0                    | 316.                   | 8.08                            | .152 | 13.45       | 108.       | 14.4       | 2000.        |                      |               |
| 15.28                |                    |                  |                  |                |                  |                   |            |            |            |           |                        |                        | 7.38                            | .160 |             |            |            |              |                      |               |
| STATION 32           | MONTH 11           | DAY 30           | HR 12.1          | JULIAN DAY 334 | LATITUDE 42.840N | LONGITUDE 78.920W |            |            |            |           |                        |                        |                                 |      |             |            |            |              |                      |               |
| 0.                   | 4.03               | .017             | 23.              | 27.1           | .3               | 32.               | 9.1        | 11.8       | 1.2        | 99.       | 0.0                    | 306.                   | 8.03                            | .093 | 13.56       | 107.       | 17.8       |              |                      |               |
| 11.                  | 4.00               | .006             | 24.              | 26.9           | 0.0              | 30.               | 8.7        | 11.5       | 1.3        | 101.      | 0.0                    | 306.                   | 8.16                            | .120 | 13.94       | 110.       | 28.0       | 2000.        |                      |               |
| 12.58                |                    |                  |                  |                |                  |                   |            |            |            |           |                        |                        | 7.68                            | .025 |             |            |            |              |                      |               |
| STATION 33           | MONTH 11           | DAY 30           | HR 13.2          | JULIAN DAY 334 | LATITUDE 42.820N | LONGITUDE 79.070W |            |            |            |           |                        |                        |                                 |      |             |            |            |              |                      |               |
| 0.                   | 3.80               | .010             | 25.              | 26.4           | .1               | 30.               | 9.2        | 11.6       | 1.3        | 103.      | 0.0                    | 319.                   | 8.22                            | .125 | 13.58       | 106.       | 20.7       |              |                      |               |
| 10.                  | 3.78               | .010             | 23.              | 25.4           | 0.0              | 29.               | 9.8        | 11.6       | 1.5        | 104.      | 0.0                    | 322.                   | 8.18                            | .138 | 14.05       | 110.       | 13.0       |              |                      |               |
| 16.                  | 3.77               | .017             | 24.              | 25.6           | .2               | 30.               | 9.1        | 11.7       | 1.4        | 104.      | 0.0                    | 321.                   | 8.20                            | .146 | 13.94       | 109.       | 11.1       | 7450.        |                      |               |
| 18.38                |                    |                  |                  |                |                  |                   |            |            |            |           |                        |                        | 7.20                            | .072 |             |            |            |              |                      |               |
| STATION 34           | MONTH 11           | DAY 30           | HR 14.3          | JULIAN DAY 334 | LATITUDE 42.720N | LONGITUDE 79.220W |            |            |            |           |                        |                        |                                 |      |             |            |            |              |                      |               |
| 0.                   | 5.37               | .013             | 24.              | 26.1           | .2               | 28.               | 8.7        | 12.0       | 1.4        | 98.       | 0.0                    | 317.                   | 8.08                            | .605 | 13.00       | 105.       | 14.6       |              |                      |               |
| 10.                  | 5.39               | .013             | 24.              | 26.6           | 0.0              | 27.               | 8.3        | 11.6       | 1.5        | 100.      | 0.0                    | 315.                   | 8.05                            | .109 | 13.18       | 108.       | 16.2       |              |                      |               |
| 12.                  | 5.38               | .013             | 24.              | 26.4           | 0.0              | 27.               | 8.3        | 11.5       | 1.5        | 101.      | 0.0                    | 318.                   | 8.10                            | .124 | 13.21       | 108.       | 40.2       | 650.         |                      |               |
| 21.38                |                    |                  |                  |                |                  |                   |            |            |            |           |                        |                        | 7.58                            | .140 |             |            |            |              |                      |               |
| STATION 35           | MONTH 11           | DAY 30           | HR 15.3          | JULIAN DAY 334 | LATITUDE 42.820N | LONGITUDE 79.280W |            |            |            |           |                        |                        |                                 |      |             |            |            |              |                      |               |
| 0.                   | 4.53               | .017             | 24.              | 26.1           | 0.0              | 27.               | 7.8        | 11.4       | 1.5        | 98.       | 0.0                    | 317.                   | 8.08                            | .082 | 13.64       | 109.       | 14.4       |              |                      |               |
| 10.                  | 4.63               | .010             | 24.              | 25.8           | .4               | 27.               | 7.7        | 11.0       | 1.6        | 99.       | 0.0                    | 318.                   | 8.06                            | .103 | 13.72       | 110.       | 13.3       |              |                      |               |
| 17.                  | 4.60               | .013             | 29.              |                | 0.0              | 30.               | 8.9        | 12.1       | 1.8        | 100.      | 0.0                    | 316.                   | 8.20                            | .108 | 13.59       | 109.       | 8.0        | 650.         |                      |               |
| 18.68                |                    |                  |                  |                |                  |                   |            |            |            |           |                        |                        | 8.10                            | .155 |             |            |            |              |                      |               |
| STATION 36           | MONTH 12           | DAY 1            | HR 9.3           | JULIAN DAY 335 | LATITUDE 42.800N | LONGITUDE 79.580W |            |            |            |           |                        |                        |                                 |      |             |            |            |              |                      |               |
| 0.                   | 5.81               | .017             | 28.              | 26.6           | 0.0              | 30.               | 8.1        | 11.1       | 1.7        | 100.      | 0.0                    | 324.                   | 8.08                            | .104 | 12.18       | 100.       | 18.2       |              |                      |               |
| 10.                  | 5.49               | .024             | 27.              | 26.6           | 0.0              | 30.               | 8.4        | 11.1       | 1.6        | 100.      | 0.0                    | 331.                   | 8.10                            | .115 | 12.28       | 106.       | 7.6        |              |                      |               |
| 20.                  | 5.47               | .010             | 28.              | 26.0           | .1               | 31.               | 9.2        | 11.2       | 1.5        | 101.      | 0.0                    | 331.                   | 8.22                            | .117 | 12.25       | 100.       | 10.0       | 75000.       |                      |               |
| 21.98                |                    |                  |                  |                |                  |                   |            |            |            |           |                        |                        | 7.62                            | .008 |             |            |            |              |                      |               |
| STATION 37           | MONTH 12           | DAY 1            | HR 10.5          | JULIAN DAY 335 | LATITUDE 42.690N | LONGITUDE 79.680W |            |            |            |           |                        |                        |                                 |      |             |            |            |              |                      |               |
| 0.                   | 5.96               | .002             | 26.              | 26.9           | 0.0              | 29.               | 8.5        | 10.5       | 1.7        | 100.      | 0.0                    | 332.                   | 8.02                            | .121 | 11.92       | 99.        | 7.6        |              |                      |               |
| 10.                  | 5.85               | .002             | 26.              | 27.1           | .3               | 29.               | 8.0        | 11.1       | 1.6        | 101.      | 0.0                    | 337.                   | 8.02                            | .152 | 11.96       | 99.        | 7.1        |              |                      |               |
| 20.                  | 5.85               | .013             | 26.              | 26.8           | 0.0              | 30.               | 7.8        | 10.2       | 1.7        | 100.      | 0.0                    | 340.                   | 8.00                            | .168 | 11.92       | 99.        | 6.7        |              |                      |               |
| 29.                  | 4.94               | .006             | 28.              | 26.2           | 0.0              | 29.               | 8.6        | 10.5       | 1.7        | 102.      | 0.0                    | 339.                   | 8.25                            | .164 | 12.31       | 99.        | 8.4        | 115.         |                      |               |
| 33.28                |                    |                  |                  |                |                  |                   |            |            |            |           |                        |                        | 7.52                            | .013 |             |            |            |              |                      |               |
| STATION 39           | MONTH 12           | DAY 1            | HR 12.3          | JULIAN DAY 335 | LATITUDE 42.620N | LONGITUDE 79.000W |            |            |            |           |                        |                        |                                 |      |             |            |            |              |                      |               |
| 0.                   | 6.14               | .010             | 27.              | 27.4           | .1               | 28.               | 9.0        | 8.8        | 1.6        | 99.       | 0.0                    | 313.                   | 8.39                            | .150 | 12.01       | 100.       | 8.7        |              |                      |               |
| 10.                  | 6.14               | .006             | 27.              | 26.6           | 0.0              | 29.               | 7.5        | 10.9       | 1.9        | 99.       | 3.0                    | 314.                   | 8.06                            | .162 | 11.92       | 99.        | 6.2        |              |                      |               |
| 50.                  | 6.59               | .041             | 25.              | 26.4           | 0.0              | 35.               | 8.2        | 13.0       | 1.9        | 100.      | 0.0                    | 312.                   | 8.12                            | .174 | 11.90       | 100.       | 5.1        |              |                      |               |
| 40.                  | 5.99               | .006             | 25.              | 26.1           | 0.0              | 35.               | 7.7        | 12.2       | 1.6        | 101.      | 0.0                    | 312.                   | 8.20                            | .179 | 11.75       | 99.        | 8.7        | 66.          |                      |               |
| 42.78                |                    |                  |                  |                |                  |                   |            |            |            |           |                        |                        | 7.50                            | .078 |             |            |            |              |                      |               |
| STATION 41           | MONTH 12           | DAY 1            | HR 13.8          | JULIAN DAY 335 | LATITUDE 42.420N | LONGITUDE 79.960W |            |            |            |           |                        |                        |                                 |      |             |            |            |              |                      |               |
| 0.                   | 6.29               | .002             | 28.              | 27.1           | 0.0              | 35.               | 8.1        | 12.1       | 1.4        | 99.       | 0.0                    | 316.                   | 8.10                            | .120 | 11.87       | 99.        | 8.8        |              |                      |               |
| 10.                  | 6.24               | .006             | 25.              | 27.1           | 0.0              | 35.               | 8.5        | 12.2       | 1.8        | 99.       | 0.0                    | 317.                   | 8.08                            | .133 | 11.99       | 100.       | 5.1        |              |                      |               |
| 30.                  | 6.24               | .017             | 26.              | 27.6           | 0.0              | 35.               | 8.1        | 12.4       | 1.7        | 100.      | 0.0                    | 317.                   | 8.08                            | .142 | 11.72       | 99.        | 8.9        |              |                      |               |
| 43.                  | 6.08               | .006             | 25.              | 27.2           | 0.0              | 35.               | 8.3        | 12.7       | 1.7        | 102.      | 0.0                    | 317.                   | 8.20                            | .143 | 12.01       | 100.       | 5.6        | 6000.        |                      |               |
| 46.08                |                    |                  |                  |                |                  |                   |            |            |            |           |                        |                        | 7.40                            | .043 |             |            |            |              |                      |               |
| STATION 42           | MONTH 12           | DAY 1            | HR 14.7          | JULIAN DAY 335 | LATITUDE 42.370N | LONGITUDE 79.920W |            |            |            |           |                        |                        |                                 |      |             |            |            |              |                      |               |
| 0.                   | 6.61               | .004             | 6.               | 26.1           | 0.0              | 36.               | 9.6        | 12.2       | 1.9        | 100.      | 0.0                    | 336.                   | 8.06                            | .092 | 11.76       | 99.        | 13.1       |              |                      |               |
| 10.                  | 6.53               | .006             | 25.              | 26.6           | 0.0              | 36.               | 7.8        | 11.7       | 1.7        | 100.      | 0.0                    | 338.                   | 8.08                            | .138 | 11.68       | 98.        | 8.4        |              |                      |               |
| 30.                  | 6.70               | .020             | 25.              | 26.4           | .3               | 36.               | 7.7        | 12.2       | 1.9        | 100.      | 0.0                    | 334.                   | 8.02                            | .145 | 11.68       | 99.        | 7.6        |              |                      |               |
| 36.                  | 6.56               | .006             | 26.              | 26.9           | .1               | 35.               | 8.3        | 11.6       | 1.9        | 100.      | 0.0                    | 334.                   | 8.12                            | .155 | 11.75       | 99.        | 9.3        | 14750.       |                      |               |
| 38.78                |                    |                  |                  |                |                  |                   |            |            |            |           |                        |                        | 7.61                            | .072 |             |            |            |              |                      |               |
| STATION 43           | MONTH 12           | DAY 2            | HR 9.2           | JULIAN DAY 336 | LATITUDE 42.160N | LONGITUDE 80.330W |            |            |            |           |                        |                        |                                 |      |             |            |            |              |                      |               |
| 0.                   | 5.58               | .011             | 25.              | 26.1           | 0.0              | 35.               | 9.4        | 12.0       | 1.7        | 98.       | 0.0                    | 312.                   | 8.08                            | .131 | 14.00       | 115.       | 4.4        |              |                      |               |
| 10.                  | 5.59               | .011             | 27.              | 26.1           | 0.0              | 36.               | 7.9        | 11.8       | 1.8        | 99.       | 0.0                    | 319.                   | 8.00                            | .145 | 12.64       | 104.       | 4.0        |              |                      |               |
| 10.                  | 5.55               | .025             | 26.              | 25.6           | .1               | 35.               | 8.8        | 12.0       | 2.1        | 98.       | 0.0                    | 312.                   | 8.08                            | .150 | 12.66       | 104.       | 3.6        | 37000.       |                      |               |
| 21.68                |                    |                  |                  |                |                  |                   |            |            |            |           |                        |                        | 7.48                            | .177 |             |            |            |              |                      |               |
| STATION 44           | MONTH 12           | DAY 2            | HR 10.1          | JULIAN DAY 336 | LATITUDE 42.250N | LONGITUDE 80.330W |            |            |            |           |                        |                        |                                 |      |             |            |            |              |                      |               |
| 0.                   | 5.54               | .008             | 27.              | 26.1           | 0.0              | 36.               | 8.3        | 11.7       | 1.8        | 99.       | 0.0                    | 317.                   | 8.14                            | .131 | 12.11       | 99.        | 9.4        |              |                      |               |
| 10.                  | 5.47               | .011             | 24.              | 26.6           | 0.0              | 36.               | 8.4        | 12.3       | 1.7        | 98.       | 0.0                    | 322.                   | 8.18                            | .162 | 12.47       | 102.       | 5.8        |              |                      |               |
| 16.                  | 5.51               | .011             | 26.              | 26.4           | 0.0              | 35.               | 8.1        | 11.8       | 1.9        | 98.       | 0.0                    | 320.                   | 8.18                            | .172 | 12.47       | 102.       | 4.0        | 8000.        |                      |               |
| 19.58                |                    |                  |                  |                |                  |                   |            |            |            |           |                        |                        | 7.01                            | .160 |             |            |            |              |                      |               |

LIMNOLOGICAL DATA  
LAKE ERIC

CRUISE 6703

| SAMPLE DEPTH | WATER TEMP | NO3    | PO4       | SO4            | CL               | SI02              | CA   | MG   | NA   | K    | TALK  | P-ALK | SPEC.      | PH    | EM    | OC   | OD   | TOT. SUSP | TOTAL COLI |
|--------------|------------|--------|-----------|----------------|------------------|-------------------|------|------|------|------|-------|-------|------------|-------|-------|------|------|-----------|------------|
| 4            | C          | MG/L N | MG/L P    | MG/L           | MG/L             | MG/L              | MG/L | MG/L | MG/L | MG/L | MG/L  | MG/L  | MG/L       | MG/L  | MG/L  | MG/L | MG/L | MG/L      | MG/L       |
| 4            | C          | N      | P         |                |                  |                   |      |      |      |      | CAC03 | CAC03 | MICRO-AMOS |       | YDLTS |      |      | SAT.      | MG/L       |
| STATION 45   | MONTH 12   | DAY 2  | HOUR 11.1 | JULIAN DAY 336 | LATITUDE 42.350N | LONGITUDE 80.400W |      |      |      |      |       |       |            |       |       |      |      |           |            |
| 0.           | 5.41       | .018   | 26.       | 26.1           | 0.0              | 36.               | 8.4  | 12.3 | 2.1  | 100. | 0.0   | 317.  | 8.18       | .180  | 12.44 | 102. | 7.6  |           |            |
| 8.           | 5.45       | .008   | 25.       | 26.6           | 0.0              | 36.               | 7.6  | 11.9 | 2.0  | 99.  | 0.0   | 319.  | 8.10       | .186  | 12.55 | 107. | 7.6  |           |            |
| 13.          | 5.39       | .011   | 27.       | 26.6           | .3               | 36.               | 8.2  | 11.4 | 2.1  | 100. |       | 317.  | 8.20       | .188  | 12.59 | 103. | 10.7 | 22600.    |            |
| 15.88        |            |        |           |                |                  |                   |      |      |      |      |       |       | 7.78       | .180  |       |      |      |           |            |
| STATION 48   | MONTH 12   | DAY 5  | HOUR 8.0  | JULIAN DAY 339 | LATITUDE 42.920N | LONGITUDE 80.950W |      |      |      |      |       |       |            |       |       |      |      |           |            |
| 0.           | 4.60       | .011   | 27.       | 26.8           | .4               | 35.               | 7.8  | 11.3 | 2.3  | 97.  | 0.0   | 312.  | 8.12       | .240  | 13.82 | 110. | 7.6  |           |            |
| 8.           | 4.44       | .025   | 27.       | 27.1           | 0.0              | 34.               | 8.0  | 12.1 | 1.8  | 98.  | 0.0   | 317.  | 8.16       | .244  | 14.05 | 112. | 9.1  |           |            |
| 16.          | 4.58       | .011   | 26.       | 27.1           | 0.0              | 34.               | 8.4  | 12.4 | 1.8  | 99.  | 0.0   | 312.  | 8.16       | .238  | 12.84 | 103. | 9.3  | 20000.    |            |
| 18.69        |            |        |           |                |                  |                   |      |      |      |      |       |       |            |       |       |      |      |           |            |
| STATION 49   | MONTH 12   | DAY 5  | HOUR 9.4  | JULIAN DAY 339 | LATITUDE 42.350N | LONGITUDE 80.850W |      |      |      |      |       |       |            |       |       |      |      |           |            |
| 0.           | 4.79       | .029   | 27.       | 26.2           | 0.0              | 34.               | 8.4  | 11.5 | 1.7  | 96.  | 0.0   | 307.  | 8.20       | .192  | 12.43 | 100. | 8.0  |           |            |
| 10.          | 4.77       | .011   | 24.       | 26.6           | 0.0              | 34.               | 7.2  | 11.1 | 1.9  | 97.  | 0.0   | 307.  | 8.01       | .200  | 12.65 | 102. | 7.1  |           |            |
| 18.          | 4.77       | .022   | 27.       | 26.1           | 0.0              | 34.               | 8.6  | 11.7 | 2.0  | 97.  | 0.0   | 309.  | 8.03       | .208  | 12.67 | 102. | 7.8  | 40.       |            |
| 21.00        |            |        |           |                |                  |                   |      |      |      |      |       |       | 7.23       | .062  |       |      |      |           |            |
| STATION 50   | MONTH 12   | DAY 5  | HOUR 10.8 | JULIAN DAY 339 | LATITUDE 42.310N | LONGITUDE 81.040W |      |      |      |      |       |       |            |       |       |      |      |           |            |
| 0.           | 4.98       | .015   | 27.       | 27.1           | 0.0              | 34.               | 8.4  | 11.3 | 1.9  | 96.  | 0.0   | 307.  | 8.11       | .132  | 12.71 | 102. | 9.1  |           |            |
| 10.          | 4.67       | .011   | 29.       | 26.6           | 0.0              | 34.               | 8.8  | 11.5 | 2.0  | 97.  | 0.0   | 309.  | 8.02       | .145  | 12.71 | 102. | 8.6  |           |            |
| 19.          | 4.89       | .011   | 27.       | 26.6           | 0.0              | 35.               | 8.6  | 11.4 | 2.0  | 96.  | 0.0   | 308.  | 8.06       | .155  | 12.65 | 102. | 9.1  | 2000.     |            |
| 21.83        |            |        |           |                |                  |                   |      |      |      |      |       |       | 7.18       | .022  |       |      |      |           |            |
| STATION 52   | MONTH 12   | DAY 5  | HOUR 12.3 | JULIAN DAY 339 | LATITUDE 42.350N | LONGITUDE 81.370W |      |      |      |      |       |       |            |       |       |      |      |           |            |
| 0.           | 4.88       | .025   | 30.       | 25.6           | .1               | 34.               | 9.4  | 12.1 | 1.9  | 96.  | 0.0   | 310.  | 8.03       | .140  | 12.77 | 103. | 5.6  |           |            |
| 10.          | 4.83       | .015   | 26.       | 25.6           | 0.0              | 33.               | 8.4  | 11.0 | 2.1  | 96.  | 0.0   | 310.  | 8.01       | .149  | 12.86 | 103. | 7.6  |           |            |
| 19.          | 4.87       | .017   | 26.       | 25.6           | 0.0              | 31.               | 9.0  | 12.1 | 2.0  | 96.  | 0.0   | 309.  | 8.08       | .148  | 12.79 | 103. | 10.7 | 34.       |            |
| 21.98        |            |        |           |                |                  |                   |      |      |      |      |       |       | 7.02       | -.048 |       |      |      |           |            |
| STATION 53   | MONTH 12   | DAY 5  | HOUR 14.8 | JULIAN DAY 339 | LATITUDE 42.380N | LONGITUDE 81.610W |      |      |      |      |       |       |            |       |       |      |      |           |            |
| 0.           | 4.95       | .020   | 27.       | 27.1           | 0.0              | 34.               | 8.7  | 12.2 | 1.9  | 96.  | 0.0   | 318.  | 8.02       | .138  | 12.89 | 104. | 13.6 |           |            |
| 8.           | 5.09       | .027   | 29.       | 27.4           | 0.0              | 34.               | 8.1  | 13.2 | 1.8  | 96.  | 0.0   | 320.  | 8.00       | .155  | 13.01 | 105. | 13.8 |           |            |
| 18.          | 4.93       | .013   | 28.       | 27.1           | 0.0              | 34.               | 9.4  | 12.2 | 2.0  | 96.  | 0.0   | 321.  | 8.16       | .168  | 12.88 | 101. | 7.6  | 2000.     |            |
| 21.08        |            |        |           |                |                  |                   |      |      |      |      |       |       | 7.19       | -.082 |       |      |      |           |            |
| STATION 54   | MONTH 12   | DAY 5  | HOUR 15.7 | JULIAN DAY 339 | LATITUDE 42.240N | LONGITUDE 81.810W |      |      |      |      |       |       |            |       |       |      |      |           |            |
| 0.           | 4.98       | .020   | 31.       | 27.6           | 0.0              | 32.               | 9.2  | 11.9 | 2.5  | 96.  | 0.0   | 315.  | 8.05       | .115  | 12.66 | 102. | 10.2 |           |            |
| 4.           | 4.92       | .010   | 27.       | 27.1           | .1               | 32.               | 8.2  | 11.8 | 1.9  | 96.  | 0.0   | 311.  | 8.08       | .122  | 14.04 | 113. | 10.7 |           |            |
| 16.          | 4.96       | .024   | 27.       | 26.6           | 0.0              | 34.               | 8.9  | 12.1 | 1.9  | 97.  |       | 310.  | 8.18       | .144  | 14.16 | 114. | 9.3  | 50.       |            |
| 18.68        |            |        |           |                |                  |                   |      |      |      |      |       |       | 7.19       | -.025 |       |      |      |           |            |
| STATION 55   | MONTH 12   | DAY 6  | HOUR 8.3  | JULIAN DAY 340 | LATITUDE 42.120N | LONGITUDE 81.740W |      |      |      |      |       |       |            |       |       |      |      |           |            |
| 0.           | 7.24       | .013   | 27.       | 27.6           | 0.0              | 34.               | 8.5  | 12.0 | 2.0  | 96.  | 0.0   | 320.  | 8.17       | .111  | 13.43 | 100. | 8.0  |           |            |
| 10.          | 5.21       | .017   | 28.       | 27.4           | 0.0              | 33.               | 8.2  | 11.5 | 1.9  | 96.  | 0.0   | 321.  | 8.19       | .105  | 13.80 | 112. | 10.4 |           |            |
| 21.          | 5.23       | .017   | 28.       | 26.6           | .1               | 34.               | 7.6  | 11.5 | 1.9  | 97.  | 0.0   | 321.  | 8.18       | .112  | 13.77 | 112. | 9.6  | 100.      |            |
| 23.88        |            |        |           |                |                  |                   |      |      |      |      |       |       | 7.09       | -.092 |       |      |      |           |            |
| STATION 56   | MONTH 11   | DAY 24 | HOUR 10.4 | JULIAN DAY 328 | LATITUDE 41.990N | LONGITUDE 81.660W |      |      |      |      |       |       |            |       |       |      |      |           |            |
| 0.           | 6.99       | .020   | 30.       | 27.6           | 0.0              | 33.               | 8.1  | 11.7 | 2.0  | 96.  | 0.0   | 305.  | 7.57       | -.105 | 11.61 | 99.  | 10.0 |           |            |
| 10.          | 7.03       | .020   | 30.       | 28.4           | 0.0              | 33.               | 7.8  | 11.1 | 1.9  | 91.  | 0.0   | 306.  | 8.01       | .120  | 11.74 | 100. | 12.3 |           |            |
| 22.          | 7.26       | .017   | 27.       | 29.4           | 0.0              | 34.               | 8.4  | 12.1 | 1.7  | 91.  | 0.0   | 303.  | 8.03       | .142  | 11.76 | 101. | 7.8  | 3000.     |            |
| 24.78        |            |        |           |                |                  |                   |      |      |      |      |       |       | 7.00       | -.161 |       |      |      |           |            |
| STATION 57   | MONTH 12   | DAY 6  | HOUR 10.0 | JULIAN DAY 340 | LATITUDE 42.040N | LONGITUDE 82.040W |      |      |      |      |       |       |            |       |       |      |      |           |            |
| 0.           | 5.25       | .013   | 27.       | 26.4           | 0.0              | 34.               | 8.0  | 10.9 | 1.8  | 95.  | 0.0   | 327.  | 8.04       | .082  | 14.18 | 115. | 6.0  |           |            |
| 10.          | 5.14       | .031   | 26.       | 26.9           | 0.0              | 33.               | 8.5  | 10.8 | 1.9  | 95.  | 0.0   | 327.  | 8.08       | .102  | 14.32 | 116. | 5.6  |           |            |
| 19.          | 5.23       | .020   | 27.       | 26.6           | 0.0              | 34.               | 8.0  | 10.8 | 1.9  | 97.  | 0.0   | 327.  | 8.18       | .109  | 14.01 | 114. | 6.2  | 1040.     |            |
| 21.98        |            |        |           |                |                  |                   |      |      |      |      |       |       | 7.05       | -.072 |       |      |      |           |            |
| STATION 58   | MONTH 12   | DAY 6  | HOUR 11.9 | JULIAN DAY 340 | LATITUDE 42.070N | LONGITUDE 82.300W |      |      |      |      |       |       |            |       |       |      |      |           |            |
| 0.           | 5.07       | .010   | 26.       | 27.6           | 0.0              | 33.               | 8.1  | 11.1 | 2.1  | 95.  | 0.0   | 322.  | 8.13       | .076  | 14.95 | 121. | 7.3  |           |            |
| 8.           | 4.95       | .013   | 27.       | 26.6           | 0.0              | 33.               | 7.8  | 11.3 | 1.7  | 96.  | 0.0   | 323.  | 8.12       | .100  | 14.80 | 119. | 6.9  |           |            |
| 17.          | 5.03       | .024   | 28.       | 26.6           | 0.0              | 33.               | 8.4  | 11.0 | 2.0  | 97.  | 0.0   | 322.  | 8.17       | .106  | 15.06 | 121. | 7.1  | 40.       |            |
| 18.38        |            |        |           |                |                  |                   |      |      |      |      |       |       | 7.94       | .075  |       |      |      |           |            |
| STATION 59   | MONTH 12   | DAY 6  | HOUR 13.1 | JULIAN DAY 340 | LATITUDE 41.980N | LONGITUDE 82.380W |      |      |      |      |       |       |            |       |       |      |      |           |            |
| 0.           | 3.47       | .017   | 21.       | 23.7           | .2               | 30.               | 7.5  | 10.0 | 1.9  | 92.  | 0.0   | 293.  | 8.08       | .096  | 13.98 | 109. | 7.3  |           |            |
| 8.           | 3.62       | .015   | 20.       | 23.2           | .3               | 30.               | 8.2  | 9.6  | 1.6  | 92.  | 0.0   | 295.  | 8.10       | .098  | 13.81 | 108. | 10.0 |           |            |
| 13.          | 3.63       | .015   | 24.       | 24.1           | 0.0              | 29.               | 9.0  | 10.1 | 2.3  | 97.  | 0.0   | 297.  | 8.18       | .125  | 13.73 | 107. | 14.7 | 2735.     |            |
| 14.98        |            |        |           |                |                  |                   |      |      |      |      |       |       | 7.15       | -.110 |       |      |      |           |            |
| STATION 61   | MONTH 12   | DAY 8  | HOUR 14.4 | JULIAN DAY 342 | LATITUDE 41.640N | LONGITUDE 82.550W |      |      |      |      |       |       |            |       |       |      |      |           |            |
| 0.           | 2.51       | .043   | 22.       | 25.4           | .1               | 27.               | 8.6  | 10.9 | 1.6  | 87.  | 0.0   | 281.  | 7.98       | .098  | 14.28 | 108. | 20.0 |           |            |
| 10.          | 2.47       | .036   | 21.       | 25.9           | 0.0              | 27.               | 7.6  | 10.6 | 1.6  | 90.  | 0.0   | 281.  | 8.00       | .108  | 14.17 | 107. | 18.7 | 10.       |            |
| 11.98        |            |        |           |                |                  |                   |      |      |      |      |       |       |            |       |       |      |      |           |            |

LIMNOLOGICAL DATA  
LAKE EPIC

CRUISE 6703

| SAMPLE DEPTH | WATER TEMP | NO3   | PO4       | SD4            | CL               | SiO2              | CA   | MG   | NA   | X    | T.ALK | P.ALK | SPEC.      | PH    | EM    | DO   | OC   | TOT. SUSP | TOTAL COLI |  |
|--------------|------------|-------|-----------|----------------|------------------|-------------------|------|------|------|------|-------|-------|------------|-------|-------|------|------|-----------|------------|--|
| M            | C          | MG/L  | MG/L      | MG/L           | MG/L             | MG/L              | MG/L | MG/L | MG/L | MG/L | MG/L  | MG/L  | MG/L       |       | VOLTS | MG/L | PCT. | MG/L      | MG/L       |  |
|              |            | N     | P         |                |                  |                   |      |      |      |      | CaCO3 | CaCO3 | MICRO-MHOS |       |       |      | SAT. | MG/L      | MG/L       |  |
| STATION 61   | MONTH 12   | DAY 6 | HOUR 15.3 | JULIAN DAY 340 | LATITUDE 41.950N | LONGITUDE 82.630W |      |      |      |      |       |       |            |       |       |      |      |           |            |  |
| 0.           | 2.63       | .018  | 17.       | 22.7           | 0.0              | 28.               | 7.6  | 9.3  | 1.6  | 86.  | 0.0   | 276.  | 7.95       | .14A  | 16.36 | 124. | 18.3 |           |            |  |
| 9.           | 2.60       | .029  | 18.       | 22.7           | 0.0              | 29.               | 8.1  | 9.3  | 1.6  | 88.  | 0.0   | 277.  | 8.20       | .150  | 16.15 | 122. | 18.0 | 2900.     |            |  |
| 11.5B        |            |       |           |                |                  |                   |      |      |      |      |       |       | 7.33       | -.08B |       |      |      |           |            |  |
| STATION 62   | MONTH 12   | DAY 7 | HOUR 8.8  | JULIAN DAY 341 | LATITUDE 41.850N | LONGITUDE 82.880W |      |      |      |      |       |       |            |       |       |      |      |           |            |  |
| 0.           | 2.13       | .071  | 18.       | 17.7           | 0.0              | 27.               | 8.4  | 8.3  | 1.5  | 87.  | 0.0   | 262.  | 8.18       | .088  | 14.67 | 110. |      |           |            |  |
| 9.           | 2.11       | .071  | 18.       | 17.7           | 0.0              | 27.               | 7.6  | 8.1  | 1.8  | 87.  |       | 263.  | 8.21       | .072  | 14.56 | 109. | 470. |           |            |  |
| 11.5B        |            |       |           |                |                  |                   |      |      |      |      |       |       | 7.50       | -.055 |       |      |      |           |            |  |
| STATION 63   | MONTH 12   | DAY 7 | HOUR 10.0 | JULIAN DAY 341 | LATITUDE 41.970N | LONGITUDE 83.000W |      |      |      |      |       |       |            |       |       |      |      |           |            |  |
| 0.           | 1.55       | .018  | 18.       | 14.8           | 0.0              | 28.               | 7.7  | 6.5  | 2.0  | 94.  | 9.0   | 254.  | 8.18       | .111  | 15.43 | 114. | 21.1 |           |            |  |
| 7.           | 1.33       | .019  | 19.       | 19.7           | 0.0              | 31.               | 7.8  | 7.9  | 1.9  | 98.  |       | 282.  | 8.21       | .128  | 15.27 | 112. | 21.3 | 1170.     |            |  |
| 8.5B         |            |       |           |                |                  |                   |      |      |      |      |       |       | 7.12       | .020  |       |      |      |           |            |  |

CRUISE 6704

|           |          |        |           |                |                  |                   |     |     |  |  |      |  |  |       |      |      |       |  |  |  |
|-----------|----------|--------|-----------|----------------|------------------|-------------------|-----|-----|--|--|------|--|--|-------|------|------|-------|--|--|--|
| STATION 3 | MONTH 12 | DAY 11 | HOUR 12.6 | JULIAN DAY 345 | LATITUDE 41.800N | LONGITUDE 83.130W |     |     |  |  |      |  |  |       |      |      |       |  |  |  |
| 0.        | 2.52     | .068   |           | 2              | 29.              | 8.0               | 9.0 | 1.6 |  |  | 264. |  |  | 13.98 | 106. | 37.4 |       |  |  |  |
| 8.        | 2.30     | .061   |           | 1              | 28.              | 7.5               | 8.7 | 1.8 |  |  | 264. |  |  | 14.18 | 107. | 34.7 | 1100. |  |  |  |
| 9.8B      |          |        |           |                |                  |                   |     |     |  |  |      |  |  |       |      |      |       |  |  |  |





## LAKE ERIE

## CRUISE 6701

| STA | WIND        |            | WAVE               |          | PER<br>SEC. | BOTTOM<br>DEPTH<br>M | BOTTOM SEDIMENT       |                        |                            | BOO<br>MG/G<br>DAYS<br>RUN |
|-----|-------------|------------|--------------------|----------|-------------|----------------------|-----------------------|------------------------|----------------------------|----------------------------|
|     | DIR<br>DEG. | VEL<br>M/S | DIR<br>DEG.<br>X10 | HGT<br>M |             |                      | ORT<br>SOLIDS<br>PCT. | VOLA-<br>TILES<br>PCT. | OIL +<br>GREASE<br>PCT. DS |                            |
| 2   | 168         | 4.0        | 0                  | 0.0      | 0.0         | 9.1                  |                       |                        |                            |                            |
| 3   | 116         | 2.4        | 0                  | 0.0      | 0.0         | 7.1                  |                       |                        |                            |                            |
| 13  | 350         | 6.1        | 36                 | .8       | 4.0         | 16.8                 |                       |                        |                            |                            |
| 14  | 320         | 5.0        | 36                 | .6       | 4.1         | 13.7                 |                       |                        |                            |                            |
| 15  | 310         | 3.9        | 36                 | .6       | 4.0         | 21.6                 |                       |                        |                            |                            |
| 16  | 335         | 1.8        | 34                 | .5       | 3.6         | 23.8                 |                       |                        |                            |                            |
| 17  | 245         | 2.1        | 34                 | .3       | 3.5         | 12.2                 |                       |                        |                            |                            |
| 18  | 260         | 5.2        | 34                 | .3       | 3.5         | 18.0                 |                       |                        |                            |                            |
| 19  | 40          | 1.3        | 5                  | .3       | 3.0         | 18.6                 |                       |                        |                            |                            |
| 20  | 70          | 3.3        | 5                  | .2       | 2.3         | 23.5                 |                       |                        |                            |                            |
| 21  | 60          | 4.4        | 5                  | .2       | 2.3         | 16.5                 |                       |                        |                            |                            |
| 22  | 50          | 8.3        | 5                  | .5       | 2.9         | 13.7                 |                       |                        |                            |                            |
| 23  | 45          | 7.1        | 2                  | .5       | 2.6         | 10.1                 |                       |                        |                            |                            |
| 24  | 180         | 9.6        | 18                 | .3       | 2.2         | 13.7                 |                       |                        |                            |                            |
| 25  | 180         | 8.1        | 18                 | .3       | 2.2         | 15.8                 |                       |                        |                            |                            |
| 26  | 280         | 5.9        | 23                 | .3       | 2.9         | 18.3                 |                       |                        |                            |                            |
| 27  | 100         | 4.3        | 23                 | .3       | 2.5         | 26.5                 |                       |                        |                            |                            |
| 28  | 303         | 5.2        | 32                 | .3       | 3.0         | 44.2                 |                       |                        |                            |                            |
| 29  | 130         | 4.9        | 23                 | .2       | 2.4         | 21.0                 |                       |                        |                            |                            |
| 30  | 170         | 7.5        | 23                 | .2       | 1.6         | 18.3                 |                       |                        |                            |                            |
| 34  | 310         | .6         | 32                 | .2       | 1.9         | 22.3                 |                       |                        |                            |                            |
| 37  | 279         | 9.2        | 27                 | .4       | 3.4         | 32.9                 |                       |                        |                            |                            |
| 39  | 289         | 7.8        | 32                 | .5       | 3.5         | 43.0                 |                       |                        |                            |                            |
| 40  | 295         | 10.4       | 32                 | .6       | 3.8         | 63.1                 |                       |                        |                            |                            |
| 41  | 288         | 11.6       | 32                 | .6       | 3.8         | 46.3                 |                       |                        |                            |                            |
| 42  | 275         | 9.2        | 27                 | .8       | 4.2         | 39.0                 |                       |                        |                            |                            |
| 43  | 332         | 3.8        | 32                 | .3       | 3.0         | 25.8                 |                       |                        |                            |                            |
| 44  | 304         | 2.0        | 32                 | .3       | 3.0         | 28.1                 |                       |                        |                            |                            |
| 45  | 246         | 3.6        | 23                 | .2       | 2.8         | 19.8                 |                       |                        |                            |                            |
| 46  | 242         | 5.0        | 23                 | .3       | 3.0         | 19.5                 |                       |                        |                            |                            |
| 47  | 236         | 7.2        | 23                 | .4       | 3.3         | 17.7                 |                       |                        |                            |                            |
| 48  | 94          | 5.8        | 9                  | .2       | 2.8         | 18.9                 |                       |                        |                            |                            |
| 49  | 86          | 5.6        | 9                  | .3       | 2.9         | 21.3                 |                       |                        |                            |                            |
| 50  | 73          | 6.0        | 5                  | .3       | 3.0         | 21.9                 |                       |                        |                            |                            |
| 51  | 35          | 8.2        | 5                  | .4       | 3.2         | 22.9                 |                       |                        |                            |                            |
| 52  | 58          | 6.8        | 5                  | .4       | 3.1         | 21.9                 |                       |                        |                            |                            |
| 53  | 69          | 5.0        | 5                  | .3       | 3.0         | 20.7                 |                       |                        |                            |                            |
| 54  | 72          | 5.0        | 5                  | .3       | 3.0         | 18.6                 |                       |                        |                            |                            |
| 55  | 356         | 9.4        | 36                 | .6       | 4.0         | 22.9                 |                       |                        |                            |                            |
| 56  | 11          | 5.8        | 36                 | .6       | 4.0         | 24.4                 |                       |                        |                            |                            |
| 57  | 79          | 2.7        | 9                  | .4       | 3.3         | 22.3                 |                       |                        |                            |                            |
| 58  | 177         | 3.2        | 18                 | .2       | 2.5         | 18.3                 |                       |                        |                            |                            |
| 59  | 198         | 2.8        | 18                 | .2       | 2.6         | 13.7                 |                       |                        |                            |                            |
| 60  | 209         | 4.3        | 23                 | .2       | 2.8         | 11.3                 |                       |                        |                            |                            |
| 61  | 263         | 2.2        | 0                  | 0.0      | 0.8         | 10.7                 |                       |                        |                            |                            |
| 62  | 90          | 2.2        | 0                  | 0.0      | 0.0         | 10.1                 |                       |                        |                            |                            |
| 63  | 185         | 3.4        | 18                 | .2       | 2.4         | 8.8                  |                       |                        |                            |                            |

## CRUISE 6702

|    |     |     |    |     |     |      |  |  |  |  |
|----|-----|-----|----|-----|-----|------|--|--|--|--|
| 1  | 119 | 6.0 | 14 | .3  | 3.1 | 5.1  |  |  |  |  |
| 2  | 213 | 5.4 | 23 | .2  | 2.2 | 9.8  |  |  |  |  |
| 3  | 195 | 3.3 | 23 | .2  | 2.3 | 9.4  |  |  |  |  |
| 4  | 163 | 3.0 | 0  | 0.0 | 0.0 | 7.6  |  |  |  |  |
| 5  | 136 | 2.8 | 0  | 0.0 | 0.0 | 8.2  |  |  |  |  |
| 6  | 229 | 5.0 | 23 | .2  | 2.6 | 12.2 |  |  |  |  |
| 7  | 241 | 6.8 | 23 | .2  | 2.3 | 13.7 |  |  |  |  |
| 8  | 233 | 5.0 | 23 | .2  | 2.2 | 14.3 |  |  |  |  |
| 9  | 243 | 5.5 | 23 | .2  | 2.3 | 15.8 |  |  |  |  |
| 10 | 258 | 7.4 | 23 | .2  | 2.4 | 16.8 |  |  |  |  |

LAKE ERIE  
CRUISE 6702

| STA | WIND        |            | WAVE               |          | PER<br>SEC. | BOTTOM<br>DEPTH<br>M | BOTTOM SEDIMENT       |                        |                            | ROD<br>MC/G<br>DAYS<br>RUN |
|-----|-------------|------------|--------------------|----------|-------------|----------------------|-----------------------|------------------------|----------------------------|----------------------------|
|     | DIR<br>DEG. | VEL<br>M/S | DIR<br>DEG.<br>X10 | HGT<br>M |             |                      | DRY<br>SOLIDS<br>PCT. | VOLA-<br>TILES<br>PCT. | DIL -<br>GREASE<br>PCT. DS |                            |
| 11  | 214         | 4.2        | 0                  | 0.0      | 0.0         | 18.6                 |                       |                        |                            |                            |
| 12  | 217         | 7.0        | 0                  | 0.0      | 0.0         | 16.3                 |                       |                        |                            |                            |
| 13  | 239         | 2.8        | 0                  | 0.0      | 0.0         | 16.5                 |                       |                        |                            |                            |
| 14  | 297         | 4.2        | 0                  | 0.0      | 0.0         | 12.5                 |                       |                        |                            |                            |
| 15  | 262         | 1.2        | 0                  | 0.0      | 0.0         | 21.3                 |                       |                        |                            |                            |
| 16  | 98          | 0.0        | 0                  | 0.0      | 0.0         | 23.5                 |                       |                        |                            |                            |
| 17  | 62          | .8         | 0                  | 0.0      | 0.0         | 12.5                 |                       |                        |                            |                            |
| 18  | 76          | 3.4        | 0                  | 0.0      | 0.0         | 18.3                 |                       |                        |                            |                            |
| 19  | 181         | 4.6        | 0                  | 0.0      | 0.0         | 18.6                 |                       |                        |                            |                            |
| 20  | 201         | 0.0        | 0                  | 0.0      | 0.0         | 22.6                 |                       |                        |                            |                            |
| 21  | 310         | 3.6        | 0                  | 0.0      | 0.0         | 16.8                 |                       |                        |                            |                            |
| 22  | 179         | .6         | 0                  | 0.0      | 0.0         | 13.4                 |                       |                        |                            |                            |
| 23  | 192         | 0.0        | 0                  | 0.0      | 0.0         | 9.8                  |                       |                        |                            |                            |
| 24  | 57          | 4.0        | 0                  | 0.0      | 0.0         | 13.4                 |                       |                        |                            |                            |
| 25  | 60          | 2.0        | 0                  | 0.0      | 0.0         | 17.7                 |                       |                        |                            |                            |
| 26  | 21          | 1.8        | 0                  | 0.0      | 0.0         | 18.0                 |                       |                        |                            |                            |
| 27  | 3           | 5.6        | 0                  | 0.0      | 0.0         | 27.1                 |                       |                        |                            |                            |
| 28  | 46          | 4.6        | 0                  | 0.0      | 0.0         | 43.9                 |                       |                        |                            |                            |
| 29  | 40          | 4.2        | 5                  | .2       | 2.7         | 20.7                 |                       |                        |                            |                            |
| 30  | 332         | 4.4        | 0                  | 0.0      | 0.0         | 19.2                 |                       |                        |                            |                            |
| 31  | 304         | 3.2        | 0                  | 0.0      | 0.0         | 16.2                 |                       |                        |                            |                            |
| 32  | 23          | 5.0        | 0                  | 0.0      | 0.0         | 12.8                 |                       |                        |                            |                            |
| 33  | 247         | 3.6        | 0                  | 0.0      | 0.0         | 18.0                 |                       |                        |                            |                            |
| 34  | 292         | 3.6        | 0                  | 0.0      | 0.0         | 21.9                 |                       |                        |                            |                            |
| 35  | 244         | 4.0        | 0                  | 0.0      | 0.0         | 19.2                 |                       |                        |                            |                            |
| 36  | 100         | 2.8        | 0                  | 0.0      | 0.0         | 21.3                 |                       |                        |                            |                            |
| 37  | 94          | 3.6        | 0                  | 0.0      | 0.0         | 33.2                 |                       |                        |                            |                            |
| 39  | 73          | 5.4        | 0                  | 0.0      | 0.0         | 42.4                 |                       |                        |                            |                            |
| 40  | 66          | 5.2        | 0                  | 0.0      | 0.0         | 61.6                 |                       |                        |                            |                            |
| 41  | 59          | 5.2        | 0                  | 0.0      | 0.0         | 46.0                 |                       |                        |                            |                            |
| 42  | 84          | 6.4        | 0                  | 0.0      | 0.0         | 39.8                 |                       |                        |                            |                            |
| 43  | 63          | 4.8        | 5                  | 1.4      | 4.6         | 23.5                 |                       |                        |                            |                            |
| 44  | 62          | 6.4        | 5                  | 1.1      | 4.2         | 18.9                 |                       |                        |                            |                            |
| 45  | 42          | 6.4        | 5                  | .8       | 3.3         | 18.9                 |                       |                        |                            |                            |
| 46  | 44          | 8.0        | 5                  | .8       | 3.2         | 18.3                 |                       |                        |                            |                            |
| 47  | 101         | 5.6        | 5                  | .8       | 3.8         | 16.8                 |                       |                        |                            |                            |
| 48  | 32          | 2.0        | 0                  | 0.0      | 0.0         | 18.9                 |                       |                        |                            |                            |
| 49  | 249         | 1.6        | 0                  | 0.0      | 0.0         | 21.3                 |                       |                        |                            |                            |
| 50  | 300         | 2.4        | 0                  | 0.0      | 0.0         | 22.3                 |                       |                        |                            |                            |
| 51  | 316         | 2.6        | 0                  | 0.0      | 0.0         | 21.2                 |                       |                        |                            |                            |
| 52  | 219         | 3.0        | 0                  | 0.0      | 0.0         | 22.3                 |                       |                        |                            |                            |
| 53  | 242         | 3.7        | 0                  | 0.0      | 0.0         | 21.0                 |                       |                        |                            |                            |
| 54  | 230         | .4         | 0                  | 0.0      | 0.0         | 19.2                 |                       |                        |                            |                            |
| 55  | 67          | 7.0        | 5                  | 1.5      | 4.3         | 23.8                 |                       |                        |                            |                            |
| 56  | 68          | 9.2        | 5                  | 1.5      | 4.2         | 25.0                 |                       |                        |                            |                            |
| 57  | 81          | 7.4        | 9                  | 1.5      | 4.3         | 25.3                 |                       |                        |                            |                            |
| 58  | 98          | 9.4        | 8                  | 1.5      | 4.4         | 18.0                 |                       |                        |                            |                            |
| 59  | 81          | 4.6        | 9                  | 1.4      | 3.9         | 14.3                 |                       |                        |                            |                            |
| 60  | 85          | 9.4        | 9                  | 1.1      | 3.5         | 11.9                 |                       |                        |                            |                            |
| 61  | 104         | 7.6        | 9                  | .8       | 3.0         | 11.4                 |                       |                        |                            |                            |
| 62  | 79          | 6.4        | 9                  | .3       | 3.0         | 10.7                 |                       |                        |                            |                            |
| 63  | 102         | 5.5        | 14                 | .3       | 3.0         | 8.8                  |                       |                        |                            |                            |

CRUISE 6703

|   |     |     |    |     |     |      |  |  |      |   |
|---|-----|-----|----|-----|-----|------|--|--|------|---|
| 1 | 105 | 6.2 | 14 | .5  | 3.2 | 10.4 |  |  | 1.55 | 4 |
| 2 | 126 | 6.2 | 14 | .5  | 3.2 | 10.1 |  |  | .59  | 4 |
| 3 | 37  | 1.8 | 5  | .2  | 2.1 | 9.4  |  |  | .29  | 5 |
| 4 | 24  | 3.2 | 5  | .3  | 2.6 | 7.9  |  |  | .75  | 5 |
| 5 | 81  | .8  | 0  | 0.0 | 0.0 | 8.2  |  |  | .46  | 5 |

LAKE ERIE  
CRUISE 6703

| STA | WIND        |            | WAVE               |          | PER<br>SEC. | BOTTOM<br>DEPTH<br>M | BOTTOM SEDIMENT       |                        |                            | BDD<br>%G/G<br>DAYS<br>RUN |
|-----|-------------|------------|--------------------|----------|-------------|----------------------|-----------------------|------------------------|----------------------------|----------------------------|
|     | DIR<br>DEG. | VEL<br>M/S | DIR<br>DEG.<br>X10 | HGT<br>M |             |                      | DRY<br>SOLIDS<br>PCT. | VOLA-<br>TILES<br>PCT. | OIL +<br>GREASE<br>PCT. DS |                            |
| 6   | 148         | 5.8        | 14                 | .6       | 3.2         | 12.9                 |                       |                        | .61                        | 5                          |
| 7   | 154         | 3.8        | 14                 | .5       | 2.7         | 13.4                 |                       |                        | .58                        | 5                          |
| 8   | 155         | 7.0        | 14                 | .6       | 3.1         | 14.0                 |                       |                        | .81                        | 5                          |
| 9   | 152         | 4.6        | 14                 | .6       | 3.1         | 16.2                 |                       |                        | .53                        | 5                          |
| 10  | 148         | 4.6        | 14                 | .2       | 2.3         | 16.8                 |                       |                        | .49                        | 5                          |
| 11  | 130         | 7.0        | 14                 | .3       | 2.7         | 18.6                 |                       |                        | .43                        | 5                          |
| 12  | 135         | 5.1        | 14                 | .3       | 2.7         | 16.2                 |                       |                        | .55                        | 5                          |
| 13  | 271         | 6.1        | 27                 | .7       | 4.0         | 15.5                 |                       |                        | 1.33                       | 5                          |
| 14  | 271         | 6.6        | 27                 | .8       | 4.1         | 12.2                 |                       |                        | .27                        | 5                          |
| 15  | 268         | 9.3        | 27                 | 1.0      | 4.5         | 20.7                 |                       |                        | .66                        | 5                          |
| 16  | 226         | 9.2        | 23                 | 1.0      | 4.3         | 23.8                 |                       |                        | .87                        | 5                          |
| 17  | 216         | 7.2        | 23                 | .6       | 3.7         | 11.0                 |                       |                        | .75                        | 5                          |
| 18  | 214         | 7.0        | 23                 | .6       | 3.7         | 38.3                 |                       |                        | .81                        | 5                          |
| 19  | 193         | 7.4        | 18                 | .6       | 3.6         | 18.9                 |                       |                        | .77                        | 5                          |
| 20  | 229         | 12.8       | 23                 | 1.3      | 5.0         | 23.2                 |                       |                        |                            |                            |
| 21  | 215         | 9.0        | 23                 | .9       | 4.1         | 36.5                 |                       |                        | .91                        | 5                          |
| 22  | 220         | 9.8        | 23                 | .8       | 4.0         | 13.4                 |                       |                        | .52                        | 5                          |
| 23  | 219         | 8.8        | 23                 | .8       | 4.1         | 10.1                 |                       |                        | .23                        | 5                          |
| 24  | 251         | 7.6        | 27                 | .9       | 3.8         | 14.0                 |                       |                        |                            |                            |
| 25  | 228         | 6.8        | 23                 | 1.1      | 4.1         | 16.8                 |                       |                        | 1.06                       | 5                          |
| 26  | 220         | 9.1        | 23                 | 1.1      | 4.2         | 17.7                 |                       |                        | .68                        | 5                          |
| 29  | 113         | 8.0        | 14                 | .2       | 2.1         | 20.4                 |                       |                        | .83                        | 5                          |
| 30  | 107         | 7.0        | 9                  | .2       | 2.6         | 19.2                 |                       |                        | .32                        | 5                          |
| 31  | 93          | 5.4        | 9                  | .3       | 2.6         | 15.2                 |                       |                        |                            |                            |
| 32  | 76          | 8.0        | 5                  | .3       | 2.6         | 12.5                 |                       |                        | .36                        | 5                          |
| 33  | 85          | 7.4        | 9                  | .5       | 3.1         | 18.3                 |                       |                        | .34                        | 5                          |
| 34  | 69          | 8.2        | 9                  | .5       | 3.2         | 21.3                 |                       |                        | .72                        | 5                          |
| 35  | 59          | 8.1        | 5                  | .5       | 3.2         | 18.6                 |                       |                        | .42                        | 5                          |
| 36  | 89          | 5.0        | 9                  | .4       | 3.1         | 21.9                 |                       |                        | .14                        | 5                          |
| 37  | 116         | 6.0        | 14                 | .4       | 3.0         | 33.2                 |                       |                        | .58                        | 5                          |
| 39  | 109         | 4.4        | 14                 | .4       | 3.0         | 42.7                 |                       |                        | .43                        | 5                          |
| 41  | 97          | 5.0        | 9                  | .4       | 3.0         | 46.0                 |                       |                        | .78                        | 5                          |
| 42  | 64          | 5.4        | 5                  | .4       | 3.0         | 38.7                 |                       |                        | .16                        | 5                          |
| 43  | 161         | 14.3       | 18                 | 1.3      | 4.2         | 21.6                 |                       |                        | .32                        | 5                          |
| 44  | 174         | 10.0       | 18                 | 1.3      | 4.3         | 19.5                 |                       |                        |                            |                            |
| 45  | 170         | 12.3       | 18                 | 1.5      | 4.6         | 15.8                 |                       |                        |                            |                            |
| 48  | 143         | 4.0        | 18                 | .8       | 4.7         | 18.6                 |                       |                        |                            |                            |
| 49  | 191         | 3.4        | 18                 | .6       | 4.5         | 21.0                 |                       |                        | .57                        | 5                          |
| 50  | 198         | 4.6        | 18                 | .6       | 4.5         | 21.5                 |                       |                        | .68                        | 5                          |
| 52  | 217         | 4.6        | 23                 | .8       | 4.1         | 21.9                 |                       |                        | .50                        | 5                          |
| 53  | 225         | 5.2        | 23                 | .6       | 3.7         | 21.0                 |                       |                        | .73                        | 5                          |
| 54  | 223         | 4.0        | 23                 | .5       | 3.4         | 18.6                 |                       |                        | .76                        | 5                          |
| 55  | 100         | 4.8        | 9                  | .2       | 2.2         | 23.8                 |                       |                        | .72                        | 5                          |
| 56  | 218         | 10.5       | 23                 | 1.2      | 4.6         | 24.7                 |                       |                        | .70                        | 5                          |
| 57  | 143         | 5.0        | 14                 | .2       | 2.3         | 23.9                 |                       |                        | .65                        | 5                          |
| 58  | 93          | 3.4        | 9                  | .2       | 2.2         | 18.3                 |                       |                        | .48                        | 5                          |
| 59  | 119         | 3.6        | 0                  | 0.0      | 0.0         | 14.9                 |                       |                        | .52                        | 5                          |
| 60  | 164         | 4.0        | 0                  | 0.0      | 0.0         | 11.5                 |                       |                        |                            |                            |
| 61  | 159         | 4.2        | 0                  | 0.0      | 0.0         | 11.3                 |                       |                        | .64                        | 5                          |
| 62  | 148         | 5.8        | 0                  | 0.0      | 0.0         | 11.0                 |                       |                        | .63                        | 5                          |
| 63  | 151         | 5.6        | 0                  | 0.0      | 0.0         | 8.5                  |                       |                        | .76                        | 5                          |

CRUISE 6704

|   |     |     |    |    |     |     |  |  |  |  |
|---|-----|-----|----|----|-----|-----|--|--|--|--|
| 3 | 119 | 7.2 | 14 | .3 | 2.7 | 9.8 |  |  |  |  |
|---|-----|-----|----|----|-----|-----|--|--|--|--|

WATER TEMP., CELSIUS

LAKE ERIE  
1967

DATE- 104-121 145-165 324-345

| DEPTH M | MEAN- |        |       |
|---------|-------|--------|-------|
| 0       | 5.007 | 13.448 | 4.996 |
| 5       | 8.100 | 15.810 | 3.123 |
| 10      | 4.634 | 10.475 | 5.143 |
| 15      | 5.238 | 9.151  | 5.238 |
| 20      | 3.510 | 8.176  | 5.636 |
| 25      | 3.500 | 5.600  |       |
| 30      | 2.348 | 5.020  | 6.119 |
| 35      | 1.790 | 4.290  | 6.560 |
| 40      | 2.710 | 4.675  | 5.990 |
| 45      | 1.920 | 4.600  | 6.000 |
| 50      |       |        |       |
| 60      | 2.880 | 4.860  |       |

STANDARD DEVIATION-

|    |       |       |       |
|----|-------|-------|-------|
| 0  | 2.228 | 5.152 | 1.281 |
| 5  | .297  | 1.979 | 1.584 |
| 10 | 1.674 | 2.995 | 1.187 |
| 15 | 1.149 | 1.818 | .995  |
| 20 | .824  | 1.355 | .927  |
| 25 | .297  |       |       |
| 30 | 1.026 | .424  | .809  |
| 35 |       |       |       |
| 40 | 1.739 | .349  |       |
| 45 |       |       |       |
| 50 |       |       |       |
| 60 |       |       |       |

SAMPLE SIZE-

|    |    |    |    |
|----|----|----|----|
| 0  | 53 | 62 | 56 |
| 5  | 2  | 2  | 3  |
| 10 | 50 | 61 | 54 |
| 15 | 15 | 21 | 21 |
| 20 | 17 | 16 | 14 |
| 25 | 2  | 1  |    |
| 30 | 6  | 6  | 4  |
| 35 | 1  | 1  | 1  |
| 40 | 2  | 2  | 1  |
| 45 | 1  | 1  | 1  |
| 50 |    |    |    |
| 60 | 1  | 1  |    |

## NITRATE MG/L

LAKE ERIE  
1967

DATE- 104-121 145-163 324-349

| DEPTH M | MEAN- |       |
|---------|-------|-------|
| 0       | 1.065 | .895  |
| 5       | .820  | .637  |
| 10      | .830  | .947  |
| 15      | 1.288 | 1.014 |
| 20      | .980  | 1.337 |
| 25      | .345  |       |
| 30      | .835  | 1.107 |
| 35      | .360  | .100  |
| 40      | .755  | .365  |
| 45      | .500  | 2.580 |
| 50      |       |       |
| 60      | .280  | 1.910 |

|    | STANDARD DEVIATION- |       |
|----|---------------------|-------|
| 0  | .779                | .760  |
| 5  | 1.018               | .318  |
| 10 | .701                | .982  |
| 15 | .477                | .901  |
| 20 | .813                | 1.276 |
| 25 | .219                |       |
| 30 | .283                | .975  |
| 35 |                     |       |
| 40 | .460                | .064  |
| 45 |                     |       |
| 50 |                     |       |
| 60 |                     |       |

|    | SAMPLE SIZE- |    |
|----|--------------|----|
| 0  | 51           | 35 |
| 5  | 2            | 3  |
| 10 | 30           | 39 |
| 15 | 16           | 14 |
| 20 | 17           | 9  |
| 25 | 2            |    |
| 30 | 0            | 6  |
| 35 | 1            | 1  |
| 40 | 2            | 2  |
| 45 | 1            | 1  |
| 50 |              |    |
| 60 | 1            | 1  |

## SULFATE MG/L

LAKE ERIC  
1967

DATE- 104-121 145-165 324-345

DEPTH M

## MEAN-

|    |        |        |        |
|----|--------|--------|--------|
| 0  | 25.833 | 24.869 | 24.107 |
| 5  | 19.000 | 25.200 | 19.333 |
| 10 | 26.057 | 24.689 | 23.852 |
| 15 | 27.333 | 25.190 | 24.250 |
| 20 | 26.294 | 24.688 | 25.286 |
| 25 | 24.500 | 26.000 |        |
| 30 | 26.000 | 24.833 | 26.000 |
| 35 | 23.000 | 23.900 | 26.000 |
| 40 | 26.000 | 24.500 | 25.000 |
| 45 | 26.900 | 25.100 | 25.000 |
| 50 |        |        |        |
| 60 | 26.000 | 23.000 |        |

## STANDARD DEVIATION-

|    |       |       |       |
|----|-------|-------|-------|
| 0  | 3.272 | 3.299 | 3.229 |
| 5  | 1.414 | 6.797 | 1.528 |
| 10 | 2.663 | 3.165 | 2.949 |
| 15 | 2.410 | 2.786 | 2.511 |
| 20 | 1.759 | 2.056 | 1.590 |
| 25 | .707  |       |       |
| 30 | 2.608 | .983  | 1.414 |
| 35 |       |       |       |
| 40 |       | .707  |       |
| 45 |       |       |       |
| 50 |       |       |       |
| 60 |       |       |       |

## SAMPLE SIZE-

|    |    |    |    |
|----|----|----|----|
| 0  | 54 | 61 | 56 |
| 5  | 2  | 5  | 3  |
| 10 | 53 | 61 | 54 |
| 15 | 15 | 21 | 20 |
| 20 | 17 | 16 | 14 |
| 25 | 2  | 1  |    |
| 30 | 6  | 6  | 4  |
| 35 | 1  | 1  | 1  |
| 40 | 2  | 2  | 1  |
| 45 | 1  | 1  | 1  |
| 50 |    |    |    |
| 60 | 1  | 1  |    |

LAKE ERIC  
1967

=====

DATE- 104-121 145-165 324-345

| DEPTH M | MEAN- |      |       |
|---------|-------|------|-------|
| 0       |       | .480 | .323  |
| 5       | .300  | .480 | 1.000 |
| 10      | .630  | .479 | .335  |
| 15      | .231  | .340 | .214  |
| 20      | .157  | .213 | .180  |
| 25      | .200  | .100 |       |
| 30      | .100  | .200 | .300  |
| 35      | .100  | .100 | .100  |
| 40      | .100  | .200 |       |
| 45      | .300  | .100 |       |
| 50      |       |      |       |
| 60      | .200  | .100 |       |

| DEPTH M | STANDARD DEVIATION- |      |      |
|---------|---------------------|------|------|
| 0       |                     | .346 | .369 |
| 5       | .203                | .252 | .285 |
| 10      | .613                | .453 | .353 |
| 15      | .309                | .370 | .121 |
| 20      | .065                | .233 | .110 |
| 25      |                     |      |      |
| 30      |                     |      |      |
| 35      |                     |      |      |
| 40      |                     |      |      |
| 45      |                     |      |      |
| 50      |                     |      |      |
| 60      |                     |      |      |

| DEPTH M | SAMPLE SIZE- | 20 | 30 |
|---------|--------------|----|----|
| 0       |              | 20 | 30 |
| 5       | 2            | 5  | 2  |
| 10      | 10           | 24 | 20 |
| 15      | 13           | 20 | 7  |
| 20      | 14           | 15 | 5  |
| 25      | 2            | 1  |    |
| 30      | 1            | 1  | 1  |
| 35      | 1            | 1  | 1  |
| 40      | 2            | 2  |    |
| 45      | 1            | 1  |    |
| 50      |              |    |    |
| 60      | 1            | 1  |    |



CALCIUM MG/L

LAKE ERIC  
1967

DATE- 104-121 145-165 324-345

| DEPTH M | MEAN-  |        |  |
|---------|--------|--------|--|
| 0       |        |        |  |
| 5       | 42.273 | 32.536 |  |
| 10      | 43.333 | 31.333 |  |
| 15      | 42.364 | 32.593 |  |
| 20      | 42.250 | 33.000 |  |
| 25      | 41.333 | 33.429 |  |
| 30      |        | 33.750 |  |
| 35      |        | 35.000 |  |
| 40      |        | 35.000 |  |
| 45      |        | 35.000 |  |
| 50      |        | 35.000 |  |
| 60      |        |        |  |

| DEPTH M | STANDARD DEVIATION- |       |  |
|---------|---------------------|-------|--|
| 0       |                     |       |  |
| 5       | 1.518               | 2.628 |  |
| 10      | 1.159               | .577  |  |
| 15      | 1.002               | 2.653 |  |
| 20      | 1.400               | 1.817 |  |
| 25      | 1.155               | 1.555 |  |
| 30      |                     | 3.282 |  |
| 35      |                     |       |  |
| 40      |                     |       |  |
| 45      |                     |       |  |
| 50      |                     |       |  |
| 60      |                     |       |  |

| DEPTH M | SAMPLE SIZE- |    |    |
|---------|--------------|----|----|
| 0       |              | 22 | 56 |
| 5       |              | 3  | 3  |
| 10      |              | 22 | 54 |
| 15      |              | 8  | 21 |
| 20      |              | 3  | 14 |
| 25      |              |    |    |
| 30      |              |    | 4  |
| 35      |              |    | 1  |
| 40      |              |    | 1  |
| 45      |              |    | 1  |
| 50      |              |    |    |
| 60      |              |    |    |

## MAGNESIUM MG/L

LAKE ERIE  
1967

=====

DATE- 104-121 145-165 324-345

DEPTH W

MEAN-

|    |       |       |       |
|----|-------|-------|-------|
| 0  | 8.989 | 8.874 | 8.127 |
| 5  | 8.320 | 9.080 | 7.633 |
| 10 | 8.847 | 8.782 | 8.085 |
| 15 | 8.953 | 8.995 | 8.281 |
| 20 | 8.929 | 8.906 | 8.507 |
| 25 | 9.280 | 8.700 |       |
| 30 | 8.967 | 8.683 | 8.150 |
| 35 | 9.300 | 8.100 | 8.300 |
| 40 | 9.200 | 8.350 | 7.700 |
| 45 | 9.100 | 8.300 | 8.300 |
| 50 |       |       |       |
| 60 | 8.600 | 8.300 |       |

STANDARD DEVIATION-

|    |       |       |      |
|----|-------|-------|------|
| 0  | .684  | .559  | .666 |
| 5  | 1.273 | 1.254 | .153 |
| 10 | .625  | .506  | .599 |
| 15 | .720  | .541  | .533 |
| 20 | .438  | .335  | .680 |
| 25 | .141  |       |      |
| 30 | .463  | .527  | .370 |
| 35 |       |       |      |
| 40 | .424  | 1.202 |      |
| 45 |       |       |      |
| 50 |       |       |      |
| 60 |       |       |      |

SAMPLE SIZE-

|    |    |    |    |
|----|----|----|----|
| 0  | 54 | 42 | 56 |
| 5  | 2  | 5  | 3  |
| 10 | 33 | 61 | 54 |
| 15 | 15 | 21 | 21 |
| 20 | 17 | 16 | 14 |
| 25 | 2  | 1  |    |
| 30 | 6  | 6  | 4  |
| 35 | 1  | 1  | 1  |
| 40 | 2  | 2  | 1  |
| 45 | 1  | 1  | 1  |
| 50 |    |    |    |
| 60 | 1  | 1  |    |

## SPEC. COND. MICROMMDS

LAKE ERIE  
1967

| DATE- 104-121 145-165 324-345 |         |         |         |
|-------------------------------|---------|---------|---------|
| DEPTH M                       |         |         |         |
| MEAN-                         |         |         |         |
| 0                             | 315.333 | 305.649 | 303.143 |
| 5                             | 284.000 | 297.600 | 278.667 |
| 10                            | 318.961 | 317.918 | 307.389 |
| 15                            | 326.429 | 317.381 | 309.095 |
| 20                            | 319.353 | 310.625 | 315.500 |
| 25                            | 312.530 | 319.000 |         |
| 30                            | 319.000 | 314.667 | 325.500 |
| 35                            | 314.000 | 314.000 | 334.000 |
| 40                            | 318.000 | 314.500 | 312.000 |
| 45                            | 316.000 | 315.000 | 317.000 |
| 50                            |         |         |         |
| 60                            | 315.000 | 318.000 |         |
| STANDARD DEVIATION-           |         |         |         |
| 0                             | 18.055  | 16.462  | 22.991  |
| 5                             |         | 42.371  | 12.342  |
| 10                            | 17.156  | 65.400  | 21.387  |
| 15                            | 20.939  | 16.357  | 13.487  |
| 20                            | 6.234   | 4.787   | 11.155  |
| 25                            | 17.678  |         |         |
| 30                            | 9.869   | 1.966   | 13.026  |
| 35                            |         |         |         |
| 40                            | 7.071   | 3.536   |         |
| 45                            |         |         |         |
| 50                            |         |         |         |
| 60                            |         |         |         |
| SAMPLE SIZE-                  |         |         |         |
| 0                             | 51      | 62      | 56      |
| 5                             | 2       | 5       | 3       |
| 10                            | 51      | 61      | 54      |
| 15                            | 14      | 21      | 21      |
| 20                            | 17      | 16      | 14      |
| 25                            | 2       | 1       |         |
| 30                            | 6       | 6       | 4       |
| 35                            | 1       | 1       | 1       |
| 40                            | 2       | 2       | 1       |
| 45                            | 1       | 1       | 1       |
| 50                            |         |         |         |
| 60                            | 1       | 1       |         |

LAKE CRIK  
1967

DATE- 10-121 143-163 324-345

DEPTH M

MEAN-

|    |        |        |        |
|----|--------|--------|--------|
| 0  | 4.918  | 5.576  | 13.545 |
| 5  | 13.850 | 18.540 | 21.167 |
| 10 | 6.877  | 5.231  | 11.130 |
| 15 | 6.593  | 5.844  | 11.214 |
| 20 | 7.188  | 4.273  | 7.974  |
| 25 | 1.750  | 6.400  |        |
| 30 | 3.867  | 4.067  | 7.500  |
| 35 | 8.400  | 1.700  | 9.300  |
| 40 | 4.550  | 4.300  | 4.700  |
| 45 | 4.800  | 3.200  | 5.800  |
| 50 |        |        |        |
| 60 | 4.800  | 6.400  |        |

STANDARD DEVIATION-

|    |        |       |       |
|----|--------|-------|-------|
| 0  | 5.657  | 4.437 | 5.785 |
| 5  | 14.920 | 4.187 | 1.804 |
| 10 | 7.822  | 3.986 | 8.741 |
| 15 | 6.120  | 2.645 | 7.288 |
| 20 | 8.176  | 2.518 | 2.136 |
| 25 | .919   |       |       |
| 30 | 2.908  | 1.634 | 1.687 |
| 35 |        |       |       |
| 40 | 5.162  | 2.970 |       |
| 45 |        |       |       |
| 50 |        |       |       |
| 60 |        |       |       |

SAMPLE SIZE-

|    |    |    |    |
|----|----|----|----|
| 0  | 50 | 55 | 55 |
| 5  | 2  | 5  | 3  |
| 10 | 47 | 52 | 53 |
| 15 | 15 | 18 | 21 |
| 20 | 17 | 15 | 14 |
| 25 | 2  | 1  |    |
| 30 | 6  | 6  |    |
| 35 | 1  | 1  | 1  |
| 40 | 2  | 2  | 1  |
| 45 | 1  | 1  | 1  |
| 50 |    |    |    |
| 60 | 1  | 1  |    |