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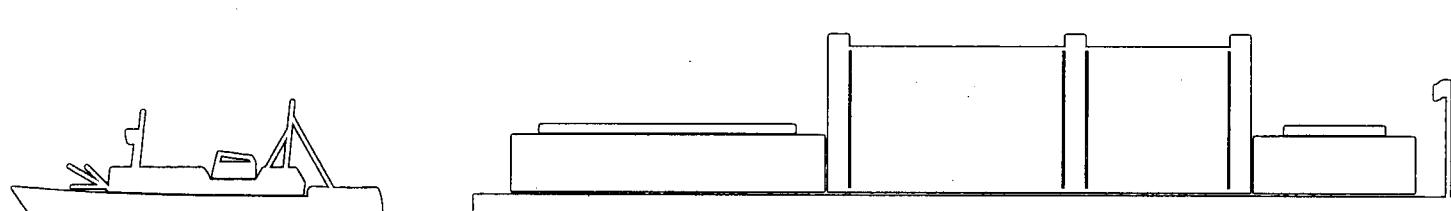


# CANADA CENTRE FOR INLAND WATERS

## LAKE ERIE WATER CHEMISTRY DATA 1970 - 1971

By

N.M. Burns, F. Rosa and C.H. Chan  
C.C.I.W. Paper No. 16



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PAPER #16

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## FOREWORD

This publication is basically a presentation of the data and results used in the preparation of some of the scientific papers published in the special issue of the Journal of the Fisheries Research Board of Canada, V.33,#3 March 1976 entitled "Lake Erie in the Early Seventies". These papers were,

- a) Forms of Iron and Manganese in Lake Erie Waters by N.M. Burns and J.O. Nriagu (463-470);
- b) Temperature, oxygen, and nutrient distribution patterns in Lake Erie, 1970 by N.M. Burns (485-511);
- c) Oxygen depletion in the Central and Eastern basins of Lake Erie, by N.M. Burns 1970 (512-519); and
- d) Nutrient budgets for Lake Erie, 1970 by N.M. Burns (520-536).

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## Lake Erie Water Chemistry Data 1970-71

by

N.M. Burns, F. Rosa and C.H. Chan

### Section 1: Spatial Distributions of Chemical Variables observed in Lake Erie in 1970.

The more important lake-wide studies to the present which give a general outline of the chemistry of Lake Erie, are by Kramer (1961), Weiler and Chawla (1968) and Gachter et al. (1974). A more recent large scale investigation is reported on here and consisted of ten major surveys of the lake during 1970 for the measurement of basic chemical and biological parameters. The data from the surveys on the chemical variables are extensive and, after processing, have resulted in approximately 80 distribution maps and tables. The dates of the various surveys are shown in Table 1.

#### Sampling and Data Processing Methods

The sampling network pattern of 56 station locations (Fig. 1) was based on subjective judgements (from the results of previous surveys) as to what would constitute adequate coverage of the lake.

At all stations, a bathythermograph trace was obtained and water was sampled using Van Dorn bottles at the following depths: 1 and five metres below surface and 2 meters above the bottom plus two samples spaced equally (if possible) between the 5 m below surface and 2 m above bottom sampling depths. Single determinations were made on each sample

for the following parameters: oxygen concentration, conductivity, turbidity, concentration of soluble reactive phosphorus,  $\text{NO}_3^-$  plus  $\text{NO}_2^-$ ,  $\text{NH}_3$ , soluble reactive silica, pH, alkalinity (filtered) and total phosphorus (filtered and unfiltered). The samples taken at 1.0 m from the surface and 2.0 m from the bottom were filtered and analysed for  $\text{Cl}^-$ ,  $\text{SO}_4^{2-}$ ,  $\text{K}^+$ ,  $\text{Na}^+$ ,  $\text{Ca}^{2+}$ , and on three selected cruises the samples were further analysed for Li, filtered iron and filtered manganese. The analytical methods used in the various determinations are given by Philbert and Traversy (1973). Estimates of the precision for each parameter, with the errors of both the analytical method and sampling from the ship taken into account, are given by Strachan (1973).

Typical bathythermograph traces for the three basins are shown in Fig. 2. It can easily be seen that the traces for the Central and East Basin are close to being ideal, with both the epilimnion and hypolimnion being isothermal and the thermocline temperature change being linear with depth. Further, the bathythermograph traces showed that the water temperature at a station was usually constant from the surface to the bottom of the lake in the spring and fall. During Project Hypo (Burns and Ross, 1972), when stations were occupied and reoccupied on a 4-day basis, it was observed that any secondary thermal layering in the epilimnion or hypolimnion had an existence of less than 4 days.

It was decided to examine the water masses in accordance with their thermal characteristics, that is, as individual, well-mixed, isothermal layers. If the lake was found to be isothermal with depth it

was considered to consist of only one layer, which for the purpose of the present discussion is called the epilimnion. Under stratified conditions, the lake was considered to consist of three layers, with the epilimnion and hypolimnion being well-mixed layers and the mesolimnion being a pycnocline preventing direct mixing between the upper and lower water masses. It has been shown that a near-linear chemocline exists in Lake Erie coinciding with the pycnocline (Burns and Ross, 1972). The vertical position of the chemocline was determined for each station by examining the bathythermograph trace and determining the depths of the temperature discontinuities for that station. The depth-weighted mean concentration for each layer at each station was determined using the calculation scheme shown in Fig. 3.

Epilimnion and hypolimnion distribution maps were drawn using the calculated depth-weighted concentration values for the 56 observation stations and are shown below in Figures 4-19. The arrows depict the positions of water flow in and out of the lake with the width of the arrows being proportional to the average water flows.

The annual mean epilimnion values were obtained by averaging the epilimnion values which were observed for each station during the 10 surveys. These values were then used to prepare the annual average epilimnion distribution maps which are shown in Figures 20-23.

The concentrations of sulphate were measured during seven surveys and the observed epilimnion concentrations are shown in Fig. 24. The mean concentrations observed at each station for 4 major ions, during

three surveys are shown in Figs. 25-28. Because of the large differences observed between the hypolimnion and epilimnion concentrations of iron and manganese during survey 6, distributions have been plotted for both of these layers, Figs. 29, 30.

The purpose of this report is to present the chemical data collected during the ten 1970 ship surveys of Lake Erie, in a condensed and manageable form. A descriptive analysis of this data has been published by Burns (1976) and is readily available.

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- Strachan, W.M.J. 1973. A statistical examination of Great Lakes monitor data at the Canada Centre for Inland Waters. Proc. 16th Conf. Great Lakes Res. 949-957.
- Weiler, R.R. and V.K. Chawla. 1968. The chemical composition of Lake Erie. Proc. 11th Conf. Great Lakes Res. 593-608.

Table 1

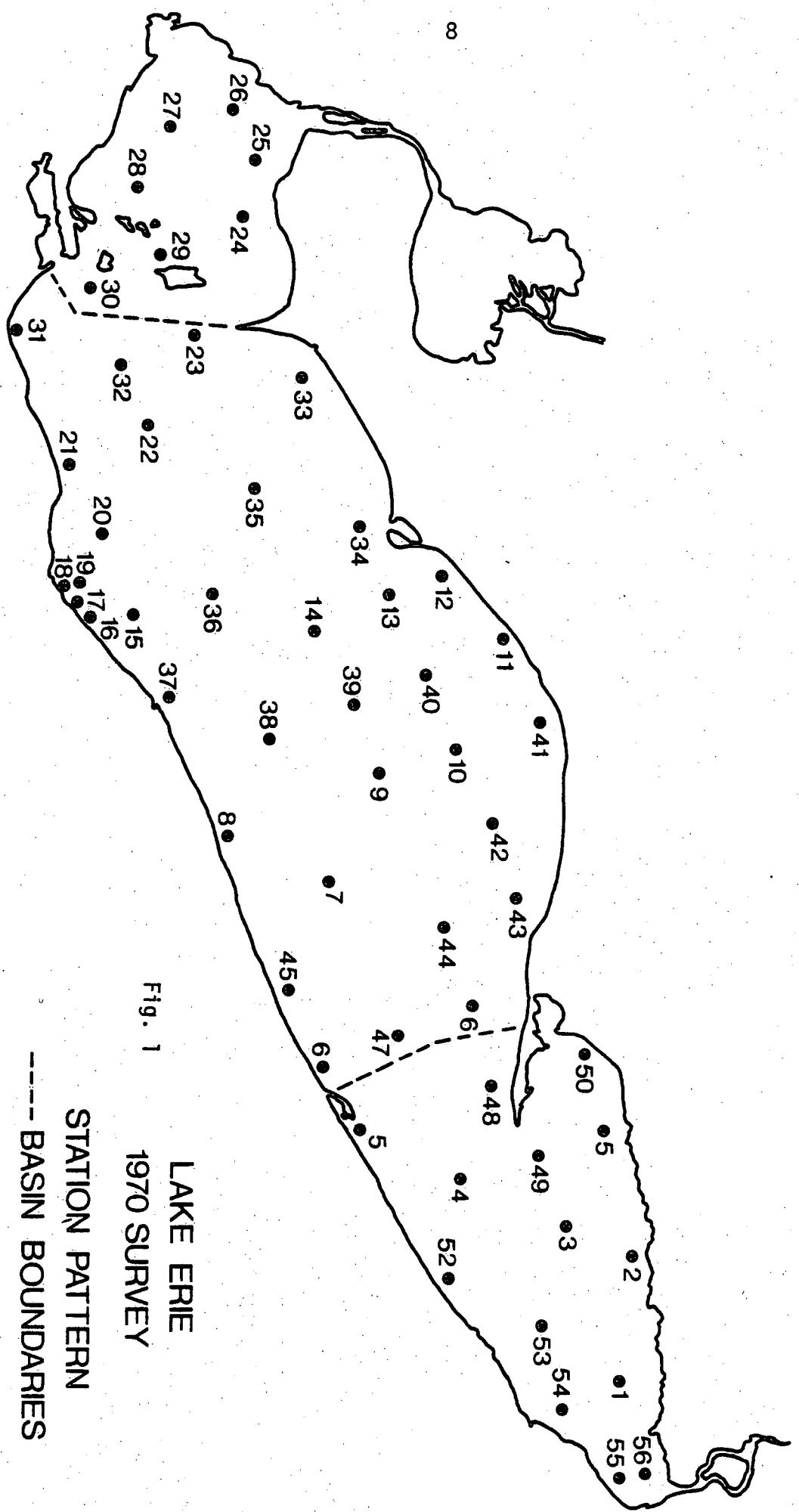
<u>Survey #</u>	<u>Days between surveys</u>	<u>Dates</u>
1	29	7 - 11 April 1970
2	27	6 - 10 May 1970
3	31	2 - 6 June 1970
4	25	3 - 7 July 1970
5	28	28 July - 2 August 1970
6	29	25 - 30 August 1970
7	28	23 - 27 September 1970
8	35	21 - 26 October 1970
9	19	25 - 30 November 1970
10		14 - 18 December 1970

TABLE 21970 LAKE ERIE PERMANENT STATIONS POSITION

<u>Permanent Station Number</u>	<u>Latitude N.</u>	<u>Longitude W</u>
1	42° 47' 24"	79° 12' 06"
2	42° 49' 30"	79° 34' 36"
3	42° 40' 48"	79° 41' 30"
4	42° 26' 00"	79° 50' 00"
5	42° 12' 24"	79° 59' 30"
6	42° 28' 12"	80° 24' 24"
7	42° 09' 06"	80° 46' 30"
8	41° 54' 24"	80° 55' 00"
9	42° 15' 12"	81° 06' 24"
10	42° 25' 48"	81° 12' 20"
11	42° 31' 42"	81° 32' 06"
12	42° 23' 48"	81° 44' 00"
13	42° 16' 54"	81° 40' 18"
14	42° 06' 36"	81° 34' 30"
15	41° 41' 24"	81° 36' 42"
16	41° 34' 42"	81° 36' 06"
17	41° 33' 06"	81° 39' 30"
18	41° 31' 48"	81° 42' 30"
19	41° 33' 48"	81° 42' 30"
20	41° 36' 54"	81° 50' 48"
21	41° 32' 42"	82° 04' 24"
22	41° 42' 54"	82° 10' 12"
23	41° 48' 48"	82° 30' 06"
24	41° 54' 42"	82° 50' 24"
25	41° 56' 48"	83° 02' 42"
26	41° 53' 30"	83° 11' 48"

TABLE 2 Cont'd1970 LAKE ERIE PERMANENT STATIONS POSITION

<u>Permanent Station Number</u>	<u>Latitude N.</u>	<u>Longitude W.</u>
27	41° 43' 36"	83° 09' 00"
28	41° 41' 06"	82° 56' 00"
29	41° 44' 18"	82° 44' 00"
30	41° 34' 00"	82° 38' 06"
31	41° 25' 12"	82° 30' 12"
32	41° 38' 30"	82° 24' 12"
33	42° 03' 48"	82° 22' 24"
34	42° 12' 12"	81° 54' 24"
35	41° 57' 54"	82° 02' 30"
36	41° 51' 48"	81° 42' 30"
37	41° 45' 48"	81° 23' 00"
38	42° 00' 30"	81° 14' 36"
39	42° 11' 00"	81° 20' 48"
40	42° 21' 24"	81° 26' 24"
41	42° 36' 18"	81° 17' 54"
42	42° 30' 00"	80° 58' 24"
43	42° 34' 30"	80° 44' 00"
44	42° 24' 00"	80° 38' 12"
45	42° 02' 48"	80° 27' 06"
46	42° 07' 00"	80° 12' 42"
47	42° 17' 36"	80° 18' 18"
48	42° 30' 54"	80° 09' 12"
49	42° 36' 36"	79° 56' 06"
50	42° 42' 42"	80° 14' 54"
51	42° 45' 12"	80° 00' 48"
52	42° 23' 54"	79° 32' 48"
53	42° 37' 54"	79° 24' 00"
54	42° 39' 06"	79° 08' 00"
55	42° 46' 42"	78° 55' 30"
56	42° 50' 36"	78° 57' 30"



LAKE ERIE  
1970 SURVEY

STATION PATTERN  
--- BASIN BOUNDARIES

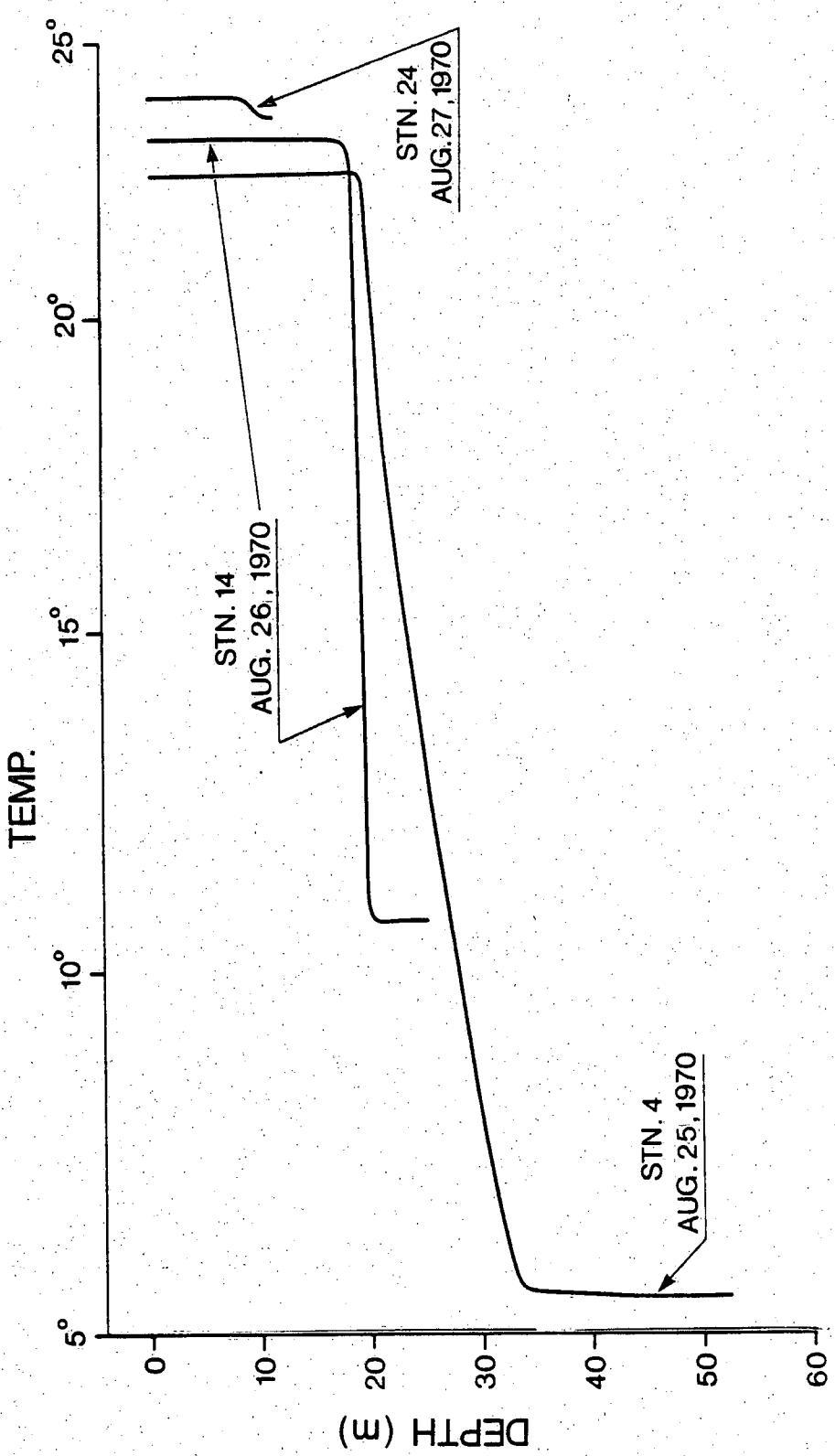
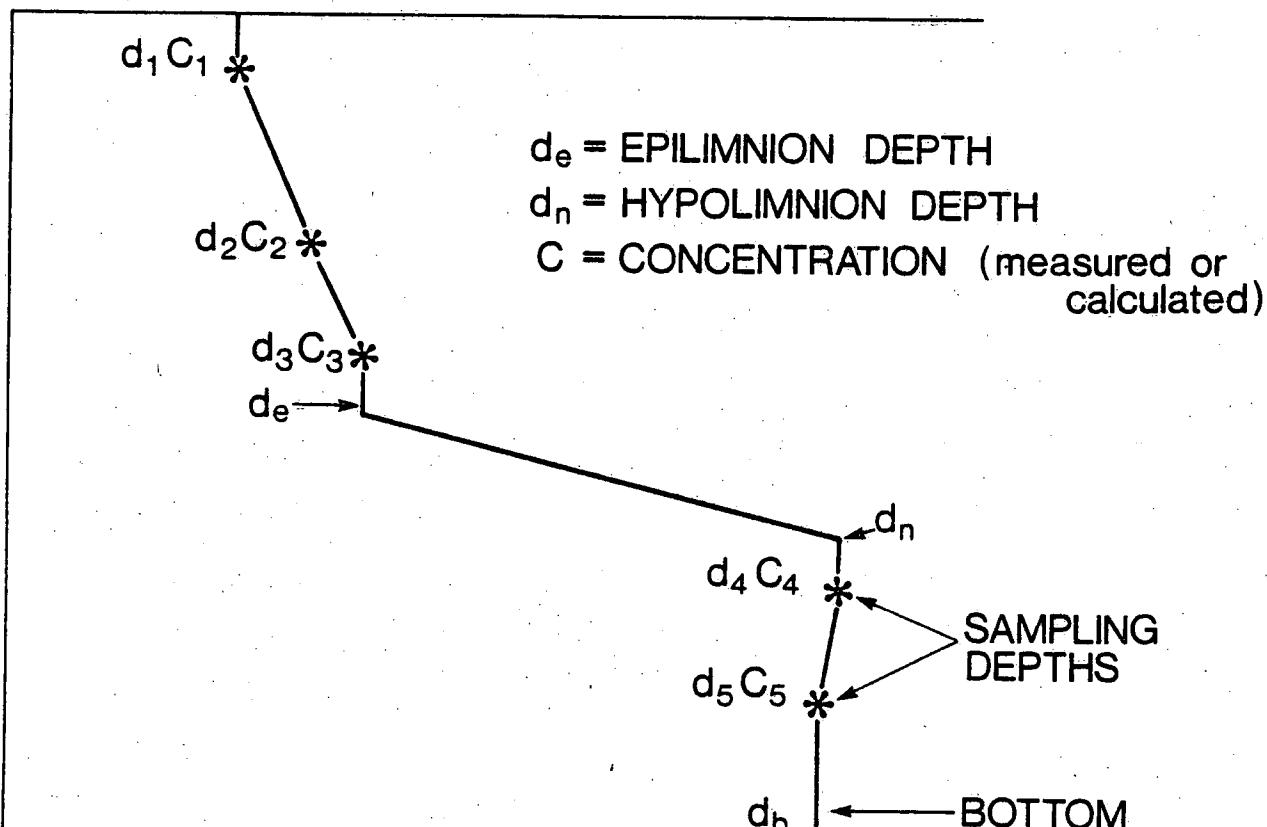


Fig. 2. Bathythermograph traces typical of those observed in Lake Erie during the stratified period.

## PARAMETER CONCENTRATION



$$\begin{aligned}
 C_{\text{EPILIMNION}} = & \frac{1}{d_e} (d_1 C_1 + (d_2 - d_1) \times \frac{1}{2} (C_1 + C_2) \\
 & + (d_3 - d_2) \times \frac{1}{2} (C_2 + C_3) \\
 & + (d_e - d_3) C_3)
 \end{aligned}$$

$$C_{\text{MESOLIMNION}} = \frac{1}{2} (C_3 + C_4)$$

$$C_{\text{HYPOLIMNION}} = \frac{1}{(d_b - d_n)} ((d_4 - d_n) C_4 + (d_5 - d_4) \times \frac{1}{2} (C_4 + C_5) + (d_b - d_5) C_5)$$

Fig. 3. Schematic representation of the method for the calculation of depth-weighted averages.

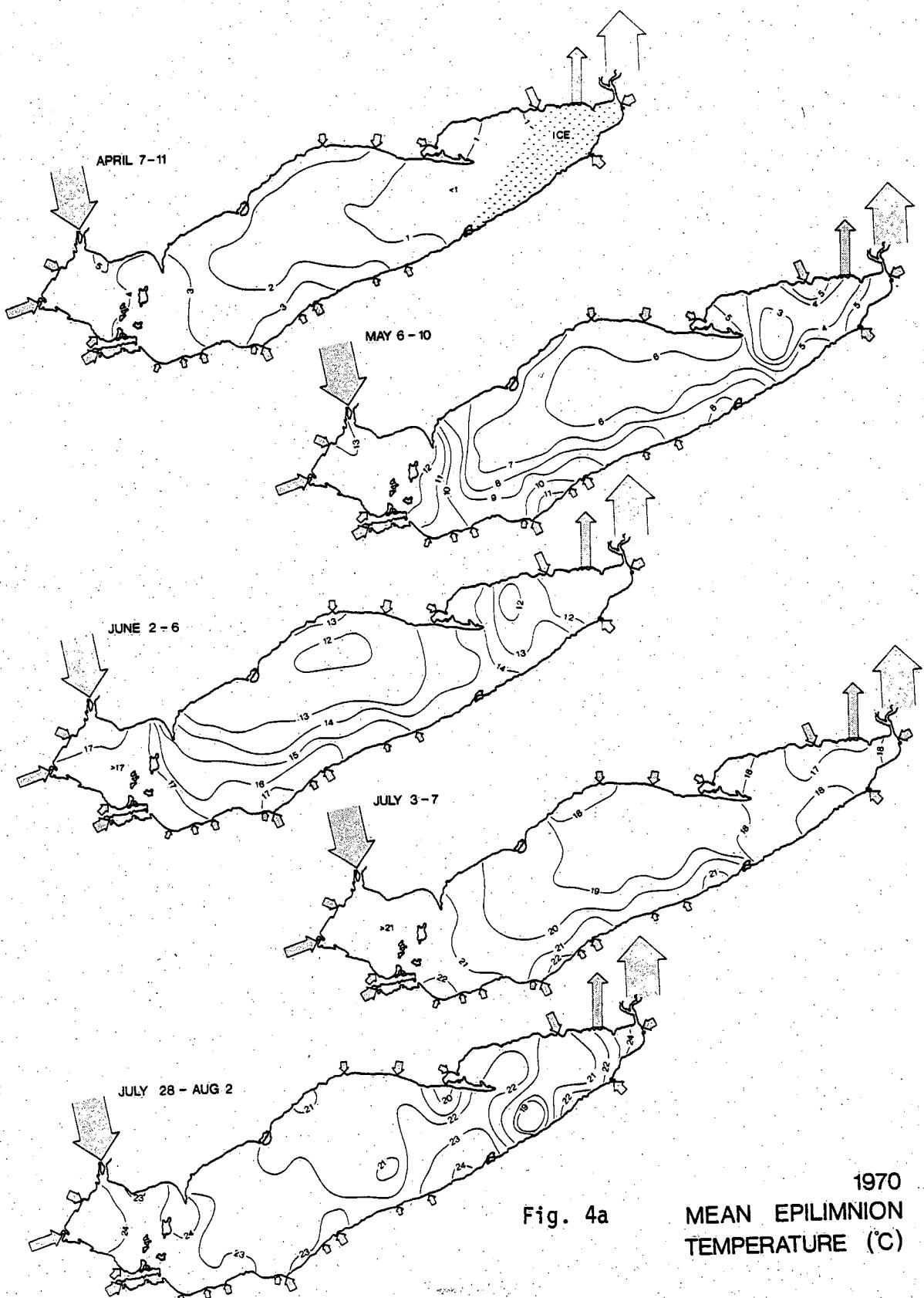


Fig. 4a

1970  
MEAN EPILIMNION  
TEMPERATURE (°C)

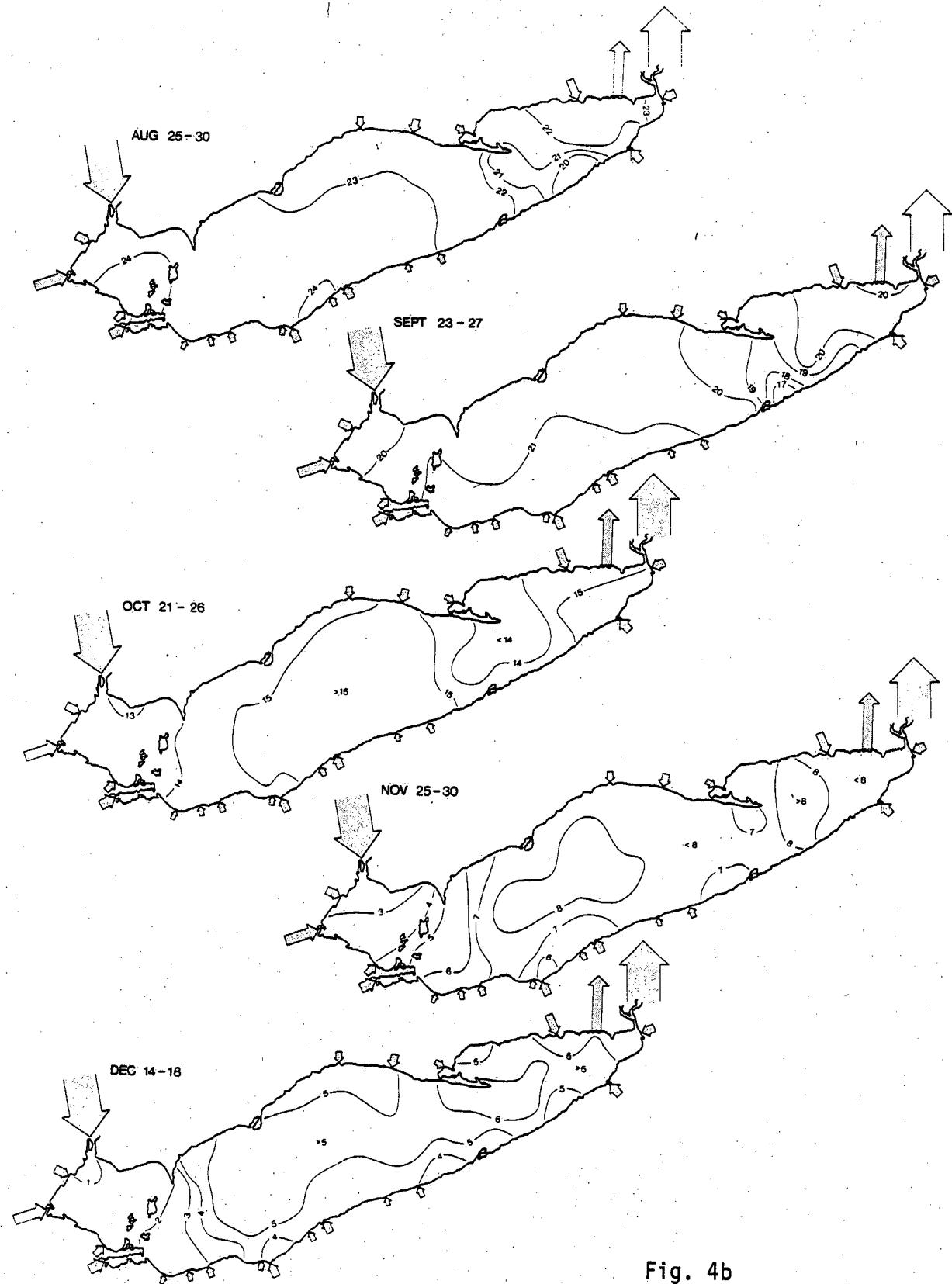


Fig. 4b

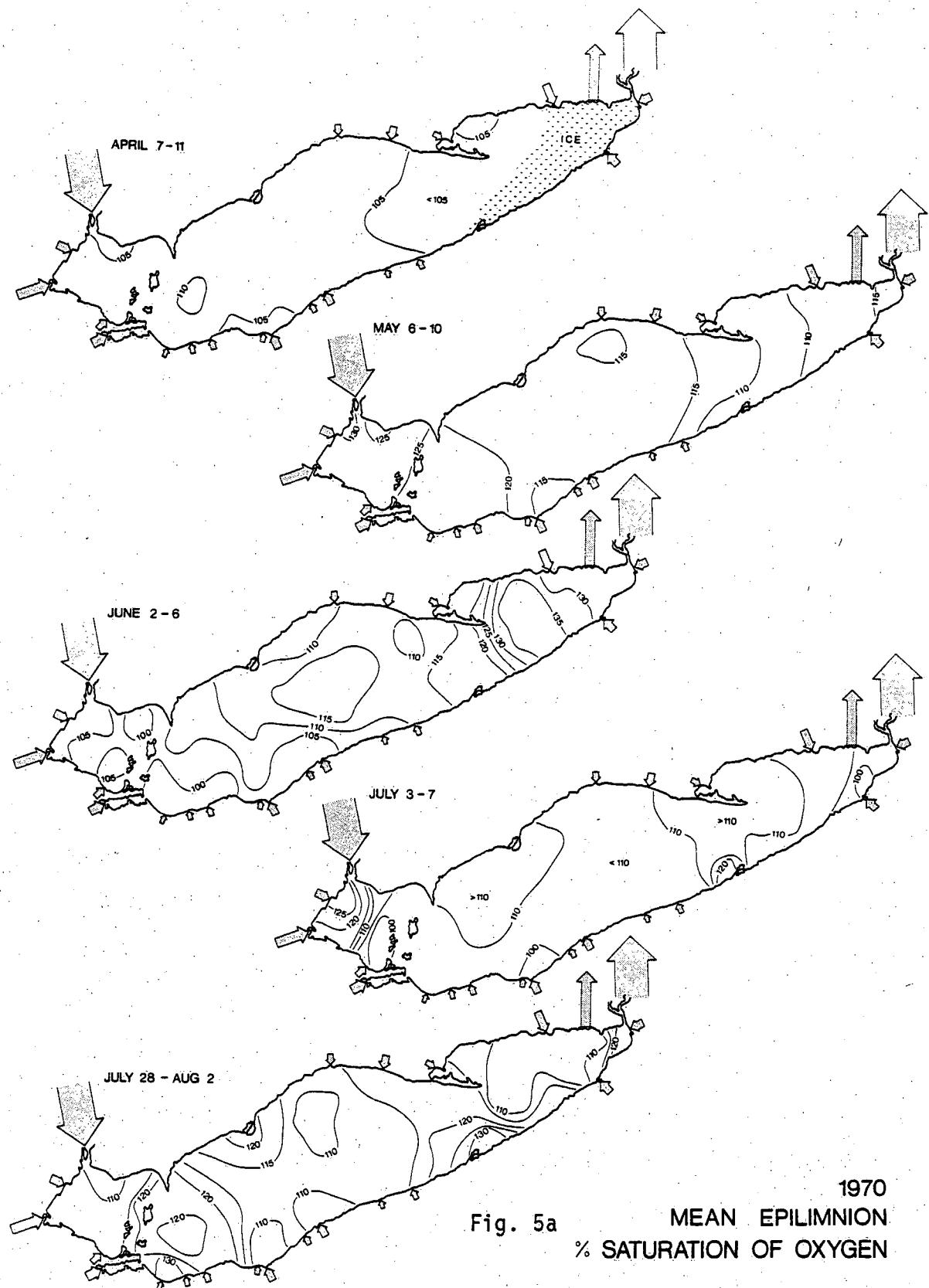


Fig. 5a                    1970  
MEAN EPILIMNION  
% SATURATION OF OXYGEN

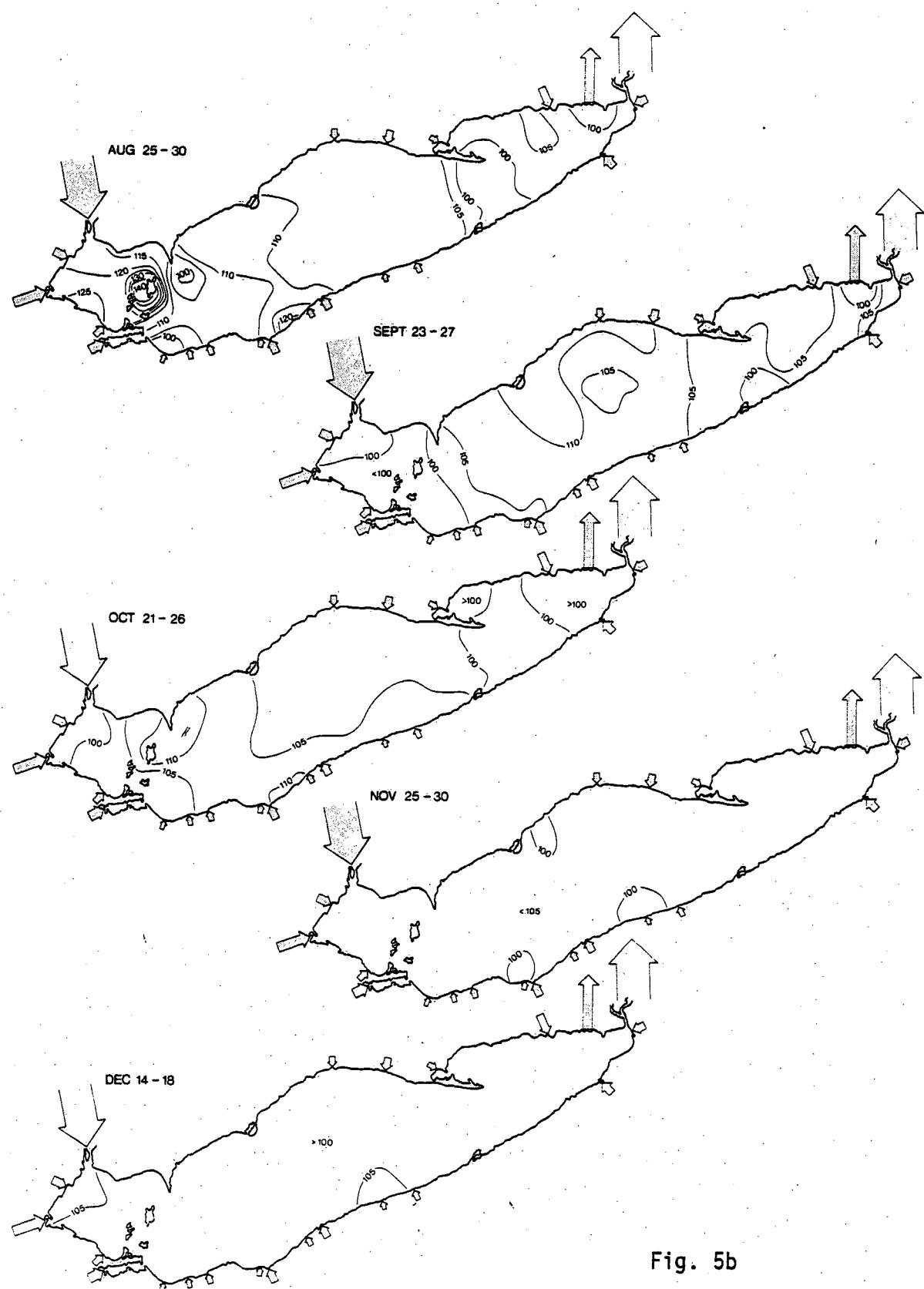


Fig. 5b

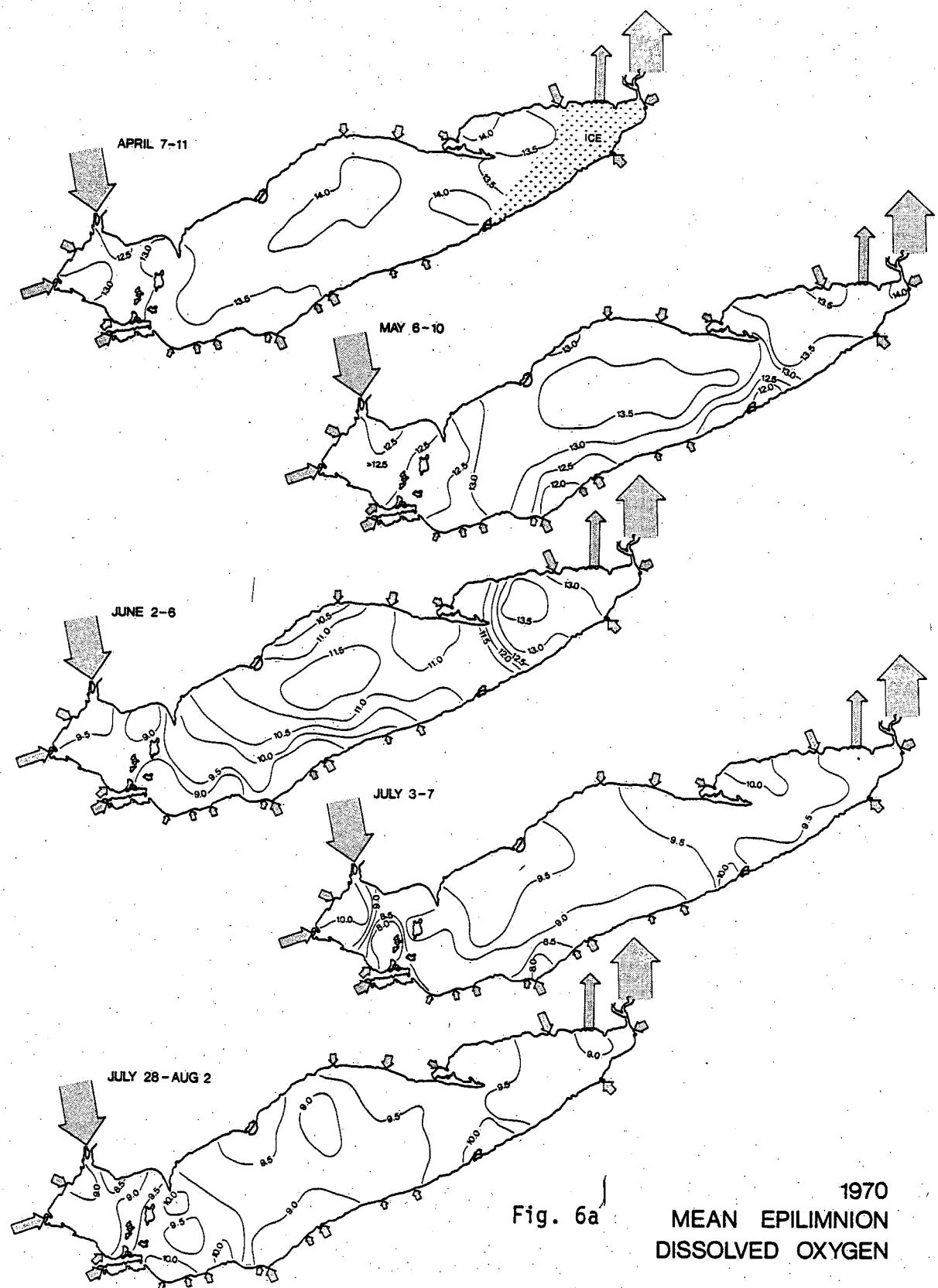


Fig. 6a

1970  
MEAN EPILIMNION  
DISSOLVED OXYGEN

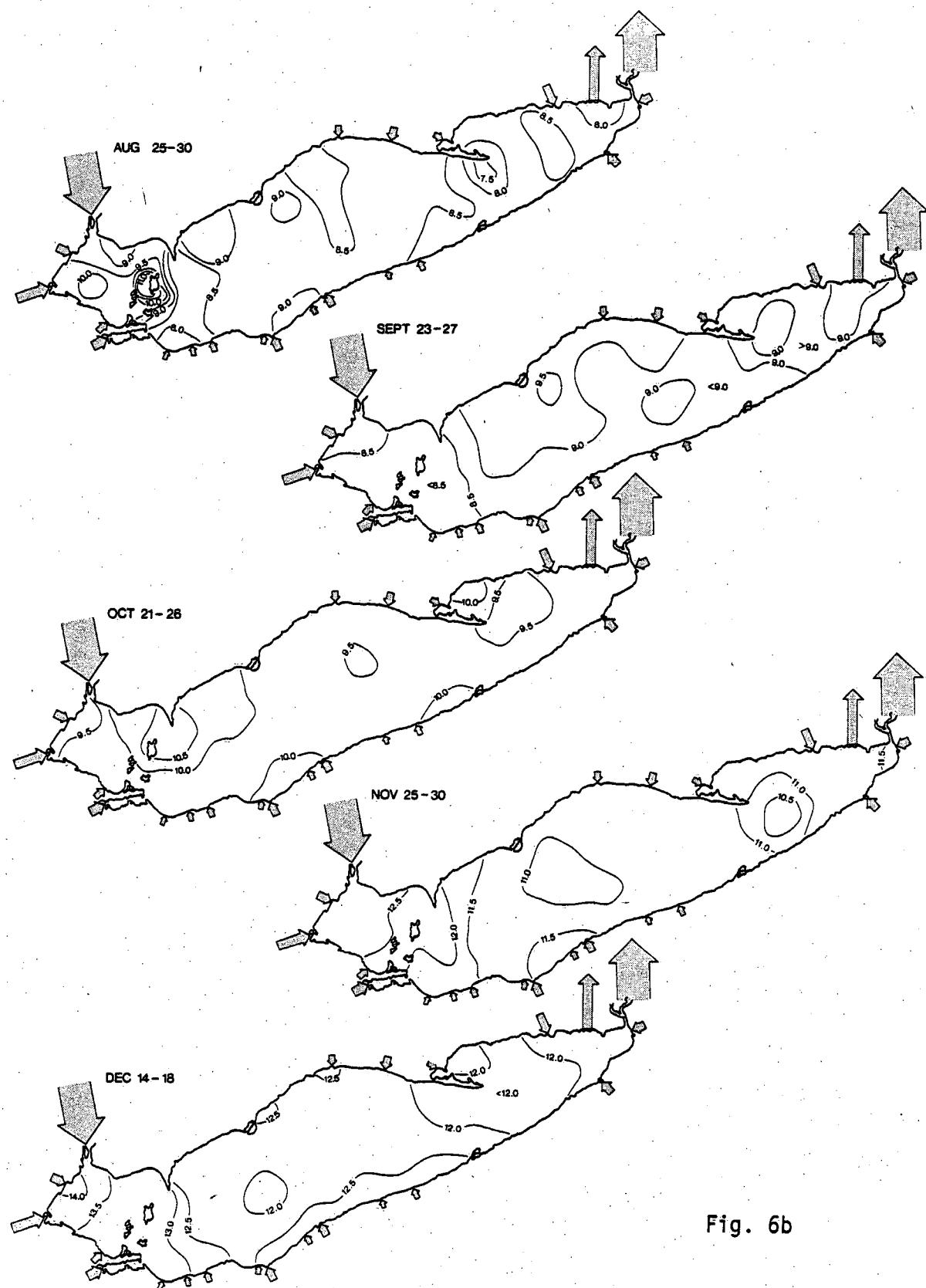
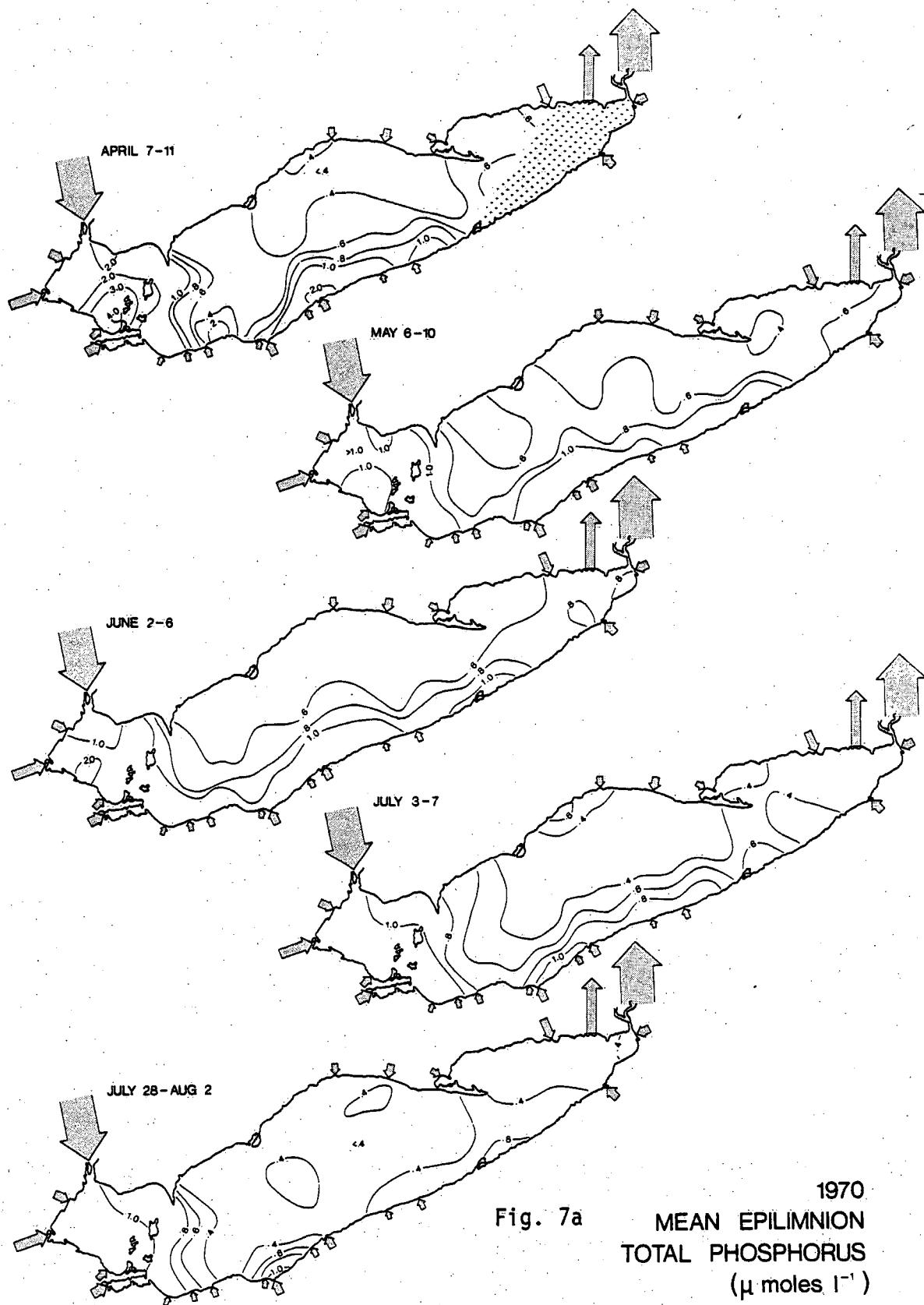


Fig. 6b



1970  
Fig. 7a MEAN EPILIMNION  
TOTAL PHOSPHORUS  
( $\mu\text{ moles l}^{-1}$ )

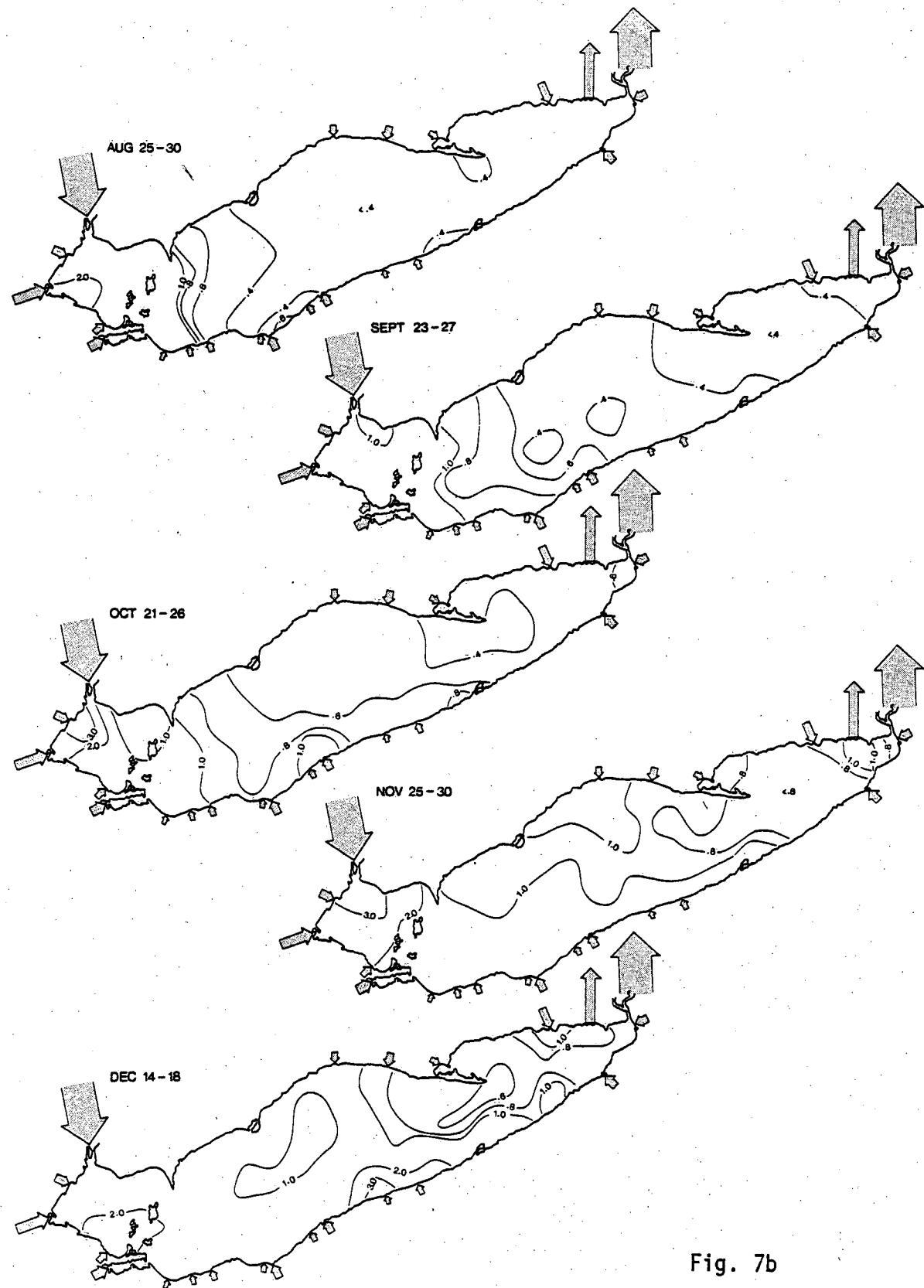


Fig. 7b

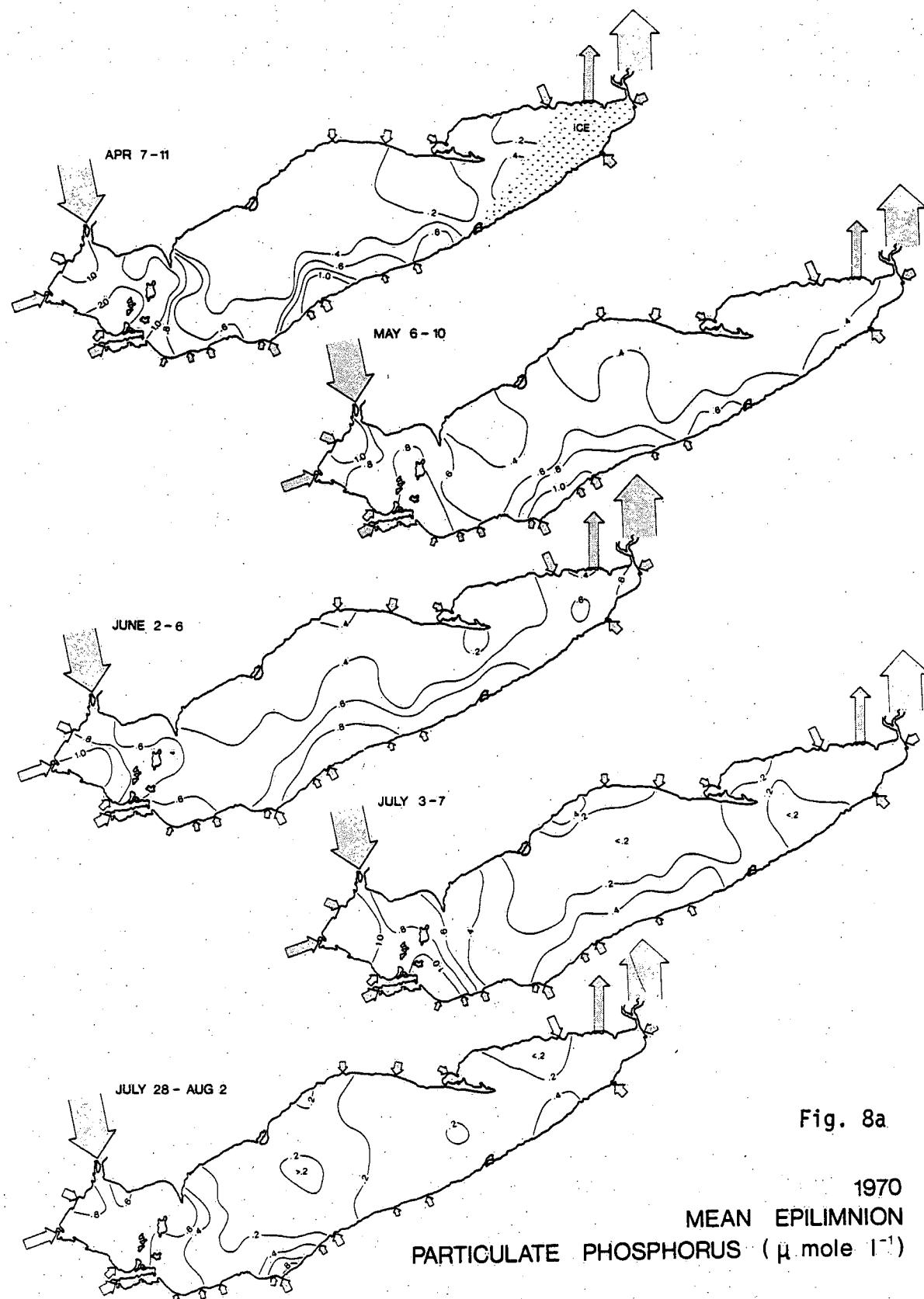


Fig. 8a

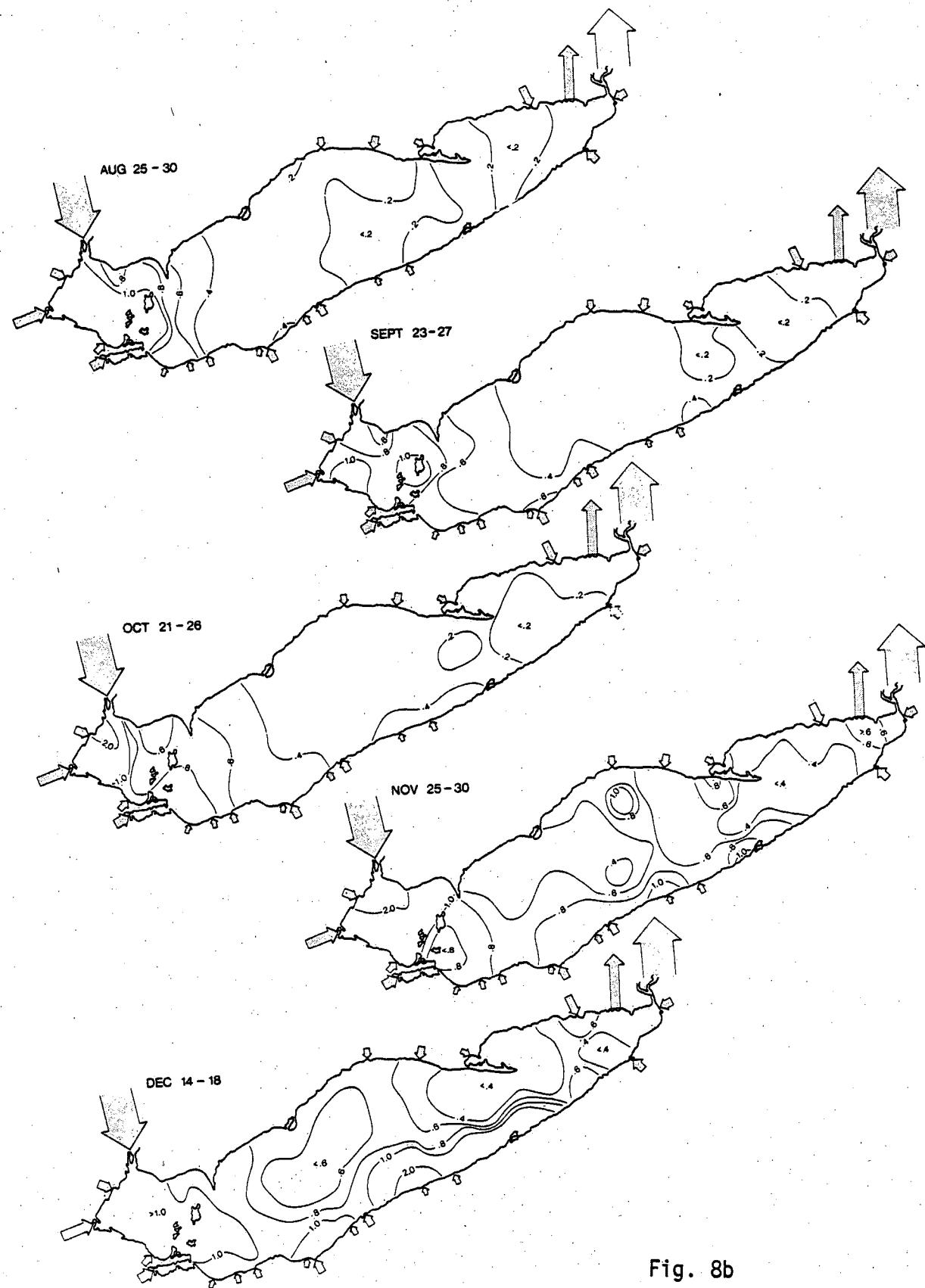


Fig. 8b

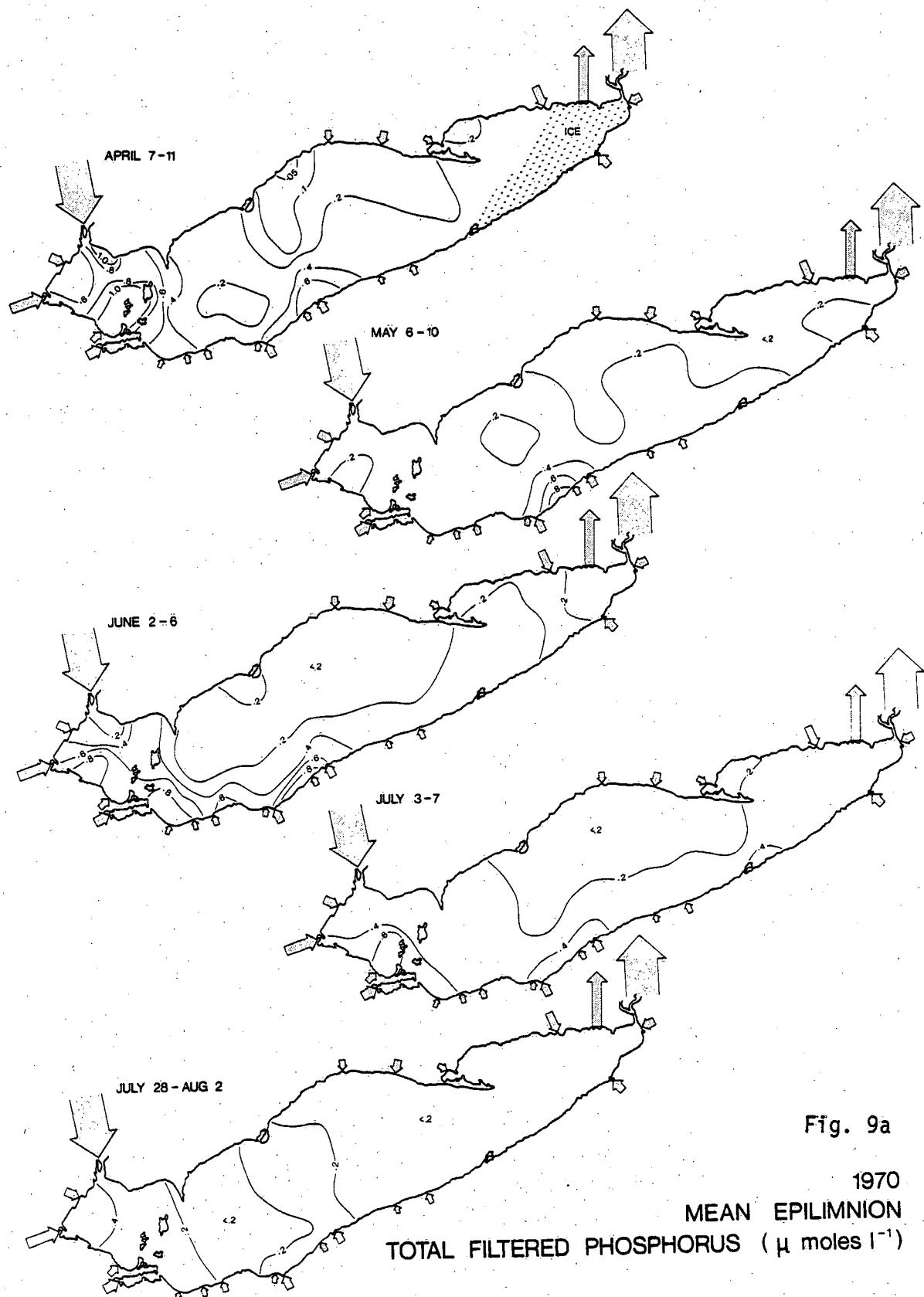


Fig. 9a

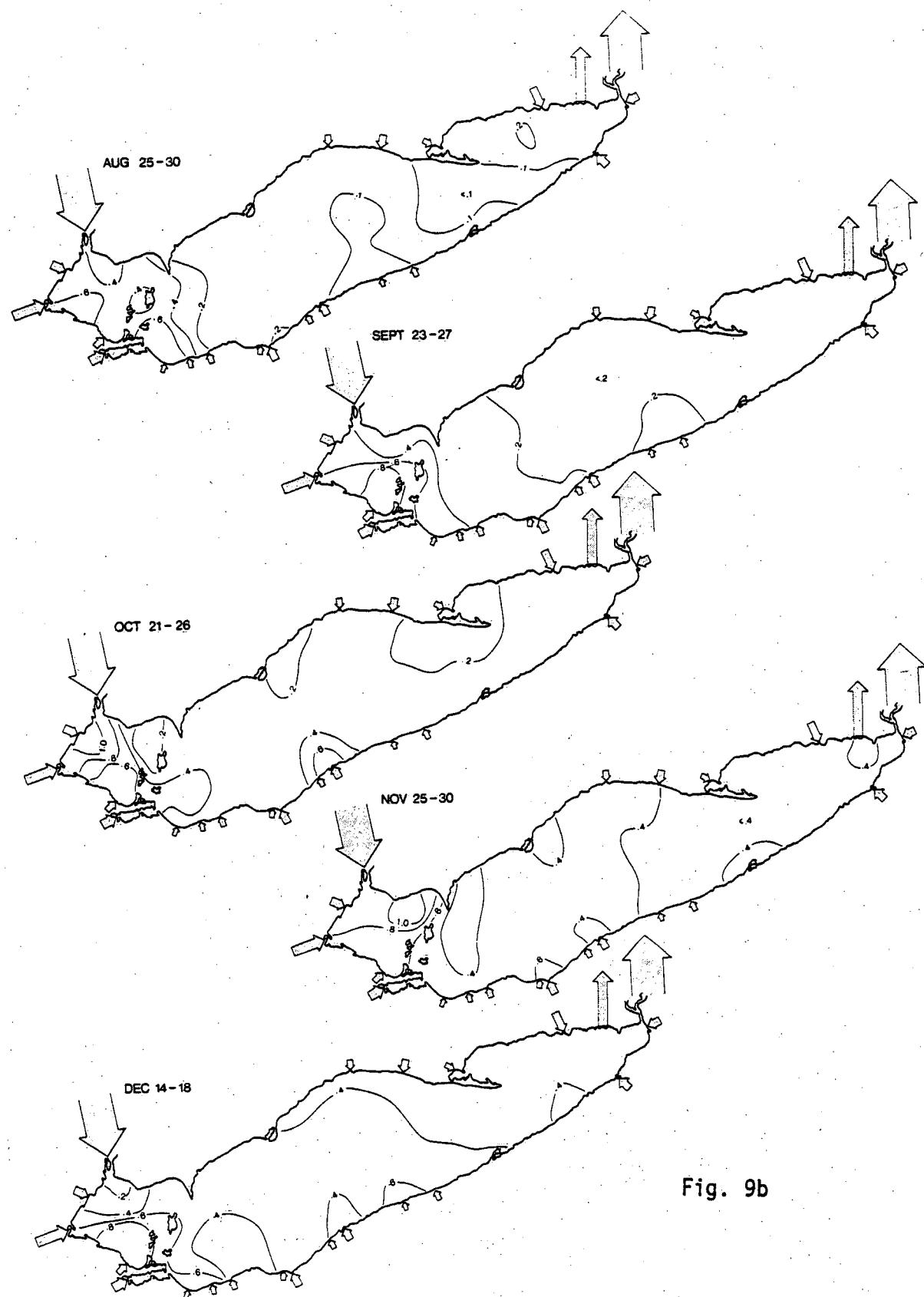


Fig. 9b

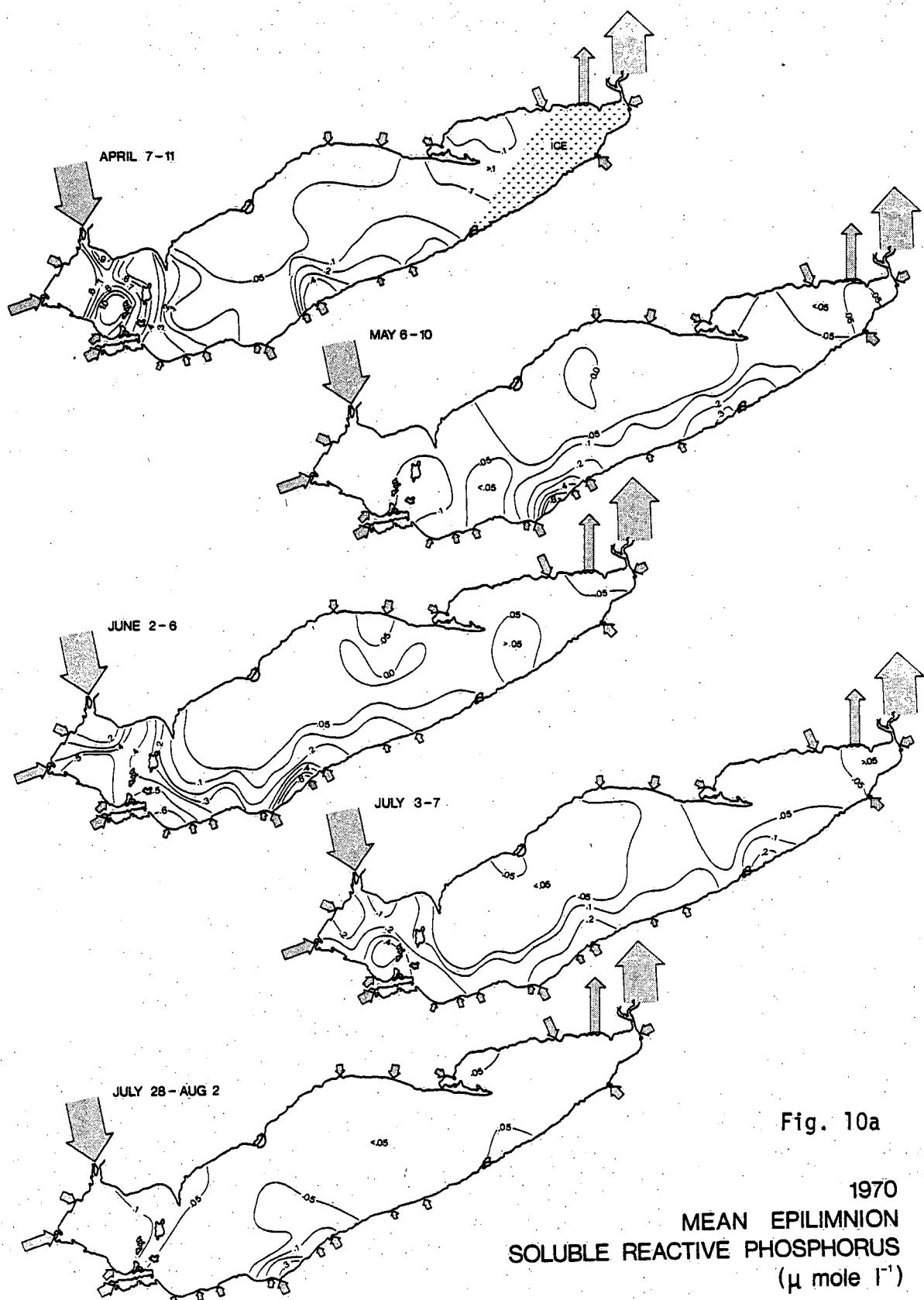


Fig. 10a

1970  
MEAN EPILIMNION  
SOLUBLE REACTIVE PHOSPHORUS  
( $\mu$  mole  $l^{-1}$ )

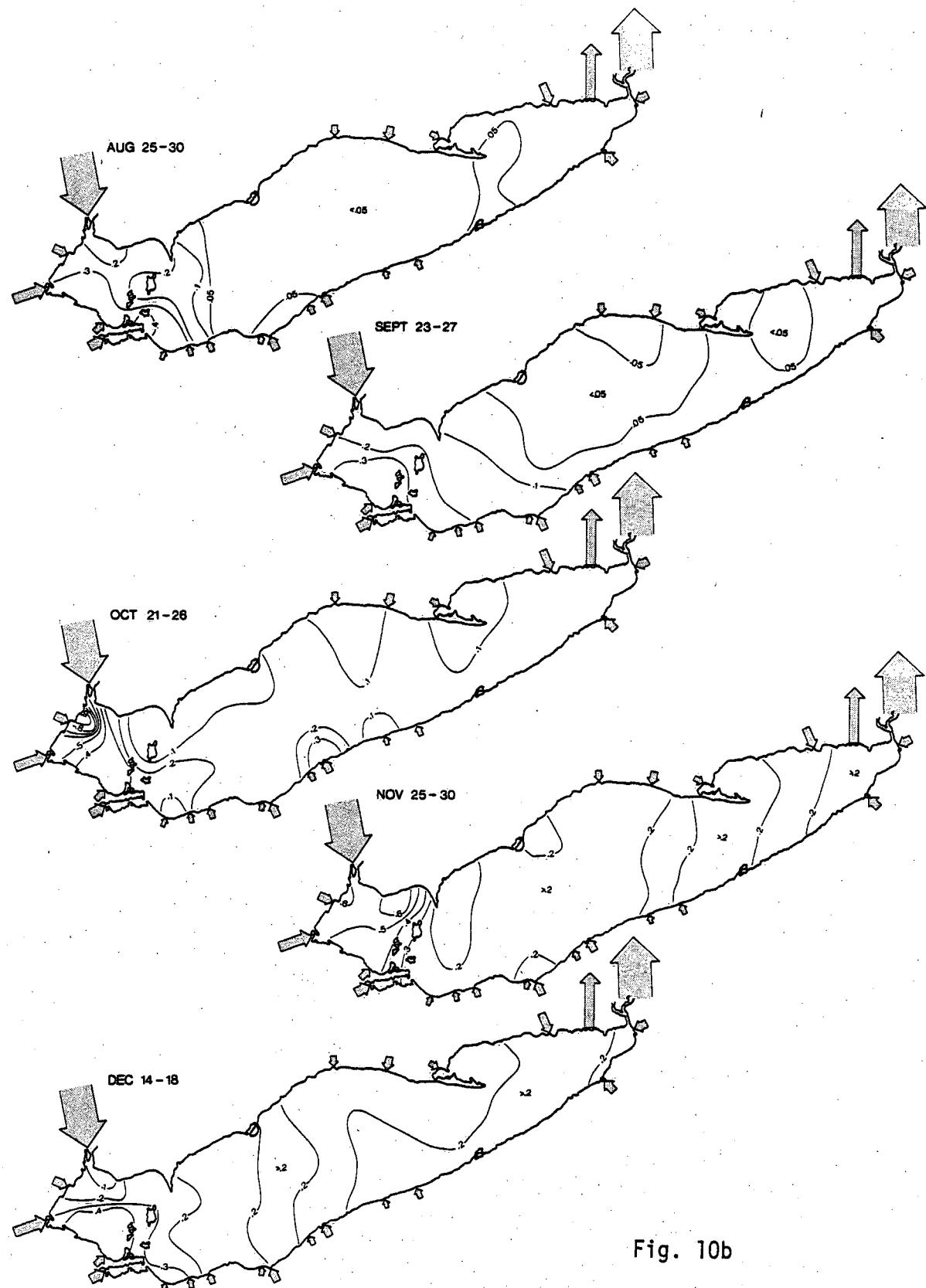


Fig. 10b

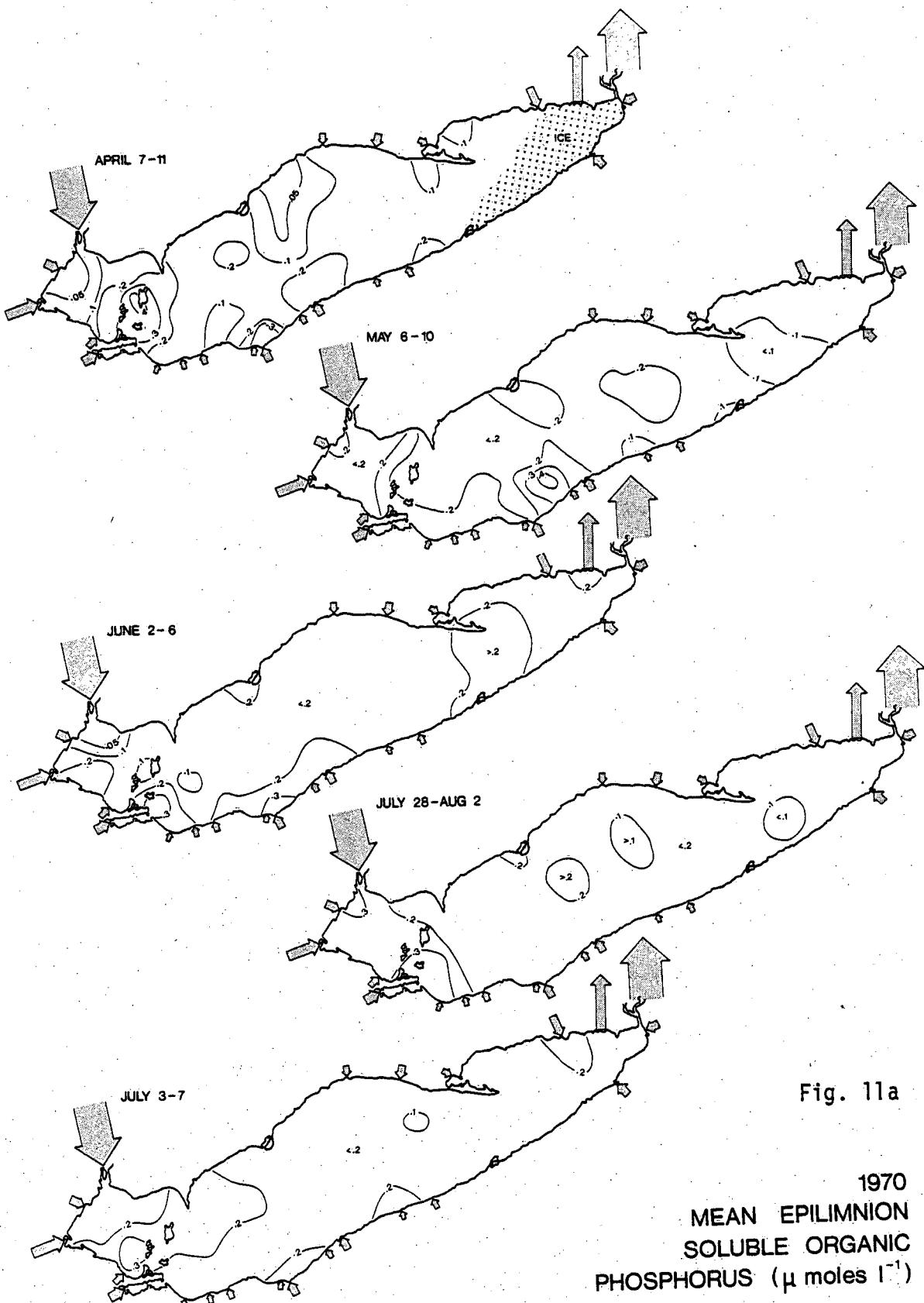


Fig. 11a

1970  
MEAN EPILIMNION  
SOLUBLE ORGANIC  
PHOSPHORUS ( $\mu$  moles  $l^{-1}$ )

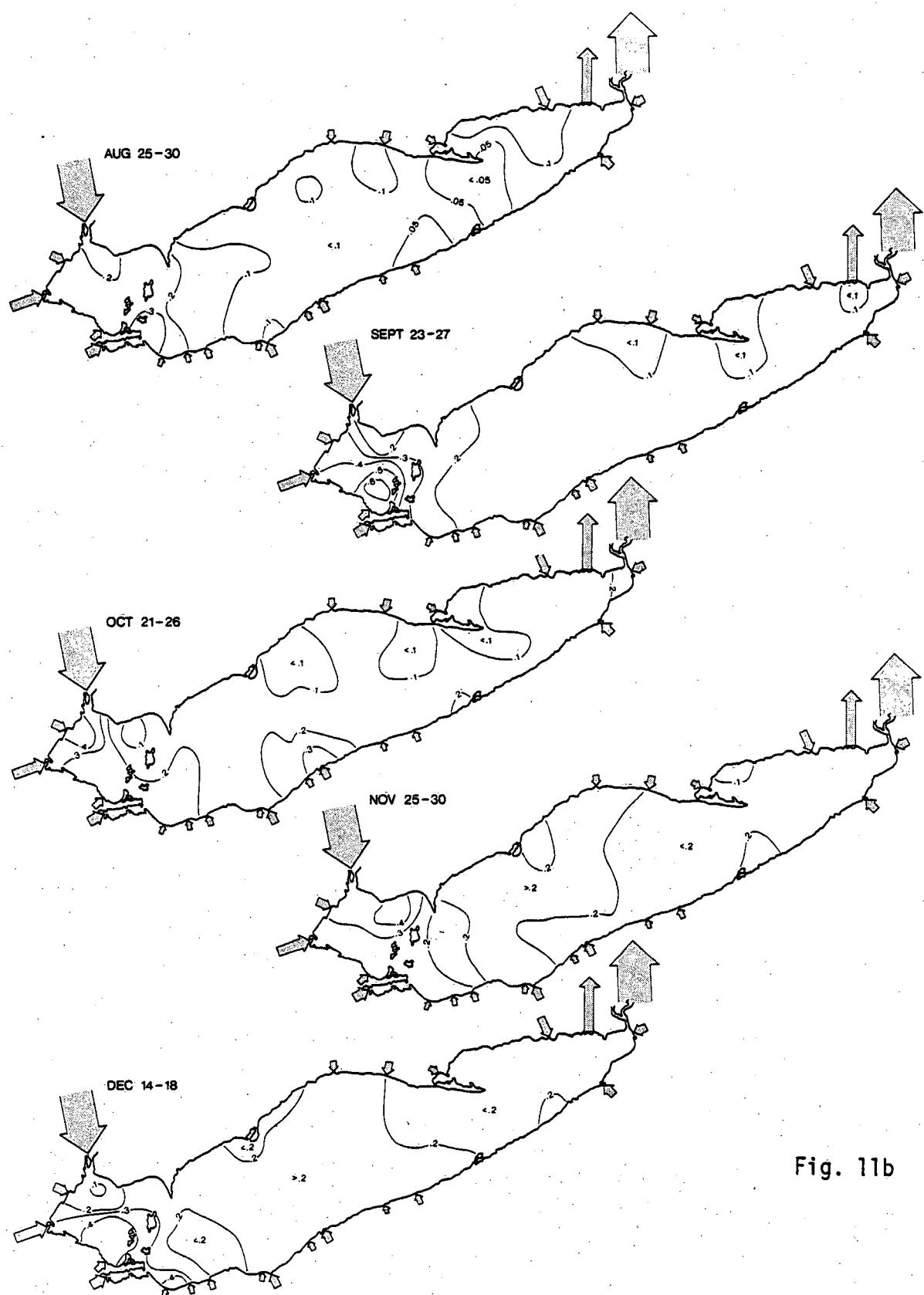


Fig. 11b

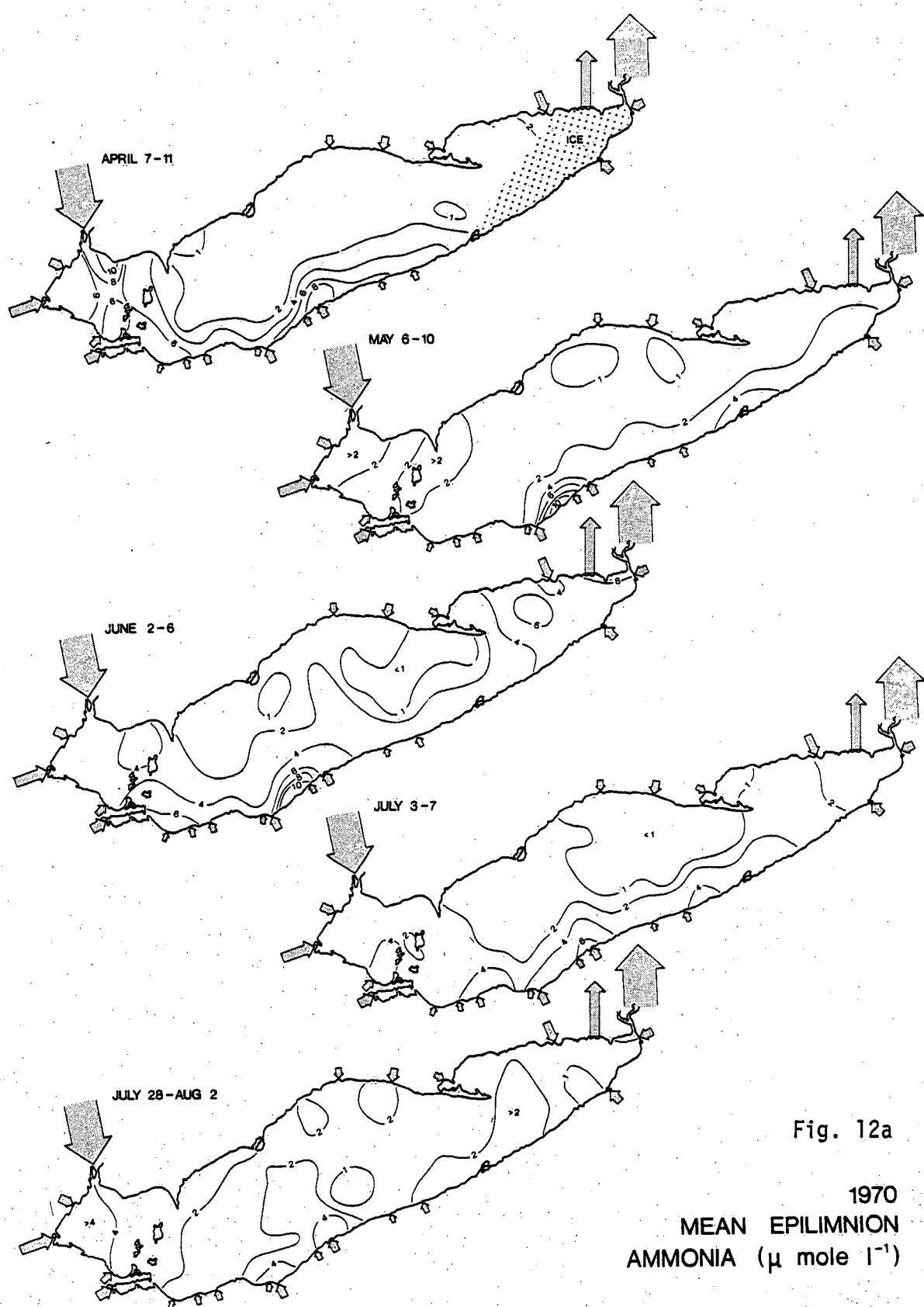


Fig. 12a

1970  
MEAN EPILIMNION  
AMMONIA ( $\mu$  mole  $l^{-1}$ )

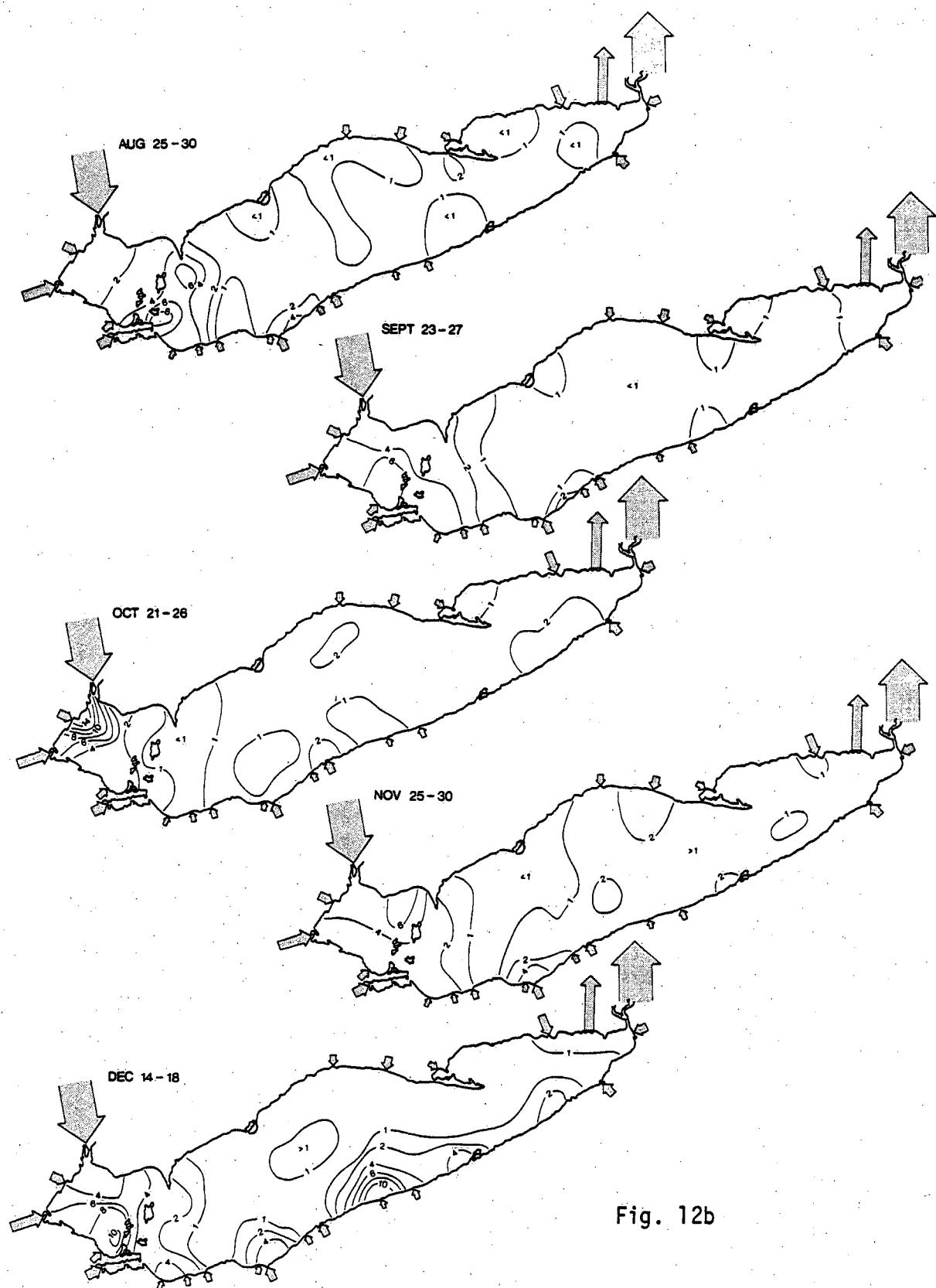


Fig. 12b

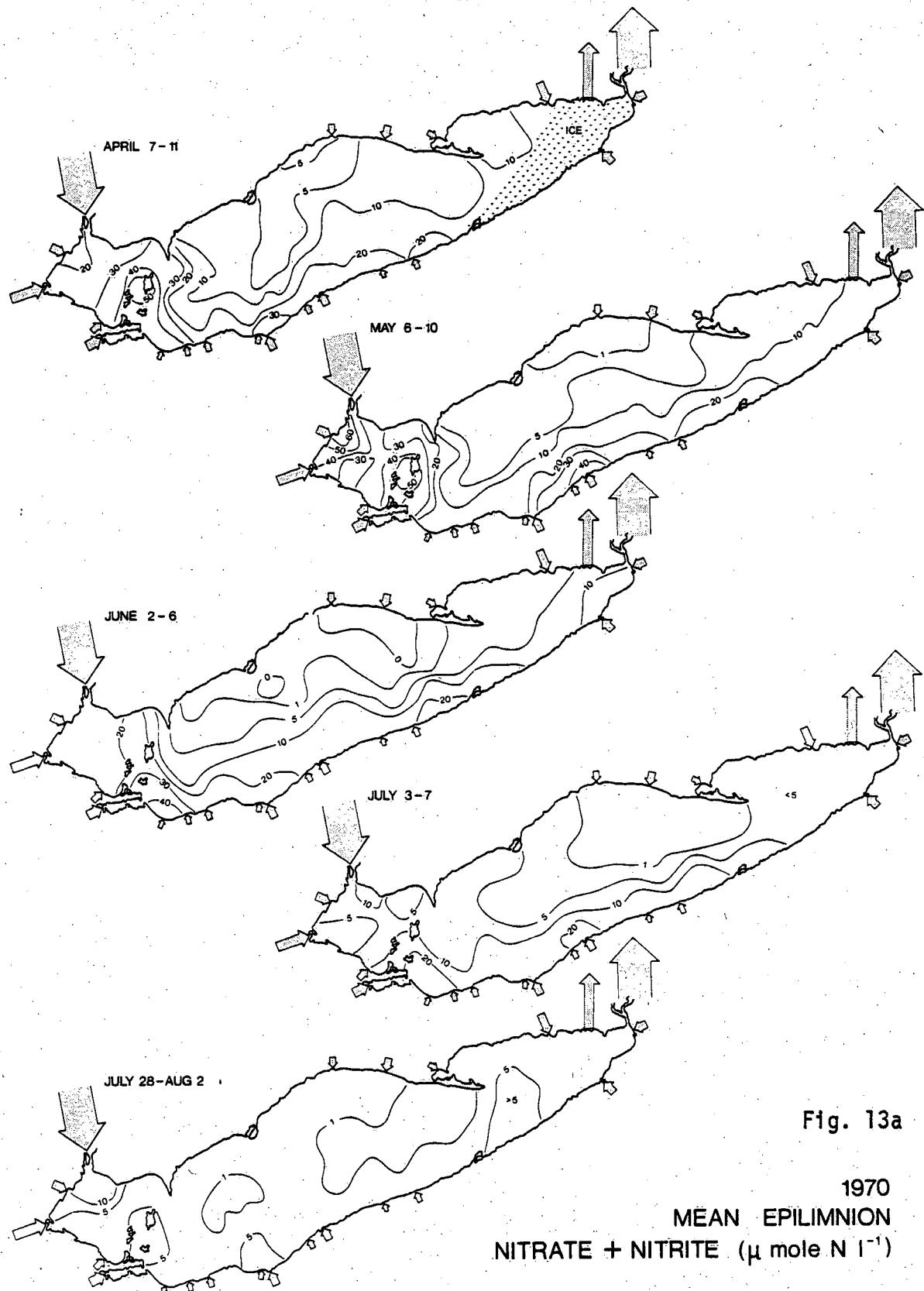


Fig. 13a

1970  
MEAN EPILIMNION  
NITRATE + NITRITE ( $\mu\text{ mole N l}^{-1}$ )

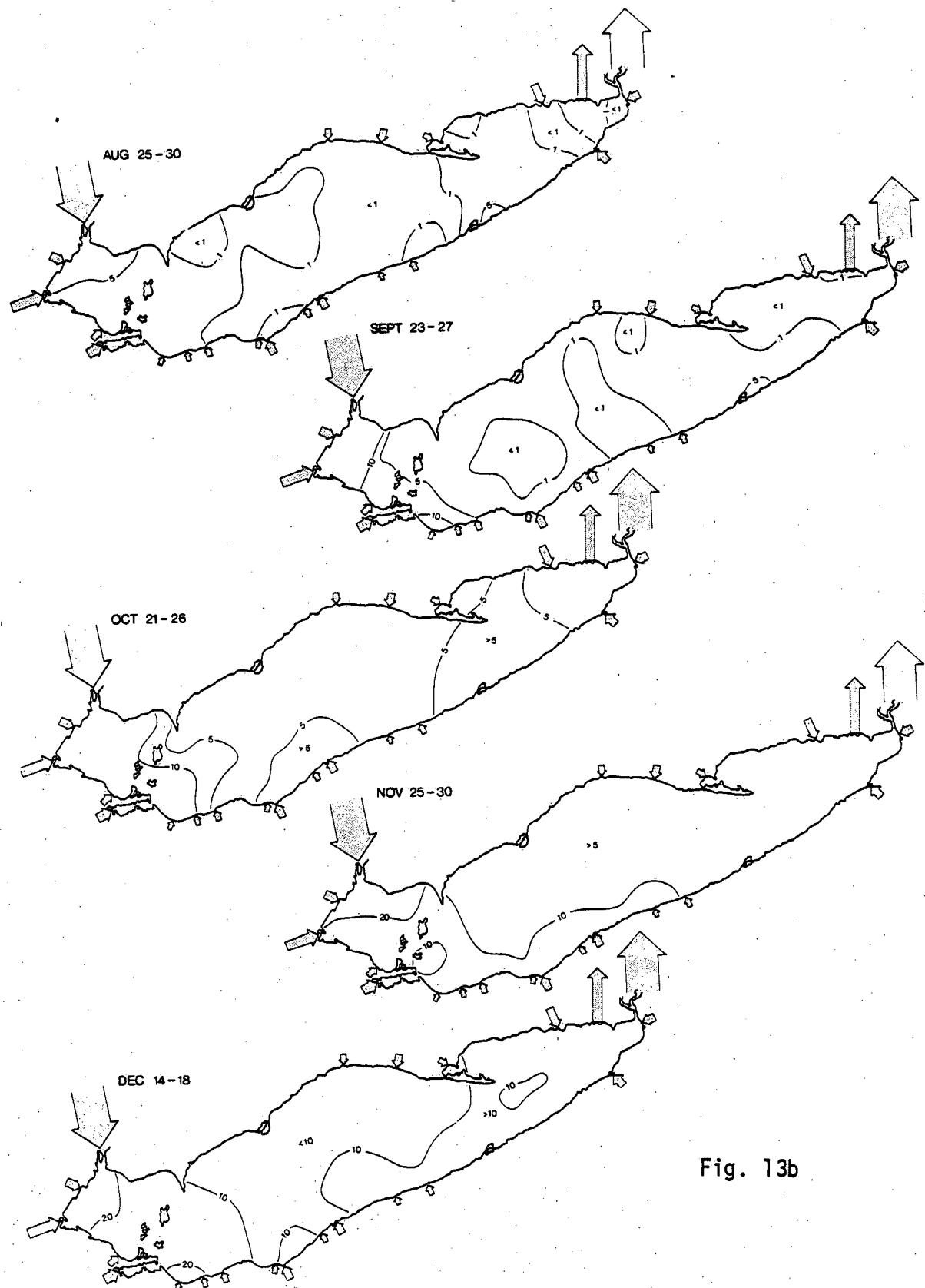


Fig. 13b

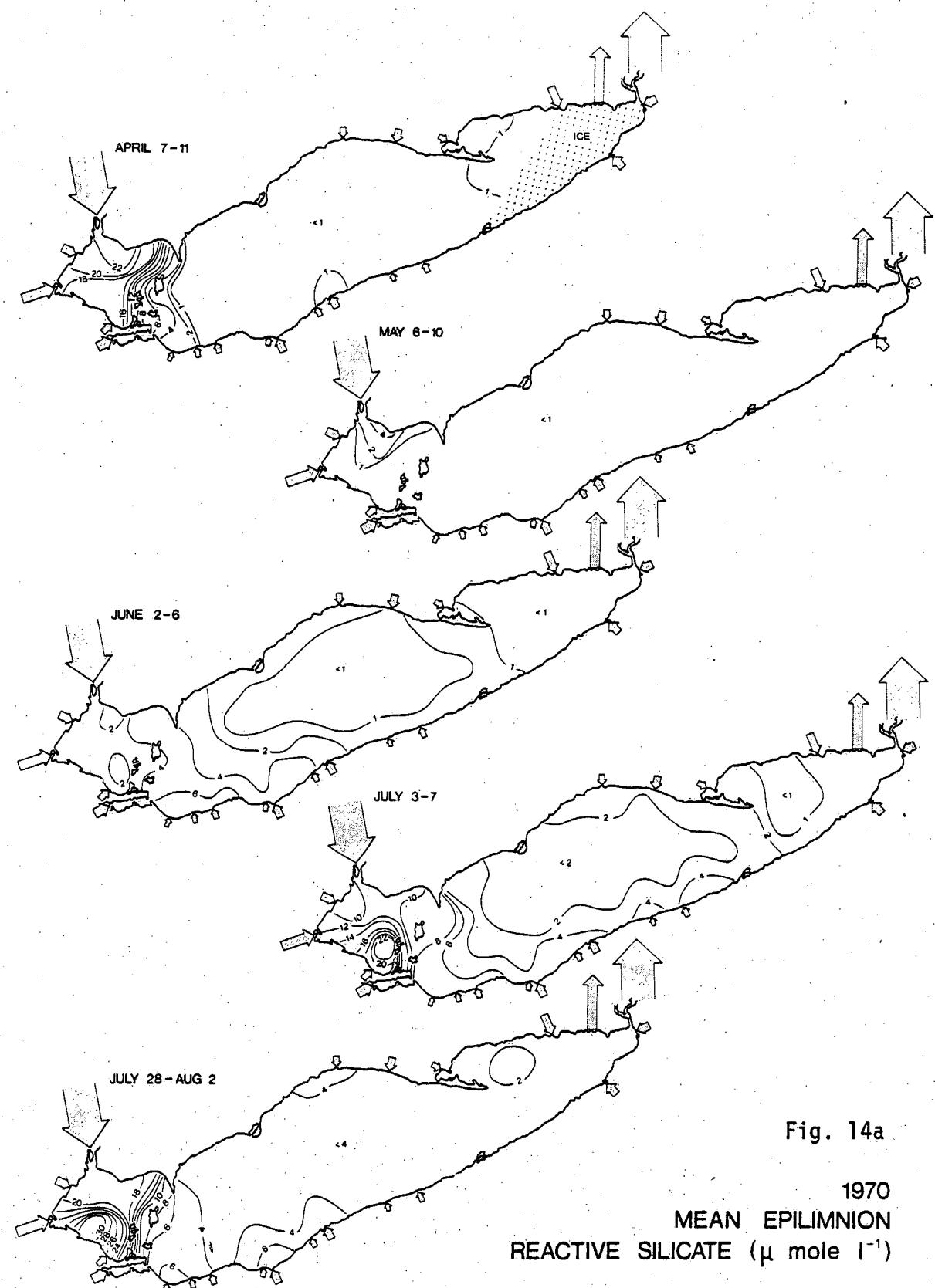


Fig. 14a

1970  
MEAN EPILIMNION  
REACTIVE SILICATE ( $\mu$  mole  $l^{-1}$ )

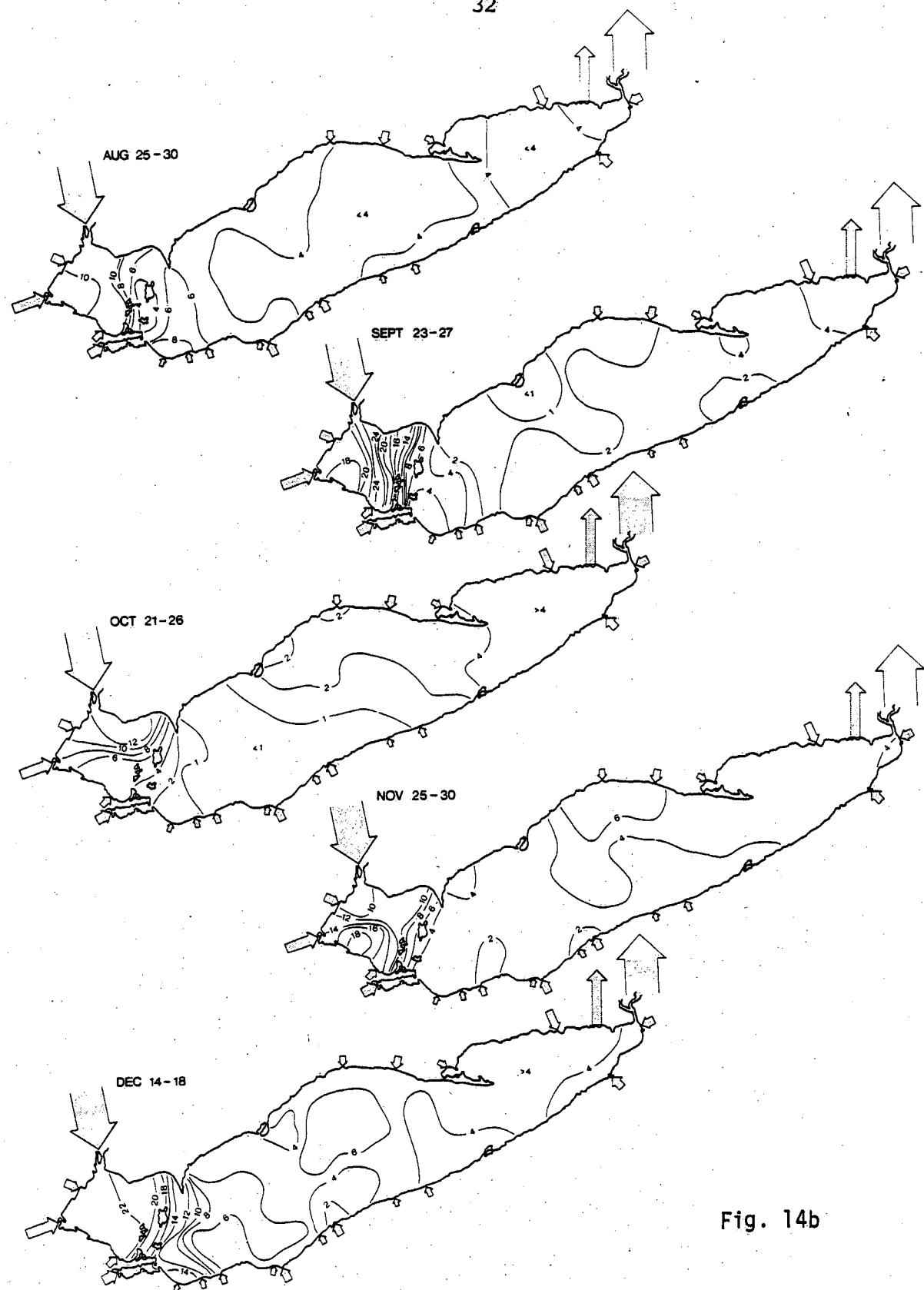


Fig. 14b

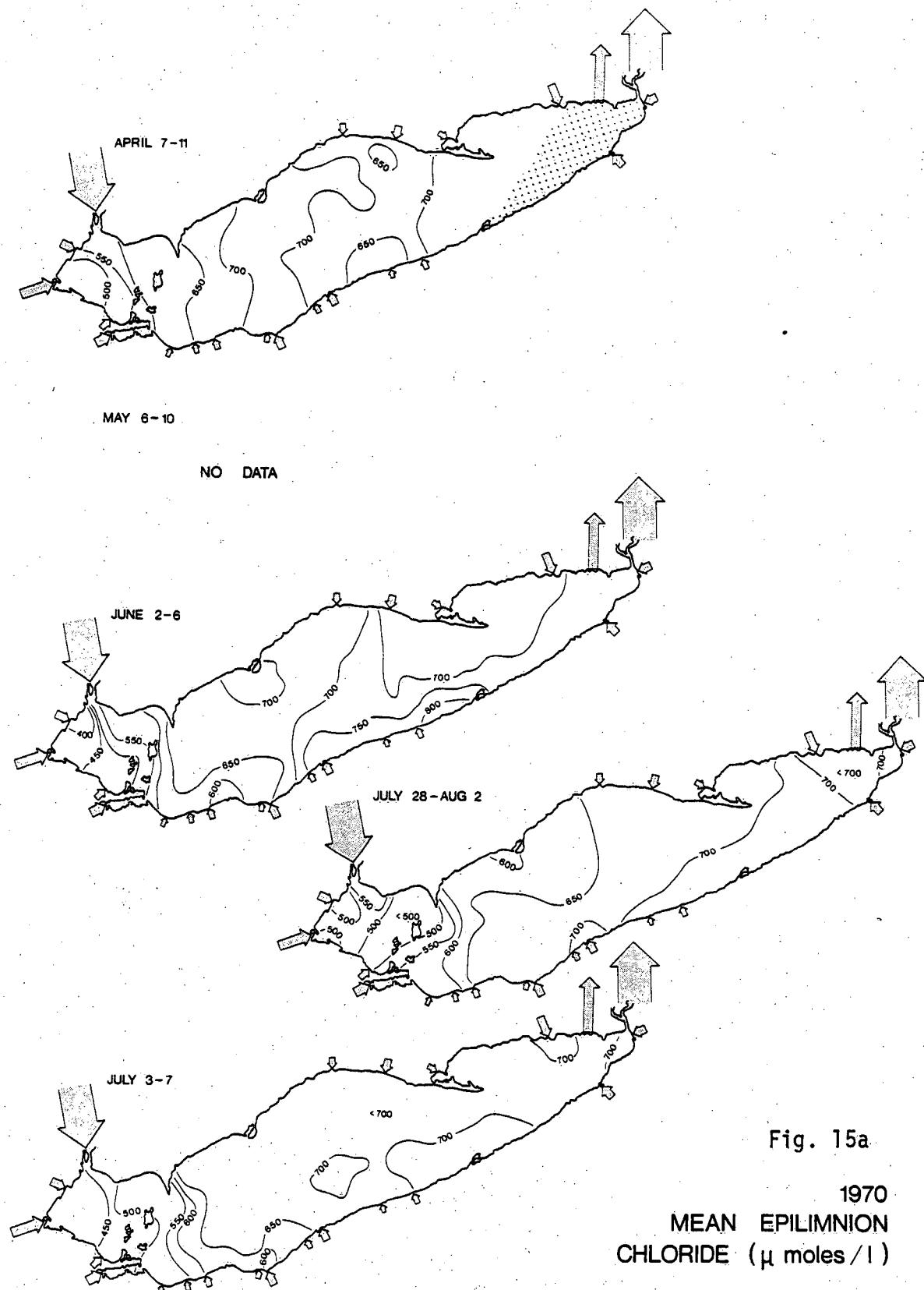


Fig. 15a

1970  
MEAN EPILIMNION  
CHLORIDE ( $\mu$  moles/l)

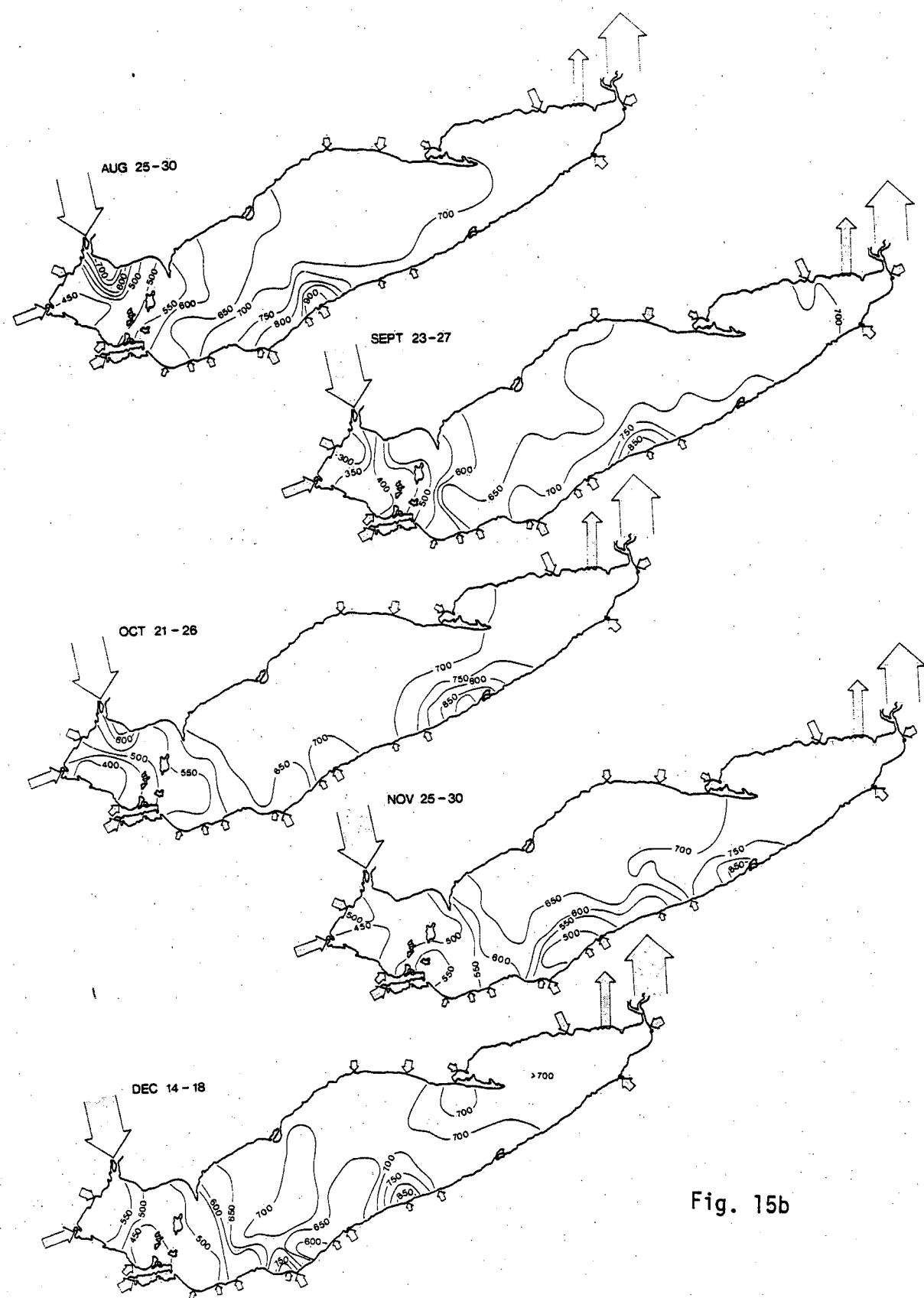


Fig. 15b

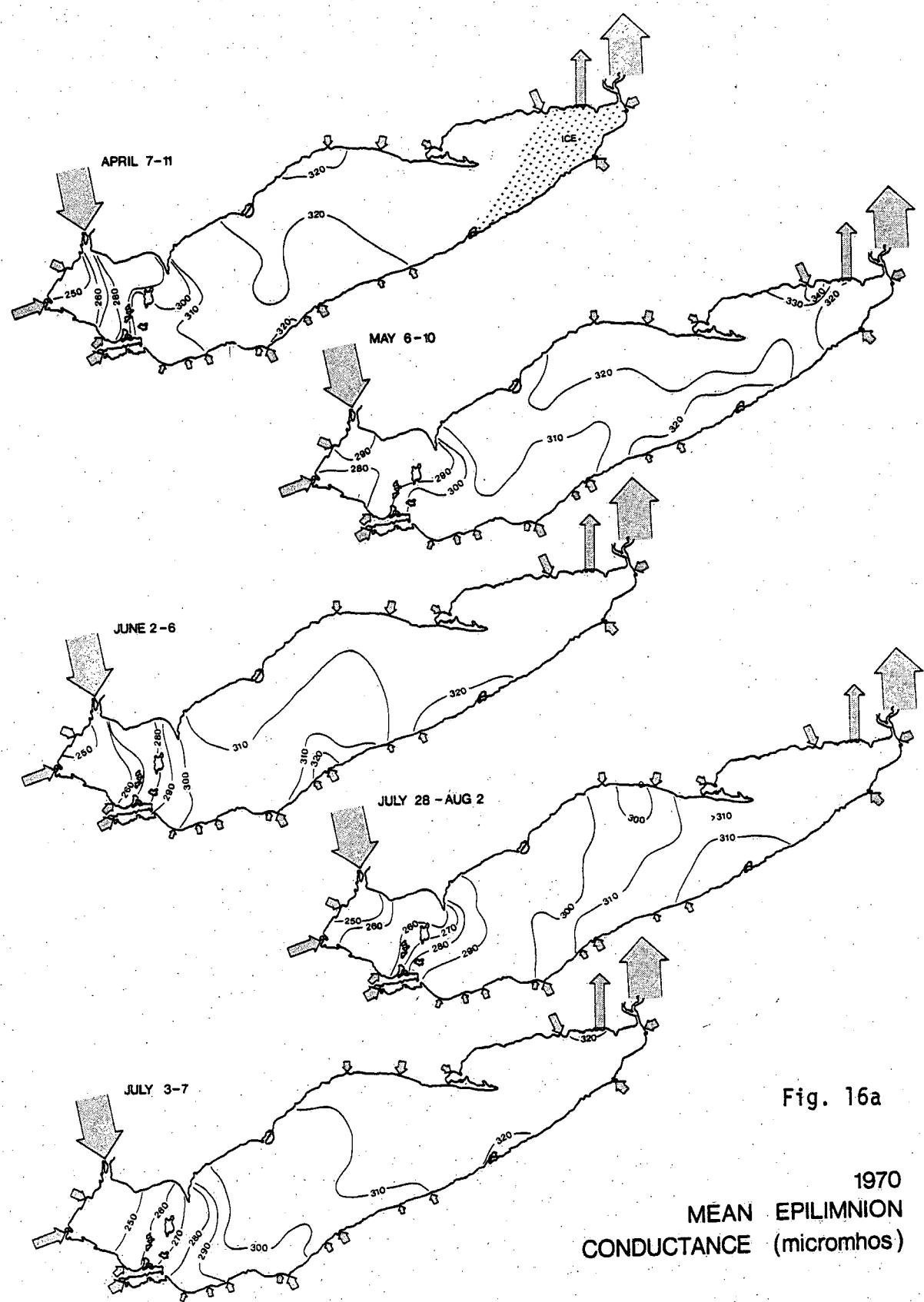


Fig. 16a

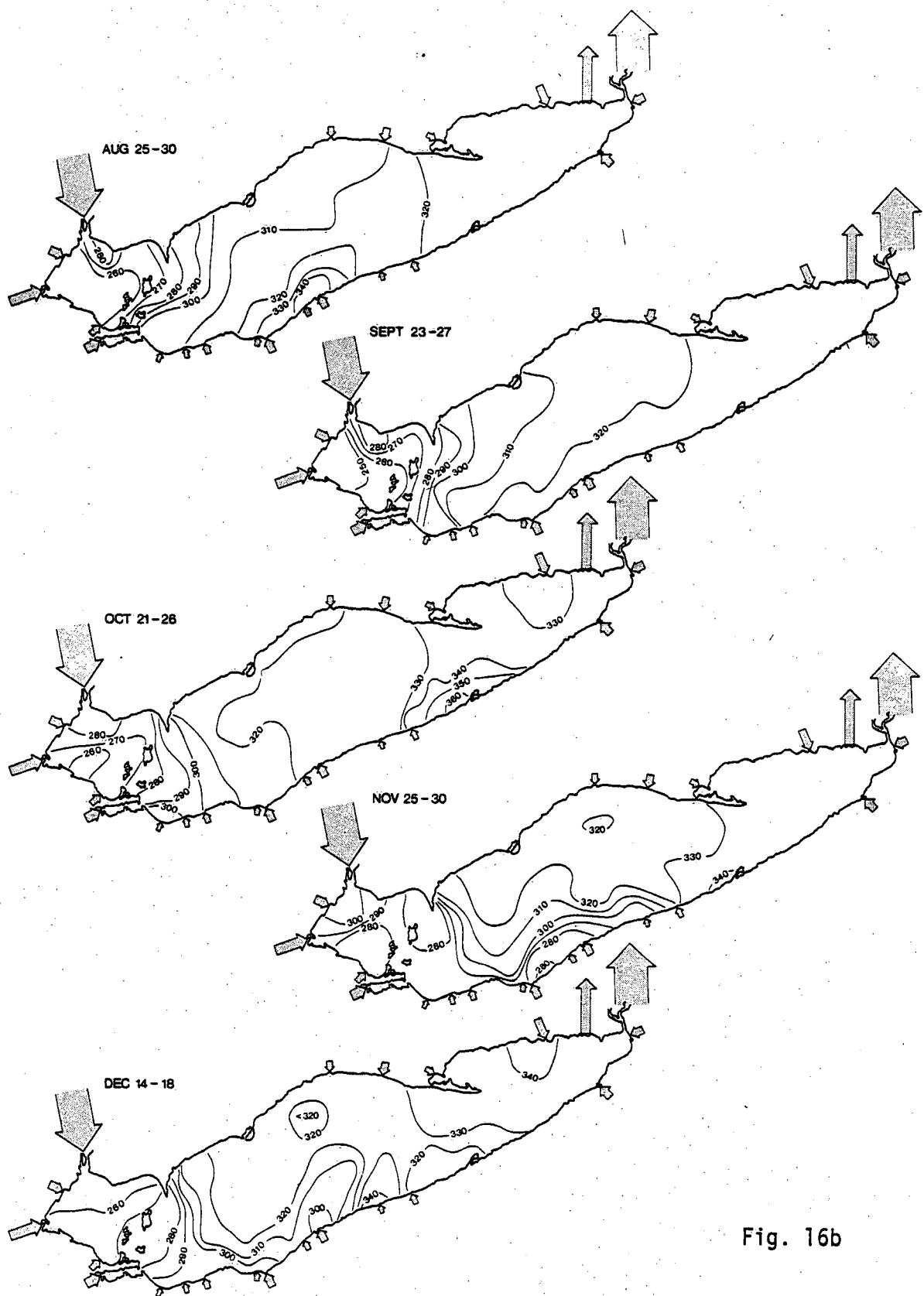


Fig. 16b

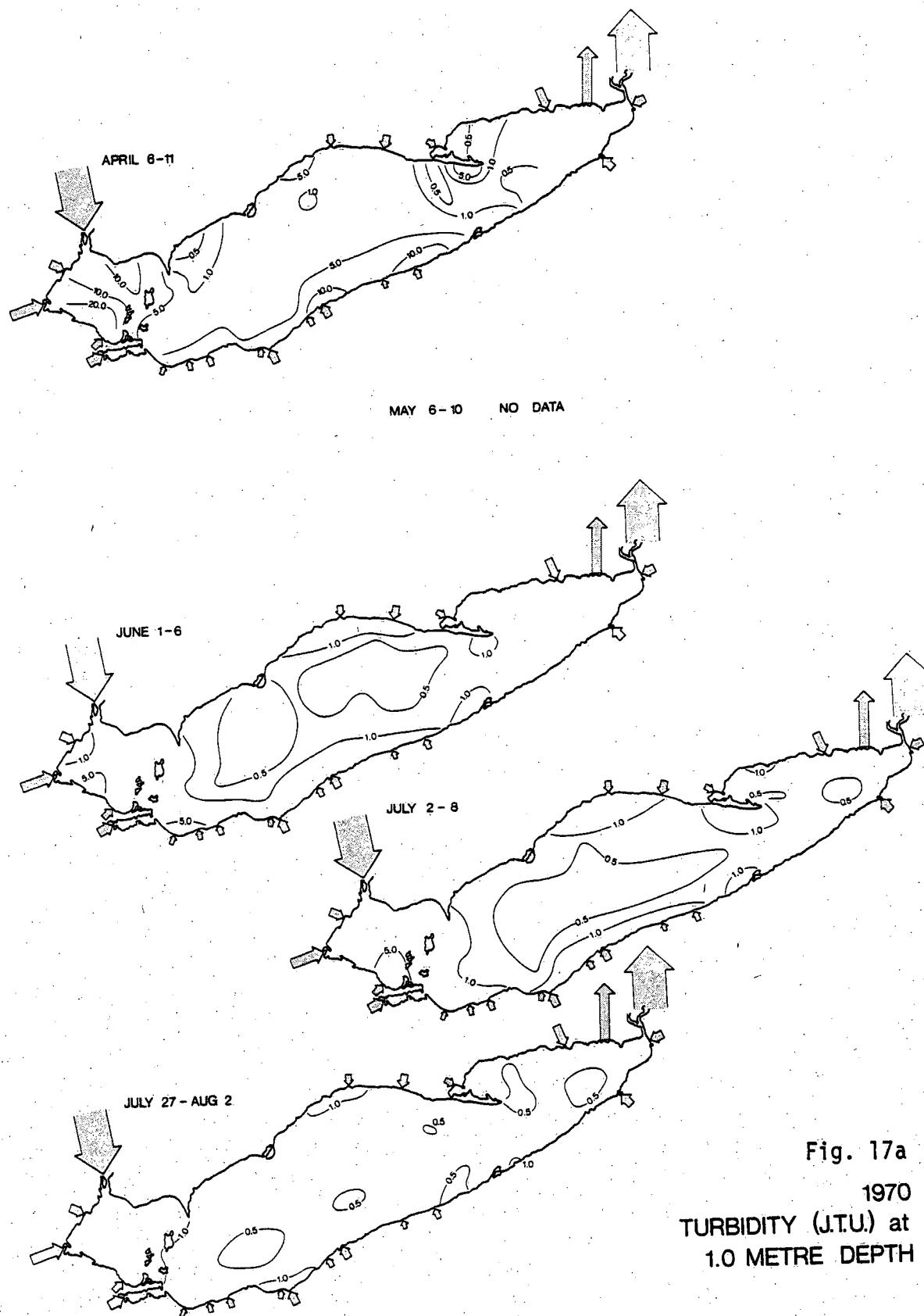


Fig. 17a  
1970  
TURBIDITY (J.T.U.) at  
1.0 METRE DÉPTH

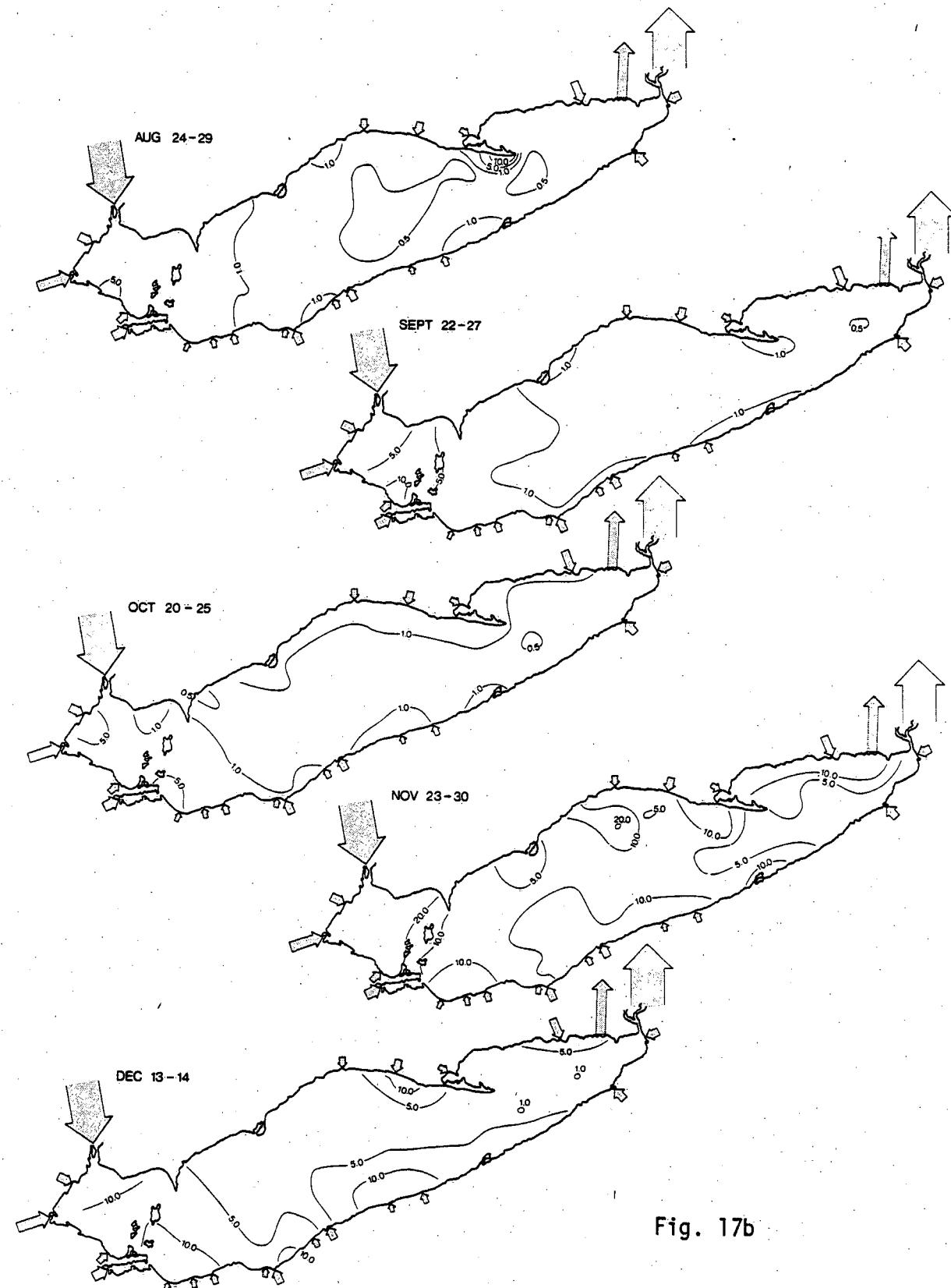


Fig. 17b

## 1970 ANNUAL MEAN EPILIMNION VALUES

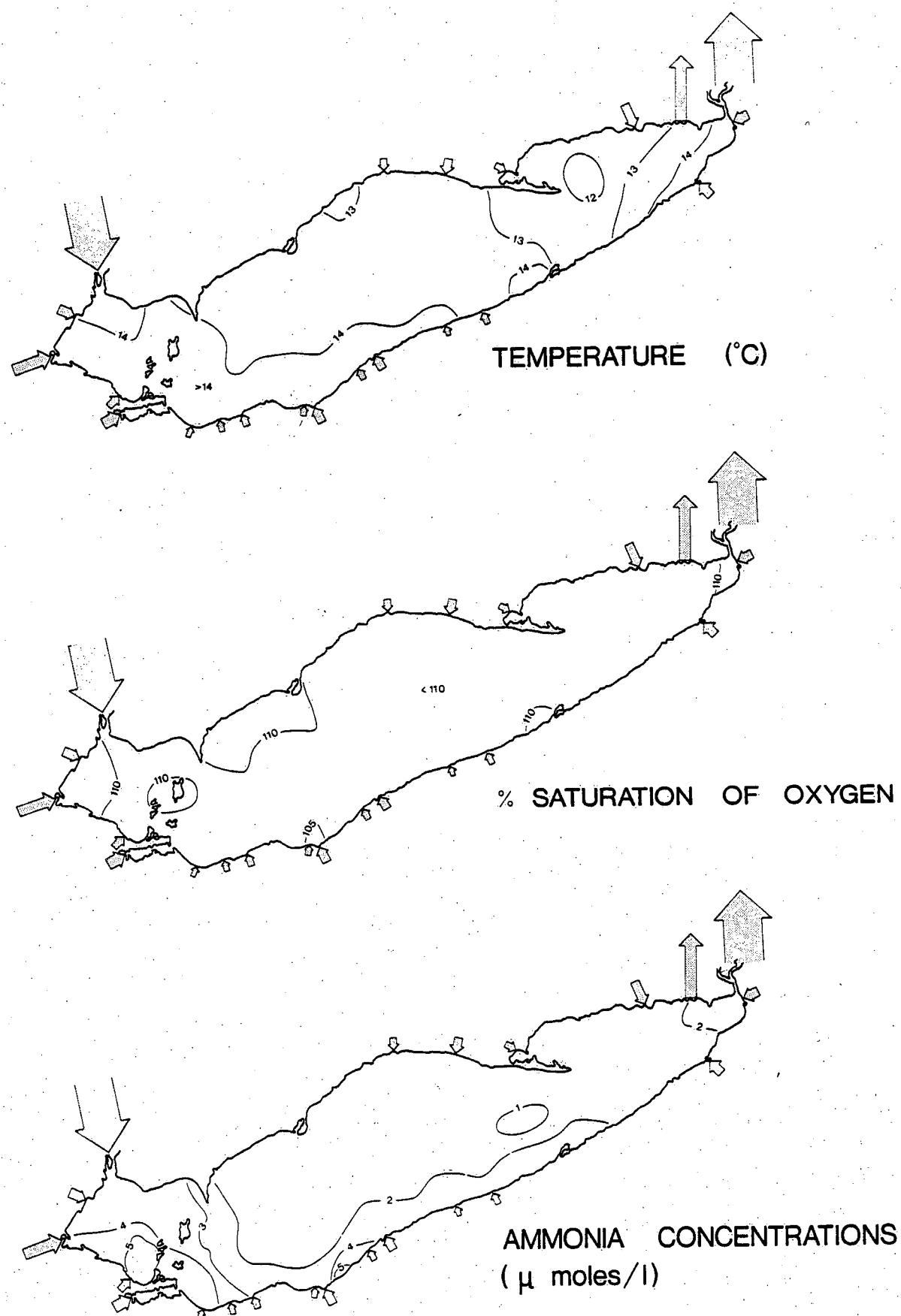


Fig. 20

## 1970 ANNUAL MEAN EPILIMNION VALUES

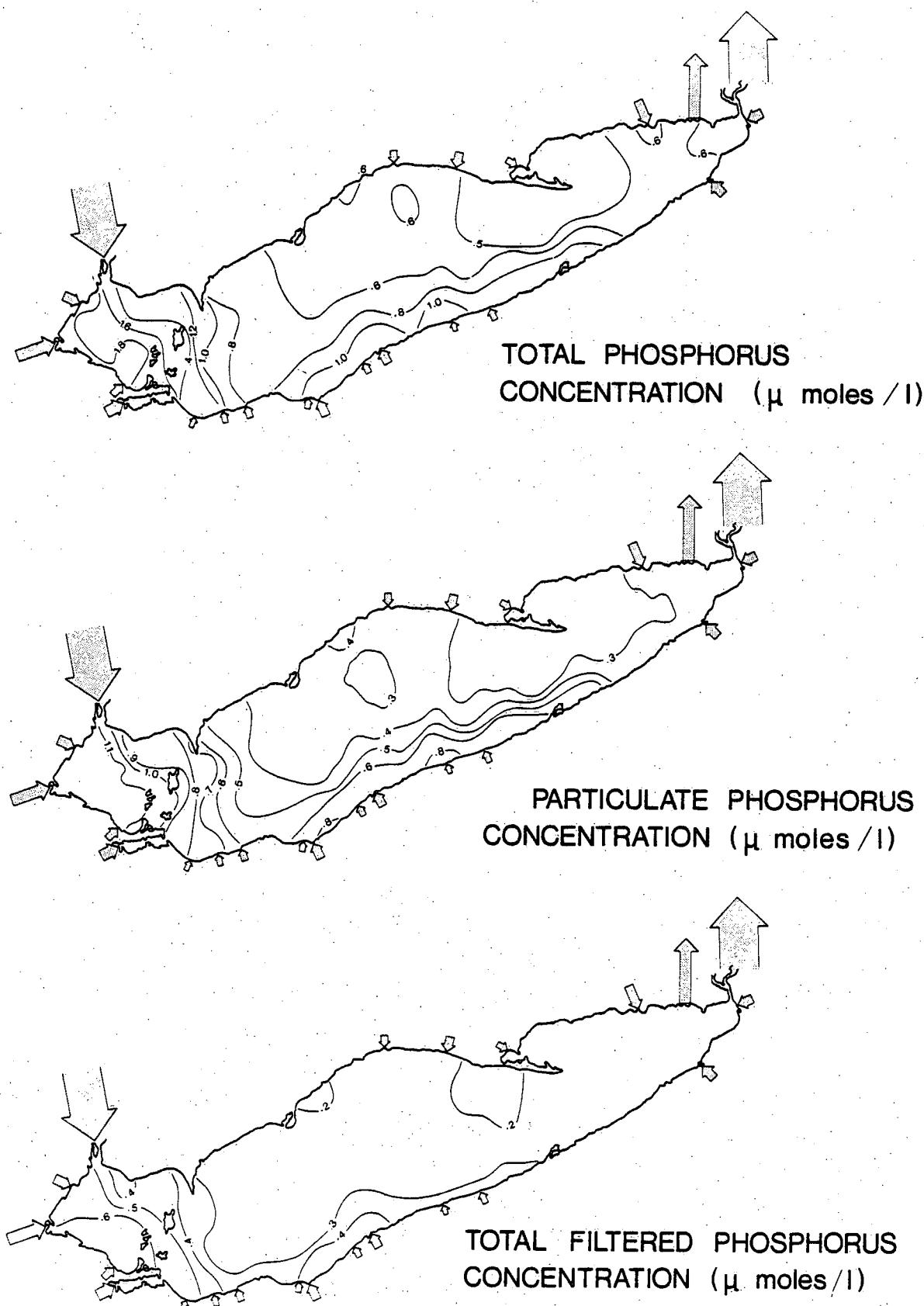


Fig. 21

## 1970 ANNUAL MEAN EPILIMNION VALUES

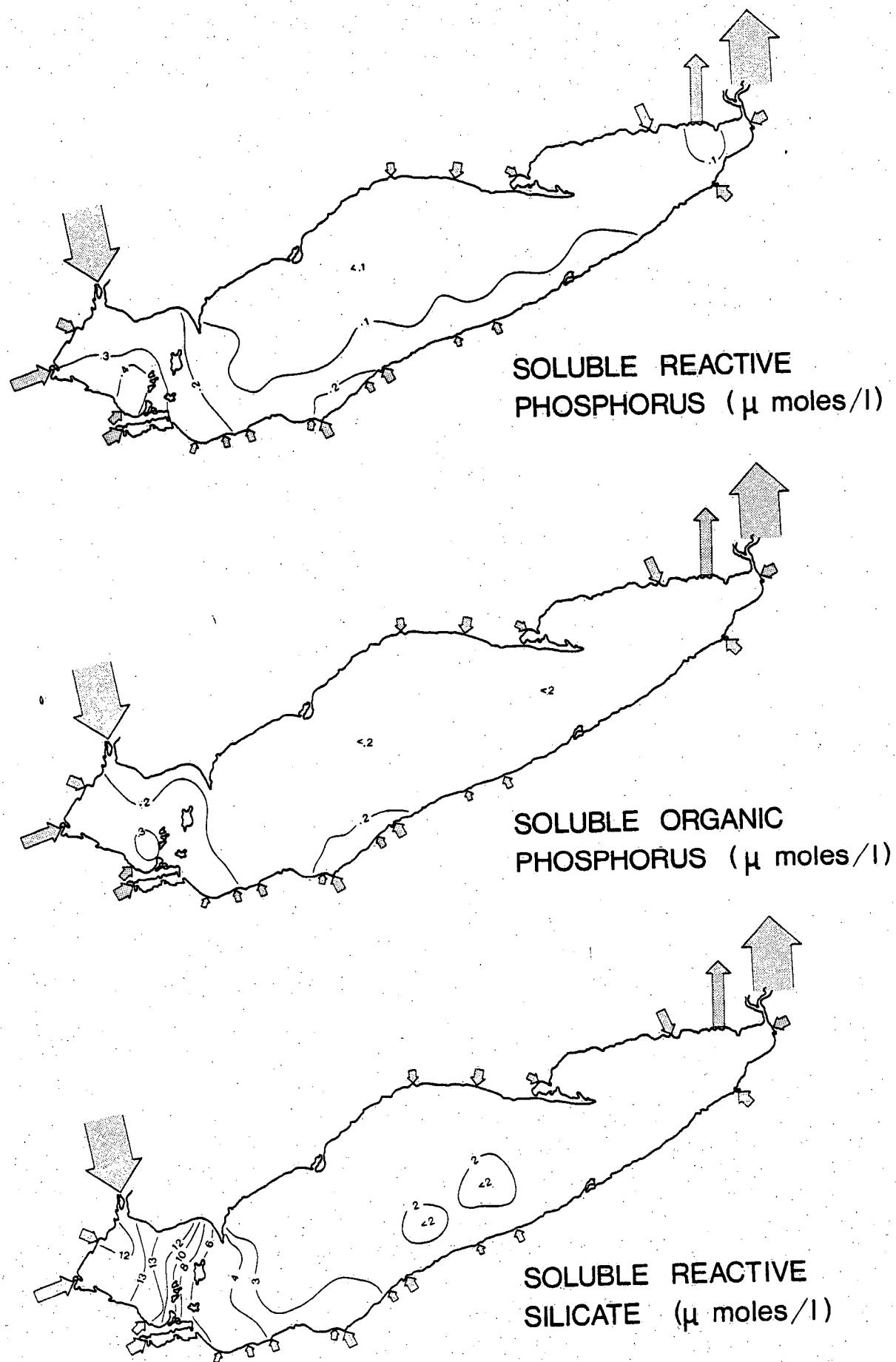


Fig. 22

## 1970 ANNUAL MEAN EPILIMNION VALUES

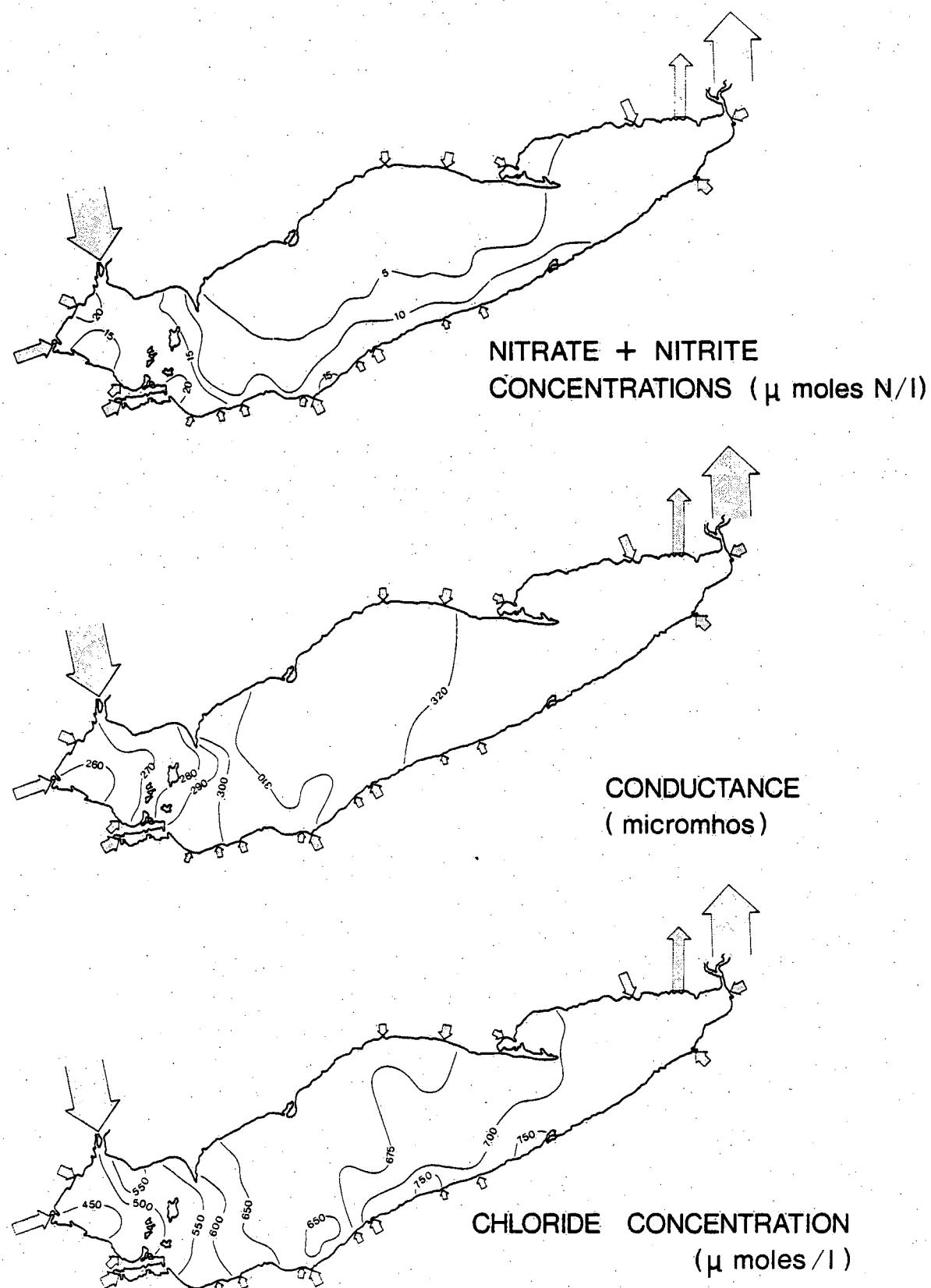


Fig. 23

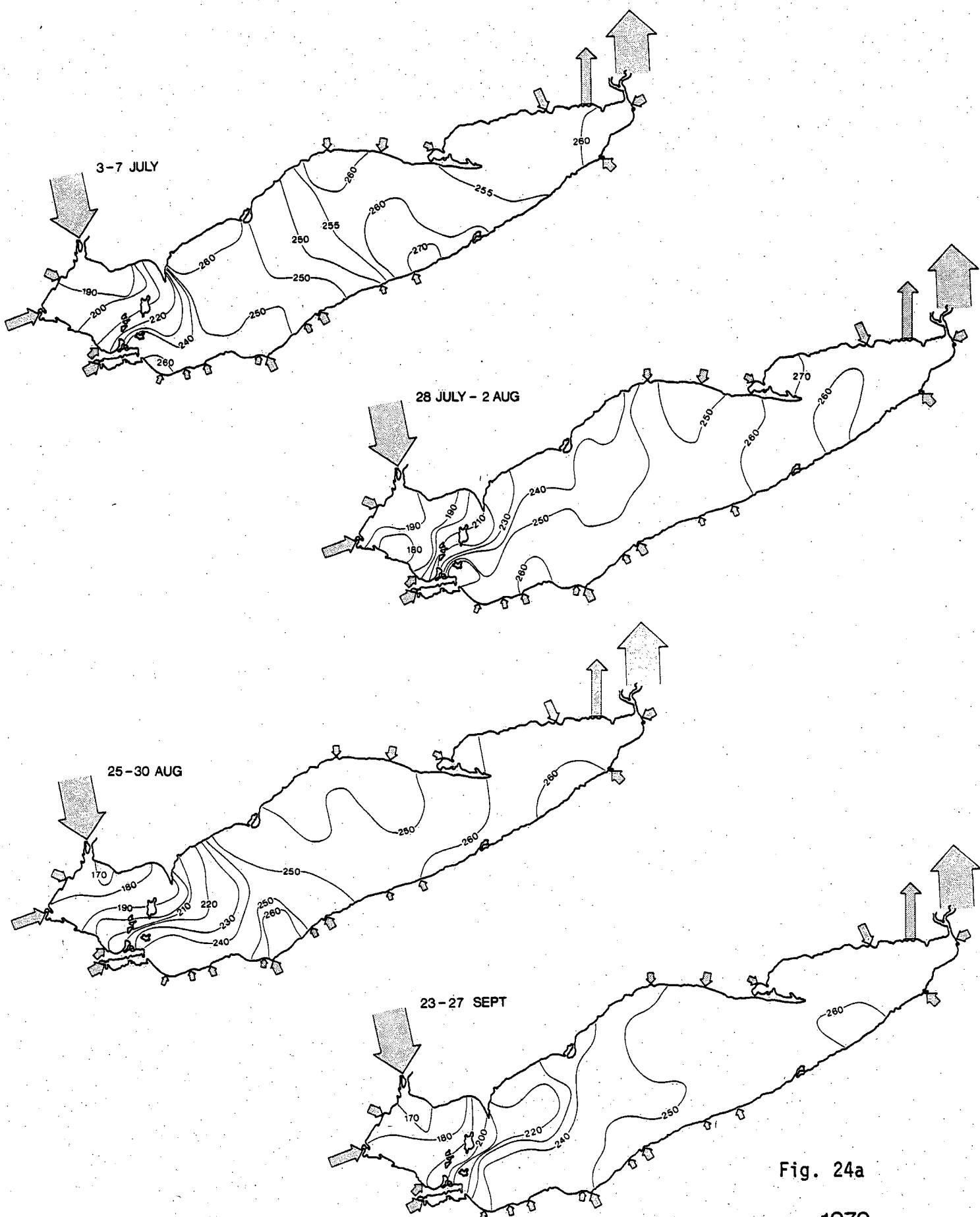


Fig. 24a

1970  
MEAN EPILIMNION  
SOLUBLE SULPHATE ( $\mu$  moles  $l^{-1}$ )

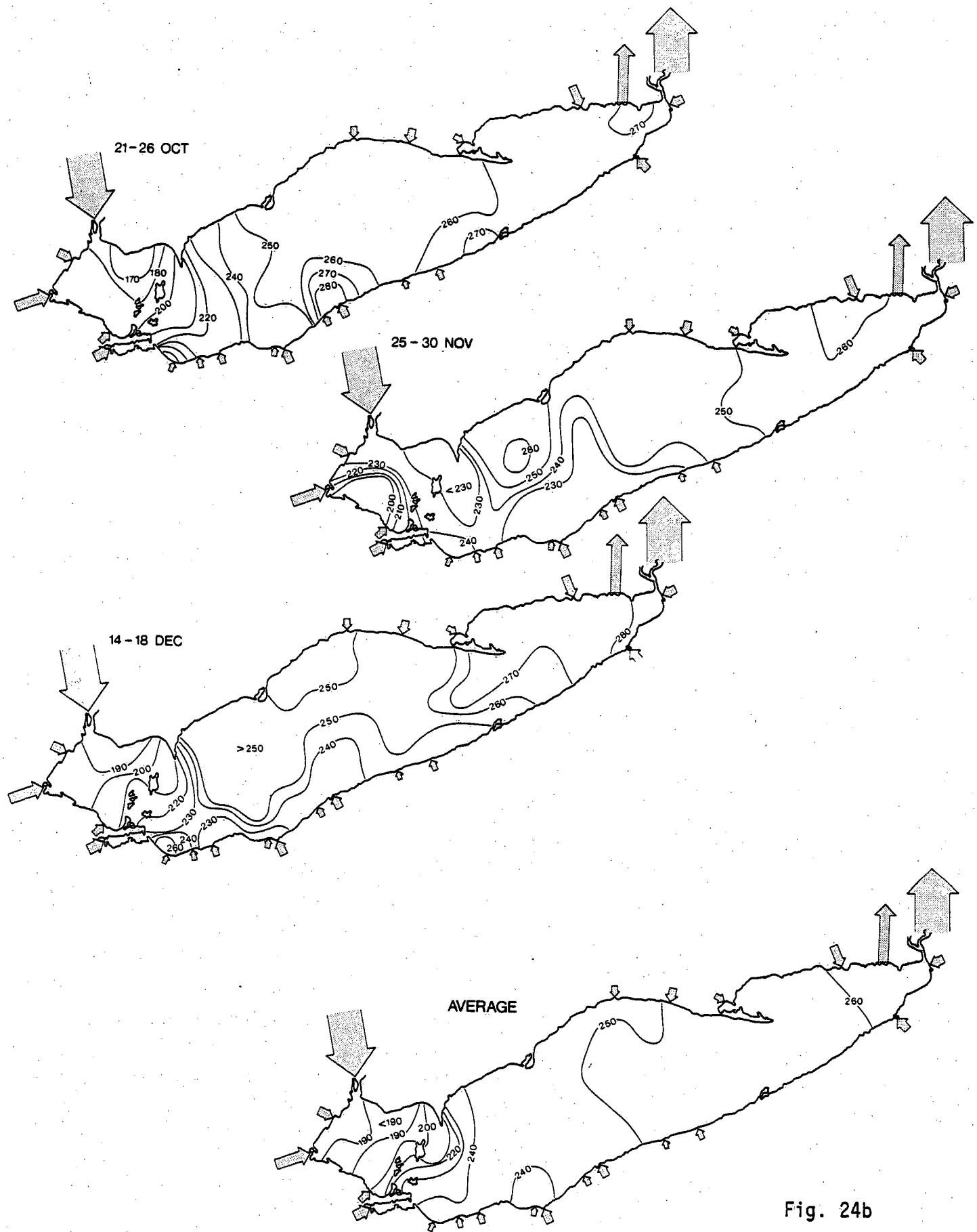


Fig. 24b

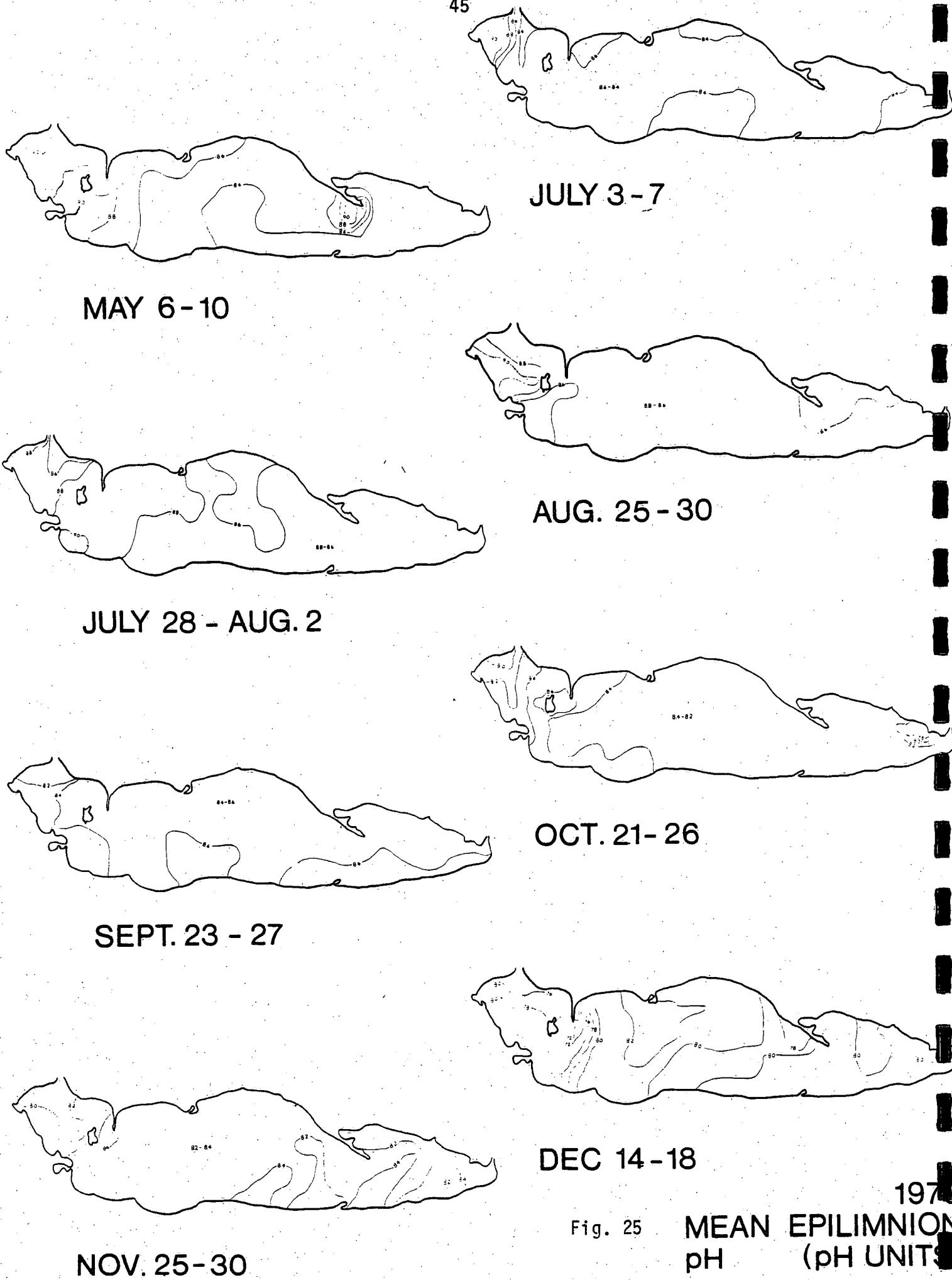
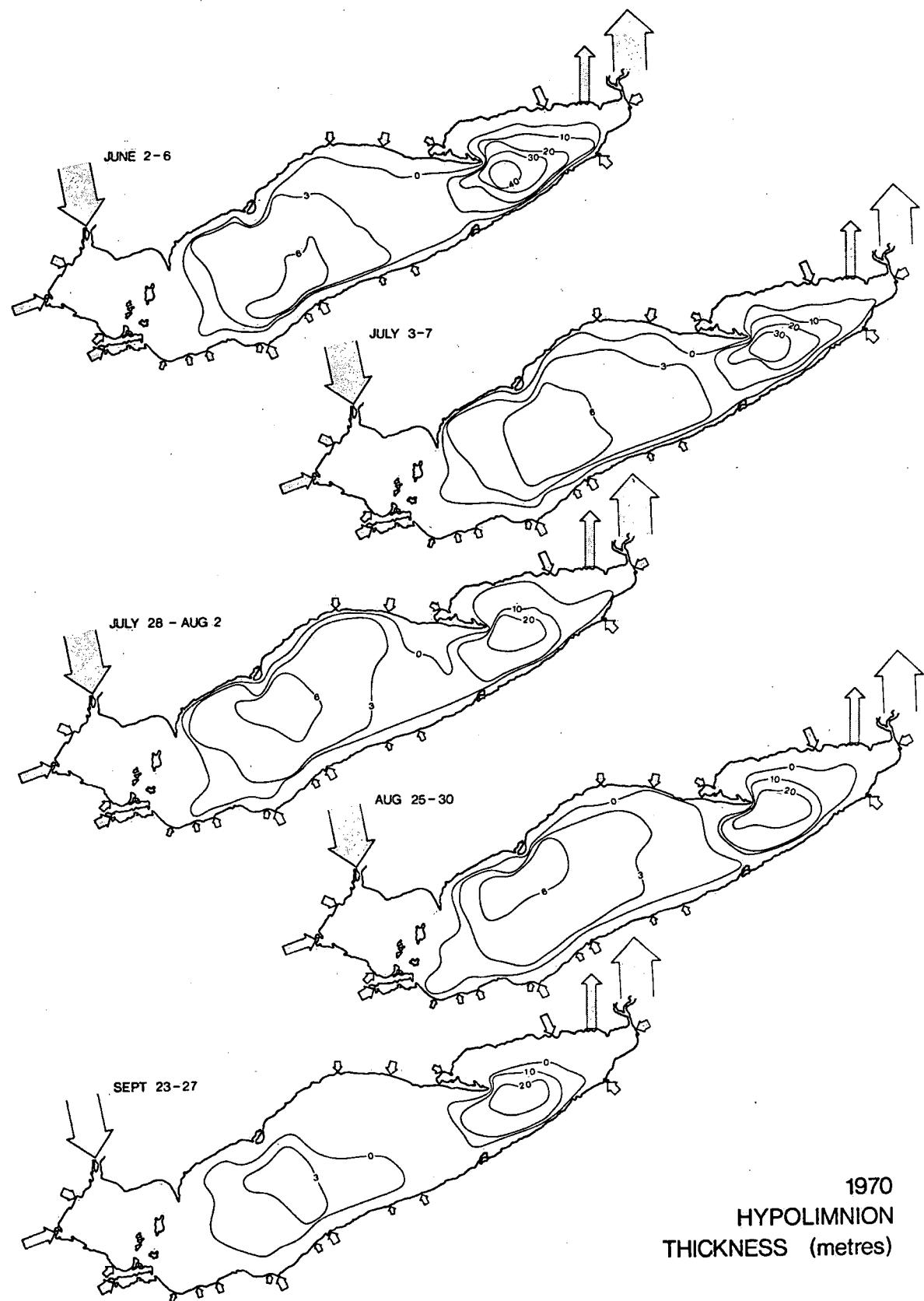
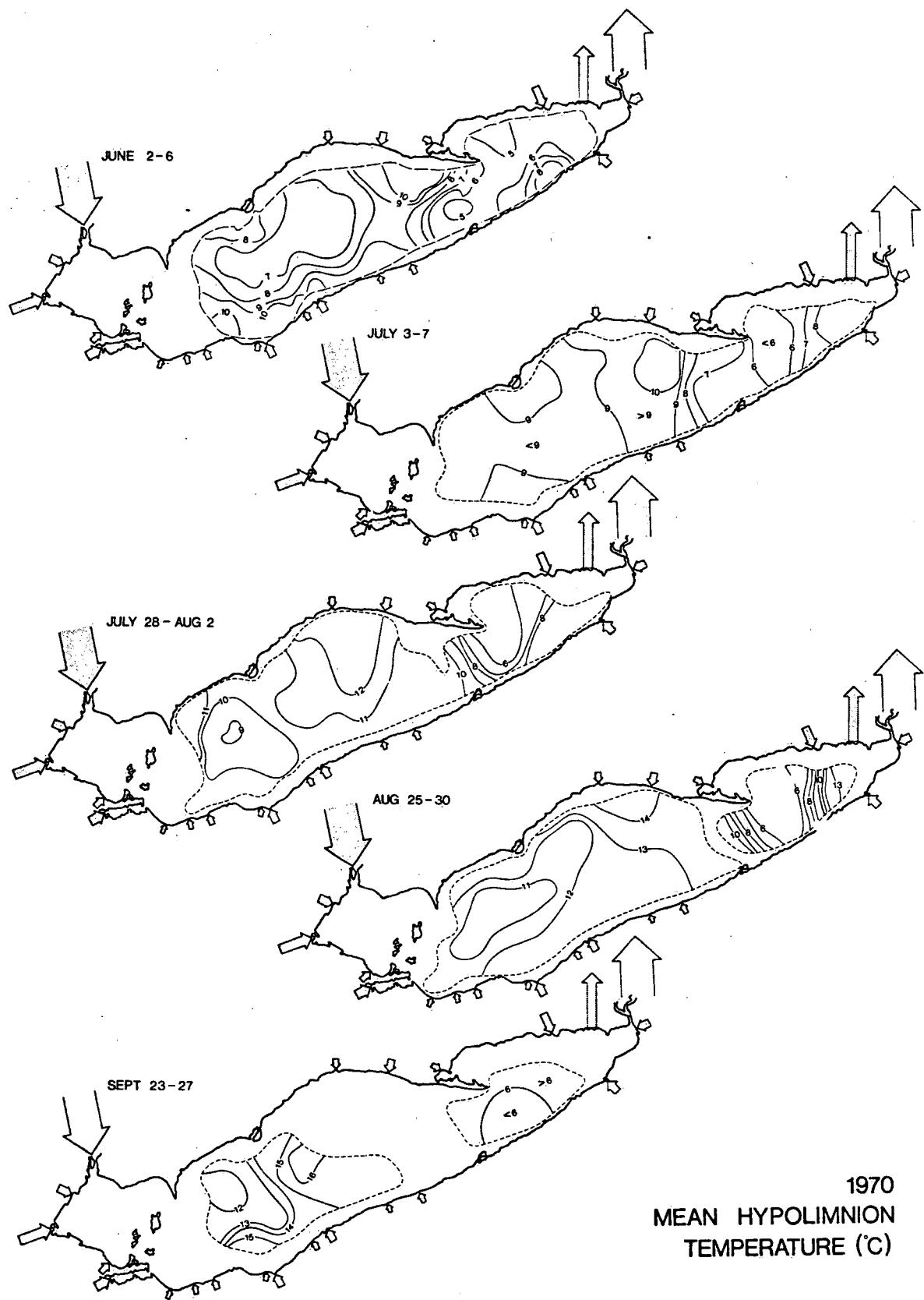
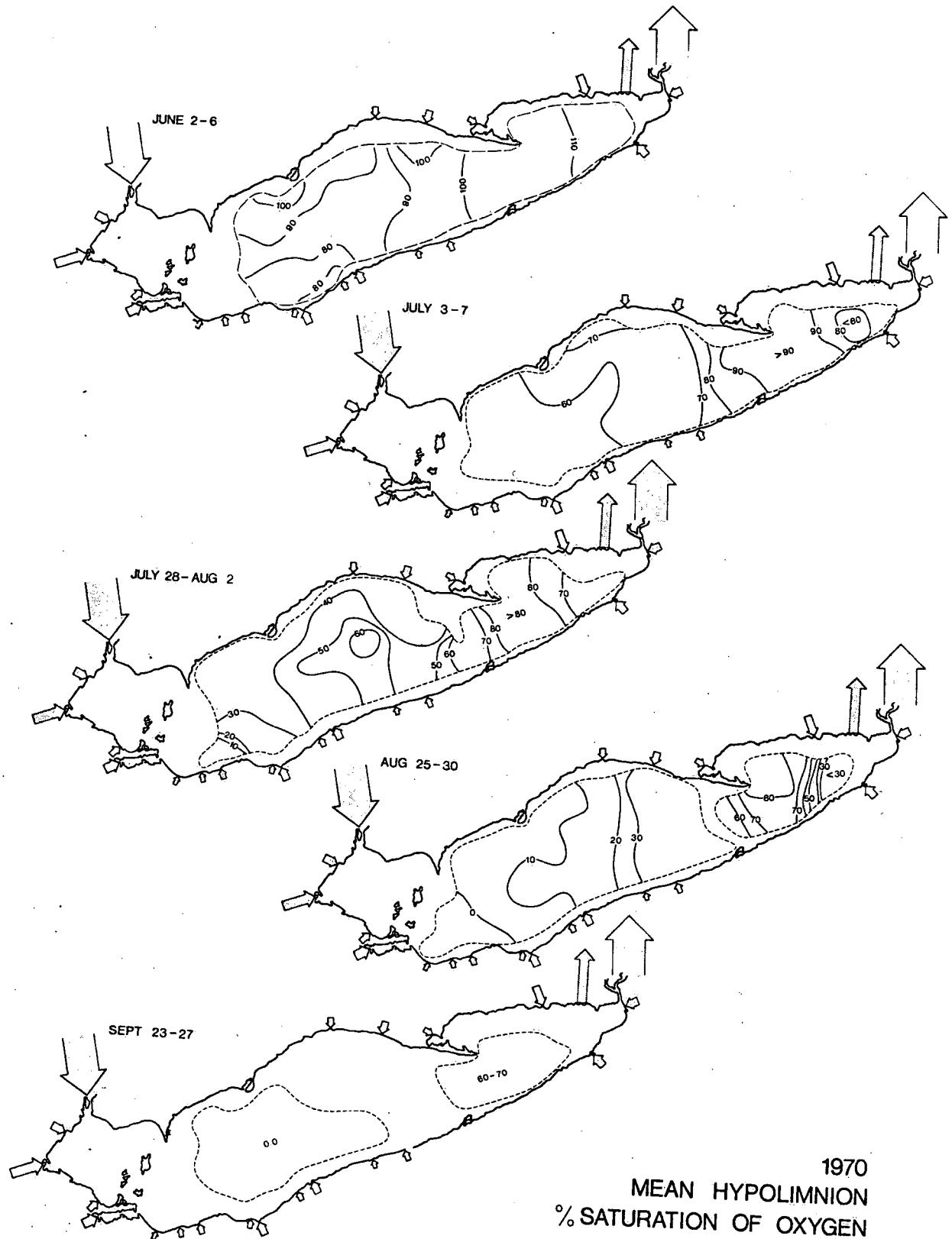


Fig. 25 MEAN EPILIMNION  
pH (pH UNITS)



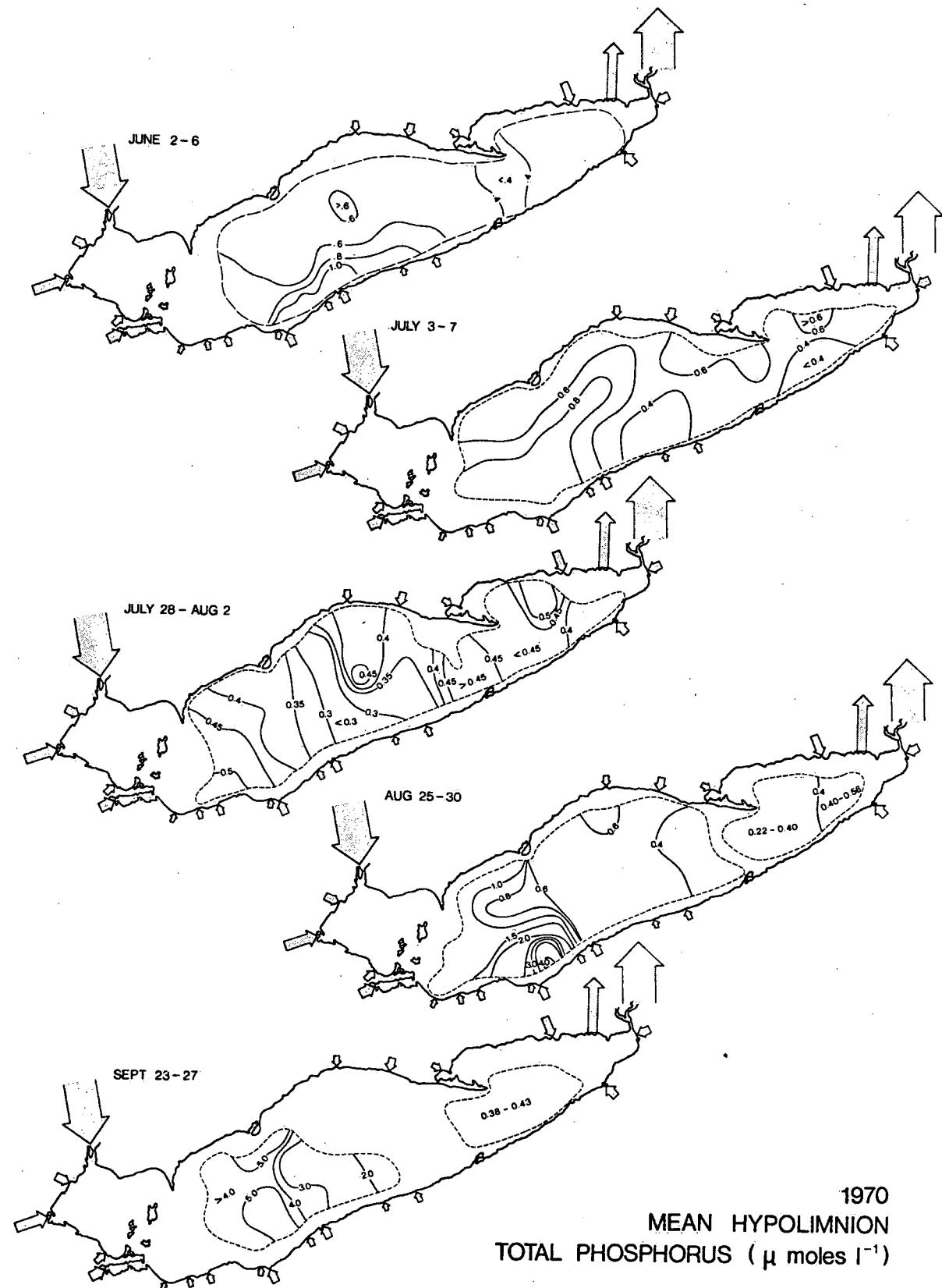


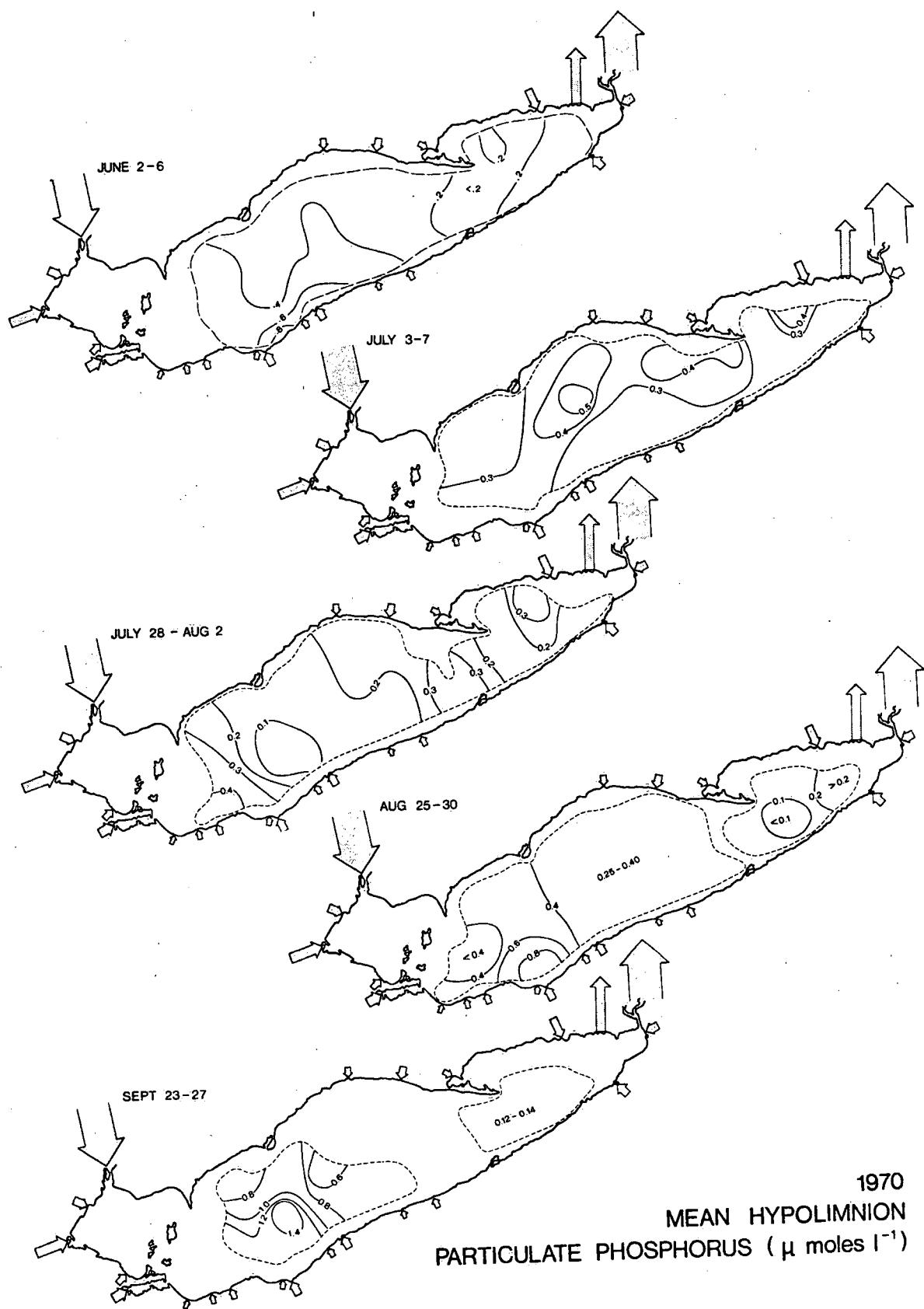
1970  
MEAN HYPOLIMNION  
TEMPERATURE (°C)

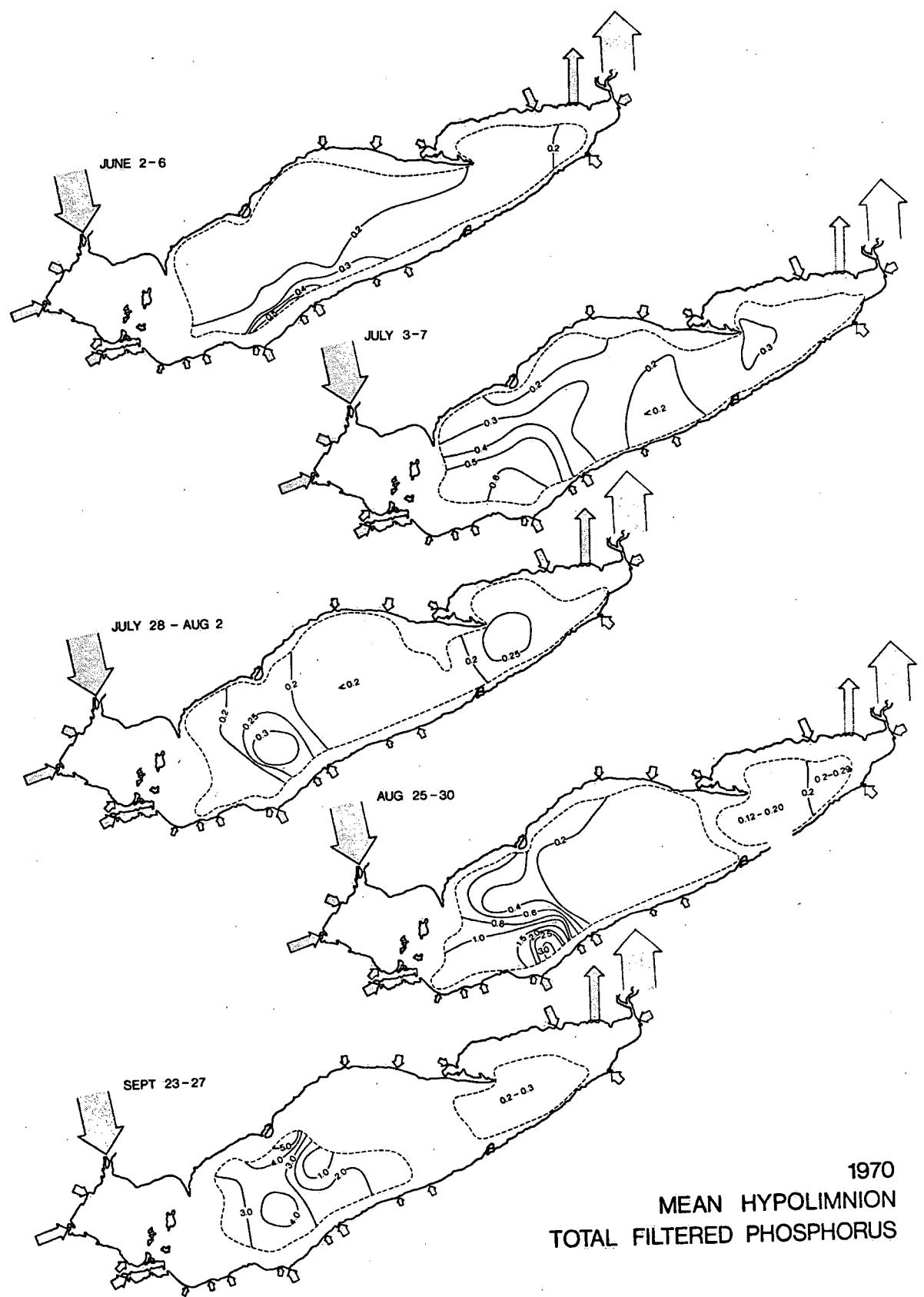


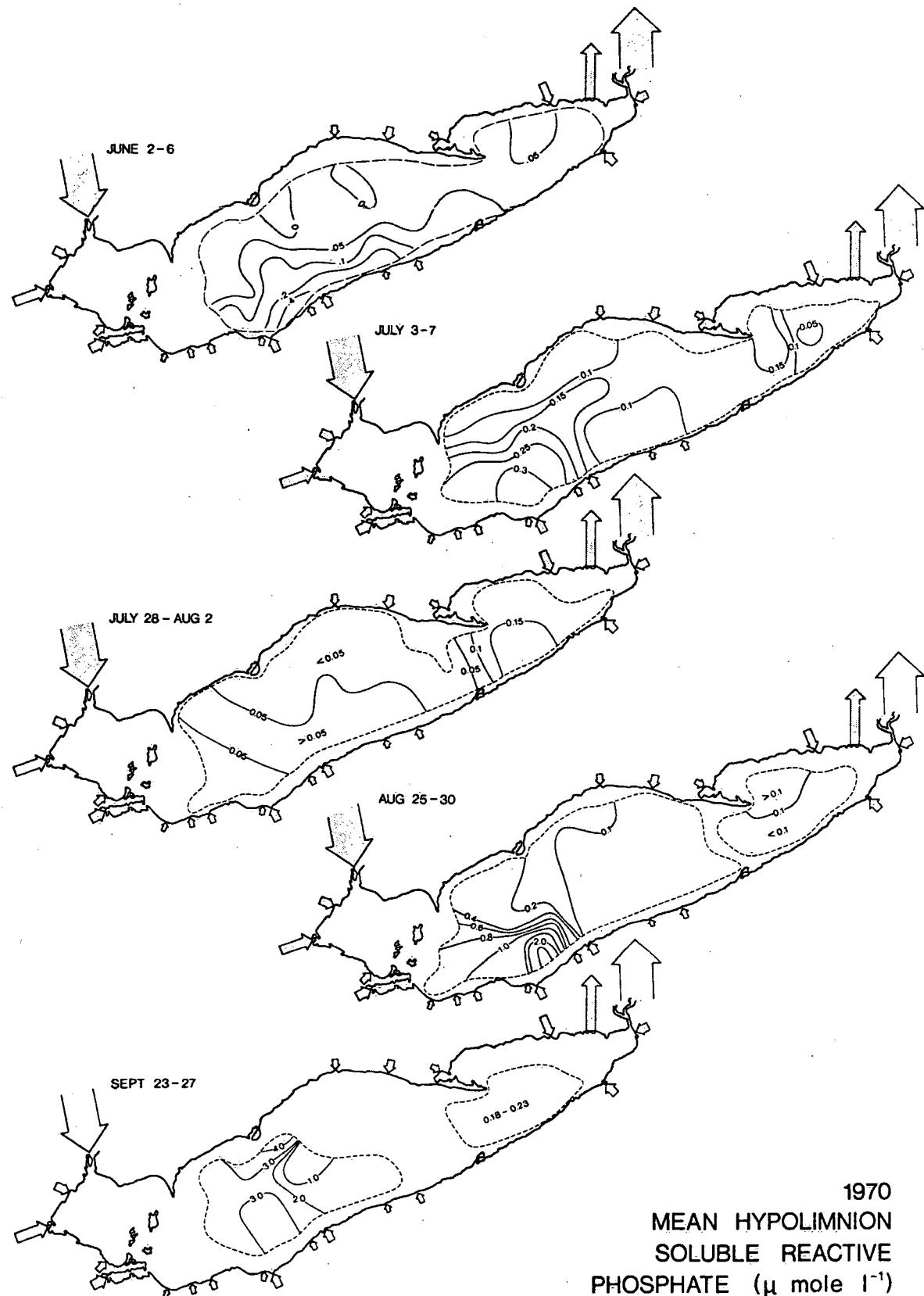
1970  
MEAN HYPOLIMNION  
% SATURATION OF OXYGEN

45d

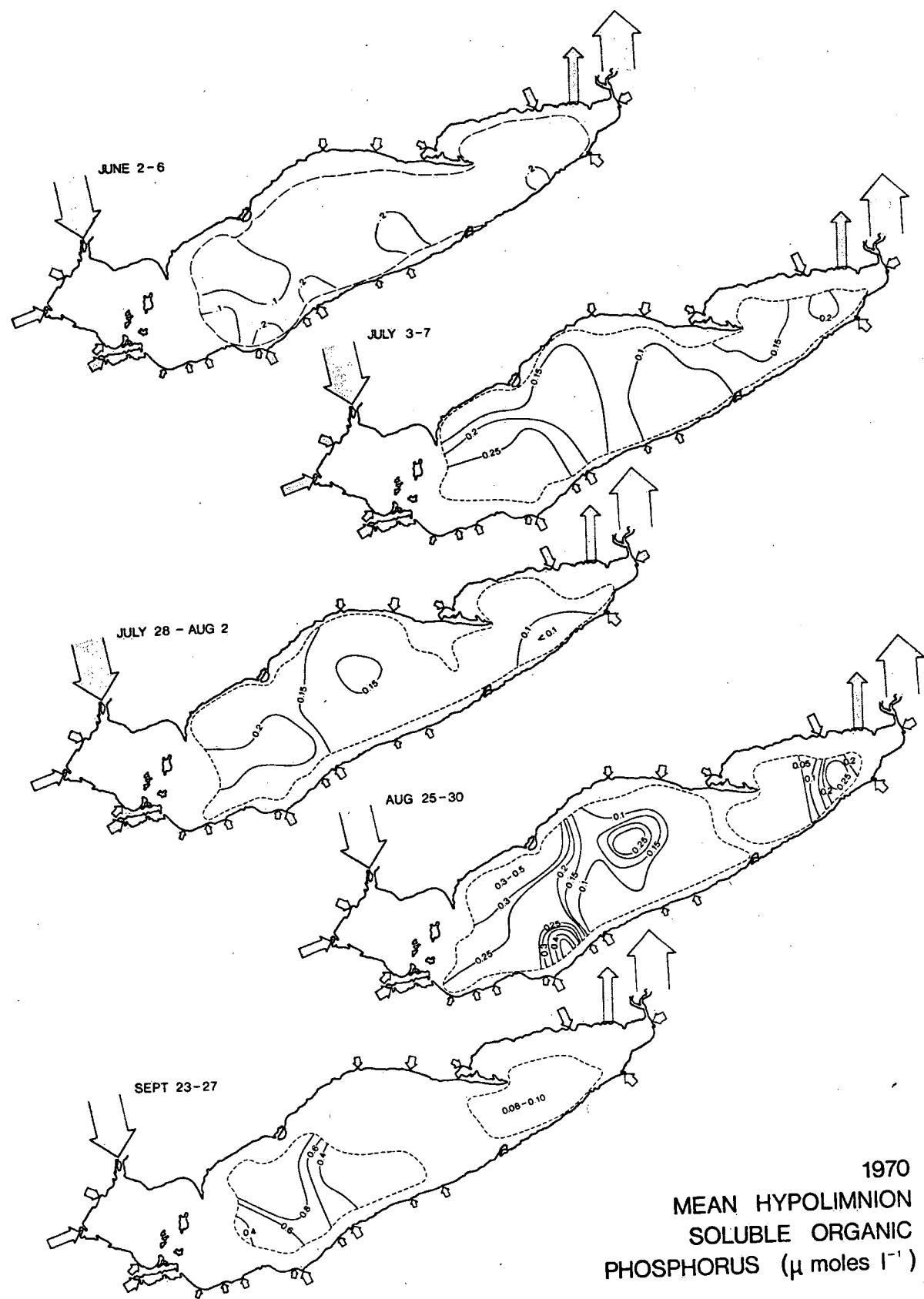




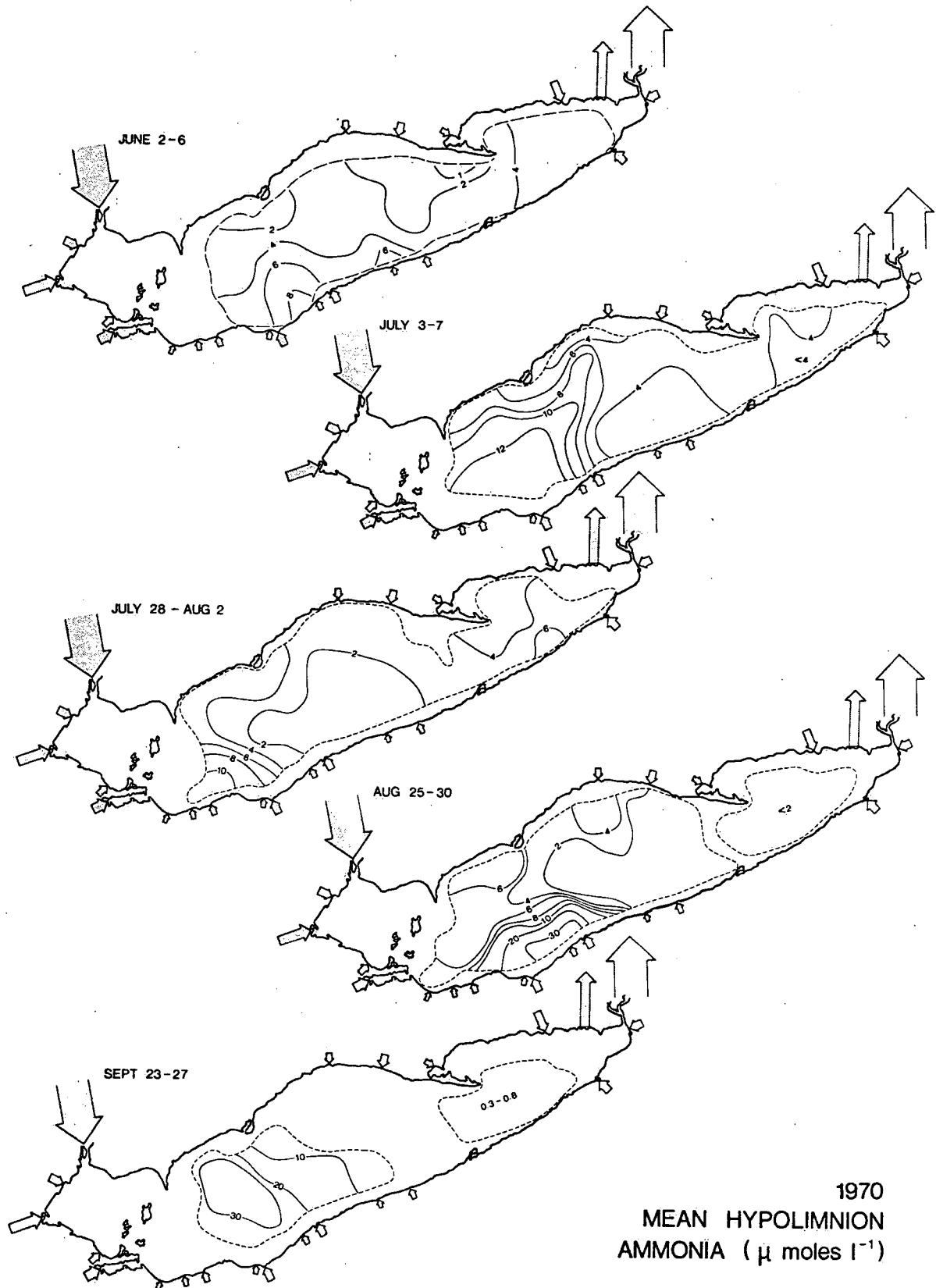


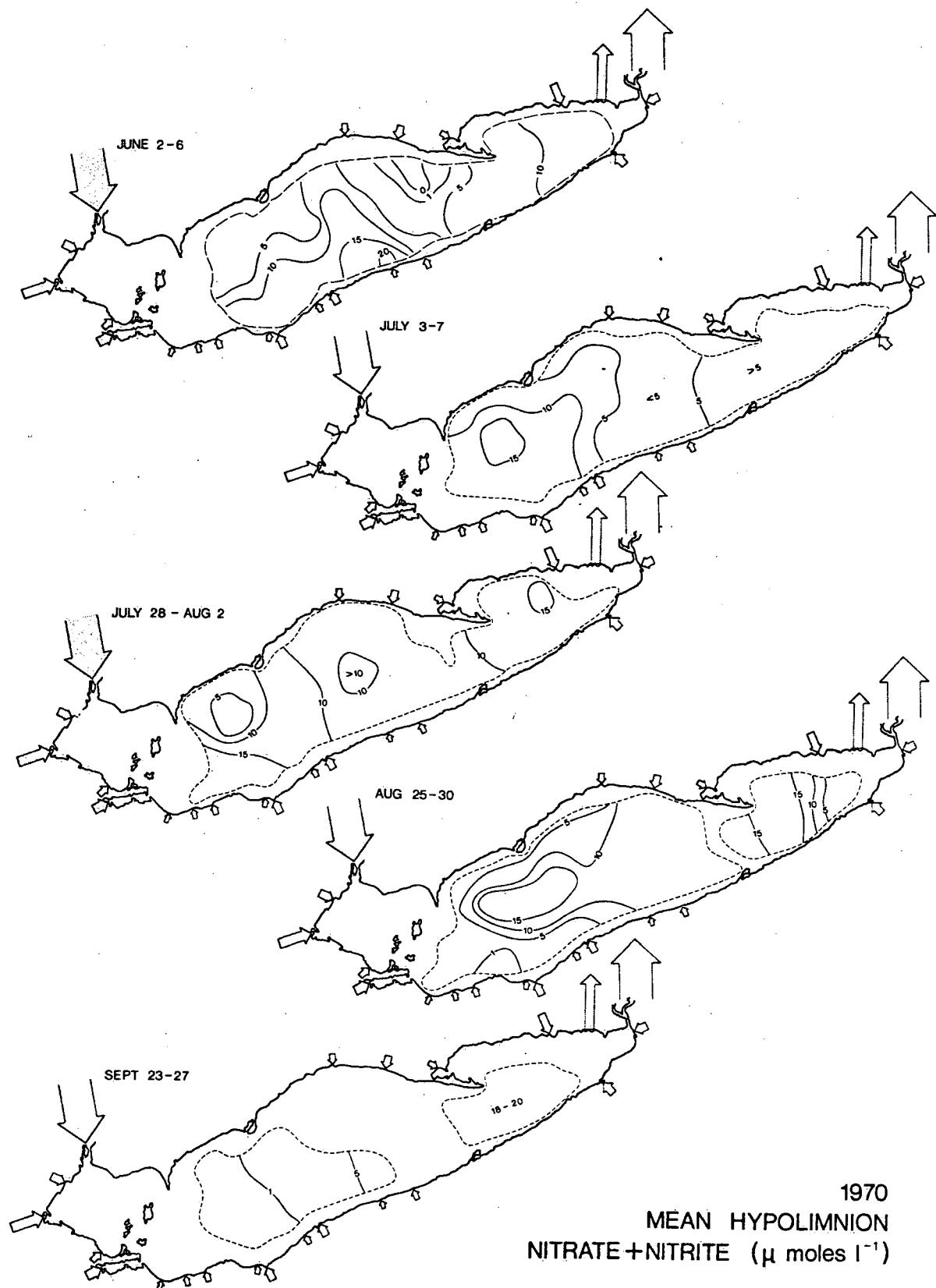


45h

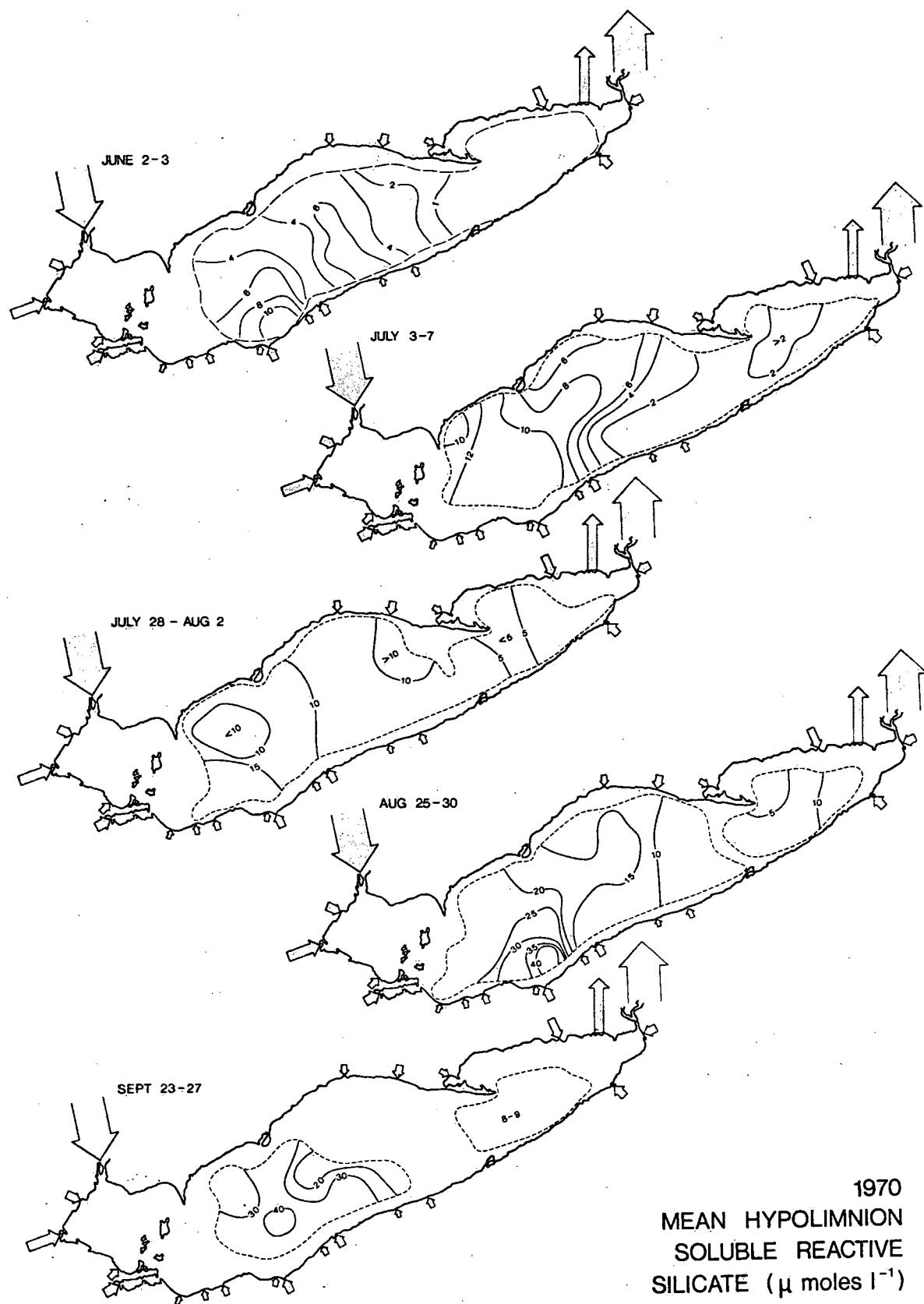


1970  
MEAN HYPOLIMNION  
SOLUBLE ORGANIC  
PHOSPHORUS ( $\mu$  moles  $l^{-1}$ )

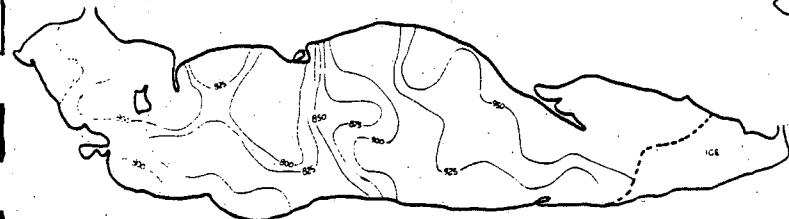




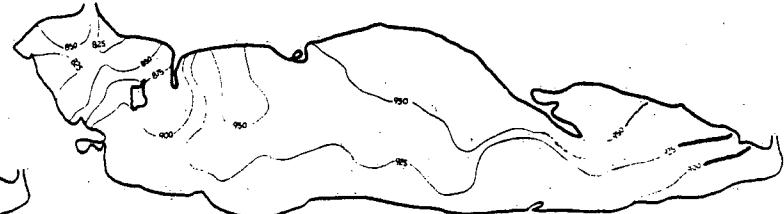
45 k



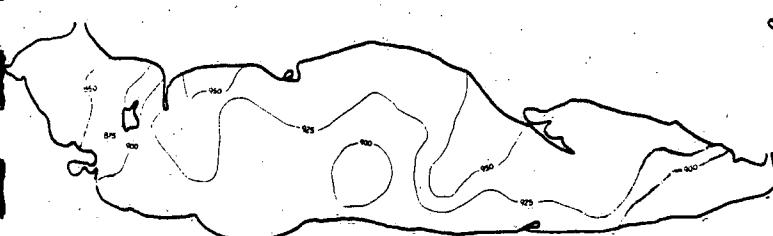
1970  
MEAN HYPOLMNION  
SOLUBLE REACTIVE  
SILICATE ( $\mu$  moles  $l^{-1}$ )



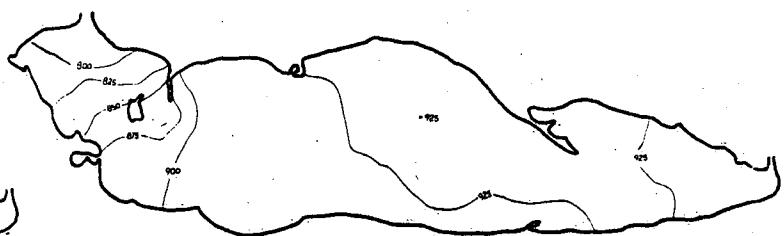
APRIL 7-11



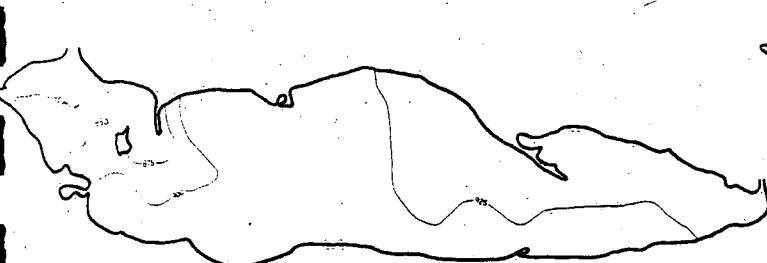
MAY 6-10



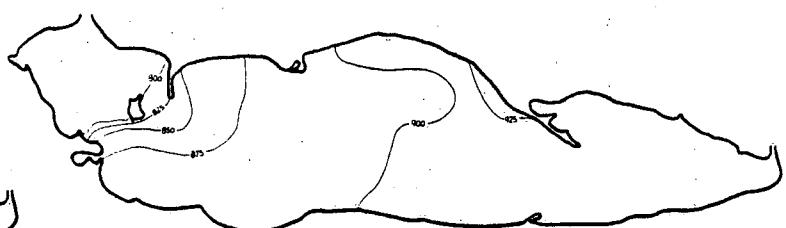
JUNE 2-6



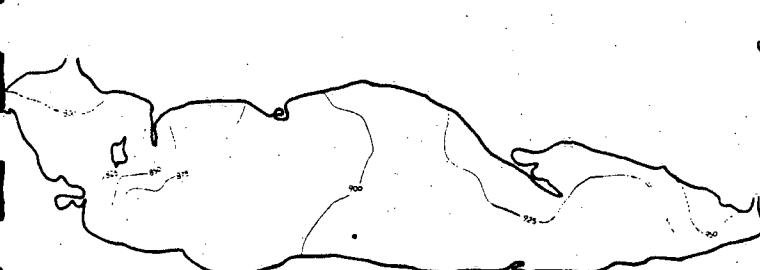
JULY 3 - 7



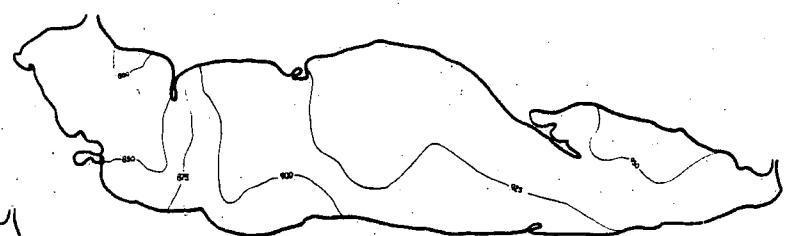
JULY 28 - AUG. 2



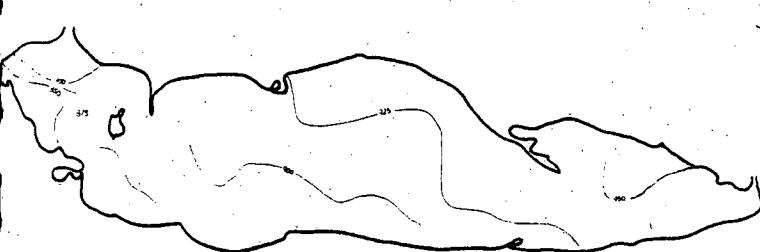
AUG. 25 - 30



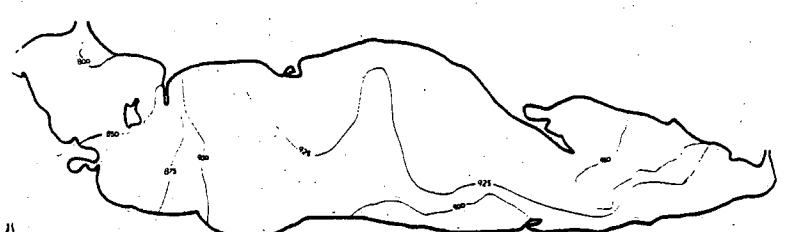
SEPT. 23 - 27



OCT. 21-26



NOV. 25 - 30



DEC. 14 - 18

1970

Fig. 26 MEAN EPILIMNION  
TOTAL FILTERED ALKALINITY ( $\mu$  moles  $l^{-1}$ )

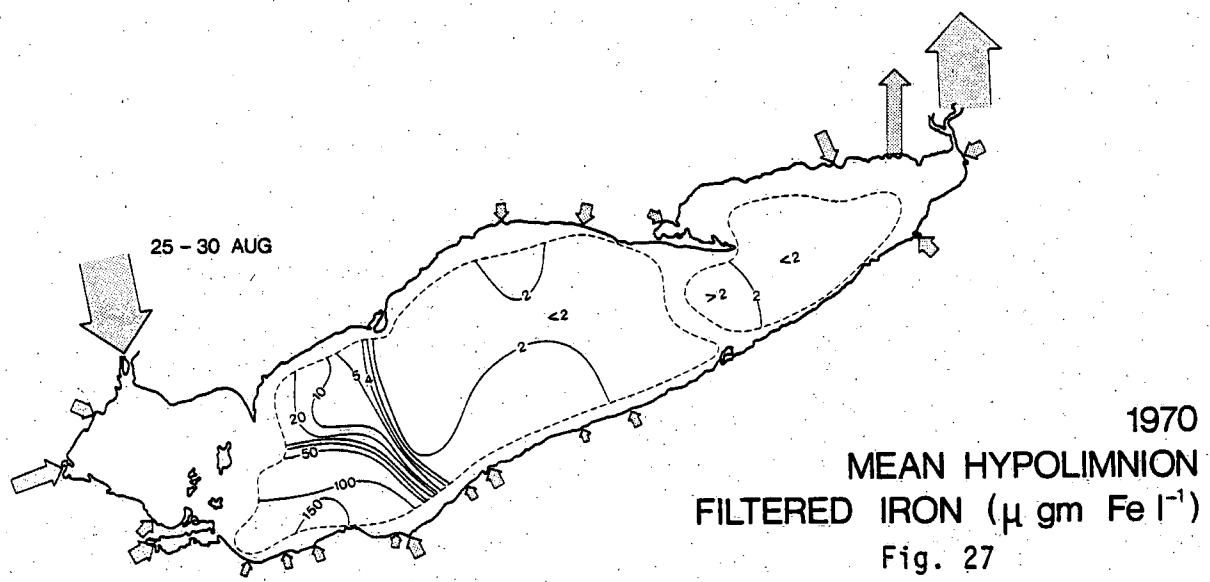
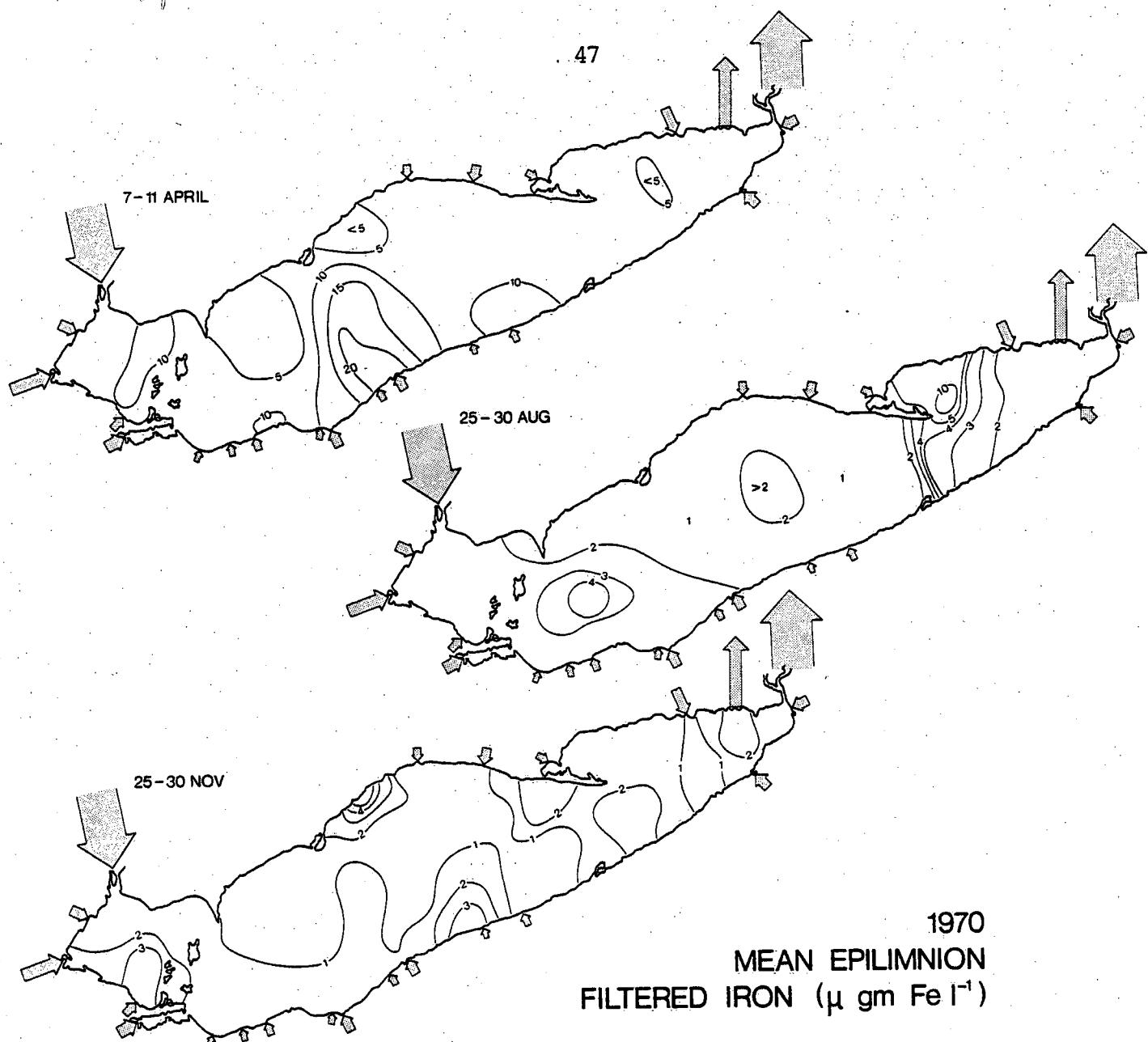
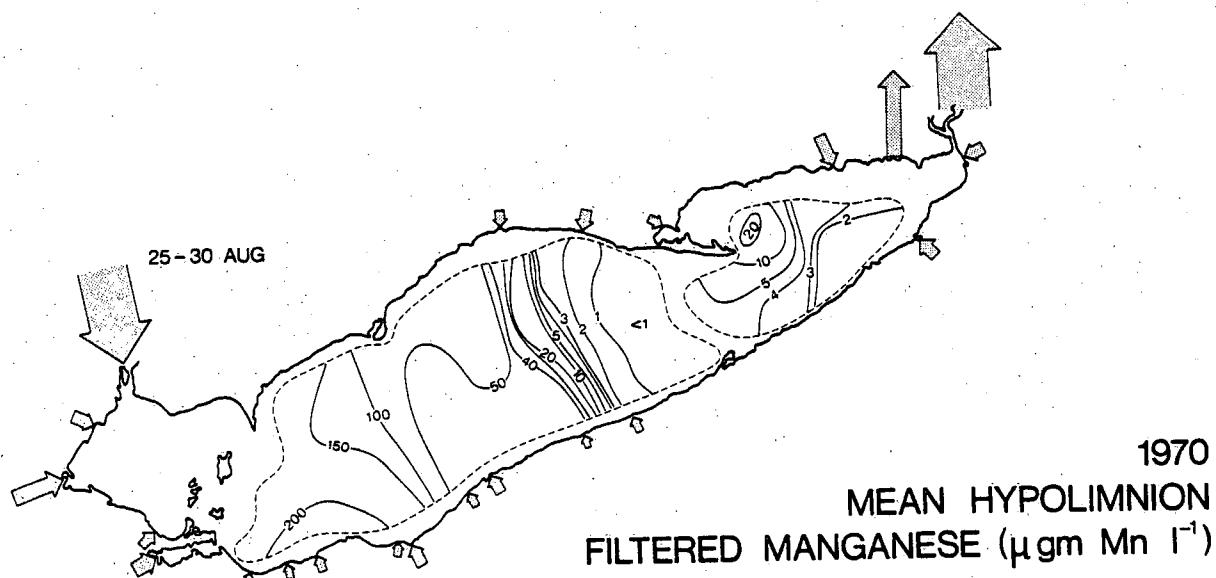
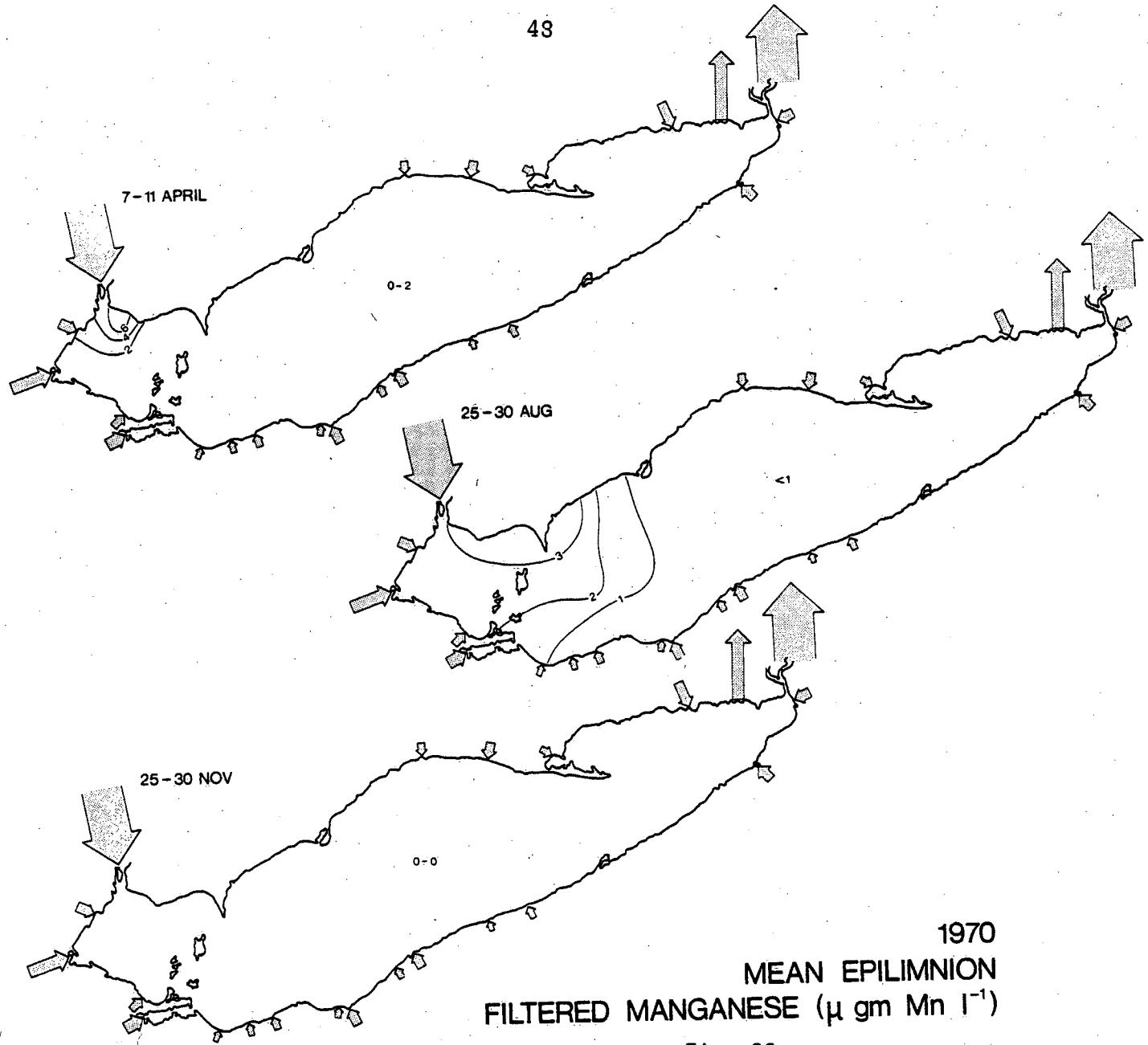
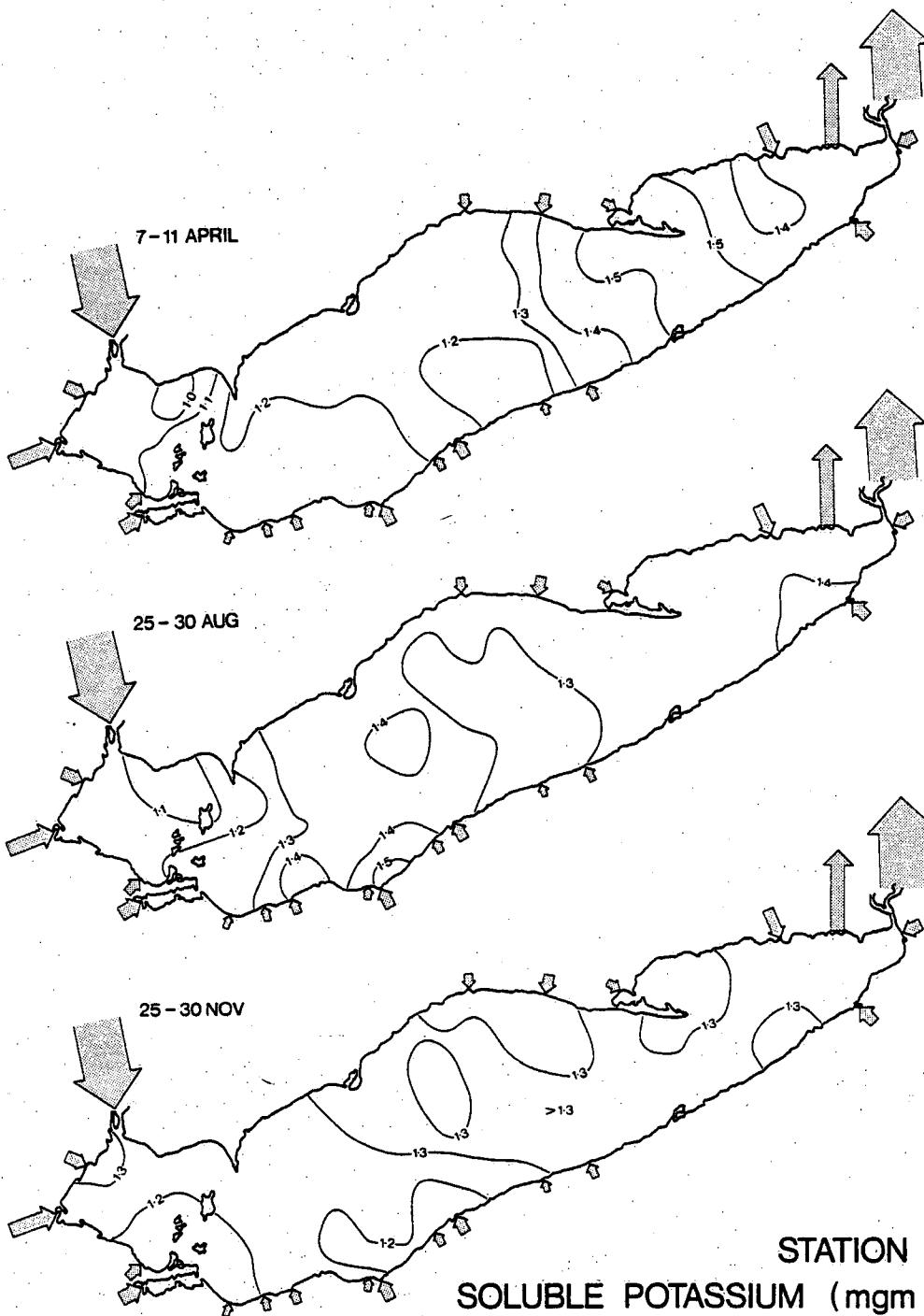


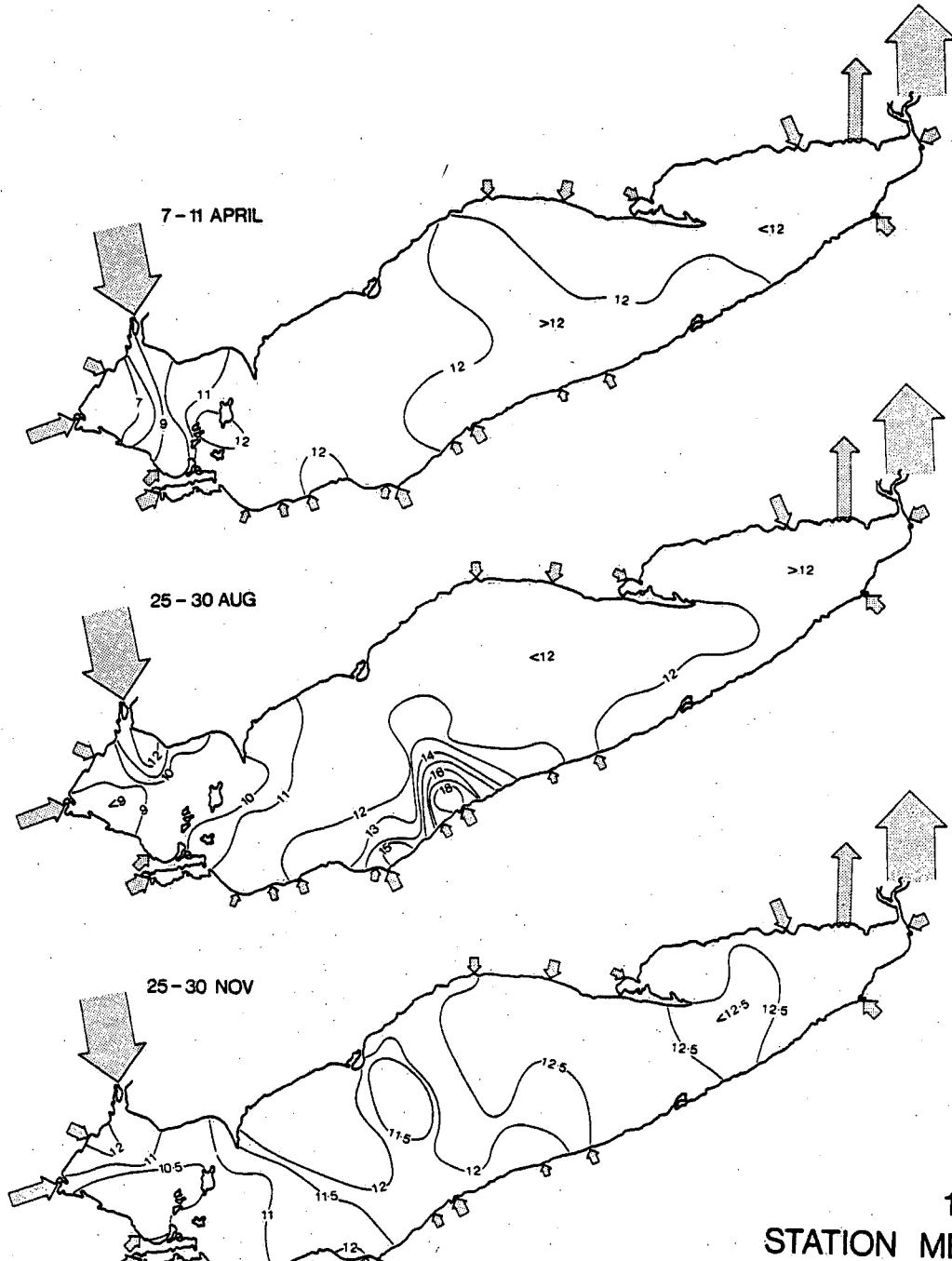
Fig. 27





1970  
STATION MEAN  
SOLUBLE POTASSIUM (mgm K<sup>-1</sup>)

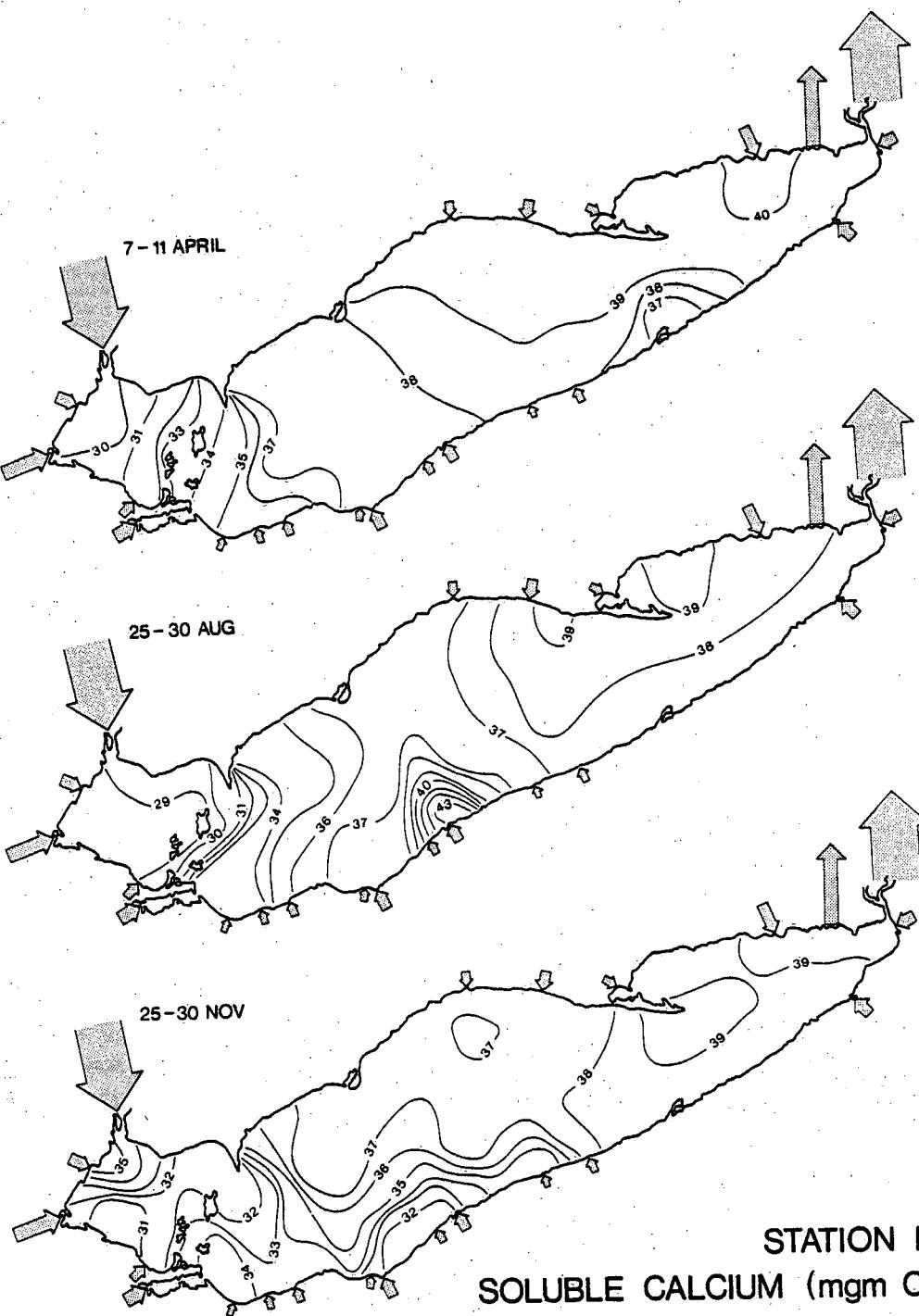
Fig. 29



1970  
STATION MEAN  
SOLUBLE SODIUM (mgm Na l<sup>-1</sup>)

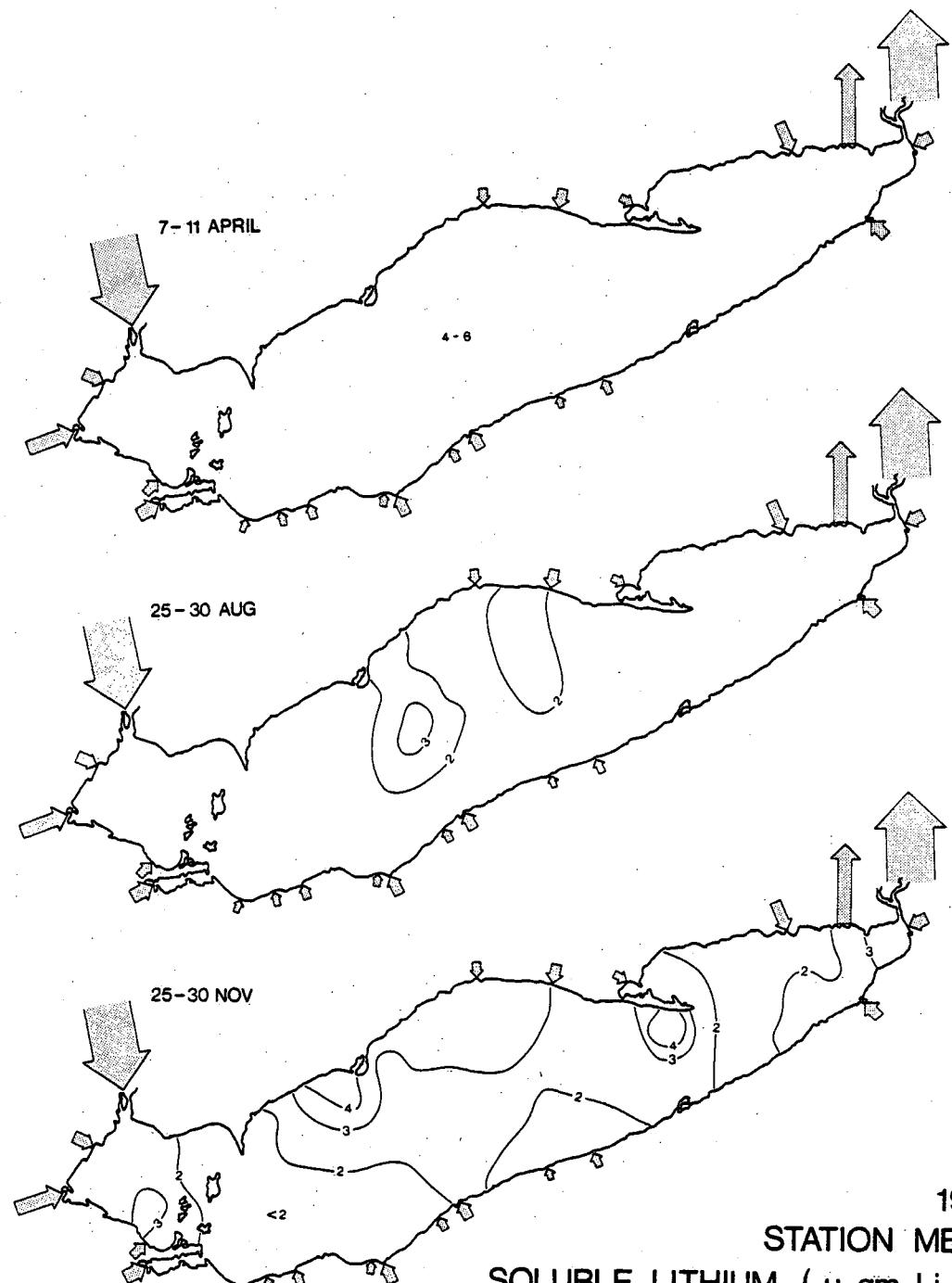
Fig. 30

50a



1970  
STATION MEAN  
SOLUBLE CALCIUM ( $\text{mgm Ca l}^{-1}$ )

Fig. 31



1970  
STATION MEAN  
SOLUBLE LITHIUM ( $\mu\text{gm Li l}^{-1}$ )

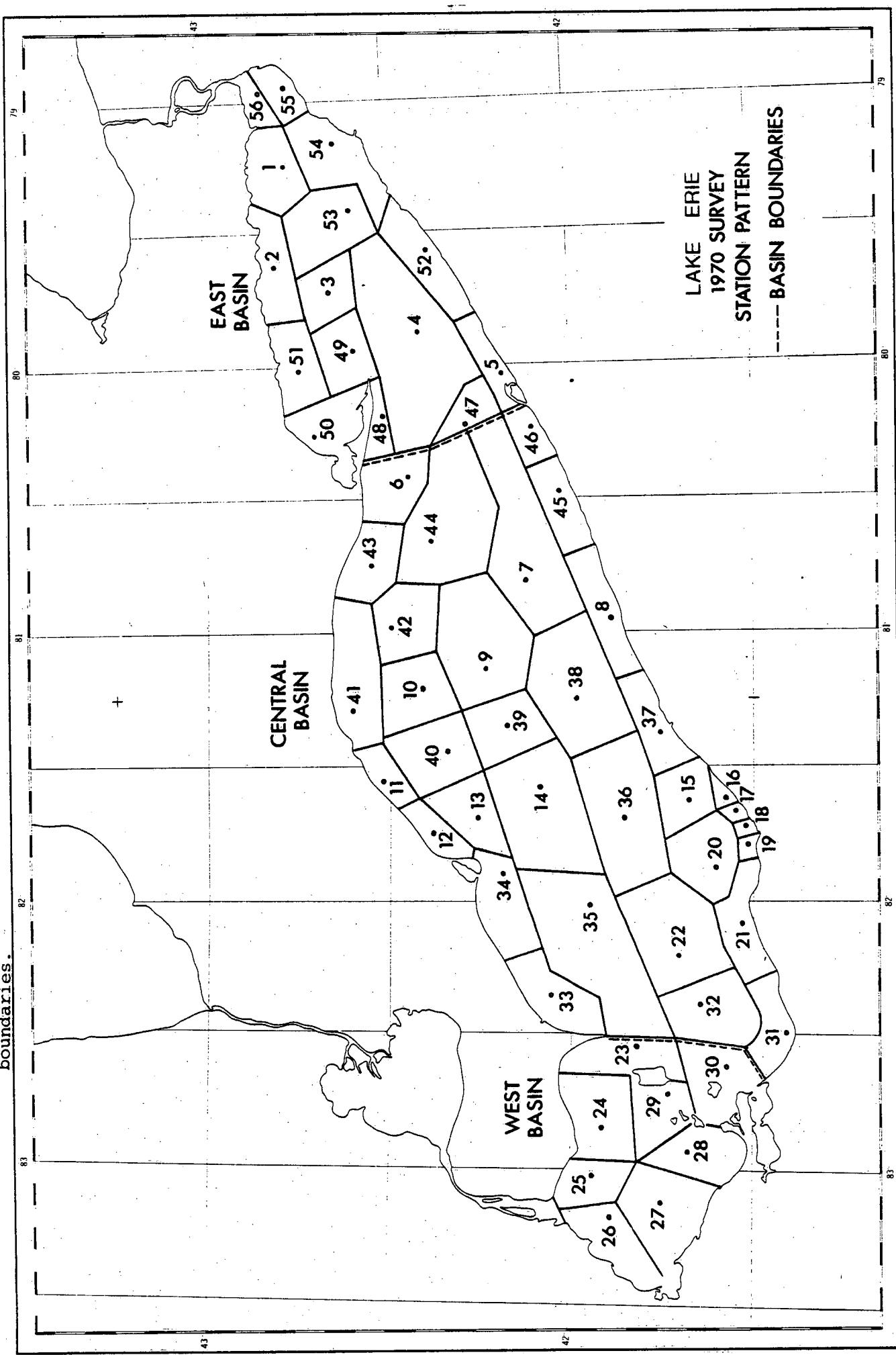
Fig. 32

Section 2: Quantities and mean concentrations of chemical variables observed in Lake Erie during 1970.

A description of the sampling methods used and a list of the variables measured during the 1970 M.V. Martin Karlsen ship surveys is given above in Section 1 and the sampling station pattern is shown in Fig. 1. Reasons are also given for the lake being considered as a single, vertically well-mixed layer, the epilimnion, during the unstratified period. During the stratified period, the lake appears to consist of two vertically well-mixed layers, the epilimnion and hypolimnion separated by a pycnocline layer, the mesolimnion, which is also a chemo-cline layer. The computational scheme used to calculate the depth-weighted mean station concentrations for each layer at each station is shown in Fig. 3.

Since higher concentrations of materials were often observed at the shallower shoreline stations than at the deeper offshore stations, the simple basin mean concentration for a species was significantly higher than the volume-weighted basin mean. Thus a volume-weighting scheme was used for the calculation of the quantity of a species in each basin. An area was assigned to each sampling station, as shown in Fig. #33 which took into account the area for which the station could be considered to be representative. The volume below that area was calculated for each thermal layer to obtain the volume weighting factor for each layer at each station. Epilimnion and hypolimnion basin quantities were obtained by carrying out the appropriate summations. These quantities are estimated to be correct

Fig. 31. Lake Erie water sampling stations showing area-weighting factors and basin boundaries.



- 2 -

to within 2.6% of the quantity computed. This is demonstrated below in Section 3 (Table 65).

The quantities of the various chemical components which have been computed as being present in the different water masses in Lake Erie and shown in Tables 5 to 16. These values have been utilized in computing lakewide budgets for chloride and total phosphorus; basin budgets for phosphorus; hypolimnion oxygen budgets and epilimnion budgets for total phosphorus, soluble reactive silica and soluble inorganic nitrogen. These budgets are shown in detail in the following sections (Sections 3-6).

TABLE 3              Units of the ionic concentration values calculated as station and volume-weighed mean concentrations for the individual stations during the 1970 Lake Erie Surveys.

Symbol	Variable	Units
LI	Soluble Lithium	$\mu\text{gm Li l}^{-1}$
NA	Soluble Sodium	$\text{mgm. Na l}^{-1}$
K	Soluble Potassium	$\text{mgm. K l}^{-1}$
S.CA	Soluble Calcium	$\text{mgm. Ca l}^{-1}$
F.FE	Filtered Iron	$\mu\text{gm. Fe l}^{-1}$
F.MN	Filtered Manganese	$\mu\text{gm. Mn l}^{-1}$
S.SO <sub>4</sub>	Soluble Sulphate	$\mu\text{moles l}^{-1}$

TABLE 4 UNITS OF THE VALUES CALCULATED FOR THE DEPTH-WEIGHTED  
 MEAN LAYER CONCENTRATIONS AT THE INDIVIDUAL STATIONS  
 DURING THE 1970 LAKE ERIE SURVEYS

Symbol	Variable	Unit
Temp	temperature	°C
DIO <sub>2</sub>	Dissolved Oxygen	mgm. O <sub>2</sub> l <sup>-1</sup>
SAO <sub>2</sub>	Saturation Oxygen	%
T.P.	Total Phosphorus	μ moles P l <sup>-1</sup>
TFP.	Total Filtered Phosphorus	μ moles P l <sup>-1</sup>
SRP.	Soluble Reactive Phosphorus	μ moles P l <sup>-1</sup>
P.P.	Particulate Phosphorus	μ moles P l <sup>-1</sup>
ORG P.	Organic Phosphorus (soluble)	μ moles P l <sup>-1</sup>
SIO <sub>2</sub>	Reactive Silicate	μ moles SiO <sub>2</sub> l <sup>-1</sup>
TFN	Total Filtered Nitrogen	μ moles N l <sup>-1</sup>
NH <sub>3</sub>	Ammonia	μ moles N l <sup>-1</sup>
ORG N	Organic Nitrogen	μ moles N l <sup>-1</sup>
F.CL	Filtered Chloride	μ moles Cl <sup>-</sup> l <sup>-1</sup>
TFALK	Total Filtered Alkalinity	μ moles CaCO <sub>3</sub> l <sup>-1</sup>
SPCN	Specific Conductance 25°C	μ MHOS.
TURB	Turbidity	TURB. units
PHSU	PH in situ	PH units

TABLE 5 ESTIMATED QUANTITIES OF WATER IN THE DIFFERENT LAYERS

LAKE ERIE 1970 (units - km<sup>3</sup>)

DATE	WESTERN BASIN	CENTRAL BASIN			EASTERN BASIN		
		EPI	MESO	HYPOTHETICAL	EPI	MESO	HYPOTHETICAL
April 7 - 11	28.2	274.4	-	-	166.4	-	-
May 6 - 11	28.2	274.4	-	-	166.4	-	-
June 2 - 6	28.2	229.0	19.5	25.9	50.8	32.0	83.5
July 3 - 7	28.2	213.8	19.9	40.8	90.9	21.2	54.2
July 28 - Aug 2	28.2	220.4	23.6	30.5	89.5	42.2	34.6
August 25 - 30	28.2	222.0	20.0	32.5	98.9	30.7	36.8
September 23 - 27	28.2	260.0	7.6	6.9	131.6	6.2	28.5
October 21 - 26	28.2	274.4	-	-	149.6	6.1	10.6
November 25 - 30	28.2	274.4	-	-	166.3	-	-
December 14 - 18	28.2	274.4	-	-	166.3	-	-

TABLE 6 ESTIMATED QUANTITIES OF HEAT IN KCAL X 10<sup>15</sup>

## LAKE ERIE 1970

DATE	WESTERN BASIN	CENTRAL BASIN			EASTERN BASIN			TOTAL LAKE
		EPI	MESO	HYPOT	EPI	MESO	HYPOT	
April 7 - 11	0.112	0.453	-	-	0.453	0.068	-	0.068
May 6 - 11	0.345	1.822	-	-	1.822	0.639	-	0.639
June 2 - 6	0.468	3.078	0.202	0.193	3.473	0.663	0.343	1.469
July 3 - 7	0.609	4.141	0.302	0.359	4.802	1.554	0.237	0.309
July 28 - Aug 2	0.670	4.866	0.407	0.316	5.589	1.774	0.370	0.202
August 25 - 30	0.668	5.168	0.375	0.377	5.920	2.101	0.436	0.251
September 23 - 27	0.580	5.356	0.142	0.087	5.585	2.550	0.082	0.164
October 21 - 26	0.384	4.132	-	-	4.132	2.193	0.061	0.066
November 25 - 30	0.116	2.066	-	-	2.066	1.320	-	1.320
December 14 - 18	0.049	1.372	-	-	1.372	0.986	-	0.986

TABLE 7 ESTIMATED QUANTITIES OF DIS. O<sub>2</sub> IN METRIC TONS X 10<sup>6</sup>

LAKE ERIE 1970

DATE	WESTERN BASIN	CENTRAL BASIN			EASTERN BASIN			TOTAL LAKE		
		EPI	MESO	HYP0	TOTAL	EPI	MESO	HYP0		
April 7 - 11	0.368	3.806	-	-	3.806	2.231	-	-	2.231	6.405
May 6 - 11	0.350	3.573	-	-	3.573	2.240	-	-	2.240	6.163
June 2 - 6	0.262	2.462	0.208	0.249	2.919	0.619	0.419	1.073	2.111	5.292
July 3 - 7	0.252	1.984	0.167	0.266	2.417	0.866	0.225	0.584	1.675	4.345
July 28 - Aug 2	0.261	2.052	0.177	0.122	2.351	0.840	0.357	0.337	1.534	4.146
August 25 - 30	0.253	1.918	0.117	0.039	2.074	0.823	0.249	0.310	1.382	3.709
September 23 - 27	0.234	2.330	0.052	0.0	2.382	1.169	0.050	0.216	1.435	4.051
October 21 - 26	0.286	2.670	-	-	2.670	1.430	0.056	0.096	1.582	4.538
November 25 - 30	0.348	3.076	-	-	3.076	1.838	-	-	1.838	5.262
December 14 - 18	0.378	3.353	-	-	3.353	1.962	-	-	1.962	5.693

TABLE 8 ESTIMATED QUANTITIES OF T. PHOSPHORUS IN METRIC TONS  $\times 10^3$   
 LAKE ERIE 1970

DATE	WESTERN BASIN	CENTRAL BASIN			EASTERN BASIN			TOTAL LAKE		
		EPI	MESO	HYP0	TOTAL	EPI	MESO	HYP0		
April 7-11	1.678	4.611	-	-	4.611	5.143	-	-	5.143	11.43
May 6-11	0.941	5.852	-	-	5.852	2.770	-	-	2.770	9.563
June 2-6	1.048	4.714	0.351	0.463	5.528	1.296	0.658	1.142	3.096	9.672
July 3-7	1.068	3.188	0.270	0.726	4.184	1.344	0.279	0.729	2.352	7.604
July 28 - August 2	0.891	2.542	0.271	0.357	3.170	1.243	0.455	0.430	2.128	5.59
August 25-30	1.352	2.560	0.306	0.844	3.710	0.923	0.232	0.308	1.463	6.189
September 23-27	1.199	4.151	0.321	0.761	5.233	1.452	0.061	0.348	1.861	8.293
October 21-26	1.218	5.351	-	-	5.351	1.999	0.067	0.126	2.192	8.761
November 25-30	1.691	8.719	-	-	8.719	3.784	-	-	3.784	14.19
December 14-18	1.422	9.876	-	-	9.876	4.279	-	-	4.279	15.48

TABLE 9 ESTIMATED QUANTITIES OF P.P. IN METRIC TONS  $\times 10^3$   
 LAKE ERIE 1970

DATE	WESTERN BASIN	CENTRAL BASIN			EASTERN BASIN			TOTAL LAKE		
		EPI	MESO	HYP0	TOTAL	EPI	MESO	HYP0		
April 7 - 11	1.063	2.722	-	-	2.722	2.249	-	-	2.249	6.034
May 6 - 11	0.708	3.905	-	-	3.905	1.754	-	-	1.754	6.367
June 2 - 6	0.609	3.258	0.234	0.303	3.795	0.935	0.431	0.570	1.935	6.339
July 3 - 7	0.738	1.710	0.146	0.390	2.246	0.620	0.113	0.247	0.9800	3.964
July 28 - Aug 2	0.602	1.367	0.150	0.164	1.681	0.752	0.181	0.163	1.095	3.378
August 25 - 30	0.884	1.714	0.179	0.397	2.290	0.625	0.127	0.130	0.882	4.056
September 23 - 27	0.741	2.644	0.119	0.187	2.950	0.816	0.024	0.140	0.979	4.670
October 21 - 26	0.806	3.088	-	-	3.088	0.858	0.022	0.045	0.925	4.819
November 25 - 30	1.102	5.163	-	-	5.163	2.005	-	-	2.005	8.270
December 14 - 18	0.949	6.193	-	-	6.193	2.485	-	-	2.485	9.627

TABLE 10 ESTIMATED QUANTITIES OF T.F.P. IN METRIC TONS  $\times 10^2$   
LAKE ERIE 1970

DATE	WESTERN BASIN	CENTRAL BASIN			EASTERN BASIN			TOTAL LAKE		
		EPI	MESO	HYPOTHETICAL	EPI	MESO	HYPOTHETICAL			
April 1 7-11	6.146	18.204	-	-	18.204	-	-	14.805	39.16	
May 6-11	2.325	19.480	-	-	19.480	10.059	-	10.059	31.86	
June 2-6	4.397	14.624	1.161	1.614	17.399	3.654	2.361	5.979	11.994	33.79
July 3-7	3.313	14.581	1.240	3.352	19.173	7.214	1.650	4.957	13.821	36.31
July 28-August 2	2.964	11.820	1.200	1.853	14.873	4.217	2.747	2.651	9.615	27.45
August 25-30	4.686	8.465	1.228	4.050	13.743	3.250	1.066	1.791	6.107	24.54
September 23-27	4.581	14.669	1.937	4.417	21.023	6.038	0.373	2.094	8.505	34.11
October 21-26	4.109	23.137	-	-	23.137	11.362	0.452	0.845	12.659	39.91
November 25-30	5.875	35.472	-	-	35.472	17.734	-	-	17.734	59.08
December 14-18	4.738	36.833	-	-	36.833	17.940	-	-	17.940	59.51

TABLE 11 ESTIMATED QUANTITIES OF S.R.P. IN METRIC TONS  $\times 10^2$ 

LAKE ERIE 1970

DATE	WESTERN BASIN	CENTRAL BASIN			EASTERN BASIN			TOTAL LAKE		
		EPI	MESO	HYP0	TOTAL	EPI	MESO	HYP0	TOTAL	
April 1 7-11	4.537	6.550	-	-	6.550	6.293	-	-	6.293	17.38
May 6-11	0.743	4.423	-	-	4.423	4.385	-	-	4.385	9.551
June 2-6	2.929	4.401	0.333	0.594	5.328	0.709	0.476	1.087	2.272	10.529
July 3-7	1.443	4.242	0.383	1.429	6.054	2.085	0.585	2.470	5.140	12.64
July 28 - August 2	0.813	1.913	0.176	0.389	2.478	1.054	1.269	1.545	3.868	7.159
August 25-30	0.236	2.409	0.719	2.811	5.939	0.828	0.409	1.004	2.241	8.416
September 23-27	1.949	4.433	1.067	4.073	9.573	2.121	0.211	1.555	3.887	15.41
October 21-26	2.264	10.633	-	-	10.633	6.075	0.259	0.631	6.965	19.86
November 25-30	3.523	19.225	-	-	19.225	9.950	-	-	9.950	32.70
December 14-18	2.439	16.077	-	-	16.077	11.651	-	-	11.651	30.17

TABLE 12 ESTIMATED QUANTITIES OF ORG.P. IN METRIC TONS  $\times 10^2$ 

## LAKE ERIE 1970

DATE	WESTERN BASIN	CENTRAL BASIN			EASTERN BASIN			TOTAL LAKE
		EPI	MESO	HYP0	TOTAL	EPI	MESO	
April 7 - 11	1.705	11.739	-	-	11.739	8.615	-	8.615 22.06
May 6 - 11	1.582	15.056	-	-	15.056	5.726	-	5.726 22.36
June 2 - 6	1.460	10.223	0.822	1.092	12.137	2.945	1.835	4.478 9.258 22.86
July 3 - 7	1.862	10.339	0.876	1.935	13.150	5.157	1.071	2.588 8.816 23.83
July 28 - Aug 2	2.011	9.634	1.017	1.390	12.041	3.218	1.439	1.137 5.794 19.85 63
August 25 - 30	2.194	5.919	0.620	1.582	8.121	2.391	0.657	0.764 3.812 14.13
September 23 - 27	2.631	10.559	0.530	1.129	12.218	4.324	0.161	0.539 5.024 19.87
October 21 - 26	1.853	12.164	-	-	12.164	5.286	0.193	.214 5.693 19.71
November 25 - 30	2.352	16.502	-	-	16.502	8.145	-	- 8.145 27.00
December 14 - 18	2.299	20.671	-	-	20.671	6.341	-	- 6.341 29.31

TABLE 13 ESTIMATED QUANTITIES OF  $\text{NO}_3 + \text{NO}_2$  IN METRIC TONS  $\times 10^4$

LAKE ERIE 1970

DATE	WESTERN BASIN	CENTRAL BASIN			EASTERN BASIN			TOTAL LAKE
		EPI	MESO	HYP0	TOTAL	EPI	MESO	
April 7 - 11	1.3028	3.5957	-	-	3.5957	2.5626	-	2.5626
May 6 - 11	1.3103	2.9657	-	-	2.9657	2.8631	-	2.8631
June 2 - 6	0.7063	1.9364	0.1452	0.3042	2.3858	0.7318	0.3069	1.0965
July 3 - 7	0.3447	1.6762	0.1042	0.4604	2.2408	0.5663	0.1339	0.6283
July 28 - Aug 2	0.1990	0.5215	0.1404	0.3877	1.0496	0.5112	0.6304	0.5958
August 25 - 30	0.1496	0.2953	0.1554	0.4600	0.9107	0.3738	0.4143	0.7285
September 23 - 27	0.2768	0.4914	0.0130	0.0	0.5044	0.1879	0.0781	0.6899
October 21 - 26	0.4205	1.4867	-	-	1.4867	0.9341	0.1050	0.2158
November 25 - 30	0.6218	2.8274	-	-	2.8274	1.8882	-	1.8882
December 14 - 18	0.6877	3.7110	-	-	3.7110	2.5098	-	2.5098

TABLE 14 ESTIMATED QUANTITIES OF AMMONIA IN METRIC TONS  $\times 10^3$

LAKE ERIE 1970

DATE	WESTERN BASIN	CENTRAL BASIN			EASTERN BASIN			TOTAL LAKE		
		EPI	MESO	HYPOT	TOTAL	EPI	MESO	HYPOT		
April 7 - 11	2.184	7.626	-	-	7.626	3.483	-	-	3.483	13.293
May 6 - 11	0.876	6.016	-	-	6.016	4.969	-	-	4.969	11.861
June 2 - 6	1.464	6.601	0.691	1.316	8.608	3.006	2.166	5.206	10.378	20.450
July 3 - 7	1.248	5.133	0.751	3.546	6.238	3.058	0.855	2.898	6.811	14.297
July 28 - Aug 2	1.267	5.425	0.750	1.409	7.584	2.214	2.553	1.832	6.599	15.450
August 25 - 30	1.741	3.894	0.878	2.652	7.424	1.912	0.580	0.561	3.053	12.218
September 23 - 27	1.580	2.810	0.626	2.202	5.638	1.485	0.066	0.141	1.692	8.910
October 21 - 26	1.072	5.021	-	-	5.021	3.827	-	-	3.827	9.920
November 25 - 30	1.505	5.048	-	-	5.048	2.922	-	-	2.922	9.475
December 14 - 18	1.718	4.848	-	-	4.848	1.756	-	-	1.756	8.322

TABLE 15 ESTIMATED QUANTITIES OF R.SiO<sub>2</sub> IN METRIC TONS  $\times 10^3$

LAKE ERIE 1970

DATE	WESTERN BASIN	CENTRAL BASIN			EASTERN BASIN			TOTAL LAKE		
		EPI	MESO	HYP0	TOTAL	EPI	MESO	HYP0		
April 7 - 11	18.409	7.573	-	-	7.573	7.688	-	-	7.688	33.670
May 6 - 11	0.931	7.573	-	-	7.573	3.395	-	-	3.395	11.899
June 2 - 6	6.633	19.648	2.785	6.325	28.758	2.103	.5568	2.455	5.115	40.506
July 3 - 7	18.798	29.761	3.642	15.765	49.168	7.908	1.183	7.350	16.441	84.407
July 28 - Aug 2	26.226	38.879	6.556	16.799	62.234	16.379	11.900	9.840	38.119	126.579
August 25 - 30	12.572	48.218	11.148	32.195	91.561	22.312	9.118	13.358	44.788	148.921
September 23 - 27	19.153	33.540	3.795	11.696	49.031	24.162	1.908	12.740	38.810	106.994
October 21 - 26	10.778	24.037	-	-	24.037	33.370	2.288	5.597	41.255	76.070
November 25 - 30	14.670	64.539	-	-	64.539	51.886	-	-	51.886	131.095
December 14 - 18	30.016	87.423	-	-	87.423	46.597	-	-	46.597	164.036

TABLE 16. ESTIMATED QUANTITIES OF C1<sup>-</sup> IN METRIC TONS  $\times 10^5$ 

LAKE ERIE 1970

DATE	WESTERN BASIN	CENTRAL BASIN			EASTERN BASIN			TOTAL, LAKE		
		EPI	MESO	HYP0	TOTAL	EPI	MESO	HYP0	TOTAL	
April 7-11	5.556	64.604	-	-	64.604	42.047	-	-	42.047	112.207
May 6-11										
June 2-6	5.585	56.679	4.773	6.435	67.887	12.914	7.469	20.809	41.192	114.664
July 3-7	4.939	51.695	4.805	9.974	65.754	22.815	5.186	13.292	41.293	111.986
July 28 - August 2	5.133	52.266	5.484	7.309	65.059	22.387	10.575	8.555	41.517	111.709
August 25-30	5.256	53.709	5.038	8.253	67.000	24.819	7.665	9.155	41.639	113.895
September 23-27	5.067	62.397	1.780	1.637	65.793	33.090	1.530	7.035	41.655	112.515
October 21-26	5.189	63.659	-	-	63.659	42.654	-	-	42.654	111.502
November 25-30	4.852	64.048	-	-	64.048	42.489	-	-	42.489	111.389
December 14-18	4.816	65.510	-	-	65.510	42.689	-	-	42.689	113.015

TABLE 17 VOLUME WEIGHED MEANS FOR TEMP. IN °C OF THE STRATIFIED LAYERS  
OF LAKE ERIE 1970

DATE	WESTERN BASIN			CENTRAL BASIN			EASTERN BASIN		
	EPI	MESO	HYPOTHETICAL	EPI	MESO	HYPOTHETICAL	EPI	MESO	HYPOTHETICAL
April 7 - 11	3.96	1.65	-	-	-	0.41	-	-	-
May 6 - 10	12.23	6.64	-	-	-	3.84	-	-	-
June 2 - 6	16.61	13.44	10.37	7.45	-	13.05	10.72	5.55	68
July 3 - 7	21.60	19.37	15.17	8.80	-	17.09	11.18	5.71	
July 28 - Aug 2	23.75	22.08	17.26	10.37	-	19.82	8.77	5.83	
August 25 - 30	23.70	23.28	18.74	11.61	-	21.24	14.19	6.81	
September 23 - 27	20.56	20.60	18.62	12.65	-	19.38	13.17	5.75	
October 21 - 26	13.62	15.06	-	-	-	14.66	9.94	6.21	
November 25 - 30	4.12	7.53	-	-	-	7.94	-	-	
December 14 - 18	1.74	5.00	-	-	-	5.93	-	-	

TABLE 18 VOLUME WEIGHED MEANS FOR DIS.  $O_2$  IN mg/l OF THE STRATIFIED LAYERS  
OF LAKE ERIE 1970

DATE	WESTERN BASIN	CENTRAL BASIN			EASTERN BASIN		
		EPI	MESO	HYP0	EPI	MESO	HYP0
April 7 - 11	13.03	13.87	-	-	13.41	-	-
May 6 - 10	12.42	13.02	-	-	13.46	-	-
June 2 - 6	9.30	10.75	10.67	9.60	12.18	13.09	12.85
July 3 - 7	8.93	9.28	8.40	6.53	9.53	10.61	10.77
July 28 - Aug 2	9.26	9.31	7.50	4.01	9.38	8.47	9.74
August 25 - 30	8.96	8.64	5.83	1.20	8.32	8.15	8.41
September 23 - 27	8.28	8.96	6.83	0.0	8.88	7.98	7.58
October 21 - 26	10.13	9.73	-	-	9.56	9.20	9.04
November 25 - 30	12.35	11.21	-	-	11.05	-	-
December 14 - 18	13.40	12.22	-	-	11.80	-	-

TABLE 19 VOLUME WEIGHED MEANS FOR T.P. IN  $\mu$  MOLES/l OF THE STRATIFIED LAYERS  
IN LAKE ERIE 1970

DATE	WESTERN BASIN	CENTRAL BASIN			EASTERN BASIN		
		EPI	MESO	HYP0	EPI	MESO	HYP0
April 7 - 11	1.919	0.542	-	-	0.997	-	-
May 6 - 10	1.076	0.688	-	-	0.537	-	-
June 2 - 6	1.199	0.664	0.580	0.576	0.823	0.663	0.439
July 3 - 7	1.222	0.481	0.437	0.574	0.477	0.424	0.434
July 28 - Aug 2	1.109	0.372	0.370	0.377	0.448	0.348	0.401
August 25 - 30	1.547	0.372	0.493	0.838	0.301	0.244	0.270
September 23 - 27	1.372	0.515	1.360	3.558	0.356	0.318	0.394
October 21 - 26	1.393	0.629	-	-	0.431	0.354	0.384
November 25 - 30	1.934	1.025	-	-	.734	-	-
December 14 - 18	1.627	1.161	-	-	0.830	-	-

TABLE 20 VOLUME WEIGHED MEANS FOR P.P. IN  $\mu\text{m}^3/\ell$  OF THE STRATIFIED LAYERS  
OF LAKE ERIE 1970

DATE	WESTERN BASIN	CENTRAL BASIN			EASTERN BASIN		
		EPI	MESO	HYPOTHALAMIC	EPI	MESO	HYPOTHALAMIC
April 7 - 11	1.216	.320	-	-	.436	-	-
May 6 - 10	0.810	.459	-	-	.340	-	-
June 2 - 6	0.697	.459	.387	.377	.594	.434	.220
July 3 - 7	0.844	.258	.237	.308	.220	.172	.147
July 28 - Aug 2	0.689	.200	.205	.173	.271	.138	.152
August 25 - 30	1.011	.249	.289	.394	.204	.133	.114
September 23 - 27	.847	.328	.504	.875	.200	.124	.158
October 21 - 26	.922	.363	-	-	.185	.114	.137
November 25 - 30	1.261	.607	-	-	.389	-	-
December 14 - 18	1.086	.728	-	-	.482	-	-

TABLE 21 VOLUME WEIGHED MEANS FOR T.F.P. IN  $\mu\text{m}/\ell$  OF THE STRATIFIED LAYERS OF  
LAKE ERIE 1970

DATE	WESTERN BASIN	CENTRAL BASIN			EASTERN BASIN		
		EPI	MESO	HYPOL	EPI	MESO	HYPOL
April 7 - 11	0.703	0.214	-	-	0.287	-	-
May 6 - 10	0.266	0.229	-	-	0.195	-	-
June 2 - 6	0.503	0.206	0.192	0.210	0.232	0.238	0.231
July 3 - 7	0.379	0.220	0.201	0.265	0.256	0.251	0.295
July 28 - Aug 2	.339	0.173	0.164	0.196	0.152	0.210	0.250
August 25 - 30	.536	0.123	0.198	0.402	0.106	0.112	0.157
September 23 - 27	.524	0.182	0.822	2.065	0.148	0.194	0.237
October 21 - 26	.470	.272	-	-	0.245	0.239	0.257
November 25 - 30	.672	.417	-	-	.344	-	-
December 14 - 18	.542	.433	-	-	.348	-	-

TABLE 22 VOLUME WEIGHED MEANS FOR S.R.P IN  $\mu\text{m}/\ell$  OF THE STRATIFIED LAYERS  
OF LAKE ERIE 1970

DATE	WESTERN BASIN	CENTRAL BASIN			EASTERN BASIN		
		EPI	MESO	HYP0	EPI	MESO	HYP0
April 7 - 11	.519	.077	-	-	.122	-	-
May 6 - 10	.085	.052	-	-	.085	-	-
June 2 - 6	.335	.062	.055	.074	.045	.048	.042
July 3 - 7	.165	.064	.062	.113	.074	.089	.147
July 28 - Aug 2	.093	.028	.024	.041	.038	.097	.144
August 25 - 30	.027	.035	.116	.279	.027	.043	.088
September 23 - 27	.223	.055	.453	1.904	.052	.110	.176
October 21 - 26	.259	.125	-	-	.131	.137	.192
November 25 - 30	.403	.226	-	-	.193	-	-
December 14 - 18	.279	.189	-	-	.226	-	-

TABLE 23 VOLUME WEIGHTED MEANS FOR ORG. P IN  $\mu\text{m}/\text{L}$  OF THE STRATIFIED LAYERS  
OF LAKE ERIE 1970

DATE	WESTERN BASIN	CENTRAL BASIN			EASTERN BASIN		
		EPI	MESO	HYPOTHALAMIC	EPI	MESO	HYPOTHALAMIC
April 7 - 11	.195	.138	-	-	.167	-	-
May 6 - 10	.181	.177	-	-	.111	-	-
June 2 - 6	.167	.144	.136	.187	.185	.173	
July 3 - 7	.213	.156	.142	.153	.183	.163	.154
July 28 - Aug 2	.230	.141	.139	.147	.116	.110	.106
August 25 - 30	.251	.086	.100	.157	.078	.069	.067
September 23 - 27	.301	.131	.225	.528	.106	.084	.061
October 21 - 26	.212	.143	-	-	.114	.102	.065
November 25 - 30	.269	.194	-	-	.158	-	-
December 14 - 18	.263	.243	-	-	.123	-	-

TABLE 24 VOLUME WEIGHED MEANS FOR NO<sub>3</sub> + NO<sub>2</sub> IN  $\mu\text{m/l}$  OF THE STRATIFIED LAYERS  
OF LAKE ERIE 1970

DATE	WESTERN BASIN	CENTRAL BASIN			EASTERN BASIN		
		EPI	MESO	HYPOTHALAMIC	EPI	MESO	HYPOTHALAMIC
April 7 - 11	33.00	9.36	-	-	11.00	-	-
May 6 - 10	33.19	7.72	-	-	12.29	-	-
June 2 - 6	17.89	6.04	5.32	8.39	10.29	6.85	9.38
July 3 - 7	8.73	5.60	3.74	8.06	4.45	4.51	8.28
July 28 - Aug 2	5.04	1.69	4.25	9.08	4.08	10.67	12.30
August 25 - 30	3.79	0.95	5.55	10.11	2.70	9.64	14.14
September 23 - 27	7.01	1.35	1.22	0.0	1.02	9.00	17.29
October 21 - 26	10.65	3.87	-	-	4.46	12.30	14.54
November 25 - 30	15.75	7.36	-	-	8.11	-	-
December 14 - 18	17.42	9.66	-	-	10.78	-	-

TABLE 25 VOLUME WEIGHED MEANS FOR AMMONIA IN  $\mu\text{m/l}$  OF THE STRATIFIED LAYERS  
OF LAKE ERIE 1970

DATE	WESTERN BASIN	CENTRAL BASIN			EASTERN BASIN		
		EPI	MESO	HYPOTHETICAL	EPI	MESO	HYPOTHETICAL
April 7 - 11	5.532	1.985	-	-	1.495	-	-
May 6 - 10	2.219	1.566	-	-	2.133	-	-
June 2 - 6	3.709	2.059	2.530	3.629	4.227	4.834	4.453
July 3 - 7	3.162	1.715	2.694	6.208	2.403	2.879	3.819
July 28 - Aug 2	3.210	1.758	2.270	3.300	1.767	4.321	3.781
August 25 - 30	4.409	1.253	3.135	5.828	1.381	1.350	1.089
September 23 - 27	4.002	0.772	5.882	22.793	0.806	0.780	0.353
October 21 - 26	2.715	1.307	-	-	1.827	-	-
November 25 - 30	3.813	1.314	-	-	1.255	-	-
December 14 - 18	4.352	1.262	-	-	0.754	-	-

TABLE 26. VOLUME WEIGHED MEANS FOR R. SiO<sub>2</sub> IN μm/l OF THE STRATIFIED LAYERS

OF LAKE ERIE 1970

DATE	WESTERN BASIN	CENTRAL BASIN			EASTERN BASIN		
		EPI	MESO	HYPOL	EPI	MESO	HYPOL
April 7 - 11	10.88	.46	-	-	.77	-	-
May 6 - 10	.55	.46	-	-	.34	-	-
June 2 - 6	3.92	1.43	2.38	4.07	.69	.29	.49
July 3 - 7	11.11	2.32	3.05	6.44	1.45	.93	2.26
July 28 - Aug 2	15.50	2.94	4.63	9.18	3.05	4.70	4.74
August 25 - 30	7.43	3.62	9.29	16.51	3.76	4.95	6.05
September 23 - 27	11.32	2.15	8.33	28.25	3.06	5.13	7.45
October 21 - 26	6.37	1.46	-	-	3.74	6.25	8.80
November 25 - 30	8.67	3.92	-	-	5.20	-	-
December 14 - 18	17.74	5.31	-	-	4.67	-	-

TABLE 27 VOLUME WEIGHED MEANS FOR  $\text{Cl}^-$  IN  $\mu\text{Moles/l}$  OF THE STRATIFIED LAYERS  
IN LAKE ERIE 1970

DATE	WESTERN BASIN	CENTRAL BASIN			EASTERN BASIN		
		EPI	MESO	HYP0	EPI	MESO	HYP0
April 7 - 11	555.0	663.2	-	-	711.8	-	-
May 6 - 10	No Data	→	→	→	→	→	→
June 2 - 6	557.9	697.2	689.5	699.9	716.1	657.5	702.0
July 3 - 7	493.4	681.1	680.2	688.6	707.0	689.1	690.8
July 28 - Aug 2	512.7	668.0	654.6	675.0	704.6	705.9	696.5
August 25 - 30	525.0	681.5	709.6	715.2	706.9	703.3	700.8
September 23 - 27	506.1	675.8	659.7	668.2	708.3	695.1	695.3
October 21 - 26	518.3	653.5	-	-	722.5	-	-
November 25 - 30	484.7	657.5	-	-	719.7	-	-
December 14 - 18	481.1	672.5	-	-	723.1	-	-

TABLE 28 DATA SUMMARY FOR TEMP MEASUREMENT IN °C FOR 1970 LAKE ERIE

DATE	WESTERN BASIN						CENTRAL BASIN						EASTERN BASIN						TOTAL LAKE						
	V.W. Mean	U.W. Mean	Max	Min	S.D.	V.W. Mean	U.W. Mean	Max	Min	S.D.	V.W. Mean	U.W. Mean	Max	Min	S.D.	V.W. Mean	U.W. Mean	Max	Min	S.D.	V.W. Mean	U.W. Mean	Max	Min	S.D.
April 7-11	3.96	4.06	5.50	3.20	0.60	1.65	2.01	4.00	0.16	0.90	0.41	0.78	1.80	0.13	0.50	1.35	2.07	5.50	0.13	1.20					
May 6-10	12.23	12.36	13.55	11.48	0.55	6.64	7.68	11.60	5.07	1.89	3.84	4.86	8.40	2.36	1.82	5.98	7.45	12.36	2.36	2.74					
June 2-6	16.61	16.95	18.70	14.24	1.13	12.46	13.58	17.8	6.33	2.75	8.81	11.53	15.45	4.17	3.11	11.41	13.45	18.70	4.17	3.11					
July 3-7	21.60	21.66	22.25	20.42	.39	17.58	18.78	22.81	6.04	3.37	12.58	16.19	21.10	4.59	4.39	16.05	18.43	22.81	4.59	3.82					
Jul 28- Aug 2	23.75	23.72	24.80	20.28	.93	20.37	21.21	25.20	8.88	3.81	14.46	20.90	24.90	4.69	5.28	18.47	21.41	25.20	4.69	4.13					
Aug 25-30	23.70	23.93	28.50	21.99	1.09	21.65	20.76	25.30	10.18	4.77	16.68	20.83	23.50	4.70	5.00	20.01	21.09	23.93	4.70	4.67					
Sept 23-27	20.56	20.49	21.40	19.50	0.80	20.40	20.21	22.01	11.24	2.07	16.66	19.31	20.87	5.41	3.53	19.08	20.03	20.49	5.41	2.42					
Oct 21-26	13.62	13.54	14.40	12.80	0.43	15.06	14.97	15.80	13.96	0.41	14.02	14.37	15.37	5.75	1.50	14.61	14.66	15.37	5.75	0.96					
Nov 25-30	4.12	3.85	6.10	2.31	1.25	7.53	7.22	8.37	5.33	0.89	7.94	7.72	8.78	6.10	.67	7.47	6.98	8.78	2.31	1.44					
Dec 14-18	1.74	1.67	2.50	0.83	0.47	5.00	4.63	6.15	2.24	0.92	5.93	5.27	7.08	3.20	0.96	5.13	4.48	7.08	0.83	1.35					

TABLE 29 DATA SUMMARY FOR DIS 02 MEASUREMENT IN MG 02/L FOR 1970 LAKE ERIE

DATE	WESTERN BASIN						CENTRAL BASIN						EASTERN BASIN						TOTAL LAKE						
	V.W. Mean	U.W. Mean	Max	Min	S.D.	V.W. Mean	U.W. Mean	Max	Min	S.D.	V.W. Mean	U.W. Mean	Max	Min	S.D.	V.W. Mean	U.W. Mean	Max	Min	S.D.	V.W. Mean	U.W. Mean	Max	Min	S.D.
April 1 7-11	13.03	12.95	13.31	12.01	0.40	13.87	13.73	14.49	12.71	0.34	13.41	13.60	14.24	11.60	0.52	13.66	13.62	14.49	11.60	0.46					
May 6-10	12.42	12.40	13.17	11.69	0.40	13.02	12.98	14.08	10.73	0.73	13.46	13.42	14.28	11.78	0.59	13.14	13.04	14.28	10.73	0.73					
June 2-6	9.30	9.29	10.29	8.46	0.57	10.68	10.31	13.02	7.01	1.07	12.48	12.44	14.03	10.54	0.86	11.24	10.74	14.03	7.01	1.43					
July 3-7	8.93	8.88	11.18	7.13	1.09	8.89	8.82	10.31	5.56	.96	10.14	9.80	11.82	7.75	0.77	9.34	9.08	11.82	7.13	1.02					
Jul 28-Aug 2	9.26	9.17	10.71	7.59	.82	8.61	8.54	12.60	0.50	2.20	9.26	9.38	11.34	6.55	1.01	8.88	8.83	12.60	0.50	1.89					
Aug 25-30	8.96	9.04	18.50	5.46	2.24	7.64	6.60	10.12	0.00	3.37	8.32	8.13	9.93	1.60	1.32	7.96	7.17	18.50	0.00	3.06					
Sept 23-27	8.28	8.30	8.87	7.99	0.26	8.74	8.28	10.30	0.15	2.11	8.60	8.83	9.43	5.70	0.65	8.66	8.41	10.30	.15	1.77					
Oct 21-26	10.13	10.00	10.85	8.69	0.65	9.73	9.83	11.42	8.89	0.32	9.52	9.60	10.34	6.56	0.51	9.68	9.79	11.42	6.56	0.44					
Nov 25-30	12.35	12.45	13.00	11.77	.35	11.21	11.35	12.35	10.55	.32	11.05	11.20	12.11	10.82	0.27	11.22	11.43	13.00	10.55	0.47					
Dec 14-18	13.40	13.42	14.54	13.04	0.35	12.22	12.34	13.41	11.67	0.41	11.80	12.08	12.71	11.41	0.37	12.14	12.38	14.54	11.41	0.53					

TABLE 30 DATA SUMMARY FOR TOT.P MEASUREMENT IN  $\mu\text{m}/\text{L}$  FOR 1970 LAKE ERIE

DATE	WESTERN BASIN						CENTRAL BASIN						EASTERN BASIN						TOTAL LAKE			
	V.W. Mean	U.W. Mean	Max	Min	S.D.	V.W. Mean	U.W. Mean	Max	Min	S.D.	V.W. Mean	U.W. Mean	Max	Min	S.D.	V.W. Mean	U.W. Mean	Max	Min	S.D.		
April 7-11	1.92	2.055	4.737	1.021	1.057	0.54	0.651	3.684	.116	.523	1.00	.567	2.895	.316	0.442	0.69	.798	4.737	.116	.746		
May 6-10	1.08	1.087	1.758	.653	0.330	0.69	0.842	2.821	.211	.519	0.54	.564	1.053	.263	.178	0.66	.795	2.821	.211	.464		
June 2-6	1.20	1.204	2.421	.611	0.490	0.69	.784	3.053	.316	.484	0.58	.626	1.316	.337	.198	0.68	.789	3.053	.316	.458		
July 3-7	1.22	1.270	1.842	.537	.394	0.49	.591	1.737	.232	.342	0.47	.521	1.211	.274	.167	0.53	0.643	1.842	.232	.378		
Jul 28- Aug 2	1.02	1.060	1.726	.337	.319	0.37	.454	1.811	.211	.271	0.42	.437	1.000	.274	.163	0.43	0.512	1.811	.211	0.313		
Aug 25-30	1.55	1.551	3.368	.547	0.601	0.43	.483	6.316	.168	.573	0.28	.342	.611	.158	.101	0.44	0.564	6.316	.158	0.611		
Sept 23-27	1.37	1.396	2.005	.579	0.426	0.61	.643	4.526	.232	.490	0.36	.392	.547	.253	0.071	0.57	0.652	4.526	.232	0.498		
Oct. 21-26	1.39	1.474	4.316	.505	1.091	0.63	.686	1.474	.347	.254	0.42	.491	.758	.274	.107	0.60	0.718	4.316	.274	0.487		
Nov; 25-30	1.93	2.010	4.105	1.021	.879	1.03	1.110	2.015	.558	.285	0.73	0.791	1.484	.579	.217	0.99	1.129	4.105	.558	0.520		
Dec 14-18	1.63	1.751	2.684	1.274	.434	1.16	1.285	4.000	.526	.553	0.83	.845	2.474	.505	.406	1.07	1.217	4.000	.505	0.568		

TABLE 31 DATA SUMMARY FOR P.P. MEASUREMENT IN  $\mu\text{m/l}$  FOR 1970 LAKE ERIE

DATE	WESTERN BASIN						CENTRAL BASIN						EASTERN BASIN						TOTAL LAKE						
	V.W. Mean	U.W. Mean	Max	Min	S.D.	V.W. Mean	U.W. Mean	Max	Min	S.D.	V.W. Mean	U.W. Mean	Max	Min	S.D.	V.W. Mean	U.W. Mean	Max	Min	S.D.	V.W. Mean	U.W. Mean	Max	Min	S.D.
April 7-11	1.216	1.268	3.211	.379	0.750	.320	.4182	7.47	0.000	.377	.436	.290	2.516	0.0320	0.411	.415	.494	3.211	0.000	.521					
May 6-10	0.810	.819	1.432	0.442	0.279	.459	0.553	1.474	.053	.344	.340	.368	.653	.074	.129	.438	.531	1.474	.053	.321					
June 2-6	0.697	.708	1.495	0.400	.265	.440	.492	1.526	.063	.237	.368	.416	1.063	.032	.201	.430	.496	1.526	.032	.245					
July 3-7	0.844	.869	1.421	.432	.291	.264	.331	1.284	.021	.233	.188	.276	.979	.053	.159	.272	.373	1.421	.021	.280					
Jul 28- Aug 2	.698	.686	1.063	.158	.230	.197	.264	1.147	0.00	.193	.216	.282	.863	.053	.170	.234	.313	1.147	0.00	.230					
Aug 25-30	1.011	1.016	2.632	.432	.465	.271	.282	1.053	.095	.151	.170	.223	.537	.063	.103	.280	.348	2.632	.063	.310					
Sept 23-27	.847	.854	1.347	.432	.233	.347	.392	2.211	.053	.222	.189	.227	.441	.053	.077	.321	.399	2.211	.053	.261					
Oct 21-26	.922	.951	2.632	.284	.625	.363	.408	1.253	.168	.188	.179	.230	.537	.084	.087	.331	.421	2.632	.084	.321					
Nov; 25-30	1.261	1.371	3.095	0.495	.641	.607	.675	1.737	.179	.265	.389	.446	1.000	.232	.188	.530	.687	3.095	.179	.400					
Dec 14-18	1.086	1.173	1.979	.747	.300	.728	.847	3.253	.232	.496	.482	.499	2.048	.158	.381	.662	.789	3.253	.158	.492					

TABLE 32 DATA SUMMARY FOR T.F.P. MEASUREMENT IN  $\mu \text{m/l}$  FOR 1970 LAKE ERIE

DATE	WESTERN BASIN						CENTRAL BASIN						EASTERN BASIN						TOTAL LAKE						
	V.W. Mean	U.W. Mean	Max	Min	S.D.	V.W. Mean	U.W. Mean	Max	Min	S.D.	V.W. Mean	U.W. Mean	Max	Min	S.D.	V.W. Mean	U.W. Mean	Max	Min	S.D.	V.W. Mean	U.W. Mean	Max	Min	S.D.
April 7-11	.703	.786	1.526	.368	.381	.214	.237	.937	.032	.175	.287	.277	.505	.116	.104	.269	.306	1.526	.032	.264					
May 6-10	.266	.268	.389	.126	.077	.229	.289	1.821	.105	.238	.195	.196	.453	.105	.077	.219	.263	1.821	.105	.200					
June 2-6	.503	.496	1.011	.095	.322	.205	.292	1.895	.095	.290	.230	.222	.579	.095	.077	.232	.296	1.895	.095	.268					
July 3-7	.379	.401	.863	.105	.193	.226	.261	.716	.105	.138	.269	.244	.579	.158	.068	.251	.271	.863	.105	.138					
Jul 28- Aug 2	.339	.374	.947	.137	.193	.175	.192	1.137	.074	.140	.195	.162	.368	.074	.055	.191	.203	1.137	.074	.144					
Aug 25-30	.536	.535	1.000	.116	.239	.165	.179	5.263	.053	.425	.119	.118	.347	.063	.054	.171	.203	5.263	.053	.367					
Sept 23-27	.524	.542	1.316	.147	.257	.250	.218	2.000	.000	.178	.116	.165	.316	.105	.040	.219	.239	2.000	.000	.197					
Oct 21-26	.470	.522	1.895	.126	.495	.272	.278	.737	.147	.106	.246	.258	.474	.147	.062	.275	.298	1.895	.126	.197					
Nov; 25-30	.672	.728	1.221	.295	.286	.417	.432	.874	.253	.098	.344	.345	.495	.242	.054	.406	.440	1.221	.242	.418					
Dec 14-18	.542	.578	1.053	.147	.282	.433	.438	.832	.253	.112	.348	.346	.537	.274	.055	.409	.428	1.053	.147	.142					

TABLE 33 DATA SUMMARY FOR SRP MEASUREMENT IN  $\mu\text{m/l}$  FOR 1970 LAKE ERIE

DATE	WESTERN BASIN						CENTRAL BASIN						EASTERN BASIN						TOTAL LAKE		
	V.W. Mean	U.W. Mean	Max	Min	S.D.	V.W. Mean	U.W. Mean	Max	Min	S.D.	V.W. Mean	U.W. Mean	Max	Min	S.D.	V.W. Mean	U.W. Mean	Max	Min	S.D.	
April 7-11	.519	.606	1.263	.253	.363	.077	.083	.526	.011	.102	.122	.547	.042	.083	.117	.151	1.263	.011	.227		
May 6-10	.085	.088	.179	.042	.043	.052	.104	1.368	.000	.199	.085	.069	.326	0.000	.074	.066	.093	1.368	0.000	.165	
June 2-6	.335	.338	.653	.011	.215	.063	.128	1.579	.000	.249	.044	.043	.126	0.000	.037	.073	.129	1.579	0.000	.226	
July 3-7	.165	.187	.495	.000	.161	.072	.099	.400	.000	.105	.100	.068	.360	0.000	.061	.088	.100	.495	0.000	.107	
Jul 28- Aug 2	.093	.124	.737	.021	.148	.029	.045	.895	.000	.117	.075	.041	.189	.011	.041	.049	.052	.895	0.000	.109	
Aug 25-30	.270	.286	.611	.053	.159	.072	.129	4.453	.000	.448	.045	.034	.179	.000	.039	.075	.123	4.453	.000	.378	
Sept 23-27	.223	.234	.453	.116	.096	.110	.248	5.263	.011	.751	.074	.068	.242	.021	.042	.104	.205	5.263	.011	.622	
Oct 21-26	.259	.299	1.158	.042	.337	.125	.130	.368	.053	.059	.135	.133	.295	.053	.049	.137	.148	1.158	.042	.129	
Nov 25-30	.437	.403	.737	.158	.183	.226	.233	.537	.158	.058	.193	.209	.421	.137	.041	.225	.248	.737	.137	.101	
Dec 14-18	.279	.300	.632	.053	.159	.189	.196	.495	.084	.064	.226	.207	.305	.147	.041	.208	.209	.632	.053	.080	

TABLE 34 DATA SUMMARY FOR ORG P MEASUREMENT IN  $\mu\text{m/l}$  FOR 1970 LAKE ERIE

DATE	WESTERN BASIN						CENTRAL BASIN						EASTERN BASIN						TOTAL LAKE						
	V.W. Mean	U.W. Mean	Max	Min	S.D.	V.W. Mean	U.W. Mean	Max	Min	S.D.	V.W. Mean	U.W. Mean	Max	Min	S.D.	V.W. Mean	U.W. Mean	Max	Min	S.D.	V.W. Mean	U.W. Mean	Max	Min	S.D.
April 7-11	.195	.228	.716	0.000	.190	.138	.158	.842	.011	.133	.167	.181	.400	.032	.088	.152	.169	.842	.000	.135					
May 6-10	.181	.180	.295	.074	.053	.177	.185	.11.074	.000	.113	.111	.127	.253	.011	.058	.154	.170	.1.074	.000	.100					
June 2-6	.167	.157	.389	.000	.127	.142	.165	.895	.000	.103	.182	.179	.474	.074	.063	.158	.168	.895	.000	.098					
July 3-7	.213	.213	.368	.074	.084	.155	.161	.421	.011	.062	.170	.178	.347	.105	.045	.164	.171	.421	.011	.063					
Jul 28- Aug 2	.230	.250	.558	.105	.115	.142	.147	.347	.053	.060	.112	.123	.253	.021	.049	.138	.150	.558	.021	.074					
Aug 25-30	.251	.249	.442	.063	.101	.099	.094	.811	.000	.082	.074	.083	.326	.011	.054	.099	.108	.811	.011	.093					
Sept 23-27	.301	.308	.916	.032	.173	.144	.138	.632	.011	.069	.096	.099	.168	.021	.028	.136	.146	.916	.011	.099					
Oct 21-26	.212	.224	.737	.053	.164	.143	.149	.379	.011	.064	.113	.128	.379	0.00	.059	.137	.152	.737	0.00	.083					
Nov; 25-30	.269	.290	.516	.126	.113	.194	.198	.432	.021	.058	.158	.136	.242	.053	.045	.186	.191	.516	.021	.076					
Dec 14-18	.263	.278	.474	.042	.127	.243	.242	.463	.116	.071	.123	.139	.242	.021	.046	.202	.219	.474	.021	.087					

TABLE 35 DATA SUMMARY FOR NO<sub>3</sub>+NO<sub>2</sub> MEASUREMENT IN μm/l FOR 1970 LAKE ERIE

DATE	WESTERN BASIN						CENTRAL BASIN						EASTERN BASIN						TOTAL LAKE						
	V.W. Mean	U.W. Mean	Max	Min	S.D.	V.W. Mean	U.W. Mean	Max	Min	S.D.	V.W. Mean	U.W. Mean	Max	Min	S.D.	V.W. Mean	U.W. Mean	Max	Min	S.D.	V.W. Mean	U.W. Mean	Max	Min	S.D.
April 1 7-11	33.00	33.98	60.71	18.93	13.19	9.36	12.18	43.21	2.50	11.05	11.00	10.67	17.86	7.50	2.69	11.36	14.52	60.71	2.50	12.64					
May 6-10	33.19	36.83	77.14	16.07	18.53	7.72	11.14	48.21	0.00	12.93	12.29	11.93	28.93	6.07	5.36	10.87	13.84	77.14	0.00	14.29					
June 2-6	17.89	18.65	37.86	2.64	10.69	6.27	9.05	52.14	0.00	11.16	9.26	8.44	20.36	3.57	4.90	8.03	9.93	52.14	0.00	10.33					
July 3-7	8.73	10.20	25.71	1.07	8.07	5.85	7.28	29.28	0.00	7.31	5.72	4.94	16.07	.57	3.80	5.98	6.96	29.28	0.00	6.80					
Jul 28-Aug 2	5.04	7.09	30.71	.71	6.92	2.81	3.59	21.43	.143	4.07	7.36	3.25	15.36	.143	4.06	4.56	3.86	30.71	.143	4.55					
Aug 15-30	3.79	4.34	9.64	.50	3.17	2.48	3.63	18.36	.143	5.33	6.54	2.95	16.43	.36	4.58	4.00	3.54	18.36	.143	5.00					
Sept 13-27	7.01	7.67	12.50	2.50	4.15	1.35	1.72	11.42	.357	1.89	4.97	2.05	20.00	.357	4.74	2.97	2.36	20.00	.357	3.48					
Oct 11-26	10.65	12.11	21.43	1.79	5.05	3.87	4.13	11.77	.71	2.67	5.97	4.53	17.86	1.78	2.89	5.02	5.06	21.43	.71	3.88					
Nov 15-30	15.75	16.70	25.00	7.14	6.49	7.36	8.36	17.85	4.28	3.46	8.10	8.28	11.57	6.78	1.00	8.13	9.21	25.00	4.28	4.32					
Dec 4-18	17.42	11.51	24.63	12.50	3.39	9.66	10.03	26.78	5.93	3.85	10.78	11.36	17.71	9.35	2.23	10.52	11.14	26.78	5.93	4.13					

TABLE 36 DATA SUMMARY FOR NH<sub>3</sub> MEASUREMENT IN μm/l FOR 1970 LAKE ERIE

DATE	WESTERN BASIN						CENTRAL BASIN						EASTERN BASIN						TOTAL LAKE			
	V.W. Mean	U.W. Mean	Max	Min	S.D.	V.W. Mean	U.W. Mean	Max	Min	S.D.	V.W. Mean	U.W. Mean	Max	Min	S.D.	V.W. Mean	U.W. Mean	Max	Min	S.D.		
April 7-11	5.53	6.65	15.14	2.43	3.82	1.99	2.54	12.50	0.57	2.39	1.50	1.68	3.50	.71	.67	2.03	2.86	15.14	0.57	2.77		
May 6-10	2.22	2.24	4.28	1.43	.79	1.57	2.25	25.00	0.36	3.37	2.13	2.04	5.36	.71	1.09	1.81	2.20	25.00	0.36	2.78		
June 2-6	3.71	3.59	6.07	1.78	1.58	2.28	3.02	26.78	.36	3.31	4.41	4.28	9.71	.43	1.81	3.12	3.39	26.78	.36	2.89		
July 3-7	3.16	3.40	9.78	.71	2.09	2.49	2.72	12.28	.14	2.47	2.91	2.53	5.36	.64	1.22	2.68	2.74	12.28	.14	2.18		
Jul 28- Aug 2	3.21	3.37	7.14	1.78	1.42	1.99	2.52	14.28	.14	2.14	2.76	1.81	10.71	.14	1.57	2.34	2.42	14.28	.14	1.99		
Aug 25-30	4.41	4.26	13.57	.93	3.69	1.99	2.75	39.29	.14	4.99	1.35	1.21	2.43	.50	.46	1.91	2.55	39.29	.14	4.35		
Sept 23-27	4.00	4.20	9.29	1.71	1.99	1.45	3.10	62.5	.07	8.01	.72	.92	3.57	.143	.53	1.34	2.70	62.5	.07	6.68		
Oct 21-26	2.72	3.28	17.86	.21	5.20	1.31	1.36	4.28	.36	0.67	1.82	1.59	2.86	.50	.55	1.58	1.61	17.86	.21	1.84		
Nov 25-30	3.81	3.87	7.71	0.78	1.87	1.31	1.61	10.71	.21	1.45	1.26	1.32	2.50	.36	.55	1.44	1.77	10.71	.21	1.51		
Dec 14-18	4.35	4.63	12.57	1.64	3.02	1.26	1.76	14.28	1.43	2.56	.75	.93	2.71	.21	.59	1.27	1.83	14.28	.21	2.48		

TABLE 37 DATA SUMMARY FOR R.Si<sub>2</sub> MEASUREMENT IN  $\mu\text{m/l}$  FOR 1970 LAKE ERIE

DATE	WESTERN BASIN						CENTRAL BASIN						EASTERN BASIN						TOTAL LAKE			
	V.W. Mean	U.W. Mean	Min	Max	S.D.	V.W. Mean	U.W. Mean	Min	Max	S.D.	V.W. Mean	U.W. Mean	Min	Max	S.D.	V.W. Mean	U.W. Mean	Min	Max	S.D.		
April 1 7-11	10.88	11.62	24.00	.67	9.96	.46	.51	2.50	0.00	.43	.77	.73	1.92	0.00	.56	1.20	1.86	24.00	0.00	4.94		
May 6-10	.55	.63	5.42	0.00	1.51	.46	.49	1.08	0.00	.27	.34	.39	1.92	.08	.37	.42	.48	5.42	0.00	.55		
June 2-6	3.92	3.47	6.58	0.92	1.71	1.82	-2.69	16.83	.17	2.64	.52	.50	1.83	.00	.41	1.48	2.23	16.83	0.00	2.43		
July 3-7	11.11	11.85	25.50	5.00	5.89	3.03	3.49	15.42	.83	2.69	1.64	1.68	3.58	.42	.79	3.02	3.87	25.50	.42	4.02		
Jul 28-Aug 2	15.50	15.81	46.67	.67	12.87	3.84	4.51	21.67	1.67	3.54	3.78	2.97	9.67	1.08	1.47	4.43	5.27	46.67	.67	6.18		
Aug 25-30	7.43	7.73	18.00	2.00	4.83	5.74	8.26	46.67	1.75	8.43	4.49	4.39	15.00	2.10	1.95	5.40	7.34	46.67	1.75	7.33		
Sept 23-27	11.32	13.21	30.41	7.17	9.61	2.96	4.62	54.17	.167	9.00	3.97	4.17	10.42	1.42	1.79	3.82	5.33	54.17	.167	8.38		
Oct 21-26	6.37	7.31	14.16	1.50	5.07	1.46	1.36	3.33	.083	.94	4.12	3.73	10.00	2.08	1.38	2.70	2.59	14.16	.083	2.69		
Nov 25-30	8.67	9.36	20.00	2.83	5.66	3.92	3.84	10.83	1.25	1.77	5.20	4.73	6.33	2.83	0.78	4.66	4.65	20.00	1.25	2.85		
Dec 14-18	17.74	18.60	25.00	10.00	5.13	5.31	5.33	16.50	1.33	2.48	4.67	4.08	6.66	2.75	.933	5.83	6.30	25.00	1.33	4.83		

TABLE 38 DATA SUMMARY FOR CL' MEASUREMENT IN  $\mu\text{m}/\text{L}$  FOR 1970 LAKE ERIE

DATE	WESTERN BASIN						CENTRAL BASIN						EASTERN BASIN						TOTAL LAKE						
	V.W. Mean	U.W. Mean	Max	Min	S.D.	V.W. Mean	U.W. Mean	Max	Min	S.D.	V.W. Mean	U.W. Mean	Max	Min	S.D.	V.W. Mean	U.W. Mean	Max	Min	S.D.	V.W. Mean	U.W. Mean	Max	Min	S.D.
April 7-11	555.0	530.4	647.9	329.6	109.7	663.3	672.7	746.5	594.4	38.8	711.8	715.6	816.9	690.1	34.2	675.4	660.9	816.9	329.6	79.5					
May 6-10	NO DATA	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
June 2-6	557.9	526.8	726.8	304.2	131.8	696.9	688.7	819.7	571.8	53.9	699.5	702.3	732.4	676.1	21.7	690.9	670.8	819.7	304.2	85.3					
July 3-7	493.4	473.2	554.9	408.5	44.6	682.0	658.5	754.9	518.3	47.6	694.1	690.5	774.6	670.4	23.9	676.4	640.8	774.7	408.5	81.2					
Jul 28- Aug 2	512.7	519.2	693.0	445.1	68.8	667.6	666.9	921.1	580.3	48.9	703.1	692.2	723.9	673.2	11.6	672.3	650.7	921.1	445.1	73.6					
Aug 25-30	525.0	528.5	853.5	380.3	135.7	686.6	723.3	2078.8	571.8	188.9	704.9	696.5	707.0	676.1	8.4	684.8	686.5	2078.8	380.2	166.0					
Sept 23-27	506.1	472.3	1188.7	259.2	209.3	674.5	665.3	887.3	543.7	57.4	705.7	695.2	836.6	673.2	28.1	676.9	645.8	1188.7	259.2	116.0					
Oct 21-26	518.3	492.8	695.8	354.9	91.2	653.5	663.1	957.7	490.1	75.4	722.5	711.1	887.3	684.5	44.0	671.2	651.9	957.7	354.9	97.3					
Nov 25-30	484.7	478.0	597.1	380.3	58.0	657.5	628.5	862.0	481.7	85.6	719.7	702.6	735.2	667.6	18.9	677.3	626.3	862.0	380.2	97.9					
Dec 14-18	481.1	455.1	566.2	231.0	99.2	672.5	643.1	867.6	470.4	74.4	723.1	710.8	749.3	664.8	21.2	680.4	634.0	867.6	231.0	104.2					

Table 39 VOL. WEIGHED MEAN CONC. \*LAKE ERIE APRIL 7-11, 70\* / NO THERM. STRATIFICATION /

SIN	TFMP	D102	S402	T.P.	TFP.	SRP.	P.P.	ORG P.	S102	IFN.	NH3.	ORG N	F.GL	TFALK	SPCN	TURB	PHSU	
<b>WEST JASIN</b>																		
23	4.0	13.30	109.0	1.52	0.50	0.27	1.02	0.23	0.8	35.4	2.74	14.8	529.	735.	283.	6.2	-0.0	
24	5.8	13.02	106.0	1.17	0.48	0.38	0.63	0.10	21.2	24.2	4.01	7.9	647.	727.	277.	13.0	-0.0	
25	5.4	11.95	101.7	2.75	1.23	1.17	1.52	0.12	23.9	23.5	14.75	22.7	597.	802.	303.	8.5	-0.0	
26	4.0	12.98	106.3	1.05	0.39	0.39	0.66	0.01	21.3	19.1	3.37	12.6	339.	776.	236.	10.1	-0.0	
27	4.0	13.20	108.1	1.63	0.51	0.47	1.12	0.03	16.3	19.9	5.14	13.0	451.	763.	252.	18.5	-0.0	
28	4.2	12.67	104.4	4.35	1.40	1.24	2.95	0.23	18.0	33.5	10.01	14.1	518.	813.	272.	25.1	-0.0	
29	3.9	12.90	105.5	3.31	1.21	0.76	2.10	0.45	1.6	57.5	5.69	20.8	620.	780.	313.	6.6	-0.0	
30	3.3	13.23	106.4	1.65	0.72	0.37	0.92	0.35	7.0	48.2	6.67	14.1	-0.	809.	306.	2.5	-0.0	
<b>CENTRAL BASIN</b>																		
6	0.9	13.59	102.5	0.36	0.19	0.11	0.17	0.08	0.2	9.2	1.09	11.1	719.	952.	324.	0.5	-0.0	
43	2.0	13.67	106.3	0.46	0.16	0.03	0.29	0.13	0.2	5.4	1.46	12.1	-0.	956.	320.	3.4	-0.0	
41	2.4	13.65	108.9	0.40	0.15	0.02	0.26	0.12	0.3	5.4	1.24	10.0	643.	954.	316.	2.7	-0.0	
11	2.7	13.48	106.8	0.45	0.05	0.05	0.40	0.01	0.1	7.5	2.36	19.1	-0.	884.	318.	7.9	-0.0	
12	2.1	13.78	107.6	0.32	0.07	0.02	0.25	0.05	0.6	3.6	1.37	16.0	722.	908.	325.	1.7	-0.0	
34	2.3	13.84	108.4	0.45	0.22	0.03	0.23	0.19	0.2	6.1	0.95	8.8	699.	762.	320.	1.7	-0.0	
33	2.3	13.93	109.6	0.42	0.17	0.01	0.25	0.16	0.1	5.0	0.80	14.3	683.	865.	320.	0.2	-0.0	
44	0.8	13.95	105.0	0.30	0.15	0.04	0.15	0.11	0.8	7.5	1.34	11.3	651.	951.	328.	2.0	-0.0	
42	2.0	13.53	108.4	0.35	0.15	0.03	0.20	0.12	0.6	5.4	0.98	13.5	719.	948.	320.	2.2	-0.0	
10	1.6	13.93	106.4	0.38	0.13	0.04	0.25	0.10	0.5	3.0	1.34	15.6	716.	969.	329.	1.7	-0.0	
40	1.4	13.90	106.5	0.32	0.08	0.05	0.24	0.04	0.6	2.8	1.45	14.7	705.	904.	324.	0.7	-0.0	
13	1.6	13.84	107.1	0.28	0.07	0.04	0.21	0.05	0.6	3.8	1.36	15.4	-0.	900.	325.	1.6	-0.0	
9	0.9	14.18	105.9	0.42	0.22	0.07	0.20	0.15	0.2	9.4	1.84	13.2	705.	914.	323.	2.1	-0.0	
39	1.0	14.00	107.9	0.50	0.22	0.10	0.27	0.12	0.7	11.3	1.84	13.2	688.	867.	309.	1.4	-0.0	
14	1.6	14.04	107.1	0.36	0.08	0.03	0.28	0.05	0.5	3.2	1.34	14.8	708.	870.	318.	2.7	-0.0	
35	1.8	13.86	107.1	0.46	0.24	0.04	0.22	0.20	0.3	8.5	1.54	11.1	727.	776.	313.	0.4	-0.0	
7	0.7	13.81	103.7	0.53	0.26	0.11	0.27	0.15	0.0	11.8	1.74	13.5	-0.	931.	324.	2.0	-0.0	
38	1.4	13.83	105.8	0.60	0.27	0.06	0.34	0.21	0.6	12.3	1.63	11.4	665.	921.	311.	3.9	-0.0	
36	1.7	13.97	107.6	0.44	0.23	0.05	0.21	0.18	0.5	3.6	0.88	11.0	-0.	784.	322.	1.6	-0.0	
22	2.0	13.93	108.8	0.46	0.16	0.05	0.31	0.10	0.1	6.8	1.19	15.0	680.	860.	317.	1.0	-0.0	
20	2.4	13.53	106.4	0.57	0.13	0.06	0.44	0.07	0.4	5.3	1.37	10.8	-0.	828.	318.	1.7	-0.0	
32	3.2	14.01	112.4	0.59	0.21	0.04	0.37	0.18	0.4	7.6	1.17	10.2	-0.	844.	313.	1.1	-0.0	
31	3.5	13.30	107.6	1.28	0.47	0.33	0.81	0.14	2.5	42.7	8.21	16.5	609.	785.	299.	5.1	-0.0	
21	3.0	13.17	105.0	0.10	0.29	0.22	0.67	0.08	0.6	27.8	5.19	16.0	688.	620.	310.	6.7	-0.0	
19	3.0	13.26	105.8	0.06	0.17	0.02	0.46	0.15	1.0	25.0	3.04	11.6	753.	797.	313.	8.4	-0.0	
18	3.3	12.95	104.1	0.99	0.40	0.02	0.60	0.38	0.8	36.4	6.53	6.5	-0.	790.	316.	7.7	-0.0	
17	3.8	12.80	104.1	1.17	0.56	0.03	0.53	0.05	0.4	36.0	6.75	13.9	-0.	793.	317.	7.0	-0.0	
16	4.0	13.03	106.5	2.59	0.89	0.05	1.69	0.08	0.9	38.8	7.65	6.7	-0.	829.	318.	8.1	-0.0	
15	2.6	13.59	107.3	0.61	0.22	0.04	0.40	0.18	0.5	5.6	1.76	6.9	-0.	864.	317.	1.2	-0.0	
37	3.3	13.70	110.1	2.14	0.79	0.50	1.35	0.29	1.1	30.7	9.77	18.4	664.	813.	312.	11.5	-0.0	
8	2.2	13.66	106.7	1.12	0.40	0.25	0.72	0.15	0.4	25.2	6.46	25.3	629.	907.	302.	8.1	-0.0	
45	1.3	13.77	105.0	1.21	0.42	0.22	0.79	0.20	0.3	22.6	5.00	9.0	714.	902.	323.	11.7	-0.0	
<b>EAST JASIN</b>																		
47	0.2	14.10	104.4	0.26	0.17	0.03	0.09	0.14	0.5	5.7	0.74	13.2	758.	951.	319.	1.0	-0.0	
2	1.6	12.94	99.6	0.82	0.38	0.11	0.04	0.27	1.6	13.2	2.95	12.2	146.	964.	330.	2.9	-0.0	
51	1.1	13.90	105.5	0.34	0.15	0.10	0.18	0.05	0.4	8.7	0.93	9.2	-0.	962.	326.	1.1	-0.0	
50	1.6	14.19	109.1	0.39	0.16	0.08	0.23	0.08	0.0	7.9	0.98	8.9	-0.	961.	325.	0.3	-0.0	
48	0.9	13.50	101.8	0.59	0.33	0.15	0.26	0.18	1.4	16.2	1.69	11.7	724.	970.	325.	8.9	-0.0	
1	3	0.3	13.73	132.1	0.54	0.37	0.10	0.17	0.27	0.5	10.3	1.69	12.7	708.	969.	328.	1.0	-0.0
43	0.5	13.78	102.9	0.39	0.21	0.08	0.17	0.13	1.4	12.4	5.3	7.8	12.7	716.	968.	329.	1.0	-0.0
4	0.1	13.07	96.7	0.92	0.31	0.05	0.16	1.0	1.0	1.35	8.5	7.23.	953.	323.	0.4	-0.0		
5	0.6	13.96	104.4	0.61	0.27	0.06	0.34	0.21	0.5	15.7	2.08	11.2	889.	327.	1.5	-0.0		

Table 40 VOL. WEIGHED MEAN CONC. + LAKE ERIE MAY 6-11, 73\* / NO IN THE FM. STRATIFICATION /

SIN.	IEAP	D102	SAD2	I.P.	IEP.	SEP.	P.P.	ORG P	SI102	TEN.	NH3.	ORG N	F.CL	TEALK	SPCN	TURB	PHSU
<b>WEST BASIN</b>																	
23	12.1	12.64	120.5	0.93	0.28	0.10	0.64	0.19	0.2	17.9	2.58	15.5	-0.	854.	283.	-0.0	3.6
24	11.9	13.69	130.4	1.04	0.26	0.05	0.78	0.21	0.2	25.1	1.50	10.4	-0.	832.	279.	-0.0	3.9
25	12.2	11.71	117.4	0.74	0.13	0.05	0.61	0.08	0.54	22.0	2.61	15.1	-0.	799.	280.	-0.0	8.7
26	13.5	12.64	132.9	1.73	0.32	0.09	1.41	0.23	0.0	73.3	4.67	19.0	-0.	893.	301.	-0.0	3.1
27	11.8	12.48	124.3	0.95	1.15	0.04	0.76	0.10	0.9	22.9	1.57	13.6	-0.	805.	263.	-0.0	8.8
28	12.2	12.58	126.2	0.87	0.27	0.06	0.60	0.21	0.1	37.1	1.58	14.2	-0.	850.	289.	-0.0	8.9
29	13.0	12.19	124.6	1.37	0.31	0.13	1.05	0.18	0.1	64.2	2.29	10.3	-0.	903.	303.	-0.0	3.0
30	12.2	12.30	123.6	1.25	0.34	0.14	0.92	0.20	0.0	37.5	2.03	15.9	-0.	931.	305.	-0.0	9.0
<b>CENTRAL BASIN</b>																	
6	6.6	12.92	113.1	0.47	0.15	0.02	0.33	0.13	0.2	6.3	1.57	9.2	-0.	972.	323.	-0.0	8.5
43	8.1	12.38	112.6	0.38	0.14	0.02	0.25	0.11	0.5	5.0	1.04	13.2	-0.	966.	316.	-0.0	9.6
41	6.9	13.15	116.0	0.56	0.16	0.01	0.40	0.15	0.6	0.4	1.61	15.7	-0.	972.	323.	-0.0	8.5
11	7.6	12.87	115.7	0.53	0.16	0.02	0.37	0.14	0.5	6.3	1.99	11.0	-0.	961.	321.	-0.0	8.6
12	7.3	12.96	115.4	0.60	0.19	0.03	0.42	0.16	0.9	0.2	1.10	11.3	-0.	952.	316.	-0.0	8.6
34	7.6	13.09	117.5	0.64	0.22	0.01	0.42	0.21	0.8	2.4	1.13	7.6	-0.	937.	315.	-0.0	8.6
33	8.6	12.64	118.4	0.58	0.25	0.08	0.32	0.18	0.8	1.9	2.11	16.3	-0.	949.	314.	-0.0	8.6
44	5.9	13.45	115.8	0.48	0.22	0.03	0.25	0.20	0.2	0.7	0.78	12.3	-0.	978.	326.	-0.0	8.5
42	6.6	13.35	116.9	0.58	0.19	0.01	0.39	0.18	0.5	0.4	1.00	8.6	-0.	983.	320.	-0.0	8.6
10	6.1	13.08	113.0	0.51	0.16	0.01	0.35	0.15	0.5	0.4	0.82	11.9	-0.	986.	327.	-0.0	8.5
40	5.6	13.56	115.7	0.45	0.14	0.06	0.31	0.14	0.9	1.3	0.66	12.0	-0.	964.	322.	-0.0	8.5
13	6.0	13.71	118.2	0.65	0.23	0.03	0.41	0.21	0.5	2.1	1.15	11.3	-0.	944.	323.	-0.0	8.5
9	5.6	13.73	117.3	0.89	0.26	0.04	0.63	0.22	0.3	7.5	1.46	10.4	-0.	929.	314.	-0.0	8.4
39	5.4	13.83	117.6	0.50	0.15	0.06	0.36	0.15	0.7	8.6	1.06	9.3	-0.	927.	312.	-0.0	8.4
14	6.0	13.87	119.7	0.83	0.22	0.01	0.61	0.21	0.9	3.6	1.51	9.2	-0.	931.	314.	-0.0	8.5
35	6.4	13.45	117.2	0.48	0.18	0.05	0.30	0.14	0.4	0.2	1.45	10.2	-0.	956.	319.	-0.0	8.5
7	5.3	13.96	118.3	0.55	0.30	0.03	0.41	0.21	0.5	2.1	1.15	11.3	-0.	944.	323.	-0.0	8.5
38	5.9	13.41	115.3	0.70	0.14	0.04	0.56	0.10	0.6	10.7	1.32	10.9	-0.	929.	315.	-0.0	8.5
36	6.6	13.16	115.2	0.58	0.18	0.03	0.40	0.15	0.4	5.8	1.47	9.4	-0.	930.	309.	-0.0	8.5
22	6.4	13.66	123.0	0.63	0.23	0.03	0.40	0.20	0.5	3.2	1.57	0.9	-0.	941.	312.	-0.0	8.0
20	8.4	12.93	118.5	0.80	0.24	0.08	0.55	0.17	0.3	12.4	1.59	13.4	-0.	924.	308.	-0.0	8.5
32	10.1	12.69	121.1	0.74	0.27	0.11	0.47	0.17	0.4	3.9	1.25	13.4	-0.	901.	303.	-0.0	8.6
31	10.9	12.54	121.9	0.31	0.04	0.88	0.27	0.9	1.43	1.60	15.3	-0.	933.	304.	-0.0	8.6	
21	9.6	12.94	122.3	0.87	0.27	0.03	0.60	0.23	0.6	15.2	1.88	11.3	-0.	918.	306.	-0.0	8.7
19	10.5	11.77	113.4	1.61	0.42	0.30	1.20	0.12	0.2	34.3	3.07	15.0	-0.	918.	308.	-0.0	8.6
13	9.8	12.49	118.6	1.52	0.39	0.11	1.15	0.27	0.3	17.4	1.45	9.1	-0.	923.	307.	-0.0	8.5
17	11.4	11.34	111.7	1.89	0.77	0.62	1.13	0.15	0.3	34.6	5.21	8.3	-0.	920.	316.	-0.0	8.7
16	11.8	11.42	112.9	2.49	1.40	1.16	1.09	0.30	0.5	49.2	21.95	19.5	-0.	944.	331.	-0.0	8.4
15	9.1	12.50	116.5	1.43	0.60	0.06	0.83	0.52	0.9	21.2	2.09	12.3	-0.	902.	301.	-0.0	8.5
37	9.4	12.54	115.9	1.44	0.42	0.22	1.02	0.20	0.4	44.3	4.17	12.3	-0.	893.	310.	-0.0	8.5
8	9.1	12.58	117.3	1.46	0.26	0.18	1.84	0.07	0.6	26.0	3.87	14.9	-0.	912.	322.	-0.0	8.4
45	7.8	12.24	110.5	0.96	0.34	0.21	0.62	0.13	0.2	25.5	2.03	13.7	-0.	925.	324.	-0.0	8.3
46	8.7	11.55	106.6	1.17	0.45	0.37	0.72	0.08	0.1	31.7	5.82	9.8	-0.	905.	346.	-0.0	8.2
<b>FAST BASIN</b>																	
47	5.1	13.77	116.1	0.41	0.19	0.02	0.22	0.17	0.1	5.1	0.96	12.6	-0.	803.	314.	-0.0	8.5
56	5.2	14.05	119.0	0.59	0.20	0.03	0.39	0.17	0.9	1.34	1.66	14.6	-0.	873.	316.	-0.0	8.3
1	3.3	14.03	112.8	0.47	0.18	0.07	0.29	0.11	1.1	1.72	10.6	-0.	911.	311.	-0.0	8.4	
2	6.5	13.23	115.5	0.45	0.16	0.01	0.29	0.15	0.2	6.7	1.04	12.6	-0.	966.	341.	-0.0	8.5
51	4.7	13.58	113.2	0.52	0.18	0.02	0.34	0.16	0.3	9.4	1.32	6.1	-0.	961.	329.	-0.0	8.4
50	4.4	13.55	112.2	0.55	0.14	0.01	0.41	0.13	0.2	8.6	1.19	8.3	-0.	963.	328.	-0.0	8.2
48	6.6	12.77	111.9	0.41	0.14	0.05	0.27	0.09	0.5	6.3	1.76	9.2	-0.	970.	323.	-0.0	9.2
53	2.9	13.81	110.0	0.62	0.24	0.02	0.38	0.23	0.4	10.9	2.74	7.2	-0.	899.	316.	-0.0	8.3
3	3.1	13.63	109.0	0.58	0.21	0.04	0.38	0.16	0.2	8.8	2.7	11.8	-0.	935.	325.	-0.0	8.3
4	4.3	2.8	13.59	108.0	0.36	0.18	0.03	0.19	0.09	0.7	1.39	4.6	-0.	953.	323.	-0.0	8.3
4	2.4	13.70	107.6	0.42	0.15	0.08	0.27	0.07	0.3	10.3	1.48	5.6	-0.	922.	318.	-0.0	8.2
5	6.3	13.60	119.5	0.74	0.19	0.02	0.55	0.16	0.2	11.7	1.68	11.9	-0.	911.	316.	-0.0	8.5
54	6.2	13.20	114.4	0.76	0.23	0.07	0.53	0.16	0.2	16.5	3.37	9.2	-0.	893.	323.	-0.0	8.3
32	6.2	13.15	114.1	0.58	0.14	0.10	0.44	0.04	0.2	15.2	2.49	12.9	-0.	894.	322.	-0.0	8.5
5	8.4	11.78	107.9	0.59	0.42	0.32	0.57	0.11	0.1	28.6	5.12	4.6	-0.	899.	320.	-0.0	8.4

Table 41 VOL. WEIGHED MEAN CONC. LAKE FRIE JUNE 2-6, 73\* / EPIJUNION /

SIN	LEAP	0102	SA02	I.P.	IFP.	SRP.	P.P.	ORG P	SI02	TEN.	NH3	ORG N	F.CI	TEALK	SPCN	TURB	PHSU
WEST BASIN																	
23	14.7	10.05	106.6	0.76	0.15	0.05	3.61	0.10	4.3	2.7	2.04	-0.3	679.	910.	304.	1.4	-0.0
24	17.1	8.62	96.2	1.12	0.63	0.43	0.49	0.15	6.3	24.1	6.06	-0.0	577.	865.	272.	1.9	-0.0
25	16.7	9.50	105.4	0.69	0.10	0.14	0.59	0.01	1.0	14.3	2.14	-0.0	753.	838.	285.	1.5	-0.0
26	16.2	9.97	109.3	0.66	-0.18	0.16	0.67	0.03	2.7	13.3	2.06	-0.0	309.	822.	232.	1.2	-0.0
27	17.5	9.13	103.4	2.29	0.97	0.63	1.32	0.34	2.6	17.7	3.16	-0.0	457.	837.	258.	5.6	-0.0
28	17.6	9.48	107.0	1.46	0.62	0.49	0.84	0.13	1.7	13.4	2.08	-0.0	486.	826.	256.	1.9	-0.0
29	17.5	9.05	102.0	1.16	0.41	0.33	0.73	0.08	2.9	25.2	3.50	-0.0	494.	856.	267.	1.6	-0.0
30	17.6	8.58	96.8	1.41	0.87	0.51	0.54	0.36	5.3	37.3	5.77	-0.0	-0.	879.	290.	3.0	-0.0
CENTRAL BASIN																	
6	13.4	10.63	110.0	0.46	0.17	0.01	0.29	0.16	1.3	-0.3	0.67	-0.0	630.	943.	317.	0.5	-0.0
43	13.8	10.32	137.4	0.44	0.16	-0.06	0.28	0.16	1.7	0.4	0.66	-0.0	691.	953.	319.	1.1	-0.0
41	13.3	10.33	109.0	0.58	0.15	0.03	0.43	0.12	1.7	-0.0	1.55	-0.0	699.	953.	316.	2.8	-0.0
11	13.2	10.33	106.2	0.51	0.14	0.01	0.37	0.12	1.5	0.8	0.92	-0.0	694.	954.	315.	1.6	-0.0
12	12.0	10.24	102.2	0.41	0.13	-0.06	0.29	0.13	2.9	1.1	1.50	-0.0	634.	953.	314.	1.0	-0.0
34	12.3	11.38	114.4	0.51	0.26	0.03	1.25	0.23	1.0	-0.0	1.12	-0.0	711.	938.	313.	0.4	-0.0
33	12.7	10.47	106.4	0.47	0.15	0.04	0.32	0.11	2.3	0.1	1.25	-0.0	689.	942.	311.	0.6	-0.0
44	12.9	10.68	109.0	0.40	0.14	-0.06	0.26	0.14	0.9	-0.0	0.89	-0.0	694.	951.	317.	0.4	-0.0
42	12.0	11.12	111.1	0.53	0.17	0.06	0.37	0.09	0.9	-0.0	1.50	-0.0	701.	937.	315.	0.4	-0.0
10	11.8	11.52	114.5	0.49	0.16	-0.06	0.33	0.16	0.7	-0.0	0.62	-0.0	698.	934.	309.	0.4	-0.0
40	11.8	10.98	109.2	0.46	0.04	0.31	0.11	0.08	0.2	0.08	0.0	-0.0	694.	930.	311.	0.4	-0.0
13	12.2	11.11	111.6	0.50	0.12	-0.06	0.38	0.12	0.8	-0.0	0.71	-0.0	700.	935.	313.	0.4	-0.0
9	12.0	11.69	116.9	0.57	0.12	-0.06	0.45	0.12	0.4	1.0	0.73	-0.0	712.	924.	309.	0.3	-0.0
39	12.2	11.75	117.9	0.60	0.18	0.07	0.42	0.12	0.8	3.0	2.41	-0.0	694.	914.	305.	0.4	-0.0
14	12.6	11.86	120.2	0.50	0.15	0.01	0.35	0.14	0.2	-0.0	0.69	-0.0	694.	914.	309.	0.5	-0.0
35	12.9	10.88	111.1	0.54	0.15	0.04	0.39	0.11	0.5	2.1	1.65	-0.0	680.	917.	313.	0.4	-0.0
7	12.3	11.26	113.4	0.47	0.18	0.03	0.30	0.15	0.6	-0.0	0.60	-0.0	694.	958.	314.	0.4	-0.0
39	13.9	11.25	117.3	0.99	0.19	0.03	0.79	0.16	0.5	13.8	3.53	-0.0	712.	901.	303.	0.6	-0.0
36	13.3	10.63	109.5	0.67	0.19	0.05	0.48	0.14	0.8	8.2	2.74	-0.0	677.	898.	303.	0.5	-0.0
22	15.0	9.66	102.1	0.54	0.13	0.01	0.41	0.12	2.2	6.1	1.40	-0.0	666.	924.	305.	0.5	-0.0
20	15.6	10.14	109.9	0.73	0.21	0.03	0.52	0.18	3.2	16.5	2.27	-0.0	628.	914.	301.	0.9	-0.0
32	15.1	9.70	103.9	0.70	0.19	0.11	0.52	0.08	4.2	6.2	3.17	-0.0	671.	906.	302.	0.9	-0.0
31	17.7	8.65	97.7	1.73	0.89	0.68	0.84	0.21	8.0	47.6	7.15	-0.0	-0.	890.	302.	6.2	-0.0
21	17.0	8.51	95.0	1.27	0.69	0.46	0.59	0.23	6.8	31.1	5.38	-0.0	580.	913.	301.	1.2	-0.0
19	16.6	9.17	102.0	0.98	0.44	0.19	0.53	0.25	4.6	25.0	3.28	-0.0	607.	903.	304.	1.2	-0.0
18	17.3	9.15	102.6	1.36	0.67	0.31	0.69	0.36	5.0	25.1	5.16	-0.0	628.	915.	306.	3.0	-0.0
17	17.3	9.17	102.8	1.38	0.69	0.31	0.69	0.38	4.9	24.6	4.62	-0.0	629.	920.	310.	1.8	-0.0
16	17.8	8.98	100.4	2.96	1.71	1.41	1.25	0.33	6.9	24.7	22.68	-0.0	760.	957.	325.	3.1	-0.0
15	15.5	9.26	100.3	0.98	0.25	0.07	0.73	0.18	4.5	16.1	4.68	-0.0	646.	920.	303.	1.5	-0.0
37	16.5	9.23	101.8	1.52	0.57	0.27	0.95	0.30	2.4	13.4	5.26	-0.0	814.	908.	323.	3.0	-0.0
8	16.6	9.73	107.5	1.24	0.34	0.19	0.90	0.15	1.2	13.1	3.68	-0.0	789.	916.	318.	1.4	-0.0
45	14.5	10.46	112.6	1.01	0.22	0.05	0.79	0.18	1.2	21.9	3.67	-0.0	814.	898.	323.	1.0	-0.0
46	14.2	11.06	120.0	1.08	0.28	0.06	0.80	0.22	1.4	23.1	3.15	-0.0	831.	895.	325.	1.2	-0.0
51	14.3	12.53	131.8	0.51	0.32	0.11	0.19	0.31	0.4	1.8	7.14	-0.0	697.	951.	317.	0.8	-0.0
50	14.4	10.93	115.2	0.42	0.12	0.01	0.30	0.11	0.6	2.8	3.70	-0.0	691.	973.	319.	0.6	-0.0
47	13.6	11.60	120.3	0.47	0.21	0.04	0.26	0.17	0.7	1.8	1.43	-0.0	686.	950.	314.	0.7	-0.0
56	11.2	13.17	132.2	0.78	0.21	0.07	0.57	0.13	0.4	9.1	6.05	-0.0	714.	905.	313.	0.8	-0.0
1	12.5	12.32	122.0	1.76	0.27	0.08	0.49	0.20	1.0	10.7	5.79	-0.0	736.	896.	312.	0.6	-0.0
2	11.8	12.62	125.8	0.61	0.17	0.02	0.45	0.15	0.2	1.7	3.05	-0.0	691.	941.	317.	0.7	-0.0
51	14.3	12.53	131.8	0.51	0.32	0.11	0.19	0.31	0.4	1.8	7.14	-0.0	697.	951.	317.	0.8	-0.0
49	11.6	13.95	138.2	0.53	0.26	0.04	0.27	0.12	0.1	7.1	4.50	-0.0	697.	929.	309.	0.7	-0.0
4	12.8	13.25	134.9	0.76	0.32	0.10	0.44	0.22	0.3	1.8	3.79	-0.0	691.	956.	319.	0.8	-0.0
55	12.7	11.91	121.0	0.85	0.18	0.04	0.67	0.14	0.5	11.8	5.25	-0.0	740.	894.	312.	0.8	-0.0
54	12.3	12.92	129.9	0.78	0.19	0.06	0.60	0.19	0.3	11.5	3.79	-0.0	740.	893.	313.	0.6	-0.0
52	14.0	12.65	134.6	0.65	0.16	0.02	0.49	0.14	0.3	10.7	4.02	-0.0	743.	888.	310.	0.8	-0.0
5	14.4	11.01	116.3	1.18	0.24	0.04	0.93	0.21	1.3	19.4	3.17	-0.0	740.	913.	318.	1.0	-0.0

Table 42 VOL. WEIGHTED MEAN CONC. • LAKE ERIE JULY 3-7, 70\* / EPILIMNION /

	SIN TEMP	DIN02	SAG02	T.P.	TEP*	SRP*	P.P.	ORG P	S102	TEN.	NHS.	ORG N	F.GL	TEALK	SPCN	TURB	PHSU	
<b>WEST BASIN</b>																		
23	21.4	8.95	108.3	0.68	0.32	0.02	0.56	0.30	9.8	4.1	3.54	9.3	522.	880.	273.	1.4	8.6	
24	21.5	6.36	101.6	0.90	0.29	0.13	0.62	0.15	9.2	2.7	2.50	11.1	563.	820.	257.	2.4	8.6	
25	21.0	8.57	103.1	0.63	0.14	0.03	1.49	0.10	15.4	15.2	1.40	4.4	477.	781.	245.	5.2	8.3	
26	22.2	10.95	134.2	1.76	0.45	0.29	1.32	0.16	6.0	3.76	17.1	414.	794.	242.	2.4	8.9		
27	21.6	9.97	121.2	1.60	0.34	0.16	1.25	0.19	13.6	1.3	2.06	17.2	434.	815.	247.	3.9	3.0	
28	21.2	7.20	87.6	1.66	0.83	0.50	0.82	0.34	24.9	8.6	5.73	11.0	451.	840.	257.	6.0	8.3	
29	22.0	9.35	114.5	1.30	0.35	0.19	0.96	0.25	10.0	12.2	1.32	15.8	475.	871.	265.	2.0	8.7	
30	21.7	8.58	104.6	1.49	0.42	0.26	1.07	0.15	7.0	25.3	3.48	14.0	499.	896.	281.	3.1	8.5	
<b>CENTRAL BASIN</b>																		
6	19.1	9.48	110.3	0.29	0.17	0.01	0.12	0.16	2.4	0.6	0.66	8.9	687.	947.	312.	1.1	8.5	
43	18.1	9.43	107.5	0.36	0.19	0.02	0.16	0.11	1.8	0.3	0.52	13.1	692.	946.	314.	0.7	8.4	
41	17.5	9.36	105.5	0.45	0.16	0.06	0.29	0.10	2.5	0.4	0.70	9.0	695.	947.	316.	5.1	8.4	
11	16.2	9.65	39.2	0.78	0.17	0.03	0.61	0.15	2.7	1.4	0.63	11.4	955.	935.	313.	3.8	8.3	
12	19.5	9.50	111.0	0.35	0.15	0.02	0.20	0.13	1.9	2.0	1.40	7.8	683.	935.	307.	0.8	8.6	
34	18.9	9.49	109.7	0.38	0.19	0.06	0.19	0.12	1.9	7.9	1.51	5.8	686.	903.	303.	0.6	8.6	
33	20.9	9.65	115.7	0.74	0.21	0.01	0.53	0.20	2.5	8.5	1.45	6.3	680.	914.	300.	0.6	8.7	
44	18.9	9.51	110.1	0.34	0.16	0.08	0.17	0.09	2.0	0.4	0.91	11.9	686.	946.	312.	0.8	8.5	
42	18.8	9.48	109.3	0.36	0.17	0.05	0.19	0.12	1.8	0.1	0.67	12.2	690.	946.	314.	0.7	8.5	
10	18.3	9.44	107.7	0.33	0.15	0.03	0.18	0.12	2.1	0.6	0.89	9.0	695.	937.	312.	0.6	8.5	
40	18.6	9.43	108.5	0.35	0.18	0.02	0.11	0.16	1.5	1.1	1.07	10.0	682.	930.	309.	0.5	8.6	
13	19.4	9.56	111.5	0.32	0.18	0.02	0.14	0.17	1.6	2.0	1.11	9.3	673.	928.	303.	0.8	8.6	
9	18.6	9.34	107.3	0.25	0.16	0.05	0.03	0.11	1.8	0.4	0.61	8.3	706.	933.	310.	0.5	8.5	
39	18.5	9.36	107.4	0.25	0.20	0.02	0.05	0.05	1.8	1.1	0.7	0.56	11.1	692.	942.	310.	0.5	8.6
14	18.8	9.45	109.2	0.34	0.18	0.03	0.16	0.15	1.2	1.3	1.24	6.9	692.	931.	306.	0.4	8.5	
35	19.5	9.53	111.6	0.41	0.22	0.01	0.21	0.19	1.5	2.9	1.64	12.8	677.	920.	311.	0.4	8.6	
7	18.3	9.29	106.4	0.35	0.19	0.05	0.16	0.14	1.3	0.6	0.56	6.5	702.	960.	314.	0.4	8.4	
38	18.8	9.29	106.7	0.45	0.25	0.04	0.24	0.17	1.2	3.6	1.61	12.3	715.	918.	314.	0.4	8.4	
36	19.1	9.32	108.3	0.30	0.16	0.02	0.15	0.14	0.9	2.1	1.37	27.1	677.	910.	308.	0.3	8.6	
22	19.9	9.93	117.1	0.41	0.20	0.02	0.21	0.18	2.1	1.62	1.63	11.6	694.	920.	303.	0.6	8.6	
20	19.8	9.10	107.1	0.47	0.23	0.05	0.24	0.17	2.5	9.5	1.24	15.9	688.	904.	305.	0.5	8.6	
32	20.9	8.85	106.2	0.67	0.21	0.01	0.46	0.19	4.4	5.2	3.66	9.8	614.	906.	293.	0.8	8.6	
31	22.0	8.82	104.2	1.56	0.46	0.33	1.11	0.13	7.1	2.6	3.48	16.2	527.	907.	1.2	8.5		
21	21.1	8.49	102.0	0.73	0.37	0.29	0.37	0.17	7.0	1.3	0.14	9.9	617.	918.	289.	1.2	8.4	
19	21.0	7.96	95.6	0.90	0.43	0.25	0.48	0.18	5.7	12.9	3.58	14.6	583.	890.	294.	1.1	8.4	
18	21.7	7.90	37.0	0.97	0.21	0.28	0.46	0.24	5.5	10.1	4.71	12.0	571.	862.	286.	1.7	8.6	
17	22.4	7.94	97.7	1.17	0.62	0.31	0.55	0.31	5.7	11.1	5.61	14.7	606.	891.	288.	2.0	8.6	
16	23.6	8.25	101.6	1.55	0.68	0.37	0.87	0.32	4.7	13.8	7.67	19.1	656.	944.	294.	3.0	8.5	
15	20.3	8.74	103.7	0.58	0.27	0.11	0.31	0.16	4.0	20.9	3.26	14.4	636.	912.	297.	1.2	9.6	
37	21.3	8.74	102.4	1.04	0.46	0.31	0.59	0.15	4.1	2.3	6.39	14.9	654.	908.	305.	0.4	8.4	
8	20.7	8.47	101.4	1.03	0.40	0.17	0.64	0.23	4.6	2.7	3.62	12.8	626.	891.	299.	2.0	8.2	
45	21.1	8.64	107.6	1.07	0.38	0.20	0.69	0.18	5.4	19.3	4.80	8.5	747.	917.	316.	1.5	8.4	
46	21.4	10.30	124.6	0.57	0.24	0.03	0.33	0.20	4.0	11.2	2.16	8.7	768.	906.	314.	1.2	8.8	
<b>EAST BASIN</b>																		
47	18.5	9.52	109.2	0.29	0.16	0.03	0.13	0.13	1.3	1.0	0.86	10.6	698.	945.	312.	0.6	8.5	
56	17.7	9.20	104.1	0.59	0.25	0.07	0.34	0.18	1.5	3.7	3.58	9.1	706.	936.	318.	0.8	8.4	
1	16.8	9.38	104.3	0.46	0.27	0.06	0.19	0.19	1.7	4.0	3.21	8.9	696.	935.	317.	0.9	8.4	
2	16.9	9.37	104.2	0.61	0.25	0.03	0.37	0.21	4.4	2.5	2.12	14.4	707.	913.	320.	1.0	8.6	
51	16.2	10.11	110.8	0.47	0.21	0.04	0.26	0.18	1.8	12.5	1.18	11.9	680.	943.	323.	1.3	8.5	
50	18.5	10.61	114.8	0.32	0.19	0.03	0.13	0.16	1.0	1.8	0.81	7.6	691.	937.	319.	0.7	8.5	
48	18.0	9.86	112.9	0.57	0.20	0.04	0.37	0.17	3.0	6.6	0.52	8.2	681.	936.	319.	2.3	8.4	
53	18.0	9.59	103.0	0.44	0.21	0.02	0.23	0.19	1.0	3.5	2.30	12.4	694.	917.	312.	0.5	8.4	
3	16.8	9.93	110.1	0.51	0.21	0.03	0.31	0.18	0.7	6.9	1.33	12.8	682.	920.	315.	0.6	8.6	
4	17.4	9.96	111.7	0.39	0.20	0.05	0.19	0.15	1.48	1.8	0.7	1.8	686.	932.	313.	0.5	8.6	
4	17.7	9.94	112.5	0.34	0.23	0.04	0.10	0.19	0.6	1.65	1.31	1.1	692.	937.	315.	0.5	8.6	
55	19.0	9.26	107.5	0.55	0.26	0.07	0.30	0.19	1.8	4.2	3.70	16.0	706.	920.	315.	1.1	8.4	
54	18.1	9.47	13.6	0.48	0.20	0.05	0.28	0.15*	1.8	2.0	0.3	14.5	702.	926.	317.	0.6	8.4	
52	18.7	9.26	106.9	0.36	0.23	0.03	0.14	0.15	2.4	1.33	1.39	9.1	687.	945.	318.	0.8	8.5	
5	14.4	8.64	104.4	0.85	0.53	0.23	0.32	0.19	3.1	12.1	4.09	8.7	785.	913.	320.	0.9	8.4	

Table 43. VOL. WEIGHTED MEAN CONC. + LAKE ERIE JULY 28-AUG. 2, 70+ / E-FILLIMNION /

SIN	TEMP	D102	SAU2	I.P.	TEP	SRP	P.P.	ORG P.	SI102	TEN.	TH3.	ORG N.	F.CI	TFALK	SPCN	TURB	PHSU
<b>WEST 3A BASIN</b>																	
2.3	24.7	10.23	130.3	0.93	0.15	0.64	0.77	0.11	5.8	0.7	1.89	-6.0	488.	847.	256.	1.0	8.9
24	23.7	8.94	112.2	0.98	0.24	0.69	0.74	0.15	18.6	2.7	2.44	-6.0	465.	808.	247.	1.3	8.7
25	22.6	7.90	92.6	0.65	0.27	0.07	0.37	0.20	23.0	12.9	2.52	-6.0	648.	800.	271.	2.4	8.2
26	24.3	9.44	119.5	1.58	0.53	0.15	1.04	0.34	6.2	11.4	5.02	-6.0	452.	904.	281.	1.2	8.9
27	24.1	8.64	108.9	1.06	0.40	0.18	0.66	0.22	34.1	2.3	5.13	-6.0	512.	825.	253.	1.9	8.6
28	23.9	8.91	112.3	1.16	0.36	0.11	0.82	0.25	25.6	2.1	3.52	-6.0	486.	820.	253.	1.5	8.6
29	23.9	9.61	121.4	1.62	0.48	0.11	0.55	0.27	7.2	9.9	2.61	-6.0	495.	885.	274.	1.1	9.1
30	23.0	9.77	122.2	0.96	0.40	0.02	0.56	0.37	5.5	5.8	2.61	-6.0	575.	903.	291.	0.8	8.7
<b>CENTRAL BASIN</b>																	
6	19.2	9.84	115.6	0.34	0.11	0.01	0.23	0.10	2.8	0.9	1.04	-6.0	691.	939.	333.	0.7	8.6
43	21.4	9.96	120.5	0.44	0.27	0.03	0.17	0.24	2.6	0.6	2.15	-6.0	669.	938.	309.	0.7	8.6
41	21.9	9.70	118.4	0.31	0.17	0.03	0.14	0.14	4.4	2.1	1.43	-6.0	666.	933.	299.	1.1	8.6
11	20.6	9.36	111.5	0.41	0.17	0.03	0.24	0.14	4.1	3.6	1.56	-6.0	633.	922.	302.	1.2	8.3
12	22.2	9.95	121.8	0.35	0.19	0.02	0.16	0.17	3.1	2.0	1.65	-6.0	635.	910.	293.	0.7	8.7
34	22.1	9.96	122.1	0.37	0.22	0.01	0.16	0.20	2.4	2.3	2.11	-6.0	587.	893.	291.	0.8	8.6
33	21.9	9.28	113.4	0.34	0.16	0.05	0.19	0.10	2.9	2.8	2.55	-6.0	649.	910.	291.	0.7	8.6
44	22.5	9.42	116.1	0.37	0.16	0.02	0.21	0.14	2.1	0.4	1.59	-6.0	668.	925.	307.	0.5	8.7
42	22.0	9.90	121.3	0.41	0.16	0.03	0.27	0.13	3.8	2.6	2.39	-6.0	611.	904.	293.	0.7	8.6
10	21.0	9.17	110.4	0.42	0.11	0.02	0.31	0.09	2.6	1.3	1.42	-6.0	408.	930.	308.	0.5	8.6
40	21.6	8.65	105.1	0.27	0.21	0.02	0.06	0.19	3.5	2.8	2.16	-6.0	636.	892.	292.	0.6	8.7
13	21.8	9.35	114.0	0.39	0.20	0.07	0.19	0.13	3.7	2.1	1.67	-6.0	631.	907.	296.	0.7	8.7
9	21.4	9.36	113.3	0.28	0.09	0.01	0.20	0.07	2.2	0.4	1.38	-6.0	683.	941.	309.	0.6	8.6
39	21.3	8.78	106.2	0.25	0.20	0.03	0.06	0.17	2.3	0.5	1.25	-6.0	643.	914.	303.	0.5	8.6
14	22.2	9.31	114.4	0.50	0.27	0.01	0.23	0.26	2.3	2.7	2.42	-6.0	595.	907.	286.	0.6	8.8
35	22.1	9.22	112.9	0.32	0.20	0.04	0.12	0.16	2.2	0.4	1.21	-6.0	628.	905.	291.	0.6	8.8
7	20.7	9.26	110.9	0.39	0.13	0.02	0.27	0.10	2.1	0.5	1.15	-6.0	692.	937.	313.	0.6	8.6
38	21.8	9.21	112.2	0.34	0.16	0.02	0.18	0.14	2.1	0.2	0.21	-6.0	677.	933.	303.	0.5	8.7
36	22.1	9.17	112.4	0.33	0.20	0.08	0.11	0.11	2.8	1.1	2.47	-6.0	674.	921.	301.	0.5	8.7
22	22.6	9.87	121.7	0.32	0.15	0.01	0.17	0.14	2.4	0.5	1.47	-6.0	674.	906.	306.	3.4	8.8
20	22.5	9.12	112.6	0.41	0.15	0.01	0.26	0.14	5.5	7.0	1.80	-6.0	659.	883.	297.	0.7	8.7
32	22.8	8.72	108.1	0.47	0.18	0.02	0.29	0.16	5.6	4.4	4.4	-6.0	616.	899.	321.	0.6	8.7
31	24.0	10.68	134.4	0.84	0.33	0.02	0.52	0.31	6.1	1.2	1.64	-6.0	601.	894.	284.	0.7	9.0
21	23.3	10.07	125.8	0.37	0.11	0.01	0.25	0.10	3.7	2.2	1.37	-6.0	666.	892.	298.	0.6	8.8
13	22.5	8.41	103.8	0.60	0.20	0.03	0.40	0.17	5.1	6.3	2.50	-6.0	645.	880.	303.	1.1	8.4
18	22.5	8.28	103.7	1.22	0.46	0.32	0.76	0.14	7.1	7.8	7.06	-6.0	716.	864.	308.	1.7	9.5
17	22.8	8.30	103.4	1.26	0.51	0.32	0.75	0.20	9.3	4.7	5.28	-6.0	650.	879.	299.	1.6	8.6
16	24.0	9.27	116.6	1.44	0.56	0.32	0.88	0.23	6.5	3.9	4.39	-6.0	764.	894.	298.	1.2	8.7
15	21.6	9.15	111.3	0.27	0.15	0.02	0.13	0.13	3.0	1.3	1.6	-6.0	678.	897.	303.	0.6	8.6
37	23.5	8.46	106.1	0.38	0.24	0.04	0.14	0.15	5.1	6.1	5.23	-6.0	777.	907.	314.	0.7	8.7
8	22.4	9.08	112.0	0.43	0.12	0.01	0.31	0.11	3.5	4.4	1.57	-6.0	714.	904.	313.	0.6	8.7
45	23.7	9.55	119.1	0.44	0.15	0.01	0.29	0.14	2.9	2.9	3.41	-6.0	738.	897.	304.	0.5	8.8
46	24.3	10.11	128.1	0.46	0.18	0.02	0.29	0.16	3.5	1.8	3.90	-6.0	729.	878.	299.	0.6	8.9
47	23.3	9.57	119.2	0.31	0.13	0.01	0.18	0.12	2.0	0.7	0.91	-6.0	700.	933.	305.	0.7	8.8
56	24.2	9.52	120.6	0.41	0.19	0.03	0.22	0.16	1.8	0.7	0.50	-6.0	697.	900.	307.	0.6	8.9
1	21.3	8.67	104.8	0.34	0.17	0.03	0.21	0.14	4.6	1.9	1.90	-6.0	635.	930.	311.	0.5	-0.0
2	20.7	9.08	108.7	0.36	0.18	0.04	0.19	0.14	3.3	1.2	1.96	-6.0	699.	918.	317.	0.7	8.6
51	22.9	9.40	116.7	0.34	0.16	0.02	0.21	0.14	2.2	0.4	0.29	-6.0	697.	936.	315.	0.5	8.7
50	16.9	9.73	114.5	0.39	0.19	0.07	0.20	0.18	3.2	1.3	1.43	-6.0	691.	931.	315.	0.7	8.5
48	23.2	9.55	118.9	0.43	0.14	0.02	0.29	0.12	2.2	0.4	1.43	-6.0	697.	934.	308.	0.5	8.8
53	20.4	10.05	100.5	0.37	0.02	0.23	0.12	0.9	2.0	0.9	0.56	-6.0	700.	837.	314.	0.5	8.6
3	20.5	9.13	106.8	0.33	0.17	0.02	0.16	0.15	1.8	1.2	1.66	-6.0	707.	942.	313.	0.6	8.6
4	23.6	9.97	104.9	0.34	0.14	0.02	0.20	0.12	1.4	0.5	2.15	-6.0	697.	933.	311.	0.5	8.9
5	24.2	9.61	122.5	0.51	0.11	0.05	0.40	0.06	2.3	1.8	2.24	-6.0	705.	878.	305.	0.5	8.8
54	23.3	9.53	119.0	0.39	0.13	0.02	0.27	0.10	1.9	1.4	1.07	-6.0	702.	914.	312.	0.5	8.8
52	24.6	9.65	125.1	0.70	0.17	0.04	0.53	0.13	3.0	3.1	1.51	-6.0	712.	858.	303.	0.6	8.8
5	23.0	10.78	135.3	0.76	0.15	0.08	0.35	0.10	3.9	6.02	2.87	-6.0	725.	902.	302.	0.9	8.9

Table 44 VOL. WEIGHED MEAN CONC. LAKE ERIE AUG. 25-30, 70\* / FILTRATION /

SIN	LEIP	D102	SA02	T.P.	TEP	SRP	P.P.	ORG P	SI02	TEN	NH3.	ORG N	F.GI	TEALK	SPCN	TURB	PHSU
<b>WEST BASIN</b>																	
23	23.1	7.59	94.5	1.07	0.45	0.22	0.62	0.23	6.3	1.3	7.21	-0.0	523.	815.	270.	1.9	8.5
24	23.9	9.06	114.2	1.38	0.53	0.30	0.84	0.24	5.9	4.6	2.35	-0.0	496.	785.	259.	3.3	8.7
25	22.9	8.38	113.9	1.56	1.12	0.05	1.45	0.07	15.9	6.3	1.21	-0.0	862.	772.	297.	2.8	8.5
26	23.2	9.28	115.7	2.00	0.56	0.23	1.43	0.28	10.7	9.5	1.20	-0.0	387.	793.	245.	2.7	8.7
27	24.1	10.23	129.3	2.33	0.59	0.38	1.64	0.31	7.2	1.1	1.73	-0.0	425.	792.	244.	3.7	9.1
28	24.5	9.20	117.0	1.64	0.50	0.30	1.14	0.20	15.9	1.1	3.12	-0.0	470.	795.	256.	4.1	8.9
29	24.2	11.64	150.1	1.52	0.31	0.12	1.21	0.19	2.6	1.5	1.34	-0.0	500.	765.	259.	2.5	9.1
30	24.0	8.61	108.8	2.00	0.84	0.47	1.16	0.37	3.2	5.2	9.21	-0.0	598.	856.	307.	4.0	8.4
<b>CENTRAL BASIN</b>																	
6	22.5	8.67	106.8	0.23	0.06	0.03	0.17	0.04	2.1	0.6	2.19	-0.0	689.	923.	321.	0.5	8.7
43	22.6	8.57	135.9	0.34	0.13	0.03	0.21	0.11	2.7	0.9	0.79	-0.0	686.	926.	315.	0.6	8.8
41	22.7	8.86	109.6	0.39	0.12	0.03	0.27	0.09	4.2	6.4	0.72	-0.0	660.	906.	310.	0.6	8.7
11	22.0	8.38	102.3	0.29	0.11	0.03	0.18	0.08	5.4	0.6	0.93	-0.0	663.	906.	310.	1.2	8.6
12	22.4	8.49	104.6	0.32	0.10	0.02	0.21	0.08	4.2	0.4	0.99	-0.0	647.	896.	308.	0.9	8.7
34	23.0	8.77	108.9	0.38	0.12	0.02	0.26	0.10	4.0	1.1	0.77	-0.0	647.	882.	307.	0.7	8.5
33	23.6	9.61	120.6	0.58	0.14	0.05	0.44	0.09	4.3	6.3	1.04	-0.0	649.	859.	286.	1.1	8.9
44	22.9	8.68	107.6	0.35	0.12	0.02	0.22	0.10	2.0	1.1	0.83	-0.0	579.	920.	315.	0.5	8.8
42	23.0	8.62	107.1	0.42	0.14	0.02	0.28	0.12	3.0	0.6	0.72	-0.0	658.	899.	307.	0.3	8.8
10	23.0	9.57	106.4	0.31	0.11	0.04	0.20	0.07	2.8	0.7	1.22	-0.0	655.	890.	307.	0.5	8.7
40	22.5	8.11	100.8	0.37	0.14	0.03	0.23	0.11	4.5	1.7	0.94	-0.0	662.	887.	308.	0.6	8.7
13	23.0	9.09	112.6	0.38	0.11	0.03	0.26	0.08	4.4	1.7	1.03	-0.0	651.	896.	304.	0.7	8.7
9	23.2	8.71	108.5	0.20	0.07	0.02	0.12	0.06	3.0	0.7	1.91	-0.0	677.	904.	313.	0.5	8.7
39	23.5	8.45	135.6	0.35	0.12	0.03	0.23	0.09	3.3	0.6	0.72	-0.0	678.	888.	308.	0.5	8.9
14	23.4	8.63	107.7	0.36	0.11	0.03	0.25	0.09	4.8	2.6	1.71	-0.0	669.	854.	305.	0.6	8.8
35	23.8	8.84	111.2	0.52	0.13	0.03	0.39	0.10	3.0	1.0	1.44	-0.0	620.	866.	313.	0.5	8.8
7	23.1	8.88	110.5	0.23	0.10	0.03	0.13	0.07	2.4	0.5	1.11	-0.0	674.	909.	317.	0.5	8.7
38	23.5	8.54	106.8	0.28	0.10	0.02	0.18	0.08	2.3	0.5	0.72	-0.0	686.	894.	321.	0.4	8.7
36	23.7	8.70	109.3	0.41	0.12	0.02	0.30	0.10	2.8	0.4	1.06	-0.0	700.	886.	314.	0.4	8.7
22	23.7	8.60	108.0	0.53	0.16	0.04	0.37	0.13	3.8	1.8	0.85	-0.0	606.	873.	299.	1.0	8.7
20	23.7	8.67	109.0	0.33	0.13	0.03	0.23	0.06	3.5	1.5	0.95	-0.0	727.	892.	319.	0.5	8.7
32	23.8	8.49	106.7	0.66	0.25	0.12	0.41	0.13	8.3	1.3	3.20	-0.0	677.	881.	306.	1.3	8.7
31	23.9	7.67	36.5	1.17	0.62	0.33	0.54	0.29	9.7	2.8	3.78	-0.0	645.	891.	305.	1.9	8.5
21	23.9	8.66	109.0	0.40	0.13	0.03	0.27	0.10	4.7	0.5	0.16	-0.0	749.	886.	322.	0.6	8.8
19	24.0	9.05	114.1	0.28	0.08	0.04	0.20	0.04	4.8	0.5	0.92	-0.0	837.	679.	326.	0.8	8.7
18	23.3	8.67	109.2	0.39	0.11	0.06	0.28	0.05	4.9	1.1	2.14	-0.0	809.	869.	332.	1.0	8.7
17	24.1	9.46	119.5	0.66	0.31	0.07	0.34	0.24	4.5	4.1	5.72	-0.0	904.	890.	344.	1.4	8.8
16	25.4	10.41	131.7	0.94	0.24	0.14	0.70	0.11	4.7	3.4	5.23	-0.0	944.	929.	343.	1.8	8.8
15	23.7	8.70	109.2	0.25	0.08	0.04	0.16	0.05	3.8	0.5	0.65	-0.0	703.	916.	317.	0.6	8.7
37	23.8	8.73	109.7	0.37	0.10	0.04	0.27	0.06	3.3	0.4	1.43	-0.0	951.	889.	352.	0.8	8.7
8	23.5	8.72	109.1	0.24	0.08	0.03	0.16	0.05	4.6	0.8	1.36	-0.0	715.	907.	316.	0.6	8.7
45	22.6	7.98	39.2	0.42	0.10	0.04	0.31	0.00	5.3	1.8	0.81	-0.0	712.	900.	319.	1.1	8.7
46	23.7	8.38	105.3	0.42	0.11	0.04	0.31	0.06	5.2	0.4	0.65	-0.0	729.	880.	317.	1.3	8.7
<b>FAST BASIN</b>																	
47	22.7	8.63	106.6	0.23	0.08	0.01	0.15	0.06	2.0	0.4	0.72	-0.0	698.	911.	323.	0.6	8.7
56	23.3	8.37	104.4	0.32	0.08	0.01	0.24	0.08	4.7	0.9	0.51	-0.0	714.	901.	321.	0.9	8.7
1	22.7	7.57	93.8	0.36	0.15	0.07	0.21	0.08	4.7	1.7	1.28	-0.0	716.	892.	323.	0.5	8.5
2	22.2	8.22	106.9	0.33	0.15	0.04	0.18	0.11	3.0	0.6	1.45	-0.0	709.	901.	324.	0.6	8.6
51	21.8	7.95	96.8	0.54	0.09	-0.06	0.45	0.09	6.3	0.3	1.18	-0.0	711.	917.	332.	0.7	8.4
2	21.9	8.45	103.1	0.31	0.12	-0.06	0.19	0.12	4.6	0.5	0.5	-0.0	703.	911.	327.	0.7	8.6
48	20.3	7.13	34.8	0.50	0.08	0.06	0.42	0.03	5.1	4.0	1.03	-0.0	698.	905.	327.	12.5	8.3
53	22.9	8.45	104.9	0.30	0.09	-0.06	0.21	0.09	3.5	0.7	0.74	-0.0	708.	898.	321.	0.8	8.7
3	23.1	8.73	108.6	0.35	0.23	0.02	0.12	0.21	3.0	1.0	1.02	-0.0	711.	682.	317.	0.6	8.7
4	21.7	8.39	101.7	0.32	0.12	0.08	0.21	0.04	3.4	2.2	0.71	-0.0	732.	914.	326.	0.5	8.5
5	21.2	8.28	99.9	0.24	0.08	0.02	0.15	0.06	3.0	4.2	1.94	-0.0	703.	917.	321.	0.4	8.7
55	23.7	8.77	109.8	0.35	0.10	0.01	0.25	0.10	4.2	0.4	1.26	-0.0	721.	888.	317.	0.9	8.8
54	20.8	8.44	104.7	0.35	0.10	0.01	0.24	0.10	3.4	0.9	1.31	-0.0	714.	905.	320.	0.7	8.7
52	17.2	8.58	103.0	0.31	0.09	0.02	0.23	0.07	3.1	2.4	1.06	-0.0	705.	903.	319.	0.7	8.7
5	21.2	8.35	92.2	0.29	0.11	0.08	0.20	0.03	4.8	5.9	1.61	-0.0	715.	898.	321.	0.8	8.7

Table 45 - VOL. - MEAN CLOUD. + LAKE ERIE SEPT. 23-27. 70\* / FPI UNION /

STN.	TF4P	DI02	SA02	I.P.	TFP.	S.RP.	P.P.	ORG P.	SI02	IEN.	NH3.	ORG N.	F.GL	IFALK.	SPCN.	TURB.	PHSU	
<b>WEST BASIN</b>																		
23	20.9	8.40	100.8	1.16	0.35	0.14	0.81	0.21	1.5	3.3	1.65	-0.6	516.	81.9.	278.	2.2	8.5	
24	20.7	8.66	96.5	1.21	0.38	0.16	0.84	0.20	1.3	2.5	3.7	8	-0.3	538.	80.0.	268.	7.0	8.5
25	19.5	8.72	102.5	0.64	0.18	0.12	0.46	0.07	2.8	12.4	2.0	2	-0.0	783.	77.9.	313.	2.6	8.2
26	19.7	8.65	101.7	1.32	0.53	0.19	0.79	0.34	1.3	12.5	3.9	0	-0.0	794.	231.	3.5	8.2	2
27	19.9	8.37	96.6	1.68	1.76	0.31	1.12	0.45	15.9	12.0	5.2	9	-0.0	378.	811.	252.	5.5	8.3
28	20.4	8.62	95.3	1.94	1.35	0.41	0.85	0.64	2.1	7.5	7.7	5	-0.0	392.	847.	251.	9.9	1
29	21.0	8.23	98.9	1.93	0.73	0.31	1.20	0.42	6.4	3.6	3.1	6	-0.0	407.	818.	254.	7.6	8.6
30	21.1	8.06	97.1	1.27	0.53	0.25	0.75	0.27	2.5	10.0	5.6	8	-0.0	502.	841.	277.	3.4	8.2
<b>CENTRAL BASIN</b>																		
6	19.5	8.86	103.6	0.32	0.16	0.04	0.15	0.13	3.0	2.3	1.2	4	-0.0	679.	94.6.	323.	0.3	8.4
43	19.6	9.11	106.9	0.45	0.14	0.04	0.31	0.09	1.0	1.7	0.6	8	-0.0	632.	94.9.	312.	1.1	8.4
41	20.1	9.33	110.4	0.51	0.13	0.07	0.38	0.07	0.8	1.5	0.7	6	-0.0	636.	877.	306.	0.9	8.5
11	20.5	9.32	110.9	0.44	0.15	0.03	0.26	0.12	1.2	1.4	0.5	7	-0.0	642.	905.	310.	1.0	8.5
12	20.1	9.28	109.8	0.52	0.16	0.03	0.35	0.13	0.7	2.8	1.5	3	-0.0	632.	893.	313.	1.3	8.4
34	20.5	9.24	110.0	0.56	0.14	0.04	0.40	0.13	0.8	1.8	0.6	5	-0.0	632.	875.	307.	0.9	8.5
33	20.0	9.00	106.3	0.93	0.35	0.06	0.58	0.22	1.4	3.0	1.9	9	-0.0	593.	852.	298.	1.4	8.3
44	19.8	8.84	104.6	0.37	0.13	0.03	0.23	0.10	2.8	1.8	0.7	6	-0.0	654.	917.	316.	0.8	8.4
42	20.1	9.42	111.4	0.43	0.14	0.07	0.30	0.07	0.9	0.7	0.2	4	-0.0	661.	904.	317.	0.8	8.5
10	20.5	8.95	106.5	0.46	0.15	0.04	0.32	0.11	1.7	1.1	0.6	6	-0.0	659.	912.	314.	0.8	8.5
40	20.5	8.91	106.1	0.42	0.16	0.05	0.26	0.11	2.4	0.7	0.3	4	-0.0	654.	879.	316.	0.6	8.4
13	20.3	9.52	113.1	0.46	0.16	0.02	0.32	0.13	0.2	1.9	1.2	3	-0.0	636.	883.	310.	0.6	8.5
3	20.3	8.76	104.0	0.42	0.16	0.04	0.26	0.11	3.0	1.1	0.5	4	-0.0	665.	924.	316.	0.7	8.4
39	20.3	8.70	103.3	0.42	0.17	0.04	0.25	0.13	2.7	0.7	0.5	7	-0.0	652.	892.	319.	0.5	8.4
14	20.8	9.45	113.2	0.47	0.16	0.04	0.31	0.12	1.1	1.5	0.0	7	-0.0	640.	864.	310.	0.8	8.5
35	20.8	9.06	108.6	0.71	0.27	0.07	0.44	0.19	1.2	0.7	0.3	6	-0.0	637.	875.	306.	1.0	8.5
7	20.5	9.17	109.3	0.43	0.21	0.03	0.22	0.18	2.5	1.1	0.5	6	-0.0	683.	922.	318.	0.5	8.5
38	20.8	8.94	107.1	0.36	0.13	0.02	0.23	0.11	1.4	0.4	0.4	6	-0.0	649.	905.	319.	0.6	8.6
36	21.6	8.96	108.9	0.34	0.13	0.02	0.21	0.10	3.6	0.4	0.5	4	-0.0	668.	890.	316.	0.8	8.6
22	20.7	9.13	119.9	0.73	0.25	0.11	0.48	0.14	0.9	0.7	0.7	1	-0.0	617.	878.	305.	0.8	8.5
20	21.4	8.95	108.3	0.78	0.29	0.12	0.49	0.17	3.1	0.4	0.7	1	-0.0	719.	881.	325.	0.7	8.4
32	21.0	8.20	98.5	0.67	0.24	0.13	0.43	0.11	6.7	1.1	4.0	3	-0.0	719.	930.	322.	1.2	8.4
31	21.5	8.05	97.6	1.38	0.58	0.31	0.80	0.27	3.4	11.5	3.8	1	-0.0	554.	858.	291.	3.7	8.2
21	21.7	8.40	102.2	0.92	0.31	0.15	0.61	0.16	1.9	3.4	1.2	7	-0.0	676.	888.	321.	2.4	8.5
19	21.1	8.54	103.3	0.73	0.27	0.13	0.45	0.15	3.7	1.5	0.7	5	-0.0	708.	872.	327.	0.8	8.3
18	21.2	8.37	101.9	1.03	0.34	0.17	0.66	0.18	2.1	2.8	0.6	7	-0.0	691.	860.	323.	1.5	8.4
17	21.4	8.78	106.2	0.67	0.27	0.12	0.60	0.15	2.5	2.1	0.6	4	-0.0	716.	880.	323.	1.4	8.5
16	23.1	3.24	112.9	1.04	0.36	0.16	0.68	0.21	3.1	2.6	4.0	1	-0.0	782.	927.	333.	1.4	8.5
15	21.6	8.70	105.6	0.45	0.14	0.04	0.30	0.11	2.4	0.4	0.3	1	-0.0	653.	885.	315.	0.7	8.6
37	21.9	8.81	107.5	0.70	0.20	0.07	0.50	0.13	2.2	1.6	0.8	0	-0.0	732.	896.	330.	1.1	8.6
8	21.5	8.70	105.4	0.59	0.21	0.07	0.38	0.14	2.7	0.4	1.5	5	-0.0	898.	898.	346.	0.8	8.5
45	20.8	8.52	102.5	0.64	0.21	0.09	0.44	0.14	2.5	1.5	1.2	7	-0.0	722.	912.	329.	1.1	8.6
46	21.2	8.16	110.4	0.54	0.15	0.03	0.39	0.11	0.4	0.4	0.3	6	-0.0	702.	899.	322.	1.0	8.7
<b>EAST BASIN</b>																		
47	18.9	8.90	103.1	0.30	0.14	0.05	0.16	0.11	2.3	2.8	0.7	5	-0.0	689.	90.9.	322.	0.5	8.5
56	20.5	9.05	107.9	0.41	0.17	0.05	0.25	0.11	4.4	0.5	1.3	7	-0.0	710.	938.	325.	0.6	8.5
1	20.0	8.93	109.9	0.43	0.18	0.09	0.25	0.09	5.8	0.4	1.1	6	-0.0	782.	927.	333.	1.4	8.5
2	20.1	9.00	106.5	0.45	0.20	0.06	0.25	0.14	4.2	0.8	1.0	0	-0.0	694.	94.0.	333.	0.7	8.5
51	18.2	8.59	102.4	0.39	0.16	0.06	0.24	0.09	4.8	2.6	1.4	5	-0.0	702.	934.	332.	1.9	8.4
50	19.7	9.24	108.4	0.32	0.13	0.09	0.19	0.07	3.5	0.4	1.6	8	-0.0	701.	932.	329.	0.8	8.5
4	18.6	8.99	102.4	0.37	0.14	0.06	0.23	0.07	4.6	0.9	0.8	0	-0.0	702.	935.	325.	1.4	8.5
53	20.1	8.82	104.4	0.34	0.16	0.06	0.18	0.10	4.1	1.0	1.1	3	-0.0	697.	926.	326.	0.5	8.5
3	20.4	9.10	103.1	0.33	0.14	0.03	0.19	0.11	3.7	0.4	0.3	6	-0.0	701.	917.	325.	0.6	8.5
4	19.9	8.87	104.5	0.29	0.14	0.03	0.15	0.11	2.4	0.7	0.6	0	-0.0	694.	911.	325.	0.6	8.5
4	20.2	8.50	106.3	0.40	0.16	0.05	0.24	0.11	5.0	0.4	1.1	6	-0.0	697.	914.	324.	0.4	8.6
5	20.7	9.09	108.6	0.40	0.16	0.06	0.24	0.11	3.7	0.4	1.0	7	-0.0	715.	950.	324.	0.7	8.6
54	20.7	9.20	110.0	0.41	0.17	0.06	0.24	0.11	2.9	0.7	0.4	8	-0.0	702.	929.	320.	0.7	8.6
52	18.3	9.05	100.9	0.39	0.18	0.07	0.21	0.10	2.9	0.6	0.7	8	-0.0	690.	90.3.	326.	0.7	8.6
5	15.6	8.65	88.2	0.45	0.11	0.06	0.25	0.14	1.6	0.6	0.9	2	-0.0	812.	917.	324.	0.9	8.6

Table 46 - YUL. MEAN GONG. &amp; LAKE FRTL OCT. 21-26, 70\* / NO THE AM. STRATIFICATION /

SIN	TEMP	D102	S402	I.P.	IFP.	S3P.	P.P.	ORG P.	SI02	IFN.	NH3.	ORG N.	F.GL	IFALK	SPCN	TURB	PHSU
WEST BASIN																	
23	14.1	10.83	11.35	1.08	0.23	0.68	0.80	0.20	1.6	2.1	0.37	-0.0	6.11	851.	2.0	8.6	
24	13.0	10.34	10.57	0.83	0.19	0.11	0.49	0.06	14.6	13.0	1.74	-0.0	511.	860.	265.	1.1	
25	12.8	10.32	11.56	0.52	0.21	0.06	0.32	0.14	14.2	12.5	0.87	-0.0	704.	813.	2.7	8.3	
26	13.3	8.10	8.95	4.25	1.71	1.14	2.54	0.57	11.7	21.4	17.5	-0.0	497.	841.	282.	1.1	
27	13.8	9.90	10.30	1.60	0.46	0.27	1.14	0.19	5.0	12.1	1.48	-0.0	361.	858.	256.	4.5	
28	13.7	9.47	9.63	1.46	0.77	0.45	0.69	0.32	4.8	15.3	3.05	-0.0	397.	826.	263.	3.7	
29	13.8	11.68	11.11	1.92	0.17	0.05	0.74	0.13	5.0	8.0	0.36	-0.0	511.	812.	272.	3.6	
30	13.7	9.82	10.21	1.51	0.50	0.28	1.01	0.21	1.8	12.0	2.02	-0.0	507.	839.	281.	7.5	
CENTRAL BASIN																	
6	14.4	9.74	10.27	0.39	0.19	0.09	0.19	0.10	2.4	4.4	1.33	-0.0	680.	931.	331.	1.1	
43	14.6	9.69	10.23	1.65	0.19	0.02	0.50	0.11	2.3	2.3	2.64	-0.0	650.	918.	317.	5.4	
41	14.6	9.66	10.24	0.56	0.22	0.06	0.33	0.16	1.8	2.3	1.59	-0.0	657.	921.	317.	1.2	
11	14.5	9.72	10.27	0.53	0.18	0.10	0.35	0.08	1.9	1.6	1.02	-0.0	657.	929.	317.	3.0	
12	14.5	10.05	10.63	0.55	0.19	0.11	0.36	0.08	1.7	1.8	1.07	-0.0	658.	928.	318.	1.8	
34	14.7	9.99	10.61	0.58	0.23	0.06	0.35	0.17	1.3	2.6	1.45	-0.0	669.	914.	319.	1.4	
33	14.5	10.36	10.95	0.80	0.23	0.08	0.57	0.15	0.7	0.8	0.66	-0.0	672.	902.	316.	1.6	
44	15.3	9.51	10.22	0.41	0.18	0.14	0.23	0.04	2.2	3.2	1.84	-0.0	699.	930.	329.	0.8	
42	15.0	9.75	10.42	0.51	0.24	0.09	0.27	0.15	2.9	2.3	1.93	-0.0	659.	926.	324.	1.1	
10	15.4	9.56	10.22	0.45	0.22	0.08	0.13	0.23	2.5	3.0	2.12	-0.0	677.	932.	323.	0.8	
40	15.4	9.64	10.38	0.46	0.23	0.15	0.23	0.08	2.8	2.5	2.01	-0.0	683.	933.	325.	0.7	
13	15.1	9.40	10.06	0.42	0.18	0.16	0.24	0.08	2.6	1.3	1.41	-0.0	657.	923.	321.	0.7	
9	15.7	9.40	10.21	0.50	0.19	0.09	0.31	0.11	0.7	2.7	1.17	-0.0	674.	926.	324.	0.9	
39	15.5	9.75	10.52	0.48	0.24	0.18	0.24	0.09	2.2	2.9	1.83	-0.0	678.	938.	328.	1.6	
14	15.3	9.51	10.23	0.54	0.23	0.11	0.30	0.13	1.3	2.7	1.27	-0.0	788.	930.	322.	0.6	
35	15.0	10.14	10.83	0.70	0.26	0.13	0.45	0.13	0.3	3.4	1.14	-0.0	671.	905.	320.	0.8	
7	15.6	9.72	10.53	0.58	0.28	0.15	0.30	0.13	2.1	2.9	1.46	-0.0	697.	922.	327.	0.9	
38	15.8	9.49	10.31	0.57	0.25	0.05	0.32	0.16	0.8	3.7	0.67	-0.0	667.	926.	322.	0.7	
36	15.2	9.48	10.17	0.56	0.30	0.09	0.25	0.21	1.0	3.2	0.95	-0.0	669.	903.	318.	0.6	
22	15.0	9.85	10.52	0.92	0.35	0.20	0.57	0.14	0.7	6.0	1.19	-0.0	651.	897.	311.	1.0	
20	15.4	9.78	10.54	0.69	0.25	0.11	0.45	0.14	0.6	4.0	0.48	-0.0	685.	907.	321.	0.8	
32	14.5	9.97	10.54	1.20	0.48	0.23	0.72	0.25	0.8	1.5	0.64	-0.0	697.	922.	327.	0.9	
31	14.1	9.97	10.44	1.32	0.34	0.16	0.98	0.18	1.2	1.1	0.71	-0.0	667.	926.	322.	0.7	
21	14.8	9.86	10.49	0.92	0.35	0.18	0.57	0.17	0.7	3.5	1.25	-0.0	603.	894.	309.	1.3	
19	14.9	10.09	10.76	0.75	0.36	0.15	0.39	0.21	0.2	3.9	1.32	-0.0	641.	886.	303.	1.3	
18	14.5	10.22	10.89	0.86	0.34	0.16	0.53	0.17	0.2	6.3	1.42	-0.0	673.	881.	314.	0.9	
17	15.0	10.43	11.13	0.88	0.35	0.16	0.52	0.19	0.2	6.4	1.11	-0.0	633.	885.	311.	1.4	
16	15.3	10.55	11.26	0.99	0.40	0.19	0.59	0.21	0.5	8.6	1.46	-0.0	656.	904.	313.	1.3	
15	15.2	10.03	10.76	1.01	0.39	0.16	0.62	0.21	0.4	6.4	0.73	-0.0	641.	884.	313.	1.2	
37	15.0	9.96	10.63	1.22	0.72	0.37	0.31	0.35	0.4	10.4	2.64	-0.0	749.	899.	336.	1.0	
8	15.4	9.80	10.57	0.71	0.24	0.09	0.48	0.15	0.4	3.1	0.62	-0.0	693.	913.	324.	1.3	
45	15.2	9.96	10.65	0.77	0.31	0.18	0.46	0.13	1.1	4.9	1.44	-0.0	855.	916.	342.	1.1	
46	14.4	10.19	10.76	0.85	0.38	0.15	0.47	0.23	1.2	7.2	1.24	-0.0	968.	906.	367.	1.2	
EAST BASIN																	
47	13.4	9.64	9.96	0.38	0.22	0.09	0.17	0.14	4.5	1.56	0.0	0	708.	933.	335.	0.7	
56	15.0	9.90	10.58	0.61	0.30	0.10	0.32	0.20	2.1	3.8	1.31	-0.0	713.	939.	330.	1.0	
1	15.0	9.92	10.62	0.53	0.27	0.09	0.26	0.18	3.4	2.0	1.66	-0.0	707.	940.	332.	0.9	
2	14.1	9.70	10.16	3.63	0.28	0.18	0.36	0.10	5.0	5.5	1.44	-0.0	721.	957.	325.	1.4	
51	13.4	9.94	10.25	0.45	0.24	0.12	0.22	0.12	5.3	6.7	0.64	-0.0	695.	951.	331.	1.2	
50	12.9	10.27	104.8	0.59	0.16	0.07	0.43	0.09	4.6	3.9	0.67	-0.0	694.	948.	333.	2.4	
48	14.0	9.46	98.8	0.39	0.18	0.09	0.22	0.09	3.5	5.9	1.69	-0.0	706.	949.	334.	2.0	
53	15.4	9.42	101.4	0.47	0.29	0.15	0.18	0.13	3.6	3.2	2.24	-0.0	713.	945.	332.	0.6	
3	15.2	9.38	100.6	0.43	0.28	0.17	0.15	0.11	4.3	6.6	1.89	-0.0	721.	950.	331.	0.5	
4	13.7	9.15	95.7	0.36	0.20	0.09	0.15	0.12	4.3	6.9	1.52	-0.0	699.	954.	331.	0.6	
5	13.0	9.50	97.4	0.33	0.21	0.12	0.09	4.5	7.7	2.18	-0.0	706.	943.	332.	0.5		
55	15.1	9.75	104.2	0.66	0.38	0.10	0.27	0.29	2.5	2.0	1.61	-0.0	718.	943.	331.	1.2	
54	15.4	9.56	103.0	0.47	0.29	0.15	0.19	0.14	3.2	5.6	1.99	-0.0	711.	939.	332.	0.8	
52	15.0	9.57	98.8	0.47	0.27	0.21	0.20	0.11	3.6	6.2	1.92	-0.0	742.	931.	336.	0.8	
5	14.6	9.54	97.4	0.56	0.31	0.18	0.25	0.13	5.5	7.3	1.89	-0.0	884.	942.	351.	0.8	

Table 47

VOL. WEIGHTED MEAN CONC. \*LAKE ERIE NOV. 25-30\* / NO. THE GM. STRATIFICATION /

SIN.	TYPE	DID?	SA02	I.P.	TEP.	SRP.	P.P.	ORG P	SI02	TEN.	HH3.	ORG N	F.G.	TEALK	SPCN	TURB	PHSU
<b>WEST BASIN</b>																	
23	E.3	12.13	102.7	1.12	0.30	0.17	0.82	0.13	2.9	11.0	2.56	11.9	4.86.	840.	265.	8.1	8.4
24	2.9	12.44	99.1	2.89	1.19	0.71	1.71	0.47	12.7	24.7	7.54	10.1	+39.	879.	281.	27.5	8.3
25	2.4	12.72	100.0	3.01	0.86	0.50	2.15	0.37	11.3	23.6	4.39	11.0	4.61.	911.	295.	28.3	8.2
26	2.3	13.00	101.9	3.32	0.98	0.63	2.34	0.36	7.1	23.8	4.42	10.4	517.	947.	317.	22.7	8.1
27	3.7	12.53	101.9	1.95	0.68	0.48	1.27	0.20	1.9.9	15.7	3.34	7.2	3.89.	806.	274.	21.7	7.9
28	3.7	12.50	101.6	2.22	0.73	0.43	1.50	0.29	14.1	15.7	3.56	9.5	463.	861.	276.	26.3	8.1
29	4.0	12.44	101.5	1.37	0.54	0.31	0.83	0.23	4.9	12.1	3.71	12.7	4.84.	840.	283.	14.0	8.2
30	5.9	11.84	102.0	1.05	0.47	0.24	0.56	0.23	3.2	7.6	2.14	13.3	667.	895.	287.	6.1	8.3
<b>CENTRAL BASIN</b>																	
6	7.2	11.44	101.7	1.19	0.31	0.20	0.89	0.10	4.3	6.0	1.71	10.2	634.	915.	325.	17.0	8.4
43	6.1	11.57	100.1	0.85	0.37	0.22	0.48	0.15	4.7	6.0	2.42	12.6	670.	753.	322.	9.6	8.2
41	7.0	11.45	101.2	0.93	0.42	0.23	0.57	0.19	6.0	6.2	1.31	13.0	666.	930.	327.	8.3	8.2
11	6.9	11.61	102.4	1.30	0.50	0.23	0.80	0.27	6.2	5.6	0.83	11.0	666.	928.	323.	11.8	8.2
12	8.0	10.68	98.8	1.16	0.33	0.17	0.83	0.16	2.7	5.3	0.69	14.2	684.	932.	320.	7.3	8.3
34	7.3	11.42	101.8	0.56	0.48	0.23	0.42	0.25	3.4	6.5	0.68	7.3	673.	910.	321.	7.7	8.3
33	6.6	11.81	101.8	0.86	0.38	0.17	0.48	0.22	4.1	5.3	0.98	9.2	657.	921.	319.	7.4	8.3
44	7.2	11.38	101.2	0.72	0.32	0.17	0.41	0.15	5.3	6.1	1.51	11.6	679.	935.	326.	6.0	8.1
42	8.0	11.26	102.2	0.83	0.45	0.26	0.38	0.19	7.2	6.0	3.47	13.2	679.	931.	322.	4.8	8.2
10	7.4	11.38	101.6	1.65	0.43	0.22	1.23	0.21	6.4	5.0	1.52	11.8	660.	759.	319.	20.3	8.2
40	8.2	11.05	100.6	0.91	0.49	0.25	0.42	0.24	6.7	5.7	1.27	12.2	666.	925.	320.	7.8	8.2
13	7.9	10.9	99.2	0.89	0.35	0.18	0.54	0.17	4.0	4.9	1.01	14.1	666.	932.	324.	6.8	8.3
9	7.8	11.34	102.4	0.99	0.36	0.19	0.68	0.17	3.1	4.7	0.91	12.9	691.	935.	322.	9.4	8.2
39	8.2	11.09	101.4	0.53	0.29	0.17	0.41	0.24	5.0	6.7	1.45	10.7	681.	889.	322.	7.0	8.2
14	8.4	10.43	100.3	1.08	0.53	0.27	0.55	0.26	4.0	6.3	0.48	12.4	657.	800.	318.	9.3	8.2
35	8.3	11.07	101.2	0.94	0.44	0.23	0.50	0.21	3.7	5.6	0.62	10.7	686.	923.	326.	7.4	8.2
7	8.0	11.20	101.6	0.80	0.33	0.19	0.47	0.15	2.6	5.3	1.25	11.7	710.	931.	331.	7.6	8.4
38	8.3	10.86	100.5	0.87	0.52	0.32	0.34	0.21	5.3	6.4	2.27	11.5	699.	886.	325.	5.2	8.2
36	8.1	11.07	101.8	1.16	0.42	0.22	0.75	0.20	3.7	9.1	1.04	10.7	657.	872.	315.	16.5	8.2
22	8.1	11.6	100.6	1.05	0.50	0.22	0.61	0.23	1.9	7.2	0.52	10.2	643.	866.	309.	7.9	8.0
20	7.8	11.00	99.4	1.25	0.47	0.26	0.78	0.21	2.9	8.1	1.28	13.8	660.	908.	317.	9.1	8.5
32	5.3	12.21	103.6	1.30	0.32	0.16	0.97	0.17	2.9	12.3	1.67	6.3	527.	871.	284.	8.3	8.3
31	6.2	11.84	102.5	1.41	0.51	0.26	0.91	0.24	3.9	13.6	2.64	14.1	527.	878.	288.	17.5	8.3
21	6.9	11.47	101.2	1.08	0.43	0.24	0.64	0.19	1.6	11.0	0.77	13.1	559.	876.	294.	8.0	8.1
19	5.7	11.74	100.5	1.51	0.53	0.30	0.98	0.23	3.7	14.1	2.04	10.5	497.	847.	282.	11.6	7.8
18	5.7	11.35	107.6	1.63	0.72	0.39	0.91	0.33	3.8	15.4	6.39	13.4	576.	825.	283.	9.8	8.2
17	6.0	11.87	102.5	1.37	0.61	0.37	0.75	0.23	2.6	14.8	3.94	17.6	536.	841.	280.	8.7	8.2
16	6.2	11.87	102.5	1.39	0.47	0.26	0.92	0.19	1.7	13.4	3.91	10.2	514.	867.	281.	13.5	8.3
15	6.7	11.45	100.4	1.33	0.40	0.23	0.92	0.17	1.9	11.3	0.84	11.2	493.	857.	270.	12.4	8.1
37	6.3	11.50	100.1	1.28	0.38	0.20	0.89	0.18	1.8	12.3	1.74	8.9	430.	844.	272.	12.8	9.2
8	6.9	11.11	98.1	1.55	0.37	0.19	1.19	0.19	1.8	15.5	0.90	11.0	531.	847.	292.	14.9	8.4
45	6.9	11.43	101.5	1.04	0.38	0.22	0.66	0.16	2.8	8.4	1.50	12.1	787.	908.	335.	9.1	8.1
46	6.4	11.46	99.8	1.57	0.42	0.24	1.15	0.15	1.8	10.3	2.43	15.1	869.	876.	343.	9.9	8.1
<b>EAST BASIN</b>																	
47	8.2	11.40	103.8	0.58	0.36	0.21	0.22	0.16	4.8	8.5	0.85	11.4	701.	942.	328.	1.8	8.2
56	6.6	11.59	101.6	0.74	0.36	0.23	0.39	0.13	4.1	9.5	1.08	13.5	716.	953.	-0.	-0.0	-0.0
1	7.2	11.35	100.9	1.39	0.47	0.23	0.92	0.18	4.9	9.1	1.41	13.6	716.	935.	336.	19.8	8.4
2	6.7	11.55	101.3	0.84	0.36	0.20	0.46	0.12	5.0	9.7	0.81	12.4	713.	958.	334.	22.2	8.1
51	7.8	11.12	100.4	0.70	0.32	0.20	0.38	0.12	5.6	7.4	2.31	13.0	683.	941.	329.	10.5	8.1
2	5.0	11.42	101.4	0.86	0.28	0.20	0.56	0.08	4.8	7.0	2.03	12.1	681.	950.	331.	14.7	7.8
48	6.5	10.98	100.6	0.65	0.35	0.21	0.28	0.20	5.4	8.6	1.23	10.7	691.	939.	333.	6.3	8.2
53	7.9	11.10	101.0	0.64	0.33	0.22	0.29	0.13	4.6	8.6	1.25	12.9	733.	851.	337.	4.2	8.1
3	8.4	11.01	100.8	0.70	0.29	0.15	0.41	0.14	5.3	9.4	1.00	12.9	748.	878.	332.	3.1	8.4
49	8.4	10.92	100.1	0.67	0.31	0.21	0.36	0.10	4.9	8.1	1.44	10.1	694.	945.	334.	9.1	8.2
4	8.5	10.07	100.1	0.61	0.34	0.17	0.28	0.17	5.2	8.0	1.00	15.0	716.	725.	334.	3.3	8.2
55	7.1	11.42	101.3	0.79	0.34	0.22	0.45	0.11	3.4	7.4	1.81	11.7	746.	932.	-0.	-0.0	-0.0
54	7.5	11.41	102.2	0.69	0.34	0.23	0.11	4.1	8.0	0.67	11.6	743.	931.	-0.	-0.0	-0.0	
52	7.7	11.17	100.7	0.67	0.35	0.21	0.32	0.14	4.6	8.2	0.97	11.4	709.	930.	329.	2.4	8.1
5	7.4	11.11	99.4	1.17	0.41	0.19	0.75	0.23	3.7	7.1	1.66	13.4	739.	912.	334.	10.2	8.4

Table 48. VOL. WEIGHTED MEAN CONC. • LAKE ERIE DECs. 14-18, 70\* / NO THE FM. STRATIFICATION /

SIN	IE4P	D102	SAN2	I.P.	IEP.	SKP.	P.P.	ORGp	S102	IFN.	NHS.	ORGn	F.GL	TEALK	SPCN	TURB	PHSU	SI
<b>WEST BASIN</b>																		
23	2.1	13.25	103.3	1.31	0.42	0.23	0.88	0.20	12.4	14.7	3.16	6.2	523.	843.	271.	8.9	7.1	
24	1.5	13.38	102.7	1.33	0.55	0.27	0.78	0.27	20.9	19.7	4.56	9.1	480.	818.	262.	9.6	7.7	
25	1.1	13.38	101.7	1.47	0.15	0.06	1.32	0.09	21.6	16.6	1.61	8.3	254.	776.	234.	14.0	7.5	
26	0.8	14.46	109.0	1.34	0.20	0.11	1.14	0.09	0.9	23.6	3.56	10.1	551.	832.	254.	11.0	8.0	
27	1.6	13.46	103.6	2.00	0.87	0.45	1.22	0.42	21.9	19.6	7.51	6.4	574.	805.	273.	9.1	7.8	
28	1.6	13.37	102.8	2.08	1.03	0.57	1.05	0.46	23.1	19.8	10.83	5.7	406.	827.	260.	6.3	8.0	
29	1.7	13.46	103.8	2.45	0.72	0.32	1.73	0.37	20.5	17.2	3.53	8.2	471.	847.	278.	10.7	8.0	
30	2.4	13.05	102.6	1.68	0.46	0.22	1.22	0.24	10.4	13.1	1.80	13.5	446.	848.	275.	11.3	3.2	
<b>GENERAL BASIN</b>																		
6	6.1	11.75	101.8	0.74	0.35	0.17	0.39	0.18	5.3	6.9	0.32	10.0	689.	940.	331.	3.8	7.6	
43	2.3	12.81	103.1	1.13	0.37	0.17	0.76	0.20	6.8	10.7	0.93	15.9	674.	935.	322.	1.3	7.9	
41	3.9	12.61	103.0	1.06	0.39	0.16	0.68	0.22	3.1	7.9	0.82	15.5	677.	910.	323.	2.3	8.2	
11	6.5	12.23	101.4	1.17	0.32	0.14	0.85	0.18	3.3	7.3	0.43	8.9	689.	943.	323.	4.7	8.0	
12	3.8	12.95	105.7	1.00	0.35	0.21	0.64	0.14	4.1	7.6	0.81	8.9	669.	942.	322.	4.1	7.9	
34	5.2	12.25	102.0	1.02	0.33	0.17	0.69	0.16	4.3	6.3	0.77	10.1	686.	941.	327.	4.5	8.3	
33	4.7	12.23	102.1	1.50	0.48	0.19	1.01	0.29	4.8	7.3	0.65	14.0	649.	915.	315.	5.2	8.0	
44	5.2	12.23	103.3	0.64	0.43	0.17	0.35	0.13	2.9	8.3	1.42	11.4	714.	945.	333.	2.0	9.1	
42	4.5	12.43	103.0	0.93	0.40	0.18	1.53	0.22	5.0	7.1	0.84	13.3	686.	934.	324.	3.6	8.2	
10	5.1	12.10	102.0	1.14	0.40	0.18	0.74	0.22	6.9	6.3	0.91	10.5	683.	935.	322.	4.0	8.0	
40	9.1	12.23	103.1	0.88	0.49	0.15	0.38	0.35	9.1	8.0	0.79	12.1	674.	907.	317.	2.1	8.2	
13	5.6	12.02	102.6	1.10	0.51	0.24	0.59	0.27	3.4	8.9	0.64	8.7	729.	935.	329.	2.5	8.2	
9	5.2	12.09	102.1	1.23	0.49	0.22	0.73	0.27	7.1	7.5	0.77	8.4	686.	926.	321.	4.3	8.2	
39	5.1	12.53	105.7	0.92	0.46	0.16	0.46	0.36	7.8	7.2	1.10	11.0	677.	920.	320.	3.2	8.0	
14	5.5	11.96	101.9	0.95	0.51	0.25	0.43	0.26	6.3	7.2	1.17	9.0	691.	697.	328.	4.1	8.2	
15	5.6	11.98	102.8	0.97	0.44	0.17	0.53	0.27	7.1	8.2	0.65	17.0	659.	916.	323.	3.1	8.1	
7	5.5	12.05	102.6	1.00	0.41	0.21	0.59	0.20	4.0	7.2	1.52	11.2	691.	944.	331.	5.1	7.8	
38	5.0	12.15	102.6	1.40	0.39	0.13	1.01	0.26	3.1	15.2	0.60	13.5	571.	890.	294.	6.8	7.8	
36	5.6	11.93	101.9	0.98	0.49	0.20	0.49	0.30	4.0	9.1	0.68	12.4	737.	913.	331.	4.1	8.2	
22	5.5	11.93	101.5	1.17	0.38	0.16	0.79	0.20	5.7	16.3	0.32	9.3	726.	904.	324.	6.3	8.1	
20	5.5	12.11	103.2	1.28	0.44	0.21	0.84	0.23	8.8	6.9	1.49	15.1	697.	945.	325.	5.1	8.1	
32	2.9	13.01	103.4	1.53	0.31	0.15	1.22	0.16	4.3	11.8	0.91	11.2	693.	944.	331.	5.1	7.8	
31	2.3	13.13	102.7	1.36	0.79	0.35	0.58	0.44	16.4	25.6	0.53	16.3	503.	925.	303.	18.0	7.5	
21	3.3	12.73	102.5	1.27	0.27	0.12	1.00	0.15	4.1	11.0	0.63	6.5	540.	868.	285.	7.9	8.1	
19	3.6	12.77	103.4	1.64	0.49	0.24	1.15	0.24	4.1	12.1	3.72	12.5	540.	902.	298.	9.9	8.1	
18	3.6	12.03	97.9	1.63	0.39	0.16	1.24	0.23	4.0	9.4	1.46	10.6	580.	861.	295.	10.0	8.1	
17	3.6	12.73	103.2	2.24	0.65	0.31	1.59	0.34	7.9	12.8	8.61	12.1	600.	903.	310.	13.0	8.1	
16	3.8	13.08	106.3	1.88	0.42	0.17	1.46	0.25	3.7	10.7	1.80	9.6	571.	906.	304.	11.2	8.0	
15	5.4	11.94	101.5	1.33	0.43	0.23	0.84	0.26	8.2	8.9	0.34	11.3	657.	910.	314.	7.3	8.0	
37	4.1	12.52	102.6	1.26	0.34	0.12	0.92	0.21	1.5	9.0	1.35	13.6	623.	903.	299.	5.3	7.8	
8	4.0	13.07	107.2	3.55	0.71	0.42	2.84	0.29	5.2	15.2	12.01	11.9	880.	893.	344.	16.7	9.1	
45	3.8	12.73	103.7	2.15	0.54	0.24	1.60	0.31	2.6	18.2	2.92	13.3	614.	886.	305.	10.2	8.1	
46	3.9	12.70	103.7	2.04	0.56	0.27	1.48	0.28	1.8	21.0	5.63	11.4	579.	880.	298.	8.8	8.1	
<b>EAST BASIN</b>																		
47	5.7	12.01	102.8	0.55	0.31	0.15	0.24	0.16	4.2	10.5	1.42	12.2	710.	947.	332.	1.8	8.3	
56	3.9	12.58	102.7	0.79	0.39	0.19	0.40	0.20	3.7	13.2	1.71	9.3	710.	923.	335.	3.1	7.7	
1	5.0	12.23	102.7	0.91	0.37	0.29	0.55	0.10	4.9	10.7	1.68	8.9	760.	849.	333.	4.4	7.9	
2	3.2	12.71	102.4	1.23	0.41	0.24	0.83	0.16	6.0	14.6	1.18	9.4	711.	975.	343.	6.8	8.2	
51	5.2	12.33	104.3	0.58	0.29	0.19	0.29	0.10	4.2	9.8	0.68	12.6	709.	948.	332.	2.4	8.1	
50	4.8	12.23	102.2	0.66	0.31	0.20	0.35	0.11	3.7	10.2	1.43	11.2	714.	952.	341.	2.9	7.6	
48	6.2	11.78	101.8	0.61	0.29	0.15	0.32	0.14	4.1	10.2	0.62	12.3	703.	939.	329.	8.2	8.2	
53	6.2	11.67	101.2	0.57	0.34	0.19	0.24	0.14	4.0	10.0	0.73	9.4	711.	930.	331.	1.1	8.2	
3	5.5	10.51	100.9	0.73	0.37	0.23	0.36	0.14	4.5	10.0	0.76	11.1	754.	953.	342.	7.5	7.5	
49	5.5	11.95	101.7	0.59	0.30	0.17	0.29	0.12	4.1	10.3	1.35	11.1	747.	947.	335.	1.5	8.2	
4	7.1	11.55	102.3	0.59	0.35	0.25	0.25	0.09	5.7	9.4	0.45	11.5	723.	964.	333.	1.2	8.1	
55	4.9	12.38	103.7	0.76	0.33	0.17	0.43	0.16	2.8	10.4	0.79	7.5	747.	922.	336.	1.6	7.6	
54	5.0	12.21	102.5	0.70	0.30	0.18	0.39	0.13	3.1	10.7	0.70	14.7	750.	924.	336.	1.3	8.1	
52	4.0	12.45	102.1	1.20	0.45	0.22	0.75	0.23	3.3	16.8	2.46	13.4	734.	871.	323.	5.9	8.1	
5	4.8	12.16	101.8	2.29	0.38	0.23	1.91	0.15	3.9	13.9	1.16	11.7	674.	920.	322.	10.1	8.3	

Table 49 VOL. WEIGHED MEAN CUNG. \*LAKE ERIE JUNE 2-6, 70+ / MESOLIMNION /

STN	LEP	DI02	SA02	T.P.	TEP	S.RP.	P.P.	ORG P	SI02	TEN.	NHS.	ORG N	F.GL	TFALK	SPON	TURB	PHSU	P
<b>CENTRAL BASIN</b>																		
6	13.0	10.65	119.6	0.45	0.17	-0.04	0.26	0.17	1.4	-0.0	-0.0	-0.0	6.31.	95.5.	-0.	-3.0	-0.0	6
43	12.6	10.16	103.2	0.39	0.15	-0.04	0.25	0.15	1.6	0.2	1.18	-0.0	0.39.	88.7.	316.	1.3	-0.0	6
34	11.6	11.28	112.3	0.43	0.10	0.02	1.33	0.08	1.3	-0.0	1.00	-0.0	712.	94.5.	317.	0.5	-0.0	6
44	11.8	10.47	104.2	0.41	0.17	0.01	1.24	0.16	1.5	-0.0	1.32	-0.0	694.	95.7.	316.	0.5	-0.0	6
42	9.8	11.02	105.4	0.48	0.13	0.04	0.36	0.08	0.8	-0.0	1.64	-0.0	708.	93.3.	312.	0.4	-0.0	6
10	9.1	10.63	95.8	0.42	0.21	-0.03	0.21	0.21	2.3	0.5	1.68	-0.0	697.	94.4.	317.	0.4	-0.0	6
40	8.7	10.71	98.6	0.56	0.19	0.02	0.31	0.17	2.0	0.1	2.62	-0.0	634.	92.9.	310.	0.5	-0.0	6
13	10.9	10.87	106.0	0.42	0.17	-0.06	0.25	0.17	1.8	1.0	1.09	-0.0	700.	93.5.	313.	0.3	-0.0	6
9	9.8	10.65	98.8	0.47	0.14	-0.03	1.34	0.14	2.7	2.0	1.64	-0.0	711.	93.5.	311.	0.3	-0.0	6
33	8.7	10.67	38.8	0.63	0.16	0.06	1.47	0.16	3.9	1.07	3.71	-0.0	634.	91.3.	308.	0.5	-0.0	6
14	8.9	16.59	58.8	0.44	0.13	0.01	0.31	0.13	1.1	1.1	1.75	-0.0	694.	92.3.	311.	0.6	-0.0	6
35	9.1	10.67	99.5	0.52	0.12	0.03	0.40	0.09	2.3	2.0	1.36	-0.0	680.	92.9.	313.	0.4	-0.0	6
7	9.8	10.63	101.1	0.49	0.22	0.03	0.27	0.19	1.0	0.4	0.89	-0.0	694.	96.3.	318.	0.6	-0.0	6
38	10.8	10.71	104.5	0.73	0.16	0.05	1.56	0.11	2.0	1.30	3.07	-0.0	708.	89.9.	307.	0.5	-0.0	6
36	9.2	10.11	94.7	3.58	0.18	0.03	1.40	0.10	3.7	0.3	4.82	-0.0	677.	89.2.	307.	0.6	-0.0	6
22	11.6	9.03	83.1	0.53	0.11	0.01	0.42	0.10	3.4	2.3	2.09	-0.0	666.	92.9.	310.	0.5	-0.0	6
20	11.0	9.27	91.2	0.68	0.18	0.02	0.50	0.16	5.2	11.9	3.57	-0.0	629.	91.3.	305.	0.7	-0.0	6
21	13.2	7.01	71.9	0.92	0.32	0.26	0.60	0.03	6.6	16.1	4.71	-0.0	583.	90.5.	304.	3.1	-0.0	6
19	14.5	8.28	88.1	1.13	0.51	0.29	3.62	0.22	10.7	21.4	5.39	-0.0	617.	92.1.	312.	1.6	-0.0	6
17	17.3	9.18	102.9	1.41	0.75	0.32	0.67	0.43	5.0	24.4	5.24	-0.0	629.	92.1.	309.	1.8	-0.0	6
16	17.1	8.65	96.5	2.60	1.53	1.49	1.37	0.13	10.0	23.4	12.66	-0.0	734.	92.4.	325.	3.1	-0.0	6
15	7.7	7.97	71.6	0.64	0.23	0.08	0.42	0.14	8.3	13.6	7.14	-0.0	646.	91.8.	309.	0.9	-0.0	6
37	13.5	8.77	30.9	1.38	0.54	0.26	1.85	0.28	2.5	1.34	5.29	-0.0	814.	91.3.	313.	1.2	-0.0	6
8	14.3	9.67	101.8	1.10	0.35	0.24	0.74	0.12	4.4	18.4	5.52	-0.0	789.	91.5.	313.	0.7	-0.0	6
<b>EAST BASIN</b>																		
47	9.7	12.61	119.3	0.48	0.18	0.05	0.31	0.13	0.7	3.1	1.20	-0.0	686.	94.4.	314.	0.6	-0.0	6
51	12.2	-0.60	128.0	0.29	0.23	0.05	0.35	0.23	0.2	0.3	5.61	-0.0	379.	514.	316.	0.8	-0.0	6
48	10.3	11.50	110.3	0.43	0.20	0.02	0.23	0.18	1.0	4.9	0.97	-0.0	691.	95.9.	320.	1.1	-0.0	6
53	10.4	13.37	128.8	0.27	0.21	0.06	0.57	0.15	0.5	9.0	4.35	-0.0	728.	892.	313.	0.8	-0.0	6
3	8.1	13.25	120.7	0.52	0.20	0.07	0.32	0.13	0.1	8.8	5.44	-0.0	697.	89.3.	313.	0.8	-0.0	6
49	8.4	13.57	124.8	0.53	0.25	0.03	0.28	0.22	0.2	8.6	4.14	-0.0	697.	92.8.	314.	0.8	-0.0	6
4	10.7	13.09	126.2	0.67	0.24	0.06	0.43	0.19	0.3	4.2	4.58	-0.0	692.	954.	316.	1.0	-0.0	6
54	11.4	12.43	122.5	0.70	0.18	-0.00	0.52	0.18	0.3	11.7	4.29	-0.0	740.	892.	315.	0.6	-0.0	6
52	12.8	12.77	130.0	0.75	0.19	0.03	0.56	0.16	0.2	10.8	3.79	-0.0	743.	888.	315.	0.8	-0.0	6

Table 50. WEIGHED MEAN CONC. + LAKE ERIE JULY 3-7, 70\* / RESOLUTION /

SIN.	LEAD	D102	S402	T.E.	LEO.	SRP.	P.P.	ORG-P	S102	TEN.	HH3.	ORGII	F.GL	TEALK	SPCN	TURB.	PHSU
6	CENTRAL BASIN	9.23	195.5	0.31	0.22	0.09	0.20	1.2	0.4	0.51	8.0	6.89.	95.3.	308.	1.1	8.5	
43	14.5	7.43	79.6	0.65	0.21	0.11	0.44	0.10	2.0	2.2	2.79	17.5	6.91.	966.	319.	1.7	
41	15.2	8.56	92.2	0.46	0.18	0.08	0.29	0.09	3.7	1.6	1.96	6.7	6.97.	946.	316.	3.4	
11	12.4	9.05	93.8	0.72	0.16	0.02	0.56	0.14	2.7	1.1	1.60	12.9	6.86.	954.	-0.	-0.6	
12	13.1	8.11	34.4	0.46	0.16	0.02	0.30	0.14	3.3	2.4	1.60	7.0	6.80.	941.	308.	1.0	
34	13.6	7.66	83.4	0.40	0.16	0.04	0.24	0.12	6.4	5.6	3.21	6.8	6.86.	915.	312.	0.3	
33	20.2	9.43	111.6	1.45	0.20	0.34	0.25	0.15	9.0	8.2	3.75	8.9	6.80.	929.	306.	1.5	
44	14.9	8.09	87.4	1.55	0.17	0.09	0.37	0.08	2.8	2.3	2.57	15.0	6.86.	962.	318.	1.0	
42	17.4	9.16	113.0	0.43	0.19	0.02	0.24	0.17	1.7	0.1	2.43	12.1	6.83.	943.	317.	0.5	
10	12.9	8.09	34.4	0.56	0.18	0.02	0.48	0.13	7.1	5.0	4.36	7.1	6.94.	940.	314.	0.6	
40	14.4	3.17	37.3	0.40	0.18	0.03	0.26	0.16	3.5	3.1	3.25	8.0	6.83.	931.	314.	0.4	
13	15.8	8.55	93.6	0.34	0.20	0.02	0.14	0.18	1.4	2.7	1.39	11.4	6.77.	931.	308.	0.7	
9	14.0	8.08	85.7	0.43	0.23	0.16	0.21	0.13	3.9	2.4	3.18	9.3	6.29.	941.	318.	1.1	
39	14.8	8.30	69.5	0.45	0.21	0.07	0.25	0.14	3.7	3.2	2.81	10.2	6.91.	938.	315.	0.5	
14	15.8	8.64	34.9	0.47	0.22	0.05	0.25	0.17	3.6	4.6	3.53	9.2	6.96.	935.	307.	0.4	
35	13.8	7.55	60.9	0.44	0.28	0.07	0.15	0.21	5.8	10.4	6.36	7.5	6.77.	919.	311.	0.4	
7	12.4	7.70	79.2	0.32	0.20	0.04	0.12	0.11	1.1	0.6	11.79	8.3	703.	961.	315.	1.1	
38	13.5	7.94	33.7	0.35	0.20	0.05	0.15	0.15	1.1	3.5	1.14	12.5	714.	913.	310.	0.8	
36	17.7	8.79	92.3	0.30	0.18	0.02	0.12	0.16	1.1	3.4	2.65	25.7	674.	909.	312.	1.4	
22	18.7	9.08	134.8	0.52	0.18	0.03	0.34	0.15	3.1	9.7	4.17	13.0	6.94.	924.	304.	0.6	
20	19.6	9.06	116.2	0.45	0.19	0.02	0.26	0.14	2.3	6.9	1.21	6.6	6.83.	905.	309.	0.5	
32	20.0	8.16	96.3	0.60	0.21	0.02	0.39	0.19	4.2	6.2	3.93	9.6	614.	907.	298.	0.4	
EAST 3ASIN																	
47	11.6	9.45	93.3	0.40	0.20	0.12	0.20	0.08	1.3	4.8	2.68	16.4	697.	942.	315.	0.9	
51	16.0	10.60	97.9	0.48	0.23	0.07	0.25	0.17	-0.0	11.4	2.68	5.7	-0.	-0.	-0.0	-1.	
48	12.4	9.67	98.0	0.53	0.19	0.04	0.34	0.15	2.5	2.1	2.66	6.7	671.	921.	320.	1.5	
53	13.8	9.02	24.2	0.44	0.22	0.02	0.22	0.20	0.9	3.5	2.50	12.5	694.	915.	318.	0.7	
3	11.2	9.53	97.2	0.53	0.19	0.03	0.34	0.16	1.9	5.3	3.07	12.5	680.	912.	319.	1.8	
49	11.9	10.80	106.6	0.43	0.22	0.10	0.21	0.13	0.5	4.3	2.50	16.1	686.	935.	322.	1.0	
4	10.8	10.86	104.8	0.40	0.27	0.10	0.13	0.17	0.8	4.2	2.98	12.5	692.	952.	321.	0.5	
52	13.7	9.18	134.6	0.40	0.26	0.14	0.14	0.13	1.7	2.9	3.57	-0.0	683.	950.	-0.0	-0.0	

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Table 51 VOL. WEIGHTED MEAN CONC. + LAKE ERIE JULY 28-AUG. 2, 70+ / MESOLIMNION /

SIN	TP-MP	DID2	SAU2	I.P.	IEP.	SRP.	P.P.	ORG P.	SI02	TEN.	NH3.	ORG N	F.GL	TEALK	SPCN	TURB	PHSU	
CENTRAL BASIN																		
6	-0.0	-0.0	-0.0	-0.0	-0.0	-0.0	-0.0	-0.0	-0.0	-0.0	-0.0	-0.0	-0.	-0.	-0.0	-0.0	-0.0	
43	17.8	7.50	35.3	0.48	0.14	0.02	0.35	0.12	3.1	3.4	0	-0.0	675.	646.	317.	1.5	8.2	
41	19.0	7.59	33.4	0.34	0.14	0.01	0.21	0.13	4.1	3.6	2.0	-0.0	669.	932.	306.	1.0	8.4	
11	16.8	6.99	78.4	0.41	0.20	0.04	0.21	0.09	5.7	6.4	3.0	7	-0.0	-0.	-0.0	-0.0	-0.0	
12	19.8	8.52	100.4	0.33	0.25	0.02	0.02	0.23	3.2	2.1	1.7	5	-0.0	635.	507.	303.	0.6	8.4
34	15.4	6.22	69.1	0.32	0.23	0.02	0.08	0.22	8.9	7.5	5.0	0	-0.0	630.	927.	310.	0.7	8.1
33	18.1	7.51	95.9	0.33	0.15	0.04	0.16	0.11	4.8	5.5	3.4	4	-0.0	649.	933.	306.	0.7	8.2
44	18.9	8.09	93.6	0.42	0.14	0.03	0.27	0.11	1.9	1.3	2.3	6	-0.0	678.	933.	315.	0.6	8.3
42	16.2	6.64	73.5	0.43	0.15	0.02	0.29	0.12	3.8	3.2	2.8	4	-0.0	671.	927.	309.	0.7	8.2
10	15.9	6.57	73.2	0.43	0.14	0.02	0.28	0.12	4.1	3.0	2.2	9	-0.0	555.	940.	320.	0.7	7.7
40	16.7	6.52	73.2	0.25	0.15	0.01	0.11	0.14	5.5	4.2	3.2	8	-0.0	657.	922.	302.	0.7	8.1
13	14.9	6.50	72.3	0.43	0.20	0.07	0.23	0.13	8.1	7.5	3.1	8	-0.0	631.	918.	307.	0.8	8.0
3	16.8	7.62	85.0	0.40	0.14	0.02	0.25	0.13	4.8	6.3	1.5	7	-0.0	693.	943.	314.	0.8	8.2
39	15.3	6.41	76.3	0.25	0.16	0.05	0.09	0.11	4.8	4.4	0.1	8	-0.0	669.	940.	310.	-0.0	8.6
14	17.5	7.25	32.3	0.34	0.24	0.02	0.14	0.23	7.9	7.2	2.7	9	-0.0	594.	927.	296.	0.6	8.2
35	16.1	6.24	70.6	0.33	0.18	0.05	0.14	0.13	2.4	0.5	1.2	7	-0.0	680.	910.	306.	0.6	8.4
7	18.4	8.21	34.0	0.57	0.07	0.02	0.50	0.05	2.0	2.0	0.2	1.2	-0.0	692.	929.	316.	1.7	8.4
38	18.6	7.71	39.0	0.28	0.13	0.03	0.16	0.09	2.0	0.3	0.3	1	-0.0	668.	931.	317.	0.5	8.2
36	14.8	6.09	67.4	0.38	0.28	0.06	0.11	0.22	6.6	6.6	1.8	2	-0.0	689.	918.	314.	0.6	8.0
22	15.4	6.92	77.8	0.36	0.16	0.01	0.20	0.15	12.0	11.1	3.9	3	-0.0	684.	910.	310.	0.5	8.0
20	15.9	5.30	90.7	0.44	0.10	0.01	0.34	0.09	13.9	13.6	5.6	4	-0.0	683.	904.	305.	1.0	8.0
32	20.1	6.36	75.3	0.41	0.17	0.04	0.24	0.13	8.2	8.2	2.9	4	-0.0	631.	907.	299.	0.6	8.1
21	15.4	4.33	51.1	0.48	0.14	0.05	0.34	0.09	3.3	14.4	8.0	0	-0.0	683.	915.	311.	0.9	7.7
EAST BASIN																		
47	17.8	9.18	104.3	0.34	0.14	0.01	0.20	0.13	2.4	1.9	1.5	2	-0.0	703.	941.	312.	0.7	8.5
51	21.5	9.72	117.6	0.32	0.18	0.02	0.14	0.16	1.7	0.9	0.3	6	-0.0	697.	932.	311.	1.6	8.6
48	18.5	8.65	39.8	0.42	0.16	0.02	0.26	0.13	2.4	1.1	1.9	4	-0.0	629.	934.	314.	0.5	8.5
53	6.3	5.52	56.4	0.32	0.19	0.03	0.13	0.11	9.2	11.5	4.1	4	-0.0	699.	767.	317.	0.8	7.7
3	13.0	8.27	84.7	0.47	0.15	0.07	0.32	0.08	4.3	8.4	3.3	6	-0.0	709.	938.	317.	1.6	8.1
49	7.7	10.31	32.7	0.30	0.11	0.02	0.19	0.10	1.3	9.0	2.8	7	-0.0	697.	936.	320.	0.6	8.1
4	8.0	8.81	79.3	0.34	0.22	0.11	0.12	0.11	4.8	11.2	4.4	5	-0.0	708.	952.	322.	1.2	8.0
52	21.9	7.28	89.1	0.55	0.17	0.10	0.38	0.07	4.8	5.7	8.7	6	-0.0	700.	929.	316.	0.9	8.2

Table 52 VOL. HEIGHED MEAN CONC. LAKE ERIE AUG. 25-36, 70\* / HESSEL JUNCTION /

SIN TEMP	D102	SA02	T.P.	TEP	SRP	P.P.	02GP	SI02	TEN.	NH3	DRGN	F.CI	TFALK	SPCN	TUR9	PHSU
<b>CENTRAL BASIN</b>																
6 22.1	8.52	104.3	0.18	0.03	0.03	0.10	0.05	2.5	0.5	0.86	-0.0	700.	924.	321.	0.5	8.6
43 19.6	5.15	64.5	0.47	0.14	0.04	0.33	0.16	5.9	4.0	1.43	-0.0	694.	943.	327.	1.1	8.2
41 19.2	5.24	53.3	0.56	0.22	0.02	0.34	0.16	8.2	6.4	3.29	-0.0	663.	945.	325.	0.7	8.4
11 18.9	3.93	47.4	0.31	0.12	0.04	0.19	0.07	5.9	1.1	1.96	-0.0	666.	921.	324.	1.1	3.0
34 19.4	5.26	63.6	0.34	0.27	0.12	0.35	0.15	8.9	1.5	4.3	-0.0	663.	917.	320.	-0.0	-0.0
33 18.1	4.52	55.9	0.69	0.25	0.13	0.44	0.12	12.1	1.0	3.39	-0.0	633.	965.	325.	0.6	7.4
44 18.3	5.79	66.9	0.36	0.11	0.03	0.25	0.08	4.2	4.7	0.71	-0.0	694.	929.	325.	0.9	8.2
42 18.5	6.31	74.5	0.45	0.14	0.04	0.32	0.10	6.9	6.9	0.71	-0.0	680.	929.	319.	1.0	8.2
10 18.3	4.75	57.9	0.51	0.15	0.10	0.36	0.06	11.6	4.8	6.29	-0.0	679.	927.	323.	1.7	8.1
40 10.5	1.03	15.4	0.43	0.23	0.05	0.26	0.19	17.5	1.0	3.9	-0.0	664.	907.	342.	0.9	7.3
13 18.1	4.67	57.6	0.46	0.14	0.04	0.30	0.07	9.4	6.2	1.25	-0.0	649.	892.	337.	0.9	7.6
9 18.0	5.26	63.0	0.25	0.10	0.04	0.16	0.05	12.0	8.1	1.71	-0.0	693.	926.	324.	0.7	3.6
32 18.7	5.56	71.1	0.35	0.13	0.01	0.22	0.10	4.3	1.7	0.69	-0.0	677.	891.	317.	0.6	8.2
14 17.1	4.73	57.9	0.48	0.12	0.09	0.30	0.10	13.6	1.5	1.96	-0.0	663.	911.	307.	0.6	8.8
35 16.9	4.60	56.1	0.52	0.14	0.11	0.43	0.18	13.5	9.6	3.04	-0.0	620.	865.	326.	0.6	8.5
7 17.9	6.17	72.4	0.31	0.10	0.04	0.22	0.05	6.0	7.7	1.43	-0.0	687.	912.	325.	0.8	8.2
38 19.0	5.70	68.4	1.27	0.10	0.02	0.32	0.07	2.5	4.1	0.71	-0.0	686.	908.	326.	0.5	8.2
36 19.0	6.75	73.4	0.46	0.11	0.05	0.35	0.06	13.0	8.9	8.52	-0.0	704.	919.	305.	0.5	8.3
22 22.0	7.35	90.5	0.46	0.32	0.04	0.32	0.10	6.0	3.9	1.71	-0.0	606.	876.	305.	0.8	8.7
20 18.1	4.39	54.5	1.11	0.66	0.53	0.44	0.11	17.8	0.8	10.62	-0.0	740.	927.	331.	0.7	8.1
32 22.5	6.16	102.4	0.68	0.31	0.14	0.38	0.17	9.7	1.4	4.63	-0.0	674.	873.	-0.	-0.0	-0.0
21 20.5	5.77	71.9	2.28	1.79	1.45	1.43	0.33	16.7	0.5	13.14	-0.0	720.	891.	323.	0.8	8.7
13 23.5	8.37	104.8	0.39	0.08	0.02	0.31	0.06	4.6	0.4	0.36	-0.0	635.	873.	-6.	-0.3	-0.0
15 18.7	4.43	54.9	1.93	1.55	1.34	0.38	0.21	24.0	0.4	16.93	-0.0	747.	1047.	333.	0.9	8.1
37 20.4	5.97	72.3	0.44	0.13	0.04	0.31	0.09	4.2	0.9	3.61	-0.0	720.	894.	316.	1.2	8.2
8 23.4	8.42	105.2	0.26	0.06	0.02	0.20	0.04	6.3	0.2	1.60	-0.0	720.	894.	318.	0.6	8.7
<b>EAST BASIN</b>																
+7 21.9	8.28	101.0	0.24	0.08	0.02	0.16	0.06	2.0	0.8	0.89	-0.0	699.	911.	324.	0.5	8.6
1 20.6	2.40	28.7	0.50	0.19	0.12	0.31	0.07	10.4	8.2	1.29	-0.0	714.	926.	335.	0.6	7.8
51 19.1	6.19	72.5	0.33	0.09	0.01	0.24	0.08	7.5	5.3	1.30	-0.0	703.	911.	338.	0.7	8.1
53 17.5	4.94	59.3	0.42	0.20	-0.04	0.22	0.20	9.2	1.3	1.39	-0.0	701.	943.	334.	0.7	8.1
3 16.1	9.05	98.0	0.24	0.12	0.04	0.12	0.08	3.6	7.1	1.16	-0.0	709.	893.	325.	0.6	8.4
49 9.3	9.19	95.4	0.23	0.10	0.05	0.13	0.05	4.3	1.20	0.71	-0.0	703.	913.	330.	0.6	8.2
4 14.4	8.36	87.3	0.22	0.10	0.05	0.12	0.05	4.6	1.09	1.93	-0.0	703.	937.	323.	1.4	8.6

Table 53 VOL. WEIGHTED MEAN CONC. \*LAKE ERIE JUNE 2-6, 70\* / HYPOLLUMINON /

SIN	TEMP.	D102	SA02	T.P.	TFP.	SRP.	P.P.	ORG P.	SI02	TFN.	NH3.	ORG N	F.CI	TEALK	SPCN	TURB	PHSU	
<b>CENTRAL BASIN</b>																		
6	12.3	10.65	109.6	0.45	0.17	-0.00	0.28	0.17	1.4	-0.0	-0.00	-0.0	691.	955.	-0.	-0.0	-0.0	
43	10.2	9.98	99.2	0.40	0.13	-0.00	0.27	0.13	1.7	-0.0	1.63	-0.0	-0.	-0.	-0.0	-0.0	-0.0	
34	10.9	11.11	109.7	0.42	0.11	-0.02	0.32	0.08	1.5	-0.0	1.14	-0.0	711.	950.	317.	0.5	-0.0	
44	10.2	9.69	94.1	0.43	0.17	0.01	0.26	0.16	2.1	-0.0	1.62	-0.0	658.	910.	320.	0.5	-0.0	
42	10.1	11.46	108.6	0.50	0.13	0.04	0.37	0.09	0.9	-0.0	1.71	-0.0	728.	970.	-0.	-0.0	-0.0	
10	7.3	9.83	87.6	0.43	0.16	-0.00	0.27	0.16	3.9	1.1	1.7	1	-0.0	697.	953.	317.	0.4	-0.0
40	6.9	11.44	100.8	0.54	0.16	0.02	0.38	0.14	5.4	6.1	3.4	7	-0.0	702.	943.	314.	0.5	-0.0
13	7.1	10.26	91.1	0.39	0.20	-0.00	0.19	0.20	4.8	4.3	2.0	7	-0.0	700.	933.	317.	0.3	-0.0
9	7.0	9.89	87.6	0.43	0.14	-0.00	0.29	0.14	4.9	4.6	2.3	4	-0.0	705.	932.	312.	0.4	-0.0
39	6.5	9.94	86.8	0.65	0.16	0.06	0.50	0.10	6.8	15.4	4.2	9	-0.0	694.	910.	314.	0.5	-0.0
14	6.7	9.83	86.4	0.47	0.14	-0.00	0.34	0.14	1.8	2.1	2.0	7	-0.0	694.	923.	311.	0.7	-0.0
35	6.6	10.62	93.0	0.55	0.13	0.05	0.42	0.07	4.0	4.0	2.1	4	-0.0	680.	935.	317.	0.5	-0.0
7	8.1	9.95	90.6	0.58	0.26	0.03	0.32	0.23	2.8	0.7	1.1	4	-0.0	694.	966.	322.	0.8	-0.0
38	6.6	10.16	89.0	0.56	0.14	0.03	0.42	0.11	6.7	15.0	3.5	7	-0.0	711.	905.	316.	0.7	-0.0
36	6.8	9.55	84.0	0.51	0.19	0.13	0.32	0.06	6.7	10.4	6.0	7	-0.0	677.	890.	311.	0.6	-0.0
22	8.6	9.03	83.1	0.61	0.11	-0.00	0.51	0.11	5.1	2.4	2.7	1	-0.0	666.	930.	312.	0.5	-0.0
20	7.7	8.28	74.5	0.63	0.16	0.02	0.47	0.14	8.2	9.4	5.0	0	-0.0	629.	920.	307.	0.7	-0.0
21	13.2	7.01	71.9	0.92	0.32	0.28	0.60	0.03	6.6	16.1	4.7	1	-0.0	580.	905.	-0.	-0.0	-0.0
19	12.4	7.26	73.2	1.23	0.54	0.36	0.70	0.18	16.8	12.7	7.5	0	-0.0	617.	925.	321.	1.8	-0.0
17	14.8	7.85	88.0	1.26	0.67	0.28	0.60	0.39	4.3	20.8	4.9	0	-0.0	539.	790.	-0.	-0.0	-0.0
16	17.0	8.63	96.2	2.74	1.53	1.40	1.21	0.13	13.3	23.2	11.43	3	-0.0	734.	923.	323.	3.1	-0.0
15	7.6	7.94	71.3	0.53	0.19	0.07	0.34	0.12	6.7	13.6	7.50	0	-0.0	646.	915.	308.	0.8	-0.0
37	10.5	8.25	79.7	1.24	0.51	0.25	0.72	0.26	2.6	13.2	5.33	0	-0.0	810.	911.	313.	1.2	-0.0
8	10.7	9.62	97.8	0.95	0.38	0.27	0.57	0.11	6.7	22.1	6.79	-0.0	789.	915.	-0.	-0.0	-0.0	
<b>EAST BASIN</b>																		
47	4.4	12.40	105.9	0.42	0.25	0.08	0.17	0.17	0.7	7.4	3.52	-0.0	685.	947.	314.	0.6	-0.0	
51	7.3	12.84	122.4	0.50	0.25	0.02	0.40	0.18	1.7	5.0	0	-0.0	-0.	-0.	-0.	-0.0	-0.0	
48	6.5	12.08	105.4	0.34	0.18	0.02	0.16	0.16	0.4	6.5	1.6	0	-0.0	692.	956.	320.	0.9	-0.0
53	5.2	12.34	112.1	0.49	0.20	0.01	0.31	0.17	0.4	10.8	4.42	-0.0	728.	886.	314.	0.7	-0.0	
3	5.6	12.87	109.7	0.39	0.26	0.09	0.13	0.16	0.3	11.5	4.93	-0.0	697.	892.	316.	0.8	-0.0	
49	4.8	12.94	108.2	0.46	0.23	0.05	0.23	0.19	0.3	9.6	4.09	-0.0	697.	830.	317.	0.7	-0.0	
4	5.2	12.61	106.7	0.40	0.24	0.06	0.15	0.19	0.7	9.2	4.7	1	-0.0	691.	951.	322.	0.7	-0.0
54	7.2	11.89	114.0	0.55	0.18	0.02	0.36	0.14	0.3	11.7	4.58	-0.0	-0.	-0.	-0.	-0.0	-0.0	-0.0
5	0.0	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.0	-0.0	-0.0	-0.	-0.	-0.	-0.0	-0.0	-0.0
52	9.1	12.02	111.7	0.58	0.23	0.01	0.39	0.20	0.3	12.3	4.29	-0.0	742.	887.	315.	0.8	-0.0	-0.0

Table 54 VOL. WEIGHED MEAN CONC. \*LAKE ERIE JULY 3-7, 70\* / HYPOLL INION /

SIN.	TEMP	D102	SAD2	I.P.	IEP	SRP	P.P.	ORG P	STO2	IEN	NH3	ORG N	E.CL	TEALK	SPGN	TURB	PHSU
<b>CENTRAL BASIN</b>																	
6	7.4	9.38	93.7	0.41	0.23	0.12	0.19	0.15	1.6	4.6	2.47	13.2	689.	953.	-0.	-0.0	-0.0
43	11.3	5.49	54.2	0.88	0.19	0.10	0.70	0.08	2.5	3.9	3.53	14.1	683.	974.	323.	2.5	7.8
41	12.2	8.11	84.7	0.52	0.18	0.07	0.34	0.11	5.2	3.1	1.05	6.4	697.	945.	-0.	-0.0	-0.0
11	8.8	8.34	86.6	0.52	0.16	0.02	0.36	0.14	3.2	1.6	1.00	12.9	686.	954.	-0.	-0.0	-0.0
12	8.8	7.20	66.6	0.52	0.16	0.02	0.36	0.14	4.2	2.5	1.71	7.9	680.	949.	-0.	-0.0	-0.0
34	8.9	6.34	58.9	0.34	0.16	0.05	0.18	0.11	10.7	7.1	4.86	6.4	686.	930.	317.	1.0	7.7
33	9.0	6.71	62.8	0.50	0.19	0.08	0.31	0.11	15.4	7.9	6.62	-0.6	680.	948.	306.	0.6	8.1
44	11.4	6.69	65.9	0.72	0.19	0.12	0.53	0.07	3.7	4.3	4.29	14.3	686.	974.	322.	1.2	7.9
42	9.5	6.82	64.0	0.57	0.26	0.15	0.31	0.12	6.2	4.4	5.64	-0.0	689.	943.	-0.	-0.0	-0.0
10	8.6	6.82	64.3	0.67	0.18	0.05	0.49	0.13	7.2	5.1	4.41	7.2	702.	950.	-0.	-0.0	-0.0
40	8.5	6.43	58.9	0.59	0.21	0.03	0.38	0.18	7.7	6.8	9.12	5.8	686.	935.	314.	1.0	7.6
13	10.4	7.18	69.4	0.50	0.19	0.03	0.31	0.15	0.2	5.0	5.42	9.9	674.	932.	317.	0.6	7.8
9	9.6	6.82	64.3	0.57	0.26	0.15	0.31	0.12	6.2	4.4	5.64	6.4	692.	947.	321.	1.6	7.8
39	8.8	6.30	58.3	0.93	0.32	0.18	0.61	0.14	10.1	8.9	7.71	14.9	691.	935.	320.	1.4	7.8
14	8.1	6.42	58.4	0.85	0.37	0.18	0.48	0.19	10.8	13.9	11.64	12.1	691.	930.	317.	0.8	7.6
35	8.3	5.85	53.5	0.53	0.36	0.14	0.17	0.22	10.2	17.2	11.68	3.6	679.	921.	313.	0.5	8.6
7	9.6	6.80	64.1	0.32	0.16	0.08	0.16	0.07	1.1	0.5	0.93	10.0	705.	963.	314.	1.5	7.8
38	8.4	6.63	60.7	0.32	0.22	0.05	0.11	0.16	1.1	3.5	1.22	10.7	716.	918.	305.	1.2	7.6
36	7.9	6.02	54.1	0.91	0.60	0.30	0.31	0.30	14.7	13.6	12.31	-0.0	677.	915.	318.	0.7	7.9
22	7.9	6.02	53.0	0.91	0.60	0.30	0.31	0.30	11.7	13.6	12.31	-0.0	694.	925.	-0.	-0.0	-0.0
20	11.6	6.02	53.0	0.91	0.60	0.30	0.31	0.30	11.7	13.6	12.31	-0.0	689.	905.	-0.	-0.0	-0.0
<b>EAST BASIN</b>																	
47	6.0	9.58	82.7	0.51	0.21	0.13	0.30	0.08	1.6	8.9	4.50	18.6	697.	940.	317.	1.1	8.1
48	7.6	10.84	97.5	0.80	0.24	0.08	0.57	0.16	1.7	5.8	4.69	8.5	694.	944.	320.	2.0	8.1
53	9.2	8.02	74.9	0.54	0.32	0.11	0.22	0.21	1.8	7.2	3.77	13.2	694.	909.	324.	0.8	7.8
51	5.9	11.64	97.0	0.45	0.28	0.16	0.16	0.11	-0.0	7.8	3.85	12.2	-0.	-0.	-0.	-0.0	-0.0
3	6.3	10.12	87.9	0.73	0.20	0.05	0.54	0.15	3.4	10.3	4.54	10.7	680.	905.	320.	2.6	8.0
49	5.1	11.73	99.0	0.42	0.30	0.17	0.13	0.13	1.5	8.4	3.90	18.1	686.	943.	323.	1.0	8.1
4	5.1	11.55	97.3	0.43	0.33	0.17	0.10	0.15	2.6	8.6	3.76	10.3	691.	965.	324.	0.9	8.1
52	7.0	10.30	100.1	-0.00	-0.00	-0.00	0.15	0.12	-0.0	5.7	3.64	-0.0	689.	-0.	-0.	-0.0	-0.0

Table 55 VOL. WEIGHTED MEAN CONC. \*LAKE ERIE JULY 28-AUG. 2, 70\* / HAPOLIMNION /

SIN	TEMP	D102	SA02	T.P.	TEP*	SRP	P.P.	ORG P	S102	TFN	NH3	ORG N	F.GL	TEALK	SPCN	TURB	PHSU
<b>CENTRAL BASIN</b>																	
43	16.1	6.63	72.5	0.59	0.16	0.03	0.43	0.13	3.7	5.7	3.86	-0.0	686.	954.	319.	1.9	8.0
41	14.7	3.42	36.3	0.46	0.15	0.02	0.31	0.13	6.4	5.8	4.37	-0.0	673.	969.	322.	1.3	7.6
11	14.1	5.62	59.3	0.42	0.24	0.05	0.18	0.18	7.2	8.9	3.92	-0.0	-0.	-0.	-0.0	-0.0	-0.0
12	8.9	4.88	36.0	0.34	0.24	0.01	0.10	0.23	13.7	12.5	5.0	0	637.	907.	-0.	-0.0	-0.0
34	10.5	4.11	39.7	0.29	0.21	0.02	0.08	0.19	13.9	10.6	6.29	-0.0	665.	934.	315.	0.7	7.7
33	12.2	4.29	44.1	0.41	0.15	0.06	0.26	0.09	12.2	9.2	7.50	-0.0	666.	960.	312.	1.1	7.8
44	10.6	1.65	16.6	0.35	0.16	0.03	0.19	0.13	12.7	6.8	4.10	-0.0	689.	933.	-0.	-0.0	-0.0
42	12.4	2.21	22.3	0.39	0.15	0.03	0.25	0.12	10.1	6.5	3.99	-0.0	652.	994.	327.	0.7	7.5
10	12.3	4.56	45.8	0.39	0.14	0.02	0.25	0.12	5.6	3.9	2.71	-0.0	686.	950.	320.	0.7	7.7
40	10.7	4.09	39.6	0.22	0.15	0.02	0.07	0.13	8.7	5.4	2.37	-0.0	695.	963.	322.	0.8	7.6
13	9.8	4.51	36.2	0.38	0.24	0.02	0.15	0.22	13.1	12.4	4.72	-0.0	650.	930.	314.	0.7	7.5
9	13.1	6.74	69.2	0.47	0.20	0.02	0.27	0.18	7.4	12.0	1.63	-0.0	697.	935.	317.	0.9	7.9
39	10.7	4.93	47.7	0.28	0.16	0.06	0.13	0.10	7.8	8.6	0.14	-0.0	694.	957.	311.	-0.0	7.6
14	11.8	5.13	51.4	0.34	0.19	0.02	0.13	0.15	13.3	13.0	2.82	-0.0	644.	940.	311.	0.7	7.7
35	8.9	3.76	34.9	0.45	0.22	0.07	0.23	0.15	2.2	0.4	1.64	-0.0	717.	911.	314.	0.7	7.5
7	10.7	4.93	47.8	0.28	0.16	0.06	0.13	0.10	7.8	8.6	0.14	-0.0	691.	929.	-0.	-0.0	-0.0
38	10.7	4.93	47.8	0.28	0.16	0.06	0.13	0.10	7.8	8.6	0.14	-0.0	671.	939.	-0.	-0.0	-0.0
36	9.1	3.97	37.0	0.37	0.07	-0.00	0.30	0.07	10.7	12.5	1.43	-0.0	703.	923.	318.	0.6	7.6
22	9.9	2.67	25.8	0.44	0.10	0.01	0.34	0.33	21.7	17.9	7.86	-0.0	694.	908.	317.	0.5	7.4
20	10.6	2.67	25.8	0.44	0.11	0.01	0.34	0.10	21.7	17.9	7.86	-0.0	706.	915.	318.	1.0	7.5
21	10.2	1.50	4.8	0.64	0.20	0.10	0.44	0.11	31.0	17.9	16.29	-0.0	700.	930.	316.	1.2	7.2
<b>EAST BASIN</b>																	
47	10.4	6.79	68.0	0.53	0.15	0.02	0.38	0.13	8.2	6.8	5.30	-0.0	709.	951.	-0.	-0.0	-0.0
53	7.9	6.99	63.3	0.32	0.19	0.08	0.13	0.11	9.7	14.3	4.14	-0.0	697.	940.	318.	0.8	7.7
3	6.9	8.27	72.8	0.60	0.22	0.12	0.38	0.11	6.6	15.5	6.46	-0.0	717.	942.	322.	2.5	7.8
49	4.7	10.73	89.5	0.39	0.24	0.10	0.15	0.13	3.2	13.6	1.52	-0.0	692.	941.	324.	0.8	8.0
4	5.2	10.00	84.6	0.40	0.29	0.18	0.12	0.10	5.0	12.9	4.23	-0.0	696.	959.	320.	1.8	7.9
52	13.1	6.55	81.8	0.41	0.18	0.15	0.20	0.05	5.0	6.4	7.29	-0.0	697.	950.	-0.	-0.0	-0.0

Table 56 VOL. WEIGHTED MEAN CONC. \*LAKE ERIE AUG. 25-30, 70\* / HYPOLIMNION /

SIN	JEMP	D102	SD02	J.P.	IEP.	SRP.	P.P.	ORG P	SI02	TEN.	NH3.	DRGN	FAGL	TEALK	SPCN	TURB	PHSU	S
CENTRAL	BASIN																	
43	1.6e.3	1.68	18.5	0.63	0.16	0.07	0.47	0.10	9.3	6.2	1.97	-0.0	693.	958.	336.	1.7	7.6	
41	16.0	1.87	20.4	0.70	0.30	0.11	0.40	0.20	11.7	0.4	5.71	-0.0	663.	975.	336.	0.8	8.0	
11	18.5	0.28	3.1	0.31	0.12	0.05	0.19	0.07	7.0	1.8	3.05	-0.0	710.	1000.	333.	1.2	7.6	
34	1.3.7	0.37	3.9	1.35	0.75	0.36	0.60	0.39	20.0	1.6	11.07	-0.0	669.	960.	-0.	-0.0	-0.0	
33	1.2.6	0.51	5.1	1.31	0.71	0.34	0.59	0.51	21.3	0.5	6.06	-0.0	606.	935.	325.	0.7	7.4	
44	13.8	2.88	30.8	0.37	0.12	0.05	0.25	0.07	6.3	9.8	0.71	-0.0	706.	945.	334.	1.2	7.5	
42	14.3	3.46	36.2	0.53	0.15	0.06	0.38	0.09	11.0	1.3	0.73	-0.0	713.	978.	332.	1.7	7.6	
10	13.8	0.87	9.0	0.67	0.18	0.14	0.50	0.04	19.0	9.1	11.29	-0.0	712.	974.	336.	0.9	8.0	
40	10.3	0.95	9.1	0.43	0.23	0.04	0.20	0.12	10.0	6.0	2.20	-0.0	677.	922.	315.	0.8	7.3	
13	11.2	1.01	9.6	0.40	0.16	0.08	0.26	0.68	16.5	11.3	2.66	-0.0	655.	910.	333.	0.9	7.5	
9	12.9	1.95	19.9	0.37	0.11	0.07	0.26	0.38	19.0	15.4	1.29	-0.0	702.	936.	333.	1.0	8.0	
39	12.2	1.87	14.1	0.40	0.14	0.05	0.25	0.09	15.5	9.1	1.18	-0.0	687.	924.	323.	0.6	7.7	
14	10.9	0.91	8.9	0.58	0.15	0.14	0.33	0.11	21.0	18.2	1.87	-0.0	679.	944.	308.	0.6	8.8	
35	10.3	0.70	6.7	0.73	0.29	0.20	0.48	0.24	23.9	18.2	5.24	-0.0	642.	910.	341.	0.5	7.3	
7	12.4	3.69	37.3	0.42	0.10	0.06	0.30	0.04	9.7	14.8	1.53	-0.0	700.	916.	334.	1.4	7.6	
38	13.3	1.74	18.2	0.49	0.12	0.05	0.50	0.07	12.8	10.6	0.96	-0.0	694.	930.	338.	0.9	7.5	
36	10.7	1.56	15.1	0.75	0.30	0.16	0.45	0.12	25.0	17.3	2.14	-0.0	709.	1000.	329.	0.6	7.7	
22	10.8	0.00	0.0	1.25	0.05	0.87	0.20	0.28	21.1	0.0	1.40	-0.0	659.	892.	325.	0.8	7.5	
20	12.8	0.27	2.7	2.11	1.28	1.14	0.83	0.15	33.1	0.3	20.03	-0.0	758.	870.	342.	0.7	7.4	
21	13.9	0.78	6.4	6.32	5.26	4.45	1.05	0.81	42.0	0.5	31.14	-0.0	714.	970.	335.	0.8	7.5	
15	13.7	0.14	1.4	4.50	3.64	3.07	0.85	0.57	45.8	0.3	37.02	-0.0	791.	999.	350.	0.9	7.4	
37	13.4	1.37	9.8	0.35	0.11	0.03	0.24	0.07	3.0	0.4	35.11	-0.0	992.	873.	-0.	2.0	7.4	
FASTI BASIN																		
47	13.8	2.86	29.7	0.37	0.12	0.05	0.51	0.07	6.3	13.5	0.71	-0.0	699.	908.	325.	0.5	8.6	
1	20.6	2.40	28.7	0.50	0.19	0.12	0.31	0.12	10.4	8.2	1.29	-0.0	714.	926.	-0.	-0.0	-0.0	
51	12.3	4.48	49.6	0.32	0.19	0.12	0.31	0.07	10.4	8.2	1.43	-0.0	708.	926.	-0.	-0.0	-0.0	
53	12.2	1.60	16.0	0.59	0.31	0.00	0.28	0.30	15.0	1.9	1.86	-0.0	696.	985.	346.	0.8	7.6	
3	6.1	9.35	80.9	0.27	0.15	0.11	0.13	0.03	5.2	15.5	0.91	-0.0	696.	930.	334.	0.5	8.0	
49	5.2	9.64	81.4	0.28	0.17	0.11	0.06	0.11	4.2	14.6	0.71	-0.0	702.	917.	336.	0.6	7.8	
4	6.0	8.95	77.2	0.21	0.13	0.09	0.06	0.04	5.7	15.6	1.16	-0.0	701.	947.	336.	0.5	8.0	

Table 57 VOL. WEIGHED MEAN CONC. \*LAKE ERIE SEPI. 23-27, 70\* / MESULIMNION /

STN	TEMP.	D102	SAD2	T.F.	TFP.	SRP.	P.P.	ORG P.	S102	TEN.	NH3.	ORG N	F.GI	TFALK	SPCN	TURB.	PHSU
<b>CENTRAL BASIN</b>																	
10	20.2	8.76	103.8	0.32	0.16	0.05	0.43	0.11	1.3	1.1	1.0	-0.0	660.	916.	317.	0.8	0.4
40	18.4	6.93	79.8	0.89	0.72	0.48	0.14	0.25	1.1	0.6	0.7	17.1	3	-6.3	657.	904.	324.
13	19.9	8.55	160.8	6.38	6.15	0.03	0.23	0.13	0.2	2.1	1.86	-6.0	671.	671.	312.	0.6	8.3
39	17.2	6.58	73.7	1.15	0.70	0.44	0.45	0.26	1.0	0.0	1.4	5.36	-0.0	666.	898.	323.	0.6
14	15.9	4.68	55.0	0.39	0.14	0.05	0.25	0.08	1.5	1.8	0.14	-0.0	640.	866.	334.	1.6	7.4
35	20.7	8.89	106.4	0.25	0.25	0.09	0.50	0.33	1.4	0.9	0.82	-0.0	637.	876.	316.	1.3	9.4
7	17.9	6.37	73.3	0.88	0.41	0.27	0.47	0.14	0.9	6.4	3.32	-0.0	666.	913.	326.	0.8	8.0
38	19.0	6.75	79.1	0.37	0.14	0.04	0.23	0.10	0.3	0.7	1.08	-0.0	657.	918.	330.	0.7	7.8
36	21.3	8.57	103.6	6.10	4.20	1.36	1.50	0.60	2.7	0.4	19.64	-0.0	674.	1004.	316.	0.6	8.5
22	17.2	4.66	57.6	2.45	1.11	0.34	0.21	1.80	0.0	0.5	15.36	-0.0	643.	921.	319.	0.8	7.2
23	19.3	8.48	99.0	2.25	1.60	1.26	0.64	0.34	1.68	0.4	9.98	-0.0	716.	906.	325.	0.9	8.3
32	20.3	7.27	86.4	1.06	0.53	0.24	0.54	0.28	1.83	1.4	15.71	-0.0	694.	935.	-0.	-0.0	-0.0
15	20.7	7.60	90.3	0.67	0.29	0.13	0.39	0.16	0.16	1.6	1.76	-0.0	674.	908.	324.	0.6	8.3
<b>EAST BASIN</b>																	
53	17.9	7.94	30.1	0.28	0.14	0.12	0.15	0.02	4.0	2.9	1.93	-0.0	700.	928.	330.	0.6	-0.0
3	12.8	7.38	75.6	0.32	0.23	0.15	0.03	0.38	7.0	5.2	1.23	-0.0	688.	928.	331.	0.5	7.5
42	13.5	7.18	76.3	0.38	0.19	0.09	0.20	0.10	5.8	5.3	0.50	-0.0	694.	920.	331.	0.9	7.4
4	12.8	8.33	85.4	0.31	0.19	0.10	0.12	0.03	4.5	9.5	3.54	-0.0	697.	931.	332.	0.5	7.5

VOL. WEIGHED MEAN CONC. \*LAKE ERIE SEPI. 23-27, 70\* / HYPOLIMNION /

STN	TEMP.	D102	SAD2	T.F.	TFP.	SRP.	P.P.	ORG P.	S102	TEN.	NH3.	ORG N	F.GI	TFALK	SPCN	TURB.	PHSU
<b>CENTRAL BASIN</b>																	
13	16.0	0.00	0.0	6.90	5.90	4.90	1.00	1.00	40.0	1.1	32.0	0.0	671.	936.	327.	0.7	7.7
39	16.4	0.00	0.0	1.15	0.70	0.40	0.45	0.30	1.0	1.4	5.30	-0.0	666.	898.	-0.	-0.0	-0.0
14	11.3	0.00	0.0	0.51	0.51	0.21	0.52	0.22	2.80	4.0	13.0	0	653.	894.	334.	2.0	7.3
35	11.6	0.00	0.0	3.87	2.95	2.40	0.72	0.93	25.5	0.5	37.4	0	675.	949.	323.	0.9	7.5
7	15.8	0.00	0.0	1.32	0.70	0.50	0.62	0.21	15.5	11.4	6.43	-0.0	666.	916.	334.	1.0	7.6
38	14.9	0.00	0.0	3.33	2.54	2.12	0.79	0.42	41.2	0.6	14.56	-0.0	658.	964.	344.	1.7	7.5
36	12.6	0.00	0.0	6.00	4.50	3.66	1.50	0.84	42.3	0.4	35.90	-0.0	680.	1020.	336.	0.8	7.7
20	16.4	0.00	0.0	4.52	3.50	4.93	1.02	0.55	36.7	0.4	23.57	-0.0	714.	941.	-0.	-0.0	-0.0
<b>EAST BASIN</b>																	
3	6.5	7.29	63.6	0.36	0.31	0.24	0.05	0.06	9.8	20.0	1.00	-0.0	683.	950.	340.	0.8	7.5
49	6.8	6.18	56.5	0.44	0.27	0.16	0.17	0.11	9.8	17.8	0.32	-0.0	694.	929.	344.	1.1	7.4
4	5.4	7.86	66.6	0.39	0.23	0.18	0.16	0.05	7.1	18.0	0.21	-0.0	696.	943.	338.	0.7	7.5

VOL. WEIGHED MEAN CONC. \*LAKE ERIE OCT. 21-26, 70 / HYPOLIMNION /

STN	TEMP.	D102	SAD2	T.F.	TFP.	SRP.	P.P.	ORG P.	S102	TEN.	NH3	ORG N	F.GI	TFALK	SPCN	TURB.	PHSU
<b>EAST BASIN</b>																	
49	8.0	6.56	57.9	0.64	0.36	0.22	0.28	0.14	6.7	16.1	2.5	-0.0	694.	977.	339.	1.8	7.8
4	5.8	8.89	78.4	0.40	0.27	0.19	0.13	0.08	6.2	17.9	1.6	-0.0	694.	967.	342.	1.0	7.9

Table 39

STATION	APRIL 7-11 / NO THERM. STRAT.			AUGUST 25-30 / EPI.			NOVEMBER 25-30 / NO THERM. STRAT.								
	MEAN	VOL.	WGHD.	MEAN	VOL.	WGHD.	MEAN	VOL.	WGHD.						
STN	LI	NA	K	S.CA	F.FE	F.MN	S.S04	LI	NA	K	S.CA	F.FE	F.MN	S.S04	
WEST BASIN															
23	6.	12.	1.2	33.	7.	2.	256.	1.	9.	1.1	31.	4.	2.	188.	
24	6.	10.	0.9	32.	12.	1.	211.	2.	9.	1.1	29.	2.	1.	188.	
25	5.	11.	1.3	30.	10.	8.	213.	2.	14.	1.1	30.	3.	1.	219.	
26	5.	6.	1.0	30.	6.	3.	194.	2.	d.	1.2	28.	2.	0.	250.	
27	4.	7.	1.0	30.	6.	1.	171.	1.	8.	1.2	29.	2.	0.	292.	
28	6.	9.	1.1	31.	11.	1.	249.	2.	9.	1.1	27.	4.	0.	167.	
29	6.	12.	1.2	34.	6.	-0.	308.	1.	9.	1.1	34.	5.	0.	198.	
30	-9.	-6.	-0.0	-3.	-0.	-0.	-0.	-0.	-11.	1.4	38.	-0.	-0.	250.	
CENTRAL BASIN															
6	5.	12.	1.6	46.	9.	1.	268.	1.	12.	1.3	38.	1.	1.	250.	
43	-9.	-0.	-0.0	-0.	-0.	-0.	-0.	-0.	-12.	1.3	38.	-0.	-0.	250.	
41	5.	12.	1.2	40.	6.	0.	255.	2.	11.	1.3	36.	3.	1.	250.	
11	-3.	-0.	-0.3	-3.	-0.	-0.	-0.	-0.	-12.	1.4	36.	0.	-0.	240.	
12	5.	11.	1.2	39.	4.	1.	266.	3.	11.	1.3	35.	1.	0.	250.	
34	6.	12.	1.2	37.	7.	1.	250.	1.	12.	1.3	35.	1.	0.	250.	
33	6.	12.	1.2	38.	3.	0.	252.	1.	10.	1.2	32.	1.	1.	260.	
44	6.	12.	1.3	40.	6.	0.	271.	2.	12.	1.4	38.	2.	0.	250.	
42	6.	12.	1.3	39.	8.	0.	266.	2.	11.	1.3	38.	2.	0.	240.	
10	-0.	-0.	-0.0	-0.	-0.	-0.	-0.	-0.	-12.	1.3	37.	-0.	-0.	250.	
40	5.	12.	1.2	39.	5.	0.	261.	2.	11.	1.2	36.	1.	0.	250.	
13	-0.	-0.	-0.0	-0.	-0.	-0.	-0.	-0.	-11.	1.3	35.	-0.	-0.	240.	
9	5.	13.	1.2	39.	6.	0.	251.	2.	11.	1.2	37.	3.	0.	250.	
39	6.	12.	1.2	37.	7.	0.	248.	2.	12.	1.3	37.	2.	0.	240.	
14	5.	11.	1.2	36.	21.	0.	274.	5.	12.	1.3	36.	1.	0.	250.	
35	6.	12.	1.2	37.	2.	0.	261.	2.	11.	1.2	36.	1.	0.	229.	
7	-0.	-0.	-0.0	-0.	-0.	-0.	-0.	-0.	-11.	1.3	35.	-0.	-0.	229.	
38	6.	12.	1.2	38.	11.	1.	246.	2.	12.	1.4	36.	2.	0.	250.	
36	-0.	-0.	-0.0	-0.	-0.	-0.	-0.	-0.	-12.	1.3	35.	-0.	-0.	250.	
22	6.	11.	1.2	38.	5.	0.	249.	1.	11.	1.2	34.	4.	0.	250.	
20	-1.	-0.	-0.0	-0.	-0.	-0.	-0.	-0.	-12.	1.2	37.	-0.	-0.	250.	
32	-0.	-0.	-0.0	-0.	-0.	-0.	-0.	-0.	-12.	1.2	37.	-0.	-0.	250.	
31	6.	12.	1.2	35.	8.	0.	243.	2.	11.	1.3	33.	3.	0.	260.	
21	6.	12.	1.1	36.	10.	1.	231.	1.	13.	1.4	36.	1.	0.	250.	
19	6.	12.	1.1	36.	10.	1.	247.	1.	13.	1.3	37.	3.	0.	229.	
18	-7.	-0.	-0.0	-0.	-0.	-0.	-0.	-0.	-12.	1.2	37.	-0.	-0.	229.	
17	-0.	-0.	-0.0	-0.	-0.	-0.	-0.	-0.	-12.	1.2	34.	-0.	-0.	198.	
16	-0.	-0.	-0.0	-0.	-0.	-0.	-0.	-0.	-12.	1.2	34.	-0.	-0.	219.	
15	-6.	-0.	-0.0	-0.	-0.	-0.	-0.	-0.	-12.	1.4	36.	-0.	-0.	168.	
37	6.	13.	1.2	37.	24.	1.	258.	2.	14.	1.3	38.	2.	0.	177.	
8	5.	13.	1.2	38.	8.	1.	236.	2.	12.	1.2	37.	1.	0.	177.	
45	6.	13.	1.3	38.	15.	1.	271.	2.	12.	1.3	38.	2.	0.	177.	
46	-0.	-0.	-0.0	-0.	-0.	-0.	-0.	-0.	-12.	1.4	37.	-0.	-0.	177.	
EAST BASIN															
47	5.	12.	1.6	39.	8.	0.	264.	2.	12.	1.4	38.	2.	0.	250.	
56	-0.	-0.	-0.0	-0.	-0.	-0.	-0.	-0.	-12.	1.4	38.	2.	0.	250.	
1	-1.	-0.	-0.0	-0.	-0.	-0.	-0.	-0.	-12.	1.3	38.	2.	0.	240.	
2	6.	11.	1.4	40.	7.	1.	273.	2.	-U.	1.3	38.	2.	0.	271.	
12	51	-0.	-0.	-0.0	-0.	-0.	-0.	-0.	-12.	1.4	39.	-0.	-0.	260.	
13	50	6.	12.	1.5	40.	4.	257.	1.	-U.	1.4	39.	2.	0.	271.	
13	48	6.	12.	1.5	40.	6.	1.	261.	1.	-U.	1.4	39.	4.	0.	260.
13	53	-0.	-0.0	-0.0	-0.	-0.	-0.	-0.	-12.	1.4	38.	2.	0.	250.	
14	3	6.	12.	1.4	40.	4.	259.	2.	12.	1.3	37.	1.	0.	240.	
14	49	5.	12.	1.5	40.	8.	253.	1.	12.	1.4	39.	2.	0.	260.	
15	4	5.	12.	1.5	39.	6.	249.	2.	12.	1.3	38.	2.	0.	250.	
15	55	-0.	-0.	-0.0	-0.	-0.	-0.	-0.	-12.	1.4	37.	-0.	-0.	271.	
6	54	-0.	-0.0	-0.	-0.	-0.	-0.	-0.	-12.	1.4	37.	-0.	-0.	-0.	
52	-0.	-0.	-0.0	-0.	-0.	-0.	-0.	-0.	-12.	1.4	37.	2.	0.	240.	
52	-0.	-0.	-0.0	-0.	-0.	-0.	-0.	-0.	-12.	1.3	37.	2.	0.	240.	
52	-0.	-0.	-0.0	-0.	-0.	-0.	-0.	-0.	-12.	1.3	37.	2.	0.	240.	
52	-0.	-0.	-0.0	-0.	-0.	-0.	-0.	-0.	-12.	1.4	38.	2.	0.	260.	

Table 59

VOL. WEIGHED MEAN CONC. AUGUST 25-30

F.MN

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STN	CENTRAL BASIN	MESO.	HYP0.	MESO.	HYP0.	MESO.	HYP0.
6	1.	-0.	0.	0.	0.	271.	-0.
43	-0.	-0.	-0.	-0.	-0.	246.	250.
41	1.	-0.	0.	0.	0.	229.	-0.
11	-0.	-0.	-0.	-0.	-0.	250.	-0.
33	23.	23.	175.	175.	240.	240.	
44	2.	1.	0.	0.	0.	250.	250.
42	2.	2.	-0.	-0.	2.	240.	240.
10	-0.	-0.	-0.	-0.	-0.	250.	250.
40	2.	2.	-0.	-0.	77.	229.	240.
13	-0.	-0.	-0.	-0.	-0.	266.	260.
9	2.	2.	-0.	-0.	6.	260.	260.
39	1.	1.	-0.	-0.	115.	246.	240.
35	2.	2.	67.	131.	229.	240.	
7	-0.	-0.	-0.	-0.	-0.	271.	260.
38	3.	3.	-0.	-0.	45.	250.	250.
36	-0.	-0.	-0.	-0.	-0.	250.	240.
22	31.	61.	86.	174.	219.	219.	
20	-0.	-0.	-0.	-0.	-0.	229.	219.
21	93.	184.	-0.	228.	219.	198.	
15	-0.	-0.	-0.	-0.	-0.	250.	229.
37	2.	-0.	3.	-0.	-0.	266.	-0.
8	1.	-0.	-0.	-0.	-0.	266.	-0.
47	2.	2.	-0.	-0.	-0.	250.	250.
1	2.	-0.	-0.	-0.	-0.	271.	-0.
51	-0.	-6.	-0.	-0.	-0.	250.	-0.
53	2.	2.	-0.	2.	2.	250.	250.
3	1.	1.	-0.	-0.	271.	260.	
49	1.	2.	-0.	23.	266.	260.	
4	2.	2.	-0.	2.	271.	271.	

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Section 3: Lakewide budgets for water, phosphorus and chloride

The following equations provide the most concise means of describing the types of budget calculations carried out in this study.

The equation used in the water budget calculations is,

$$\Delta V_e = \sum_i V_R - \sum_i V_0 \pm \Delta S \pm G \quad (1)$$

where  $\Delta V_e$  = monthly change in volume due to net evaporation  
or precipitation

$V_R$  = monthly volume of river inputs

$V_0$  = monthly volume of river outputs

$\Delta S$  = monthly change in volume of water storage

$G$  = monthly groundwater flow

$\approx 0.0$  (by assumption)

The chloride ion is considered to be conservative within the Lake Erie system. During 1970 there was no discernible change in the mean chloride concentration of the lake, thus the following equations were used in the chloride budget calculations.

$$Q_{ci} = Q_{co} + \Delta S_c \quad (2)$$

where  $Q_{ci}$  = annual chloride input

$Q_{co}$  = annual chloride output

$\Delta S_c$  = annual change in chloride storage

Also,

$$Q_{cn} = Q_{c(n-1)} + \sum_i (V_r C_{rc})_{n,(n-1)} - \sum_i (V_o C_{oc})_{n,(n-1)} + (D_c)_{n,(n-1)} + (V_p C_{pc})_{n,(n-1)} \quad (3)$$

- where  $Q_{cn}$  = quantity of chloride within the lake during survey n
- $Q_{c(n-1)}$  = quantity of chloride in lake during survey n-1
- $(V_r C_{rc})_{n,(n-1)}$  = river input of chloride between surveys n, n-1
- $(V_o C_{oc})_{n,(n-1)}$  = river output of chloride between surveys n, n-1
- $(D_c)_{n,(n-1)}$  = direct discharge of chloride to the lake between surveys
- $(V_p C_{pc})_{n,(n-1)}$  = precipitation input of chloride between surveys

Phosphorus is a non-conservative substance in the lake system and the equation used for the phosphorus lake budget is,

$$E_p = Q_{pn} - \sum_i (V_r C_{rp})_{n,(n-1)} + \sum_i (V_o C_{op})_{n,(n-1)} - (D_p)_{n,(n-1)} - (V_p C_{pp})_{n,(n-1)} - Q_p(n-1) \quad (4)$$

where  $E_p$  = phosphorus eliminated from or regenerated to the waters of the lake between surveys n and n-1 (budget imbalance)

$Q_{pn}$  = quantity of phosphorus in the lake at the time of survey n

$Q_p(n-1)$  = quantity of phosphorus in the lake at the time of survey  $n-1$

$(V_r C_{rp})$  = river inputs of phosphorus between surveys

$(V_o C_{op})$  = river output of phosphorus from the lake between surveys

$(V_p C_{pp})_{n,(n-1)}$  = inputs of phosphorus by precipitation between surveys

$(D_p)_{n,(n-1)}$  = direct discharge of phosphorus to the lake between surveys

### Water Budget

As a first step in obtaining a realistic materials loading to the lake, it was considered necessary to obtain a water budget which was essentially correct. Equation (1) was used and the results are shown in Table 59. Flows for the major streams and rivers flowing into Lake Erie were obtained from published records (U.S. Geological Survey, 1970; Water Survey of Canada, 1970) for the development of the water budget. The storage was calculated from documented changes in water level (Marine Sciences Directorate, 1973). The imbalance in the monthly budgets was considered to be due to the net difference between precipitation and evaporation and the appropriate change in lake height was calculated. The precipitation was found to be greater than the evaporation in the spring with the reverse being the case in the fall; the annual evaporation was estimated as being greater than annual precipitation, which is in agreement with the average pattern (Phillips and McCulloch, 1972).

Lakewide Chloride and Phosphorus Budgets

The loadings of chloride and phosphorus by river were calculated by multiplying the integrated continuous flow data of a river for a month by the mean monthly concentration of the parameter as measured by weekly or bi-weekly river sampling programs (U.S. Geological Survey, 1970, 1967; Ontario Ministry of the Environment, Pers. Comm.). Precipitation estimates of chloride and phosphorus were obtained from precipitation data collected by samplers on Pelee Island, Port Stanley and Long Point during 1970 (Shiomi, pers. comm.). Non-tributary loadings (direct discharges to the lake) were estimated from the values listed in the report to the International Joint Commission (International Lake Erie Water Pollution Board, 1969). Precipitation loadings of nitrogen and silica were estimated from some summer measurements of concentrations of  $\text{NO}_3^-$  plus  $\text{NH}_3$  and  $\text{SiO}_2$  in rainfall collected on board a ship in Lake Erie (Matheson, 1974) together with average summer rainfall quantities (Philips and McCulloch, 1972). The estimated chloride and phosphorus loadings to the lake are shown in Tables 60 and 61. The output loadings were calculated using the mean of the concentrations observed at stations 1 and 55 and the volume of water discharged through the Welland Canal and the Niagara River. The Buffalo River was considered to be a tributary of the Niagara River and inputs from this source were not considered in the Lake Erie budgets. Ongley (1976) has raised real doubts as to the validity of computing river loadings by multiplying the values obtained for monthly

mean flow and monthly mean concentration. However, it appears that the methods used for computing river loadings in this study were adequate since the imbalance in the annual chloride budget (Table 62) represents only 3.8% of the annual budget. Since phosphorus is non-conservative in the waters of a lake, it is not possible to calculate the accuracy of a phosphorus budget directly. It is assumed here that the whole-lake phosphorus budget has an accuracy similar to that of the annual chloride budget.

Ongley (1976) shows detailed estimates of the mean annual input of chloride and total phosphorus to Lake Erie from the northshore rivers (excluding the Detroit River) averaged over the years 1964 to 1972). Ongley's estimate for annual mean loading of chloride to Lake Erie from the northshore is 86,300 m. tons per year which compares with the loadings of 64,400 m. tons from the northshore tributaries (excluding the Detroit River) included in Table 61. The northshore tributary loading of phosphorus included in Table 60 amounts to 1644 m. tons which compares with Ongley's estimate of the mean annual loading of 1564 m. tons. These values indicate basic agreement between the data sources.

Besides validating the river input-output budgets, the chloride budget also permitted estimates to be made of the precision of the values calculated for the quantities of materials present in the lake at any one time. Nine surveys of the quantity of chloride in Lake Erie were included in the 1970 investigations. These surveys gave values which were inserted into equation (3) for eight different survey intervals;

the results and the survey dates are shown in Table 65. The standard deviation of the eight differences between the values on the left and right hand sides of equation (3) was approximately 1.3% of the quantity of the chloride in the lake, (Table 65). This value is considered to be an indication of the precision of the quantity estimates calculated for any material samples on a lakewide basis during the 1970 M.V. Martin Karlsen surveys. Thus the values calculated for quantities of materials present in the lake are of an accuracy comparable with that of the lake budgets for phosphorus and the chloride ion.

The phosphorus data has been analysed in depth elsewhere (Burns 1976a).

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TABLE 59 WATER BUDGET FOR LAKE ERIE 1970 ( $m^3 \times 10^6$ )

TABLE 60. 1970 LAKE ERIE PHOSPHORUS LOADINGS (M.TONS OF P)

RIVER/MONTH	1	2	3	4	5	6	7	8	9	10	11	12	Year Total
Detroit	1188	1179	1518	1483	1267	1809	1800	1240	2272	1178	1538	1603	18075
Huron (Mich.)	17	16	32	19	14	9	6	7	5	8	14	14	161
Raisin	7	10	35	26	14	9	10	10	3	10	8	17	159
Maumee	248	516	560	780	515	120	95	85	48	86	188	302	3543
Portage	3	5	14	35	5	8	9	5	1	1	1	4	91
Sandusky	59	98	145	119	69	43	32	25	10	15	16	41	672
PPN	15	4	10	4	6	93	164	188	193	227	122	23	1049
Non trib.	4	4	4	4	4	4	4	4	4	4	4	4	48
Total W.B.	1541	1832	2318	2470	1894	2095	2120	1564	2536	1529	1891	2008	23798
Huron (Ohio)	10	22	24	45	42	10	3	3	3	6	6	80	254
Vermillion	15	22	3	10	22	3	3	3	3	3	3	5	95
Black	150	70	56	58	12	30	3	35	120	175	16	180	905
Rocky	17	4	27	77	9	18	15	5	8	10	8	14	212
Cuyahoga	64	76	94	66	41	57	52	30	37	54	93	97	761
Chagrin	18	8	2	7	4	9	2	3	10	2	8	4	77
Grand (Ohio)	15	6	7	21	13	1	1	1	1	1	1	6	98
Ashatabula	6	2	1	1	1	1	1	1	1	1	1	2	19
Conneaut	10	3	1	1	1	1	1	1	1	1	1	4	29
Kettle (Ont.)	2	3	8	6	1	1	1	1	1	1	1	5	35
Non trib.	177	177	177	177	177	177	177	177	177	177	177	177	2124
PPN.	45	47	19	21	26	198	109	98	71	247	95	184	1160
Total C.B.	529	440	419	490	349	506	368	358	433	683	437	757	5769
Grand R. (Ont.)	33	117	138	217	66	13	72	141	109	325	210	168	1609
Cattaraugus	4	1	11	24	5	2	5	1	1	23	10	57	144
Non trib.	29	29	29	29	29	29	29	29	29	29	29	29	348
PPN	15	16	7	7	9	68	36	33	24	84	32	62	393
Total E.B.	81	163	185	277	109	112	142	204	163	461	281	316	2494

TABLE 61. 1970 LAKE ERIE CHLORIDE LOADINGS (M. TONS OF Cl<sup>-</sup>)

RIVER/MONTH	1	2	3	4	5	6	7	8	9	10	11	12	Year Total
Detroit	231900	229900	296700	288600	235000	351000	327700	324900	309000	301000	303300	331700	3530700
Huron(Mich.)	1216	1619	2179	3758	1726	1272	1092	526	602	2567	1740	2000	20303
Raisin	498	1356	2454	4344	1863	1054	907	654	366	645	796	1630	16567
Miamee	11221	16020	17628	20338	14892	4259	2419	1400	1699	3120	7113	11781	111890
Portage	433	912	3993	1531	349	595	1368	62	212	135	139	779	10508
Sandusky	1859	3622	5076	5187	2123	1472	652	526	194	333	828	1427	23299
PPN	145	145	90	37	75	63	286	192	192	301	250	121	1897
Total W.B.	247272	253574	328120	323795	256028	359715	334424	328260	312265	308101	314172	349438	3715164
Huron(Ohio)	6826	1843	1385	3716	2482	407	106	50	63	109	127	422	17536
Vermillion	506	169	493	326	506	154	34	27	27	140	160	270	2812
Black	13930	2656	1211	1500	958	962	436	455	1833	1833	617	5569	31860
Rocky	2152	1321	3979	6166	1094	881	226	88	161	379	440	1294	18181
Cuyahoga	15113	13294	19103	8670	6744	8050	5878	3465	4725	6725	9480	14270	115523
Chagrin	2730	4634	623	1089	679	265	165	106	619	256	1101	1028	13295
Grand(Ohio)	55332	57103	54560	58419	63348	56106	16016	54222	45260	52183	53181	55459	621189
Ashtabula	1585	2289	1321	1190	898	54	718	427	241	488	4477	1703	15391
Conneaut	4597	1998	528	748	294	165	128	186	220	229	1218	793	11104
Kettle(Ont.)	479	857	1956	1493	193	56	231	23	26	141	1397	1395	8247
Otter	115	147	328	394	173	90	99	60	69	96	275	353	2199
PPN	773	564	693	209	290	387	580	532	451	596	1031	1837	7943
Total C.B.	104138	86875	86180	83920	77659	67583	24617	59641	53695	63175	73503	84293	865279
Grand(Ont.)	1600	4942	4811	11375	3970	2036	3230	2635	2973	3466	4545	5599	51182
Big Creek	172	237	362	443	236	156	132	88	119	160	284	386	2775
Cattaraugus	876	799	1699	2369	493	191	428	76	92	2276	617	5690	15606
PPN	261	190	228	70	92	130	196	146	152	195	347	618	2625
Total E.B.	2909	6168	7100	14257	4791	2513	3986	2945	3336	6097	5793	12293	72188

TABLE 62 Summary of chloride budget for Lake Erie in 1970 (metric tons  $\times 10^3$  of  $\text{Cl}^-$ ).

Detroit River Input	3530.7
Western basin rivers, discharges and precipitation	184.5
Central basin rivers, discharges and precipitation	865.3
Eastern basin rivers, discharges and precipitation	72.2
Total Input	4652.7
Storage (mean concn is 25.0 mg Cl liter <sup>-1</sup> )	76.5
Budget output (estimate)	4576.2
Measured output	4577.1
Imbalance	180.9
% Imbalance	= 3.8%

TABLE 63 Summary of phosphorus budget for Lake Erie in 1970 (metric tons of P).

Detroit River input	18,075
Western basin rivers, discharges and precipitation	5,723
Central basin rivers, discharges and precipitation	5,769
Eastern basin rivers, discharges and precipitation	2,494
Total input	32,061
Total output	3,843
Phosphorus net loading	28,218
Retention within the lake	88.0%

TABLE 64 Summary of water budget for Lake Erie in 1970 ( $\text{km}^3 \text{ yr}^{-1}$ ).

Detroit River Input	183.267
Western basin rivers	5.683
Central basin rivers	4.228
Eastern basin rivers	3.297
Total Input	196.475
Net Storage	+3.06
Estimated Output	193.39
Measured Output	187.88
Difference	5.51
Net evaporation due to difference ( $\text{cm yr}^{-1}$ )	21.9

TABLE 65 Comparison of observed and estimated quantities of chloride (units = metric tons of  $\text{Cl}^- \times 10^6$ )

Survey dates 1970	Survey no.	Estimated quantity	Observed quantity	Difference <sup>a</sup> (Observ.-Est.)
Apr. 7-11	1	Quantity In .317 Out .299	11.452	
May 6-10	2	Est.Q.(2) In .339 Out -.433	11.470	
June 2-6	3	Est.Q.(3) In .430 Out -.402	11.883	+ .507
July 3-7	4	Est.Q.(4) In .363 Out -.416	11.493	- .325
July 28-Aug. 2	5	Est.Q.(5) In .391 Out -.405	11.473	- .010
Aug. 25-30	6	Est.Q.(6) In .369 Out -.394	11.645	+ .186
Sept. 23-27	7	Est.Q.(7) In .381 Out -.400	11.456	- .164
Oct. 21-26	8	Est.Q.(8) In .394 Out .351	11.332	- .105
Nov. 25-30	9	Est.Q.(9) In .248 Out .214	11.288	- .087
Dec. 14-18	10	Est.Q.(10) 11.322	11.447	+ .115

<sup>a</sup>SD of difference =  $\pm 1.58 = 1.3\%$  lake content of chlorine. Therefore, accuracy of ship survey =  $\pm 2.6\%$  of quantity calculated.

#### Section 4: Phosphorus basin budgets

Phosphorus budgets for each of the three basins of the lake were calculated in an identical manner to the lake budget (equation 4, Section 3) except that because of the west to east flow pattern, the outflow from the West Basin became an input for the Central Basin and the Central Basin output became an input for the East Basin.

Although the 1970 surveys did not cover all of 1970 it was possible to obtain an estimate of the annual basin budgets by using the results on phosphorus quantities found in the basins during a survey conducted during April 15-19, 1971. Further, the assumption was made that the phosphorus loadings to the lake from December 1971 to April 1971 were equal to those during the same period during the previous year.

An interpretation of the various processes affecting the phosphorus sedimentation and regeneration processes is given by Burns (1976a).

Burns, N.M. (1976a) Nutrient Budgets for Lake Erie, 1970. J. Fish.

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TABLE 66 CALCULATED TRANSPORT OF PHOSPHORUS BETWEEN THE WEST AND CENTRAL BASINS  
 (Positive values represent west to east transport - Metric tons of P)

<u>Survey Interval</u>	<u>Diffusive Transport</u>	<u>Advection Transport</u>	<u>Total Transport</u>
1- 2	16	388	404
2- 3	6	325	331
3- 4	10	358	368
4- 5	11	402	413
5- 6	14	411	425
6- 7	10	379	389
7- 8	8	416	424
8- 9	12	566	578
9-10	7	364	371
10-1/71	22	2588	2610
<b>Total</b>	<b>115</b>	<b>6197</b>	<b>6313</b>

TABLE 67 CALCULATED TRANSPORT OF PHOSPHORUS BETWEEN THE CENTRAL AND EAST BASINS  
 (Positive values represent west to east transport - Metric tons of P)

<u>Survey Interval</u>	<u>Diffusive Transport</u>	<u>Advection Transport</u>	<u>Total Transport</u>
1- 2	- 0.4	209	209
2- 3	- 0.3	233	233
3- 4	- 7.5	306	298
4- 5	- 6.5	78	71
5- 6	- 2.0	122	120
6- 7	- 0.6	148	147
7- 8	0.8	141	142
8- 9	1.1	326	327
9-10	0.2	334	334
10-1/71	0.0	1350	1350
<b>Total</b>	<b>-15.2</b>	<b>3247</b>	<b>3231</b>

TABLE 68. Phosphorus Basin Budgets (metric tons of Phosphorus)

Negative value indicates loss of phosphorus from the water.

Positive value indicates regeneration of phosphorus from sediments.

Survey Interval	1-2	2-3	3-4	4-5	5-6	6-7	7-8	8-9	9-10	1-1/71
W.B. obs. P quantity (1st survey)	1735	977	1091	1112	927	1403	1237	1253	1733	1459
External P input	2171	1680	2157	1813	1362	2273	1609	2071	1226	7221
From W.B. to C.B.	-404	-331	-368	-413	-325	-389	-424	-578	-374	-2610
W.B. est. P quantity (2nd survey)	3502	2326	2880	2512	1964	3287	2422	2746	2585	6070
W.B. obs. P quantity (2nd survey)	977	1091	1112	927	1403	1237	1253	1733	1459	918
∴ P loading to sed. (W.B.)	-2525	-1235	-1768	-1585	-561	-2050	-1169	-1013	-1126	-5152
C.B. obs. P quantity (1st survey)	4980	6427	6058	4608	3483	4022	5635	5828	9454	10712
External P input	424	323	504	314	312	388	595	559	435	1877
From W.B. to C.B.	404	331	368	413	325	389	424	578	374	2610
From C.B. to E.B.	-209	-233	-298	-71	-120	-147	-142	-327	-334	-1350
C.B. est. P quantity (2nd survey)	5599	6848	6632	5264	4000	4652	6512	6638	9929	13849
C.B. obs. P. quantity (2nd survey)	6058	4608	3483	4022	5635	5828	9454	10712	5943	
∴ P loading to sed. (C.B.)	+828	-790	-2024	-1781	+22	+983	-684	+2816	+783	-7906
E.B. obs. P quantity (1st survey)	3482	2610	2857	2288	2026	1376	1748	2044	3731	3986
External Input	218	106	121	121	178	155	379	365	186	647
From C.B. to E.B.	209	233	298	71	120	147	142	327	334	1350
From E.B. to Niagara	-348	-365	-385	-226	-153	-197	-262	-395	-236	-1339
E. B. est. P quantity (2nd survey)	3561	2584	2891	2254	2171	1481	2007	2341	4015	4644
E.B. obs. P quantity (2nd survey)	2610	2857	2288	2026	1376	1748	2044	3731	3986	3305
∴ P loading to sed. (E.B.)	-951	+273	-593	-228	-795	-267	+37	+1390	-29	-1339
Lake Total	-2648	-1752	-4385	-3594	-1334	-800	-1816	+3193	-372	-14397

Section 5: Hypolimnion oxygen depletion rate data for the Central and Eastern Basins of Lake Erie, 1970.

The calculation of oxygen depletion rates from the data given in Tables 63, 64 is fairly complex. The theory behind this computation has been outlined by Burns (1976b), who gives an example of a depletion rate calculation for the Central Basin for the interval between surveys 4 and 5. Tables 63 and 64 give the depletion rates calculated from the data listed in Table 65.

Burns N.M. (1976b) Oxygen depletion in the Central and Eastern basins of Lake Erie, 1970 J. Fish. Res. Board Can. 33, 512-519.

Table 63 Oxygen depletion in the Central Basin hypolimnion, 1970

Survey	Mean Hypo	Hypolimnia Interaction			No Hypolimnia Interaction			Means
		Volumetric	Areal	Volumetric	Areal	Volumetric	Areal	
Interval	Thickness (Meters)	Depletion Rate (gm m <sup>-3</sup> day <sup>-1</sup> )	Depletion Rate (gm m <sup>-2</sup> day <sup>-1</sup> )	Depletion Rate (gm m <sup>-3</sup> day <sup>-1</sup> )	Depletion Rate (gm m <sup>-2</sup> day <sup>-1</sup> )	Depletion Rate (gm m <sup>-3</sup> day <sup>-1</sup> )	Depletion Rate (gm m <sup>-2</sup> day <sup>-1</sup> )	
3-4	3.4	0.13	0.44	0.11	0.39	0.12	0.42	
4-5	3.5	0.18	0.62	0.11	0.38	0.15	0.50	
5-6	3.1	0.13	0.40	0.12	0.36	0.13	0.38	
6-7		(2.7)	(0.08)	(0.23)	(0.08)	(0.23)		
Mean	3.3		0.15	0.49	0.11	0.38	0.13	0.43

Table 64 Oxygen depletion in the Eastern Basin hypolimnion, 1970

Survey Interval	Hypolimnia Interaction			No Hypolimnia Interaction			Means
	Mean Hypo (Meters)	Volumetric Depletion Rate (gm m <sup>-3</sup> day <sup>-1</sup> )	Areal Depletion Rate (gm m <sup>-2</sup> day <sup>-1</sup> )	Volumetric Rate (gm m <sup>-3</sup> day <sup>-1</sup> )	Depletion Rate (gm m <sup>-2</sup> day <sup>-1</sup> )	Volumetric Rate (gm m <sup>-3</sup> day <sup>-1</sup> )	
3-4	18.8	0.083		1.55	0.082	1.54	0.083
4-5	14.2	0.055		0.78	0.043	0.62	0.049
5-6	13.1	0.054		0.71	0.052	0.68	0.053
6-7	12.8	0.042		0.54	0.042	0.54	0.042
Mean	14.7	0.059		0.90	0.055	0.84	0.057

Table 65 Data utilized in the calculation of the Central and East Basin hypolimnion depletion rates

	Central Basin						East Basin					
Survey Number	3	4	5	6	7	3	4	5	6	7	128	
Hypolimnion Volume ( $\text{km}^3$ )	25.90	40.80	30.47	32.35	6.84	83.50	54.20	34.65	36.77	28.48		
Hypolimnion Area ( $\times 10^9 \text{m}^2$ )	8.71	10.56	9.88	10.41	3.91	3.79	3.60	2.61	2.85	2.26		
Hypo. Heat Content ( $\times 10^{12} \text{kcal}$ )	193.0	359.0	316.1	375.8	86.5	463.4	309.5	201.6	250.4	163.8		
Hypo Heat Gain by (x10 <sup>12</sup> kcal) Conduction (between surveys)	2.25	0.7	10.0	5.3		0.0	0.7	0.4	0.2			
Mean Volume Weighted Hypo. temp. ( $^{\circ}\text{C}$ )	7.45	8.80	10.37	11.61	12.65	5.55	5.71	5.83	6.81	5.75		
Mean Area Weighted Hypo. temp. ( $^{\circ}\text{C}$ )	7.49	9.08	11.43	13.14	13.37	7.08	6.86	6.32	8.06	6.03		
Mean Area-Weighted Thermochine ( $^{\circ}\text{C m}^{-1}$ )	3.25	6.0	5.21	6.92	4.53	0.65	2.88	1.64	2.22	4.19		
Hypolimnion Water transport from ( $\text{km}^3$ ) East-to Central Basin)	1.23	15.52	1.85	0.0		1.23	15.52	1.85	0.0			
Mean Temp. of water transported from ( $^{\circ}\text{C}$ ) East-to Central Basin)	6.05	8.24	10.72	-	-	6.05	8.24	10.72	-	-		
Mean Volume-Weighted Hypo $\text{O}_2$ Conc. ( $\text{gm } \text{O}_2 \text{ m}^{-3}$ )	9.60	6.53	4.01	1.20	0.0	12.85	10.77	9.74	8.41	7.58		
Mean Area Weighted Hypo $\text{O}_2$ Conc. ( $\text{gm } \text{O}_2 \text{ m}^{-3}$ )	9.84	6.45	4.51	2.18	0.0	11.99	10.40	9.23	7.35	7.57		
Mean Area Weighted Thermochine $\text{O}_2$ Conc. Gradient ( $\text{gm } \text{O}_2 \text{ m}^{-4}$ )	0.66	1.83	2.11	4.45	4.45	0.0	0.21	0.20	0.41	0.91		
Mean $\text{O}_2$ Conc. of water transported from East to Central Basin ( $\text{gm } \text{O}_2 \text{ m}^{-3}$ )	11.0	8.89	7.40	-	-	11.0	8.89	7.40	-	-		

Section 6: Epilimnion budgets for phosphorus, soluble inorganic nitrogen and soluble reactive silica for the Central and East Basins of Lake Erie, 1970.

If a river brings a large quantity of a nutrient into a lake at a lower concentration than the nutrient is present in the lake, the river will act as a diluting factor and its net input into the lake will be negative. In the case of a mass budget, the quantity loaded into the lake is considered independent of the concentration and the loading is always positive. Mass budgets are easier to use when the behaviour of the nutrients within the lake is the primary consideration. Net budgets are preferable when the nature of the different input sources is being examined, as follows later in this presentation.

The simple equation for estimating the loss or gain from the lake water of a non-conservative substance x between the surveys, is:

$$\Delta x = V_2 C_2 - V_1 C_1 - V_a C_a - V_b C_b + V_o C_o \quad (5)$$

where  $V_1$  = Volume of water mass during Survey 1

$V_2$  = Volume of water mass during Survey 2

$V_a$  = Volume of water added from source a between surveys

$V_b$  = Volume of water added from source b " "

$V_o$  = Volume of water discharged " "

and C refers to the concentrations of the nutrient in the different water masses. The volume of the water is considered to be conservative,

$$V_2 - V_1 = V_a + V_b - V_o \quad (6)$$

$$\text{and } \Delta x = V_2 (C_2 - C_1) - V_a (C_a - C_1) - V_b (C_b - C_1) + V_o (C_o - C_1) \quad (7)$$

Each of the terms on the right-hand side of the equation (7) give the net budget contribution of the individual sources when the reference concentration is taken as the concentration of the water mass during the first survey of any pair of surveys.

The equation for the epilimnion net budgets of phosphorus in the Central Basin then becomes,

$$\begin{aligned}
 \Delta P &= V_2(C_{p2} - C_{p1}) - V_r(C_{rp} - C_{p1}) - V_{ow}(C_{pw} - C_{p1}) \\
 &\quad \text{observed change} \qquad \text{input from rivers} \qquad \text{input from} \\
 &\quad \text{in quantity} \qquad \text{and direct discharges} \qquad \text{West Basin} \\
 \\ 
 &+ V_{oe}(C_{pe} - C_{p1}) - V_p(C_{pp} - C_{p1}) - V_h(C_{hp} - C_{p1}) \\
 &\quad \text{loss to East Basin} \qquad \text{input from} \qquad \text{input by hypolimnion} \\
 &\quad \text{precipitation} \qquad \qquad \qquad \text{incorporation} \\
 \\ 
 &- P_{ex} \\
 &\quad \text{input from hypolimnion} \\
 &\quad \text{by exchange}
 \end{aligned} \quad (8)$$

where  $P$  = input of phosphorus to the epilimnion by mechanisms other than those listed above

$C_{p1}$  = concentration of phosphorus during survey 1

$C_{p2}$  = concentration of phosphorus during survey 2

$V_r$  = volume of river and direct discharge inputs between surveys

- $C_{rp}$  = mean concentration of phosphorus in rivers and municipal discharges between surveys
- $V_{ow}$  = volume of water flowing from the West into the Central Basin between surveys
- $C_{pw}$  = concentration of phosphorus at West-Central basin epilimnion boundary between surveys.
- $V_{oe}$  = volume of water flowing from the Central into the East Basin between surveys
- $C_{pe}$  = concentration of phosphorus at the Central to East Basin epilimnion boundary between surveys
- $V_p$  = volume of precipitation between surveys
- $C_{pp}$  = concentration of phosphorus in precipitation
- $V_h$  = volume of hypolimnion water incorporated into epilimnion
- $C_{hp}$  = mean concentration of phosphorus in water incorporated from hypolimnion to epilimnion
- $P_{ex}$  = quantity of phosphorus added to the epilimnion from the hypolimnion by the exchange mechanism

The East basin epilimnion budgets were calculated by using a corresponding equation. Equation (8) can be rewritten as follows so that the effect of each source on the mean phosphorus concentration of the basin can be calculated;

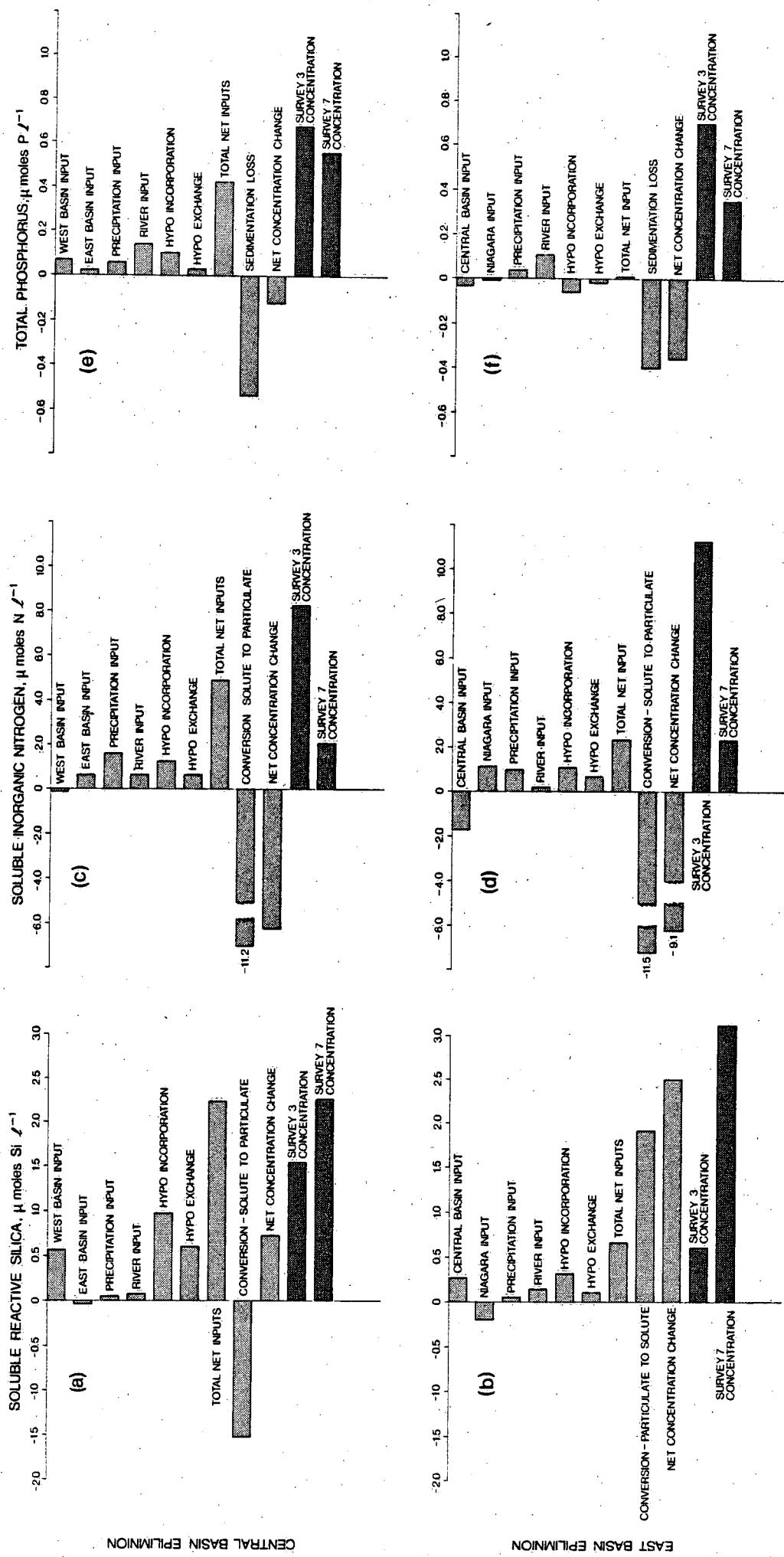


FIG. 34 Epilimnion Nutrient Budgets

Fig. 34. Net epilimnion budgets showing the changes in concentration due to the various budget components. a, Soluble Reactive Silica in the Central basin; b, Soluble Reactive Silica in the Eastern basin; c, Soluble Inorganic Nitrogen in the Central basin; d, Soluble Inorganic Nitrogen in the Eastern basin; e, Total Phosphorus in the Central basin; and f, Total Phosphorus in the Eastern basin.

$$\frac{\Delta P}{V_2} = (C_{p2} - C_{p1}) - \frac{V_r}{V_2} (C_{rp} - C_{p1}) - \frac{V_{ow}}{V_2} (C_{pw} - C_{p1}) \\ + \frac{V_{oe}}{V_2} (C_{pe} - C_{p1}) - \frac{V_p}{V_2} (C_{pp} - C_{p1}) - \frac{V_h}{V_2} (C_{hp} - C_{p1}) - \frac{P_{ex}}{V_2} \quad (9)$$

The magnitude of these concentration changes can be compared with the mean concentration actually present in the basin so that the relative effect of each source loading on the phosphorus in the basin can be observed. This is shown in Fig. 34. A discussion of all of these results has been published (Burns, 1976a); showing the individual contributions of the different input sources to the epilimnion budgets for the three major nutrients.

Reference

Burns (1976a) Nutrient Budgets for Lake Erie, 1970. J. Fish. Res. Board Can. 33, 520-536.

TABLE

## EPILIMNION NET BUDGET - SOLUBLE REACTIVE SILICA

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	CENTRAL BASIN							EASTERN BASIN			
	Moles x 10 <sup>6</sup>							% of Total Change			
	3-4	4-5	5-6	6-7	3-7	Total Change	3-4	4-5	5-6	6-7	3-7
Net Input from W. Basin	36.5	36.7	40.7	19.9	133.8	112.4%	-	-	-	-	-
Net Input from C. Basin	-	-	-	-	-	-	18.3	37.8	6.3	-17.9	31.9
Net Input from E. Basin	-4.30	-6.7	4.0	3.2	-3.8	3.2%	-	-	-	-	-
Net Input from Niagara	-	-	-	-	-	-	-8.5	1.1	-4.6	-8.8	-23.0
Net Input from PPN	2.28	2.3	2.28	2.3	9.2	7.7%	0.8	0.8	0.7	0.8	2.3
Net Input from rivers	9.40	3.2	2.03	3.6	18.2	15.3%	4.1	4.8	5.0	5.0	18.9
Net Input by HYPO Incorporation	-27.12	129.1	0.0	145.8	247.8	208.2%	14.7	9.2	-7.7	24.5	40.7
Net Input by HYPO Exchange	0.0	50.2	29.8	69.1	149.1	125.3%	1.7	3.0	4.1	6.4	15.2
Total Net Loading	16.8	214.8	78.8	243.9	554.3	465.8%	31.1	54.5	-8.8	10.0	+86.8
Observed Quantity Change	+202.9	+185.7	+237.0	506.0	+119.6	100 %	+88.2	+269.3	+58.5	-99.4	+316.6
Loss or Gain of Material	+186.1	-29.1	+158.2	-749.9	-434.7	365.3%	+57.1	+214.8	+67.3	-109.4	+229.8

TABLE 67  
EPILIMNION NET BUDGET - SOLUBLE INORGANIC NITROGEN

	Central Basin						Moles x 10 <sup>6</sup>						Eastern Basin			% of Total Change
	3-4	4-5	5-6	6-7	3-7	Total Change	3-4	4-5	5-6	6-7	3-7					
Net input from W. Basin	- 9.9	- 20.1	17.5	- 11.8	- 24.3	1.6%	-	-	-	-	-	-	-	-	-	-
Net input from C. Basin	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Net input from E. Basin	9.1	96.2	18.6	22.55	146.4	9.8%	-	-	-	-	-	-	-	-	-	-
Net input from Niagara	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Net input from PPN	96.7	97.0	96.7	96.7	386.8	25.9%	31.3	35.0	32.4	31.3	130.0	11.2%	149.1	12.9%	149.1	12.9%
Net input from rivers	82.0	31.4	20.3	37.3	171.0	11.4%	6.0	7.0	6.9	7.0	26.9	2.3%	-	-	-	-
Net input by Hypo incorporation	- 18.3	99.0	0.0	251.0	331.7	22.2%	48.0	33.5	- 25.4	83.6	139.7	12.1%	-	-	-	-
Net input by Hypo exchange	0.0	72.5	36.7	79.2	188.4	12.6%	38.2	3.0	14.8	35.9	91.9	7.9%	-	-	-	-
Total net loading	159.6	376.0	189.8	475.0	1200.0	80.3%	84.9	45.8	21.3	165.1	317.1	27.3%	-	-	-	-
Observed quantity change	-183.6	- 860.0	-280.8	-169.2	-1494.0	100 %	-591.2	166.7	-302.8	-431.3	-1158.6	100 %	-	-	-	-
Loss or gain of material	-342.2	-1236.0	-470.6	-644.2	-2694.0	180.3%	-676.1	120.9	-324.1	-596.7	-1475.4	127.3%	-	-	-	-

TABLE 68

## EPILIMNION NET BUDGET - PHOSPHORUS

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	Central Basin						Eastern Basin				
	Moles x 10 <sup>6</sup>						% of Total Change				% of Total Change
	3-4	4-5	5-6	6-7	3-7	Change	3-4	4-5	5-6	6-7	3-7
Net input from W. Basin	1.2	6.0	4.4	4.8	16.4	53%	-	-	-	-	-
Net input from C. Basin	-	-	-	-	-	-	-2.6	-2.4	0.5	1.3	-3.2
Net input from E. Basin	2.1	3.2	0.4	0.2	5.9	19%	-	-	-	-	7%
Net input from Niagara	-	-	-	-	-	-	1.1	0.6	-0.6	-1.1	0.0
Net input by PPN	6.0	3.2	2.9	2.1	14.2	46%	2.1	1.1	1.0	0.7	4.9
Net input from rivers	9.1	7.5	7.5	10.9	35.0	114%	1.3	3.1	5.5	4.2	14.1
Net input by Hypo incorporation	1.3	-0.6	0.0	23.7	24.4	80%	-7.6	0.1	-0.1	0.4	-7.2
Net input by Hypo exchange	0.0	1.1	0.9	4.9	6.9	22%	-1.3	0.0	0.1	0.1	-1.1
Total net loading	19.7	20.4	16.1	46.6	102.8	337%	-7.0	2.5	6.4	5.6	7.5
Observed quantity change	-50.3	-26.6	3.8	42.6	-30.5	100%	-27.5	-19.5	-4.8	8.9	-42.9
Loss of gain of material	-70.0	-47.0	-12.3	-4.0	-133.3	437%	-20.5	-22.0	-11.2	+3.3	-50.4

TABLE 69

SOLUBLE REACTIVE SILICA EPILIMNION NET BUDGET CONCENTRATION CHANGES  
 (in moles  $\text{Si m}^{-3}$ )

Survey Interval	Central Basin						Eastern Basin			
	3-4	4-5	5-6	6-7	3-7	3-4	4-5	5-6	6-7	3-7
Net concentration changes due to input to W.B.	.16	.16	.17	.08	.57	—	—	—	—	—
Net concentration changes due to input to C.B.	—	—	—	—	—	.16	.28	-.05	-.13	.26
Net concentration changes due to input to E.B.	-.02	-.03	.02	.01	-.02	—	—	—	—	—
Net concentration changes due to output from Niagara	—	—	—	—	—	-.07	-.01	-.04	-.06	-.18
Net concentration changes due to input from precipitation	.01	.01	.01	.01	.04	0.0	0.01	0.0	0.01	0.02
Net concentration changes due to input from rivers	.04	.01	.01	.01	.07	.04	.04	.04	.03	.15
Net concentration changes due to incorporation of hypolimnion waters	-.12	.54	0.0	.56	.98	.13	.07	-.06	.17	.31
Net concentration changes due to exchange with the hypolimnion	0.0	.21	.13	.26	.60	.01	.02	.03	.05	.11
Total net concentration change	.07	.90	.34	.93	2.24	.27	.41	-.08	.07	.67
Observed Concentration change	.88	.78	1.01	-1.94	.74	.75	2.00	.44	-.69	2.50
Non-Conservative concentration change	.81	-.12	.67	-2.87	-1.50	.48	1.59	.52	-.76	1.83

TABLE 70

SOLUBLE INORGANIC NITROGEN EPILIMNION NET BUDGET CONCENTRATION CHANGES  
 (m moles N m<sup>-3</sup>)

Survey Interval	Central Basin				Eastern Basin			
	3-4	4-5	5-6	6-7	3-7	3-4	4-5	5-6
Net concentration changes due to input to W.B.	-.04	-.09	.07	-.05	-.11	—	—	—
Net concentration changes due to input to C.B.	—	—	—	—	—	-.45	-.44	-.56
Net concentration changes due to input to E.B.	.04	.41	.08	.09	.62	—	—	—
Net concentration changes due to output from Niagara	—	—	—	—	—	.12	.20	.51
Net concentration changes due to input from precipitation	.42	.41	.41	.37	1.61	.27	.26	.25
Net concentration changes due to input from rivers	.36	.13	0.09	.14	.72	.05	.05	.05
Net concentration changes due to incorporation of hypolimnion waters	-.080	.42	0.00	.96	1.30	.41	.25	-.19
Net concentration changes due to exchange with the hypolimnion	0.0	.31	.16	.30	.77	.33	.02	.11
Total net concentration change	.70	1.57	0.81	1.81	4.89	.73	.34	.17
Observed concentration change	-.80	-3.62	-1.19	-.65	-6.23	5.05	+1.24	-2.29
Non-Conservative concentration change	-1.50	-5.19	-2.00	-2.46	-11.12	-5.78	+0.9	-2.46

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TABLE 71

## PHOSPHORUS EPILIMNION NET BUDGET CONCENTRATION CHANGES

( m moles P  $m^{-3}$ )

Survey Interval	Central Basin						Eastern Basin			
	3-4	4-5	5-6	6-7	3-7		3-4	4-5	5-6	6-7
Net concentration changes due to input to W.B.	.005	.025	.019	.018	.067		-.022	-.018	.004	.009
Net concentration changes due to input to C.B.	-	-	-	-	-		-.022	-.018	.004	.009
Net concentration changes due to input to E.B.	.009	.013	.002	0.0	.024		-.022	-.018	.004	.009
Net concentration changes due to output from Niagara	-	-	-	-	-		-.022	-.018	.004	.009
Net concentration changes due to input from precipitation	.026	.013	.012	.008	.059		-.022	-.018	.008	.009
Net concentration changes due to input from rivers	.040	.032	.032	.042	.146		-.022	-.011	.023	.042
Net concentration changes due to incorporation of hypolimnion waters	.006	-.003	0.0	.091	.094		-.065	0.0	-.001	.003
Net concentration changes due to exchange with the hypolimnion	0.0	.005	.004	.019	.028		-.011	0.0	+.001	0.0
Total net concentration change	.086	.086	.068	.178	.418		-.060	.019	.048	.039
Observed concentration change	-.179	-.112	+.016	+.163	-.112		-.235	-.145	-.037	.062
Non-Conservative concentration change	-.265	-.197	-.052	-.015	-.529		-.175	-.163	-.085	-.023

Section 7: SUMMARY OF THE CHEMICAL DATA OF THE LAKE ERIE PARTICLE STUDY, 1971

by

F. Rosa

INTRODUCTION

Lake Erie Particle Study was carried out in 1971, at six sampling stations (Fig.35). These stations were surveyed seven times between May 28th and November 28th, approximately once a month. The parameters measured on-board ship were dissolved oxygen, pH, and Eh, while water samples for the other parameters, listed in tables 72 to 77, were collected, treated and analyzed back at the shore laboratory in Burlington.

SAMPLING AND COLLECTION PROCEDURE

As the ship arrived on station, a sounding was taken to determine the depth of that station; then, a temperature-depth profile of the water column was obtained by lowering the pump-EBT system to the maximum depth required, usually one meter off the bottom. At this point the temperature profile was checked and the sampling depths were chosen. The stations were sampled from the bottom up. The pump-EBT system was raised or lowered to the deepest sampling depth, the pump was turned on, allowed to flush for two minutes, then the required samples were drawn. After sampling at that depth was completed, the system was raised to the next depth and the sampling procedure was repeated.

The water from the pump was collected in 300 ml. B.O.D. bottles for dissolved oxygen measurements, and in 500 ml. erlenmeyer flasks for pH and Eh measurements. Particulate organic carbon and particulate

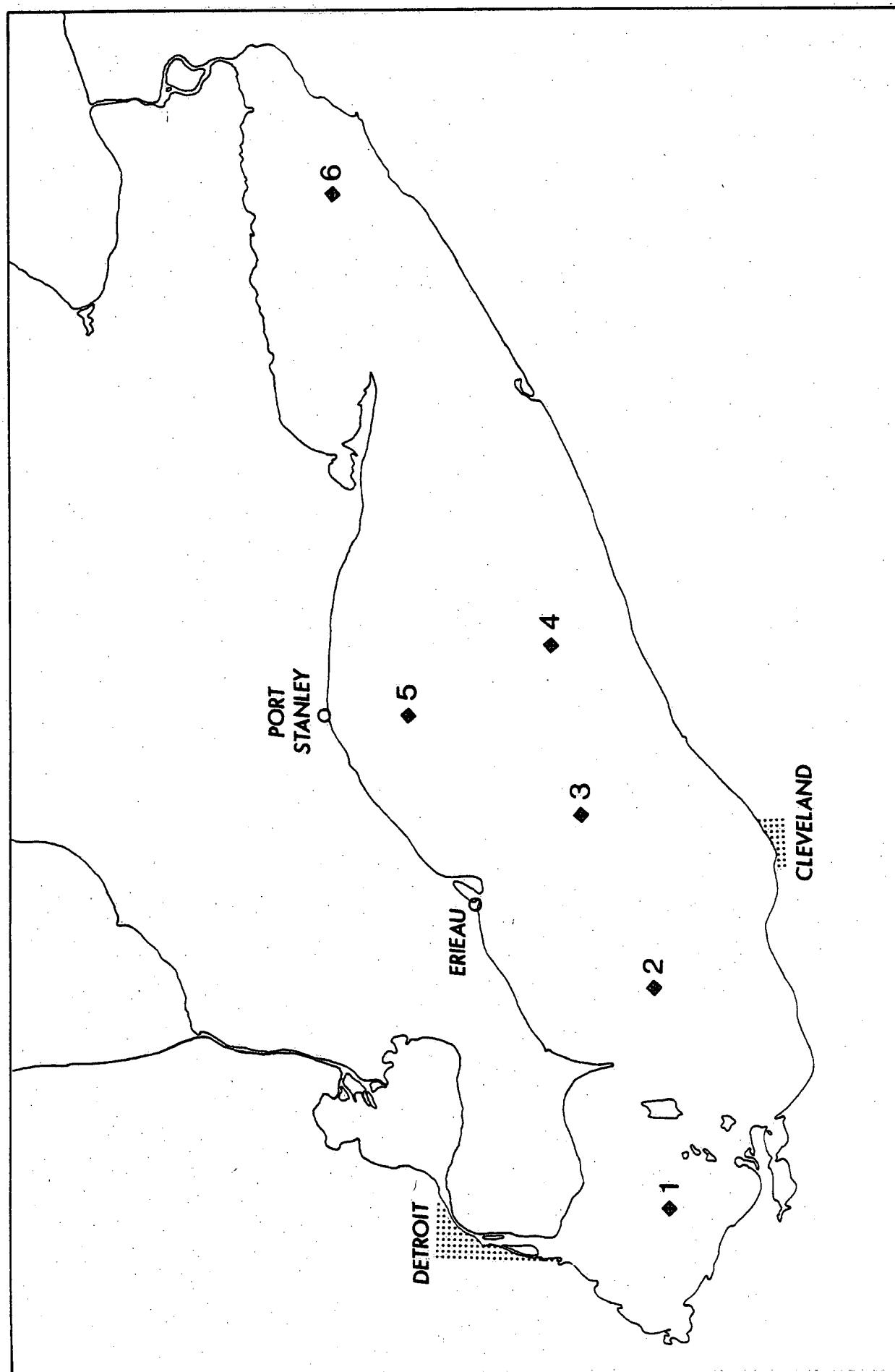


Fig. 35 Lake Erie Particle Study Sampling Stations

organic nitrogen samples were collected and filtered through precombusted GF/C filter papers. Suspended mineral samples were collected on pre-combusted and pre-weighed GF/C filters. GF/C filters have a pore size range between 0.80 and 1.20 microns. Phosphorus, soluble iron and soluble manganese samples were collected in 250 ml. erlenmeyer flasks and preserved with 1.0 ml of 30%  $H_2SO_4$  per 100 mls. The filtered samples for the above parameters were filtered through GF/C filter papers.

#### ANALYTICAL-PROCEDURE

Dissolved oxygen determinations were performed using the winkler titration method, TRAVERSY (1971). The coefficient of variation at a dissolved oxygen concentration of  $4.1 \text{ mg l}^{-1}$  ( $128 \mu\text{moles l}^{-1}$ ) is  $\pm 1.8\%$ .

The pH was measured using a Corning pH meter. The samples and the standard buffer solutions were brought to within  $2^{\circ}\text{C}$  of having the same temperature before the pH measurements were made. This was accomplished by filling a water bath with the coldest water available from the lake at the station which was being sampled. The pH meter was adjusted by means of the temperature compensation control so that it would read the correct value for both of the standard buffer solutions. pH readings are reported to the nearest 0.01 pH units. An adjustment of +0.01 pH units per degree was made to correct the observed value back to the pH value which would have been observed in situ. It is estimated that the pH values are correct to 0.1 pH unit.

The Eh was measured simultaneously with pH, using a platinum electrode and a standard reference electrode. The standard buffer for Eh was made up of  $K_3Fe(CH)_6$ ,  $K_4Fe(CN)_6 \cdot 3H_2O$  and KCl. The Eh values are reported to the nearest 1.0 m.v. with an accuracy of a single reading of  $\pm 10.0$  m.v.

Particulate organic carbon (P.O.C.) and particulate organic nitrogen (P.O.N.) were analyzed using the Perkin-Elmer C.H.N. (Carbon, Hydrogen, Nitrogen) 240 elemental analyzer. This analysis has a standard deviation of  $1.2 \mu\text{moles l}^{-1}$  for carbon at concentrations between 50 and  $70 \mu\text{moles l}^{-1}$ , and  $0.6 \mu\text{moles l}^{-1}$  for nitrogen at concentrations between 10 and  $15 \mu\text{moles l}^{-1}$ .

The suspended mineral samples were combusted at a temperature of  $500^{\circ}\text{C}$  for one hour to combust any organic material present and then weighed after 15 minutes. Filter paper blanks were run by filtering distilled water through precombusted, preweighed filter papers which were then combusted and weighed with a set of samples. The values obtained for the gain in weight of the sample filter papers were adjusted by the change in weight of control papers which ranged between -0.1 and -0.2 m.g. The weight of suspended mineral present is the difference between the initial and final weight of the test filters, minus the change in weight of the control filters.

Total phosphorus (T.P.) and total filtered phosphorus (T.F.P.) were analyzed according to the methods outlined by W.J. Traversy (Traversy 1971). An exception to the method was that the samples

were digested on hot plates rather than in an autoclave. The analysis has a standard deviation of  $0.03 \mu\text{moles l}^{-1}$  for total phosphorus concentrations between 0.3 and 2.0  $\mu\text{moles l}^{-1}$ P., and  $0.01 \mu\text{moles l}^{-1}$  for filtered phosphorus concentrations between 0.1 and 0.5  $\mu\text{moles l}^{-1}$ P.

Iron and manganese were analyzed using the Atomic Absorption method. The total samples were digested as follows: to 500 mls of sample, 5 mls. of 15%  $\text{H}_2\text{SO}_4$  and 2.0 gms of  $\text{K}_2\text{S}_2\text{O}_8$  were added; this solution was digested to approximately 10 mls, then made up to 500 mls with glass distilled water. From this point on the analytical procedure is the same as Traversy (1971). The standard deviation for total iron concentrations between 0.50 and 2.0  $\mu\text{moles l}^{-1}$  is  $0.035 \mu\text{moles l}^{-1}$ ; for total manganese concentration between 0.10 and 0.50  $\mu\text{moles l}^{-1}$  is 0.005. Total soluble iron and manganese have a standard deviation of 0.02 and  $0.002 \mu\text{moles l}^{-1}$  respectively.

The method for chlorophyll a analysis is described by Glooschenko et al (1972).

Bacterial plate counts were determined on all samples by the membrane filtration technique using heterotrophic medium (DUTKA, BELL and LIU 1974) with aerobic incubation at  $20^{\circ}\text{C}$  for ten days.

Direct microscopic bacterial counts were determined by the fluorescent microscopy technique (BELL and DUTKA 1972).

Organic sulfur-reducing bacteria were determined using the following medium preparation:

Yeast extract	1.0 g.
Neopeptone	5.0 g.
Cysteine	0.5 g.
$\text{NH}_4\text{ Cl}$	1.0 g.
$\text{K}_2\text{H PO}_4$	0.5 g.
$\text{DH}_2\text{O}$	1.0 l

pH was adjusted to 7.20, 7 mls were dispensed in a screw cap tube and autoclaved for 10 minutes at 10 p.s.i.

The microbiology section at CCIW performed all the bacterial counts.

The chemical data which was obtained on the L.E.P.S. cruises is presented in tables 72 to 77. The microbiological data is shown in Table 80.

UNIT TABLE

Depth	Meters
Temperature (TEMP)	°C
Oxygen Concentration ( $O_2$ Conc.)	$\mu\text{moles } O_2 \text{ l}^{-1}$
Oxygen Saturation ( $O_2$ Satn.)	Percent (%)
Particulate Organic Carbon (P.O.C.)	$\mu\text{moles l}^{-1}$
Particulate Organic Nitrogen (P.O.N.)	$\mu\text{moles l}^{-1}$
Total Phosphorus (T.P.)	$\mu\text{moles l}^{-1}$
Total Filtered Phosphorus (T.F.P.)	$\mu\text{moles l}^{-1}$
Total Particulate Phosphorus (T.P.P.)	$\mu\text{moles l}^{-1}$
Chlorophyll a (Chlor. a)	$\mu\text{gms l}^{-1}$
Total Iron (FE T.)	$\mu\text{moles l}^{-1}$
Total Filtered Iron (FE T.S.)	$\mu\text{moles l}^{-1}$
Particulate Iron (FE P.)	$\mu\text{moles l}^{-1}$
Total Manganese (MN T.)	$\mu\text{moles l}^{-1}$
Total Filtered Manganese (MN T.S.)	$\mu\text{moles l}^{-1}$
Particulate Manganese (MN P.)	$\mu\text{moles l}^{-1}$
pH	pH Units.
Eh	Milli volts
Suspended Mineral (S. Min.)	$\text{m. gms l}^{-1}$
Bacterial Count	# of colonies per volume.

Station Co-ordinates

<u>Station</u>	<u>Latitude N</u>	<u>Longitude N</u>
1	41°45'42"	82°58'59"
2	41°49'03"	82°12'14"
3	42°00'08"	81°00'00"
4	42°05'38"	81°00'00"
5	42°27'14"	81°00'00"
6	42°27'14"	81°14'36"

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- TRAVERSY, W. J. 1971. Methods for chemical analysis of waters and waste-waters. Tech. Report, Inland Waters Branch, Dep. Fish. and Forestry, Ottawa, Canada. 1-169.

TABLE 72 (Stn. #1)

Date	Depth	Temp.	O <sub>2</sub> Conc.	O <sub>2</sub> Satn.	P.O.C.	P.O.N.	T.P.	T.F.P.	T.P.P.	Chlor. a
26/5/71	1.0	13.8	306	95	107	7.4	1.57	0.21	1.36	12.1
	5.0	13.8	306	95	125	17.0	1.69	0.22	1.48	11.7
	9.0	13.8	306	95	180	27.4	1.76	0.23	1.53	9.6
24/6/71	1.0	22.0	263	95	91.8	11.9	1.45	0.52	0.94	14.0
	7.3	21.0	252	90	48.2	5.7	1.10	0.29	0.81	5.9
	10.0	17.0	135	42	78.4	11.9	6.65	0.47	6.18	6.2
29/7/71	1.0	21.6	259	92	55.8	6.1	1.04	0.36	0.67	5.0
	5.0	21.6	259	92	51.0	8.1	0.95	0.40	0.55	4.3
	9.2	21.6	259	92	47.8	6.8	0.92	0.50	0.41	7.4
31/8/71	1.0	21.5	268	96	102	6.3	1.55	0.38	1.17	28.3
	5.0	21.5	259	92	104	5.2	1.39	0.35	1.04	24.5
	9.0	21.5	263	89	111	6.3	1.59	0.34	1.25	29.1
28/9/71	1.0	18.4	272	92	74.2	10.5	2.06	1.36	0.70	10.2
	5.0	18.4	272	92	70.4	11.8	1.96	1.45	0.51	9.4
	8.0	18.4	272	92	71.8	10.8	1.84	1.28	0.56	9.7
26/10/71	1.0	15.7	302	96	73.9	13.1	1.38	0.47	0.91	17.7
	5.0	15.7	302	96	89.3	14.2	1.44	0.49	0.95	18.0
	9.0	15.7	302	96	87.2	14.8	1.40	0.45	0.95	17.9
28/11/71	1.0	4.0	420	99	77.1	12.2	1.90	0.70	1.20	13.6
	5.0	4.0	420	99	76.2	12.3	1.71	0.72	0.99	13.5
	9.0	4.0	419	97	81.3	11.8	1.81	0.75	1.04	13.9

TABLE 72 (Cont'd)

<u>Date</u>	<u>Depth</u>	<u>FE T.</u>	<u>FE T.S.</u>	<u>FE P.</u>	<u>MN T.</u>	<u>MN T.S.</u>	<u>MN P.</u>	<u>PH</u>	<u>Eh</u>	<u>S. Min</u>
26/5/71	1.0	-	-	-	-	-	-	8.39	370	17.39
	5.0	-	-	-	-	-	-	8.36	368	20.51
	9.0	-	-	-	-	-	-	8.38	380	24.21
24/6/71	1.0	-	-	-	-	-	-	9.04	352	0.59
	7.3	-	-	-	-	-	-	8.87	400	0.78
	10.0	-	-	-	-	-	-	7.73	540	6.54
29/7/71	1.0	3.60	0.20	3.40	0.16	0.04	0.12	8.20	420	2.87
	5.0	3.40	0.30	3.10	0.13	0.06	0.07	8.15	430	2.08
	9.2	3.90	0.40	3.50	0.16	0.11	0.05	8.10	440	3.83
31/8/71	1.0	3.89	0.32	3.57	0.20	0.06	0.14	8.46	430	8.51
	5.0	4.02	0.23	3.79	0.22	0.05	0.17	8.32	440	8.61
	9.0	4.55	0.21	4.34	0.18	0.03	0.15	7.98	460	10.32
28/9/71	1.0	4.98	0.39	4.59	0.42	0.03	0.39	7.82	515	8.71
	5.0	5.14	0.41	4.73	0.24	0.05	0.19	7.82	530	6.46
	8.0	5.79	0.35	5.44	0.24	0.03	0.21	7.82	550	7.57
26/10/71	1.0	9.00	0.37	8.63	0.10	0.03	0.07	8.61	-	8.62
	5.0	9.36	0.47	8.89	0.09	0.02	0.07	8.60	-	9.04
	9.0	10.72	0.40	10.32	0.10	0.02	0.08	8.52	-	9.13
28/11/71	1.0	4.72	0.26	4.46	0.15	0.00	0.15	8.55	495	10.10
	5.0	6.14	0.28	5.86	0.11	0.00	0.11	8.42	470	9.56
	9.0	7.72	0.14	7.58	0.13	0.00	0.13	8.39	450	10.47

TABLE 73 (Stn. #2)

<u>Date</u>	<u>Depth</u>	<u>Temp.</u>	<u>O<sub>2</sub> Conc.</u>	<u>O<sub>2</sub> Satn.</u>	<u>P.O.C.</u>	<u>P.O.N.</u>	<u>T.P.</u>	<u>T.F.P.</u>	<u>T.P.P.</u>	<u>Chlor.a</u>
26/5/71	1.0	9.5	375	102	49.9	8.0	0.54	0.12	0.43	10.7
	5.0	9.4	368	99	48.8	8.3	0.56	0.14	0.42	6.9
	10.0	9.3	350	97	47.2	7.6	0.57	0.15	0.42	5.2
	15.0	9.2	356	97	49.1	8.4	0.61	0.14	0.47	5.3
	20.0	9.2	343	95	52.7	9.3	0.69	0.17	0.52	6.2
24/6/71	1.0	19.2	271	94	17.2	4.1	0.35	0.20	0.15	4.1
	7.0	19.2	268	92	23.7	2.4	0.56	0.23	0.33	2.4
	9.0	17.5	269	88	26.9	2.7	0.44	0.20	0.24	2.7
	15.5	12.6	241	71	27.7	3.4	0.56	0.26	0.30	3.4
	19.0	9.8	171	46	47.9	2.0	1.35	0.35	1.00	2.0
29/7/71	1.0	21.8	287	102	49.6	5.1	0.43	0.24	0.19	-
	7.0	21.8	294	104	53.3	6.1	0.53	0.27	0.26	3.5
	13.0	21.6	281	100	43.7	3.7	0.37	0.20	0.17	4.3
	16.0	17.0	250	82	35.2	5.1	0.31	0.19	0.12	7.3
	18.0	11.4	150	41	47.8	4.5	0.65	0.26	0.39	3.4
31/8/71	1.0	23.8	269	102	19.3	2.9	0.32	0.18	0.14	5.2
	8.0	23.8	262	97	29.7	3.8	0.34	0.22	0.12	4.7
	16.0	23.6	256	94	27.9	3.5	0.37	0.23	0.14	4.3
	17.0	19.8	219	75	27.2	4.1	0.33	0.32	0.01	4.6
	19.0	16.4	25	5	55.2	11.3	4.69	1.16	3.53	6.3
28/9/71	1.0	19.6	272	93	42.0	5.4	0.54	0.40	0.14	5.6
	10.0	19.4	265	91	24.2	4.7	0.48	0.32	0.16	4.0
	19.0	19.4	240	82	20.2	3.4	0.56	0.38	0.18	2.2
5/10/71	1.0	16.4	344	106	70.8	8.4	0.77	0.34	0.43	14.4
	10.0	16.4	344	106	68.5	9.3	0.82	0.31	0.51	15.4
	19.0	16.4	325	102	68.3	8.8	0.93	0.33	0.60	17.9
28/11/71	1.0	8.3	360	97	53.0	7.2	1.13	0.39	0.74	10.6
	10.0	8.3	360	97	55.6	7.3	0.90	0.39	0.51	10.8
	19.0	8.3	359	96	52.7	6.1	0.93	0.35	0.58	11.4

TABLE 73 (Cont'd).

<u>Date</u>	<u>Depth</u>	<u>FE T.</u>	<u>FE T.S.</u>	<u>FE P.</u>	<u>MN T.</u>	<u>MN T.S.</u>	<u>MN P.</u>	<u>PH</u>	<u>Eh</u>	<u>S. Min.</u>
26/5/71	1.0							8.56	358	2.37
	5.0							8.51	354	2.27
	10.0	-	-	-	-	-	-	8.47	354	2.67
	15.0							8.47	360	3.21
	20.0							8.41	379	5.01
24/6/71	1.0							8.96	380	0.02
	7.0							8.94	430	0.01
	9.0	-	-	-	-	-	-	8.84	440	0.06
	15.5							8.47	532	0.27
	19.0							7.98	560	0.81
29/7/71	1.0	0.25	0.21	0.04	0.13	0.04	0.09	8.33	440	0.18
	7.0	0.25	0.17	0.08	0.11	0.06	0.05	8.45	445	-
	13.0	0.29	0.11	0.18	0.09	0.06	0.03	8.25	440	-
	16.0	0.21	0.20	0.01	0.26	0.09	0.17	8.22	475	-
	18.0	1.00	0.32	0.68	1.45	1.22	0.23	7.28	475	0.61
31/8/71	1.0	0.13	0.06	0.07	0.16	0.02	0.14	8.56	355	1.06
	8.0	0.12	0.05	0.07	0.05	0.02	0.03	8.46	370	1.06
	16.0	0.19	0.06	0.13	0.19	0.10	0.09	8.27	200	1.09
	17.0	0.60	0.23	0.37	0.38	0.25	0.13	8.00	140	1.34
	19.0	14.11	0.72	13.39	3.38	3.27	0.11	7.14	-40	4.86
28/9/71	1.0	1.16	0.10	1.06	0.08	0.02	0.06	7.71	540	1.21
	10.0	0.63	0.10	0.53	0.08	0.02	0.06	7.71	545	1.42
	19.0	0.93	0.24	0.69	0.17	0.06	0.11	7.86	545	2.09
26/10/71	1.0	1.74	0.16	1.58	0.14	0.02	0.12	8.61		2.76
	10.0	1.97	0.19	1.78	0.17	0.02	0.15	8.57		2.77
	19.0	2.32	0.20	2.12	0.19	0.04	0.15	8.51		4.29
28/11/71	1.0	3.16	0.19	2.97	0.12	0.00	0.12	8.64	362	4.11
	10.0	3.16	0.13	3.03	0.11	0.01	0.10	8.41	355	3.74
	19.0	2.84	0.14	2.70	0.15	0.00	0.15	8.33	350	4.36

TABLE 74 (Stn. #3)

Date	Depth	Temp.	O <sub>2</sub> Conc.	O <sub>2</sub> Satn.	P.O.C.	P.O.N.	T.P.	T.F. P.	T.P. P.	Chlor. a
26/5/71	1.0	9.2	387	105	45.0	6.0	0.48	0.12	0.35	7.2
	5.0	9.2	387	105	47.3	6.9	0.50	0.12	0.38	5.5
	10.0	9.0	387	104	44.5	6.5	0.46	0.11	0.35	5.6
	23.0	9.0	387	104	39.4	6.1	0.44	0.13	0.30	5.9
24/6/71	1.0	19.2	265	91	15.1	2.5	0.35	0.19	0.16	1.7
	6.0	18.3	273	92	20.0	3.2	0.40	0.23	0.17	1.4
	11.0	15.6	286	91	23.0	4.4	0.36	0.21	0.15	1.8
	15.0	11.8	259	75	35.6	8.0	1.29	0.21	1.08	1.3
	25.0	9.0	231	63	69.0	13.3	1.69	0.22	1.47	1.2
29/7/71	1.0	21.4	287	101	37.3	4.0	0.33	0.24	0.09	3.1
	9.0	21.4	287	101	36.9	4.5	0.35	0.19	0.16	4.1
	17.0	21.4	269	95	31.1	4.1	0.32	0.22	0.10	2.7
	19.0	16.0	244	77	42.9	5.9	0.39	0.22	0.17	2.7
	23.0	9.4	181	47	30.4	4.4	0.39	0.18	0.21	4.7
	1.0	20.8	265	94	35.7	4.0	0.32	0.20	0.12	6.1
31/8/71	9.0	21.0	265	94	35.1	3.9	0.33	0.20	0.13	6.4
	19.0	21.0	265	94	29.4	3.8	0.33	0.20	0.13	6.4
	20.0	16.0	203	64	38.0	4.5	0.40	0.25	0.15	5.8
	23.0	11.8	66	16	28.8	5.4	0.83	0.33	0.50	2.3
	1.0	18.6	269	92	26.1	4.8	0.44	0.22	0.22	5.3
28/9/71	11.0	18.6	269	92	26.5	4.5	0.48	0.28	0.20	4.7
	22.0	18.6	259	86	19.1	4.8	0.43	0.31	0.12	2.8
	1.0	16.7	303	99	51.6	7.1	1.01	0.54	0.47	10.7
26/10/71	10.0	16.7	300	97	56.4	6.6	0.98	0.46	0.52	10.5
	22.0	16.7	290	95	42.0	6.3	1.11	0.49	0.62	10.6
	1.0	9.0	387	100	51.0	5.6	0.74	0.29	0.45	11.2
28/11/71	10.0	8.0	388	100	50.0	6.4	0.72	0.30	0.42	11.5
	23.0	8.1	388	100	53.3	6.5	0.76	0.26	0.50	12.1

TABLE 74 (Cont'd)

<u>Date</u>	<u>Depth</u>	<u>FE T.</u>	<u>FE T.S.</u>	<u>FE P.</u>	<u>MN T.</u>	<u>MN T.S.</u>	<u>MN P.</u>	<u>PH</u>	<u>Eh</u>	<u>S.Min.</u>
26/5/71	1.0							8.47	377	2.40
	5.0	-	-	-	-	-	-	8.47	390	0.89
	10.0							8.47	399	0.97
	23.0							8.43	406	1.78
24/6/71	1.0							8.71	439	0.01
	6.0							8.70	450	0.06
	11.0	-	-	-	-	-	-	8.68	470	-
	15.0							8.43	520	0.07
	25.0							7.85	550	0.52
29/7/71	1.0	0.21	0.13	0.08	0.07	0.02	0.05	8.67	440	0.08
	9.0	0.20	0.12	0.08	0.06	0.02	0.04	8.62	445	0.06
	17.0	0.22	0.14	0.08	0.07	0.04	0.03	8.52	440	0.15
	19.0	0.30	0.16	0.14	0.13	0.06	0.07	7.99	475	0.10
	23.0	0.68	0.12	0.56	1.20	0.91	0.29	7.91	475	0.10
	1.0	0.11	0.04	0.07	0.07	0.03	0.04	8.39	340	0.01
31/8/71	9.0	0.12	0.08	0.04	0.06	0.11	-	8.24	350	0.02
	19.0	0.24	0.07	0.17	0.08	0.02	0.06	8.09	355	0.21
	20.0	0.60	0.22	0.38	0.24	0.19	0.05	7.56	372	0.93
	23.0	1.88	0.13	1.75	0.86	0.63	0.23	6.85	389	1.01
	1.0	0.31	0.09	0.22	0.37	0.02	0.35	7.83	525	-
28/9/71	11.0	0.41	0.09	0.32	0.44	0.03	0.41	7.88	530	-
	22.0	0.32	0.13	0.19	0.42	0.03	0.39	7.93	560	0.33
	1.0	1.08	0.14	0.94	0.13	0.02	0.11	8.51	-	2.49
26/10/71	10.0	1.05	0.20	0.85	0.12	0.02	0.10	8.51	-	1.56
	22.0	1.20	0.10	1.10	0.14	0.03	0.11	8.49	-	1.53
	1.0	1.45	0.07	1.38	0.14	0.01	0.13	8.51	425	1.92
28/11/71	10.0	1.23	0.08	1.15	0.10	0.01	0.09	8.48	428	1.77
	23.0	1.36	0.08	1.28	0.11	0.00	0.11	8.52	420	2.36

TABLE 75 (Stn #4)

<u>Date</u>	<u>Depth</u>	<u>Temp.</u>	<u>O<sub>2</sub> Conc.</u>	<u>O<sub>2</sub> Satn.</u>	<u>P.O.C.</u>	<u>P.O.N.</u>	<u>T.P.</u>	<u>T.F. P.</u>	<u>T.P. P.</u>	<u>Chlor. a</u>
26/5/71	1.0	10.5	375	103	65.1	6.5	5.59	4.61	0.98	4.3
	5.0	9.9	400	109	107	14.3	0.86	0.13	0.73	13.2
	8.5	9.8	369	102	83.0	14.2	0.84	0.12	0.72	11.5
	21.0	9.6	356	100	53.6	8.0	0.57	0.18	0.40	6.8
24/6/71	1.0	18.8	265	90	11.6	2.2	0.29	0.17	0.12	0.9
	5.0	16.0	265	85	14.1	3.2	0.50	0.21	0.29	0.9
	10.0	16.8	269	87	20.2	4.6	0.75	0.19	0.56	1.2
	12.0	14.6	252	79	27.5	5.5	0.49	0.26	0.23	1.0
	22.0	8.7	226	60	30.6	5.9	0.76	0.23	0.53	1.6
29/7/71	1.0	21.5	294	102	29.7	4.0	6.08	5.18	0.90	4.4
	8.0	21.2	290	101	32.6	4.2	5.44	0.17	5.27	4.7
	15.0	21.0	281	99	26.3	2.6	4.11	0.15	3.96	5.9
	17.0	15.5	275	87	41.0	5.3	2.35	0.17	2.18	8.4
	22.0	8.6	253	67	39.0	6.7	1.28	0.19	1.09	4.5
31/8/71	1.0	21.3	253	90	27.1	3.6	0.41	0.20	0.21	6.2
	8.0	21.3	253	90	27.5	4.3	0.40	0.27	0.13	6.1
	15.0	21.3	265	94	26.4	4.2	0.40	0.25	0.15	6.1
	21.0	21.0	251	88	29.0	3.6	0.44	0.19	0.25	5.4
28/9/71	1.0	19.4	268	92	36.2	5.0	0.74	0.58	0.16	6.4
	12.0	19.4	262	91	31.0	5.2	0.67	0.57	0.10	4.4
	21.0	19.1	237	80	18.4	3.5	0.57	0.41	0.16	2.4
26/10/71	1.0	16.8	306	100	40.5	6.6	0.67	0.31	0.36	9.2
	10.0	16.8	303	99	42.8	6.3	0.66	0.28	0.38	10.7
	22.0	16.8	306	100	40.1	7.2	0.64	0.31	0.33	9.2
28/11/71										
								NO OBSERVATIONS		

TABLE 75 Cont'd

<u>Date</u>	<u>Depth</u>	<u>FE T.</u>	<u>FE T.S.</u>	<u>FE P.</u>	<u>MN T.</u>	<u>MN T.S.</u>	<u>MN P.</u>	<u>PH</u>	<u>Eh</u>	<u>S. Min</u>
26/5/71	1.0							8.63	375	1.37
	5.0	-	-	-	-	-	-	8.53	375	2.12
	8.5							8.63	380	2.50
	21.0							8.65	390	2.50
24/6/71	1.0							8.86	400	0.00
	5.0	-	-	-	-	-	-	8.86	460	0.00
	10.0							8.85	470	0.00
	12.0							8.55	560	0.09
	22.0							8.36	580	0.50
29/7/71	1.0	0.13	0.14	-	0.02	0.00	0.02	8.65	430	0.45
	8.0	0.13	0.10	0.03	0.02	0.00	0.02	8.64	440	0.10
	15.0	0.16	0.16	0.00	0.02	0.02	0.00	8.54	445	0.13
	17.0	0.14	0.14	0.00	0.04	0.02	0.02	8.41	460	0.31
	22.0	0.96	0.16	0.80	0.18	0.09	0.09	7.90	485	1.39
31/8/71	1.0	0.31	0.09	0.22	0.45	0.02	0.43	8.33	400	0.29
	8.0	0.48	0.06	0.42	0.24	0.03	0.21	8.28	410	0.31
	15.0	0.39	0.11	0.28	0.41	0.03	0.38	8.07	430	0.18
	21.0	0.38	0.06	0.32	0.22	0.02	0.20	7.74	500	0.08
28/9/71	1.0	0.45	0.11	0.35	0.26	0.02	0.24	7.88	535	0.03
	12.0	0.47	0.14	0.33	0.24	0.02	0.22	7.87	475	0.71
	21.0	0.83	0.13	0.70	0.31	0.04	0.27	7.84	470	1.21
26/10/71	1.0	1.06	0.19	0.87	0.09	0.02	0.07	8.52	-	1.79
	10.0	1.00	0.26	0.74	0.08	0.02	0.06	8.52	-	1.84
	22.0	1.04	0.17	0.87	0.09	0.03	0.06	8.50	-	1.96

28/11/71

NO OBSERVATIONS

TABLE 76(Stn. #5)

Date	Depth	Temp.	O <sub>2</sub> Conc.	O <sub>2</sub> Satn.	P.O.C.	P.O.N.	T.P.	T.F. P.	T.P. P.	Chlor. a
26/5/71	1.0	10.6	394	109	38.0	6.7	0.45	0.18	0.28	4.3
	5.0	10.3	381	105	42.9	7.7	0.54	0.13	0.41	4.2
	9.0	9.7	375	100	49.9	9.6	0.58	0.13	0.45	4.8
	21.0	9.5	362	98	46.1	7.6	0.44	0.14	0.30	4.8
24/6/71	1.0	20.0	264	93	10.2	2.8	0.23	0.17	0.06	0.7
	9.3	18.0	266	87	16.0	2.6	0.48	0.17	0.31	0.2
	11.0	17.0	276	90	18.4	3.5	0.52	0.22	0.30	0.4
	15.0	9.7	234	64	26.9	5.5	0.67	0.22	0.45	1.5
	21.0	9.7	226	61	47.5	6.9	6.53	0.23	6.30	2.6
	1.0	21.0	281	100	39.0	5.3	0.38	0.36	0.02	4.0
29/7/71	8.0	21.0	281	100	38.0	6.8	0.40	0.24	0.16	3.3
	15.0	21.0	281	100	42.9	7.4	0.40	0.29	0.11	1.9
	17.0	15.0	191	58	71.6	9.2	0.55	0.24	0.31	2.0
	20.0	9.8	171	46	28.4	3.8	0.39	0.24	0.15	2.2
	1.0	21.5	275	98	38.3	3.7	0.32	0.23	0.09	6.4
31/8/71	6.0	21.5	269	96	41.0	5.7	0.42	0.24	0.18	6.9
	12.0	21.5	256	92	32.7	4.3	0.36	0.18	0.18	6.1
	15.0	19.0	262	90	37.3	5.1	0.39	0.21	0.18	7.7
	17.0	15.6	209	65	42.9	5.9	0.33	0.21	0.12	7.7
	19.0	12.8	66	16	34.4	5.5	0.63	0.24	0.39	5.3
	1.0	19.2	262	89	32.0	5.9	0.52	0.25	0.27	7.4
28/9/71	8.0	19.2	262	89	33.8	5.5	0.53	0.32	0.21	7.5
	15.0	19.2	262	89	36.1	7.1	0.60	0.24	0.36	7.0
	20.0	18.8	228	76	22.6	4.5	0.53	0.39	0.14	2.5
	1.0	16.4	290	94	54.8	7.2	0.65	0.26	0.39	10.0
26/10/71	10.0	16.4	290	94	49.4	6.5	0.55	0.26	0.29	10.7
	21.0	16.3	290	94	40.1	6.5	0.58	0.29	0.29	10.9
	1.0	8.0	368	99	50.4	6.9	0.37	0.19	0.18	6.4
28/11/71	10.0	8.0	368	99	48.8	5.8	0.48	0.20	0.28	6.5
	19.0	8.0	368	99	45.5	5.5	0.49	0.21	0.28	-

TABLE 76 (Cont'd)

<u>Date</u>	<u>Depth</u>	<u>FE T.</u>	<u>FE T.S.</u>	<u>FE P.</u>	<u>MN T.</u>	<u>MN T.S.</u>	<u>MN P.</u>	<u>PH</u>	<u>Eh</u>	<u>S Min.</u>
26/5/71	1.0							8.53	390	1.00
	5.0	-	-	-	-	-	-	8.54	392	1.01
	9.0							8.54	385	3.52
	21.0							8.44	390	2.35
24/6/71	1.0							8.76	470	0.29
	9.0							8.76	480	0.16
	11.0	-	-	-	-	-	-	8.74	500	0.53
	15.0							8.15	520	0.00
	21.0							8.05	548	0.29
29/7/71	1.0	0.20	0.14	0.06	0.07	0.04	0.03	8.56	435	0.21
	8.0	0.22	0.10	0.12	0.07	0.04	0.03	8.46	455	0.18
	15.0	0.25	0.15	0.10	0.07	0.04	0.03	8.50	440	0.26
	17.0	0.19	0.13	0.06	0.07	0.04	0.03	7.63	455	0.57
	20.0	0.61	0.11	0.50	0.35	0.29	0.06	7.85	420	0.62
31/8/71	1.0	0.20	0.17	0.03	0.21	0.03	0.18	8.42	350	0.03
	6.0	0.13	0.06	0.07	0.23	0.02	0.21	8.40	350	0.00
	12.0	0.15	0.06	0.09	0.33	0.03	0.30	8.18	350	0.10
	15.0	0.25	0.07	0.18	0.26	0.03	0.23	7.82	358	0.22
	17.0	0.33	0.11	0.22	0.44	0.03	0.41	7.44	365	0.56
	19.0	0.66	0.15	0.51	0.97	0.47	0.50	7.00	380	1.28
28/9/71	1.0	0.30	0.07	0.23	0.53	0.02	0.51	7.77	500	0.13
	8.0	0.40	0.07	0.34	0.45	0.02	0.43	7.87	505	0.18
	15.0	0.35	0.06	0.29	0.28	0.03	0.25	7.82	525	0.13
	20.0	0.83	0.17	0.66	0.29	0.02	0.27	7.62	530	1.78
26/10/71	1.0	1.34	0.13	1.21	0.06	0.02	0.04	8.73	-	1.75
	10.0	1.18	0.18	1.00	0.05	0.02	0.03	8.73	-	1.69
	21.0	1.22	0.22	1.00	0.07	0.02	0.05	8.63	-	2.19
28/11/71	1.0	2.50	0.13	2.37	0.05	0.00	0.05	8.40	360	2.97
	10.0	2.20	0.11	2.09	0.07	0.00	0.07	8.30	380	3.05
	19.0	1.18	0.12	1.06	0.04	0.00	0.04	8.40	405	3.98

TABLE 77 (Stn. #6)

Date	Depth	Temp.	O <sub>2</sub> Conc.	O <sub>2</sub> Satn.	P.O.C.	P.O.N.	T. P	T.F. P	T.P. P.	Chlor. a
26/5/71	1.0	5.2	387	98	63.5	9.0	1.14	0.24	0.90	10.2
	5.0	4.2	381	93	45.4	5.8	0.96	0.25	0.71	6.1
	10.0	4.2	381	93	31.4	4.1	0.72	0.25	0.47	4.3
	30.0	4.0	381	93	46.8	5.2	1.12	0.25	0.87	2.9
24/6/71	1.0	19.0	299	100	19.5	2.3	0.56	0.31	0.25	1.1
	6.0	17.2	312	99	29.8	4.4	0.71	0.36	0.35	1.2
	10.0	9.0	321	87	42.8	7.1	0.78	0.27	0.51	1.6
	16.0	5.1	316	77	26.5	3.8	0.57	0.26	0.31	1.8
	22.0	4.9	308	76	18.4	3.6	1.77	0.25	1.52	1.2
	29.0	4.7	294	71	34.3	5.3	6.10	0.31	5.79	3.1
29/7/71	1.0	20.5	262	82	29.7	3.5	1.17	0.90	0.27	6.7
	8.0	20.5	269	94	24.7	3.6	0.47	0.26	0.21	7.6
	16.0	20.6	266	93	17.4	2.5	0.32	0.23	0.09	8.4
	21.0	11.5	250	72	20.5	3.7	0.42	0.30	0.12	8.7
	27.0	6.4	250	63	26.2	4.0	0.71	0.44	0.27	8.8
31/8/71	1.0	20.2	267	94	34.8	4.6	0.36	0.20	0.16	5.1
	10.0	20.3	262	92	32.9	4.2	0.32	0.20	0.12	5.4
	18.0	20.3	259	90	35.5	3.1	0.26	0.19	0.07	4.2
	22.0	14.0	218	66	28.7	5.8	0.36	0.20	0.16	3.9
	26.0	7.7	189	47	50.5	5.9	0.37	0.24	0.13	2.5
28/9/71	1.0	17.7	290	96	43.4	5.9	0.46	0.27	0.19	4.8
	9.0	17.5	290	95	27.7	6.1	0.39	0.27	0.12	3.5
	17.0	17.2	275	91	23.8	4.0	0.32	0.24	0.08	2.7
	19.0	10.7	244	68	32.2	4.3	0.34	0.24	0.10	3.1
	26.0	5.5	265	65	20.1	2.0	0.38	0.30	0.08	1.0
26/10/71	1.0	16.0	306	98	25.2	3.4	0.41	0.29	0.12	4.5
	13.0	16.0	306	98	21.9	3.2	0.37	0.28	0.09	3.5
	24.0	15.8	309	98	18.8	2.6	0.33	0.26	0.07	1.8
	27.0	5.5	256	63	54.5	6.6	0.41	0.29	0.12	1.0
28/11/71	1.0	8.5	346	94	26.4	4.1	0.43	0.23	0.20	4.6
	13.0	8.5	346	94	26.1	4.5	0.40	0.23	0.17	4.4
	28.0	8.5	347	94	28.8	4.0	0.48	0.48	0.00	-

TABLE 77 (Cont'd)

<u>Date</u>	<u>Depth</u>	<u>FE T.</u>	<u>FE T.S.</u>	<u>FE P.</u>	<u>MN T.</u>	<u>MN T.S.</u>	<u>MN P.</u>	<u>PH</u>	<u>Eh</u>	<u>S. Min.</u>
26/5/71	1.0	-	-	-	-	-	-	8.63	295	1.88
	5.0	-	-	-	-	-	-	8.59	301	1.78
	10.0	-	-	-	-	-	-	8.49	300	1.75
	30.0	-	-	-	-	-	-	8.59	310	12.26
24/6/71	1.0	-	-	-	-	-	-	9.07	410	0.14
	6.0	-	-	-	-	-	-	9.04	420	0.06
	10.0	-	-	-	-	-	-	8.78	460	0.25
	16.0	-	-	-	-	-	-	8.49	480	0.39
	22.0	-	-	-	-	-	-	8.39	495	0.51
29/7/71	29.0	-	-	-	-	-	-	7.99	540	2.23
	1.0	0.27	0.13	0.14	0.06	0.00	0.06	8.22	425	0.25
	8.0	0.25	0.11	0.14	0.02	0.00	0.02	8.21	440	0.55
	16.0	0.27	0.12	0.15	0.06	0.02	0.04	8.20	435	0.17
	21.0	0.59	0.15	0.44	0.09	0.04	0.05	7.57	440	1.57
31/8/71	27.0	0.91	0.21	0.70	0.38	0.38	0.00	7.27	478	0.66
	1.0	0.15	0.06	0.09	0.03	0.03	0.00	8.49	400	0.29
	10.0	0.11	0.07	0.04	0.08	0.03	0.05	8.39	400	0.20
	18.0	0.15	0.06	0.09	0.03	0.02	0.01	8.34	410	0.20
	22.0	0.30	0.08	0.22	0.07	0.03	0.04	7.55	420	0.35
28/9/71	26.0	0.48	0.29	0.19	0.41	0.22	0.19	7.36	438	0.43
	1.0	0.15	0.12	0.03	0.04	0.02	0.02	7.87	455	0.26
	9.0	0.16	0.10	0.06	0.03	0.02	0.01	7.66	500	0.00
	17.0	0.28	0.26	0.02	0.05	0.01	0.04	7.34	515	0.00
	19.0	0.34	0.09	0.25	0.12	0.02	0.10	6.96	540	0.00
26/10/71	26.0	0.38	0.22	0.16	0.31	0.05	0.26	6.87	540	0.67
	1.0	0.32	0.23	0.09	0.04	0.00	0.04	8.59	-	0.40
	13.0	0.32	0.14	0.18	0.05	0.00	0.05	8.59	-	0.27
	24.0	0.33	0.21	0.12	0.05	0.04	0.01	8.54	-	0.32
28/11/71	27.0	0.80	0.16	0.64	0.28	0.05	0.23	7.80	-	0.96
	1.0	0.45	0.10	0.35	0.03	0.00	0.03	8.36	518	2.88
	13.0	0.31	0.08	0.23	0.03	0.01	0.02	8.48	535	2.03
	28.0	0.45	0.13	0.32	0.04	0.00	0.04	8.41	525	2.65

NINE POINT DIGITIZATION CURVE FOR TEMPERATURE PROFILES

T = Temperature ( $^{\circ}$ C)  
Z = Depth (m.)

E = Bottom of Epilimnion Depth  
H = Top of Hypolimnion Depth

TABLE 78

Date	26-5-71		24-6-71		29-7-71		31-8-71		28-9-71		26-10-71		28-11-71	
Stn #	T	Z	T	Z	T	Z	T	Z	T	Z	T	Z	T	Z
1.	13.8	0.0	21.8	0.0	21.5	0.0	21.2	0.0	17.6	0.0	15.8	0.0	3.1	0.0
	13.8	10.0	21.6	1.3	21.3	10.0	21.8	10.0	17.6	10.0	15.8	10.0	3.1	10.0
			21.2	2.0										
			20.8	8.5E										
			20.3	8.9										
2.			17.6	9.2H										
			16.9	9.5										
			9.2	0.0	19.3	0.0	22.2	0.0	21.7	0.0	19.9	0.0	16.0	0.0
			9.1	20.0	19.2	8.0E	22.1	14.1E	21.5	14.1E	19.3	20.0	16.0	20.0
					18.8	8.8	21.7	15.0	20.1	14.9				
					16.7	9.1	19.0	15.7	14.3	16.0				
					14.1	11.0	12.1	16.8H	13.7	16.8H				
					12.0	13.8	11.7	17.4	13.6	20.0				
					11.1	16.0	11.4	19.8						
					10.1	18.0H								
3.			10.0	20.0										
			9.1	0.0	19.1	0.0	21.0	0.0	20.4	0.0	19.9	0.0	16.4	0.0
			9.1	25.0	19.0	2.5	20.9	18.6E	20.4	19.7E	19.3	25.0	16.4	25.0
					18.2	4.3	20.7	19.2	20.0	20.1				
					17.6	9.3	9.9	20.0	12.8	21.2				
					16.6	10.0	9.1	20.5H	12.2	22.0H				
					16.0	12.5E	9.0	25.0	12.0	25.0				
					15.0	13.7								
					9.4	18.6H								
					8.9	25.0								
4.			10.2	0.0	18.9	0.0	21.2	0.0	20.8	0.0	19.8	0.0	17.0	0.0
			10.0	22.5	18.6	1.5	21.0	19.6E	20.8	19.6	21.2	19.1	17.0	22.5
					16.4	3.4	20.5	20.5	20.4	20.8				
					15.8	3.9	10.0	21.3	17.0	23.0				
					15.8	11.9E	9.4	22.0H						
					15.3	12.7	9.4	24.0						
					9.2	17.3								
					9.2	18.0H								
					9.2	22.5								

N  
O  
  
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A

## NINE POINT DIGITIZATION CURVE FOR TEMPERATURE PROFILES

T = Temperature ( $^{\circ}\text{C}$ )  
Z = Depth (m)

E = Bottom of Epilimnion Depth  
H = Top of Hypolimnion Depth

TABLE 79

Table 80 BACTERIAL COUNTSTATION 1

Date	Depth (m.)	20°C Bacterial Plate Count per ml.	Direct Micro- scopic Bacterial Count per ml.	Organic Sulphur-Reduc- ing Bacteria per 100 ml.
28-5-71	1.0	8200	$28 \times 10^3$	2400
	5.0	5700	$75 \times 10^3$	1600
	9.0	9000	$1 \times 10^5$	1600
29-7-71	1.0	2100	$79 \times 10^4$	5400
	5.0	7000	$81 \times 10^4$	5400
	9.0	5400	$45 \times 10^5$	24000
31-8-71	1.0	1500	$72 \times 10^5$	35000
	5.0	1400	$74 \times 10^5$	92000
	9.0	2100	$79 \times 10^5$	160000
28-9-71	1.0	240	$68 \times 10^3$	3300
	5.0	280	$72 \times 10^3$	3300
	9.0	260	$68 \times 10^3$	3300
26-10-71	1.0	4200	$16 \times 10^5$	92000
	5.0	3900	$15 \times 10^5$	35000
	9.0	1900	$16 \times 10^5$	35000
28-11-71	1.0	130	$34 \times 10^3$	330
	5.0	250	$45 \times 10^3$	1300
	9.0	350	$68 \times 10^3$	2400

STATION 2

28-5-71	1.0	480	$72 \times 10^3$	220
	5.0	700	$11 \times 10^4$	130
	10.0	2100	$15 \times 10^4$	540
	15.0	850	$63 \times 10^3$	540
	19.0	520	$44 \times 10^3$	240
29-7-71	1.0	770	$30 \times 10^4$	5400
	7.0	380	$27 \times 10^4$	3500
	13.0	280	$23 \times 10^4$	3500
	16.0	1200	$81 \times 10^4$	9200
	18.0	1800	$13 \times 10^5$	16000
	1.0	170	$20 \times 10^4$	4900
	8.0	420	$18 \times 10^4$	3800
	16.0	200	$16 \times 10^4$	3300

BACTERIAL COUNTSTATION 2 (Cont'd)

Date	Depth (m.)	20°C Bacterial Plate Count per ml.	Direct Micro- scopic Bacterial Count per ml.	Organic Sulphur-Reduc- ing Bacteria per 100 ml.
31-8-71	17.5	610	$45 \times 10^4$	4600
	19.0	4300	$37 \times 10^5$	4900
	6.0 feet	3800	$42 \times 10^5$	130000
	4.0 feet	3300	$63 \times 10^5$	130000
28-9-71	1.0	110	$45 \times 10^3$	1300
	10.0	100	$45 \times 10^3$	1300
	19.0	60	$54 \times 10^3$	3300
26-10-71	1.0	660	$72 \times 10^4$	35000
	10.0	300	$70 \times 10^4$	24000
	19.0	210	$76 \times 10^4$	54000
28-11-71	1.0	21	$45 \times 10^2$	130
	10.0	21	$33 \times 10^2$	110
	19.0	20	$54 \times 10^2$	240

STATION 3

28-5-71	1.0	760	$32 \times 10^3$	240
	5.0	1700	$27 \times 10^3$	130
	10.0	620	$24 \times 10^3$	130
	23.0	700	$32 \times 10^3$	1600
29-7-71	1.0	770	$20 \times 10^4$	2400
	9.0	930	$18 \times 10^4$	2300
	17.0	1100	$32 \times 10^4$	2800
	19.0	740	$31 \times 10^4$	3500
	23.0	1600	$81 \times 10^4$	9200
31-8-71	1.0	200	$18 \times 10^4$	2300
	9.0	180	$25 \times 10^4$	4900
	20.0	400	$20 \times 10^4$	3300
	21.0	180	$38 \times 10^4$	7900
	22.0	120	$50 \times 10^4$	4900
	23.0	190	$38 \times 10^4$	2300
	24.0	630	$23 \times 10^5$	35000
	Interface	2100	$12 \times 10^6$	150000
28-9-71	1.0	80	$45 \times 10^3$	2300
	11.0	70	$45 \times 10^3$	2300
	22.0	100	$27 \times 10^3$	1100

BACTERIAL COUNT

Date	Depth (m.)	<u>STATION</u>		Organic Sulphur-Reduc- ing Bacteria per 100 ml.
		20°C Bacterial Plate Count per ml.	Direct Micros- copic Bacterial Count per ml.	
26-10-71	1.0	70	$77 \times 10^4$	35000
	10.0	200	$90 \times 10^4$	35000
	22.0	440	$99 \times 10^4$	54000

28-11-71	1.0	20	$75 \times 10^2$	130
	10.0	29	$11 \times 10^3$	540
	22.0	18	$75 \times 10^2$	170

STATION 4

28-5-71	1.0	5500	$94 \times 10^3$	240
	5.0	6500	$14 \times 10^4$	350
	20.0	5900	$86 \times 10^3$	350
	21.0	5300	$58 \times 10^4$	1600

29-7-71	1.0	270	$10 \times 10^4$	2300
	8.0	650	$22 \times 10^4$	2500
	15.0	600	$25 \times 10^4$	2800
	17.0	1200	$63 \times 10^4$	3500
	22.0	600	$32 \times 10^4$	2400

31-8-71	1.0	330	$23 \times 10^4$	3300
	8.0	180	$23 \times 10^4$	3300
	15.0	160	$21 \times 10^4$	2300
	21.0	310	$27 \times 10^4$	3300

28-9-71	1.0	40	$23 \times 10^3$	2300
	12.0	80	$38 \times 10^3$	2300
	21.0	60	$41 \times 10^3$	2300

26-10-71	1.0	240	$51 \times 10^4$	16000
	10.0	100	$49 \times 10^4$	9200
	22.0	110	$58 \times 10^4$	16000

28-11-71 NO OBSERVATIONS

STATION 5

28-5-71	1.0	260	$14 \times 10^3$	79
	5.0	210	$18 \times 10^3$	49
	9.0	140	$27 \times 10^3$	49
	21.0	200	$23 \times 10^3$	350

BACTERIAL COUNTSTATION 5 Cont'd.

Date	Depth (m.)	20°C Bacterial Plate Count per ml.	Direct Micro- scopic Bacterial Count per ml.	Organic Sulphur-Reduc- ing Bacteria per 100 ml.
29-7-71	1.0	1000	$31 \times 10^4$	2400
	8.0	630	$22 \times 10^4$	2300
	15.0	2500	$59 \times 10^4$	5400
	17.0	1500	$63 \times 10^4$	9200
	20.0	710	$66 \times 10^4$	9200
31-8-71	1.0	230	$23 \times 10^4$	2300
	6.0	130	$23 \times 10^4$	2300
	12.0	170	$23 \times 10^4$	2300
	15.0	190	$27 \times 10^4$	3300
	17.0	110	$47 \times 10^4$	24000
	20.0	690	$95 \times 10^4$	24000
28-9-71	1.0	140	$54 \times 10^3$	4900
	8.0	260	$68 \times 10^3$	4900
	15.0	480	$50 \times 10^3$	3300
	20.0	550	$68 \times 10^3$	3300
	1.0	110	$68 \times 10^4$	24000
26-10-71	10.0	300	$70 \times 10^4$	35000
	19.0	760	$72 \times 10^4$	35000
	1.0	22	$90 \times 10^2$	920
28-11-71	10.0	21	$68 \times 10^2$	350
	19.0	32	$95 \times 10^2$	920

STATION 6

28-5-71	1.0	3600	$18 \times 10^4$	540
	5.0	6200	$13 \times 10^4$	350
	10.0	4200	$54 \times 10^3$	240
	30.0	2800	$23 \times 10^4$	920
29-7-71	1.0	240	$16 \times 10^4$	1600
	8.0	230	$19 \times 10^4$	2400
	16.0	510	$18 \times 10^4$	2400
	21.0	470	$23 \times 10^4$	3500
	27.0	1300	$80 \times 10^4$	9200
31-8-71	1.0	150	$25 \times 10^4$	7900
	10.0	400	$18 \times 10^4$	4900
	18.0	260	$23 \times 10^4$	3300
	22.0	470	$27 \times 10^4$	7900
	26.0	860	$83 \times 10^4$	14000

BACTERIAL COUNTSTATION 6 Cont'd

Date	Depth (m.)	20°C Bacterial Plate Count per ml.	Direct Micro- scopic Bacterial Count per ml.	Organic Sulphur-Reduc- ing Bacteria per 100 ml.
28-9-71	1.0	160	$23 \times 10^3$	2300
	9.0	170	$27 \times 10^3$	4900
	17.0	240	$31 \times 10^3$	2400
	19.0	380	$18 \times 10^3$	1300
	26.0	400	$27 \times 10^3$	2200
26-10-71	1.0	380	$56 \times 10^4$	9200
	13.0	730	$54 \times 10^4$	5400
	24.0	400	$45 \times 10^4$	2400
	27.0	820	$11 \times 10^5$	24000
28-11-71	1.0	4	$45 \times 10^2$	79
	13.0	5	$40 \times 10^2$	33
	28.0	5	$37 \times 10^2$	23

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