



CLEAR TECHNICAL REPORT NO. 77

LAKE ERIE NEARSHORE
SURVEILLANCE STATION PLAN
FOR THE
UNITED STATES

by

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LAKE ERIE NEARSHORE SURVEILLANCE STATION PLAN FOR THE UNITED STATES

Introduction

The nearshore zone is the area of largest interaction between water quality and the water user. It is the source of all water for public and industrial water supply. It is the site of virtually all recreational use and it is the most important area for the propagation and support of all aquatic life forms. With the exception of that portion of atmospheric deposition falling on the main body of the lake, the nearshore zone is the recipient of most waste input. For this reason, these waters are the first to show signs of degradation and are the first indicators of progress in abating pollution.

Objectives

In response to the above considerations, the nearshore surveillance subcomponent is designed to meet the general objectives of the Lake Erie plan. The following general objectives have been established by the Surveillance Subcommittee, Great Lakes Water Quality Board, International Joint Commission for the Great Lakes Surveillance Plan (of which the Lake Erie plan is one component):

1. To search for, monitor, and quantify violations of the existing Agreement objectives (general and specific, the IJC recommended objectives, and jurisdictional standards, criteria and objectives. Quantification will be in terms of severity, areal or volume extent, frequency, and duration, and will include sources.
2. To monitor local and whole lake response to abatement measures and to identify emerging problems.
3. To determine the cause-effect relationship between water quality and inputs in order to develop the appropriate remedial/preventative actions and predictions of the rate and extent of local/whole lake responses to alternative abatement proposals.

Within the context of these general objectives and considering the key issues specific to Lake Erie, the surveillance plan will additionally focus on:

1. Determining the long-term trophic state of Lake Erie and determining to what degree remedial measures have affected improvements.
2. Assessing the presence, distribution, and impact by toxic substances.

This will then provide information to indicate the requirements for and direction of additional remedial programs, if necessary, to protect water uses. These objectives have been translated into a detailed surveillance plan for Lake Erie. It is a nine-year plan and provides for both annual and intensive efforts. This does provide, when considered with the total Great Lakes Surveillance Plan, a continuing program at a more or less stable level of effort. The plan defines the optimum effort needed, reflecting that all parameters do not need to be monitored at all times and at all locations. Intensive efforts have been designed to obtain data in areas that respond much slower to change or to examine in detail a specific issue. Annual efforts have been designed to obtain data in areas that respond rapidly to change; to monitor frequently selected critical parameters due to the variable nature of the water body; or to obtain high frequency data with a high degree of statistical confidence.

Rationale

In order to facilitate a reliable evaluation of nearshore water quality the nearshore sub-component has been divided into two elements: (1) the annual element including problem area assessments; and (2) the intensive element including detailed problem area assessments.

The annual element is designed to identify emerging problem areas, to detect changes in water quality on a broad geographic basis, and to provide information necessary for trend analyses. General annual nearshore surveillance is usually carried out less extensively between major centers of development and in other areas where water quality is not seriously degraded, but takes into consideration the seasonal nature of tributary inputs, lake circulation patterns, and nearshore-offshore gradients.

If and when problem areas are detected as a result of the annual element, more detailed local assessments will be implemented. The main thrust of problem area assessments is the identification of the nature, extent, and source of a problem. These assessments occur concomitantly with either or both the annual and intensive elements. Problem area assessments are varied, being dependent on the nature, magnitude, and geographic extent of water quality non-compliance and the extent of water use conflicts. Frequency of reassessments are usually dependent on several factors, particularly the timing of remedial measures implementation.

The intensive element is designed to provide information for detailed assessments of nearshore water quality as well as providing for linkage with the main lake intensive element. This will permit detailed whole lake nearshore water quality assessments. The Surveillance Subcommittee has

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The intensive element is designed to provide information for detailed assessments of nearshore water quality as well as providing for linkage with the main lake intensive element. This will permit detailed whole lake nearshore water quality assessments. The Surveillance Subcommittee has

recommended that the nearshore sub-component of Lake Erie be studied intensively for two consecutive years on a nine-year recurring cycle beginning in 1978.

Water Quality Parameters

For the nearshore sub-component, the common parameter list (Appendix A) will form the basis of parameter selection for both the annual and intensive elements. For problem area assessments, emphasis will be placed on those specific parameters in non-compliance with agreement objectives and/or jurisdictional criteria, standards, or guidelines. A summary of parameter selections and frequency of measurements for nearshore sampling locations is presented in Appendix B.

Station Locations

The concept of continuing review is a fundamental aspect of station location design. The review process includes: the critical evaluation of historical data as well as the assessment of available background information on mixing, dispersion and prevailing currents, lake meteorology, and bathymetry.

The following design criteria were used to effect a consistency in sample collection for all nearshore work in Lake Erie. These design criteria have evolved from experience in conducting nearshore studies.

1. Stations with historical long-term data bases are maintained for the continuance of trend evaluations.
2. Stations are located at or near significant point sources; significant tributaries; and past, potential, and/or existing problem areas to assess the extent of zones of influence.
3. Stations are located at or near selected municipal intakes in order to verify how representative intake sampling is of nearshore water quality.
4. The use of inshore/offshore transects perpendicular to shore is required to detect inshore/offshore water quality gradients. Stations along such transects are depth and/or distance related depending on local bathymetry, source influences, and local mixing. Transects are located near point sources, tributaries, problem areas, intakes, and extended from the main lake station grid.
5. The intensive element include those stations sampled during the annual element with additional stations added along those transects extended from the main lake station grid. Additional stations during the intensive year allow greater spatial resolution for intensive whole lake detailed assessments.

The general locations of the United States and Canadian stations are shown on Figure 1-3 and the detailed positions of the United States stations are shown on figures 4-23. The geographic coordinates and station selection rationale are given by state in Tables 1-4. Table 5 presents a description of the rationale codes for station selection.

Sampling Frequency and Depth

The general basis of sample frequency for all parameters is presented in the common parameter list (Appendix A and B). The following design criteria are presented to allow for a more specific delineation of sample frequency.

The annual element will consist of three cruises per year scheduled for spring, summer, and fall. The intensive element will consist of four cruises per year including the three cruises mentioned above for the annual and an additional cruise scheduled for late summer prior to lake overturn and at the time of peak hypolimnion anoxia. The rationale for scheduling of cruises includes:

1. Spring cruises are designed primarily to detect the extent and impact of tributary loadings during annual high flow events.
2. Summer cruises are designed to measure peak summer productivity during maximum ambient light conditions and to measure public health indicators during peak periods of recreational water use.
3. Late summer cruises during the intensive element are designed to measure bottom oxygen and nutrients during the most critical time of the year for hypolimnion anoxia in the central basin of Lake Erie. Such measurements would be concomitant with main lake intensive surveys.
4. Fall cruises are designed primarily to measure the extent of bottom oxygen recovery as a result of vertical mixing and to measure the extent of nutrient regeneration from sediment.

For both the annual and intensive elements, sampling frequency will consist of five, consecutive day runs per nearshore cruise. This frequency is required to provide increased accuracy of statistical evaluations made for the geographic grouping of data. The assessment of geographic groupings of data allows for the detection of problem area existence and/or emergence.

For annual and intensive nearshore work as well as problem areas, depth sampling is necessary at two depths per nearshore run per station, with a sample at 1.0 m from the surface and a sample at 1.0 m off bottom. Further consideration is also deemed necessary for three-to-five or more samples based on station location, station depth, time of sampling, water quality variable, and thermal structure. Such vertical sampling would be considered on a limited scale at selected water quality monitoring

locations including those stations used for the verification of intake data and those stations located on transects extended from the main lake station grid.

Surveillance Design Summary

The annual element includes 302 stations (102 Canadian and 200 U. S.) and is designed to detect changes in water quality on a broad geographic basis, to provide information necessary for trend analysis, and identify emerging problems. These stations are shown on Figures 1-23. Parameter selections, summarized in Appendix B, include parameters from the common parameter list, parameters measured for the main lake annual program, and parameters identified as contributing to problem areas. The latter have been listed separately because of their importance to assess progress of existing remedial programs. Generally, parameters will be measured during each of three cruises scheduled for spring, summer, and fall. Each cruise consists of five, consecutive day runs. Metals, except those identified with a problem area, will be sampled only during the spring cruise. Where a controllable radioactivity source is located on the shore of a lake, the Radioactivity Subcommittee has recommended that the water should be sampled 1.0 meter below the surface at two points near the shoreline and at least two points in the lake proper at loci one kilometer from the source outfall. The selection of sampling points should allow for the sampling of at least one point likely to be in the plume at the time of sampling. The only active source discharging directly to Lake Erie is the Davis-Besse Nuclear Generating Station in Ottawa County, Ohio. The proposed five monitoring locations are shown on Figure 6. Samples should be obtained monthly and composited for analysis on a quarterly basis.

A total of 401 stations (157 Canadian and 244 U.S.) have been selected for the intensive program. Station locations are shown on Figures 1-23. Appendix B summarizes the parameter selection and measurement frequency. Station coverage and parameter selections for the intensive element include all those as included in the annual element plus additional stations, parameters, and frequencies to permit a more detailed assessment of near-shore water quality. Parameter selections include parameters from the common parameter list, parameters measured in the main lake intensive program, and parameters identified as contributing to problem areas as identified in Appendix B of the 1976 Annual Report. Sediment samples will be obtained at approximately one quarter of the stations in mid-April to complement those to be taken for the main lake sub-component. It is anticipated that data gathered, at least initially during the intensive years, will be sufficient to make detailed problem area assessments and provide information to facilitate problem area assessment designs in the future.

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TABLES

1-5

TABLE 1

LAKE ERIE NEARSHORE SURVEILLANCE STATIONS

MICHIGAN

Station No.	Longitude W	Latitude N	Rationale	Station Type	
				Intensive	Annual and Intensive
M-1	83°11.5'	42°01.8'	EB, MT, NS, SG, WL		X
M-2	83°12.0'	42°01.0'	NS, SG, ST, TN, WL		X
M-3	83°10.5'	41°59.9'	CF, NB, NI, TN		X
M-4	83°14.6'	41°58.5'	DP, II, NB, NS, SG, TN		X
M-5	83°13.1'	41°58.2'	NI, TN	X	
M-6	83°11.7'	41°57.7'	CF, ND, TN		X
M-7	83°15.5'	41°56.5'	NB, NS, SG, TN		X
M-8	83°14.3'	41°56.2'	DS, IM, NI, PP, TN	X	
M-9	83°13.0'	41°55.8'	CF, ND, TM, TN		X
M-10	83°18.1'	41°56.4'	EB, NB, NS, ST		X
M-11	83°19.4'	41°55.4'	BR, HF, NS, SG, ST		X
M-12	83°19.9'	41°53.4'	DC, HA, MT, NS, TN		X
M-13	83°19.2'	41°53.2'	DC, NI, TN	X	
M-14	83°17.8'	41°52.8'	DC, NI, TN		X
M-15	83°16.4'	41°52.5'	DC, ND, TM, TN	X	
M-16	83°20.9'	41°52.4'	DP, HF, NS, SG, WL		X
M-17	83°22.7'	41°52.1'	EB, NB, NS, SG, ST		X
M-18	83°23.8'	41°50.7'	NB, NS, SG, ST, TN		X
M-19	83°22.2'	41°50.4'	CF, NI, TN	X	
M-20	83°20.8'	41°50.0'	CF, NI, TN	X	
M-21	83°19.5'	41°49.7'	CF, ND, TN		X
M-22	83°24.5'	41°49.7'	BR, NB, NS, SG, ST, TN		X
M-23	83°26.2'	41°46.4'	BR, NB, NS, SG, TN		X
M-24	83°24.8'	41°47.1'	CF, NI, TN	X	
M-25	83°23.0'	41°47.9'	CF, ND, TN		X
M-26	83°25.5'	41°44.9'	BR, NB, NS, SG	X	
M-27	83°27.6'	41°44.6'	DC, EB, MT, NS, PP		X

TABLE 2

LAKE ERIE NEARSHORE SURVEILLANCE STATIONS

OHIO

Station No.	Longitude W	Latitude N	Rationale	Station Type	
				Intensive	Annual and Intensive
0-1	83°27.2'	41°44.0'	HF, NS, SG		X
0-2	83°28.0'	41°41.8'	DC, DP, DS, HA, II, MT, NS, PP, SG, TN		X
0-3	83°26.2'	41°42.7'	DC, HA, NI, PP, SG, TN		X
0-4	83°24.3'	41°43.5'	DC, NI, SG, TN		X
0-5	83°22.6'	41°44.3'	DC, NI, SG, TM, TN	X	
0-6	83°20.8'	41°45.2'	DC, ND, TM, TN		X
0-7	83°19.0'	41°46.0'	DC, ML, TM, TN	X	
0-8	83°26.0'	41°42.7'	DP, DS, HF, NS, PP, SG		X
0-9	83°22.6'	41°41.4'	BR, HF, NS, PP, SG, WL		X
0-10	83°20.5'	41°41.9'	BR, EB, NS, SG, WL	X	
0-11	83°18.4'	41°42.5'	CF, NB, NI, SG		X
0-12	83°16.7'	41°41.1'	EB, NB, NS, SG, TN, WL		X
0-13	83°15.5'	41°42.0'	CF, IM, ND, SG, TM, TN		X
0-14	83°13.2'	41°38.7'	BR, EB, NB, NS, SG, ST, WL		X
0-15	83°06.2'	41°36.9'	BR, CF, NB, NS, SG, ST		X
0-16	83°04.6'	41°36.2'	DP, NB, NS, SG, TN, WL		X
0-17	83°04.1'	41°36.4'	II, NI, SG, TM, TN	X	
0-18	83°03.6'	41°36.7'	CF, II, NI, SG, TM, TN		X
0-19	83°03.0'	41°37.1'	CF, ND, SG, TM, TN	X	
0-20	83°02.4'	41°37.4'	CF, ML, SG, TM, TN		X
0-21	83°03.6'	41°35.2'	CF, DS, MT, NS, SG, WL		X
0-22	82°57.5'	41°31.4'	BR, HF, NS, SG, WL		X
0-23	82°56.4'	41°31.4'	BR, DC, DS, HA, IM, MT, NS, SG, TN		X
0-24	82°56.1'	41°32.3'	CF, NI, SG, TM, TN		X
0-25	82°56.0'	41°34.5'	CF, ML, SG, TM, TN		X

TABLE 2 CONT.

LAKE ERIE NEARSHORE SURVEILLANCE STATIONS

OHIO

Station No.	Longitude W.	Latitude N.	Rationale	Station Type	
				Intensive	Annual and Intensive
0-26	82°54.7'	41°31.2'	BR, HF, NS, SG, WL		X
0-27	82°47.8'	41°33.4'	BR, IM, NB, NS, SG, TN, WL		X
0-28	82°45.6'	41°34.8'	CF, ND, SG, TN		X
0-29	82°57.9'	41°27.7'	DS, EB, MT, NS, PP, SG, WL	X	X
0-30	82°55.9'	41°25.4'	DP, EB, II, NS, SG, ST, WL		X
0-31	82°53.0'	41°28.0'	CF, EB, NI, SG		X
0-32	82°48.6'	41°29.0'	CF, EB, NI, SG	X	X
0-33	82°46.0'	41°27.0'	CF, EB, HF, NS, ST		X
0-34	82°44.4'	41°27.2'	BR, DP, DS, EB, HA, NS, PP, ST		X
0-35	82°44.3'	41°28.5'	EB, HA, NI, SG		X
0-36	82°42.2'	41°32.0'	CF, NB, NS, SG		X
0-37	82°41.8'	41°29.5'	EB, DC, HA, ND, TN		X
0-38	82°40.5'	41°30.0'	CF, DC, ND, TN	X	X
0-39	82°38.6'	41°30.8'	CF, ML, TM, TN		X
0-40	82°38.6'	41°27.8'	BR, CF, IM, NB, NI		X
0-41	82°35.1'	41°24.7'	BR, HF, NS, TN	X	X
0-42	82°35.1'	41°25.6'	CF, NI, TN		X
0-43	82°33.4'	41°24.3'	HF, IM, NI, ST		X
0-44	82°32.9'	41°24.0'	DC, DS, HA, MT, NS, PP, TN		X
0-45	82°32.2'	41°24.5'	HF, NI, TN	X	X
0-46	82°32.2'	41°25.5'	CF, ND, TN		X
0-47	82°32.2'	41°25.6'	CF, ML, TN		X
0-48	82°30.7'	41°23.1'	BR, NB, NS, SG, ST, TN, WL	X	X
0-49	82°30.7'	41°24.5'	NI, TM, TN	X	X
0-50	82°30.7'	41°25.6'	CF, ND, TM, TN		X

TABLE 2 CON'T.

LAKE ERIE NEARSHORE SURVEILLANCE STATIONS

OHIO

Station No.	Longitude W	Latitude N	Rationale	Station Type	
				Intensive	Annual and Intensive
0-51	82°24.0'	41°24.8'	BR, HF, NS, ST, TN		X
0-52	82°24.0'	41°27.3'	CF, ND, TN	X	X
0-53	82°22.2'	41°25.7'	BR, HF, IM, NI		X
0-54	82°21.9'	41°25.7'	DC, DS, HA, MT, NS, PP, TN		X
0-55	82°21.9'	41°26.2'	NI, TN		
0-56	82°21.1'	41°26.8'	NI, TN	X	
0-57	82°21.1'	41°27.3'	ND, TM, TN		X
0-58	82°19.8'	41°25.8'	BR, HF, NS, TN		X
0-59	82°19.8'	41°27.3'	ND, TN	X	
0-60	82°14.1'	41°26.7'	BR, NB, NS, TN		X
0-61	82°14.1'	41°29.8'	NI, TN	X	
0-62	82°14.1'	41°28.2'	ND, TN	X	
0-63	82°13.2'	41°27.4'	HF, IM, NI		X
0-64	82°11.7'	41°28.4'	HF, IM, NI		X
0-65	82°11.0'	41°28.4'	DC, DS, HA, NS, TN		X
0-66	82°11.2'	41°28.7'	DC, DP, HA, NI, TN		X
0-67	82°11.2'	41°29.8'	ND, TM, TN		X
0-68	82°08.3'	41°28.0'	HF, NS, TN		X
0-69	82°08.3'	41°29.8'	ND, TN	X	
0-70	82°00.0'	41°31.1'	NB, NS		X
0-71	81°54.1'	41°29.2'	HF, NS, TN		X
0-72	81°53.0'	41°31.2'	IM, NI, TN		X
0-73	81°54.1'	41°32.9'	NI, TN		
0-74	81°54.1'	41°35.1'	ND, TM, TN	X	X
0-75	81°50.4'	41°29.5'	DC, HA, MT, NS, PP, TN		X

TABLE 2 CON'T.

LAKE ERIE NEARSHORE SURVEILLANCE STATIONS

OHIO

Station No.	Longitude W	Latitude N	Rationale	Station Type	
				Intensive	Annual and Intensive
0-76	81°50.4'	41°29.7'	DC, HA, NI, TN		X
0-77	81°49.7'	41°30.8'	NI, TN	X	
0-78	81°49.7'	41°31.9'	ND, TN		X
0-79	81°45.4'	41°29.5'	RB, HF, NS, TN	X	
0-80	81°45.4'	41°29.8'	HF, NI, TN	X	
0-81	81°45.4'	41°30.8'	ND, TN	X	
0-82	81°45.8'	41°32.8'	IM, ML, TM, TN		X
0-83	81°45.0'	41°32.9'	IM, ML, TM, TN		X
0-84	81°43.4'	41°29.9'	DS, HA, NS, PP		X
0-85	81°42.7'	41°30.3'	DC, DP, HA, MT, NS, PP, TN		X
0-86	81°43.0'	41°30.6'	DC, HA, NI, TN		X
0-87	81°41.6'	41°31.0'	DC, HA, NS, PP, TN		X
0-88	81°42.7'	41°31.5'	ND, TM, TN		X
0-89	81°43.9'	41°32.0'	ND, TM, TN		X
0-90	81°40.5'	41°31.6'	DC, HA, NS, PP		X
0-91	81°39.3'	41°32.2'	DC, DP, HA, NS, PP		X
0-92	81°40.5'	41°32.7'	ND, TN		X
0-93	81°41.6'	41°33.2'	ND, TN		X
0-94	81°36.9'	41°33.1'	HF, NS, TN		X
0-95	81°36.9'	41°33.5'	HF, NI, TN		X
0-96	81°38.1'	41°33.9'	ND, TN	X	
0-97	81°39.3'	41°34.4'	ND, TN	X	
0-98	81°34.0'	41°35.3'	DS, NB, NS, ST, TN		X
0-99	81°34.6'	41°35.7'	NI, TN		X
0-100	81°35.8'	41°36.2'	ND, TN		X

TABLE 2 CON'T.

LAKE ERIE NEARSHORE SURVEILLANCE STATIONS

OHIO

Station No.	Longitude W	Latitude N	Rationale.	Station Type	
				Intensive	Annual and Intensive
0-101	81°037.0'	41°037.1'	IM, ML, TN		x
0-102	81°033.4'	41°037.4'	NB, NI		x
0-103	81°027.1'	41°039.9'	BR, NB, NS		x
0-104	81°026.5'	41°040.5'	DP, NS, TN		x
0-105	81°026.2'	41°040.7'	BR, DC, HA, MT, NS, WL		x
0-106	81°027.1'	41°041.5'	NI, TM, TN	x	
0-107	81°028.1'	41°042.3'	ND, TN		x
0-108	81°025.1'	41°041.3'	NB, NS		x
0-109	81°018.3'	41°045.0'	BR, HF, NS, TN		x
0-110	81°017.9'	41°045.4'	HF, IM, NI, TN		x
0-111	81°018.2'	41°046.1'	HF, NI, TN	x	
0-112	81°018.3'	41°047.2'	CF, ND, TN	x	
0-113	81°016.8'	41°045.7'	DC, DS, HA, MT, NS, PP, TN		x
0-114	81°016.8'	41°046.1'	DC, DP, HA, NI, TN		x
0-115	81°016.8'	41°046.6'	ND, TN		x
0-116	81°016.8'	41°047.2'	ND, TM, TN		x
0-117	81°016.1'	41°045.7'	DC, HA, NI, PP		x
0-118	81°015.4'	41°046.1'	HF, NI	x	
0-119	81°019.0'	41°046.1'	HF, NS, TN		x
0-120	81°019.0'	41°047.2'	ND, TM, TN		x
0-121	81°009.6'	41°048.1'	DP, IL, NB,		x
0-122	81°004.6'	41°050.0'	IM, NB, NS		x
0-123	81°000.5'	41°051.2'	NS, ST, TN		x
0-124	81°000.5'	41°052.2'	NI, TN	x	
0-125	81°000.5'	41°053.3'	ND, TN		x

TABLE 2 CON'T.

LAKE ERIE NEARSHORE SURVEILLANCE STATIONS

OHIO

Station No.	Longitude W	Latitude N	Rationale	Station Type	
				Intensive	Annual and Intensive
0-126	80°58.2'	41°51.6'	BR, NB, NS, ST		X
0-127	80°52.8'	41°52.4'	NB, NS		X
0-128	80°49.0'	41°53.9'	BR, HF, NS, TN		X
0-129	80°48.6'	41°54.5'	HE, IM, NI, TN		X
0-130	80°49.0'	41°55.2'	HF, NI, TN	X	
0-131	80°49.0'	41°56.3'	ND, TN	X	
0-132	80°47.9'	41°54.6'	DC, DS, HA, MT, NS, PP, TN		X
0-133	80°47.6'	41°55.2'	DC, HA, NI, TN	X	
0-134	80°47.6'	41°55.7'	ND, TN		X
0-135	80°47.6'	41°56.7'	ML, TM, TN		X
0-136	80°46.0'	41°54.8'	DP, HF, NS		X
0-137	80°44.7'	41°55.2'	NB, NS, TN	X	
0-138	80°44.7'	41°56.7'	ND, TN		X
0-139	80°41.0'	41°56.4'	NB, NS		X
0-140	80°37.2'	41°57.6'	BR, HF, NS, TN		X
0-141	80°34.6'	41°58.0'	HF, MI, NI, TN		X
0-142	80°37.2'	41°58.8'	NI, TN	X	
0-143	80°37.2'	41°59.8'	ND, TN	X	
0-144	80°33.0'	41°58.4'	DC, DS, HA, MT		X
0-145	80°33.4'	41°58.8'	NI, TN		X
0-146	80°33.4'	41°59.3'	ND, TN	X	
0-147	80°33.4'	41°59.8'	ML, TM, TN		X
0-148	80°32.0'	41°58.5'	HF, DP, II, NS, ST		X

TABLE 3
LAKE ERIE NEARSHORE SURVEILLANCE STATIONS
PENNSYLVANIA

Station No.	Longitude W	Latitude N	Rationale	Station Type	
				Intensive	Annual and Intensive
P-1	80°30.5'	41°58.9'	NB, NS, ST, TN		X
P-2	80°30.5'	41°59.3'	NB, NI, TN		X
P-3	80°30.5'	41°59.9'	ND, TN		X
P-4	80°29.0'	41°59.6'	NB, NS, ST		X
P-5	80°26.4'	42°00.4'	NB, NS, ST, TN		X
P-6	80°26.7'	42°01.4'	NB, NI, TN	X	
P-7	80°27.0'	42°02.3'	NB, ND, TN		X
P-8	80°22.3'	42°01.7'	NB, NS, SG, ST, TN		X
P-9	80°22.3'	42°02.2'	NB, NI, ST, TN		X
P-10	80°16.4'	42°03.7'	NB, NS, ST		X
P-11	80°14.3'	42°04.8'	NB, NS, ST, TN		X
P-12	80°14.3'	42°05.2'	NB, NI, TN		X
P-13	80°12.8'	42°05.1'	NB, NS, TN		X
P-14	80°12.8'	42°11.4'	CF, ND, TM, TN		X
P-15	80°10.2'	42°07.9'	BR, IM, NI, TN		X
P-16	80°09.2'	42°09.4'	BR, IM, NI, TN		X
P-17	80°07.1'	42°10.0'	BR, NS, TN		X
P-18	80°07.1'	42°11.4'	CF, ND, TN		X
P-19	80°08.1'	42°07.5'	DP, EE, NS		X
P-20	80°07.1'	42°08.5'	EE, NI, WL	X	
P-21	80°05.6'	42°08.5'	DC, DS, EE, HA, NS, PP		X
P-22	80°04.1'	42°09.3'	DC, HA, NS, PP	X	
P-23	80°04.1'	42°10.3'	BR, HF, NS, TN	X	
P-24	80°04.1'	42°13.5'	CF, ML, TM, TN		X
P-25	80°03.0'	42°09.5'	HF, II, NI		
P-26	80°01.3'	42°09.8'	HF, NS		X
P-27	79°58.3'	42°11.5'	NB, NS, ST, TN		X
P-28	79°58.3'	42°13.6'	ND, TN		X
P-29	79°50.0'	42°14.7'	NB, NS, ST		X

TABLE 4

LAKE ERIE NEARSHORE SURVEILLANCE STATIONS

NEW YORK

Station No.	Longitude W	Latitude N	Rationale	Station Type	
				Intensive	Annual and Intensive
N-1	79°47.0'	42°16.1'	NB, NS, ST		X
N-2	79°42.3'	42°17.7'	NB, NS, ST		X
N-3	79°36.5'	42°20.3'	HF, NS, ST		X
N-4	79°35.8'	42°20.8'	DC, HA, NS, ST, TN		X
N-5	79°35.8'	42°21.4'	NI, TN	X	
N-6	79°35.8'	42°22.5'	ND, TM, TN		X
N-7	79°33.6'	42°21.7'	BR, HF, NS		X
N-8	79°26.3'	42°25.6'	NB, NS, ST		X
N-9	79°25.9'	45°26.0'	BR, NB, NS, ST		X
N-10	79°22.1'	42°28.7'	HF, NS, ST		X
N-11	79°20.9'	42°29.7'	DC, DP, HA, II, NS, TN		X
N-12	79°20.9'	42°30.7'	ND, TM, TN		X
N-13	79°20.2'	42°29.6'	HA, NS, PP		X
N-14	79°18.5'	42°30.4'	HF, NS		X
N-15	79°14.7'	42°32.1'	NB, NS, ST		X
N-16	79°11.7'	42°32.8'	NB, NS		X
N-17	79°10.3'	42°33.1'	HA, NS, ST, TN		X
N-18	79°10.3'	42°33.6'	NI, TN	X	
N-19	79°10.3'	42°34.1'	ND, TM, TN		X
N-20	79°08.2'	42°34.2'	BR, MT, NS, TN		X
N-21	79°08.8'	42°34.1'	NI, TN		X
N-22	79°07.0'	42°36.4'	NB, NS		X
N-23	79°02.9'	42°41.6'	NB, NS, ST		X
N-24	78°59.0'	42°42.6'	NB, NS		X
N-25	78°58.1'	42°43.3'	NS, ST, TN		X

TABLE 4 CON'T.

LAKE ERIE NEARSHORE SURVEILLANCE STATIONS

NEW YORK

Station No.	Longitude W	Latitude N	Rationale	Station Type	
				Intensive	Annual and Intensive
N-26	78°58.1'	42°44.3'	NI, TN	x	x
N-27	78°58.1'	42°45.3'	ND, TM, TN		x
N-28	78°56.9'	42°43.9'	NB, NS		x
N-29	78°52.5'	42°46.0'	NB, NS		x
N-30	78°51.4'	42°47.5'	NB, NS, ST	x	x
N-31	78°52.0'	42°48.6'	HF, NS, ST, TN		
N-32	78°52.4'	42°48.3'	NI, TN		x
N-33	78°53.6'	42°47.9'	ND, TM, TN		x
N-34	78°52.2'	42°50.7'	DC, HA, NS, TN	x	x
N-35	78°52.4'	42°50.3'	DC, HA, NI, TN		
N-36	78°53.4'	42°50.2'	ND, TN		x
N-37	78°54.8'	42°49.8'	ML, TM, TN		x
N-38	78°53.3'	42°52.7'	DC, DP, HA, MT, NS, TN	x	x
N-39	78°54.3'	42°53.5'	HF, NI		x
N-40	78°54.7'	42°52.8'	IM, ML, TN		x

TABLE 5

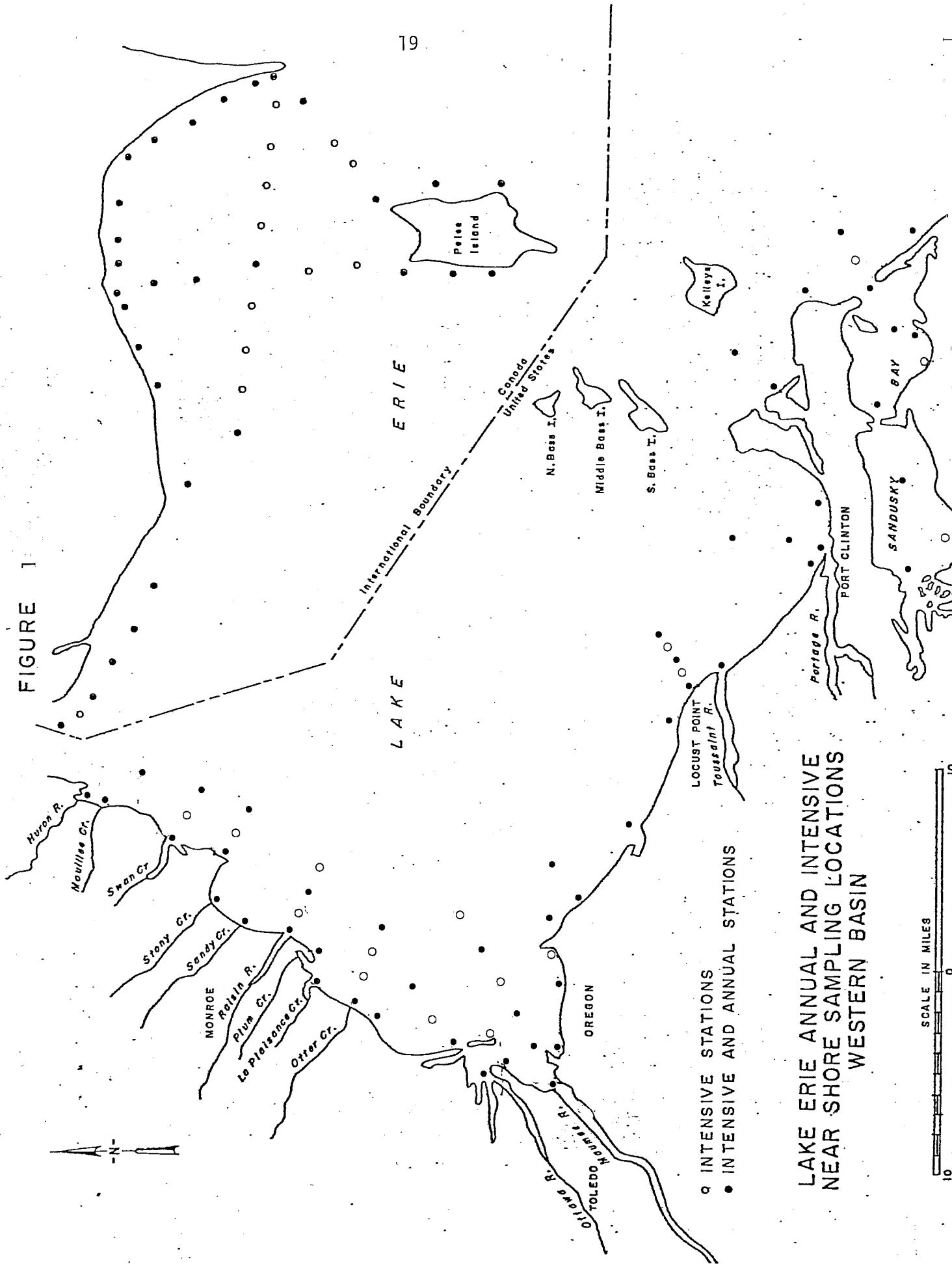
RATIONALE CODE

CODE	RATIONALE
BR	beach, recreational
CF	commercial fishing grounds
DC	dredged channel
DP	discharge, power plant or industrial
DS	discharge, sewage treatment plant
EB	embayment
HA	harbor area
HF	harbor flanks
II	intake, industrial
IM	intake, municipal
ML	offshore or main lake
MT	major tributary mouth
NB	nearshore, between major harbor areas
ND	nearshore, deep or outer position
NI	nearshore, intermediate depth
NS	nearshore, shallow or inner position
PP	known pollution problems
SG	spawning grounds
ST	small tributary mouth
TM	transect, main lake connection
TN	transect, nearshore
WL	wetlands

FIGURES

1-23

FIGURE 1

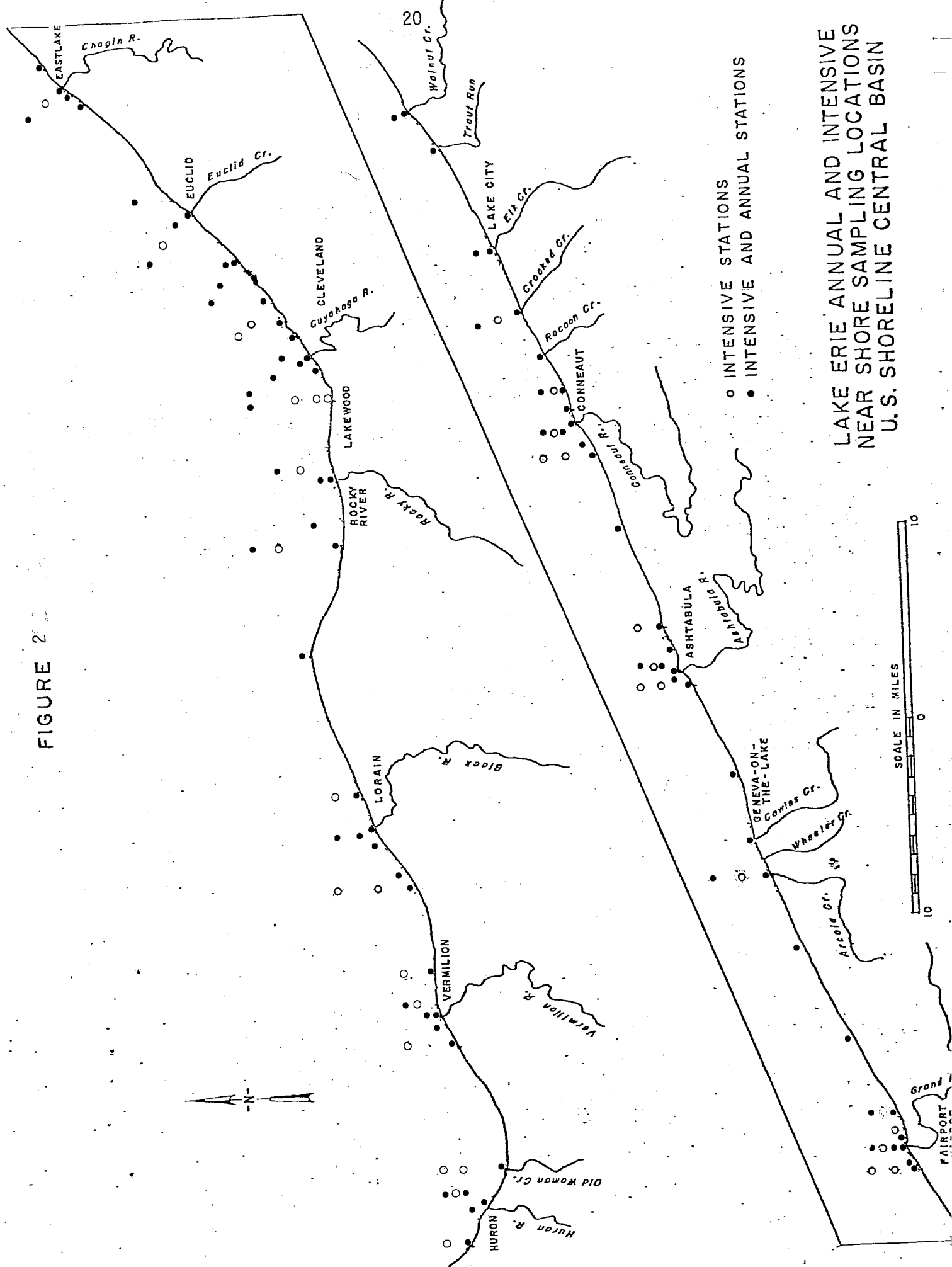


LAKE ERIE ANNUAL AND INTENSIVE
NEAR SHORE SAMPLING LOCATIONS
WESTERN BASIN

○ INTENSIVE STATIONS
● INTENSIVE AND ANNUAL STATIONS

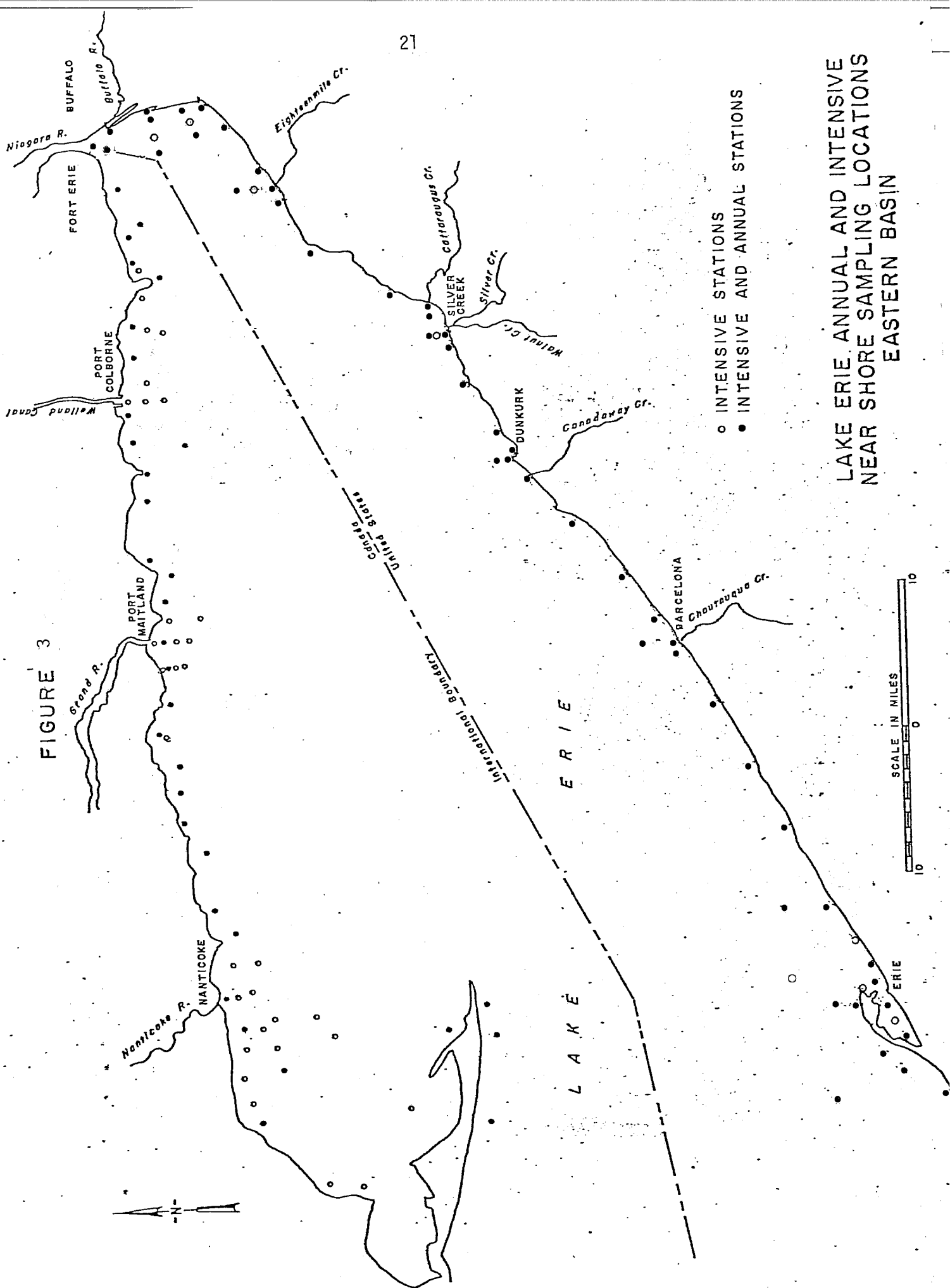
SCALE IN MILES
0 10

FIGURE 2



LAKE ERIE ANNUAL AND INTENSIVE
NEAR SHORE SAMPLING LOCATIONS
U.S. SHORELINE CENTRAL BASIN

FIGURE 3



LAKE ERIE ANNUAL AND INTENSIVE
NEAR SHORE SAMPLING LOCATIONS
EASTERN BASIN

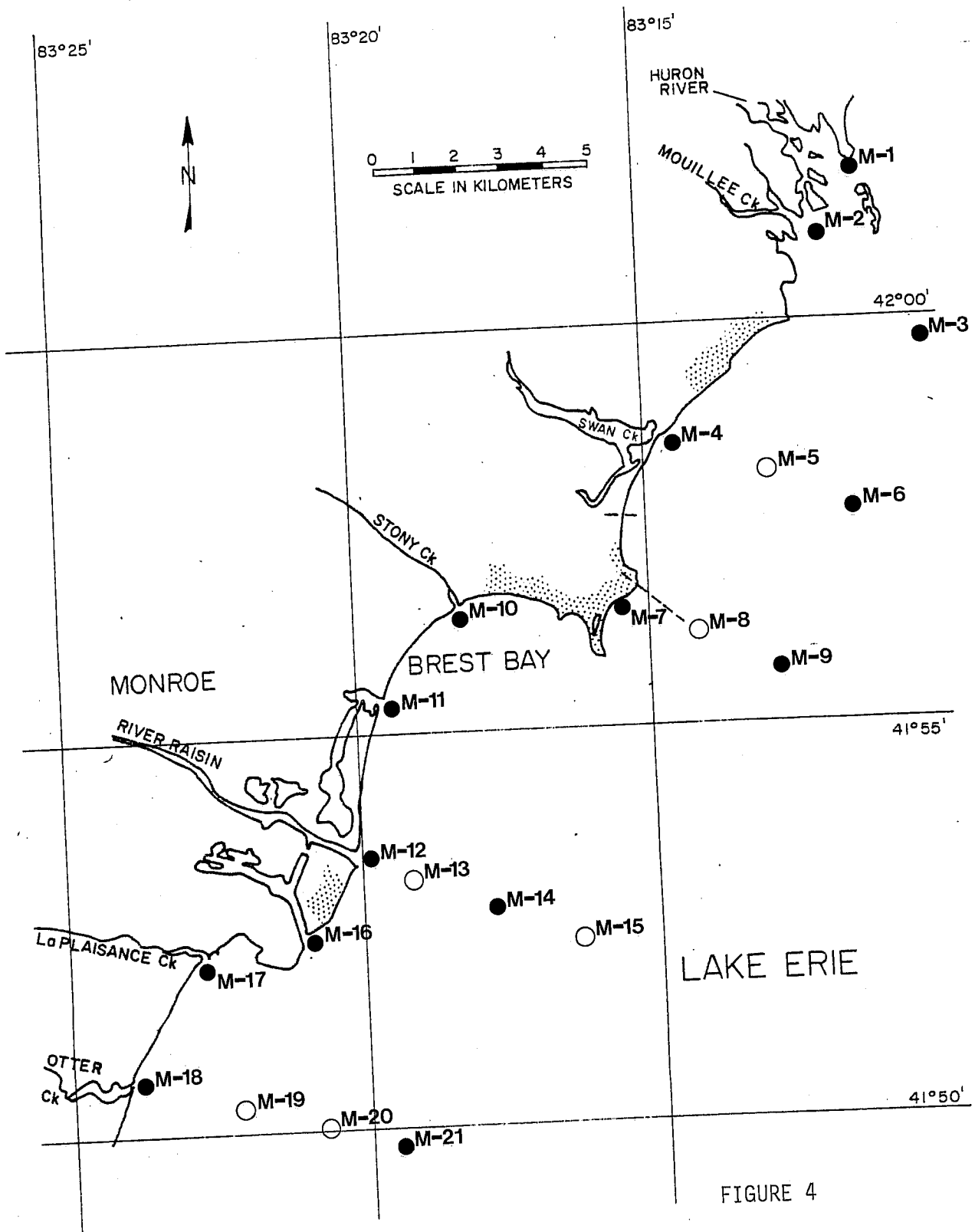


FIGURE 4

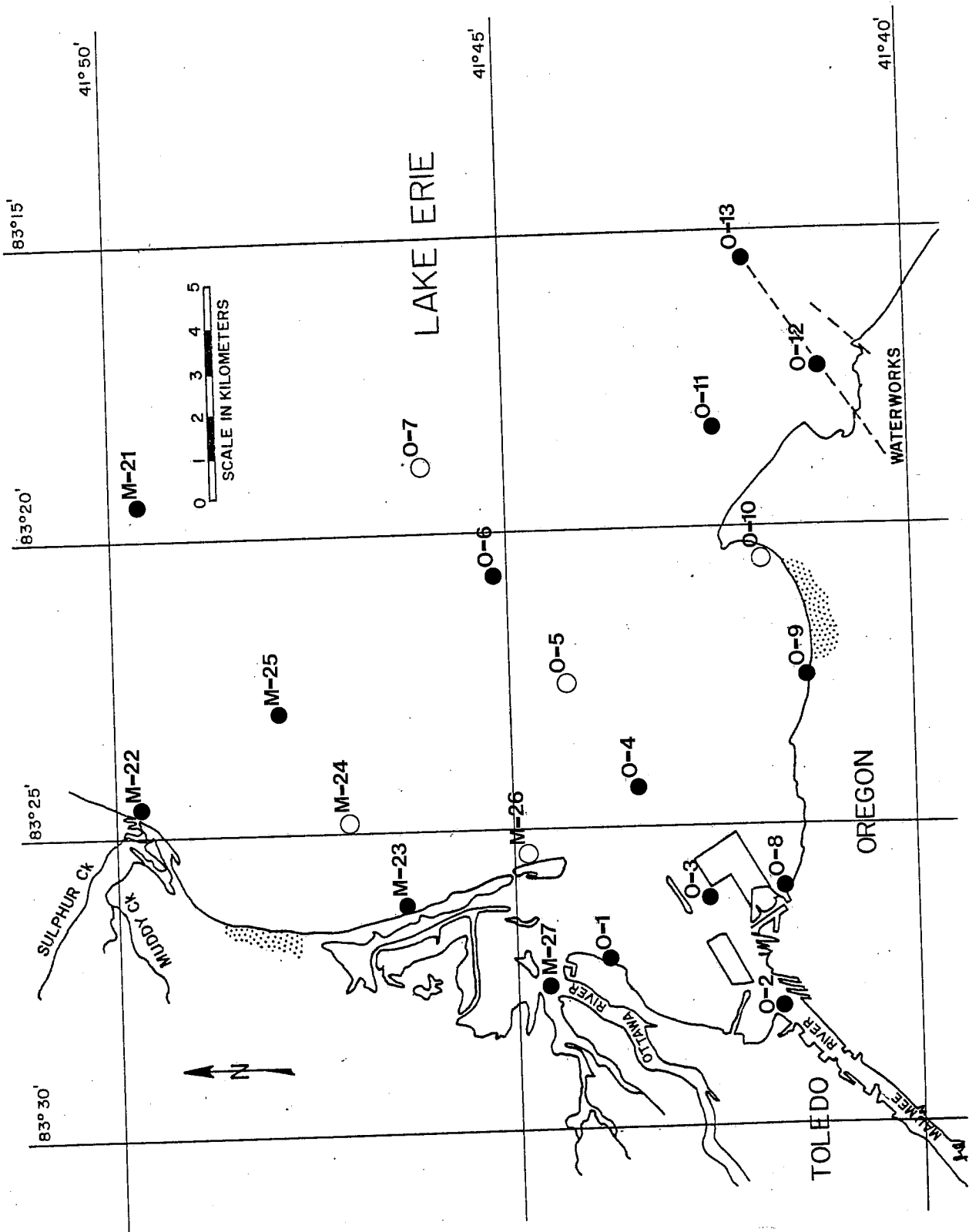


FIGURE 5

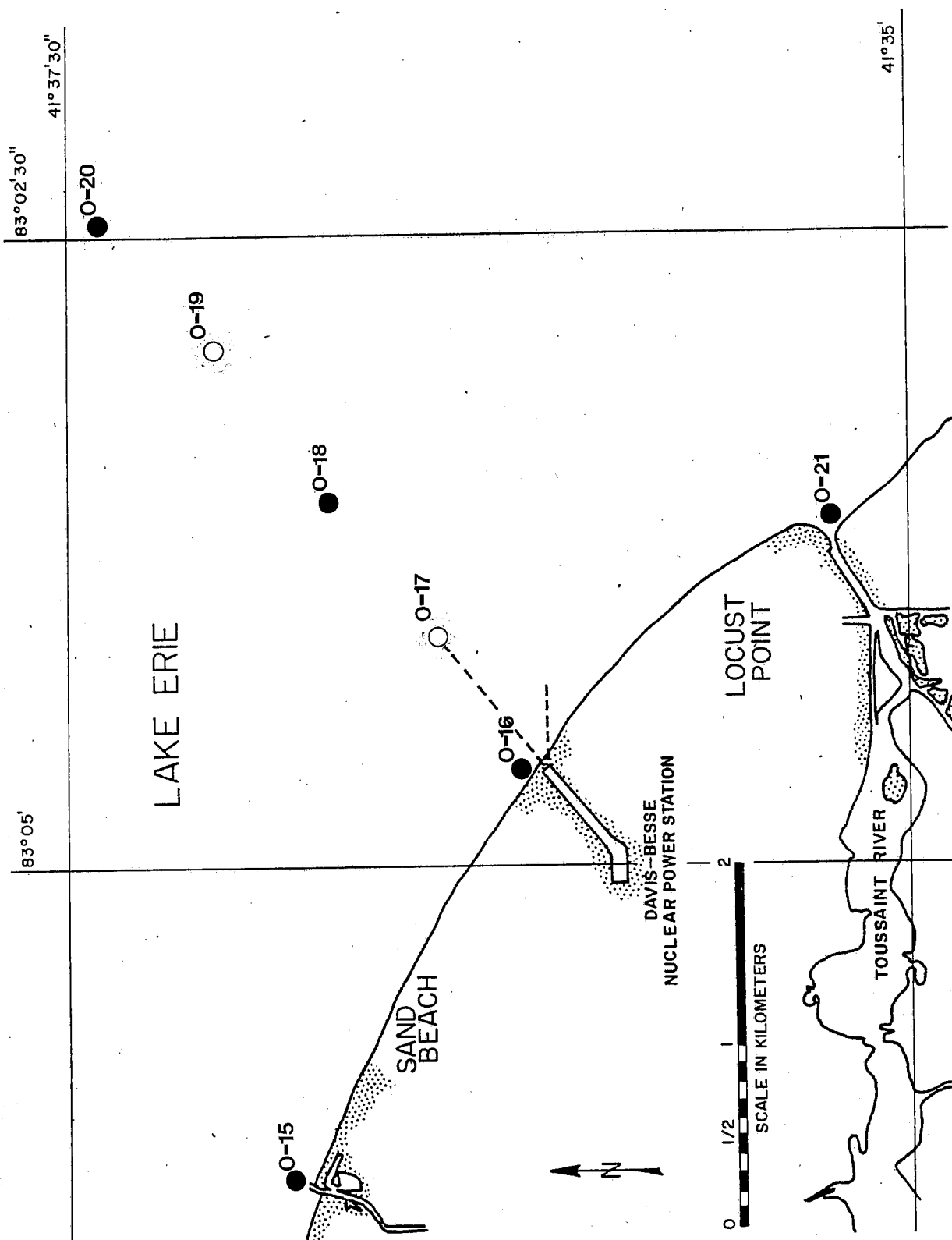


FIGURE 6

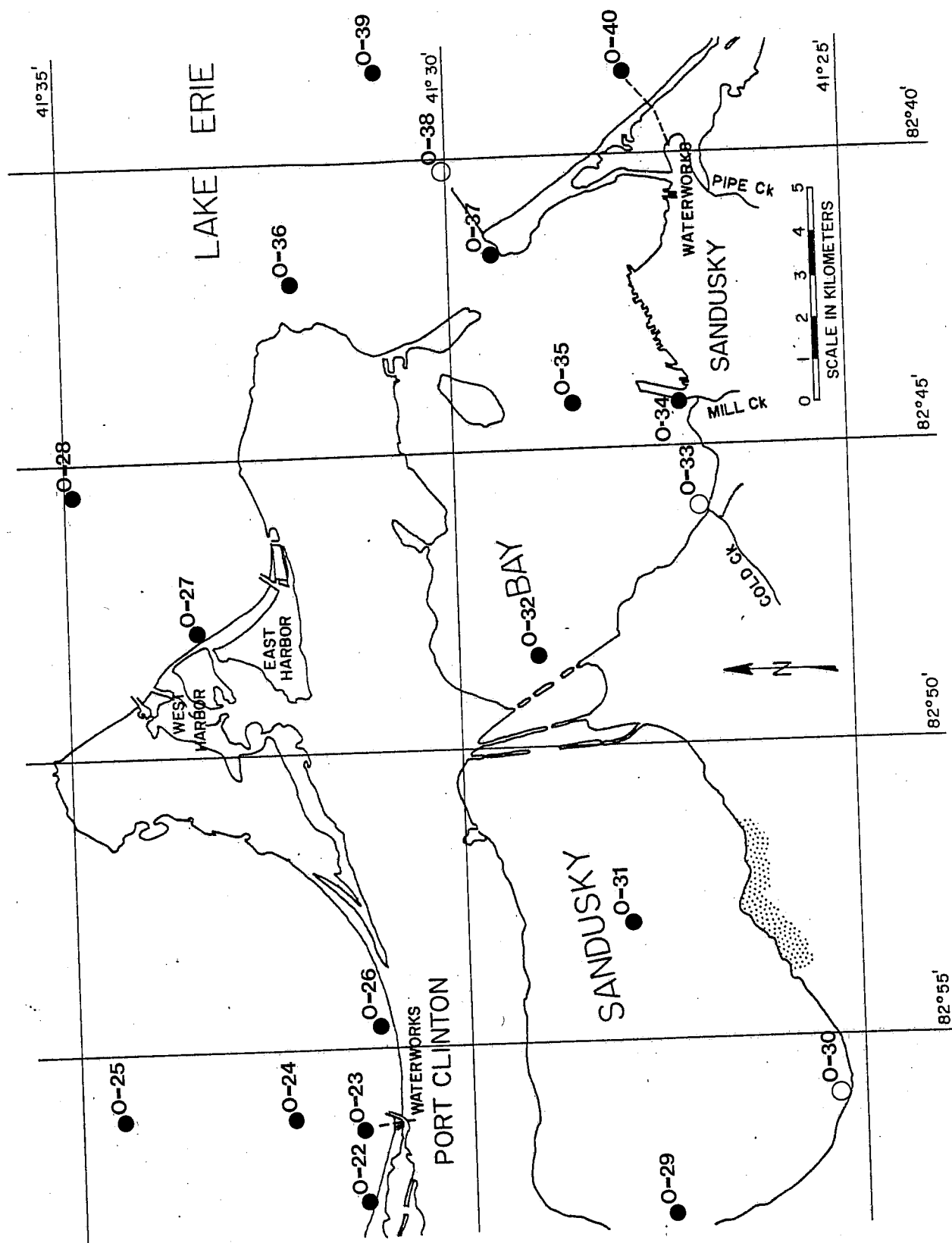


FIGURE 7

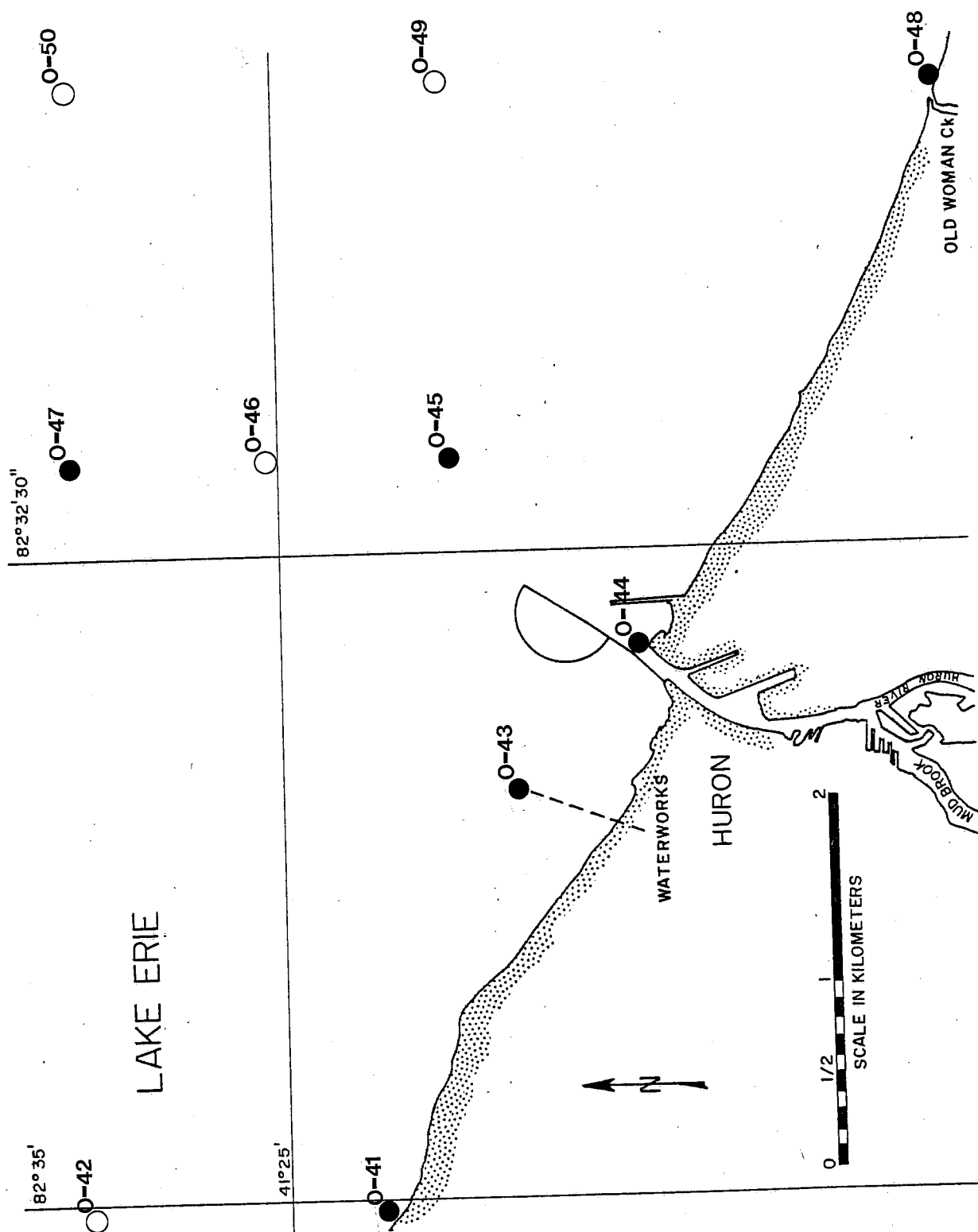


FIGURE 8

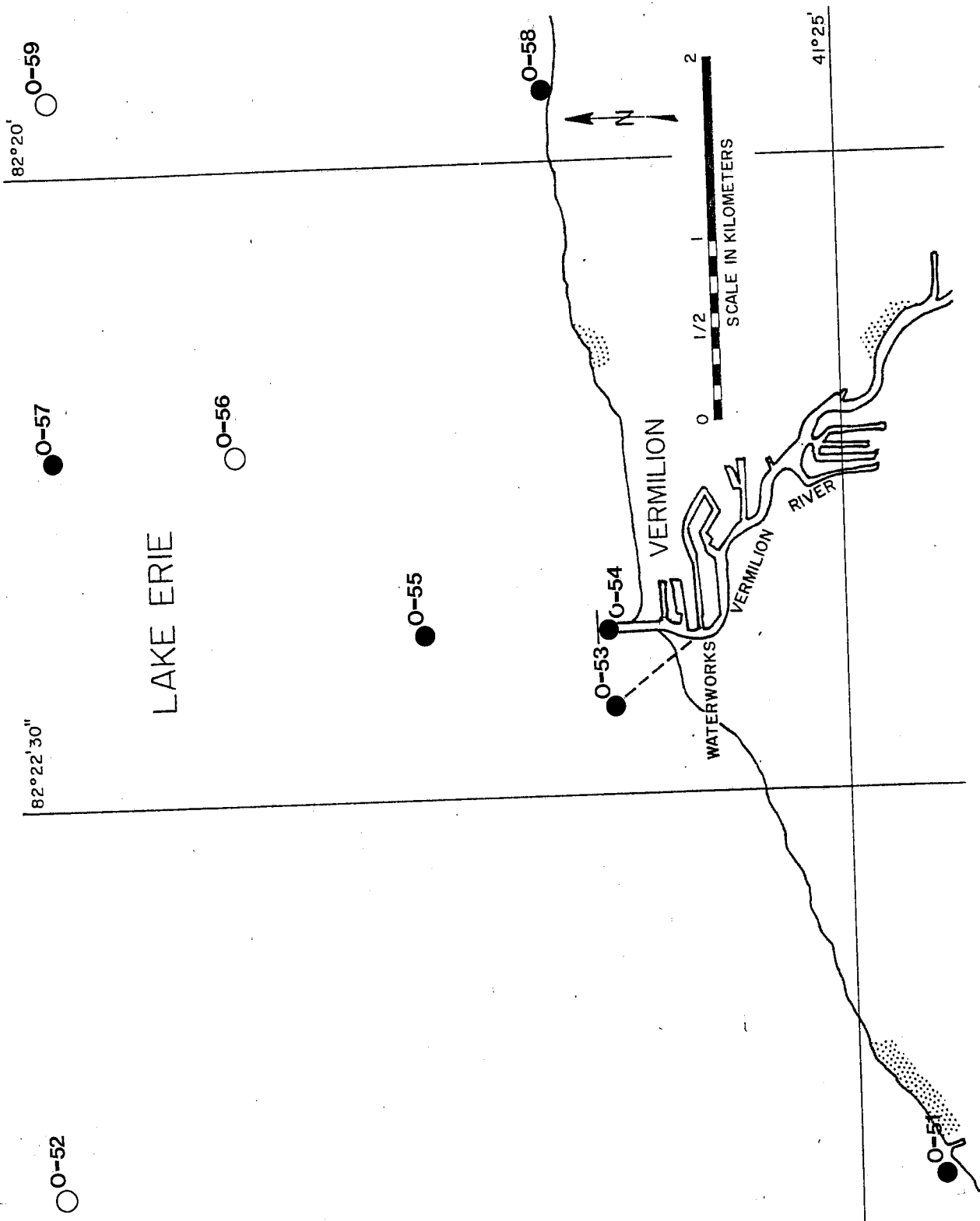


FIGURE 9

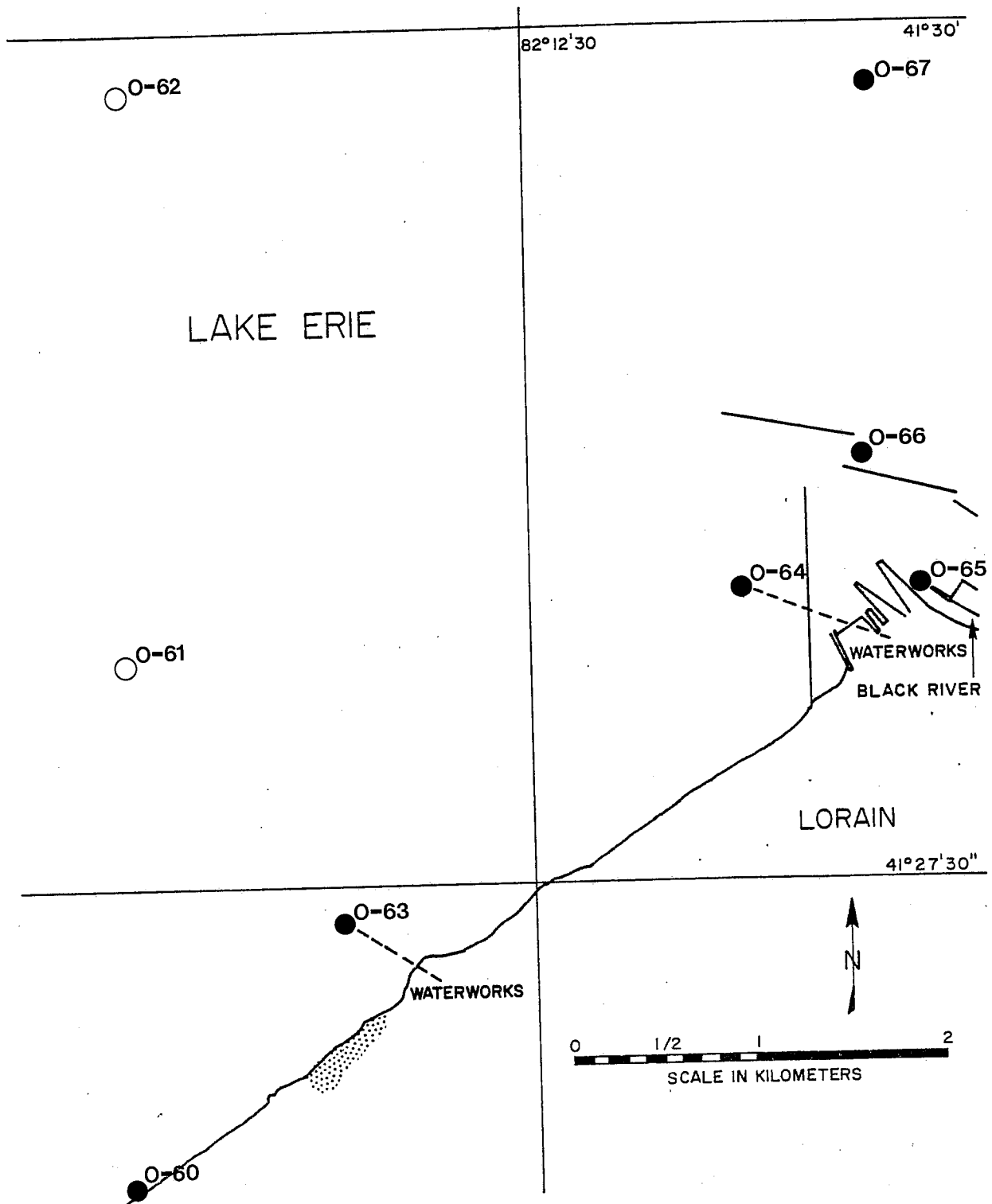


FIGURE 10

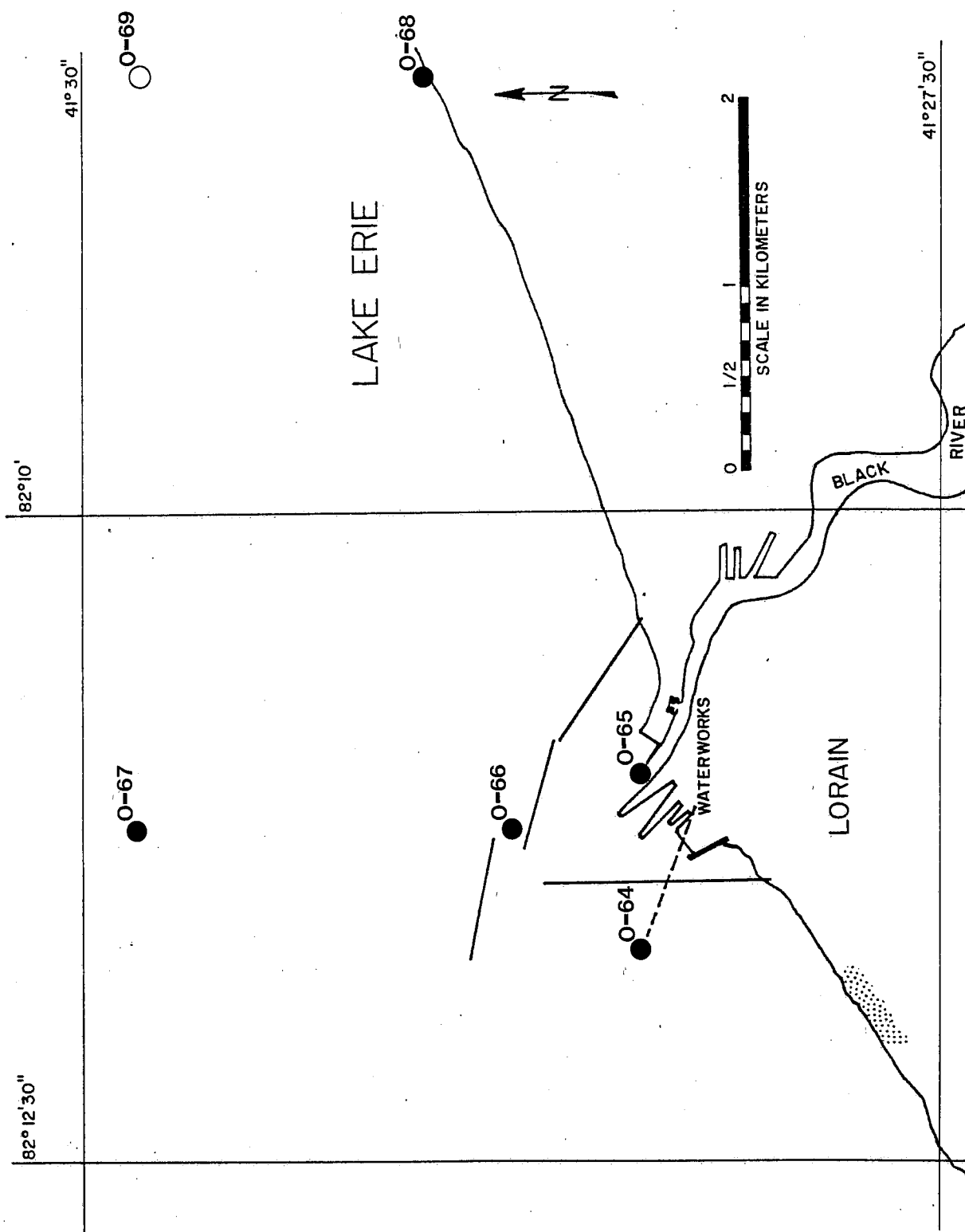


FIGURE 11

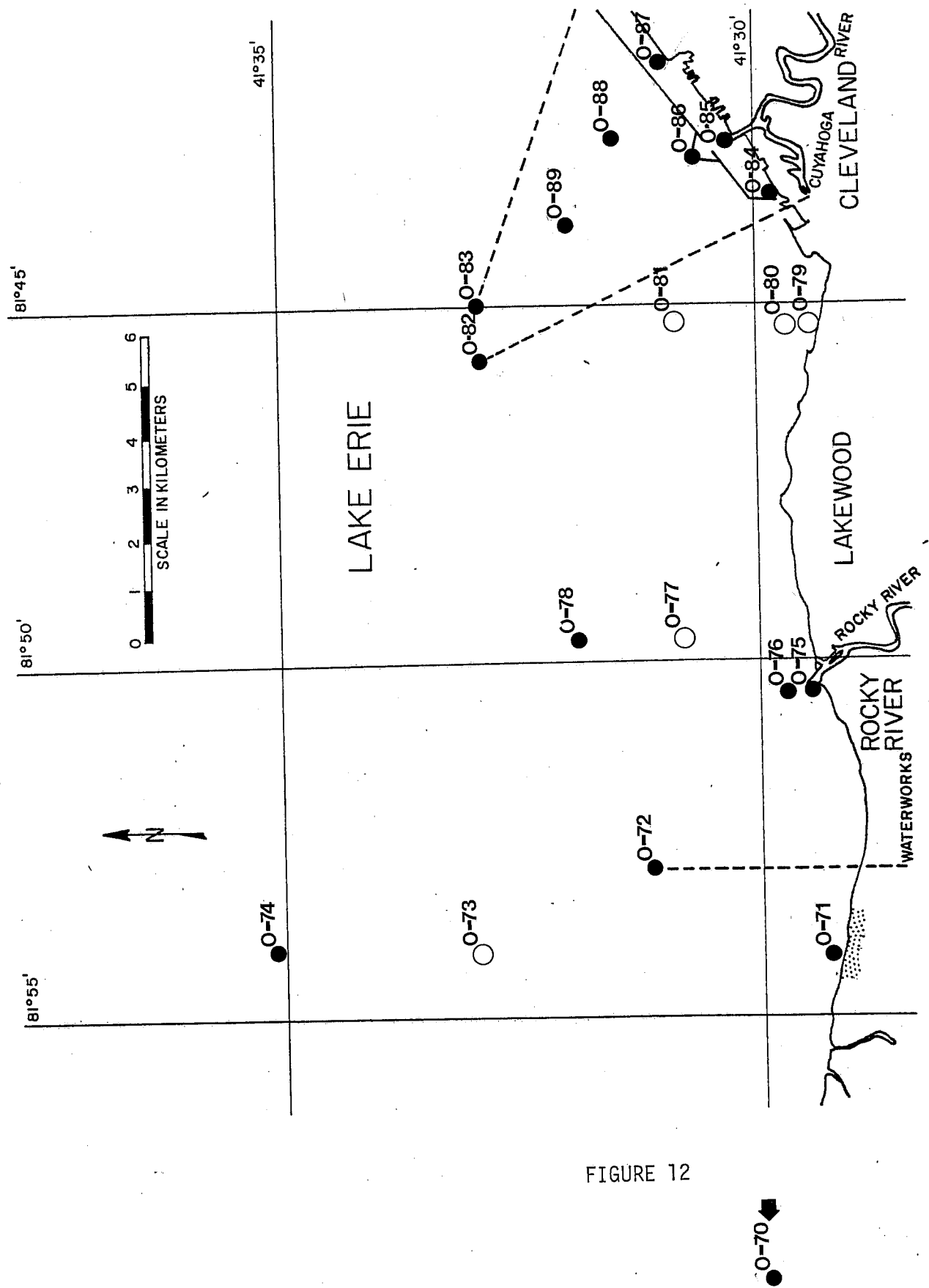


FIGURE 12

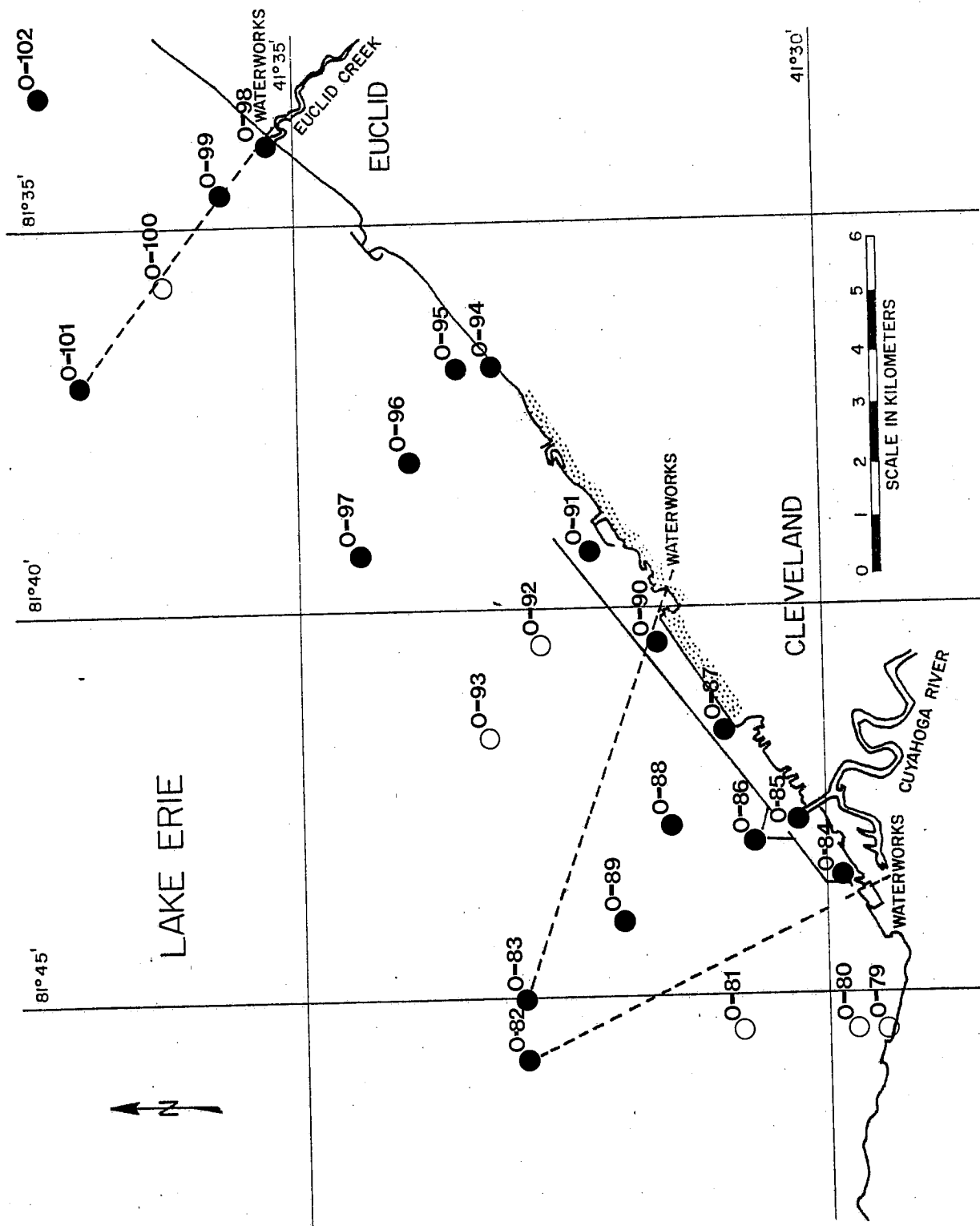


FIGURE 13

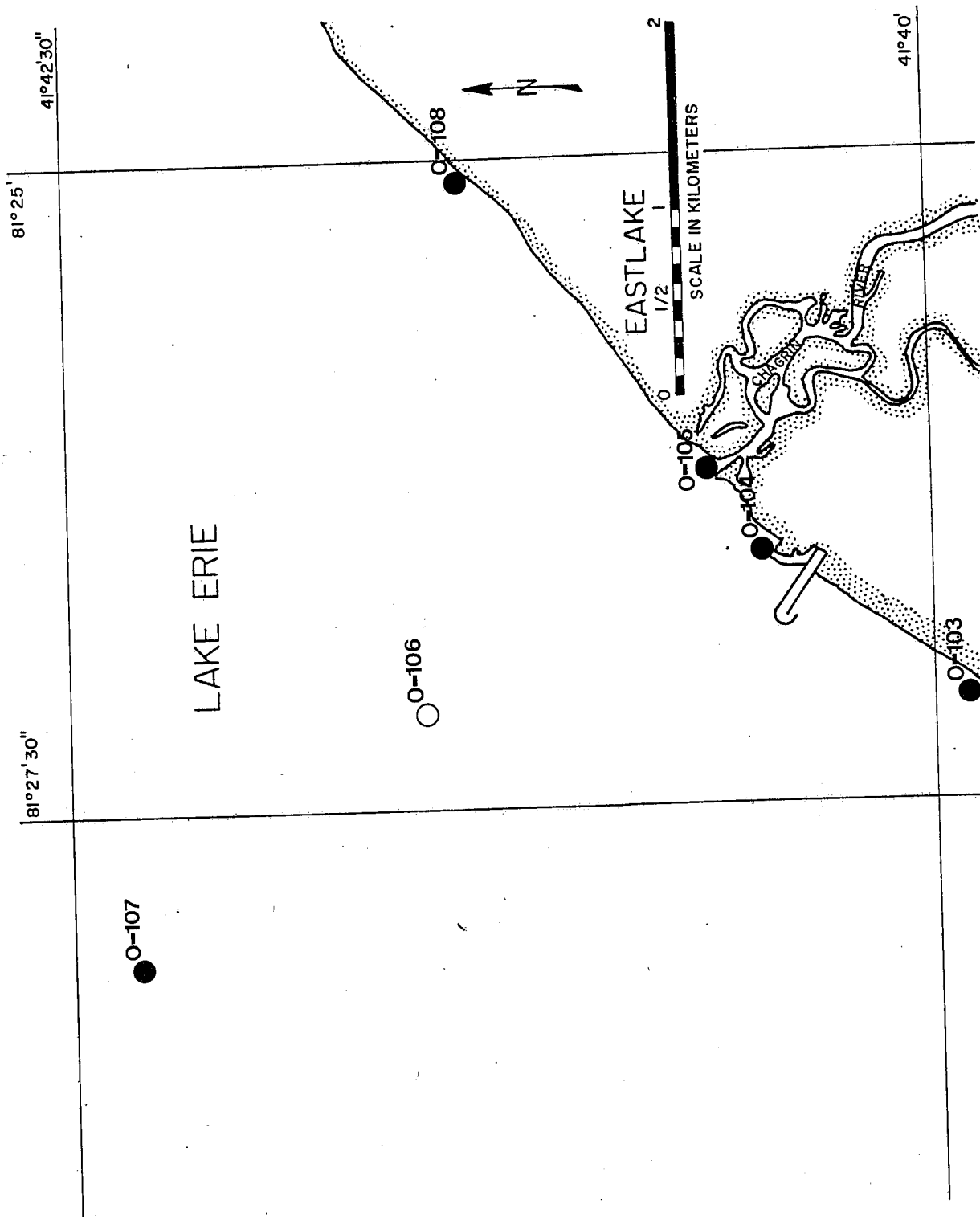


FIGURE 14

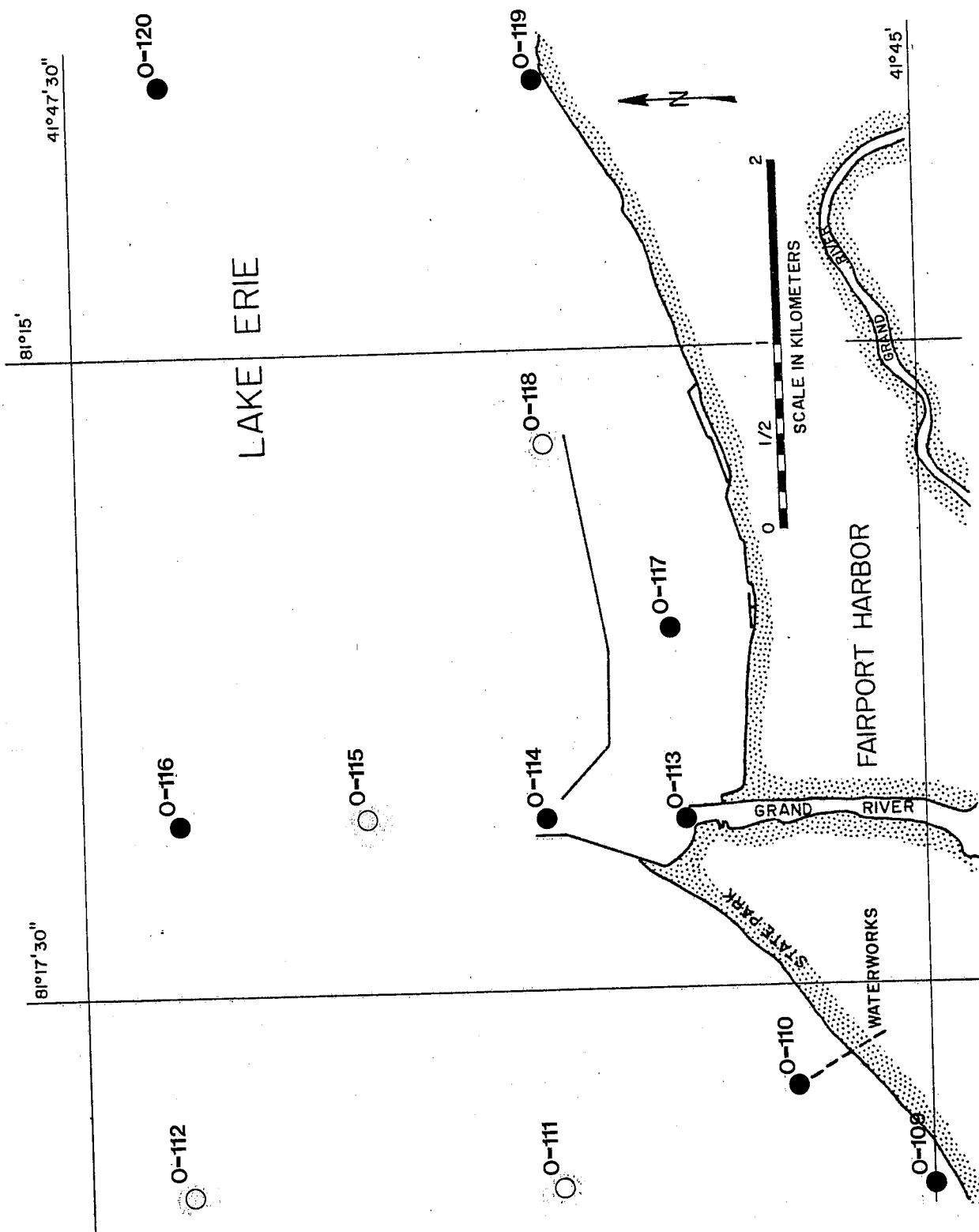


FIGURE 15

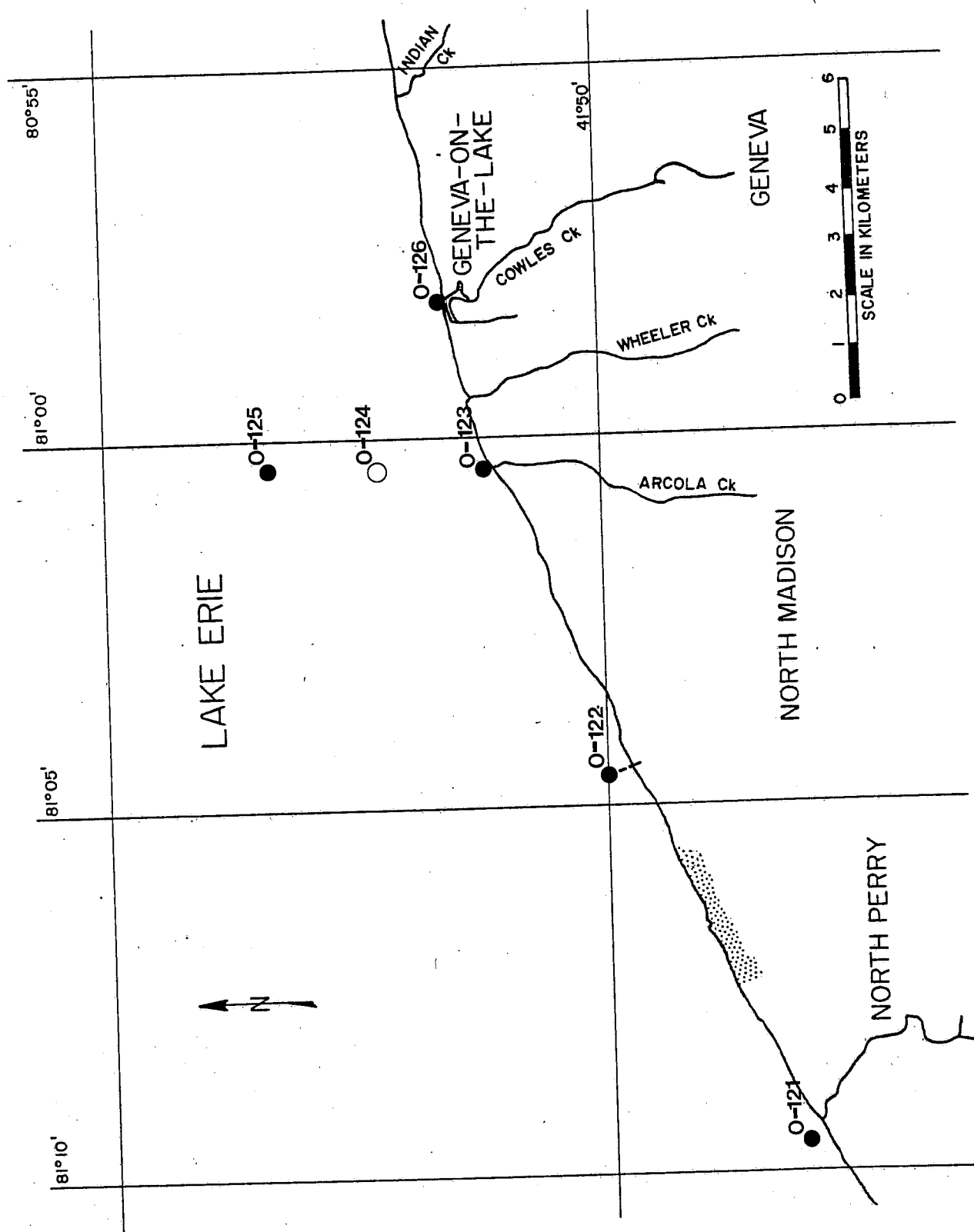
O-127
▲

FIGURE 16

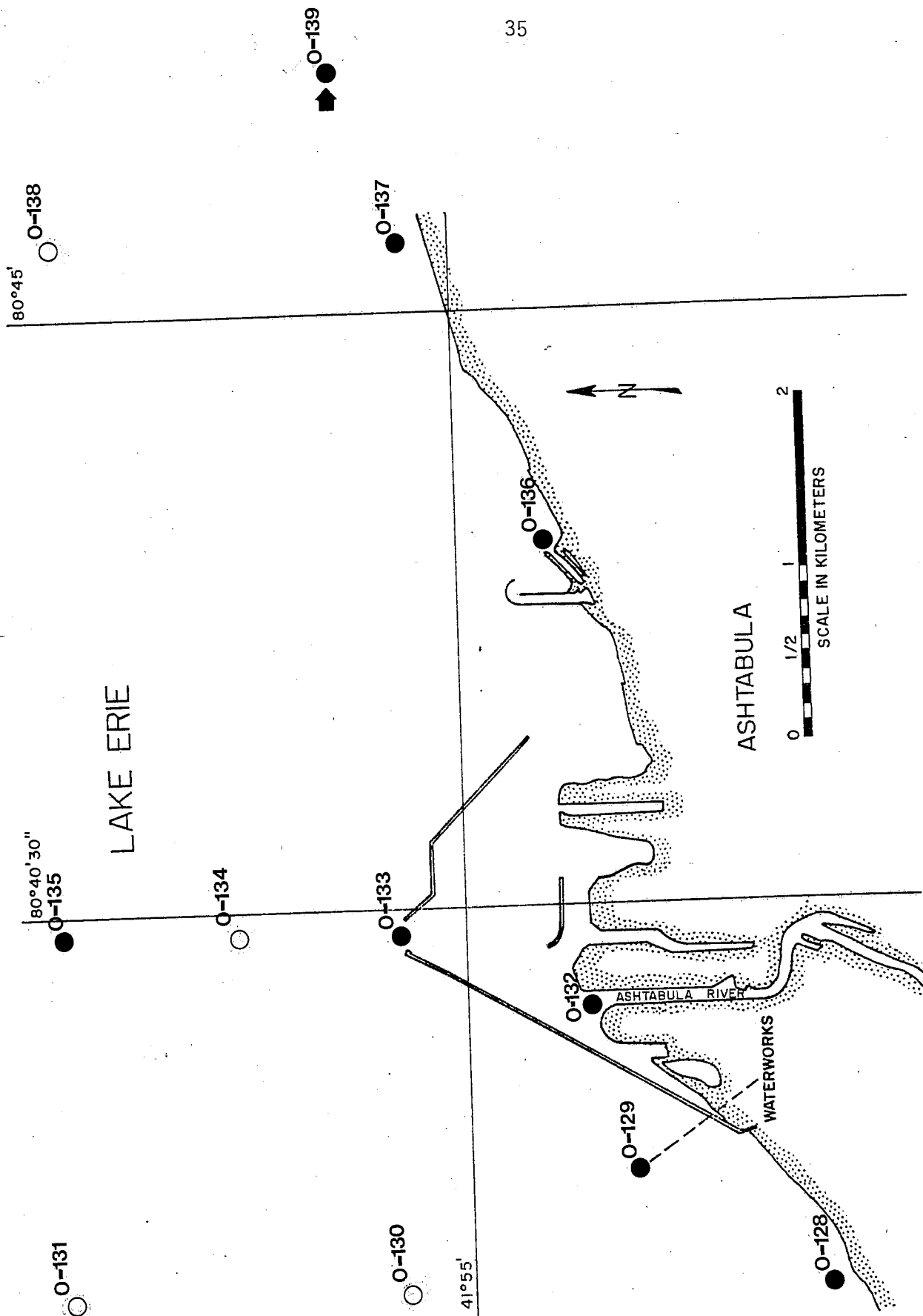


FIGURE 17

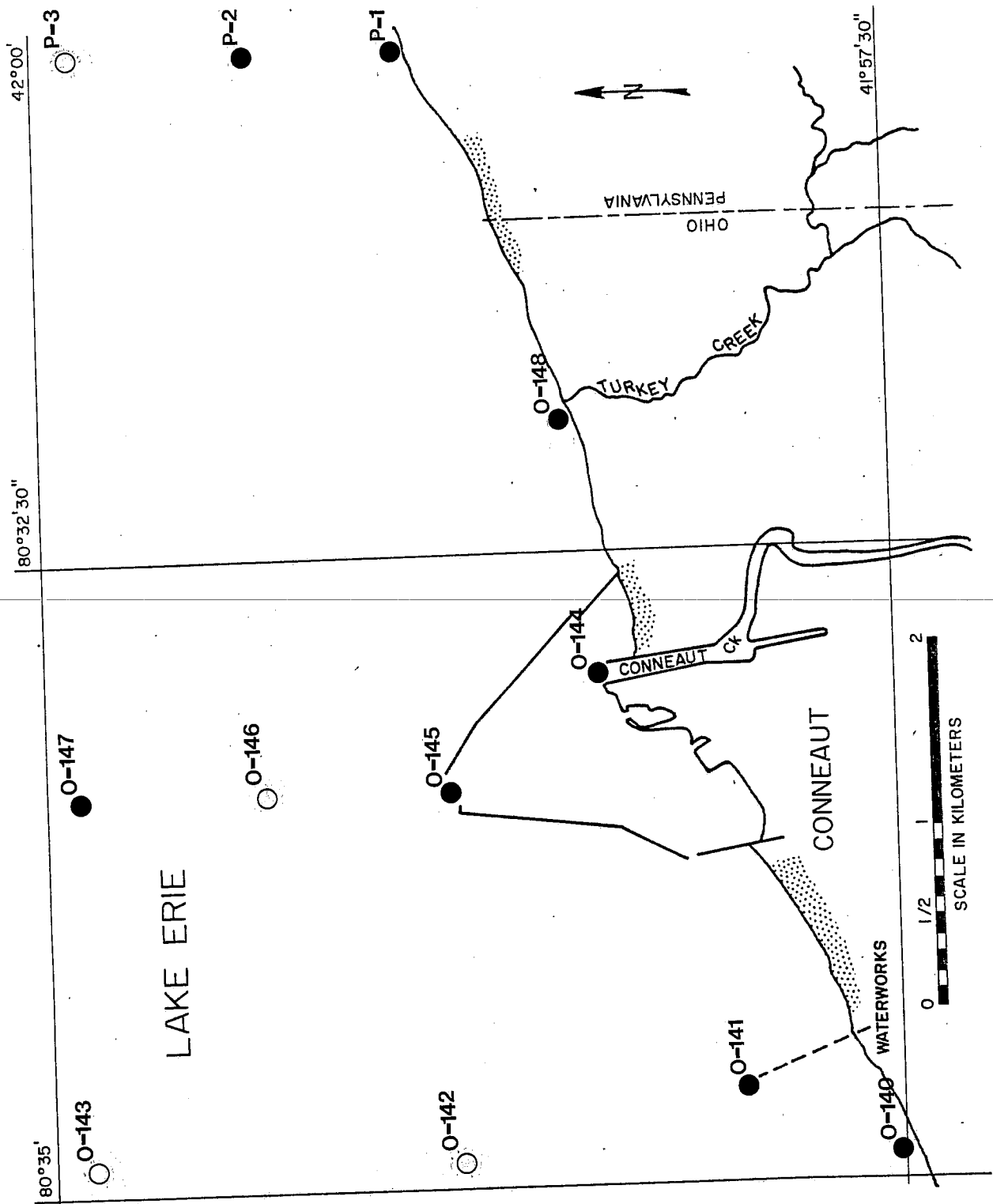


FIGURE 18

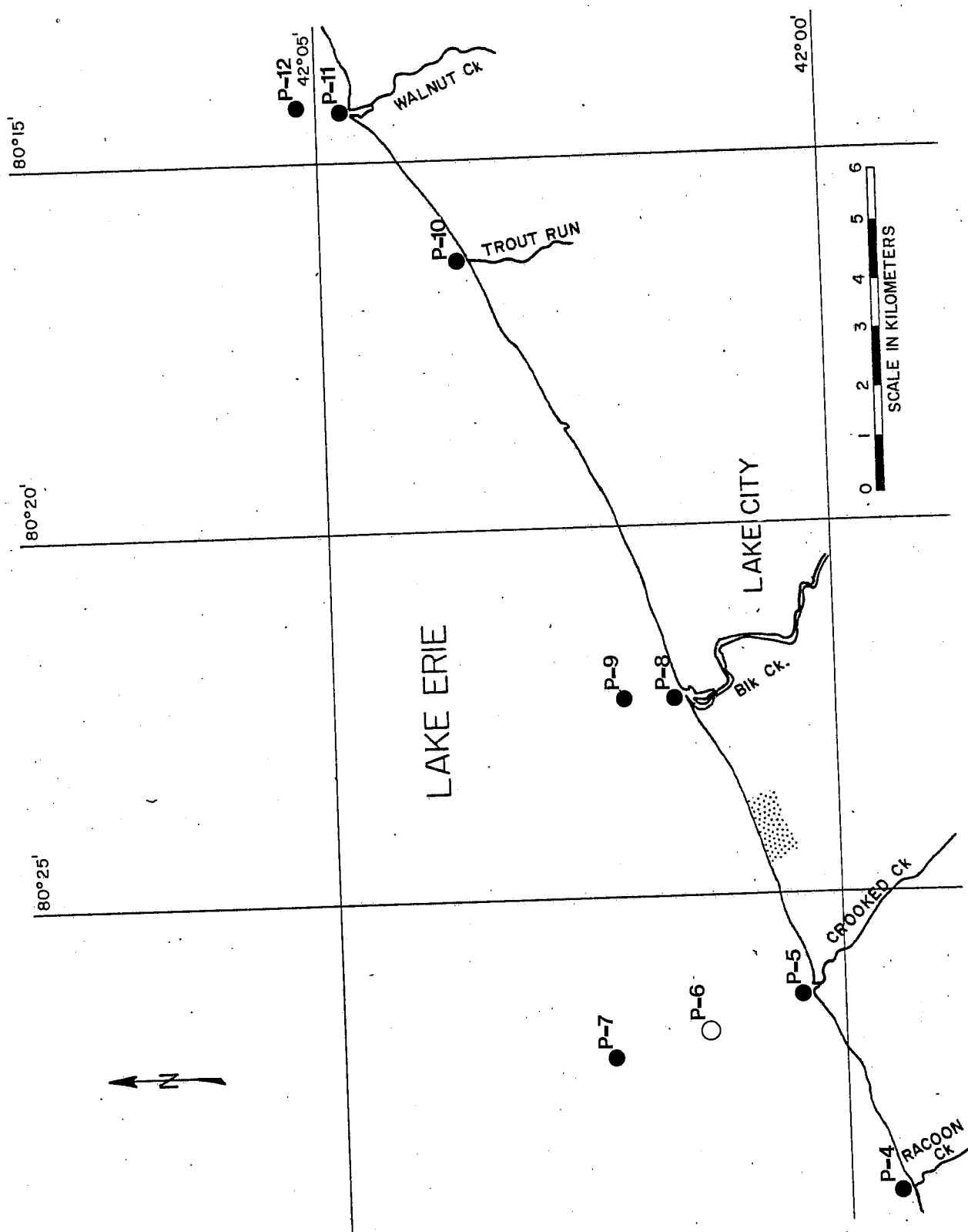


FIGURE 19

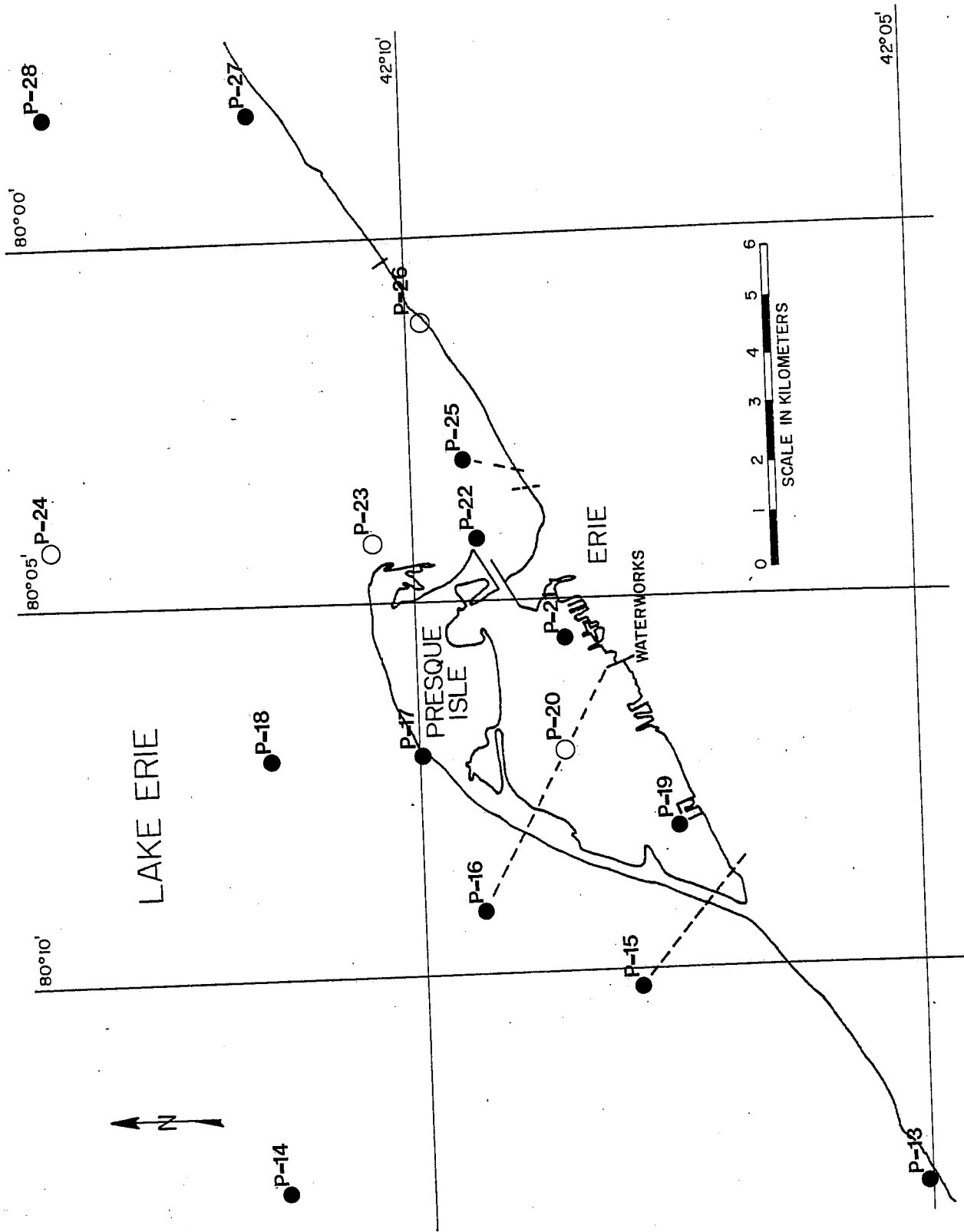


FIGURE 20

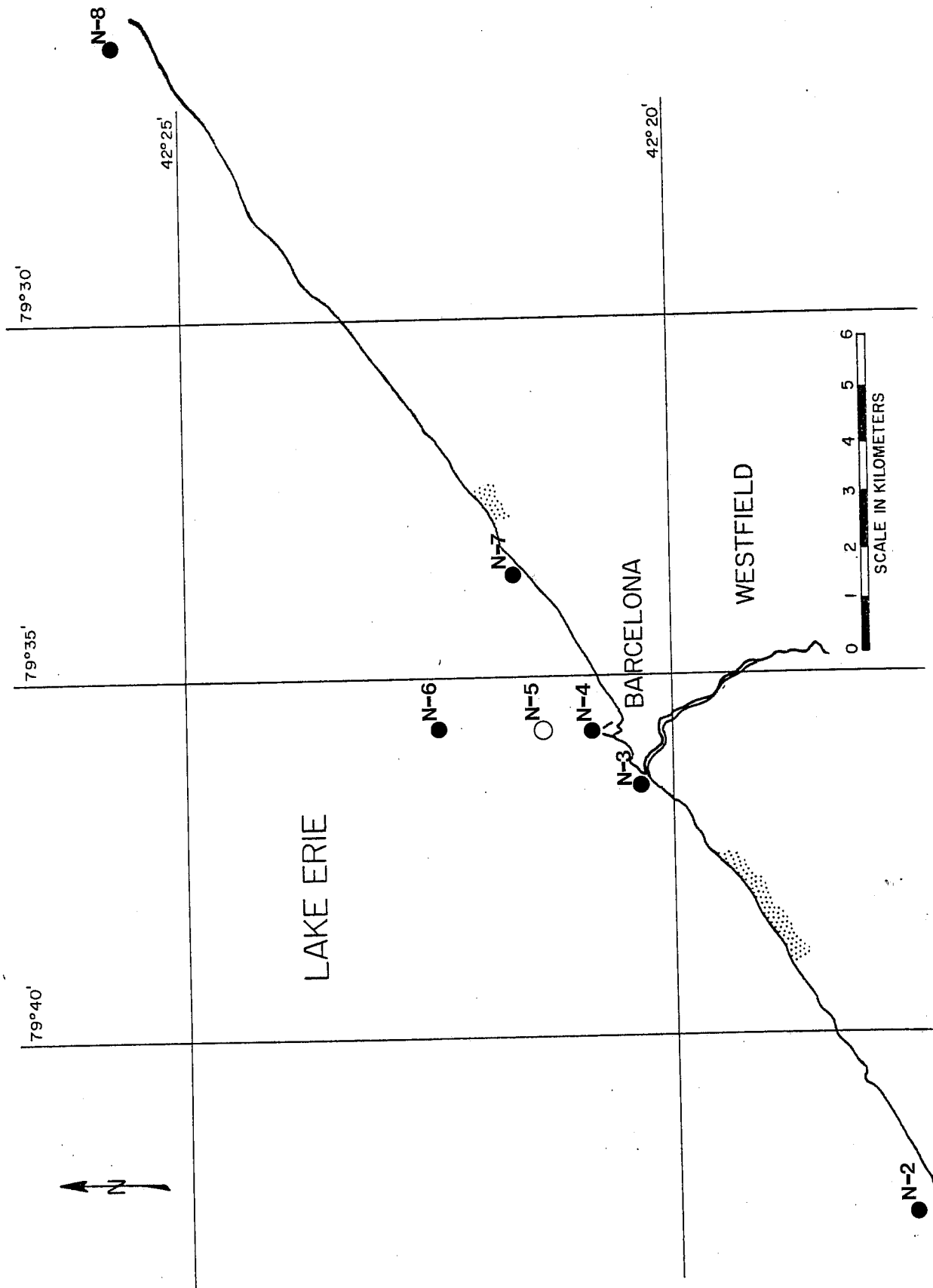


FIGURE 21

N-1

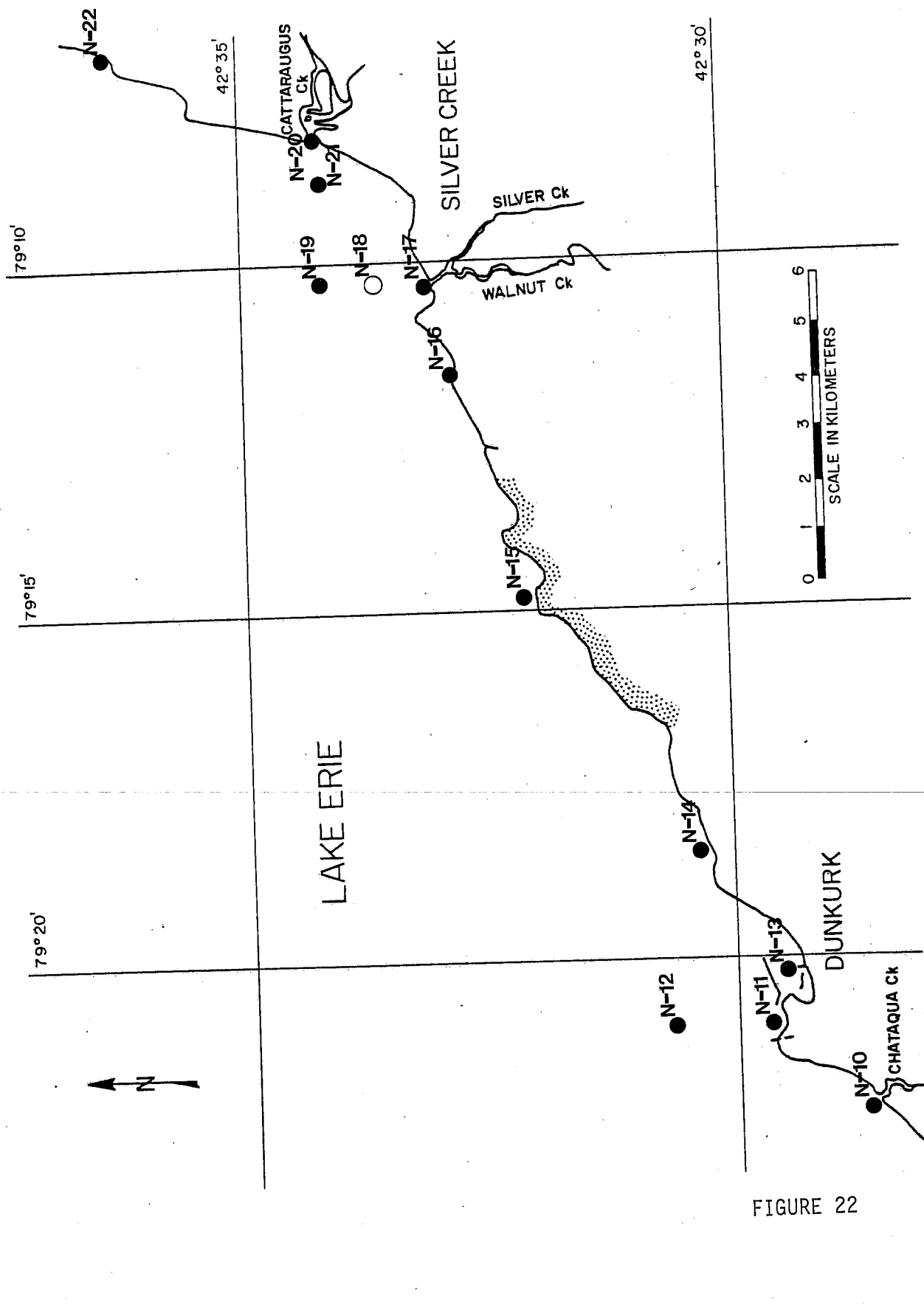


FIGURE 22

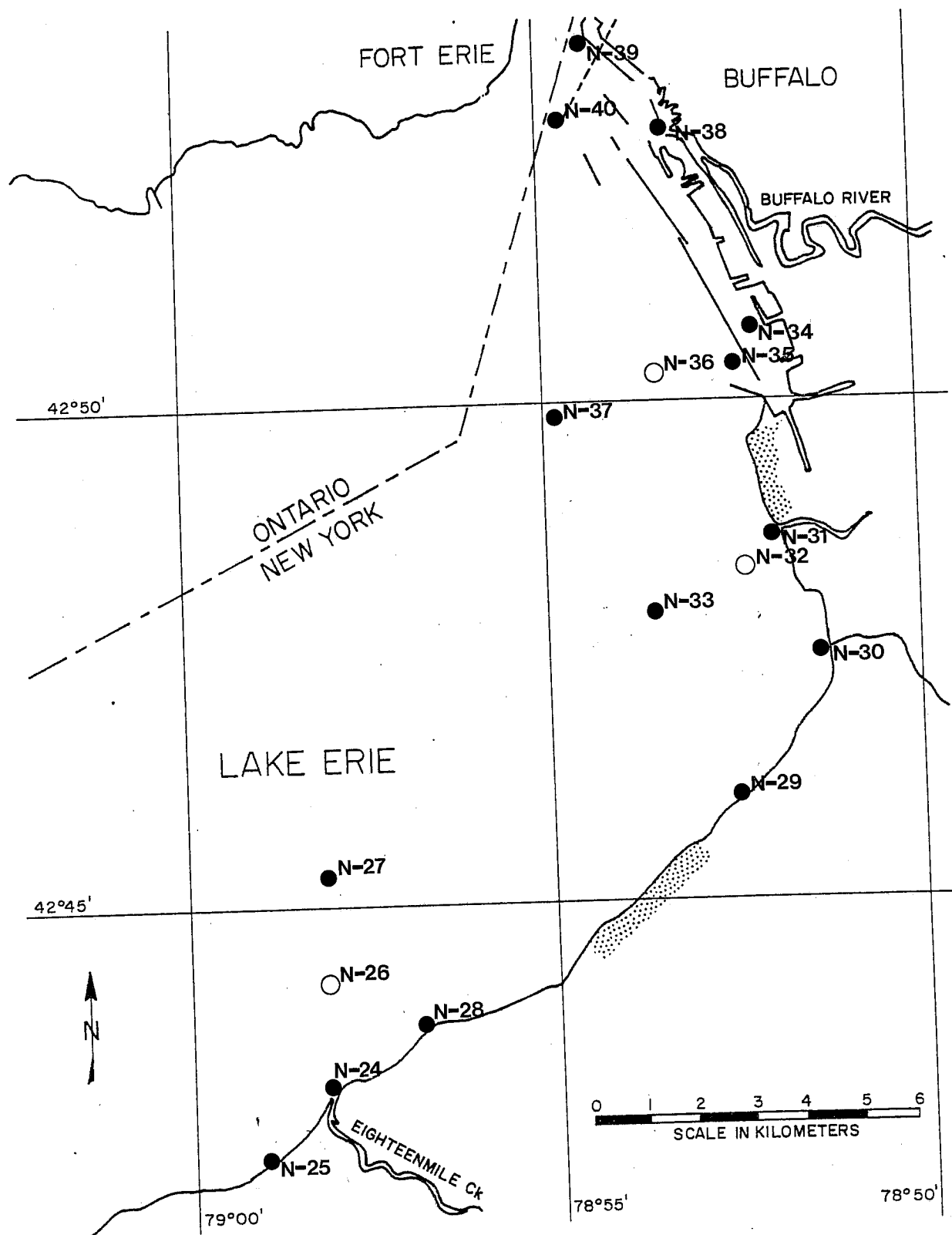


FIGURE 23

APPENDIX A
COMMON PARAMETER LIST
FOR THE GREAT LAKES

COMMON PARAMETER LIST FOR THE GREAT LAKES

TYPE	PARAMETER	MAIN LAKE				NEARSHORE				WATER INTAKES				TRIBUTARIES				CONNECTING CHANNELS				ATMOSPHERIC				
		SS	AS	SC	AC	OBJ.	SS	AS	SC	AC	OBJ.	SS	AS	SC	AC	OBJ.	SS	AS	SC	AC	OBJ.	SS	AS	SC	AC	OBJ.
Physical	Flow																									
	Water Temperature																									
	Wind Speed & Direction																									
	Current Speed & Direction																									
	Secchi Depth																									
	Depth (extinction)																									
	Aesthetics (oil, foam, etc.)																									
	Taste and Odour																									
	Colour																									
	Turbidity																									
Chemical (Inorganic)	Suspended Solids																									
	Asbestos (Lake Superior Only)																									
	Dissolved Oxygen																									
	pH																									
	Specific Conductance																									
	Alkalinity																									
	Total Phosphorus																									
	Soluble Reactive P.																									
	Total Kjeldahl																									
	Nitrogen																									
	Total Ammonia N																									
	Total NO ₃ +NO ₂ -N																									
	Total Dissolved																									
	Silicate																									
	Chloride																									
	Fluoride																									
	Sulphate																									
	Major Ions																									
	Total Aluminum																									

KEY: SS - Selective Stations
AS - All Stations
SC - Selective Cruises
AC - All Cruises
OBJ - Surveillance Subcommittee Surveillance Plan
Rationale - Objectives. (1, and/or 2, and/or 3)

COMMON PARAMETER LIST FOR THE GREAT LAKES

TYPE	PARAMETER	MAIN LAKE				NEARSHORE				WATER INTAKES				TRIBUTARIES				CONNECTING CHANNELS				ATMOSPHERIC				
		SS	AS	SC	AC	OBJ.	SS	AS	SC	AC	OBJ.	SS	AS	SC	AC	OBJ.	SS	AS	SC	AC	OBJ.	SS	AS	SC	AC	OBJ.
Chemical (Inorganic) (Cont'd)	Total Arsenic	X				1,2,3	X				1,2,3	X				2,3	X				1,2,3	X				2,3
	Total Cadmium	X	X	X	X	1,2,3	X	X	X	X	1,2	X	X	X	X	2,3	X	X	X	X	1,2,3	X	X	X	X	2,3
	Total Chromium	X	X	X	X	1,2,3	X	X	X	X	1,2	X	X	X	X	2,3	X	X	X	X	1,2,3	X	X	X	X	2,3
	Total Copper	X	X	X	X	1,2,3	X	X	X	X	1,2	X	X	X	X	2,3	X	X	X	X	1,2,3	X	X	X	X	2,3
	Total Iron	X	X	X	X	1,2,3	X	X	X	X	1,2	X	X	X	X	2,3	X	X	X	X	1,2,3	X	X	X	X	2,3
	Total Lead	X	X	X	X	1,2,3	X	X	X	X	1,2	X	X	X	X	2,3	X	X	X	X	1,2,3	X	X	X	X	2,3
	Total Manganese	X	X	X	X	1,2,3	X	X	X	X	1,2	X	X	X	X	2,3	X	X	X	X	1,2,3	X	X	X	X	2,3
	Total Mercury	X	X	X	X	1,2,3	X	X	X	X	1,2	X	X	X	X	2,3	X	X	X	X	1,2,3	X	X	X	X	2,3
	Total Nickel	X	X	X	X	1,2,3	X	X	X	X	1,2	X	X	X	X	2,3	X	X	X	X	1,2,3	X	X	X	X	2,3
	Total Selenium	X	X	X	X	1,2,3	X	X	X	X	1,2	X	X	X	X	2,3	X	X	X	X	1,2,3	X	X	X	X	2,3
	Total Vanadium	X	X	X	X	1,2,3	X	X	X	X	1,2	X	X	X	X	2,3	X	X	X	X	1,2,3	X	X	X	X	2,3
	Total Zinc	X	X	X	X	1,2,3	X	X	X	X	1,2	X	X	X	X	2,3	X	X	X	X	1,2,3	X	X	X	X	2,3
	Radioactivity (Refer to Appendix "D" WQB 1976 Report)																									
Chemical (Organic)	Aldrin/Dieldrin										2,3	X	X	X	X	2,3						X	X	X	X	2,3
	Chlordane										2,3	X	X	X	X	2,3						X	X	X	X	2,3
	Cyanide										2,3	X	X	X	X	2,3						X	X	X	X	2,3
	Diazinon										2,3	X	X	X	X	2,3						X	X	X	X	2,3
	DDT & Metabolites										2,3	X	X	X	X	2,3						X	X	X	X	2,3
	Endrin										2,3	X	X	X	X	2,3						X	X	X	X	2,3
	Heptachlor										2,3	X	X	X	X	2,3						X	X	X	X	2,3
	Lindane										2,3	X	X	X	X	2,3						X	X	X	X	2,3
	Methoxychlor										2,3	X	X	X	X	2,3						X	X	X	X	2,3
	Mirex										2,3	X	X	X	X	2,3						X	X	X	X	2,3
	Parathion										1,2,3	X	X	X	X	1,2,3						X				2,3
	Phenol										1,2,3	X	X	X	X	1,2,3						X	X	X	X	2,3
	Phthalic Acid Esters										1,2,3	X	X	X	X	1,2,3						X	X	X	X	2,3
PCB										1,2,3	X	X	X	X	1,2,3						X	X	X	X	2,3	
TOC										3	X	X	X	X	3						X	X	X	X	2,3	
Dissolved Organic Carbon										3	X	X	X	X	3						X	X	X	X	2,3	

KEY: SS - Selective Stations SC - Selective Cruises OBJ - Surveillance Subcommittee Surveillance Plan
AS - All Stations AC - All Cruises Rationale - Objectives. (1, and/or 2, and/or 3)

COMMON PARAMETER LIST FOR THE GREAT LAKES

TYPE	PARAMETER	MAIN LAKE			NEARSHORE			WATER INTAKES			TRIBUTARIES			CONNECTING CHANNELS			ATMOSPHERIC				
		SS	AS	SC	AC	OBJ.	SS	AS	SC	AC	OBJ.	SS	AS	SC	AC	OBJ.	SS	AS	SC	AC	OBJ.
Chemical (Organic) (Cont'd)	Toxaphene																				
	Organic Scan																				
	Heterotrophs																				
	Total Coliforms	X				2,3	X														
	Fecal Coliforms	X				1,2,3	X														
Aquatic Biology	Fecal Streptococci	X				1,2,3	X														
	P. Aeruginosa					1,2,3	X														
	Phytoplankton	X				1,2,3	X														
	Zooplankton	X				1,2,3	X														
	Chlorophyll "a"/	X				2,3	X														
	Phaeophytin																				
	Cladophora																				
	Benthic Organisms	X				2,3	X														
	Loss on Ignition	X				2,3	X														
	Oil/Grease	X				2,3	X														
Sediment	Aldrin/Dieldrin	X				2,3	X														
	Chlordane	X				2,3	X														
	DDT & Metabolites	X				2,3	X														
	Endrin	X				2,3	X														
	Heptachlor	X				2,3	X														
	Lindane	X				2,3	X														
	Methoxychlor	X				2,3	X														
	Mirex	X				2,3	X														
	Parathion	X				2,3	X														
	Phenol	X				2,3	X														
	Phthalic Acid Esters	X				2,3	X														
	PCB	X				2,3	X														
	Total Aluminum	X				2,3	X														
	Total Arsenic	X				2,3	X														
	Total Cadmium	X				2,3	X														

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COMMON PARAMETER LIST FOR THE GREAT LAKES

TYPE	PARAMETER	MAIN LAKE			NEARSHORE			WATER INTAKES			TRIBUTARIES			CONNECTING CHANNELS			ATMOSPHERIC				
		SS	AS	SC	AC	OBJ.	SS	AS	SC	AC	OBJ.	SS	AS	SC	AC	OBJ.	SS	AS	SC	AC	OBJ.
Sediment (Cont'd)	Total Chromium	X		X		2,3	X		X		2,3	X		X		2,3					
	Total Copper	X		X		2,3	X		X		2,3	X		X		2,3					
	Total Iron	X		X		2,3	X		X		2,3	X		X		2,3					
	Total Lead	X		X		2,3	X		X		2,3	X		X		2,3					
	Total Manganese	X		X		2,3	X		X		2,3	X		X		2,3					
	Total Mercury	X		X		2,3	X		X		2,3	X		X		2,3					
	Total Nickel	X		X		2,3	X		X		2,3	X		X		2,3					
	Total Selenium	X		X		2,3	X		X		2,3	X		X		2,3					
	Total Vanadium	X		X		2,3	X		X		2,3	X		X		2,3					
	Total Zinc	X		X		2,3	X		X		2,3	X		X		2,3					
	Total Phosphorus	X		X		2,3	X		X		2,3	X		X		2,3					
	Soluable Reactive P	X		X		2,3	X		X		2,3	X		X		2,3					
	Total Kjeldahl	X		X		2,3	X		X		2,3	X		X		2,3					
Fish	Nitrogen																				
	Total Ammonia N	X		X		2,3	X		X		2,3	X		X		2,3					
	Total NO ₃ +NO ₂ -N	X		X		2,3	X		X		2,3	X		X		2,3					
	Grain Size																				
	Radioactivity																				
	(Refer to 1976 WQB Appendix - D)																				
	Aldrin/Dieldrin	X		X		2,3	X		X		2,3	X		X		2,3					
	Chlordane	X		X		2,3	X		X		2,3	X		X		2,3					
	Cyanide	X		X		2,3	X		X		2,3	X		X		2,3					
	Diazinon	X		X		2,3	X		X		2,3	X		X		2,3					
	DDT & Metabolites	X		X		2,3	X		X		2,3	X		X		2,3					
	Endrin	X		X		2,3	X		X		2,3	X		X		2,3					
	Heptachlor	X		X		2,3	X		X		2,3	X		X		2,3					
	Lindane	X		X		2,3	X		X		2,3	X		X		2,3					
	Methoxychlor	X		X		2,3	X		X		2,3	X		X		2,3					
	Mirex	X		X		2,3	X		X		2,3	X		X		2,3					
	Parathion	X		X		2,3	X		X		2,3	X		X		2,3					
Phthalic Acid Esters	X		X		2,3	X		X		2,3	X		X		2,3						
PCB	X		X		2,3	X		X		2,3	X		X		2,3						

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COMMON PARAMETER LIST FOR THE GREAT LAKES

TYPE	PARAMETER	MAIN LAKE				NEARSHORE				WATER INTAKES				TRIBUTARIES				CONNECTING CHANNELS				ATMOSPHERIC					
		SS	AS	SC	AC	OBJ.	SS	AS	SC	AC	OBJ.	SS	AS	SC	AC	OBJ.	SS	AS	SC	AC	OBJ.	SS	AS	SC	AC	OBJ.	
Fish (Cont'd)	Total Mercury	X				2,3	X				2,3	X					X					X				2,3	
	Total Arsenic	X	X	X	X	2,3	X	X	X	X	2,3	X	X	X	X		X	X	X	X		X	X	X	X	2,3	
	Total Cadmium	X	X	X	X	2,3	X	X	X	X	2,3	X	X	X	X		X	X	X	X		X	X	X	X	2,3	
	Total Lead	X	X	X	X	2,3	X	X	X	X	2,3	X	X	X	X		X	X	X	X		X	X	X	X	2,3	
	Total Selenium	X	X	X	X	2,3	X	X	X	X	2,3	X	X	X	X		X	X	X	X		X	X	X	X	2,3	
	Total Zinc	X	X	X	X	2,3	X	X	X	X	2,3	X	X	X	X		X	X	X	X		X	X	X	X	2,3	
	Total Chromium	X	X	X	X	2,3	X	X	X	X	2,3	X	X	X	X		X	X	X	X		X	X	X	X	2,3	
	Total Copper	X	X	X	X	2,3	X	X	X	X	2,3	X	X	X	X		X	X	X	X		X	X	X	X	2,3	
	Total Iron	X	X	X	X	2,3	X	X	X	X	2,3	X	X	X	X		X	X	X	X		X	X	X	X	2,3	
	Total Manganese	X	X	X	X	2,3	X	X	X	X	2,3	X	X	X	X		X	X	X	X		X	X	X	X	2,3	
	Total Nickel	X	X	X	X	2,3	X	X	X	X	2,3	X	X	X	X		X	X	X	X		X	X	X	X	2,3	
	Total Vanadium	X				2,3	X				2,3	X					X					X				2,3	
	Tainting																										
	Organic Scan	X				2,3	X				2,3	X					X					X					2,3
Tissue Bank	X	X			2,3	X	X			2,3	X	X				X	X				X	X				2,3	
Wildlife	Aldrin/Dieldrin	X				2,3	X				2,3	X					X					X				2,3	
	Chlordane	X	X	X	X	2,3	X	X	X	X	2,3	X	X	X	X		X	X	X	X		X	X	X	X	2,3	
	Cyanide	X	X	X	X	2,3	X	X	X	X	2,3	X	X	X	X		X	X	X	X		X	X	X	X	2,3	
	Diazinon	X	X	X	X	2,3	X	X	X	X	2,3	X	X	X	X		X	X	X	X		X	X	X	X	2,3	
	DDT & Metabolites	X	X	X	X	2,3	X	X	X	X	2,3	X	X	X	X		X	X	X	X		X	X	X	X	2,3	
	Endrin	X	X	X	X	2,3	X	X	X	X	2,3	X	X	X	X		X	X	X	X		X	X	X	X	2,3	
	Heptachlor	X	X	X	X	2,3	X	X	X	X	2,3	X	X	X	X		X	X	X	X		X	X	X	X	2,3	
	Lindane	X	X	X	X	2,3	X	X	X	X	2,3	X	X	X	X		X	X	X	X		X	X	X	X	2,3	
	Methoxychlor	X	X	X	X	2,3	X	X	X	X	2,3	X	X	X	X		X	X	X	X		X	X	X	X	2,3	
	Mirex	X	X	X	X	2,3	X	X	X	X	2,3	X	X	X	X		X	X	X	X		X	X	X	X	2,3	
	Parathion	X	X	X	X	2,3	X	X	X	X	2,3	X	X	X	X		X	X	X	X		X	X	X	X	2,3	
	Phthalic Acid Esters	X	X	X	X	2,3	X	X	X	X	2,3	X	X	X	X		X	X	X	X		X	X	X	X	2,3	
	PCB	X	X	X	X	2,3	X	X	X	X	2,3	X	X	X	X		X	X	X	X		X	X	X	X	2,3	
	Total Mercury	X	X	X	X	2,3	X	X	X	X	2,3	X	X	X	X		X	X	X	X		X	X	X	X	2,3	
	Total Arsenic	X	X	X	X	2,3	X	X	X	X	2,3	X	X	X	X		X	X	X	X		X	X	X	X	2,3	
	Total Cadmium	X	X	X	X	2,3	X	X	X	X	2,3	X	X	X	X		X	X	X	X		X	X	X	X	2,3	
	Total Lead	X	X	X	X	2,3	X	X	X	X	2,3	X	X	X	X		X	X	X	X		X	X	X	X	2,3	
	Total Selenium	X	X	X	X	2,3	X	X	X	X	2,3	X	X	X	X		X	X	X	X		X	X	X	X	2,3	

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TYPE	PARAMETER	MAIN LAKE				NEARSHORE				WATER INTAKES				TRIBUTARIES				CONNECTING CHANNELS				ATMOSPHERIC				
		SS	AS	SC	AC	OBJ.	SS	AS	SC	AC	OBJ.	SS	AS	SC	AC	OBJ.	SS	AS	SC	AC	OBJ.	SS	AS	SC	AC	OBJ.
Wildlife (Cont'd)	Total Zinc	X		X		2,3	X		X		2,3						X					X				2,3
	Total Chromium	X		X		2,3	X		X		2,3						X					X				2,3
	Total Copper	X		X		2,3	X		X		2,3						X					X				2,3
	Total Iron	X		X		2,3	X		X		2,3						X					X				2,3
	Total Manganese	X		X		2,3	X		X		2,3						X					X				2,3
	Total Nickel	X		X		2,3	X		X		2,3						X					X				2,3
	Total Vanadium	X		X		2,3	X		X		2,3						X					X				2,3
	Tainting						X		X		2,3						X					X				2,3
	Organic Scan	X		X		2,3	X		X		2,3						X					X				2,3
	Tissue Bank	X		X		2,3	X		X		2,3						X					X				2,3

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APPENDIX B
SUMMARY OF PARAMETER SELECTIONS
AND FREQUENCY OF MEASUREMENTS
AT LAKE ERIE NEARSHORE SAMPLING STATIONS

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PARAMETER SELECTIONS AND FREQUENCIES AT LAKE ERIE NEARSHORE SAMPLING LOCATIONS

AT LAKE ERIE NEARSHORE SAMPLING LOCATIONS											
Parameter \ Location	51						Remarks	Wheatley Harbour Problem Area Assessment	Grand River Problem Area Assessment		
	West Basin Annual	West Basin Intensive	Central Basin Annual	Central Basin Intensive	East Basin Annual	East Basin Intensive					
CHEMICAL - ORGANIC											
Aldrin/Dieldrin	-	1	-	1	-	1	SS				
Chlordane	-	1	-	1	-	1	SS				
Cyanide	-	1	-	1	-	1	SS				
Diazinon	-	1	-	1	-	1	SS				
DDT & Metabolites	-	1	-	1	-	1	SS				
Endrin	-	1	-	1	-	1	SS				
Heptachlor	-	1	-	1	-	1	SS				
Lindane	-	1	-	1	-	1	SS				
Methoxychlor	-	1	-	1	-	1	SS				
Mirex	-	1	-	1	-	1	SS				
Parathion	-	1	-	1	-	1	SS				
Phenol	-	1	b	1	-	1	SS	2			
Phthalic Acid Esters											
PCB	-	1	-	1	-	1	SS				
TOC	1	1	-	1	-	1	SS	2			
Dissolved Organic Carbon	-	1	-	1	-	1	SS				
Toxaphene	-	1	-	1	-	1	SS				
Organic Scan	-	1	-	1	-	1	SS				
AQUATIC BIOLOGY											
Heterotrophs	3	4	3	4	3	4	SS				
Total Coliforms			c	c	d	d		2	1		
Fecal Coliforms	1	2	1	2	1	2	SS	2	1		
Fecal Streptococci	1	2	1	2	1	2	SS	2	1		
P. Aeruginosa	1	2	1	2	1	2	SS	2			
Phytoplankton	3	4	3	4	3	4	SS				
Zooplankton	-	4	-	4	-	4	SS				
Chlorophyll "a"/Phaeophytin	3	4	3	4	3	4		2	3		
Cladophora											
SEDIMENT											
Benthic Organisms	-	4	-	4	-	4	SS				
Loss on Ignition	-	1	-	1	-	1					
Oil & Grease	-	1	-	1	-	1	SS				
Aldrin/Dieldrin	-	1	-	1	-	1	SS				
Chlordane	-	1	-	1	-	1	SS				
DDT & Metabolites	-	1	-	1	-	1	SS				
Endrin	-	1	-	1	-	1	SS				
Heptachlor	-	1	-	1	-	1	SS				
Lindane	-	1	-	1	-	1	SS				
Methoxychlor	-	1	-	1	-	1	SS				
Mirex	-	1	-	1	-	1	SS				
Parathion	-	1	-	1	-	1	SS				

[illegible]