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UNITED STATES DEPARTMENT OF THE INTERIOR  
UNITED STATES GEOLOGICAL SURVEY  
BRANCH OF ATLANTIC MARINE GEOLOGY  
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NPTN  
93007

UNITED STATES GOVERNMENT MEMORANDUM

Date: May 11, 1993  
To: Distribution  
From: David S. Foster  
Subject: Cruise Report

Vessel: RV Neptune (Hydrographic Survey Co.)  
Cruise number: NPTN93-1  
Project: Regional Great Lakes Mapping  
Funding Agency: NOAA  
Area of Operations: Kenosha to South Milwaukee, Wisc.

Dates and Ports:      May 1      Chicago, Ill. (mobilize)  
                         May 2-3    Winthrop Harbor, Ill.  
                         May 4-7    Racine, Wisc.  
                         May 8      Chicago, Ill. (demobilize)

Purpose:                Reconnaissance bathymetric, high-resolution seismic, and sidescan sonar survey and detailed sidescan sonar mosaic surveys to map the lake floor and stratigraphic framework between Kenosha and South Milwaukee, Wisc.

Personnel:            D. Foster, BAMG, Woods Hole, MA (Chief Scientist)  
                         D. Folger, BAMG, Woods Hole, MA (Scientist)  
                         A. Brill, BAMG, Woods Hole (Scientist)  
                         A. Schneider, Univ. of Wisconsin (Scientist)  
                         K. Parolski, BAMG, Woods Hole, MA (Technician)  
                         B. Irwin, BAMG, Woods Hole, MA (Navigator)  
                         V. Cross, BAMG, Woods Hole, MA (Technician)

Equipment:           Klein sidescan sonar (100 kHz)  
                         - QMIPS digital acquisition system  
                         - Benthos DS7000 acoustic range  
  
                         Boomer seismic profiling system  
                         - Hunttec surface tow boomer source  
                         - ITI and Benthos AQ4 streamers  
                         - Masscomp digital seismic acquisition system

Datasonics 3.5 kHz profiling system

EPC 9800 thermal recorder

Odom Echotrack echosounder

Ashtec DGPS navigation system

Data Collected

The geophysical data was collected over 263 km of tracklines (see attached map). Eleven west-east lines extended from the coast (minimum water depth 5 m) to 6.5-10 km offshore (maximum water depth about 30 m). Several tie lines were run between these lines. A 48 km tie line was run parallel to the coast in 10-15 m water depths. Two sidescan mosaic surveys were completed with lines spaced at 125 m. The mosaic area south of Kenosha, Wisc. is 7-km long and 1-km wide. The mosaic area north of Wind Point is 5-km long and 1-km wide.

The vessel was positioned with DGPS and a backup LORAN system. A differential GPS reference station was installed at Wind Point. Position accuracy using DGPS was within 5 m.

Navigation:                   -3.5 in. diskettes  
                              -printouts 5-min. fix interval

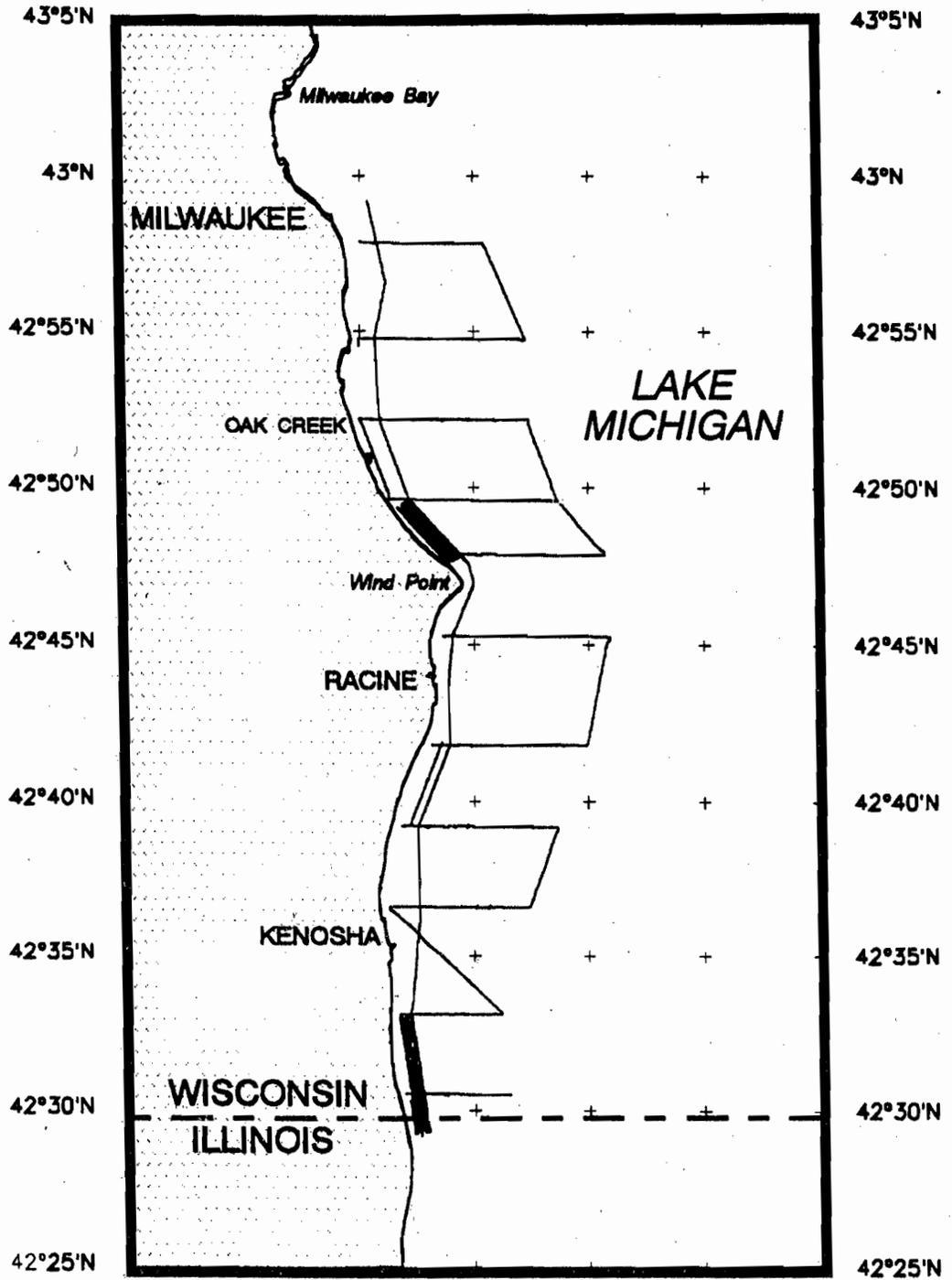
Bathymetry:                   -Two rolls analog paper  
                              -Digital soundings logged on navigation  
                                  diskettes

Sidescan sonar:               -Four rolls Raytheon TDU paper  
                              -Six 8-mm tapes (QMIPS digital)

Seismic:                      -Two rolls EPC thermal analog paper  
                                  two channels (boomer and 3.5 kHz)  
                              -Ten 8-mm tapes (digital SEGY format)

cc:	B. Butman	T. O'Brien	A. Sallenger	J. Williams
	D. Folger	B. Irwin	✓ N. Soderberg	K. Parolski
	A. Brill	V. Cross	A. Schneider	C. Brown
	R. Laton	D. Carroll	D. Seidel	M. Chrzastowski
	D. Bauer	L. Clayton	W. Fitzpatric	D. Mickelson
	H. Parrott	J. Robertson		

88°W 87°55'W 87°50'W 87°45'W 87°40'W 87°35'W 87°30'W



Map showing the completed U.S. Geological Survey's geophysical survey tracklines for the Regional Great Lakes Mapping Project in May 1993. Solid rectangles show detailed sidescan sonar mosaic areas.