Serial #90025 8-16-90

Cruise Report

August 13, 1990

Boat name: R/V Neeskay

Cruise number: NE–1–90

Project: Southern Lake Michigan

Area of Operations: Nearshore zone off Fort Logan and Illinois Beach State Park; North Point Marina

Dates: August 1–8, 1990; 12 hr/day operations from North Point Marina, Il and Waukegan, Il

Chief Scientist: James S. Booth, USGS, Woods Hole

Cruise Personnel: William J. Winters, USGS, Woods Hole
Ken Parolski, USGS, Woods Hole
Ron Circé, USGS, Reston
Dann Blackwood, USGS, Woods Hole

Purpose of Cruise: Collect In situ data on sand density, statigraphy and penetration resistance of lake floor, and photograph lake floor (SCUBA divers); conduct bathymetric survey and collect grab and gravity core samples of nearshore zone; examine wave and sand transport effects on and around engineering structures

Navigation: Miniranger, Loran-C

Scientific equipment: In situ volumetric sampler, Miniature Standard Penetrometer, Diver corer, Camera, Shipek grab sampler, Gravity Corer, Odem 3200 Echo Trac, Miniranger Falcon IV system, Megapulse 500 Loran-C system

Cruise Information: Days: 8
Kilometers bathymetric data: ≈ 200 (38 lines)
In Situ (Scuba diver) Stations: 8
Grab or Core Stations: 9
Station data: see attached sheet
Map of study area: see attached sheet

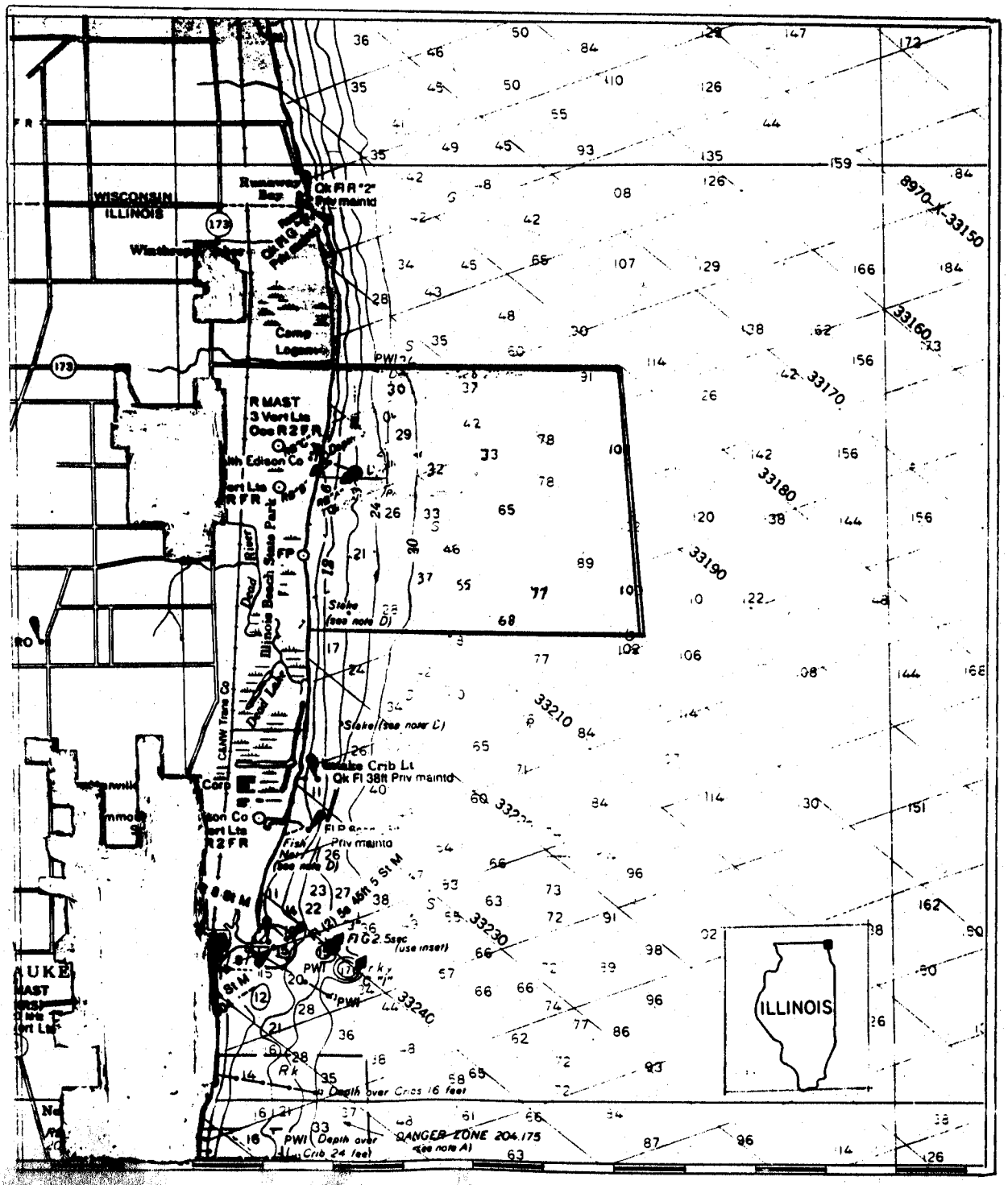
Southern Lake Michigan Project

Cruise: R/V Neeskay Area: Illinois Beach State Park

Raw Station Data

Date	Station	Type	X* (ft)	Y* (ft)	Latitude (N)	Longitude (W)	Depth (ft)	Depth (m)	Sample Description
8/4/90	1	In Situ	643,620	2,098,570	42° 25' 37"	87° 48' 05"	12.5	3.81	≈15 cm fine to very fine well-sorted sand over 2–4 cm mixed sand & gravel; very fine sand to silt(?) below gravel layer
	2	In Situ	644,986	2,098,723	42° 25' 38"	87° 47' 47"	20.0	6.10	≈18 cm brown, fine to very fine well-sorted sand, then "shell hash" containing bivalves and gastropods; beneath this is gray, very fine, muddy sand
	3	In Situ	647,243	2,098,745	42° 23' 38"	87° 47' 17"	26.3	8.02	10–12 cm brown, very fine sand; shells on surface; gravel (shells) at base of top layer virtually absent; gray very fine sand below
8/7/90	4	In Situ	650,012	2,098,740	42° 25' 36"	87° 46' 40"	35.4	10.80	Very fine (silty?) sand; 2–4-cm-high ripples with 10–15 cm wavelengths sand liquefies upon disturbance by penetrometer
	5	In Situ	649,779	2,098,136	42° 25' 32"	87° 46' 43"	35.0	10.67	Very fine sand (silty?); finest size fraction remains in suspension more than several minutes; 2–5 -cm-high ripples with 8–12 cm wavelength
	6	In Situ	647,104	2,097,950	42° 25' 29"	87° 47' 19"	26.5	8.08	Very fine brown sand; steep ripples 3–5 cm high with 10–15 cm wavelengths; thin band of heavy minerals just below crest of sand waves
	7	In Situ	645,112	2,098,044	42° 25' 31"	87° 47' 46"	20.2	6.16	Light brown fine to very fine sand; small ripples (2–4 cm high) with wavelengths of 10–15 cm; 3-cm-high plants in bottom moving with oscillatory current
	8	In Situ	643,666	2,097,950	42° 25' 31"	87° 48' 05"	12.8	3.90	Fine to very fine sand; 2–3-cm-high ripples with 8–12 cm wavelengths; shells and shell fragments patchy on bottom
8/8/90	9	Grab	643,680	2,096,904	42° 25' 19"	87° 48' 04"	12.7	3.87	Fine to very fine light brown sand
	10	Grab	643,617	2,098,899	42° 25' 40"	87° 48' 05"	11.7	3.57	Fine to very fine sand; white, small shell fragments
	11	Grab	643,686	2,100,939	42° 26' 02"	87° 48' 04"	12.3	3.75	Medium to very fine sand, light brown to gray
	12	Grab	643,969	2,103,128	42° 26' 22"	87° 48' 00"	11.3	3.44	Medium to very fine sand, light brown to gray
	13	Grab	644,511	2,107,395	42° 27' 03"	87° 47' 51"	12.6	3.84	Medium to very fine sand, some shells on sediment surface, chert pebble
	14	Grab	644,972	2,109,289	42° 27' 22"	87° 47' 47"	13.5	4.11	Fine to very fine sand, light brown to gray, chert granule
	15	Grab	644,972	2,111,042	42° 27' 40"	87° 47' 47"	13.5	4.11	Fine to very fine sand, light brown to gray
	16	Grab	645,105	2,113,173	42° 28' 01"	87° 47' 44"	14.2	4.33	Fine to very fine sand, shell frags rare
	17	Grav. core	660,349	2,112,414	42° 27' 21"	87° 44' 21"	91.0	27.74	Core barrel empty, grease put around cutter captured fine to very fine sand

* Illinois State Plane Coordinate System (zone code 1201); values for stations 1, 5, 10–12, 15, 16 computed from Loran-c latitude and longitude values



Primary study area
R/V Neeskay
1 Aug. — 8 Aug., 1990