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Seismic-reflection and sidescan-sonar data collected on the Potomac River, Maryland and Virginia, during May 1979

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The U.S. Geological Survey collected 2,170 line kilometers of single-channel seismic-reflection profiles and sidescan-sonar records on the Potomac River during R/V NEECHO cruise NE-3-79 in May 1979 (Fig. 1, maps 1-4). The purposes of the survey were to define: (1) areas of sediment accumulation and erosion; (2) the thickness of Holocene sediments; (3) the internal structure of the near-surface sediments; (4) the types of bottom topography; and (5) the general geologic framework of the tidal river and estuary.

The survey utilized a variety of acoustic systems. Bottom data were obtained by using a Raytheon 1/ model DE-719 fathometer (200 kHz) and an EDO Western model 606 sidescan-sonar system (100 kHz). Subbottom data were collected with a 7-kHz Raytheon model PTR-106 system and a small airgun system (170-645 Hz band pass; 1 in^3 chamber). An EDO Western sidescan fish (model 604-150) coupled with a 2.5-kHz seismic-reflection system also was used during the longitudinal run up the river. The totals for the various kinds of data collected were 481 line kilometers each of fathometer, sidescan sonar, 7-kHz, and airgun records, and 246 line kilometers of 2.5-kHz records. Positional control for all tracklines was provided by

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1/ Use of trade names in this report is for descriptive purposes only and does not constitute endorsement by the U.S. Geological Survey.

This report is preliminary and has not been reviewed for conformity with U.S. Geological Survey editorial standards and stratigraphic nomenclature.

frequent radar fixes, by dead reckoning, and by sightings on buoys, landmarks, and other navigational aids.

The quality of the acoustic records varied with location in the river. Good fathometer and sidescan-sonar records were collected along all tracklines. However, because of the nature of the sediments within some sections of the river, the degree of subbottom penetration in many places was limited. In general, the subbottom penetration and resolution were poor in the upper and middle reaches of the river (Fig. 1, maps 3, 4), whereas the subbottom records from the lower reach usually were quite good (Fig. 1, maps 1, 2).

The original records may be examined at the U.S. Geological Survey, Woods Hole, MA 02543. Microfilm copies of the data are available for purchase from the National Geophysical and Solar-Terrestrial Data Center (NGSDC), Boulder, CO 80303.

Fig. 1

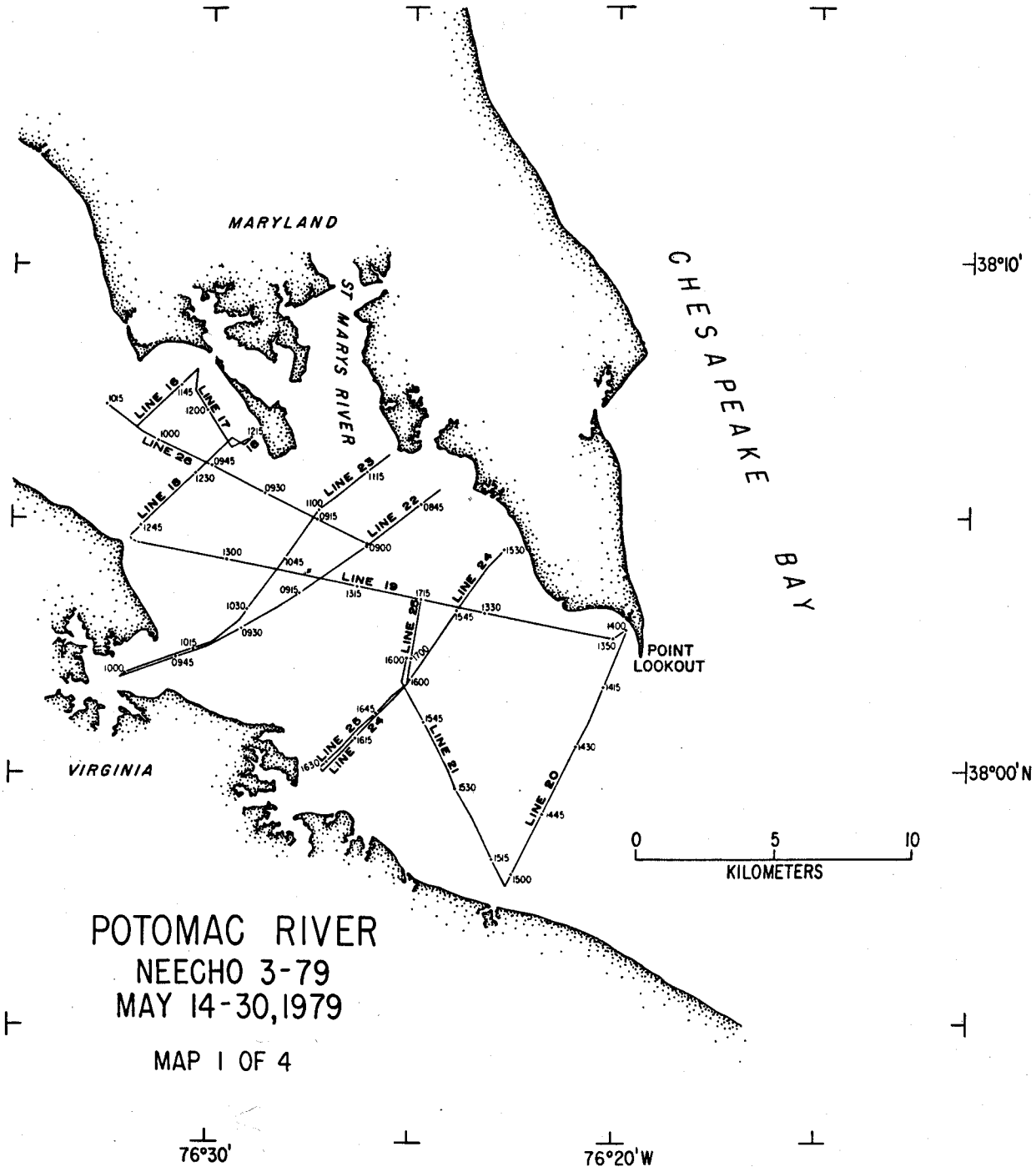
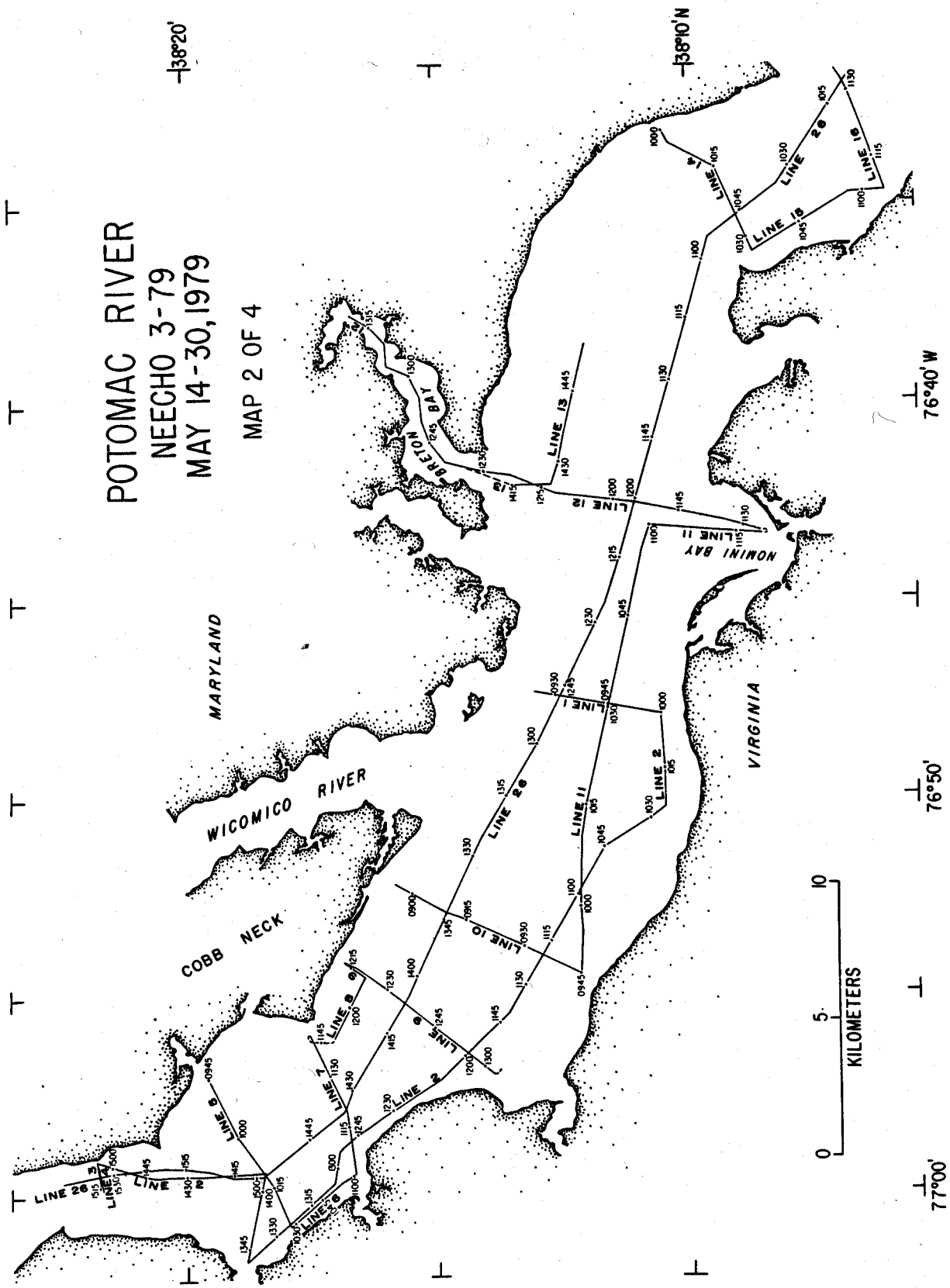

MARYLAND
ST MARYS RIVER
CHESAPEAKE BAY
VIRGINIA
POINT LOOKOUT
38°10'
38°00'N
76°30'
76°20'W
0 5 10
KILOMETERS
LINE 16
LINE 17
LINE 18
LINE 19
LINE 20
LINE 21
LINE 22
LINE 23
LINE 24
LINE 25
LINE 26
POTOMAC RIVER
NEECHO 3-79
MAY 14-30,1979
MAP 1 OF 4

Fig. 1


POTOMAC RIVER
NEECHO 3-79
MAY 14-30, 1979
MAP 2 OF 4
38°20'
38°10'N
76°40'W
76°50'
77°00'
MARYLAND
WICOMICO RIVER
COBB NECK
BRETON BAY
NOMINI BAY
VIRGINIA
LINE 1
LINE 2
LINE 6
LINE 7
LINE 8
LINE 9
LINE 10
LINE 11
LINE 12
LINE 13
LINE 14
LINE 15
LINE 16
LINE 26
0
5
10
KILOMETERS

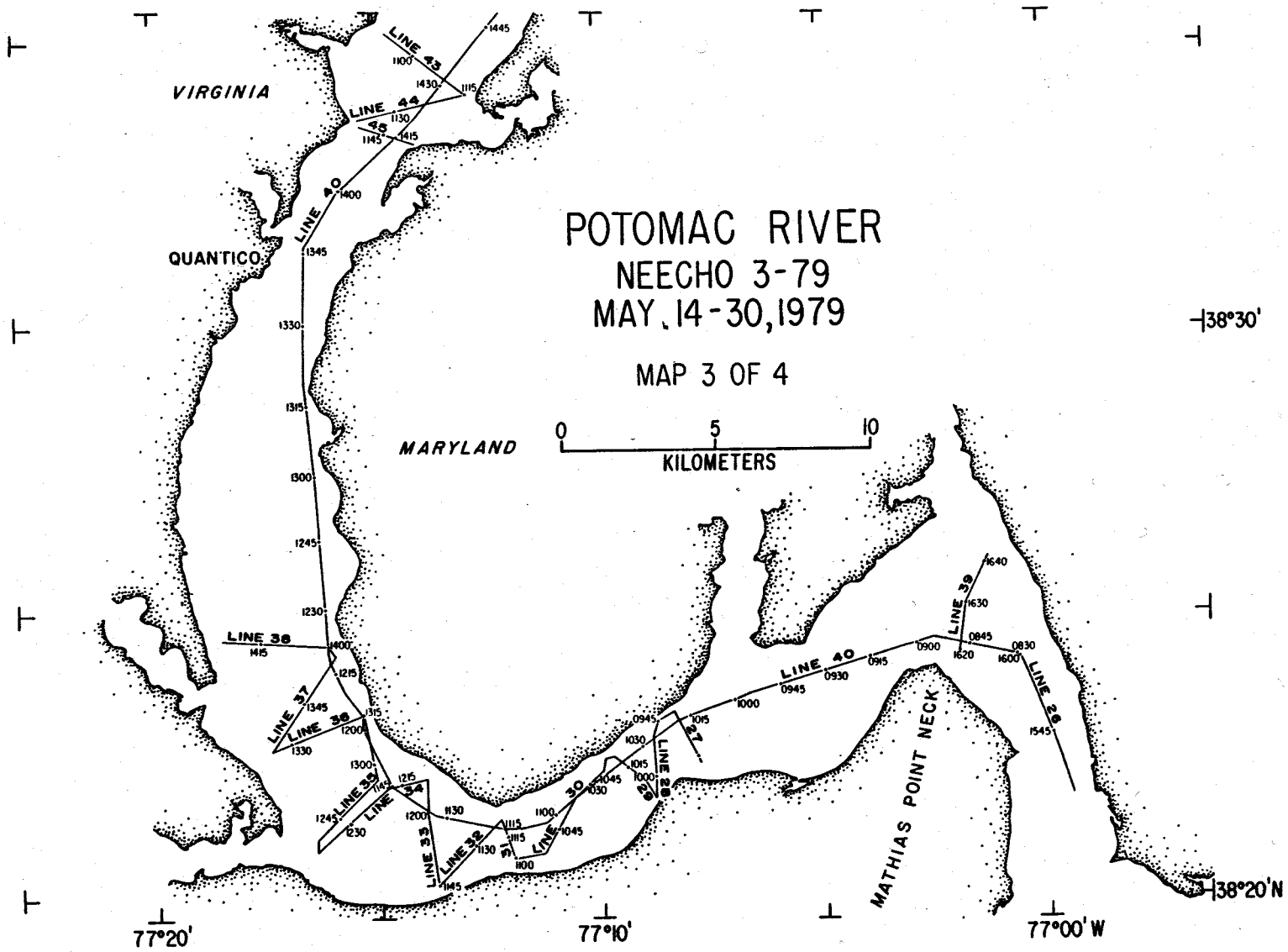
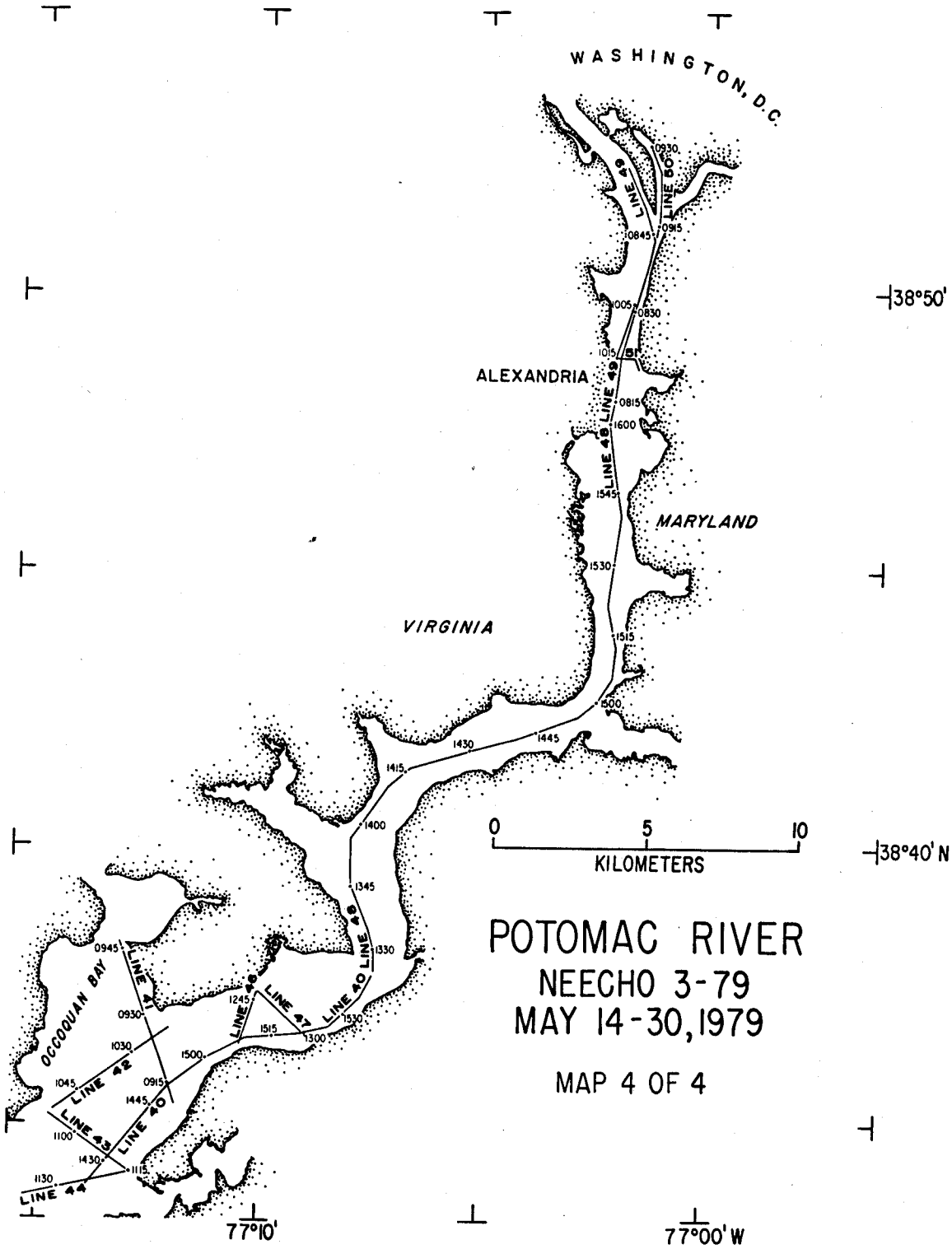

POTOMAC RIVER
NEECHO 3-79
MAY 14-30, 1979
MAP 3 OF 4
VIRGINIA
MARYLAND
QUANTICO
MATHIAS POINT NECK
0 5 10
KILOMETERS
38°30'
38°20'N
77°20'
77°10'
77°00' W
LINE 43
LINE 44
LINE 45
LINE 40
LINE 36
LINE 37
LINE 38
LINE 35
LINE 34
LINE 33
LINE 32
LINE 31
LINE 30
LINE 29
LINE 28
LINE 27
LINE 39

Fig. 1

Fig. 1


WASHINGTON, D.C.
ALEXANDRIA
MARYLAND
VIRGINIA
OCCOQUAN BAY
LINE 39
LINE 40
LINE 41
LINE 42
LINE 43
LINE 44
LINE 45
LINE 46
LINE 47
LINE 48
LINE 49
LINE 50
38°50'
38°40' N
77°10'
77°00' W
0 5 10
KILOMETERS
POTOMAC RIVER
NEECHO 3-79
MAY 14-30, 1979
MAP 4 OF 4