8500

CRUISE REPORT, DISC-85-1

Vessel: R/V DISCOVERY

Cruise number: DISC-85-1

Parent project: Geologic Framework and Sedimentary Character of the Middle Atlantic Coast and Continental Shelf (9470-03855)

Funding Agency(s): U.S.G.S., Maryland Geological Survey (MGS), Virginia Institute of Marine Science (VIMS) Cooperative

Funding amount: N/A

Contract number: N/A

Contract dates: N/A

Area of operations: Middle Atlantic nearshore region, Delaware Bay entrance to Fishing Point, VA

Cruise dates: 28 April to 11 May 1985, Ocean City, MD

Chief Scientist(s): Jeff Williams, USGS, 28 April - 11 May
Randy Kerhin, MGS, 28 April - 4 May
Carl Hobbs, VIMS, 28 April - 5 May

Cruise data curator: Jeff Williams, USGS

Other scientific party: Malcolm Green, VIMS, 5-10 May
Bob Cuthberson, MGS, 5-11 May

Ship's crew: Gerry Cox, MGS, captain, 28 April - 11 May
Rick Younger, MGS, first mate, 28 April - 11 May

Purpose of cruise: Collection of high resolution seismic reflection and side-scan sonar data to define and characterize the shallow subbottom stratigraphy, seabed morphology and sediment distribution, with particular emphasis on the linear shoal features. Interpretation of these data in conjunction with core information will help to better understand the sedimentary framework and geologic history and processes of the nearshore region. These data will provide baseline information including late Quaternary sea level rise with possible applications to predicted future rises and its effects on the highly developed Ocean City barrier island, origin and evolution of linear sand shoals, seaward extension of possible fresh water aquifers, and location and extent of marine hard mineral resources.

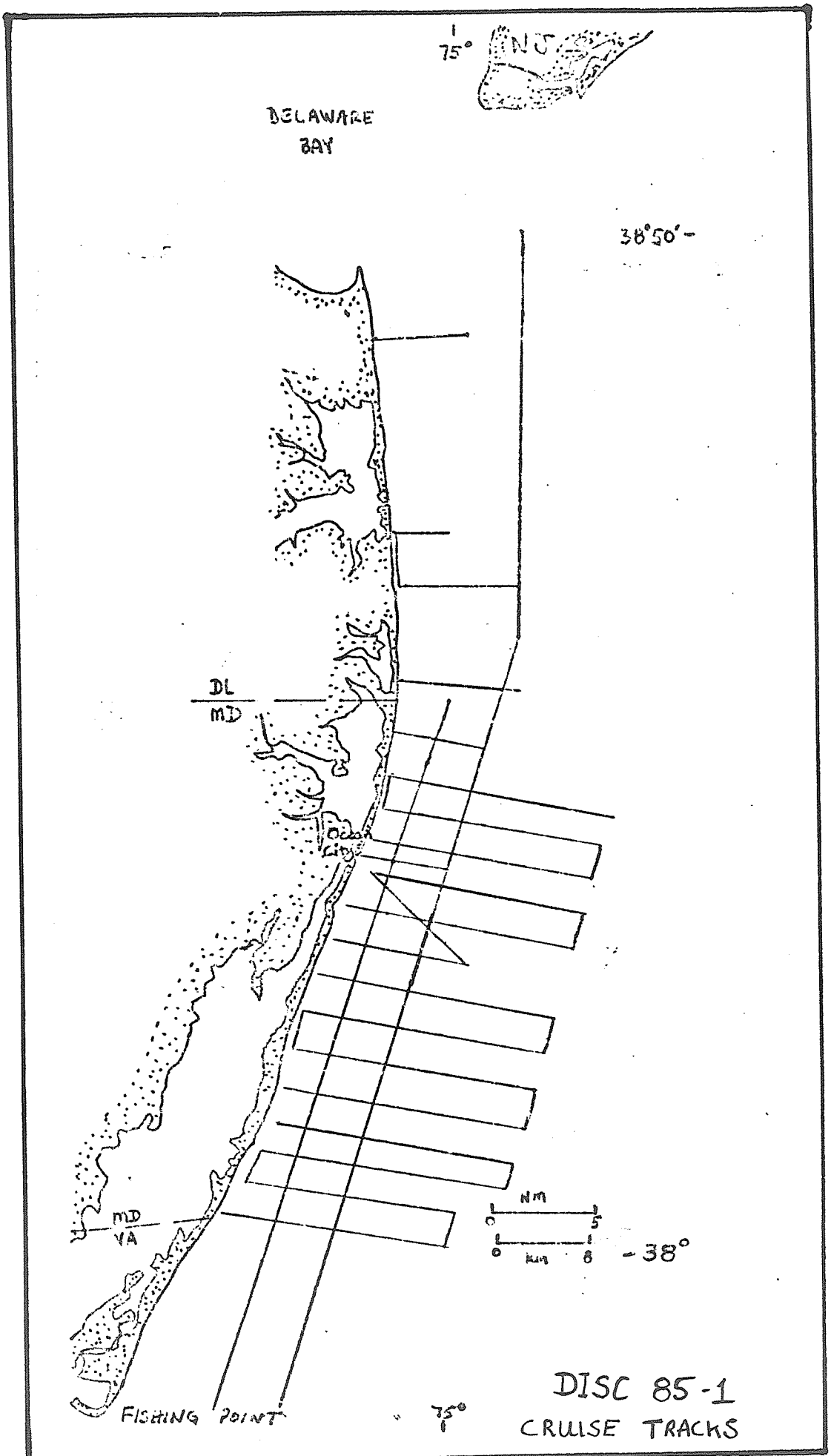
Navigation: Fix positions were determined from LORAN-C time tracks on 1:80,000 NOAA charts 12210, 12211, and 12214. The LORAN coordinate locations and date and time as well as longitude and latitude were recorded on magnetic tape and paper chart on a Texas Instrument Silent 700 printer/recorder at five minute intervals and at the beginning and end of each trackline. The date and fix times were also put with event marks on the analogue seismic profiles.

Scientific equipment: ORE Geopulse system, sled and boomer plate, power supply set at 280J, amplifier/preamp/filter
EG&G Uniboom system
Datasonics model SBT-220 system (3.5 kHz & 200 kHz)
EG&G 105 kHz sidescan sonar, SMS-960 mapping system
Innerspace 20-element hydrophone
EPC 4603, 3200, 1901 recorders
Northstar 6500 LORAN-C navigation system with TI Silent 700 recorder/printer
HP 8-track analogue recorder

Cruise Summary: The cruise was a success inspite of considerable down-time the first week due to a northeaster, persistant problems with survey equipment, and noise interference on the records from the ship's generator. Our salvation the second week was a combination of a stationary high pressure system resulting in placid seas, the competence and persistence of Ken Parolski to troubleshoot, adjust and repair the equipment, and the willingness of all to work extra long days. The result was that more than 550 km (306 n miles) of seismic trackline profiles were collected on 34 transects. The transects are arranged in a grid pattern, shore normal and parallel, extending from the shoreface to 22 km offshore. Coverage by side-scan sonar is limited to about one-half the tracks because the unit broke midway through the second week and was unrepairable. In general the profiles exhibit good resolution of stratigraphic detail and excellent penetration though the Quaternary section and in some cases well down through Tertiary reflectors. Profiles from the Datasonics (3.5 kHz) and the Boomers complement each other. The 3.5 profiles show good detail for several uppermost reflectors underlying the linear shoals and within the sand bodies, as well as channel-like features incised into the presumed pre-Holocene surface. The boomer profiles show penetrations on the order of 80 m with several broad and low-relief horizons that should be traceable to onshore well borings and exposures. The side-scan showed a patchy distribution of sediments with bedforms of varying dimensions apparently common on shoal areas.

Attachment: Map of trackline locations

cc: all personnel above
Dillon
Knebel
Bothner
Green
Aldrich
Hathaway
Robb
Bailey
Berquist (VGS/VIMS)
Field
May (CERC/WES)
Doe
O'Brien
Colman
Oldale
Mixon
Ferland (Un.Sydney)
Finkelstein (VIMS)
Wright (VIMS)
Popenoe
Benson (DGS)
Andres (DGS)
Escowitz



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CRUISE TRACKS