

BRANCH OF ATLANTIC MARINE GEOLOGY  
U.S. GEOLOGICAL SURVEY  
Woods Hole, MA 02543

94031

**CRUISE REPORT**

1. Ship Name/Owner Operator: R/V CAPE HENLOPEN/Univ. of Delaware
2. Cruise No.: CAPE HENLOPEN 94-12
3. Project Number: 9470-30051
4. Funding Agency: ONR for ship time and USGS for sidescan work
5. Area of Operation: Inner shelf off Little Egg Inlet, NJ  
Bounds of survey area: 39° 26'N - 39° 31'N  
74° 12'W - 74° 17'W
6. Cruise Dates: 24 - 30 May, 1994
7. Chief Scientists: M. Badiey, Univ. of Delaware
8. Scientific Party: Mohsen Badiey, Univ. Delaware  
4 graduate students, Univ. Delaware  
Steve Forsythe, NRL, Orlando  
Technician, NRL, Orlando  
Dave Twichell, USGS  
Ken Parolski, USGS
9. Ship's Captain: Matthew Hawkins
10. Purpose of Cruise: The purpose of this cruise was to resurvey a 3 x 7 km area of the inner shelf that was initially surveyed in June, 1991 with the 100-kHz Klein sidescan sonar system to document changes that have occurred during the past three years. The study area is the site of a long-term ecological and oceanographic study that researchers at Rutgers University are conducting, and this remapping of the seafloor geology directly contributes to their benthic habitat and sediment transport studies. The group from the University of Delaware (under Dr. M. Badiey) is studying shallow water acoustic reverberation, and these sidescan results provide a more detailed view of the variability

of the seafloor geology and how it changes with time than previously had been available to them.

11. Navigation Techniques: Differential GPS, Megapulse Loran-C - recorded on 3.5" diskettes
12. Scientific Equipment: Klein 100-kHz sidescan sonar with winch, SIS-7000 QMIPS, Odem digital fathometer, DEC workstation for sidescan processing.

13. Days at Sea: 6

14. Sidescan Surveys: Location	km <sup>2</sup>	line km
Little Egg Inlet	21	217

15. Remarks: This cruise aboard the R/V CAPE HENLOPEN was a multi-disciplinary cruise involving two-ship acoustical measurements and CTD measurements during the daylight hours and sidescan sonar mapping, conducted by the USGS, during the night. The sidescan component of the program had some problems to start with, but these were resolved, and we ended up successfully collecting the required data during the last two nights of the cruise. The major problem was that the QMIPS sidescan data logging system that was taken out of the SIS-7000, and this data-logging system requires two trigger boxes, one for each channel of sidescan data, which we did not initially have. As a result, we started by only collecting the port channel of sidescan data along lines spaced 75 m apart. Once we received the second trigger box we resurveyed the area we had surveyed with only the port channel, so none of the port-channel-only data will be used in the final mosaic. Track-line spacing for the dual-channel sidescan work was 150 m (see attached track map).

The weather was good during the cruise, particularly at night, but there was a strong thermocline or thermal front, particularly in the northern part of the study area, which resulted in a lot of high-backscatter refraction patterns in the far range of the data. Hopefully overlap will be sufficient to mask many of these artifacts in the final digital mosaic.

# CAPE HENLOPEN 94-12

