

GOS 164

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Red Bailey

Cruise Report for R/V GOSNOLD

7000

Sailed from Woods Hole, Massachusetts at 11:00 on June 10, 1970 and returned to Woods Hole at 1330 on June 16th.

Scientific personnel:

- John S. Schlee - Chief Scientist
- David W. Folger - Middlebury College
- Robert N. Oldale - USGS
- John Hillman - WHOI
- Charles O'Hara - USGS
- Don Jipa - Visiting Investigator WHOI

Visitors for June 14:

- Robert Doyle - State Geologist, Maine Geological Survey
- Art Hussey - Professor of Geology, Bowdoin College

Purpose

The main purpose was to complete bottom sediment sampling in northern quadrangle and to do additional 3.5 km seismic profiling as a supplement to those taken in earlier cruises of the GOSNOLD and VERRILL last year.

Area

The Western Gulf of Maine west of 70° W longitude and north of 43°N latitude - to include Casco Bay, coastal waters of Maine, and New Hampshire. Sufficient time also allowed us to sample sediment south of 43°N latitude (Jeffreys Ledge Quadrangle).

Equipment

Sampling - We used a large Van Veen sampler (20 l), a small Van Veen (1-2 l) sampler, a Dietz-Lafond snapper, and a gravity corer. Sonic profiling was done utilizing the ORE fish, Prada Time Fascimiler Recorder and the ship's echo sounding gear (PDR and hull mounted transducers).

Results

A total of 154 stations were occupied during the seven days at sea. The GOSNOLD steamed a total of 691 miles during which we obtained approximately 600 miles of sonic profiles. Samples were taken 2-4 miles apart and were selected utilizing a 1/40,000 scale bathymetric map of the sea floor compiled by the Coast & Geodetic Survey; selection was key to a variety of topographic features in the area, some only a few hundred meters across. Despite very complex topography, the type of sediment was restricted to relatively few types - broadly outlining topographic provinces rather particular features. Sonic profiles showed penetration 20 fms over soft bottom and a multilayered arrangement of reflecting horizons over basins. Some of the reflectors appear to pinch out toward the basin edge, or to have an erosional pitch out at the edge.

## Narrative

June 10 -- The departure was delayed three hours by coastal fog, but by approximately 1100 we departed through Woods Hole to Buzzards Bay for Cape Cod Bay via the Canal. By 1300, the ship was again fog bound and prevented from traversing the Cape Cod Canal until the fog lifted -- which it did at 1645. We went through the Canal, put the fish in the water at 1930 and began profiling northward toward the first station near the Isle of Shoals. Sea state calm and partly cloudy.

June 11 -- Sea state calm and sunny skies. The first station was occupied at 0642; at each one we obtained a bottom grab and threw over 5 sea bed drifters. Sampling continued throughout the day using the Van Veen for a total of 23 stations. On a few stations some hard clay below the surficial mud was sampled and saved.

June 12 -- Calm sea state and partly cloudy. 39 stations occupied. Uneventful. Recovery good (mud) to poor - inshore rocky and gravelly bottom.

June 13 -- Calm sea state. Lost large Van Veen grab sampler on first station when an eye-bolt in a lead weight above the bucket snapped off. We used mainly the Dietz-LaFond snapper or a small Van Veen after that. Sampling continued through the day. The ORE fish struck a lobster pot off Old Orchard Beach at 1720. The encounter severed wires at the towing point on the fish; repair and redeployment of the fish took 12½ hours, during which time we ran the ship's echo sounder.

June 14 -- We arrived off Casco Bay (Hussey Sound) at 0850 and picked up Robert Doyle (Maine Geological Survey) and Art Hussey (Bowdoin College). They remained on board while we sampled Casco Bay and observed our profiles and sampling procedure. Hussey brought along a geologic map he had made of the area so we could get some idea of the local bedrock geology and its relation to the profiles. Doyle and Hussey departed at 1600. The remainder of the day we cored various offshore basins.

June 15 -- We cored, sampled and profiled all day. Samples were all south of 43°N latitude in the Jeffrey's Ledge Quad and were taken in areas where obvious gaps existed in the previous years collecting. The last half of the day, the 3.5 kHz system gave out; we utilized the PGR - ship's echo sounding gear to complete the cruise.

June 16 -- Last station was made at 0414 northeast of outer Cape Cod. The GOSNOLD proceeded home via Pollock Rip at flank speed, arriving in Woods Hole at 1336.