

SURVEY OF THE GIBBS SEAMOUNT (*)

by John D. SHAFFER
Hudson Laboratories of Columbia University
Dobbs Ferry, New York

A survey of the Gibbs Seamount in December 1962 by the USNS *J. W. Gibbs* has helped to fill out the description presented by RONA (1961). This seamount (16° 34' N latitude, 63° 55' W longitude) located on the Aves Swell was found to be flat-topped at 110-ft depth. Its margin, which is partially rimmed, breaks sharply to an average slope of 22°. On the northern side the slope flattens into a terrace at 320 ft and then drops rapidly.

The ship's track and the contours constructed from the Edo record are shown in fig. 1. Runs were made in a radial manner past a buoy anchored on the summit. The distance traveled was measured with the ship's log. The direction of travel is estimated to be within $\pm 4^\circ$ of the heading (N, NE, E, SE, ...). The contours presented by RONA, showing the southwestern half of the seamount, are displaced approximately 1.5 miles to the west of these. It is believed that his position is the more accurate, since it was determined from sun lines and star fixes while the survey ship was anchored. Our four sets of star fixes were taken within a five-mile radius of the summit and referred back to buoy No. 1 by dead reckoning.

A clearer picture of the summit surface is given in fig. 2 where the profiles retain their flat appearance even under the (1/100) vertical exaggeration. The margins are seen to be rimmed most prominently on the eastern and north-eastern sides. Slope corrections were made using the equation $h = e/\cos \Phi$, which gives the depth in terms of the echo distance (e) and the slope of the bottom (Φ). In using the apparent slope (Φ') in place of Φ an error was introduced, but a more accurate slope correction was not thought to be justifiable in view of the inaccuracy in the measurement of radial distance.

A small quantity of material was dredged from the summit. The sample included a fragment of a living reef coral *Agaricia*. Other specimens were identified as *Alcyonarian*, *Bryozoa*, the calcareous algae *Halimeda*, and other calcareous algae (SQUIRES, personal communication). The organic growth may have produced the diffuse echo returns that were observed while traversing the summit (fig. 3). These hazy areas were distributed somewhat more closely near the margins than elsewhere. The data only suggest that a reef may exist on the seamount. A more earnest dredging effort will be needed to decide the point.

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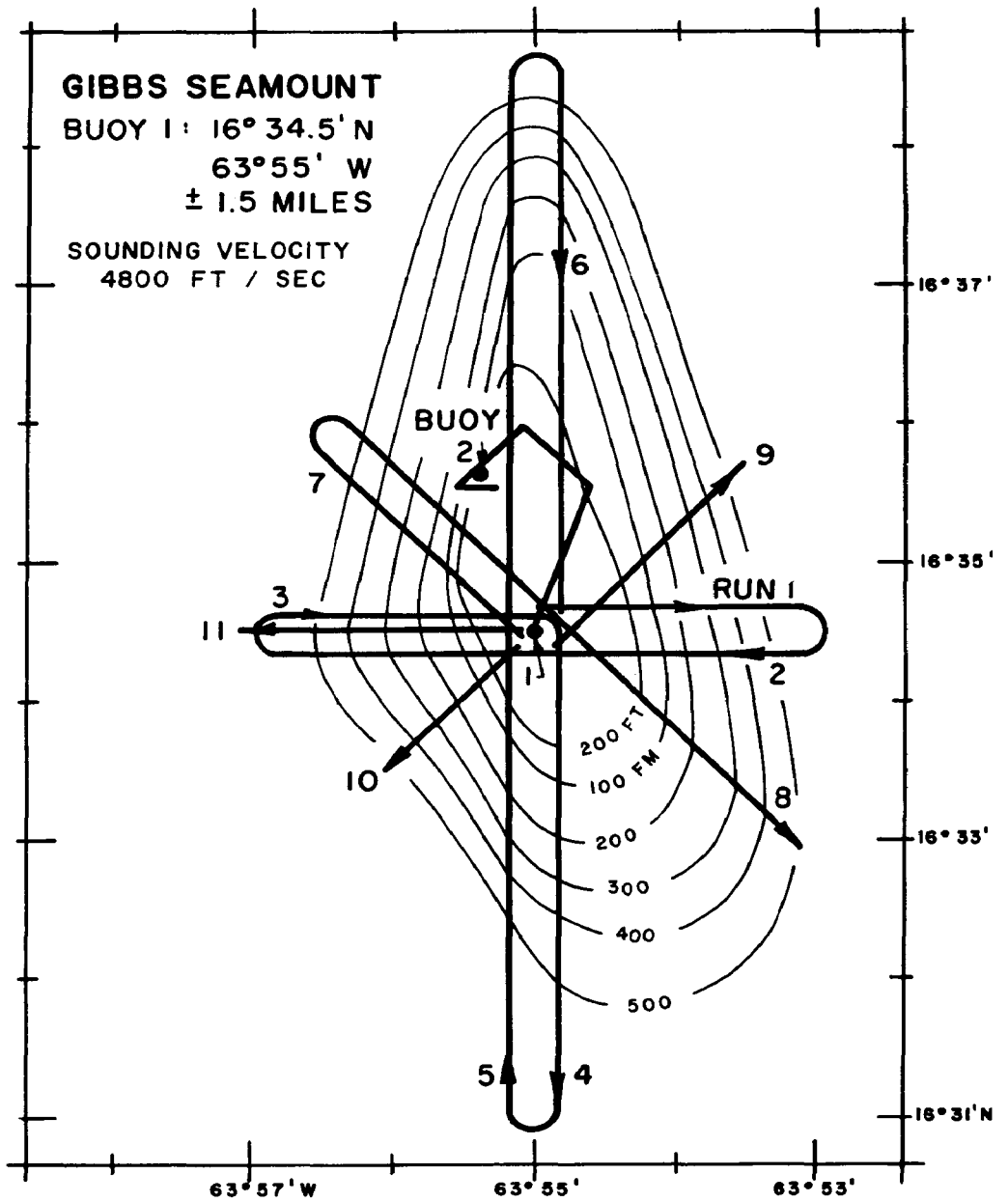


FIG. 1. — Contour chart of Gibbs Seamount.

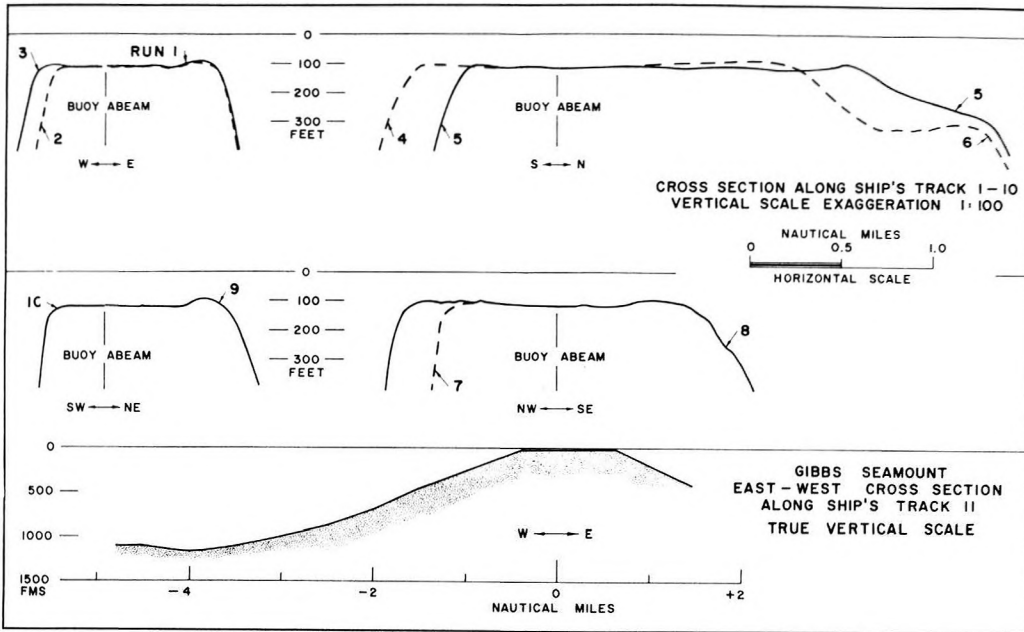


FIG. 2. — Profiles of Gibbs Seamount.

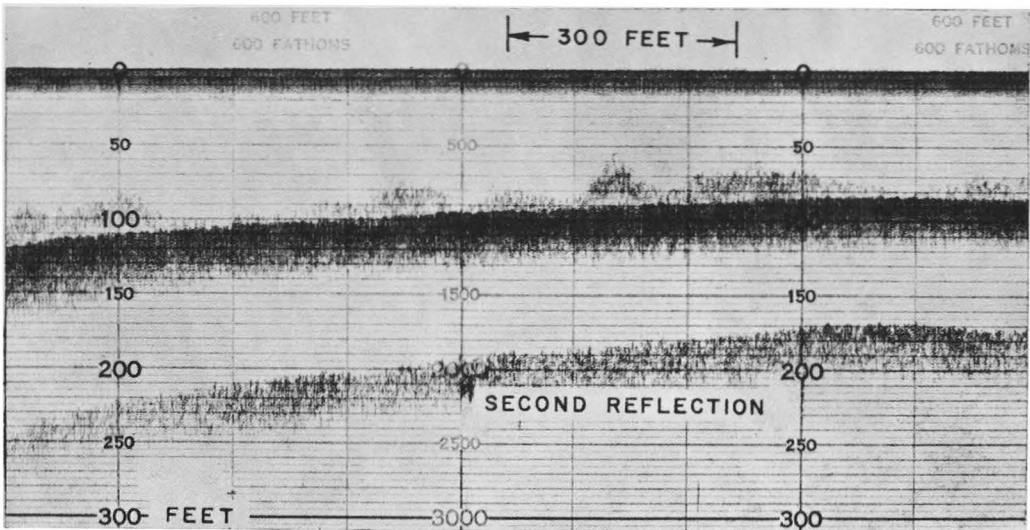


FIG. 3. — Portion of the echo-sounding profile showing diffuse echo returns.

Acknowledgments

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Reference

RONA, P.A. : Gibbs Seamount, *Deep-Sea Research* 8, 76-77 (1961).