

Southwest Fisheries Center Administrative Report H-87-9

CHARTLETS OF SELECTED AREAS AROUND NIUE ISLAND

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The ocean bottom around Niue Island generally has a steep slope, thus most fishing which exploits resources found on or near the ocean bottom occurs close to shore. However there are three areas around Niue Island where, based on a limited amount of available bathymetric data, the ocean bottom appeared to depart from the typical steep slope with small ridges and pinnacles. The Government of Niue Island felt that improved bathymetry of these three areas would help fishermen exploit resources on these ridge and pinnacle features and requested that the NOAA ship Townsend Cromwell conduct bathymetric surveys of the three areas.

The Townsend Cromwell conducted the surveys by running parallel and crossing track lines in each region. Soundings were recorded in a logbook at regular intervals along the track line as well as with a continuous fathometer trace. Positions were determined by a Global Positioning System.¹ Chartlets of depths were generated by a computer plotting routine which used the logbook depths together with peak depths taken from the fathometer traces. Corrections to the depth for the draft of the vessel (3.4 m), velocity of sound through water, wave effects, and motion of the vessel while under way were not made. Contour chartlets were produced from the depth chartlets by hand contouring.

On the west side of Niue Island is Halangie Point. There is an undersea ridge which extends about 3 nmi off Halangie Point (Figs. 1, 2, 3). The top of the ridge drops from the shoreline to about 489 m (260 fathoms) in the first mile, then remains at 489 m for about 2 nmi more except for a small pinnacle which rises from the ridge to approximately 357 m (190 fathoms) about 3 nmi from shore. After about 3 nmi the ridge drops steeply to about 1,316 m (700 fathoms). The southern side of the ridge is steeper than the northern side where there is a small 564-752 m (300-400 fathoms) shelf. On the northern side of Niue Island is Toi Point. There is a very slight ridge running north of Toi Point (Figs. 1, 4, 5). On the southern side of the island is Limufuafua Point with a ridge extending several miles south (Figs. 1, 6, 7).

ACKNOWLEDGEMENTS

We wish to thank the officers and crew of the NOAA ship Townsend Cromwell for their assistance with the bathymetric survey.

¹Reference to trade names does not imply endorsement by the National Marine Fisheries Service, NOAA.

Niue Island

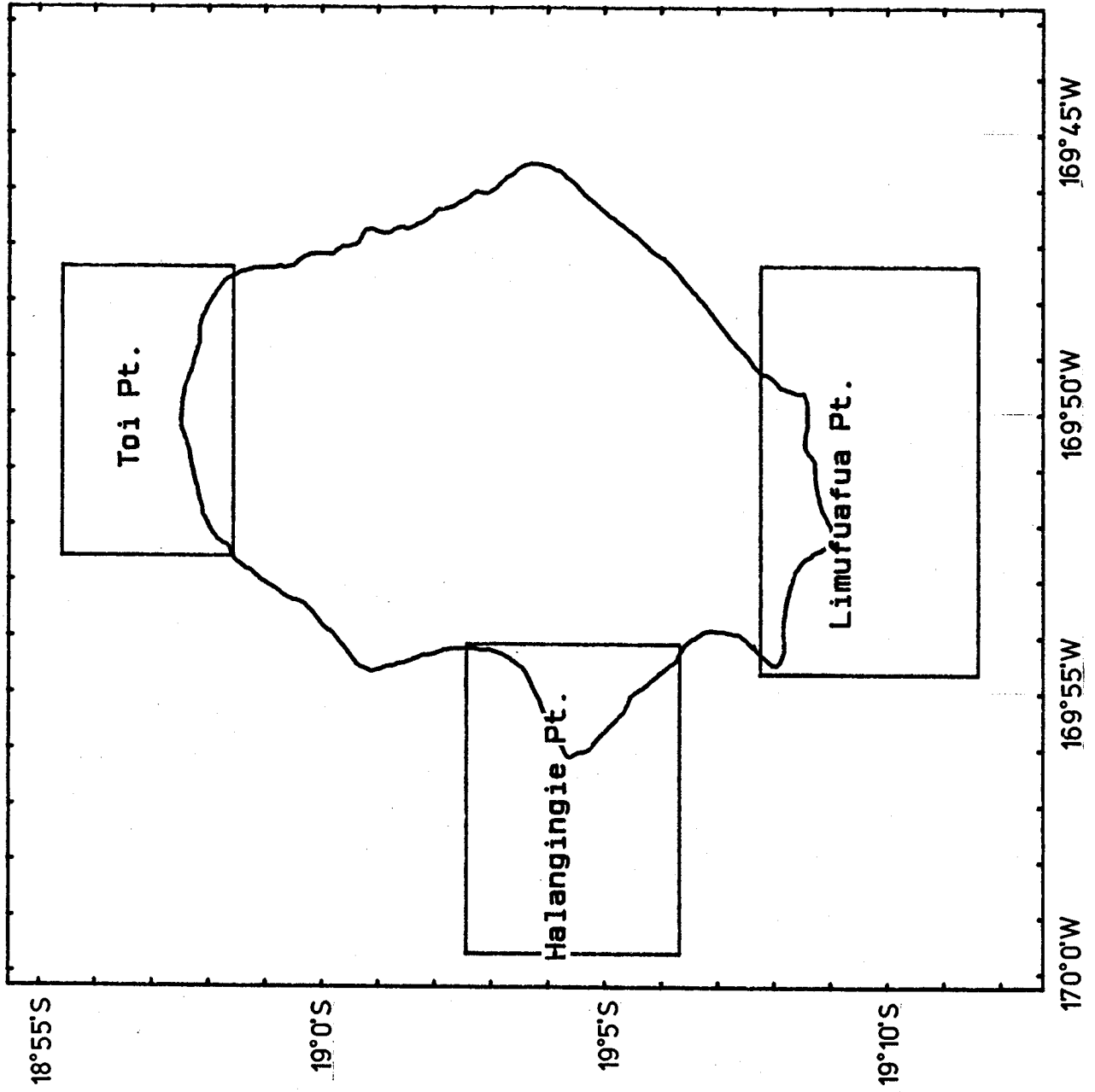
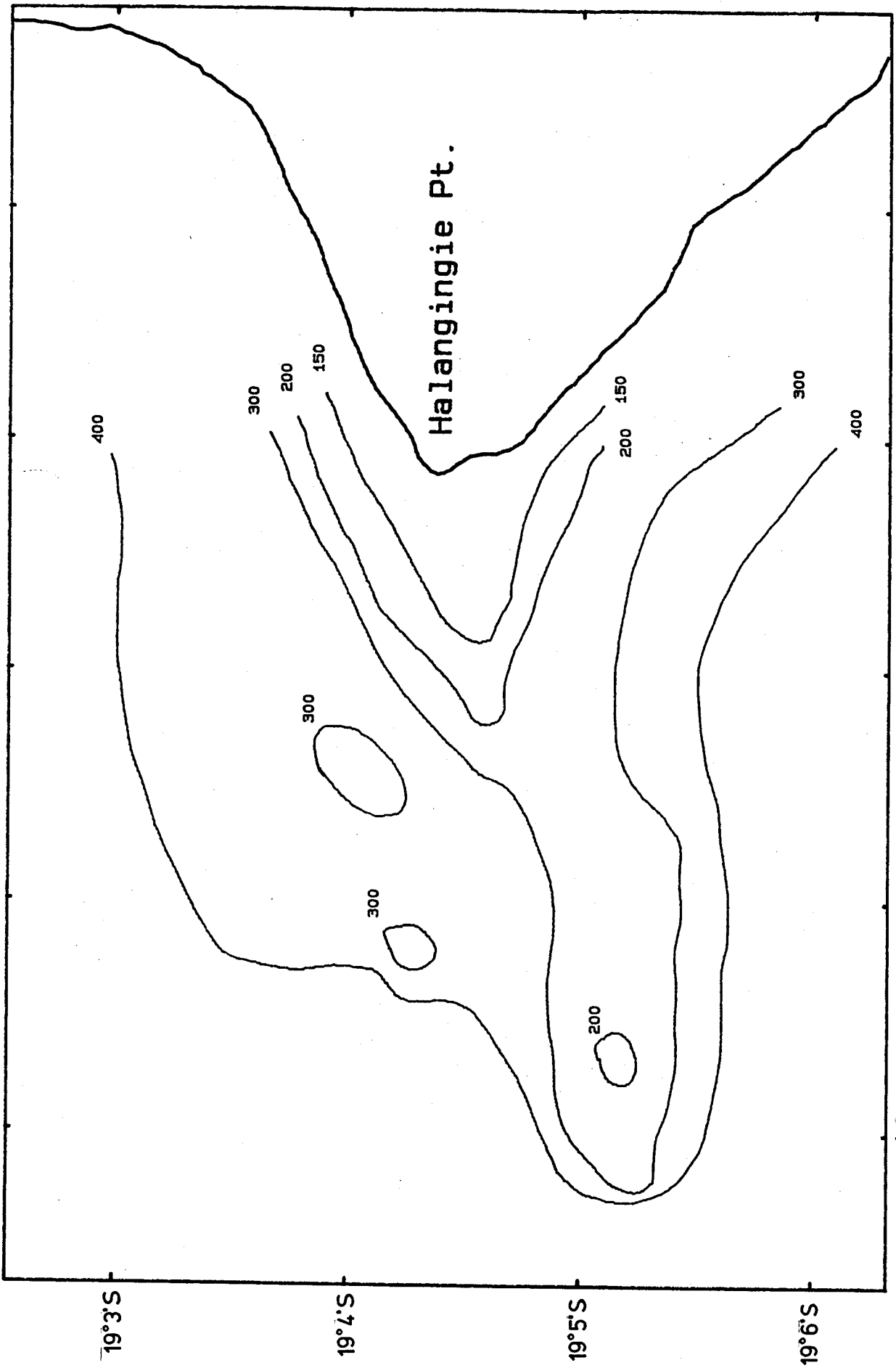


Figure 1. Niue Island. Boxes indicate areas of bathymetric chartlets.

Niue Island



170°0'W 169°59'W 169°58'W 169°57'W 169°56'W
Figure 3. Depth contours (in fathoms) off Halangie Pt.

Niue Island

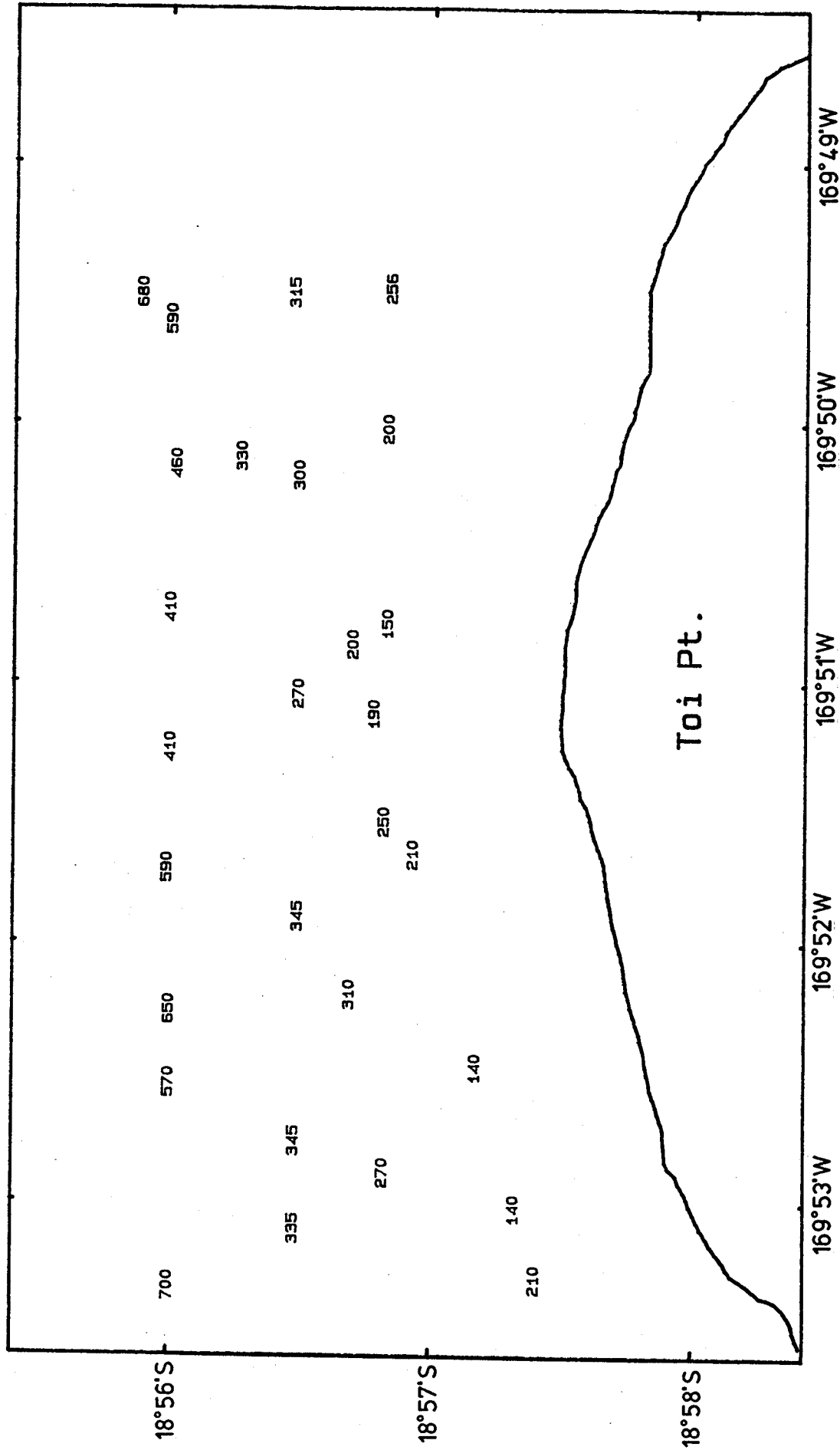


Figure 4. Depth soundings (in fathoms) off Toi Pt.

Niue Island

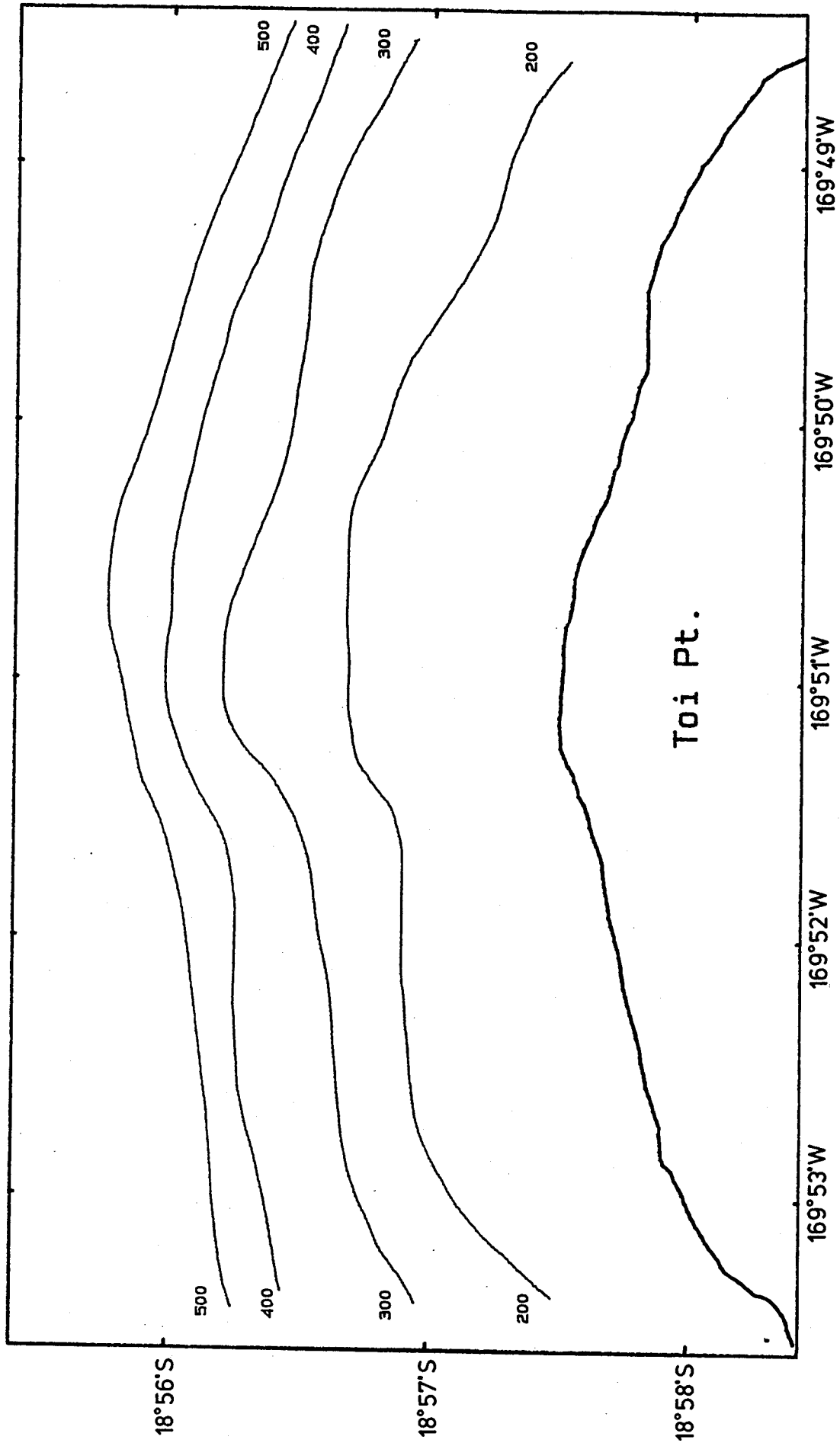


Figure 5. Depth contours (in fathoms) off Toi Pt.

Niue Island

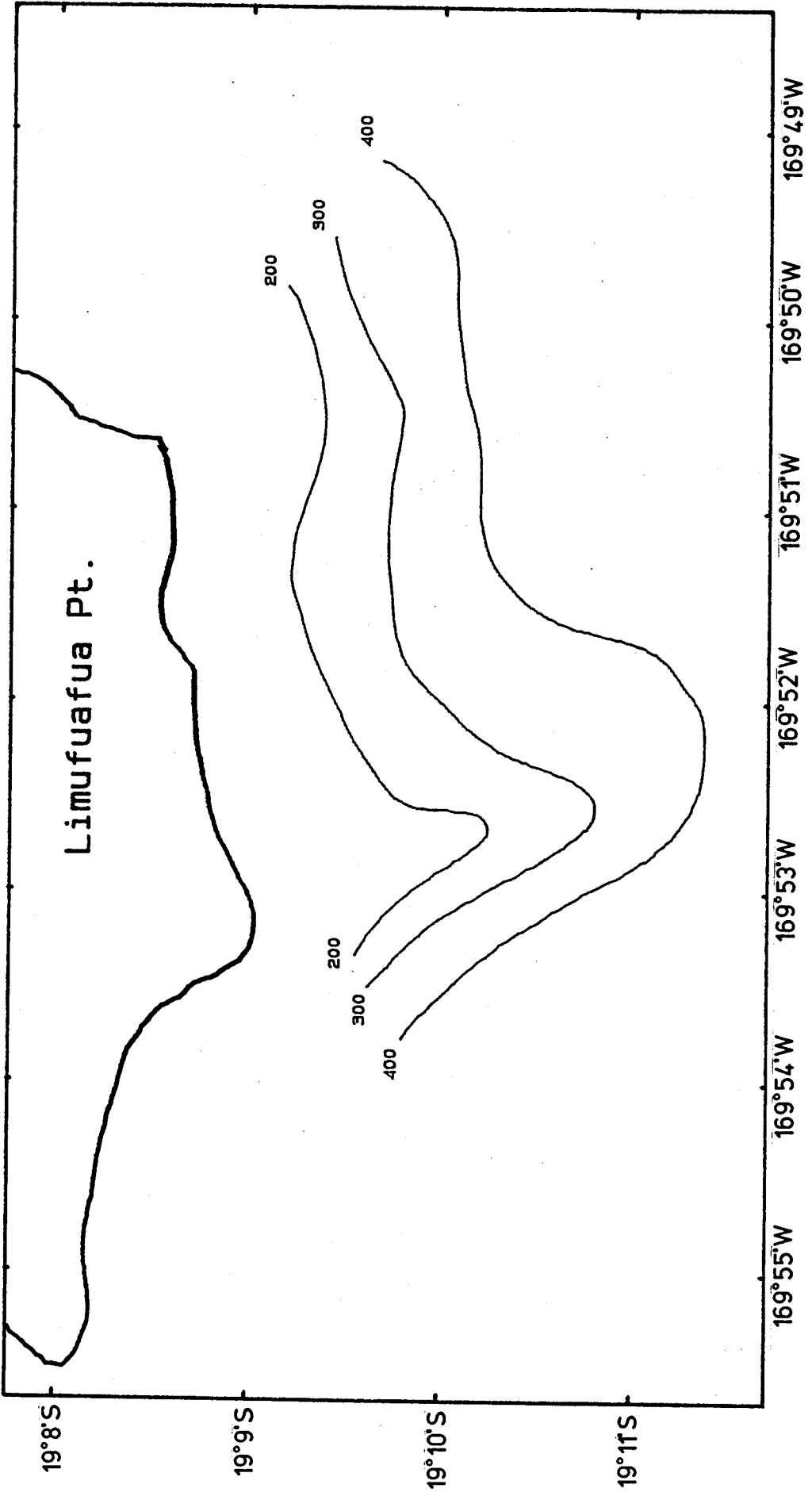


Figure 7. Depth contours (in fathoms) off Limufuafua Pt.