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BATHYMETRIC ATLAS OF THE NORTH PACIFIC OCEAN, (U)
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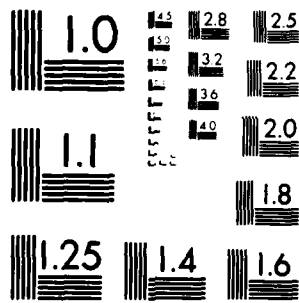
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**BATHYMETRIC ATLAS
OF THE
NORTH PACIFIC OCEAN**

COMPILED BY
SCRIPPS INSTITUTION OF OCEANOGRAPHY
UNDER CONTRACT TO
U.S. NAVAL OCEANOGRAPHIC OFFICE

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ELECT
JUN 24 1980

1978

MERCATOR PROJECTION
CONTOUR INTERVAL: 200 FATHOMS; 20 FATHOMS WHERE APPLICABLE
100-FATHOM CONTOUR DASHED
CONTOURS UNCORRECTED FOR SPEED OF SOUND IN SEAWATER

**NAVAL OCEANOGRAPHIC OFFICE
NSTL STATION, BAY ST. LOUIS, MS. 39522**

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FOREWORD

This atlas is designed to fill the needs of naval planners and ocean scientists as well as provide a convenient reference for operational fleet units. It is a reprint under one cover of the charts and supporting material of the previously issued H.O. Pubs 1301-S, 1302-S, and 1303-S. The atlas represents an interpretation of sea-floor relief based on the most accurate sounding data and contour charts available. Many previously uncharted seamounts, other primary structural features, and large physiographic provinces are shown.

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BATHYMETRIC ATLAS OF THE NORTH PACIFIC OCEAN

INTRODUCTION

The U.S. Naval Oceanographic Office is indebted to Dr. H. W. Menard and T. E. Chase for the general direction and supervision of the North Pacific bathymetric charting project.

This atlas is designed to fill the need of naval planners and of scientists working in the many fields of ocean science (geology, geophysics, biology, and oceanography) for reliable bathymetric detail in a convenient size for quick reference. The charts in this atlas were previously published as a series of three bathymetric atlases covering the North Pacific Ocean at a scale of approximately 1:4,500,000:

- H.O. Pub. No. 1301-S—Northwestern Pacific (1970)
- 1302-S—Northcentral Pacific (1971)
- 1303-S—Northeastern Pacific (1971).

This series also is published at a scale of approximately 1:2,400,000 as H.O. Pubs. 1301, 1302, and 1303.

➤ This atlas is an interpretation of the sea-floor relief based upon the most accurate sounding data and contour charts available. The contour interval (200 fathoms) was selected to show the greatest detail over most of the area, consistent with the chart scale, quantity of available soundings, and navigational precision. However, these charts are not designed for and should not be used for navigation. In addition to the basic contour interval of 200 fathoms, the 100-fathom contour is shown as a dashed line, and contours at 20-fathom intervals are included in some regions having wide continental shelves and where data are sufficient to show this amount of detail. The contours represent depths uncorrected for variations in the velocity of sound in seawater from the assumed mean velocity of 4800 ft/sec (800 fm/sec).

The scale of the charts is approximately 1:4,500,000 and they are reductions of charts contoured at a scale of about 1:1,000,000. Names of undersea features on the charts conform to recommendations by the U.S. Board of Geographic Names. The outlines of islands and other land areas were taken from Naval Oceanographic Office nautical charts of various scales.

The locations of the individual charts are shown on the index of charts using the numbering system employed by the Naval Oceanographic Office in its Bottom Contour Chart (BC) series in 1970 and 1971.

The charts in this atlas were compiled by the Scripps Institution of Oceanography under contract N62306-69-A-0072-0002 with the U.S. Naval Oceanographic Office. Funds were provided by the Office of Naval Research through the Long Range Acoustic Propagation Program managed by Dr. J.B. Hersey.

SOURCES OF DATA

The index-of-data charts show the most important sources of data used. The black-bordered areas indicate regions where the bottom topography has been studied in some detail by marine geologists at various oceanographic institutions and agencies. Liberal use was made of their published bathymetric data and interpretations.

The original echograms and adjusted navigational plots of numerous expeditions conducted by Scripps Institution of Oceanography were a major source of data for many of the bathymetric charts.

The U.S. Naval Oceanographic Office supplied plots of sounding lines for each chart and microfilm copies of original analog records and navigational tracks. Detailed Marine Geophysical Surveys in the northern Philippine Sea and data from extensive surveys in the Sea of Japan also were provided by the Naval Oceanographic Office.

Special charts prepared by the Naval Oceanographic Office for the PARKA (Pacific Acoustic Research Kanoche—Alaska) experiments, as well as bathymetric data collected during the experiment, were used.

The Pacific Oceanographic Laboratory of the Environmental Sciences Service Administration provided U.S. Coast and Geodetic Survey data from Operation SEAMAP in addition to numerous other survey and transit tracks throughout the region.

Nautical charts published by the Naval Oceanographic Office and the U.S. Coast and Geodetic Survey provided nearshore details around islands and reefs. Nautical and bathymetric charts published by the hydrographic agencies of the United Kingdom, Japan, Netherlands, and the Soviet Union provided nearshore soundings and some detail in areas where available data were sparse. Some of the principal published sources of information that were consulted are listed below.

P-1

Echo sounding equipment used to gather data for the charts included the Ede Corporation Sonar Sounding Set AN/UQN-1B; Westrex Corporation Mark V, X, and XV Precision Depth Recorders (PDR); Thomas Giff Company Depth Recorder (GDR); Alden Electronic and Impulse Recording Equipment Company, Inc., Precision Graphic Recorder (PGR); Alpine Geophysical Associates, Inc., Precision Echo Sounder Recorder (PESR); and Kelvin-Hughes Echo Sounder.

EVALUATION OF DATA

All available data were evaluated for navigational precision and depth reliability. When original echograms, or copies, could be examined, record quality and sufficiency of annotation were also included in the evaluation. From this evaluation high-quality tracks were selected to form the framework or control to which the track data of poorer quality and random soundings were referenced. Only when the original data were available for examination, and proved to be of the highest quality, were they digitized for the computer data bank.

Some data in contoured chart form, in the areas indicated on the index-of-data charts, were adapted to the scale and contour interval of new charts. Conversions to uncorrected fathoms were made, when applicable, utilizing Matthews' Tables. The charts were compiled by standard cartographic techniques using the Naval Oceanographic Office H.O. 3000 series mylar plotting sheets as base charts. Stable base materials were used throughout the compilation. Coastline configurations were taken from Naval Oceanographic Office nautical charts of various scales. All data evaluation, selection, contouring, and editing were done by marine geologists. Final drafting, data preparation, and data digitizing were accomplished by geological and computer technicians.

Generally accepted structural and tectonic theories were applied in delineating bathymetric features and in extrapolating where sounding data were insufficient for detailed portrayal.

The charts are marked "do not use for navigation" because the dangers to navigation are not completely annotated.

In addition to the small-scale track charts on pages ix, x, xi, tracks are shown as a subdued gray overprint on each contour chart. The sounding lines used in contouring are classified as "primary" or "secondary" data sources. (This distinction is not made on charts to the west of 160°E.) The sounding lines

that provided the most precisely located and accurately measured water depths are classified as primary data. Secondary data represent random tracks with poorer quality, less reliable records, and less precise navigational positioning. Dashed sections of the tracks indicate reduced reliability in data quality. A third category of depth data was used in areas lacking adequate sounding lines. This category includes soundings from nautical charts, both domestic and foreign, and interpolation from published contour charts. Not all of the tracks are shown in some of the black-bordered regions indicated on the index-of-data charts.

CONCLUSIONS

These charts show many previously uncharted seamounts, trends of other primary structural features such as trenches and ridges, and the approximate limits of some large physiographic provinces.

The charts presented here do not represent the final definitive configuration of the sea floor. Many precise and detailed surveys will be needed throughout the world's oceans to give such complete coverage. However, the scale and contour interval used are sufficient to give as complete a sea-floor portrayal as is commensurate with the available data and current knowledge of submarine geologic structures and processes.

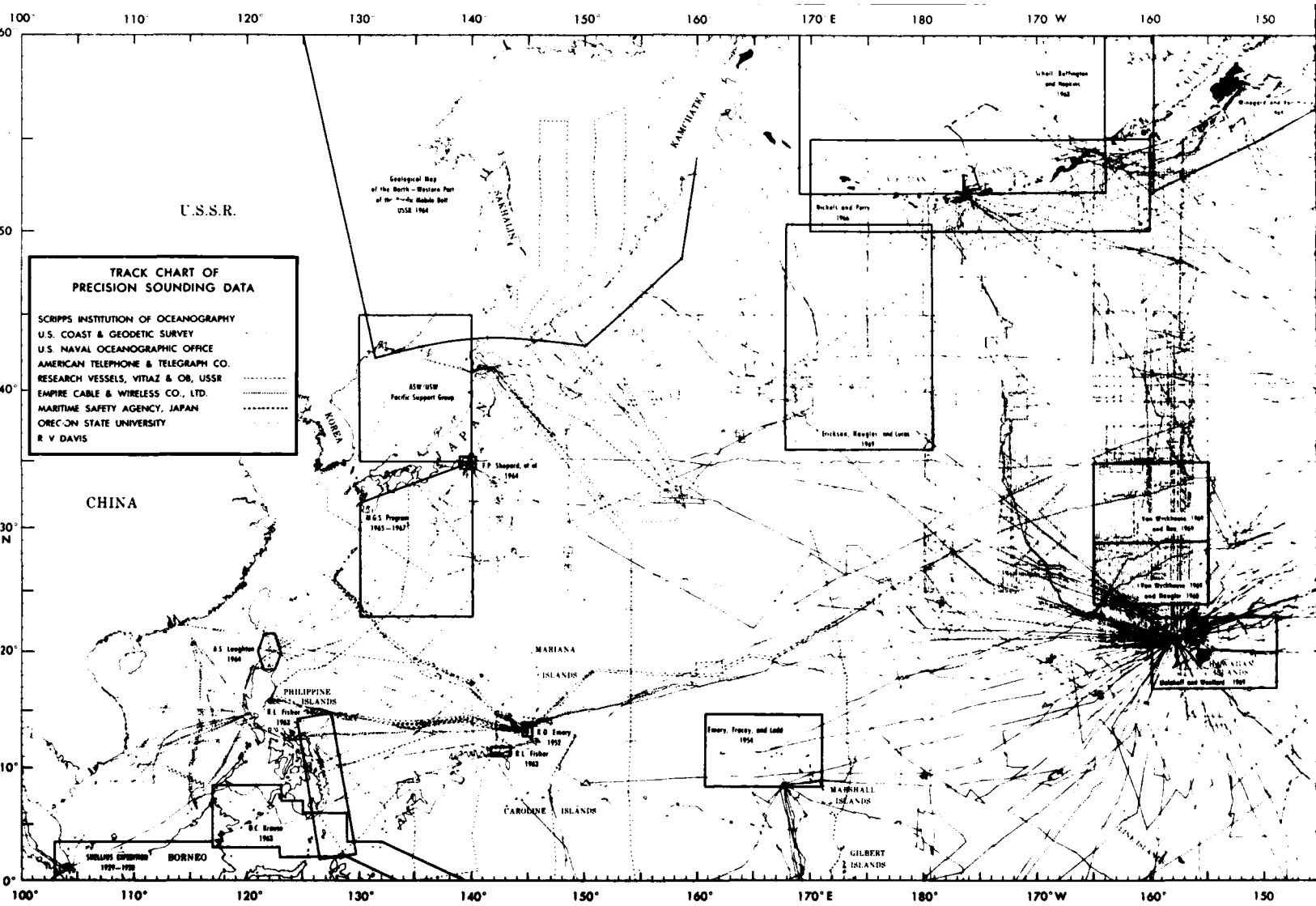
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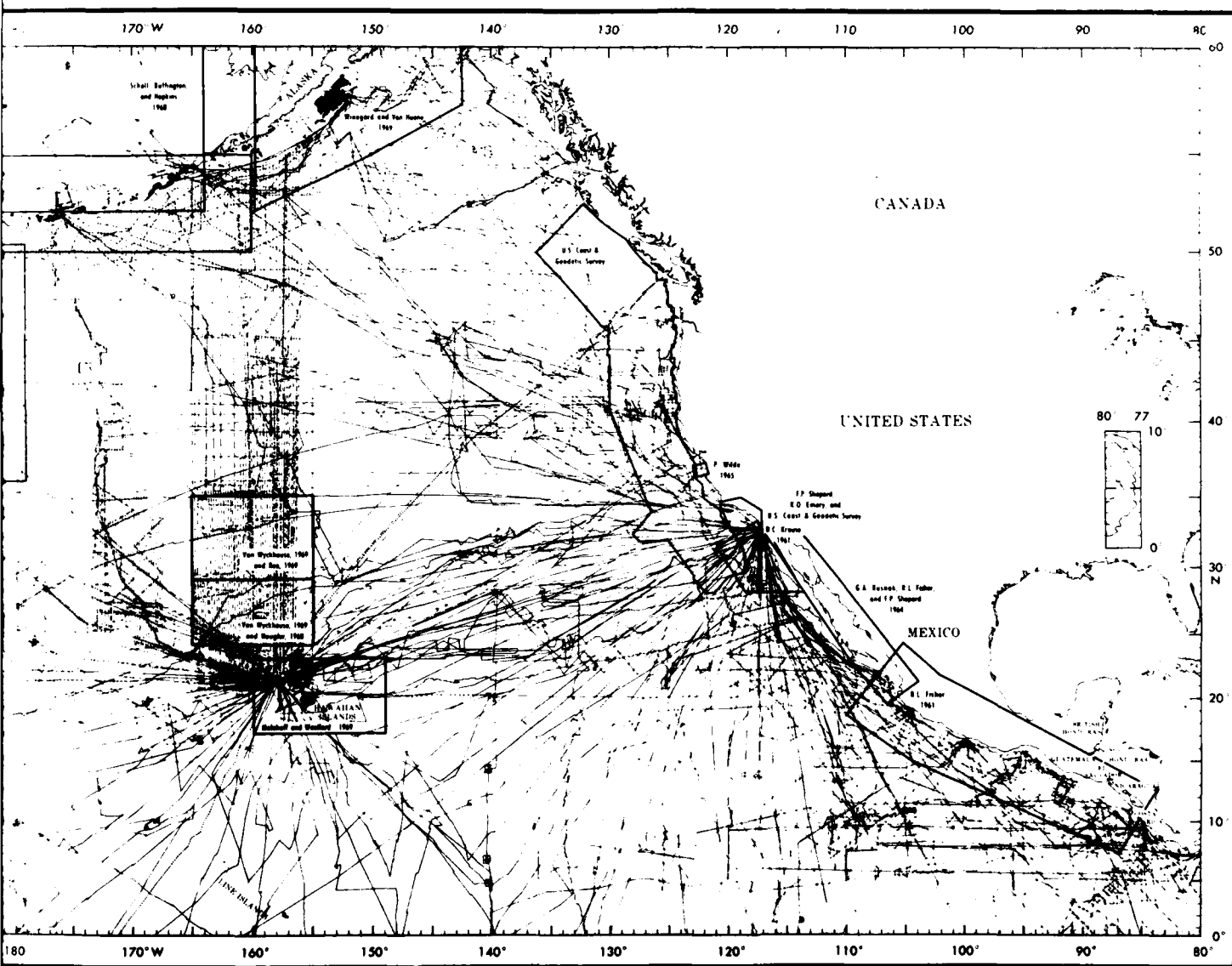
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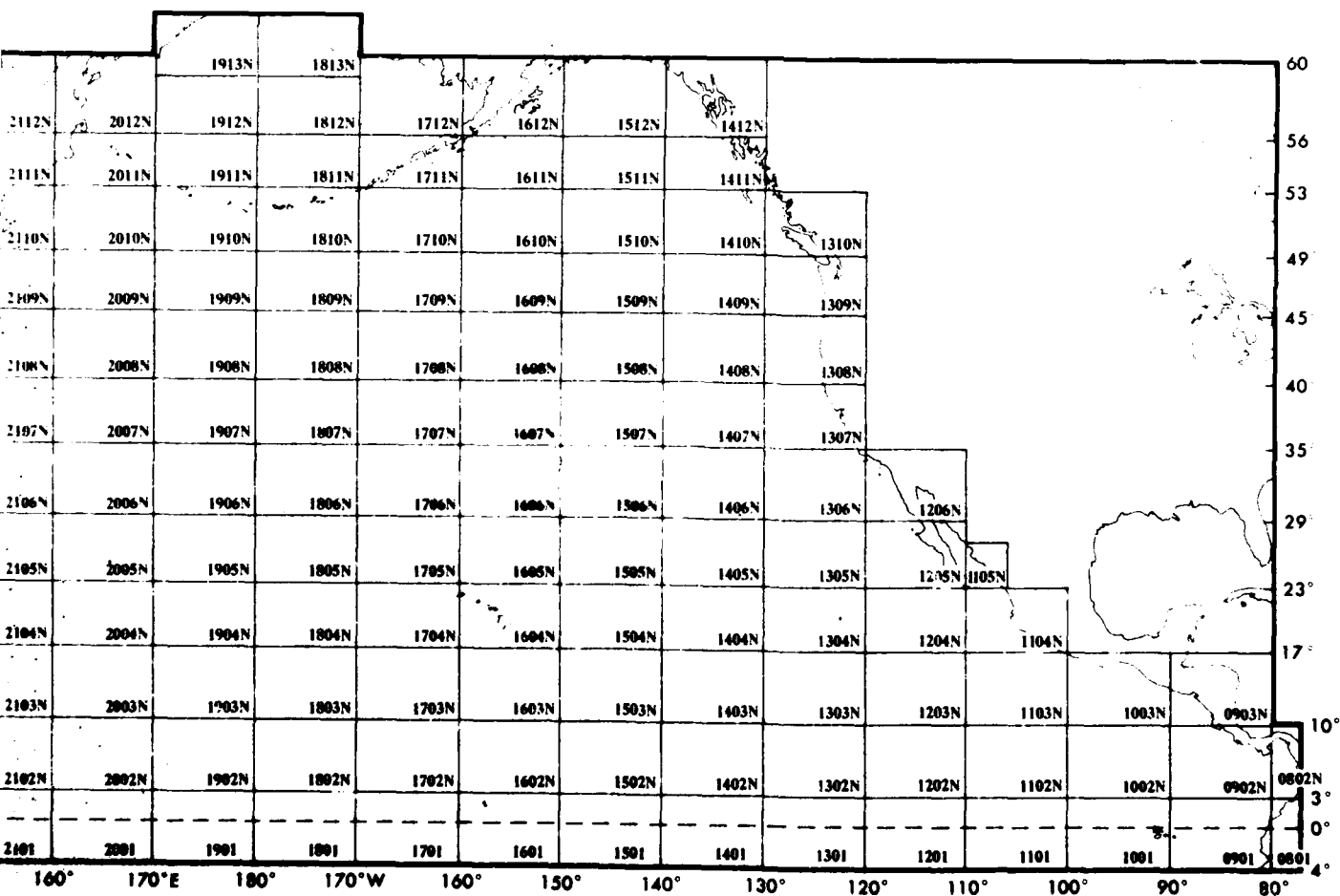
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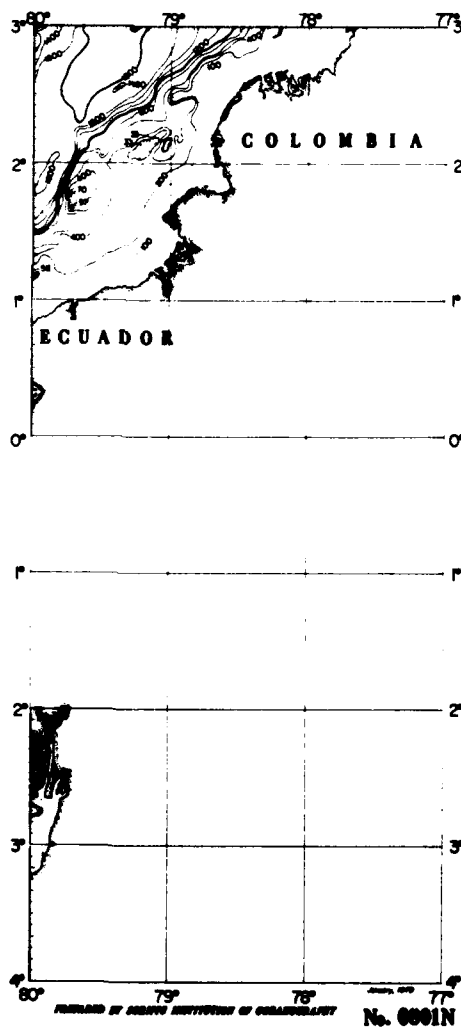
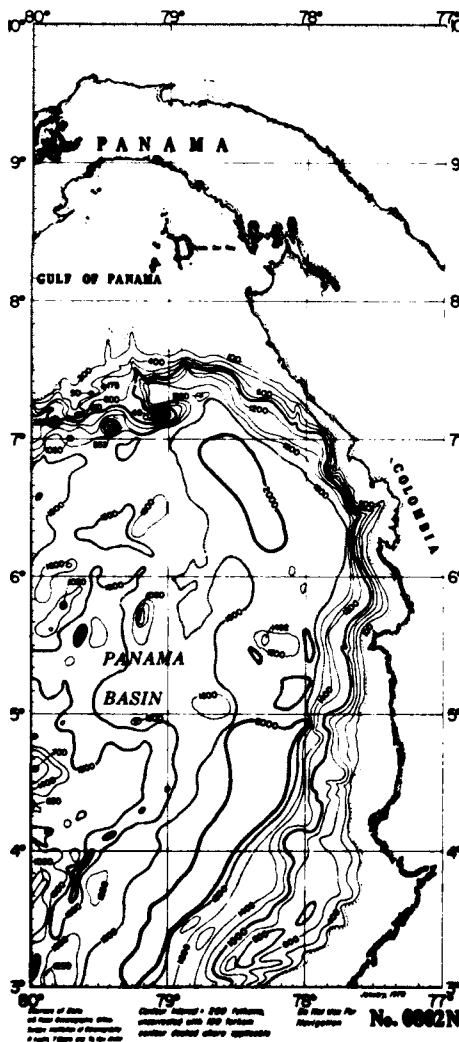
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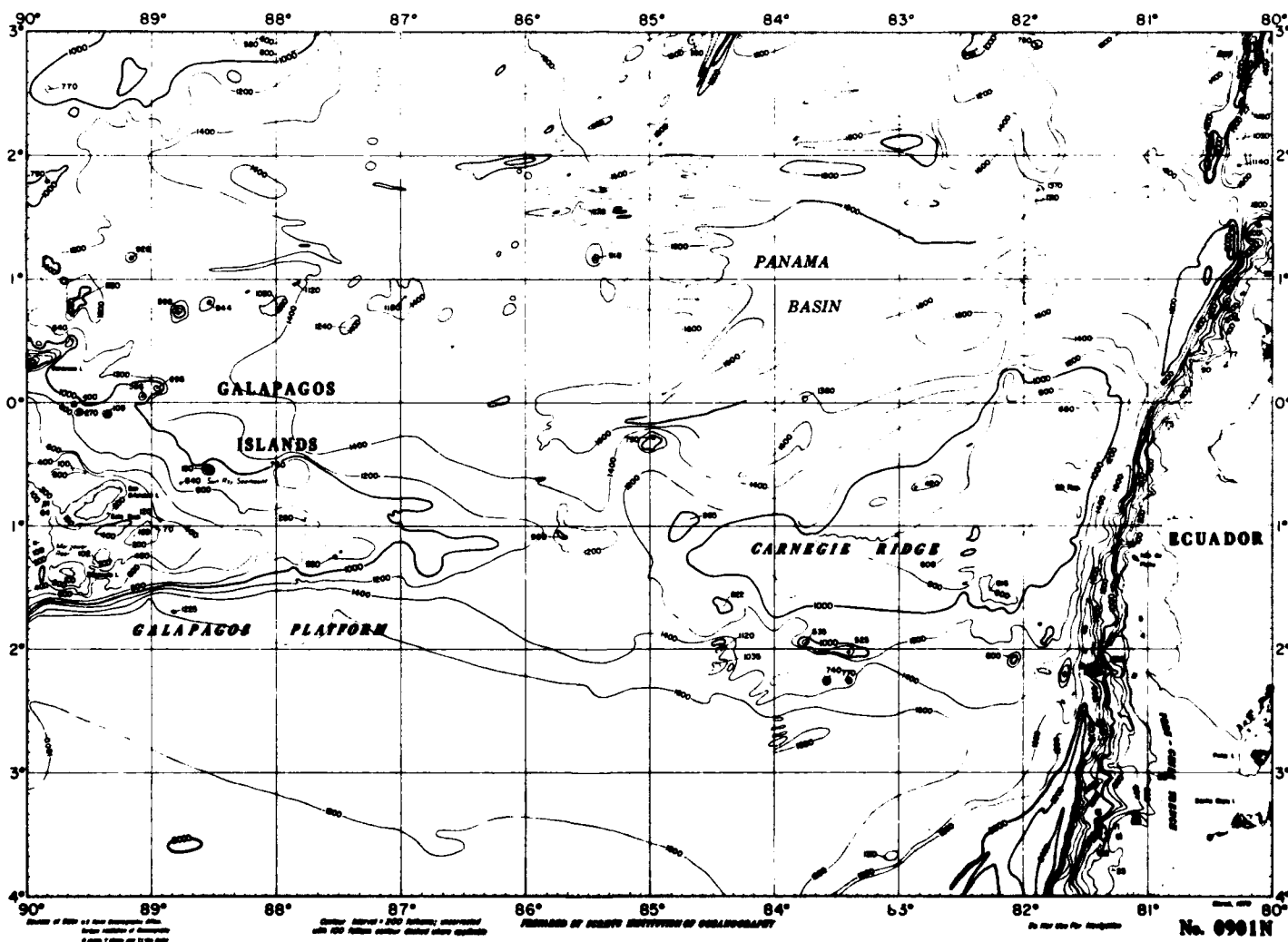
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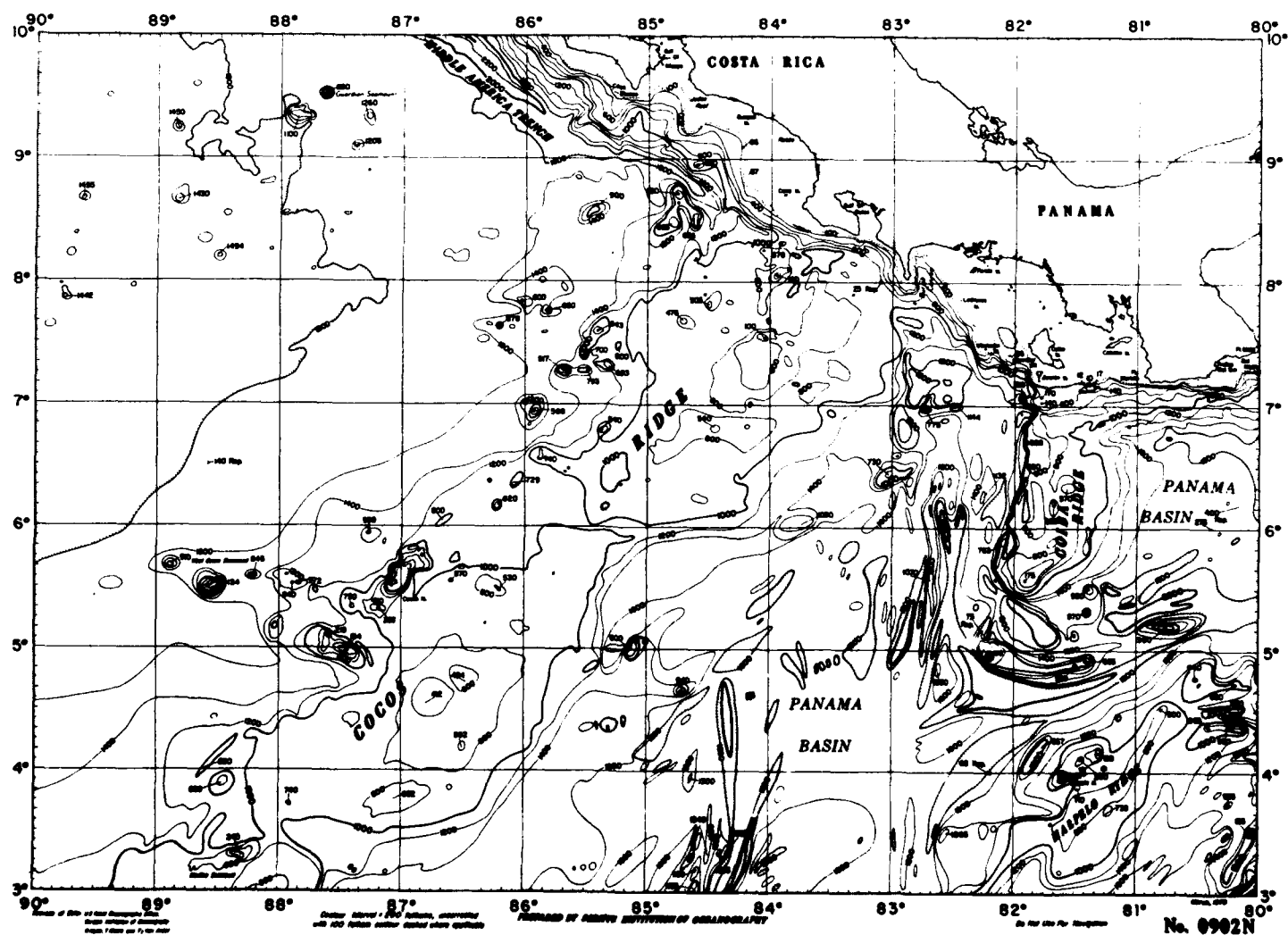
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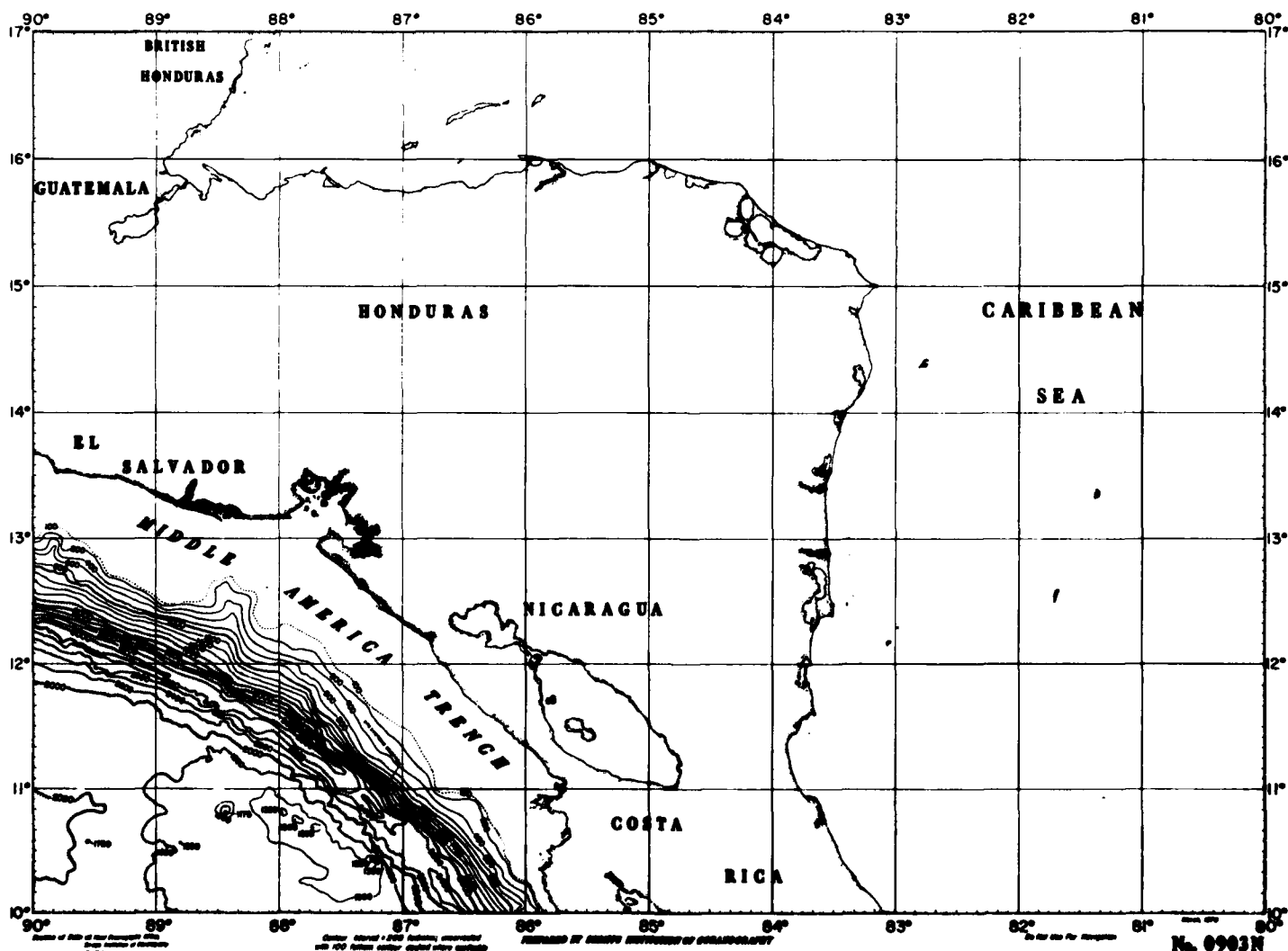
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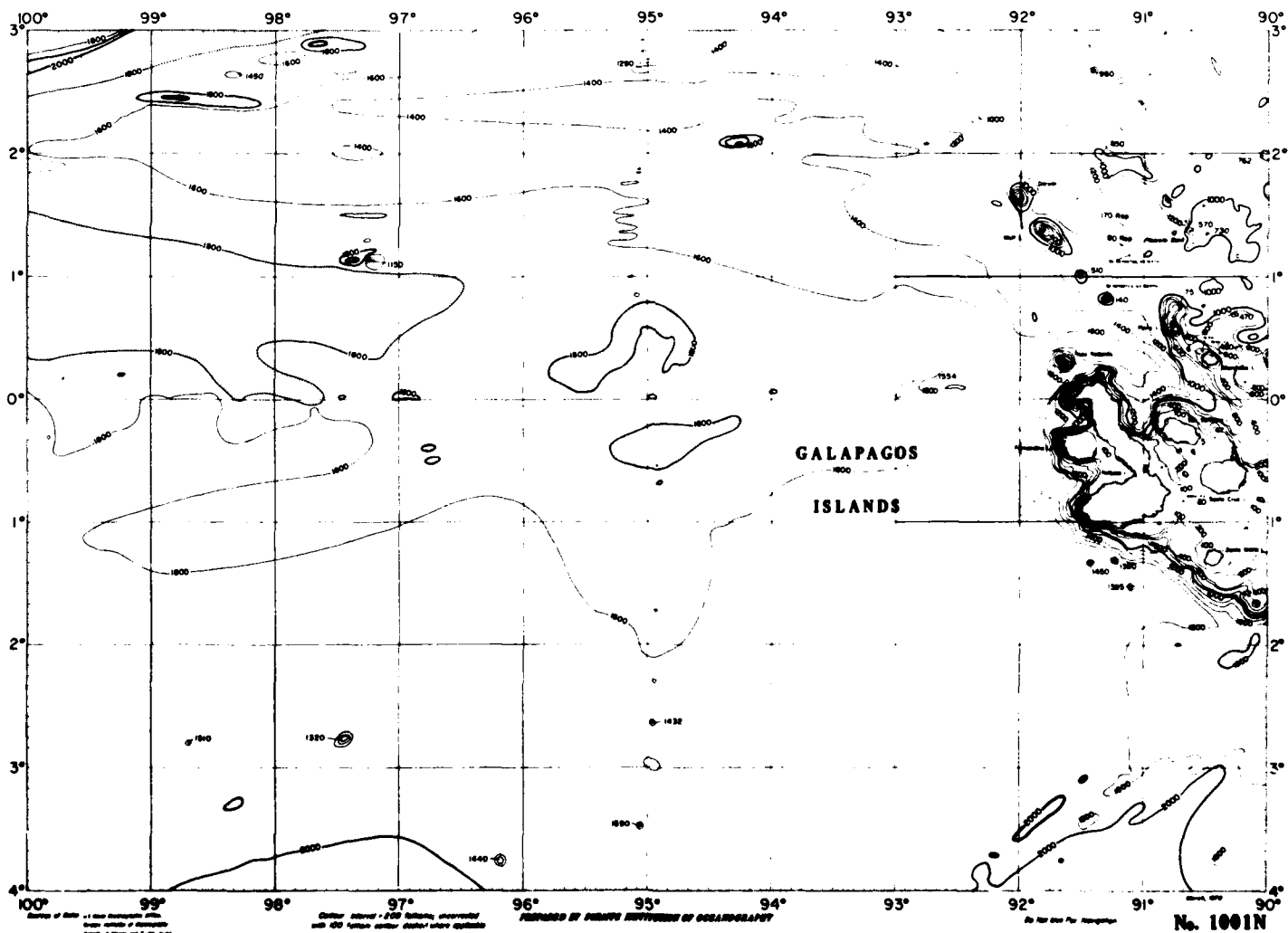


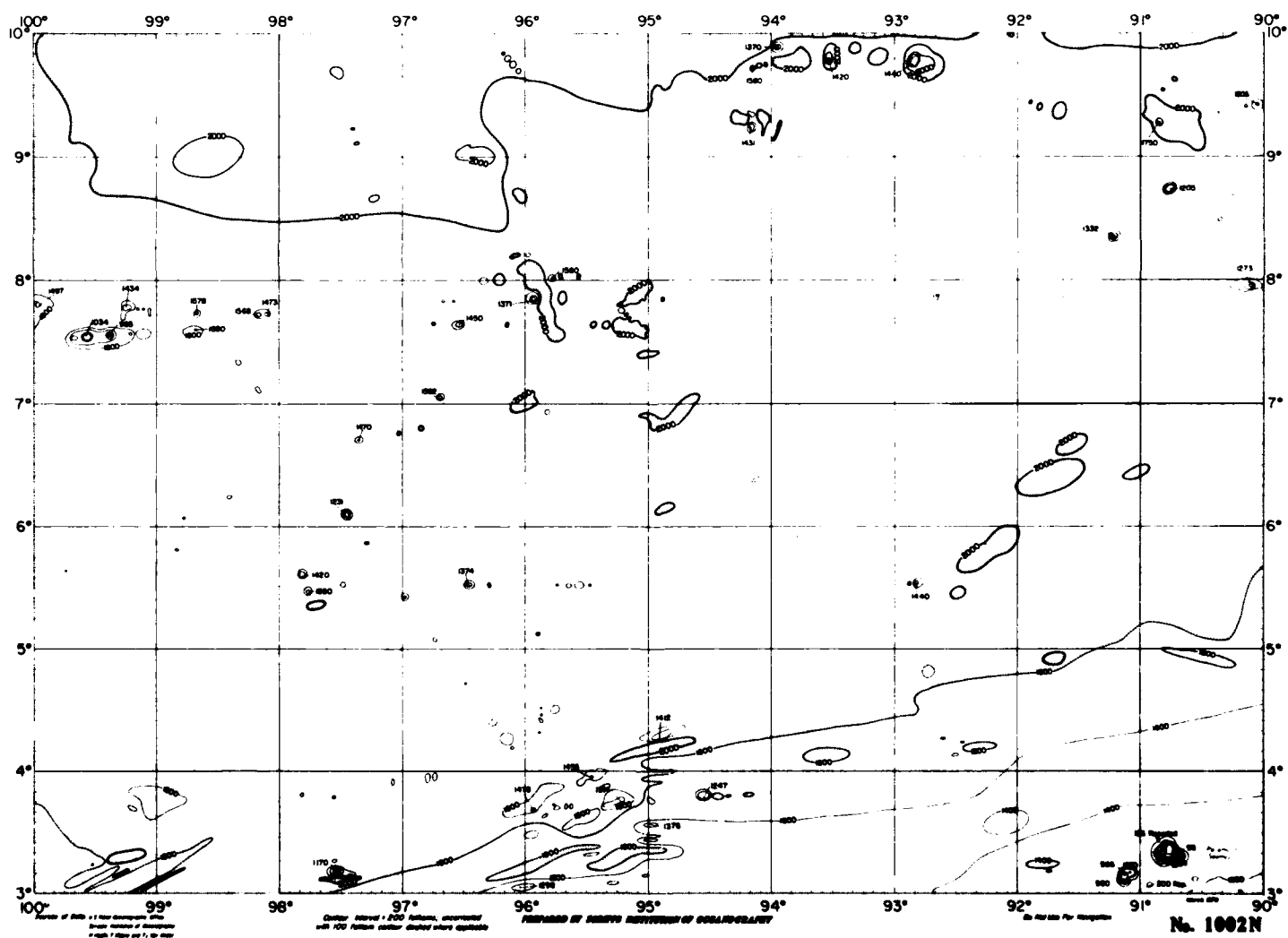


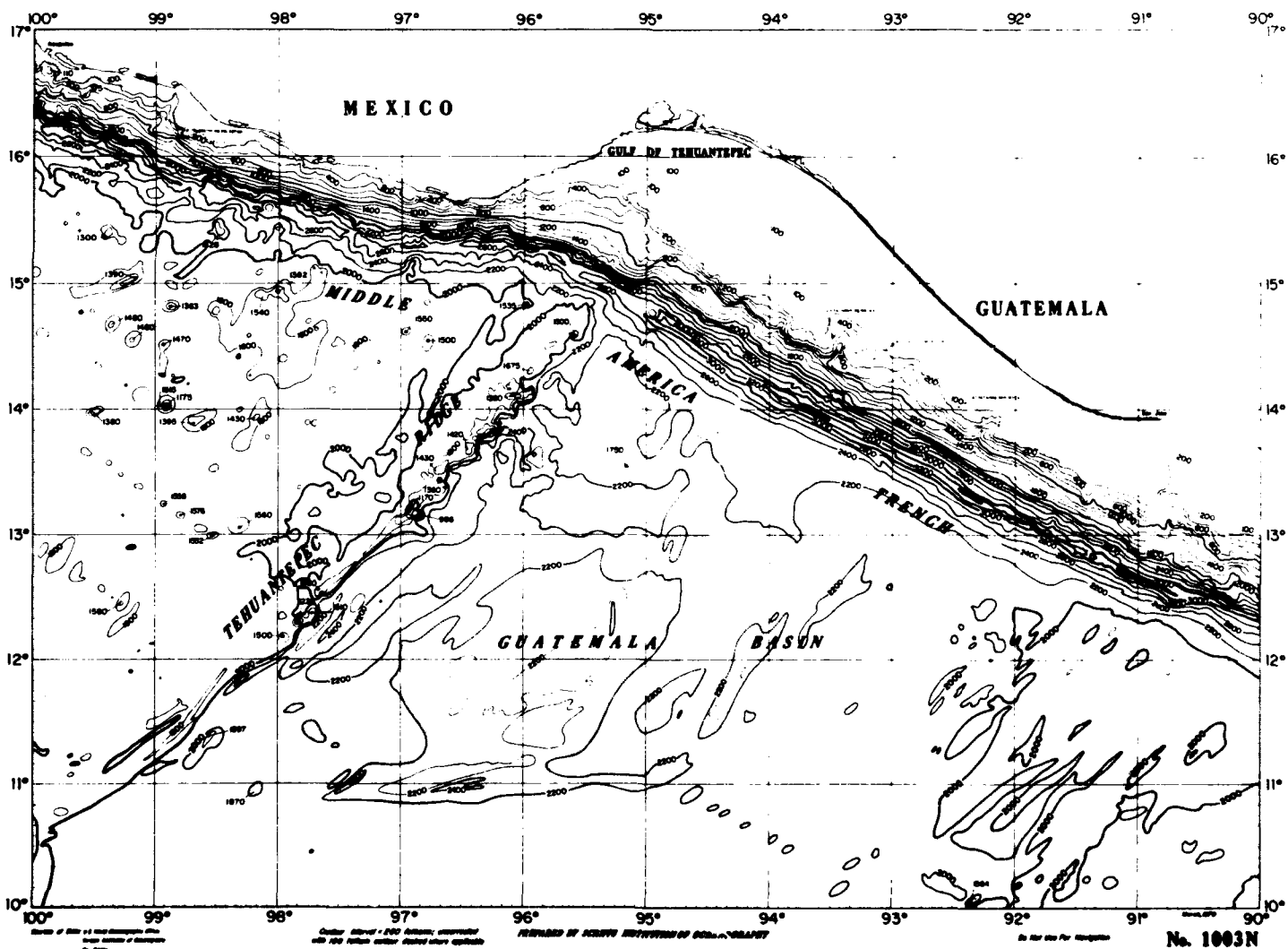


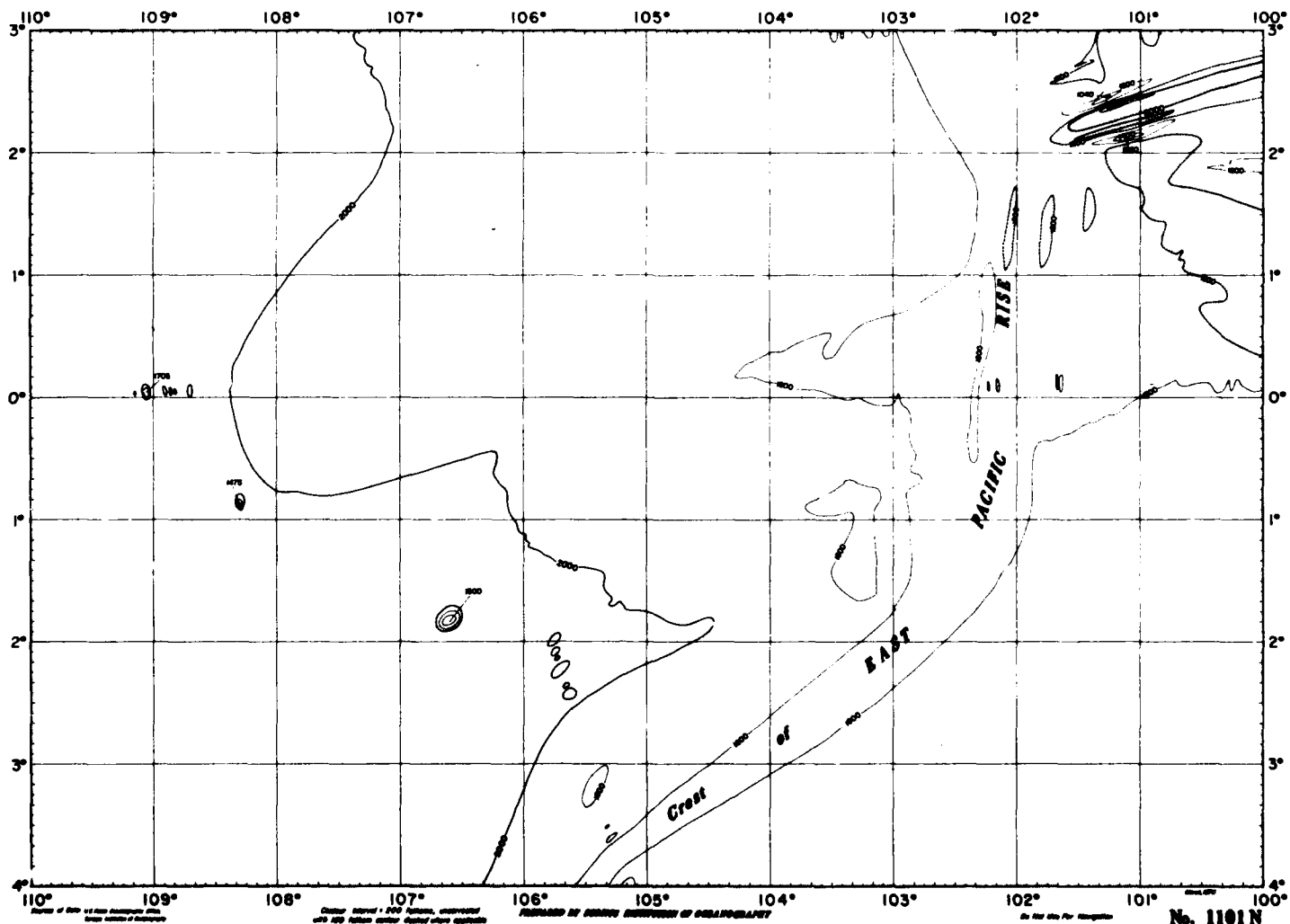


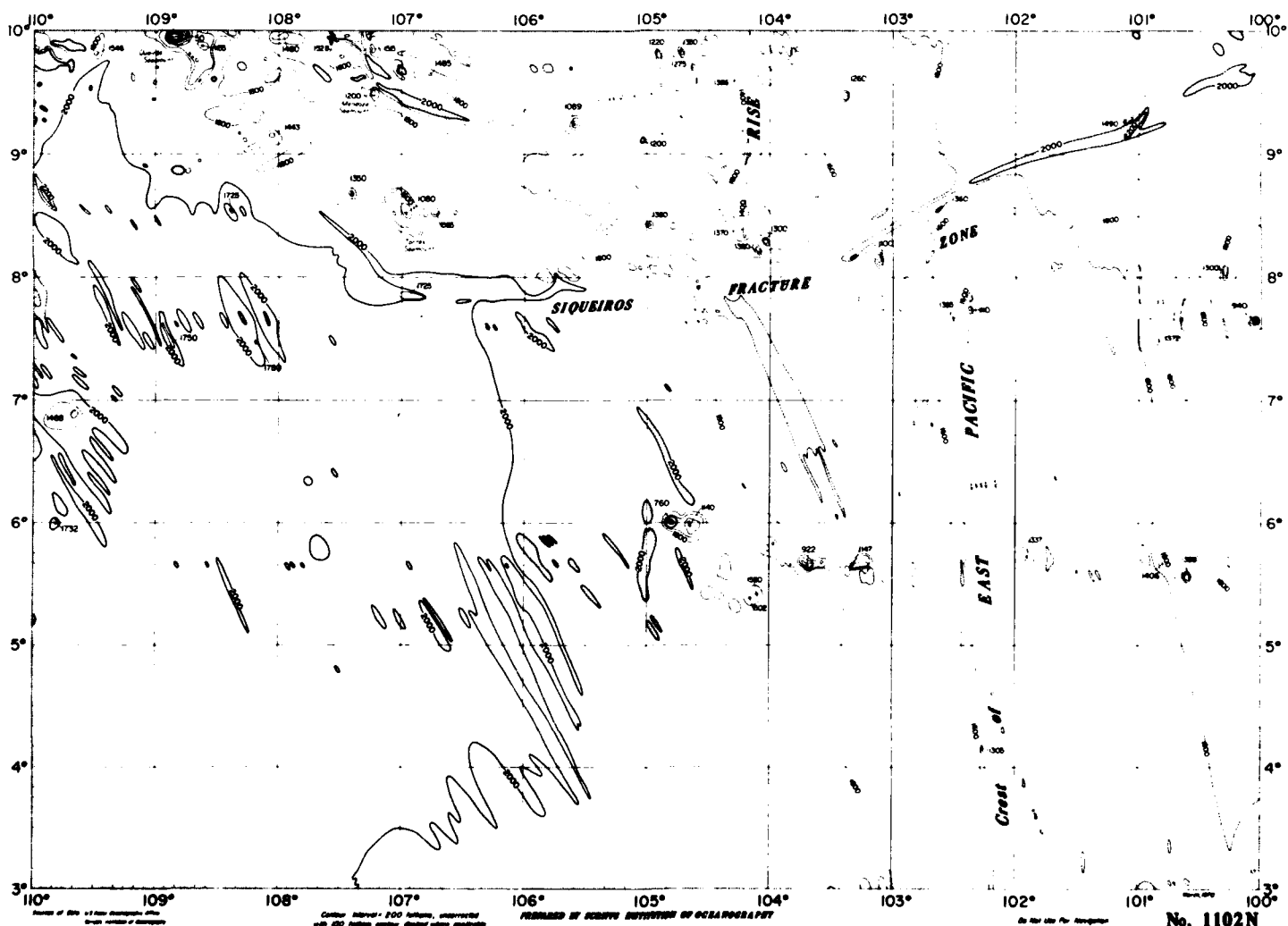


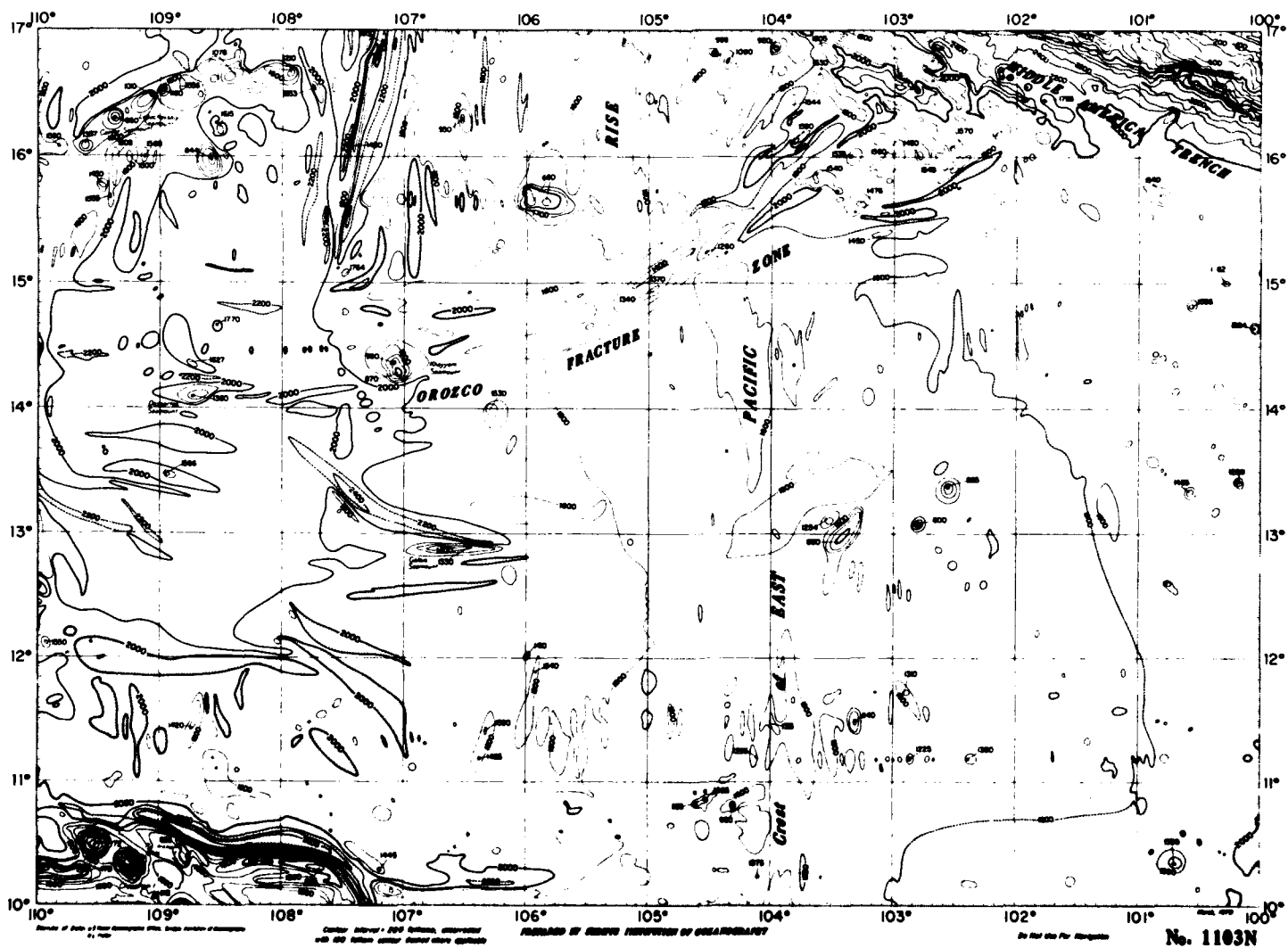


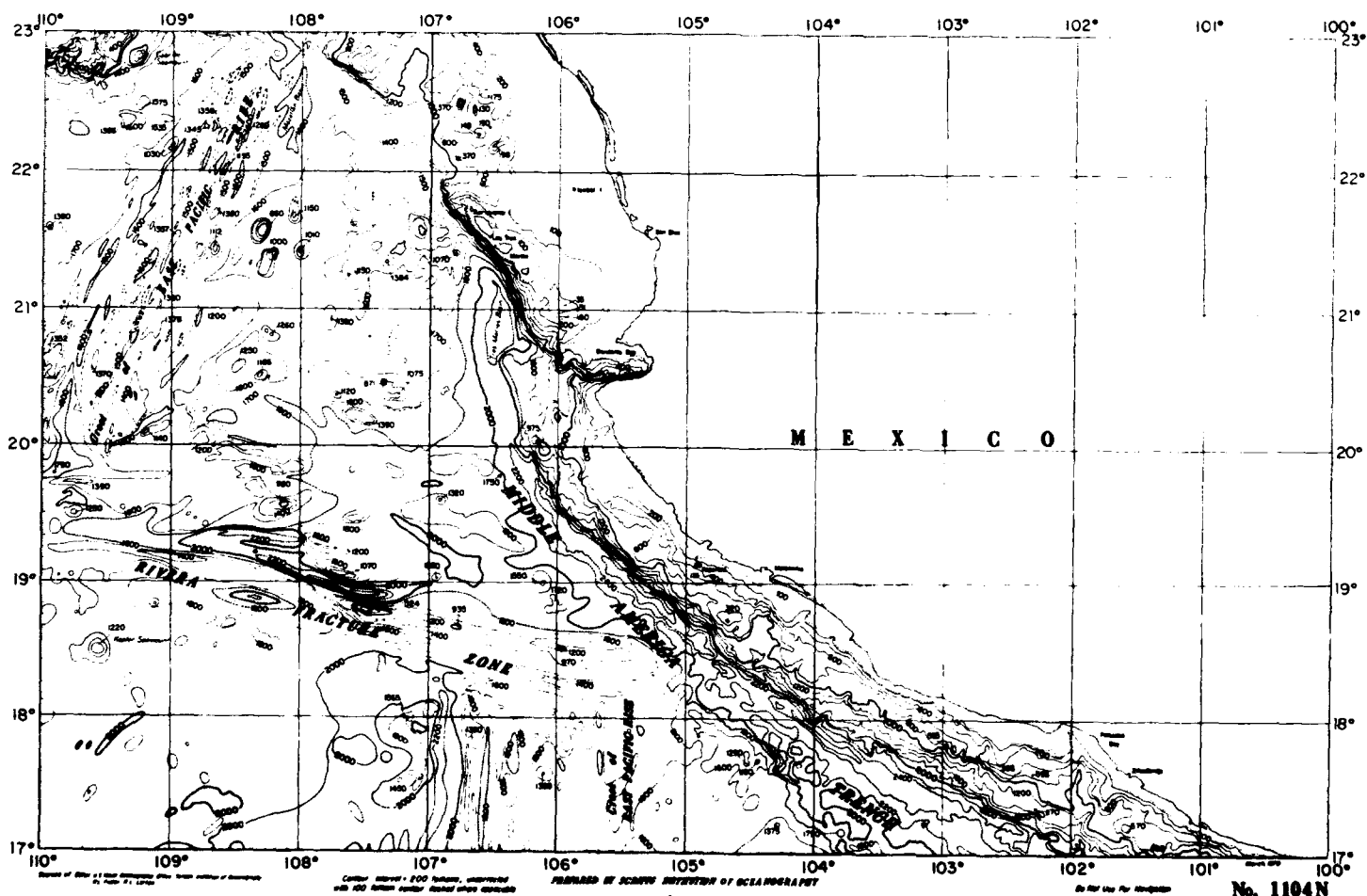


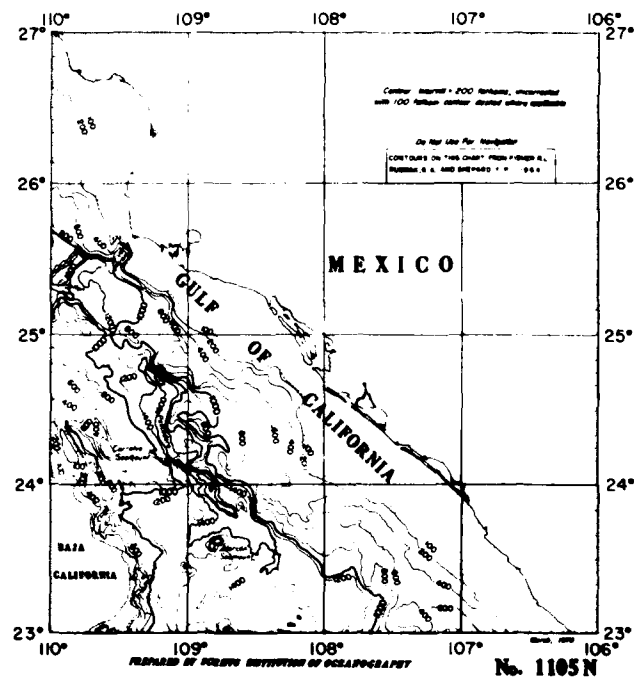


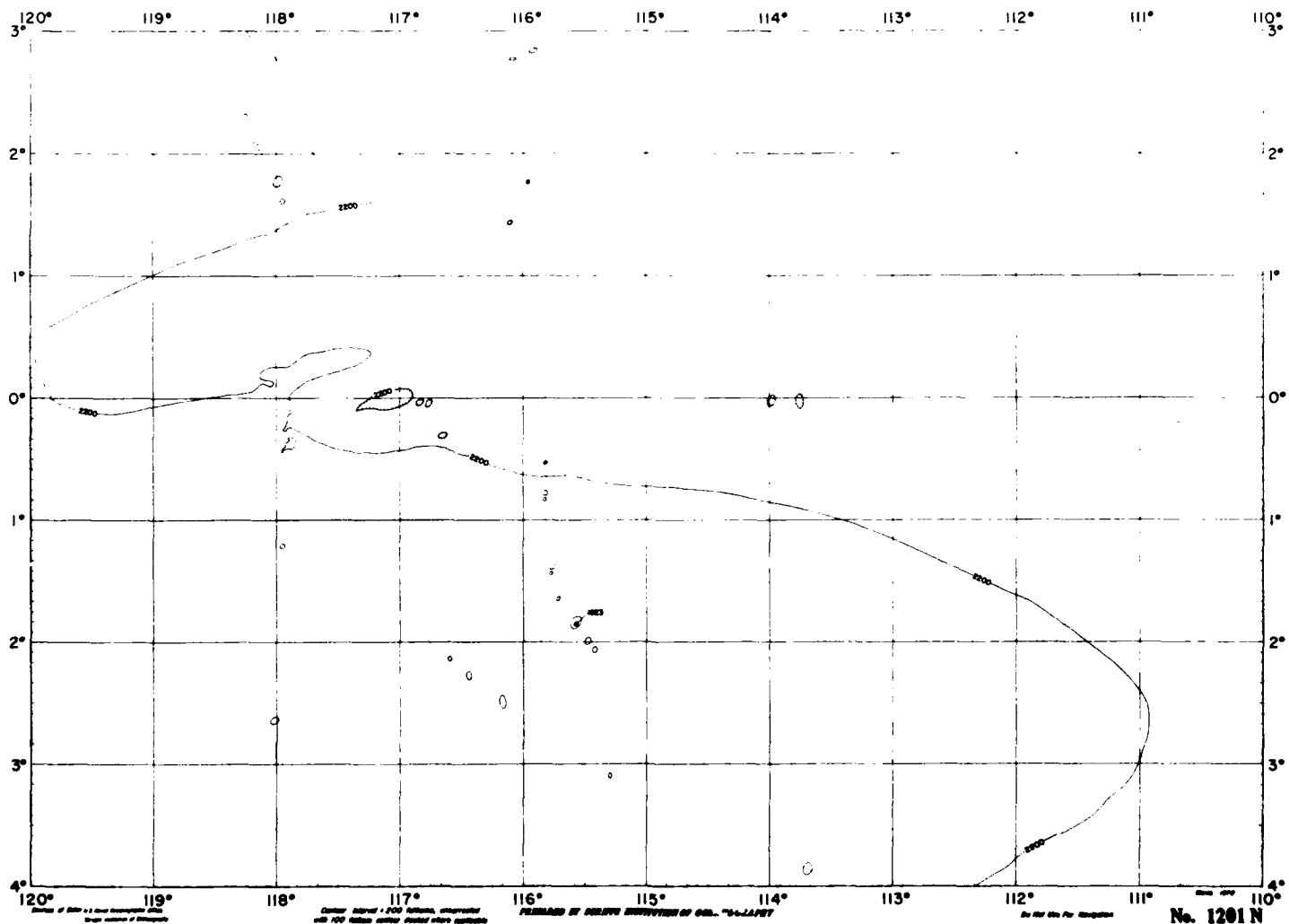


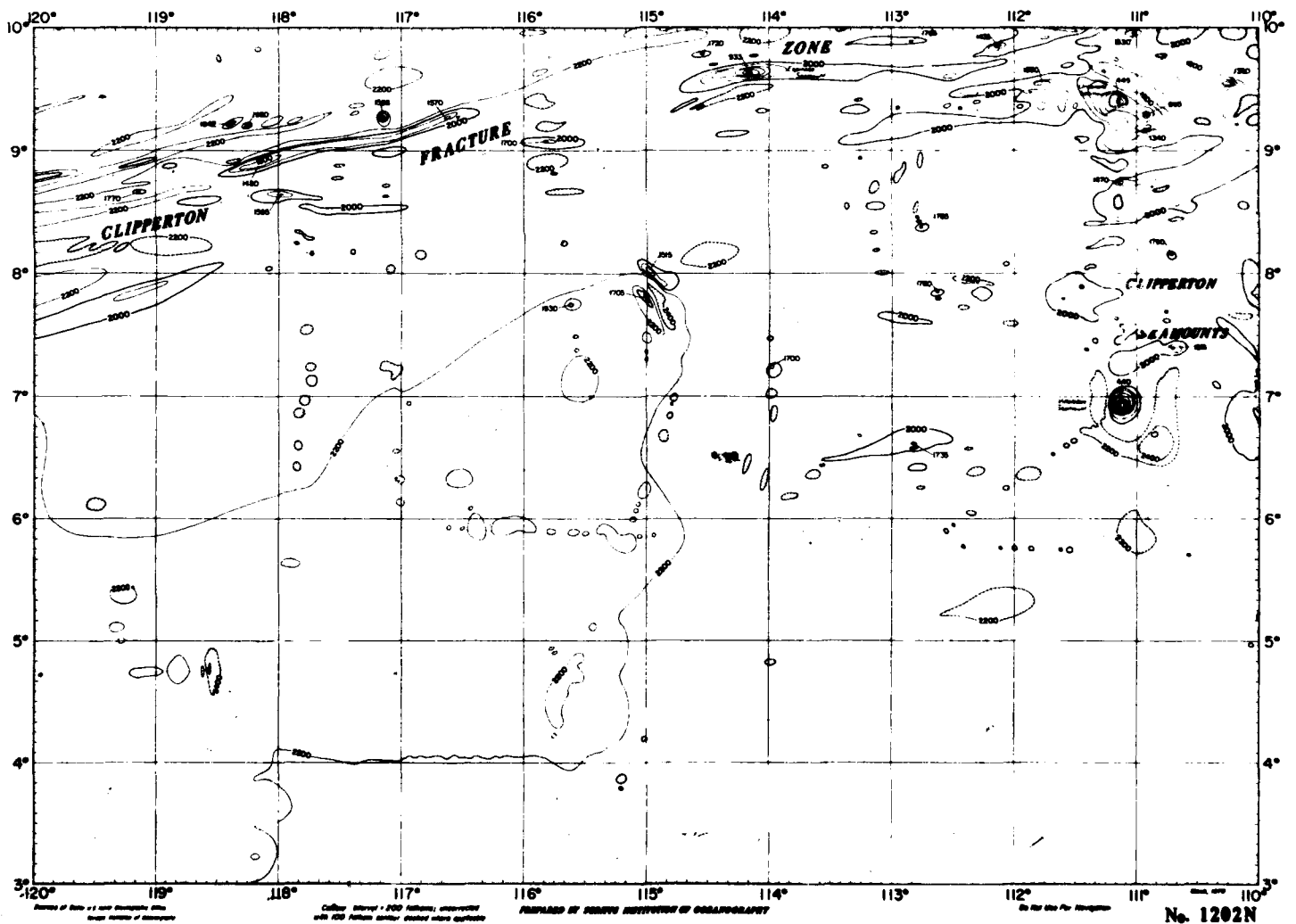










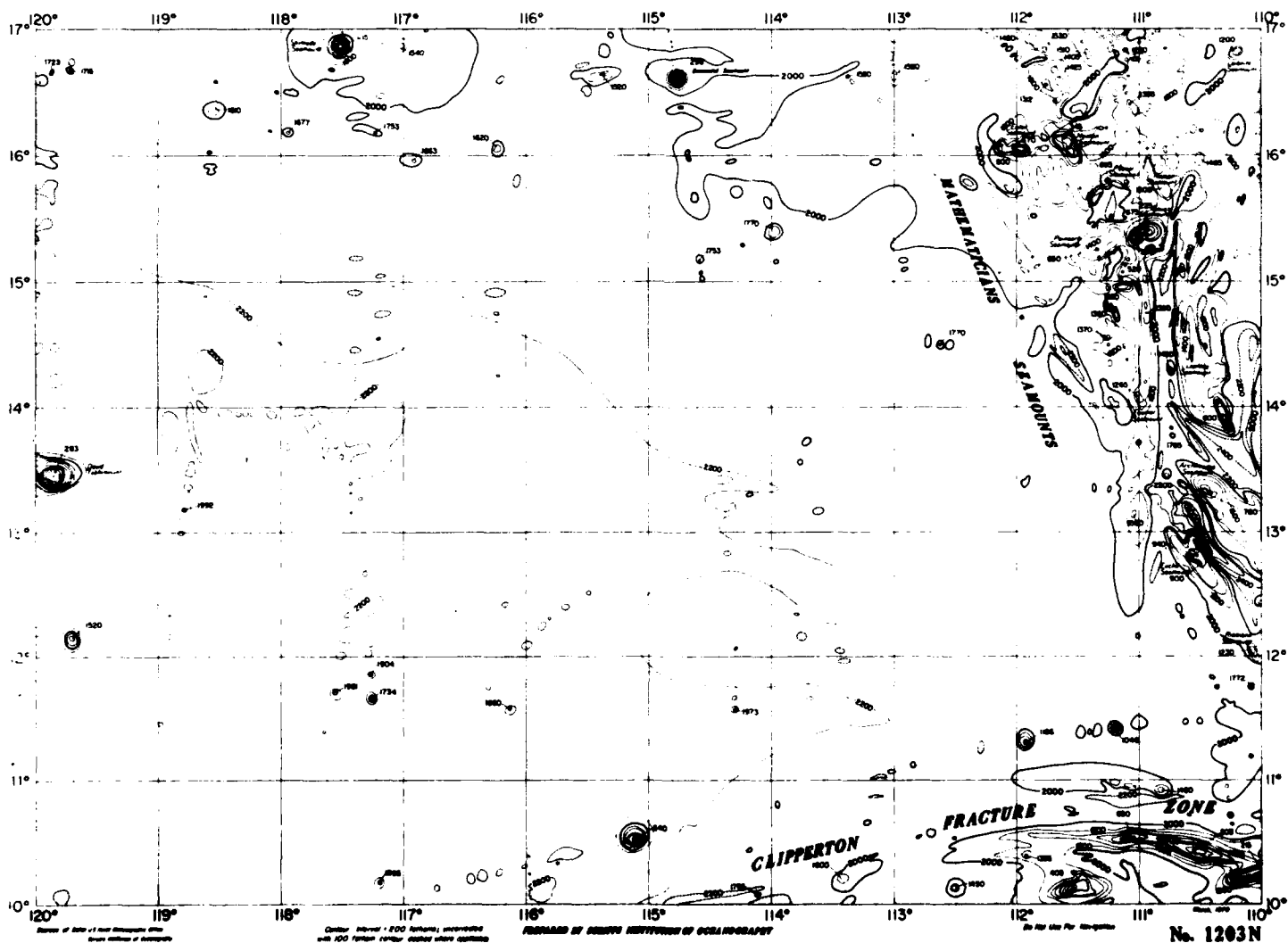


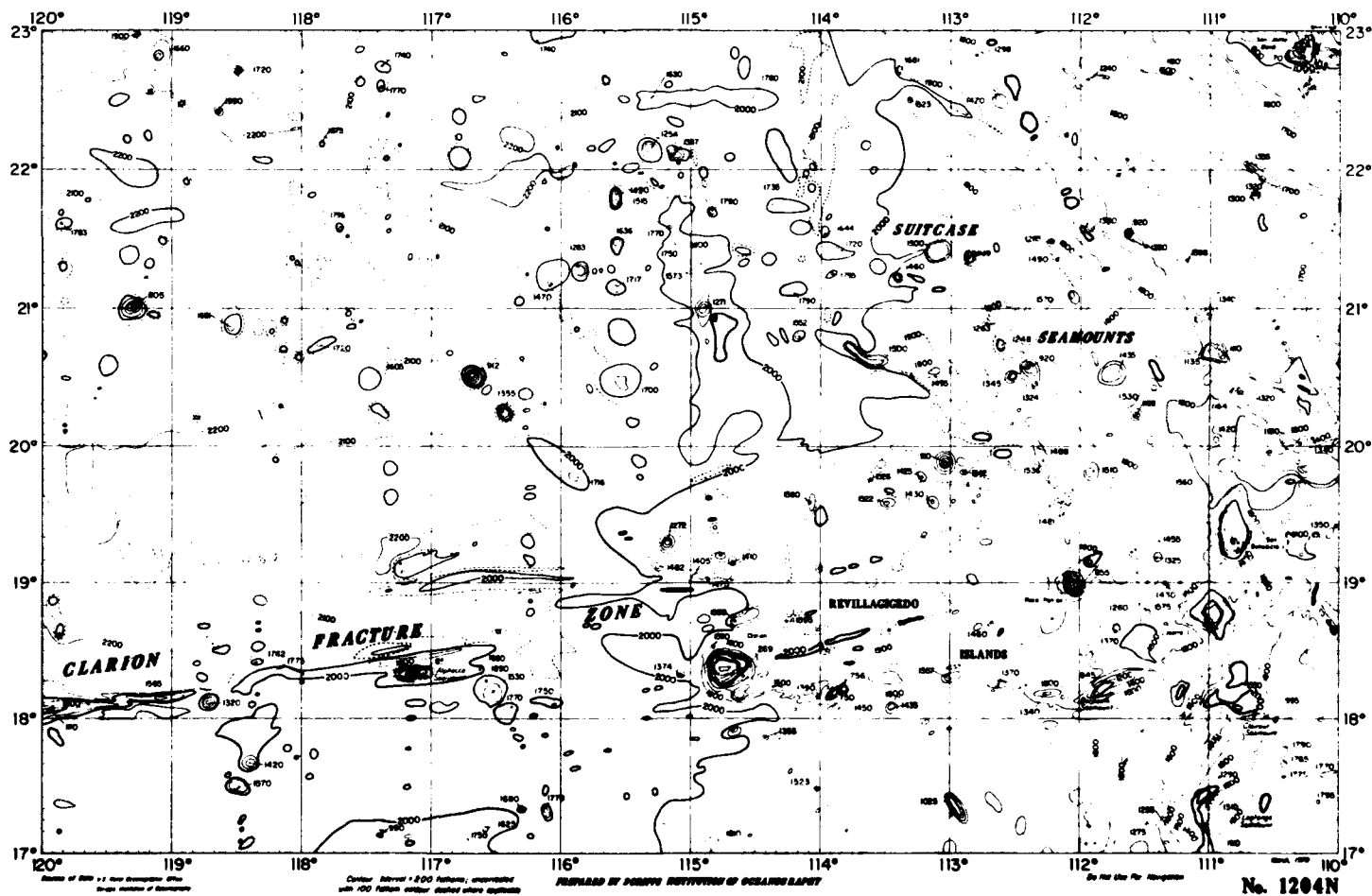
Outline shown at 100 fathoms, interrupted
with 100 fathom contour dashed where appropriate

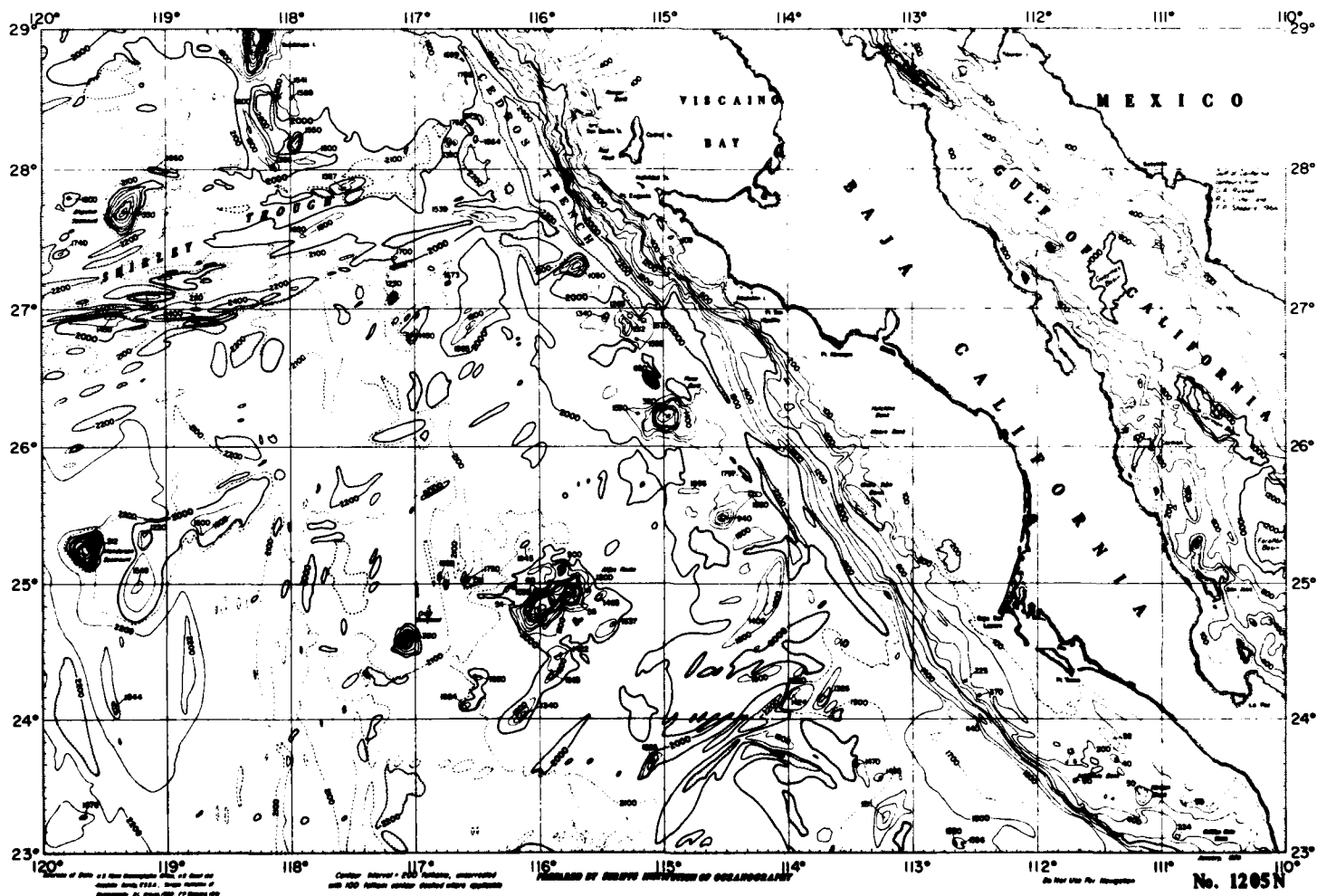
PREPARED BY GEODESY DIVISION OF COAST AND GEODETIC SURVEY

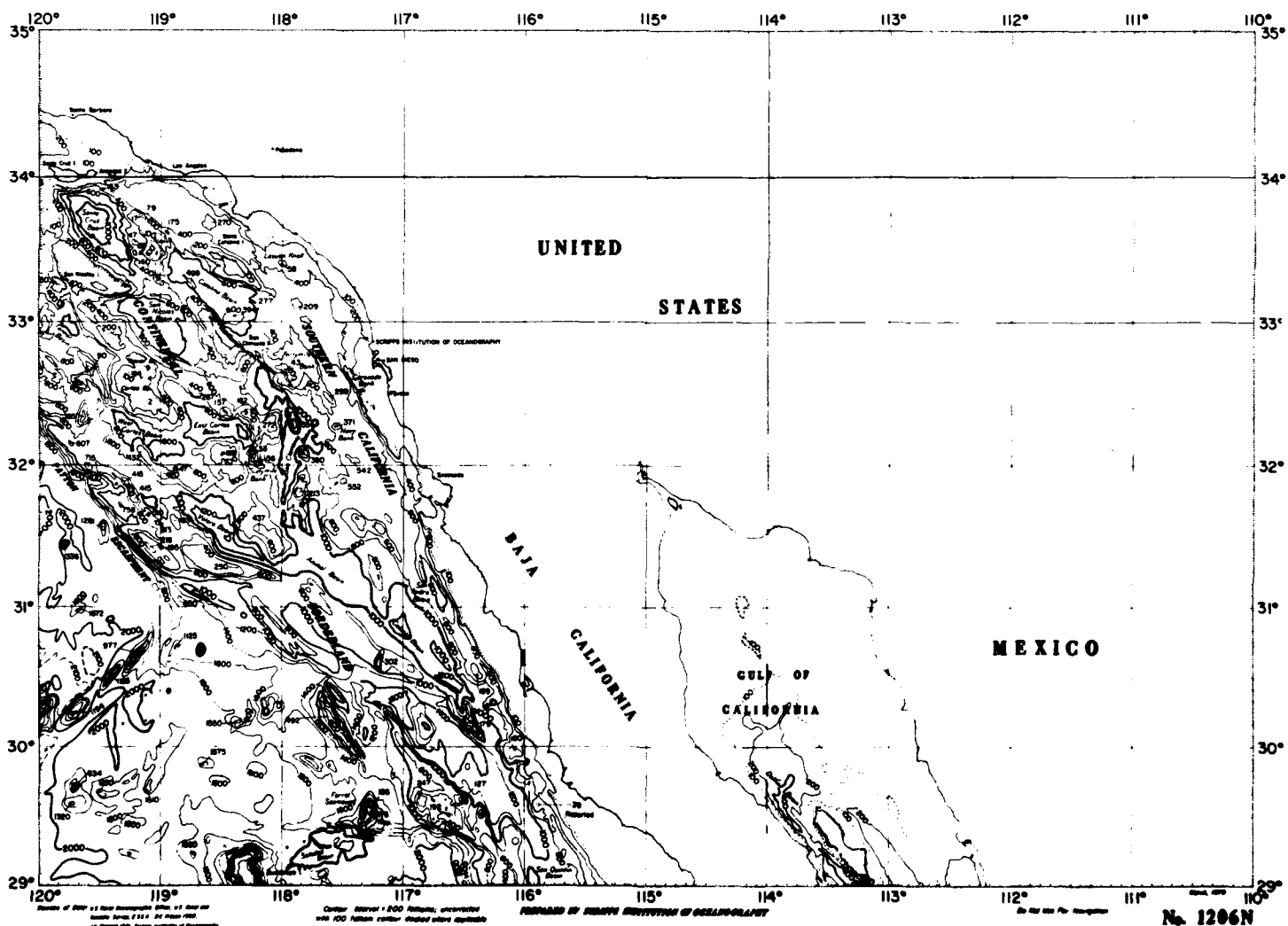
See Note on Page 10

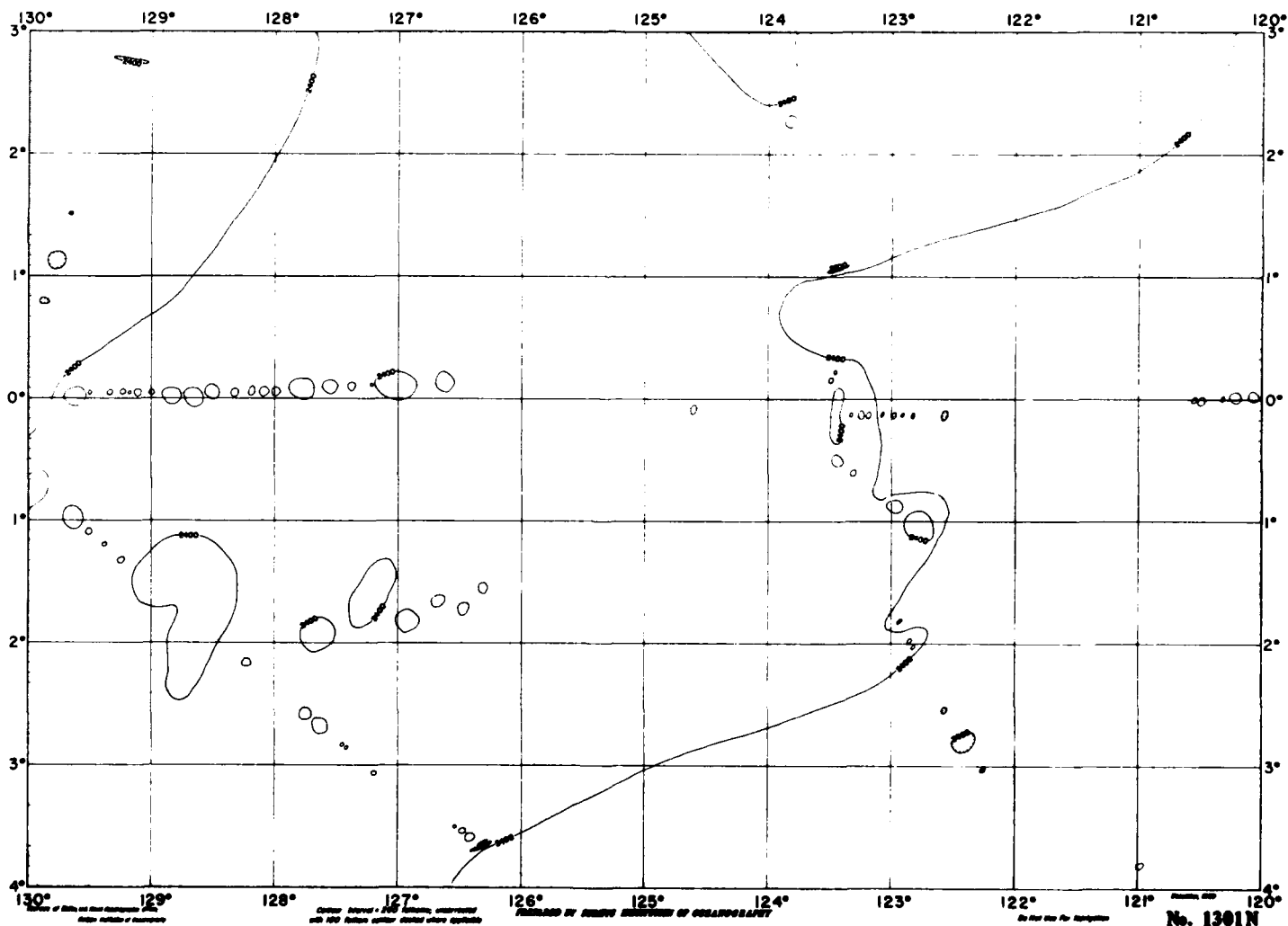
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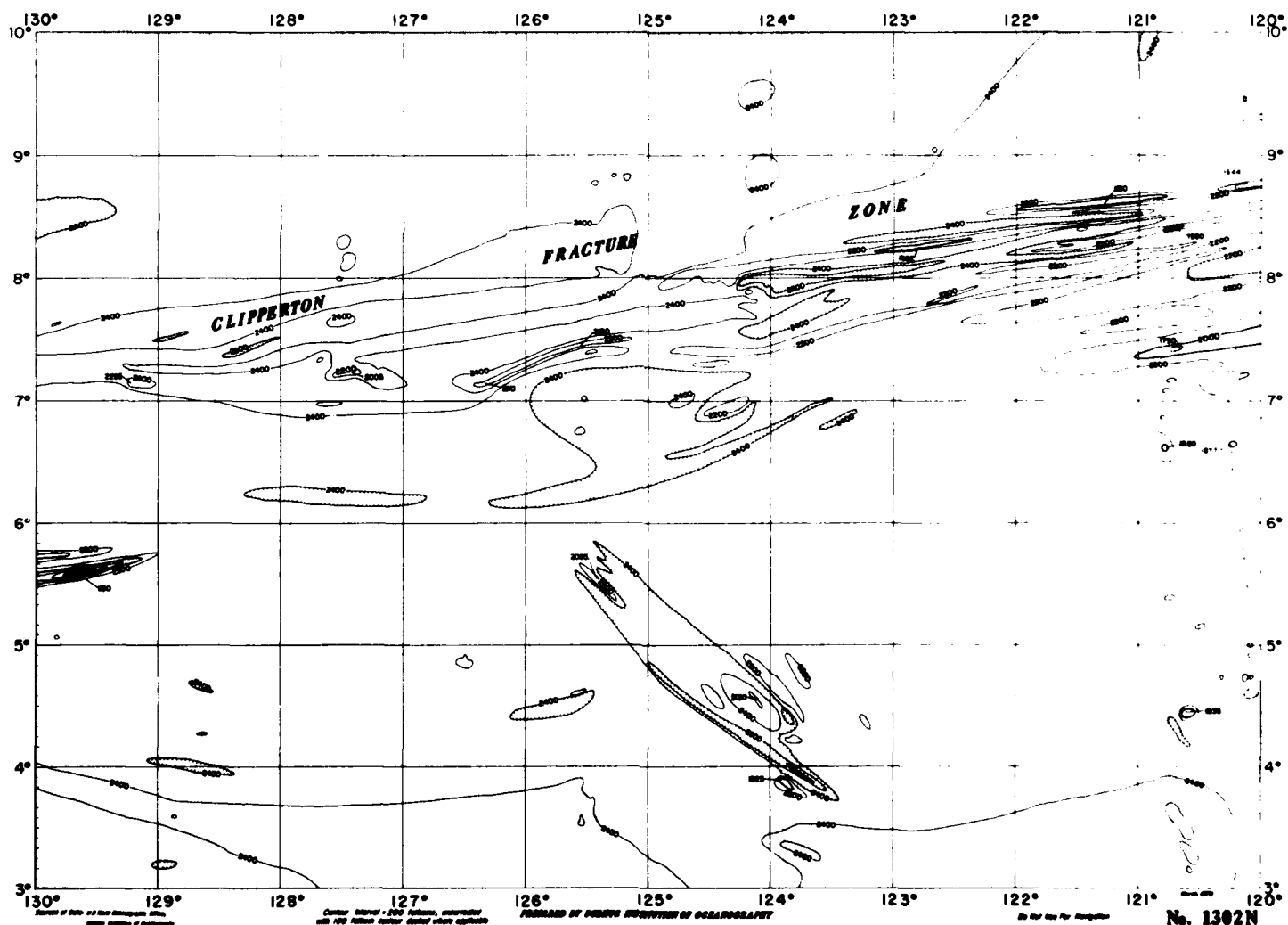


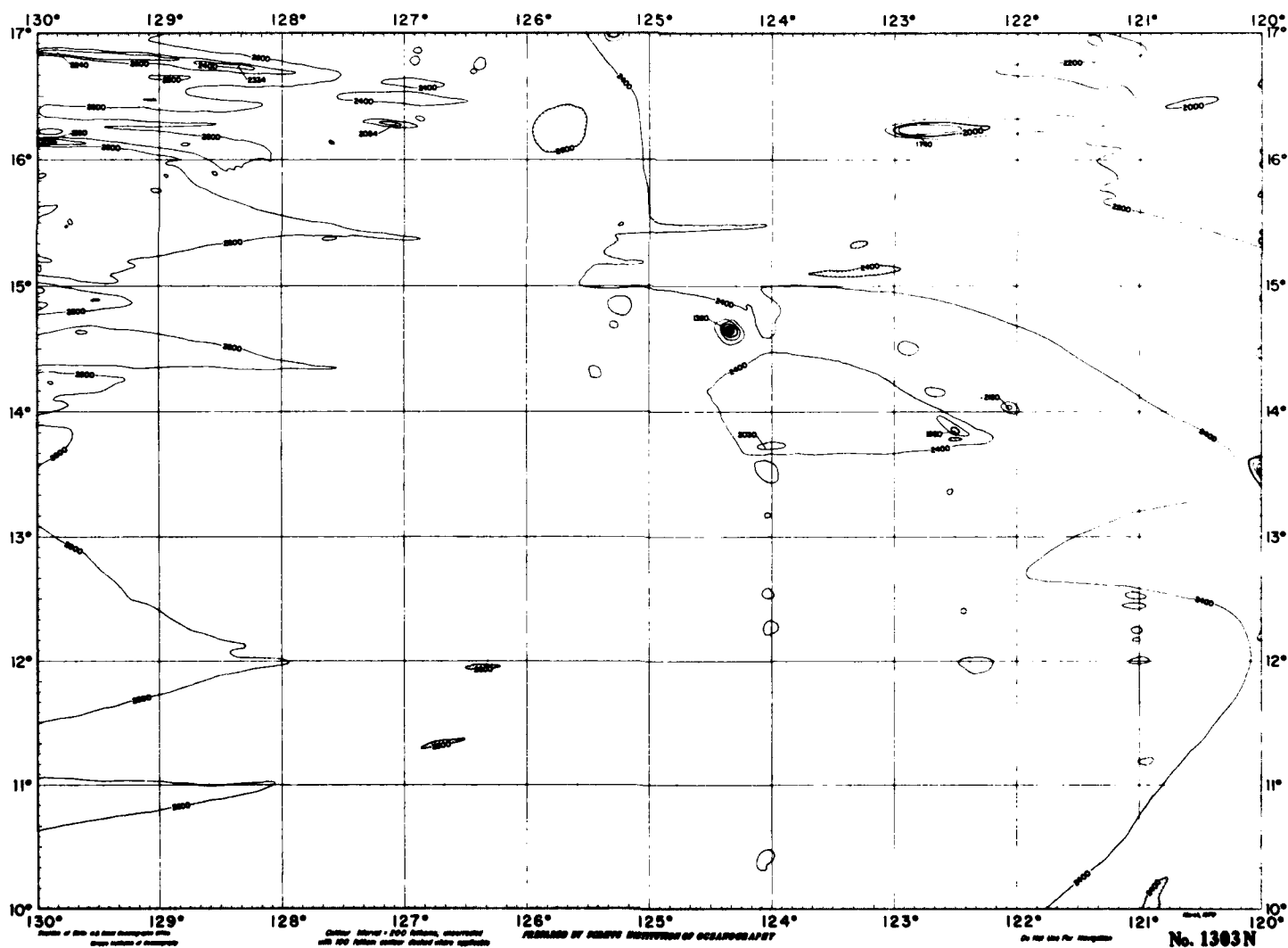


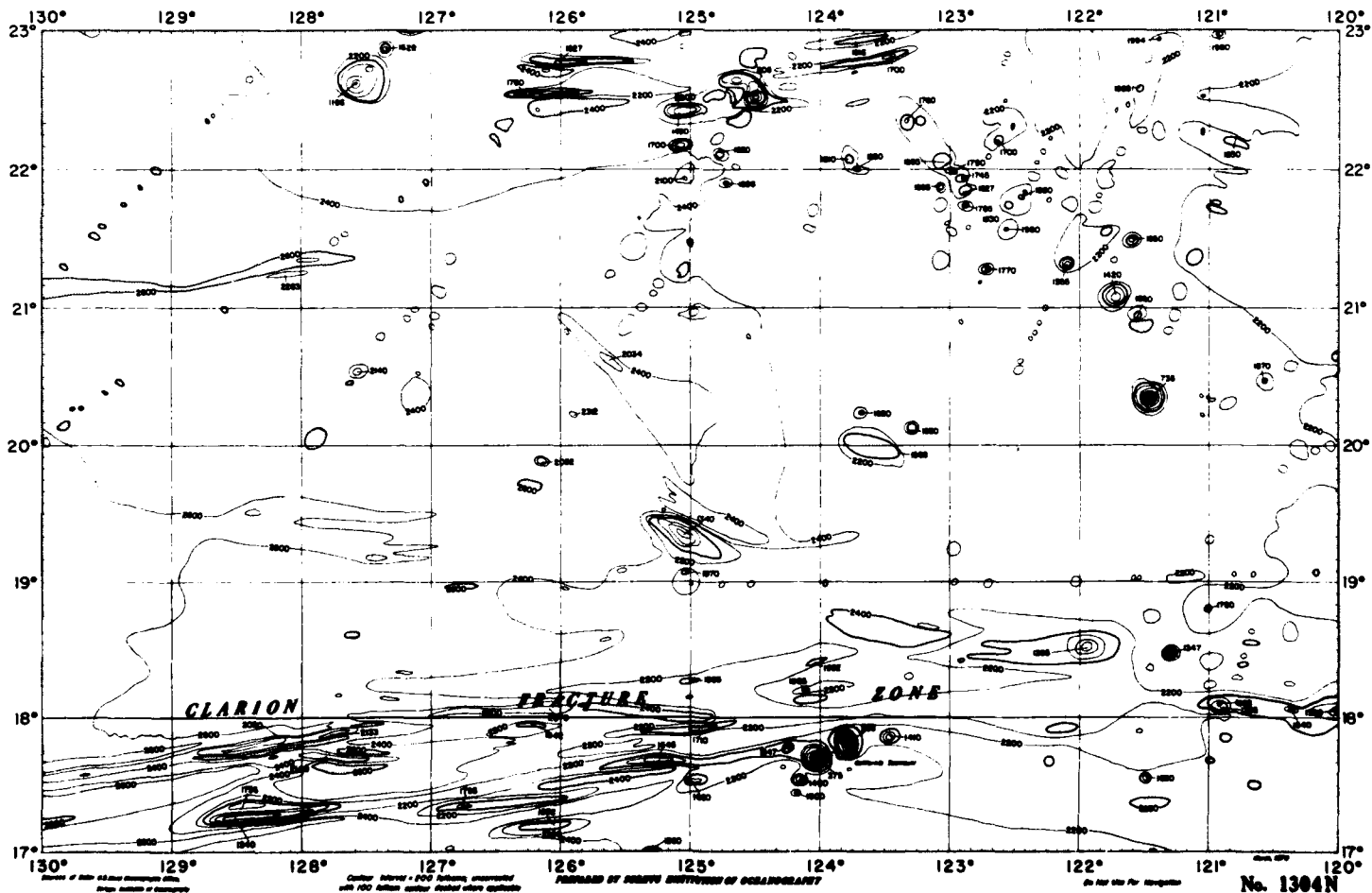




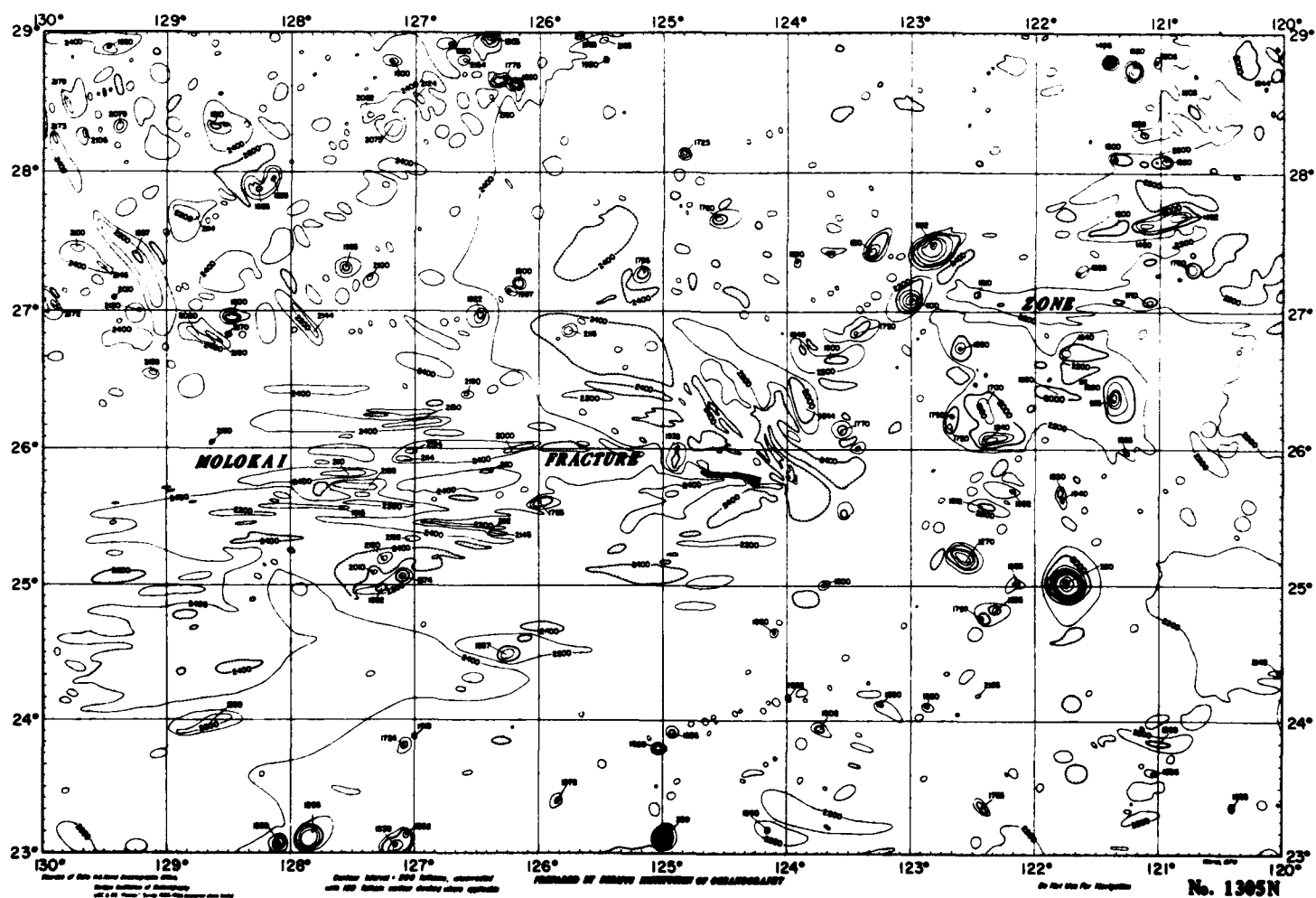


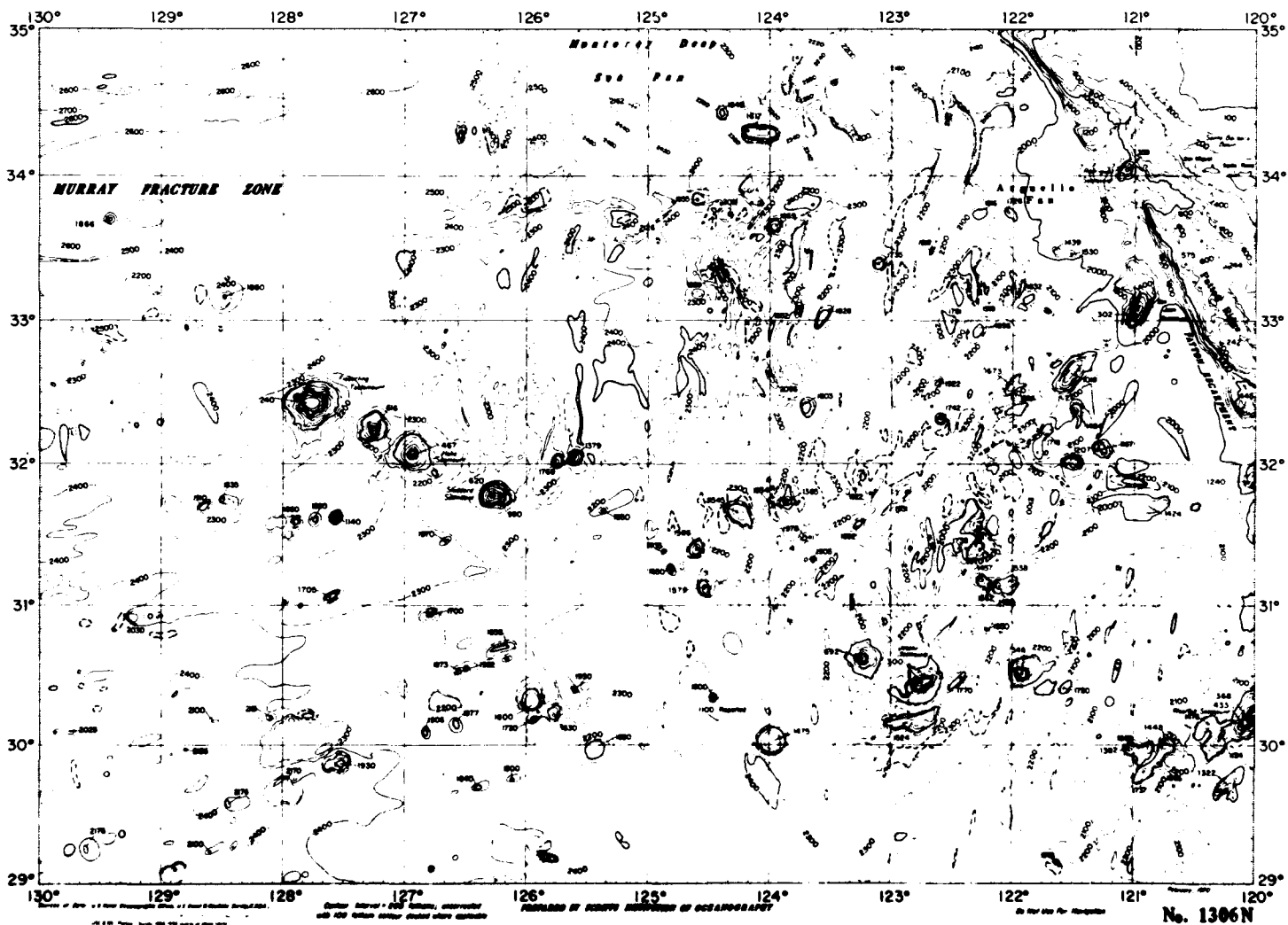


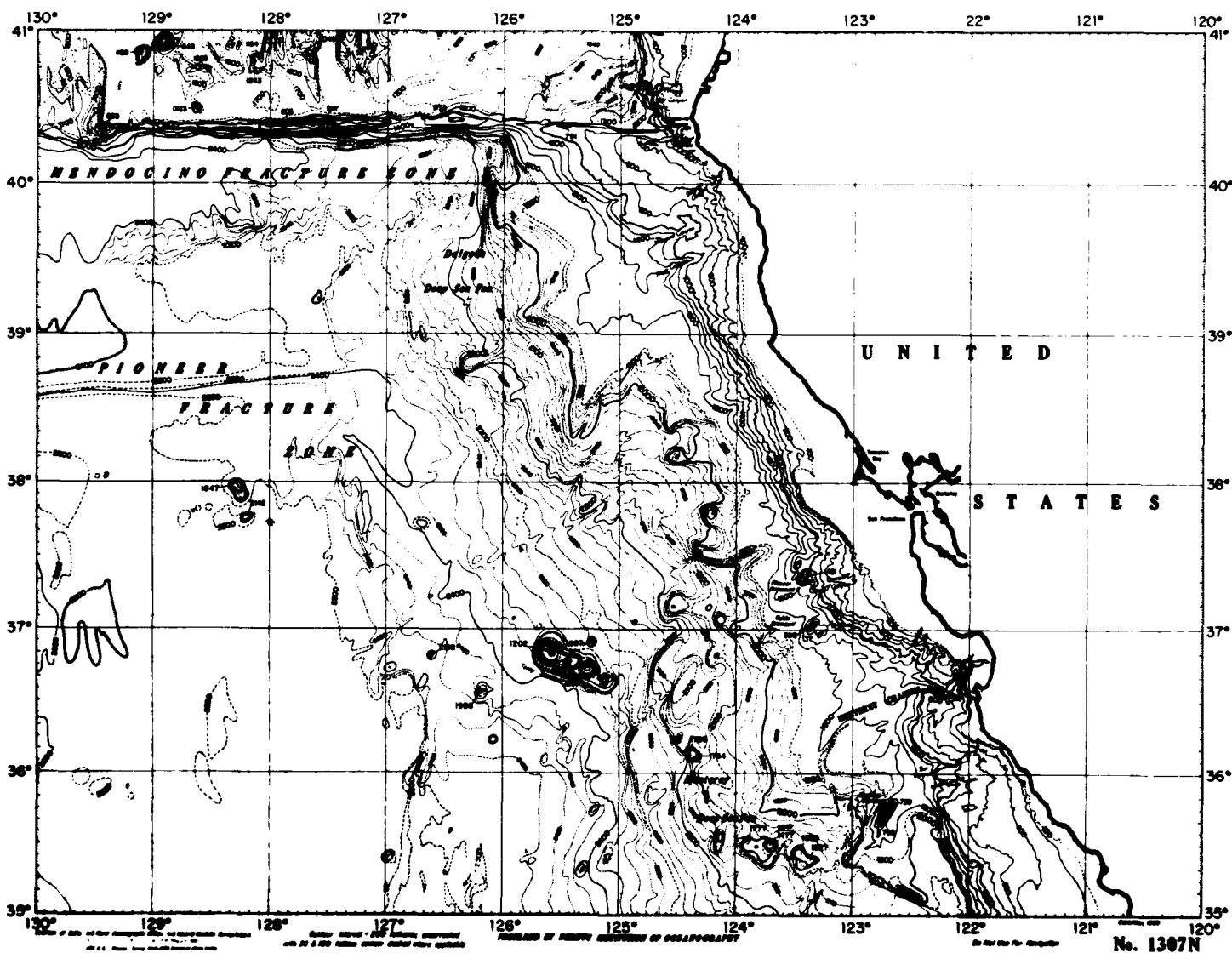


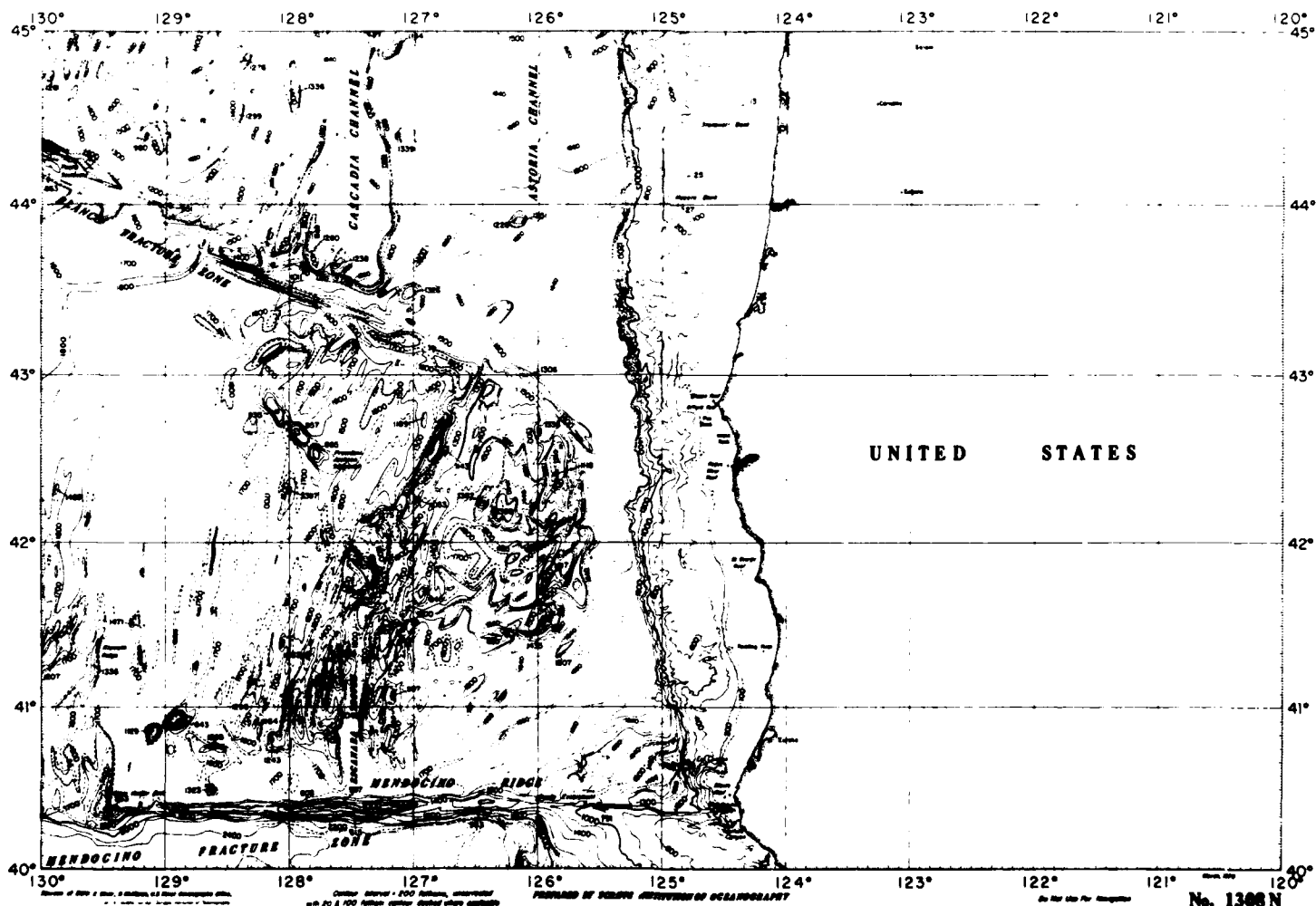


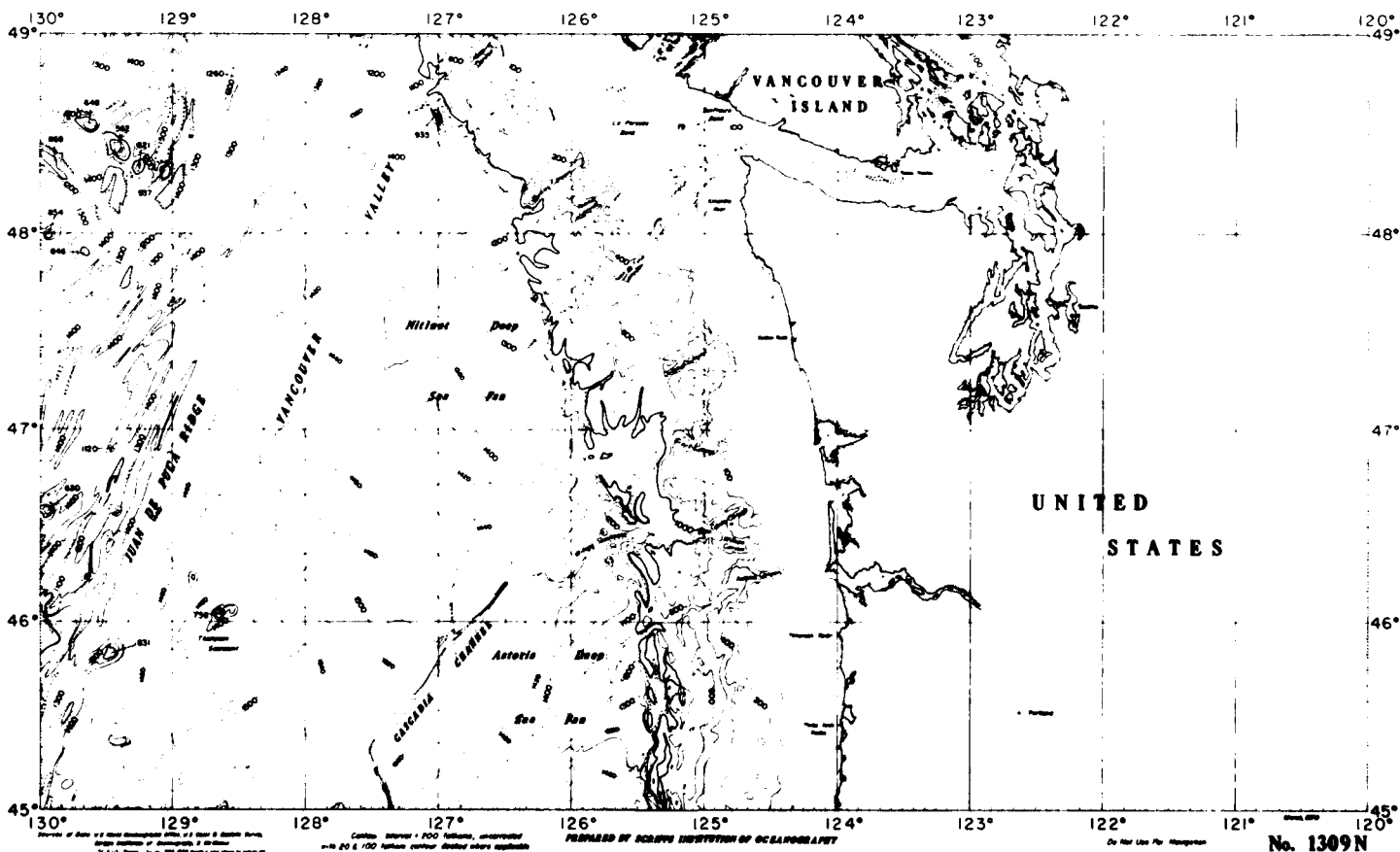
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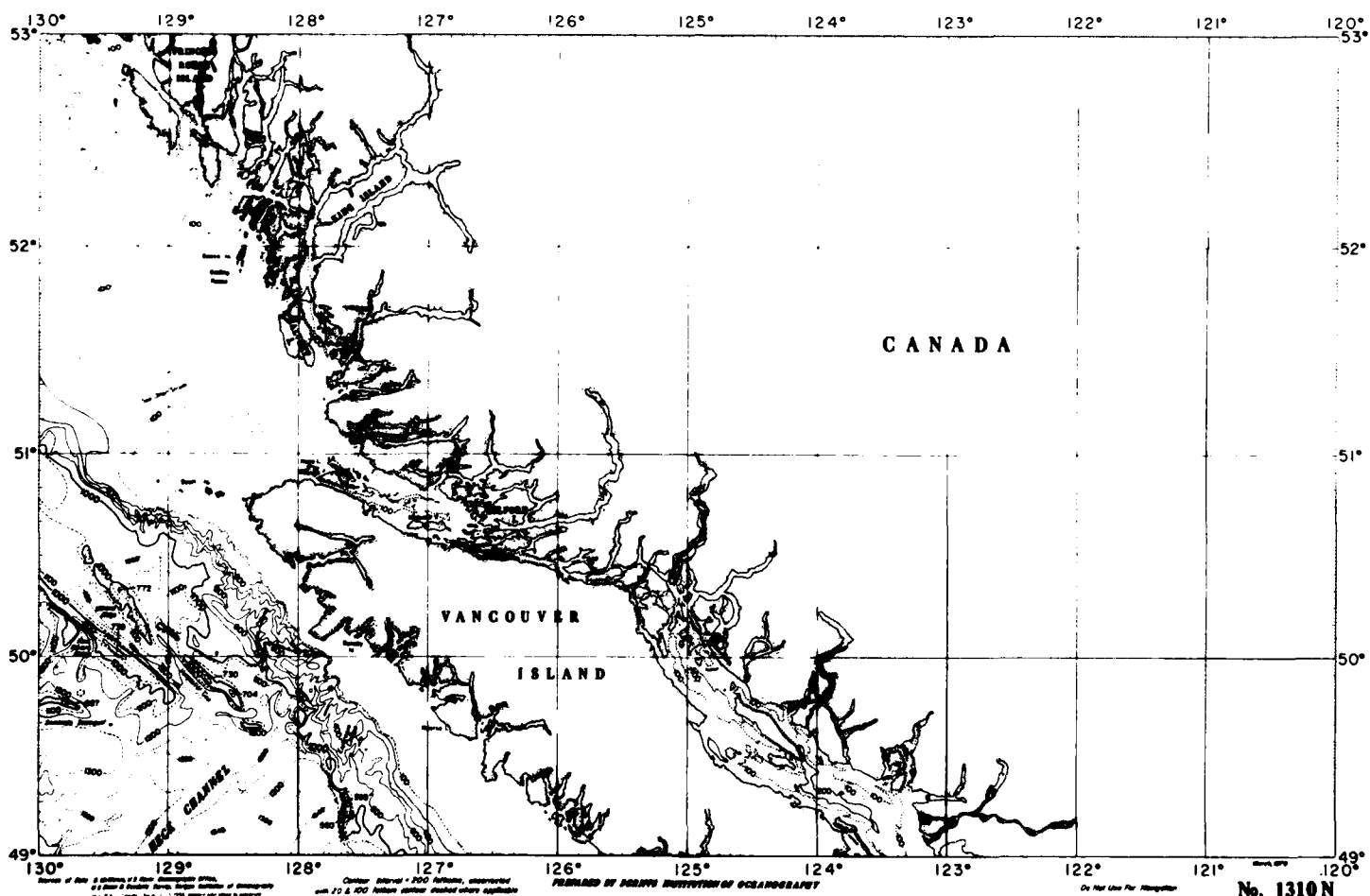


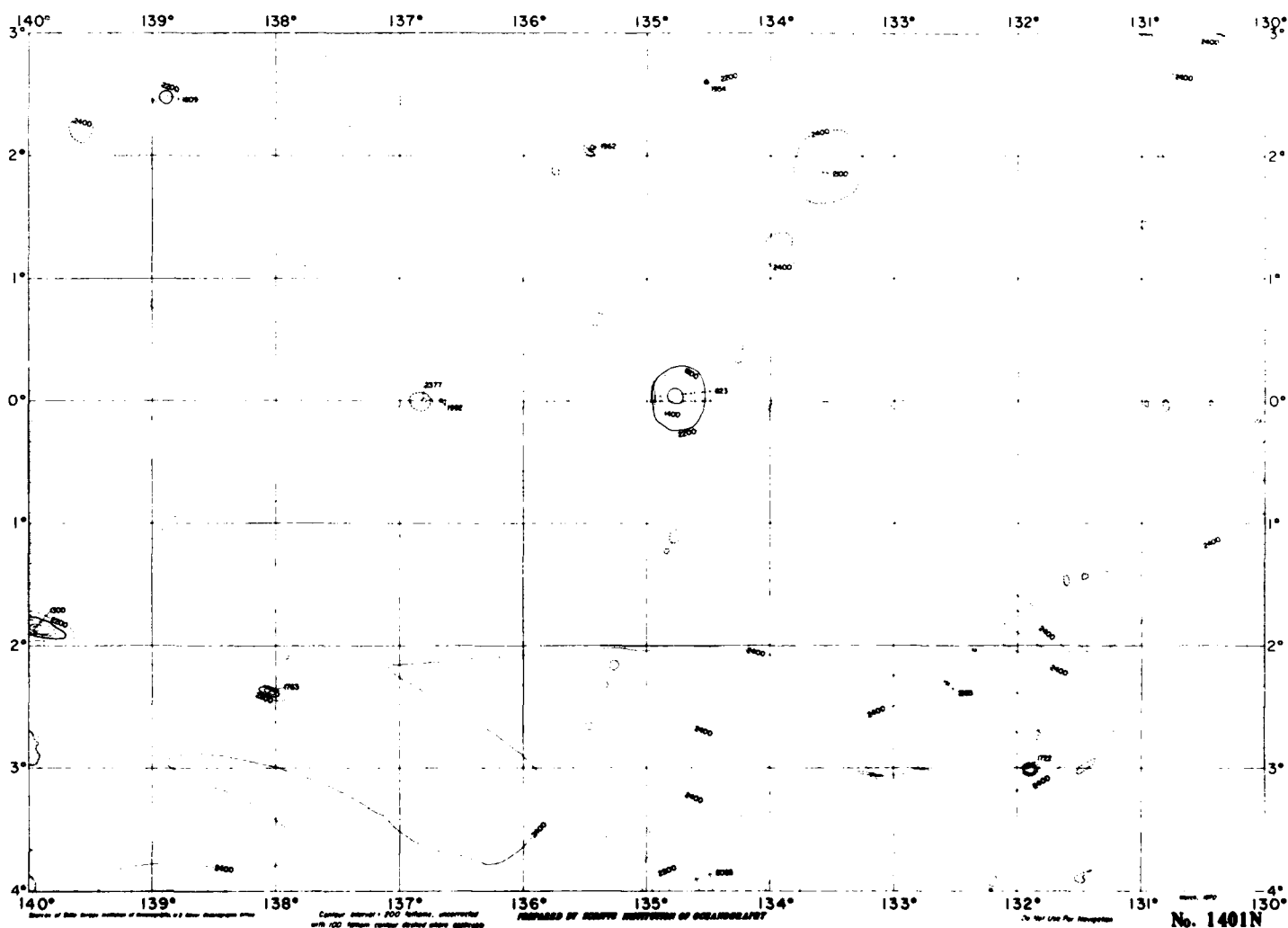


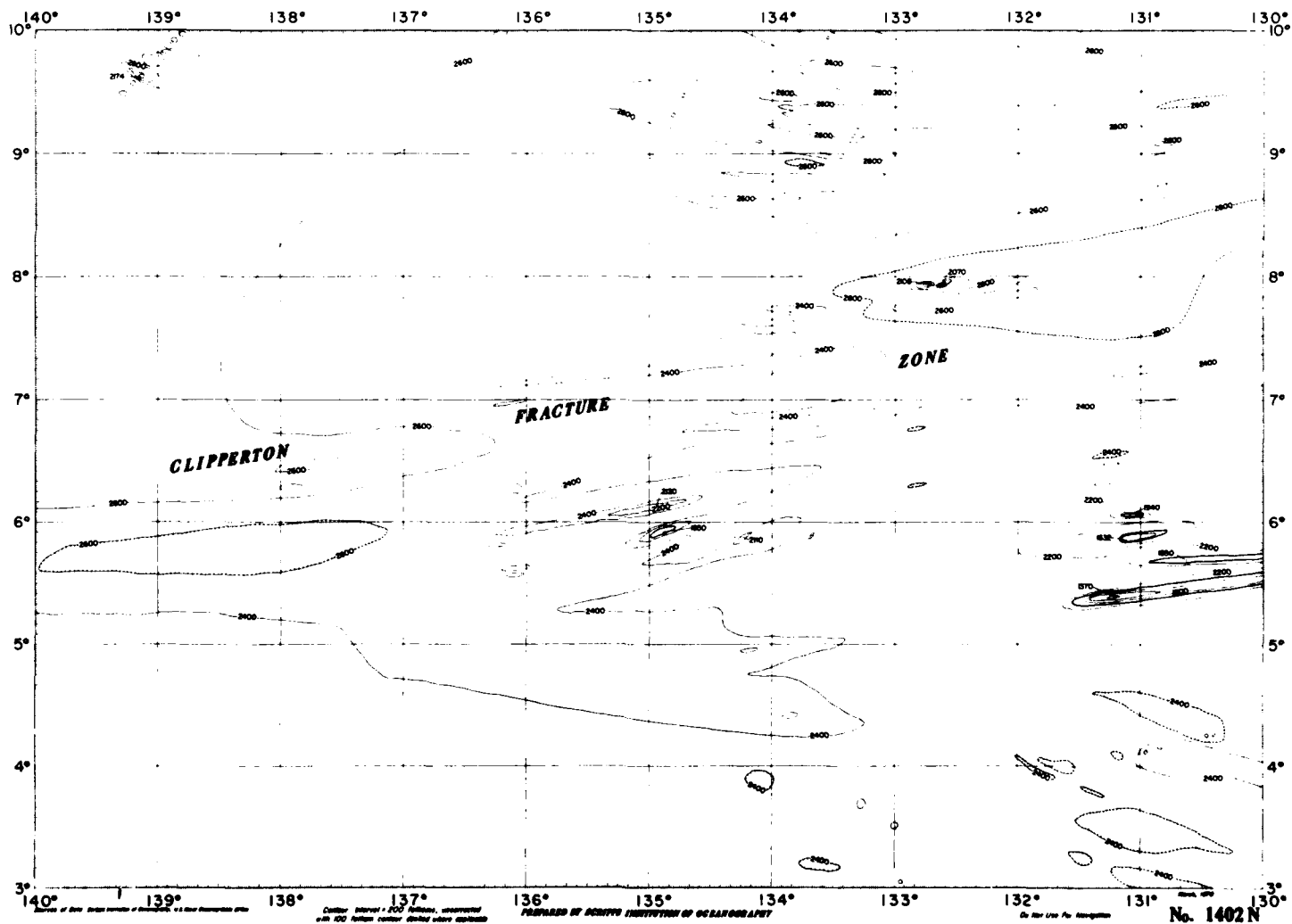


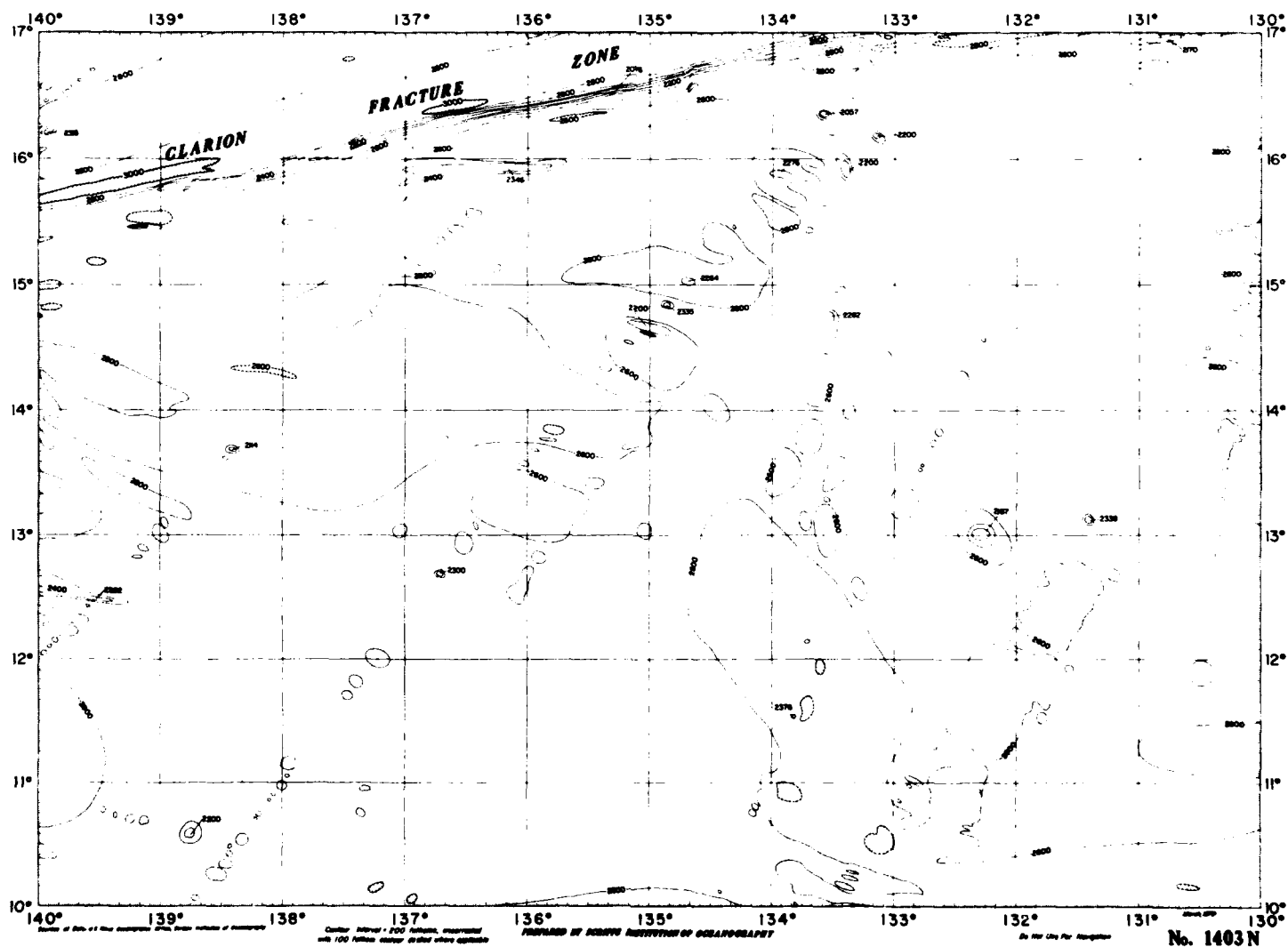


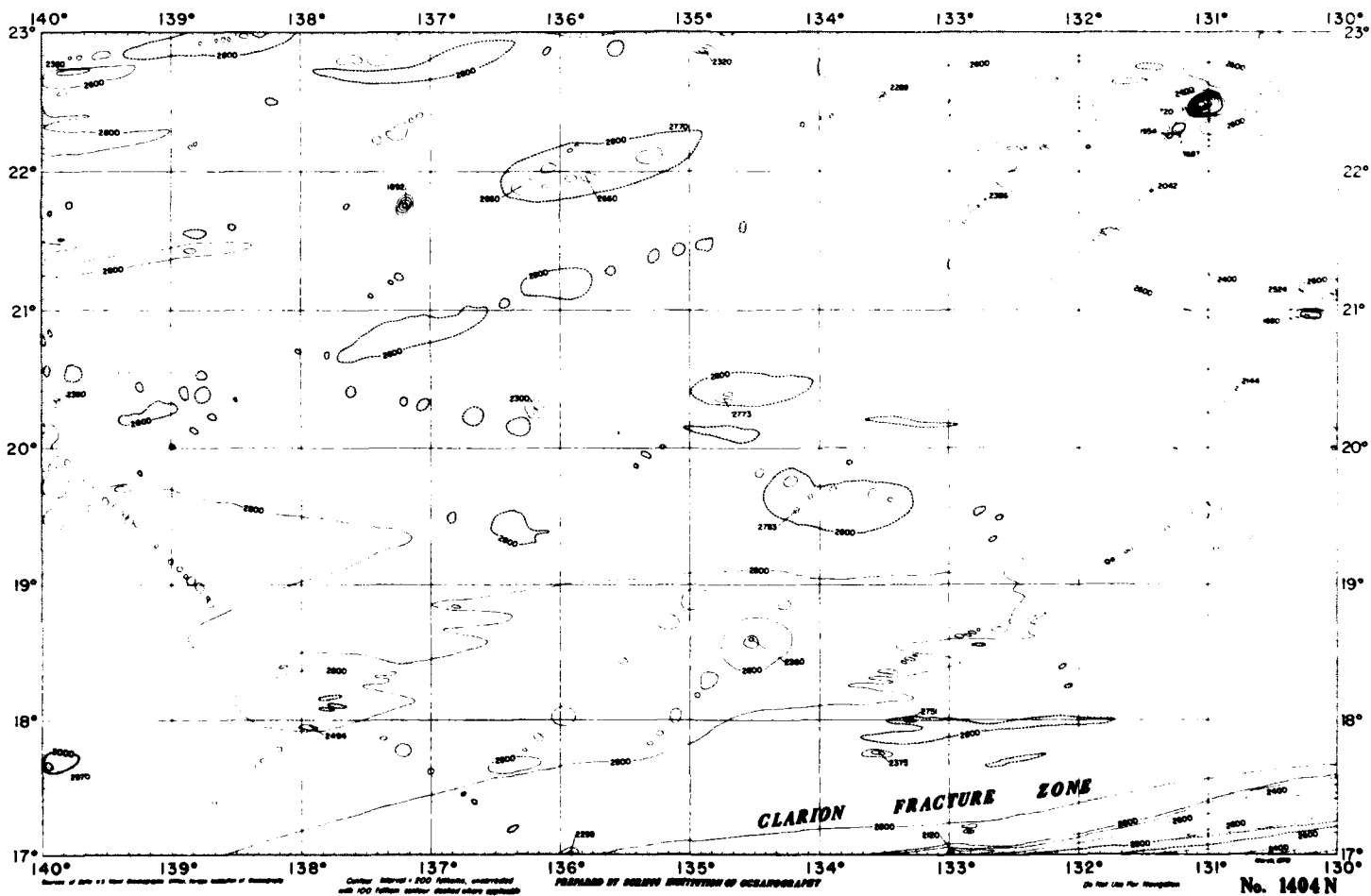
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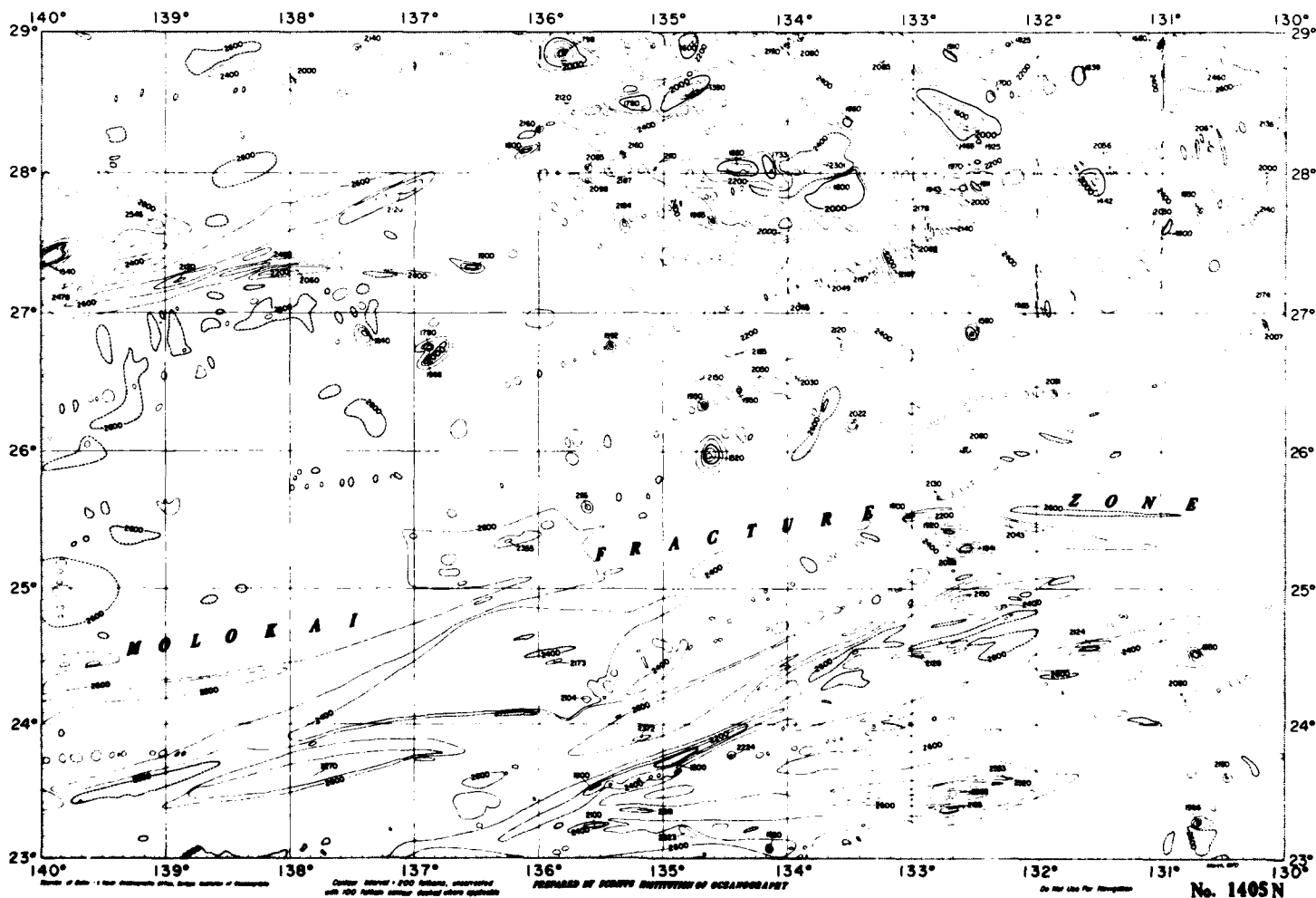


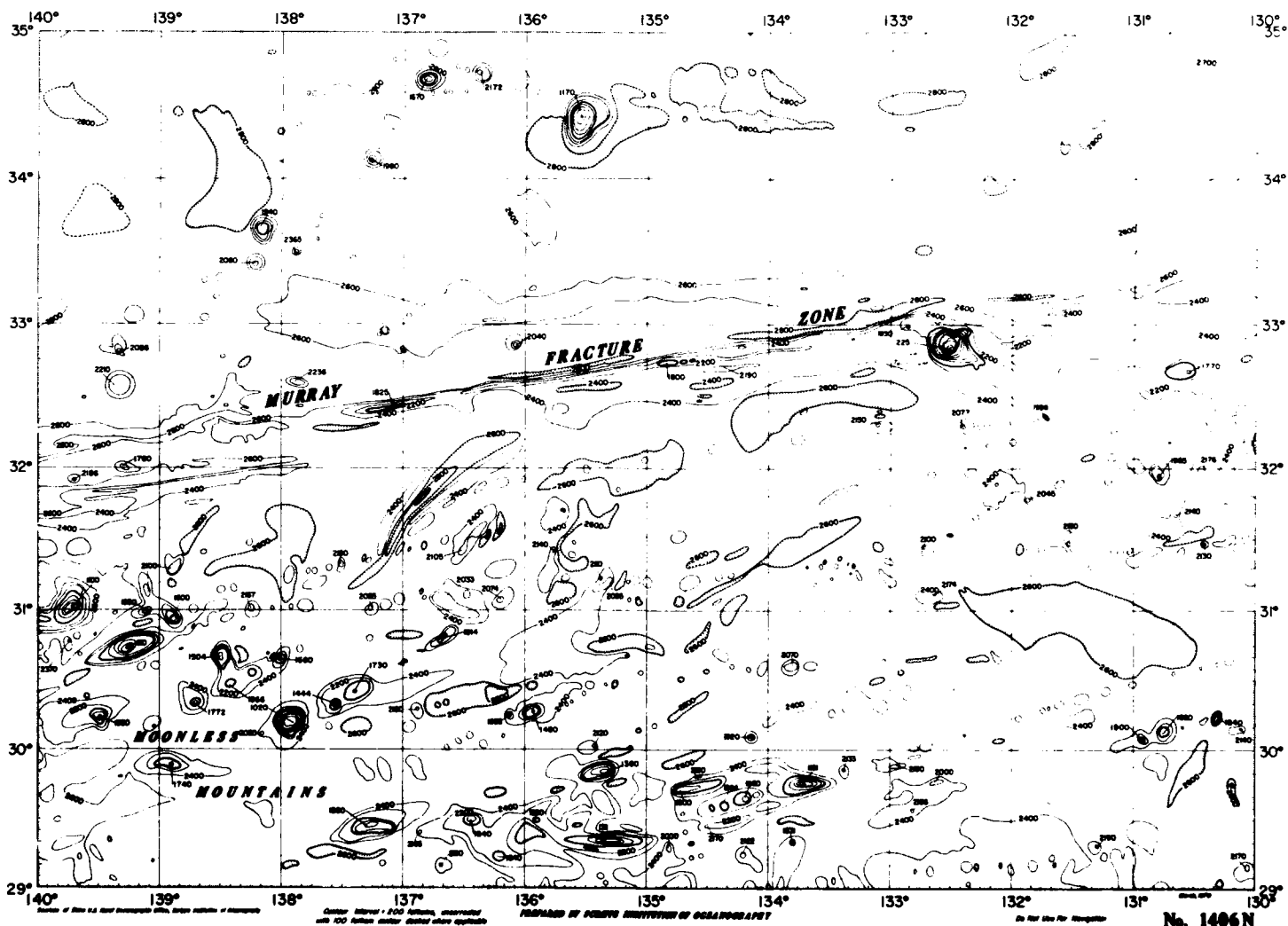


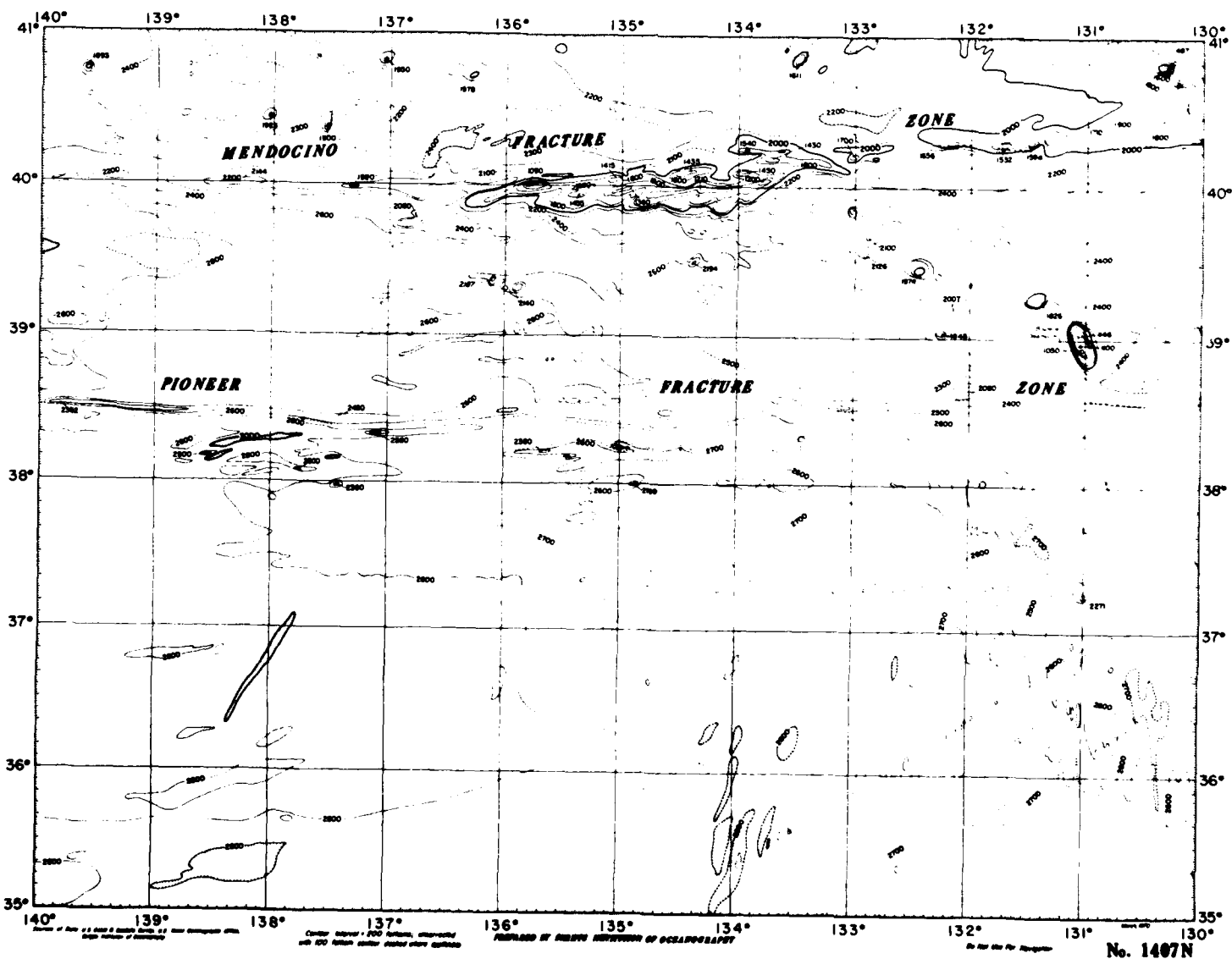


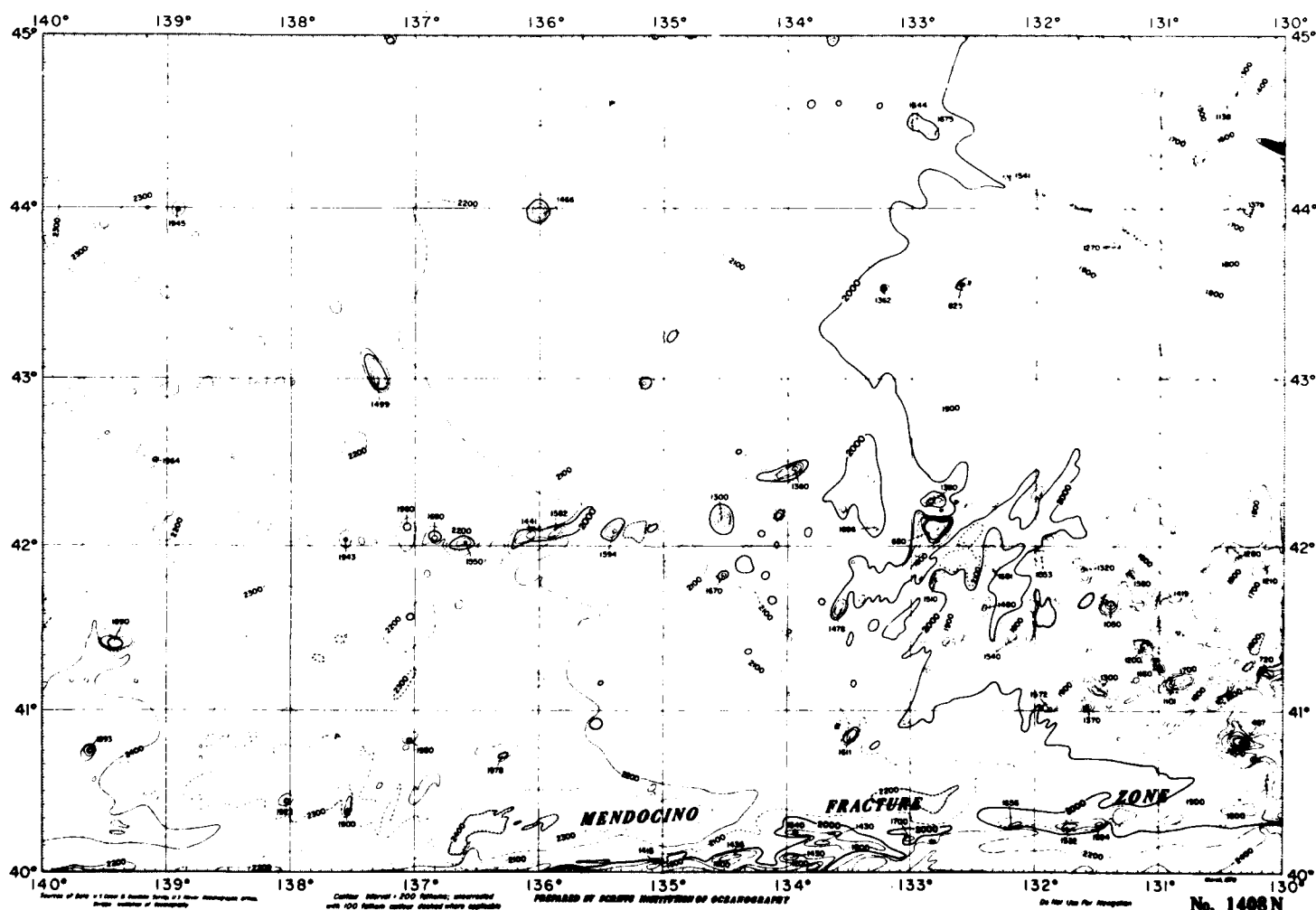


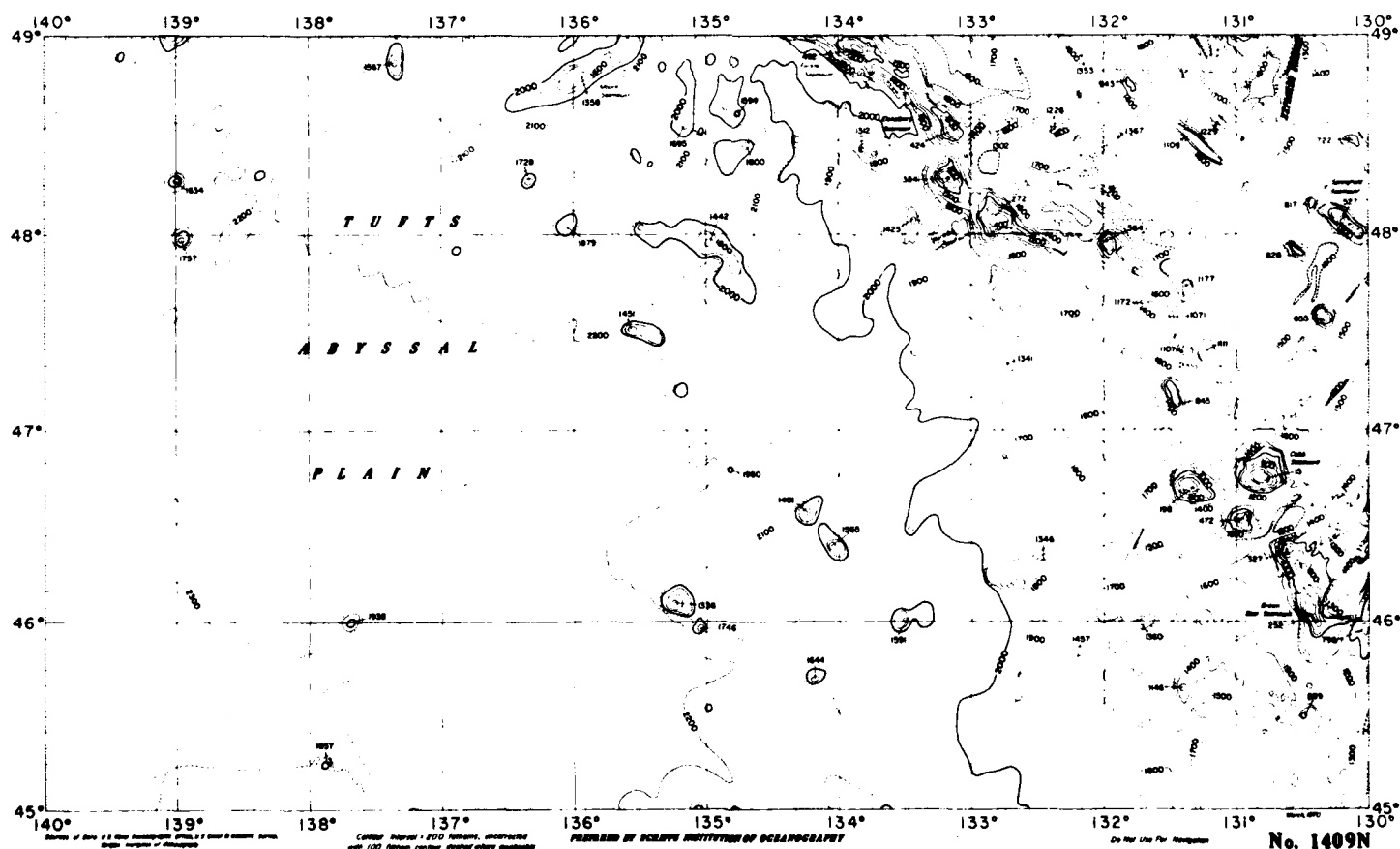


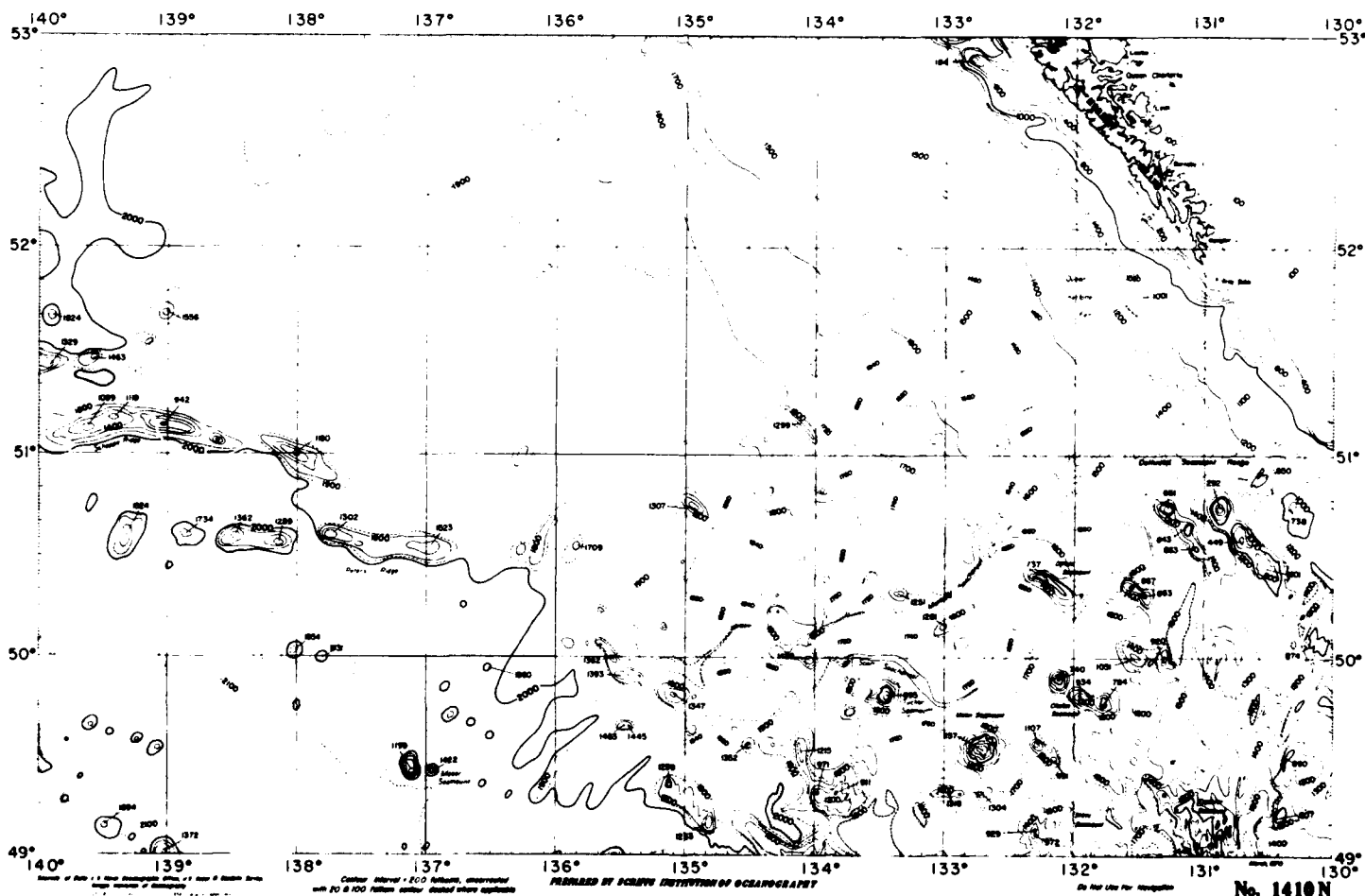


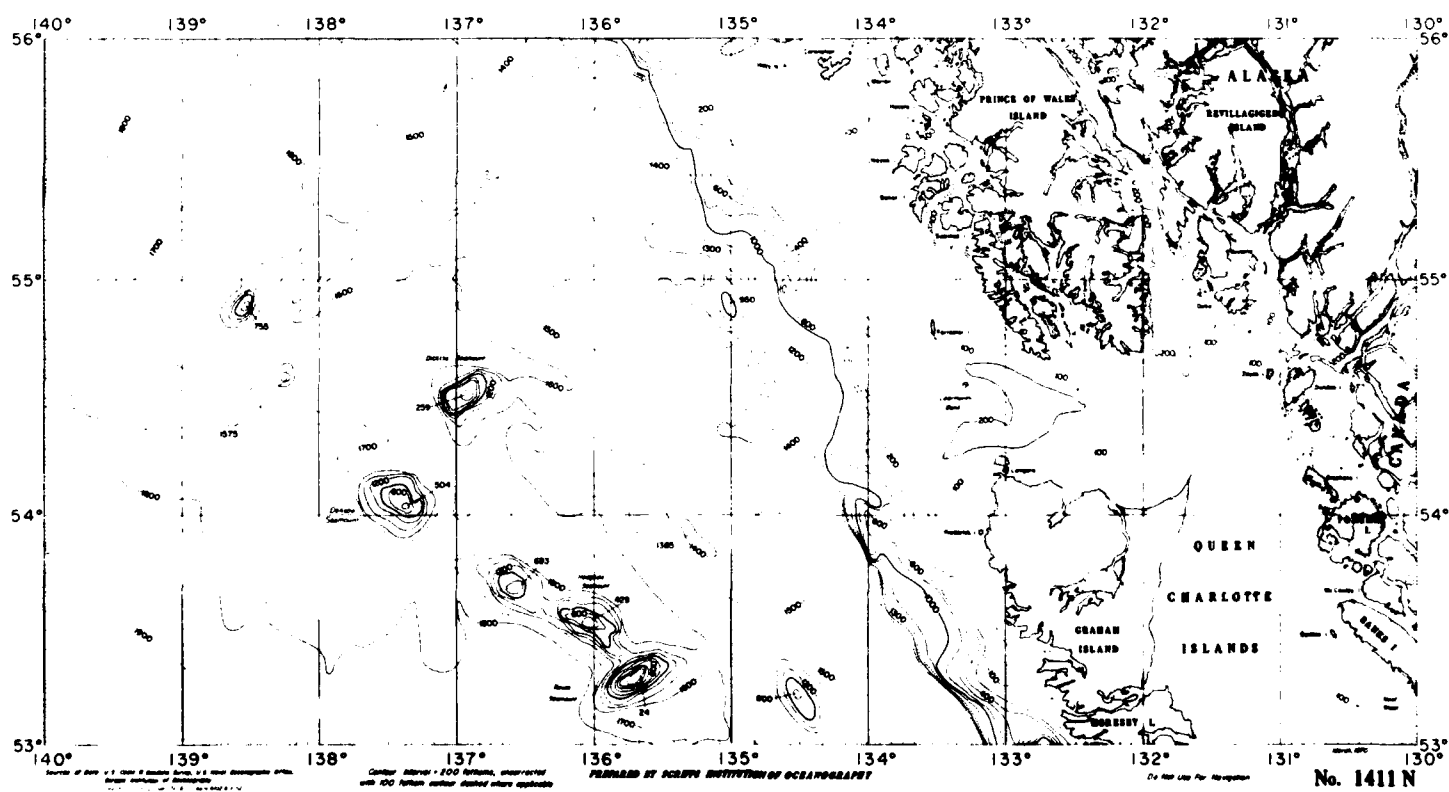


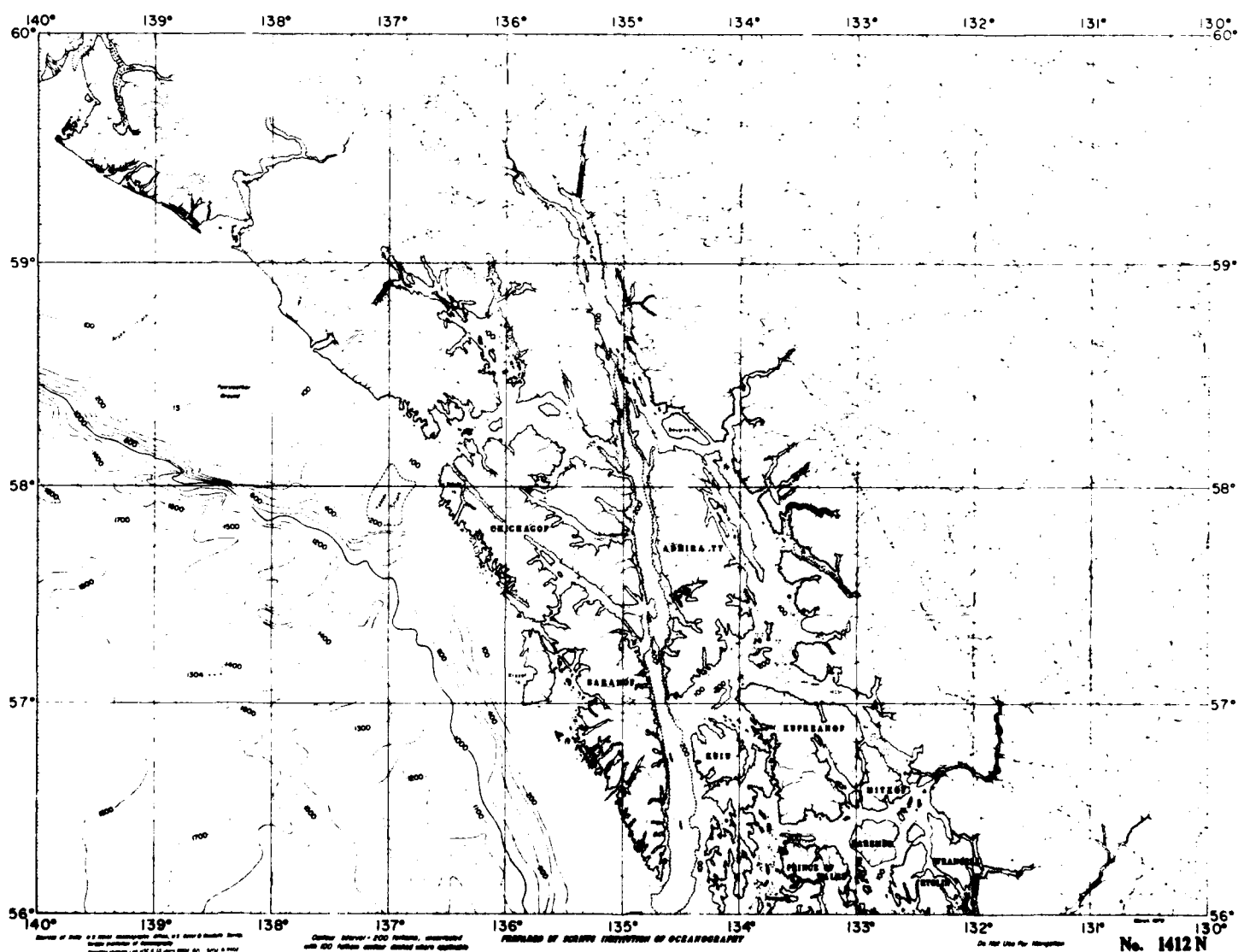


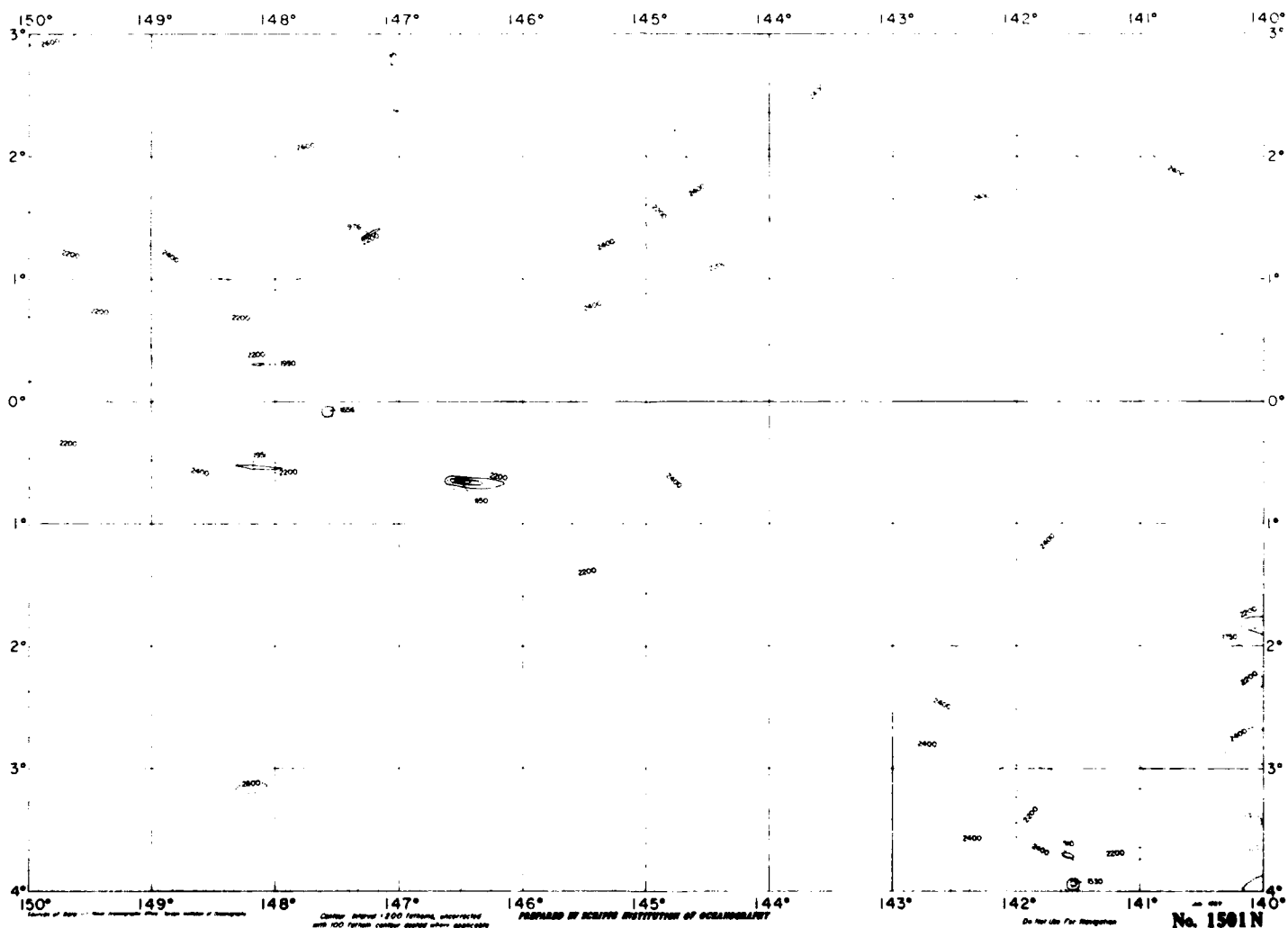


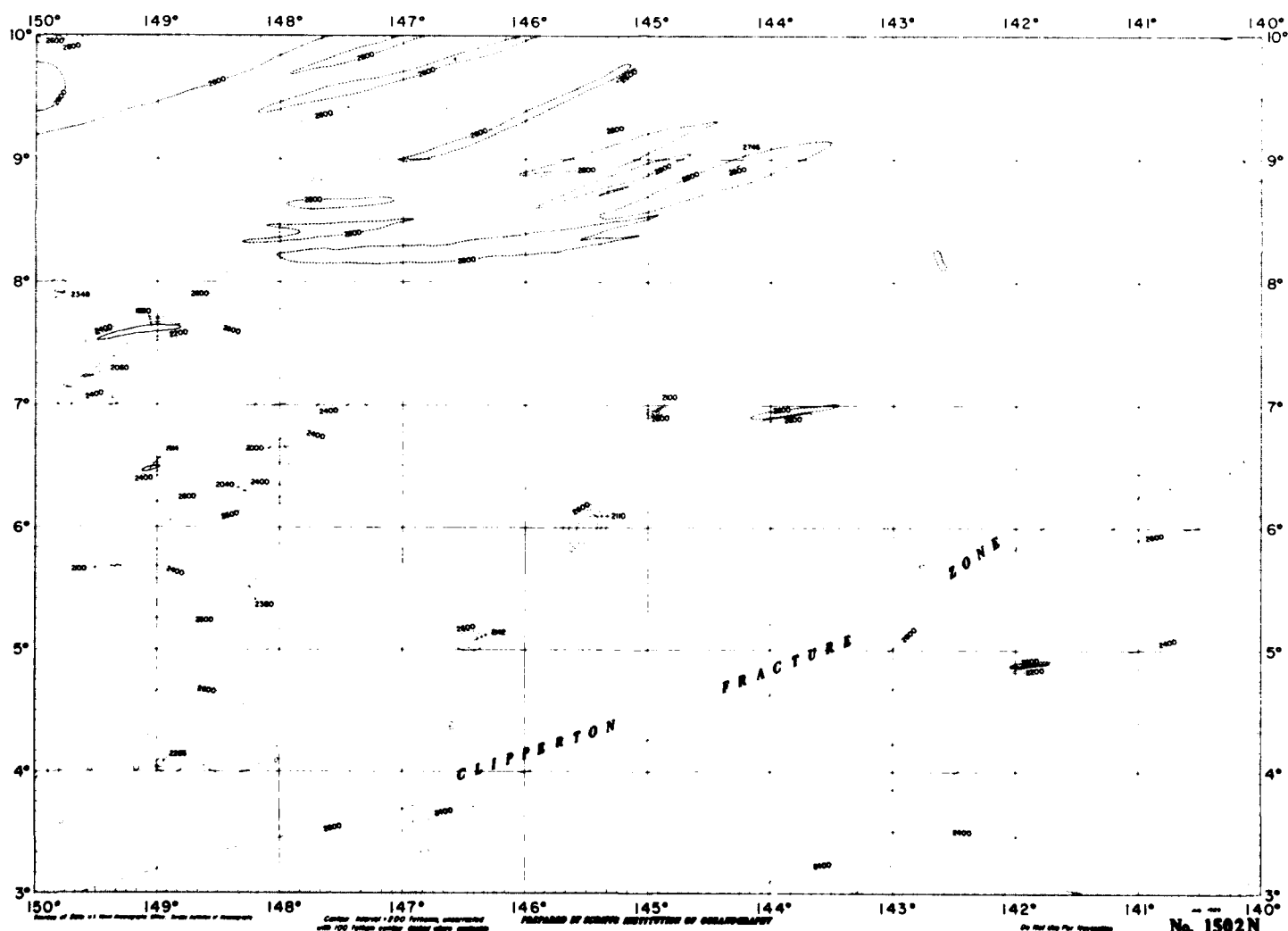


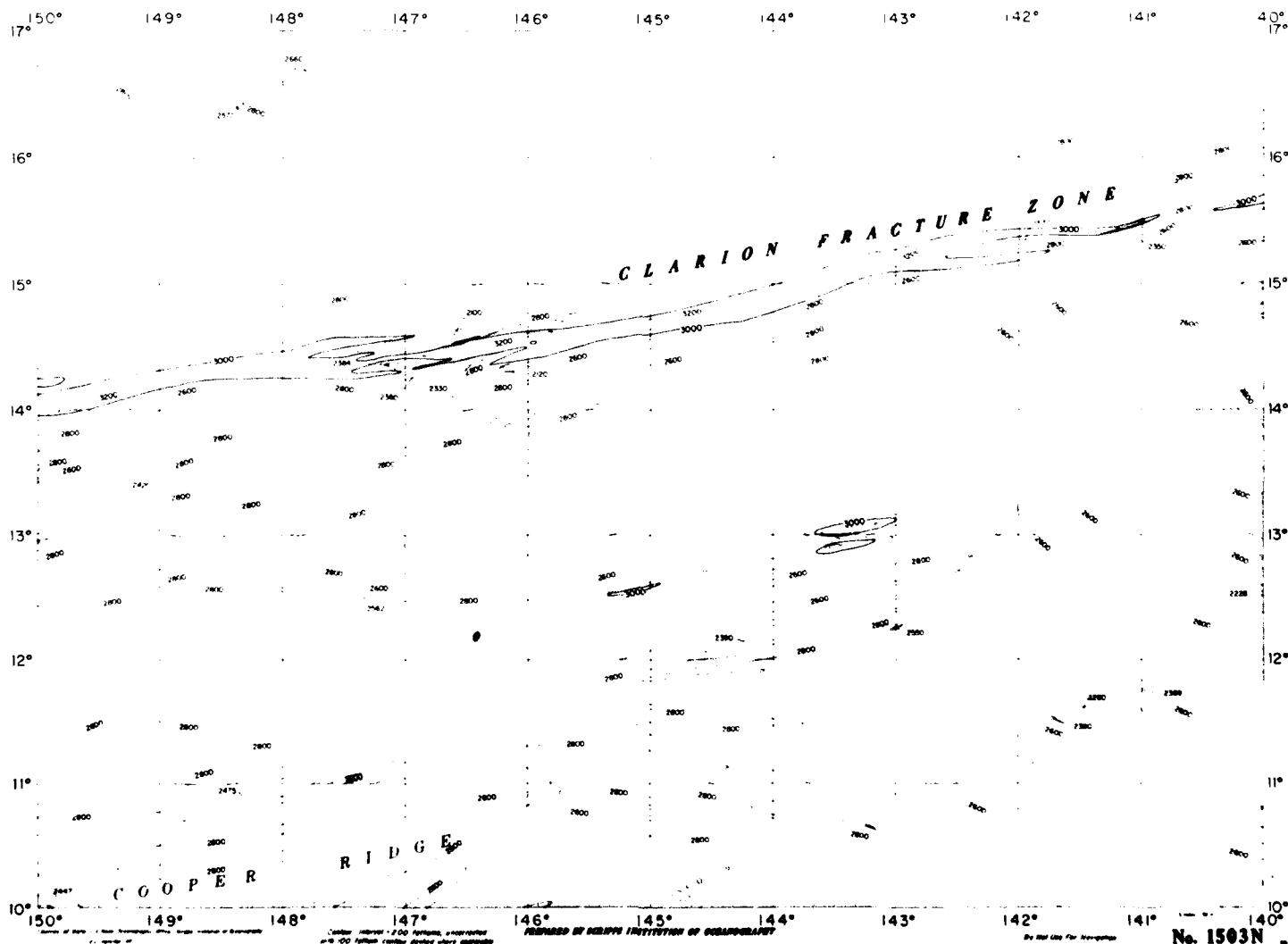


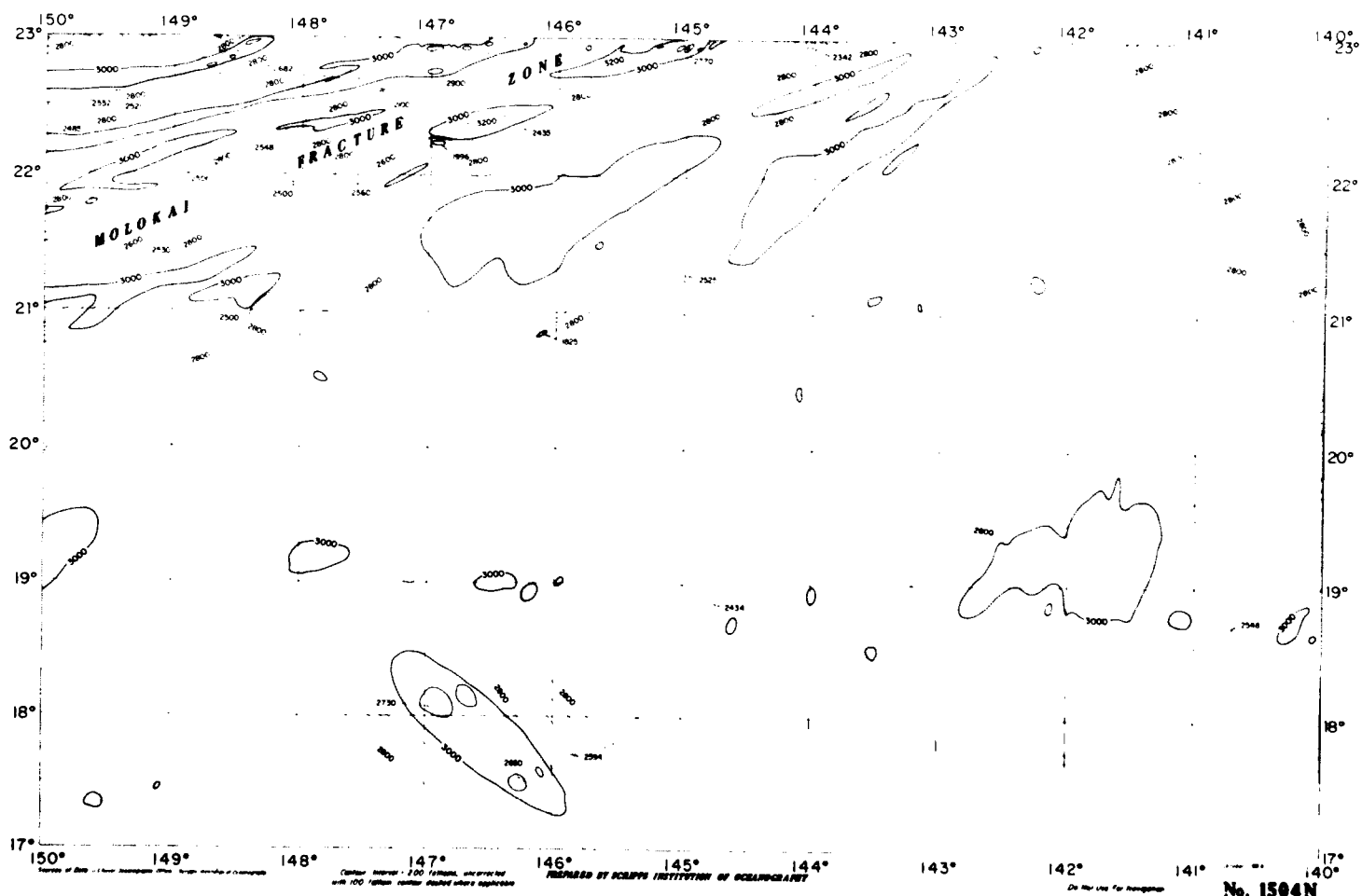


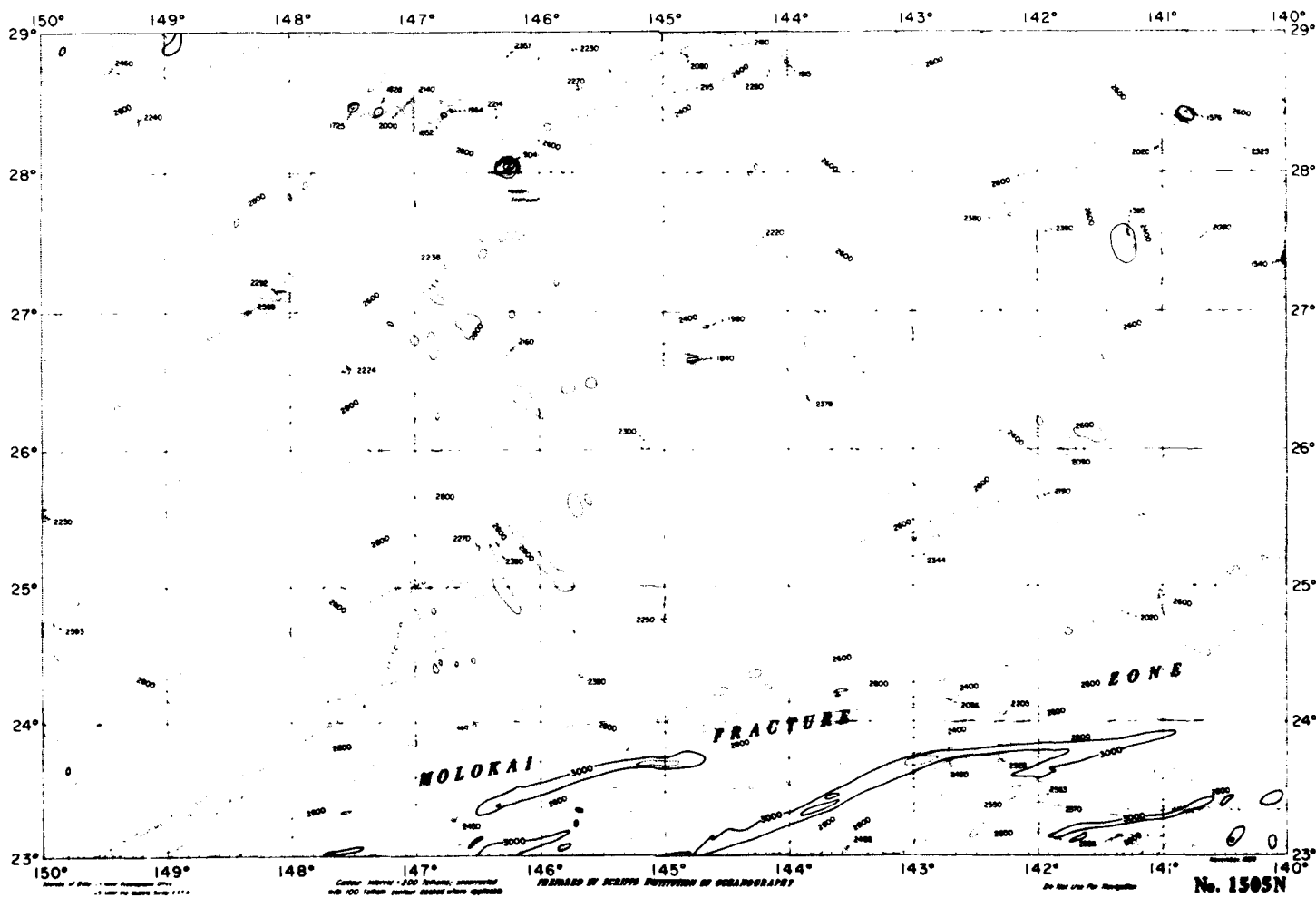


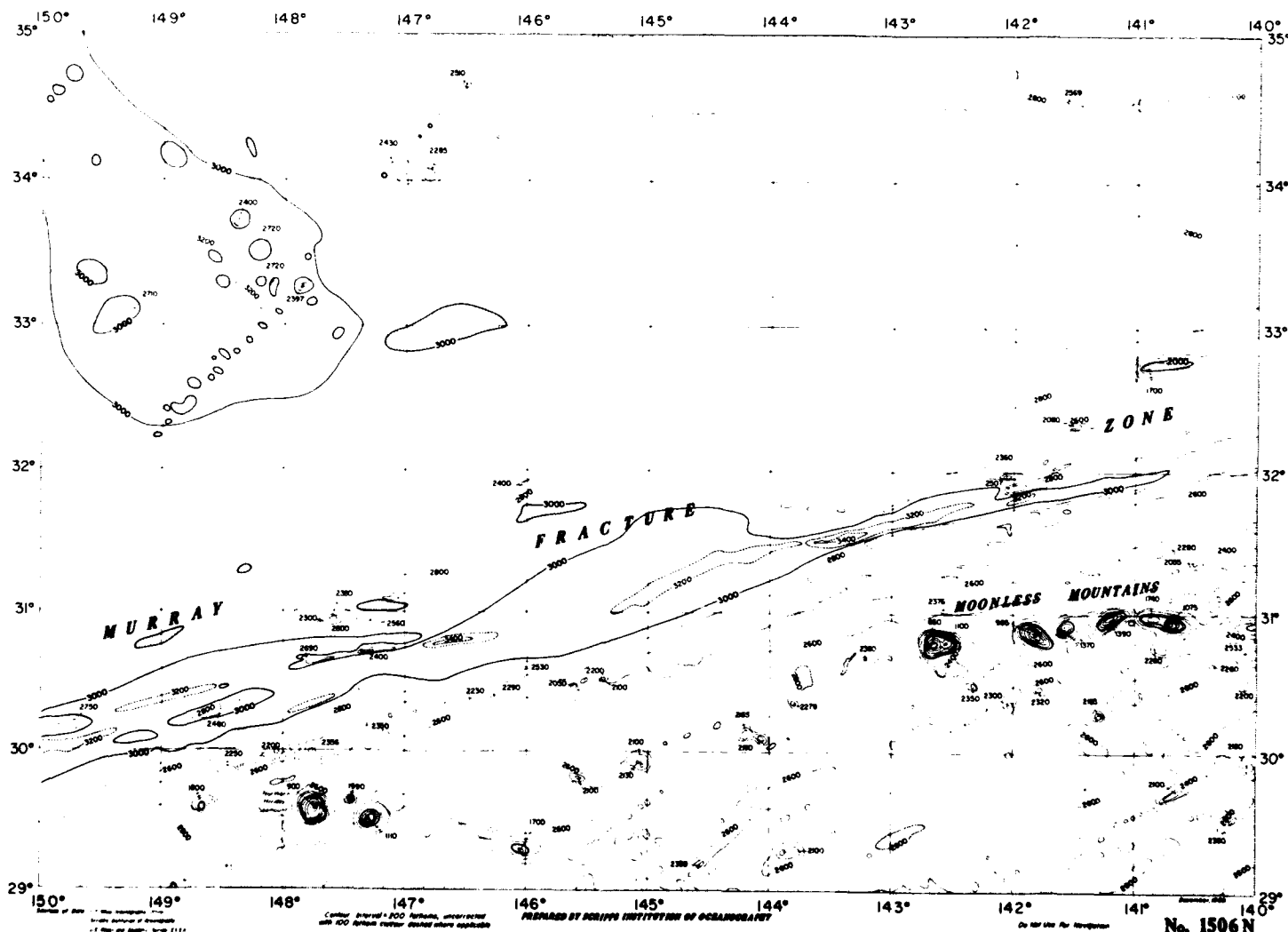


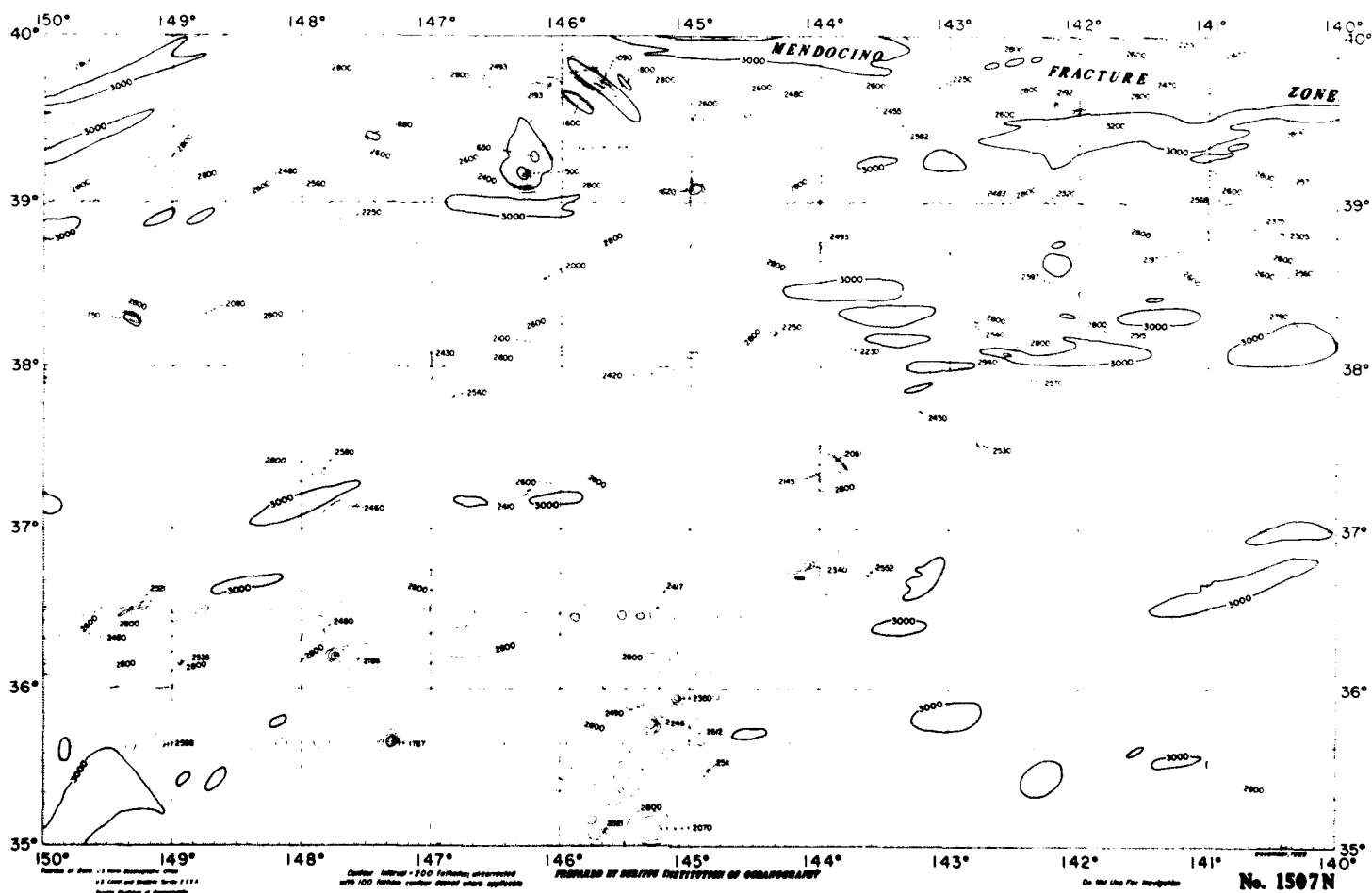












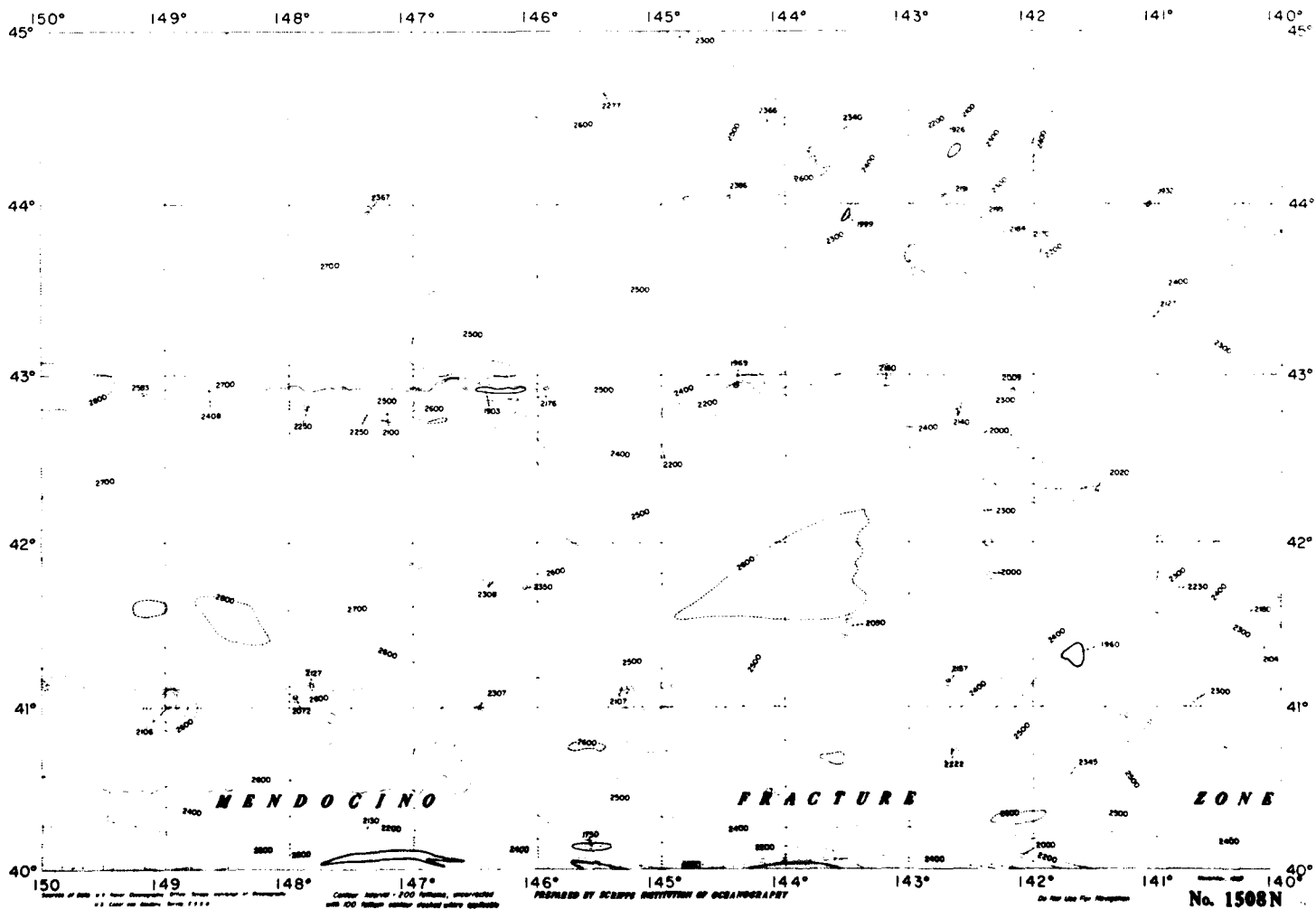
Revised to Date 11 Nov 1960 (1960) 11 Nov 1960 (1960) 11 Nov 1960 (1960)

Chart 1507N - 200 Fathoms, uncorrected with 100 Fathoms contour dashed where applicable

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No. 1507N



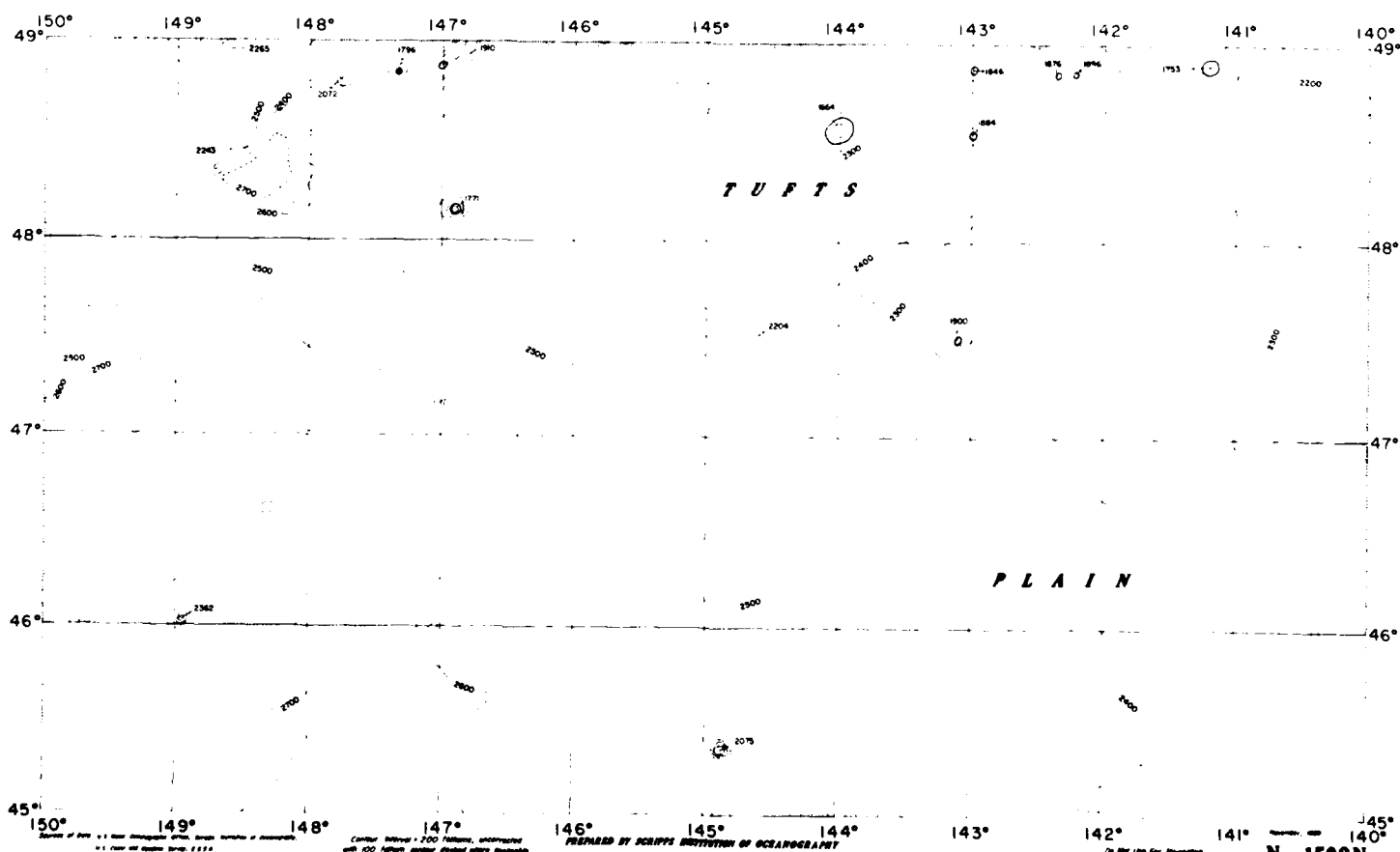
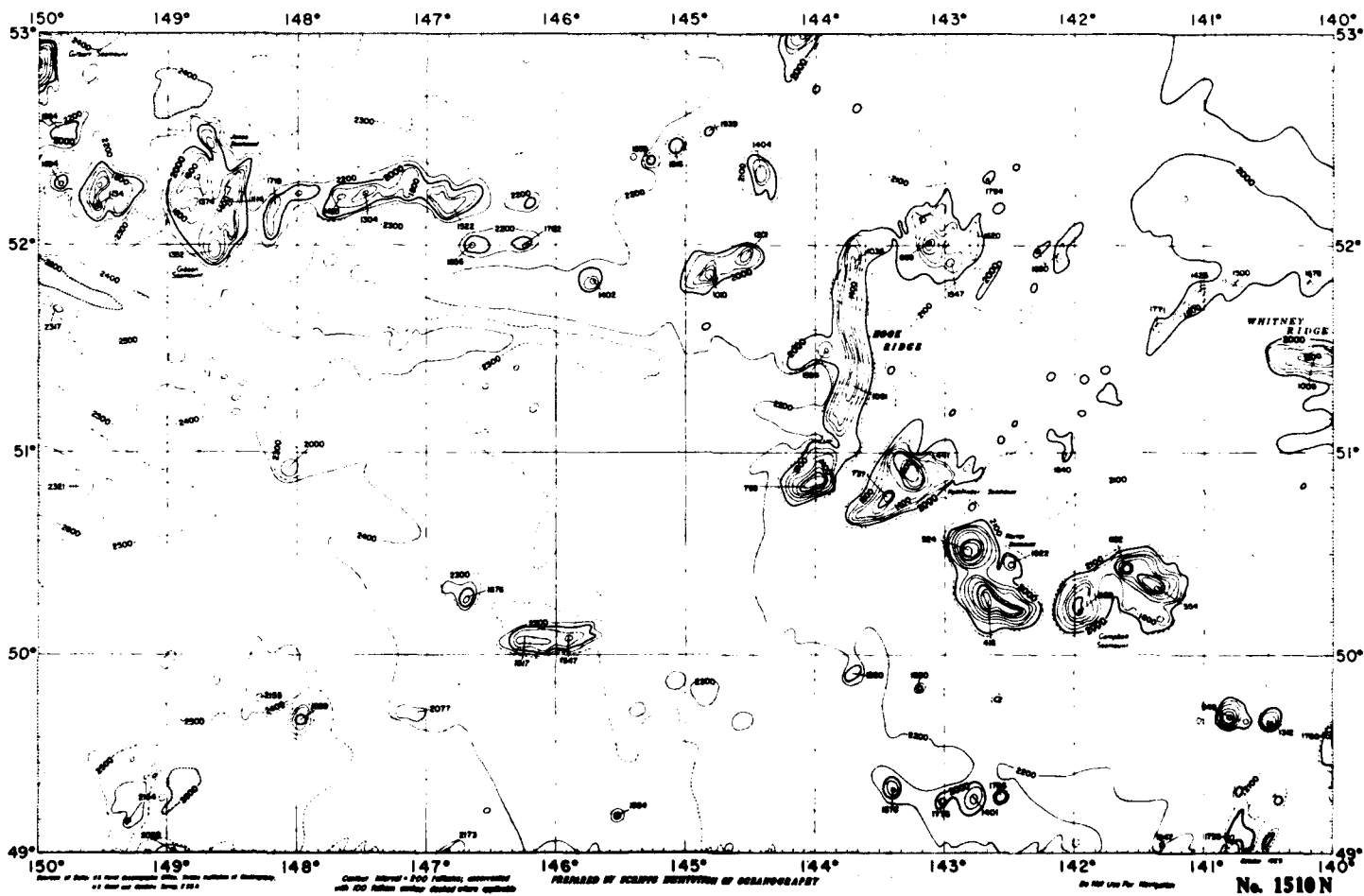


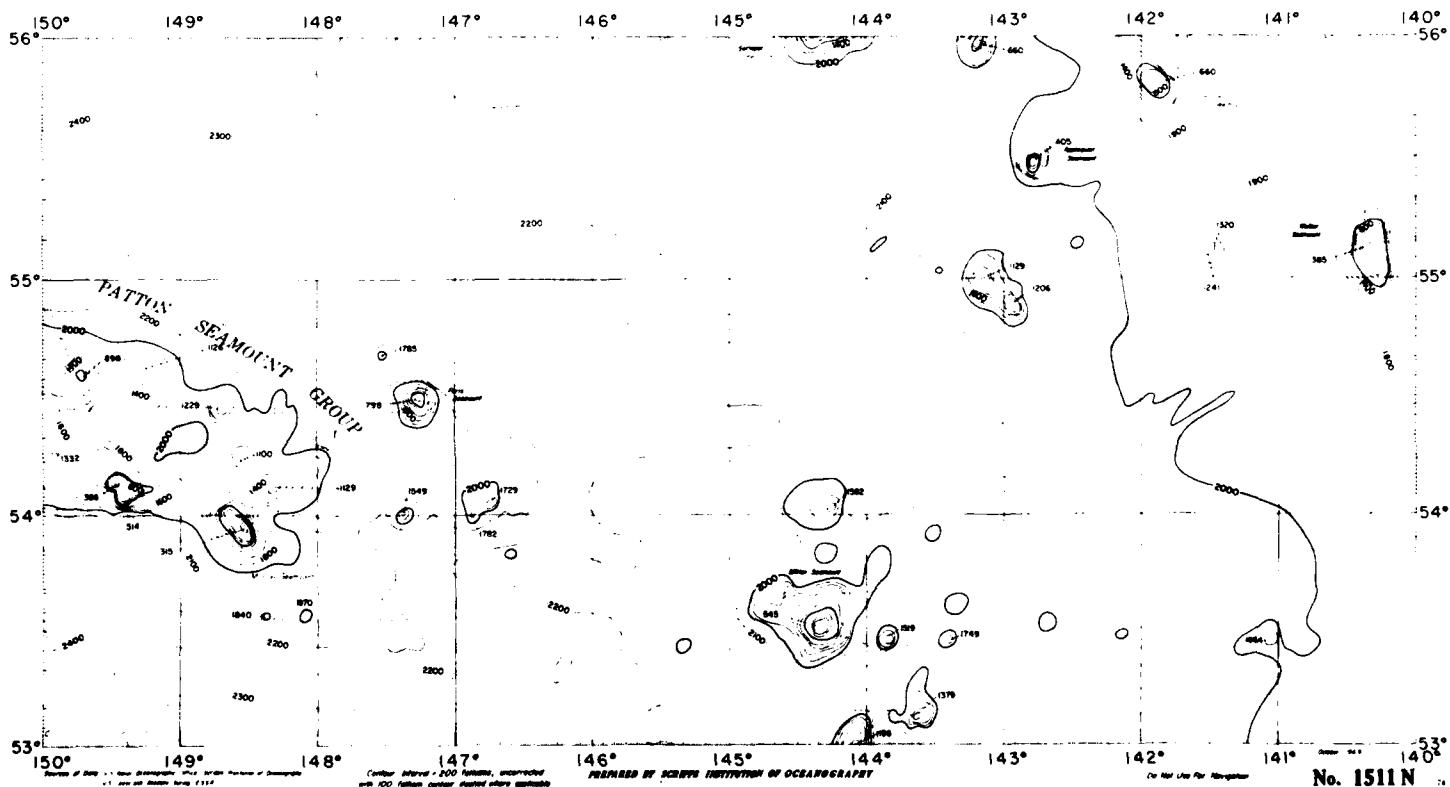
Chart No. 1509N, published 1950, revised 1951, 1952, 1953, 1954, 1955, 1956, 1957, 1958, 1959, 1960, 1961, 1962, 1963, 1964, 1965, 1966, 1967, 1968, 1969, 1970, 1971, 1972, 1973, 1974, 1975, 1976, 1977, 1978, 1979, 1980, 1981, 1982, 1983, 1984, 1985, 1986, 1987, 1988, 1989, 1990, 1991, 1992, 1993, 1994, 1995, 1996, 1997, 1998, 1999, 2000.

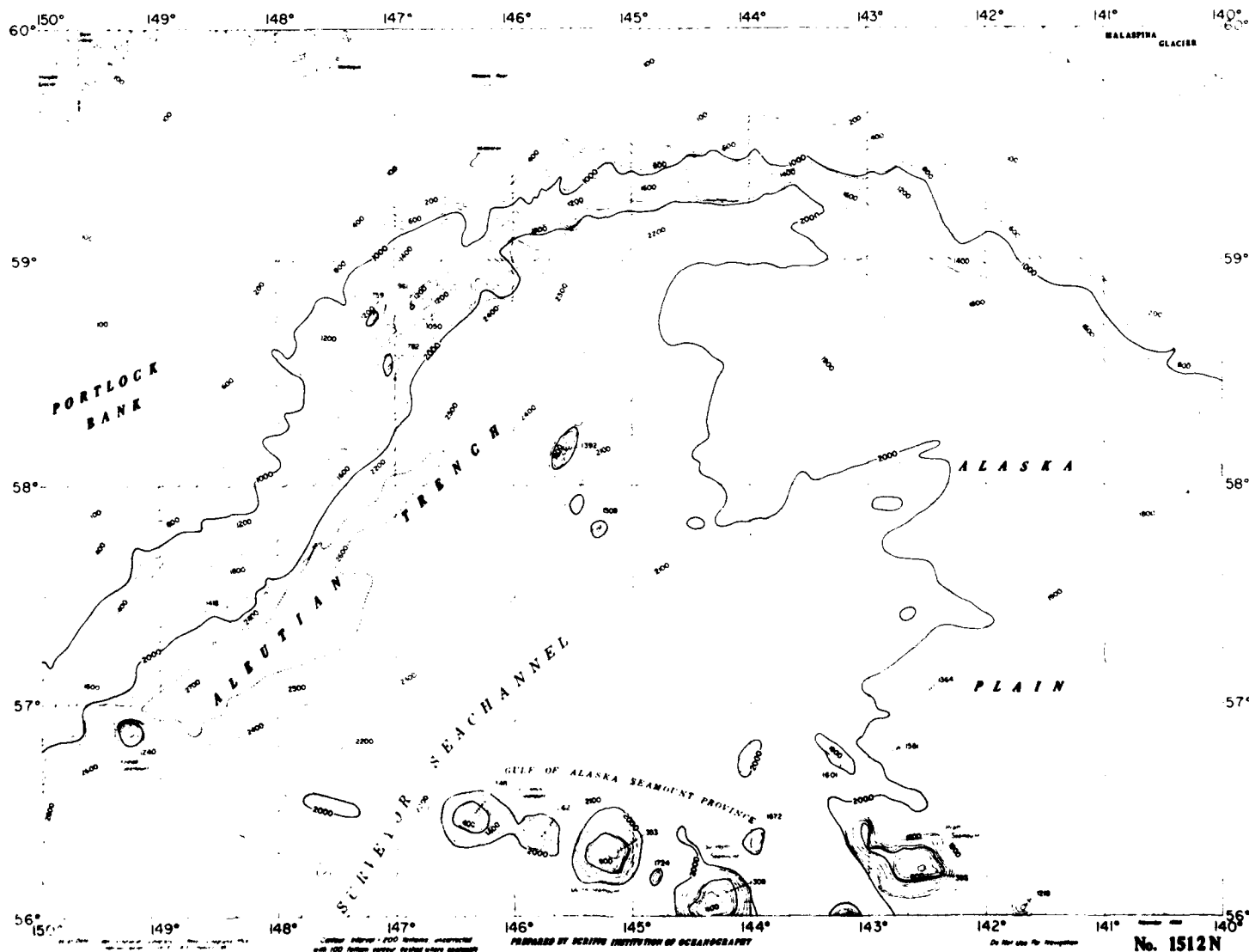
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Do Not Use For Navigation

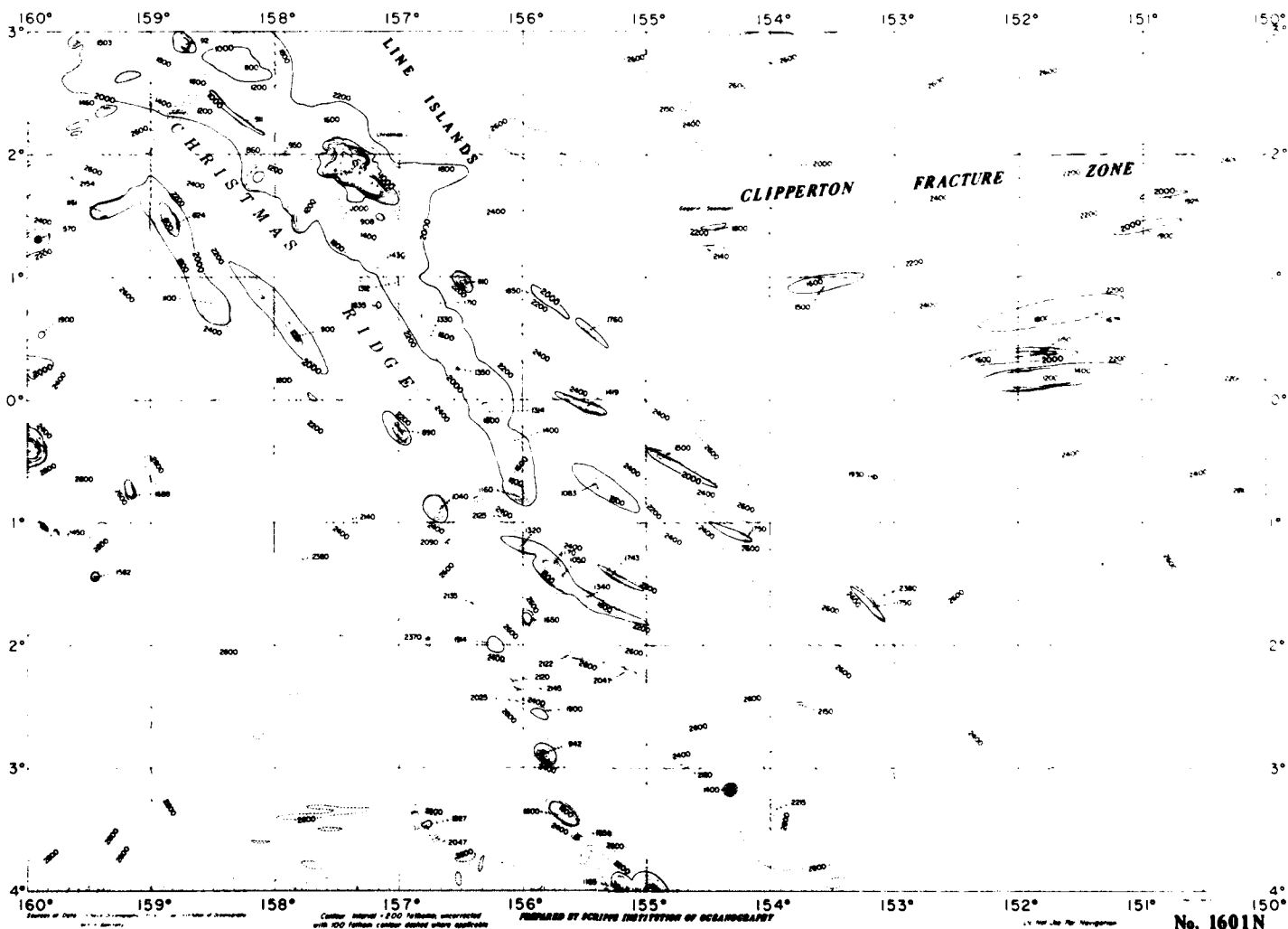
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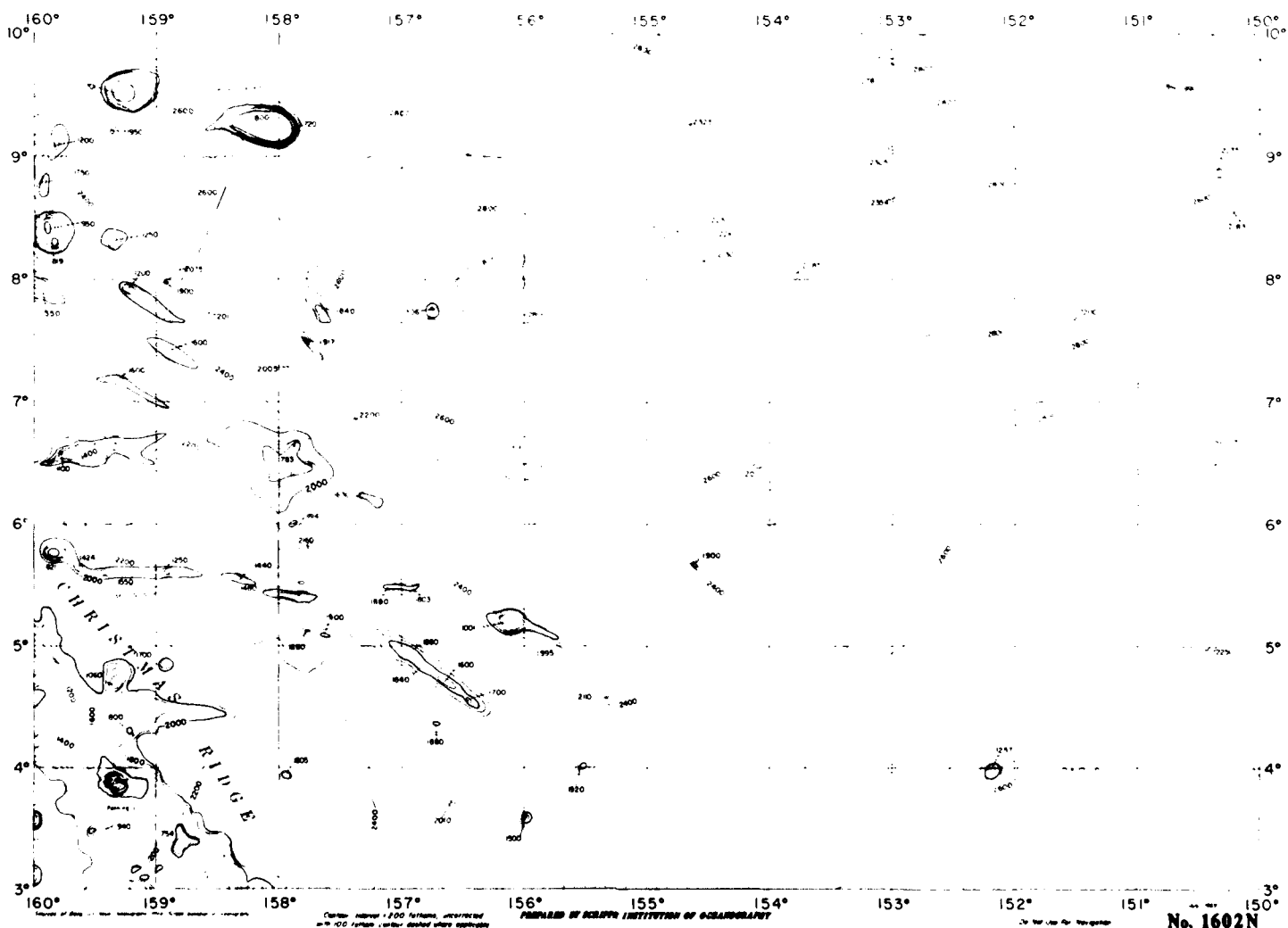


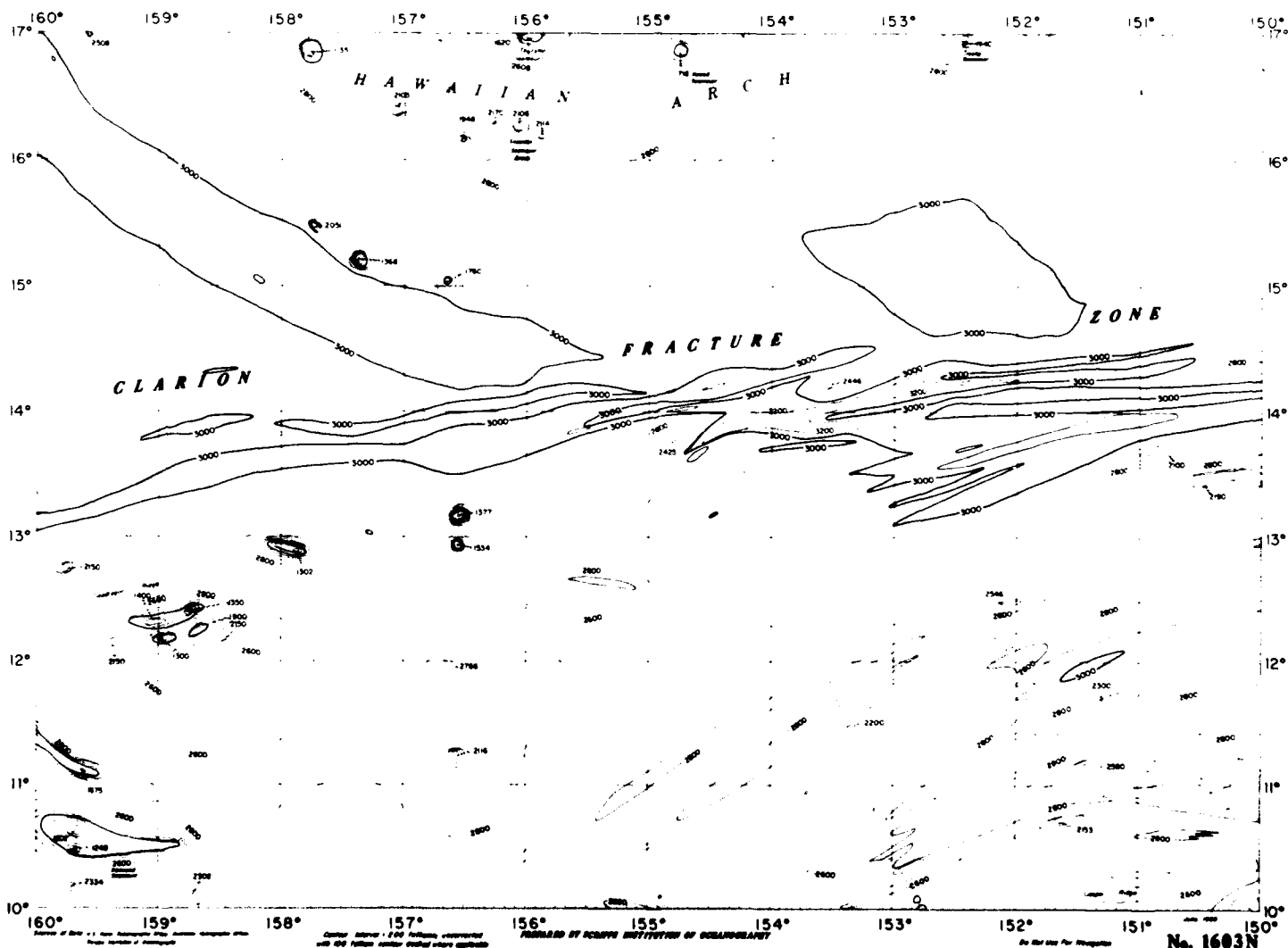


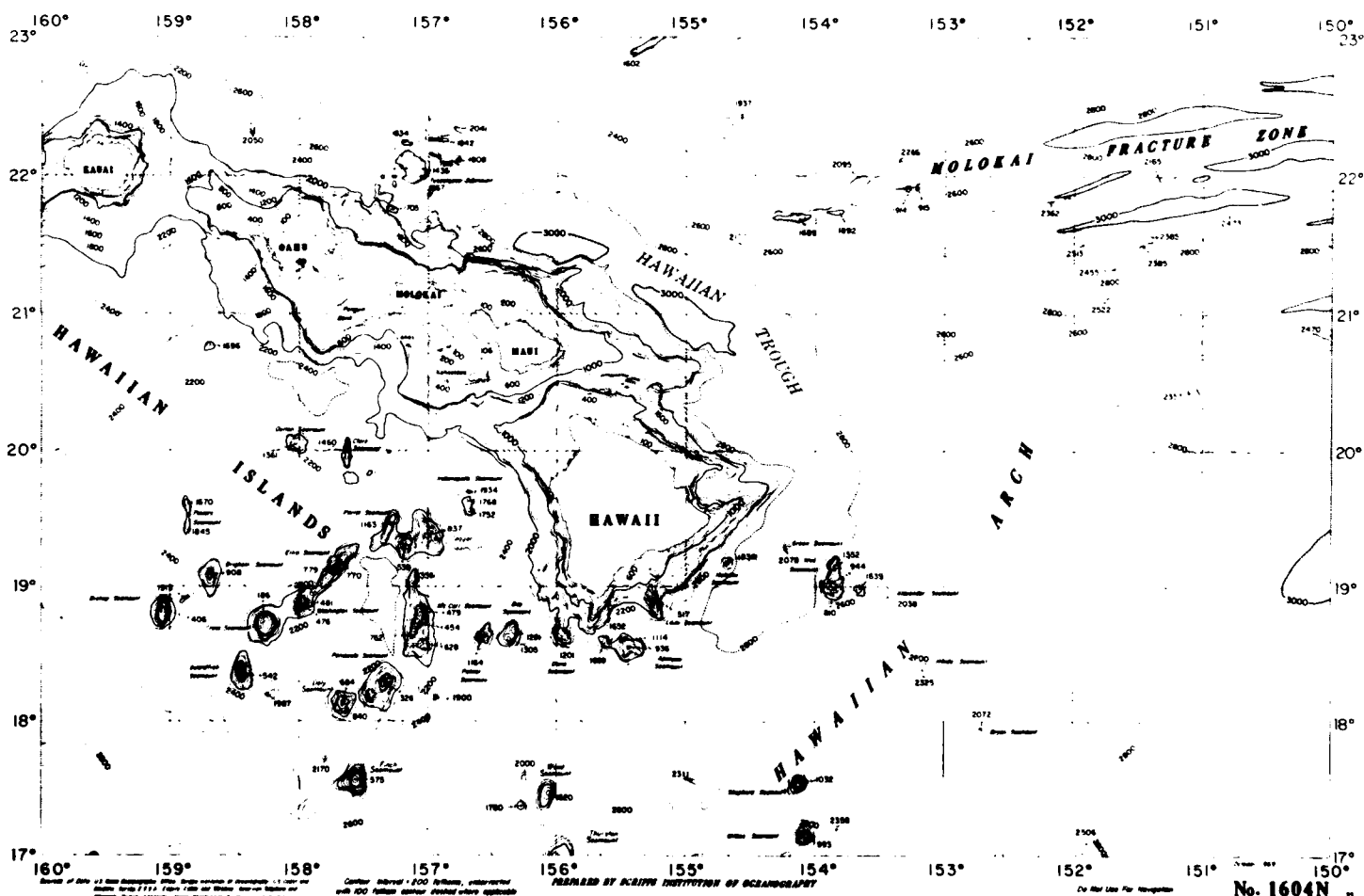


No. 1512N









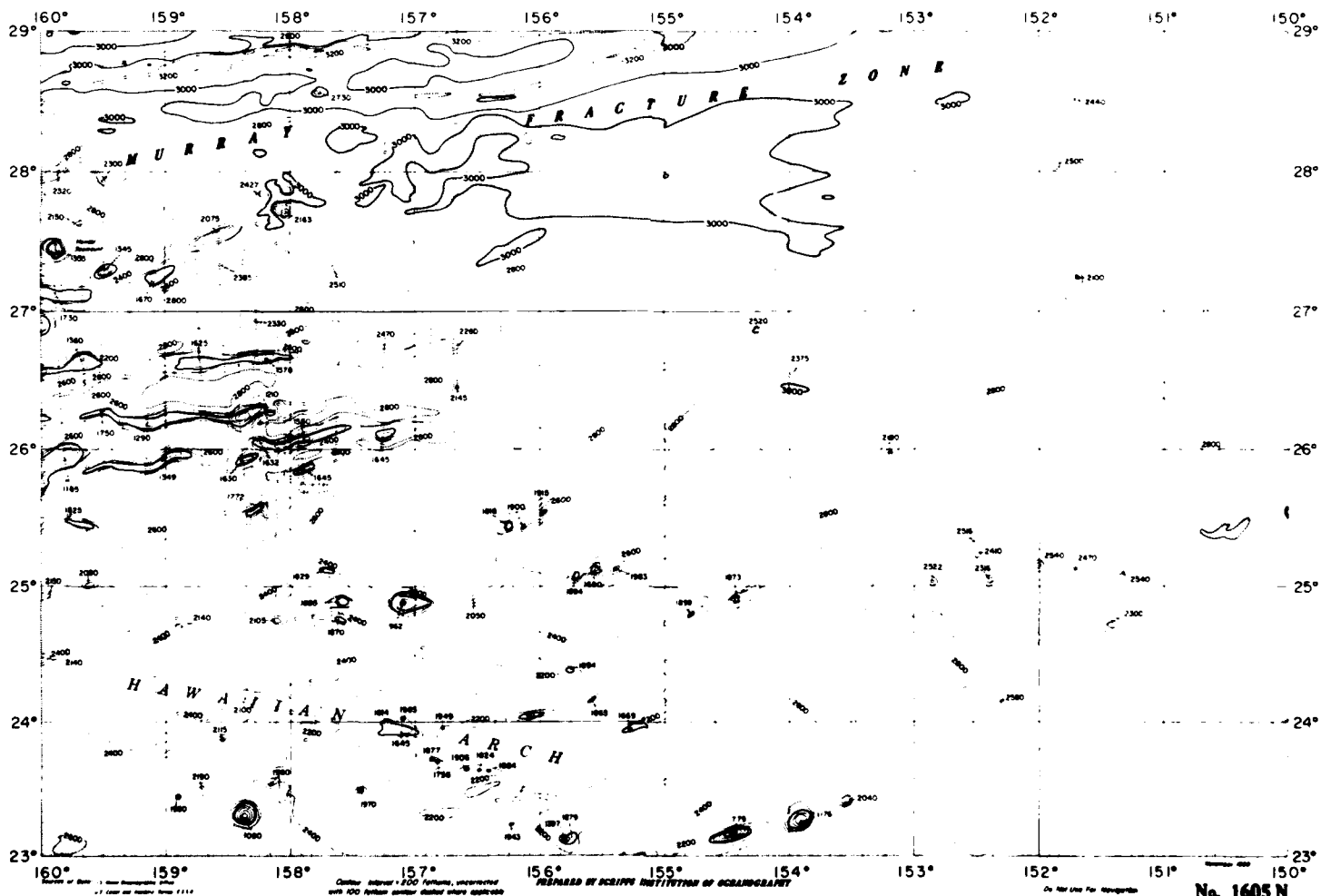
160° 159° 158° 157° 156° 155° 154° 153° 152° 151° 150°

Source of data: U.S. Navy Hydrographic Office, Hydrographic Survey of the Hawaiian Islands, 1911-1912. From 1:50,000 scale charts, reduced to 1:100,000 scale. Depth soundings in fathoms. Contour interval 200 fathoms. Contour interval 100 fathoms where depth is less than 1000 fathoms. Contour interval 500 fathoms where depth is less than 500 fathoms. Contour interval 1000 fathoms where depth is less than 1000 fathoms. Contour interval 2000 fathoms where depth is less than 2000 fathoms. Contour interval 4000 fathoms where depth is less than 4000 fathoms. Contour interval 6000 fathoms where depth is less than 6000 fathoms. Contour interval 8000 fathoms where depth is less than 8000 fathoms. Contour interval 10000 fathoms where depth is less than 10000 fathoms.

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No. 1604N



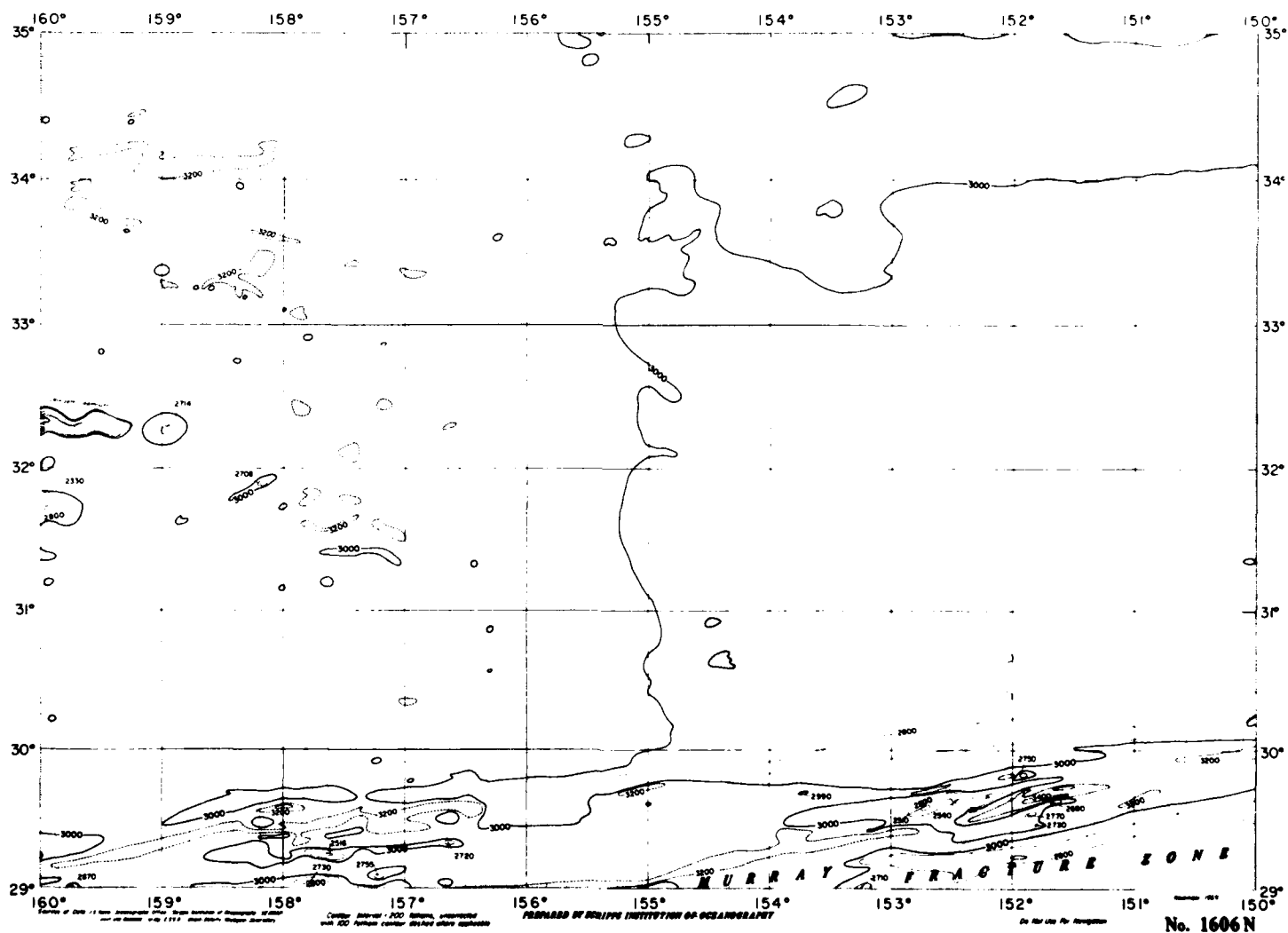
Source of Data:
 1. U.S. Hydrographic Survey
 2. U.S. Navy Hydrographic Survey
 3. U.S. Navy Hydrographic Survey

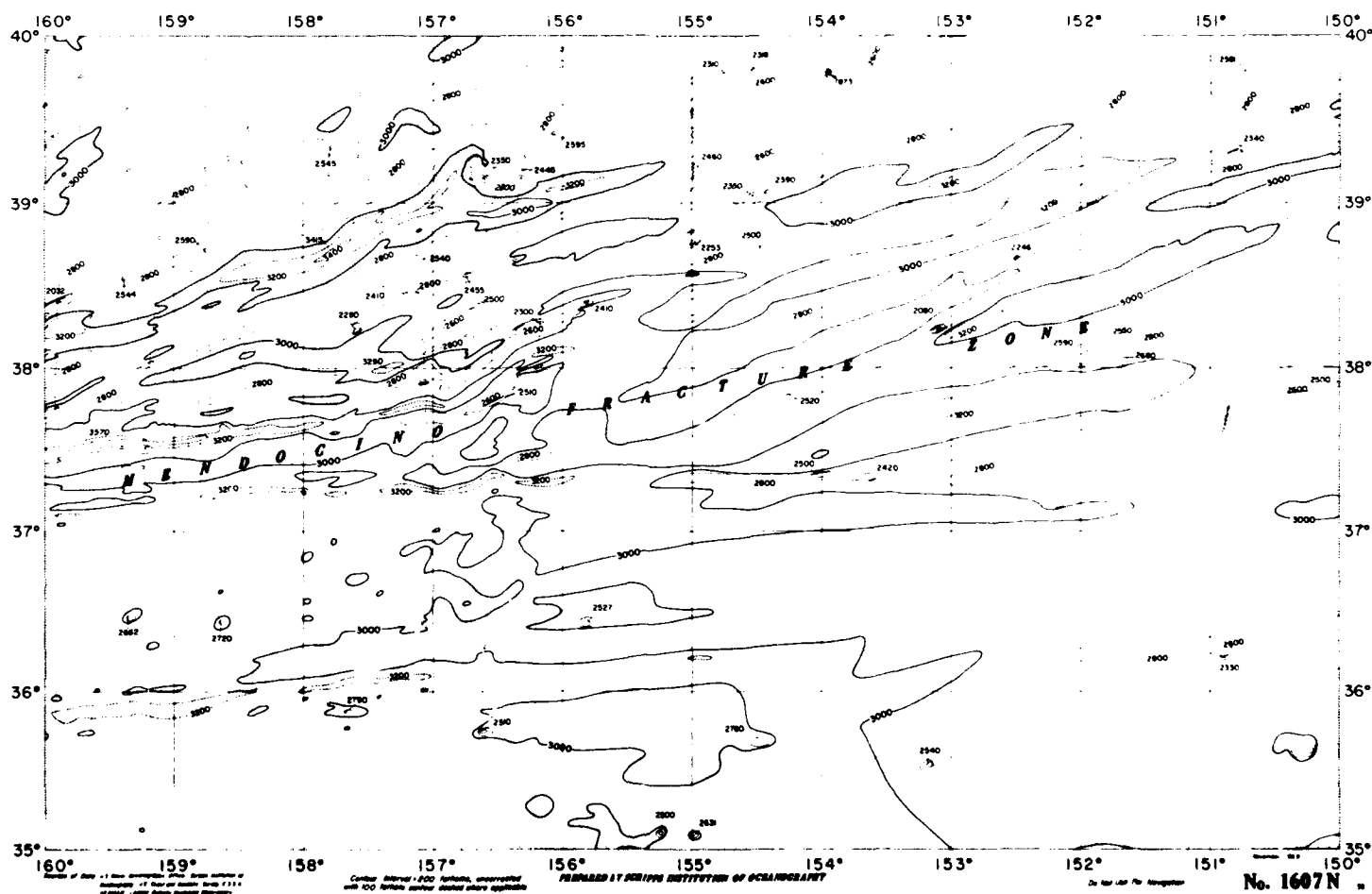
Contour Interval: 200 Fathoms, uncorrected
 with 100 Fathoms contour shaded where applicable

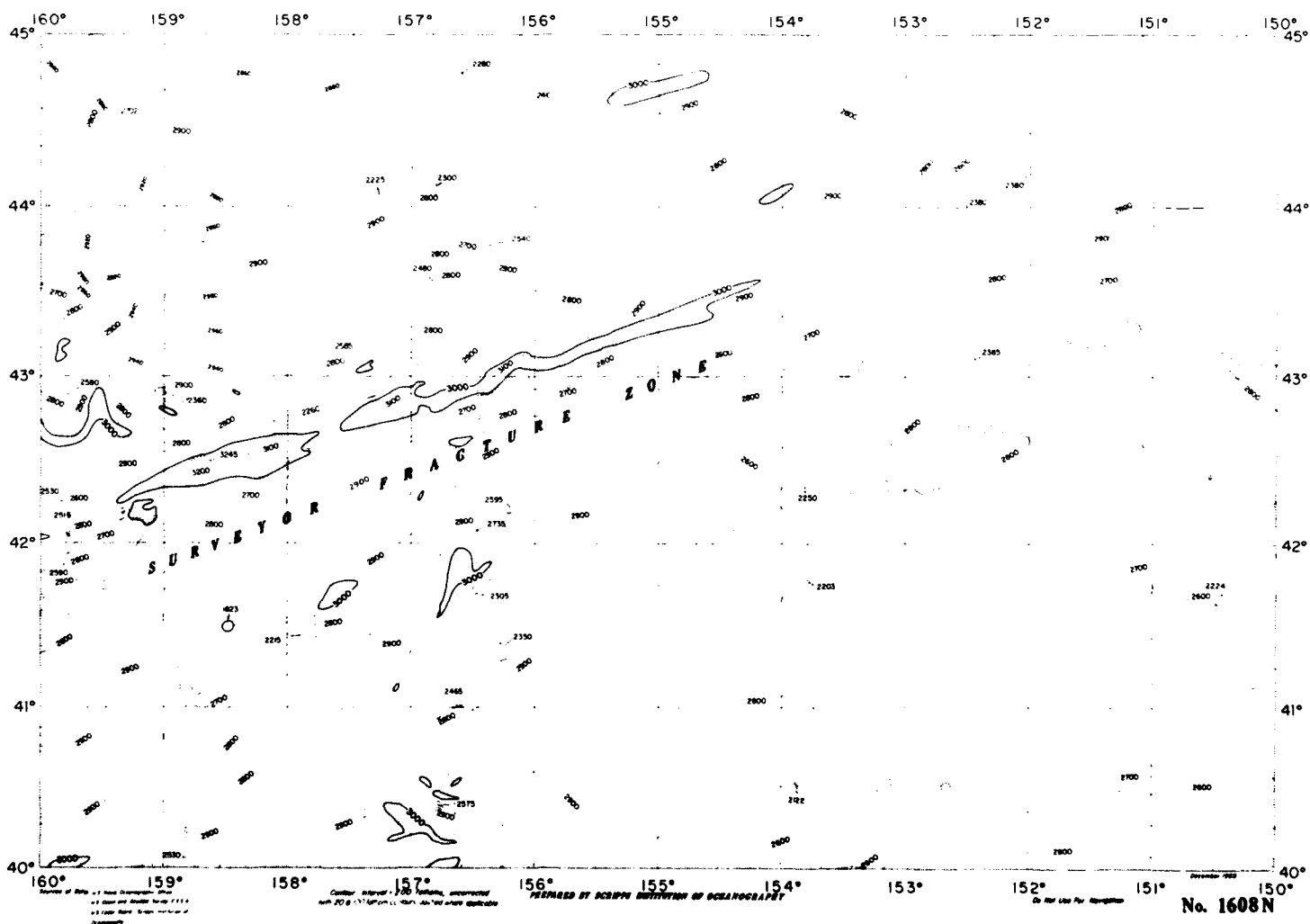
PREPARED BY SCRIPPS INSTITUTION OF OCEANOGRAPHY

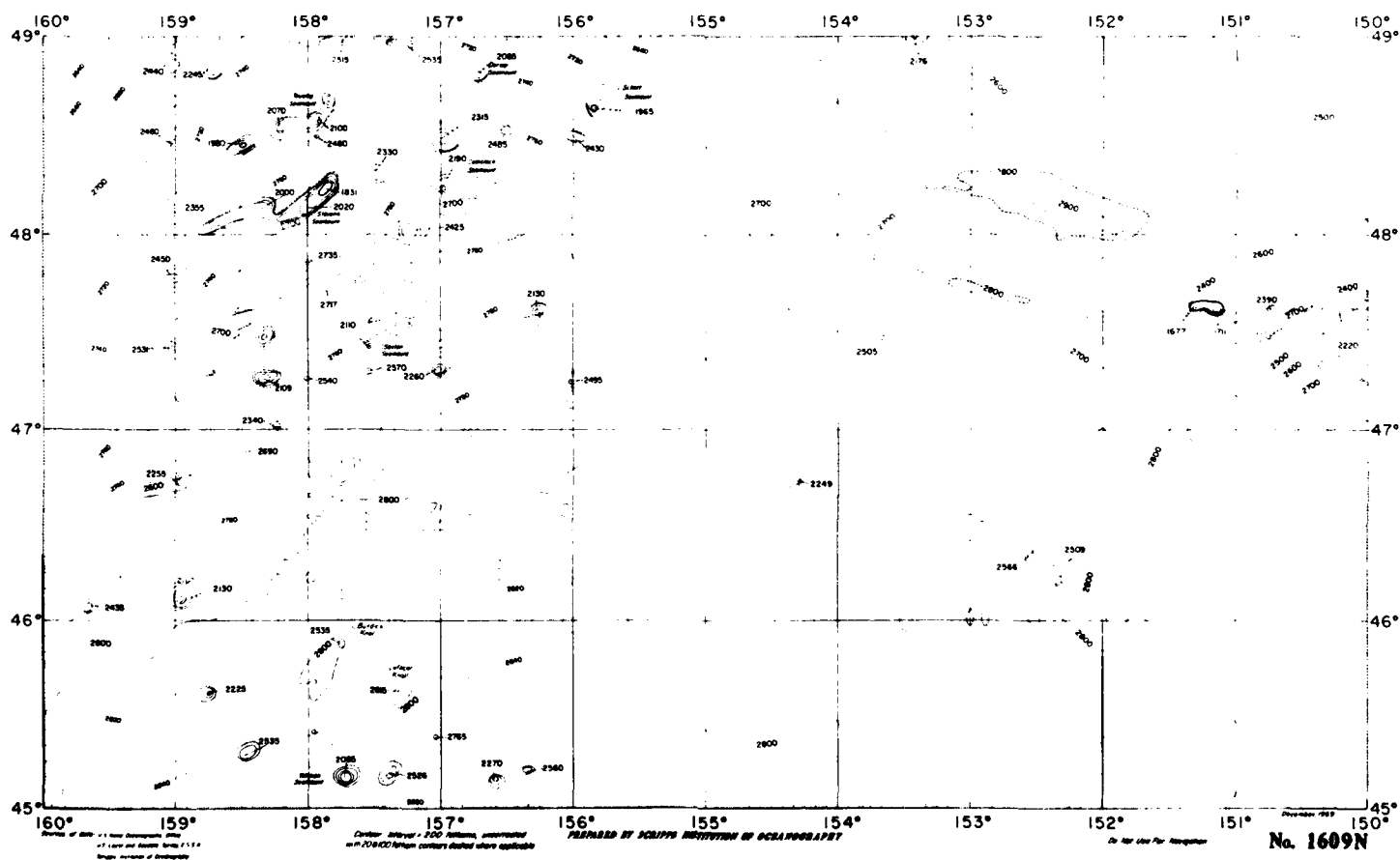
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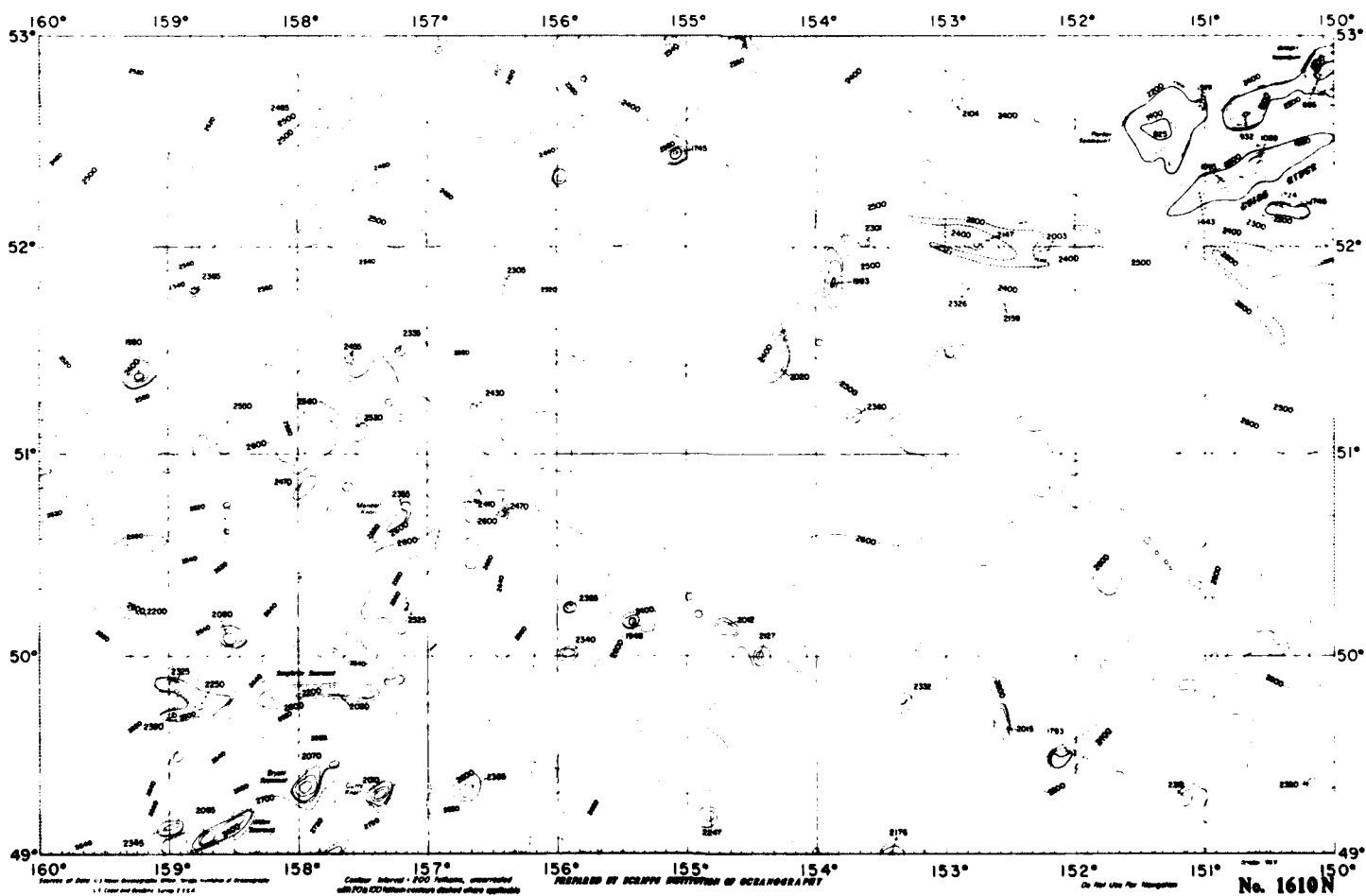
No. 1605 N

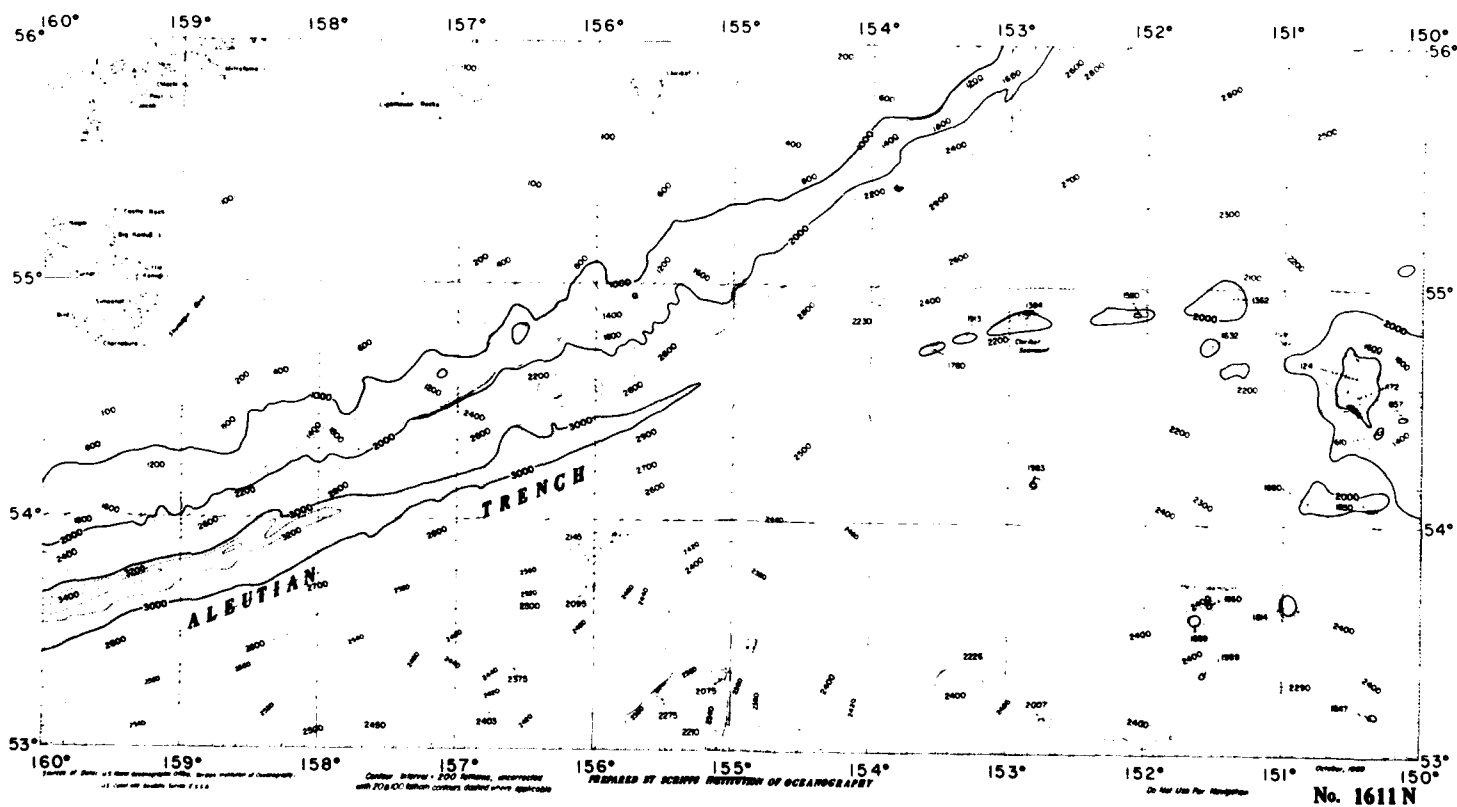


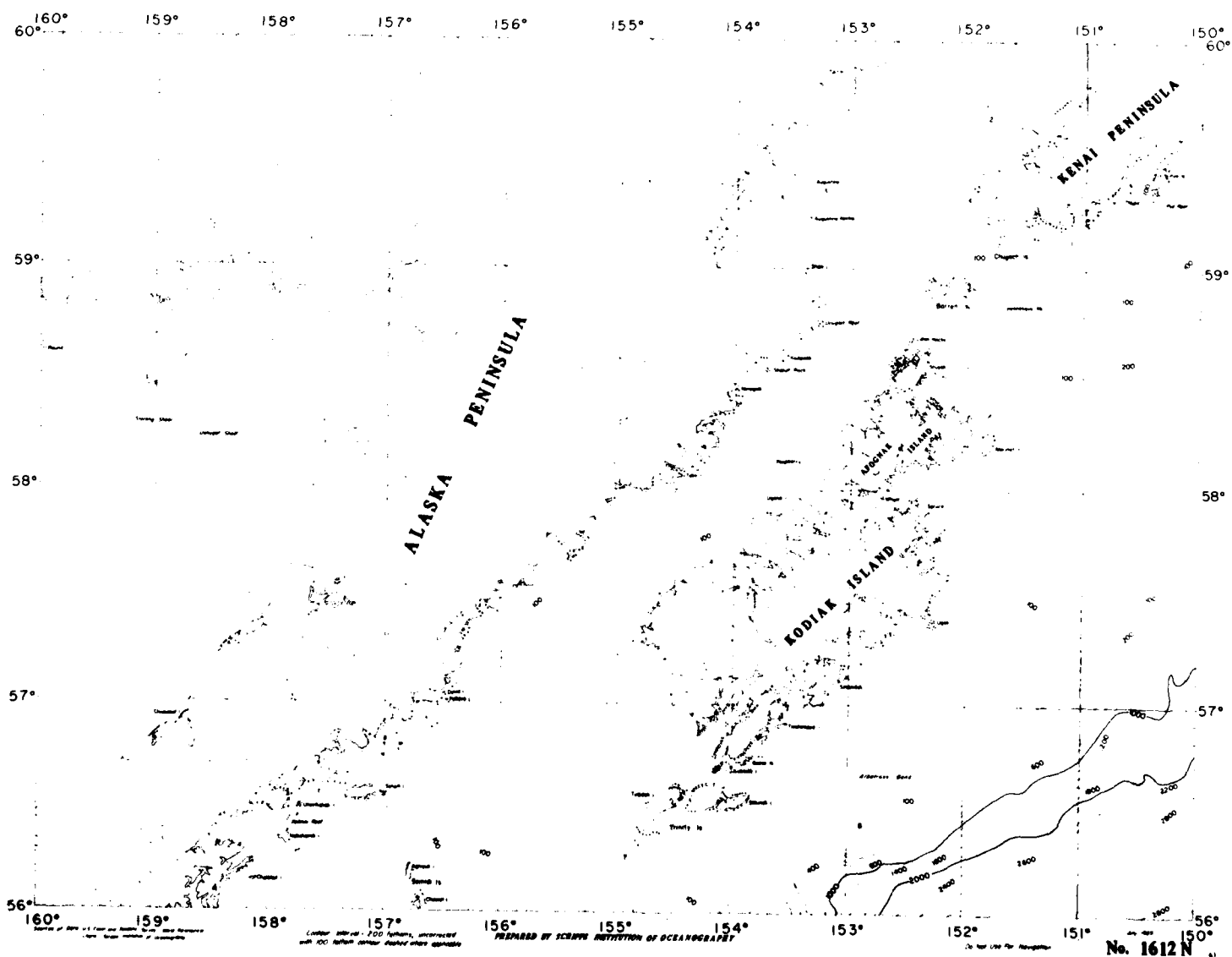


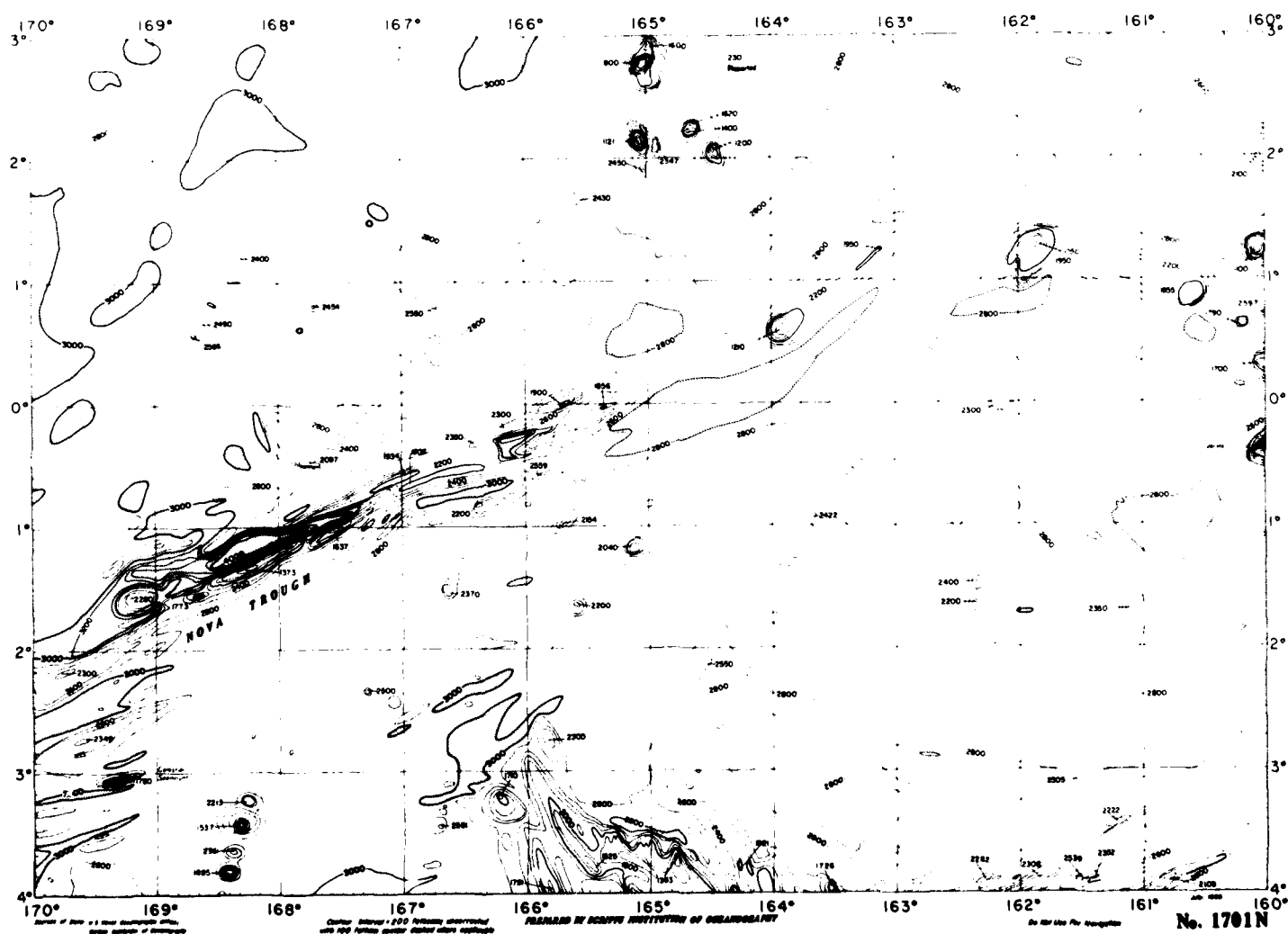


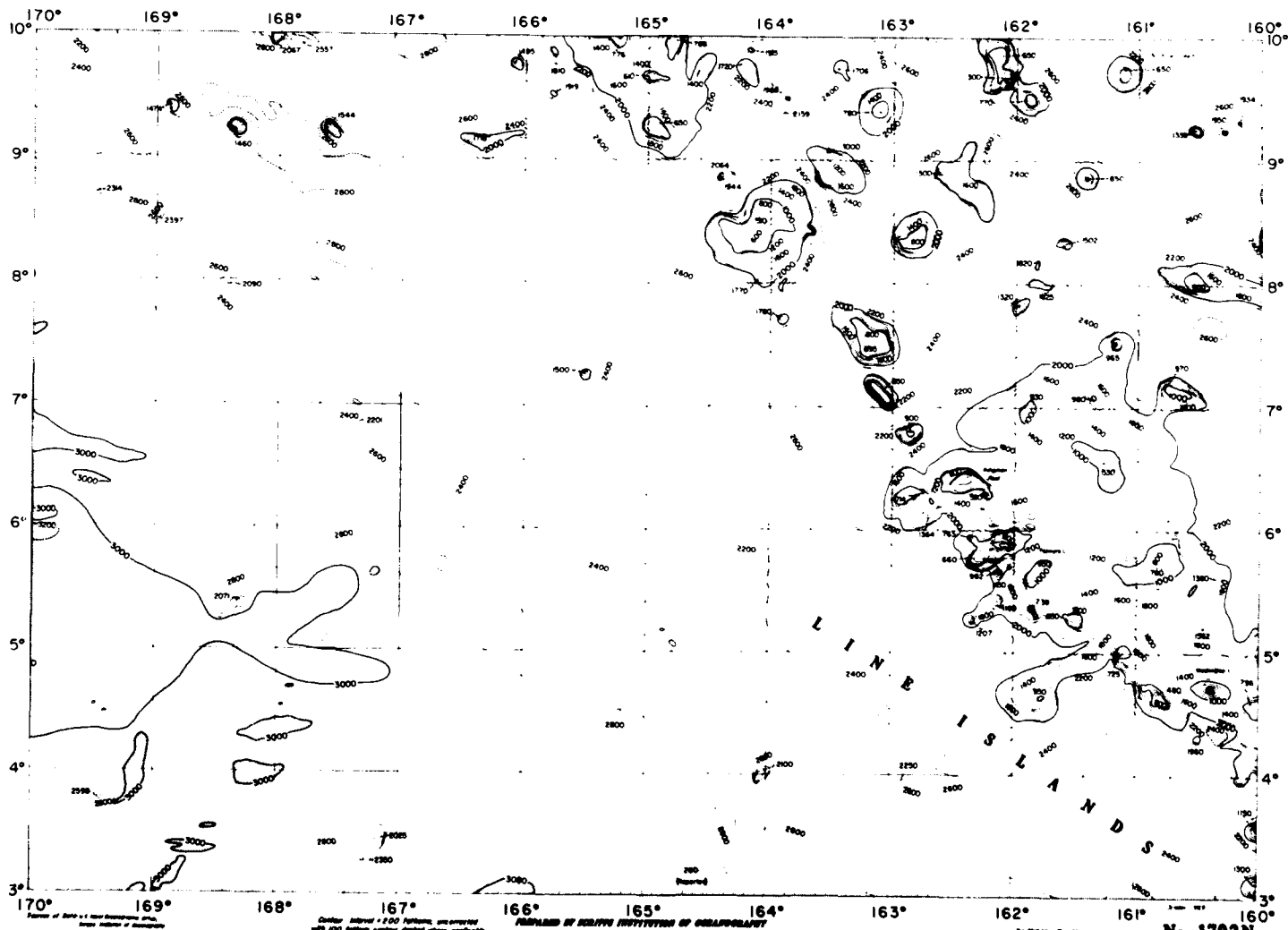












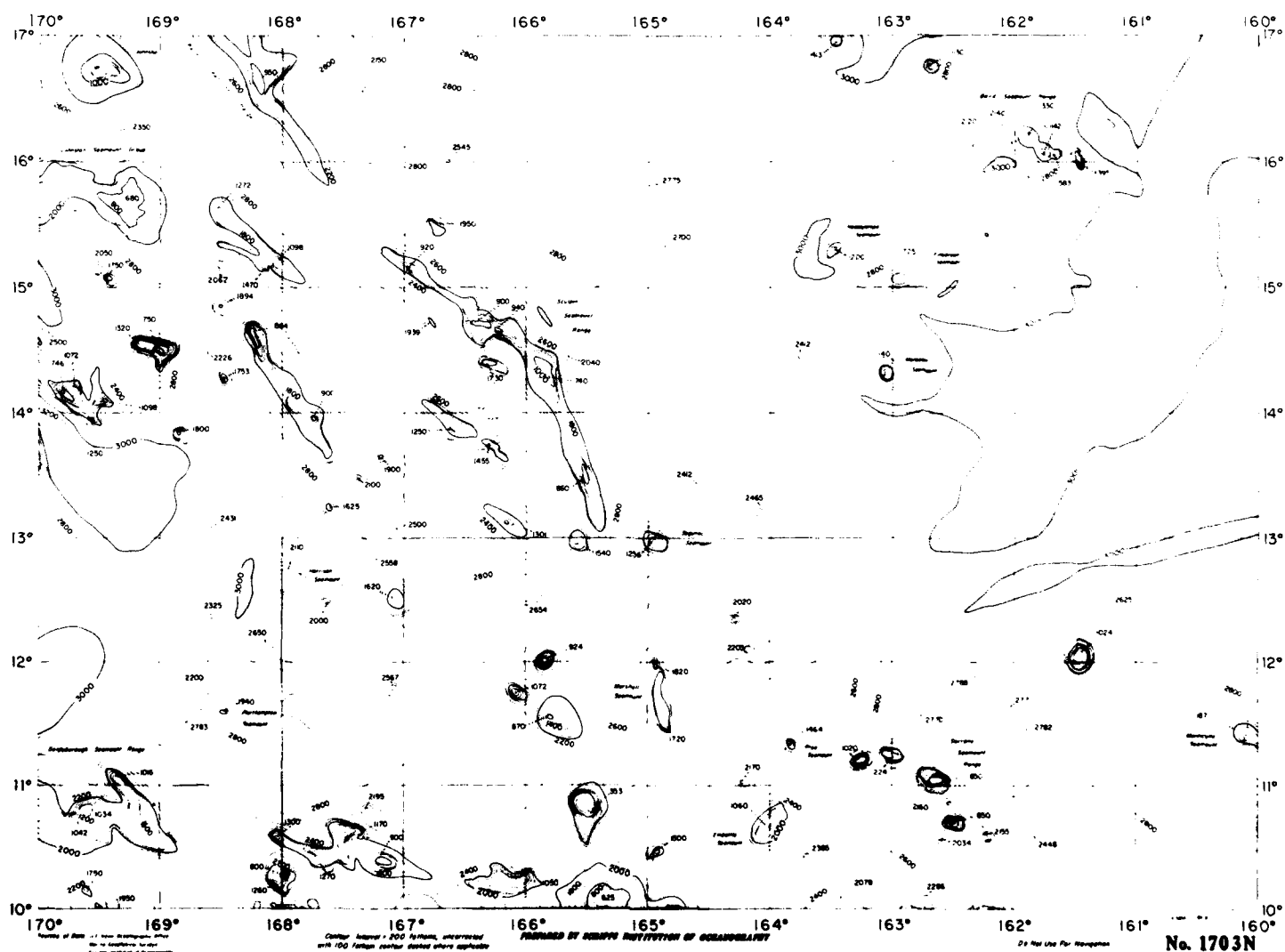
Source of Data: U.S. Navy Hydrographic Office, latest edition of charts.

Contour Interval: 500 fathoms, except where indicated by 100 fathoms contour dashed where appropriate.

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No. 1702N



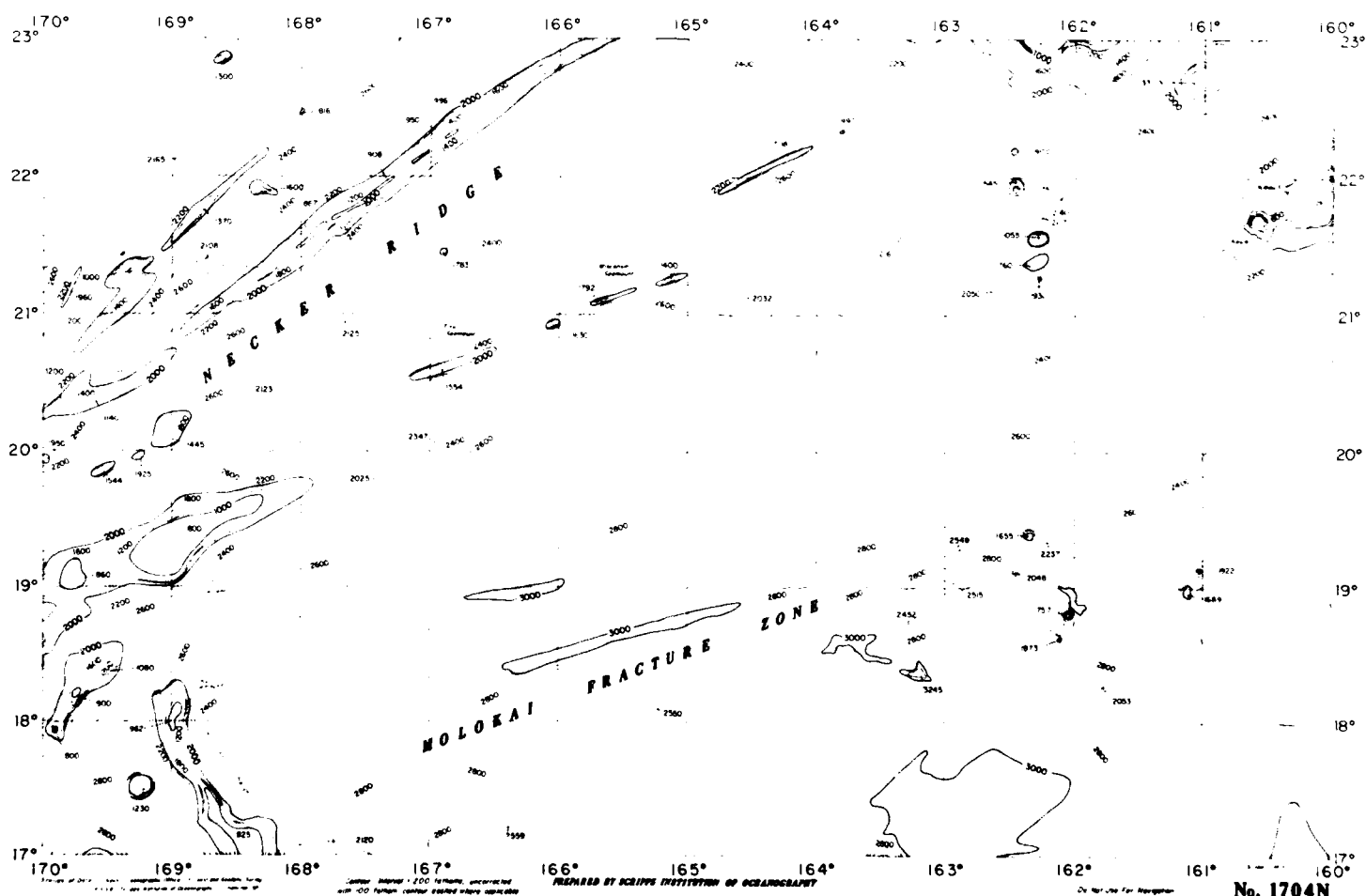
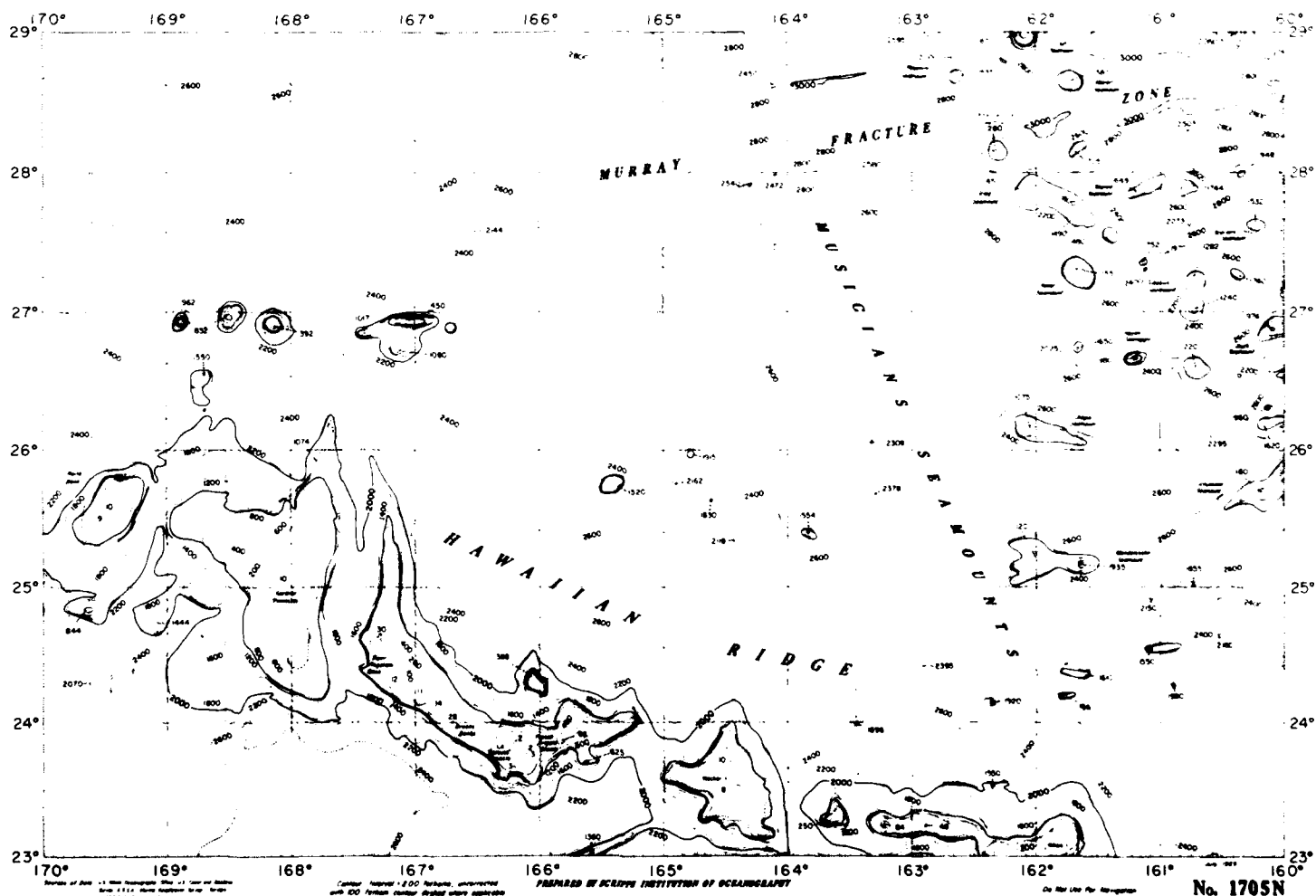


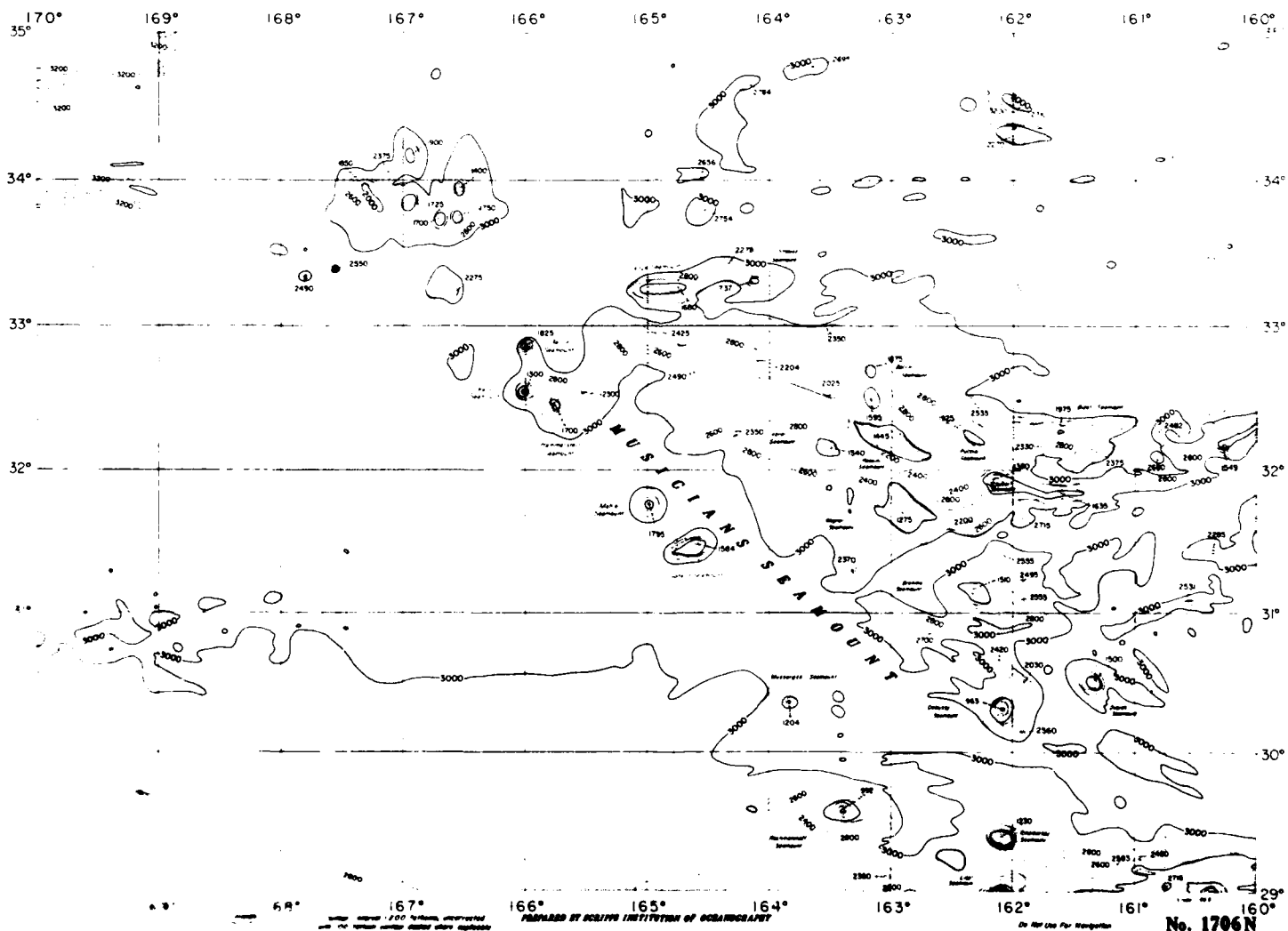
Chart No. 1704N, 1:250,000, published by the Hydrographic Office, U.S. Navy, 1964. All depths are in fathoms. Contours are at 100 fathoms intervals. Contour interval 100 fathoms. Contour interval 100 fathoms. Contour interval 100 fathoms.

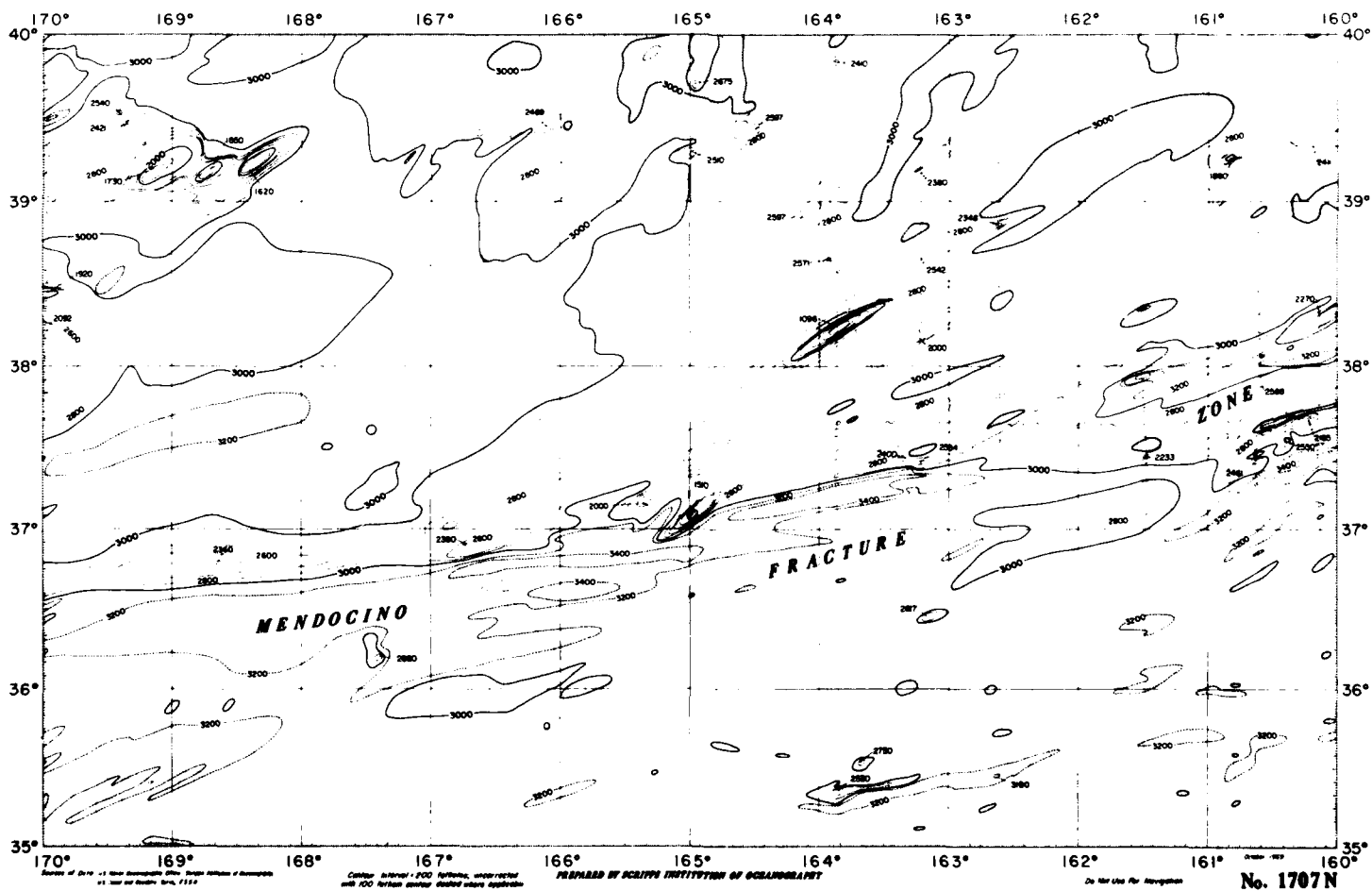
PREPARED BY SCIENTIFIC INSTITUTION OF OCEANOGRAPHY

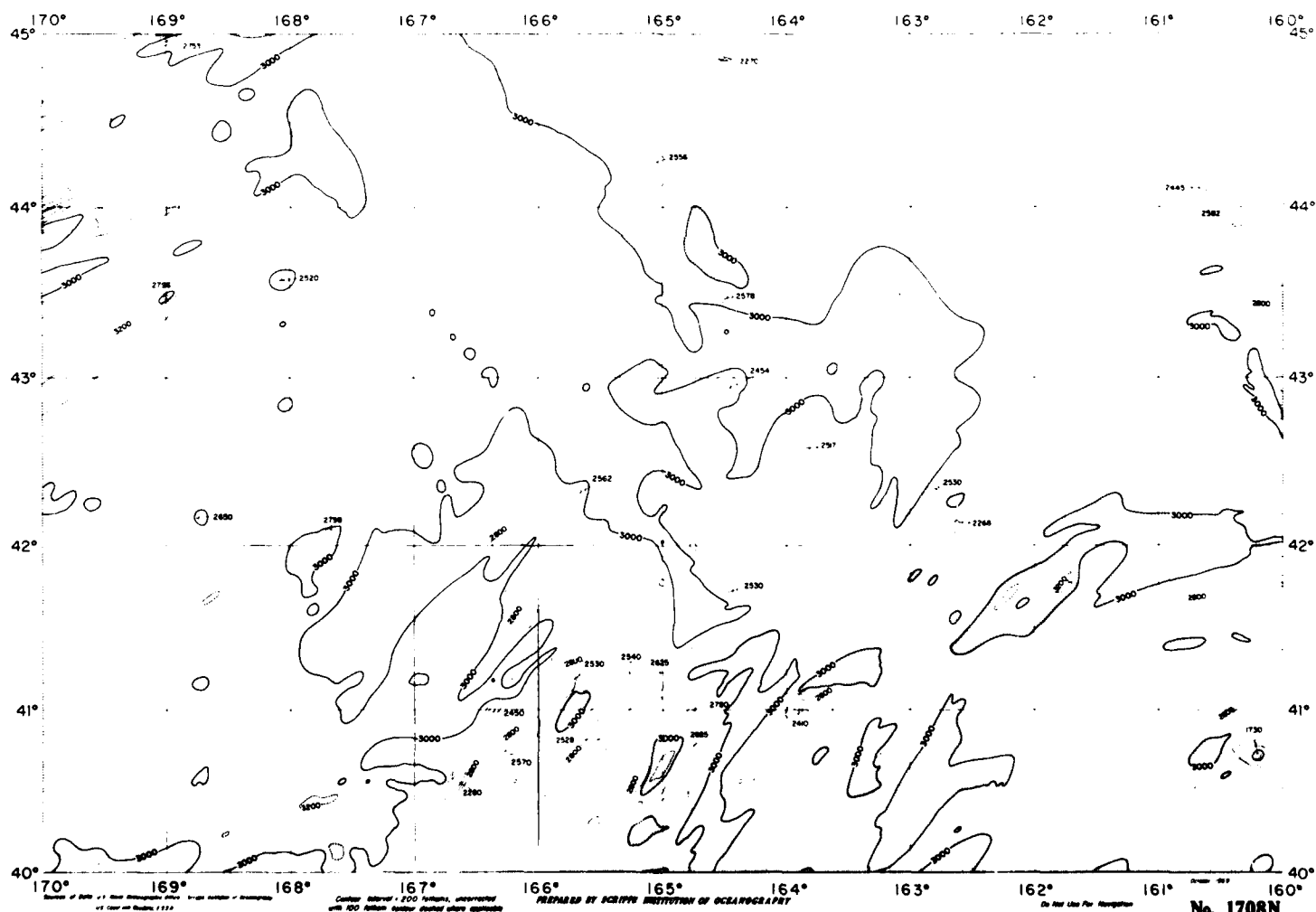
On Not. 1964 For Navigation

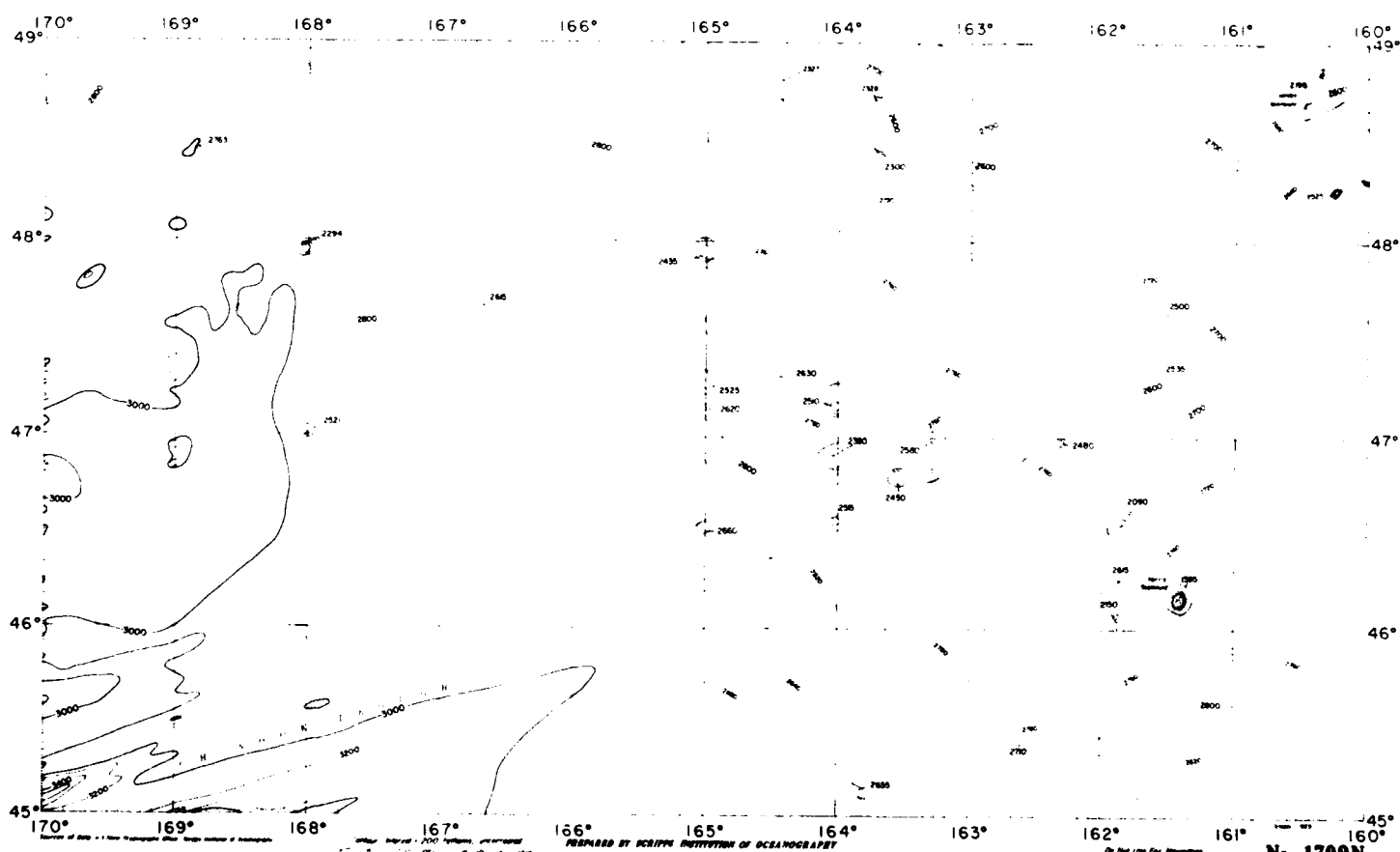
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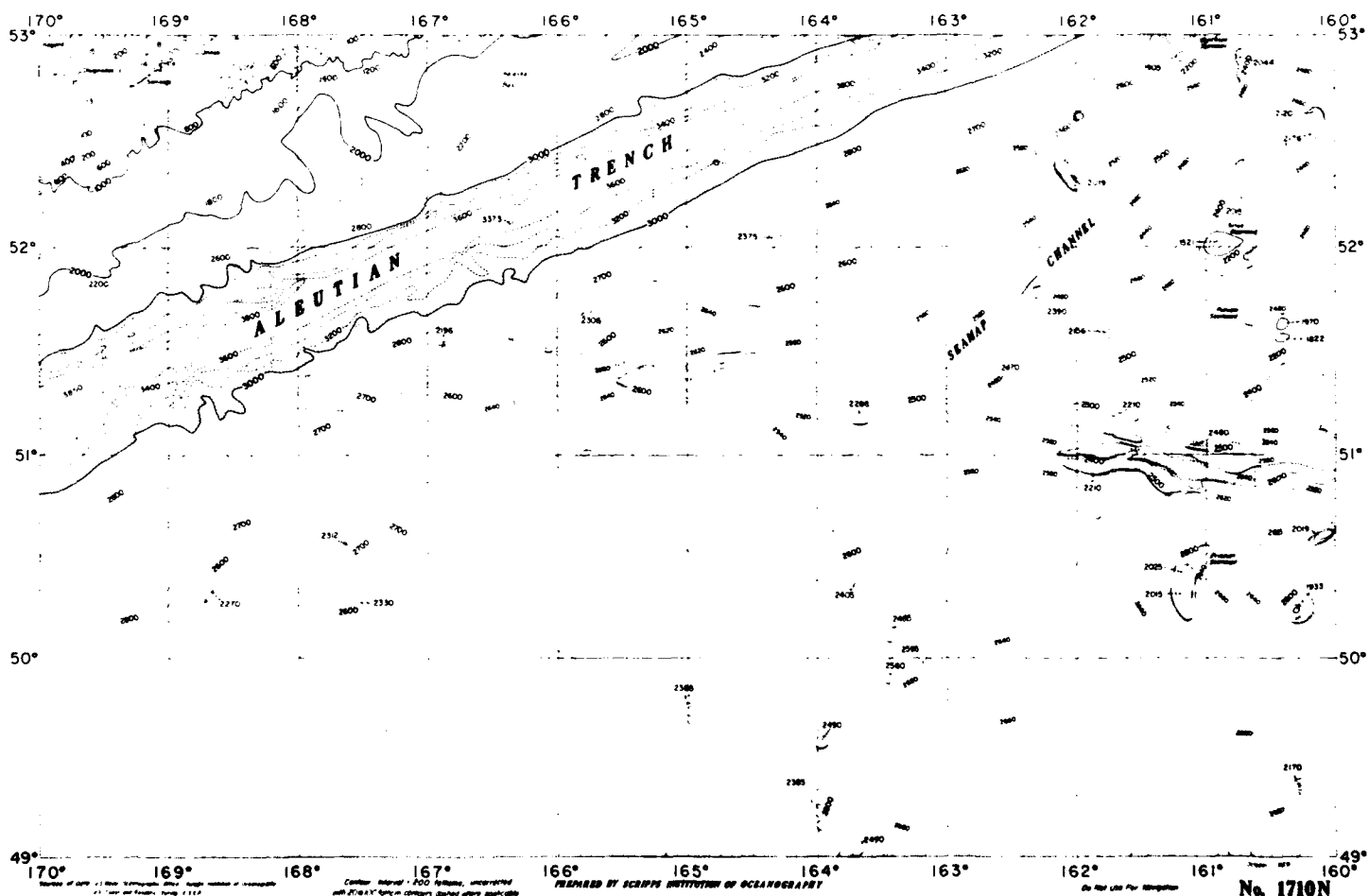


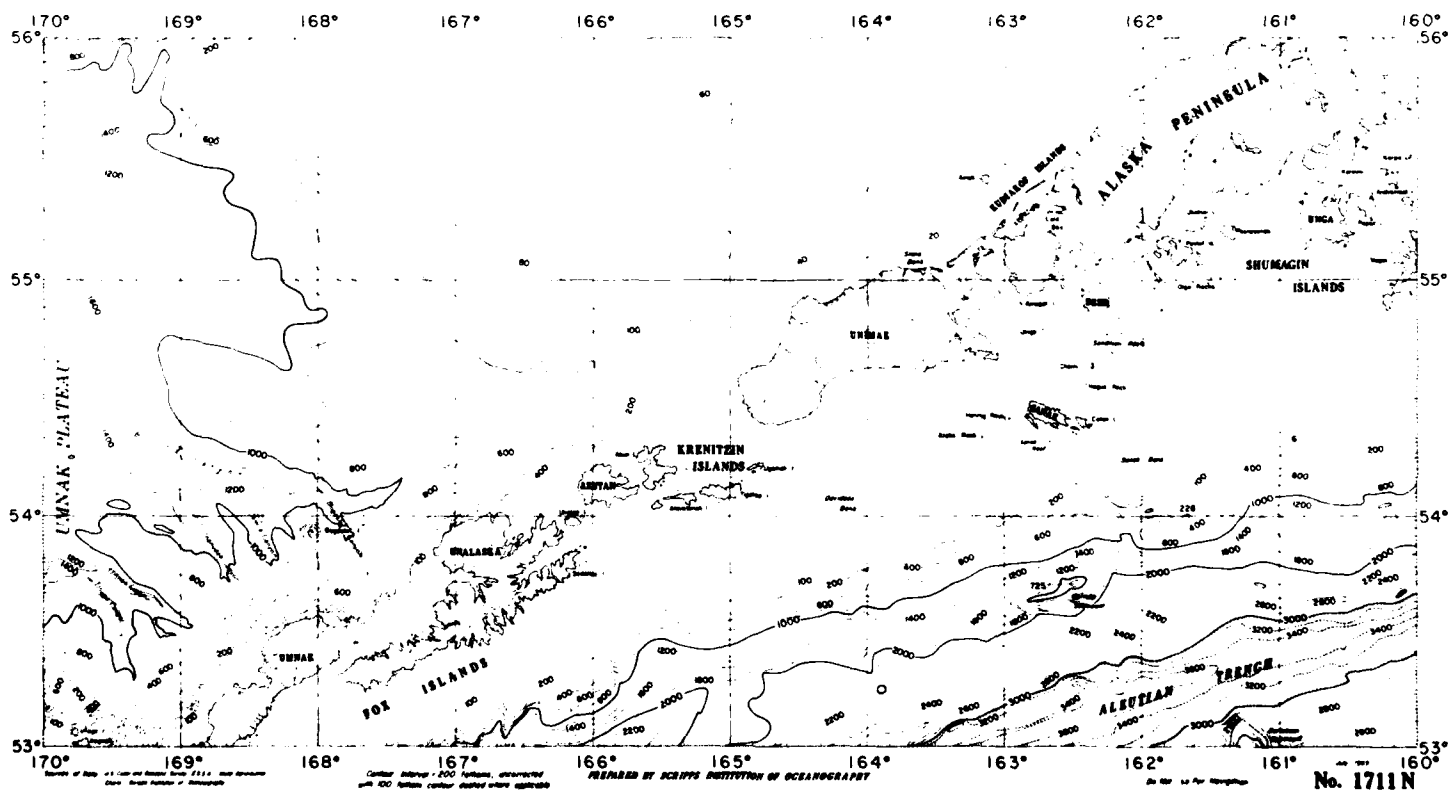


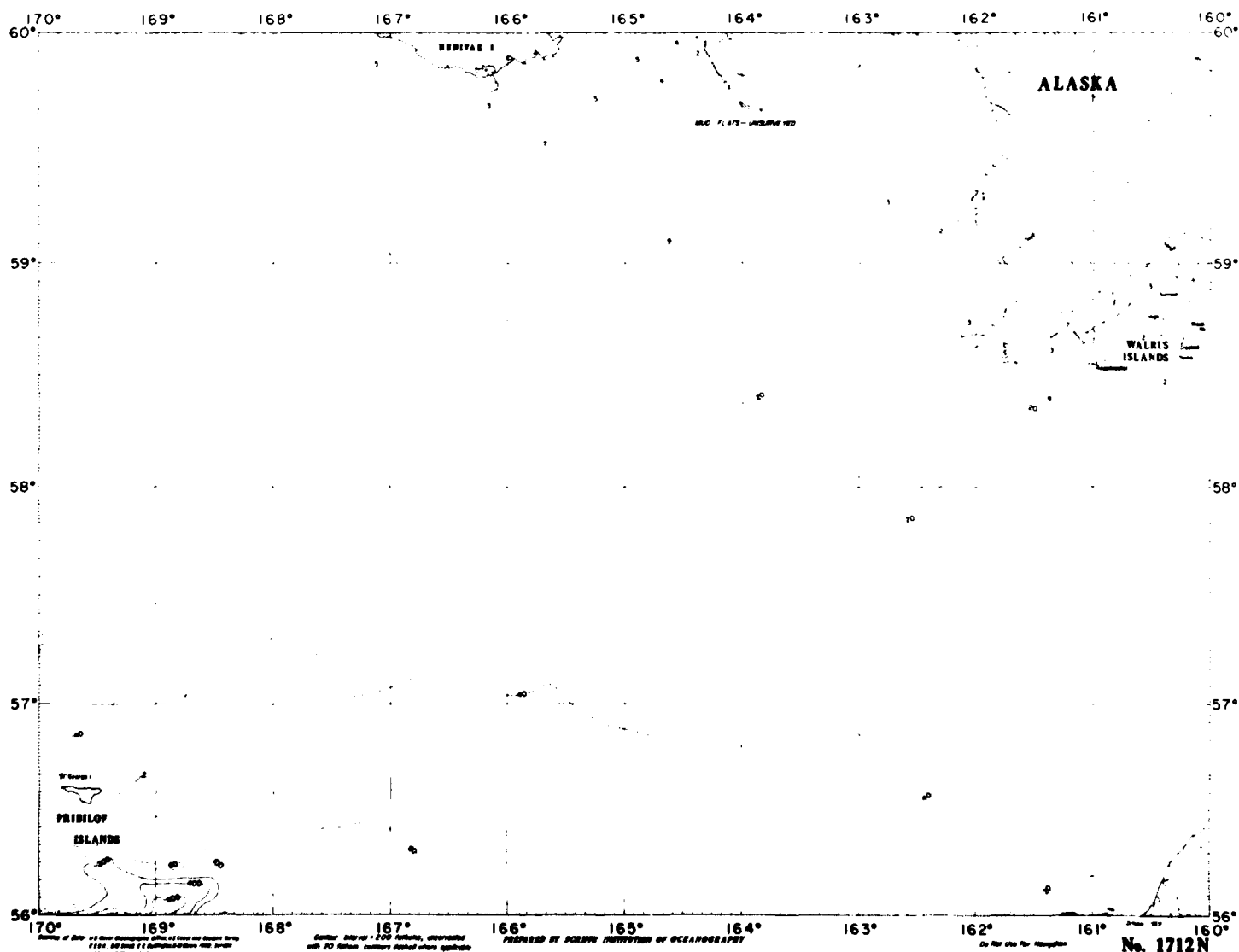


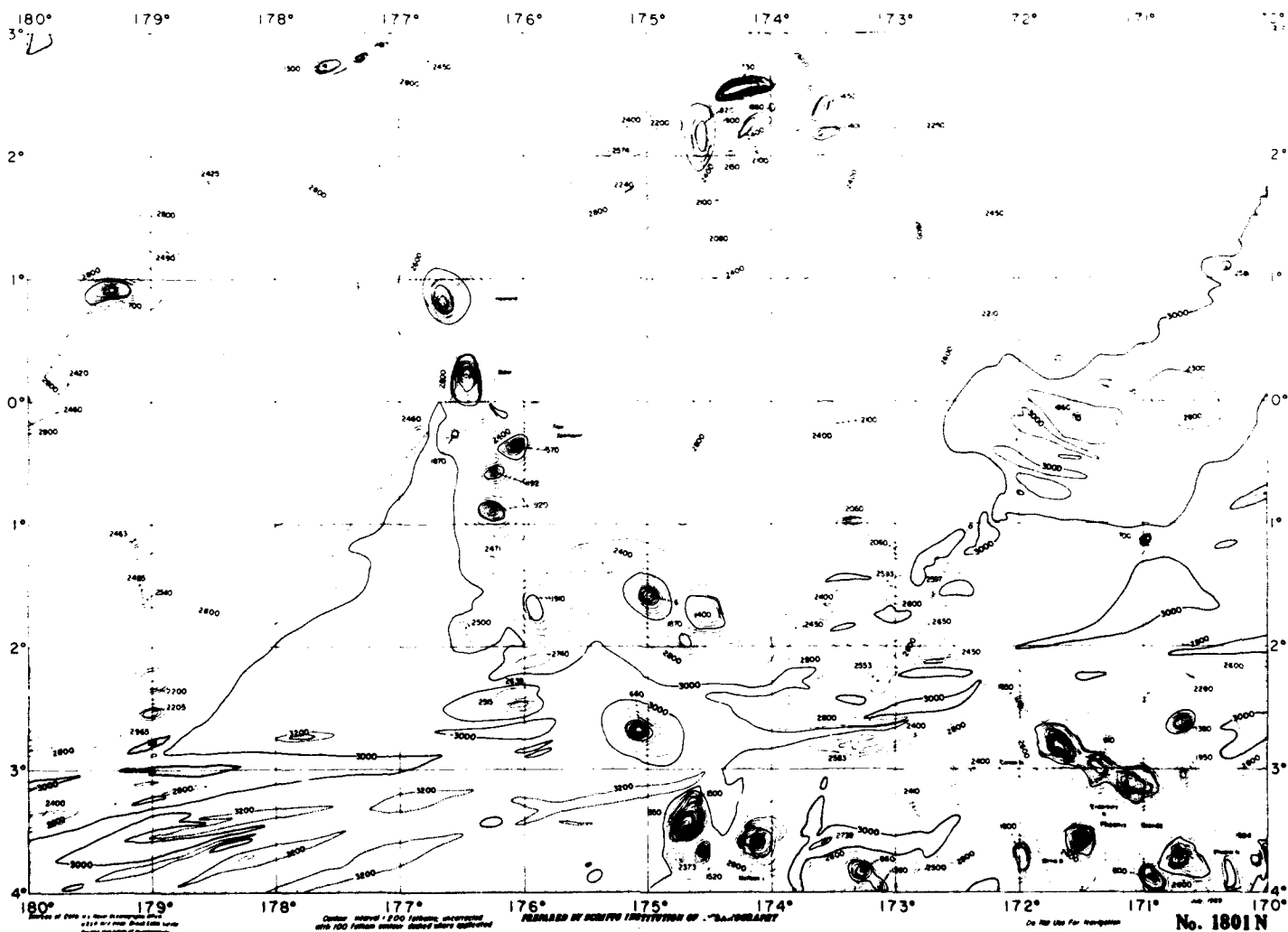


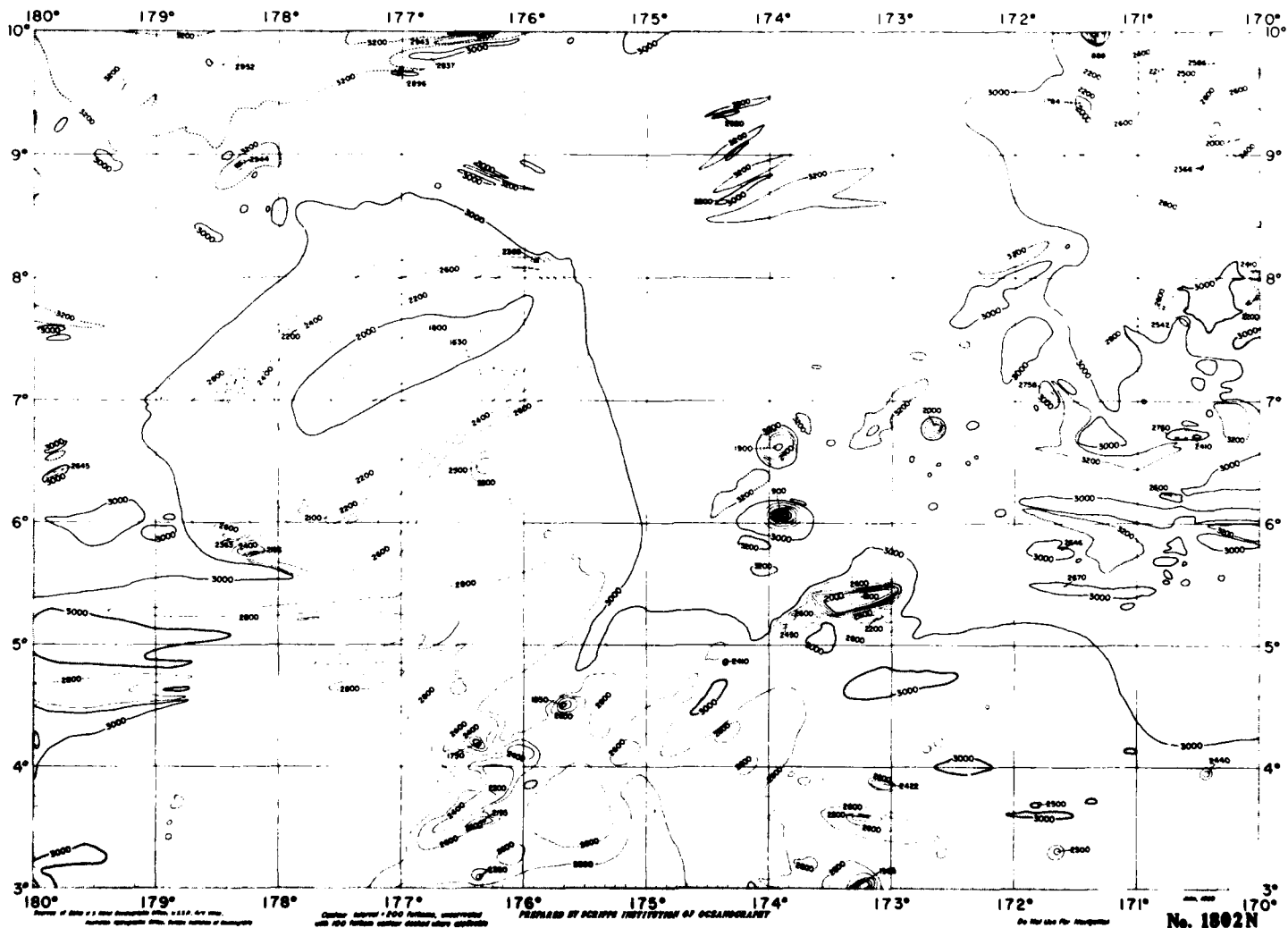


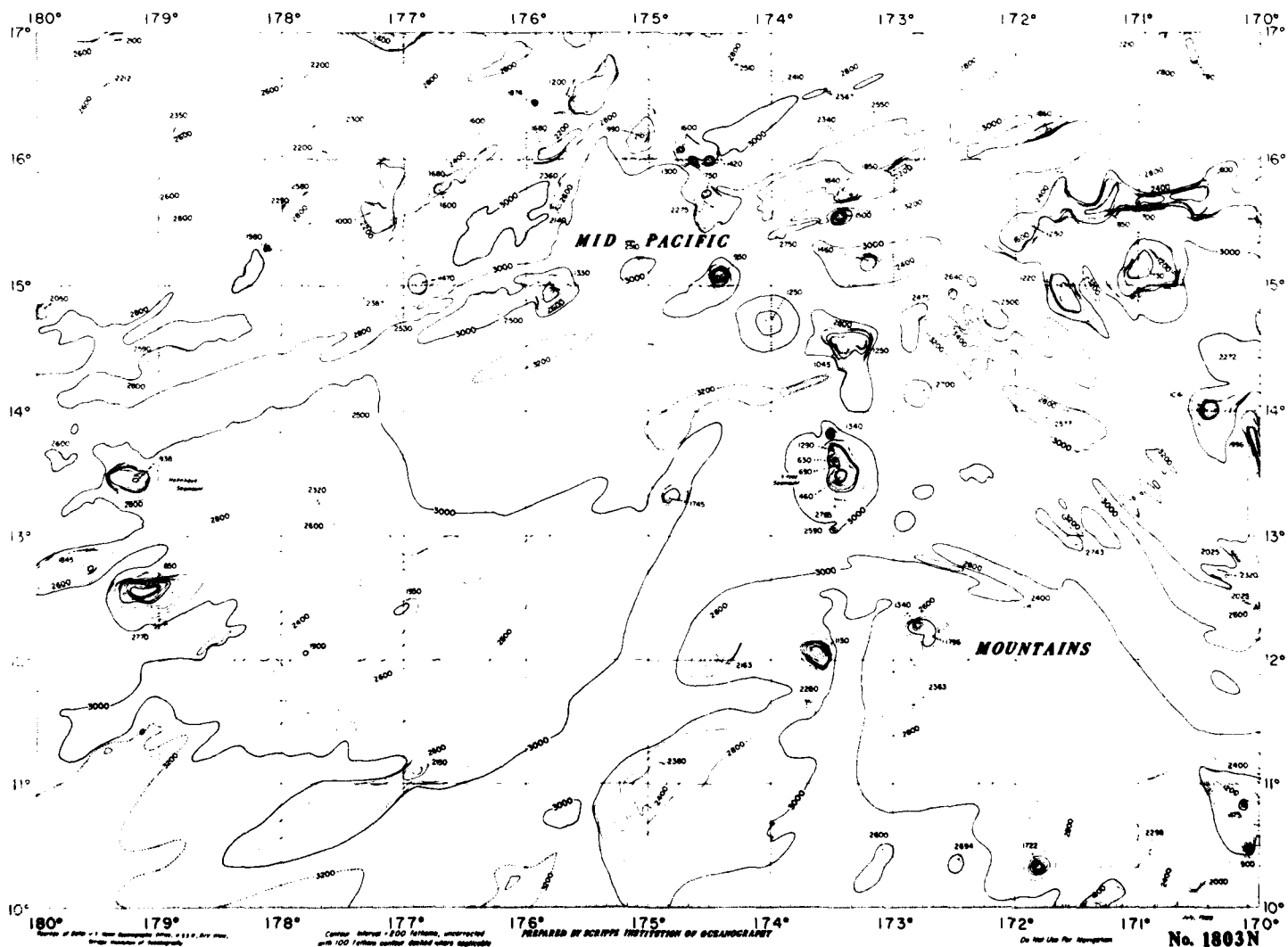


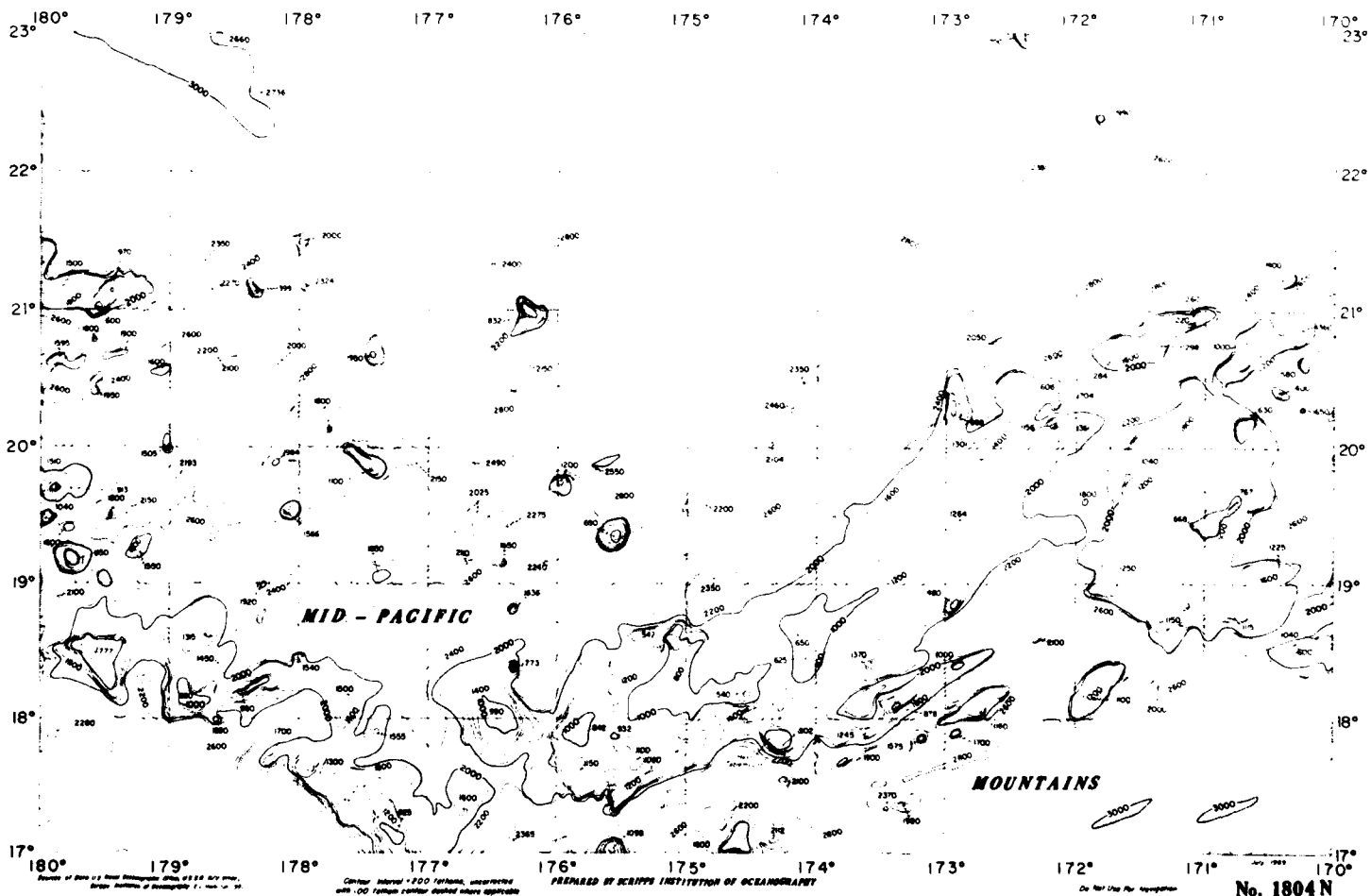


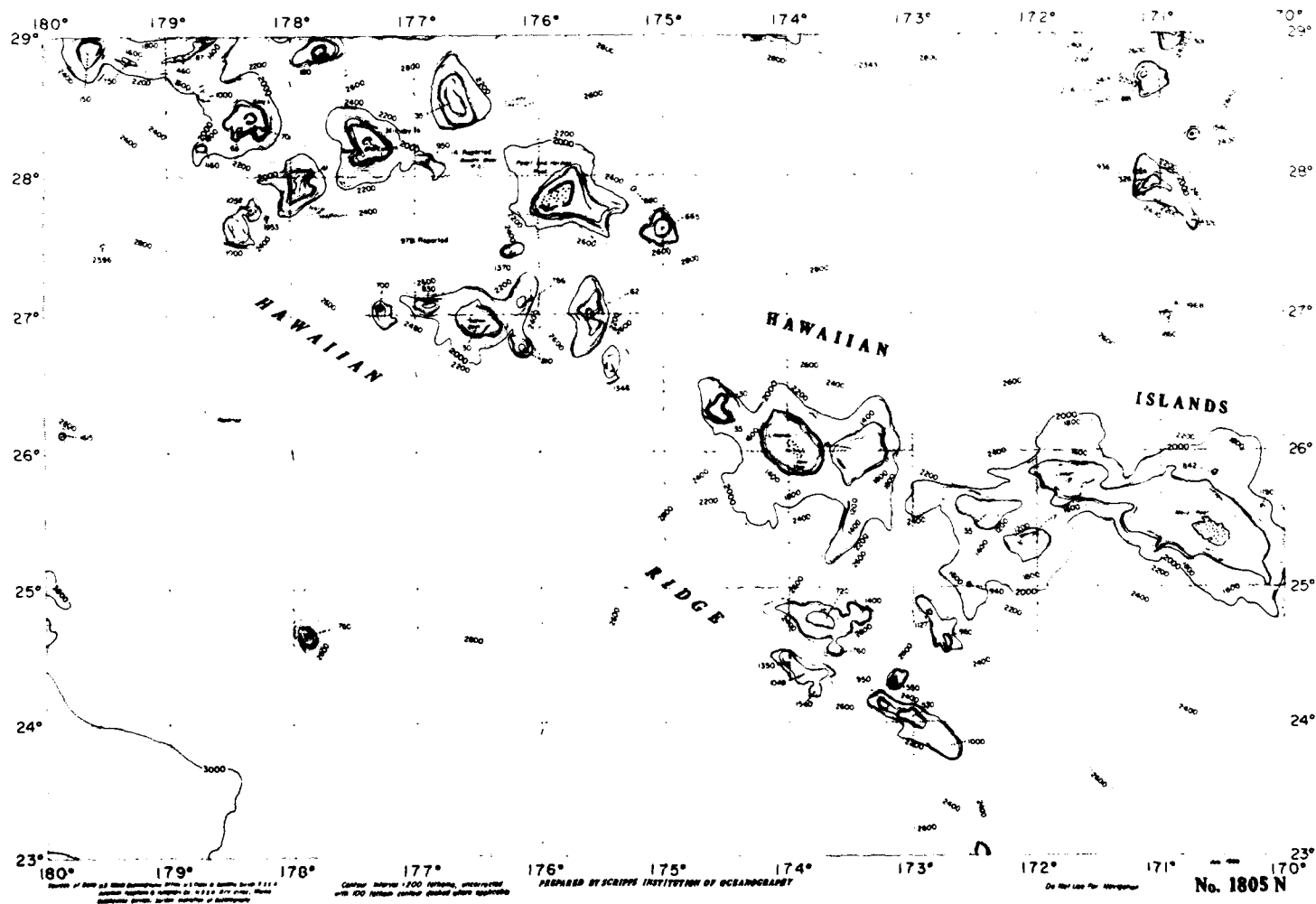


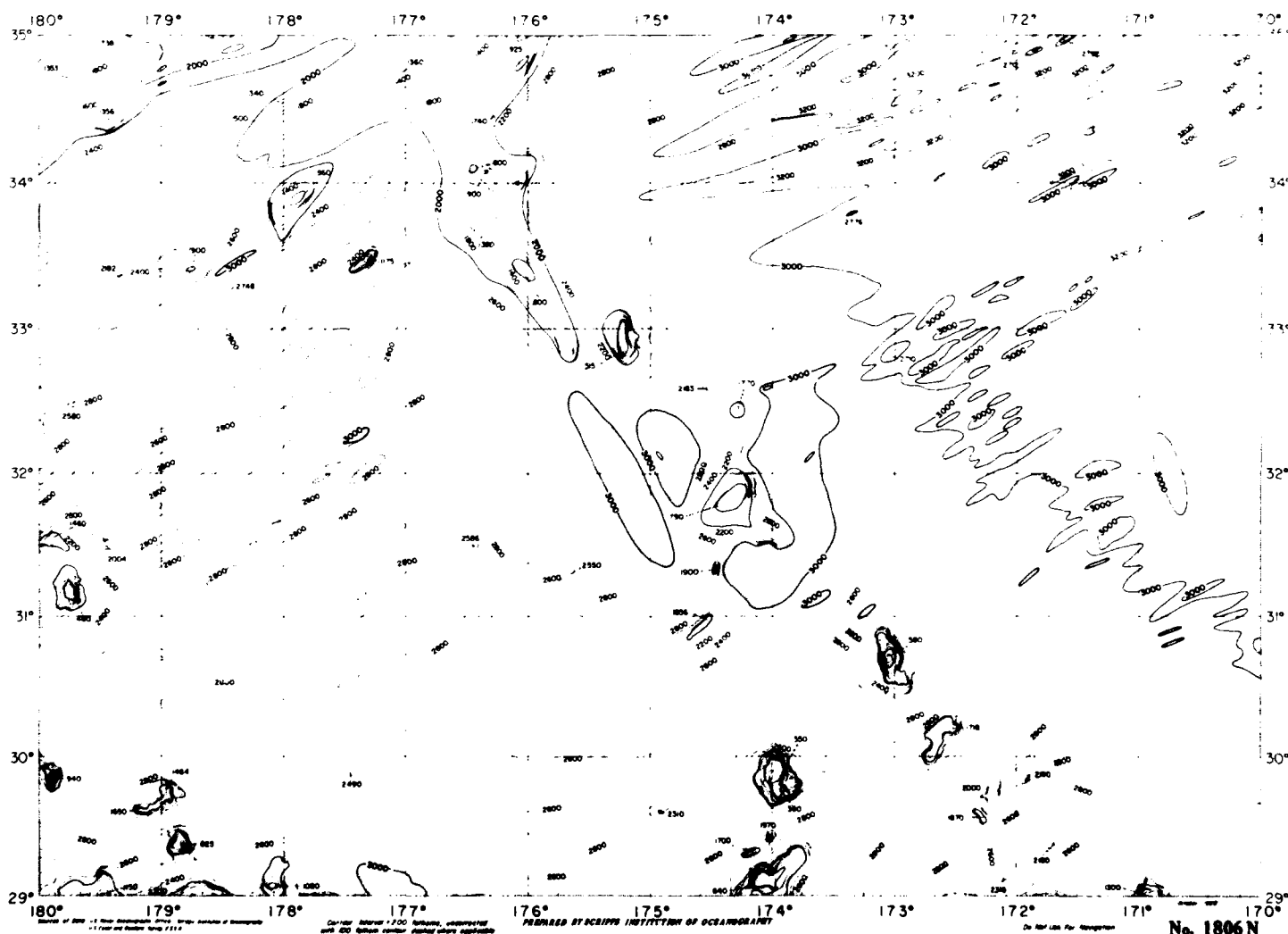












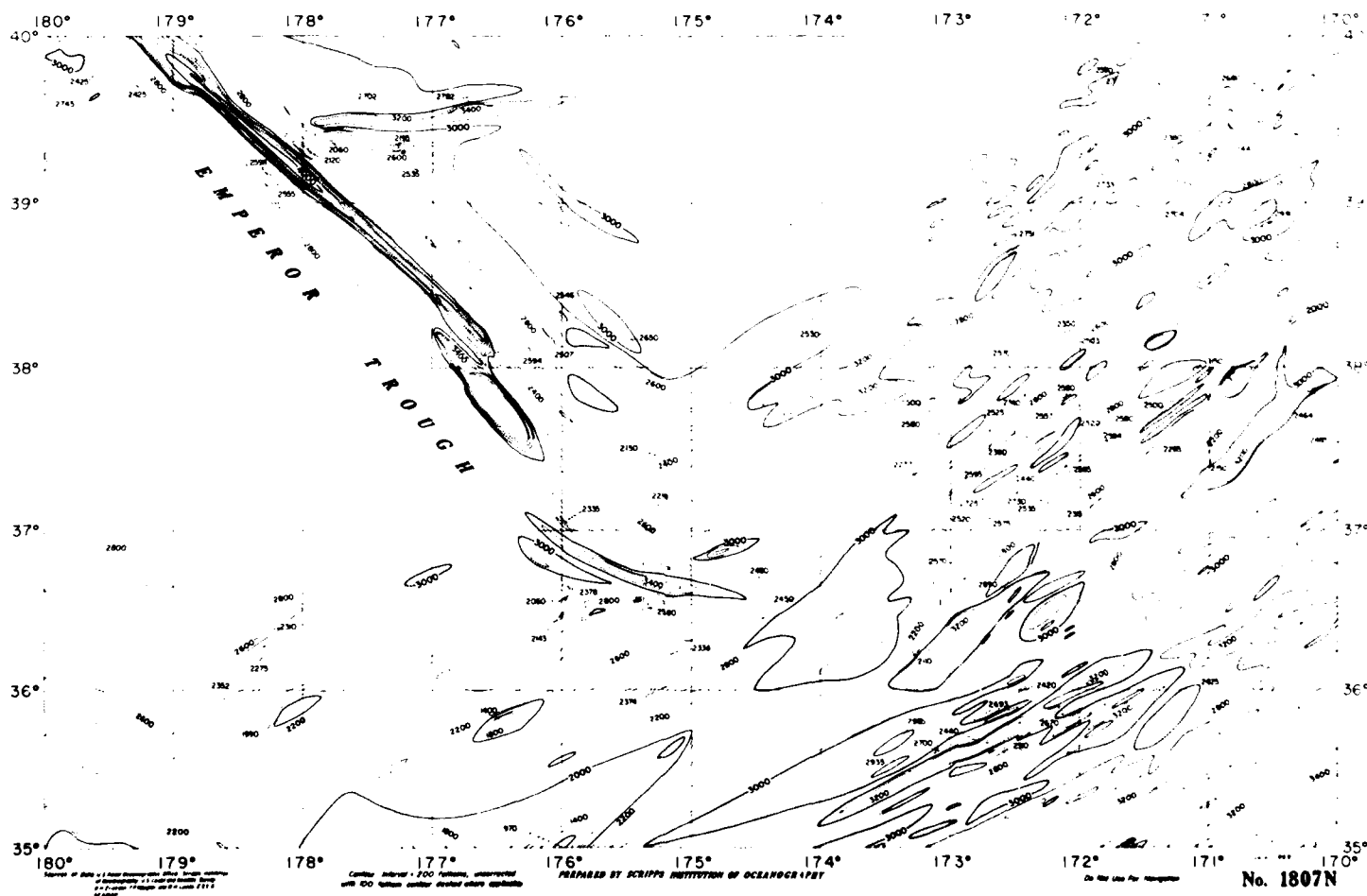
Source of Data: U.S. Navy Hydrographic Office, 1974; Bureau of Oceanography, 1974; and other sources.

Contour Interval: 200 fathoms, uncorrected; 500 fathoms, rounded; plotted where applicable.

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No. 1806N



AD-A085 916

SCRIPPS INSTITUTION OF OCEANOGRAPHY LA JOLLA CA
BATHYMETRIC ATLAS OF THE NORTH PACIFIC OCEAN. (U)
1978

F/B 8/10

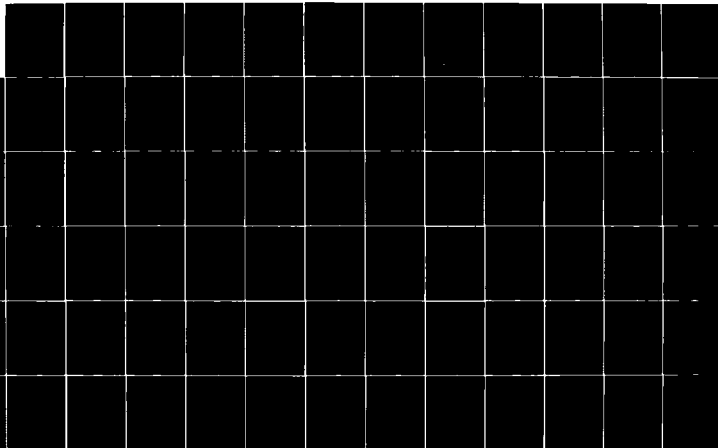
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2 2



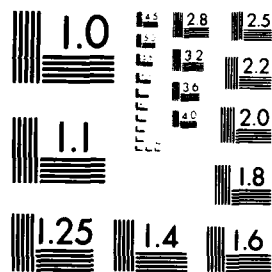
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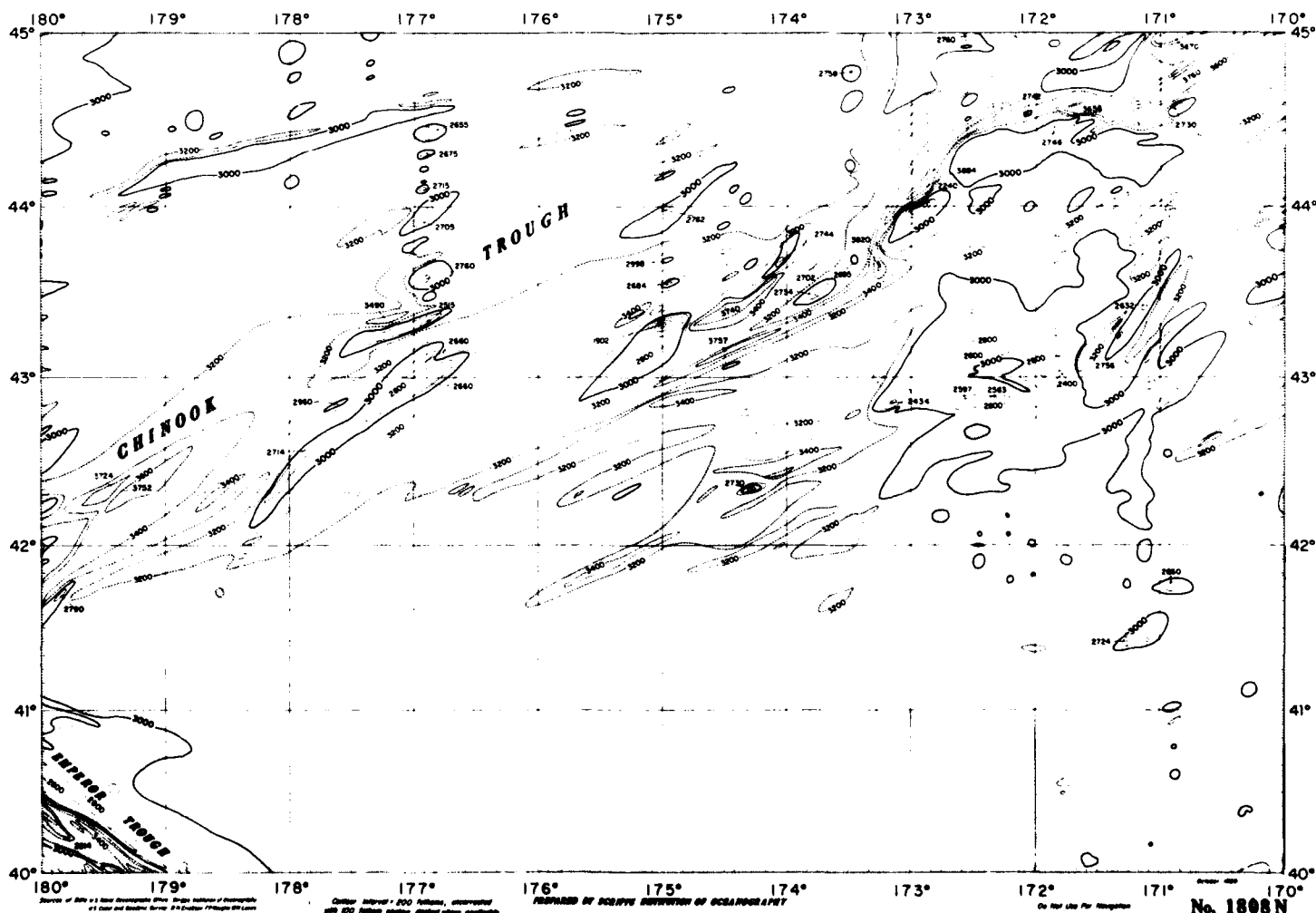
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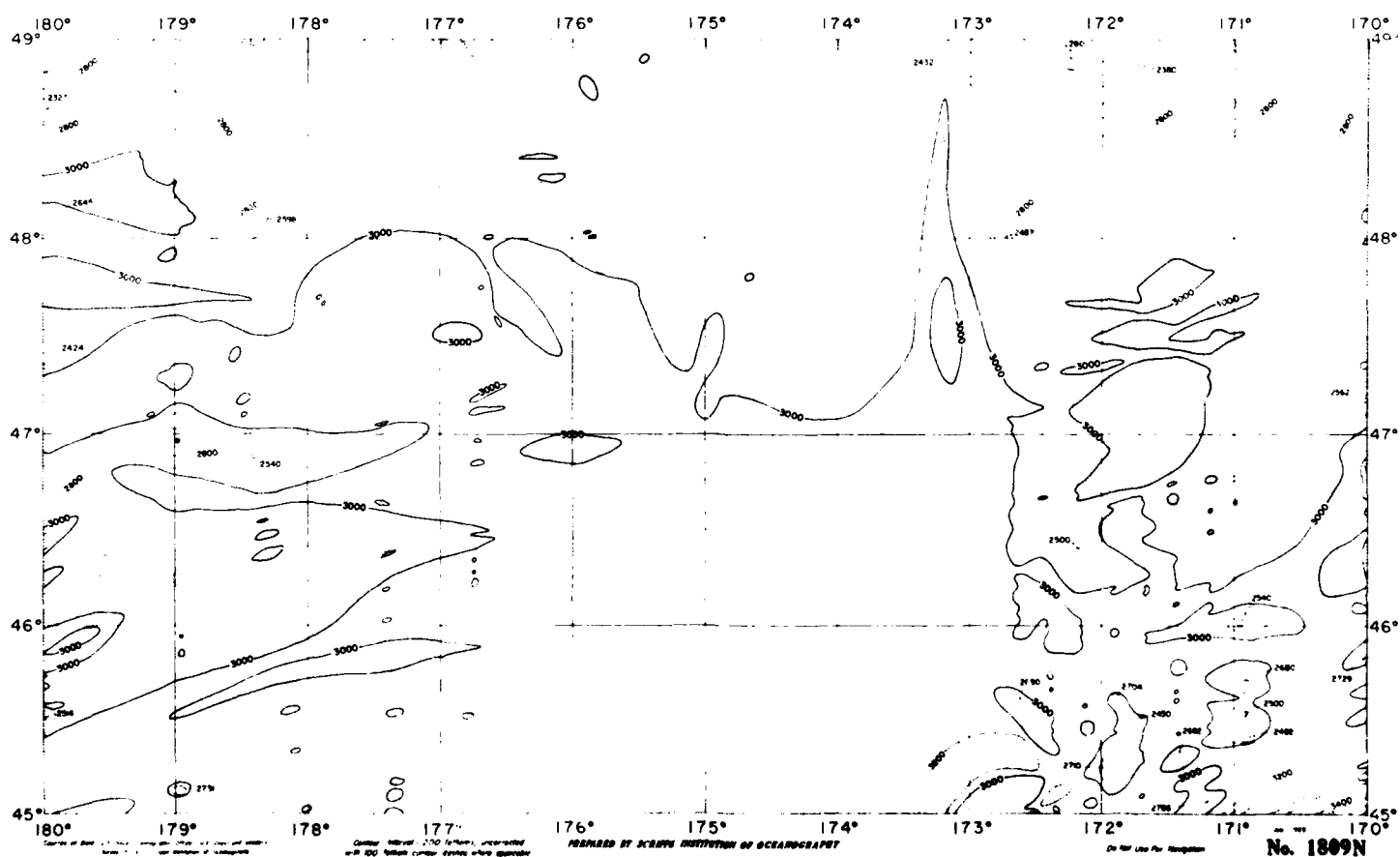
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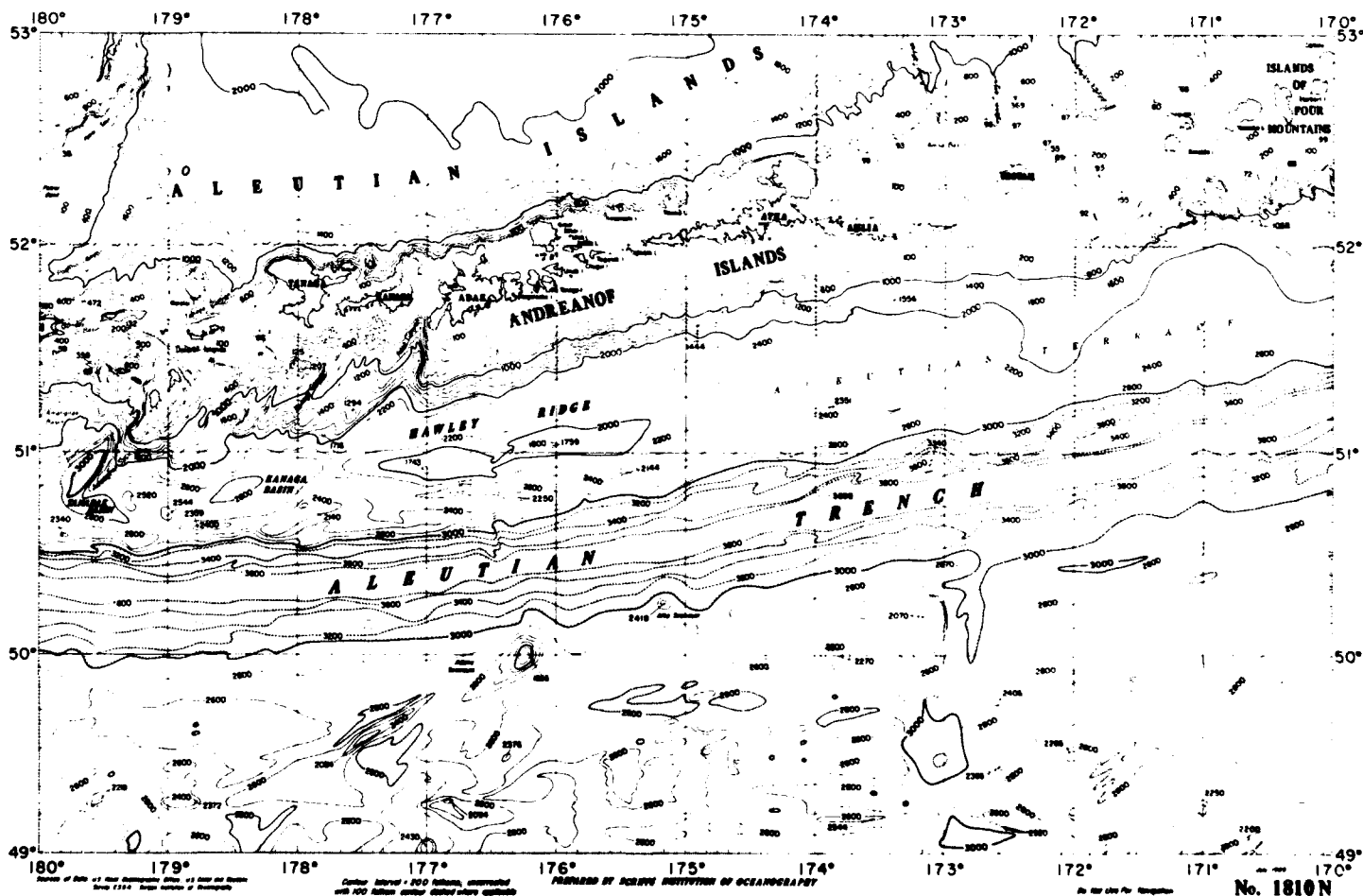
MICROCOPY RESOLUTION TEST CHART
NATIONAL BUREAU OF STANDARDS 1963-A

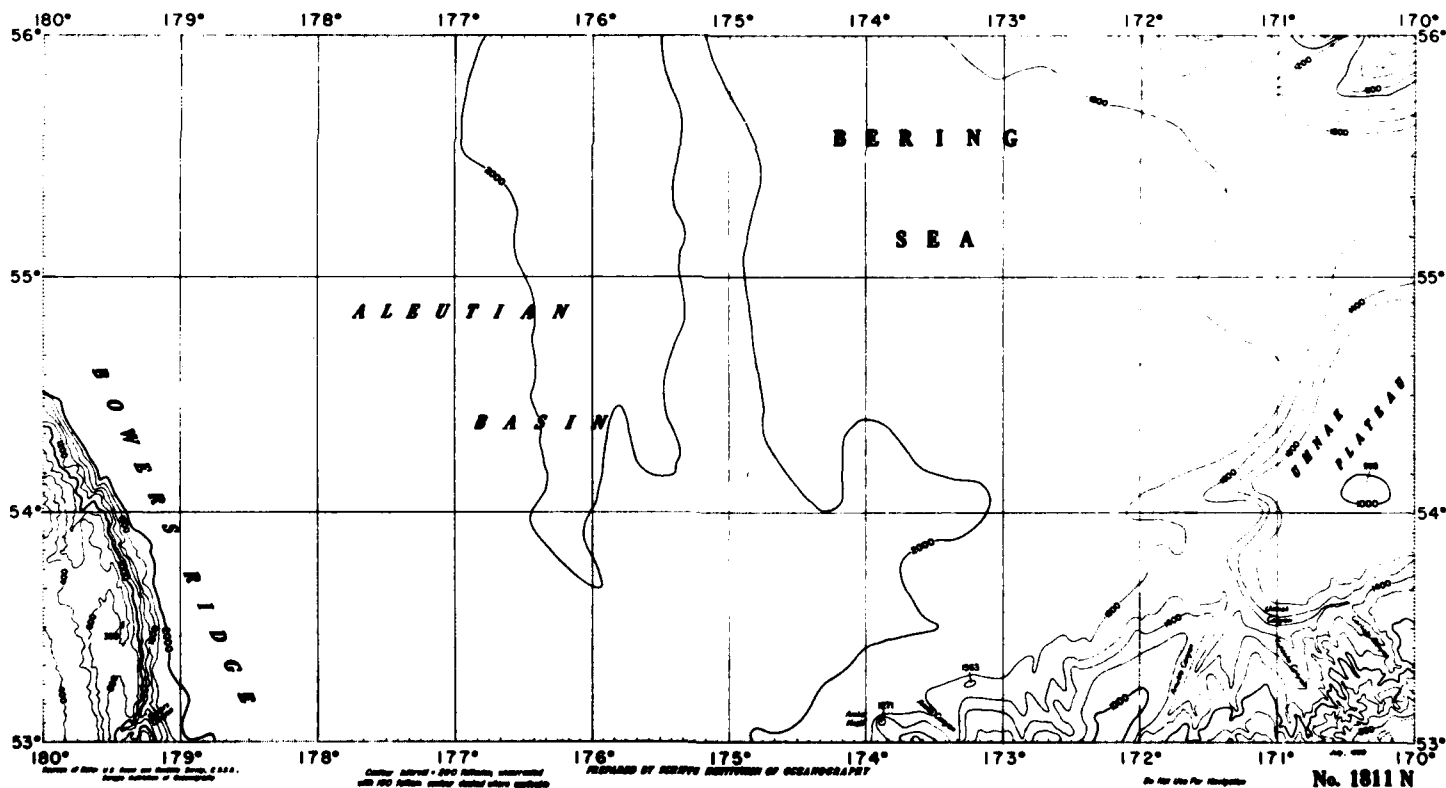


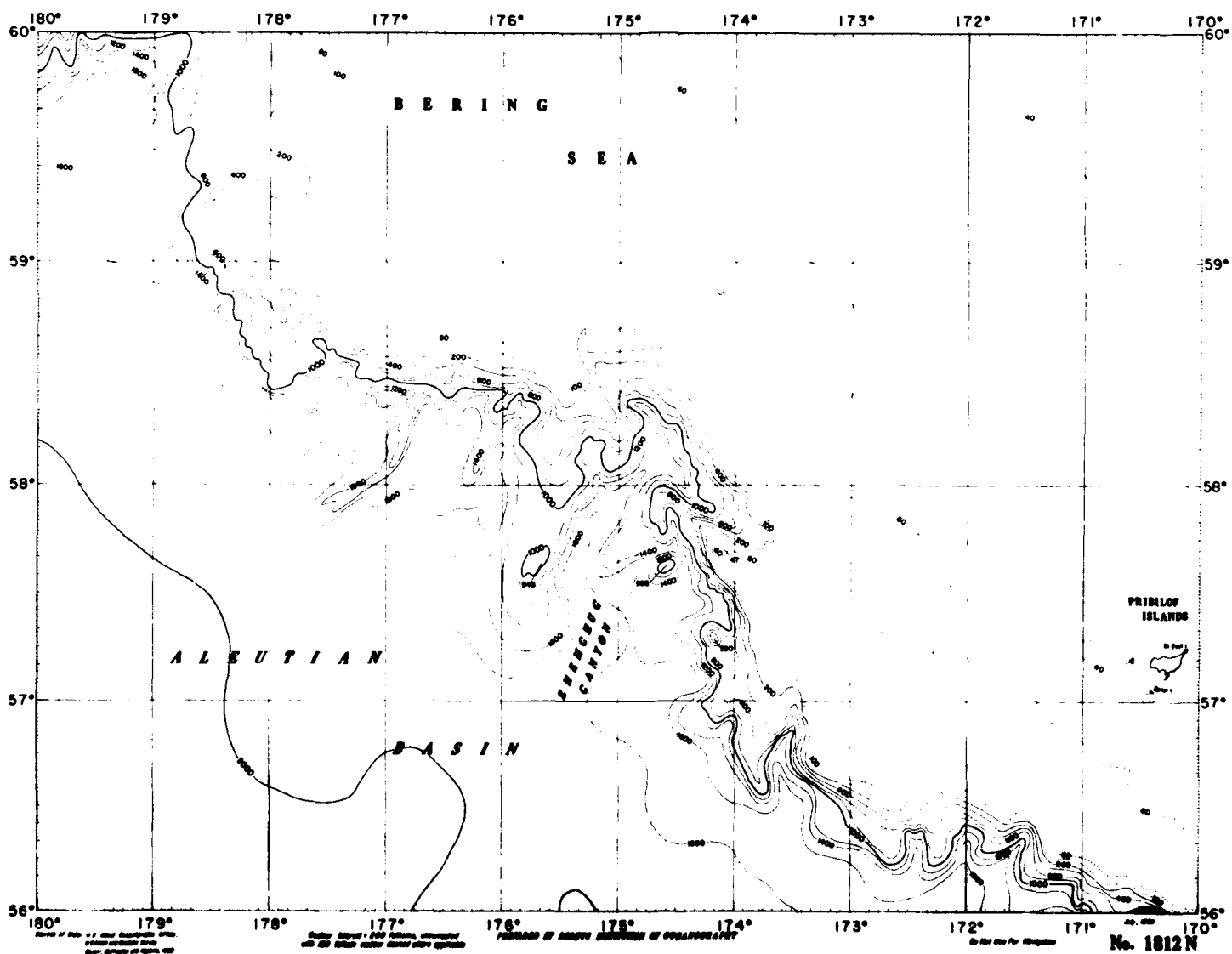


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No. 1809N







180° 179° 178° 177° 176° 175° 174° 173° 172° 171° 170°
62° 62°

61° 61°

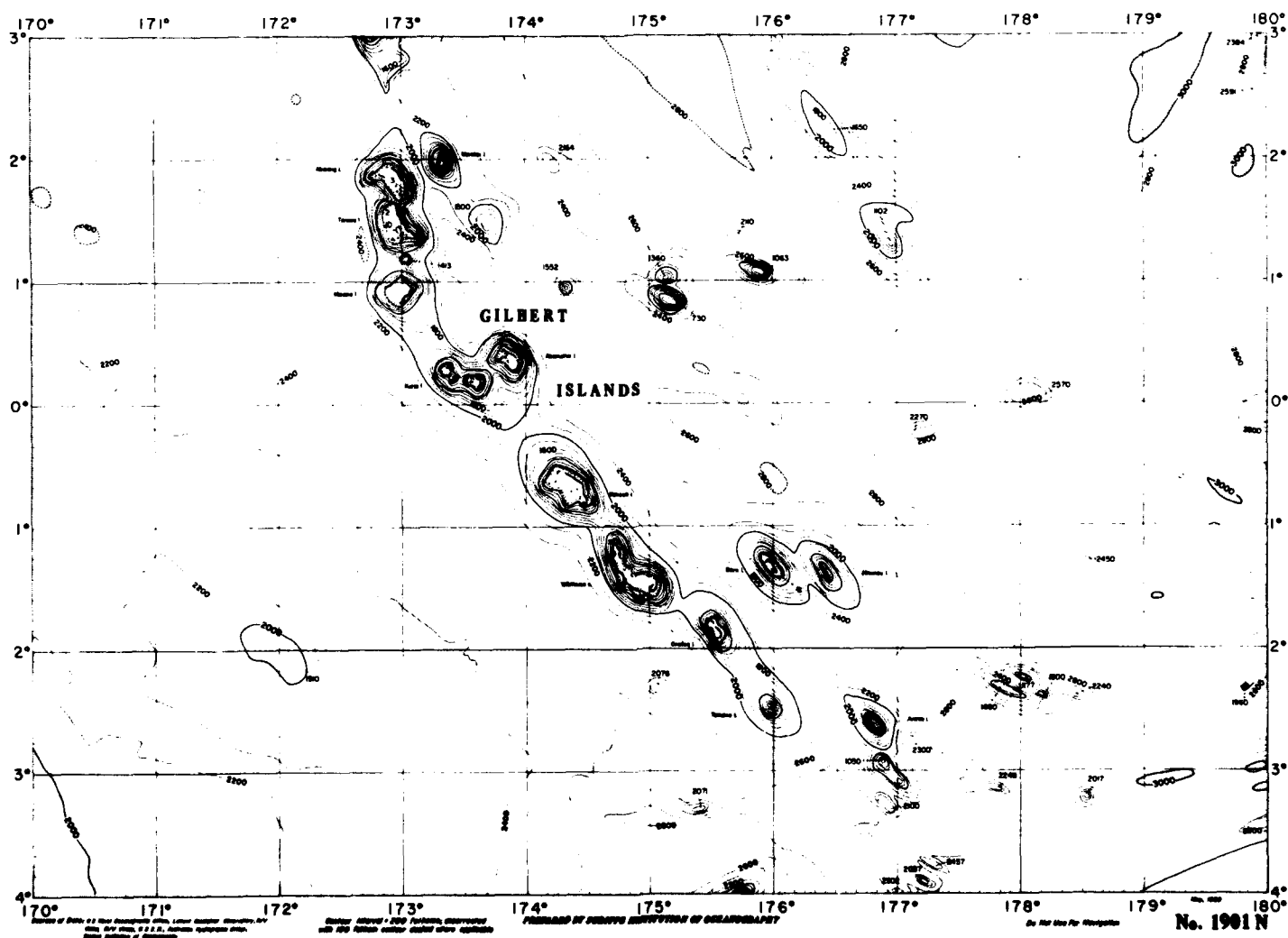
60° 60°

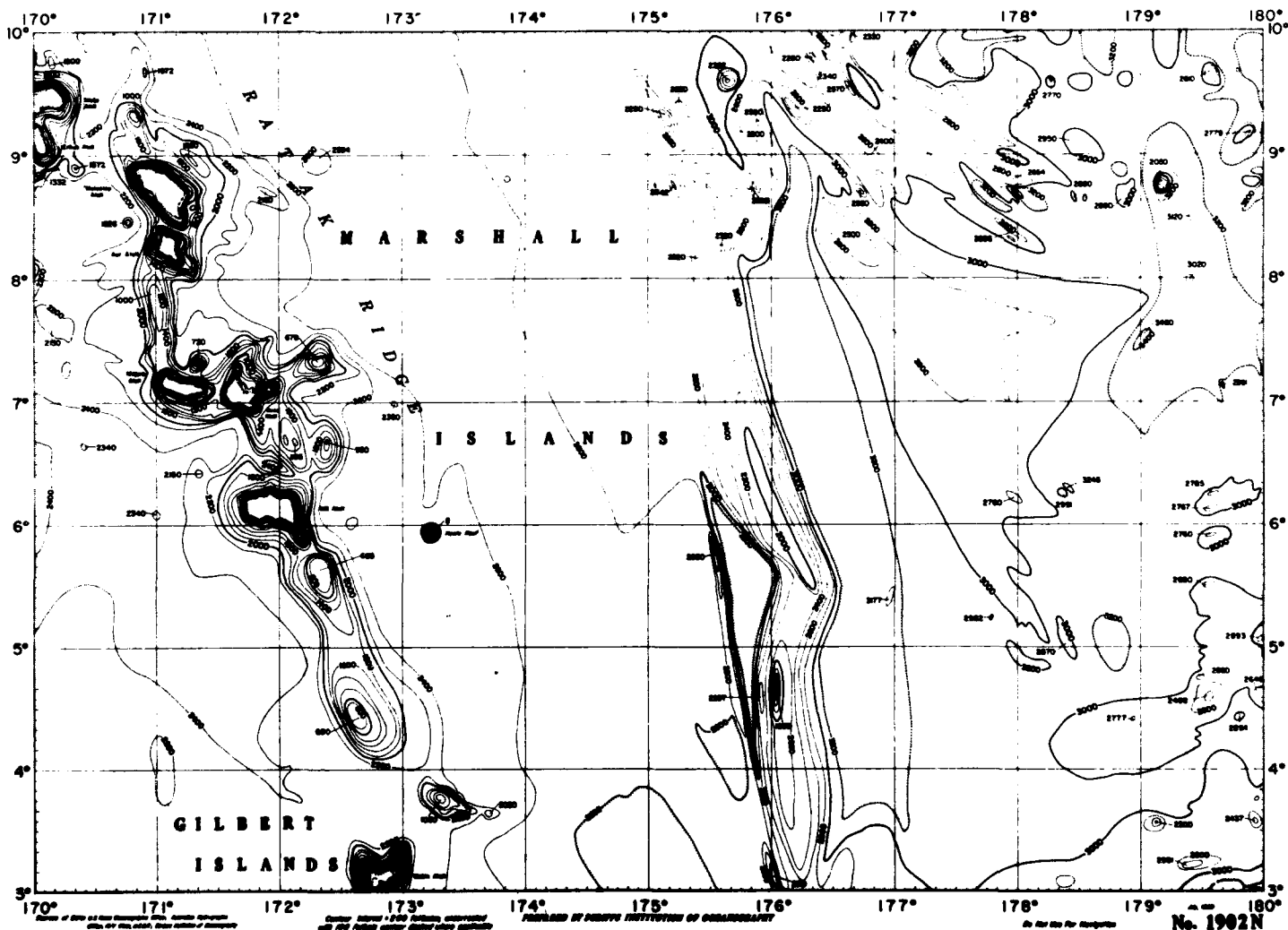
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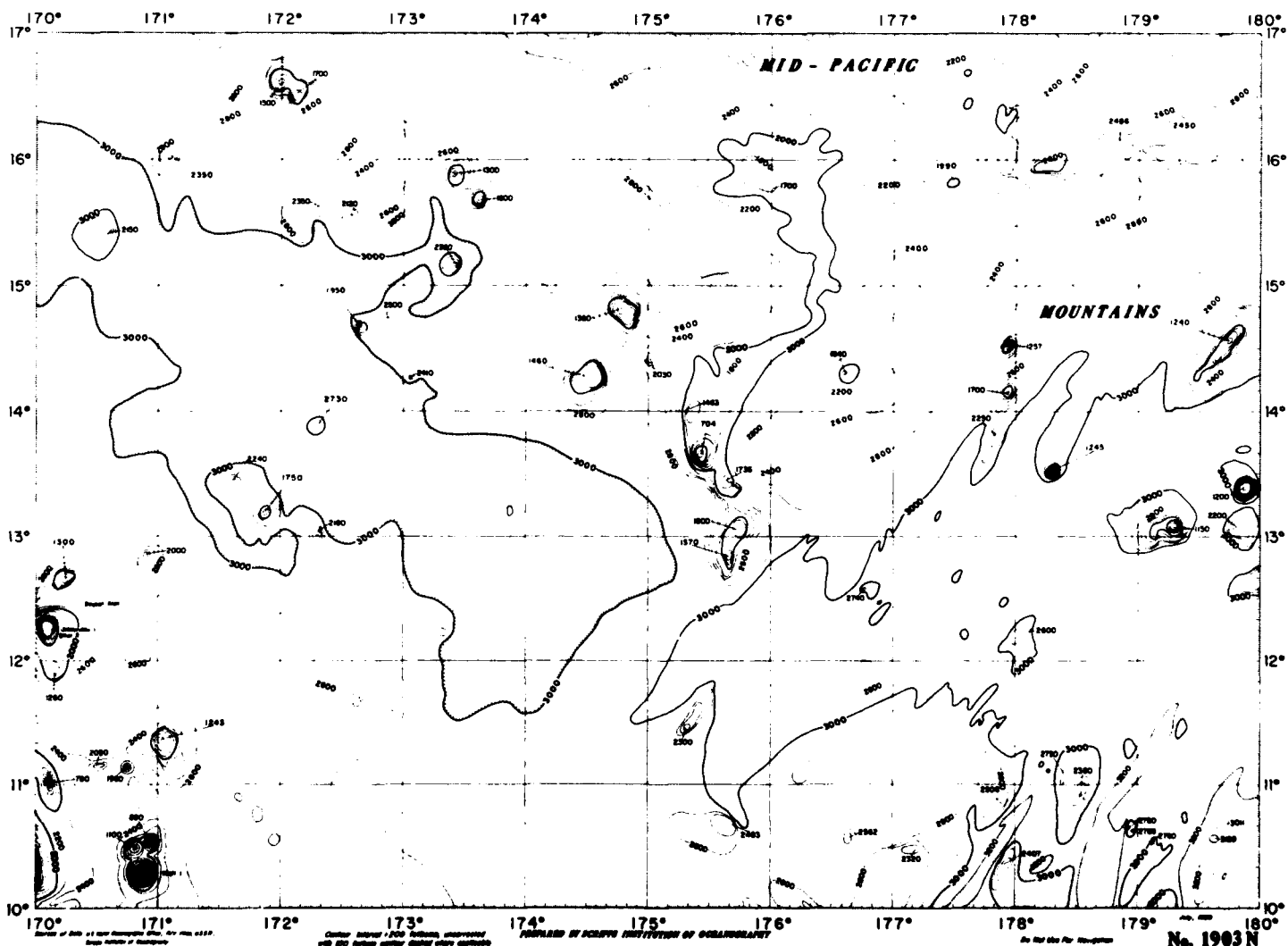
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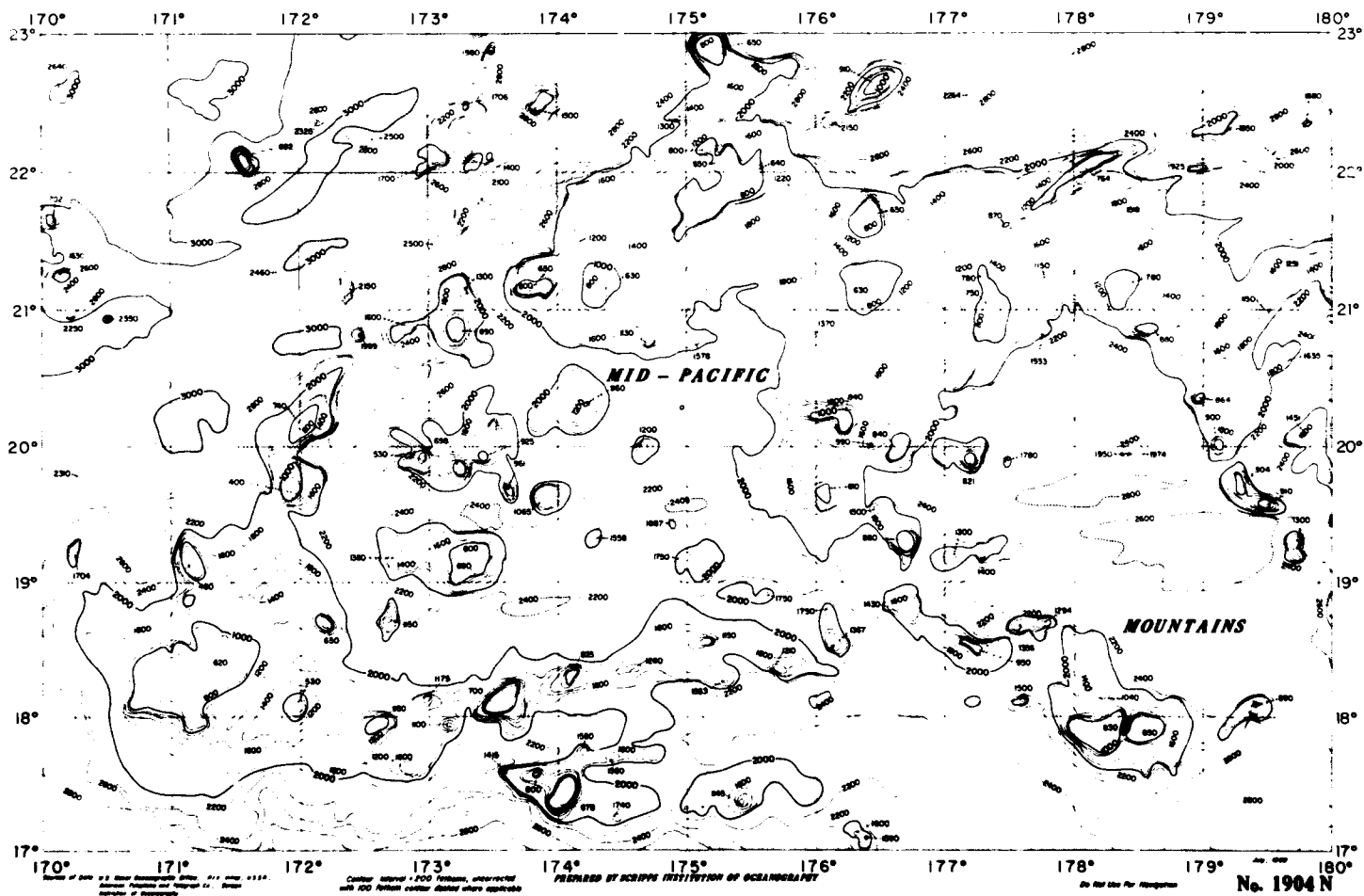
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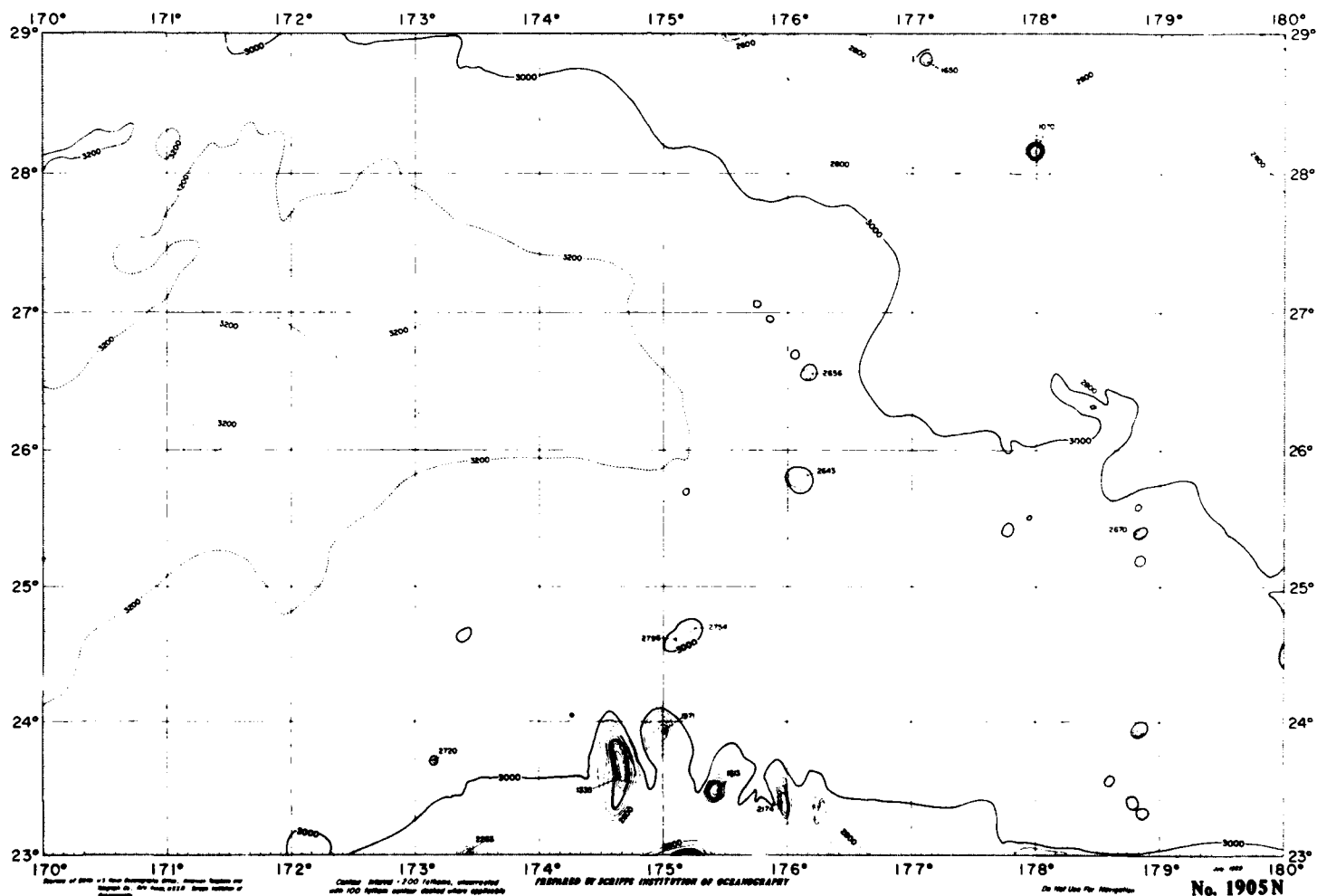


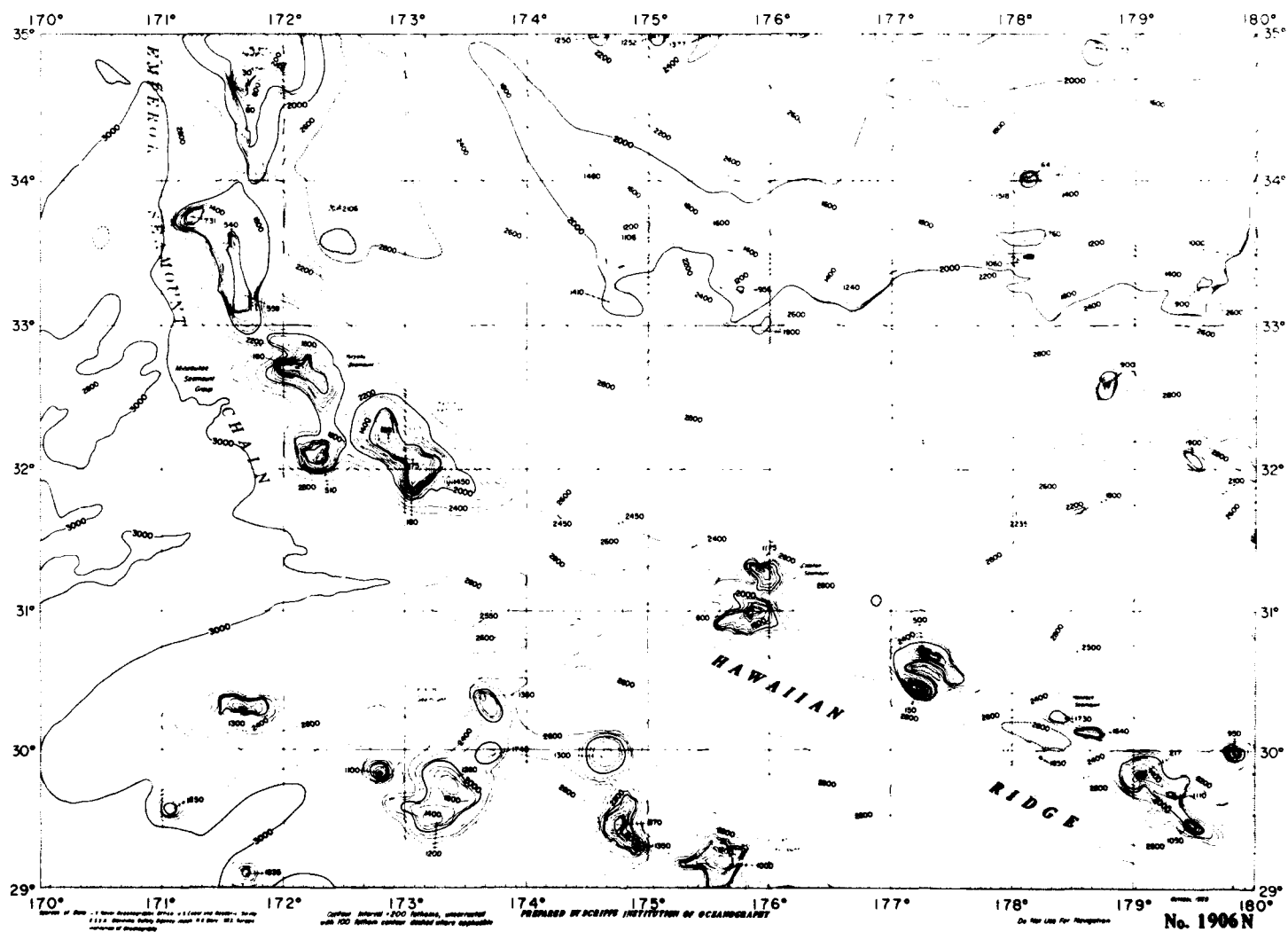


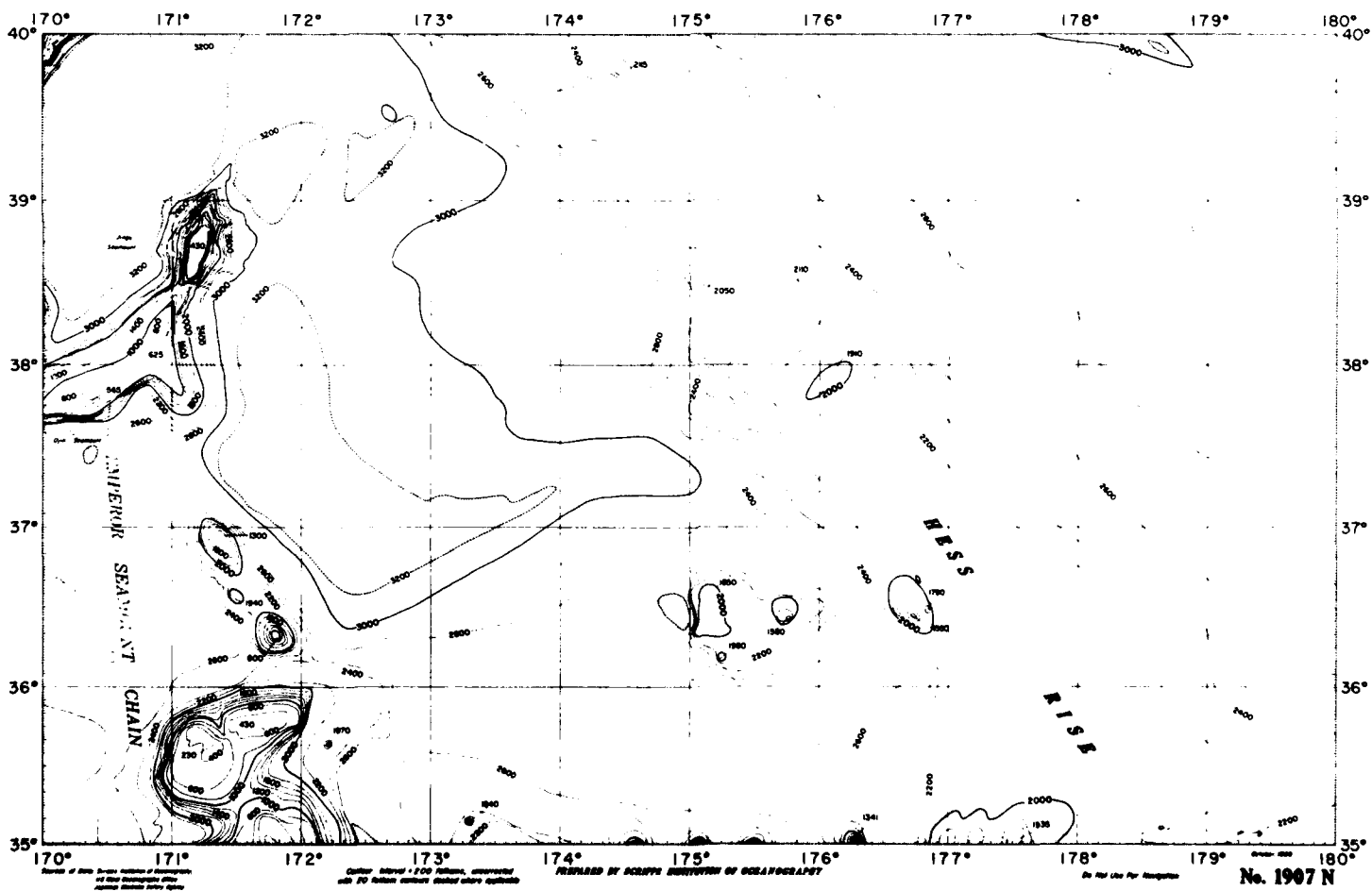
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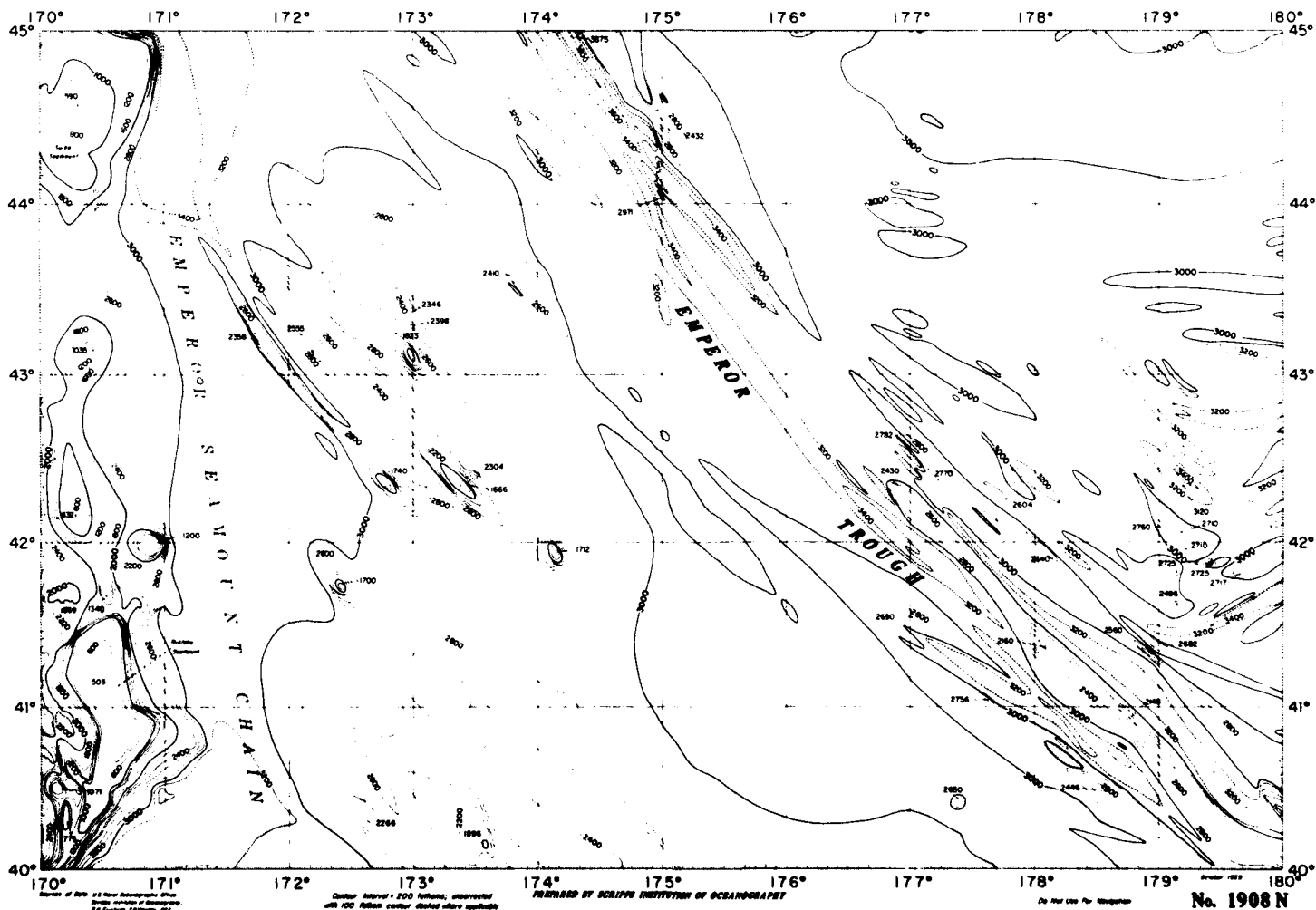


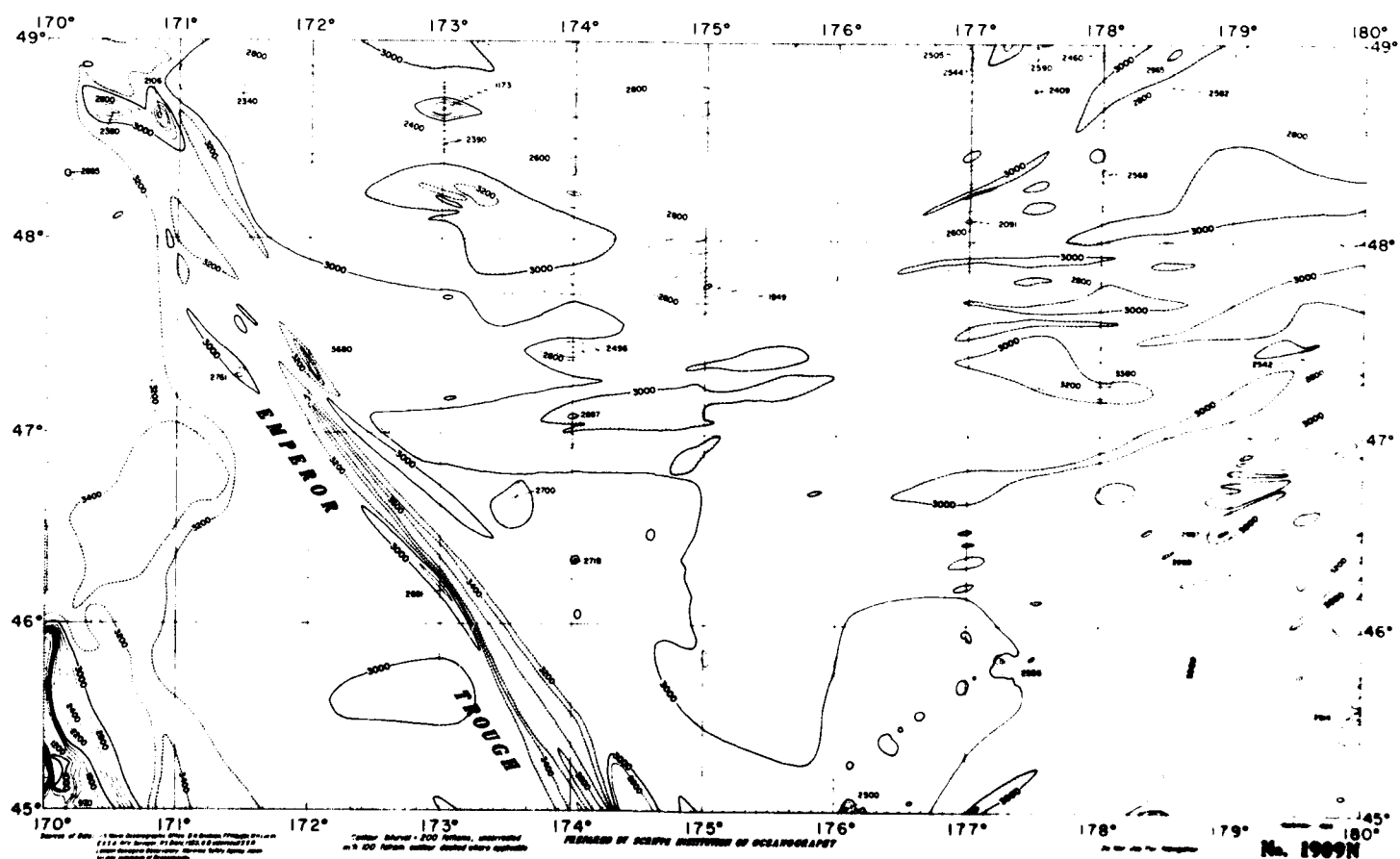


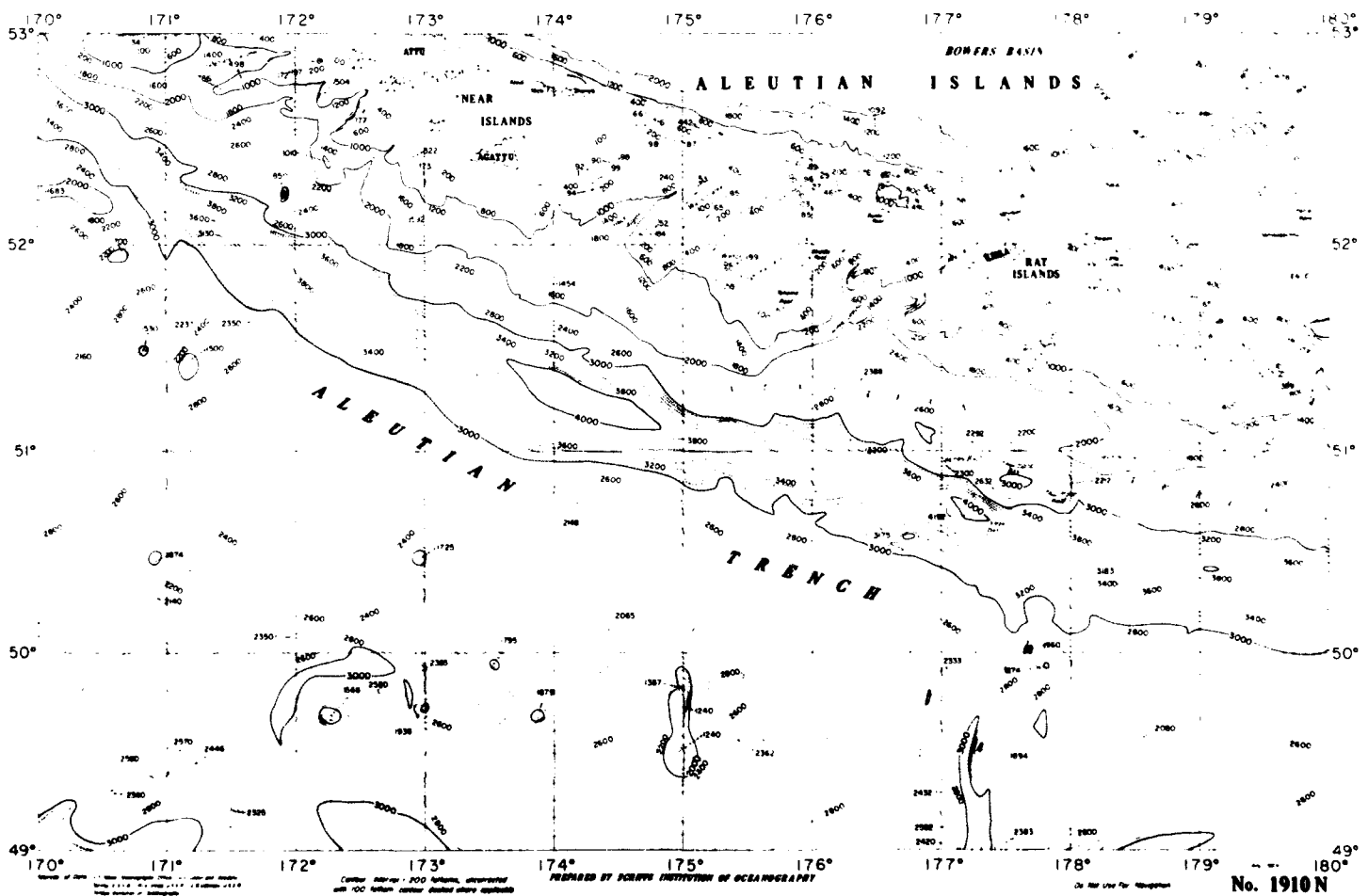


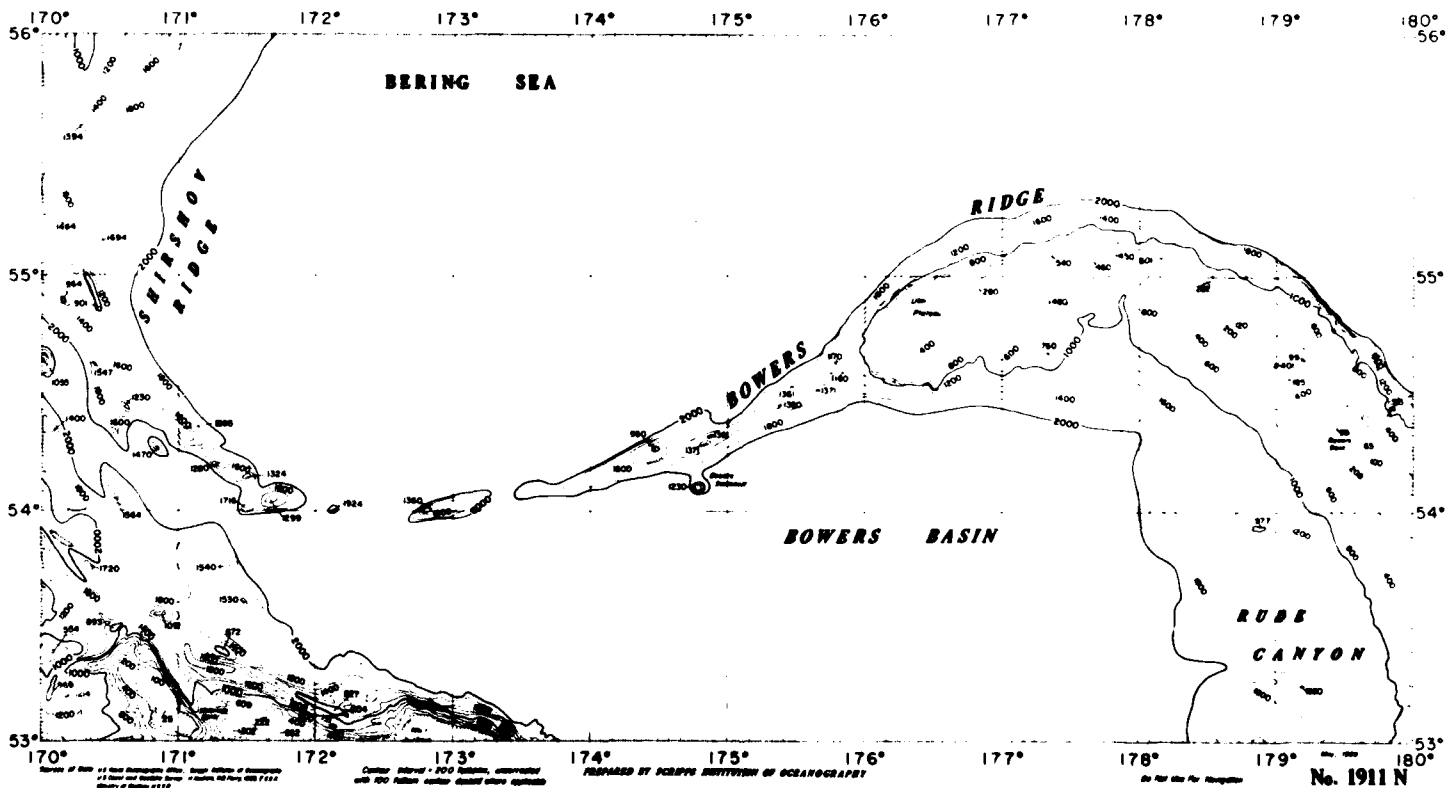


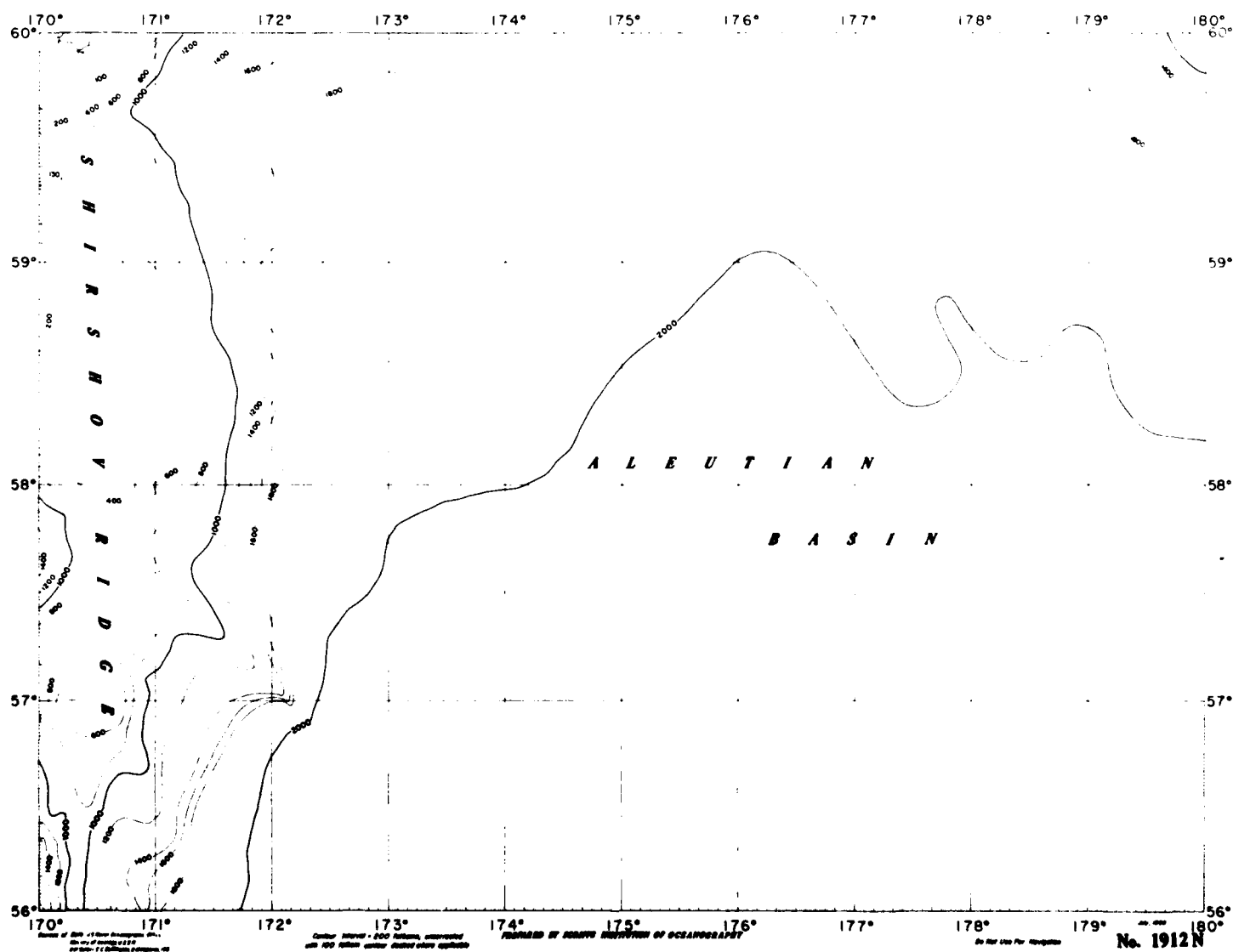


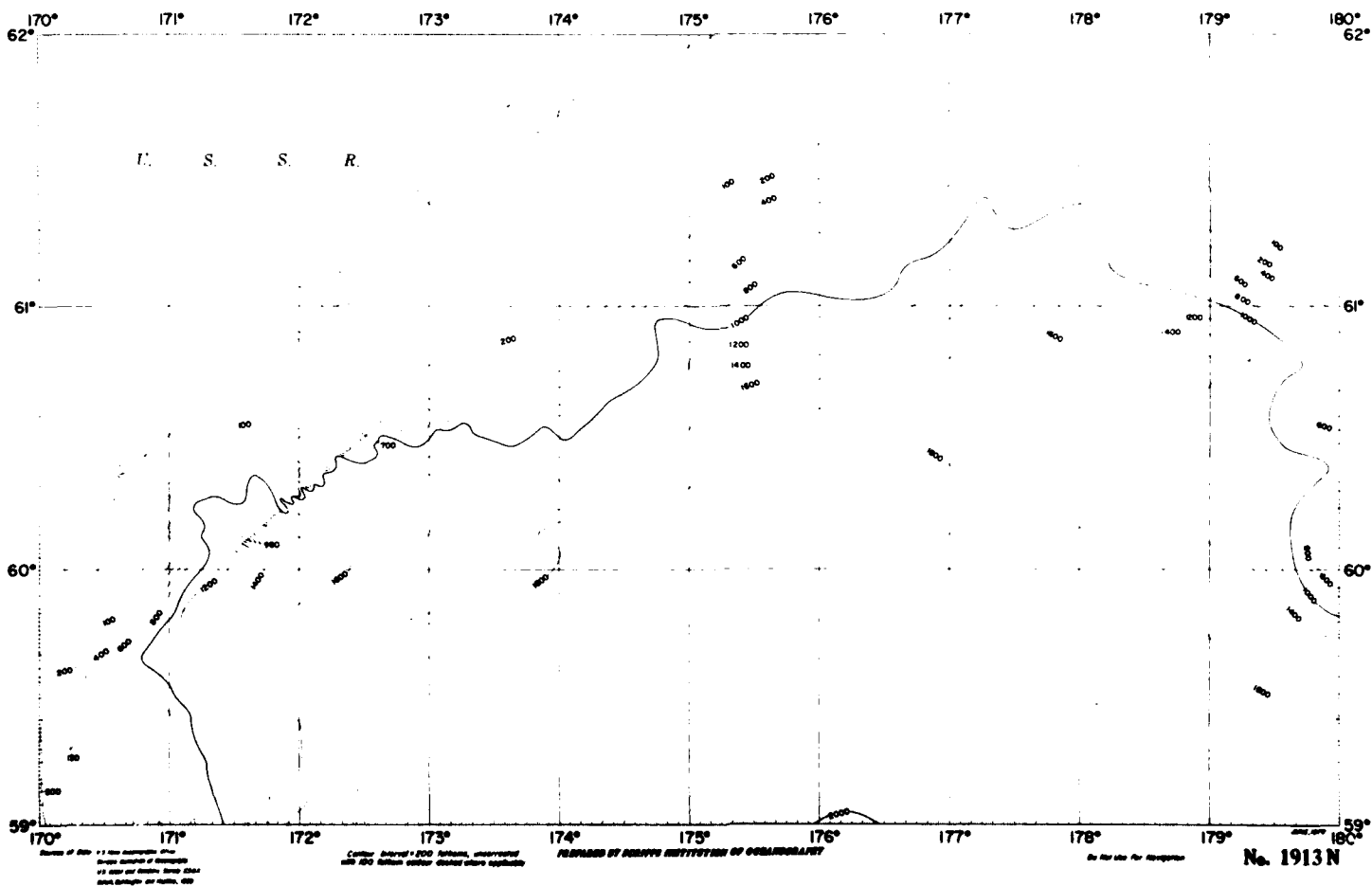


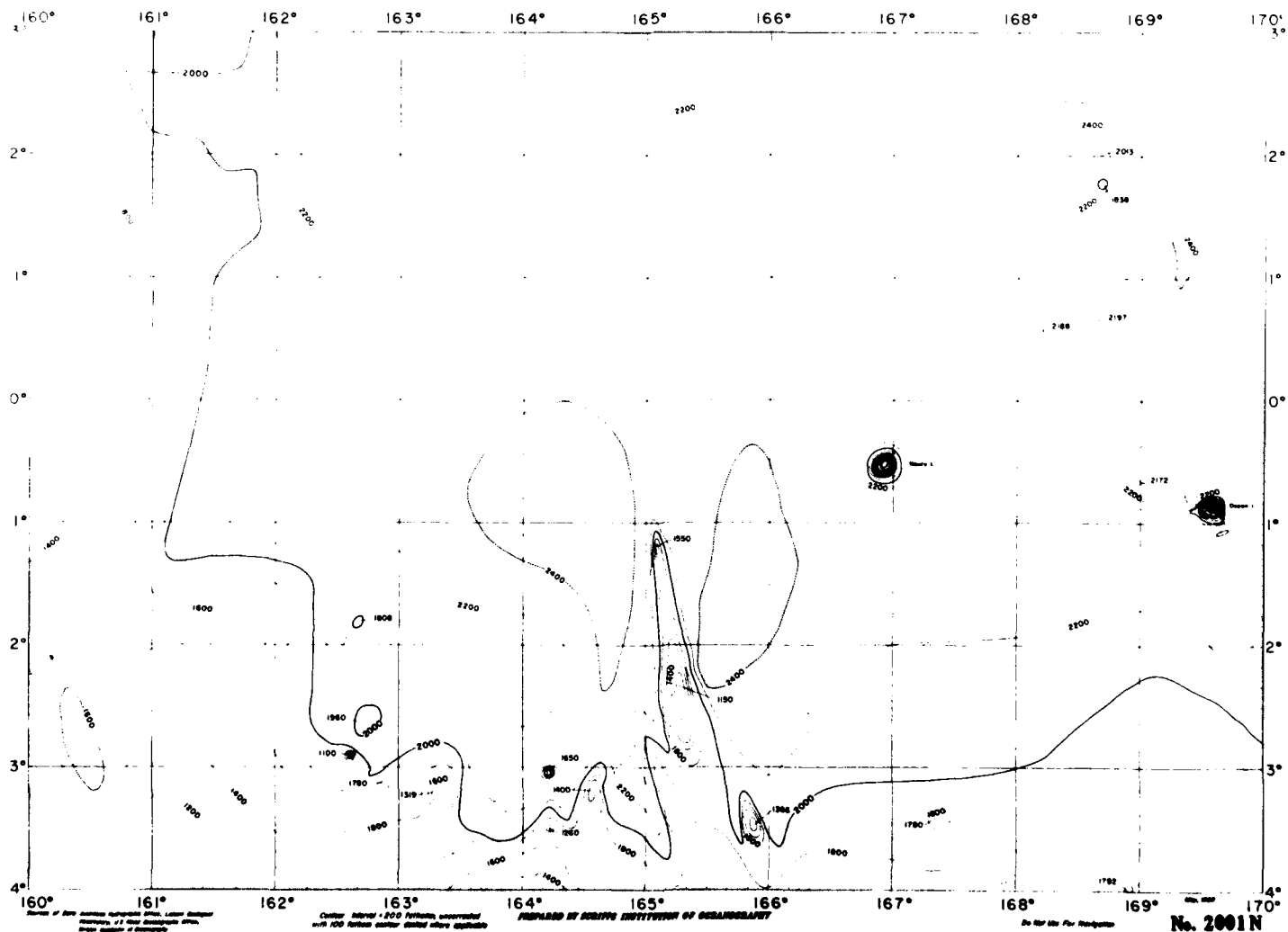




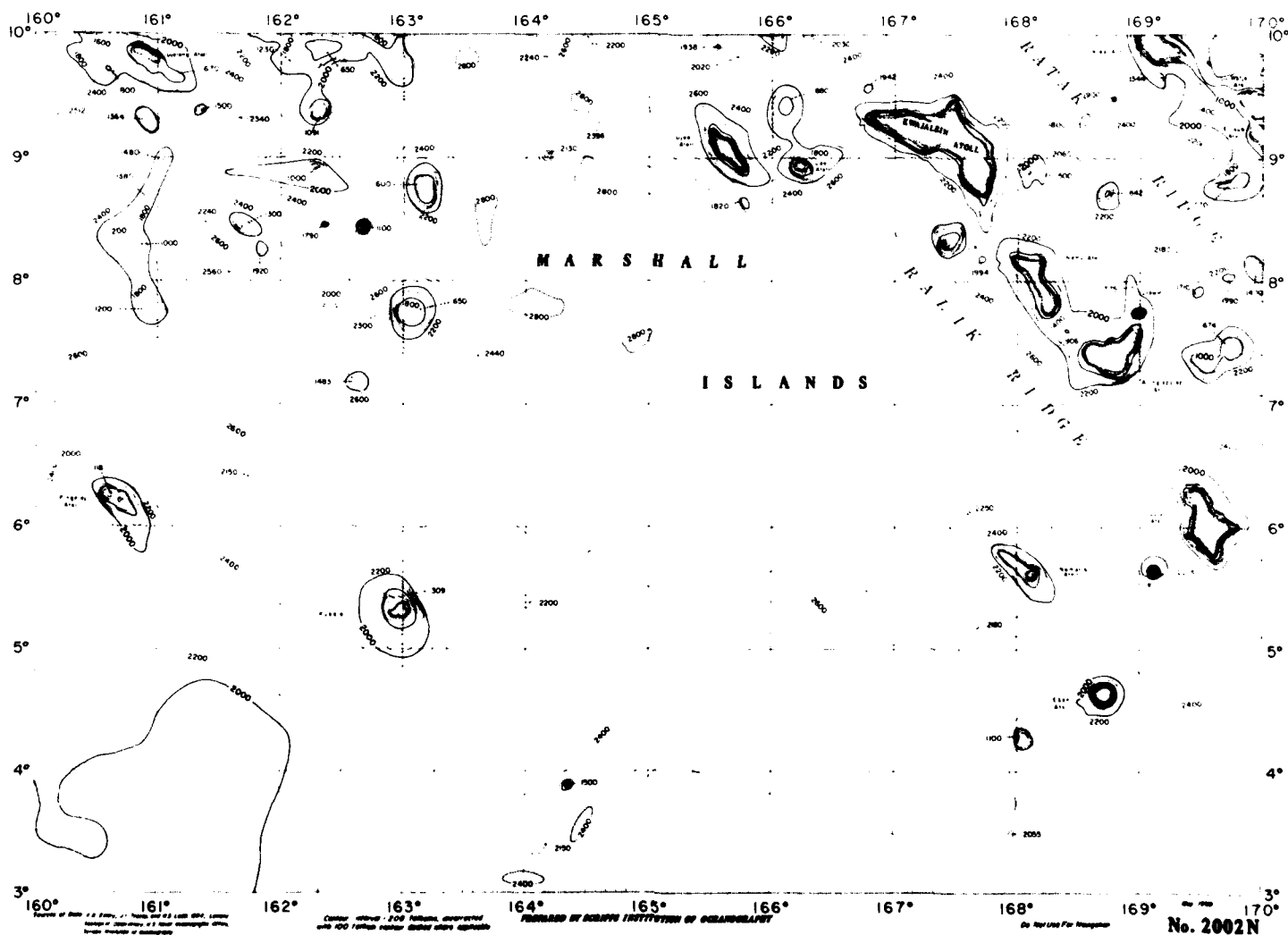




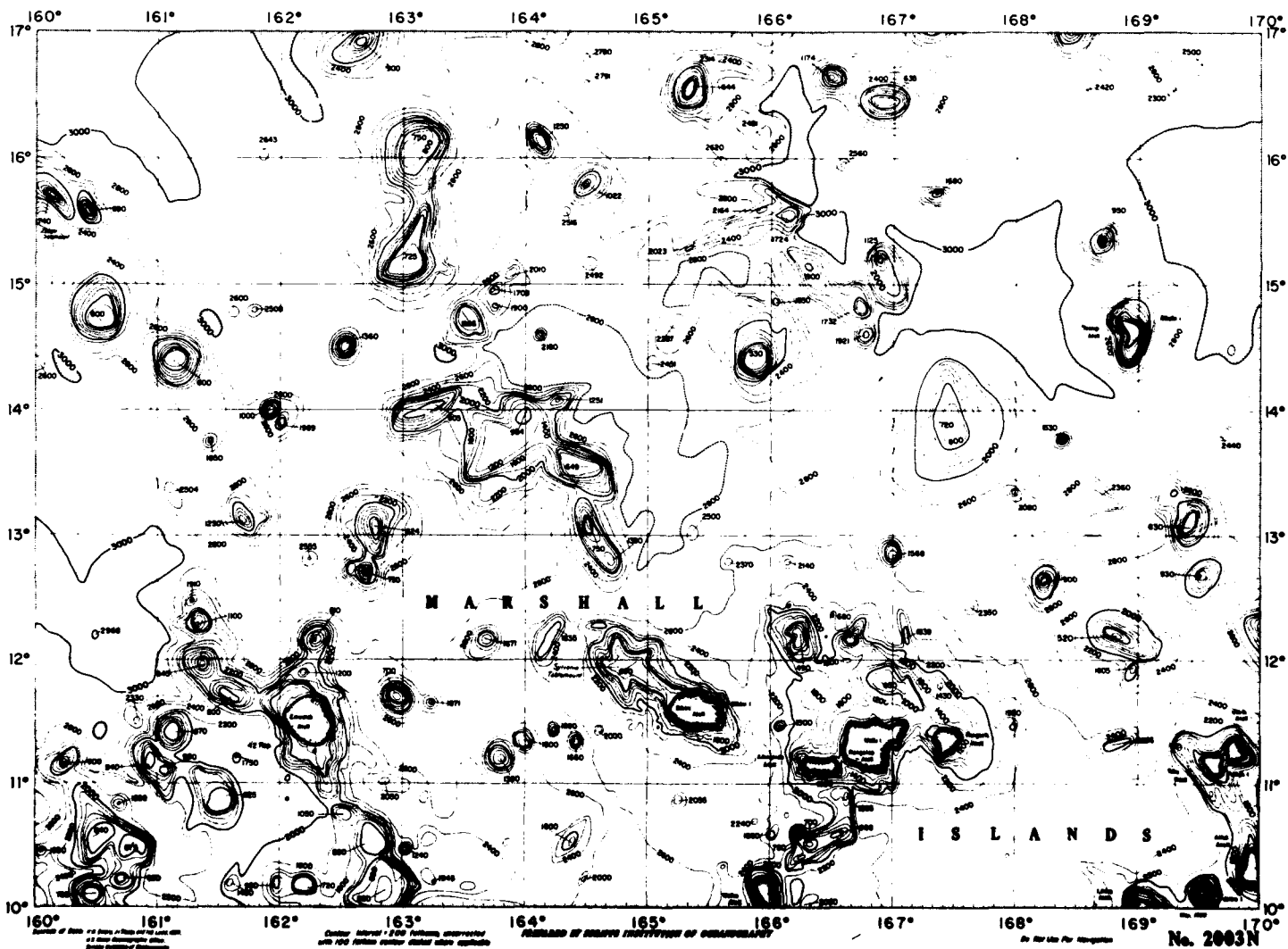


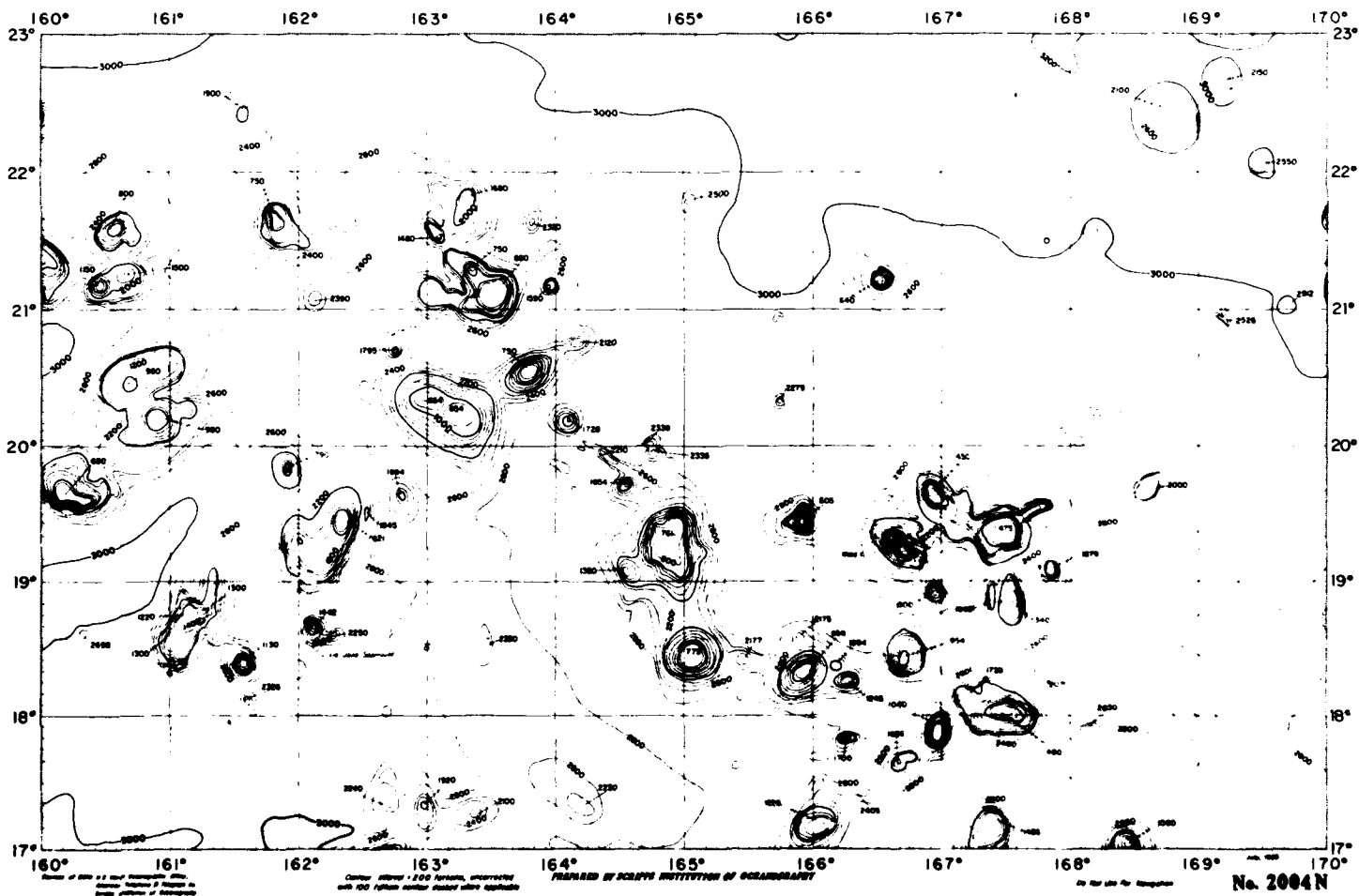


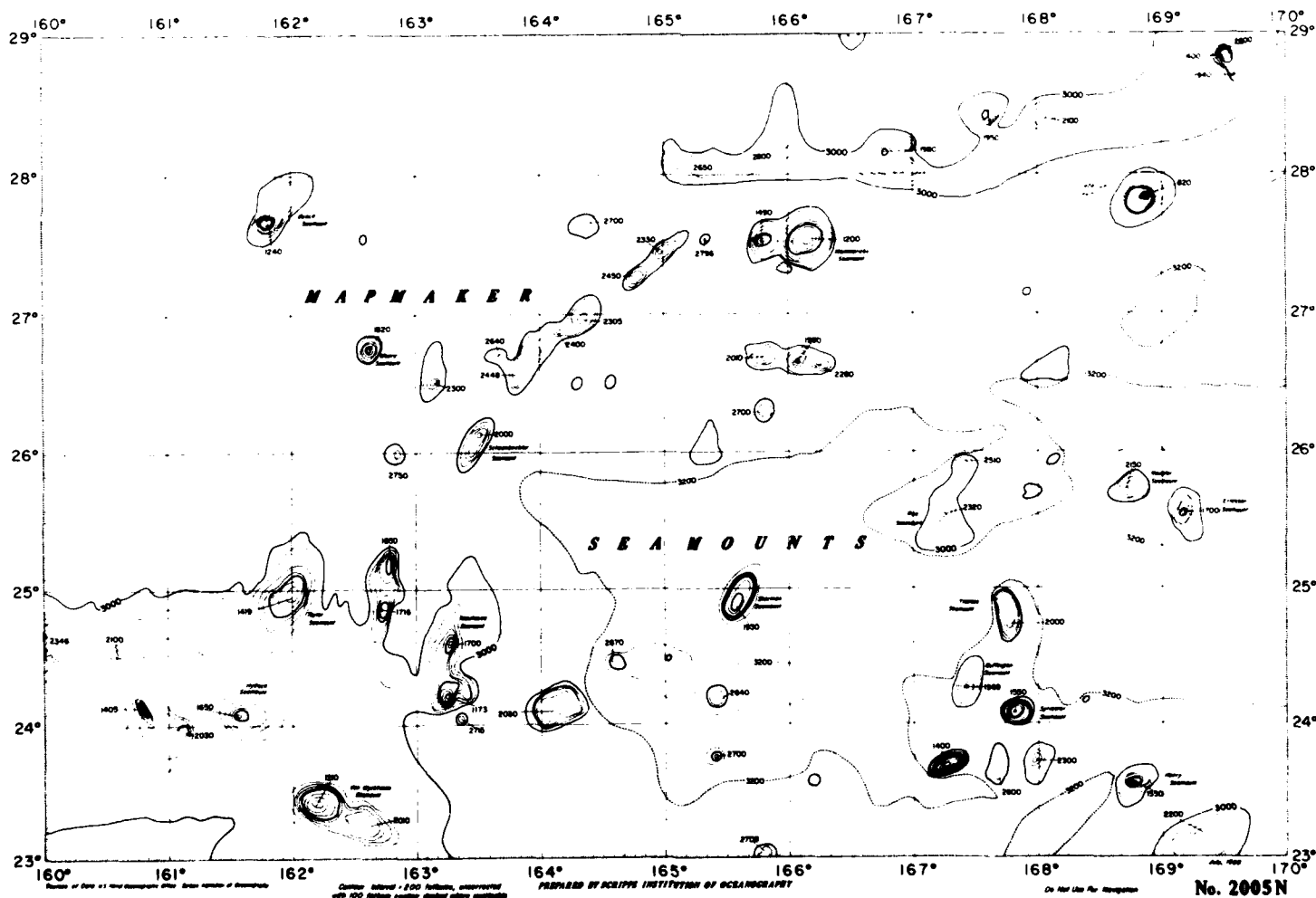
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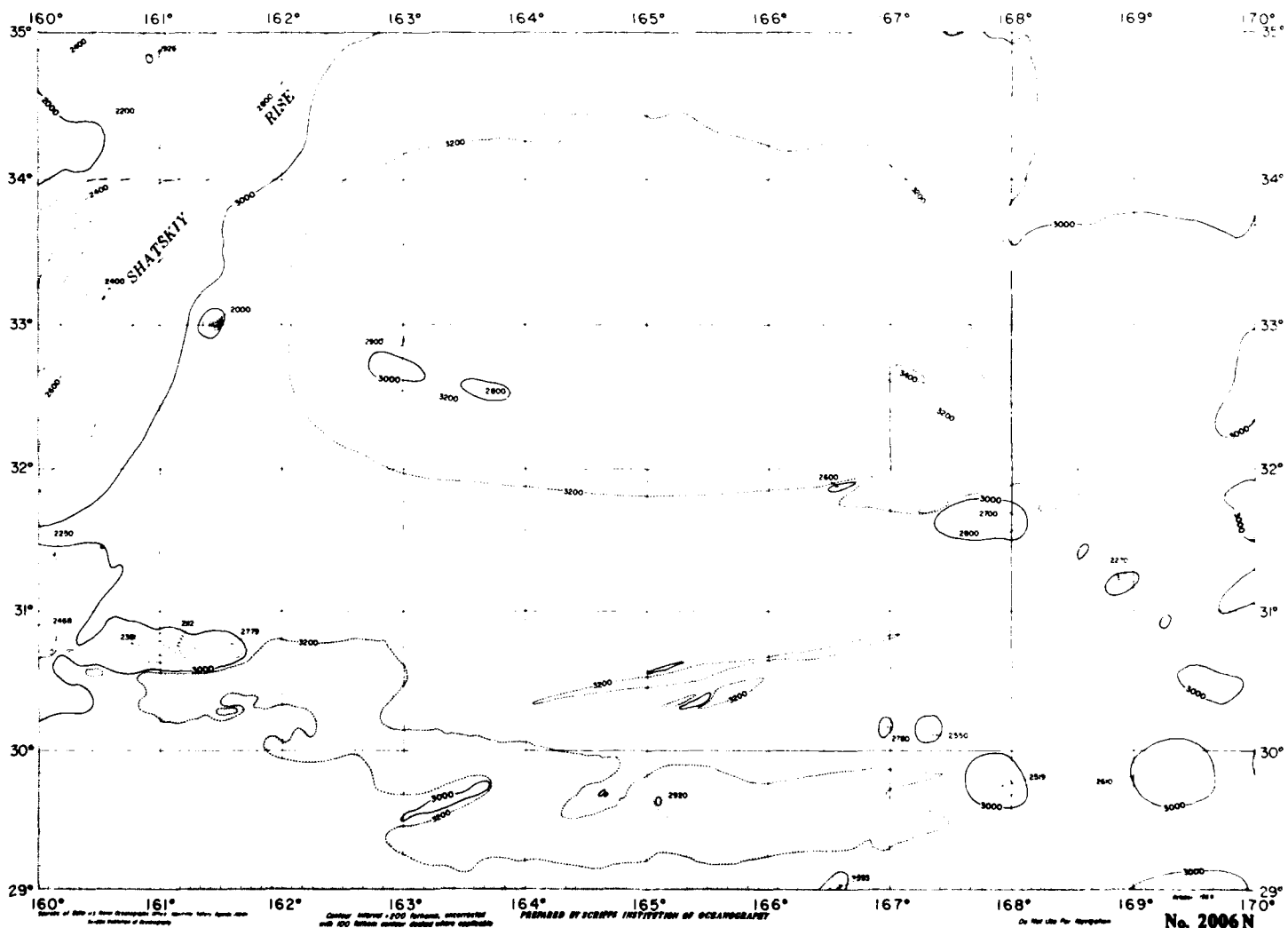


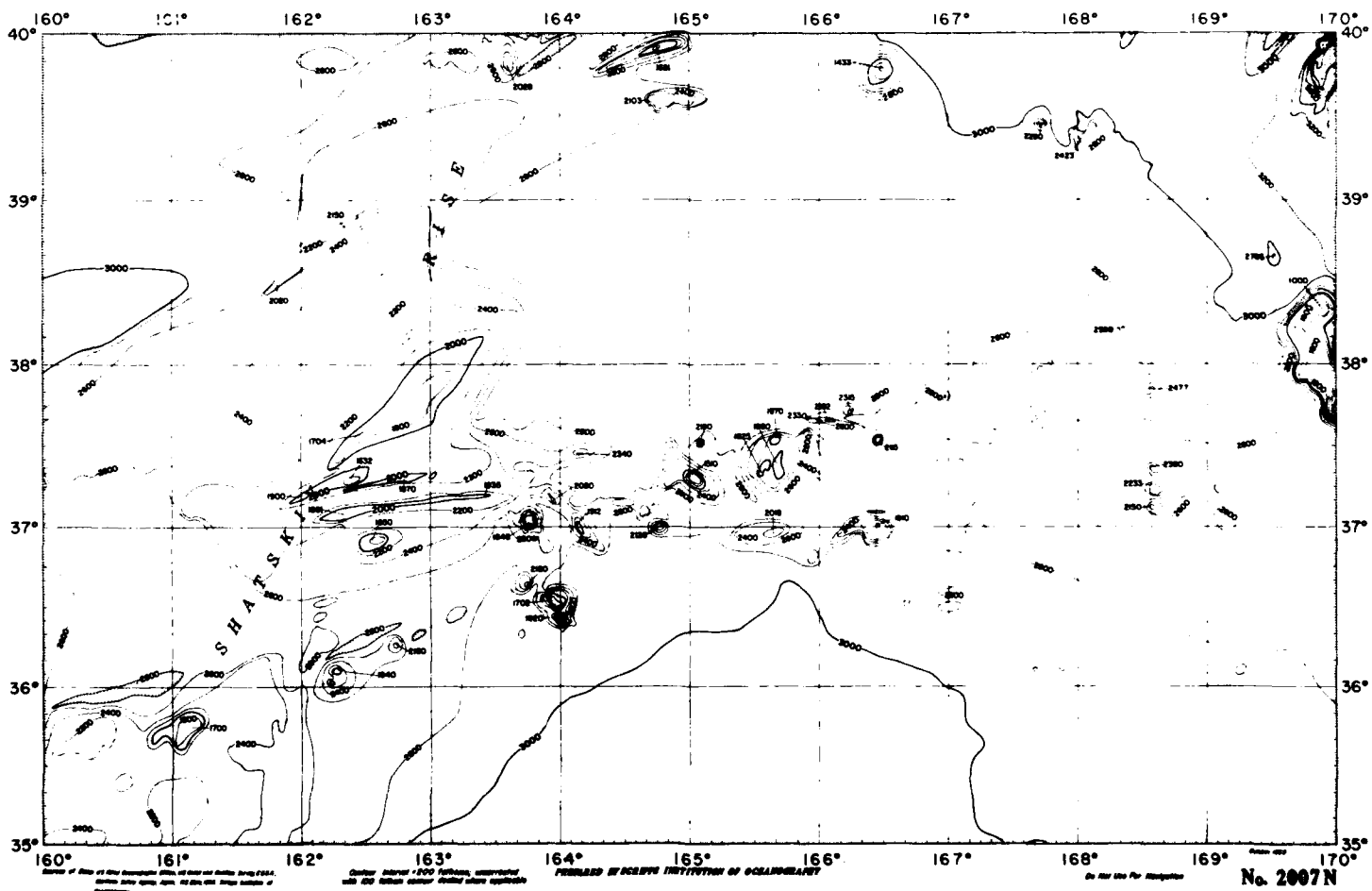
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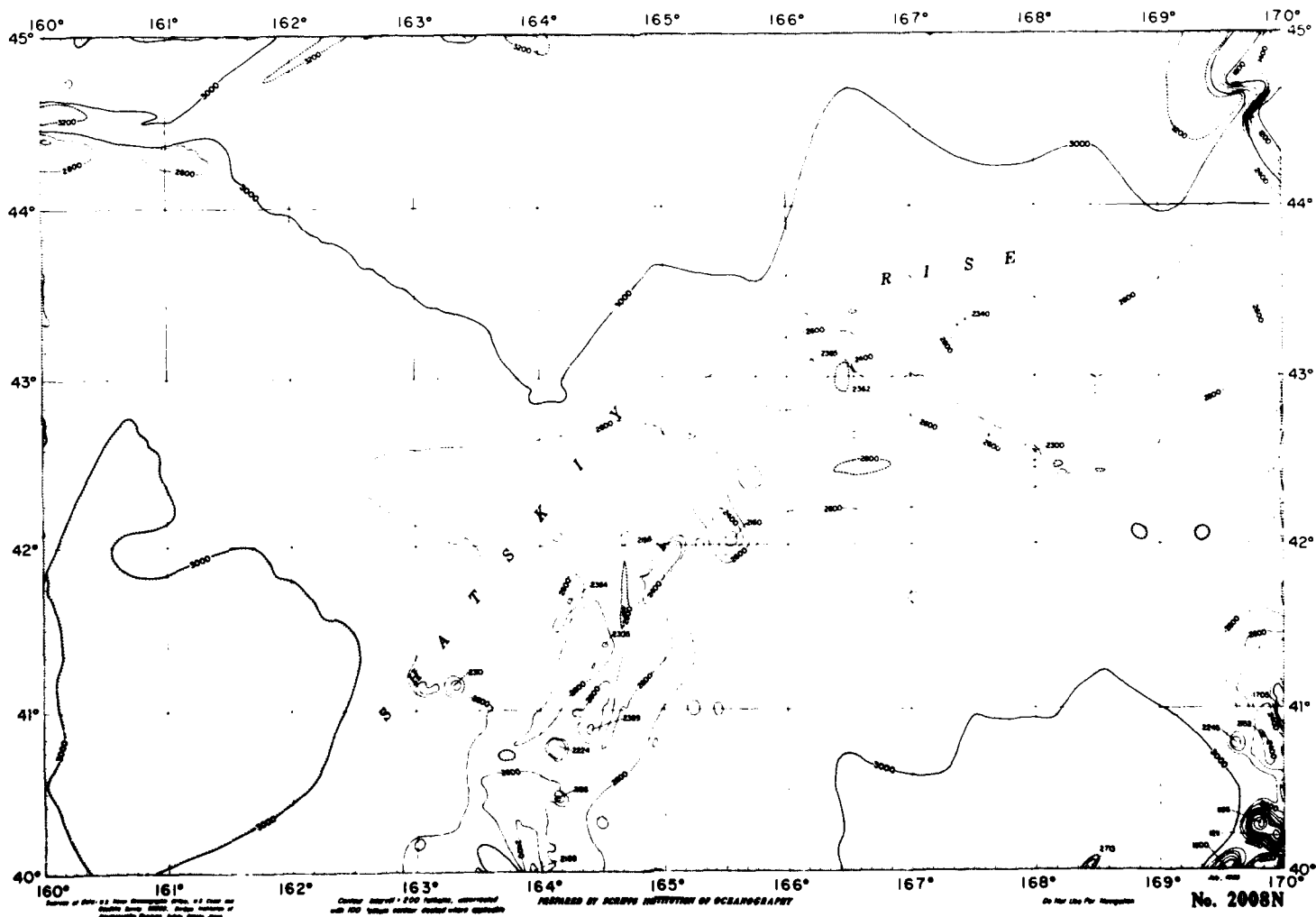


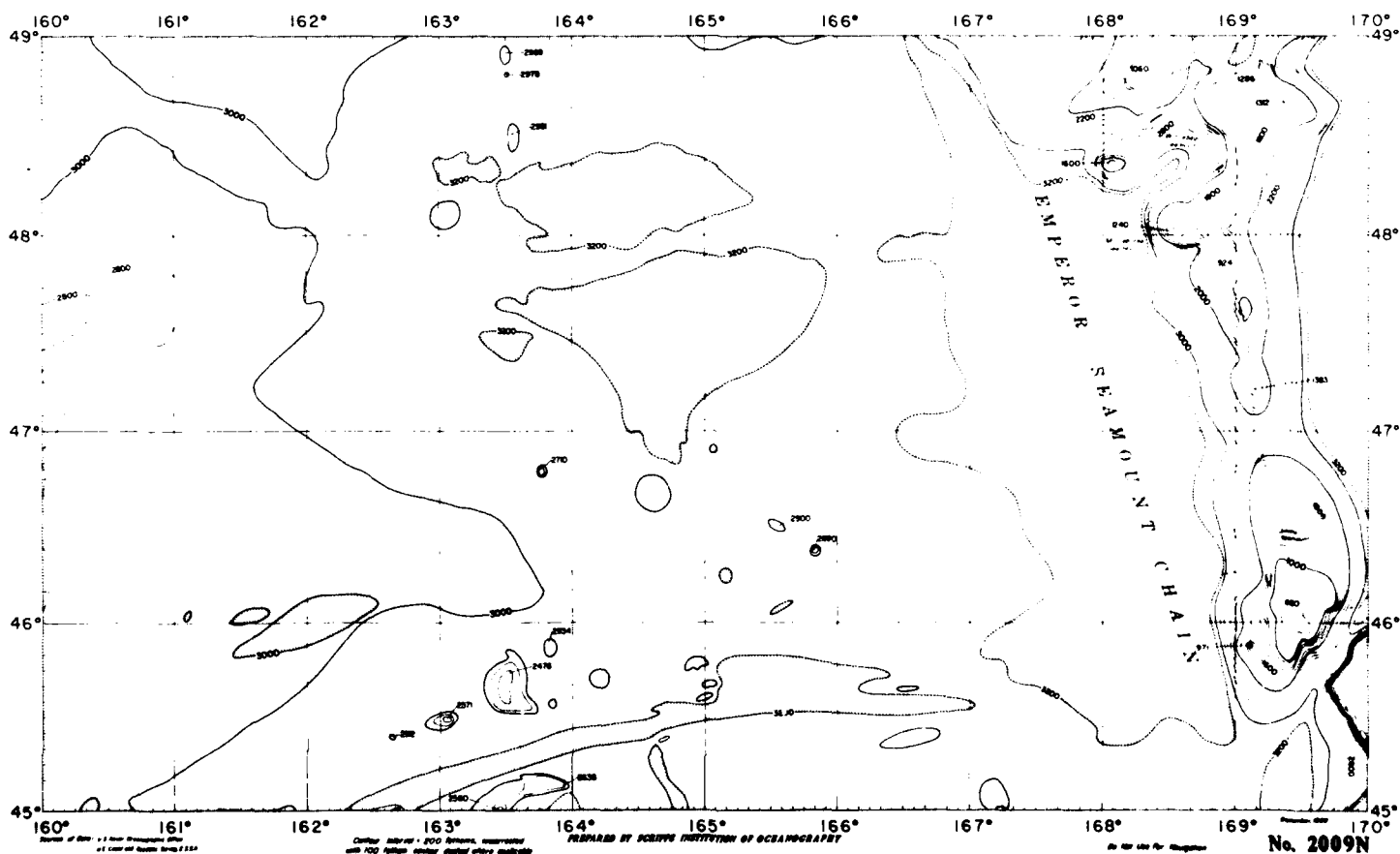


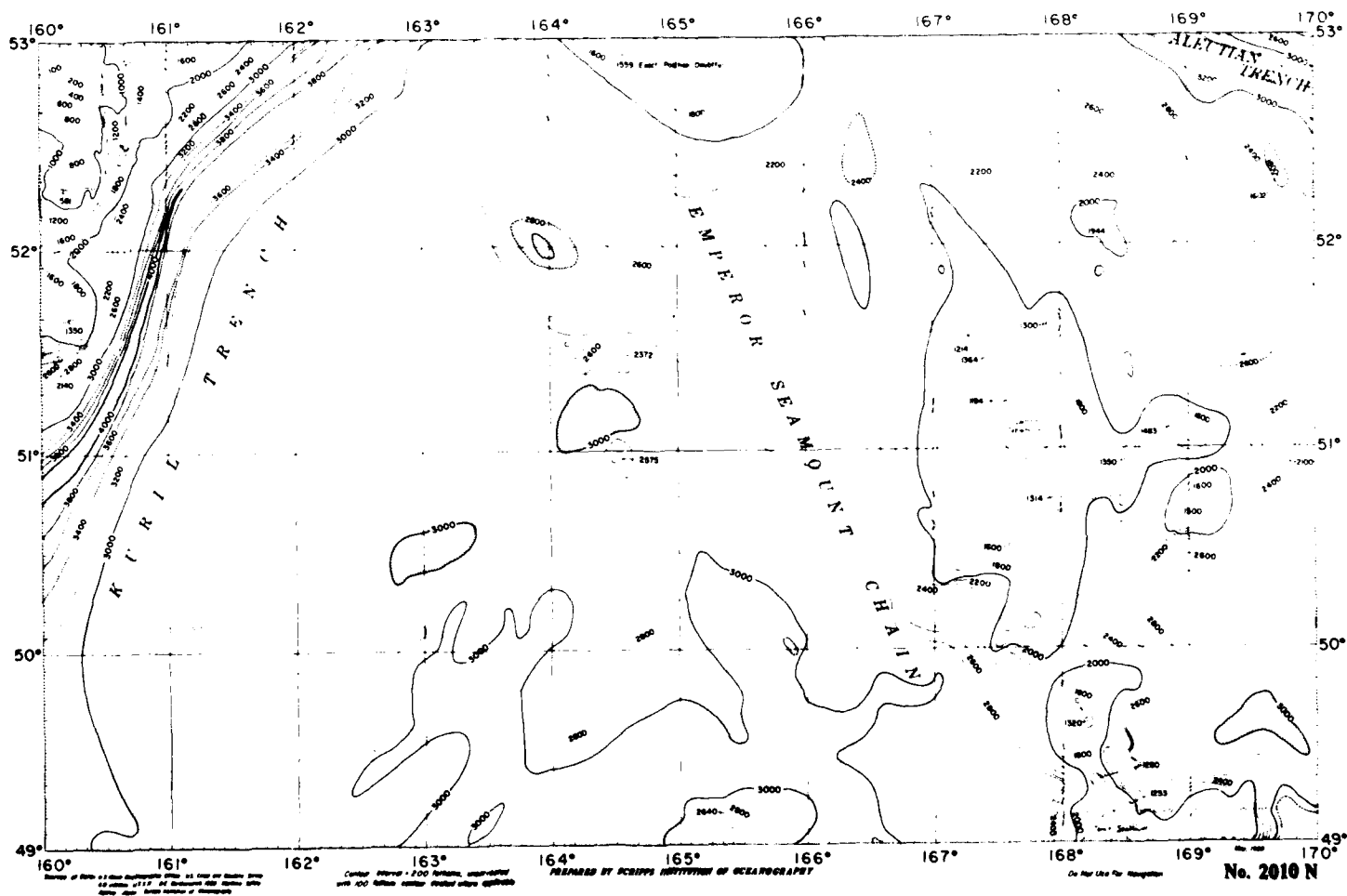


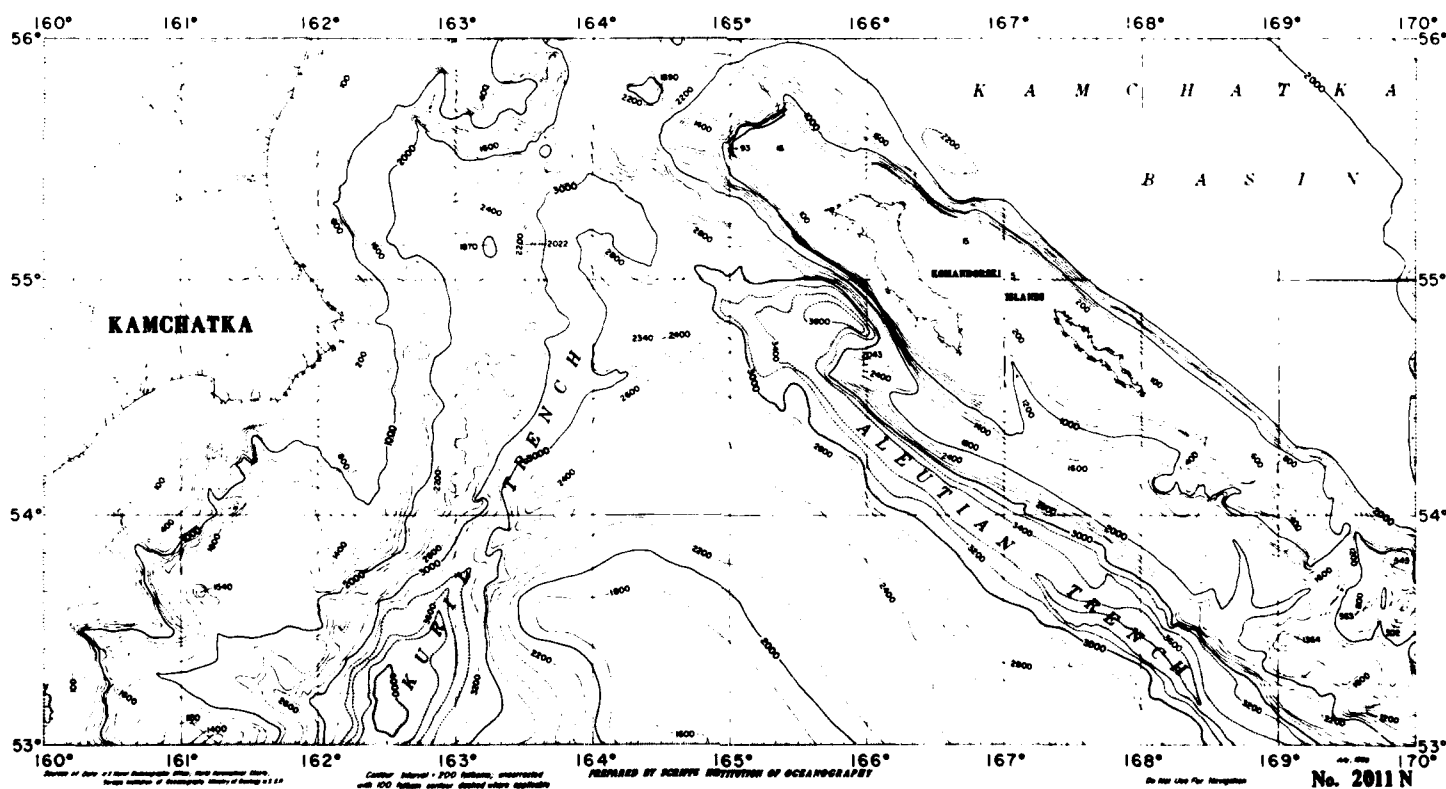


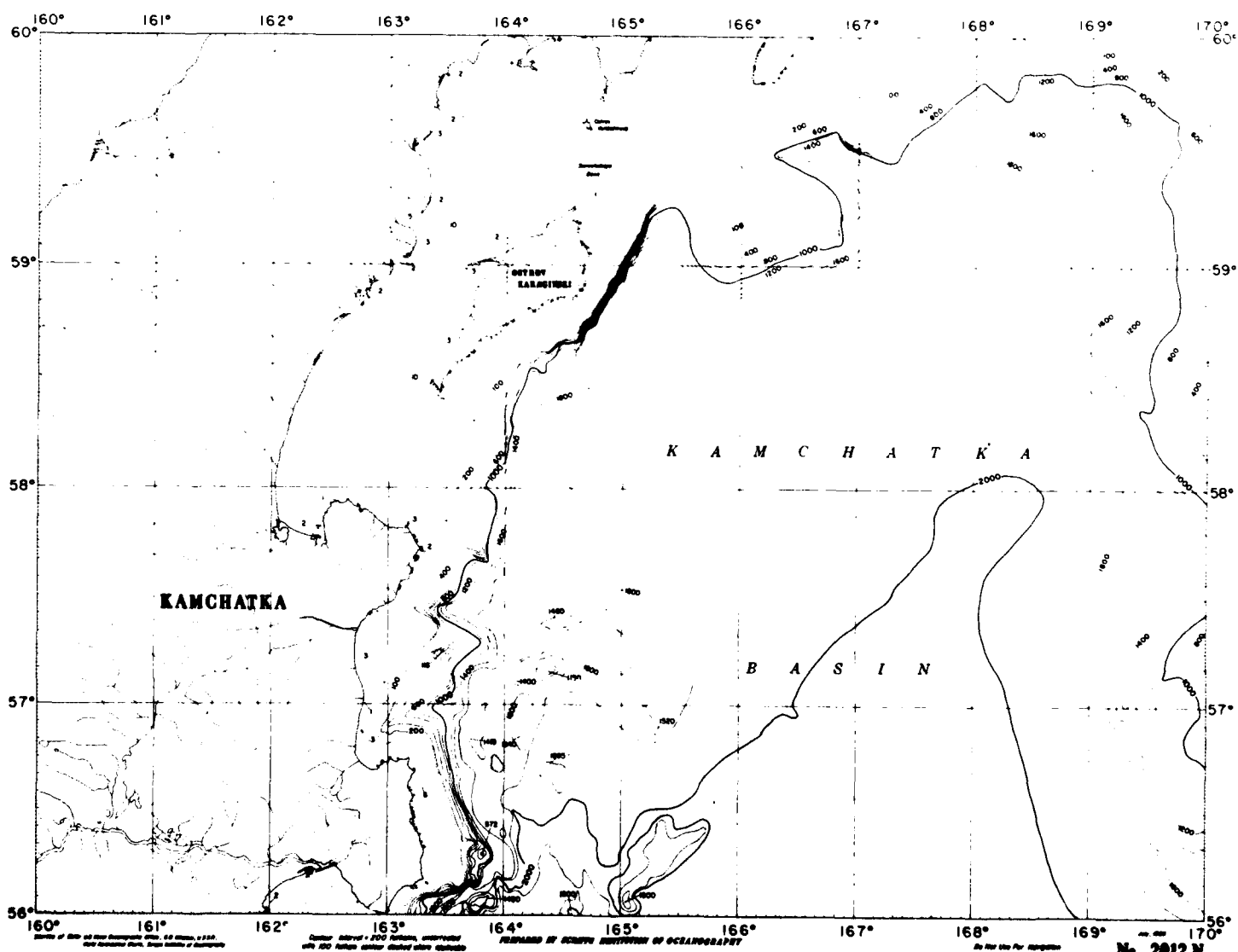


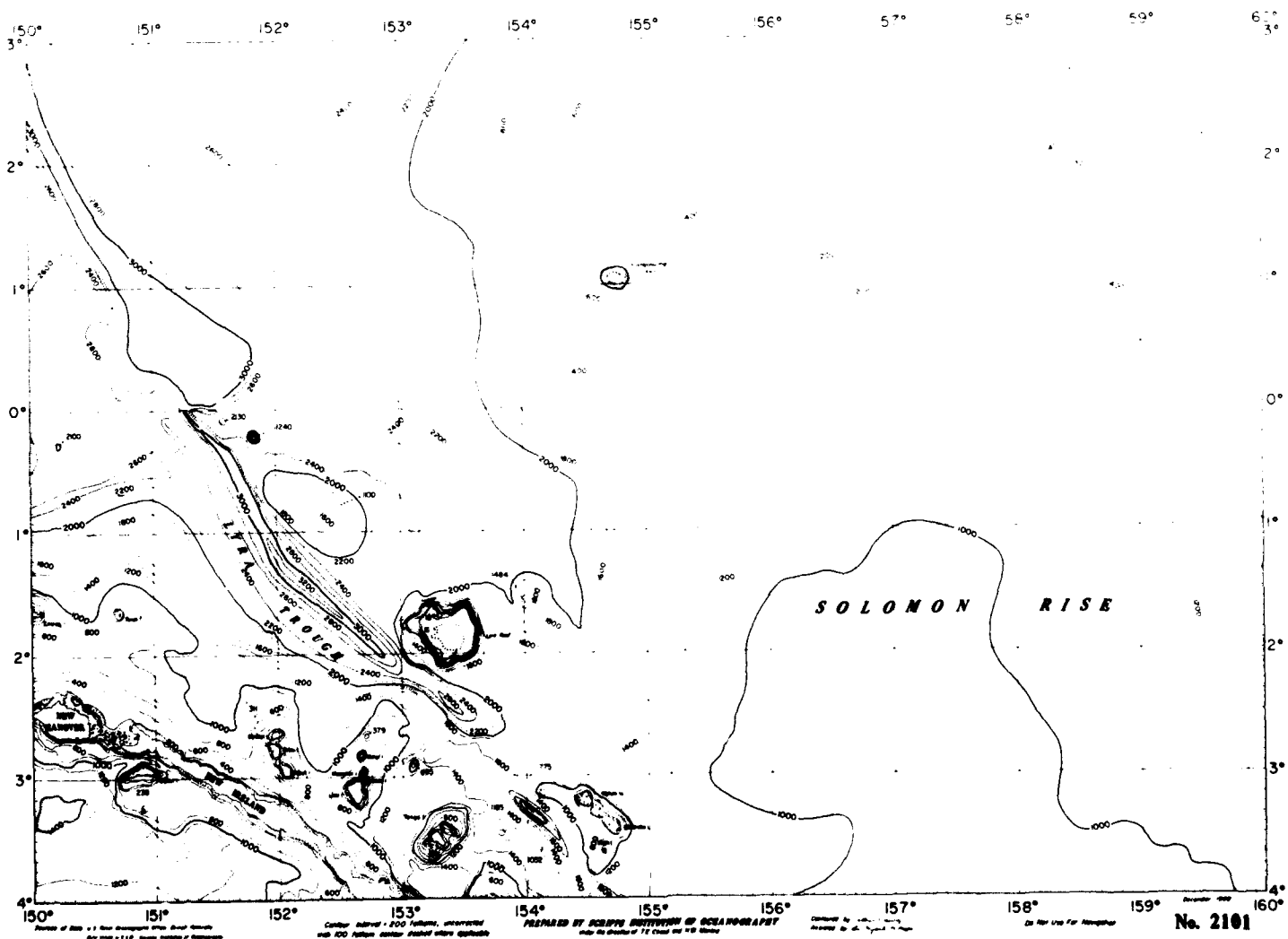












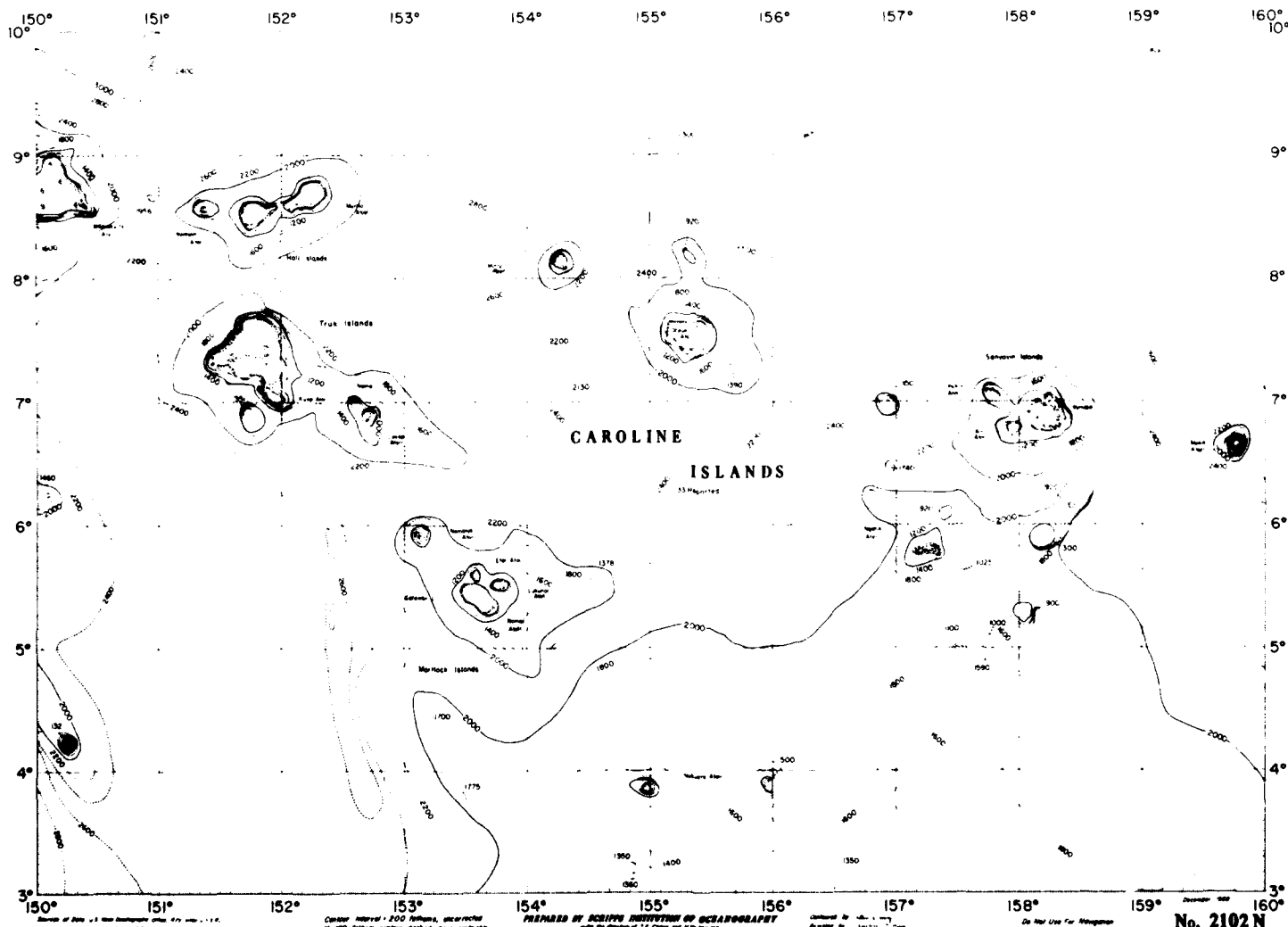


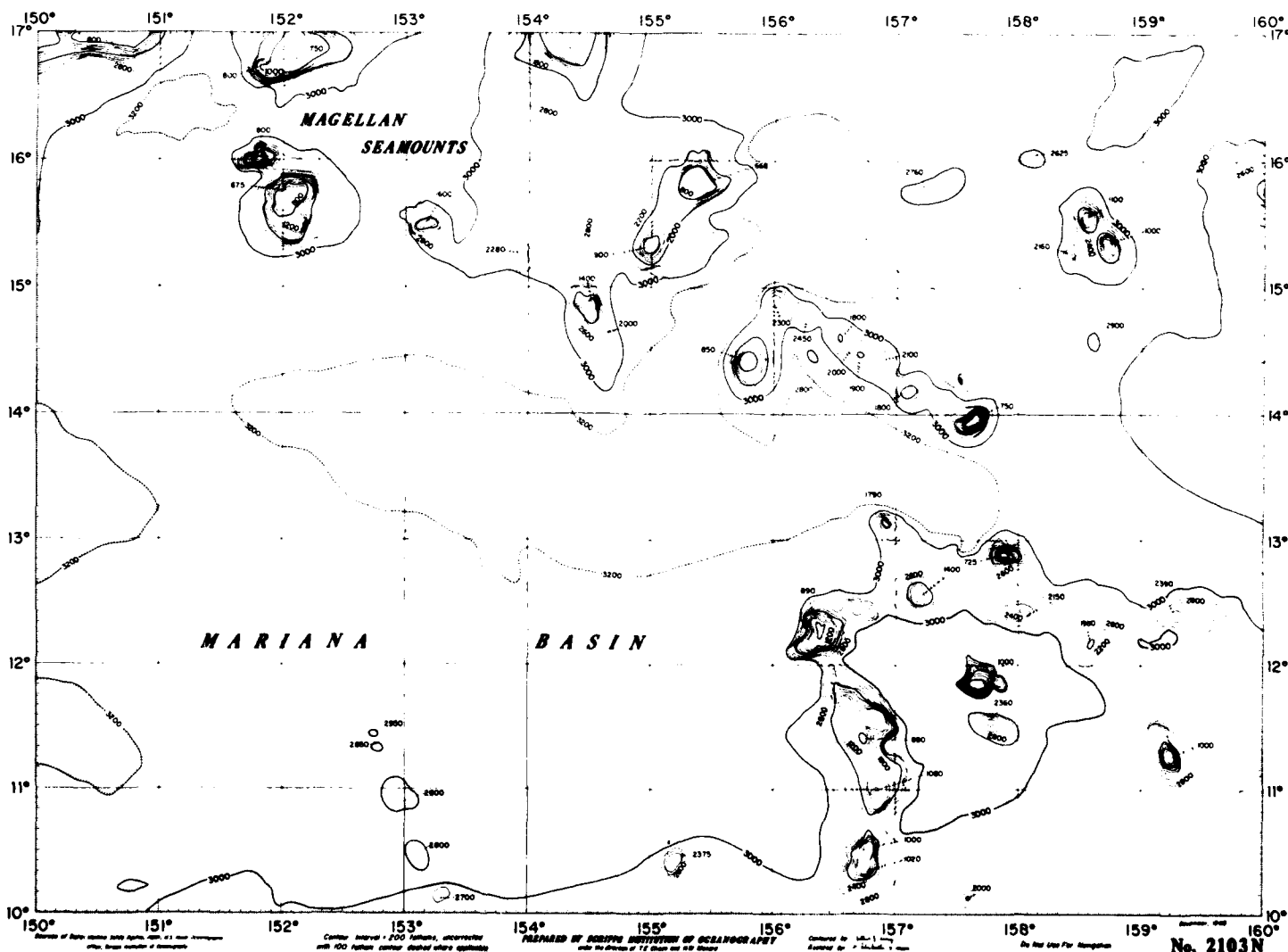
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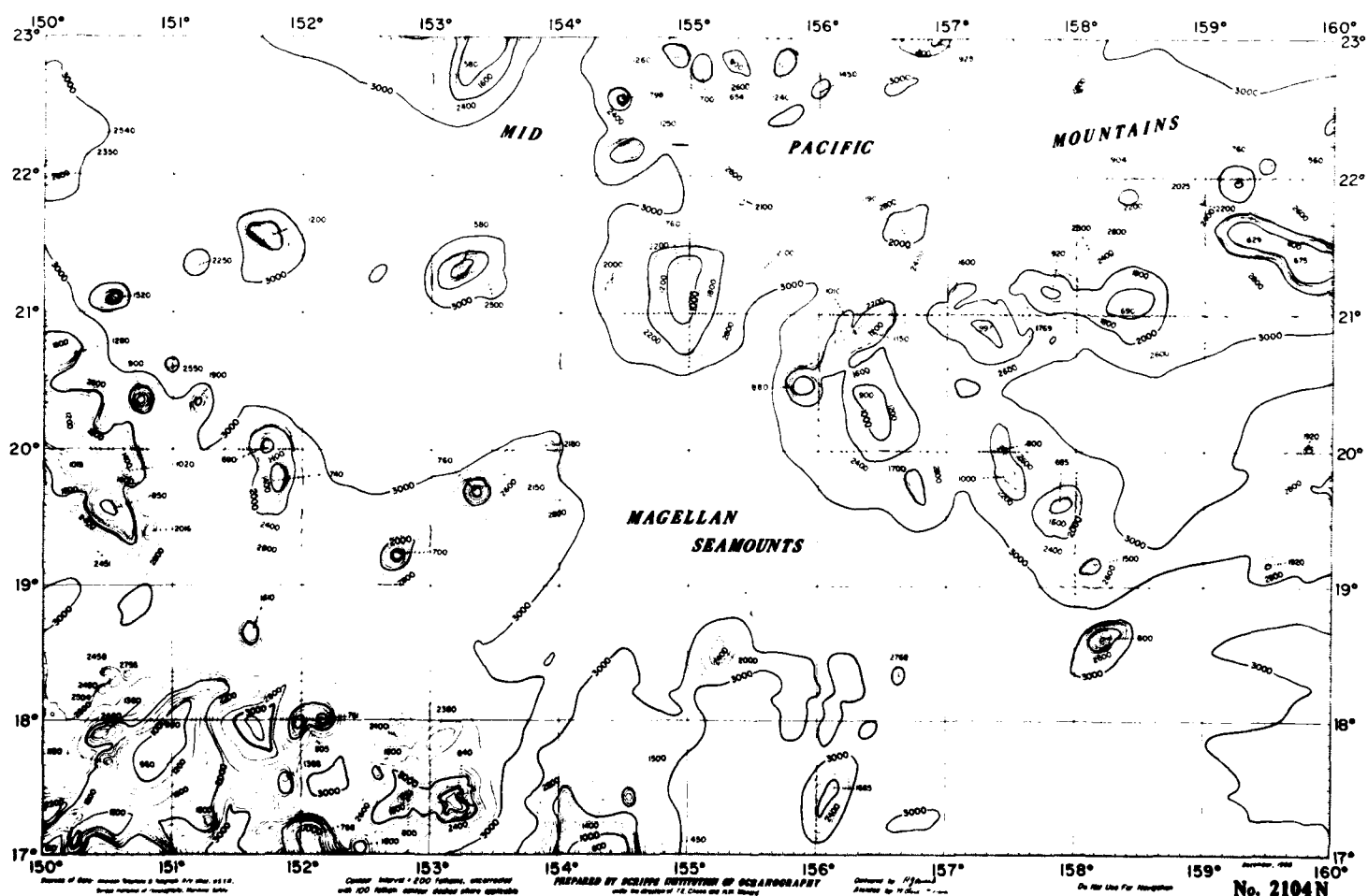
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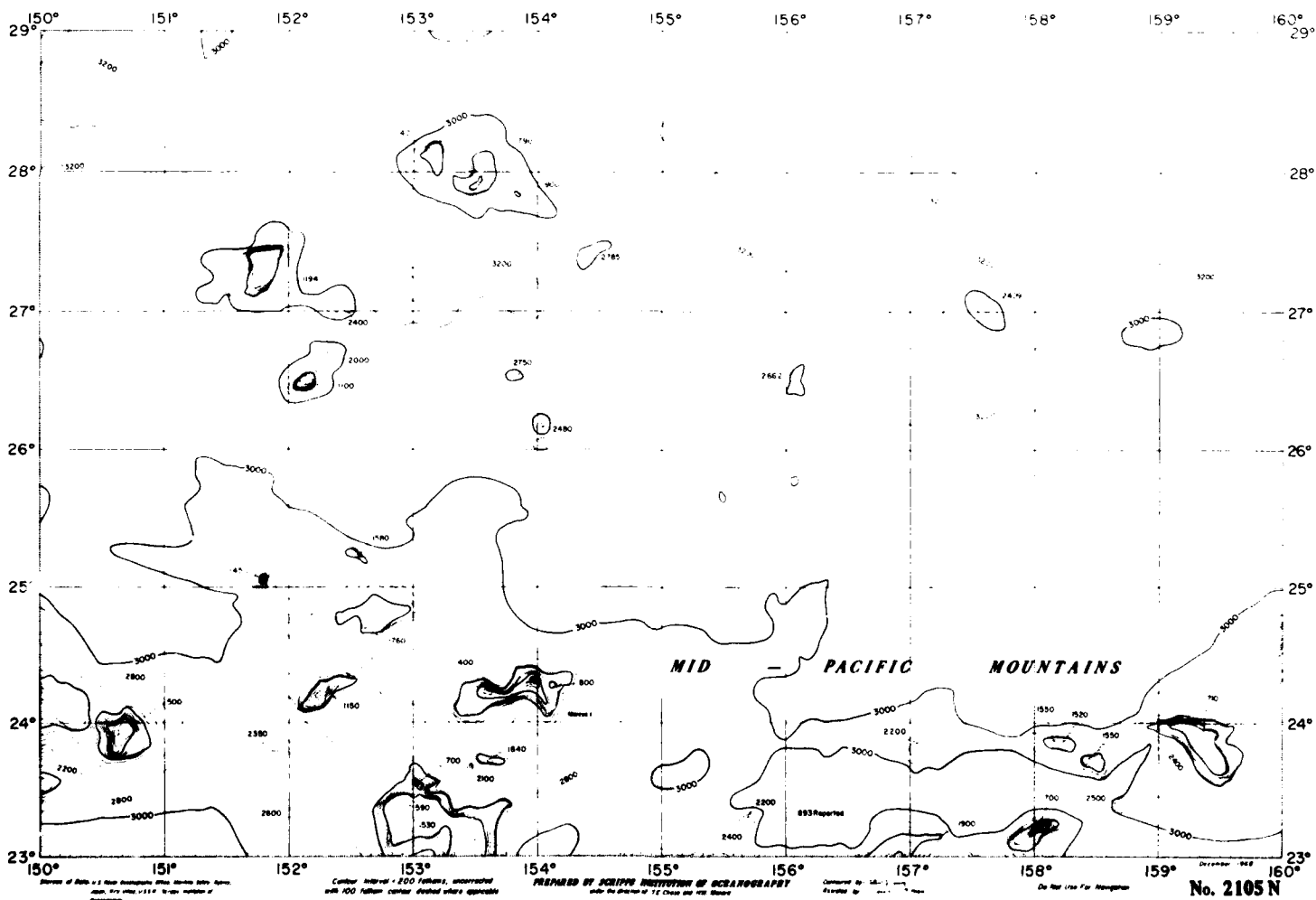
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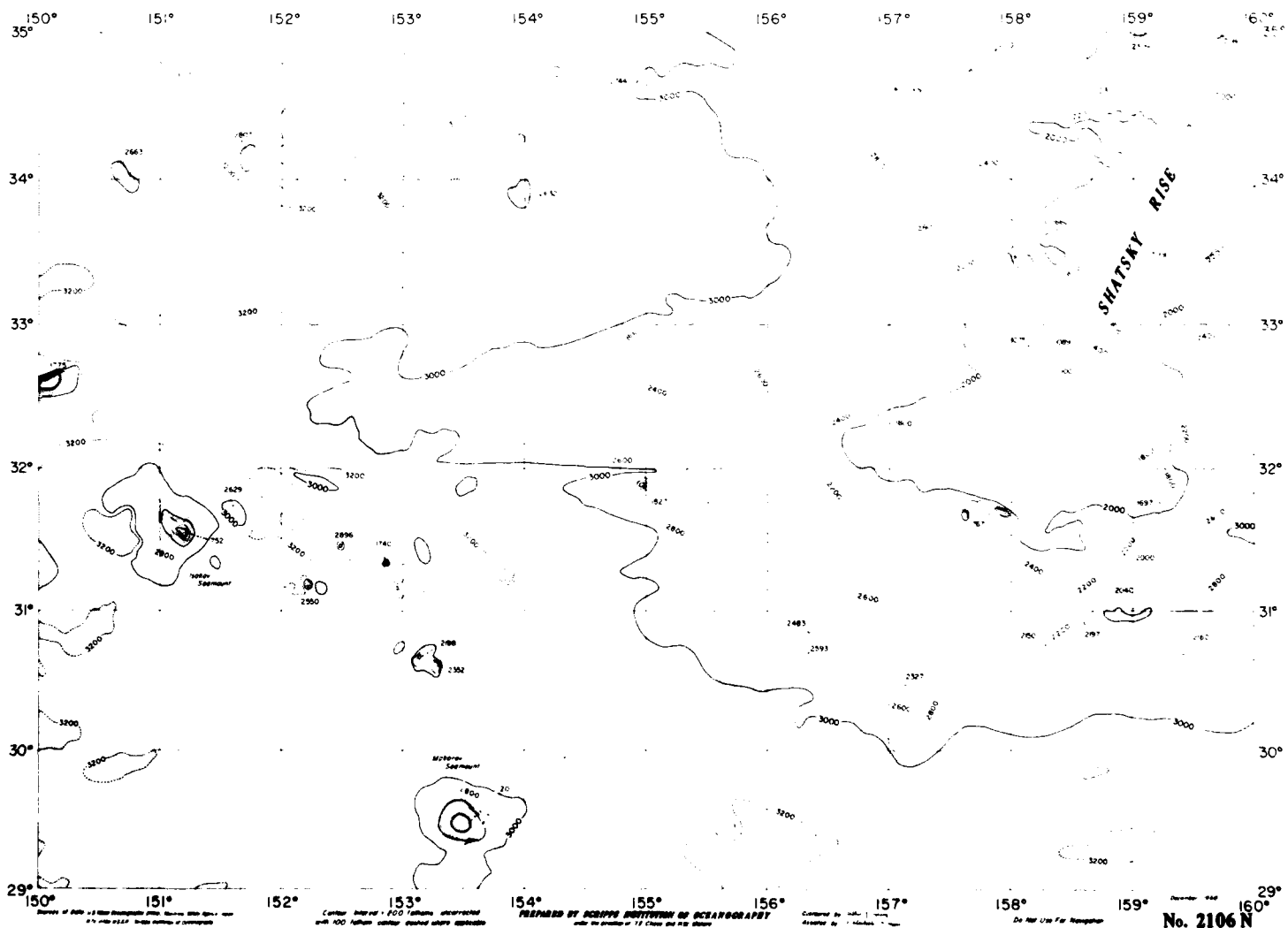
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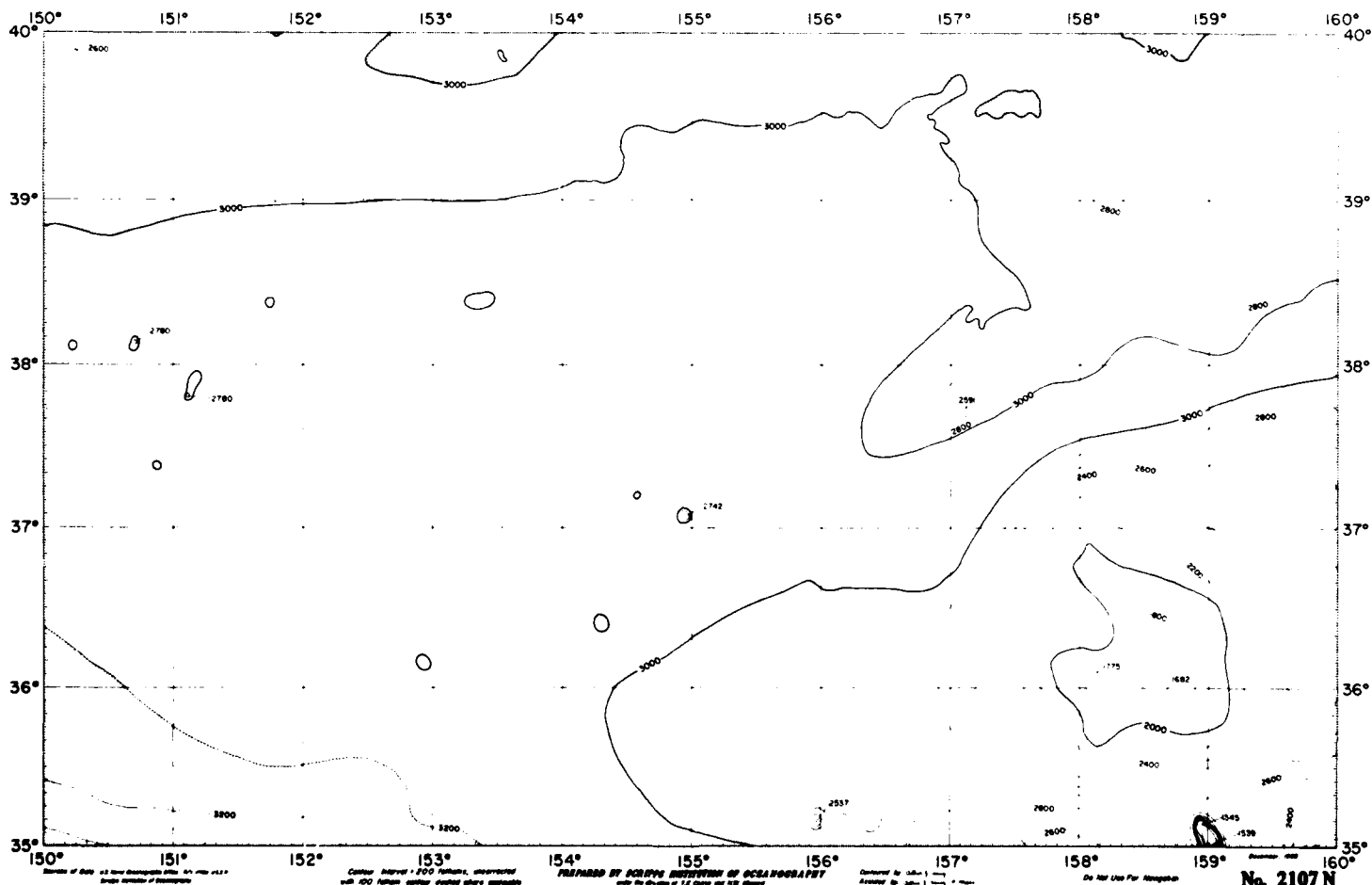
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Source of Data: U.S. Navy Hydrographic Office, 1911-1912

Contour Interval: 200 fathoms, uncorrected

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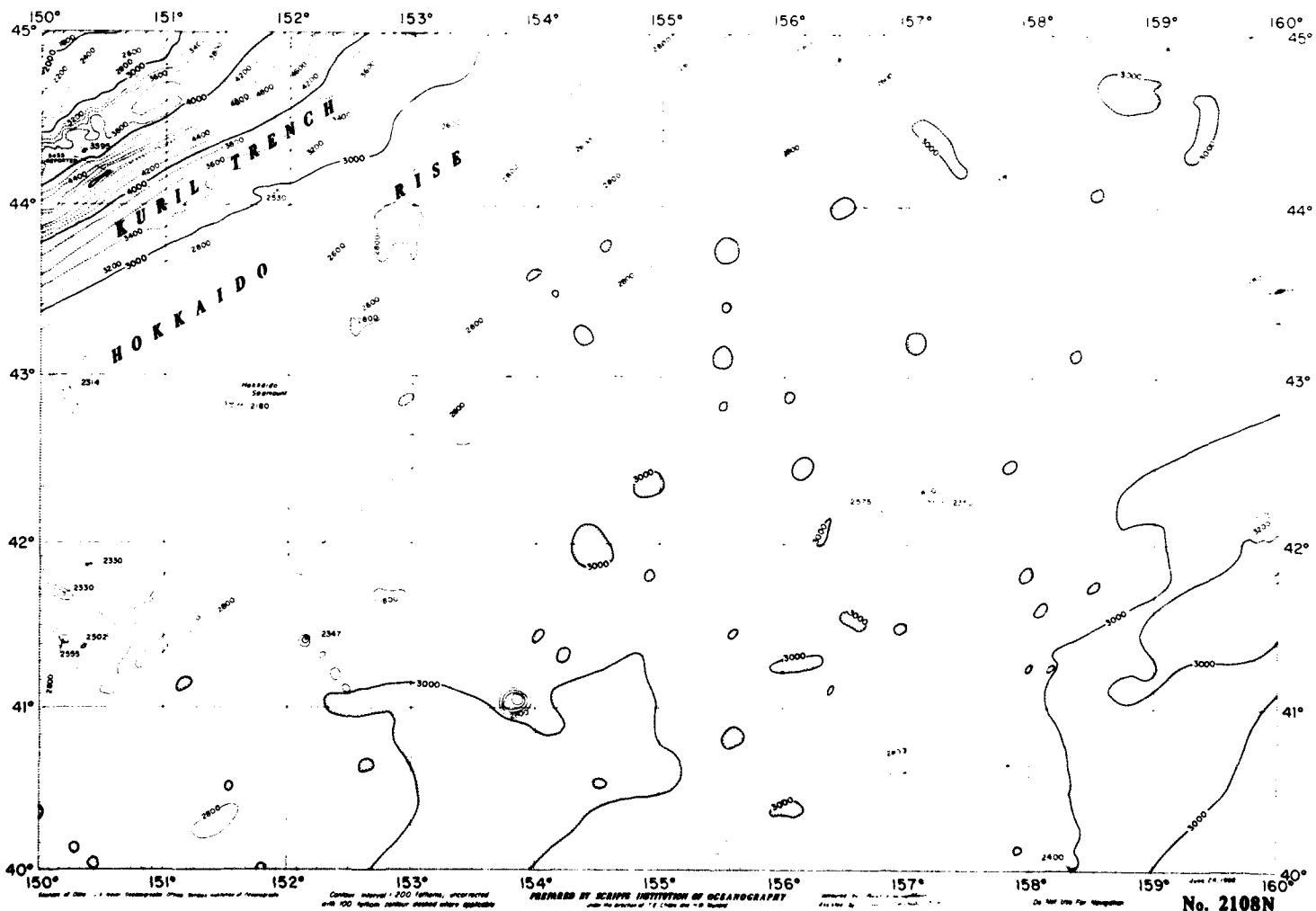
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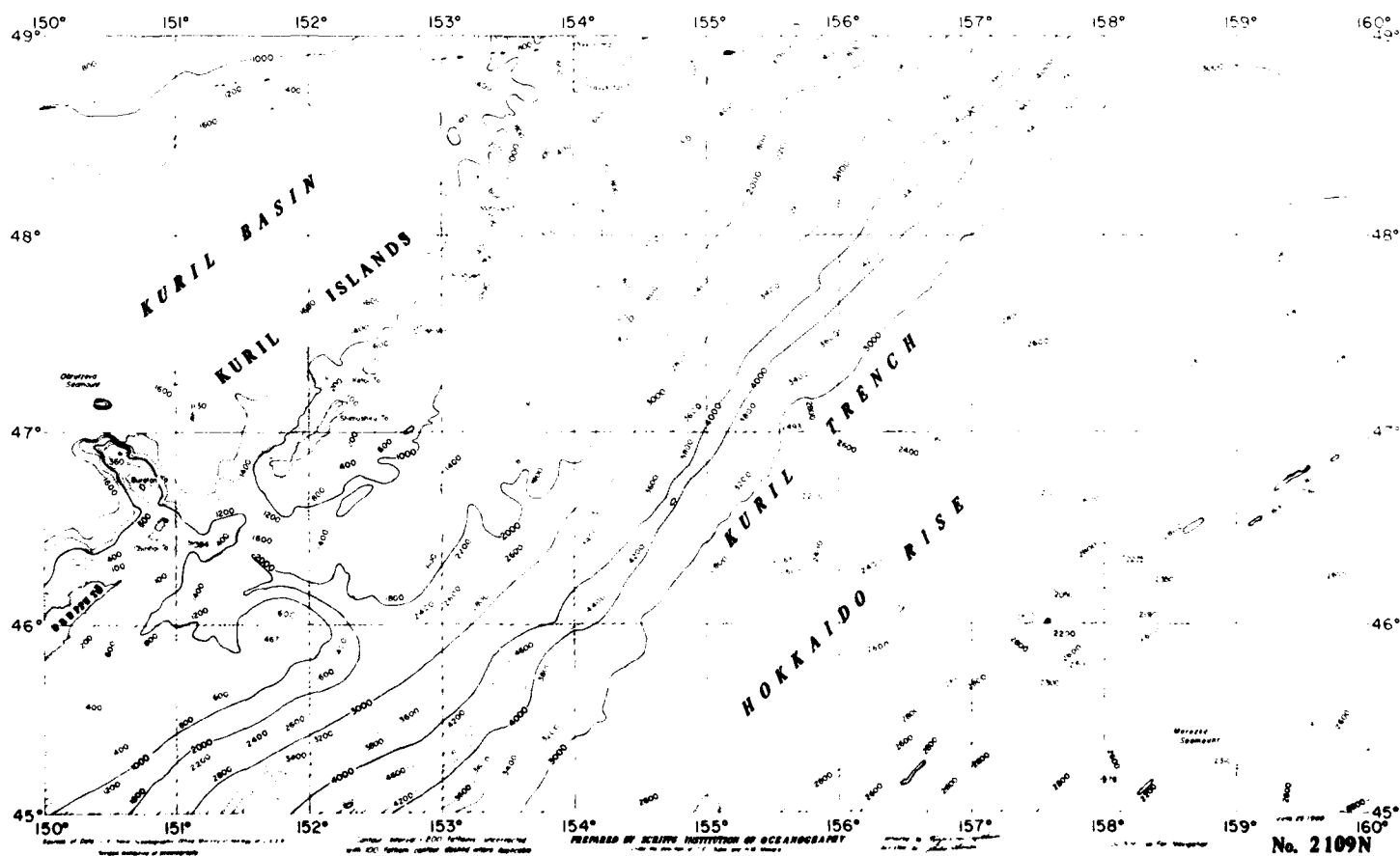
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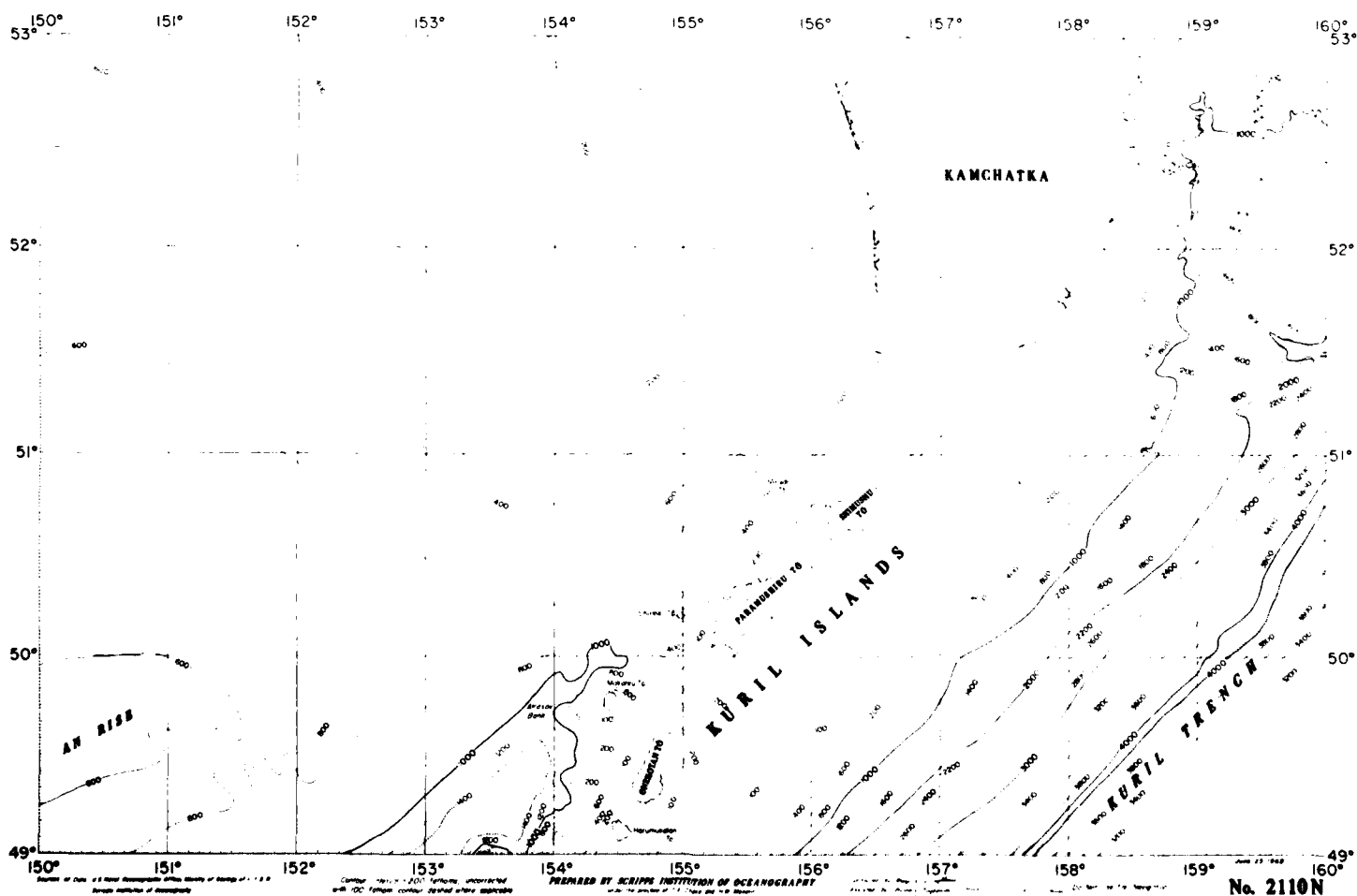
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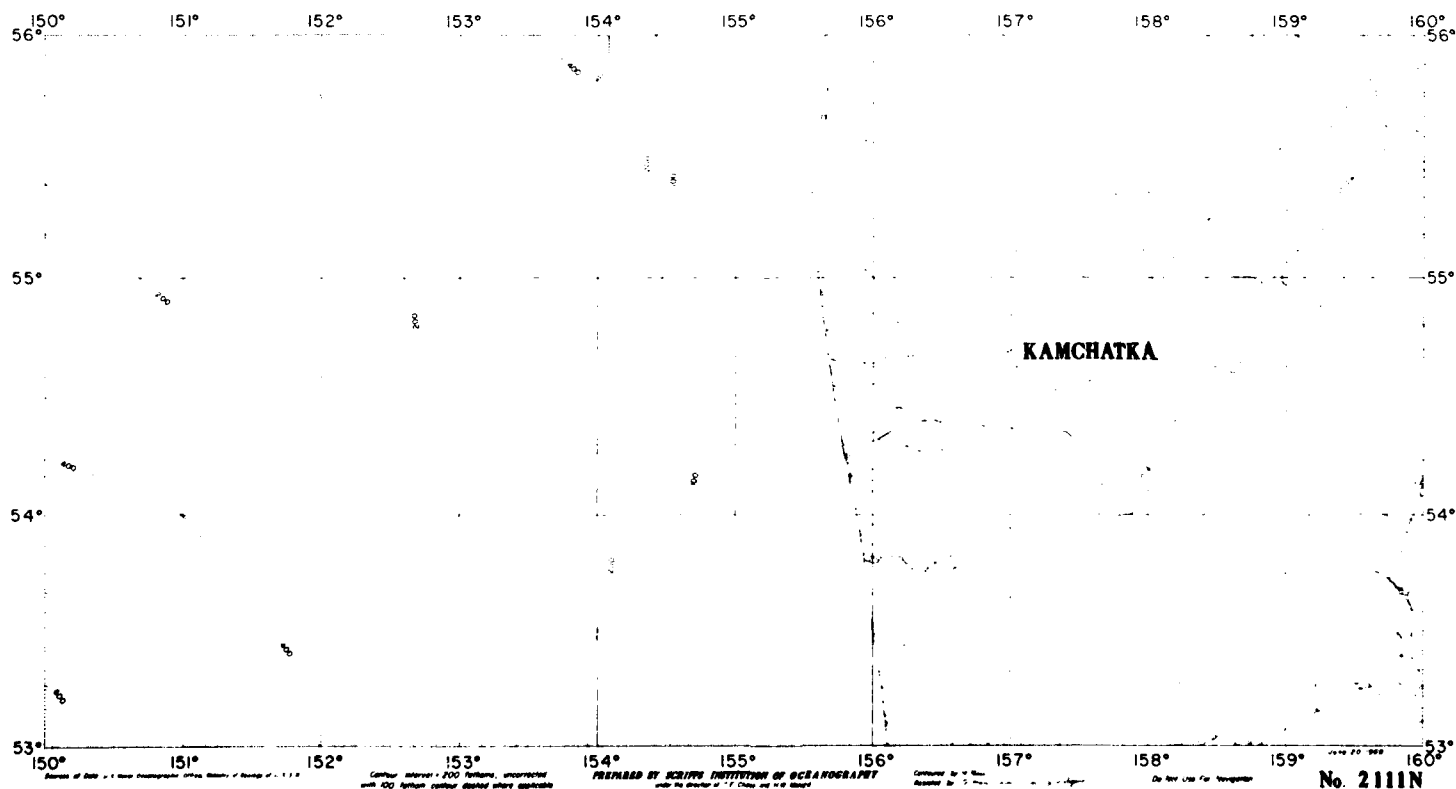
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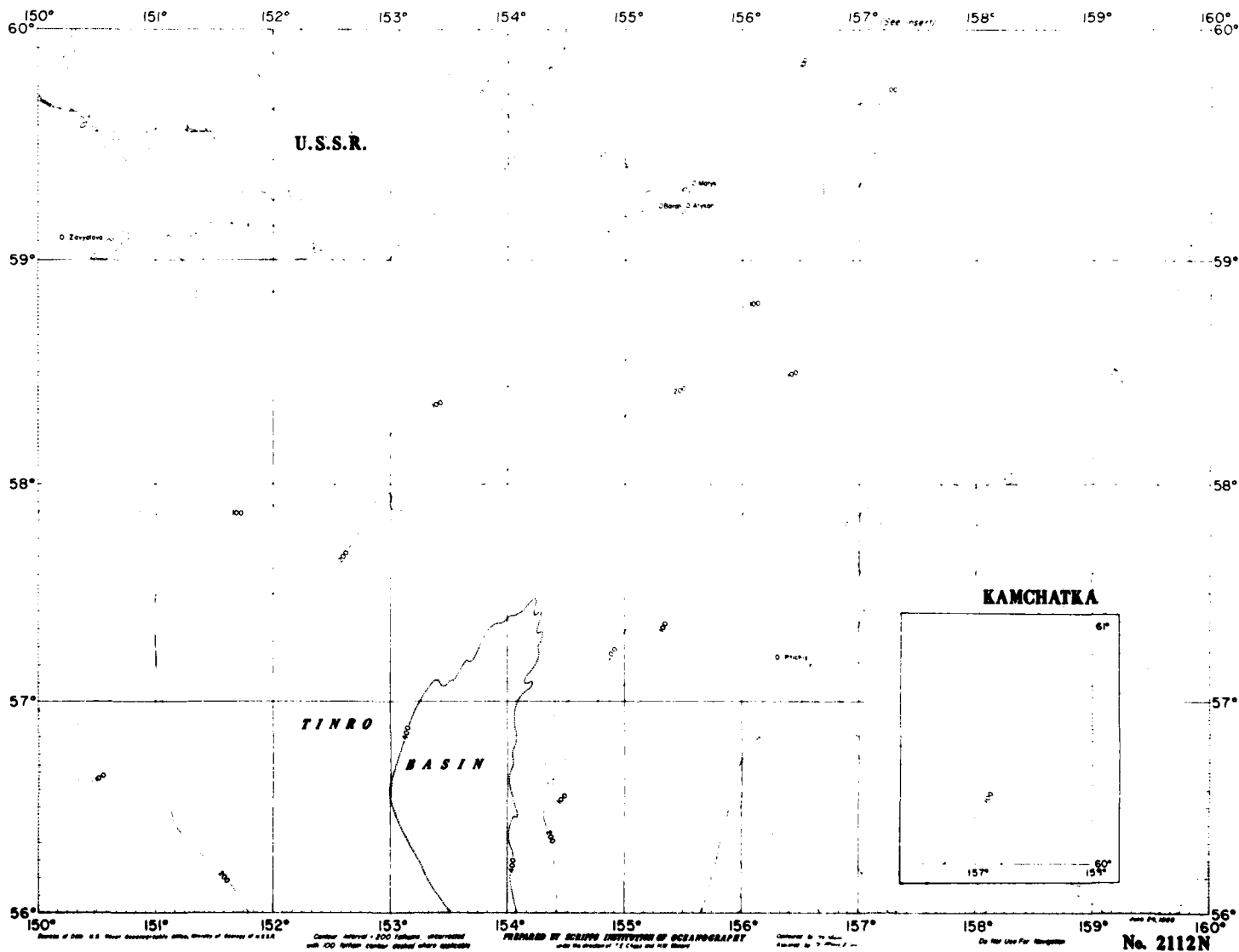


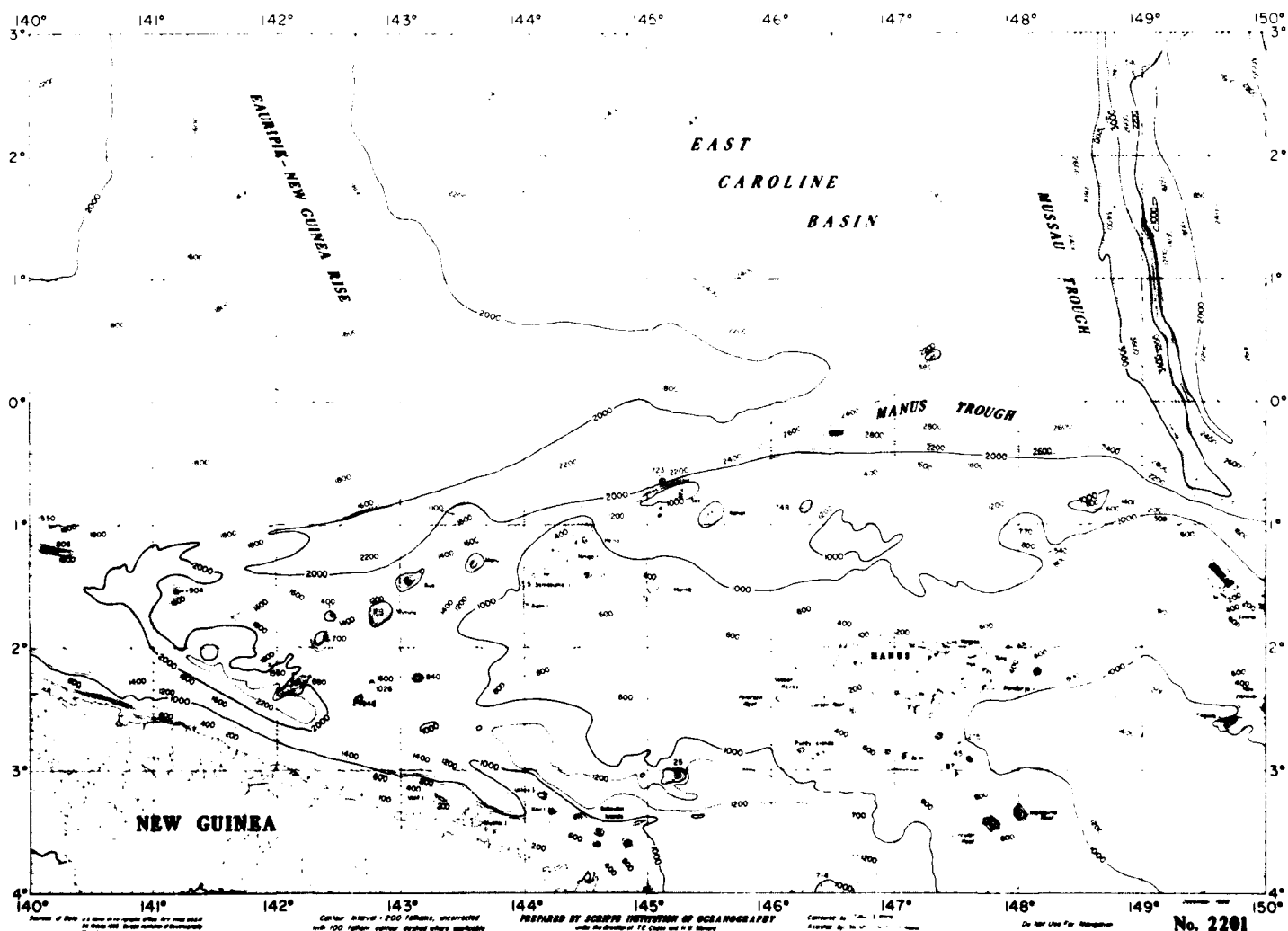
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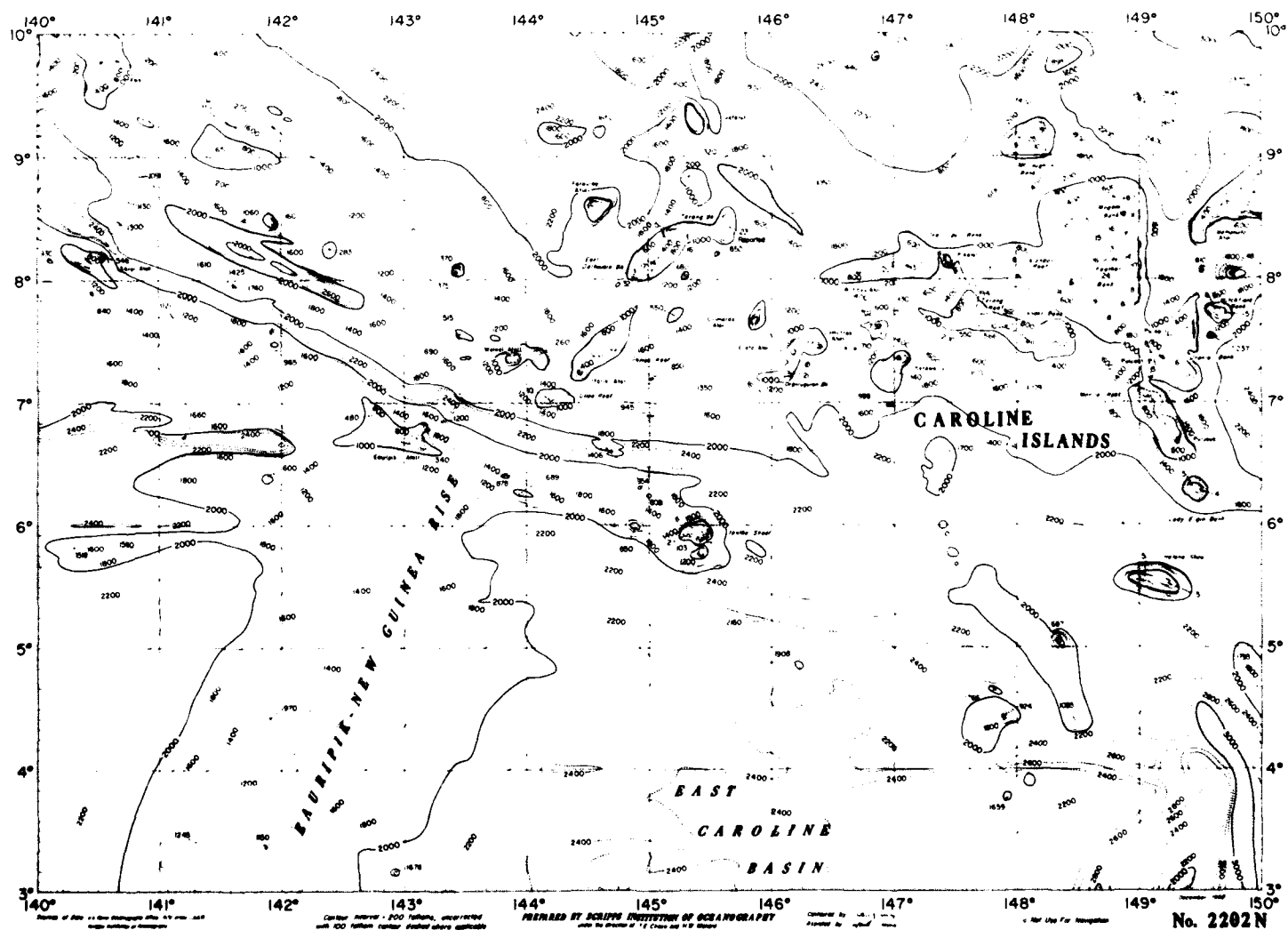




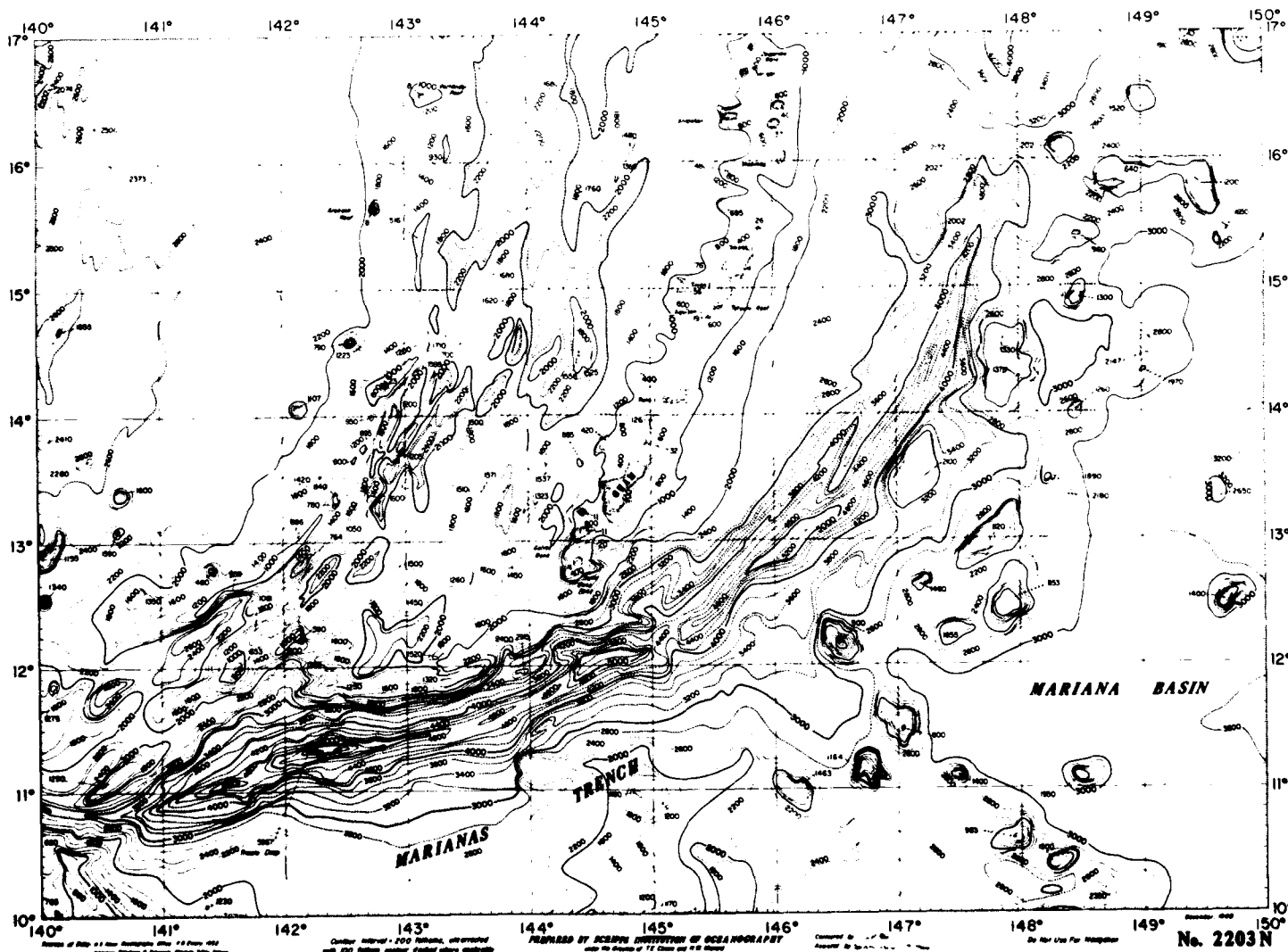


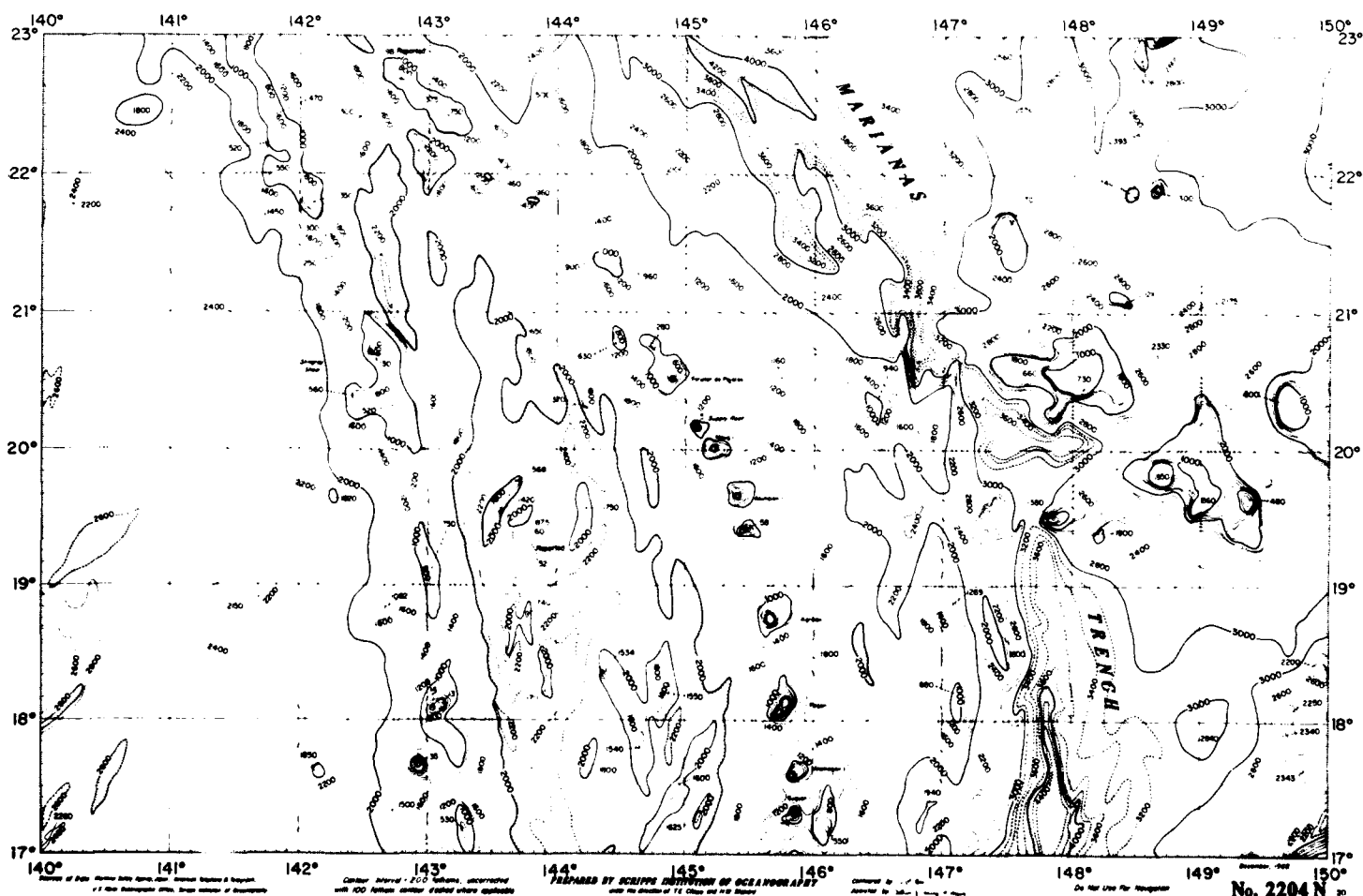


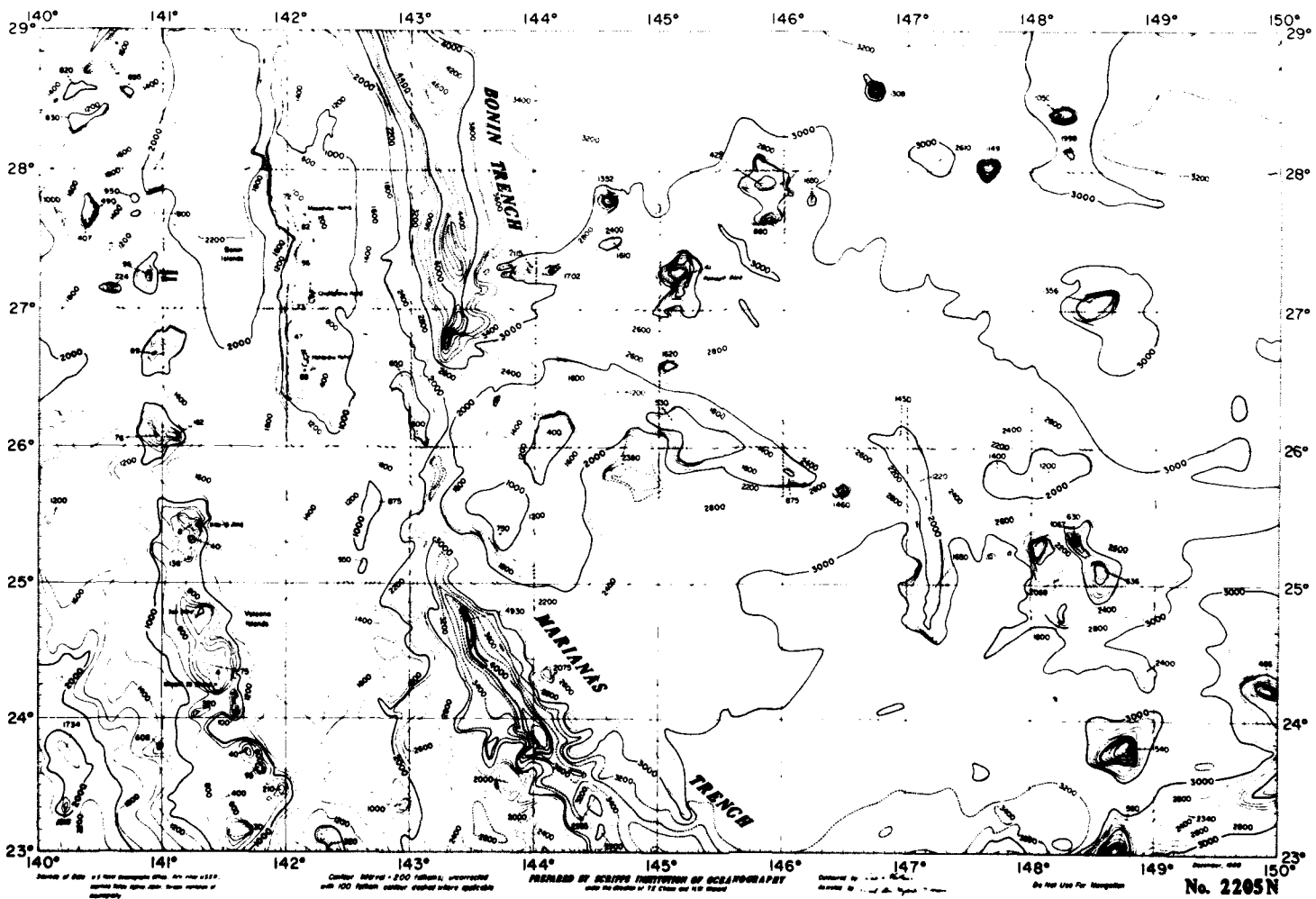
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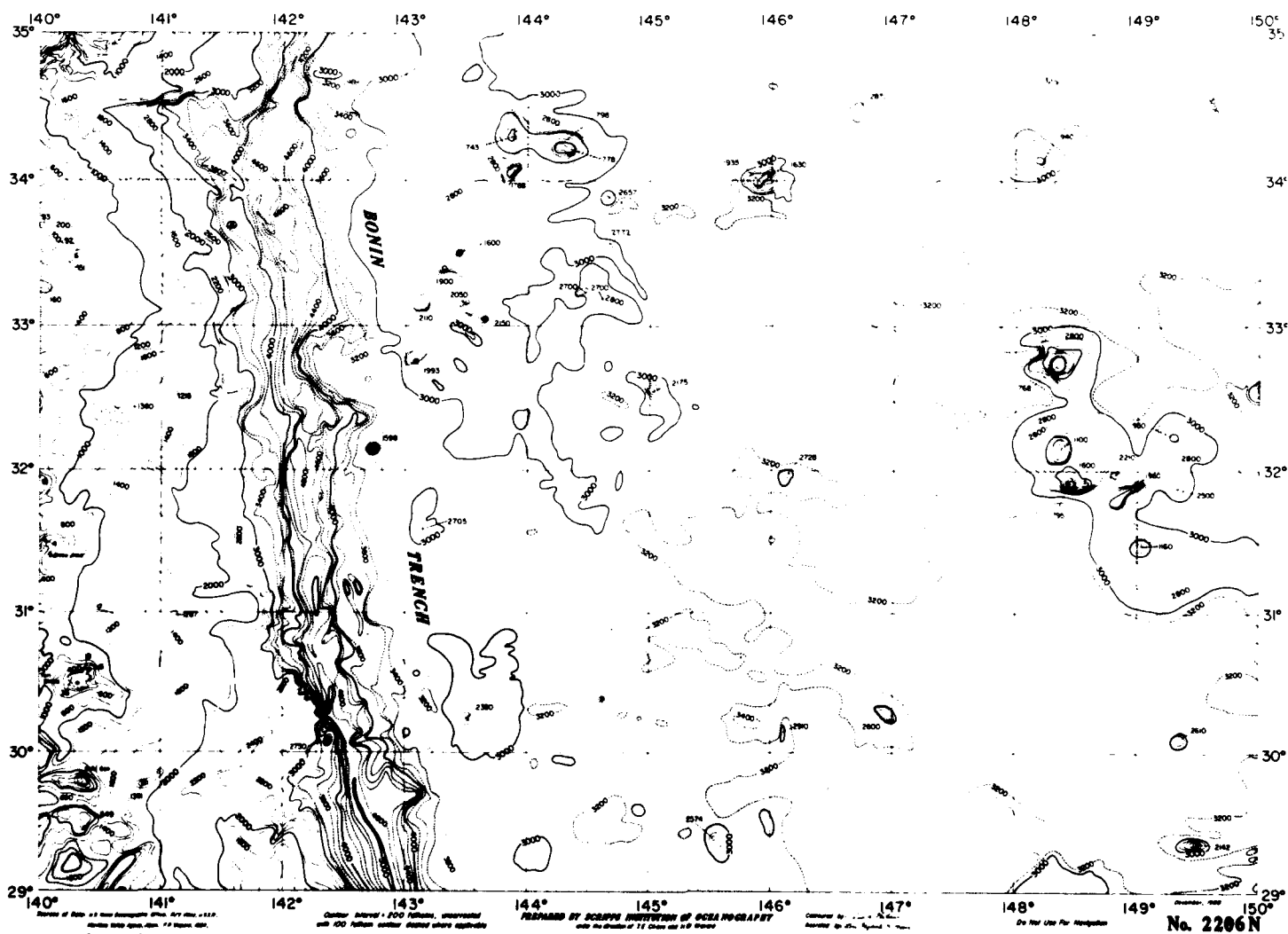


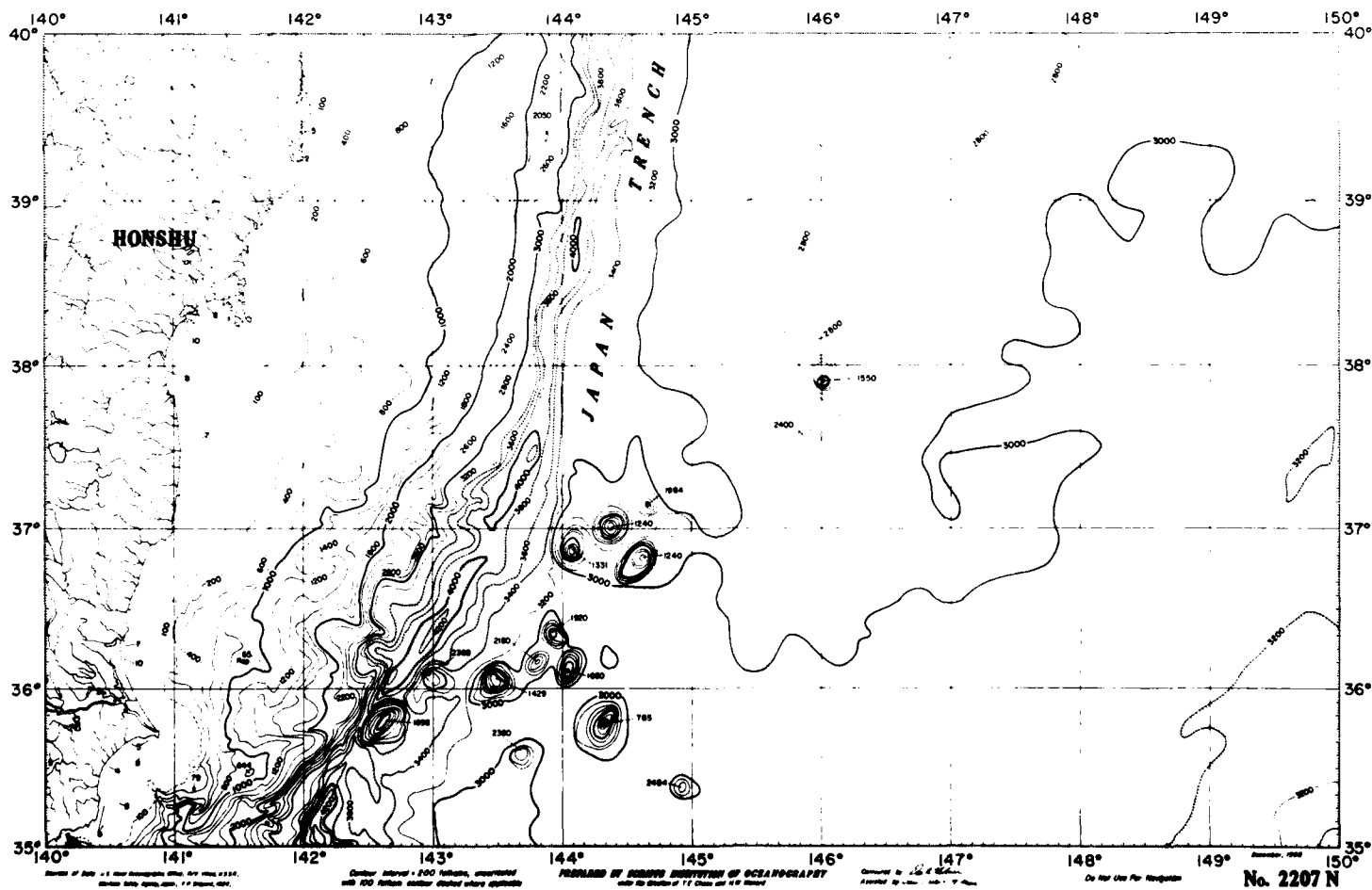
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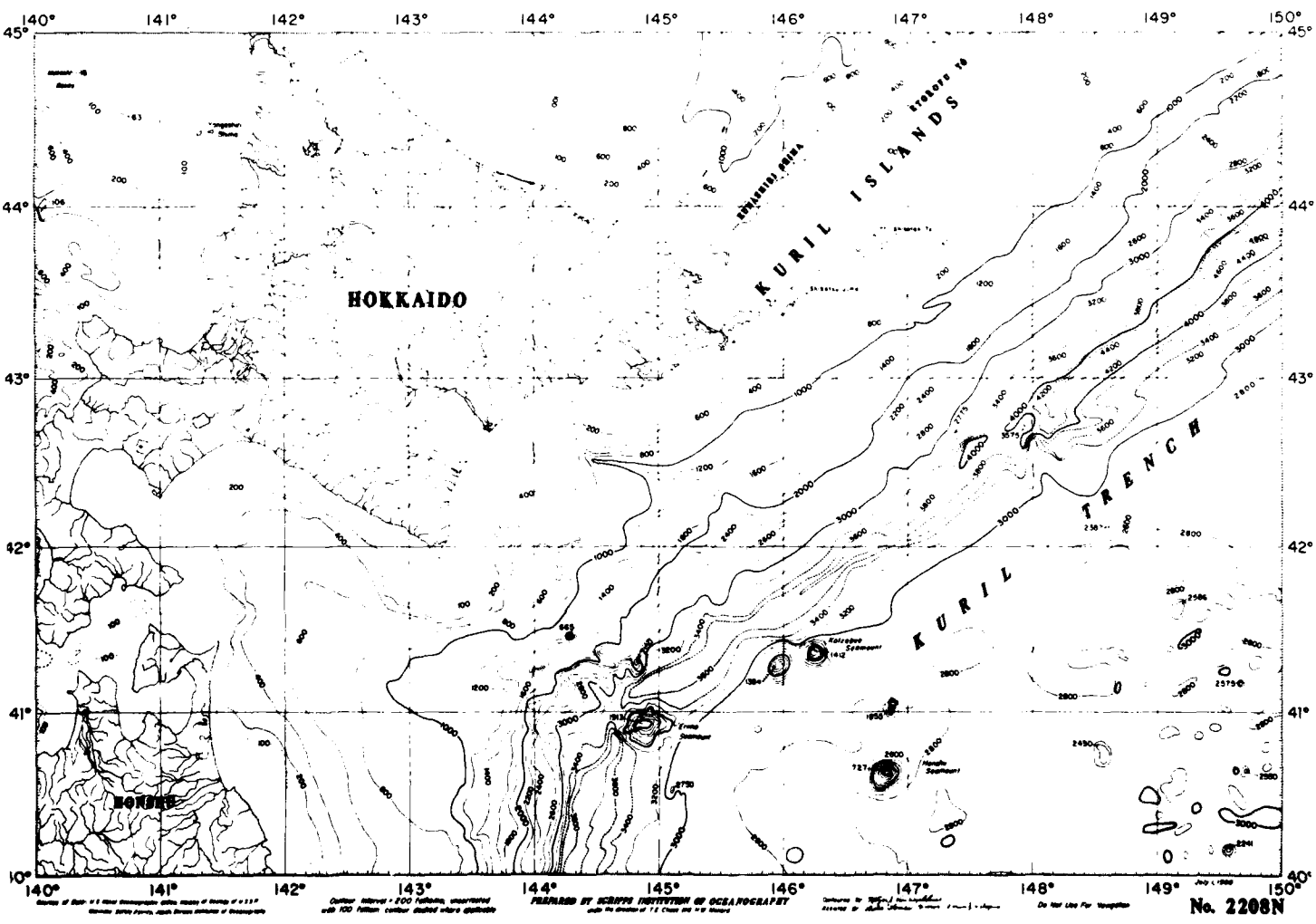


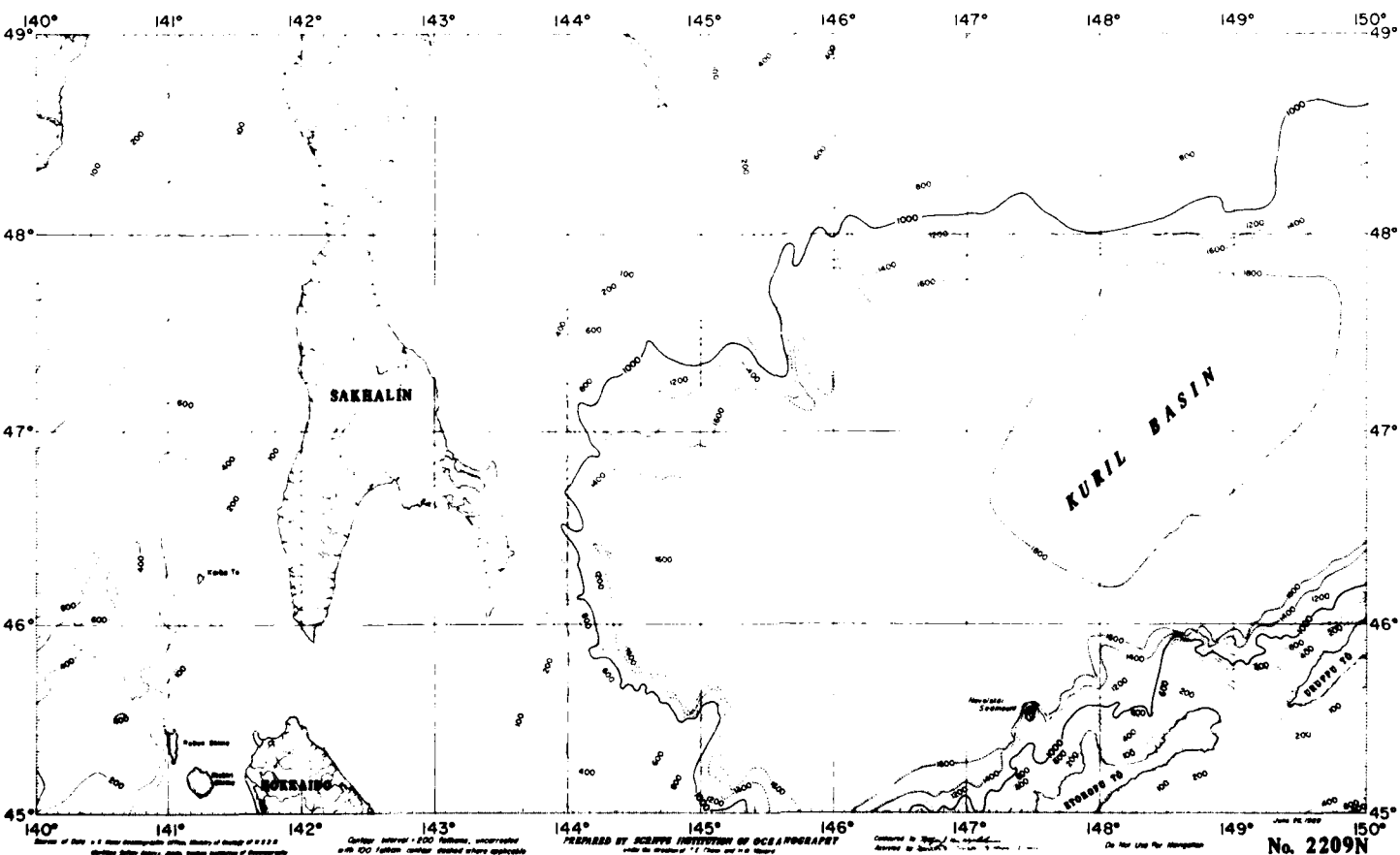




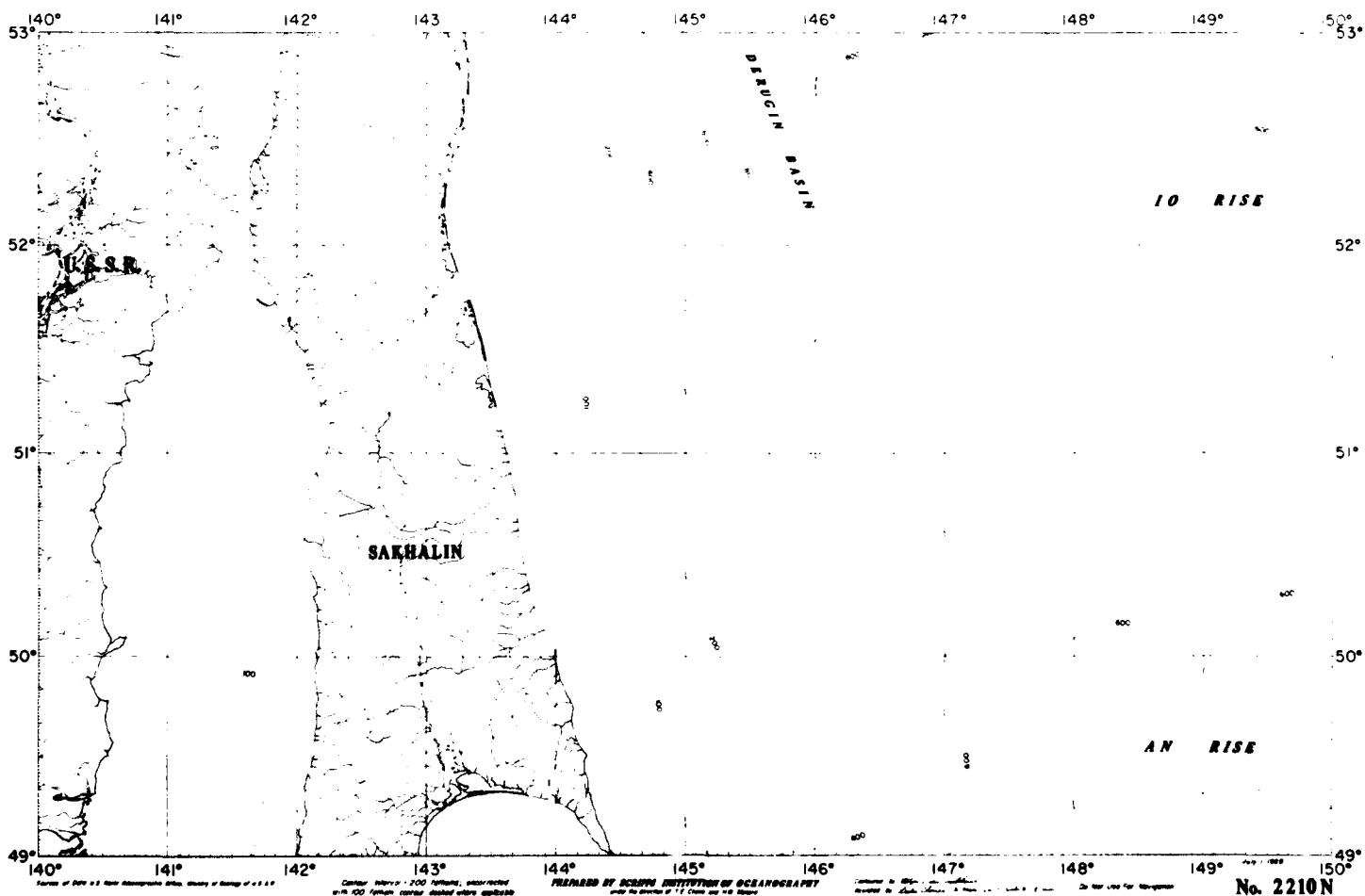




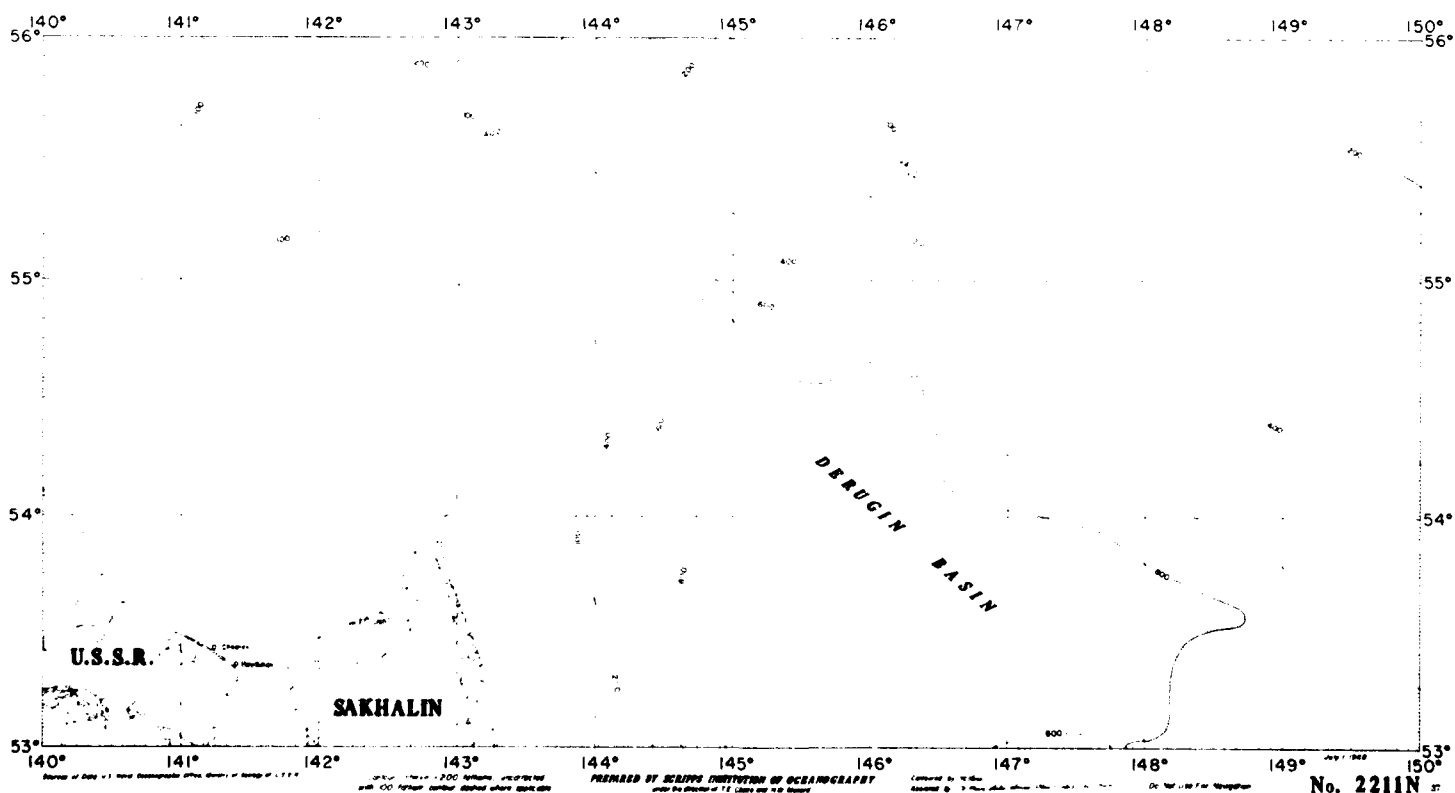


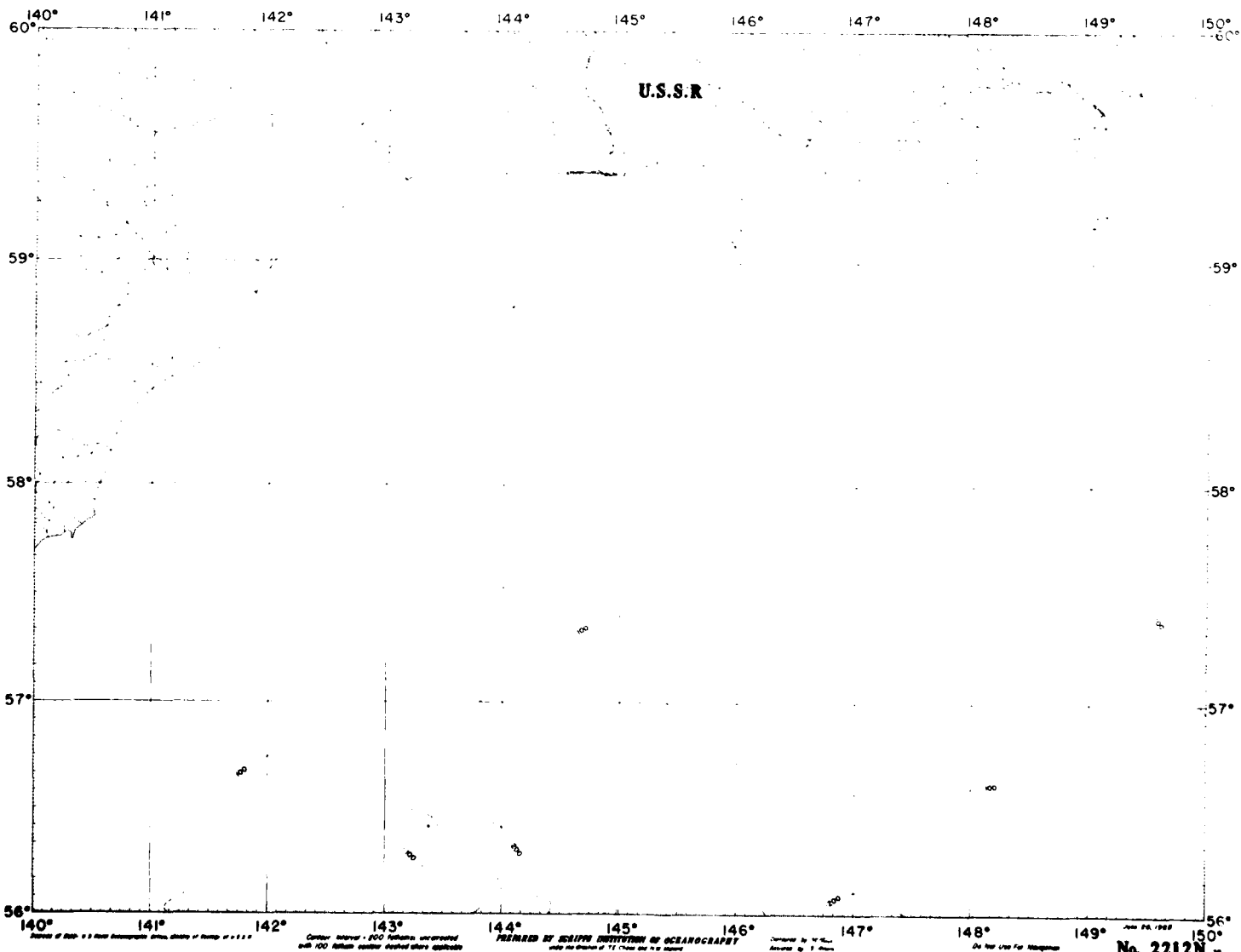


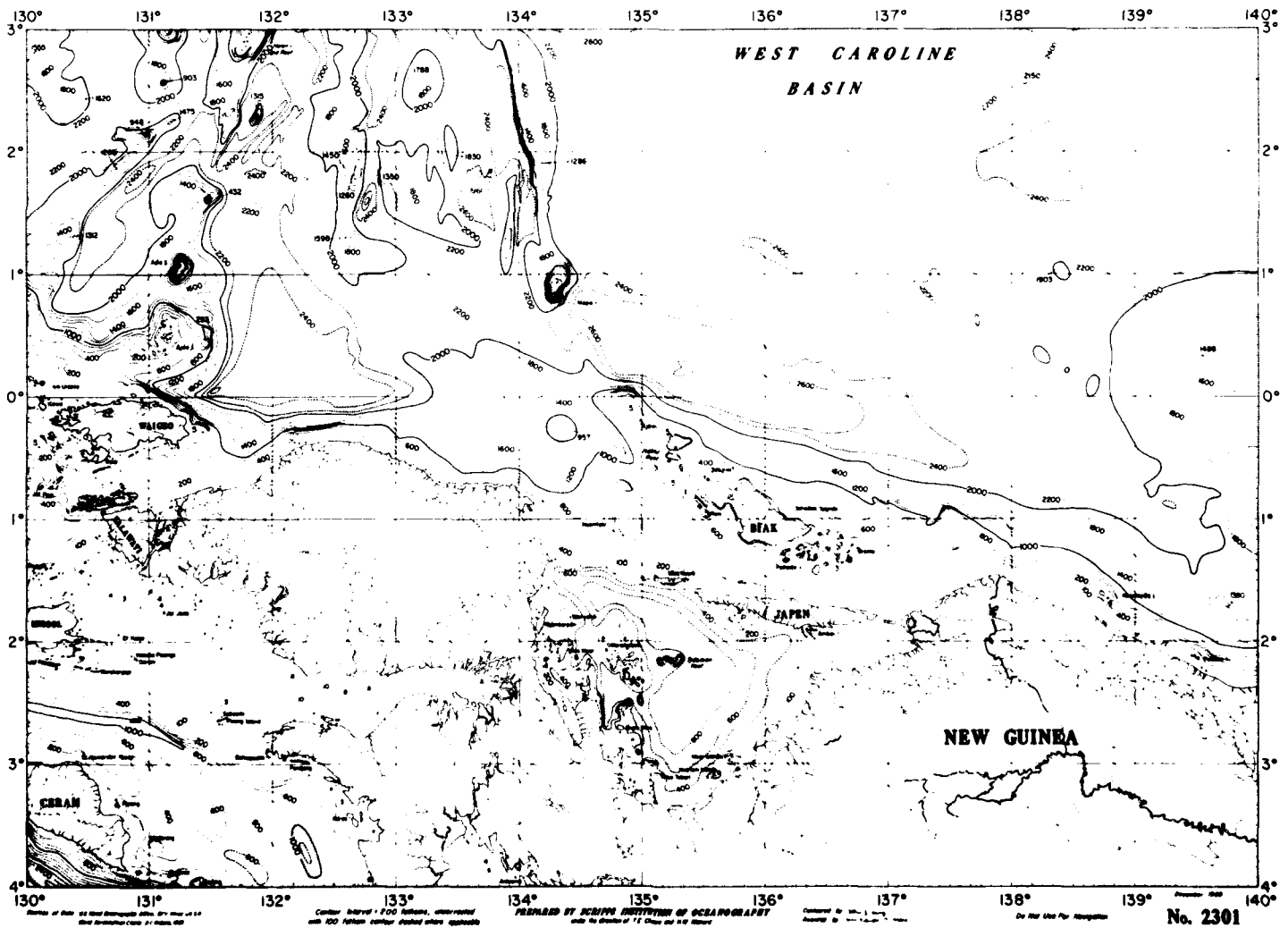
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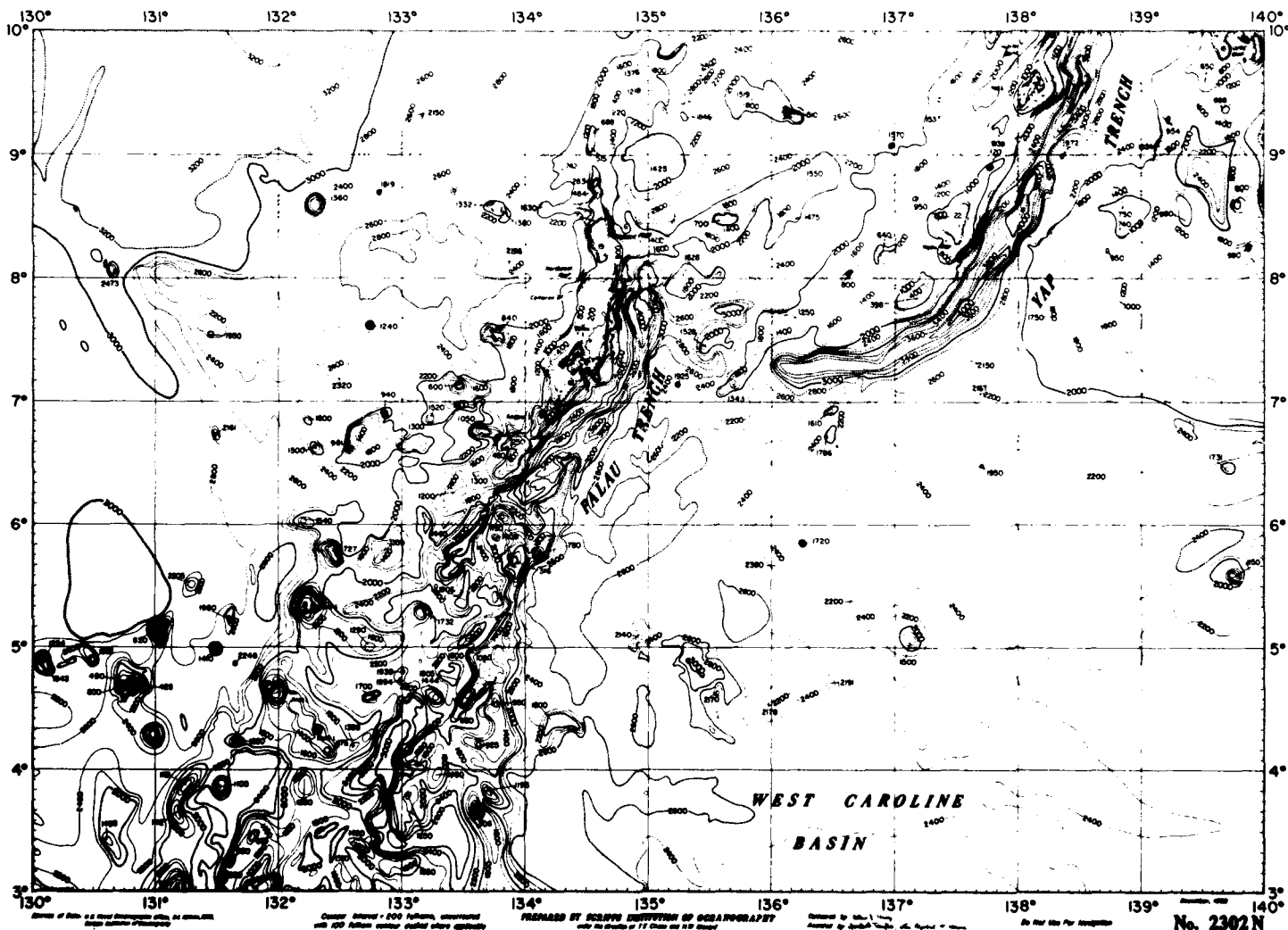


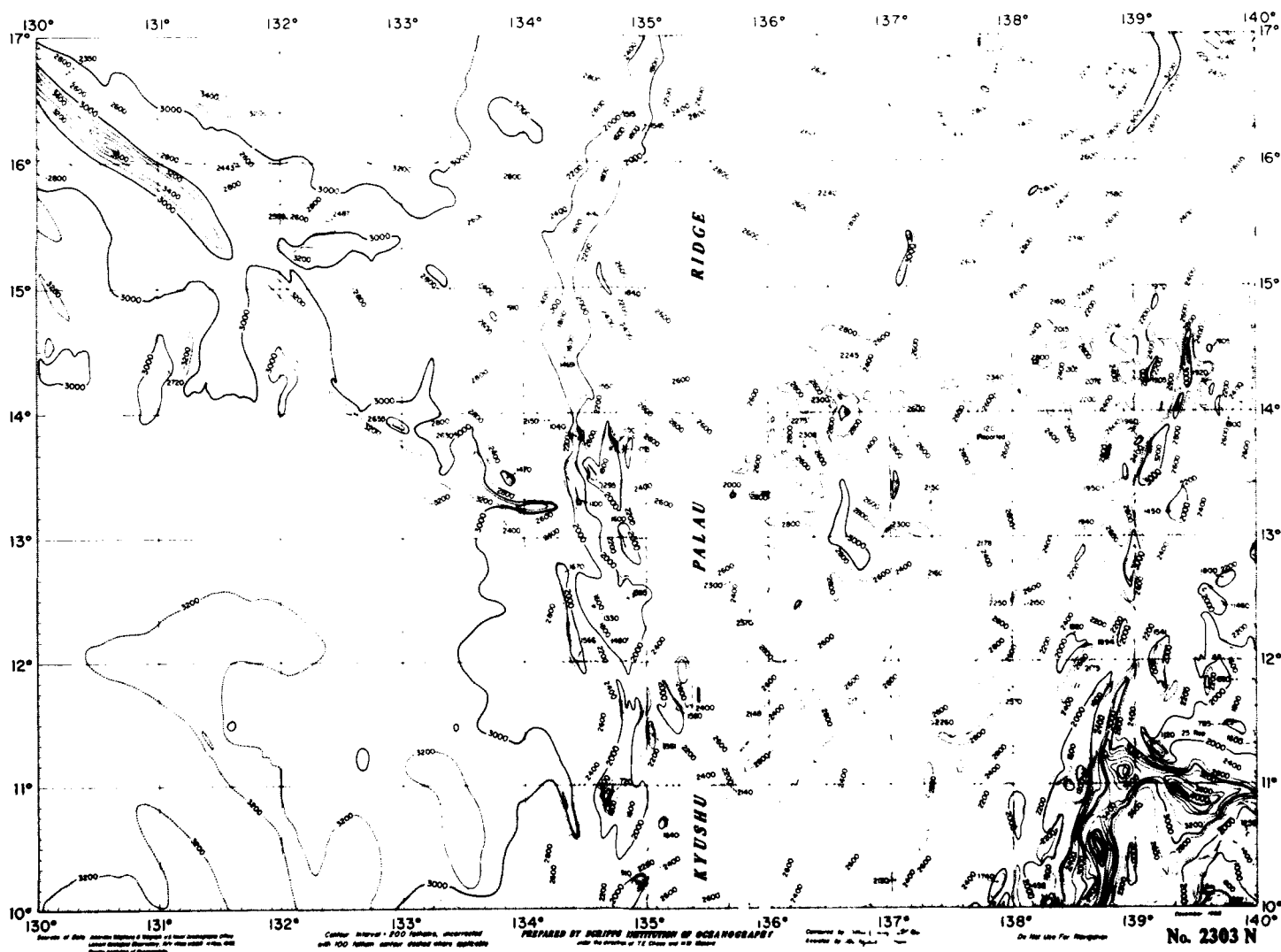
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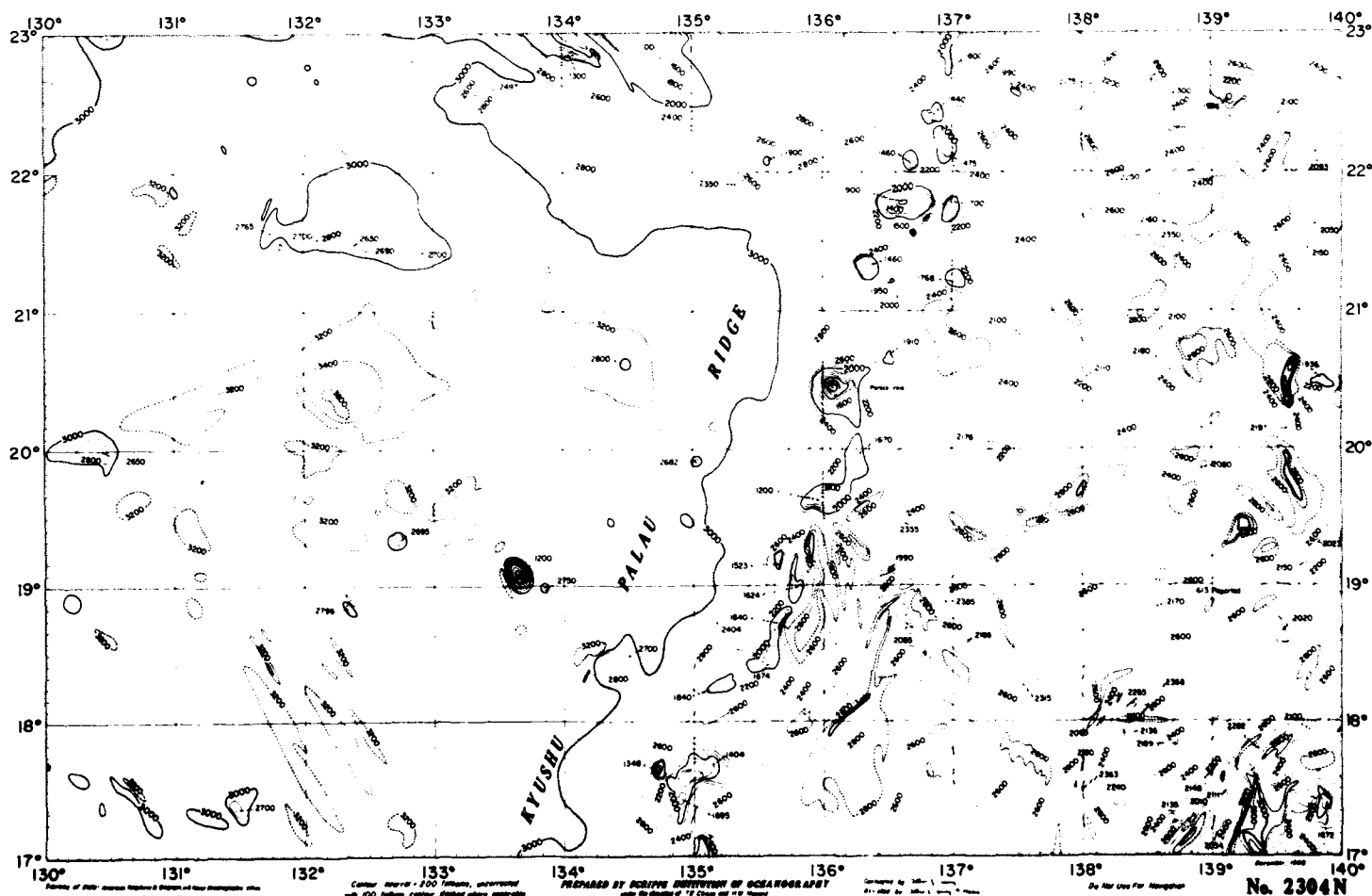


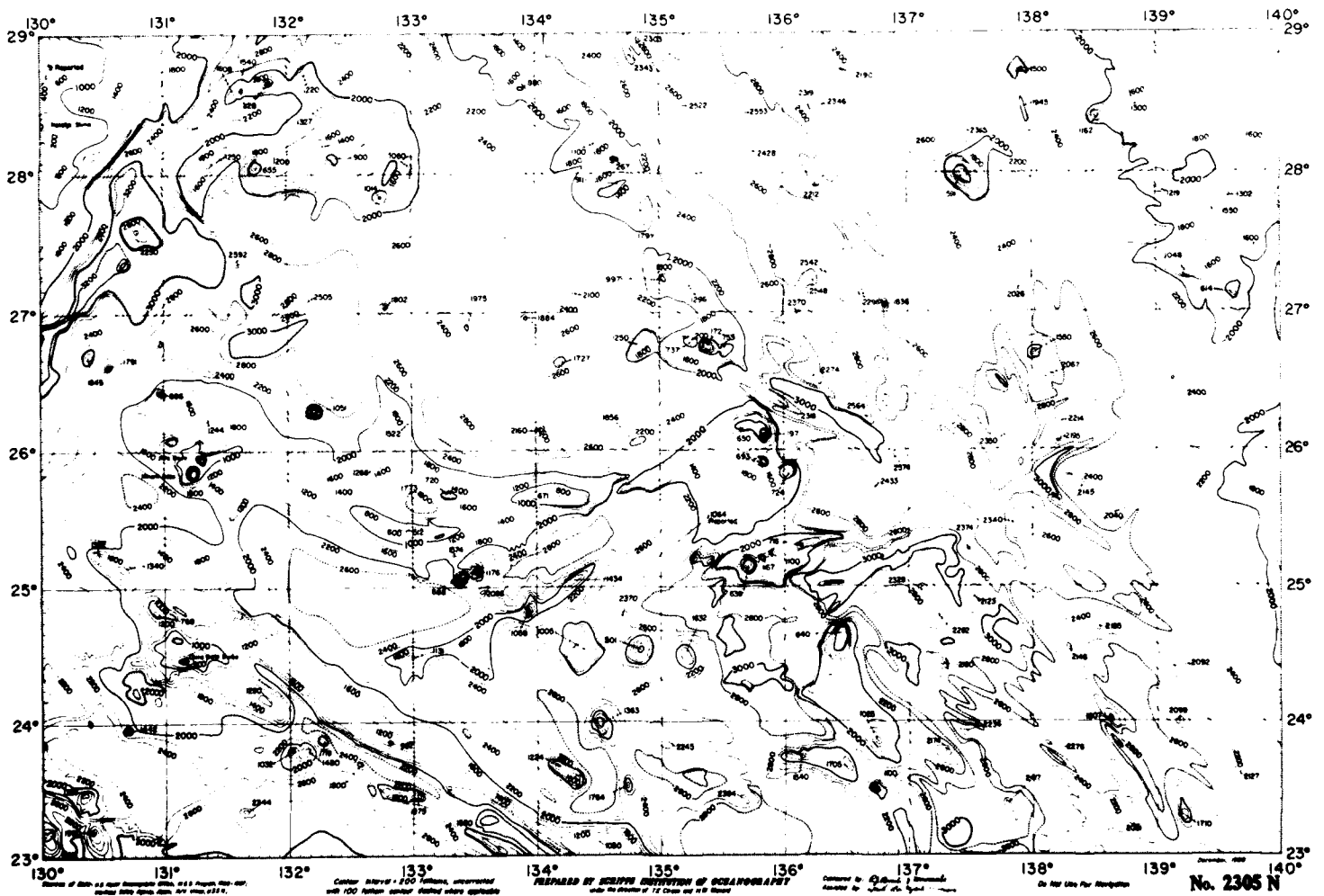


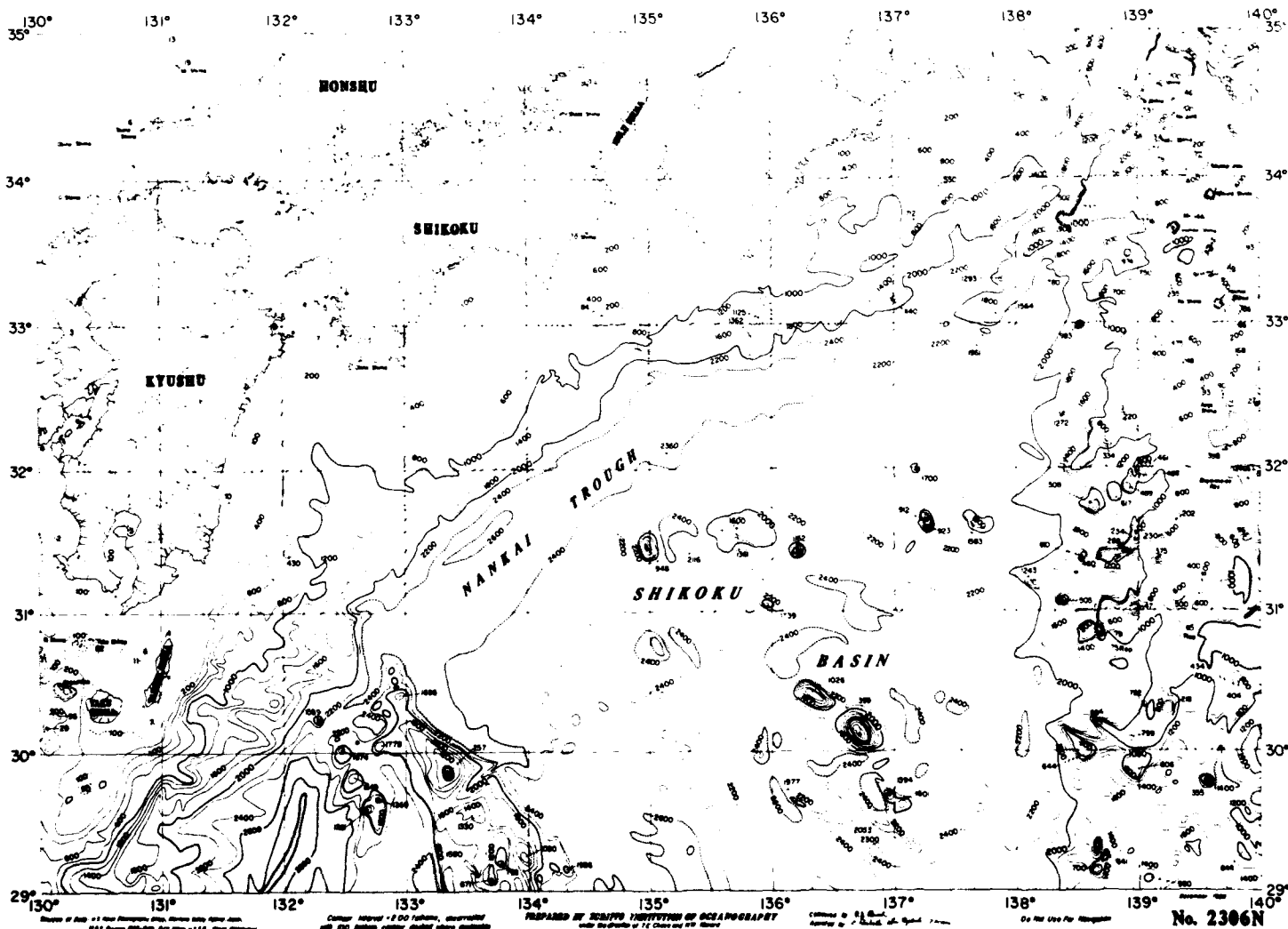


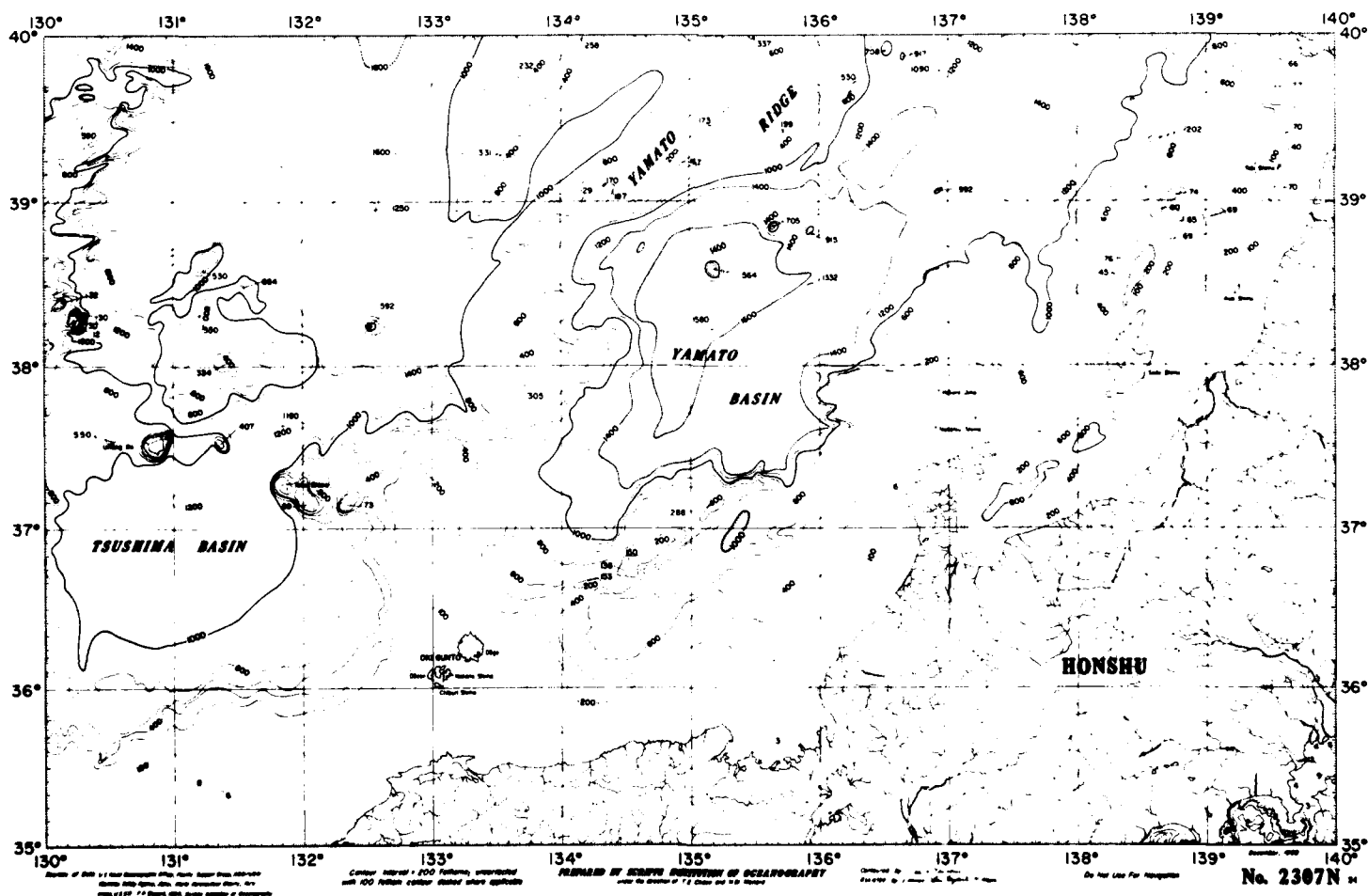


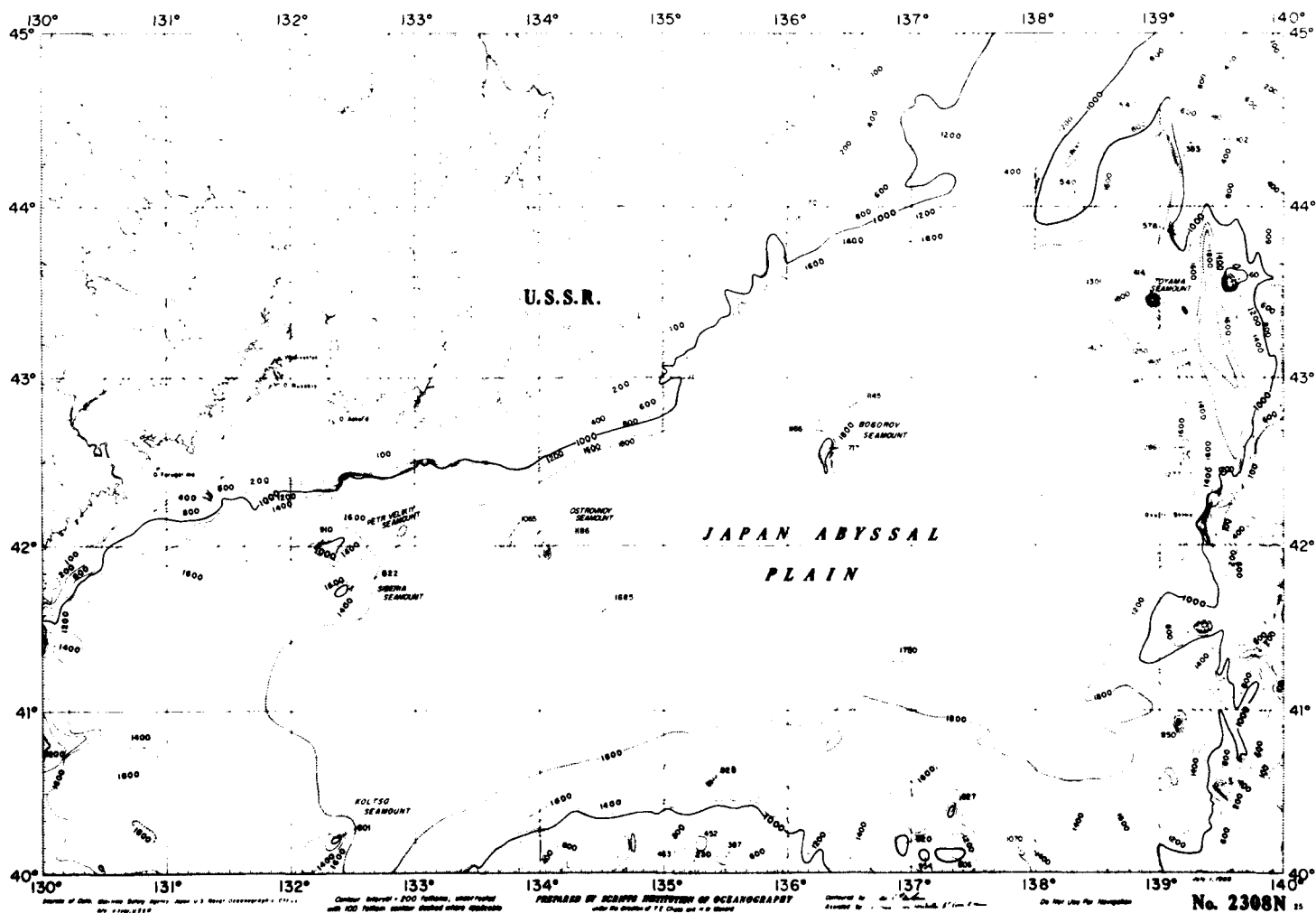


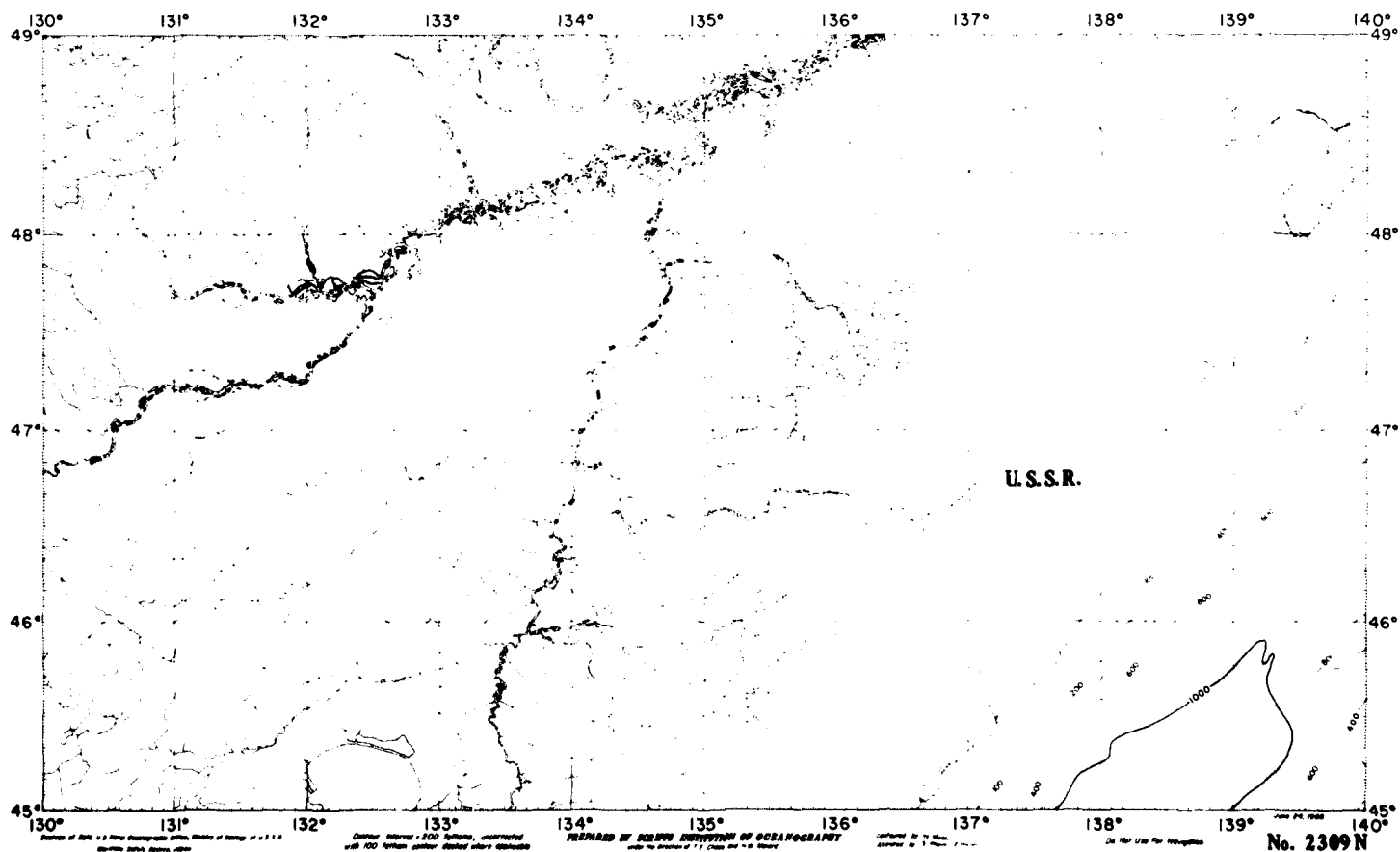


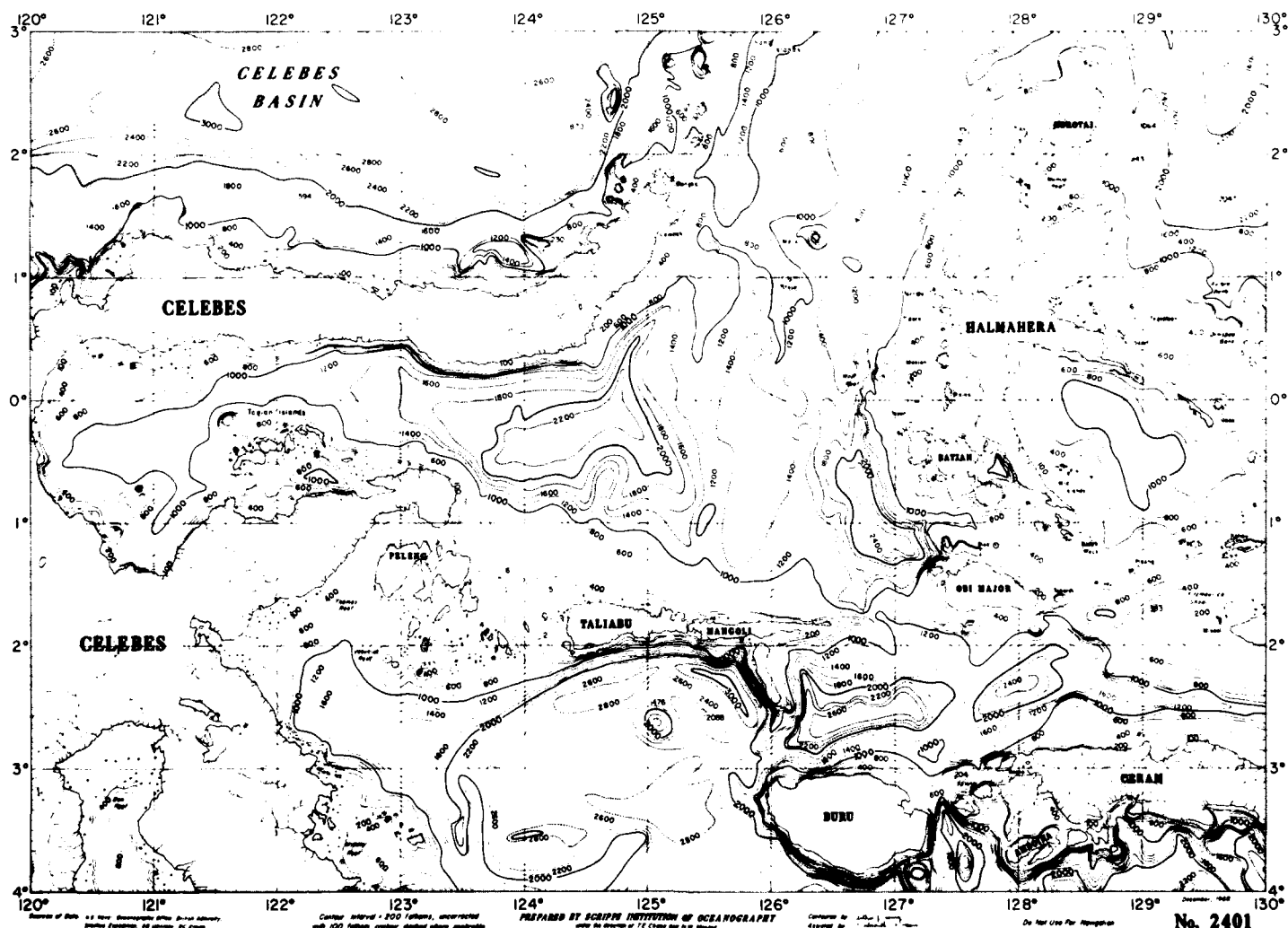


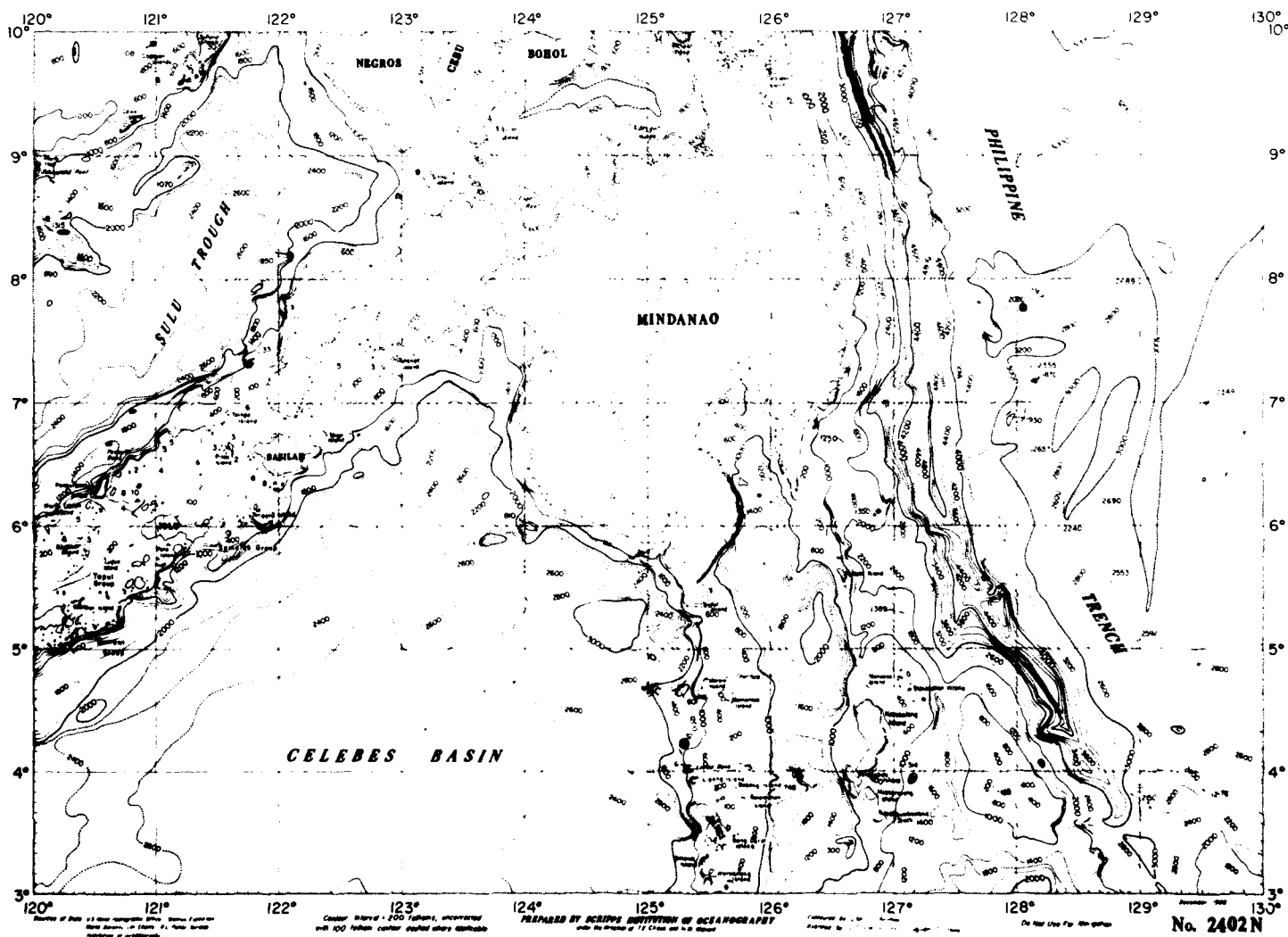


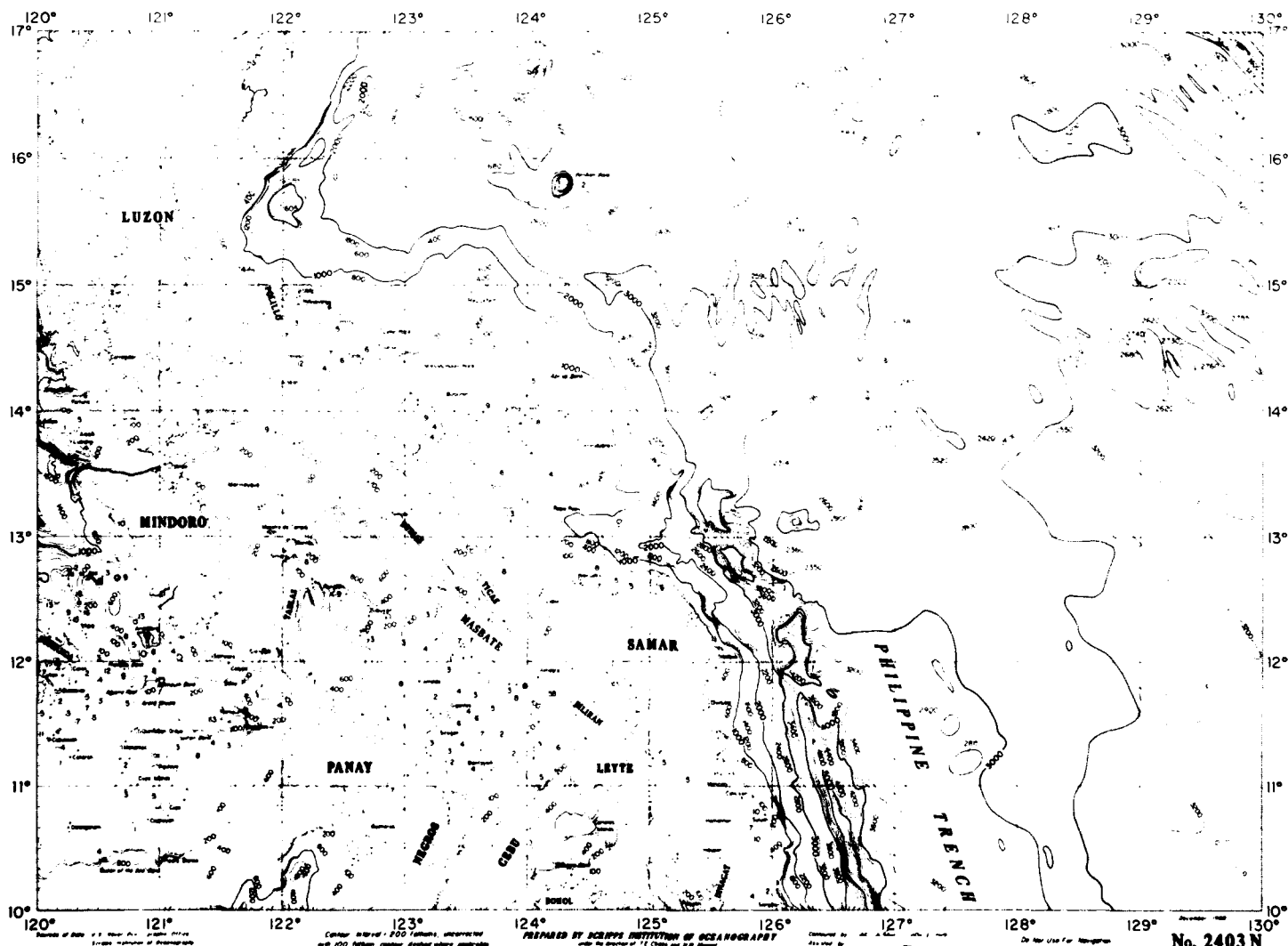


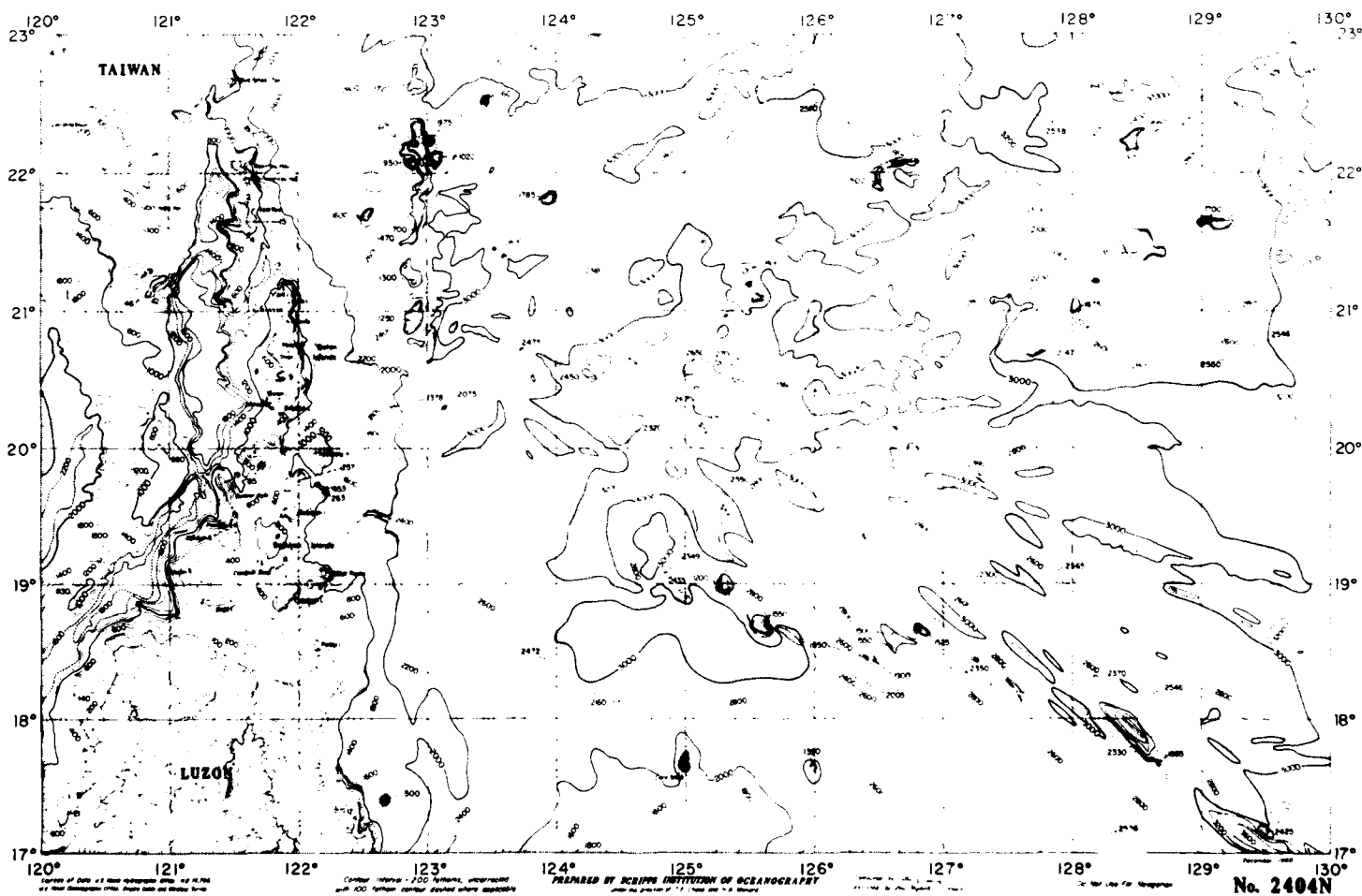


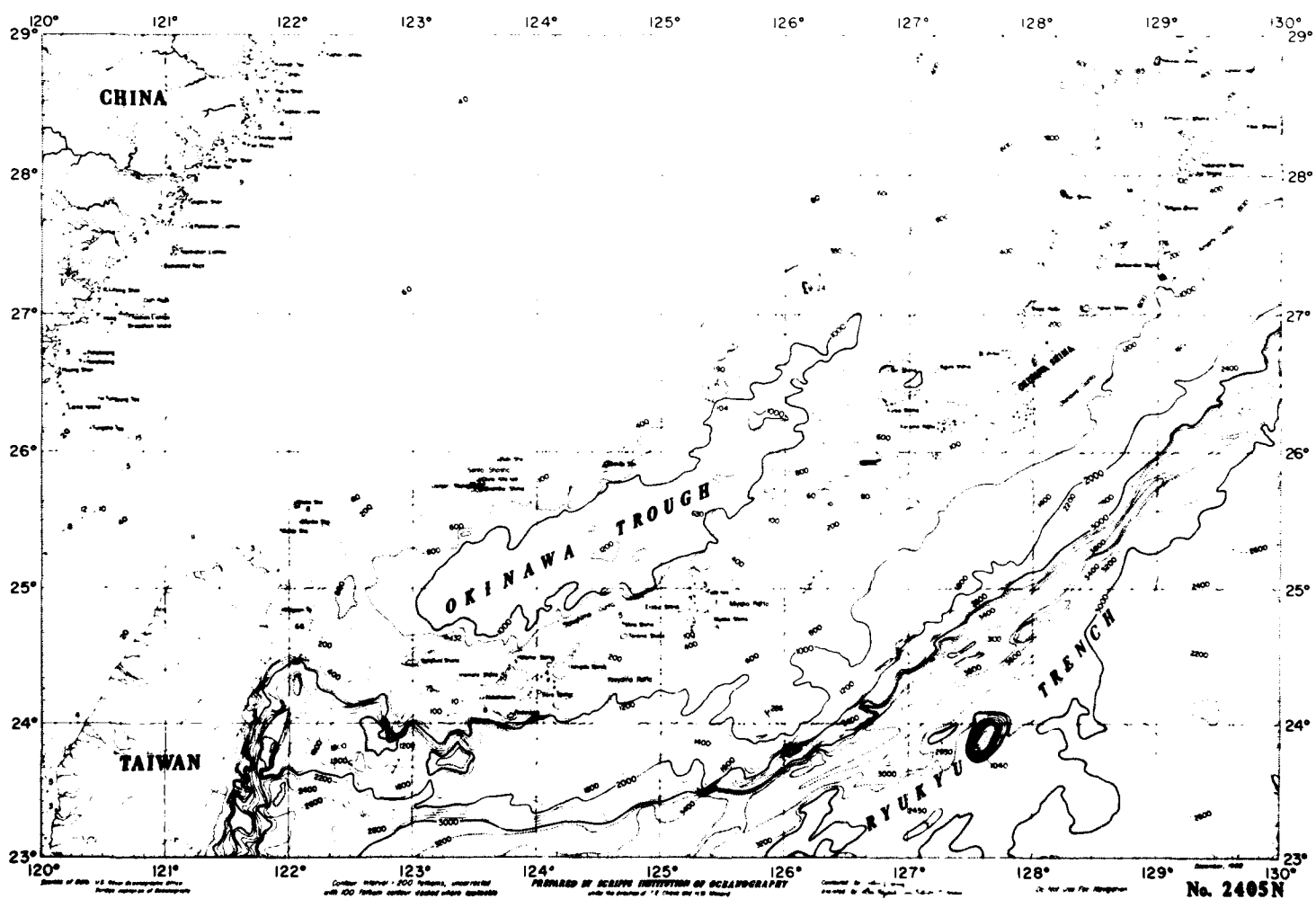


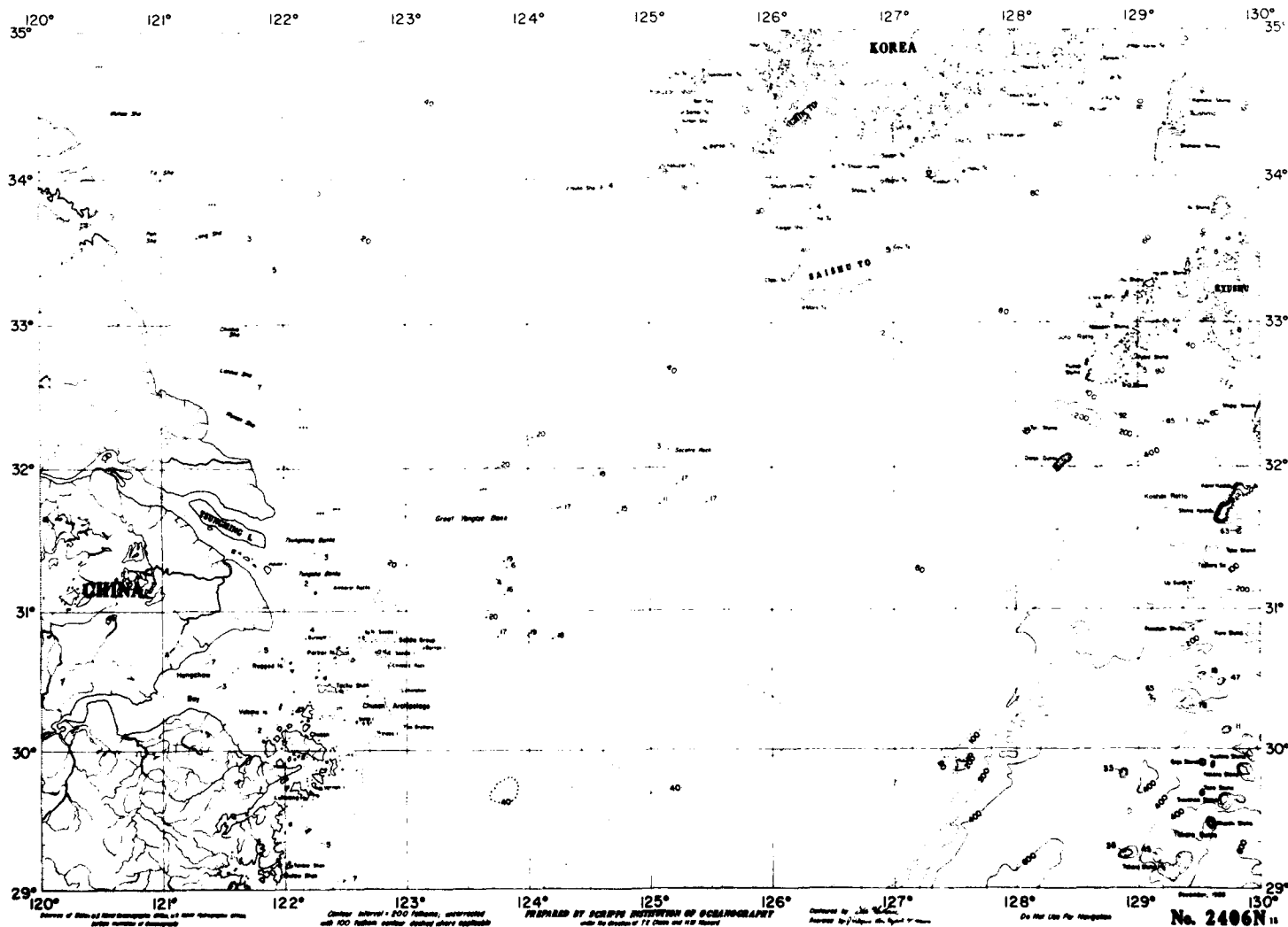


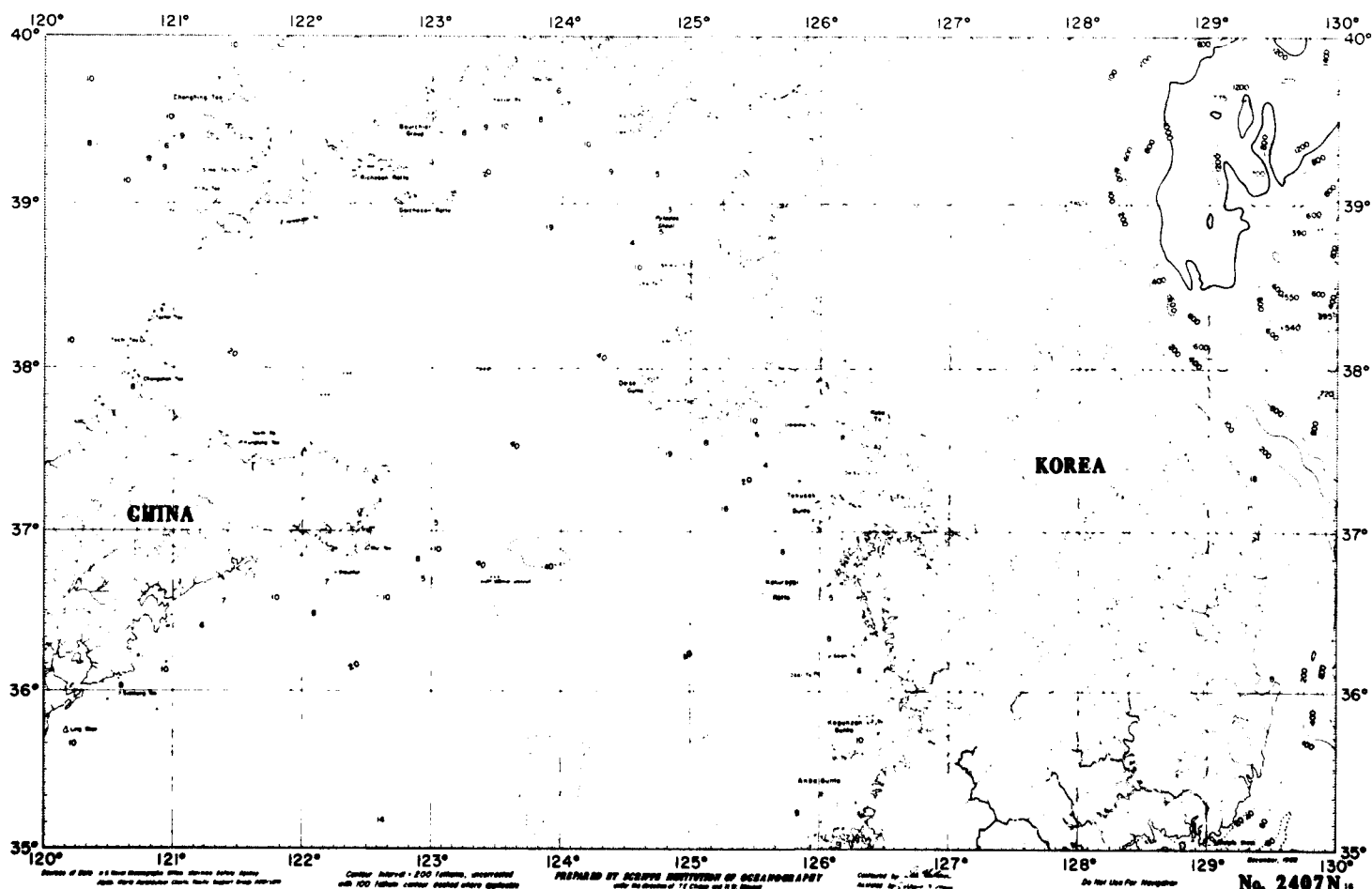


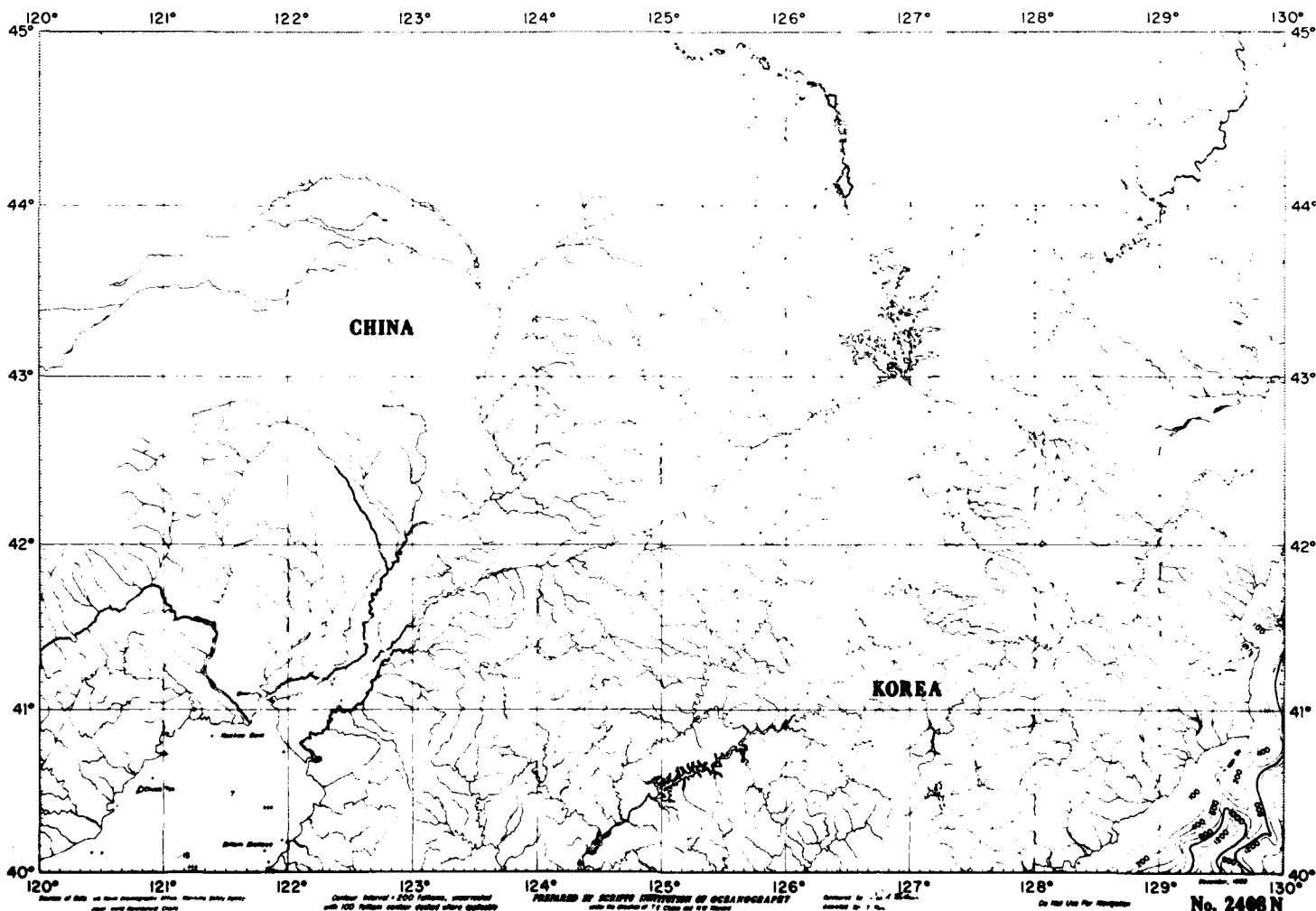


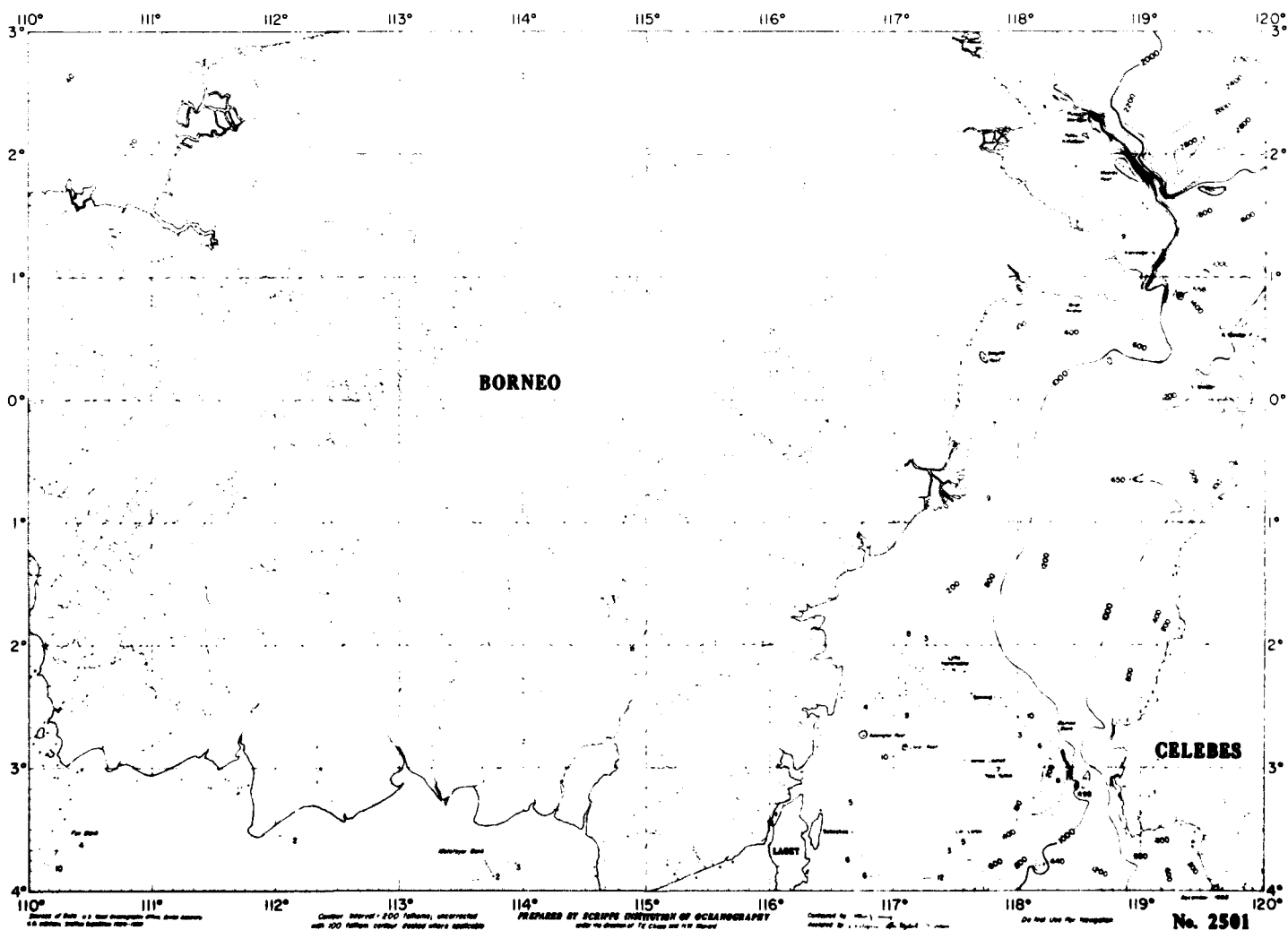


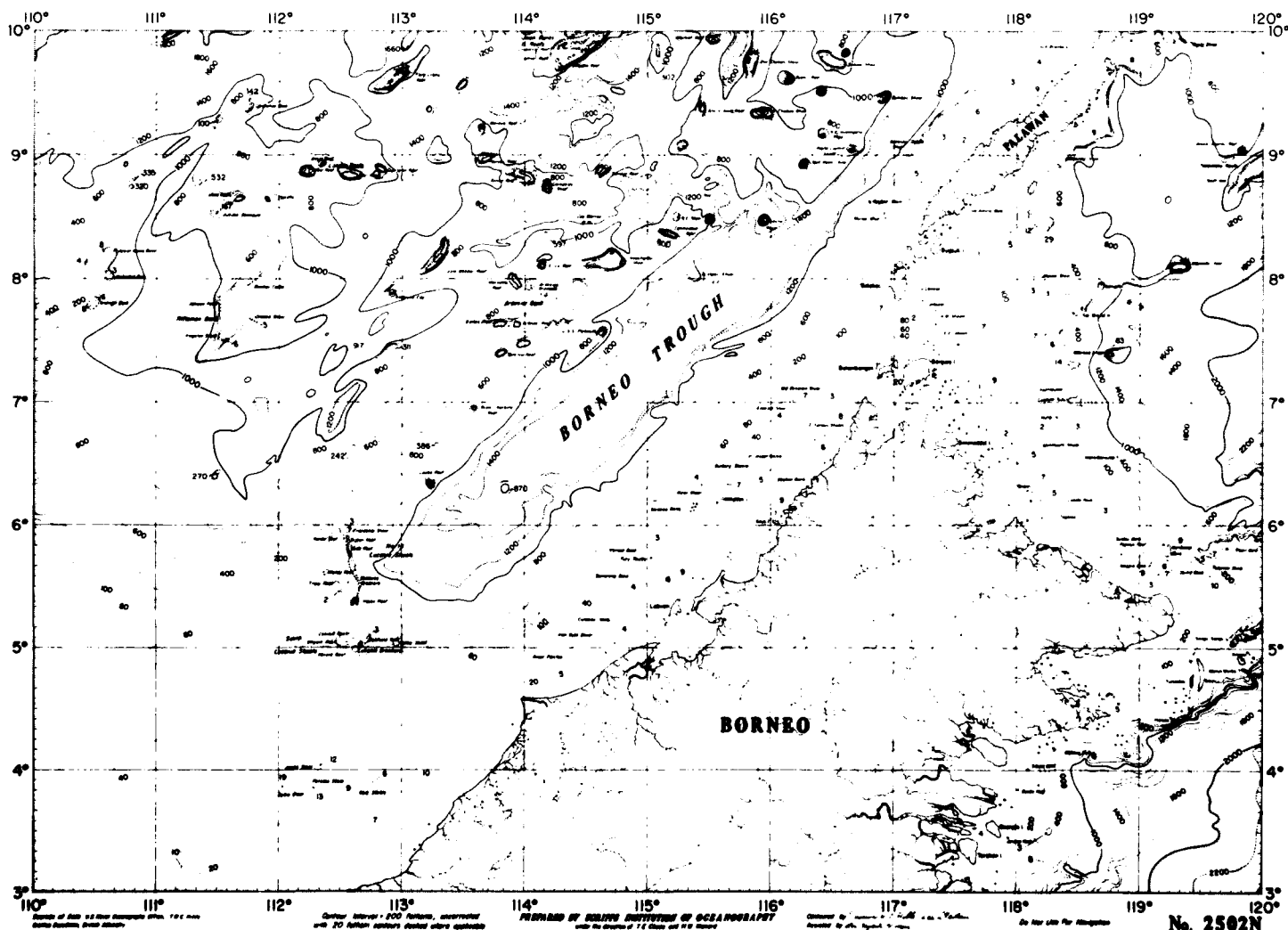


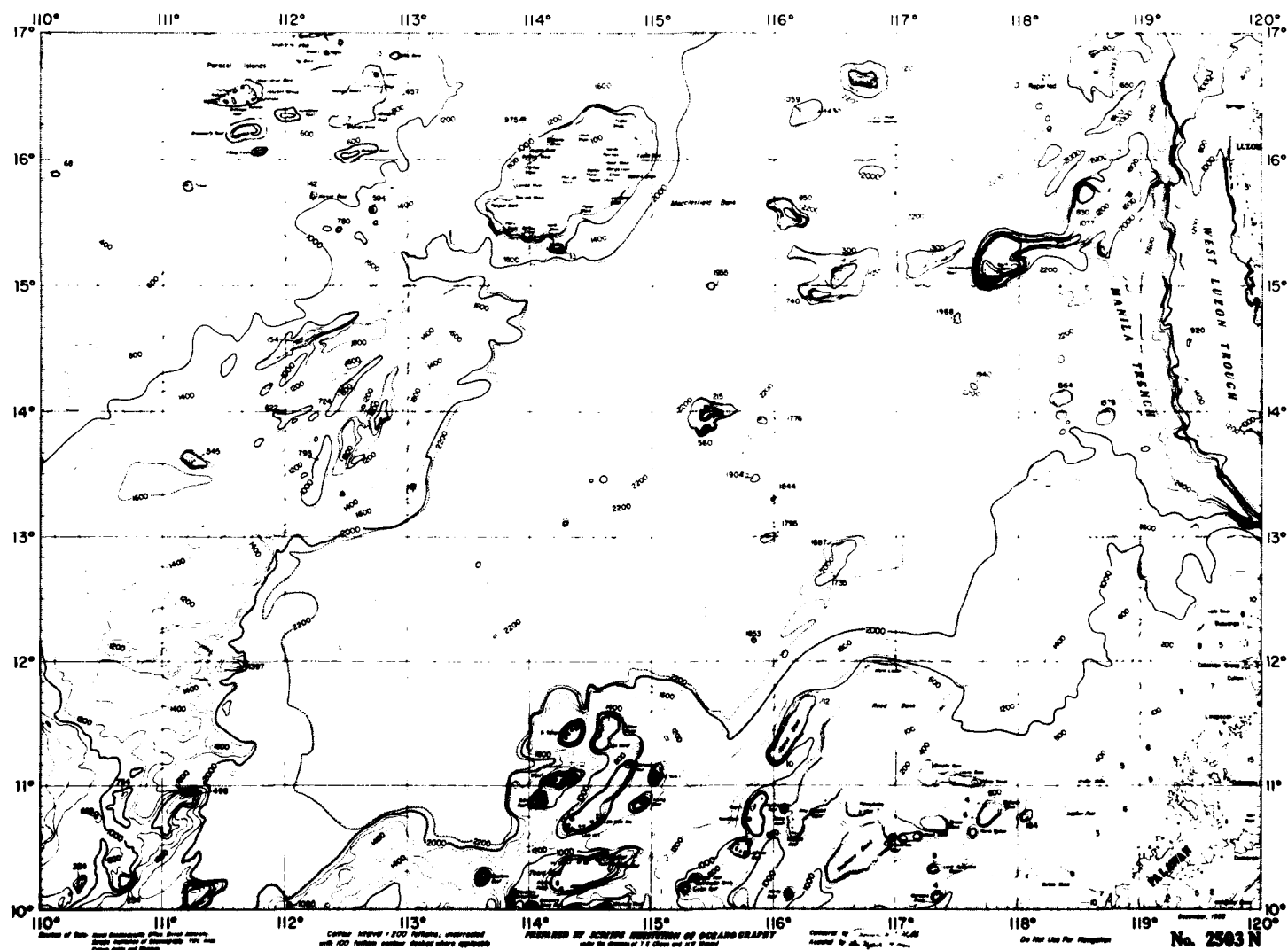


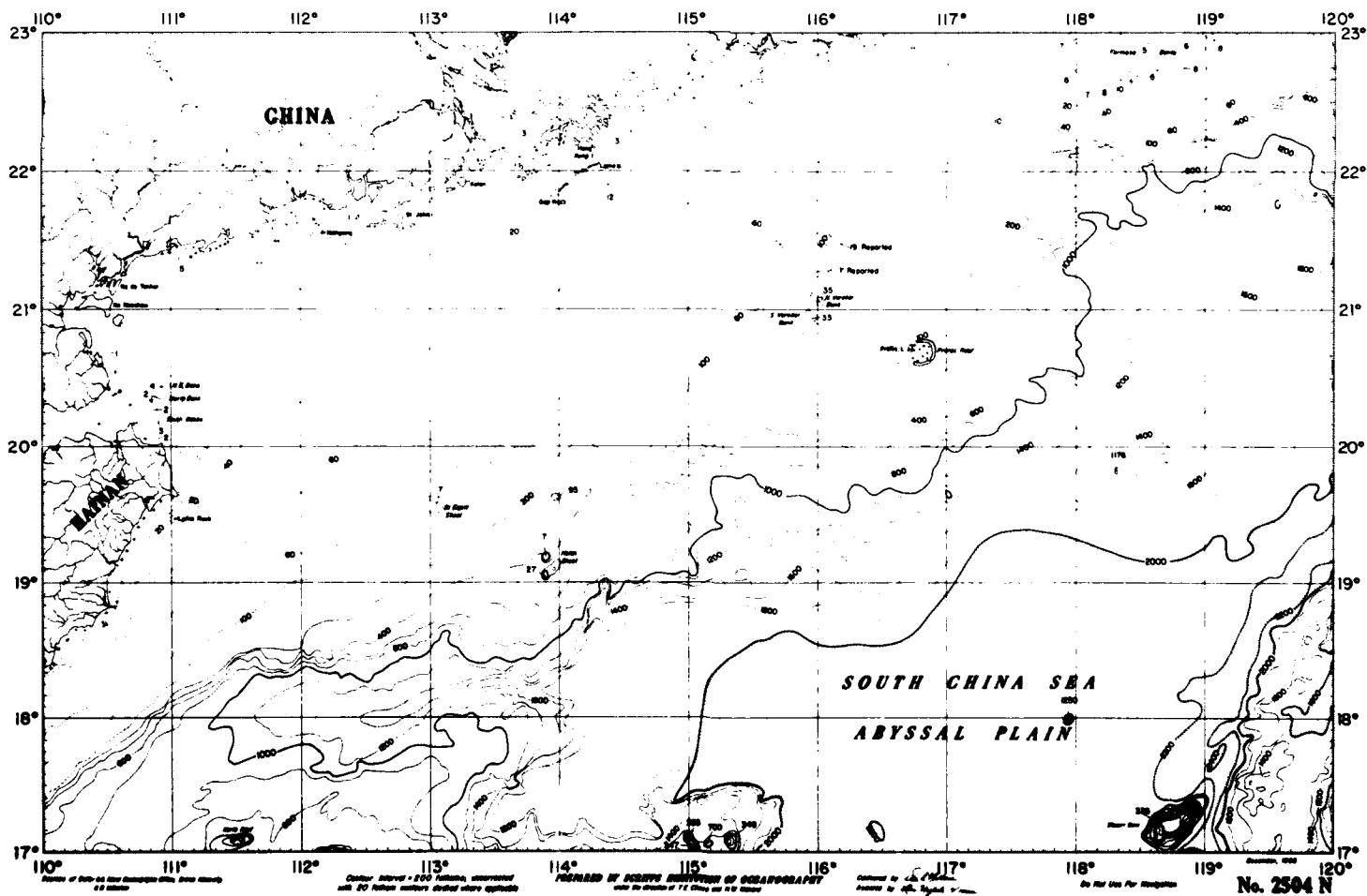


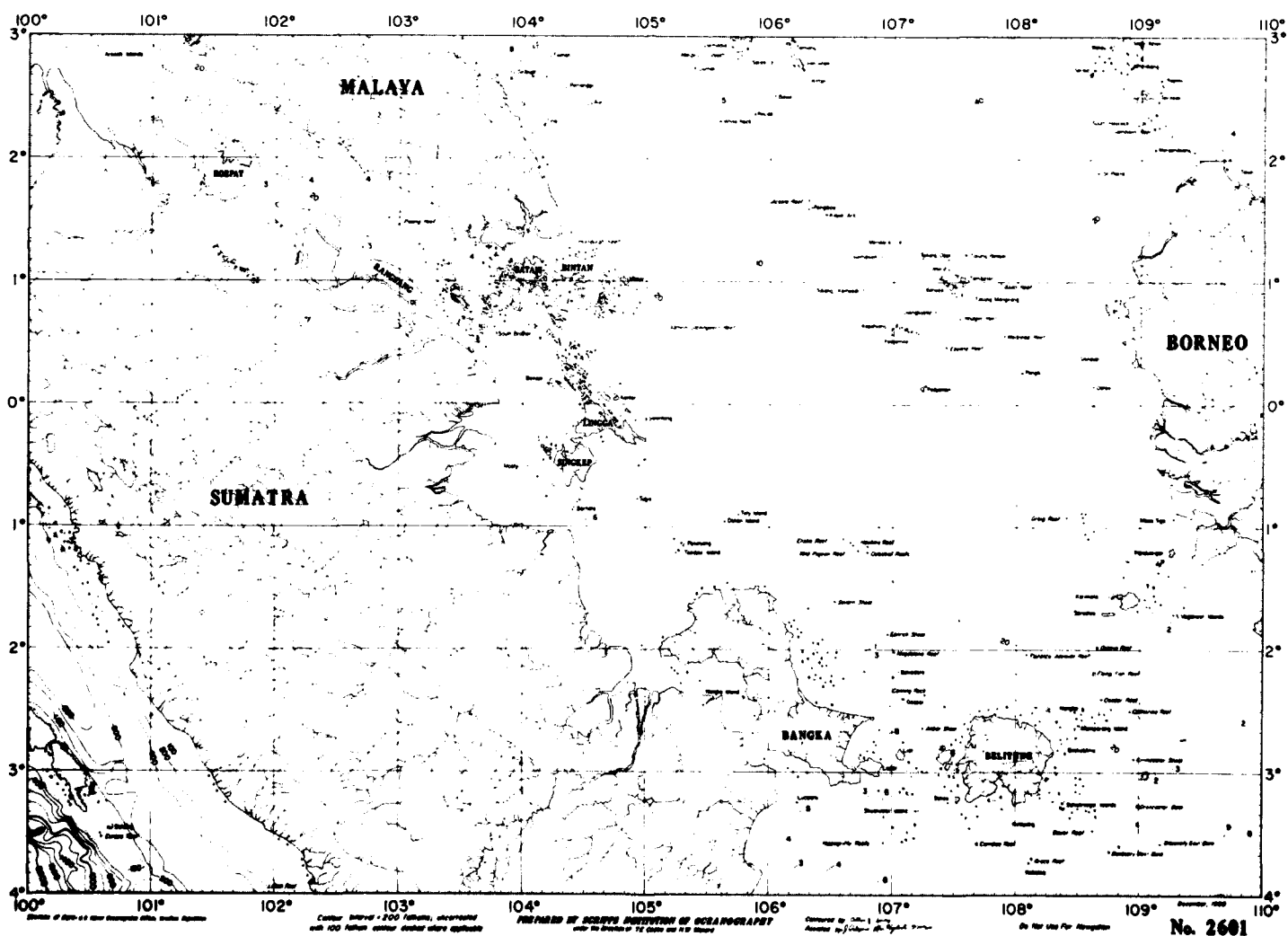


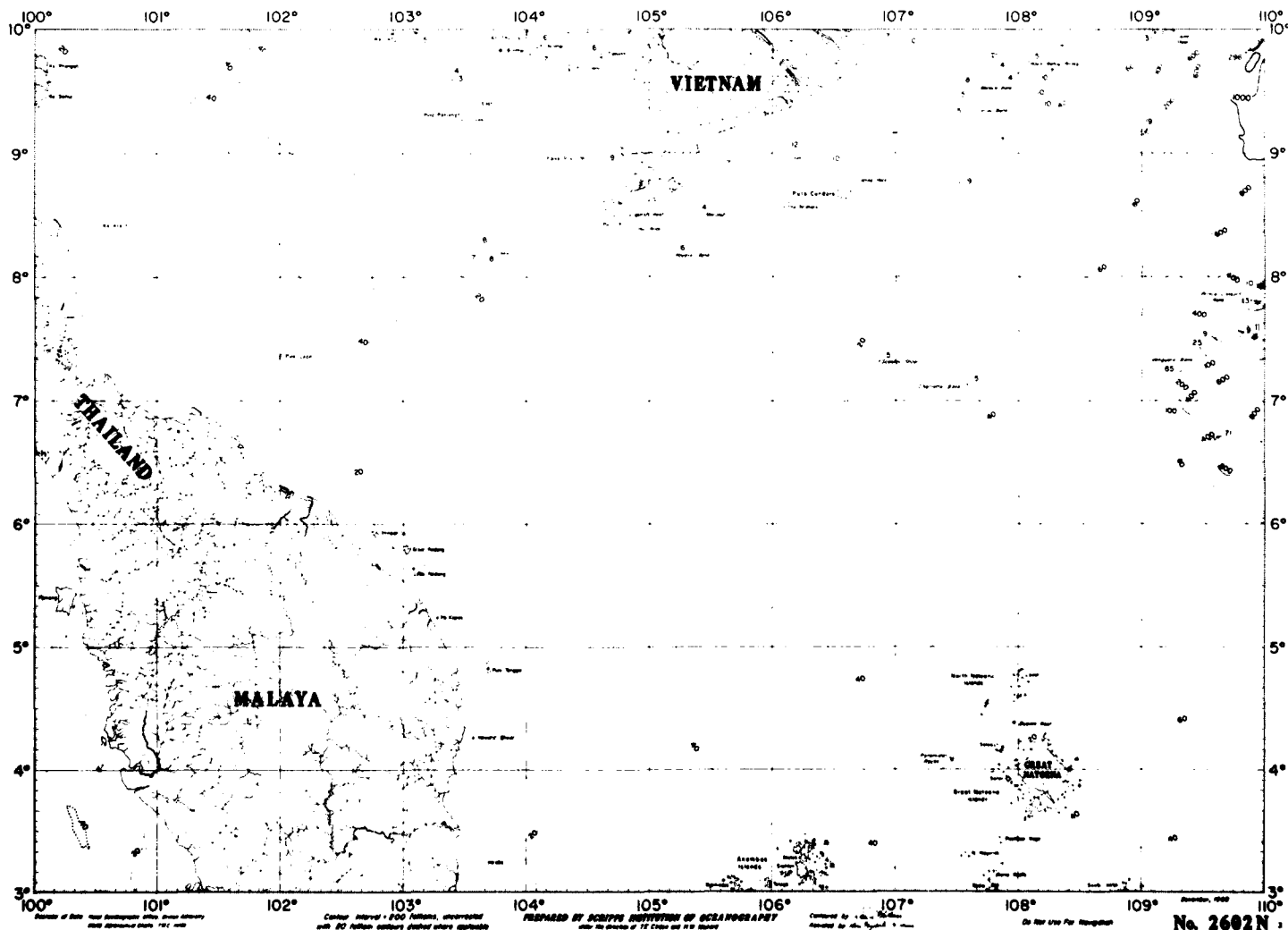




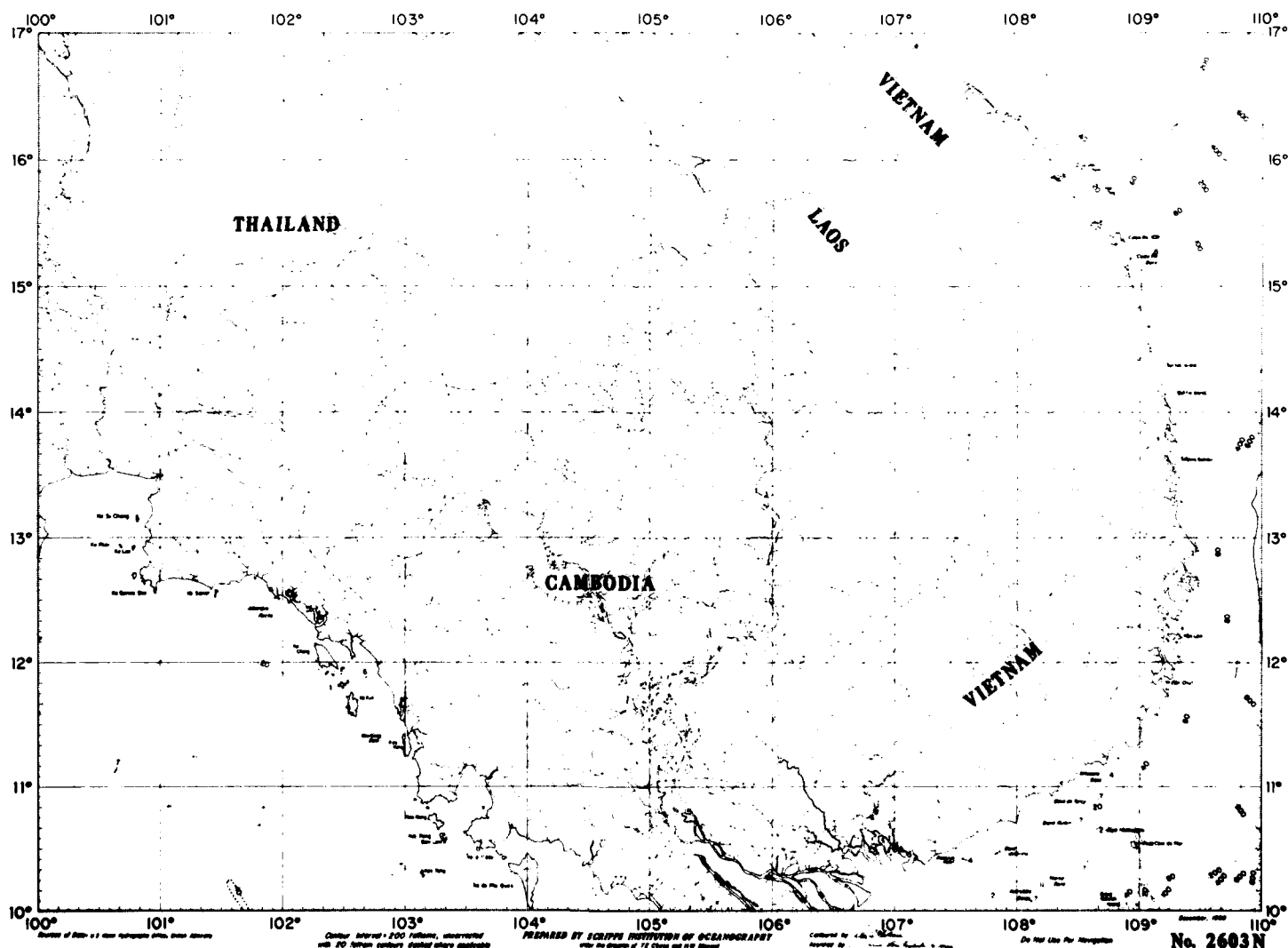


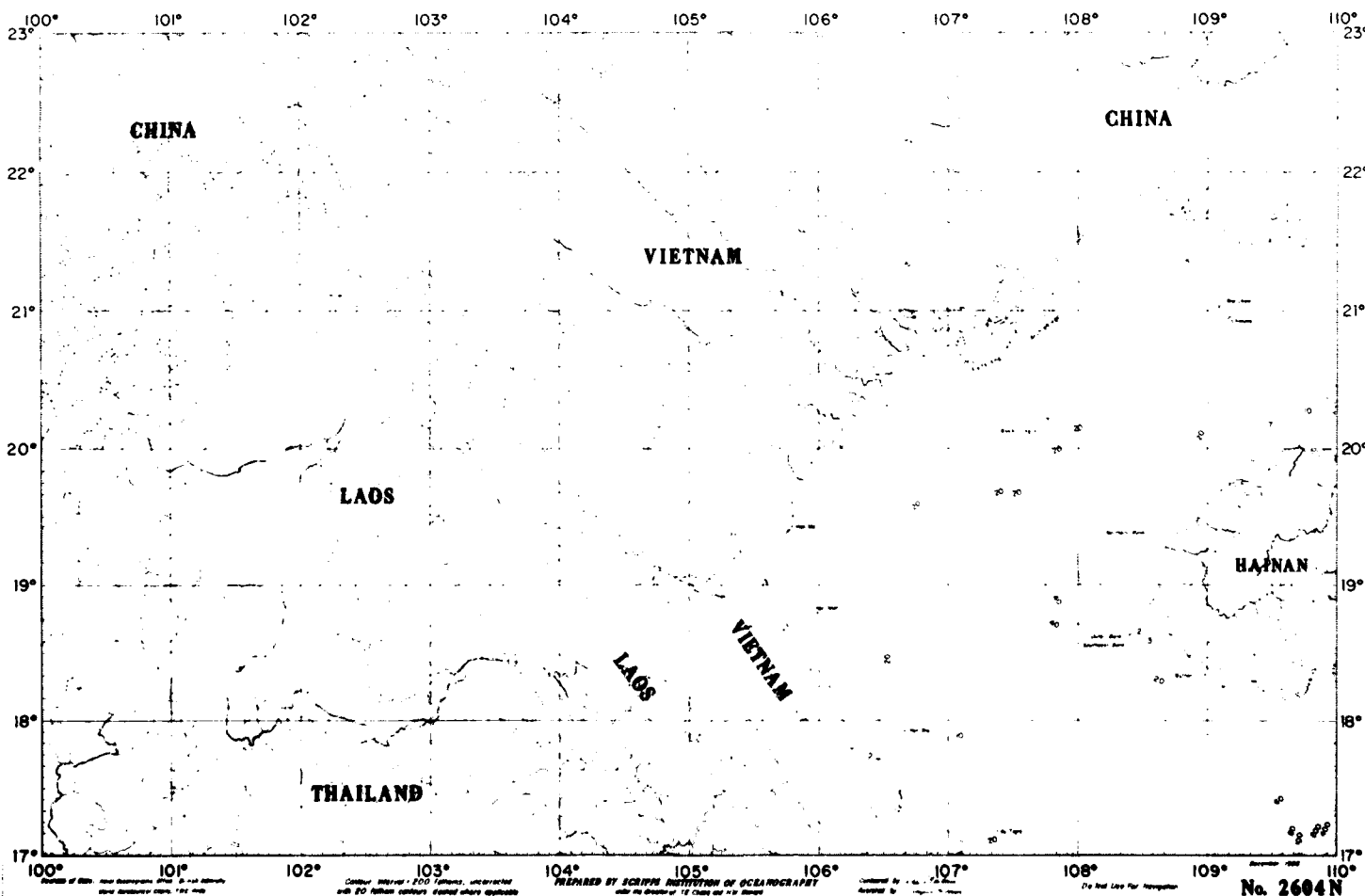






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20. KEY WORDS (Continue on reverse side if necessary and identify by block number)		
North Pacific Ocean Bathymetric Charts Sea-floor relief		
21. ABSTRACT (Continue on reverse side if necessary and identify by block number)		
This atlas contains 164 bathymetric charts covering the North Pacific Ocean between 4°S and 60°N and from 100°E eastward to the American continent. Sea-floor relief is shown by means of 200-fm contours based on an assumed mean sound velocity of 4800 ft/sec. Where sufficient data permit, the 100-fm contour and some contours at 20-fm intervals in shallow water are shown. Principal sounding lines used in compilation and analysis of the sea-floor relief are indicated by a subdued grey overprint on each chart. The scale (continued on reverse side)		

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the charts is approximately 1:4,500,000. The charts and associated information combine and replace H.O. Pubs 1301-S, 1302-S, and 1303-S.

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