

**EXPLANATION**

SCALE IN METERS

SEA LEVEL  
100  
500  
1000  
2000  
3000  
4000  
5000

**MAP SYMBOLS**

— Bathymetric contour  
— Topographic contour  
--- Exclusive Economic Zone boundary

**DATA SOURCES**

All contours, geographic outlines, and political boundaries shown on this map of the bottom topography, or bathymetry, of the Pacific continental margin between 40° and 49°N latitudes were plotted from digital data bases in the library of the U.S. Geological Survey (USGS) National Oceanic and Atmospheric Administration (NOAA) Joint Office for Mapping and Research (JOMAR). These digital data were obtained and compiled from many sources; consequently, data quality varies within particular data bases as well as from one data base to another.

Bathymetric contours presented on this map were compiled from five sources: a published map (Chase and others, 1981), NOAA digital bathymetric data from the Juan de Fuca Ridge, NOAA digital bathymetric data from the continental slope off the coast of Oregon, and unpublished maps of the Gorda Ridge (M.L. Holmes, unpub. map, 1980) and the sea floor west of 130°W (T.E. Chase, unpub. map, 1977). The areas of the map compiled from each of these sources are indicated in figure 1.

For Area 1 (fig. 1) data used in the region seaward of the continental slope (>2000-m depth) were obtained primarily by the U.S. Coast and Geodetic Survey (CGCS) during the 1950 Pacific Explorer Survey, a systematic and detailed (-8-nmi-trackline spacing) survey between Mexico and Canada. Data were also obtained from Scripps Institution of Oceanography (SIO) cruises Kayak B, Scan I, and Seven Tow (Chase and Menard, 1971; Wilde and others, 1977, 1978, 1979). The 200-m contour was derived from CGCS charts 1300N-12, 1300N-17, and 1300N-22 (Coast and Geodetic Survey, 1963a, b, 1969).

The data contained in Area 2 (fig. 1) were collected by NOAA from 1980 to 1989 in support of ongoing plate-boundary dynamics studies. The research program, originally part of the National Ocean Service (NOS), later became the VENTS research program, based at NOAA's Pacific Marine Environmental Laboratory in Newport, Oregon. All data were collected using Sea Beam multibeam sonar systems. Area 2 (fig. 1) contours are based on high-resolution bathymetric data collected, to date, in about 45 percent of the continental United States Pacific Exclusive Economic Zone (EEZ) by the NOS using multibeam, swath-sounding techniques. When this map and two adjacent map panels were compiled, only the data from Area 3 were available for inclusion.

The primary source of the data contained in Area 4 (fig. 1) was the CGCS 1965 Pacific Explorer Survey. Interpretation was aided by data from the USGS, the University of Washington, and SIO. Since compilation of the data from Area 1 (Chase and others, 1981), bathymetric surveys have revealed a high degree of roughness of the sea floor in the Pacific EEZ. In an attempt to depict this roughness, the contours in Area 4 have been drawn with a rippled appearance.

The data contained in Area 5 (fig. 1) were obtained in 1983 by the Hawaii Institute of Geophysics using the SeAMAC II swath-mapping system (Blackinton and Husong, 1983). The survey, concentrated in the axial and near axial zone of the Gorda Ridge and in the eastern part of the Blanco Fracture Zone, was part of a USGS-Mineral Management Service cooperative study on mineral resources in the United States EEZ. These data were partially published by Clague and Holmes (1988). Area 5 was also surveyed as part of the VENTS program. Contours of those data were used to verify the contours from the SeAMAC II data.

At adjoining boundaries, the various data sets were in very good agreement. Automated and interactive computer techniques were used to link contours between data sets where no adjustment was required for smooth joining of the contours. Where adjustment was needed, contours in the gaps between data sets were manually drawn, digitized, and interactively linked to the contours from adjacent data sets.

NOS survey positioning was determined using the 1983 North American Datum (NAD 83) wherever the graticule for this map was calculated using the 1927 North American Datum (NAD 27) grid. At 1:1,000,000 scale, the difference between the two, which is approximately 100 m on the Earth's surface in the mapped area, is almost imperceptible.

Onshore topographic contours were generated by computer from a modified version of 3-arc-second elevation data provided by the Defense Mapping Agency.

The United States digital shoreline was obtained from the NOAA, NOS, National Charting Division, National Atlas files. The coastline of Canada was digitized from Canadian Hydrographic Service bathymetric maps. The primary source of names of the features was the "Gazetteer of Undersea Features" (Defense Mapping Agency, 1980).

**ACKNOWLEDGMENTS**

Christopher Hines and Krista Becker assisted in the construction and verification of the digital data bases. Reviews and suggestions by Edward C. Escowitz and Florence Wong and advice provided by Wil Stettler regarding the cartographic design substantially improved the quality of this map.

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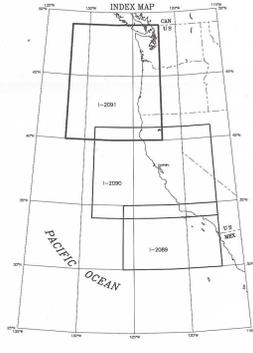
**EXPLANATION**

Area 1 Data published by Chase and others (1981)  
Area 2 NOAA Sea Beam data from Juan de Fuca Ridge area  
Area 3 NOAA multibeam data from the continental slope off Oregon  
Area 4 Unpublished map compiled by T.E. Chase (1980)  
Area 5 Unpublished map compiled by M.L. Holmes (1985)

Figure 1. Map showing locations of data from five sources used to compile bottom-topography map.

**CONTINENTAL MARGIN MAPS**

A part of the U.S. Geological Survey (USGS) marine mapping program is the preparation of the Continental Margin Map (COMMAP) series at a scale of 1:1,000,000. These maps are originally overlapping panels that provide complete coverage of the Nation's Exclusive Economic Zone (EEZ). This map (one of three that provide coverage of the Pacific continental margin of the conterminous United States).



Albers Equal-Area Conic projection,  
standard parallels 29°30'N and 45°30'N  
Bathymetric data compiled from sources of variable  
quality. This information is not intended for  
navigational purposes.

SCALE 1:1,000,000

100 NAUTICAL MILES  
100 STATUTE MILES

TOPOGRAPHIC CONTOUR INTERVAL, 500 METERS  
BATHYMETRIC CONTOUR INTERVAL, 500 METERS  
BATHYMETRIC CONTOUR SPACING, 5 METERS TO 1000 METERS FROM 3000-METER DEPTH TO MAXIMUM DEPTH  
100 METERS FROM 3000-METER DEPTH TO MAXIMUM DEPTH  
IS RELATIONSHIP BETWEEN THE TWO IS 1:1000

**MAP SHOWING BOTTOM TOPOGRAPHY OF THE PACIFIC CONTINENTAL MARGIN, STRAIT OF JUAN DE FUCA TO CAPE MENDOCINO**

By

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