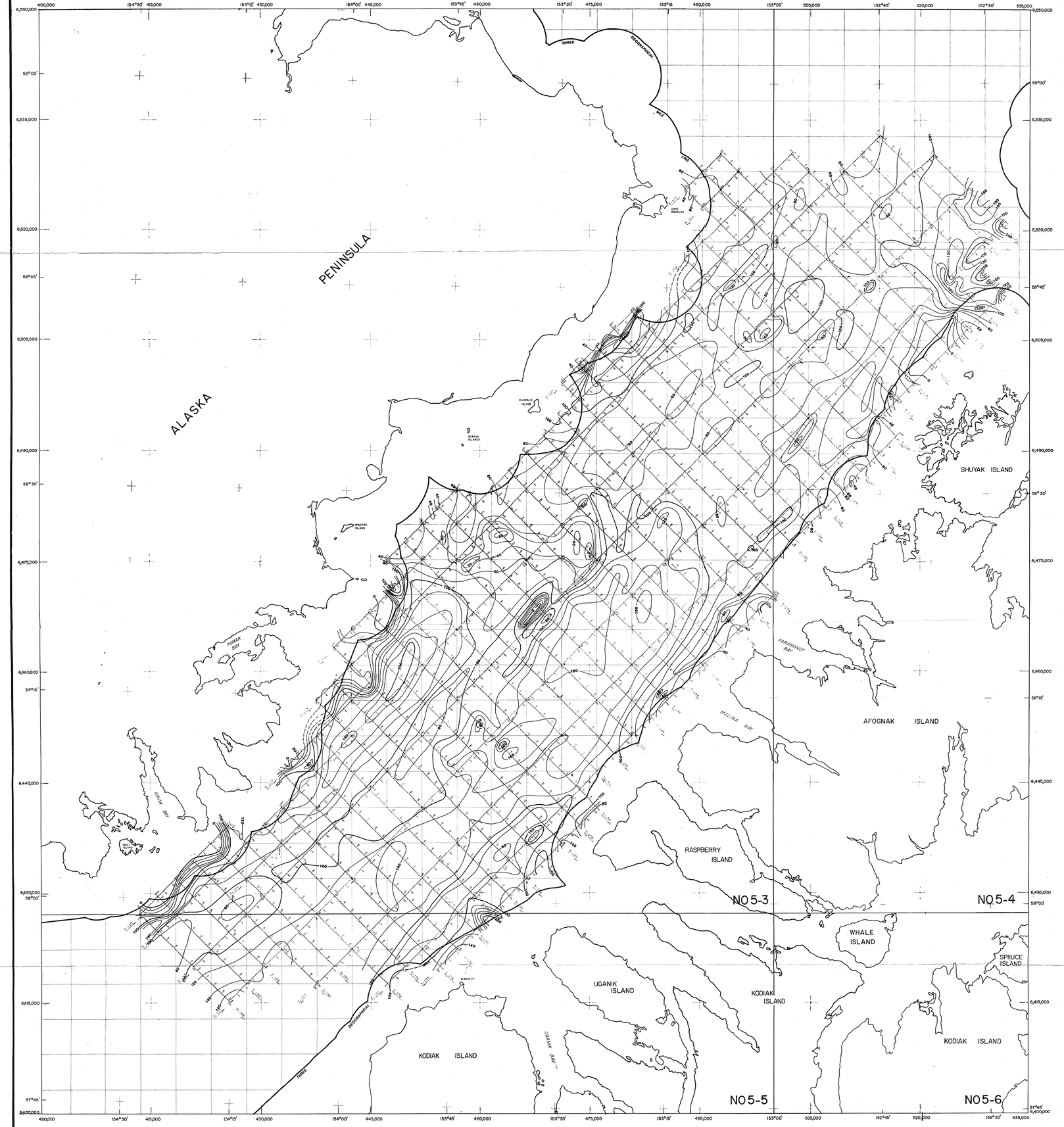
DEPARTMENT OF THE INTERIOR
UNITED STATES GEOLOGICAL SURVEY

OPEN-FILE REPORT 80-2033

UTM ZONE 5



UTM ZONE 5

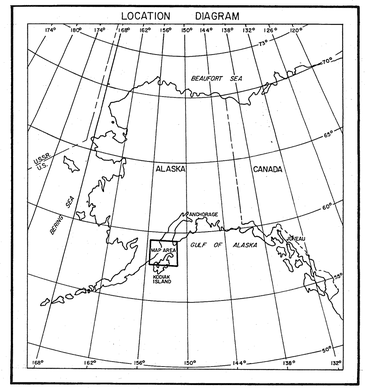
ISOPACH MAP OF HOLOCENE MARINE SEDIMENTS

This map shows the distribution and thickness of the probable Holocene marine sequence. Seismic systems used in this interpretation were a 16-kJ sparker displayed in analog format and with sixfold CDP processing, an electromechanical profiler, and a low-energy sparker. To construct the isopachs, time measurements were converted to thickness by applying a velocity of 1700 meters/second as determined from the velocity analysis of the digital seismic data.

In Shelikof Strait, the probable Holocene marine sequence is conformably bedded. Holocene age is inferred from geomorphic evidence and sediment characteristics are interpreted from the seismic data. Internal reflectors are flat lying and show little internal deformation except along the margins of the strait and in the southwestern half of the area. In the southwestern half of the strait, this marine sequence unconformably overlies interbedded glacial deposits and marine strata of probable Pleistocene age. In Shelikof Strait, the base of the probable Holocene marine sequence is marked by a series of flat-lying, highly reflective acoustic horizons, immediately below which no continuous reflectors or internal structure is discernible. In the northeastern half of the strait, the Pleistocene marine and glacial unit is absent and the probable Holocene marine sequence unconformably overlies gently folded and faulted Tertiary(?) rocks.

The Holocene sequence was chosen for isopaching because it is seismically mappable and because its geotechnical properties apparently differ from those of the underlying sediments. No geotechnical data were available to corroborate the seismic interpretation.

LOCATION DIAGRAM



OPEN-FILE REPORT SERIES ON SHELIKOF STRAIT, ALASKA, 1980

This report is one of six (5 maps and 7 cross sections) on the surface and near-surface geologic environment of Shelikof Strait, Alaska. This series was developed in preparation for Oil and Gas Lease Sale 60 of the Outer Continental Shelf of Lower Cook Inlet, scheduled for September 1981. The publications in this series are:

Bathymetric map of the Outer Continental Shelf of Shelikof Strait, Alaska, by John Whitney and K. D. Holden: U.S. Geological Survey Open-File Report 80-2031, scale 1:250,000, 1 sheet.

Isopach map of upper Holocene marine sediments, Outer Continental Shelf, Shelikof Strait, Alaska, by K. D. Holden: U.S. Geological Survey Open-File Report 80-2032, scale 1:250,000, 1 sheet.

Isopach map of Holocene marine sediments, Outer Continental Shelf, Shelikof Strait, Alaska, by Peter J. Hoose, K. D. Holden, and Lynn Lybeck: U.S. Geological Survey Open-File Report 80-2033, scale 1:250,000, 1 sheet.

Isopach map of Quaternary glacial-marine sediments, Outer Continental Shelf, Alaska, by John Whitney, K. D. Holden, and Lynn Lybeck: U.S. Geological Survey Open-File Report 80-2034, scale 1:250,000, 1 sheet.

Map showing selected geologic features on the Outer Continental Shelf, Shelikof Strait, Alaska, by Peter J. Hoose and John Whitney: U.S. Geological Survey Open-File Report 80-2035, scale 1:250,000, 1 sheet.

Geologic cross sections of the Outer Continental Shelf, Shelikof Strait, Alaska, by John Whitney, Peter J. Hoose, Laura Me Smith, and Lynn Lybeck: U.S. Geological Survey Open-File Report 80-2036, 1 sheet.

The information presented in these six reports was interpreted from 2557 kilometers of multi-sensored high-resolution geophysical data collected in 1979 by Nekton, Inc., for the U.S. Geological Survey. The acoustic systems used included a 16-kilojoule (kJ) sparker with both sixfold common-depth-point (CDP) processing and analog format, a low-energy (1-3 kJ) sparker, an electromechanical boomer, a 3.5-kHz piezoelectric profiler, a fathometer, and side-scan sonar. The tracklines along which data were collected are shown on each map. This survey was performed under an exclusive contract with the U.S. Geological Survey; the data are available to the public as Sale 60, Data Set AK-18248 from the National Geophysical and Solar-Terrestrial Data Center (address: NOAA/EDS/NGSDC, Code D-621, Boulder, CO 80302).

The 4.8 km X 4.8 km grid superimposed on each map represents the tract boundaries from the Bureau of Land Management Protraction Diagrams.

SOURCE OF SHORELINE FROM BLM PROTRACTION DIAGRAMS NO4-6, NO5-1, NO5-3, NO5-4 AND NO5-5. PUBLISHED IN 1975 AND 1976.

SCALE 1:250,000

5 0 5 10 15 20 25 STATUTE MILES

5 0 5 10 15 20 25 KILOMETERS

5 0 5 10 15 NAUTICAL MILES

CONTOUR INTERVAL 20 METERS (INDEX C.I. 100 METERS)

MAP PROJECTION UTM, CLARKE 1866 SPHEROID, ZONE 5.

This map is not intended for navigational purposes. It has not been edited for conformity with Geological Survey editorial standards or stratigraphic nomenclature.

ISOPACH MAP OF HOLOCENE MARINE SEDIMENTS, OUTER CONTINENTAL SHELF, SHELIKOF STRAIT, ALASKA

PETER J. HOOSE, K.D. HOLDEN AND LYNN LYBECK

1980