

UNITED STATES  
DEPARTMENT OF INTERIOR  
GEOLOGICAL SURVEY

High-resolution seismic reflection profiles:  
Navarin Basin province, Northern Bering Sea, 1980

by

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U. S. Geological Survey  
Open-File Report 81-1221

This report is preliminary and has not  
been reviewed for conformity with U. S.  
Geological Survey editorial standards.

Menlo Park, California

## INTRODUCTION

In June and July 1980, the U. S. Geological Survey conducted a high resolution geophysical and seafloor sampling cruise (DC 4/5-80 BS/NB) in the northern Bering Sea to obtain data on seafloor hazards pertinent to OCS oil and gas lease sale activity. This report contains a list of the seismic reflection records that are publicly available and includes a trackline map of the Navarin Basin province. Microfilm copies of the seismic reflection records are available for viewing:

- (1) U. S. Geological Survey  
Pacific-Arctic Branch of Marine Geology, Room B171  
Menlo Park, CA 94025

or for purchase:

- (2) National Geophysical and Solar  
Terrestrial Data Center  
EDS/NOAA  
Boulder, CO 80302

## DATA COLLECTION

DISCOVERER cruise DC 4/5-80 BS/NB left Kodiak July 2, 1980, for work in OCS lease sale area 83 (Navarin Basin). The first leg, which was 75 percent geophysics and 25 percent sampling, ended at Adak July 24, 1980. The second leg of the cruise which began July 28, 1980, consisted of 60 percent sampling and 40 percent geophysics, and ended at Kodiak August 17, 1980.

Navigation positions were determined by satellite and Loran C. Position accuracies are probably on the order of 0.5 km.

Three separate seismic reflection systems were operated simultaneously, throughout much of the study area, providing high and intermediate frequency acoustic records. The systems were: 3.5 kHz transducer (12,842 km), 400-800 Joule minisparker (4624 km), and two 40 in<sup>3</sup> airguns (6757 km). The 3.5 kHz system was operated continuously throughout the cruise, including transit

lines to and from the study area and to and from St. Paul Island for three medivacs. The airguns were deployed along all except transit and sampling lines. The minisparker system was operated in shelf and upper-slope water depths (to about 800 m). (See Table 1 for line numbers along which the various systems were operational).

Interpretations of the data have been underway since the cruise. The following preliminary reports have been released or are in press:

Marlow, M. S., Carlson, P., Cooper, A. K., Karl, H., McLean, H., McMullin, R., and Lynch, M. B., 1981, Hydrocarbon resource report for proposed OCS lease sale 83, Navarin Basin, Alaska: U. S. Geological Survey Open-File Report 81-252, 75 p.

Carlson, P. R., and Karl, H. A., in press, Geologic hazards in Navarin basin province, northwestern Bering Sea: U. S. Geological Survey Open-File Report, 176 p.

Carlson, P. R., Karl, H. H., Johnson, K. A., and Fischer, J. M., in press, Submarine canyons flanking Navarin Basin, Bering Sea: U. S. Geological Survey Circular (Accomplishments in Alaska).

Karl, H. A., Carlson, P. R., and Lamb, B., in press, sediment waves in the head of Navarinsky, Pervenets, and Zhemchug submarine canyons, northwestern Bering Sea: U. S. Geological Survey Circular (Accomplishments in Alaska)

Karl, H. A., Carlson, P. R., and Cacchione, D. A., in press, Factors influencing sediment transport at the shelf break: In: Stanley, D. J., and Moore, G. (editors). The shelf-slope boundary, a critical interface. Society Paleontologists and Mineralogists Special Publication.

## ACKNOWLEDGEMENTS

We appreciate the assistance provided by the scientific personnel on the cruise (Brian Edwards, Jeff Fischer, George Ford, Sarah Griscom, Ken Johnson, Beth Lamb, Grant Lichtman, Paula Quintero, Jeff Rupert, John Saladin, Rick Vial, Tim Vogel, Pat Wiberg, Bob Wilson, and Mark Yeats); the ship's captain and crew, and the marine logistics group.

The cruise was supported jointly by the U. S. Geological Survey and by the Bureau of Land Management through interagency agreement with the National Oceanic and Atmospheric Administration, under which a multi-year environmental hazards study of the Alaskan continental shelf is managed by the OCSEAP office.

Table 1. Track lines along which seismic systems were operational.

	3.5 only*		<u>Minisparker</u>	<u>Airguns</u>
	<u>Transit</u>	<u>Study Area</u>		
Leg 1 (DC-4-80)	T-1, 1, 26, 27, 32, 33, 38	None	1-3, 4-14, 18, 22-25, 28-29 31, 34-37	1-25, 28-31 34-37
Leg 2 (DC-5-80)	30, 98, 99	48-51 53-62 72-74 81-86 93-95 100 105-108 114-115 121-123	40-43, 45-47, 63-67, 69, 76-79, 87-91 97, 102-103 110, 117, 125-126	40-47, 52 63-71, 75-80, 87-92, 96-97, 101-104, 109-113, 116-120, 124-127

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\*3.5 kHz system was operated continuously during both legs of cruise.