UNITED STATES DEPARTMENT OF INTERIOR

GEOLOGICAL SURVEY

High-resolution seismic reflection profiles, trackline and sample location map, and digitized bathymetric data: Navarin Basin province, northern Bering Sea

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INTRODUCTION

In August 1982, the U.S. Geological Survey conducted a high resolution geophysical and seafloor sampling cruise (L-10-82 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 and sample location map of the Navarin Basin province. Microfilm copies of the seismic reflection records are available for viewing at the U.S. Geological Survey, Branch of Pacific Marine Geology, Room B171, Menlo Park, CA 94025. Microfilm copies of the seismic records and a computer tape of digitized water depths and navigation compiled from several cruises are available for purchase through the National Geophysical and Solar Terrestrial Data Center EDS NOAA, Boulder, CO 80302.

DATA COLLECTION

S. P. LEE CRUISE L-10-82 BS/NB left Nome August 6, 1982, for work in OCS lease sale area 83 (Navarin Basin). The cruise ended at Nome August 24, 1982.

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 (3800 km), 400-800 Joule Uniboom (1700 km), and two 40-80 in^3 airguns (3000 km). The 3.5 kHz system was operated continuously throughout the cruise, including transit lines to the study area. The airguns were deployed along all except transit and sampling lines. The hull-mounted uniboom 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).

The transit line from Nome to the study area is not shown on the trackline map. Along part of the transit line, for a distance of about 120 km, all three seismic systems were deployed. This line (G-1) was collected in Chirikof basin, about 50 km north of St. Lawrence Island.

Thirty-six gravity cores were collected using a 3 m long barrel (8 cm I.D.). The cores ranged in length from 0.25 to 2.75 m and they were recovered from water depths that ranged from 125 to 2850 m.

The computer tape includes navigation and water depths from all available 3.5 kHz profiles that were digitized and compiled to develope the smooth sheet used in making our most current bathymetric map of the Navarin continental margin (see Fischer and others, 1982). The cruises (23,300 km of tracklines) included in the bathymetric data base are listed in Table 2.

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REFERENCE CITED

Fischer, J. M., Carlson, P. R., and Karl, H. A., 1982, Bathymetric map of Navarin Basin province, northern Bering Sea: U.S. Geological Survey Open-File Report 82-1038, 11 pages, 1 map sheet scale 1: 1,000,000.

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

3.5 kHz	Uniboom	Airguns
G-1, T1-T4, 1-57	G-1, 1, 12, 15-29, 31-34, 36, 37, 41, 45-47 53-56	G-1, 1-12 15-29,31,32 34, 36, 37 41-48,50 53-56

Table 2. Sources of bathymetric data

Cruise*	Chief Scientists	km of tracklines
L-5-76	Cooper & Marlow	800
S-3-77	Cooper	700
L-8-77	Marlow & Cooper	2,300
L-5-78	Marlow & Cooper	1,000
DC-4/5-80	Carlson & Karl	6,800
DC-2/3-81	Karl & Carlson	10,100
L-10-82	Carlson & Karl	1,600

* Cruise identifier includes ship (L = S. P. Lee, S = Sea Sounder, DC = Discoverer), consecutive cruise number, and year.