

1983 U.S. RESEARCH SURVEYS AND RESEARCH PLANS
FOR 1984 IN THE EASTERN BERING SEA

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1983 U.S. RESEARCH SURVEYS AND RESEARCH PLANS

FOR 1984 IN THE EASTERN BERING SEA

by

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1983 U.S. Research Surveys and Research Plans for 1984
in the Eastern Bering Sea

by T. Sample*

1. Research Activities in the Eastern Bering Sea During 1983

(a) Eastern Bering Sea Winter Crab-groundfish Survey

The NOAA research vessel MILLER FREEMAN conducted a winter trawl survey of crab-groundfish resources in the southeastern Bering Sea during February, 1983. The primary objectives of this study were to : (1) collect catch and biological data on principal species of crab and groundfish; (2) assess the current reproductive status of the Bristol Bay red king crab stock; (3) collect reproductive and other organs of various crab species for pathological and parasite studies; (4) tag Pacific halibut; (5) collect stomach samples from Pacific cod and other species for food habit analysis; and (6) collect oceanographic data using conductivity-temperature-depth (CTD) equipment.

A total of 62 sampling sites were occupied including three demersal trawl hauls near Unalaska Island, 13 hauls on the continental shelf edge between Unimak Pass and the Pribilof Canyon, four hauls near St. Paul Island, and 42 hauls in Bristol Bay. Catch information, including species composition, weights and number by species, size composition, and other biological information collected on species of interest were recorded from each trawl haul. Whole specimens, stomachs, and tissue samples were preserved for subsequent laboratory analysis. In addition, approximately 350 Pacific halibut were tagged for stock movement studies. A total of 47 CDT casts were completed.

(b) Eastern Bering Sea Crab-groundfish Survey

The eastern Bering Sea crab-groundfish assessment survey was conducted during June-August, 1983. The primary objectives of this survey were to assess the distribution, abundance, and current biological condition of commercially

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important fish and shellfish resources of the region. This was a continuation of the annual series of eastern Bering Sea crab-groundfish assessment surveys.

The survey was a cooperative U.S.-U.S.S.R. effort conducted by two U.S. vessels, the NOAA research vessel CHAPMAN and chartered vessel ALASKA, and the U.S.S.R. research vessel MILOGRADOVO. The U.S. vessels sampled continental shelf waters north from Unimak Pass, along the 200-meter depth contour to approximately 61°N latitude, and east to the Alaska mainland. The MILOGRADOVO generally sampled the same area as the U.S. vessel. Catch and haul data collected by U.S. and U.S.S.R. vessels in the overlapping sampling areas will be used to establish relative fishing powers between vessels for the standardization of a common data base.

The CHAPMAN and ALASKA conducted 359 demersal trawl hauls. The two vessels sampled alternate rows of designated stations throughout most of the survey to examine differences in relative fishing powers of the two vessels through comparisons of catch rates.

Upon completion of the survey, the CHAPMAN and ALASKA conducted an additional 21 side-by-side comparative trawl hauls. The primary purpose of this experiment was to re-examine the effect of gear rigging modifications to the standard sampling net, the 83-112 eastern trawl, during the previous 1982 eastern Bering Sea survey. These modifications appear to have improved the fishing efficiency of the 83-112 for bottom tending species such as flatfish and produced substantially higher catch rates for these species than the previously rigged trawls.

The catch at each survey station was sorted, weighed, and enumerated by species. Length frequencies, age structures, and other biological data were collected from commercially important species of interest. Length/width measurements, shell condition, clutch size, and egg condition were recorded from selected crab species.

Seawater temperature profiles were collected at each station occupied by the ALASKA using expendable bathythermograph (XBT) probes. Additional hydrographic data were collected aboard the CHAPMAN with a conductivity, salinity, temperature, depth (CSTD) sonde-reader/recorder.

(c) Aleutian Islands Crab-groundfish Survey

The Aleutian Islands crab-groundfish survey was conducted during July-November 1983. The principle objective of this study was to provide a quantitative assessment of the condition of fisheries resources in the waters contiguous to the Aleutian Islands region. The study area included continental shelf and upper slope waters from 170°E to 170°W longitude south of the islands and 170°E to 165°W longitude north of the islands including Bowers Bank. A similar comprehensive demersal trawl survey was conducted along the Aleutian Island chain in 1980.

The 1983 study was a cooperative U.S.-Japan research effort with fishing operations conducted aboard the NOAA research vessels MILLER FREEMAN and CHAPMAN and the Japanese Fisheries Agency research vessel DAITO MARU NO. 38. U.S. vessels operated from July-August while the Japanese vessel participated from July-November.

Sampling locations were established on a stratified random basis at depths ranging from 50-900 meters. Station densities were greatest in regions where high concentrations of important commercial species were encountered during the 1980 survey.

Trawl catches were initially sorted by species, weighed, and enumerated at each station site. Biological information including size/sex and age composition, maturity, and length-weight relationships were recorded from important species encountered. In addition, Pacific cod and Atka mackerel were tagged and released to provide information on stock movements.

2. Research Activities Planned in the Eastern Bering Sea During 1984

(a) Eastern Bering Sea Crab-groundfish Survey

A demersal trawl survey to assess the condition of the eastern Bering Sea crab-groundfish stocks has been tentatively scheduled during May-August 1984. The primary purpose of this study is to assess the distribution, abundance, and biological condition of commercially important fish and shellfish stocks. This is a continuation of the annual series of eastern Bering Sea monitoring surveys. It is anticipated that standard survey operations will be conducted aboard two research vessels. One Japanese research vessel may also participate.

The study region will encompass the area of the eastern Bering Sea from Unimak Pass, north along the 200 m contour to an approximate latitude of St. Matthew Island and east to the Alaska mainland. The catch at each sampling site will be sorted, weighed, and enumerated by species. Size composition, age structures, and other biological information will be collected from predominant fish species. Length-width measurements, shell condition, clutch size, and egg condition will be recorded from commercially important species of crab.