U.S. GROUNDFISH RESEARCH SURVEYS CONDUCTED IN 1990
AND SURVEYS PLANNED FOR 1991 IN THE GULF OF ALASKA AND THE
PACIFIC WEST COAST

by

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The third in a series of comprehensive triennial demersal trawl surveys was conducted in the Gulf of Alaska to assess the abundance and biological condition of the principal groundfish species. From June through September, scientists from the Alaska Fisheries Science Center (AFSC), Seattle WA. and the Auke Bay Laboratory (ABL), Auke Bay, AK. completed a total of 608 trawl hauls from Dixon Entrance in the eastern Gulf of Alaska to the Islands of Four Mountains in the eastern Aleutian Islands aboard the charter vessels Pat San Marie and Green Hope and the NOAA Ship Miller Freeman. Survey information will become a part of the time series database initiated in 1984 to monitor long-term population trends of Gulf of Alaska fish stocks.

The AFSC Pelagic Resource Assessment Task conducted an echo integration/midwater trawl survey of walleye pollock (Theragra chalcogramma) in the Gulf of Alaska from 5 February through 2 April aboard the NOAA Ship Miller Freeman. The standard acoustic assessment system used in previous surveys, which incorporates a Hewlett Packard HP1000 mini computer, was utilized throughout the survey but preliminary trials of a new scientific acoustic system, the Simrad EK500 were also conducted. During the first leg of the survey, the area from Cape Spencer to Unimak Pass between the 200 and 1,000 m depth contours were surveyed. Additional survey effort was expended in areas where pollock had been encountered in harvestable quantities by fishing vessels in previous years. These areas included Prince William Sound, Marmot Bay, Chiniak Bay, Barnabus Canyon, areas adjacent to Chirikof Island and Sanak Bank. During the second leg, the areas near Chirikof Island were resurveyed and Shelikof Strait was surveyed twice. Within Shelikof Strait, the area between the 75 m isobaths was surveyed.

From 5 April through 5 June, the AFSC completed four ichthyoplankton surveys focusing on the early life history of walleye pollock aboard the NOAA ship Miller Freeman. Specific objectives were to estimate the magnitude of the spawning stock in Shelikof Strait from the abundance of eggs, relate the distribution of eggs and larvae to oceanographic conditions and to trace the drift and assess the feeding condition of larvae. This research was part of the Fisheries-Oceanography Coordinated Investigations (FOCI), a NOAA research program of the AFSC and the Pacific Marine Environmental Laboratory (PMEL), to
investigate causes of recruitment variation in economically important fish and shellfish populations.

**Young-of-year/juvenile assessment**

Another FOCI cruise aboard the Miller Freeman from 6-23 September investigated young-of-the-year juvenile walleye pollock in the western and central Gulf of Alaska. The main objective of the survey was to describe the distribution and relative abundance of juvenile pollock using a variety of sampling gears along with echo integration techniques.

**Sablefish longline survey**

Scientists from the AFSC, Seattle, WA. and the ABL, Auke Bay, AK. completed the fifth annual longline survey of the upper continental slope of the Gulf of Alaska aboard the chartered research vessel Ocean Prowler. From 26 June through 12 September, 47 standard longline stations from the Islands of Four Mountains to Dixon Entrance were sampled for sablefish (Anoplopoma fimbria), Pacific cod (Gadus macrocephalus) and other species. Additional stations located in the major gullies and Shelikof Strait were also sampled.

**Other sablefish studies**

Scientists from the ABL in cooperation with the Alaska Department of Fish and Game (ADF&G) conducted a mark-recapture experiment in southeast Alaska during late April aboard the NOAA Ship Townsend Cromwell.

During early May, scientists from the ABL completed an offshore ichthyoplankton survey off the southeast Alaska coast aboard the NOAA Ship Townsend Cromwell. The main objective of the study, which extended more than one-hundred miles offshore, was to determine the distribution and abundance of sablefish and rockfish larvae and to collect samples for further study.

**COOPERATIVE GROUNDFISH RESEARCH—GULF OF ALASKA 1990**

**Sablefish longline survey**

During May through September, a Japan-U.S. cooperative longline survey for sablefish, Pacific cod and other species was conducted throughout the Aleutian Islands, Bering Sea, and the Gulf of Alaska aboard the chartered Japanese research vessel Fukuyoshi Maru No. 26. Scientific operations followed standardized procedures originally planned by scientists at the National Research Institute of Far Seas Fisheries, Shimizu, Japan. This years survey was implemented by scientists from the
Bottom trawl survey

The AFSC in cooperation with the Southwest Fisheries Science Center (SWFSC) will conduct a bottom trawl survey of the groundfish resources of the upper continental slope for 28 days beginning on 22 October aboard the NOAA Ship Miller Freeman. Emphasis will be on sablefish, shortspine thornyhead (Sebastolobus alascanus), longspine thornyhead (S. altivelis) and Dover sole (Microstomus pacificus), in the International North Paciﬁc Fisheries Commission (INPFC) Eureka area off the northern California and southern Oregon coast. This survey is a continuation of a cooperative research project by the AFSC and the SWFSC which investigated slope resources off central Oregon in 1988-89. Distribution, abundance, size and age composition, maturity, and ecological relationships of slope groundfish species will be examined. Specimens will be collected to address research on physiology and energetics of selected slope species.

Ichthyoplankton/juvenile rockfish/sablefish assessment

The SWFSC, Tiburon, CA. completed three cruises off the California coast to collect eggs and larvae of juvenile rockfish. During February, three days were spent collecting plankton samples off Bodega Bay to document the spawning of shortbelly rockfish, (Sebastes jordani). During late March and early April, 10 days of midwater trawling for juvenile rockfish were completed aboard the NOAA Ship David Starr Jordan between Monterey, CA. and Pt. Reyes CA. An additional 30 days of sampling for juvenile rockfish over the same area was completed from late May to early June aboard the David Starr Jordan with the emphasis again on sampling juvenile rockfish.

Scientists from the SWFSC La Jolla, CA, conducted an ichthyoplankton survey off the Oregon coast during January and February aboard the NOAA Ship R/V David Star Jordan. The main objectives of the cruise were to determine the offshore extent and density of sablefish eggs and larvae, to define their seasonal patterns of abundance and to relate their distributions and those of other species encountered to prevailing oceanographic conditions.

Oceanic Squid assessment

A cooperative research survey designed to assess the relative quantity, distribution, biological characteristics, and
commercial potential of a jig fishery for oceanic squid resources in the U.S. Exclusive Economic Zone off Oregon and Washington was begun on 1 August in Newport, Oregon. The project utilized four Japanese commercial squid jigging vessels and a joint U.S.-Japan research team. The project was terminated in early September because of low catches encountered during the survey.

PLANNED U.S. GROUNDFISH RESEARCH—GULF OF ALASKA 1991

**Pelagic assessment of walleye pollock**

An echo integration-midwater trawl survey of spawning pollock in Shelikof Strait is scheduled aboard the NOAA ship Miller Freeman for one week in March.

**Ichthyoplankton assessment**

During April and May, a survey for eggs and larvae of walleye pollock is planned for the central and western Gulf of Alaska aboard the NOAA Ship Miller Freeman.

**Young-of-year/juvenile assessment**

An assessment of young-of-the year/juvenile walleye pollock is scheduled for August and September in the western and central Gulf of Alaska aboard the NOAA Ship Miller Freeman.

**Sablefish longline survey**

From July to September, scientists from the AFSC, Seattle, WA. and ABL, Auke Bay, AK. are anticipating conducting the sixth annual Gulf of Alaska longline survey for sablefish and associated species utilizing a chartered longline vessel.

**Other sablefish studies**

ABL scientists plan to continue a study begun in 1989 to test several methods of estimating sablefish biomass in selected areas of southeast Alaska. The study includes a mark-recapture experiment and obtaining survey CPUE's prior to the opening and after completion of the commercial longline fishery. In another study, ABL scientists plan to sample juvenile sablefish from selected areas of southeast Alaska.
PLANNED U.S. COOPERATIVE GROUNDFISH RESEARCH—GULF OF ALASKA 1991

Japan-U.S. longline survey

Scientists from the North Pacific Longline Association of Japan and the AFSC, Seattle, WA. and the ABL, Auke Bay, AK. plan to repeat the Japan-U.S. longline survey for sablefish, Pacific cod and other species inhabiting the Aleutian Islands, Bering Sea and Gulf of Alaska. This survey would repeat the standard stations occupied in previous years.

PLANNED GROUNDFISH RESEARCH—WEST COAST 1991

Sablefish trap index survey

A sablefish abundance indexing survey is planned during September and October off the California-Oregon coast. This survey was also planned for 1990 to continue a time series begun in 1979 but was not completed due to a lack of available charter vessel time. Traps will be set at 5-6 depths between 275-1,280 m at 8 index sites and fished using standardized methods to obtain comparable measures of CPUE. Sex, age, and length frequency data will be collected and the ongoing sablefish tagging program to study population movements will be continued.

Ichthyoplankton/ juvenile rockfish/ sablefish assessment

The SWFSC has various studies in the early planning stages, similar to those completed during 1990, which focus on the early life history of sablefish and rockfish off the U.S. west coast.