World's Oldest Fisheries Research Laboratory Celebrates Centennial of Service

The world's oldest fisheries research laboratory, NOAA's Woods Hole Laboratory in Massachusetts, celebrated its centennial 13-16 August 1985. Five public lectures, two technical forums, a historical exhibit, and a rededication ceremony highlighted the celebration.

Lectures

The lectures, free to the public, dealt with the history and future of marine ecology, fisheries research and management, and the Woods Hole scientific institutions. John Steele, Director of the nearby Woods Hole Oceanographic Institution, opened the lecture series on 13 August at Lilly Auditorium with his presentation on "Advances in Marine Ecology and Relevance to Fisheries." Later that evening, Robert L. Edwards spoke on "History and Contributions of the Woods Hole Fisheries Laboratory." Edwards was formerly Director of the Northeast Fisheries Center, the coordinating organization for the Woods Hole Laboratory and six other National Marine Fisheries Service laboratories in the New England and Mid-Atlantic states. He is currently Technical Assistant to the NOAA Assistant Administrator for Fisheries.

At 10:00 a.m. on 14 August at Redfield Auditorium, Paul R. Gross, President and Director of the Marine Biological Laboratory (MBL) in Woods Hole, spoke on "The MBL and the Fisheries: A Century of Cooperation in Woods Hole," and at 2:00 p.m. at the Lilly Auditorium, William F. Royce lectured on "100 Years of Development in Fisheries Science and Management." Royce was formerly the Director of the Woods Hole Laboratory, and is currently an international fisheries consultant in Seattle, Wash. Peter A. Larkin, Professor at the University of British Columbia, closed the lecture series at 7:30 p.m. at Redfield Auditorium with a look at "Fisheries Research Strategy for the Future."

Technical Sessions

Two forums on 15 August discussed the future of North American fisheries research and management. The morning forum dealt with "Fisheries Research Strategy for the Future." Participants scheduled were Carl R. Sullivan, Moderator (Executive Director, American Fisheries Society); Peter A. Larkin; John L. McHugh (Professor, State University of New York); Gilbert C. Radonski (President, Sport Fishing Institute); and William F. Royce. The afternoon forum dealt with "Fisheries Management in the 1980's and Beyond." Participants were to be Richard H. Schaefer, Moderator (Northeast Regional Director, National Marine Fisheries Service); William G. Gordon (NOAA Assistant Administrator for Fisheries); Alan D. Guimond (Chairman, New England Fishery Management Council); Robert L. Martin (Chairman, Mid-Atlantic Fishery Management Council); Allen E. Peterson, Jr. (Director, NMFS Northeast Fisheries Center); Jeff Pike (Assistant to U.S. Representative Gerry E. Studds); Gilbert C. Radonski; and Lucy Sloan (Executive Director, National Federation of Fishermen).

Historical Exhibit

Beginning on 13 August, the fisheries lab's public display aquarium featured a special exhibit on the lab's history, as

The Woods Hole Laboratory, 1885.

well as new exhibits on current research. The historical exhibit included a chronological display of old photos, newspaper clippings, field notebooks, sampling gear, etc., from the fisheries lab's past. The lab's aquarium, also open, featured fish tanks, "hands-on" tanks, a seal pool, and educational displays; scientists were avilable to answer questions. The special exhibit closed with the aquarium's traditional 15 September switch from summer hours to winter hours.

Rededication

The rededication of the Woods Hole Laboratory took place on 16 August, with national, state, and local officials participating, including Anthony J. Calio, Acting NOAA Administrator, and William G. Gordon. Research in the Woods Hole Laboratory focuses on populations of commercially and recreationally important fishes in the U.S. Fishery Conservation Zone (3-200 miles offshore) from the Canadian border to Cape Hatteras, N.C., as well as on the habitats which produce those populations. Information from this research is used by the New England and Mid-Atlantic Fishery Management Councils to manage their regions' fisheries which are worth $1 billion annually to the nation's economy.

NMFS Outstanding Publications Cited

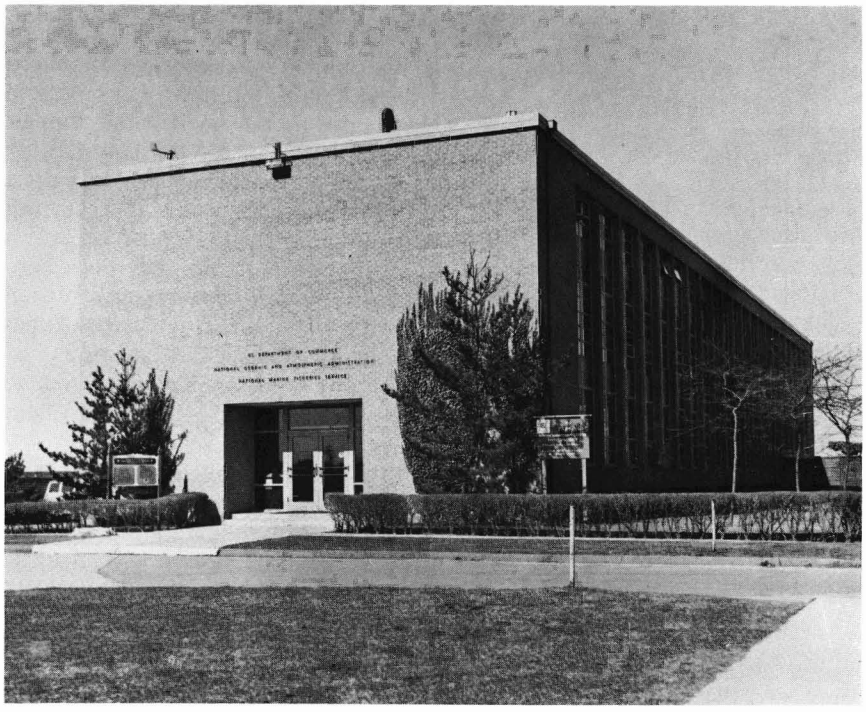
Winners of the National Marine Fisheries Service's Outstanding Publications Award for papers published in the *Marine Fisheries Review* (Vol. 45) and the *Fishery Bulletin* (Vol. 81) have been announced by NMFS Publications Advisory Committee Chairman Ben Drucker.

"To Increase Oyster Production in the Northeastern United States," by Clyde L. MacKenzie, Jr., of the Northeast Fisheries Center's Sandy Hook Laboratory, Sandy Hook, N.J., was selected by the Awards Committee as the best paper in the *Marine Fisheries Review*, 45(3): 1-22. And, "Seasonal Variation in Survival of Larval Northern Anchovy, *Engraulis mordax*, Estimated From the Age Distribution of Juveniles" by R. D. Methot, Jr., of the NMFS Southwest Fisheries Center, La Jolla, Calif., was selected as the best paper in the *Fishery Bulletin*, 81(4):741-750.

In all, nine papers were nominated from the *Bulletin* and four from the *Review*. The other three *Marine Fisheries Review* papers nominated for excellence were "Fatty Acids and Lipid Classes of Three Underutilized Species and Changes Due to Canning" by M. B. Hale and T. Brown, 45(4-6):45-48; "Incidental Catch of Marine Mammals by Foreign Fishing Vessels" by T. R. Loughlin, L. Consiglieri, R. L. DeLong, and A. T. Actor, 45(7-8-9): 44-49; and "Some Effects of Mt. St. Helens Volcanic Ash on Juvenile Salmon Smolts" by T. W. Newcomb and T. A. Flagg, 45(2):8-12.

The eight other *Fishery Bulletin* papers nominated for excellence were "Copepods and Scombrid Fishes: A Study in Host-Parasite Relationships" by R. F. Cressey, B. B. Collette, and J. L. Russo, 81(2):227-265; "Yield per Recruit Models of Some Reef Fishes of the U.S. South Atlantic Bight" by G. R. Huntsman, C. S. Manooch III, and C. B. Grimes, 81(4):679-695; "Interrelationships Between Juvenile Salmonids and Nonsalmonid Fish in the Columbia River Estuary" by G. T. McCabe, Jr., W. D. Muir, R. L. Emmett, and J. T. Durkin, 81(4):815-826; "Analyzing the Width of Daily Otolith Increments to Age the Hawaiian Snapper, *Pristipomoides filamentosus*" by S. Ralton and G. T. Miyamoto, 81(3):523-535; "Population Assessment of the Gray Whale, *Eschrichtius robustus*, From California Shore Censuses" by S. B. Reilly, D. W. Rice, and A. A. Wolman, 81(2):267-282; "Changes in Size of Three Dolphin (*Stenella* spp.) Populations in the Eastern Tropical Pacific" by T. D. Smith, 81(1):1-13; "Movement of Sablefish, *Anoplopoma fimbria*, in the Northeastern Pacific Ocean as Determined by Tagging Experiments (1971-80)" by V. G. Wespestad, K. Thorsen, and S. A. Mizroch, 81(2):415-420; and "The Mud Crab, *Panopeus herbstii*, s.l. Partition Into Six Species (Decapoda: Xanthidae)" by A. B. Williams, 81(4):863-882.

The Woods Hole Laboratory, 1985.



Developed in 1975, the annual outstanding publication awards program recognizes NMFS employees who have made exceptional contributions to the knowledge and understanding of the resources, processes, and organisms studied as a part of the NMFS mission. Authors must have been employed by the NMFS at the time the paper was published. *Marine Fisheries Review* papers must be effective and interpretative contributions to the understanding and knowledge of NMFS mission-related studies, while *Fishery Bulletin* papers must document outstanding scientific work.

At the close of each volume, nominations are solicited from the NMFS Center, Regional, and Office Directors for the awards by the Awards Committee Chairman—the editor of the *Fishery Bulletin*, currently William J. Richards. Other Committee members include the editor of the *Marine Fisheries Review*, W. L. Hobart, and the former *Fishery Bulletin* editors Reuben Lasker, Bruce Collette, and Carl Sindermann.

NODC Taxonomic Code Doubles in Size

NOAA's National Oceanographic Data Center (NODC) has announced the availability of the fourth edition of the "NODC Taxonomic Code." This edition contains nearly 46,000 entries giving the scientific names and corresponding numerical codes of worldwide flora and fauna from viruses to mammals, nearly twice the number included in the third edition.

The "NODC Taxonomic Code" is a hierarchical system of numerical codes of up to 12 digits used to represent the scientific names of organisms to the level of subspecies or variety. The bowhead whale, *Balaena mysticetus*, for example, is coded by the 10-digit number 9219030102. The code links the Linnean system of biological nomenclature to a numerical schema that facilitates modern methods of data storage and retrieval. The code was specifically developed by NODC to simplify and systematize NODC processing, storage, and retrieval of marine biological data. NODC requires the use of the code in all marine biological data that it accepts for processing.

To help overcome recognized shortcomings of the code rooted in the rigidity of the numerical schema, this edition introduces new features to make the code more flexible and useful. For example, a series of terms and symbols is now used to annotate code entries with information about changes or corrections and to provide cross-references between certain related entries.

The published version of the code (Key to Oceanographic Records Documentation No. 15) is available either as a paper copy or on microfiche. The "NODC Taxonomic Code" is also available on magnetic tape.

Code Structure

The NODC codes contain a maximum of 12 digits. Each two digits represent one or more levels of the taxonomic hierarchy as follows (numbers in this example are fictitious):

93	(2 digits)	Subkingdom, Phylum, Subphylum, Class, Superorder, Order
9301	(4 digits)	Superclass, Class, Subclass, Superorder, Order, Suborder, Infraorder, Section, Superfamily
930101	(6 digits)	Class, Order, Suborder, Family, Subfamily[1]
93010101	(8 digits)	Genus
9301010101	(10 digits)	Species
930101010101	(12 digits)	Subspecies, Variety

Actual presentations vary in complexity from group to group and may exclude certain levels of taxonomy. The following is an example of a relatively simple code sequence (note that in this particular example there are no orders):

90	Reptilia	Class
9001	Reptilia Anapsida	Subclass
900205	Dermochelidae	Family
90020501	*Dermochelys*	Genus
9002050101	*Dermochelys coriacea*	Species
900205010101	*Dermochelys coriacea coriacea*	Subspecies

[1]A few subfamilies were used in the basic code framework; otherwise subfamilies are not recognized and additional subfamilies cannot be added to the code.

The following is a more complex example involving a larger number of recognized taxonomic levels (the final subspecies is fictitious):

34	Protozoa	Phylum
3438	Sarcodina	Superclass
3439	Rhizopodea	Class
3446	Rhizopodea Granuloreticulosa	Subclass
3448	Rhizopodea Granuloreticulosa Foraminifera	Order
3450	Rhizopodea Granuloreticulosa Formanifera Textularina	Suborder
345001	Ammodiscacea	Superfamily
345002	Ammodiscacea Astrorhizidae	Family
345005	Ammodiscacea Astrorhizidae Hippocrepininae	Subfamily
34500501	*Hippocrepina*	Genus
3450050101	*Hippocrepina indivisa*	Species
345005010101	*Hippocrepina indivisa indivisa*	Subspecies

In the third edition common names and synonyms were printed in separate alphabetical listings and did not appear in the numerical listing. In the fourth edition all names (common and Linnean) and all previous numbers related to a given taxon are printed together in the numerical code listing.

Availability

The "NODC Taxonomic Code" is available on magnetic tape, on microfiche, and as a printed paper version. All three formats include the complete code in two separate sequences: 1) Numerical (code) order and 2) alphabetical (scientific name) order. On magnetic tape the two sort orders appear as separate files on one tape. For ease of use the microfiche and printed versions of the code appear in two volumes. Volume 1 contains the Numerical (Code Order) Listing and Volume 2 contains the Alphabetical (Scientific Name Order) Listing.

The prices at initial printing (subject to change without notice) of the three formats are as follows: 1) Magnetic tape (9-track, 1600 bpi, ASCII character code) = $90.00; 2) microfiche (5 fiche, 48× reduction) = $7.00; and 3) paper copy (738 pages in two volumes; 8½ × 11-inch pages) = $50.00.

Orders should be directed to: Nation-

al Oceanographic Data Center, User Services Branch, NOAA/NESDIS E/OC21, Washington, DC 20235. Telephone: 202-634-7500 (commercial) or FTS 634-7500. Payment may be made by check, money order, or credit card (Visa or MasterCard only). Checks and money orders should be made payable to "Department of Commerce/NOAA/NODC"; payments must be made in U.S. dollars and drawn on a bank located in the United States.

Calio Sworn in as New NOAA Administrator

Anthony J. Calio was sworn in as Administrator of the Commerce Department's National Oceanic and Atmospheric Administration (NOAA) on 7 October 1985, following his nomination by President Ronald Reagan and confirmation by the U.S. Senate. He had been NOAA's Deputy Administrator since December 1981. As Administrator, Calio establishes Federal policies and directs agency programs to improve the understanding, management, conservation, and development of America's marine and atmospheric resources.

Under Calio's direction, NOAA is responsible for investigating and understanding the chemical and physical state of our oceans and atmosphere; predicting weather and issuing severe storm warnings and forecasts to protect life and property; promoting the wise development and conservation of our living marine, coastal, and deep seabed mineral resources; and preserving endangered marine species, marine animals, and unique estuarine areas for the future. In addition, Calio advises and represents the Secretary of Commerce on issues involving the environment, fisheries, space, and high technology, and serves on the National Security Council Interagency Group on Space.

Before joining NOAA, Calio spent 18 years with the National Aeronautics and Space Administration (NASA) where, as Associate Administrator for Space and Terrestrial Applications, he managed the U.S. civil remote sensing and space communications programs. He also had management responsibility for the Viking and Voyager missions, and during 8 years at the Johnson Space Center he directed all scientific aspects of the Apollo Lunar and Skylab programs.

Prior to joining NASA in 1963, Calio was employed 10 years in private industry with the Mount Vernon Research Company, the American Machine and Foundry Company, and the Westinghouse Atomic Power Division where he was involved in pioneering work on the peaceful use of nuclear energy.

Calio is a fellow of the American Institute of Aeronautics and Astronautics and the American Astronautical Society, as well as a member of the American Geophysical Union. He has received numerous honors, including a Sloan Fellowship from the Stanford Graduate School of Business and NASA's Distinguished Service Medal (twice), the Exceptional Scientific Achievement Medal, the Exceptional Service Medal, and the Presidential Rank of Distinguished Executive.

Born in Philadelphia, Pa., in October 1929, Calio was graduated from the University of Pennsylvania with a B.A. degree in physics in 1953. He attended graduate school at the University of Pennsylvania and Carnegie Institute of Technology, and received a D.Sc (Hon.) degree from Washington University of St. Louis in 1974. He and his wife Cheryll Madison Calio reside in Potomac, Md.

Larval Fish Distribution Eyed Near OTEC Unit

The NOAA ship *Townsend Cromwell* completed in September the first of four planned 10-day cruises in waters around Oahu, Hawaii, to determine the vertical distribution of larval fishes, reports Richard S. Shomura, Director of the NMFS Southwest Fisheries Center's Honolulu Laboratory. According to Shomura, the main objective of the cruise was to determine the possible impact of Ocean Thermal Energy Conversion (OTEC) facilities on marine fishes.

The first large-scale OTEC facility, planned for Kahe Point, would withdraw very large volumes of warm surface water and deep, cold water, and use the thermal difference in the warm and cold water to generate electricity. Small, planktonic larvae of fishes would be drawn in with the water and could potentially suffer high mortalities as they pass through the plant. Understanding the depth distribution of larvae in waters near Kaha Point would allow a better assessment of the possible effects of the proposed facility on fisheries and fish populations around Oahu.

George W. Boehlert, Chief Scientist on the cruise, supervised the use of a new kind of collection gear to determine the depth distribution of larval fishes. The gear, called the MOCNESS, for multiple opening-closing net and environmental sensing system, actually has nine nets controlled by computer from aboard ship. Scientists on deck can monitor the exact depth of the gear, its speed through the water, and the salinity and temperature of the water where the fish larvae are sampled. This greater sampling resolution will allow scientists to determine the environmental factors used by the larvae to determine their position in the water column.

Large midwater trawls were also fished off the *Cromwell* to determine the abundance of juvenile fishes in the region. The largest catch in these hauls was consistently a filefish, *Pervagor spilosoma*, the same fish which had been washing up on Oahu beaches in the previous 9 months. Over 500 fish were caught in a single haul of the trawl. The filefish occurred up to 8 miles offshore, as far from shore as the ship sampled with the large net. Visiting scientists participating on the cruise were Yoshirou Watanabe from the Tohoku Regional Fisheries Research Laboratory of Shiogama, Japan, and H. Geoffrey Moser from the Southwest Fisheries Center La Jolla Laboratory.

In an earlier cruise, the *Townsend Cromwell* returned to her home port in Honolulu on 25 July after a 42-day trip to collect biological and oceanographic data from waters over and surrounding the central North Pacific seamounts. A secondary mission, Shomura reports, was to help establish scientific field camps for the study of the endangered Hawaiian monk seal at Laysan Island, Lisianski Island, and Pearl and Hermes Reef in the Northwestern Hawaiian Islands.

Chief scientist Michael P. Seki reported that the vessel conducted operations at NW and SE Hancock Seamounts and at an unnamed seamount in the extreme northern region of the Hawaiian Ridge beyond Kure Atoll. Fishery resources on the seamounts were first discovered in 1967 when large concentrations of pelagic armorhead and smaller amounts of alfonsin were found by a Soviet trawler. This led to almost immediate commercial exploitation by Soviet trawlers; Japanese trawlers entered the fishery in 1969. In 1973 the Japanese also began fishing with vertical handlines and bottom longlines on the slopes of the seamounts since these areas were inaccessible to trawlers.

Despite declining catches in the 9 years, foreign fishing vessels continued to operate at the seamounts through 1984. In 1985, the NMFS closed the seamounts located inside the U.S. 200-mile Fishery Conservation Zone (in particular the Hancock Seamounts) to foreign groundfish fishing. This cruise represented the first visit to the seamounts since its closure.

Fishing operations conducted on the *Cromwell* mainly involved trawls, bottom longlines, and vertical longlines. Armorhead catches with the bottom longline appeared to be highest during daylight hours on the upper slope areas. This is in contrast to the bottom trawl fishery which is conducted primarily at night above the summit.

Scientists on the *Cromwell* also collected free-drifting and actively swimming small organisms over and away from the summit at SE Hancock using several different nets. Along with oceanographic data taken, the samples will be used to evaluate the high productivity induced by the presence of the seamount.

Pacific Sardine Begins Comeback off California

The Pacific sardine, *Sardinops sagax*, whose dramatic decline in the late 1940's sparked a multi-million dollar scientific investigation, is making a comeback, according to marine biologists Patricia Wolf of the California Department of Fish and Game (CDFG) and Paul E. Smith of the National Marine Fisheries Service's (NMFS) Southwest Fisheries Center, in La Jolla, Calif.

Averaging about 9 inches in length and 4 ounces in weight, colored bluish above and silvery below, and with variable numbers of black spots arranged in uneven rows along the sides, sardines were the glamour fish of the second and third decades of this century. Then it supported the most valuable fishery in the United States in terms of tons landed at an annual yield of about 600,000 tons.

A severe decline in sardine landings, first noted in the Pacific Northwest, began during the 1945-46 season and moved progressively southward. A low was reached when California's 1953-54 sardine season yielded only 4,500 tons. Sardines, a standard food item packed in the familiar oval cans in mustard or tomato sauce, disappeared from American food market shelves.

To begin to understand the causes of the sardine decline, fishery biologists and oceanographers from the CDFG, NMFS, and the Scripps Institution of Oceanography organized under the umbrella of the California Cooperative Oceanic Fisheries Investigations (CalCOFI) to begin the most intensive study of any marine fish in U.S. coastal waters. Although not all fishery biologists have agreed on the reasons for the precipitous decline in the sardine landings, most believe that the prolonged heavy fishing which occurred from 1928-29 through 1945-46, combined with unfavorable environmental changes, resulted in the spectacular failure of the sardine fishery in California.

Acting on the advice of fishery biologists who advocated a complete ban on sardine fishing to permit the sardine resource to recover from extremely low levels, California legislators voted to prohibit sardine fishing in 1974. A feature of this law also provided for a 1,000-ton annual fishery when the CDFG determined that the population of adult sardines had reached 20,000 tons.

Signs of an encouraging increase appeared as early as 1981 as sardines occurred in ever greater numbers in the incidental catch of mackerel and live bait fisheries, aerial spotter observations, annual CDFG sea surveys, and, increasingly, as larvae in plankton collections made during NMFS biological surveys.

Because the population level of the Pacific sardine is too low to be estimated reliably by existing techniques, Wolf and Smith designed a new survey system to estimate whether the adult sardine population is above or below 20,000 tons, the number which would signal the beginning of a commercial fishery. Their approach was based on the egg production method developed earlier by NMFS scientists at the Southwest Fisheries Center. As a first step, Wolf and Smith calculated the minimum geographic area which they estimated encompassed a spawning population of 20,000 tons of adult sardines. The location and extent of the survey area, and the time of year of the survey, were determined from the historical record of occurrences of sardine eggs and larvae found in the plankton samples during those times in past years when the sardine biomass levels were estimated to be near 20,000 tons.

In May 1985 Wolf and Smith employed their new method off southern California over the total survey area. They found 11 biological stations positive for sardine eggs in a total spawning area of 710 n.mi.^{2}, indicating a very high probability that there was at least a 20,000-ton spawning biomass of sardines off California. Survey results were presented to the CDFG which planned to open a 1,000-ton limited sardine fishery on 1 January 1986. According to California law, the sardines caught may be used either as human or animal food or for reduction to fish meal.

So now this small fish, once hunted at night during the dark of the moon along the Pacific Coast from southern Baja California and into the Gulf of California, appears to be making a modest comeback. With a bit of luck, fishery biologists believe that the distinctive luminescent fireballs produced as the dense sardine schools move through the surface layers of the sea will once again be a nighttime sight off the California coast.

U.S. Commercial Fishermen Land 6.4 Billion Pounds in 1984

U.S. fishermen landed 6.4 billion pounds of fish and shellfish in 1984, down slightly (941,000 pounds) from 1983 but close to the 1980 record of 6.5 billion pounds, according to the Commerce Department's National Oceanic and Atmospheric Administration (NOAA). The price paid for those fish at the dock, $2.4 billion, was $5 million less than in 1983.

NOAA's National Marine Fisheries Service (NMFS) said increased landings of clams, salmon, and shrimp helped offset declines in other major species, such as menhaden, tuna, flounder, and rockfish. Fishermen received an average of 37 cents a pound for their fish and shellfish, unchanged from 1983.

Several records were set in 1984. They included landings of 24 million pounds of Alaska pollock (previous high was 5.6 million pounds in 1979), 132.9 million pounds of clams (previous high was 121.8 million pounds in 1974), and 59.5 million pounds of scallops (previous high was 45.6 million pounds in 1981). Anchovies decreased for the second consecutive year, with landings of 17.8 million pounds (down 4.5 million pounds from last year). Squid landings of 33.2 million pounds were down 4.7 million pounds from last year.

U.S. Ups Percentage of FCZ Fish Catch in 1984

Foreign nations caught more fish within the U.S. 200-mile fishery conservation zone in 1984 than in 1983 but less than the average for the preceding 5 years, according to the Commerce Department's National Oceanic and Atmospheric Administration (NOAA). NOAA's National Marine Fisheries Service said foreign countries harvested 3 billion pounds of fish and shellfish in 1984, compared with 2.9 billion pounds in 1983, a 4 percent increase. However, the harvest was 11 percent below the average for the preceding 5 years—3.4 billion pounds.

Meanwhile, the U.S. share of fish taken from the U.S. fishery conservation zone (FCZ) increased. It hit 50 percent of all fish taken in 1984, up from 47 percent in 1983, and the highest since the 200-mile FCZ was established in 1977. In the late 1970's U.S. fishermen were harvesting only about one-third of all the fish taken from the zone.

Altogether, U.S. fishermen landed 6.4 billion pounds of edible and industrial fish and shellfish in 1984, and about 2.9 billion pounds were caught in the FCZ. Joint venture harvests by American fishermen, who sell their catches at sea to foreign processing vessels, continued upward in 1984. Almost 1.5 billion pounds of fish, valued at $79 million, were unloaded on to foreign vessels in 1984. This represents a substantial increase over 1983 when American joint ventures sold 959 million pounds of fish worth $51.2 million. Japan continued to be the leading harvester in the U.S. conservation zone, catching 2.1 billion pounds, or 69 percent of the foreign total. South Korea, with 605 million pounds, 20 percent of the catch, was second. Other foreign fishing fleets included those from Canada, Spain, and Italy. About 97 percent of the total foreign fish harvested was taken from the Gulf of Alaska and the Eastern Bering Sea. Less than 100 million pounds were taken by foreign fishing vessels from the Northwest Atlantic.

U.S. Sets Fish Consumption Mark

Americans ate a record 13.6 pounds of seafood each in 1984, bettering the old high of 13.4 pounds in 1978, according to figures released by the National Oceanic and Atmospheric Administration (NOAA). Marketing experts with NOAA's National Marine Fisheries Service said record purchases of fresh and frozen seafood and near-record purchases of canned fish accounted for the figures.

"There's no doubt that we're eating more fish, and better quality fish, with almost every passing year," said NMFS Director William G. Gordon. "As Americans become more conscious of their health and the need for good nutrition, and as more markets open up for seafood, I expect to see these figures continue to look good for the fishing industry," Gordon added.

Other records in 1984 for the supply of U.S. seafood (domestic production plus imports) included lobster (100.1 million pounds; previous high of 92.6 million pounds in 1983), scallop meats (86.8 million pounds; previous high 71.8 million pounds in 1981), and clam meats (144 million pounds; previous high 130.1 million pounds in 1981).

Gulf Butterfish May Offer New Opportunities

Gulf butterfish, *Peprylus burti*, may be an untapped fishery resource for some trawlers according to a recent U.S.-Japanese survey. These small fish, four or five to the pound, could provide an annual yield of 47,000 metric tons according to researchers at the NMFS Southeast Fisheries Center's Pascagoula Laboratory. The best catches were made in depths of 60-80 fathoms in the spring and 100-120 fathoms in the fall.

While there is potential for a new fishery, fishermen do face problems due to product perishability, high cost of vessel conversions, and uncertainty of markets. Production and economic information is available from the Pascagoula (Miss.) Laboratory of the NMFS Southeast Fisheries Center.