

## NOAA Raises Coastal Zone Management Status

A new post reflecting the National Oceanic and Atmospheric Administration's increased involvement in the orderly management of the coastal environment has been created by NOAA Administrator, Robert M. White. Robert W. Knecht, Director of the Commerce Department agency's Office of Coastal Zone Management, will serve in the new position of Assistant Administrator for Coastal Zone Management.

In announcing the appointment, White said: "The elevation of the coastal zone management program to the Assistant Administrator level reflects the fact that the program has come of age. There is a greatly increasing awareness of the need for protecting and making more rational use of the coastal resources of the nation, as well as in developing methods for managing those resources."

White added that "the recent emergence of a wide range of energy problems has focused attention on the coastal zone for deepwater ports, floating nuclear power plants, and offshore oil and gas drilling and has served to draw attention to the program and to the urgent need for closer cooperation between state and federal governments."

OCZM, as a part of NOAA, is charged with coordinating with states in their development of a program for managing the coastal zone. In addition to providing grants for program development and implementation under terms of the Coastal Zone Management Act of 1972, OCZM gives technical assistance to states, and is helping them prepare for increased pressures to develop the shore, conflicting uses of the coastal zone, as well as for the onshore impact of oil and gas exploration and related issues. OCZM has also attempted to assure that state concerns are reflected in the plans of federal agencies involved in activities along the coasts.

Before assuming his present position, Knecht was Deputy Director of NOAA's Environmental Research Laboratories in Boulder, Colo. He first joined the government in 1948 with the

National Bureau of Standards and has held a series of successively more responsible positions. In 1967, he was awarded a Department of Commerce gold medal for leadership in a satellite experiment and has received several other awards for community service.

A graduate of Union College, Schenectady, N.Y., Knecht was a Fellow at Cambridge University (England) in 1959-60, and in 1971, on leave from NOAA, earned a Master of Marine Affairs degree at the University of Rhode Island. A native of Ogdensburg, N.Y., he served in the U.S. Navy, and is a former mayor and vice-mayor of Boulder. He has written 35 technical papers on solar-terrestrial relations, atmospheric and space physics, and coastal zone and land management use.

### **Future of Red Crabs Rests with Consumer**

Shoppers may soon notice a new seafood delicacy, the deep-sea red crab, showing up alongside its cousin, the king crab, in the frozen food sections of local supermarkets if there is a market for it. So says Sea Grant scientist Andreas Holmsen of the University of Rhode Island's College of Resource Development, and Hiram McAllister, a shellfish consultant from the State of Washington, who recently concluded an economic and technological study of the red crab fishery supported by the National Oceanic and Atmospheric Administration. One of the Commerce Department agency's functions is to study the feasibility of harvesting and marketing underutilized species of fin- and shellfish.

Holmsen estimates that the fishery could support a maximum of seven to eight vessels supplying three processing plants, with a total output of around 1.2 million pounds of meat per year. However, he says that current large inventories of king crab, the major competitor of the deep-sea red crab, and declining consumer buying power, make the future for the red crab market unclear. "The problem is primarily economic rather than technological," he says. "If

the fishermen can't get a high enough price at the dock for their catch, they'll be tempted to return to offshore lobstering or trawling. And if the processors feel they have to pay so much that they can't compete with products like king crab, they aren't going to build a new plant in the first place."

The red crab is a bottom feeder that prefers the cold waters off the continental shelf from Maine to Cape Hatteras at depths up to about 2,500 feet. The National Marine Fisheries Service, another branch of NOAA, estimates it is there in substantial numbers—at least five million pounds a year can be taken without damaging the stock—and the technology exists for harvesting and processing the crustacean, but as yet there is no large market for it.

The landing price for red crab last year was 30 cents per pound until a slump in the market in the fall. Groundbreaking for the first full-scale commercial red crab processing plant took place in New Bedford, Mass., last September and several fishermen have supplied a pilot plant in Point Judith, R.I., with red crab catches over the past year at prices they considered favorable.

Red crabs average about one and one-half to two pounds at maturity, of which about 25 percent is recovered and marketed as meat. Whole, frozen crabs and cocktail fingers (claws) also have been marketed.

Holmsen's study at the University of Rhode Island complements the efforts of the National Marine Fisheries Service. NMFS, through its New England Fisheries Development Program on latent and underutilized species, considers the red crab one of its target species.

A report on the study by the Sea Grant researchers examines not only the economic aspects of red crab harvesting and processing but also provides detailed specifications on the construction of crab pots, the equipment and layout necessary for a processing plant, and the types of vessels that the authors feel are most suitable for industry. Entitled "Technological and Economic Aspects of Red Crab Harvesting and Processing," the report is available from the Marine Advisory Service, University of Rhode Island, Narragansett, RI 02882.

## NOAA Issues New Shellfish Poster

The sixth in a series of Commerce Department posters depicting marine life in coastal waters has been issued by the National Oceanic and Atmospheric Administration.

The four-color poster, *Mollusks and Crustaceans of the Coastal U.S.*, displays 60 species of shellfish that are or have been important to food and recreational fisheries of the United States. The poster is keyed to indicate those shellfish found on the Pacific Coast and in the Atlantic and Gulf areas.

Jack W. Gehringer, Deputy Director of NOAA's National Marine Fisheries Service, made the initial presentation to Congressman Gerry E. Studds of Massachusetts, and to Everett A. Tolley, Executive Director of the Shellfish Institute of North America during Fish Expo '74 held in Norfolk, Va.

Developed by Bob E. Finley, Director of NOAA's National Fishery Education Center, the 30- x 48-inch charts are printed on washable, nonglare, plasticized paper that hangs flat against a surface without curling. A list of common and scientific names of the shellfish is included, as well as artwork showing the natural habitat. The first five charts are titled: *Marine Fishes of the North Atlantic* (\$2.80), *Marine Fishes of the North Pacific* (\$2.80), *Marine Fishes of the California Current* (\$2.80), *Marine Fishes of the Gulf and South Atlantic* (\$2.80), and *Fishes of the Great Lakes* (\$2.65).

Copies of *Mollusks and Crustaceans of the Coastal U.S.* may be obtained from Government bookstores and the Superintendent of Documents, Washington, DC 20402, for \$3.20.



## NOAA Scientists Find and Observe Herring Spawning Grounds off Massachusetts Coast

Herring spawning grounds have been located and observed by scientists of the National Oceanic and Atmospheric Administration's National Marine Fisheries Service during recent diving explorations off the coast of Massachusetts. Scientists believe that such observation will give them an insight into the reasons for declines in herring populations and may assist them in determining what can be done to increase future populations.

Richard A. Cooper, chief of the exploration party and a scientist at the NMFS Northeast Fisheries Center, Woods Hole-Narragansett, said this is the first time they were able to observe in detail herring spawning grounds. The dives were a continuation of activities in a 5-year Commerce Department study to learn more about herring spawning. The principal area of investigations was the southern half of Jeffrey's Ledge, which is approximately 20 miles north-

east of Cape Ann, Mass., in the Gulf of Maine. Close contact with several commercial draggers and gill netters fishing for groundfish that concentrate over the egg beds shortly after spawning provided the team with its first evidence as to location and times of spawning.

Scuba dives were made in two spawning areas nine miles apart, to depths of 132 feet. The dives were made within "no decompression" limits which restricted divers to 8-9 minutes of bottom time. Several dives also were made by the U.S. Navy Camera Sled, "Snoopy." Extensive photographic documentation of the ocean bottom and of the developing herring eggs was conducted in conjunction with the dives. Cooper and his staff were assisted by personnel from the Naval Undersea Center, San Diego; Army Corps of Engineers; and NOAA's Manned Undersea Science and Technology office.

Preliminary results indicate certain

characteristics common to both spawning grounds: The bottom temperature at the time of spawning was 48.2°-50.0°F.; the bottom was hard and irregular; i.e., boulders, rocks, gravel and shell; the distribution of eggs was relatively uniform over the bottom and covered a 0.2-0.4 square-nautical-mile area. Government scientists plan to conduct a complete "before-during-after" ecological study of the herring spawning this fall.

## Foreign Vessels Draw CSFR Violation Fines After Notifications

On 5 December 1974, the U.S. Coast Guard and the National Marine Fisheries Service began enforcing a U.S. law which prohibits the taking by any foreign vessel of Continental Shelf Fishery Resources (CSFR) appertaining to the U.S. Continental Shelf. All foreign governments were notified of these regulations in advance by the U.S. Department of State. In addition, U.S. Coast Guard officers have been advising foreign fishing vessels of the law whenever they boarded a foreign fishing or fishery support vessel.

Despite the advance notifications, The stern factory trawler *Tontini Pesca-4* was seized by the U.S. Coast Guard approximately 100 miles south of Cape Cod on 31 January 1975, according to the Law Enforcement Division, National Marine Fisheries Service. Coast Guard personnel observed the Italian vessel hauling starfish in her net. Since starfish dwell on the U.S. Continental Shelf, the vessel was boarded. A search located four lobsters in the cold storage hold; an additional search produced 20 kilograms of frozen lobster tails and claws, five more whole lobsters and about 30 crabs. The seizure of the vessel was authorized by the Coast Guard and the vessel was taken to Governors Island, New York City, pending arraignment in U.S. Federal Court.

On February 3, the vessel's captain was arraigned in the U.S. District Court; at the same time, the U.S. Attorney filed a civil action for the forfeiture of the Italian vessel, its gear, cargo, and stores. A settlement was reached on February 5 with the payment by the

## Southeast Coastal Navigation Facilities Inspected

A 4-month inspection by the Commerce Department's National Oceanic and Atmospheric Administration of marine and navigational facilities from Cape Henry, Va., to Key West, Fla., is being conducted for a new edition of the government's *Coast Pilot* for that area. The inspection, which began in April, is being conducted by Pamela R. Chelgren of Seattle, Wash., who is visiting such ports as Charleston, S.C.; Wilmington, N.C.; and Miami, Port Everglades, Palm Beach, Jacksonville, and Key West in Florida.

The inspection is being made for *Coast Pilot*, a publication issued for commercial shipping and recreational boating by NOAA's National Ocean Survey. It will contain important navigational information which cannot be shown graphically on the nautical charts including details concerning waterways, harbors, anchorages, navigation regulations, weather, marine and port facilities, routes, and prominent landmarks.

Chelgren will meet with officials of Federal, state and local marine naviga-

tion agencies, including the Coast Guard and Navy personnel, port authorities, harbor masters, merchant seamen, pilots and others involved in marine affairs and regulations.

The field inspector will also examine marinas and their facilities, question the Army Corps of Engineers concerning plans for deepening channels, confer with Customs, Immigration and Naturalization, and Public Health officials regarding regulations and inspection requirements, and talk to port authorities on such varied subjects of interest to mariners as the depth of water at piers and regulations concerning anchorages.

Inspections are conducted about every five years to update the eight *Coast Pilot* publications.

Between 1885 and 1889, four local *Coast Pilots* were published covering the Atlantic Coast from Cape Henry to Key West. The first complete edition of the area was published in 1895. Since then, 15 additional editions have been published, the most recent in 1970.

vessel owners of a \$25,000 fine. The captain was released on condition of satisfactory compliance of a one-year probationary agreement.

These court actions were civil in nature. The civil case can be processed more quickly and the master is not left with a criminal record. Criminal actions by the U.S. Attorney can be brought, however, particularly if the captain is uncooperative, or if the offence is more serious.

On February 11 another Italian stern trawler (*Antonietta Madre*) was seized by the U.S. Coast Guard. The vessel had previously been boarded on February 1 and her captain had been cautioned not to take any lobsters as such activity would violate the provisions of the newly enacted CSFR law. When lobster was discovered on board, the vessel was brought to New York and the captain was arraigned before a U.S. magistrate. On February 14 the vessel owners paid a \$40,000 fine, and the vessel and its crew were released and allowed to depart. The captain's release was provisional and he was placed on probation for one year.

## **Herring, Hake Stocks Counted by Computer**

A method that can provide precise and rapid estimates of certain fish stocks using a computerized, hydroacoustic system has been developed by a Sea Grant team at the University of Washington.

Capping a six-year effort backed by the Commerce Department's National Oceanic and Atmospheric Administration through its National Sea Grant Program, the Washington research team has devised an acoustic system consisting of: (1) Echo sounders that transmit sound pulses and receive echoes from the fish; and (2) A computer system which converts the fish echo data into estimates of fish populations, and is used either on ships to produce "real time" information on fish abundance, or in the laboratory where it processes data collected on tape recorders at sea. NOAA's National Marine Fisheries Service is now using the sophisticated acoustic gear for surveys of hake stocks off the Pacific Coast and

Between February 7 and 9, three Spanish fishing vessels were boarded and inspected by the Coast Guard as they were conducting demersal (bottom) fishing operations. The vessels were incidentally taking crab and lobster, but were immediately returning them to the sea. The captains were advised of CSFR requirements, and no further action was taken.

Subject to certain technical considerations, the CSFR law, which went into effect on 5 December 1974, is being enforced by the U.S. Coast Guard in all waters over the U.S. Continental Shelf. Foreign vessels may be boarded and/or seized for the following practices: (1) Fishing with gear designed specifically to catch CSFR (whether or not such catch has been made); (2) Retaining CSFR taken incidentally (not immediately returning the Continental Shelf creatures to the sea); (3) Resetting gear in an area where there is a known concentration of CSFR, after the Coast Guard had warned them not to fish there; and (4) Catching two separate CSFR specimens within one year, even if they are immediately returned to the sea.

plans to use it to assess herring and pollock off Alaska.

Stanley R. Murphy of the University of Washington Marine Acoustics Group and leader of the Sea Grant research team said, "standard instruments still can be used effectively by fishermen and scientists to estimate gross abundance or general location of fish stocks, but they are not reliable enough for scientific management of many fish stocks."

A primary benefit of the new acoustic system is that it allows much more timely assessment than traditional methods such as tagging or analysis of the catch data of commercial fishing fleets. Traditional assessment methods are often so time-consuming that by the time effective management plans can be instituted the fish stock in question is already in danger of being seriously depleted.

The heart of the new system is the computer programmed to carry out "echo integration." The intensity of the

fish echoes the sounder receives is directly proportional to the number of fish. The sounder converts the echoes to electrical voltages, and these are added together (integrated) by the computer. When combined with information on the species of fish obtained from actual net catches, the system is capable of producing reliable estimates of the number and average size of fish stocks.

The Sea Grant team is continuing its research to determine the applicability of these techniques to high-density fish schools that occur in such species as anchovies and herring. This work has been aided by the availability of salmon of various sizes being grown in aquaculture pens. The scientists also are investigating the feasibility of a network of fixed-location acoustic monitors that could be used to determine fish population characteristics at specific points such as sewage outfalls or power plant discharges, and the timing and size of migrating fish populations such as the commercially valuable salmon.

The first "on line" test of an early model of the system came at the request of the Washington State Department of Fisheries. Herring schools in the south Puget Sound area provide the State with a half-million-pound annual harvest for the baitfish industry. Sport fishermen groups, which had viewed this commercial fishery as a threat to the stock upon which salmon feed, sought to have the herring fishery closed in 1971. At that time there was no accurate assessment of the stock size.

The Sea Grant group undertook an immediate study of the stock and came up with data showing that only about one percent of the herring was being harvested. "Had the fishery been arbitrarily closed awaiting the outcome of traditional stock assessment, a process that might have taken as long as a year, an industry with an annual landed value of almost \$500,000 would have been needlessly curtailed," Murphy said.

Working with Murphy on the Sea Grant project have been John E. Ehrenberg, William Acker, and James Green of the Applied Physics Laboratory, Dean W. Lytle of the Department of Electrical Engineering, and Richard E. Thorne and Ole A. Mathisen of the Fisheries Research Institute, all of the University of Washington.

## Soviet-U.S. Fishery Claims Are Studied

The U.S.-USSR Fisheries Claims Board was established to provide an efficient and amicable means to settle claims brought by a national of either country against a national of the other country for financial loss resulting from damage to fishing gear or fishing vessels, or by loss of or damage to catch. An agreement signed in February 1973 established a Fisheries Claims Board to examine allegations of loss or damage sustained in the northeastern Pacific, including the Bering Sea. The agreement was amended in June 1973 to include consideration of claims arising in the western Atlantic. There are now two parallel Boards, one in Moscow and the other in Washington, D.C. Each Board has two Soviet and two American members. The Board in Washington began to function officially in early 1974, with the arrival of two Soviet representatives: Y. A. Znamenskiy and A. G. Afanasyev. The U.S. representatives are C. J. Blondin and C. J. Maguire.

A notice of the establishment of the Board was published in the Federal Register of 12 May 1974, and rules of procedure were formulated. The records of all individuals who have previously filed complaints with the U.S. Department of State alleging Soviet responsibility for gear loss or damage were turned over to the Board and the individuals were so advised by letter.

Fishermen may bring claims before either Board within one year of an incident's occurrence, except that, for incidents which occurred two years prior to the entry into force of the agreement, claims may be brought before either Board within two years of an incident, or within one year of the entry into force of the agreement, whichever is longer. After examining the evidence in each claim, the Board recommends a settlement. Cases in which the Board recommends payment by the Soviet Government are reviewed by that Government before payment is authorized. The recommendations of the Board are not binding on any party, and a claimant may ask the Board to reconsider its recommendation.

As of 1 March 1975, 55 allegations of

damage had been presented to the Board. Of these, 13 cases are closed; in one case, the Board has determined that the record did not support the claim of involvement by Soviet vessels, and in 12 other claims the Board recommended payments by the Soviet Government totaling \$82,266. Six cases stem from incidents which occurred prior to the period which the Board by agreement may consider. Four cases await additional documentation before the Board can dispose of them. There remain 32 claims under active consideration.

Parties desiring to submit a claim to the Board should obtain a copy of the rules of procedure which outline the filing procedures. A copy can be obtained from the Assistant Director for International Fisheries, National Marine Fisheries Service, Washington, DC 20235.

## Well Travelled Tuna Taken Off Hawaii

The Honolulu-based sampan *Buccaneer* entered port last fall carrying in its load of skipjack tuna at least one that should have been tired. About 30 miles south of Honolulu the crew of the *Buccaneer* had recovered a skipjack tuna that was tagged by the Inter-American Tropical Tuna Commission off the southern coast of Baja California in June 1973.

According to fishery scientists at the Honolulu Laboratory, Southwest Fisheries Center, National Marine Fisheries Service, NOAA, the fish had grown from an estimated 4½ pounds to a whopping 21 pounds, and from 18 to almost 30 inches in length in its 14 months of freedom. And it had swum at least 2,750 miles.

This was the ninth tagged skipjack tuna to be recovered in the central Pacific over a period of 12 years. Eight of these fish were recaptured in Hawaiian waters. They had all been caught, tagged, and released in the same general area of the eastern Pacific as part of an on-going program to study the migration patterns of this sturdy pelagic species.

Information resulting from the study is valuable to the National Marine

Fisheries Service Honolulu Laboratory in its continuing work to determine the size of the skipjack tuna resource of the Pacific and the movements of this resource, knowledge that is important to an expansion of the Hawaiian fishery.

The fish taken by the *Buccaneer* was the second tagged skipjack tuna caught near Hawaii this year. In June the MV *Sunfish* also recovered a skipjack tuna bearing an IATTC tag. These two fish had been released within 3 days of one another.

With one exception, all of the tagged skipjack tuna recaptured in the Hawaiian fishery were taken in years of below-average catch. By late summer the 1974 skipjack tuna catch in Hawaii was estimated at 2,700 metric tons, considerably below the long-term yearly average of 4,500 metric tons.

## Fisheries Attache Named For Africa

William B. Folsom is the new U.S. Regional Fisheries Attache for Africa with the Department of State. He began his official duties in March 1975 at the Consulate General of the United States of America in Casablanca, Morocco. Folsom replaced Norman L. Pease who was assigned to Copenhagen, Denmark. Folsom's assignment also marked the opening of the new post in Morocco. The Regional Fisheries Attache was formerly posted in Abidjan, Ivory Coast.

Folsom was a Foreign Affairs Officer with the Office of International Fisheries, National Marine Fisheries Service, NOAA, U.S. Department of Commerce prior to his nomination. There he was responsible for reporting on the fisheries of Africa, Asia, and Latin America. He joined the National Marine Fisheries Service in 1971 after receiving a Master of Philosophy degree in International Affairs from the George Washington University where he specialized in the politics and history of Sub-Saharan Africa. Folsom also received a Master of Arts in International Affairs from George Washington University. Folsom was graduated from Tufts University in 1965. Son of a retired U.S. Foreign Service Officer, he has lived in Haiti, Hungary, China, Mexico, and Greece.