"Year of the Ocean" Celebrates Marine Importance

The "Year of the Ocean," from 10 March 1984 through 10 March 1985, has been initiated and designed to celebrate and call attention to the importance and value of the ocean to human life. Start of the year-long observance was set in honor of the first anniversary of President Ronald Reagan's Proclamation of the Exclusive Economic Zone (EEZ).

Education and Stewardship

While that Proclamation extended U.S. sovereign rights and jurisdiction to the many resources found within 200 miles of our shores, Year of the Ocean festivities are not limited to the EEZ. It is to celebrate all ocean areas with particular focus on education and stewardship. Federal organizations with ocean missions will open their doors at various times throughout the year to welcome the public, especially students, to view their facilities and become familiar with their many activities. This special celebration is expected to spark new interest in the exploration, research, development, use, and enjoyment of the seas around us.

Purpose and Objectives

The major purpose of the "Year of the Ocean" is to increase awareness of our bond with the ocean—the ocean is our benefactor and continues to offer great potential. The Ocean Year celebration should result in a more informed and effective public on ocean issues. Public evaluation of the Nation's policy posture will serve the entire world well as we approach the 21st Century.

Stated objectives of the Year of the Ocean are to:

1) Foster Federal, State, and industry partnership in wise use and management of the ocean and its resources.

2) Educate and inform Americans about the products, use, and potential of the ocean.

3) Encourage ocean users to develop a stewardship role in addressing the use and management of our ocean resources for present and future Americans.

4) Provide a neutral forum for policy- and decision-makers to raise, examine, and/or recommend resolution of ocean issues.

5) Initiate and stimulate multiple celebrations of America's ocean heritage and future.

A new organization, the Year of the Ocean Foundation (see box), is sponsoring the observance. Composed of oceanic leaders in government, industry, academia, private organizations, and state and local governments, its sole purpose is to increase the American public's understanding of the importance of the oceans. The new Foundation will operate for 2 years.

Year of the Ocean Foundation

Foreseeing the possibility of "a new American heritage," the Year of the Ocean Foundation has been established to sponsor Year of the Ocean activities. The Pro Tem Executive Committee for the Foundation included John V. Byrne, Charles D. Matthews, Cliff McLain, Richard Shamp, and Charles H. Bussman. National Coordinator of the Year of the Ocean is Diane C. Boratyn at Foundation headquarters, Box 1100, 3421 M Street, N.W., Washington, D.C. 20007 (telephone is 202-333-1188).

The Foundation was set up to stimulate public and private partnership, provide communication between ocean users, initiate ocean events, and inform the public about the oceans. It will provide a headquarters staff to coordinate events and expedite the involvement of industry, academia, and other organizations in the year-long program of observances.

NOAA's Role

NOAA's ocean organizations plan to conduct a series of events during the Ocean Year to reach people across the Nation and to give the ocean new meaning in their lives. Planning sessions have been held at national, state, and local levels to produce a year-long calendar of exciting and educational events. And, Congressional resolutions for the Ocean Year and a "Day of the Ocean" are under consideration.

The National Marine Fisheries Service will also be an active participant in the Year of the Ocean celebrations. On 9 March, NOAA facilities in at least 12 locations were opened to conduct educational programs and facility tours for grade school science classes. Additional details on upcoming Ocean Year events and educational activities are available from NOAA and NMFS regional offices.

Keynoting the Coastal Zone 83 conference on 1 June last year in San Diego, NOAA Administrator John V. Byrne proposed that 1984 be the "Year of the Oceans." In his wide-ranging speech, Byrne called for State governments and private interests to exercise leadership in their areas of interest to provide the Nation with strong ocean and coastal programs, and he pledged that NOAA would assume its share of leadership.

Define and Clarify Goals

Said Byrne, "We now have an unparalleled opportunity to define and clarify the Nation's ocean and coastal goals, and rally the support needed to achieve them. I propose that we, and all who are interested in coasts and oceans, make next year, 1984, the "Year of the Oceans"... I believe that the Year of the Oceans will help us achieve a consensus about needs to be met and programs to be undertaken. And I believe that it will enable us to move into the 21st

Century with our National directions clear, and with science and technology on track to meet the challenges that lie ahead."

Addressing science, Byrne noted that NOAA was fortunate to have many excellent scientists whose knowledge and skills "can often be linked to provide solutions to problems broader than might be met in their single disciplines."

Fisheries

On fisheries, Byrne said, "Fish stocks are large or small, in general, depending on how well the juveniles survive to become adults. Only recently have scientists discovered how heavily this survival depends upon physical oceanographic factors such as currents, turbidity, and salinity, as well as biological factors such as predation.

"Our oceanographers and fishery biologists are now pursuing joint research on the factors that influence juvenile survival. Recent advances have put us on the threshold of major predictive capabilities for several important fish stocks.

"We think the Year of the Oceans will see important advances toward our goal of increasing the catch of our fishing industry."

Estuarine Research

Likewise, estuarine research is another practical and productive area, according to Byrne, citing progress at the NMFS Galveston and Beaufort fisheries laboratories in learning the importance of spartina marsh grass for juvenile shrimp and menhaden.

NOAA participation in the Year of the Ocean is coordinated by its National Ocean Survey (NOS), according to Ruth Barritt in NOS' Office of External Affairs. Several special science programs for school children to initiate the Year of the Ocean celebration were held on 9 March by NOAA elements in the following cities: Seattle, Wash.; Miami, Fla.; Charleston, S.C.; San Diego and La Jolla, Calif.; Boulder, Colo.; Bay St. Louis, Miss.; Norfolk, Va.; Rockville, Md.; Kodiak and Anchorage, Alaska; and Narragansett, R.I., and others.

NMFS SCIENTISTS HONORED

Shomura Receives NOAA Administrator's Award

Richard S. Shomura, Director of the Southwest Fisheries Center's Honolulu Laboratory since 1973, received NOAA's Administrator's Award from John V. Byrne, Administrator of NOAA, in ceremonies last fall in Washington, D.C. The Award consists of a plaque and stipend of $2,000 and is given annually to at most 10 NOAA employees (NOAA employs almost 15,000 persons) who have made significant contributions to NOAA's programs.

Shomura was cited for his efforts in bringing together a diverse group of scientists at a symposium held at the University of Hawaii in May 1983. The scientists shared results of studies on the fish and wildlife of a group of islands and atolls extending over a thousand miles northwest of Hawaii. These islands and atolls, especially Midway, have strategic military importance and harbor some of the world's most important seabird colonies as well as many commercially and recreationally valuable fish and shellfish. These islands also provide terrestrial habitat for the endangered Hawaiian monk seal and green sea turtles.

Shomura was also commended for his initiative and leadership in dealing with problems of assessing fishery resources and improving fishery management in underdeveloped areas of the Pacific. Shomura holds a Master of Science degree in zoology from the University of Hawaii and is the only locally born person to hold the laboratory director's position since the Honolulu Laboratory was established.

Reuben Lasker Receives Excellence Award for Marine Science Studies

Reuben Lasker, a NOAA Gold Medal Winner and Chief of the Coastal Fisheries Resources Division at the NMFS Southwest Fisheries Center, added to his list of honors with the announcement that he is the 1983 recipient of the A. G. Huntsman Award for excellence in marine science. Lasker was notified of the honor by the Huntsman Award Committee at the Bedford Institute of Oceanography (BIO) in Dartmouth, Nova Scotia, Canada.

The Huntsman Award was established in 1980 by BIO and is presented annually in one of the three divisions of marine science—biological oceanography, physical/chemical oceanography, and marine geoscience. It recognizes excellence of research, outstanding contributions to science, and influence on the course of marine scientific thought. Recipients are honored not only for their caliber of science and scientific thought, but also for their impact and influence on the future of oceanography.

In a prepared statement the Award Committee said: "Dr. Lasker is a highly regarded teacher and researcher in the field of biological oceanography who has a profound influence on our understanding of the nutrition, biochemistry, and general physiology of marine organisms. He has pursued a lifetime search for the causes of fluctuations in the abundance of fish populations, concentrating on the sardines and anchovies of the California Current, as models of fish stocks everywhere. Starting from laboratory studies on the bioenergetics of eggs and larvae in the early 60's, he developed a mechanism for spawning anchovies on demand in the laboratory. This significant breakthrough in the supply of research material enabled him to progress rapidly through studies of larval feeding behavior to critical experiments at sea for determining the oceanographic conditions necessary to establish sufficient

food conditions."

The work by Lasker and his colleagues at the SWFC La Jolla Laboratory, the awards committee concluded, "is a most elegant combination of laboratory physiology and biological oceanographic field work... (which) culminated in the late 1970's with a first demonstration of how good and poor year-classes of fish, in this case, anchovy, might be formed that has resolved old questions, and has led to a worldwide resurgence of research in this important field."

Lasker received the specially designed and engraved sterling silver medal at ceremonies in November in the BIO auditorium from the President of the Royal Society of Canada, Marc-Adelard Tremblay. Following the ceremony the medalist presented a distinguished lecture. The Huntsman Award is supported jointly by the Canadian Departments of Fisheries and Oceans; Energy, Mines and Resources; the East Coast Petroleum Operators Association, and the Provincial Department of Fisheries.

Lasker is a long-time Federal employee who joined the NMFS in 1958 as a research physiologist. He is married to the former Caroline Hayman and has two grown children.

Outstanding NMFS Authors Are Cited

The outstanding papers authored by National Marine Fisheries Service scientists and published in the *Fishery Bulletin* and the *Marine Fisheries Review* in 1982 have been announced by the NMFS Publications Advisory Committee.

For the *Fishery Bulletin*, Vol. 80, Thomas Pothoff and Sharon Kelly shared the award for their top-rated paper "Development of the vertebral column, fins, and fin supports in the swordfish, *Xiphias gladius*," 80(2): 161-186. Pothoff, a fishery biologist, and Kelly, a research assistant, are both with the Miami Laboratory of the NMFS Southeast Fisheries Center, Miami, Fla.

Selected as the best paper published in 1982 in the *Marine Fisheries Review* was "A review of the offshore shrimp fishery and the 1981 Texas Closure," by Edward F. Klima, Kenneth N. Baxter, and Frank A. Patella, Jr. Klima is Director of the Galveston Laboratory of the NMFS Southwest Fisheries Center, Galveston, Tex. Baxter, a supervisory fishery biologist, and Patella, a fishery biologist, are also stationed at the Galveston Laboratory. The paper was published in the September-October issue, 44(9-10):16-20, and was part of a special double-size issue devoted to the "Texas Closure."

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.

Any NMFS employee may recommend published papers of the appropriate calendar year for award consideration to the chairman of the Publication Awards Committee (the current *Fishery Bulletin* editor). Authors must have been employed by the NMFS at the time the paper was published. Nominations must include the author's name, paper title and number of pages, series name and volume number, justification to support the nomination, and the name and office affiliation of the nominator.

Drilling Mud Effects on Planktonic Crustaceans

Muds used in drilling offshore oil wells pose little threat to sensitive larval stages of several species of shrimp and crabs, according to a study recently completed by Stanley D. Rice and Mark Carls at the NMFS Northwest and Alaska Fisheries Center's Auke Bay Laboratory in Alaska. This finding is reassuring to those concerned about effects of the mud on fish resources. About 1 ton of solids (mud mixed with rock chips) is dumped at sea for each 10 feet of well drilled. Because both the number of wells and their depths are increasing rapidly on the continental shelf, possible toxic effects of muds have become an issue.

Effects of six muds—four used muds from actual drilling operations, and two unused—were tested on six species of crustacean larvae: King, snow, and Dungeness crab; and coonstripe, dock, and kelp shrimp. Tests on sensitive planktonic larvae of crabs and shrimp had not been conducted before this study. Toxicity of the muds varied with the composition of the mud and species tested. Concentrations of mud-seawater suspensions that killed 50 percent of the animals in 144 hours of exposure ranged from 0.05 to 2.98 percent by volume. Mud toxicity was much less than that of crude oil—even the most toxic mud was only about 1/1,000 as toxic as Prudhoe Bay crude. No harmful effects were evident from any muds until after at least 4 hours of continuous exposure to these high concentrations.

Several mud components were also tested separately for toxicity. Ferrochrome lignosulfonate, a dispersant commonly added to mud formulations in small quantities, was the most toxic component tested. Barite ($BaSO_4$) and bentonite clay, which usually make up the bulk of mud formulations, were relatively nontoxic. Effects at the highest mud concentrations were probably caused by physical interference with larval behavior rather than chemical toxicity.

Under most conditions, drilling muds discharged into the sea are unlikely to harm planktonic larvae because toxic concentrations are diluted rapidly within a short distance from the point of discharge (thousandfold dilutions have been measured in other studies within 5 m of the discharge). Drilling muds settling on the bottom near the point of discharge could affect some benthic organisms, but this question was not addressed. Results of the study will be published in *Marine Environmental Research*. Additional details concerning the drilling mud toxicity study are available from George Snyder, Director, NMFS Auke Bay Laboratory, Auke Bay, AK 99821.

NMFS Announces New Habitat Conservation Policy

A new habitat conservation policy to ensure that habitat is given greater attention in agency programs has been adopted by the National Marine Fisheries Service, agency officials have announced. After extensive internal and public scrutiny, the national policy was approved by William G. Gordon, Assistant Administrator for Fisheries, NMFS, Washington, D.C., and published in the *Federal Register* late last year.

The new policy will:

1) Ensure that habitat is fully considered in all NMFS programs and activities.

2) Focus NMFS habitat conservation activities on species for which the agency has management or protection responsibilities under the Magnuson Fishery Conservation and Management Act, the Marine Mammal Protection Act, and the Endangered Species Act.

3) Lay the foundation for management and research cooperation on habitat issues.

4) Strengthen NMFS partnerships with the states and the Regional Fishery Management Councils on habitat issues.

The Nation's eight Fishery Management Councils are responsible for preparing fishery management plans for fisheries within their jurisdiction. Where appropriate, the Councils recommend habitat conservation measures in their fishery management plans. Because fish don't recognize boundaries between state and federal waters, it is vital for the states, the Councils, and the Federal government to cooperate on habitat and fishery issues.

Coastal and estuarine areas and their associated wetlands are vitally important as spawning and nursery grounds for both commercial and marine recreational fishery resources. About two-thirds of the important fishery resources depend upon these areas which also serve as habitat for many species of marine mammals and endangered species. However, human population shifts to coastal areas and associated industrial and municipal expansion have accelerated competition for use of the same habitats. By 1990, about 75 percent of the U.S. population is expected to live within 50 miles of the coastlines.

Increasing efforts to develop new or alternate sources of energy are further stressing important marine resource habitats. As a result, these habitats have been substantially reduced and continue to suffer the effects of dredging, filling, coastal construction, energy development, pollution, waste disposal, and other human-related activities. In the case of wetlands, from 1954 to 1978 there was an average annual loss of 104,000 acres, a tenfold annual increase in acreage lost between 1780 and 1954.

The NMFS' habitat conservation activities will, however, recognize that multiple uses of marine areas are necessary. The agency's responsibility is to see that such uses are balanced so that our important marine resources are minimally affected or, where possible, improved. NMFS is the primary Federal agency charged with conserving, managing, and developing marine fishery resources and protecting certain marine mammals and endangered species.

Liquid CO_2 Extraction and Fisheries Research

A new solvent extraction system with potential for widespread applications in fishery processing has been developed recently according to the Northwest and Alaska Fisheries Center's Utilization Research Division (URD). The process involves high pressure fluid extraction to concentrate and recover useful products such as perfume essences, oil from seeds, active ingredients from plants, and removal of caffeine from coffee. High pressure carbon dioxide has been evaluated in products such as corn oil and cottonseed oil with good success. Results of this research have been encouraging to URD scientists who have procured the necessary equipment to begin in-house investigations of the potential application to fishery products.

The carbon dioxide extraction process is quite simple. The carbon dioxide is first liquefied by compression at pressures of 4,000-10,000 psi. The high pressure liquid is then passed through an extraction vessel that may contain either liquid oil or solid material that contains the compounds to be separated. Specific fractions are recovered from the extraction process and can be isolated. Carbon dioxide is nonflammable, nontoxic, readily available, cheap, and easily removed from the material extracted.

The most promising areas that present opportunities for innovative research include refining fish oils to prepare good grade oils and pharmaceutical products, extraction of oils from fish meal or press cake, and the extraction and concentration of carotenoid pigments from crustacean processing wastes. Fractionation of methyl esters derived from fish oil triglycerides would yield concentrates of the highly unsaturated components with possible use for the treatment and prevention of cardiovascular disease. The extraction system has been assembled in the URD's Seattle laboratory and will be operated by Virginia Stout.

Richard W. Nelson

Fishery Product Safety Research

Fish and shellfish accumulate trace amounts of chemical contaminants to varying degrees, harbor pathogenic bacteria and viruses, and accumulate

naturally occurring marine toxins, all of which are capable of causing human illness. This is an impediment to expanding domestic and export markets for U.S. fishery products and can severely impact the stability of existing markets.

S-K 1983 funds totalling $742,000 will support research in the hepatitis A virus, cleansing mechanisms of *Vibrio cholerae* and *V. vulnificus* in Florida shellfish, the detection of ciguatera, the development and field testing of detection kits for paralytic shellfish poison, use of liquid smoke in fishery products to inhibit *C. botulinum*, use of controlled atmosphere to extend the shelf life of packaged seafood, and the commercial heat sterilization of seafood packed in retortable pouches. For more information on product safety projects contact: Betty Hackley, National Marine Fisheries Service, Office of Utilization Research, Washington, D.C. 20235.

U.S. West Coast 1984 Groundfish Rules Set

New regulations governing fishing for certain species of groundfish in the Pacific Ocean off Washington, Oregon, and California were put into effect 1 January 1984. These Federal regulations implement the Pacific Coast Groundfish Plan developed by the Pacific Fishery Management Council and have been coordinated with the fishery agencies of the three coastal states. The regulations apply to widow rockfish, rockfish of the *Sebastes* complex, and sablefish, and are as given below.

Vessels harvesting widow rockfish in the Pacific Ocean off the three states are limited to one trip per calendar week (Sunday through Saturday) which lands more than 3,000 pounds of widow rockfish. No more than 50,000 pounds (round weight) of this species may be taken and retained or landed in any one trip. All landings of widow rockfish must cease when the quota of 9,300 metric tons (t), about 20.5 million pounds, is reached.

Vessels harvesting the *Sebastes* complex in the area north of Cape Blanco, Oreg., are limited to one trip per calendar week above 3,000 pounds of fish of those species. No more than 30,000 pounds of fish in the *Sebastes* complex may be taken and retained or landed in any one trip. There is no harvest quota for fish of the *Sebastes* complex north of Cape Blanco at this time.

Regulations for the *Sebastes* complex in the area south of Cape Blanco limit each vessel to 40,000 pounds landed per trip. There is no limit on the number of landings allowed per week and there is no quota for the *Sebastes* complex south of Cape Blanco at this time.

Regulations for sablefish continued the minimum size limit of 22 inches of 1983. Vessels fishing for sablefish north of Point Conception, Calif., will be allowed to take and retain or land 5,000 pounds of sablefish under 22 inches in length per trip. South of Point Conception there are no size restrictions or trip limits for sablefish. All fishing for sablefish must stop when the coastwide harvest quota of 17,400 t (38.3 million pounds) is reached.

These regulations were to be reviewed in April and again in July by the Pacific Fishery Management Council and may be modified if the expected reduction in total catches is not realized.

Commercial Newsletter Pilot Project

The U.S. Department of Commerce has started a commercial newsletter project to enable small- and medium-sized U.S. exporters to test new markets on a regional basis with a minimum outlay. The project is aimed at new-to-export and new-to-market firms who wish to test the Asian or northern European markets, and who do not seek representation at this time.

The market test items will be published by the U.S. Embassies in London and Manila in a regional newsletter. Each copy of the newsletter will contain a reader interest card which may be marked and returned. Responses will be forwarded to advertisers. The product information inserts will be identified as commercial advertising for which the client will be charged an insertion fee of $25.00 per region. For further details, call or write: U.S. Department of Commerce, International Trade Administration, District Office, 441 Stuart Street, Boston, MA 02116 (telephone 617-223-2314).

Western Pacific Fisheries Development

In the Pacific Ocean, priority is given to projects that address tuna harvesting and/or contribute to the fishery development goals of Hawaii, Guam, American Samoa, the Commonwealth of the Northern Mariana Islands and the Trust Territories of the Pacific Islands.

With $248,000 in S-K funds, the Pacific Tuna Development Foundation will continue its Pacific fisheries development program. The trochus reef reseeding program will continue. Reef areas in Palau will be stocked with juveniles of the giant tridacnid clam. A study will determine the feasibility of using Palau, Truk, Saipan, Ponapae, and Majuro port facilities for 500-1,000 ton transshipments of tuna.

A suitable location will be investigated for drydock facilities to repair the locally based fishing fleet of Truk. Cultured Mexican topminnows will be tested as live bait for aku, pole and line fishing, and fish aggregating devices. Efforts will be continued to expand the American Samoa fishery fleet, improve on-board and shoreside quality control, establish guidelines for air export shipments, and train local market employees in sales and quality control procedures.

Two other projects recommended for funding include the continuation of the small-scale tuna longlining effort centered in Guam, and support of a private industry committee in Hawaii to organize local seafood promotion activities on an industry-wide basis. Further Western Pacific project information can be obtained from: Peter Milone, NMFS, P.O. Box 3870, Honolulu, HI 96812.