

Financing Set For Large Trawler-Processor Vessel

The Federal government signed off in late September on a \$5 million financing arrangement—the largest single fishing vessel financing ever guaranteed by the Fishing Vessel Obligation Guarantee program. The announcement was made by Terry L. Leitzell, Assistant Administrator for Fisheries, National Oceanic and Atmospheric Administration (NOAA). The guarantee program is administered by NOAA's National Marine Fisheries Service.

A Commerce Department agency, NOAA said the \$5 million guaranteed financing involved the fishing vessel *American No. 1*. The *American No. 1* is a 160-foot, \$7 million, trawler-processor intended for operation in the North Pacific Ocean and Bering Sea fisheries. The ship is one of the largest and most advanced trawler-processors ever constructed for the American fisheries, Leitzell said. He added that it should have major implications for the domestic development of a mid-water and bottomfish capability in an area of the U.S. 200-Mile fisheries zone with one of the greatest concentrations of foreign fishing effort.

The long-term debt portion of the vessel's \$7 million construction cost was financed by a \$5.25 million obligation guaranteed under the Fishing Vessel Obligation Guarantee program. The Federally guaranteed financing has a repayment maturity of 25 years and an interest rate of 9.5 percent. The equity portion of the vessel's \$7 million construction cost was generated by a \$1.75 million tax-deferred contribution under the Fishing Vessel Capital Construction Fund, also administered by the National Marine Fisheries Service.

The *American No. 1* is the first American fishing vessel ever to be

equipped with an automatic trawling system and a computerized sonar system. According to the vessel's builder, this "... combination of automatic trawling and computerized fish-finding will permit the *American No. 1* to intercept schools of fish by using automatic net positioning and a moving electronic portrayal of the fishing situation." The vessel has five operating deck levels and a refrigerated hold capacity of 25,500 cubic feet. Its electronic fish-finding and navigation equipment alone involved and investment of more than \$500,000. The vessel has quarters for a crew of 21 fishermen and process workers.

The Fishing Vessel Obligation Guarantee program, under Title XI of the Merchant Marine Act, 1936, uses the private capital market to arrange long-term debt financing for up to 87.5 percent of the cost of constructing, reconstructing, or reconditioning U.S. fishing vessels. Financing maturities may in some cases be for up to 25 years, but are generally limited to 15-20 years. The program is self-supporting and receives no governmental funds for its administration. The Federal guarantee is for 100 percent of the financing, is incontestable, and is backed by the full faith and credit of the United States. With a Federal Guarantee under the program, private capital markets are willing to extend longer debt maturities, at a more reasonable interest rate, and for a greater portion of the vessel cost than might otherwise be the case. Additionally under this program, the National Marine Fisheries Service holds, in the Government's name, and services all collateral for the financing—thus making the guaranteed financings more attractive to private capital markets. Although the *American No. 1* represented

the largest financing under the program, guaranteed financing is equally available to any fishing vessel which measures over 5 net tons.

The Fishing Vessel Capital Construction Fund program, under Section 607 of the Merchant Marine Act, 1936, enables fishing vessel owners or operators to defer the payment of Federal tax on income from the operation of fishing vessels of 2 net tons or over. This enables fishermen to accumulate before-tax dollars, rather than after-tax dollars, with which to fund the equity portion of fishing vessel construction costs. Thus, vessel downpayments may be accumulated faster and the portion of vessel construction costs which has to be financed with expensive debt may be substantially reduced. Deferred taxes are eventually recaptured over the depreciable life of vessels using the program.

Brochures describing both these Fisheries financing programs are available by calling 202-634-7496 or writing Financial Services Division, National Marine Fisheries Service, NOAA, Washington, DC 20235.

TUNAS INDUCED TO SPAWN IN CAPTIVITY FOR THE FIRST TIME

The first successful attempt to induce spawning in tunas was announced by Richard S. Shomura, Director of the Honolulu Laboratory, Southwest Fisheries Center, National Marine Fisheries Service, NOAA.

The tuna, *Euthynnus affinis*, known locally as kawakawa, was successfully induced to spawn for the first time anywhere in shoreside tanks at the Kewalo Research Facility of the Honolulu Laboratory. Conducting the

spawning experiments at the Kewalo Research Facility is Calvin M. Kaya, a visiting fishery scientist on a year's sabbatical leave from Montana State University.

Kaya explained that this is the first time a species of tuna has been artificially forced to spawn (by hormone treatment) in captivity anywhere in the world. There have been reports from Japan of tunas spawning in artificial enclosures in bays, but these fish spawned naturally without human intervention or control. The Japanese have also obtained fertilized tuna eggs by stripping ready-to-spawn fish caught at sea, but such fish are only rarely captured.

Many fishes, and some terrestrial animals also, for various reasons fail to reproduce in captivity. Consequently, fishery scientists throughout the world have been conducting experiments to artificially induce fishes to spawn in captivity, especially for aquaculture purposes. Kaya noted that freshwater fishes have been successfully induced to spawn by hormone treatments for many years but the success rate for saltwater fishes, particularly the large, fast-swimming, pelagic species like the tunas has not been as good.

Shomura noted that perhaps it is not surprising that the breakthrough in inducing tunas to spawn occurred in Hawaii in that the Honolulu Laboratory is the only scientific facility in the world which is able to capture tunas at sea, transport them back to shore alive, and maintain them in shoreside tanks and oceanaria throughout the year. Indeed, this was the reason that prompted Kaya to spend his sabbatical leave conducting spawning experiments on tunas at the Honolulu Laboratory's Kewalo Research Facility.

Since the beginning of his experiments, two individual female kawakawa were induced to spawn, said Kaya. The experimental procedure to induce spawning involves conducting biopsies on the fish to monitor the development of eggs in the ovaries. Because the kawakawa, like other tunas, is highly active, special handling procedures had to be developed in immobilizing the fish to conduct the

biopsies. Once these techniques were perfected and the biopsies showed that the fish were ready for hormone treatments, Kaya and his assistants began injecting various hormones into the muscles of male and female fish. Following two separate injections of hormones a day apart in mid-June, a female kawakawa spawned (discharged her eggs) into the holding tank. The second female receiving a similar treatment in early July spawned on 4 July. Eggs stripped from the second kawakawa were successfully fertilized by mixing them with milt (the male sex product) from a ripe male. The fertilized eggs hatched into tiny kawakawa which survived for 2-3 days.

This breakthrough in inducing tunas to spawn opens up many possibilities not only in fishery science, but also in commercial marine aquaculture. Plans are to continue these experiments to perfect the techniques at the Kewalo Research Facility so that tunas can be routinely induced to spawn in captivity.

Rote Named to NMFS Post

James W. Rote has been named Director, Office of Habitat Protection, National Marine Fisheries Service, Terry L. Leitzell, National Oceanic and Atmospheric Administration's Assistant Administrator for Fisheries, has announced. Rote advises the Assistant Administrator and the Service on the environmental impact of human activities on the Nation's commercial and recreational fisheries and other living marine resources and their habitats. NOAA is an element of the Commerce Department.

"We are quite fortunate to have a person with Dr. Rote's qualifications and knowledge join the Service," said Leitzell. "The work of the Office of Habitat Protection is becoming more important as the country expands its efforts for new energy sources to the sea. We must be aware of the effects of these new efforts and be assured that we do not destroy or damage our living

marine resources while expanding our search for energy," said Leitzell.

Rote has served as an Assistant Secretary and the Acting Deputy Secretary to the California Secretary for Resources and as a member of the California Coastal Commission. He also has been a consultant to the Director of the Bureau of Land Management and a Research Associate with the John Muir Institute in California. He holds a Ph.D. degree in Biological Sciences from Stanford University and a B.A. degree in Economics from Boston University.

Four Major NMFS Positions Filled

Four appointments to major positions in the National Marine Fisheries Service have been announced by Terry L. Leitzell, Assistant Administrator for Fisheries, National Oceanic and Atmospheric Administration.

Martha O. Blaxall is the Director, Office of Utilization and Development; Richard E. Gutting, Jr., is the Director, Office of Policy and Planning; Samuel W. McKeen is the Deputy Director, Office of Policy and Planning; and Robin Waxman has been appointed Special Assistant to Leitzell. Waxman has a B.S. degree in International Affairs and a J.D. degree in Law from Georgetown University.

Blaxall is responsible for preparing and implementing plans for the proper development and use of marine fishery resources. She served as Director, Office of Research; Office of Policy, Planning, and Research; Health Care Financing Administration; Department of Health, Education and Welfare, prior to her new position. Blaxall has the Ph.D. and Masters degrees from the Fletchers School of Law and Diplomacy, Tufts, University. She has been a budget examiner, Office of Management and Budget, and has worked in the National Academy of Science.

Gutting is responsible for evaluating and reviewing the status of current plans and policies and recommends

development of new policies as needed. He has served as General Counsel for the Service, and Counsel for the House Subcommittee on Fish and Wildlife Conservation and the Environment, Council on Environmental Quality, and the Environmental Defense Fund.

McKeen previously served in the Department of Commerce as the Supervisory Budget Analyst for NOAA programs. He has a B.S. degree from the University of Maryland in Business and Public Administration and has worked in the Department of Commerce for more than 10 years.

Program to Expand Alaska Fishing Industry Started

A \$1,350,000 program designed to let Alaska fishermen evaluate their capacity for catching species of groundfish now being taken by foreign vessels within the 200-mile limit has been announced by Richard A. Frank, Administrator of the National Oceanic and Atmospheric Administration (NOAA). Under a cooperative agreement between NOAA's National Marine Fisheries Service and the Alaska Fisheries Development Foundation, the program will begin to test the economic feasibility of using existing U.S. fishing vessels to harvest bottomfish resources.

More than 500 foreign fishing vessels now harvest more than 3 billion pounds of groundfish each year from waters off Alaska. The resource represents a potential for multibillion dollar industry for U.S. fisheries, and employment for thousands in Alaska and elsewhere in fishing, processing, shipbuilding, and food processing.

The agreement initiates the first of a series of projects in a projected 5-year program to develop U.S. activity in the groundfish resources. It calls for the Alaska Fisheries Development Foundation, a nonprofit organization representing fishermen and processors to: 1) Convert a shrimp trawler to conduct mid-water and bottom-trawling; 2)

make minor modifications on a large, off-shore trawler for the same purpose; 3) demonstrate automated longline fishing techniques which can be accomplished through the adding of new equipment to some existing boats; and, 4) to train interested fishermen in the new techniques required.

The agreement is a result of the national effort launched by the Administration through NOAA and its parent agency, the Department of Commerce, earlier this year to help U.S. fishermen enter fisheries for species they do not now harvest. The program is coordinated with State of Alaska fisheries development projects, and will be monitored by the Alaska Region of the National Marine Fisheries Service.

Marine Fishery Advisory Committee Members Named

Secretary of Commerce Juanita M. Kreps has announced eight appointments to the Department's top level Marine Fisheries Advisory Committee. The Committee advises the Secretary on programs carried out by the National Oceanic and Atmospheric Administration.

Topics of concern to the Committee include international fisheries, conservation, aquaculture, biological and environmental research, fisheries technology, administration of the Marine Mammal Protection Act of 1972 and the Endangered Species Act, and fishery management issues associated with extended fisheries jurisdiction.

Members of the Committee are chosen for recognized competence and proven interest in the marine fishery resources of the United States and are appointed by the Secretary for a term of 3 years. Approximately one-third of the members are replaced each year to insure continuity on the Committee. Members are selected to provide a balanced representation by geographic area and represent a broad view of the U.S. commercial fishing industry, marine recreational fishing, the academic community, conservation in-

terests, State governments, and the consumer.

The new appointees are: Edith H. Buss, President, Education Fund, Texas Consumer Association, Austin Tex.; Robert B. Ditton, Associate Professor of Recreation and Parks, Texas A&M University, College Station, Tex.; George J. Easley, commercial fisherman, Coos Bay, Oreg.; John S. Gottschalk, Legislative Council, International Association of Fish and Wildlife Agencies, Washington, D.C.; Thomas L. Kimball, Executive Vice President, National Wildlife Federation, Washington, D.C.; Hideto Kono, Director, Hawaii State Department of Planning and Economic Development, Honolulu, Hawaii; and Henry S. Sesepesara, Director, Marine Resources, Government of American Samoa, Pago Pago, American Samoa. Ronald Jensen, President and Chairman of the Board, Pan-American Fisheries, Inc., Seattle, Wash., has been reappointed for a second term.

Other members of the Committee are: H. Heber Bell, H. Bell & Sons, St. Petersburg, Fla.; John T. Campbell, Campbell Music Service Inc., Plymouth, Mass.; Charles H. W. Foster, Dean, School of Forestry and Environmental Studies, Yale University, New Haven, Conn.; Alan D. Guimond, Executive Secretary, Atlantic Offshore Fish & Lobster Assoc., Bristol, R.I.; Sidney E. Herndon, President, Herndon Marine Products, Inc., Aransas Pass, Tex.; Edgar J. Huizer, former Deputy Commissioner, Alaska Department of Fish and Game, Juneau, Alaska; Herbert R. Kameon, President, Pacific Region, National Coalition for Marine Conservation, Santa Monica, Calif.; William C. Lunsford, Jr., Assistant Secretary, Zapata Haynie Corp., Towson, Md.; Fred Maly, Outdoor Editor, *San Antonio Light*, San Antonio, Tex.; Edward P. Manary, Manager, Washington State Commercial Passenger Fishing Vessel Assoc., Olympia; Stephen B. Mathews, Associate Professor, College of Fisheries, University of Washington, Seattle; Ann McDuffie, Food Editor, *Tampa Tribune*, Tampa, Fla.; Kathryn E. Po-

land, State Senator, Juneau, Alaska; Haakon Ragde, Seattle, Wash.; Manuel A. Silva, former President, American Tunaboat Assoc., San Diego, Calif.; Dorothy F. Soule, Director, Harbors Environmental Project, Allan Hancock Foundation, University of Southern California, Los Angeles; Jesse L. Webb, Sales Manager, Pflueger Marine Taxidermy, Hallandale, Fla.; Lee J. Weddig, Executive Vice President, National Marine Fisheries Institute, Washington D.C.; Christopher M. Weld, attorney, Sullivan and Worcester, Boston, Mass.

Pioneer Shellfish Researcher Donates Library to NMFS Lab

Victor L. Loosanoff, a pioneer researcher in shellfish biology for half a century, has contributed his extensive personal library of scientific reprints and journals to the NMFS Southwest Fisheries Center's Tiburon Laboratory in Tiburon, Calif., Izadore Barrett, Director of the Center at La Jolla, has announced. Loosanoff, widely known for his research on shellfish aquaculture, was a Senior Scientist at the Tiburon Laboratory from 1962 to 1965, when he retired from government service.

The collection of publications which Loosanoff donated to the Tiburon Laboratory contains bound volumes of more than 10,000 reprints the majority dealing with bivalve mollusks — oysters, clams, scallops, mussels, and the like. Many of the articles describe the morphology, physiology, ecology, and propagation of shellfish. The collection also includes rare papers on bivalve diseases, predators, and parasites. Loosanoff, himself the author of more than 300 scientific articles, used the library in carrying out his extensive aquaculture and shellfish research at the Milford Laboratory on Long Island Sound.

In accepting the library for NMFS, Norman Abramson, Director of the Tiburon Laboratory, pointed out that

the Loosanoff collection is unique and would be difficult to duplicate anywhere in the world.

Born in Kiev, Russia, Loosanoff received his undergraduate degree from the University of Washington and his doctorate from Yale University. He entered government service as an aquatic biologist with the U.S. Fish and Wildlife Service (predecessor agency of the National Marine Fisheries Service), serving as the Director of the Marine Biology Laboratory in Milford, Conn., for 27 years.

Habitat Research Program Announced

America's only active underwater habitat is back in business off St. Croix, U.S. Virgin Islands, as "home" for scientific teams investigating the ecology of local waters. It supports regional projects seeking information about the marine environment and application to problems in U.S. continental coastal regions.

Owned and maintained by the National Oceanic and Atmospheric Administration (NOAA), the habitat—formerly known as *HydroLab*—was recently awarded an American Bureau of Shipping Interim Class Certificate as a Class I Habitat.

The first scientific team to mount a week-long research effort from the newly classified habitat was led by John Ogden of Fairleigh Dickinson University. In early July the team built small "reefs" out of cinder block near the habitat, and observed fish settlement and colonization patterns. Such studies, it is hoped, will lead to better understanding of fish behavior and how fish communities can be established in areas that previously had few or none.

A second team from Fairleigh Dickinson is investigating how fast sediment moves down the underwater canyon to fill basins on the continental shelf. This movement affects the biology of the area and sources of sand and

gravel in ways that are not yet understood. Dennis Hubbard of Fairleigh Dickinson and leader of the second mission, is with the West Indies Laboratory of the University, which operates NOAA's habitat under contract.

A University of Michigan team headed by Donald B. Macurda, Jr., and Lee Somers used NOAA's underwater laboratory in late August to investigate the feeding behavior of stationary flower-like animals called crinoids and ophiuroids, to better understand the relative importance of these animals in coral reef ecology.

Ernest H. Williams, Jr., of the University of Puerto Rico directed a team, 10-27 September, in research on parasites of various fish. The group captured fish that were infested with the parasites, others that were not, transferred the parasites, and tagged, released, and monitored the infested fish. Susceptibility or immunity of various species, and other information, was obtained. This work will be useful in learning more about how parasites spread among fish, and how environmental health affects the spread.

David B. Olson of the Island Resources Foundation, St. Thomas, V.I., led a mission in October to find out more about the growth and mortality rates of black coral in the area. Black coral has recently been used in considerable quantity by local jewelers, and the Virgin Islands Government has become concerned that the coral may be over-harvested. Olson's work will assist the local government in establishing guidelines for the coral harvest. William B. Gladfelter and William S. Johnson of the West Indies Laboratory, Fairleigh Dickinson University, also surveyed plankton-feeding fish during a late-October mission.

NOAA Studies Impact of Campeche Oil Spill

NOAA plans to commit at least an additional \$700,000, and perhaps as much as \$1 million, to a study assessing the present and long-term impacts of

the Campeche oil spill on the fragile coastal ecosystems of South Texas, Administrator Richard A. Frank has announced.

In making the announcement upon his return from the oil spill site and Port Isabel, Tex., Frank said the assessment and research program will be conducted in close cooperation with the Environmental Protection Agency as part of the oil spill containment effort being coordinated by the Coast Guard.

"Scientists from NOAA and other Federal, State, and local agencies have been attempting, by innovation and improvising with the latest technologies, to mitigate the effects of the oil spill through computer forecasts and modelling studies of the Gulf of Mexico currents, including satellite, aerial, and ocean surface surveillance, fisheries advisories, vulnerability studies, and the like," Frank said.

"The full scale of that effort is an outstanding improvisation of talent and technology in a dynamic, threatening, and only partially understood situation," Frank said. "Now we are undertaking a new program to determine what the effects of this record-breaking spill will have been and will be on the life and environment of the area.

"We enter this new stage because the long-term impacts of this oil spill pose serious threats to a variety of on-shore and off-shore life," Frank emphasized, adding, "We are now dealing with an environmental insult on an immense scale, requiring a new dimension of study and attack."

The new study sent 100 researchers into the field to tally the impact of Mexican oil along the South Texas shoreline. While the study will focus primarily on the impact upon wildlife and environment—from bird counts and fish samplings to habitat studies and beach morphology—Frank said it will also examine the socioeconomic impacts of the spill; for example, the impact of curtailed tourism on Padre Island and the effect on the fishing industry.

In addition, Frank said, the NOAA

Ship *Researcher*—one of the agency's major oceangoing research vessels—was directed from other projects to begin a systematic study along the boundaries of the slick, from the well site northward into U.S. coastal waters. The 22-day voyage of the vessel explored such uncertainties as the quantity of submerged oil, and how the oil drifting northward changed with time and distance from the well site. An accompanying tender, along with NOAA's Orion research aircraft, were expected to round out the coordinated air-sea study in and around the drifting oil, to explore the effects of the slick on interactions between the ocean and atmosphere, as well as on regional weather.

While the impact assessment and related research studies mark an important new direction in NOAA's participation in the Federal response to the Campeche spill, Frank explained that the team from NOAA and other scientific agencies will persist in its efforts to mitigate the impact of the drifting oil.

These efforts have brought some 80 of NOAA's scientists and technicians, spanning the full range of environmental science—oceanography, meteorology, fisheries biology, remote sensing, and related technologies—to a command center at Corpus Christi. At this location, NOAA is adding its expertise to the efforts of the Coast Guard, EPA, Fish and Wildlife Service, Bureau of Land Management, National Park Service, and a variety of other state and local agencies, as well as a number of private industry representatives.

Wetlands Tied To Future Fish Declines

Future decline and extinction of fish and shellfish in coastal areas may result from the loss of the essential wetlands and critical habitat, James P. Walsh, NOAA's Deputy Administrator has pointed out. Speaking at a National Workshop on Mitigating Los-

ses of Fish and Wildlife Habitats in Fort Collins, Colo., Walsh said that the job of protecting and conserving marine and estuarine habitats is going to get tougher.

"Conflicts between protection and development continue to multiply in our coastal zones, especially conflicts over the use of dwindling wetlands," Walsh said. "The complexity of the matter, competition for scarce space in the coastal zones, pollution problems, and, unfortunately, a fair amount of public indifference and distrust of government intentions adds to our habitat protection problems."

NOAA is concentrating on habitat protection activities by the National Marine Fisheries Service and Coastal Zone Management programs to include estuarine and marine sanctuaries and pollution research efforts, Walsh said. Under the Coastal Zone Management Act and regulations, habitats of particular concern must be inventoried by the states, and procedures developed for protecting and restoring their conservation and ecological value, Walsh told the group.

"Fourteen state programs covering more than 75 percent of our Nation's coasts have been approved, and six more are slated for approval in the next several months," he said. "States with approved coastal programs are being required to devote an increasing percentage of their Federal funds for protection of natural areas. In addition, we are developing map overlays that identify coastal areas that are environmentally critical and least suitable as sites for energy facilities or other major developments."

Walsh noted that NOAA's pollution research had resulted in dramatic results. He cited a pioneering series of in-depth studies of adult striped bass in California which is possibly the first documentation of long-term chronic effects of heavy metals, PCB's, and other chlorinated hydrocarbons on mature fish. Additional studies on the east coast have shown that these pollutants can inhibit the normal growth and development of fish eggs.