

Fish Exports to Japan May Reach \$1 Billion; Fishery Trade Mission Planned

United States fishery product exports to Japan could reach \$1 billion in 5 years and will approach \$500 million in 1979, more than double the 1977 figure, Richard A. Frank, Administrator of the National Oceanic and Atmospheric Administration, has predicted. The prediction was made after a U.S. Export Development Mission headed by Secretary of Commerce Juanita M. Kreps, returned from Japan.

Government officials and fishery industry leaders from Alaska, the West Coast, the Gulf and South Atlantic States, and New England discussed opportunities for expanding fishery imports from the United States with Japanese business and government leaders for 5 days in October.

"Progress was made at the meetings, but work remains to be done," said Frank. "Trade barriers must be reduced before we can consider the problem close to solution."

At the outset of the Tokyo discussions, Frank indicated that Japanese action on trade barriers to U.S. fisheries product exports would be a factor in U.S. determination of 1979 allocations to foreign nations wishing to fish for resources in the U.S. 200-mile Fishery Conservation Zone. The allocations were to be made by the Department of State during the succeeding weeks. United States law requires that trade considerations enter into the making of allocations to foreign nations.

Frank stated that there are excellent opportunities to market many of the species in Japan, if we can reduce some of the trade barriers that limit market access. The United States has a \$2.1 billion deficit trade balance in fishery products and a \$14 billion overall trade deficit with Japan. Implementation of the U.S. 200-mile fishery conservation zone has created opportunities to expand U.S. production and exports of fish products.

Frank and NOAA's Assistant Administrator for Fisheries, Terry Leitzell, discussed with Japanese officials the reduction of trade barriers to encourage further U.S. imports and the need to provide greater market access for Alaska pollock, Pacific cod, Alaskan pollock roe, herring and herring roe, crabs, hakes, salmon roe, mackerel, and squid.

Frank said that a fisheries trade mission to Japan is planned for spring 1979. This mission will be specifically directed toward increased sales by the U.S. fisheries industry.

NOAA, EPA Ink Ocean Protection Agreement

NOAA and the Environmental Protection Agency agreed last fall to coordinate research and regulatory activities relating to the use and protection of oceanic and coastal waters in a formal manner. Formation of the NOAA-EPA Interagency Committee for Program Coordination was announced recently by NOAA Administrator Richard A. Frank and EPA Administrator Douglas M. Costle at a ceremony marking the signing of the Committee's charter.

Frank pointed out that NOAA has growing responsibilities in the management of U.S. coastal resources and the development of new industrial technologies that will exploit the wealth of the oceans. EPA is responsible for environmental protection of the Nation's coastal waters and the oceans, a responsibility, Costle said, "that expands and grows more complex in the light of new and changing off-shore activities and technologies."

The Administrators said the Committee would be concerned with a variety of problem areas in which both EPA

and NOAA have responsibilities, such as deep seabed mining and the protection of marine sanctuaries and coastal waters from degradation caused by wastes discharged from land-based sources. Among its first priority actions will be a search for ways the two agencies can cooperate in efforts to control algal blooms in coastal waters. These blooms thrive on the nutrients (mostly phosphorous and nitrogen) in runoff from land and in wastes discharged through ocean outfalls.

A study will be made by the Committee, Frank and Costle said, of the possible joint use of facilities of both agencies for research relating to ocean dumping, pollution, monitoring, and meteorology.

The agency heads also noted that the proposed Deep Seabed Hard Mineral Resources Act could give both NOAA and EPA major mandates in managing the recovery of minerals from the seafloor by privately financed ventures. It is essential that these operations be conducted with the least possible damage to the environment, they said.

The Committee is cochaired by NOAA Deputy Administrator James P. Walsh and Thomas C. Jorling, EPA Assistant Administrator for Water and Waste Management. Subcommittees have also been named for studies of individual areas of concern. Committee recommendations will be considered by each agency in formulating operating policy and establishing regulatory controls.

Fox Heads Southeast Fisheries Center

William W. Fox, Jr., 33, has been named Director of the National Oceanic and Atmospheric Administration's Southeast Fisheries Center in Miami, Fla., according to NOAA Assistant Administrator for Fisheries, Terry L. Leitzell. As Director of the Center, one of four major research centers in the Fisheries Service, Fox is responsible for laboratories in Miami; Galveston, Tex.; Beaufort, N.C.; Panama City,

Fla.; Bay St. Louis and Pascagoula, Miss.; and Charleston, S.C.

Since 1975, Fox has been Chief of the Oceanic Fisheries Resources Division at the Southwest Fisheries Center in La Jolla, Calif., where he has played a major role in the development of tuna policy and has been chiefly responsible for the direction and conduct of research programs on the tuna/porpoise interaction in the purse seine fishery in the eastern tropical Pacific.

Fox began his career in the National

Marine Fisheries Service in 1967 at the same Center which he now directs. In 1972, he was transferred to La Jolla. A native of San Diego, Calif., he received a B.S. in zoology from the University of Miami in 1967, and an M.S. from its Institute of Marine Sciences in 1970. In 1972, he was granted a Ph.D. from the University of Washington's College of Fisheries.

Fox, an expert on tunas, presently serves on the Scientific Committee of the International Commission for the

Conservation of Atlantic Tunas, as technical advisor to the U.S. Delegation to the Inter-American Tropical Tuna Commission, and as a member of the Eastern Pacific Tuna Group, the latter formed to advise the government on alternative methods of tuna management. He has authored many scientific papers, most of them dealing with the application of statistical methods to the study of exploited animal populations, and is a member of a number of professional and scientific organizations.

Dolphin Mortality Incidental to the U.S. Tuna Fishery Has Been Reduced Sharply

Since the passage of the Marine Mammal Protection Act in October 1972 the mortality rate of dolphins (porpoises) caught and killed in U.S. yellowfin tuna fishery purse seines has been reduced drastically. In 1977 the mortality was only 27,000 animals, less than 10 percent of the level that existed prior to the passage of the Act.

This phenomenal reduction in dolphin mortality was a direct consequence of the development and application of new gear and fishing techniques and protective regulations, and the diligent efforts and wide adoption of the gear by the U.S. tuna fishing industry.

At the time the Marine Mammal Protection Act (MMPA) was passed, the U.S. Department of Commerce's National Marine Fisheries Service (NMFS) was already experimenting with new gear and procedures for reducing dolphin mortality. After passage of MMPA, the La Jolla, Calif., Laboratory of NMFS's Southwest Fisheries Center was greatly expanded to increase the experiments, and to determine the status of the impacted dolphin stocks. The expanded program was fully operational by mid-1973, a time within the 24-month period exempting the tuna fishery from the moratorium provisions of the Act, provided they used all known gear and fishing procedures that minimized harm to marine mammals. At the end of this

period NMFS held public hearings and issued a general permit to the tuna fishery for the 1975 fishing season.

Several environmental organizations filed a suit to void this permit, and in late 1975 while the suit was still pending NMFS again held public hearings and issued a general permit to cover the 1976 season. Again, several environmental groups filed suit to void the new permit. The lawsuits were then consolidated, and on 11 May 1976, a Federal Court voided the permit issued to the tuna industry. Subsequently, a quota on the number of dolphins that could be killed incidental to tuna fishing was set for the 1976 season by NMFS. Meanwhile, the highly successful research program to develop gear and fishing procedures to reduce dolphin mortality proceeded apace. The tuna industry, adopting and diligently applying them was rapidly reducing the mortality rate.

William W. Fox, Jr., now director, NMFS Southeast Fisheries Center (see page 73) has outlined the remarkable progress that has been made in recent years in reducing the mortality of marine mammals, particularly dolphins, caught in the purse seines of the U.S. yellowfin tuna fishery¹. As re-

search continues, it is likely that further improved systems will be developed which may allow capture of tuna associated with dolphins without also capturing and killing any of the trapped mammals.

The mortality of marine mammals incidental to U.S. tuna purse seine fishing for 1971 and 1972, the 2 years immediately prior to passage of the MMPA, averaged 309,000 annually; 106,000 tons of tuna per year were taken during this period. In the 1973-74 exemption period the average yellowfin tuna catch associated with dolphins was up (113,000 tons per year) and the average dolphin mortality was down to 137,000 per year. Thus, the application of new gear and fishing procedures developed by NMFS research resulted in the saving of over 340,000 dolphins over this period. Subsequently, for the years 1975, 1976, and 1977, the annual mortality of dolphins was reduced to 134,000, 104,000, and 27,000 animals, respectively; the yellowfin tuna catch associated with dolphins increased to an average of 115,000 tons per year over the same period.

The capability of the total NMFS system of gear and techniques to greatly reduce dolphin mortality was demonstrated during two NMFS charter cruises of tuna fishing boats, one in late 1975, and the other in 1976. During the first cruise 25 sets were made with a mortality rate of only 1.44 animals per set; no animals were killed in 15 of the sets. This compared with 12.8 animals killed per set for the comparable fleet average in 1975.

¹Fox, William W., Jr. 1978. Tuna/Dolphin program: Five years of progress. *Oceans* 11(3):57-59.

In early 1976 modifications of the system used in the first charter cruise were tested using 20 purse seiners. This was to determine whether or not the low mortality rate could be achieved under competitive fishing conditions, and by most tuna purse seine vessels.

Several problems noted during the 20-vessel test were alleviated during the second charter cruise in late 1976. The extensive use of fine mesh webbing in the net to reduce entanglement, and a man with a face mask on a raft inside the net to ascertain if all live animals were rescued before the net and fish were hauled aboard were incorporated in the regulations for 1977. Entanglement of the animals dropped from about 6-7 per set in 1976 to less than one per set in 1977 for sets where animals were killed. The average number killed when net and fish were hauled aboard dropped from one per set in 1976 to less than 0.1 in 1977 for sets where animals were killed. The percentage of sets with no animals being killed rose from 40 percent in 1976 to 60 percent in 1977. The low mortality of 27,000 dolphins in 1977 was due almost exclusively to the mandated gear and procedures, and to the cooperation and efforts of the U.S. tuna fishermen.

Ironically, complications brought about by the legal battles, resulting from the suit brought by environmental groups served only to delay full implementation of the most effective dolphin rescue gear and procedures for about a year.

Vessels using the new gear, the porpoise apron, in the first quarter of 1978 have a dolphin mortality rate of about 60 percent below that of other vessels. During the first quarter of 1978, the dolphin mortality rate was about 20 percent below the 1977 level (all vessels were required to install the new gear by 1 July 1978).

The Court ruled that issuance of the tuna fishing permits incidental to compliance with the MMPA also required estimates of the existing and optimum dolphin population sizes and the impact of fishing-caused mortality levels on the existing and optimum population sizes for all affected dolphin stocks. An acceptable definition of the term "op-

timum sustainable population" was derived and assessments of all 21 dolphin species were developed in accordance with the Court's ruling. The aggregate estimate of the amount of U.S.-caused dolphin mortality that would allow the stocks to remain stable was 179,000 animals. The aggregate of quotas set by NMFS for most species and stocks in 1977 was only 62,429 animals. Another suit filed by an environmental group to void the issuance of regulations for 1977, and heard by the same Court, was settled in favor of NMFS.

Remarkable progress has been made in reducing mortality of dolphins incidental to the U.S. yellowfin tuna purse seine fishery. However, research continues in efforts to improve tuna fishing systems which may eventually allow capture of tuna associated with dolphins without capturing or killing any of the animals in the process. (Source: Science and Engineering News from NOAA-SEN-78.)

Alaska Scientists Eye Pink Shrimp Industry

Scientists at the University of Alaska are beginning a study of the pink shrimp industry to determine if catch declines in recent years are related to oceanographic factors. Supported by a \$1,050,000 grant from the National Oceanic and Atmospheric Administration (NOAA) announced recently by Secretary of Commerce Juanita M. Kreps, the Sea Grant study will give fishery managers new information upon which to base their management of the important cash crop. The grant is being supplemented by \$829,283 in non-Federal funds.

Also supported by the NOAA award is continued research on the use of fisheries by-products as feed supplement for livestock. Preliminary results indicate processed crab by products have promise as protein and energy sources in livestock feeds and can be used to replace high percentages of soybeans.

A new Sea Grant education project at the University involves publication of a

monthly marine education newspaper, *Tidelines*. It is designed to increase junior high school students' awareness of the role of Alaska's water resources in the State's history, culture, economy, politics, and future.

Specialists Recommend Marine Research Goals

High priority goals for research and monitoring of ocean pollution have been recommended by industrial, environmental, and State specialists called together by the Federal Government. The group met in November in Fairfax County, Va., at the invitation of the Environmental Protection Agency and the Commerce Department's National Oceanic and Atmospheric Administration (NOAA), and recommended priority work in ocean pollution problems related to the fields of energy, coastal development and recreation, living resources, transportation, waste disposal, and mineral resources.

The following items are among their recommendations:

1) More attention should be paid to planning for catastrophic oil spills. Containment and clean-up, long-term assessment of the effects, and comparison from one ecosystem to another should all receive high priority.

2) Better ways should be found to assure that research data on ocean pollution are available both to environmental managers and to the public.

3) The especially difficult problems posed by ocean pollution in the Arctic should be recognized.

4) Effects of the sediment plume in marine mining operations should receive high priority attention.

5) Not only should known contaminants of the ocean be more carefully monitored and controlled, but great weight should be given to identifying presently unknown pollutants, particularly toxic substances.

The meeting complemented a scientific session held in July in Estes Park, Colo., to define and provide guidance on the crucial scientific problems posed by ocean pollution.

Both are part of a concentrated NOAA effort to respond to its responsibilities under the National Ocean Pollution Research and Development and Monitoring Planning Act of 1978. The Act designates NOAA as the lead Federal agency for preparing a 5-year plan for Federal ocean pollution research, development, and monitoring.

To assure that the national plan will reflect the needs and programs of the entire Federal Government, the President's Office of Science and Technology Policy has established an inter-agency committee headed by NOAA Deputy Administrator James P. Walsh. Four subcommittees to effect inter-agency coordination of the responsibilities assigned by the Act have been formed.

The Fairfax County meeting was held under the auspices of the Subcommittee on National Needs and Problems, headed by Steven Gage of the Environmental Protection Agency, who is also vice-chairman of the overall committee. John Slaughter of the National Science Foundation heads the Subcommittee on Research and Development; Ferris Webster of NOAA, the Subcommittee on Monitoring; and William Menard of the U.S. Geological Survey, Department of the Interior, the Subcommittee on Data.

Three California Sites Under Consideration for Marine Sanctuary Status

The National Oceanic and Atmospheric Administration (NOAA) has selected three sites off the California coast for possible designation as marine sanctuaries, the agency has announced. The three sites—Monterey Bay, an area around the Santa Barbara Channel Islands, and Point Reyes and the Farallon Islands—encompass some of the most ecologically important waters along California's coast.

They were suggested as possible marine sanctuaries more than a year ago, along with several other California locations, including the Tanner-Cortes Banks and a 6,000-square-mile area off

San Diego. Since that time, NOAA, which has jurisdiction over marine sanctuaries, has held public workshops and discussions on the areas with State and Federal agencies, local officials, and the public.

"Our studies so far," said Robert W. Kencht, head of the Commerce Department agency's office of Coastal Zone Management, "indicate that the three locations abound in values the marine sanctuary program is intended to preserve, including critical protection of marine mammals and seabirds, among them several endangered and threatened species."

The California Coastal Commission will hold hearings on these sites, Knecht added, and NOAA will incorporate the results in its evaluation. Knecht noted, however, that two other areas, Tanner-Cortes Banks and the San Diego site, are no longer active candidates.

"The San Diego nomination," he said, "was aimed mainly at protecting the esthetic and recreational values of the area, and Congress has not given a clear indication of how appropriate these values are in judging marine sanctuaries." Amendments to the law

were expected after Congress convened in January, he noted.

Coral, the chief resource of the Tanner-Cortes site, can be protected under existing authority of the Bureau of Land Management or the Pacific Fishery Management Council, according to Knecht. These areas, he said, have been dropped as active candidates, along with part of the Santa Barbara nomination that dealt with the main channel area and sought primarily to resolve conflicts in uses such as vessel traffic and gas development.

NOAA already has started to gather the necessary information to produce a draft Environmental Impact Statement (EIS) on the three areas under consideration. This is one of the first formal steps leading to designation of a marine sanctuary and reflects the fact that NOAA considers each of the sites "feasible" for marine sanctuary status.

In a related matter, Knecht also announced that NOAA will not issue "white papers" prior to writing a draft EIS on marine sanctuary sites. He said that a draft EIS is required by law and as such only it can properly assess the pros and cons on marine sanctuary designation.

University of California Gets Largest Sea Grant

The University of California has received a \$2,737,500 Sea Grant from the National Oceanic and Atmospheric Administration, the largest grant ever awarded through the National Sea Grant College Program according to Secretary of Commerce Juanita J. Krebs. The University has pledged \$1,899,551 as a matching contribution. Forty-seven research projects will be carried out under the grant at seven of the nine campuses of the University, as well as at the Moss Landing Marine Laboratories, San Diego State University, Humboldt State University, San Jose University, and Stanford University.

Under the grant, scientists will seek solutions to a number of problems associated with aquaculture, including

salt tolerant plant culture and salmon mortality rates during transfer from hatchery to seawater rearing pens. Among new projects to be launched are pharmacological evaluation studies, an investigation into producing freshwater from seawater, and a study into the genetic improvement of a chitinase-producing microorganism. Chitin is a product of shellfish that is finding increased commercial use as a binding agent in pastes and other materials.

In addition to the marine resources development and marine technology research and development projects, researchers, will conduct a variety of socioeconomic and legal studies, environmental investigations, and an expanded program of education, training, and marine advisory services.