ture have back-up systems for added reliability.

Oceanographic data reported will include surface seawater temperature, subsurface temperature measured at six depths from 10 to 300 meters, and one-dimensional spectral wave data.

Deployment sites range from 41° North to 56° North and from 131° West to 156° West. The buoys are moored in water depths from 9,300 to 15,500 feet.

FILM ON ESTUARIES RELEASED BY NOAA

"Estuary," a 28-minute, 16-mm color film on the estuarine areas of the United States—upon which much of our seafood is dependent—has been released by the National Oceanic and Atmospheric Administration (NOAA). Produced by NOAA and sponsored by the Environmental Protection Agency, the film depicts industrial uses of estuaries, and also shows their importance as a principal source of food, a breeding place for fish and wildlife, and a site for recreation.

Any human action taken in an estuary is likely to have a series of important reactions, the film stresses, pointing out the need for wise management. Estuarine areas depicted are Maryland's Chesapeake Bay, Florida's Tampa Bay, California's San Francisco Bay, and Oregon's Coos Bay.

Of interest to anyone concerned with the environment, "Estuary" is aimed at general audiences but is appropriate for science and ecology classes in educational institutions of all levels. The film was produced under contract, using personnel and facilities of Hal Kirn Associates of Washington, D.C., and was supervised by Elliot Macklow, Chief, NOAA Motion Picture Services. It has an original score by William Penn and is narrated by Mel Brandt.

NOAA also has two other films dealing with estuaries in distribution; "Estuarine Heritage," and "The Biologist and the Boy," which is theatrically distributed as "Crisis in the Coast." Prints are available on loan, free of charge, from NOAA Motion Picture Service, ESTUARY, 12231 Wilkins Ave., Rockville, MD 20852, telephone (301) 443-8411. A catalogue listing all NOAA films is available at the same address.

United States, Japan Research Albacore

Research by the United States and Japan on the North Pacific albacore stock—thought to be approaching its biological limits—will be continued under an informal agreement announced late last summer by the National Oceanic and Atmospheric Administration (NOAA).

In recent years the total annual harvest of North Pacific albacore has increased from 70,000 to 100,000 metric tons, primarily because of the expansion of the Japanese pole-and-line fishery, which accounted for 64 percent of the 1974 catch. Other major fisheries are the Japanese longline, 15 percent; and the U.S. troll and live-bait fisheries, 21 percent.

The agreement between the two nations emerged from a population dynamics albacore workshop held at NOAA's National Marine Fisheries Service laboratory in Honolulu, Hawaii, in December 1975, and involved the NMFS' Southwest Fisheries Center, La Jolla, Calif., and the Far Seas Fisheries Laboratory, Shimizu, Japan.

The Commerce Department agency's workshop considered preliminary stock assessments based on standard analyses of catch, effort, and size composition that put the maximum sustainable annual yield for albacore between 115,000-125,000 metric tons, only slightly above the current catch.

The on-going investigation includes participants from the California Department of Fish and Game, the Oregon Department of Fish and Wildlife, the Washington Department of Fisheries, and the Pacific Marine Fisheries Commission.

United States albacore fishermen actively support and finance government-industry research programs with the objectives of increasing the efficiency of albacore fishing and developing scientific information for albacore conservation.

Foreign Fishery Developments

New Zealand Asks Foreign Fishing Vessel Tax, 200-Mile Economic Zone Declaration

The New Zealand Government's annual budget message, released in Wellington on 29 July 1976, proposed a tax of from NZ$1,000 to NZ$5,000 on foreign fishing vessels entering New Zealand ports (NZ$1.001 = US$1.00). The exact amount of the tax will be based on the size of the vessel. In a press conference on 30 July, Prime Minister Muldoon explained that the tax is an example of his Government's determination to win access to foreign markets for New Zealand farm products and is intended to put present and potential foreign fishermen on notice that New Zealand insists on some economic benefit from the exploitation of its marine resources.

The Prime Minister also announced that draft legislation was being prepared to declare a 200-mile exclusive economic zone in the event of unsatisfactory progress at the Law of the Sea Conference, then meeting in New York. New Zealand plans to coordinate such a declaration with Australia and other independent Pacific island countries of the region. (Source: American Embassy, Wellington, New Zealand.)

According to the NMFS Office of International Fisheries, New Zealand would acquire an area of seabed totalling 1,409,500 square nautical miles if the Government extends national jurisdiction to 200 nautical miles. The superjacent waters contain tuna, squid, and other commercially valuable fish. Both Japan and the Soviet Union have engaged in fishing operations in waters near New Zealand for many years. Fishing vessels from Taiwan entered the grounds in 1974. The vessels from the Republic of Korea also fish there.

Japanese interest in marine resources in waters near New Zealand dates from the 1950's. At that time, tuna was the major target species and much effort was exploratory in nature. Growing Japanese presence in nearby waters led New Zealand to declare 12-mile fishery limits in 1967 and to

begin a phase-out of Japanese fishing inside the limits. The two countries signed a bilateral fishery agreement on 12 July 1967.

Following the legal developments, Japanese fishing companies began to set up joint ventures with New Zealand partners. Taiyo Gyogyo and its New Zealand partner established Tamouna Fisheries Ltd. in 1967. Hokuyo Suisan, C. Itoh, and a New Zealand firm established Sealord Development Ltd., in 1971. Kyokuyo Suisan and the New Zealand company P. Feron and Sons jointly conducted a tuna survey in 1972, and this was followed in 1973 by the establishment of Jaybel Inc., a joint venture between Nichimo Co. and J.B.L. Seafood Corp. of New Zealand.

The squid resource in New Zealand waters first attracted Japanese attention as suitable baitfish for tuna longliners, but Japanese resource surveys demonstrated the commercial potential of catches for human consumption. The *Hoyo Maru*, a Japanese research vessel, surveyed the squid resource in 1970 and discovered commercial quantities of broad-finned squid. By 1972, Japan had 73 squid vessels in waters near New Zealand taking 13,800 metric tons of squid. In 1974, 151 vessels caught about 18,400 metric tons.

In addition to tuna and squid, approximately 16 other species of fish are taken from waters near New Zealand by Japanese fishing vessels. Among these, sharks, jack mackerel, and tarahiki (*Cheilodactylus macroperus*) are the more important species. Other species include crab, trevally, snapper, sea breams, red gurnard, soles, flounder, cod, barracudas, dories, mullet, pilchard, and sprat. Some of these demersal fish are processed into meal and into surimi, a minced fish meat product. In 1971, Wonder Foods, Inc. of New Zealand, Hokuyo Suisan and C. Itoh Co. established a surimi operation in New Zealand. The effect of the proposed tax on foreign fishing vessels on Japanese investment in New Zealand and on the level of effort in nearby waters would be significant.

According to the Japanese press, the announcement of New Zealand's new tax on foreign fishing vessels took Japan's Fisheries Agency by surprise and is causing serious concern among Japanese tuna and squid fishermen who have been operating in waters near New Zealand. In the past, foreign fishing vessels have been allowed free entry into ports and Japanese port calls in New Zealand average 700 per year.

The Soviet Union began to expand its Pacific fisheries in the early 1960's when many new vessels, built in both domestic and foreign shipyards, joined the Soviet Far Eastern Fishing Fleet.

The thrust of the Soviet expansion was first in the Bering Sea and the Gulf of Alaska, where the Soviet Pacific Institute for Fisheries and Oceanography (TINRO) conducted extensive exploratory fisheries research during 1954-58. In 1959, large-scale Soviet fishing began in that region and soon expanded southward off Oregon, Washington, and California.

By 1965, the TINRO scientists began to plan a second major exploratory fisheries expedition, this time to the South Pacific and Indian Ocean waters. The expedition (called the "*Lira* Expedition" after the leading research vessel), in which one to two dozen TINRO vessels participated, lasted several years (1966-68) and gave Soviet fishery scientists a good idea where the South Pacific fishery resources are concentrated. Special attention was paid to the enormous expanse of the continental shelf off Australia and New Zealand. Since most TINRO vessels taking part in the *Lira* Expedition were basically commercial fishing vessels, it can be said that Soviet fishing off New Zealand dates from 1966.

In early 1967, New Zealand extended its fishery limits to 12 miles to counter the pre-emption of traditional coastal fishing grounds by Japanese and Soviet fishermen. A few months later, Australia also extended its fisheries jurisdiction to 12 miles for the same reason.

In May 1967, the New Zealand Government began negotiations with the Japanese and after arduous discussions, during which Japan threatened to take New Zealand before the International Court of Justice, allowed the Japanese fishermen to fish inside newly-proclaimed 12-mile fishing limits until a phase-out in the future.

The Soviet Embassy in Wellington was keeping abreast of these developments and a Soviet diplomat (Shliapnikov) publicly assured New Zealanders that a severe "warning" was issued to Soviet fishing captains not to transgress the 12-mile limits. At the same time, the Soviet diplomat expressed the desire to have the same privilege as the Japanese fishermen, namely to fish inside the 12-mile limit until Japan's phase-out ended. The Soviet request raised eyebrows in New Zealand fishing industry circles, but, as far as is known, the New Zealand Government did not allow the Soviets the same privileges it accorded the Japanese.

Nevertheless, New Zealand ports remained open to Soviet commercial and exploratory fishing vessels for needed supplies (water, fuel, provisions) and repairs. Since Soviet Pacific fishery logistics during the late 1960's were overextended, this was an important concession on the part of New Zealand.

By July 1972, as many as 10 large Soviet stern factory trawlers fished off New Zealand and the General Manager of the New Zealand Fishing Industry Board called at a fishermen's conference for 75-mile fishery limits. Soviet fishing off New Zealand has continued uninterrupted since 1972. No information on Soviet catches was given to the New Zealand Government or its biologists despite repeated Soviet promises to do so. In 1974, the Soviets were publicly chided for their lack of cooperation in providing catch statistics.

Faced with increasing fishing pressures by the Soviet, Japanese, and lately, also Taiwanese and South Korean fishermen, the New Zealand fishing industry escalated its responses. In December 1975, Wellington fishermen picketed a pier where Soviet fishery supply vessels were anchored. Demands for the extension of fishery limits to 200 miles also continued to escalate.

When the Labor Government was defeated in recent elections, the Government formed by Muldoon was much more responsive to fishermen's demands. On 17 May 1976, Prime Minister Muldoon expressed concern over Soviet attempts to establish a fisheries base on the island of Tonga or on other South Pacific islands nations and referred to "40 Soviet vessels fishing in our waters". The Govern-

ment also began to collect and publish data on calls of foreign fishery vessels in New Zealand ports (230 vessels called from January to March 1976 alone). (Sources: New Zealand and Japanese press reports; *World Fishing; Ocean Fisheries*, and others.)

CANADA-SPAIN SIGN FISHERIES AGREEMENT

Canadian and Spanish representatives met in Madrid on 10 June 1976 to sign a bilateral fisheries agreement. The agreement establishes the terms and conditions governing continued fishing by the Spanish fleet off Canada's Atlantic coast. The Canadian delegation was led by L. H. J. Legault, Director-General, International Fisheries and Marine Directorate. The Spanish delegation was led by Victor Moro Rodriguez, Director-General of Fisheries, Ministry of Commerce. Negotiations leading to the agreement took place in Ottawa earlier in the year. The agreement went into force on 18 June 1976.

The agreement allows Spain to fish in Canadian Atlantic coastal waters, taking into account the anticipated legal and jurisdictional changes in Canadian fisheries limits. Canada will determine catch allocations annually for Spanish vessels based on the total allowable catches of fish stocks, Canada's harvesting capacity, the surplus stocks available, and Spain's traditional fishery off the Canadian east coast. Spanish vessels must obtain licenses to fish in Canadian waters, and will be allowed port privileges to obtain supplies. Spain has agreed not to fish anadromous stocks which originate in Canada.

The agreement also provides for further bilateral discussions to increase cooperation in the exchange of technical information, improvement of processing and utilization of catches, and the reduction or elimination of tariff barriers for fishery products originating in Canada. The present agreement shall be subject to review by the two governments after a period of two years or at any time following the ratification of a future multilateral convention dealing with the same matters. The agreement may be terminated by either party 10 years after the date of its entry into force, although 12-months notice must be given to cancel.

According to the NMFS Office of International Fisheries, the agreement is the latest in a series of Canadian bilateral fisheries agreements. Agreements have recently been signed with the USSR, Poland, and Norway. Portugal is expected to conclude a similar agreement soon. The terms of the signed agreements differ only slightly. Polish and Soviet fishing fleets are allowed to operate off both Canada's Atlantic and Pacific coasts, and the agreements signed by Norway, Poland, and the USSR remain in force 6 years, in contrast to Spain's 10-year agreement. (Source: U.S. Embassy, Ottawa.)

Indian Parliament Takes EEZ Reins

India's Minister of Parliamentary Affairs introduced constitutional amendment in Parliament on 21 May 1976, providing that the demarcation of territorial waters, the continental shelf, and such other maritime zones of India as the exclusive economic zone, shall be made by India's Parliament. As India is a Union of States, the word "Union" refers to India's central government. The following is the text of the amendment:

"Article 297. (1) All lands, minerals and other things of value underlying the ocean within the territorial waters or the continental shelf, or the exclusive economic zone of India shall vest in the Union and be held for the purposes of the Union.

"(2) All other resources of the exclusive economic zone of India shall also vest in the Union and be held for the purposes of the Union.

"(3) The limits of the territorial waters, the continental shelf, the exclusive economic zone and other maritime zones of India shall be such as may be specified, from time to time, by or under any law made by Parliament."

Formerly, the words "exclusive economic zone" were not included in the Article. Before the passage of the amendment on 26 May 1976, the limits of India's territorial waters and the continental shelf were determined by a proclamation issued by the Indian President. The new law now states that such maritime limits will be determined by the Indian Parliament.

According to the NMFS Office of International Fisheries, India claims a 12-mile territorial limit and a 12-mile fisheries jurisdiction, but reserves the right to declare a 100-mile fishery conservation zone. Maritime limits between India and Sri Lanka were earlier resolved through bilateral discussions described in a 3 May 1976, release titled "India and Sri Lanka Agree on Boundaries." (Source: U.S. Embassy, New Delhi.)

World Fishery Developments Noted

The Division of International Fisheries Analysis, which follows trends in world fisheries for the National Marine Fisheries Service (NMFS) has prepared the following summary of the recent significant developments in world fisheries.

The Faeroe Islands will extend its fisheries jurisdiction to 200 miles by 1 January 1977, it was announced by Danish Prime Minister Jorgensen. The Faeroe Islands Parliament passed a resolution of 6 August calling for the Danish Government to extend Faeroese fisheries jurisdiction.

Mozambique's cabinet has approved a decree establishing a territorial sea of 12 nautical miles and an economic zone of 200 nautical miles.

Icelandic fishery exports during the first four months of 1976 were 109,000 metric tons valued at $77.6 million, compared with 107,000 metric tons valued at $71.0 million exported during the same four months in 1975. The United States imported more than one-third of this amount, or approximately $29 million worth of fishery products.

Mexico is increasing its capability to patrol the newly-established 200-mile Exclusive Economic Zone. The Government bought several patrol vessels in the United Kingdom, and is now constructing the same class (*Azteca*) in domestic shipyards. At the same time, Mexican Navy officials are thinking about equipping patrol units with long-range radar.