

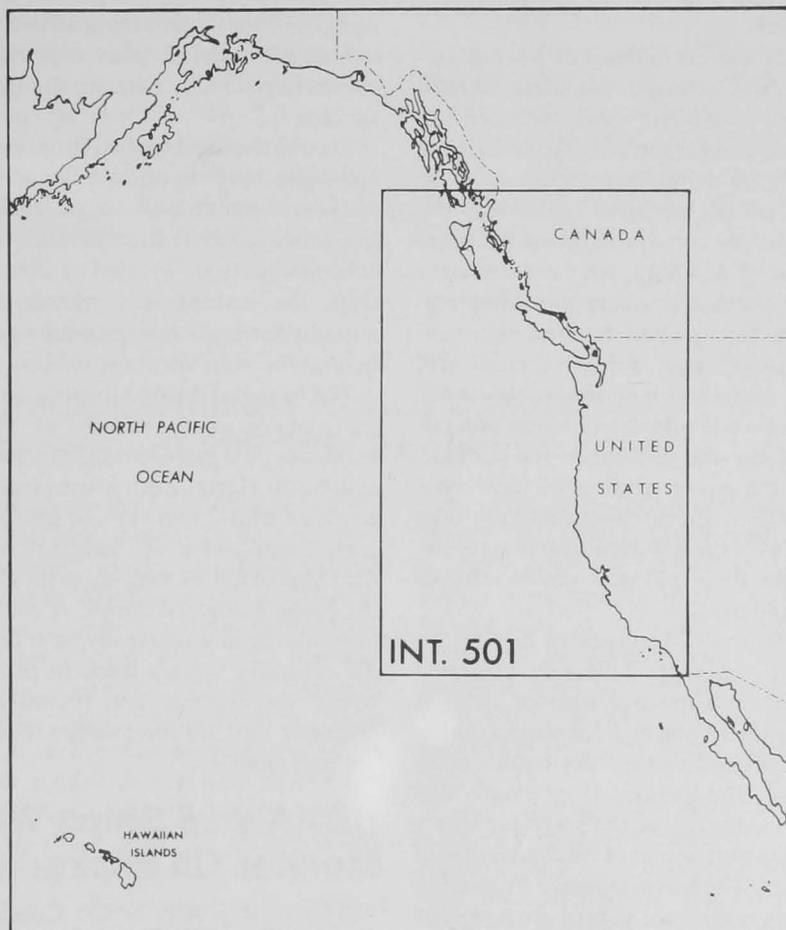
## NOAA Issues First of Five International Nautical Charts

Publication of the first of five international charts to be produced by the National Oceanic and Atmospheric Administration has been announced by the Department of Commerce. The chart, prepared by NOAA's National Ocean Survey (NOS), covers a vast area of the Pacific Ocean off the west coast of the United States and Canada (see map), and is issued by NOS as part of a multination program sponsored by the Monaco-based International Hydrographic Organization (IHO).

The IHO program is designed to provide a standard series of charts for the entire world which can be used by all nations. Each member nation is authorized to reprint charts in its own language, but employing the same form of navigational information, such as depth curves, sounding spacing, aids to navigation, and nautical symbols. Nations which have agreed to produce and issue international charts are Canada, West Germany, United Kingdom, France, Brazil, Argentina, Chile, Italy, Netherlands, Japan, India, New Zealand, Australia, and possibly South Africa.

Published by the agency's office of Marine Surveys and Maps, headed by Robert C. Munson, the new chart is 1:3,500,000 scale, and the survey's first metric nautical chart. The U.S. Defense Mapping Agency, Hydrographic Center, and foreign nations have previously issued metric international nautical charts.

The chart was compiled in accor-



Northeast Pacific Ocean area covered by new NOAA chart.

dance with IHO specifications and shows elevations and depth in metric units. Loran-A lines of position for electronic navigation are shown in addition to the usual nautical chart information.

The chart, International Chart INT. 501 (National Ocean Survey Chart 501) is priced at \$3.25, and may be obtained from the NOS Distribution Division (C44), Riverdale, MD 20840.

## SEWAGE SLUDGE TRACED OFF NEW YORK STATE

Using an underwater acoustic system originally designed for detecting schools of fish, National Oceanic and Atmospheric Administration scientists began studying the feasibility of tracking sewage sludge in the waters off New York and New Jersey in September. The research was concentrated within the New York Bight—a 15,000-square mile area extending from Cape May, N.J., to Montauk Point, N.Y., and seaward to the edge of the continental shelf approximately 100 miles offshore.

Ringed by densely populated communities, the New York Bight receives sewage sludge, the byproduct of waste water treatment, at a rate of about 150 million cubic feet a year in what is America's largest ocean dumping operation. But where this sludge finally ends up, and its environmental effect in the Bight, are unsolved problems. With the aid of ship-mounted acoustic sounders the NOAA oceanographers hope to find some of the answers.

The experiment is being carried out by the Commerce Department agency's scientists as part of NOAA's Marine Ecosystems Analysis New York Bight

Project. "Locating suspended particles in the ocean by the acoustic sounding technique has potential application for monitoring many kinds of dredging or dumping operation in the coastal zone and for deep ocean mining activities," says John R. Proni, an oceanographer with NOAA's Ocean Remote Sensing Laboratory in Miami.

"Specifically the technique should be useful for studying turbid water plumes emanating from rivers, for analyzing waters used for dumping waste products in estuaries and harbors, and for studying materials brought up by suction pipe from the ocean floor to the near

surface during mining operations." The remote sensing method also has been used recently for detecting internal waves and temperature fluctuations in the sea.

Proni and his colleagues were to operate two acoustic sounders aboard NOAA's 180-foot ship *George B. Kelez* as it followed a sludge-filled New York City barge five miles or more southeast of Ambrose Light near the New Jersey coast. Following the completion of dumping, the vessel was to crisscross the area, mapping what happens to the dumped material over several hours' time. Some materials will likely remain suspended in the water column while others will either rain out on the bottom or float to the surface. From the picture painted by the acoustic system, Proni can selectively take samples of these various fractions to determine their physical characteristics and composition.

A National Aeronautics and Space Administration U-2 aircraft, equipped with a multi-spectral scanner, was to make at least one flight overhead during the experiment as a "sky-truth" comparison. The Landsat-II satellite is also scheduled to record the barge and ship's position during one of its overpasses of the area. The Environmental Protection Agency and Coast Guard are acting as observers during the experiment.

While the project is underway, normal sludge dumping operations in the Bight were to cease for two days. During this time the City of New York sewage sludge dumping vessels and additional barges operated by Pollution Control International, General Marine Transport Corporation, and Modern Transport Corporation were to make special dumps of sewage sludge to provide "targets" for the NOAA experiments.

"Acoustic sounders are devices using different sound frequencies to paint a picture of what is going on beneath the water's surface," Proni says. "By sending out a rapid-fire stream of sound signals at a set interval, we can identify the location of various suspended particles in the water by the sound signals bounced off the material and returned to the sounder's receiver on board the ship."

Data returned by this method should enable sedimentologists to measure

suspended sediments and help geologists better understand erosion processes in the Bight. Environmental managers should be able to use the information for determining where contaminated material goes and how it moves horizontally beneath the Bight's surface.

During the experiment, Proni and his colleagues were to operate the acoustic sounders simultaneously at different frequencies. While the "brains" of the echo sounders are located on board the ship, the instrument's transducers—sound-emitting devices—are towed behind the ship via short cables.

The larger of the two torpedo-shaped transducers emits sounds at 20,000 Hertz (cycles per second), the smaller at 200,000 Hertz. Both instruments are powered by 1-2 kilowatts of energy for each sound pulse and function above the range of human hearing as they track the barge's dumped cargo. A cable attached to each sound transducer carries the returning signals back to the ship where the sounds are recorded on magnetic tape for later computer read-out and analysis.

## NOAA's 25 Ships Will Monitor Oil Slicks

The 25-ship fleet of the Commerce Department's National Oceanic and Atmospheric Administration has been directed to monitor slicks and other oil pollutants as part of a United Nations' program called Integrated Global Ocean Station System (IGOSS). NOAA's participation in IGOS is part of a worldwide pilot program designed to pave the way for the monitoring of marine pollutants on a global scale. The 2-year program is organized by the UN's Intergovernmental Oceanographic Commission and the World Meteorological Organization.

The U.S. coordinator for IGOS is Robert Junghans of NOAA's Office of Environmental Monitoring and Prediction. He is Deputy Director of its Oceanographic Services Office and was a former member of the Secretariat of the Intergovernmental Oceanographic Commission.

The monitoring activities of the NOAA ships will cover areas in the Atlantic Ocean, Gulf of Mexico, Pacific Ocean, and the Bering Sea, and will in-

clude both inshore and offshore water. In addition to monitoring oil slicks, vessels with appropriate equipment will collect samples of oil tar balls. Other ships will gather, for laboratory analysis, samples of dissolved petroleum hydrocarbons from the upper 3 feet of the ocean. The information gathered by U.S. participants is being forwarded to NOAA's National Oceanographic Data Center. The data will be archived and exchanged among nations so periodic assessments can be made of the state and degree of ocean contamination.

U.S. participants in the IGOS program also include the Coast Guard, Defense Department, academic institutions, and cooperating ships of the commercial fleet, which are recruited through the Port Meteorological Officer element of NOAA's National Weather Service.

Junghans said the Office of Technology of the U.S. Senate Commerce Committee soon will publish an analysis of marine pollution and safety measures in a report entitled "Oil Transportation by Tankers." That report shows, he said, that about one million tons of oil a year are dumped into the ocean in standard tanker operations such as tank cleaning, deballasting, etc. Additionally, about 200,000 tons of oil are spilled yearly as a result of tanker casualties, and an added 250,000 tons of oil pollution annually is associated with tanker dry-docking activities, he said.

The UN program recognizes that marine pollution must be dealt with on a global scale as a threat to fisheries, recreation sites, environmental values, and human health. Little is known about these myriad effects. Meanwhile, the problems are intensifying because populations are expanding, the oceans are being increasingly used for transporting fuel and minerals, seabed oil and gas drilling are growing, and seabed mining is just over the horizon.

NOAA ships participating in the program include the Norfolk-based vessels *Ferrel*, *George B. Kelez*, *Mt. Mitchell*, *Pierce*, *Rude*, *Heck*, and *Whiting*; *Albatross IV* of Woods Hole, Mass.; *George M. Bowers* and *Researcher* of Miami, Fla.; *Delaware II* of Sandy Hook, N.J.; *Oregon II* of Pascagoula, Miss.; *Townsend Cromwell* of Honolulu; *David Starr Jordan* of San Diego,

Calif.; *Murre II* of Auke Bay, Alaska; *Oregon* of Kodiak, Alaska; and *John N. Cobb, Davidson, Fairweather, Miller Freeman, McArthur, Oceanographer, Rainier, Surveyor, and Discoverer*, all Seattle-based.

## **NOAA Creates Office of Marine Minerals**

An Office of Marine Minerals has been established in the Department of Commerce's National Oceanic and Atmospheric Administration, Secretary of Commerce Rogers C.B. Morton has announced. "The development of marine mineral resources of the deep ocean and of the continental shelf will become increasingly important to the economic well being of the United States," Secretary Morton said. "This must be done in an environmentally sound manner and in a way that permits U.S. industry to move into this activity in an efficient way. To do this, NOAA is embarking on an expanded program which will bring together the broad capabilities of NOAA."

The new office reports to the Associate Administrator for Marine Resources. It serves as a focal point for NOAA's new and expanding programs in marine minerals. It has planning, coordinating, and certain operational responsibilities. It will also facilitate liaison with other Federal agencies. Amor L. Lane was designated Acting Director of the Office, which began functioning immediately. Lane was head of the Non-Living Resources activities in NOAA's Office of the Associate Administrator for Marine Resources. He continues to serve as Executive Secretary of Commerce's Marine Petroleum and Minerals Advisory Committee.

The major new effort to be launched is the Deep Ocean Mining Environmental Study (DOMES) to be conducted in FY 1976 for which \$3 million was included in NOAA's predicted budget. This study will assess the pre-mining environment of selected manganese nodule mining areas in order to be able to predict the potential environmental consequences of deep ocean mining. Manganese nodules—rich in manganese, nickel, copper, and cobalt—cover large areas of the ocean floor.

In addition, in FY 1976 mineral resource-related programs will be spon-

sored by NOAA's Office of Sea Grant at a level of approximately \$750,000 (with matching funds included).

NOAA was assigned marine mining responsibilities through the transfer of the Bureau of Mines' Marine Minerals Technology Center (MMTC) from Interior to NOAA when NOAA was established in 1970. MMTC's functions were transferred in 1973 to NOAA's Pacific Marine Environmental Laboratories in Seattle, Wash.

### *Foreign Fishery Developments*

## **Canadian Officials Reject Unilateral Extension of 200-Mile Economic Zone**

Canadian Prime Minister Pierre Trudeau held a press conference on 7 August and spoke against a Canadian unilateral extension to a 200-mile Economic Zone, according to the Office of International Fisheries, National Marine Fisheries Service, NOAA. Trudeau said: "Canadians at large should realize that we have very large stakes indeed in the Law of the Sea Conference and we would be fools to give up those stakes by an action that would be a purely temporary, paper success. . . . We would have to go to war to impose our unilateral action if we couldn't negotiate it in an acceptable way." On another subject, Trudeau also reiterated his government's commitment to the idea of free trade and to the Economic Council of Canada's recommendation that the country lower its trade barriers.

## **Iceland Extends Fishery Limits to 200 Miles**

Icelandic fishery limits were extended to 200 miles on 15 July 1975 and the new law entered into force on 15 October, according to the U.S. Embassy, Reykjavik. Iceland extended its jurisdiction to 50 miles in 1972, and hoped that the latest extension will further protect its major resource (75 percent of Iceland's foreign exchange comes from the fishery exports). Since the country's imports are equal to about 50 percent of its Gross National Product (GNP), the exchange it receives from fish exports is essential to the economy. The Government of Iceland

Prior to working with NOAA, Lane was Director of Planning for Marine Activities for AMF, Inc., Executive Secretary of the Governor of Delaware's Task Force on Marine and Coastal Affairs, staff member of the Stratton Commission on Marine Science, Engineering and Resources, and Chairman of the Executive Committee of the NSIA Ocean Science and Technology Advisory Committee (OSTAC).

Former Newfoundland Premier Joseph R. (Joey) Smallwood began a cross-country speaking tour to support an extension of the Canadian fishing zone to 200 miles. Smallwood claimed his mission was nonpartisan, but he had recently founded the Liberal Reform Party, and he may find political success in the issue of extended jurisdiction.

The Canadian press gave good coverage to Secretary of State Kissinger's speech against U.S. unilateral extension. The lead editorial of the 13 August *Montreal Star* strongly supported the Secretary's position: "In more ways than one, Henry Kissinger's address this week to the American Bar Association underlined the wisdom of the Canadian Government's refusal to impose unilaterally a national economic zone 200 miles out to sea."

claimed that the country's fish stocks could no longer support fishing by foreign fleets, and that the Icelandic fishing fleet is capable of fully utilizing the resource. Iceland therefore extended its jurisdiction.

The new law specifies the precise limits of the 200-mile boundary, and allows for the areas between Iceland and Greenland and the Faroe Islands, when those coasts are separated by less than 400 miles, to be demarcated by an equidistant boundary. Further specific regulations and restrictions to both foreign and Icelandic vessels in certain