

NOAA Forms Ocean Remote Sensing Lab

A laboratory dedicated to studying the oceans from satellites, aircraft, and other remote platforms has been created in Miami, Fla., the U.S. Commerce Department's National Oceanic and Atmospheric Administration has announced.

The new Ocean Remote Sensing Laboratory will be one of the Atlantic Oceanographic and Meteorological Laboratories (part of NOAA's Environmental Research Laboratories, with headquarters in Boulder, Colo.) which occupy a major oceanographic research facility on Virginia Key near Miami.

According to Dr. John A. Apel, director, research emphasis will be on studying such physical and chemical aspects of the oceans, estuaries, and oceanic boundary layer as can be determined via remote sensing from spacecraft, aircraft, buoys, and ships; and to develop new instruments and techniques with which to do this.

"We have barely crossed the threshold of knowing how to use satellite sensors to observe the oceans," he says, "and technology in this area is progressing at an extremely rapid rate. We expect that 'ocean-tuned' satellites will eventually give oceanographers a flow of information and a breadth of vision comparable to that which meteo-

rologists have had from weather satellites.

"At present we are conducting research that uses oceanic data from existing satellites—for example, the high-resolution images from NOAA spacecraft and NASA's first Earth Resources Technology Satellite, ERTS-1, which were not designed primarily to gather oceanic data. And we are helping guide programs in new ocean-looking satellites and sensors, now in their early development stages.

"The other side of our effort is to apply the remote-sensing tools of the trade to ocean research conducted from ships and aircraft. Some of these are microwave radiometers, laser and lidar (the laser equivalent of radar) sensors, acoustic sounders, infrared and visible sensors, precise radar altimeters, and microwave scatterometers."

Among the Ocean Remote Sensing Laboratory's planned projects are studies of major current systems and hurricane-ocean interactions using data from GEOS-C, the geodetic satellite planned for a 1974 launch; Gulf Stream dynamics and internal waves using data from the second Earth Resources Technology Satellite (ERTS); and various studies of surface and internal wave dynamics in the sea, using available satellite data and acoustic remote sensing from ships.

supply in the coming months. For this reason, the number of permits issued to foreign fishing vessels will be limited only to those which have customarily been calling at Canadian ports and which can also show that a genuine hardship will result if fuel is not made available to them.

Under no circumstances will fuel be supplied to foreign fishing vessels if there is any danger that Canadian requirements for fishing purposes cannot be met.

Because Canadian fishing vessels often fuel in United States ports as well as the fact that their vessels are traditional customers, the restrictions will not apply to United States fishing vessels. This arrangement will continue as long as reciprocal privileges are available to Canadian fishermen in United States ports.

OIL RATIONED FOR ICELANDIC VESSELS IN FOREIGN PORTS

Icelandic fishing vessels are now subject to oil rationing in many foreign ports, especially in Western Europe reports the Worldwide Information Service. In some ports the maximum has been set at 40 tons, and if more oil is requested, special permission has to be gained from London. There is no shortage of oil at present in Icelandic ports, yet foreign vessels do not get unlimited oil supplies.

Eighty percent of Iceland's oil supplies comes from the Soviet Union and this has been so since 1953. Originally the oil was bought in exchange for fish and fish products. The remaining 20 percent, which is mainly lubricants and aviation fuel, comes from the west.

Iceland's fishing fleet is heavily dependent upon Soviet oil. Prices are expected to go up tremendously and the foreseeable price increases in oil and fishing gear (produced from oil) are expected to cost the Icelandic fishing fleet at least US\$12,000,000 in 1974. Many fear that the price of oil will go still higher.

Fishery Notes

Alaska Sockeye Salmon Get More State Protection

The Bristol Bay and Alaska Peninsula red salmon runs will be managed for maximum escapement next season under a policy adopted by the Board of Fish and Game.

Carl Rosier, director of the department's commercial fisheries division,

Foreign Fishery Developments

Petroleum Shortages Hit Fishing Vessels

CANADA'S FOREIGN FISH FUEL CUT SPARES U.S.

In view of possible shortages of petroleum products in Canada, the supply of fuel for foreign fishing vessels will be cut back. The order, announced November 30, 1973 under the Coastal Fisheries Protection Act, became effective immediately, according to Fisheries Minister Jack Davis.

It is anticipated that the kind of fuel that has been made available to foreign fishing vessels may be in short

said that the board took the action because of predictions that the 1974 Bristol Bay sockeye salmon run is expected to fall far short of escapement needs and because red salmon returns to the Peninsula area are expected to be weak. Commercial fishing in the Bristol Bay, Chignik, and Alaska Peninsula areas will be permitted by emergency order and only limited fishing time can be expected if the runs return at the anticipated low levels.

The Department of Fish and Game has predicted that the Bristol Bay red salmon run, one of the state's most important fishery resources, will total only about five million fish in 1974. Escapement needs have been set at 9.5 million, nearly twice the amount of the predicted run. "Maximum escapement must be obtained if we are to salvage the great red salmon runs in this area," Rosier said. "The problem in Bristol Bay is not confined to 1974 and at this point we believe that a substantial harvest of Bristol Bay red salmon may not be possible

Oyster Harvester Being Developed

Scientists with the Virginia Institute of Marine Science have developed a prototype hydraulic escalator-type oyster harvester, according to the *Marine Resource Information Bulletin*, a VIMS publication. Results of field trials with the machine are described as "very encouraging," although further testing and modifications will be necessary before the dredge can be used commercially.

The oyster harvester utilizes the escalator system from the conventional Maryland-type soft clam harvester. However, the prototype boasts a completely new harvester head, designed to rake oysters from the bottom. The harvester head consists of a rectangular steel box with an inside width of 36-in, and an overall length of 36-in. The "box" narrows from 36-in to a width of 18-in where it attaches to the escalator. Inside this box are rows of

for an entire five-year cycle."

Rosier said that the continued Japanese high seas salmon harvest is seriously compounding the problem of the Bristol Bay red salmon fishery.

"The Japanese intercept large numbers of red salmon bound for Bristol Bay and the Alaska Peninsula and although this has been pointed out to them as recently as last month at the International North Pacific Fisheries Commission meeting in Tokyo, they still refuse to consider taking steps to aid in the conservation of this valuable resource," Rosier said. (See also lead item, NOAA/NMFS Developments.)

"This intolerable situation left the Board of Fish and Game with little choice except to give maximum protection to the Bristol Bay red salmon runs to insure escapement of the returning adults," Rosier said. "Unless the escapement needs are met in the next few years we could be looking at the total collapse of the red salmon fisheries in Bristol Bay," Rosier added.

flexible steel tines affixed to two steel cylinders. These cylinders are rotated by an underwater hydraulic motor. As the box slides on steel runners over the bottom (ahead of the escalator), the tines rake oysters and shells from the bottom. A horizontal jet of water washes them onto the escalator which carries them to the surface.

Initial tests demonstrated that the mechanical design of the apparatus was satisfactory; that the head containing the revolving tines attached satisfactorily to the present escalator system; and that all bearings, chain drives, and motors were fully operable, and the revolving tines dug into the bottom as designed. The work was supported on a matching basis by VIMS and the Virginia Marine Resources Commission under a contract with the National Marine Fisheries Service. More information on the oyster harvester is available from the Virginia Institute of Marine Science, Gloucester Point, VA 23062.

Reef Biology Symposium Set

An International Symposium on Indo-Pacific Tropical Reef Biology has been scheduled for June 23-July 5, 1974 on the islands of Guam and Palau in the Mariana and Caroline Islands groups by the Western Society of Naturalists.

Symposia will be held on "The Role of Benthic Algae in the Coral Reef Eco-System," and "Animal Associates of Coral." A three-session colloquium will deal with "The Need for Faunistic Information on Pacific Coral Reefs." Another meeting on Pacific Island Ecology, to be held on Palau, will consist of discussions and field trips dealing with local organisms as well as with ongoing mariculture and fisheries subsistence programs.

Contributed papers on a variety of subjects concerning the central theme of the Symposium will supplement the symposia and the colloquium. The symposia and paper sessions are planned as formal presentations, while the colloquium is regarded as a series of working sessions.

Each symposium will feature four or five invited speakers, with discussion periods following. Colloquium sessions will each list four invited speakers who will: (1) present the current status of a group of organisms; (2) discuss methods of completing gaps in the information available on the group; and (3) invite discussion as to programs and resource persons who might cooperate in such data gathering. A total of 12 scientists will thus address themselves to faunistic information profiles on Porifera, Reef and Deep Corals, Polychaetes, Bryozoans, Mollusca, Crustacea, Echinoderms, and Ascidiarians.

Sponsoring organizations and institutions include the Western Society of Naturalists; the Marine Laboratory, University of Guam; and the Trust Territories of the Pacific Islands, Department of Resources and Development.

Persons interested in participating in the Symposium should contact the Western Society of Naturalists, David H. Montgomery, Secretary, Department of Biological Sciences, California Polytechnic State University, San Luis Obispo, California 93407.

Ocean Engineering Conference Slated

The fifth of the I.E.E.E. Conferences on "Engineering in the Ocean Environment" will be held in Halifax, Nova Scotia, Canada, August 21 to 23, 1974. All major Canadian organizations concerned with oceanographic research and development are providing support.

The conference will emphasize research and development in "temperate and arctic waters" and technology developed for high latitude environments. Since the stress is on originality, major advances in other areas will be welcomed, especially those that have wide application to the oceans as a whole. Contributions should accentuate new technology developed in response to scientific and engineering needs or resulting from operational difficulties in achieving specific goals.

Invited and contributed papers will be presented in concurrent sessions. Plenary and informal evening sessions will deal with overlying considerations affecting ocean engineering such as economics, ocean resource management, and the law of the sea. An evening session outlining "Current Engineering Problems in Local East Coast Laboratories" has already been planned.

The following subjects will be on the agenda: pollution monitoring and control; exploitation of ocean resources; deep water fishing technology; data acquisition, reduction and processing; and many others.

For more information about the conference, write Ocean '74, P.O. Box 1000, Halifax, Nova Scotia, Canada.

Publications

Recent NMFS Scientific Publications

NMFS Extension Publication Fishery Facts-6. Hoopes, David T. "Alaska's fishery resources—the Dungeness crab." November 1973. 14 p. For sale by the Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402.

ABSTRACT

Dungeness crabs, *Cancer magister*, occur in the inshore waters of the west coast of the United States and Alaska. Alaska production has averaged 9.2 million pounds annually since 1960; the yearly average value to the fishermen was between \$1 and \$2 million. A female may lay up to 1.5 million eggs, which adhere to small appendages under her abdomen until they hatch 7 to 10 mo later. After hatching, the minute larvae spend 3 to 4 mo in the water column as plankton. At the end of their planktonic development period, the larvae settle to the bottom and transform into juvenile crabs. Dungeness crabs grow only during the molting period. Males may live for 8 yr and attain 10 inches in width; females are considerably smaller. The commercial fishery takes only male crabs, which are caught in baited pots. Crabs are either delivered to market alive or are cooked and prepared in several ways. In Alaska the State Department of Fish and Game is responsible for conducting research required for rational management and protection of this valuable shellfish resource.

NOAA Technical Memorandum NMFS NWFC-1. Dangel, James R., Paul T. Macy, and Fred C. Withler. "Annotated bibliography of interspecific hybridization of fishes of the subfamily Salmoninae." November 1973. 48 p. For sale by the Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402.

ABSTRACT

This bibliography of 611 annotated references lists published and unpublished material on hybridization

between species of the subfamily Salmoninae and crosses of salmonids with non-salmonids. It does not include crosses within a species. The bibliography is indexed by species for the genera *Brachymystax*, *Hucho*, *Oncorhynchus*, *Salmo*, *Salmothymus*, and *Salvelinus* and certain non-salmonid species.

Data Report 79. Wolotira, Robert J., Jr. "Trawl catches and oceanographic data from the NMFS groundfish survey in the eastern Bering Sea, 1972." 108 p. (2 microfiche). For sale by U.S. Department of Commerce, National Technical Information Service, 5285 Port Royal Rd., Springfield, VA 22131.

ABSTRACT

Trawl catch and oceanographic data collected from the NOAA RV *Oregon* during the 1972 National Marine Fisheries Service (NMFS) eastern Bering Sea groundfish survey are presented. A total of 103 stations was sampled from May 26 to July 25. Station data are arranged in a tabular form and provide information on location, depth, time and distance trawled, type of fishing gear used, and species catch by weight. Bottom temperatures and salinities for each station are also included.

Data Report 80. Ingraham, W. James, Jr., and Donald M. Fisk. "Physical oceanographic data from the north Pacific Ocean, 1972." 131 p. (3 microfiche). For sale by U.S. Department of Commerce, National Technical Information Service, 5285 Port Royal Rd., Springfield, VA 22131.

ABSTRACT

Data on temperature and salinity versus depth were obtained from the RV *George B. Kelez* near Kodiak Island at 127 STD (salinity/temperature/depth) stations during April and May 1972. Values were digitized automatically during descent of the STD sensors to 1,500 m and stored on magnetic tape online with a shipboard PDP-8 computer. Secondary processing produced corrected temperature and salinity values and computations of sigma-t, sound velocity, anomaly of specific volume, and dynamic height—all of which are presented by standard depths.