

## Initial Assessment of Ocean Mining Called "Not Serious"

Measurements analyzed thus far show no serious impact upon the marine ecosystem from industry's first efforts to harvest manganese nodules from the Pacific Ocean floor, according to scientists with the National Oceanic and Atmospheric Administration (NOAA). A scientific team from the Commerce Department Agency's Pacific Marine Environmental Laboratory returned to Seattle, Wash., in June on board the NOAA ship *Oceanographer*, after several months of monitoring test mining in the Pacific.

Stressing the preliminary nature of their conclusions, Robert E. Burns, the Deep Ocean Mining Environmental Study project manager for NOAA, said the scientists found little persistent effect from mining operations conducted by the Ocean Management, Inc., vessel *Sedco 445*. He emphasized, however, there could be chronic long-term, low-level effects which have not yet been identified or studied. The *Sedco 445* was mining in an area 865 nautical miles (1,600 km) southeast of Hawaii, in water about 15,000 feet (5,000 m) deep.

The monitoring included samples and measurements taken along the sea floor—from which the mining collector lifts manganese nodules along with some sediments and small bottom-dwellers in vacuum cleaner fashion—and around the plume of sediments discharged by the mining ship at the surface, as well as in the water columns between the sea floor and the surface.

Comparisons were made between light and nutrient levels, and other factors in the discharge plumes and corresponding measurements of the undisturbed ecosystem outside the plume.

The effect of the mining ship's collector on the sea floor was also observed with deep-sea cameras, and box cores were taken of the disturbed sediments to determine changes in the kind of life forms found there. These samples of life forms in and out of the plumes were collected for subsequent laboratory comparison.

Preliminary analysis of benthic plume data, the NOAA scientists report, indicates that this plume did not go upward far into the water column, rising no more than a few tens of meters above the bottom. However, the plume may increase in thickness with time and distance from the collector, Burns said.

No evidence was found of significant lateral spreading in the benthic plume, although there were tentative indications that the plume moved horizontally, carried on slowly moving, deep-water currents. Considerable current-meter data remains to be analyzed, however, before firm conclusions can be drawn regarding the movement of the benthic plume. The NOAA investigators also found evidence of a rather rapid resettling of disturbed material near the mining collector. This "repiling" of the disturbed material near its point of origin suggested that the benthic plume did not migrate over a broad area.

Surface plume data suggests that much of the particulate sediments discharged by the mining vessel at the surface settled out of the surface plume, and returned to the sea floor. Dissolved constituents in the surface plume could be detected for periods of a few hours; but neither particles nor chemical differences could be detected in plume water more than about 24 hours old.

This may mean, according to Burns, that surface plume effects are transient, with no detectable difference between plume water and undisturbed water a day or two after mining.

One of the crucial questions that still must be answered, the researchers note, is whether discharged material accumulates at the pycnocline, a marked change in water density at about 180 feet (60 m), which separates the well-mixed surface waters from the denser waters of the deeper sea.

Another vital question is how this remote but important corner of the global ecosystem will be affected by not one, but fleets, of mining ships. Preliminary answers may come from further analysis of data obtained during this year's voyages.

The scientists plan to revisit the area periodically to assess the rate at which the ecosystem recovered from nodule mining disturbances. Results from this, and a more detailed analysis of monitoring activities this spring, will be published later in the year.

Domes, the Deep Ocean Mining Environmental Study, began in 1975. The project is conducted by scientists from NOAA's Pacific Marine Environmental Laboratory, in Seattle, Wash., and is part of NOAA's Environmental Research Laboratories' Marine Eco-Systems Analysis Program.

The first phase of Domes involved a series of voyages to the tropical Pacific, where commercial mining may begin in the 1980's of the so-called "manganese nodules," potato-shaped accretions of metal that are rich in manganese, cobalt, nickel, and copper, and whose origins are uncertain. These early Domes studies established baselines for life and environment in the area before mining began, so that changes produced by mining could be compared to an undisturbed background, and also develop a first order capability for predicting potential environmental effects.

Phase II of Domes began with the monitoring operations this spring. Such monitoring will continue, to assess the ecological impacts of the various types of prototype mining apparatus soon to be tested by the deep-sea mining industry.

## Sablefish Tagging Program Initiated

A 5-year sablefish, *Anoplopoma fimbria*, (also called blackcod) tagging program has been initiated by the National Marine Fisheries Service, an agency of the Commerce Department's National Oceanic and Atmospheric Administration.

Duane Rodman, biologist in charge of the program, said, "The tagging will be done off the west coast of Alaska with the primary goal of determining the distribution and migration of the species in Alaskan waters." Rodman added, "Since the fish migration may range as far south as California, it is important that fishermen along the entire west coast be informed of the effort."

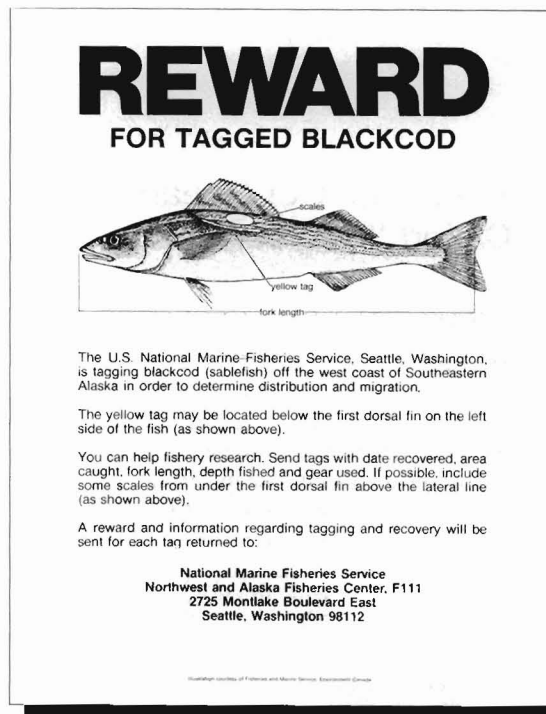
The tag is a small yellow plastic tube and will be located beneath the first dorsal fin. A reward and the history of the fish will be sent to those returning a tag. Individuals finding a tagged fish are requested to send the tag, along with the date, location, method, and depth of capture, length, and a scale sample if possible to: National Marine Fisheries Service, Northwest and Alaska Fisheries Center, Resource Assessment and Conservation Engineering Division, 2725 Montlake Boulevard East, Seattle, WA 98112.

The eastern Gulf of Alaska has long been known to produce large amounts of sablefish. However, the lack of

specific knowledge as to the movement of these fish has precluded an understanding of the effects of fishing and management policies in that region on sablefish fisheries in other areas. This project will provide information on the relationship between sablefish in the eastern Gulf of Alaska and those in inland waters of southeastern Alaska, the

northeastern Gulf of Alaska, British Columbia, and other more distant areas.

For additional information on the program, contact Duane Rodman, Northwest and Alaska Fisheries Center, NMFS, NOAA, Seattle, WA 98112 (telephone 206-442-7796 or 442-7703).



Sablefish reward poster.

## Limit on Accidental Kill of Marine Mammals Halved for Japanese in Bering Sea

The number of sea lion, seals, and porpoises Japanese fishermen are allowed to catch accidentally while fishing in the Bering Sea has been slashed more than 50 percent for 1978, the National Oceanic and Atmospheric Administration (NOAA) has announced.

The Commerce Department agency's National Marine Fisheries Service (NMFS) has authorized an accidental

catch of only 1,020 of the marine mammals, compared to an authorized catch of about 2,300 for 1977. During last year, the Japanese fishermen reported they actually caught fewer than 600 accidentally.

Under the Marine Mammal Protection Act of 1972, fishermen operating within the United States 200-mile Conservation Zone must request permits detailing the number of mammals which can be taken by accident. The mammals usually are caught in fishermen's nets while feeding in waters where fishing operations are being conducted. The Act requires that fishermen must make

every attempt to release the animals unharmed when they are caught. Permits issued by NMFS in response to Japanese requests will limit the accidental catch to 1,000 sea lions, 9 seals, and 11 porpoises.

## Commerce Exhibit Honors 75th Anniversary of the U.S. Canned Tuna Industry

The first in a projected series of special exhibitions honoring U.S. industries, held in the Commerce Depart-

ment in May, highlighted the U.S. tuna canning industry, Secretary of Commerce Juanita M. Kreps announced.

It was the first industry-oriented exhibit presented in the Department as part of the "Living Buildings" program sponsored by the General Services Administration. The U.S. Department of Commerce Building was designated as the Washington centerpiece for the program when it was started last year to help make federally owned public buildings more accessible and attractive to the public.

This year marks the 75th anniversary of the U.S. canned tuna industry. The official observance is being supported by associated businesses and labor unions, Congress, consumer groups, and government agencies, coordinated by the Tuna Research Foundation headquartered in Washington, D.C.

Administrator of Commerce's National Oceanic and Atmospheric Administration Richard A. Frank opened the tuna industry exhibit of historical photographs at ceremonies on 23 May. The photos were displayed in the south corridor adjacent to the auditorium located in the main Commerce building at 14th and Constitution Avenue, N.W.

Following the exhibit, the photographs as well as industrial equipment, artifacts, and old films, were donated to the Smithsonian Institution to become part of the collection at the National Museum of History and Technology.

## **Recreational Boating Deaths up; NOAA Tells of Safety Activities**

The fatality rate in recreational boating accidents is on the increase after a downward trend during the last 4 years, says the National Oceanic and Atmospheric Administration (NOAA), which provides up-to-date nautical charts and weather information to millions of American boaters each year.

Citing U.S. Coast Guard statistics, NOAA said there were 6,815 boating accidents last year, involving 8,554 vessels, in which 1,312 persons lost their lives. This was an increase of 48

fatalities over the 1976 figure of 1,264, which was the lowest in 10 years. In 1975 there were 1,466 deaths, 1,446 in 1974, and 1,754 in 1973.

To promote boating safety and assist recreational boaters in obtaining more boat knowledge and skills, NOAA's activities include:

1) Publication of Notices to Mariners, informing boaters of critical changes affecting safe navigation.

2) Issuance of new editions of nautical charts by NOAA's National Ocean Survey.

3) Sponsorship of the National Chart Up-Dating Workshop for the U.S. Coast Guard Auxiliary, to give members a better knowledge for investigation and reporting chart deficiency items.

4) Conducting chart evaluation surveys to determine if presently charted items affecting safe navigation are still critical to boating safety. Controlled reconnaissance hydrographic surveys are also conducted in areas where possible uncharted hazards may exist.

5) Operation of NOAA Weather Radio to provide weather forecasts and warning to recreational boaters and others. On the air continuously, taped weather messages are repeated every 3-5 minutes, 24 hours a day, 7 days a week. They are updated usually every 2-3 hours, and revised also to meet fast-changing weather. Special receivers or tuners are required to receive the forecasts on 162.40, 162.475, and 162.55 megahertz.

6) Provision is made on NOAA Weather Radio of a variety of specialized weather information for boaters, fishermen, surfers, and others engaged in marine activities. River forecasts are given where flooding or waterway navigation are important.

7) "National Ocean Survey Publications for Safe Navigation," a free, six-panel folder describing various types of nautical charts, maps, and related publications, and how to order them; and "Nautical Chart 2 (So You Bought A Boat!)," a 44-page booklet with chapters on the nautical chart, use of fishing instruments for navigation, the radio, weather, compass, piloting, rules of the road, boat lights, the an-

chor, and charting products, have been published. Price is \$1 each. Both publications are available from Distribution Division (C44), National Ocean Survey, Riverdale, MD 20840.

## **Coast Information Center Established in Michigan**

A regional coastal information center for planners, managers, scientists, and the public will be established in Ann Arbor, Mich., at the offices of the Great Lakes Basin Commission and the Michigan Sea Grant Program. Funds for the center, in the form of a \$50,000 grant, come jointly from three agencies of the Commerce Department's National Oceanic and Atmospheric Administration: the Office of Sea Grant, Office of Coastal Zone Management, and Environmental Data Service. An additional \$25,600 has been pledged by the University of Michigan.

The Michigan center is in addition to similar centers in the Pacific Northwest and Northeast. The centers allow state and local agency personnel, coastal planners, legislators, environmentalists, and the general public to obtain information and guidance on coastal area subjects, including laws and zoning regulations, scientific data, and sources of publications.

A unique aspect of the Great Lakes center will be the regular exchange of information with Canadian Federal and Provincial Governments. Canadian representatives participate in Great Lakes programs and activities, and the Government is officially represented on the Great Lakes Basin Commission.

## **New Sea Grant Review Panel Members Named**

Seven Americans who have distinguished themselves in fields related to oceanic studies, education, and public service have been named by Secretary of Commerce Juanita M. Kreps to membership on the National Sea Grant Review Panel. Five replace members of the 15-person panel whose terms have

expired, while the other two succeed members who have resigned.

Appointed to 3-year terms are Paul D. Triem, Vice President and General Manager, Umpqua Division, Bohemia Inc., Eugene, Oreg.; Lloyd N. Ferguson, Professor of Organic Chemistry, California State University, Los Angeles; Arturo Morales-Carrion, Executive Director, Puerto Rican Foundation for the Humanities, San Juan; Mary Lou Munts, State Representative, 76th Assembly District, Wisconsin; and Walter V. Yonker, Laboratory Director, National Food Processors Association, Seattle, Wash.

The other new members are Roy A. Young, Chancellor of the University of Nebraska in Lincoln, Nebr.; and Charles L. Drake, Chairman of the Department of Earth Sciences, Dartmouth College, Hanover, N.H.

Young will fill a 2-year term vacated by former U.S. Representative Charles A. Mosher, who resigned to accept a position as Executive Director for the House Committee on Science and Technology. Drake replaces George S. Benton, formerly Vice President of the Homewood Divisions of Johns Hopkins University, who has been named Associate Administrator, National Oceanic and Atmospheric Administration. Drake will serve a 1-year term.

Members whose terms have expired include Sanford S. Atwood, President, Emory University, Atlanta, Ga.; Werner A. Baum, Chancellor, University of Wisconsin, Milwaukee; Phillip Eisenberg, Chairman of the Executive Committee, Hydronautics, Inc., Washington, D.C.; Harold E. Lokken, Manager, Fishing Vessel Owners Association, Inc., Seattle, Wash.; and Harvey Weil, Senior Partner, Kleberg, Mobley, Lockett & Weil, Corpus Christi, Tex.

The panel serves in an advisory capacity, assisting the management of the Sea Grant program in the development of policies and programs in providing matching-fund grants to colleges and universities for research, education, and advisory services related to marine resource utilization. The Sea Grant program supports more than 600 projects at approximately 125 colleges and other institutions across the nation.

## Anglers' Guide for U.S. Pacific Coast Published

A guide which provides general sources of information on the more frequently fished areas and the species of fish that are commonly caught along the U.S. Pacific coast, Alaska, and some of the Pacific islands, has been published by the National Oceanic and Atmospheric Administration's National Marine Fisheries Service.

Written by James L. Squire, Jr., and Susan E. Smith of the National Marine Fisheries Service, the "Anglers' Guide to the United States Pacific Coast" is arranged in five sections. Each contains a detailed series of coastline fishing charts that outline offshore, bay, and shoreline fishing grounds and gives locations of marine recreational charter

and party boats, boat launching sites, fishing piers, skiff rentals, and jetty fishing sites.

Accompanying the charts is a general description of each fishing chart and the common game fish that are found in the area.

The guide also contains 237 illustrations with a description of the most commonly caught fish along the U.S. west coast and Pacific islands.

The guide may be ordered from the Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402. Stock Number 003-020-00113-1, cost \$7.50. It is also available through local U.S. Government Printing Office bookstores.

