U.S. DEPARTMENT OF COMMERCE / National Oceanic and Atmospheric Administration

# noaa week

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# '74 Oil Spill May Change Oil Transport Procedures

THE NEW ENGLAND AQUARIUM'S DAVID B. STONE AWARD FOR DISTINGUISHED SERVICE TO THE ENVIRONMENT AND THE COMMUNITY was presented to Dr. Robert M. White, NOAA Administrator, by John H. Prescott (left), Executive Director of the Aquarium, at the Aquarium Trustees' Fall Meeting Awards Dinner in Boston, Mass., this week. The Award was established in 1970 by the Aquarium's Board of Governors to honor its Chairman and principal founder, Mr. Stone (right).

## New Ice Freezeup Forecast Method Now Being Used

A new technique for predicting ice freezeups in the upper St. Lawrence Seaway is being used operationally by NOAA with the hope of saving time and money for shippers using the seaway.

The freezeup predictions use mathematical equations developed by Dr. Frank H. Quinn and his colleagues at the Environmental Research Laboratories' Great Lakes Environmental Research Laboratory in Ann Arbor, Mich. The predictions are based on only two quantities—the current water temperature at the mouth of the St. Lawrence at Kingston, and the predicted December flow rate and associated heat loss in the river's 100-mile journey from Kingston to Massena, N.Y.

Using the data, the National Weather Service Forecast Office

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## *Cannery Wastes To Be Studied*

*Cannery wastes and red tide* organisms, usually regarded as nuisances or hazards, may have positive aspects—and these will be investigated by the University of Southern California as a part of a new Sea Grant of $423,500. The grant will be matched by more than $235,000 from non-Federal sources supporting a varied program of marine research, education, and advisory services.

Positive contributions to the *high productivity of* Long Beach-Los Angeles harbor made by fish-processing wastes and the microorganisms responsible for seasonal red tide outbreaks will be assessed by Sea Grant scientists at USC.

Fish canneries at Terminal Island, employing several thousand workers, have been releasing wastes into the harbor for 70 years. Although they have recently improved their treatment procedures, *the canneries still* discharge some processing wastes directly into the outer harbor. Because their profits are margin-

*(Continued on page 2)*

## Florida Keys Tide Study Is Completed

The completion of the first jointly sponsored tide study of the Florida Keys has been announced by the National Ocean Survey and Florida's Department of Natural Resources.

R. Adm. Allen L. Powell, NOS Director, said that the completion of the comprehensive tidal work in "this complicated area represents a real milestone in the Florida Boundary Survey." Accurate coastal boundary lines can now be located for determination of State, Federal, and private ownership of upland and submerged lands throughout the area.

The 15-month survey carried out as part of a continuing cooperative program between Florida and the NOS established more than 180 tide stations throughout the Florida Keys. Cal Thurlow, Chief of the NOS Tides Branch, said, "This represents approximately 5,000 days of individual tide data collection and the establishment of almost 1,000 tidal bench marks for which elevations of mean high water and mean low water are published." After the NOS completes its tidal analysis in the

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On August 9, 1974, the supertanker Metula ran aground in the Strait of Magellan, and spilled over 50,000 tons of oil into the cold waters between Patagonia and Tierra del Fuego. It was a spill whose effects may be visible for years. It was also the beginning of a study that may have even farther-reaching effects on how and where oil is transported in the future and what is done when oil spills occur.

An international group of environmental researchers and managers met in Boulder, Colo., recently to discuss the effects and lessons of the spill and to consider its long-term effects. The meeting was hosted by Dr. Wilmot N. Hess, Director of the Environmental Research Laboratories, and Charles G. Gunnerson, Director of ERL's Marine Ecosystems Analysis Program Office.

The Metula spill was second only to the one that resulted when the Torrey Canyon lost more than twice as much oil in the waters off England in 1967. The narrowness of the Magellan Strait, powerful tides, currents up to 10 knots, winds commonly reaching 70 miles per hour, cliffs 40 feet high that made access to the beach difficult at best, and the sheer mass of the spill militated against the usual cleanup procedures. So the spill was left to run its messy course.

An estimated 40,000 tons of oil were deposited along some 75 miles (120 kilometers) of shore-

*(Continued on page 2)*

## W. G. Gordon Named Director Of NMFS Northeast Region

William G. Gordon has been named Director of the National Marine Fisheries Service Northeast Region, headquartered in Gloucester, Mass. He has served as the Deputy Regional Director since 1971, and prior to that was the Region's Associate Regional Director for Management and Utilization.

Mr. Gordon

He succeeds Russell T. Norris, who recently retired.

*The Northeast Region* is responsible for certain Federal fisheries activities in 19 Northeast, Middle Atlantic, and Great Lakes States.

Mr. Gordon is a native of Corry, Pa. He received his bachelor of science degree in zoology from Mount Union College, Alliance, Ohio, and his masters degree in zoology from the University of Michigan. He joined the Bureau of Commercial Fisheries (predecessor of NMFS) in 1955 and held progressively responsible positions in Ohio, Michigan, and Washington, D.C., prior to his assignment to Gloucester.

# Weather Activities on Guam, In Trust Territory Reviewed

Personnel of the National Weather Service, the military weather activities on Guam, and the Trust Territory of the Pacific Islands Administration met recently to review weather activities in the Trust Territory and on Guam.

The operating Agreement between the NWS and the Trust Territory Administration, which has been in effect since January 1, 1975, was reviewed and found to be working satisfactorily by all concerned.

Other discussion topics included the progress made in improving communications within the Trust Territory; plans for further improvements in communications with the outer islands to collect Supplementary Aviation Weather Reports; and the assignment of a second NWS man to work with the Navy Forecast Office at Guam, which was brought about by the increase in civil aviation in the Western Pacific, including the new airport on Saipan.

**Participants included (from left) Galen Joel, OIC, WSO Yap; Hirao Kloulchad, OIC, WSO Koror; Ralph James, Chief, Aviation Branch, Office of Meteorology and Oceanography, NWSH; Akira J. Suzuki, OIC, WSO Ponape; Charles M. Woffinden, Director, NWS Pacific Region; Lasaro R. Maipi, OIC, WSO Truk; Oscar Milne, OIC, WSO Majuro; Victorino T. Borja, Chief, Communications Division, Trust Territory; Podis Pedrus, Director of Personnel, Trust Territory; and (not in photo) Herbert Hirata, Harold Schwartz, Leroy Bartle, and Willis McClure of NWS Pacific Region Headquarters; William Exley, Seymour Krepky, Thomas S. Yoshida, NWS Guam Offices; (from the Navy) Capt. G. D. Hamilton, Commanding Officer, FWC/JTWC Guam; and Lt. Cdr. David Freeman, Commander NWSED; and Lt. R. L. Fauquet; and (from the Air Weather Service) Maj. S. Pilipowskyj of the JTWC.**


**THE SOVIET RESEARCH VESSEL BELOGORSK was one of the features at the open house held to celebrate NOAA's Fifth Anniversary by the National Marine Fisheries Service Northeast Fisheries Center in Woods Hole, Mass. Nearly 6,000 visitors toured the ship, and were served dark bread and borsch. The NOAA Ship Albatross and the Center's aquarium were also open. (Photo by H.G. Poisson.)**

## Cannery Wastes To Be Studied

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al, the Terminal Island canneries could be forced to close if they are required to install expensive connections to a sewage treatment plant.

During a four-year research program in the harbor, Southern California scientists found extensive populations of fish and large plankton near the cannery waste outfalls, probably nourished by the nutrients in the wastes. This year, they will examine the utilization of cannery wastes as nutrients by various fishes, plankton, and organisms on the harbor floor, and will develop techniques for determining the capacity of waters—especially in harbors—for assimilating these wastes. Red tide blooms and oxygen levels in the harbor's waters will be monitored to learn whether they show a significant correlation with cannery waste discharge. Other scientists will study the role of red tide dinoflagellates in the harbor's food chain.

For six years, the University's Sea Grant researchers have been monitoring marine life near the raw-sewage outfall at Avalon. Early in 1976, when the outfall is to be replaced by a secondary sewage treatment plant, the scientists will begin observing the effects of the change on bottom-dwelling plants and animals.

A study of oil and tar seeps off the Southern California coast will continue, exploring the relationship of the seeps to geologic faults and seismicity. The chemical composition and weathering of oil and tar from natural seeps, offshore wells, and beaches will be investigated, in an effort to develop techniques for identifying the sources of oil and tar in the marine environment.

## Oil Transport Procedures May Be Changed

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line and in estuaries, mostly on the Tierra del Fuego side. Up to 10,000 tons of oil settled on some mile-long sections of the beach. Within 10 days, the oil spread over nearly 1,000 square miles (2,500 square kilometers).

In January of this year, a team of U.S scientists from NOAA, the Environmental Protection Agency, and the Coast Guard traveled to Chile to make a reconnaissance of the oil spill and its effects. Members of the survey team were: Mr. Gunnerson; Dr. Dale Straughan, a marine biologist at the University of Southern California and NOAA consultant; H. Kenneth Adams, a marine biologist with EPA; and Dr. Roy W. Hann, Jr., head of the Environmental Engineering Program at Texas A & M University, and Coast Guard consultant.

At the Boulder meeting, the principal investigators presented their findings to representatives from the United Nations, the oil industry, and other U.S. research organizations, such as the National Science Foundation, Battelle, and the Smithsonian Institution's Center for Short-Lived Phenomena.

The team concluded from its reconnaissance and data analysis that "essentially all" of the oil that had floated onto the shore was still there, and that the biological impact of the spill was severe. Local fisheries had become contaminated. In the nearby salt marsh, large amounts of oil were found floating on the surfaces of tidal channels, deposited on tidal flats, and in isolated patches. The wind had carried oil inland, pelting shrubs until they were black on the seaward side. In some places, the oil-soaked soil had formed a hard, asphaltic crust. In others, oil would bleed into footprints, forming a chain of pools.

Bird losses were originally estimated at from 600 to 2,000—mostly cormorants, but including penguins, petrels, gulls, and others as well. In January, the survey team found more oiled birds landward of the shore areas in which the original counts of dead birds were made.

Much is yet to be learned about the long-term effects of the Metula spill, but a number of lessons are already obvious. The biggest lessons, says Dr. Hann, are that ships are vulnerable, spills can happen, and when they do, the magnitude of the problem is enormous. In planning and selecting sites for future superports to accommodate oil tankers, he continues, "We have to look at the area's other resources and consider the possibility and cost of a spill there."

Another lesson is that time is crucial. "We have seen that once the oil gets to shore, it's too late for effective counter-measures," says Mr. Gunnerson. The Metula spill also demonstrated the poverty of present cleanup preparations. Most spill control methods are aimed at small spills, says Dr. Hann. There is a need for more scientific information about spills and their behavior, better spill control methods, and trained cleanup crews that can be rapidly mobilized. "Tanker operations in confined waters such as the Strait of Magellan require massive contingency plans, support, and material to be maintained on constant alert," adds Mr. Gunnerson.

All the investigators at the Boulder meeting agreed that a long-term study of the spill area would be invaluable, especially since the Magellan Strait is geographically similar to others where oil may be transported, such as the Strait of Juan de Fuca and Georgia Strait, which separate Vancouver Island from mainland North America.


noaa week

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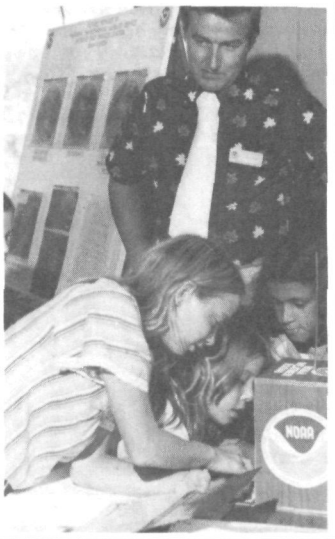
Catherine S. Cawley, Editor
Warren W. Buck, Jr., Art Director

DURING THE THREE-DAY CELEBRATION OF NOAA's FIFTH ANNIVERSARY IN MIAMI, more than 8,000 visitors attended the open house of the Environmental Research Laboratories' Atlantic Oceanographic and Meteorological Laboratories, the National Marine Fisheries Service's Southeast Fisheries Center, and the National Weather Service's National Hurricane Center and Port Meteorological Office. Below, Alan Herman, Oceanographer (Data Processing Specialist) in AMOL's Physical Oceanography Laboratory, describes to students how a core sample was secured from the New York Bight; and on the right, NWS Port Meteorological Officer Walter A. Sitarz is manning the NWS display, highlighted by the NOAA Weather Radio.



## Conference on Applications of Marine Meteorology Scheduled

A Technical Conference on the Applications of Marine Meteorology and Oceanography will be held in conjunction with the meeting of the Commission for Marine Meteorology (CMM) in Lima, Peru, in November 1976.

Sessions on support to high seas activities; support to coastal zone development, marine meteorological services at main ports; and prospects for further development of services will be held during the five-day conference.

A planning meeting to develop the topics, scope, and procedures for obtaining contributions for the Conference was held in the World Meteorological Organization Secretariat in Geneva, Switzerland, recently. This was chaired by Max W. Mull, Chief of the Marine Weather Services Branch in the National Weather Service, who is Director of the Conference and Chairman of the CMM working group on the Marine Meteorological Services System.

Mr. Mull

WMO and Intergovernmental Oceanographic Commission (IOC) representatives worked out procedures for including all relevant aspects of marine meteorology and oceanography under each main topic, including services under the IOC/WMO Integrated Global Ocean Station System (IGOSS).

In addition to papers by representatives from meteorological services of member countries, presentations by industry and spokesmen for other user groups will be invited. Private consultants also will be invited to participate.

## New Calculator System In Operation at LSC

A new Wang 2200 electronic calculator system has been put into operation at the Lake Survey Center. The system comprises a 16,000-character Central Processing Unit, a cathode-ray screen console display, a magnetic disk drive which provides over 750,000 characters of on-line program and data storage, a high-speed printer, and machines to read in data from IBM punched cards or punched paper tape. On order is a nine-track magnetic tape drive which will allow storage of up to 20 million characters of data on each reel of tape.

The first use of the system will be to process data from LSC's more than 60 automatic water level recording gages. Previously accomplished by leasing time on an outside computer, it will now be done in-house, at great savings in time and money. In addition, data records going back ten years, now on about half-a-million punched cards filling a roomful of file cabinets, will be transferred to magnetic disks which will occupy half of a file drawer.

Eventually, the new system will be used for storage of horizontal and vertical geodetic files, processing geodetic surveys, and performing several other critical operational functions.

Jim Fremont of the Horizontal Control Section will set up programming and computations, as well as operate the new system.

## NOAA Participates in ICESA

Fifteen NOAA employees prepared papers for or presented them at the International Conference on Environmental Sensing and Assessment (ICESA), held in Las Vegas, Nev., recently. The Conference combined two meetings—the International Symposium on Environmental Monitoring and the Third Joint Conference on Sensing of Environmental Pollutants—into a single, integrated program. The Symposium was co-sponsored by the World Health Organization (WHO), the Environmental Protection Agency (EPA), and the University of Nevada. The World Meteorological Organization participated in the Symposium at the invitation of the WHO. The Third Joint Conference was cosponsored by various U.S. Federal agencies and professional societies.

NOAA participants included: Dr. T. S. Austin and Dr. D. W. Brown, (Environmental Data Service); Dr. C. E. Jensen, (Environmental Monitoring and Prediction); A. Y. Cantillo, P. D. Falconer, Dr. W. R. Henderson, Dr. L. Machta, Dr. J. M. Miller, Dr. J. F. Noxon, D. H. Pack, and Dr. D. A. Segar, (Environmental Research Laboratories); T. C. Carver, Jr., (National Marine Fisheries Service); B. S. Pijanowski, (National Ocean Survey); and A. J. Miller and R. M. Nagatani, (National Weather Service).

ICESA was organized into two plenary sessions and 38 technical sessions. More than 200 papers were presented at the technical sessions, which were attended by about 1,000 participants representing about 40 nations.

Christian A. Herter, Jr., Deputy Assistant Secretary of State for Environmental and Population Affairs, gave an invited luncheon address.

Other speakers included Russell E. Train, EPA Administrator; Dr. Alexander S. Pavolv, Assistant Director-General of the WHO; and Dr. Eduardo Echeverria Alvarez, President of the Technical Council of the Subsecretariat for Environmental Improvement in Mexico's Secretariat for Health and Welfare.

## NOS Publishes New Chesapeake Bay Small-Craft Chart

A completely redesigned format for a small-craft nautical chart covering a portion of the Chesapeake Bay was displayed for the first time at NOAA's marine safety exhibit at the recent U.S. Power Boat Show in Annapolis, Md.

The chart, issued by the National Ocean Survey, covers a portion of the Chesapeake Bay from Sandy Point to Scientists Cliffs on the western shore to Kent Narrows and St. Michaels on the eastern shore. The scale of the chart is 1:40,000.

Although the redesigned chart is issued without a cover jacket, all information previously shown on the cover has been retained. The new format includes a computer-updated listing of marine facilities, tide tables containing predicted times and heights of high and low waters referenced to Baltimore, and new oblique aerial photographs of the popular boating areas of Kent Island Narrows, St. Michaels Harbor, Deale, and Galesville.

Chart 12271 (formerly 550-SC) is folded into 5x10-inch panels for easier cockpit use in small craft. It is priced at $3.25 per copy and may be obtained from authorized NOS nautical chart sales agents around the Chesapeake Bay area, or ordered by mail from the NOS Distribution Division (C44), Riverdale, Md. 20840.

## Pollution-Related Data Available

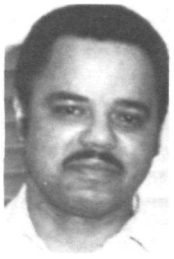
The Environmental Data Service's Environmental Data Index (ENDEX) now contains descriptions of over 200 files of pollution-related data for U.S. coastal areas. The file descriptions characterize the types of records held by various Federal, state, and local government agencies, industry, and universities.

The types of pollutant-related data contained in the files are: total hydrocarbons, aliphatic hydrocarbons, aromatic hydrocarbons, chlorinated hydrocarbons, oil-slick occurrence, oils, polychlorinated biphenyls, chemical oxygen demand, biochemical oxygen demand, heavy metals (including chromium, nickel, cobalt, mercury, zinc, copper, cadmium, and lead), DDT, DDA, DDD, DDE, 2-4-D, 2-4-5-T, thion compounds, aldrin, carbaryl, chlordane, toxaphene, dieldrin, endrin, heptachlor, lindane, methoxychlor, and mirex.

Additional information on file descriptions can be obtained from the Oceanographic Services Branch of the EDS National Oceanographic Data Center on (202) 634-7500.

# Buoys Returned To Great Lakes For Research

Howard Booker from the Lake Survey Center's Engineering Division in Monroe, Mich., and H. K. Soo from the Great Lakes Environmental Research Laboratory in Ann Arbor, recently went to the NOAA Data Buoy Center at Bay St. Louis, Miss., to select two complete buoys from those used in Lake Ontario during the International Field Year for the Great Lakes to be used for GLERL's continuing Great Lakes research program. The buoys were shipped to the Engineering Division, where personnel, under the direction of Malcolm S. Krebs, will outfit them, perform necessary mechanical details and assist in attaching electronic equipment, so the buoys can be deployed next year.



Mr. Booker

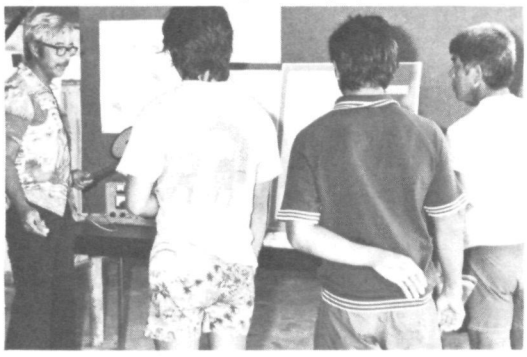
## Lab Holds Reunion

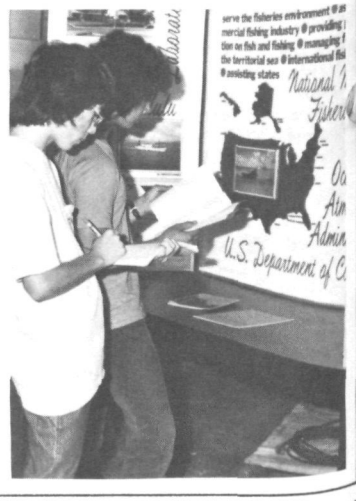
The Geophysical Fluid Dynamics Laboratory celebrated its 20th anniversary with a reunion picnic held recently on its back lawn (on the Forrestal campus of Princeton University). Two hundred fifty of the Laboratory's current staff, Princeton University associates, former employees and associates and their families attended.

The Laboratory originated at the General Circulation Research Section of the Weather Bureau in 1955 and moved from Washington, D.C., to Princeton, N.J., in 1968. The Laboratory is now part of the Environmental Research Laboratories, and its Director is Dr. Joseph Smagorinsky.

A TOUR OF THE NOAA SHIP TOWNSEND CROMWELL was a feature of the open house observance of NOAA's fifth anniversary at the Honolulu Laboratory of the National Marine Fisheries Service Southwest Fisheries Center. The more than 1,500 guests who toured the ship and visited the Kewalo dockside facility examined exhibits of research accomplishments, live tunas, and displays of commercial and experimental fishing gear, and saw movies.

On the left, Staff Biologist Heeny Yuen demonstrates an acoustic tag, and on the right, students are taking notes on NMFS's contribution to the world fishery.





## Florida Tide Study

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next few months, surveyors can quickly and precisely locate coastal boundary lines.

The survey was accomplished by a crew of State and Federal employees presently under the supervision of Lt. Ron Polvi.

The general law states that land above the mean high water line is privately owned. Submerged lands beyond three miles offshore on the Atlantic Ocean side and three leagues on the Gulf of Mexico side, measured from the mean low water line, have Federal jurisdiction. The submerged land in between the mean high water line and the offshore Federal boundary is State sovereignty land. Any future disputes over submerged oil and mineral rights, sunken treasures, fishing rights, private property development, etc., make the precise location of these lines extremely important.

According to Admiral Powell, the NOS-Florida Program to establish precise coastal boundary line locations is becoming the model for the rest of the Nation's coastal states. Similar programs are being initiated in California, New Jersey and South Carolina.

## Ice Freezeup Forecasts

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in Buffalo, under the direction of James Smith, issues predictions of the freezeup on the first and 15th of October, November, and December.

Freezeup predictions two to three months in advance could provide shippers the necessary lead time to schedule vessels into and out of the Great Lakes until ice prevents the continuation of normal navigation.

Ocean vessels must vacate the seaway system before it is closed or face the prospect of being locked in for three and a half cold, unproductive months.

The prediction technique was developed as part of a five-year Federal study—the Great Lakes-St. Lawrence Seaway Navigation Season Extension Demonstration Program—at the request of the St. Lawrence Seaway Development Corporation, which operates the waterway for the Department of Transportation.

NOAA scientists are also developing techniques for predicting the ice breakup date in the St. Lawrence each spring.

MORE THAN 1,100 PEOPLE ATTENDED THE TWO-DAY "SCIENCE FAIR" IN BOULDER, COLO., held by the Environmental Research Laboratories and the Environmental Data Service's National Geophysical and Solar Terrestrial Data Center in honor of NOAA's fifth anniversary. Here, Joyce Harris (left) of ERL's Geophysical Monitoring for Climatic Change program is demonstrating one of the program's instruments.

TRAINING FOR NWS ELECTRONIC TECHNICIANS on the installation and maintenance of the new WSR-74C Local Warning Radars has begun at the Enterprise Electronics Corporation, Enterprise, Ala. Participants in the first class were (from left) David Braswell, Instructor, EEC; Charles Hoffman, Instructor, EEC; Edgar Fain, San Antonio, Tex.; Ned Williams, Mobile, Ala.; Carl Bagesse, Corpus Christi, Tex.; James Stewart, Columbia, S.C.; Walter Gilbert, NWSH, Silver Spring, Md., Frank Lennerth, Cleveland, Ohio; Roger Ford, Instructor, EEC; Ronald Richardson, Binghamton, N.Y.; Arnold Kuck, Fort Wayne, Ind.; Eugene Haston, NWS Technical Training Center, Kansas City, Mo; Clarence Taylor, Greensboro, N.C.; Eugene Calame, Austin, Tex.; Eugene Ortman, Sioux Falls, S. Dak.; James Stedman, Muskegon, Mich.; Frank Branom, NWS Central Region Headquarters, Kansas City, Mo.; James Gates, Fort Smith, Ark.; Edward Guy, NWSH, Silver Spring, Md.; and C. Neil Braswell, Instructor and Chief Engineer, EEC.

The NWS expects eventually to have 66 of the new local-warning radars to supplement its basic network of 51 WSR-57 radars. Some new radars are replacing old World War II radars, and some are providing coverage where none existed previously.

## best fish buys

According to the NMFS National Fishery Education Center in Chicago, the best fish buys for the next week or so are likely to be fresh fillets of flounder and haddock along the Northeast Seaboard; fluke and croaker in the Middle Atlantic States, including the D.C. area; king mackerel and fresh oysters in the Southeast and along the Gulf Coast; whole northern pike and lake trout in the Midwest; fillets of sole and snapper in the Northwest; and canned tuna and Pacific red snapper in the Southwest.

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