NOAA NEWS

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Winter Storm Safety Rules

Get independent. Check battery-powered equipment, heating fuel, food stock, and other supplies.

Dress for the season. Layers of protective clothing are more effective and efficient than single layers of thick clothing. Mittens are warmer than gloves. Hoods should cover mouth, to protect lungs from extremely cold air.

Don't kill yourself shoveling snow. It is extremely hard work and can bring on a heart attack, a major cause of death during and after winter storms.

Take winter driving seriously. Keep your car "winterized." Carry a winter car kit containing equipment to help you keep warm, visible, and alive if you are trapped in a winter storm.

If a blizzard traps you, avoid overexertion and exposure, stay in your vehicle (but keep it ventilated), exercise, turn on dome light at night, stand watches, don't panic.

Alexander Malahoff Is Appointed Ocean Survey's Chief Scientist

Dr. Alexander Malahoff, an expert in marine geology and geophysics, has been named chief scientist of the National Ocean Survey.

As chief scientist, Malahoff becomes the principal advisor to the Director of the Survey in geophysical and oceanographic matters, including program planning, budget, research and evaluation of techniques, and scientific analysis and study. The principal activities with which he will be concerned are oceanographic, gravimetric, geomagnetic, geodetic, bathymetric and related functions.

Since 1970, Dr. Malahoff has been the program director of Marine Geology and Geophysics Program in the Office of Naval Research. From 1965 to 1970, he taught and carried out research at the University of Hawaii where he held the post of Professor of Geophysics.

Dr. Malahoff has received degrees from the University of New Zealand, Victoria University of Wellington, and in 1965 received his Ph.D. in Geophysics from the University of Hawaii. He is the author of numerous marine geological and geophysical research articles on the Pacific, Arctic and Mediterranean regions.

From 1963 to 1970, he was a consultant to the U.S. Army Corps of Engineers, Westinghouse Electric Corporation, Department of the Air Force, U.S. Army Map Service, and the U.S. Navy, and carried out numerous geophysical and marine studies in southern Eurpoe, Australia, and the U.S. and the western Pacific.

New Tuna-Porpoise Rules Would Ease Restrictions

The Department of Commerce has proposed three changes to the Marine Mammal Protection Act of 1972 to ease restrictions that U.S. tuna fishermen feel threaten the existence of their industry, while continuing efforts to reduce porpoise mortality.

The amendments would:

—Permit tuna fishermen to fish on porpoise provided the industry demonstrates significant annual reductions in the kill of the animals;

—Require the industry to use fishing techniques that produce the least practicable hazard to marine mammals;

—Authorize the Secretary of Commerce to place observers on tuna fishing vessels for the purpose of monitoring compliance with regulations as well as scientific research.

While the stringent regulations of the 1972 Act are generally supported by the American people, the proposal pointed out that because of unforseen circumstances the Act now threatens the existence both of the industry and of the porpoises themselves. The draft legislation submitted recently is designed to ameliorate this situation.

The proposed amendments are:

1) The basic goal of the Act—to reduce kill and serious injury rate of marine mammals to near zero—would be retained, but the word "immediate" preceding the word "goal" is deleted, thus stretching out the time requirement for achieving the goal. At the same time, however, the amendment provides that the industry must use fishing techniques that produce the least

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Lake Michigan Freezeover Seen By Researchers

Lake Michigan may have one of its rare freezeovers this winter.

Dr. Frank Quinn, who leads ice research for NOAA's Great Lakes Environmental Research Laboratory in Ann Arbor, Mich., says the probability is high that continued cold weather will freeze the entire surface of Lake Michigan.

"This is something most people along the lake have never seen," Dr. Quinn said. "Although we're not sure how often it happens, since we began taking good data in the early 1960's the worst it's been was 80 percent ice cover in 1963."

In a normal winter, Quinn notes, Lake Michigan is about 40 percent ice covered, and about 60 percent frozen over in severe winters. "But this winter seems well on its way to being the worst one this century for the Great Lakes," he said.

(Continued on page 2)

Three-Year Terms

New NACOA Members Named

Dr. Douglas L. Brooks, Executive Director of the National Advisory Committee on Oceans and Atmosphere (NACOA), has announced the appointment of eight persons to three-year terms on the Committee.

They are: John N. Garner of Everett, Wash.; MIT Dean of Engineering Dr. Alfred A. Keil of Cambridge, Mass.; John R. Michels, President of Michels Development Co., Boston, Mass.; former Presidential counsellor Michael Raoul-Duval of Washington, D.C.; former Congressman Herman T. Schneebeli of Williamsport, Pa.; Mayor George M. Sullivan of Anchorage, Alaska; and Washington attorneys J. Robinson West and Lawrence J. Hogan.

NACOA advises the President and Congress with respect to the Nation's marine and atmospheric activities, and also advises the Secretary of Commerce with respect to the carrying out of the purposes of NOAA.

On January 17, the Executive Department proposed an $800 million budget for NOAA in Fiscal Year 1978 for submission to the Congress. Details of this budget are carried in a special section of *NOAA News* this week beginning on page 6.

Dr. Alaka Is New Deputy Director Of NWS Techniques Development Lab

Dr. Mikhail A. Alaka has assumed the duties of Deputy Director of the Techniques Development Laboratory, Systems Development Office, NWS. He is also Chief, Special Projects Branch, TDL, a position he has held since 1967.

Dr. Alaka was born in Baghdad, Iraq, and graduated with an honors B.A. degree in Mathematics from the American University of Beirut. After receiving his initial meteorological training in London, England, he was for several years a forecaster and an Assistant Director with the Iraq Meteorological Service. In 1949, he received his M.S. degree in Meteorology from the University of Chicago and was Deputy Director of the Iraq Meteorological Service until September 1950. Following this, he continued his studies at the University of Chicago and was awarded his Ph.D. degree in March 1955.

Dr. Alaka spent the following six years in Geneva as a Technical Officer and Deputy Chief of the Investigations Section of the

Dr. Alaka

WMO Secretariat. He returned to the U.S. in December 1960 and served as a Research Meteorologist with the National Hurricane Research Project in Miami, Florida, where he conducted and supervised research in tropical meteorology, particularly on hurricane genesis and development. He joined TDL in October 1964 after a brief assignment as a supervisory research meteorologist with the Clear Air Turbulence Research Project in Washington, D.C.

Tuna-Porpoise

(Continued from page 1)

practicable hazard to marine mammals, and must demonstrate a significant annual reduction in the kill of marine mammals.

2) Continued fishing "on porpoise" would be permitted provided the permitted catch would make possible recovery of the porpoise stock within a short time.

3) The Secretary of Commerce would be given authority to place observers on commercial fishing vessels to conduct research, observe fishing operations, and monitor for compliance with regulations.

Most tuna caught by the U.S. fleet are caught in the eastern tropical Pacific by setting purse seines around schools of porpoise. Tuna frequently swim below the porpoise. In encircling the fish, porpoise may be accidentally taken, and although most are successfully released, some are killed.

Strict court interpretation of the present Act has had the effect of halting U.S. tuna fishing on porpoise until new regulations can be promulgated. The only vessels now fishing on porpoise are foreign vessels, which may not observe precautions required of U.S. vessels, and therefore may kill many more of the animals.

New National Analytical Facility Will Assist Environmental Projects

A national facility to detect—and help define—the infinitesimal chemical changes in sea water or sediments that can signal pollution has been established by NOAA in Seattle.

Ultra-sensitive instruments at the new facility can detect contaminants in water at levels of one part per billion or less. The results of such delicate analyses will be used in a host of energy resource and environmental studies, including efforts to assess the effects of oil and other contaminants in Puget Sound and on Arctic marine life forms.

The analytical center's full-time staff of five chemists will analyze water, sediment, and biological samples for several NOAA environmental research programs, testing the samples for traces of petroleum hydrocarbons, chlorinated hydrocarbons, industrial organics and heavy metals.

Established with funds from the Environmental Protection Agency and located at the NMFS Northwest and Alaska Fisheries Center the Seattle analytical facility serves as a much needed national center for testing marine samples for research projects throughout the United States.

The facility is more than a center for routine processing of samples, however. The staff of experts, headed by Dr. William MacLeod, will make recommendations on the kinds of analyses that will be needed to fulfill the objectives of the various environmental projects and develop new analytical methods.

Sample material collected during the assessment of the impact of the grounding of the Argo Merchant on Nantucket Shoals last Christmas will be tested at the facility.

The experimenters currently are testing the effects of crude oil from Prudhoe Bay, on Alaska's North Slope, on salmonids, flatfish, and shrimp.

Among the facility's main "customers" will be the Outer Continental Shelf Environmental Assessment Program, which is conducting a major study of the effects of oil leasing in the Gulf of Alaska for the Interior Department's Bureau of Land Management; and the Marine Ecosystems Analysis Program Office, a project involved in such problems as deep sea mining in the Pacific and the impact of the New York and Seattle metropolitan areas on adjacent waters.

A third main customer is the group from the National Marine Fisheries Service which deals with environmental research and habitat protection. The facility eventually will work with other government agencies, universities, and others conducting marine environmental research.

A Good Buddy in Wyoming

Weather Wire Helps Truck Drivers

Truckers passing through Cheyenne, Wyo., have become big fans of the NOAA Weather Wire, to the point where several truck stops in the area are subscribers to the service.

Robert Beebe, Meteorologist-In-Charge at the Cheyenne WSFO, said the truckers increasingly are depending upon the NOAA Weather Wire for information on winter road conditions, including highway closings because of snow.

When the service was inaugurated in Wyoming three years ago, Beebe said, Mountain Bell Telephone funded a weather wire drop at a large, 24-hour truck stop as an experiment. The response was such that the operator of the facility became a subscriber to the service.

Recently, according to Beebe, a competing truck stop also signed up for the service, and several others are considering it. Additionally, Mountain Bell is planning a similar experiment at a truckstop in Casper, Wyo.

Lake Michigan Freezeover Seen

(Continued from page 1)

Quinn expects the Lake Michigan waters to freeze almost solid along the shoreline, with thinner ices in deeper water, which stores more of the lake's heat.

He believes Lake Superior, whose deep waters store large quantities of heat, may also experience a complete freezeover this year. In severe winters, ice cover on Superior runs about 95 percent, and about 50 percent in normal winters.

Imagery from NOAA'S polar orbiting satellites tend to confirm Quinn's predictions, according to Russell Koffler of NOAA's National Environmental Satellite Service.

"The entire Great Lakes system ice cover is running a full month ahead of normal," he said. "The ice cover we saw on the satellite pictures in mid-January is comparable to that we'd observe in the middle of February—the peak ice time—in a normal year.

Koffler said he also expects Lake Ontario to freeze over completely if the cold weather continues, noting that there was ice in 30 percent of the lake on Inauguration Day. In a normal year, he said, there is very little ice in Lake Ontario.

Capt. Sidney Miller Appointed CO Of Seattle-Based Research Vessel

Captain Sidney C. Miller, has been appointed Commanding Officer of the NOAA Ship Discoverer.

Capt. Miller

Capt. Miller joined the Coast and Geodetic Survey, the predecessor of the National Ocean Survey, in 1957, following graduation from Clemson University with a degree in civil engineering. His assignments have included sea duty aboard six ships involved in nautical charting and ocean investigations along the east and Gulf coasts and in Alaskan waters, where he served for four years. He previously commanded the NOAA Ship Whiting. Other assignments include mobile geodetic field parties, Chief of Airport Surveys in the Photogrammetry Division, and Liaison Officer with the U.S. Army Field Artillery at Fort Sill, Okla.

systems while at Fort Sill. He has been Deputy Associate Director of the Office of Fleet Operations of the National Ocean Survey for the past three years.

The Discoverer carries a normal complement of about 100 officers, scientists and crew. Transferred to Seattle from her home port in Norfolk, Va., early in 1975, the 303-foot research vessel assists in the environmental studies required for the exploration and development of oil and has resources in the Gulf of Alaska and the Bering and Beaufort seas.

NOAA Bird Watcher
Satellite Assists In Goose Survey

U.S. and Canadian wildlife managers, whose job it is to establish hunting regulations for Canada geese and other arctic-nesting game birds, are using a new tool in their work—satellite pictures from NOAA.

Henry M. Reeves of the Office of Migratory Bird Management, U.S. Fish and Wildlife Service, has used pictures from a NOAA polar-orbiter to help determine the reproductive success of several species of arctic nesting geese. From his findings, hunting limits on the species can be set.

Many factors affect the reproductive success of arctic nesting geese, according to Reeves; the most important, perhaps, being timely disappearance of snow, ice, and the availability of melt water to allow for the production and rearing of young. Late seasons or adverse weather can result in the geese not nesting, in unsuccessful nesting, reduced clutch of brood sizes, or failure to renest. Any of these adversely affects the population, and thus is of importance to the waterfowl manager.

Pictures from NOAA's polar-orbiting satellite show snow and ice conditions in traditional arctic nesting areas. The satellite passes over the areas twice every 24 hours, providing both visual and infrared imagery. These pictures let the waterfowl manager assess the conditions faced by nesting geese in areas too remote for on-site inspection.

When combined with other information possessed by the manager—including his knowledge of the nesting habits of the particular species—the satellite pictures help identify probable areas and times of catastrophic or outstanding goose production, permitting the manager to establish appropriate hunting regulations.

Contract Let For Aircraft Care

Airtech Service, Inc. of Miami, Fla., has been awarded a $280,000 contract for providing maintenance services and related facilities for NOAA weather research aircraft.

NOAA's Miami-based Research Facilities Center, part of ERL, uses instrumented aircraft for studying weather modification techniques, probing subtropical cyclones and hurricanes, and a wide variety of other environmental research missions.

At present the NOAA facility operates two new Lockheed WP-3D Orions and one C-130 research aircraft.

Fred Weiss, (right) weatherman on Washington, D.C.'s, WMAL-TV, recently picked up a copy of the new 1977 East Coast Tide Tables at the NOS Rockville Chart Sales Office. Assisting Mr. Weiss is Terry Mauk, Assistant Chief of the Program Services Section of the NOS Physical Science Services Branch.

NOAA Researcher Traces Lightning In Split-Second Return To Origin

Using radio receivers and a computer mapping process, a NOAA scientist can now trace a lightning bolt's split-second journey back to its birthplace.

Coupling his information with precipitation concentrations picked up by weather radar, William L. Taylor of ERL's Wave Propagation Laboratory, can locate where the lightning is occurring with respect to concentrations of precipitation particles within the thunderstorm.

According to Taylor, the human eye sees only a portion of a storm's lightning activity; perhaps about one-tenth. His instruments let him "see" the rest of the activity. Taylor's "eyes" are radio receivers tuned from just below the citizen's radio band—20 Megahertz (million cycles per second)—to frequencies just below the FM broadcast band—80 Megahertz.

The electronic tuning enables him to fix the position where different branches or "kinks" of the lightning's main channels originate. By changing the sensitivity of his receivers, he can observe either the main channel or the little branches or offshoots of the ground-to-cloud return stroke.

"Relating the space-time history of lightning discharges to the locations and variations in the wind field and precipitation regions of thunderstorms will give us a tremendous opportunity to further our knowledge of thunderstorm processes," Taylor says.

If scientists could identify relationships between lightning and thunderstorm precipitation patterns, weather forecasters could use both types of data to pinpoint areas of severe weather in and around a storm system. Correlating lightning activity with thunderstorm windfields and precipitation would also give pilots and controllers a better idea of where hazardous conditions would be encountered in thunderstorm penetration.

Data from Taylor's instruments could also be valuable for lightning suppression experiments by telling scientists where to sow metallized fibers in a thunderstorm.

Taylor's research is an outgrowth of previous studies of tornado-bearing thunderstorms.

"We learned that tornadoes are more apt to happen in storms with high electrical activity," he said. "And our analysis of many tornadic storm records show that approximately 15 minutes of high electrical activity take place before a tornado touches the ground.

"But some fundamental research must now be done to establish the place of this electronic impulse burst rate in the large electrical context of the thunderstorm. Then perhaps the technique can be applied as a viable tornado detection tool."

NOS Display Honors Distinguished Oceanographers

Dr. Harris B. Stewart, Jr., Director of NOAA's Atlantic Oceanographic and Meteorological Laboratories in Miami, has been honored by having his portrait added to the permanent display of five distinguished oceanographers at the National Ocean Survey headquarters in Rockville, Md.

Also honored was Bernard D. Zetler, formerly of Miami, who served as Director of the Virginia Key organization's Physical Oceanography Laboratory and Senior Scientist from 1965 to 1972, when he joined the Institute of Geophysics and Planetary Physics, University of California, San Diego.

Dr. Stewart was cited for introducing the first complete oceanographic program and for serving as the Survey's first Chief Oceanographer. He was with the Survey from 1957 to 1965. Zetler's citation was for distinguished basic and applied research in fundamental tidal theory. Stewart and Zetler are the first living recipients of the honor.

The portraits of Stewart and Zetler are part of a display dedicated to the encouragement of young oceanographers to emulate the accomplishments of these distinguished scientists.

The original five portraits are of Prof. William Ferrel (1817-1891), Dr. Rollin A. Harris (1863-1918), Leland P. Shidy (1851-1935), Paul Schureman (1876-1959), and Harry A. Marmer (1885-1953).

Prof. Ferrel was with the old Coast Survey from 1868 to 1886 and overlapped in the Signal Service (forerunner of the Weather Bureau and National Weather Service) from 1882 to 1886. He was the author of "Tide Researches" and designed the first tide predicting machine. Ferrel independently formulated both Coriolis Force and the Law of Buys Ballot, and was elected a Member of the National Academy of Sciences. The NOAA Ship Ferrel, specializing in estuarine and coastal circulatory studies, is named after this distinguished scientist.

Dr. Harris created the stationary wave theory for open ocean tides and authored the "Manual of Tides." He designed the second tide predicting machine on display in the lobby of NOS headquarter and was with the Survey from 1890 to 1918.

Shidy devised stencil summing, then a great simplifying step in the harmonic analysis of observed tides (a prerequisite to prediction). He was with the Survey from 1873 to 1930, a total of 57 years.

Paul Schureman worked for the Coast and Geodetic Survey from 1903 to 1945 and wrote the monumental "A Manual of the Harmonic Analysis and Prediction of Tides", which Zetler is presently revising.

Harry Marmer was with the Survey from 1907 to 1953. He was a prolific author of scientific papers, books, and semi-technical publications. His best known are "Tidal Datum Planes" and "The Tide." The latter has been an extremely popular semi-technical book. The Coast and Geodetic Survey Ship Marmer, predecessor of the Ferrel, was named for him. He won the Alexander Agassiz Medal of the National Academy of Sciences in 1951.

Mr. Zetler

Dr. Stewart

Photographs of distinguished oceanographers on display at National Ocean Survey headquarters include (clockwise from upper right) Leland P. Shidy, Harry A. Marmer, Paul Schureman, and Dr. Rollin A. Harris. At the center is Professor William Ferrel.

FROM THE GALLEY

FLOUNDER AND BROCCOLI ROLLS

- 2 pounds flounder or sole fillets, fresh or frozen
- 2 packages (10 ounce each) frozen broccoli spears, cooked and drained
- 1 teaspoon salt
- 1/4 cup dry white wine
- 2 tablespoons butter or margarine
- 2 tablespoons sliced green onion
- 1 tablespoon lemon juice
- 1/2 bay leaf
- Pimiento strips (optional)

Thaw fish if frozen. Divide fillets and broccoli spears into 6 equal portions. Sprinkle fillets with 1/2 teaspoon salt. For each roll, wrap a portion of fish around a portion of broccoli spears. Place rolls in large skillet. Sprinkle with remaining salt. Combine wine, butter or margarine, onion, lemon juice, and bay leaf; bring to boil. Pour over fish rolls; cover. Cook slowly for 12 to 15 minutes or until fish flakes easily when tested with a fork. Garnish rolls with pimiento strips, if desired. Makes 6 servings.

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 cusk and frozen cod along the Northeast Seaboard; sea bass and scup in the Middle Atlantic States, including the D.C. area; grouper and red snapper in the Southeast and along the Gulf Coast; fish sticks and whiting in the Midwest; turbot fillets and fresh steamer clams in the Northwest; and Dungeness crab and Pacific oysters in the Southwest.

$134,051 Contract Let For Center Operations

The Oceanographic Institute of Washington, in Seattle, has been awarded a $134,051 contract extension by NOAA to continue the operation and management through September of this year of the Northwest Regional Calibration Center in Bellevue, Wash.

The Center, which serves the northwest and some of the Canadian oceanographic scientific and and environmental agencies, also performs calibration work for the National Ocean Survey and other Federal agencies, universities, and commerical firms.

The Center services all of the National Ocean Survey's instrument calibration, such as its deep-sea reversing thermometers which are attached to water sampling devices and used to compute water temperature at various depths. Other scientific equipment calibrated on national standards by the Center are ocean current meters, and temperature, salinity and pressure instruments.

The Oceanographic Institute has been managing the Calibration Center since the facility began operations in 1972. The basic contract runs until September 30, 1982, with annual cost negotiations.

Virgin Islands Receive Grant

Efforts to develop a coastal management program for the Virgin Islands, providing social, economic, and environmental benefits, have been funded for the third straight year with a $180,000 Coastal Zone Management grant by NOAA.

In two previous Coastal Zone Management grants, $90,000 and $120,000 have been awarded the Virgin Islands.

Among the activities completed so far to develop the management program are an inventory of marine resources, a survey and analysis of existing coastal laws and regulations, and a collection of data on coastal land values, zoning, acreage, land capability, and natural historic areas.

A major activity of the third year effort will be to refine and incorporate various program components into a single management document to submit for NOAA approval.

Ship Construction Now Under Fleet Ops

The National Ocean Survey has announced that the Ship Construction Staff has been transferred to the Office of Fleet Operations. Cdr. Merritt N. Walter, who is the unit's new Chief, said the staff will continue to be located in Room 717, WSC-1 at the Rockville, Md., NOS headquarter.

NCC Publication Designed To Aid Almanac Editors

The EDS National Climatic Center has developed a new publication to meet the needs of editors of almanacs and other users interested in comparative weather statistics. Comparative Climatic Data matches values of climatological elements for about 300 National Weather Service stations in the 50 States, as well as for San Juan, P.R.; Swan Island, Honduras; and 12 Pacific islands. The stations listed include 79 of the 90 major urban areas that reported populations greater than 150,000 in the 1970 census; data are also presented for weather stations within 30 miles of the other 11 major urban areas.

The data are arranged by climatic elements, so that monthly and annual values can be compared for different locations in a single table.

The observed data tables will be updated annually. Climatological "normals" (50-year averages) are recomputed at 10-year intervals to include the latest 30-year period (1941-70 is the period used to compute current normals).

For further information concerning the publication, write: Director, National Climatic Center, Federal Building, Asheville, N.C., 28801.

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NOAA BUDGET STATEMENT

FY 1978

President Ford requested a budget with a program level of $801.4 million for the National Oceanic and Atmospheric Administration for Fiscal Year 1978. This represents a net increase of $68.8 million. A major portion of this is represented by a new loan guaranty fund to be known as the Coastal Energy Impact Fund, which makes up $33.0 million, or 48 percent, of the increase. The Operations, Research, and Facilities appropriation includes a request for a net increase of $29.1 million which is five percent more than the FY 1977 program level. The proposed increases for the expansion of programs and adjustments to base are partially offset by decreases resulting from non-recurring items, completed programs, and program reductions.

Proposed increases are:

1. Increased costs of operation — $28.1 million

   Employee pay and benefits totaling $19.0 million

   Costs of supplies, equipment, and materials totaling $1.7 million

   Costs of maintenance and support services, satellite procurement, ship maintenance, and other activities totaling $7.4 million.

2. Automate NOAA aeronautical chart production system — $1.0 million increase
   FY 77 funding: $1.3 million

This increase is required to automate the present computer-assisted manual method of chart production. The manual system is now near its capacity, but the Federal Aviation Administration projects an estimated increase of 30 percent by 1982 to meet charting requirements of the National Airspace System. The increase will permit expansion of the existing series, addition of some new chart series, and the maintenance of these and currently existing charts.

3. Relevel and readjust the National Vertical Control Network — $2.7 million increase
   FY 77 funding: $7.1 million

This increase will provide for a long overdue correction of the National Vertical Control Network, established in 1929. Due to vertical land movements, lack of accuracy in the original surveys and the loss of many bench marks, approximately 80 percent of the existing network is not adequate as the basis for most engineering and boundary surveys and national, state, and local mapping work.

4. Ship maintenance — $2.9 million increase
   FY 77 funding: $6.9 million

Shipboard maintenance of electronic equipment will be improved and research vessels which support fishery programs will be upgraded. The shipboard maintenance increase will reduce the amount of ship operating time which is lost due to malfunctions and breakdowns of electronic data acquisition equipment ($1,927,000). Three NOAA fishery research ships will be physically upgraded to help increase conservation, assessment and management efforts required under the Fishery Conservation and Management Act of 1976 ($1,000,000). Offsetting part of the funding increases will be a reduction of $150,000 in maintenance expenditures with the disposition during FY 1978 of two older vessels which are no longer safe to operate.

5. Fisheries stock assessment and research — $2 million increase
   FY 77 funding: $9.1 million

The Fishery Conservation and Management Act of 1976 established a 200-mile fishery conservation zone along the coasts of America, effective March 1, 1977. This budget increase in NOAA's Marine Resources Assessment, Monitoring and Prediction system will help provide fish stock data needed for proper management of the zone. This increased effort will focus primarily on the Gulf of Alaska and Eastern Bering Sea in the Northwest Pacific, since foreign fishing is particularly heavy in this region.

6. Ocean fish habitat assessment — $906,000 increase; FY 77 funding: $2.7 million

This increase will permit expansion of efforts to determine how man-induced environmental changes affect the abundance, distribution, and functioning of living marine resources and their environment. This information will be used to devise controls or corrective actions which may be needed to halt deterioration of the fish habitat along the Gulf and South Atlantic coasts.

7. Increased protection of porpoises and conservation of endangered species — $515,000 increase; FY 77 funding: $4.9 million

Further efforts to reduce porpoise mortality during yellowfin tuna fishing operations will be conducted, with particular emphasis on research efforts to learn more about porpoise populations and improvements in the gear and techniques used by tuna fishing vessels ($206,000). Efforts to protect endangered species of whales will involve stepped-up research, conservation and enforcement ($309,000).

8. Relocate Southeast Utilization Research Center — $894,000 increase; FY 77 funding: N/A

The proposed funds will be used to move this center from College Park, Md., to Charleston, S.C. The move is appropriate due to the expiration of the present lease and the better access to Gulf and South Atlantic fishery resources in Charleston.

9. Evaluation of the effects of offshore dumping, deep ocean mining, and other human activities in the ocean — $2.5 million increase; FY 77 funding: $6.4 million

Expanded research in areas of heavy ocean dumping will provide information needed to balance economic development with environmental conservation in heavily populated coastal areas ($1,000,000). The second phase of NOAA's Deep Ocean Mining Environmental Studies (DOMES II) will monitor and evaluate effects on the ocean environment produced by experimental manganese nodule mining operations in the Pacific Ocean ($900,000). A study is to be initiated on the long-term effects of man-induced changes, which may be inadvertently impairing the quality of the ocean ecosystem ($600,000).

10. Evaluate marine mineral development — $100,000 increase; FY 77 funding: -0-

Environmental and technical effects of marine mineral development will be studied in preparation for expected expansion of such development.

11. Data buoy operations — $700,000 increase; FY 77 funding: $7.8 million

Nine deep-ocean moored buoys which were procured during FY 75-76 will be operated in the Gulf of Alaska and off the coasts of the Northwest Pacific, the Atlantic, and the Gulf of Mexico. The funding increase represents first-time annual operations costs for the buoys. The buoys observe and transmit weather observations for warnings of storms affecting marine activities as well as coastal inland areas.

12. Establish a Climate Diagnostics Activity — $300,000 increase; FY 77 funding: -0-

American capability for analyzing and predicting regional and worldwide climatic variations will be increased as a result of research conducted under a new Climate Diagnostics Activity. Climatic fluctuations significantly affect food, water, and energy resources; information from the new project concerning the extent and causes of climate variations will be provided to policy and decision-making agencies as well as the general public.

13. Install emergency power at National Weather Service field offices — $100,000 increase; FY 77 funding: N/A

Vital emergency standby power will be installed at Weather Service field offices across the nation to insure rapid delivery of flood and storm warnings to the public during natural disasters when commercial power is likely to be disrupted.

14. Continuation of NOAA Environmental Satellite Program — $0.1 million increase; FY 77 funding: $89.2 million

Operation of NOAA's operational polar-orbiting (ITOS) and geostationary (GOES) satellites will be continued. These satellites provide data that are essential for predictions and warnings of weather and ocean conditions. In 1978, a new generation of polar-orbiting environmental spacecraft (TIROS-N series) will be put into service. In FY 1978, total increase of $10 million is needed for continued implementation of TIROS-N series spacecraft and continuation of the GOES system. These increases are offset by $9.9 million for the following: cancellation of launch of ITOS-1 ($6.2 million); decrease in accrued costs of geostationary launch services ($3.0 million); and decrease in capital outlays for multiyear computer procurement ($0.7 million). The net increase is $0.1 million. It should be noted that the cancellation of the ITOS-I launch could result in a break in NOAA's polar-orbiting satellite service if the present NOAA-5 spacecraft fails before the TIROS-N series comes into service in 1978.

15. SEASAT (satellite) applications program — $2 million increase; FY 77 funding: $470,000

As a principal user of NASA's new oceanic research satellite (scheduled for 1978 launch), NOAA will continue to increase research and applications projects using SEASAT data. The new satellite will provide more comprehensive data for monitoring and forecasting worldwide ocean conditions than any existing spacecraft. Included will be the capability to view the shape of the earth and other geodetic features, ocean waves and currents, wind structure over the oceans, and ice in polar regions.

16. Establish one new River Forecast Center — $412,000 increase; FY 77 funding: $5.1 million

A new river forecast center will be established at Minneapolis to provide better flood-forecast service in the upper Mississippi River Basin above St. Louis and in the Souris and Red Rivers of the North Basins of North Dakota and Minnesota. The center will serve all or part of eight states which encounter serious flooding problems almost every year during spring snow melt or later with heavy spring rains. The Minneapolis center will assume responsibility for the northern half of the area now served by the seriously overburdened center at Kansas City.

17. Conduct research on ozone depletion in the stratosphere — $1.1 million increase; FY 77 funding: $3.9 million

The problem of ozone depletion in the stratosphere which may affect human health and cause serious genetic problems in animals and plants due to increased ultra-violet solar radiation which would reach the earth's surface, will be examined according to recommendations made by the National Academy of Sciences. Various techniques will be employed to sample the content of the stratosphere, including remote sensing techniques. Data will be analyzed to attempt to determine what changes are taking place in the ozone layer.

18. Funding operations of Center for Climatic and Environmental Assessment (CCEA) — $500,000 increase; FY 77 funding: -0-

This increase provides funding for CCEA work to follow climatic conditions in the principal food producing regions of the world and assist other Federal agencies in assessing the climatic information on current crop production. Such information and climate/crop models are NOAA's principal contribution to LACIE (Large Area Crop Inventory Experiment) which is a joint NOAA/NASA/Department of Agriculture project.

19. Provide a mass storage system for weather data at the National Climatic Center

$1 million
increase
FY 77 funding: $6.6 million

Weather records and other environmental data will be retrieved in a much more efficient manner with the installation of this large new system, which will ultimately produce incremental savings as the amount of data to be stored increases. Large volumes of data are not now accessible at a reasonable price to the user community because of the lack of such a system.

20. Initiate Great Lakes research

$1.8 million
increase
FY 77 funding: -0-
FY 77 funding for IFYGL: $1.8 million

New studies of Great Lakes environmental problems will build on the results of the International Field Year for the Great Lakes (IFYGL), a U.S. and Canadian project ending in FY 77. This program will emphasize biological and chemical research on the Lake ecosystems and physical phenomena such as waves, currents and thermal structure, and their effects on development of the Great Lakes region. Funding for the new program will be identical to what is being spent on IFYGL in FY 77—resulting in no actual spending increase for this work.

21. Coastal Zone Management

$5.6 million
increase
FY 77 funding: $39.3 million
(Includes anticipated supplemental)

NOAA is moving now from the planning phase to the plan approval and implementation phases. The request includes an increase in program administration grants of $9.1 million, with a corresponding decline in program development grants of $6.7 million, and a reduction in estuarine sanctuary grants of $1.8 million.

A major new responsibility included in the Coastal Zone Act amendments of 1976 was the implementation of a Coastal Energy Impact Program to meet the need of coastal states affected by oil and gas development and production. Most of the financial assistance for this purpose is authorized under the Coastal Energy Impact Fund; however, certain grants are authorized under Section 308(b) for specified purposes, separate from the fund. Increased funds requested for energy impact formula grants under this appropriation total $5.0 million over a supplemental increase request for FY 77 of $10 million.

22. Coastal Energy Impact Fund

$33 million
increase
FY 77 funding: $110 million
(supplemental request)

A supplemental request for $110 million for FY 1977 is being followed by a $33 million increase request for FY 1978. These funds are needed to provide Federal financial assistance to coastal states and their local governments in responding to the onshore impact resulting from Outer Continental Shelf energy development activities. Aid may be given in the form of loans, guarantees, and repayment assistance as necessary.

The proposed budget for Fiscal Year 1978 also contains reductions for a variety of reasons in addition to those already mentioned.

For instance, there will be a $420,000 decrease in education funds for the Pribilof Islands, where NOAA administers a fur seal program, as these expenses will be paid by the Department of Health, Education and Welfare, beginning in FY 78. Certain operations will be reorganized for greater efficiency and thus produce reductions in funding requests. Other programs will be non-recurring or discontinued.

Other major items in reductions include:

1. Discontinue extended jurisdiction (200-mile zone) marine boundary surveys — $1.5 million decrease

These surveys were conducted to inform other nations of American boundaries and to serve as a basis for enforcing the 200-mile Fisheries Conservation Zone, which becomes effective March 1, 1977. The accelerated survey work currently underway will be completed by the end of FY 77.

2. Discontinue Southern New England Resources Development Program — $500,000 decrease

This program of increasing the availability of underutilized or latent species of fish will be discontinued to permit funding of higher priority items.

3. Close Port Aransas, Texas, fisheries laboratory to permit the funding of higher priority items — $196,000 decrease

4. Close Atmospheric Physics and Chemistry Laboratory — $1 million decrease

This facility in Boulder, Colorado, which conducts research directed toward the mitigation of severe storms, will be closed.

5. Reduction of the Global Atmospheric Research Program (GARP) — $1 million decrease
FY 77 funding: $6.5 million

6. Construction of a NOAA facility on Sand Point in Seattle — $970,000 decrease

This project was funded for $970,000 in FY 1977 to provide architectural and engineering studies, build roads and fences. These are non-recurring for FY 1978.

7. Non-recurring capital outlay — $2.5 million decrease

The FY 1975 increase for modernization of the Research Flight Facility included $1,468,000 which is non-recurring in FY 1978. The FY 1976 increase to modify Federal Aviation Administration (FAA) radar installations included $470,000 which is non-recurring in FY 1978. A FY 1977 increase of $500,000 for additional computer capacity for communications at the National Meteorological Center is non-recurring in FY 1978. A FY 1977 increase of $43,000 for the upgrading of ships is non-recurring in FY 1978.

8. One less working day in FY 1978, etc. — $1.1 million decrease

9. Computer replacement delayed — $1.5 million decrease

10. Environmental Data Service reduced — $500,000 decrease

Activities of the National Climatic Center Science Advisory Staff and those conducted under the Deepwater Ports Act of 1974 are being terminated; the publication of Meteorological Rocket Network data is being discontinued to fund higher priority programs.

11. Rescissions and deferrals:

This withholding of funds is one of several special actions proposed by the President as part of his efforts to achieve a balanced budget.

a. OCEANLAB Project: — $1.5 million decrease (FY 77 proposed rescission)

An underwater ocean laboratory (OCEANLAB) to provide a national underwater ocean habitat for research on living and nonliving marine resources was planned.

The Congress appropriated $1,500,000 in FY 1977 for the initial phases of OCEANLAB for studies (including surveys, mission analyses, cost analyses, and initiation of a design and engineering study) for an underwater ocean laboratory.

The entire $1,500,000 is proposed for rescission from funds available without regard to fiscal year limitation.

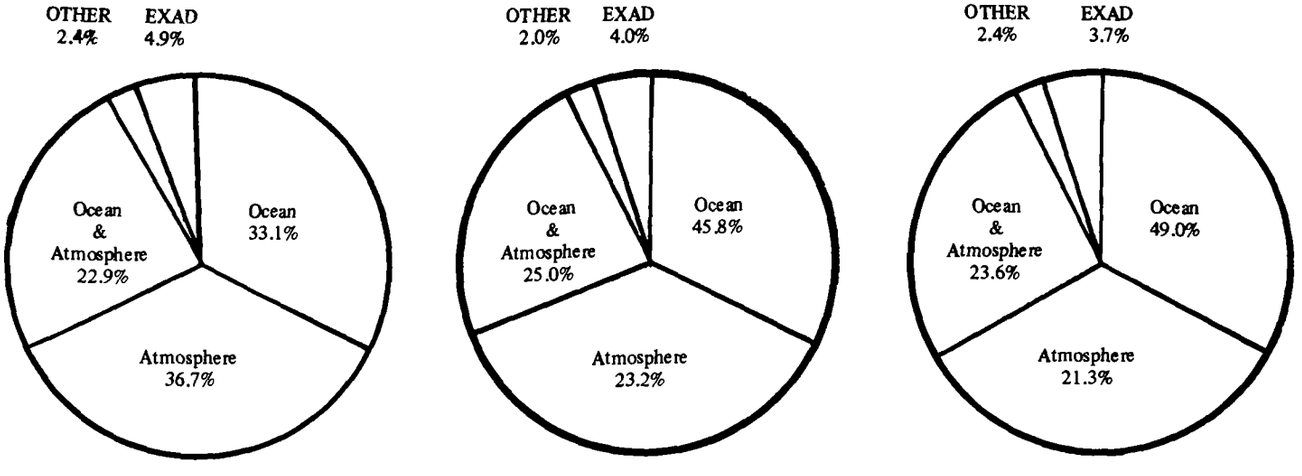
b. Ship Construction — $7.5 million (Proposed deferral from FY 1977 to FY 1978)

Construction of two new fishery vessels has been proposed for deferral from the Fy 1977 funding to FY 1978.

The ships will be based in Woods Hole, Massachusetts, and Seattle, Washington, and will operate in support of fishery program efforts in the Northeast and Northwest, respectively. During the interval of time that construction of the two ships is delayed, upgrading of five other NOAA ships will be undertaken to support increased marine resources monitoring, assessment, and prediction program utilization.

DEPARTMENT OF COMMERCE
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION
NOAA Program Funding By Category

(In millions of dollars)



	FY 1976	FY 1977	FY 1978
OCEAN	$177.9	$355.3	$393.5
ATMOSPHERE	196.8	169.8	170.5
OCEAN & ATMOS.	122.9	183.4	188.9
OTHER	13.1	14.8	19.0
EXAD	26.2	29.3	29.6
	537.1	732.6	801.4

NOTE: Amounts may not add due to rounding.

DEPARTMENT OF COMMERCE
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION

NOAA Program Level
(In millions of dollars)

Activity	FY 1976 Program Level	FY 1977 Program Level	Increases (+) or Decreases (-) Base Adj.	Program	FY 1978 Program Level
Mapping, charting, and surveying services	33.8	37.5	+1.2	+2.2	40.9
Ship support services	32.8	40.2	+9.1	+2.4	51.7
Ocean fisheries and living marine resources	68.7	83.5	+1.0	+5.2	89.7
Marine ecosystems analysis and ocean dumping	10.0	7.7	+0.2	+2.5	10.4
Marine technology	3.6	4.1	-0.2	+0.1	4.0
Sea grant	23.2	27.8	...	...	27.8
Coastal zone management	19.0	39.3	+0.1	+5.6	44.9
Basic environmental services	109.8	116.5	+1.1	+1.3	118.9
Environmental satellite services	71.5	90.8	+1.6	+2.1	94.5
Public forecast and warning services	70.9	77.6	+1.3	+0.4	79.3
Specialized environmental services	31.2	33.8	+0.7	+1.1	35.7
Environmental data and information services	15.1	16.2	+0.5	+1.0	17.7
Global monitoring of climatic change	1.7	1.8	+0.1	...	1.9
Weather modification	10.3	7.0	-1.7	-1.0	4.3
International projects	8.2	8.4	-0.2	-1.0	7.2
Retired pay, commissioned officers	2.2	2.4	+0.3	...	2.7
Executive direction and administration	24.0	26.9	...	...	26.9
Construction	1.0	1.0	...	-1.0	...
Coastal Energy Impact Fund	...	110.0	...	+33.0	143.0
Total, NOAA	537.1	732.6	+15.1	+53.9	801.4

NOTE: Columns may not add due to rounding.

DEPARTMENT OF COMMERCE

NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION

NOAA Summary By Category

(In millions of dollars)

Category	FY 1976 Program Level	FY 1977 Program Level	FY 1978 Program Level
Ocean a/	$177.9	$335.3	$393.5
Atmosphere	196.8	169.8	170.5
Ocean and Atmosphere	122.9	183.4	188.9
Other	13.1	14.8	19.0
EXAD	26.2	29.3	29.6
Total, all funds b/	537.1	732.6	801.4
a/ Ocean:			
Operations, Research and Facilities	149.8	178.0	195.6
Coastal Zone Management	19.0	39.3	44.9
Coastal Energy Impact Fund	---	110.0	143.0
Offshore Shrimp Fishery Fund	.3	---	---
Fishermen's Guaranty Fund	.1	.1	.1
Promote and Develop	8.8	8.0	10.0
Total b/	177.9	335.3	393.5

b/ Amounts may not add due to rounding.

Outstanding Rating May Not Bring Quality Increase

The following revision to Federal Personnel Manual Chapter 451 was recently issued to emphasize that quality increases are not automatically granted when outstanding performance ratings are approved.

(9) Relationship of outstanding performance ratings to quality increases. The law permits an outstanding rating to be approved...only when all aspects of performance not only exceed normal requirements but are outstanding and deserve special commendation (5 U.S.C. 4304 (c)). Approval of a quality increase requires that...the employee concerned has been performing the most important functions of his position in a manner that substantially exceeds normal requirements. (5 CFR 431.411 (b)).

The recommendation for a quality increase must show why performance can be characterized as high quality performance above that ordinarily found in the type of position concerned and should contain a certification that on the basis of past experience the employee's high quality performance is likely to continue. Therefore, the granting of a quality increase and the assigning of an outstanding rating are two separate actions, and an employee may meet the criteria for a quality increase, but not for an outstanding rating.

A quality increase is not automatically granted when an outstanding rating is assigned; however, because an employee who receives an outstanding rating has met a higher criterion in total performance than is required for a quality increase, it is important for the employee's supervisor to consider the appropriateness of granting a quality increase when an outstanding rating is given. (Programs must, of course, operate within the requirement that quality increases may only be granted within the limit of available appropriations.)

DOC Curtails Use of Files

Effective February 15, 1977, the use of DOC's Career Management Qualification Inventory Files for Economist, Financial Management, Library Science, Personnel, and Procurement will be suspended until further notice.

In the meantime, NOAA Merit Promotion Program procedures (i.e. the use of vacancy announcements) will be followed in order to assure that all employees in these areas have the opportunity to be considered for appropriate vacancies. Questions should be directed to your servicing personnel office.

'Ms' To Join Familiar Mr., Mrs., Miss on NOAA Forms

In response to the widespread use of "Ms" by American women, personnel forms—including job application forms—of NOAA and other Federal agencies will be revised to include the appellation for those who prefer it.

As present stocks are depleted and the forms are reprinted, the change will be incorporated in all Civil Service Commission forms which require a title.

The Commission has instructed all Federal agencies under its jurisdiction to incorporate "Ms" in addition to "Miss," "Mrs.," and "Mr." on their internal personnel forms.

Federal employees have had the option to use "Ms" and/or their maiden names in payroll and personnel records since November 1975 when the Commission prescribed procedures for Federal agencies to use in officially changing the records of a woman's name and/or title upon request. This action was in response to the Comptroller General's decision A-84336 which held that a woman has the right to use her maiden name and/or the title "Ms" on Government records notwithstanding her marriage provided that she uses the same name consistently on all such records.

Question: What Have You Got To Lose?

LEAVE! That is, of course, if you don't schedule it. The NOAA Personnel Handbook (Chapter 12, Section 02.3b) says that vacations should be scheduled each year by March 1. That's not too far away.

Just to be on the safe side, it would be a good idea to at least make tentative plans for all annual leave above your ceiling. It's a lot better to use it than to lose it!

NOAA Personnel Division Lists Current Vacancy Announcements

Announcement Number	Position Title	Grade	Major Line Component	Location	Issue Date	Closing Date
234-77	Electronics Tech.	GS-11	NWS	Silver Spring, Md.	1/25/77	2/8/77
236-77	Biologist	GS-12	NMFS	Washington, D.C.	1/25/77	2/8/77
237-77	Personnel Management Specialist	GS-12	ERL	Boulder, Colo.	1/25/77	2/8/77
238-77	Meteorologist	GS-12	NWS	Jackson, Miss.	1/25/77	2/8/77
239-77	Meteorologist	GS-12	NWS	Memphis, Tenn.	1/25/77	2/8/77
240-77	Meteorologist	GS-12	NWS	Lubbock, Tex.	1/25/77	2/8/77
242-77	Meteorologist	GS-12	NWS	Salt Lake City, Utah	1/31/77	2/14/77
247-77	Supv. Meteorologist	GS-13	NWS	Wichita, Kans.	1/31/77	2/14/77
248-77	Electronics Tech.	GS-10	NWS	Topeka, Kans.	1/31/77	2/14/77
233-77	General Engineer	GS-12	NWS	Silver Spring, Md.	1/25/77	2/15/77
235-77	Secretary	GS-8/9	HDQS	Washington, D.C.	1/25/77	2/15/77
241-77	Electronics Tech.	GS-12	NWS	Honolulu, Hawaii	1/25/77	2/15/77
243-77	Program Analysis Officer	GS-14	HDQS	Washington, D.C.	1/31/77	2/22/77
244-77	Program Operations Officer	GS-15	HDQS	Washington, D.C.	1/31/77	2/22/77
245-77	Financial Analyst	GS-13	HDQS	Washington, D.C.	1/31/77	2/22/77
246-77	Financial Analyst	GS-13	HDQS	Washington, D.C.	1/31/77	2/22/77
249-77	Computer Specialist	GS-12	NOS	Riverdale, Md.	1/31/77	2/22/77

X-Ray Energy Spectrometer Helps Scientists Define Ocean Elements

Bright pink peaks on a television-like screen are helping NOAA scientists in Seattle assess the potential environmental impact of exploiting the mineral resources of the sea.

The instrument is an x-ray energy spectrometer; the first ever applied to oceanography. It measures major and trace elements in particulate matter from sea water, for projects conducted by researchers at NOAA's Pacific Marine Environmental Laboratory in Seattle.

The work is part of two major projects managed by the Environmental Research Laboratories—the Deep Ocean Mining Environmental Study and Outer Continental Shelf Environmental Assessment program. For both projects, knowledge of the initial conditions of the sea—such as the composition of suspended materials—is essential to provide a baseline against which human-wrought changes can be measured. The x-ray energy spectrometer at NOAA's Seattle Laboratory is the only one in the western United States and it was the first to be used in oceanography.

The instrument can analyze a sample of suspended matter for up to 15 elements simultaneously. With other techniques, each separate element must be painstakingly analyzed one at a time.

Samples to be analyzed are deposited on fine-pored filters. As many of 16 can be mounted on a turret to be analyzed in succession. The chemical constituents of the sample are displayed on a screen in the form of bright pink and red peaks on a blue background. The horizontal location of the peak identifies the element; its height, the concentration of that element in the sample. Elements are arranged on the screen in the order of their atomic number, beginning with sodium.

OBITUARIES

Edward H. Marx

Edward H. Marx, a retired National Weather Service meteorologist, died December 2, 1976. Mr. Marx joined the Weather Service in the 1920's serving at stations in San Antonio, Tex., New Orleans, La., and San Juan, P.R. where he was official in charge for a time. His last assignment was in Panama City, Panama, where he served with the Aviation Assistance Group as consulting meteorologist. He retired from Federal service in 1960. He is survived by his wife, Helen, of 4006 Willow Brook Dr., San Antonio, Tex., 78228.

Kenneth S. Norquest

Kenneth S. Norquest, former Principal Assistant at the WSFO, Washington, D.C., died January 18. He had retired in 1969 after 44 years of Federal service. Mr. Norquest joined the Weather Service at Boise, Idaho, in 1924. He also served in San Francisco, Calif., Denver, Colo., Albuquerque, N. Mex., and Dallas, Tex. before coming to Washington in 1941. Mr. Norquest is survived by his wife, Betty, and a son and daughter of 3303 Hidden Acres Dr., Doraville, Ga., 30340.

Study Underway Of Squid, Octopi

The NMFS Northwest and Alaska Fisheries Center has contracted with Dr. William G. Pearcy of Oregon State University for assistance in the collection and identification of all cephalopods (octopi, squid, etc.) caught during the forthcoming survey of rockfish resources off California, Oregon, and Washington. The $12,000 contract will enable personnel from the NWAFC and OSU to undertake studies on the systematics, distribution, abundance, and ecological relationships of this significant component of the marine food web. Other biological features that will be studied include sex ratios, maturity, length frequency distributions, and food habits.

This activity is part of the NMFS MARMAP Program directed at providing a fundamental understanding of the living marine resources of the U.S. offshore waters. Information generated by the MARMAP Program is crucial to the management and utilization of our fishery resources and to minimizing the environmental impact from offshore oil and gas exploration.

CALENDAR OF EVENTS

Feb. 27-March 5, Washington, D.C. — American Society of Photogrammetry and American Congress on Surveying and Mapping Convention: Theme, "Modern Land Data Systems - A National Objective." (Contact: Frank Wobber, Publicity Chairperson, 14 Goshen Court, Gaithersburg, Md. 20760.)

April 11-13, Boston, Mass. — International Conference on Chitin/Chitosan, hosted by Massachusetts Science and Technology Foundation and the Massachusetts Institute of Technology Sea Grant Program. (Contact: Massachusetts Science and Technology Foundation, 10 Lakeside Office Park, Wakefield, Mass., 01880.)

April 17-20, Biloxi, Miss. — Second Annual Tropical and Subtropical Fisheries Technological Conference of the Americas. Theme: "Fisheries Development - Where From Here?" Sponsors: NMFS, Mississippi Sea Grant Extension Service, National Fisheries Institute, and Texas A&M University. (Contact: E. Spencer Garrett, NMFS, P.O. Drawer 1207, Pascagoula, Miss., 39567.)

May 10-13 — 20th Conference on Great Lakes Research, sponsored by the International Association for Great Lakes Research: co-hosts: Great Lakes Environmental Research Laboratory of NOAA and the University of Michigan. (Contact: Dr. Andrew Robertson, Coordinator, Great Lakes Environmental Research Laboratory, NOAA, 2300 Washtenaw Ave., Ann Arbor, Mich. 48104.)

May 30-June 3, Washington, D.C. — Spring Meeting of the American Geophysical Union. Abstracts due by March 4. (Contact: AGU, 1909 K St., N.W., Washington, D.C., 20006.)

Oct. 2-6, Mount Airy, Pa. — Estuarine Research Federation Fourth Biennial International Conference. Theme: "Estuarine Processes." (Contact: Jerome Williams, Oceanography Department, U.S. Naval Academy, Annapolis, Md., 21402.)

Nov. 6-11, New Orleans, La. — 4th Joint Conference on Sensing of Environmental Pollutants. Abstracts due by May 15. (Contact: Dr. V.E. Derr, Program Chairperson, NOAA, Environmental Research Laboratories (R45x3), Boulder, Colo., 80302.)

Chinese Visit Boulder Facilities

Two solar physicists of a nine member astronomy delegation from the People's Republic of China visited the National Oceanic and Atmospheric Administration and the National Center for Atmospheric Research in Boulder, Colo., November 28 to December 1. The tour of the two facilities was part of a month-long scientific exchange with American astronomers throughout the United States.

The Chinese delegation visited NCAR's High Altitude Observatory on the University of Colorado campus and then toured NOAA's Space Environment Services Center and Environmental Data Service facilities.

Employee Leave Record-1977

Name: _____ Hours Annual Leave earned each pay period _____

Vacation Dates _____

Pay Period	Sun	Mon	Tue	Wed	Thu	Fri	Sat	Sun	Mon	Tue	Wed	Thu	Fri	Sat	Annual Leave Earned	Annual Leave Used	Annual Leave Balance	Sick Leave Earned	Sick Leave Used	Sick Leave Balance	Other Leave Earned	Other Leave Used	Other Leave Balance
															Leave Balance 1-1-77			Leave Balance 1-1-77			Leave Balance 1-1-77		
Jan 2-Jan 15																		4					
Jan 16-Jan 29																		4					
Jan 30-Feb 12																		4					
Feb 13-Feb 26									Hol									4					
Feb 27-Mar 12																		4					
Mar 13-Mar 26																		4					
Mar 27-Apr 9																		4					
Apr 10-Apr 23																		4					
Apr 24-May 7																		4					
May 8-May 21																		4					
May 22-Jun 4									Hol									4					
Jun 5-Jun 18																		4					
Jun 19-Jul 2																		4					
Jul 3-Jul 16		Hol																4					
Jul 17-Jul 30																		4					
Jul 31-Aug 13																		4					
Aug 14-Aug 27																		4					
Aug 28-Sep 10									Hol									4					
Sep 11-Sep 24																		4					
Sep 25-Oct 8																		4					
Oct 9-Oct 22		Hol																4					
Oct 23-Nov 5		Hol																4					
Nov 6-Nov 19																		4					
Nov 20-Dec 3					Hol													4					
Dec 4-Dec 17																		4					
Dec 18-Dec 31									Hol									4					
Totals for end of year																							

How To Use This Chart:

During each pay period, mark the number of hours used with a symbol for the type of leave as follows:

A - Annual S - Sick LWOP - Leave Without Pay C - Compensatory

Example:

Eight hours of annual leave taken on January 24 would be entered as "8A" in the space for that day; eight hours of sick leave would be "8S." (Use of different colored pencils for the different types of leave would help.)

At the end of each pay period, under the columns headed "Annual Leave," "Sick Leave," and "Other Leave" enter the number of hours of leave earned and the total numbers of hours used during that pay period. Then add "leave earned" to balance entry from the previous pay period and subtract "leave used." Enter the difference in the "Balance" column.

Hurricane Film

A hurricane awareness and preparedness film containing life-saving information for persons living in (or those who may visit) hurricane-prone areas is available from NOAA. "Hurricane Decision," is a 14-minute, 16-mm color film which points out the dangers of storm surge, wind, and inland flooding by hurricanes. Prints may be borrowed from the NOAA Motion Picture Service, 12231 Wilkins Ave., Rockville, Md., 20852 (phone: 301-443-8411). Prints may be purchased for approximately $50.00.

Meteorological Training Course Graduates

Graduates of a Basic Meteorological Technician Course held at NWSTTC are (standing from left) William T. Winkert, Instructor; Kevin L. Davis, Denver, Colo.; John A. Jenkins, Jr., Cheyenne, Wyo.; Clifford N. Good, Midland, Tex.; George W. Powers, Bronx, N.Y.; Michael E. Coffin, Instructor; (seated from left) George M. Hernandez, Los Angeles, Calif.; Eloise C. Taylor, N. Little Rock, Ark.; Louise A. Durall, Bronx, N.Y.; Gerard Barber, Camp Springs, Md.; Patricia S. Davison, Indianapolis, Ind.

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National Oceanic and Atmospheric Administration

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