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NOAA news

National Oceanic and Atmospheric Administration

NOAA Welcomes Public On Its 10th Anniversary

Administrator's Greetings

This year NOAA is celebrating its tenth anniversary. I want to welcome members of the public to our tenth anniversary open houses and other events, and to describe briefly our agency.

NOAA was established in 1970, in recognition of the fundamental stake we as a Nation have in the oceans, and of the profound linkage between global atmospheric and oceanic processes. Since its formation, the agency has carried out actively its responsibilities to manage, to conserve and to conduct research concerning our oceanic, coastal and atmospheric resources.

Each component of NOAA has had an effect on our lives. For example, NOAA's coastal zone manage-

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Right, Commerce Secretary Philip M. Klutznick. Below, NOAA Administrator Richard A. Frank.



Above, Commerce Deputy Secretary Luther Hodges Jr. Left, NOAA Deputy Administrator James P. Walsh.

NOAA's Mission

The National Oceanic and Atmospheric Administration came into being 10 years ago, on Oct. 3, 1970.

The NOAA concept was the result of two concurrent trends in national science policy thinking. The first was the conviction that the Nation should pay increased attention to wise development of oceanic resources. The other was the growing recognition that the oceans and atmosphere are interacting parts of the total environmental system and that a new organizational approach was needed to deal with ocean-atmosphere problems.

In the 60's, the National Academy of Sciences and the President's Science Advisory Committee both had examined the national needs for ocean programs and recommended expanded efforts in marine sciences. These groups and other leading members of the scientific community, along with several members of the U.S. Congress, felt that ocean programs were too widely dispersed, in too many government organizations.

Within the Congress, initiatives for increased development of oceanic resources led to the passage of the National Sea Grant Act and the Marine Resources and Engineering Development Act. A key feature of the latter Act established a Commission on Marine Sciences, Engineering, and Resources to study all aspects of marine science and

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Open Houses Scheduled Around The Country

Around the country, NOAA offices are inviting the public to help celebrate the agency's 10th anniversary this month at their annual open houses.

Open houses have been scheduled in San Francisco, CA, Washington, DC, Seattle, WA, Honolulu and Hilo, Hawaii, Miami, FLA, Charleston, SC, Ann Arbor, MI, Beaufort, NC, Little Rock, AR, Auke Bay, AK, Gloucester, MA, Narragansett, MA, Sandy Hook, NJ, Highlands, NJ, Woods Hole, MA, Milford, CT, Galveston, Tex, La Jolla, CA, Kahului, Maui, and Kahului and Mawiliwili, Kauai.

The Northwest and Alaska Fisheries Center and the Pacific Marine Environmental Laboratory are holding open house at Seattle on October 3 and 4. The Pacific Marine Center and the Seattle Forecast Office will be welcoming the public on October 10 and 11. Several ships also will be open for inspection.

On October 11 and 12, the *Researcher* will be open to the public in Washington, D.C. Agency employees and other ticket holders will be given a special tour when they attend a 10th anniversary buffet and dance from 6 p.m. to midnight in a

tented area adjacent to the dock where the ship will be berthed on October 11. On Tuesday, October 14, members of Congress and other special guests of the agency will be given a reception aboard the vessel.

The Southwest Fisheries Center at La Jolla will be celebrating the 10th anniversary on October 3 and 4. The center will have its usual display of exhibits and films and stress family participation at events on October 4.

Other southwestern NOAA agencies - the NWS, NMFS Southwest Regional office

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Climate variability is a popular topic these days. Not too many years ago, climate was considered to be a static thing, just your "average" weather. It was a rather dull subject often relegated to a single chapter in the back of a meteorology textbook. But lately, research has focused on the dynamics of climate, and many books and studies about climatic change, its causes, and its social consequences, are being published every year.

Sun-Weather Research — Scientists say that a great many questions will have to be answered before they arrive at a comprehensive theory of climatic change. One of the areas most in question is that of sun-weather and sun-climate relationships, in which apparent changes in the sun's electromagnetic and particle output seem to be associated with important changes in weather and climate.

NOAA scientists now involved in various aspects of sun-climate research include Dr. J. Murray Mitchell, senior research climatologist with the Environmental Data and Information Service, Drs. George C. Reid and Kenneth S. Gage of the Environmental Research Laboratories' Aeronomy Laboratory, and Dr. Douglas Hoyt of the NOAA-University of Colorado Cooperative Institute for Research in Environmental

Science, who is presently assigned to EDIS.

Three Key Findings — Dr. Mitchell helped to establish one of the three correlations that sun-weather investigators feel are particularly convincing. His work showed that the area affected by drought in the western United States changes in step with the number of dark sunspots visible on the solar disk, over a "double-sunspot" cycle of about 22 years. A second correlation relates "little ice ages," episodes of regional glacial advance, to prolonged periods of very low sunspot activity.

The third, and most striking, correlation is based on satellite observations of the "solar wind" particle streams that sweep the sun's magnetic field outward into space. Specifically, it relates quick-response changes in winter storm systems of the northern hemisphere to the flow of huge magnetic regions, called solar wind sectors, past the earth. The short time lag involved, about one day, indicates that some process must be operating besides slow-going thermal forcing of the atmospheric circulation, due to solar heating.

Electrical Forcing — Recent research into the mechanism behind this correlation suggests that there may be a surprising new dimension to the sun's effects on the atmosphere. A few scientists

are exploring the possibility that thermal forcing of weather and climate may be supplemented by fast-acting electrical forcing. It has been found that a change in solar wind speed produces an opposite change in cosmic-ray particle penetration of the atmosphere, and in the atmosphere's electric field.

As explained by Dr. Ralph Markson of the Massachusetts Institute of Technology, the solar wind, with its built-in magnetic field, has a shielding effect on galactic cosmic rays, high-energy charged particles from outer space. When the solar wind slows down, the shield is weaker and more cosmic rays can penetrate to ionize or "electrify" the atmosphere.

Markson speculates that thunderstorms, primary components of the atmosphere's global electrical circuitry, may be able to use some of this externally generated electricity to supplement the familiar storm-building action of solar heating, in a kind of piggy-back effect. He points out that the increased thunderstorm activity could drive larger-scale weather and climate changes.

The first two of the three key correlations apparently involve important changes in solar wind activity as well as in sunspot activity, and therefore may also fit into this new way of looking at

the dynamics of weather.

Straight From The Sun — Aside from the prospect of indirect solar effects, in terms of a galactic factor, many studies indicate that changes in the sun's output can also have direct atmospheric effects. Certain fluctuations in sea-surface temperatures, storm tracks, and upper-air winds have been found to be geared to the 11-year sunspot cycle. Some of these variations might be linked to the fast-acting circulation changes reportedly associated with solar flares and faculae (essentially, "bright sunspots"), a possible case of electrical forcing stimulated by solar cosmic rays and X-rays.

The idea that thermal forcing is also stimulated by changes in the solar output, over the 11-year cycle and longer time scales, is being explored by Hoyt and by Gage and Reid. Hoyt is studying the relationship between sunspot appearance (ratio of the area of umbrae to penumbrae) and atmospheric temperature trends. Gage and Reid are studying the observed tendency for higher sunspot numbers to be accompanied by increased tropopause heights, i.e., increased depth of the weather layer.

If all these apparent solar effects are real, they should play a central role in the interacting systems of the sea and air.

Administrator Frank's Message To The Public *(Continued from p. 1)*

ment program and its coastal energy impact fund have helped assure comprehensive development planning on the coasts of the United States. NOAA's fisheries programs conserve and manage our marine fisheries resources to permit recreational and commercial exploitation of these resources to the maximum degree consistent with preservation of the resource for future generations. NOAA has also taken a leadership

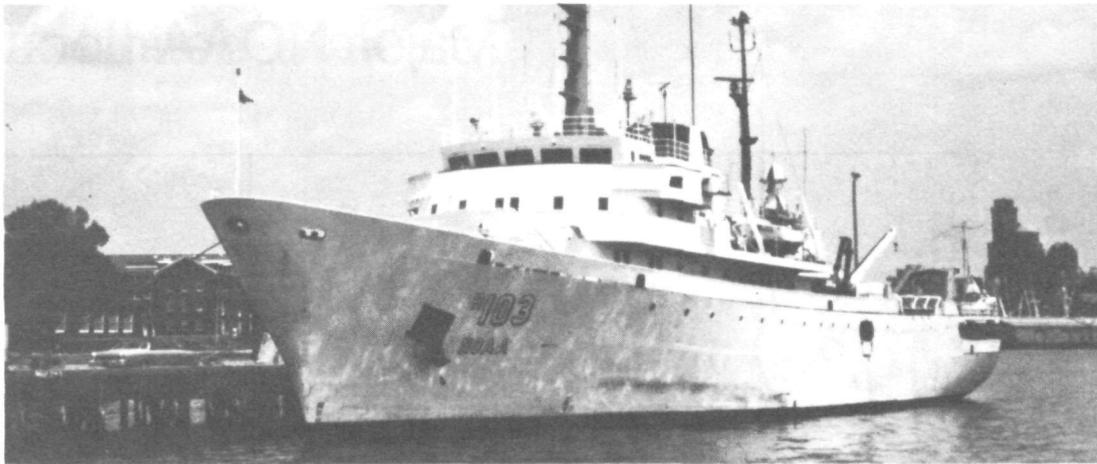
role in achieving protection of whales through the International Whaling Commission. Weather forecasts and severe storm warnings provided by NOAA's National Weather Service, and accurate nautical and aeronautical charts developed by NOAA are essential for both individuals and businesses. In addition, the environmental satellites managed by NOAA, which collect data on weather conditions, substantially

assist navigation and weather forecasting around the world. Responsibilities recently given to NOAA for land satellites, marine mining and ocean thermal energy conversion will mean an expanded role for the agency in the future. Through these and other programs, NOAA has enabled us to make prudent use of our natural resources so that we may benefit from those resources today while we maintain a sound environ-

ment for the future.

No part of NOAA's mission is more important than transmitting our understanding of the planet's oceanic and atmospheric processes to you — the people who are affected by, and who affect, those processes. I hope your introduction to our organization and our work will be informative and enjoyable.

Richard A. Frank,
Administrator



Dancing on the Pier – NOAA employees and other ticketholders will dine and dance to the music of two bands at a special open house of the *Researcher* on Saturday, October 11 from 6 p.m. to midnight. The event will be held in a tented area on the Southwest Washington Police and Fire Pier where the *Researcher* will be berthed for a two-day public open house. Tickets for the buffet and dance are available from NOAA PA at \$12.50 each.

NOAA—The Evolution Of Its Missions *(Continued from p. 1)*

recommend a comprehensive plan for a national oceanographic program.

The Commission's report, "Our Nation and the Sea," published in 1970, urged that all of the ocean, the atmosphere, and certain aspects of the solid earth be considered together in forming an organization to conduct the Nation's ocean program. The Government's many existing ocean activities, together with Federal atmospheric programs, should be brought together to form a center of strength with the scientific and technical capabilities, facilities, and resources to carry out a concerted, unified national oceanic and atmospheric program.

The Commission laid out a blueprint for what became NOAA's early missions: a program to explore, assess, develop, and conserve the living and non-living resources of the oceans; to develop a comprehensive national environmental monitoring and prediction system, providing both weather and ocean monitoring and forecasting and observing services; to foster the establishment of coastal zone management systems by the States under Federal guidelines and support; and to explore the feasibility of control of atmospheric and oceanic processes

for the benefit of mankind, as well as to assess the effects of human pollution of the oceans and atmosphere.

The creation of NOAA melded nine Federal entities together in an initial attempt to form a single civil agency.

The original nine were:

- The Environmental Science Services Administration with its Weather Bureau, Coast and Geodetic Survey, Environmental Data Service, National Environmental Satellite Center, and Research Laboratories (from the Department of Commerce).

- Elements of the Bureau of Commercial Fisheries (from the Department of the Interior).

- the marine sport fish program of the Bureau of Sport Fisheries and Wildlife (from the Department of the Interior).

- The Marine Minerals Technology Center of the Bureau of Mines (from the Department of the Interior).

- The Office of Sea Grant Programs (from the National Science Foundation).

- Elements of the United States Lake Survey (from the Department of the Army).

- Programs of the National Oceanic Data Center (from the Department of the Navy).

- Programs of the National Oceanographic Instrumentation Center (from the De-

partment of the Navy).

- Programs from the National Data Buoy Project (from the Department of Transportation).

These diverse groups were reshaped into the new NOAA.

The National Ocean Survey combined the former Coast and Geodetic Survey and the Lake Survey Center. The National Marine Fisheries Service was formed from the Bureau of Commercial Fisheries and the Marine Game Fish Research Program. The Environmental Data Service comprised ESSA's Environmental Data Service and the Navy's Oceanographic Data Center.

The National Weather Service, National Environmental Satellite Service, Environmental Research Laboratories, Office of Sea Grant, and the ESSA Commissioned Corps essentially retained their previous forms and functions, but gained new names in NOAA.

During the past ten years, NOAA has been transformed by Congress from a scientific service organization into a major instrument of oceanic and atmospheric policy. NOAA has become the Nation's top-line environmental science agency with programs in atmospheric, oceanic, and earth sciences.

Milestones In NOAA's History

Major legislation affecting NOAA:

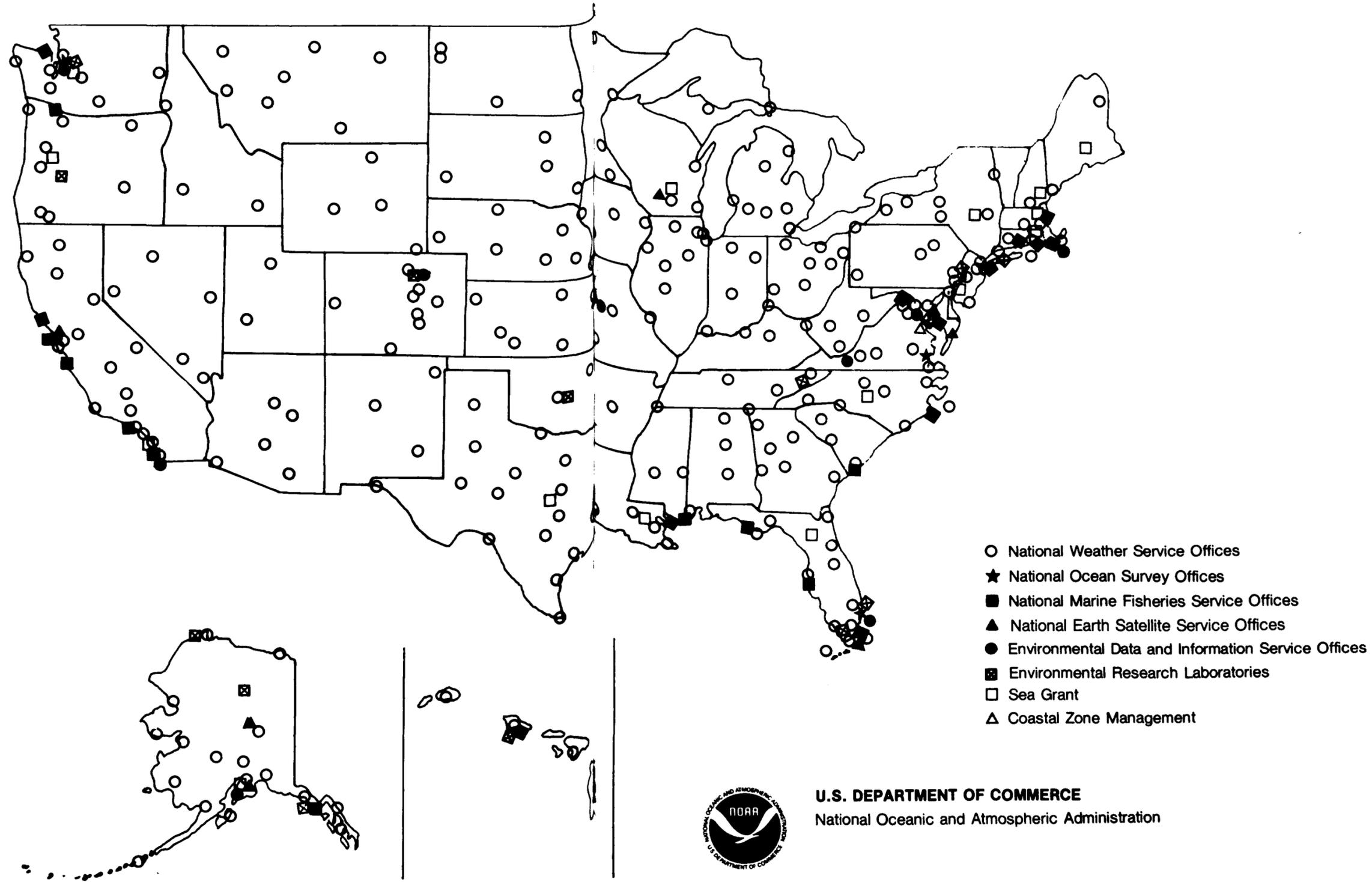
- 1972 – Coastal Zone Management Act
 - Marine Mammal Protection Act
 - Marine Protection, Research, & Sanctuaries Act
 - Offshore Shrimp Fisheries Act
 - Weather Modification Reporting Act
- 1973 – Endangered Species Act
- 1974 – Deepwater Port Act
- 1976 – Fisheries Conservation and Management Act
- 1978 – National Climate Program Act
 - National Ocean Pollution Research & Development & Monitoring Planning Act
- 1980 – Ocean Thermal Energy Conversion Act
 - Deep Seabed Hard Mineral Resources Act

Among other agreements and highlights in NOAA's first decade are:

- 1973 – Agreement on co-operation in Studies of the World Ocean
- 1975 – first marine sanctuary, site of the U.S.S. Monitor wreckage
- 1976 – first meeting of U.S./U.S.S.R. Experts on Data Exchange held at EDIS headquarters in Washington, D.C.
- 1978 – NOAA's Office for Civil Rights established
 - NOAA-EPA Inter-agency Committee for Program Co-ordination Agreement
- 1979 – Administrator signs accords with China establishing collabo-

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Major NOAA Locations The United States



- National Weather Service Offices
- ★ National Ocean Survey Offices
- National Marine Fisheries Service Offices
- ▲ National Earth Satellite Service Offices
- Environmental Data and Information Service Offices
- ▣ Environmental Research Laboratories
- Sea Grant
- △ Coastal Zone Management



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

NOAA Offers Maps, Charts And Photos...



The public can purchase a variety of maps, charts, surveys, and aerial photographs from NOAA's National Ocean Survey (NOS). NOS products and services include:

- **NOS nautical charts.** Charts of the coastline, Great Lakes, and territories and possessions of the United States are available. Such supplemental material as *Tide Tables*, *Tidal Current Tables*, *Tidal Current Charts*, and *Coast Pilots* also may be obtained from NOS. The *Nautical Chart Catalogs* are available for four regions: *Catalog No. 1, Atlantic and Gulf Coasts*; *Catalog No. 2, Pacific Coast*; *Catalog No. 3, Alaska*; *Catalog No. 4, Great Lakes and Adjacent Waterways*. Specialized products such as bathymetric and storm evacuation maps are described in *Nautical Chart Catalog No. 5, Bathymetric Maps and Special Purpose Charts*. The *Catalog of Aeronautical Charts* and related publications contains information on ordering the National Airspace System aeronautical charts.

Copies of nautical and aeronautical chart catalogs may be obtained by writing to the:

National Ocean Survey
Distribution Division
(OA/C44)
Riverdale, MD 20840

- **Photographic copies of coastal surveys.** More than 23,000 individual surveys of coastal sections and those tributaries associated with coastal navigation and adjacent waters are on file. Fur-

ther information may be obtained by writing:

National Ocean Survey
Data Control Branch
(OA/353)
Rockville, MD 20852

- **Topographic surveys.** Some surveys show only the shoreline and the adjacent planimetric features; others are complete plainimetric maps covering areas inland for five or more miles. An index of the surveys in a specific area shows the type of information as well as the available coverage. For further information write:

National Ocean Survey
Data Control Branch
(OA/C353)
Rockville, MD 20852

- **Prints and special reproduction of aerial photographs.** Black and white, infrared, and natural color photographs are available. This photography covers coastal areas primarily, but it also includes most civil airfields.

Requests for aerial photographs should include geographic interest. Additional information as well as photo indexes can be obtained by writing:

National Ocean Survey
Photogrammetry Division
(OA/3415)
Rockville, MD 20852

- **Large Scale (1:12,000) airport obstruction charts.** Runways and flight paths, together with the positions and elevations of potentially hazardous objects to landing and takeoff, are described. Copies of these charts are available by writing:

National Ocean Survey
Distribution Division
(OA/C44)
Riverdale, MD 20840

- **NOS's National Geodetic Survey.** The Survey provides a network of horizontal and vertical control essential for mapping and charting. Horizontal control data result from triangulation and trav-

erses. Vertical control data result from precise leveling to determine the difference of elevation between points on or relatively near the surface of the earth. The elevations of each vertical point and the fixed positions of each of the horizontal points are available by addressing request to:

National Geodetic Survey
National Geodetic Information Center (OA/C18)
Rockville, MD 20852

- **The NOS map library.** The library contains more than 8,500 historical maps, charts, and atlases of the coastal regions, territories, and possessions of the United States. There are more than 500,000 of these in the cartographic resource material information files. Historical information on NOS chart development is available. Special reference searches may be arranged by writing:

National Ocean Survey
Map Library (OA/CS13)
Rockville, MD 20852

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Want To Know More?

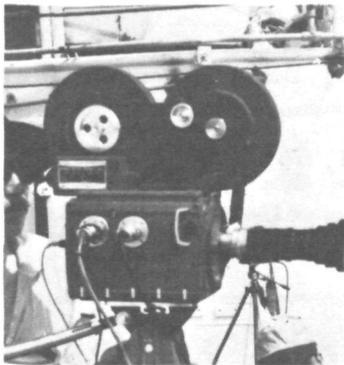
For further information on the programs of the National Oceanic and Atmospheric Administration, fill out this card and mail it to Office of Public Affairs, NOAA Rockville, MD 20852, or hand it to a NOAA representative.

Information is requested on the following equipment or activity: _____



Requestor's name
Street address (Apt. no.)
City, state, zip

...And Films About The Sea And Atmosphere



NOAA has a large collection of 16 mm films that may be borrowed by civic, school, and service groups. There is no charge, except for return postage. The only stipulations are that the borrower be older than 21 and residing in the United States. Prints for showing outside the United States must be borrowed from the U.S. Embassy or Consulate.

The films are heavily booked so it is desirable to send a request in three months before the date desired. Give an alternate date and a second film choice in case either the date or film has already been booked. Films are loaned for one week exclusive of mailing time.

The films, although all NOAA related, cover diverse subject areas.

Pathfinders from the Stars (48 min./color) traces man's progress in position determination.

To Help Man Find His Way (30 min./color) portrays the functions and services of the National Ocean Survey.

Flare (14 min./color) pictures aquanauts, their underwater habitat, and the scientific experiments they conduct on a reef.

Bomex (15 min./color) describes the studies of weather-making interaction between the Atlantic Ocean and the atmosphere.

Flood! (15 min./color) outlines prediction, precaution, development and description of floods.

Tornado (15 min./color) tells the story of a Midwestern town in the path of a tornado.

Neosho: April 24 (14 min./color) is the story of the tornado of April 24, 1975, which struck Neosho, Missouri.

Hurricane Decision (14 min./color) is a hurricane awareness and preparedness film containing life-saving information for anyone exposed to hurricanes.

Investigations into Aquaspace (28 min./color) tells why man needs to investigate the sea and the history of such investigations.

GATE to World Weather (28 min./color) documents the largest coordinated international scientific experiment ever conducted, GATE.

GATE - The Atlantic Tropical Experiment (28 min./color) is a technically oriented film describing the Global Atmospheric Research Program (GARP) Atlantic Tropical Experiment (GATE).

Famous - Boundary of Creation (28 min./color) documents the French-American study of the Mid-Atlantic ridge and illustrates plate tectonics.

Sentinels in Space (26 min./color) shows through animation and imagery, what environmental satellites measure and how they transmit information.

The Global Weather Experiment - A Whole Earth View (14 min./color) depicts how the largest international scientific experiment in history, the Global Weather Experiment, will learn why our weather behaves in the way it does.

Day of the Killer Tornadoes (14 1/2 min./color) is composed of dramatic tornado footage and illustrates how warnings, preparedness planning, and coordination of emergency centers save lives.

The Great American Fish Story (28 min./color) is an orientation film that traces the history of commercial fisheries in the United States. It is the first in a series of five films.

The Great American Fish Story - The West (28 min./

color) takes you on a trip to west coast seaports to fish, buy and eat seafood.

The Great American Fish Story - The Northeast (28 min./color) explores the seaports of the northeast and visits the kitchen of French chef, Julia Child, to get some tips on seafood preparation.

The Great American Fish Story - The South (28 min./color) depicts southern seafare from the Carolinas to Florida to Texas.

The Great American Fish Story - The Lakes and Rivers (28 min./color) shows fresh water fish being caught, marketed, cooked and served and also features aquaculture, pond grown fish, and shellfish being raised under controlled conditions.

Pacific Halibut Fishing (16 min./color) describes the fishing method used in the North Pacific halibut fishery and shows vessels on Alaskan fishing grounds.

Fishing Five Great Lakes (28 min./color) depicts the Great Lakes in transition with special emphasis on the problems of commercial fishermen.

Basic Net Mending (16 min./color) teaches basic procedures and shows equipment used in mending a hole in a net.

Outboard Fisherman U.S.A. (27 min./color) tells how small, independent, commercial fishermen, using outboard motors, contribute to the national economy.

Fresh Out of the Water (14 min./color) starts underwater and traces commercial varieties of fish and shellfish from capture through serving and the care taken to preserve nutritional value.

The Biologist and the Boy (14 min./color) is based on an encounter between a youngster intent only on fishing and fun, and a biologist who shares his concern for conservation with the boy.

Watermen of Chesapeake (28 min./color) shows the impact of the Bay on a large

segment of America, from early days to the present.

Estuary (28 min./color) stresses the great value of the estuary, its current uses in industry, for recreation and for food and the need for future planning.

Retailing Fish (20 min./color) outlines operation of a retail fish store, selecting, handling, displaying, and merchandising fresh and frozen fish.

Sockeye Odyssey (14 min./color) depicts the life cycle and conservation of the Alaskan sockeye salmon.

It's the Maine Sardine (20 min./color) shows the Maine sardine fishery - three methods of capture, and cannery procedures.

Sardines from Maine - Down East Style (14 min./color) describes catching, processing, buying, cooking, and serving Maine sardines.

Flavor of Maine (14 min./color) supplements the two previously mentioned films and artistically depicts the whole Maine sardine industry.

Sponge - Treasure from the Sea (14 min./color) is the story of the natural sponge industry of Tarpon Springs, Florida.

Fish Cookery with Savoir (14 min./color) introduces
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Historic Dates

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- rative efforts in atmospheric science and technology
- Global Weather Experiment gets underway
- Marine Pollution Office established
- 1980 - National Earth Satellite Service established as NOAA takes on new responsibility for development of civil operational land remote sensing satellite system during next decade.

Films Loaned To Civic, School And Service Groups (Continued from p. 7)

Monsieur Henri Savoir, an imaginary and imaginative master of fish cookery.

Outdoor Fish Cookery (28 min./color) illustrates age-old and modern out-of-doors fish cookery in the United States.

The Story of Menhaden (20 min./color) is about one of the oldest and largest fisheries in the United States, the menhaden fishery.

Mullet Country (14 min./color) covers the history, biology, methods of capture, processing, cooking and serving of mullet.

Florida Seafare (27 min./color) surveys seafood caught in southern waters supplemented with troubadours and a Florida seafood festival.

Take Two from the Sea (28 min./color) is a documentary on oysters and clams by two young film makers.

Take Two from the Sea (10 min./color) is a shortened version of the film above.

Clam and Oyster Sam (14 min./color) is an educational musical comedy containing purchasing, preparation, and

nutritional information on clams and oysters.

Trout, U.S.A. (14 min./color) depicts the farming of trout as a food and sport fish.

Estuarine Heritage (28 min./color) stresses the importance of estuaries, depicts major threats to estuarine resources, and recommends methods of conservation.

Catching, Filleting and Packaging (11 min./B&W) shows the modern method of catching bottom fish by means of an otter trawl; also the methods of readying fish for market.

Two Hundred Miles (29 min./color) is a panel discussion of the Fisheries Conservation and Management Act of 1976 by five experts.

The Seventh Service (28 min./color) depicts the NOAA Corps, the seventh uniformed service of the United States, in action through the eyes of officer trainees.

Flash Flood! (14 min./color) illustrates the dangers

of flash flooding and emphasizes the need for a local warning plan and individual preparedness.

Ocean World (29 min./color) highlights the animal and mineral resources of the sea and coastal zone and emphasizes wise use and conservation of these resources.

For further information

about borrowing films contact:

Motion Picture Service
Department of Commerce
- NOAA
11420 Rockville Pike
NBOC 1
Rockville, MD. 20852
Attention: Mrs. G. C.
Weston
(301) 443-8411

NOS Products Available

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● **Summary of National Ocean Survey Technical Publications and Charts.** This publication provides price, availability and ordering information for scientific publications and has both an alphabetical and numerical index. Requests for copies should be addressed to the:

National Ocean Survey
Physical Science Services
Branch (OA/C513)
Rockville, MD 20852

● **National Ocean Survey Abstracts.** Abstracts are prepared annually by NOS' Scientific Services Division. They include scientific and technical papers, reports, and oral presentations that have been published or produced by NOS authors during the previous year. These reports summarize NOS on a fiscal and monthly basis. Further information can be obtained from:

National Ocean Survey
Scientific Services Division
(OA/C51)
Rockville, MD 20852

● **Pamphlets, leaflets, and maps on the physical sciences.** These are available to students and teachers. A complete list of these educational aids can be found in a copy of *List of*

Free and Inexpensive Educational Materials. The list and further information are available from:

National Ocean Survey
Physical Science Services
Branch (OA/C513)
Rockville, MD 20852

Open Houses Set

(Continued from p. 1)

and NOS - also will take part in open house celebrations. NOS will conduct tours of the *David Starr Jordan* which will be docked at the Broadway Pier in San Diego.

The Southwest Fisheries Center in Honolulu is sponsoring a traveling cruise of the *Townsend Cromwell*. The ship, carrying exhibits prepared by the University of Hawaii's Sea Grant Office, will cruise the Hawaiian Islands, making these stops: October 19, Kewalo Basin, Honolulu; October 28, Kahului, Maui; and October 30, Nawiliwili, Kauai.

On October 10, the Geophysical Fluid Dynamics Laboratory at Princeton, N.J., will celebrate both its 25th anniversary and NOAA's 10th.

NOAA NEWS

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