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U.S., Soviets To Enlarge Marine Mammal Studies

Soviet and U.S. scientists have agreed on an enlarged program of scientific cooperation and research on marine mammals, following a December meeting in Washington, D.C. Scientists of the two countries will expand cooperative studies and meet more frequently in pursuit of improved conservation and management of marine mammals.

Marine mammal experts from Soviet agencies exchanged data and opinion with their American counterparts in the U.S. Department of Commerce and Interior on matters concerning whales, seals, sea lions, sea

otters, walrus, and polar bears. Also in attendance were scientists of the U.S. Public Health Service in Alaska, the Alaska Department of Fish and Game, and several private scientific organizations.

At the meeting of the Marine Mammal Subgroup—second in a series sponsored by NOAA—discussion centered on such topics as:

—the standardization of methods and forms used to record biological observations and sightings of seals, sea lions, whales, and porpoises at sea;

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William C. Brewer, Jr. Named General Counsel



William C. Brewer, Jr.

William C. Brewer, Jr., a partner in the Boston law firm of Hill and Barlow, has been appointed General Counsel of NOAA.

He has a broad background in corporate and international law, and in education.

He was graduated from Phillips Academy in 1939, Williams College in 1943, and from Harvard Law School in 1949. He served in the Army's 10th Mountain Division in 1942 and 1943; as a cryptanalyst in the Signal Security Corps from 1943 to 1945; and was discharged as a second lieutenant in 1946.

Upon graduation from Harvard Law School, Mr. Brewer became General Counsel of the Mutual Boiler and Machinery Insurance Company. In 1953 he became a partner in the law firm of Peabody, Koufman and Brewer, which was succeeded by the firm of Hill and Barlow in 1965.

Since 1968, Mr. Brewer has served as adjunct professor at Boston College Law School, teaching coastal zone management and international business law. He has served as a director of several companies, and has written numerous articles for legal journals.

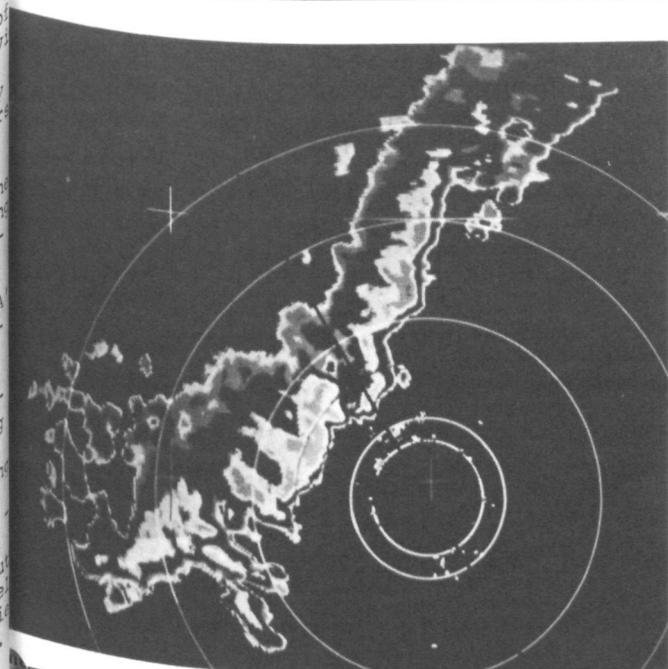
He served as chairman of the Manchester, Mass., Personnel Board from 1960 to 1963, and as a selectman in 1963 and 1964. He has been a director and executive committee member of the Beverly, Mass., Hospital since 1965.

New Technique Aids NOAA's Solar Studies

A technique for estimating the strength of magnetic fields in the sun's outer atmosphere has been developed by an Environmental Research Laboratories' scientist—a discovery which may lead to more accurate forecasts of solar disturbances that affect communications and electric power transmission on earth.

Using time-lapse photography, Dr. Constance Sawyer, an astronomer with ERL's Space Environment Laboratory, has measured the frequencies, or periods, of the "galloping" wave motions in the outer layers of the sun's atmosphere—termed the chromosphere. The Boulder scientist has concluded that the oscillation period may prove to be a useful measure of magnetic-field strength in the upper chromosphere of the sun.

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The tones of gray in the radar-produced picture of a equal line above help meteorologists estimate rainfall rates and amounts. This and other innovations in radar technology are detailed in a new Federal plan for weather radars. The story begins on page 7.

Clifton W. Green Heads Jackson WSO



Clifton W. Green

Clifton W. Green, who has been serving as Principal Assistant of the Weather Service Forecast Office at Jackson, Miss., has been selected to head that office. He replaces Robert Cole, who now heads the Weather Service's Warning Coordination Center at Fort Worth, Tex.

Before being assigned at Jackson in 1972, Mr. Green served as Principal Assistant at Little Rock, Ark., and Oklahoma City, Okla. At the latter city he served two tours of duty as Forecaster and also as Weather Service Instructor in Meteorology assigned to the Federal Aviation Administration's Aeronautical Center.

He is a graduate of Oklahoma A&M College, has had advanced training in meteorology and management, and has served on a special forecasters advisory committee for the Director of the National Weather Service.

Race Relations Literature Needed

The Personnel Relations Branch of NOAA Personnel is broadening its program "Focus on Understanding." Part of the program includes a large display of books on race relations.

The Branch will welcome any books (hard or paper back), magazines, pamphlets, or articles dealing with race relations. NOAA employees are willing to donate to the program. Donations may be sent to John Wetstine, NOAA Personnel (AD42).

Storm Evacuation Maps For Virginia Area Published by NOS

Four storm evacuation maps for the Greater Tidewater area of Virginia, including Norfolk, Portsmouth, Newport News, Hampton and Chesapeake, have been published by NOAA.

The maps, which show emergency evacuation routes, areas subject to flooding from hurricanes or other high waters, and elevations which might afford "safety islands" for storm evacuees, are distributed to state and local officials and community preparedness committees by the National Weather Service. They are available also to the general public for \$2 each from the Distribution Division (C44), National Ocean Survey, Riverdale, Md. 20840.

The maps include a delineation of areas subject to flooding by surges of various heights; main evacuation roads and feeder roads; low points along the roads that might be engulfed; and high spots which are likely to remain unaffected by flood waters, thus affording some degree of refuge. Ground elevations are spaced on the maps at intervals of at least

two miles. Population figures are given for all major urban areas.

Areas subject to flooding are shown in increments of five feet, in distinctive color tones. Both surfaced and un-surfaced evacuation roads are identified, along with county, state and federal route designations and the number of lanes for each road. The maps also depict railroads which may offer avenues of escape. Details are sufficiently clear so that the maps can be reproduced by mass circulation media, including newspapers and television.

The maps are compiled from existing surveys, supplemented by recent aerial photography, and are field corrected by a National Ocean Survey team.

To date, maps have been issued for three Gulf coast areas, including five for New Orleans, La., to Mobile, Ala.; six for Galveston to Houston, Tex.; four for the Corpus Christi, Tex., area; and six for the Atlantic coast area extending from Charleston, S.C., to Savannah, Ga.

Earthquake History of U.S. Published

"Earthquake History of the United States, Publication 41-1, Revised Edition (Through 1970)," edited by Jerry L. Coffman and Carl A. von Hake of the Environmental Data Service's National Geophysical and Solar-Terrestrial Data Center, is now for sale by the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402. This nontechnical publication is a history of the prominent earthquakes which occurred in the U.S. (and Puerto Rico) from historical times through 1970

It contains brief descriptions of all earthquakes of Modified Mercalli intensity V and above (intensity VI and above in the California area) and presents regional tables that give date, time, locality, epicenter, felt area, and authority for each tremor. In presenting these descriptive data, the United States is divided into nine seismic regions. A summary chapter contains a chronological listing of all earthquakes by state and includes a brief resume of the seismicity of each state. Sales price: \$2.80 domestic postpaid.

Policy Changes Are Proposed For Tuna Fishery

NOAA is inviting comments from the public and other agency officials regarding new proposed policies related to the fishery for yellowfin tuna in the western Pacific area regulated by the Inter-American Tropical Commission. The area in the Pacific is roughly 20 times the size of the contiguous United States.

The proposed policy would classify the yellowfin tuna fishery as a "Controlled Fishery," which would restrict the use of National Marine Fisheries Service financial assistance programs where their use would be detrimental to the fishery. The proposed policy is additional obligations could now be guaranteed under the Fishery Vessel Obligation Guarantee Program nor could quota withdrawals be made for Capital Construction if either would increase vessel capacity in the regulated area.

NMFS Director Robert Schoning said that it is recognized that fishing for yellowfin tuna in the regulated area is increasing at a level that poses a threat to the ability of the Commission to achieve its conservation objectives.

Written views, data, and arguments on the proposed amendment should be submitted to the Director of National Marine Fisheries Service, NOAA, Washington, D.C. 20235. All comments received within 90 days of publication of the proposed rule making in the *Federal Register* on January 14, 1974, will be considered before action is taken. A public hearing is being contemplated at this time. Anyone desiring to attend a hearing may request a copy of the notice by writing to the Director of the event it is decided. Appropriate notice will be published in the *Federal Register*.

CDR. Trauschke Named To Command NOAA Ship Whiting



Commander Robert A. Trauschke has been appointed Commanding Officer of the NOAA Ship Whiting. He is slated to assume command in mid-February. During the past 15 months Trauschke has been undertaking graduate studies at George Washington University.

The 163-foot, 760-ton hydrographic survey vessel conducts nautical charting surveys in coastal waters and will operate this year off the Southeast coast. The \$1.8 million vessel is based in Norfolk, Va., and carries a formal complement of 36 officers and crew.

Cdr. Trauschke served as Executive Officer of the Whiting in 1966-67. He has been service aboard five ships since he became a commissioned officer in 1960, and was also chief of the Surgeon's Los Angeles field office.

He received a civil engineering degree from the University of Massachusetts.

Gainesville Airport Being Surveyed

A National Ocean Survey report survey party, headed by Arthur Bricknell, is conducting a field survey of Gainesville (Fla.) Municipal Airport as part of a joint program with the Federal Aviation Administration (FAA) to advance air safety. Results of the survey, in conjunction with aerial photographs taken previously by the NOS, will appear on an Airport Obstruction Chart to be published in five or six months.

Albatross IV Completes Atlantic Herring Study

The NOAA Ship *Albatross IV* has returned to Woods Hole, Mass., after a three-week study of the dispersal and abundance of larval herring in the Northwest Atlantic, particularly in the Gulf of Maine-Georges Bank area. The cruise was part of a cooperative program involving vessels from France, West Germany, Poland, the U.S.S.R., and the U.S. to evaluate factors influencing survival of larval stages of the herring stocks in the area.

National Marine Fisheries Service scientists use fine mesh nets to capture representative samples of the young herring at about 150 locations. They measure the vertical and horizontal dispersal of the larval fish and data on related conditions in the oceanic environment such as temperature and salinity also are gathered.

The cooperative cruises studying the larval stage of the herring were begun in 1971 under the sponsorship of the International Commission for the Northwest Atlantic Fisheries. The Commission is a 16-member or-

ganization with responsibility for obtaining information related to the condition of fishery resources, and proposing regulations designed to restore and maintain these resources in an area extending roughly from Rhode Island and east and west to the Davis Strait off Southwest Greenland.

Data are gathered by the various vessels using standard sampling methods developed by the NMFS under its Marine Resources Monitoring, Assessment, and Prediction Program (MARMAP). The surveys help the fisheries scientists identify the several stocks of herring which inhabit the waters of the Northwest Atlantic, produce information concerning the adult stocks responsible for the young, and permit comparisons with changes in spawning success, a valuable tool in predicting abundance.

It takes up to six months to analyze the data and distribute it to specialists with the ICNAF Scientific Committee for use as background and for pertinent information for management and allocation decisions.



Albatross IV

New Weather Radar Booklet To Be Available

The booklet "Introduction to Weather Radar" has been revised and has gone to the printers for publication. It should be ready for distribution to the field stations by the last week of February.

According to David W. Holmes, Chief of the

Sounding Systems Branch in the NWS Data Acquisition Division, the material contained in this booklet is designed for employees at Weather Service Offices that have local warning radars or remote radar displays, but should be helpful to anyone who uses weather radar information.

NWS Names Huntoon To Head Public Weather Branch

The National Weather Service has named James K. Huntoon as Chief of the Public Weather Branch in the Weather Analysis and Prediction Division of the Office of Meteorological Operations. He was formerly Chief of the Manpower Utilization Staff in the Office of the Director.

In his new position, Mr. Huntoon will be responsible for developing plans, policies, and procedures for providing weather services to the general public and to certain user groups including air pollution control and forestry interests.

Before his assignment on the NWS Manpower Utilization Staff, Mr. Huntoon served with the then Environmental Science Services Administration Aviation Affairs Staff, and the Weather Bureau's Aviation Weather Affairs Staff and Office of Meteorological Research. Earlier in his career, he had field assignments as Fire-Weather Forecaster and Aviation Forecaster at the Los Angeles Forecast Center.

Dr. R. L. Dryfoos Dies; Helped Develop MARMAP Concept, Launch Program

Dr. Robert Louis Dryfoos, Director of the National Marine Fisheries Service's Marine Resources Monitoring, Assessment and Prediction Program Field Group at Narragansett, R.I., died January 18 in Wakefield, R.I. He is survived by his wife, Carol, a son and a daughter, and his parents. Dr. Dryfoos earned his degrees at the University of Washington, spent two years at its College of Fisheries under a Bureau of Commercial Fisheries Fellowship, and then served seven years at the NMFS laboratory at Beaufort, N.C. In 1972 he moved to the Narragansett laboratory, where he helped develop the MARMAP concept, and launch the program.



TUNA CHEESE SWIRLS

- 12 cans (6-1/2 or 7 ounces each) tuna
- 1/2 package (10 ounce) frozen peas (1 cup)
- 1/2 cup chopped onion
- 2 tablespoons margarine or cooking oil
- 1 can (10-3/4 ounce) condensed Cheddar cheese soup
- 1/4 teaspoon salt
- 2 cups prepared biscuit mix
- 1/4 cup milk

Drain and flake tuna. Cook peas and onion in margarine or cooking oil until tender. Stir in 1/2 cup of undiluted soup and salt. Fold in tuna. Prepare biscuit mix as directed on package. Knead dough about 5 times on lightly floured board. Roll into 12 by 9-inch rectangle. Spread tuna mixture evenly over biscuit mixture. Roll up jelly-roll fashion starting at narrow edge. Cut into 6 slices, about 1/2-inch each. Place slices in greased shallow 1-1/2 quart casserole. Bake in hot oven, 400° F., about 25 minutes or until dough is done and lightly browned. Combine remaining soup and milk; heat. Serve with tuna rolls. Makes 6 servings.

Next Week's Best Fish Buys

According to the NMFS National Consumer Educational Services Office in Chicago, the best buys for the next week or so are likely to be fresh ocean perch and pollock fillets along the Northeast Seaboard; Spanish mackerel and speckled trout in the South-

east and along the Gulf Coast; ocean perch fillets and dressed whiting in the Midwest; fresh Dungeness crabs and turbot fillets in the Northwest; and frozen fillets of mahi-mahi and petrale sole in the South-

Storms Slam West Coast

National Weather Service meteorologists and hydrologists in the Pacific Northwest and northern California were busy the week of January 13-19, as a series of moisture-laden storms moved into the area from off the Pacific Ocean.

A state of disaster was declared in portions of Washington, Oregon, northern California, and Idaho, as copious rain, along with very warm temperatures and significant snowmelt, caused major flooding throughout the area. Rainfall amounts of five to eight inches in 24 hours were reported at several places, and the magnitude of the runoff in some instances approached or equalled the disastrous 1955 and 1964 record levels. In a six-day period, key stations in several places reported from 25 percent to 40 percent of their normal annual rainfall. From most recent reports, the storm toll was 16 lives, and flood damage was extensive. Estimate of damage in one Portland suburban county alone was \$10 million. Early reports indicate a total loss in the Northwest of over \$100 million.

Great Lakes Group Discusses Projects On Vertical Control, Water Levels

The Lake Survey Center's Marine Mapping and Charting Division hosted the Vertical Control - Water Levels Subcommittee's winter meeting at its offices in Detroit on January 8 and 9, 1974. The Subcommittee, part of the International Coordinating Committee on Great Lakes Basic Hydraulic and Hydrologic Data, coordinates the various projects performed by organizations working in these fields on the Lakes.

Carl B. Feldscher, Technical Assistant, Marine Mapping and Charting Division; Donald R. Rondy, Chief, Water Levels Branch; and Elmer F. Kulp, Jr., Chief, Vertical Control Section, represented the Lake Survey

GSA Issues Parking Policy

Rear Admiral Harley Nygren, NOAA's Environmental Conservation Project Manager, reports that in a Circular General Management dated January 21, 1974, the General Services Administration ordered:

"Within 45 days from the date of this circular, the agency will submit a report to the Administrator of General Services detailing its present arrangements for employee parking and its plans for meeting the policy of energy reduction through pooling.

The agency parking arrangements will provide within 45 days from the date of this circular more than 10 percent of parking spaces available for employee parking at Federal agencies may be assigned to executive personnel, severely handicapped employees, persons who are assigned to unusual hours. Assignments for the remaining parking spaces will be based solely on the number of persons in a category. Areas within parking facilities will be reserved for use of two-wheeled vehicles with special consideration being given to bicycles.

Center; Cecil F. Ellingwood, Chief, Vertical Control Branch, and Emory Ballou, National Geodetic Survey Members of the Subcommittee representing the Geodetic Survey of Tides and Water Levels in Canada, as well as the Detroit District, Corps of Engineers, were also present. Review and planning for furthering such projects on the Great Lakes water gage histories, a report on vertical movement in the Great Lakes area, proposed on the re-evaluation of the International Great Lakes Datum (1955), and a static Leveling Study accomplished.

Whaleboats Donated to Fishermen of Yap and Ulithi Islands by NOAA

NOAA has donated two glass motor whaleboats to the fishermen of Yap and Ulithi Islands, part of the District of the Trust Territory of the Pacific Islands. The 26-foot long boats, which can carry a man party, were given to Yaps by the National Marine Fisheries Service's Northwest Fisheries Center in Honolulu, Hawaii. The whaleboats are seaworthy, and have a range of about 110 miles, and can carry considerable cargo, equipment, and personnel. Deputy Administrator Edward W. Pollock helped complete shipping arrangements for the boats.

They were transported from Hawaii to Guam—the nearest and most feasible relay point to the islands of the Yap District, which is in the Caroline Islands—by the Navy's Project Handclasp, aboard the destroyer *U.S.S. Horne*. Project Handclasp is a service program that moves donated goods and equipment to overseas regions on a voluntary, humanitarian basis. The journey began in Honolulu on January 11, 1974.

The Yapese are excellent seamen, navigators, and fishermen, and are in need of modern fishing and research boats to upgrade the local fisheries.



Sea Grant Helps Train Youths In Marine Science Technology

Inner-city youths from an inland metropolis are learning to be marine technicians with help from the Office of Sea Grant. The Washington (D.C.) Technical Institute is now in the second year of an educational program in marine science technology that leads to an Associate of Applied Science Degree.

About 30 students are receiving training in basic science, laboratory analysis, oceanographic instrumentation, and other marine subjects needed for shipboard or laboratory work. In addition to physics, mathematics, statistics, microbiology, and data processing courses, the students learn scuba diving (with practice dives at the stone quarry in Haymarket, Va.), and participate in shipboard cruises.

Although located inland with no easy access to water, the program has had marine facilities made available through its advisory committee, which includes—besides NOAA's Office of Sea Grant—the U.S. Coast Guard, Environmental Protection Agency, U.S. Geological Survey, National Security Industrial Associa-

tion, and the U.S. Naval Oceanographic Office.

"This training program in marine science has generated a great deal of community interest," says Matilene S. Berryman, Director of the Program, "and the consensus is that it is timely and appropriate that this professional opportunity should be available to citizens of the District of Columbia."

Last year students from the WTI course cruised aboard the 378-foot USCGC *Morgenthau* along with Coast Guard cadet trainees. This year, with WTI now a member of the Joint Marine Science Consortium (which includes American University, Catholic University, Pennsylvania State University, and others), the students have the consortium's ship *R/V Annandale* available at Lewes, Del., and other facilities at Wallops Island.

Two of the first-year graduates of the course have gone on to shipboard technician positions, while others hold positions at the U.S. Naval Oceanographic Office or are pursuing full-time four-year college studies.

Notes about people

Lieutenant (junior grade) Thomas E. DeFoor has joined the Environmental Research Laboratories' Boulder, Colo.-based Space Environmental Laboratory as a member of the Real Time Acquisition Group. He is designing future data systems as well as maintaining existing systems in support of SEL's Space Environment Services Center. He joined the NOAA Corps in 1972 soon after receiving a degree in electrical engineering from the University of Florida at Gainesville, and served aboard the NOAA *Fairweather* and *Surfer* as an electronics officer from July 1972 until

his recent assignment in Boulder.

Dr. Stanley R. Murphy, Director of the Division of Marine Resources and Director of the Washington Sea Grant Program, has been re-elected President of the Oceanographic Institute of Washington. OIW is a non-profit research and educational corporation formed in 1968 by the Oceanographic Commission of Washington. The 20 members and trustees of the Institute include the 12 members of the Commission, which was created in 1967 by the Washington State Legislature.

Shigeki Hirano of the Na-

tional Institute of Radiological Sciences, Nakaminato, Japan, is a visiting investigator at the National Marine Fisheries Service Atlantic Estuarine Fisheries Center on Pivers Island, N.C. Mr. Hirano, a research chemist interested in the properties of radioactive transition elements in sea water, holds Bachelor's and Master's degrees from Niigata University. His research is in cooperation with investigations now underway at the NMFS Center near Beaufort. NOAA is concerned with the fate of radioactive elements in the oceans with special reference to their accumulation and effects in marine fish and



Mr. Hirano
shellfish. Mr. Hirano is studying the behavior of cerium-144 in the marine environment formed during nuclear fission. Cerium-144 is important because of its chemical state in sea water, its relative abundance and its slow decay rate.

Technique Aids Solar Studies

(Continued from page 1)

"Solar astronomers have been measuring the characteristics of velocity oscillations for years," Dr. Sawyer said, "but these have usually been low in the sun's atmosphere, in the photosphere—the solar disc we see—or the lower chromosphere. These observations have concentrated on small 'quiet' areas where magnetic fields were weak. As we are looking higher up, in the upper chromosphere, the time-lapse filter photography technique shows us quiet regions side by side with regions where the magnetic field is strong, so we can estimate the period of oscillation in each—not very precisely—but in many different places at the same time, and at many different times."

The data will give not only the strength of magnetic fields in the chromosphere, but, combined with photospheric measurements, the gradients—how fast the field weakens with height. Gradients determine electric currents, and the force that the field exerts on the surrounding gas, which, in turn, influence the stability of the field-plasma situation. Knowing what the gradients are should help in forecasting solar flares and disturbances.

Astronomers believe the waves, which have been studied extensively by other techniques, are related to the mechanism which transfers energy from the solar body to the corona—the outer envelope of the sun where the gaseous solar atmosphere forms streamers and outer elevated structures.

Yet, according to Dr. Sawyer, although the scale of the perceived fluctuations changes with the viewing rate, the period is the same whether one watches the appearance and disappearance of a single mottle, the apparent motion of a mottle-size element, or the communal flashing effect.

The solar astronomer theorizes that a possible ap-

plication of the observed frequencies or periods obtained by the time-lapse photography method might be as a sensitive measurement of solar magnetic fields—a feat astronomers have thus far been unable to accomplish for the high chromosphere. Where magnetic structures appear on the surface of the sun, this apparent velocity decreases. By studying the velocity changes from the photographs, astronomers may be able to follow the development of the magnetic fields.

Dr. Sawyer reported her research in a paper, "The Galloping Chromosphere," at the January 1974 meeting of the American Astronomical Society in Honolulu.

U.S., Soviets To Enlarge Marine Mammal Studies

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—the need for attention to technological improvements in presently available methods used to mark or tag marine mammals;

—the continuation of national research programs which seek to define both the population dynamics and the biological cycles of gray and bowhead whales;

—an increased effort to acquire biological data concerning the Beluga (in Russian "Belukha") whale;

—additional consideration of the experimental use—so far limited to the U.S.—of remote sensors to monitor walrus populations on North Pacific ice packs and the possible application of similar techniques to whales at sea, on a cooperative basis;

—increased collaboration in existing and proposed studies of the physiology, morphology, distribution, and ecology of several kinds of seals and walrus, to include visits to Russia by U.S. scientists;

—the possible contributions Soviet scientists might make to a proposed U.S. study of the incidence and metabolism of heavy metals in marine mammals;

—the agenda for a 1974 symposium on the biology and conservation of North

NOAA Participates in Boat Show



Manning the NOAA exhibit at the National Boat Show in New York City when this photo was taken were (from left) Lysle Everhart, National Ocean Survey; Abe Zwick, National Weather Service, New York City; Jim Galt, NOS; and John Mayer, WSO New York City. The exhibit features services to the boating and fishing communities provided by the NOS, NWS and the National Marine Fisheries Service.

Pacific walrus in Russia in which U.S. members of the Marine Mammal Subgroup will participate.

The U.S. also suggested that Russian scientists take part in studies of gray whales carried on under the direction of the National Marine Fisheries Service's Northwest Fisheries Center in Seattle, Wash., tentatively planned for 1975 on the Baja California breeding and calving grounds. A Soviet scientist was invited to participate in U.S. research on the northern fur seal-northern sea lion relationship, to take place on the Pribilof Islands in 1974. (The U.S. early in 1973 declared a moratorium on seal harvests on St. George Island, in part so a protected seal population could be compared with a harvested one on nearby St. Paul Island.)

The U.S.S.R. many years ago established a conservation program that restricts the taking of marine mammals by Soviet citizens to a few exceptions granted by special permit, e.g., subsistence take by Siberian Eskimos. That program comes under the supervision of the U.S.S.R.'s All-Union Research Institute of Marine

Fisheries and Oceanography (known familiarly by Russian initials, "VNIRO")'s responsibilities for marine mammals are limited to those of the NMFS.

Present at the December meeting in Washington were VNIRO's Drs. V.A. Zhelezovskiy, A.A. Berzin, and Dr. V.I. Mineyev, and Dr. V.I. Sokolov of the Zoological Institute, Leningrad University. U.S. representatives consisted of NOAA group coordinator Dr. C. Miller; NMFS's Marine Mammal Coordinator J.R. Fisher; Dr. G.Y. Harry of the Fisheries Center, Seattle; A.H. Johnson of the Department's Bureau of Sport Fisheries and Wildlife, Seattle; Dr. F. Fay, representing the U.S. Health Services research laboratory at Fairbanks; J. Burns of the Department of Fish and Wildlife, Scheville of the Massachusetts Oceanographic Institution; Dr. R. E. Brown of the University of Alaska; Dr. G.C. Ray of Hopkins University. The Marine Mammal Subgroup is expected to meet in Moscow or Leningrad in 1974.

Hydrographic Survey N.J. Confirms Earlier Findings

A hydrographic survey of approaches to the Terminal, N.J., Terminal, by the National Ocean Survey, has confirmed earlier findings that the depths range from 30 to 36 feet. A six-man NOS field party led by Lieutenant Commander K. Muller made the survey after reports were received from the Port Jersey Corporation that some vessels with 35-foot drafts were scraping the bottom while en route to the terminal. The area in the access channel east of the terminal bar leveled by the Port Jersey Corporation in August 1962 to 35 feet mean low water in an effort to eliminate shoal areas. The hydrographic survey was designed to determine the depths in presumed leveled and sounding areas. The data have been published in preliminary form on a nautical section chartlet and will appear subsequently on a revised nautical chart of the area (chart 541) to be issued by the NOS. The party also conducted a 10-week period a detailed investigation of reported navigational hazards in other New Jersey waters. Changes will appear on the revised nautical charts of the area to be published by the NOS.

\$1,130,000 Sea Grant Awarded to University of Washington by NOAA

A \$1,130,000 Sea Grant to the University of Washington has been announced by the Secretary of Commerce, Frederick B. Dent. The grant will support research projects, educational programs, and advisory services being carried out throughout the University and by five community colleges in the coast-

Increased Radar Coverage of Weather And Storms Planned by Federal Agencies

The nation's network of long-range weather radars would be completed and 66 modern short-range instruments would be installed in areas where severe storms are most frequent, under a Federal plan for weather radars just released.

The plan also calls for equipping all long- and short-range weather radars with systems that make it possible to estimate the amount and rate of rainfall.

Included in the plan are proposed programs, to be carried out in five phases as funding becomes available, of those Federal agencies concerned with weather radar—the Departments of Commerce, Defense, Interior, and Transportation, the National Aeronautics and Space Administration, and the National Science Foundation. It was prepared by interdepartmental committees reporting to the Federal Coordinator for Meteorological Services and Supporting Research, Dr. Clayton E. Jensen. Dr. Jensen is NOAA's Deputy Associate Administrator for Environmental Monitoring and Prediction.

Radar gives the meteorologist an instant picture of current weather systems, enabling him to detect precipitation and estimate its intensity, identify and track thunderstorms, squall lines, and tornadoes, and locate and track hurricanes approaching the coast. Information provided by weather radar is used by the nation's air traffic control system and by commercial, military, and

general aviation to improve the safety and economy of flight operations. According to the plan, gaps in the basic national network of long-range weather radars will be filled by NOAA with the installation of new radars in southern Virginia, south-central New York, eastern North Dakota, eastern Texas, and western Nebraska. It also plans to establish units for joint use of the Denver and Alaska FAA air route traffic control radars.

Under the new plan, modern solid-state radars would replace 38 obsolete short range radar systems and would be installed at 28 additional National Weather Service offices.

When these long- and short-range radar systems are in operation, every National Weather Service office with responsibility for issuing hazard warnings to one or more counties will have immediate access to either a basic network radar or a local warning radar. Where weather hazards are infrequent and a basic network radar is nearby, a remote display would be used.

Video integrators and processors, which display six gradations of echo intensity on radar scopes and remote images, aid radar operators in determining the intensity of echoes and in estimating rainfall rates and amounts. This system has been installed at some locations in the basic network. Under the new plan, the remaining 27 basic network radars and all

local warning radars would be equipped with video integrators and processors.

Another system for digitizing, processing, and communicating radar data automatically determines echo intensities, movement, and area coverage, reducing the need for time- and energy-consuming manual operations. Radar digitizing and processing equipment is being tested at five operational sites in the NOAA radar network. Four of these, in Missouri, Oklahoma, and Texas, form a Midwest test bed in the heart of the severe weather region. The fifth is at Pittsburgh, Pa., where applications for flash-flood warning are being developed. These stations are expected to become fully operational soon, and NOAA plans to install the system on 65 more basic network and local warning radars in flash-flood prone river basins. In digitized form, the radar information can be transmitted on high-speed communications lines to other offices with warning and forecast responsibility.

When severe weather is approaching, radar operators often find it difficult to recognize slow changes in growth, intensity, and circulation patterns. NOAA plans to equip its radars with a device that would instantly and rapidly replay the most recent 15 or 20 minutes of radar data, so that changes can be easily seen.

al counties of the State.

Research supported by Sea Grant in Washington includes engineering of floating structures; aquaculture of salmonids and shellfish; development of acoustic techniques for the assessment of populations of commercially important fishes; and studies in the utilization of all of the normally discarded parts

of the fishermen's catch, such as the shells of crabs and other crustaceans.

A Sea Grant-supported project called NORFISH is developing a system for management of fisheries resources using an extensive data base to produce a collection of numerical computer models and display systems.

As an aid to coastal zone management, information on the physical and chemical characteristics of Puget Sound waters is being systematized.

The University of Washington is one of seven institutions honored by the Commerce Department with the designation "Sea Grant College."

NWS Port Meteorological Officer Program Expands, Reports Progress

The National Weather Service Port Meteorological Officers made 8,847 ship visits during 1973, an increase of 11 percent over the 1972 figure. They also enrolled 494 new ships into this program of taking voluntary surface meteorological observations for the NWS while they are at sea.

The program is conducted by the NWS in support of the international Cooperative Ship Program sponsored by the World Meteorological Organization. The PMO's are administered by the NWS Eastern and Southern Regions, and the Overseas Operations Division at NWS Headquarters.

According to Robert W. Schoner, Marine Program Manager in the Data Acquisition Division of the NWS Office of Meteorological Operations, who is the Focal Point for the PMO program, several changes made during the year are resulting in a more efficient operation of the program.

—The installation of PMO's at the Weather Service Offices in Tampa, Fla., (Francis E. Poag) and Port Arthur, Tex., (David Harmon) brought to 11 the number of locations from which PMO's operate.

—Ship visitation records and

other necessary documentation no longer consume time of the PMO's themselves. Instead, William Hocking, who is stationed at the San Francisco (Calif.) Custom House with PMO's Paul Arnerich and Walter Sitarz, takes care of all documentation for all the PMO's.

—All PMO's now routinely receive statistics on ship reports since the installation of quality control procedures initiated in DATAC. These give each PMO an idea of how ships under his supervision are performing.

In addition to those mentioned above, the PMO's are: Walter J. Stoddard and Thomas Garret at the New York City Weather Service Office; William Gribble at the Atlantic Marine Center, Norfolk, Va.; William Kennedy, for the Great Lakes, at the Weather Service Forecast Office in Cleveland, Ohio; David Shawley, at the Weather Service Forecast Office in New Orleans, La.; Julius Soileau, at the Weather Service Office in Houston, Tex.; Anthony E. Ripppo, at the Custom House, Terminal Island, Long Beach, Calif.; Donald Olson, at the Seattle, Wash., Weather Service Office; and William H. Metivier, Jr., at the Panama Canal.

Jenkins To Take Special Photographs of Sky At South Pole at Equinoxes for A.F. Study

The National Weather Service Overseas Operations Division has made arrangements with Charles E. Jenkins, Meteorologist in Charge of the Amundsen-Scott Station at the South Pole, for special color photography of the twilight sky over the 20-day periods spanning the autumnal and vernal equinoxes. This

program was arranged for Dr. Frederick Volz of the U.S. Air Force Cambridge Research Laboratory, who is studying horizontal color striations (near the horizon) in the photographs as related to stratospheric haze layers. Dr. Volz is the father of the sunphotometer bearing his name.

New Training Course Created For Imprest Fund Cashiers

A new NOAA video taped Training Course for Imprest Fund Cashiers, Alternate Cashiers, Sub-Cashiers, and other interested personnel has been created by the Finance Division in cooperation with the Training Section of the Personnel Division. The purposes of the 1 1/2-hour course are to acquaint the personnel with their duties and responsibilities as agents of the U.S. Treasury Department in NOAA; introduce them to various regulatory manuals and circulars that govern the disbursement and reporting activities of public funds; familiarize them with various safety and security procedures needed to safeguard against loss of funds assigned; promote uniform consistencies in handling a variety of similar transactions; and improve their cashier capabilities.

The script and training aid

utilized in producing the video taped course was written by John G. Harris, Staff Assistant to the Director of the Finance Division, and video taped and musical effects were engineered by Robert Harris, Employee Management Specialist, Finance Branch, Personnel and T.P. Gleiter, Administrator of Finance Administration; Barbara Moore, Voucher Accounting Technician, Finance Division; Joseph P. Rydzewski, Supervisor, Accounting Technician, Finance Division; Jacquelin A. Miller, Support Assistant, Finance Division, were the participants in the production.

Copies of this course are available to Field Office Management Centers through servicing Field Office.



In this photo of the first Imprest Fund Cashiers Course are (front row, from left) Arleen S. Sub-Cashier, AOD, Smithsonian Institution; Virginia, Alternate Cashier, AOD, FOB-4; Ruth W. Davis, Cashier, AOD, Gramax; Ms. Moore; Mary E. Marvin, Alternate Cashier, NMFS, College Park, Md.; (back row, left) Chester G. Jones, Alternate Cashier, AOD; Francis A. Sly, Office Services Assistant, AOD; Love, Principal Cashier, AOD, Page Building; Marshall, Alternate Cashier, AOD, Page Building; Johnstone, Principal Cashier, NMFS, College Park; Raymond P. Hogan, Special Assistant for Field Office Branch, Finance Division.



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National Oceanic and Atmospheric Administration

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