



noaa week

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NOAA Forty-Two

NOAA Receives Its First New Flying Laboratory

"NOAA Forty-two," the first of two new WP-3D Orion aircraft purchased by NOAA, was delivered to Dr. Wilmot N. Hess, Director of the Environmental Research Laboratories, at the Lockheed-California Company's Burbank plant this week. The \$7 million "flying laboratory" will be operated by ERL's Research Facilities Center in Miami, Fla.

Texas, Mississippi Receive Second-Year Coastal Zone Grants

Second-year coastal management grants of \$620,000 and \$127,038 have recently been awarded to the States of Texas and Mississippi, respectively, to continue their programs for achieving balanced use of their coastal zones. The first grant to Texas, for \$360,000, was made in June 1974, and Mississippi received \$101,564 in May 1974.

Texas is developing its coastal zone program in close coordination with the Office of Coastal Zone Management, and, according to Robert W. Knecht, Assistant Administrator for Coastal Zone Management, "in cooperation with various government agencies whose activities directly affect the Texas coast."

The grant will be administered by the General Land Office, and, under the Coastal Zone Management Act of 1972, the State will add \$448,401, bringing the total budget this year to over \$1 million.

The State's second-year program will concentrate on assessing and coordinating existing information on coastal activities, conducting special studies on the feasibility of dredging dry land canals, developing alternatives to disposing of dredged materials and techniques to prevent or

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It is the first new airplane ever purchased by what is now NOAA, built to the special requirements of its atmospheric and oceanic airborne research programs.

When instrumented in mid-1976, the airplane will begin flying environmental research missions, such as severe storm studies, cumulus cloud and hurricane modification experiments, and investigations of air-sea interaction, air quality, and the relationship of weather patterns to climatic change. NOAA project scientists expect the two Orion to be the most advanced research aircraft in the world.

Designated R42RF, the WP-3D continues a series of call numbers used for NOAA's aging DC-6's (N6539C and retired N6540C) and turboprop WC-130B (N6541C). When operational, the new airplane will add to the information extracted from the atmosphere by these predecessor aircraft in their tens of thousands of flight hours and hundreds of hurricane penetrations.

NOAA Forty-two will go next to Ontario, Calif., for further outfitting by Lockheed Air Service Company, and in September will fly to Jefferson County Airport near Boulder for installation of its data system, and then to its permanent home at the Research Facilities Center at Miami International Airport, where the rest of its instrumentation system will be installed.

The second WP-3D, NOAA Forty-three, now in manufacture, will be delivered early next year.

FY '76 Federal Meteorological Plan Published

A \$662,152,000 meteorological program designed to reduce the economic and social impact of natural disasters, promote the Nation's welfare and economy, preserve and enhance the environment and strengthen the national security is described in the recently released "Federal Plan for Meteorological Services and Supporting Research—Fiscal Year 1976."

The figure represents an increase of \$50,350,000 over Fiscal Year 1975 expenditures for these purposes. (These figures for Fiscal Year 1976, and others in the plan, are tentative and have not yet received legislative approval.)

Published yearly to provide Congress with a single source for reviewing the overall Federal meteorological program, the plan describes the proposed activities of the Departments of Agriculture, Commerce, Defense, Interior, State, and Transportation, the Energy Research and Development Administration, the Environmental Protection Agency, National Aeronautics and Space Administration, and the National Science Foundation.

The Department of Commerce request for \$282,143,000 includes the largest increase proposed—\$25,252,000—for efforts directed primarily toward reductions in the economic and social

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Fishing Program Developed for Samoa

Though it lies in the South Pacific amid large, commercially valuable fish stocks, American Samoa has never adequately utilized fish for its local population. Sea Grant scientists are now doing something to improve the situation.

Working under grants from NOAA and the Territorial Government, the Sea Grant program at the Community College of Samoa in Pago Pago is pursuing a unique commercial fishing training program.

The purposes are to develop the fishery resources of the area and to provide long-range vocational training for young Samoans interested in commercial fishing as a career. The Sea Grant program began in September 1973, with six students and the assistance of Samoa's Office of Marine Resources; this year it will graduate 16 young men skilled in the techniques of hand lining, long lining, surface

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Sea Turtles To Be Added to Threatened List

The green (*Chelonia mydas*), loggerhead (*Caretta caretta*), and Pacific ridley (*Lepidochelys olivacea*) sea turtles have been proposed in the Federal Register to be added to the U.S. List of Threatened Wildlife by the De-

partment of the Interior's U.S. Fish and Wildlife Service, and the National Marine Fisheries Service. A joint status review by the agencies found seriously decreased populations of these species throughout the world. The

leatherback, hawksbill, and Atlantic ridley sea turtles are already on the U.S. List of Endangered Wildlife.

Sea turtles, which can grow to 1,500 pounds, rarely come on

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A NOAA UNIT CITATION has been awarded to the National Weather Service personnel on Islas Del Cisne (Swan Island), Honduras, for rescuing the survivors of the fishing vessel Lucky Girl. The NWS Overseas Operations Division employees risked their lives to save the 19 lobster fishermen who had been forced to abandon their sinking ship during a storm last December. (Story on page 71, NOAA Magazine, April 1975.)



From left here are Norman Smith; Horis Kelly; Spencer Bennett; Official in Charge Wally Glassman; Felix deOsa; Bob Melrose; Randy Moore; John C. Straiton, Chief of OOPS Division, who presented the Citation; and Simmons Tatum.

Scientists Develop Commercial Fishing Program for Samoa

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and deep sea trolling, and crab and fish trapping.

The students divide their time between formal classroom experience on land—which includes courses in English, mathematics, fish biology, seamanship and navigation, boat and engine maintenance, and business and marketing—and practical fishing experience at sea. In addition, each student makes seven four-day trips aboard a 50-foot fishing vessel owned by the Office of Marine Resources and 16 one-day trips on its 28-foot boat. The students receive a stipend of \$20 per week while enrolled in the program.

Kenneth W. Bailey, the Sea Grant Program Director for the Community College of Samoa, explains that the training program is designed to turn out not only capable fishermen, but fisheries consultants, marketing agents, importers/exporters of fish and fishing gear, boat owners, and fleet managers.

"Generally speaking," he says, "American Samoans don't have the same opportunity to learn the use of modern technology that people in industrialized nations have. It's our hope that our program will provide the necessary training methods within the context of American Samoan culture and technical capabilities to provide this opportunity."

The program has sponsored evening lectures and film shows for the local fishermen; and in cooperation with the Office of Marine Resources, has sponsored four five-day fishing trips aboard the Office's vessel, to introduce local fishermen to alternate fishing methods and techniques.

Turtles To Be Added to Threatened List

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land except to lay eggs. Human development of coastal areas for industry and tourism has destroyed many of their nesting sites. Along some shorelines bright city and highway lights confuse hatchlings and attract them inland where they die.

The green sea turtle is probably the most commercially valuable reptile in the world and one of the most heavily hunted. Its meat, eggs, and calipee (cartilage used in soup) have been eaten for centuries; its skin has been used for leather, its shell for jewelry, and its oil in the cosmetics industry. An international market in turtle products now exists, with the United States being among the largest consumers.

If adopted, the new regulations would prohibit the taking, import, and export of the species and halt the U.S. involvement in the sale in interstate and foreign

Results of Massachusetts Bay Dredge Simulation Are Reported

When a dredge bites into the soft sediments at the bottom of a bay, it begins to generate a plume of tiny particles. In the course of an average dredging operation, the growing plume may include three percent or more of the total dredged material—30,000 cubic meters, for example, in a million-cubic-meter operation.

This gentle rain of fine sediments complicates the already complicated matter of survival for some marine organisms, and changes the ways in which various chemicals are distributed in the food web. But these ecological impacts, which are understood in only a general way, depend on where currents take the plume of sediments.

Two years ago, NOAA scientists sowed three tons of tiny crystals into Massachusetts Bay in a unique oceanic experiment aimed at determining whether dredge plumes could be simulated, and predictive models developed, without actually conducting a dredging operation.

"Our objective," says Dr. Wilmot N. Hess, Director of the Environmental Research Laboratories and co-author of the first report on the experiment, "was to develop a method that would simulate a dredge plume without introducing large amounts of material into the marine environment. We did not want to use the usual dye tracers because these lack the fallout characteristics of dredge fines.

"Crystals of the type we settled on had been used as atmospheric tracers, but never in the ocean. So in a sense we have the only experience to date in attempting this type of dredge plume simulation."

Two types of beads were used. One was a zinc-silicon "sphalerite" crystal, with inclusions that fluoresce in ultraviolet light. The other was a smaller glass bead. The particles had diameters ranging from half a micron to 50 microns (a micron is a millionth of a meter).

Preliminary results of the study indicate the crystals did simulate fallout from a dredging operation reasonably well, providing a body of information which could be used to predict the behavior of a dredge plume. At the same time, the experiment showed a dense array of uncurrent meters provides unexpectedly good information on which to base dredge plume predictions.

The paper, "A Test Particle Dispersion Study in Massachusetts Bay to Simulate a Dredge Plume," by Dr. Hess and Terry A. Nelson, was presented at the recent Offshore Technology Conference.

next week's 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 ocean perch and squid along the Northeast Seaboard; bluefish and croaker in the Middle Atlantic States, including the D.C. area; mullet and flounder in the Southeast and along the Gulf Coast; fresh whitefish and monkfish fillets in the Midwest; fresh snapper fillets and dressed whiting in the Northwest; and fillets of sole and canned tuna in the Southwest.

noaa week

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NOAA Week reserves the right to make corrections, changes or deletions in submitted copy in conformity with the policies of the paper or the Administration.

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

Salmon Could Be New Antarctic Food Resource

National Marine Fisheries Service scientists believe that if Arctic stocks of chum salmon were transplanted to the seas surrounding Antarctica, a new and easily harvested food resource could be introduced to a "hemisphere in need of better and cheaper nutrition."

Dr. Timothy Joyner, Conrad Mahnken, and Robert C. Clark, suggest that Arctic stocks of chum salmon could readily adapt to the ocean environment of the Antarctic and thrive on krill—a small shrimp-like creature that feeds on single-celled marine plants growing in abundance in the cold but tremendously fertile circumpolar waters.

Generating a significant salmon fishery in the Southern Hemisphere would probably require a cooperative international effort. The United States and the Soviet Union might supply the eggs, means of transport, and hatchery technology. Argentina, Chile, Great Britain, and France would control the most appropriate land bases for the construction of hatcheries. The easiest way to harvest the salmon would be with Alaska-type floating salmon traps that would capture the salmon alive as they returned to the hatchery streams.

The scientists believe that an international agreement to prevent high-seas fishing of the new stock would be necessary to prevent interference with the efficient low energy cost method of harvesting from inshore fish traps. Since there is no existing salmon fishery in the Southern Hemisphere, and, consequently, no entrenched precedents for high-seas harvesting, it should not be difficult to achieve such an agreement in advance of any effort to build a significant population of salmon in Antarctic waters.



A NOAA UNIT CITATION was recently presented to the Information and Distribution Branch of the National Geodetic Survey's Information Center for its contribution in the handling of information packets and questionnaires to every registered land surveyor in the United States. The branch completed a planned 24-month program in 12 months.

From left above are M. Doreen Smith; Beth Walters; Eileen M. Shenk; Colleen S. Best; R. Adm. Allen L. Powell, Director of the National Ocean Survey; William H. McGowen; John D. Mulchi, Chief of Information and Distribution Branch; Dave Doyle; Margaret M. Nicholson; Madeline White; and Sharon L. Ulshafer. Mary F. Shenk was not present when the photo was taken.

NWS Commended for Tornado Warnings

The following excerpts are from editorials in recent Kansas newspapers.

From the May 13 issue of the *Topeka Daily Capital*: "It would be impossible for Omahans to overestimate the value of the National Weather Service warnings of the tornadoes that ripped and chewed their way through their city May 6.

"Although the twisters caused more than a half-billion dollars in damage to property, they took only three lives and injured about 100 others.

"It is frightening to think what could have happened without those warnings..."

From the May 8 issue of the *Kansas City Star*: "It had been a heavy, unstable afternoon in Omaha and as early as 12:37 p.m. the Weather Bureau issued a tornado watch, effective from 2 to 8 p.m. advising of the possibility of violent weather. Soon after 4 o'clock the sirens sounded a warning and by 4:30, when the two or more funnels roared into the southwest and northwest sections of the city, most

residents had found shelter of one sort or another..."

"To this point man, with all his scientific knowledge, can do little more about these killer storms than be alert for their coming. The watch-and-warning system worked out by the Weather Bureau, with radio and TV stations flashing the alert to the public, has saved many lives in recent years. And in Omaha Tuesday afternoon the warning proved remarkably effective."

Tex., Miss. Receive Coastal Zone Grants

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mitigate flood and hurricane dangers, and simplifying permit procedures. An important part of the State's activities will be to inform citizens about the coastal management program through public hearings and informal meetings.

Under the Coastal Zone Management Act, Texas is eligible to receive three annual grants to de-

Orthophoto Chart For Miami Harbor Is Issued by NOS

An orthophoto nautical chart for Miami harbor, with land areas adjacent to coastal waters shown by reproductions of aerial photographs, has been published by the National Ocean Survey.

This and similar charts published for Ft. Pierce and Ft. Lauderdale are the first of their kind to be issued in the United States.

On previous charts, the land areas were shown only by a buff tint outlined with a black line representing the shoreline. A process known as orthophotography removes distortions caused by the tilt of the aerial camera and by varying ground elevations and produces a precise photograph of the earth's surface where all features appear in their correct horizontal positions, including highways and streets and prominent structures.

The new charts provide more land details to assist mariners in determining their positions at sea, and also assist the Coast Guard in fixing the positions of navigational aids. The orthophoto format eliminates the painstaking hand drafting and scribing by cartographers of intricate land details, such as roads, buildings, contours and other landmarks.

velop a coastal management program, and later, "implementation" funds, which are awarded only after the development plan has been approved by the Secretary of Commerce.

Mississippi's Marine Resources Council will administer its NOAA grant, and the State will add at least \$63,519, bringing the total budget to a minimum of \$190,557.

Mr. Knecht explained the State's program is being developed in cooperation with citizen groups and with various government agencies whose activities directly affect the State's coast.

Mississippi's second-year work program, an extension of the first year's, includes identifying its coastal boundaries, defining permissible land and water uses, designating areas of particular concern, determining priority uses of the coastline, describing how the state will exercise control over land and water uses, and building an organization to implement the development program.

Another important objective will be to educate and inform citizens about the coastal management plan through a series of public workshops and informal meetings.

FY '76 Meteorological Services, Supporting Research Plan Published

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impacts of natural disasters. These include extending nationwide radar surveillance of severe weather, improving the dissemination of weather forecasts and warnings, priority efforts for streamlining field operations to reduce delays in warning dissemination, and preparing for an improved weather satellite capability.

The funding includes \$12,460,000 to apply modern methods of data handling, display, and communications for automation of Field Operations and Services (AFOS); \$1,455,000 to complete the NOAA Weather Wire Service to the mass media across the Nation; \$3,560,000 to provide the basis for making ra-

dio broadcasts of weather warnings available directly to the public; \$2,000,000 for equipment to modify 22 Federal Aviation Administration traffic control radars in the western United States for remote transmission of weather data to weather offices; and \$5,430,000 for procurement of ground station equipment, instruments and spacecraft for the next generation polar-orbiting spacecraft to obtain more accurate temperature profiles in cloud-free areas and soundings through clouds.

The Department of Defense request, showing an increase of \$19,742,000, includes \$7,896,000 for satellite equipment and operations; \$1,160,000

for procurement of tactical weather system radars; \$2,100,000 for shipboard read-out equipment; \$803,000 for added aircraft reconnaissance operating costs; and \$800,000 for procurement of ten Naval Environmental Display Stations for automated processing and displaying of meteorological and oceanographic information.

The Department of Transportation's requested increase of \$6,664,000 includes, for the Federal Aviation Administration, air field observational equipment for transcribed weather broadcasts and radio equipment to provide en route flight advisory service for commercial and general aviation.

notes about people

Dr. William H. Klein, Director of the National Weather Service's Techniques Development Laboratory since 1964, has been named Director of the NWS Systems Development Office. He has served as Acting Director of SDO since July 1974.



Dr. Klein

After service as a Weather Officer in the USAF, in 1946 Dr. Klein became a Research Forecaster in the Extended Forecast Division of the Weather Bureau. In 1959, he was named Chief of the Division's Development and Testing Section, and then worked for a brief period as Head of the Statistical Techniques and Analysis Branch at the National Meteorological Center, before being named Director of TDL.

Dr. Klein received a Commerce Silver Medal in 1964, and in 1974, a Gold Medal for his overall management and technical leadership of TDL. He was elected a Fellow of the American Meteorological Society in 1970, a Councillor of the Society in 1973, and Chairman of its District of Columbia Chapter in 1974. In 1975, he received the AMS Award for the Outstanding Contribution to the Advance of Applied Meteorology for "his notable development of objective procedures for predicting surface

weather elements and his leadership in bringing these and other scientific advances in meteorology into practical use."

He received his B.S. from the City College of New York; his M.S. from the Massachusetts Institute of Technology; and his Ph.D. from New York University.

Marilyn M. Scherer of the Environmental Research Laboratories in Boulder, Colo., has been appointed ERL's representative in the Association of Federal Professional and Administrative Women. She succeeds **Christine M. Yetzbacher** who recently resigned from ERL.

The association was formed in November 1966, to further the aims of the President's Commission on the Status of Women.

Ms. Scherer holds an administrative position in ERL and is involved in providing a broad range of administrative support activities to the Office of the Director and the Office of Research Support Services. She joined what is now NOAA in 1966, serving in the laboratories' Office of Programs from 1967 until her May 1973 reassignment to Research Support Services.

Edward Gurche, expert on water level gage installations and engineering technician of the Lake Survey Center Water Levels Branch, recently was sent from the LSC Detroit offices to Milwaukee, Wis., to determine why the digital recorder there was refusing to record correct

A paper by **Roland A. Finch** (left), Chief of the National Fisheries Service National Fisheries Plan, has been selected by the NMFS Publications Policy Board as the best publication appearing in

a 1973 edition of the *Fishery Bulletin*. "Effects of Regulatory Guidelines on the Intake of Mercury from Fish—The MECCA Project" was selected because it constituted an outstanding original scientific work which contributes to the accomplishment of the NMFS mission. NMFS Director Robert W. Schoning, congratulating Finch here, has presented him a Special Achievement Award for receiving this honor.



Mr. Schoning, NMFS Director, congratulating Mr. Finch here, has presented him a Special Achievement Award for receiving this honor.

times as it recorded Lake Michigan water levels, making the data useless, and to make necessary repairs. During this time of Great Lakes high water levels, it is essential to have reports from such important gages with no interruptions in data.

While there, he also installed an analog gage as a back-up unit. The mechanical gage—using weights rather than electric power—provides a continuous, graphical record and insures a constant report even if the electrical power fails, as it does often during large lake fluctuations, which occur during storms

and extreme levels, when records are most important.

Joan Vandiver Frisch, NOAA's Public Affairs Office in Boulder, Colo., recently won for the second year in a row—a series of awards from the Colorado Press Women for her articles about Environmental Research Laboratories people and projects.

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PARTICIPANTS IN A RECENT COURSE IN ASSESSING THE ABUNDANCE OF FISH POPULATIONS taught at the National Marine Fisheries Service's Southwest Fisheries Center in La Jolla, Calif., were (front row, from left) Henry Orr, La Jolla; Aziz Abdelmoumen, Morocco; Daniel Ortiz Jimenez, Mexico; Edwin Osada, Moss Landing, Calif.; (standing, from left) Gede Sedana Merta, Indonesia; John Wyatt, Jamaica; Dave Potter, Woods Hole, Mass.; Arnold Trillo Burgueno, Mexico; Marek Baranowski, Poland; Betsy Stevens, La Jolla; Jose Alvarez, Mexico; Course Director Dr. Elbert Ahlstrom, (in back), Ellen Moxley (front), Dr. Angelus Alvarino, and John Butler, La Jolla; Stefan Grimm, Poland; Bettie Louw, South Africa; Cindy deGorgue, Sandy Hook, N.J.; Dennis Gruber (in back), and Barbara Sumida (front), La Jolla; David Ambrose, Moss Landing, Calif.; Joseph Abordo, Ghana; Elaine Sandknop, La Jolla; Michael O'Toole, South Africa; Dave Hardy, Solomons, Md.; Dr. Leonard Ejsymont, Poland; David Rice, Jr., San

Francisco, Calif.; Pedro Rubies, Spain; and Dr. Geoffrey Moser, La Jolla.

According to Dr. Brian Rothschild, Director, the Center's fishery biologists have played a leading role in developing surveys of fish eggs and larvae that can point the way to productive catches of commercially acceptable food products. The object of the course was to instruct marine scientists—some from developing countries—in identifying fish eggs and larvae (elements that form a part of the oceanic plankton). Marine scientists depend on plankton assessments for information on which to base estimates of abundance, migratory patterns, and ecological requirements of marine species.

The course was sponsored by the NMFS Marine Resources Monitoring Assessment, and Prediction (MARMAP) program, a major NOAA effort to evaluate the living resources in waters off the shores of the United States.



National Oceanic and Atmospheric Administration

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