



# noaa week

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## Key Largo Nominated As Sanctuary

The largest living coral reef in continental United States coastal waters—a major tourist attraction and a valuable scientific resource—may become the first marine sanctuary of its kind in the Nation, Secretary of Commerce Frederick B. Dent has announced.

The Office of Coastal Zone Management has received a nomination to designate as a sanctuary an approximately 100-square-mile area off Key Largo, Fla.

The area, up to five miles wide and about 21 miles in length, is adjacent to the John Pennkamp Coral Reef State Park and overlaps the Key Largo Coral Reef Preserve. Its nomination

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## SCORE To Study Coral Reef Wall

### ERL Device Tested in L.A. For Air Pollution Monitoring

A remote-sensing experiment being conducted by the Environmental Research Laboratories at El Monte airport in California is providing pollution meteorologists a continuous view of how the atmosphere becomes stratified over Los Angeles, and how the strata change from minute to minute, and day to day.

The remote-sensing device is an acoustic sounder, one of several developed by ERL's Wave Propagation Laboratory in Boulder, Colo.

The instrument is being evaluated as a potential tool by the National Weather Service, and used as a source of research data by meteorologists at the University of California at Los Angeles.

Acoustic sounders like the one at El Monte beep high-pitched bursts of sound upward into the atmosphere, and receive faint echoes from changes in air density. Because air density varies with temperature, the record can be read as a profile of thermal turbulence in the atmosphere up to about a kilometer above the sounder.

The technique's main advantages are that acoustic sounders probe the atmosphere in real time, providing a continuous view not available from conventional balloon soundings; and the method is relatively inexpensive. For researchers, the acoustic profile points up atmospheric trends that are not visible in conventionally sensed data, some of

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A research submersible, an underwater laboratory, and a variety of underwater safety stations as well as surface vessels and facilities will be marshalled for a month-long research project that begins April 1 off Freeport, in the Bahama Islands. The purpose of the project is to enable scientist-divers to make concentrated studies of the vertical wall of a coral reef to depths as great as 250 feet.

Project SCORE (Scientific Cooperative Operational Research Expedition) will use saturation diving, deep air excursions and submersible lock-out techniques for deep reef studies of fishes, corals, algae and geology of the reef environment. The project will be carried out cooperatively by NOAA, the Harbor Branch Foundation Inc., of Fort Pierce, Fla., and the Perry Foundation, Inc., of Riviera Beach, Fla.

The Perry Hydro-Lab habitat will provide diver teams with an underwater "home," and Harbor Branch's submersible Johnson-Sea-Link will shuttle them from the laboratory to their research sites as far as a mile away and to depths 190 feet deeper than Hydro-Lab.

The Program Coordinator is Dr. James Miller, Deputy Director of NOAA's Manned Undersea Science and Technology (MUS&T) program. The Operations Director is Robert Wicklund of the Perry Foundation, Inc., and Director of Submersible Operations and Training is Roger Cook of Harbor Branch Foundation, Inc. Dr. Morgan Wells of MUS&T is Chief Scientist.

Four teams of four diverscientists will live in the Perry Hydro-Lab for five days each at a depth of 60 feet. The Johnson-Sea-Link will pick up and transport two members of each team into deep water, where one will lock out and descend to depths as great as 250 feet for up to 45 minutes. Other team members will swim from Hydro-Lab to depths as great as 200 feet for one hour.

"The use of air as a breathing mixture to these depths for extended times represents a significant advance in diving technology," said Dr. Miller. "The same techniques are expected to be used in the offshore oil industry in the near future at com-

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Artist's conception of SCORE activity shows Johnson-Sea-Link submersible anchored to face of coral reef wall at depth of 200 feet with scientist-diver descending to 250 feet (lower right). Other team members are in Sub-Igloo (center) and Shark Hunter Vehicle (center above), while support divers approach Perry Hydro-Lab (upper left). Tall cylinder on edge of coral reef is USIC (Undersea Instrumentation Chamber) housing oceanographic instruments. Three underwater safety stations containing air supplies are located along diver route for emergency use. Surface support vessels are the Undersea Hunter (left) and R/V Johnson.

## Major Fish Freezing Plant Agrees To Participate in DOC SIFE Program

The Bellingham Cold Storage Co., Bellingham, Wash., has signed an agreement to participate in the Department of Commerce's Sanitation Inspection Fish Establishment (SIFE) program.

The Company, which is participating through the National Marine Fisheries Service, is one of the largest freezing and processing facilities in the United States and is the largest cold storage plant using the sanitary inspection service offered by the Department.

As a qualified SIFE plant, the company will be listed in the "Approved List, Sanitarily Inspected Fish Establishments,"

a quarterly publication distributed to seafood purchasers listing plants that have been sanitarily inspected, approved, and certified by the USDC.

More importantly, since Bellingham is a SIFE plant, all companies having products custom processed and packed by Bellingham are eligible for contract product inspection. Companies whose product has been certified as meeting the requirements of inspected products will be allowed to display the Federal inspection marks on their products. This assures the consumer that the product complies with requirements of wholesomeness, cleanliness, sanitation, true weight, and good quality.



A NOAA UNIT CITATION has been presented to the staff of the National Weather Service Office in Nashville, Tenn., for its effective action in disseminating warnings during the disastrous tornado outbreak on April 3-4, 1974. In the photo (from left) are Glenn Stallard, Meteorologist in Charge of the Weather Service Forecast Office in Memphis, Tenn., who presented the award; Maurice W. Carter; Paul J. New; Raymond N. Burgess; MIC Cecil M. Palmer; Everett W. Carlson; Principal Assistant Charles S. Self; and Jack I. Merryman. George R. Lane and Edward T. Walker, Jr., were not present for the ceremony.

## SCORE To Study Deep Coral Reef Wall

(Continued from page 1) parable depths, to avoid the expense and complications of exotic gas mixtures."

Scientists will conduct experiments, make collections, and photograph the reef and its inhabitants. Scientific goals of SCORE are to:

- extend oceanographic, geological, chemical, and biological knowledge of the reef environment;

- supplement previous shallow-water studies of species compositions, distribution, abundance, and dynamics;

- obtain environmental data on reaction of a coral reef community to natural and man-induced stresses.

Dives are uncommon below 200 feet for scientific research on coral reefs. Those that have been made yielded species of coral, fish, algae, and other marine organisms new to the area—some previously reported only from single dredge hauls elsewhere. Preliminary research on some of the deeper dives also showed that biological zones are

very pronounced at depths in which most environmental conditions are relatively constant.

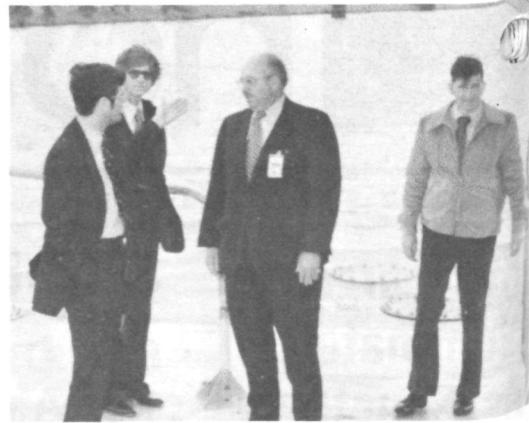
Data on the relationships between living organisms and their environment will assist scientists in identifying those factors that influence the distribution and abundance of the organisms, and their ability to survive under different types of environmental stress.

Seneca College of Applied Arts and Technology, King City, Ontario, Canada, will provide support divers for the SCORE operation, and scientist-divers from France and Germany will participate during two of the missions.

The decompression schedules for excursions from the Perry Hydro-Lab and for lockout dives from Johnson-Sea-Link were developed by Tarrytown (N.Y.) Labs., and extensively tested in the hyperbaric chamber facility at Duke University. Medical supervision will be provided by Harbor Branch Foundation Inc., with assistance from the MacInnis Foundation of Canada.

Photographed aboard a large NOAA environmental data buoy during the recent visit of U.S. Representative Trent Lott of

Mississippi to the National Space Technology Laboratories in Bay St. Louis, Miss., were (from left) Congressman Lott; Tom Anderson, his Administrative Assistant; James W. Winchester, Director of the NOAA Data Buoy Office, who described NDBO's program to



Congressman and conducted him on a tour of the NDBO facilities; and Ralph Dagnal of Sperry Support Services.

Congressman Lott, a member of the House Rules Committee and the Post Office and Civil Service Committee, met with heads of the several Federal and state agencies located at NTSL and viewed activities underway there.

## ERL Device Tested in Los Angeles

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which could become useful predictors for air pollution meteorologists.

The system consists of a "speaker," or transducer, that beeps sound pulses in a narrow beam vertically into the atmosphere. Signals from the transducer are guided by a horizontal cone onto the curve of a parabolic surface, which reflects and focuses them vertically into the air through an octagonal, acoustically insulated horn some 12 feet in diameter at its open end. The roughly cornucopia-shaped horn also "listens" for returning echoes.

The entire system is buried almost flush with the ground, and covered by a protective wire mesh. The installation at El Monte was made last summer by John Wescott and Larry Vohs, both of the Wave Propagation Laboratory. The sounder was developed under the Boulder Laboratory's Atmospheric Acoustics Program, directed by Dr. Freeman F. Hall.

Data from the sounder is recorded continuously at the Weather Service Forecast Office in Westwood.

Donald Lust, the NWS air pollution meteorologist using the acoustic data, has found the instrument useful for certain types of short-range forecasting. For example, it appears to give an indication an hour or two ahead of time of the breakup of coastal stratus, or low clouds. The acoustic record shows a vertical spreading of the thin cloud-top layer, which indicates more sunlight is getting through to the ground to cause thermals and vertical mixing from below.

Sounder data have also helped shape air-quality forecasts, sometimes showing an unexpected

lowering of the inversion base, which would indicate poorer-than-expected air quality in the Los Angeles basin.

After its quasi-operational use by the NWS, sounder data goes to the UCLA Department of Meteorology, where, under contract to the Wave Propagation Laboratory, Drs. Morton Wurtele and James Edinger using acoustic profiles to study the meteorology of the Los Angeles inversion.

The Los Angeles tests of the acoustic sounder are part of a "technology transfer" arrangement between the NWS and ERL. The type of acoustic sounder used in the Los Angeles evaluation is designed for locations with the persistent, low-level inversions typical of the California coast.

A larger acoustic system designed by the NWS Equipment Development Laboratory is being given a similar evaluation in the Philadelphia area, where weather conditions present a much different set of meteorological problems.

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Catherine S. Cawley, Editor  
Anna V. Felter, Art Director

## NGS Base Lines To Insure Accuracy of Surveyors

The National Geodetic Survey has announced a program to establish a system of electronic distance measurement calibration base lines which will enable surveyors who utilize electronic distance measurement equipment to calibrate their instruments to insure their accuracy, and thus the accuracy of their land measurements.

An NGS survey team comprising Marvin D. Crabtree and Charles W. Wright will establish measured lines, each about 4500 feet long and each measured within an accuracy of one part per million—equivalent to almost 100 percent accuracy. Between now and May 1 they will work in Florida, where approximately 21 calibration base lines are scheduled to be established. Time and weather permitting, base lines will also be established this year in Wisconsin, New Mexico, and New York.

The need for calibration base lines has grown as a result of the development of short-range electronic distance measuring instruments. These instruments have proven to be a valuable surveying tool with far better accuracies achieved. The instruments have increased production and have decreased costs due to the reduction in the personnel required for each surveying party.

The American Congress of Surveying and Mapping has been especially active in the effort to obtain electronic distance measurement calibration base lines.



Secretary of Commerce Frederick B. Dent (left) recently administered the oath of office as members of the National Advisory Committee on Oceans and Atmosphere to nine persons, including Dr. William J. Hargis, Jr. (right), Director of the Virginia Institute of Marine Science in Gloucester Point, Va. Dr. Hargis, who was reappointed to NACOA, was designated by President Ford as Chairman of the Committee. In the center is Dr. Robert M. White, NOAA Administrator.

## San Andreas Fault Being Surveyed

A National Geodetic Survey party headed by Ivan L. Crabbe is conducting measurements along the San Andreas Fault in Kern County, Calif., to determine how much the earth has shifted there.

The amount of crustal movement will be determined by measuring precise distances across both sides of the fault. The two crossings being measured are at sites located west of the community of Wheeler Ridge and east of Lebec.

## W.T. Hodge at NCC Is IFYGL Data Source

William T. Hodge of the Environmental Data Service's National Climatic Center in Asheville, N.C., has been named the new U.S. Data Manager for the International Field Year for the Great Lakes, replacing David Drury of the Center for Experiment Design and Data Analysis. The appointment was announced at the February meeting of the Canadian-United States Joint Management Team for IFYGL.

In this role, Mr. Hodge will answer all requests for IFYGL data from U.S. investigators.

The changeover marks a significant milestone in the orderly progression of IFYGL data from collection, through processing for participants, to archiving for dissemination to other users.

In early 1974, EDS designated NCC as the final U.S. archive for IFYGL data. CEDDA has now turned over to NCC all of the data for the permanent archive.

## Monroe Base Hosts First Tour Group

The Lake Survey Center's Engineering Division at Monroe, Mich., recently conducted the first tour of its facilities for a group of students from Monroe High School's Ecology Club, and their teacher and counselor, Mark Mabry. They were shown the electronic laboratory, the ships at dockage, the warehouse, and briefed on the various activities being carried out and the objectives of the Center's work under the National Ocean Survey.

## Oysters and Clams May Be Raised In Inland Areas

Fresh oysters and clams grown in Des Moines or, for that matter, any other noncoastal city in the United States could become a reality if Sea Grant scientists at the University of Delaware are on the right track.

A team of Delaware aquaculturists, working under a NOAA Sea Grant, has completed work on the first stage of a unique project which has as its goal producing fast-growing, palatable, disease-resistant oysters and clams that can be reared at a competitive price in a totally self-contained environment. When successfully developed, the system would be available for commercial adaptation anywhere in the United States.

Eight groups of 250 shellfish each are well into their second year of growth, thriving on diets of laboratory-reared algae in a closed (recycled) seawater system. So far, the clams are growing three to five times faster than they do in Delaware Bay, and the oysters about one-and-one-half times faster. Some of the clams in the initial crop already have grown to marketable cherrystone size.

The team of biologists, chemists, engineers, nutritionists, economists, and an attorney is under the leadership of Dr. Melbourne R. Carriker, Professor of Marine Studies at the University of Delaware.

In addition to providing the potential for a new industry, the aquaculture system could be used to produce seed for boosting natural stocks of oysters and clams, and possibly increasing commercial catches.

Groundwork for the aquaculture program got underway in the late 1960's, after an endemic disease had severely depleted the natural oyster stocks in Delaware Bay. To prevent a repetition of such a disaster, the University set out to establish a new system for producing shellfish that would be free of the vagaries of nature that could destroy the industry almost overnight.

Problems encountered in duplicating in the laboratory what it has taken thousands of years of evolution to develop included determining the ideal shellfish diet, anticipating the threat of disease, and monitoring and controlling waste products. Keeping costs in line with those of naturally grown shellfish, examining the legal problems of commercial aquaculture development, and eventually using natural, less expensive energy sources also are being considered.

The project's advantages apparent so far include potential year-round availability of fresh shellfish.



A NOAA UNIT CITATION has been presented to the Aerospace Observations Unit of the National Weather Service at the Weather Service Support Facility at the National Aeronautics and Space Administration's Wallops Flight Center, Wallops Island, Va., for its exceptional support to five special NASA programs in 1974. At the ceremony were (from left) Robert R. Westfall, Head of NASA's Data Acquisition Branch in the Wallops Operations Directorate; Aerospace Observing Specialist Hubert W. Sprouse; Kenneth M. Nagler, Chief, Space Operations Support Division, who presented the Award; AOS Ben C. Robbins; Meteorologist in Charge Lloyd W. Chamberlain; AOS N. Lester Troast, Jr.; Supervisory AOS Joseph D. Paranzino, Jr.; AOS Wayne R. Cornell; AOS Robert J. Mullin; and John F. Spurling, Head of NASA's Meteorological Projects Section in the Engineering Directorate of the Wallops Flight Center.

Not in the photo were AOS Earl R. Brown, Jr.; AOS Paul E. Murphy; AOS Norbert W. Novocin; and Herbert E. Chadwick, Chief, Upper Air, NWS Eastern Region Headquarters.

# notes about people

A DEPARTMENT OF COMMERCE BRONZE MEDAL was recently presented to Earl R. Krick (right), Chief Survey Technician of the NOAA Ship Fairweather by R. Adm. H.R. Lippold, Jr., Director of the National Ocean Survey's Pacific Marine Center in Seattle, Wash.

Mr. Krick was recognized for "outstanding contributions to the success of the missions" of the ship.



Thomas H. Grayson has succeeded Frank Lewis as Chief of the Computer Systems Branch of the National Weather Service's Techniques Development Laboratory at Camp Springs, Md. Mr. Grayson was previously assigned to the Objective Forecast Branch

of TDL, where he specialized in subsynoptic scale numerical modelling. He is currently enrolled in the Ph. D. program at the University of Michigan and is doing research on the mesoscale structure of Arctic air mass modification by Lake Ontario.

## THE ENVIRONMENTAL RESEARCH LABORATORIES' FIRST

PARTICIPANT IN THE COOPERATIVE EDUCATION PROGRAM, Madeline Randell, a sophomore at the University of Colorado in Boulder, is congratulated by Jack Kemper, Director of ERL's Research Support Services.



The nationwide program is designed to integrate academic classroom theory with practical work experience between employers, colleges, and universities.

John P. Webber, Chief of the Environmental Science Information Center's Libraries Division, has been appointed Special Assistant to the Center's Director. In his new position, Mr. Webber will be responsible for maintaining coordination between ESIC and other EDS Centers in such areas as literature

retrieval and data retrieval systems, international codes specifications, bibliographies and working group activities. He will also represent NOAA on departmental, interdepartmental, and other committees and advisory boards in the field of scientific information.

## RECENT SPECIAL ACHIEVEMENT AWARD RECIPIENTS include Physiologist Dr. Stanley Rice, Chemist Jeff Short, and Biological Technician Adam Moles, of the National Marine Fisheries Service Northwest Fisheries Center Auke Bay (Alaska) Laboratory.

(From left) Dr. William A. Smoker, Laboratory Director, presented the awards to Dr. Rice, Mr. Moles, and Mr. Short, for their work as key members of a research team conducting research to determine what concentrations of oil cause adverse effects on the marine resources of Alaska.



PARTICIPANTS IN THE NWS WEATHER RADAR COURSE 22 were (front row, from left) Richard Kirby, WSMO Marseilles, Ill.; Donald Redifer, NMC, Suitland, Md.; Howard Say, Jr., WSO Tampa, Fla.; Gerald Turner, WSO Medford, Oreg.; James C. Cloar, WSO Garden City, Kans.; Robert Nordland, WSMO Patuxent River, Md.; (standing, from left) Randall Tetzloff, RFC Tulsa, Okla.; Joel Wertman, Instructor; Roger Mallory, Jr., WSO Midland, Tex.; William Keating, WSO Jackson, Miss.; Alan Olson, WSMO Millington, Tenn.; William Scharnikow, WSO Atlantic City, N.J.; Melvin Fulcher, WSMO Chatham, Mass.; and Ralph Tice, Instructor.

## Coral Reef Area Off Key Largo, Fla., Is Nominated as Marine Sanctuary

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tion as a marine sanctuary, submitted by the Florida Department of Natural Resources, is a move to preserve the reef's ecosystem, parts of which are currently without protection.

Earlier this year the site of the wreckage of the Civil War gunboat USS Monitor, off Cape Hatteras, N.C., was designated as the country's first marine sanctuary, for its historic value. The coral reefs would be designated for their value as a natural resource.

Within the area, which is seaward of John Pennekamp Coral Reef State Park, is a wide variety of plant and animal life, featuring coral but ranging from plankton to giant jewfish and predatory shark. Of great importance is the fact that the reef is still "alive," the coral continuing

to grow and develop. Coral reefs recently have come under considerable stress from a variety of man's activities, which in some cases have killed reefs.

Under proposed terms of the nomination, removal or destruction of natural resources and marine life other than fish would be prohibited, as would dredging, filling, or polluting.

Fishing, skin diving and boating would be permitted under limited conditions, and the proposed sanctuary could be temporarily closed to public use to allow recovery from overuse and to permit scientific research relating to protection and management.

Dr. Robert R. Kifer, Marine Sanctuary Coordinator for OCZM, said the nomination proposes that the sanctuary be administered by the Florida De-

partment of Natural Resources, Division of Recreation and Parks. This agency would be joined by the state's Division of Marine Resources and the U.S. Coast Guard in enforcement of rules and regulations, according to the nomination.

Once the sanctuary is designated, it is proposed that permits would be issued for educational endeavors, scientific and industrial research, commercial fisheries activities, and recreational activities, all consistent with the rules and regulations.

An advisory board for the sanctuary also would be created, with members representing the National Park Service, the U.S. Coast Guard, the State Divisions of Recreation and Parks and of Marine Resources, the Board of Trustees of the State Internal Improvement Trust Fund, the

State Department of Pollution Control, and OCZM.

Violators of any rules and regulations of the Sanctuary would be liable to a fine of not more than \$50,000 for each day of violation.

Regular monitoring of uses of the sanctuary, and research on the effects of particular uses of the coral reef ecosystem would be conducted to ensure that the primary purpose—to preserve those ecosystems—is carried out. Additionally, surveillance of development activities along the coast of Key Largo will be conducted to make sure these activities do not adversely affect water quality and subsequent health of the coral reef system.



# **National Oceanic and Atmospheric Administration**

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