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Flash-Flood Warning Systems Successful, NWS Reports

The National Weather Service, as a result of markedly successful results from its new automatic flash-flood warning systems, is planning a major campaign to encourage greater use of these life- and property-saving devices.

The first of these automatic alarm systems was installed in Wheeling, W.Va., in May 1972. Since then, others have been installed in Plainfield, N.J.; Chester, Pa.; Wooster, Ohio; Waynesboro, Va.; Spring City, Tenn.; and Rosman, N.C. Two more are expected to be installed within the next few months in Maryland near Washington, D.C., and within a year, several dozen may be in operation, nationwide.

The flash-flood warning system has three main elements, linked together by electrical circuitry: an automatic water-level sensor at an upstream point on the river; an intermediate station several miles or more downstream to provide power to the sensor, and a community-alarm station from which warnings can be spread quickly to the public.

The upstream station has an enclosed float device which, when lifted by a critical level of rising water, activates an electrical current. This device may be mounted on an appropriate site such as a bridge support. When rising water triggers the device, the signal goes to the intermediate station--located where both electric power and telephone service are available--and finally to an alarm station in a facility manned 24 hours a day, seven days a week--such as a police station or firehouse.

The alarm itself may consist of a lamp that flashes and/or an audible signal such

(Continued on page 6)

MESA Funds Sea Grant to SUNY For New York Bight Atlas

As part of the concentrated study of the New York Bight area planned under NOAA's Marine Eco-Systems Analysis (MESA) program, a comprehensive preliminary atlas of the marine environment of the bight will be prepared by the State University of New York. A $125,000 Sea Grant has been awarded to SUNY to finance the project.

Through text and graphics the atlas will provide basic information on the region needed by Federal, state, regional, and local governmental agencies, by industry and commerce, and by citizens' groups concerned with the area's marine environment.

It will include existing information on biological and physical environments (including the atmosphere), the human dimension of the New York Bight, and man's impact upon the environment in the forms of social, commercial, and industrial development and concomitant pollution. Also covered will be the institutional structure of various agencies concerned with management of the bight area.

When published, the atlas material will be made available through NOAA to decision-makers in the region.

During the five-year New York Bight study program, NOAA and a number of other agencies will monitor and describe the physical, chemical, and biological processes of the marine environment, provide information and expert advice needed for effective management of the area, and analyze the impact of manmade alterations and natural phenomena on marine ecosystems.

The New York Bight was selected for the MESA project because it is an area of heavy environmental impact by population and economic development, and because of critical management decisions involved in the area's development.

Dr. Allan Hirsch directs the MESA Program.

Federal Survey Underway in Texas

A 170-mile survey of land elevations in Texas is being conducted by the National Geodetic Survey.

The surveyors will determine the elevation at over 170 sites in Texas. A 16-man team, headed by Lloyd F. Diez, will work from Conroe through Dodge to Riverside and a 20-man team, headed by James W. Taylor, will work from Sealy through La Grange and Bastrop to Austin.

Morgan Named NOAA's EEO Officer

Simon Morgan has been appointed Equal Employment Opportunity Officer for NOAA. He transferred to NOAA from the Department of Justice in July 1972, and has been serving as the Employment Policy Officer in the Planning and Evaluation Branch of the Personnel Division.

NMFS Forecasts Wide Choice Of Fish in Coming Weeks

The National Marine Fisheries Service says U.S. consumers can expect a wide choice of fresh and frozen fishery products during coming weeks, since June is a peak month for many fish which are marketed fresh. According to Acting Director Robert W. Schoning, only fish that has never been processed, frozen or otherwise preserved, is termed "fresh" by NMFS.

In New England, fresh cod, pollock, flounder, and ocean perch fillets are available in good quantities and prices for these items are reported reasonable. Markets in the mid-Atlantic States report abundant quantities of fresh sea trout, striped bass, and large bluefish; and in the South, fresh Spanish mackerel and sea trout are expected to be feature buys.

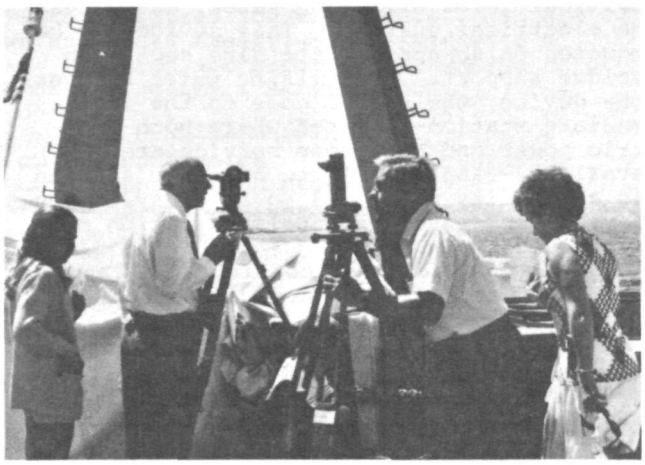
Consumers should benefit from a good season for Pacific cod and sole available fresh in the Pacific Northwest.

Frozen cod, flounder, turbot, ocean perch and haddock fillets, and fish sticks and portions, generally marketed nationwide, are also expected to be more abundant in the coming weeks than in 1972.

For the midwestern consumer, particularly near the Great Lakes, frozen lake smelt, ideal for pan frying, are expected to be available at reasonable prices.

Canned fishery products are also in good supply. Maine sardines represent a good buy nationwide, and tuna, as always, is a good protein buy and available practically everywhere in the country.

RAINIER Open House Attracts Record Number



A Sunday Open House attracted a record 528 people to the NOAA Ship RAINIER at its San Diego, Calif., base of operations during recently concluded hydrographic surveys off Southern California. The ship hosted those aboard to an "underway" experience of hydrography and oceanography without leaving the pier. Activities ranged from self-guided tours to participation with the crew in simulated underway operations.

Be sure to submit your entry in NOAA's special SAVE MONEY suggestion campaign by June 15. See NOAA WEEK dated May 11 for details.

Manmade Heat May Affect Climate Over Large Areas, ERL Man Says

Man is heating up this planet and--though his contribution is very slight in comparison to that of the sun--regions as large as the entire eastern seaboard could experience changes in their weather and climate patterns unless production of thermal pollution is slowed or stopped. This forecast is from Dr. James T. Peterson, a research meteorologist with the Environmental Research Laboratories' Air Resources Laboratories, currently assigned to the Meteorology Laboratory of the Environmental Protection Agency in Research Triangle Park, N.C.

According to Dr. Peterson, in some areas manmade heat emissions and a surface change from cover of vegetation to cover of building materials is already affecting the weather on a local scale:

- In Washington, D.C., the frost-free growing season is more than a month longer than that of adjacent rural areas.
- Snowfall and fog may be less and moisture content lower over large cities, while downwind, precipitation may increase by five to ten percent, and wind direction may be altered.
- Increased human discomfort during hot, summer conditions is also a result of changes in weather and climate on the urban scale.

One cause of these rising temperatures is waste heat--the thermal pollution caused by man's activities. Major contributors are automobiles, home heating, industrial processes, and electric power generation. All man-made heat is released to the atmosphere or earth, whether it has been used or wasted, and in sufficient quantities can be of importance climatically.

In a new book, Pollution: Engineering and Scientific Solutions, Dr. Peterson cites the work of computers which, programmed with mathematical models of the atmosphere, have been used to predict changes in climate. Various models indicate that when man's generation of heat equals one percent of the naturally absorbed solar energy, the average global temperature will increase by about one degree Centigrade.

Lt. Cdr. Lyons Becomes NOS Liaison in Miami; Cdr. Patrick Appointed GATE Logistics Officer

Lieutenant Commander Jimmy A. Lyons is the National Ocean Survey's new liaison officer in Miami, Fla. He will coordinate NOS activities in connection with research programs of the Atlantic Oceanographic and Meteorological Laboratories. He succeeds Commander Archibald J. Patrick, who has been named Logistics Officer for GATE (GARP Atlantic Tropical Experiment).

Commander Patrick

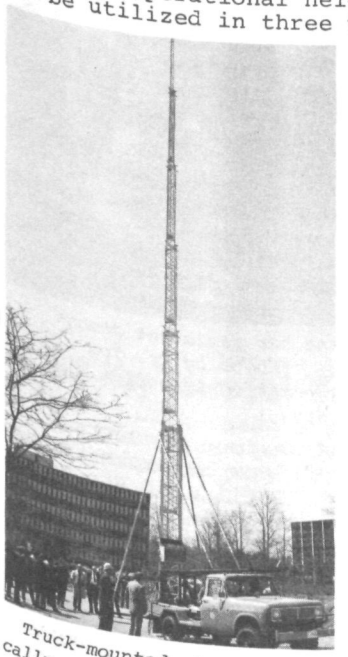
Commander Patrick will remain in Miami until the end of July, when he will report to GATE headquarters in Rockville, Md.

NGS Instrument Support Branch Develops Portable Steel Towers

Portable steel towers which can be set up quickly for use in geodetic surveying are being developed by the National Geodetic Survey's Instrument Support Branch at Corbin, Va., under the direction of George Lesley and Lieutenant Commander David M. Wilson. One is a truck-mounted electrically operated tower; the other a trailer-mounted hydraulic-powered structure.

The towers can be employed in conjunction with the portable steel Bilby towers used since 1927 by the NGS in its measurements throughout the United States. Under normal conditions, Bilby towers take five to six men about a day to erect and another three or four hours to dismantle. The towers under development normally can be erected by one man in 20 to 30 minutes.

The towers, which can be raised to an effective operational height of 75 feet, can be utilized in three ways: with a ground-controlled TV camera at the top to scan for obstructions between sites that would interfere with a clear line of sight for survey operations; with a mirror or reflector on which geodimeter observations could be made; or with a light on which angle measurements could be made with a theodolite.



Truck-mounted electrically operated tower raised to its maximum height of 75 feet.

Eventually, it is hoped an instrument will be developed enabling observations to be made from unmanned towers.

The TV camera on the experimental model can be rotated from the ground 360 degrees, and is connected to a TV set in the truck.

Lennon Named to Sea Grant Advisory Panel

Alton A. Lennon, former Congressman from North Carolina, has been named to the Sea Grant Advisory Panel. A Congressman from 1953 to 1973, when he retired to practice law in Wilmington, N.C., he served for some years on the House Merchant Marine and Fisheries Committee and was chairman of its Subcommittee on Oceanography.

The Sea Grant Advisory Panel is composed of members experienced in marine-related science, law, or industry. It assists NOAA by reviewing and evaluating proposals and on-going programs. The panel also meets to provide advice to NOAA in determining National Sea Grant Program policy and operational adequacy, and recommends candidates for Sea Grant College designation.

Thunderstorm Forecasts Are Automated by NWS

The National Weather Service's Techniques Development Laboratory has developed an automated system which produces probability forecasts of general and severe thunderstorm activity. The forecasts are generated from multiple linear regression equations derived by screening predictors from the National Meteorological Center's primitive equation model and TDL's three-dimensional trajectory model. Valid at 24 hours after initial data time, the forecasts are unconditional probabilities of general thunderstorms for the conterminous U.S. and conditional probabilities of severe thunderstorms for the U.S. east of the Rockies.

The primary purpose of the new product is to provide guidance to the National Severe Storms Forecast Center at Kansas City, Mo. The forecasts are prepared once a day at the NMC in Suitland, Md. Plotted data are available to the NSSFC forecasters via a Keyboard Cathode Ray Tube link; computer-drawn maps have also been transmitted since May 16 on the Forecaster's Facsimile (FOFAX) circuit.

The research and development effort was supported by the FAA and conducted in TDL by Ronald Reap and Richard Crisci.

NMFS Operating Fish Meal Inspection Program

A Federal inspection service is now available to the fish-meal industry from the the National Marine Fisheries Service to assist fish-meal manufacturers toward better control of salmonella bacteria in their plants and products.

Inspection is optional, with fees paid by the participating plant owners. Until recently a similar service was provided by the U.S. Department of Agriculture. The inspection will be performed by the NMFS in cooperation with other Federal and State agencies under guidelines, rules, and practices that have been approved by all concerned. The plants are inspected to assure conformance with sanitation guidelines, and the products are analyzed in a laboratory for the presence of the salmonella microorganism.

In 1972, the U.S. fish meal and fish oil industry processed nearly half the 4.7 billion pounds of fish and shellfish landed in the U.S.

The meal and condensed fish solubles are used in the manufacture of poultry and other animal feeds. Fish oil, which has many industrial uses, is an important U.S. fishery export item.

The fish meal inspection program will be centered at the NMFS Fishery Products Technology Laboratory in Pascagoula, Miss. Laboratory Director E. Spencer Garrett explained that in addition to nine personnel stationed there, approximately 15 U.S.D.C. inspectors throughout the Nation and in Puerto Rico will be participating in the program.

NODC Station Data System Saves Computation Time

The Environmental Data Service's National Oceanographic Data Center has implemented a new oceanographic station data system, Station Data II (SD-II), which stores data in a magnetic tape format far superior to that of the SD-I system. Among the advantages of Station Data II is the reduction in computer processing time needed to respond to a user request; jobs that previously took 45 seconds of central processing unit time to complete can now be accomplished in seven seconds. User charges will therefore be reduced in many cases. Another advantage is its capability to retain more of the content of the original observations.

The new format stores an oceanographic station as a single, variable length record. Fixed-length, 80- or 105-byte records,however, are also available on request. Those who prefer the old, less detailed, tape format may still request that the data be converted to the SD-I format.

WSR-57 Radar System Class Held in Kansas City

Participants in the WSR-57 Radar System Class held at the National Weather Service Technical Training Center from April 23-May 25 were (front row, from left) John C. Dewing, WSO Red Bluff, Calif.; Leslie L. Tyree, NHC, Miami, Fla.; Joe A. Mcham, WSO Jackson, Miss.; Gaylord A. Rainsbarger, WSMO Millington, Tenn.; Horace E. Johnson, WSO Pensacola, Fla.; (back row, from left) Edward F. Roberts Jr., WSMO Fort Worth, Tex.; Donald E. Worthington, WSFO Buffalo, N.Y.; Ardon W. Smith, NHC, Miami, Fla.; Bernard M. Tuohy, WSMO Portland, Maine; and (standing) Frank Branom, Instructor.

Fish Cookery Demonstrations Featured at Seafood Workshop

A group of 100 home economists from the Mississippi Extension Service and 15 from private companies attended a seafood workshop at Jackson, Miss., recently, which featured demonstrations of fish cookery by National Marine Fisheries Service Southeast Region consumer specialist Bertha Fontaine. Other subjects on the program

Mrs. Fontaine (left) and her assistant demonstrating seafood cookery. (Photo by Dr. Tom Wellborn, Mississippi Cooperative Extension Service, State College, Miss.)

were: History of the Seafood Industry in the Gulf of Mexico," "How to Smoke Fish," "How to Fillet Fish," "Outline of Proper Steps in the Home Freezing of Fish," and the NOAA movie "Take Two from the Sea." This, the first in a series of seafood workshops planned by the State of Mississippi to continue operating in the charge of a State Home Economist, served as a training course for future presentations. Cooperating in the event were the Mississippi Cooperative Extension Service, the NMFS Southeast Marketing and Extension Divisions, and the Mississippi Sea Grant Program.

NOVAC Annual Membership Campaign Underway in Washington, D.C., Area

Between now and June 22, NOAA Washington, D.C., area employees will be contacted by representatives of NOAA Voluntary Action, Inc., which is conducting its annual membership campaign. Established in 1971 to provide a focus for voluntary action primarily among NOAA employees, NOVAC now has several hundred members and is providing day care assistance to working mothers, emergency grants and loans to individuals met with unexpected financial crises, and counseling assistance on a wide variety of personal problems.

According to Robert Corbey of the Gramax Personnel unit, chairman of the campaign, member contributions constitute by far the largest source of income for NOVAC. Nearly half of the FY 1973 income of slightly over $7,600 came from member contributions. The FY 1974 budget is $8,050, of which $4,000 is expected from memberships.

Contributions in any amount may be made in cash or by payroll allotment. Those whose NOVAC contributions are already made by allotment need do nothing to continue their memberships. Those desiring to start an allotment should discuss the matter with their representatives, whose names are posted on bulletin boards throughout the Washington area.

Fisheries Center To Publish Gamefish Tournament Data

Details about 35 big-game fishing tournaments held in 1972--including locations and times of day where most fish were caught--will be published later this month by the National Marine Fisheries Service's Southeast Fisheries Center in Miami, Fla.

According to Dr. Grant L. Beardsley, Director of Investigations, "Oceanic Gamefish Investigations, 1972--Newsletter" results from a cooperative program between oceanic game fishermen and marine scientists, and consists of a register of catches of billfish and tunas in the Atlantic and Gulf of Mexico. The newsletter data measure catches of blue marlin, white marlin, and sailfish against the extent of effort expended to catch them in locations from Jamaica and Out Islands of the Bahamas, to coastal regions of the Gulf of Mexico and the southeastern U.S. It also shows the most favorable time of day for billfish catches, and gives historical data about weights and distribution patterns for the fish.

Program scientists hope to expand the gamefish sampling next year to include coverage of fishing tournaments from Venequela to Nova Scotia.

Copies of the newsletter may be obtained from Dr. Beardsley at the Southeast Fisheries Center, NMFS, NOAA, 75 Virginia Beach Drive, Miami, Fla. 33149.

Air Gun May Solve Hot Weather Fish Kill Problem

Working with funds provided, in part, by a NOAA Sea Grant, Dr. James H. Stone of Louisiana State University has developed an air gun which, by helping restore oxygen to ponds, could solve the problem of massive fish kills that plague southern states during the hot summer months. Water holds less oxygen as it becomes warmer, and fish populations--particularly in commercial ponds--become susceptible to kills during the hot months of August and September.

Dr. Stone's air gun is made of galvanized tin, has no moving parts, and can operate on an average-sized air compressor, such as those used in gasoline stations for filling car tires. It can be built for about $60, and cost of operation is estimated at about 20 cents a day.

The gun's "muzzle" is placed below the water's surface, air is pumped from the compressor through a flexible pipe into the bottom or bubble generator of the gun, and an explosive series of tiny bubbles is created, effectively aerating the water.

An average fish kill due to oxygen depletion can destroy up to 90 percent of the stock in a pond. Presently, commercial fish farmers can cope with the situation by reducing the number of fish per pond, which also reduces their profits, or by expensive aeration procedures. One of Dr. Stone's relatively inexpensive air guns can aerate a six-acre, four-foot-deep pond in a very short time.

Severe Thunderstorms Probed By Doppler Radars, Aircraft

Doppler radars and jet fighters have begun probing the threatening spring sky over Oklahoma in a series of experiments conducted by the Environmental Research Laboratories' National Severe Storms Laboratory in Norman, Okla. The project will continue through mid-June.

New combinations of equipment are expected to obtain a much-improved view of the processes in and around severe mesoscale storms. Mesoscale refers to the middle scale of atmospheric size and motion, such as squall lines which breed thunderstorms and tornadoes.

The 10-centimeter wavelength Doppler radar has been equipped with a mean-velocity processor designed at NSSL that displays velocity fields instantly on standard radarscopes. This velocity display will be tested to determine how well it can detect characteristic signs of intense thunderstorms and tornadoes.

Turbulence and wind fields within severe storms will also be investigated to improve understanding of such phenomena and to contribute to aviation safety. Studies of turbulence will use a modified Doppler radar on the ground and two research jets --Colorado State University's F-101 and an Air Force F-100--to probe the storms.

The modified Doppler radar is unique this year, for it mates one of the Oklahoma laboratory's Doppler radars with the Plan-Shear Indicator (PSI) developed at the Air Force Cambridge Research Laboratory, in Bedford, Mass.

The PSI provides an indication of strong wind shear (local variations in wind speed and direction) and turbulence on a map-like display over the entire range capability of the Doppler radar.

Scientists with the PSI-modified Doppler system will direct the aircraft to the storm selected for study, and simultaneous air-craft-radar turbulence measurements will be made between 7,000 and 30,000 feet. It is expected that about 20 data flights will be made during the experiments.

A "high pulse-repetition-frequency" addition, planned for the pulsed Doppler radar at Norman, is being implemented by the Oklahoma University's Electrical Engineering Department and will be used for tornadic wind speed measurements. The faster pulse-rate of this system is necessary to obtain an unambiguous velocity measurement of extreme tornado winds.

Jean T. Lee is the Laboratory's program coordinator for the airborne portions of the experiment; Dr. Richard J. Doviak leads the Doppler radar project. Partial funding for the turbulence studies is being provided by the Federal Aviation Administration, and for the tornado wind measurements by the Atomic Energy Commission. Rawinsonde balloon observations keyed to the experiment's schedule will be from the National Severe Storms Laboratory, Tinker Air Force Base, and Fort Sill, Okla.

length of service

National Weather Service Western Region employees who received Length of Service Awards in March were: 30 years - Ted WILEY, WRH Salt Lake City, Utah; Alice FELTCH, WRH Salt Lake City, Utah; Paul C. DRESSLER, WSO Tucson, Ariz.; William KLINE, WSO Santa Maria, Calif.; Marvin H. HOFER, WSFO San Francisco, Calif.; Dale R. HARRIS, WSO/Ag Riverside, Calif.; Edward REIMANN, WSFO Boise, Idaho; Harvey T. CHAN, WSO Astoria, Oreg.; and Michael LEWANDOWSKI, WSO Alameda, Calif. 20 years- Nile E. WOLTMAN, WSO Eugene, Oreg.; and John W. FASSLER, WSO Helena, Mont.

Raymond N. FUJIWARA, of the National Marine Fisheries Service Southwest Fisheries Center, Honolulu, Hawaii, received a Length of Service Award in March for 25 years' service.

John A. DASSOW, of the National Marine Fisheries Service Pacific Fishery Products Technology Center, received a Length of Service Award in March for 25 years' service.

Charles J. FROST, who serves aboard the NOAA Ship RAINIER, received a Length of Service Award for 25 years of service in March.

National Weather Service Southern Region employees who received Length of Service Awards in March were: 30 years - William R. WRIGHT, WSO Chattanooga, Tenn.; Daniel N. SELLERS, WSO Fort Worth, Tex.; Isom E. MEDFORD, WSO Houston, Tex.; James H. CANNON, WSMO Houston, Tex.; Perry J. EMMERT, WSO Jacksonville, Fla.; Rodrigo V. GONZALES, WSFO San Antonio, Tex.; and Robert J. CALVESBERT, WSO/CC San Juan, P. R. 25 years - Donald M. SCHULER, WSO Tampa, Fla. 20 years - Charles L. CHILDS, WSRH Ft. Worth, Tex.; Hugh B. RILEY, Sr., WSO Athens, Ga.; Robert J. COE, WSMO Centreville, Ala.; Mary T. WATSON, NHC Miami, Fla.; and Richard A. SNYDER, WSO Mobile, Ala.

National Marine Fisheries Service Northwest Fisheries Center employees who received Length of Service Awards in March were: 25 years - Thaddeus T. DEMBSKI and Richard L. FOUST.

Makoto KIMURA, of the National Marine Fisheries Service Southwest Fisheries Center, received a Length of Service Award in March for 20 years' service.

Albert L. COMISKEY, National Weather Service Alaska Region, received a Length of Service Award in March for 25 years' service.

National Weather Service Eastern Region employees who received Length of Service Awards in March, but whose names were inadvertently omitted when other March recipients were listed earlier in NOAA WEEK are: 25 years - Alfred C. LAPOLLA, ERH, Garden City, N. Y.; John LABAN, WSO Hartford, Conn.; and Herbert E. CHADWICK, WSSF Wallops Island, Va. 20 years - William T. COBB, WSO Norfolk, Va.; and William A. SCHARNIKOW, AWP, New York, N.Y.

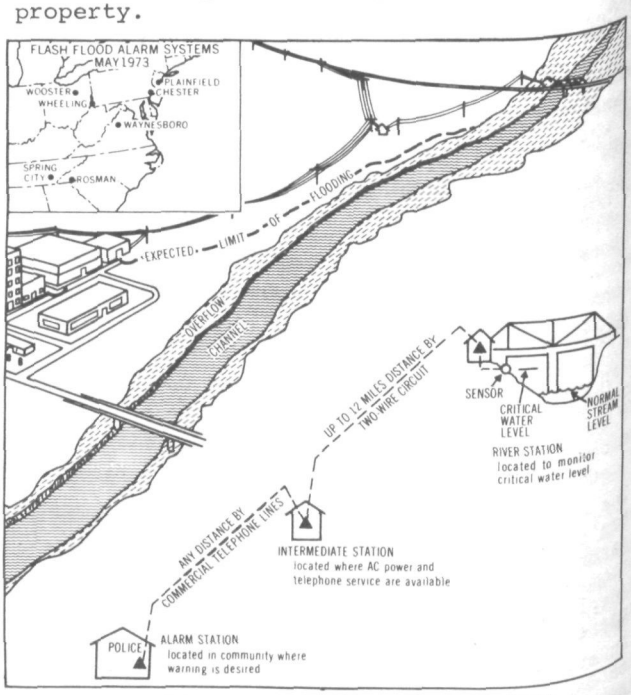
Lt. Cdr. Wyzewski Assigned To Special Weather Services

Lieutenant Commander Theodore Wyzewski has reported to the Special Weather Services Branch of the National Weather Service's Weather Analysis and Prediction Division to work in Marine Weather Services. He will assist Program Leader Max Mull in all the marine program activities. One of his first special assignments will be to work with the Coast Guard Headquarters Staff in a review of existing and planned marine weather dissemination facilities.

Lt. Commander Wyzewski has just completed a year of graduate work in meteorology and oceanography at the University of Maryland. His previous assignments included serving as Operations Officer on the RESEARCHER; as Weather Officer on the SURVEYOR and DISCOVERER; and in the Automated Analysis Branch at the National Meteorological Center.

Flash-Flood Warnings (Continued from page1)

as a buzzer, bell, or klaxon. When the alarm goes off, it is then the responsibility of local public-safety officials to take necessary action to protect lives and property.



A TYPICAL FLOOD-WARNING SYSTEM INSTALLATION

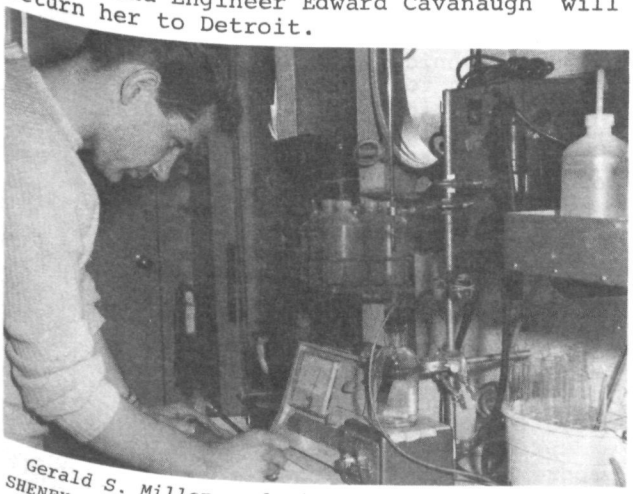
The NWS Office of Hydrology began installing these automatic devices after Hurricane Camille in 1969 released 27 inches of rain in about eight hours in Virginia, drowning 153 people. That tragedy led to development of the new system.

LSC's SHENEHON Participating In Study of Straits of Mackinac

The Lake Survey Center's 65-foot Research Vessel SHENEHON was sent to the Straits of Mackinac recently to take part in a summer project to study the currents and composition of the water that flows from Lake Michigan into Lake Huron through the Straits. The studies are a part of a reference by the International Joint Commission taken from the International Water Quality Agreement to study pollution on the upper Great Lakes.

Lieutenant David Stockwell and John Dungan, from the Water Motion Branch, will gather data relative to the currents in the straits. Party Chief James Gibson and Richard Gutleber and James Bouton,of the Water Characteristics Branch, will study the chemical characteristics of the flows. Although time-critical analyses will be made in the ship's well equipped scientific laboratory, water samples will also be sent to the Center's laboratory in Detroit for additional tests.

When the work is finished about the second week in November, Russel Ruh, Master of the vessel, and Engineer Edward Cavanaugh will return her to Detroit.



Gerald S. Miller analyzing samples in the SHENEHON's laboratory.

NMFS Biologist Co-Authors Hawaii Best-Seller

The recently published book "Hawaiian Reef Animals," by National Marine Fisheries Service research biologist Dr. Edmond S. Hobson and marine ecologist Dr. E.H. Chave of the University of Hawaii, is fast becoming a "best seller" in Hawaii. Over half of the first printing sold out within six weeks of publication, and the book, has now gone into its second printing.

The 135-page publication consists of 87 full color, full page photographs of Hawaii reef life and a text that combines scientific information with Hawaiian legends and folklore.

Dr. Hobson, a specialist of reef fishes and the ecology of coastal fish communities, with the Tiburon Fisheries Laboratory in California, is also an accomplished underwater photographer. He filmed the popular underwater movie "Why Biologists Dive," and is currently working on another film on the ecology and behavior of reef fishes.

WSFO Indianapolis Commended For Memorial Holiday Forecasts

Officials of the "Indianapolis 500" race, as well as state and local officials, were uniform in their praise of the services provided by the National Weather Service Forecast Office in Indianapolis, Ind., during the prolonged period of weather stress preceding and during this year's Memorial Day classic. The forecasts were never better, and the weather has seldom been worse. The race, delayed by rain for two full days and a half of the third day, was finally run on Wednesday afternoon, May 30, and was terminated well short of the scheduled 500 miles--by rain!

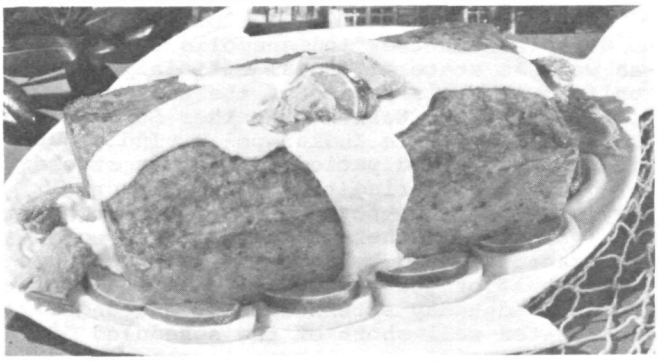
Meteorologist in Charge Glenn V. Sachse and his veteran crew--Principal Assistant W. Gordon Wylie and Forecasters Elroy C. Jagler, Fred R. Maher, Edward T. Sjoberg, Ray E. White and Erwin Varns--knew what to expect: that they would be pressured for advice by officials at every level of state and local government; beseiged by inquiries from newsmen and disc jockeys from across the Nation--as well as from the general public; and flooded with briefing calls from a thousand private and executive aircraft. They were ready for all, because they began their planning months ago, and practiced their procedures well ahead of time.

About their performance during the holiday period, an editorial in the Indianapolis Star of May 30 stated in part, "Timely warnings of tornado-spawning conditions from the U. S. Weather Service broadcast frequently on Sunday, surely helped prevent deaths and injuries in Indiana."

Auke Bay Lab Visit Part of Enrichment Program

School children from Elim, Alaska,an Eskimo village on the Seward Peninsula,watch a movie on sockeye salmon at the National Marine Fisheries Service's Auke Bay Laboratory. Their visit was part of an enrichment program sponsored by the Bureau of Indian Affairs under which pupils from remotely located Alaskan villages are taken on six-week trips to various places of interest. They also attend classes at Oregon College of Education, Monmouth, Oreg., and board in local homes. Standing at rear of photo are Joseph Ellison, BIA , and chaperones.

recipe of the week



CHIPPER SALMON LOAF

2 cans (1 pound each) salmon
1/2 cup chopped celery
1/2 cup chopped onion
2 tablespoons butter or margarine
1 can (10-1/2 ounces) condensed cream of celery soup
3 eggs, slightly beaten
1-1/2 cups finely crushed potato chips (about 6 cups whole chips)
2 tablespoons chopped parsley
1 tablespoon lemon juice
1/2 teaspoon marjoram
Fluffy Lemon Sauce

Drain salmon; reserve 1/2 cup liquid. Mash bones. Flake salmon. Cook celery and onion in butter or margarine until tender. Combine with remaining ingredients; mix well. Fold in salmon. Grease loaf pan, 9 by 5 by 3 inches. Line bottom of pan with aluminum foil and grease foil well. Fill pan with salmon mixture. Bake in a moderate oven, 350° F., for 50 to 60 minutes or until firm. Let stand 10 minutes before removing from pan. Serve with Fluffy Lemon Sauce. Makes 8 to 10 servings.

Fluffy Lemon Sauce

2 tablespoons butter or margarine
2 tablespoons flour
1/2 teaspoon salt
1/4 teaspoon paprika
1-1/4 cups milk
1/2 cup salad dressing or mayonnaise
2 teaspoons lemon juice

Melt butter or margarine. Blend in flour, salt, and paprika. Add milk; cook, stirring constantly until thickened and smooth. Add salad dressing or mayonnaise and lemon juice; stir and heat to serving temperature. Serve over Chipper Salmon Loaf. Makes about 1-3/4 cups sauce.

Cooperating Observatory Work Of Three EDS Men Recognized

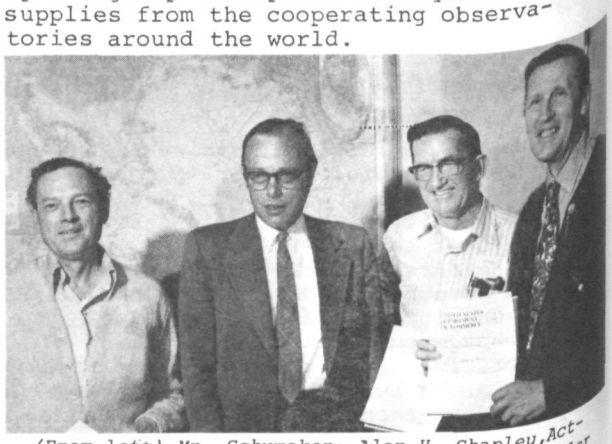
Roy M. Schumaker, Marion L. Ridlen, and John J. Pitts, of the Data Operations Group in the Boulder, Colo.,-based National Geophysical and Solar Terrestrial Data Center of the Environmental Data Service, have received Special Achievement Awards for dedication to work in support of the Cooperating Observatory Program. The program provides assistance to ionospheric observatories in key geographical locations which share their data with the Nation's scientists and engineers through NOAA's data centers.

Mr. Schumaker, an electronics technician, succeeded in improvising repairs to obsolete equipment when no new parts were available and has repaired and rebuilt electronic units which had been modified almost beyond recognition during their years in the field. He also accomplished the "debugging" of refurbished equipment at the Boulder Ionosphere Station to insure that the units shipped to remote stations were in the best possible operating condition.

Mr. Pitts, an electronics technician, was honored for continuing the refurbishing of equipment at a rapid pace in the face of many technical and administrative obstacles, and for providing prompt and helpful technical advice to remote stations in the observatory network in an effort to maintain data quality at the highest level possible with the equipment available.

Mr. Schumaker and Mr. Pitts both made substantial contributions to the successful completion of equipment for stations at Maui, Hawaii; Qanaq, Greenland; Gainesville, Fla.; and White Sands, N. Mex. Three pieces of equipment were also completed for loan to the French government and one for the Boulder Ionosphere Station.

Mr. Ridlen, a supply specialist, was cited for his success in reorganizing the procurement and supply function of the program which, as a result, has speeded up the group's response to requests for supplies from the cooperating observatories around the world.



(From left) Mr. Schumaker; Alan H. Shapley, Acting Director of the National Geophysical and Solar Terrestrial Data Center; Mr. Ridlen, and Mr. Pitts.

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