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

noaa week

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U.S. Coastlines Jeopardized, Coastal Zone Document Warns

[illegible]ard office of Coastal Zone [illegible]agement document warns the nation's coastlines are in serious jeopardy because of increasing and conflicting demands being placed upon them. The coastal zone already is hard-pressed to accommodate huge numbers of people, but more are on the way. Today, for example, over one-half of the U.S. population lives within 50 miles of the seashore, but by the year 2000 that number is predicted to rise to four of every five Americans or 225 million people.

Posing an even greater problem, meanwhile, are oil refineries, airports, beaches and beach homes, highways, harbors, power plants, wildlife refuges, and commercial establishments—all competing with one another for the narrow strip of shore.

"State Coastal Zone Management Activities," a summary of problems and plans for corrective action in 31 of the 34 states and U.S. territories with coastlines, draws a stark picture of the stresses to which the coastal areas are being subjected.

But the document—in effect the first progress report of how states are utilizing the Coastal Zone Management Act of 1972 and approximately $8 million in federal funds, administered [illegible]rivOAA, it made available together with $5 million in state funds—also presents a hopeful view, provided the plans of the participating states are carried out to fruition.

Under the Coastal Zone Management Act, states may receive three annual grants to develop their program and a secondary grant to implement the plan. The law requires, however, that states contribute 50 cents in state matching funds for every $1 that OCZM provides. Of the states eligible to receive the grants, only Indiana, Guam, and American Samoa have yet to apply for them.

The "implementation" or administrative grants which OCZM awards are made only after the state's development plan has been approved by the Secretary of Commerce.

States which border the Atlan-

(Continued on page 3)

ERL Scientists Discover Tornado 'Signature'

The tornado that struck Union City, Oklahoma in May 1973, could mark a turning point in the study and eventual prediction of these destructive whirlwinds.

NOAA researchers who are studying the storm have discovered what they believe may be a new radar "signature" for tornadoes. It is the first time a tornado itself, not just the larger circulations associated with tornadoes, has been detected by radar.

It is also the first time severe storm scientists have observed what they believe may be the birth of a tornado within the parent thunderstorm.

By tracing this distinctive signature through the physical extent and lifespan of the tornado, the scientists found that the vortex that becomes a tornado may develop in the middle levels of the storm, long before the funnel begins to stretch toward earth; and, that it reaches upward as well as down, a whirling core within the towering storm.

Meteorologists Donald W. Burgess, Leslie R. Lemon and Rodger A. Brown of the Environmental Research Laboratories' National Severe Storms Laboratory in Norman, Oklahoma, made these discoveries from observations of the Union City tornado with the laboratory's powerful Doppler radar.

Doppler radar determines the velocity with which an object is moving toward or away from it by measuring the change in frequency, or Doppler shift, of radio signals reflected from the target.

They found that adjacent radar sections or "gates" of the storm showed high velocity winds moving in opposite directions. Winds on one side of the tornado funnel were moving toward the radar at 65 miles (104 kilometers) per hour, while on the other side, less than a kilometer away, they were blowing just as fast in the opposite direction.

Two adjacent streams of air moving in different directions or at different velocities creates a condition known as wind shear. Since winds at one side of a vortex would be moving toward the

(Continued on page 4)

Michigan Sea Grant Provides Assistance For Lakes' Research

NOAA has awarded a $450,000 grant to scientists at the University of Michigan to conduct research on Great Lakes shore erosion and improved shore-protection structures.

Abnormally high water levels in the Great Lakes have caused serious erosion of the shores of Lakes Michigan, Huron, and Superior. The Michigan Sea Grant team has gathered economic data on the resulting damage for analysis, while a related study will examine growth patterns and policies along the state's shorelines. In addition, historical records will be reviewed to compile a history of lakeshore erosion, particularly between 1860 and 1890 when water levels were higher than they have been at any time since then.

Several low-cost structures for reducing the rate of shoreline erosion have been designed and are being tested at 18 sites on the three lakes. Groins, revetments, seawalls, and breakwaters are intended to be suitable for installation by coastal property owners. Sea Grant scientists will continue to monitor the effect-

(Continued on page 4)

Leading Importer of Fisheries Products Joins Department's Inspection Program

Shamrock Fisheries, Inc., one of the largest inporters of fishery products in the country, has joined a Department of Commerce inspection program aimed at assuring product quality.

The Boston corporation has contracted for lot inspection of all imported and domestic fisheries products merchandised by the firm. The inspection will be conducted on a fee basis by the National Marine Fisheries Service.

Shamrock specializes in groundfish products which are primarily by the food services market.

The inspection service includes technical assistance in developing purchasing, processing, and end-product specifications; determining compliance with Shamrock's requirements by testing and analyzing the imported seafoods for wholesomeness, quality, and condition. The importer is also assisted with product labeling and quality assurance problems.

Shamrock imports about 60 million pounds of seafood annually from Japan, South Africa, Argentina, Norway, Denmark, England, Holland, and Canada.

notes about people

Richard C. Hagan has entered on duty as Meteorologist in Charge of the Savannah, Ga., National Weather Service Office. Mr. Hagan transferred from WSFO Memphis.

Gloria E. Shelton, an employee of the National Weather Service Systems Development Office's Equipment Development Laboratory, has become NOAA's first woman Electronics Technician.

William M. Nicholson, Associate Director, Office of Marine Technology, National Ocean Survey, has returned from a trip where he accompanied members of the U.S.-Japan Marine Facilities Panel of which he is Chairman to Fairbanks, Alaska, Portland, Oreg., Seattle, Wash., San Francisco, Calif., and Hawaii, where they inspected places of interest to the Japanese.

Gerald O'Brien, Robert Saffle, Janet Hense and Paul Wofsy, of the Weather Service's Systems Development Office, Digitized Radar Experiment (D/RADEX) Project, were recipients of a Unit Citation for their valuable contribution and superior performance in the application of computer technology to the radar program of the NWS.

Dr. Frederick J. Smith—Professor and Extension Marine Economist at Oregon State University, and presently assigned to the Office of Sea Grant as Associate Program Director for Grants Management—has won the American Agricultural Economics Association's Distinguished Extension Program Award for 1975.

Dr. Hoyt Wheeland recently departed NMFS to become the Senior Fishery Officer for the Food and Agriculture Organization in the South China Sea Fisheries Development Programme in Rizal, Philippines.

Howard Booker and John Blagaila of the National Ocean Survey's Lake Survey Center Engineering Division Instrument Branch have completed a field maintenance trip to Fairport and Ashtabula, Ohio. The Hydrographic Section is currently in the area, working east of Fairport on the south shore of Lake Erie, using the S.V. Laidly and the S.B. Big Toot to run hydrographic data collections. Part of the inspection team's activities included checking the field party's electronic equipment and demonstrating the use of the new HYDROPLOT-HYDROLOG system for personnel who have recently joined the party.

Maynard W. Zlomke of the North Platte, Nebr. National Weather Service Office has been awarded the Department of Commerce Bronze Medal "in appreciation of outstanding dedication to the missions of the National Weather Service."

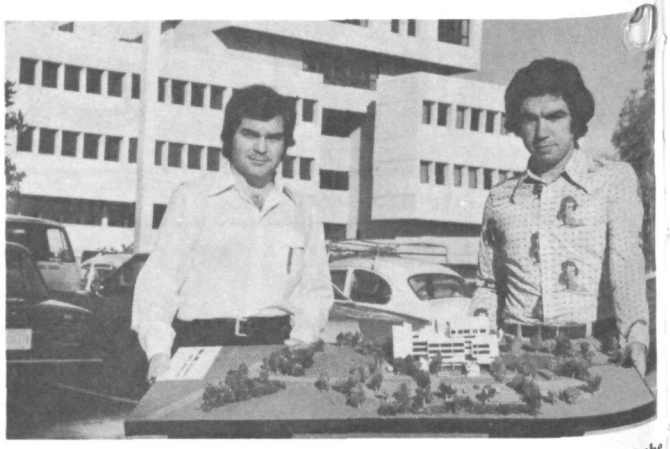
Mr. Zlomke was particularly recognized for his outstanding performance during a career which has spanned the field of Meteorology and electronics with tours of duty in the Western Pacific, Alaska and the "lower 48".

Laverne M. Wermich of the Chicago, Ill., Weather Service Forecast Office has been awarded the Department of Commerce Bronze Medal "in appreciation and recognition of long and meritorious service, high standards of excellence and effective leadership".

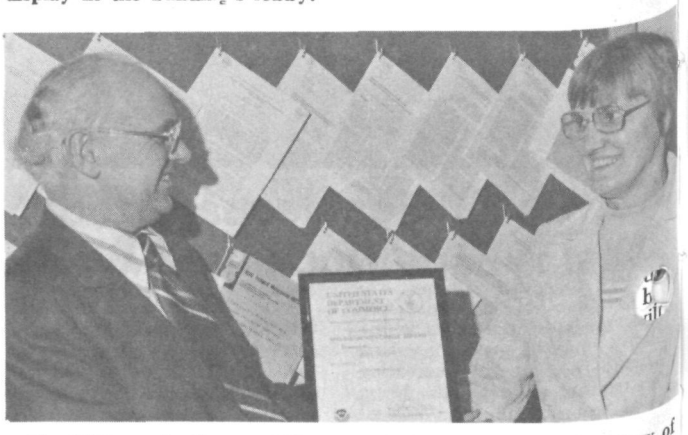
Miss Wermich, as supervisor of the Chicago Forecaster Aide Staff since 1960, has shown exceptional competence as chief communicator. Her outstanding performance significantly contributed to the success in Illinois of the NWS' Mission to Disseminate Forecasts and Warnings.

Richard M. Reesor (right) Official in Charge of the Rockford, Ill., National Weather Service Office has been awarded the Department of Commerce Bronze Medal "in recognition of outstanding accomplishments as Official in Charge of the Rockford Weather Service Office since 1969". Particularly outstanding has been Mr. Reesor's efforts with northwestern Illinois communities, government agencies and the news media toward improving the local severe weather and flash flood forecasting and warning program.

The award was presented by Robert C. Baskin, (left) Deputy Director, NWS Central Region.



Julio Diaz (left) and Lazaro Rodriguez, part-time employees of the Environmental Research Laboratories' Atlantic Oceanographic and Meteorological Laboratories, recently presented this scale model of the AOML facility to Director Harris B. Stewart, Jr., for permanent display in the building's lobby.



Dr. William A. Smoker, Director of the Auke Bay Laboratory of the National Marine Fisheries Service Northwest Fisheries Center, presents Helen Fleischhauer with a special achievement award for the high quality of her work as Technical Publications Editor for the Laboratory.

Labor Negotiations By Phone

The AFGE Local 2342, WSO Rapid City, South Dakota, in negotiating a recent Labor-Management Agreement, established what is likely a landmark in Laboratory Management cooperation. The Local, being aware of the tight budgetary situation, suggested negotiations be conducted by telephone. The resulting three-year agreement became effective May 30, 1975.

Don Halligan (left), Meteorologist in Charge and Arnold Deutscher, Vice President of the NWS unit of AFGE Local 2342, working out details in the Agreement with Central Region Headquarters by FTS.

noaa week

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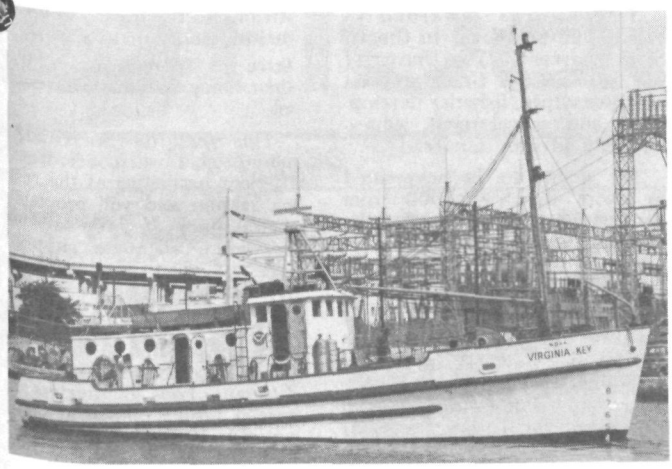
Catherine S. Cawley, Editor
Warren W. Buck, Jr., Art Director

Two-Week Data Gathering Trip Aboard Research Ship



The NOAA research vessel Virginia Key departed Dodge Island recently to gather data from the Gulf of Mexico in support of the circulation modeling work being conducted with funding assistance from the Bureau of Land Management and the National Science Foundation. Dr. Robert Molinari of the Environmental Research Laboratories' Atlantic Oceanographic and Meteorological Laboratories is Chief Scientist for the project, and Mr. Burnham Neill is Captain of the Virginia Key. This cruise is planned for two weeks during which time current measurements of the Yucatan-Loop-Florida Current system are to be made by means of free drifting surface floats and supported by density measurements.

NOAA Ship Orders New Microscope, Receives Bonus from Manufacturer

The NOAA Ship Miller Freeman recently ordered a Nikon brand microscope for use in conducting scientific research aboard the vessel. The company, in a public-spirited effort to enhance the scientific capabilities of the ship, substituted a more advanced model microscope for the one ordered.

Mr. Chuck Berger (right), regional manager for Nikon Instrument Division West, is explaining the operation of the microscope's camera attachment to Lieutenant Wayne L. Perryman while Vincent Johnson (left), the local representative, looks on.

Free Data Services for NOAA Researchers Now Available

Free environmental data and information referral services are now available to NOAA scientists and managers through the Environmental Data Service's ENDEX/OASIS systems. ENDEX (Environmental Data Index)/OASIS (Oceanic and Atmospheric Scientific Information System) provides rapid, computerized referral to interdisciplinary sources of environmental data, technical literature, and research in the environmental sciences and marine and coastal resources. Searches can be requested by visiting, calling, or writing any of the NOAA libraries, EDS centers, or EDS liaison officers.

The locations listed below have on-line computer terminals that provide the user fast service and an opportunity to interact with the data base. Marine and Earth Sciences Library, Rockville, Md. (301-496-8022); Atmospheric Sciences Library, Silver Spring, Md. (301-427-7800); Marine and Earth Sciences Library, Washington, D.C. (202-634-7346); National Oceanographic Data Center, Washington, D.C. (202-634-7500); NOAA Miami Library AOML, Miami, Fla., (305-350-1330); National Climatic Center, Asheville, N.C. (704-254-0680); NODC/Liaison Officer, Woods Hole, Mass. (617-548-1400, ex.546); Great Lakes Technical Library, Detroit, Mich. (313-226-6126); Chief, Library Services ERL, Boulder, Colo. (303-499-3788); NODC/Liaison Officer, La Jolla, Calif. (714-453-2204); and NODC/Liaison Officer PMEL, Seattle, Wash. (206-543-5276).

NOS Surveys Conducted In New York, Ohio, and Michigan

New York

A geodetic survey, extending from Malone to Utica, is being conducted in upstate New York along a 165-mile route to determine if the Adirondack Mountains are rising or falling.

The Federal surveyors will remeasure more than 165 elevations along the route for comparison with elevations from a 1931 survey to determine if the mountains have moved vertically.

The 165-mile route is part of the national network of elevations maintained by the National Geodetic Survey, which also maintains a similar national network of distances. The networks form the basis for accurate land measurements in the United States and are surveyed periodically because of changes resulting from movements of the earth's crust.

The 1931 survey of elevations was carried out along then-existing railroad lines from Malone to Utica via Owls Head, Rainbow Lake, Tupper Lake and Old Forge. The new survey will generally follow existing roads and checks will be made where feasible to the old work. The route will pass through the counties of Franklin, St. Lawrence, Hamilton, Herkimer and Oneida.

The survey is being conducted by a 15-man field party headed by James W. Taylor of Lodi, Calif.

Ohio

A geodetic survey, involving highly precise land measurements, will be made in Portage County, Ohio, by NOAA.

The survey will be completed next summer, and will be made at an estimated cost of $225,000 by the National Geodetic Survey under a cooperative program with Portage County in which each will defray 50 percent of the cost.

Preliminary field work is already underway by a reconnaissance party. When the actual survey begins, the team will use portable steel towers, some nine stories high, and laser electronic instruments during the project, which will involve the determination of 40 to 50 geographic positions (latitude and longitude) spaced over the entire County.

The extensive project is designed to provide accurate and accessible starting points for engineers and surveyors. Geographic positions of the points will be converted to state plane coordinates, a simplified local system of control. The coordinates will be used by Federal, State, County and local agencies for mapping, locating permanent boundaries, planning, and alignment of highways and public utilities.

Michigan

The Lake Survey Center's Vertical Control Section just completed observations on a first order level line between Escanaba and Marquette, Mich., a distance of approximately 116 Km (72 miles). The level line was established to provide an additional connection between Lake Michigan and Lake Superior to assist in the Center's continuing evaluation of the International Great Lakes Data-1955. A tie into NOAA's National Vertical Control Network, established by the National Geodetic Survey, was made in the vicinity of Gladstone, Mich.

The Vertical Control field party consists of three permanent party members, Arthur Christenson, party chief, Fred Priebus and Edward Iwasko and four temporary helpers. These are George Schochtert, Melvin Breitkreitz, Bruce Bock and Gerrainne M. Nowacki, a Michigan State Co-op student.

The team has begun observations along a level line between the Sturgeon Bay Canal and Manitowoc, Wis.

Coastlines

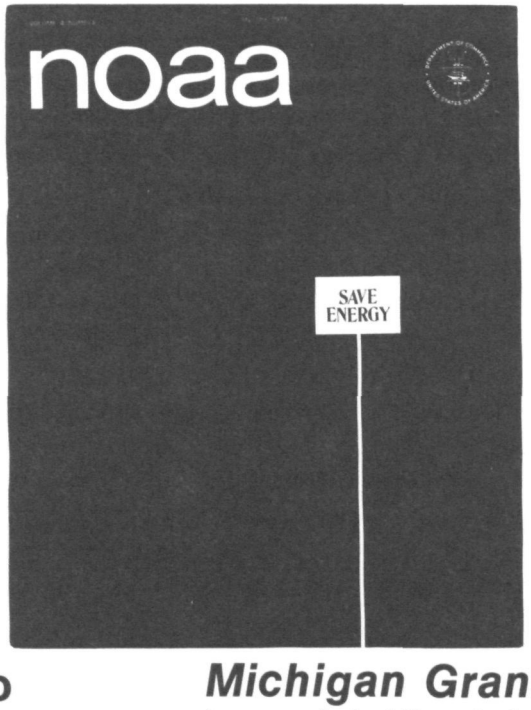
(Continued from page 1)

tic and Pacific Oceans (as well as the Great Lakes) face enormous problems ranging from conflicting land uses and the siting of energy facilities to revitalization of coastal fisheries.

Exactly how the states and territories propose to attack these problems was the basis for the recent state summary. The 125-page document identifies for the first time the specific problems facing each state and suggested methods for solving them. It also defines, for the sake of planning, each state's intended coastal zone boundary.

NOAA Magazine Cover Design Places Third in Competition

The cover design of NOAA Magazine January 1974 won third place in the Industrial Arts Methods (IAM) Magazine's Seventh annual contest—a top national competition among designers in both Government and industry. IAM said, "You can't get more of a bang into any message, than the strong, simple IAM Third Award winning cover of NOAA, the quarterly magazine issued by the National Oceanic and Atmospheric Administration of the Department of Commerce. It's just black and white, and who needs more with any idea as creative as this one, by Designer/Art Director William N. Welsh."



OSU Sea Grant Program In Eighth Year, $1,500,000 Award Goes to University

NOAA has awarded a $1,550,000 Sea Grant to Oregon State University. The University will focus its Sea Grant program on aquaculture, fisheries development and management, education, and advisory services.

The grant, to be augmented by more than $900,000 from non-federal sources, marks the university's eighth year of participation in the National Sea Grant Program.

For the past several years, aquaculture scientists at O.S.U.'s Netarts Bay hatchery have been evaluating releases of chum salmon fingerlings from special stream-side incubators. Last year 3,000 mature salmon returned to the hatchery and over two million eggs were distributed to commercial firms.

"Techniques developed at Oregon," said Dr. Robert B. Abel, Director of the Office of Sea Grant, "have led to the commercial development of 'ocean ranching' in the Pacific Northwest as well as Alaska. Young salmon are released through streams to the ocean, where they mature and, after a period of three or four years, return to their home streams to be harvested."

This year, the Sea Grant salmon project will concentrate on efficient harvesting of the returning salmon and will propagate a special stock of chum salmon to ensure an adequate supply of eggs and sperm for commercial hatcheries.

Other research related to fisheries has resulted in the breeding of more than 100 genetically different lines of oysters in a special project aimed at creating superior strains of shellfish, and in the development of 30 experimental crab pot designs. The pots were used in 1974 to catch some 6500 Dungeness crabs to obtain data on the industry.

Additional aquaculture studies will involve determining the nutritional requirements of trout, continuing the selective breeding of oysters, studying the marketing problems associated with the aquaculture industry in the Pacific Northwest, and testing various vaccines to control vibriosis, a disease that causes high mortalities among fish raised in captivity. This last project has already resulted in a oral vaccine that is administ in fish food and shows promise of being an inexpensive and effective method of dealing with the disease.

Fisheries scientists at Oregon State will continue their investigations of the Dungeness crab fishery, which has fluctuated widely in recent years, including a study to determine the biological consequences of harvesting female crabs. It is presently illegal to take female Dungeness crabs from Oregon waters.

Tornado

(Continued from page 1)

observer while those on the opposite side would be moving away, the NOAA researchers deduced the observed "gate-to-gate" wind shear to be the radar signature of a vortex.

The NOAA researchers began scanning the thunderstorm that spawned the Union City tornado 23 minutes before the tornado touched down, and continued scanning until after it dissipated.

They found that the radar signature was not limited to the visible funnel dangling from cloud base to earth, but seemed to reach from the ground to a height of at least six miles (10 kilometers)—more than halfway up to the top of the storm. The signature could be discerned in the middle levels of the storm from the time when they first started the radar observations.

The three researchers believe all this may mean that the tornado began with a core of spin in the middle of the storm. Theoretical models of tornadoes had predicted how some initial source of spin in the vicinity may be picked up and concentrated in the storm to become a tornado, but where in the cloud the tornado rotation begins was unknown. In the Union City tornado, the initial rotation was actually observed for the first time, and, at least in that case, the tornado seems to have been born in the middle levels of the storm, several kilometers above the ground, and then worked its way downward.

Michigan Grant

(Continued from page 1)

iveness and durability of the structures, and also will use laboratory models to test and compare protection methods.

The University will continue its public education program in diving safety, collecting information on the number of recreational scuba divers in the state and the actual amounts of diving activity, as well as investigating non-fatal diving accidents to learn how fatalities were averted.

Michigan's Sea Grant marine advisory services will emphasize coastal policy information and fisheries economics, marketing, processing, and biology. A newly established working relationship between the University of Michigan Sea Grant Program and Michigan State University's Cooperative Extension Service has permitted expansion of the marine advisory network to all of the state's 41 coastal counties.

To assist Great Lakes fisheries management, Michigan Sea Grant scientists will collect data on catches of major fish species compared with the fishing effort expended.

The funds will be matched by an additional $369,000 provided by the university for its Sea Grant research, education, and advisory programs during the coming year.

Buoy Deployed To Test Water Quality

A deep ocean automated data gathering buoy equipped with experimental water quality indicating systems developed under the direction of the NOAA Data Buoy Office at Bay St. Louis, Miss., has been deployed approximately 38 miles east of Ocean City, Md., to monitor the effect of industrial and municipal wastes on surrounding waters.

The data collected by the buoy, located near several municipal ocean dumping grounds, will be furnished by the Environmental Protection Agency and correlated with water sampling data collected by that agency.

The water quality indicating systems were designed to determine the feasibility of attaining water quality measurements from buoys and other unattended ocean platforms. The systems were integrated into a small, vertical cylinder environmental buoy designed to remain at an ocean site for up to three months. The unattended buoy can relay data on temperature, the amounts of molecular oxygen acidity, suspended solids and algae growth.

Bowlers Needed

The NOAA Mixed Tenpin League will resume its recreational activities beginning at 6 p.m. September 8, 1975, at Brunswick River Bowl, 5225 River Road, Bethesda, Md. The league needs individual bowlers and substitutes. Further information may be obtained from Beverly Thompson (IDS Code 146-8714).

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 fillets of cod and pollock along the Northeast Seaboard; grey sea trout and croaker in the Middle Atlantic States, including the D.C. area; fresh pompano and red snapper in the Southeast and along the Gulf Coast; fresh whitefish and pan dressed smelt in the Midw fresh pink salmon and snapper fillets in the Northwest; and squid a Alaskan King crab claws in the Southwest.

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National Oceanic and Atmospheric Administration

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