



### **NOAA In Your State**



NOAA is an agency that enriches life through science. Our reach goes from the surface of the sun to the depths of the ocean floor as we work to keep citizens informed of the changing environment around them. From daily weather forecasts, severe storm warnings, and climate monitoring to fisheries management, coastal restoration and supporting marine commerce, NOAA's products and services support economic vitality and affect more than one-third of America's gross domestic product. NOAA's dedicated scientists use cutting-edge research and high-tech instrumentation to provide citizens, planners, emergency managers and other decision makers with reliable information they need when they need it.

The following is a summary of NOAA facilities, staff, programs, or activities based in, or focused on, your state or territory: Starting with highlights, then by <u>congressional districts and cities or towns</u>, <u>coastal programs</u>, and then <u>statewide programs</u>.

### Highlights of NOAA in Oregon

Point Adams Research Station	Hammond	OR-1
South Slough National Estuarine Research Reserve	Charleston	OR-4
Newport Research Station	Newport	OR-4
Hatfield Marine Science Center	Newport	OR-4

The state of Oregon also has one Cooperative Institutes, three Weather Forecasting Offices, one Lab and Field Office, two Science on a Sphere® exhibitions, and one National Estuarine Research Reserve.

### **Weather Forecast Offices**

Medford OR-2
Pendleton OR-2
Portland OR-3

National Weather Service (NWS) Weather Forecast Offices (WFO) are staffed 24/7/365 and provide weather, water, and climate forecasts and warnings to residents of Oregon. There are 122 WFOs nationwide of which three are in Oregon. Highly trained forecasters issue warnings and forecasts for events, including severe thunderstorms, tornadoes, hurricanes, winter storms, floods, and heat waves to the general public, media, emergency management and law enforcement officials, the aviation and marine communities, agricultural interests, businesses, and others. Information is disseminated in many ways, including wireless emergency alerts, social media, weather.gov, and NOAA Weather Radio All Hazards. Each WFO has a Warning Coordination Meteorologist who actively conducts outreach and educational programs that strengthen working relationships with local partners in emergency management, government, the media and academic communities. Forecasters provide Impact-based Decision Support Services (IDSS), both remotely and on-site during critical emergencies such as wildfires, floods and chemical spills, and major recovery efforts. To gather data for forecasting and other purposes, NWS WFO staff monitor, maintain and use Automated Surface Observing Stations and Doppler Weather Radar. In addition to the WFOs, NWS operates specialized national prediction centers and regional headquarters throughout the U.S. for a total of 168 operational units. Over 85% of NWS' workforce is in the field. For current Oregon weather, visit <a href="https://www.weather.gov">www.weather.gov</a> and, on the national map, click on the relevant county or district.

### Science On a Sphere®

Astoria OR-1 Portland OR-3

Science On a Sphere (SOS) is a room-sized global display system that uses computers and video projectors to display planetary data onto a six-foot diameter sphere, analogous to a giant animated globe. Researchers at NOAA developed Science On a Sphere® as an educational tool to help illustrate Earth System science to people of all ages. Animated images of atmospheric storms, climate change, and ocean temperature can be shown on the sphere, which is used to explain in a way that is simultaneously intuitive and captivating what are sometimes complex environmental processes. They are located at the Columbia River Maritime Museum in Astoria and the Oregon Museum of Science and Industry in Portland.

### OR-1 Hammond

### National Marine Fisheries Service (NMFS) - Point Adams Research Station

This research station of the Northwest Fisheries Science Center conducts studies to better understand factors that affect the survival of Pacific salmonids in the Columbia River system, ranging from upriver dams to the estuary and adjacent nearshore ocean. Ecosystem studies include the ecology and survival of juvenile salmonids in the critical transition from freshwater to the ocean environment; predator-prey relationships in the nearshore ocean; detailed aspects of fish

passage; and the environmental impacts of navigational channel maintenance on river ecosystems. Unique features of the facility include research vessels and small craft for sampling in local waters and a strategic location along the Columbia River estuary for estuarine and nearshore-ocean studies.

### OR-1, 4

### Astoria, North Bend

### Office of Oceanic and Atmospheric Research (OAR) - Coastal Atmospheric River Observatories

The NOAA Physical Sciences Laboratory operates and maintains two coastal atmospheric river observatories, which measure the conditions associated with land-falling atmospheric rivers; a key component of winter storms that are responsible for flooding and can sometimes lead to dangerous debris flows. The data collected will be used by researchers to understand relevant atmospheric processes and advance NOAA predictive capabilities.

### OR-2 John Day

### Office of Oceanic and Atmospheric Research (OAR) - U.S. Climate Reference Network

The US Climate Reference Network (USCRN) is an operationally viable research network of more than 138 climate stations that are deployed nationwide. Data from the USCRN are used in various climate monitoring activities and for placing current climate anomalies into an historical perspective. The USCRN provides the United States with a reference network that contributes to an International network under the auspices of the Global Climate Observing System (GCOS). ARL/ATDD manage the USCRN in partnership with NOAA's NESDIS/NCEI.

#### La Grande

### National Marine Fisheries Service (NMFS) - West Coast Region Interior Columbia Basin Area Office

The Interior Columbia Basin Area Office is located in Portland, Oregon, with satellite teams in Ellensburg, Washington; La Grande, Oregon; and Salmon, Moscow, and Boise, Idaho. Our responsibilities focus on protecting species and their habitats upstream of Bonneville Dam, into the upper reaches of the Columbia and Snake rivers in Washington, Oregon, and Idaho. We work to protect species listed under the Endangered Species Act by evaluating the impacts of proposed federal actions, developing and implementing recovery plans, seeking conservation partnerships with local governments and landowners, and ensuring safe fish passage through federal and some private dams.

#### Medford

### National Weather Service (NWS) - Weather Forecast Office

Located in Medford, this NWS Weather Forecast Office (WFO) is staffed around the clock every day, providing the best possible weather, water, and climate forecasts and warnings for the seven southwestern counties of Oregon and for Siskiyou and Modoc counties in northern California, including their coastal waters. Highly trained forecasters issue warnings and forecasts for events, including severe thunderstorms, tornadoes, winter storms, floods, and heat waves. This essential information is provided to the general public, media, emergency management and law enforcement officials, the aviation and marine communities, agricultural interests, businesses, and others. Information is disseminated in many ways, including through dedicated government channels, satellite, the Internet, and NOAA Weather Radio All Hazards. Forecasters also provide Impact-based Decision-Support Services (IDSS), both remotely and onsite, during critical emergencies, such as wildfires, floods, chemical spills, and for major recovery efforts such as those following the Joplin and Moore tornadoes, Hurricanes Katrina and Sandy, and the Sept. 11, 2001, terrorist attacks in New York City and Washington D.C. The WFO collects and disseminates precipitation, river, and rainfall data, and prepares local climatological data. The WFO operates Automated Surface Observing Stations (ASOS), as well as the local Doppler Weather Radar, which provides critical information about current weather conditions. The radar data enables forecasters to issue warnings for tornadoes, severe thunderstorms, and flash floods.

### Pendleton

### National Weather Service (NWS) - Weather Forecast Office

Located in Pendleton, this NWS Weather Forecast Office (WFO) is staffed around the clock every day, providing the best possible weather, water, and climate forecasts and warnings for central and northeast Oregon and southeast and south-central Washington State. Highly trained forecasters issue warnings and forecasts for events, including severe thunderstorms, tornadoes, winter storms, floods, and heat waves. This essential information is provided to the general public, media, emergency management and law enforcement officials, the aviation and marine communities, agricultural interests, businesses, and others. Information is disseminated in many ways, including through dedicated government channels, satellite, the Internet, and NOAA Weather Radio All Hazards. Forecasters also provide Impact-based Decision-Support Services (IDSS), both remotely and onsite, during critical emergencies, such as wildfires, floods, chemical spills, and for major recovery efforts such as those following the Joplin and Moore tornadoes, Hurricanes Katrina and Sandy, and the Sept. 11, 2001, terrorist attacks in New York City and Washington D.C. The WFO collects and disseminates precipitation, river, and rainfall data, and prepares local climatological data. Each WFO has a Warning Coordination Meteorologist who actively conducts outreach and educational programs, which helps build strong working relationships with local partners in emergency management, government, the media and academic communities. The WFO operates Automated Surface Observing Stations (ASOS), as well as the local Doppler Weather Radar, which provides critical information about current weather conditions. The radar data enables forecasters to issue warnings for tornadoes, severe thunderstorms, and flash floods.

#### Riley

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### OR-3 Portland

### National Marine Fisheries Service (NMFS) - West Coast Region Portland Office

NOAA Fisheries is dedicated to protecting and preserving our nation's living marine resources through scientific research, fisheries management, enforcement, and habitat conservation. The West Coast Region of NOAA Fisheries administers fisheries programs along the coasts of Washington, Oregon and California; and in the vast inland habitats of Washington, Oregon, California and Idaho. We work to conserve, protect, and manage salmon and marine mammals under the Endangered Species Act and Marine Mammal Protection Act, and sustainably manage West Coast fisheries as guided by the Magnuson-Stevens Fisheries Conservation Act. To achieve this mission and advance sound stewardship of these resources, we work closely with tribes, local, state and federal agencies, our stakeholders, and partners to find science-based solutions to complex ecological issues.

#### National Marine Fisheries Service (NMFS) - Portland Inspection Office

NOAA's Seafood Inspection Program conducts a voluntary inspection program for fishery products on a fee-for-service basis. The office offers a wide range of services to the seafood industry (fishermen, wholesalers, processors, retailers, importers and exporters) including process and product inspection, product grading, lot inspection, laboratory analysis, and training. Export health certificates as required by most countries are issued for U.S. exporters. All edible foodstuffs,

ranging from whole fish to formulated products, as well as fishmeal and animal feeds, are eligible for inspection and certification.

### National Weather Service (NWS) - Northwest River Forecast Center

Co-located with the NWS Weather Forecast Office in Portland, the Northwest River Forecast Center (RFC) performs continuous river basin modeling and provides hydrologic forecast and guidance products for rivers and streams for all rivers in the Pacific Northwest and drainage into the Columbia River Basin. These products include forecasts of river stage and flow, probabilistic river forecasts, reservoir inflow forecasts, gridded precipitation estimates and forecasts, spring flood outlooks, and flash flood and headwater guidance. Some of the RFCs in the western and central U.S. also provide water supply forecasts. RFCs work closely with local, state and federal water management agencies, including the U.S. Army Corps of Engineers, U.S. Bureau of Reclamation, and U.S. Geological Survey, to provide water and flood information for critical decisions (aka Impact-based Decision-Support Services or IDSS).

### National Weather Service (NWS) - Weather Forecast Office

Co-located with the NWS Northwest River Forecast Center in Portland, this NWS Weather Forecast Office (WFO) is staffed around the clock every day, providing the best possible weather, water, and climate forecasts and warnings for northwest Oregon and southwest Washington State, including the coastal waters. Highly trained forecasters issue warnings and forecasts for events, including severe thunderstorms, tornadoes, winter storms, floods, and heat waves. This essential information is provided to the general public, media, emergency management and law enforcement officials, the aviation and marine communities, agricultural interests, businesses, and others. Information is disseminated in many ways, including through dedicated government channels, satellite, the Internet, and NOAA Weather Radio All Hazards.

Forecasters also provide Impact-based Decision-Support Services (IDSS), both remotely and onsite, during critical emergencies, such as wildfires, floods, chemical spills, and for major recovery efforts such as those following the Joplin and Moore tornadoes, Hurricanes Katrina and Sandy, and the Sept. 11, 2001, terrorist attacks in New York City and Washington D.C. The WFO collects and disseminates precipitation, river, and rainfall data, and prepares local climatological data. Each WFO has a Warning Coordination Meteorologist who actively conducts outreach and educational programs, which helps build strong working relationships with local partners in emergency management, government, the media and academic communities. The WFO operates Automated Surface Observing Stations (ASOS), as well as the local Doppler Weather Radar, which provides critical information about current weather conditions. The radar data enables forecasters to issue warnings for tornadoes, severe thunderstorms, and flash floods.

### NOAA Office of Education - Science On a Sphere® at the Oregon Museum of Science and Industry

Science On a Sphere (SOS) is a room-sized global display system that uses computers and video projectors to display planetary data onto a six-foot diameter sphere, analogous to a giant animated globe. Researchers at NOAA developed Science On a Sphere® as an educational tool to help illustrate Earth System science to people of all ages. Animated images of atmospheric storms, climate change, and ocean temperature can be shown on the sphere, which is used to explain complex environmental processes in a way that is simultaneously intuitive and captivating.

OR-4 Brookings

Office of Oceanic and Atmospheric Research (OAR) - <u>Global Greenhouse Gas Reference Network; Halocarbon</u>
Measurements

NOAA's Global Monitoring Laboratory (GML) operates a small aircraft-based North American network of sampling sites to measure vertical profiles of important greenhouse gas concentrations. Air is sampled weekly above the surface up to approximately 25,000 feet above sea level using a relatively small, light, and economical automated system developed by GML researchers. These air samples are delivered to GML in Boulder, Colorado, for measurements of CO2, CH4, other greenhouse gases, and ozone depleting substances. These data improve our understanding of the distribution of greenhouse gases and models of the global carbon cycle. The measurements of ozone depleting substances help determine the effectiveness of efforts to protect and restore the ozone layer, which protects the surface from the sun's ultraviolet radiation.

#### Charleston

### National Ocean Service (NOS) - South Slough National Estuarine Research Reserve

South Slough National Estuarine Research Reserve was designated in 1974 as the first reserve in the research reserve program. It is managed by the Oregon Department of State Lands, and encompasses 4,771 acres of upland and lowland habitat, including conifer forests, freshwater and saltwater tidal wetlands, subtidal habitats, and open water. Freshwater marsh areas resulting from historic agricultural dikes and upland forests within the watershed are being restored to a healthy, integrated and sustainable ecosystem. The reserve supports and coordinates research, education and stewardship programs that serve to enhance a scientific and public understanding of estuaries and contribute to improved estuarine management.

### National Ocean Service (NOS) - Margaret A. Davidson Graduate Fellowship

The Margaret A. Davidson Graduate Fellowship program funds graduate student research and professional development opportunities within the National Estuarine Research Reserve System. The program supports collaborative research addressing local management challenges that may influence future policy and management strategies. The Davidson Fellow at South Slough National Estuarine Research Reserve will focus their research on evaluating recovery potential of Eelgrass (Z. marina) from seed banks under ambient and warming scenarios in the reserve.

#### Corvallis

### Office of Oceanic and Atmospheric Research (OAR) - U.S. Climate Reference Network

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### Coos Bay

### Office of Oceanic and Atmospheric Research (OAR) - U.S. Climate Reference Network

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### Lincoln

### NOAA Office of Education - Coastal Ecosystem Learning Centers (CELC) network

In Oregon, NOAA's Office of Education provides support to the Oregon Coast Aquarium in Lincoln County as part of the Coastal Ecosystem Learning Centers (CELC) network, which is made up of 25 aquariums and marine science education

centers located throughout North America. The CELC network collaborates on a variety of initiatives, ranging from youth summits to multi-institution projects, with the goal of better engaging the public in understanding, appreciating, and protecting marine and freshwater ecosystems. Through the CELC network, the Office of Education provides guidance, resources, and scientific expertise to these institutions, which collectively reach an estimated 20 million people annually across North America. By coordinating with the CELC network, NOAA helps to further its mission of engaging the public in protecting and preserving coastal and marine ecosystems.

### Newport

### National Marine Fisheries Service (NMFS) - Fisheries Behavioral Ecology Program

The NOAA Fisheries' Alaska Fisheries Science Center's Fisheries Behavioral Ecology Program, based at Oregon State University's Hatfield Marine Science Center in Newport, Oregon, conducts research aimed at understanding the relationships between fish behavior and environmental variables, and how this influences distribution, survival, and recruitment of economically important fish species. Program research also includes experimental analysis of fishing gear performance, and the survival and recovery of fishes from stresses imposed during fishing activity. The goal of the Program is to provide critical information needed to improve survey techniques, to improve predictions on population abundance, distribution and survival, and to conserve populations of economically significant resource species and their habitats.

### National Marine Fisheries Service (NMFS) - Newport Research Station

This ocean port research station is a vital component of Oregon State University's Hatfield Marine Science Center, which serves as a collaborative research hub for government and university scientists. Areas of research by Northwest Fisheries Science Center scientists include assessments of West Coast commercial groundfish stocks; studies of interactions among environmental factors and diseases of salmon; investigations of food-web changes in coastal waters related to climate variability and change; and studies of the survival of salmon as they enter the ocean. Unique features of the Newport Research Station include specialized seawater systems for immunological research; office and warehouse space, and access to NOAA's Pacific Marine Operations Center and Oregon State University's assets including ocean-going ships and small craft for sampling in local waters, a ship-support facility for ocean-going research vessels; and a visitor center with public aquaria and displays of the Center's research.

### Office of Marine and Aviation Operations (OMAO) – <u>Marine Operations</u>, <u>Marine Operations Center Pacific</u> and Homeport of the NOAA Ships *Rainier*, *Bell M. Shimada*

Newport is home to OMAO's Marine Operations, which oversees operations of the three regional Centers, including the Marine Operations Center-Pacific (MOC-P), which provides regional management of NOAA Fleet vessels operating throughout the Pacific. Newport serves as homeport for the NOAA Ships *Rainier* and *Bell M. Shimada*. The Center also provides field support to the NOAA Ships *Fairweather* out of Ketchikan, Alaska, and *Oscar Dyson* out of Kodiak, Alaska. Services to all of the ships include technical support and management of marine and electronic engineering for maintenance and repairs, operational and program liaison for vessel operations, as well as administrative and logistical support for vessel operations. NOAA vessels managed by the center acquire *in situ* observations in support of NOAA's research and operational portfolios. The NOAA Ship *Bell M. Shimada* supports the research mission of both the Northwest and Southwest Fisheries Science Centers. The NOAA Ship *Rainier* supports the research mission of the National Ocean Service and National Marine Fisheries Service to deliver data on the coral ecosystems of Guam and the Commonwealth of the Northern Mariana Islands. All vessels support NOAA's mission to protect, restore, and manage the use of coastal and ocean resources through an ecosystem approach to management.

NOAA vessels are operated under the direction of officers from the NOAA Commissioned Officer Corps in concert with NOAA Professional Mariners. The NOAA Corps today provides a cadre of professionals trained in engineering, earth

sciences, oceanography, meteorology, fisheries science, and other related disciplines. Officers operate ships, fly aircrafts, conduct diving operations, and serve in other NOAA staff positions. NOAA Professional Mariners perform the deck, engineering, steward, and survey tech functions aboard NOAA vessels, providing critical support to OMAO marine operations.

### Office of Oceanic and Atmospheric Research (OAR) - Cooperative Institute for Marine Resources Studies (NCE)

The Cooperative Institute for Marine Resources Studies (CIMRS) was awarded to Oregon State University. CIMRS serves as a mechanism to promote collaborative research between university scientists and those in NOAA. The mission of CIMRS is to bring together research partners from Oregon State University's full variety of colleges and departments to assist their NOAA colleagues address complex multidisciplinary issues relating to the marine environment and sustainable use and management of marine resources. CIMRS's primary NOAA research partner is the Pacific Marine Environmental Laboratory. CIMRS conducts research across four themes: (1) marine ecosystems and habitats; (2) protection and restoration of marine resources; (3) seafloor processes; and (4) marine bioacoustics.

### Office of Oceanic and Atmospheric Research (OAR) - Hatfield Marine Science Center

The National Sea Grant College Program (Sea Grant) is a federal-university partnership administered by NOAA that integrates research, extension outreach, and education. Sea Grant forms a national network of 34 programs in all U.S. coastal and Great Lakes states, Puerto Rico, and Guam. Sea Grant extension agents are stationed in Newport, Oregon. As trusted experts who are considered honest brokers of information (non-advocacy), Sea Grant extension agents provide reliable technical and science-based information to residents to address local needs while also transferring research priorities back to their universities. Oregon Sea Grant also operates the Visitor Center at Hatfield Marine Science Center in Newport. Over 150,000 people pass through the doors of the Visitor Center annually to see the exhibits, join in hands-on activities and learn about marine animals and issues facing the coast.

### Office of Oceanic and Atmospheric Research (OAR) - Pacific Marine Environmental Laboratory

The Pacific Marine Environmental Laboratory (PMEL) maintains a research facility at the Hatfield Marine Science Center in Newport, Oregon, which houses part of PMEL's Earth-Ocean Interactions (EOI) research group and the entire Acoustics research group. The EOI group is renowned for interdisciplinary seafloor and water column processes research at numerous volcanic and hydrothermal sites around the globe. Researchers are discovering unique chemosynthetic ecosystems and studying biogeochemical processes of global importance. The EOI group is found in Newport, OR and in Seattle, WA. The Acoustics program conducts research and develops unique underwater sound sensing tools and technologies to conduct research on how natural and human-made sounds impact marine animals and ecosystems. PMEL also coordinates with cross-agency partners to maintain and operate the NOAA Ocean Noise Reference Station Network - the first comprehensive marine noise observation network in the United States.

### Office of Oceanic and Atmospheric Research (OAR) - <u>Cooperative Institute for Marine Ecosystem Resources</u> Studies

The Cooperative Institute for Marine Ecosystem Resource Studies (CIMERS) was awarded to the University of Oregon. CIMERS conducts cutting-edge marine transdisciplinary research that supports NOAA's mission, goals, and strategic initiatives, while training the next generation of marine scientists to advance basic knowledge about ocean ecosystems. CIMERS researchers and partners work from local to global scales on marine issues of emerging importance, such as the conservation of endangered species, maintaining sustainable commercial and recreational fishing stocks, and predicting and mitigating natural hazards. CIMERS convenes research partners from numerous disciplines to address the most challenging and complex issues relating to the living and non-living components of our marine environment, using innovation to develop new tools and technologies. CIMERS conducts research across four themes:(1) Conservation,

Protection, and Restoration of Marine Resources; (2) Marine Ecosystems; (3) Ocean Acoustics; and (4) Ocean, Coastal, and Seafloor Processes.

### Office of Oceanic and Atmospheric Research (OAR) - <u>Uncrewed Systems Research Transition Office (UxSRTO)</u> <u>Project for Coastal Wetland Monitoring of Marine Debris and Detection</u>

With support from the UxSRTO, NOAA/National Centers for Coastal Ocean Science (NCCOS) and Marine Debris Program (MDP) is taking advantage of UxS for marine debris shoreline surveys including the ability to rapidly and affordably collect data for large stretches of shoreline, including in coastal areas that are difficult to access on foot. After the UxS imagery is collected, further automation is achieved through the use of machine learning (ML) algorithms for automated detection and type classification of debris items. Data from these surveys have and can be used to assess spatial and temporal trends in shoreline debris, inform behavior change campaigns focusing on specific items and assess the effectiveness of legislation targeting specific items. This R&D development just concluded in December 2022, resulting in a set of operationally-viable procedures and workflows suitable for consistent implementation by NOAA Marine Debris Program and their partners.

### Office of the Chief Information Officer (OCIO) - Service Delivery Division

The Service Delivery Division provides a suite of IT services to support NOAA's mission. Our work includes IT infrastructure design and maintenance, network and server management and administration, desktop configuration and maintenance, application and system design and implementation, and IT security.

### Roseburg

# National Marine Fisheries Service (NMFS) - West Coast Region Oregon/Washington Coastal Area Office The Oregon and Washington Coastal Area Offices are located in Portland and Seattle, with satellite teams in Lacey, Washington and Roseburg, Oregon. Our responsibilities focus on protecting species and their habitats along Washington and Oregon coasts, including Puget Sound and the lower Columbia and Willamette rivers. We work to protect species listed under the Endangered Species Act by evaluating the impacts of proposed federal actions, developing and implementing recovery plans, seeking conservation partnerships with local governments and landowners, and ensuring safe fish passage through federal and some private dams, and designating critical habitat.

### OR-5

### Mt. Bachelor

### Office of Oceanic and Atmospheric Research (OAR) - <u>Surface Aerosol Monitoring; Global Greenhouse Gas</u> Reference Network

NOAA's Global Monitoring Laboratory (GML) operates surface-based aerosol monitoring sites in six states and one territory (Puerto Rico). Guiding the location of these instruments is the finding that human activities primarily influence aerosols on regional/continental scales rather than on global scales. Aerosols create a significant perturbation of the Earth's radiative balance on regional scales. The measurements made include aerosol optical properties (how the particles absorb and scatter solar radiation), aerosol number concentration, and chemical composition of the aerosol particles. The aerosol monitoring site is a partnership with the University of Washington/Bothell. GML also operates trace gas monitoring sites at tall towers in eight states, including Oregon. The sites were established to extend GML's monitoring network to provide data to aid estimation of the net carbon balance of the continent. Variations of trace gases, especially carbon dioxide, are largest near the ground, so we utilize existing tall towers as platforms for in situ and flask sampling for atmospheric trace gases. Flask samples are delivered to GML in Boulder, Colorado for analysis. These data improve models and our understanding of the distribution of greenhouse gases, including sources and sinks of carbon in North America. This tower site is operated by the University of Washington.

### Coastal

Office of Oceanic and Atmospheric Research (OAR) - <u>Sustained Carbonate Chemistry Observation Moorings</u>
The Carbonate Chemistry Observing Mooring network is a sustained investment in ocean chemistry observing network in U.S. waters and abroad. There are currently 19 buoys in coastal, open-ocean and coral reef waters that contribute to this network. The time series created from these moorings are key to understanding how ocean chemistry is changing over time in these ecosystems by providing continuous and long-term observations of ocean conditions. These buoys are seated in three locations in Alaska (Gulf of Alaska, Papa, Bering Sea), two in California (California Current Ecosystem 1 & 2), one in the Chesapeake Bay (DE, MD, NY, PA, VA, WV), Coastal Mississippi (MS), Florida (Cheeca Rocks), Georgia (Grays Reef), Oregon (Newport Hydrographic Line), Maine (Gulf of Maine), and Washington (Cha'ba in La Push).

### National Marine Fisheries Service (NMFS) - Deep-Sea Coral Research and Technology Program

NOAA's Deep Sea Coral Research is administered by NOAA Fisheries' Office of Habitat Conservation. Mandated by the Magnuson-Stevens Fishery Conservation and Management Act, it is the nation's only federal research program dedicated to increasing scientific understanding of deep-sea coral ecosystems. Deep-sea corals occur off of every coastal state in the country, and create important habitats for countless species, including many fish species. The Program collaborates closely with partners, including other NOAA offices, to study the distribution, abundance, and diversity of deep sea corals and sponges. This work then informs critical management decisions in the waters of the United States and its territories. These decisions enhance the sustainability of deep-sea fisheries and other ocean uses, while conserving deep-sea coral and sponge habitats.

The Program works with partners to complete multi-year regional fieldwork initiatives, as well as smaller projects around the country, centered on integrating new and existing information on these vulnerable and biologically diverse habitats. The first research initiative took place from 2009 to 2011 in the U.S. South Atlantic region and provided valuable information to help decision-makers refine protected area boundaries. To date, the Program has completed one or more initiatives in each region of the United States.

National Marine Fisheries Service (NMFS) - Cooperation with States Program and Species Recovery Grants
Under the authority of section 6 of the Endangered Species Act, the Cooperation with States Program brings states,
NMFS, and other partners together to recover threatened and endangered species. A total of 25 U.S. territories and
coastal states, including Oregon, currently participate in this program. Competitive grants are awarded to states through
the Species Recovery Grants to States Program to support management, monitoring, research and outreach efforts for
species that spend all or a portion of their life cycle in state waters. The funded work is designed to prevent extinctions or
reverse the decline of species, and restore ecosystems and their related socioeconomic benefits. The Oregon Department
of Fish and Wildlife has received multiple awards through this program, including grants to support projects focused on
eulachon, green sturgeon and large whales.

## National Marine Fisheries Service (NMFS) - <u>National Marine Mammal Stranding Network</u> and <u>John H. Prescott</u> <u>Marine Mammal Rescue Assistance Grant Program</u>

The National Marine Mammal Stranding Network and its trained professionals respond to dead or live marine mammals in distress that are stranded, entangled, out of habitat or otherwise in peril. Our long-standing partnership with the Network provides valuable environmental intelligence, helping NOAA establish links among the health of marine mammals, coastal ecosystems, and coastal communities as well as develop effective conservation programs for marine mammal populations in the wild. There are three stranding network members in the state.

NOAA Fisheries funds eligible members of the Stranding Network through the competitive John H. Prescott Marine Mammal Rescue Assistance Grant Program. In FY20, 43 grantees received \$3.7 million nationwide, with two awards totalling \$199,996 going to two recipients in Oregon: Oregon State University and Portland State University.

### National Marine Fisheries Service (NMFS) - Pacific Coastal Salmon Recovery Fund

The Pacific Coastal Salmon Recovery Fund (PCSRF) was established by Congress in 2000 to reverse the declines of Pacific salmon and steelhead by advancing the protection, restoration, and conservation of Pacific salmon and their habitats. The Fund is essential to prevent the extinction of 28 salmon species protected under the Endangered Species Act and also plays a vital role in supporting the economies of local communities from California to Alaska, upholding Tribal Treaty fishing rights and subsistence fishing traditions, and restoring all salmon populations to productive and viable levels along the entire West Coast. Since 2000, approximately 15,300 projects have restored more than 1.15 million acres of salmon habitat, opening over 11,800 miles of streams to spawning fish, with \$1.7 billion in grants leveraging over \$2.1 billion in contributions. Several studies suggest that a \$1 million investment in watershed restoration creates between 13 and 32 jobs and between \$2.2 and \$3.4 million in economic activity.

### National Ocean Service (NOS) - Bipartisan Infrastructure Law

The Bipartisan Infrastructure Law is helping coastal communities build the future they want to see. The legislation provides a historic investment in coastal protection and restoration that will increase community resilience to climate change and extreme weather events, and improve how we manage our ocean resources. Projects funded under this law protect and restore ecologically significant habitats, including conserving lands that play a critical role in helping communities become more resilient to natural hazards. Oregon received funding for two projects in FY22, as well as funds to build the state's capacity to protect its coastal communities and resources.

### National Ocean Service (NOS) - Lower Columbia River PORTS®

The Columbia River Physical Oceanographic Real-Time System (PORTS®) extends from the mouth of the Columbia River to Vancouver, WA, and provides water level, wind, and weather conditions for pilots and shippers navigating inland to the Port of Portland. Real-time data are available for water levels from eight stations, meteorological data from four locations, and waves at one location.

### National Ocean Service (NOS) - National Water Level Observation Network

The National Ocean Service (NOS) operates five long-term, continuously operating tide stations in the state of Oregon, which provide data and information on tidal datum and relative sea level trends, and are capable of producing real-time data for storm surge warning. These stations are located at Port Orford, Charleston, South Beach, Garibaldi, and Astoria. Each station is associated with a set of tidal benchmarks installed in the ground that is used to reference the height of the water levels and helps connect the water level to land. Station data feeds into many CO-OPS products that are used to support safe navigation, mitigate coastal hazards, and protect communities. Such products include:

- Coastal Inundation Dashboard view water levels in real-time and during storms
- High Tide Flooding Outlooks
- Sea level trends and maps
- Real-time current measurements
- Hydrodynamic models
- Tidal and water level datums

### National Ocean Service (NOS) - Pacific Northwest HAB Forecast

NOAA-funded forecast systems in the Pacific Northwest aim to deliver accurate, relevant, timely, and reliable ecological forecasts directly to coastal resource managers and the public. Predictive modeling and HAB monitoring provide managers with an early warning of when and where toxic blooms will affect shellfish harvests, providing better public health protection and safeguarding coastal economies.

### National Ocean Service (NOS) - Mussel Watch Program

The National Oceanic and Atmospheric Administration (NOAA) Mussel Watch Program (MWP) monitors the status and trends of chemical contaminants and biological stressors in the nation's coastal waters. MWP began in 1986, and is based on the periodic collection and analysis of bivalves (oysters and mussels) and sediment from a network of more than 300 monitoring sites nationwide. Contaminants monitored at each site include the EPA's Priority Pollutant List of toxic substances and a suite of chemicals of emerging concern such as flame retardants, PFAS, pharmaceuticals, and current use pesticides.

### National Ocean Service (NOS) - Navigation Manager

NOAA's navigation managers work directly with pilots, port authorities, and recreational boating organizations in Oregon. They help identify the navigational challenges facing marine transportation in Oregon and provide NOAA's resources and services that promote safe and efficient navigation. Navigation managers are on call to provide expertise and NOAA navigation response coordination in case of severe coastal weather events or other marine emergencies. The Office of Coast Survey has a navigation manager in Seattle, Wash., to support mariners and stakeholders in Oregon and Washington.

### National Ocean Service (NOS) - Navigation Response Team

The Office of Coast Survey (OCS) maintains the nation's nautical charts and publications for U.S. coasts and the Great Lakes. OCS navigation managers are strategically located in U.S. coastal areas to provide regional support to federal and state agencies in order to assist with navigational challenges. The Office of Coast Survey's Navigation Response Branch (NRB) conducts routine and emergency hydrographic surveys; and working with the regional Navigation Managers, navigation response teams (NRT) work around-the-clock after storms to speed the reopening of ports and waterways. During emergency response, the NRTs provide time-sensitive information to the U.S. Coast Guard or port officials, and transmit data to NOAA cartographers for updating the Coast Survey's suite of navigational charts. NRT-Seattle is homeported in Seattle, WA and is able to respond in the Pacific Northwest region within 24 to 48 hours.

### National Ocean Service (NOS) - Coastal and Estuarine Land Conservation Program

The Coastal and Estuarine Land Conservation Program brings conservation partners together to protect coastal and estuarine lands considered important for their ecological, conservation, recreational, historical, or aesthetic values. Subject to availability of funding, the program provides state and local governments with matching funds to purchase coastal and estuarine lands or obtain conservation easements for important lands threatened by development. Since 2002, the program has protected more than 110,000 acres of coastal land nationally, including over 16,000 acres protected as in-kind matching contributions. NOAA awarded four projects in Oregon, and these lands are protected in perpetuity. In addition, a land conservation project was funded in FY22 in Oregon under the CELCP authority with funding through the Bipartisan Infrastructure Law.

### National Ocean Service (NOS) - Office for Coastal Management

The NOAA Office for Coastal Management practices a partner-based, boots on the ground approach to coastal management. The organization currently has staff in the eight regions to provide assistance to local, state, and regional coastal resource management efforts and facilitate customer feedback and assessments. Assistance is provided to local,

state, and regional coastal resource management efforts. The central West Coast staff office is located in Oakland, California, with additional staff based in Portland, Hood River, and Medford, Oregon, Seattle, Washington, and Anchorage, Alaska.

### National Ocean Service (NOS) - National Coastal Zone Management Program

Through a unique federal-state partnership, NOAA's Office for Coastal Management works with the Oregon Department of Land Conservation and Development to implement the National Coastal Management Program in Oregon. NOAA provides the state coastal management program with financial and technical assistance to further the goals of the Coastal Zone Management Act and ensure coastal waters and lands are used in a balanced way to support jobs, reduce use conflicts, and sustain natural resources.

### National Ocean Service (NOS) - Coastal Management Fellowship

This program matches postgraduate students with state and territory coastal zone programs to work on two-year projects proposed by the state or territory. The Oregon Coastal Management Program is hosting a fellow from 2019-2021 who is working on a project to provide capacity to advance sea level rise adaptation planning at the local level using existing and emerging data and resources on the northern Oregon coast.

### National Ocean Service (NOS) - <u>Digital Coast</u>

The Digital Coast is a focused information resource developed to meet the unique needs of coastal communities. Developed and maintained by NOAA's Office for Coastal Management, content comes from hundreds of organizations, including federal, state, and local agencies, plus private sector and non-profit contributors. The Digital Coast website provides not only site-specific coastal data, but also related tools, training, and information needed to make these data useful for coastal decision makers. The Digital Coast Act authorizes the Digital Coast as a standing national program and supports NOAA's efforts to increase access to authoritative data, tools, and training that enable coastal communities to plan for long-term resilience, manage water resources, and respond to emergencies.

### National Ocean Service (NOS) - National Coastal Resilience Fund

The National Coastal Resilience Fund is a partnership effort between NOAA and the National Fish and Wildlife Foundation (NFWF) to restore, increase, and strengthen natural infrastructure to protect coastal communities, while also enhancing habitat for fish and wildlife. In Oregon, six projects have been funded, two in FY18, one in FY20 and FY21, and two in FY22.

### National Ocean Service (NOS) - West Coast Ocean Alliance

NOAA's Office for Coastal Management is the federal co-lead for the West Coast Ocean Alliance, which includes involvement and support from other NOAA offices (NMFS and ONMS). The partnership is a state, tribal, and federal forum for fostering dialogue on ocean health. The goal is to work together to create shared visions and implementation opportunities. Members include the three west coast states and several west coast tribes and federal agencies, including the Department of Interior which co-leads with NOAA. The partnership's focus includes data delivery and coordination, improving intergovernmental, especially tribal, coordination, and ocean uses such as offshore energy and aquaculture. With funding provided through the Bipartisan Infrastructure Law, NOAA will invest approximately \$56 million over five years to enhance and support the priorities of established regional ocean partnerships, including coordinating interstate and intertribal management of ocean and coastal management issues, and enhancing sharing and integration of data.

### National Ocean Service (NOS) - Regional Ocean Partnership Tribal Awards

With funding provided through the Bipartisan Infrastructure Law, NOAA supports Federally-recognized tribes to participate or engage with established regional ocean partnerships on shared ocean and coastal management issues, including enhancing tribal capacity to engage, supporting development of partnerships between tribes and regional ocean partnerships, and increasing consideration and inclusion of tribal data as appropriate in regional ocean partnership work. In FY 22-23, one project was awarded in Oregon.

### National Ocean Service (NOS) - OR&R Preparedness, Response, and Restoration Coordinators

NOAA's Office of Response and Restoration (OR&R) is a center of expertise in preparing for, evaluating, and responding to threats to coastal environments, including oil and chemical spills, releases from hazardous waste sites, disasters, and marine debris. To fulfill its mission of protecting and restoring NOAA trust resources, OR&R provides scientific and technical support to prepare for and respond to environmental threats that coastal communities face; determines damage to natural resources from those releases; protects and restores marine and coastal ecosystems; and works with coastal communities to address critical local and regional coastal challenges.

- Eleven regionally based Scientific Support Coordinators (SSC) harness the input of a multi-disciplinary team
  to address issues such as oil slick trajectory forecasting, environmental tradeoffs, best practices, resources at
  risk, and chemical hazard assessment to reduce risks to coastal habitats and resources. The SSC for Oregon
  is based in Seattle, Washington.
- OR&R identifies and quantifies environmental injury caused by releases of oil and hazardous materials. Our
  network of Regional Resource Coordinators work with multidisciplinary scientific, economic, and legal teams
  with the goal of securing the appropriate amount and type of restoration required to restore injured NOAA trust
  resources and compensate the public for their lost use. We collaborate with NMFS Restoration Center and
  NOAA General Council through the Damage Assessment, Remediation, and Restoration Program (DARRP) to
  ensure the process is efficient, legally defensible and restoration focused. The RRCs serving the West
  Coast/Pacific region are based in Seattle, Washington and Anchorage, Alaska.

### National Ocean Service (NOS) - OR&R <u>Pacific Northwest Environmental Response Management Application</u> and <u>Response Tools for Oil and Chemical Spills</u>

Assessing important spatial information and designing successful restoration projects rely upon interpreting and mapping geographic information, including the location, duration, and impacts from oil spills, other hazardous materials, or debris released into the environment. Pacific Northwest Environmental Response Management Application (ERMA®) is an online mapping tool that integrates both static and real-time data, such as ship locations, weather, and ocean currents, providing an easy-to-use common operating picture for environmental responders and decision makers. In addition to ERMA, the Office of Response and Restoration (OR&R) offers a suite of tools to support emergency responders dealing with oil and chemical spills. From Environmental Sensitivity Index (ESI) maps and data which provide concise summaries of coastal resources including biological resources and sensitive shorelines to GNOME, a trajectory and fate model that predicts the route and weathering of pollutants spilled on water, and so much more, these tools provide easy-access to critical data that support a wide range of needs for emergency responders, ultimately supporting our coastal communities.

### National Ocean Service (NOS) - Marine Debris Projects and Partnerships in Oregon

The NOAA Marine Debris Program (MDP) in the Office of Response and Restoration (OR&R) leads national and international efforts to reduce the impacts of marine debris. The program supports marine debris removal, prevention, and research projects in partnership with state and local agencies, tribes, non-governmental organizations, academia, and industry. The MDP Pacific Northwest Regional Coordinator supports coordination efforts with regional stakeholders,

provides support to grant-funded projects, tracks progress of projects, and conducts regional marine debris outreach to local audiences. In Oregon, the MDP is partnering with the Oregon State Marine Board (OSMB) to expand its Certified Clean Marina Program to remove abandoned and derelict vessels from compliant marinas throughout the state. The MDP also facilitates the Oregon Marine Debris Action Plan with the support of local stakeholders. This plan provides a road map for strategic progress in making Oregon, its coasts, people, and wildlife free from the impacts of marine debris.

### National Ocean Service (NOS) - <u>U.S. Integrated Ocean Observing System</u> (<u>Northwest Association of Networked</u> <u>Ocean Observing Systems</u>)

The U.S. Integrated Ocean Observing System, or IOOS®, is a federally and regionally coordinated observing system with 17 interagency and 11 regional partners. The System addresses regional and national needs for coastal, ocean, and Great Lakes data and information. This includes gathering and disseminating regional observations; data management; modeling and analysis; education and outreach; and research and development. The Northwest Association of Networked Ocean Observing Systems (NANOOS) is the Regional Association for the Pacific Northwest, primarily Washington and Oregon. NANOOS includes over 70 members representing the interests of different regions and sectors including industry, government (tribal, state, local, regional federal offices), tribal support organizations, non-governmental organizations, education, and research. NANOOS and all of its users are benefiting from a commitment to furthering the scientific and operational design and maintenance of the Pacific Northwest regional ocean observing system. NANOOS has strong ties with the observing programs along the west coast in California, Alaska, and British Columbia through our common purpose and the occasional overlap of data and products. Informed by user needs, NANOOS has created customized information and tools with an emphasis on maritime operations, ecosystem impacts, regional fisheries, coastal hazards. Issues of specific interest include Harmful Algal Blooms, ocean acidification, hypoxia, marine heat waves, tsunami preparation, coastal erosion, and maritime safety, with a focus on the Oregon coast, shorelines, and estuaries including the Columbia River, South Slough, and Yaguina Bay. NANOOS partners with Oregon State University, Oregon Department of State Lands, Oregon Department of Geology and Mineral Industries (DOGAMI), Oregon Department of Fish and Wildlife, and the Columbia River Inter-Tribal Fish Commission to implement the observing system, and has membership from dozens of Oregon based entities.

### National Weather Service (NWS) - Buoys

The National Weather Service (NWS), through its National Data Buoy Center (NDBC), develops, deploys, operates, and maintains the current national data buoy network of moored and drifting weather buoys and land stations that serve all of the Nation's coastal states and territories. Within this network, 110 of the buoys and 51 of the land stations are maintained directly by NDBC. Located at NASA's Stennis Space Center in Mississippi, supports weather and marine warning and forecast services in real time by providing deep ocean and coastal meteorological and oceanographic observations. These data provide valuable information used by NWS supercomputers to produce computer-generated model forecasts of the atmosphere and climate. NDBC manages the Volunteer Observing Ship program to acquire additional meteorological and oceanographic observations supporting NWS mission requirements. NDBC also supports operational and research programs of NOAA and other national and international organizations. NDBC also operates NOAA's network of Deep-ocean Assessment and Reporting of Tsunami (DART®) stations, for the early detection and real-time reporting of tsunamis in the open ocean. Data from the DART®s are used by the National Weather Service Tsunami Warning Centers in Alaska and Hawaii to provide tsunami forecasts, warnings, and information.

#### Statewide

National Marine Fisheries Service (NMFS) - Northwest Fisheries Science Center

The Northwest Fisheries Science Center's headquarters (in Seattle, WA) was established in 1931 as the first government laboratory dedicated to the study of living marine resources on the West Coast. The Fisheries Science Center's mission is to provide the science necessary to conserve and manage living marine resources and their ecosystems, with an emphasis on the Pacific Northwest. The Fisheries Science Center conducts research on protected resources (i.e. salmon and killer whales) and commercially managed groundfish species along the West Coast and provides the best scientific information available to inform management decisions by the West Coast Regional Office, Pacific Fishery Management Council, and other natural resource managers.

The Fisheries Science Center conducts surveys and assessments of hake, rockfish, sablefish and flatfish along the West Coast and houses the nation's laboratory for chemical testing of seafood following oil spills. The Fisheries Science Center responds dynamically to emerging research needs such as climate change and ocean acidification, integrated ecosystem modeling, socio-economic connections, and biological effects of emerging toxins. The Fisheries Science Center conducts this work through its headquarters in Seattle near the University of Washington and its five field research stations located throughout Washington and Oregon.

### National Marine Fisheries Service (NMFS) - Restoration Center

The NOAA Restoration Center, within the Office of Habitat Conservation, works with partners across the nation to restore habitat to sustain fisheries, recover protected species, and maintain resilient coastal ecosystems and communities. We have over 30 years conducting habitat restoration through competitive funding opportunities and technical assistance. We also work to reverse habitat damage from disasters like oil spills, ship groundings, and severe storms. The Restoration Center works with private and public partners in Oregon to restore tidal wetlands, remove dams, modify culverts to improve tidal flushing in coastal wetlands, remove invasive species and restore native shellfish populations. See the interactive Restoration Atlas to find habitat restoration projects near you. Site visits to see habitat projects may be available in Oregon, please inquire if interested.

### National Marine Fisheries Service (NMFS) - Office of Law Enforcement

NOAA's Office of Law Enforcement is the only conservation enforcement program (Federal or State) that is exclusively dedicated to Federal fisheries and marine resource enforcement. Its mission is to protect global marine resources by enforcing domestic laws and international treaties and obligations dedicated to protecting wildlife and their natural habitat. Our special agents and enforcement officers ensure compliance with these laws and take enforcement action if there are violations. Additionally, the Cooperative Enforcement Program allows NOAA the ability to leverage the resources and assistance of 27 coastal states and U.S. territorial marine conservation law enforcement agencies in direct support of the Federal enforcement mission. Effective fisheries law enforcement is critical to creating a level playing field for U.S. fishermen and enabling sustainable fisheries to support vibrant coastal communities. The Office of Law Enforcement's West Coast Division is headquartered in Seattle, WA, with Oregon field offices in Astoria, Newport, and Coos Bay.

### National Marine Fisheries Service (NMFS) - West Coast Region

NOAA Fisheries is dedicated to protecting and preserving our nation's living marine resources through scientific research, fisheries management, enforcement, and habitat conservation. The West Coast Region of NOAA Fisheries administers fisheries programs along the coasts of Washington, Oregon and California; and in the vast inland habitats of Washington, Oregon, California and Idaho. We work to conserve, protect, and manage salmon and marine mammals under the Endangered Species Act and Marine Mammal Protection Act, and sustainably manage West Coast fisheries as guided by the Magnuson-Stevens Fisheries Conservation Act. To achieve this mission and advance sound stewardship of these resources, we work closely with tribes, local, state and federal agencies, our stakeholders, and partners to find science-based solutions to complex ecological issues.

### National Marine Fisheries Service (NMFS) – Regional Aquaculture Coordinators

The aquaculture coordinators lead regional efforts to foster sustainable aquaculture across the region. The state of Oregon has a relatively small but vibrant commercial marine aquaculture industry supported by a world class research and technology sector. Regional priorities include supporting the Oregon Shellfish Initiative and cutting edge research. Aquaculture coordinators support regulatory efficiency, aquaculture outreach and education, and serve as liaisons with state and local agencies, tribes, non-government organizations, academia, and industry. These coordinators also work as part of NOAA's Aquaculture Program to foster sustainable U.S. marine aquaculture to increase production of seafood and support business and employment opportunities.

### National Marine Fisheries Service (NMFS), National Ocean Service (NOS), and NOAA General Counsel - <u>Damage Assessment, Remediation, and Restoration Program</u>

NOAA's Damage Assessment, Remediation, and Restoration Program (DARRP) assesses and restores habitat, fisheries, protected species and recreational uses that have been harmed by oil spills, chemical releases, and ship groundings. Working with federal, state, and tribal entities, and responsible parties, we have recovered funding from responsible parties for restoration of critical habitats, fisheries, protected species and recreational uses nationwide. These projects promote recovery of the ecosystem and provide economic benefits from tourism, recreation, green jobs, coastal resiliency, property values and quality of life. Oregon is a co-trustee with NOAA for assessment and restoration after pollution incidents in Oregon. For more information about our work in Oregon, visit: <a href="DARRP">DARRP in Your State</a> (and use the top menu to navigate to "Oregon") and this interactive map.

### National Weather Service - NEXRAD (WSR-88D) Systems

NEXRAD is used to warn the people of the United States about dangerous weather and its location. This radar technology allows meteorologists to warn the public to take shelter with more notice than ever before. The NEXRAD network provides significant improvements in severe weather and flash flood warnings, air traffic safety, flow control for air traffic, resource protection at military bases, and management of water, agriculture, forest, and snow removal. NEXRAD radar has a range of up to 250 nautical miles, and can provide information about wind speed and direction, as well as the location, size, and shape of precipitation. There are 159 operational NEXRAD radar systems deployed throughout the United States and overseas, of which three are in Oregon.

### National Weather Service (NWS) - Automated Surface Observing Systems Stations

The Automated Surface Observing Systems (ASOS) program is a joint effort of the National Weather Service (NWS), the Federal Aviation Administration (FAA), and the Department of Defense (DOD). ASOS serves as the Nation's primary surface weather observing network. ASOS is designed to support weather forecast activities and aviation operations and, at the same time, support the needs of the meteorological, hydrological, and climatological research communities. ASOS works non-stop, observing basic weather elements, such as cloud cover, precipitation, wind, sea level pressure, and conditions, such as rain, snow, freezing rain, thunderstorms, and fog. There are 22 ASOS stations in Oregon.

### National Weather Service (NWS) - Cooperative Observer Program Sites

The National Weather Service (NWS) Cooperative Observer Program (COOP) consists of more than 10,000 volunteers who take observations on farms, in urban and suburban areas, National Parks, seashores, and mountaintops. The data are representative of where people live, work and play. The COOP was formally created in 1890 under the NWS Organic Act to provide observational meteorological data, usually consisting of daily maximum and minimum temperatures, snowfall, and 24-hour precipitation totals, required to define the climate of the United States and to help measure long-term climate changes, and to provide observational meteorological data in near real-time to support forecast, warning and other public service programs of the NWS. The data are also used by other federal, state and local entities, as well as private companies (such as the energy and insurance industries). In some cases, the data are used to make billions of

dollars' worth of decisions. For example, the energy sector uses COOP data to calculate the Heating and Cooling Degree Days which are used to determine individuals' energy bills monthly. There are 228 COOP sites in Oregon.

### National Weather Service (NWS) - NOAA Weather Radio All Hazards Transmitters

NOAA Weather Radio All Hazards (NWR) is a nationwide network of radio stations broadcasting continuous weather information directly from the nearest National Weather Service (NWS) forecast office. NWR broadcasts official NWS warnings, watches, forecasts and other hazard information 24 hours a day, 7 days a week. Working with the Federal Communication Commission's (FCC) Emergency Alert System, NWR is an "All Hazards" radio network, making it the single source for comprehensive weather and emergency information. In conjunction with federal, state, and local emergency managers and other public officials, NWR also broadcasts warning and post-event information for all types of hazards – including natural (such as earthquakes or avalanches), environmental (such as chemical releases or oil spills), and public safety (such as AMBER alerts or 911 Telephone outages). Known as the "Voice of NOAA's National Weather Service," NWR is provided as a public service by the NWS. NWR includes 1,100 transmitters covering all 50 states, adjacent coastal waters, Puerto Rico, the U.S. Virgin Islands, and the U.S. Pacific Territories. There are 24 NWR transmitters in Oregon.

### National Weather Service (NWS) - Incident Meteorologists

The NWS, as mandated by Congress, provides fire weather forecast products and services to the fire and land management community for the protection of life and property, promotion of firefighter safety, and stewardship of America's public wildlands. Since 1927, this effort has included providing critical on-scene support to wildfire managers via specially-trained NWS forecasters called Incident Meteorologists (IMETs). When a fire reaches a large enough size, IMETs are rapidly deployed to the incident and set-up a mobile weather center to provide constant weather updates and forecast briefings to the fire incident commanders. IMETs are very important members of the firefighting team, as changes in the fires are largely due to changes in the weather.

### Office of Oceanic and Atmospheric Research (OAR) - Oregon Sea Grant College Program

The National Sea Grant College Program (Sea Grant) is a federal-university partnership administered by NOAA that integrates research, extension outreach, and education. Sea Grant forms a national network of 34 programs in all U.S. coastal and Great Lakes states, Puerto Rico, and Guam. Oregon Sea Grant, based at Oregon State University (OSU) in Corvallis, is a broad program that develops and supports strongly integrated elements of research, education, extension, communications, and program administration to address the critical needs of the state, region, and nation. We serve as a catalyst, promoting discovery, understanding, and resilience among Oregon coastal communities and ecosystems. Our stakeholders - the people who live, work, and play on the Oregon coast - and an advisory council of coastal community leaders contribute to our work and provide external input on our emphasis and progress. Oregon Sea Grant provides peer-reviewed research through our external grants program and science-based professional, technical, and public education through our outreach and engagement professionals in critical topical areas focusing on ecological, social, and economic aspects of coastal development; adaptation to acute or chronic coastal hazards; human and natural dimensions of coastal and marine fisheries; and cultural beliefs, learning, and valuation of coastal and marine issues. Administrative offices are located in Corvallis. Extension agents are located in Astoria, Beaverton, Tillamook, Newport, Coos Bay, and Gold Beach. Get involved with Sea Grant through state and national opportunities like the John A. Knauss Marine Policy Fellowship program at <a href="mailto:seagrant.noaa.gov">seagrant.noaa.gov</a>.

#### National Ocean Service (NOS) - Regional Geodetic Advisor

The Regional Geodetic Advisor is a National Ocean Service (NOS) employee that resides in a region and serves as a liaison between the National Geodetic Survey (NGS) and its public, academic and private sector constituents within their assigned region. NGS has a Regional Geodetic Advisor stationed in Seattle, Washington serving the Northwest region –

Oregon, Idaho, and Washington. The Geodetic Advisor provides training, guidance and assistance to constituents managing geospatial activities that are tied to the National Spatial Reference System (NSRS), the framework and coordinate system for all positioning activities in the Nation. The Geodetic Advisor serves as a subject matter expert in geodesy and regional geodetic issues, collaborating internally across NOS and NOAA to ensure that all regional geospatial activities are properly referenced to the NSRS.

### National Ocean Service (NOS) - Pacific Northwest Bay Watershed Education and Training Program

The NOAA Bay Watershed Education and Training (B-WET) program is an environmental education program that promotes locally relevant, experiential learning in the K-12 environment. The primary delivery of B-WET is through competitive funding that promotes Meaningful Watershed Educational Experiences. The program fosters the growth of new, innovative programs in the Pacific Northwest region (Oregon and Washington) and encourages capacity-building and environmental education partnerships. The Pacific Northwest B-WET program recognizes that knowledge and commitment built from firsthand experience, especially in the context of one's community and culture, is essential for achieving environmental stewardship. Pacific Northwest B-WET responds to regional education and environmental priorities through local implementation of competitive grant funds and is supportive of partnerships between school districts and community organizations and institutions that are run by and/or serve marginalized groups, particularly minority communities. The Pacific Northwest B-WET regional program is managed by NOAA's Office of Education and NOAA's Olympic Coast National Marine Sanctuary.

### National Ocean Service (NOS) - Ocean Guardian School Program

An Ocean Guardian School makes a commitment to the protection and conservation of its local watersheds, the world's ocean, and special ocean areas, like national marine sanctuaries. Funds are provided to schools at \$4,000 per year if the school makes this commitment by proposing and then implementing a school- or community-based conservation project. Once the school has completed its project, the school receives official recognition as a NOAA Ocean Guardian School. To date, the Ocean Guardian School Program has reached more than 88,700 students and 3,500 teachers.

### National Ocean Service (NOS) - Students for Zero Waste Week

Students are inviting their local communities to "Go Green and Think Blue" by joining them in the annual *Students for Zero Waste Week campaign*. During this campaign led by the Office of National Marine Sanctuaries, students focus on reducing land-based waste in order to protect the health of local marine environments. These young leaders are raising awareness of how single-use plastic and other types of litter affect the health of local watersheds, national marine sanctuaries, and the ocean. In addition, some schools are looking at ways to reduce their energy use on campus with hopes of raising awareness of how the burning of fossil fuels also impacts the health of the ocean.

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More information for those offices may be found at NOAA.gov.