



Massachusetts

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 congressional districts and cities or towns, and then [statewide programs](#).

Highlights of NOAA in Massachusetts

Office for Coastal Management	Gloucester	MA-6
Waquoit Bay National Estuarine Research Reserve	Waquoit	MA-9
Woods Hole Laboratory	Woods Hole	MA-9
New England Bay-Watershed Education and Training Program	Statewide	MA
Northeast Fisheries Science Center	Statewide	MA

The state of Massachusetts also has one Cooperative Institute, one Weather Forecasting Offices, four Labs and Field Offices, one Science on a Sphere® exhibitions, and one National Estuarine Research Reserves.

[Weather Forecast Offices](#)

Norton MA-4

[NWS Weather Forecast Offices \(WFO\)](#) are staffed around-the-clock every day and provide the best possible weather, water, and climate forecasts and warnings to residents of Massachusetts. 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 on-site, during critical emergencies, such as wildfires, floods, chemical spills, and for major recovery efforts. 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.

[Science On a Sphere®](#)

New Bedford MA-9

[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. It is located at the Ocean Explorium in New Bedford

[MA- 2](#)

[Petersham \[Harvard Forest\]](#)

Office of Oceanic and Atmospheric Research (OAR) - [Halocarbon Measurements](#)

NOAA's Earth System Research Laboratory Global Monitoring Division (ESRL/GMD) operates a sampling network to measure the distribution and trends of the gases most responsible for human-caused depletion of the stratospheric ozone layer. Weekly samples are collected in high pressure flasks at fixed locations. The air sample flasks are delivered to ESRL/GMD, located in Boulder, CO for analysis. Some locations conduct continuous surface measurements on site. Halocarbon measurements help determine the effectiveness of efforts to protect and restore the ozone layer - so it can protect us from the sun's ultraviolet radiation.

[MA- 3](#)

[Worcester](#)

Office of Oceanic and Atmospheric Research (OAR) - [Carbon Cycle Gases and Halocarbons](#)

NOAA's Earth System Research Laboratory Global Monitoring Division (ESRL/GMD) operates a small aircraft-based North American network of sampling sites to measure vertical profiles of important greenhouse gas concentrations. Air is

sampled above the surface up to approximately 25,000 feet above sea level using a relatively small, light, and economical automated system developed by ESRL researchers. These air samples are delivered to ESRL/GMD in Boulder, Colorado for measurements of CO₂, CH₄, and other greenhouse gasses. This data will improve understanding and models of the global carbon cycle. Sampling is conducted bi-weekly. Some air samples from the small aircraft program are also analyzed for halocarbon gases that can destroy the stratospheric ozone layer. Halocarbon measurements help determine the effectiveness of efforts to protect and restore the ozone layer so it can protect us from the sun's ultraviolet radiation.

Office of Oceanic and Atmospheric Research (OAR) - [Ozone Measurements](#)

NOAA's Earth System Research Laboratory Global Monitoring Division (ESRL/GMD) conducts long-term monitoring of ozone at the surface, with aircraft, and with balloons, through cooperative relationships with local partners. The ESRL/GMD tropospheric ozone aircraft measurement program is being done in conjunction with the Carbon Cycle and Greenhouse Gas (CCGG) group's existing aircraft sampling network. Aircraft based in-situ tropospheric ozone measurements provide data relevant to: pollution events, lower atmosphere mixing dynamics, boundary layer stability, ozone trend studies, and the validity of other samples collected in-flight. Near ground level ozone is currently monitored using ultraviolet absorption photometers at eight sites that are generally representative of background conditions. These sites, four of which have records exceeding 25 years in length, provide information on possible long-term changes in tropospheric ozone near the surface and support air quality research.

MA- 4

[Norton](#)

National Environmental Satellite, Data, and Information Service (NESDIS) - [Eastern Regional Climate Services Director](#)

NOAA's six Regional Climate Services Directors (RCSDs), which are part of NCEI, support the development and delivery of a wide range of place-based climate science and information products and services to help people make informed decisions. RCSDs regularly communicate with stakeholders about climate information needs, and help build and strengthen active partner networks with public and private constituents. They play a primary role in integrating the work within NOAA and among its partners engaged in developing and delivering climate services at the regional level. These efforts serve to increase the value of climate information to users and support more efficient, cost-effective delivery of products and services.

National Weather Service (NWS) - [Northeast River Forecast Center](#)

Co-located with the NWS Weather Forecast Office about 30 miles south of Boston in Taunton, the NWS Northeast River Forecast Center (RFC) performs continuous river basin modeling and provides hydrologic forecast and guidance products for rivers and streams in New England and New York. 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](#)- See [Page 2](#) for details.

MA- 6

[Gloucester](#)

National Marine Fisheries Service (NMFS) - [Port Agent Field Office](#)

The Greater Atlantic Region's Port Agent Team works directly with the fishing industries of the region to provide in-person advice and support to fishermen and seafood dealers. Port agents also serve as a conduit for industry to relay information to the Regional Administrator and other NOAA staff about fishing industry concerns, thoughts and activities. Team members assist seafood dealers and vessel operators and owners with data reporting requirements, in navigating the permitting process, and with other Agency regulations and processes. They collect biological samples of seafood landed by commercial fishermen for use in fisheries stock assessments. They also provide the general public with information on fisheries and the marine environment by attending public events and through ad-hoc interactions.

National Marine Fisheries Service (NMFS) - [Northeast Inspection Branch, Laboratory and Education and Program Development](#)

NOAA's Seafood Inspection Program conducts a voluntary inspection program for fishery products on a fee-for-service basis. The Program offers a wide range of services to the area's fishermen, fish processors and fish brokers 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 used for animal foods, are eligible for inspection and certification.

National Marine Fisheries Service (NMFS) - [Atlantic Highly Migratory Species Management Division](#)

The Atlantic Highly Migratory Species Management Division manages Atlantic tuna, sharks, swordfish, and billfish under the Magnuson-Stevens Fishery Conservation and Management Act. In cooperation with an external advisory panel, the division develops and implements Fishery Management Plans for these species taking into account all domestic and international requirements under the Atlantic Tunas Convention Act, Marine Mammal Protection Act, the Endangered Species Act, and the Migratory Bird Treaty Act. The Gloucester office focuses primarily on Atlantic tuna fisheries, Atlantic bluefin tuna management and reporting, international trade, and recreational and commercial longline fishing.

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

The NOAA Office for Coastal Management practices a partner-based, boots-on-the ground regional approach to coastal management, with staff available in the eight regions. Assistance is provided to local, state, and regional coastal resource management efforts. Constituent feedback and assessments are an important part of the effort. New England staff are located in Durham, New Hampshire, Gloucester, Scituate and Woods Hole Massachusetts and Yarmouth, Maine. These employees represent NOAA on several regional ocean governance initiatives (e.g., Northeast Regional Ocean Council, Gulf of Maine Council, Northeast Regional Planning Body), coordinate NOAA involvement in ocean observing system activities, and support research reserves, coastal zone management, and other NOAA and state coordinated activities.

MA- 8

[Boston](#)

NOAA Office of Education — [Environmental Literacy Program](#)

NOAA's Environmental Literacy Program (ELP), administered by the Office of Education, provides grants and in-kind support to build the capacity of institutions and networks to advance NOAA's mission through formal (K-12) and informal education. In Massachusetts, ELP supports the **Museum of Science Boston** and the **New England Aquarium** (Boston) through Environmental Literacy Grants focused on helping people and their communities build the environmental literacy necessary to become more resilient to local weather and climate hazards. The **Museum of Science Boston's** project, conducted in partnership with Arizona State University, Northeastern University, and SciStarter, engages diverse groups of participants at 28 U.S. science centers in active learning and resilience planning about four natural hazards (heat waves, sea level rise, extreme precipitation, and drought). Participants will collect, analyze, and share data relevant to local resilience planners, learn about vulnerabilities through visualizations of geospatial data and participate in deliberative problem-solving, sharing perspectives about resilience strategies and their societal and environmental

trade-offs, formulating community resilience plans, and presenting findings and recommendations to resilience planners and the public. The **New England Aquarium** project works with the state's Metropolitan Area Planning Council to create community partnerships in three Boston-area communities that face severe risk from a changing climate – Chelsea, Hull, and Lynn, Massachusetts. **New England Aquarium** is further supported by ELP as a member of the Coastal Ecosystem Learning Center (CELC) Network, a consortium of 25 aquariums and marine science education centers with a reach of over 20 million people. The CELC Network works with NOAA and each member institution to engage the public in protecting coastal and marine ecosystems.

MA-9

New Bedford

NOAA Office of Education — [Environmental Literacy Program](#)

NOAA's Environmental Literacy Program (ELP), administered by the Office of Education, provides grants and in-kind support to build the capacity of institutions and networks to advance NOAA's mission through formal (K-12) and informal education. In Massachusetts, ELP supports the **Buttonwood Park Zoo** (New Bedford), which has a permanent exhibit featuring NOAA's Science On a Sphere and is a member of NOAA's SOS Users Collaborative Network. The SOS Network has more than 100 institutions worldwide, reaching over 60 million people, and shares best practices in using the sphere to bring the latest global forecasts and models to the public.

Fairhaven

National Marine Fisheries Service (NMFS) - Seafood [Inspection Office and Laboratory](#)

NOAA's National Seafood Inspection Program conducts a voluntary inspection program for fishery products on a fee-for-service basis. The Program offers services to the area's fishermen, fish processors and fish brokers including process and product inspection, product grading, lot inspection, laboratory analysis, and training. All edible foodstuffs, ranging from whole fish to formulated products, as well as fish meal used for animal foods, are eligible for inspection and certification.

Martha's Vineyard

Office of Oceanic and Atmospheric Research (OAR) - [Tall Tower Carbon Measurements](#)

NOAA's Earth System Research Laboratory Global Monitoring Division (ESRL/GMD) operates trace gas monitoring sites at tall television transmitter towers in five states, including Massachusetts. The sites were established to extend ESRL/GMD's monitoring network into the interior of North America in order 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 (> 400 meter) transmitter towers as platforms for in situ and flask sampling for atmospheric trace gases.

Office of Oceanic and Atmospheric Research (OAR) - [Cooperative Global Air Sampling Network](#)

NOAA's Earth System Research Laboratory Global Monitoring Division (ESRL/GMD) operates a Cooperative Global Air Sampling Network to measure the distribution and trends of carbon dioxide (CO₂) and methane (CH₄), the two gases most responsible for human-caused climate change, as well as other greenhouse gases and volatile organic compounds. Samples are collected weekly at fixed locations and on several commercial ships. The air samples are delivered to ESRL/GMD, located in Boulder, CO. The observed geographical patterns and small but persistent spatial gradients are used to better understand the processes, both natural and human induced, that underlie the trends. These measurements help determine the magnitude of carbon sources and sinks in North America.

Office of Oceanic and Atmospheric Research (OAR) - [Halocarbon Measurements](#)

NOAA's Earth System Research Laboratory Global Monitoring Division (ESRL/GMD) operates a sampling network to measure the distribution and trends of the gases most responsible for human-caused depletion of the stratospheric ozone

layer. Weekly samples are collected in high pressure flasks at fixed locations. The air sample flasks are delivered to ESRL/GMD, located in Boulder, CO for analysis. Some locations conduct continuous surface measurements on site. Halocarbon measurements help determine the effectiveness of efforts to protect and restore the ozone layer - so it can protect us from the sun's ultraviolet radiation.

New Bedford

National Marine Fisheries Service (NMFS) - [Port Agent Field Office](#)

The Greater Atlantic Region's Port Agent Team works directly with the fishing industries of the region to provide in-person advice and support to fishermen and seafood dealers. Port agents also serve as a conduit for industry to relay information to the Regional Administrator and other NOAA staff about fishing industry concerns, thoughts and activities. Team members assist seafood dealers and vessel operators and owners with data reporting requirements, in navigating the permitting process, and with other Agency regulations and processes. They collect biological samples of seafood landed by commercial fishermen for use in fisheries stock assessments. They also provide the general public with information on fisheries and the marine environment by attending public events and through ad-hoc interactions.

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

NMFS Restoration Center assists the New Bedford Harbor Trustee Council to implement restoration projects that address the injury to natural resources caused by the release of hazardous substances into New Bedford Harbor and the Acushnet River. The Council administers a fund derived from settlements with manufacturers that discharged polychlorinated biphenyls into the harbor and river. To date the Council has completed over 21 restoration projects including restoration of salt marsh, fish passage, eelgrass and shellfish, land protection, and recreational park construction. Additionally, NOAA's Damage Assessment, Remediation, and Restoration Program acts as a trustee for natural resources on behalf of the public.

The Damage Assessment, Remediation, and Restoration Program collaborates with federal, state, and tribal entities and also works with cleanup agencies (such as the Environmental Protection Agency), local organizations, the public, and those responsible for the incident to protect coastal and marine natural resources; respond to discharges of oil and hazardous substances; assess risks and injuries to natural resources; and restore injured natural resources and related socioeconomic benefits.

Office of Oceanic and Atmospheric Research (OAR) - [Science On a Sphere®](#) - See [Page 2](#) for details.

Waquoit

National Ocean Service (NOS) - [Waquoit Bay National Estuarine Research Reserve](#)

The National Estuarine Research Reserve System is a network of protected areas focused on long-term research, monitoring, stewardship, education, and training. NOAA's Office for Coastal Management provides funding and national guidance, and each site is managed on a daily basis by a lead state agency or university with input from local partners. The 2,837-acre Waquoit Bay Research Reserve, designated in 1988 and managed by the Massachusetts Department of Conservation and Recreation, is on one of the Northeast's most studied estuaries. Habitats in this reserve include tributary streams, ponds, and vernal pools which support unique vegetation and animal communities including amphibians and anadromous fish.

Woods Hole

National Marine Fisheries Service (NMFS) - [Woods Hole Laboratory](#)

The Northeast Science Center focuses on collection, analysis, and presentation of scientific information about the Northeast Shelf ecosystem, its condition, and its marine life. In addition to its five laboratories, the Center uses

three NOAA owned research vessels to support its work. They are the NOAA Ship *Henry B. Bigelow*, and the small research vessels *Gloria Michelle* and *Victor Loosanoff*. The Greater Atlantic Regional Office and the Science Center are responsible for the District of Columbia and the following states: Maine, New Hampshire, Massachusetts, Rhode Island, Connecticut, New York, New Jersey, Pennsylvania, Delaware, Maryland, Virginia, and North Carolina; and the inland states of Vermont, Minnesota, Michigan, Wisconsin, Illinois, Indiana, Ohio, and West Virginia. NOAA's Northeast Fisheries Science Center's Woods Hole Laboratory is the nation's original federal marine fisheries laboratory. Research emphasis is on the natural and life history of the region's important seafood species, federally protected marine species, science supporting ecosystem-based resource management, and the sociological and economic condition of the fishing business. It also houses the Woods Hole Science Aquarium, the nation's oldest public display aquarium.

Office of Oceanic and Atmospheric Research (OAR) - [Cooperative Institute for the North Atlantic Region](#)

The Cooperative Institute for the North Atlantic Region (CINAR) was established at Woods Hole Oceanographic Institution (WHOI). CINAR is a consortium of universities, led by WHOI, in partnership with Rutgers University, the University of Maryland Center for Environmental Science, University of Maine, and the Gulf of Maine Research Institute. The mission of CINAR is to conduct and coordinate cutting-edge research engaging both NOAA and academic scientists to enable informed decisions by NOAA for sustainable and beneficial management of northwestern Atlantic shelf ecosystem.

MA

[Statewide](#)

National Marine Fisheries Service (NMFS) - [New England 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 (MWEEs). The New England 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. New England B-WET responds to regional education and environmental priorities through local implementation of competitive grant funds.

National Marine Fisheries Service (NMFS) - [Greater Atlantic Regional Fisheries Office](#) and [Northeast Fisheries Science Center](#)

NMFS is responsible for the management, conservation and protection of living marine resources within the United States' Exclusive Economic Zone (water three to 200 mile offshore). Using the tools provided by the *Magnuson-Stevens Act*, NMFS assesses and predicts the status of fish stocks, develops and ensures compliance with fisheries regulations, restores and protects habitat and works to reduce wasteful fishing practices, and promotes sustainable fisheries. Under the *Marine Mammal Protection Act* and the *Endangered Species Act*, NMFS recovers protected marine species (e.g. whales, turtles). The Greater Atlantic Regional Fisheries Office (located in Gloucester, MA) includes divisions that promote sustainable fisheries, habitat conservation, and recovery of protected species, and conducts statistical analysis and programs supporting these divisions. Key fish species managed in the Greater Atlantic Region include the northeast "multispecies complex" (cod, haddock, yellowtail flounder etc.), Atlantic sea scallops, herring, lobster, and summer flounder. Key marine endangered species in this region are northern right whales, Kemp's ridley sea turtles, Atlantic salmon and Atlantic and shortnose sturgeon. NMFS is the lead agency coordinating the Large Whale and Sea Turtle Disentanglement Program activities and the Marine Mammal Health and Stranding Response Program activities. The core functions of these programs include coordinating volunteer networks to: respond to entanglements and strandings, investigate mortality events, and conduct biomonitoring, tissue/serum banking, and analytical quality assurance.

The Northeast Fisheries Science Center (headquartered in Woods Hole, MA) focuses on collection, analysis, and presentation of scientific information about the Northeast Shelf ecosystem, its condition, and its marine life. In addition to its five laboratories, the Center uses four research vessels to support its work. They are: the NOAA Ship *Henry B.*

Bigelow, and the small research vessels *Gloria Michelle* and *Victor Loosanoff*. The Greater Atlantic Regional Fisheries Office and the Science Center are responsible for the District of Columbia and the following states: Maine, New Hampshire, Massachusetts, Rhode Island, Connecticut, New York, New Jersey, Pennsylvania, Delaware, Maryland, Virginia, and North Carolina; and the inland states of Vermont, Minnesota, Michigan, Wisconsin, Illinois, Indiana, Ohio, and West Virginia.

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

The NOAA Restoration Center, within the Office of Habitat Conservation, works with private and public partners locally and nationwide to increase fisheries productivity by restoring coastal habitat. Projects support sustainable fisheries, help recover threatened and endangered species, and reverse damage from disasters like oil spills, ship groundings, and severe storms. Since 1992, they have provided more than \$750 million to implement more 3,300 coastal habitat restoration projects. In Massachusetts, the Restoration Center works to construct fish ladders at dams, remove dams, widen bridges, modify culverts to improve tidal flushing in coastal wetlands, and restore submerged aquatic vegetation. There are about 30 active restoration projects in Massachusetts that are being supported by the NOAA Restoration Center. Most of these projects focus on restoring fish passage for anadromous river herring as well as projects designed to restore coastal wetlands.

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 28 coast 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 Northeast Division is headquartered in Gloucester, Mass., with field offices in Boston, New Bedford, Scituate, and Falmouth, as well as in Maine, New Hampshire, New Jersey, New York, Virginia and Maryland.

National Marine Fisheries Service (NMFS) and National Ocean Service (NOS) - [Damage Assessment, Remediation, and Restoration Program](#)

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. In Massachusetts, the Program is currently working to restore natural resources in cases including the Bouchard Barge 120 oil spill, and the GE Housatonic River, and the Former Gloucester Gas and Light Manufacturing Gas Plant hazardous waste.

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 Montpelier, Vermont serving the Northeast region – Connecticut, Maine, Massachusetts, New Hampshire, New Jersey, New York, Rhode Island, and Vermont. 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 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, updating observations every minute, 24 hours a day, every day of the year 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 19 ASOS stations in Massachusetts.

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

The National Weather Service (NWS) Cooperative Observer Program (COOP) is the Nation's weather and climate observing network of, by and for the people. More than 10,000 volunteers 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 created to provide observational meteorological data 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. 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 60 COOP sites in Massachusetts.

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 six NWR transmitters in Massachusetts.

NOAA Office of Education — [Environmental Literacy Program](#)

NOAA's Environmental Literacy Program (ELP), administered by the Office of Education, provides grants and in-kind support to build the capacity of institutions and networks to advance NOAA's mission through formal (K-12) and informal education. In Massachusetts, ELP supports the Blue Lobster Bowl in Massachusetts, one of 25 regional competitions of the National Ocean Sciences Bowl (NOSB). The NOSB is an academic competition that engages high school students in learning about ocean sciences and related STEM careers while helping them become knowledgeable citizens and environmental stewards. ELP supports the American Meteorological Society's DataStreme courses for K-12 educators through a grant and in-kind support. Local implementation teams in the state offer DataStreme courses that use weather, climate, and the ocean as contexts for teaching science and improving understanding about the Earth system.

Office of Oceanic and Atmospheric Research (OAR) - [Massachusetts Institute of Technology Sea Grant College Program](#)

NOAA's National Sea Grant College Program is a federal-university partnership that integrates research, education and outreach. Sea Grant forms a network of 33 programs in all U.S. coastal and Great Lakes states, Puerto Rico, and Guam. The Massachusetts Institute of Technology Sea Grant College Program sponsors marine research guided by local and national research needs. For maximal potential impact, research is focused on specific theme areas, including marine biotechnology, coastal management and utilization, technology development, non-indigenous species, and coupled ocean observation and modeling. Knowledge and creativity is applied to address relevant and timely issues in collaboration with researchers and academics from other Massachusetts universities and institutions. Early efforts to build inexpensive autonomous underwater vehicles (AUV) became a commercial success story, with innovative engineering then leading to the development of Robotuna, resulting in further improvements for AUV propulsion. The Marine Advisory Services focuses on water quality, invasive species, fisheries, and other issues vital to coastal communities as the climate changes. Education programs include hands-on training and mentoring of high school and college students to become the next generation of ocean science and engineering researchers. Community partners and advisory committees drawn from academic circles, non-government organizations, industry leaders, and state and local government, help establish priorities and shape the research program.

Office of Oceanic and Atmospheric Research (OAR) - [Woods Hole Oceanographic Institution Sea Grant Program](#)

NOAA's National Sea Grant College Program is a federal-university partnership that integrates research, education and outreach. Sea Grant forms a network of 33 programs in all U.S. coastal and Great Lakes states, Puerto Rico, and Guam. The Woods Hole Oceanographic Institution Sea Grant Program serves Massachusetts, and research targets healthy coastal ecosystems, sustainable fisheries and aquaculture, resilient communities and economies, and environmental literacy and workforce development. Projects in those themes include examining the effects of nitrogen loading on coastal ecosystems, developing an autonomous warning system for stranding of marine mammals, monitoring harmful algal blooms, and developing policy analysis and planning for community resilience. Extension and outreach activities include helping communities deal with coastal erosion and resilience planning, understanding disease processes in commercially important shellfish, working with communities on shellfish resource management, managing marine debris, and providing teacher workshops for math and science teachers throughout New England.

[Coastal](#)

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 Massachusetts, 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 Massachusetts Division of Marine Fisheries has received funding through this program to support projects focused on North Atlantic right whales and leatherback sea turtles.

National Marine Fisheries Service (NMFS) - [Sea Turtle Salvage and Stranding Network](#)

The Sea Turtle Stranding and Salvage Network (STSSN) was formally established in 1980 to collect information on and document strandings of marine turtles along the U.S. Gulf of Mexico and Atlantic coasts. The network, which includes federal, state and private partners, encompasses the coastal areas of the eighteen-state region from Maine to Texas, and

includes portions of the U.S. Caribbean. Data gathered by the Network helps inform bycatch reduction efforts, track factors affecting turtle health, and provide other information needed for sea turtle management and population recovery.

National Marine Fisheries Service (NMFS) - [National Marine Mammal Stranding Network](#) and [John H. Prescott Marine Mammal Rescue Assistance Grant Program](#)

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 seven 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.

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

The National Ocean Service (NOS) operates three long-term, continuously operating tide stations in the state of Massachusetts that 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 Boston, Nantucket and Woods Hole. These stations also include meteorological sensors. 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 to help connect the water level to land.

National Ocean Service (NOS) - [PORTS®](#)

A Physical Oceanographic Real-Time System (PORTS®) is operated cooperatively with the local maritime community in the Cape Cod region. Real-time data are quality-controlled and disseminated to local users for safe and efficient navigation and includes a wave buoy that provides wave height, direction and period, as well as water temperature in Cape Cod Bay.

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

NOAA's navigation managers work directly with pilots, port authorities, and recreational boating organizations in Massachusetts. They help identify the navigational challenges facing marine transportation in Massachusetts 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 Narragansett, RI to support mariners and stakeholders in the Northeast region.

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 Massachusetts Office of Coastal Zone Management is hosting a fellow from 2017-2019 who is designing and applying a method to prioritize habitats at risk and inform robust policies and strategies that will increase the resilience of important resource areas.

National Ocean Service (NOS) - [Northeast Regional Ocean Council](#)

NROC was formed in 2005 by the Governors of the New England states — Maine, New Hampshire, Vermont, Massachusetts, Rhode Island, and Connecticut — to serve as a forum for the development of goals and priorities and address regional coastal and ocean management challenges with creative solutions. Recognizing the importance of the national role in these regional issues, NROC was expanded to include NOAA and other federal agencies as members of the Council. In addition to its members, NROC works with bordering states, countries, and other partners as needed. NROC's work is organized under three subcommittees: Ocean and Coastal Ecosystem Health, Coastal Hazards Resilience and Ocean Planning.

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. To date the program has protected more than 100,000 acres of land with program funds and over 16,000 acres with an in-kind match. 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. Six projects were successfully completed in Massachusetts, and these lands are protected in perpetuity.

National Ocean Service (NOS) – [National Coastal Zone Management Program](#)

Through a unique federal-state partnership, NOAA's Office for Coastal Management works with the Massachusetts Executive Office of Environmental Affairs to implement the National Coastal Zone Management Program in Massachusetts. 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) and National Marine Fisheries Service (NMFS) – [Coastal Resilience Grant Award](#)

These grants help coastal communities prepare for and recover from extreme weather events, climate hazards, and changing ocean conditions. The focus is on comprehensive regional approaches that use science-based solutions and rely on collaborative partnerships. In Massachusetts, the NOAA Office for Coastal Management awarded four grants that are ongoing in 2018, including a grant to the Cape Cod Commission to develop economic, social, and environmental information needed to develop climate change adaptation plans; a grant to the Northeast Regional Association of Coastal and Ocean Observing Systems (NERACOO) to build resilience in coastal New England by documenting and projecting storm impacts, and implement sustainable, nature-based infrastructure approaches; a grant to The Nature Conservancy to reduce risks from coastal flooding by implementing and monitoring a range of nature-based infrastructure projects, evaluating their effectiveness, and sharing best practices; and a grant to the Jones River Watershed Association to remove a dam and spillway, which will eliminate safety risks, improve water quality, and increase spawning access to nine stream miles.

National Ocean Service (NOS) - [Stellwagen Bank National Marine Sanctuary](#)

Stellwagen Bank National Marine Sanctuary is an 842-square-mile open ocean site located at the mouth of Massachusetts Bay. Historically important as a fishing ground for over 400 years, the area has more recently gained fame as one of the world's top whale watching destinations. In efforts to better understand and protect these marine mammals, the sanctuary has led the way in developing innovative research, monitoring and outreach programs for whale conservation. Non-invasive digital acoustic tags and video units have been revealing underwater movements, including previously unknown feeding behaviors of humpback whales. Acoustic monitoring technology provides data on right whale distribution, the effects of anthropogenic noise on whale vocalizations and behavior, as well as communication among other species, such as cod. Additional research studies focus on sand lance, a key forage fish species, and great shearwaters, an important summer seabird, which provide insights into food web dynamics and environmental conditions. An active citizen science program assists in documenting seabird populations year-round. Shipwreck documentation has resulted in the listing of seven shipwrecks at six sites on the National Register of Historic Places. Through education partnerships, sanctuary exhibits now reside in the New England Aquarium and Maritime Gloucester while smaller exhibits travel throughout the sanctuary region. The administrative office for this sanctuary is in Scituate.

National Ocean Service (NOS) - [Scientific Support Coordinator and Regional Resource Coordinator](#)

NOAA's Office of Response and Restoration (OR&R) brings decades of experience, technical expertise and scientific analysis in response to oil and hazardous chemical spills from local emergencies like ship collisions and groundings in Buzzards Bay and Woods Hole, to events that draw national attention like Hurricane Sandy. Nine regionally based Scientific Support Coordinators (SSCs) harness the input of a multi-disciplinary team to address issues such as oil slick trajectory forecasting, environmental trade-offs, best practices, resources at risk, oil science and properties, and chemical hazard assessment to reduce risks to coastal habitats and resources. The SSC works directly with U.S. Coast Guard and the U.S. Environmental Protection Agency to provide critical scientific support to the Federal On-Scene Coordinator. OR&R also helps develop preparedness plans that identify spill response actions with the greatest environmental benefit and trains hundreds of members of the response community each year on the scientific and technical aspects of spills. Massachusetts' SSC is based in Boston.

OR&R's Regional Resource Coordinators (RRCs) provide scientific and technical expertise and timely response to oil spills or hazardous materials releases to collect information, samples, and evidence that are time dependent and critical to support natural resource damage assessments throughout the coastal US. RRCs work on multi-disciplinary scientific, economic, and legal teams and are responsible for determining and quantifying injuries to NOAA trust natural resources through determination of injuries and pathway, and demonstration of causal mechanisms. The goal of the RRCs efforts is to determine, often through the Damage Assessment, Remediation, and Restoration Program, the appropriate amount and type of restoration required to restore injured NOAA trust resources and compensate the public for their lost use. Massachusetts' SSC and RRC are based in Boston.

National Ocean Service (NOS) - [Atlantic Environmental Response Management Application](#)

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. Atlantic Environmental Response Management Application (ERMA[®]) is an online mapping tool that integrates both static and real-time data, such as Environmental Sensitivity Index maps, ship locations, weather, and ocean currents, in a centralized, easy-to-use format for environmental responders and decision makers. In the fall of 2012, Atlantic ERMA was employed as the Common Operational Picture for the U.S. Coast Guard's pollution response to Hurricane Sandy in New York and New Jersey waters.

National Ocean Service (NOS) - [Marine Debris Projects and Partnerships](#)

The NOAA Marine Debris Program (MDP) leads national and international efforts to research, prevent, and 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 Northeast Regional Coordinator is based in Gloucester and fosters coordination efforts across regional stakeholders, provides support to grant-funded projects, tracks progress of projects, and conducts regional marine debris presentations for local audiences. In Massachusetts, The Center for Coastal Studies has obtained special permits to mobilize volunteers to identify, document, and properly dispose of derelict fishing gear from Cape Cod Bay and the Cape Cod National Seashore. Volunteers include commercial and recreational fishers, middle school students, the Environmental Police, private and municipal solid waste disposal providers, surfers, and other coastal interest groups. In a MDP-funded research project, the Woods Hole Oceanographic Institution is conducting fieldwork and laboratory experiments to calculate the risk of microplastic ingestion to scallop populations. The MDP has also been working with stakeholders to develop the Gulf of Maine Marine Debris Action Plan.

National Ocean Service (NOS) - [Northeastern Regional Association of Coastal Ocean Observing Systems](#)

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. NERACOOS, the Northeastern Regional Association of Coastal Ocean Observing Systems, is one of the 11 Regional Associations and includes the coastal waters of Maine, New Hampshire, Massachusetts, Rhode Island, Connecticut, and Canada. The mission of NERACOOS is to produce, integrate and communicate high quality information that helps ensure safety, economic and environmental resilience, and sustainable use of the coastal ocean. NERACOOS collaborates with partners in the northeast to operate a system of ocean observing assets and models that deliver near real-time observations and forecasts of ocean and weather conditions. Many stakeholders including the U.S. Coast Guard, National Weather Service, commercial mariners, water quality and emergency managers rely on NERACOOS information for their day-to-day operations.

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.

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