NOAA NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION
UNITED STATES DEPARTMENT OF COMMERCE

# *NOAA In Your State*

# 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, coastal programs, and then statewide programs.***

## *Highlights of NOAA in Massachusetts*

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

| | | |
|---|---|---|
| Bipartisan Infrastructure Law (BIL) / Inflation Reduction Act (IRA) Projects | Project Specific | 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 Reserve.

## *Weather Forecast Offices*

Boston MA-8

**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 Massachusetts. There are 122 WFOs nationwide of which one is in Massachusetts. Highly trained forecasters issue warnings and forecasts for weather 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, 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 Massachusetts weather, visit www.weather.gov and, on the national map, click on the relevant county or district.

## *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 Buttonwood Park Zoo in New Bedford

### *MA- 2*
### *Petersham [Harvard Forest]*

**Office of Oceanic and Atmospheric Research (OAR) - Halocarbon Measurements**

NOAA's Global Monitoring Laboratory (GML) 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 GML 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) - Global Greenhouse Gas Reference Network; Halocarbon 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 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, and other greenhouse gasses, and ozone depleted 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.

### *MA- 4*
### *Taunton*

**National Environmental Satellite, Data, and Information Service (NESDIS) - National Centers for Environmental Information (NCEI) - 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 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. The Eastern RCSD region encompasses Maine, New Hampshire, Vermont, Massachusetts, Rhode Island, Connecticut, New York, New Jersey, Delaware, Pennsylvania, Maryland, Ohio, West Virginia, Virginia, North Carolina, and South Carolina.

**National Weather Service (NWS) - 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**
Co-located with the NWS Northeast River Forecast Center, about 30 miles south of Boston in Taunton, this NWS Weather Forecast Office (WFO) is staffed around-the-clock every day, and provides the best possible weather, water, and climate forecasts and warnings to residents of Massachusetts and Rhode Island. 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 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.

### *MA- 6*
### *Gloucester*

**National Marine Fisheries Service (NMFS) - Northeast Inspection Office and Laboratory and National Training Section**
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. 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) - 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.

The **Regional Preparedness Coordinator** (RPC) is strategically placed within the region to ensure that NOS and our partners are able to effectively prepare for, respond to, and recover from all hazards, including coastal disasters. The RPC serves as a liaison between NOS and its federal, state, and local disaster preparedness and emergency response partners. A key role of the RPC is to better understand the needs and opportunities within the region and to ensure partners have the tools and resources necessary to inform decision-making. The RPC has expertise across the spectrum of emergency management and provides preparedness, response, and recovery services including planning, training, exercises, response coordination, continuous improvement, and long-term recovery. The RPC, based in Gloucester, Massachusetts, serves the Northeast region – Connecticut, Maine, New Hampshire, Vermont, Massachusetts, New Jersey, Rhode Island, and New York.

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 in Massachusetts is based in Gloucester.

The **NOAA Marine Debris Program (MDP)** in the Office of Response and Restoration (OR&R) supports national and international efforts to reduce the impacts of marine debris. The MDP New England Regional Coordinator, based in Gloucester, Massachusetts, 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. The MDP East Coast Marine Debris Specialist is also based in Gloucester, Massachusetts.

### *MA- 8*
### *Boston*

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

In Massachusetts, NOAA's Office of Education provides support to the New England Aquarium in Suffolk 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.

**NOAA Office of Oceanic and Atmospheric Research (OAR)- National Integrated Heat Health Information System (NIHHIS) Center for Collaborative Heat Monitoring**

The National Integrated Heat Health Information System (NIHHIS) Centers of Excellence, made available through funds appropriated to NOAA by the Inflation Reduction Act, allow NIHHIS to enhance community science observations and data collection on extreme heat, and provide assistance to communities planning for and evaluating equitable heat resilience projects. The Center for Collaborative Heat Monitoring will support community science observations and data collection on extreme heat so communities can observe, monitor and evaluate factors influencing heat risk at a local scale. The center will be based at the Museum of Life and Science in Durham, N.C. with additional technical support from CAPA Strategies, Utah State University, and AQUEHS Corp. The center will also include three additional geographically dispersed sites, each serving a different region of the U.S. Each of these sites will help manage a network of urban heat island mapping campaigns in their region, tailoring the campaigns to unique local characteristics, engaging regional communities, and connecting with existing networks for public education and engagement. In addition to the Museum of Life and Science, these hubs include the Arizona Science Center, the Oregon Museum of Science and Industry and the Museum of Science

in Boston. The center will build on eight years of NIHHIS efforts to map urban heat islands in over 80 U.S. and international communities. NIHHIS is an integrated information system supporting equitable heat resilience run out of NOAA's Climate Program Office. The NIHHIS Centers of Excellence will work alongside community members and community-based organizations to advance place-based heat information and decision-making, so they can reduce heat-related illness and death, harmful infrastructure impacts and other heat risks.

### *MA- 9*

### *Falmouth*

**Office of Oceanic and Atmospheric Research (OAR) - Ocean Exploration Cooperative Institute (WHOI affiliate)**
NOAA Ocean Exploration's presence in Falmouth, MA is based on the campus of the Woods Hole Oceanographic Institution (WHOI) where the office supports the Ocean Exploration Cooperative Institute, headquartered at URI, which amplifies exploratory science and technology, and expands NOAA's capabilities for its ocean exploration portfolio.The Ocean Exploration Cooperative Institute (OECI) is a unique consortium of top oceanographic institutions—several graduate degree-granting institutions, an ocean exploration non-profit, and task-specific affiliates. The membership includes the University of Rhode Island, the University of New Hampshire, the University of Southern Mississippi, Woods Hole Oceanographic Institution, and Ocean Exploration Trust. They work as one to advance the core priorities of NOAA Ocean Exploration and have a mission to explore, map, and characterize the nation's vast ocean territory, to develop and implement new technologies, and to engage future generations of ocean scientists, engineers, and stakeholders. The Woods Hole Oceanographic Institute is home to Research Vessel Atlantis, Research Vessel Neil Armstrong, Research Vessel Tioga, Remotely Operated Vehicle System Jason/Medea, Human Occupied Vehicle Alvin, Hybrid Remotely Operated Vehicle Nereid Under Ice (NUI), Autonomous Underwater Vehicle Sentry, Autonomous Underwater Vehicle Mesobot, and Autonomous Underwater Vehicle Orpheus.

### *Mashpee - Cape Cod*

**Office of Oceanic and Atmospheric Research (OAR) - Global Greenhouse Gas Reference Network and Halocarbon Measurements**
NOAA's Global Monitoring Laboratory (GML) operates trace gas monitoring sites at tall towers in eight states, including Massachusetts. 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.

### *Nantucket*

**Office of Oceanic and Atmospheric Research (OAR) - Wind Forecast Improvement Project**
From fall of 2023 through summer of 2025 the Physical Sciences Laboratory (PSL) is partnering with other NOAA laboratories, U.S. Department of Energy, universities, and Woods Hole Oceanographic Institution on the third Wind Forecast Improvement Project (WFIP3). WFIP3 involves deploying and operating a 3-D multiscale sensor array to characterize the vertical and horizontal structure of the marine boundary layer, providing key observations to help better understand the mesoscale atmospheric and oceanographic processes that directly affect wind resource characterization in the U.S. East Coast offshore environment.  Specifically, PSL is operating a 915-MHz wind profiler, infrared spectrometer, microwave radiometer, ceilometer, W-band radar, microbarograph array, and meteorological tripod at a water treatment plant on Nantucket Island.

### *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.

**NOAA Office of Education - Science On a Sphere®** at Buttonwood Park Zoo.
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.

### *Plymouth*

**NOAA Office of Education - Environmental Literacy Program**
The Environmental Literacy Program (ELP), administered by NOAA's Office of Education, provides grants and support for formal (K-12) and informal education to advance the agency's mission. In Massachusetts, ELP funded a project by the Manomet in Plymouth County. The project aims to build the environmental literacy of children, youth, and adults so that they can become knowledgeable about ways to increase their community's resilience to extreme weather, climate change, and other environmental hazards, and be involved in achieving that resilience. To achieve this goal, the project integrates relevant state and local resilience plans and collaborates with stakeholders who are actively implementing these plans. The Manomet project employs NOAA resources and educational methods to promote community-level environmental literacy, enabling participants to better comprehend threats and implement solutions that build resilience to extreme weather, climate change, and other environmental hazards. Environmental literacy includes the knowledge, skills, and confidence to 1) reason about the ways that human and natural systems interact globally and locally; 2) participate in civic processes; and 3) incorporate scientific information, cultural knowledge, and diverse community values when taking action to anticipate, prepare for, respond to, and recover from environmental hazards, including mitigating and adapting to climate change.

### *Waquoit*

**National Ocean Service (NOS)** - **Waquoit Bay National Estuarine Research Reserve**
The 2,837 acre Waquoit Bay Research Reserve, designated in 1988 and managed by the Massachusetts Department of Conservation and Recreation, studies the Cape Cod area in order to improve the understanding of coastal ecosystems and human influences on them, then translating that information to promote more informed decision making regarding coastal resources. Topics range from blue carbon and groundwater dynamics to green home practices, climate change, and ecological gardening techniques. Reserve staff work with local schools and help teachers implement classroom curricula on coastal topics.

**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 the Waquoit Bay National Estuarine Research Reserve will focus their research on the effects of sea level rise-driven vegetation shifts and die-off on greenhouse gas fluxes.

### *Woods Hole*

**National Marine Fisheries Service (NMFS) - Woods Hole Laboratory**
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, long-term monitoring,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 awarded to Woods Hole Oceanographic Institution (WHOI). CINAR serves as a mechanism to promote collaborative research between university scientists and those in NOAA. The mission of CINAR is to conduct and coordinate innovative and multidisciplinary research, engaging NOAA and academic scientists to enable informed decisions for sustainable and beneficial management of the U.S. Northeast continental shelf ecosystem. CINAR conducts research across five themes: (1) sustained ocean observations and climate research; (2) ecosystem research, observation, and modeling; (3) stock assessment research; (4) protected species research and recovery; and (5) ecosystem based fisheries management.

**Office of Oceanic and Atmospheric Research (OAR) -** Global Ocean Monitoring and Observing Program (GOMO)
The Global Ocean Monitoring and Observing Program supports research conducted at the Woods Hole Oceanographic Institution. NOAA-funded scientists here work on a variety of research activities to sustain, expand and improve global ocean observations that inform weather and climate forecasts and help scientists understand how the ocean is changing over annual to decadal timescales from the surface to the seafloor. Woods Hole is a member of the NOAA OneArgo Consortium, and houses an Argo Lab where scientists build and test floats as well as coordinate operations for the U. S. Argo Program. NOAA also funds science and research at Woods Hole for fixed-point time-series moorings part of the international OceanSITES network.

**NOAA Commissioned Officer Corps (NOAA Corps) and Office of Marine and Aviation Operations (OMAO) - NEFSC Administrative and Operational Support**
The NOAA Commissioned Officer Corps stations multiple officers alongside OMAO civilian employees with the Northeast Fisheries Science Center (NEFSC) in support of fisheries operations in the North and Mid-Atlantic. These individuals fill various roles, including the Chief of Staff for NEFSC, Officer in Charge (OIC) and Junior Officer in Charge (JOIC) of the *Gloria Michelle*, and as facility management personnel. In these roles, NOAA Corps officers and OMAO civilians provide necessary functions, such as planning and managing budgets, directing both shoreside and underway logistics for all sizes of NOAA vessels, and liaising with local, State and Federal agencies to coordinate operations throughout the region.

### *Coastal*

**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 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 multiple awards through this program, including grants to support projects focused on North Atlantic right whales and 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, monitor 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 five 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. For fiscal year 2020, 43 competitive Prescott Grants were awarded for a total of $3.7 million nationwide, with three awards totalling $273,830 going to two recipients in Massachusetts: the International Fund for Animal Welfare and the National Marine Life Center, Inc.

**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. Massachusetts received funding for two projects in FY22 and two projects in FY23, as well as funds to build the state's capacity to protect its coastal communities and resources.

**National Ocean Service (NOS)** - **National Water Level Observation Network**
The National Ocean Service (NOS) operates ten 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. 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) - Cape Cod-Buzzards Bay PORTS®**
A Physical Oceanographic Real-Time System (PORTS®) is operated cooperatively with the local maritime community near Cape Cod. Real-time data are quality-controlled and disseminated to local users for safe and efficient navigation and include wave observations in Cape Cod and Buzzards Bay and tidal current observations at the West End of the Cape Cod Canal. Water level and meteorological observations from two locations are also included in this system.

**National Ocean Service (NOS) - Navigation Manager**
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. 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) - 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. 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-New London is homeported in New London, CT at the USCG Research and Development Center and is able to respond in the Northeast 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. 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) – Digital Coast**
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 restores, increases, and strengthens natural infrastructure to protect coastal communities while also enhancing habitats for fish and wildlife. The National Fish and Wildlife Foundation (NFWF) executes this program in partnership with NOAA to invest in conservation projects that restore or expand natural features, such as coastal marshes and wetlands, dune and beach systems, oyster and coral reefs, forests, coastal rivers and floodplains, and barrier islands, which minimize the impacts of storms and other naturally occurring events on nearby communities. In Massachusetts, 17 projects have been funded: one in FY18, three in FY19, four in FY21, three in FY22, and six in FY23.

**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. Important as a fishing ground for over 400 years, the area has more recently gained fame by being designated as one of the world's top destinations for viewing whales, seabirds and other marine wildlife. In efforts to better understand and protect these marine animals, the sanctuary has become a leading force in research and monitoring. State-of-the–art non-invasive digital synchronous motion, acoustic and video recording tags have been revealing underwater feeding behaviors of whales while passive acoustic monitoring arrays provide data on calling animal distribution and the effects of anthropogenic noise on their communication. The Sanctuary is also the first research program to use Drone deployment of tags. Sanctuary staff also conduct an extensive seabird research program, focused on using satellite telemetry, stable isotope and fecal analysis to identify habitat use and food habits of great shearwaters, an abundant summer resident. An active citizen science program assists in documenting seabird populations year-round. Additional research studies focus the dimethyl sulfide relationship with North Atlantic right whales, on sand lance (a key

forage fish species), and the impact of climate change on sand lance abundance and distribution. Staff also protect North Atlantic right whale populations in the sanctuary through the Right Whale Corporate Responsibility Program, which actively monitors vessel compliance with Speed Management Areas (SMA). This program provides feedback on compliance directly to vessels and shipping companies. Stellwagen Staff have also pioneered a Real-time AIS-Notification system to alert mariners to slow-down in SMAs. As a direct result of these programs, speed management areas in Stellwagen Bank have the highest compliance rates in the US and that greatly reduces the risk of a ship strike to these critically endangered whales. Documentation of shipwrecks has resulted in the listing of seven shipwrecks at six sites on the National Register of Historic Places. Staff efforts of side-scan sonar mapping and participation in fishery management councils help protect sanctuary resources. A broad outreach program of educational events, whale watches, and lectures reaches 10,000+ New England community members annually, including from underserved and underrepresented communities.Through education partnerships, sanctuary exhibits now reside in the New England Aquarium and several other sites in the sanctuary region. Sanctuary newsletters and programming safe boating around whales helps encourage sanctuary stewardship. A combination of the programs and exhibits reaches over 1,400,000 constituents annually. A volunteer program and Advisory council engages the public to augment the sanctuary's capacity to achieve its mission. The administrative office for this sanctuary is in Scituate.

**National Ocean Service (NOS) - OR&R Atlantic Environmental Response Management Application and Response Tools for Oil and Chemical Spills, Preparedness Training for Responders**

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 ship locations, weather, and ocean currents, providing an easy-to-use common operating picture for environmental responders and decision makers. ERMA staff continued to work closely with Federal and State agencies for drills, hurricane response, and incidents. Maintained habitat data for sensitive species. Ensured data was kept up-to-date and data collection methods were kept consistent. 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. In addition, OR&R offers training to help spill responders increase their understanding of oil spill science when analyzing spills and making risk-based decisions. The training classes include the Science of Oil Spills (SOS), the Science of Chemical Releases (SOCR), Shoreline Cleanup Assessment Technique (SCAT), among others. Each year, OR&R teaches these classes around the country, see our calendar for upcoming training.

**National Ocean Service (NOS) - Marine Debris Projects and Partnerships in Massachusetts**

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 Northeast Regional Coordinator, based in Gloucester, Massachusetts, 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. The MDP also works with local communities and organizations to prevent and remove marine debris. In Massachusetts, the MDP is working with the Center for Coastal Studies, using funding provided under the Inflation Reduction Act, to lead a new coalition of New England nongovernmental organizations to

remove, document, and recycle, repurpose, or properly dispose of abandoned, lost, or otherwise discarded fishing gear and end-of-life fishing gear from the Gulf of Maine's water and shorelines. Further, through the National Marine Sanctuary Foundation's Ocean Odyssey Marine Debris Awards for Diversity, Equity, Inclusion, Justice, and Accessibility (DEIJA), MDP provided funding to the Mystic River Watershed Association, to support and enhance the experiential learning components of an existing K–8 curriculum on trash in the Mystic River watershed and strengthen the connection to marine debris and plastics. These funds were provided to support initiatives that investigate and prevent the adverse impacts of marine debris in communities that are underserved, underrepresented, or overburdened. The MDP has also partnered with the National Park Service to install educational marine debris displays at Cape Cod National Seashore and the New Bedford Whaling National Historical Park to bring attention to the issue of marine debris. The Gulf of Maine Marine Debris Action Plan, covering Maine, New Hampshire, Massachusetts, and partners across the Canadian border, was published in 2019 and updated in 2022. This plan is facilitated by the MDP with the participation of nearly 30 different organizations. The plan establishes a comprehensive framework for strategic action to ensure the Gulf of Maine and its coasts, people, and wildlife are free from the impacts of marine debris. The Southern New England Marine Debris Action Plan, covering Rhode Island and southern Massachusetts was published in 2024. The Southern New England Marine Debris Action Plan is a collaborative effort of nearly 30 contributing organizations. Representatives from state and federal government agencies, nonprofit and for-profit organizations, education groups, research institutions, and universities all had a significant role in its development. Their collective experience and various expertise lends years of knowledge to marine debris prevention, removal, and research in Southern New England.

**National Ocean Service (NOS) - OR&R Regional Resource 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.

- 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 Northeast/Great Lakes region are based in Boston, Massachusetts and New York, New York.
- The **Regional Preparedness Coordinator (RPC)** is strategically placed within the region to ensure that NOS and our partners are able to effectively prepare for, respond to, and recover from all hazards, including coastal disasters. The RPC serves as a liaison between NOS and its federal, state, and local disaster preparedness and emergency response partners. A key role of the RPC is to better understand the needs and opportunities within the region and to ensure partners have the tools and resources necessary to inform decision-making. The RPC has expertise across the spectrum of emergency management and provides preparedness, response, and recovery services including planning, training, exercises, response coordination, continuous improvement, and long-term recovery. The RPC, based in Gloucester, Massachusetts, serves the Northeast region – Connecticut, Maine, New Hampshire, Vermont, Massachusetts, New Jersey, Rhode Island, and New York.

**National Ocean Service (NOS) - OR&R Support Disaster Preparedness in Coastal Communities**
The Office Response and Restoration (OR&R) Disaster Preparedness Program and National Sea Grant College Program (Sea Grant) partnered to support coastal communities prepare for, respond to, and recover from all hazards. A combined total of $1,966,331 in federal funds from fiscal years 2022, 2023, and 2024 have been used to support eleven projects. In fiscal year 2022, three projects were selected at the Hawai'i, MIT, and Wisconsin Sea Grants to strengthen local disaster readiness and recovery in underserved communities.

**National Ocean Service (NOS) - U.S. Integrated Ocean Observing System (Mid-Atlantic Regional Association Coastal Ocean Observing System and 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.

The Mid-Atlantic Regional Association Coastal Ocean Observing System (MARACOOS) is one of these Regional Associations and its coverage extends from Cape Hatteras to Cape Cod including the estuaries and the continental shelf waters in this region. MARACOOS provides the necessary ocean observing, data management, and forecasting capacity to systematically address prioritized themes maritime safety, ecosystem based management, water quality, coastal inundation, and offshore energy development.

The Northeastern Regional Association of Coastal Ocean Observing Systems (NERACOOS) was established to network and expand the existing observing and prediction capacities of a multitude of institutions and agencies throughout New England and Maritime Canada. NERACOOS supports infrastructure that provides over-water meteorological and wave observations critical to safe navigation in Long Island Sound and the Gulf of Maine to the National Weather Service. These platforms also support current and dissolved oxygen sensors that provide critical information for management of hypoxia and harmful algal blooms. Fisheries managers, water quality specialists, the Coast Guard, and many others benefit from accurate and timely ocean observing infrastructure and related decision support tools. The region includes the coastal waters of Maine, New Hampshire, Massachusetts, Rhode Island, and Connecticut. There is overlap with the Mid-Atlantic Regional Association Coastal Ocean Observing System (MARACOOS), which also includes the coastal waters of Connecticut and Rhode Island. In addition, partners from the Canadian provinces of New Brunswick and Nova Scotia are involved.

**National Weather Service (NWS) -National Data Buoy Center 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.

### *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 a competitive grants program that provides funding for locally relevant environmental education projects for K-12 audiences. The New England B-WET program is administered by the Greater Atlantic Regional Fisheries Office on behalf of the NOAA Office of Education. New England B-WET currently serves Maine, New Hampshire, Vermont, Massachusetts, Rhode Island, and Connecticut. 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 regional grant competitions are responsive to local education and environmental priorities. Please see the funding opportunities for specifics.

**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 miles 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 North Atlantic right whales, leatherback, loggerhead, and 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 Office also fosters sustainable aquaculture in the region, with two Regional Aquaculture Coordinators that act as a liaison between federal and state agencies to assist in permitting and coordination activities, supporting aquaculture outreach and education, and collaborating with industry, academia and other stakeholders on regional marine aquaculture issues.

The Northeast Fisheries Science Center (headquartered in Woods Hole, MA) focuses on fishery species and fisheries, monitors and models ocean ecosystems, and provides reliable advice for policy makers. The Center's work promotes recovery and long-term sustainability of marine life in the region, supports both wild and cultured seafood harvests, helps sustain coastal communities, and generates economic opportunities and benefits from the use of these resourcesIn addition to its five laboratories, the Center uses three research vessels to support its work. They are: the NOAA ships *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 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.NOAA's Restoration Center works with private and public partners in the Commonwealth of Massachusetts to construct fish ladders at dams, remove dams, widen bridges, modify culverts to improve tidal flushing in coastal wetlands, and restore submerged aquatic vegetation. We provide technical and financial assistance to help recover threatened and endangered species, support sustainably managed species, and reverse damage done by oil spills and toxic releases. We provide technical and financial assistance to help recover threatened and endangered species, support sustainably Most of these projects focus on restoring fish passage for anadromous river herring as well as projects designed to restore coastal wetlands. See the interactive Restoration Atlas to find habitat restoration projects near you. Site visits to see habitat projects may be available in your state, please inquire if interested.

In addition, the Office of Habitat Conservation is responsible for executing an unprecedented $1.4 billion in funding under Bipartisan Infrastructure Law and Inflation Reduction Act for habitat restoration and fish passage. We are working with our partners to do this through our expert technical assistance and four funding competitions: Fish Passage, Tribal Fish Passage, Transformational Habitat Restoration, and Habitat Restoration for Tribes and Underserved Communities. We have funded 214 awards totaling $985M in rounds one and two with more to come in round 3. We are funding work all over the country, explore them on our interactive map.

**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 Northeast Division is headquartered in Gloucester, MA., with field offices in New Bedford, Falmouth and Scituate.

**National Marine Fisheries Service (NMFS), National Ocean Service (NOS), and NOAA General Counsel - 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. Massachusetts is a co-trustee with NOAA for assessment and restoration after pollution incidents in Massachusetts For more information about our work in Massachusetts, visit: DARRP in Your State (and use the top menu to navigate to "Massachusetts") and this interactive map.

**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, Woods Hole, and Scituate, 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.

**National Ocean Service (NOS)** - Regional Ocean Partnerships: **Northeast Regional Ocean Council**
To maintain quality constituent service, the NOAA Office for Coastal Management staff in this region are active co-leaders and participants in the Northeast Regional Ocean Council, a Regional Ocean Partnership made up of coastal states, federal agencies, tribes and other partners to address regional solutions in three priority areas: ocean planning, coastal hazards resilience and ocean and ecosystem health. With funding provided through the Bipartisan Infrastructure Law, NOAA is investing approximately $56 million nationwide over five years to enhance and support the priorities of established regional ocean partnerships like NROC, to advance priority work that requires coordinating interstate and intertribal management of ocean and coastal management issues, and enhancing sharing and integration of data to inform management decisions.

**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 Barre, Vermont serving the Northeast region including Massachusetts. 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) - Phytoplankton Monitoring Network**
The Phytoplankton Monitoring Network (PMN) is a nationwide community-based volunteer program of citizen scientists monitoring for the presence of organisms that can lead to Harmful Algal Bloom (HAB) formation. Volunteers serve as data collectors for marine and freshwater blooms at more than 200 coastal and inland sites in the U.S. and Caribbean. Monitoring is conducted year-round and volunteers are trained to measure salinity, air and water temperatures, and how to collect phytoplankton samples using a plankton net. Samples are then analyzed for any HAB organisms via microscopy. Data collected by PMN volunteers enhances the Nation's ability to respond to and manage the growing threat posed by HABs by collecting important data for species composition and distribution in coastal and freshwater environments and creating working relationships between volunteers and professional marine biotoxin researchers. Event monitoring can assist state and federal agencies to issue timely warnings about shellfish consumption and other public health concerns.

**National Ocean Service (NOS) - Aquaculture Phytoplankton Monitoring Network**
The Aquaculture Phytoplankton Monitoring Network (AQPMN) is a volunteer-based network that works with coastal US aquaculture farms and organizations. The network has adapted its protocols to specifically monitor for species known to have adverse effects on shellfish and finfish aquaculture. Participating hatcheries and growers receive training on

methods to collect and identify local phytoplankton and potential HAB species. NOAA supplies each network member with plankton nets, thermometers, salt refractometers and digital microscopes free of charge.

**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) - 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.

**National Ocean Service (NOS) - NOAA Ocean Guardian Youth Ambassador Program**
Youth aged 13-18 from across the United States and its territories that are committed to ocean conservation and stewardship of our blue planet can apply to become a NOAA Ocean Guardian Youth Ambassador. This year-long program looks for enthusiastic youth with new ideas and a unique perspective who want to learn more about America's underwater treasures and share their passion with others. Youth learn how to become a leader at their school or in their local community to make a difference in the conservation of the ocean through marine protected areas.

**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 one is in Massachusetts.

**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 54 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 seven NWR transmitters in Massachusetts.

**Office of Oceanic and Atmospheric Research (OAR) - Massachusetts Institute of Technology 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. 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. Administrative offices are located in Cambridge. Get involved with Sea Grant through state and national opportunities like the John A. Knauss Marine Policy Fellowship program at seagrant.noaa.gov.

**Office of Oceanic and Atmospheric Research (OAR) - Woods Hole Oceanographic Institution Sea Grant 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. The Woods Hole Oceanographic Institution Sea Grant Program serves Massachusetts. 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. The administrative offices are in Woods Hole. Extension agents are located in Barnstable. Get involved with Sea Grant through state and national opportunities like the John A. Knauss Marine Policy Fellowship program at seagrant.noaa.gov.

### *Bipartisan Infrastructure Law (BIL) / Inflation Reduction Act (IRA) Projects*

The National Oceanic and Atmospheric Administration (NOAA) was entrusted with billions of supplemental federal funding dollars with passage of the Bipartisan Infrastructure Law on November 15, 2021 and the Inflation Reduction Act on August 16, 2022. This historic infrastructure funding has been invested in communities across the nation to build resilience in the face of climate change. NOAA distributed funding to communities, tribal, state and local governments, higher education programs, businesses, non-profit organizations, and facilities in need. NOAA funded billions of dollars in grants and cooperative agreements across the country to fund projects that enhance climate resilience, restore coastal and marine habitats, improve safety, and create jobs. For an interactive map of NOAA BIL and IRA investments in your state, visit https://www.noaa.gov/bil-ira-awards-explorer.

#### *BIL*

**Monatiquot River Restoration Implementation Project, $2,000,000**
The project will remove two dams in the Monatiquot River watershed. The dam removals will create immediate access to habitat for alewives and other migratory species. They will also increase community resilience by reducing the flood elevation by up to 9 feet and eliminating the threat that dam failure poses to a commuter railroad and highway.

**Addressing priority barriers in the watersheds of the Great Marsh, Massachusetts, $2,359,186**
This project will restore access to 238 miles of habitat in the Ipswich and Parker River watersheds, tributaries to the Great Marsh Area of Critical Environmental Concern. They will address five dams: Ipswich Mills, Larkin Mill, Willowdale, Howlett Brook, and South Middleton Dams. The effort will benefit river herring, American shad, and American eel.

**Initiating Transformational Habitat Restoration in the Great Marsh Area of Critical Environmental Concern, $1,397,493**
This project will support habitat restoration in the Great Marsh, the largest remaining salt marsh in New England. Across this region, physical barriers prevent the flow of tidal waters and limit natural marsh functions. The Ipswich River Watershed Association will plan for and begin construction on several efforts to address all remaining high-priority barriers that have been identified in the area.

**Making Space: The Southeastern Massachusetts Marsh Migration Initiative, $4,450,913**
This project will support coastal marsh restoration in southeastern Massachusetts by prioritizing restoration sites and restoring wetlands degraded through historic cranberry farming. Coastal marshes are at severe risk due to climate change and sea level rise. Retired, low-lying cranberry farmlands provide a potential space for coastal wetlands to migrate inland to avoid disappearing. This effort will implement two pilot restoration projects to inform similar, future projects across the region and support sustained cultural land uses for tribal communities.

**Herring River Restoration Project, Phase 1, $14,690,000**
This project will implement the first phase of the Herring River Restoration Project, the largest salt marsh restoration effort in the northeast United States. Once all phases are complete, the overall effort will restore 890 acres of tidal wetlands and reconnect a functioning estuary to Cape Cod Bay and the Gulf of Maine. The project will significantly improve water quality and habitat for fish and shellfish, help restore the flood and storm protection that healthy salt marshes provide, and rebuild and improve the resilience of local bridges and roads.

**Mill Creek Community Engagement and Pilot Project: Slade Mill Dam Removal, $422,780**
This project will gather community input and remove Slade Mill Dam on Mill Creek. They will work to actively engage the local community throughout all phases of planning and construction, including through community meetings, site walks, and educational signage. This project will work in tandem with an ongoing effort to create a park and riverwalk that will increase public access to Mill Creek.

**Massachusetts Coastal Program FY23-25 application for IIJA funds to address Coastal Habitat Restoration program capacity, $444,161**
This funding will build the capacity of the state's federally-approved coastal management program within the Massachusetts Executive Office of Energy and Environmental Affairs (EEA) to plan for and implement habitat restoration and conservation projects proposed through funding opportunities connected to the Bipartisan Infrastructure Law. Specifically, Massachusetts EEA will use these funds to hire a new Coastal Habitat Restoration Project Coordinator to support coordination, review, and development of restoration projects, management of funded projects, and development of a project pipeline for future applications. To maintain restoration goals over the design life of proposed restoration projects, Massachusetts EEA will also work closely with agency partners and key external stakeholders.

**Waquoit Bay Reserve IIJA Capacity Building Project, $300,000**
This funding will build the capacity of the Waquoit Bay National Estuarine Research Reserve (WBNERR) within the Massachusetts Department of Conservation and Recreation to better plan for habitat restoration within the Reserve and the Waquoit Bay watershed, and to successfully prepare the Reserve to apply for future funding opportunities connected to the Bipartisan Infrastructure Law. Specifically, WBNERR will use these funds to accomplish an assessment of the current state of habitat restoration needs in the Waquoit Bay watershed; development and update of strategic plans to guide restoration efforts for streams and tidal marshes; conceptualization and implementation of effective engagement efforts to ensure a diverse suite of stakeholders is involved in restoration planning.

**Massachusetts CZM NOAA IIJA proposal - Manchester Central Street Bridge Replacement and Sawmill Brook Restoration Project, $1,561,511**
This award supports habitat restoration and fish passage while increasing resiliency for the Town of Manchester-by-the-Sea. The project includes replacing the Central Street Bridge, removing the Sawmill Brook tide gate structure, upgrading channel walls along Central Pond, restoring saltmarsh wetlands, and creating living shorelines to

stabilize the stream banks. One acre of salt marsh and 1,534 linear feet of stream connectivity will be restored, which in turn improves resiliency for the Sawmill Brook watershed and the Manchester-by-the-Sea community.

**Novel probes for real time monitoring of dissolved gases and their isotopologues in aquatic ecosystems, $158,170**
Coastal ocean systems are dynamic regions especially rich in diverse biological and geochemical interactions. However, major gaps exist in our knowledge of the primary biogeochemical processes and the factors regulating their relative importance. Our understanding of the distribution, dynamics, and forces of the underlying processes controlling their fluxes is limited by a lack of high-resolution spatial-temporal measurements. The overall objective of this project is to design a field deployable, real-time, in situ system to quantify dissolved greenhouse gasses (Nitrous oxide (N2O) and methane (CH4)) and their isotopologues in ocean ecosystems.

**Machine Learning and ocean variables for improved predictions of water availability in the US, $161,955**
Current hydrological models face challenges related to data inputs, as climate change has been presenting weather patterns atypical from historical data. Without quality data inputs, the accuracy of the output from hydrological models suffers. To overcome these challenges, Salient Predictions proposes to use improved S2S forecasts as the weather input to Variable Infiltration Capacity (VIC) hydrological forecasts, thus providing improved water availability forecasts spanning from 2- to 52-weeks into the future. Salient's base S2S forecast technology uses machine learning and various oceanic, atmospheric, and land-based variables to make improved predictions.

**Massachusetts Marine Debris from Source to Stellwagen A Comprehensive Suite of Tools for Environmental Educators, $286,284**
The Massachusetts Institute of Technology Sea Grant was awarded $286,284 to form a coalition of K-12 teachers and students, environmental organizations, underserved communities and commercial fishermen who are interested in addressing issues of marine debris in eastern Massachusetts together. This project aims to build new tools for the tracking and visualization of marine debris, develop marine debris curricula for teachers, and create a pathways internship for underrepresented students to further explore issues of marine debris.

**Improving Engagement Methods for Coastal Resilience and Reducing Climate Risk: Bridging Learning Networks From the Urban Northeast (CCRUN) to the US Caribbean (CCAN), $499,836**
This proposal is a partnership between NOAA CAP/RISA's, Consortium for Climate Risk in the Urban Northeast (CCRUN), and Caribbean Climate Adaptation Network (CCAN). This partnership will allow for important knowledge transfer and collaborative research concerned with improving community engagement methods for coastal resilience and climate risk reduction. Through cross-regional co-production of knowledge about coastal climate risk and resilience in highly vulnerable communities, we will analyze, compare and improve community engagement approaches. *This award supports work in MA, PA, NJ, PR, and VI.*

**Upper Bass River Coastal Habitat Restoration Project, $4,666,515**
The Upper Bass River Coastal Habitat Restoration Project will restore 57 acres of former cranberry bogs into a functioning wetland system through direct restoration and replacement of an undersized culvert. This project, in combination with other work in the watershed, will support restoration of over 160 acres of the Bass River ecosystem, including full tidal exchange, hydrological connectivity, improved fish passage and estuarine aquatic habitat, upstream flood protection and buffering capacity, salt marsh migration, and wetland function.

**Puritan Bog Coastal Wetland Restoration Project, $338,035**
This project will restore 15 acres of coastal wetland at a retired cranberry bog system, reestablish connection of the site to Little Buttermilk Bay, and support a significant area of future salt marsh migration. Puritan Bog, a retired cranberry bog in Bourne, was historically degraded by alteration of the wetland for agricultural use and the implementation of tidal restrictions and flow control structures. Future restoration at this site will improve coastal wetland habitat for wildlife, provide corridors for future marsh migration, and enhance resiliency to sea level rise and other climate change-induced impacts. Additionally, leveraged funds will be used to improve public access to natural resources for the local and regional community.

**Assessing Scalable, Autonomous Volumetric Carbon Flux for MRV of Ocean Carbon Dioxide Removal, $173,332**
Ocean carbon dioxide removal (CDR) is vital for achieving the mid-century goal of removing 10 Gigatons of CO2 annually to limit warming to 1.5-2°C. However, there are no comprehensive tools for measuring, reporting, and verifying ocean CDR effectiveness. Subtidal aims to fill this gap with the Ocean Carbon Flux Grid, integrating real-time carbonate chemistry sensing with cloud-based analytics to convert sensor data into continuous volumetric carbon flux measurements.

**Towards Implementing the OneArgo Observing Array, $455,933**
The 5-institution U.S. Argo Float Consortium proposes to leverage Bipartisan Infrastructure Law funding to sustain, improve, and expand the U.S. component of the international Argo Program (http://www.argo.ucsd.edu), a global array of autonomous profiling floats. During the next 3-years, Woods Hole Oceanographic Institution Argo will augment its core float acquisition and focus on building its contribution to the Deep Argo array.

**Expanding Argo into the Arctic, $399,972**
This project will deploy Argo profiling floats with a passive acoustic tracking system for subsurface geolocation under Arctic sea ice. It aims to demonstrate ice-capable profiling floats for the oceanographic community, enhancing Arctic Ocean observation and monitoring. The project will also focus on improving ice detection autonomy, enabling the floats to surface safely without damage or battery depletion, thus completing multi-year missions. Ultimately, this work will help observe subsurface temperature, salinity, and biogeochemical properties in the Arctic Ocean.

**Prevention, education, and removal of marine debris from underwater cultural heritage, $1,609,504**
This project will address marine debris entanglement on shipwrecks, particularly abandoned, lost, or discarded fishing gear (ALDFG), which harms biodiversity and damages historical sites. Our activities will include engaging stakeholders by activating a diverse coalition to collaboratively develop policies. We will create educational materials and an interactive exhibit on the impacts of marine debris, targeting various learning styles and underserved communities. Additionally, we will design a gear-removing remotely operated vehicle (ROV) for local testing, followed by partnerships with fishermen for low-cost ALDFG recovery.

***IRA***

**Massachusetts CZM NOAA IIJA proposal - Truro Pamet River Restoration, $2,183,779**
This project will be fully supported through funding available under the Inflation Reduction Act.This award will result in a feasibility study and the collection of the data necessary to design a remediation of six tidal restrictions within five project focus areas: the Little Pamet River, Lower Pamet, Upper Pamet, Mill Pond, and Eagle Neck Creek Earthen Berm. These elements together will support the greater goal of restoring salt marsh functioning within the Pamet River system.

**New England Regional Derelict Fishing Gear Removal & Response Coalition, $2,718,531**
The Center for Coastal Studies is leading a new coalition of nongovernmental organizations and commercial enterprises across the Northeast to remove, collect, document, and recycle, repurpose, or properly dispose of fishing gear from the Gulf of Maine's water and shorelines. *This award supports work in MA, ME and NH.*

**Cape Cod Coalition to Shift Tourism Businesses to Sustainable Serviceware, $299,999**
The Woods Hole Sea Grant will address the problem of single-use plastics used in tourism-based food, hospitality and experiences businesses on Cape Cod that contribute to marine debris. Building on existing partnerships and relationships, the project will form an action-based environmental stewardship coalition of tourism, education and government partners to transition businesses away from single-use plastics. This work will expand on an alternative serviceware guide.

***mCDR 2023 - Assessing Carbon Dioxide Removal and Ecosystem Response for an Ocean Alkalinity Enhancement Field Trial, $1,877,644***
Capitalizing on a separately funded ocean alkalinization field trial in the Gulf of Maine, this project will measure carbon removal and ecosystem responses. Specifically, five ocean gliders will track the alkalinity released by the field trial by following dyes and changes in pH (measure of how alkaline or acidic the water is).

**Inflation Reduction Act initiatives to Develop Climate Resilient Fishery Management Strategies in the New England Region, $1,815,726**
Inflation Reduction Act initiatives to Develop Climate Resilient Fishery Management Strategies in the New England Region. *This award supports work in ME, NH, MA, RI, and Ct.*

**The Creation of a Nature-like Fishway Bypass to Circumvent the Historic Jenney Pond Dam, $10,021,000**
This project will construct a fishway around the historic Jenney Pond Dam, the last remaining passage barrier on Town Brook, to open access to habitat for river herring and American eel. They will also dredge and restore the pond behind the dam. The fishway is expected to address flooding concerns at Jenney Pond associated with 100-year storms. NOAA previously partnered with the Town of Plymouth to remove 5 other fish passage barriers on Town Brook.

**Agawam River Barrier Removals and Restoration, $3,705,881**
This project will work to improve fish passage and restore habitat on the Agawam River to support river herring and other migratory fish. Efforts will include one dam removal and assessments of restoration needed throughout the watershed to restore fish passage through former cranberry boglands. The Agawam River is home to one of the most abundant river herring runs on Buzzards Bay, supporting a broad range of fish and wildlife in the estuary.

**Source to Sea: Connecting Cape Cod's Waters and Communities, $15,000,000**
This project will work with an array of partners to lead the collaborative planning, design, and implementation of projects to restore rivers, retired cranberry bogs, and salt marshes on Cape Cod in Massachusetts. These efforts will support important species like river herring and American eel. They will also provide benefits to communities such as increased climate resilience and protection from flooding.

**Accelerating Climate & Ocean Resilience with Bluetech Innovation, $249,299**
SeaAhead -- a female, minority, and veteran-owned bluetech innovation leader -- will develop a flourishing bluetech venture ecosystem that supports innovations that create economic growth, drive improved environmental outcomes, and address structural social inequalities in and along our waters. SeaAhead's approach is "Catalyze, Build, and Invest," creating a flywheel effect that brings companies out of the lab and through the early stages of commercialization. With

Phase 1 funding, SeaAhead will build on its successful track record and will: 1) Strengthen core functions, programs, and partnerships. 2) Translate ocean climate resilience needs for US deep tech leadership. 3) Bridge the commercialization gap for ocean startups. 4) Expand upon our diversity, equity & inclusion mandate within bluetech.

**VentureWell Ocean-Based Climate Resilience Accelerator, $249,810**
VentureWell will leverage its extensive lab-to-market experience to design a customized, highly supportive, multi-stage accelerator program that helps ocean-based climate resilience startups overcome commercialization challenges through comprehensive training, mentorship, access to expertise and resources, and connections to industry and customers. Specifically, VentureWell will (1) Conduct discovery interviews with entrepreneurs and ecosystem stakeholders; (2) conduct a landscape analysis of climate resilience entrepreneurs (both prospective and active), support networks, and identifiable gaps; (3) adapt VentureWell's accelerator curriculum to the unique contexts and commercialization pathways of ocean resilience entrepreneurs; (4) build a robust network of partners to source and support participants; and (5) pilot this tailored program with a cohort of entrepreneurs.

**Accelerating Resilience: Linking Research, Industry, and the Public Across the Value Chain, $225,480**
This award will support the development of an accelerator program that marries entrepreneurial training with the resources of flagship academic and industry partners to support early-stage companies taking their products through development and onto the market. Our partnership brings institutional capacities that will further enable, develop, and accelerate technologies into market-ready products, services, and processes. This award will support work to build an integrated translational enterprise that effectively and efficiently links research, development, demonstration, deployment, and manufacturing with NOAA's climate-resilience mission goals.

**Optimization of PhytO-ARM harmful algal bloom sensing for low-bandwidth,satellite-based telemetry, $1,197,911**
The overarching goal of this project is to enable robust real-time monitoring of harmful algal blooms via satellite-based telemetry. The project advances PhytO-ARM, an open-source collection of Robot Operating System (ROS) resources for directing HAB sensing at strategic locations through integration of diverse sensors, movement devices, and network edge artificial intelligence ("edge AI"). *This award supports work in NH, ME, MA, and RI.*

**mCDR 2023 - Assessing the Laboratory and Field Response of Diatoms and Coccolithophores to Ocean Alkalinity Enhancement, $1,026,045**
Ocean alkalinity enhancement relies on modifying the acid-base properties of seawater to remove carbon dioxide, however the effect of this strategy on primary productivity, cell physiology, and carbon export remain unknown. This research focuses on understanding the impacts of ocean alkalinity enhancement as a method of removing carbon dioxide from the ocean on phytoplankton, specifically diatoms and coccolithophores. Understanding the impact of ocean alkalinity enhancement on surface ocean biology and ecology is crucial for its development and potential future implementation. *This award supports work in NJ, CA, MA, and ME.*

**Building capacity for coastal resilience and habitat restoration in the Massachusetts coastal zone, $874,975**
This funding will build the ability of the commonwealth's federally-approved coastal management program within the Executive Office of Energy and Environmental Affairs to implement projects, initiatives, and programs that increase the climate resilience of coastal communities within coastal counties. Specifically, Massachusetts Office of Coastal Zone Management will use these funds to fund staff to support project implementation, engagement, and coordination of priorities identified in the recently submitted ResilientCoasts letter of intent for the NOAA Climate Regional Challenge, and wider Commonwealth priorities. The funds will also continue to support one existing staff person beyond 2024, the Habitat

Restoration Coordinator, secured through previous capacity funding to continue to coordinate restoration projects, manage awarded projects, and advance new projects.

**Enhancing coastal resilience in the Waquoit Bay Reserve watershed and on Cape Cod, using a combination of nature-based solutions, restoration and effective engagement of underserved audiences, $400,000**
This funding will build the ability of the Waquoit Bay National Estuarine Research Reserve (NERR) within the MA Department of Conservation and Recreation to implement projects, initiatives, and programs that increase the climate resilience of coastal communities within coastal counties. Specifically, Waquoit Bay NERR will use these funds to strengthen their work on coastal resilience, reduce vulnerability in the region and in the Waquoit Bay watershed, and contribute to the long-term protection of people, property and infrastructure. The project involves utilizing a three-pronged approach: (i) implementation of a nature-based shoreline solution at a heavily used area at the Reserve that will double as a demonstration pilot, (ii) habitat restoration planning to restore degraded ecosystems in the Waquoit Bay watershed and the ecosystem services they provide that contribute to community coastal resilience, and (iii) effective outreach to and engagement of underserved audiences.

**mCDR 2023: Developing a coupled benthic-pelagic biogeochemical model to evaluate the effectiveness of mCDR interventions, $1,185,473**
The ocean seafloor, or benthos, serves as the only long-term storage of oceanic carbon on geologic timescales. However, the interaction between ocean water and sediments and its role in carbon storage is a major knowledge gap. Understanding this feedback is important for assessing the duration of carbon storage for ocean carbon dioxide removal methods that store it in seafloor sediments. This project will develop a model to represent the exchange, transformations, and storage of carbon and nutrients in the sediments. *This award supports work in MA, ME, NJ, CT, and MD.*

**mCDR 2023: Tidal wetlands as a low pH environment for accelerated and scalable olivine dissolution, $1,282,431**
The research proposes using ultrabasic minerals, specifically olivine, to enhance weathering in tidal wetlands as a method of carbon dioxide removal and local-scale ocean acidification mitigation. The research's main objective is to examine the safety, efficacy, and potential for large-scale implementation of enhanced weathering in tidal vegetated wetlands. *This award supports work in MA and CT.*

**A Scalable Solution to Monitoring Our Changing Oceans, $174,798**
ARMADA aims to become the "SpaceX of the sea" by providing a scalable, sustainable ocean monitoring solution that reduces carbon footprints and eliminates single-use sensor waste. Current methods rely on crewed vessels and expendable sensors, which are inefficient. ARMADA will develop uncrewed underwater platforms using innovative propulsion and ballast technologies for improved mobility.

**North Atlantic Right whale conservation using low-cost ocean IOT chemical and passive acoustic sensing, $250,433**
The goal of this project is to develop 2 techniques to detect the presence of North Atlantic Right Whales (NARW) One technique is to take water samples at sea on NOAA cruises to measure the concentration of Dimethyl sulfide (DMS) as a proxy for the presence of NARW. The second technique is to develop and deploy a low-cost passive acoustic mooring system (TOSSIT) with an acoustic release that triggers the release of the TOSSIT system to the ocean surface for retrieval of recorded environmental data.

**The Cost of Climate Change – How Human-caused Shocks Impact Fish Price Volatility and Employment, $99,350**
The goal of this project is to explore the impact of environmental and human-caused stressors, such as ocean warming, marine heatwaves, changes in management, and the COVID-19 pandemic, on the volatility of ex-vessel fish prices.

**Community structure and energetics of primary producers and lower trophic levels: drivers of bottom up control on juvenile salmon, $102,871**
The goal of this project is to gather more informative seasonal ocean conditions and their impact on juvenile salmon. To do this, researchers will collect images of phytoplankton and analyze their content using an Imaging FlowCytobot while on NOAA research surveys in the Northwest U.S.

**Near real-time passive acoustic monitoring for North Atlantic right whales, $3,356,667**
This research aims to improve the detection of North Atlantic right whales along the northeast and mid-Atlantic U.S. coast. Researchers will use a digital acoustic monitoring (DMON) instrument paired with a low-frequency detection and classification system (LFDCS) to detect whale calls from autonomous platforms like Slocum ocean gliders and moored buoys. These methods will enable the National Oceanic and Atmospheric Administration (NOAA) to enhance research and monitoring by using real-time data to identify whale habitats and direct visual surveys where needed as recent advances in automated detection make real-time monitoring feasible.

**Modeling the Impact of Offshore Wind Development on the Circulation and Biological Productivity of Nantucket Shoals, $997,079**
This project aims to assess the impact of major offshore wind installations proposed for Nantucket Shoals in the Southern New England region. The physical effects are expected to include atmospheric and oceanic wake impacts that alter local current velocities and ocean mixing. Researchers propose a multi-team effort with two projects to develop high-resolution physical-biological models. These models will characterize changes in regional circulation and mixing due to wind development and their potential effects on primary and secondary productivity in Nantucket Shoals, focusing on changes in wind speed and turbulence from turbine foundations.

**The Greater Boston Coastal Resilience Jobs Alliance, $9,799,687**
This program will address the need for a skilled climate resilience workforce to implement Boston's Climate Ready Boston Coastal Climate Resilience Plan and Massachusetts' ResilientMass Plan. Participants will gain skills in areas ranging from nature-based solutions to emergency preparedness and response.

**Data Modeling, Aggregation, and Management Services for the Climate Adaptive Drought Planning Platform, $400,000**
The Climate Adaptive Drought Planning (CADP) platform addresses increasing drought challenges worsened by climate change. This project will develop the CADP as a decision-support system that integrates diverse datasets on water infrastructure, supply and demand, and socioeconomic conditions into an intuitive tool for stakeholders. Key objectives include creating data models relevant to these areas and establishing automated pipelines for national datasets. Additionally, the Institute of Water (IoW) will assist the CADP team in incorporating local knowledge about water resources and demographics.

**Physical Oceanographic Studies in Support of Shelf/Slope Ecosystem Variability in the Northwest Atlantic, $59,672**
The goal of this project is to understand the circulation and water mass structure of the shelf/slope environment in the Northwest Atlantic that has been significantly changing in the past two decades. Researchers propose to study important

physical oceanographic processes of the continental shelf and slope that affect Living Marine Resources in the region. They will use a variety of data sources including both remote sensing products as well as in situ data to establish key factors contributing to inter-annual variability of the shelf/slope system.