



NOAA FISHERIES

NOAA Chesapeake
Bay Office

NOAA Chesapeake Bay Office 2020-2025 Strategic Plan

Strategically Protecting and Restoring the Chesapeake Bay

The Chesapeake Bay is the nation's largest estuary, with a watershed that encompasses one of the most economically and historically significant regions of the United States. The 2016 National Oceanic and Atmospheric Administration (NOAA) Fisheries Economics of the United States report indicates that the commercial seafood industry in Maryland and Virginia contributed \$2.85 billion in sales, \$1.077 billion in income, and 47,291 jobs to the area's economy. In addition, the Chesapeake is a highly valued resource, supporting tourism and recreational boating and providing scenic value.

As a partner in the effort to protect and restore this national treasure, the NOAA Chesapeake Bay Office (NCBO) focuses its science, service, and stewardship capabilities to improve the health of the Bay and ensure its sustainable use for generations to come.

OUR MANDATE AND DRIVERS

NCBO was established by Congress in the NOAA Authorization Act of 1992 (Public Law 102-567) and reauthorized in

2002 (Public Law 107-372) to provide technical assistance in identifying science-based management options for restoration, monitoring and assessing the status of living resources, and evaluating the effectiveness of implementation.

NCBO is charged with implementing a strategy for NOAA to integrate the agency's scientific, regulatory, and management responsibilities to assist the Chesapeake Bay Program. NOAA has been a partner in the Bay Program since the signing of a Memorandum of Understanding with the U.S. Environmental Protection Agency in 1984.

In June 2014, the state jurisdictions in the Chesapeake Bay watershed, along with the District of Columbia, the Chesapeake Bay Commission, and the U.S. Environmental Protection Agency (on behalf of the federal government), signed a new



Chesapeake Bay Watershed Agreement. The Agreement established 10 goals that will advance the restoration and protection of the Bay watershed. These goals are linked to 31 outcomes with time-bound and measurable targets. NCBO focuses much of its work on supporting four of these goals: Sustainable Fisheries, Vital Habitats, Environmental Literacy, and Climate Resiliency.

In addition, NCBO supports key objectives of the Healthy Oceans Goal under NOAA's Next Generation Strategic Plan, including:

- Improved understanding of ecosystems to inform resource management decisions
- Recovered and healthy marine and coastal species
- Healthy habitats that sustain resilient and thriving marine resources and communities
- Sustainable fisheries and safe seafood for healthy populations and vibrant communities

Finally, NCBO is engaged in NOAA's Habitat Blueprint initiative to address the growing challenge of coastal and marine habitat loss and degradation. Under the Blueprint, NOAA designates Habitat Focus Areas, which strategically concentrate our resources to better achieve restoration objectives. NCBO coordinated restoration and engagement activities in the Delmarva/Choptank River Complex Habitat Focus Area, and is actively exploring other areas in the Chesapeake region in which to apply the Habitat Focus Area model.

HOW WE'RE ORGANIZED

NCBO is a division of the National Marine Fisheries Service's ("NOAA Fisheries") Office of Habitat Conservation, which works to protect and restore coastal and marine habitat at the national level.

NCBO is organized into three branches:

- The **Monitoring and Restoration** branch focuses on the collection of data to inform habitat restoration and on monitoring Bay conditions to improve management, restoration, and public safety.

- The **Ecosystem Science and Synthesis** branch focuses on applied research in fisheries and aquatic habitats; synthesis, analysis, and modeling to describe and predict Bay ecosystem processes; and the delivery of policy advice and technical assistance to Bay decision makers.
- The **Environmental Literacy and Partnerships** branch focuses on strategic partnerships with the Chesapeake Bay Program and other government, university, and nonprofit partners toward office priorities; the development of K-12 and higher education environmental science education programs; and communication about NOAA products, services, and programs to targeted audiences.

NCBO is headquartered in Annapolis, Maryland. The office also has staff located at the Cooperative Oxford Laboratory in Oxford, Maryland, and at the NOAA Marine Operations Center-Atlantic in Norfolk, Virginia.

ABOUT THIS PLAN

This Strategic Plan describes the specific objectives and strategies that the NCBO branches will undertake from 2020 through 2025 to meet these goals and support efforts to restore and protect the Bay. Working both within and among NCBO's branches as defined above, NCBO staff will work on priorities—major program areas that nest under a branch. Each priority includes several objectives (large-scale goals for that priority) and strategies (specific actions) to achieve those objectives.

- Monitoring and Restoration
Bay Observations
Oyster Restoration
- Ecosystem Science and Synthesis
Sustainable Fisheries
Climate Change Adaptation and Resilience
Habitat Science
- Environmental Literacy and Partnerships
Environmental Literacy
Community Partnerships



Successful restoration and protection of the Chesapeake Bay relies on scientific understanding of its conditions and processes. This understanding is made possible by the delivery of abundant high-quality data, expert technical support and analysis, strategic funding, and partnership development. NCBO meets these needs through its Bay Observations and Oyster Restoration priorities.

BAY OBSERVATIONS

The Chesapeake Bay is a dynamic ecosystem with highly variable environmental conditions. In order to monitor, understand, and forecast these conditions, data needs to be continuously collected, quality-controlled, and delivered to stakeholders. NCBO collects, processes, and delivers observations data in support of research, management, and protection of Bay habitats. Healthy habitats are a vital part of maintaining healthy fish stocks.

Over the next five years, NCBO will expand its observing portfolio to assess water column conditions and track fish movements with acoustic telemetry. These data, combined with our existing surface-level and meteorological observations, will help us understand how changing water quality affects fish habitat.

Objectives and Strategies

Maintain the Chesapeake Bay Interpretive Buoy System (CBIBS) for data collection and distribution to a diverse user community

- Conduct outreach to recreational and scientific constituents to optimize new locations for CBIBS buoys to ensure the broadest range of benefits to the public
- Continually assess and improve existing buoy hardware and infrastructure to maximize quality and reliability of data transmission
- Operationalize a scaled-down buoy that decreases maintenance time and costs while still delivering critical weather and surface-level water data
- Partner with academic institutions and resource management agencies to use buoy data and the platform for research and monitoring

Monitor water column conditions and fish movement using the best available methods and technologies in partnership with natural resource managers, researchers, and other stakeholders

- Develop and implement a continuous vertical water-quality monitoring program that characterizes and improves estimates of available fish habitat based on temperature, dissolved oxygen, and other parameters
- Maintain and coordinate a network of acoustic telemetry receivers on CBIBS buoys and other platforms to increase understanding of fish movement in the Bay
- Support the integration of a broad suite of environmental data with fish tracking data to

better understand fish habitat utilization and improve the management of Bay fisheries and endangered species

- Evaluate the potential for using new and existing observation technology for greater efficiency in data collection and delivery

Collect and deliver high-quality benthic mapping data and explore new approaches and protocols to monitor structured habitat

- Continue collecting and analyzing benthic habitat data to support restoring oyster habitat and identifying Atlantic sturgeon spawning habitat
- Pilot new technologies and approaches of assessing oyster reef habitat quality based on reef community and structural complexity versus using existing methods



OYSTER RESTORATION

Oysters are an important part of the Chesapeake Bay. They filter and remove excess nutrients like nitrogen from the water and they grow in reefs that provide habitat for fish and crabs. Oyster reefs support not only the ecosystem, but the economy. As a result of disease, overfishing, degraded water quality, and other problems, only about 1-2 percent of the historic native oyster population remains.

NOAA works with other agencies and organizations to restore oyster reefs in Maryland and Virginia waters of the Chesapeake Bay. The effort is considered the largest and most ambitious oyster restoration project in the world. NOAA experts lead workgroups that develop and implement restoration work. NOAA scientists conduct sonar surveys and develop habitat analysis to guide projects and monitor progress. And NOAA provides funding to support the hatchery production of baby oysters.

Objectives and Strategies

Complete restoration of native oysters in 10 tributaries by 2025

- Complete remaining tributary blueprints by 2020
- Annually perform three- and six-year Oyster Metrics monitoring on restoration work in 10 tributaries and draft Maryland and Virginia monitoring reports
- Lead and engage with oyster restoration stakeholder groups (i.e., Virginia oyster workgroups, Virginia Oyster Restoration Interagency Team, Maryland Oyster Advisory Committee)

Examine innovative tools to advance oyster restoration

- Evaluate financing structures (bonds, mitigation banks, etc.) to increase the number of oysters in the Bay by 2025 and beyond
- Support the implementation of nutrient credits to offset total maximum daily load requirements for Chesapeake Bay oysters in aquaculture, public fishery, and sanctuaries
- Develop and test a rapid assessment reef structure and community health monitoring protocol to replace three- and six-year intensive monitoring with a simpler diagnostic tool

Develop a new Bay Agreement oyster outcome by 2024

- Convene key partners in Maryland and Virginia to scope large-scale restoration opportunities, including the Sustainable Fisheries and Water Quality Goal Implementation Teams



Chesapeake Bay resource managers need applied fisheries and habitat science to make informed decisions. NCBO provides this information by funding collaborative projects with academic partners to address management needs and by synthesizing research results to deliver policy recommendations and technical assistance to decision makers. NCBO applies an ecosystem-based management approach that considers cumulative effects on estuarine resources—linking habitats, economic activities, conflicting uses, and the sustainability of resources.

SUSTAINABLE FISHERIES

As long as humans have lived near the Chesapeake, they have enjoyed eating seafood from the Bay. The Chesapeake is home to 348 species of finfish and 173 species of shellfish. It is a source for both commercial and recreational harvest. Blue crab, oysters, and striped bass are some of the Chesapeake's treasured species. The Chesapeake Bay and its tributaries are also home to species that people do not harvest for food, including the endangered Atlantic sturgeon. NOAA plays an active role in ensuring that the most up-to-date science is available to state fishery and habitat managers around the Bay. This supports ecosystem-based fisheries management in the complex and dynamic Chesapeake Bay. Ecosystem-based management allows for consideration of resource tradeoffs that help protect and sustain diverse and productive ecosystems and the services they provide.

Objectives and Strategies

Lead the Chesapeake Bay Program Sustainable Fisheries Goal Implementation Team to successfully achieve the blue crab, oyster, and forage outcomes of the 2014 Chesapeake Bay Watershed Agreement

- Maintain a sustainable blue crab population based on biological reference points developed using the best available science and documented in the annual Blue Crab Advisory Report and stock assessment updates
- Improve understanding of the role of forage populations to support ecologically and economically important predators in the Chesapeake Bay by developing a suite of indicators to track forage status and trends
- Provide oversight and leadership to restore native oyster habitat and populations in 10 tributaries by 2025, ensure protection of this restoration, and develop the next Bay-wide oyster restoration goal

Deliver emerging science and improve cross-jurisdictional collaboration to improve fishery management decisions

- Lead forums that bring the management and science communities together to learn about the latest fisheries and habitat science, discuss management implications, identify new science priorities, and identify funding opportunities

- Coordinate efforts among Bay jurisdictions on a Bay-wide, science-based management strategy for invasive catfish that balances the economic interests of commercial and recreational fisheries with Chesapeake Bay ecosystem health
- Partner with the NOAA Fisheries Recreational Fishing Program on local initiatives emphasizing the importance of habitat for recreational fish species and engaging anglers in habitat restoration

HABITAT SCIENCE

The Chesapeake Bay and its watershed provide habitat for more than 3,600 species of plants and animals. Healthy habitats provide food and shelter for these species, which include fish, crabs, and oysters. The Chesapeake is a diverse ecosystem that includes habitats that support fish and their prey, such as:

- Underwater grasses
- Wetlands
- Oyster reefs
- Rivers
- Shorelines
- Water column

Fish and other species are affected by water quality, temperature, salinity, and other factors. As part of NOAA's efforts to protect and restore a variety of habitats, we conduct science to support habitat restoration and fisheries management.

Objectives and Strategies

Improve understanding of the links between habitat condition, water quality, and living resources in partnership with other NOAA offices and the Chesapeake Bay Program

- Contribute to the Chesapeake Bay tidal fish habitat assessment with the National Centers for Coastal Ocean Science to identify high-value fish habitat areas
- Explore approaches to improve estimates of fish productivity associated with nearshore habitat
- Become an annual contributor to Northeast State of the Ecosystem report and explore the development of a similar Chesapeake Bay-scale report
- Continue partnership with NOAA Satellites to relate environmental observations of water temperature, sediment, turbidity, and chlorophyll to habitat quality, fish productivity, and inshore-offshore connectivity
- Lead strategy to integrate mainstem Chesapeake Bay telemetry network and water column habitat information

Quantify connectivity for key fish species between estuarine and coastal habitats

- Fund and collaborate on the development of Bay-specific abundance estimates for striped bass and menhaden and use results in new ecosystem-level analyses supporting fish and habitat management objectives
- Synthesize and communicate results from funded habitat and forage research projects to maximize their use for management

CLIMATE CHANGE

Climate change is affecting Chesapeake Bay natural systems and human-built communities through changes in water quality, habitats, land use, and frequency of flooding. Natural resource managers and community planners need to better understand these changes and develop climate resilience strategies to address their effects on living resources and communities. NCBO fosters

and connects climate science to inform policies, programs, and restoration projects and builds partnerships to protect critical community assets involving sustainable fisheries, habitats, and natural and public infrastructure.

Objectives and Strategies

Facilitate information exchange among researchers, resource agencies, nongovernmental organizations, planners, and educators to support the incorporation of climate resilience decisions and actions

- Foster and support expanded research and collaboration among partners, both within NOAA and outside the agency, on climate-related effects
- Develop and apply a Chesapeake Bay-wide climate resilience scorecard for local governments to better target, monitor, and assess climate resilience actions to protect living resources, habitats, and communities
- Work with partners to support joint funding proposals and the development and improvement of watershed and estuarine climate models to inform climate resilience decisions
- Facilitate the discussion of climate change science and impacts with educators and community partners
- Support a regional community of practice focused on climate change and climate resilience education through workshops, conversations, and other forums

Incorporate climate change science and resilience considerations for fisheries, habitats, and communities into the Chesapeake Bay Program

- Lead the Chesapeake Bay Program Climate Resiliency Workgroup and collaborate with the Chesapeake Bay Program Goal Implementation Teams to develop actions that increase the resilience of living resources, habitats, and communities to changing climate conditions and sea level rise and to establish a plan to coordinate climate science priorities
- Facilitate coordination among the Chesapeake Bay Program and NOAA partners as they develop and implement climate change indicators to strengthen monitoring and assessment of ecological and community impacts and corresponding resilience actions
- Evaluate long-term observations and datasets from the NOAA Chesapeake Bay Interpretive Buoy System; apply findings to climate change indicator work that tracks ecological and community impacts to inform resilience actions
- Develop and implement a joint NOAA and Environmental Protection Agency research agenda to advance the understanding of the resilience best management practices related to water quality, fisheries, and habitat to climate change

The challenges facing a healthy ecosystem are complex and diffuse, requiring residents and communities to take actions to protect and restore their local environment. NCBO aims to give citizens the tools and information they need, beginning by working with schools throughout the watershed to graduate environmentally literate youth and continuing by helping communities in high-priority restoration areas to address local environmental issues.

ENVIRONMENTAL LITERACY

The long-term success of the Chesapeake Bay watershed restoration relies on inspiring and supporting our youth to become environmental stewards and future leaders with the vision, understanding, and tools to continue to protect and restore this fragile ecosystem. To this end, NOAA is the lead federal agency supporting the effort to ensure that every student in the region graduates environmentally literate, having participated in teacher-supported Meaningful Watershed Educational Experiences (MWEEs). Furthering this work, NCBO is committed to helping to establish a pipeline for those students interested in pursuing careers in NOAA-related science, policy, or community engagement.

Objectives and Strategies

Encourage and assist efforts to embed comprehensive environmental education into state and local education policies

- Serve as the backbone for regional environmental literacy efforts by leading the Chesapeake Bay Program's Education Workgroup and engaging with partners as part of state environmental education policy initiatives
- Use Bay Watershed Education and Training (B-WET) grant funding to increase the number of school districts that have curriculum-embedded meaningful watershed educational experiences (MWEEs)
- Increase the adoption of the MWEE model in new areas of the watershed by supporting the development of local networks focused on building systemic MWEEs
- Launch a community of practice around MWEEs to provide a way for grantees and partners to share information about model programs as well as to identify barriers to implementation and brainstorm solutions
- Work with NOAA Office of Education to improve and expand MWEE in coastal areas around the country with a focus on New England and the mid-Atlantic

Increase the use of rigorous scientific inquiry along with NOAA content, products, and data in the education programs of partners throughout the region

- Increase the capacity of B-WET grantees and regional educators to better deliver science and environmental literacy programming by providing training and technical assistance through the NOAA Environmental Science Training Center (ESTC)

- Increase content available on the NOAA Chesapeake Exploration online training center to expand the reach of the ESTC to educators throughout the watershed
- Work with the NOAA Education Council and the NOAA Office of Education to increase understanding and support for regional education and advance national climate literacy and citizen science initiatives

Identify and support qualified and diverse college students to advance NCBO scientific and environmental literacy priorities

- Work with Chesapeake Bay Program partners and minority-serving institutions to connect internship, fellowship, and early career programs into an intentional workforce pipeline for underrepresented populations

- Manage a competitive internship portfolio that provides opportunities for students to learn about and participate in the work of NCBO with an emphasis on recruiting and supporting underrepresented students
- Work with partners to engage pre-service teachers in content and pedagogy related to environmental literacy

COMMUNITY-BASED PARTNERSHIPS

Habitat conservation and restoration are strongest when done by a diverse group of partners that includes knowledgeable local organizations and the stakeholders and communities. To this end, NCBO works to build and sustain cross-sector partnerships focused on high-priority watersheds that draw together national, regional, and state resources. This community-based approach implements collaborative solutions in response to local environmental challenges.

Objectives and Strategies

Build an equitable and sustainable community of practice that considers local priorities while supporting healthy and resilient in-water and nearshore habitats in the Middle Peninsula of Virginia

- Develop and support a multisector nearshore habitat restoration committee to facilitate information exchange and develop a common vision for resilient infrastructure, such as oyster reefs, marsh and marshy islands, and living shorelines, that provide ecosystem services (i.e., clean water, erosion prevention, wave attenuation, good conditions for submerged aquatic vegetation, and habitat for key species) for coastal communities and wildlife

- Work with partners to design, implement, and monitor nearshore estuarine habitat restoration projects that provide enhanced fish habitat and protect coastal communities
- Raise awareness and support for habitat conservation and restoration with NOAA offices, Chesapeake Bay Program partners, and other key organizations
- Integrate principles of diversity, equity, inclusion, and justice into the community of practice and its projects

Support the implementation of the Common Agenda of Envision the Choptank to advocate for projects that support oyster reef sustainability and respond to climate change

- Ensure that NOAA's interests are well represented in the Envision the Choptank partnership by actively participating in the Steering Committee and relevant working groups
- Apply NOAA data, products, and services to assist local governments and partners in the Choptank region with programs and decision making related to resilience, education, fisheries, habitat restoration, and blue economy
- Support the diversity, equity, and inclusion work of Envision the Choptank to ensure that the partnership contributes to creating an inclusive and culturally sensitive portfolio of projects



NCBO strives for organizational excellence in our day-to-day business. We build partnerships to achieve mutual priorities, and are committed to the principles of diversity, equity, justice and inclusion. We conduct safe and efficient field operations and provide top-notch IT support. We strategically communicate about our work and adhere to sound budget and administration principles. The following objectives and strategies outline the critical efforts that support organizational excellence at NCBO.

PARTNERSHIP DEVELOPMENT

Build strategic partnerships with organizations that possess skills, capacities, resources, or connections to help advance NCBO priorities

- Serve on the Management Board, Principals' Staff Committee, and key working groups of the Chesapeake Bay Program to ensure that NOAA science, programs, products, and funding opportunities support the Chesapeake Bay Watershed Agreement
- Build and sustain partnerships with regional conservation organizations and research institutions, including minority-serving institutions, that have similar mission interests
- Maintain strong working relationships with the leadership and program office staff for federal, regional, and state government agencies focused on natural resource management and education
- Strengthen partnerships with NOAA affiliates in the Chesapeake Bay region, including Sea Grant, the National Estuarine Research Reserve System, the National Centers for Coastal Ocean Science, and the Coastal Zone Program
- Maintain relationships with key NOAA offices and programs (including the North Atlantic Regional Team) to foster collaborative opportunities, including support for place-based initiatives

STRATEGIC COMMUNICATION

Strategically communicate with defined audiences to highlight NOAA science, programs, and projects and to raise the awareness of science critical for protection and restoration of the Chesapeake Bay

- Demonstrate to NOAA leadership, including at the Office of Habitat Conservation and NOAA Fisheries, how the latest NCBO products, services, and accomplishments are relevant to the agency in order to ensure long-term support for priorities and activities
- Coordinate with NOAA's Office of Legislative Affairs, the Office of Habitat Conservation, and NOAA Fisheries to provide the latest NCBO science and accomplishments to key Members of Congress, governors' offices, and state legislators and their staffs
- Deliver timely information about the NCBO portfolio to Bay residents through streamlined web content, targeted media and community outreach, and a strategic social media presence

DIVERSITY, EQUITY, INCLUSION, AND JUSTICE (DEIJ)

Create diverse and inclusive programs and work environments free of discrimination, where integrity, fairness, teamwork, and equity are valued

- Create an inclusive office culture that values the contributions, perspectives, and uniqueness of all NCBO staff
- Build the cultural competency of NCBO staff by convening trainings and conversations around DEIJ issues
- Increase the diversity of NCBO staff using inclusive and equitable recruiting and hiring practices
- Consider DEIJ principles when developing and implementing NCBO programs (e.g., where we conduct our work, what the focus should be, who to include, and how to communicate)

OPERATIONS

Prioritize, plan, and safely implement operations in support of NCBO core missions

- Develop and deliver field program annual plans that directly link to NCBO priorities while coordinating with key partners, including requirements, schedules, and staffing needs
- Maintain a high level of emergency preparedness through the use of the Occupant Emergency Plan and regular safety drills and training
- Improve the effectiveness and efficiency of field operations by centralizing vessel, buoy, and other operational support assets
- Maintain safety vigilance through routine training, coordination with NOAA's Small Boat Program, timely vessel upkeep and repair, and compliance with mandated safety procedures

INFORMATION TECHNOLOGY

Maintain IT infrastructure that is reliable, supports mission-critical NCBO programs, and allows broad data accessibility to a wide range of users

- Design and implement data systems that comply with NOAA policy and security requirements
- Design and implement redundancy for mission-critical NCBO data systems
- Improve NCBO data systems and tools to provide centralized and easily accessible data to partners and the public
- Leverage NOAA's Cloud computing presence to reduce infrastructure cost, increase scalability as requirements evolve, and improve data security and disaster recovery preparedness

BUDGET AND ADMINISTRATION

Ensure NCBO is responsive and actively engages with the Office of Habitat Conservation to improve organizational administration

- Ensure compliance with NOAA Fisheries core policies, including travel, safety, and time and attendance
- Facilitate ongoing professional development opportunities for NCBO staff (e.g., quantitative and data visualization training)
- Conduct budget formulation and execution in a timely manner and maintain financial compliance with Office of Habitat Conservation
- Ensure that staff complete all required training on time
- Respond to data collection efforts on time and to high-quality standards

For more information...

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More detailed information on the Chesapeake Bay and NCBO's work is available at <https://www.fisheries.noaa.gov/topic/chesapeake-bay>