Backgrounder

Chesapeake Bay Program
Science, Restoration, and Partnership

In June 2014, the Chesapeake Executive Council, which includes leaders from six states and the District of Columbia, and representatives of the U.S. Environmental Protection Agency and the Chesapeake Bay Commission, signed the landmark *Chesapeake Bay Watershed Agreement.* This restoration, conservation and stewardship accord contains ten interconnected goals and thirty-one measurable, time-bound outcomes that will help create a healthy ecosystem. The Chesapeake Bay Program's Goal Implementation Teams have developed draft management strategies that outline our plans to meet those thirty-one outcomes. The twenty-five strategies are grouped into five themes that align with Bay Program partners' vision, described in the Watershed Agreement: **Abundant Life, Clean Water, Climate Change, Conserved Lands** and **Engaged Communities**.

About Abundant Life

Thousands of species are supported by the Chesapeake Bay and its watershed, from the brook trout that swim in its headwater streams to the famous Chesapeake blue crabs found throughout the Bay and its tidal rivers. People throughout the region depend on the watershed's abundant life for sustenance, livelihood and culture. But none of these species thrive independently—they all rely on one another, the waters and lands they inhabit, and the larger Chesapeake Bay ecosystem.

The living resources of the watershed depend on habitats like streams, forests, wetlands and underwater grass beds for survival. These places are also vital to human well-being and quality of life, as well as the health of the ecosystem as a whole. Enhancing and restoring habitats provides countless services to nature and people alike—including cleaning the air, improving water quality, and buffering communities from floods and storm surges.

Whether on land or by water, these habitats are vital not only for the species we treasure and depend on for survival, but for the millions of humans who rely on the benefits these lands and waters provide.

All life in the Bay watershed is interconnected: when certain species are unable to thrive, it suggests the waters, lands or other species they depend on are challenged as well. By integrating our efforts to support species such as brook trout, blue crabs and oysters with our work restoring critical habitats, we provide for a balanced ecosystem. Protecting key fish and wildlife populations—along with their habitats—in turn supports the resiliency of the ecosystem and sustains the Chesapeake region's quality of life.

Associated Management Strategies

Sustainable Fisheries

Blue Crab Abundance and Management
The blue crab is an iconic species of the Chesapeake Bay, and the commercial and recreational fisheries are some of the most economically valuable in the Bay. But pollution, habitat loss and harvest pressure threaten blue crab populations. To sustain this economically and ecologically vital species, Bay Program partners committed to two outcomes. The Blue Crab Abundance Outcome will maintain a sustainable crab population of 215 million adult females, while refining population targets through 2025 based on best available science. The Blue Crab Management Outcome will manage for a stable and productive crab fishery by working with commercial and recreational crabbers and other stakeholders to improve harvest accountability, and by 2018 will evaluate the establishment of a Bay-wide allocation-based management framework. Our plan for achieving these outcomes includes the planning and implementation of a benchmark stock assessment and the evaluation of the overall benefits of an allocation-based management framework.

Oysters
For more than a century, oysters have made up one of the region's most valuable fisheries, and the filter-feeder continues to clean our waters and provide food and habitat to other animals. But historical over-harvesting, disease and habitat loss have led to a severe drop in oyster populations. Bay Program partners committed to increasing the habitat and water quality benefits from restored oyster populations and restoring native oyster habitat and populations in 10 tributaries by 2025. As of 2014, six tributaries have been selected for oyster restoration: Harris Creek, the Little Choptank River and the Tred Avon River in Maryland, and the Lynnhaven River, Lafayette River and Piankatank River in Virginia. Our strategy includes the planning and implementation of oyster restoration efforts; securing support and resources from federal, state and local partners; and considering future protection of the restored oyster reefs in the long-term.

Forage Fish
Forage fish are prey for many predator species in the Bay, making them an important part of the food web. Many of these predatory fish support valuable commercial and recreational fisheries in the Chesapeake Bay. This outcome strives to better understand the connections between forage species and other species in the ecosystem as a step toward multi-species ecosystem management. Bay Program partners committed to continually improving the capacity to understand the role of forage fish populations on the Chesapeake Bay and developing a strategy to assess the forage fish base by 2016. To achieve this outcome, our strategy includes defining what comprises the forage base, determining the status of the forage base, helping to inform fishery management decisions and improving monitoring programs.

Fish Habitat
Development, polluted waters and climate change are some of the major factors degrading important fish and shellfish habitats and threatening the future of recreational and commercial fisheries in the Chesapeake Bay. To protect and support these fisheries, Bay Program partners committed to improving the effectiveness of fish habitat

conservation and restoration efforts by identifying and characterizing critical fish and shellfish habitats in the Bay and its tributaries, and using new and existing tools to integrate information and conduct assessments to inform restoration and conservation efforts. These fish habitats can be any of various types, including underwater grass beds, streams, wetlands and others. Our strategy includes identifying and prioritizing threats to fish habitat, proposing actions to manage those threats, identifying and targeting high priority areas for conservation and restoration efforts, communicating the importance of fish habitat to the public and evaluating ways to enhance our efforts based on successful examples from other regions.

Vital Habitats

Wetlands

Located where land meets water, wetlands provide habitat for hundreds of species both year-round and as a stop along their migration routes, while also supporting recreational fishing and hunting, kayaking and bird watching opportunities. By acting like a sponge, wetlands soak up stormwater and dampen storm surges, and by trapping polluted runoff, they help slow the flow of nutrients, sediment and chemical contaminants into streams, rivers and the Bay. To continually increase the capacity of wetlands to provide these benefits, Bay Program partners will work to create or reestablish 85,000 acres of wetlands and enhance the function of an additional 150,000 acres of degraded wetlands by 2025. Our plan includes improving how wetland projects are reported, prioritizing key areas for restoration, better understanding barriers facing our projects and factors that lead to successful restoration, and increasing the amount of local engagement in this work.

Black Ducks

Once the most abundant dabbling duck in eastern North America, the American black duck population declined by more than 50 percent between the 1950s and 1980s. More than 200,000 black ducks used to spend their winter in the Chesapeake region—today, fewer than 50,000 visit the region each year. Black ducks prefer quiet, isolated tidal wetlands—generally staying away from heavily populated areas—and are representative of the health of the watershed's tidal marshes. By restoring, enhancing and preserving breeding and foraging habitats, Bay Program partners aim to support a wintering population of 100,000 black ducks by 2025. Our strategy focuses on prioritizing habitats; restoring, enhancing and limiting human disturbance in areas where these ducks have historically bred or wintered; protecting wetlands and the lands adjacent to them; and benefiting waterfowl habitat through education, permitting, and managing predators.

Stream Health

Hundreds of thousands of creeks, streams and rivers wind through the watershed, sending fresh water into the Bay, providing habitat to aquatic plant and animal species and offering public access points where people can fish, boat, swim and connect with their environment. Streams are affected by litter and debris, nutrient and sediment pollution, chemical contaminants and the installation of structures that alter the flow of rivers and block the migration routes of fish. Bay Program partners committed to continually improving the health of streams throughout the watershed and improving the health of 10 percent of stream miles above a 2008 baseline for the watershed. Our management strategy includes identifying measures for stream health, linking programs with funding and technical resources, developing and promoting guidelines for holistic stream restoration, and communicating the benefits of restoration and maintenance to local leaders and communities.

Brook Trout

Brook trout are an essential part of headwater stream ecosystems, an important part of the watershed's heritage and a valuable recreation resource. But this key species has been declining for nearly a century, leading to lost commercial and recreational fishing opportunities. Since brook trout rely on clean, cold stream habitat and are sensitive to rising stream temperatures, they are a good indicator of healthy waters. Under the Watershed Agreement, Bay Program partners committed to restoring and sustaining brook trout populations in Chesapeake

headwater streams with an eight percent increase in occupied habitat by 2025. To achieve this goal, our strategy includes identifying priority areas to focus brook trout conservation efforts, supporting fishery managers and local planners with decision support and prioritization tools, and considering climate change vulnerability in determining where to conduct brook trout conservation projects.

Fish Passage

More than 5,000 dams span the waterways of the Bay region. Structures like dams or culverts that block fish from migrating to upstream spawning habitats are one of the key factors leading to a decline in fish populations. Projects that remove dams or install fish lifts, ladders and other passageways allow migratory fish to return to their upstream habitats and allow resident fish to move freely throughout the waterway. To support sustainable migratory fish population in the watershed's freshwater rivers and streams, Bay Program partners are committed to opening an additional 1,000 stream miles by 2025, with restoration success indicated by the presence of alewife, blueback herring, American shad, hickory shad, American eel and/or brook trout. Our management strategy includes prioritizing fish passage projects, continuing dam removal projects that are already underway, and developing additional projects to achieve the mileage goal.

Submerged Aquatic Vegetation (SAV)

Submerged aquatic vegetation, or underwater grasses, serve critical functions in the ecosystem: they add oxygen to the water, improve water clarity, provide shelter for aquatic species and reduce shoreline erosion. Pollutants like excess nutrients and suspended sediment cloud the water and hinder bay grass growth. Although bay grasses are sensitive to pollution, they are quick to respond to improved water quality, making their abundance a good indicator of Bay health. To sustain and increase their habitat benefits, Bay Program partners committed to achieving and sustaining 185,000 acres of SAV Bay-wide, measured against interim targets of 90,000 acres by 2017 and 130,000 acres by 2025. To reach this goal, our plan is focused on improving the water clarity necessary to grow and maintain underwater grasses and protecting existing grass beds while restoring those that are a priority. Our strategy also includes enhancing research, citizen involvement and education.

Forest Buffers

Streamside forests, also known as riparian forest buffers, provide a range of benefits, from cleaning our water and air to providing valuable habitat. Forest buffers trap polluted runoff before it enters waterways and stabilize soils that might otherwise wash into streams and rivers. Streamside trees provide habitat for species that live in the water by shading and thereby cooling the water, which reduces the stress on sensitive fish. Fallen leaves, seeds, branches and other debris can serve as food and habitat to underwater species. To increase the water quality and habitat benefits provided by forest buffers, Bay Program partners aim to restore 900 miles of forest buffers per year, as well as conserve existing buffers, until at least 70 percent of riparian areas in the watershed are forested. Our strategy includes coordinating federal, state and local leaders; improving our development and coordination of programs; linking programs with funding opportunities; and using research and technology to prioritize and track projects.

Tree Canopy

Urban tree canopy refers to the layer of trees covering the ground when viewing a city, suburb or town from above. These urban trees help purify the air, decrease polluted runoff, provide shade and offer habitat for urban-dwelling species. Increasing tree canopy can also enhance energy and cost savings, public health, and community investment in the landscape. But many urban trees are lost each year due to development, extreme weather and disease. Bay Program partners are working to reach a net gain of tree canopy through protection and new plantings to add 2,400 acres of urban tree canopy in the watershed by 2025. Our plan includes working with local leaders, increasing community investment in urban trees, providing technical assistance and training, increasing our knowledge of total tree canopy cover, and improving the tracking and maintenance of urban trees.