

Bay Barometer 2016-2017 | Draft Text

Abundant Life: Sustainable Fisheries

Blue Crab Abundance

- Outcome: Maintain a sustainable blue crab population based on a target of 215 million adult females.
- Progress Statement: Over 100 percent of outcome achieved.
- Chart: Adult (Age 1+) Female Blue Crab Population (1990-2017)
- Chart Text: Between 2016 and 2017, the abundance of adult female blue crabs in the Chesapeake Bay rose 31 percent from 194 million to 254 million. This number is above the 70 million threshold and the 215 million target, and marks the highest amount ever recorded by the Bay-wide Blue Crab Winter Dredge Survey.

Blue Crab Management

- Outcome: Manage for a stable and productive blue crab fishery. By 2018, evaluate the establishment of a Chesapeake Bay-wide allocation-based management framework.
- Progress Statement: The blue crab stock is not depleted and overfishing is not occurring.
- Chart: Female Blue Crab Harvest Level (1990-2016)
- Chart Text: In 2016, an estimated 16 percent of female blue crabs was harvested from the Chesapeake Bay. For the ninth consecutive year, this number is below the 25.5 percent target and the 34 percent overfishing threshold. Experts have determined the blue crab stock is not depleted and overfishing is not occurring.
- News Blurb: In 2017, the three jurisdictions that manage the Chesapeake Bay's blue crab fishery decided not to establish an allocation-based management framework, which would have assigned Maryland, Virginia and the Potomac River Fisheries Commission a portion of an annual "total allowable catch" of male and female crabs. The decision to continue to operate under a science-based management framework was based on jurisdictional perspectives and stakeholder feedback.

Fish Habitat

- Outcome: Identify and characterize critical fish and shellfish spawning, nursery and forage areas within the Chesapeake Bay and its tributaries. Integrate information and conduct assessments to inform restoration and conservation efforts.
- News Blurb: Scientists at the Smithsonian Environmental Research Center and their collaborators collected more than 600,000 organisms at 587 sites in subestuaries of the Chesapeake Bay and the Delaware Coastal Bays to investigate the impacts of land cover and shoreline hardening on estuarine species. Findings indicate that areas near hardened shorelines had lower

abundances of fish and crustaceans. This study highlights the need to utilize alternatives to traditional shoreline hardening, through conservation of restoration of coastal wetlands or techniques such as living shorelines.

Forage Fish

- Outcome: Improve our capacity to understand the role of forage fish in the Chesapeake Bay. By 2016, develop a strategy for assessing the forage base available as food for predatory species.
- News Blurb: Most forage species, including those recognized as important by the Forage Action Team, exhibit natural variability. New research from the University of Maryland Center for Environmental Science finds evidence that fish and invertebrate forage abundance in Chesapeake Bay and its tributaries is closely linked to annual climate. An emerging pattern suggests that cooler springs set the stage for higher abundance of a variety of forage species during the following summer. Interestingly, there is also some evidence that the diet of predatory fish changes depending on where they are located in the Bay and that their diet is correlated with some of the same climate indicators that are correlated with forage abundance. These findings suggest a “bottom-up” link between climate conditions, forage abundance and, ultimately, the diet of predatory fish in Chesapeake Bay. The Forage Action Team will continue to work towards developing a suite of forage metrics that could be updated annually to inform managers on how variability might impact predator diets.

Oysters

- Outcome: Increase finfish and shellfish habitat and the water quality benefits afforded by restored oyster populations. Restore native oyster habitat and populations in 10 tributaries by 2025 and ensure their protection.
- Progress Statement: Restoration is underway in six tributaries.
- Chart: Oyster Reef Restoration Progress Dashboard (2016)
- Chart Text: Each of the six tributaries that have been selected for oyster restoration is at a different level of progress in a process that involves developing a tributary restoration plan, constructing and seeding reefs, and monitoring and evaluating restored reefs. In Maryland, 563.9 acres of oyster reefs are considered complete. In Virginia, 158 acres of oyster reefs are considered complete. Some of these reefs have undergone restoration as part of our progress toward this outcome, while others have undergone previous restoration work or, due to naturally occurring reefs and oysters, already meet our restoration criteria.

Abundant Life: Vital Habitats

Black Duck

- Outcome: By 2025, restore, enhance and preserve wetland habitat to support a wintering population of 100,000 black ducks.
- Progress Statement: 51 percent of outcome achieved.

- Chart: Wintering Black Ducks in the Chesapeake Bay Watershed (2009 – 2015)
- Chart Text: The U.S. Fish and Wildlife Service conducts a Mid-winter Waterfowl Survey each January to determine the abundance and distribution of several species of waterfowl. According to survey results, an average of 51,332 black ducks were observed in Chesapeake Bay watershed states between 2013 and 2015. This marks a five percent increase from the average number of black ducks observed in the region between 2012 and 2014 and 51 percent of the 100,000 bird goal.
- News Blurb: The mid-Atlantic region supports the largest population of wintering black ducks in eastern North America. In 2017, Chesapeake Bay Program partners launched a Black Duck Decision Support Tool to guide on-the-ground habitat conservation for this critical species. The tool uses current landscape conditions and expected land use change to identify high-quality, resilient habitat and target areas for restoration and protection, helping conservation practitioners prioritize black duck projects.

Brook Trout

- Outcome: Restore and sustain naturally reproducing brook trout in the Chesapeake Bay's headwater streams, with an eight percent increase in occupied habitat by 2025.
- News Blurb: As urbanization and other factors have raised the temperature of the region's streams, recent research indicating future stream warming will be patchier than predicted has marked a shift in our understanding of how climate change could impact the temperature-sensitive brook trout. Experts believe the localized upwelling of cold groundwater into streams will create a varied pattern of stream temperature and a patchy distribution of brook trout habitat. This is likely to diminish brook trout occupancy, but more research is needed to understand the conditions brook trout will swim through in order to find suitable habitat and the ability of local populations to adapt to heat stress.

Fish Passage

- Outcome: Increase habitat to support sustainable migratory fish populations in the Chesapeake Bay watershed's freshwater rivers and streams. By 2025, restore historical fish migration routes by opening 1,000 additional stream miles to fish passage.
- Progress Statement: Over 100 percent of outcome achieved.
- Chart: Stream Miles Opened to Fish Passage (2011-2015)
- Chart Text: Progress to restore historical fish migration routes is measured against a 2011 baseline of 2,510 stream miles open to the migration of fish. Between 2012 and 2016, 1,126 additional miles were opened to fish passage, including 565 miles in Virginia, 538 miles in Pennsylvania and 22.6 miles in Maryland. This marks a 113 percent achievement of the 1,000-mile goal.

Forest Buffers

- Outcome: Increase the capacity of forest buffers to provide water quality and habitat benefits throughout the Chesapeake Bay watershed. Restore 900 miles of riparian forest buffers per year and conserve existing buffers until at least 70 percent of the watershed's riparian areas are forested.
- Progress Statement: Seven percent of annual target achieved.
- Chart: Forest Buffers Planted (2000-2015)
- Chart Text: In 2015, about 64 miles of forest buffers were planted along the Chesapeake Bay watershed's rivers and streams. While this marks some progress toward the outcome, it is significantly less than progress made in past years: at 836 miles below the 900-mile-per-year goal, it is the lowest restoration total of the last 16 years. An estimated 55 percent of the watershed's 288,000 miles of stream banks and shorelines currently have forest buffers in place, and our partners will plant new buffers and conserve existing buffers until at least 70 percent of these areas are forested.
- News Blurb: The Chesapeake Riparian Forest Buffer Network, www.chesapeakeforestbuffers.net, was launched in March 2017 through a partnership between the Chesapeake Bay Program Forestry Workgroup, the Alliance for the Chesapeake Bay and the U.S. Forest Service to help communities meet their forest buffer goals. The website features an interactive map showing the progress of counties in enrolling landowners across the watershed in forest buffer programs, education information and resources on outreach strategies and funding opportunities.

Stream Health

- Outcome: Improve the health and function of ten percent of stream miles above the 2008 baseline.
- Progress Statement: Forty-three percent of streams in fair, good or excellent condition.
- Chart: Stream Health (2000-2010)
- Chart Text: Over the last decade, thousands of stream samples have been collected to help us determine the physical, chemical and biological health of our waterways and to generate a Chesapeake Bay-wide indicator of stream health. In 2010, this indicator—known as the Chesapeake Bay-wide Index of Biotic Integrity or Chessie BIBI—ranked 43 percent of streams in fair, good or excellent condition and 57 percent in poor or very poor condition. Experts are working to refine the Chessie BIBI and update the index with more recent data.
- News Blurb: The Stream Health Workgroup is planning a workshop that will bring together biologists and managers who use stream monitoring data in order to come to consensus on a practical baseline for the Chesapeake Bay-wide Index of Biotic Integrity, the indicator used to measure stream health. This baseline is necessary in order to use the indicator so the workgroup can accurately measure progress and compare management effectiveness.

Underwater Grasses

- Outcome: Sustain and increase the habitat benefits afforded by submerged aquatic vegetation (SAV) in the Chesapeake Bay. Achieve and sustain 185,000 acres of SAV Bay-wide, with a target of 90,000 acres by 2017 and 130,000 acres by 2025.
- Progress Statement: Fifty-three percent of outcome achieved.
- Chart: Underwater Grass Abundance (1984-2016)
- Chart Text: In 2016, an estimated 97,433 acres of underwater grasses were mapped in the Chesapeake Bay: 7,433 acres greater than the Chesapeake Bay Program's 2017 restoration target and 53 percent of the partnership's 185,000-acre goal. Researchers attribute the rise in underwater grasses to a strong increase in the tidal freshwater and moderately salty regions of the Bay. The iconic grass beds at the mouth of the Susquehanna River, for instance, continued their four-year recovery following damage from Hurricane Irene and Tropical Storm Lee. And at over 10,000 acres, the grasses that stretch from Smith Island to Tangier Island have become the biggest contiguous grass bed in the Bay. Researchers observed a drop in the eelgrass that grows in the very salty waters of the lower Bay, where beds had increased in recent years following losses that occurred during the hot summers of 2005 and 2010.

Tree Canopy

- Outcome: Expand urban tree canopy by 2,400 acres by 2025 to provide air quality, water quality and habitat benefits throughout the Chesapeake Bay watershed.
- News Blurb: In August, the Forestry Workgroup gathered 120 urban forestry and community engagement practitioners from government, nonprofits and the private sector to explore how the principles of environmental justice impact their work. The workshop covered some of the underlying factors that contribute to unequal distribution of quality canopy coverage in communities and provided opportunities for participants to map out how to overcome these barriers where they work. Attendees learned how to model their own success at home from regional and national examples of successful community-driven tree programs.

Wetlands

- Outcome: Increase the capacity of wetlands to provide water quality and habitat benefits throughout the Chesapeake Bay watershed. Create or reestablish 85,000 acres of tidal and non-tidal wetlands and enhance the function of an additional 150,000 acres of degraded wetlands by 2025, primarily on agricultural or natural landscapes.
- Progress Statement: Nine percent of outcome achieved.
- Chart: Wetlands Restored on Agricultural Lands (2010-2015)
- Chart Text: Between 2010 and 2015, 7,623 acres of wetlands were created or reestablished on agricultural lands. While this outcome includes a target to restore 85,000 acres of tidal and non-tidal wetlands in the watershed, 83,000 of

these restored acres should take place on agricultural lands. The wetlands restored on agricultural lands between 2010 and 2015 mark a nine percent achievement of the 83,000-acre goal.

- News Blurb: While approximately one-third of the region's private landowners have expressed interest in restoring wetlands on their property, many are not aware of the restoration programs that are available to them. The Chesapeake Bay Program's Wetland Workgroup and Creative Team are developing a website to overcome this obstacle and accelerate wetland restoration on private lands. By providing a comprehensive listing of restoration programs and a tool to support landowner decision-making, this website will allow both landowners and restoration practitioners to identify the programs that are best suited to an individual's interests.

Clean Water

Estimated (Nitrogen, Phosphorus and Sediment) Pollution Reduced

- Outcome: By 2017, have practices and controls in place that are expected to achieve 60 percent of the nutrient and sediment load reductions necessary to achieve applicable water quality standards compared to 2009 levels. By 2025, have all practices and controls in place to achieve applicable water quality standards as articulated in the Chesapeake Bay Total Maximum Daily Load.
- Progress Statement: Thirty-three percent of necessary nitrogen reductions, 81 percent of necessary phosphorus reductions and 57 percent of necessary sediment reductions have been made.
- Charts: Total Nitrogen, Phosphorus and Sediment Loads to the Chesapeake Bay (1985, 2009, 2016, 2017 Interim Target, 2025 Planning Target)
- Chart Text: Computer simulations show that pollution controls put in place in the Chesapeake Bay watershed between 2009 and 2016 lowered nitrogen loads nine percent, phosphorus loads 20 percent and sediment loads nine percent. Experts attribute the drop in estimated nitrogen loads to technological upgrades at wastewater treatment plants and agricultural best management practices (BMPs). Agricultural BMPs have also contributed to the drop in estimated phosphorus and sediment loads, but increased phosphorus and sediment pollution from urban development has offset or reduced the overall benefits these practices have engendered. Pollution-reducing practices are in place to achieve 33 percent of the nitrogen reductions, 81 percent of the phosphorus reductions and 57 percent of the sediment reductions necessary to attain applicable water quality standards as compared to 2009, the year before the U.S. Environmental Protection Agency established the Chesapeake Bay Total Maximum Daily Load (Bay TMDL).

Nitrogen, Phosphorus and Sediment Loads

- Outcome: Improve our capacity to monitor and assess the effects of the management actions being taken to implement the Chesapeake Bay Total

Maximum Daily Load and improve water quality. Report annual progress being made in attaining water quality standards and trends in reducing nutrients and sediment in the watershed.

- Progress Statement: 156 million pounds of nitrogen, nine million pounds of phosphorus and five billion pounds of sediment entering the Bay
- Charts: Total Nitrogen, Phosphorus and Sediment Loads and Average River Flow to the Chesapeake Bay (1990-2016)
- Chart Text: Between October 2015 and September 2016, approximately 156 million pounds of nitrogen, nine million pounds of phosphorus and five billion pounds of sediment reached the Chesapeake Bay. While these loads mark a 16 percent, 36 percent and 59 percent increase from the previous year, respectively, both phosphorus and sediment loads were below the long-term average. These estimates are based primarily on monitoring data from the Bay's major rivers and wastewater treatment facilities.

Commented [RF1]: Data to be updated by October 18.

Water Quality Standards Achieved

- Outcome: Improve our capacity to monitor and assess the effects of the management actions being taken to implement the Chesapeake Bay Total Maximum Daily Load and improve water quality. Report annual progress being made in attaining water quality standards and trends in reducing nutrients and sediment in the watershed.
- Progress Statement: Thirty-nine percent of the Chesapeake Bay and its tidal tributaries met water quality standards between 2014 and 2016.
- Chart: Water Quality Standards Attainment (1985-2016)
- Chart Text: According to preliminary data, an estimated 39 percent of the Chesapeake Bay and its tidal tributaries met water quality standards during the 2014 to 2016 assessment period. This marks the second highest level of water quality standards attainment since 1985, but it is still far below the 100 percent attainment needed for clean water and a stable aquatic habitat.

Toxic Contaminants

- Outcome (Policy and Prevention): Improve practices and controls that prevent or reduce the effects of toxic contaminants on aquatic systems and humans. Build on existing programs to reduce the amount and effects of polychlorinated biphenyls (PCBs) in the Chesapeake Bay watershed. Evaluate the implementation of additional policies, programs and practices for other contaminants that need to be further reduced or eliminated.
- Progress Statement: TBD
- Chart: Toxic Impairments in the Tidal Chesapeake Bay
- Chart Text: TBD

Commented [RF2]: Data to be updated by October 18.

Healthy Watersheds

- Outcome: Ensure 100 percent of state-identified currently healthy waters and watersheds remain healthy.

- News Blurb: The Chesapeake Bay Program has established a baseline of healthy waters and watersheds across the region. Using federal, state and local data, the Maintain Healthy Watersheds Goal Implementation Team has launched a new initiative to track the status of state-identified healthy waters and watersheds in order to identify vulnerabilities and assess whether watershed health is being maintained.

Protected Lands

Land Use Methods and Metrics Development:

- Outcome: By 2016, develop a watershed-wide methodology and local-level metrics for characterizing the rate of farmland, forest and wetland conversion, measuring the extent and rate of change in impervious surface coverage and quantifying the potential impacts of land conversion to water quality, healthy watersheds and communities. Share this information with local governments, elected officials and stakeholders.
- News Blurb: Using images collected through the Landsat program between 1984 and the present, Chesapeake Bay Program partners are exploring methods of assessing annual changes in forest and impervious surface coverage. Partners are also assessing options for remapping historical land use and cover – including urban tree canopy - in the region with high-resolution imagery. The results of these analyses will be available in 2018.

Land Use Options Evaluation:

- Outcome: By the end of 2017, with the direct involvement of local governments or their representatives, evaluate policy options, incentives and planning tools that could assist them in continually improving their capacity to reduce the rate of conversion of agricultural lands, forests and wetlands as well as the rate of changing landscapes from natural lands to those that are impervious. Strategies should be developed for supporting local governments' and others' efforts in reducing these rates by 2025 and beyond.
- News Blurb: Local governments play a critical role in land conservation. Local officials design and enact regulations that dictate how a region develops, and can provide property owners incentives to facilitate conservation and growth. In 2017, the National Center for Smart Growth Research and Education worked with the Chesapeake Bay Program and Chesapeake Bay Trust to publish a Conservation Land-Use Policy Toolkit that helps local governments select the best policy tool to slow the loss of farms, forests and wetlands.

Protected Lands

- Outcome: By 2025, protect an additional two million acres of lands throughout the watershed—currently identified as high-conservation priorities at the federal, state or local level—including 225,000 acres of wetlands and 695,000 acres of forestland of highest value for maintaining water quality.

- Progress Statement: Fifty percent of outcome achieved.
- Chart: Protected Lands (2011-2015/2016)
- Chart Text: Data collected between 2015 and 2016 show that, since 2010, approximately 1,004,500 acres of land in the Chesapeake Bay watershed have been permanently protected from development. This marks an achievement of 50 percent of the goal to protect an additional two million acres, and brings the total amount of protected land in the watershed to 8 million acres. State agencies are the largest entity contributing to land protection: they hold approximately 46 percent of the protected acres in the watershed.
- News Blurb: In 2017, the Chesapeake Conservation Partnership executed an agreement with the Environmental Law Institute to have them assess and recommend revised and new mitigation policies in the states of Pennsylvania, Maryland and Virginia for linear energy projects (e.g. pipelines and power lines) that impact landscapes.

Engaged Communities

Public Access

- Outcome: By 2025, add 300 new public access sites to the Chesapeake Bay watershed, with a strong emphasis on providing opportunities for boating, swimming and fishing, where feasible.
- Progress Statement: Forty-three percent of outcome achieved.
- Chart: Public Access Sites in the Chesapeake Bay Watershed (2010-2016)
- Chart Text: Between 2010 and 2016, 130 access sites were opened to the public. This marks a 43 percent achievement of the goal to add 300 new access sites to the watershed, and brings the total number of access sites in the region to 1,269. There are currently seven public access sites in Delaware, 23 in the District of Columbia, 36 in New York, 46 in West Virginia, 205 in Pennsylvania, 354 in Virginia and 598 in Maryland.

Sustainable Schools

- Outcome: Increase the number of schools in the region that reduce the impact of their buildings and grounds on their local watershed, environment and human health through best practices, including student-led protection and restoration projects.
- Progress Statement: Twelve percent of public and charter schools in the Chesapeake Bay watershed are certified sustainable.
- Chart: Certified Sustainable Schools in the Chesapeake Bay Watershed (2015)
- Chart Text: In 2015, 12 percent of public and charter schools in the Chesapeake Bay watershed— a total of 502 schools—were certified sustainable by the U.S. Green Ribbon Schools, National Wildlife Federation Eco-Schools USA, Maryland Green Schools and Virginia Naturally Schools programs. At 82 percent of the total (or 410 schools), Maryland is home to most of the certified sustainable schools in the watershed. Seventeen percent of the sustainable schools in the

watershed are located in Virginia, with additional schools in Pennsylvania and Washington, D.C.

- o News Blurb: See below.

Student MWEEs

- o Outcome: Increase students' age-appropriate understanding of the watershed through participation in teacher-supported Meaningful Watershed Educational Experiences (MWEEs) and rigorous, inquiry-based instruction, with a target of at least one MWEE in elementary, middle and high school depending on available resources.
- o Progress Statement: TBD
- o Chart: Elementary, Middle and High School Availability of Meaningful Watershed Educational Experiences (MWEEs) (2015)
- o Chart Text: TBD
- o News Blurb: See below.

Commented [RF3]: Data to be updated by October 18.

Environmental Literacy Planning

- o Outcome: Each participating Chesapeake Bay jurisdiction should develop a comprehensive and systemic approach to environmental literacy for all students in the region that includes policies, practices and voluntary metrics that support the environmental literacy goals and outcomes of the Watershed Agreement.
- o Progress Statement: Twenty-one percent of respondents to a Chesapeake Bay Program survey self-identified as well-prepared to put a comprehensive and systemic approach to environmental literacy in place.
- o Chart: Environmental Literacy Preparedness in the Chesapeake Bay Watershed (2015)
- o Chart Text: In 2015, 21 percent of the 149 local education agencies that responded to a Chesapeake Bay Program survey self-identified as well-prepared to put a comprehensive and systemic approach to environmental literacy in place. About 43 percent these local education agencies identified as somewhat prepared, and 35 percent identified as not prepared. Fifty-eight percent of the local education agencies in the watershed—or those school districts that operate public elementary, middle and high schools—did not respond to this survey. This dataset does not include information from Delaware or New York.

Environmental Literacy News Blurb: In 2017, the Chesapeake Bay Program's Education Workgroup published *An Educator's Guide to the Meaningful Watershed Educational Experience*. This easy-to-use manual for constructing high-quality educational experiences for all students brings consistency and quality to the work done under the Environmental Literacy Planning, Student MWEE and Sustainable Schools outcomes. As jurisdictions continue to implement improved and more systemic MWEEs, they will use and promote this so-called MWEE Guide with teachers and non-formal educators and strengthen outdoor learning for students throughout the region. This resource will help create young citizens who understand and respect our natural world.

Citizen Stewardship

- Outcome (Citizen Stewardship): Increase the number and diversity of trained and mobilized citizen volunteers who have the knowledge and skills needed to enhance the health of their local watersheds.
- Progress Statement: Residents of the region scored a 24 out of 100 on the Citizen Stewardship Index.
- Chart: Chesapeake Bay Watershed Citizen Stewardship Index (2017)
- Chart Text: In 2017, residents of the Chesapeake Bay region scored a 24 out of 100 on the first-ever Citizen Stewardship Index. There are three components to this baseline score. The Personal Action score—which is currently 38—measures the adoption of 19 actions that individuals can take to improve water quality and environmental health. The Volunteering score—which is currently 23—measures the portion of the public participating in community efforts to improve water quality and environmental health. And the Advocating score—which is currently 18—measures the portion of the public engaging in local and regional activities on behalf of water quality and environmental health. To score a 100 on the Citizen Stewardship Index, everyone in the region would need to do everything they could in their daily lives to improve water quality and environmental health.

Diversity

- Outcome: Identify minority stakeholder groups not currently represented in the leadership, decision-making or implementation of current conservation and restoration activities. Create meaningful opportunities and programs to recruit and engage these groups in the Chesapeake Bay Program's work.
- Progress Statement: About 13 percent of respondents to a Chesapeake Bay Program diversity profile self-identified as non-white.
- Chart: Chesapeake Bay Program Diversity Profile (2016)
- Chart Text: While age, gender, sexual orientation, religious faith, income level and other characteristics are important aspects of diversity, the Chesapeake Bay Program has chosen to focus first on expanding ethnic diversity among the partnership. In 2016, 13 percent of respondents to a Chesapeake Bay Program diversity profile self-identified as non-white. According to the U.S. Census Bureau, this is smaller than the portion of watershed residents who identify as non-white (about 35 percent). Of these respondents, about one-quarter identified themselves as a member of Chesapeake Bay Program leadership.
- News Blurb: In 2016, the Chesapeake Bay Program completed its first diversity profile assessment, which led many officers within the partnership to create and staff positions dedicated to diversity, equity and inclusion. New perspectives have expanded the Diversity Workgroup's efforts beyond traditional partnership events and into community groups and networks. In 2017, the Diversity Workgroup participated in career fairs at multiple watershed universities, attended environmental justice listening sessions in Pennsylvania and helped

organize the Trees for All: Environmental Justice Tree Canopy workshop in Laurel, Maryland.

Local Leadership

- News Blurb: *Strategic Outreach Education Program for Local Elected Officials in the Chesapeake Bay Watershed*, a report commissioned by the Chesapeake Bay Program's Local Leadership Workgroup and released in July 2017, provides recommendations for the design of a strategic outreach and education program for elected officials to meet the local leadership outcome in the *Chesapeake Bay Watershed Agreement*. The report makes recommendations in five key areas: content that needs to be conveyed to local elected officials to increase their knowledge and capacity for water resource protection and restoration; informational programs and delivery mechanisms – what exists and where gaps lie; the best way to coordinate and focus delivery mechanisms to tailor to needs of local elected officials; program cost and recommended funding sources and how to measure progress.

Climate Change

Climate Resiliency

- News Blurb: The Chesapeake Bay Program's Climate Resiliency Workgroup is in the process of developing a suite of climate-related indicators that can be used to track and analyze trends, impacts and progress toward advancing climate resiliency. The suite will include indicators of physical climate attributes (measurements of physical or chemical environmental attributes), ecological and societal impact (impacts on society – such as health and economic outcomes – and attributes of ecological systems particularly those influenced by physical climate trends) and programmatic progress toward resilience (quantify resilience or show evidence of learning or adaptation over time – for example designating land for protection or reduced combined sewer overflows). The Climate Resiliency Workgroup is currently reviewing and prioritizing proposed indicators and will release an initial subset of indicators along with an implementation plan for the full suite by July 2018.

About Bay Barometer

The Chesapeake Bay watershed is a dynamic ecosystem. Tracking changes in its health over time allows scientists to understand the effects of our management actions and our progress toward meeting health and restoration goals. The data in this report reflect just some of the conditions we monitor to better understand the Bay and how we might protect and restore it.

About the Chesapeake Bay Program

The Chesapeake Bay Program is a regional partnership that works across state lines to protect and restore the Chesapeake Bay watershed. Our partners include the U.S.

Environmental Protection Agency, the Chesapeake Bay Commission, the District of Columbia and all six watershed states. Through the Bay Program, federal, state and local agencies, non-profit organizations, academic institutions and citizens come together to secure a brighter future for the Bay region. Learn more at www.chesapeakebay.net.

About the *Chesapeake Bay Watershed Agreement*

The Chesapeake Bay Program is guided by the goals and outcomes of the *Chesapeake Bay Watershed Agreement*. Signed on June 16, 2014, this agreement commits our partners to protecting and restoring the Bay, its tributaries and the lands that surround them. Our environment is an interconnected system, and achieving the goals and outcomes of this agreement will support improvements in the health of the watershed and the people who live here. Track our progress toward the *Chesapeake Bay Watershed Agreement* at www.chesapeakeprogress.com.