Chesapeake Bay Program Biennial Strategy Review System: This Is Progress.

This document describes the work that is being done toward those Chesapeake Bay Watershed Agreement outcomes for which there is currently no indicator data available, with a few exceptions. Those exceptions, noted with an asterisk, were not featured in Bay Barometer: Health and Restoration in the Chesapeake Bay Watershed (2015-2016), but are associated with historic data sets that will be updated in the near future. This document is organized around the seven themes that will guide the Quarterly Review Sessions as part of the Biennial Strategy Review System.

To learn more about these outcomes, their indicators, and their work plan activities, visit www.ChesapeakeProgress.com.

Healthy Watersheds

Healthy Watersheds Outcome
States have set their own definitions of healthy waters and watersheds, and a map of state-identified healthy waters and watersheds is available. While the datasets behind this map may be subject to future revisions and updates, the Healthy Watersheds Goal Implementation Team has agreed that the 2015 datasets will serve as the baseline from which to assess watershed health and measure progress toward this outcome. New healthy waters and watersheds may be added in the future. The team is working to determine a method of evaluating and tracking these state-identified healthy waters and watersheds over time.

Stream Health Outcome*
Over the last decade, thousands of stream samples have been collected to help us determine the physical, chemical and biological health of our waterways. This information is also used to generate a Chesapeake Bay-wide indicator of stream health. In 2010, the Chesapeake Bay-wide Index of Biotic Integrity 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. Experts are also working to establish a baseline from which to measure progress toward the stream miles portion of this outcome. Both of these updates are expected in early 2017.

Fish Habitat Outcome
This outcome targets habitats that fish and shellfish use at critical points in their life histories. Due to the range of areas that comprise fish habitat and the existing gaps in our understanding of which habitats offer the highest value for fish reproduction, feeding, growth or refuge, there is not a baseline for this outcome at this time.

Aquatic Life

Forage Fish Outcome
Several research projects have explored the importance of forage and their relationship to living resources in the watershed. In 2014, the Scientific, Technical Advisory Committee sponsored a forage workshop that produced a science-based list of the most important forage species in the Bay. The University of Maryland Center for Environmental Science assessed abundance trends and variability for several species from this list and

developed nutritional profiles for key predators. An evaluation of the impact environmental factors can have on forage populations and variability is expected in June of 2017. The Maryland Department of Natural Resources has also developed and published draft benchmarks of striped bass nutrition and forage availability (page 156) in an effort to develop indicators to assess forage status and striped bass health in Maryland's portion of the Bay.

Water Quality

Toxic Contaminants Research Outcome
Working with stakeholders, the Toxic Contaminants Workgroup has determined its research agenda should address the following: supplying information related to the safe consumption of fish and shellfish; understanding the influence of contaminants harming fish and shellfish; documenting the sources, occurrence and concentrations of these contaminants; assessing the relative risk of these contaminants and the mitigation options that could inform policies for their prevention; and gathering information on issues of emerging concern. Our baseline understanding of each of these issues differs.

Toxic Contaminants Policy and Prevention Outcome*
According to data submitted to the U.S. Environmental Protection Agency in 2012, 74 percent of the Chesapeake Bay's tidal waters are partially or fully impaired by toxic contaminants. A technical report shows polychlorinated biphenyls (PCBs) and mercury are particularly problematic in the region, and are considered widespread in severity and extent.

A Culture of Stewardship

Citizen Stewardship Outcome
Work is underway to develop a method of measuring change in public attitude, behavior and volunteerism associated with environmental stewardship.

Next-generation Stewards

Environmental Literacy Planning Outcome
According to preliminary data collected in 2015, about one-fifth of the local education agencies that responded to an environmental literacy survey self-identified as well-prepared to implement environmental education programs. About 40 percent self-identified as somewhat prepared and 41 percent identified as not prepared. Environmental literacy preparedness varies among jurisdictions. Work is underway to establish an indicator based on this data.

Student Outcome
According to preliminary data collected in 2015, 35 percent of the local education agencies that responded to an environmental literacy survey reported providing system-wide Meaningful Watershed Educational Experiences (MWEEs) in at least one grade level in elementary school. Thirty-nine percent of these agencies reported providing system-wide MWEEs in at least one grade level in middle school, while 28 percent reported providing system-wide MWEEs in at least one course in high school. Work is underway to establish an indicator based on this data.

<h1 style="text-align:center">Climate Change and Resiliency</h1>

Climate Adaptation and Climate Monitoring and Assessment Outcomes
The Climate Workgroup plans to develop a suite of indicators that will track climate change and resiliency in the watershed. This project will include the investigation of existing indicators and metrics, as well as the selection and development of indicators related to climate trends, climate impacts and programmatic progress.

<h1 style="text-align:center">Local Action</h1>

Land Use Methods and Metrics Outcome
Work is underway to develop a methodology and 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 on water quality, healthy watersheds and communities. This work will be based on changes to the landscape observed between 2005 and 2015. It will be updated every two to five years and serve as the source of information for a public awareness campaign.

Land Use Options Evaluation Outcome
Work is underway to support land conservation at the local level.

Tree Canopy Outcome
In this outcome, urban tree canopy is broadly defined as tree plantings in communities of any size—including urban, suburban and rural—that are not on agricultural lands. Each watershed jurisdiction will have its own annual and long-term planning targets that will contribute to the 2,400 acre-goal. While these jurisdictions do report urban tree planting data to the U.S. Environmental Protection Agency, most do not yet have comprehensive or consistent tracking, reporting or verification systems in place. Furthermore, a high-resolution aerial tree canopy assessment—which would track net gain or loss of tree canopy over time—is still in the process of being completed for the entire watershed. As such, a more robust estimate of the baseline for this outcome is being developed.

Local Leadership Outcome
The baseline for this outcome has not been determined, as the outcome measure has not been developed. Work is underway to develop a methodology for measuring progress toward this outcome.