

Prioritizing Climate Change Impacts and Action Strategies for Select Chesapeake Bay Watershed Agreement Goals & Outcomes

**STAC Discussion Materials
December 8, 2015**

Background:

The Chesapeake Bay Watershed has experienced changes in climate over the last century. On the whole, the Watershed is experiencing stronger and more frequent storms, an increase in heavy precipitation events, increasing bay water temperatures and a documented rise in sea level; trends that are expected to continue over the next century. These trends, which vary both spatially and temporally throughout the Watershed, are altering the ecosystems, the watershed, and the human communities of the Chesapeake Bay and will require changes in policies, programs and projects to successfully achieve restoration, sustainability, and conservation and protection goals for the Chesapeake Bay watershed.

The Chesapeake Watershed Agreement includes 29 individual strategies to be developed and implemented by six GITs and various Workgroups. Most, if not all, of these strategies will include a suite of actions necessary to address climate change impacts. In addition, the 2010 TMDL documentation and the 2009 Executive Order call for an assessment of the impacts of a changing climate on the Chesapeake Bay water quality and living resources. In many cases the effect of climate on individual outcomes is not well understood, and in other cases it is established and moving forward.

The management approach to address CBP programmatic needs, as established in the Climate Resiliency Management Strategy, will require close coordination among the GITs to ensure that efforts are consistent and complementary in their approach. To accomplish this, the Climate Resiliency Workgroup will be working with individual GITs and workgroups to: 1) prioritize which aspects of climate change may have the most impact on achieving goals and outcomes; 2) establish a research agenda for those outcomes where the effect of climate is not well understood; 3) assess whether suitable monitoring exists within the Chesapeake Bay to establish baselines; and 4) evaluate progress towards reducing the impact of climate change over time.

To kick start these efforts and inform the selection of short, medium and long-term climate change action priorities and programmatic efforts in this regard, STAC insight and assistance has been requested.

Discussion Format:

Scientific and Technical Advisory Committee members will be dividing into four small breakout groups (Sustainable Fisheries, Vital Habitats, Water Quality, and Healthy Watersheds) to discuss and explore responses to the following questions.

Discussion Question	Framing
What ecological impacts are of most concern to the resources managed by the Chesapeake Bay Program?	Rank resource vulnerability (low, medium, high) over time (25, 50, 100-years).
Which specific Chesapeake Bay Agreement Goals and Outcomes will be affected most?	Factor of risk (low, medium, high) in terms of the influence of impact on “goal attainment.”
Where is there the greatest potential to increase resiliency through specific adaptation strategies?	Identify ecological impacts for which there could be a moderate to high degree of responsiveness to changes in management techniques?
What are the biggest monitoring and/or research gaps?	Assess current understanding of ecological impacts and adequacy of monitoring; Identify priority research and data gaps.

Breakout Group Reference Material:

Breakout Group #1 – Sustainable Fisheries

Goal: Protect, restore and enhance finfish, shellfish and other living resources, their habitats and ecological relationships to sustain all fisheries and provide for a balanced ecosystem in the watershed and Bay.

Blue Crab Abundance Outcome: Maintain a sustainable blue crab population based on the current 2012 target of 215 million adult females. Refine population targets through 2025 based on best available science.

Blue Crab Management Outcome: Manage for a stable and productive crab fishery including working with the industry, recreational crabbers and other stakeholders to improve commercial and recreational harvest accountability. By 2018, evaluate the establishment of a Bay-wide, allocation-based management framework with annual levels set by the jurisdictions for the purpose of accounting for and adjusting harvest by each jurisdiction.

Oyster Outcome: Continually increase finfish and shellfish habitat and water quality benefits from restored oyster populations. Restore native oyster habitat and populations in 10 tributaries by 2025 and ensure their protection.

Forage Fish Outcome: Continually improve the Partnership's capacity to understand the role of forage fish populations in the Chesapeake Bay. By 2016, develop a strategy for assessing the forage fish base available as food for predatory species in the Chesapeake Bay.

Fish Habitat Outcome: Continually improve effectiveness of fish habitat conservation and restoration efforts by identifying and characterizing critical spawning, nursery and forage areas within the Bay and tributaries for important fish and shellfish, and use existing and new tools to integrate information and conduct assessments to inform restoration and conservation efforts.

Breakout Group #2 – Vital Habitats

Goal: Restore, enhance and protect a network of land and water habitats to support fish and wildlife, and to afford other public benefits, including water quality, recreational uses and scenic value across the watershed.

Wetlands Outcome: Continually increase the capacity of wetlands to provide water quality and habitat benefits throughout the watershed. Create or re-establish 85,000 acres of tidal and non-tidal wetlands and enhance function of an additional 150,000 acres of degraded wetlands by 2025. These activities may occur in any land use (including urban) but primarily occur in agricultural or natural landscapes.

Black Duck: By 2025, restore, enhance and preserve wetland habitats that support a wintering population of 100,000 black ducks, a species representative of the health of tidal marshes across the watershed. Refine population targets through 2025 based on best available science.

Stream Health Outcome: Continually improve stream health and function throughout the watershed. Improve health and function of 10 percent of stream miles above the 2008 baseline for the Chesapeake Bay watershed.

Brook Trout: Restore and sustain naturally reproducing brook trout populations in Chesapeake headwater streams with an eight percent increase in occupied habitat by 2025.

Fish Passage Outcome: Continually increase available habitat to support sustainable migratory fish populations in Chesapeake Bay freshwater rivers and streams. By 2025, restore historical fish migratory routes by opening 1,000 additional stream miles, with restoration success indicated by the consistent presence of alewife, blueback herring, American shad, hickory shad, American eel and brook trout, to be monitored in accordance with available agency resources, and collaboratively developed methods.

Submerged Aquatic Vegetation (SAV) Outcome: Sustain and increase the habitat benefits of SAV (underwater grasses) in the Chesapeake Bay. Achieve and sustain the ultimate outcome of 185,000 acres of SAV Bay wide necessary for a restored Bay. Progress toward this ultimate outcome will be measured against a target of 90,000 acres by 2017 and 130,000 acres by 2025.

Forest Buffer Outcome: Continually increase the capacity of forest buffers to provide water quality and habitat benefits throughout the watershed. Restore 900 miles per year of riparian forest buffer and conserve existing buffers until at least 70 percent of riparian areas throughout the watershed are forested.

Tree Canopy Outcome: Continually increase urban tree canopy capacity to provide air quality, water quality and habitat benefits throughout the watershed. Expand urban tree canopy by 2,400 acres by 2025.

Breakout Group #3 – Water Quality

Goal: Reduce pollutants to achieve the water quality necessary to support the aquatic living resources of the Bay and its tributaries and protect human health.

2017 Watershed Implementation Plans (WIP) Outcome: By 2017, have practices and controls in place that are expected to achieve 60 percent of the nutrient and sediment pollution load reductions necessary to achieve applicable water quality standards compared to 2009 levels.

2025 WIP Outcome: By 2025, have all practices and controls installed to achieve the Bay's dissolved oxygen, water clarity/submerged aquatic vegetation and chlorophyll a standards as articulated in the Chesapeake Bay TMDL document.

Water Quality Standards Attainment and Monitoring Outcome: Continually improve the capacity to monitor and assess the effects of management actions being undertaken to implement the Bay TMDL and improve water quality. Use the monitoring results to report annually to the public on progress made in attaining established Bay water quality standards and trends in reducing nutrients and sediment in the watershed.

Breakout Group #4 – Healthy Watersheds

Goal: Sustain state-identified healthy waters and watersheds recognized for their high quality and/or high ecological value.

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

Land Use Methods and Metrics Development Outcome: Continually improve the knowledge of land conversion and the associated impacts throughout the watershed. By 2016, develop a Chesapeake Bay 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. Launch a public awareness campaign to share this information with citizens, local governments, elected officials and stakeholders.