Chesapeake Bay Program
SCIENTIFIC AND TECHNICAL ADVISORY COMMITTEE
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Hon. Joe Gill
Chair, Principal Staff Committee
Chesapeake Bay Partnership

April 21, 2014

Dear Chairman Gill,

Please find the attached document "*Principal Staff Committee requested Scientific and Technical Advisory Committee additions to the draft Chesapeake Bay Agreement Outcome Statements*." The STAC additions address the PSC request for STAC to structure the existing outcome statements to reflect the desired positive change in the Bay system and allow for adaptive management in the restoration activities.

In addition, the STAC has committed to assisting the Goal Implementation Teams as they work to develop additional management strategies and associated monitoring in support of the outcomes. Finally, the STAC is working to produce a "State of the Science" evaluation of the Agreement focusing on the level of scientific certainty associated with the outcomes, targets, and management strategies.

On behalf of the entire STAC, thank you for requesting STAC's assistance in this very important activity.

Sincerely

Kirk Havens,
Chair, Chesapeake Bay Program Scientific and Technical Advisory Committee

Cc: Principal Staff Committee, Management Board, Goal Implementation Team Chairs and Coordinators, STAR Co-Chairs and Coordinator.

Principal Staff Committee requested Scientific and Technical Advisory Committee additions to the draft Chesapeake Bay Agreement Outcome Statements

The STAC additions are based on the adaptive management and accountability principles of having Outcome statements that reflect the desired positive change in the Bay and watershed condition, where the Bay and watershed are understood to include both human and natural elements. This means Outcomes generally are changes in the structure, quality, or performance of the Bay and watershed system, or they are changes in the knowledge, skills, abilities, or motivation of the humans living there. To accomplish this without changing the existing outcome statements, STAC added a clarifying word or two or a sentence to the beginning of the statements. STAC made no changes to the numeric targets, dates, or intent of the statements as developed by the Goal Implementation Teams.

The PSC requested STAC additions that adjust the Outcome statements to reflect the desired change in the Bay system are highlighted in **Green** and with ~~strike out~~.

The STAC additional recommendations are highlighted in **Red**

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. ~~and continue to~~ R~~r~~efine population targets through 2025 based on best available science.

- ***Blue Crab Management Outcome****:* **Continually** improve the ability to manage for a stable and productive crab fishery by 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 that will provide stability for crabbing businesses and accountability of the harvest for 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 to recover the benefits of fish habitat and water quality improvements that healthy oyster reefs provide.

- ***Forage Fish Outcome***: **Continually improve the capacity to manage 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.** Continue to identify and characterize 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.

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 wetland habitats that enhance and preserve a wintering population of 100,000 black duck, a species representative of the health of tidal marshes across the watershed. **Refine population targets through 2025 based on best available science**. **(This is clearly a management target that should fit under the preceding Wetlands Outcome.)**

- ***Stream Health Outcome***: **Continually improve stream health and function throughout the watershed.** Improve health and function of 10% of stream miles above the 2008 baseline for the Chesapeake watershed. Note: a 2008 baseline will be established by 2015.

- ***Brook Trout***: Restore and sustain naturally reproducing brook trout populations in Chesapeake headwater streams with an 8 percent increase in occupied habitat by 2025. **. (This is clearly a management target that should fit under the preceding Stream Health Outcome.)**

- ***Fish Passage Outcome***: **Continually increase the sustained presence of alewife, blueback herring, American shad, hickory shad, American eel, and brook trout 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 presence of alewife, blueback herring, American shad, hickory shad, American eel and/or brook trout.~~ (2011 baseline year)

- ***Submerged Aquatic Vegetation (SAV) Outcome***: **Sustain and increase the water quality and habitat benefits of SAV in the Chesapeake Bay.** Achieve and sustain the ~~ultimate outcome~~ **target** of 185,000 acres of SAV Bay-wide necessary for a restored Bay. Progress towards this ultimate outcome will be measured against a **target** ~~goal~~ 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% of riparian areas throughout the watershed are forested.

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

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% 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.

Healthy Watersheds

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

- ***Healthy Waters Outcome***: 100% of state-identified currently healthy waters and watersheds remain healthy. **(?) (We are unable to structure this to reflect the desired positive change to the Bay watershed resulting from this outcome. We suggest the following outcomes as a substitute or addition).**

- ***Tracking Healthy Watersheds Methods and Metrics Development Outcome:*** Continually improve the information available for identification and assessment of healthy watersheds in the Chesapeake Bay watershed. By 2016, develop a Chesapeake Bay watershed-wide methodology and local-level metrics for characterizing healthy watersheds, and assessing their vulnerabilities.

- ***Local Engagement Outcome*:** Continually improve the capacity of local governments to track and manage healthy watersheds. By 2016, launch a public awareness campaign to assist local governments or their representatives in their efforts to strategically track, manage, and continually increase the number of healthy watersheds in their localities.

Land Conservation

Goal: **Conserve landscapes treasured by citizens in order to maintain water quality and habitat; sustain working forests, farms and maritime communities; and conserve lands of cultural, indigenous and community value.**

- ***Protected Lands Outcome:* Improved protection of lands important for provision of water quality and habitat benefits.** 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 forest land of highest value for maintaining water quality. (2010 baseline year)

- ***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 local governments, elected officials, and stakeholders.

- ***Land Use Options Evaluation Outcome:*** **Continually improve the capacity of local governments to track and manage land use conversions**. By 2017, with the direct involvement of local governments or their representatives, evaluate policy options, incentives, and planning tools that could assist local governments in their efforts to strategically track, manage, and reduce the rate of consumption of agricultural lands, forests and wetlands, and the rate of conversion of porous landscapes to impervious surfaces, and develop an outcome for achieving those reductions by 2025.

Public Access

Goal: Expand public access to the Bay and its tributaries through existing and new local, state and federal parks, refuges, reserves, trails and partner sites.

- ***Public Access Site Development Outcome:*** **Continually increase public use of the Bay and its rivers and streams for boating, swimming, and fishing**. By 2025, add 300 new public-access sites, with a strong emphasis on providing opportunities for boating, swimming and fishing, where feasible. (2010 baseline year)

Environmental Literacy

Goal: Enable every student in the region to graduate with the knowledge to use scientific evidence and citizenship skills to act responsibly to protect and restore their local watershed.

- ***Meaningful Watershed Educational Experience Outcome:*** **Continually** increase the number of students participating in teacher-supported meaningful watershed educational experiences in elementary, middle and high school.

- ***School and School System Model Development Outcome:*** **Steadily increasing s**upport **for** and **recognition** ~~highlight models~~ of sustainable schools and local education agencies that use system-wide approaches for environmental education.

- ***Environmental Literacy Metrics Outcome:*** By 2014, develop baseline metrics to establish and measure outcomes related to student participation in teacher-supported meaningful watershed educational experiences and related activities**. (This is effectively a strategy for accomplishing/monitoring the Meaningful Watershed Educational Experience Outcome above. Consider moving it there.)**

Toxic Contaminants

Goal: Reduce the impact of toxic contaminants on fish and wildlife in the Bay and its watershed and protect human health.

- ***Toxic Contaminants Research Outcome:*** **Continually increase our understanding of the types, sources, impacts, and mitigation options for contaminants affecting the biota and human uses of the Bay and its watershed**. By 2015, develop a research agenda and further characterize the occurrence, concentrations, sources and effects of mercury, PCBs and other contaminants of emerging and widespread concern. In addition, identify which BMPs might provide a ~~dual~~ **multiple** benefit of reducing nutrient and sediment pollution as well as toxic contaminants in waterways.

- **Toxic Contaminants Policy and Prevention Outcome: Continually improve the efficacy of policies and prevention strategies for toxic contaminants**. By _____ evaluate the implementation of existing programs, policies, and practices, and additional policies, programs, and practices informed by the Toxics Contaminants Research Outcome as needed, to further reduce or eliminate loadings of persistent bioaccumulative and toxic contaminants (PBT) and non-PBT contaminants to prevent harm to fish, wildlife, and citizens of the region.

Changing Environmental Conditions

Resiliency Goal: Increase the resiliency of the Chesapeake Bay watershed, including its habitats, public infrastructure and human communities to withstand adverse impacts from climate change.

- **Resilient Restoration Outcome**: **Continually improve the effectiveness of** ~~Implement effective~~ Bay restoration in the face of sea level rise and changing environmental and climate conditions.

- **Monitoring and Assessment Outcome**: **Continually improve the effectiveness of** ~~Support~~ monitoring activities to deliver routine and sustained climate science, information products and services.

Stewardship

Goal: Increase the number and diversity of local citizen stewards and local governments that actively support and carry out the conservation and restoration activities that achieve healthy local streams and a vibrant Chesapeake Bay.

- ***Citizen Stewardship Outcome*: Continually i**ncrease the number [and diversity] of trained and mobilized citizen volunteers with the knowledge and skills needed to enhance the health of their local watersheds.

- ***Stewardship Metrics Outcome***: By 2015, work with Chesapeake Bay Program partners and other wide ranging academic, local government and citizen organizations to develop a metric for evaluating progress in citizen stewardship. **(This is clearly a management strategy for accomplishment/monitoring of the preceding Citizen Stewardship Outcome. Consider moving it there.)**

Revisited Outcomes

Local Leadership Outcome: **Continually increase** ~~Engage, empower, and facilitate leadership by~~ local governments~~ and increase the number of local governments that have~~ implement**ation**~~ed~~ of innovative financing strategies to meet agreement goals (2010 Baseline year).

Diversity Outcome: **Continually increase opportunities and programs to recruit and engage** ~~identify~~ minority stakeholder groups ~~who are not currently represented~~ in the leadership, decision-making and implementation of ~~the current~~ conservation and restoration. ~~activities and create meaningful opportunities and programs to recruit and engage them in the Partnership.~~

Water Quality Standards Attainment Outcome: **Continually improve the Partnership's capacity to assess the consequences of management actions throughout the Bay watershed.** By the end of 2015 establish **a**~~n outcome, based on monitoring data and sound science, that projects a~~ **science-based estimation of the** percentage of Bay segments that will meet water quality standards by 2025.