Scientific and Technical Assessment and Synthesis (STAR)
Climate Resiliency Workgroup (CRWG)
2016 Work Plan

Purpose: The 2014 Chesapeake Bay Agreement established the goal to "increase the resiliency of the Chesapeake Bay watershed, including its living resources, habitats, public infrastructure and communities, to withstand adverse impacts from changing environmental and climate conditions." The CRWG will undertake efforts in 2016 to make substantive progress toward achieving this goal through targeted key actions aligned with the following two outcomes:

- Monitor and assess the trends and likely impacts of changing climatic and sea level conditions on the Chesapeake Bay ecosystem, including the effectiveness of restoration and protection policies, programs and projects.
- Pursue, design and construct restoration and protection projects to enhance the resiliency of Bay and aquatic ecosystems from the impacts of coastal erosion, coastal flooding, more intense and more frequent storms and sea level rise.

Methodology: Over the course of 2016, the CRWG will hold monthly meetings, alternating between conference calls and in-person meetings, to undertake activities related to performance targets, deemed "collective actions" as identified in its biennial work plan (see attached); and, to review and assess progress of "individual" partner actions/commitments.

"Collective Action" Focus Areas: To bring some cohesion to the breadth of activities proposed in its two-year work plan, the CRWG will concentrate its efforts around the following ten thematic focus areas:

1. Water Quality and the 2017 Mid-Point Assessment
2. Monitoring Needs and Long Term Trend Assessments
3. Climate Data and Information Portals
4. Communications, Outreach, Education and Capacity Building
5. Green Infrastructure and Coastal Resiliency
6. Research Agenda, Capacity and Needs
7. Ocean Acidification
8. Climate Change and Diversity
9. Climate Impact Vulnerability Assessments
10. Climate Change Indicators and Performance Metrics

2016 Workgroup Priorities and Key Deliverables:

1. Develop a methodology to establish climate related goals and baselines for individual Chesapeake Bay Agreement Management Strategies; as well as a process to revise or

reconsider select Management Strategies to accommodate anticipated climate-related changes or impacts.

2. Establish guidance on the application of climate change scenarios, projections and realizations for CBP assessments, with a high priority being the 2017 Mid-Point Assessment.
3. Conduct an assessment of the research needs to support future policy dialog related to the integration of climate considerations into the Water Quality Management Strategy.
4. Catalog monitoring and modeling gaps for 4 select Chesapeake Bay Agreement Management Strategies.
5. Develop a research agenda to improve understanding of climate impacts or fill critical data or research gaps.
6. Compile a compendium of past and ongoing adaptation planning and programmatic efforts within the Chesapeake Bay Watershed and develop a process to assess lessons learned.
7. Release a quarterly newsletter, *Chesapeake Resiliency*, to share current efforts, including policy, tools, products, and scientific understanding with interested parties.

Coordination & Support:

Level of Effort for Lead and Supporting Partners: High level of effort for STAR, including the Integrated Monitoring Network and Status and Trends Workgroup, as well as the CBPO Modeling Team and STAC.

Potential Conflicts with Other Priorities: The Climate Resiliency Workgroup may not be able to engage on all aspects of climate change across the Partnership in short order. Building the capacity of the Program will take time and further engagement with other GIT's and Workgroups. Priorities will need to be established within two-year work plans.

Issues Requiring Input from Full STAR Team: 1) Review of proposed methodology for CBP climate integration; 2) Support for 2017 Mid-Point Assessment scientific and technical data and information needs; 3) Prioritization of research needs; 4) Guidance on selection of Management Strategies to assess for monitoring and modeling needs; and 5) Support for indicator development.

Issues Requiring Input from Management Board and/or Principals' Staff Committee: Approach for factoring climate change into the 2017 Mid-Point Assessment.

Monitoring and Assessment Outcome – Collective Actions

Monitoring and Assessment Outcome: Continually monitor and assess the trends and likely impacts of changing climatic and sea level conditions on the Chesapeake Bay ecosystem, including the effectiveness of restoration and protection policies, programs and projects.			
Key Action	**Performance Target(s)**	**Participating Entity**	**Timeline**
Inform approach to factor climate change considerations into the 2017 Chesapeake Bay TMDL Midpoint Assessment	Conduct a review of approach to factor climate change considerations into the 2017 Chesapeake Bay TMDL Midpoint Assessment	Climate Resiliency Workgroup, CBP Modeling Workgroup, STAC	Aug-16
Catalogue monitoring and modeling gaps for 4 select Chesapeake Bay Agreement Management Strategies	Work with 4-select Workgroups to determine current and future monitoring needs by geography, habitat type, and BMP and outline gaps at Workgroup or GIT level.	STAR (Integrated Monitoring Workgroup)	Dec-17
	Outline gaps for watershed scale monitoring effort, including gaps related to monitoring of non-climate stressors that could exacerbate climate impacts to Chesapeake Bay habitat or BMPs.	STAR (Integrated Monitoring Workgroup)	Dec-17
Identify gap-filling solutions by expanding the Partnership to include identified ongoing or planned monitoring efforts of climate factors.	Explore the use of citizen-based monitoring networks.	STAR (Integrated Monitoring Workgroup)	Dec-17
Develop a plan to fill identified monitoring gaps.	Identify costs associated with closing monitoring gaps.	STAR (Integrated Monitoring Workgroup)	Dec-17
	Identify agencies/organizations through which commitments could be sought to fund or participate in filling monitoring gaps.	STAR (Integrated Monitoring Workgroup)	Dec-17
	Identify geographical overlap in monitoring and modeling efforts to explore opportunities for cost saving efficiencies and integration of priorities to include climate factors.	STAR (Integrated Monitoring Workgroup)	Dec-17
Establish guidance of the application of climate change scenarios, projections and realizations for Chesapeake Bay Program assessments.	Facilitate a workshop to evaluate applicability of international, national, regional and state climate scenarios, projections, forecasts and assessments and to develop process for establishing a recommended set of climate projections for use in Chesapeake Bay Program assessments.	STAC, STAR (Modeling Team and Climate Resileincy Workgroup)	Mar-16
Conduct a literature review and synthesis of latest scientific research on past and future climate change impacts on the Chesapeake Bay, as was done in the 2008 Scientific and Technical Advisory Committee report.	Assess international, national, regional and state-level (DE, MD, PA, WV, VA, NY, DC) climate change assessments.	STAC, STAR, Climate Resiliency Workgroup	Dec-17
	Synthesize latest scientific research on sea level and water level trends; precipitation and evapotranspiration; and temperature change in both air and water.	STAC, STAR	Dec-17
Gain a better understanding of past and future impact of ocean acidification on Chesapeake Bay waters.	Convene federal, state and regional experts along with academic partners to assess current knowledge surrounding ocean acidification trends within the Chesapeake Bay.	Climate Resiliency Workgroup; Sustainable Fisheries GIT	Dec-17
Compile a research agenda to improve understanding of climate impacts or fill critical data or research gaps.	Conduct a cursory review and analysis of 29 individual management strategies to initial climate-related research needs.	Climate Resiliency Workgroup	Dec-17
	Conduct an assessment of research needs to support future policy dialog related to the integration of climate change considerations into the Water Quality Management Strategy.	Climate Resiliency Workgroup, Water Quality GIT	Jun-16
	Work with regional partners (e.g., LCC, Climate Hubs and Climate Science Centers), academic institutions and other stakeholders to collaboratively define climate related science and research needs at the broader watershed-scale or within a defined geographic area.	Climate Resiliency Workgroup, USFWS, NRCS, USFS, USDA NE Climate Hub, NFW, CBSSC, USGS	Dec-17
Review progress on a biennial basis.	Evaluate progress toward the closing of gaps in baseline monitoring and gaps in assessment tools and scientific research.	Climate Resiliency Workgroup	Dec-17

Adaptation Outcome – Collective Actions

Climate Adaptation Outcome: Continually pursue, design and construct restoration and protection projects to enhance the resiliency of the Bay and aquatic ecosystems from the impacts of coastal erosion, coastal flooding, more intense and more frequent storms and sea level rise.			
Key Action	**Performance Target(s)**	**Participating Entity**	**Timeline**
Compile and assess lessons learned from past and ongoing adaptation planning and programmatic efforts within the Chesapeake Bay Watershed.	Compile an expanded list of current planning and programmatic efforts that support key elements of the Management Strategy.	Climate Resiliency Workgroup	Dec-16
Develop process to revise or reconsider Watershed Agreement Management Strategies to accommodate anticipated climate-related changes or impacts.	Facilitate in-person workshops with Wetlands and Protected Lands Work to complete Matrix Analysis process and revise, modify, prioritize and select management actions for integration into Management Strategies; and 2) to develop recommendations for augmenting existing Management Strategies through the "Adaptive Management" framework.	Climate Resiliency Workgroup, Wetlands Workgroup, Chesapeake Conservation Partnership	May-17
	Develop recommendations for refinement of matrix and a proposed implementation process to engage one-on-one with GITS and Workgroups to identify, assess, evaluate and revise (as necessary) all individual CB Agreement Management Strategies.	Climate Resiliency Workgroup	Sep-17
Increase opportunities for formal and informal communication and the exchange of ideas among the Chesapeake Bay watershed's "adaptation planning network."	Participate in the Maryland Sea Grant: Climate Change Research Forums	Maryland Sea Grant, Climate Resiliency Workgroup	Sep-16
	Work with partners to host a "Chesapeake Bay Climate Adaptation Workshop" or offer adaptation related trainings at appropriate regional forums and conferences.	Climate Resiliency Workgroup	Dec-17
Plan and implement targeted restoration and protection efforts that build community and ecosystem resilience within the Bay watershed.	Identify additional on-the-ground projects proposed or planned by CB partners, to be implemented within the next two years and beyond.	Climate Resiliency Workgroup	2016-17
	Opportunistically, assess planned on-the-ground restoration projects, proposed by CB Partners, to evaluate whether project designs accommodate for climate change; and, where possible, develop metrics for and/or monitor a specific projects performance over time.	Climate Resiliency Workgroup	2016-17
Share current efforts, including policy, tools, products, and scientific understanding with interested parties.	Work with CBP Communications Workgroup to release a periodic newsletter to disseminate adaptation-related information.	Climate Resiliency Workgroup	Mar-16
Assess progress towards the full integration of climate resilience considerations into the Chesapeake Bay Program.	Develop a questionnaire or matrix to document programmatic baselines and monitor the status and progress towards incorporating climate factors into individual management strategies.	Climate Resiliency Workgroup	Dec-17
Investigate climate resilience indicators to assess adaptation action effectiveness and ecological response.	Interface with NFWF/DOI, USGRCP and US EPA to review other climate indicator frameworks (DOI Metrics, USGRCP and US EPA Climate Change Indicators (http://www3.epa.gov/climatechange/science/indicators/) to assess suitability for application to CBP related activities.	USGS, FWS, Climate Resiliency Workgroup	Dec-17
	Track Department of Interior Metrics Expert Group (MEG) recommendations for measuring effects of ecological resilience projects to protect key features/ systems and some forms of grey infrastructure against effects of coastal storms and climate change effects (e.g., sea level rise, storm surge).	Climate Resiliency Workgroup	Dec-17
	Work with UMCES, IAN to identify lessons learned through the development process for the Climate Resilience Index (2015).	UMCES, IAN, STAR Workgroup	Dec-17
	Work with STAR and STAC to recommend and establish performance metrics and/or indicators to assess Climate Resiliency Goal and Outcome implementation effectiveness, as well as ecological response.	STAR, STAC	Dec-17