CBP Synthesis Needs: Informing STAC Science Synthesis

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Background

STAC is beginning the process of determining the STAC Science Synthesis topics, and they asked for support from STAR to identify CBP priority synthesis needs that can inform the RFP request. While the specific topic is yet to be decided, as outlined in their grant, synthesis project(s) should revolve around either effectively managing in the face of climate change or addressing issues arising from under-served stakeholder groups, providing some flexibility depending on program priorities.

Topics deemed "ripe" for synthesis would have clear research and management goals and should generate science-based conclusions. Synthesis projects must also consider the applicability of relevant management questions as they seek to understand and summarize available science. STAC is seeking high level topics from STAR which will help frame the RFP being released June 2024.

STAR Science Needs Database

- 38 Synthesis Science Needs
- 17 Synthesis Science Needs that address the program priorities outlined by STAC and need more resources
- All categorization provided by Outcomes through the Strategic, Science and Research Framework
- Highlighted science needs were also chosen by Outcomes as their priority climate science needs

High Priority, No Resources

- **STEWARDSHIP:** Use results from the stewardship index to help understand the relationship between human attitudes and behaviors towards restoration and conservation, in order to identify priorities and strategies for effective engagement, including actions that can contribute to climate solutions.
- **PROTECTED LANDS:** Review of forest definitions and high-resolution mapping products.
- **SAV:** Implement Bay-wide Chesapeake Bay SAV Sentinel Site Program to determine climate impacts on all SAV communities.

High Priority, Partial Resources

- **HEALTHY WATERSHEDS:** Develop and apply tools or methods that integrate various inputs to characterize healthy nontidal and healthy tidal waters vulnerability to future high-level risks including development and climate related stressors.
- **LAND USE METHODS/METRICS DEVELOPMENT:** Change in land use needed for informing other Outcomes, particularly Healthy Watersheds, Stream Health, Climate Resilience, Tree Canopy, Forest Buffers, Wetlands, Fish Habitat, Oysters, Brook Trout, and Black Duck.
- **WETLANDS:** Make recommendations to improve the form and process of inputting NEIEN data collection for each State, as well as confirm the accuracy of information reported. Continue to provide updated data on wetlands projects and analyses for understanding wetland status and trends.
- **CLIMATE RESILIENCY MONITORING AND ASSESSMENT:** Review existing definitions of marine heat waves (e.g., Hobday et al. 2016; Mazzini & Pianca, 2022) and develop an appropriate definition for the Chesapeake Bay and link this definition to key living resource thresholds to help inform management of these resources.

High Priority, Partial Resources

- **LAND USE OPTIONS EVALUTION:** Quantify impact of land conversion on communities. Develop a better understanding of the needs of underserved and other communities and of their perception of land use characteristics, trends, and policy/planning tools.
- **LAND USE OPTIONS EVALUTION:** Translate, format, package, and communicate LULC information and policy guidance to organizations and individuals trusted by local decisionmakers to inform a variety of policies and programs including land use and comprehensive plans, hazard mitigation and climate resiliency plans, as well as greenway, recreational and forestry management. Assess and communicate how observed land use changes are directly or indirectly due to climate change versus other factors.
- **TREE CANOPY:** Develop a Trees & Climate Resilience best practices technical guide with analysis on which tree species are thriving or struggling in the face of climate change.
- **TREE CANOPY:** Develop and share data, tools and best practices for advancing tree equity.
- **ENVIRONMENTAL LITERACY PLANNING:** Better articulation of green career/workforce pathways.

Medium Priority, No Resources

- **OYSTER:** Explore whether shallow-water oyster reefs can absorb a meaningful amount of wave energy as an element of shoreline protection.

Medium Priority, Partial Resources

- **HEALTHY WATERSHEDS:** Improved climate metrics for CHWA; marsh migration - potential for protection; protection of infrastructure and communities - resiliency and flood protection.
- **DIVERSITY:** Develop a better understanding of effects from external factors such as climate change, public health, and economic inequity.

No priority listed, No/Partial Resources

- **FISH HABITAT:** Synthesize existing research on climate change impacts on living resources to inform fisheries managers as they assess habitat suitability for existing and emerging fisheries. ***Partial resources.***
- **HEALTHY WATERSHEDS:** Use an integrative approach combining information on flows, groundwater, stream power, connectivity, and adaptive capacity to provide a more comprehensive approach for identifying climate refugia. ***No resources.***

High Priority; Full Resources

- **STEWARDSHIP:** Training and assistance with strategies on how to integrate social science into work (no action needed at this time).
- **STEWARDSHIP:** Online Stewardship Tool to access data (no action needed at this time).

Questions for STAR

- What are the big issues the CBP needs to tackle and would benefit from synthesis on the topic?
- What are high level themes that overlap multiple outcomes?
  - i.e. Rising Temperatures was a theme impacting multiple outcomes and resulted in synthesis effort to understand the state of the science and recommendations for moving forward.
- Based on the priority climate science needs already identified, are there major themes to share with STAC?