

## Promote strategies for healthy and productive ecosystems under changing climate conditions (Climate Recommendation 4)

Climate change is a universal stressor that affects everyone and every ecosystem in the Chesapeake Bay watershed. Ecosystem change in the watershed and Bay is occurring and will continue into the future from the changing climate conditions (e.g., rising water temperatures, shifting precipitation patterns, and sea level rise). The Chesapeake Bay Program should institutionalize the concept that the Bay of the future will not be the Bay of the past and aim to protect and conserve healthy ecosystems from climate change stressors while embracing change through adaptation that leads to positive outcomes for desired ecosystem services.

**Impact to how we work:** Fundamentally integrate climate stressors and adaptation when developing management responses to change.

- Advance and support long-term monitoring and assessment of compounding stressors on ecosystem health, including living resources, to improve understanding of the impacts of management and restoration actions and allow for adaptive management.
- Advance science to target and improve the design of nature-based solutions/green infrastructure to enhance confidence in their use for ecosystem and community resilience.

**Impact on Chesapeake Bay Watershed Agreement:** Need a program structure, goals, and success measures that allows for crosswalk between ecosystem services (e.g., habitats, living resources, water quality) that align with community needs under changing climate.

**General Level of Effort:** High

- Expand support for social science, communication strategies, and venues for partnership discussion on future Chesapeake Bay warming, precipitation, landscape change, carbon management, along with nutrient management, and resulting impacts to ecosystem services to promote proactive approaches in preparing for and adapting to ecosystem change.
- More dedicated staff time and resources to enhance coordination and develop new processes and adaptive management mechanisms.

### How to Strategies (Phase 2 Actions):

- Integrate emerging science, monitoring, and use of climate change projections to understand changes in habitat and shifts in landscapes, fisheries and wildlife.
- Develop strategies to sustain ecological function, reduce stressors and disturbances, create thermal refugia, and promote habitat connectivity and biodiversity under climate change.
- Have indicators that track and assess ecosystem health and change through improved monitoring, modeling, and forecasting to allow for climate-informed adaptive management.
- Better define compounding stressors on ecosystem health with challenges from future climate, population growth, land use, and landscape changes.
- Develop adaptation strategies for healthy ecosystem function under changing climate conditions while protecting ecosystem services in support of diversity, equity, inclusion and justice and community resilience goals.
- Pursue the development of a CBP soil health outcome and ways to support and incentivize achievement. Soil health is the basis for overall healthy ecosystems that will enhance resiliency for living resources and promote biodiversity.