Management Approaches and Gaps
Fisheries Management Strategies

What could the GIT funding support for the fisheries management strategies?

Blue Crab Abundance and Management

Gaps

Data gaps – WDS gear efficiency, harvest accountability, economic analyses

Management Approaches

1. Plan and complete the next stock assessment.
2. Evaluation of a Baywide allocation-based management framework.
    a. Calculate a Baywide TAC of blue crabs based on the results of the annual Bay-wide Winter Dredge Survey as well as any other surveys with improved estimates of removals.
    b. Explore options for allocating a percentage of the Baywide TAC to jurisdictions. Options could include using historical data and possibly weighting this data to account for the shift to female-centric management. Other options could incorporate the seasonal availability of crabs to various fishing sectors (male, female, soft and peeler fisheries) as well as socio-economics.
        i. Consider under what circumstances it would be necessary to reallocate (new jurisdiction percentages).
    c. If an allocation-based framework is adopted, jurisdictions will manage within their jurisdictional allocation.

Cross-outcome collaboration

- Forage
- Fish Habitat and SAV
- Water Quality
- Climate Change

What could the GIT funding support for the fisheries management strategies?

Oyster Restoration

Gaps

Additional tributary selection and funding

Management Approaches

a. *Selection process and considerations*: Establish workgroup of interested parties, likely to include state and federal agencies, academics, and stakeholders interested in advancing ecological oyster restoration on a tributary scale. Workgroups are responsible for reporting on progress to the Sustainable Fisheries Goal Implementation Team.
b. *Data collection*: Compile existing data sets that help describe the current and past state of the river's oyster population, spat set, water quality, land use, benthic habitat conditions, management policy (e.g., wild fishery, leases, sanctuaries). If needed, collect additional data.
c. *Set acreage target*: Using the Oyster Metrics report as guidance, develop a restoration target for the river that is between 50% and 100% of the currently restorable acreage and is at least 8% of historic oyster bottom. Currently restorable means, at minimum, areas that have hard benthic habitat and water quality that can sustain oyster populations.
d. *Develop plan*: The workgroup should develop a plan to achieve the restoration acreage goal. This may generally include locations where reefs are to be built, restoration treatment (reef substrate type needed, if any; seeding needed, if any; appropriate reef height and material), costs, monitoring plans, etc. Additional input from the academic, scientific and management communities, and additional user group and public outreach, may be part of the plan development.
e. *Implementation*: Workgroups will be responsible for ensuring a coordinated approach to implementation, for tracking implementation progress, and reporting results to the Fisheries GIT.
f. *Track progress, monitor, and manage adaptively*

Cross-outcome collaboration

- Water quality
- Climate change
- Citizen stewardship

What could the GIT funding support for the fisheries management strategies?

Forage Fish

Gaps

- Trends of some forage species, especially small invertebrates and zooplankton.
- Definition of "balanced" state and natural variability for forage species (species abundance, habitat, water quality).
- Economic data on the value of these species.

Management Approaches

1. Define forage species and what comprises the forage base.
   - Explain their role both as an economic value to humans and as a food source for commercially/recreationally valuable predator species. The STAC workshop initiated this by developing a list of key forage species. The management agencies should work to refine this list to species of major concern to them.
2. Determine the status of the forage base including a definition of "balanced" state.
   - Guidance documents, such as those listed in the above "Current Efforts" section, exist for indicators of forage supply and demand in Chesapeake Bay. Important forage species and species groups have been defined; a suite of potentially useful metrics and indicators to assess forage has been identified; research gaps identified.
   - In addition, the STAC workshop participants agreed that enough data exist to perform a preliminary analysis of the predominant and most important forage to support predatory demand in the Chesapeake system. It is important to use the best available data, both from current monitoring programs and from historical data sets.
3. Inform management decisions to better address sustainability of the forage base.
   - Establish management objectives for forage species.
   - Develop indicators based on forage management objectives and priority factors affecting forage base.
   - Use indicators to identify and promote actions to manage fisheries and protect habitats that support forage. Protecting habitats will require working across multiple Goal Teams (Sustainable Fisheries, Habitat, Water Quality, and Citizen Stewardship).
4. Maximize the efficiency of monitoring programs and build on existing efforts
   - Map areas and habitats important for the production and maintenance of forage, with special emphasis on shoreline habitat, land use change and developments in the tributaries throughout the watershed.
   - Consider options to improve phytoplankton and zooplankton monitoring Baywide.

Cross-outcome collaboration

- Water quality
- Fish habitat
- Fish passage
- Land use
- Blue crab
- Oyster restoration

What could the GIT funding support for the fisheries management strategies?

Fish Habitat

Gaps

Science

- There is a need to understand how habitats contribute to fisheries production. In other words, how much habitat yields how many fish.
- Improve understanding of how environmental factors affect fish spawning, larval development, and recruitment of adults to the fishery.
- Identifying and quantifying areas of "high quality" fish habitat suggesting which waters are most important to critical life stages for fish.
- Integrating and synthesizing existing data into decision support tools and models. There is limited information available on fish distributions and habitats. Building on current efforts by jurisdictions, new GIS tools can pair fish information with other environmental data to evaluate, for example, what drives the fish distributions and how habitats are connected.
- Valuation of ecosystem services and value of habitats supporting high-priority species. Quantifying the ecological role and the economic returns habitats provide by serving these roles is a way to more effectively communicate the value of habitats.
- Understanding the limits of restoration. Restoration in many cases is not as good as protection. Once a system has reached a state of requiring restoration it is already degraded and restoration may never fully recover what has been lost.

Management Approaches

1. *Identify and prioritize threats* to fish habitat at the jurisdictional and Baywide scale and propose actions to manage the threats. Evaluation of a Baywide allocation-based management framework.
2. *Compile* and identify available data on habitats, habitat vulnerabilities and fish utilization at different life stages to develop a set of criteria for identifying areas of high-value fish habitat.
3. *Map and target high-value fish habitat* for improved conservation and restoration.
4. *Communicate importance of fish habitat* to the general public and local community leaders by engaging in a conversation about the tradeoffs associated with competing uses of land and water.
5. *Evaluate ways to enhance fish habitat protection* by reviewing examples from other regions (e.g., the Puget Sound Partnership) and actively engaging with the Atlantic Coast Fish Habitat Partnership.

Cross-outcome collaboration

- Water Quality
- Climate Resiliency
- SAV
- Stream Health
- Land Use
- Forage
- Brook Trout
- Public Access
- Fish Passage
- Toxics
- Blue Crab
- Oysters
- Watersheds