Fisheries Management Strategies
DRAFT Management Approaches – Excerpts

Fish Habitat Management Approach

In general, our approach will include the four steps outlined below.

1. Compile and identify available data on habitats, habitat vulnerabilities, and fish utilization at different life stages.
    a. Define the features of "healthy habitat"
    b. Does this include habitat lost?
2. Identify threats to fish habitat (both manageable and unmanageable). Consider Baywide vs. local/regional threats.
    a. Specify differences in threats among different regions and geographies of the Bay.
3. Prioritize challenges and opportunities for protection/restoration, management, and decision-making. Different priorities depending on species, location, etc.
    a. Focus on conservation/protection of healthy areas.
    b. Use spatial data and habitat tools to inform management.
    c. Specify how priority habitats and species vary among different regions and geographies of the Bay.
4. Improve awareness of positive/negative impacts of actions and associated tradeoffs on fish habitat among local communities and policy-makers. Connect habitat with a sense of place in communities.
    a. Empower policymakers and local governments.
    b. Review relevant policies/regulations.

*See Fish Habitat Priority Table for specific approaches for different habitats.

Forage Management Approach

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.
    a. What are the priority predator species for stakeholders and managers?
    b. What is the economic value of forage?
2. Determine the status of the forage base.
    a. Need to determine how much and what information is currently known. Which species do we know the most about?
    b. Quantify predator demand and forage availability.
    c. Determine the impacts of environmental conditions on forage species.

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3. Develop management tools to inform management decisions regarding the forage base.
    a. Indicators that can be used by management, both the Chesapeake Bay level and at the ASMFC level where relevant.
    b. Need to compile and synthesize existing information on forage to make it useful.
    c. Better understand trophic dynamics and how to prevent imbalance. Understand predator dynamics.
    d. How much do we have and how much to we need? What is the allocation of forage that should be available to humans? To predators?
    e. Consider grouping the forage species into different suites of indicators based on similar characteristics (i.e. different indicators for pelagic forage vs benthic forage)
4. Maximize the efficiency of monitoring programs and build on existing efforts

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Blue Crab Management Approach

Stock Assessment

Planning for the 2016-17 benchmark stock assessment began during fall 2014, when the CBSAC discussed current available data sources and research needs… The next benchmark stock assessment will need to address to the Terms of Reference (TORs), which include development of both female and male reference points for holistic management of this stock. Male and female reference points are important because the availability, abundance, and harvest of male and female blue crabs varies spatially throughout the Chesapeake Bay, with more female blue crabs being harvested in the lower Bay (Virginia), and more male blue crabs being harvested in the upper Bay (Maryland).

The TORs have been drafted for the next benchmark assessment. The TORs address specific needs of the bay jurisdictions for future management, to include issues involving specific fishery sectors (recreational, commercial, and gear-specific), estimate uncertainty and environmental variability and variability with ecosystem predator-prey relationships within the variables within the ecosystem that can influence crab abundance. The TORs, once approved by the Fisheries GIT, will be resubmitted to the CBSAC to develop a cost estimate for accomplishing the benchmark assessment. Available funding will determine if the benchmark assessment will be conducted and finalized in 2016 or 2017.

Evaluation of an Allocation Based Management Framework

Jurisdictions will evaluate the overall benefits of a shift to a Bay-wide Allocation Based Management Framework as well the fundamental steps that would be needed to develop a TAC and jurisdictional allocation. The fundamental step developing a Baywide TAC is the successful completion of the planned benchmark stock assessment and successfully addressing the TORs. The assessment results will provide much of the necessary information needed to address the steps that follow:

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a. Calculate a Bay wide 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.
    i. For female crabs: empirically derived TAC using the annual estimate of the exploitable female stock (age 0-plus) and the current reference points.
    ii. Options for male TAC (biological ref points not currently identified) include using current conservation triggers, male-female ratios, or use information from new stock assessment.
    iii. Consider management and scientific uncertainty in the above options.
    iv. Consider how often TAC is calculated
b. Develop and explore options for allocating a percentage of the Bay wide TAC to jurisdictions. Options could include using historical data and possibly weighting this data to account for the shift to female-centric management.
    i. Consider under what circumstances it would be necessary to reallocate (new jurisdiction percentages).
c. Develop and implement a Management Plan based on the reference points developed through the benchmark stock assessment, the TAC and jurisdictional allocation.

Oyster Restoration Management Approach

The exact process for planning and implementing tributary-scale restoration is likely to vary by state, and even by tributary. This is appropriate, as ecological conditions (ex: salinity; present-day spat set; water quality; wave energy; river basin morphology, etc.), and political factors (ex: state oyster management policies; user group conflicts) vary between states, rivers, and even to some degree within rivers. However, below is a generalized approach to tributary-scale restoration planning and implementation.

a. <u>Selection process and considerations:</u> 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. <u>Data collection:</u> Pull together existing data sets (from various sources) which help describe current and past state of the river's oysters, spat set, water quality, land use, benthic habitat conditions, management policy (ex: wild fishery; leases; sanctuaries). If needed, collect additional data.
c. <u>Set acreage target:</u> 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. Currently restorable means, at a minimum, areas that have hard benthic habitat and water quality that can sustain oyster populations.

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d. Develop plan: The workgroup develop a plan to achieve the restoration acreage goal. This will 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 sustainable fisheries goal implementation team.
f. Track progress, monitor, and manage adaptively (next section)

Future Protection

The restoration partners working on each tributary will consider the future protection of the restored oyster reefs in the long-term…Working to ensure that restored oyster reefs are protected in the long-term, such as with sanctuary protection, is a priority for restoration partners. In addition, enforcement against poaching is crucial to protecting the restoration investment and to allow the oyster population and habitat to increase in those areas.

Communication and outreach to local communities, especially those in close proximity to restoration sites, is essential for the long-term success of large-scale oyster restoration. A restored oyster population has the potential to return filtering functionality to shallow water habitat in the Bay. However, poor land management and further degradation of water quality will jeopardize any gains. Ultimately, water quality benefits provided by oyster restoration will rely on sustainable land management and development. Efforts being undertaken to support the Chesapeake Bay Restoration and Protection Executive Order and the nutrient reduction goals established in the Chesapeake Bay Total Maximum Daily Loads (TMDL) will help address water quality issues. The Executive Order goals targeting water quality, habitat, and fish and wildlife are directly related to achieving the goals presented in the master plan. Opportunities to match oyster restoration efforts, spatially and temporally, with land management projects should be implemented to the greatest extent. (USACE ES 7)

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