Fish Habitat: Report Summaries (DRAFT)

Overarching Themes:

Water Quality and Habitat Management:

- Implementing a new approach to water quality management combined with nearshore habitat management.
- Prioritizing water quality and TMDL management efforts that boost fish and shellfish habitat.

Shallow Water Habitats:

- Importance of shallow water habitats for living resource abundance and stakeholder engagement.
- Shallow water habitats support a wide range of fish species and are critical for fish life cycles.

Funding and Technical Support:

- Securing funding and endorsements for innovative fish habitat enhancement projects.
- Providing technical support for habitat restoration projects applying for various funding sources.

Risk and Regulatory Assessment:

- Developing risk assessments based on recent research and habitat observations.
- Enhancing regulatory processes to protect and restore wetland riparian buffers.

Communication and Engagement:

- Including fish habitat considerations in local planning processes.
- Strengthening connections between people and habitats through communication and community engagement.

Report Summaries:

CESR Report

- Recommendation: A new approach to water quality management, combined with nearshore habitat management, can open new opportunities for living resource abundance *(Chapter 5: Living Resource Response to Water Quality Conditions).*
- Recommendation: Actions in shallow waters such as creating living shorelines and improving benthic habitat can greatly increase the living resource response to water quality conditions *(pg. ix)*

- Shallow water habitats in specific regions of the Bay may offer significant opportunities to produce living resource responses. These are also areas with significant stakeholder engagement because of their status as primary areas of recreational use, their cultural significance, and their visibility as iconic Chesapeake landscapes. (pg. x)
- Designated Uses (DUs) = shallow water (Bay grass use), open water (fish and shellfish use), deep water (seasonal fish and shellfish use), deep channel (seasonal refuge use), and migratory fish (spawning and nursery use) (pg. 7)
- Shallow water habitats support a wide range of fish species across key life stages (pg. 68)
- Water temperature increases are most pronounced in shallow water habitats, and these areas are important to forage fish and many fish life cycles. (pg. 68)
- Fabrizio et al. (2021) found that shallow water habitats are particularly important for a number of key forage fish species. (pg. 69)
- prioritize water quality and TMDL management efforts that have the greatest potential to boost fish and shellfish habitat and populations, and enhance decision-making about these options when outcomes are uncertain. (pg. 75)
- improvements in DO in shallow water habitats that support both nursery habitat and forage fish may generate larger living resource responses than similar levels of water quality improvement in deeper water habitats. (pg. 82)

Charting a Course to 2025

- *Funding and Implementation Recommendation:*
    - Secure funding and endorsements for partners to implement innovative fish habitat enhancement projects like co-locating oysters, mussels, and submerged aquatic vegetation.*(pg. 35)*

- *Technical Support Recommendation:*
    - Provide technical support for fish habitat restoration projects applying for funding from the Infrastructure Investment and Jobs Act, Inflation Reduction Act, and other sources. (pg. 35)

- *Risk Assessment Recommendation:*
    - Develop a risk assessment for fish and habitat based on recent research, habitat assessments, and water quality observations to evaluate the linkages between changing Bay conditions and aquatic living resources. (pg. 35)

- *Regulatory Support Recommendation:*
    - Establish or enhance regulatory processes to protect and restore wetland riparian buffers. (pg. 35)

- *Communication and Integration Recommendation:*
    - Include fish habitat considerations in Watershed Implementation Plans, fisheries management, and other local planning processes. (pg. 35)

Chesapeake Bay Program Reaching 2025: A Progress Report

- *Recommendation*: Use the latest geospatial technology in mapping and monitoring, along with advanced models, to create new ways of managing conservation challenges, especially those caused by climate change and increased development. Specifically, targeted shallow-water modeling & habitat suitability modeling. *(slide 12, Emerging Science, Monitoring, and Analysis)*

A Critical Path Forward for the Chesapeake Bay Program Beyond 2025

- Recommendation: Changes should reflect recent scientific reports and highlight continued emphasis on achieving water quality goals, the importance of conservation in addition to restoration, shallow water habitats, the impacts of climate change, land use changes and population growth, and benefits to the people who live, work and recreate in the region. (pg. 4)
- Recommendation: Emphasizing the social, economic and ecological benefits of restored, resilient and connected shallow water habitats would strengthen the connection between people and habitats and promote proactive approaches to climate adaptation (pg. 11)

Beyond 2025 Shallow Water Habitats Small Team Report Recommendations:

- *Recommendation #1 Climate-Resilient Restoration:*
  - Design and implement system-scale shallow water habitat restoration to include multiple practices (i.e., oysters, wetlands, SAV, and reforestation) that provides social, economic, and ecological benefits while also providing resilience and connectivity under changing land-use and climate conditions. A disconnected restoration project will have limited benefits, particularly in upstream areas of the watershed. (pg. 3)
- *Recommendation #2: Integrated Modeling and Monitoring:*
  - Improve the understanding of connectivity and habitat function under changing conditions by expanding Chesapeake Bay and watershed monitoring and modeling to include continuous shallow water habitats. (pg. 3)
- *Recommendation #3: Adaptation Strategy to inform Habitat Management and Project Planning:*
  - Recommendation: Implement an active approach to climate adaptation in shallow water habitats that integrates vulnerability assessments for living resources and communities, alternative future scenarios, community engagement, and learning elements. (pg. 3)
- *Recommendation #4: Communication and Engagement:*
  - Strengthen the connection between people and shallow water habitats by communicating the importance of these ecosystems and their socio-economic benefits to stakeholders. Develop active and sustained engagement with communities to understand their values and utilize social science strategies to develop stewards of our local waterways. Align actions and funding to these values and socio-economic considerations. (pg. 4)
- *Recommendation #5: Effective Governance, Collaboration, and Innovative Funding:*
  - Balance accountability, resources, and effort in an equitable way across the outcomes. Manage shallow water habitats as an interconnected ecosystem that

leverages collaboration among the Bay Program partnership and organization structure by minimizing rigid bureaucracy without sacrificing inclusivity. Adjusting outcomes and funding accordingly. (pg. 4)