Choptank River Habitat Focus Area 2016 Annual Report

The main focus of NOAA's work in the Choptank River Habitat Focus Area (HFA) is oyster reef restoration in sanctuary waters (designated by Maryland). This highly visible work focuses on a resource valued by the public for its economic, historic, and cultural significance to the region—and that provides significant ecosystem and habitat benefits. Initial successes in this habitat restoration project are helping to drive additional partner investments for related habitat restoration and water-quality programs, provide a direct connection to community groups, promote policy discussions at local, state, and federal levels, and demonstrate the value of place-based approaches. The Choptank HFA includes work in three areas:

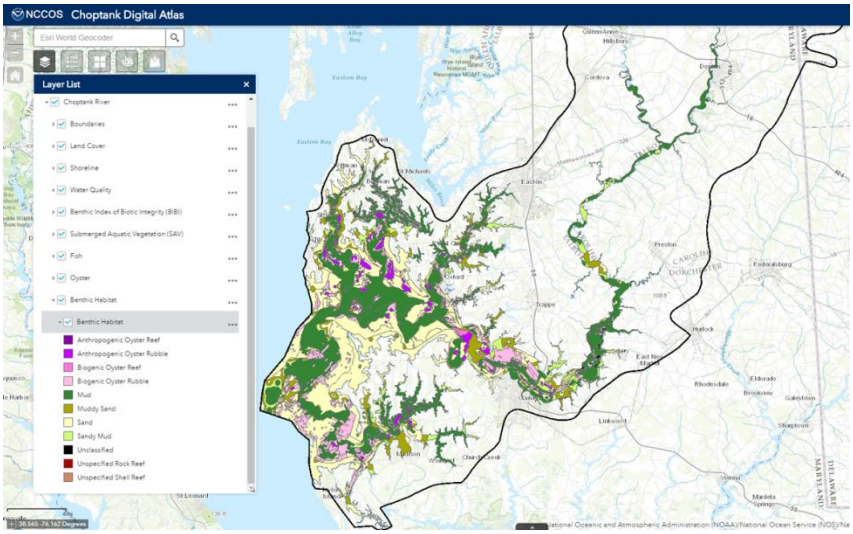
- Science: Integrating Science to Inform Management
- Service: Habitat Restoration and Protection
- Stewardship: Community Engagement

NOAA's existing efforts provide a strong foundation for this comprehensive approach toward HFA objectives. Programs from multiple NOAA line offices, including the Chesapeake Bay Fisheries Grant Program, the Coastal Zone Management Program, the NOAA Bay Watershed Education and Training Program (B-WET), and the research of the National Centers for Coastal Ocean Science and others, support outcomes of the HFA. In fiscal year 2016, NOAA contributed to significant improvements in scientific understanding, habitat restoration, and partnership development.

Science: Integrating Science to Inform Management

Increasing Scientific Understanding through an Ecological Assessment

The National Centers for Coastal Ocean Science completed a suite of ecological assessment products to inform and assist NOAA, natural resource managers, and other partners in making decisions that could affect the health of the Choptank River watershed. These products include an ecological baseline status report, a "digital atlas" online web-mapping portal, and an associated geodatabase—which details the baseline land cover, shoreline, water quality, benthic integrity, submerged aquatic vegetation, fish and oyster conditions of the watershed. These products are available online and will be shared with local communities and partner groups to inform continued restoration and community resilience projects.



The Choptank Digital Atlas includes map-based information, like this data on benthic habitat classifications.

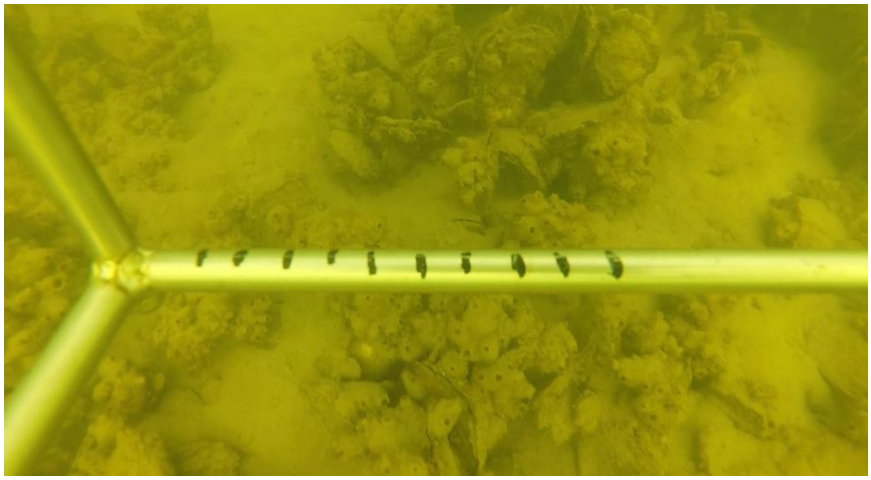
Using Satellites to Monitor Water Clarity

NOAA's National Environmental Satellite, Data, and Information Service used satellite data to look at trends in suspended sediment concentrations in creek-influenced water and mainstem Bay water to quantify water quality and its variability in and around the Choptank River system. The creek-influenced water increased in turbidity from 2010 to 2013, followed by a steep drop; the Bay mainstem-influenced water decreased in turbidity from 2010 to 2013, followed by a small decrease or no change in turbidity. In light of these different trends, new work will look to better understand if and how these water-clarity results relate to the abundance of oysters and submerged aquatic vegetation in the creeks, which may begin to show measurable gains in water quality as a result of restoration work.

Conducting a Climate Vulnerability Assessment
The National Centers for Coastal Ocean Science expanded upon the recently completed technical memorandum *Identifying Priorities for Adaptation Planning: An Integrated Vulnerability Assessment for the Town of Oxford and Talbot County, Maryland* (2015) to conduct a watershed-wide climate variability assessment, combining social, economic, structural, cultural, ecological, and hydrological information into maps that illustrate which areas in the Choptank watershed are most vulnerable to the effects of climate change. This data and information will continue to be provided to local planners, decision makers, and other partners to inform community-led adaptation planning processes and identify restoration and protection opportunities to enhance resiliency into the future.

Service: Habitat Restoration and Protection

Evaluating the Effectiveness of Oyster Restoration
The NOAA Chesapeake Bay Office released a report on the post-restoration monitoring results for the first 102 acres of oyster reefs restored in Harris Creek—the first phase of the largest oyster restoration effort in the country. Results indicate that 100% of the reefs seeded in 2012 met the threshold success criterion (15 oysters/m^2 over 30% of the bottom), and 50% met the higher target criterion (50 oysters/m^2 over 30% of the bottom). Interestingly, a stone substrate reef that was planted in 2013 (one year later than the other Harris reefs monitored) showed oyster density of more than three times that of any reef site monitored in Harris Creek to date. These results will inform oyster management decisions at the local, state, and federal levels, and encourage partners to continue their support for local restoration projects. The report is available at chesapeakebay.noaa.gov/images/stories/habitats/hc3ydcheckinjuly2016.pdf.



NOAA post-restoration monitoring efforts, including video, show healthy oysters three years after seeding.

Exploring the Effects of Climate on Wetland Restoration
As sea levels rise on Maryland's Eastern Shore, it is important for wetland restoration and protection efforts to take into consideration where these important habitats will be in the future. To this end, the Cooperative Oxford Lab, in partnership with the Office of Habitat Conservation, worked to identify tools available to determine wetland migration corridors, and determined that overlaying the new Choptank Ecological Assessment mapping layers with the Climate Vulnerability Assessment maps (efforts described above), along with other state- and local-level tools, can help partners to determine where existing wetlands will migrate given sea-level rise projections. The lands identified as suitable for wetland migration will be targeted for protection to improve the resilience of local communities and ensure habitat for key species.

Conducting Essential Fish Habitat Consultations
The Habitat Conservation Division provided 16 essential fish habitat consultations for coastal development and land use projects within the Choptank HFA in Talbot and Dorchester Counties to improve and conserve fish habitat, which was above the target of 10 consultations in the area. The majority of consultations were on proposals for shoreline stabilization projects and aquaculture.

Exploring the Feasibility of Increasing Fish Passage
The Restoration Center used the Fish Passage Prioritization Tool to determine where opportunities to remove dams or other obstructions to fish passage exist in the Choptank HFA. After careful consideration, fish passage experts determined that the potential dam removal projects within the Choptank watershed are not practical at this time. Moving forward, the Choptank HFA will no longer focus effort in this area.

Stewardship: Community Engagement

Working with Communities to Envision the Choptank
Through the Envision the Choptank collective impact effort, the NOAA Chesapeake Bay Office works with conservation and community partners to embrace diverse interests and values while working to restore fishable, swimmable waters that support a healthy oyster population. NOAA worked with the Chesapeake Conservancy to solidify a steering committee for Envision the Choptank and to create a Conservation Atlas GIS tool that overlays ecological data layers with partner projects and priority areas to identify areas in need of conservation effort. This led to the identification of the first geographic focus area—the Bay Hundred (lands around Harris Creek, Broad Creek, and the Tred Avon River). The group secured a grant from the National Fish and Wildlife Foundation for "Collaborative Restoration for Oyster Success" to work in the Bay Hundred to increase implementation of farm and residential best management practices to improve water quality for oyster reefs. Next year, Envision the Choptank partners will conduct a community assessment and use the results of that assessment and other information to draft their first common vision and agenda.

Increasing Habitat Focus in K-12 Education
The NOAA Chesapeake Bay Office worked closely with two B-WET grantees, the National Audubon Society Pickering Creek and the Sultana Education Foundation, to support the integration of NOAA habitat science into county planning documents, curriculum, and trainings. Partnering with the Sultana Education Foundation, NOAA supported Talbot, Caroline, and Dorchester Counties in their work to develop and update their environmental literacy plans. NOAA also supported teacher professional development programming and one-on-one support for teachers, to provide a better understanding of the Choptank HFA and how NOAA content and resources can be integrated into school and field-based programming. Next year, NOAA will continue to work closely with counties, partners, and schools to support the integration of NOAA science and education resources—in particular oyster content—into classrooms.

Crew on the* Sultana *introduce Dorchester County students to the Choptank River.

Ensuring Effective Communications
The unprecedented scale of oyster restoration in the Choptank HFA has led to a high level of interest from the media, partner organizations, and the public. To give Choptank partners support as they respond to inquiries and share information about their projects, a multiyear Communications Strategy was developed to guide outreach in and about the Choptank HFA. The Strategy includes defined activities and deliverables, as well as talking points to promote consistent and clear storytelling.

Coordination and Operations

Raising Awareness for Habitat Focus Areas
The Choptank HFA hosted several high-profile events to increase awareness about the importance of place-based programming and HFAs to target efforts for maximum return on investment. These events included field trips with NOAA leadership, appropriations staff, and Congressional staff. The Choptank HFA also hosted the first HFA Practitioners meeting, showcasing the broad suite of work under way by NOAA and its partners in the region.

Leveraging Partner Support
NOAA created new partnerships and expanded existing partnerships to advance Choptank HFA objectives.

- The National Fish and Wildlife Foundation's 2016 Chesapeake Bay Stewardship Fund awarded more than $360,000 in grants to support more than 15 organizations who are implementing residential stewardship projects, promoting best management practices in manure and wetland habitat on farmland and protecting

black duck habitat. This includes a grant to support a project by the Envision the Choptank group. The NOAA Chesapeake Bay Office and the National Fish and Wildlife Foundation also maintain a cooperative agreement for activities that meet mutual habitat restoration objectives in the Choptank watershed. This agreement supports citizen engagement, oyster restoration monitoring, and the development of socioecomonic analyses.

- The Maryland Department of Natural Resources Working Waterfronts Program (using funding from NOAA's Coastal Zone Management Program) awarded grants to Cambridge, Oxford, and St. Michaels to revitalize these historically maritime towns.
- Morgan State University's PEARL Lab is working with the Oyster Reef Ecosystem Services team to provide economic analyses of oyster reef and wetland restoration.
- Creighton University is producing high-resolution wetland habitat maps based on WorldView 3 satellite imagery, and collaborated with the NOAA Office of Education to support an intern to help identify wetland migration corridors around Harris Creek.
- The Chesapeake Conservancy is bringing their experience in community engagement efforts around the watershed to bear by facilitating the Envision the Choptank effort with NOAA.

Mapping habitat includes groundtruthing satellite observations.