2020 Maryland Oyster Restoration Update

Progress toward the Chesapeake Bay Watershed Agreement's 'Ten Tributaries by 2025' oyster outcome

March 2021

Numbers in this document are rounded.

Background

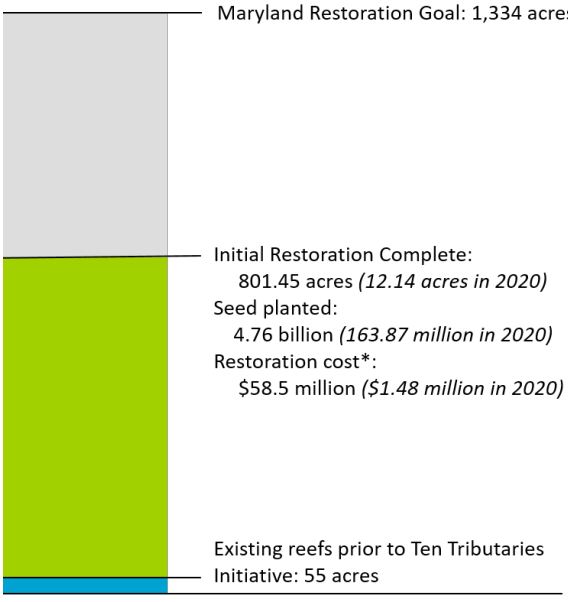
The 2014 Chesapeake Bay Watershed Agreement, which guides the work of the Chesapeake Bay Program, calls for state and federal partners to "restore native oyster habitat and populations in 10 Bay tributaries by 2025, and ensure their protection" (hereafter, "Ten Tributaries outcome"). Five tributaries are being restored in Maryland, and five in Virginia. An overview of Bay-wide progress is available on the Chesapeake Bay Program's Chesapeake Progress site.

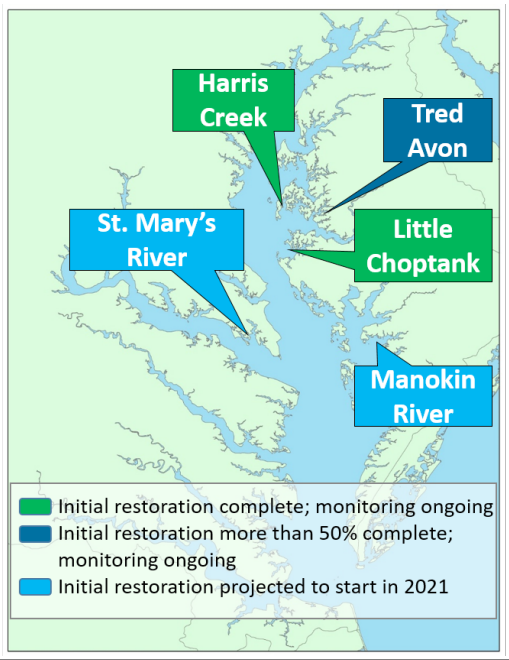
To achieve this outcome in Maryland, the U.S. Army Corps of Engineers' Baltimore District (USACE), the National Oceanic and Atmospheric Administration (NOAA), the Maryland Department of Natural Resources (MD DNR), and the Oyster Recovery Partnership (ORP) formed the Maryland Oyster Restoration Interagency Workgroup ("Workgroup") under the auspices of the Sustainable Fisheries Goal Implementation Team (GIT) of the Chesapeake Bay Program. The Workgroup, with guidance from consulting scientists and the public, sets tributary-specific restoration goals and develops plans ("Restoration Blueprints") describing how the tributaries will be restored, consistent with success criteria described in the Chesapeake Bay Oyster Metrics Report ("Oyster Metrics").

Maryland Progress Summary

Two Maryland tributaries have now been completed toward the Ten Tributaries outcome (Harris Creek and Little Choptank River), and three have been completed Bay wide (the third is the Lafayette River in Virginia). Restoration work in the Tred Avon River is more than half complete, and restoration work in the St Mary's and Manokin rivers is slated to start in 2021. To date, partners have restored more than 800 acres of oyster reefs in Harris Creek, Little Choptank River, and Tred Avon River combined, at a cost of approximately $58.5 million*. These reefs were constructed using one of two methods: by building a substrate base followed by planting with hatchery-produced oyster seed, or by placing only seed onto remnant reefs.

In 2020, COVID-19-related restrictions reduced the University of Maryland's Horn Point oyster hatchery's seed production capacity through mid-June. Soon after, the facility increased production. The net result was that the number of oysters produced and planted onto sanctuary reefs in 2020 was reduced compared to typical years. Despite this, and thanks to the remarkable effort of the Horn Point staff, partners completed the initial restoration work in the Little Choptank River in 2020.





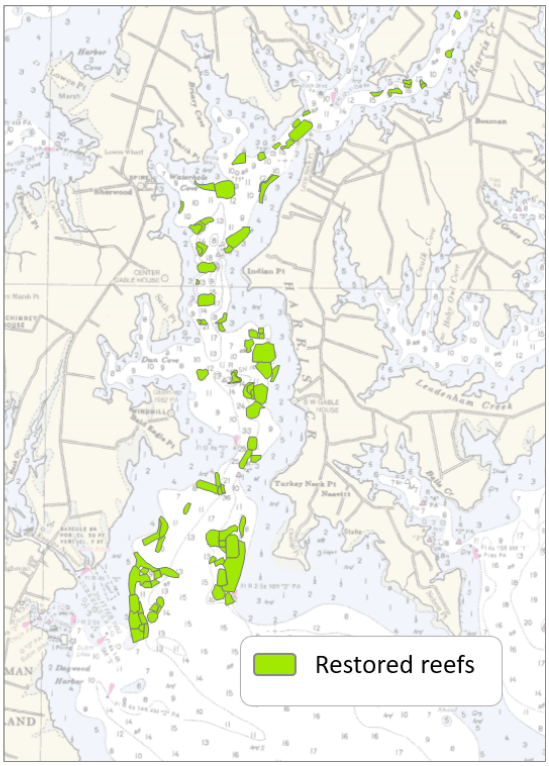
Harris Creek

All planned restoration work in Harris Creek is now complete, including all planned second-year-class oyster plantings. The Harris Creek Oyster Restoration Blueprint called for monitoring three years, and again six years, after restoration. All three-year monitoring is complete; work now is focused on monitoring each reef as it turns six years old. Of the 43 six-year-old reefs monitored in Harris Creek as of the end of 2019:

- 98% met the Oyster Metrics minimum threshold success criteria for oyster density and biomass.
- 56% met the Oyster Metrics higher target criteria for oyster density and biomass.

As of late 2020, reefs built in 2014 (six-year-old reefs) were being monitored.

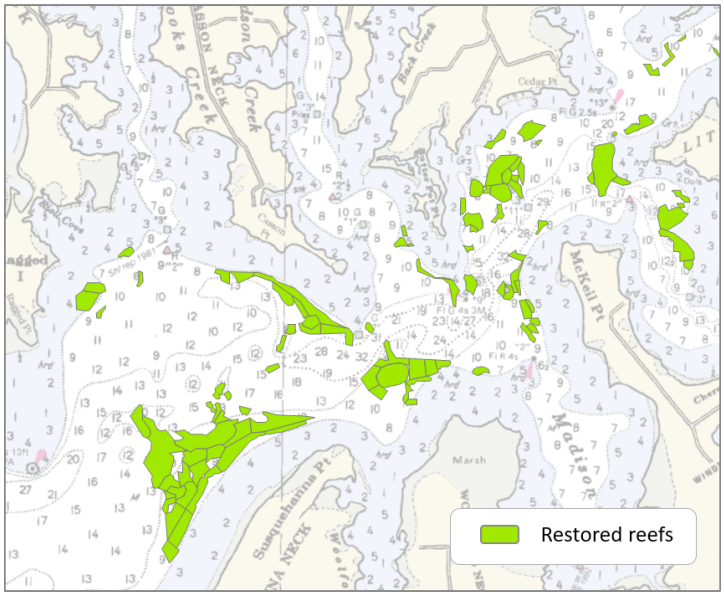
Harris Creek
Initial Restoration (completed in 2015)
348 acres
Seed planted:
2.49 billion *(55.52 million in 2020)*
Restoration cost*:
$29.06 million *($502,777 in 2020)*



Little Choptank River

Initial restoration work was completed in the Little Choptank River in 2020 (see video). This is the second tributary in Maryland, and the third Bay wide, to be completed toward the Ten Tributaries outcome. Since 2014, partners have restored 358 acres of reefs in the river, slightly more than in Harris Creek, which is thought to be the world's largest oyster sanctuary restoration project at this time. Future work will focus on monitoring and, where needed, completing the scheduled second-year-class oyster seedings called for in the Little Choptank River Restoration Blueprint. If reef densities and biomass are higher than projected, the scheduled second seeding will not be required. If reef densities and biomass were as projected, or lower, the scheduled second-year-class seeding will be implemented four years after restoration. Reefs will also be evaluated to determine if they meet other Oyster Metrics success criteria, including presence of multiple year classes and reef structural integrity.

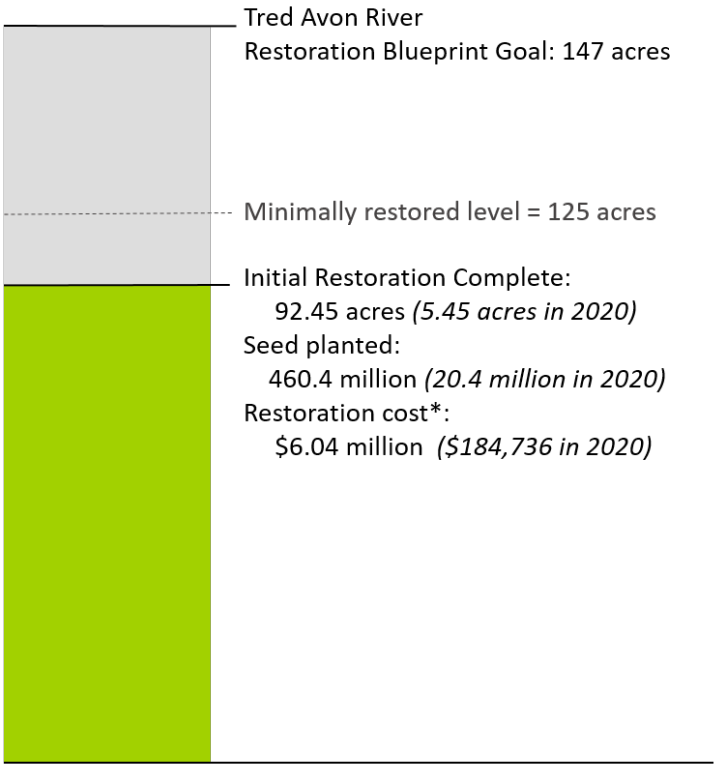
Little Choptank River
Initial Restoration (completed in 2020)
358 acres *(6.69 acres in 2020)*
Seed planted:
1.78 billion *(87.95 million in 2020)*
Restoration cost*:
$23.39 million *($796,448 in 2020)*

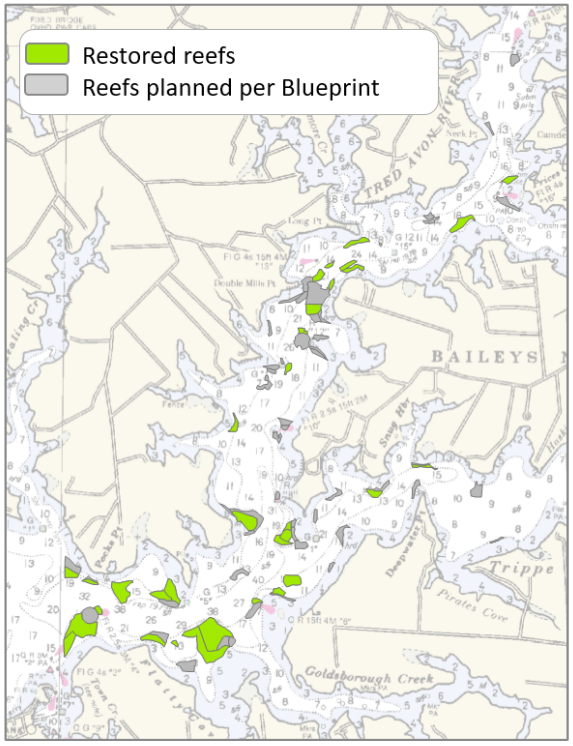


Tred Avon River

The Tred Avon River Restoration Blueprint sets a goal of restoring 147 acres of reefs in the river. However, consistent with the Oyster Metrics success criteria and the Restoration Blueprint, the river can be considered minimally restored as long as at least 125 acres are restored. To date, 92.45 acres have been restored. Based on additional pre-restoration surveys and concerns about navigational clearance, partners are no longer planning to construct reefs on some areas initially slated for restoration in the Blueprint. However, more than 50% of the area will still be restored.

USACE-Baltimore District is in the processes of contracting construction of 34 acres of reefs in the river in early 2021. These will be constructed from stone. This construction work, followed by seeding in summer 2021, will bring the acreage of restored reefs in the river to approximately 130 acres, which is more than the minimally restored threshold level of 125 acres.

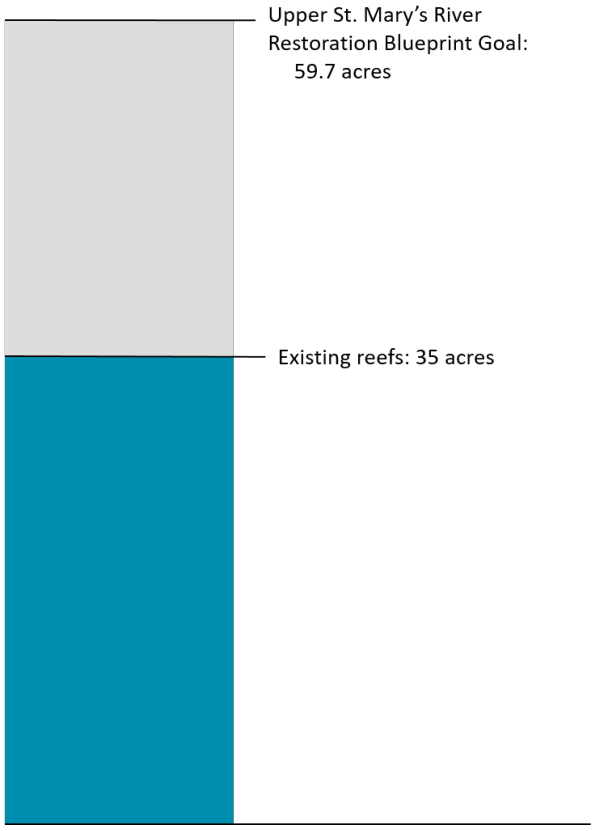


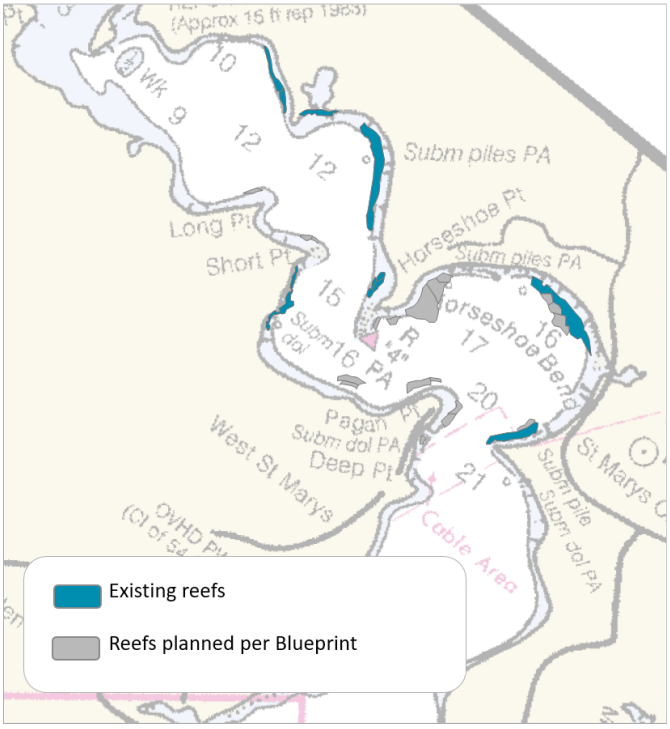


Upper St. Mary's River

In March 2020, partners completed the Upper St. Mary's River Restoration Blueprint. This establishes a goal of restoring 59.7 acres of reefs in the river. Thirty-five acres of healthy, high-density oyster reefs already exist in the river, leaving approximately 25 acres to be restored.

Reef construction has not yet started. Approximately 16 acres in the river require only the addition of hatchery-produced seed oysters; these will likely be seeded in 2021. MD DNR has received a permit to build the nearly nine acres of reefs that require a substrate base, and is in the process of hiring a subcontractor for reef construction. In-water construction is anticipated to start in 2021, with seeding in 2021 or 2022.

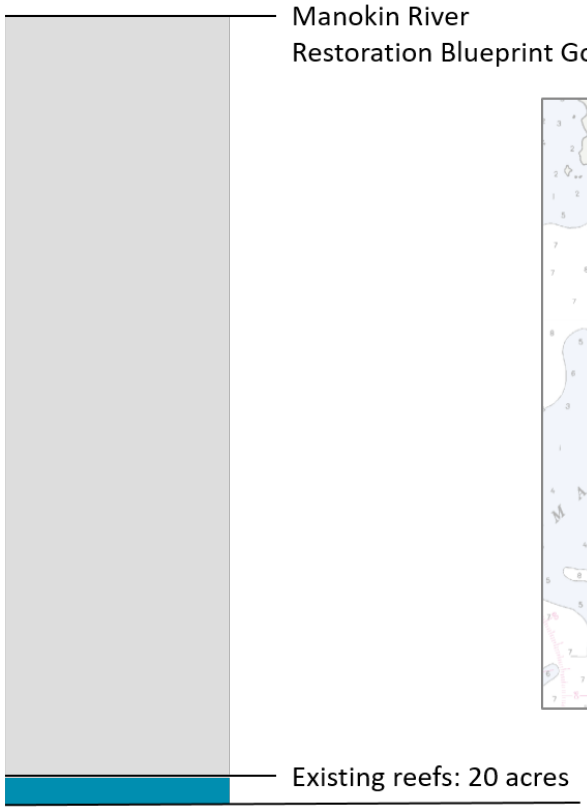


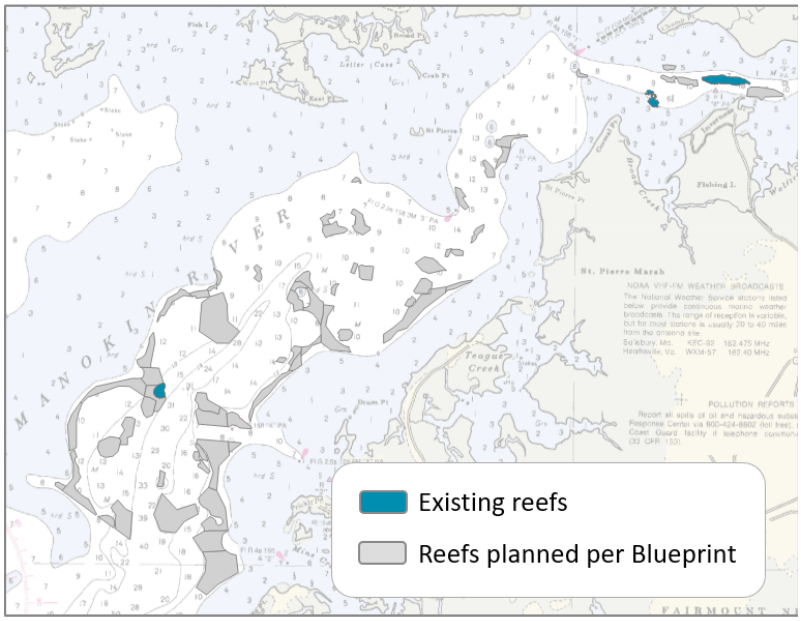


Manokin River

In July 2020, partners completed the Manokin River Restoration Blueprint. This establishes a goal of restoring 441 acres of reefs in the river. Per the Restoration Blueprint, an estimated 20 acres of healthy, high-density oyster reefs already exist in the river, leaving approximately 421 acres that still need to be restored. These 441 acres of reefs are currently undergoing additional prerestoration surveys, which may reveal that some of these areas in fact do not require restoration. This would reduce the number of acres projected to need restoration.

MD DNR has received a permit to build reefs with substrate in the river, and is in the process of conducting public outreach and hiring a subcontractor for reef construction. In-water reef construction and seeding are anticipated to start in 2021.





Factors Influencing Performance

Many factors may influence the success of the Ten Tributaries outcome. These include water quality, oyster disease, fluctuations in natural oyster recruitment, fluctuations in hatchery production, and availability of suitable reef-building substrate. Despite these challenges, oyster restoration efforts in the Maryland waters of the Chesapeake Bay are already showing success with the completion of the Harris Creek and Little Choptank River restoration projects; Maryland is on track to meet its goal. These tributaries serve as evidence that oyster populations can prosper in the Chesapeake Bay, either naturally or due to restoration in sanctuaries. Recent declining trends in disease mortality rates may increase on-reef survival and sustainability of restoration efforts.

*Reef construction only. Associated costs such as benthic surveys, oyster population surveys, planning, permitting, and monitoring are not reflected. Restoration cost per acre varies due to factors including material type, reef configuration, hydrologic factors, agency and stakeholder preferences, and other factors.

This report was compiled for the Chesapeake Bay Program's Sustainable Fisheries Goal Implementation Team by the Maryland Oyster Restoration Interagency Workgroup (Stephanie Westby, chair, stephanie.westby@noaa.gov). Numbers in this document are rounded.

Additional partners include the National Fish and Wildlife Foundation, The Nature Conservancy, University of Maryland, and the Chesapeake Bay Foundation.

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