

2019 Maryland Oyster Restoration Update

Progress toward the '10 tributaries by 2025' outcome in the Chesapeake Bay Watershed Agreement

March 2020

Background

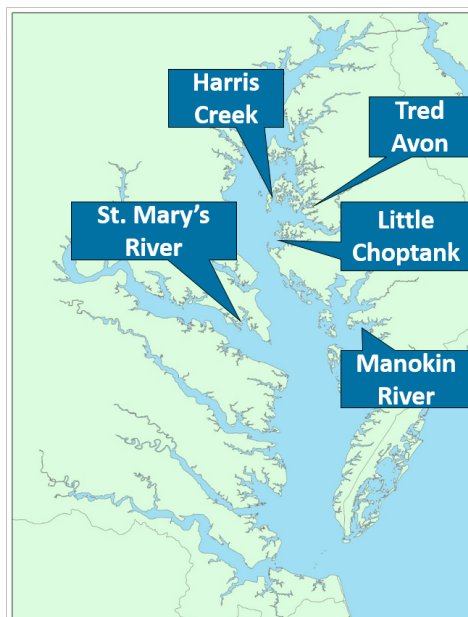
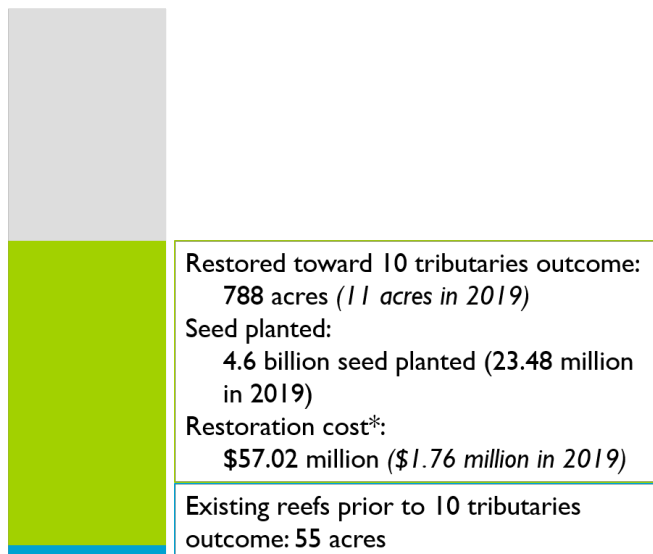
The 2014 Chesapeake Bay Watershed Agreement, which guides the work of the Chesapeake Bay Program, calls for state and federal partners to “restore native oyster habitat and populations in 10 Bay tributaries by 2025, and ensure their protection” (hereafter, “10 tributaries outcome”). Five tributaries are being restored in Maryland, and five in Virginia. An overview of Bay-wide progress toward the 10 tributaries outcome is available at <https://www.chesapeake-progress.com/abundant-life/oysters>.

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 (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 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,” see https://www.chesapeakebay.net/channel_files/17932/oyster_restoration_success_metrics_final.pdf).

Maryland Progress Summary

Partners have constructed 788 acres of oyster reefs toward restoring five tributaries in Maryland at a cost of \$57.02 million*. These reefs were constructed using one of two methods: either by building a substrate base followed by planting with hatchery-produced oyster seed (referred to as ‘substrate + seed’ reefs), or by placing only seed onto remnant reefs (called ‘seed-only’ reefs). More than 4.6 billion seed oysters have been planted under the 10 tributaries outcome. Harris Creek alone is thought to be the largest sanctuary oyster restoration project in the world and has become an internationally recognized example of large-scale restoration. Extreme freshwater flows in the first seven months of 2019 resulted in low oyster seed production at the University of Maryland’s Horn Point Oyster Hatchery, the primary seed producer for the effort. Because of this, partners were able to restore 11 acres in Maryland in 2019; a typical year is around 100 acres.

Maryland Restoration Blueprint Goal: 1,439 acres



*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.

Initial oyster restoration work in Harris Creek was completed in 2015, making it the first Bay tributary to be considered complete under the 10 tributaries outcome. Since then, efforts have focused on monitoring and conducting second-year-class seedings.

Each reef is monitored three years after restoration, and its oyster density and year class structure are evaluated to determine if it requires the scheduled second seeding. If needed, second-year-class seedings are scheduled for four years post restoration, per the Harris Creek Oyster Restoration Blueprint (available via https://www.chesapeakebay.net/who/publications-archive/maryland_and_virginia_oyster_restoration_interagency_teams). Reefs are also evaluated three years after construction to determine if they meet the Oyster Metrics success criteria. To date, 56 reefs built between 2012 and 2014 have been monitored. Of these:

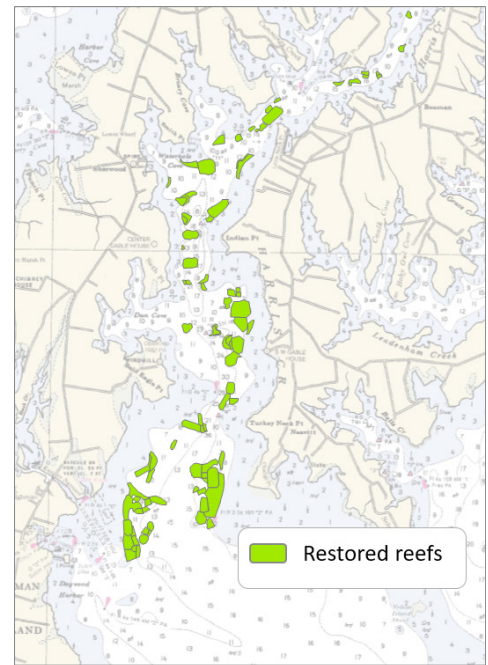
- 98% (55 reefs) met the minimum Oyster Metrics threshold success criteria for oyster density and biomass.
- 75% (42 reefs) met the higher Oyster Metrics target criteria for oyster density and biomass.

Reefs built in 2015 and 2016 are currently being monitored.

Harris Creek Restoration Goal: 351 acres



Restored toward 10 tributaries outcome:
351 acres (completed in 2015)
 Seed planted:
2.49 billion seed planted (0 seed planted in 2019)
 Restoration cost*:
\$28.56 million

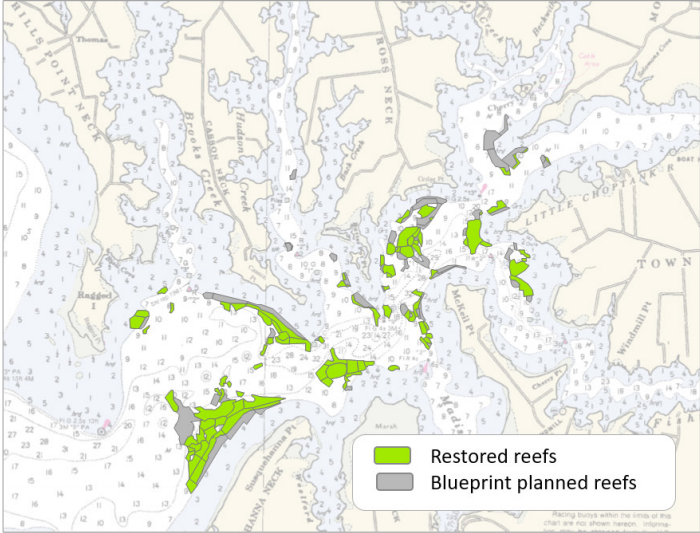
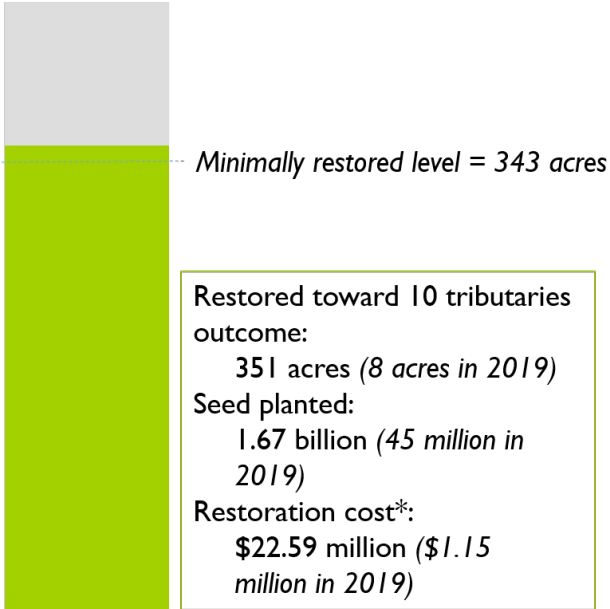


*Reef construction only. Associated costs such as benthic surveys, oyster population surveys, planning, permitting, and monitoring are not reflected. Restoration cost per acre varies due to factors including material type, reef configuration, hydrologic factors, agency and stakeholder preferences, and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

The Little Choptank River Restoration Blueprint (available via <https://www.chesapeakebay.net/who/publications-archive/maryland-and-virginia-oyster-restoration-interagency-teams>) set a goal of restoring 440 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 50% (343 acres) are restored. To date, 351 acres have been restored. Partners have planted nearly 1.67 billion seed in the river.

Seven remaining acres in the river are suitable for seed-only reef construction, and these are a high priority for seeding in spring or summer of 2020. Because this will bring the total reef construction in the river to 358 acres, higher than the 343-acre minimum, partners will likely declare the river initially restored in 2020.

Little Choptank River Restoration Blueprint Goal: 440 acres

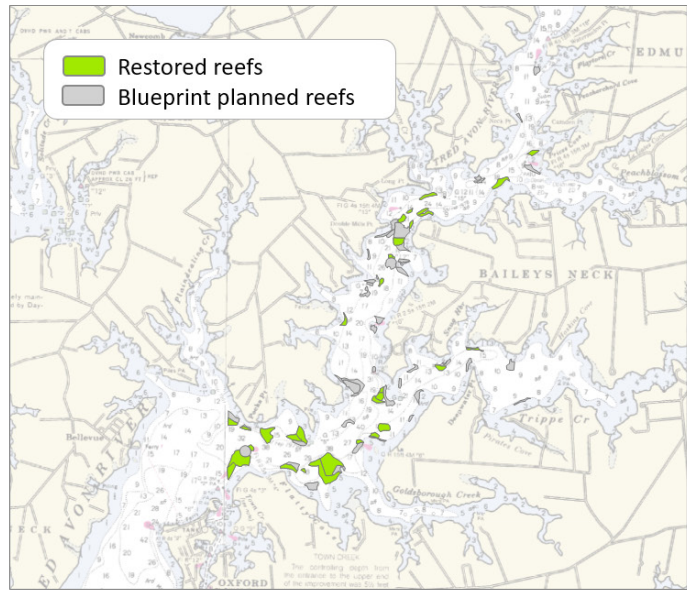
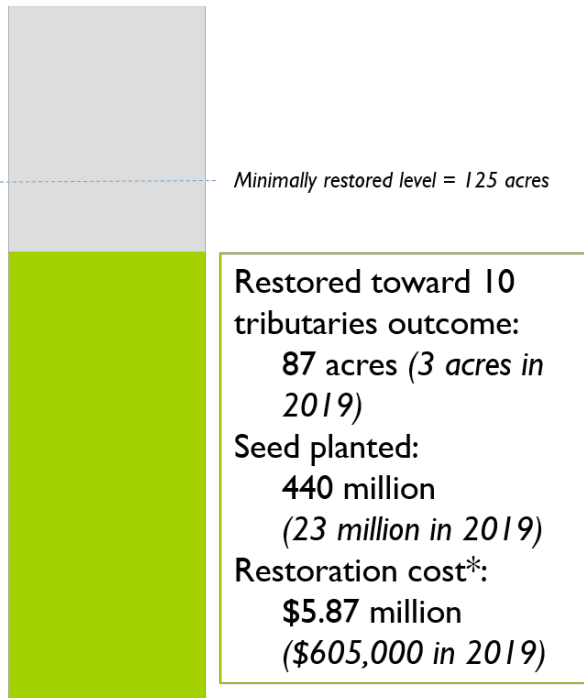


*Reef construction only. Associated costs such as benthic surveys, oyster population surveys, planning, permitting, and monitoring are not reflected. Restoration cost per acre varies due to factors including material type, reef configuration, hydrologic factors, agency and stakeholder preferences, and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

The Tred Avon River Restoration Blueprint (available via https://www.chesapeakebay.net/who/publications-archive/maryland_and_virginia_oyster_restoration_interagency_teams) set 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 50% (125 acres) are restored. To date, 87 acres have been restored. Partners have planted approximately 440 million seed oysters into the River. Based on additional prerestoration surveys and concerns about navigational clearance, partners are no longer planning to construct reefs on 12.6 acres that were originally slated for restoration in the Blueprint.

USACE plans to construct approximately 40 more acres of reefs. Construction would take place in December 2020 at the earliest. An additional 6 acres are suitable for restoring by planting only oyster seed ('seed-only reefs'); these are high priority for seeding in 2020.

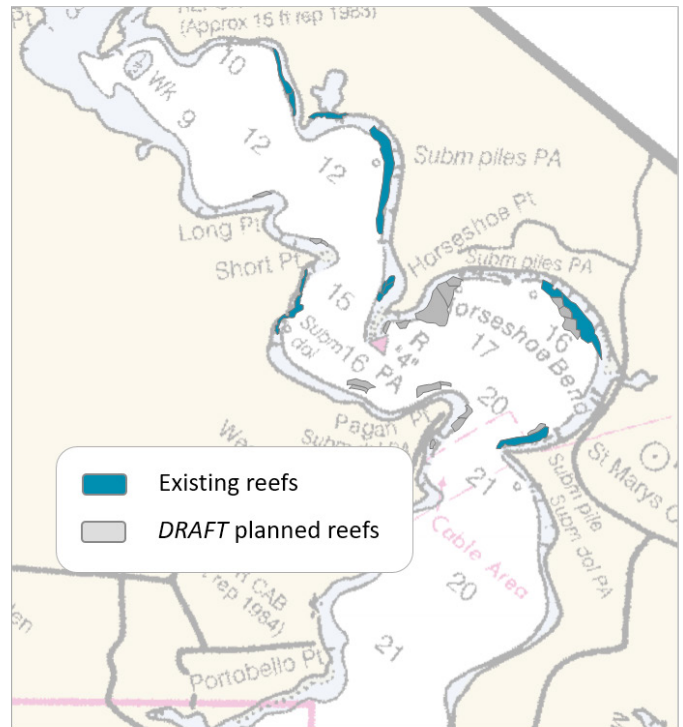
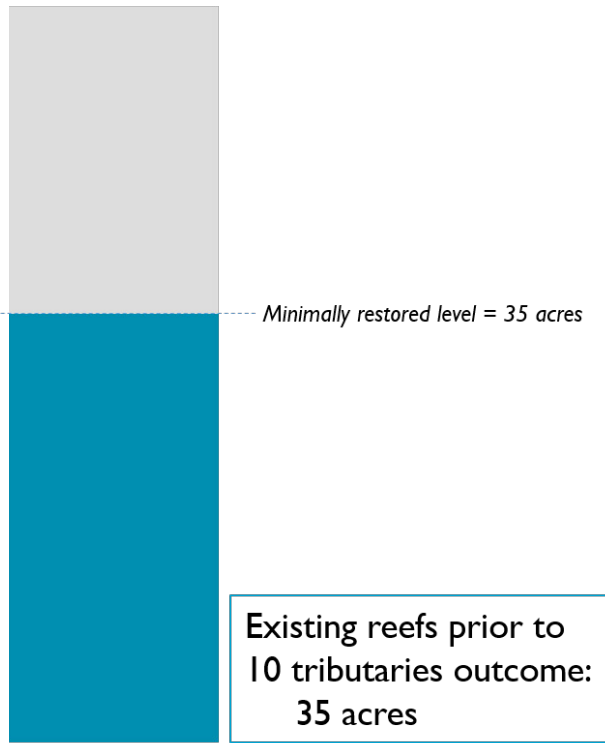
Tred Avon River Restoration Blueprint Goal: 147 acres



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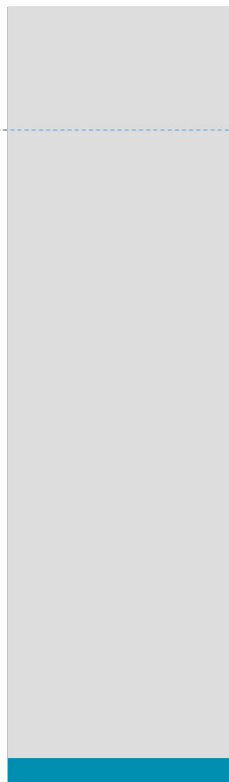
The upper St. Mary's River is the fourth tributary in Maryland selected for large-scale oyster restoration. The Workgroup has developed a draft Restoration Blueprint, which went out for public comment through the Maryland Oyster Advisory Commission and is also being reviewed by a group of scientific and community consultants. The Blueprint establishes a draft goal of restoring 60 acres of reefs in the river. DNR has applied for a permit to construct just under 9 acres of substrate + seed reefs. For these, a substrate base will be placed prior to adding hatchery-produced seed oysters. An additional 16 acres are suitable for restoring by planting only oyster seed ("seed-only reefs"). These 16 acres are a high priority for planting in 2020.

Upper St. Mary's River Restoration Blueprint DRAFT Goal: 60 acres

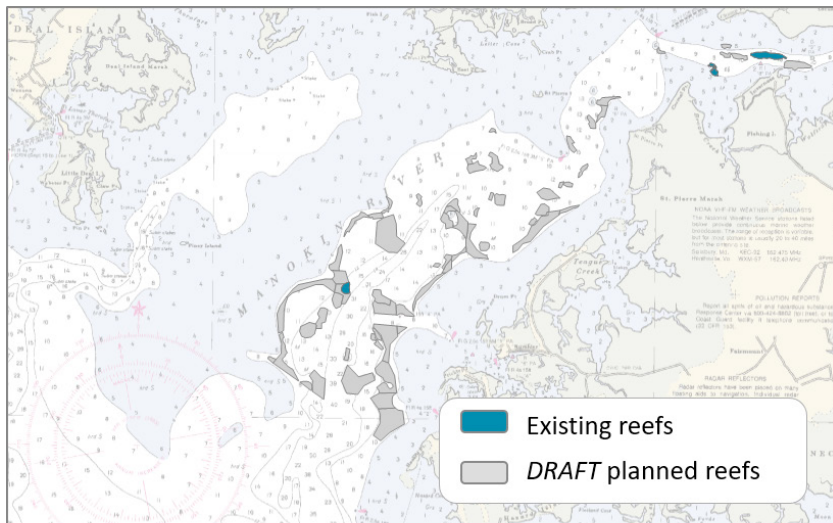


The Manokin River is the fifth tributary in Maryland selected for large-scale oyster restoration. The workgroup is in the process of developing a draft Restoration Blueprint, which will be reviewed by the Maryland Oyster Advisory Commission and a group of scientific and community consultants. The Blueprint establishes a draft goal of restoring 441 acres of reefs in the river. This goal is likely to change based on final prerestoration sonar and oyster population surveys in the river. Oyster plantings may start as early as summer 2020 on areas that require only the addition of hatchery-produced oyster seed (‘seed-only reefs’).

Manokin River Restoration Blueprint DRAFT Goal: 441 acres



Minimally restored level = 401 acres



Existing reefs prior to 10 tributaries outcome: 20 acres
(draft number; may change with additional surveys)

Factors Influencing Performance

Many factors may influence the successful completion of the 10 tributaries outcome. These include water quality, oyster disease, fluctuations in natural oyster recruitment, fluctuations in hatchery production, availability of suitable reef-building substrate, and poaching. Oyster restoration can succeed in the Maryland waters of the Chesapeake Bay; this has been validated by past successful oyster restoration efforts in Harris Creek and the Little Choptank River. These serve as evidence that oyster populations can prosper in the Chesapeake Bay, whether naturally or due to restoration in sanctuaries. Recent declining trends in disease mortality rates may increase on-reef survival and sustainability of restoration efforts.

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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