



Larry Hogan, Governor
Boyd Rutherford, Lt. Governor
Jeannie Haddaway-Riccio, Secretary

December 1, 2019

The Honorable Paul G. Pinsky
Education, Health and Environmental Affairs Committee
2 West Senate Office Building
Annapolis, Maryland 21401

The Honorable Kumar P. Barve
Environment and Transportation Committee
251 House Office Building
Annapolis, Maryland 21401

Re: Submission of Progress report on the Five Large-Scale Oyster Restoration Sanctuaries
Agency: Department of Natural Resources
Report Authority: SB 448, Chapter 754, Section 3a and HB 298, Chapter 17, Section 3a (MSAR 12110)

Dear Chairs:

In accordance with SB 448, Chapter 754, Section 3 and HB 298, Chapter 17, Section 3 from 2019 the Department of Natural Resources hereby submits our progress report on the five large-scale oyster restoration sanctuaries.

If you have any questions about this submission, please do not hesitate to contact James W. McKittrick, Director, Legislative and Constituent Services at 410-260-8112 or jamesw.mckittrick@maryland.gov.

Sincerely,

Jeannie Haddaway-Riccio
Secretary

enclosure

cc: Sarah Albert, Legislative Library (5 hard copies)



Progress Report on the Five Large-scale Oyster Restoration Sanctuaries

Chapters 17 and 754 of the 2019 Laws of Maryland

December 1, 2019
MSAR #12110

Submitted by:
Jeannie Haddaway-Riccio
Secretary, Maryland Department of Natural Resources

Submitted to:
Senate Education, Health & Environmental Affairs Committee
Paul Pinsky, Chair

House Environment and Transportation Committee
Kumar P. Barve, Chair

Chapters 17 and 754 of 2019 (House Bill 298 and Senate Bill 448) codifies the boundaries of the five large-scale restoration sanctuaries (Harris Creek, Little Choptank River, Tred Avon River, Upper St. Mary’s River, and Manokin River sanctuaries) in statute. These five sanctuaries are being restored as part of the 2014 Chesapeake Bay Watershed Agreement. The statute also requires the department to develop and implement restoration plans for these five sanctuaries, and report restoration progress to the Senate Education, Health, and Environmental Affairs Committee and the House Environment and Transportation Committee.

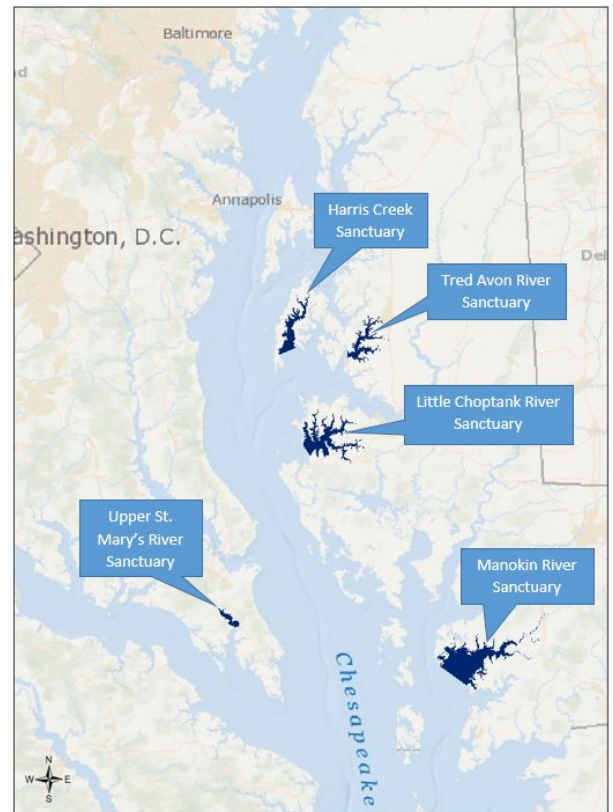
Background

The 2014 Chesapeake Bay Watershed Agreement committed to “Restore native oyster habitat and populations in 10 [5 in Maryland and 5 in Virginia] tributaries by 2025”. The five Maryland tributaries are:

- Harris Creek Sanctuary
- Little Choptank River Sanctuary
- Tred Avon River Sanctuary
- Upper St. Mary’s River Sanctuary
- Manokin River Sanctuary

For each of these oyster sanctuaries, a restoration plan has been, or will be developed with the goal to restore a minimum of 50% of the currently restorable oyster habitat constituting of a minimum of 8% of historic oyster habitat. This goal was established within the framework of the Chesapeake Bay Agreement. The restored reefs within these sanctuaries are to have:

- a minimum oyster density of 15 oysters per square meter with a target of 50 oysters per square meter,
- a minimum oyster biomass of 15 grams of dry weight per square meter with a target biomass of 50 grams of dry weight per square meter,
- a minimum of at least 2 age classes of oysters, and
- at least 30% of the area of each reef will meet the above requirements.



Development and Implementation of Restoration Plans Status in 2019

This progress report describes the progress on developing and implementing restoration plans for Harris Creek, Little Choptank River, Tred Avon River, Upper St. Mary’s River, and Manokin River oyster sanctuaries in 2019.

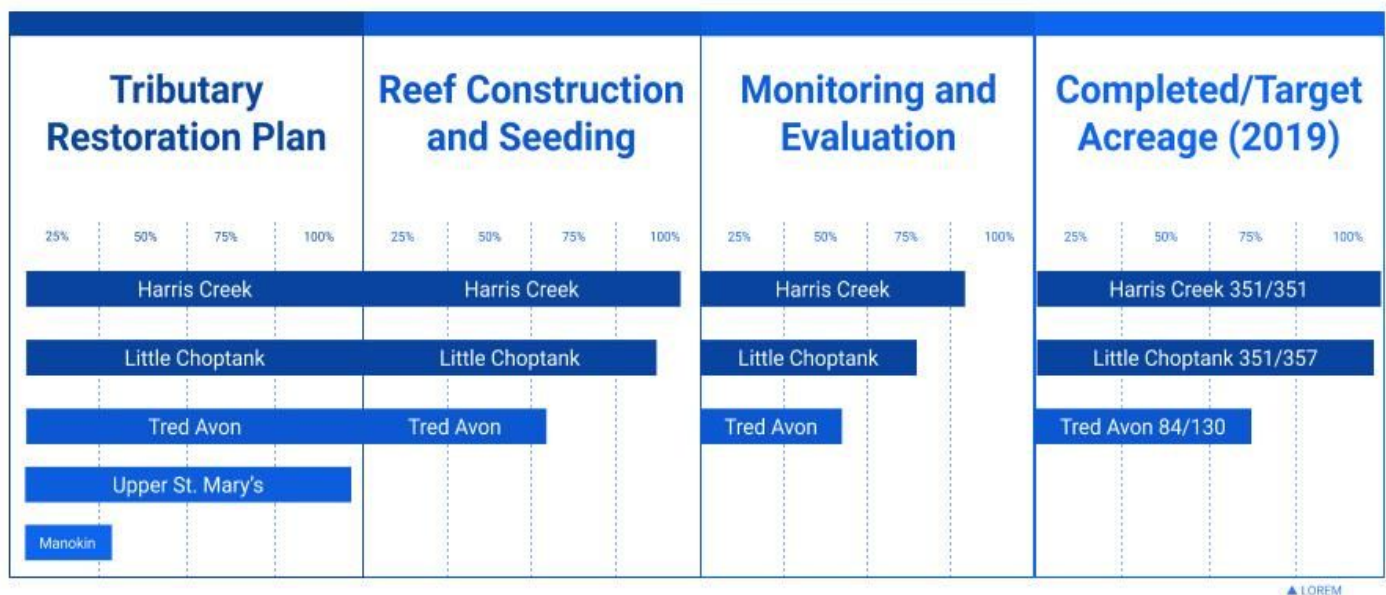
Since 2011, restoration work has been ongoing and initial restoration has been completed on a total of 784.5 acres. Initial restoration has been conducted using one of two methods: either by planting a substrate base followed by planting hatchery produced spat-on-shell (called substrate and seed reefs), or by planting spat-on-shell directly onto suitable remnant reefs (called seed-only reefs)¹. Each reef is slated to receive

¹ Two other reefs designations are premet and control. The premet reefs had the required density and biomass when surveyed prior to the commencement of restoration effort and thus did not require any restoration. Control reefs are reefs left unrestored (untreated) to serve as comparisons to the restored reefs.

approximately 4 to 6 million spat-on-shell per acre during the initial restoration phase. Three years after reefs have initial restoration conducted, they are monitored. If monitoring shows that reefs have projected or lower than projected oyster density and biomass, they will receive the planned second spat-on-shell planting. If monitoring shows that reefs are faring better than projected, they will not require the second spat-on-shell planting. The second spat-on-shell planting is approximately 1 to 3 million spat-on-shell per acre.

The five sanctuaries are in various stages of restoration as shown below. Three sanctuaries have tributary restoration plans completed (Harris Creek, Little Choptank River, and Tred Avon River), and restoration tributary plans are being developed for the remaining two sanctuaries (Upper St. Mary's River and Manokin River). Initial restoration has been completed for one sanctuary (Harris Creek), and is ongoing for two sanctuaries (Little Choptank River and Tred Avon River).

Oyster Reef Restoration Progress Dashboard

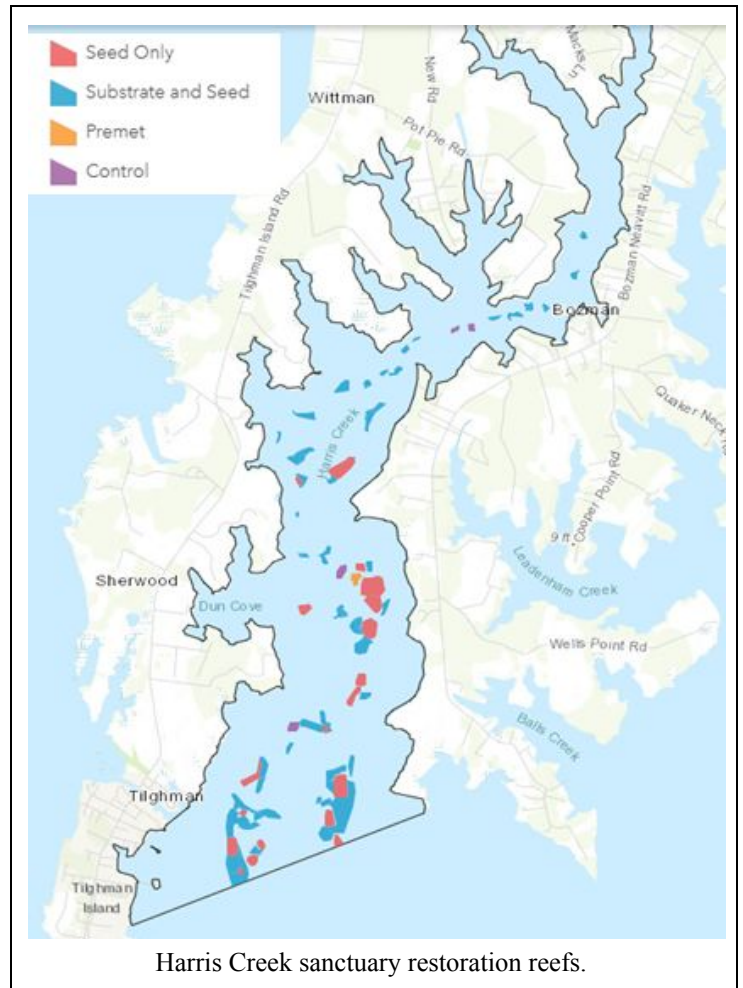


In 2019, restoration activities decreased as compared to previous years. This was due to low hatchery larvae production and low salinity earlier in the year, which can contribute to increased mortality and decreased reproduction. The hatchery was impacted by 2018-2019 historic rainfall levels that lowered salinity baywide causing broodstock oysters in the hatchery to not produce viable larvae. Natural oyster recruitment baywide was also affected by the lowered salinity. The Annual Fall Oyster Dredge Survey reported a Spatfall Index of 15.0 spat per bushel in 2018, well below the 34-year average value of 39.8 spat per bushel². All 2019 planned restoration not completed will be completed in 2020. Given historic hatchery production levels, it is feasible that all 2019 and 2020 planned restoration will be completed in 2020 with no long-term impact on the oyster restoration program. Maryland is on track to meet its 2025 goals.

² dnr.maryland.gov/fisheries/Pages/shellfish-monitoring/reports.aspx

Harris Creek Sanctuary Status Update

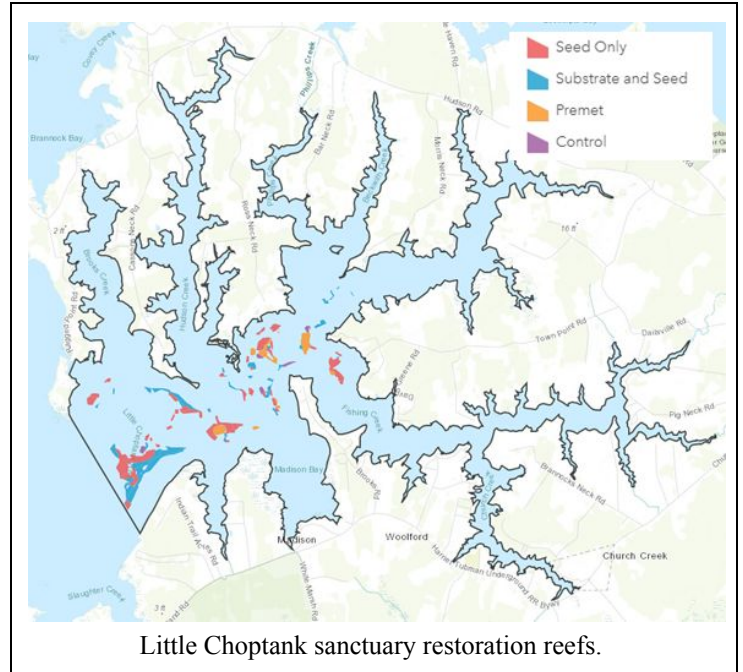
The Harris Creek oyster restoration tributary plan was developed by the Maryland Interagency Oyster Restoration Workgroup³ in January 2013. In 2015, initial restoration was completed with 350.9 acres or 58.5% of currently restorable oyster habitat restored. In 2018, all monitoring three years after initial restoration was completed. In 2019, the final secondary spat-on-shell planting restoration (20.3 acres) was planned. Due to the low hatchery production and adverse environmental conditions, this will occur in 2020, completing all planned restoration in Harris Creek. Continual monitoring will occur on all reefs according to the three-year and six-year monitoring schedule. So far, at three year monitoring (2015-2017), 98% of reefs met the minimum threshold success criteria for oyster density and biomass in Harris Creek. Harris Creek is currently the largest oyster restoration project known in the world.



³ The Maryland Interagency Workgroup consists of Maryland Department of Natural Resources, U.S. Army Corp of Engineers, National Oceanic and Atmospheric Administration, and Oyster Recovery Partnership.

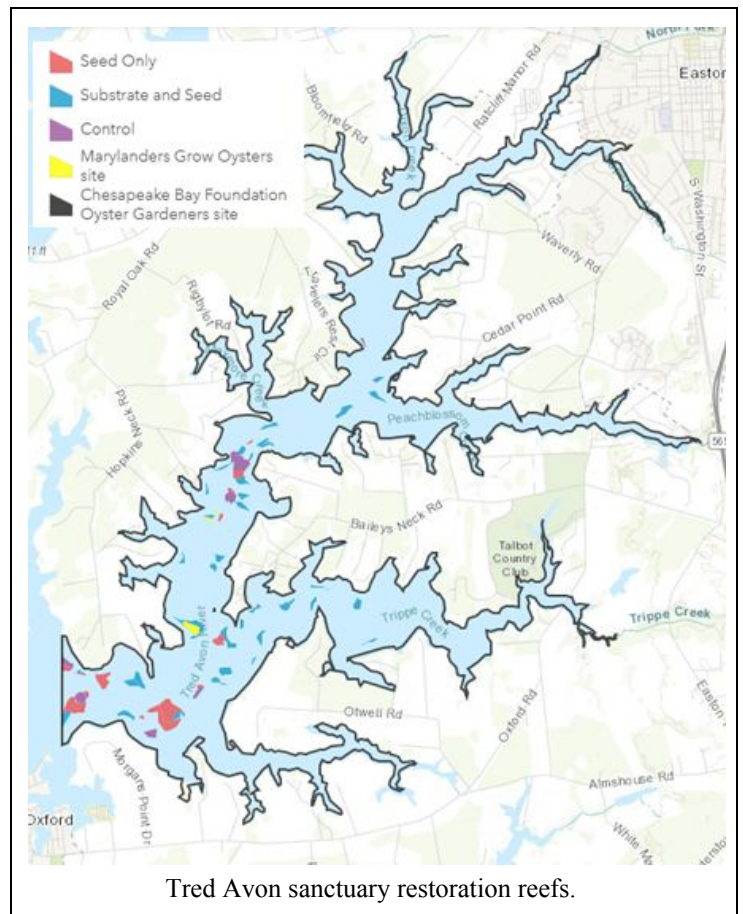
Little Choptank River Sanctuary Status Update

The Little Choptank oyster restoration tributary plan was developed by the Maryland Interagency Oyster Restoration Workgroup in February 2015. A total of 357.8 acres or 52.2% of currently restorable oyster habitat is planned to be restored. To date 351.1 acres are initially restored. The remaining 6.68 acres of initial restoration will be completed in the spring of 2020. Monitoring and planning for the second spat-on-shell restoration planting is ongoing.



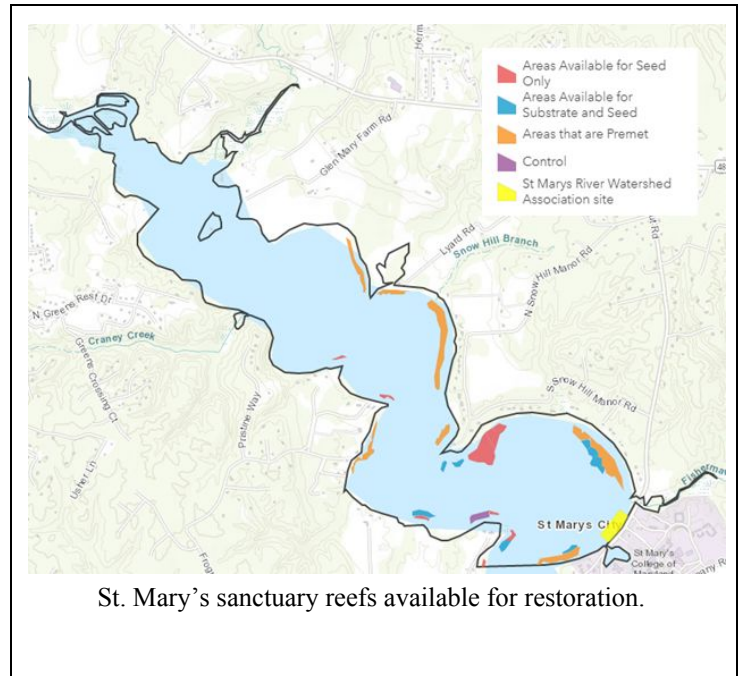
Tred Avon River Sanctuary Status Update

The Tred Avon oyster restoration tributary plan was developed by the Maryland Interagency Oyster Restoration Workgroup in April 2015. A total of 130 acres or 51.7% of currently restorable oyster habitat is planned to be restored. To date 84 acres are initially restored. There are 39 acres remaining to be constructed with substrate by the U.S. Army Corps of Engineers, pending federal funding. The Department of Natural Resources will seed the 39 acres after construction. An additional 6 acres of seed-only restoration will be completed in 2020. All initial restoration is slated to be completed by 2021. Monitoring and the planned second spat-on-shell restoration planting is ongoing.



Upper St. Mary's River Sanctuary Status Update

The Upper St. Mary's oyster restoration tributary plan was drafted by the Maryland Interagency Oyster Restoration Workgroup in 2019, and is in the final review phase. This plan is slated to be finalized by July 2020. The oyster sanctuary has 69.8 acres of currently restorable oyster habitat available for restoration. There are 34.8 acres that are classified as premet (meet the oyster density and biomass targets and do not require initial restoration). There are 15.9 acres that are suitable for seed-only restoration, and 9.7 acres that are suitable for substrate and seed restoration. Initial restoration is anticipated to begin in spring 2020. The permit for in-water construction of substrate reefs was submitted to Maryland Department of the Environment and is currently pending.



Manokin River Sanctuary Status Update

The Manokin River oyster sanctuary was officially accepted by the Chesapeake Bay Program's Sustainable Fisheries Goal Implementation Team in June 2019 as the fifth tributary in Maryland for large-scale oyster restoration. The Maryland Interagency Oyster Restoration Workgroup, in consultation with the Oyster Advisory Commission and local stakeholders, is developing a restoration plan. This plan is slated to be finalized by July 2020. Preliminarily, there are 584 acres of currently restorable oyster habitat in the sanctuary. A pre-construction bottom groundtruthing survey is ongoing to determine what type of restoration is suitable for each reef (seed-only or substrate and seed restoration). A minimum of 401 acres will be restored. Seed-only restoration is anticipated to start in 2020.

