BIENNIAL STRATEGY REVIEW SYSTEM
Chesapeake Bay Program

Narrative Analysis

OYSTER OUTCOME – NOVEMBER 14, 2019

The narrative analysis summarizes the findings of the logic and action plan and serves as the bridge between the logic and action plan and the quarterly progress meeting presentation. Based on what you learned over the past two years from your successes and challenges, you will describe whether the partnership should make adaptations or change course.

Use your completed pre-quarterly logic and action plan to answer the questions below. After the quarterly progress meeting, your responses to these questions will guide your updates to your logic and action plan. Additional guidance can be found on ChesapeakeDecisions.

1. Examine your red/yellow/green analysis of your management actions. What lessons have you learned over the past two years of implementation?

Over the past two years of conducting large-scale oyster restoration in Chesapeake Bay, we have demonstrated that the tributary-scale approach to restoration works. Lafayette River was recently completed in 2018 and Harris Creek restoration was completed in 2015 with 3-years post-construction monitoring finished, showing that it is possible to restore sustaining oyster populations at a tributary level, evaluated based on established success metrics. Through monitoring and research, we are now starting to see the multiple benefits returned from healthy oyster reef systems in Harris Creek, including water quality improvements through denitrification, projected increases in blue crab harvest, local community economic benefits, thriving oyster reef ecosystems and associated biotic communities, and the gradual return of an iconic Chesapeake species. Through a suite of research projects on oyster reef ecosystem services (ORES) funded by NOAA, we have a better understanding of the denitrification and economic benefits derived from healthy oyster reefs. Emphasis on sharing oyster restoration success stories and communicating ecosystem service benefits to the public continues to be a priority for this outcome.

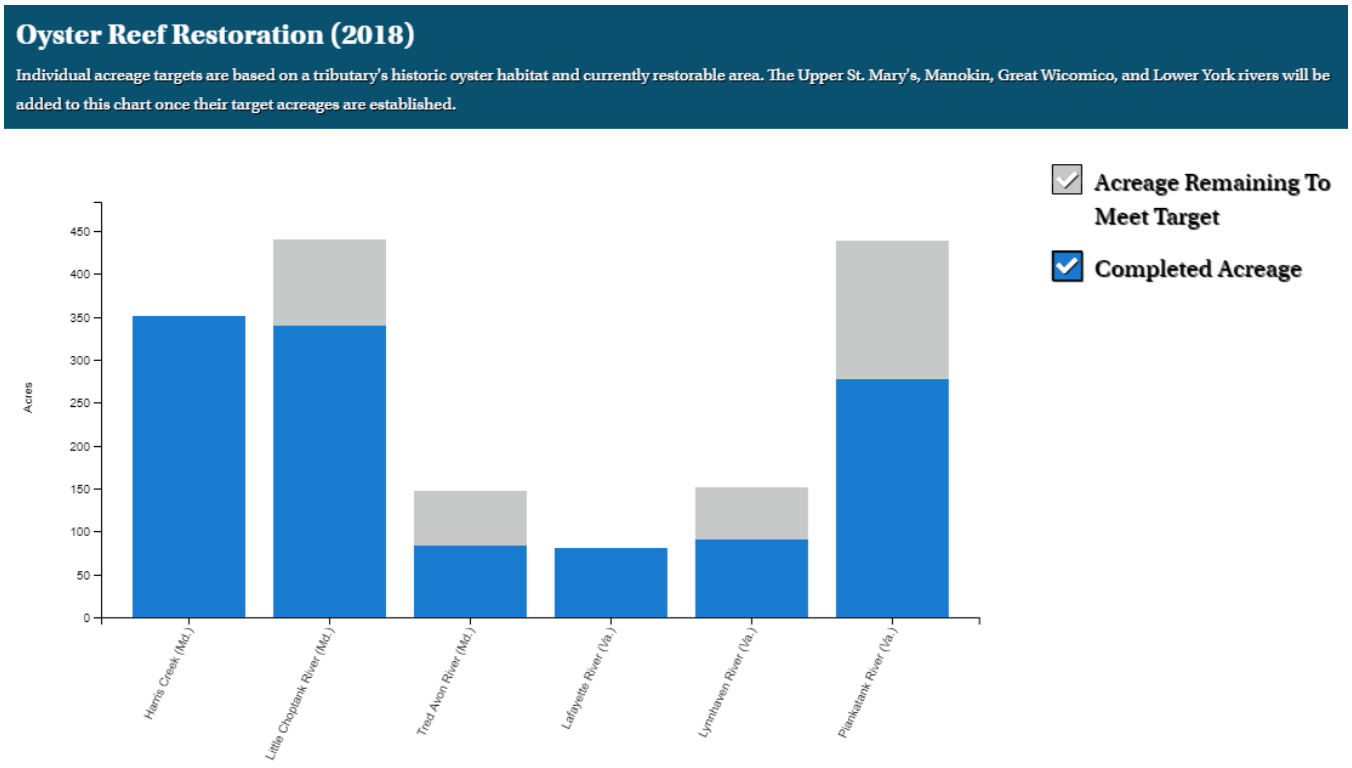
We also observed that the cost of large-scale oyster restoration is expensive, including long-term costs from monitoring at 3- and 6-year intervals post-construction. To begin addressing the high cost of future monitoring from all 10 tributaries, a GIT funded project was conducted by Oyster Recovery Partnership (ORP) to recommend cost-effective monitoring techniques. The ORP research recommendations are now being implemented and are helping to reduce costs. Monitoring with detailed geospatial mapping techniques has also shown that alternative substrates are effective, with stone substrate outperforming others. Having an array of projects with various scales lined up helps to ensure progress continues incrementally when large amounts of funding are not available.

The role of environmental conditions in 2018-2019 with high freshwater flows and lower than average salinity showed that despite successes in restoring oysters, the environment plays a major role in progress toward the outcome. There were significant delays in spat production from Horn Point Laboratory that delayed some tributary plantings in the summer 2019 season. We learned that

changing climate conditions play an important role too, as oysters are sessile organisms (not mobile) and therefore subject to the surrounding water quality conditions. Both Maryland and Virginia have unique needs and environmental factors influencing restoration success (e.g. Virginia natural spatset is greater than Maryland).

Maryland and Virginia state agencies also have a major role in success, and continued commitment from both states is absolutely essential to achieving this outcome. For example, reductions in funding from US Army Corps of Engineers, a major partner in oyster restoration, has contributed to a decreased rate of progress. This outcome will not be reached without significant increases in financial resources needed to meet targets. Specifically, an estimated $20 million is needed for both Maryland and Virginia to continue construction in all selected tributaries. Cross-jurisdictional cooperation and continued communication among project partners remains critical going forward.

2. Regardless of how successful your short-term progress has been over the past two years, indicate whether we are making progress at a rate that is necessary to achieve the outcome you are working toward. The example graph below illustrates this concept.



Rate of restoration progress since the 2014 Agreement has varied in Maryland and in Virginia.

In Maryland, 773 acres of oyster reefs in the internationally recognized Choptank Complex—which includes Harris Creek, the Little Choptank River and the Tred Avon River—are considered complete. While most of these reefs have undergone restoration as part of our progress toward this outcome, others are naturally occurring and already meet our criteria for a restored reef. According to a June 2019 restoration update, 164 acres of reefs remain to be restored, including approximately 63 acres in the Tred Avon and 101 acres in the Little Choptank. Although Harris Creek was completed in

2015, second year class seedings were also planted on Harris Creek reefs starting in 2017. Target acres are not yet established in the Manokin and St. Mary's Rivers.

In Virginia, 510 acres of oyster reefs are considered complete. Some of these reefs have undergone restoration as part of our progress toward this outcome, while others have undergone previous restoration work or, due to naturally occurring reefs and oysters, already meet our criteria for a restored reef. According to a February 2019 restoration update, planned restoration work was finished in the Lafayette River in 2018, marking it as the first river in Virginia to be considered complete under the Chesapeake Bay Watershed Agreement. Approximately 61 acres remain to be restored in the Lynnhaven River. The first 60 acres of 160 in the Piankatank River was completed in 2019 as well. Restoration targets for the Great Wicomico and Lower York are under development.

3. What scientific, fiscal and policy-related developments will influence your work over the next two years?

Over the next two years, we anticipate several scientific developments that will impact the ability to meet the oyster outcome. The Oyster Best Management Practice (BMP) Expert Panel will be releasing a report recommending estimates for oyster denitrification by restored reefs. We expect that these results will be incorporated into the Phase III Watershed Implementation Plans (WIPs) for Maryland and Virginia, leading to more incentive for oyster restoration. Monitoring results will continue to inform progress toward this outcome, as improvements in techniques continue.

The major factor influencing success toward the oyster outcome is funding. The Chesapeake Bay Program finance workgroup is considering a focus on an oyster finance strategy. As both states' funding varies, the ability to continue construction will be directly impacted. With both states still requiring an estimated $20 million to complete the 10 tributaries by 2025, finance is the major consideration going forward in projecting whether or not we can achieve the outcome.

4. Based on your response to the questions above, how will your work change over the next two years?

We now have sufficient technical information to plan and make accurate predictions for what is needed to complete restoration, so the next two years of oyster restoration will include much more of an emphasis on implementation and monitoring. Over the next two years, we need to build oyster reefs more rapidly. Much of the planning effort is already complete, and blueprint development continues for tributaries recently selected (St. Mary's and Manokin in Maryland, Great Wicomico and Lower York in Virginia).

Aside from financial limitations, we are in a good position to move forward with oyster restoration. Support from the states and the watermen communities could help increase public buy-in for the investment in large-scale oyster restoration.

5. What, if any, actions can the Management Board take to help ensure success in achieving your outcome?

Financial support is greatly needed to continue making progress at the rate needed to achieve 10 restored tributaries by 2025. $20 million per state ($40 million total) is the funding gap after accounting for all agencies' contributions, and a finance strategy should be in place to address the gap.

Management Board can help to maximize the use of oysters as BMPs crediting toward the TMDL, to incentivize increased oyster restoration. With the upcoming release of recommendations by the BMP Expert Panel, including estimated denitrification benefits from restored reefs, we urge the Chesapeake Bay Program to look for opportunities to support implementation of crediting oyster restoration BMPs.