BIENNIAL STRATEGY REVIEW SYSTEM
Chesapeake Bay Program

Narrative Analysis

SUBMERGED AQUATIC VEGETATION, NOV 14TH, 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?**

SAV recovery in Chesapeake Bay is dependent on a number of factors, but it is first and foremost reliant on attainment of Chesapeake Bay Program Water Quality goals – particularly as they pertain to water clarity standards. Although water quality goal attainment is, for all intent and purpose, out of the hands of the SAV Workgroup or Vital Habitats Goal Implementation Team, the SAV Workgroup can influence SAV restoration and recovery through a variety of other actions, which have been defined in our Management Strategy and Action Plan.

With that said, it's important to look at SAV restoration progress from two different perspectives: 1) actual progress towards the restoration goal in acres of SAV attained and 2) progress towards completing the actions defined in our action plan. As mentioned above, the primary barrier to meeting our restoration target is water clarity. The primary barrier to completing all actions in our two-year work plan, on the other hand, was time availability.

During the implementation of our 2018-2019 Action Plan, we learned three over-arching lessons:

1. N, P, and TSS load reductions have had a positive impact on SAV cover and abundance, but may not be sufficient in light of long-term climate change impacts.

2. Additional barriers to SAV recovery – in the form of shallow water use conflicts - are becoming more prevalent as SAV expands with improvements in water quality. Shallow water use conflicts include aquaculture, shellfish harvesting, living shoreline installations, maintenance dredging, and SAV harvesting for navigation.

3. The SAV Workgroup is fortunate in having a diverse group of individuals from academic institutions, federal and state agencies, and non-profit organizations. Membership expertise is also varied, ranging from SAV biology, ecology, restoration, and monitoring, to management. Unfortunately however, the majority of the SAV Workgroup members don't have the time to serve in more than an advisory capacity, which limits their actual and measurable contribution to the workgroup. Aside from the Chair

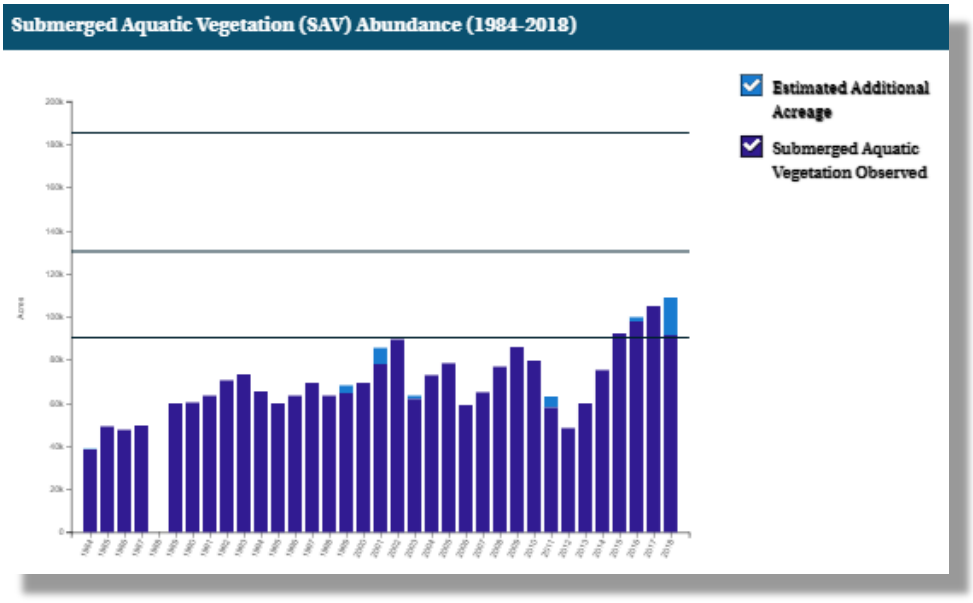
and Vice-Chair of the Workgroup, both of whom have "SAV Workgroup Leadership" defined in their state employment position descriptions (MS-22), most SAV Workgroup members see their role in the Workgroup as a "Volunteer" position with little incentive for true involvement. This translates to a multitude of opinions about what needs to get done but a dearth of people to do it. Consequently, while the SAV Workgroup has made tremendous progress toward completing nearly all actions defined in the 2018-2019 Action Plan, there is an identified need to scale back for the next iteration. Several actions are considered on-going or continuous, so will be included, but new items or actions will be more limited in number and scope.

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.**

The 2017 SAV Restoration Target (90,000 acres) was exceeded two years early (in 2015) and has exceeded the target for the last four years (2015-2018). Management actions in the form of N and P reductions were shown to facilitate this SAV recovery (Lefcheck et al. 2018) and we are on track to achieve our next SAV Restoration Target of 130,000 acres by 2025 *if we continue on the current overall trajectory*.

With that said, our capacity to continue on the current overall trajectory is not guaranteed. Extreme and/or prolonged weather events and bay conditions associated with a changing climate may impact SAV restoration goal attainment. 2018 was the highest flow year on record, according to the USGS. The extreme and prolonged precipitation, which caused Bay-wide salinity changes and increased nutrient and sediment loading, impacted SAV throughout the Bay in 2019. There was a near total loss of eelgrass in the polyhaline as well as substantial widgeongrass loss in much of the poly and mesohaline. Although acreage data is not yet available, it is likely that 2019 SAV extent will be below the 2017 target of 90,000 acres.

If 2018 proves to be an anomaly, SAV recovery will likely resume and continue along the established trajectory in 2020. If more extreme conditions become the new norm, however, increased mitigation efforts may become necessary.



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

To reach our SAV restoration goal, the most important thing is to continue implementation of BMPs that reduce N/P/TSS to the Bay. Any fiscal or policy-related development that impacts our capacity for load reduction will impact SAV recovery, especially in a Bay that's more and more influenced by direct (extreme storms, higher water temperatures, increased precipitation) and indirect (shoreline hardening, associated diseases and microbes, invasive species) climate change impacts.

With improved water clarity, all other efforts, such as active restoration, will serve to accelerate recovery. Without improved water quality and clarity, other direct restoration efforts will help but will have reduced rates of success.

Additional barriers to SAV recovery – in the form of shallow water use conflicts - are becoming more prevalent as SAV expands with improvements in water quality. Shallow water use conflicts include aquaculture, shellfish harvesting, living shoreline installations, maintenance dredging, and SAV harvesting for navigation.

Furthermore, any fiscal or policy-related developments that affect the Bay Program or Bay Program funding will obviously influence our work over the next two years. For example, the SAV Monitoring Program is highly dependent on Bay Program funding. If the monitoring program funding were reduced and SAV monitoring was interrupted, there would be clear implications to science and research, but there would also be policy and regulatory implications. Aquaculture, shoreline alteration, and dredging permits are just some of the nearshore activities with permitting reliant on the Bay-wide SAV monitoring program.

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

The SAV Workgroup has completed or is on track to complete the majority of the actions established in the 2018-2019 work plan. The primary obstacle to completing all actions was insufficient time and staff, although most tasks were completed regardless. The next iteration of the work plan (2020-2021) will focus on implementing the programs developed in the 2018-2019 work plan and completing the projects recently begun. New and continued items will include but are not limited to the following:

1. **Run STAC-funded Workshop on Integration of Satellite Data into CBP SAV Monitoring Program**. Satellite integration into the SAV monitoring program is being explored to increase program efficiency and reduce costs. This multi-session workshop will take place between October, 2019 and April, 2020. The workshop report will be complete by ~August 2020.

2. **Develop SAV Restoration Protocol and Technical Guidance Document**. With improving water clarity trends, direct SAV restoration is now a more plausible option to accelerate SAV recovery in the Bay. This is a GIT-funded project that will go out for bid soon.

3. **Implement Chesapeake Bay SAV Watchers Monitoring and Certification Program**. This program is designed to increase SAV data collection throughout the Bay, but also provide outreach opportunities for watershed organizations. SAV monitoring and trainer certification began in summer 2019 and will continue in perpetuity, as will recruitment of additional watershed organizations.

4. **Review GIT-funded report on statutes and regulations affecting SAV in Chesapeake Bay**. This report was written by the Chesapeake Legal Alliance and identifies current statutes, regulations, and policies that protect and affect Chesapeake Bay SAV. The report identifies areas where changes or improvements to existing regulations may be considered. The SAV Workgroup will review and respond to recommendations to best protect Chesapeake Bay SAV as it recovers.

5. **Update and Prioritize research agenda**. Some identified science needs include: 1. Determine the impact of the expanding aquaculture and clam harvesting industry on SAV, 2. Determine the difference in habitat requirements for existing SAV beds and recovering SAV beds, 3. Determine the potential for widgeongrass to fully replace eelgrass and its ecosystem services in the polyhaline regions where eelgrass has been lost, and 4. Put further effort into determining the life history of the various freshwater species of SAV that we know relatively little about.

6. **Continue work to establish CB SAV Sentinel Sites**. SAV sentinel sites will be the third tier in a hierarchical monitoring approach for Chesapeake Bay SAV, allowing improved analytical efficiency and forecasting capabilities. A draft sentinel site monitoring protocol has been drafted but we need to fully establish program and identify funding for implementation.

7**.** SAV Monitoring and Restoration – both will be included in next iteration as continuous efforts.

8. Co-host International Seagrass Biology Workshop and World Seagrass Conference in August 2020. Several members of the SAV Workgroup are involved in this effort.

9. Continue working with CBP Communications Workgroup on SAV Communications Strategy

10. Continue work to develop and establish SAV Restoration Finance Strategy

11. Continue management of invasive species that impact SAV, primarily water chestnut and mute swans

12. Promote use of SAV Synthesis Working Group segment descriptions for WIP/BMP/local management decisions. SAV Syn segment descriptions will live on the CBP Data dashboard once complete in Nov. 2019.

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

1. The SAV Workgroup recently completed a review of policies, statutes, and regulations that affect SAV in the Chesapeake Bay (via GIT funding). The review was completed by the Chesapeake Legal Alliance, who also made recommendations on how to improve SAV protection in the Bay. The SAV Workgroup will provide a summary of the review and its recommendations to the MB for the MB to consider.

2. Continue to support efforts to reduce nutrient and sediment pollution to the Bay. The effects of climate change combined with the impacts of a growing human and animal population in the watershed will make it necessary to increase our efforts in order to restore SAV to historic levels.

3. Consider the implications of competing goals related to shallow water uses. Aquaculture is expanding throughout the poly- and mesohaline regions of the Bay, primarily in shallow water where SAV would otherwise have the opportunity to recover. Likewise, additional shallow water use conflicts threaten SAV recovery, including: clam harvesting, living shorelines, maintenance dredging, and SAV removal for navigation.