Quarterly Progress Meeting Outcome Review Summary - SAV Outcome

Looking Back: Learning from the Last Two Years

<u>Celebrate our Accomplishments & Best Practices</u>

- Based on the red/yellow/green analysis of the actions described in your Logic & Action Plan, what has been <u>successful</u> since your last QPM and what do you want to continue in your work/action plan for the coming two years?

    - SAV Workgroup Recent Accomplishments
        i. GIT-funded SAV/Climate Change Modeling project
        ii. STAC rising temp workshop
        iii. SAV Restoration Guide dissemination
        iv. SAV Sentinel Site protocol development
        v. SAV Monitoring Program webpages on Chesapeakebay.net

    - SAV Workgroup Continuing Efforts
        i. Continued engagement of Workgroup
        ii. Promote the use of BMPs that benefit SAV
        iii. Coordination of jurisdictions to discuss regulatory recommendations for SAV protection
        iv. Potential opportunities to ensure SAV restoration activities/SAV nursery network
        v. Identify science needs and data gaps
        vi. Continued support for annual Bay-wide aerial survey
        vii. SAV Watchers program
        viii. SAV Sentinel Site program
        ix. SAV social marketing campaign

- What you have <u>learned</u> from what worked and what didn't work and how will that impact your work going forward?

    - EPA/CBP/GIT funding and STAC workshops influence our success. The results and recommendations from several projects and workshops (see list above) have addressed factors impacting our ability to achieve our outcome.

    - Long-term funding for the implementation of projects and programs at the <u>necessary scale</u> will help us address and/or identify the factors impacting our ability to achieve the SAV outcome. While existing programs and projects (Ex. SAV Watchers Program, SAV Sentinel Sites, aquatic invasive species, and direct SAV restoration) are in place, they are not at the scale or have the long-term funding necessary to address gaps or achieve our outcome.

<u>Evaluate our Progress</u>
NOTE: Your responses related to outlook and recent progress will be used to update your outcome page on <u>ChesapeakeProgress</u> and the <u>outcome status page</u>.

- Are we, as a partnership, making progress at a rate that is necessary to achieve this outcome? Would you define our **outlook** as on course, off course, uncertain, or completed? Upon what basis are you forecasting this outlook?

  o Progress in achieving the 2025 Target of the SAV outcome is **off course**. While the 2017 target was met, approximately one-third of the Bay's SAV was lost in 2018 and 2019 due to record precipitation events and subsequent declines in habitat conditions due to nutrient and sediment inputs. SAV has been recovering in recent years, but the pace of progress is too slow. The 76,462 acres of SAV mapped in 2022 is 59% of the 2025 Target (130,000 acres) and 41% of the 185,000-acre ultimate outcome.

- How would you summarize your **recent progress** toward achieving your outcome (since your last QPM)? If you don't have an indicator, would you characterize this progress as an increase, decrease, no change, or completed? (Tip: If you have an indicator and it was updated since your last QPM, use your answer to question 16 from your Analysis and Methods document.)

  o In 2022, 76,462 acres of SAV were mapped in the Chesapeake Bay. This is a 12% increase from the 2021 total of 68,091 acres.

    i. Tidal Fresh Salinity Zone: decreased from 19,245 acres to 19,185 acres.

    ii. Oligohaline Salinity Zone: decreased from 8,384 acres to 7,145 acres.

    iii. Mesohaline Salinity Zone: increased from 24,091 acres to 30,932 acres.

    iv. Polyhaline Salinity Zone: increased from 16,371 acres to 19,200 acres.

  o The 76,462 acres of SAV mapped in 2022 is 59% of the 2025 Target (130,000 acres) and 41% of the 185,000-acre ultimate outcome.

<u>Lessons Learned</u>

- If our outlook is off course, what has been the most critical influencing factor or gap that needs to be addressed to accelerate progress?

  o The most critical action for restoring SAV is to achieve the <u>Water Quality Goal</u> (reduce pollutants to achieve the water quality necessary to support the aquatic living resources of the Bay and its tributaries and to protect human health). Habitat conditions and availability are impacted by additional factors, including stressors associated with climate change. The Bay is considered at high risk for sea level rise, increased water temperatures and extreme weather events from climate change, which have and will continue to influence SAV habitat conditions and availability. To accelerate progress toward the SAV Outcome, the SAV Workgroup advocates for increased nutrient and sediment load reductions as well as management approaches and implementation of best management practices that reduce climate stressor impacts (e.g., minimize shoreline hardening/modification to allow inland migration of SAV and sediment transport as water levels increase).

- For "red" actions, what is preventing us from taking action? Are these actions still needed?

  o Capacity for implementation and both short and long-term funding prevented the SAV Workgroup from initiating and completing some actions specified in the 2022-2023 SAV Logic and Action Plan. These actions are still needed to address the factors preventing us from achieving our outcome.

- What have we learned over the past two years that we'll need to consider in the coming two years?

  - Climate change is and will continue to impact our ability to meet our Bay-wide SAV outcome. We must go above and beyond the current TMDL to ever come close to reaching the Bay-wide SAV Outcome. Response to water quality improvements and climate stressors are not uniform throughout the Chesapeake Bay. Some tributaries/segments are responding better than others and segment-specific SAV restoration targets have been met in some segments and regions even though the overall Bay-wide goal remains off-course. The 2019 SAV crash following climate-driven high-flow events and consequent nutrient and sediment loading exemplified the fact that more must be done to mitigate climate impacts.

  - CESR report - The shallow waters present an opportunity for the CBP to reduce critical uncertainties about the effects of load reductions on living resources in an area of high engagement by stakeholders who live or recreate in these areas. In these habitats, SAV responds to many variables beyond nutrient and sediment reductions, and understanding these dynamics is critical for both identifying effective management actions in the shallow waters themselves and understanding the relationships between shallow water habitats and the attainment of WQS in other habitats (e.g., deep water and deep channel DO). The CBP could put more emphasis on shallow waters, both in terms of load reductions and scientific understanding, to accelerate and better understand the attainment of Water Quality Standards and benefits to living resources.

Assessing our Efforts and Gaps

Review the factors currently identified in your Management Strategy as influencing our ability to meet our outcome by reflecting on the following questions. What influences our success or our effectiveness in meeting our outcome? What has limited our ability as a Partnership (or GIT/workgroup) to get this work done? Update your Management Strategy if anything has changed.

Factors

- Summarize here any newly identified influencing factors, and why they were added to your Management Strategy. If any factors have been deleted, are they the result of our actions, and what have we learned as a result?
  - Influencing factors in our current Management Strategy still apply (Habitat Condition and Availability; Protection of Existing and Recovering SAV; SAV Restoration Potential and Activity; SAV Research and Monitoring; Public Perception, Knowledge and Engagement)
- Prioritize and summarize here the factors best tackled as a Partnership (or GIT/workgroup), that have the greatest impact to achieve our outcome.
  - While all the factors listed above are important and will either directly or indirectly lead to SAV recovery if implemented, water quality improvements (Habitat Condition and Availability) will have the greatest impact on achieving the SAV outcome.
  - SAV Research and Monitoring allow us to track improvements and changes in SAV and address those factors impacting our ability to achieve the SAV outcome.
  - It is significantly more effective and efficient to protect existing SAV and SAV habitat than it is to restore it once lost, so Protection of Existing and Recovering SAV through regulatory action is vital.
  - Direct restoration of SAV through seeding efforts will accelerate SAV recovery as water quality continues to improve with management actions.

<u>Gaps</u>

- For those <u>high-priority factors</u> summarized above, what is getting in the way of addressing them or what gaps continue to exist despite the current efforts to address those factors?
    - While water quality improvements are occurring, they are not accelerating at a pace necessary to reach SAV recovery targets.
    - Long-term funding for the implementation of research projects and monitoring programs at the <u>necessary scale</u> will help us address and/or identify the factors impacting our ability to achieve the SAV outcome. While existing programs and projects (Ex. SAV Watchers Program, Sentinel Sites, aquatic invasive species, and direct SAV restoration) are in place, they are not at the scale or have the long-term funding necessary to address gaps or achieve our outcome.
    - Though a thorough regulatory review has been conducted, and regulatory agencies and partners have considered recommendations to enhance SAV protection, regulatory and policy changes or enhancements will take time to implement.
    - There is currently severely limited capacity to conduct direct SAV restoration. There are no SAV nurseries in the watershed, no commercial seed source for mitigation and restoration efforts, only two existing seed processing facilities, and very few trained SAV restoration practitioners.

Focusing on the Next Two Years: Actions and Needed Support

- Describe any scientific (including the impacts of climate change), fiscal, or policy-related developments that have already or may influence your work over the next two years.

    - The Comprehensive Evaluation of System Response (CESR) Report will add needed emphasis to shallow water habitats where SAV exists in the Chesapeake Bay. It is expected that the recommendations made in the CESR report will accelerate activities and efforts in shallow water habitats throughout the Bay that will yield positive results for SAV.

    - The STAC Rising Temperatures Report emphasized the impacts of climate change - specifically rising temperatures - on Chesapeake Bay and on eelgrass in the lower mesohaline and polyhaline regions of the Bay specifically. Integrating temperature challenges into our restoration plans for SAV will result in forward-thinking actions that result in more sustainable and resilient SAV populations.

    - The GIT-funded project to model climate change impacts on SAV in the Chesapeake Bay was primarily conducted to determine if SAV will ever reach restoration targets. While forecasting results are never definitive, the results of the study suggested that the current nutrient and sediment load allocations in the Chesapeake Bay TMDL are not sufficient to reach the 185,000-acre SAV restoration outcome in the face of climate change. The same study did also suggest, however, that if load reductions are enhanced, recovery progress will accelerate and come closer to the goal by 2060 than if no change is made. The results of this study may influence future TMDL load allocation standards and/or lead to an update of the SAV outcome. Further, this study highlighted the shift in dominant species in Chesapeake Bay. Where eelgrass once dominated the lower mesohaline and polyhaline, widgeongrass now dominates. This shift is a result of nutrient and sediment management as well as increasing temperatures. Widgeongrass is not as sensitive to high-temperature extremes as eelgrass and also responds more positively and rapidly to water quality improvements. The study also showed that the Bay's freshwater SAV community has responded positively to water quality improvements achieved through management actions.

- The Bipartisan Infrastructure Law (BIL) and associated funding opportunities have already led to the development of grant proposals that will have implications for SAV recovery in the Chesapeake Bay if funded. One proposal focused on capacity building for direct SAV restoration; this proposal would see the development of SAV nurseries and seed-processing facilities, a training and certification program for SAV restoration, and the development of K-12 lesson plans and outreach materials to enhance SAV stewardship. The other project proposed a common garden experiment that would exploit the concepts of facilitated migration and assisted gene flow to promote eelgrass's resilience to increasing temperatures in the Chesapeake Bay. If either of these proposals are funded, they will yield positive results and accelerate the recovery of SAV in the Chesapeake Bay.

- The SAV Workgroup recently received GIT-funding in response to a Management Board directive to evaluate BMP effectiveness and land management policies to protect SAV at the local scale from changing hydrologic conditions. This project will prioritize SAV areas for protection and influence BMP implementation and land management efforts once complete.

- Based on these developments and the learning discussed in the previous sections, summarize any <u>new actions</u> you are planning to address these gaps over the next two years.
    - CESR report - As noted above, the shallow waters present an opportunity for the CBP to reduce critical uncertainties about the effects of load reductions on living resources in an area of high engagement by stakeholders who live or recreate in these areas. In these habitats, SAV responds to many variables beyond nutrient and sediment reductions, and understanding these dynamics is critical for both identifying effective management actions in the shallow waters themselves and understanding the relationships between shallow water habitats and the attainment of Water Quality Standards in other habitats (e.g., deep water and deep channel DO). A critical need in light of this shallow water emphasis will be effective and efficient shallow water monitoring. **The SAV Workgroup will propose to expand and enhance the existing SAV Sentinel Site Program to become the CBP's Shallow Water Habitat Sentinel Site Program.** This tier-3 monitoring effort would not only monitor the impacts of climate change on the functional value of shallow water habitats throughout the Bay but also monitor the effectiveness of measures taken beyond 2025.

    - In response to the Rising Temperature STAC Workshop report and the GIT-funded modeling effort to determine the impacts of climate change on SAV goal attainment, the SAV Workgroup recognizes the inevitable loss of eelgrass and the ecosystem services that eelgrass beds provide in the lower Bay. In response, the workgroup will consider management actions that promote the resilience and sustainability of remaining eelgrass beds and promote the rapid recovery of widgeon grass where eelgrass has been lost. Further, the SAV Workgroup will identify funding and promote research that will determine the ecosystem service trade-offs of moving from an eelgrass-dominated system to a widgeon grass-dominated system, such as impacts on the economically valuable blue crab fishery.

    - The SAV Workgroup will capitalize on funding opportunities presented through BIL legislation and elsewhere to meet science needs previously identified and that will be identified in the coming months in response to this SRS exercise. First and foremost, SAV Workgroup members will work to enhance SAV restoration capacity and conduct transformational SAV habitat restoration if the two proposals submitted for the NOAA Transformational Habitat Restoration funding opportunity are funded.

- o The SAV Workgroup is currently working on a GIT-funded project that was a management board directive from last year - "Protecting Chesapeake Bay SAV Given Changing Hydrologic Conditions: Priority SAV Area Identification and Solutions Development". This project will identify high-priority SAV areas within the Chesapeake Bay Watershed and determine which best management practices (BMPs) could be most effective in protecting those areas from loss during high-flow events and/or years (like we saw in 2018-2019), using GIS spatial analysis/modeling and existing SAV, flow, land-use, and water quality data. With this information, steps can be taken to target high-priority SAV areas for BMP implementation and land management policies that will protect or restore those priority SAV habitats.

- ▪ Have you identified new needs, or have previously unmet needs, that are beyond the ability of your group to meet and, therefore, you need the assistance of the Management Board to achieve?

  If yes, provide as much detail as possible to assist the Management Board in assessing this need.

  An optional approach for providing this information is to use the SPURR thought model.

  - o *Specific and actionable need*
  - o *Programmatic partner*
  - o *Urgency of the needed action*
  - o *Risk of not acting*
  - o *Resources required.*

  - o A critical need in light of the CESR report and shallow water emphasis will be effective and efficient shallow water monitoring. **The SAV Workgroup will propose to expand and enhance the existing SAV Sentinel Site Program to transition into the CBP's Shallow Water Habitat Sentinel Site Program.** This tier-3 monitoring effort would not only monitor the impacts of climate change on the functional value of shallow water habitats throughout the Bay but also monitor the effectiveness of measures taken beyond 2025. Effectively expanding the existing SAV Sentinel Site Program to become the Chesapeake Bay Shallow Water Habitat Sentinel Site Program and include multiple other parameters and resources is beyond the capacity of the SAV Workgroup alone, however. All other CBP GITs and Workgroups with Shallow Water interests need to be involved with this effort to direct its development, prioritize parameters, resources, and sites to monitor, and make it as effective and efficient as possible for long-term sustainability. **This level of coordination and planning will require the direction of the Management Board to ensure the appropriate steps are taken to develop, fund, and implement this critical program.**

- ▪ What steps are you continuing, or can you take, to ensure your actions and work will be equitably distributed and focused in geographic areas and communities that have been underserved in the past?

  - o Through our SAV Watcher program, we make every attempt to work with watershed organizations throughout the watershed to ensure that a diverse cohort of volunteers and community members are engaged in volunteer SAV monitoring activities.
  - o SAV restoration is limited to areas with sufficient water quality; the Water Quality GIT is responsible for improvements in water quality in underserved areas before the SAV Workgroup can focus restoration activity in those areas.

- o Members of the SAV Workgroup have applied for NOAA funding for an SAV restoration and capacity expansion project that will include tribal nations and HBCUs as partners if funded. This project holds significant educational potential for undergraduate and graduate students. College and university partners will actively recruit undergraduate interns, graduate students, and postdoctoral researchers from underrepresented and underserved communities, involving them in all facets of the project. In addition, non-university partners will engage participants from organizations like the Chesapeake Climate and Conservation Corps and other intern programs. The SAV nurseries and seed processing facilities established at partner colleges and universities will provide an ideal platform for course-based restoration ecology activities. Further, this project will empower future SAV restoration practitioners by establishing an SAV Restoration Training and Certification Program. By offering this training and certification course both independently through Restore America's Estuaries and through community colleges and trade programs, we will reach a broader audience and empower current and future generations with the practical skills required to become proficient SAV restoration practitioners, preparing them for careers in environmental conservation and restoration. It will ultimately create job opportunities and contribute to the preservation and enhancement of our vital coastal ecosystems.