> **Management Approach 1: Support Efforts to Conserve and Restore Current and Future SAV Habitat and SAV Habitat Conditions.**

1.a Support WQ GIT in their efforts to improve water quality through the Bay TMDL and achieve water clarity/SAV standards in areas designated for SAV use.

- **What are the steps needed for this action?** WQ Management Action 1: Enhance monitoring; Work with Bay states to support implementation of BMPs, encourage enhancement of TMDL
- **Who are the responsible parties?** Bay States, Water Quality GIT, SAV Workgroup
- **What is the impacted geographic location?** Chesapeake Bay and Chesapeake Bay Watershed
- **What is the expected timeline for completion?** 2025 for this workplan; On-going
- **What are the goals or metrics you will use to determine the impact of your action?** Nutrient and sediment load reductions; water clarity standards attainment; Acres of SAV mapped
- **How will we collect and assess the data that we want to monitor, how will we use the data, and how will we communicate the results?** Water quality monitoring; annual Bay-wide SAV Survey; CBP communications team; Bay states communication teams
- **How do we expect the action to fill the priority factor or gap? What do you expect to happen when the action is completed?** Further improvements in water clarity will greatly affect the ability of SAV populations in the Bay to gain or maintain resilience against climate stressors. SAV is heavily dependent on sufficient water quality for growth; improved water quality will support SAV expansion and goal attainment.

1.b Determine the local effect of flow/stormwater runoff on SAV density and acreage and options for targeting BMPs that would protect priority SAV areas. This is a current SAV Workgroup GIT-funded project contracted to Tetra Tech for completion.
- **What are the steps needed for this action?** Tetra Tech will follow the protocol established in the project QAPP and Scope of Work.
- **Who are the responsible parties?** Tetra Tech (contractor for project), SAV Workgroup (Technical lead on project; Project Steering Committee members), CBP Modeling Team (Steering Committee members), BMP experts (Steering Committee members)
- **What is the impacted geographic location?** Chesapeake Bay and Chesapeake Bay Watershed
- **What is the expected timeline for completion?** This project will be completed in 2025.

- **What are the goals or metrics you will use to determine the impact of your action?** Completed project determining the local effect of flow/runoff on SAV density and acreage and proposed options for targeting BMPs that would protect priority SAV areas.
- **How will we collect and assess the data that we want to monitor, how will we use the data, and how will we communicate the results?** The results of this study will be distributed throughout the CBP at multiple workgroup and goal team meetings; publication in a peer-reviewed scientific journal for global dissemination; report posted on the SAV Workgroup webpage; CBP communications team will share the results on various web platforms.
- **How do we expect the action to fill the priority factor or gap? What do you expect to happen when the action is completed?** SAV is heavily dependent on sufficient water quality for growth. Increased implementation and effective siting of appropriate BMPs will facilitate improved water quality and local protection of priority SAV beds which will support SAV expansion and goal attainment. If shown to have impact, there may be an increase in targeted placement of BMPs in areas of high SAV value (large, dense, stable beds that provide important habitat).

Management Approach 2: Protect Existing and Recovering SAV.

2.a Work with jurisdictional leadership in Maryland, Virginia and D.C. to implement select recommendations from "Existing Chesapeake Bay Watershed Statutes and Regulations Affecting Submerged Aquatic Vegetation," a GIT-funded project report produced in 2019 by the Chesapeake Legal Alliance (CLA) at the request of the CBP and SAV Workgroup.
- **What are the steps needed for this action?** This action will require coordination with appropriate jurisdictional representatives to pursue updates to regulations as determined during SAV Workgroup Policy Office Hours held in 2023.
- **Who are the responsible parties?** SAV Workgroup; state policymakers and regulatory agencies
- **What is the impacted geographic location?** Chesapeake Bay and Chesapeake Bay Watershed.
- **What is the expected timeline for completion?** This effort will be complete by end of 2025.
- **What are the goals or metrics you will use to determine the impact of your action?** Updated regulations and/or regulatory processes throughout Bay states.
- **How will we collect and assess the data that we want to monitor, how will we use the data, and how will we communicate the results?** There is no data associated with this action but changes to regulations are available and open for public review and comment.
- **How do we expect the action to fill the priority factor or gap? What do you expect to happen when the action is completed?** Improved regulatory protection of SAV will facilitate SAV expansion and goal attainment.

2.b Support efforts by local, state and federal partners in Virginia, DC and Maryland to reduce or eradicate water chestnut (*Trapa natans* and *T. bispinosa*) in Chesapeake Bay and other local water bodies.

- **What are the steps needed for this action?** This action will require increased coordination between and among states to monitor for these species, the development of eradication plans for these species, and annual efforts to manage or eradicate water chestnut as measured by bushels removed or acres eradicated from waterways.
- **Who are the responsible parties?** SAV Workgroup; MD, VA, and DC jurisdictional agencies; local watershed groups.
- **What is the impacted geographic location?** Chesapeake Bay and Chesapeake Bay Watershed.
- **What is the expected timeline for completion?** 2025 for this workplan; On-going
- **What are the goals or metrics you will use to determine the impact of your action?** Eradication plans developed; funding allocated; bushels/acres of *Trapa spp.* removed.
- **How will we collect and assess the data that we want to monitor, how will we use the data, and how will we communicate the results?** Eradication plans will include development of outreach materials that will be disseminated by the SAV workgroup, CBP communications team, and state communication teams. Bushels of *Trapa* removed will be recorded by jurisdictional removal teams.
- **How do we expect the action to fill the priority factor or gap? What do you expect to happen when the action is completed?** The reduction or eradication of *Trapa spp.* will improve and expand SAV habitat and facilitate the expansion of SAV and SAV goal attainment.

Management Approach 3: Restore SAV

3.a Continue SAV restoration efforts through direct plantings of seeds or propagules to establish viable SAV beds where they are not recovering naturally with improvements in water quality or where diversity is low.
- **What are the steps needed for this action?** MD DNR, VIMS and other partner organizations will continue direct planting in appropriate sites in Maryland, Virginia and DC.
- **Who are the responsible parties?** SAV Workgroup; MD DNR; VIMS; Watershed groups
- **What is the impacted geographic location?** Chesapeake Bay and tributaries
- **What is the expected timeline for completion?** 2025 for this workplan; On-going
- **What are the goals or metrics you will use to determine the impact of your action?** Number of SAV restoration activities; number of organizations and volunteers involved; increased community engagement; number of SAV seeds collected; SAV acres planted; restored SAV acres surveyed; increased SAV acreage.
- **How will we collect and assess the data that we want to monitor, how will we use the data, and how will we communicate the results?** Each group conducting SAV restoration will be responsible for monitoring their planted SAV beds for germination and growth success; results will be communicated to the SAV Workgroup and provided during quarterly updates.
- **How do we expect the action to fill the priority factor or gap? What do you expect to happen when the action is completed?** Direct SAV restoration will mitigate loss, accelerate SAV recovery and expansion, and facilitate SAV goal attainment.

3. b Work with permitting agencies to ensure SAV restoration activities are permitted during appropriate growing conditions and over-harvesting from donor beds does not occur.

- **What are the steps needed for this action?** The SAV Workgroup will work with appropriate permitting agencies to make them aware of the CBP SAV Restoration Guide and ensure appropriate review of permit applications and methods proposed. Permitting agencies will be responsible for tracking permit applications, donor bed locations, restoration sites, and permits approved as well as for tracking restoration project implementation and monitoring.
- **Who are the responsible parties?** SAV Workgroup, state permitting agencies
- **What is the impacted geographic location?** Chesapeake Bay
- **What is the expected timeline for completion?** 2025 for this workplan; On-going
- **What are the goals or metrics you will use to determine the impact of your action?** Number of permit applications reviewed and approved; number of projects implemented; SAV acres planted and restored. Increased coordination with permitting agencies and improved success rates for restoration efforts.
- **How will we collect and assess the data that we want to monitor, how will we use the data, and how will we communicate the results?** Each group conducting SAV restoration will be responsible for monitoring their planted SAV beds for germination and growth success and communicating their plans and results to the permitting agency; results will be communicated to the SAV Workgroup and provided during quarterly updates.
- **How do we expect the action to fill the priority factor or gap? What do you expect to happen when the action is completed?** Improved oversight of SAV restoration activities will reduce impacts from overharvesting in donor beds, accelerate SAV recovery and expansion, and facilitate SAV goal attainment. Strategically implementing SAV restoration activities during periods of high water quality and protecting donor beds from overharvest will ensure long-term confidence in SAV restoration activities and potential.

Management Approach 4: Enhance SAV Research and Monitoring

4.a Identify and prioritize an updated list of SAV science and research needs, initiate workgroup efforts and/or broader partnership efforts to advance SAV research and provide support for research in the form of funding, steering committee participation, MTAG participation, letters of support for research funding, provide subject matter expert support, etc.

- **What are the steps needed for this action?** The SAV Workgroup will continue efforts to identify and prioritize an updated list of science and research needs every two years and support broader partnership efforts to advance SAV research. The SAV Workgroup will identify funding opportunities, offer letters of support, serve on MTAGs and steering committees, and otherwise provide subject matter expert support as appropriate.
- **Who are the responsible parties?** SAV Workgroup, STAR
- **What is the impacted geographic location?** Chesapeake Bay and Chesapeake Bay Watershed
- **What is the expected timeline for completion?** SAV science needs will be updated biennially during the SRS process.

- **What are the goals or metrics you will use to determine the impact of your action?** An updated list of SAV science needs identified and prioritized every two years; increased funding opportunities identified and pursued; necessary research conducted and new data and information shared; number of LOS's provided; MTAGs and steering committees served on; and SAV more effectively protected and restored.
- **How will we collect and assess the data that we want to monitor, how will we use the data, and how will we communicate the results?** The SAV Workgroup will work with STAR to maintain the current list of SAV science needs. The SAV Workgroup leadership will maintain records of funding opportunities identified and pursued, the number of LOS's provided, and the number of MTAGs and steering committees served on.
- **How do we expect the action to fill the priority factor or gap? What do you expect to happen when the action is completed?** Increased funding for identified research priorities would enhance our understanding of SAV in Chesapeake Bay and support effective management decisions and recovery. Additionally, Chesapeake Bay SAV research would inform management decisions in other estuaries around the world.

4.b Continue the annual Bay-wide SAV Survey to track progress towards SAV restoration outcomes and water-clarity standards attainment.
- **What are the steps needed for this action?** The SAV Workgroup will continue to support CBP leadership, grant managers, and CBP monitoring coordinators in the implementation of the annual Bay-wide aerial SAV monitoring program that provides data regarding the distribution and density of SAV in the Bay and its tributaries.
- **Who are the responsible parties?** SAV Workgroup; CBP Leadership
- **What is the impacted geographic location?** Chesapeake Bay
- **What is the expected timeline for completion?** 2025 for this workplan; On-going
- **What are the goals or metrics you will use to determine the impact of your action?** Bay-wide SAV Survey completed; SAV acres mapped
- **How will we collect and assess the data that we want to monitor, how will we use the data, and how will we communicate the results?** The Bay-wide aerial survey will continue to track progress toward the SAV outcome. Annual results will be communicated to the public annually via CBP and state-specific press releases and blog posts following the completion and certification of survey results. Survey methodology and results will also be posted to Chesapeake Progress.
- **How do we expect the action to fill the priority factor or gap? What do you expect to happen when the action is completed?** SAV conservation, restoration and research all rely on effective and efficient monitoring of the resource.

4.c Work with the Bay Program partners to continue the exploration of satellite imagery and the development of algorithms and work flows to automate SAV detection and quantification. This effort is being conducted to potentially update the Bay-wide aerial survey and increase its long-term programmatic sustainability. This is a currently funded project contracted to partners at Old Dominion University.
- **What are the steps needed for this action?** The SAV Workgroup will work with partners at Old Dominion University to complete the funded project and disseminate results. The

SAV Workgroup will work with CBP leadership to update SAV Survey methodology if appropriate and advantageous.

- **Who are the responsible parties?** SAV Workgoup, CBP grant managers and monitoring coordinator, Old Dominion University.
- **What is the impacted geographic location?** Chesapeake Bay, primarily mesohaline region
- **What is the expected timeline for completion?** This is a four-year project that will be completed in 2026.
- **What are the goals or metrics you will use to determine the impact of your action?** Development of workflows and algorithms that allow efficient use of satellite imagery for mapping SAV in Chesapeake Bay. Satellite-derived SAV maps of mesohaline region of Chesapeake Bay.
- **How will we collect and assess the data that we want to monitor, how will we use the data, and how will we communicate the results?** Data will be collected for this project based on the protocol described in the project scope of work. Project results will be communicated to the CBP workgroup, goal teams, and leadership through a series of presentations following project completion. Project results will also be published in a peer-reviewed scientific journal for global dissemination.
- **How do we expect the action to fill the priority factor or gap? What do you expect to happen when the action is completed?** The automated detection and quantification of SAV in the Chesapeake Bay from high-resolution satellite imagery may eventually supplement or replace the current methods of hand delineation of SAV beds from aerial imagery. This could potentially reduce costs associated with the SAV monitoring program and ensure its long-term programmatic sustainability.

4.d Continue implementation of the SAV Watchers Program, build improved data portal and management system, and work to ensure allocated funding is used to contract long-term support of the Program. [This action is cross-referenced with Action 5.c.]

- **What are the steps needed for each action?** The SAV Workgroup will oversee continued implementation of Chesapeake Bay SAV Watchers Program, recruitment of additional organizations and volunteers, certification of additional "trainers," and collection of ground survey data in additional tributaries. SAV Workgroup leadership will work with CBP leadership to build SAV into the living resource database and to ensure allocated funding is used to contract long-term support of the Program.
- **Who are the responsible parties?** SAV Workgroup; CBP Monitoring Coordinator
- **What is the impacted geographic location?** Chesapeake Bay
- **What is the expected timeline for completion?** 2025 for this workplan; On-going
- **What are the goals or metrics you will use to determine the impact of your action?** Continuation and expansion of the SAV Watcher Program; increased watershed group participation; increased volunteer participation; data portal development and management; long-term support of the program.
- **How will we collect and assess the data that we want to monitor, how will we use the data, and how will we communicate the results?** All SAV Watcher data will be stored in Excel files in a Google Drive folder until the data portal and management system are developed. The data will be shared with VIMS for ground truthing aerial survey data and made public on the VIMS SAV Monitoring Program website.

- **How do we expect the action to fill the priority factor or gap? What do you expect to happen when the action is completed?** With continued support and funding, the SAV Watchers Program will provide data necessary to ground truth aerial and satellite imagery, increase our understanding of SAV species and community distribution throughout the Bay, and provide an educational and engaging experience for watershed groups and volunteer scientists. Data from the SAV Watchers program is used in Riverkeeper and watershed organization reports and outreach materials.

4.e Continue implementation of the SAV Sentinel Site Monitoring Program. Identify and establish commitment from site adopters. Identify funding to ensure long-term sustainability. If it is determined that a CBP Shallow Water Habitat Sentinel Site program will be developed and implemented, fold the SAV Sentinel Site Program into the Shallow Water Habitat Sentinel Site Program.

- **What are the steps needed for this action?** Continue working with current sentinel site adopters and establish additional sites. Survey sites according to the established protocol. Work with the CBP to develop and implement a Shallow Water Habitat Sentinel Site Program that incorporates the SAV Sentinel Sites if appropriate.
- **Who are the responsible parties?** SAV Workgroup; SAV Sentinel Site adopters
- **What is the impacted geographic location?** Chesapeake Bay
- **What is the expected timeline for completion?** 2025 for this workplan; On-going
- **What are the goals or metrics you will use to determine the impact of your action?** Success for this action will be determined by the number of sites adopted, the number of partners involved, the annual implementation of the program, and long-term funding identification. Additional metrics include data collected, data analyzed, reports written, insights into direct and indirect climate impacts gained, and inclusion in the Shallow Water Habitat Sentinel Site Program if developed and implemented.
- **How will we collect and assess the data that we want to monitor, how will we use the data, and how will we communicate the results?** Partners will collect SAV Sentinel Site data according to the protocol previously developed and using the standardized spreadsheet previously developed. Data will be stored by partners as well as the SAV workgroup and will be available upon request. In the long-term, data will be used to identify trends in SAV abundance and distribution in response to climate change impacts and management actions taken to protect and restore SAV. Results will be communicated and disseminated through the SAV Workgroup and CBP communications team.
- **How do we expect the action to fill the priority factor or gap? What do you expect to happen when the action is completed?** Continued implementation of the SAV Sentinel Site Program will help Bay scientists and managers identify climate and management action effects on SAV. If developed and implemented, a Shallow Water Habitat Sentinel Site Program would allow for the tracking of climate and management effects on living resources in the shallow water habitats of Chesapeake Bay, including SAV.
- **How do we expect the action to fill the priority factor or gap? What do you expect to happen when the action is completed?** Chesapeake Bay SAV Sentinel Site data will complement acreage and density data collected via the Bay-wide aerial survey and local observational data collected via the Chesapeake Bay SAV Watchers program and other ground surveys. Together, these interconnected Chesapeake Bay SAV monitoring efforts will

form a three-tiered hierarchical monitoring approach that maximizes our efficiency and forecasting capabilities. Enhanced SAV monitoring will result in enhanced SAV protection through appropriate management actions as well as enhanced restoration capacity. Enhanced SAV protection and restoration will facilitate the expansion of SAV and goal attainment.

Management Approach 5: Enhance community involvement, education, and outreach.

5.a Develop a communication strategy that enhances the public's knowledge of and appreciation for SAV in Chesapeake Bay.

- **What are the steps needed for this action?** The SAV Workgroup will work with the CBP communications team and state partner communication teams to develop a communications strategy that will help market the importance of SAV through websites, social media, informational signage at ramps, perception survey, etc. Further, the SAV Workgroup will populate the SAV Workgroup webpage on Chesapeakebay.net with SAV Workgroup program information, products, and relevant literature and reports.
- **Who are the responsible parties?** SAV Workgroup; CBP communications team; State communications teams
- **What is the impacted geographic location?** Chesapeake Bay and Watershed
- **What is the expected timeline for completion?** 2025 for this workplan; On-going
- **What are the goals or metrics you will use to determine the impact of your action?** Communication products and strategies created; products marketed. Fewer nuisance complaints recorded; change in public perception regarding SAV.
- **How will we collect and assess the data that we want to monitor, how will we use the data, and how will we communicate the results?** The number of communications products and strategies created.
- **How do we expect the action to fill the priority factor or gap? What do you expect to happen when the action is completed?** Public perception of SAV improves; less SAV is damaged or harvested unnecessarily.

5.b Work with the CBP Comms team and contracted partner (Opinion Works) to implement Community-Based Social Marketing (CBSM) strategy previously developed through a GIT-funded social science effort.

- **What are the steps needed for this action?** The SAV Workgroup will work with the CBP communications team and Opinion Works to update and implement the CBSM strategy.
- **Who are the responsible parties?** SAV Workgroup; CBP communications team; Opinion Works
- **What is the impacted geographic location?** Chesapeake Bay and Chesapeake Bay Watershed
- **What is the expected timeline for completion?** This project is scheduled to be completed in 2025.
- **What are the goals or metrics you will use to determine the impact of your action?** CBSM strategy implemented; people engaged; behavior modified and SAV protected.

- **How will we collect and assess the data that we want to monitor, how will we use the data, and how will we communicate the results?** Data will be collected according to the protocol determined by Opinion Works. Project results will be disseminated by the SAV Workgroup to other workgroups, goal teams, and CBP partners through presentations, webpage updates, and social media outlets.
- **How do we expect the action to fill the priority factor or gap? What do you expect to happen when the action is completed?** Community-based social marketing is a proven method for positive behavior change. Once implemented, the public's perception of SAV should improve, facilitating SAV expansion and goal attainment.

5.c Continue implementation of the SAV Watchers Program, build improved data portal and management system, and work to ensure allocated funding is used to contract long-term support of the Program. [This action is cross-referenced with Action 4.d.]
- **What are the steps needed for each action?** The SAV Workgroup will oversee continued implementation of Chesapeake Bay SAV Watchers Program, recruitment of additional organizations and volunteers, certification of additional "trainers," and collection of ground survey data in additional tributaries. SAV Workgroup leadership will work with CBP leadership to build SAV into the living resource database and to ensure allocated funding is used to contract long-term support of the Program.
- **Who are the responsible parties?** SAV Workgroup; CBP Monitoring Coordinator
- **What is the impacted geographic location?** Chesapeake Bay
- **What is the expected timeline for completion?** 2025 for this workplan; On-going
- **What are the goals or metrics you will use to determine the impact of your action?** Continuation and expansion of the Program; increased watershed group participation; increased volunteer participation; data portal development and management; long-term support of the program.
- **How will we collect and assess the data that we want to monitor, how will we use the data, and how will we communicate the results?** All SAV Watcher data will be stored in Excel files in a Google Drive folder until the data portal and management system is developed. The data will be shared with VIMS for ground truthing aerial survey data and made public on the VIMS SAV Monitoring Program website.
- **How do we expect the action to fill the priority factor or gap? What do you expect to happen when the action is completed?** With continued support and funding, the SAV Watchers Program will provide data necessary to ground truth aerial and satellite imagery, increase our understanding of SAV species and community distribution throughout the Bay, and provide an educational and engaging experience for watershed groups and volunteer scientists. Data from the SAV Watchers program is used in Riverkeeper and watershed organization reports and outreach materials.

5.d The SAV Workgroup will convene in-person and/or virtually quarterly with supplemental meetings with appropriate sub-groups taking place as needed to discuss priorities, share ideas for collaborations, review status updates, update the SAV Management Strategy and implement the SAV Workplan, etc. SAV Workgroup leadership and staffers will meet monthly.

- **What are the steps needed for each action?** The SAV Workgroup will convene quarterly for half-day or full-day SAV Workgroup meetings and convene monthly for SAV Workgroup leadership meetings.
- **Who are the responsible parties?** SAV Workgroup and Workgroup leadership and staffers
- **What is the impacted geographic location?** Chesapeake Bay and Chesapeake Bay Watershed
- **What is the expected timeline for completion?** 2025 for this workplan; On-going
- **What are the goals or metrics you will use to determine the impact of your action?** Meetings held per year, participation in SAV workgroup activities maintained and enhanced, coordination among SAV chair and staffer improved.
- **How will we collect and assess the data that we want to monitor, how will we use the data, and how will we communicate the results?** There will be no data collected for this action aside from a recording of meeting participation and engagement.
- **How do we expect the action to fill the priority factor or gap? What do you expect to happen when the action is completed?** Increased meeting frequency will result in an engaged and participatory membership, increased collaboration and SAV Workplan accomplished.