

Submerged Aquatic Vegetation Logic Table and Work Plan (2018-2019)

Long-term Target: (the metric for success of Outcome): Achieve and sustain the ultimate outcome of 185,000 acres of SAV Bay-wide; 130,000 acres by 2025.

Two-year Target: (increment of metric for success): To reach our 2025 goal of 130,000 acres, baywide SAV should increase by 2,000-3,000 acres per year. By 2019, we hope to achieve 103,000 acres of SAV, but a short-term target is not officially defined.

Factor	Current Efforts	Gap	Actions (critical actions in bold)	Metrics	Expected Response and Application	Learn/Adapt
<i>What is impacting our ability to achieve our outcome?</i>	<i>What current efforts are addressing this factor?</i>	<i>What further efforts or information are needed to fully address this factor?</i>	<i>What actions are essential to achieve our outcome?</i>	<i>Optional: Do we have a measure of progress? How do we know if we have achieved the intended result?</i>	<i>Optional: What effects do we expect to see as a result of this action, when, and what is the anticipated application of these changes?</i>	<i>Optional: What did we learn from taking this action? How will lesson this impact our work?</i>
Public Engagement: Communication strategy	SAV WG is currently working with the CBP Communications Team to develop communication products and strategies.	Method with which to measure success of communication strategy (unless this is built into the strategy).	4.5	Communication products and strategies created; products marketed.	Public perception of SAV improves.	SAV PR is necessary to adequately protect it, will likely make future protection efforts easier.
Legislative Engagement: Protection of existing SAV	GIT Funded project to review SAV regulations is currently underway.	Ability to influence changes to SAV regulations.	2.2	Final statutes and regulations report with recommendations.	Regulations protecting SAV are enhanced, SAV is better protected.	Enhanced SAV regulations are necessary to adequately protect it.
Partner Coordination: SAV plantings	CBP partners engage in small-scale restoration activities annually (Md DNR, VIMS, local watershed organizations)	Funding for larger scale plantings.	3.1	SAV restoration areas identified based on useful model outcomes; Acres of SAV mapped, reported.	SAV recovery in areas planted. Increased stewardship and community engagement.	Recommend that this be used as a tool for outreach and public engagement rather than solely for restoration.
			3.2			
Partner Coordination: Including SAV in other projects	The DoD and USACE attempt to work SAV restoration and monitoring into non-SAV specific projects.	Funding for SAV-specific projects.	1.2	Acres of SAV restored, mapped, reported	SAV is monitored, restored.	
Use Conflict: Including SAV in other projects			2.3			
			3.1			
			3.2			
			2.5		SAV better protected.	

Factor	Current Efforts	Gap	Actions (critical actions in bold)	Metrics	Expected Response and Application	Learn/Adapt
Scientific and Technical Understanding: SAV ecosystem services	<i>MdDNR is working to evaluate economic value of SAV ecosystem services.</i>	<i>Full cost pricing of ecosystem service is difficult to establish.</i>	<u>2.6</u>	Biennial report summarizing SAV ecosystem service valuation efforts, knowledge, and research		SAV value per acre is variable depending on factors included in assessment.
Scientific and Technical Understanding: SAV science	<i>CBP Partner Scientists are currently conducting climate change related, ecological, and genetics studies.</i>	<i>Accurately predicting climate-related changes to the Chesapeake Bay and watershed impede our ability to forecast and anticipate changes in SAV. Lack of funding.</i>	<u>1.3</u>	Inter-agency/institution working session to prioritize research topics held; research topics chosen; Biennial report summarizing SAV knowledge advancements.	Variable, depending on research topic.	
			<u>4.1</u>			
			<u>4.2</u>			
Scientific and Technical Understanding: Restoration	<i>CBP Partner Scientists are currently conducting research to determine successful restoration methods.</i>	<i>Lack of funding.</i>	<u>3.1</u>	SAV restoration areas identified based on useful model outcomes; Inter-agency/institution working session to prioritize research topics held; research topics chosen; Biennial report summarizing SAV knowledge advancements.	Restoration success improves.	Seeding is more feasible than transplant. Restoring for diversity is as important as restoring for acreage. Genetics are important to consider as well.
			<u>4.1</u>			
			<u>4.2</u>			
Scientific and Technical Understanding: Climate change effects	<i>CBP Partner scientists are currently studying the effects of climate change on SAV.</i>	<i>Accurately predicting climate-related changes to the Chesapeake Bay and watershed impede our ability to forecast and anticipate changes in SAV. Lack of funding.</i>	<u>4.1</u>	Inter-agency/institution working session to prioritize research topics held; research topics chosen; Biennial report summarizing SAV knowledge advancements.	Avoid exacerbation of human-induced stressors.	We need to manage what we can to counter balance climate change impacts that we can't manage for. Improving water clarity will be key.
Climate Change: Effects on future SAV			<u>4.2</u>			
Habitat Condition: Water clarity	<i>Water Quality Workgroup helps jurisdictions plan WIPs, advocate and support efforts to improve baywide water quality and clarity.</i>	<i>Poor water clarity conditions in the Bay.</i>	<u>1.1</u>	Biennial report summarizing shallow water model improvement/evolution, SAV WG supportive measures, actions taken by WQ GIT to support SAV.	SAV recovery: tributary specific and baywide.	Water clarity will facilitate recovery of SAV, SAV will facilitate improvement of water clarity. Multiple factors affect water clarity.
			<u>1.3</u>			
Habitat Condition: Monitor existing SAV	<i>Annual aerial survey continues to take place, Watershed partners monitor</i>	<i>Funding and staff time.</i>	<u>2.1</u>	Annual SAV meeting held; Annual Bay-wide aerial SAV survey data collected; SAV	Gauge restoration success for both SAV and water quality.	Monitoring is essential to gauge restoration success.

Factor	Current Efforts	Gap	Actions (critical actions in bold)	Metrics	Expected Response and Application	Learn/Adapt
	<i>SAV, train volunteer to monitor SAV.</i>		2.3	Sentinel Sites established; Final report detailing SAV monitoring protocol for volunteers/citizen scientists; Final report detailing SAV data collector Certification Program protocol.		
			4.3			
			4.4			
Biota: Invasive species	<i>Watershed partners manage for invasive species.</i>	<i>Funding and staff time; locating source beds for spread of invasive plants.</i>	2.4	Biennial report summarizing on invasive species management efforts (bushels of Trapa removed, # swans eradicated, eggs oiled), outreach.	SAV recovery in areas where invasives removed	This is minimally important to SAV recovery at this point
Partner Coordination: Funding and Financing	<i>SAV and Budget and Finance WGs working to establish financing system for SAV conservation efforts</i>	<i>Lack of interested financers, infrastructure to keep effort ongoing</i>	2.7	Development of and work toward the implementation of SAV Financing System	SAV monitoring and restoration efforts financed into future	

KEY: Use the following colors to indicate whether a Metric and Expected Response have been identified.

Metric	Specific metrics have not been identified
	Metrics have been identified
Expected Response	No timeline for progress for this action has been specified
	Timeline has been specified

WORK PLAN ACTIONS

Green – action has been completed or is moving forward as planned **Yellow** – action has encountered minor obstacles **Red** – action has not been taken or has encountered a serious barrier

Action	Description	Performance Target(s)	Responsible Party & Geographic Location	Metrics	Expected Timeline
Management Approach 1: Support efforts to restore Water Clarity in the Chesapeake Bay					
1.1		a. WQ Management Action 1: Enhance monitoring	Bay States, Water Quality GIT; Chesapeake Bay	Biennial report summarizing SAV WG	By 2025

	Support WQ GIT in their efforts to achieve water clarity/SAV standards in areas designated for SAV use.	b. WQ Management Action 3: Bay TMDL Midpoint Assessment	Bay States, Water Quality GIT; Chesapeake Bay	supportive measures, actions taken by WQ GIT to support SAV.	2018
1.2	Encourage/Promote the use of best management practices within local planning efforts that benefit SAV persistence and recovery	a. Work with SAV Synthesis Working Group to finalize segment-specific SAV analysis and disseminate information to local governments and partners in an effort to protect existing SAV in their waterways.	SAV Workgroup; Chesapeake Bay Watershed	Segment specific SAV analysis; information disseminated to local governments	2019
		b. Promote use of "SAV: Principles for Phase III Watershed Implementation Plans".	SAV Workgroup; Chesapeake Bay Watershed	Jurisdictions consider using BMPs beneficial to SAV.	2019
1.3	Support continued improvement and evolution of the SAV component of Chesapeake Bay Shallow Water Model, including consideration of associated CBP modeling suite needs.	a. Model the impacts of water quality on SAV and other living resources in the tidal Chesapeake Bay.	ODU (Zimmerman); tidal Chesapeake Bay	Biennial report summarizing shallow water model improvement/evolution.	2019
Management Approach 2: Protect existing SAV in the Chesapeake Bay					
2.1	The SAV Workgroup will convene in-person annually, at minimum, with conference calls conducted as needed, to discuss priorities, review status updates, and implement Workplan actions.	a. The SAV Workgroup will produce meeting reports and summaries.	SAV Workgroup; Chesapeake Bay Watershed	Annual SAV meeting held; meeting report and summary.	Annual
2.2	Evaluate and enhance current statutes and regulations that protect existing SAV in the Chesapeake Bay.	a. The objectives of this project are: 1) review statutes and regulations currently in place to protect existing SAV in the Chesapeake Bay; 2) determine if these regulations are adequate to protect existing and expanding SAV in the Bay, and 3) recommend language to the Chesapeake Bay Program for new statutes and regulations and/or recommend language for changes to current regulations, that will more effectively protect SAV in the Bay if deemed necessary.	SAV Workgroup, contracted to X, 2018 HGIT funding and CBT; Chesapeake Bay	Final statutes and regulations report with recommendations.	2019
2.3	Monitor SAV throughout the Bay.	a. Continue to support and work to ensure funding for the annual Bay-wide aerial SAV monitoring program that provides up to date data regarding the extent and recovery of SAV in the CB and its tributaries. This data is essential to the protection of existing SAV and is an indicator of water clarity standards.	VIMS (Orth, Wilcox) (with funding support from the EPA, VA DEQ, VA CZM (NOAA), and MD DNR); DC, MD, VA; Chesapeake Bay	Annual Bay-wide aerial SAV survey data collected	Annual

		b. Work with partner agencies and organizations to continue long-term monitoring of SAV sites throughout the Bay.	DNR, Landry and Golden; VIMS, Orth and Richardson; VIMS, Shields; FWS, McGowan; BaCo DEPS, Riter; D.C. Fisheries; Baywide	Acres of SAV reported, mapped	Annual
		c. Establish SAV Sentinel sites throughout Bay for annual monitoring by CBP Partners and volunteers. Sentinel sites may include current long-term monitoring sites. Sites will be established at next SAV Workgroup meeting.	SAV Workgroup; Baywide	SAV Sentinel Sites established	2018
2.4	Encourage local, state, and federal partners and stakeholders to manage invasive species (both plant and animal) that are considered detrimental to existing SAV populations (ie. Water chestnut, mute swans, new species associated with warming conditions) and work with partner agencies in efforts to manage those species when possible.	a. Control of Mute Swans.	MdDNR, FWS, NPS; Baywide	Biennial report summarizing on invasive species management efforts (bushels of Trapa removed, # swans eradicated, eggs oiled), outreach .	Ongoing as needed
		b. Water chestnut management (<i>Trapa spp.</i>).	MdDNR; USGS; VaDGIF; other partner agencies with vested interest; Baywide		
		c. Include <i>Trapa spp.</i> awareness in outreach and education efforts (see MA IV).	SAV Workgroup; Baywide		2019 and on, as needed
2.5	Track progress and support efforts to determine the economic value of SAV ecosystem services. Knowing the economic value of a resource is vital to its long-term protection.	a. Evaluate total value of ecosystem services provided by SAV, paying close attention to its role in carbon sequestration, one of our most effective tools in climate change mitigation.	MdDNR, Campbell; Chesapeake Bay	Biennial report summarizing updated ecosystem service value knowledge and research.	2019 and on, as needed
2.6	Encourage local, state and federal stakeholders to consider (and promote) the habitat benefits and ecosystem services of SAV, specifically for nearshore and shallow water use conflicts.	a. Support efforts that evaluate the biological and ecosystem impacts of nearshore and shallow water habitat "trade-offs" on SAV and associated aquatic habitats.	SAV Workgroup; Baywide	Biennial report summarizing SAV ecosystem service evaluation efforts.	2019
		b. Support efforts to evaluate the impacts of living shorelines, wetland creation and restoration, and shellfish aquaculture activities on SAV habitat and ecosystem services.	SAV Workgroup; Baywide	Biennial report summarizing SAV ecosystem service evaluation efforts.	2019
2.7	Work with the Chesapeake Bay Program's Budget and Finance Workgroup (BFWG) to create a financing strategy/system for all aspects of the SAV Management Strategy and 2-Year Workplan. Having a financial strategy/system in place will increase likelihood of reaching our ultimate SAV acreage goal through the protection and restoration of SAV in the Chesapeake Bay.	a. Report and Guidance document will be written by BFWG for implementation of SAV Outcome Finance Strategy.	SAV Workgroup, Budget and Finance Workgroup; Chesapeake Bay	Development of and work toward the implementation of SAV Financing System.	2018 – Strategy due No date set for implementation

2.8	Review and refine SAV guiding documents with new restoration/monitoring knowledge	a. Management Strategy will be reviewed and updated if necessary	SAV Workgroup; Chesapeake Bay	Management Strategy reviewed, possibly updated.	2019
Management Approach 3: Restore SAV in the Chesapeake Bay					
3.1	Identify available and appropriate SAV restoration site selection models. Models should incorporate long-term habitat quality data, including water temperature, salinity and water clarity measures.	a. Determine which model is most useful to the needs to the SAV Workgroup and partners that engage in small or large-scale SAV restoration activities.	SAV Workgroup; Chesapeake Bay	Most useful restoration model identified.	2019
		b. Prioritize restoration areas based on model outcomes.	SAV Workgroup; Chesapeake Bay	SAV restoration areas identified based on useful model outcomes.	2019
3.2	Continue SAV restoration efforts through direct plantings of seeds or propagules in hopes of establishing viable SAV beds where they are not recovering naturally or adding diversity to existing SAV beds, to further our understanding of site selection criteria, and as an outreach and education tool for citizen stewardship involvement (see MA IV).	a. Facilitate collaboration between partner agencies and organizations that are working on SAV restoration in the Bay. Create small scale SAV restoration protocol and fact sheets that local organizations can use to promote local restoration efforts.	SAV Workgroup; Chesapeake Bay	Creation of SAV restoration protocol and fact sheets .	2019
		b. Md DNR, VIMS, and other partner organizations will continue direct planting in appropriate sites in Maryland, Virginia, and DC.	Md DNR, VIMS, local groups; Chesapeake Bay	Acres of SAV mapped, reported.	Annually
Management Approach 4: Enhance research, citizen involvement, and education and outreach in the Chesapeake Bay watershed					
Research					
4.1	Prioritize research topics based on current gaps in knowledge regarding SAV restoration, recovery, and resilience. Use recent synthesis efforts and information (TS III and SAV Syn) to guide discussion and prioritization.	a. Facilitate inter-agency/institution working session to prioritize research topics.	SAV Workgroup; Chesapeake Bay	Inter-agency/institution working session to prioritize research topics held; research topics chosen.	2018
4.2	Track advancements in knowledge of SAV (in fields of biology, ecology, genetics, restoration, effects of climate change, etc.).	a. Review and synthesize recent/relevant research outcomes at annual SAV Workgroup meeting.	SAV Workgroup; Chesapeake Bay	SAV Workgroup meeting held.	2018, 2019
		b. Write biennial summary (at close of workplan timeline) of known advancements in these fields. Report summary to CBP to promote management decisions based on latest scientific information.	SAV Workgroup; Chesapeake Bay	Biennial report summarizing SAV knowledge advancements.	

Citizen Involvement					
4.3	Develop a scientifically rigorous but user-friendly SAV monitoring protocol to be used by citizen scientists and volunteers to survey SAV throughout the Chesapeake Bay.	a. Development of a printed and on-line SAV monitoring protocol. This step does not include implementation.	Work will be done by contractor for SAV Workgroup, CBT/HGIT 2018 funding; Baywide	Final report detailing SAV monitoring protocol for volunteers/citizen scientists.	2019
4.4	Develop an SAV data collector Certification Program.	a. Development of a printed and on-line SAV monitoring certification program. This step does not include implementation.	Work will be done by contractor for SAV Workgroup, CBT/HGIT 2018 funding; Baywide	Final report detailing SAV data collector Certification Program protocol.	2019
Education and Outreach					
4.5	Develop a communication strategy that enhances the public's knowledge of and appreciation for SAV in the Chesapeake Bay, similar to the models used to advance oyster and other wildlife restoration efforts. Include information about threats to SAV, such as alert! sheets for Water Chestnut.	a. Market the importance of SAV through websites, social media, informational signage at ramps, etc.	SAV Workgroup in collaboration with CBP Communications Workgroup; Chesapeake Bay states.	Communication products and strategies created; products marketed.	2018