

Submerged Aquatic Vegetation (SAV) Outcome

Sub-Chapter

Submerged Aquatic Vegetation (SAV) Outcome: Sustain and increase the habitat and ecosystem benefits of SAV in the Chesapeake Bay. Achieve and sustain the outcome of 196,600 acres of SAV Bay-wide necessary for a restored Bay.

- Measure progress against the following targets for each salinity zone:
 - Tidal Fresh: 21,700 acres.
 - Low Salinity: 13,100 acres.
 - Medium Salinity: 126,000 acres.
 - High Salinity: 35,800 acres.
- Measure progress toward this Outcome against interim targets of 90,000 acres by 2030, 95,000 acres by 2035 and 100,000 acres by 2040.

Baseline and Current Condition

SAV is a critical component of the Chesapeake Bay ecosystem. It improves water quality by absorbing excess nutrients, attenuates wave and current energy to protect shorelines, supports fish and shellfish by providing habitat and nursery grounds, and mitigates the impacts of changing environmental conditions. The Chesapeake Bay Program's SAV Workgroup has reviewed the historic record, as well as photographic evidence from the 1930s to present, and determined that the Bay has historically supported at least 196,600 acres of SAV. This is the acreage upon which the SAV Outcome is based.

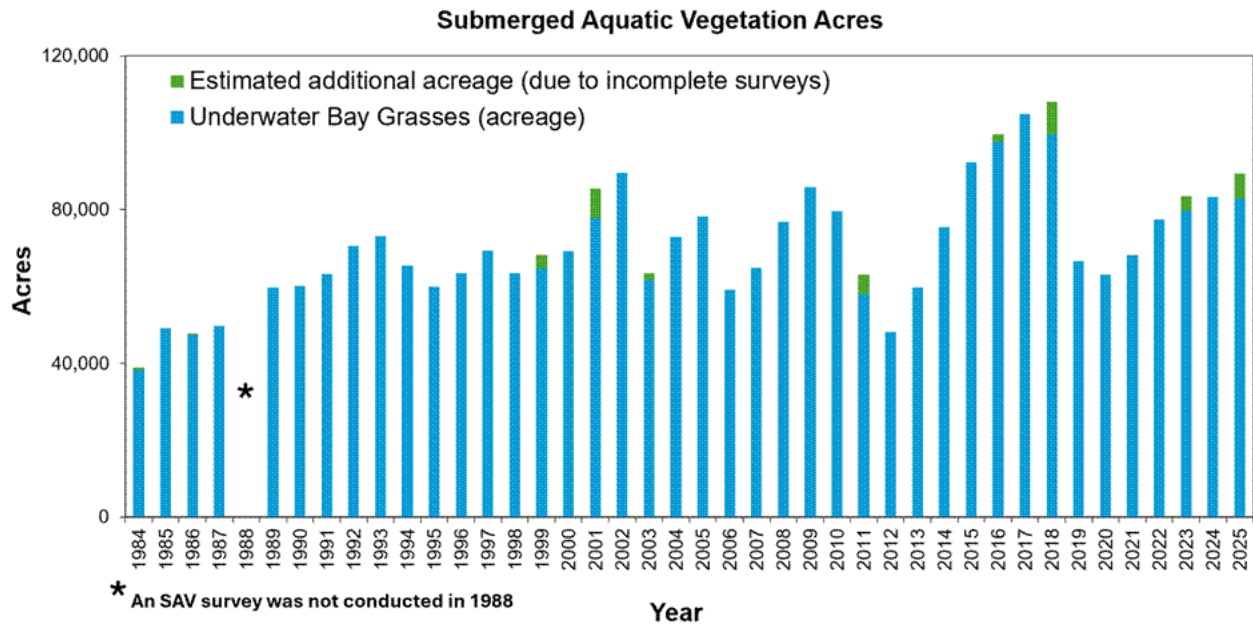
To monitor progress toward the SAV Outcome and goal attainment, impacts from changing environmental conditions, response to management actions, and the functional value of these shallow water habitats, the SAV Workgroup coordinates a three-tiered, hierarchical monitoring effort that includes the [Chesapeake Bay-wide SAV Survey \(Tier 1\)](#), the [Chesapeake Bay SAV Watchers Program \(Tier 2\)](#), and the [Chesapeake Bay SAV Sentinel Site Program \(Tier 3\)](#). The three-tiered approach allows us to not only estimate SAV acreage and density across the Bay, but also collect detailed SAV habitat data while providing educational volunteer opportunities to communities across the watershed.

In 1984, 38,958 acres of SAV were mapped in the Chesapeake Bay and its tidal tributaries. Since then, estimated totals have ranged from that historic low to a high of 108,078 acres in 2019, maintaining a long-term average of 70,898 acres. In 2025, SAV covered an estimated 89,385 acres of Bay bottom.

Monitoring Progress and Indicators:

Indicator: [SAV Acreage](#)

The Chesapeake Bay-wide SAV Survey began in 1984, and is the primary mechanism for tracking SAV Outcome progress and attainment. The Survey uses imagery and data collected from planes and satellites, as well as Tier 2 and Tier 3 ground observations, to delineate SAV beds throughout the Bay and its tidal tributaries. Acreage data from the Survey will be used to assess progress towards the SAV Outcome, as well as its interim and salinity zone goals, on an annual basis. If areas of the Bay are inaccessible for surveys in any given year, additional acreage in those areas is estimated from the previous year's data, as seen in the graph below.



Submerged Aquatic Vegetation Situation Analysis

The following table identifies challenges that will impact progress towards attaining this outcome and its targets. This analysis considers scientific, environmental, fiscal or policy-related developments that have already or may influence work during the upcoming six-year Management Strategy cycle. Consideration is given to which challenges are within and outside of CBP's ability to influence. Challenges associated with Changing Environmental Conditions are denoted with an asterisk (*). Challenges listed in bold font have been identified by the Goal Team and its Workgroups as being priorities for the Workgroup to seek to address or make progress against through the development and implementation of Management Approaches.

Challenges	Within CBP's ability to influence	Outside of CBP's ability to influence
1. Habitat Conditions and Availability: To reach our SAV Outcome and goals, adequate shallow water habitat (space and water clarity) must remain available for SAV to expand into, but multiple challenges threaten habitat conditions and availability. Some challenges include:		
Degraded or Unstable Water Quality*	X	
Shallow Water Use Conflicts	X	
Shoreline Alteration and Armoring that negatively impact SAV	X	
Direct and Indirect Impacts Associated with Changing Environmental Conditions including Increasing Sea Levels, Temperatures, Precipitation, Pathogens, and Invasive Species*		X

2. Protection of Existing and Recovering SAV: Regulations prohibiting certain activities detrimental to SAV must be adequate to protect new and expanding SAV beds throughout the Bay. Some challenges include:		
Dredging and Filling in Potential SAV habitat	X	
Fishing and Aquaculture Practices	X	
Shoreline Alteration and Armoring that negatively impact SAV*	X	
Necessary Regulatory Updates are Challenging, Time Consuming, and Require Legislative Expertise	X	
3. SAV Restoration Potential and Activity: Direct SAV Restoration is an important component of Chesapeake Bay SAV Recovery, but we are lacking in capacity and infrastructure. Some challenges include:		
Lack of Funding for Direct SAV Restoration Projects	X	
Inadequate SAV Restoration Capacity and Infrastructure	X	
Lack of a Commercial SAV Seed Supply	X	
Lack of Tools for Appropriate SAV Restoration Site Selection	X	
Limited Capacity by SAV Restoration Practitioners and Lack of Formal Training Program for SAV Restoration Techniques	X	
4. SAV Research and Monitoring: Annual Bay-wide SAV monitoring at multiple levels of scale is essential to track progress toward the SAV Outcome, to prioritize efforts to minimize impacts, in guiding appropriate management actions, and in guiding needed SAV research; SAV research and monitoring must be more effectively funded and supported. Some challenges include:		
Uncertain Capacity to Maintain Long-Term Funding for the Chesapeake Bay-wide SAV Survey	X	
No funding for the Chesapeake Bay SAV Watchers Program	X	
No funding for the Chesapeake Bay SAV Sentinel Site Program	X	
Limited funding for SAV Research		X
5. Public Perception, Knowledge, and Engagement: Public perception and engagement surrounding SAV in Chesapeake Bay are growing but remain limited. Some challenges include:		
Stakeholders are generally unaware of the importance of SAV or regard it negatively	X	
Need for additional SAV-Specific Curriculum in Public Education		X

Snapshot of Signatory Programs

Managing a large and difficult restoration and conservation program with “no assurance about the level of funds that may be available beyond the short term” (GAO, 2028) is a challenging undertaking that

requires individual and collaborative action from signatory partners, as well as the many communities and individuals who live, work, play and learn in our region. This “Snapshot of Signatory Resources” seeks to better recognize the significant contribution that individual signatory partners and federal agencies make towards outcome attainment. The existing programs and funding spotlighted below are not intended to represent the full range of resources available or required to support progress towards outcome attainment; only the “biggest ticket” programs are included for each outcome and signatory partner. It is important to note that funding is reported from a single point in time (fiscal year 2025) and is not representative of future investments. Identifying the most critical programs and resources that exist at a particular moment in time can help the partnership focus its collaborative efforts on activities that have the greatest impact, and which don’t duplicate the work of existing programs.

Maryland

- [Bay-wide Submerged Aquatic Vegetation Aerial Survey and Monitoring Program](#) (\$95k in FY25) - The Chesapeake Bay-wide SAV Aerial Survey is the first tier in the Chesapeake Bay SAV monitoring effort and tracks progress toward the Bay-wide SAV Restoration Outcome, near-term targets, salinity zone targets, and Maryland and Virginia state-wide and segment-specific targets.
- [Chesapeake Bay SAV Watchers Program](#) (No specific funding; 2 FTEs supported the program in FY25). Chesapeake Bay SAV Watchers is the second tier of the Chesapeake Bay SAV monitoring effort and is a program to provide volunteer scientists with an engaging and educational experience with SAV while also generating useful data for Bay scientists and managers.
- [Chesapeake Bay SAV Sentinel Site Program](#) (No specific funding; 3 FTEs supported the program in FY25). The Chesapeake Bay SAV Sentinel Site Program forms the third tier of the Chesapeake Bay SAV Monitoring effort; SAV sentinel sites are located in each of the Bay’s four salinity zones (tidal fresh, oligohaline, mesohaline, and polyhaline) and are monitored by Bay scientists using a standardized, in-depth data collection protocol.

Virginia

- [Bay-wide Submerged Aquatic Vegetation Aerial Survey and Monitoring Program](#) (\$432 in FY25) - The Chesapeake Bay-wide SAV Aerial Survey is the first tier in the Chesapeake Bay SAV monitoring effort and tracks progress toward the Bay-wide SAV Restoration Outcome, near-term targets, salinity zone targets, and Maryland and Virginia state-wide and segment-specific targets.
- Others will be added by VA rep on THFW Goal Team Rep

District of Columbia - will be added by DC rep on Goal Team -

- [Featured Program with hyperlink] ([Appropriations for Fiscal Year 2025]) [one sentence max description of how program relates to Outcome attainment]

US Federal Government - will be added by federal rep on Goal Team -

- [Featured Program with hyperlink] ([Appropriations for Fiscal Year 2025]) [one sentence max description of how program relates to Outcome attainment]

Management Approaches for Outcome 7: Submerged Aquatic Vegetation

Management Approach 1.7.1: Support Efforts to Conserve and Restore Current and Future SAV Habitat and Habitat Conditions

The SAV Workgroup will support efforts to conserve and restore current and future SAV habitat and habitat conditions. The most critical action for restoring SAV is to achieve the [Clean Water Goal](#). This strategy is being implemented by meeting pollutant allocations set by the [Chesapeake Bay TMDL](#) and

through the work of multiple Chesapeake Bay Program teams, including the [Clean Water Goal Team](#) and the [Healthy Landscapes Goal Team](#).

Management Approach 1.7.2: Protect Existing and Recovering SAV

The SAV Workgroup will work to protect existing SAV by supporting efforts to characterize threats and develop protection measures, evaluate SAV protection laws and regulations, and make recommendations to update laws, regulations, and policies when necessary.

Management Approach 1.7.3: Restore SAV

The SAV Workgroup will lead and support efforts to actively restore and mitigate SAV loss where possible, targeting sites with suitable habitat quality and high potential to benefit living resources, as well as vulnerable coastal communities and infrastructure.

Management Approach 1.7.4: Enhance SAV Research and Monitoring

The SAV Workgroup will lead and support efforts to continue the Bay Program's three-tiered, hierarchical SAV monitoring effort and address data gaps in shallow water habitat and living resource monitoring data.

Management Approach 1.7.5: Enhance Community Involvement, Education, and Outreach

The SAV Workgroup will work to expand efforts to educate and engage the public about the critical importance of SAV, the ecosystem services and socio-economic benefits it provides, and include community scientists and volunteers in SAV monitoring and restoration efforts.

Participating Partners

The following partners participated in the creation of this Management Strategy and expressed their intention to collaborate on Management Strategy implementation over the next six years. Per the Chesapeake Bay Watershed Agreement, "participation in developing Management Strategies or in the achievement of Outcomes varies by signatory based on differing priorities across the watershed. This participation may include commitments such as sharing knowledge, data or information, educating the public, working on future legislation and developing or implementing programs or verified practices" (2025). Signatory partners may join implementation efforts at any time. Partners also recognize that Signatory participation is voluntary and may vary accordingly.

- **Signatory Partners**

- TBD, will need to be added after November by signatory partners

- **Other Partners**

- Virginia Institute of Marine Science
- Old Dominion University
- University of Maryland
- St. Mary's College of Maryland
- Smithsonian Environmental Research Center
- Tetra Tech, Inc.
- The Chesapeake Bay Foundation
- The Nature Conservancy
- ShoreRivers
- Arundel Rivers Federation
- Severn River Association

- Gunpowder Riverkeeper
- Maryland
- Virginia
- Washington, D.C.
- Delaware
- U.S. Federal Government

Appendix 1. Signatory Statutory Authorities Driving Outcome Attainment

The law and regulation of signatory partners may support, justify or motivate their participation in the collaborative work of the Chesapeake Bay Program related to the attainment of specific Outcomes and Targets of the Watershed Agreement.

The following documentation identifies core statutory authorities that provide part of the impetus for the attainment of Chesapeake Bay Watershed Agreement Outcomes and their related Targets. While Chesapeake Bay Program partners acknowledge that the Chesapeake Bay Watershed Agreement is voluntary, subject to the availability of appropriated funds, and does not preempt, supersede or override any other law or regulation applicable to each signatory, they also acknowledge that the law or regulation of individual signatories can support each partner's participation in outcome attainment. The table below is not an exhaustive list of all relevant laws and regulations. Rather, this appendix identifies the driving motivators that can bring about signatory partner engagement in efforts described in this Strategic Plan, associated Management Strategies, and Workplans. **An exhaustive database of statutes and regulations affecting SAV in Chesapeake Bay is available at:** <https://www.chesapeakebay.net/projects/sav-regulatory-review>

Goal 1: Thriving Habitats, Fisheries, and Wildlife

Outcome: Submerged Aquatic Vegetation	
Signatory	Statutory Authority
Virginia Marine Resources Commission	4 Va. Admin. Code § 20-337-30
	Permitting for removal of SAV from state bottom
Virginia Marine Resources Commission	Va. Admin. Code § 20-1130-50
	Limits on aquaculture placed on SAV
Maryland Department of Natural Resources	Article-Natural Resources § 4-213
	General Protections to SAV in MD Waters
Maryland Department of Natural Resources	Article-Natural Resources § 4-1006.1
	Protection from possible disruption by hydraulic escalator clam dredges
Maryland Department of Natural Resources	Article-Natural Resources § 4-11A.01
	Protection from possible disruption by shellfish aquaculture activities
Maryland Department of Natural Resources	Md. Code Regs. 08.02.23.02

	Establishes SAV protection zones for Aquaculture Enterprise Leasing
D.C. Dept of Commerce and Regulatory Affairs	<u>D.C. Mun. Regs. tit. 21, § 1404.</u>
	Defines when SAV can be removed and requires a removal plan.
D.C. Dept of Commerce and Regulatory Affairs	<u>D.C. Mun. Regs. tit. 21, § 1401.</u>
	Approval to harvest or remove SAV.
D.C. Dept of Commerce and Regulatory Affairs	<u>D.C. Mun. Regs. tit. 21, § 1400.</u>
	Provides for the management of submerged aquatic vegetation.
Delaware Department of Natural Resources and Environmental Control	<u>7 DE Admin. Code § 7401-2.0, § 7401-3.0, and § 7401-4.5.6 – Surface Water Quality Standards</u>
	Establishes a Shallow-Water Bay Grass Designated Use and associated water quality criteria for portions of the Nanticoke River and Broad Creek.