HGIT FALL MEETING – November 29th, 2023

Chesapeake Bay Program

Submerged Aquatic Vegetation Workgroup Updates

Brooke Landry
Maryland DNR and
Chair, SAV Workgroup

Through the Chesapeake Bay Watershed Agreement*, the Chesapeake Bay Program has committed to…*

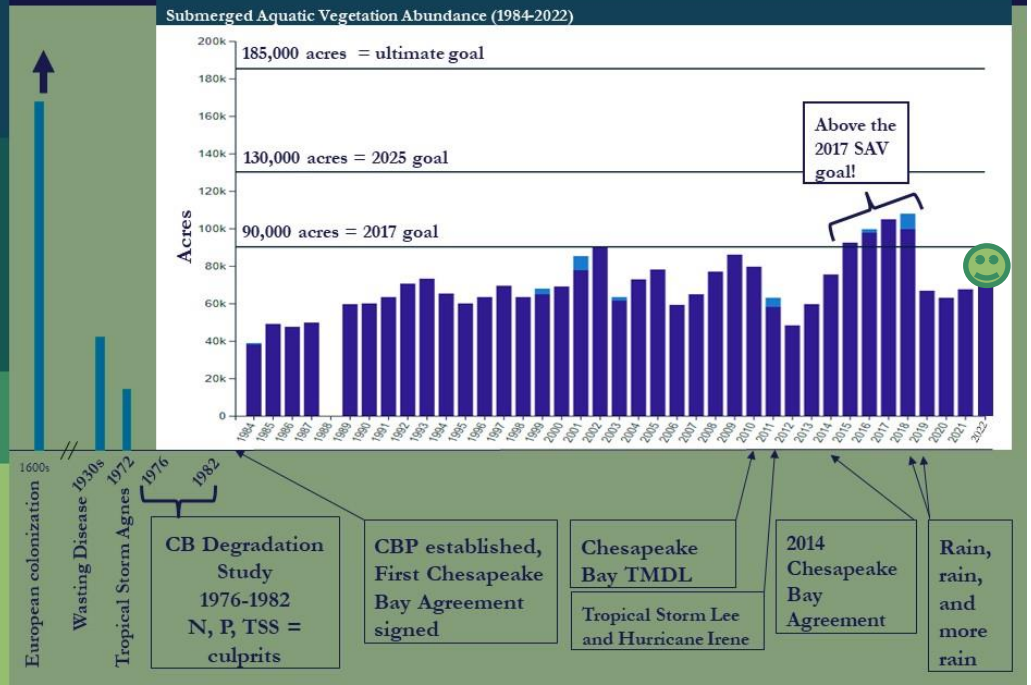
Goal: ***Vital Habitats***

Outcome:

Sustain and increase the habitat benefits of SAV in the Chesapeake Bay. Achieve and sustain the ultimate outcome of 185,000 acres of SAV Bay-wide necessary for a restored Bay. Progress toward this ultimate outcome will be measured against a target of 90,000 acres by 2017 and 130,000 acres by 2025.

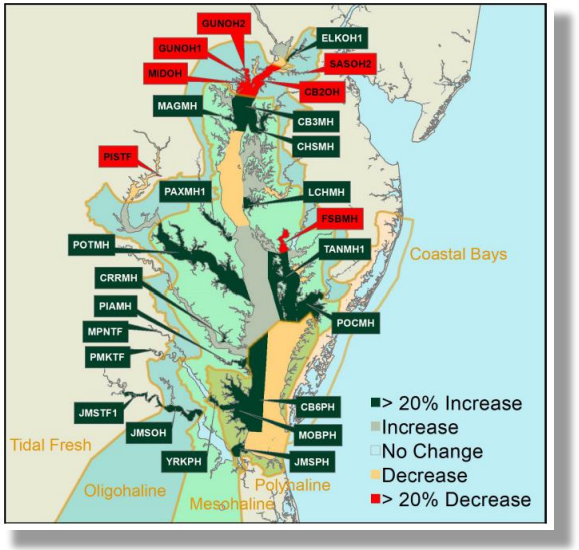
What is our Progress?

Progress towards the Bay-wide SAV goal



SAV #s were up in 2022!

- 76,462 acres were mapped in 2022 (+12%)



https://www.vims.edu/research/units/programs/sav/access/maps/index.php

https://www.chesapeakeprogress.com/abundant-life/sav

CBP Strategy Review System

SAV SRS process started again in October; we're currently developing the 2024-2025 Updated Management Strategy and SAV Workplan. Will present to MB on Dec. 14th.

Chesapeake Bay Program
Science, Restoration, Partnership

Submerged Aquatic Vegetation Outcome
Management Strategy
2015–2025, v.4

Water stargrass (Heteranthera dubia) in the clear waters of the upper Potomac River, Maryland on July 28th, 2019. (Photo by Brooke Landry/Maryland Department of Natural Resources)

I. Introduction

Submerged aquatic vegetation (SAV), or underwater grasses, provide significant benefits to aquatic life and serve critical functions in the Chesapeake Bay ecosystem. Underwater grasses provide food, habitat and nursery grounds for a number of commercially and ecologically important finfish and shellfish, such as striped bass and blue crabs, and migratory waterfowl. They reduce erosion by slowing currents and softening waves, anchor bottom sediments and help keep the water clear by absorbing nutrients and trapping sediments. Through photosynthesis, underwater grasses act as a carbon sink by taking in carbon dioxide. This contributes to the reduction of greenhouse gas emissions and reduces the potential for climate change impacts. Likewise, underwater grasses also produce oxygen, which helps sustain other aquatic life. Increasing the abundance of underwater grasses in the Bay and its rivers will dramatically improve the entire Bay ecosystem.

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BIENNIAL STRATEGY REVIEW SYSTEM
Chesapeake Bay Program

Logic and Action Plan: Post-Quarterly Progress Meeting

Submerged Aquatic Vegetation – 2022-2023

Long-term Target: Achieve and sustain the ultimate outcome of 185,000 acres of SAV Bay-wide; 130,000 acres by 2025
Two-year Target: To reach our 2025 goal of 130,000 acres, baywide SAV should increase by 16,000 acres per year. By 2023, we hope to achieve 98,000 acres of SAV, but a short-term target is not officially defined.

Factor	Current Efforts	Gap	Actions	Metrics	Expected Response and Application	Learn/Adapt
What is impacting our ability to achieve our outcome?	*What current efforts are addressing this factor?*	*What further efforts or information are needed to fully address this factor?*	*What actions are essential (to help fill this gap) to achieve our outcome?*	*What will we measure or observe to determine progress in filling identified gap?*	*How and when do we expect these actions to address the identified gap? How might that affect our work going forward?*	*What did we learn from taking this action? How will this lesson impact our work?*
Factor 1. Habitat Condition and Availability: SAV requires suitable water quality and clarity to recover and thrive as well as suitable shallow-water habitat in which to expand.	**Effort 1.1** The Bay TMDL was established to limit the amount of N, P and TSS entering the Chesapeake Bay. Reductions in N, P and TSS improve water clarity, which allows SAV to recover.	**Gap 1.1** Although SAV throughout the Bay has been shown to respond to improvements in water quality, it is also susceptible to degradation of water quality, particularly when impacted by multiple stressors, which we observed	Action 1.1a [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.]	**Metric 1.1a** Acres of SAV mapped (Bay-wide aerial survey)		

Updated March 9, 2022

The Ask

We ask that the MB endorse the necessity of **establishing a Shallow Water Habitat Sentinel Site Program** and guide the CBP to evaluate the utility of adding various components/resources to the existing SAV Sentinel Site program to do so.

Or something along these lines….

https://www.chesapeakebay.net/who/group/submerged-aquatic-vegetation-workgroup

SAV Regulatory Review

SAV Policy Discussion
March 7, 2023

Existing Chesapeake Bay Watershed Statutes and Regulations Affecting Submerged Aquatic Vegetation

SAV Policy Office Hours

Water Quality Standards
- Wednesday, June 21st, 1:00 - 2:00
- Thursday, June 29th, 11:00 - 12:00

Marine/Estuarine Resources
- Wednesday, June 28th, 1:00 - 2:00
- Thursday, July 6th, 11:00 - 12:00

Dredging and Filling
- Thursday, June 22nd, 11:00 - 12:00
- Wednesday, July 5th, 1:00 - 2:00

Any Topic from the Report
- Wednesday, July 12th, 1:00 - 2:00

Participants

Federal
- EPA: Megan Fitzgerald, Meredith Hudson, Dede Lawal (CRC/HGIT Staffer), Christina Thomas
- NOAA: Sean Corson, Jonathan Watson (NMFS)
- USACE: Woody Francis, Chris Spaur
- USFWS: Chris Guy (HGIT Coordinator)

State
- MD: Becky Golden (MDNR/SAVWG Vice-Chair), Gina Hunt (MDNR/HGIT Chair), Brooke Landry (MDNR/SAVWG Chair), Bill Morgante (BPW), Heather Nelson (MDE)

General Recommendations

- Encourage the Bay Program/SAV Workgroup to make recommendations/guidance for projects & practices with SAV impacts
- Identify priority SAV areas
- Consider the use of preliminary SAV data for project reviews
- Consider sentinel/reference sites to inform SAV mitigation site selection and relative success

Additional Science & Data Needs/Gaps

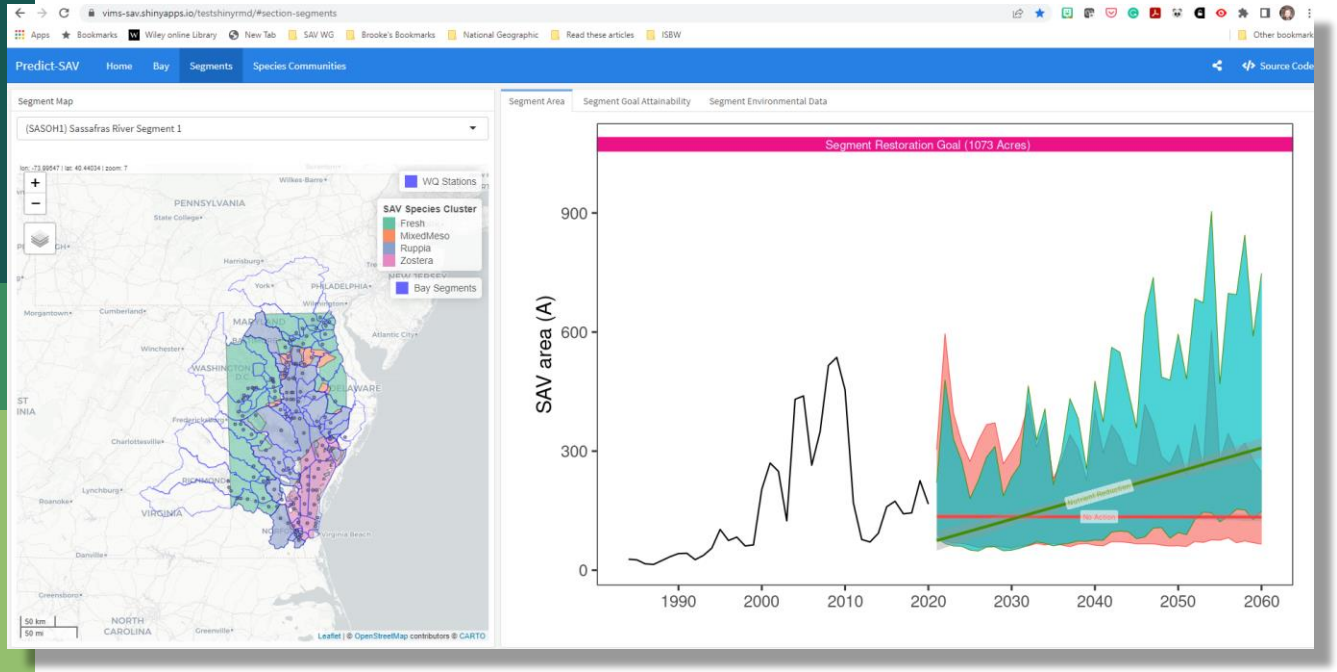
- Better tracking & public availability of SAV impacts/losses due to permitted activities
- Better tracking & public availability of SAV restoration and in-kind mitigation activities
- Valuation of SAV habitat benefits (ecosystem services)
- Additional mapping of early season SAV species (*Zannichellia palustris*) to inform avoidance/minimization measures

Modeling Climate Impacts on SAV in Chesapeake Bay: Complete!

Final Report:
https://www.chesapeakebay.net/who/group/submerged-aquatic-vegetation-workgroup

Proceedings of the National Academy of Science (PNAS) Article:
https://www.pnas.org/doi/10.1073/pnas.2220678120

Shiny App:
https://vims-sav.shinyapps.io/testshinyrmd/#section-segments



Take home message:
None of the 8000 simulations resulted in meeting our SAV restoration target BUT accelerated and expanded nutrient management will get us closer than if we stick to the current allocations dictated in the TMDL.

2022 GIT-Funded Project Lead: SAV Workgroup

Protecting Chesapeake Bay SAV Given Changing Hydrologic Conditions: Priority SAV Area Identification and Solutions Development

Project Objective

This project will identify high-priority SAV areas within the Chesapeake Bay Watershed and determine which BMPs could be most effective in protecting those areas from loss during high-flow events/years 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 implementation of BMPs and land management policies that will protect or restore those priority SAV habitats.

Contracted to: Tetra Tech

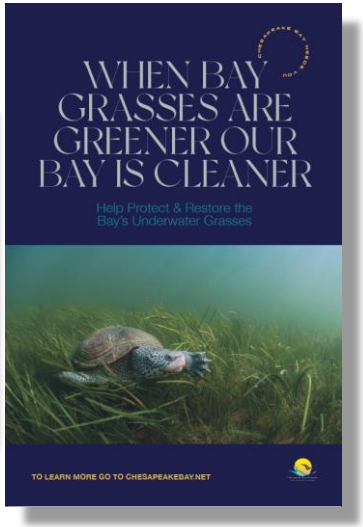
- **Steering committee has been identified and had their first meeting**

2022 GIT-Funded Project
Lead: Comms Workgroup

Advancing Social Marketing Through Two Pilot Programs

Proposed Project Outcomes

This project will develop pilot programs for existing community-based social marketing (CBSM) campaigns that have been developed over the past few years, SAV being one.



Contracted to: OpinionWorks

Only one SAV Watcher Trainer Certification Event in 2023: Marshy Point Nature Center on July 14th.
Certified ~12 Trainers!

Chesapeake Bay SAV Watchers Program

Chesapeake Bay SAV Watchers – Tier 2 Participation

ShoreRivers

Havre de Grace Maritime Museum and Environmental Center

James River Association

Severn River Association
America's Oldest River Group

Magothy River Association
Saving our river for future generations

Baltimore County Public Schools
Raising the bar. Closing gaps. Preparing for our future.

The Gunston School 1911 Centreville, MD

Marshy Point Nature Center

Arundel Rivers Federation

Chesapeake Bay National Estuarine Research Reserve Maryland
Using Sound Science...Finding Solutions...Promoting Wise Decisions

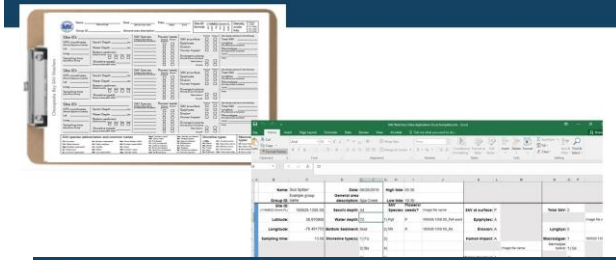
Chesapeake Bay SAV Watchers

Chesapeake Bay SAV Watchers is a program to provide volunteer scientists with an engaging and educational experience with submerged aquatic vegetation (SAV) while also generating useful data for Bay scientists and managers.

This is the first official SAV monitoring program for volunteer scientists developed by the Chesapeake Bay Program.

www.chesapeakebaysavwatchers.com

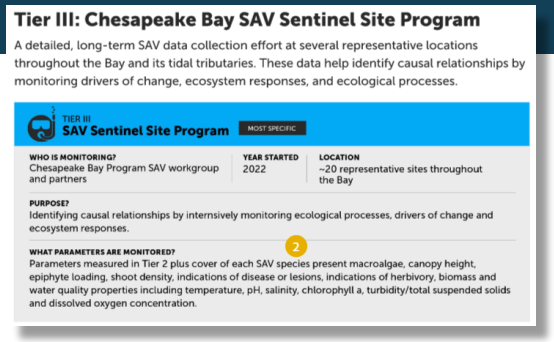
Standardized datasheet and digitization template



"Train the trainer" certification events offered each summer

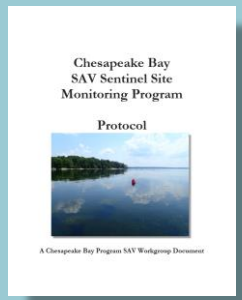
www.chesapeakebaysavwatchers.com **OR** https://www.chesapeakebay.net/what/programs/monitoring/sav-monitoring-program

SAV Sentinel Site Program – finally began in 2023!



Sites that will be installed and monitored in 2023:

- Severn River ✓
- Susquehanna Flats ✓
- ~~Smith Island~~
- ~~Marshy Creek~~
- Dundee Creek ✓
- St. Mary's ?
- VIMS sites ✓
- CB- NERR sites ✓

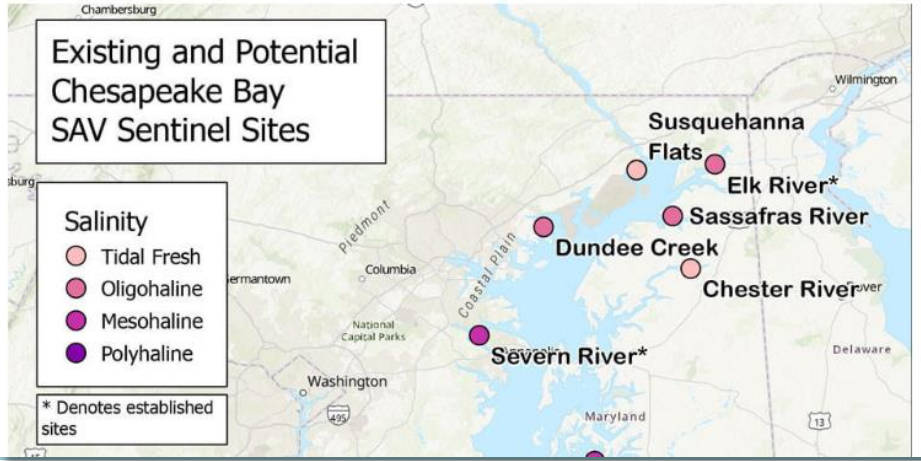


Tier III: SAV Sentinel Site Program

The SAV Sentinel Site Program is a monitoring effort conducted by Bay scientists

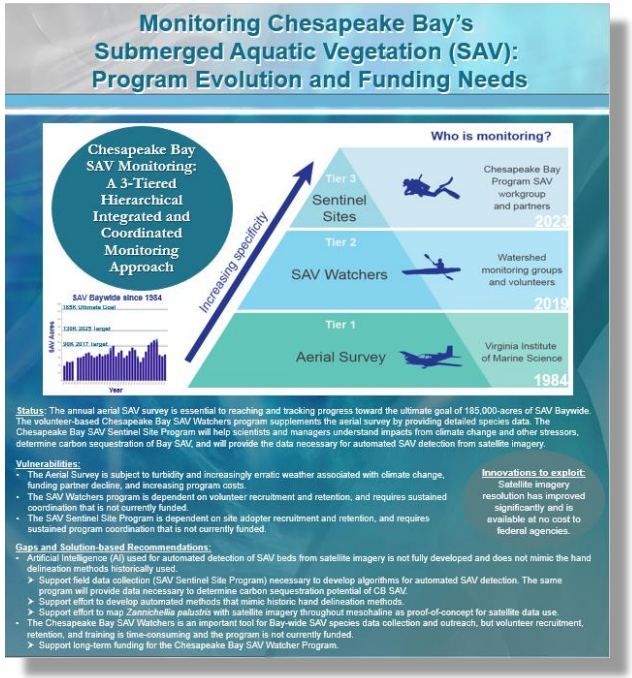
What is the Chesapeake Bay SAV Sentinel Site Program?

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 using a standardized, in-depth data collection protocol. These sentinel sites are a combination of existing, long-term sites and new sites where Bay scientists monitor changes in SAV habitat characteristics and resilience indicators. This program is coordinated by the Bay Program's SAV Workgroup. If you are interested in adopting and managing an SAV Sentinel Site, contact the program coordinator at brooke.landry@maryland.gov.



https://www.chesapeakebay.net/what/programs/monitoring/sav-monitoring-program

PSC Report and Recommendations - Funding for two topics allocated.



RFP #1 will: Support effort to develop automated methods that mimic historic SAV bed delineation methods for aerial imagery. Will also support effort to map *Zannichellia palustris* with satellite imagery throughout mesohaline as proof-of-concept for satellite data use. **This RFP was posted and closed in September. Awarded to Old Dominion University.**

RFP #2 will: Support long-term funding for the Chesapeake Bay SAV Watcher Program...data entry portal and management, program coordination, etc. TBD for this RFP….

NOAA Transformational Habitat Restoration Funding Opportunity:

SAV Workgroup members involved with two submitted proposals

Both proposals were primed by Restore America's Estuaries (RAE). Will find out in early summer if awarded.

HEAT: Helping Eelgrass Adapt to Temperature. This project is a common garden experiment that will exploit the concepts of facilitated migration and assisted gene flow to promote eelgrass's resilience to increasing temperatures along the east coast from NC to ME.

Questions?

Presentation template by SlidesCarnival