



# Chesapeake Bay Program

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## SAV Workgroup Spring Meeting 2025

Wednesday, May 7, 2025, 1:00-4:30 ET

[Link to the Meeting Materials](#)

### SAV WORKGROUP UPDATES

Presenter: Brooke Landry (MD DNR)

- 2022 GIT Funded Project – Protecting Chesapeake Bay SAV Given Changing Hydrologic Conditions
  - Complete – the report can be found on [the SAV WG webpage](#)
  - Next steps are to share the results with others in CBP
- 2022 GIT Funded Project – Advancing Social Marketing Through 2 Pilot Programs
  - Almost complete - ShoreRivers will do a pilot of the project this summer
- Shallow Water Sentinel Site Program
  - Contracted to Green Fin Studios
  - Creation and approval of a Quality Assurance Project Plan is complete
  - Literature and existing program review is happening now
  - Scoping workshop will take place sometime the first half of September
    - If interested in joining the workshop send Brooke Landry ([brooke.landry@maryland.gov](mailto:brooke.landry@maryland.gov)) an email
  - This is only program development and doesn't include implementation
- VIMS Bay-wide Aerial Survey
  - 83,419 acres of SAV in the Bay in 2023 – 8% increase from 2022
  - This is 61% of the 2025 target and 45% of the ultimate 185,000-acre outcome.
  - Updates from VIMS
    - Wrapping up things for the 2024 preliminary report
- SAV Watchers Program
  - Volunteer based effort to help monitor SAV throughout the Bay
  - SAV Watcher Trainer Certification Events in 2025:
    - Annapolis Maritime Museum
    - Marshy Point Nature Center?
    - St. Mary's Watershed Association/SMCM
    - Virginia Commonwealth University/TNC
    - VIMS
  - Subscribe to SAV Watchers newsletter [here](#)
- SAV Sentinel Site Program
  - Monitoring effort that will continue until the Shallow Water Sentinel Site Program is implemented
  - Sites that will be installed and/or continued in 2025:



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- Severn River
- Susquehanna Flats
- Smith Island
- Marshy Creek
- Dundee Creek
- St. Mary's
- VIMS sites
- CB- NERR sites
- o If you have any interest in starting a sentinel site email Brooke Landry ([brooke.landry@maryland.gov](mailto:brooke.landry@maryland.gov))
- SAV Data Dashboard is getting updated
- SAV Workgroup Fieldtrip to Susquehanna Flats
  - o Instead of a summer meeting on August 20<sup>th</sup>
  - o Plan to work with Havre de Grace Maritime Museum to take kayaks out for the full day
  - o August 20<sup>th</sup> date may change based on availability

## REVIEW OF SAV WORKGROUP MITIGATION AND MONITORING RECOMMENDATIONS TO REGULATORY PARTNERS

Presenter: Brooke Landry

- There has been an increase in MD projects where in-kind SAV mitigation is required, and regulatory agencies want consistency and adaptability, so we came up with recommendations for them
- SAV workgroup and regulatory partners convened to identify in-kind SAV mitigation and monitoring requirements, success criteria, and performance standards for SAV mitigation projects
- Recommendations from the workshop can be [found here](#) on slides 31 - 43
- Guidance document should go out for workgroup review in mid-June

### Discussion

- **Dick Zimmerman:** No mention of size of restoration site. Is that an important characteristic? For example, could they tear up 1 hectare and then restore 9 smaller plots that equal the same area?
  - o **Brooke Landry:** That has happened in the past, but it's not explicit in the report. Will add language addressing that to the report.
- **Erika Koontz:** If the SAV restoration isn't successful during those 5 years, would the 5-year time clock restart during the contingency plan?
  - o **Brooke Landry:** If the project fails because of regional trends, then they are off the hook. If the project site fails and the reference site is not impacted, then the contingency plan goes into place.



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- **Dave O'Brien:** When was the last time mitigation was required for SAV impacts b/c of a living shoreline? Permitted all the time in MD.
  - **Erika Koontz:** I don't necessarily have a direct answer to this and someone from MDE/USACE may have an answer. My understanding is that living shorelines projects are typically not permitted if any SAV was found (using VIMS layers) in the most recent 5 years of time at the proposed living shoreline site. In my M.S. work, I looked at 100 living shoreline sites constructed between 2002 and 2022 and only 24 of them had any SAV in the 5 years prior to construction, but I don't know if those 24 sites had any SAV mitigation requirements...
  - **Jonathan Watson:** Hi Erika, it happens somewhat regularly and without in-kind compensatory mitigation, especially if the impacts are less than 1 acre. There have been 3-4 shoreline stabilization projects where in-kind SAV mitigation was required in the last 5 years. Meanwhile, probably something like 15 - 20 acres of SAV impacts have been permitted (cumulatively across hundreds of projects) without in-kind SAV mitigation in that same time for all shoreline projects. Rough estimates, but wanted to give a sense of scale.
- **Emily French:** When is the new date you think the document will be available by and will the table of threshold SAV impacts be included?
  - **Brooke Landry:** Yes, the table can be included. Will need to give the workgroup a couple of weeks to review, so probably mid-June.
- **Jonathan Watson:** At some point it would be helpful to have a look back at the projects that have been implemented as compensatory mitigation and see where projects were successful. Rather than relying on anecdotes. We get the monitor reports and maybe the monitor reports don't get pulled together to say, "Yep this is working or it's not working". I think that's what we're missing.
  - **Brooke Landry:** More explicit recommendations, like monitoring reports, have to come to us as well and maybe even recommending a format for the monitoring reports because I have seen some that are just very big and kind of willy nilly.
  - **Jonathan Watson:** Yeah, that's a great idea. If you had a template or something that people could just plug stuff into, maybe that may make things a lot easier for somebody to go back and do the synthesis.
- **Brooke Landry:** As we ask for more SAV mitigation I don't want more projects permitted that will impact SAV because there's a perception that they can just mitigate. We want to stress that if you will be impacting SAV mitigate for SAV and not another habitat.

## BEYOND 2025 AND SAV OUTCOME

Presenter: Brooke Landry (MD DNR)

- Proposed Outcome Language: Sustain and increase the habitat and ecosystem benefits of submerged aquatic vegetation (SAV) in the Chesapeake Bay. Achieve and sustain the ~~ultimate~~ outcome of 196,000 acres of SAV Bay-wide necessary for a restored Bay.



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- o Progress toward this ultimate outcome will be measured against interim targets of 90,000 acres by 2030 and 95,000 acres by 2035.
- o Progress will also be measured against the following targets for each salinity zone:
  - Tidal Fresh: 21,330 acres
  - Oligohaline: 13,094 acres
  - Mesohaline: 126,032 acres
  - Polyhaline: 35,790 acres
- Interim targets were determined using linear regression on the Bay-wide totals and assume steady growth
- The forecasted acreage targets for 2030 and 2035 are based on an average 1.1% growth exhibited per year
- Increasing the ultimate SAV goal to 196,000 acres will align the outcome with water clarity standards and will result in a more accurate reflection of potential SAV extent in each Bay segment
- Management Board was okay with including the salinity zone targets, but wanted to change the salinity zones to plainer language
- Had no stops or holds – minor edits only – so what was proposed will go to the Principal Staff Committee and then to public comment in July

## Discussion

- **Dave O'Brien:** Brooke, why can't you simply provide the salinity ppts.? I don't like the idea of "dumbing" down salinity regimes.
  - o **Dick Zimmerman:** Add the salinity range in parenthesis after the zone name. It is important to keep the scientific names that most scientists know. If they are changed it can create a translation problem for the scientists actually doing the work.
  - o **Brooke Landry:** I will recommend that.

## **SEAGRASS STORAGE WARS**

### Presenter: Aly Hall (VIMS)

- Dominant seagrass species has shifted in the Bay – what does this mean for carbon storage?
- Seagrass meadows will not store carbon equally across meadows and regions
- Foundation species & environment interact to control carbon storage
  - o Carbon storage of region is lower due to foundation species shift
  - o Possibly offset by *Ruppia* occupying best real estate
  - o Carbon storage could be increased through new habitat or phenotypes of *Zostera*



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## Discussion

- **Brooke Landry:** Did you look at the reproductive structures on *Ruppia*? Do they play into it at all?
  - **Aly Hall:** We did not explore that. Couldn't find a way to quantify it in terms of this study, but it's an important note about *Ruppia*'s life history.
- **Dick Zimmerman:** Do you know how far back in time the 10cm depth cores represent?
  - **Aly Hall:** Further back than 15 years of the seagrass meadows. We did not do sediment accretion dating, but we can work on landshore values so it definitely encompasses a lot more than the meadows we looked at in our transect data.
- **Chris Patrick:** The low height dominant throughout the year works well in the model, but it may be even lower storage if not for reproductive shoots in the summer! The other factor is a lot of sediment movement probably happens in the spring with the major rains
- **Sally Hornor:** Did you look at benthic invertebrates in the meadows?
  - **Aly Hall:** We did not.
  - **Chris Patrick:** Sally not in this study but stay tuned for Alvaro et al. coming out soon in MEPS. Same meadows and transects, lots of data on differences between epifauna, infauna, and nekton between ruppia, zostera, and mixed meadows abundance, diversity, biomass, secondary production, animal identity all looked at.

## UPDATE ON SAV MAPPING VIA PLANET SATELLITE

Presenter: Victoria Hill (ODU)

- Activity 1: Using Planet satellite imagery; map the density and distribution of SAV throughout the mesohaline habitats in Chesapeake Bay
  - Will be able to provide accuracy estimates on satellite based maps and be able to identify the potential limitations of satellite imagery vs. aerial imagery
  - Develop deep learning classification models for automated mapping
- Activity 2: Develop and document a robust, repeatable method of generating vector-based polygons
  - Calibrate to the hand-delineated SAV mapping as estimated from the present SAV survey protocol to figure out a bridge between the two methods
  - Suitable for summarizing acreage and density throughout the mesohaline
- Timeline:
  - Summer 2025:
    - Complete 2021 – 2024 maps of mesohaline sections
    - Identify areas that will need higher resolution.
  - 2025 - 2026:



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- Train and test deep learning models for automated classification
- Validate/Tune density algorithm
- Compare our machine learning satellite products to hand-delineated aerial polygons expected to be complete in Summer 2025

## Discussion

- **Chris Patrick:** Have you done any comparisons to the aerial maps?
  - **Victoria Hill:** That will happen after we get all of the mapping done.
- **Brooke Landry:** Are you also taking core data?
  - **Victoria Hill:** For the NASA project that overlaps with this one, we will take cores that are up to a meter.
- **Dave Wilcox:** Are your training samples done on one image or does every image have its own training set?
  - **Victoria Hill:** Yes, so it's very labor intensive at the moment. The hope is we get four years worth of training patches identified to give us enough data to do the deep learning training.

## **RECOMMENDATIONS FOR CHESAPEAKE BAY SAV WATCHERS**

Presenter: *Stephanie Letourneau (VIMS)*

- Program Evaluation: Main Questions
  - What is the SAV specific scientific literacy of SAV Watcher trainers and volunteers?
  - What is the effectiveness of the program, including successes and areas for improvement?
  - What are the anticipated challenges of expansion into VA\*?
- Mixed methods: Surveys, Interview, & Focus groups
- Survey response totals:
  - 19 MD Trainers
  - 11 MD Volunteers
  - 9 VA Trainers
- Focus groups & interview participation totals
  - 7 MD Trainers
  - 5 Volunteers
  - 2 VA Trainers
  - 1 coordinator
- 3 Themes:
  - Growth & Development
  - Invest Further, Achieve More
  - Sustained Engagement
- Suggestions
  - Ensure in-person training opportunities and refreshers



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- o Increase communications about data use
  - o Formalize feedback pathways and adjust accordingly
  - o Ensure Train-the-Trainer event is effective and efficient
  - o Provide trainers with more resources and additional “how to” training
  - o Foster community and collaboration
  - o Secure funding for increased coordination efforts
- Conclusion
  - o Valuable program for stewardship building & filling data gaps in SAV
  - o Opportunity in VA to expand
  - o Volunteer monitoring should not be overlooked underappreciated method
  - o Mixed methods research produces deeper understanding
  - o Link to Stephanie’s paper: <https://doi.org/10.25773/4x2k-zn90>

**ATTENDEES (30): Brooke Landry (MD DNR), Dede Lawal (CRC), Victoria Hill (ODU), Chris Patrick (VIMS), Aly Hall (VIMS), Mark Lewandowski (MD DNR), Stephanie Hall (MD DNR), Alex Bijak (VIMS), Lesley Baggett (AKRF), Susan Lamont (AACC), Tammy Domanski (AACC), Dick Zimmerman (ODU), Emily French (EPA), Jaimie Tarnai (MDOT), Robyn Dudrick (VIMS), Tish Robertson (DEQ), Kaitlin Scowen (MD DNR), Zack Kelleher (Sassafras Riverkeeper), Patrick Boos (EPA), Anamika Kona (ODU), Dave O’Brien (NOAA), Jonathan Watson (NOAA), Sally Honor (MRA), Julie Luecke (CBF), Erika Koontz (MD DNR), Dave Wilcox (VIMS), Carl Friedrichs (VIMS), Sabine Miller (MDE), Maria Guardado (ODU), Erin Reilly (VIMS)**