

06/27/2023 – SAV WORKGROUP SUMMER MEETING 2023

MEETING: SAV Workgroup Summer Meeting

DATE/TIME: 06/27/2023, 1:00pm – 4:30pm

MEETING MINUTES:

[Click here for the meeting agenda and presentation materials](#)

WELCOME AND INTRODUCTIONS

SAV WORKGROUP UPDATES

Presenter: *Brooke Landry (MDNR)*

- There was an increase in SAV numbers in 2022.
- Chris Patrick Commercial Break:
 - Found that in 2023 seeds were ready 24 days ahead of what's typical. Not just in the Chesapeake Bay, but also in MA and VA Coastal Bays. Also found wasting disease in zostera beds earlier than usual (in April when usually found in mid-Summer). Wonder if warm winter pushed up seed development and jump started the wasting disease.
 - Long term transects in Pocosin flats show grasses at 10ft depth (85% coverage in some areas). Some places had never been vegetated in the history of the survey but are now.
- 2023 SAV Attainability Update for SRS
 - What has helped achieve success?
 - Management solutions.
 - Direct, small scale, SAV restoration.
 - Increased research and monitoring.
 - What challenges have hindered progress?
 - Pollution reductions have been inadequate.
 - Climate change impacts.
 - Inadequate staffing, training, funding.
 - Shallow water use conflicts and habitat trade-offs.
 - What is needed to accelerate progress?
 - Nutrient and sediment reductions beyond those in the TMDL.
 - Structured decision making to equitably and effectively manage habitat trade-offs and shallow water use conflicts.
 - Expanded monitoring efforts that include *Zannichellia*.
- Modeling Climate Impacts on SAV in Chesapeake Bay is Complete!
 - The final report can be found on the [SAV Workgroup Webpage](#).
 - None of the 8,000 simulations resulted in meeting the SAV restoration target, but nutrient management will get us closer if stick to the current allocations in the TMDL. Increased nutrient management (going above and beyond current TMDL allocations) will accelerate SAV recovery.
- 2022 GIT Funded Projects:

06/27/2023 – SAV WORKGROUP SUMMER MEETING 2023

- *Protecting Chesapeake Bay SAV Given Changing Hydrologic Conditions: Priority SAV Area Identification and Solutions Development*, awarded to Tetra Tech.
- *Advancing Social Marketing Through Two Pilot Programs*, awarded to OpinionWorks
- SAV Sentinel Site Program is beginning.
 - Sites that will be monitored in 2023: Severn River, Susquehanna Flats, Smith Island, Marshy Creek, Dundee Creek, St. Mary's, VIMS sites, CB-NERR sites.
- 2 RFPs coming soon:
 - [RFP #1](#): 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. Closing Date: September 6th, 2023.
 - RFP #2: Support long-term funding for the Chesapeake Bay SAV Watcher Program. Data entry portal and management, program coordination, etc. Opens in the fall.
- [NOAA Funding Opportunity](#)
- [East Coast SAV Collaborative](#): Experts in SAV research and management from Eastern states (ME to NC) come together to share ideas, provide resources/training, and promote actionable science.

SAV MITIGATION MONITORING DISCUSSION & SAV POLICY MEETING RECAP/UPDATES

Presenter: *Becky Golden (MDNR)*

SAV Mitigation Monitoring

- Objectives:
 - Review the proposed approach, gain workgroup consensus, recommend a reasonable and consistent approach for the future.
- Monitoring Timeline:
 - Permittee must monitor the restoration and the reference site for 5 years.
 - After 5 years of monitoring if the quality ratio > the threshold value the project will be deemed successful and no further monitoring is required.
- Next steps:
 - Engage regulatory agencies on recommendations for determining in-kind mitigation success criteria.
 - Assess restoration success at a variety of locations to inform setting appropriate mitigation ratios.
 - Increase SAV restoration and monitoring capacity.
 - Investigate permittee responsible mitigation vs. third party mitigation.
- **Action:** A Google Form was shared to give feedback on the proposed approach.

Questions/Comments:

- **Matt Robinson:** Have any of the states considered starting an SAV mitigation bank?

06/27/2023 – SAV WORKGROUP SUMMER MEETING 2023

- **Becky Golden:** We have had projects that have paid into a comp fund. For MD it's the tidal wetland fund. Talked about establishing an SAV fund to upscale SAV restoration projects.
- **Matt Robinson:** That sounds like a fee in lieu program, which is great. The banking approach I bring up is something they've done with streams and wetlands. In St. Petersburg, FL they are trying to go out and restore a large seagrass bed on the city's dollar as a way of mitigating for others that go out and destroy seagrass beds. St. Petersburg example:
<https://stpetecatalyst.com/st-pete-is-banking-on-seagrass-efforts/>

SAV Policy Meeting

- Back in 2018/2019 the SAV Workgroup had a GIT Funded project that looked at the Chesapeake Bay Watershed statutes and regulations that affect SAV. The outcome of that project was [a report](#) with recommendations on how some of those laws and regulations could be strengthened.
- The Management Board asked the SAV Workgroup to review the recommendations to determine if they should move forward with the recommendations and if so how.
 - March 2023 there was a kickoff meeting with representatives from regulatory agencies to review the recommendations. At the end of the meeting there were 3 topics they wanted to explore more: Dredging/Filling, Marine/Estuarine Resources, and Water Quality Standards.
 - Office hours were held to further explore those themes.

INNOVATIONS IN SEAGRASS MONITORING TECHNOLOGY

Presenter: *Jeff Coogan (Coastal Monitoring Alliance)*

- Long term monitoring data usually has a lot of noise and natural variability, so it takes a long time to identify a trend. Making it challenging for mitigation and restoration projects because the slow response time inhibits adaptive decision making. Interested in developing new technology and methods.
- Long-term Eddy Covariance System
 - Measures oxygen and velocity at high rates to tell you the net ecosystem metabolism (NEM) of that community.
 - Overcomes the challenges of power, has a more reliable DO sensor, and ensures data quality for long term monitoring.
 - Able to deploy one for 6 months and can see stress events in real time.
- Focused on building a towed mobile gradient system.
 - Systems are typically stationary but can be towed to map the NEM of seagrass meadows. Can also measure respiration, temperature, canopy drag and use those to create math models to estimate below and above ground biomass.
- Long-term goal to build GIS heat maps that shows ecosystem health and other data products measured.

Comments/Questions:

- **Brooke Landry:** What kind of depth would this work at?
 - **Jeff Coogan:** As long as the top sensor is underwater, so as shallow as 1 meter in depth.
- **Ken Moore:** Had a chance to do some work with eddy covariance in a seagrass bed and one of the issues is that only about 50% of the NEM in eelgrass comes from the plants and the rest is from sediment and stuff in the water. Be aware of the complexities.
 - **Jeff Coogan:** We're measuring the community NEM and not just seagrass. My bigger focus is to understand how systems are changing.
- **Becky Swerida:** Is this process specialized to eelgrass shaped species? Could there be application to canopy forming species?
 - **Jeff Coogan:** Looking forward to trying it through different SAV, but the original idea was for eelgrass beds.
- **Doug Myers:** I've done some work with blue carbon and wonder if you could tow this array in a nearby unvegetated area to get an estimate of the allochthonous carbon contributing to the respiration?
 - **Jeff Coogan:** It's dependent on how accurate of a gradient you can get. For the most part there is usually something you can measure.

GROWTH OF *LYNGBYA* (MICROSEIRA) IN THE FRESHWATER TIDAL POTOMAC

Presenter: *R. Christian Jones (GMU)*

- *Lyngbya* is a filamentous cyanobacterium that grows on the sediment surface and is often found under SAV canopy.
- MS student Sam Mahoney studied the tidal Occoquan across from GMU's Potomac Science Center. This work provided an overview of *Lyngbya* mat variability and seasonal progression beginning in July at one site.
- There's a follow-up study that begins earlier in the year to capture the full development of the *Lyngbya* mat, develop a better way to capture small scale variability, and look at the aerial extent of the mats.
 - Unfortunately, haven't seen new *lyngbya* growth in the study area.
- Future work: Determine significance of epiphytes to *Lyngbya* development, explore alternative ways of collecting replicate samples, and map outbreaks of active *Lyngbya* growth in the study area.

MDSG SUSQUEHANNA FLATS: *LYNGBYA* FIELD UPDATE

Presenters: *Cathy Wazniak (MDNR) & Judy O'Neil (UMCES)*

- Project goals:
 - Looking at the interaction of SAV and benthic cyanobacteria.
 - Determine the effects of environmental variables on cyanobacteria production, nutrient uptake, N₂ fixation, and potential toxin production.
- 2022 Field Methods:
 - Percent coverage at 30 random stations
 - Fluxes and biomass cores at transect sites.
 - Cyanotoxins on filaments.

- 2022 Summary: Lyngbya is fixing Nitrogen, phosphorus is low where lyngbya is high, freshwater Saxitoxin was detected in the Lyngbya sampled.

2025 AND BEYOND – CHESAPEAKE BAY SAV GOAL ATTAINMENT

Presenter: *Brooke Landry (MDNR)*

- The 185,000-acre SAV goal for the Chesapeake Bay Program represents the sum of single best year for each of the 92 SAV segments in the Bay *before correction*. If the error hadn't occurred, the goal would be 192,000 acres.
 - In our historical record there wasn't one year where 185,000 acres of SAV were present at one time in the Bay, so using the cumulative best years as a goal is aspirational but not necessarily accurate for what happened historically.
- Climate change isn't taken into consideration in the original SAV goal.
- There is no end date associated with the goal, so would like to take some of that ambiguity out by defining a date.
- The states have accepted the 192,000 SAV acre goal for the water quality standards assessment, which is different from the Chesapeake Bay Program goal.
- Jamboard Exercise. See Appendix A for Jamboard responses to questions posed during discussion.

Comments/Questions:

- **Brooke Landry:** *Zannichellia* is not included right now, should it be included in SAV Chesapeake Bay acreage? We don't capture it because it comes and goes before the aerial surveys (peak in April) if we expand our techniques, we can capture *Zannichellia* in our goal and include it.
- **Chris Patrick:** Have seen *Zannichellia* as late as June. We actively avoid it in the VIMS aerial surveys because it hasn't been captured in the past and want to keep consistency in the time series. Should we re-evaluate the decision to avoid *Zannichellia* in the survey? It would artificially increase the goal.
 - **Chris Guy:** Establish a new baseline year, so you can include *Zannichellia* in future surveys.
- **Doug Myers:** If we accept a lower goal because it's achievable, we're sending the wrong message. If we lowered the goal, is that meeting the designated uses in the Clean Water Act? Don't want to have an excuse to unhitch our wagon from the CWA.
 - **Chris Guy:** The CBP SAV Outcome is different from the goals.
- **Doug Myers:** Could you see the value in making a link between the SAV recovery acreage and a blue crab support goal?
 - **Chris Guy:** Yes, absolutely. These outcomes shouldn't be stove piped.
 - **Chris Patrick:** You're talking about making functional goals instead of restoring to a historic basis. We still have a poor understanding of the linkages of the functions we believe the grasses are offering. If we do a functional goal, we need to figure out how the habitats relate to all the different functions and what our functional goals are.

WRAP UP AND ADJOURN**PARTICIPANTS (41):**

Allison Colden (CBF)	Aly Hall (VIMS)	Amy Hamilton (MDNR)	April Sparkman (USACE)
Becky Golden (SAVWG Vice Chair/MDNR)	Becky Swerida (MDNR)	Brooke Landry (SAVWG Chair/MDNR)	Carl Friedrichs (VIMS)
Catherine Wazniak (MDNR)	Chris Guy (USFWS)	Chris Jones (GMU)	Chris Patrick (VIMS)
Cindy Johnson (VADEQ)	Richard Zimmerman (ODU)	David Wilcox (VIMS)	Dede Lawal (CRC)
Doug Myers (CBF)	Elle Bassett (ARF)	Jeff Coogan (CMA)	John Sandkuhler (NWA)
Johnathan Watson (NOAA)	Judy O’Neil (UMCES)	Kaitlin Scowen (MDNR)	Katlyn Fuentes (CRC)
Kelly Somers (EPA)	Ken Moore (VIMS)	Lisa Ham (HDG MM)	Lori Staver (UMCES)
Marc Hensel (VIMS)	Mark Lenwandowski (UMCES)	Matt Robinson (EPA)	Megan Fitzgerald (EPA)
Mike Naylor (MDNR)	Morgan Buchanan (ShoreRivers)	Paige Hobaugh (TetraTech)	Peter Tango (USGS)
Stephanie Hall (MDNR)	Tish Robertson (VADEQ)	Woody Francis (USACE)	Zack Kelleher (Shore Rivers)
JJ Orth (VIMS, retired)			

APPENDIX A: 6.27.2023 SAV WORKGROUP MEETING: JAMBOARD RESPONSES

<https://jamboard.google.com/d/1QmeiaUq-cY2zJQDyCWZR01yTOIGNTImS5us1d4UI-no/viewer>

(+n) = number of people who liked (check marked) the statement

CBP Goals should be aspirational but realistic. Given this presentation (and the realities of watershed development and climate change and everything else you know about SAV that I don't need to tell you), do you believe the 185,000-acre goal is still achievable?

- Yes (+4)
- Yes. News that eelgrass could go deep changes everything. We haven't surveyed. (+1)
- They are as achievable as any of the other goals.
- As part of the VIMS team, we are somewhat limited in our modeling by the past data so while its depressing I would take it with a grain of salt.
- SAV is incredibly resilient. It can recover very rapidly given the right conditions. This is doable. (+4)
- Yes, its possible in the long-term future, but interim goals would be necessary. 10 years should not be 185K (+2)
- Barring unforeseen conditions (e.g., novel species expansion) and considering the modeling work from VIMS, climate change, etc., - No, but we might be able to get consistently close.
 - Zannichellia coverage data may change this answer.
- By what year?

Regardless of achievability, would you prefer to keep the 185,000-acre goal or update it?

- Nest segments to form larger trib-units.
- Include regional/segment goals. (+2)
- Update it to match something we can map – correct the error and go with 192K.
- Keep ultimate 185,000 goal but have short-term targets as well. (+2)
- Adding a reporting metric of % of segments meeting their goals would be useful as well. (+3)
- More interim goals to hit would give a boost, we could add more of them to stepwise achieve the big goal.
- Percentage change rather an acreage?
 - Need both!
- Update with interim goals and consider having a range rather than a single number. (+3)
- Use shallow water strategy from CESR to focus TMDL to basins where SAV goals are more achievable.
- Yes, keep as is if the process of changing it will distract from the science needed. (+1)
- Keep for now, better is better, but higher and not achieving isn't.
- Keep goal but set more realistic timelines and corresponding interim goals. (+3)
- Yes, let's keep it, or expand to 192,000. Going down is backsliding and compromising our future goals. (+2)

If we decide to update it, would you like to make it higher (based on corrected data and updated segment maximums) or lower (based on, for example, a compromise between known max extent ~192,000 ac~ and recent max extent ~108,000 ac~)?

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- Get Bay Program help with sampling for permit areas to see if SAV is actually present when mapping is not available.
- Successful outcome will be important, so set up for success!
- 192K is more in line with the jurisdictions' WQS, so that makes it a more logical goal...even if it is unlikely, we would attain it.
- Instead of historical extent/recent extent, what about a goal based on needs of living resources (crabs, juvenile fish, etc.)? (+1)
- Need to see if other beds are also going deep and devise new survey techniques to capture. Maybe we already met 185K.
 - Persistent deep grass seems to be very rare.
- Based on the models run in the recent study, we should adjust the number down to meet the science that is available. This is still aspirational, but realistic.
- If we update the "end goal" I would only go up to 192K or whatever makes sense. Adding new interim goals based on recent max extent, etc. would be ok.
- Factor in sea-level rise and how that would allow for SAV migration/"new" potential SAV habitat in the future. (+1)
- If we could include Zannichellia, then we should increase the goal in some segments. (+3)
- Evaluate extent based on rolling average to minimize impact of inter-annual variation on communicating progress.
- Update to include range between 108K and 192K.
- Keep the goal based on a spatial extent so that it could be evaluated in newly defined regions. (+1)

Do you think the SAV Outcome should be based on more than one single numerical goal? For example, would you prefer distinct goals for each salinity zone (TF, OH, MH, PH)? This information is reported now but is not the ultimate goal.

- Yes, goals per salinity zone make sense. Build on success where beds are already established rather than expecting grass to magically pop up where it historically existed.
- Since many cannot handle nuance, we need one number. Building that single number from a defensible aggregate of these zones would be a way to do both? (+6)
- If we just focus on one goal, why look at any systems with less SAV. We'd just need to focus on the large areas.
- Lots of Zann in Magothy coves every year. Highly variable as to location but lots of it every year.
- Adding it from here on in shouldn't need any particular explanation other than we can now find it. - What Chris said!!

Do you think the SAV Outcome should be based on something besides a numerical goal altogether? For example, the outcome could be based on contributing factors that are more within our control (ie. # of volunteer monitors, # of acres restored by seed, # of schools that teach detailed chapters on SAV ecology, etc.)

- These seem like they belong in our 2-year plan.
- These could be additional, but should not take the place of a tangible, on-the-ground goal for SAV extent/habitat quality. (+3)

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- NO. Those measures are OK as social supplements but not reflective of any physical conditions in the bay.

What about a combination of 4 and 5 – “a numerical outcome with contributing factors”. In this case we would have an acreage goal as well as factor goals.

- Sure
- Again, this seems very confusing, how could we measure success?

Any additional thoughts, ideas, suggestions for the SAV Outcome Beyond 2025? Remember that this is just the beginning of the conversation. These questions were posed to get everyone thinking about where we want to go from here - not to solve it all today.

- As suggested by CESR, SAV goal and other biological response resonates with the public way better than pounds of nitrogen load reduced. Engage communities in plan. (+1)
- The functional goal is a cool idea and I'd love to see more funding for that.