SUMMER QUARTERLY MEETING – October 18th, 2023

Chesapeake Bay Program

SAV Goal: Beyond 2025 Discussion Continued

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Maryland DNR and
Chair, SAV Workgroup

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

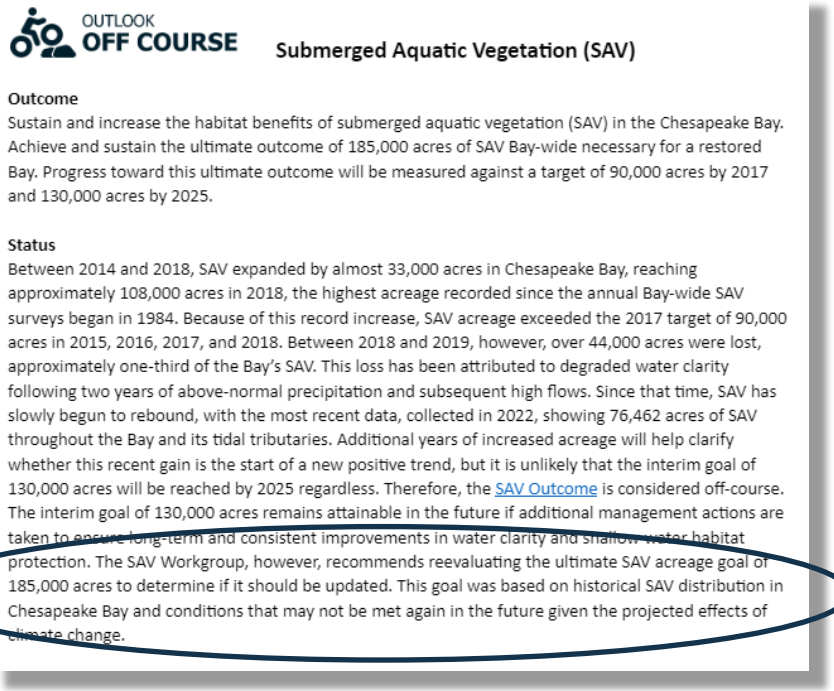
Goal: ***Vital Habitats***

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.

At the expiration of the current Agreement, we will have the opportunity to recommend updates to the SAV Outcome….

2023 SAV Attainability Update for SRS



OUTLOOK
OFF COURSE

Submerged Aquatic Vegetation (SAV)

Outcome

Sustain and increase the habitat benefits of submerged aquatic vegetation (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.

Status

Between 2014 and 2018, SAV expanded by almost 33,000 acres in Chesapeake Bay, reaching approximately 108,000 acres in 2018, the highest acreage recorded since the annual Bay-wide SAV surveys began in 1984. Because of this record increase, SAV acreage exceeded the 2017 target of 90,000 acres in 2015, 2016, 2017, and 2018. Between 2018 and 2019, however, over 44,000 acres were lost, approximately one-third of the Bay's SAV. This loss has been attributed to degraded water clarity following two years of above-normal precipitation and subsequent high flows. Since that time, SAV has slowly begun to rebound, with the most recent data, collected in 2022, showing 76,462 acres of SAV throughout the Bay and its tidal tributaries. Additional years of increased acreage will help clarify whether this recent gain is the start of a new positive trend, but it is unlikely that the interim goal of 130,000 acres will be reached by 2025 regardless. Therefore, the SAV Outcome is considered off-course. The interim goal of 130,000 acres remains attainable in the future if additional management actions are taken to ensure long-term and consistent improvements in water clarity and shallow water habitat protection. The SAV Workgroup, however, recommends reevaluating the ultimate SAV acreage goal of 185,000 acres to determine if it should be updated. This goal was based on historical SAV distribution in Chesapeake Bay and conditions that may not be met again in the future given the projected effects of climate change.

Beyond 2025 Strategy Review System

What has helped achieve success since 2014?

- Management solutions
- Direct, small-scale, SAV restoration
- Collaboration and community engagement
- Increased research and monitoring

What challenges have hindered progress?

- Pollution reductions have been inadequate to consistently improve water clarity
- Climate change impacts
- Existing statutes, regulations, and policies have been inadequate
- Shallow water use conflicts and habitat trade-offs
- Inadequate staffing, training, and funding

What is needed to accelerate progress?

- Nutrient and sediment reductions *beyond* those currently allocated in the TMDL
- Community-specific understanding of both SAV patterns and processes
- Significant financial investments for SAV restoration
- An expanded monitoring effort that includes *Zannichellia*
- Structured decision making to equitably and effectively manage habitat trade-offs and shallow-water use conflicts

Many things to consider as we determine our recommendations

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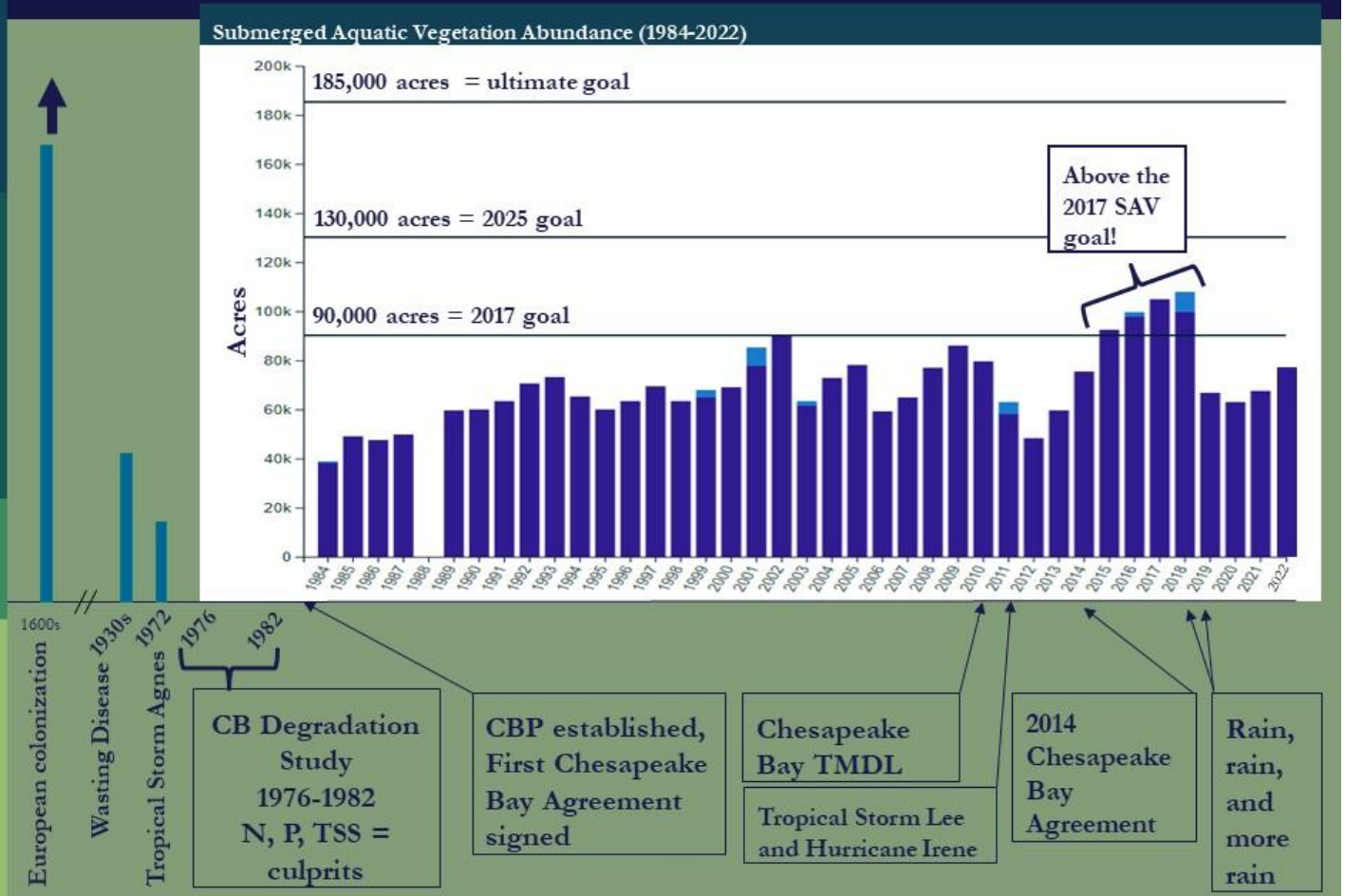
185,000-acre goal

- 2014 Chesapeake Bay Agreement for the SAV Outcome
- Based on sum of single best year for each of the 92 SAV segments, *prior to correction (shoreline error cut off SAV that was inaccurately projected on land; actual sum is approx. 192,000 acres)*
- The Bay may have supported anywhere from 200,000 to 600,000 acres of SAV in the past (based on bathymetry, seed bank records, and aerial imagery), but there's no indication that that maximum acreage occurred during a single year
- Climate change was not taken into consideration for SAV outcome
- No end date associated with goal; interim goals established instead
- 2017 = 90,000 acres; 2025 = 130,000 acres

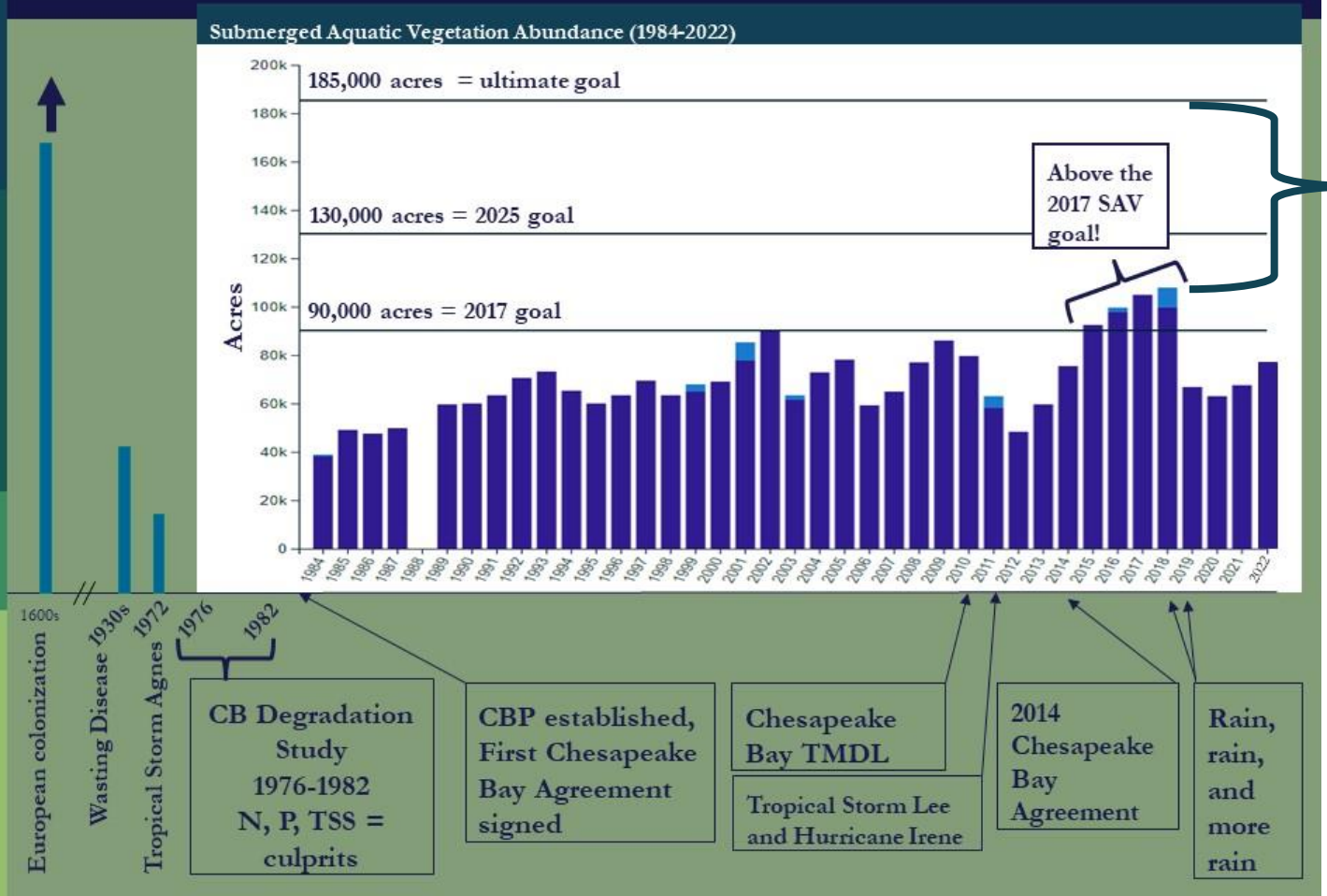
192,000-acre goal

- Updated acreage goal based on correction
- Adopted by states for **water clarity standards assessment**
- Not the recognized CBP goal; the overall CBP SAV goal remains at 185,000 acres
- Virginia has updated some segment goals based on more recent single best year data; Maryland may follow suit

Progress towards the Bay-wide SAV goal



Progress towards the Bay-wide SAV goal

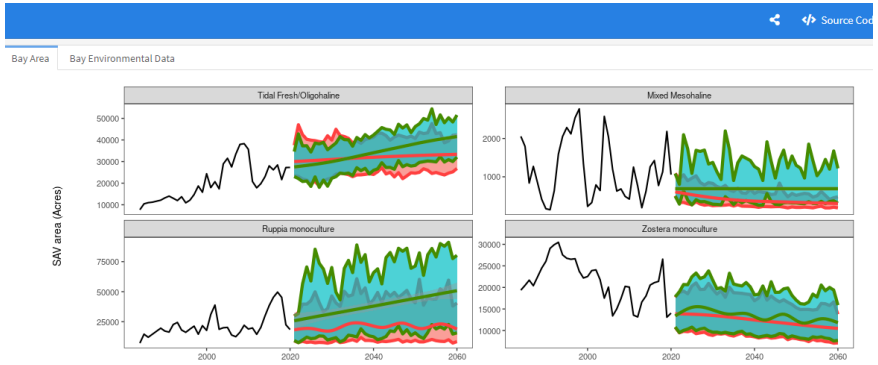


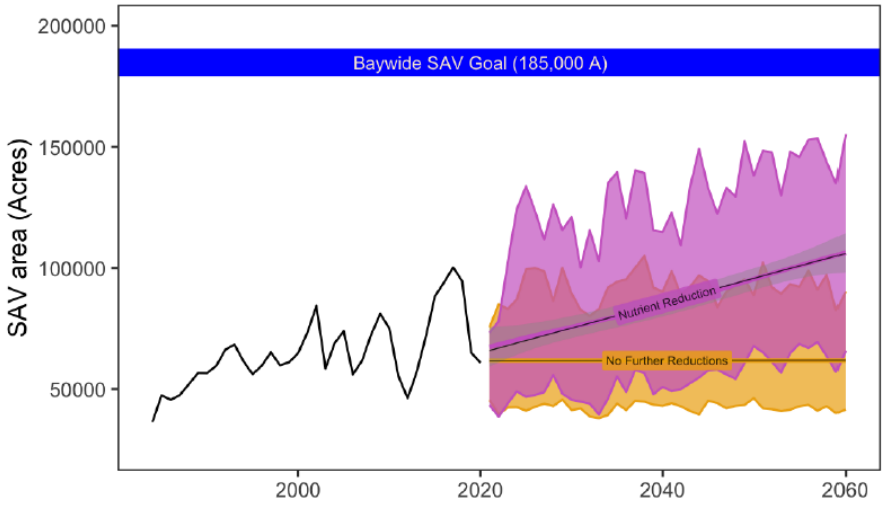
▲ = 77,000 acres

Modeling Climate Impacts on SAV in Chesapeake Bay

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.





Questions for the SAV Workgroup membership to consider (go to Jamboard):

https://jamboard.google.com/d/1QmeiaUq-cY2zJQDyCWZR01yToIGNTImS5us1d4UI-no/viewer?f=0

1. 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?

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

3. 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~)?

4. 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.

5. 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.)

6. 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.

7. 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.

1. **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?

2. 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)

3. 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~)?

- 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)

4. 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!!

5. 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)
- NO. Those measures are OK as social supplements but not reflective of any physical conditions in the bay.

6. 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?

7. 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.

Based on your input, I propose:

1. We officially adopt the 192,000 acre Bay-wide SAV goal to align with the state goals
2. We include a percent attainment goal of 75%, so that the goal reads

Sustain and increase the habitat benefits of SAV in the Chesapeake Bay. Achieve and sustain the ultimate outcome of 192,000 acres of SAV Bay-wide or 75% segment attainment necessary for a restored Bay. Progress toward this ultimate outcome will be measured against a target of 90,000 acres by 20XX, 130,000 acres by 20XX, and the ultimate outcome of 192,000 acres by 20XX.

3. When the next Aerial survey contract rolls over, we begin including *Zannichellia* in the acreage results.

Questions?