Quarterly Progress Meeting: SAV

Step 1: Summarize your outcome.

Outcome:

Sustain and increase the habitat benefits of SAV (underwater grasses) 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.

Lead and Supporting Goal Implementation Teams (GITs):

The Vital Habitats Goal Implementation Team (GIT2) leads the effort to achieve this outcome. It works in partnership with the Sustainable Fisheries and Healthy Watersheds Goal Implementation Teams (GIT1 and GIT4), as well as the Water Quality GIT

Participating Partners: defined as name and/or affiliation listed in workplan and on listserve

- Anne Arundel Community College
    - Steve Ailstock, Michael Norman
- Baltimore County Department of Environmental Protection and Sustainability
    - Sarah Witcher
- Chesapeake Research Consortium
    - Kyle Runion, Paige Hobaugh
- Department of Defense
    - Adam Wright
- Dickinson College
    - Tom Arnold
- George Mason University
    - Chris Kennedy
- Hartford Community College/Kollar Environmental Consulting
    - Stan Kollar
- Maryland Department of Natural Resources
    - Brooke Landry, Rebecca Golden, Mark Lewandowski, Mike Naylor, Elliott Campbell,
- National Oceanic and Atmospheric Administration
    - Kristy Beard, Michelle Magliocca
- National Park Service
    - Brian Sturgis, contact for mute swans?
- Old Dominion University
    - Richard Zimmerman, Victoria Hill
- Smithsonian Environmental Research Center
    - Don Weller, Christopher Patrick, Michael Hannam
- South River Federation
    - Jesse Iliff
- St. Mary's College of Maryland
    - Chris Tanner
- University of Maryland College Park

- o Maile Neel
- University of Maryland Center for Environmental Science
  - o Bill Dennison, Howard Weinberg, Katia Englehardt, Laura Murray, Michael Kemp, Lisa Wainger, Lora Harris, Cassie Gurbisz, Court Stevenson, Dong Liang
- University of Virginia
  - o Eric Bricker
- U.S. Army Aberdeen Proving Ground
  - o Todd Beser
- U.S. Army Corps of Engineers
  - o Angela Sowers, Woody Francis, Michele Gomez, Peter Kube
- U.S. Geological Survey
  - o Nancy Rybicki, Peter Tango
- U.S. Environmental Protection Agency
  - o Rich Batiuk, Greg Allen
- U.S. Fish and Wildlife Service
  - o Pete McGowan, Matt Whitbeck, Jennifer Greiner
- Virginia Department of Environmental Quality
  - o Tish Robertson, Cindy Johnson, Laura McKay
- Virginia Department of Game and Inland Fisheries
  - o Contact for Trap removal?
- Virginia Institute of Marine Sciences
  - o Robert Orth, Dave Wilcox, Erin Shields, Ken Moore, Paul Richardson, Emmett Duffy
- Virginia Marine Resources Commission
  - o Jay Woodward, Tony Watkinson

Progress:

For the second year in a row, the 2016 acreage was the highest amount ever recorded by the Virginia Institute of Marine Science with a baywide total of 97,433 acres of SAV. Moreover, it is likely that more submerged aquatic vegetation grew in the region than this estimate suggests: weather conditions and security restrictions prevented researchers from collecting aerial imagery over a portion of the Potomac River. This portion of the Potomac supported almost 2,000 acres of grasses in 2015, and trends suggest this area would have put the Bay-wide total at 99,409 acres—or 54 percent of the goal—had it been mapped.

Submerged Aquatic Vegetation (SAV) Abundance (1984-2016)
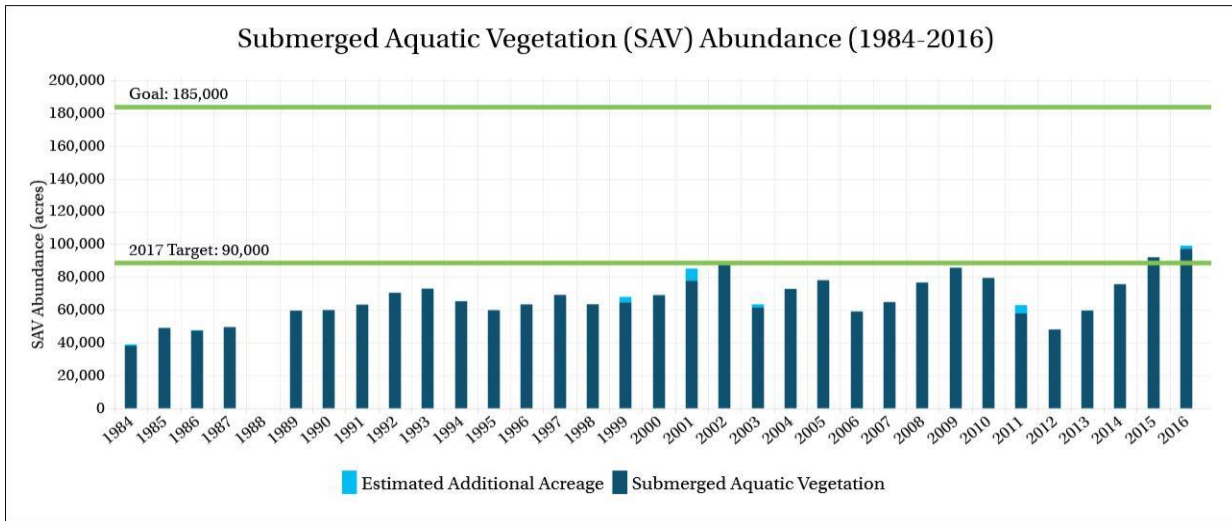
Researchers attribute the rise in underwater grasses to a strong increase in the tidal freshwater and moderately salty regions of the Bay. The iconic grass beds at the mouth of the Susquehanna River, for instance, continued their four-year recovery following damage from Hurricane Irene and Tropical Storm Lee. And at over 10,000 acres, the grasses that stretch from Smith Island to Tangier Island have become the biggest contiguous grass bed in the Bay. Widgeon grass, in particular, expanded in this bed and in other moderately salty waters, but because it is a "boom and bust" species whose abundance can rise and fall from year to year, a widgeon-dominant spike is not guaranteed to persist in future seasons. Researchers observed a drop in the eelgrass that grows in the very salty waters of the lower Bay, where beds had increased in recent years following losses that occurred during the hot summers of 2005 and 2010.

Underwater grasses—also known as submerged aquatic vegetation or SAV—are sensitive to pollution but quick to respond to improvements in water quality. While close to 200,000 acres of underwater grasses may have once grown along the shorelines of the Bay and its tributaries, nutrient and sediment pollution had weakened or eliminated many of these grass beds by the mid-1980s. Because grass beds provide food and shelter to fish and wildlife, add oxygen to the water, absorb nutrient pollution, reduce shoreline erosion and help suspended particles of sediment settle to the bottom, their restoration will dramatically improve the Bay ecosystem.

More information about underwater grass abundance in the Chesapeake Bay can be found in a report from the Virginia Institute of Marine Science (VIMS).

Step 2: Explain the logic behind your work toward an Outcome.

The following logic table (available as an Excel spreadsheet) explains the reasoning behind our work toward an Outcome. The table indicates the status of your management actions and denote which actions have or will play the biggest role in making progress.

Step 3: Craft a compelling narrative.

What are our assumptions?

    (1) What original assumptions did we make in our Management Strategy that we felt were important to success?
- a. What were your "Factors Influencing Success" originally identified in the Management Strategy?
    - i. Habitat Conditions, Human Impacts, Restoration Science
- b. What did you originally identify in the Management Strategy as gaps in existing programs that addressed those factors?
    - i. Funding and capacity for SAV restoration and monitoring; investments in research
- c. What were the "Management Approaches" you chose in your strategy and workplan to address those gaps?
    - i. Restore water clarity in the Chesapeake Bay, Protect Existing SAV, Restore SAV, Enhance Research, Citizen Involvement, and Education

Are we doing what we said we would do?

    (2) Are you on track to achieve your Outcome by the identified date?
- a. What is your target? What does this target represent? (e.g., the achievement we believed could be made within a particular timeframe; the achievement we believed would be necessary for an Outcome's intent to be satisfied; etc.)?
    - i. The target for the SAV Outcome is to ultimately achieve 185,000 acres of SAV in the Bay. This target represents historical levels of SAV in the Bay. Interim targets include 90,000 acres by 2017 and 130,000 by 2025.
- b. What is your anticipated deadline? What is your anticipated trajectory?
    - i. Deadlines are described above. The 2017 goal was exceeded in 2016. The 2017 goal will be met if 90,000 acres are sustained until the 2017 measurement period.
- c. What actual progress has been made thus far?
    - i. SAV species can be boom-or-bust, leading to highly variable acreage increases and decreases from year to year, particularly with large storm events and turbid waters. In 2012, 48,195 acres of SAV were measured in the Bay. In 2016, 97,433 acres were measured. This marks 53% of the ultimate goal, and 75% of the 2025 goal. The 2017 goal has been reached.
- d. What could explain any existing gap(s) between your actual progress and anticipated trajectory?
    - i. The 2017 target was reached in 2016, indicating that progress is above the goal. There is a possibility for the acreage to drop due to stressors such as water clarity or weather effects. These are the main gaps or threats to meeting the SAV Outcome.
    - ii. It is vital that the TMDL "pollution diet" be maintained in the Chesapeake Bay and its watershed. Studies have directly linked this pollution diet to SAV recovery in the Bay, clearly demonstrating that this management strategy works and will lead to restoration success if continued (Lefcheck et al., in review, Science).

(3) Which of your management actions have been the most critical to your progress thus far? Why? Indicate which influencing factors these actions were meant to manage.
   a. Improving water clarity in the Bay. As explained above, studies have directly linked the TMDL pollution diet to SAV recovery in the Bay, clearly demonstrating that this management strategy works and will lead to restoration success if continued (Lefcheck et al., in review, Science).
   b. Monitor SAV – without the SAV monitoring program, it would be impossible to measure SAV recovery.

(4) Which of your management actions will be the most critical to your progress in the future? Why? What barriers must be removed—and how, and by whom—to allow these actions to be taken? Indicate which influencing factors these actions will be meant to manage.
   a. Improving water clarity in the Bay. As explained above, studies have directly linked the TMDL pollution diet to SAV recovery in the Bay, clearly demonstrating that this management strategy works and will lead to restoration success if continued (Lefcheck et al., in review, Science). Improving water clarity will be achieved through continuing TMDL efforts. Barriers include political roadblocks, a lack of funding, and local scale capacity for change.
   b. Protect existing SAV – As SAV recovers, it will be more important than before to protect it from damage (because with increased abundance there's the potential for increased conflict). Protecting SAV will be through 1) monitoring, 2) enhanced regulations if deemed necessary, and 3) public outreach and citizen engagement. The only barrier to these being achieved is funding and our ability to enhance regulations.

Are our actions having the expected effect?

(5) What scientific, fiscal or policy-related developments or lessons learned (if any) have changed your logic or assumptions (e.g., your recommended measure of progress; the factors you believe influence your ability to succeed; or the management actions you recommend taking) about your Outcome?
   a. Fiscal. Funding for the SAV Annual Survey has become less secure which has created a new focus for the workgroup in exploring potential adjustments to the survey or new, more permanent funding sources. Without funding, monitoring products (ie. SAV maps and acreage numbers for each CB segment) that managers depend upon will not be available or will be reduced in some way.
   b. Policy-related. We assumed that if water clarity was improved, SAV would recovery and we'd reach our goal. Water clarity is improving and we're approaching our goal (half way there), but with the increased SAV abundance in areas, there are increased use conflicts and current regulations are not sufficient to protect SAV to the extent that we would ultimately reach our goal. For example, we receive complaints from residents in segments that have exceeded their restoration goal in recent years. The SAV is impeding their recreational opportunities. In response, there are companies that advertise to clear the SAV near your dock. Clearing is allowed for navigational purposes, but the current regulations allow for a much larger area than necessary for navigation.

How should we adapt?

(6) What (if anything) would you recommend changing about your management approach at this time? Will these changes lead you to add, edit or remove content in your work plan? Explain.

    a. Changes will not be dramatic, but will follow a "less is more" approach. Many of the actions are being done by partners, and CBP and SAVWG have little control as to the funding of these actions. SAVWG plans on changing the workplan language to "tracking the progress" and emphasizing the communication of those actions rather than "making progress on".

    b. The new workplan will focus on SAV monitoring and restoration, increased cross-GIT connections (Blue Crab, CBP Communications), including positive public outreach on SAV benefits.

(7) What opportunities exist to collaborate across GITs? Can we target conservation or restoration work to yield co-benefits that would address multiple factors or support multiple actions across outcomes?

    a. Opportunities exist for collaboration with the Sustainable Fisheries GIT, Water Quality GIT, Black Duck Action Team, and Maintain Healthy Watersheds GIT. Workshops have been held with the Climate Resiliency Workgroup as well.

(8) What is needed from the Management Board to continue or accelerate your progress? Multiple asks of the Management Board should be prioritized where possible.

    a. Funding for the SAV Annual Survey has become less secure which has created a new focus for the workgroup in exploring potential adjustments to the survey or new, more permanent funding sources. Without funding, monitoring products (ie. SAV maps and acreage numbers for each CB segment) that managers and regulatory agencies depend upon will not be available, or will be reduced in some way. Assistance in identifying additional funding partners and long-term financial stability for the SAV monitoring program is essential.

    b. Increased positive PR and reviewing and enhancing SAV protection (through regulations) are also current gaps in our workplan. Assistance with developing a communication strategy that enhances the public's knowledge and perception of SAV would be beneficial. As SAV continues to increase, so will it's conflicts with competing uses (fisheries practices, boating and recreation, etc.). Ensuring adequate protection for existing SAV is essential to reaching our SAV outcome.

Budget and Finance Questions

(9) What are the anticipated sources of funding outside the CBPO that you anticipate would support this work? In other words, who else cares?

(10) How would those anticipate sources of financing work in concert with other financing mechanisms or sources of funding?

(11) What are the specific metrics that can be used to determine project funding/success? Are those metrics current incorporated into the current project format?