Spring 2019

DoD Chesapeake Bay Program Journal

Edited by the DoD Chesapeake Bay Program Team

PROTECTING THE CHESAPEAKE BAY FOR MILITARY READINESS, FOR OUR COMMUNITY, FOR FUTURE GENERATIONS

SAV: The Unseen Foundation of the Bay's Ecosystem

By Sarah Diebel, DoD Chesapeake Bay Program

Submerged aquatic vegetation (SAV), also called underwater grass, was once plentiful in the Chesapeake Bay. However, as a result of man-made and natural changes in the watershed, SAV declined significantly. When scientists began tracking its abundance across the Chesapeake Bay watershed in 1984, SAV covered only 38,000 acres, which remains the lowest documented level on record. In aquatic environments like the Chesapeake Bay, SAV is a critical component of a healthy ecosystem, providing habitat for wildlife and performing essential chemical and biological processes. Among the commitments documented in the 2014 Chesapeake Bay Watershed Agreement, the Chesapeake Bay Program Partnership (Partnership) pledged to preserve and increase SAV in the Bay to restore the valuable ecosystem services it provides. As a partner in the Bay's restoration, the Department of Defense (DoD) also committed to track SAV-related projects and restoration at DoD installations in the Bay watershed. Recent surveys show 7,914 acres of SAV in and around DoD installations,and remarkably, Partnership data indicates there have been annual increases in SAV acres across the Chesapeake Bay since 2012. As a result, the total SAV coverage across the watershed exceeded 100,000 acres in 2017.

In addition to highlighting the importance of SAV, this Journal describes the threats and challenges SAV faces from changing global conditions and anthropogenic impacts and how DoD is helping in the restoration effort. Articles discuss SAV's unique characteristics and ecosystem services, SAV mapping and monitoring efforts, and impacts of rainfall trends on SAV.

We also want to recognize Naval Support Activity (NSA) Hampton Roads Portsmouth Annex and Naval Station Norfolk for their award-winning pollution prevention and habitat restoration efforts, which were recently honored by the Elizabeth River Project (ERP).

The DoD Chesapeake Bay Program (CBP) is working hard to keep pace with the flurry of activity leading up to the release of the final Phase III Watershed Implementation Plans (WIPs), scheduled for August 2019. The January CBAT summary includes more details about efforts and and deadlines. I am also excited for the spring release of the 2018 DoD CBP Annual Progress Report.

Finally, the DoD would like to extend a thank you to the installation staff and others who contributed content that made this Journal possible, including:

- Dr. Robert "JJ" Orth, Virginia Institude of Marine Science (VIMS)
- Trevor Manning, DoD Regional Environmental Coordination (REC) Office
- Todd Beser and Hannah Schmidt, Aberdeen Proving Ground (APG)

PHOTO BY CBP.

SAV near Tilghman Island, Maryland.

IN THIS ISSUE

SAV in the Chesapeake Bay

By Robert "JJ" Orth, PhD, VIMS

Bay grasses are vascular plants that live underwater and are found throughout the Chesapeake Bay's tidal and non-tidal waters. Approximately 15 varieties of bay grasses are typically found in the Chesapeake Bay and its tributaries. These are true flowering plants that have adapted to flower while the plant is submerged. Bay grasses evolved to maintain all the incredible processes associated with pollination and seed production in a water-filled world!

Plant Survival in an Underwater World

SAV is uniquely suited to thrive in the underwater environment, but it depends on favorable conditions to flourish. For example, to live underwater, where there are harmful sulfides and very little oxygen, SAV must pump oxygen to its roots. The grasses also require more sunlight than any other living plant on the surface of the Earth. As a result, they are very photosensitive. Because of this sensitivity, the abundance of SAV can change very rapidly when water clarity decreases. This sensitivity also makes this group of underwater plants one of the best barometers of water quality—the proverbial "canary in the coal mine." Therefore, SAV population growth or decline can serve as an early indicator of water quality.

Surveying SAV

The overall value of SAV, its indicator status, and its penchant for appearing and disappearing from the seascape have led to resource managers identifying it as a key resource for monitoring. Since 1984, VIMS has conducted Bay-wide aerial photographic monitoring of SAV beds annually. Data collected in 2017 showed increased SAV abundance, with coverage over 100,000 acres compared to 48,000 acres identified in 2012, which suggests water quality conditions are improving in the Bay. Without these complete annual surveys, assessments on how well the Bay is responding to watershed-level management actions to reduce nutrients and sediments would be nearly impossible.

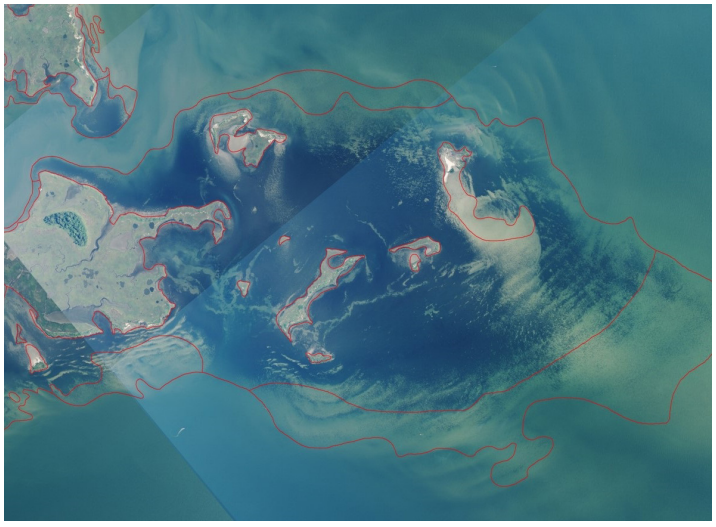


PHOTO FROM VIMS SAV AERIAL IMAGERY.

Aerial SAV density map of the north shore of the York River near its mouth. The area is known colloquially as the "Guinea Marsh."

PHOTO BY CBP.

How SAV Benefits the Ecosystem

Bay grasses or SAV beds are usually found in clear water and provide a wide range of benefits:

- Nitrogen and phosphorus absorption (minerals that, in overabundance, can lead to algae blooms that impair water quality)
- Filtration of polluted runoff
- Food for waterfowl
- Habitat for blue crabs, juvenile rockfish (striped bass), and other aquatic species
- Food for bottom-dwelling aquatic life when SAV decomposes
- Stabilization of the sea floor substrate by the plants' roots and rhizomes, reducing the amount of loose sediment in the water and improving clarity
- Wave energy absorption from the leaves and stems that help settle out sediment

Generally, more aquatic life is found in SAV beds than in adjacent non-vegetated areas. The high value of SAV makes it an important aquatic feature to study and monitor.

How DoD Supports SAV Surveys

The Chesapeake Bay watershed supports one of the highest concentrations of military bases in the country. These installations and the operations they support are vital to national interests. The VIMS SAV survey also includes an assessment of waters around all the major military bases bordering the Chesapeake Bay and its tributaries. The survey results provide pertinent information to these bases for their use in establishing environmental priorities in their installation Integrated Natural Resource Management Plans (INRMPs). The SAV survey provides not only imagery of the base's shoreline but also the presence, distribution, and abundance of SAV. The bases can draw upon this data as a resource to assess how well the Bay grasses may be responding to local efforts that reduce nutrient and sediment pollution.

Often, national security necessitates restricting air space around military bases, which can complicate conducting the SAV survey. For example, APG requires permission from air controllers to fly over their base and requires the environmental officer to be on the plane during the flight. In some cases, air space access requires prior approval with up to 48 hours' notice. However, even with prior approval, overflights can be canceled at the last minute because of military security, safety, or operational needs.

Once the images are acquired, the environmental officer must also review and 'white out' select areas of the base on the imagery so as not to compromise the security of assets or activities. In the last few years, coordination with air controllers has become increasingly complicated, which has led to the need for increased cooperation between DoD and VIMS' aerial contractors.

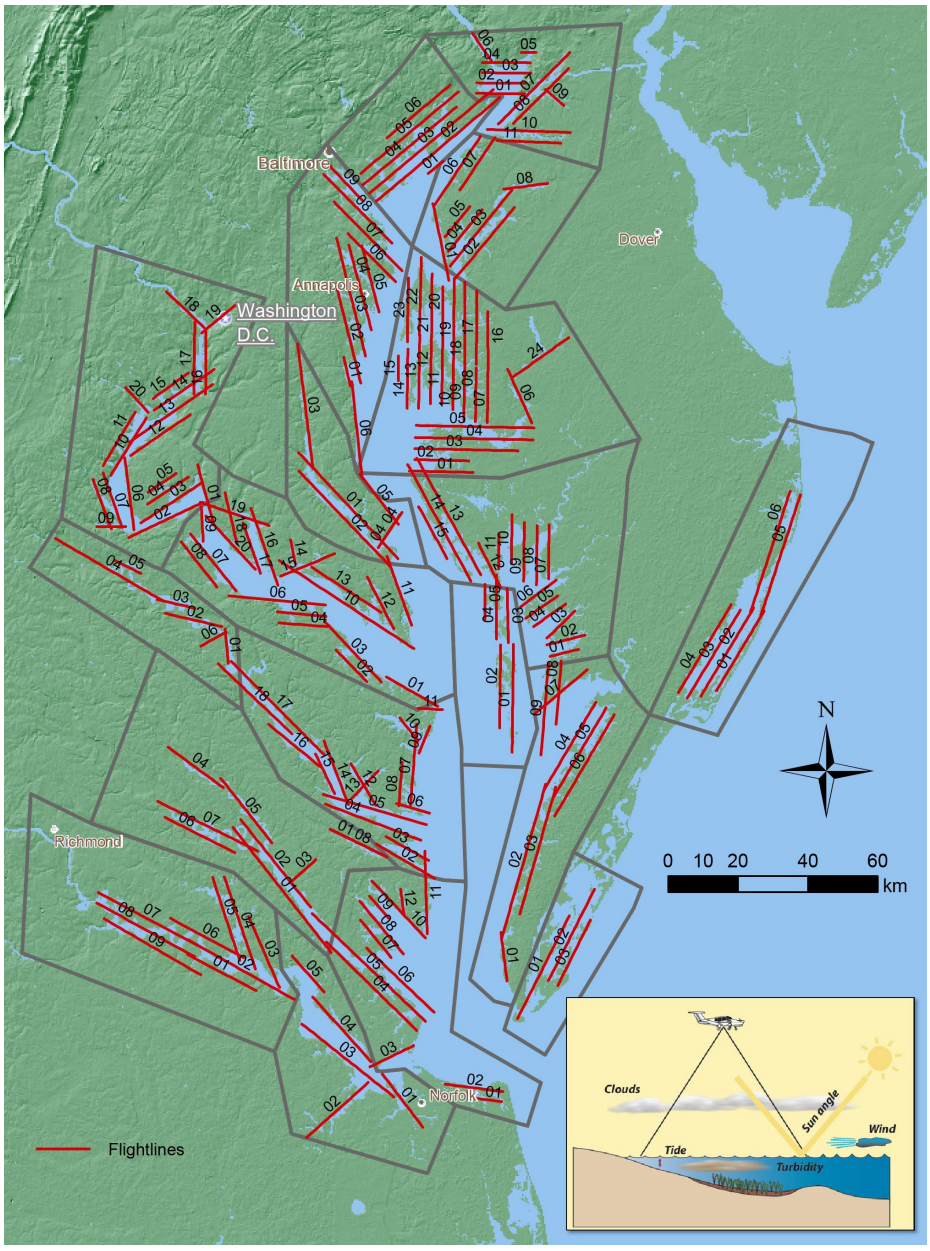


IMAGE PROVIDED BY DR. JJ ORTH.

Shown here are the flight lines utilized in SAV surveys. The flights near military installations require permissions and other conditions.

VIMS continues to value the contribution DoD makes to the Bay and the annual SAV survey. To maximize the extent of the annual SAV surveys, the data collected, and the value that this comprehensive, long-term time-series data can provide, VIMS welcomes the opportunity to collaborate with installation natural resource managers, air operations managers, and other DoD decision makers to obtain the necessary permissions and access to restricted air space. With this collaboration, VIMS can obtain a complete dataset and provide valuable information to installations that can support their own survey and natural resources management needs with no additional expenditure of taxpayer dollars. The mutually beneficial partnership between the DoD and outside research scientists is truly a "Win-Win" situation.

For More Information

If you would like to learn more about SAV in the Chesapeake Bay, the VIMS annual survey, and abundance trends, visit the VIMS webpage on SAV in Chesapeake Bay and Coastal Bays at http://web.vims.edu/bio/sav/.

SAV Surveys, Protection, and Restoration at APG

By Todd Beser and Hannah Schmidt, APG

SAV functions as a primary indicator of the health and water quality for aquatic ecosystems in the Chesapeake Bay. These underwater rooted, vascular plants are at the mercy of anything that flows downstream. Everything that runs off farm fields, industrial and construction sites, multi-acre parking lots, roads, rooftops, public parks, and manicured lawns has the potential to impact the health of SAV in the Chesapeake Bay. At APG, while most soldiers and civilians are focused down range—speeding around test tracks or searching the skies via satellites—a few folks, like Hannah and me, are navigating the creeks and rivers of the Chesapeake Bay watershed to monitor the health and diversity of SAV.

APG owns part of the Gunpowder River, the Bush River, the Chesapeake Bay main stem, and all or parts of several tributaries. As a result, there is an extra stewardship responsibility on the installation to monitor aquatic habitats, communicate their current conditions, and allow researchers from the academic community to access these restricted locations. This responsibility is formalized in the installation's INRMP, which includes SAV as a "Resource of Special Interest."

Each year, APG attempts to secure and execute funding for laboratory analysis of water quality samples taken from its water bodies. APG sites have been used for research and restoration, and we have supported various projects in the upper Bay. Personnel from APG also participate as the DoD representative in the Partnership's SAV workgroup. This has fostered partnerships with the academic community that have been beneficial to all.

Changes in turbidity, nutrient loads, available sunlight, and salinity affect SAV health and productivity, leading to periods of growth and loss. APG environmental staff work with the installation's Range Control and Operational Security to allow access for VIMS to conduct their annual SAV photographic survey overflights within APG restricted airspace. VIMS maintains a long-term data set that can be used to analyze trends of SAV presence or absence, diversity, and habitat size. Aerial surveys between 2000 and 2015 have provided APG with valuable data to document and assess the dynamic abundance of SAV in its surrounding waters. Once the VIMS Geographic Information System (GIS) data for the entire Bay becomes available, we separate out SAV beds that are within or adjacent to installation boundaries. We document seasonal changes in SAV diversity, extent, and general health. The following figures are examples of mapping that is produced by VIMS from their annual aerial surveys. The maps show the extent of SAV present at each location over a span of 15 years.

Between 2000 and 2015, the partnership between VIMS and DoD has produced valuable data documenting expansion and shrinkage

PHOTO BY CBP.

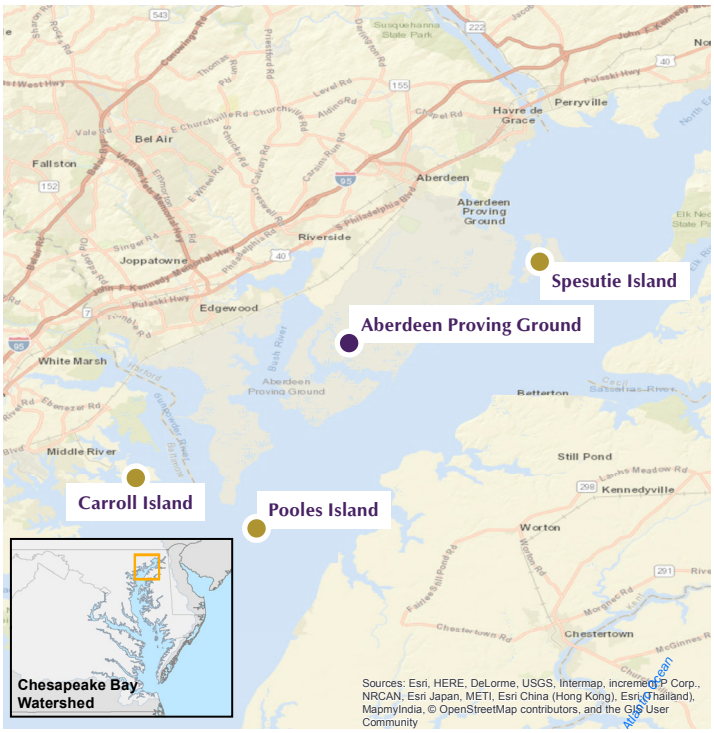
SAV at APG in the Chesapeake Bay.

of SAV beds, which seem to fluctuate on a 2- to 3-year cycle. In our experience, SAV beds will increase in size followed by 2 to 3 years of regression. However, this is not to say that these general trends will not change in the coming years. Climate change is causing increased intensity and frequency of precipitation events and coastal storms. This will likely affect future SAV growth in the Chesapeake Bay.

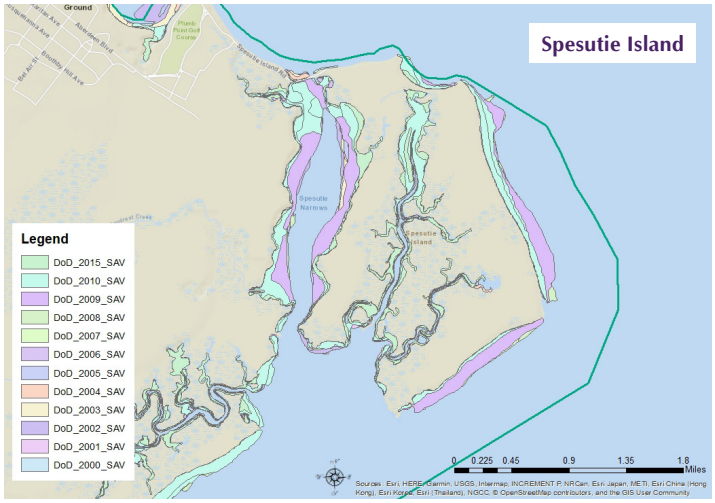
While installations may not have full control of the environmental conditions in the waterbodies adjacent to their boundaries, controlled development and restricted access provides a level of protection not afforded to SAV in other parts of the Bay. Furthermore, DoD facilities are unique in that their lands are often largely protected from human impact and development. As a result, installations contain some of the nation's largest remaining tracts of untouched natural areas. Through the Sikes Act, DoD installations are required to develop and implement INRMPs, which are suited to their unique natural resources and conservation goals. APG's INRMP includes SAV as an important resource, because of the installation's proximity to potential SAV habitat.

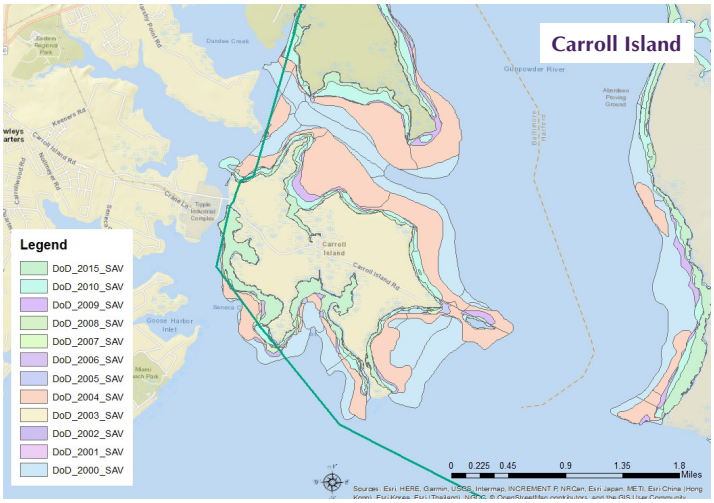
APG is excited to continue partnering with VIMS, collect its own data, and monitor SAV to follow future SAV growth trends in and around the upper Chesapeake Bay for years to come.

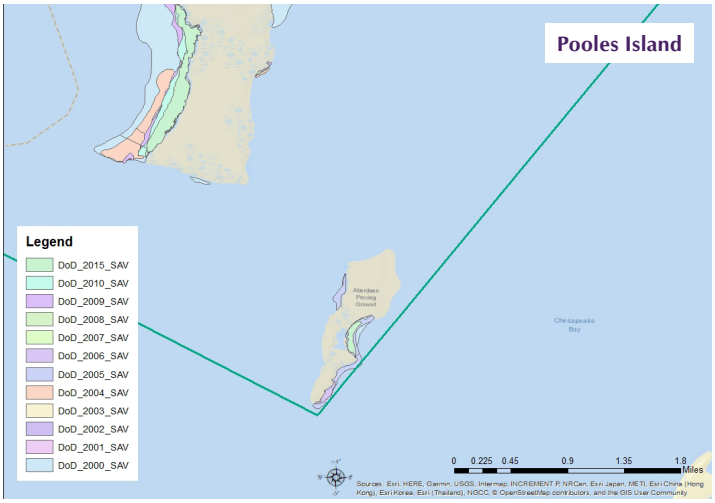
SAV at Aberdeen Proving Ground



APG is unique among Army bases because of its proximity to the Chesapeake Bay and several major Bay tributaries, making the health of those waterways a greater responsibility for the installation.







MAPS PROVIDED BY TODD BESER.

These maps show changes in SAV extents between 2000 and 2015 around Carroll, Spesutie, and Pooles Islands at APG.

Climate Change and the Future of SAV in the Chesapeake Bay

By Mira Micin, Brown and Caldwell

The Chesapeake Bay was once renowned for its expansive carpet of SAV. Its shallow waters are still home to an array of grass species, of which the most recognized is eelgrass *(Zostera marina)*. Though other species are commonly found in the Bay, eelgrass is of particular importance. It is the dominant species with the largest range, density, and diversity of ecosystem services in the Bay.

Today, less than 10 percent of the original SAV meadows in the Chesapeake Bay survive. The loss of SAV has been due to many factors. Beginning with European colonization, land clearing and agricultural practices increased nutrient and sediment loading to the Bay, reducing SAV growth. In the 1930s, a wasting disease led to additional losses. In the second half of the 20th century, destructive hurricanes and urban development further degraded the health and abundance of SAV. Although conditions have somewhat improved due to targeted management actions, SAV is still threatened by poor water quality and now must contend with new stressors associated with climate change, namely higher water temperature, coastal zone acidification, and lower water quality. SAV's fate will depend on the Partnership's efforts to reduce nutrient and sediment loading in the Bay and address climate change's human influence.

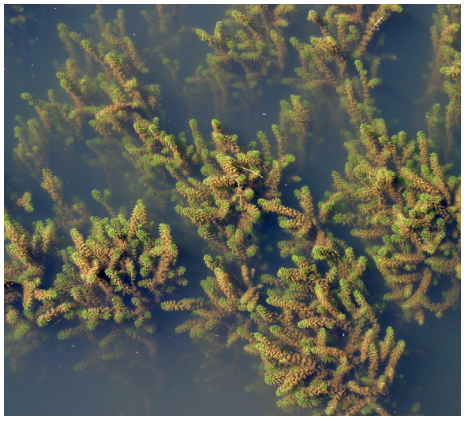


PHOTO BY MICHAEL LAND, CBP.

PHOTO BY STEVE DROTER, CBP.

PHOTO BY CBP.

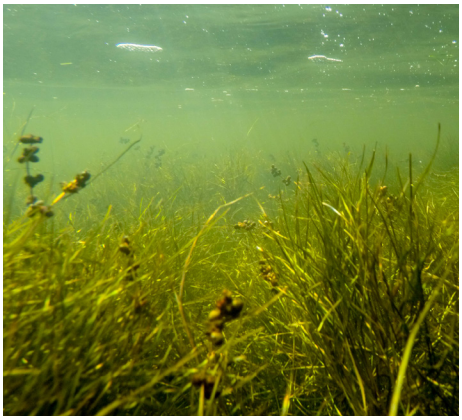


PHOTO BY WILL PARSON, CBP.

Value of SAV in the Chesapeake Bay

SAV performs many important ecological functions. It is estimated that the monetary value of the ecosystem services provided by SAV in the Chesapeake Bay is in the range of **$2.9 billion** per year. In contrast, the budgeted spending by state and federal agencies on the Chesapeake Bay restoration for FY2018 was **$1.9 billion.**

Environmental Stressors

Rising Temperatures

The coastal waters of the Chesapeake Bay are predicted to rise between 4 to 11°F in the 21st century. This rise in temperature is forecast to cause the Chesapeake Bay ecosystem to resemble a subtropical estuary by the next century, with the greatest changes occurring in shallow waters and areas with the most urbanization. Many of the current dominant species of SAV have a low tolerance for thermal stress. In general, increased water temperatures (greater than 77°F) reduce rates of photosynthesis and increase respiration, which may negatively impact the plants' life cycle. In studies, extended periods of increased water temperature have been linked to declines in SAV population. In some areas, warmer waters also encourage the growth of periphyton (freshwater organisms that attach to plant leaves), which reduces the plant's ability to receive sunlight.

Overall, warming waters are predicted to significantly reduce populations of native eelgrass species that prefer cooler waters and support instead the growth of native higher-temperature tolerant species and non-native subtropical species. None of the higher-temperature tolerant species are thought to have the ability to replace the biomass or ecosystem services of eelgrass. As a result, the quality of the ecological services SAV provides would decline.

Acidification

Carbon dioxide (CO_2) from the atmosphere is deposited and absorbed by the ocean where it undergoes chemical reactions with elements naturally occurring in the water. These processes form acidic compounds that reduce the ocean's potential hydrogen (pH). Following the Industrial Revolution, the oceans have absorbed approximately one-third of all new sources of CO_2, and this has led to increased ocean acidification. In nearshore environments like the Chesapeake Bay, similar processes occur where it is called coastal zone acidification. The primary drivers of coastal zone acidification are biological processes that combine organic carbon with naturally occurring elements in coastal waters to create acidic compounds. Organic carbon occurs naturally in waters through processes like the decomposition of plants and animals. Organic carbon can also be introduced to coastal waters when soil is eroded and delivered by stormwater runoff. Processes that contribute to soil erosion, mobilization, and transport are expected to intensify coastal zone acidification this century; these include conversion of forests to agriculture, land development, loss of wetlands, increases in the frequency of flooding events, and increases in the intensity of precipitation events and coastal storms. Taken together, increases in carbon emissions and organic carbon will lead to greater coastal zone acidification in the Chesapeake Bay.

The effects of more carbon, lower pH, and increasing temperatures in coastal waters are highly complex. Studies have shown that reduced pH may have a positive impact on SAV. By lowering pH, more dissolved CO_2 is available for SAV to use during photosynthesis and this promotes growth. This phenomenon has been coined the "CO_2 fertilization effect", and studies even suggest that the benefits of CO_2 fertilization may be enough to offset the negative impacts of warming waters for some species in a limited temperature range. However, increasing water temperatures may eliminate *Z. marina* before the positive benefits of CO_2 fertilization can take effect. So, the combined effects of acidification with rising water temperatures may further shift the types of SAV in the Bay toward species that are more tolerant of higher temperatures and CO_2 concentrations.

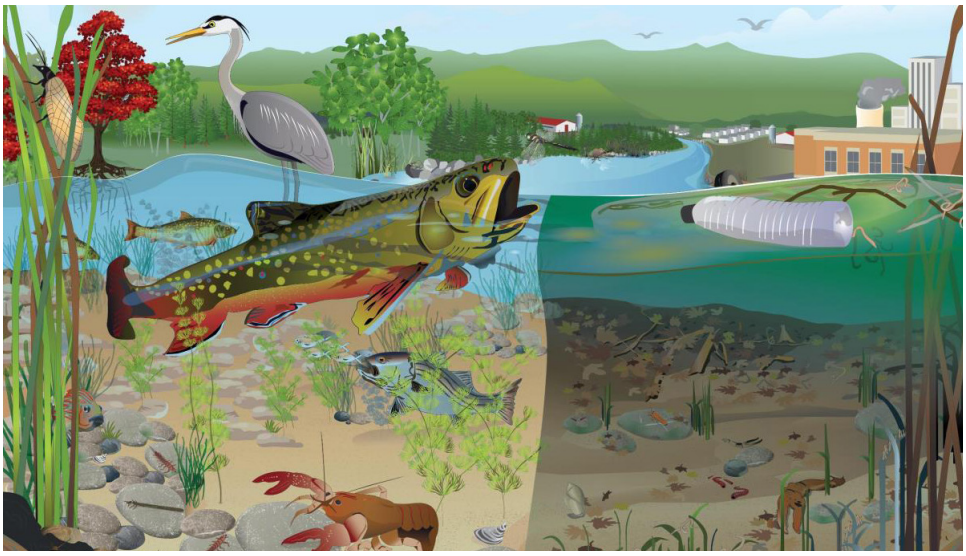


IMAGE BY CBP.

This graphic from the Partnership shows how an upstream waterway can use best management and conservation practices to positively affect aquatic habitats, including SAV, and provide clean water to the Bay by contrasting a healthy stream (left) and an unhealthy one (right.)

Lower Water Clarity

A reduction in water clarity can also impact SAV photosynthesis and health by reducing the amount of sunlight that reaches SAV and limiting their rate of photosynthesis. Lower water clarity results from intense storms or land use changes that result in erosion and sediment transport to Bay waters. Excess nutrients that cause harmful algal blooms can also reduce water clarity. Consequently, it is vitally important to maintain and consider new water quality standards that reduce nutrients and sediment into the Bay.

Looking to the Future

Eelgrass provides the widest range of ecosystem services, but its preservation is increasingly threatened by climate-induced stressors including warming water temperatures, coastal zone acidification, and reduced water clarity. Anticipating impacts like these, the Partnership is planning to address the effects of climate change in jurisdictional two-year milestones beginning in 2022. If action is delayed or insufficient, the consequences on SAV population dynamics are likely to be irreversible. DoD installations can positively preserve and expand the Bay's critical and diverse SAV resources by implementing practices that decrease nutrient and sediment loads and identify ways to mitigate the impacts of a changing climate.

Data sources:

State and federal funding information from Chesapeake Progress. (www.chesapeakeprogress.com/funding)

Article content based on: Thomas M. Arnold, Richard C. Zimmerman, Katharina A. M. Engelhardt & J. Court Stevenson (2017) Twenty-first century climate change and submerged aquatic vegetation in a temperate estuary: the case of Chesapeake Bay, Ecosystem Health and Sustainability, 3:7, 1353283, DOI: 10.1080/20964129.2017.1353283

Recent Rainfall Trends and Their Effect on SAV

By Mira Micin, Brown and Caldwell

According to the Partnership, some effects of climate change—rising seas, warming water temperatures, and prolonged periods of extreme weather—are already being observed in the Bay. The mid-Atlantic region, which includes most of the Chesapeake Bay watershed, has seen several significant extreme weather events and periods of above average rainfall in recent years. According to the National Oceanic and Atmospheric Association, in 2018, parts of the mid-Atlantic region received up to twice the normal annual rainfall depth.

In particular, the summer of 2018 marked one of the wettest summers on record for Pennsylvania. Virginia and Maryland also received substantially more rainfall than usual, and for many of the major rivers draining into the Bay, this resulted in record high flows. For example, the Susquehanna River, which flows through New York, Pennsylvania, and Maryland, reached 300,000 cubic feet per second, a flow rate not observed since Tropical Storm Lee in 2011.

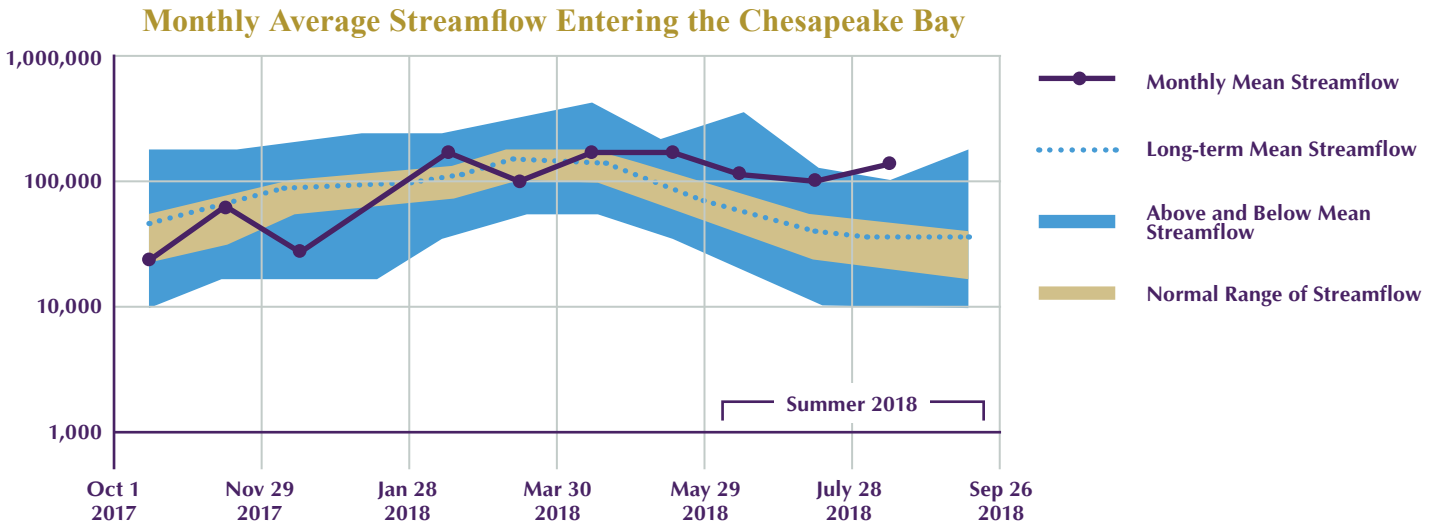


Chart of monthly average streamflow between Fall 2017 to Summer 2018. Graph adapted from Partnership and USGS data.

In developed areas, heavy rain can lead to dangerous floods and costly damage to homes and infrastructure. Soil erosion on agricultural fields can reduce crop harvests or even destroy entire fields. Flooding in natural areas can have harmful impacts on delicate ecosystems and animal habitats. Heavy rainfall produces more runoff, which transports both large volumes of freshwater and eroded sediment downstream. In an estuarine environment like the Chesapeake Bay, higher freshwater streamflow also reduces salinity, which can affect the growth of SAV.

Due to the massive volume of runoff in 2018, the Conowingo Dam, which sits on the Susquehanna River near the border of Pennsylvania and Maryland, was forced to open its floodgates multiple times. This released large amounts of debris and sediment from behind its walls into the Bay. Dam operators noted that it was the largest amount of debris they had seen in over 20 years.

The lasting effects of high intensity rains on the Bay are still unknown, but we do know that increased freshwater streamflow and reduced water quality affect SAV. One multi-decade study

PHOTO BY KAITLYN DOLAN, CBP.

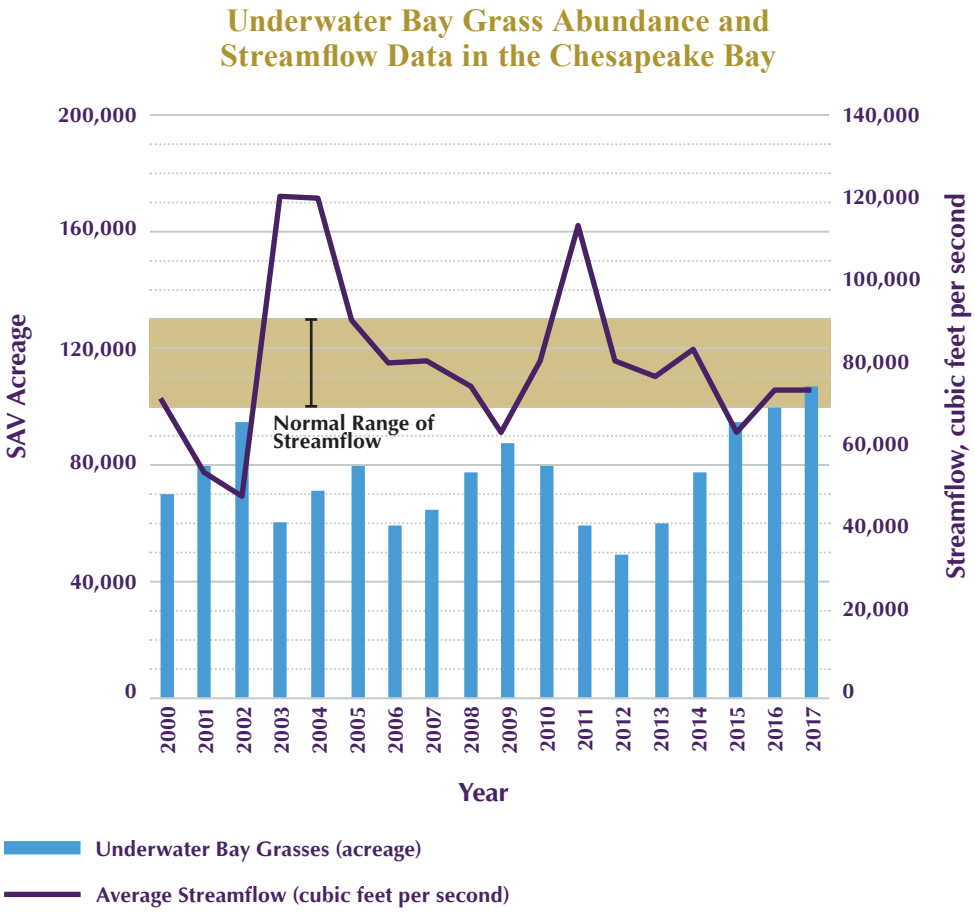
Significant debris and sediment were released with flow from Conowingo Dam after 2018 rainfall.

on growth of SAV and rainfall trends in the Mediterranean, revealed that excess freshwater flow negatively affected the growth of SAV while other studies link SAV abundance with years of low freshwater stream flow. Closer to home, these results appear to hold true. The Choptank River estuary in Maryland has greater abundance of plants during years with low flow than in years with higher freshwater flow.

Both average streamflow and rainfall data have been collected and recorded by the Chesapeake Bay Program for the last 64 years. The figure to the right is an overlay of average annual streamflow (in cubic feet per second) and acreage of SAV between 2000 and 2017. For reference, the upper and lower bounds of the normal range of streamflow data are included in gold.

The graph shows that, similar to what was observed in the Choptank River estuary in Maryland, SAV abundance and freshwater streamflow in the Chesapeake Bay are inversely related. Years with above-average streamflow are followed by reductions in SAV coverage and periods with below average streamflow saw increasing SAV coverage. Although no conclusions can yet be drawn as to the effects of the above average rainfall events of 2018, looking at past trend data can help predict SAV trends in 2019 and beyond.

SAV health, abundance, and species diversity face significant challenges from natural and human impacts. To understand and predict the effects of changing rainfall trends, climate change, and ongoing development on SAV, efforts to monitor and track SAV density and distribution are essential. Through its partnerships with organizations like VIMS, long-term changes in SAV will be tracked on and adjacent to DoD lands. Continued efforts by DoD installations to reduce runoff, curb nutrients and sediment, and use their INRMPs to conserve and restore SAV all play an important role in the protection of the Chesapeake Bay and its valuable and abundant natural resources.



Graphical overlay of SAV abundance with average streamflow to the Chesapeake Bay. Graph adapted from Partnership and USGS data.

PHOTO BY CBP.

Increased coverage of SAV tends to occur during years of low streamflow.

Data Sources:

Pyke, Christopher & Najjar, Raymond & Adams, Mary Beth & Breitburg, Denise & Hershner, Carl & Kemp, Michael & Howarth, Robert & Mulholland, Margaret & Paolisso, Michael & Secor, David & Sellner, Kevin & Wood, Robert. (2008). Climate Change and the Chesapeake Bay: State-of-the-Science Review and Recommendations.

Joan Smedinghoff. (2018). What this summer's rainfall could mean for the Bay. CBP.

The Elizabeth River Project: River Star Awards

By Trevor Manning, DoD CBP Outreach Coordinator and Compliance Senior Program Manager

The ERP is a non-profit organization that partners with individuals, businesses, schools, and governments located in the Elizabeth River watershed to protect the river's water quality and overall health. Partners work together toward their common goal: less pollution for a clean and beautiful Elizabeth River – a tributary of the Chesapeake Bay located in Southeastern Virginia. The ERP undertakes many initiatives each year, including habitat projects, educational campaigns, and oyster plantings. One of its most visible efforts is the River Star program. Applicants (businesses, homeowners, or schools) who join the program pledge to perform select environmentally-friendly practices. Each year, the ERP recognizes exceptional businesses in the River Star Businesses program that make significant contributions to pollution prevention and wildlife habitat restoration.

Commander, Navy Region Mid-Atlantic and Naval Facilities Engineering Command Mid-Atlantic are proud to announce that NSA Hampton Roads Portsmouth Annex and Naval Station Norfolk were recognized as Sustained Distinguished Performers at the Model Level for the 2019 River Star Awards. This is the highest designation for businesses and government organizations. Naval Station Norfolk completed construction of a 14.9-megawatt combined heat and power plant in pursuit of a goal to reduce energy consumption by 50 percent by 2020. Naval Station Norfolk also reduced greenhouse gas emissions by 17 percent over the prior year. NSA Hampton Roads Portsmouth Annex, the nation's oldest naval hospital, reduced energy use by 10 percent, eliminating nearly 5 million pounds of air emissions. The Annex also installed 5,000 cubic yards of porous pavers that filter pollutants, rather than discharging untreated rainwater that drains to the Elizabeth River.

The ERP and their many partners are leaders in the effort to restore the Elizabeth River, while affirming its value to our port economy. The River Star awards take place once a year, and applications are peer-reviewed based on documented results. Since 2014, the ERP has recognized 109 businesses and government organizations. Since 1997, participating organizations have voluntarily reduced pollution in the river by 311 million pounds.

Congratulations to NSA Hampton Roads Portsmouth Annex and Naval Station Norfolk for being recognized as Sustained Distinguished Performers by the ERP.

Staff from NSA Hampton Roads were recognized at a reception in their honor. Pictured from left to right: Kenneth Pugh, Lanette Donegan, Linda Hicks, Taylor Austin.

Staff from Naval Station Norfolk were recognized at a reception in their honor. Pictured from left to right: CAPT Brad Rosen, Jennifer Tabor, CDR Jason Kranz.

PHOTOS BY TREVOR MANNING, DOD CBP.

NSA Hampton Roads, Portsmouth Annex.

PHOTO FROM NAVAL MEDICAL CENTER PORTSMOUTH

Chesapeake Bay Action Team Updates

By Hee Jea Hall, Brown and Caldwell

Members of the CBAT convened for their quarterly meeting on 24 January 2019. Topics included DoD support of Phase III WIPs including opportunities and key milestones, municipal separate storm sewer system (MS4) electronic reporting requirements in Virginia, and key DoD CBP updates.

Phase III WIP Development and Implementation: Input and Key Milestones for DoD

To meet its policy commitments, regulatory obligations, and the Environmental Protection Agency's (EPA) expectations for federal participation in the development of the Phase III WIPs (EPA's Expectations), DoD must a complete several actions before the WIPs are finalized in August 2019 including:

- **Review the Partnership's 2018 Progress scenario:** Reviewing this scenario helps to determine if the best management practices (BMPs) implemented on DoD lands has been appropriately credited.
- **Develop DoD WIP narratives for Virginia, Maryland, Pennsylvania, and Washington, D.C.** based on key items listed in EPA's Expectations for federal agencies. Final narratives were submitted on 25 February.
- **Build scenarios of 2018 Progress and Planned 2025 BMP implementation:** With these scenarios, DoD will assess changes in pollutant loads and gaps between planned implementation and federal planning goals.
- **Identify BMP alternatives to meet 2025 federal planning goals:** The DoD CBP is planning to develop a suite of hypothetical BMPs to demonstrate how DoD could meet its federal planning goals. Discussion with Service and installation staff will take place to determine if the suite of practices is feasible. The final 2025 scenario for each jurisdiction is due on 14 June.
- **After release, review and comment on draft Phase III WIP documents:** REC staff, Water Subject Matter Experts, Service Leads, and the Legal Team will be asked to review the draft Phase III WIPs during the official comment period in April and May. The DoD CBP will submit consolidated comments on behalf of DoD. Additional review may be requested in June based on public comments directed at DoD.

  KEY DATES: *Public comment period begins 12 April. Comments from DoD reviewers are requested by 24 May. The period for DoD to address public comments is expected to be 10 to 14 June. Final WIP narratives will be submitted by 21 June.*

MS4 Electronic Reporting and DoD Chesapeake Bay Program

Beginning in 2019, Virginia installations with MS4 permits will be required to report BMPs through the Department of Environmental Quality (VA DEQ) BMP Warehouse. To help installations prepare for the new requirements, the DoD CBP requested group consensus on three questions:

- **Should installations or DoD CBP undertake the collection and reporting of "voluntary" BMP data outside of MS4 boundaries and on non-regulated installations?**
  CBAT members agreed that Virginia installations with MS4 permits will submit BMPs through the Warehouse and/or construction database. DoD CBP will submit BMP data to the Warehouse on behalf of non-regulated installations.
- **Should DoD CBP maintain the current DoD CBP datacall process and schedule?**
  CBAT members agreed to maintain the existing datacall schedule and report BMP information to the Warehouse and DoD CBP. The datacall template will be updated to ask if MS4 BMPs are reported to the Warehouse.
- **Do Virginia installations agree to provide information necessary to update the Warehouse by 1 October 2019?**
  Yes. Currently, the Warehouse does not have correct permit numbers or facility names. To update the Warehouse, installations need to provide their MS4 permit number, primary points of contact, and the types of permissions for designated individuals.

DoD Chesapeake Bay Program Updates

- The DoD CBP completed a prior CBAT action item that requested MS4 training for installations from VA DEQ.

DoD/DoN Chesapeake Bay Program Office
1510 Gilbert Street
Building N-26, Room 3300
Norfolk, VA 23511

Check it Out

CBAT Quarterly Conference Call. 18 April 2019, 10:00 a.m. to 12:00 p.m. EDT. For more information, contact Sarah Diebel at: sarah.diebel@navy.mil or 757.341.0383
Attend: Norfolk Naval Station, Building N-26 Room 3303
Call in: 1.866.749.3638/Passcode: 7362645
Web connect: https://conference.apps.mil/webconf/quarterlyCBAT

Earth Day. 22 April 2019. Tell us about your Earth Day events for inclusion in the Summer 2019 Journal! Accompanying high resolution photos are appreciated!

2019 American Public Works Association (APWA) Mid-Atlantic WRX Conference. 14–17 May 2019. The Mid-Atlantic chapter of APWA will hold its annual conference in Norfolk, Virginia in May 2019. Learn more at http://midatlantic.apwa.net/PageDetails/16292

Clean the Bay Day. 1 June 2019. Contact the DoD CBP or your installation for more information about clean-up sites and alternate clean up dates in your area. Learn more online at https://www.cbf.org/events/clean-the-bay-day/

Webcast: Tree Crediting for Stormwater. 19 June 2019, 1:00 p.m. The Center for Watershed Protection (CWP) will host a webinar on a recent CWP report on urban tree planting and how it can be integrated in state and local water quality requirements. For more information, go to https://www.cwp.org/events/cwp-webcast-3-tree-crediting-for-stormwater/

Report on Effects of a Changing Climate to the Department of Defense. This report, released in January 2019, provides an assessment of significant climate-related vulnerabilities to identify risks to mission readiness and operations at DoD installations. The report also includes a review of current DoD efforts to increase resilience to climate-related events. Find the report at: https://media.defense.gov/2019/Jan/29/2002084200/-1/-1/1/CLIMATE-CHANGE-REPORT-2019.PDF

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