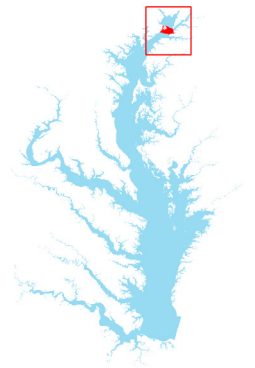


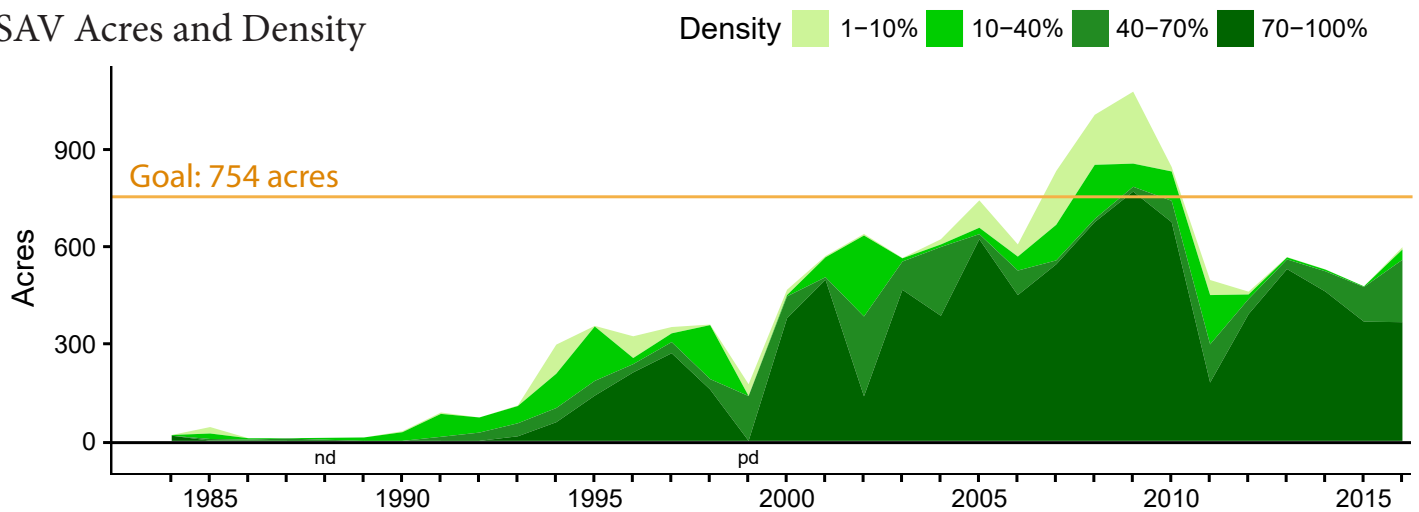
Submerged aquatic vegetation (SAV) is now abundant in the Spesutie Narrows area around Aberdeen Proving Ground.



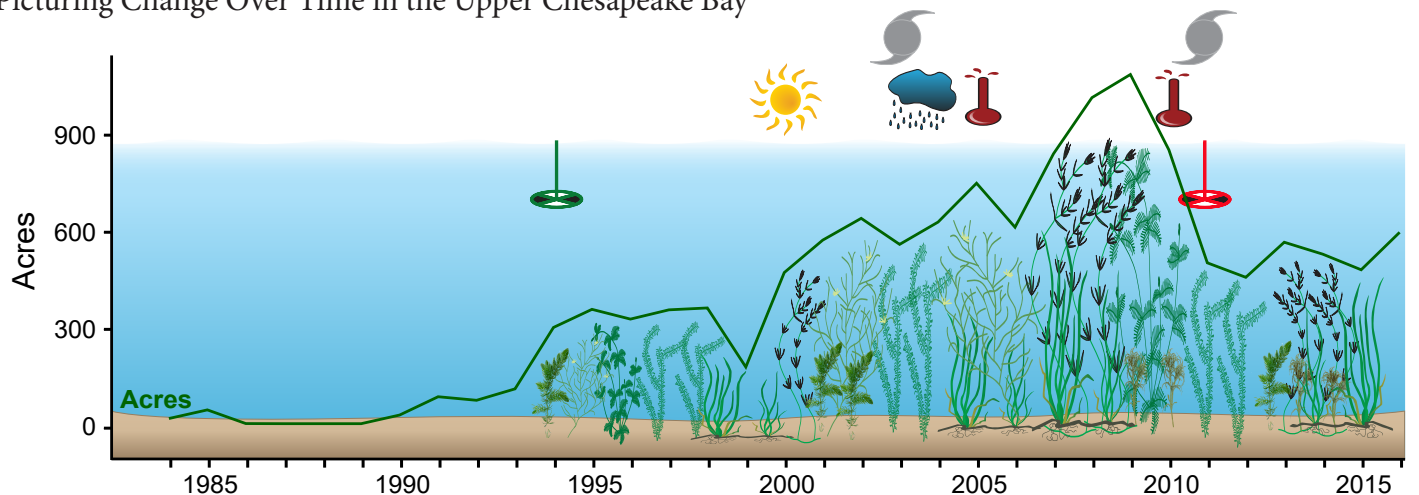
Executive Summary

Very little SAV was present during the early years of the Chesapeake Bay-wide aerial survey in and around the area adjacent to Aberdeen Proving Ground, but beginning in the 1990s, SAV began rebounding due to nitrogen reductions and improving water clarity. The 754-acre SAV restoration goal was exceeded each year from 2007 to 2010, but the area was dramatically impacted by Tropical Storm Lee in 2011. SAV is slowly recovering in this segment thanks in part to its diverse community assemblage that includes milfoil, wild celery, southern and spiny naiad, water stargrass, hydrilla and hornwort.

SAV Acres and Density



Picturing Change Over Time in the Upper Chesapeake Bay



Key

	Drought 1998-2002		Tropical Storm Lee, Hurricane Irene 2011		Hornwort		Southern Naiad
	Wet Period 2003-2004		Poor Water Clarity		Milfoil		Wild Celery
	Heat Events 2005, 2010		Good Water Clarity		Spiny Naiad		
	Hurricane Isabel 2003		Water Stargrass		Hydrilla		

Goal - Attainable

The goal of 754 acres is attainable and was achieved from 2007-2010 following a decade of improving water quality, nitrogen reductions and expanding SAV.

Historical Coverage

SAV coverage linked to the major beds on the Susquehanna Flats

Although minimal historical SAV data exists for this area, it is likely that SAV trends closely followed those just north in the Susquehanna Flats. In more recent decades, the Bay-wide aerial and ground surveys indicate that SAV increased in cover, density and species diversity until 2011 when the beds were negatively impacted by Tropical Storm Lee and Hurricane Irene. By 2016, SAV beds in this segment were steadily recovering again and include a diverse assemblage of milfoil, wild celery, southern and spiny naiad, water stargrass, hydrilla and hornwort.

Key Events

Tropical Storm Agnes

The passage of Tropical Storm Agnes in June 1972 probably resulted in the loss of SAV beds in this region.

Tropical Storm Lee and Hurricane Irene

There was a general upward trend of SAV in the region until Tropical Storm Lee and Hurricane Irene swept over the watershed in late summer 2011 (www.ian.umces.edu/ecocheck/summer-review/chesapeake-bay/2011/indicators/influencing-factors/). The two storms led to a dramatic decline of SAV in areas throughout the Bay by increasing freshwater, causing scouring events and contributing to high turbidity levels. Turbidity remained a persistent problem in the following years because of the deposition and resuspension of fine-grained sediments that were scoured from behind Conowingo Dam and deposited throughout the Susquehanna Flats and upper Bay during the storms.

Vulnerability/Resilience

SAV beds resilient in the face of water turbidity

Tropical Storm Lee and Hurricane Irene caused a decline in SAV because of prolonged turbidity from the resuspension of fine-grained sediments. A number of beds proved to be resilient, facilitating some recovery of SAV in the years following those storms.

Management Implications

Nutrient and sediment reductions

The two major issues that will influence SAV recovery in this region are sediments and nutrients. Sediments that are released from behind Conowingo Dam during high flows and storm events threaten SAV recovery in this region and throughout the upper Bay by causing high turbidity levels and even burial. Likewise, nitrogen loads from the Susquehanna River will continue to cause algae blooms that impact light availability and SAV productivity.

References

Stevenson and Confer 1978; Orth and Moore 1983, 1984; Moore et al. 2000, 2004; Orth et al. 2010a, 2017; Patrick and Weller 2015; Lefcheck et al. 2018

www.vims.edu/bio/sav/SegmentAreaChart.htm (abundance data)

www.vims.edu/bio/sav/maps.html (species information)

www.eyesonthebay.org (Maryland water quality data)