Attainable

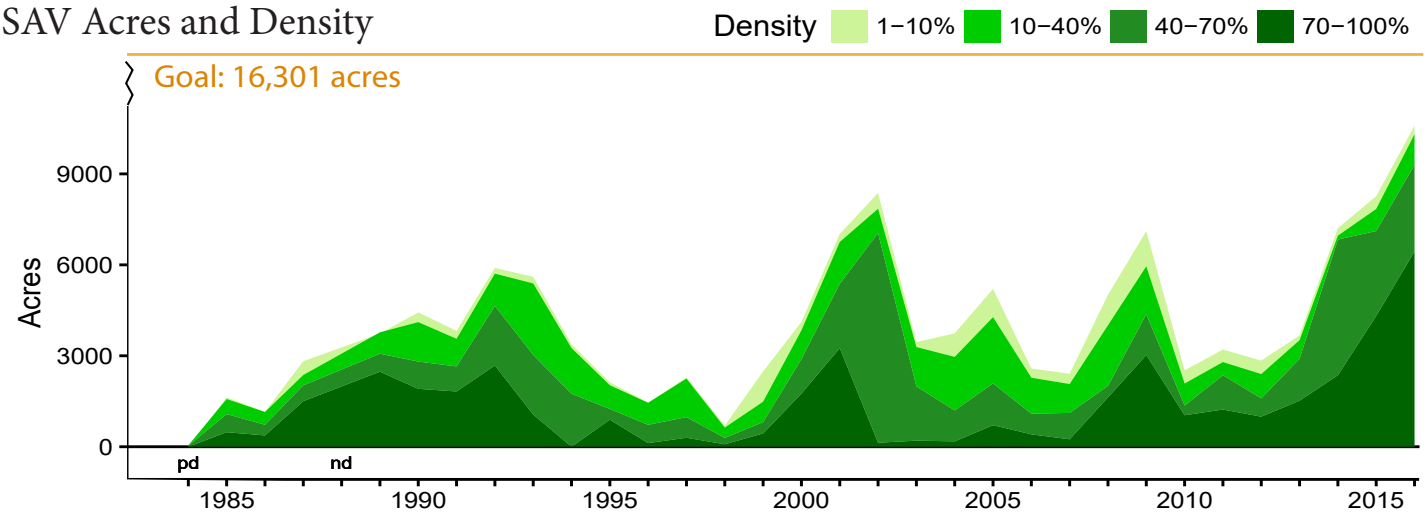
Honga River and Middle Chesapeake Bay Mainstem (HNGMH, CB5MH-MD)

Expansive submerged aquatic vegetation (SAV) beds along the middle mainstem Chesapeake Bay, Maryland, and the Honga River consist primarily of widgeongrass.

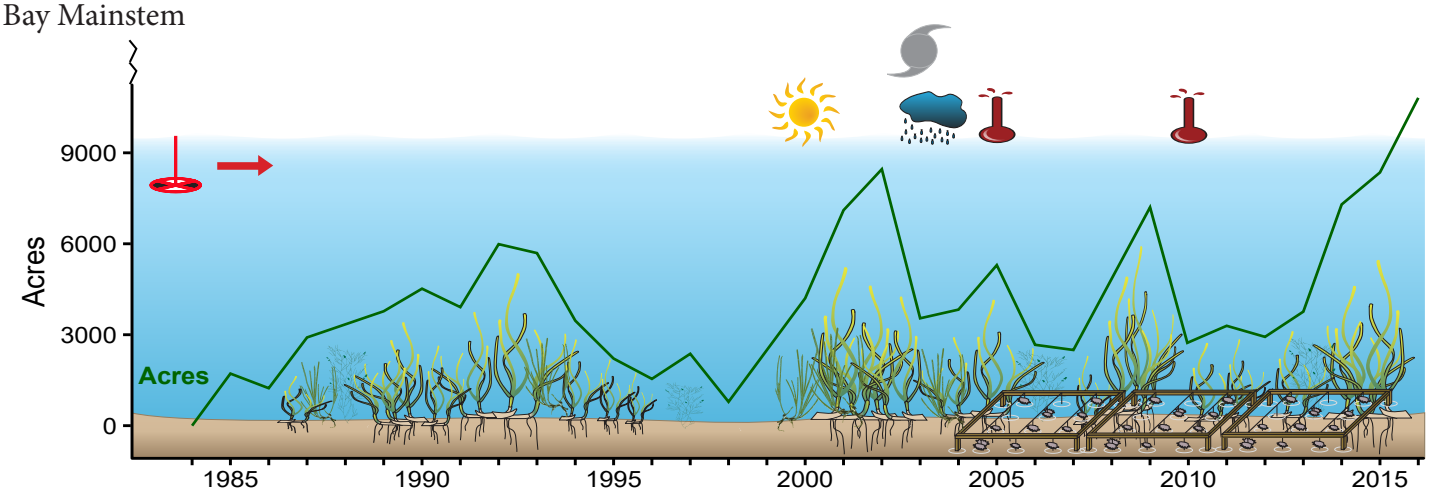
Executive Summary

SAV beds consisting of dense eelgrass and widgeongrass once dominated the extensive shoal areas of the mainstem Bay adjacent to the Honga River, as well as the Honga River itself. Surveys in the 1960s and 1970s also found redhead grass and sago pondweed. Acreage achieved maximum historical coverage in the 1960s correlated with the driest period recorded in recent history. The passage of Tropical Storm Agnes in June 1972 resulted in the loss or reduction of almost all SAV beds in this segment. During the current period of the Bay-wide aerial survey, SAV has shown a pattern of both increases and decreases driven by water quality and hot summers, with the highest levels occurring in 2016. Given the resurgence of widgeongrass, the goal of 16,031 acres for this segment is attainable.

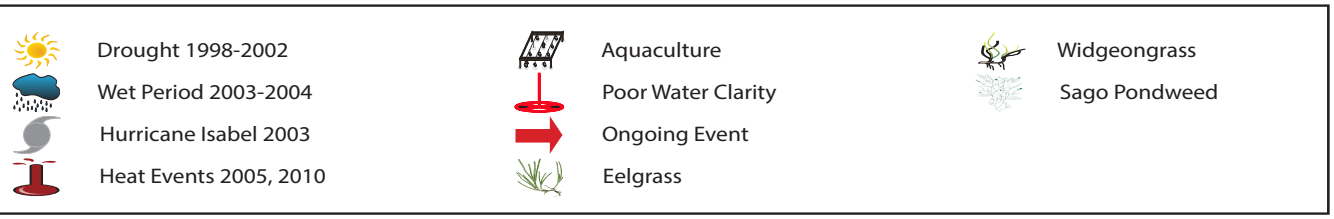
SAV Acres and Density



Picturing Change Over Time in the Honga River and Middle Chesapeake Bay Mainstem



Key



Attainable

Take Home Points

Goal - Attainable

The goal of 16,301 acres is potentially attainable with water quality improvements that facilitate the continued expansion of widgeongrass.

Historical Coverage

Historical and recent distribution well known

The 1930s eelgrass epidemic had a dramatic effect on eelgrass, yet recovery from this epidemic was rapid. Surveys in the 1960s and 1970s also found redhead grass and sago pondweed in the Honga River. Acreage most likely achieved maximum coverage in the 1960s, correlated with the driest period in the Bay in recent history. Coverages during the Bay-wide aerial survey have fluctuated over the years but show strong persistence of widgeongrass, along with small areas of eelgrass and sago pondweed appearing at times during ground surveys.

Key Events

Tropical Storm Agnes

The passage of Tropical Storm Agnes in June 1972 resulted in the loss or reduction of almost all SAV beds in this segment. SAV remained very sparse in this segment through the 1980s.

Vulnerability/Resilience

Water clarity

Periods of lower and higher rainfall in the 1980s and 1990s, respectively, influenced water clarity and facilitated the noted changes in SAV distribution.

Eelgrass is susceptible to heat events

Eelgrass is a cold-water SAV species and in the Bay it is near its southern distributional boundary. However, eelgrass has been a very minor component of the SAV beds in this segment, as the beds are dominated by widgeongrass. Some eelgrass beds developed in the 1990s, but disappeared after the heat events in 2005. Widgeongrass is much more tolerant of temperature extremes and has shown recent increases here. Widgeongrass populations, however, can be highly variable on an annual basis and are expected to fluctuate in an increasingly warmer Bay. They also typically require more light for growth than eelgrass and therefore their expansion would likely be most evident in the shallowest nearshore SAV habitats.

Aquaculture

Oyster aquaculture has been rapidly expanding and could provide a boost to the local economy, help replace declining wild stocks and lead to water clarity improvements due to biofiltration. Shellfish aquaculture that occupies shallow water habitat, however, has the potential to limit SAV recovery into those areas.

Management Implications

Nutrient and sediment reductions; aquaculture

Managers will need to focus on improving water clarity by reducing both sediments and nutrients. Managers will be unable to do much about temperature, as this is a more global issue. By improving water clarity, eelgrass may be able to tolerate periods of warmer water. In addition, managers will have to deal with aquaculture requests, as well as existing leases, where SAV is currently present, and in unvegetated areas where SAV was previously abundant but may begin recolonizing in future years.

References

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