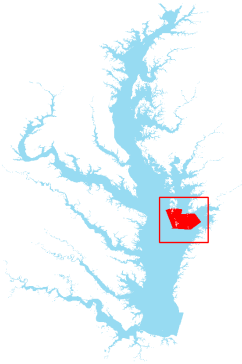
Potentially Attainable

Tangier Sound, Virginia (TANMH1-VA)

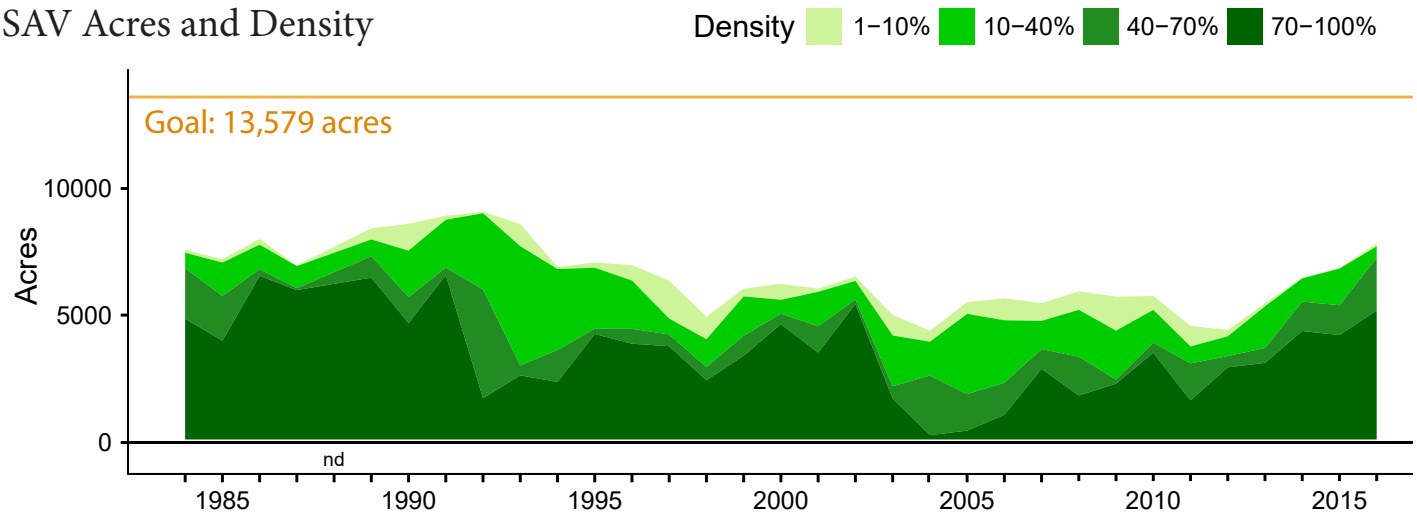


Expansive submerged aquatic vegetation (SAV) beds cover the shoal areas of Tangier Island up to Smith Island and consist of both eelgrass and widgeongrass.

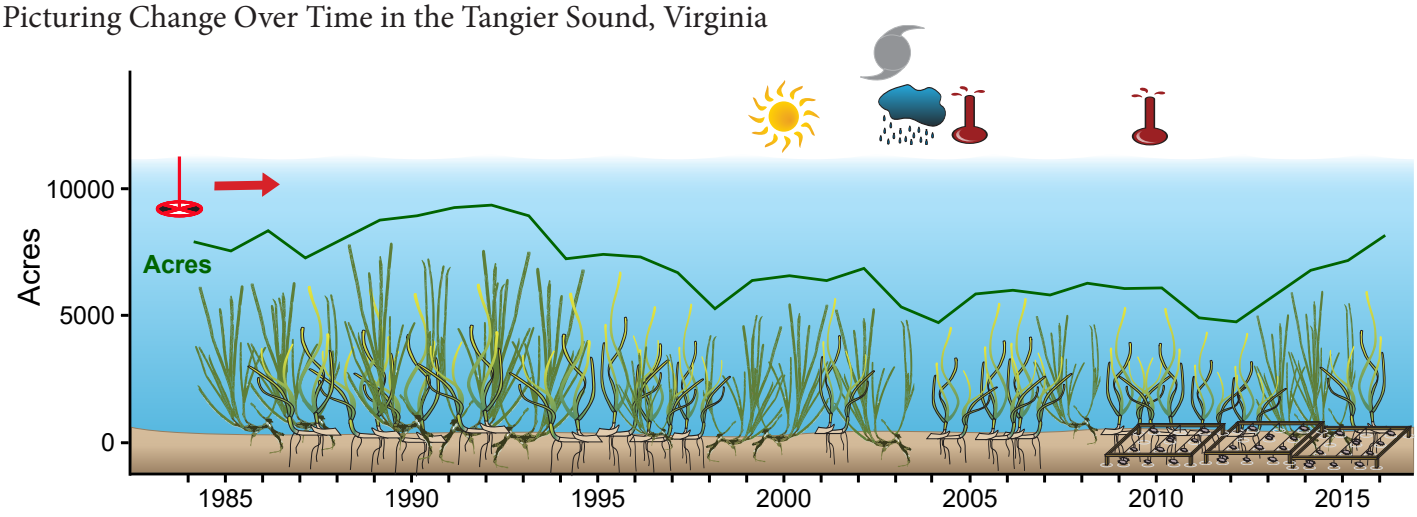
Executive Summary

SAV beds consisting of dense eelgrass and widgeongrass once dominated the expansive shoals around Tangier Island and up to the Maryland border by Smith Island. These beds supported large populations of shedding blue crabs, which contributed to a major soft-shell crab industry. Acreage achieved maximum coverage in the 1960s, correlated with the driest period recorded in recent history, but like other areas around the bay, the passage of Tropical Storm Agnes in 1972 triggered a dramatic decline of SAV in this segment. SAV began to recover in the 1980s, but water clarity fluctuations over the next several decades led to equally fluctuating SAV populations. Eeglrass was particularly affected by heat events in 2005 and 2010. To reach the goal of 13,579 acres of SAV for this segment, improvements in water quality and the continued resurgence of widgeongrass are needed.

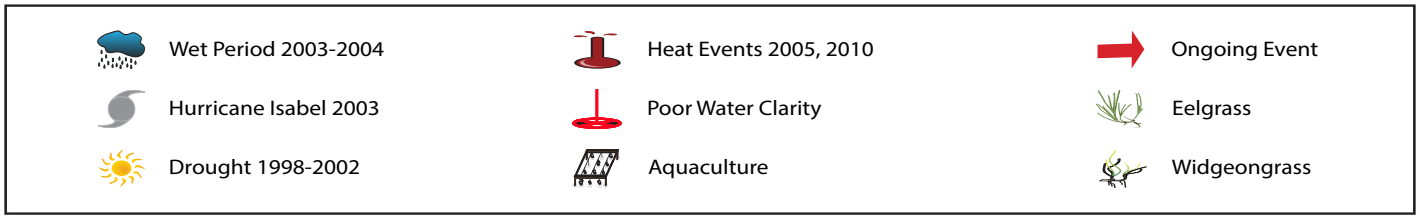
SAV Acres and Density



Picturing Change Over Time in the Tangier Sound, Virginia



Key



Potentially Attainable

Take Home Points

Goal - Potentially Attainable

The goal of 13,579 acres has never been achieved. It is potentially attainable if water clarity can be improved and the recent expansion of widgeongrass continues.

Historical Coverage

Historical and recent distribution well known

Eelgrass was the dominant species in this segment in the early 1900s. Distribution and abundance were reduced in the 1930s following the eelgrass epidemic, but the species recovered and reached peak distribution through the 1960s. The segment supports some of the more expansive beds in the Chesapeake Bay, now consisting of both eelgrass and widgeongrass, that have persisted through present day but at lower abundance levels than in the past. The area is well known for the soft-shell crab industry which is part of the area's heritage.

Key Events

Tropical Storm Agnes

In June 1972 Tropical Storm Agnes resulted in the loss or reduction of many eelgrass beds in this segment. Eelgrass persisted in downriver areas and contributed to its recovery through the 1990s.

Vulnerability/Resilience

Water clarity

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

Eelgrass is susceptible to heat events

Eelgrass is a cold-water SAV species and in the Bay is near its southern distributional boundary in the mid-Atlantic. Heat events in August 2005 and June 2010 led to significant losses of the species but some populations did persist, and vegetative regrowth within these beds, along with seed input from surrounding populations, contributed to its recovery in this region. Widgeongrass, which is also present in this segment, is much more tolerant than eelgrass of temperature extremes and has shown recent increases here. Widgeongrass populations, however, can be highly variable on an annual basis and may become more so in an increasingly warmer Bay. They also typically require more light for growth than eelgrass, meaning 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, however, SAV may be able to tolerate periods of warmer water. Additionally, managers will have to address aquaculture lease requests in areas where SAV is present or likely to recolonize.

References

Stevenson and Confer 1978; Orth and Moore 1983, 1984; Moore et al. 2000, 2003, 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)

http://vecos.vims.edu/ (Virginia water quality data)