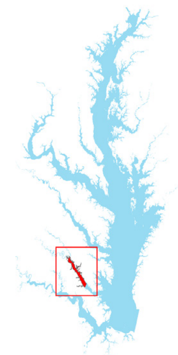
Potentially Attainable

# Middle York River (YRKMH)

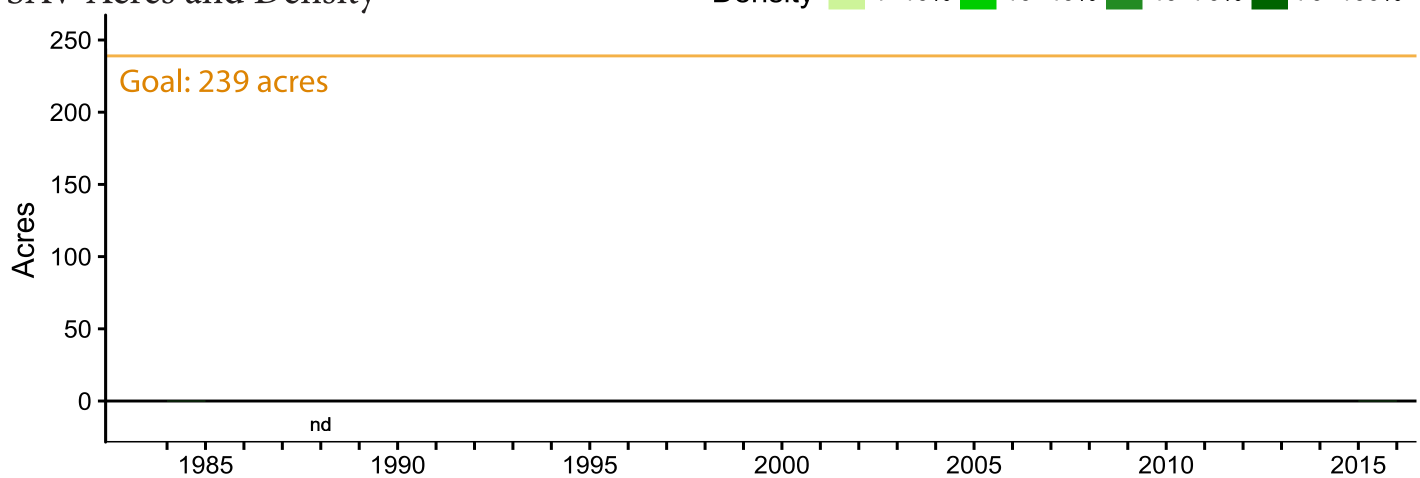


**Submerged aquatic vegetation (SAV) beds, present prior to 1972, are now absent from this segment.**

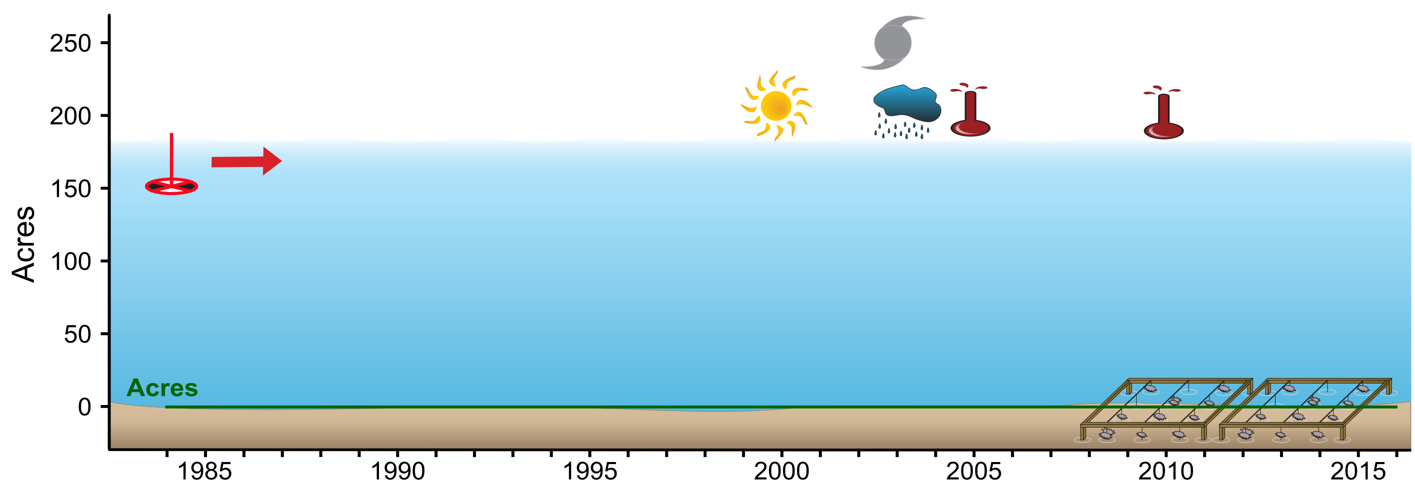
## Executive Summary

SAV beds consisting of eelgrass once dominated the shoal areas of the lower mesohaline York River. Acreage achieved maximum coverage in the 1960s, during a historically dry period. Tropical Storm Agnes in 1972 triggered a dramatic decline in eelgrass, which never recovered despite repeated direct restoration efforts. The only hope for reaching the goal of 239 acres of SAV in this segment is a major improvement in water clarity and a possible resurgence of widgeongrass.

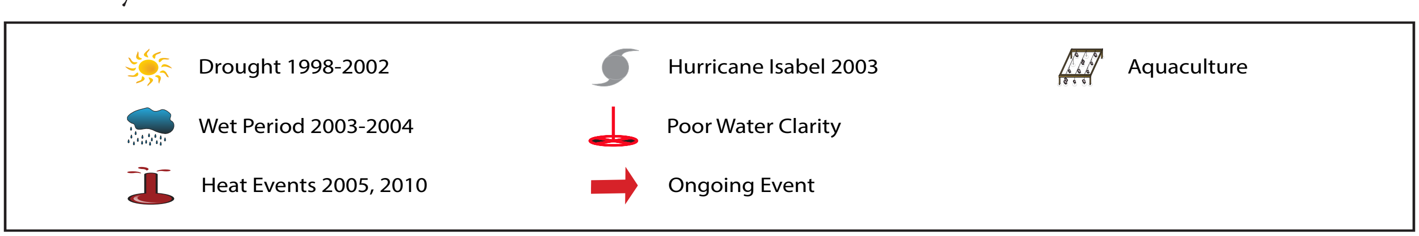
## SAV Acres and Density




## Picturing Change Over Time in the Middle York River




Key



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# Take Home Points

## Goal - Potentially Attainable

The goal of 239 acres has never been achieved. It is potentially attainable if water clarity improves significantly and eelgrass can once again colonize this segment. Alternatively, expansion of widgeongrass could facilitate meeting the goal.

## Historical Coverage

*Historical and recent distribution well known*

There is good historical information for this segment. Eelgrass was the dominant species and was present in the early 1900s. Distribution and abundance were reduced in the 1930s following the eelgrass epidemic but recovered through the 1960s from the spread of populations that persisted. Eelgrass reached peak distribution along both shorelines of the lower York River before being decimated by Tropical Storm Agnes in 1972. No eelgrass has been found in this segment since.

## Key Events

*Tropical Storm Agnes*

The passage of Agnes in June 1972 resulted in the loss of all eelgrass beds in this segment.

*Transplant projects*

Small-scale eelgrass restoration efforts that began in the 1970s were generally unsuccessful.

## Vulnerability/Resilience

*Water clarity*

The middle York River has persistently poor water clarity, reducing the potential for SAV recovery.

*Eelgrass is susceptible to heat events*

Eelgrass is a cold-water SAV species that does not tolerate excessive heat. Although somewhat variable on an annual basis, widgeongrass is much more tolerant of temperature extremes than eelgrass, and therefore may colonize areas historically occupied by eelgrass.

*Aquaculture*

Oyster aquaculture has been rapidly expanding and now occurs in the middle area of this segment, upriver of the historical distribution of eelgrass. It could provide a boost to the local economy, help replace declining wild stocks and lead to water clarity improvements due to filtration. However, shellfish aquaculture, which occupies shallow water habitat that is also potential SAV habitat, could limit the recovery of SAV into those regions because cages and nets would preclude the growth of SAV on that same bottom.

## Management Implications

*Nutrient and sediment reductions*

Managers will need to focus on improving water clarity by reducing both sediments and nutrients. While managers aren't able to do much about temperature as this is a more global issue, by improving water clarity, plants may be able to tolerate periods of warmer water. Additionally, managers will have to balance aquaculture lease requests with potential SAV habitat.

## References

Stevenson and Confer 1978; Orth and Moore 1983, 1984; Moore et al. 1999, 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)
http://vecos.vims.edu/ (Virginia water quality data)