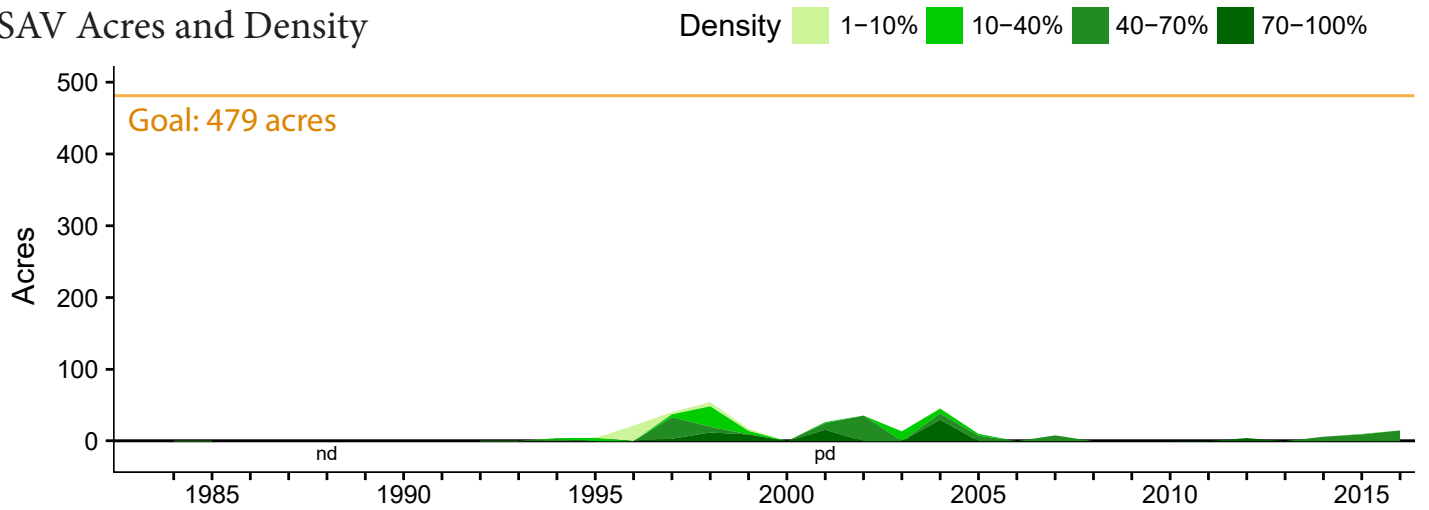


Beds of redhead grass were once abundant in the South River but degraded water quality has prevented the full recovery of submerged aquatic vegetation (SAV) since Hurricane Agnes in 1972.

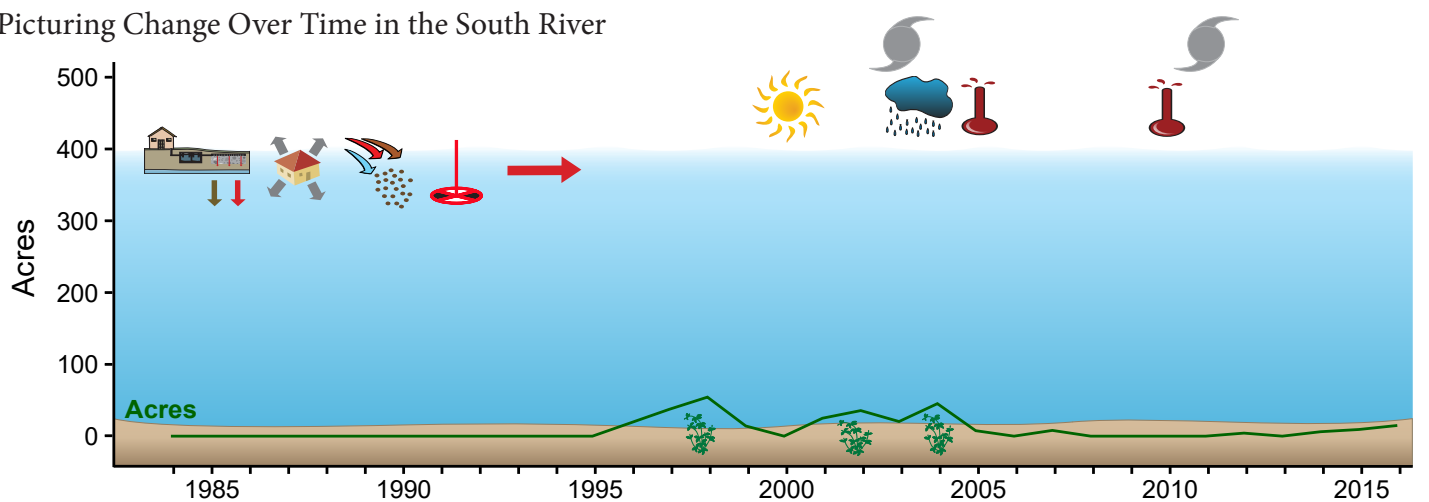
Executive Summary

Beds of redhead grass were once abundant in the South River but at the onset of the Chesapeake Bay-wide aerial survey in 1984, SAV was sparse. It expanded to cover 54 acres in the mid-1990s and fluctuated in abundance for the next decade. With the exception of horned pondweed growth each spring, minimal SAV has been observed since 2005. Although the South River watershed has maintained some forested land (generally associated with improved water quality conditions), many of the riverfront communities are still operating on septic which, along with development in Edgewater and Annapolis, is potentially contributing to a chronic nutrient problem and therefore reduced SAV cover. The 479-acre SAV restoration goal is potentially attainable with significant improvements in water quality.

SAV Acres and Density



Picturing Change Over Time in the South River



Key

| | | | | | |
|--|------------------------|--|--|--|---------------|
| | Wet Period 2003-2004 | | Tropical Storm Lee 2011 | | Development |
| | Drought 1998-2002 | | High Number of Homes On Septic Systems | | Ongoing Event |
| | Heat Events 2005, 2010 | | Sediment and Nutrient Loading | | Milfoil |
| | Hurricane Isabel 2003 | | | | |

Goal - Potentially Attainable

The South River's SAV restoration goal is 479 acres and has never been attained. Significant water quality improvements will be necessary to facilitate SAV recovery in this river.

Historical Coverage

Abundant SAV during surveys in the 1960s, low SAV cover and diversity since

SAV was most likely abundant in the South River prior to population expansion in the Bay watershed, particularly prior to the founding of Annapolis. The earliest definitive evidence of SAV, however, is from surveys that took place in the early 1960s. Abundant redhead grass was observed in Ramsay Lake, Selby Bay and Duvall Creek as well as occasionally throughout the rest of the river. Common waterweed, western waterweed, milfoil and widgeongrass were also observed. Additional surveys took place between 1971 and 1976, but no SAV was recorded during that time frame. At the onset of the Bay-wide aerial survey in 1984, SAV was still absent from the river. In 1996, however, the population expanded and reached 54 acres by 1998. Cover fluctuated between then and 2004, but SAV remained sparse. In 2005, the population declined and SAV has been virtually absent during the Bay-wide aerial survey ever since. Ground survey observations do show, however, that horned pondweed is commonly observed in this river during the spring. Horned pondweed is a cold-water SAV species that peaks early in the year before other underwater grasses really start growing and it's gone by the time the Bay-wide aerial survey takes place later in the summer. Milfoil, widgeongrass, wild celery and curly pondweed have also been recorded.

Key Events

Tropical Storm Agnes

Tropical Storm Agnes likely decimated any remaining SAV in the South River when it swept through the watershed in 1972 and the plants have been unable to recover since that time.

Vulnerability/Resilience

Development; horned pondweed indicates recovery is feasible

The South River watershed is a mix of developed and forested land, with several waterfront communities on septic. Septic leakage as well as stormwater runoff likely contribute to the nutrient and sediment loading to the system that is preventing the recovery of SAV.

Anecdotal reports as well as ground surveys do show, however, that horned pondweed is relatively abundant in this system in the spring. This indicates that with improvements in summertime water clarity, it is feasible for SAV to recover here. When water clarity is adequately improved, active restoration efforts may be necessary due to the lack of a viable seed bank.

Management Implications

Nutrient and sediment reductions

Without intervention, nutrient and sediment loading to the South River will continue to hamper SAV recovery. Reductions in nutrient and sediment loading would most likely lead to a full recovery, so all efforts to reduce loading via best management practices that promote water clarity are recommended. Watershed residents should be encouraged to upgrade old septic tanks and leach fields to modern, high-efficiency on-site wastewater treatment systems and county planners should strive to reduce impervious surface area in the watershed.

References

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

www.aacounty.org (for Anne Arundel County sewer and septic information)