

# Widgeongrass in Eastern Bay and its tributaries has fluctuated in abundance over the years and may be impacted by further development of the watershed and commercial fishing activities.

## **Executive Summary**



Submerged aquatic vegetation (SAV) in Eastern Bay was historically diverse and likely abundant, although abundance has fluctuated since the initiation of the Chesapeake Bay-wide aerial survey in

1984. Widgeongrass dominates this system more recently and the 6,209-acre SAV restoration goal for Eastern Bay and its tributaries is potentially attainable with the implementation of best management practices (BMPs) that curb nutrient and sediment loading and foster sustained improvements in water clarity. Recovery, however, may be affected by commercial fishing activities, unchecked development and sprawl.





## **Goal - Potentially Attainable**

The SAV restoration goal for Eastern Bay and its tributaries, the Wye and Miles rivers, is 6,209 acres and has never been achieved. This goal is potentially attainable with continued improvements in water clarity and with efforts to minimize impacts from commercial fishing practices.

## **Historical Coverage**

## Fluctuating SAV abundance; diverse species assemblage

SAV was most likely abundant in Eastern Bay and its tributaries prior to population expansion in the Chesapeake Bay watershed. The earliest recorded evidence of SAV, however, is from herbarium specimens and survey data from the early 1960s. Throughout the 1960s and 1970s, SAV surveys were conducted that recorded multiple species of varying abundance, including eelgrass, widgeongrass, redhead grass, milfoil, sago pondweed, horned pondweed, common waterweed, hornwort, muskgrass, naiads and wild celery. According to the reports, the species that favor moderately salty, mesohaline conditions were the most abundant (widgeongrass, redhead grass, sago pondweed and horned pondweed), while species favoring either salty conditions (eelgrass) or fresher conditions (wild celery, naiads, hornwort, etc.) were less abundant and seemingly more sporadic in distribution. Since the Bay-wide aerial survey began in 1984, SAV abundance has fluctuated extensively, peaking in the late 1990s. Ground truthing data indicate that both the Wye and Miles rivers are dominated by widgeongrass and seasonally, horned pondweed where and when SAV is present. Eastern Bay proper has a higher diversity of species recorded and includes all of the plants observed during the 1960s and 1970s surveys, although the more open water shorelines are also dominated by widgeongrass and horned pondweed.

### **Key Events**

#### *SAV resurgence beginning in 1992*

Like several other rivers in the mid-Bay region, Eastern Bay saw a resurgence of SAV in the mid-1990s. The expansion of SAV was primarily in Eastern Bay proper and the Miles River; underwater grasses in the Wye remained sparse. There is insufficient data to determine exactly why SAV rebounded at that time, but the resurgence could have been in response to nutrient and sediment management efforts that were later offset by an uptick in development and sprawl.

#### Vulnerability/Resilience

#### Land use changes; commercial fishing; diversity of species

The diversity of SAV species in Eastern Bay will contribute to the habitat's resilience, as will the maintenance of forested land in the watershed. Additionally, the broad, shallow expanse of this system provides ample habitat for SAV growth in water shallow enough for plants to receive light even when relatively turbid. The surge in watershed development, however, and transition from forested land to agricultural land, and in turn agricultural land to residential, will test the system's resilience. Furthermore, commercial fishing activity–hydraulic clam dredging specifically–could negatively affect SAV recovery potential in Eastern Bay and the Wye and Miles rivers. Although SAV is protected, hydraulic clam dredging creates turbidity plumes that reduce light availability in nearby SAV beds. The activity may also limit the potential for SAV bed expansion by disturbing bottom sediments adjacent to SAV beds where seeds may be germinating and/or where SAV rhizomes may be vegetatively spreading.

#### **Management Implications**

#### Nutrient and sediment reductions; commercial fishing activity

Although the system is shallow, water clarity is important to SAV growth and will help mitigate other stressors, so all efforts should be made to implement BMPs that reduce nutrients and sediments that may enter the waterways from agricultural practices and watershed development/sprawl. SAV protection zones should be expanded to include a buffer area so that SAV can expand into available habitat undisturbed by commercial fishing activities.

#### 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 <u>www.vims.edu/bio/sav/SegmentAreaChart.htm</u> (abundance data) <u>www.vims.edu/bio/sav/maps.html</u> (species information) <u>www.eyesonthebay.org</u> (Maryland water quality data)