Severn River Report Card

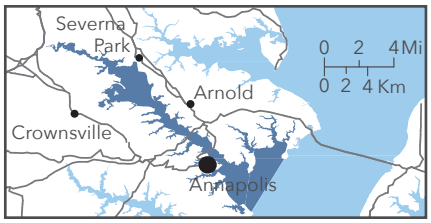
Severn River ASSOCIATION

2023

Overall health of the Severn River saw some modest gains in 2023, rising from a 72 (C-) in 2022 to a 77 (C+). The recovery of Severn River seagrasses between 2022 and 2023 was enough to increase the grade from an F (59%) to a C- (72%). These important vascular plants provide habitat for baby fish and crabs, stabilize sediments and prevent erosion, and provide food for a diverse array of species from invertebrates to fish to birds. The water clarity and dissolved oxygen scores increased very slightly from the previous year, with dissolved oxygen scoring a B (86%) and water clarity scoring a 73% (C).

C+

C	Water clarity
C-	Underwater grasses
B	Dissolved oxygen



Legend

A	100%
B	90%
C	80%
D	70%
F	60%
	0%

Water Quality Monitoring Stations

0 0.5 1 2 Miles

0 0.5 1 2 Kilometers

SRA is so fortunate to have an awesome water quality crew!

A huge shout out to all our dedicated volunteers who help SRA collect all the water quality data! They are supported by our volunteer boat captains who host our water quality crews. Thank you!

Higher salinity in 2023 could have helped baby oysters

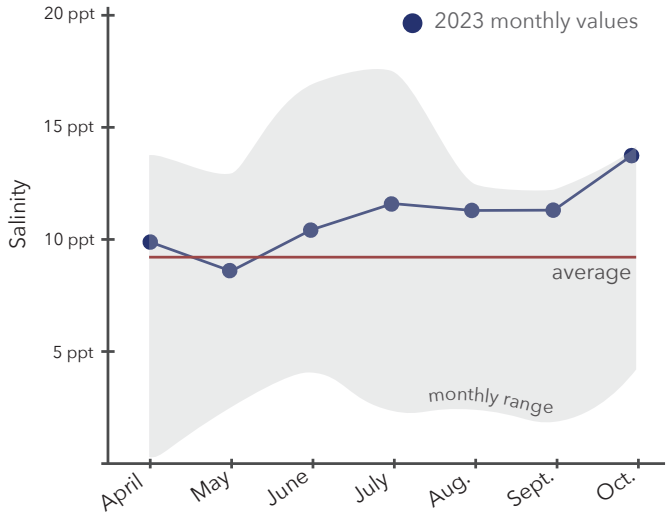
Recently, baby oysters have been found growing and thriving outside of restoration areas. Based on their size, these oysters would have settled sometime in 2023. This is exciting news: it shows that the river can support independent recruitment and oyster populations. The heightened river salinity in 2023 likely contributed to this increase; oysters reproduce when salinity is 10 ppt or higher, which was true from June–September 2023.

Salinity was above average in 2023

Rainfall patterns have a strong impact on river salinity from year to year. When it rains more, the river becomes less salty further downriver, as freshwater drains from upstream. In drier years, the denser, saltier water at the bottom can reach further upriver. Tidal patterns can also impact river salinity: higher tides push salty water further upstream, while lower tides allow fresh water to reach further downstream.

The 2023 sampling season (April–October) showed higher-than-average salinity values in the Severn River. However, salinity still fell within the range of observed values since monitoring began in 1985.

Severn River Salinity (1985–2022)



Oyster reefs improve water quality

The Severn River Association monitors water quality at six restored oyster reefs in the Severn River oyster sanctuary area. Since beginning oyster restoration efforts in 2018, SRA has planted over 200 million oysters. In addition, Marylanders Grow Oysters participants add another 1 million oysters each year to the sanctuary reefs.

SRA samples water quality near oyster reefs and at sites without reefs. In 2023, stations with oysters showed significantly higher water clarity than stations without oysters. Oysters are filter feeders, so when they filter particles out of the water, clarity improves. Dissolved oxygen near oyster reefs is also higher. This makes sense because oysters cannot thrive in waters with low dissolved oxygen.

Station Type	Oyster reef	No oyster reef
Water Clarity Score	76%	73%
Dissolved Oxygen Score	99%	85%

Baby oysters (spat) grow on larger oysters, forming reef structures in the river. Photo by Tom Guay.

Acknowledgments

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