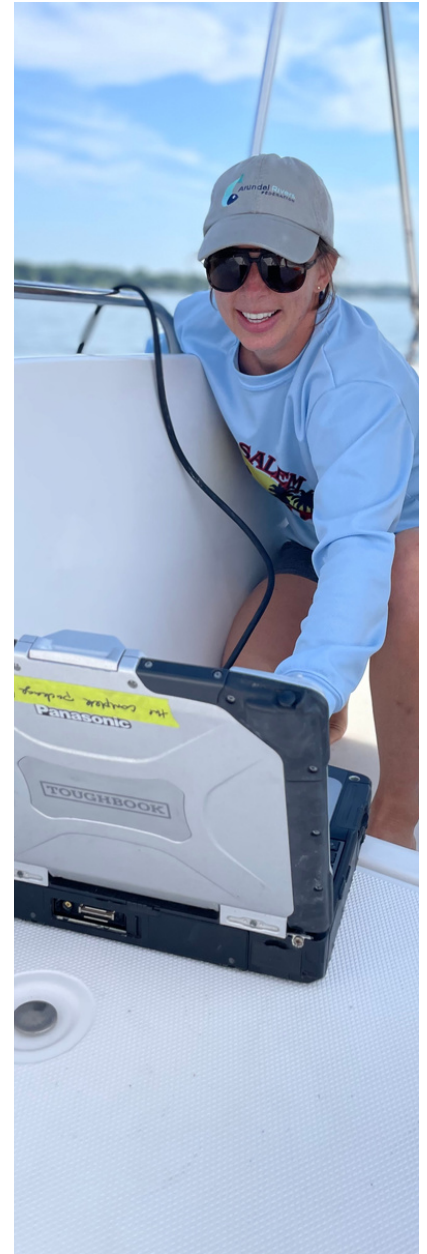
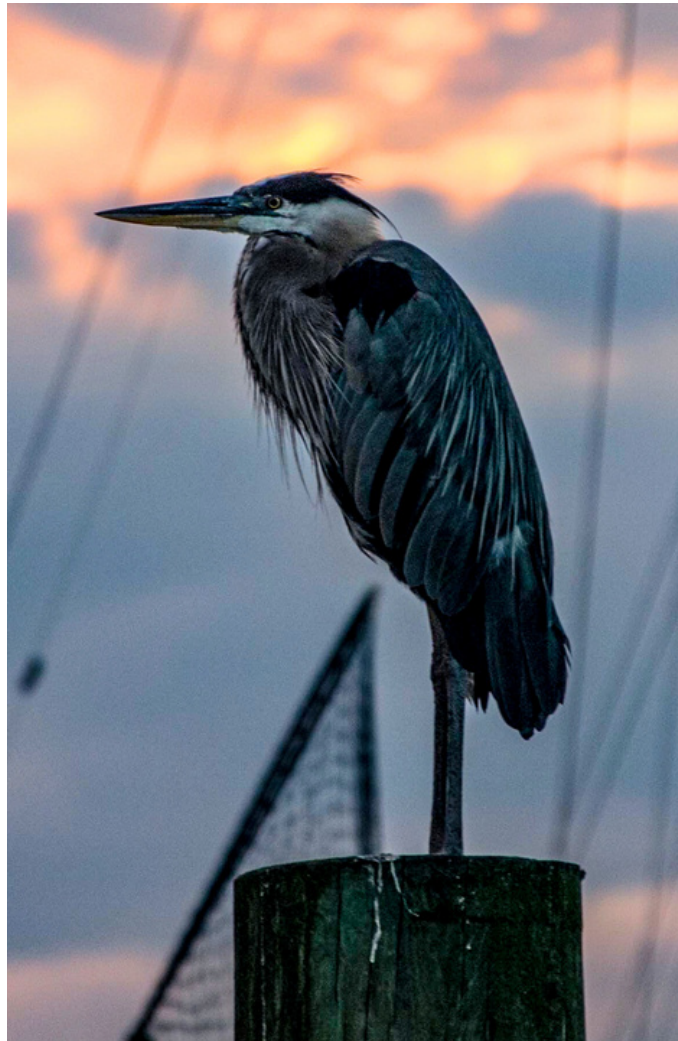


2023 River Report Card

For the South, West, and Rhode Rivers



Arundel Rivers Federation

ARUNDELRIVERS.ORG

Who is Arundel Rivers?

Arundel Rivers Federation's key program areas— restoration, monitoring, advocacy and outreach— are designed to achieve its mission: to protect, preserve, and restore the South, West, and Rhode Rivers by working with local communities to achieve clean, fishable, and swimmable waterways for present and future generations.

Executive Summary

I remember the first day I brought home a 'C' on a report card. The stern looks on my parents' faces said everything I needed to hear, without saying a word. It was time to get serious about my grades and it was time to get to work.

At Arundel Rivers, we take our rivers' grades just as seriously. Based on our monitoring data, the South and Rhode Rivers both received a C+ in 2023 while the West River received a B-.

Clearly, we've got some work to do to improve those grades.

Understanding what's behind our rivers' less-than-stellar grades requires a top-notch monitoring program. Our Monitoring Team, led by your South, West, and Rhode Riverkeeper, Elle Bassett, overhauled our monitoring program in 2023 and maintained the highest certification available to a program in the Chesapeake Bay watershed.

In 2024, for the first time in our organization's history, we'll be monitoring chlorophyll to track algal blooms in our rivers and monitoring nutrients that feed those blooms.

This time next year, we will know more about what makes our rivers sing and sting than we ever have before.

So, what do we know today from our 2023 grades? Our grades decline across all three rivers as we move up into the watershed, where water quality is heavily impacted by what we do on the surrounding lands. That means we have a **real opportunity to make a difference** for our waterways.



We just have to get to work.

We're thrilled to have all of you joining us in these efforts and we hope this report provides a valuable look at the state of our rivers and the work that lies ahead to bring home better grades.

Together, we are Arundel Rivers!

Matt Johnston, Executive Director

Photo Credit: Monica Hawse
Cover Photo: Heather Jarvis



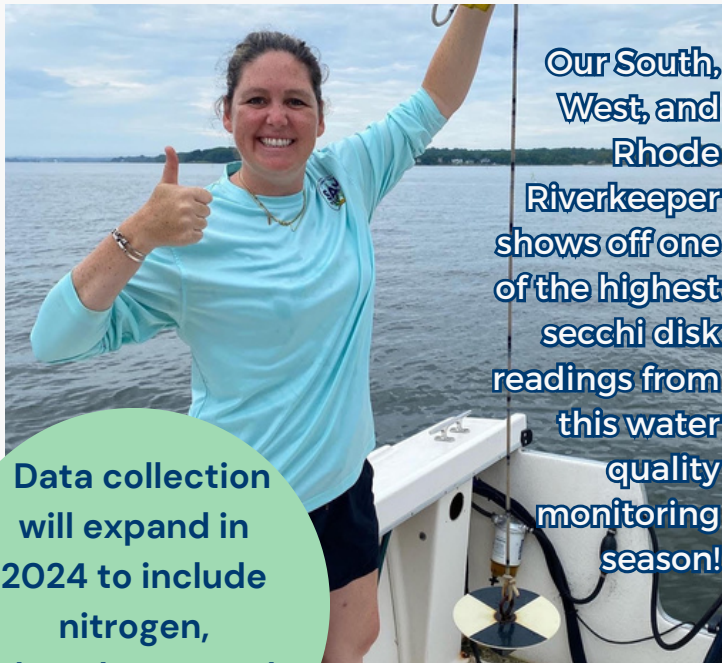
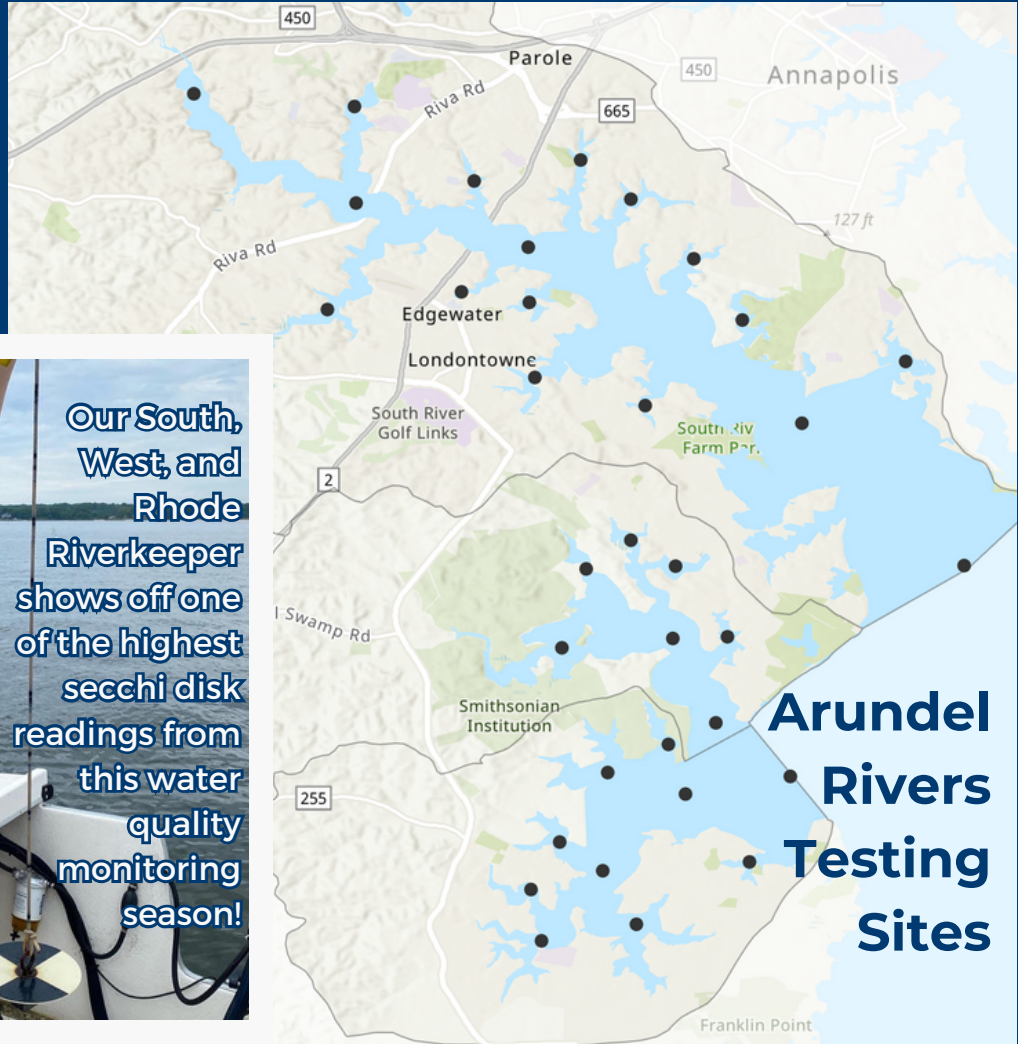
Where do we test?



34 stations are tested across the South, West, and Rhode Rivers.



Each station is tested twice a month from April to October.



Our South, West, and Rhode Riverkeeper shows off one of the highest secchi disk readings from this water quality monitoring season!

Data collection will expand in 2024 to include nitrogen, phosphorus, and algae!

Arundel Rivers Testing Sites

How do we test?

Arundel Rivers collects and scores water quality data according to Mid-Atlantic Tributary Assessment Coalition (MTAC) protocols.

In following MTAC, Arundel Rivers only grades dissolved oxygen and clarity. However, we also monitor pH, temperature, and salinity.

Scoring

The letter grades below correspond to a color code according to the **Water Quality Index (WQI)**:

Very Good

A

B

C

D

F

Very Poor

100%

80%

60%

40%

20%

0%

What's in a Score?

C+

=

Clarity C-

How deep light can travel in the water, tested using a secchi disk



Dissolved Oxygen B

The amount of oxygen in the water



South River C+

Upper River **D+**

Riva Bridge **C**

Broad Creek **C**

Gingerville Creek **C**

Route 2 Bridge **B-**

Church Creek **C**

Crab Creek **C+**

Aberdeen Creek **B-**

Harness Creek **C+**

C Beards Creek

C Warehouse Creek

B- Almshouse Creek

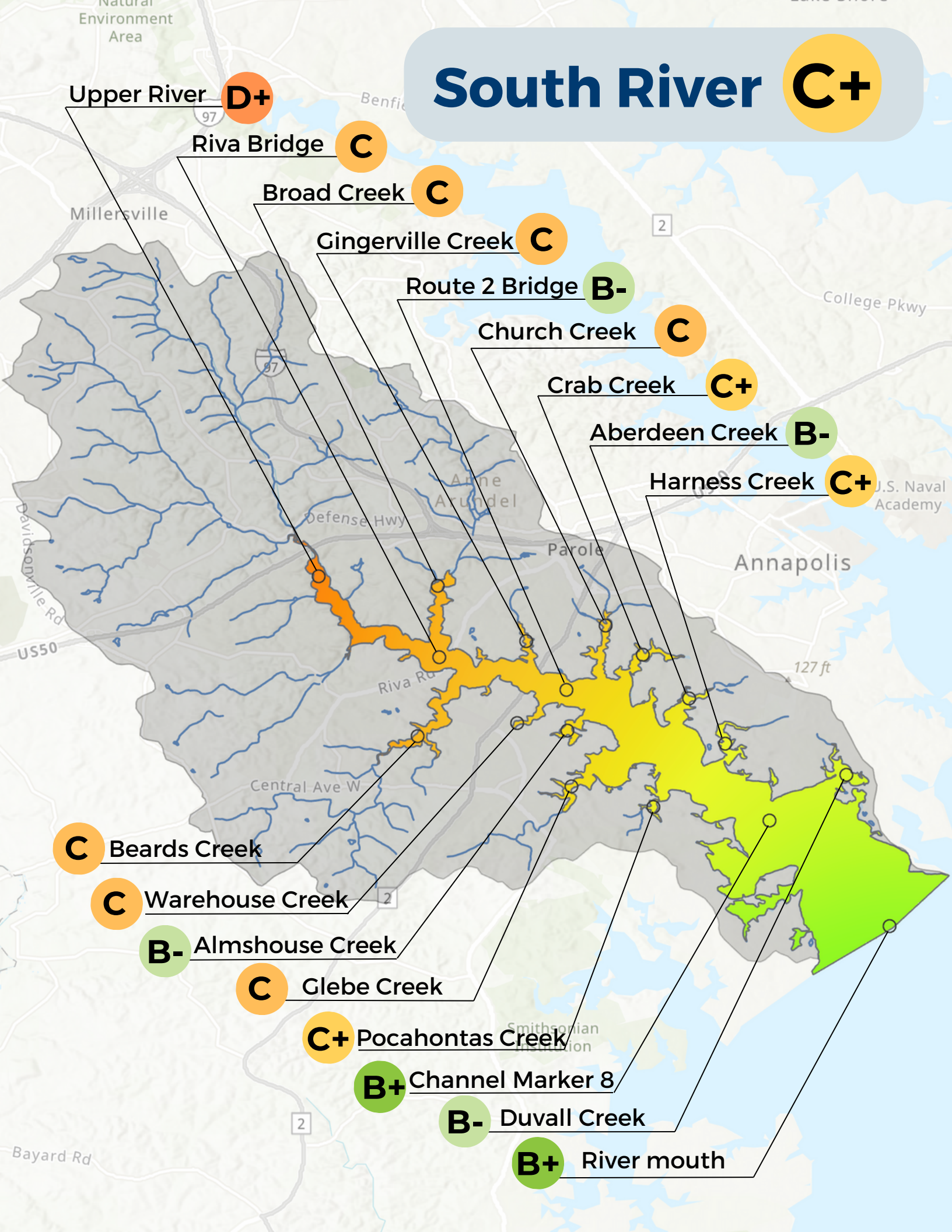
C Glebe Creek

C+ Pocahontas Creek

B+ Channel Marker 8

B- Duvall Creek

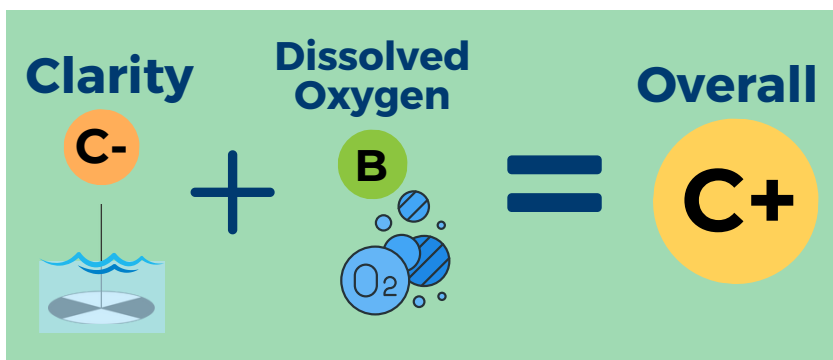
B+ River mouth



South River

The South River received an overall grade of a C+ (56 out of 100) in 2023. This year's grade is consistent with the South's 2022 grade of C+. The South was, unfortunately, **the worst overall performer** within our watershed due to **poor dissolved oxygen scores**. On the flip side, the South received the **best clarity score**

among our rivers. Four stations saw bottom measurements of 0mg/L oxygen during the summer. We often see these “dead zones,” or no oxygen events, as a consequence of too many nutrients entering the system. We saw multiple algal blooms in the South in 2023. As algae dies and decomposes, it removes oxygen from the water column and creates an incredibly stressful environment for aquatic species. Despite the poor dissolved oxygen



scores, clarity readings were generally good. Compared to the West and Rhode, the South is larger with more open channel and more sites in the mainstem of the river. Sites in the mainstem tend to have better water quality than sites farther upstream or in tributaries as they are flushed more efficiently by the Chesapeake Bay.

Improving the South River's scores will require reducing stormwater runoff and nutrient pollution from sources like lawn fertilizers and septics, especially in the upper portions of the South River and its larger tributaries.



Thomas Point Lighthouse, South River
Photo Credit: Heather Jarvis



Arundel Rivers staff plant SAV in Glebe Bay

South River Highlights

B+

River
Mouth

B-

Aberdeen
Creek

B-

Duvall
Creek

B-

Almshouse
Creek

South River Hotspots

D+

Upper
River

C

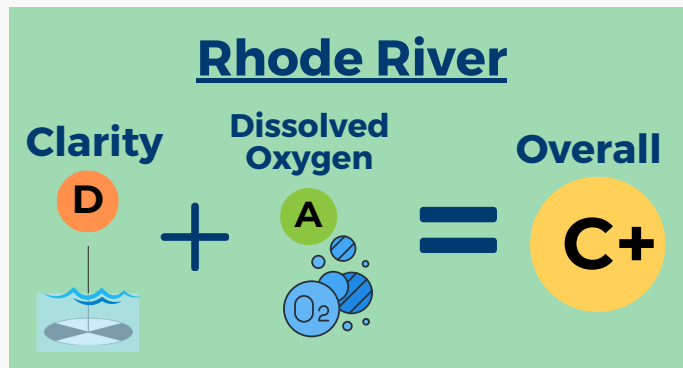
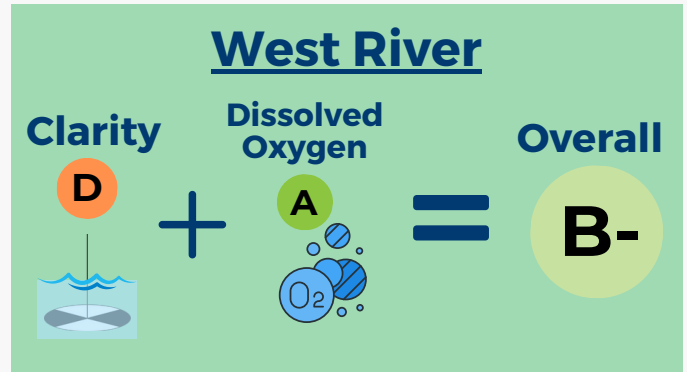
Beards
Creek

C

Church
Creek

West & Rhode River

The West River received a B- (62 out of 100) in 2023, **the best overall score of our three rivers**. This high score is largely due to the river's high dissolved oxygen scores. These higher dissolved oxygen scores might reflect monitoring site locations concentrated closer to the mainstem and not up the West River's shallow tributaries; however, we saw improvements in oxygen at multiple tributary sites compared to 2022, including in Parrish Creek, Lerch Creek, and Cheston Creek. Cheston Creek was our overall best performing tributary for oxygen in the entire watershed in 2023. On the flip side, the worst performing tributary for clarity in the watershed was Lerch Creek.



The Rhode River received a C+ (59 out of 100) in 2023. While this is the same grade it received in 2022, we saw a slight **improvement in dissolved oxygen** in the Rhode River in 2023. The Rhode River's lower score is a reflection of its poor clarity. It received the lowest overall clarity score of our three rivers. The highest clarity score received on the Rhode River was a 40/100, compared to the best clarity scores on the South (59/100) and West (47/100).



Development has doubled in the West River watershed over the past decade. As the watershed's land cover urbanizes, the river will receive more stormwater runoff and its score will reflect the landscape change. Our best performing tributary for oxygen in the entire watershed is Cheston Creek, an almost entirely forested subwatershed.

West & Rhode Highlights

B

River Mouth
(West)

B-

Cheston
Creek

C

Bear Neck
Creek

C

West River
Methodist Church

C

Sellman
Creek

Rhode River **C+**

Bear Neck Creek **C**

Channel Marker 7 **B**

Ponder Cove **C+**

Cadle Creek **B-**

C Sellman Creek

C+ Big Island

B River Mouth

B- Cheston Creek

B Popham and Scaffold

C+ Tenthouse Creek

C+ Lerch Creek

B- Channel Marker 6

C West River Methodist Church

B- South Creek

B Mid-River

B- Parrish Creek

B River Mouth

West River **B-**

What Can You Do?

Check out our suggestions of things you can commit to do in 2024 to help our rivers. Even if you only take one action from this list, that's a step forward for clean waterways!



Volunteer collects samples for bacteria monitoring on the West River

In 2024, I commit to:

- ☐ Hold off on fertilizing my lawn
- ☐ Plant natives in my yard- I'll ask Arundel Rivers for resources!
- ☐ Pump out my boat and maintain my septic tank properly
- ☐ Look into Best Available Technology for my septic
- ☐ Pick up my pet's waste and pick up litter on our walks
- ☐ Buy used and refuse plastic wherever I can
- ☐ Volunteer and get outside with Arundel Rivers!
- ☐ Donate to your Arundel Rivers Federation today!



Arundel Rivers
FEDERATION

Scan to donate!



A special thanks to all of the volunteers and supporters who make our work possible!

Want to learn more about our programs, find ways to volunteer, or engage with your community? Visit arundelrivers.org!



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