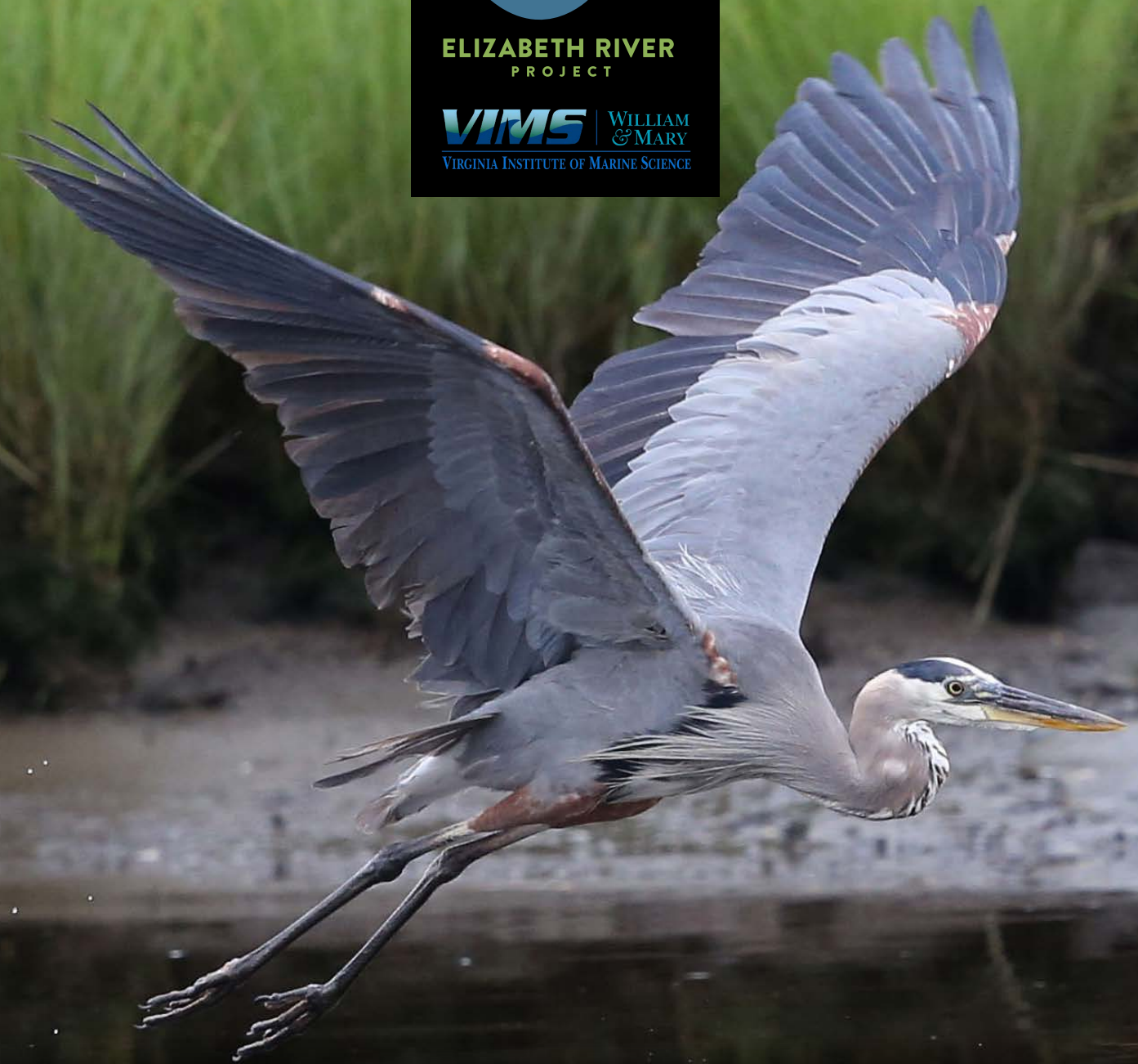


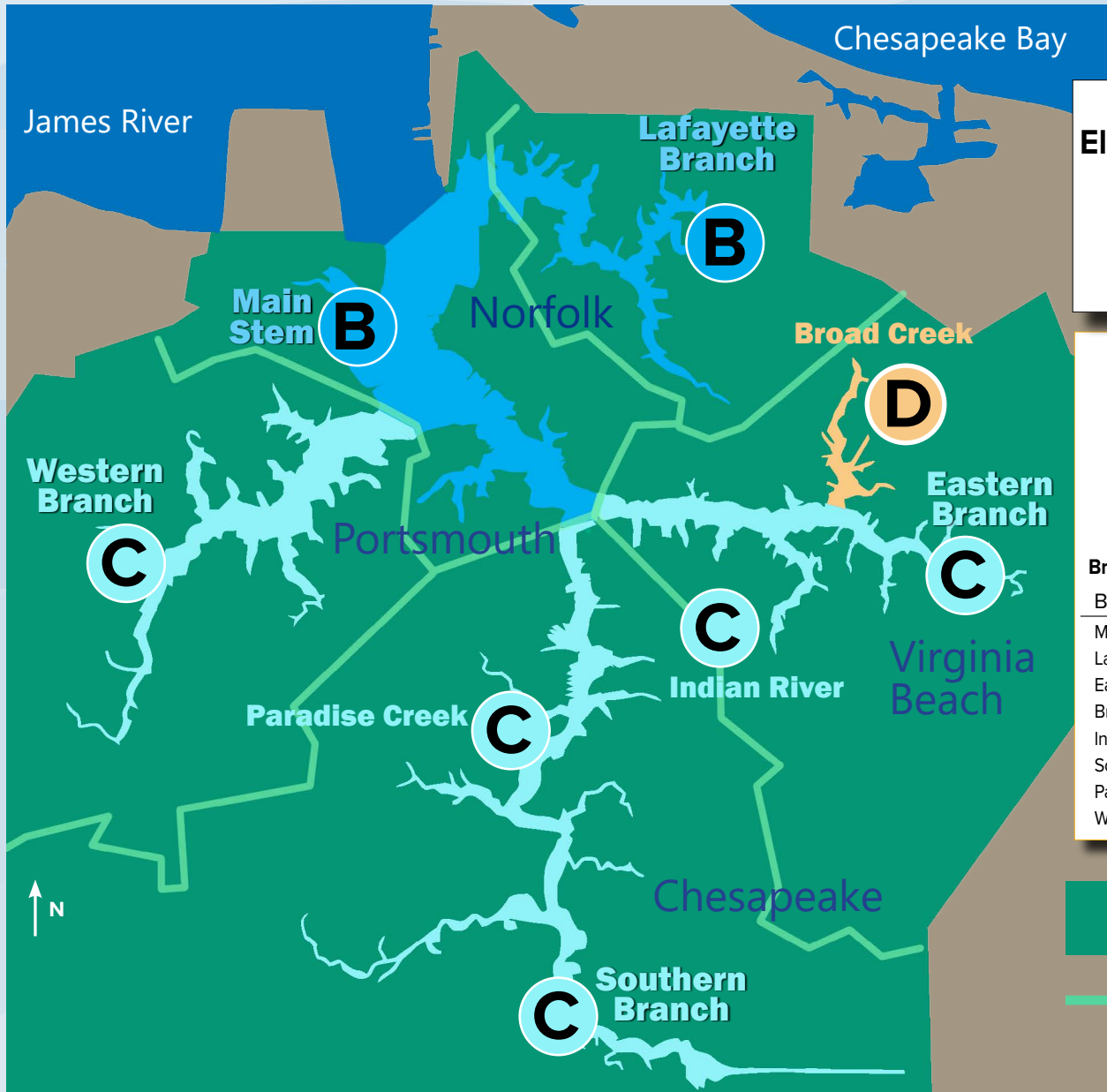
ELIZABETH RIVER
PROJECT

VIMS | WILLIAM
& MARY
VIRGINIA INSTITUTE OF MARINE SCIENCE



State of the Elizabeth River SCORECARD 2023

Elizabeth River



Elizabeth River Overall Grade **C**

River Health Scale

- A
- B
- C
- D
- F

Branch Grades Then and Now

BRANCH	2020	2023
Main Stem	B	B
Lafayette	C	B
Eastern Branch	C	C
Broad Creek	D	D
Indian River	C	C
Southern Branch	C	C
Paradise Creek	C	C
Western Branch	C	C

Elizabeth River "Watershed" or drainage area

Sub-watersheds delineated by light green lines

Trawl surveys discover rich fish life

For the first time since the Virginia Institute of Marine Science (VIMS) began tracking fish populations throughout the Bay in 1955, trawl surveys have now entered the Elizabeth River – another sign that the health of our urban river is now taken seriously, as recovery milestones are achieved.

VIMS conducted monthly trawls of the river for the past two years, discovering “a variety of commercially and recreationally important species,” 33 species in all, including some surprising ones.

“I had no idea we had blueback herring in the river,” said Joe Rieger, Deputy-Director – Restoration, Elizabeth River Project.

“Importantly, we confirmed the use of the Elizabeth River as a nursery habitat for juvenile American shad and blueback herring; these species are under fishing moratoria due to historically low numbers throughout the East Coast of the US,” said Dr. Troy Tuckey, VIMS.



Virginia Institute of Marine Science captured this lined seahorse near Scott's Creek in Portsmouth in 2022 along with an abundance of marine life.

See the VIMS Summary of Findings: tinyurl.com/VIMSER

Elizabeth River Scorecard 2023

Dissolved Oxygen	Key to fish health; improving river-wide. Amount of oxygen present for fish to “breathe.”	A
Bacteria (enterococci – related to safe recreation)	Promising decrease -Note, no determination of safe or unsafe swimming has been made since there are no public beaches where water quality can be monitored with sufficient frequency. ¹	A
Bacteria (fecal coliform – related to safe shellfish consumption)	Western Branch degrading, Lafayette improving. Shellfish beds throughout the river remain closed to harvest based on complex additional factors. Eastern Branch, Southern Branch not monitored.	B
Water Clarity	This is how far light can penetrate and is one indicator of suspended pollutants.	C
Nitrogen	Excess nitrogen can lead to algae blooms. Improving levels throughout the river, with long term improving trends in Indian River	B
Phosphorus	Excess phosphorus can lead to algae blooms. Still failing – Broad Creek, Indian River	D
Chlorophyll-A	Pigment in algae; associated with algal blooms	C
Bottom “benthic” Life	Life along the bottom of the river forms the foundation of the food chain. Most improved: Southern Branch	D
Fish Cancer	Sampling focused on known hotspots – not enough data throughout the river for overall score. Improving where cleanups have occurred.	N/A
Sediment Quality	Sampling focused on known hotspots – not enough data throughout the river for overall score. Improving where cleanups have occurred.	N/A

Overall River Grade

Holding steady from prior scorecard, 2020. Numerical score improved from 2.7 to 2.9 – just need to get to 3.0 for a B!

C

The non-profit Elizabeth River Project convened a committee of scientists to compile and analyze data and took the lead to interpret data for the public. Data provided by the Virginia Institute of Marine Science, Virginia Department of Environmental Quality, Virginia Department of Health, and Old Dominion University.

Overall score for each parameter as graded by area scientists for data 2018-2022

¹ Regarding recreation safety, be mindful of *Vibrio*, a naturally occurring, potentially deadly bacteria increasing in many shallow tidal waters with climate change.

Cover photo courtesy of David Gibson



“For one hour we were able to kayak with a mom and baby dolphin...My heart is happy.”
- Denise Maples, regarding this photo she took 7/15/2023, Eastern Branch, Elizabeth River.

Are these harmful bacteria in your corner of the river?

Wound infections caused by *Vibrio*, naturally occurring bacteria, can be serious and are increasing with climate change and warming waters. Scientists on the Elizabeth, led by Dr. Corinne Audemard from VIMS, wondered if *Vibrio* are more abundant in oysters at contaminated areas of the river.



For this scorecard, VIMS determined the answer is no – *Vibrio* seem to be no more prevalent in oysters at known hotspots than healthier areas, and *Vibrio* levels in the Elizabeth seem similar to other Virginia locations (though caution is advised in any brackish or salty water, including the ocean.)

Avoid contact with water if you have an open wound and avoid consumption of raw oysters if your immune system is compromised.

For more information on water-related illnesses possible in natural waterways, visit SwimHealthyVA.com.



Dr. Kristen Prossner, VIMS graduate, assisted the study by deploying oyster cages in contaminated areas of the river.

How good a canary is this fish?



The little mummichog, a spotted, bottom-dwelling fish, has long served as our “canary in the coal mine” for the health of the bottom of the Elizabeth since it doesn’t travel far in its lifetime – but how far?

VIMS scientists boated forth to find out, 2021-22. Mary Bennett, Elizabeth River Project environmental scientist, tagged along with the tagging. “The whole process is interesting. They put small radio transponder tags in these tiny fish and send them out in the river and see where they go,” she said. After tagging more

than 2,400 fish, the answer: The majority of mummichogs stayed in the area where they were tagged but a small portion were found in adjacent areas. “It supports the continued use of the mummichog as an indicator species for successful cleanup,” says Joe Rieger, Elizabeth River Project.



See the Mummichog Movement StoryMap: tinyurl.com/Mummimove

Dr. Hamish Small, VIMS, captures mummichogs for this report

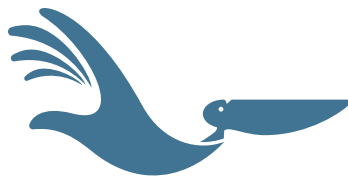


State of the Elizabeth River Steering Committee 2023

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Virginia Department of Health
Virginia Institute of Marine Science
Hampton Roads Planning District Commission
Virginia Department of Environmental Quality
HRSD
Norfolk State University
Elizabeth River Project Board (former)
Virginia Department of Environmental Quality



ELIZABETH RIVER PROJECT

DO SOMETHING BEAUTIFUL

Find your role.



David Koubsky
Rob Latour
Rom Lipcius
Zach Martin
Marjorie Mayfield Jackson
Edwardo Miles
Jamie Mitchell
Margie Mulholland
Craig Nicol
Joe Rieger
Bud Rodi
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Coastal Virginia Conservancy
Virginia Institute of Marine Science
Virginia Institute of Marine Science
United States Army Corps of Engineers
Elizabeth River Project
Virginia Institute of Marine Science
HRSD
Old Dominion University
Virginia Department of Environmental Quality
Elizabeth River Project
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*Chairs

For more information including how scores were calculated, contact Mary Bennett, Mbennett@elizabethriver.org, 757-399-7487.

Appendix of scores also available.

Printed on post-consumer waste recycled paper with eco-friendly ink.