

2014 Chester River Report Card



Message From the Riverkeeper

By the time you read this, I will have welcomed the newest Chester River advocate into this world. In fact, this year, the prolific CRA staff will have eight children under the age of eight.

You can bet I'm wondering what kind of a Chester they will grow up on. **Will they grow up in the river, netting blue crabs and wading in the shallows?** Or will they grow up only knowing the river as a pretty view, dead underneath and dangerous to swim in?

At CRA, we're doing everything we can to ensure our children grow to know and love a vibrant, healthy river.

Just this past year, CRA planted **3,000 trees** near headwater streams, placed **58,000 oysters** in the river, and worked with farmers to more efficiently apply fertilizer to **18,000 crop acres**.

But it's not enough; our river is not improving like we want it to. **We need to increase the pace of river restoration.**

If we want to see real, lasting improvement, **we need everyone to take action.**

Increase the width of your streamside buffer. Take marginal land out of crop production and plant switchgrass. Stop fertilizing your lawn. Support a science based phosphorus management tool. Push your legislators to commit to the clean water blueprint for the Chesapeake Bay cleanup.

We know what we need to do to achieve healthy rivers today and for our children – we just need the will and courage to do it.

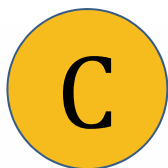
Isabel Junkin Hardesty
CHESTER RIVERKEEPER.



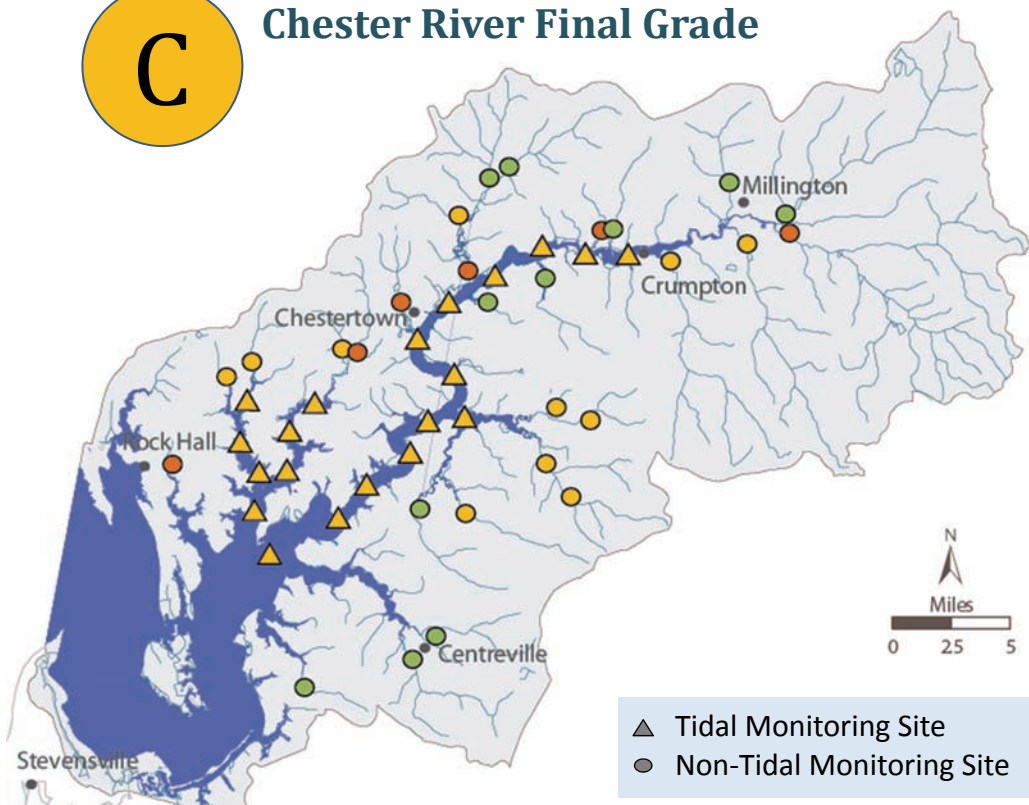
Cover: Lucy's First Fish, with Lucy and Jim Trumbauer

All photos by Tim Trumbauer, Isabel Hardesty, Tyler Campbell, and Marcy Ramsey

2014 Chester River Grades



Chester River Final Grade



2014 on the Chester This year, water quality was slightly improved versus last year. While we would love to take all the credit, weather played an important role. The summer of 2014 was relatively cool with minimal significant rain events. **Excessive sediments (clarity) and high nutrients (nitrogen and phosphorus) continue to be the main threats to the Chester River.**



Watershed	Dissolved Oxygen	Nutrients	Clarity	Algae	1 Yr. Trend	Final Grade
Tidal Chester	78	49	35	47	↑	C
Non-Tidal Chester	75	44	55	NA	↔	C

Explanation of grade calculations are on the following page.

Indicators

Water Quality Index (WQI) Our data are collected by a combination of CRA staff and our dedicated **Chester Tester** volunteers. We use the **WQI method**, established by the Maryland Tributary Assessment Coalition (MTAC) to calculate grades. The WQI compares our data to biotic thresholds for healthy water. All indicators are averaged for a final WQI and converted to a letter grade according to the table below.



WQI	Grade
100-80	A (Excellent)
79-60	B (Good)
59-40	C (At Risk)
39-20	D (Degraded)
20-0	F (Severely Degraded)

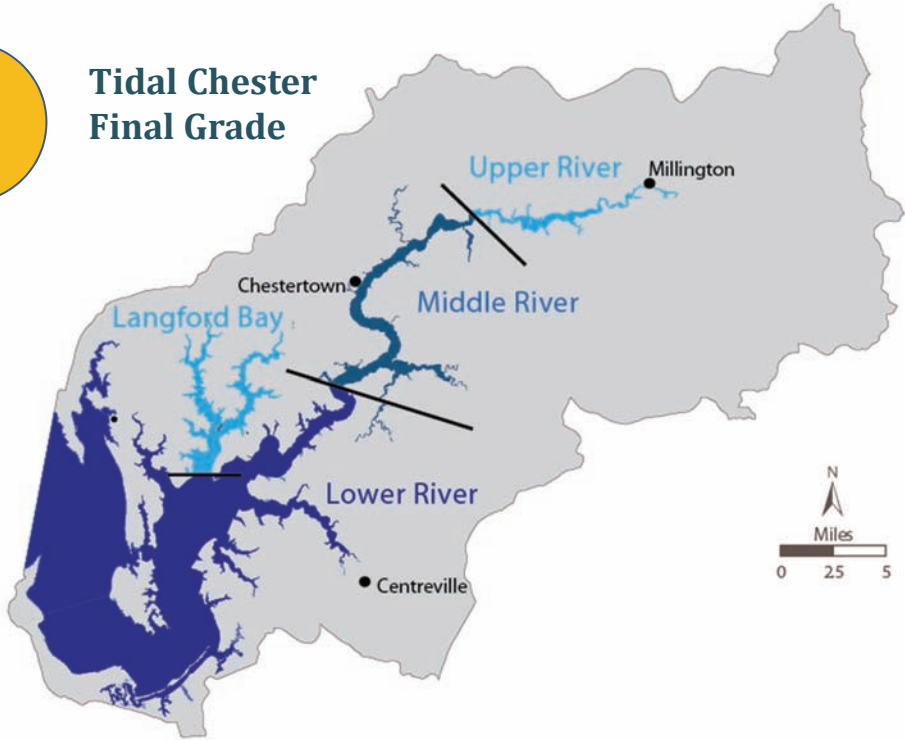
Indicator		Water Quality Index (WQI) Number				
Watershed	Dissolved Oxygen	Nutrients	Clarity	Algae	1 Yr. Trend	Final Grade
Tidal Chester	78	49	35	47	↑	C
Non-Tidal Chester	75	44	55	NA	↔	C

Indicator	Description
Dissolved Oxygen	- Rockfish, oysters, crabs, and underwater species require oxygen. - If the dissolved oxygen is too low (dead zone) aquatic species become stressed, evacuate the area, or die.
Nutrients	- Nutrients, primarily in the form of nitrogen and phosphorus, enter our waterways through fertilizers (farms and lawns), failing septic systems, and wastewater treatment plants. - Nutrients in excess cause harmful algae blooms.
Clarity	- Sediments washing off the land and algae blooms reduce water clarity. - Muddy waters block out sunlight, preventing growth of aquatic grasses. - Excessive sediments fall to the bottom and can smother bottom dwellers like oysters.
Algae	- Algae blooms are caused by excess nutrients. - Algae clouds the water and blocks out sunlight for aquatic grasses. - Decomposing algae depletes the water of oxygen. - Some algae can be harmful to human health.

Tidal Grades



Tidal Chester Final Grade



Tidal Story The tidal portion of the Chester River is hampered by high nutrient levels (nitrogen and phosphorus), poor water clarity, and excessive algae. **On the bright side, aquatic grasses rebounded in several areas.** We hope the grasses continue to spread for the next several years, providing much needed habitat, oxygen-rich waters, and filtering.

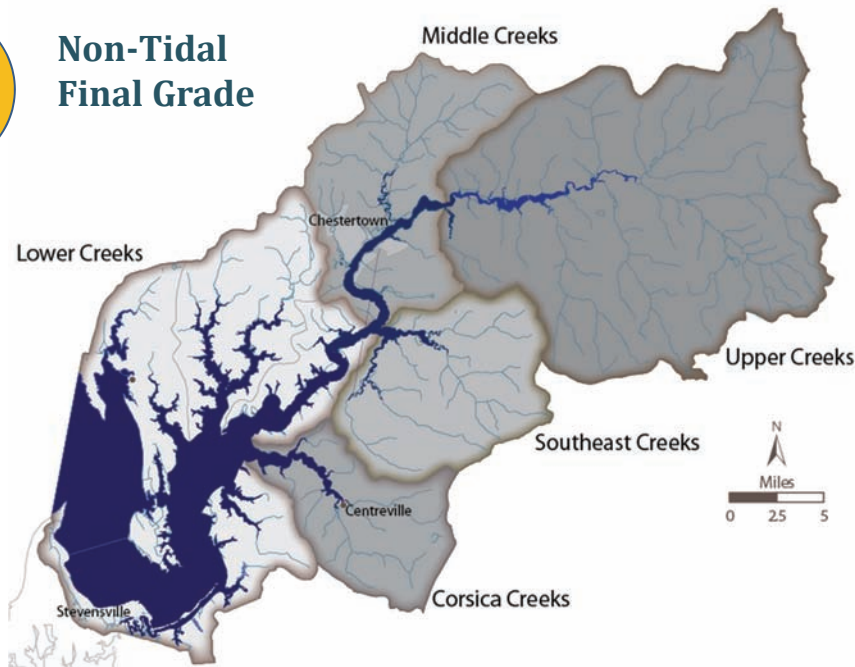


Watershed	Dissolved Oxygen	Nutrients		Clarity	Algae	Final Grade
		Nitrogen	Phosphorus			
Upper River	97	48	28	42	49	C
Middle River	64	62	51	44	65	C+
Lower River	83	66	25	34	49	C
Langford Bay	69	72	28	24	53	C

Non-Tidal Grades



Non-Tidal Final Grade

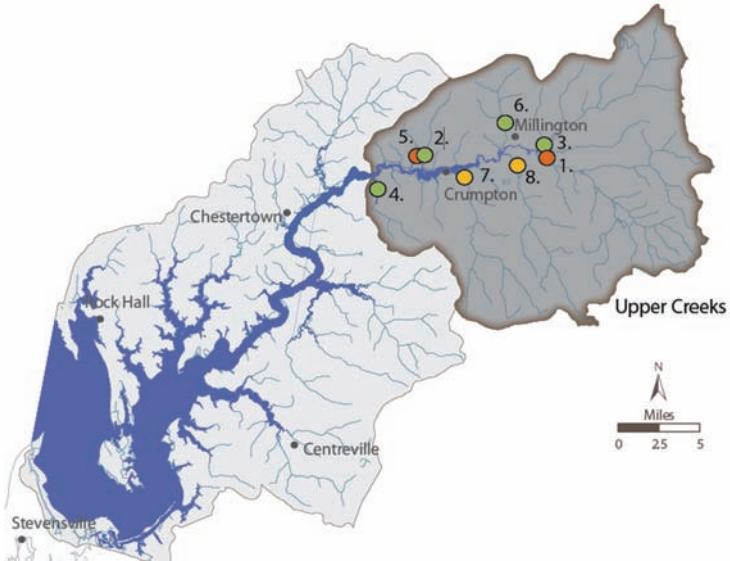


Non-Tidal Story The primary pollutants in our non-tidal creeks and streams are **excessive nutrients**. The Corsica watershed continues to be a bright spot, earning a B. The Corsica has been the focus of extensive watershed restoration efforts, showing restoration and stormwater projects do make a difference.



Watershed	Dissolved Oxygen	Nutrients			Clarity	Final Grade
		Nitrate	Ammonia	Phosphate		
Upper Creeks	61	43	61	50	56	C
Middle Creeks	79	34	53	50	66	C+
Southeast Creeks	100	21	35	21	58	C
Corisca Creeks	100	36	84	34	93	B
Lower Creeks	33	100	29	14	26	C-

Upper Creeks

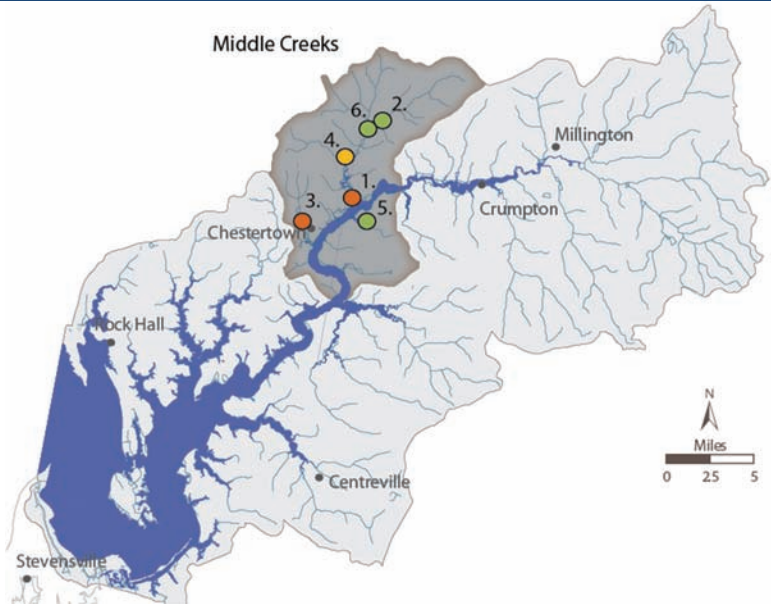
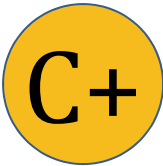


Upper Creeks Story Some of our upper creeks have excessive levels of nutrients and poor water clarity. Perhaps most disturbingly, Andover Branch and Red Lion Branch have very low dissolved oxygen. This is unusual in our non-tidal creeks and shows these creeks may not be able to support life.



Watershed	Dissolved Oxygen	Nutrients			Clarity	Final Grade
		Nitrate	Ammonia	Phosphate		
1. Andover Branch	22	88	35	38	8	D+
2. Chesterville Branch	75	7	73	60	93	B-
3. Cypress Branch	88	78	65	78	57	B
4. Foreman Branch	100	11	72	83	83	B
5. Harmony Woods Cr.	40	6	18	6	59	D
6. Mills Branch	100	100	91	9	32	B
7. Red Lion Branch	0	5	91	45	59	C-
8. Unicorn Branch	71	10	40	80	85	C+

Middle Creeks

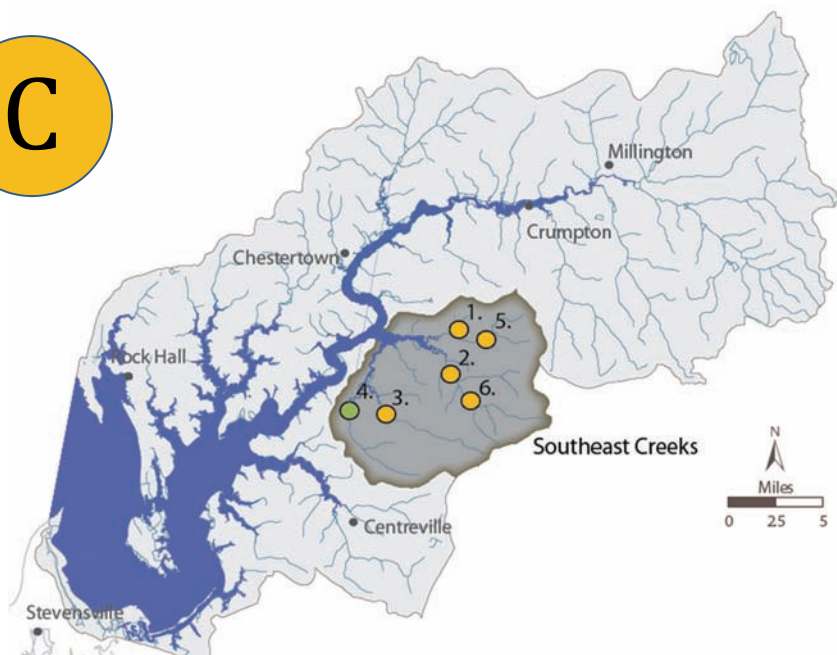


Middle Creeks Story There is a high variability in the health of the streams in the Middle Chester. Some streams, like Urieville Lake Branch, are healthy, likely since Urieville Lake traps nutrients and sediments. On the other hand, Radcliffe Creek receives runoff from major shopping centers and other developed areas, and as a result, has very poor water quality.



Watershed	Dissolved Oxygen	Nutrients			Clarity	Final Grade
		Nitrate	Ammonia	Phosphate		
1. Morgan Creek	25	86	32	27	23	D+
2. Perkins Hill Branch	100	23	55	32	95	B-
3. Radcliffe Creek	43	5	43	43	38	D
4. Rileys Mill Branch	100	24	60	32	72	C+
5. Rosin Creek	100	23	57	86	81	B
6. Urieville Lake Br.	100	39	70	83	87	B+

Southeast Creeks



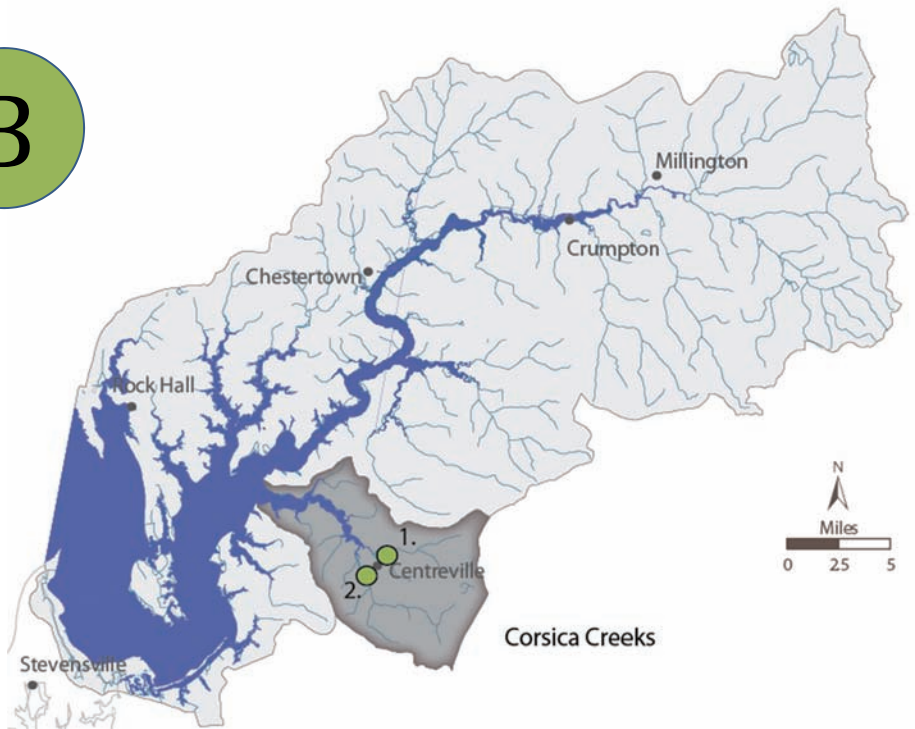
Southeast Creeks Story The creeks and streams that feed into Southeast Creek have very high levels of nutrients. We believe much of this comes from legacy nutrients in the groundwater, but also runoff from improperly managed farms, fertilized lawns, and increasing development.



Watershed	Dissolved Oxygen	Nutrients			Clarity	Final Grade
		Nitrate	Ammonia	Phosphate		
1. Browns Branch	100	17	22	22	65	C
2. Church Hill Branch	100	18	18	14	68	C-
3. Granny Finley Branch	100	20	70	5	55	C
4. Island Creek Branch	100	100	50	33	50	B
5. Johnny Powell Br.	100	0	33	42	42	C-
6. Rt. 405 Bridge	100	50	25	13	75	C

Corsica Creeks

B



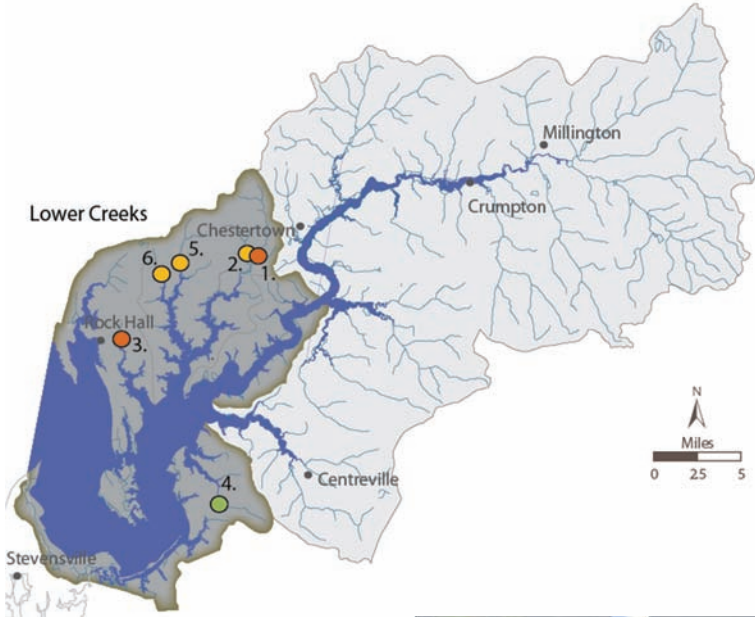
Corsica Creeks Story The Corsica River and its watershed are a shining example of successful restoration. Years ago, the Corsica river was in a dire situation, but with the implementation of the Corsica River Watershed Restoration Action Strategy (WRAS) the Corsica has recovered dramatically and is now our **healthiest watershed**. We hope we can take the lessons learned in the Corsica and apply them to the entire Chester River watershed.



Watershed	Dissolved Oxygen	Nutrients			Clarity	Final Grade
		Nitrate	/ Ammonia	/ Phosphate		
1. 3 Bridges Branch	100	11	84	42	95	B
2. Old Mill Stream	100	56	84	28	92	B

Lower Creeks

C-



Lower Creeks Story Almost all lower creeks suffer from very high levels of phosphorus and poor water clarity. Phosphorus binds to sediments so more sediments mean poor water clarity and likely more phosphorus. This problem can be addressed by reducing the amount of phosphorus applied to the land, planting stream buffers, and reducing runoff.



Watershed	Dissolved Oxygen	Nutrients			Clarity	Final Grade
		Nitrate	Ammonia	Phosphate		
1. Airy Hill Creek	38	52	61	4	17	D
2. Brices Mill Pond Creek	100	5	86	0	67	C
3. Grays Inn Creek	25	100	13	22	9	D
4. Reed Creek	100	100	58	0	58	B-
5. Sandy Bottom Cr.	63	100	55	9	0	C
6. Shipyard Creek	50	94	47	6	18	C-

Local

Did you know?

More than a decade of data and research shows that most of the pollution in the Chester River comes from Kent and Queen Anne's counties. **The Chester does not appear to mix well with the Chesapeake Bay** and, contrary to common beliefs, does not flush with each tidal cycle.

In other words, the water sloshing back and forth in Chestertown, Langford Bay, Crumpton, or anywhere else on the river, is pretty much the same water that sloshed back and forth yesterday, and will slosh back and forth tomorrow.

Most pollution in the Chester comes from sources within the watershed - that means US.



Pollution

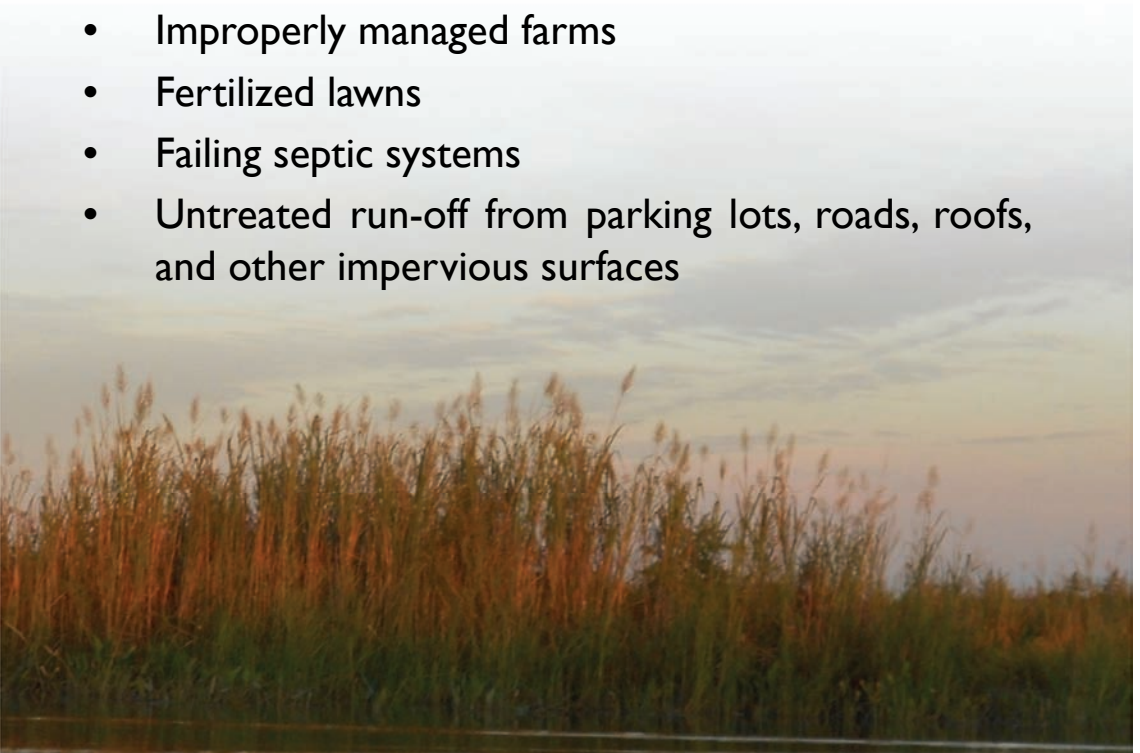
What are the main pollutants in the Chester?

Nutrients and sediments Excess nutrients cause algae blooms that die off, decompose, and starve the river of oxygen. Excess sediment clouds the water and blocks life-giving sunlight to aquatic vegetation. Without aquatic vegetation, crabs and other critters have no place to hide, and there are no plants to produce oxygen.

Where does it come from?

Pollution in the Chester comes from a variety of sources, including:

- Improperly managed farms
- Fertilized lawns
- Failing septic systems
- Untreated run-off from parking lots, roads, roofs, and other impervious surfaces



What Can I Do?

That depends on who you are...



Farmers:

- Improve fertilizer efficiency with precision agriculture
- Create, expand, or maintain stream buffers
- Plant cover crops



Homeowners:

- Reduce or eliminate lawn fertilizer
- Plant native plants
- Install rain gardens and rain barrels to treat run-off from roofs and driveways



Everyone:

- Be vocal - talk to your neighbors about the river
- Get involved - support river causes, like the Chester River Association
- Engage - contact your local representatives and tell them you care about clean water

For more information about how you can help the Chester River, please contact us.

info@chesterriverassociation.org
410 810-7556



In Your Words



The Chester River makes Chestertown truly unique - it represents a place to recreate, to explore, to escape the stress of the working world. For me, the River is where I go to **reconnect with the natural world** and remember how lucky I am to live here.

Chris Cerino, Chestertown
Mayor; VP Sultana Education Foundation

I want there to be more
turtles when I grow up!

Lucy Trumbauer, Kingstown
5-Year-Old; Pirate



The Chester River brings a certain **sense of peace** to my soul. Sometimes I get out there on a boat and turn off the motor and **just float**. For me it's heaven - all my cares and worries just slip away and I am restored.

Liz Cox, Stevensville
Marylanders Grow Oysters Volunteer



Our 16 acres of grasslands have created a new habitat for a wide range of wildlife. **It turns out, lawns aren't that beautiful.** Grasslands and woodlands are beautiful, and they help keep my family connected with nature.

Ben Armiger, Crumpton
Organic Farmer; Waterfront Director, Washington College

Partners and Supporters



Our work is made possible by the generosity of our River Guardians, sponsors, members, foundations, and volunteers. **Thank you!**



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