Lake Linganore and you!

potomac conservancy

CLEAN WATER FUND

Friends of the Lake

CLEAN WATER FREDERICK

CBTRUST Chesapeake Bay Trust

Who we are

- Potomac Conservancy
- Clean Water Fund
- Clean Water Frederick
- Friends of the Lake
- Chesapeake Bay Trust

Who are you?

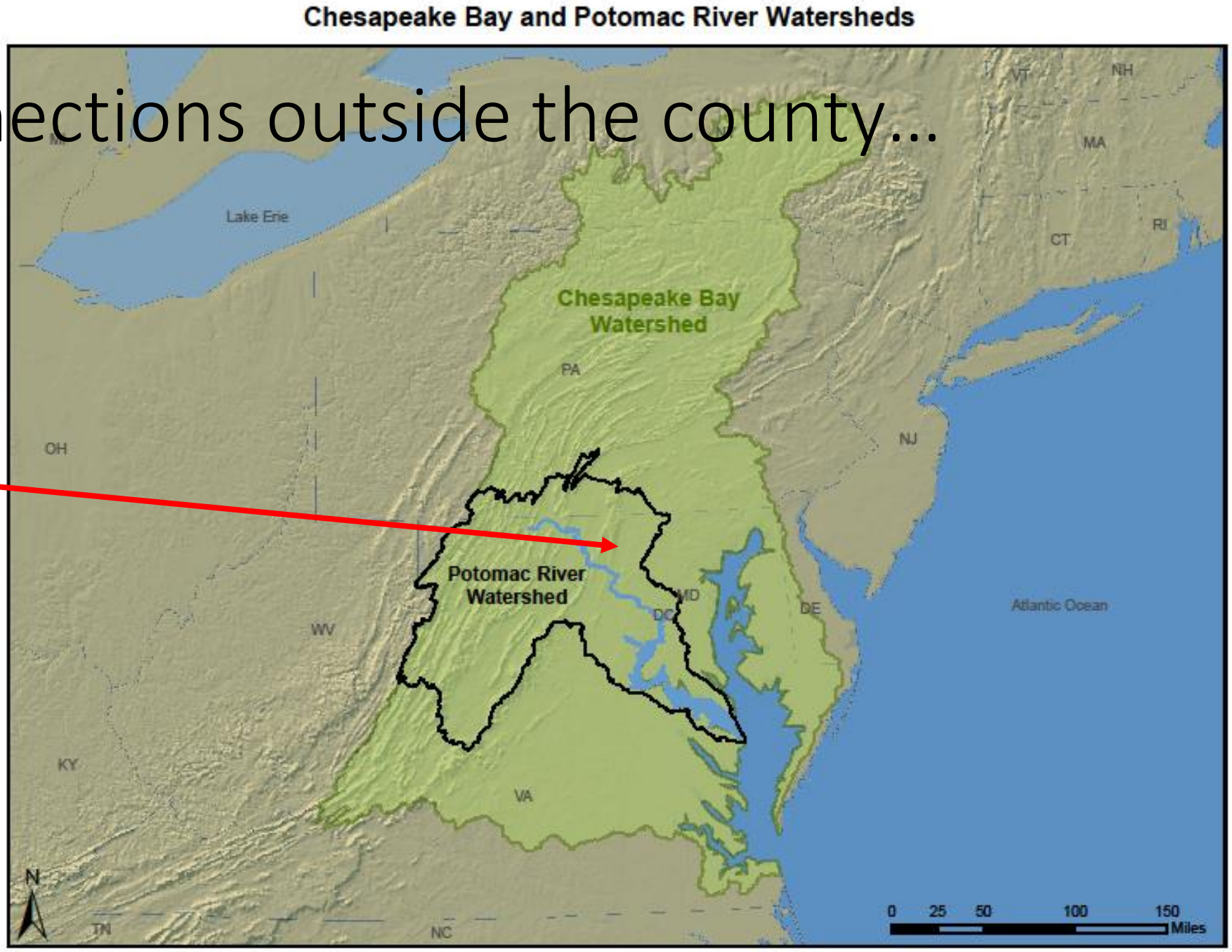
- How many people live in Linganore?
- How many people live outside of Linganore? Where?
- How do you interact with water?
- What do you see as challenges for Frederick County's waterways?

Photo credit: Potomac Conservancy


Everyone lives downstream
from somebody
Surface
Runoff
Groundwater
Recharge
Groundwater
Well
Septic
Wastewater
Discharge
Urban
Runoff
Courtesy of Conservation Ontario

Connections outside the county…

Lake Linganore



5 things you might not know

1. You can fish, paddle, or picnic at 11 scenic spots along the Monocacy River
2. Frederick County residents get our drinking water from local streams, groundwater, and reservoirs
3. Our local waterways are some of the most polluted in all of Maryland
4. The Frederick County government is responsible for how land can be used near the county's drinking water supply areas
5. Frederick County is the second-fastest growing suburban district in Maryland

Drinking Water

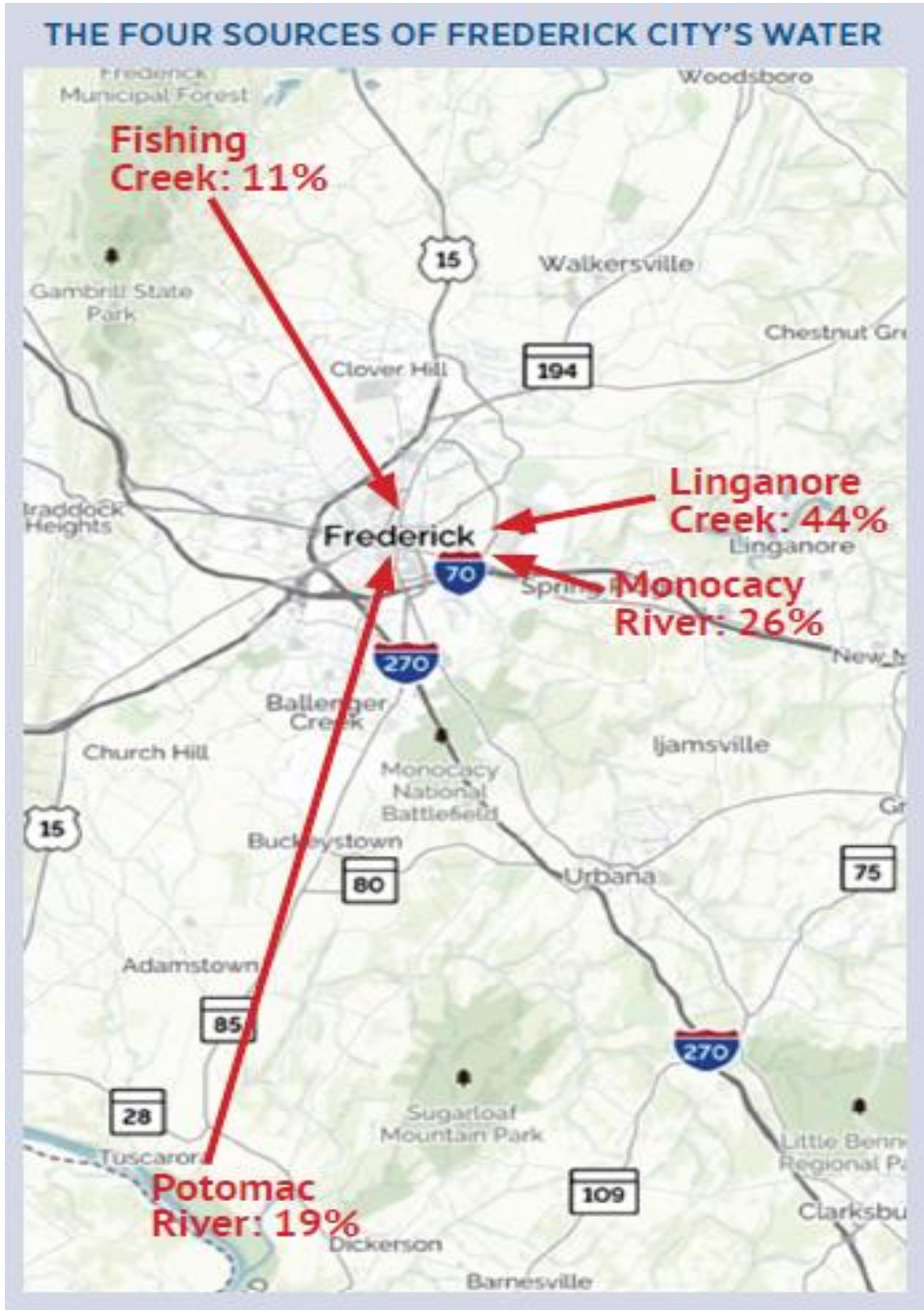
If you live here, or are one of the 40% of Frederick County residents with individual household wells, your water comes from underground aquifers:

- Braddock Heights
- Jefferson
- Libertytown
- Middletown
- Mount Airy
- Myersville
- Thurmont
- Walkersville
- Woodsboro

If you live here, your tap water comes from lakes, streams, reservoirs, and other surface water:

- Frederick City
- Fort Detrick
- Brunswick
- Emmitsburg
- Adamstown
- Ballenger Creek
- Buckeystown
- Holly Hills
- Urbana
- Monrovia
- New Market
- Linganore
- Spring Ridge
- Point of Rocks

THE FOUR SOURCES OF FREDERICK CITY'S WATER

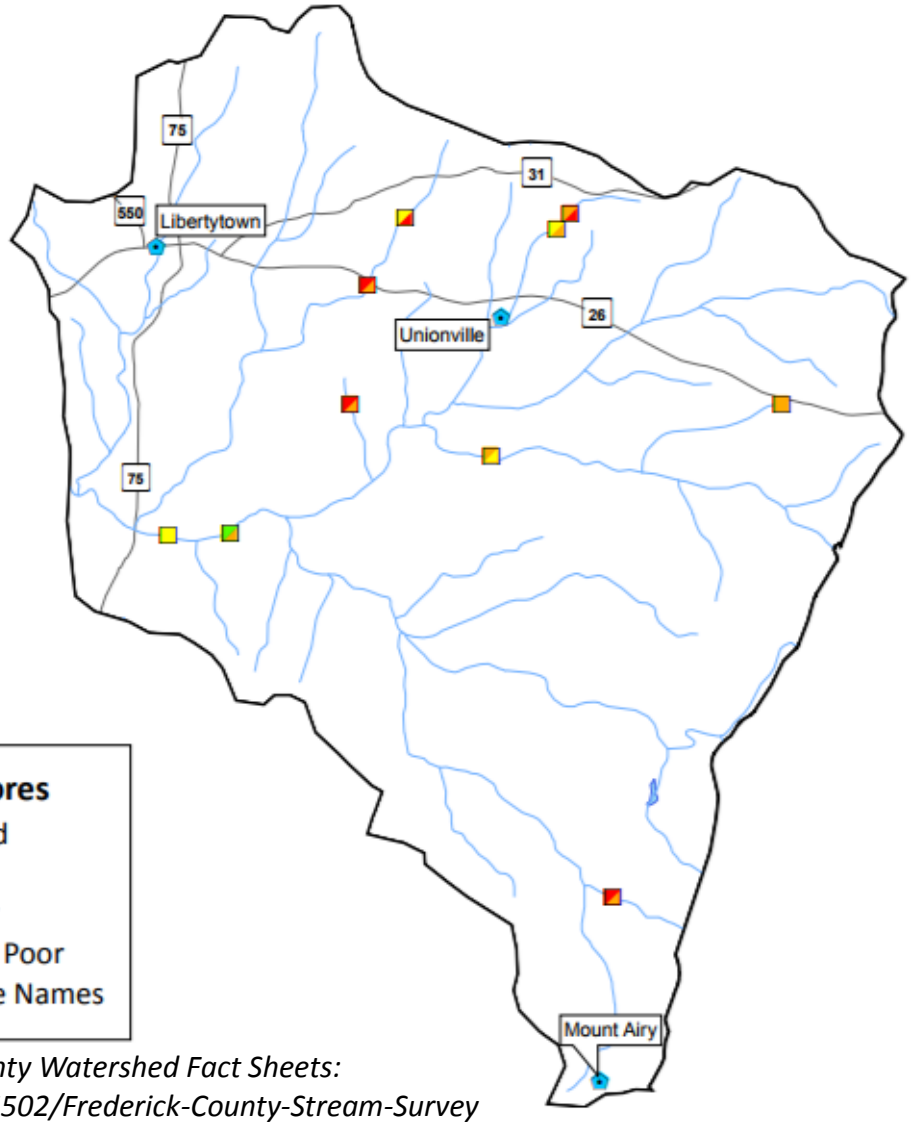


Upper Linganore Creek

Lower Linganore Creek

Information from: Frederick County Watershed Fact Sheets:
https://frederickcountymd.gov/5502/Frederick-County-Stream-Survey

Upper Linganore Creek



BIBI and PHI Scores

BIBI / PHI

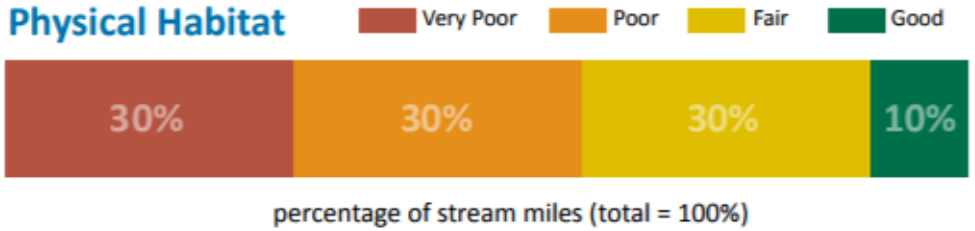
- Good
- Fair
- Poor
- Very Poor
- Place Names

Information from: Frederick County Watershed Fact Sheets: https://frederickcountymd.gov/5502/Frederick-County-Stream-Survey

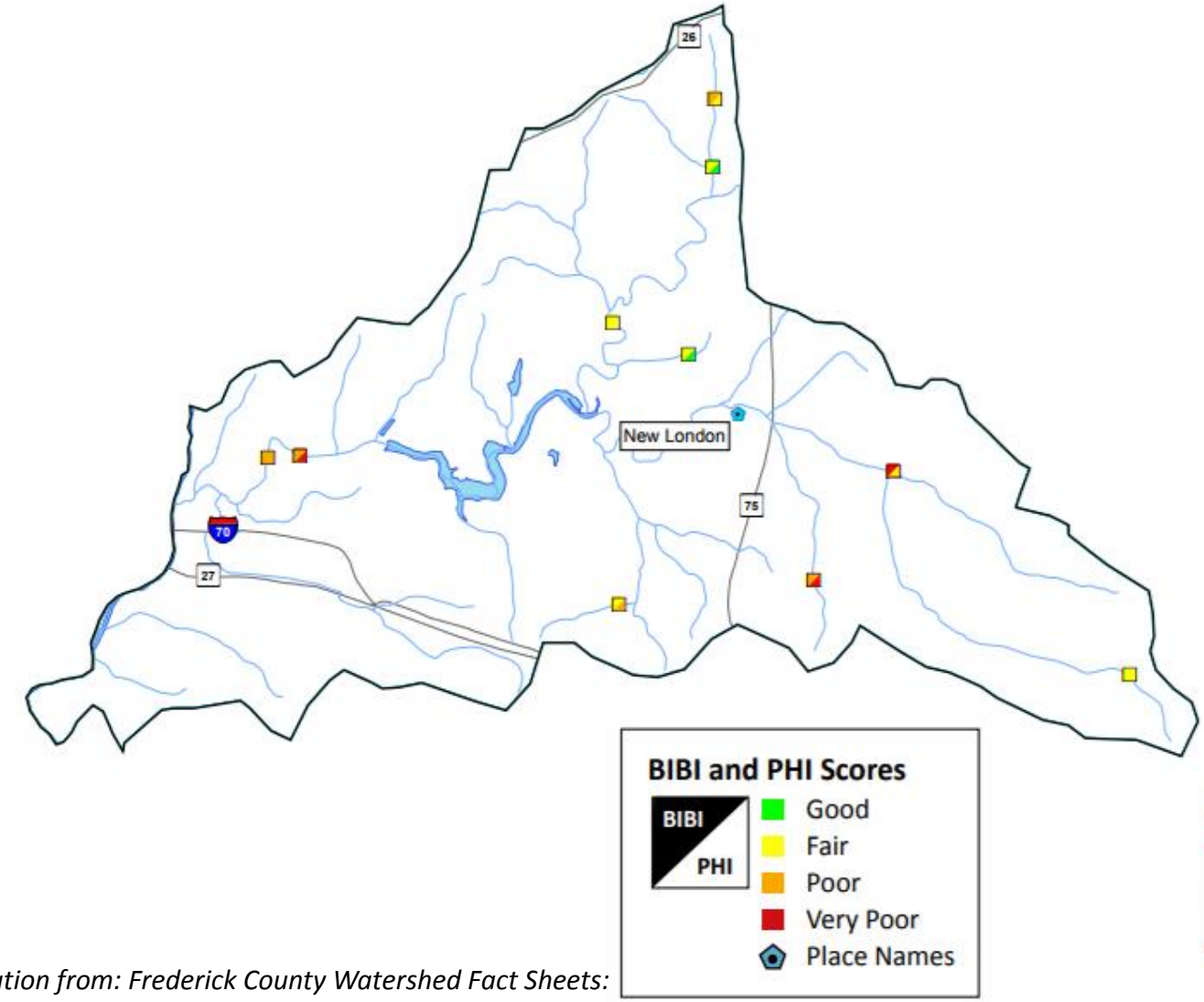
Physical Habitat Indicator (PHI)

Our scientists also measure the physical habitat of the stream using the Physical Habitat Indicator (PHI). The Physical Habitat Indicator helps us to understand the amount of food and shelter available for bugs and animals in the stream. In the Upper Linganore Creek watershed, 10% of the streams are good, 30% are fair, 30% are poor, and 30% are very poor.

The map to the left shows the BIBI and PHI scores for each site where information was collected within the Upper Linganore Creek watershed.



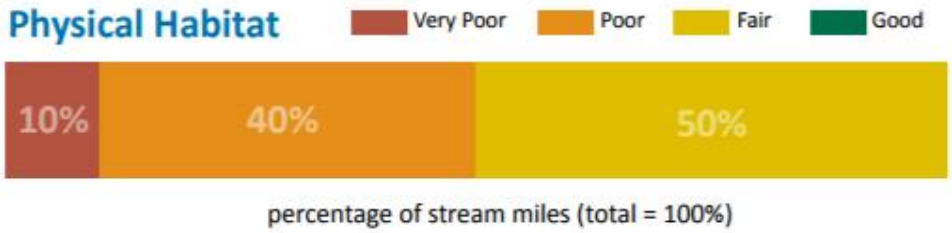
Lower Linganore Creek



Physical Habitat Indicator (PHI)

Our scientists also measure the physical habitat of the stream using the Physical Habitat Indicator (PHI). The Physical Habitat Indicator helps us to understand the amount of food and shelter available for bugs and animals in the stream. In the Lower Linganore Creek watershed, none of the streams are good, 50% are fair, 40% are poor, and 10% are very poor.

The map to the left shows the BIBI and PHI scores for each site where information was collected within the Lower Linganore Creek watershed.



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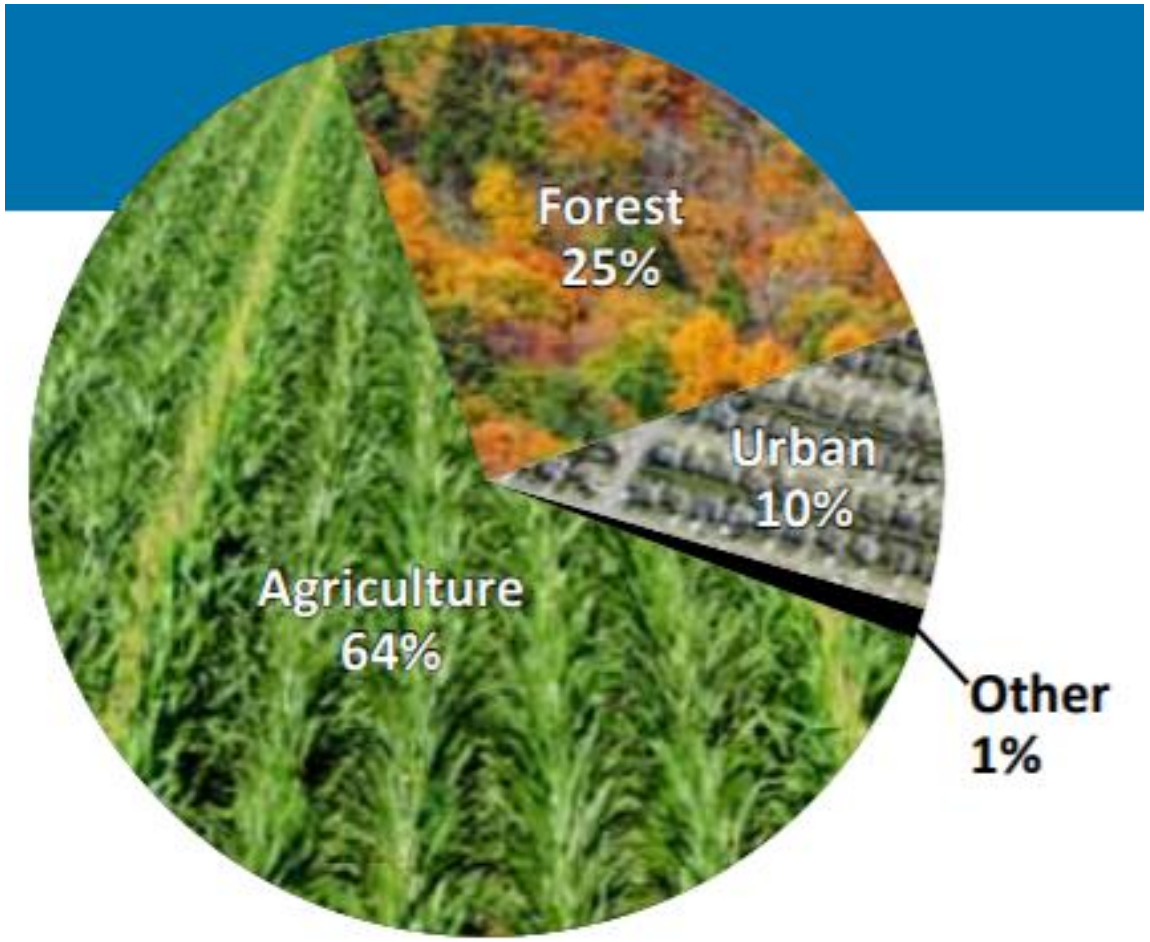
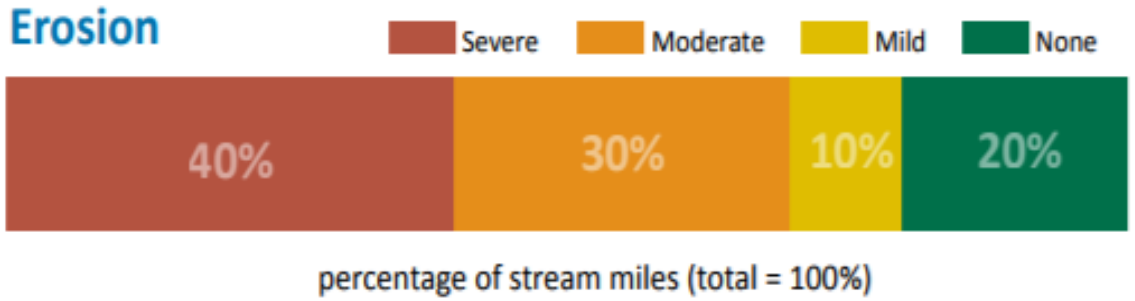
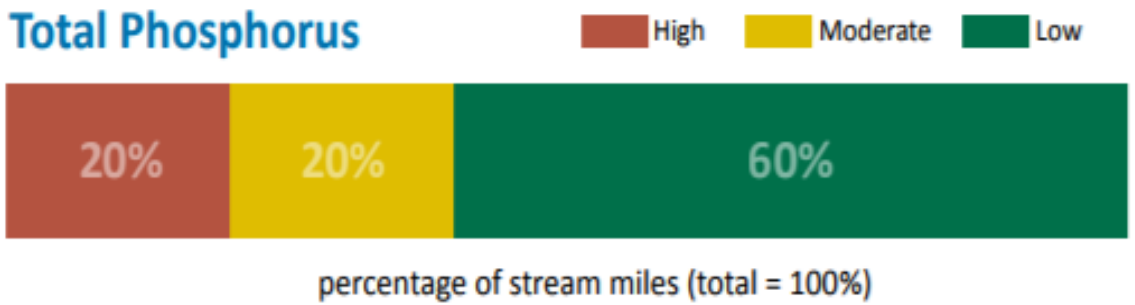
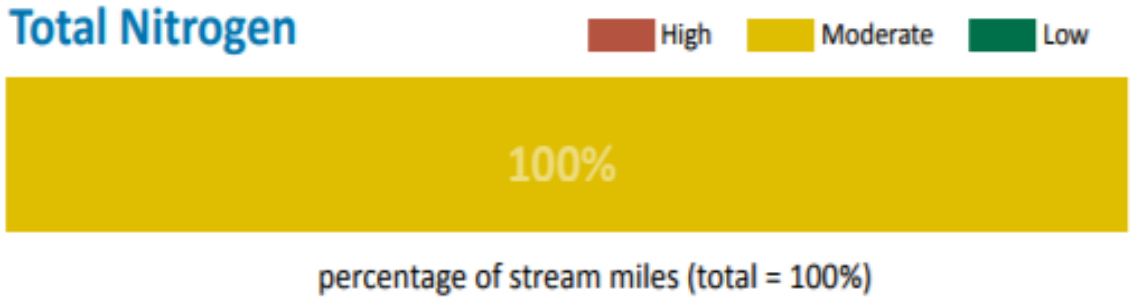
Upper Linganore Creek









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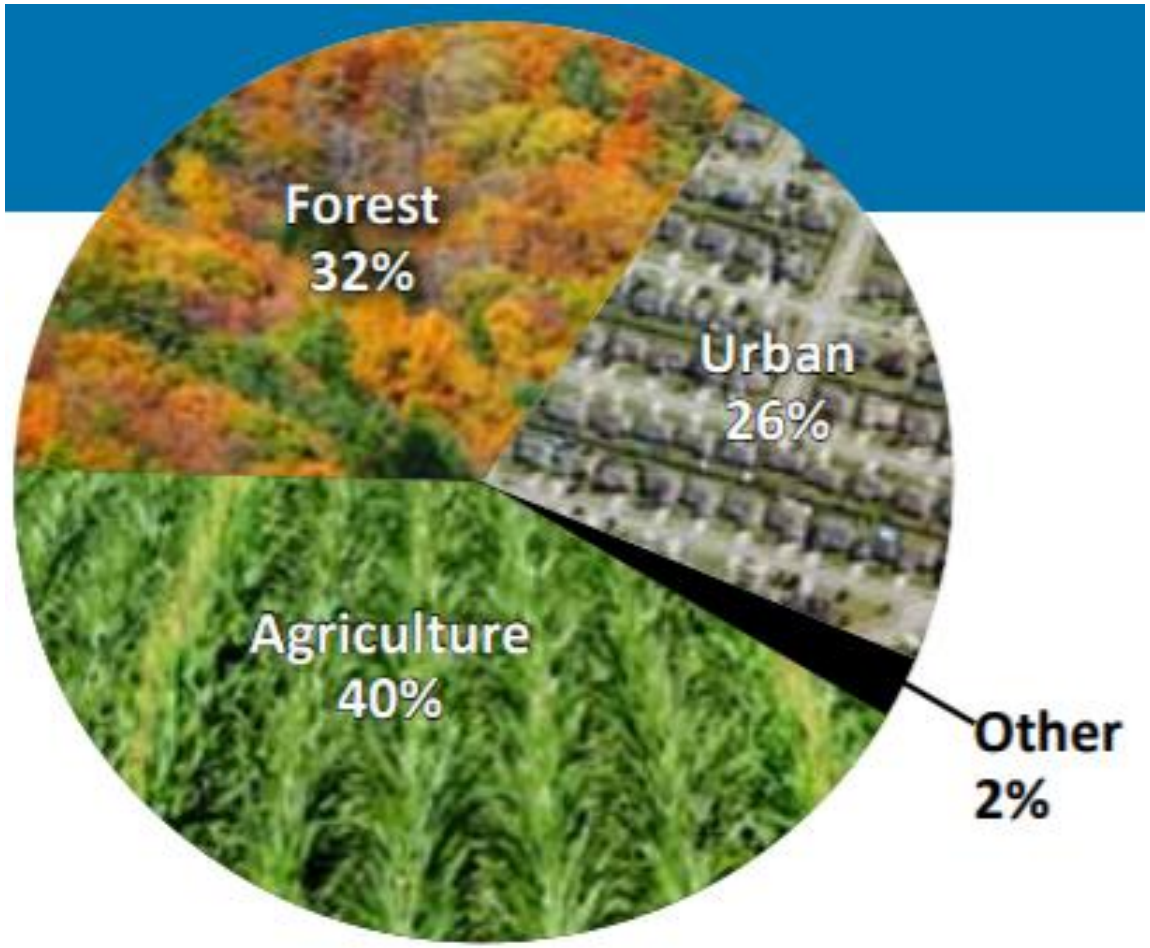
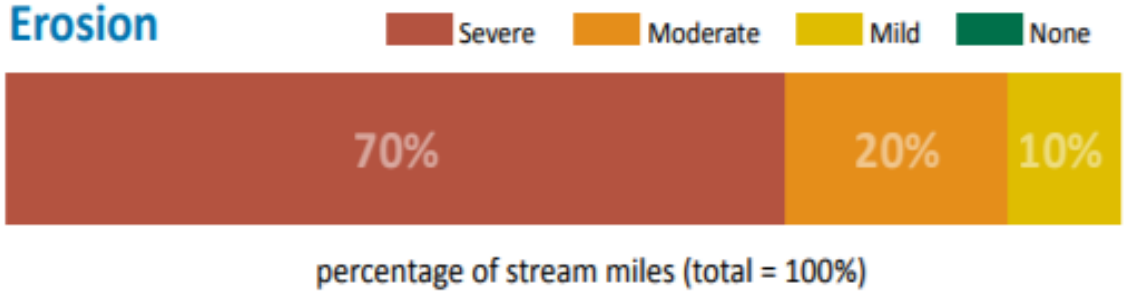
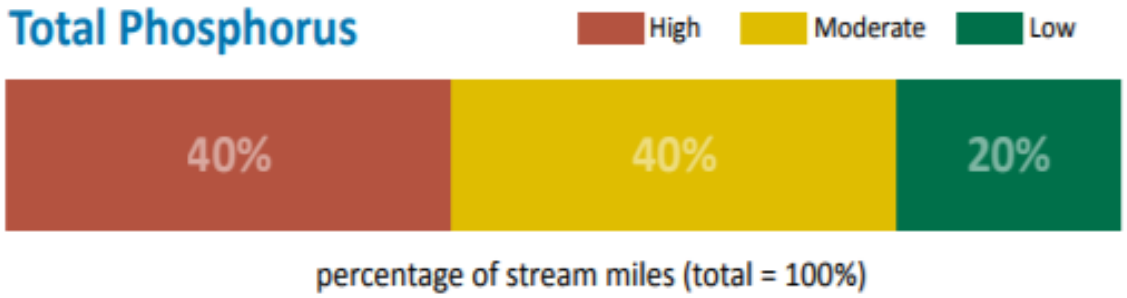
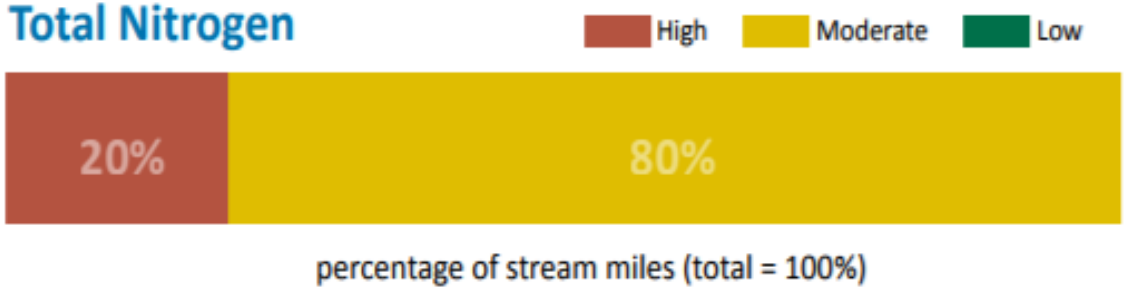
Lower Linganore Creek









Information from: Frederick County Watershed Fact Sheets: https://frederickcountymd.gov/5502/Frederick-County-Stream-Survey

2016 Stream Survey Results

	2008	2015	2016
Erosion – minor, moderate, and severe	91	84	90
Physical habitat – degraded and severely degraded	41	48	50
BIBI – good and fair	59	50	46
BIBI – poor and very poor	41	50	54

Information from: Frederick County 2016 Stream Survey: https://frederickcountymd.gov/5502/Frederick-County-Stream-Survey


THE DRAIN IS JUST
FOR RAIN

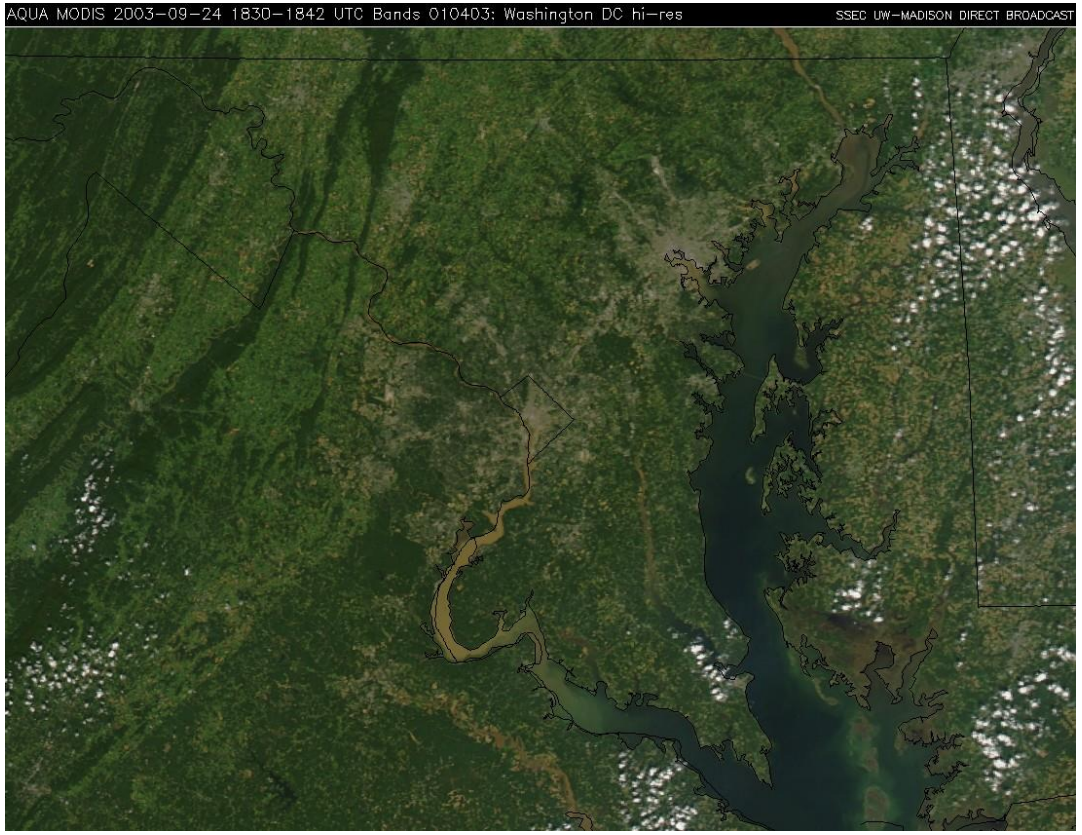
Polluted Runoff = Stormwater

Nutrients

- Nitrogen
  - Sources: fertilizers, atmospheric deposition, sewer overflows, industrial discharges, construction runoff and erosion, wastewater, sewage, hazardous waste land disposals, natural mineral and metal deposits, herbicides, insecticides, acid mine drainage, pet wastes, livestock wastes, petroleum product runoffs, faulty gasoline tanks, and all urban runoff materials (tires shreds, asphalt, and littered trash materials)
- Phosphorus
  - Sources: all of the above + some soaps and detergents

Sediment

- Sources:
  - De-vegetated banks or shores, logging roads and trails, construction, road maintenance, landslides, erosional rills and gullies, stored soil or waste, in-stream gravel mining, vehicle or boat traffic, breached impoundments, incised channels, channel modification, eroding and collapsing stream banks, shallow or poorly developed root systems, impoundments, upstream scoured stream beds, impervious surfaces, and lack of connectivity with flood plain



Bacteria

- 2016 testing conducted by Chesapeake Bay Foundation
- Bacteria counts greater than 61 cfu/100 ml in eight fresh water testing sites
- Water was not healthy for "moderate" bathing use
- Readings above 151 cfu are not suitable for any bathing or "full body contact."

2016 Water Sampling Data - MD (enterococci bacteria)

	14-Jun	16-Jun	23-Jun	27-Jun	5-Jul	11-Jul	8-Aug	16-Aug
Ballenger Creek - Ballenger Creek Park	308	8,100	2,000	280	1,100	230	324	394
Ballenger Creek - BC Elementary School	400	16,400	2,300	515	3,600	663	1,840	2,000
Carroll Creek - Frederick City	620	14,680	8,000	340	2,200	460	930	161
Glade Run - Walkersville	3,200	19,800	3,900	2,500	2,325	920	650	
Merryvale Creek - Frederick City	2,120	4,800	4,700	4,800	4,800	1,640	1,720	5,050
Owens Creek - Loys Station Park	840	6,400	3,200	560	2,050	1,005	1,070	
Peter Pan Run - Urbana	240	3,680	2,400	260	13,300	450	1,762	372
Rock Creek - Frederick City	1,120	16,300	8,350	630	2,500	1,040	1,482	400

Information from: Chesapeake Bay Foundation:
http://www.cbf.org/issues/polluted-runoff/rainfall-revelations/2016-bacteria-testing-maryland-data.html

How do we clean our waterways?

- Trees are a river's best friends
- Environmental site design
- Homeowner solutions
- Community-driven change

Photo credit: Potomac Conservancy

Trees are nature's Brita filters

- Tree buffers protect our lands and waters
- Buffers help mitigate flooding and stabilize stream banks
- Buffers filter sediment and bacteria
- Buffers act as wildlife corridors
- Buffers provide community benefits:
  - Recreational opportunities
  - Social value
  - Aesthetics
  - Higher property values

Photo credit: Potomac Conservancy

Environmental site design

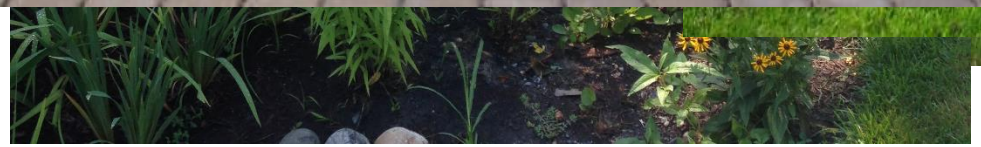
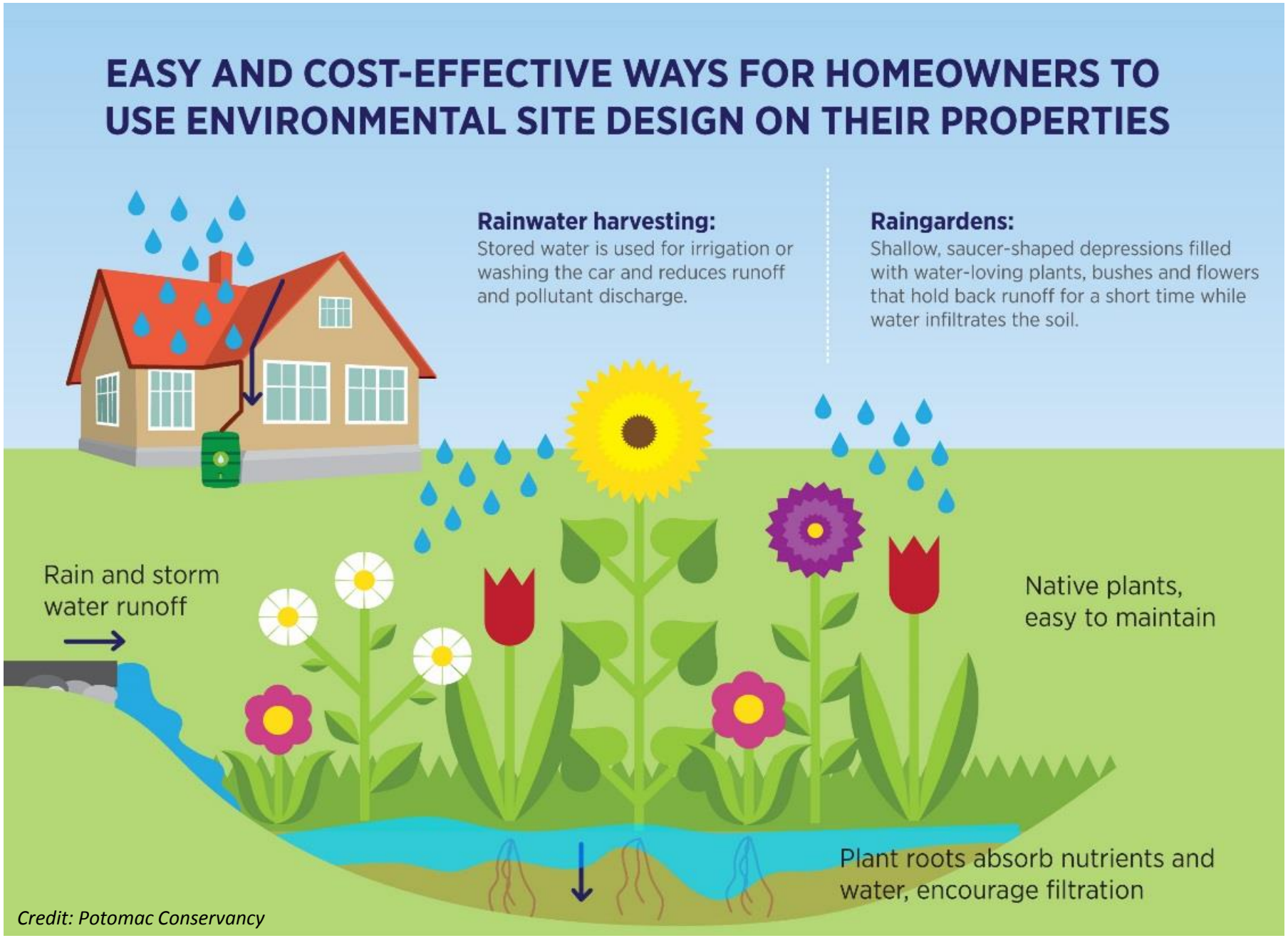


Photo credits: Potomac Conservancy



Credit: Potomac Conservancy

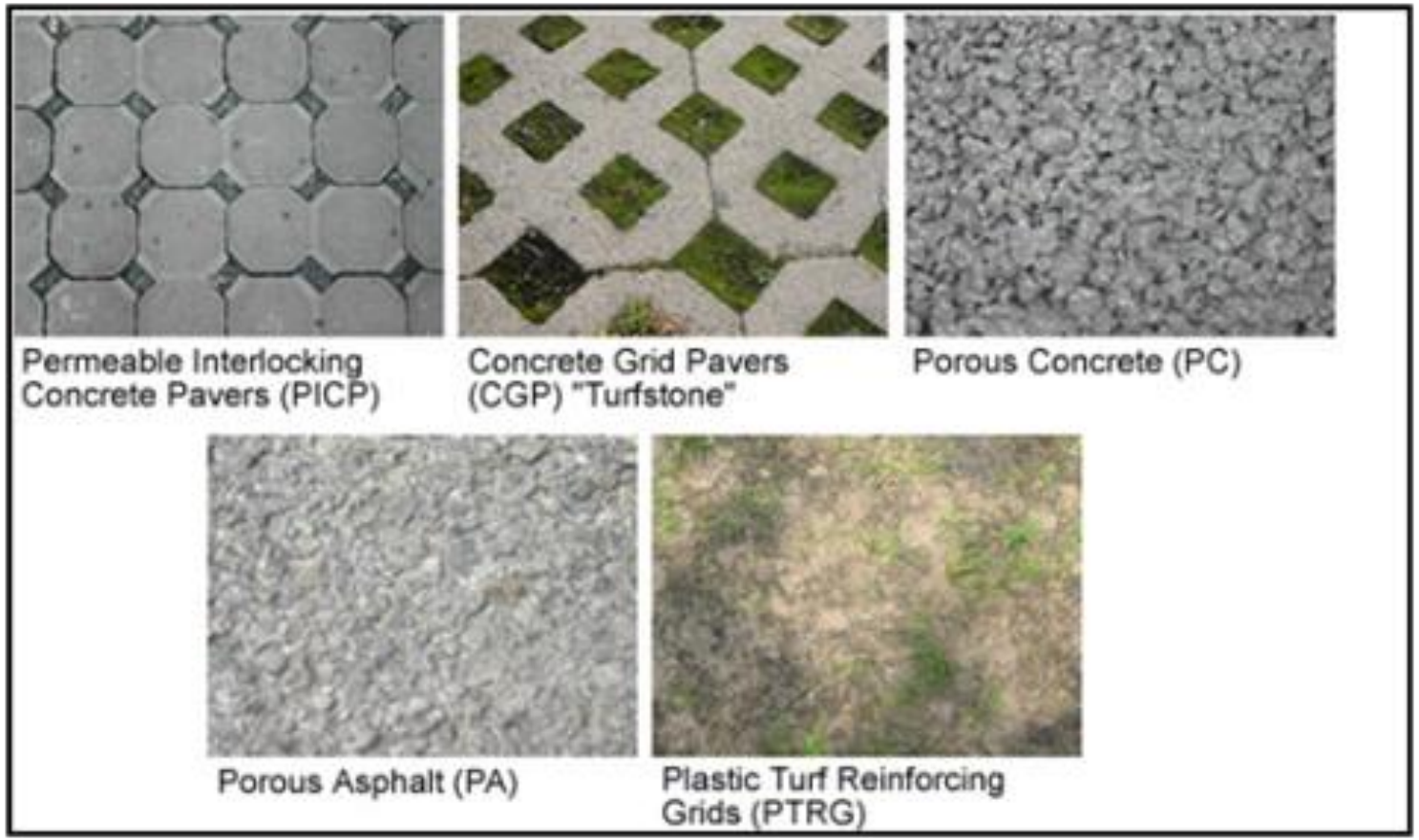
Around the home, **DO:**

- Install rain gardens

Photo credit: Jennifer Kunze

Around the home, **DO:**

- Install permeable pavers and remove pavement



Around the home, **DO:**

- Install rain barrels
- Redirect downspouts onto your lawn

Around the home, **DO:**

- Use native plants for yards and lawns
- Plant trees
- Remove invasive species

'Weed warriors' battle problem plants in Urbana

By Samantha Hogan shogan@newspost.com Jun 6, 2017 3

Photo credit: Frederick News-Post

Around the home, **DO:**

- Compost your organic materials

Around the home, **DO:**

- Pick up pet waste
- Reduce litter

Around the home, **DO NOT**:

- Blow, sweep, hose, or rake leaves or grass clippings into the street, streams, or storm drains

(Recycle grass clippings on your own lawn!)

Around the home, **DO NOT**:

- Use fertilizers or pesticides near ditches, gutters, storm drains, or streams
- Use fertilizers or pesticides before it rains

Around the home, **DO NOT**:

- Allow trash or recycling bins to overflow

(Litter is easily blown onto the street and into our streams!)

Around the home, **DO NOT**:

- Wash your car at home

In your community:

- Become a Master Gardener or Master Naturalist
- Join (or host!) a local stream cleanup event
- Plant trees with Stream-Link Education
- Report illegal dumping or discharge (Frederick County Office of Sustainability and Environmental Resources at 301.600.1413. If the situation is an emergency, call 911)
- Encourage your elected leaders to support clean water initiatives and funding

Buffer Up!

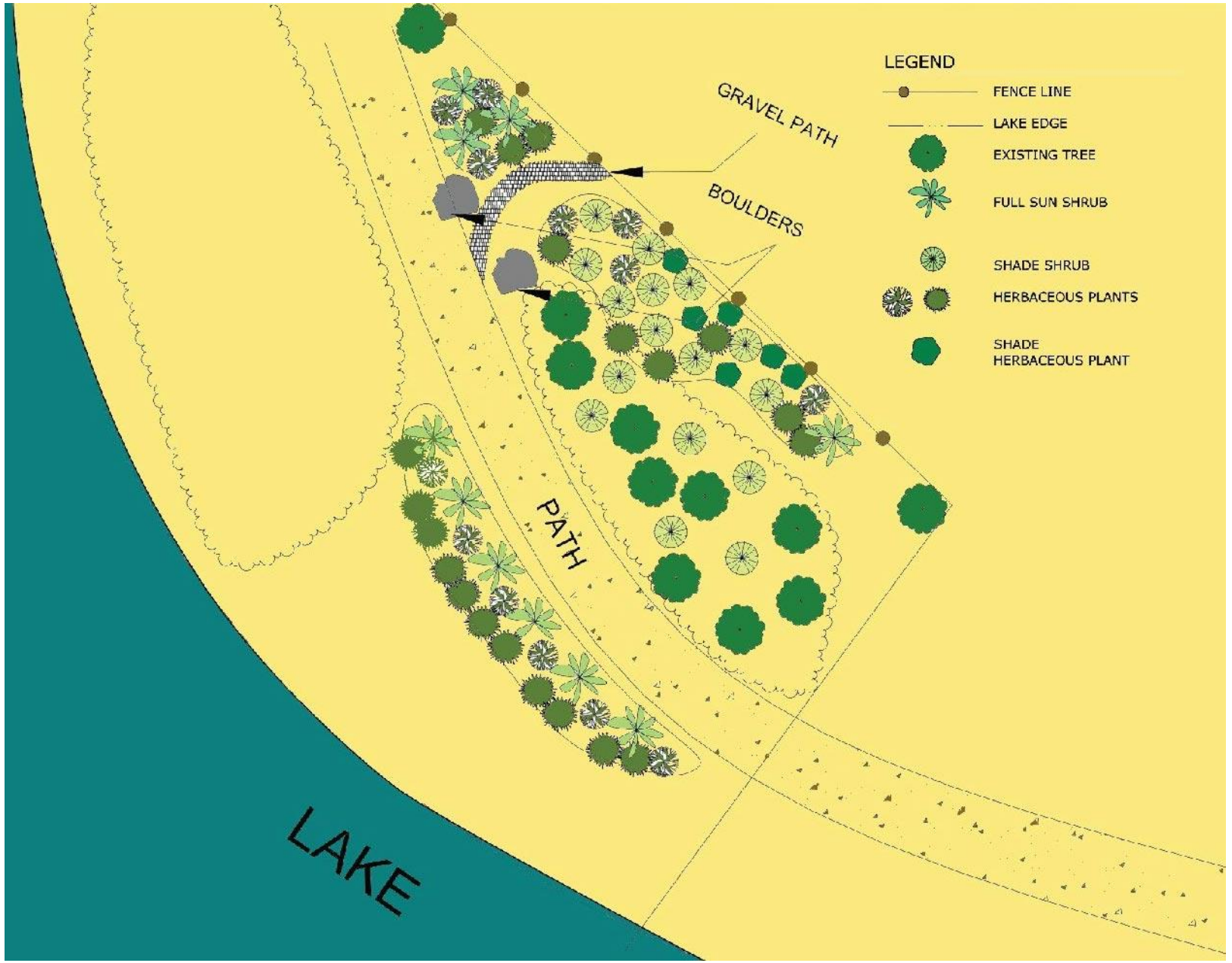
For the health & beauty of our lakes

Lake Buffers

- Buffers are strips of vegetation where land meets lake
- Absorb excess nutrients such as phosphorus and nitrogen from natural and human sources
- Limit flooding by absorbing runoff
- Filter sediment and pollutants from construction runoff
- Prevent erosion
- Provide shade and nutrients for fish and wildlife
- Enhance the beauty of our lakeshore homes
- Essential to lake protection

Buffer best practices

- Minimum of 15’ deep, measured from lake or path up into your yard
- No mowing, spraying of pesticides or fertilizing within 15’ of any lake
- Stone walks and pathways must be permeable for infiltration of rain and runoff
- Leave existing native grasses, flowers, plants and trees
- Clear out invasives
- Paths down to docks should be no more than 3’ wide
- No mowing, no mowing, no mowing in buffer areas, except once in spring


LEGEND
FENCE LINE
LAKE EDGE
EXISTING TREE
FULL SUN SHRUB
SHADE SHRUB
HERBACEOUS PLANTS
SHADE
HERBACEOUS PLANT
GRAVEL PATH
BOULDERS
PATH
LAKE

How Does it Work?

- All homes on a lake or adjoining the LLA land next to a lake may apply
- Homeowner submits “before” photos, design and proposed plants list
- There will be a window of time to apply, e.g. Oct to Jan
- The budget will allow for up to 10 buffer rebates in FY 2017. First come, first served
- An FoL member will visit site to consult with you on best choices for your location
- A demonstration buffer on Coldstream path will be built this fall for you to see
- Once approved, you have six months to build your buffer area
- We provide templates, plant lists and a list of places to buy plants
- Once you send in your “after” photos and a receipt for plants (only natives), then you will receive a $300 rebate
- More information and details of the program will be on the website, on FoL Facebook, in Lake Talk and Friday Flyer starting late summer/early fall

More projects?

- Other areas in Linganore that could benefit
  - Rain gardens, etc.
- Livable Frederick – get involved!
- Frederick County's Green Leader Brigade

- Your ideas for action

Quiz time!

- Water quality impairments (name 2)
- Name your watershed and where it flows
- Best management practices for your home (name 2)
- Best management practices for your community (name 2)