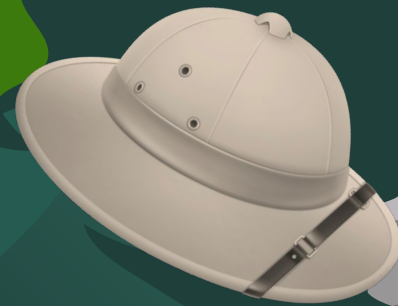




Water Quality in Roseville lakes

And Why It Matters



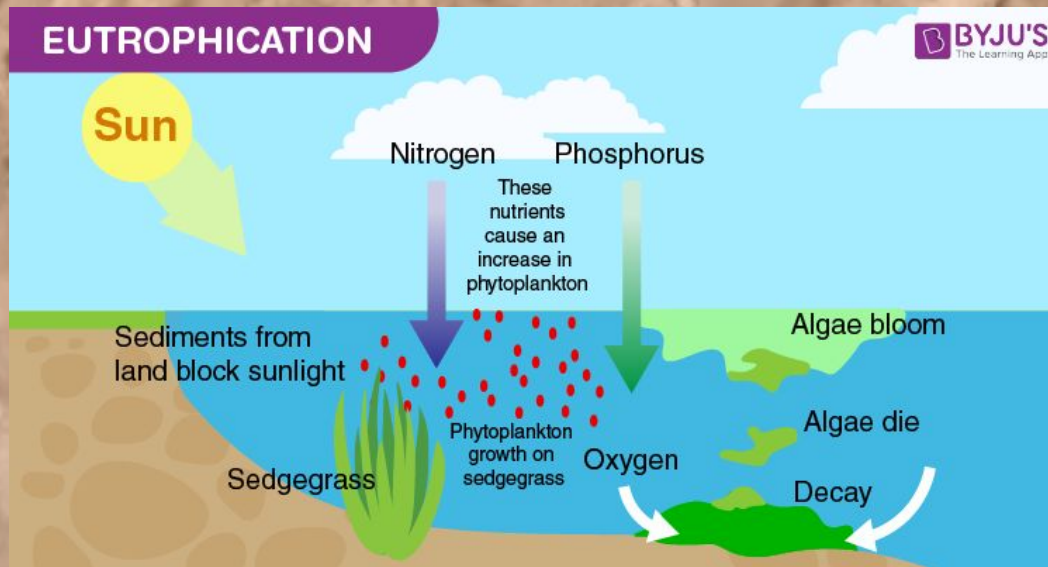


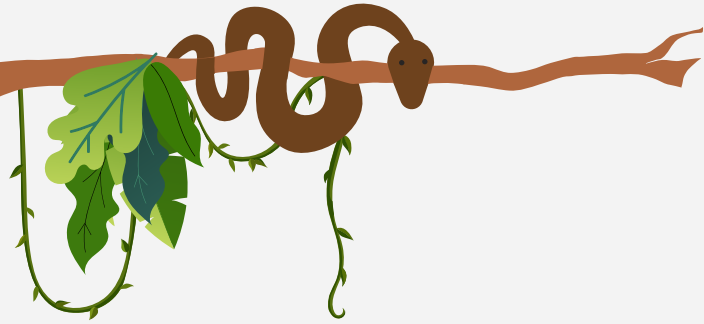
Measurements of Water Quality



Eutrophication

eutrophication (n): excessive richness of nutrients in a lake or other body of water, frequently due to runoff from the land, which causes a dense growth of plant life and death of animal life from lack of oxygen (def from [Oxford Languages](#))



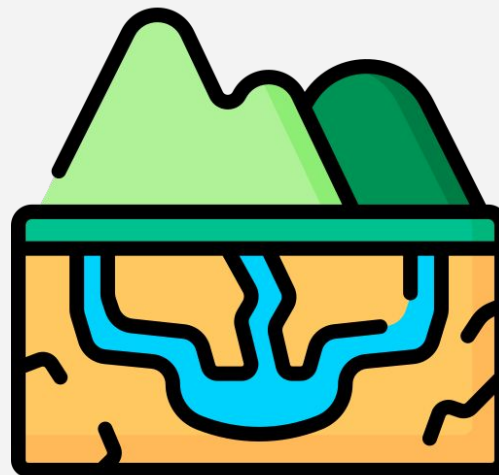


pH (Acidity)

5



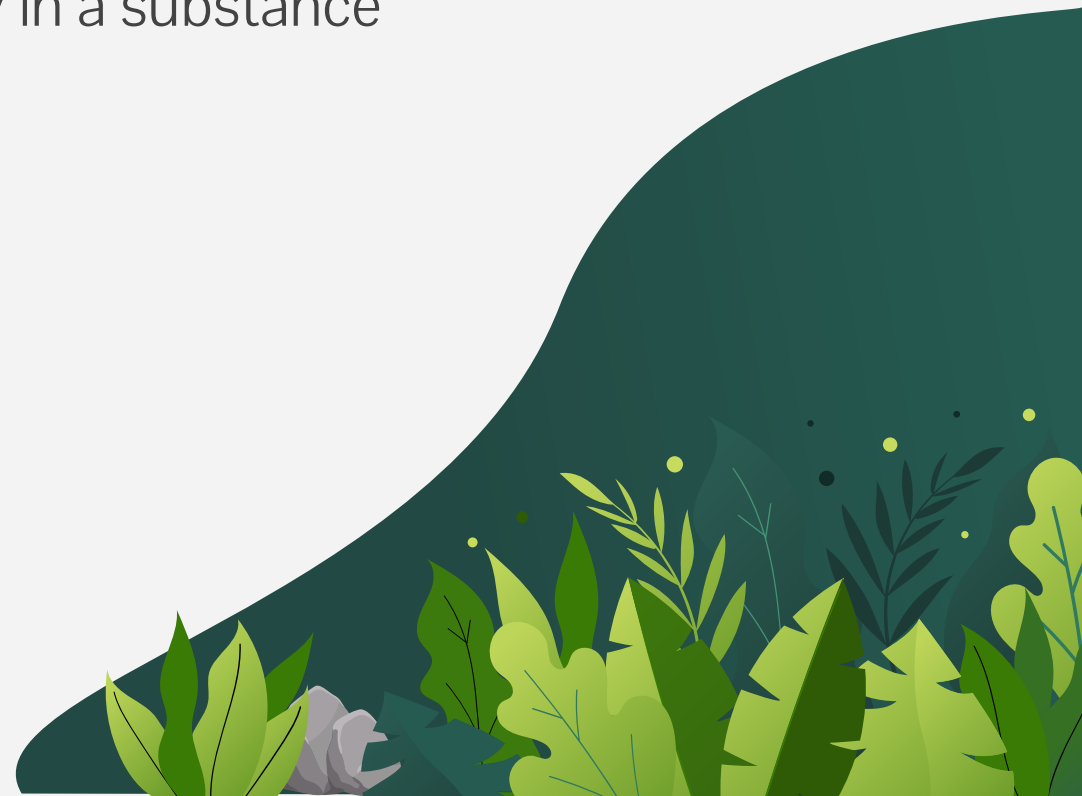
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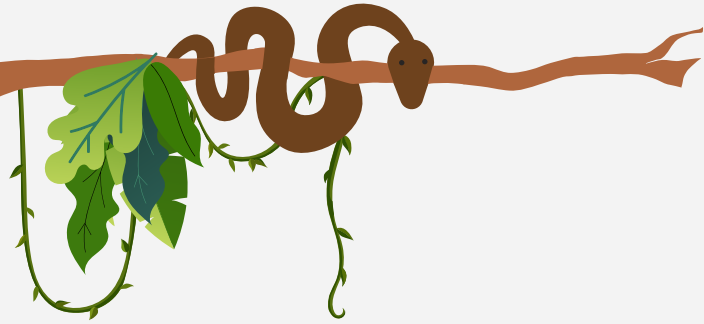


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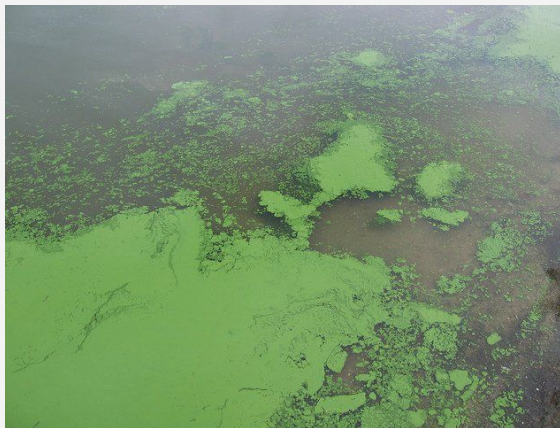


- ? pH is a scale from 0 to 14 that measures acidity in a substance
- ? critical for aquatic wildlife
- ? burning fossil fuels can cause acid rain
- ? runoff can pick up chemicals and affect pH



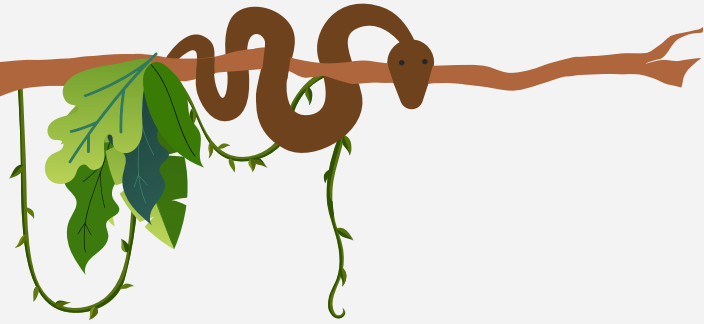


Nitrites

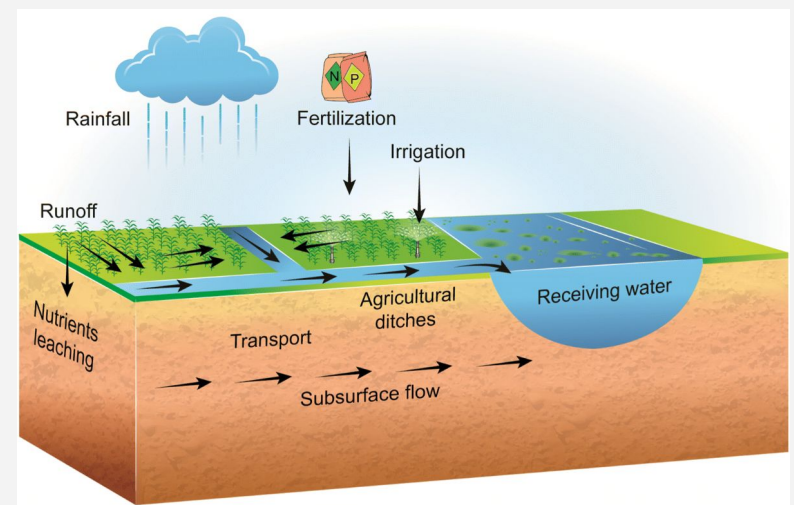


- ? often disregarded as can turn into nitrates but are still super toxic
- ? ammonia oxidizes in water -> nitrites
- ? environmental concern
 - cyanobacteria which creates microcystin and anatoxin-a
 - decreased biodiversity due to eutrophication



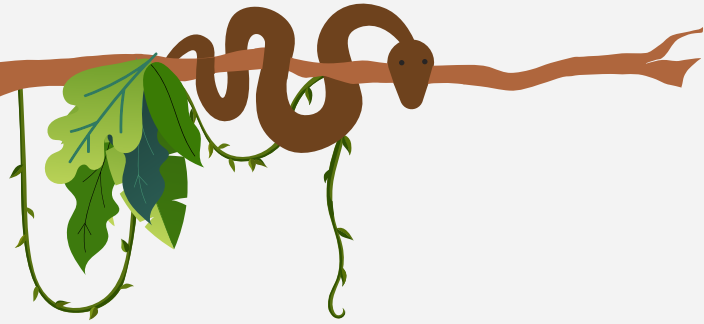


Phosphates

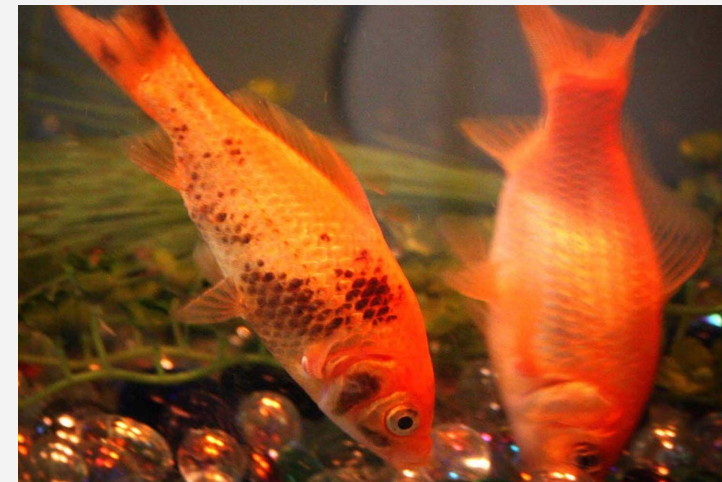


- ? naturally in the environment/waters
 - at low levels, support life (under 0.03 mg/L)
- ? over 0.03 mg/L is eutrophic
- ? caused by fertilizer runoff and human/animal waste
- ? causes eutrophication, algal blooms, and fish death



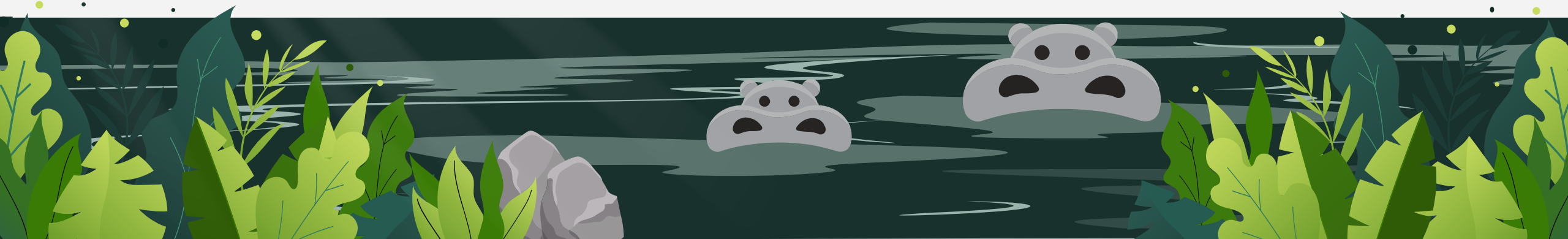


Ammonia



- ? natural and manmade causes
 - human/animal waste, organic breakdown, forest fires, etc.
 - commercial fertilizers, used in cleaning products, etc.
- ? enters water through runoff, direct disposal, air deposition
- ? direct effects on fish

My Data



Willow Pond



- ? about half a mile from my house
- ? habitat for countless species
 - muskrats
 - snapping turtles
 - geese and ducks
 - fish
- ? recreational area with path and benches

- ? pH: 6.5
- ? ammonia: 4.0 ppm
- ? nitrites: 0 ppm
- ? phosphates: between 2.0 ppm to 5.0 ppm



Willow Pond Analysis

- ? pH and nitrites are at healthy levels
 - o ideally 6.5 - 8 for pH, 0 ppm for nitrites
- ? phosphate levels are harmful
 - o ideally 0.03 ppm
- ? ammonia levels are very dangerous
 - o ideally 0.25 ppm
- ? nearby high school with parking lots and roads
- ? golf course
- ? lots of houses
 - o fertilizer use



Bennett Lake



- ? lake in central park
- ? biggest park in Roseville
- ? used for fishing, aesthetic value
- ? habitat for animals and plants

- ? pH: 6.5
- ? ammonia: 0.5 ppm
- ? nitrites: 0 ppm
- ? phosphate: 5.0 ppm



Bennett Lake Analysis

- ? healthy pH and nitrite levels
- ? ammonia is only slightly unhealthy
- ? phosphate levels are dangerous
- ? nearby playground, buildings, tennis courts, baseball fields
- ? roads close by
- ? houses
- ? indication of eutrophication
- ? mercury in fish tissue



McCarrons Lake



- ? lake in southeast roseville
- ? lots of nice lakefront property
- ? some industrial buildings nearby
- ? heavy recreational use

- ? pH: 7.5
- ? ammonia: 0.25 ppm
- ? nitrites: 0 ppm
- ? phosphates: 0.25 ppm



McCarrons Lake Analysis

? pH is healthy, slightly

basic

? nitrites are ideal

? ammonia healthy level

? phosphates need slight

improvement, not as

bad as other lakes

? wealthier

neighborhoods, more

resources/incentive to

keep lake healthy

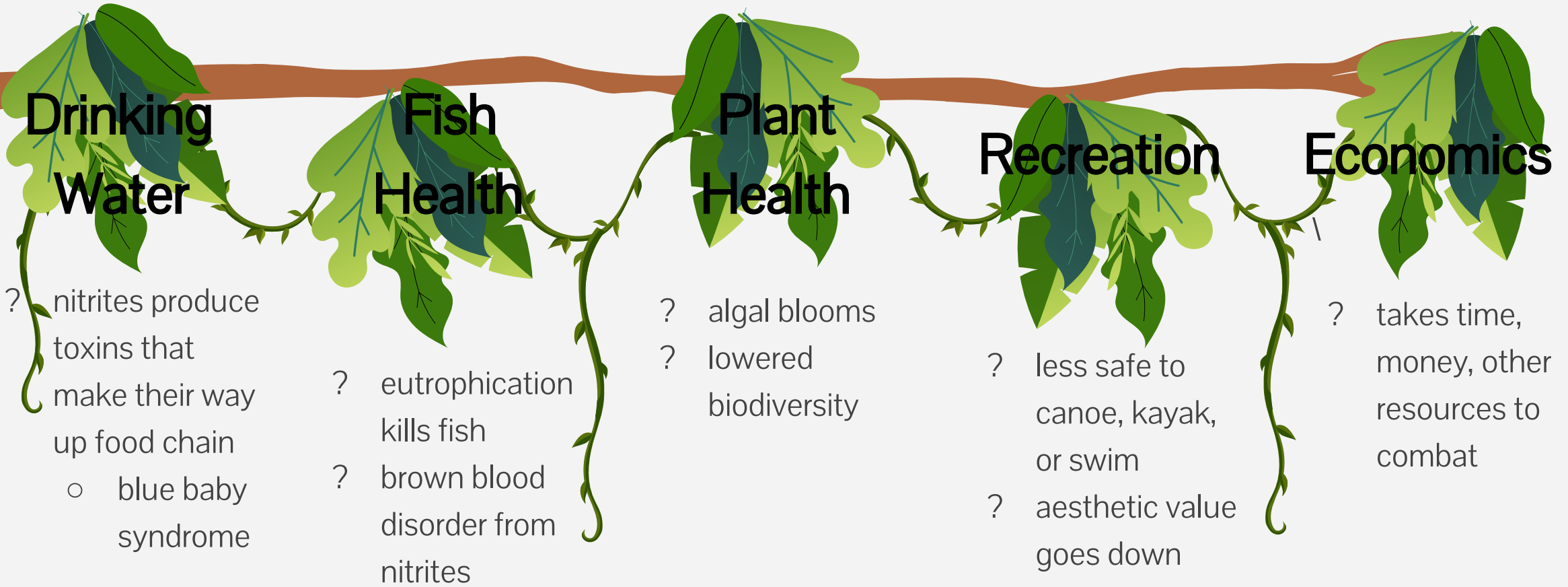
? mercury in fish tissue



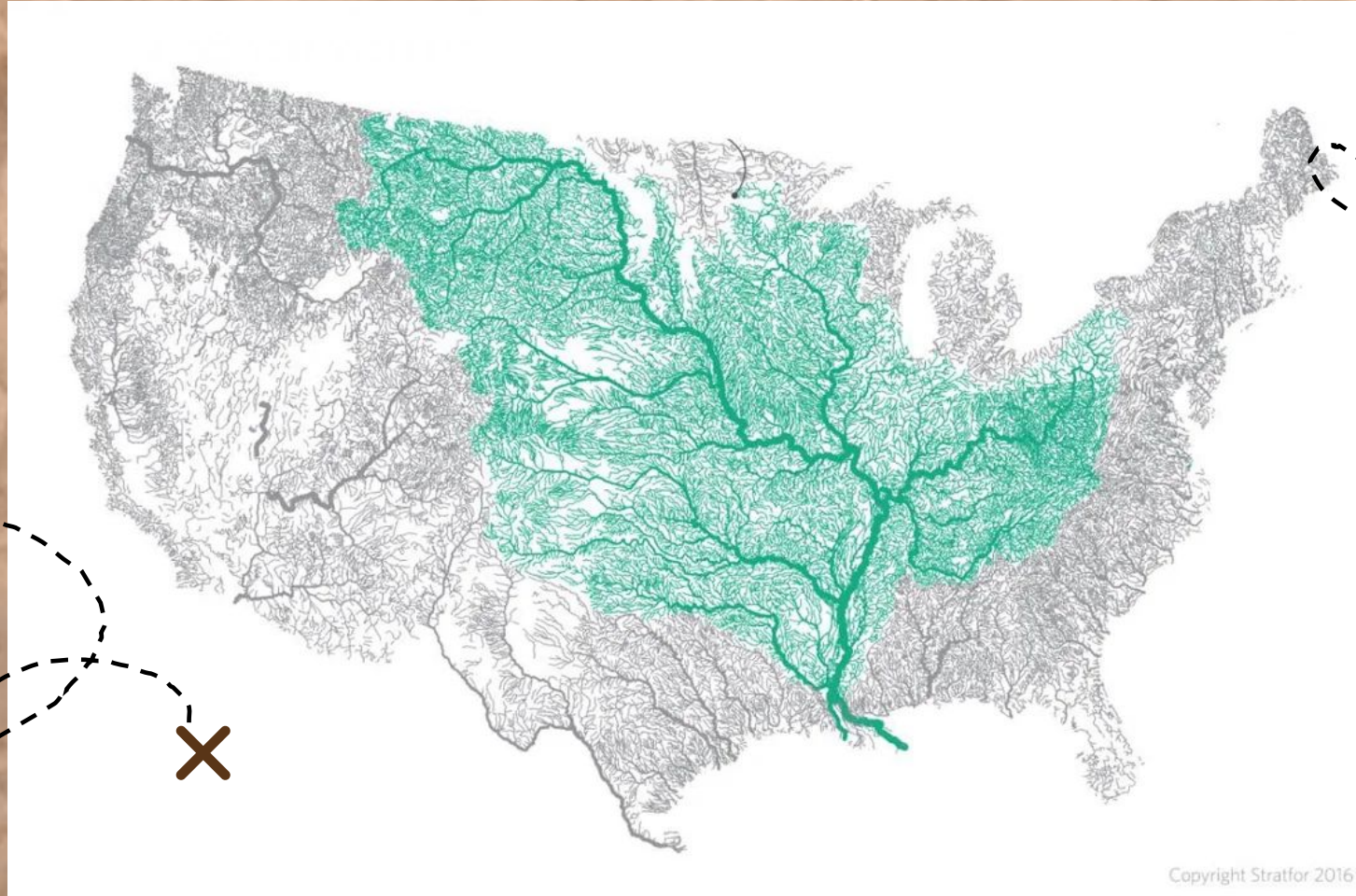


The larger Impact

Effects of Low Quality Ponds/Lakes



Mississippi Watershed



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What is Roseville doing?

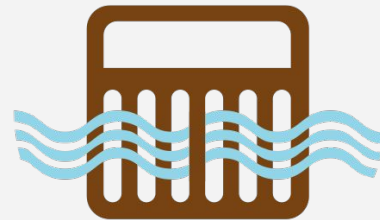
- ? laid out specific goals and strategies for city lakes
 - flood protection and runoff management
 - groundwater protection
 - public education and outreach
 - pollution prevention and maintenance



What can you do?

- ? adopt a storm drain
- ? join MN water stewards program
- ? volunteer through partners of MWMO
- ? educate friends and family
- ? small steps to improve water quality

ADOPT
A STORM
DRAIN



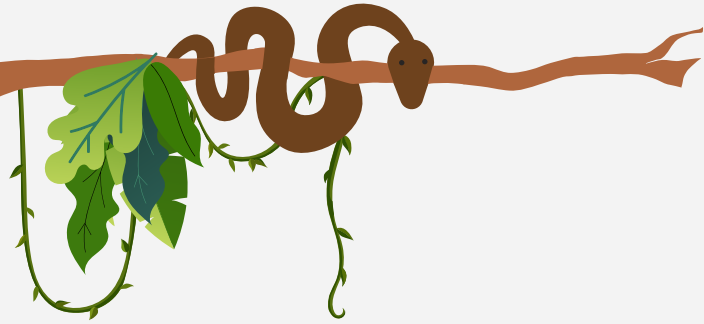
Find My
Watershed

MWMO.ORG



Questions and
thank you!





Credits.

Presentation Template: [SlidesMania](#)

Images: [Unsplash](#)

Sources: [Suwannee River pH](#), [Aqua Monitrix Nitrites](#), [H2O Distributors Nitrites](#),
[Aquatic Life Criteria Ammonia](#), [Aqua Read Ammonia](#), [Know Your H2O](#)
[Phosphates](#), [Surface Water Management Plan for Roseville](#)

