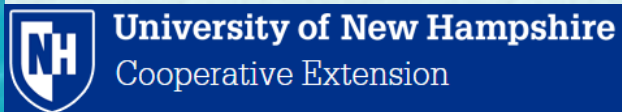


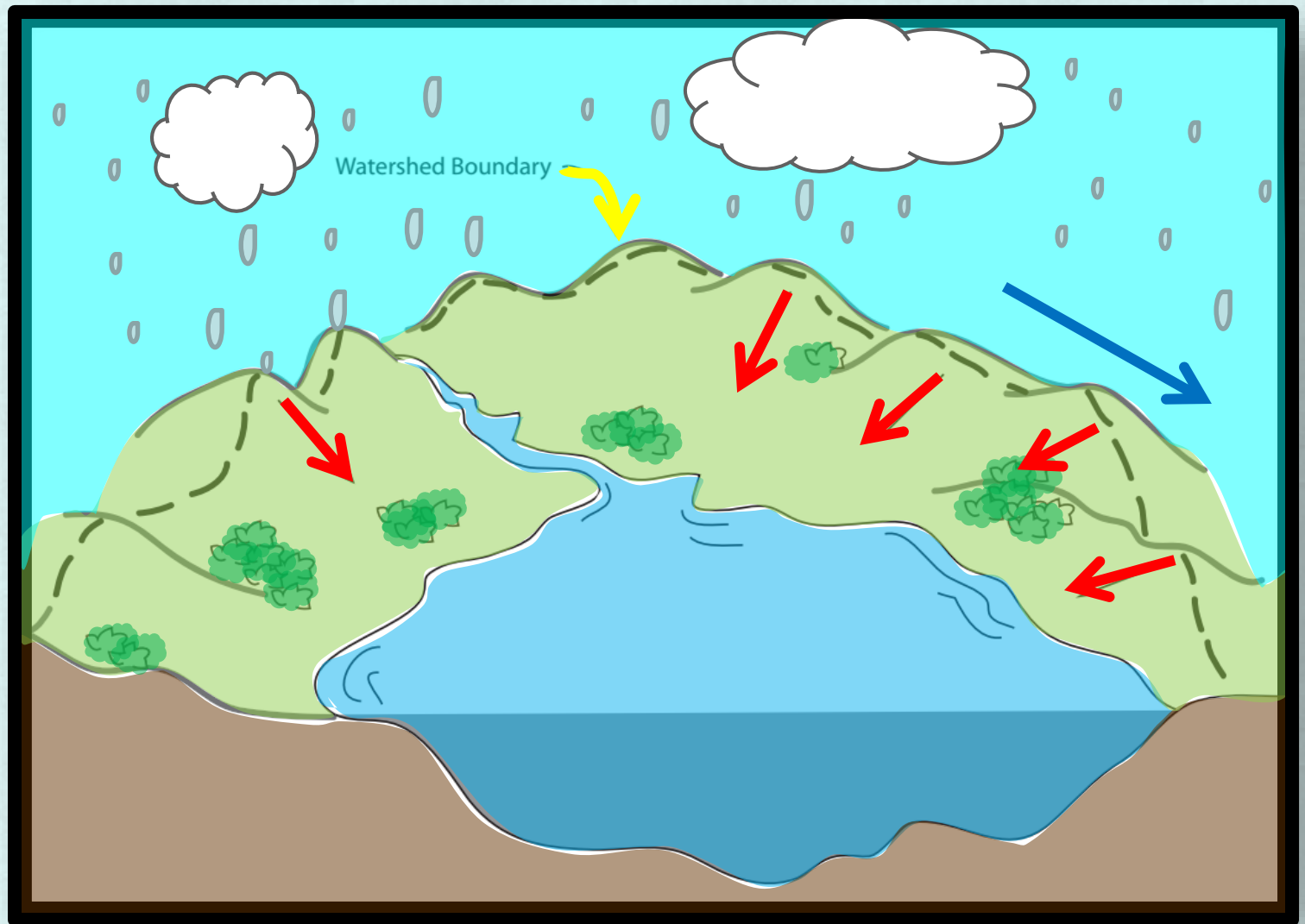
# Soak UP the Rain. LANDSCAPING FOR WATER QUALITY



# Water Quality Considerations in Sunapee Region

Barbara McMillan







**Figure 1. Shaded Relief map of the Newfound Lake Watershed**



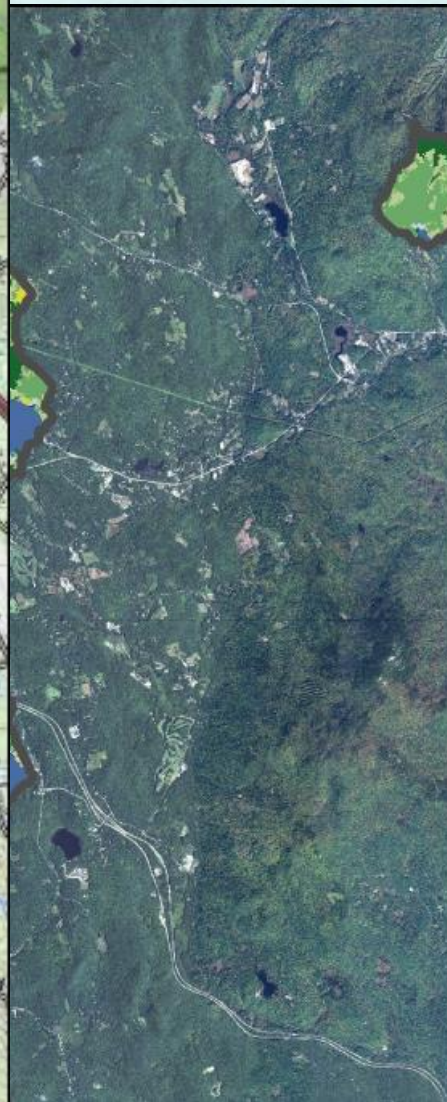
Source: Society for the Protection of NH Forests

# Subwatersheds of Lake Sunapee



0 0.375 0.75 1.5 2.25 3 Miles





## SUNAPEE LAKE

### Legend

-  Watershed Boundary
-  Other VLAP Lake Watersheds
- Land Cover Classes**
-  11 - Open Water
-  21 - Developed, Open Space
-  22 - Developed, Low Intensity
-  23 - Developed, Medium Intensity
-  24 - Developed, High Intensity
-  31 - Barren Land
-  41 - Deciduous Forest
-  42 - Evergreen Forest
-  43 - Mixed Forest
-  52 - Shrub/ Scrub
-  71 - Grassland/ Herbaceous
-  81 - Pasture Hay
-  82 - Cultivated Crops
-  90 - Woody Wetlands
-  95 - Emergent Wetlands

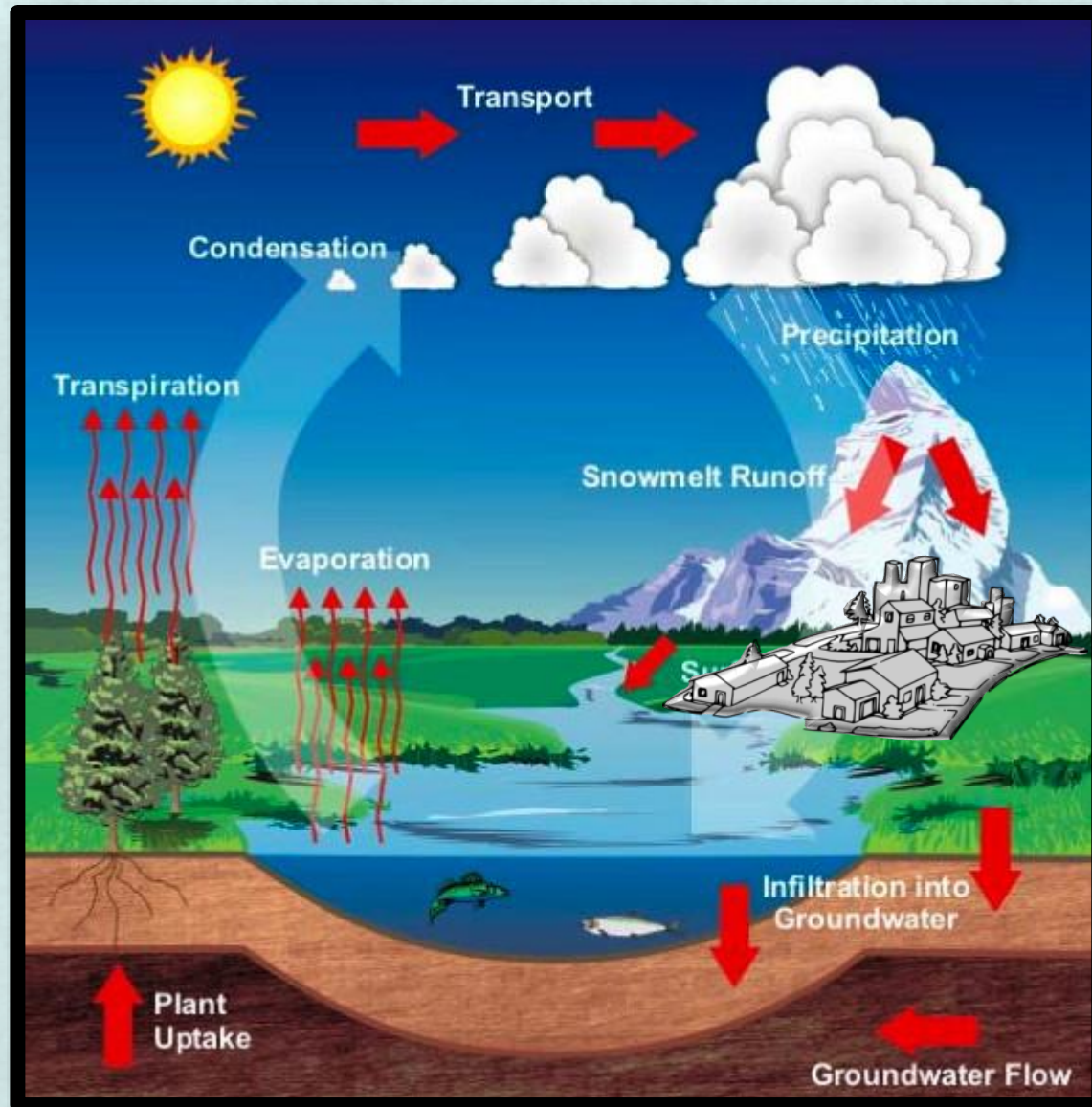
0 1 2  
Miles



From the LSPA  
Website

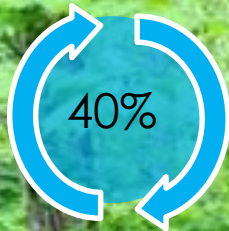


# The Water Cycle





# Undeveloped Area




50% soaks in



A large blue arrow pointing downwards, representing water infiltration.

10%  
runs off



A blue arrow pointing to the left, representing runoff.

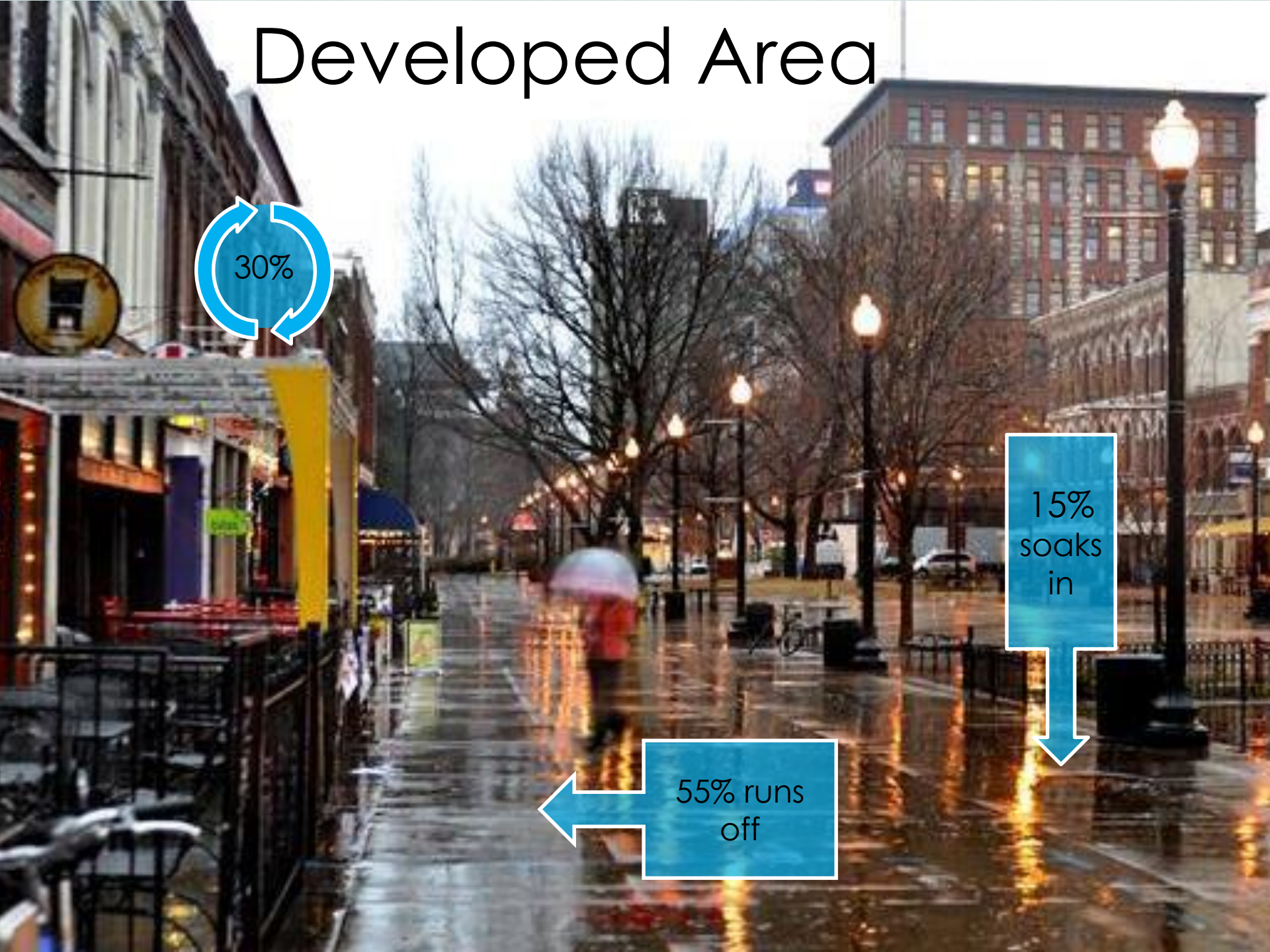


# Developed Area

30%

15%  
soaks  
in

55% runs  
off







# stormwater runoff

Water from rain or melting snow that doesn't soak into the ground.

<https://www.youtube.com/watch?v=Qp8HK-Y2Ifg> or [RainGarden.mp4](#)



# Why does it matter?

Stormwater runoff  
causes or contributes to

**over 90%**

of the water pollution problems in NH



# Two Runoff Issues

## 1. CARRIES POLLUTION



## 2. TOO MUCH WATER





# Runoff Carries Pollution



# Stormwater Pollutants

1.



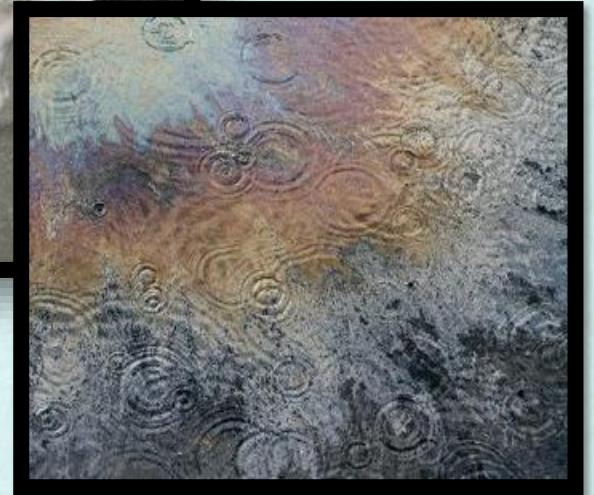
2.



3.



4.





# 1. Sediment



# Polluted Runoff



Sediment Delta, Lake George, New York

Photo Credit: Fund for Lake George



## 2. Nutrients



# Nutrients

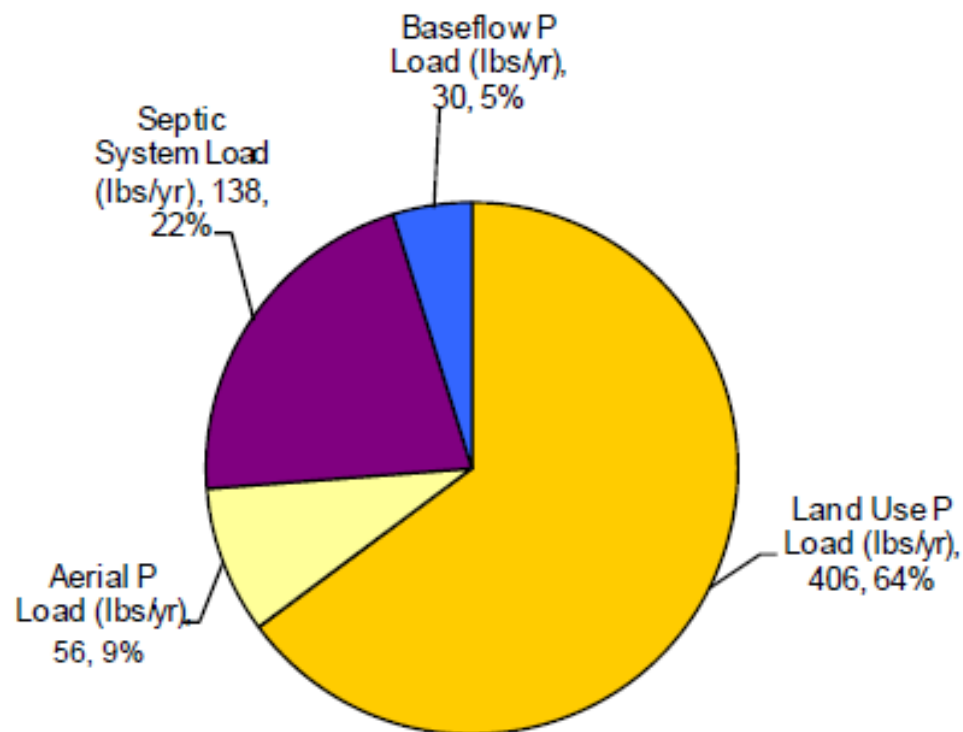


Figure 18. External Sources of Phosphorus to Cobbett's Pond.

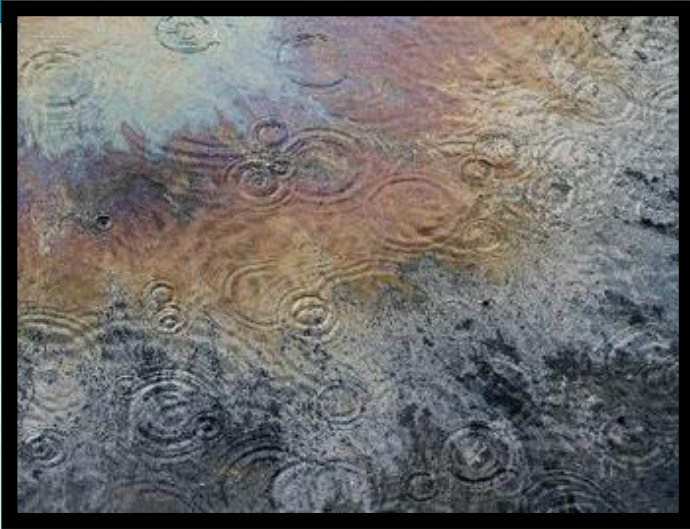


# 3. Pathogens





## 4. Toxic Contaminants





# Chlorides

## (Road Deicing Agents)



Sources of chloride in  
Policy Brook, Salem

# Liability Protection



Walking on snow and ice is  
inherently dangerous

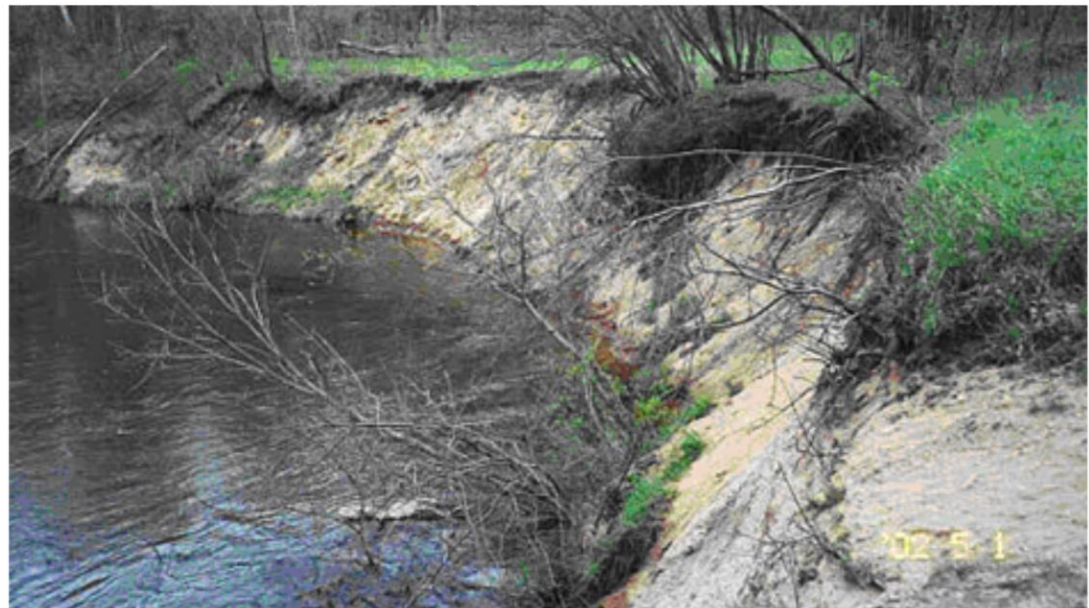


## 2. Effects of Too Much Water





# Effects of Too Much Water

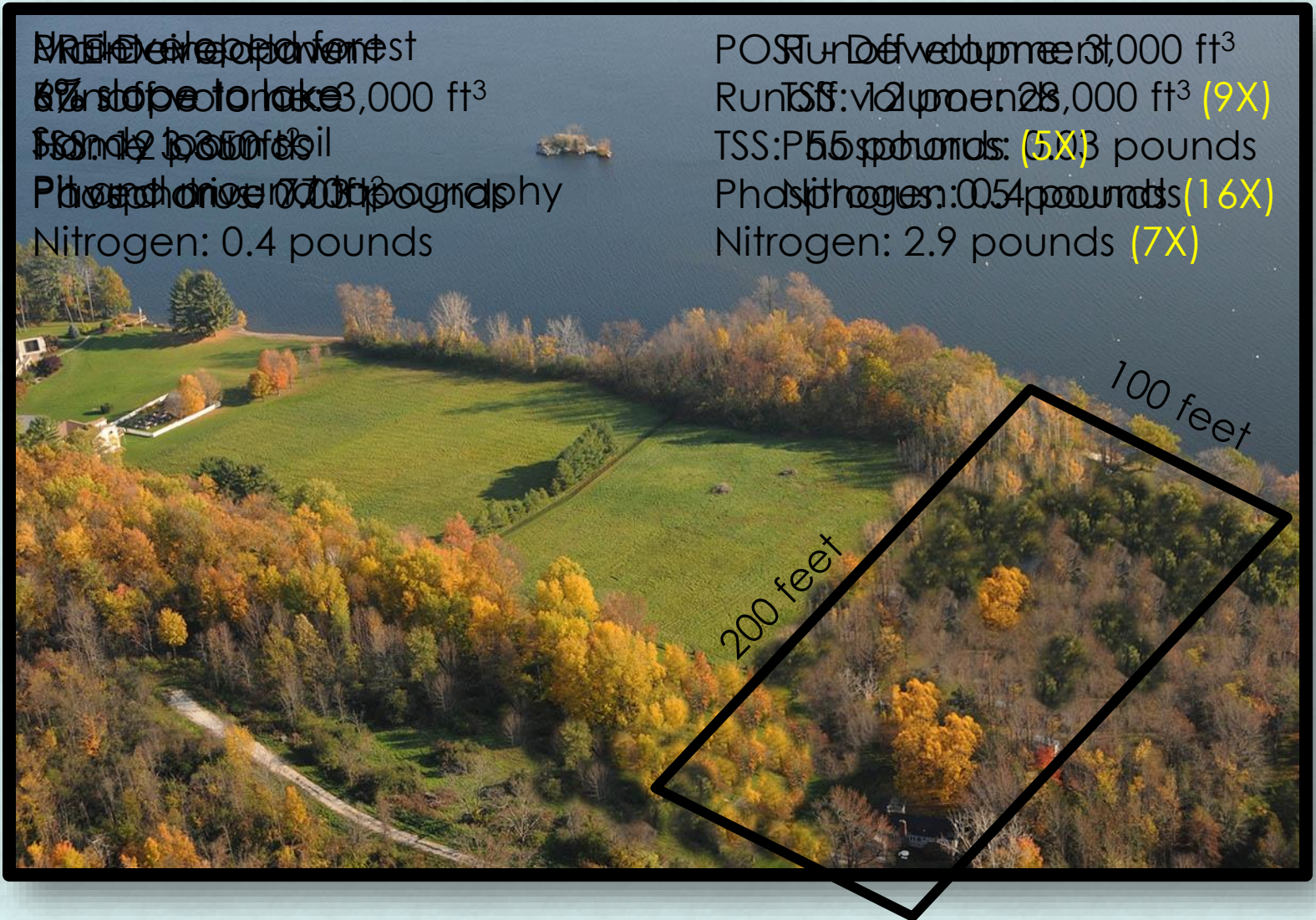




# Impacts to Water

PRE-Developed forest  
Runoff volume: 3,000 ft<sup>3</sup>  
SS: 12 pounds  
TSS: 12 pounds  
Phosphorus: 0.03 pounds  
Nitrogen: 0.4 pounds

POST-Developed forest  
Runoff volume: 28,000 ft<sup>3</sup> (9X)  
SS: 120 pounds (10X)  
TSS: 120 pounds (10X)  
Phosphorus: 0.54 pounds (18X)  
Nitrogen: 2.9 pounds (7X)





# Water Quality and NH Lakes





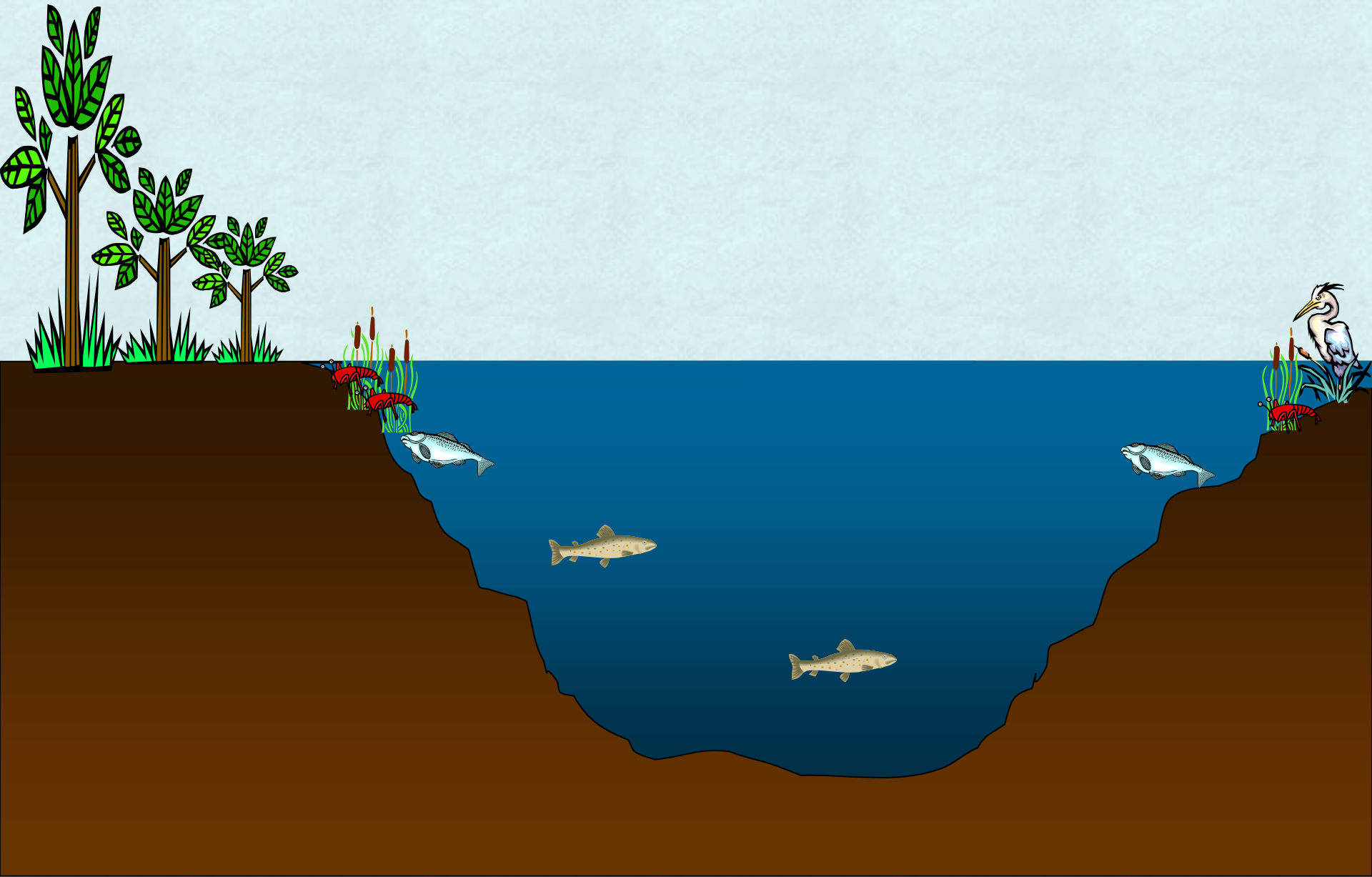


# Oligotrophic

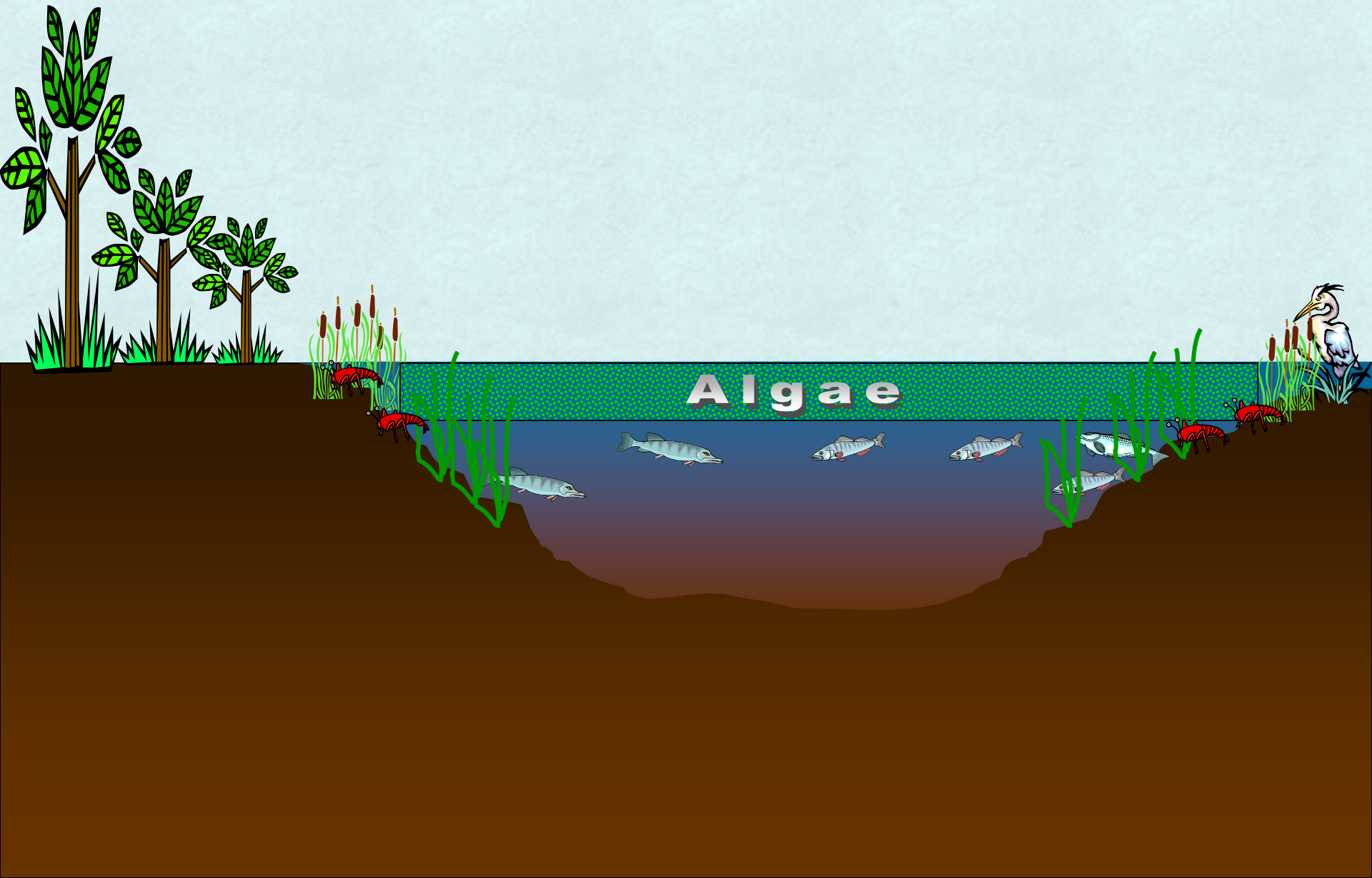




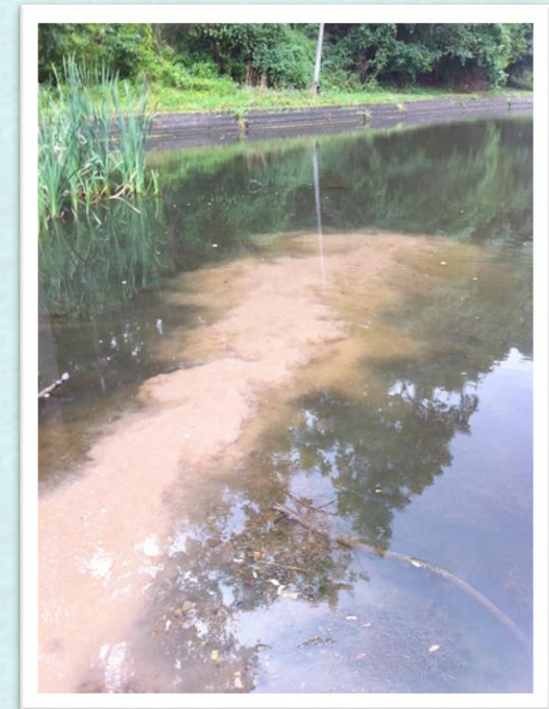
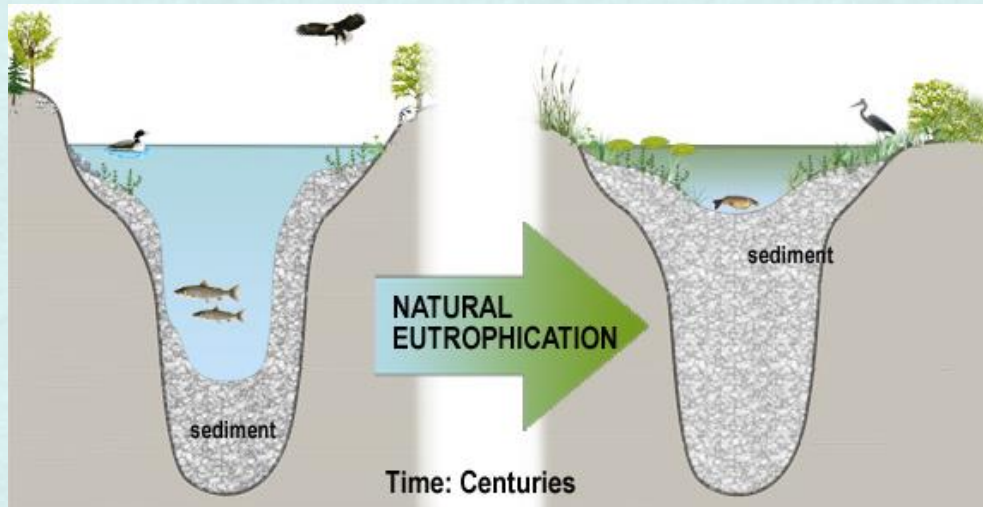
# Mesotrophic



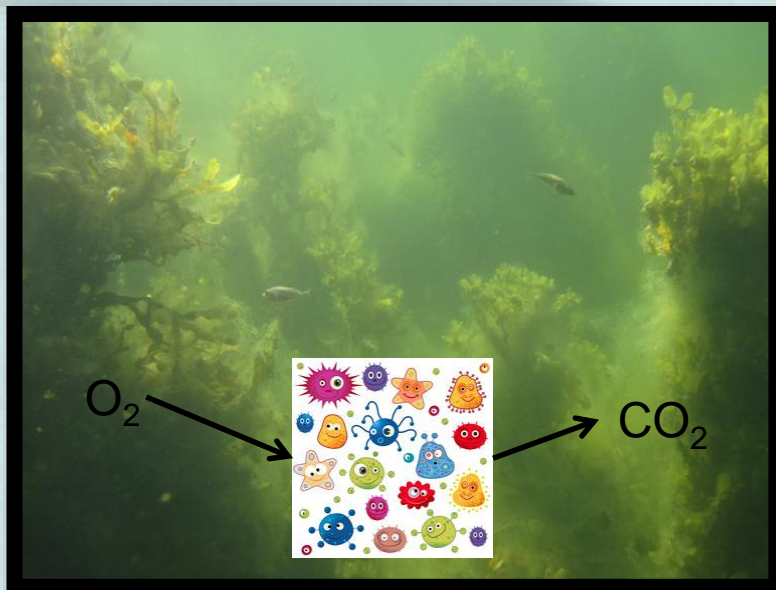
# Eutrophic





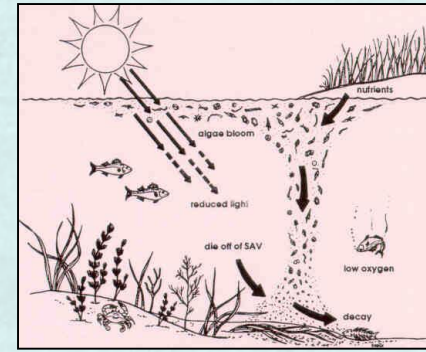


# Too many nutrients





# Algae



- Impacts water clarity
- Too many nutrients can increase algae
- ... and possibly Cyanobacteria!



# Another Big Problem...

## Invasive Aquatic Species

- Can limit uses of the lake
- Can cause declines in shorefront property values







**Hydrilla (EXOTIC)**



**Fanwort (EXOTIC)**

**HIGH RISK!**



**Variable milfoil (EXOTIC)**

**HIGH RISK!**



**Brazilian elodea (EXOTIC)**



# What can we do to protect NH Lakes?







LSPA

*Devoted to the Environmental Quality  
of the Lake Superior Watershed*



Robert Wood,  
LSPA Assoc. Director

# Questions or Comments?

## Have questions?

Barbara McMillan, NHDES  
Watershed Assistance  
Section

[barbara.mcmillan@des.nh.gov](mailto:barbara.mcmillan@des.nh.gov)  
603-271-7889

