Pierce Conservation District

Lakes

An Introduction to Lakes


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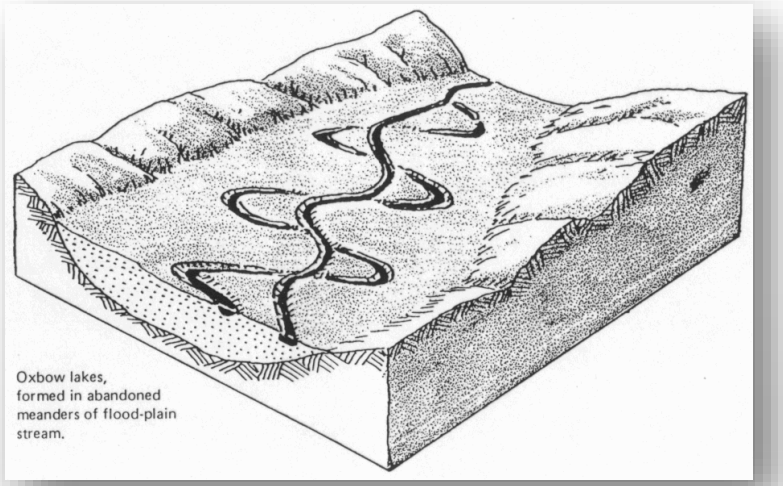
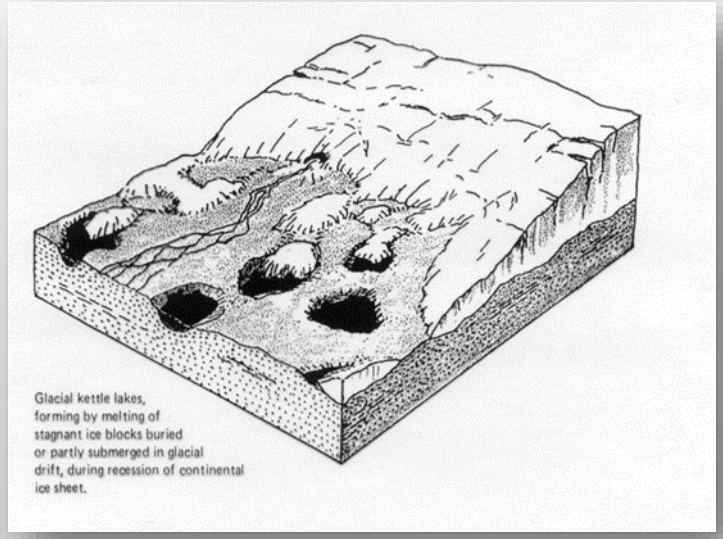
How Lakes are Formed

- Geologic Events
  - Volcanoes
  - River changes
  - Landslides, mudflows
  - Glaciers
- Beavers
- Humans

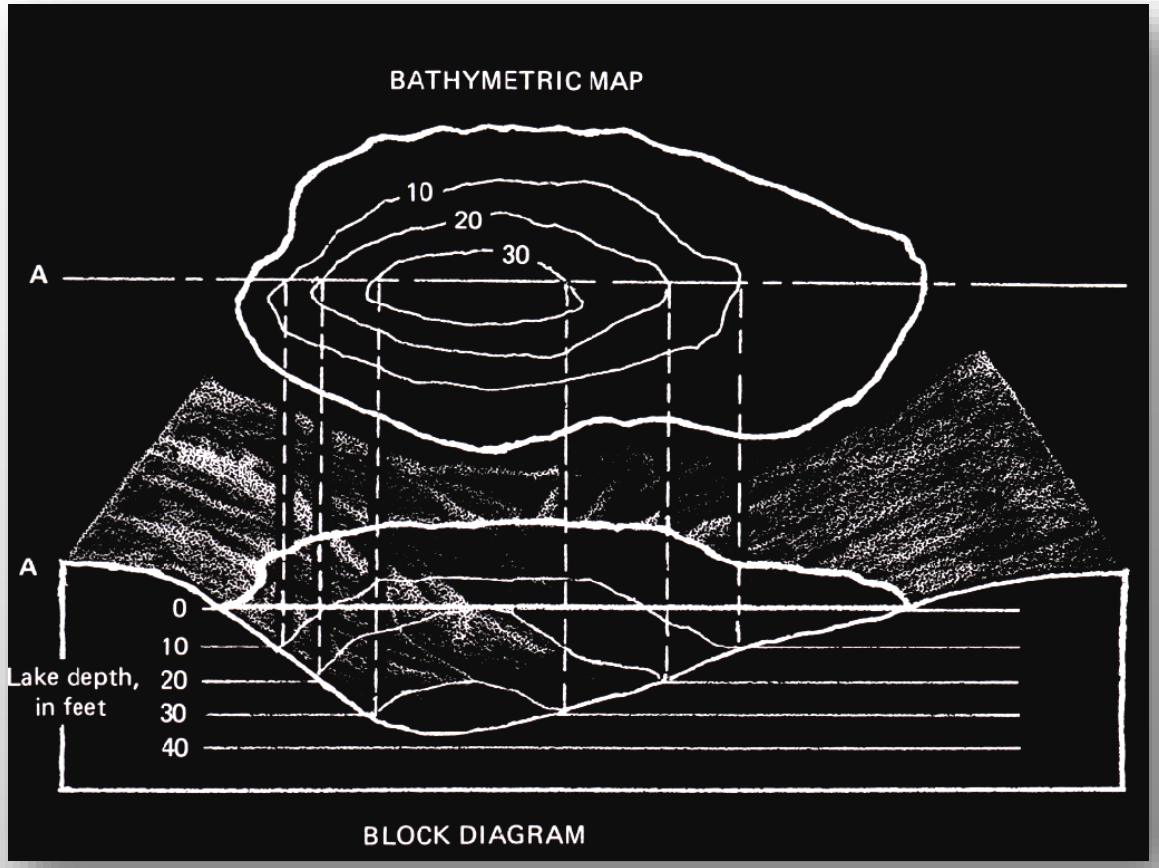


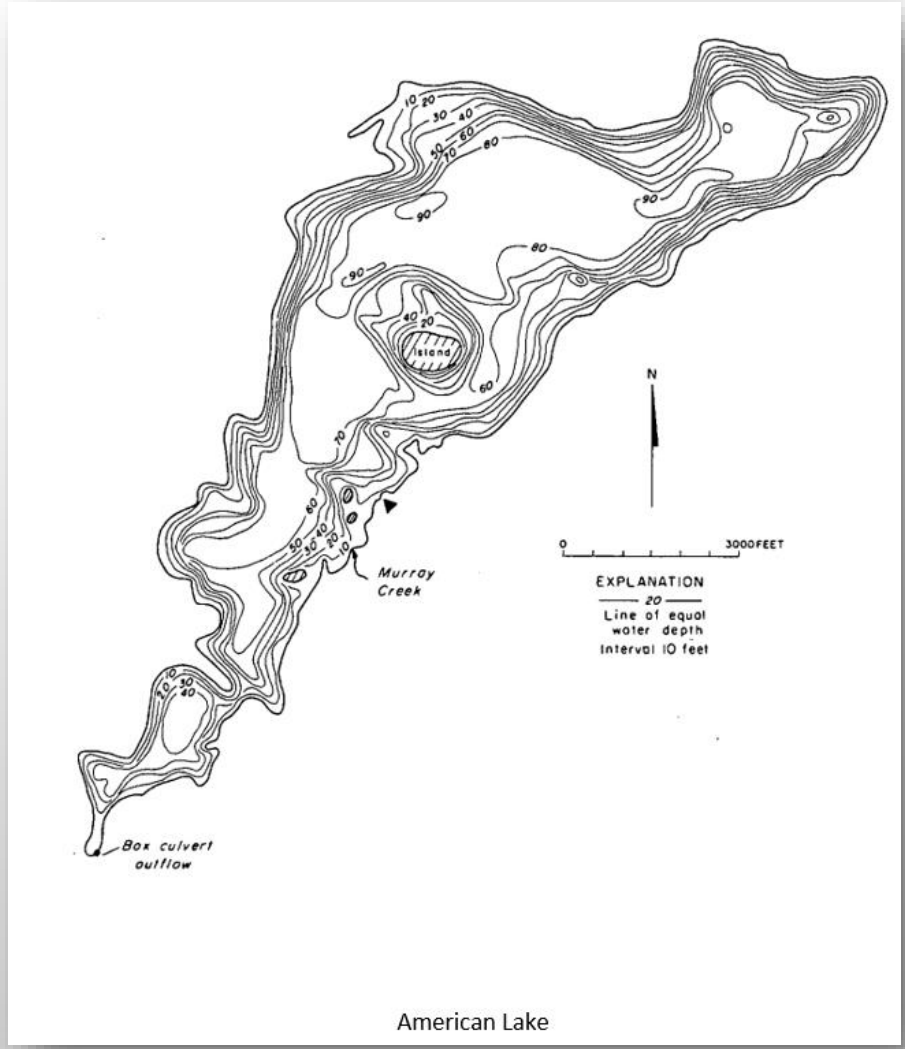
Oxbow lakes, formed in abandoned meanders of flood-plain stream.



Glacial kettle lakes, forming by melting of stagnant ice blocks buried or partly submerged in glacial drift, during recession of continental ice sheet.

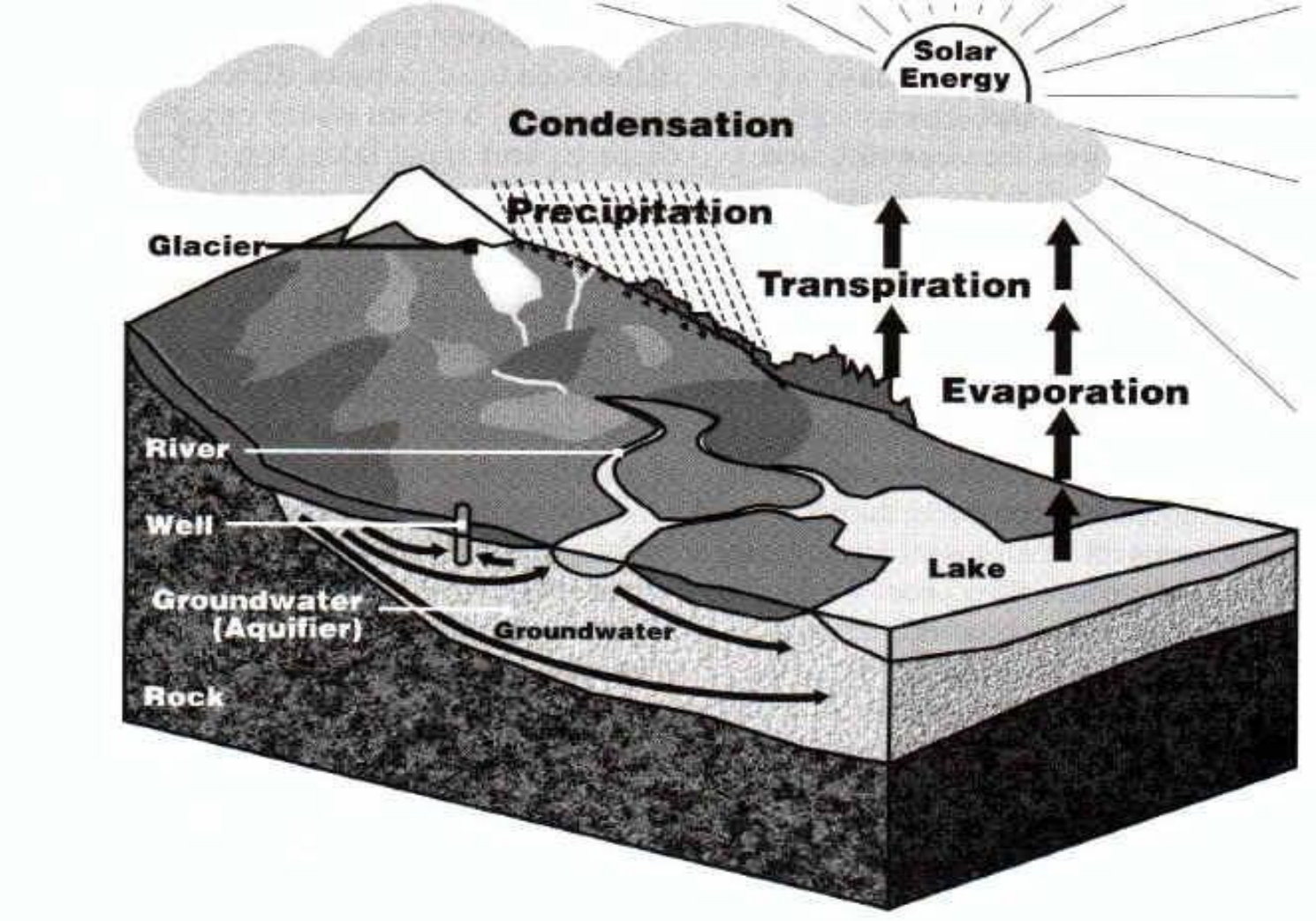
Lake Bathymetry





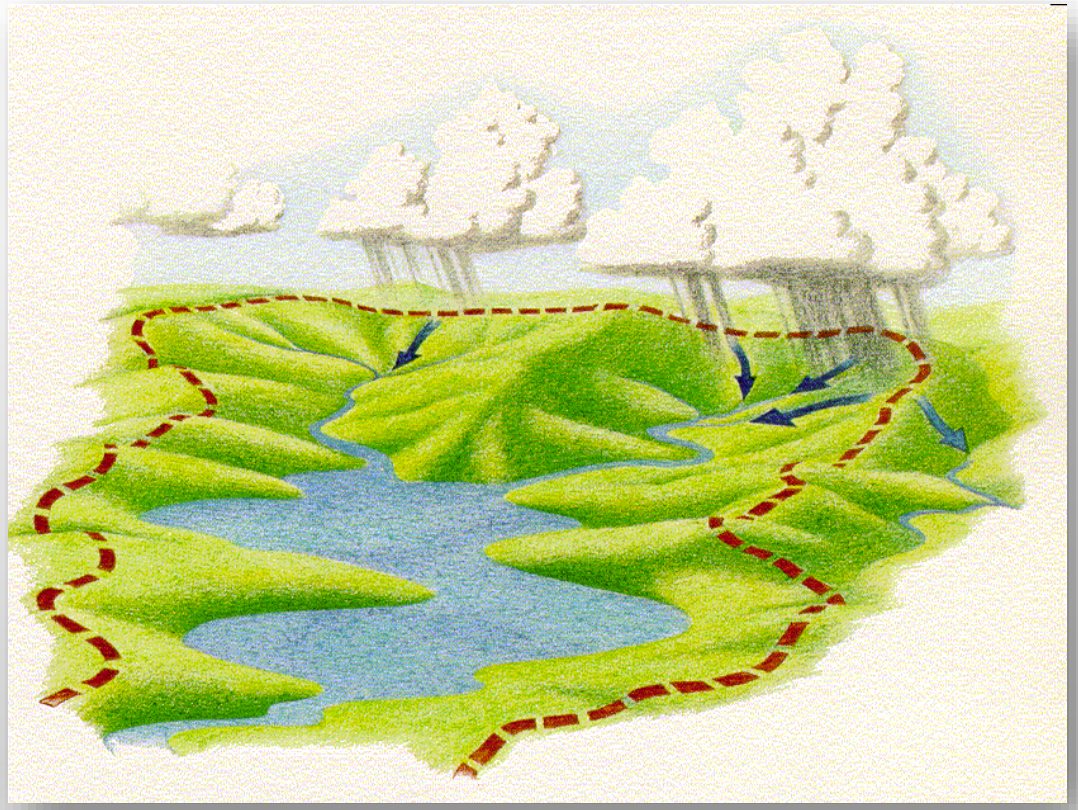
American Lake

Where Does the Water Come From?

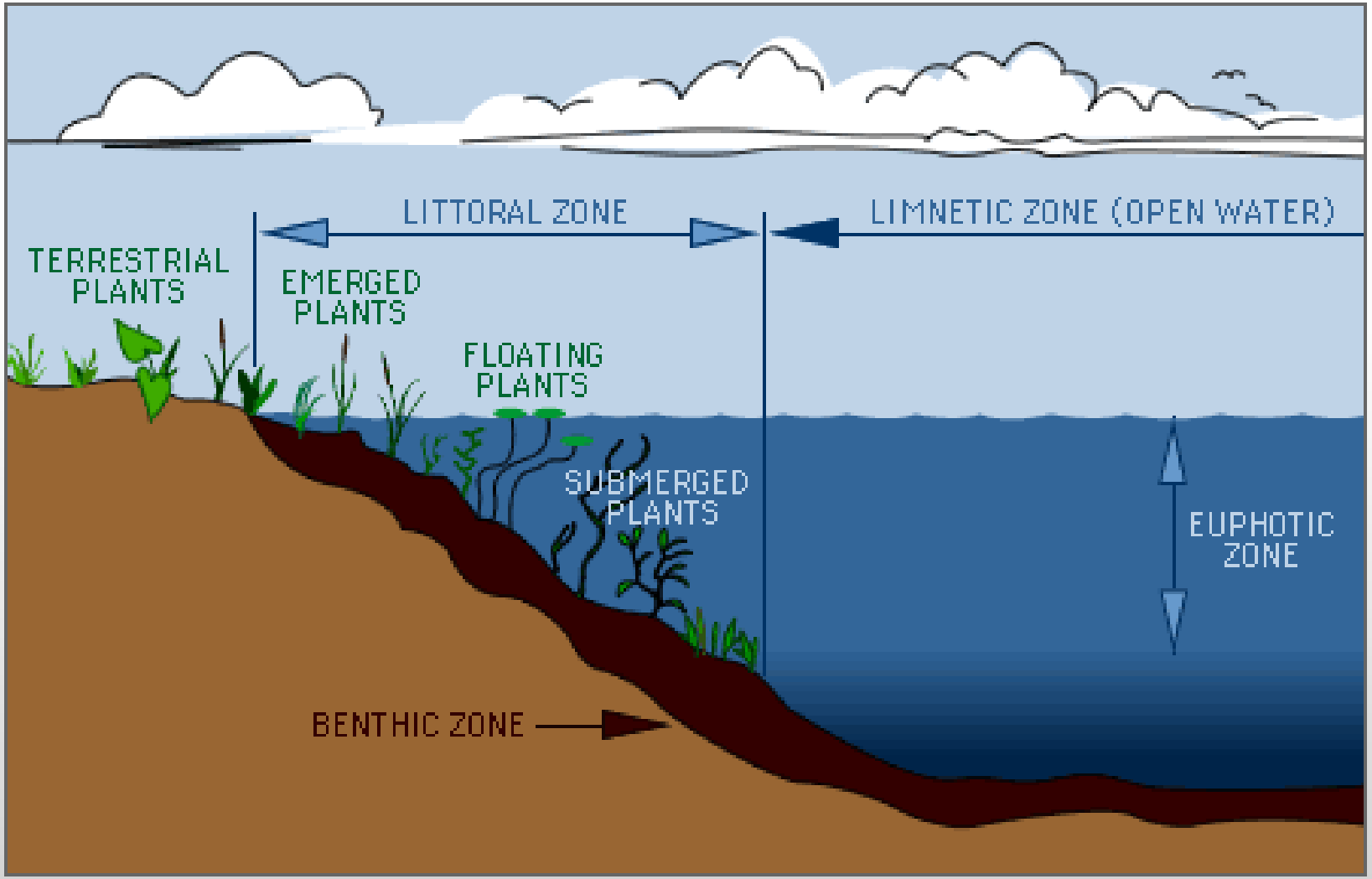


Lake Watershed

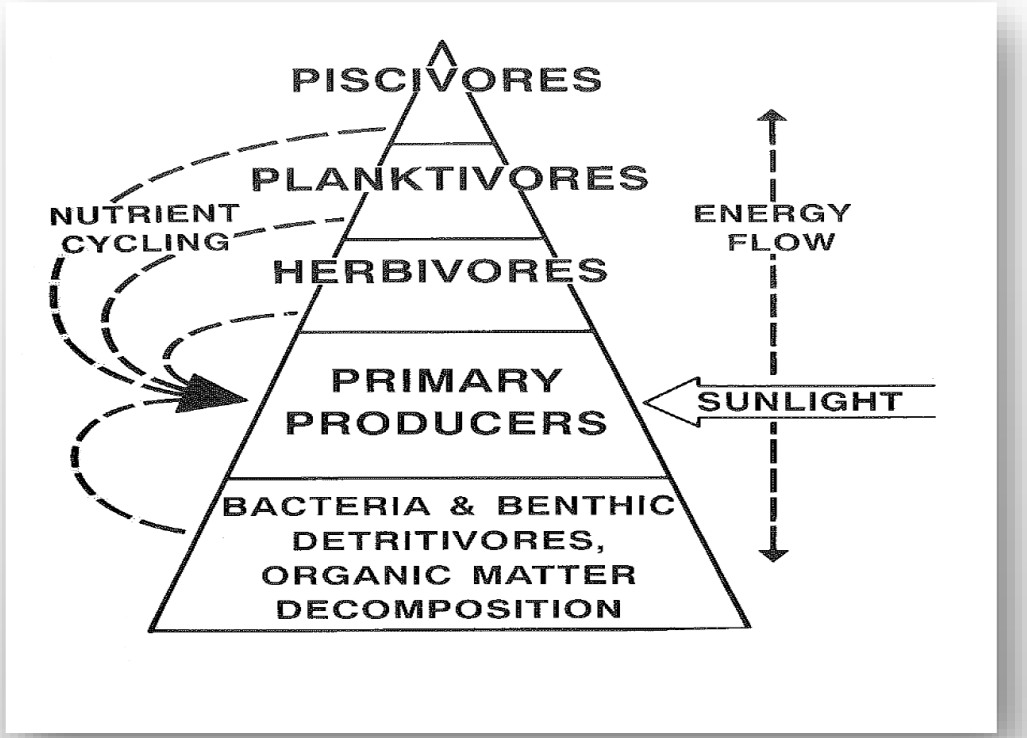
- Rainfall collects within the lake basin.
- Water runs down hill.
- Runoff carries soil, nutrients, and pollution.
- Watershed slope, geology, and soil type affect runoff.
- Human activity influences the amount and quality of runoff.

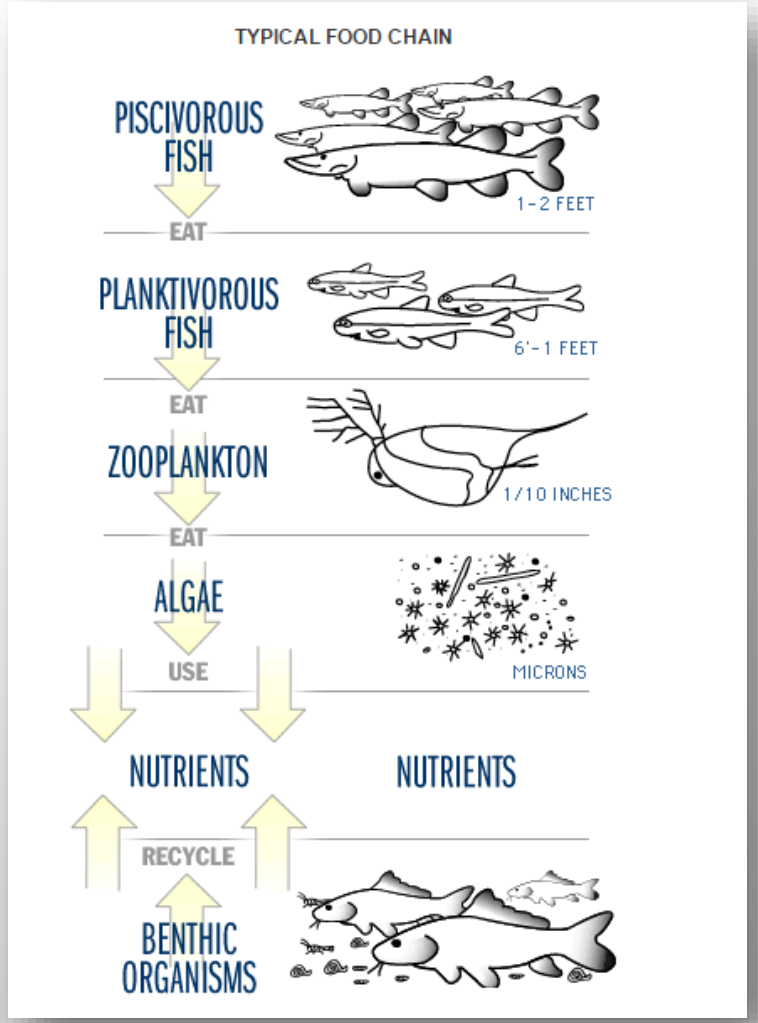


Lake Zones

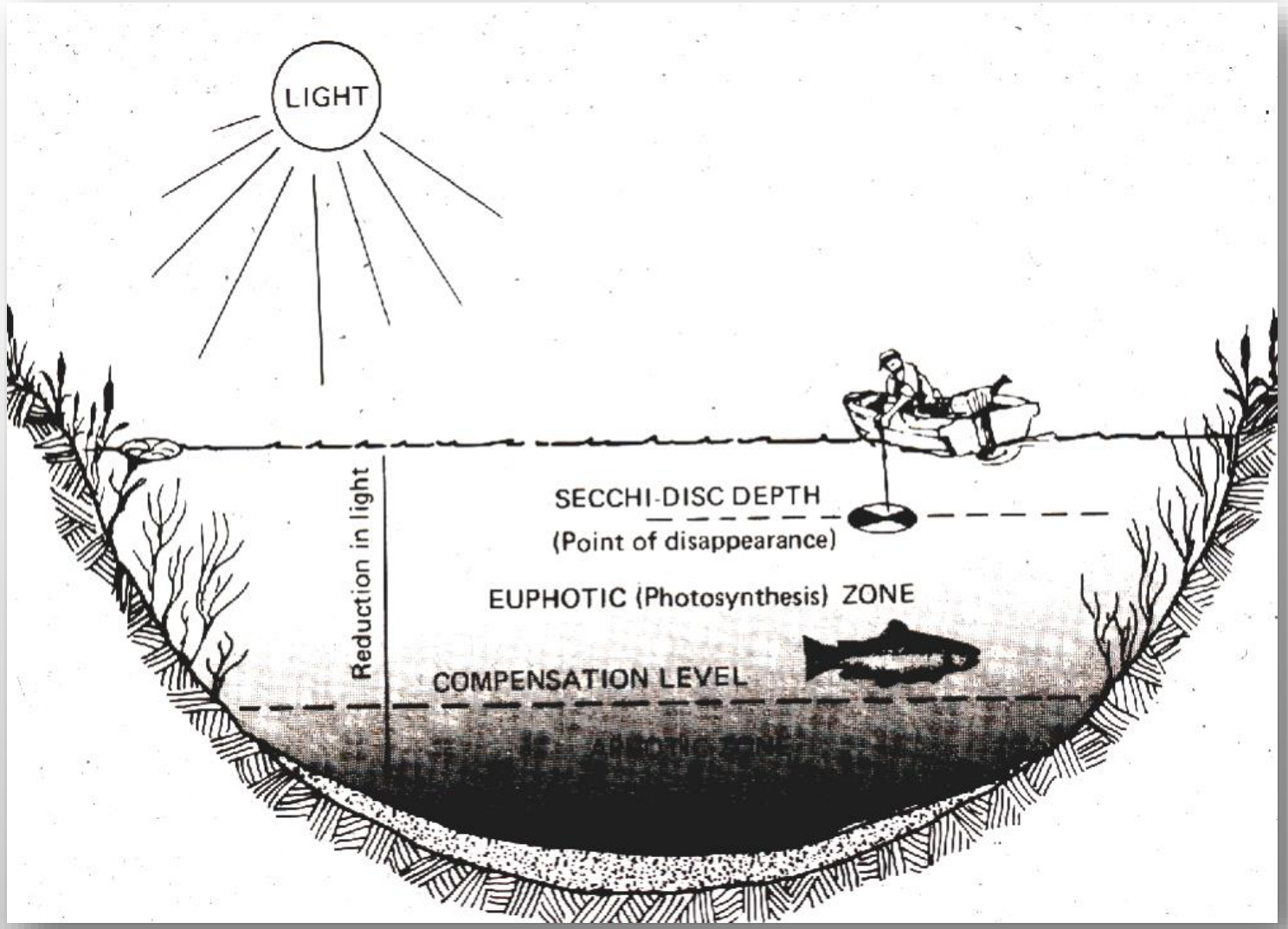

LITTORAL ZONE
LIMNETIC ZONE (OPEN WATER)
TERRESTRIAL PLANTS
EMERGED PLANTS
FLOATING PLANTS
SUBMERGED PLANTS
EUPHOTIC ZONE
BENTHIC ZONE

Typical Lake Food Web

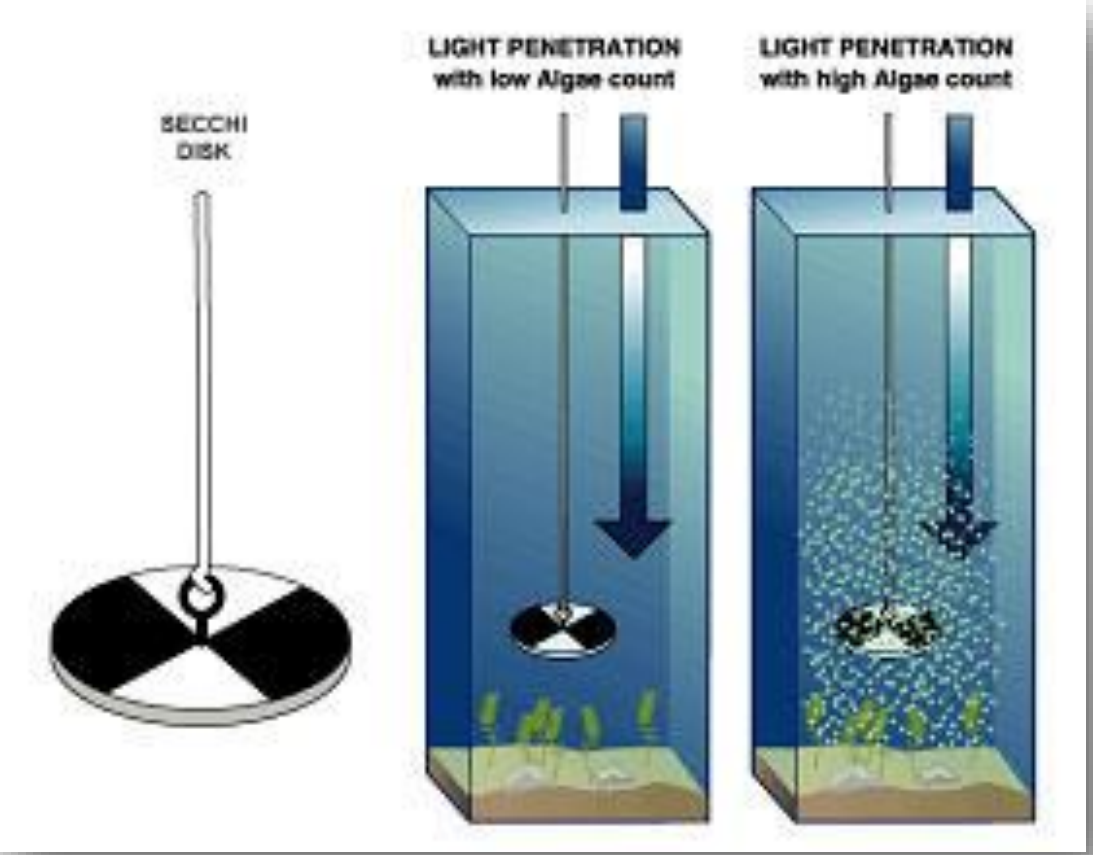




Light Transparency

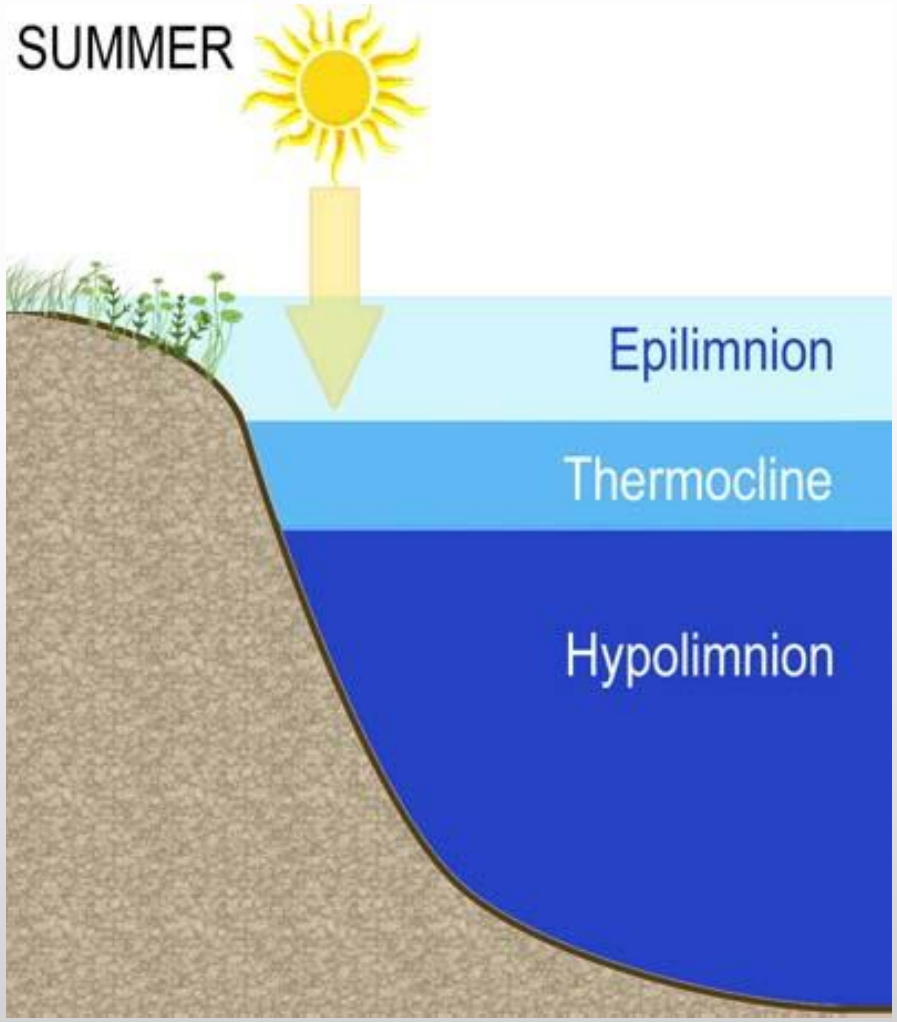


Water Clarity

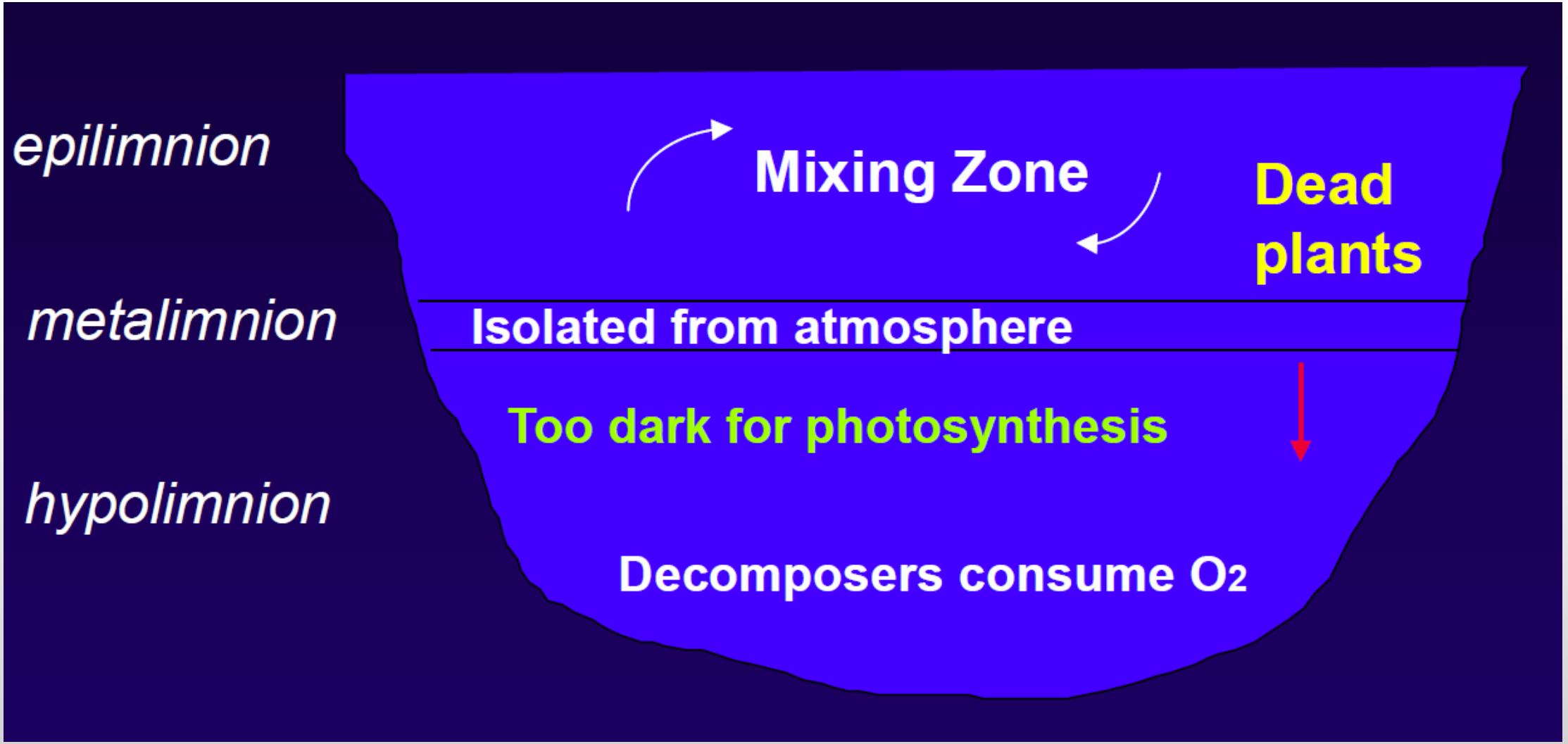


Secchi Depth

Temperature



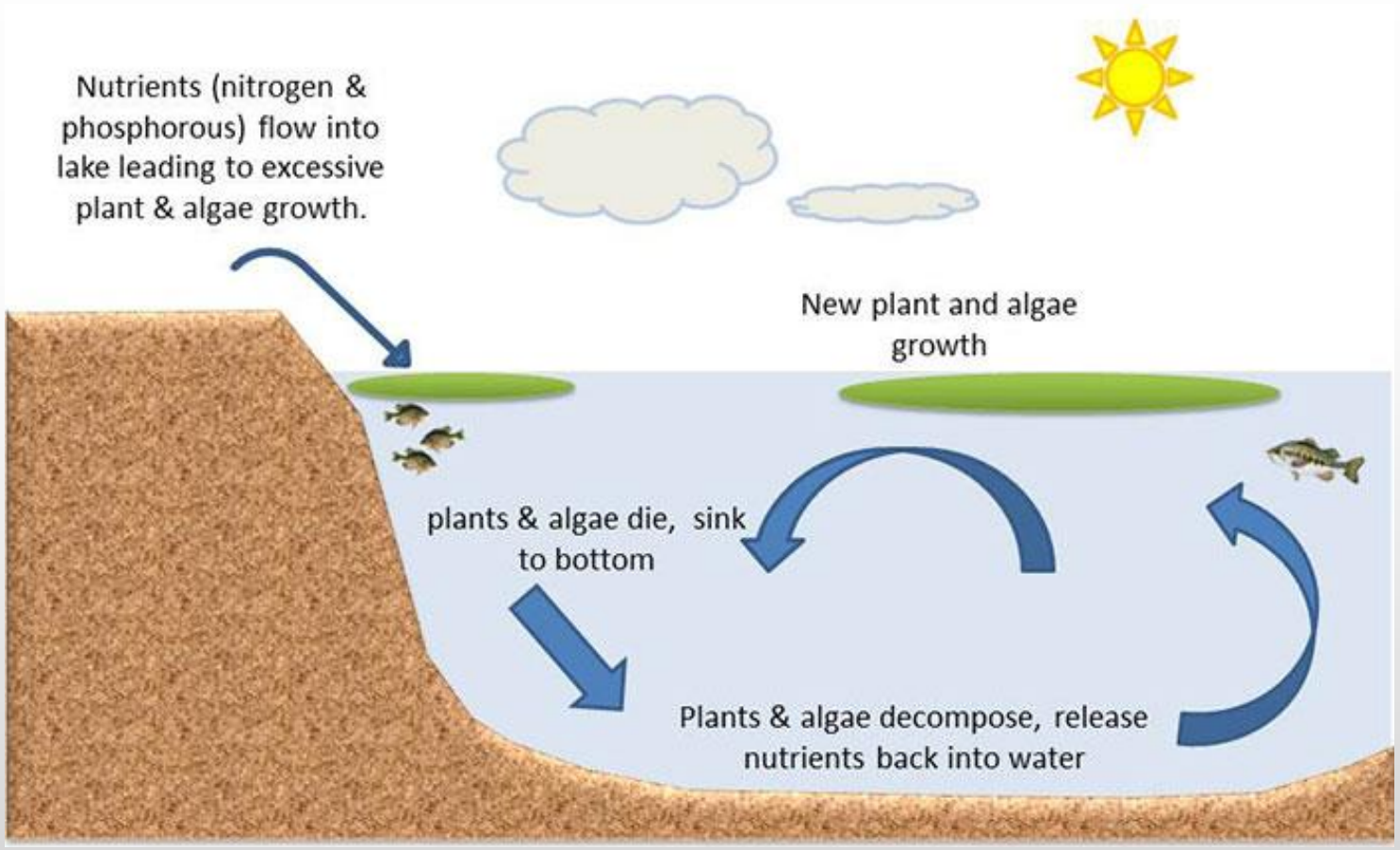
Oxygen – Necessary for Life

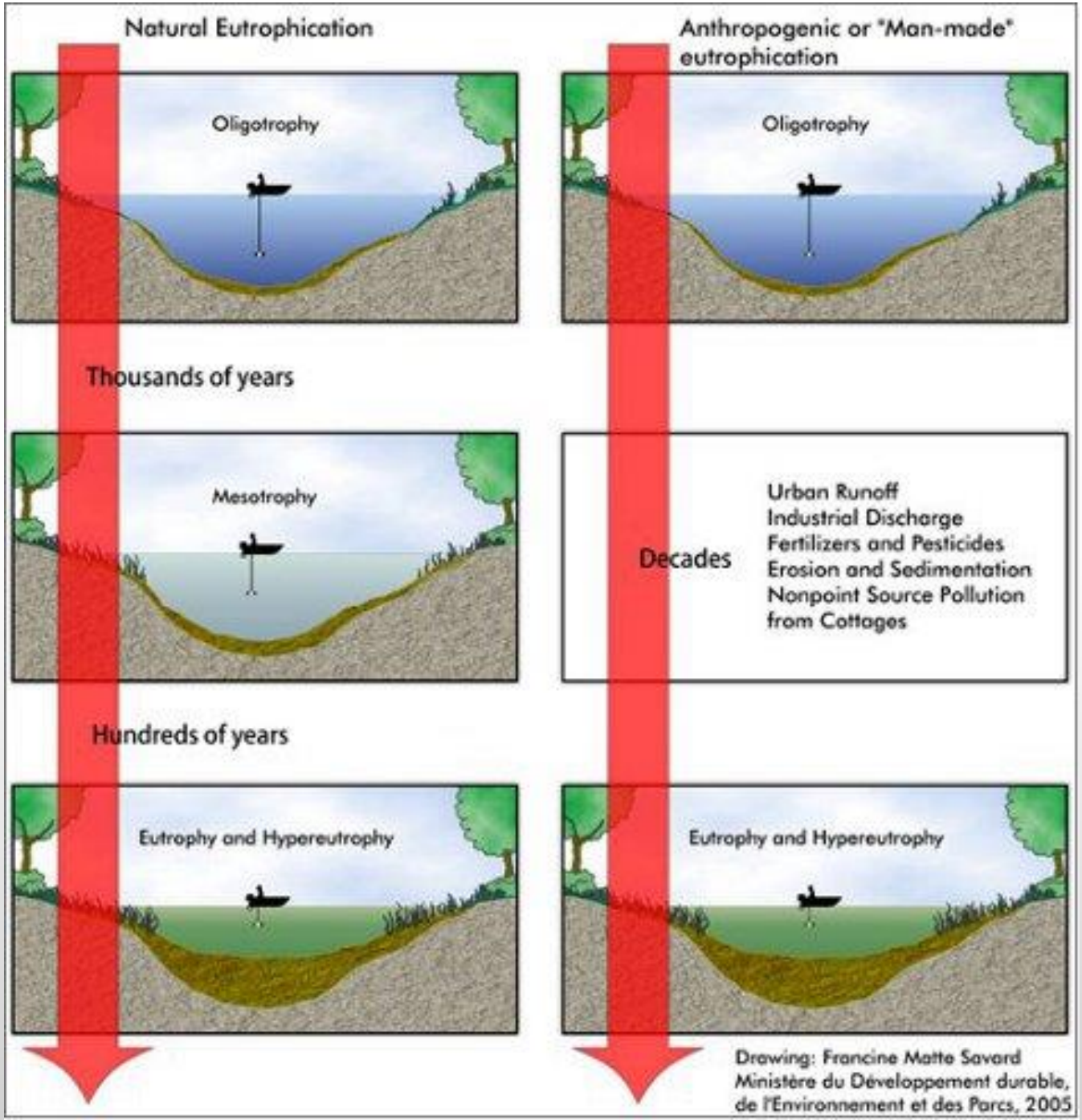


Nutrients

Nutrients – substances needed for growth.

- Phosphorus
- Nitrogen




Natural Eutrophication
Anthropogenic or "Man-made" eutrophication
Oligotrophy
Oligotrophy
Thousands of years
Mesotrophy
Decades
Urban Runoff
Industrial Discharge
Fertilizers and Pesticides
Erosion and Sedimentation
Nonpoint Source Pollution
from Cottages
Hundreds of years
Eutrophy and Hypereutrophy
Eutrophy and Hypereutrophy
Drawing: Francine Matte Savard
Ministère du Développement durable,
de l'Environnement et des Parcs, 2005

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