



Envirothon

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Aquatic Ecology



- Ecology is the study of how organisms react with their environment and each other.
- Aquatic Ecology is the study of Ecology in the following:
 - Oceans
 - Estuaries
 - Lakes
 - Ponds
 - Wetlands
 - Rivers
 - Streams
- Aquatic organisms are classified into four major groups, decided by biological characteristics, habitat, and adaptations.
 - Microorganisms
 - **Periphyton and Biofilm, Algae and Phytoplankton, Protozoa, Fungi, & Bacteria**
 - Plants
 - **Rooted macrophytes, Floating aquatic macrophytes, Riparian vegetation**
 - Invertebrates
 - **Worms, Molluscs, Insects, Zooplankton**
 - Vertebrates
 - **Fish, Amphibians, Reptiles, Mammals**

Aquatic Ecology

PROBLEMS: Humans affect aquatics by allowing contaminants to enter water systems. Other gases and small materials can also be inserted in the atmosphere (by oil sand operations, etc.) and later deposited in land and water. Natural factors such as flooding and beavers also affect aquatic life.

SOLUTIONS: Limit amount of trash deposited into aquatic ecosystems. Find alternate ways of manufacturing that is eco friendly.



Sources Used: "Life in Aquatic Ecosystems." *Life in Aquatic Ecosystems - Regional Aquatics Monitoring Program (RAMP)*, <http://www.ramp-alberta.org/river/ecology/life+in+aquatic+ecosystems.aspx>

Soils and Land Use

- 7.5% of the **Earth's** surface provides the agricultural soil that we use for food
- The current rates of **soil** degradation suggests we have about **60 years** of topsoil left
- Some 40% of soil used for agriculture around the **world** is **degraded** or **seriously degraded**
- 70% of the topsoil is ill or **gone**
- Annually **24 billion** tonnes of soil are lost due to erosion

Sources Used: http://www.davidmoore.org.uk/21st_Century_Guidebook_to_Fungi_PLATINUM/Ch01_03.htm
<https://world.time.com/2012/12/14/what-if-the-worlds-soil-runs-out/>

Soil Erosion and What to do?

Causes:

- Deforestation
- Overcropping
- Overgrazing
- Rainfall
- Wind

How To Help:

- Planting vegetation
- Introducing organic matter
 - Manure
 - Mulch
- Rotating crops



Replanting of the Okanogan-Wenatchee National Forest

Sources Used:

<https://www.arborday.org/programs/replanting/action/past/stories.cfm?year=2016>
<https://courses.lumenlearning.com/geo/chapter/reading-causes-of-soil-erosion/>

Wildlife

Identifying Duck Species

- Mallards are a very common duck that thrives almost anywhere.
- Northern Shovelers are another species which has an abnormally large bill.
- Wood ducks are a smaller duck in which the male shows very vivid colors.



Wildlife 2

- The key for North American waterfowl is composed of how to identify the bird, feeding traveling, nesting, and behavior habits.
- It also contains a map of their habitat.

DUCK WINGS

Many ducks have distinctive color markings or patterns on the wing that help in species identification. This is especially useful for aerial observers with a top-down perspective on a flying duck. The photographs of adult wings shown below can be helpful in field identification.



Current Issue Water Resource Management

Current Issue 2

Forests



- Over 2 billion people depend on forests and 300 million people live in them (60 million among them are natives).
- Forests are the second largest carbon storages on Earth.
- They occupy over one third of Earth's land area.
- They supply food, water, wood goods, and medicine.

Sources Used:

<https://www.worldwildlife.org/habitats/forest-habitat>

<https://www.wri.org/our-work/topics/forests>

Summary

Works Cited

“Life in Aquatic Ecosystems.” *Life in Aquatic Ecosystems - Regional Aquatics Monitoring Program (RAMP)*,

<http://www.ramp-alberta.org/river/ecology/life+in+aquatic+ecosystems.aspx>