Connecticut Envirothon

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AQUATICS STATION

ENVIROTHON STUDENTS WILL BE ABLE TO:

- Identify the processes and phases for each part of the water cycle (evaporation, transpiration, condensation, precipitation, surface runoff, and percolation).
- Analyze the interaction of the competing uses of water for water supply, hydropower, navigation, wildlife, recreation, waste assimilation, and others.
- Delineate a watershed boundary for a small water body.
- Understand the physical changes of water and how it affects the content of suspended gases such as oxygen and carbon dioxide. Be able to discuss how these changes affect the aquatic environment.
- Understand the difference between surface water and groundwater.
- Be able to explain the different types of aquifers and how each relates to water quantity and quality.
- Identify common fish, amphibians, aquatic macroinvertibrates, and aquatic plants found in Connecticut. Be familiar with life cycles of common fish species occurring in Connecticut. (specific or unusual organisms will be identified through the use of a key.)
- Distinguish between cold water, cool water, an warm water fisheries. Be able to identify examples of fish in each type.
- Describe the characteristics of Connecticut's aquatic habitats and ecosystems including streams, lakes, ponds, estuaries, and other wetland types.
- When given a description of a type of aquatic habitat, identify the organisms most likely to live there.
- Briefly describe the benefits of wetlands, both function and value.
- Describe the benefits of riparian areas, both function and value.
- Describe changes to the aquatic ecosystem based on alterations to the aquatic habitat.
- Identify the agencies responsible for providing the protection and management of water resources.
- Know the methods used to assess and manage aquatic environments. This includes sampling techniques and water

quality parameters used to monitor point and non-point pollutants.
- Know the difference between point and non-point pollution, and be able to identify examples of each.
- Be able to discuss steps involved with point and non-point pollution control.
- Be familiar with major laws that protect water quality, both surface and groundwater.
- Know the differences between the water quality classifications, and be able to use the water classification map to identify and rate specific watercourses.
- Be able to answer questions based on the National Wetland Inventory maps.
- Describe major and sources of damage done to water resources, including groundwater in Connecticut.

PRACTICE EXERCISES:

Choose a small watercourse near your school using the USGS topographic map. Try to outline the watershed boundary surrounding that feature. What is the major land use?

Using the Water Quality Classifications Map of Connecticut, choose five streams in your town. Determine the present potential quality of the water. Find out what general types of macroinvertibrates are likely to be found in those classifications.

Choose a wetland near your school. Determine the main functions of the wetland. Make a list of the different land uses around the wetland - then list possible impacts by pollution to the wetlands from those land uses.

Go to a local stream or river. By observing the stream bottom, determine from a field guide what fish are likely to breed there. Do the same for a local pond based on the estimated water depth. Find out which areas in your town are stocked with fish each year.

In your town, find examples of three types of wetlands. identify three species of plants in each.

SAMPLE QUESTIONS

1. What fish species has been determined to be "endangered" in Connecticut?

a) tessellated darter b) slimy sculpin

c) American brook lamprey

d) shortnose sturgeon e) none of the above

2. The daily creel limit for trout in streams is open to Fishing throughout the year is _____ with the minimum length of _____ inches.

3. A bare soil cattle feedlot adjacent to a stream might have the following effect(s) on the water quality of the stream (choose all correct answers).

a) high oxygen concentration

b) high turbidity

c) low biodiversity in the macroinvertibrate population

d) low phosphorus concentration

4. Bedrock aquifers are especially sensitive to land use impacts and are regulated by the Aquifer Protection Act.

True or False?

5. The intermittent stream within the riverine system contains some water flow throughout the year (although some oxygen deficits may occur).

True or False?

6. During the summer months, _____ pollution can have a limiting affect on fish populations in shallow ponds due to lowered dissolved oxygen