Wetland Maps

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School or Agency: St. Anne's Wetland Education Outreach Program
Grade Level(s): 7-8
Science Topics: Observing biotic and abiotic conditions in the field

Summary: Students will identify, observe, and measure biotic and abiotic factors in the wetlands (flora, fauna, temperature, moisture, available light, wind speed and direction, clouds present, human structures, etc.), and describe wetlands in terms of the biotic and abiotic factors that characterize them.

Core Content: Biological Science, Interdependence. More specifically: the comparison of biotic and abiotic factors in an ecosystem in order to better understand the consequences of changing one or more factors.

Objectives: Students will tour the wetlands, recording observations in student journals and eventually mapping the area. Emphasis should be placed on comparing and contrasting biotic and abiotic elements of the wetlands, culminating in the students understanding that the number of organisms an ecosystem can support depends on resources available and abiotic factors. Students should be able to predict the effects of change in one component of an ecosystem.

Materials: Student journal

Procedures:

1. While on a tour of the wetland have the students stop at each station and in between stations to record observations in their journals. What plants and animals (or evidence of animals) do they see? What is the temperature? How dense is the vegetation? How much organic matter is on the ground? Emphasize recognizing both biotic and abiotic factors.
2. Questions to pose while touring the wetland can include:
    a. How do you think wetlands are formed?

b. How many different microhabitats can you identify?

c. What changes to abiotic factors might cause changes to biotic elements?

3. After walking through the trail and taking notes at each station, have the students complete a bird's eye drawing of the wetland (including surrounding features such as buildings, open water areas, and plants).

4. Students should also complete a cross-sectional drawing, showing the relative slope of the land and the water surface of the wetland. This should be drawn as if looking at the wetland from a distance and at ground level.

5. Upon returning to the classroom, have the students answer the following questions based on their field notes and maps of the wetland:

   a. Is there natural vegetation surrounding the wetland on all sides?

   b. Are there roads, buildings or other structures near the wetland that might be a source of pollution entering the wetland?

   c. Is the slope of the land around the wetland steep? Could that lead to soil erosion into the wetland during heavy rain or snow melt?

   d. Was there a stream entering or leaving the wetland? If so, did the water appear clear or polluted?

   e. Did you notice any agricultural operations near the wetlands that may affect water quality (feed lots, chemical storage, manure piles, etc.)?

   f. Did you notice any recreational or industrial operations near the wetlands that may adversely affect water quality (golf courses, factories, etc.)?

   g. List some things you think might be done to improve water quality at the wetland.

Assessment Techniques: The students should be able to describe wetlands in terms of biotic and abiotic conditions. They should reflect upon the effects that changing one condition could have on other characteristics of the environment.

Resources: Adapted from "Ducks Unlimited Wetlands Ecosystems" Interactions and EcosystemsTeacher's Guide