



Water, Water, Everywhere

National Aquarium in Baltimore, from Living in Water

Objectives

Participating young people and adults will:

- 1. be able to classify different kinds of aquatic habitats.**
- 2. use a flow chart and/or a scientific key.**

Youth Development Objectives

Participating young people will:

- 1. Enhance communication, presentation, working and relating to with others skills**
- 2. Enhance ability to acquire, analyze and use information.**
- 3. Enhance enjoyment of fishing and other outdoor recreation.**

Roles for Teen and Junior Leaders

- 1. Assist with gathering and organizing materials.**
- 2. Provide assistance and support to youth.**

Potential Parental Involvement

- 1. See ARoles for Teen and Junior Leaders@ above.**

Best Time: before conducting stream or pond study. Especially before picking fishing spot.

Best Location: indoors, outdoors with picnic tables.

Time Required: at least 30 minutes.

Equipment/Materials

enlarged habitat flow chart on blackboard or bulletin board
duplicates of habitat cards (1 set per youth) may use line drawings or may add photographs of appropriate aquatic habitats from magazines
copies of flow charts and keys for youths

Safety Considerations

References

Caduto, M. J., 1985, *Pond and Brook: a Guide to Nature in Freshwater Environments*, Prentice Hall, Englewood Cliffs NJ
ISBN 0-87451-509-2

Evaluation Activities/Suggestions

1. Brainstorm types of aquatic habitats.
2. Identify aquatic habitats that occur locally.
3. Identify specific characteristics of particular habitats.
4. From photos or illustrations classify or characterize habitats.

National Aquarium in Baltimore, *Living in Water*, 1998, pp 12-24
Kendall Hunt Publishing, Dubuque IA
ISBN 0-7872-4366-3

Schmidt, B, 1991, *Sportfishing and Aquatic Resources Handbook*, pp 43-44, 48-55, 72-73, Kendall Hunt Publishing, Dubuque IA
ISBN 0-8403-6599-3

Schmidt, B, 1997, *Advanced Sportfishing and Aquatic Resources Handbook*, pp 99-101, 107-108, Kendall Hunt Publishing, Dubuque IA. ISBN 0-7872-3544-x

Lesson Outline

Presentation

I. HABITAT-- the place where a plant or animal normally lives and is usually characterized by a dominant plant or a set of physical characters.

- A. Aquatic
 1. Fresh
 2. Salt
 3. Brackish

Application

Before Class:

Read the exercise and plan which parts you will do. Make habitat cards. You may just duplicate the cards at the end of this section. For nicer cards, glue them to one side of stiff paper and add pictures of the same habitat to the reverse side. Ask parents to donate magazines like *National Geographic*. Aides or youth may cut out pictures. Laminate the cards to last for years. You might not find pictures of all of the habitats -- it's okay to leave some out. Make duplicates of the most common ones. Duplicate the flow chart and key.

1. Ask youth to define the word HABITAT.

2. **Brainstorm AQUATIC places** (water habitats) where plants and animals live **and record their suggestions on the board**. Can they tell you what kind of water each has? Make sure that they know the terms SALT WATER, FRESH WATER and BRACKISH WATER. Salt water has the salinity of the oceans, fresh water has little or not salt (you

II. Classification system.

A. Dichotomous key

1. series of questions
2. branches of a tree
3. smallest division

cannot taste any) and brackish water is a mix of salty ocean water and fresh water so it tastes less salty than the ocean.

3. Now each youth is going to become a mystery aquatic habitat. **Each will discover what he/she is by following a CLASSIFICATION system that divides habitats up by their CHARACTERISTICS.** Youth will know what their characteristics or traits are from cards that tell them what they are like.

4. Explain that when identifying things using a system of classification, one starts with the biggest category and begins to work down to small groups. Here the first category is aquatic habitats, and the characteristic they have in common is that they all are in water. Use the flow chart on the board and have a youth read one card aloud to demonstrate that at each stage, they must make a choice between two things until they come to a group in which all the things have the same characters and cannot be divided further. This is their aquatic habitat.

5. Distribute cards or photos of habitats.. Would they like to make a guess about what kind of habitat they are? Have them write their guess. Distribute flow charts and let them work until they have identified themselves. Trade cards for more practice.

6. The key is harder to use. With younger children you may delete it. With older children you may repeat the same process of one demonstration followed by independent work that you used for the flow chart.

Characteristics of aquatic habitats

- a. salt or fresh water
- b. flowing or still water
- c. has water all year or dries up
- d. shallow or deep
- e. plants submerged or sticking out of the water
- f. warm or stays cold all year
- g. manmade or natural

RESULTS:

- . **Check results of following the flow chart or key habitats** out by comparing answers with the answers provided.

CONCLUSIONS:

- . **Brainstorm** list of the important characteristics used in this exercise to classify aquatic environments.

Summary Activity

Lesson Narrative

When humans name things, they are CLASSIFYING them. Things that are classified are first named and then placed in larger groups of things that share similar characteristics. For example, many kinds of tables are lumped under the term "table" as are many kinds of chairs under "chairs." Both tables and chairs belong to a larger category, furniture. The inclusion in ever larger groups results in a hierarchical organization.

Why bother with classifying things? Classification requires that we look for relationships among things which enhance our understanding of their functions and characters. Also, knowing that something belongs to a certain group means that you know something about it if you are familiar with the characteristics of the group.

Exhibit or Sharing Suggestions

1. Develop dioramas of local or important regional habitats.

Community Service and “Giving Back” Activities

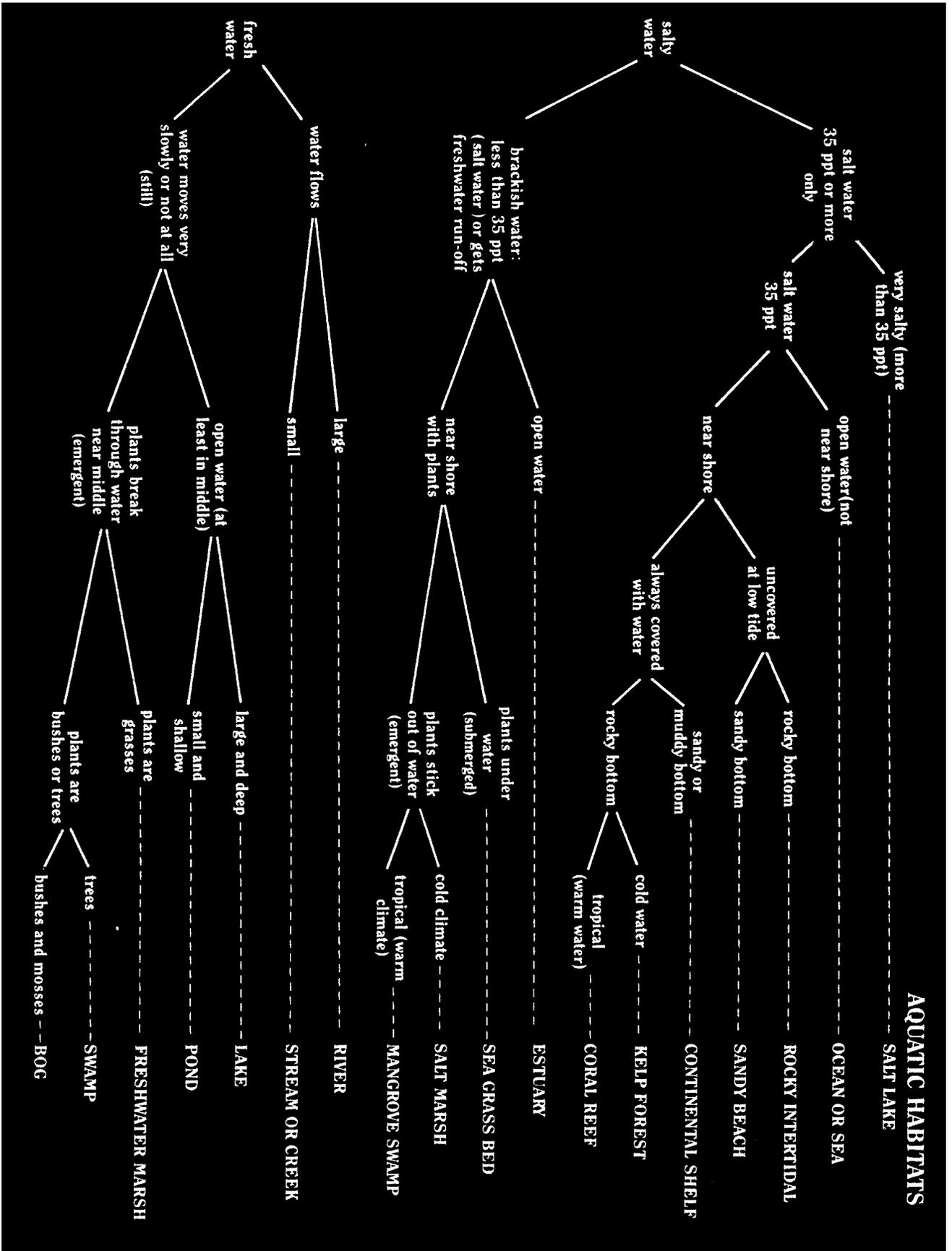
Extensions or Ways of Learning More

1. One way for youth to test their own knowledge of aquatic habitats following this activity is to have the pictures of water habitats mounted on cards with a string long enough to hang them around the youth ' necks. The name of the habitat should be written on the back of each card. Youth must find out what kind of water habitat they are by asking other youth yes/no questions about themselves.
2. Have each youth write several paragraphs about how it would feel to be an animal that lived in his/her aquatic habitat. Include a discussion of some of the problems each would face in making a living. Make sure the youth has a picture of the habitat to help with writing.
3. On a map of your state, help your youth locate the aquatic habitats they may have seen locally.
4. Research naming in other societies. Different cultures use different degrees of refinement when they create categories of names. This degree of detail in naming is frequently based on the importance of the items in their culture. For example: the South American cowboys, gauchos, have some two hundred different words or names for horse colors, but divide all plants into only four categories depending on their use in ranching.
5. Compare common names and their local origins with scientific names. Scientists use a formal classification system in giving names to plants and animals which gives each kind of plant or animal a name consisting of two words which is unique to that species. An animal's scientific name is the same anywhere in the world. Since the scientific name is based on Latin and Greek words, most people give plants and animals a common name in their own language. Because these are arrived at informally, they vary from place to place and can be very confusing because the same animal may have several different commons names.

6. To test youth understanding of the principles governing classification and the construction of keys, have youth classify groups of other things and make their own key. Creative choices of things might include keys to different groups of adventure toys, model collections or rock groups. Let them trade keys to test the quality of their work. There should be at least ten items in each key.

Links to Other Programs

Aquatic Habitat Cards:



AQUATIC HABITAT CARDS:

Your fresh water flows over a wide, muddy bottom. Big catfish lurk in your murky waters. Cities were located on you because in the old days you were the easiest place to travel. Barges are towed up and down you in many states even today.

YOU ARE _____



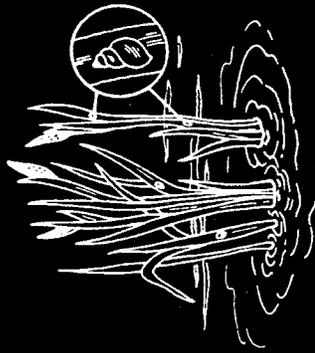
Grasses grow out of your still, fresh waters. Red-winged blackbirds build nests in the grasses. The air is filled with the calls of the male blackbirds.

YOU ARE _____



Your brackish water is full of nutrients for the tall grasses that emerge along your shore. In the winter these grasses die, but each spring they come back from their strong roots. The decaying grass particles are food for crabs and oysters. The grasses protect the shore from storms.

YOU ARE _____



Your quiet, fresh waters are home to many fish which hide deep beneath your surface. Storms may make waves on your wide surface. Where winters are very cold, you may be covered with ice.

YOU ARE _____



Aquatic Habitat Cards:

AQUATIC HABITAT CARDS:

You have salt water and are a big body of water. When the wind blows, waves roll over your surface. During storms the waves get huge. Things on you are far from land.

YOU ARE _____



You have cold, salt water. You are found near rocky shores. Your plants and animals are always covered by your cold water. You have forests of seaweeds called kelp which hide hundreds of kinds of animals.

YOU ARE _____



Your rocky shore is covered with seaweeds that live attached to the rocks. When the salt water is at low tide, the sun or snow or rain falls on your seaweeds and animals. Waves crash into you, so animals and plants have ways of clinging tightly to your rocks.

YOU ARE _____



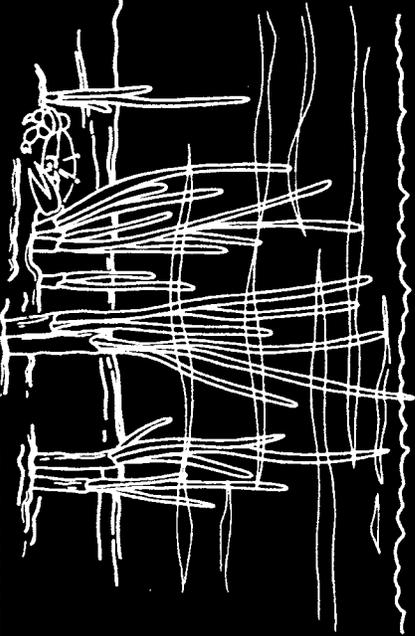
Salt water mixes with fresh water from a river in your wide shallow waters. You have lots of food for fish and crabs in your open waters above your muddy bottom. You are a nursery for many ocean animals.

YOU ARE _____



Underwater fields of plants grow in your shallow, brackish water or salt water. Many animals find food and shelter among the plants. The plants protect the nearby shore from erosion because they break the force of the waves.

YOU ARE _____



Your fresh water tumbles down over rocks and through small pools where fish and crayfish hide. Your water comes from rain that runs off the land and from springs that bring underground water to the surface.

YOU ARE _____



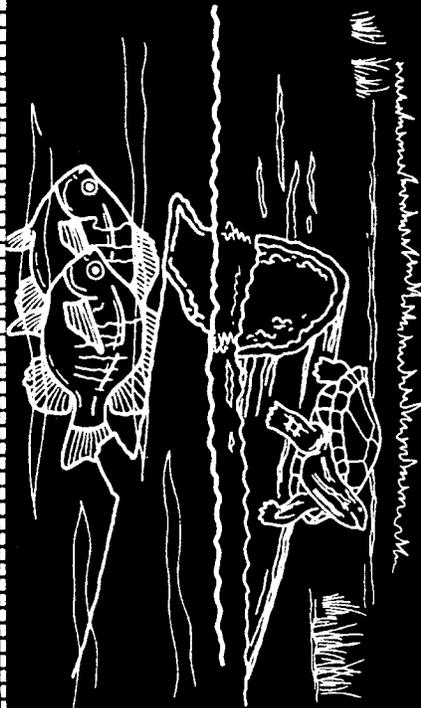
Short trees line the shores of your brackish or salt water. Their big roots hold the trees in the mud, even when hurricanes disturb your constant warm days. Many animals and plants find a home on your tree roots or in your waters. Because it is warm all year-round, you are said to be a tropical habitat.

YOU ARE _____



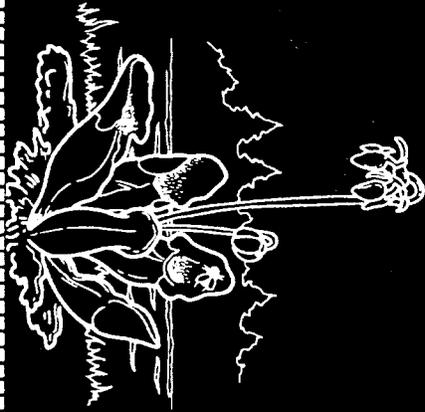
Sun shines through your shallow, open, fresh water, allowing underwater plants to grow on the bottom. Still and small, you may freeze solid where winters are cold. In the summer turtles bask on your shore and deer drink from you.

YOU ARE _____



Bushes and mosses grow in your shallow, still water. Patches of very wet ground are home to pitcher plants which get their nutrients from the insects they catch in their leaves. Your water is fresh, but very acid.

YOU ARE _____



Your sandy or muddy bottom is under salt water. In some places the water is deep, but you are along the shore. Animals burrow in your sand or mud. Your water is rich in tiny plants which provide food for many animals. Fishermen harvest your animals.

YOU ARE _____



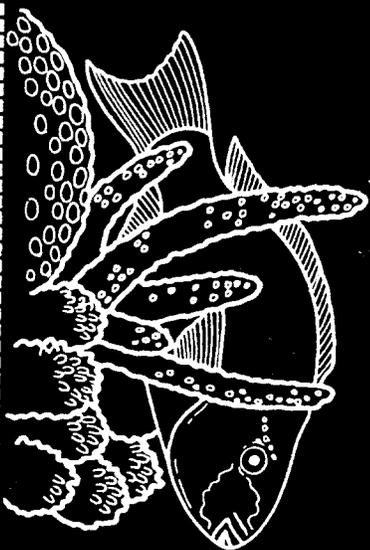
You have salt water that rises and falls with the tides. Sometimes the waves roll way up on your sand while at other times much of your sand is not covered with water. Children play on you. When a storm comes, your sand is moved all around.

YOU ARE _____



Your warm, salt water and rocky bottom provide the perfect place for animals called corals to grow. Their skeletons make a great place for fish to live. Because you are in a place that is warm all year-round, you are a tropical habitat. Tourists swim out from the beach to visit you.

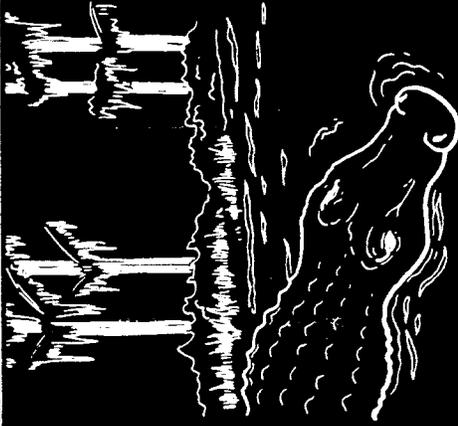
YOU ARE _____



AQUATIC HABITAT CARDS:

Tall trees stand in your quiet water. Freshwater turtles bask in a patch of sun while mosquitos buzz. It is very dark in the shade of the trees.

YOU ARE



Your water is very salty, saltier than the sea. Water flows into you, but there is no way for it to leave except by evaporation in the hot sun. You form in low areas in deserts.

YOU ARE

