

THE UNDERWATER MISSISSIPPI RIVER - A FISHY VIEW AND MISSISSIPPI RIVER HABITAT INVESTIGATION

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OBJECTIVES

Students will be able to identify:

1. four parts of an underwater Mississippi River habitat.
2. five underwater habitats found in the Mississippi River.
3. Mississippi River habitats based upon the fish that are present.

METHODS

Students read descriptions of different Mississippi River aquatic habitat types and identify what characteristics are different.

BACKGROUND

Habitat for fish and wildlife is very important in the Mississippi River. The Mississippi River is home to over 100 different kinds of fish and is a major travel area for migrating birds. The Mississippi River could not support its fish and wildlife without healthy habitat.

Habitat can be defined as “the place where an animal lives.” Within a habitat, animals find the food, water, shelter and space that they need to survive. Without just one of these requirements, an animal may not survive.

A variety of habitats supports a variety of fish in the Mississippi River. Habitat types are determined by unique combinations of four parameters:

1. water velocity
2. depth
3. substrate
4. structure

Water velocity is how fast the water is flowing. It can range from none to high, or very fast flowing water. Water depth ranges from close to zero to well over 50 feet. The substrate, or bottom material, varies in the Mississippi River. Different substrates include muck, sand, gravel and rock. Structure includes plants, rocks, wood (stumps and fallen trees) and sand dunes. Structure can be thought of as places where small fish hide from predators or find food. Structure is also a place where larger fish find shade or use as ambush areas when feeding.

Grade Level: 4 - 8

Subjects: Ecology,
Geography

Duration: 45 to 60
Minutes

Group Size: Individual
or small group

Setting: Classroom

Key Vocabulary:
water velocity, depth,
substrate, structure,
habitat, backwater
lake, main channel
main channel border,
side channel, tailwater

Materials:
• *Handouts*

Additional information on habitats of the Mississippi River can be found in the background for this section of the activity guide (pages F&W 1-4) and the handouts for this activity (pages F&W 62-66).

PROCEDURES

Introduction to Lesson

Ask students to think about where they live. Remind students our homes are our habitats. Ask students how our habitat compares to fish habitat. What do they have in common? Mississippi River habitat is home to fish and wildlife. Tell students they are going to learn about the Mississippi River's many habitats and fish that inhabit them.

The Underwater Mississippi River - A Fishy View

1. Provide students with "The Underwater Mississippi River - A Fishy View" handout.
2. Have students read the handout. Use the handout to guide a class discussion. Ensure students understand the parts that make up a Mississippi River habitat.

Mississippi River Habitat Investigation

1. Divide class into five groups.
2. Assign each group a habitat to investigate. The five habitats are backwater lake, main channel, main channel border, side channel, and tailwater.
3. Provide students with the appropriate Habitat Investigation handouts.
4. Have students work as a group as they read the handout and answer the questions.
5. Each group will fill in their habitat blanks on a master "Mississippi River Habitat Table." The table can be drawn on a chalkboard, easel paper or bulletin board.

ASSESSMENT

During:

Monitor group work to observe if all individuals are participating. Check for accuracy and completeness of information recorded on the handouts.

Post:

1. Have students identify four parts of underwater Mississippi River habitat.
2. Have student describe the five different habitat types on the Mississippi River.
3. Ask students to identify three different fish that utilize a specific habitat on the Mississippi River.

EXTENSIONS

1. Have students write a story about a Mississippi River fish. Ideas include a fish who gets lost and tries to find his or her way back home or one that goes on vacation to another habitat.
2. Develop a spelling list using words from the handouts. These words can be added to your weekly list, used as a separate list, or used during a “Mississippi River Habitat Spelling Bee”.
3. Divide the class into habitat groups. Have each group transform part of the room into the Mississippi River habitat they were assigned, including fish. Or, have the entire class create Mississippi River habitat in a section of the hallway.
4. Have students research a Mississippi River fish. Students may produce a written report and give an oral presentation to the class.
5. Invite a Mississippi River biologist to your class to further discuss habitat and fish. Ask the biologist if he or she could bring fish.
6. Take a field trip to the Mississippi River. Many habitats can be seen from highways. Better yet, rent or borrow canoes and explore the Mississippi River.

The Underwater Mississippi River - A Fishy View

Habitat for fish and wildlife is very important in the Mississippi River. The Mississippi River is home to over 100 different kinds of fish and is a major travel area for migrating birds. The Mississippi River could not support its fish and wildlife without healthy habitat.

Habitat can be defined as “the place where an animal lives.” Within a habitat, animals find the food, water, shelter and space that they need to survive. Without just one of these requirements, an animal may not survive.

To support all the different fish, the Mississippi River has many different types of underwater habitats. Some habitats are shallow enough to walk across, while others are much deeper. Fallen trees, tangles of tree roots and large rocks provide habitat along the river. Read on to find out what makes one habitat different from another.

An underwater Mississippi River habitat is determined by four characteristics: 1) water velocity, 2) depth, 3) substrate and 4) structure. Water velocity is how fast the water is flowing. It can range from none, or stagnant, in certain areas of the Mississippi River to high, or very fast flowing water, in others. Water depth ranges from close to zero to well over 50 feet. The substrate, or what the bottom is made of, varies in the Mississippi River. Different substrates include muck, sand, gravel and rock. Structure includes plants, rocks, wood (stumps and fallen trees) and sand dunes. Structure can be thought of as places where small fish hide from predators or find food. Structure is also a place where larger fish find shade or use as ambush areas when feeding.



BACKWATER LAKE HABITAT

You are to investigate backwater lake habitat. Backwater lake habitat does not have flowing water. The substrate is very mucky. In some areas, a few feet of muck have accumulated. Plants grow in backwater lake habitat. These underwater plants provide much needed structure for fish. Wood is also present in backwater lake habitat. The depth of backwater lake habitat ranges from less than 1 foot to 12 feet. Backwater lake habitat is home to largemouth bass and bluegill.

QUESTIONS:

1. What is the depth of backwater lake habitat?
2. What is the water velocity of backwater lake habitat?
3. What is the substrate of backwater lake habitat?
4. What is the structure of backwater lake habitat?
5. What fish are found in backwater lake habitat?

SIDE CHANNEL HABITAT

You are to investigate side channel habitat. Side channel habitat has low water velocities and range in depth from near zero to 40 feet. Although some rock is found in side channels, wood is the main form of structure. Fallen trees from along the side channel's shore provide much of the wood. The substrate in side channels includes sand and muck. Some plants grow in the shallows of mucky side channels. Fish species found in side channel habitat include yellow perch, crappie and northern pike.

QUESTIONS:

1. What is the depth of side channel habitat?
2. What is the water velocity of side channel habitat?
3. What is the substrate of side channel habitat?
4. What is the structure of side channel habitat?
5. What fish are found in side channel habitat?

MAIN CHANNEL BORDER HABITAT

You are to investigate main channel border habitat. Main channel border habitat is known for its structure. Many areas of rock extend from shore toward the red and green buoys of the main channel. Other structure within main channel border habitat includes wood from the nearby shore and a few plants. Water velocity is medium. Depth ranges from 2 to 25 feet. The substrate can be slightly mucky or sandy. The main channel border is home to many species including smallmouth bass, walleye and channel catfish.

QUESTIONS:

1. What is the depth of main channel border habitat?
2. What is the water velocity of main channel border habitat?
3. What is the substrate of main channel border habitat?
4. What is the structure of main channel border habitat?
5. What fish are found in main channel border habitat?

MAIN CHANNEL HABITAT

You are to investigate main channel habitat. Main channel habitat is easy to locate on the Mississippi River. If you are on the Mississippi River or just driving by, it is marked with red and green buoys; between the red and green buoys is main channel habitat. Because it is used for barges, the depth of main channel habitat is at least 9 feet and ranges to near 50 feet. Water velocity is medium to high. The medium to high water velocity keeps the substrate quite clean, and the bottom is sand. As water flows across the bottom, sand dunes can form to provide structure for fish. Rock structure may also be found along the shore. Fish such as white bass, smallmouth bass and sauger may use this habitat.

QUESTIONS:

1. What is the depth of main channel habitat?
2. What is the water velocity of main channel habitat?
3. What is the substrate of main channel habitat?
4. What is the structure of main channel habitat?
5. What fish are found in main channel habitat?

TAILWATER HABITAT

You are to investigate tailwater habitat. Tailwater habitat is located directly downstream of a lock and dam. The water velocity is higher here than in any other area of the Mississippi River. Because of the high water velocity, the substrate in tailwater habitat is sand, gravel or rock. Depths range from 10 to 30 feet. Structure in tailwater habitat is rocks or logs. Walleyes, flathead catfish and sturgeon are located in tailwater habitat.

QUESTIONS:

1. What is the depth of tailwater habitat?

2. What is the water velocity of tailwater habitat?

3. What is the substrate of tailwater habitat?

4. What is the structure of tailwater habitat?

5. What fish are found in tailwater habitat?

Mississippi River Habitat Investigation

Habitat	Water Velocity	Depth	Substrate	Structure	Fish
Backwater Lake					
Main Channel					
Main Channel Border					
Side Channel					
Tailwater					



