

Go Fish

Timing

Great immediately after a brief introduction to what types of living organisms an aquatic ecosystem can support, or after collecting aquatic life (in the "Pour A Pond" activity).

Duration

About 30 minutes, but fun enough to be longer.

Location

Large area outside (20' by 30' area for running), or in a gym or large hallway.

Life Skills

Verbal and nonverbal communication, decision-making, critical thinking, responsibility, and contributing to group efforts.



**FRIENDS INVOLVED IN
SPORTFISHING HERITAGE**

OBJECTIVES

Participants will be able to:

- Identify and describe food, water, and shelter as three essential components of habitat.
- Describe the importance of good habitat for fish.
- Define the term "limiting factors" and give examples.
- Recognize that fluctuations in fish populations occur, because ecological systems undergo many changes.
- Describe how fishing is a positive tool for fisheries management.

Age/Stage

Fry, fingerling, young adult.

Across the Curriculum

Science, Math.

Correlations

Science:

Math:

Background

This game focuses on habitat, which determines whether an animal (such as a fish or aquatic insect) will survive in an area or not. This activity is a fun way to demonstrate major impacts of habitat changes on fish populations.

Materials

- Newsprint pad (flip chart) and markers, or chalkboard and chalk
- Sticky notes (medium-large)

Procedure

Pre-activity

1. Divide the participants into groups of five or six and hand out about 10 sticky notes to each group. Tell the participants that they are to discuss things that they as a group think may affect or are important to a fish's life. These things can be very specific (e.g., insects, pollution, rocks, oxygen, etc.). They must decide which are most important to the fish and list them individually on a sticky note in large letters. Give them 10-15 minutes to accomplish this.
2. Have each group present its conclusions by bringing their sticky notes up in front of the room and placing them on a blackboard, wall, or window so everyone can see them. There will be a number of duplicate answers.
3. Next, have the participants look over the notes, and ask for volunteers to come up

and lump the notes into similar/like categories, as few as possible. At this point see if the group can narrow down the grouping even further. You should be able to see that the notes can fit into one of four categories: Food, Water/Water Quality, Shelter, and Space/Competition.

4. Tell them that together these four categories are needed for any animal's **habitat**. Now they will play a game about habitat.

The Activity

1. Tell your group that this activity introduces them to how fish survive in their **habitats**—areas that provide the basic needs animals have for surviving and reproducing. Ask your group: What do fish and aquatic animals like insects need to survive? (Food, shelter, water, and space.) Tell them that this game will show them more

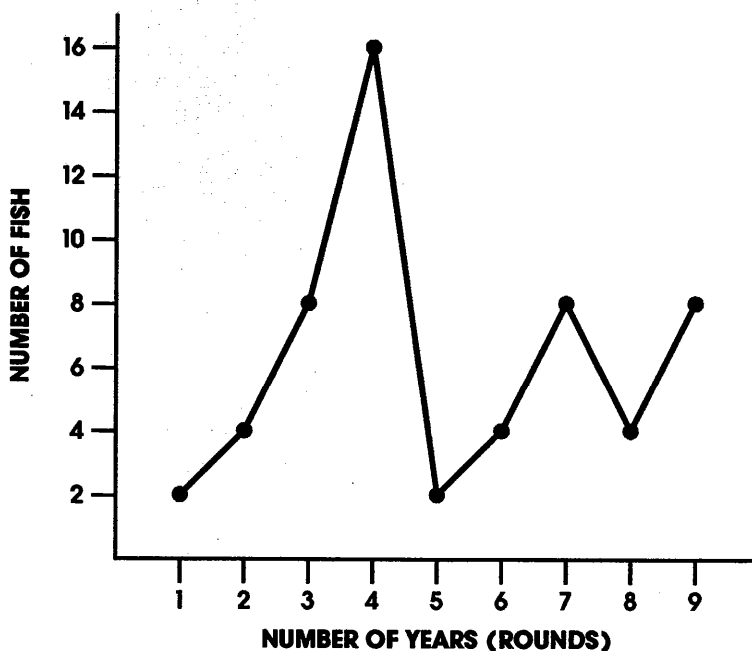
about fishes' needs for food, shelter, and water.

2. Start the group in a large circle. Tell them they are managing a pond for fishing, and it will be necessary to stock (add fish) to get the game started. The center of the circle is the playing area and the fourth component of habitat, space. Choose two to four participants to become the stocked fish and send them to one side of the circle. The rest of the group are habitat and go together to the other side of the circle. Mark two parallel lines on the ground about 20 feet apart. Have the fish line up behind one line and the rest (habitat) behind the other line.
3. The fish need to find food, water, and shelter. When a fish is looking for food, it should clamp its hands over its stomach. When looking for water, it moves its hands

to its cheeks imitating water moving through gills. When looking for shelter, it holds its hands together over its head. A fish can choose to look for any one of its needs during each round of the activity.

4. Those playing the role of habitat also need to choose which component of habitat they will be: food, water, or shelter. The habitat participants then make the sign showing which component of habitat they have chosen to be.
5. The game starts with all players lined up on their respective line and with their backs turned toward each other.
6. The group leader begins the first round by asking all the players to choose what they will be and then make that sign.
7. Tell the players that a fish cannot change what it is looking for once it has seen what is available. Remind the players to keep doing their signs until they have found a match. When you see that the players are ready, count "One...two...three...Go Fish." At that point the players turn to face each other while they continue to hold their signs.
8. When the fish see the habitat component they need, they are to move to it and tag it. Each fish must hold the sign until getting to the habitat person with the same sign. Each fish that reaches its necessary habitat component takes that component back to the "fish" side. When more than one fish reaches a habitat component, the fish who gets the habitat item first survives.

"Go Fish" Typical Graph Pattern



Any fish that fails to find its food, water, or shelter dies and becomes part of the habitat in the next round. The fish that died is a habitat component and so is available as food, water, or shelter to the fish that are still alive.

Habitat components stay in place on their line until a fish tags them. If no fish needs a particular habitat component during a round, the habitat component just stays where it is in the habitat line. The habitat person can change which component it is from round to round but not after seeing what the fish signs are. Many kids would rather be fish, so this rule is important!

Point out to the players that as habitat declines, competition to gain the needed things for survival will be greater. Remind the group of the rules, and that pushing and shoving are out of the question.

9. The group leader or helper (playing the role of a "fisheries biologist") keeps track of how many fish there are at the beginning of the game (i.e. year one) and at the beginning of each round (i.e. year two, three, four, etc.).

Participants will use these numbers to create a graph with number of years on the X-axis (horizontal) and number of fish on the Y-axis (vertical).

10. At the end of at least five rounds, gather the players together to discuss the activity and the graph. (This can be done indoors, individually or as a group.) Encourage them to talk about what they saw. For example, ask them to describe how the numbers of fish changed over time.

The players should say that they saw a small population of fish finding more than

enough of its habitat needs. Then, the population of fish expanded during the next two to three rounds (years) of the game, until the habitat was depleted and there was not sufficient food, water, and shelter for all the members of the school of fish. At that point, the fish died from starvation, didn't have good water, or lacked shelter. These are called **limiting factors** (the condition or amount of something that limits the number or distribution of a particular organism). When the fish died, they returned nutrients to the habitat.

11. Add an angler to the game. Have the angler stand at the side, between the fish and habitat. Allow the angler to catch a specified number of fish by touching them before they get to the habitat (e.g., the pond owner sets a fishing limit of two fish, as a rule). This version of the game will introduce the concept of fisheries management involving fishing.

After the round the angler can choose to keep and eat the fish (return to habitat) or release them back to be fish again. Ask the players: What would have happened if no fishing limit (regulation) was imposed? What would happen if the habitat completely lacked one component of habitat (such as food)? (The population would "crash.") End by describing to the players that fish populations depend greatly on their habitats, and that in order to take the best care of our resources, we and biologists need to understand not only the fish, but all of the things in the habitat that fish need to survive and reproduce.

Tips for Success

- Safety first! Clear the playing area of stones or other debris before playing. Remind players to be careful while running.
- It is helpful to have adult or teen observers help with the game. Have those who can't run play the role of the fish biologists and record data.

Adaptation

Play various versions of the game: introduce predators and other mortality factors. Have players create their own adaptations! Devise a way to introduce into the game the concept of carrying capacity (the maximum and/or average number of a given organism that an area can maintain at a particular season of the year).

Extensions/ Additional Resources

Follow up the activity by contacting your local Michigan Department of Natural Resources office to learn about local fish population trends. Talk with a biologist and invite her/him to speak at your next class or club meeting.

Community Service

- Older participants can work with younger groups to teach these concepts to a younger age. For example, volunteer to go into a school, scout meeting, or camp setting and offer this game.
- Work with a local biologist to improve the quality of the aquatic habitat in local lakes, rivers, or streams.

Exhibits/Sharing

Create a display about how fish populations change over time as habitat changes. Explain to community members the reasons to be good stewards of our water ecosystems.

Career Opportunities

Fisheries manager, biometrician, statistician, biology teacher.

Source

Adapted by Mark Stephens, Project F.I.S.H.; Brandon Schroeder, Michigan United Conservation Clubs; and Carl Richardson, Pennsylvania Fish and Boat Commission, Bureau of

Boating and Education. This activity appears in the National 4-H Sportfishing Curriculum, and is an adaptation of "Oh Deer" from *Project Wild, Secondary Activity Guide*.