
C.2.1 Case Study- Tragedy of the Commons

The concept of the Tragedy of the Commons is a central one in ecology. The term was coined by Garrett Hardin in an essay in the 1960's and it still has relevance today.

Objectives

- to learn the theory of the tragedy of the commons
- to simulate the use of a shared resource
- to use observation skills to record data

Introduction

It is the beginning of the final week of the red snapper season. The snapper are represented by red pieces of paper hidden throughout the room. The agency in charge of fisheries has set these regulations:

- (a) Other marine species are not in season (represented by blue papers)
- (b) Female red snapper are ready to lay eggs and are "off limits" (represented by yellow paper)
- (c) Juvenile red snappers must be left for next season (represented by green paper)
The nearest regulatory office is 350 miles away. The office does not have enough money to pay enforcement officers to come to San Carlos except for once every year or two. Even then, they have no boat.

Materials

Participant description sheet

Observation sheet

2 pieces of red construction paper cut into 100 -] "X 1" squares

One piece each of blue, green, and yellow construction paper cut into 25 - 1" X 1" squares of each color

15 forceps to pick up colored pieces of paper

Procedure

1. Divide the class in half- the fisher and the observers.
2. Fishers should each get a description (role) from the participation stack.
3. Observers should each get an observation sheet. Observers should not share the information on the observation sheet with the fishers.
4. Observers are not to communicate or interfere with the fishers.
5. Fishers can work together in groups of two or alone.
6. There will be a time limit (2-5 minutes depending on the size of the group).

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7. Observers should station themselves around the room.
8. Once the signal to start is given, fishers should collect fish and should observe their behaviors.
9. Once the signal to stop is given, fishers with similar problems should get together to discuss fishing results and how they achieved that result.
10. Observers should get together and tally up the observations on their sheets.
11. Groups should get together -write up a short paper and present to the class. Use the following as guidelines.

- (a) Did all the fishers fulfill their needs? If not, why?
- (b) What would have helped them to succeed?
- (c) Was this activity an example of the tragedy of the commons? Why or why not?
- (d) Did the simulation accurately portray what would happen in a fishing village?
- (e) What behaviors did the observers see?
- (f) How can rules be enforced?
- (g) If each person were fishing on their own lake (one that they owned) would the fisher behave differently? Why or why not?
- (h) What are some regulations or ways of managing this simulation that could have helped?

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Role Play Participation Stack

1. You are a fisherman that recently moved to San Carlos, and you have no family here. You sometimes help out a friend who poaches turtles. You have never heard of anyone getting caught poaching, and it pays good money. You know that you are not supposed to catch other species outside of the season, but you figure that if you do not catch them, someone else will. This same friend lent you his boat to fish this season, and you pay him 50% of the money you make. You really want to buy your own boat so that you can fish and poach without having to share the profits.

Cut along this line

2. You are a high school student and have plans to go to the university next year. You are fishing with one of your father's boats to add to the family income, but you do not want to be a fisherman. You are interested in getting your degree in fisheries management to see if maybe there is a way to keep fisheries from declining. Your father also owns a successful business in town, so there is a steady income.

3. You are a fisher who moved to San Carlos with your family three years ago. You like it here, and you especially like the fishing, but your family wants to move to Mexico City, where you could earn more money driving a truck for your wife's cousin. You like the idea of being your own boss and working out- side. You have to catch at least 20 fish to convince your family that you can support them with fishing. You could also poach lobster (an out of season species) and earn just as much money by only catching five lobsters.

4. You have been fishing in Magdalena Bay for seven years. You know that the fishing industry is not going to last much longer and you want to get out. You have plans to open up an auto repair shop, but you do not have enough money yet. If you caught 30 fish, you could get out of fishing. You know a seller who will buy undersized fish (juveniles) and pay 1/2 the price of an adult for them (i.e.,: 20 juveniles=10 adults).

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5. You are a fisher who is tired of the government telling you how you can and cannot fish. You barely make enough to pay for your expenses and don't understand why you cannot just fish for what you would like. If the government really wanted to do something about over-fishing, they would deal with the poachers and the outsiders coming in to fish your local waters; not restrict the locals from their own bay.

6. You are a fisher from San Carlos and have had a bad year so far. If you do not catch at least 30 fish today, you will need to sell one of your boats, which will decrease your profit in the upcoming season. You believe in following the regulations, but are worried that you will not be able to get enough adult male fish today.

Print Name _____ Period _____ Date _____

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Observer's Name: _____

Directions: Read through the entire list of behaviors below. Tally the times that you see the following behaviors by the fishers. Remember you must not communicate with the fishers.

How many fishers start fishing before the time started? _____

How many fishers continue to fish after the time ends? _____

How many fishers work cooperatively with other fishers? _____

How many fishers argue with other fishers? _____

How many fishers watch what others collect? _____

How many fishers look to see if they are being watched? _____

How many fishers collect green, yellow, or blue fish? _____

How many fishers tell another fisher to stop collecting green, yellow or blue? _____

How many fishers try to convince another fisher to collect green, yellow or blue? _____

What else did you see? _____

Print Name _____ Period _____ Date _____

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Write your reflections on the Tragedy of the Commons activity.

