

NAME: \_\_\_\_\_ PERIOD \_\_\_\_\_

**TITLE:** Native vs Exotic

**PURPOSE:**

To simulate the effects of introducing an exotic species into an ecosystem.

**BACKGROUND:**

In the Colorado River there were originally 14 native fish species. Now there are as many as 40 species, mostly exotic fishes. Utah biologists have estimated that 95% of the total fish population is exotic. Native fish must compete for food, shelter and space with these introduced fish. Fish eggs of many native fish are eaten by exotic species. Dams have also interfered with the reproduction of native fish.

**HYPOTHESIS:**

If exotic fish are introduced into our "river" . . .

**PROCEDURES:**

1. Each of you will represent a different kind of fish. Some of you will be native others will be exotic fish. Assign each person in the group a role.

Native Fish	Mouth Piece
Cutthroat	Knife
Sucker	Straw
Pikeminnow	Toothpick

Exotic Fish	Mouth Piece
Pike	Fork
Largemouth Bass	Tape over mouth
Catfish	Spoon

2. According to your role get the proper mouthpiece
3. For one minute all **native** fish will feed using the proper utensil in his/her mouth. **YOU MAY NOT USE YOUR HANDS TO COLLECT FOOD.**
4. Put your food into the paper cup, you may use your hands to remove the food from your mouthpiece but you may not touch the cup.
5. At the end of the round, count and record, on **DATA TABLE 1**, the amount of food you were able to eat. Put the food back on the paper for the next round.
6. The fish which collected the least amount of food dies and becomes the kind of fish that collected the most food.
7. After two rounds with only native fish, exotic fish should be introduced.
8. Feed again for three rounds, following the same procedures as above. Record your data after each round and be sure to adjust your fish population accordingly.

**DATA:**

**ROUND 1**

FISH TYPE	# OF FISH	TOTAL FOOD COLLECTED

TOTAL EATEN BY POPULATION \_\_\_\_\_

**ROUND 2**

FISH TYPE	# OF FISH	TOTAL FOOD COLLECTED

TOTAL EATEN BY POPULATION \_\_\_\_\_

**ROUND 3**

FISH TYPE	# OF FISH	TOTAL FOOD COLLECTED

TOTAL EATEN BY POPULATION \_\_\_\_\_

**ROUND 4**

FISH TYPE	# OF FISH	TOTAL FOOD COLLECTED

TOTAL EATEN BY POPULATION \_\_\_\_\_

**ROUND 5**

FISH TYPE	# OF FISH	TOTAL FOOD COLLECTED

TOTAL EATEN BY POPULATION \_\_\_\_\_

## **DATA ANALYSIS:**

1. What characteristics, or behaviors made each fish species unique from the other fish species?
2. Could all fish eat all different types of food? Why or why not?
3. If this activity is a simulation of how native fish lived before and after the arrival of exotic fish, which rounds (years) represent the “before” and which represent the “after” periods?
4. What happened to the native population after the arrival of the exotic fish?
5. How would you describe the biodiversity of your river when the simulation began? (Abundance and diversity) What was the biodiversity like afterwards?
6. Did your river have a carrying capacity (a limit to the number of fish it can hold)? Why or why not? What factors limited the amount of fish that could live in the river?
7. What do you think would happen to the river if all of the exotic fish were removed? Is this something we should consider doing in all of our rivers?

Conclusion: Please describe 2 things you learned in complete sentences.