NSU Florida

Information for Students and Parents Last Date Updated: Winter 2019

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Bycatch

Materials

- Big clear plastic container
- Rainbow colored rubber ducks
- Magnet strip
- Fishing line
- Butterfly net
- Pole (for "fishing rod")
- Smaller bucket for trap (Needs to be taller than water level in larger container)
- Water
- Super glue
- Cooler with wheels
- Large paper or whiteboard

Methods

1) Prepare the activity by cutting up the magnet strips into small squares and gluing them to the back of the rainbow rubber ducks. Then use 2 feet of fishing line to make the "fishing poles." Tie one end to the pole and the other end to a small square of magnet strip. To make the "trap" cut 2 square holes slightly larger than the size of the rubber ducks at a 90° angle near the bottom of the smaller bucket. To make the "long line" attach multiple magnet squares to a single string of fishing line. (Maybe make a few sets of these items to set up a couple of containers, so that the kids can split into groups and all have more time "fishing")
2) Fill the cooler with water for transport, then once in the room, transfer the water to the big clear plastic containers and place the rainbow colored rubber ducks in the container.
3) Using the "fishing poles" select a specific color of duck and ask the students to "go fishing" for that color duck. The chosen color of duck will be the "target species" for this

experiment. Give the students 2 minutes to collect as many ducks of that color as they can. Count and record the number of target species that were caught and the number of non-target species or “bycatch” that were caught and return the ducks to the container of water.

4) Using the same target species repeat step 3 with the other 3 fishing methods (long line, trap and trawl).

Hypothesis

Each fishing method will have different proportions of target species to bycatch so the effectiveness of each fishing method can be observed.

Observations

The students should have seen a difference in the amount of target vs non-target species caught with each different fishing method. The “fishing pole” should have the least non target species and the “longline” and the “trap” should have the most.

Scientific Principles

The worldwide fishing industry is a major contributor to the worlds protein source. There are many fishing methods used by the industry including trapping, trawling, long lining and conventional fishing using a pole and line. Each of these methods are used with the intention of catching a particular organism called the target species. Each method has different levels of how effective they are at catching the target species. When species other than the target species are caught those organisms are considered bycatch.

Bycatch is harmful to the environment because the organisms that are unintentionally caught are usually killed in the process, and even if they are released they very rarely survive. This is harmful to populations such as sea turtles and dolphins who get trapped in the nets and drown because they are unable to get to the surface to breathe. Each method has benefits and drawbacks, the drawbacks being different levels of harm to the environment and levels of bycatch and the benefits being the quantity of the target species that can be caught over the same amount of time. In general, the methods that catch the most target species also result in the most bycatch, producing a conflict of interest between fishermen and conservationists.

Further Investigations

Discuss the effectiveness of each fishing method and compare that to the amount of bycatch. Also discuss why catching organisms that are not the target organism is bad (most don’t survive if released after capture). Can also discuss options for reducing bycatch.