

Lab: Whale of a Tail

(makeup version)

Adapted from Blue Ocean Society for Marine Conservation

Objective: Identify and catalog whale flukes as a method of mark and recapture among whale populations.

Background Information: Whales are mammals. They bear live young, nurse their young, and need to come up to the surface for air. Whales are also migratory. Whales typically move towards the poles to feed in the summer and move towards the equator in the winter to breed. The order that includes whales, dolphins and porpoises is Cetacea, and there are two suborders – Mysticeti (the baleen whales) and Odontoceti (the toothed whales). Baleen whales have hundreds of baleen plates, made of keratin, which they use to filter their food from seawater. This allows large baleen whales to eat tons of prey per day without ingesting thousands of gallons of water. Toothed whales have cone-shaped or spade-shaped teeth that they use to catch one or two fish at a time. Odontocetes are often found in pods, and may feed cooperatively. The pods also have a well-defined social structure. Scientists often use the whale's tail, called a fluke, or the dorsal fin to identify individuals because of unique scar patterns and fin shape.

What We Did in Class:

Students went on a whale watching trip (in the classroom). During the voyage, students identified whales by their unique fluke patterns. After recording the first set of whales, they were then able to estimate the size of a whale superpod using the technique of mark & recapture, where the "marking" was the recording of unique flukes and the "recapturing" was subsequent identifications using the known fluke patterns.

Activity: Answer the following questions using the website <http://www.alaskahumpbacks.org/matching.html>

1. What are the three basic characteristics of a whale fluke that should be considered when analyzing a photo?
2. Compare and contrast the photos of Whale 1638 before and after 2005.
3. Identify three reasons why a whale fluke might change over time.
4. What caused changes in the fluke of Whale 1297 between 1992 and 2005?
5. As whales mature, what features of their fluke most commonly change?

Analysis:

6. How might identification of whales by their flukes be useful?
7. Provide one other way in which whales might be identified, other than their flukes.
8. Why is the identification of individual whales important?
9. How might population data be used in making decisions about protecting whale species?
10. Why are whale populations important to ocean ecosystems?