



Whale World: Baleen

What you need

- Cloth towels
- Old newspaper or paper towels
- Plastic tub (e.g., Rubbermaid container)
- 3 tablespoons of parsley or oregano or other dried herb flakes
- Plastic hair comb
- Water
- 2 cups of thick, gloppy mud
- Kitchen tongs
- One quart sized zip-lock bag

Follow the steps below to explore how different types of whales use baleen for skim feeding, gulp feeding, or bottom feeding.

Preparation

1. Cover your work space with old newspaper/paper towels, or do this activity outside if possible.
2. Place the plastic tub on the newspaper/towels, and then put 2 cups of mud into the tub.
3. Fill the tub with water and add 3 tablespoons of parsley or oregano or other dried herb flakes.
4. Keep the cloth towels nearby for easy clean-up (spills, hands, etc.).

What to do

1. To mimic skim feeding: Dip the plastic comb's teeth into the water to "catch" herb flakes. The herb flakes represent zooplankton and krill, primary food for most baleen whales.
2. To mimic gulp feeding: Use the zip-lock bag to "scoop" up water and herb flakes. Then, hold the plastic comb over the tub of water such that the comb is horizontal. Slowly pour water from the zip-lock bag over the comb and see how many herb flakes get trapped on the comb. Tap the herb flakes collected onto a paper towel and repeat until the zip-lock bag has no water left in it.
3. To mimic bottom feeding: Take the kitchen tongs & see how much mud you can grab in one try.



What is happening?

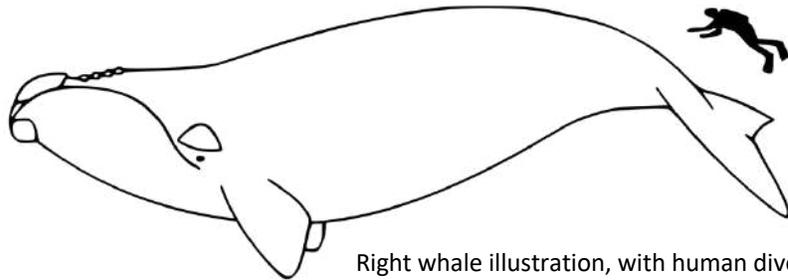
Baleen is a highly specialized filter-feeding structure consisting of keratin (the same protein that makes up fingernails and hair). This unique adaptation is found hanging in sheets within the mouths of whales called mysticetes or baleen whales. These cetaceans lack teeth; instead they take in ocean water or mud, push it back out through their baleen, and then zooplankton and krill and tiny fish get stuck in the baleen hairs/bristles as the water passes back out. This is a very different feeding mechanism than that of toothed whales (odontocetes), such as orca and sperm whales, which eat fish and squid using teeth.



Baleen whales use three major feeding strategies: skim feeding, gulp feeding, and bottom feeding –

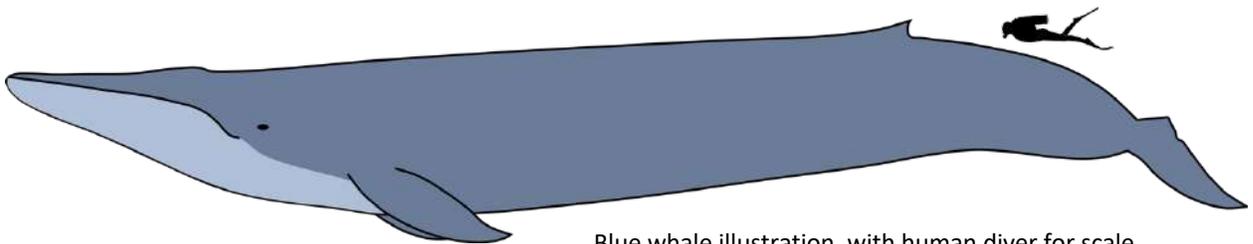


- Right whales and bowhead whales are skim feeders. To feed, they swim at a steady pace with an open mouth, filling it with water and prey. Their baleen plates then trap the zooplankton & krill.



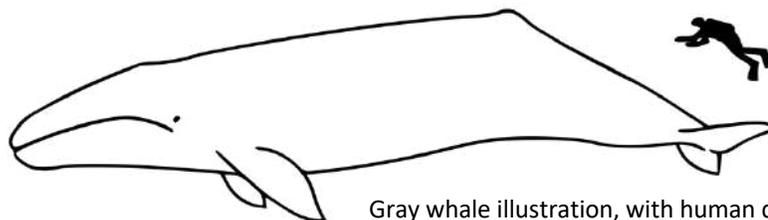
Right whale illustration, with human diver for scale.

- Blue whales and humpback whales are gulp feeders. They accelerate quickly upon a mass of zooplankton or tiny fish and take in large amounts of ocean water full of prey. Then they use their tongues and plates/sheets of baleen to trap the food.



Blue whale illustration, with human diver for scale.

- Gray whales are bottom feeders. They will often roll on their sides to grab a mouthful of mud or sand and then filter the sediment through their baleen, trapping invertebrates such as worms and amphipods & isopods (tiny shrimp-like crustaceans).



Gray whale illustration, with human diver for scale.