

MARINE MAMMALS: BALEEN WHALES

The baleen whales are the largest animals that have ever lived on earth, yet little is known about them. Due to past whaling activities, some species are severely depleted and may well disappear before we ever have a chance to learn more. Baleen whales differ from the toothed whales in several ways including: shape of the head; possessing two side-by-side blowholes; presence of baleen plates; lack of teeth; and absence of the large melon in the forehead.

Begin with the upper drawing. Note the bones of the forelimb. A single detached baleen plate is shown to the left of the upper jaw.

Baleen whales are named for the fibrous, horny *baleen plates* hanging from their *upper jaws*. These plates are entirely different from teeth and are derived, like hair, from the epidermal tissues. The individual baleen plate is about 6 mm (0.24 in) thick and consists of long, coarse, fibrous bristles held together by a horny substance. These plates are lined up at intervals along the upper jaw. The outer surface of each plate is smooth, while the fibrous bristles of the inner surface are frayed and cover the spaces between the plates. These frayed bristles make an effective filter for straining sea water. The color, shape, size, and spacing of the baleen plates and the coarseness of the bristles vary among whale species.

Color the two illustrations of the right whale. Use a dark gray for the whale's body, as this whale is nearly black in color.

The right whale (so designated by early whalers as the right whale to kill because it did not sink) has the most elaborate baleen apparatus. It has a significant arch in the upper jaw from which hang baleen plates up to 4 meters (13 ft) in length. The *lower jaw* is not similarly arched, but the large lower lips extend well above the lower jaw to enclose the baleen. The dark colored, flexible baleen plates fold backward toward the throat when the mouth is closed and spring forward when the mouth opens. The head of the right whale takes up nearly one-third the length of the animal's body.

Right whales feed on copepods and other planktonic crustaceans that accumulate in large patches or shoals on and beneath the ocean's surface. To feed, the whale swims through the plankton patch with its scooplike mouth open, forcing the water through the baleen plates and trapping the plankton on the bristles. The black right whale is found in all oceans between the Arctic and Antarctic circles, and reaches a length of 20 meters (66 ft).

Color the humpback whale illustrations. It is dark gray above, white below, and the forelimbs are white as well.

The humpback whale and its fellow great whales, or rorquals (fin, sei, blue, minke, Bryde's whales), are distinguished from other baleen whales by the presence of many long, pleated grooves in the throat region. Humpbacks are characterized by their long, knobby forelimbs, and are known for the elaborate songs that are sung each year by the males on the breeding grounds (Plate 71).

The baleen of the humpback and other rorquals is black, short, and broadly based in the roof of the mouth. These whales feed on a variety of planktonic crustaceans; some species also take fish and squid. The whale swims through the plankton patch, and its capacious mouth engulfs several tons of seawater. Its huge tongue is used as a piston to force water out over the baleen where the small crustaceans are trapped and drawn into the throat to be swallowed. Observations of feeding behavior suggest the humpback swims upward in a slow spiral while emitting air from its *blowholes*. This forms a circular curtain of bubbles which apparently startles the planktonic crustaceans. In this manner, they are driven to the circle's calm center, where they are then engulfed by the humpback lunging upward through the concentrated crustaceans with its mouth opened widely. Groups of humpbacks are known to hunt cooperatively by driving prey into a circled area and all rising together to feed.

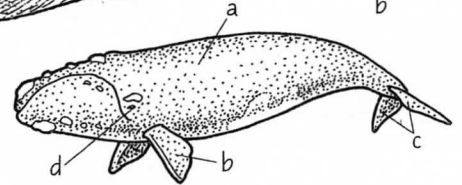
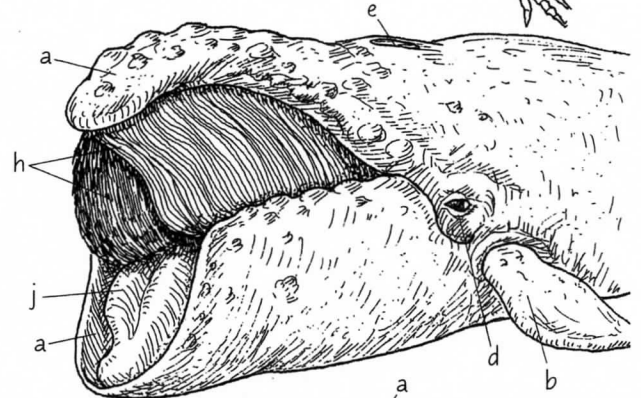
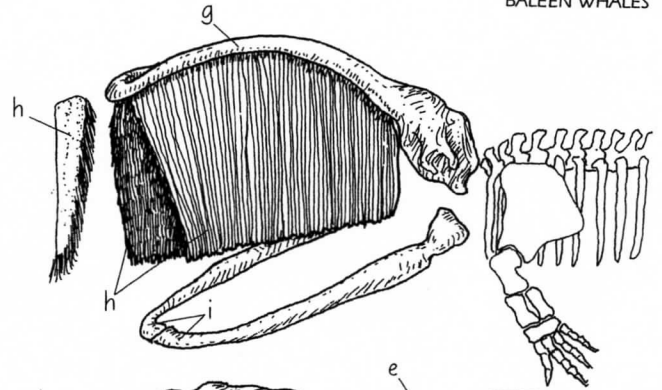
Color the gray whale illustrations. The animal is illustrated swimming on its side while feeding just above the bottom. The patchy areas on the body are barnacle encrustations and should be left white.

The gray whale is the only member of its family. Gray whales are medium-sized (15 meters, 50 ft), active whales found in the north Pacific (Plate 89). Their baleen is the shortest of all the whales, and their mode of feeding is unique. Gray whales feed primarily on benthic crustaceans, especially amphipods. They swim just off the bottom, turn on their sides, and sweep their heads back and forth; this disturbs the amphipods and causes them to rise off the bottom. Then the gray whale sucks the amphipods in under the yellowish baleen by pushing its tongue against the floor of its mouth while expanding the throat grooves to create suction. The gray whale's baleen is usually shorter on one side of its mouth, and that same side is also relatively free of the barnacles that encrust the hides of these gentle giants, suggesting that individuals consistently feed from the same side of the mouth.

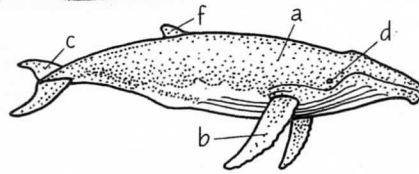
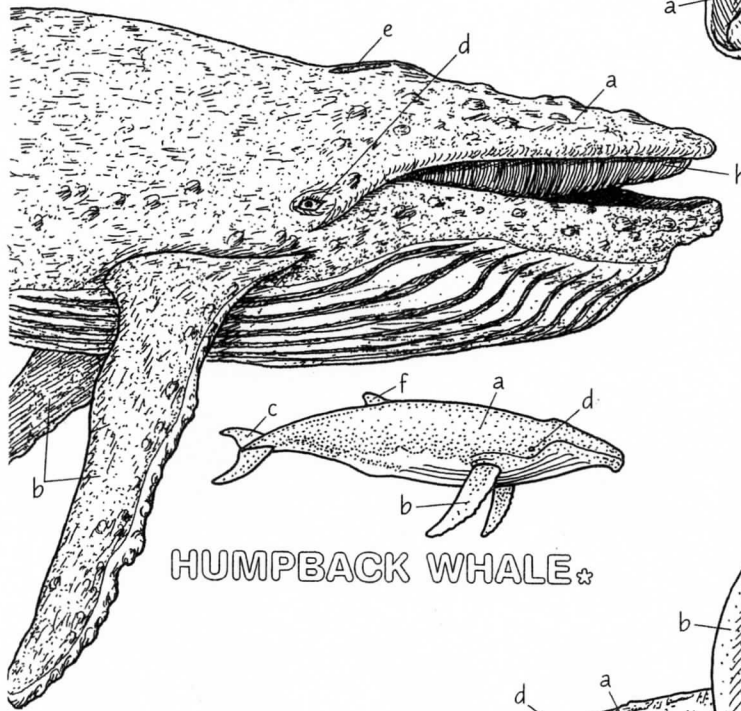
BALEEN WHALES

BODY_a
FORELIMB_b
FLUKE_c
EYE_d
BLOWHOLE_e
DORSAL FIN_f

HEAD*
UPPER JAW_g
BALEEN PLATE_h
LOWER JAW_i
TONGUE_j

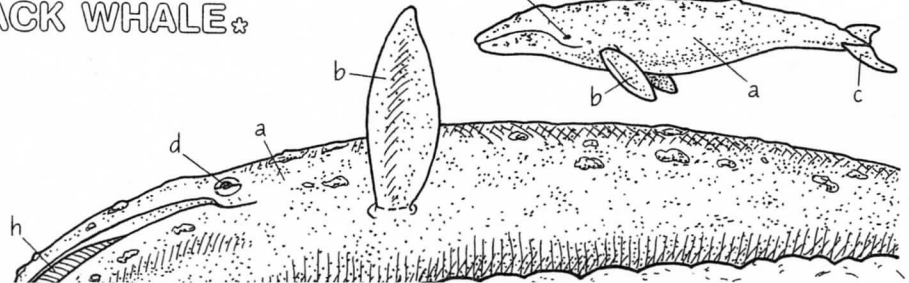
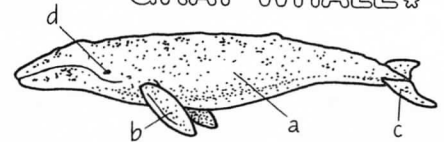


RIGHT WHALE*



HUMPBACK WHALE*

GRAY WHALE*



Name/Period/Date

Marine Mammals: Baleen Whales

1. How do baleen whales differ from toothed whales?
2. What is baleen?
3. How did right whales get their name?
4. How do whales use bubbles to feed?
5. Color!