January 2000

Gray Whales

Background Information

WHAT IS A WHALE?

Whales are aquatic mammals.
Whales share five common characteristics with other mammals. They're warm blooded (maintain a high and constant body temperature independent of the surroundings), give live birth, nurse their young, breathe air, and have hair.

Whales have hair?
As adults, whales rarely have any hair on their bodies. However, a young whale may have sparse hairs along its rostrum. A whale's smooth skin makes it sleek and fast. What does a whale's skin feel like? Some people say it feels like a wet inner-tube.

Baleen whales breathe air through two blowholes located on top of their heads.

Whales have lungs and breathe air.
Whales breathe air through nostrils called blowholes, located on top of the head. When it needs oxygen, a whale surfaces, thrusts its blowhole clear of the water, exhales (blows), and takes in a deep breath of air (inhales).

There are two groups of living whales.
There are two different kinds of whales: toothed whales and baleen whales. Baleen and toothed whales differ in a number of ways, including biology and behavior.

All whales are adapted for water.
Whales' bodies are streamlined for gliding through water. A streamlined shape produces less resistance and helps a whale conserve energy as it swims. A whale's forelimbs are called flippers. Whales use their flippers for steering, and, with the help of the flukes, for stopping. The powerful tail flukes move up and down for swimming. Some whales have a fin on their backs. This dorsal fin acts as a keel, stabilizing a whale as it swims.

This information appears in the *Gray Whales Teacher Guide*, 1998, SeaWorld, Inc.

Blankets of blubber keep whales warm.
Since whales are warm blooded, they need a way of reducing the amount of body heat lost to cooler surrounding waters. A thick layer of tissue lies just under the skin. This blubber layer insulates the whale and streamlines the body. It's also an energy reserve.

GRAY WHALE IS A BALEEN WHALE

These whales have plates of baleen.
Unlike toothed whales, such as killer whales and dolphins, gray whales and other baleen whales have no teeth. Baleen whales are sometimes called "mustached whales." This nickname refers to the series of baleen plates in gums along each side of the upper jaw. Baleen plates are somewhat triangular and arranged like teeth in a comb. The inner edge is frayed, and the fringes form a dense mat inside the mouth. Baleen is made mostly of keratin, a substance found in our fingernails and hair.

The largest eat the smallest.
Baleen whales, some of which are the largest animals to have ever lived on earth, eat some of the smallest, most abundant life in the oceans: plankton. A gray whale eats bottom-dwelling animals such as marine worms and crustaceans (primarily amphipods), which are abundant in ocean sediments.

Baleen plates work like a strainer.
Baleen whales use baleen to strain food from the water. Gray whales feed along the ocean floor. A gray whale turns on one side and sucks in water, mud, and food. When the whale doses its mouth, the water and mud are forced out through the baleen, and the food is trapped in the baleen's fringed mat. After the water is gone, the whale swallows its meal.


A gray whale's baleen is short and stiff. Its tongue helps sweep food off the baleen when feeding.

What color is a gray whale?
A gray whale's color is mottled gray and white with scarring from external parasitic barnacles and whale lice.
Gray whales generally travel in groups of two or three. They swim at speeds of about 7.2 to 8.9 kph (4.5-5.5 mph). They dive to depths of about 61 to 92m (200-300 ft.). When traveling, their dives last about 3 to 5 minutes,

How big are gray whales?
Female gray whales average 14.1 m (46 ft.) in length and may weigh nearly 32,000 kg (70,000 lb.). Male gray whales are generally smaller than females, averaging 13 m (43 ft.).

Where do gray whales live?
California gray whales inhabit the eastern North Pacific Ocean. They spend summers feeding in the icy waters of the Bering and Chukchi seas, off Alaska. As the ice pack advances in the fall, gray whales embark on one of the longest known migrations of any mammal.

Hugging the North American coastline, the whales swim south more than 9,000 kin (5,600 mi.) to Baja California, Mexico. Females give birth to their 4.9-m (16-ft.) calves in the warm, shallow lagoons of Baja California.

Saving gray whales from extinction.
During the 19th and early 20th centuries, whalers hunted grays to the brink of extinction. The western North Pacific and North Atlantic stocks were wiped out. But the eastern North Pacific population, legally protected since 1946, has recovered. These whales number about 24,000, a figure scientists believe matches or even exceeds prewhaling numbers.

In 1994 the National Marine Fisheries Service removed the eastern Pacific gray whale from the Endangered Species List

Are gray whales still in danger?
Gray whales overcame nearly a century of whaling and near extinction to fully recover. But today, the gray whale faces other threats. Its historic calving habitat in the lagoons of Baja California, Mexico are at risk. Guerrero Negro and Laguna Ojo de Liebre (Scammon's Lagoon) are feeling the impact of urban development and a large salt manufacturing facility. Bahía Magdalena is threatened by phosphate mining, resort development, and plans for a major airport. Only one lagoon—Laguna San Ignacio—remains virtually pristine. Laguna San Ignacio, 500 miles south of San Diego, California, is the winter home of California gray whales, and some 150 resident and migrant bird species. Whale watching enthusiasts flock to the lagoon for the unique opportunity to make contact with the "friendly whales," curious and gently playful gray whales. Ecotourism in the lagoon is a growing but strictly regulated industry. Since 1954, Laguna San Ignacio has been a protected sanctuary for gray whales.

Whale watchers approach a California gray whale (*Eschirichtius robustus*) in San Ignacio Lagoon.

J.J. THE ORPHANED GRAY WHALE

On January 10, 1997 a baby gray whale was discovered floundering in the surf on the shore of Marina del Rey in Southern California. The calf, a female, was alone and appeared very weak and lethargic. Whale experts from all over Southern California anxiously rushed to the scene. When a 2-mile search of surrounding waters failed to turn up the calf's mother, the experts decided to rescue the baby whale. A host of volunteers brought the calf to SeaWorld San Diego, the only facility on the Pacific coast capable of caring for a marine mammal her size.

At SeaWorld, the calf was thoroughly examined by animal care specialists. She measured 4.2 meters (13 feet, 10 inches) long and weighed 757.5 kg (1,670 pounds). By gray whale standards, she was severely malnourished and underweight. The specialists immediately began treating her with fluids, glucose, and antibiotics. They stayed with the baby through the night, but were not optimistic about her survival.

The next morning, everyone was relieved to see that the calf was showing signs of improvement. The veterinary team continued to work diligently to care for the little whale. Based on years of experience caring for stranded marine mammals, they devised a formula to meet the nutritional needs of the baby gray whale. She was fed 2 gallons of formula every 3 to 4 hours. The SeaWorld team even invented an apparatus that would enable the baby to feed herself, saving the team countless hours of rigorous tube-feeding.

The calf's recovery was quick and dramatic. After just 2 days in the care of SeaWorld specialists, the calf gained 13.6 kg (30 pounds) and was swimming around her pool on her own. After one week, she had gained more than 45.4 kg (100 pounds), growing at the incredible rate of 9 kg (20 pounds) a day. This baby was determined to survive, and it was time to give her a name. The gray whale calf was named J.J., in honor of Judi Jones, Director of Friends of the Sea Lion in Southern California. Ms. Jones, who spent 12 years caring for stranded seals and sea lions, died the week the calf was rescued.

Over the next several months J.J. continued to amaze her caregivers with her progress. She soon outgrew her shallow holding pool and was moved to a 1.7 million-gallon facility. After four months at SeaWorld she weighed 2,859 kg (6,300 pounds) and was nearly 6.4 meters (21 feet) long. The animal care team began to wean her from the formula, introducing her to squid and krill. By eight months of age, J.J. was fully weaned from the formula, and was learning to scoop up food from the bottom of her pool—a behavior to prepare her for bottom-feeding in the wild, as other gray whales do.

J.J. remained in the care of SeaWorld experts for 14 months. She grew to a massive 9.4 meters (31 feet), and tipped the scales at 8,709 kg (19,200 pounds). On March 31, 1998, J.J. was carried out to sea aboard U.S. Coast Guard ship Conifer and released. To track her progress, scientists from Hubbs-SeaWorld Research Institute had outfitted J.J. with a radio transmitter, powered by an 18-month battery pack. Researchers were able to track J.J. for just two days before the transmitter was dislodged and J.J.'s location lost.

J.J.'s stay at SeaWorld left a lasting impression on the world. She provided us with priceless new information on many aspects of gray whale biology.

While we are uncertain of her current whereabouts, J.J.'s stay at SeaWorld left a lasting impression on the world. She provided us with priceless new information about a gray whale's growth, metabolism, hearing, oxygen consumption, and other aspects of gray whale biology. But perhaps more importantly, she captured the hearts of millions. People who had never even heard of gray whales suddenly became deeply concerned for J.J. and her entire species. They were touched by the determination of this little survivor, and the dedicated professionals who refused to give up on her.