

Whales, Dolphins, Porpoises

History

Marine mammals played an important role in shaping the early history of California. By the late 18th century, English whale ships had voyaged to the waters of California in search of sperm whales. Portuguese immigrants from the Azores and Cape Verde followed in the 1840s, manning and operating the first shore-based whaling industry. Shore whaling was distinct from nineteenth century Yankee pelagic whaling, because whales were pursued from a vessel launched from a nearby coastline. Deploying rowboats from shore and using harpoons, whalers typically pursued, captured, and towed whales back to the whaling stations. At shore-based whaling stations, workers extracted oil from the whale's blubber. The lure of gold and quick prosperity brought numerous crewmen from New England's whaling industry in the late 1840s and early 1850s. After the gold rush abated, many returned to their previous occupations on whaling ships. The early shore-based whaling industry in California primarily caught gray and humpback whales, because trips by shore whalers were limited to within 10 miles of the coastline. However, whalers occasionally took the right, blue, and fin whales, more highly prized due to the greater oil content of their blubber. Until 1901, at least 15 stations operated at various locations between Crescent City and San Diego.

After more than 40 years of whaling along the California coast, whale populations and the demand for expensive whale oil declined, and subsequently the whaling industry became less profitable in the late 1800s. Nevertheless, modern whaling vessels caught some gray whales and many humpback whales in California waters after the turn of the century. Powered by engines, modern whaling vessels hunted whales more efficiently through the use of explosives, mounted cannons, and grenades. Whalers would deliver carcasses to floating processing plants where the oil was extracted. Modern catcher boats originating from shore stations also periodically took whales during this period. The last remaining whaling station in the United States, near Richmond, California, closed in 1971.

In 1931, 50 nations, including the United States, agreed upon the International Convention for the Regulation of Whaling. This agreement was the first international effort to control the decimation of the world's whale populations. The primary protection measures included full protection for right whales and, for all other species, a ban on the killing of calves, suckling whales, immature whales, and females with calves. The agreement was ineffective, however, because the major whaling nations

did not join. Several international agreements followed which attempted to improve upon this initial document. In 1946, the International Whaling Commission (IWC) was established, both to ensure the development of the whaling industry and to conserve the world's whale stocks for the interests of future generations. For many years, the IWC concentrated its efforts on maximizing the level of removal of whales rather than on whale conservation. However, in recent years, the IWC has attempted to move towards whale conservation.

In 1972, the United States Congress enacted the Marine Mammal Protection Act (MMPA), which established a complex and comprehensive federal policy of marine mammal management. The MMPA made it unlawful to take (defined as kill, capture, pursue, or harass) marine mammals in the waters of the United States and it also prohibited U. S. citizens from taking marine mammals on the high seas. Under limited circumstances, exceptions may be authorized for the taking of some marine mammals, provided that the level of removal will not cause the population to decline below sustainable levels. For instance, marine mammals may be removed for public display and scientific research, or incidental to activities such as shipping and commercial fishing.

Current Management

Since the enactment of the MMPA in 1972, the focus of concern has shifted to the incidental capture of marine mammals during commercial fishing operations. Due to the rapid expansion of several of California's coastal fisheries, there has been an increase in the incidental capture of marine mammals in recent years. Nonetheless, in California, the level of take of cetaceans is lower than it is for other marine mammals (e.g., pinnipeds). The National Marine Fisheries Service (NMFS) is currently implementing a management regime to govern the incidental taking of marine mammals in commercial fishing operations. Under this program, some marine mammal species may be incidentally taken during commercial fishing operations or during other human-caused activities so long as the level of take will allow the stock to reach and maintain its optimum sustainable population. Moreover, the California Department of Fish and Game (DFG) has developed regulations to help minimize the incidental take of marine mammals in the coastal gillnet fishery.

Due to the recovery of the gray whale population and accessibility of migrating gray whales along the California coastline, a large and diverse whalewatching industry has developed. Since the 1970s, commercial whalewatching has become an important recreational, educational, and economic activity. The 1983-1984 whalewatching season alone generated an estimated total gross income of

\$2.6 million. This estimate did not include regional economic benefits from the sale of meals, fuel, lodging, whale paraphernalia and other whale-related activities. In 1985, the commercial whalewatching industry in California was the largest in the United States, with 74 boats in operation.

The rapid growth of commercial whalewatching, and increased interest by private boaters in observing and approaching whales in the wild, have been accompanied by concerns that these activities could cause adverse biological impacts to whales. In California, NMFS adopted whalewatching guidelines that established minimum approach distances (100 yards) for vessels and aircraft, as well as additional operational guidelines for vessels. Nevertheless, each year there are numerous reports of harassment of whales by commercial whalewatching vessels and private boaters. NMFS is currently developing regulations that will provide mechanisms to enforce minimum approach distances.

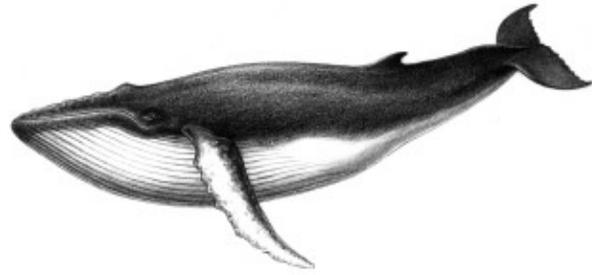
Partly as a result of the protection and management achieved from regulatory measures, and partly because of increased public awareness and appreciation of marine mammals, some populations have rebounded since the years of commercial exploitation. Marine mammals that inhabit the coastal waters of California now represent resources that enhance both the wealth and recreational benefits of the state. For many people, a commercial whalewatching cruise is their first contact with the marine environment. Thus, the value of observing marine mammals in the wild not only increases public awareness of these animals but also contributes to increased public appreciation of the diversity and abundance of other living marine resources.

The waters of California provide essential habitat to a large variety and abundance of whales, dolphins, porpoises, and other marine mammals. These animals play an important role in maintaining the balance of marine ecosystems. Consequently, protecting California's marine mammals is an integral part of the conservation of all living marine resources in California.

Status of Biological Knowledge and Populations

Humpback Whale

Humpback whales (*Megaptera novaeangliae*) are distinguished by their exceptionally long flippers up to 1/3 of body length, and robust body that may reach a length of over 45 feet and weigh up to 37.5 tons. There appear to be two distinct populations of humpback whales in the North Pacific. The Alaska feeding population migrates



Humpback Whale, *Megaptera novaeangliae*
Credit: Phil Schuyler

to its breeding grounds in Hawaii and offshore islands in Mexico. The California, Oregon, and Washington feeding populations migrate to coastal Mexico and Central America to breed. During their seasonal migrations, humpback whales may frequently be seen along the California coast from April through November. Some individuals appear to remain in California year-round. In the Gulf of the Farallones, humpbacks may be observed feeding during May and November. Off southern California, humpbacks often migrate along submarine ridges (e.g., Santa Rosa-Cortez Ridge) and occasionally enter the coastal waters of the San Pedro and Santa Barbara Channels. They obtain their food by straining krill (small shrimp-like crustaceans) and schools of small fish with their baleen. Humpback whales are well known for their complex songs, thought to be used in courtship or competition between males, and their leaping out of the water, or breaching behavior. The songs on their breeding grounds can last up to several hours.

Near the turn of the century, an estimated 15,000 humpback whales inhabited the North Pacific Ocean. Commercial whaling reduced this population to dangerously low levels, and in 1966 the IWC established a moratorium on harvesting them. With this protection, the population has recovered to a size of 8,000 individuals. The California feeding population is thought to consist of about 1,000 animals. The California population appears to be growing at about eight percent per year. The humpback whale has been listed as an endangered species under the United States Endangered Species Act (ESA) since 1970.

Blue Whale

Blue whales (*Balaenoptera musculus*) are the largest animals in the world, sometimes attaining a size of over 90 feet. An individual blue whale may consume up to eight tons of krill in a single day. The majority of the eastern North Pacific population spends the summer on feeding grounds between central California, the Gulf of Alaska and the Aleutian Islands. Like all baleen whales, the blue whale seasonally migrates to lower latitudes in the winter to calve and breed. Migratory routes generally follow the



Blue Whale, *Balaenoptera musculus*
Credit: Phil Schuyler

continental shelf and slope, but blue whales are occasionally found in deep oceanic zones and shallow inshore areas. Blue whales are usually seen off the California coast traveling alone or in pairs, from May to January, although they have been observed in every month of the year. They frequently may be seen feeding in the Farallon Islands between July and October and occasionally are sighted in Monterey Bay and over deep coastal submarine canyons off central and southern California. Historically, the North Pacific population may have been comprised of over 5,000 individuals before its severe depletion by modern whaling operations. An estimated 1,700 to 1,900 blue whales currently inhabit the eastern North Pacific Ocean. It is estimated that the California feeding population is comprised of at least 1,700 whales. No information exists on the rate of growth of blue whale populations in the Pacific. The blue whale has been listed as an endangered species under the ESA since 1970.

Fin Whale

The fin whale (*Balaenoptera physalus*) is a common, large cetacean occurring off the California coast. Fin whales can reach a size of up to 87 feet and weigh up to 76 tons. These whales may be distinguished by the white coloration of their lower right lip and V-shaped head. They are distributed throughout the world's oceans, but



Fin Whale, *Balaenoptera physalus*
Credit: Phil Schuyler

little is known of their seasonal movements in the North Pacific. The North Pacific population reportedly winters between central California southward to 20° N latitude and summers from Baja California to the Chukchi Sea north of the Bering Strait. Fin whales have been observed in every

month of the year in California. Approximately 1,000 fin whales are estimated to be off California. There is some indication that fin whales have increased in abundance in California coastal waters. This species uses its baleen to filter krill, capelin, sand lance, squid, herring, and lantern fish from the water. They have been listed as an endangered species under the ESA since 1970.

Minke Whale

Minke whales (*Balaenoptera acutorostrata*) inhabit both the high seas and nearshore waters where they are known to enter bays, inlets, and estuaries. This species is the smallest of the baleen whales in California waters, attaining a size of up to 32 feet, and is distinguished by a transverse white band on its flippers and its relatively tall and falcate (hooked) dorsal fin. In the summer months, minke whales feed on krill, copepods, sand lance, and herring in the Bering Sea and Arctic Ocean. During the

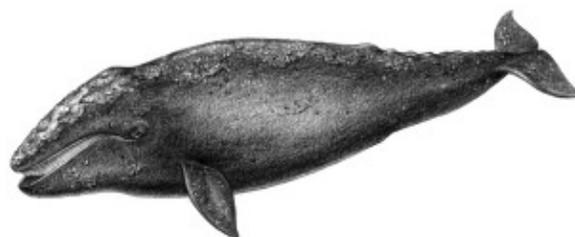


Minke Whale, *Balaenoptera acutorostrata*
Credit: Phil Schuyler

winter months, they migrate south along the North America coastline to Mexico. There are some year-round residents off California. An estimated 400 minke whales live off California. Minke whales are occasionally seen from whalewatching and sport fishing vessels and from shore in California.

Gray Whale

Gray whales (*Eschrichtius robustus*) are distinguished by their mottled gray body, narrow head and absence of a dorsal fin. They can reach a length of over 45 feet. The gray whale undergoes one of the longest migrations in the animal kingdom. Perhaps the best known of the great



Gray Whale, *Eschrichtius robustus*
Credit: Phil Schuyler

whales off California, the eastern North Pacific gray whale migrates from its feeding grounds in the Bering Sea and Arctic Ocean to its calving and breeding areas in the subtropical lagoons along the west coast of Baja California. This population generally migrates along the coastline, often within a few miles of shore. The gray whale migration can be observed from several locations in California such as Point Loma, Point Vicente, Point Sur, and Point Reyes. They begin to enter California waters in late November and December on their southward migration. In mid-February, gray whales begin their return migration north, passing through southern California waters until late May or early June. Some immature whales reportedly remain in kelp beds to feed over the winter months off California. The northbound cow/calf migration usually occurs during April through June. Gray whales use their baleen to sift out crustaceans, molluscs, and other invertebrates, which they suck up from bottom sediments. The most recent population estimate is approximately 23,000 animals. In 1994, the gray whale became the first marine mammal species to be removed from the List of Endangered and Threatened Wildlife. The number of gray whales is above its unexploited stock size prior to whaling and is increasing at a rate of 2.5 to 3.2 percent per year.

Sperm Whale

Unlike the other great whales, the sperm whale does not feed with baleen, but is a toothed whale. It is the largest of the toothed whales with males reaching a length of



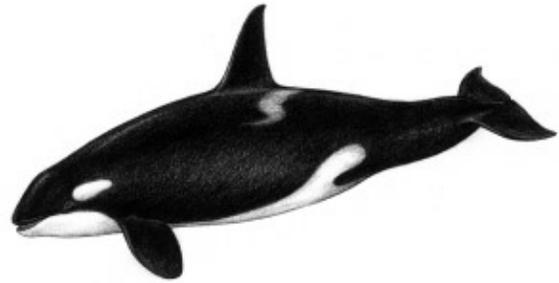
Sperm Whale, *Physeter catodon*
Credit: Phil Schuyler

60 feet and females 40 feet. Sperm whales are noted for their ability to make deep dives, which can last up to an hour and a half and can be as deep as two miles below the surface. They feed mainly on squid, including the giant squid. Sperm whales are widely distributed across the entire North Pacific and are found year-round in California waters. They reach peak abundance from April through mid-June and from the end of August through mid-November. Sperm whale abundance appears to be fairly stable with approximately 1,000 to 1,200 sperm whales estimated to be off the coast of California. The

sperm whale has been listed as an endangered species under the ESA since 1970.

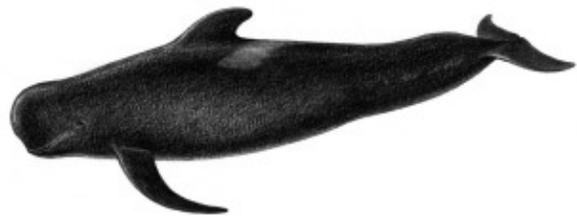
Killer Whale

Killer whales (*Orcinus orca*), actually the largest of the dolphins, are year-round residents in California. They have been seen entering kelp beds, bays, or inlets, but are more common offshore. The killer whale is widely known due to its popularity in oceanaria. It is recognized by its striking black and white color pattern and erect dorsal fin, which can be up to six feet tall in adult males. This spe-



Killer Whale, *Orcinus orca*
Credit: Phil Schuyler

cies may reach a length of nearly 30 feet. Killer whales are top predators in the ocean, using their sharp conical teeth for grasping and tearing prey. They have been observed attacking the largest animal on Earth, the blue whale, and there is one documented kill of a white shark by a killer whale. Killer whales were so named for their habit of attacking seals and whales; however, fish are the most important component of their diet. Small groups of sometimes-related individuals (pods) often hunt in a coordinated and cooperative manner. Some killer whale pods have strong social bonds, remaining in pods of five to 30 individuals for decades. There are 600 to 800 killer whales along the coast of California, Oregon and Washington. No information is available regarding trends in abundance of eastern North Pacific offshore killer whales.



Shortfinned Pilot Whale, *Globicephala macrorhynchus*
Credit: Phil Schuyler

Shortfinned Pilot Whale

The shortfinned pilot whale (*Globicephala macrorhynchus*) can reach a size in excess of 17 feet, and is distinguished by its bulbous forehead and broad based slightly falcate dorsal fin. In California, these whales are commonly found south of Point Conception, but there have been sightings as far north as the Gulf of the Farallones off San Francisco. Following movements of local squid populations, shortfinned pilot whales may move seasonally nearshore in the winter and offshore during other times of the year. Before the El Niño event in 1982 and 1983, the number of shortfinned pilot whales was near 2,000 during peak periods off southern California. However their numbers declined during that El Niño, presumably due to emigration, and the population has not returned to its previous level. One hypothesis for the population's failure to rebound is that it was competitively excluded by the Risso's dolphin population in California. Currently, the population size is estimated to be between 700 to 1,000 individuals present in the nearshore waters of California. This species was the first "whale" displayed in captivity and is still seen occasionally in oceanaria around the world.

Common Dolphin

There are two different species of common dolphin in California waters. One is called the short-beaked common dolphin (*Delphinus delphis*) and the other is called the long-beaked common dolphin (*Delphinus capensis*). The long-beaked has a relatively longer beak and more muted coloration. It occurs from offshore southern California waters south to Islas Tres Marias and along the entire coast in the Gulf of California. The short-beaked has a relatively shorter beak, more contrasting coloration, and is more common offshore from Isla Cedros north.



Common Dolphin, *Delphinus delphis*
Credit: Phil Schuyler

The common dolphin is the most abundant cetacean in California. Common dolphins can reach nearly eight feet in length and can be distinguished by the unique hourglass coloration on their sides which appears as a V-shaped black or dark gray saddle when they are observed at sea. Among the most gregarious of cetaceans, common dol-

phins often form groups of over 100 animals, sometimes numbering in the thousands. Population surveys estimate that over 350,000 common dolphins inhabit the waters off southern California between summer and autumn. Common dolphins frequently engage in bow-riding and aerial acrobatics.

Bottlenose Dolphin

Bottlenose dolphins (*Tursiops truncatus*) are readily recognizable by the public due to their antics on television, their performances in oceanaria, and because the coastal form is occasionally seen surfing in the waves along populated southern California beaches. This species may reach a size of over 12 feet and is distinguished by its gray coloration, lightly colored belly, and moderately tall and falcate



Bottlenose Dolphin, *Tursiops truncatus*
Credit: Phil Schuyler

dorsal fin. South of Point Conception, bottlenose dolphins are common, whereas few animals are encountered further north. In California, both coastal and offshore forms are found. The coastal form inhabits shallow water just beyond the surf zone, and is known to frequent bays and estuaries. Groups of 10 to 25 animals may travel together and make regular migrations along the coastline. There are reportedly seasonal shifts in their distribution northward to San Francisco County. It is estimated that the coastal form is comprised of approximately 160 animals. The population estimate for the offshore form is about 3,000 animals. This species often rides the bow wave of vessels, and swims in the wake of large whales.

Risso's Dolphin

Risso's dolphins (*Grampus griseus*) are known to reach a size of over 13 feet, usually have extensive scarring over their white to light-gray colored body, and lack a beak. The population is estimated to be about 29,000 Risso's dolphins residing off California. Since El Niño (1982-1983), their numbers are believed to have increased. Risso's dolphins normally appear in pods of 25 to 50 individuals and do not usually bow ride but will perform some acrobatics such as spy hopping and breaching. They are distributed widely, frequently being found in deep water areas with warm temperate to tropical water conditions. Risso's dol-



Risso's Dolphin, *Grampus griseus*
Credit: Phil Schuyler

phins are occasionally observed in central and northern California waters.

Northern Right-Whale Dolphin

Northern right-whale dolphins (*Lissodelphis borealis*) have no dorsal fin and have a very slim and graceful black body that may attain a length of 10 feet. They appear to prefer offshore, cold temperate waters and only occur inshore over deep submarine canyons. The northern right-whale dolphin is commonly found in the waters off central and northern California, although they also appear in winter

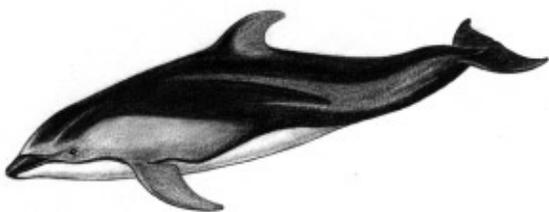


Northern Right-Whale Dolphin, *Lissodelphis borealis*
Credit: Phil Schuyler

and spring off southern California. There appears to be some seasonal north-south shift in their distribution as a result of water temperature changes and prey availability. Recent surveys indicate there are between 14,000 and 20,000 northern right-whale dolphins in California waters. This gregarious species sometimes occurs in large herds of up to several thousand and is noted for its fleetness. Northern right-whale dolphins rarely approach vessels.

Pacific white-sided dolphin

The Pacific white-sided dolphin (*Lagenorhynchus obliquidens*) has a short, thick beak, a falcate dorsal fin and

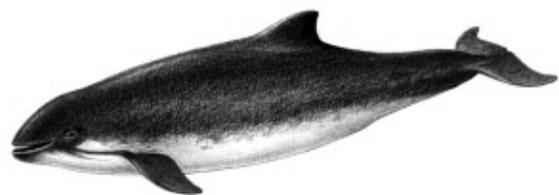


Pacific White-Sided Dolphin, *Lagenorhynchus obliquidens*
Credit: Phil Schuyler

may reach a size of at least seven feet. The species is thought to be the second most abundant dolphin off southern California, and the most common off northern California. The Pacific white-sided dolphin is seen year-round, frequenting the continental shelf and slope waters, sometimes appearing in Monterey Bay. They may occur in herds of over a few thousand individuals, but groups of several hundred are more common. Recent surveys indicate population sizes of 110,000 animals in California waters. This species is known for its acrobatic behavior and bow riding abilities. Pacific white-sided dolphins are occasionally displayed in oceanaria.

Harbor Porpoise

The harbor porpoise (*Phocoena phocoena*) is the smallest cetacean found in California waters, rarely reaching a length of over six feet. It may be distinguished by its lack of a beak and its triangular dorsal fin. Harbor porpoises frequent the cooler waters of central and northern California, seldom straying south of Point Conception. Locally abundant concentrations exist between Cape Mendocino and Point Reyes, and in Monterey Bay. They are not known to migrate extensively, but may move between inshore and offshore areas. The harbor porpoise occurs primarily in relatively shallow nearshore water and, thus, is vulnerable to human activities such as the coastal gillnet fishery in California. In response to the general increase in gillnetting, DFG has implemented several management mecha-



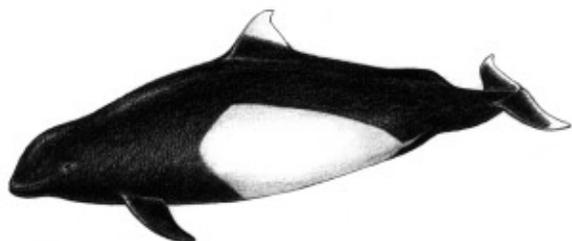
Harbor Porpoise, *Phocoena phocoena*
Credit: Phil Schuyler

nisms to reduce the incidental take of harbor porpoises. This species never approaches vessels or bow rides. The harbor porpoise population off California may consist of over 11,000 individuals.

Dall's Porpoise

The Dall's porpoise (*Phocoenoides dalli*) has a stocky shape, and the striking white pattern on its belly, flank, and tips of dorsal fin and tail, contrasts with its generally black body. This species may attain a size of over seven feet. The Dall's porpoise inhabits the cooler waters of the continental shelf in central and northern California, and also frequents a variety of other areas including near-

shore deep-water canyons and the open sea. The Dall's porpoise can be found off northern California in autumn and winter, however individuals can also be found in southern California at this time. There appear to be near-shore-offshore shifts in their distribution whereby they remain inshore in autumn and move northward and off-



Dall's Porpoise, *Phocoenoides dalli*
Credit: Phil Schuyler

shore in the late spring. Dall's porpoises travel in small groups of 10 to 20 individuals and are known to bow ride often creating a rooster tail wake when traveling at high speeds. Recent surveys indicate populations of between 82,000 to 118,000 individuals inhabit the eastern North Pacific.

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