

Photo by K.C. Balcomb

## The Blue Whales of the Southeastern North Pacific Ocean

Among the great whales, the rorquals, which include the blue, fin, sei, minke, and humpback whales, are noted for their long annual migrations. In general, most rorqual populations spend the summer in the cool, highly productive waters at high latitudes or in cool eastern boundary currents, where they feed heavily. From there they migrate south to their winter grounds in warm, temperate or tropical waters, where they fast for several months. When biologist Allen Wolman of the National Marine Mammal Laboratory and I began to study the populations of the great whales in the eastern North Pacific Ocean in the late 1950s and the 1960s, we found that the fin, sei, and humpback whales followed this annual cycle but that blue whales did not. As a result, one of our main research objectives has been to determine the migratory

patterns of the blue whales of the Southeastern North Pacific Ocean.

The whalers of the 19th century were aware of the presence of blue whales off the coasts of California and Baja California, Mexico, but they almost never attempted to attack such huge, powerful animals with their hand harpoons. One exception was Charles Scammon, an American whaling captain known for discovering the calving lagoons of the gray whales along the coast of Baja California. In his classic volume *The Marine Mammals of the Northwestern Coast of North America* (1874), Scammon described how he encountered

large numbers of blue whales off Isla Cedros, Mexico, in July 1858, and managed to kill several of them with a darting-gun and bomb lance (such as the Alaskan Eskimos still use to take bowhead whales). Shortly thereafter, Captain Thomas Roys, of arctic whaling fame, invented the whaling rocket. In the summer of 1878, two entrepreneurs, J. N. Fletcher and R. L. Suits, made improvements on Roys' weapon and succeeded in killing 35 whales off San Francisco; their catch included blue whales as well as humpback and fin whales.

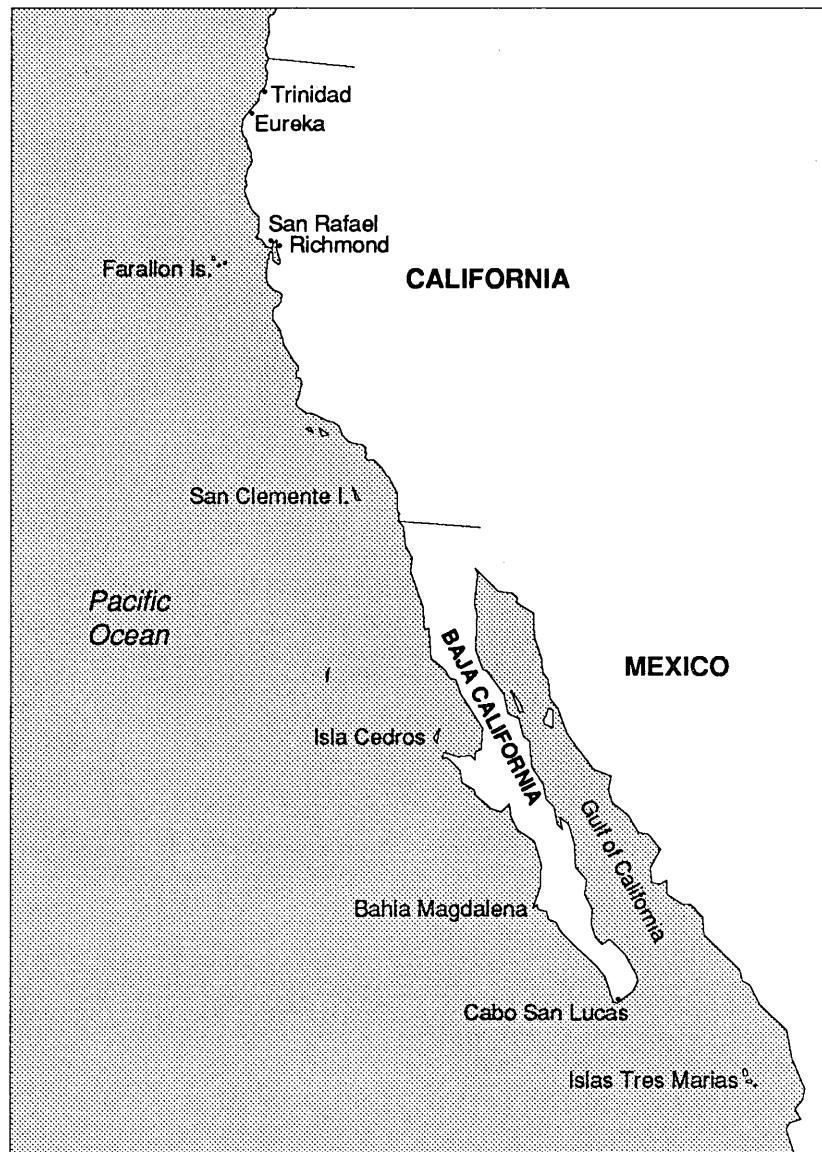
After the harpoon cannon was invented by the Norwegian Sven Foyn, the blue whale, because of its size, became the preferred target of the whaling industry worldwide. The rapidly expanding industry reached Baja California in the winter of 1913-14, when the Norwegian factory ship *Capella I*,

operating out of Bahia Magdalena, Mexico, took 83 blue whales. Captain Andreas Ingebrigtsen published an account of how he found the blues migrating south at the end of October, and passing again going north from April to June.

The first modern shore whaling stations in California were opened at Moss Landing in 1918, and at Trinidad in 1920. Both operated until 1926. Only three blue whales were taken by these stations.

Norwegian whalers returned to Baja California in a big way during the winter seasons of 1924-25 to 1928-29 with the floating factory ships *Kommandoren I*, *Mexico*, and *Esperanza*; one American vessel, the *Lansing*, operated there in 1928-29. These ships operated from protected anchorages, like mobile shore stations rather than the huge pelagic factory ships of later years. Again, they operated mostly out of Bahia Magdalena but also worked as far south as the Islas Tres Marias and north into the Gulf of California. They killed 942 blue whales during the five seasons. The *Esperanza* returned early in 1935 and killed 47 more blue whales from Bahia Magdalena north to San Clemente Island. The companies' daily records show that these whalers found few blue whales in October and almost none from November to January; the vast majority were killed from February to early July, with a peak in May.

From 1927 to 1930, the *Lansing* operated mainly off southern California and killed 295 blue whales in 3 years (no data are available for 1930). From 1932 to 1937, another American factory ship *California* was whaling between San Diego and Point Reyes, California. Although this ship doubtless took some blue whales, no breakdown by species is available except for 1937, when eight blues were killed.



Map shows the area where southeastern North Pacific blue whales range.

No blue whales were taken by a shore whaling station that operated at McNears Point near San Rafael, California, in 1939 nor by another that operated at Fields Landing, near Eureka, from 1940 to 1944, 1947 to 1949, and in 1951.

The Del Monte Fishing Company opened a whaling station at Point San Pablo, Richmond, California, in 1956, and the Golden Gate Fishing Company opened another one virtually next door in 1958. From 1959 to 1970, Wolman

and I conducted biological research on whales landed at these stations. Twenty-six blue whales were landed in 1958, and an additional 22 from 1959 to 1965, after which the capture of blue whales was proscribed by the International Whaling Commission. A few of these blues were taken as early as May, but most were killed in September and October. From 1966 to 1970, the catcher-boat captains kept records for us of their sightings of protected spe-

cies of whales. They spotted blue whales every year and in 1970 reported 195 sightings (some doubtless repeat sightings of the same animals). From 1980 to 1983, cetologist Tom Dohl and his colleagues at the University of California, Santa Cruz, conducted regular aerial surveys of cetaceans off central California between Point Conception and Cape Mendocino; they saw many blue whales and found the same pattern of seasonal distribution that we had noted in the 1960s.

Beginning in 1962, I conducted many whale marking cruises during the winter and spring months off the west coast of Mexico. I was happily surprised to find that a goodly number of blue whales still ranged all along the west coast of Baja California, mainly from March through June, and also in the southern Gulf of California from January to March. Another link in the blue whale's migration pattern appeared in March 1975 during a marking cruise aboard the Soviet whaler *Vnushitelnyi* when Russian biologists and I discovered blue whales in the eastern tropical Pacific at lat. 9°N, long. 94°W. About the same time, porpoise observers aboard tuna fishing vessels also sighted blue whales in the same general area.

At one time I thought that the blue whales off California and Baja California were the same animals that spent the late summer in the Gulf of Alaska. As more data accumulated, this hypothesis became untenable, and I am now convinced that these California blues constitute a discrete local population that ranges seasonally between central California and the Cabo San Lucas region of Mexico. This idea is supported by the abundance of certain warm-water epizootics on the California blue whales: the suckerfish *Remora australis*, the barnacle *Xenobalanus globicipitis*, and the copepods *Pennella balaenopterae* and *Balaenophilus unisetis*. In contrast, I have rarely found these creatures on fin or sei whales taken off California, and our marking program revealed that these two species of whales migrate as far as the Gulf of Alaska. Wolman and I are currently analyzing all of our catch and sighting data in an attempt to draw a coherent picture of the migrations of southeastern North Pacific blue whales. This is difficult because the whales are nomadic and follow krill pastures, causing their travel routes and schedules to vary from year to year. Off central California,

we found that the whales feed solely on euphausiids—usually *Euphausia pacifica* but sometimes the more coastal *Thysanoessa spinifera*—whereas off Baja their main food source appears to be both the pelagic "red crab" *Pleuroncodes planipes*, which occurs periodically in immense swarms at the surface, and the euphausiid *Nyctiphanes simplex*.

Photo-identification studies of blue whales were conducted around the Farallon Islands, California, by the Cascadia Research Collective, Olympia, Washington, from 1986 to 1988, under contract to NOAA, and also in the Gulf of California off Loreto by the Mingan Island Cetacean Study, St. Lambert, Quebec, from 1982 to 1985, working independently. These research groups report that they have identified some of the same whales in both geographical areas. Besides revealing the movements of individual whales, studies like these may eventually permit an estimate of the size of the southeastern North Pacific blue whale population—perhaps one of only a few remaining viable populations of the earth's greatest animal.

This article was written by DALE W. RICE of the National Marine Mammal Laboratory.

