

**Sperm Whale**

*(Physeter macrocephalus)*

**State Status:** Endangered, 1981

**Federal Status:** Endangered, 1970

**Recovery Plans:** Federal, 2010

**Humpback Whale**

*(Megaptera novaeangliae)*

**State Status:** Endangered, 1981

**Federal Status:** Endangered, 1970

**Recovery Plans:** Federal, 1991

**Blue Whale**

*(Balaenoptera musculus)*

**State Status:** Endangered, 1981

**Federal Status:** Endangered, 1970

**Recovery Plans:** Federal, 1998

**Fin Whale**

*(Balaenoptera physalus)*

**State Status:** Endangered, 1981

**Federal Status:** Endangered, 1970

**Recovery Plans:** Federal, 2010

**Sei Whale**

*(Balaenoptera borealis)*

**State Status:** Endangered, 1981

**Federal Status:** Endangered, 1970

**Recovery Plans:** Federal, 2011

**North Pacific Right Whale**

*(Eubalaena japonica)*

**State Status:** Endangered, 1981

**Federal Status:** Endangered, 1970

**Recovery Plans:** None



Figures 1-4. From top: sperm whale (by Arun Madisetti); humpback whale (by Robert Pitman); humpback whale (by Michael Richlen, NOAA Fisheries Service); fin whale (by Michael Richlen, NOAA Fisheries).

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Populations of large whales were decimated by large-scale commercial whaling during the 19<sup>th</sup> and 20<sup>th</sup> centuries worldwide, including in the eastern North Pacific. The American Pacific Whaling Company operated a whaling station at Bay City, Washington, from 1911-1925, and six stations operated in British Columbia, with the last closing in 1967 (Table 1). Despite the end of most hunting by 1980, many populations have not yet recovered and are still considered depleted. All large whales off the U.S west coast are protected by the U.S. Marine Mammal Protection Act. Increasing levels of anthropogenic sound in the world's oceans is a concern for whales, particularly for deep-diving species like sperm whales. Drift gillnet fisheries and ship strikes are other sources of mortality that are very likely underestimated in their frequency (Douglas et al. 2008).

Table 1. Number of whales processed historically at whaling stations in Bay City, Washington, and in British Columbia.

Species	Number whales processed	
	Washington <sup>a</sup> (1911-1925)	British Columbia <sup>b</sup> (1908 -1967)
Humpback whale	1,933	5,638
Fin whale	602	7,605
Sperm whale	120	6,158
Sei whale	21	4,002
Blue whale	13	1,398
Beaked whale spp.	8	41
North Pacific right whale	-	8
<b>Total</b>	<b>2,698</b>	<b>24,850</b>

<sup>a</sup>Scheffer and Slipp (1948)

<sup>b</sup>Gregg et al. (2000)

**Sperm whale.** Sperm whales in Washington belong to the California/Oregon/Washington stock. Numbers in this stock are estimated at 971 whales based on ship surveys conducted in 2005 and 2008 (Carretta et al. 2013). Estimates of stock size are variable among years, with this most recent estimate being lower than in the previous survey (1,233 whales for 1996 and 2001, combined; Carretta et al. 2013). However, survey data are inadequate for concluding that there has been a decline in the population. Mortality associated with drift gillnet fisheries and ship strikes appears to be low for this stock. Sperm whales are present in deeper waters off Washington in all seasons except winter (December-February) (Green et al. 1992).

**Humpback whale.** Population estimates for the entire North Pacific increased substantially from 1,200 whales in 1966 to about 18,000-20,000 whales by 2004-2006 (Calambokidis et al. 2008). Humpback whales feeding along the U.S. west coast comprise the California/Oregon/Washington stock. There is some mixing of individuals from this stock and a southern British Columbia stock in the waters off northern Washington, suggesting the presence of a third stock located in this specific area (Calambokidis et al. 2008, Carretta et al. 2013). The California/Oregon/Washington stock has a long-term growth rate of about 7.5% per year and was estimated to number at least 2,043 whales in 2007-2008 (Calambokidis 2009, Calambokidis et al. 2009). This stock mainly winters in coastal areas off Mexico and Central America (Calambokidis et al. 2000). During 2004-2008, 16 humpback whales (14 seriously injured, 2 killed) were recorded entangled in fishing gear and two others were killed by ship strikes in California, Oregon, and Washington (Carretta et al. 2013).

Most humpback whales occur off Washington from July to September (Green et al. 1992). Summer surveys during 1995-2002 found humpbacks to be the most common large whale off northern

Washington, with numbers increasing from about 100 to 200 whales during the study (Calambokidis et al. 2004). These estimates remain much lower than the historical population size before whaling.

Humpback whales were common in the inner marine waters of Washington and British Columbia until the early 1900s, but were decimated by hunting and they remain rare visitors (Scheffer and Slipp 1948, Calambokidis and Steiger 1990). Notably, in 2012, a humpback was present in Hood Canal from late January through much of February (Orca Network, unpubl. data).

**Blue whale.** The Eastern North Pacific stock of blue whales includes animals found from the Gulf of Alaska to the eastern tropical Pacific. Waters off California are one of the most important feeding areas in summer and fall. Most of this stock is believed to migrate south to spend the winter and spring in high productivity areas off Baja California, in the Gulf of California, and off Costa Rica and Nicaragua. The best estimate of stock size is 2,497 whales during 2005-2008 (Carretta et al. 2013), with the current population trend unknown. Mortality associated with ship strikes has been relatively high off California in recent years, but no recent deaths from drift gillnet fisheries have been reported (Carretta et al. 2013). Blue whales are rarely sighted off the Washington coast, with just three reports in the last 50 years, including six seen on December 8, 2011 (Cascadia Research Collective, unpublished data). Four of these individuals were previously recorded off California. This species does not enter the state's inner waters.

**Fin whale.** Fin whales in Washington are part of the California/Oregon/Washington stock. Sightings and acoustic detections indicate this species is present off Oregon and Washington for most of the year (Douglas et al. 2008). The best estimate of stock size is 3,044 whales during 2005-2008, with the current population trend possibly increasing or stable (Carretta et al. 2013). Although fin whales appear more vulnerable to ship strikes along the U.S. west coast than other large whale species (Douglas et al. 2008), mortality and injury from ship strikes are considered relatively low for the stock (Carretta et al. 2013). Vessel collisions have been implicated in the deaths of at least seven fin whales found in Washington's waters since 2002 (Cascadia Research Collective, unpublished data). Many of these strikes probably took place outside of Washington. No recent deaths from drift gillnet fisheries have been reported for the stock (Carretta et al. 2013). Other potential threats to fin whale populations include noise from vessels, oil and gas activities, and military sonar and explosives; loss of prey resources due to climate and ecosystem change; and competition for prey with human fisheries (NMFS 2010). Sightings of fin whales in the state's inner marine waters are very rare.

**Sei whale.** Sei whales in Washington are part of the Eastern North Pacific stock, which extends west to longitude 180°. No population estimates or trend data exist for the stock (Carretta et al. 2013). Sei whales occur over deep waters and rarely appear off the U.S. west coast. Only nine confirmed sightings of sei whales were made in California, Oregon, and Washington waters during extensive ship and aerial surveys between 1989-2008 (Green et al. 1992, Carretta et al. 2013). The best estimate of abundance for California, Oregon, and Washington waters out to 300 nautical miles during 2005-2008 is 126 (CV=0.53) whales (Barlow and Forney 2007, Forney 2007, Barlow 2010). Reported losses to gillnetting and ship strikes are low along the U.S. west coast, but are likely underreported. One ship strike death was reported in Washington in 2003. Other potential threats to sei whale populations include noise from vessels, oil and gas activities, and military sonar and explosives; and loss of prey resources associated with climate and ecosystem change (NMFS 2011).

**North Pacific right whale.** This species may be the most endangered large whale in the world (Allen and Angliss 2013). Historical whaling records indicate that it once ranged across the entire North Pacific north of 35°N and occasionally as far south as 20°N (Allen and Angliss 2013). Nearly all records of whales in the eastern North Pacific stock (which includes Washington) are now restricted to Alaskan waters, especially in the Bering Sea and adjacent areas of the Aleutian Islands (Brownell et al. 2001, Allen and Angliss 2013). Current stock size and trend are not known, but the population is very small

(Allen and Angliss 2013). There are no records of fisheries or ship strike mortalities of whales in this stock, although ship strikes are an important cause of death for North Atlantic right whales (*E. glacialis*). The last sighting of a North Pacific right whale off Washington was in 1992 (Rowlett et al. 1994). A group of 2-3 individuals was observed off Three Arch Rocks in northern Oregon in 1994 (S. Reimer, pers. comm.).



Figure 5. North Pacific right whale (by John Durban, NOAA).

### **Monitoring and research.**

Survey efforts for each of these listed species are ongoing and are conducted by NOAA Fisheries and partner groups, such as Cascadia Research Collective. Updated stock assessments are regularly derived from survey results and include information on abundance, population trends, and mortality from fisheries, ship strikes, and other sources. Cascadia Research has recently begun survey efforts in collaboration with WDFW and Oregon Department of Fish and Wildlife to further investigate the occurrence of endangered large whales off Washington and Oregon. Some of this work includes satellite tagging of whales (e.g., Schorr et al. 2010). Sightings of all large whales in the inner waters of Washington are posted monthly by Orca Network (<http://www.orcanetwork.org/sightings/map.html#recent>).

**Management of entanglements and ship strikes.** NOAA Fisheries has expanded its efforts to document entanglements and ship strikes of all large whales in the eastern North Pacific. To better address the problem of entanglements, the agency has held disentanglement training sessions and cached disentanglement equipment at sites in Washington and elsewhere along the U.S. west coast.

**Stranding responses.** NOAA Fisheries Northwest Region coordinates responses to strandings of large whales through the Northwest Region Marine Mammal Stranding Network, which is comprised of cooperating scientific investigators, institutions, organizations, and state/federal fish and wildlife agencies. Stranding data are entered into a national database. In 2012, there were three strandings (two sperm whales, one humpback whale) involving these six species in Washington (NOAA Fisheries, unpublished data). Strandings of endangered large whales are rare in Washington and Oregon (Norman et al. 2004), with an average of 2-3 individuals per year for both states combined from 1999-2004 (NOAA Fisheries, unpublished data). Cascadia Research samples or necropsies many of these animals to determine cause of death, animal condition and health, and other traits.

**Partners and cooperators:** NOAA Fisheries, Cascadia Research Collective, Orca Network, Oregon Department of Fish and Wildlife, Olympic Coast National Marine Sanctuary, Makah Tribe, Dungeness National Wildlife Refuge, Olympic National Park, Center for Whale Research, Port Townsend Marine Science Center, Wolftown, Marine Science and Technology Center at Highline Community College, and local marine mammal stranding networks.

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