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## SIGHTINGS AND MOVEMENTS OF HUMPBACK WHALES IN PUGET SOUND, WASHINGTON

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Humpback whales (*Megaptera novaeangliae*) were some of the most common large cetaceans in the inland waters of Washington, including Puget Sound, in the early 1900's (Scheffer and Slipp 1948). They were heavily hunted in the eastern North Pacific from the early 1900's through 1965 (Rice 1974, 1978). A whaling station at Bay City, Grays Harbor, Washington, processed 1933 humpback whales caught along the coasts of Oregon and Washington from 1911 to 1925 (Scheffer and Slipp 1948) and 800 humpback whales were caught along the coast of Vancouver Island, British Columbia, and processed at Coal Harbor from 1948 to 1965 (Pike and MacAskie 1969). Humpback whales were common in the Strait of Georgia, just north of Puget Sound, where a small number of humpback whales were taken commercially in the winter of 1907-1908 (Webb 1988). There have been few sightings of humpback whales in Puget Sound, however, in the last 20 years; Everitt et al. (1980) reported two sightings in Puget Sound in May 1976 and September 1978 and Osborne et al. (1988) reported a third sighting in June 1986. We report on sightings and movements of at least two different humpback whales in Puget Sound in June and July 1988.

### METHODS

On three occasions we observed a humpback whale in southern Puget Sound from a 14' Achilles inflatable boat; on 22 June 1988 from 1700 to 1830, on 25 June 1988 from 1735 to 2005, and on 14 July 1988 from 1820 to 2040. We monitored the movements and behavior of the whales on these three days for a total of 6.1 hr. Photographs taken of the ventral surface of the flukes and the dorsal fins on all three occasions were used to identify individual whales. Additionally, over 100 reports of sightings of a humpback whale in Puget Sound were received from the public and other scientists in June and July 1988.

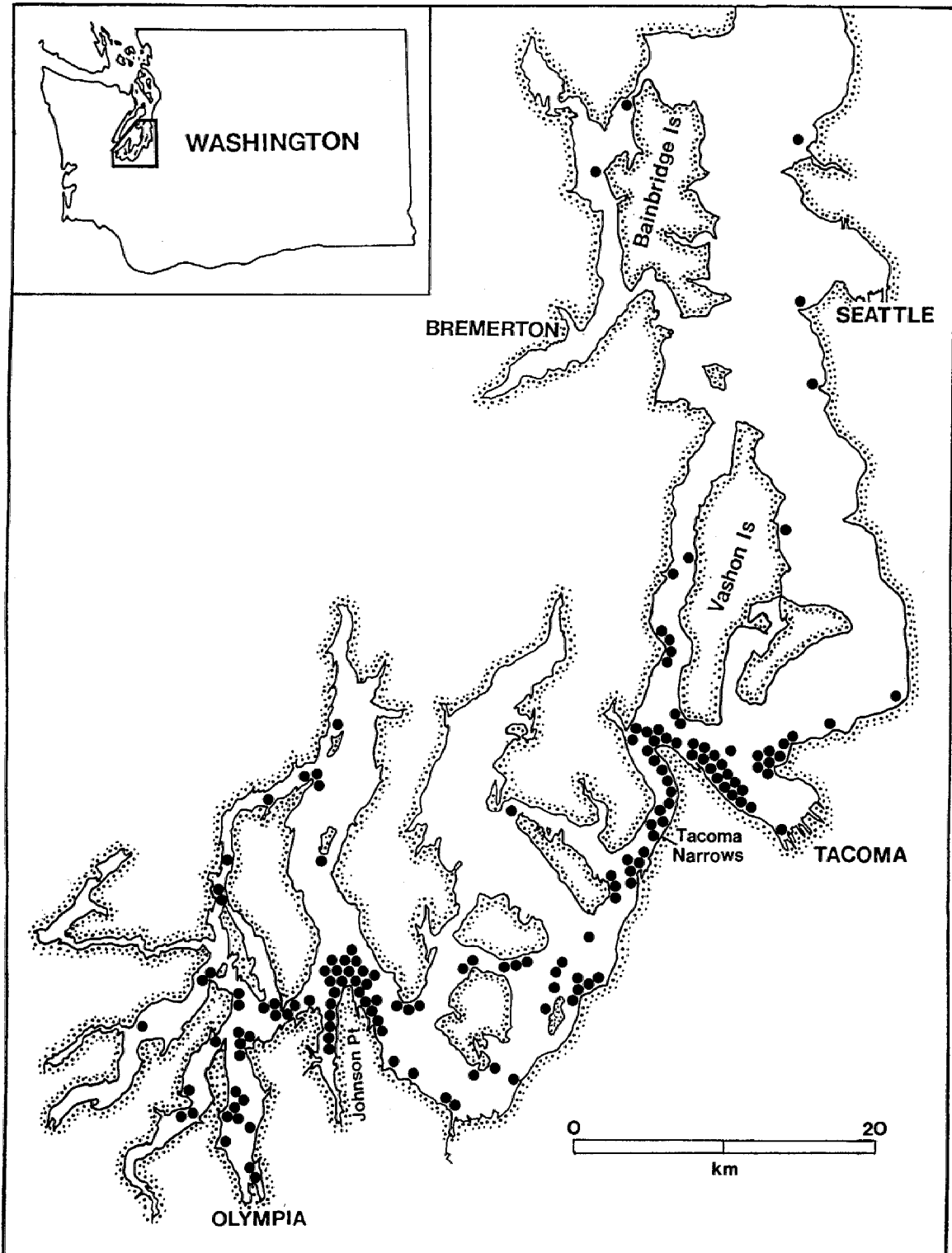


FIGURE 1. Locations of sightings of humpback whales in Puget Sound, Washington, in 12 June to 17 July 1988. One sighting off Point No Point is not shown (17 km north of area shown).

#### RESULTS AND DISCUSSION

The first sightings of a whale matching the description of a humpback were for 12 June 1988 in Commencement Bay, off Tacoma. We did not confirm these sightings as humpback whales, however, until 21 June when we were first able to conduct direct observations.

The whales moved extensively throughout the region (Fig. 1). The high density of sightings

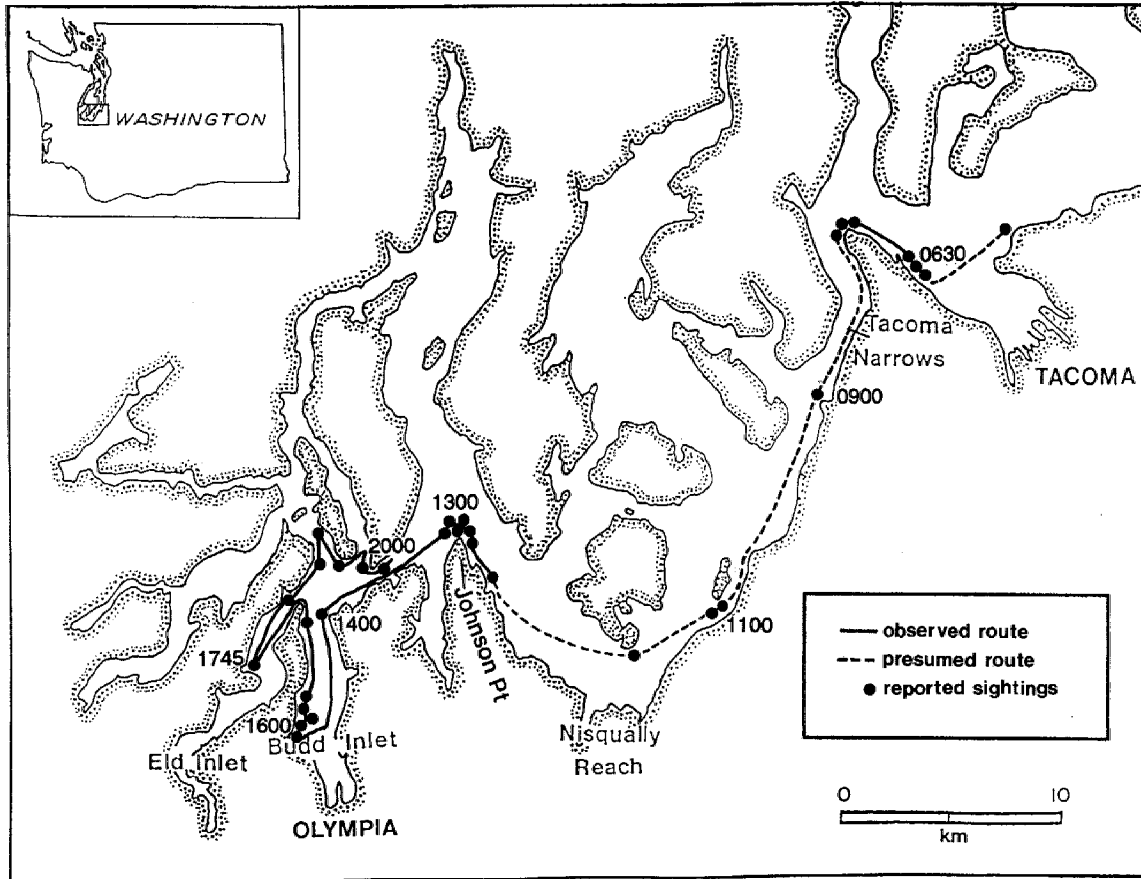


FIGURE 2. Movements and sighting locations on 25 June 1988 are shown with approximate times. Each point indicates a sighting report from the public, the solid lines indicate known paths of travel based on our observations or other reports, and dashed lines indicate presumed movement based on reported sighting times and descriptions.

around Johnson Point and around Tacoma corresponded to a high density of boaters and residences in these areas. The geographic pattern of the sighting reports suggested that a humpback whale passed through the Tacoma Narrows 21 times between 14 June and 16 July. Our observations showed that despite the repeated locations of sightings, the animals were predominately travelling. On 25 June, for example, almost continuous sightings of a single humpback whale from 0615 to 2000 indicated it travelled a minimum of 85 km (Fig. 2). This distance would require an average speed of at least 6 km/hour.

All our encounters and reported sightings were of a single animal, although photo-identification of the whales from fluke and dorsal fin photographs indicated there were at least two whales. One whale was identified on 21 and 25 June, and another was identified on 14 July (Fig. 3). With only one exception, sighting reports were consistent with only a single animal being present in the sound at any one time. No sightings were received between 3 and 10 July, the only interruption of more than a day in the reports. During this interval, we suspect that the first whale left the Puget Sound waters and the second animal arrived. Both whales appeared to be juveniles based on estimated length (under 10 m).

Whales generally travelled direct routes near the shore. Milling behavior, where the animal surfaced in the same area, was observed during only 8% of the time the animals were watched. No other behavior suggestive of feeding was seen. The interval between breaths averaged 96 sec ( $N = 175$ ,  $SD = 60$ ). The observed dive patterns of the two whales did not differ significantly. Whales surfaced at a similar rate as humpback whales in fast travel behavior in the coastal waters of southeast Alaska, and less often than humpbacks that exhibited other behaviors as based on comparisons with rates reported by Dolphin (1987).

The North Pacific humpback population has been estimated at 1200 (NMFS 1987), although recent

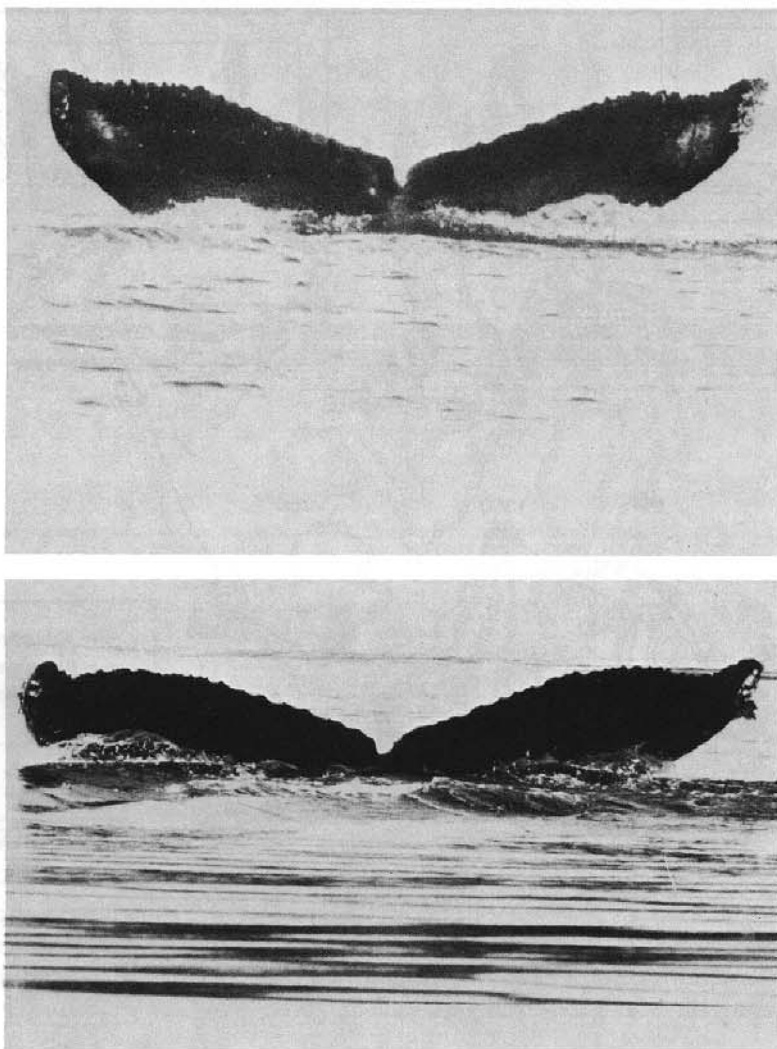


FIGURE 3. Identification photographs of the flukes of humpback whales encountered in Puget Sound in 1988. The first whale (top) was seen on 22 June and 25 June, the second (bottom) was seen on 14 July.

photo-identification research indicates that this estimate is low (Darling and Morowitz 1986; Baker and Herman 1987). There is not adequate information to determine if populations are recovering from commercial whaling in the North Pacific. Dohl et al. (1983) concluded humpback whale populations had increased in central California in the last decade but Calambokidis et al. (1989) found no evidence for an increase in central California. One indication of the recovery of the North Pacific population may be their return to regions where they formerly occurred.

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## CEPHALOPOD REMAINS FROM A CUVIER'S BEAKED WHALE (*ZIPHIUS CAVIROSTRIS*) STRANDED IN KODIAK, ALASKA

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*Ziphius cavirostris* is the beaked whale (Ziphiidae) most commonly stranded on the coasts of North America according to reports collected at the Smithsonian Institution by the Scientific Event Alert Network (SEAN) and the Marine Mammal Events Program (MMEP).<sup>1</sup> A review of Northeast Pacific *Ziphius* strandings by Mitchell (1968) documents 35 strandings between 1945 and 1965. A minimum of 16 stranding events of *Ziphius* have been reported from Alaska since 1967 at latitudes as high as 59 degrees North in the Bering Sea (Smithsonian SEAN and MMEP files). These strandings, as well as a Japanese fishery for this species (Nishiwaki and Oguro 1972; Omura et al. 1955), are the primary sources of life history information on *Ziphius*.

<sup>1</sup> Scientific Event Alert Network/Marine Mammal Events Program, Division of Mammals, National Museum of Natural History, Smithsonian Institution, Washington D. C., 20560.