Ecology, Archaeology, and Historical Accounts Demonstrate the Whaling Practices of the Quileute Tribe in Washington State

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The Nuu-chah-nulth of Vancouver Island and the closely related Makah Tribe of Washington State are the best-known whale hunters inhabiting the outer coasts of the Pacific Northwest (Arima and Hoover 2011; McMillan 2015). Large numbers of whale bones have been recovered from virtually all excavated middens within their territories (McMillan 2015). There are also numerous ethnographic accounts about whale hunts reflected in their oral histories, stories, and art (Coté 2010; Jacknis 2013; Reid 2015). However, less has been documented about the whaling skills of other coastal peoples that lived near them, such as the Quileute and the Quinault on Washington's outer coast.

Like the Makah and Nuu-chah-nulth to the north, the Quileute and Quinault people of Washington State were and continue to be an ocean-going people dependent on marine resources. They have always been skilled fishers and hunters of coastal and offshore species (Curtis 1970 [1913]; Frachtenberg 1916; Wessen 1995). While less has been recorded about how the Quileute and Quinault historically used marine mammals compared to other tribes, there is archaeological and ethnographic evidence to support their regular hunting and use of marine mammals.

The historical observations and excavations of midden sites used by the Quileute and Quinault have not been studied in as much detail as those of their northerly neighbors. However, the archaeological data of Quileute middens can be combined with knowledge about current species distributions, habitat use, and behaviors to better understand whale hunting by the Quileute off the coast of Washington State. In contrast to the Quileute, less is known about the Quinault whaling practices due largely to fewer of their middens having been studied. Here, we review and synthesize the available information on the whale- hunting activities of the Quileute people using archaeological, ethnographic, and ecological data sources.

Archaeological, Ethnographic, and Ecological Insights

Archaeological evidence, ethnographic records, and historical whaling data provide insights into the species of whales that were likely hunted, and how far offshore hunters would have had to travel to intercept them. Such information can be combined with what is known of the behavioral ecology and habitat preferences of whales to infer the most likely species, and locations that they would have been taken.

Whaling records from the nineteenth and early twentieth centuries can be used to infer the presence and distribution of large whales off the West Coast of North America around treaty times in the mid-1800s (see Gregr et al. 2000; Gregr and Trites 2001). Logbook accounts of Charles Scammon (2007 [1874])—a whaling captain and naturalist—provide additional data on species distributions along the West Coast during this time. These two sets of historical records reveal seasonality, habitat preferences, and within-species spatial segregation of whales, including sperm whales (*Physeter macrocephalus*), North Pacific right whales (*Eubalaena japonica*), blue whales (*Balaenoptera musculus*), fin whales (*Balaenoptera physalus*), and humpback whales (*Megaptera novaeangliae*). The patterns of presence and distributions reported in historic logbooks are further supported by contemporary data from visual surveys and stranding and acoustic recordings of large whales (e.g., Calambokidis and Barlow 2004; Dalla Rosa et al. 2012; Norman et al. 2004; Oleson et al. 2009).

In addition to the historical whaling data, further insights into species presence and their use by tribes prior to treaty

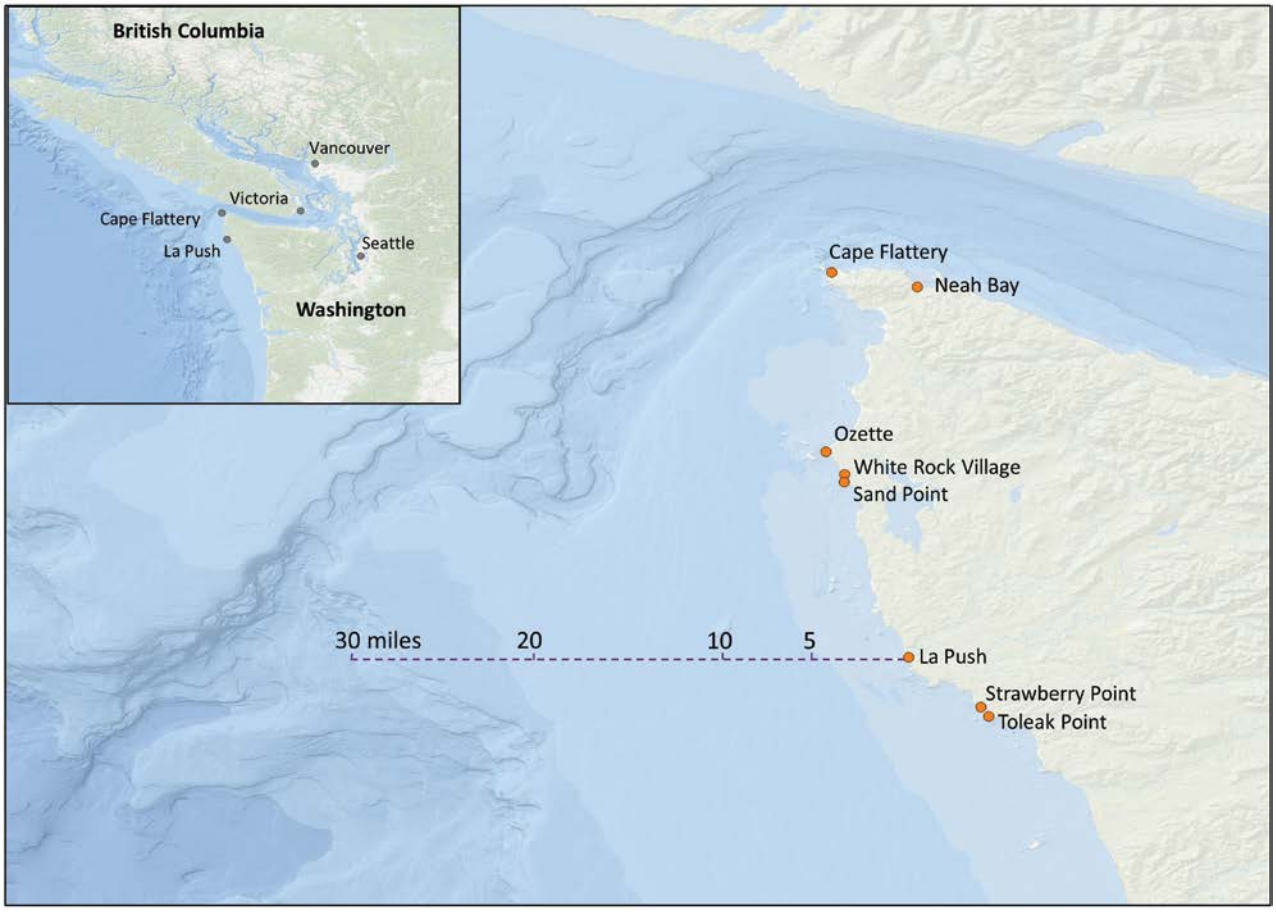

Figure 1: Locations of Quileute and Makah archaeological sites discussed in the text. The Quileute sites where whale remains or evidence of whale hunting have been found include White Rock Village, Sand Point, La Push, Strawberry Point, and Toleak Point. The scale highlights how far offshore indigenous whalers may have traveled to encounter different whale species. During the spring, gray whales and humpback whales would have been found between 5 and 25 miles from shore. During the fall, southbound migrating gray whales are distributed farther offshore, ~ 19 miles. Fin, blue, sperm, and North Pacific right whales would have been most often encountered over 20 miles from shore along the shelf break. Figure created by authors.

times in the mid-1800s can be derived from archaeological data. Many of the midden and village sites examined on Washington's outer coast contain whale remains and occasionally a few of the tools used for whaling (Huelsbeck 1988, 1994; Wessen 2006). Unfortunately, erosion and few detailed excavations have limited the midden evidence of the Quileute Tribe's use of whales (Schalk 2014). Nevertheless, there are seven sites used by the Quileute Tribe with faunal and artifact assemblage data, of which five contain whale remains (White Rock Village, La Push, Sand Point, and Toleak Point, summarized by Schalk 2014; and Strawberry Point [Wessen 1995]; see Figure 1). There is also the Ozette site containing earlier deposits attributed to the Quileute (Kinkade and Powell 1976), and later deposits from the Makah (Etnier 2002; Gustafson 1968).

The Ozette Village site is a shell midden that was occupied for at least 1,500 years until it was abandoned in the early 1900s (Huelsbeck 1988). Ozette contained a rich array of whale remains, including gray, humpback, fin, blue, and North Pacific right whales (Alter et al. 2012; Huelsbeck 1988, 1994), which is very similar to that discovered at La Push—a Quileute village site 20 miles to the south and occupied year-round (Wessen 2006). While excavations at La Push have not reached the

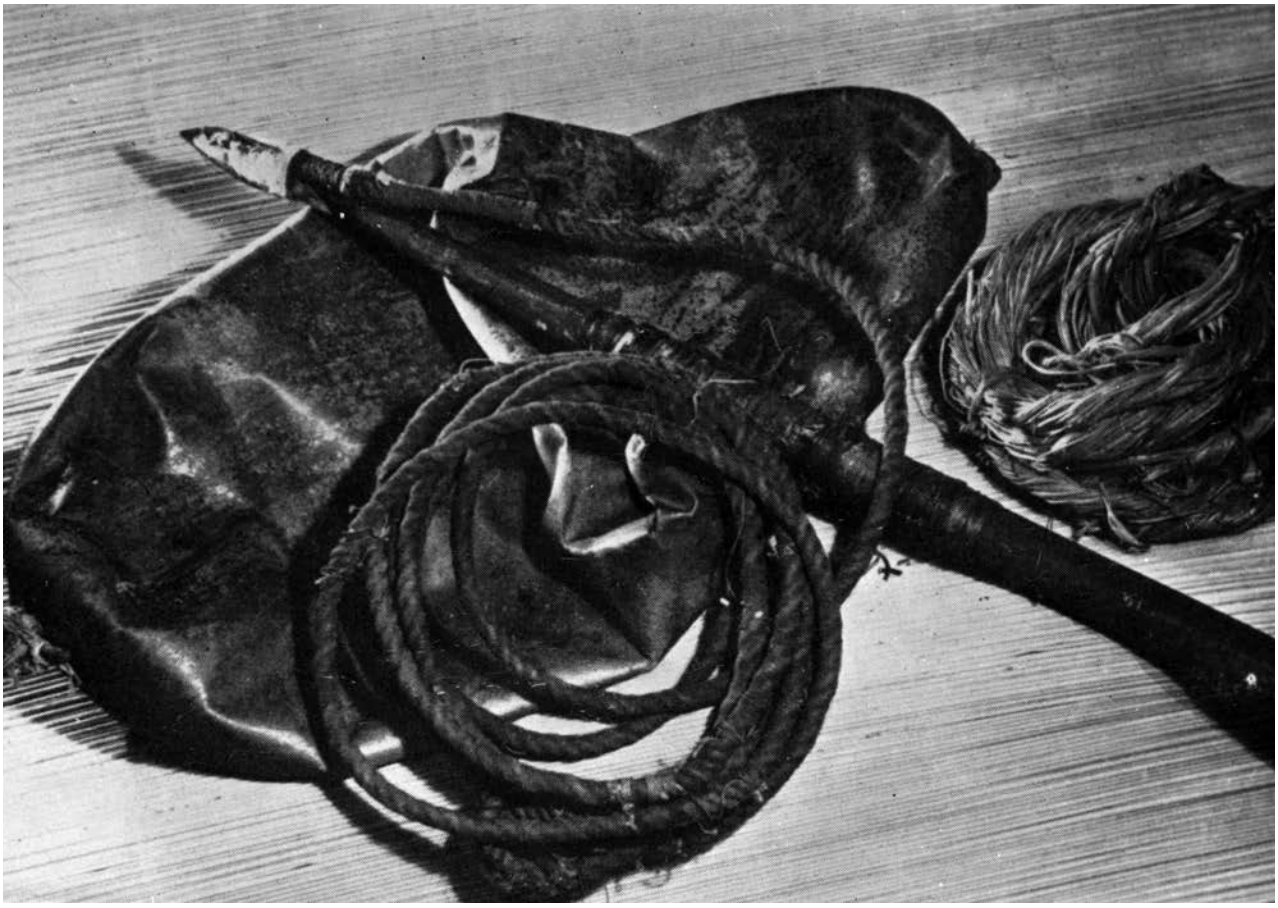

Figure 2: Whaling harpoon with detachable head, sealskin float, and line, likely from the Makah Tribe. This equipment was used by the Nuu-chah-nulth, Makah, and Quileute, allowing them to efficiently hunt whales. It generally consisted of a mussel shell toggling harpoon head attached to a rope made of sinew and nettle fiber, which in turn was attached to a detachable pole. As the harpoon head embedded itself in the whale, it detached from the pole, ensuring the harpoon head remained embedded in the whale. A sealskin float was attached to the initial length of line; increasing lengths of line with more floats were played out and the whale would have been harpooned again on surfacing. The floats acted to mark the whale's location as well as exhaust the whale and prevent it from diving, allowing whaling crews to stay with the whale. Once the whale had died, a member of the crew entered the water to sew the mouth shut to prevent the carcass from filling with water and sinking. Additional floats were attached to the animal to aid in towing it to shore (Arima and Hoover 2011; Curtis 1970 [1913]; Kirk 1986; O'Leary 1984; Reagan 1925; Waterman 1920). Image source: Bert Kellogg Collection of the North Olympic Library System.

oldest deposits, available radiocarbon dating from the most recent excavations yielded dates of 660 and 880 ^{14}C years BP (Schalk 2014; Wessen 2006).

Which Whale Species Were Hunted?

Early investigations of the middens at La Push reported that remains of sperm, fin, blue, gray, and killer whale were present (Reagan 1917), though how Reagan made these species determinations is not clear and none of his samples have survived. More recent excavations did not identify the cetacean remains to species, and simply assumed whale bones were from gray and humpback whales (Wessen 2006). Both analyses noted that whales were among the most numerous marine mammal remains recovered from the La Push site (Wessen 2006).

The similarities noted between Ozette and La Push (Wessen 2006) suggest the Quileute were hunting the same species, using similar methods (O'Leary 1984; Reagan 1925; Waterman 1920). Indeed, the Nuu-chah-nulth, Makah, and Quileute all had similar documented techniques that allowed them to efficiently hunt whales (Figure 2; Arima and Hoover 2011; Curtis 1970 [1913]; O'Leary 1984; Reagan 1925; Waterman 1920).

Despite the lack of clear species identification at La Push in the most recent excavations, it is likely that humpback and gray whales were the most numerous whales in the faunal assemblage. These species were also the most common whale species in both Nuu-chah-nulth and Makah midden sites (Alter et al. 2012; Huelsbeck 1988; McMillan 2015)—and ethnographic accounts support the midden evidence for gray and humpback whales being the most hunted species by indigenous whalers on the Washington outer coast (Kirk 1986; Scammon 2007 [1874]; Scheffer and Slipp 1948; Singh 1966; Swan 1870). The smaller size, slower speeds, and closer distribution of gray and humpback whales to shore would have made them easier and more accessible targets than the larger and faster species of whales (Scammon 2007 [1874]; Swan 1870).

Gray Whales

Gray whales were reportedly the most common species caught by the Quileute (Reagan 1925) and Makah (Swan 1870). Indigenous whalers are thought to have killed about 600 gray whales per year along the West Coast prior to the 1800s (Springer et al. 2006). Scheffer and Slipp (1948) suggested that indigenous whalers chiefly hunted gray whales during their northbound migration in the spring, although gray whales were present as early as December during their southbound migration. The Makah linguistically recognized December as the month that gray whales appear. As noted by Swan (1870), "*December is called sc-hwow-as-put'hl, or the moon in which the sc-whow, or chet-a-pook, the California gray whale, makes its appearance.*" The presence of gray whales along the US West Coast has always been highly seasonal. The whales migrate southward in December to the coastal lagoons of Baja California from their summer feeding grounds in the northern Bering and Chukchi Seas, off Alaska's north coast—and return northward in spring to feed on benthic species sieved from muddy sea beds or to remove amphipods from near-shore kelp beds.

During their northward spring migration, gray whales use coastal waters within 5–6 miles of shore, where mother and calf pairs can seek refuge from predation by transient killer whales (Ford and Reeves 2008). This preference for near-shore habitats would have made gray whales easier targets for indigenous hunters. During the late autumn and winter southbound migration, gray whales tend to be distributed farther offshore (~19 miles; Oleson et al. 2009).

Indigenous whalers may have preferred the fatter southbound whales that would have provided better yields of meat and oil compared to the thin whales returning north in the spring. The seasonal difference in quality of whales hunted might explain the Makah's linguistic link between gray whales and the month of December—and further suggests that gray whales were available to indigenous hunters on Washington's outer coast during both spring and autumn.

Humpback Whales

Like gray whales, humpback whales are also migratory in the North Pacific. However, humpback whales primarily spend their winters in the warmer water of Mexico, Central America, and Hawaii—and spend their summers along the northern coast of North America where prey are abundant (Bettridge et al. 2015). This migratory pattern was observed during the nineteenth and twentieth centuries, and is reflected in the commercial whaling data (Gregr et al. 2000; Scammon 2007 [1874]), where numbers of whales caught increased from spring through the summer and peaked in August (Gregr et al. 2000).

Humpback whales were observed off La Push in the greatest numbers during April (Scheffer and Slipp 1948). Both historical whaling data and contemporary survey data indicate that humpback whales prefer depths between 50 and 200 m throughout the productive mid-shelf areas (Dalla Rosa et al. 2012; Oleson et al. 2009). Humpback whales in central and northern British Columbia were generally caught by commercial whalers no farther than 12 miles from shore in regions where the continental slope is much narrower than the Southern BC coast or off the Washington coast. These data suggest that humpback whales would have been highly available to indigenous whalers off the Washington coast during the spring through autumn months within 5–25 miles from shore as the whales migrated from their warmer wintering grounds to the shallower, cold, productive coastal waters of the Northeast Pacific (Figure 1).

Though humpbacks would have been less available than gray whales, due in part to differences in their migratory distances from shore during spring, there is some evidence to suggest that humpback whales were preferred over gray whales in some locations such as Ozette (Kirk 1986). Humpbacks would have yielded approximately 50% more oil than gray whales (Cavanagh 1983; Fisken 1980; Kirk 1986), and Fisken (1980) theorized that the large percentage of humpback remains in the Ozette site may have indicated a preference for these less

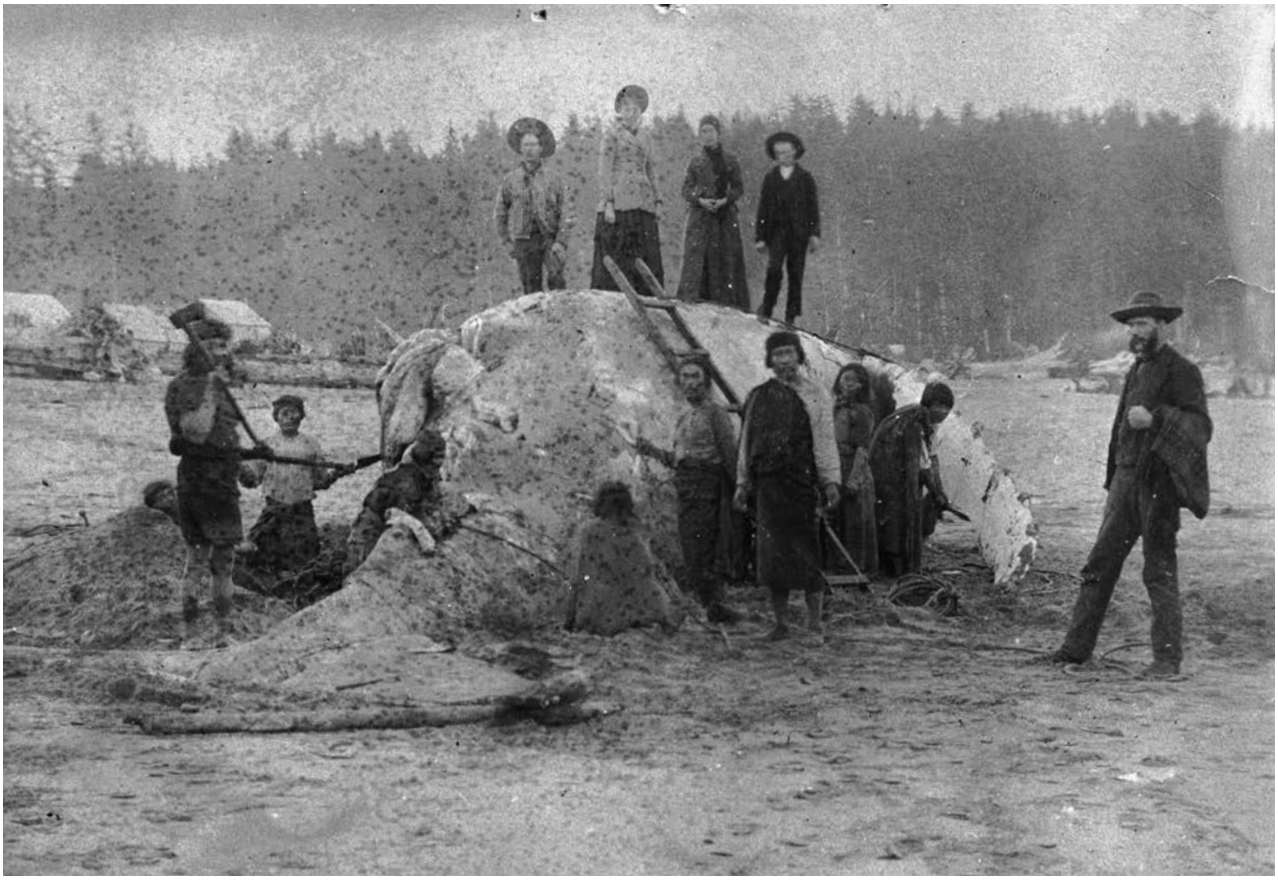

Figure 3: Butchering a humpback whale on the beach at La Push, the Quileute Reservation. Note the ropes on and around the whale and the flensed tail flukes of the animal. These are good indications that this was a hunted whale rather than a stranded animal. Whale flukes would have cut to decrease drag while towing the whale back to shore—this is a practice that is still used today by some Inupiat whalers in Alaska. Image source: Bert Kellogg Collection of the North Olympic Library System.

available whales over gray whales. Gray whales were also reported to be more ferocious than humpbacks (Kirk 1986)—an observation echoed by contemporary Alaskan and Chukotka indigenous whalers. The similarities between the Ozette and La Push middens thus suggest a preference for humpback whales. However, further archaeological analysis is needed to more conclusively identify whale remains to species at La Push and other Quileute village sites.

Blue, Fin, Sperm, and Right Whales

Though species identification of whales within Quileute middens is incomplete, the middens are similar to those farther north and likely also contain North Pacific right whales, blue, fin, and sperm whales—as identified in Barkley Sound on Vancouver Island (Alter et al. 2012; Béland et al. 2017; McMillan 2015), as well as at the Ozette site in Washington (Wessen and Huelsbeck 2015), and possibly in the La Push middens (Reagan 1917). In contrast to gray and humpback whales, these four species are generally associated with deeper offshore waters and are most commonly encountered during the spring and summer (though sperm whale vocalizations have been detected throughout the year around the Quinault Canyon; Oleson et al. 2009).

The presence of blue, fin, sperm, and right whales in some middens is consistent with nineteenth- and twentieth-century whaling records (Gregr and Trites 2001; Pike and MacAskie 1969) and with observations by Scammon (2007 [1874]), who noted that fin whales and some blue whales may come closer

to shore during summer months, increasing their availability to hunters. However, the sheer sizes and speeds of blue and fin whales would have made them extremely challenging to hunt. It is therefore noteworthy that fin whales are linguistically reflected in the Makah language—with the month of March being named "the month that fin-back whales appear" (Swan 1870). Evidence of hunting is further supported by Collins's (1892) report of nine fin whales being landed at La Push by Quileute whalers in 1888.

By the mid-nineteenth century, North Pacific right whales had been depleted by commercial whalers and were likely no longer available to indigenous hunters. Swan (1870) noted that right whales were caught off the West Coast, particularly off northern Washington and Vancouver Island. However, he did not indicate when the whales were taken, either in terms of time of year or whether indigenous whalers were still catching them in the mid-1800s. Such historical data combined with known habitat preferences and behavioral ecology means that right whales, along with blue and fin whales, would have been available to hunters, though some would have been more challenging to catch than others.

Where Did the Whales in the Middens Come From?

There are many documented accounts of the Quileute's whaling practices (e.g., Frachtenberg 1916; Daugherty 1949; O'Leary 1984; Pettitt 1950; Reagan 1925; and Waterman 1920 citing Franz Boas). Some of these sources report that whales were caught within sight of land, but that these whales sometimes towed Quileute whalers out of sight of land (Lofgren 1949), while others reported whales being caught out of sight of land (Curtis 1970 [1913]). However, there is no clear definition of what "in sight of land" entailed in the reports by Pettitt (1950) and Frachtenberg (1916). In sight of land could have been as much as 30 miles or more from shore if Quileute whalers could still see mountain peaks from this distance, as suggested by Morgenroth (1991), or even farther if they relied on seeing the cumulus clouds that formed over the coastal mountain tops. With the ability to hunt far offshore, Quileute whalers would have encountered both coastal species (e.g., gray whales), as well as those that prefer deeper, more pelagic habitat associated with the continental slope—such as the fin whale.

Of the whale remains recovered at La Push (and other archaeological sites in the region), it is not unreasonable to assume that some may have come from stranded animals. A stranded whale would have provided a multitude of material to the local people, including oil, bones, gut, and meat (Kirk 1986). Most groups, including the Makah, would have welcomed stranded whales, and some tribes had specialists who "called" them ashore (Kirk 1986). The Quileute were also recorded as utilizing stranded whales (Indian Claims Commission 1954; Lofgren 1949). However, the number of whales stranding would have varied greatly between years, and generally would have been no more than a few individuals per year (Norman et al. 2004).

In general, coastal middens contain relatively few whale bones compared to the remains of smaller marine mammals such as northern fur seals. This likely reflects the way that whales were harvested by the tribes on the Olympic peninsula. Whales landed on a beach were carved up, with any parts not easily removed to the village site being simply left on the beach (Figure 3; Curtis 1970 [1913]; Kirk 1986). In rare circumstances, harpoon heads found imbedded in whale bones (e.g., Losey and Yang 2007) provide some direct evidence of hunting. However, middens generally are unlikely to reflect the full extent of whaling at a coastal site, both in terms of numbers of animals and the species landed.

Despite the limitations of finding whale remains in middens, the available archaeological evidence and early ethnographical observations all highlight the importance of whales to the local economies. Wessen (2006) concluded from his investigations at La Push that marine fishing and sea mammal hunting were important at that site. Accounts from early ethnographers—Edward Curtis, Leo Frachtenberg, and Svante Lofgren—also lend weight to the conclusions drawn by Singh (1966) that whaling was an important part of the economy for the Quileute on the outer coast. Curtis (1970 [1913]) and Frachtenberg (1916) wrote about how the Quileute traded their whale oil and dried whale flesh with the Makah in exchange for Hudson's Bay blankets, dentalia and abalone shells, and cedar bark canoe mats. The Quileute also traded with the Nootkas for whaling canoes (Lofgren 1949). These accounts of Quileute whaling practices and the importance of whaling to coastal Quileute village economies, combined with the archaeological and ecological data, richly illustrate the whaling practices of the Quileute on the Washington outer coast.

Conclusions

The field notes of Frachtenberg (1916) and others note that the Quileute had been practicing whaling since immemorial times. Additional historical and archaeological data confirm that the Quileute successfully hunted and consumed many of the same species taken by the Makah and Nuu-chah-nulth whale hunters during and before treaty times. The archaeological, historical, and ecological data are thus consistent with the Quileute hunters being exceptional seamen, navigators, and whalers.

The importance of the sea as a source of both cultural and economic sustenance continues today with fishing and celebrations. Each year, the Quileute hold a ceremony in March to welcome the gray whales that pass by La Push on their annual northward migration. The ceremony is filled with traditional songs and dances and offerings of salmon to the whales. The Quileute thus continue to revere and celebrate the importance of these great animals, although they no longer hunt them as they once did.

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