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Outer Coast Maritime Adaptations in Southern Southeast Alaska: Tlingit or Haida?

Madonna L. Moss

Abstract. Langdon (1979) characterized Tlingit and Kaigani Haida resource orientations in southeast Alaska as significantly different from one another. He argued that the Kaigani were better adapted to open, offshore waters and focused on halibut, bottomfish, and dog salmon, selecting their villages near good halibut or cod fishing banks. In contrast, the Tlingit selected more protected estuarine locations adjacent to streams with three or four salmon species. Faunal assemblages from Cape Addington Rockshelter and other sites in the outer Prince of Wales Archipelago are used to evaluate Langdon's portrait of Tlingit and Haida adaptations. These faunal records do not permit identification of ethnicity, nor do they allow us to identify evolutionary change in adaptation or culture. The Cape Addington faunal assemblage is then compared to a suite of Kunghit Haida assemblages to help reveal the limitations of the search for ethnically distinct "adaptations," at least as reflected in faunal assemblages.

Re-Thinking Adaptations

North Pacific archaeologists have been discussing and defining "maritime adaptations" for over 30 years. We have not reached consensus on a definition despite valiant efforts (e.g., McCartney 1974, 1988; Fitzhugh 1975). As Workman and McCartney have pointed out,

Clearly implied are human groups that live in proximity to, and obtain a significant portion of their subsistence from, the sea. Most workers would probably accept the implication that maritime cultures possess(ed) seaworthy watercraft and obtained at least some of their caloric income from resources procured beyond the littoral zone. Clearly excluded are people who draw only indirectly on the bounty of the sea . . . (Workman and McCartney 1998:361–362)

Discussions of maritime adaptations are usually comparative. Some focus on the relative im-

portance of different economic activities, such as shellfishing vs. fishing vs. marine mammal hunting (e.g., Erlandson, Tveskov, and Byram 1998), and the degree to which a particular group was "maritime." This paper fits squarely within this tradition, in that it addresses a 1970s-era model that proposed that Haida adaptations were essentially "more maritime" than those of the Tlingit.

Other discussions of maritime adaptations compare groups across time, and frequently, a unilinear evolutionary trajectory is implied. For example, on the Oregon coast, Ross (1990) proposed a "pre-marine" adaptation evolving into a marine adaptation, while Lyman (1991) wrote of the "pre-littoral" progressing to the littoral. These models insinuate that it took Native people awhile—in the order of thousands of years—to figure out how to live on the coast and craft an "adaptation" to the maritime environment (Moss and Erlandson 1998). Yet we know that anatomically modern

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humans have lived in coastal environments and used coastal resources for 100,000 years (Erlandson 2001). That some of these models imply that Native Americans and/or First Nations were incapable of using coastal resources 10,000 years ago is simply inaccurate.

In their recent assessment of the coastal migration theory of the earliest settlement of the Americas, Fedje et al. (2004) distinguish between maritime and coastal adaptations. For their purposes, a maritime adaptation is one in which people were:

heavily reliant upon marine and coastal resources for the majority of subsistence needs. In contrast, a "coastal adaptation" involves the fluent use of coastal and marine resources for at least some, and probably a significant portion, of the subsistence needs of a group of people. (Fedje et al. 2004:112)

This fairly subtle distinction can be difficult to infer from archaeological data. Although the coastal migration theory has not been proven, it assumes the use of seaworthy watercraft, and it is hard to conceive of people living in southeast Alaska or Haida Gwaii (the Queen Charlotte Islands) without such craft (Moss 2008).

The term "adaptation" has a long history in archaeology and has become so entrenched in the thinking of most North American archaeologists that we do not always think carefully about the theoretical baggage the term carries. Use of "adaptation" goes back at least as far as Julian Steward's 1955 *Theory of Culture Change* and was a fundamental concept in Binford's "new" archaeology (e.g., Binford 1968). Binford's (1980) forager-collector model also has been used as a cultural evolutionary prediction; where environments allow, foragers inevitably become collectors over time. Although this model may be "foundational to modern archaeological practice" (Aldenderfer 2002:387) in North America, it might also be seen as overly deterministic in how it structures and limits our understandings of the past.

The concept of "adaptation" inherently retains the notion that people adapt, react, and/or respond to their environment, and that environment determines culture. In Biersack's (1999:8) words, "*adaptation* signified cultural accommodations to an extracultural, a priori 'environment.'" Recent trends in archaeological theorizing, however, have viewed the relationship between people and their habitats in more dialectical ways. Although this trend has infiltrated studies of hunter-gatherers less frequently than those of horticulturalists or agriculturalists, it is important to acknowledge that people on the Northwest Coast not only responded to their environment, but lived as a part of it. Inevitably, Northwest Coast peoples shaped the biological communities of which they were a part. This theoretical shift falls within the ap-

proach defined as historical ecology (*sensu* Crumley 1994) that recognizes human agency and the potential for people to influence the interspecies relations within ecological communities. The field of political ecology goes beyond this to address the power relations of factions within society in their attempts to control relations between people and the resources on which they depend. Symbolic ecology aims to approach sociocultural constructions of "nature" (Biersack 1999:8). Hegmon has tracked this shift of thinking in archaeology by observing a change in key words; while archaeologists formerly discussed "humans in the environment," we now write about "humans as part of the environment." In Hegmon's words (2003:229), "not only is 'the environment' partly a human creation, it is also conceived [by archaeologists] as having inseparable natural and cultural components"

For these reasons, I use the terms "adaptation" and "maritime adaptation" with reservations. Yet I believe that focusing on local conditions and the study of local social groups is preferable to building generic models of adaptations for the entire Northwest Coast. I am mindful, however, that archaeological analyses of "adaptations" are inevitably structured by a problematic cultural evolutionary framework that has a number of limitations, and I will return to consider some of these at the end of this paper.

Ethnographic Territories and the History of Tlingit- Haida Relationships

Archaeologists recognize that the lines drawn on maps to mark boundaries of ethnographic territories are themselves cultural constructs. To help illustrate, we can compare aboriginal territories as depicted on different maps (see Figure 1 for place names). The Government of British Columbia Ministry of Education map of First Nations can be found at <http://www.bced.gov.bc.ca/abed/map.htm>. This map shows the northern boundary of Haida territory as extending to the Klawock River divide across to Thorne Bay on Prince of Wales Island. According to this map, part of Heceta Island, and all of Noyes, Lulu, San Fernando, Suemez, and Dall islands fall within Haida territory. One might consider this a "Canadian" perspective on Haida territory. Compare this to the "Traditional Tlingit Country Map" found on the University of Alaska Fairbanks website (<http://www.ankn.uaf.edu/curriculum/Tlingit/Salmon/graphics/tlingit-map.pdf>). This map shows Tlingit territory as encompassing the Klawock River divide, and the border with the Haida on west Prince of Wales Island is drawn at the head of Trocadero Bay. Heceta, Noyes, Lulu, San Fernando, and Suemez

Figure 1. Prince of Wales Archipelago and Haida Gwaii.

islands all fall within Tlingit territory. We might think of this map as a Tlingit perspective on Tlingit territory. Yet even map-makers realize that tribal boundaries overlap, and were in fact contested at times in the past.

Scholars generally agree that the Haida and Tlingit languages are distinct and genetically unrelated to each other (Alaska Native Language Center 2005; Campbell 1997:285; Foster 1996). Most linguists agree on three Tlingit dialects: south-

ern, northern, and inland. Northern Haida, spoken at Masset, differs from Southern Haida, spoken from Skidegate Inlet south, but the more southerly Kunghit dialect is extinct according to Blackman (1990:240; see also Enrico 2003:4–9).

Based on a recent re-evaluation of linguistic evidence, however, John Enrico (2004:230) has hypothesized a very long period of contact between Haida and Tlingit prior to the eighteenth century. Enrico (2004:292) has documented 74 loan words of Tlingit to Haida and only four loans of Haida to Tlingit, and has suggested that during the long period of Haida-Tlingit contact, Tlingit was “evidently the high-status language.” Based on the presence of Tlingit place names on western Graham Island in Haida Gwaii, Enrico believes that the Tlingit once lived there. During this period, he suspects close contact and intermarriage between Haida and Tlingit speakers. Enrico does not assign a date to this period of Tlingit-Haida interaction, but indicates that it precedes the eighteenth century Haida migration to Alaska substantially.

Leer (n.d.) suggested that Haida has ancestral ties to Eyak and Aleut and that while allied, Tlingit was somewhat peripheral to this group. Leer proposed a “Northern Northwest Coast Language Area” encompassing Haida, Eyak, and Aleut. He believed that both the Tlingit and Alutiiq were relatively recent intrusions into the region breaking up the sociolinguistic ties between Haida and Eyak, and possibly “other unknown coastal neighbors” (Leer n.d.:10). The antiquity of this hypothetical language area and its subsequent division, however, is unknown. Today, Haida is considered a linguistic isolate “with no proven genetic relationship to any language family” (Alaska Native Language Center 2005; see also Campbell 1997:285).¹ In general, the linguistic evidence suggests a complicated history of Tlingit-Haida interrelationships.

Some oral historical information suggests shared origins. Emmons related that he learned from an old man of the Tongass tribe,

in the earliest days a few people from seaward were driven ashore and settled on Dall Island off the southwestern coast of Prince of Wales Island. The name of these foreign people was given as Wish-shun-a-de. . . . ancestors of the Ta-quay-de. . . . There is a curious belief prevalent among the older natives that these people came from over the sea and were the first to reach the coast. They settled on Dall Island, and in time increased and were joined by other people from the interior who had come to the coast, and this combination formed the nucleus from which the Tlingit, Haida and Tsimshian derived. According to the tradition, there were two parties, each represented by one of two sisters. The younger sister and her party crossed over to the Queen Charlotte Islands where their descendants became the Haida, while the older sister and her party remained behind, and

combined with the immigrants from the interior to form the Tlingit. (Emmons 1991:9)

To the Tlingit, the Haida are the “southern tribe” or “the people out to sea” (Emmons 1991:426). Referring to Dawson’s 1880 report, Emmons (1991:6) wrote of a Haida tradition of “internecine wars as a result of which a portion of the Haidas of the northern part of the Queen Charlotte Islands were driven to seek new homes on the Prince of Wales group. Their story is borne out by other circumstances, and the date of the migration cannot be more than 150 years ago.” This would have been ca. A.D. 1730 or shortly before Bering’s voyage. Some scholars believe that later, the Haida moved to better position themselves to be closer to the Russian trading posts in Alaska. MacDonald (1989:91) wrote that the move to Alaska occurred in several waves during the 1700s, one of which occurred in 1789 after a fire swept through the northern Haida Gwaii town of Dadens.

Regarding the extent of migrations, de Laguna stated, “Kaigani territory includes all of Dall and Prince of Wales islands and the adjacent smaller islands south of Meares Passage on the west and Narrow Point on the east, with the possible exception of Forrester and Lowrie islands, which were in part claimed by the Henya Tlingit . . .” (Emmons 1991:6). Langdon (1977:102) suggested that the Kaigani pushed farther north on Prince of Wales Island but that the Tlingit repelled them back to where they were found occupying the island at contact.

The territorial relationships in southern southeast Alaska are not well understood because specific knowledge of these tribal movements is limited. Clearly, the Tlingit and Haida have been in contact through population movements, intermarriage, trade, and conflict for an unknown period of time. We know that the Kaigani Haida from northern Haida Gwaii migrated into what is now southeast Alaska sometime during the proto-historic period, certainly by the end of the eighteenth century. They settled the southern half of Prince of Wales Island and Dall, Sukkwan, and Long islands. Langdon (1979:118) suggested that the outer coast off the north end of Dall Island to Noyes Island may have been a buffer zone used by both groups. In his (1979) paper, Langdon looked at places on either side of this zone and documented a difference between Tlingit and Kaigani population-to-resource ratios which he explained by differing resource orientations. Might we use such a difference in resource orientation to identify ethnicity in the archaeological record?

Identifying Ethnicity

Archaeologists have tried to identify ethnicity drawing upon ethnographic and ethnological stud-

Table 1. Fladmark's (1975) Ranking of Resources used by the Haida and Tlingit.

Resource Rank	Haida	Tlingit
1.	halibut	salmon
2.	salmon	flounder
3.	other fish	eulachon
4.	sea mammals	herring
5.	shellfish	halibut
6.	sea urchins	sea mammals
7.	bear	bear
8.	"wapiti" (caribou?)	small land mammals
9.	waterfowl	mountain sheep
10.	birds' eggs	mountain goats
11.		caribou
12.		birds

ies. As Leland Donald (n.d.:50) has explained, ethnologists evaluate "overall cultural similarities" based on 1) "impressionistic methods," 2) "numerical taxonomies of similarity coefficients based on cultural traits," or 3) key diagnostic traits. For example, Fladmark (1975:51) ranked resources in order of relative importance following ethnographic information from Dawson (1880) for the Haida and Krause (1885 [1956]) for the Tlingit. Fladmark's ranking is shown in Table 1.

We could calculate a similarity coefficient from such a rank ordering of resources, but this number only becomes meaningful when it is part of a larger study where such measures can be used to gauge the relative similarity among a larger number of groups. Jorgensen's (1980) study was just such a work. When reduced to such measures, however, the specific nature of the differences between two groups becomes obscured. Note that Fladmark's schema of resource ranking presented here helped inspire Langdon's (1979) model of the difference between Tlingit and Kaigani Haida resource orientations.

Another way archaeologists can identify ethnicity is to look for key diagnostic traits such as basketry. Dale Croes (1989, 1997; Croes, Kelly, and Collard 2005) and Kathryn Bernick (1987, 1998) have shown how basketry can be used as an ethnic indicator. But Croes (1997) characterizes basketry, such as the 5,000-year-old Silverhole basket, as "Tlingit-Haida,"² which doesn't help much with the question of distinguishing Tlingit from Haida.

Niblack (1890:383–384) wrote that the Haida are distinguished by tattooing "found hardly at all

amongst the other tribes,"³ tall and numerous totem poles in their villages, abundant conical basketry hats, and abundant copper and shell ornaments. Niblack (1890:384) said that Haida women wore the largest labrets and were the "last on the coast to cling to this custom." Emmons (1991:84) wrote that the Haida were the most expert canoe makers on the coast, and we know these canoes were widely traded. Jenness (1955:332) said the Haida were "mighty hunters on the sea, and captured more fur seals and sea-otters than any other tribe along the Pacific coast."

These are some of the ways the Haida have been characterized, but it is not easy to translate all such "diagnostic traits" into archaeological indicators. This is one of the strengths of the distinction that Langdon (1979) made between Tlingit and Kaigani adaptations because archaeological evidence in the format of faunal records, can be brought to bear on Langdon's model.

The Archaeological Record

What data can archaeologists use to identify ethnicity at sites that fall within the region of the southern Prince of Wales Archipelago occupied by both Tlingit and Haida? From the 16 sites I have tallied in the outer Prince of Wales Archipelago, there are no ethnically distinctive artifacts of stone, shell, bone, basketry, or cordage. These sites have yielded faunal assemblages, however, and this evidence of resource use can be assembled and considered within the context of Langdon's (1979) model.

Cape Addington Rockshelter (49-CRG-188)

The largest faunal assemblage in the region is from Cape Addington Rockshelter located on Noyes Island (Moss 2004a). *Mytilus californianus* was the most important shellfish species and made up 90% of the shell weight. The most common mammals, fish, and birds were deer, harbor seal, halibut, salmon, Pacific cod, eagle, and albatross (Tables 2 and 3). The earliest activities (A.D. 50–260) were halibut fishing, deer hunting, and fur seal hunting. Somewhat later (A.D. 260–660) Pacific cod fishing was added to the mix, suggesting occupation during March to April. Sea otter remains were abundant between A.D. 660–860. Salmon and halibut fluctuated in relative abundance, but both were the focus of fishing after A.D. 1000. Pinnipeds outnumber deer only between A.D. 1520–1680, although fur seal is present in the earliest level. I have argued that the differences in resource use over time at the site do not suggest evolutionary changes in adaptation or technology, nor do they show resource depression. They represent variation in the

Table 2. Vertebrate Remains (NISF) from Different Samples from 49-CRG-188, Cape Addington Rockshelter.¹

TAXON	units 1-3	units 6-7	step trench	slough	1996 bulk	1-3 bulk	6-7 bulk	surface	Total
PISCES									
<i>Clupea harengus pallasii</i>	27				26	13	2		68
Cottid	2		4			2			8
Embiotocid	11								11
Gadid	611	15	22	1	5	12			666
<i>Hemilepidotus hemilepidotus</i>	5								5
<i>Hexagrammos decagrammos</i>	5								5
<i>Hexagrammos</i> spp.	9								9
<i>Hippoglossus stenolepis</i>	464	366	8	68	1	15	5	5	932
<i>Myoxocephalus polycanthocephalus</i>						1			1
<i>Ophiodon elongatus</i>	34	1	2	2			1	11	51
Pleuronectid	3		1						4
Salmonid	130	615	28	16	4	3	15	28	839
<i>Sebastes</i> spp.	91	4	6	1		5	1	7	115
<i>Squalus acanthias</i>	1								1
Stichaeid	8								8
Zoarcid					1				1
AVES									
<i>Aechmophorus occidentalis</i>	1								1
Anatid								13	13
<i>Brachyramphus marmoratus</i>	1	1						2	4
<i>Catharus</i> sp.	1								1
<i>Cepphus columba</i>	1							4	5
<i>Cerorhinca monocerata</i>	3							3	6
<i>Corvus caurinus</i>								12	12
<i>Cyanocitta stelleri</i>	5							1	6
<i>Fulmaris glacialis</i>								1	1
<i>Gavia</i> spp.								2	2
<i>Haliaeetus leucocephalus</i>	27								27
<i>Larus</i> spp.	3								3

TAXON	units 1-3	units 6-7	step trench	slough	1996 bulk	1-3 bulk	6-7 bulk	surface	Total
<i>Lunda cirrhata</i>	1								1
<i>Melanitta</i> spp.	2								2
<i>Mergus</i> sp.	1								1
<i>Oceanodroma furcata</i>	1		6				2		9
<i>Phalacrocorax pelagicus</i>	5							1	6
<i>Phalacrocorax</i> spp.	2								2
<i>Phoebastria albatrus</i>	11	1							12
<i>Podiceps grisegena</i> (cf.)	1								1
<i>Ptychoramphus aleuticus</i>	2								2
<i>Turdus migratorius</i>		4							4
<i>Uria aalge</i>	1								1
MARINE MAMMALS									
Cetacea	4								4
<i>Callorhinus ursinus</i>	4	7		8		1	1	2	23
<i>Enhydra lutris</i>	58	3	2					2	65
<i>Eumetopias jubata</i>	5	32	9	2					48
<i>Phoca vitulina</i>	34	48	4	1			1	10	98
<i>Phocoena</i> sp. (cf.)	1								1
Pinniped	17	51	5	13	1		1	4	92
Otariid	5	23		3					31
TERRESTRIAL MAMMALS									
<i>Canis familiaris</i>		1							1
<i>Canis</i> spp.	2	1						1	4
<i>Lontra canadensis</i>	7		2						9
<i>Mustela vison</i>	1	1					1		3
<i>Odocoileus hemionus sitkensis</i>	226	244	55	29	5	2	2	11	574
<i>Peromyscus keenii</i>							4		4
Rodent	1								1
TOTAL	1835	1418	154	144	43	54	36	120	3804

¹ Please see Moss (2004a) for additional details on sample context and age. Unidentified bones are not included in this tabulation.

Table 3. Important Vertebrates from 49-CRG-188, Cape Addington Rockshelter (X indicates presence, and number of Xs indicates relative abundance).

A.D.	50–400 VI	260–660 V	540–690 IV	450–860 III	330–1460 II	post 1410 I
salmon			X	XX	XX	X
halibut	XXXX	X	X	X	X	X
Pacific cod		XXX	XX	X	X	X
Deer	XXX	XXX	X	X	XX	X
harbor seal			XX		X	X
sea otter		X	X	XX	X	X
fur seal	X	X	X			X
sea lion			X		X	X
eagle	X	X	X	X		X
albatross		X		X		

specific season of occupation coupled with variable success in pursuing different animals. The paleobotanical (Lepofsky, Moss, and Lyons 2004) and faunal studies indicate that occupation of the rockshelter ranged from March and April, to May and June, and into July, and possibly August at different times in the past 2000 years. During some years the site may have been occupied for only a few weeks, in other years, perhaps not at all.

I have argued (Moss 2004a:239–240) that because the buried deposits at 49-CRG-188 date between A.D. 50 and A.D. 1680 and, given the A.D. 1730 estimate regarding the timing of the Kaigani incursion, there is no compelling evidence that the Kaigani occupied the site. If so, the Cape Addington findings indicate that the Tlingit made use of outer coast resources, including halibut, seabirds, fur seals, and sea lions. This supports the idea that there was little difference between Tlingit and Kaigani maritime capabilities. Their respective land use and settlement patterns may have differed during the historic period, but this may have been due to changing sociopolitical circumstances, some related to the impacts of epidemic disease, the fur trade, intertribal competition, and other post-contact pressures.

Some of the faunal evidence from Cape Addington is consistent with Langdon's (1977) model of the spring, deep sea occupational phase of Tlingit settlement. Langdon stated:

... the Tlingit were likely moving toward a more oceanic-based subsistence pattern prior to the Kaigani immigration. The Kaigani themselves, after initial consolidation in Southeast Alaska, appear to have been shifting, in recognition of the different resources available to them, toward more extensive use of stream and land resources than they had been accustomed to in the Queen Charlotte Islands. (Langdon 1977:129)

Although the Cape Addington data cannot address post-contact changes, I have proposed that the

Tlingit were capable of an effective outer coast adaptation more than 1,000 years ago, as evidenced by the faunal remains from 49-CRG-188. Note that Langdon's (1979:116) analysis of Tlingit versus Kaigani orientations focused on village locations, not sites in general.

Comparison to Other Prince of Wales Archipelago Sites

Beyond Cape Addington, 15 sites in the outer archipelago have seen some level of excavation (Table 4). Bone counts for fish, birds, and mammals identified to the family level have been published for only three sites (49-CRG-88 rockshelter, 49-CRG-88 sea cave, 49-CRG-89; Moss and Erlandson 2001).⁴ The assemblages from two other sites, 49-DIX-46 and 49-DIX-53, are currently being studied and I include their results here. The fish from Chuck Lake (49-CRG-237) can be added after interpolating NISPs from percentages reported by Ackerman, Reid, and Gallison (1989:13). When I discount samples that contain less than 30 specimens for each of the three categories of animals, we can compare the Cape Addington fish assemblage to that of five sites, and the Cape Addington birds to those from Elderberry Cave, 49-DIX-53 (Moss 2007).

At the Suemez Island sites, *Mytilus californianus* makes up 90% or more of the shellfish remains. The two vertebrate assemblages from Suemez Island are quite small; from the 49-CRG-88 sea cave, prickleback, rockfish, and lingcod are the most common taxa (Table 5). From the 49-CRG-88 rockshelter, salmon and rockfish are most common. Suemez Island is located in Langdon's (1979:118) buffer zone between Tlingit and Kaigani. Site 49-DIX-46, Kit'n'Kaboodle Cave, is located on Dall Island, and the most abundant shellfish in this assemblage are barnacles and mussels (Erlandson and Moss, n.d.). Although this site lies within that region occupied by the Kaigani

Table 4. Sites Excavated in the Outer Prince of Wales Archipelago.

Site Number	Site Name	Location	Age ¹	NISP to family?	Source
49-PET-408	On Your Knees Cave	north Prince of Wales Island	10,300–9730	no ²	Dixon et al. 1997, Dixon 1999
49-CRG-237	Chuck Lake Loc. 1	Heceta Island	8200–7000	fish only	Ackerman et al. 1985, 1989; Ackerman 1996; Okada et al. 1989, 1992
49-CRG-237	Chuck Lake Loc. 3	Heceta Island	5520–5290	no	Ackerman et al. 1985; Okada et al. 1992
49-DIX-46	Kit'n'Kaboodle	Dall Island	5000–2000 cal	yes	Erlandson and Moss n.d.
49-CRG-236	Rosie's Rockshelter	Heceta Island	4150–3300	no	Ackerman et al. 1985
49-CRG-378	Port Alice Cave	Heceta Island	4070	no	Okada et al. 1992
49-CRG-88	sea cave	Suemez Island	2875–1120 cal	yes	Moss and Erlandson 2001
49-CRG-88	rockshelter	Suemez Island	1290 cal	yes	Moss and Erlandson 2001
49-CRG-89	sea cave	Suemez Island	840–770 cal	yes	Moss and Erlandson 2001
49-DIX-28	Hunter Bay	south Prince of Wales Island	2230–1430	no	Okada et al. 1992
49-CRG-188	Cape Addington Rockshelter	Noyes Island	A.D. 50–1680 cal	yes	Moss 2004a
49-DIX-53	Elderberry Cave	Lowrie Island	A.D. 400–1700 cal	yes	Moss 2007
49-CRG-96	Warm Chuck Village	Heceta Island	1350	no	Okada et al. 1992
49-CRG-230	Sakie Bay Cave	Dall Island	2260–historic	no	Reger and Campbell 1985
49-CRG-164	Sarkar Cove Entrance	north Prince of Wales Island	1920–760	no	Campbell n.d.
49-CRG-54	Yatuk Creek	north Prince of Wales Island	1270–460	no	Mobley 1984

¹Radiocarbon dates are listed in radiocarbon years B.P., unless "cal" is noted. A.D. dates are specified where they were used by the original investigator.²No faunal remains are preserved outside the cave where most of the artifacts are found and where the stratigraphy is best defined. The faunal remains in the cave appear to have been introduced by animals (Dixon 2005, pers. comm.).

Table 5. Vertebrate Remains (NISP) from Outer Prince of Wales Archipelago Sites.

TAXON	CRG-188 Cape A rockshelter	CRG-088 sea cave	CRG-088 rockshelter	CRG-237 Loc. 1 ¹	DIX-046 Kit'n'K	DIX-053 Elderberry
PISCES						
<i>Clupea harengus pallasii</i>	68	2	1	7	10	
Cottid	9		3		5	6
Elasmobranch					1	
Embiotocid	11					
Gadid	666	4	1	356	6	
<i>Hemilepidotus hemilepidotus</i>	5			55		
<i>Hexagrammos decagrammos</i>	5					
<i>Hexagrammos</i> spp.	9	11	1	140	13	59
<i>Hippoglossus stenolepis</i>	932		5		7	6
<i>Ophiodon elongatus</i>	51	19	3	7	2	8
Pleuronectid	4			6		
Rajid						
Salmonid	839	2	37	6	1	2
Sebastes spp.	115	20	36	37	124	45
<i>Squalus acanthias</i>	1		1			
Stichaeid	8	32			21	18
Zoarcid	1				5	
AVES						
<i>Aechmophorus occidentalis</i>	1				1	
Alcid						1
Anatid	13	1				
<i>Brachyramphus marmoratus</i>	4				1	1
<i>Branta canadensis</i>						
<i>Catharus</i> sp.	1					
<i>Cephus columba</i>	5					
<i>Cerorhinca monocerata</i>	6					
<i>Corvus caurinus</i>	12					
<i>Cyanocitta stelleri</i>	6					
<i>Fulmaris glacialis</i>	1					
<i>Gavia</i> spp.	2				2	
<i>Haliaeetus leucocephalus</i>	27					5
<i>Larus</i> spp.	3					
<i>Lunda cirrhata</i>	1				1	67
<i>Melanitta</i> spp.	2					
<i>Mergus</i> sp.	1					
<i>Oceanodroma furcata</i>	9					
<i>Phalacrocorax pelagicus</i>	6				7	13
<i>Phalacrocorax</i> spp.	2	1	1	x		
<i>Phoebastria albatrus</i>	12					
<i>Podiceps</i> spp.	1		1			
<i>Ptychoramphus aleuticus</i>	2					34
<i>Synthliboramphus antiquus</i>						3
<i>Turdus migratorius</i>	4					
<i>Uria aalge</i>	1				1	

Table 5. (continued)

TAXON	CRG-188 Cape A rockshelter	CRG-088 sea cave	CRG-088 rockshelter	CRG-237 Loc. 1 ¹	DIX-046 Kit'n'K	DIX-053 Elderberry
MARINE MAMMALS						
Cetacea	4					
<i>Callorhinus ursinus</i>	23					
<i>Enhydra lutris</i>	65	3			1	
<i>Eumetopias jubata</i>	48					4
<i>Phoca vitulina</i>	98				4	17
<i>Phocoena</i> sp. (cf.)	1					
Pinniped	92					5
Otariid	31			x		
TERRESTRIAL MAMMALS						
<i>Canis familiaris</i>	1					
<i>Canis</i> spp.	4					
<i>Castor canadensis</i>				x		
<i>Lontra canadensis</i>	9		1			
<i>Mustela vison</i>	3					
<i>Odocoileus hemionus sitkensis</i>	574	3			61	
<i>Peromyscus</i> spp.	4					
<i>Rangifer tarandus</i>						
Rodent	1					
Soricidae						
<i>Ursus americanus</i>						
Cervid				x		
TOTAL	3804	98	91	614	274	294

¹ For 49-CRG-237, the NISP for fish were figured from percentages reported in Ackerman, Reid, and Gallison (1989:13), and numbers of herring, lingcod, salmon, and flatfish are estimated because they were reported as “representing 2% or less.” Numeric data on mammals and birds were not published, but their presence is indicated by “x.”

during protohistoric times, the fauna analyzed here are 5,000 to 2,000 years old. The assemblage is abundant in rockfish and deer. Site 49-DIX-53, Elderberry Cave, is located on Lowrie Island, one of the Forrester Islands used by both Tlingit and Kaigani (Emmons 1991:6). The vertebrate assemblage from Elderberry Cave has a high proportion of greenling, rockfish, tufted puffins, and Cassin’s auklets. The Chuck Lake Site (49-CRG-237, Locality 1) on Heceta Island is located north of the buffer zone. This site occurs away from the modern shoreline, and the abundance of clams among the invertebrate remains indicates this site was located along an estuary 8,200 years ago when it was first occupied. Interestingly, it is the only site with a substantial percentage of Pacific cod like that found at the Cape Addington Rockshelter. The abundance of halibut sets the Cape Addington Rockshelter assemblage apart from all the others in the outer Prince of Wales Archipelago discussed here.

Even though some of the assemblages are small, we can see significant differences between them. I think most of the variation relates to differences in ecological setting and resource availabil-

ity coupled with variation in season of occupation. In southeast Alaska, Pacific cod is an indicator of occupation during March and April (Bowers and Moss 2001), and the levels in which cod is abundant at the Cape Addington Rockshelter and at Chuck Lake likely reflect use during early spring. The only site where halibut is abundant is Cape Addington, and this species is readily available in May and June and into July in the waters near the site. Salmon are abundant near the site in June and July. Abundant salmon bones can indicate the proximity of a salmon stream, and in the outer islands, proximity to a place where salmon aggregate during migration. In other cases, abundant salmon might indicate stored fish. In the case of the Suez Island sites, located within about 15 meters of one another, it appears the rockshelter was occupied when salmon were present, while the sea cave was not. These assemblages are quite different despite their proximity and overlapping dates. The other most common taxa in the archipelago sites—rockfish, greenling, lingcod, and pricklyback—provide less definitive seasonal information.

Regarding birds, the Cape Addington Rock-

shelter assemblage has many more taxa than does Elderberry Cave, with eagle the most numerous and a surprising number of albatross bones. Elderberry Cave is dominated by tufted puffin and Cassin's auklet, two species that breed on the Forrester Islands. Perhaps the two sites are not as different as they might appear, as both contain abundant seabirds.

All of the archipelago sites with faunal assemblages that have been described here have occupations that pre-date the protohistoric Haida incursion. While it is perhaps simplest to claim that all these sites are Tlingit, we do not definitively know the antiquity of the Tlingit occupation. A few of these sites may contain materials that overlap with the protohistoric era. A few of the other archipelago sites that have been excavated (but for which faunal studies have not been reported) may have materials that also date to the time of Kaigani occupation (e.g., 49-CRG-230, Sakie Bay Cave). At the moment, though, we have no faunal record in southeast Alaska that we can identify as Kaigani. In search of a Haida faunal profile against which to compare the Prince of Wales Archipelago sites, I now turn to a well-studied group of assemblages deep within Haida territory dating to the last 2,000 years.

Comparison to Kunghit Sites

In this section, I compare the largest of the Prince of Wales Archipelago assemblages (from the Cape Addington Rockshelter) to the faunal assemblages studied by Rebecca Wigen and reported in Steven Acheson's 1998 book on the Kunghit Haida. The Kunghit sites are located in exposed and semi-exposed settings on the south end of Moresby Island, Kunghit Island, and some other very small islands. The sites include shell middens, caves, and rockshelters dating to the last 2000 years and considered to be ancestral Haida. Acheson's (1998: 33) Group 1 shell middens are open sites with a surface area greater than 1,000 m², while his Group 2 shell middens are less than 1,000 m². At 13 of 16 sites, California mussel makes up 95 to 100% of the shell weight (Acheson 1998:47), similar to that percentage found at the Cape Addington Rockshelter. Sixteen of the 18 fish assemblages had more than 30 specimens of fish (Acheson 1998:52).⁵ Rockfish and salmon are most abundant. Pacific cod are missing from most sites and their highest abundance is less than 2% at one of the caves. At the Cape Addington Rockshelter, Pacific cod made up 24% of the fish. Another difference is the low proportion of halibut in the Kunghit sites; halibut reach their highest abundance at a shell midden where they comprise only 11% of the fish. In the Cape Addington Rockshelter assemblage, halibut made up 34% of the fish. If we use Fladmark's and Langdon's resource ranking models in which halibut and cod are key Haida resources, we would think that the

Cape Addington Rockshelter assemblage was more "Haida" than any of these Kunghit sites.

Looking at the assemblages more closely, I wanted to systematically compare assemblage composition. Following Krebs (1989:304–305) and Reitz and Wing (1999:107–109), I used a percentage similarity measure because it is easy to calculate and is not much affected by samples in the range of 100 to 5,000 or by species diversity. This index is calculated by the following formula:

$$P = \frac{\sum \text{minimum}(p_{1i}, p_{2i})}{n} \text{ where}$$

P = percentage similarity between
samples 1 and 2

p_{1i} = percentage of species i in sample 1

p_{2i} = percentage of species i in sample 2

A percentage similarity index of 100 means that the assemblages have the same composition. When I compared the Cape Addington Rockshelter fish assemblage to those of the Kunghit sites, similarity indices were relatively low, ranging from a high of 44 to a low of 19. Table 6 shows the percent similarity indices arranged in decreasing rank order. This measure shows that the four Kunghit site assemblages most similar to that from Cape Addington are Group 1 shell middens. In general, though, site type appears to be largely irrelevant; the fifth most similar assemblage is a rockshelter, but this is followed by sites of various types in no particular order. What accounts for the bulk of the 40% similarity between the Cape Addington Rockshelter assemblage and those in the top Group 1 shell middens, is that 31% of the Cape Addington fish are salmon, and each of these Kunghit shell middens has a relatively large proportion of salmon (ranging from 40% to 83%). The Kunghit site with the lowest percent similarity index is FaTs3, which has only 10% salmon and 77% rockfish. Only 4% of Cape Addington fish are rockfish.

Consider the percent similarity indices for the Kunghit fish assemblages compared to one another. Table 7 shows the low indices in bold (less than or equal to 30%) to show how different many of these assemblages are from each other. Many factors may be invoked to explain this diversity among the assemblages. But there are significant similarities among this group as well. In a more detailed analysis, Orchard and Clark (2005) have shown that Kunghit fish assemblages older than 1400 B.P. are dominated by rockfish, while assemblages more recent than 800 B.P. are dominated by salmon. The intervening period (1400–800 B.P.) was transitional between these trends, with salmon increasing over time until their dominance after 800 B.P. The main point is that I have not been able to identify a typical "Haida" fish assemblage profile amongst the Kunghit sites used in this analysis.

For mammals, 10 of the Kunghit assemblages are of sufficient size to permit analyses of percent similarity indices. Table 8 compares the

Table 6. Percent Similarity Index between 16 Kunghit Fish Assemblages and the Cape Addington Rockshelter Fish Assemblage.

Kunghit Site Type	Kunghit Site	% Similarity with 49-CRG-188
Group 1 Shell Midden	FaTt16	44
Group 1 Shell Midden	FaTt28	44
Group 1 Shell Midden	FaTt9	40
Group 1 Shell Midden	FaTr3	40
Rockshelter	FaTt22b	39
Group 2 Shell Midden	FaTt22a	39
Group 2 Shell Midden	FaTt23	38
Cave	FaTs1	38
Rockshelter	FaTs17	38
Cave	FaTt20	38
Group 1 Shell Midden	FbTs4	37
Group 2 Shell Midden	FaTs31	37
Cave	FaTs27	35
Group 2 Shell Midden	FaTs35	32
Group 2 Shell Midden	FaTs20	22
Group 1 Shell Midden	FaTs3	19

Cape Addington Rockshelter mammal assemblage to those of the 10 Kunghit sites. Here, the similarity indices for the mammals are even lower than those for the fish, ranging from a high of 30 to a low of 19. The three Kunghit sites with mammal assemblages most similar to that of Cape Addington are again Group 1 shell middens. Two of these sites, FaTt28 and FaTr3, also yielded fish assemblages that were most similar to that of Cape Addington. Yet, overall, these indices are quite low. A conspicuous difference between six of the Kunghit sites and Cape Addington is that the former have substantial quantities of whale (28–71%), whereas Cape Addington does not. Another noteworthy difference is the near absence of deer in the Kunghit assemblages, whereas deer make up 69% of the mammals at Cape Addington. Since deer were not present on Haida Gwaii during the Holocene until their historic introduction (Wigen 2005), this helps explain the low similarity indices between the mammals from the Kunghit sites and Cape Addington Rockshelter.

The percent similarity indices for the Kunghit mammal assemblages compared to one another are shown in Table 9. This time, the indices show a much wider range, from a low of 23 to a high of 87. In this table, the indices greater than or equal to 70 are in bold, showing which sites have assemblages that are quite similar to one another. This table shows that several mammal assemblages from the Group 1 shell middens are quite similar to each other due to a substantial to high proportion of whale found at these sites. Comparable proportions of harbor seal, sea otter, and river otter also contribute to the similarity in a few to several cases. This might suggest that the presence of whale is a key diagnos-

tic trait of the Haida. It is interesting that whales do not show up on Fladmark's or Langdon's list of ranked resources. Acheson and Wigen (2002), however, have presented substantial evidence for a whaling tradition among the Haida. Whether the bulk of the whales used by the Haida were scavenged from drift whales or were systematically hunted remains an open question. Obviously, not all Haida mammal assemblages contain whale bones, and whale bones have been found in south-east Alaskan sites beyond the range of the Kaigani Haida (e.g., Hidden Falls, see Moss 1989). Future researchers may want to re-visit this issue as more data accumulate from sites in the outer Prince of Wales Archipelago.

Unfortunately, I cannot easily calculate percent similarity indices for the bird assemblages from Cape Addington and the Kunghit sites, even though 11 of the Kunghit bird assemblages are of sufficient size. The faunal categories used in the Kunghit bird analysis include family level identifications broken down into large, medium, and small categories for geese, ducks, cormorants, gulls, and alcids. The group "small alcids" dominates seven of the 11 assemblages and is significant in the remaining four. Because I cannot compare this category directly to the identifications I made at Cape Addington, I have not computed the percent similarity indices.

The percent similarity indices for the Kunghit bird assemblages can be compared to one another, as shown in Table 10. The range in these figures, from a low of 17 to a high of 93, is even greater than that among the mammal assemblages. As illustrated in bold, a relatively large number of the pair-wise comparisons—21—are greater than 70%. The high proportion of small alcids shared

	Kunghit Sites	% Similarity 49- CRG-188
Group 1 Shell Midden	FaTt28	30
Group 1 Shell Midden	FaTr3	30
Group 1 Shell Midden	FbTs4	30
Rockshelter	FaTt22b	29
Group 2 Shell Midden	FaTs20	27
Group 1 Shell Midden	FaTt9	26
Group 1 Shell Midden	FaTs3	25
Group 2 Shell Midden	FaTt22a	23
Group 2 Shell Midden	FaTt23	20
Group 1 Shell Midden	FaTt16	19

[illegible][illegible]

by bird assemblages from FaTs 17, FaTs1, FaTs20, FaTr3, FaTs3, FaTt16, and FbTs4 accounts for their high percent similarity indices. Apart from this group are the bird assemblages from FaTt28 and FaTt22a, which share comparable proportions of eagle and, in this, they are similar to the Cape Addington Rockshelter bird assemblage.

Orchard and Clark (2005) have recently used multidimensional scaling—a statistical procedure more sophisticated than the percent similarity index that I have used here—to examine the Kunghit assemblages. Regarding the bird assemblages, my results differ somewhat from theirs. First, I did not include assemblages from sites (FaTs31, FaTs35, FaTt23, FaTt31, FaTs27, FaTt20, and FbTu5) that contained less than 30 identified bird bones. Another difference in our analyses is that Orchard and Clark (2005) performed an integrated study of fish, mammals, and birds together, whereas I treated each of these groups separately. Regarding our specific results for birds, I found seven very similar assemblages (FaTs17, FaTs1, FaTs20, FaTr3, FaTs3, FaTt16, FbTs4), due to the high proportion of small alcids in each. In contrast, Orchard and Clark (2005) define an eastern cluster of sites with alcid frequencies between 5% and 45% (of the total vertebrate assemblage) that contains four sites from my group of seven (FaTs20, FaTr3, FaTs3, FbTs4). Two of the sites that make up my group of seven (FaTs1, FaTt16) fall in Orchard and Clark's (2005) western group, where alcids comprise less than 2% of the total vertebrates. The seventh site in my cluster, FaTs17, does not appear to have been included in the Orchard and Clark analysis. Granted, the assemblages from FaTs1 and FaTt16 are small, but alcids are still amongst the most abundant birds at these two sites. This example shows how faunal data subject to different statistical analyses can be used to address different kinds of archaeological questions.

Upon review, I hesitate to suggest that an alcid-dominated bird assemblage is distinctively "Haida." I find it notable, however, that Fladmark's list of ranked resources (Table 1) shows birds at the bottom for both Tlingit and Haida. The abundance of birds in some of the Kunghit assemblages is testimony to the importance of birds to the Haida. For the Tlingit, bird bones are far more common in archaeological sites throughout the outer islands than bear, mountain goat, or mountain sheep, resources ranked higher than birds in Table 1. In the outer Prince of Wales Archipelago and on Haida Gwaii, where birds can be locally abundant, it is not surprising that both the Tlingit and the Haida made substantial use of birds (Moss 2007).

Concluding Thoughts

There are problems with defining "maritime adaptations," and the term "adaptations" itself is loaded

with functionalist, culture evolutionary baggage, as discussed earlier. Nevertheless, this paper has compared the maritime adaptations of the Kunghit Haida to those of people who resided in some sites located in the Prince of Wales Archipelago of Alaska. As clearly demonstrated, I was unsuccessful at identifying a way in which faunal assemblages might be identified as distinctively Haida or distinctively Tlingit. This exercise shows that in searching for indicators of ethnicity, archaeologists are forced to essentialize what it is that might define a Tlingit versus a Haida pattern of resource use. We know the Tlingit and Haida spoke distinct languages, and we know the Kaigani had moved north into the Prince of Wales Archipelago by the eighteenth century. In addition, Kaigani resource use on the archipelago may have differed from Haida resource use on Haida Gwaii. The Kaigani would have targeted unoccupied areas in the archipelago, obviously not year-round Tlingit villages.

As argued elsewhere (Moss 2004a), some levels from the Cape Addington Rockshelter probably represent the spring, deep-sea occupational phase of Tlingit settlement (Langdon 1977), and others represent occupation during later spring into summer. None of the other faunal assemblages in the Prince of Wales Archipelago is quite like that from Cape Addington, nor are the Kunghit assemblages. This paper has shown considerable diversity among both the Prince of Wales Archipelago assemblages and the Kunghit assemblages. It seems that archaeology should yield data that would allow us to identify signatures of the Haida on the outer islands of southeast Alaska. Having conducted this analysis, I believe that faunal assemblage variability in this case stems from too many other variables to provide a strong signature of ethnicity. At a minimum, these include ecological setting, patterns of local resource abundance, seasonality of occupation, duration of occupation, and taphonomic processes. Matthew Betts' (2005) study of the Mackenzie Delta Inuit groups, which employs both correspondence and cluster analyses, effectively addresses several of these other variables with larger zooarchaeological assemblages than those compiled here.

We might also consider the possibility that Tlingit "adaptations"—at least those in the outer Prince of Wales Archipelago—were not substantially different from those of the Haida. The Tlingit occupied an enormous region of the Northwest Coast, and the way of life of the Tlingit of the Prince of Wales Archipelago differed from that of the Tlingit on Admiralty Island and from those Tlingit who lived along the Chilkat River (Moss 2004a:22, 240). Yet Tlingit from vastly separated regions did not live in isolation of each other (Moss 2004b), nor did they live in isolation of the Haida. Coastal waterways served as the connective tissue of social and historical relationships that extended across the

larger region. Although our relevant unit of analysis is ideally the social group, because Northwest Coast social groups were inextricably linked to each other, and their technologies and subsistence practices were broadly diffused, they are hard to isolate in the archaeological record.

Twenty years ago in the Chacmool conference volume, *Ethnicity and Culture* (Auger et al. 1987), Wayne Suttles (1987:248) suggested that the search for neatly bounded social units on the Northwest Coast was probably fruitless. He also wrote that, “[i]f the members of a tribe or the speakers of a language did not constitute a culturally distinct or culturally stable group, then one cannot expect to find indisputable markers of tribal or linguistic identity in the archaeological record” (Suttles 1987:249). In his contribution to this same volume, Jack Ives (1987:222) wrote, “. . . the historical processes themselves—not so much the detection of ethnicity—are the fundamental issue for research.” Although the analysis conducted in this paper may not have moved us closer to understanding the historical processes themselves, I hope it will help us move beyond studies of “adaptation” that tend to reduce the variability in the archaeological record to narratives of gradual, unidirectional change over time.

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Endnotes

1. Manaster Ramer (1996) resurrected Sapir’s hypothesis that Haida is related to the Na-Dene languages, but did not present new linguistic data to support this idea.
2. According to Croes (1997:601), “Tlingit-Haida” basketry is made of spruce root, spiral-based twining is used to construct a round basket base, the basket body is made by open twining, twining gauge is fine, and baskets are round-based cylinders. See also Croes, Kelly, and Collard (2005:148–149).
3. Emmons (1991:252) notes that southern Tlingit took up tattooing due to their “intimate contact” with the Haida.
4. For 49-PET-408, Dixon (2005, personal communication) reports that no faunal remains are preserved outside the cave where most of the artifacts occur and where stratigraphy is best defined. He believes that the faunal remains in the cave were brought in by animals. Ackerman et al. (1985) report some identifications for 49-CRG-237 Locality 3 and 49-CRG-236, but fish are identified only to the level of salmonid and non-salmonid. Reger and Campbell (1984) list animals present at 49-CRG-230, but do not present numeric data. Numeric data are given in Mobley (1984) but not in a format that can be converted to NISP for each taxon.
5. In all of the subsequent percent similarity index analyses to follow, I only use fish, mammal, or bird assemblages that contain a minimum of 30 identified specimens. I do not include specimens in the unidentified fish, unidentified mammal, or unidentified bird categories to achieve the threshold of 30.

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