Abstract. Understanding the broad patterns of cultural processes on the Northwest Coast requires specific studies of local variability. This paper draws on ethnographic and archaeological data to examine changing patterns of maritime resource use in one locality: Barkley Sound, western Vancouver Island. We examine three excavated village sites, focusing on Ts’ishaa (DfSi–16 and –17). Large village communities emerged on an economic base characterized by a wide range of marine resources. Salmon, however, played a relatively minor role in the economy until the final precontact stage (ca. 750 to 300 cal BP), when it increased considerably in importance. Various lines of evidence suggest that this shift reflects changing resource use and territorial access in Barkley Sound as local groups amalgamated and adopted a seasonal pattern of mobility.

Since the inception of ethnographic research in the late 19th century, it has been evident that Northwest Coast cultures shared many elements of a broad coast-wide social and economic pattern, yet also exhibited marked diversity at the regional and local levels. Over the past few decades much archaeological research has focused on investigating how and when these complex, relatively sedentary, non-egalitarian societies...
emerged and came to characterize the area. A general consensus exists that abundant and relatively reliable food resources, along with developed procurement and storage technologies, are essential features in the emergence of cultural complexity on the Northwest Coast, although researchers disagree about the timing and pace of these developments, as well as the links between sedentism, storage economies, and social inequality (Ames 1994, 2003, 2005; Arnold 1996; Cannon 1998; Sassaman 2004).

Salmon, an abundant and predictable resource and an iconic symbol of Northwest Coast peoples, plays a prominent role in most archaeological accounts of this development (e.g., Cannon and Yang 2006; Coupland 1998; Matson 1992, 2003; Matson and Coupland 1995). However, when sites in differing environmental settings are examined, considerable local variation is evident. Sites along the lower Fraser and Skeena Rivers, for example, provide access to abundant salmon and this one resource often dominates the faunal assemblage (e.g., Coupland and Stewart 2005).

Quite different patterns of resource use are evident at outer-coast sites, such as on Haida Gwaii and western Vancouver Island, where salmon played a much lesser role in the economy. Archaeological studies at an increasing number of coastal sites have documented reliance on a wide range of species, among which salmon was not always the key resource (Butler and Campbell 2004; Cannon 2001; Monks 1987; Orchard 2007).

This paper examines excavated data from Barkley Sound, in Nuu-chah-nulth territory on western Vancouver Island, to explore the temporal and spatial variability of resource use by a local group in one region of the Northwest Coast. Cultural adaptations in this region differ considerably from those in the better-known Strait of Georgia, particularly along the Fraser River with its rich salmon runs, where several models of emerging cultural complexity are based (e.g., Burley 1979; Matson 1992). Research in Barkley Sound, in contrast, indicates that populous sedentary societies developed on an economic base in which salmon played a relatively minor role. Our work also suggests that the patterns of political organization and site use that characterized the precontact societies differed in significant ways from those documented ethnographically. Ethnographic reconstructions tend to be both normative and static, minimizing variability within the culture and through time. By combining ethnographic and archaeological data we can examine changing patterns of resource use and territorial expansion over time. In this paper, we integrate archaeological, ethnographic, and oral historical information to present a detailed picture of evolving economic patterns in one specific locality.

**ARCHAEOLOGY AND ORAL HISTORY IN BARKLEY SOUND**

Our on-going research includes excavation at five major village sites extending across Barkley Sound (Figure 1). These sites are located in the traditional territories of three Nuu-chah-nulth First Nations: the Toquaht, Tseshaht, and Huu-ay-aht. In all three cases the excavated sites include the major traditional village that was the location from which the First Nation derives its name; thus each site is ethnographically identified with the formation of the original local group, prior to the amalgamations that gave rise to the later historic polities. This paper specifically examines excavated data from the large village site of Ts’ishaa (DSi–16 and 17), the origin
place of the Tseshaht people in their oral histories, located on an outer island of the Broken Group Islands in the central sound (now in Pacific Rim National Park Reserve). Information is also presented on Huu7ii (DfSh–7), a major village of the Huu-ay-aht people of the eastern sound, although analysis of the excavated material from that site is still ongoing. Of the Toquaht sites in the western sound, the major villages of T’ukw’aa (DfSj–23) and Ch’uumat’a (DfSi–4) have only preliminary reports available (McMillan 1999; McMillan and St. Claire 1992, 1996); as detailed faunal analyses have not yet been completed, these sites play a minor role in this paper. However, Monks (2006) has recently reported in detail on the fauna from a smaller excavation at Ma’acoah (Ma7akwuu7a; DfSi–5) and those results are summarized here.

Our understanding of Ts’ishaa village and the people who inhabited it is greatly enriched by the knowledge of Nuu-chah-nulth elders who provided information to the anthropologist Edward Sapir and his Nuu-chah-nulth collaborators early in the 20th century (Sapir 1910–1914; Sapir and Swadesh 1978). Due to such knowledgeable individuals as Tom Sayach’apis (ca. 1835–1927), Sapir’s main Tseshaht informant, we have a description of the general location and relative ranking of the four distinct lineage groups that occupied this village (and comprised the original Tseshaht local group) (Figure 2). Each of these groups, known as ushtakimilh, represented a separate line of descent from the original founding ancestor. Each ushtakimilh had its own chief who held rights to specific household locations at the site, although the chief of the most highly ranked ushtakimilh had

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Figure 1. Map of Barkley Sound showing the locations of the five excavated village sites discussed in the text.
greatest influence and was thought of as the owner of the group’s territory and its resources. The ethnographic accounts provide detailed descriptions of various activities that took place at this village, particularly those that involved such high-status pursuits as whaling. These accounts include details of the most highly ranked chief’s dwelling, such as the images painted on its front and the carved interior posts and other features, which signified the importance of rank, privilege and resources in the leadership hierarchy of the village (McMillan and St. Claire 2005a: 9–10). Sayach’apis described Ts’ishaa as the year-round centre for the Tseshaht local group whose territory was at that time restricted to a small cluster of adjacent outer islands at one edge of the Broken Group (Figure 3). All economic resources within this territory were exploited from the permanent base at Ts’ishaa. The other islands and the shoreline of Barkley Sound were occupied by culturally related but independent political units (McMillan and St. Claire 2005a; St. Claire 1991). The presence of neighbouring Nuu-chah-nulth local groups constrained mobility and resource use to relatively small areas that were clearly recognized as owned territories of individual chiefs and their lineages.

Sayach’apis recounted a detailed origin story for the Tseshaht local group (Sapir and Swadesh 1978: 52–53). After initial creation at Ts’ishaa, the people “became numerous” and the village grew to be large. The expansion of the origi-
nal village can also be discerned in our archaeological evidence, which fits well with the oral history. Our earliest radiocarbon date from the base of an excavation unit in the main village (1800±60; 1870–1560 cal BP)\(^2\) comes from the central portion, which Sayach’apis tells us was occupied by the most highly ranked ushtakimilh, the group that gave its name to the entire local group (Figure 2).
As the population grew and the village expanded, Sayach’apis states, two more ushtakimilh came into being. The second-ranked group resided in the eastern portion of the village, in an area that yielded our second-oldest basal date (1620±60; 1690–1350 cal BP). The third-ranked group lived to the west of the founding ushtakimilh, where our dates from the base of the archaeological deposit are somewhat younger than the other two areas (several similar dates, with the oldest at 1385±35; 1350–1260 cal BP). The radiocarbon dates for the initial occupation of each area, therefore, correspond with the growth of the village and emergence of separate social units within the local group as recorded in the oral traditions.

Later in the site’s history, as told in Sayach’apis’ account, the chiefs contended with increased over-crowding in the main village by sending their slaves and low class people to an adjacent beach, at a site called Himayis, where they eventually gave rise to a fourth ushtakimilh. Although classified as separate archaeological sites, these two adjacent locations were occupied at the same time and clearly formed one large village (Figure 2). A radiocarbon date from near the base of this lower-ranked area (970±60; 970–740 cal BP) is more recent than any basal dates at the main site, corresponding to the oral tradition that this area was occupied only after all space at the main village was filled. Our radiocarbon dates thus indicate that Sayach’apis’ account encompasses a lengthy period of village growth and social fissioning, spanning nearly a millennium.

Dramatic change in the cultural and political landscape of Barkley Sound occurred before Sayach’apis’ lifetime, and his account of Ts’ishaa as his people’s primary residence reflects oral history he would have learned as a child. The territorial expansion of the Tseshaht local group, as it coalesced with its neighbours and absorbed their territories into its own, can be reconstructed through a substantial body of historic and ethnographic accounts (McMillan and St. Claire 2005a; St. Claire 1991, 1998; Sapir 1910–1914). This process of social and political reorganization through amalgamations and territorial expansion appears to have begun even prior to European contact in the 1770s (as is discussed later in this paper), but accelerated in the first few decades following contact. New trade rivalries destabilized political balances and the increased hostilities that resulted were made more deadly with the introduction of firearms. Introduced diseases also led to great loss of life in the decades following contact (Boyd 1990, 1999; McMillan 1999: 191–195). As populations throughout the sound declined drastically, the original Tseshaht local group obtained the territories of its neighbours in the outer Broken Group through their voluntary merger. Later, as warfare continued to reduce populations, other groups sought the protection of the Tseshaht and amalgamated with them. By the end of the 18th century, the expanding Tseshaht polity controlled all the islands of the Broken Group and the upper portion of the Barkley Sound shoreline. A pattern of seasonal movement was required to exploit the many resources of this greatly expanded territory. The Tseshaht shifted their primary winter village to the site of Hiikwis, on the upper shoreline of the sound, while former outer-coast villages such as Ts’ishaa were reduced to summer fishing and marine mammal hunting locations.

The amalgamated Tseshaht continued the process of territorial expansion,
and by a few decades into the 19th century controlled the upper reaches of the Alberni Inlet and lower Alberni Valley, thus gaining access to the rich salmon runs of the Somass River (McMillan and St. Claire 1982, 2005a). A number of oral traditions document the relatively late arrival in this area of two Nuu-chah-nulth local groups, the Hach’aa7ath and Hikwuulh7ath, that were later absorbed by the Tseshaht (St. Claire 1991: 79–81; 1998: 58–61; McMillan and St. Claire 2005a: 20–22). Archaeological research at the Shoemaker Bay site (DhSe–2), at the upper end of Alberni Inlet, supports these traditions as the entire cultural sequence (although the most recent intact deposits date to about AD 1000) shows greater affinity with the east coast of Vancouver Island than with Nuu-chah-nulth sites (McMillan and St. Claire 1982). The lower Somass River became the primary Tseshaht centre, occupied from the fall salmon runs through early winter. Throughout the rest of the year the Tseshaht dispersed in a well-defined seasonal pattern of residential mobility to various resource sites along Alberni Inlet and throughout much of Barkley Sound. When resident in the islands of Barkley Sound, the Tseshaht tended to separate into the pre-amalgamation local groups, with each returning to its major traditional site (Sapir and Swadesh 1978: 44–45). Thus the people living at Ts’ishaa for the summer months were the descendants of the original Tseshaht local group, whose ancestors had occupied the site as their primary village.

In the standard ethnographic accounts of Nuu-chah-nulth life (e.g., Drucker 1951), a seasonal pattern of residential mobility within a substantial traditional territory is a near-universal feature. Archaeological and oral historical research in Barkley Sound indicates that such ethnographic descriptions refer to a late stage of Nuu-chah-nulth culture, following marked changes in population, political organization, territory, and resource use. Archaeological research at other locations in Nuu-chah-nulth territory also indicates that local group territories were considerably smaller and constrained prior to population loss, usually as a result of early historic disruptions (Calvert 1980; Inglis and Haggarty 2000; Marshall 1993).

EARLIER ARCHAEOLOGICAL VIEWS OF NUU-CHAH-NULTH RESOURCE USE PATTERNS

Earlier research in Nuu-chah-nulth territory employed the ethnographic model of the seasonal round to interpret the archaeological data. The first large-scale excavation project was at the major village of Yuquot (DjSp–1), at the entrance to Nootka Sound. In his analysis of the recovered data, Dewhirst (1978, 1980) employed a model of seasonal movement between the “inside” and “outside,” allowing access to the differing resources of the exposed outer coast and the protected inner fjords. The people of Yuquot, Dewhirst argues, achieved their fullest adaptation to a maritime (“outside”) economy in the Late Period (covering the last 1000 years before contact with Europeans). The archaeological record of this period is considered to reflect Nuu-chah-nulth culture as known through early historic and ethnographic sources, including seasonal residential mobility to exploit resources of both the outer and inner coasts (Dewhirst 1980: 342).

Based primarily on data from archaeological survey in Nootka Sound, Marshall (1993) places the origin of the inside/outside settlement pattern considerably later than Dewhirst. She noted that sites such as Kupti (DkSp–1),
the ethnographic winter village of the Yuquot people in upper Nootka Sound, became substantially larger in relatively late times. She attributes this to the amalgamation of political groups to form a confederacy, requiring more space for houses as larger social groups seasonally occupied each site. She suggests that this amalgamation, with its attendant need for an extensive seasonal pattern of movement, took place shortly before European contact, perhaps 300 to 400 years ago (Marshall 1993: 156, 160).

Where excavated data are available, we can examine the pattern of localized resource use evident in faunal remains. Gay Frederick (formerly Calvert) took such an approach in her analysis of three sites in Hesquiat Harbour, just south of Nootka Sound. Fish elements dominate the vertebrate fauna, although considerable differences are evident between the three sites, reflecting their different environmental settings. At Hesquiat Village (DiSo–1), near the outer coast, rockfish, lingcod, greenling, and dogfish were the most numerous fish species, whereas herring and salmon were relatively more important at a habitation cave in the upper sound (Calvert 1980). Marine mammals, particularly northern fur seal, harbour seal, and sea otter, were abundant at Hesquiat Village, while the inner harbour sites had a mixture of marine and land mammal remains. Frederick argues that the earliest assemblage, dating to about 1800 years ago, shows unrestricted access to resources throughout the harbour (Calvert 1980: 267). After Hesquiat Village was established around 1200 years ago, differing faunal assemblages evident at each of the three sites suggest the emergence of politically autonomous local groups holding clearly defined territories that were exploited on a year-round basis (Calvert 1980: 268). This interpretation is consistent with the ethnographic information for the area, as four or five autonomous local groups are known to have occupied the harbour well into the historic period, prior to amalgamation to form the modern Hesquiat (Drucker 1951: 235). Such relatively small local groups with socially circumscribed territories seem to have been the norm until relatively late times along the west coast of Vancouver Island, even in those areas characterized historically by larger tribal or confederacy groups.

Even before excavated data were available for Barkley Sound, archaeological research suggested that the ethnographic pattern of seasonal movement was a late development. Intensive archaeological site survey throughout the Broken Group islands resulted in the identification of fifteen major village sites, each with deep shell midden deposits (Haggarty and Inglis 1985). Haggarty and Inglis (1985: 97–98) suggest that this provides a maximum estimate for the number of independent local groups once resident in this relatively small area. Year-round occupation by closely spaced but independent local groups is more consistent with the survey results than the ethnographic pattern of seasonal use of various resource sites by a single political unit. Each local group would have held a small, socially defined territory, with access to resources outside that territory constrained by the presence of other independent communities.

We recognize that variability in mobility patterns and territory size of individual local groups will be contingent on local histories and will differ between regions. However, the general trends identified in previous research correspond well with the ethnographic and archaeological data from Barkley Sound. We turn now to the archaeo-
logical record of maritime resource use at three major village sites in Barkley Sound. We first discuss the results of faunal analysis at Ts’ishaa, which suggest that the site inhabitants resided year-round at this location for several thousand years with an economy heavily focused on locally available resources. We then discuss results from Huuʔjii and Maʔacoah that show similar patterns. Changing faunal frequencies in the upper layers, dating to the late precontact period, may indicate a change in residential mobility.

EVIDENCE FROM TS’ISHAA

Ts’ishaa is a large village site, with shell midden deposits over three metres deep that stretch for over 150 metres along the beachfront in the main village. Two to three rows of flattened platforms, possibly representing house locations, are evident along portions of the site. Excavation took place over three field seasons (1999–2001) in three spatially dispersed areas that correspond to the ethnographically identified locations of the ushtaʔkimilh (descent groups) that made up the village. Additional excavation was conducted at the immediately adjacent site of Himayis, a separate ushtaʔkimilh location identified as the lowest status and last location to be occupied in the village (McMillan and St. Claire 2005a). Although physically separated by a large bedrock outcrop, Himayis is considered part of the village of Ts’ishaa. Twenty-two radiocarbon dates place these deposits within the last two millennia (Figure 4). An elevated landform behind the main village site has shallower deposits that date to the mid-Holocene, when relative sea levels were three to four meters higher than at present (Friele and Hutchinson 1993). Eighteen radiocarbon dates place these deposits between 5000 and 3000 cal BP (McMillan and St. Claire 2005a: 77). Only the later period village site is discussed in this paper.

The volume of cultural deposits is greatest in the main village portion of the site (McMillan and St. Claire 2005a). These extensive deposits also accumulated at a relatively rapid rate (~25 cm/100 years) compared with the older back terrace deposits (<13 cm/100 years), suggesting that human occupation at the site was most intensive between ca. 2000 and 250 cal BP (McKechnie 2005a: 219). In all, excavation covered approximately 174 m$^3$ of deposit, from which an abundance of preserved faunal remains was recovered. Only a portion of this great quantity of collected fauna could be examined. Alternate levels from five excavation units, including three in the main village area, were chosen for detailed analysis (Frederick and Crockford 2005). Additional faunal studies were later conducted on material recovered from Himayis, here considered part of the main village site (McKechnie 2007a). Faunal remains from the unit samples were collected in the field by trawelling and screening through ¼ inch (~6 mm) mesh. In addition, column samples taken from units across the site provided a smaller volume of sediment that was subjected to fine-screen (3 mm mesh) faunal recovery. In the following discussion, we summarize the results of our analysis of the identified fauna, focusing first on the examined assemblage as a whole, and subsequently on fauna from three spatially distinct but contemporaneous areas of the main village site.

The identified vertebrate remains from Ts’ishaa document a heavy dietary reliance on fish, which comprise over 90 percent of all identified faunal elements
in all but the uppermost levels (Figure 5). Analysis of the fine-screened column samples, in which fish account for more than 98 percent of the vertebrate assemblage, identifies herring (*Clupea pallasi*) as the most abundant vertebrate taxon at the site, at approximately 52 percent of all identified fish elements (McKechnie 2005a). Anchovy (*Engraulis mordax*) is second only to herring, while rockfish (*Sebastes* sp.) and greenling (*Hexagrammos* sp.) are other important fish species, followed more distantly by salmon (*Oncorhynchus* sp.) and perch (*Embiotocidae*). In the larger assemblages identified from the excavation unit samples, small fish such as herring and anchovy are clearly under-represented. In these samples, rockfish species predominate, comprising between 48 and 81 percent of all fish elements in all but the uppermost levels, with greenling and lingcod (*Ophiodon elongatus*) as the other main species (Frederick and Crockford 2005). In both the

Figure 4. Calibrated radiocarbon age ranges (2-sigma) from the four *ushtagimilh* areas at Ts’ishaa. Data presented in McMillan and St. Claire (2005a), and McKechnie (2007b: Table 3). Radiocarbon ages were calibrated using the calibration curve of Reimer et al. (2004). Dates on marine bone were calibrated with a ΔR of 250 ± 50, following Southon and Fedje (2003).
unit and column samples, salmon play a comparatively minor role, representing about 3 percent of the total identified fish assemblage (McKechnie 2005a: 212).

Differences in fish remains across the site may reflect the cumulative impact of fishing within the small circumscribed territory of the original Tseshaht local group, as well as possibly indicating the differing fisheries practices by the original lineages at the village. McKechnie (2007b) recently employed regression analyses developed by Orchard (2003) to reconstruct the harvesting profile for the abundant and ubiquitous rockfish (*Sebastes* spp.). Measurements were taken on 2,275 archaeological *Sebastes* elements from three distinct areas of the site, corresponding to the residential locations of three of the original ushtakimilh (Figure 2). In the central portion of the main village, corresponding to the location of the oldest and highest-ranked ushtakimilh, a significant decrease in rockfish total length and relative abundance is evident over the approximately 1,500 years this area was occupied. In the residential area of the lowest-status ushtakimilh, rockfish length also decreases over time but not as significantly. In contrast, rockfish total length increases significantly over time in the westernmost ushtakimilh location. These trends may reflect different levels of fishing pressure on rockfish in the owned territories of each residential group.

Marine mammals also contributed significantly to the diet at Ts’ishaa (Figure 6). Northern fur seal (*Callorhinus ursinus*) elements dominate the

**Figure 5.** a) Relative percentage of fish remains identified from ¼” (3 mm) screen column samples at Ts’ishaa. b) Relative percentage of identified fish remains from the ¼” (6mm) screen excavation units at Ts’ishaa. Data from Frederick and Crockford (2005), and McKechnie (2005a, 2007b).
marine mammal remains. Harbour seals (*Phoca vitulina*), whales, and several species of porpoise and dolphin are also well represented. While seal, porpoise, and dolphin elements were identified through examination of their distinct morphology, whale remains were often too fragmentary for such conventional methods. Instead, the ancient DNA in a number of samples was examined to determine species (Yang et al. 2004). Initial DNA analysis of eleven selected whalebones from two areas of the site indicated that all but one, a grey whale mandible, were from humpback whales (Watt 2003; McMillan and St. Claire 2005a). More recently, an additional 132 elements were tested through aDNA analysis; 101 (76.5 percent) of the total were determined to be humpback (*Megaptera novaeangliae*), while grey whales (*Eschrichtius robustus*) came a distant second at 15 (11.4 percent), followed by smaller numbers of finback (*Balaenoptera physalus*), right (*Balaena glacialis*), and blue (*Balaenoptera musculus*) whale elements (Arndt et al. 2008). The predominance of humpbacks in the whale remains is consistent with our earlier analysis of whalebones from the western sound, in Toquaht traditional territory (Monks et al. 2001), confirming that the hunting of humpback whales was an important feature of the Nuu-chah-nulth economic strategy in Barkley Sound. At the large village of T’ukw’aa,

Figure 6. Relative percentage of identified marine mammal skeletal specimens from excavation units at Ts’ishaa. Data from Frederick and Crockford (2005), and McKechnie (2007a).
humpbacks comprised over 86 percent of the identified cetacean elements, while at Ch’uumat’a they made up over 78 percent (Monks et al. 2001: 73).

The emphasis on humpbacks in the archaeological record of whaling in Barkley Sound, rather than on the grey whales that feature much more strongly in the general ethnographic accounts (e.g., Arima 1983: 38; Curtis 1970: 18; Swanson 1956), reaffirms the importance of examining variability in the broader regional patterns. The whale remains from the Barkley Sound sites differ from the contemporaneous assemblage recovered from Ozette, a Makah village on the Olympic Peninsula approximately 90 km to the south, the only other site in the region with large numbers of whale bones identified to species. Grey and humpback whales occur in almost equal numbers at that site, although greys are slightly more numerous (Huelsbeck 1994). This likely reflects differences in environmental settings, as Ozette is on the outer coast far from any major bays or inlets. Both species of whale were likely taken during their migrations along the coast in spring and summer. In contrast, Ts’ishaa and the Toquaht sites are in a major embayment that supported resident stocks of humpback whales that could be taken throughout much of the year. Ethnographic accounts tell of winter whaling in the inlets at the top of the sound (Monks et al. 2001). The discovery of a still-embedded mussel shell harpoon cutting blade in the back of a humpback whale skull at Ts’ishaa demonstrates that active whaling was occurring in Barkley Sound by at least 500 BP (McMillan and St. Claire 2005a: 69), while less definite evidence from Ch’uumat’a places whaling as early as 3000 to 2500 years ago (Monks et al. 2001).

Intertidal invertebrates also clearly were an important aspect of the economy at Ts’ishaa, as their remains accumulated to a depth of over three metres across much of the site. Analysis of two column samples, from the highest and lowest ranked ushtakimilh areas, resulted in the identification of 56 species of molluscs, barnacles, chitons and sea urchins (Sumpter 2005; Sumpter and Suski-Armstrong 2005). California mussel (Mytilus californianus) heavily dominates this assemblage, comprising between 78.4 and 95.3 percent of the deposit by weight. Acorn barnacles (Balanus sp.) make up the second major constituent by weight, while several species of clams, particularly butter (Saxidomus gigantea) and littleneck (Protothaca staminea), came third. Several species of chiton and sea urchin were also important elements of the diet throughout the deposit. Although California mussel dominates the shellfish assemblage over the 5000-year occupation of the site, it decreases in abundance during the final occupation stage, with a corresponding increase in barnacles and clams (Sumpter 2005: 139; Sumpter and Suski-Armstrong 2005: 20).

The overall picture of resource use at Ts’ishaa shows a heavy reliance on readily available intertidal and near-shore resources. The numerous herring present in the site deposits were likely harvested close to shore, where they came into the protected water around the islands to spawn. Anchovy also appear in large numbers in the waters around Ts’ishaa. The ubiquity of these two seasonally available fish, even in relatively small volumes of examined deposits, indicates that they were a regular part of the diet for the site occupants and may have been preserved and stored for later consumption. The other major spe-
cies represented in the faunal remains (such as California mussel, rockfish, greenlings, lingcod and surf perches) could have been taken year-round in the immediate vicinity of the site. Even whales could have been taken nearby, as ethnographic traditions identify the area around the exposed rocks in the water just west of Ts’ishaa as an important locale for hunting whales and other marine mammals. Sapir’s accounts are filled with stories of great whaling chiefs who lived at this location and of butchering whales on the beach in front of the site. A large rock on the beach is identified as where whales were tied to keep them from drifting away, and the traditions tell of great whalers who attempted to fill the pass in front of the site (called Hamuta: “Bones”) with the bones of their kills as a testimony to their whaling prowess (St. Claire 1991: 140; McMillan and St. Claire 2005a: 10). Such traditions affirm the availability of important resources near the village, in the small, constrained territory held by the Tseshaht local group prior to historic amalgamations.

Assessment of seasonality from faunal remains is limited by a variety of factors, including a small number of seasonal indicator species and the chronological resolution of the site deposits. However, spring and summer occupations are strongly represented, particularly with the arrival of spawning herring in late winter to early spring and anchovy in spring through summer. Other summer indicators include albatross (Phoebastria sp.), shearwaters (Puffinus sp.), and bluefin tuna (Thunnus orientalis), as well as the presence of very young fur seals (≤4 months old). Evidence for late fall and winter occupation is more limited, but the presence of brants (Branta sp.), fulmars (Fulmaris glacialis), and California sea lions (Zalophus californianus) suggests this time as these species are rare at other times of the year (Frederick and Crockford 2005). Faunal analysis thus provides some archaeological support for the ethnographic identification of Ts’ishaa as a year-round community, from which all economic resources within the local group’s territory were exploited. The fact that a major portion of the faunal remains consists of fish that can be readily taken at any time of the year (e.g., rockfish, greenling, lingcod, perch) also points to consistent use of resources that were available year-round.

A shift in resource use, however, may be discerned in the faunal remains from the most recent occupation period (dated to ca. 750 to 250 cal BP) in three contemporaneous portions of the site (Figure 7). Marine mammals are more strongly represented than in earlier layers, and the late period inhabitants of this village seem to have had a particular economic focus on hunting fur seals. Birds also are more numerous in this period. A corresponding drop occurs in the relative importance of fish, which declines in the upper layers from its overwhelming dominance (between 95 and 98 percent of all identified faunal elements) in the lower deposits. A marked shift also occurs within the fish assemblage, as rockfish decline sharply while salmon rise in abundance over this interval. This change occurs in the context of a reduced importance of fish resources relative to marine mammals and birds in the site as a whole.

The decline in the importance of previously abundant local resources such as California mussel and rockfish in the upper levels of the site may indicate that Ts’ishaa was no longer intensively occupied throughout the year. Instead, the
Figure 7. Temporal trends in the relative abundance of fauna at three separate areas of Ts’ishaa between ca. 1800–250 cal BP (based on excavation unit data from 6 mm mesh). Data from Frederick and Crockford (2005), and McKechnie (2007a, 2007b: Table 3). Note that fish, marine mammals, and birds are based on the total number of bone specimens (NSP) recognizable to class (including unidentified fragments). The numbers for the three areas refer to the *ushtakimih* locations shown in Figure 2.
inhabitants appear to have used the site for shorter periods and targeted high-value species such as fur seals, whales, and salmon. Formerly commonplace activities, such as fishing for rockfish, a species readily available in the nearshore waters around Ts’ishaa, no longer played as great a role as during earlier occupation at the site. At the same time, the use of herring increases substantially during the final period of occupation, suggesting a renewed focus on this seasonally available resource (McKechnie 2005b: 87). Adoption of a seasonal pattern of residential mobility by the local group would account for this shift in resource use evident in the faunal data.

A further, although tenuous, argument can be made in regard to the salmon element distribution. In contrast to other fish species, salmon are represented almost entirely by postcranial elements. Frederick and Crockford (2005: 184) state that this pattern cannot be attributed to factors of preservation or recovery due to the large number of small elements from a wide variety of taxa present in the assemblage. Instead, they argue that it suggests salmon were obtained and processed elsewhere, where the heads were discarded, and that they were consumed at Ts’ishaa as preserved fish. Such an argument was first presented by Matson (1992), based on Crescent Beach data, as evidence of intensive processing for storage. Other researchers (e.g., Cannon 2001; Driver 1993), however, have criticized Matson’s model, suggesting that a variety of sampling and taphonomic factors may be responsible. Cultural practices that treat the salmon heads differently from the rest of the fish might also explain the low numbers of salmon cranial elements. However, if the salmon remains from Ts’ishaa represent river-caught fish taken during their spawning runs and later transported to the site, it would indicate that the occupants of Ts’ishaa at that time had access to locations along the shores of Barkley Sound, or ties of trade or kinship with people who resided there.

A substantial increase in the number of Northern fur seals is evident in the most recent occupation period at the site (Frederick and Crockford 2005: 180), suggesting that the residents were seasonally using the village as a base for hunting these animals. The fur seal remains include a high proportion of juveniles and pups of pre-weaning age, indicating the presence of a substantial rookery nearby, although the specific location of any such rookeries in the vicinity of Barkley Sound is unknown (Crockford et al. 2002). The presence of such young animals demonstrates summer use of Ts’ishaa during this late period, consistent with ethnographic accounts of sea mammal hunting in the outer islands during that season.

The archaeological scenario of a late precontact expansion of territory and reduced use of the main village of Ts’ishaa, indicated by shifts in the long-term patterns of resource use, fits well with the ethnographic data. As discussed previously, the original Tseshaht local group is known to have occupied a small cluster of islands in the outer Broken Group around their primary village. In a relatively short period of time early in the contact period, however, the Tseshaht expanded their territory dramatically, claiming the entire central portion of Barkley Sound and beyond (St. Claire 1991, 1998; McMillan and St. Claire 2005a). The village of Ts’ishaa was then reduced to a summer fishing and marine mammal hunting station. Much of the rapid Tseshaht expansion is clearly associated with the tumultuous
early decades of contact with Europeans, when introduced diseases and increased warfare greatly reduced populations. In the oral traditions, Tseshaht control of the upper sound is associated with the first appearance of firearms, which dates it to the late 18th century. However, the archaeological record at Ts’ishaa provides little evidence for early historic occupation and suggests that reduced use of the site and the beginning of expansion from the original restricted island homeland occurred even before direct European contact. The process of political amalgamations and territorial expansion appears to have been initiated well before the Tseshaht took control of Alberni Inlet and their traditional territory reached its final extent.

OTHER FAUNAL EVIDENCE FROM BARKLEY SOUND
Monks (2006) has recently reported on the fauna from Ma’acoah, a Toquaht village in the upper portion of the sound (Figure 1). Most of the deposits at Ma’acoah are relatively late, dating to within the last 600 years, and thus are roughly contemporaneous with the late period occupation at Ts’ishaa. The faunal assemblage from Ma’acoah resembles that from Ts’ishaa in that fish dominate the identified faunal elements and herring is the most abundant of the fish species. Salmon follow herring in importance. Their relative abundance certainly reflects the site’s proximity to the Maggie and Toquart Rivers, the latter being the major ethnographic fishery for the Toquaht local group. Following herring and salmon in importance is a middle tier of fish consisting of various rockfish, flatfish, perch, and sculpins (Monks 2006: 281). Over time rockfish decreased in importance while salmon played a larger role in the economy. The increased importance of salmon occurs prior to European contact in the late 18th century. This shift in the relative importance of rockfish and salmon resembles the faunal evidence from Ts’ishaa, although it appears to take place slightly later. However, as there are only a few radiocarbon dates from this site it is difficult to say with certainty where these patterns are anchored in time.

The large village of HuuZii in the eastern sound (Figure 1) also offers interesting insights from faunal remains. Although analysis of the large body of data recovered from this site is ongoing, some information is available from the first field season (Frederick et al. 2006; McMillan and St. Claire 2005b). Like Ts’ishaa, this was the village from which a Nuu-chah-nulth local group derived its name. A series of flat platforms, marking precontact house locations, extends across the main portion of the site (Mackie and Williamson 2003). Excavation in this area was restricted to within the largest of the house platforms. Eighteen radiocarbon dates place use of this location from between about 1500 to 400 cal BP, making it contemporaneous with the main village occupation at Ts’ishaa. Use of this site as a major village seems to have ended well before contact with Europeans. Also like Ts’ishaa, the site has a mid-Holocene occupation on an elevated landform behind the main village. Six radiocarbon dates place that occupation between about 4800 and 3000 cal BP, contemporaneous with the early occupation at Ts’ishaa. Only the later village portion of the site is discussed here.

Of the more than 44,000 faunal elements that have been identified to the species, genus or family level, greater than 95 percent are fish (Frederick et al. 2006: 5). This again indicates the overwhelming importance of fishing in the
everyday life of the precontact inhabitants of Barkley Sound. Herring elements are particularly numerous in the fine-screened column samples. An unusual feature of this assemblage is the great abundance of hake (*Merluccius productus*), a fish that is not common in other excavated Nuu-chah-nulth sites. Hake elements were found throughout the Huu7ii deposits, but the huge numbers stem from one very large concentration in one excavation unit. Other important fish, in a long list of species present, include salmon, rockfish, greenling, and dogfish (*Squalus acanthias*).

A major temporal division can be discerned in the relative proportion of fish species. In the midden deposits that underlie the house floor, hake predominate, followed by rockfish, dogfish, and flatfish; salmon make up less than 1 percent of the unit samples from these lower levels (Frederick *et al.* 2006: 30). By contrast, in the house floor deposits that make up the upper levels, salmon predominate, comprising 67 percent of the identified elements in the unit samples. A radiocarbon date of 930 to 730 cal BP (920 ± 50 BP, Beta–236289, δ¹³C = −26.6) marks this transition, dating the uppermost midden deposits just before the spike in salmon abundance. The final period at the site, dating approximately 750 to 400 cal BP, is characterized by an abundance of salmon and herring. The magnitude of this shift in fish frequencies suggests that it reflects actual changes in resource use, although the change in the nature of deposition (midden deposits to house floor) must also be considered.

While hake, rockfish, greenling, herring, flatfish and other common species are represented by both vertebral and cranial elements, salmon, in contrast, are represented almost entirely by vertebral elements (Frederick *et al.* 2006: 34). Measurement of the diameter of salmon vertebrae suggest that the house occupants were targeting medium to large salmon, probably either chum (*Oncorhynchus keta*) or chinook (*O. tshawytscha*) (Frederick *et al.* 2006: 49). These salmon could have been taken near the site on their way to the spawning streams up Alberni Inlet. Alternatively, they may have been caught on the lower reaches of important salmon rivers nearby, such as the Sarita. The latter possibility is strengthened by the abundance of salmon in the house deposits and the lack of cranial elements. This would suggest that the site occupants in this final period of occupation had access to salmon rivers on the adjacent mainland and that salmon were transported to Huu7ii after processing elsewhere.

As with the Tshehaht, the process of local group amalgamations to form the modern Huu-ay-aht seems to have begun before contact with Europeans. The abandonment of Huu7ii about 400 years ago may have marked an early stage in this process. The original Huu-ay-aht local group, resident in the Deer Group Islands, likely joined their neighbours on the mainland shore, the Kiiix7in7ath. Oral traditions provide further insights into the forces that led to amalgamation. These accounts tell of a massive tsunami that destroyed the village of an independent local group at Pachena Bay, forcing the few survivors to join the Kiiix7in7ath (Arima *et al.* 1991: 231; McMillan and St. Claire 2005b: 15–16). The inhabitants of Cape Beale were also nearly destroyed by that disaster, the survivors joining the newly amalgamated group. A major earthquake off the west coast of Vancouver Island, which is thought to have been responsible for this loss of life, is known to have occurred in
AD 1700 (Satake et al. 1996; McMillan and Hutchinson 2002). Following this natural disaster, at least four groups amalgamated to form the modern Huu-ay-aht, taking their name from the local group that once resided at Huu7ii (McMillan and St. Claire 2005b: 13–18). The Huu-ay-aht amalgamation appears to have been complete by the time of their war with the Clallam, a Salish group from the Olympic Peninsula, which is thought to have occurred around the mid-18th century (Arima et al. 1991: 208; McMillan and St. Claire 2005b: 18). The amalgamated group then had access to a large territory, including important salmon rivers such as the Sarita and Pachena, requiring adoption of a seasonal pattern of movement through their territory. In this late period, salmon were taken and processed at their river villages and transported as preserved food to their other major settlements.

**DISCUSSION**

Three excavated Barkley Sound village sites—Ts’ishaa, Huu7ii, and Ma’acoah—have had detailed faunal analyses, allowing insights into local strategies of maritime resource use and changing patterns over time. At all three sites, there is an apparent shift in fishing practices evident in the upper levels. Species such as rockfish, greenling, and lingcod, which dominate the unit samples throughout most of the deposits, decrease in relative importance in the upper levels, while salmon increase greatly in importance. Herring continue as an important resource throughout. Sites such as Ts’ishaa indicate that large, populous, relatively sedentary communities existed well before salmon played a major role in the economy. Available evidence on salmon element distribution tentatively suggests that the increased importance of salmon in the upper layers of the sites is associated with access to a broader territorial base. Abundant salmon remains may reflect access to salmon rivers on the shores of Barkley Sound, with salmon brought back to the island sites of Ts’ishaa and Huu7ii as preserved fish.

Similar patterns of changing importance among fish species have been observed at other outer-coast locations, such as on southern Haida Gwaii (Queen Charlotte Islands). Based on faunal analysis from test excavations at a number of sites in the area, Acheson (1998) reports that rockfish and salmon were the most abundant fish categories, and that salmon greatly increased in importance in the most recent layers. In a later examination of the same site assemblages, Orchard and Clark (2005) isolate two clusters of fauna, one dominated by rockfish and one by salmon, and note that the latter cluster is the most recent. The shift in emphasis from rockfish to salmon occurs about 800 BP, which is roughly coeval with the Barkley Sound data. As in Barkley Sound, the precontact settlement pattern in southern Haida Gwaii seems to have been one of dispersed year-round villages subsisting on such local outer-coast resources as marine mammals, halibut, and California mussel, as well as rockfish and salmon (Acheson 1998: 108). The ethnographic settlement pattern, characterized by amalgamations into a smaller number of large villages and a seasonal pattern of movement, developed only in the very late period, around the time of first contact with Europeans (Acheson 2005: 335).

At Ts’ishaa, the combination of large-scale excavation and detailed analysis of recovered materials, including a great quantity of faunal remains, along with extensive ethnographic information,
allows relatively detailed insights into the ancient history of one local group. The changing pattern of resource use over time allows insights into how and when a once central village became a less frequently occupied resource location. Sapir’s extensive notes document Nuu-chah-nulth knowledge of this site and its inhabitants over a series of dramatic changes, from the year-round homeland of Tseshaht whaling chiefs to a seasonal resource site used by an amalgamated group that controlled a greatly enlarged territory. Contradictions in Sapir’s notes, which reflect a “memory culture” jumbled in time, can be reconciled when viewed in a detailed chronological perspective of change (McMillan 2009). Drucker’s (1951) standard ethnography, with its emphasis on an economic system focused on salmon and an annual cycle of seasonal movement, can be seen as documenting a late stage that followed a dramatic series of political amalgamations and territorial expansions. Although these expansions are generally associated with cultural changes during the early contact period, the evidence from Ts‘ishaa and Huu7ii suggests that the process had begun even earlier.

The emerging archaeological picture from Nuu-chah-nulth territory differs considerably from better-known regions such as the Strait of Georgia and lower Fraser River. Understanding the broad pattern of emerging complexity along the coast requires numerous detailed specific studies documenting local adaptive strategies. Where rich and detailed ethnographic and oral history accounts exist, we have the opportunity to integrate such data with archaeological research to achieve a more fine-grained and human-scale understanding of local practices and adaptive shifts over time. The Barkley Sound sites, particularly the major village of Ts‘ishaa, provide one such specific study.

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NOTES

1. Site names are given in the practical orthography developed by Randy Bouchar (see McMillan and St. Claire 1982: Appendix 1). The symbol “7” represents a glottal stop (or “catch in the throat”), while an apostrophe indicates that the preceding sound is “strongly exploded” (glottalized). Underlining indicates that the sound is produced toward the back of the mouth.

2. Further details on the radiocarbon dates from Ts‘ishaa are available in McMillan and St. Claire (2005a: Table 2). All calibrated dates are given as a 2-sigma range.
REFERENCES CITED

Acheson, S.
1998 *In the Wake of the ya’áats’ xaatgáay [‘Iron People’]: A Study of Changing Settlement Strategies Among the Kunghit Haida.*


Ames, K.M.


Arima, E.Y.
1983 *The West Coast People: The Nootka of Vancouver Island and Cape Flattery.*
British Columbia Provincial Museum Special Publication No. 6, Victoria.


Arndt, U., I. McKechnie, A. McMillan, and D. Yang

Arnold, J.E.

Boyd, R.T.

UBC Press, Vancouver.

Burley, D.

Butler, V.L., and S.K. Campbell

Calvert, S.G.

Cannon, A.

2001 Was Salmon Important in Northwest Coast Prehistory? In *People and Wildlife in Northern North America:*

CANADIAN JOURNAL OF ARCHAEOLOGY 32 (2008)

Cannon, A., and D.Y. Yang

Coupland, G.

Coupland, G., and K. Stewart

Crockford, S.J., S.G. Frederick, and R.J. Wigen

Curtis, E.S.

Dewhirst, J.


Driver, J.C.

Drucker, P.

Frederick, G., and S. Crockford

Frederick, G., I. McKechnie, and R. Wigen

Friele, P.A., and I. Hutchinson

Haggarty, J.C., and R.I. Inglis
Huelsbeck, D. R.

Inglis, R., and J. C. Haggarty

Mackie, A. P., and L. Williamson

Marshall, Y.

Matson, R. G.


Matson, R. G., and G. Coupland

McKee, N.


2007a Vertebrate Faunal Analysis of Himayis (205T, DfSi 17) and the Clarke Island Defensive Site (212T, DfSi 26), Broken Group Islands, Pacific Rim National Park. Report on file, Cultural Resource Services, Parks Canada, Victoria.


McMillan, A. D.

2009 A Tale of Two Ethnographies:


2005a *Ts’ishaa: Archaeology and Ethnography of a Nuu-chah-nulth Origin Site in Barkley Sound*. Archaeology Press, Department of Archaeology, Simon Fraser University, Burnaby, British Columbia.


bon Age Calibration 0–26 Cal KYR BP. Radiocarbon 46(3): 1029–1058.

St. Claire, D.E.

1998 Niismakmatsukwuwk

Sapir, E.

Sapir, E., and M. Swadesh

Sassaman, K.E.

Satake, K., K. Shimazaki, Y. Tsuji, and U. Ueda

Southon, J., and D. Fedje

Sumpter, I.

Sumpter, I.D., and A. Suski-Armstrong

Swanson, E.H.

Watt, K.

Yang, D.Y., K. Watt, A. McMillan, G. Monks, and I. McKechnie

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