

Long-term Continuity in Central Northwest Coast Settlement Patterns

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Introduction

Northwest Coast archaeological interpretation often rests on demonstrable discontinuities in site location and use. Site-specific patterns are interpreted as evidence of migration (Mitchell 1988:584, 1990:357), environmental change (Cannon 1991, 1995), or more general processes of cultural evolution (Matson 1992). Temporal variations in regional settlement patterns elicit interpretations of migration (McMillan 1998), warfare (Maschner 1997), and political integration (Acheson 1995). These are the patterns and processes commonly expected in histories encompassing millennia, and they are the common subjects of world archaeology. The other end of the spectrum, local and regional continuity in site use, provides a less ready basis for historical interpretation. Its reality is also less readily apparent or demonstrable.

Empirical data from multi-site testing in the Namu vicinity located in traditional Heiltsuk territory on the central British Columbia coast, suggest an unusual degree of continuity in site location and use (Cannon 2000a, 2002). Sites, once established, were never permanently abandoned, and may have remained more or less in continuous use throughout the period from their initial establishment through to the time of European contact and in some cases well beyond. Present analysis of auger samples of shellfish and fish remains indicates local site and regional subsistence economies also remained consistent with only minor exceptions throughout the time that each site was in use, at least over the last 7000 years for which a faunal record is available. There is also evidence from at least one site for millennia-long continuity in the use of space within the site.

Hobler (1990:298) noted that continuity is the prevailing pattern in the archaeological history of the central coast. He also implied this represented a picture of regional cultural

stability. New data from multi-site testing support Hobler's main observation, but they also raise questions about whether continuities are due to the constraints of environment or cultural tradition, or the stability of economic adaptations or social and political histories. New research programs may ultimately resolve these issues, but contrasts between central coast patterns and those observed in other regions of the Northwest Coast support the likelihood of cultural continuity in this region.

Long-term continuity has been suggested for individual sites in various parts of the Northwest Coast on the basis of a variety of different criteria (e.g. Carlson 1970a, Carlson and Hobler 1993, Dewhirst 1980, Ham et al. 1986, Murray 1982). Regional continuity, as indicated in the Namu vicinity, has been less evident, due in part to the relative lack of regional research programs. Although archaeological interpretations of continuity and change are derived from empirical observation, differing theoretical perspectives also clearly underlie propensities to stress continuity or change in the archaeological record. The strongest empirical criterion of cultural continuity may be whether site localities are abandoned over time, though continuity of settlement may in some cases be due as much to the physical advantages of site localities. Demonstrations of continuous occupation or consistent patterns of settlement or resource use are often far more equivocal, and very few sites provide clear evidence of consistency in the use of space within settlements. Where present, these patterns may also be as much a function of physical constraint as cultural continuity. Resolution of the issue of continuity must therefore rest in part on evaluations of the nature, quantity, and quality of the archaeological evidence, but ultimately may rest as much on the simplicity and elegance of interpretations as well as the extent to which they have been shaped by theoretical perspectives.

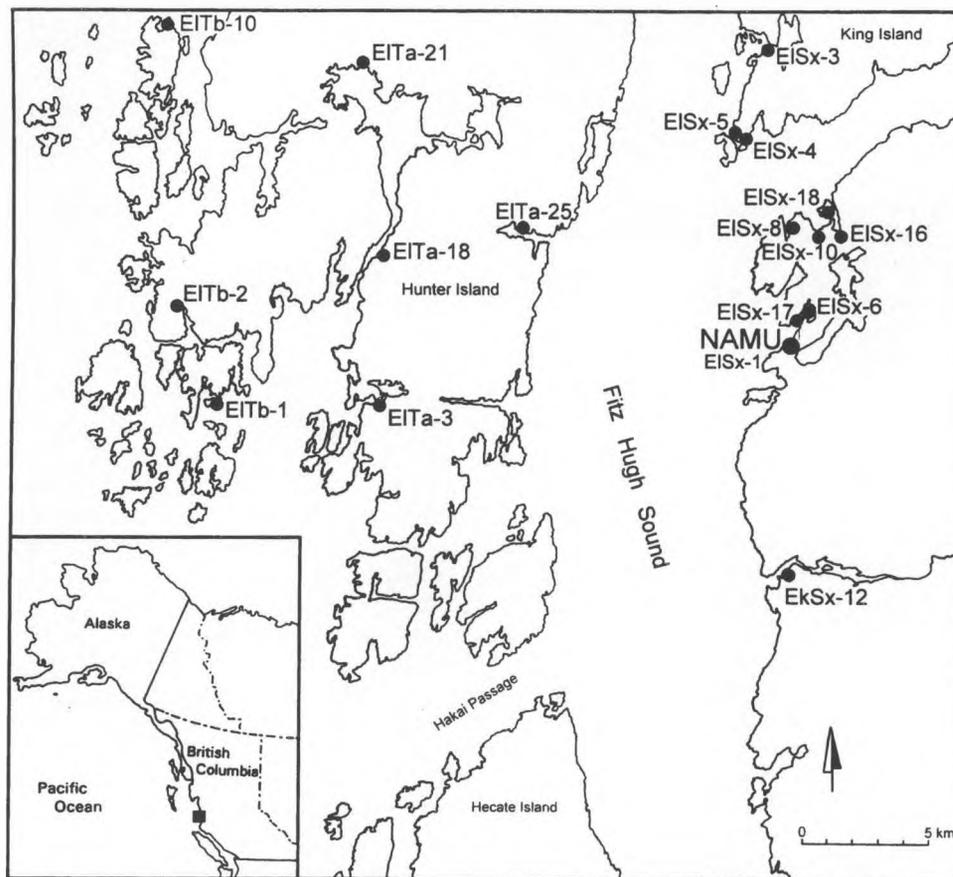


Figure 1:1. Investigated Archaeological Sites in the Vicinity of Namu.

Site Locations

Archaeological research on the central coast has a long history (Hobler 1982, 1990), but most research within traditional Heiltsuk territory has been survey based. Relatively few sites have been the subjects of extensive excavation or even limited testing. As a step toward increasing the number of site investigations in the Namu vicinity (Figure 1:1), I undertook a program of limited site coring and auger sampling in 1996 and 1997 (Cannon 2000a, 2000b). The research was designed to establish the history of site settlement and to determine the focus and intensity of fishing and shellfish gathering economies. Dates from the bases of cores obtained from sixteen shell midden sites, representing villages, probable base camps, and specific purpose campsites, indicated a varied range of dates for initial site settlement over the past 11,000 years. These results and data from previous site investigations suggest the timing of initial settlement was partly governed by long-term environmental change (Cannon 2000b) and unique historical contingencies, especially in the period around 500 BC, which witnessed a dramatic expansion in

the number of residential sites (Cannon 2002).

Variable timing in the establishment of this variety of settlements is not surprising, but radiocarbon dates or other indicators of terminal occupation at these and other sites in the region also show that almost all sites tested to date remained in use into the European contact period. In other words, a site location that came into use at any time over the past 11,000 years continued to be used into the contact era. Table 1:1 shows the latest dates of occupation at sites tested in the Namu vicinity. Radiocarbon dates for terminal occupations for most sites were derived from shell samples obtained from surface exposures, or more commonly, from eroding foreshore exposures of intact sections of shell midden deposits [see Cannon (2000b) and Morlan (2002) for more detail on radiocarbon dating]. Undated terminal occupations have been inferred from surface features, the presence of European artifacts, or oral traditions.

As Table 1:1 shows, only five of eighteen sites tested in the region lack definitive evidence of continued use into the contact era. Two of these sites (EISx-6 and EISx-17) are represented by very limited midden deposits

Table 1:1. Initial and Terminal Occupation Dates for Sites in the Namu Vicinity based on Calibrated C-14 Dates.

Site	Initial Occupation	C-14 Date or Other Indicators of Terminal Occupation
EISx-17	AD 890-1165	no evidence of later occupation
EITb-2	AD 20-245	AD 1255-1445
EISx-4	890-670 BC	AD 1435-1685
EISx-5	4780-4510 BC	AD 1470-1700
EISx-6	AD 1550-1720	no evidence of later occupation
EkSx-12	255 BC - AD 30	AD 1520-1865
EISx-1	9600-8650 BC	Contact era: oral tradition (Carlson 1991:95)
EISx-3	770-50 BC	Contact era: oral tradition, surface features (Pomeroy 1980:33-36, Luebbers 1978:17)
EISx-8	AD 140-430	AD 1660-1950
EISx-10	4315-3960 BC	AD 1655-1950
EISx-16	AD 660-940	AD 1670-1950
EISx-18	1575-1310 BC	AD 1710-1950
EITa-3	AD 1160-1300	AD 1660-1950
EITa-18	9605-9250 BC	AD 1590-1950
EITa-21	AD 140-425	AD 1530-1950
EITa-25	2420-2025 BC	AD 1655-1950
EITb-1	805-410 BC	Contact era: fallen cedar plank structures and European goods on surface
EITb-10	830-400 BC	Contact era: European trade goods, oral tradition (Carlson 1976:103)

on tiny islets in Namu Harbour. Their specific use is unknown, but they were never major residential or resource extraction locations. Two other sites (EISx-4 and EISx-5) show terminal occupations no earlier than the late seventeenth or early eighteenth century, but dated samples were obtained from surface exposures on high terraces near the back of each site. As yet undated shell samples collected from eroded foreshore sections of the midden deposits may well show later occupations typical of most other sites in the region. Only one camp-site (EITb-2) therefore shows clear evidence of abandonment well before the period of European contact, and it was in use for a period of more than a thousand years up until at least the mid fifteenth century.

The question is whether this pattern of continued site use is unusual or unexpected for this or any other region of the Northwest Coast. Certainly, evidence of a limited period of residential occupation or other site use followed ultimately by site abandonment is available from all parts of the coast. On the south coast, the Point Grey site (Figure 1:2) (Coupland 1991:79) is an example of a single-component Marpole phase occupation of perhaps no more than 500 years. The extensively excavated upriver campsite on the Hoko River, on Washington's Olympic Peninsula, was also

only occupied for a limited period of about 800 years, ending around 2200 BP (Croes and Hackenberger 1988:19). On the west coast of Vancouver Island, the Shoemaker Bay site is estimated to have been abandoned no later than the mid fifteenth century (McMillan and St. Claire 1982:61). On the north coast, the final occupation of the Paul Mason site, located on the Skeena River, is dated to about 1000 BC (Coupland 1985:50).

Of course, an equal number of site excavations show evidence of long-term continuity of site occupation without any evidence of abandonment up to and often well into the European contact era. The Helen Point site on Mayne Island, for example, was in use from as early as 3000 BC and in the documented historic period (Carlson 1970). The main site at Duke Point (DgRx-5) also shows continuity in occupation from ca. 3000 BC and into the period of European trade (Murray 1982:129). Yuquot, on the west coast of Vancouver Island, is another site that shows continuity in the use of a particular locality from as early as 2300 BC and into the contact era (Dewhirst 1980:336).

It is difficult to discern any more general pattern from these few examples except to say that site location abandonment is neither the rule nor the exception on the Northwest Coast.

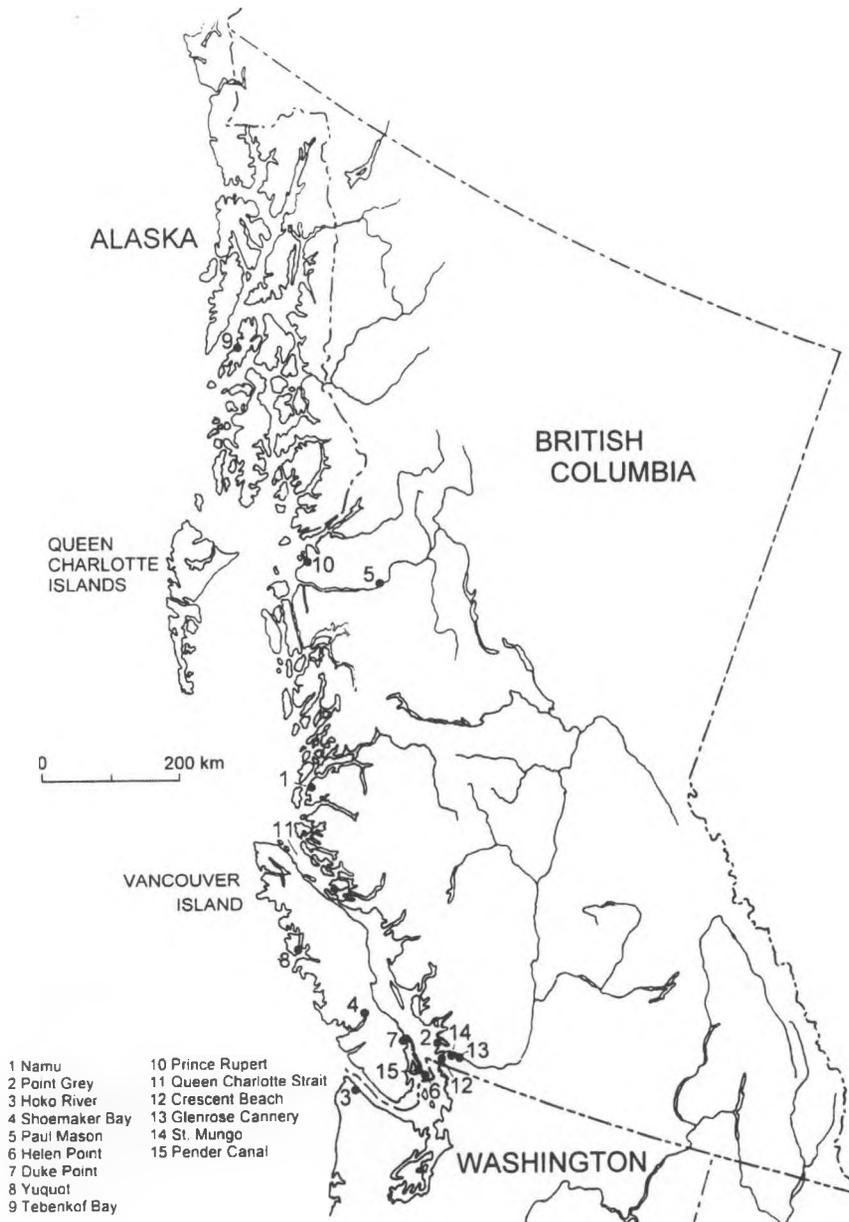


Figure 1:2. Map showing Northwest Coast Sites and Localities (in order cited in the text).

The only approximation to a general synthesis of terminal site dates is Ames and Maschner's (1999:54-55) attempt to use radiocarbon dates as a surrogate measure of population trends. They note generally fewer site dates from the period just prior to European contact and suggest a period of decline from earlier peak population levels. If so, then whatever the propensity to abandon sites may have been over the course of preceding millennia, this late decline in population certainly would have entailed late pre-contact abandonment of at least some site locations. Ames and Maschner's results, however, might equally reflect a reluctance among archaeologists to radiocarbon date terminal site deposits, especially in cases where surface finds and features, excavated artifact assemblages, historical records, or oral traditions provide as good or better indication of the date of terminal occupation.

The type of systematic regional multi-site testing programs needed to assess general patterns of settlement history is relatively rare, but wholesale abandonment of village and resource extraction locations is evident on the coast. Maschner's (1997) study of settlement patterns in Tebenkof Bay in southeastern Alaska, for example, documented a major shift ca. AD 300-500, which involved abandonment of smaller settlements in locations maximizing subsistence opportunities in favour of larger amalgamated villages in locations better suited to de-

fense. Maschner attributed this development to increased political pressure and greater incidence of conflict in the region (1997:293). Increased incidence of warfare has also been cited to explain the large-scale abandonment of village locations in Prince Rupert Harbour in the first few centuries AD (MacDonald and Cybulski 2001:19). Archer's (2001) systematic dating of surface features at eleven village sites in Prince Rupert Harbour, which he used to document the emergence of household ranking around AD 100, showed a range of dates for village abandonment over the period from 500 BC to AD 400.

These examples suggest that abandonment of site locations should almost be expected as a result of environmental changes and political developments. If continuity in the use of site locations in the Namu vicinity stands apart from patterns documented elsewhere on the Northwest Coast, then it suggests the possible absence of the large-scale political conflict and turmoil evident in Prince Rupert Harbour and southeastern Alaska. It also suggests that major environmental changes that would constrain or preclude continued site settlement were also not a factor. Environmental changes, including a minor decline in relative sea level and local changes that may have affected the productivity of the Namu salmon fishery are evident on the central coast, but they were not sufficient to preclude later use of site locations. Namu's continued occupation despite decline in its salmon fishery (Cannon et al. 1999) suggests that other physical advantages of the locality or, alternatively, cultural traditions (Cannon 2002) were sufficient to offset any hardships entailed.

The simplest and most direct explanation for this degree of continuity in the use of site locations would be a lack of equally viable or advantageous alternatives. Hobler (1983:154), however, has suggested that in contrast to the steep-sided fjord landscape of the eastern inner coast the western portion of the central coast contains ubiquitous localities suitable for settlement. The physical advantages of site localities might also be a function of their initial settlement as much as the natural features of the landscape. Shell midden sites, once established, provide their own advantages for subsequent occupations. Shell deposits create level, elevated, and well-drained surfaces suitable for building and other activities. Expanses of level, well-drained surface are relatively rare in the region. Namu stands out as a notable exception; its apparently unique local topography may have been a factor contributing to

its long-term residential occupation, especially in the period prior to major shell midden deposition.

Of course, evidence for the use of the same locations in the European contact era that had been in use centuries or millennia earlier does not preclude periodic or even extended abandonment over the intervening years. All that is indicated with certainty is the absence of any major regional reorganization of settlement. Continuity in the sense of continued use of the same locations does not imply continuity in the sense of continuous use. Continuous use of a site is much more difficult to demonstrate given the varied histories of shell midden development. Some areas of shell midden sites might be abandoned for considerable periods while deposits continue to accumulate in other areas (Carlson 1983:30). Extensive excavation and intensive radiocarbon dating are generally considered the minimal requirements to make the case for continuous occupation.

Within the Namu vicinity, the best candidate for continuous site occupation is Namu itself. The site has been extensively excavated over six seasons and has yielded a total of 49 radiocarbon dates spanning the last 10,000 radiocarbon years (Carlson 1991, 1996, Morlan 2002). Yet even this unprecedented dating of a single site cannot preclude the possibility of periodic abandonment. Given the probabilistic nature of radiocarbon dates, no number of dates could demonstrate with certainty that a site was not periodically abandoned for up to a century at a time. To take an extreme hypothetical example, if Namu had a nearby sister site that produced matching radiocarbon dates, it would be impossible to prove with any amount of dating that each site was continuously occupied by two separate village populations. The alternative, that both sites were periodically occupied and abandoned at hundred year intervals by the same village population would always be, strictly on the basis of the evidence, equally likely. Despite common knowledge that this possibility exists, archaeological convention is to accept numerous dates spread evenly over the range of a site's occupation as evidence of more or less continuous occupation or use over that time (e.g. Carlson and Hobler 1993:48). Namu is therefore rightly described as the longest occupied site in British Columbia, showing continuous deposition of cultural remains for the last 10,000 radiocarbon [11,000 cal BP] years (Carlson 1991:95, 1998:27).

Table 1:2. Calibrated Radiocarbon Date Series from Sites in the Vicinity of Namu.

EISx-10	EISx-16	EITa-18	EITb-10*
AD 1655-1950	AD 1670-1950	AD 1590-1950	AD 980-1280
AD 1560-1950	AD 1425-1655	AD 1220-1460	400 BC- AD 70
2465-2150 BC	AD 1250-1425	2620-2310 BC	480 BC- AD 120
4315-3960 BC	AD 660-940	9605-9250 BC	800-230 BC
			830-400 BC

*Based on data from Pomeroy (1980)

The continuous occupation of Namu is not easily explained, given the later deterioration of the local salmon fishing economy and the periodic hardship this entailed, particularly in the period after 500 BC [see Cannon et al. (1999) for a summary discussion of the evidence for this and for reference citations]. Still, the site holds certain natural advantages with its harbour, major river outlet, and wide extent of level, elevated ground surface. The attractiveness of the locality is also indicated by extensive Euro-Canadian development at Namu beginning in the late nineteenth century and extending into the later twentieth century (Luebbers 1978:11).

Similar continuity, in the sense of continuous use or occupation is only suggested by the limited extent of dating undertaken at other sites in the Namu vicinity. Table 1:2 shows the number and range of radiocarbon dates obtained for other sites in the area. The depth of deposits at older sites and this range of intervening dates between basal and terminal deposits suggest at least the possibility that, like Namu, some if not most sites remained more or less in continuous use following the time of their initial settlement.

Site localities that exhibit ongoing use include major villages, such as Namu, and small campsites, such as EITa-18, which is located on a small, high terrace overlooking a channel leading into the interior of Hunter Island. Both of these particular sites show use over the entire span of the last 11,000 years, suggesting that a settlement pattern consisting of major villages or base camps and smaller specific-purpose camps has also been in existence over this same time span. Persistence in the use of these locations suggests either they possessed cross-culturally recognized physical advantages, or a continuous cultural tradition seasonally brought successive generations back to the same locations used by their immediate and more distant ancestors.

The lack of site abandonment in the Namu vicinity minimally suggests there were no major disruptions in settlement patterns caused by extensive political conflict or environmental change. If more or less continuous occupation or use of sites is verified through more intensive dating of site deposits it would suggest there were no significant disruptions on a shorter term scale either. The results of core testing and previous site excavations indicate the only major change in settlement pattern to have been a significant increase in the number and density of village sites around 500 BC, followed by an increase in the number of small, specific-purpose campsites (Cannon 2002). I have attributed this expansion in village sites to the resettlement of family groups breaking with the settlement at Namu during periods of food shortage predicated on failure of the local salmon fishery. The late increase in sites of course, would also be consistent with a wider regional influx of population, which would fit with Mitchell's (1988:584, 1990:357) proposed migration of Wakashan-speaking populations around 500 BC. Both scenarios remain speculative, but if large-scale migration and population replacement did occur, as Mitchell suggests, then it occurred without any obvious disruption of longstanding patterns of site use in the area. Sites that had been in use millennia earlier remained in use after this date, and with no apparent change in how they were used.

An argument could be made that cultural replacement would not necessarily result in any changes in the use of existing sites if their settlement was initially and subsequently based on the physical advantages of their localities. Euro-Canadian development at Namu and construction of a cabin in the central area of EITa-25 (Figure 1:3), a shell midden site directly west of Namu on the east coast of Hunter Island, support the argument that these were desirable locations regardless of cultural tradition. Two examples of post-contact site use are not enough, however, to make the case



Figure 1:3. Site EITa 25, Kiltik Cove, Hunter Island.

that continuity of cultural tradition was not a factor influencing the stability of Namu vicinity settlement patterns..

There are two possible explanations for the degree of continuity in settlement pattern observed in the Namu vicinity. Either the physical advantages of site localities were sufficient to exert a strong influence on early and subsequent settlement by people of whatever cultural tradition, or alternative localities offered equal or greater advantages and the use of specific localities was governed more by cultural tradition. I have argued (Cannon 2002) that the continuous use of Namu and later other village sites in the area was a function of a seasonal ritual and food gathering cycle (Harkin 1997:7) that made winter villages places of ritual permanence in the landscape, following Bender (1985). This type of explanation seems especially appropriate to account for the continued occupation of Namu despite periodic failure of the local salmon fishery and the hardships this entailed (Cannon et al. 1999). Assessment of alternative explanations based on the relative physical advantages of

different localities will require detailed multivariate geographic analysis. Hobler's (1983) initial study showed proximity to salmon streams was not critical in determining site location. Further studies will need to incorporate a wider range of factors including proximity to a variety of food resources, local topography, proximity to reliable fresh water, shelter from seasonal weather patterns, and visibility of access routes.

The persistence of site use, despite establishment of new settlements at alternative locations in the immediate vicinity, suggests the likely influence of cultural tradition. Village sites established at Kisameet Bay, twelve kilometres north of Namu, and at the Koeye River, nine kilometres to the south, for example, appear to have had more productive salmon fisheries than Namu in the period after 500 BC. Yet Namu was not abandoned in favour of settlement at these locations (Cannon 2000a, 2001). A similar pattern is evident at two major shell midden sites on Fougner Bay, a small bay on the mainland just north of Namu. Both sites are relatively large and contain evidence

of a variety of subsistence activities suggestive of major base camps (Cannon 2000a). The earlier of the two, EISx-10, was in use from as early as 4300 BC as well as in the contact era (Table 1:2). The other site, EISx-18, located on a small island in the bay and directly facing EISx-10, was established by 1600 BC and also was in use in the contact era. If the advantages of site locality were the main factors in later establishment of the site at EISx-18, then it might be expected that the earlier site would have been abandoned in its favour. The alternative is that cultural or even family traditions played a role in the continued use of EISx-10 and later the concurrent use of EISx-18.

Of course, local population growth could have led to expansion in the use of less advantageous localities. Ranking site attributes in comparison to the chronology of their settlement would be one way to evaluate this possibility. With respect to salmon productivity, however, subsequent village sites in the vicinity are superior in comparison to Namu at the same time (Cannon 2000a). Their establishment did not lead to the abandonment of Namu that might have been expected if resource advantages were the determining factor in site settlement. Alternatively, if new villages were established because of an influx of outside populations, as in Mitchell's migration scenario, then it would also be unusual for new people in the area to maintain village settlement at Namu at the same time as they settled more productive village localities nearby.

Further site testing and dating to verify settlement histories will be needed to assess the likelihood of migration, and geographic assessment of site and non-site localities will be needed to determine the role the physical landscape played in determining site settlement. For now, historical contingency influenced by the constraints and advantages of the physical landscape appears the simplest explanation for the establishment of settlements at particular localities, while continuity of cultural tradition offers the simplest and most powerful explanation for continuity of settlement at those same localities.

Site Use

Analysis of faunal remains from Namu and other sites in the vicinity suggests long-term continuity in the way that different site localities were used. Patterns of seasonal site use and resource extraction remained stable over periods of several millennia in some cases. The

density and seasonal variety of resources at Namu are the same from as early as 5000 BC, the date of the earliest preserved vertebrate fauna (Cannon 1991, 2000a). The faunal remains indicate multi-seasonal winter village occupation throughout this time, at least up until the most recent period in the site's occupation when it may have served more as a seasonal campsite than a winter village (Conover 1978:98). The only major difference in the faunal assemblage over time is the decline in the relative percentage of salmon from a peak of ninety-seven percent of recovered fish remains in the period 4000-2000 BC to sixty-seven percent in the period AD 1-1000. Auger samples show herring to have been far more abundant and more stable over time (Cannon 2000a).

The continuity in settlement and subsistence at Namu is well established on the basis of a wide variety of evidence. Assessment of similar continuity at other sites on the basis of faunal remains recovered from auger samples is far more tenuous. Currently available data, however, strongly suggest that all sites tested in the region exhibit similar patterns of utilization from the time of their initial establishment through to the time of their abandonment in the late pre-contact/early contact period.

Analysis and comparison of fish remains recovered from auger samples has been used as part of the basis for classifying sites in the Namu vicinity as winter villages, a spring village, probable base camps, and a variety of specific purpose campsites (Cannon 2000a, 2002). The density and variety of fish remains indicate the seasonal range, variety, focus, and intensity of activity at each of the site localities. Herring and salmon predominate among the fish, but the remains of twenty-four other taxa have also been identified. The density and variety of fish remains are much greater at sites that various indicators suggest are probable villages, but are more moderate at probable base camps and much lower at specific-purpose campsites. The characteristics of the faunal remains are generally consistent between sampling locations within sites and between samples from different levels at particular locations.

Unfortunately, it is presently impossible to assign auger samples from sites other than Namu to meaningful temporal units. No major stratigraphic breaks have been identified in the deposits, and artifact assemblages, that normally provide the basis for periodization at most Northwest Coast sites, are also not available. Artifacts occur only rarely in the auger

samples and are generally undiagnostic, with the exception of one obsidian microblade recovered from the oldest dated deposits at EISx-10. Insufficient funding for extensive radiocarbon dating has also prevented periodization on the basis of absolute dates. The lack of periodization precludes systematic comparison of the variety and density of fish over time. Ongoing analysis of shell samples may clarify relative temporal trends in shellfish use, and further dating may allow for quantitative analysis of the focus and intensity of fishing economies over time, but clear temporal patterns in the use of fish are not evident at any of the sites tested. There is certainly no indication that sites once used as major village or base camp settlements were subsequently reduced to seasonal, specific-purpose campsites. Any temporal variation in the intensity or focus of fisheries would have been more modest in scale, though even modest variability has provided the basis for interpretations of changes in resource use at Namu and at other locations on the Northwest Coast.

Auger samples from Namu were sufficient to show temporal variability in salmon density comparable to the direction and scale of variability earlier identified in the analysis of faunal remains from full-scale excavations (Cannon 2000a). Decline in the intensity of the salmon fishery and increase in use of a wider variety and often lesser quality of alternative fish resources has been attributed to changes in local environmental conditions that resulted in periodic failure of the Namu salmon fishery (Cannon 1995, Cannon et al. 1999). Although significant in its implications for the local population, this change in the local fishery was relatively modest overall, and insufficient to provide a basis for interpretations of cultural discontinuity. Temporal variation in the focus of fishing economies in other areas of the Northwest Coast, however, has been used to argue for cultural displacement or evolutionary change.

In the Queen Charlotte Strait, south of Namu, variation in fish assemblages that show an increase in salmon fishing have been used in conjunction with differences in artifact assemblages to suggest replacement of an Obsidian Culture type (3000-500 BC) by a Queen Charlotte Strait Culture type (AD 300-Contact). The latter is speculated to represent a migration of Wakashan-speaking peoples (Mitchell 1988). The poor quality of fish resources used in this region in earlier periods suggests instead either environmental change that increased the availability of salmon or im-

provement in technology that enhanced the productivity of salmon fishing (Cannon 1995, 2001). An 800-year gap between proposed culture types may account for the differences in associated artifact assemblages. The differences in fish assemblages between the two periods are relatively minor, with the exception of a greater proportion of ratfish in earlier periods, which likely represents the use of marginal alternative resources at times when salmon was in short supply. Although great interpretative weight is placed on varied use of resources over time, this evidence in itself provides little support for cultural discontinuity.

Evolutionary change in subsistence economies is sometimes inferred from minor variation in the relative abundance of fish remains or from substantial variability that is more easily explained with reference to other causes. Croes and Hackenberger (1988), for example, outlined an evolutionary model for intensification of salmon fishing based on contrasts in fish remains from two sites on the Hoko River on Washington's Olympic Peninsula. Seasonal contrast in use of the two sites, however, equally and more simply accounts for the variability in fishing economies. In extending the same model to the results of excavations at Crescent Beach and at the Glenrose Cannery site, Matson (1992, Matson and Coupland 1995) placed great weight on minor differences in the relative abundance of salmon and flatfish and salmon cranial elements. Cranial element representation, however, provides very weak support for later intensification of salmon fishing and storage (Cannon 2001), and the quantities of fish remains recovered from Crescent Beach and Glenrose do not indicate a clear evolutionary trend. Evolutionary change in the fishing economy is expressly denied on the basis of faunal remains from the St. Mungo site (Ham et al. 1986).

The reliability and strength of criteria used to argue for discontinuity or change in Northwest Coast subsistence economies should be re-evaluated. Where variation in seasonal use of sites or activity areas within sites cannot be controlled, evolutionary change in fishing economies should be held to a much higher standard than simpler and more direct interpretations that posit use of resources according to their availability, local abundance, and relative quality. Where temporal patterns are evident, the potential for local environmental changes to explain those patterns should be evaluated ahead of more elaborate interpretations of cultural discontinuity.

None of the evidence from the Namu vicinity comes close to meeting this high standard for demonstrating temporal variation in subsistence economies. On this basis, essential continuity in subsistence economies should be the preferred interpretation. Consistency in the use of resources at Namu and other sites in the vicinity supports but does not demonstrate cultural continuity. Use of particular localities is certainly constrained by resource opportunities and site characteristics, but it is also undoubtedly shaped by cultural perception and family and local group traditions of seasonal occupation and resource use. It may be possible to evaluate the resource potentials of particular localities and assess those against utilization patterns to see whether cultural patterns remained within some optimal limits. Given, however, that cultural perceptions and traditions are shaped as much by patterns of activity as any other factor, it may never be possible to separate cultural continuity from structures of environmental opportunity and constraint.

Spatial Organization

Auger and core samples generally provide little information of sufficient detail to assess whether there is any continuity over time in the organization of space within sites. As with most small-scale test excavations, they do not cover enough area to reveal features that might provide evidence of structures, nor do they yield large enough artifact assemblages to identify areas consistently used for specific types of activities. In the best of circumstances, core and auger samples provide only a rough indication of temporal trends in the spatial focus of activity. In only one case do sample contents suggest the possibility that distinct habitation and refuse disposal areas were maintained over the course of several millennia. At ElSx-10 on Fougner Bay multiple dating of deposits ranging from the back to the foreshore areas of the site clearly showed the focus of activity shifted over time, with older deposits near the back and younger deposits near the shore. In contrast, a linear series of auger samples down the central axis of the site of ElTa-25 on Kiltik Cove, on the eastern side of Hunter Island, showed clear contrasts in the matrix and faunal content of deposits that suggest long-term continuity in the location of habitation and refuse areas.

Field observation of auger samples from ElTa-25 showed that samples from locations A and C, at either end of the long axis of the site

(Figure 4), contained larger amounts of relatively pure, loosely packed shell. Samples from location B, near the central part of the site, were characterized more by dark, sticky matrix typical of high organic content. Faunal analysis of the auger samples showed there were relatively few fish bones in any of the deposits, suggesting the site was used more for shellfish gathering than for fishing, but samples from the central area contained twice the density of fish bone. Samples from locations A and C contained an average of 4.9 identifiable fish bones per litre of matrix, while those from location B contained 11.5 fish bones per litre of matrix. These observations suggest a consistent pattern of habitation in the central part of the site and disposal of shellfish remains around the periphery of the habitation area.

It is almost certainly not a coincidence that samples from location B, which suggest habitation, are from close to a cabin that presently sits on top of the site. Continuity in the use of habitation space extends into the present in this case, and transcends cultural tradition. The implication of continuity is therefore equivocal. Even extensive excavation and clear evidence of successive structures on the same location would be insufficient to show unequivocal evidence of cultural continuity. The central part of the site may simply hold topographical advantages that are as likely to have constrained building in the past as in the present. Multiple lines of evidence showing even more specific consistency in the use of space for particular patterns of activity would be needed to bolster the case for cultural continuity, and even this level of evidence might not be sufficiently convincing.

Given the complexity and depth of shell midden deposits, few archaeological excavations on the Northwest Coast have been able to expose sufficient site area to show clear evidence of buried structures. Fewer still have had the resources to expose sufficiently wide areas at any considerable depth to show spatial continuity in constructions and related activities. One notable exception is the extensive excavation of the St. Mungo site, at the mouth of the Fraser River which was undertaken in 1982-83 (Ham et al. 1986). Large block excavations at this site revealed successive house floors (thin shell and sand layers), postmolds, and hearths (Ham et al. 1986:182). The postmolds included the remains of large house frame posts. Ham et al. (1986:202-203) cite spatial variability in artifacts together with evidence of successive structures to argue for family conti-

nity at St. Mungo from as early as 4500 BP, with one area of the site occupied successively by wealthy families that specialized in the manufacture of matting and basketry.

The St. Mungo ex-cavations provide compelling evidence for cultural continuity in the organization and use of space. Yet even this range, quantity, and quality of evidence can be said to provide only the basis for a "controversial claim for houses at this time and the assumption that the present day Halkomelem culture, and settlement pattern can be projected back to this time period" (Matson 1992:382). If the type and quality of evidence yielded by careful excavation over wide areas, as carried out at St Mungo, is insufficient to

demonstrate cultural continuity, then it is likely that empirical evidence will never be sufficient to overcome interpretations shaped as much or more by evolutionary perspectives. These are bound by de-finition to look for and to find cultural transformation over time.

Indications of continuity in the evidence from St. Mungo are overwhelming in contrast to the near absence of evidence for significant change. The evidence in the Namu vicinity on the central coast is less detailed and therefore less compelling, but the case for continuity in this region derives as much from the lack of any compelling evidence of significant change or discontinuity in the use of sites, resources, or space within sites. If issues of cultural con-

tinuity and change are ever to be resolved in this or any other area of the coast, then some agreement on the relevant criteria, and on standards for the collection and assessment of evidence must be reached first.

Discussion

Central coast archaeological investigations show a variety of evidence that together suggests long-term cultural continuity without major disruption from political conflict, migration and cultural replacement, or widespread environmental calamity. The clearest and most firmly established evidence is the indication that very few sites investigated to date were permanently abandoned. The implication is that despite a wide variety of alternative localities suitable for habitation in the area (Hobler 1983:154) subsequent populations were drawn to use localities that had been initially established as settlements centuries or millennia earlier. Systematic evaluation of the widest possible range of physical characteristics of site localities may yet reveal that these features ultimately guided and constrained choices of settlement location. Euro-Canadian use of localities, such as Namu and EITa-25, that had long been the sites of indigenous settle-

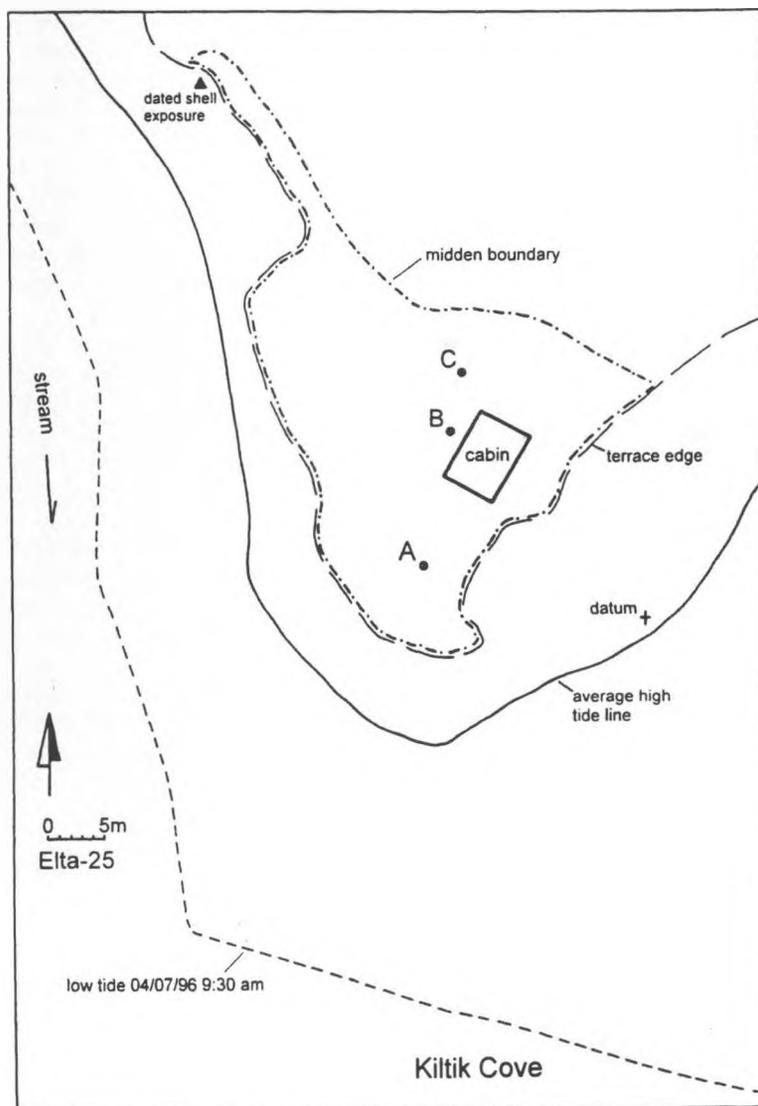


Figure 1:4. Auger Sample Locations at Site EITa 25.

ment, support this possibility, but overall continuity in the use of site localities suggests that cultural perceptions of the landscape based on historical tradition were equally important. Consistency in local and regional subsistence economies, though more equivocal, also supports an argument for long-term continuity of cultural tradition. The weakest specific evidence for continuity is the consistent use of space at ElTa-25, but as one more line of evidence it adds to the overall impression of cultural persistence that had been noted based on earlier investigations in the area (Hobler 1990:298).

Continued use of site localities, continuous occupation, and consistency in subsistence economies and artifact assemblages, and, in rare cases, consistent use of space within sites are widely cited on the Northwest Coast as evidence for cultural continuity. Dewhirst (1980:336), for example, notes remarkable consistencies in faunal remains and artifact assemblages from the Yuquot site to argue for cultural continuity at that location over a period of 4300 years. Murray (1982: 45) also cites remarkable similarity in artifacts and fauna from components of the main Duke Point site to argue for 4000 years of continuous *in situ* development and change at that locality. Ham (Ham et al. 1986:202-203) argues for continuity at St. Mungo based on consistency in faunal and artifact assemblages and the use of space. Carlson and Hobler (1993: 48-50) cite a wide range of evidence including a continuous series of radiocarbon dates and persistence of subsistence, social rank differentiation, and belief systems to make the case for cultural continuity at the Pender Canal sites.

Northwest Coast archaeologists have cited the economy (Carlson and Hobler 1993:48) and the simplicity and elegance (Murray 1982:46) of longstanding cultural tradition as an explanation for long-term consistency in empirical evidence. They have implicitly or explicitly taken the position that continuity should be the preferred interpretation in the absence of compelling evidence of change. Others have commented on the propensity to exaggerate minor variability in the process of archaeological phase construction (Dewhirst 1980:336, Hobler 1990:298, Hester 1978:101). Archaeologists inclined from empirical evidence or theoretical propensity to stress longstanding cultural traditions also note the difficulties involved in differentiating migration and cultural replacement from diffusion based on intermarriage and trade (e.g.

Carlson 1970:22). Although proposals for migration and replacement are increasingly based on broader range of regionally derived archaeological evidence (e.g. McMillan 1998, Mitchell 1988), this explanation can still be held to a higher standard than simpler alternatives that attribute change to cultural interaction. The potential for local environment change or variable use of sites within seasonal settlement-subsistence systems (Cannon 2001, Carlson and Hobler 1993:50) should be evaluated before temporal variability in subsistence economies is attributed to cultural replacement (Mitchell 1988) or evolutionary development (Croes and Hackenberger 1988, Matson 1992).

In the end the propensity to stress continuity or change in Northwest Coast archaeology represents a conflation of historical reality and empirical evidence as well as researchers' theoretical perspective and their capacity to examine evidence from more than just limited areas within the wider spatial context of sites and regions. Limited excavations of particular sites tend to exaggerate temporal variability, whatever the theoretical predilection of investigators. Wide area excavation and regional multi-site sampling are more likely to reveal variability as part of a broader continuum.

Theoretical perspectives that are more ethnographic or historical in orientation will probably always stress continuity in the absence of compelling reasons to accept alternatives. Evolutionary perspectives will stress the importance of temporal variation, however minor or insubstantial. This debate will continue and will drive new research designed to resolve specific questions in support of either alternative. Although no amount of empirical research is likely to prove sufficient to resolve underlying differences among theoretical perspectives, future research on the central coast of British Columbia will continue to be at the forefront of theoretical and historical debate. Based on limited regional research in the Namu vicinity, cultural continuity seems, for now, the simplest and most compelling interpretation of the available empirical evidence. New research based on a greater number of more extensive excavations may provide empirical support for significant, long-term culture change. In the meantime the more immediate problem will be to elucidate structures (Cannon 2002) and patterns of human agency (Cowgill 2000:57) that would maintain cultural traditions over such remarkable lengths of time.