

## IX ARCHAEOLOGICAL CORRELATES OF SEASONAL SUBSISTENCE STRATEGIES

Ethnographic and environmental data have been used to reconstruct traditional Tahltan subsistence and settlement patterns. This section summarizes seasonal subsistence strategies and the archaeological remains

expected to be found at different types of sites occupied. The seasonal model of subsistence activities forms the basis for discussing factors affecting the formation and visibility of archaeological sites.

### Site Formation Processes

Archaeological remains represent the transformation of energy through the cultural system. The flow of energy transformation resulting from procurement, processing, storage, consumption, and discard of wastes can be illustrated in a behavioral chain model (Schiffer 1976). Table 13 presents a behavioral chain model for the traditional Tahltan salmon procurement strategy, which has been studied in greatest detail.

Several factors related to the formation of sites associated with the procurement and processing of salmon become evident upon examination of the model. The complex and sophisticated technology traditionally used for the procurement of salmon leaves little or no evidence in the archaeological record, since tools and facilities were all made of organic materials. The most visible remains associated with fishing activities result from tools and facilities used for processing and storage of salmon.

The greatest concentration of lithic remains are produced by manufacture and use of small flakes for butchering knives in processing activities carried out by women as described above in chapter 6, and suggested by Flenniken (1980). Since smokehouses served as living quarters and as facilities for processing salmon, floors within these structures were swept regularly of accumulated debris. It is expected, therefore, that lithic debris would be located in or near hearths, against walls or just outside of smokehouse floor spaces.

Notable smokehouse features which

would be found as remains in an archaeological context are clearly visible in the floorplans of older smokehouses No. 1 and 4, shown in Figures 50 and 51. These features include rock outlines with larger flat rocks serving as foundations for the major support posts and wall base. In the case of smokehouse No. 1, wall poles sit directly on a large base log, while in No. 4 poles sit in the ground outside of the base log, so that their positions would be marked by post moulds archaeologically.

Hearth areas are generally located in the middle of each of the four corners in the large houses, although they are also located in areas between. There is no regular effort made to remove and deposit hearth ash outside the house, so that deposits often build up in the hearths and become scattered and trampled into the earth floor.

Plans were also drawn for the remains of two former smokehouse structures. The floorplan, shown in Figure 52, represents the remains of a smokehouse at least 40 years old which was torn down a few years ago. Scattered hearth ash is clearly visible on the surface, and there is not yet any vegetation growth on the floor area. The floorplan in Figure 53 represents the remains of a smokehouse structure of unknown age. The rock outline of the structure is clearly apparent although patches of grass and herbs and two small pine trees have developed inside the area. Although windblown silts have been deposited on the floor area, slight traces of hearth ash can still be detected.

Table 13. Behavioral Chain Model for Salmon.

Activity	Location	Social Unit	Tools/Facilities	Time/Frequency	Expected Remains
procurement	river bank	2-4 men of each household	weirs, traps gaffs, spears	2-4 hr/day	--
gutting	river bank	women	obsidian knives	av. 3-7 min/ fish	obsidian blades flakes
transport	river bank to smokehouse	men/women/ children	branch	av. 2 min/ fish	--
cook/consume fresh fish	smokehouse or outdoor hearth	women	obsidian knives wooden stakes bark baskets boiling stones	30 min/meal	obsidian flakes hearth/burnt bones/boiling stones
splitting fish	smokehouse	2-4 women of each household	obsidian knives	5-10 min/fish 2-4 hr/day	obsidian blades/ flakes scales/small bones
gather/cut firewood	vicinity of smokehouse	men/women/ children	axe	1 hr/day	lost or broken axe
tend fires and monitor fish	smokehouse	women	hearths	1 hr/day	hearths
pack fish in bundles	smokehouse	women	willow ropes	several hours end of season	--
prepare storage pits	vicinity of village	men/women/ children	wooden hoes axes	several hours end of season	pits
transport fish	smokehouse to storage pits	men/women	tumplines	several hours end of season	--

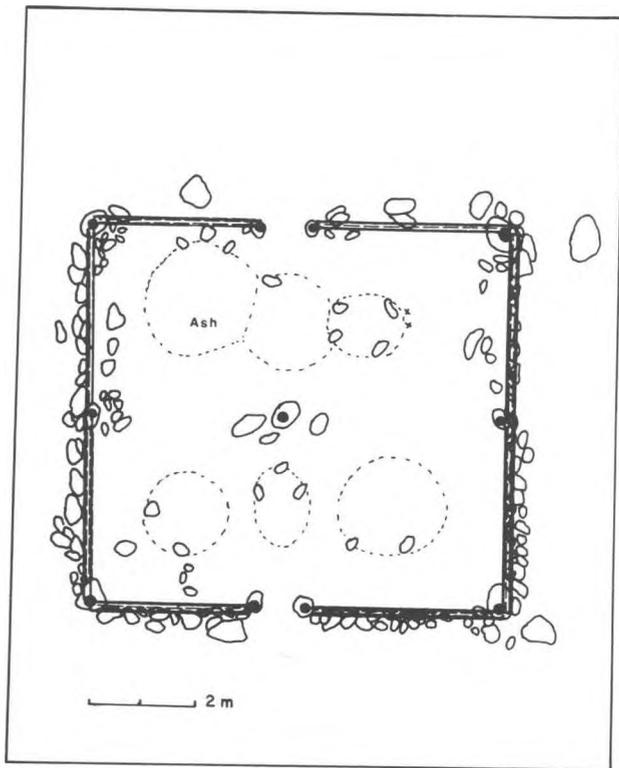


Figure 50. Floorplan of smokehouse No. 1

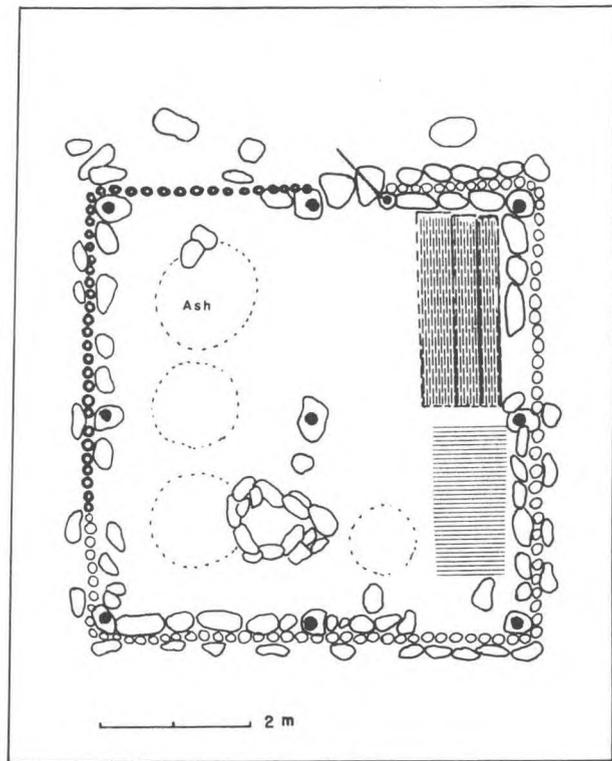


Figure 51. Floorplan of smokehouse No. 4

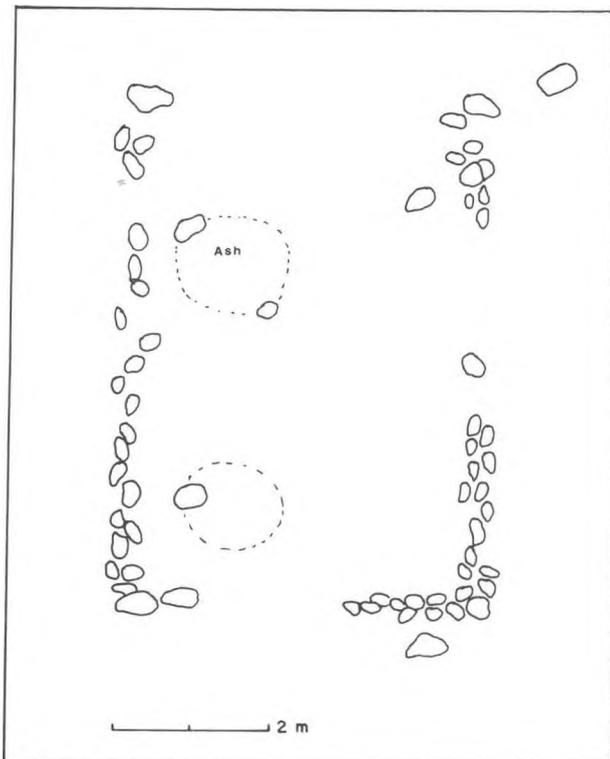


Figure 52. Floorplan of smokehouse remains A2

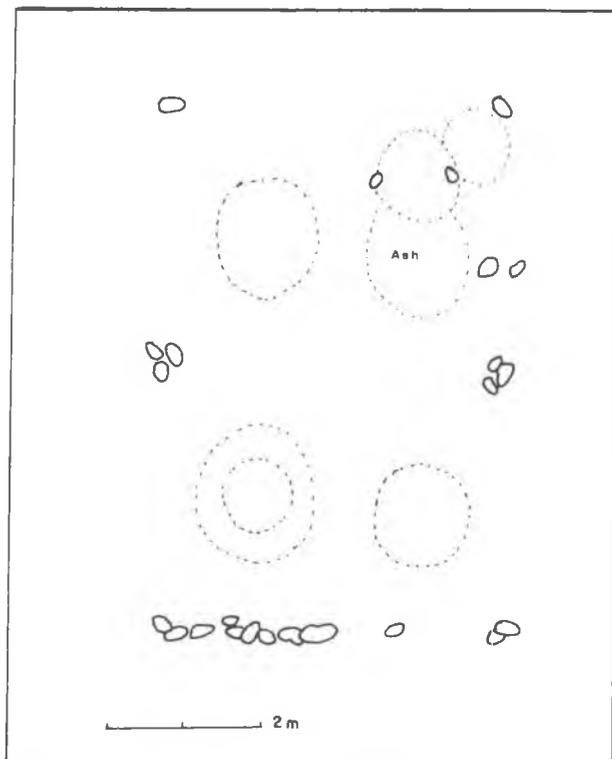


Figure 53. Floorplan of smokehouse remains A1

Analysis of soil samples collected from floors of several smokehouse structures along the Stikine River indicate that these consist of windblown silts mixed with river deposited silty sands derived mainly from basalt, schist, and quartzite rocks. Sediments range in colour from very dark grey brown to yellowish brown (Munsell codes 1OYR 3/2 and 1OYR 5/4). Surface sediments become crusted with constant dripping of oils out of the fish during the drying process, and subsequently become compacted in thin layers. Although chemical analysis was not carried out, it is expected that phosphates, resulting from the breakdown of these fatty deposits, would become concentrated in the soil floor with increased amount of fish processed and length of time the structure was used.

Observations on butchering practices, preparation and consumption of fresh fish during the summer, and processing of salmon for drying and storage, as described in Chapter 6, indicate minimal deposition of fish bones in processing areas or facilities. Soil analysis revealed that small quantities of bone fragments 2mm or smaller in size are trampled into smokehouse floors, along with fish scales. Fish scales found in archaeological context could yield such data as species taken, age and size of fish, and season of procurement.

Cache pits, used for storing dried salmon and other preserved foods, are highly

visible in archaeological context. Located in the vicinity of major camps and villages, as seen in the maps presented in Appendix 4, cache pits average 2.5 by 1.5 by 1 m in size. Salmon processed in the traditional smokehouse, occupied by an extended family of about 25 people, were stored in several pits. Thorman (n.d.) noted that the bark lining and other forest materials used in the pits were often burned after food had been removed from them. Charcoal preserved in excavated pits would provide a means of dating use of these pits and occupation of sites in which they are found.

Activities related to procurement, processing, and storage of salmon were dispersed over a relatively large area within the village. Older ethnographic fishing villages (examples are presented in Appendix 4) with archaeological evidence of prehistoric occupation, have an average size of 400 m in length by 100 m in width. Often separate sites recorded during archaeological survey represent different activity areas which formed part of a single village.

Table 14 summarizes the archaeological remains expected to be found at different types of sites occupied during the seasonal round of subsistence activities. This seasonal model of subsistence and settlement strategies forms the basis for presenting some general comments on factors affecting site formation and visibility.

### Factors Affecting Visibility of Archaeological Remains

Summer fishing villages, as discussed in detail above, are among the largest and most visible sites occupied during the year. Abundant food resources allowed larger groups of people to aggregate for longer periods of time at summer and winter villages. Permanent shelters and facilities for processing and storing large quantities of resources at major camps and villages are highly visible in the archaeological record.

Since most of the material culture used by the Tahltan was made of organic

materials, site visibility also depends on the accumulation of lithic materials from stone tool use over many years. The greatest concentration of stone tools and debris results from butchering and processing fish, meat, and hides in vicinity of habitation structures at major camps. Obsidian quarries and camps where lithic reduction activities take place, such as those in the Mount Edziza area, also yield highly visible concentrations of lithic materials (Fladmark 1982). Tahltan elders indicate that obsidian was collected during late summer-early fall

hunting expeditions in alpine areas.

The procurement of plant resources, smaller mammals and birds, or kill sites of individual large game animals leave little or no lithic or faunal evidence in the archaeological record. Small mammals and birds are taken back to camp whole for processing. Although large game animals are skinned and butchered into major sections at the kill site, all parts are transported to the campsite and put to some use.

Teit (n.d.) indicates that there were strict regulations concerning the disposition of bones. Formerly, bones of salmon and most animals were not given to hunting dogs. Dogs either foraged for birds and rabbits or were given choice pieces of meat as a reward after a kill. Bones from large animals were used for manufacturing a variety of tools and implements. Bones of animals such as beaver, lynx, marmots, and bear were either disposed of in water or were burnt in the campfire. In a boreal forest environment with acid solids, where bone preservation is generally very poor, the practice of burning bones in the campfire would contribute to their preservation in archaeological context. Dried fish and meat were often exchanged between groups and transported to the next seasonal camp. Bones from these foods were often thus deposited in different sites from which they were procured or processed.

The costs of transporting materials and tool kits from one camp to another was limited by caching behavior. Many artifacts having specific functions, such as fishing nets and weights, and other items referred to as site furniture (Binford 1979) were left at camps from one season to the next.

Observations and accounts indicate that at larger sites, which were reoccupied on a yearly basis, there is often lateral shifting of site use over time. Frequently new structures are built a short distance from old ones which are then used as caching or storage facilities for a time. The cutting of trees for construction or firewood at larger sites render these highly visible for many years after abandonment. Such sites are easily detected from the air or through aerial photography interpretation.

Various types of sites are ranked below according to their degree of archaeological visibility. The order is from greatest to least visibility.

1. Historic villages and camps with standing structures
2. Villages and camps with metals from historic/protohistoric occupation
3. Quarry sites such as those in Mt. Edziza area
4. Camp sites in quarry vicinity where reduction activities take place
5. Major fishing villages, occupied for extended periods of time by large numbers of people
6. Trading camps occupied by large groups of people, generally at locations of resource abundance (may coincide with 5 or 7)
7. Major winter camps, occupied for extended periods of time
8. Seasonal camps of one to several weeks occupation, eg. at fishing lakes, marmot snaring camps at timberline
9. Trail networks
10. Temporary camps
11. Other plant procurement or kill sites

Table 14. Archaeological Correlates of Seasonal Subsistence Strategies.

Season/Length of Occupation	Site Type/ Location	Social Unit/ Group size	Structures/ Facilities	Tools/ Implements	Faunal Remains
mid June- mid Aug. 8 weeks	fishing villages major salmon rivers	several extended families 100-150	smokehouse found. or post moulds hearths/pits for process. cooking and storage	axes/hammer- stones adzes/obsidian flakes, knives boiling stones	fish scales salmon, beaver trout, hare, deer
several hrs/day	plant gathering sites/vicinity of village	6-10 women and children	--	--	--
mid Aug.- mid Sept. 3-4 weeks	camps at timberline	extended family 15-25	outlines of lean-to shelters post mould of drying racks hearths, storage pits	axes/adzes hammerstones obsidian flakes knives boiling stones	marmots, gopher, sheep goat, bear caribou, ptar- migan, salmon scales and bones
several hrs/day	berry gathering sites/vicinity of camps	6-10 women and children	--	--	--
one-several days	temporary camps kill sites/ alpine meadows	2-8 men and boys	hearths	obsidian knives projectile points	sheep, goats caribou, bear
several hrs/day	obsidian quarries/ alpine ridges	several men	--	hammerstones/ extensive lithic scatters	--
Sept.-Oct. 4-6 weeks	base camps subalpine valleys	1-2 extended families	outlines of lean- to shelters/post moulds of drying racks/hearths/pits for soaking and smoking hides/ storage pits	axes/adzes/hide dressing tools/ obsidian flakes and knives boiling stones hammerstones mortar stones	caribou, bear, moose, sheep, goat
several hrs/day	caribou fences/ vicinity of camp	men and women of several families	fence lines	axes, obsidian knives, spear points	--

Table 14 (continued).

Season/Length of Occupation	Site Type/ Location	Social Unit/ Group size	Structures/ Facilities	Tools/ Implements	Faunal Remains
one-several days	temporary camps kill sites/alpine meadows subalpine forest	2-8 men and boys	hearths	obsidian knives projectile points	sheep, goats, bear, caribou, moose
2-4 weeks	fishing camps/ lakes, streams	1-2 extended families	lean-to shelters drying racks hearths	net weights	salmon, whitefish, char
Nov.-early April	winter villages forested valleys close to caribou fences	2-4 extended families 50-100	double lean-to shelters/as base camps above	as base camps above	caribou, moose, fish, hare, birds, beaver, lynx, porcupine, marten
one-several days	temporary camps kill sites/sub-alpine and boreal forest	2-8 men and boys	hearths	obsidian knives projectile points, axes	moose, caribou hare, beaver
mid April-May 4-6 weeks	camps on lakes and streams	extended family 15-25	lean-to shelters drying racks hearths, roasting, cooking pits	axes/adzes net weights obsidian flakes, knives boiling stones	trout, gray-ling, water-fowl, hare, grouse, beaver, bear
one-several days	temporary camps kill sites	2-8 men and boys	hearths	obsidian knives projectile points	bear, beaver waterfowl
May-June several hrs/day	plant gathering sites/vicinity of camps	6-10 women and children	--	flake knives	--
several hrs/day	bark gathering sites/vicinity of camps and villages	several men, women and children	--	flake knives	--

### Conclusions

Ethnoarchaeological approaches can provide an understanding of the dynamics of hunter-gatherer subsistence behaviour and site formation processes. These factors are seen as essential for interpreting the significance of different prehistoric sites within the overall pattern of subsistence and settlement strategies. The availability of salmon in the Stikine Plateau area, a reliable resource which could be procured and stored in large quantities, provided the Tahltan with a means of coping with periods of scarcity which other Athapaskan groups occupying Arctic drainages did not have.

A problem for future research would be to determine how early these subsistence patterns are valid. As few areas of the Stikine Plateau have been investigated archaeologically, this issue has not been

resolved. However, excavations conducted by Magne (1982) and Smith (1970) suggest that the patterns reconstructed in this study extend back at least a few hundred years. Paleoenvironmental studies have indicated that small scale changes in climate have occurred and that alpine glaciers in the Mt. Edziza area have advanced short distances from their present locations (Souther pers. comm.). As a result, ecological zones may have shifted and plant and animal populations probably varied. Research in the Tahltan area has indicated that the subsistence and settlement strategies utilized provided a means of coping with resource fluctuations. It is thus suggested that similar patterns of land use may have been operating in the area for several thousand years.