CHAPTER 2
Faunal Data

Raw faunal frequencies do not provide an adequate basis for the analysis of economic and environmental trends, but their presentation is necessary to allow for the appreciation of subsequent data manipulation and interpretation. Tables 7 - 9 and Appendix A list the frequencies of identified fauna for each temporal period and major excavation unit. The figures give some impression of the relative importance of faunal classes at different periods in the site occupation. Information concerning the seasonality, habitat, and ethnographically-recorded uses of vertebrate fauna is summarized below. These data provide the basis for the analyses and interpretations presented in subsequent chapters. Ethnographic descriptions of fauna utilization on the Northwest Coast are scattered and sparse. For the Bella Bella region, in which the site is located, there is little available information regarding the Native economy. Therefore it is necessary to piece together a picture of fauna utilization from a variety of sources, which describe the Northwest Coast economy from the time of European contact to the present. The use of such wide-ranging information for the interpretation of specific archaeological data creates the potential for error in citing ethnographic practices that are neither culturally nor environmentally relevant. This same criticism can be made for any use of contemporary ethnographies for archaeological interpretation. Nevertheless, there is a Northwest Coast culture type, which accounts for cultural similarities among many different culture groups. The coastal environment also promoted a common subsistence strategy, which was based on the available marine resources. Detailed comparison might show differences in exploitation techniques, species emphasis, and the timing of subsistence activities among various culture groups, but the available ethnographic information still can provide guidelines for archaeological interpretation. Ultimately, any interpretation must be based on the evidence of the past and its correspondence with the available ethnographic information. The eclectic use of ethnographic sources also can be criticized for allowing the selection of data to fit a particular conclusion, but because there was so little information available there was no selection of some data over others. The data presentation below outlines the relative abundance and background information for the identified classes of mammal, bird, and fish; a brief review of shellfish data derived from previous excavations is presented at the end of this chapter.

MAMMAL

Table 7 lists the total frequency of identified mammalian fauna by temporal period, and the tables in Appendix A list the totals for the excavation areas described in Table 1. The three most common classes of mammal are deer *(Odocoileus hemionus),* harbour seal *(Phoca vitulina),* and dog *(Canis familiaris).* None of the canid remains were identified as wolf, and the present range of coyote does not extend to the coast, which makes their presence in the midden unlikely. Therefore, all of the recovered canid remains are considered domestic dog. None of the dog remains show any obvious sign of human butchering, and they are not considered here as a significant food resource. Among subsistence resources, deer and harbour seal are by far the most common mammalian species, with deer somewhat more abundant according to the total number of identified specimens.

Four other categories of mammalian fauna, which are much less abundant than deer or harbour seal, but still relatively common in the Namu midden, include: Delphinidae (dolphins, porpoises, etc.), sea otter

(Enhydra lutris), smaller members of the family Mustelidae (weasels, martens, mink, etc.), and porcupine *(Erethizon dorsatum).* Delphinidae are represented by a variety of elements, but these were not identified to species. Many of the remains identified simply as Mustelidae were tentatively identified as *Mustela vison* (mink), though some smaller fraction of the total may represent other small members of the family such as marten or ermine. Porcupine remains were easily identified to species.

Other identified mammals include river otter *(Lutra canadensis),* Otariidae (sea lion *(Eumetopias jubata)* and northern fur seal *(Callorhinus ursinus)),* and beaver *(Castor canadensis),* which are present in moderate to low abundance; black bear *(Ursus americanus)* and raccoon *(Procyon lotor),* which are relatively rare; and finally mountain goat *(Oreamnos americanus)* and whale, which are represented by four and one identified elements respectively. The total frequency of bird (Aves) is also listed in Table 7.

Deer *(Odocoileus hemionus)*

Deer are the most abundant of the identified mammalian fauna, but their importance as a subsistence resource is open to some question. Conover (1978:91) suggests that deer were only important as food during times of starvation, and their procurement was motivated more by a desire for hides and bone and antler for tool-making. McIlwraith (1948:2) also states that though deer were killed whenever possible they were a negligible part of the Bella Coola diet. As is discussed in Chapter 3, there are indications that deer were returned to the site as whole carcasses, but there still may be some question as to the relative importance of deer as a food resource.

Deer were killed from canoe if they were encountered during channel crossings (Drucker 1955:51), and they were also actively hunted with the aid of dogs, which drove the animals from the tangled brush onto the beach (Krause 1979:125). Traps were also used in killing deer.

Table 7. Total Abundance of Recovered Mammal Bone by Period.

	Period				
Taxon	**2**	**3**	**4**	**5**	**6**
Castor canadensis	11	5	15	8	0
Erethizon dorsatum	9	22	33	18	3
Delphinidae	20	17	24	22	0
Canis familiaris	38	58	92	102	35
Ursus americanus	6	2	8	2	0
Procyon lotor	0	0	1	0	8
Mustelidae	45	47	47	31	4
Lutra canadensis	10	7	9	14	4
Enhydra lutris	4	5	47	4	0
Otariidae	6	11	7	9	3
Phoca vitulina	81	76	521	23	1
Odocoileus hemionus	191	236	519	235	61
Oreamnos americanus	0	1	2	1	0
Unidentified mammal	83	83	151	56	23
Aves	69	322	87	83	13

The coastal deer prefers a habitat of open coniferous forest and subclimax bush (Banfield 1974:390). Although the species is available year-round, some populations migrate to the mountain tops and high valleys in summer and return to the lower ranges in winter (Cowan and Guiget 1965:368). Boas (1895:319) places Kwakiutl deer hunting in winter, but contemporary Kwakiutl hunt deer year-round (Rohner 1967:59), albeit with vastly different techniques. Deer in the vicinity of Namu could well have been hunted year-round, but it is possible that there was a greater emphasis on deer during the winter, when other food resources were in shorter supply. This is also the season when deer are more gregarious and congregate in greater numbers.

Harbour Seal *(Phoca vitulina)*

This species is almost as abundant as deer, and was undoubtedly a food source, though the skin may have had important uses. Boas (1921:451-461) provides a detailed description of the Kwakiutl pattern of seal butchering and consumption, and the seal is described as a luxury food among the Bella Coola (McIlwraith 1948:2). The seal was hunted with harpoons, and was also taken when caught out on reefs or sandbars (Boas 1935:17). The harbour seal is common in the bays, harbours, and rivers of the coast (Banfield 1974:370), and isolated reefs and sandbars are used as pupping grounds. The peak of pupping season is during the first half of June; elements from neonatal pups were recovered from all levels of the site.

Delphinidae (dolphins and porpoises)

The most likely species within this family are the harbour porpoise *(Phocaena vermerina),* which frequents bays, harbours, and inshore waters, and the dall porpoise *(Phocaenoides dalli),* which is also common in coastal waters. Ethnographically, dolphins were used as food (Boas 1921:446-450), and were harpooned from canoes (Drucker 1955:42).

Otariidae (sea lion and northern fur seal)

The hunting of these species was not an important subsistence activity at Namu, but they were consistently taken, probably as opportunities presented themselves. In addition to its use as food, the fur seal also furnished a valuable skin (Boas 1895:318).

Sea Otter *(Enhydra lutris)*

The sea otter pelt was avidly sought by Europeans and was probably important to the coastal Natives as well. Prior to the European trade the sea otter was hunted in the same manner as the harbour seal (Drucker 1955:45). The habitat of the sea otter is the sea off rocky reefs, islets, and rocky coasts, and kelp beds, where it rests and sleeps (Banfield 1974:344). It feeds largely on sea urchin, which are common in kelp beds.

Mustelidae (mink, marten, etc.)

Mink and related species are common on stream banks and tidal flats. Ethnographically, they were caught in snares and used for their fur.

River Otter *(Lutra canadensis)*

The river otter is common in coastal streams and was exploited for its fur.

Porcupine *(Erethizon dorsatum)*

The porcupine is said to be rare in the coastal forest (Cowan and Guiget 1965:246), and this led Conover (1978:88) to suggest trade as a possible explanation for the animal's presence at Namu. A desire for incisors to use as tools was suggested as the reason for such trade, though it was acknowledged that other parts of the animal were present in the midden. Northern coastal groups practiced some porcupine quill embroidery (Drucker 1955:90), and porcupine was widely used by Natives in other areas as a source of decorative quills and tasty flesh (Banfield 1974:235). Nevertheless, it seems unlikely that the value of the animal would have warranted either trade with the interior or special hunting forays as Conover suggests, and there may be an alternative explanation for the consistent presence of porcupine in the Namu midden. Porcupines avidly chew bone and antler found on the ground, and they also have a craving for salt, which attracts them to any available source (Banfield 1974:234-235). Their craving for salt could have drawn them to the coastal margin, and the midden itself would have been a ready source of bone. Therefore, though porcupine are rare in the coastal forest, those that were present may have been attracted to human habitation sites, where they were occasionally killed and utilized by the inhabitants.

Beaver *(Castor canadensis)*

Beaver live in the vicinity of fresh-water bodies in forested country. The lake situated about a kilometre behind the site is a suitable habitat. Ethnographically, the beaver was exploited for its fur (Boas 1895:318) and prized for its flesh (McIlwraith 1948:2).

Black Bear *(Ursus americanus)*

Black bear live in the coastal forest and may have been attracted to the Namu River during the salmon spawning run. Although the flesh is edible and undoubtedly would have been used, it is likely that the skin of the animal would have been its greatest attraction. The Bella Coola killed bear for their skins (McIlwraith 1948:2), and the skin of the black bear was highly prized among the Tlingit (Krause 1979:125).

Raccoon *(Procyon lotor)*

Raccoon is not abundant, but it is of interest because raccoon is presently rare on the coast as far north as Namu, and because its presence is largely restricted to deposits that are more recent than 2000 cal. B.P. The limited temporal distribution of raccoon may indicate a change in either the environment or the mode of site occupation. These possibilities are considered in more detail in Chapter 4, which considers faunal patterns over time.

On the coast, the raccoon feeds almost entirely on the beach (Cowan and Guiget 1965:298), and it is something of a scavenger. Scavenging may have attracted raccoons to the midden site, but it is difficult to imagine a situation such as Conover (1978:86) suggests, in which the raccoon would be tolerated as a competitor with Native dogs.

Mountain Goat *(Oreamnos americanus)*

Mountain goat are widespread on the coast, and though they tend to inhabit rough terrain at high altitudes, they are occasionally forced to sea level by heavy snows during the winter months (Cowan and Guiget 1965:389). Goats were prized for their wool as well as for their flesh, which could be dried for winter use. Hunting goat in its normal habitat was a specialized activity on the Northwest Coast (Drucker 1955:52), but its rarity at Namu is more suggestive of fortuitous encounter than systematic hunting.

Whale (Cetacea)

This class of mammal is represented by a single identified element (the epiphysis of a vertebra centrum) recovered from a Period 5 deposit. The isolated occurrence of a single element cannot be taken as an indication of whale hunting at the site; its presence more likely represents the exploitation of a stranded individual. Northwest Coast groups are said to have enthusiastically utilized any whales that drifted ashore as a source of oil-rich blubber and meat (Drucker 1955:49).

BIRD

Table 8 lists the frequencies of bird remains. Most bird bone specimens were identified to at least the family level, and in many cases distinctions could be made within families. Some positive species identifications were made, but more commonly, because of collection restrictions or the inherent difficulty in differentiating between species, identification within families was restricted to the designation of size categories that have probable species referents.

Of the 110 unidentified elements, only 12 are relatively complete elements that are certain to represent species from outside the identified classes. The majority of unidentified elements are either: 1) very fragmentary elements for which further identification is unlikely; 2) elements for which identification is generally more difficult (e.g. vertebrae, sternum fragments, sacrum and pelvic fragments); or 3) elements for which corresponding elements in the comparative collection were unavailable, even though other elements of the probable species were present. Therefore it is likely that only a few additional species are represented by the unidentified elements, and it is likely that any additional species are represented by only one or a few elements. The bird-class frequencies presented in Table 8 give an almost complete picture of the range and relative frequency of the avian species in the Namu midden.

The most common classes of bird were Gavidae (loons) and Anatidae (geese, ducks, and merganzers). Ducks are most common among the Anatidae, and only three elements represent geese (Anserinae). Only a small proportion of the ducks could be identified to subfamily, but all of these were either diving ducks (Aythyinae) or merganzers (Merginae). Both groups are primarily ocean birds. It is likely that the majority of the other ducks are members of these subfamilies. Most species of sea ducks winter on the coast, though occasional specimens may be found in summer. Loons (Gavidae) were as common as ducks in the midden. Of the medium to large loons, most are likely to be common loons *(Gavia immer)*, a bird that winters on the coast, but there is also the remote possibility of a yellow-billed loon *(Gavia adamsii)*, which also winters on the coast but rarely extends south of southeastern Alaska. The smaller loons could be either the arctic loon *(Gavia arctica)*, which winters on the coast, or the red-throated loon *(Gavia stellata)*, which can be found at all times of the year.

Other common families of sea bird include: Phalacrocoracidae (cormorants), Podicipedidae (grebes), and Alcidae (auks). All are much less common than ducks or loons. Of the cormorants, the pelagic cormorant *(Phalacrocorax pelagicus)* is identified to species, and most of the elements identified as small Phalacrocoracidae are likely to be this species. Those elements identified as large Phalacrocoracidae could be either double-crested cormorants *(Phalacrocorax auritus)* or Brandt's cormorant *(Phalacrocorax penicillatus)*. The double-crested cormorant only winters on the coast, while the other species are available year-round. Some Podicipedidae (grebe) elements were identified as western grebe *(Aechmophorus occidentalis)*, and this species probably accounts for most of the other elements identified as large grebe, though the red-necked grebe *(Podiceps grisgera)* is another possibility. All species of grebe are most commonly found in coastal waters outside of the summer months. Of the identified Alcidae, most are common murre *(Uria aalge)*, a duck-sized sea-bird found on the coast year-round. The small Alcidae are probably one or a number of species of murrelet.

Table 8. Total Abundance of Recovered Bird Bone by Period.

	Period				
Taxon	**2**	**3**	**4**	**5**	**6**
Gavidae	0	15	2	1	1
small	0	21	2	3	0
small - medium	2	4	1	0	0
medium	3	15	1	1	0
large	2	59	4	4	0
Podicipedidae					
small	0	2	3	0	0
medium	0	3	0	1	0
large	1	8	1	3	1
Aechmophorus occidentalis	0	1	0	0	0
Procellariidae					
Puffinus sp.	0	0	1	0	0
Phalacrocoracidae	1	7	1	3	0
small	0	2	0	2	0
large	1	11	3	3	0
Phalacrocorax pelagicus	0	4	4	1	0
Ardeidae					
Ardea herodius	0	0	1	0	0
Anatidae					
Anserinae	1	1	0	1	0
Duck	20	66	26	23	0
Aythyinae/Merginae	1	5	2	0	1
Aythyinae	1	4	1	0	0
Merginae	2	0	0	0	0
Buteo jamaicensis	0	0	2	0	0
Haliaeetus leucocephalus	4	4	7	18	4
Charadriidae/Scolopacidae	0	0	0	3	0
Laridae					
very small	0	1	0	0	0
small	0	1	0	0	0
small - medium	1	0	0	0	0
medium - large	0	3	0	0	0
large	2	4	2	0	2
Alcidae					
small	0	7	1	0	0
Uria aalge	0	14	0	1	0
Tytonidae/Strigidae					
large	1	1	2	0	0
Corvidae					
Cyanocitta stelleri	0	1	1	0	0
Corvus corax	0	6	0	1	0
Corvus caurinus	0	1	0	0	2
Unidentified	26	51	19	14	2

The three next most common classes of birds can be roughly classed together as beach scavengers. These include: the bald eagle *(Haliaeetus leucocephalus)*; Laridae (gulls); and Corvidae (raven, crow, and Steller's jay). The bald eagle is relatively common in the midden. Corvidae occur only rarely in contrast to their present numbers in the site vicinity. Rare elements of raven *(Corvus corax)*, crow *(Corvus caurinus)*, and Steller's jay *(Cyanocitta stelleri)* are all represented. Based on size differences, several species of gull are represented, though the frequency of each is low. Only the largest specimens occur in any abundance, and all of these are probably glaucous-winged gull *(Larus glaucescens)*, the most common species on the coast.

A number of much less common bird families also were identified, including: two elements identified as probable red-tailed hawk *(Buteo jamaicensis)*, though they may represent other hawk species; one specimen identified as a shearwater *(Puffinus sp.)*; one great blue heron *(Ardea herodius)* specimen; three specimens of shorebird (Charadriidae/Scolopacidae), which were found together and probably represent a single individual; and four large owl bones (Tytonidae/Strigidae). These low-frequency bird classes are of some interest, but their presence is not significant for determining subsistence patterns or the seasonality of site occupation.

Drucker (1955:51) describes a number of methods used by various coastal groups for capturing waterfowl. These include: baited underwater traps for capturing diving waterfowl, the use of spears with multiple prong hardwood points, and the use of nets thrown over nondiving species or stretched across flyways used by ducks. Birds also could be shot with arrows, which were sometimes fitted with a thick blunt point (Boas 1895:319). The overwhelming majority of the birds recovered from the Namu midden are diving sea birds, and it is likely that they were principally captured in underwater traps fitted with baited gorges, as described by Drucker (1951:33-34) for the Nootka, but also said to be favoured by the Kwakiutl.

In archaeological analysis, birds are commonly used as seasonality indicators. Many of the Namu birds are species that winter on the coast, though this period actually stretches from early fall through to late spring for many species. There is only sparse ethnographic information concerning the timing of bird hunting, or the use of birds as food. The Haida hunt waterfowl in the late fall after salmon season, and eat the flesh fresh rather than preserved (Blackman 1981:15). Contemporary Kwakiutl concentrate on ducks during a part of the winter when certain varieties concentrate near shore to feed off rocks, making it easy to shoot them from shore.

The Kwakiutl make ducks into soup, though they are not a popular food because of their distinctive flavour, which many people do not enjoy (Rohner 1967:61). Bird feathers and down had decorative uses, which may have encouraged the hunting of some species. Eagle flesh was eaten by the Tlingit, who also used eagle feathers as decoration (Krause 1979:59). The identified species from Namu indicate that birds were primarily a food resource, which made up one small part of an overwhelmingly marine-based economy.

FISH

The total frequencies of identified fish classes are presented in Table 9.

Oncorhynchus sp. (Pacific salmon)

For all time periods, the most abundant fish remains are of the genus *Oncorhynchus*, which accounts for between 67.1 and 96.8 percent of the identified fish remains in each period. Although it is impossible to speciate members of this genus on the basis of most osteological morphology (D. Cannon 1987:5), there is evidence (discussed in more detail in Chapter 5) to indicate that the majority were either coho *(O. kisutch)* or chum *(Oncorhynchus keta)*, with a smaller proportion probably consisting of pink salmon *(O. gorbuscha)*. Today, these species predominate in the smaller coastal streams such as the Namu River. Although escapement figures were not obtained for the Namu River itself, the salmon that spawn in nearby Hooknose Creek (Hunter

Table 9. Total Abundance of Recovered Fish Bone by Period.

All elements

	Period				
Taxon	**2**	**3**	**4**	**5**	**6**
Rajidae	1	0	5	3	0
Squalus acanthias	74	37	49	73	17
Hydrolagus colliei	59	70	76	254	69
Clupea harengus pallasi	28	33	366	48	0
Oncorhynchus sp.	5720	17272	58940	9509	380
Gadidae	81	54	296	86	45
Sebastes sp.	318	210	755	815	41
Anoplopoma fimbria	4	16	19	48	1
Hexagrammidae	79	28	172	215	5
Cottidae	3	1	15	19	0
Pleuronectidae	48	58	185	147	9
Unidentified fish	53	73	64	110	18
Vertebra centra (* dental plates)					
Rajidae	1	0	5	3	0
Squalus acanthias	74	37	49	73	17
Hydrolagus colliei (*)	59	70	76	254	69
Clupea harengus pallasi	28	32	359	47	0
Oncorhynchus sp.	5633	17117	57525	9378	378
Gadidae	64	42	272	63	41
Sebastes sp.	202	135	474	466	35
Anoplopoma fimbria	4	16	18	46	1
Hexagrammidae	61	21	129	162	3
Cottidae	3	1	14	13	0
Pleuronectidae	45	56	166	129	9

1959) are predominantly pink and chum. Coho are also widely distributed among small coastal streams (Aro and Shepard 1967:261). Chinook are relatively scarce in the region (Rohner 1967:45; Pomeroy 1980:175), while sockeye tend to be restricted to a few major river systems.

Pink salmon spawn in late September or early October, chum spawn a little later (Hunter 1959:837), and coho are the latest of the Pacific salmon to spawn. Chum was the preferred species for smoking (Hart 1973:114) and for preservation for winter use because its low fat content allowed it to be kept longer (Romanoff 1985:154). Salmon were fished with a variety of techniques, including traps, nets, spears, and line fishing (Drucker 1955:35-39). The efficient exploitation of salmon during spawning runs required a large-scale communal effort using nets or fishtraps.

Herring *(Clupea harengus pallasi)*

The herring is the only other fish that was exploited on the same scale as salmon. Herring was heavily utilized throughout the period for which faunal data are available. The significance of herring is not conveyed by the figures in Table 9 because the vast majority of herring vertebrae were not retained in the 1/8 inch (3.2 mm) mesh of the screens. However, the frequency of herring bone in selected matrix samples from the 1977 and 1978 excavations (Fawcett: Appendix C) indicates that herring was intensively exploited, possibly to a greater extent than salmon. An isolated find of a dense mass of herring bone mash on the surface of the sterile subsoil in unit 32-33S, 4-6E, shows that herring was a major resource from at least as early as the 7000 cal. B.P. date for that deposit.

Ethnographically, herring was caught with rakes during the spawning season, when the fish gather in great numbers in shallow bays. Herring spawn was obtained by setting out evergreen boughs in the intertidal zone. The sticky eggs would be deposited on the boughs, which were then gathered. In British Columbia, herring spawn in late winter; heaviest concentrations are in March, though some herring spawn in February and April, and others occasionally spawn as late as early June or July (Hart 1973:97). The abundance of herring is a good indication of spring occupation of the site.

Pleuronectidae (flatfish)

Other fish species are much less abundant than salmon or herring. Halibut *(Hippoglossus stenolepis)* is relatively rare at Namu, though halibut was an economically important species in other areas of the coast, in part because of its large size. Halibut are included in the total frequency for the family Pleuronectidae (flatfish), but 135 halibut bones were identified from strata representing all time periods. Halibut are available year-round, and may have been fished, as among contemporary Kwakiutl, whenever there were signs they were present in the area. Halibut were normally taken singly using specialized fishing gear. The non-seasonal nature of halibut fishing probably holds for other members of the family Pleuronectidae, though it has been noted that the Tlingit fished for flatfish in the winter (Krause 1979:121). Drucker (1955:41) mentions a method of catching flatfish that involved individuals searching through the bottom mud with their feet and then attempting to hold the fish until it could be speared. The whole enterprise is described as something of a lark. Many Northwest Coast groups did not consider that most marine fish species were economically important. Unlike salmon, most other fish were eaten fresh to satisfy the needs of the moment (Krause 1979:121; Blackman 1976:3-4).

Sebastes sp. (rockfish)

The second most common class of identified fish was rockfish, though it is much less abundant than salmon. No attempt was made to determine which of thirty-seven possible species of rockfish found off the coast of British Columbia were represented in the midden. None of the species congregate in large numbers, and most were probably equally available at all times of the year. Among the Haida, species such as rockfish were only occasionally utilized, and were economically insignificant from the Native point of view (Blackman 1976:3). Although this family of fish was consistently utilized at Namu, there is no indication that it was ever the object of a specialized fishery.

Gadidae (cods)

Cod (Gadidae) is another category of fish that is not common enough to have been economically important. Most of the cod remains were not identified to species, but of the ninety-three elements identified to species as either Pacific cod *(Gadus macrocephalus)* or walleye pollack *(Theragra chalcogramma)* all but four are the larger Pacific cod. It is expected that the majority of the unidentified Gadidae are Pacific cod. This species moves into deep water

in autumn and returns to shallow water in spring (Hart 1973:223). The presence of cod in archaeological sites has been interpreted as an indication of spring occupation (Pomeroy 1980:350).

Hexagrammidae (greenlings)

The Hexagrammidae are represented in numbers comparable to those of the Gadidae and Pleuronectidae. However, the recovered greenling remains probably under-represent their true abundance in the midden deposits. Many of the small vertebrae might have passed through the screens, but they were consistently present in small quantities in the matrix samples (Fawcett: Appendix C)

Only one separate species, the morphologically distinct and larger ling cod (Ophiodon elongatus), was identified from among this family. In total, only twenty-one elements were ling cod, the remainder were of one or another species of greenling (Hexagrammos sp.). Members of this genus are generally rather small, and though they are reputed to be of good flavour (Hart 1973:459), they cannot be considered an economically important species in the Namu fishery. Greenlings are common bottom fish in shallow water.

Cottidae (sculpins)

A few elements of sculpin (Cottidae) were identified among the fish remains. Species of sculpin may be abundant in the inter-tidal zone, but despite some problems in identification, it is certain that only a few elements were present in the Namu midden. There is no ethnographic evidence to suggest that sculpins were ever economically important on the coast.

Sablefish *(Anoplopoma fimbria)*

The sablefish or blackcod was another uncommon fish species. It has good flesh, which smokes well (Hart 1973:456), but it was obviously not of major importance at Namu, though it was fished during all time periods. The presence of this species in the matrix samples from the Rivermouth Trench (Fawcett: Appendix C) suggests that it might be under-represented in the overall fish assemblage. It is difficult to accurately project from the limited matrix samples, but it is unlikely that sablefish was ever economically important.

Dogfish *(Squalus acanthias)*

The dogfish is relatively common among the fish remains. Although never significant in absolute numbers, the dogfish is interesting because of its specialized ethnographic uses. Among the Haida the dogfish is processed for oil and eaten for medicinal purposes (Blackman 1976:7). Dogfish skin was also used as sandpaper to produce a fine finish on wooden articles (Drucker 1955:61). Historically, the Kwakiutl considered dogfish inedible, but they did resort to eating it during periods of famine or hunger in the region (Rohner 1967:17). Most of the recovered dogfish remains were relatively small and probably immature. Immature dogfish are available throughout the year in British Columbian waters (Hart 1973:46).

Ratfish *(Hydrolagus colliei)*

The ratfish is somewhat problematic because though it is relatively abundant, and is present among the earliest recovered faunal remains, there is almost no ethnographic information regarding its probable utilization. Boucher (1976:33) states that there is no report of the ratfish in ethnographies. Stewart (1977:17) makes a very brief mention of the use of ratfish oil as baby oil, but she does not provide a specific reference for this use. The flesh of the ratfish is very soft and the dorsal spine and reproductive organs are poisonous.

Therefore, it is unlikely that the ratfish would have been an important food resource. Ratfish oil is a fine lubricant, which some fishermen claim is useful in the treatment of arthritis (Carl 1973:20). Prehistorically, the ratfish may have been used exclusively as a source of oil. Ratfish are common in shallow water, particularly over muddy bottom (Carl 1973:20).

Rajidae (skate)

Nine specimens of skate were recovered from the site, but they are only significant as an indication of the wide-ranging utilization of available marine resources.

Bluefin tuna (*Thunnus thynnus)*

One specimen recovered from a Period 3 stratum was positively identified as bluefin tuna *(Thunnus thynnus).* Although no economic importance can be attached to this isolated specimen, its presence is interesting because bluefin tuna is presently considered rare north of California, and there are only a few records of its summer presence well off southern and central British Columbia. Bluefin tuna has been reported from archaeological sites on the west coast of Vancouver Island (McMillan 1979:118) and in the Queen Charlotte Islands (Geordie Howe, pers. comm.). The Namu tuna was an extremely large individual, judging from the size of the recovered vertebra. It undoubtedly represents a stray individual that was taken as the result of fortuitous encounter at sea or beach scavenging.

Although fish remains were not generally identified to species level, there are indications of a variety of species within each of the families of identified fish. A diverse array of marine resources were exploited throughout the economic prehistory of Namu. However, the abundance of identified salmon, and the abundance of herring, as inferred from matrix samples, make it equally evident that this variety of marine resources was at most a supplement to the mainstay subsistence economy.

SHELLFISH

All of the following information is summarized from Conover (1972, 1978), and her results are considered to hold equally well for the excavated units described in the present study. Four main categories of shellfish predominate at Namu: 1) clam *(Saxidomus/Schizothaeus sp.);* 2) barnacle *(Balanus sp.);* 3) mussel *(Mytilus sp.),* primarily bay mussel (*Mytilus edulis);* and 4) whelks *(Thais sp.)* (Conover 1978:78).

In Period 3, the early period of significant shell deposition, rock-dwelling species of barnacle, whelk, and mussel predominate. The trends for these species are similar, with all three achieving peak abundance by the early part of Period 5. Each of these groups exhibits declining abundance through Period 5 as larger clams become predominant; mussel show the sharpest decline (Conover 1972:291). Large clams are present from as early as the latter part of Period 3, but they are not abundant until the early part of Period 5. They increase in abundance until they reach their peak in the latter part of Period 5 and Period 6. The Period 6 strata exhibit the greatest shell content of any of the site strata (Conover 1978:78). Lesser shellfish species such as littleneck clam (*Protothaca staminea)* and cockle *(Clinocardium nuttali)* do not begin to appear in any abundance until the early part of Period 5, from which time they increase in abundance to a peak in Periods 5 and 6; this is the same trend exhibited by the larger clams (Conover 1972:292).

Although systematic investigation of the shell matrix was not undertaken for the 1977 and 1978 excavations, the units adjacent to those previously excavated naturally exhibit similar trends. Visual inspection of the 1978 Rivermouth Trench showed the greatest concentration of mussel shell in Period 3 and 4 deposits. Major deposits of whole clam shell occur in Period 6. The earliest small lenses of shell in the Period 2 deposits contain a relatively high proportion of mussel.

Although no estimate of relative contribution to diet has been made, it is clear that shellfish had become a major dietary component after ca. 6000 cal. B.P. Indications of a relative change in the dietary contribution of shellfish, and the environmental implications of the shift in the abundance of mussel and clam are considered in the Chapter 4 discussion of temporal trends.

SUMMARY

From the data presented in this chapter it is clear that throughout the period for which faunal data are available, the subsistence economy of the site was overwhelmingly marine oriented. Throughout this period, all varieties of marine mammals, birds, fish, and shellfish were exploited. There are changes in the relative abundance of faunal classes, but the primary focus was always toward the coast and the resources of the sea. This focus may have shifted or intensified at times, but it remained generally consistent. Therefore, it is inappropriate to consider a marine versus land orientation at the site; attention must instead focus on variation in emphasis within a specialized marine-based economy. Deer *(Odocoileus hemionus)* is the only land mammal species that can be considered an important subsistence resource. Other land mammals were undoubtedly more important as sources of fur and other raw materials. Even deer must be considered in this light, for they served as a major source of hide and bone for tool manufacture, though it is far from clear, as some suggest (e.g. Conover 1978:91), that this was the only economic importance of deer. The role of deer as a subsistence resource is considered in Chapter 3, but the faunal data suggest that the ethnographically-described emphasis on fish and other marine resources (McIlwraith 1948:3), in which land mammals were not essential as food but were hunted primarily for their fur or skins (Garfield 1945:628), extends well into the prehistoric past.