Shellfish, Gender, and Status on the Northwest Coast: Reconciling Archeological, Ethnographic, and Ethnohistorical Records of the Tlingit

Archeological, ethnographic, and ethnohistorical data provide ambiguous evidence of the dietary and economic importance of shellfish in Northwest Coast cultures. In the case of the Tlingit, I find that understanding shellfish from an emic perspective is critical to reconciling these equivocal data on economic importance. The Tlingit associated shellfish with poverty, laziness, and ritual impurity, and those who sought to be "ideal" persons avoided shellfish. An individual's rank and gender determined the degree to which such dietary guidelines were actually followed. The social and symbolic meaning of shellfish in Tlingit culture is partly explained by ecological factors, including the danger of paralytic shellfish poisoning. The analysis also reveals a number of biases inherent in the ethnographic and archeological data.

Archaeologists studying the development of maritime societies around the world have divergent opinions on the economic importance of shellfish (Claassen 1986; Cohen 1981; Erlandson 1988; Glassow and Wilcoxon 1988; Meehan 1982; Osborn 1977; Quilter and Stocker 1983). On the Northwest Coast of North America, shell-bearing sites display considerable variation, and date to at least 8,200 years ago (Ackerman et al. 1985). The increase in the size and frequency of shell middens along the Northwest Coast after 5500 B.P. is thought to represent evidence of increased population densities and greater sedentism (Fladmark 1982:110), representing a cultural evolutionary threshold marking the origins of ethnographically known cultures. Due to this association with ethnographic cultures (generically conceived), scrutiny of ethnographies should yield data on the economic significance of prehistoric shellfishing.

The dietary and economic importance of shellfish generally has been unexamined or downplayed (for an exception see Croes and Hackenberger 1988), perhaps because some archeologists view shellfish as universally low-priority resources (following Cohen 1981:279; Osborn 1977). Another factor may be the relative lack of ethnographic attention to Northwest Coast shellfishing compared to the more dramatic, technologically complex, and male-dominated activities of fishing and sea mammal hunting. In particular, salmon use has been described in exhaustive detail, to the point that Monks (1987) believes Northwest Coast anthropologists suffer from "salmonopia." The lack of ethnographic data on shellfish may be partly responsible for some archeologists regarding shellfish as inconsequential resources.

Why are shellfish undervalued in most ethnographic accounts and neglected by many archeologists when they are so prominent in archeological sites? In this article I offer a view of shellfish integrated within the cultural context of one Northwest Coast group, the Tlingit. I review ethnohistorical and oral historical data and find ambivalent evidence on the economic importance of shellfish. I then look beyond strict economic evaluations to consider data on the social and symbolic roles of shellfish expressed in dietary rules and oral traditions. In addition to gender, social status was an important
principle structuring the application of dietary prescriptions, and hence, subsistence pursuits. The ambiguous role of shellfish makes sense only when the broader social meaning of shellfish to the Tlingit is considered together with ecological factors. I hope this use of specific ethnographic analogy will help “engender” (Gero and Conkey 1991) prehistoric shellfishing on the Northwest Coast by presenting it within its larger cultural context.

As in most areas of the world, shellfishing is considered to be primarily women’s work (Claassen 1991a). This is exemplified in several of Edward Curtis’s (1913, 1915, 1916) photographs of Salish, Nootka, and Kwakiutl women. Curtis’s annotation for the photograph reproduced in Figure 1 reads, “as evening approaches, two women with clam-baskets and digging-sticks gaze across the water, anxiously awaiting the canoe that is to come and convey them home” (Curtis 1916: annotation to large plates supplementing vol. 11). While this scene appears obviously staged, it is consistent with the stereotype that women’s economic labor was auxiliary to that of men; in this case, the men were presumably off hunting or fishing in the canoe. Claassen (1991a:278–279) recently argued that the association of women with shellfish accounts, in part, for the devaluation of shellfish in ethnobiographical and ethnographic accounts.

Ethnographically, Northwest Coast women probably were the primary shellfish collectors, although as we will see, men gathered shellfish and had knowledge of shellfish ecology. The association of women with shellfish undoubtedly does help account for the relatively limited archeological and ethnographic data on this class of resources. Norton (1985) found that Northwest Coast women’s economic contributions consistently received less attention in ethnographic accounts than those of men. Yet the androcentric bias of anthropological scholarship does not fully explain the inattention and devaluation of Northwest Coast shellfishing.

Before addressing the Tlingit case, I introduce general ethnographic patterns of historic Northwest Coast shellfish use. Although these data are limited in several ways, general patterns of species used, gathering and cooking techniques, and nonfood uses of shell appear to be relatively consistent across the region. While available data are conspicuously uneven on the seasonal use and economic importance of shellfish, the overall impression is that shellfish played a minor role in most Northwest Coast economies, in apparent contradiction to the archeological record.

Northwest Coast Shellfish Use—Regionwide Patterns

Virtually all indigenous Northwest Coast groups collected and ate shellfish. The consensus is that women were the primary shellfish gatherers (Arima and Dewhirst 1990:394; Hajda 1990:510; Hamori-Torok 1990:308; Hilton 1990:315; Renker and Gunther 1990:425; Suttles 1990b:459). Drucker (1955:42) wrote that “men occasionally aided their wives,” but when men are mentioned, it is usually in this ancillary capacity. Blackman (1990:246) stated unambiguously that among the Haida, “both sexes collected shellfish,” and my work with the Tlingit indicates that exclusively male parties gathered shellfish on occasion (Newton 1987). Interestingly, the most detailed accounts of Northwest Coast shellfish use involve collaboration with Native men (David Ellis’s work with Haida elder Solomon Wilson [Ellis and Wilson 1981] and Manhousat Nootka elder Luke Swan [Ellis and Swan 1981]; my work with Richard Newton [Newton 1987]). Although women were the main shellfish collectors, men collected shellfish, and intricate knowledge of shellfish ecology was not and is not the exclusive prerogative of women. As Zacharias (1990) has shown for the Haida, division of labor was not as rigidly dichotomous as some 19th- and 20th-century ethnographers imply.

A comprehensive list of marine invertebrates used on the Northwest Coast is presented in Suttles (1990a:28–29).1 Gathering techniques and technology were similar across the region and comparable to those of other coastal adapted groups throughout the world. Surface-dwelling and rock-perching taxa (mussels, cockles, dogwinkles,
periwinkles, chitons, barnacles, abalone, oysters, limpets) were gathered by hand or removed with a pry (Suttles 1990a:28). Burrowing taxa such as clams and some cockles were dug with a simple wooden digging stick (Batdorf 1990; de Laguna 1972). Sea urchins could be picked up during extremely low tides, speared, or collected in a dip net (Ellis and Swan 1981). Fresh shellfish were carried in large, durable, open-weave baskets outfitted with tumplines (Curtis 1916). Woven bark mats were used by some groups when kneeling to dig clams, or as protection against water draining from the open-weave carrying baskets (Ellis and Swan 1981). Although perishable digging sticks, baskets, and bark mats rarely survive in archeological contexts, the wet site of Lachane
(Prince Rupert Harbor area of north coastal British Columbia) produced the oldest known clam-digging sticks. These heavy sticks with weighted knob handles and fire-hardened tips may be as many as 2,000 years old (George MacDonald, personal communication, 1992). Optimal times for gathering shellfish were during the lowest tides on the days around the new and full moons. Some shellfish were consumed raw on occasion; more often, they were boiled, steamed, roasted, or baked (Newton and Moss 1984; de Laguna 1979). Shellfish could be sun-dried or dried and smoked for winter storage or trade (Eells 1985; Oberg 1973).

The shells of some species provided a source of raw material for a variety of functional tools and ornaments. Mussel shells were chipped and/or ground into knives, harpoon heads, scrapers, adze or chisel bits, and other tools. With little modification, clam shells served as spoons, ladles, or containers. Beads of clamshell and *Olivella* were made by chipping, drilling, and grinding. Rattles were made of large scallop shells that washed up on the beach during storms. Whelk or turban shell opercula were used as decorative insets or inlay.

The most highly prized ornamental shells were *Dentalium* and abalone. Most accounts (e.g., Sutlles 1990a:28) of *Dentalium* indicate that its geographic distribution is limited to deep waters off the west coast of Vancouver Island. *Dentalium* is also found in shallow waters, however, and has been recorded for the Copper River and Hydaburg areas of Alaska, the Queen Charlotte Islands, the east coast of Vancouver Island, Puget Sound, and the coasts of Washington and Oregon (Barton 1992). These tusklike shells were collected on the beach or caught using rakelike or broomlike fishing implements (Barton 1991). Strings of dentalia were prized wealth items and were traded widely, especially during the historic period when they served as currency. Recognizing the value of dentalia to the Indians, Euro-Americans entered the trade as early as the 1790s (Galois and Mackie 1990a). Between 1821 and 1846, the Hudson’s Bay Company expanded the trade, and dentalia were shipped south to the Columbia and Umpqua rivers in Oregon and as far north as the Yukon and MacKenzie rivers (Galois and Mackie 1990b).

The native abalone species (*Haliotis kamtschatkana*) was small and markedly inferior as a raw material to species imported from California or Oregon (e.g., *H. rufescens*). Most of the spectacular abalone shell inlay found on museum specimens of masks, headdresses, frontlets, bowls, jewelry, and even totem poles derives from the more southerly abalone traded into the Northwest Coast starting as early as the 1770s (Heizer 1940). However, George MacDonald (personal communication, 1992) believes this trade may have begun prehistorically.

Shellfish were also used for fish bait (e.g., Arima and Dewhirst 1990:397) and as a source of lime used in tobacco chewing (Turner and Taylor 1972:251). Burnt and crushed clamshells might be presented at a potlatch for the latter purpose (Allaire 1984). Blukis Onat (1985) has proposed that shell was used as a construction material in “site engineering.” Without minimizing these other uses, the vast majority of shell found in Northwest Coast archeological sites appears to represent food refuse.

**Northwest Coast Shellfish Use—Regional Diversity**

Seasonal patterns of shellfish exploitation varied along the Northwest Coast, reflecting both ecological conditions and different degrees of economic reliance on the resource. Shellfish are not uniformly distributed, accessible, or desirable and the habitat requirements, tidal position, size, density, and susceptibility to toxicity of individual species have important implications for their use. Many groups avoided shellfish during the spring spawning season, when some species became inedible and others became lean and tough (Ellis and Wilson 1981:11; Ellis and Swan 1981:82; Newton and Moss 1984:17). De Laguna (1990:212) maintained that in the Tlingit region, “clams were not fit to eat from March to August, but cockles and mussels were good all year.”22 Blackman
(1990:244) reported Haida use of some of 27 species of shellfish year-round, and characterized shellfish as "critical" resources during severe winters. Along with fish, shellfish provided the bulk of the Haida diet (Blackman 1990:244). Halpin and Seguin (1990:269) claimed that the coast Tsimshian gathered shellfish mainly during the winter. Arima and Dewhirst (1990:394) identified spring as the most important time for Nootka shellfishing, because of the scarcity of other foods combined with easier access during daylight low tides. Along the Strait of Georgia, shellfish were available for most of the year; in winter, the Northern Coast Salish dug clams by torchlight during nighttime low tides (Kennedy and Bouchard 1990:445). Although most writers imply that shellfish were a minor resource, Blackman stated otherwise for the Haida.

Another indicator of economic value is whether specific shellfish beds were owned by corporate groups. Blackman (1990:245) maintained that shellfish were "in the public domain" among the Haida, whereas Arima and Dewhirst (1990:394) indicated that all resource sites were owned by local Nootka groups. The latter view is supported by Wessen's (1982) archeological study that suggested that particular Ozette households had rights to collect from specific beaches. Drucker (1983:89) believed the "clumped" spatial distribution of shellfish led to ownership and management of shellfish beds throughout the culture area. Ownership of at least some shellfish beds is supported by evidence that some species were "semi-cultivated" in one way or another (Ellis and Wilson 1981:4; Kennedy and Bouchard 1990:445).

Diversity in shellfish use across a large region like the Northwest Coast is expected, and might be explained by a wide range of ecological and cultural factors. For example, the extremely low tides of June were favored shellfish collection times by some groups and completely avoided by others (Ellis and Swan 1981:83; Newton and Moss 1984). While such variation may reflect real differences in patterns of shellfish use by different Northwest Coast groups, I suspect that some differences are merely the unintentional results of the way in which limited data have been generalized and reported. The few detailed studies (Ellis and Wilson 1981; Ellis and Swan 1981; Newton 1987) demonstrate that exploitation patterns derive from locally variable, taxon-specific data on habitat and seasonality—a topic beyond the scope of this article. These studies call into question much of the available data on shellfish use and caution against analyses of intergroup variation along the Northwest Coast at this time. For this reason, I turn to the specifics of the Tlingit case to explore ambiguities in data regarding the economic importance of shellfish.

The Case of the Coastal Tlingit

Shell middens are found throughout the ethnographic territory of the coastal Tlingit in southeast Alaska. The majority are found in a variety of ethnohistorically reported sites, including winter villages, seasonal villages, temporary camps, forts, and fish camps (Moss 1989). Site distributions give evidence of the area's high intertidal productivity, which is due to the combined effects of an extremely convoluted coastline, high tidal amplitude, current-driven upwelling, and abundant estuaries. As anyone who has dug clams in southeast Alaska knows, large quantities can be obtained in a matter of minutes from many beaches (Erlandson 1988; Moss 1989), even those harvested intensively. Productivity generally is limited only in those areas of the mainland coast affected by high glacial runoff or outer coast areas of very high surf.

The Archeological Record of the Coastal Tlingit

In a recent archeological study of prehistoric Tlingit subsistence (Moss 1989), faunal remains from eight sites near Angoon, Alaska, were investigated. The project area encompassed a number of estuaries along the southwest shore of Admiralty Island, one of the inner islands of the Alexander Archipelago (Figure 2). These eight sites are located along the modern shoreline where environmental conditions appear to have
been relatively stable during the past 1,600 years when the sites were occupied (Moss, Erlandson, and Stuckenrath 1989). In most cases, the prehistoric residents used many of the same food resources available locally today. In all but one of the Angoon sites, shellfish remains were the most abundant faunal class by weight. A total of 38 shellfish species were identified, but 9 were particularly abundant and widespread in occurrence (Table 1).
Table 1
Most common shellfish in Angoon archeological sites.

<table>
<thead>
<tr>
<th>Scientific name</th>
<th>Common name</th>
</tr>
</thead>
<tbody>
<tr>
<td>Saxidomus giganteus</td>
<td>butter, smooth Washington clam</td>
</tr>
<tr>
<td>Mytilus edulis</td>
<td>blue, bay, edible mussel</td>
</tr>
<tr>
<td>Katharina tunicata</td>
<td>black katy chiton, gumboot</td>
</tr>
<tr>
<td>Protodraco staminea</td>
<td>Pacific littleneck clam</td>
</tr>
<tr>
<td>Clinocardium nuttalli</td>
<td>basket, Nuttall's cockle</td>
</tr>
<tr>
<td>Tresus nuttalli</td>
<td>horse, gaper clam</td>
</tr>
<tr>
<td>Strongylocentrotus droebachiensis</td>
<td>green sea urchin, sea eggs</td>
</tr>
<tr>
<td>Mya truncata</td>
<td>truncate soft-shelled clam</td>
</tr>
<tr>
<td>Volsella quadricostata</td>
<td>brown, horse mussel</td>
</tr>
</tbody>
</table>

Note: All faunal remains greater than 2 mm in size were analyzed from 72 column samples.

Taxonomic abundances measured by weight were converted to meat weights using conversion factors derived for specific shellfish species and general classes of fish, sea mammal, land mammal, and bird (Moss 1989:154). Such conversions have numerous problems discussed elsewhere (Moss 1989:150–153), but these data should be sufficiently precise to examine the relative differences among a group of sites.

Despite the different environmental settings of the sites and their different ethnohistorical labels as villages, forts, and fish camps, the meat weight distributions from the eight sites were remarkably similar (Table 2). For six of the eight sites, butter clams (Saxidomus giganteus) provide the bulk of the meat weight, with fish ranking second. At 49-SIT-304, cockles (Clinocardium nuttalli) and chitons (Katharina tunicata) were relatively more important, and at 49-SIT-130, mussels (Mytilus edulis) were more important. At all sites, shellfish provided most of the reconstructed meat weight. This holds even for 49-SIT-130, the Windy Smokehouse site, now located over two kilometers from the nearest productive shellfish beds. Even though this site is located along a major salmon stream and is known as a fish camp through oral history, most of its meat weight can be attributed archeologically to shellfish, beaver, and geese.

By virtue of its durability and chemical composition, dense shell deposits preserve relatively well, even in southeast Alaska’s acidic soils. Rates of deterioration of bone versus shell may differ, contributing to taphonomic differences that may have biased my subsistence reconstructions. While it is easy to assume that various problems with dietary reconstructions might overrepresent the importance of shellfish, Quilter and Stocker (1983:550–551) demonstrate that the converse can also be true. Given the opinion of many archeologists that shellfish are second-rate resources, a detailed review of ethnographic and ethnohistorical data for the Tlingit may better illuminate the role of shellfish in their economy than a concern with taphonomy. Before discussing these data in detail, I present a few examples of archeologists’ problematic use of ethnographic data.

Overgeneralization of Ethnographic Data

Using analogies from generalized ethnographic models to understand prehistory, archeologists have uncritically appropriated problematic ethnographic data. Two sources (Krause 1956; Oberg 1973) cited as evidence for the ethnographic pattern of Tlingit subsistence are frequently taken out of context. Based on Krause (1956), for instance, shellfish were absent from a list of the top 12 Tlingit food resources, presumably ranking lower than a variety of fish, sea mammals, bear, small land mammals, mountain goat, birds, mountain sheep, and caribou (Fladmark 1975:50–51). However,
Table 2
Distribution of meat weights (percents) of major foods (>1%) at Angoon sites.

<table>
<thead>
<tr>
<th></th>
<th>124</th>
<th>130</th>
<th>132</th>
<th>171</th>
<th>244</th>
<th>259/1</th>
<th>259/2</th>
<th>299</th>
<th>304</th>
</tr>
</thead>
<tbody>
<tr>
<td>Saxidomus</td>
<td>46.4</td>
<td>—</td>
<td>50.4</td>
<td>34.4</td>
<td>25.8</td>
<td>43.5</td>
<td>42.9</td>
<td>33.9</td>
<td>9.8</td>
</tr>
<tr>
<td>Mytilus</td>
<td>11.4</td>
<td>31.9</td>
<td>10.1</td>
<td>1.7</td>
<td>13.8</td>
<td>7.3</td>
<td>7.9</td>
<td>8.7</td>
<td>6.3</td>
</tr>
<tr>
<td>Katharina</td>
<td>8.3</td>
<td>8.5</td>
<td>9.5</td>
<td>—</td>
<td>8.9</td>
<td>2.2</td>
<td>7.3</td>
<td>4.7</td>
<td>26.0</td>
</tr>
<tr>
<td>Protothaca</td>
<td>5.9</td>
<td>—</td>
<td>3.1</td>
<td>10.7</td>
<td>—</td>
<td>29.6</td>
<td>17.8</td>
<td>3.4</td>
<td>—</td>
</tr>
<tr>
<td>Clinocardium</td>
<td>—</td>
<td>—</td>
<td>7.9</td>
<td>3.8</td>
<td>12.9</td>
<td>2.3</td>
<td>—</td>
<td>—</td>
<td>36.7</td>
</tr>
<tr>
<td>Tresus</td>
<td>4.7</td>
<td>—</td>
<td>—</td>
<td>22.1</td>
<td>—</td>
<td>8.1</td>
<td>12.1</td>
<td>1.4</td>
<td>—</td>
</tr>
<tr>
<td>Undiff. clam</td>
<td>4.4</td>
<td>6.9</td>
<td>1.6</td>
<td>6.4</td>
<td>2.1</td>
<td>4.7</td>
<td>3.5</td>
<td>2.8</td>
<td>2.0</td>
</tr>
<tr>
<td>Strongilocentrotus</td>
<td>2.4</td>
<td>8.2</td>
<td>6.7</td>
<td>—</td>
<td>3.3</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>12.0</td>
</tr>
<tr>
<td>Mya</td>
<td>—</td>
<td>—</td>
<td>6.1</td>
<td>—</td>
<td>—</td>
<td>3.7</td>
<td>3.1</td>
<td>3.1</td>
<td>1.1</td>
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<tr>
<td>Volsella</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>9.3</td>
<td>—</td>
</tr>
<tr>
<td>Subtotal</td>
<td>83.5</td>
<td>55.5</td>
<td>95.4</td>
<td>79.1</td>
<td>69.4</td>
<td>99.1</td>
<td>96.9</td>
<td>67.3</td>
<td>93.9</td>
</tr>
<tr>
<td>Fish</td>
<td>14.6</td>
<td>7.1</td>
<td>2.0</td>
<td>20.8</td>
<td>25.7</td>
<td>—</td>
<td>3.0</td>
<td>24.7</td>
<td>6.1</td>
</tr>
<tr>
<td>Mammal</td>
<td>—</td>
<td>30.7</td>
<td>2.5</td>
<td>—</td>
<td>4.8</td>
<td>—</td>
<td>—</td>
<td>7.2</td>
<td>—</td>
</tr>
<tr>
<td>Bird</td>
<td>—</td>
<td>6.8</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
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</tbody>
</table>

Krause spent most of his time in Klukwan, a town located circa 20 kilometers from saltwater on the Chilkat River. The Chilkat Tlingit had access to the river's large eulachon run and multiple salmon runs; they hunted locally available mountain goats and traded with interior groups who specialized in land mammal hunting. During the 1930s, Oberg also worked among the Chilkat Tlingit, explaining why Fitzhugh (1975:344) classified the Tlingit adaptation as riverine, not maritime.

While Oberg recorded a large body of valuable information on the Tlingit economy, scholars should be aware of the problems with his data. His study is frequently used by archeologists, perhaps because its quantitative economic data appear authoritative. These data consist of three stacked bar graphs representing the amount of time the Tlingit spent in various economic activities. The reliability of these measures is doubtful, however, since as Mitchell and Donald (1988:308) have noted, Oberg's percentages do not always add up to 100 percent. In addition, the three illustrations sometimes contradict each other; for instance, the amount of time spent gathering per month varies (Oberg 1973:75, 77). Oberg (1973:78) admitted his data "were not statistically obtained but are rough approximations based on conversations with old men of several Tlingit villages." While archeologists often use such quantitative data as "the best estimates ever likely to be available" (Mitchell and Donald 1988:308), Oberg's data are clearly far less precise than they appear, and they are not applicable to the Tlingit region as a whole.

When describing shellfish use, Oberg (1973:67) refers to the "island Tlingit" among whom "great quantities of clams and mussels" were gathered, preserved, and stored. Oberg's quantitative model may or may not represent a composite view of the economic life of various Tlingit groups; similarly, we cannot know the extent to which it depicts subsistence activities of the 1930s or a reconstruction based on memory culture. Considering Oberg's informants were "old men," his reconstructions may represent an exclusively male perspective on subsistence. In light of these ambiguities, it is unlikely that shellfishing comprised 12 percent of the time spent in food procurement during the year as Oberg indicates. More likely, time spent shellfishing varied tremendously depending upon many variables. Furthermore, the amount of time spent in a subsistence activity may say little about the dietary or economic contribution of a particular class of foods.
As we have seen, the relative lack of ethnographic attention to shellfish may stem from several biases. In addition, the scope of historic changes in subsistence, which appear to have included a decline in the importance of shellfish gathering, has been underestimated (Moss 1993). The apparent neglect of shellfish also may reflect a lack of regard toward women’s activities in general. However, using ethnographic sources, many anthropologists have assimilated the view that shellfish were of limited economic importance.

**Ethnohistorical Notes on the Economic Role of Shellfish**

Looking beyond the generalized portraits in the most frequently cited ethnographies and turning to the few early accounts of the Tlingit, we gain a somewhat different perspective on shellfish use. One of the earliest observations on Tlingit use of shellfish was collected by Marchand (1969[1801]:212) during a French expedition in 1791:

> At low water, mussels, limpets, and other shell-fish may be picked up on the rock; however they are scarce on the west shore, the only one which, as yet, the Europeans have frequented, because the natives carry them away in order to live on them during the stay which they make on that coast.

This statement suggests that shellfish were at least seasonally important in some areas and that the combined pressure of Tlingit and European collection on shellfish beds resulted in local scarcity.

An official of the Russian American Company who served in Sitka between 1817 and 1832 commented favorably on the culinary value of shellfish. He felt that the best was

*mamai* in a round striped shell which makes a delicious broth and is very good cooked like a cutlet. Shellfish known as ‘baidarkas’ have to be pickled in vinegar. . . . Sea crabs are the most abundant of all shellfish. All of these types of shellfish are used as food by the Kolosh [Tlingit] as well as by the Aleuts and the Russians. . . . In summer the flavor is very strong and not good. It is better from September on, and continues good until May. [Khlëbnikov 1976:36]

The “mamai” may be the cockle (*Clinocardium nuttallii*) with its prominent radial ridges. “Baidarkas” are probably chitons, the most commonly eaten being *Katharina tunicata*. Khlebnikov (1976:37) also mentions that sea urchins (*Strongylocentrotus* spp.) were in demand for their “delicious flavor” and “healing properties.” The resident Russian physician regarded sea urchins as “a universal medicine for all illnesses” (Khlebnikov 1976:37).

Another Russian American Company employee, Holmberg (1985[1855–63]:14–15), left a record of Tlingit subsistence dating from 1850–51:

One could call the Tlingits . . . coastal or sea nomads since they have permanent quarters only in winter, while they spend most of the summer in very distant regions gathering winter provisions. From the seacoasts, where they usually settle, they receive their prime nourishment. . . . This region of the sea is infinitely rich, not only in different types of fish, but also in many lower types of animals, and Nature helps the catching of these in a very special way. The ebb tide, which at Sitka, for example, lowers the water level a maximum of 18 feet, bares the shore twice a day, and leaves these foodstuffs under stones and in cracks, where the Tlingit easily catches them. There is scarcely a mollusk he would scorn. He even eats several types of sea growth, but the favorite foods are mussels (*cardium* and *mytilus*), herring roe, starfish [sea urchins?], squid, and all types of fish. Of these, cardium, mytilus, and starfish are eaten raw.

Holmberg’s assessment clearly contradicts the general impression that shellfish were dietarily unimportant.

**Ethnographic Data on the Economic Role of Shellfish**

The first Tlingit ethnographies date from the 1880s, by which time the Tlingit had suffered severe population loss and disruption of traditional subsistence and settlement patterns as many Tlingit were being drawn into the cash economy (Moss 1989). Neither Niblack (1888:277) nor Krause (1956:109) described shellfishing or the economic role
of shellfish in any detail. Although the earlier accounts of Marchand, Khlebnikov, and Holmberg suggest that several shellfish species were important Tlingit foods, the late 19th-century ethnographies provide little additional information.

Oberg (1973:75) indicates that shellfish were gathered from October through June, but that relatively little time was spent shellfishing except during March, when shellfish were considered “at their best” (Oberg 1973:67). March was also a time when the Tlingit felt “the monotony of a dried fish diet” and stored food had become “unpalatable” (Oberg 1973:65, 73). The Tlingit gathered and dried large quantities of shellfish for storage, some of which was traded to inland groups (Oberg 1973: Olson 1967).

In de Laguna’s monumental study of the Yakutat Tlingit, only two of over nine hundred total pages discuss “beach food” (1972:404–405), a category that includes seaweeds as well as shellfish. Yet de Laguna’s discussion is one of the best sources available. The few Tlingit who have explicitly addressed shellfish in written works include Peratovich (1959:57) who recognized shellfish as important because of their abundance in old village sites, and Jacobs and Jacobs (1982:122), who described cockles and clams as staple foods. Although information on the dietary and economic importance of shellfish is limited, most ethnographic and ethnohistorical accounts contain some mention of shellfish poisoning.

Shellfish Toxicity in Ecological Context

The unpredictable nature of shellfish toxicity helps explain some of the ambiguities regarding the economic importance of shellfish as well as the emic view of shellfish to be discussed later. Certain shellfish can be contaminated with one of a variety of species of toxic phytoplankton and, when ingested by humans, can cause death within hours. The earliest known incidence of paralytic shellfish poisoning (PSP) in Tlingit territory occurred in 1799, when 135 Koniag men hunting sea otters for the Russian American Company died from eating mussels on Chichagof Island (Khlebnikov 1976:145; Tikhmenev 1978:110). In 1801, three Europeans from the Atahualpa ate mussels on the beach near one of the Chilkat villages:

They were seized with a sickness at the stomach and swelling of the limbs—the officer and one man immediately took an emetic and threw the poisonous matter off their stomachs—the other neglected this precaution and in a few hours expired in great misery—many of the mussels found on the coast contain the most deleterious poison, but the Indians distinguish them and eat the others without any ill effects. [William Sturgis in Jackman 1978:119–120]

These two accounts involve mussels, which have a high capacity to concentrate substances from their environments (Varela 1981). In both cases, the victims of shellfish poisoning were foreigners to Tlingit territory, undoubtedly unfamiliar with local conditions. Although there is no contemporary record of the exact nature of Tlingit precautions to avoid PSP, the Yankee trader Sturgis suggests that the Tlingit must have followed such guidelines.

Explosive blooms of dinoflagellates (a type of phytoplankton) can turn seawater greenish, yellowish, and most commonly reddish (known as a “red tide”) because many species luminesce (Carefoot 1977:108–109). Both harmless and poisonous dinoflagellates luminesce, but not all species do. For this reason, toxic species may be present in the absence of visible changes in the water (Oshima et al. 1982). Depending on local conditions, toxicity can persist in some organs of certain species for up to one year (Carefoot 1977:109). The frequency of such blooms is not well documented, but they tend to occur during the warmer months of the year.

Although evidence is limited, there are several ways to reduce the risk of shellfish poisoning. During and after red tides, shellfish could be avoided. Since toxic plankton float on the water’s surface, mussels highest in the intertidal zone are most likely to have the highest concentrations of toxins, whereas low intertidal and subtidal mussels should be less prone to contamination (John Neary, personal communication, 1991). Intimate
geographic knowledge played a role in avoiding toxic shellfish; certain shellfish beds appear to have been more vulnerable to poisoning than others (de Laguna in Emmons 1991:149). Traditional Tlingit warnings against shellfish consumption “when the grouse hoists” or “when the herring spawn” in the spring (Newton and Moss 1984:17) may reflect awareness of PSP. (They may also reflect reduced desirability of shellfish during their spring spawning period [Peratovich 1959:56]). Emmons (1991:149) documented one treatment for mussel poisoning, and the Tlingit had knowledge of emetics (de Laguna 1972:659), which may have been effective. Nonetheless, PSP was a real danger, and probably accounts, at least in part, for negative attitudes toward shellfish on the part of the Tlingit themselves.

Social Status and Shellfish

The Tlingit have encumbered shellfish with important social and symbolic meanings. The association of shellfish with sickness (Swanton 1970:459) is only one factor; as described by Emmons (1888), “it is generally understood dreaming of silver salmon, oulichan grease, the Moon, Sun or Stars signifies good luck. Dreaming of the bear, Devil-fish, or blood or fat meat an accident or misfortune. Dreaming of clams indicated poverty." The association of shellfish with poverty and low prestige is supported by an account of the 1885 marriage of a Sitka Kaagwaantaan chief to a lower-class woman. Two chiefs of rival clans refused to take part in the Russian Orthodox wedding, stating that “no good could come of mating a chief with a clam digger” (Emmons 1888). As Kan (1989:92–93) explains, the Tlingit word for aristocrat translates to “person of the village,” while that for social outcast is “person of the beach,” and shellfish collected by women had lower status than fish and game taken by men. One of de Laguna's (1972:683) informants in the 1950s said that “some people would not eat anything from the beach because they were afraid of being poor.”

My interviews with Richard Newton suggest that this negative view of shellfish persists. In describing how a young man should live, Newton (1987) said:

The Tlingit Indian makes his living from the land and the sea. You have to work real hard so that you have money, something to exchange when you go to buy something. A young man would have to work very hard to become wealthy. Shellfish were just secondary. You wouldn’t eat shellfish or beachfood if you were going to discipline yourself. . . . Eating shellfish creates laziness. A young man should go out and get the hard things—like going fishing or hunting. [1987:2–3]

This statement suggests that shellfishing is the antithesis of an appropriate avenue to male achievement. Ambitious young men are trained to avoid shellfish and to concentrate on distinguishing themselves by fishing and hunting to acquire wealth and status (see Emmons 1991:365 for a description of a related male ritual). The association of shellfish with laziness appears to reflect the abundance of shellfish and the ease with which they were gathered (de Laguna 1972:405; Holmberg 1985[1855–63]:12). The implication is that men who collected shellfish were unwilling to work hard and amass wealth; they were destined to live a life of “poverty.” When I suggested to Newton that, because of this, shellfish were low-status resources, he corrected me by saying, “no food is low status. . . . Shellfish is there to be eaten, when you’re hungry you can eat it.” He went on to explain, “say you just moved to camp and didn’t have time to hunt, then it’s okay to eat it.” This statement demonstrates an exception to the rule: under certain circumstances it was acceptable for men to gather and consume shellfish. Newton’s statement points to the discrepancy between a man’s ideal behavior and practical constraints of survival.

Although shellfish avoidance was recommended, such a dietary proscription did not apply to all Tlingit people with equal weight. A person’s rank and status were determined by heredity, as well as his or her inherited and earned wealth, achievements, character, and age (Kan 1989:25). Tlingit society had no sharply defined social strata; commoners
were the younger matrilineal relatives of the aristocracy. As Kan (1989:25) explains, ranking was inexact, subject to reevaluation and an individual’s prestige changed over the course of his or her life. Although all men and women observed rules of ideal behavior to some extent, far more was expected of aristocrats than of commoners (Kan 1989:90–91). Aristocrats had to avoid shellfish to maintain their purity and guarantee their material, social, and moral superiority. The ritual purity demanded of male or female peace hostages also required abstention from shellfish (see Emmons 1991:352). Such dietary restrictions did not apply to the lower social categories: “dried-fish slaves” (i.e., improvident persons who had to sell themselves for a piece of dried fish to survive [de Laguna 1972:469]) or slaves captured from other tribes.

The occasional toxicity of shellfish helps justify dietary rules restricting their consumption. As Laderman (1981) has documented, food avoidances can incorporate both pragmatic and symbolic reasoning. Shellfish could be dangerous without adequate knowledge, but most of the time, shellfish were safe to eat. Nonetheless, exclusive reliance on shellfish as one’s main source of dietary protein had associated risks. On the Northwest Coast, this risk was not great, nor was it spread evenly across society. While the elite could afford to limit their shellfish consumption, those at the lower end of the socioeconomic scale depended on shellfish as an abundant food supply.

**Women and Shellfish**

Tlingit women were discouraged from eating shellfish for some of the same reasons as men (Newton 1987) at specific times during their lives. Women were prohibited from eating shellfish during their menstrual periods (Peratrovich 1959:114). At the time of one’s first menses, this restriction could last two to three years (de Laguna 1972:405) to guarantee purity and thereby ensure wealth as the young woman grew older. As in many Native American societies, a menstruating woman was considered dangerous and could contaminate men and jeopardize the success of their activities. Breaking the rules by eating shellfish exacerbated this danger. Many of the taboos involved in female puberty rituals were also followed by mourning widows and women giving birth to their first child (de Laguna 1972:518, 520; Kan 1989:158). During each of these rites of passage, a woman in a liminal state had to maintain ritual purity to ensure a successful outcome during a dangerous time.

A relationship between shellfish and women’s sexuality is suggested by Olson’s account (1967:32) of an adulterous woman who used clams to trick her husband:

She put clams under her clothing. These began to smell in a few days and she went to her husband and said, “I am sick. You can smell for yourself. Put me out-of-doors. Build me a little house where a shaman can treat me.” She installed herself in the retreat so her lover could visit her each night.

The husband eventually discovered her lover and killed him, leading to a blood feud and division of the clan. In Tlingit society, adultery was typically blamed on women (Kan 1989:160) and frequently caused feuds, clan and village fissioning, and out-migration (de Laguna 1972:529). De Laguna (1983) explains how the structure of Tlingit matrilineal society is strained by women’s divided loyalties to their husbands and brothers who belong to opposite moieties. She wrote, “in the Tlingit mind, women are notoriously troublesome, the causes of war, and in war untrustworthy, likely to betray their husbands for the sake of their brothers” (de Laguna 1983:82).

The legend of the mythical Lenaxxidaq (“Property Woman”) encapsulates conflicting Tlingit attitudes toward shellfish along with their ambiguous feelings about women’s power. Lenaxxidaq has great power to bestow wealth (Jonaitis 1988), yet she gathers mussels at low tide (Swanton 1909:292–293, 366–368). Contradicting the association between shellfish and poverty, Lenaxxidaq brings wealth to people and good fortune to shamans (de Laguna 1972:821). Shamans and those exposed to their powers (which include transcending liminal states) were particularly vulnerable to getting sick from shellfish and normally are strictly prohibited from eating shellfish (de Laguna 1972:379,
Yet shamans and their families were allowed to eat shellfish when Lenaxxidaq len dswutgut, "when Property Woman goes on the beach at low tide," at the new moon (de Laguna 1972:683; Emmons 1991:366). The story of Lenaxxidaq suggests that the association between shellfish, pollution, poverty, and misfortune did not hold during the new moon, when some of the lowest tides of the month made shellfish beds accessible and highly productive to exploit. The suspension of strict rules prohibiting shamans from eating shellfish suggests that at the new moon, the dietary value of shellfish outweighed their negative social meaning. At this time, Lenaxxidaq's power, which coincides with the lunar cycle, appears to protect shamans from shellfish-associated dangers.

Dietary guidelines discouraging shellfish consumption appear to conflict with the exigencies of daily life, especially for women. However, guidelines prescribing ideal behavior were not as strict for women as for men, and this seems particularly applicable in the case of shellfish. As Kan (1989:161–162) has written, "many of the same criteria that differentiated aristocrats from commoners were used to establish a fundamental difference between males and females." Except for women of especially high status, there appears to be sufficient evidence that women depended on shellfish to a greater extent than men, although as I have argued, men probably ate shellfish more frequently than they might admit to ethnographers. Despite his characterization of shellfish as "just secondary," when pressed for an analogous food in the modern Euro-American diet, Richard Newton chose bread and butter—a commonly eaten staple. In this sense we might think of shellfishing women as the "breadwinners" of Tlingit society.

Shellfish in Tlingit Culture

Tlingit dietary rules and oral traditions reveal mixed feelings toward shellfish. On the one hand, the Tlingit respect and value all foods, and shellfish are abundant and easy to procure. Many women, children, and elders appear to have routinely gathered locally available shellfish during much of the year. Shellfish were gathered at temporary camps, when traveling, and even on men's hunting expeditions. They are good sources of fresh protein, convenient, and in the words of Richard Newton, "people like clams." They can be preserved and stored for later consumption or trade. On the other hand, eating shellfish could risk one's physical health, ritual purity, and social standing. Various members of society were restricted from eating shellfish at certain times in their lives. In general, people were discouraged from eating shellfish because they compromised one's purity and could lead to laziness and poverty.

From an optimal foraging perspective, the nature of dietary roles (as staples, supplements, emergency provisions, delicacies, or snacks) depends upon the nutritional value and cost of exploitation of certain foods relative to those of other available foods. Dietary roles may vary seasonally, geographically, and with method of preparation or storage. But Tlingit subsistence cannot be reduced to narrowly defined optimal foraging behavior (see also Claassen 1991a). To the Tlingit aristocrat, food selection reflected one's moral character and self-discipline, and shellfish were charged with dangerous and impure meanings. Not everyone in Tlingit society was an aristocrat, however, and not everyone could be expected to practice ideal social behavior. The archeologically abundant shellfish may represent the economic behavior of segments of the populace who did not live up to aristocratic ideals. I propose that shellfish provided a low-cost food supply for proportionately more women than men, and for those of lower rank. However, shellfish were not without societal or biological risks.

The scarcity of ethnographic detail on shellfish use and importance may in part result from the social and symbolic value the Tlingit themselves attached to shellfish. Oral traditions reveal an association with sexuality in addition to fear of sickness, pollution, and poverty, and these feelings undoubtedly inhibited discussion of shellfish with ethnographers. Tlingit people with whom I have worked have been reluctant to talk
about shellfish, and now I understand why they have dismissed my interest. The ethnographic data as well as the Tlingit themselves underestimate the economic role of what appears to be a productive resource. These affective behaviors appear tied to the unpredictable and occasional threat of shellfish toxicity. Whether these factors are operative elsewhere on the Northwest Coast is not yet clear.

Shellfish Toxicity—Social and Symbolic Meanings in a Regional Context

Although locally variable, shellfish toxicity was an environmental hazard that several Northwest Coast societies other than the Tlingit confronted with various strategies. A recent study of paralytic shellfish poisoning identified three regions of high toxicity along the coast of British Columbia (Gaines and Taylor 1985). These include the northern mainland British Columbia coast and the southwestern and northeastern shores of Vancouver Island. Precautions regarding shellfish are documented for the two Vancouver Island areas. The Manhousat recognized “murky” water conditions suggestive of red tide and avoided shellfish during that time (Ellis and Swan 1981:51, 84). Among hundreds of documented Kwakiutl place names (Boas 1994), six places were named for their “poisonous” or “rotten” clams. Other ways to minimize the risk of shellfish poisoning include preparation techniques. The southern Coast Salish knew that toxins in clams were concentrated in gills and the tip of the siphon and these parts were removed before eating (Baltz 1990:53). Species too small to be cleaned in this way were avoided.8

The Tlingit were not alone in associating status with food and applying dietary rules differentially across society. As Allaire (1984:85) states, “the Tsimshians had elaborately articulated, coded systems of eating and food preparation.” Common resources were and are not highly valued by the Tsimshian; Seguin (1984:326) distinguished “ordinary” food (mussels, clams) from “real” food (hunted animals, fresh fish, and berries). In Haida legend, a sense of shame is associated with living on common food (Ellis and Wilson 1981:2). Among the Manhousat, shellfish were eaten by the chief, although the chief himself “was not expected to take on such a menial task” as gathering and drying clams (Ellis and Swan 1981:52). Contemporary Tsimshian people claim that mussels were originally eaten only by slaves (Seguin 1984:327). Dietary restrictions on shellfish consumption are documented for Haida women, where female power is acknowledged in much the same way as that of Tlingit women (Blackman 1981:67). The Edward Curtis photograph of a high-class Kwakiutl woman wearing a “chief’s hat” to dig clams (Figure 3) seems anomalous, and may simply be a Curtis construction.

The well-known cedar sculpture by Bill Reid, “Raven and the First Men,” illustrates a portion of a Haida myth that incorporates shellfish into a story of creation and procreation (Figure 4). The creator/trickster Raven is shown standing on a giant clamshell, with tiny humans emerging from within the valves of the shell.4 After the flood, Raven dug a clam from Rose Spit and released the Haida from within the shell (MacDonald 1983:8). These new humans were exclusively men, until Raven attached “sticky chiton” to the genitals of some to transform them into women (MacDonald 1983:8). Hymes (1990:594) has presented a slightly different version of the story obtained from Bill Reid: when Raven finds that the emergent humans are all men, “he induces a sexual experience between these creatures and chitons” and subsequently, the chitons give birth to the first Haida women and men. Paraphrasing the words of George MacDonald (personal communication, 1992), “it doesn’t take a structuralist to see the male nature of a clam’s siphon, and the female nature of chitons.” That chitons held special meaning or associations for at least some Northwest Coast women is supported by the Manhousat women’s feast of chitons celebrating the low tides of June (Ellis and Swan 1981:83). These implicitly sexual associations with shellfish and women are consistent with Northwest Coast taboos on sexual activity when preparing for hunting expeditions (Blackman 1981; Seguin 1984). To ensure a man’s hunting luck, both he and his wife had to refrain from sexual relations and shellfish consumption. Considering the nature of these associations, other Northwest Coast
groups, in a manner consistent with the Tlingit pattern, may not have fully acknowledged their heavy use of shellfish to ethnographers.

**Conclusion**

Tlingit archeological data demonstrate that a wide range of shellfish species were collected prehistorically and that shellfish were important food resources. Yet ethno-
graphic data reveal that the ideal Tlingit person, the aristocrat, was encouraged to avoid eating shellfish as part of a larger strategy to achieve wealth and status. Dietary restrictions on commoners of both sexes were more occasional and contingent on liminal states, and I suspect that slaves were particularly reliant on shellfish as a food source. The ideational context of shellfish in Tlingit society is at least partly explainable by the threat of paralytic shellfish poisoning.

In the worldwide debate over the role of shellfishing in cultural evolution, archeologists have limited themselves largely to arguments over the economics of shellfish procurement and the nutritional value of shellfish (e.g., Osborn 1977; Quilter and Stocker 1983; Erlandson 1988). The ritual impurity of an apparently optimal food poses a problem to archeologists accustomed to strictly economic analyses. For the Tlingit, I have shown that another important source of variation is the social and symbolic meaning of shellfish, about which a wide range of information is relevant. Although the meaning of any food is not easily accessible through archeology, relevant ethnographic and ethnohistorical data can be used to approach the social context of a class of foods, and this can help identify biases in ethnographic data themselves. Social categories determined by gender and rank can result in differential resource use, and variability in subsistence within a society can be targeted in future research. More comprehensive evaluation of the relationship between the full range of food categories may yield additional insights into the connection between ideology and ecology.

Following the lead of Wessen (1988), study of the spatial distribution of different shellfish taxa can be analyzed together with more direct indicators of social inequality.
Sexed and aged human skeletal material can provide an independent source of data on differential dietary practices. Hastorf (1991) has used temporal changes in both spatial and skeletal data to illustrate the dynamism of gender relations in prehistoric Andean society. For Northwest Coast cases, human skeletal analyses distinguishing between the different classes of marine resources consumed will be especially informative. Documentation of the variation between Northwest Coast shell middens will require greater attention to issues of sampling and quantification, but I hope this article also stimulates others to attempt integration of comparable ethnohistorical and ethnographic data. Incorporating data from the intellectual traditions of ethnographic groups is another way to move beyond the normative thinking decried by Claassen (1991b) that restricts understanding of shellfishing societies.

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**Notes**

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1. Octopus and crab are excluded from consideration in this article because of their scarcity in archeological deposits. That these taxa belong to a separate category of marine invertebrates is consistent with at least one Northwest Coast native system of classification; the Haida word *tsi'gwa'tu* encompasses all clams, sea urchins, chitons, and mussels, but not octopus or crab (Ellis and Wilson 1981:11).

2. My interviews with Tlingit informants indicate that they did not eat mussels from spring through August, contradicting de Laguna's assertion (Newton and Moss 1984; Newton 1987).

3. Susceptibility to toxic shellfish also varies with the individual (Carefoot 1977:109). In another geographic context, Fischer, Fischer, and Mahoney (1977) suggested that taboos proscribing shellfish consumption may be due to the allergic reactions shellfish can cause in some people.

4. Other representations of this myth include argillite carvings by Charles Edensaw (Barbeau 1953:161–162). According to Sturtevant (1974:12), the Tlingit word for "container" embraces the meaning of bivalve shell, box, coffin, womb, and opposite moiety. He believes that this word elicits "a key central concept around which Tlingit life and thought can be seen to have been organized."

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