APPENDIX A

SURVEY OF THE LITERATURE

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A.1 INTRODUCTION

The Alaska Natives who have hunted bowhead whales for subsistence purposes to the present time include both St. Lawrence Island or Chaplinski Yup'ik[1] speakers and Iñupiaq[2] speakers. The St. Lawrence Island Yup'ik speakers who harvest bowheads reside on St. Lawrence Island in the Bering Sea, while the Iñupiaq speakers reside on the island of Little Diomede in the Bering Strait and along the coastline of northwest Alaska and the Arctic slope. The residents of the three whaling communities that are the focus of this report (Barrow, Nuiqsut, and Kaktovik) are primarily Iñupiat. The community that has been selected as a control (Savoonga) is a St. Lawrence Island Yup'ik whaling village.

This literature survey does not purport to be a comprehensive review of all the literature available on the subject of subsistence whaling in the communities under study. The culture of the relatively small number of Alaska Natives who traditionally hunted bowhead whales has long been a research focus of social scientists, and the accumulated literature is vast (for example, see the on-line annotated bibliography compiled by Marquette (2002)). The comment by Charles Hughes (1963:452) that, "Rarely has so much been written by so many about so few" would appear to be appropriate here.[3] However, it is believed that the major written sources of information were consulted in the survey.

The first half of the literature survey draws on an array of writings to provide a historical overview of the whaling tradition. It includes selected references depicting the pre-contact bowhead whale hunt and relating the major developments affecting the hunt up to the present. The section concludes with a compilation of publications describing the current socio-political context of subsistence whaling in Alaska. The historical overview is written in the past tense for stylistic and editorial reasons. Consequently, it may obscure significant aspects of historical subsistence whaling that have continued up to the present. To remedy this situation the second half of the review focuses on literature describing the contemporary significance of whaling for the communities of interest. The literature selected examines the importance of the bowhead whale hunt for the formation and maintenance of Iñupiaq and St. Lawrence Islander cultural identities.

[1] St. Lawrence Islanders speak Central Siberian or Chaplinski Yup'ik along with their Russian relations located on the Chukchi peninsula. Recently, they have begun to refer to their language as St. Lawrence Island Yup'ik, a reflection of their pride in local identity (Jolles 1991).

[2] The words "Iñupiat" and "Iñupiaq" will be found throughout the document. "Iñupiaq" is used as a singular noun, referring to an individual person, or it can be used as an adjective to describe a characteristic such as "Iñupiaq culture." "Iñupiat" is a plural noun and refers to the people collectively.

[3] Hughes was commenting on the extensive anthropological literature on "Eskimo society" in general. He noted in 1963 that comparatively little had been written about Alaska Native coastal communities per se. The ensuing years have seen the completion of a large number of Alaska Native studies, but the ethnographic coverage has not been even. For example, in comparison to the Iñupiat, relatively little has been written about St. Lawrence Islanders.

A.2 HISTORICAL BACKGROUND

Pre-Contact Whaling

Iñupiat knowledgeable in their oral history say the bowhead hunt reaches back many thousands of years, deep into time immemorial (Hess 1999). Archaeologists have variously suggested that whale hunting first originated among Old Whaling, Choris, Birnirk, Punuk, or Western Thule cultures (NSF 2000a). While whale bones have been found associated with all of these cultures, there is considerable disagreement among researchers as to when and where whaling originated, that is, when whale remains at archaeological sites no longer represent scavenging of naturally beached whales for meat or raw materials but represent active hunting instead. It appears that harpoon and float whaling began in the western Arctic (probably among the Siberian Yup'ik) and spread eastward to other parts of the Arctic over the past two millennia (NSF 2000a).

The archaeological record also suggests that after c. A.D. 800-1200, whaling became an increasingly central focus of subsistence for the peoples of both the Bering Sea region and north Alaska (Bandi 1995; IWC 1982). This development probably arose from a combination of factors, including a diffusion of technological advances in sea hunting equipment, ice patterns that forced the whales close to shore, control by a captain over his crew, cooperation between crews, and most important, a sufficiently large population to allow several crews to hunt together (IWC 1982). Unlike the Inuit to the east, whalers of the western Arctic developed permanent communities at strategic points where the whale migration passed close to land (NSF 2000b). Today, the villages of Ekven in Russia, Gambell on St. Lawrence Island, Wales, Point Hope, and Barrow continue to occupy long-standing permanent whaling communities.

The food supply and material culture of these communities depended on the bowhead (Lee 1998). Nearly all parts of the whale were used. Frozen in underground cellars for future use, its meat, blubber, and intestines furnished half a winter's food supply. Blubber was also burned for fuel, and the baleen provided structural materials for the semi-subterranean sod houses of the region. Because it did not collect frost, the tough, fibrous baleen figured prominently in fishing and hunting technology. It was bent into buckets, ice scoops, bows, and sled runners; shredded for fish line and lashings; shaved for boot insulation; and knotted into nets.

In addition to whaling, the seasonal round of subsistence activities in the whaling communities typically included winter ice hunting for seal, spring or summer *ugruk* (bearded seal) and walrus hunting, and fall sojourns inland to hunt caribou (Nelson 1982; Rainey 1947). Another important aspect of the economies of these villages was the extensive trade networks that interlinked the coastal villages with one another and with nomadic hunters in the interior of Alaska or Siberia (Hughes 1984; Sheehan 1995). In the trade between coastal villages and inland groups, sea mammal oil was exchanged for caribou products. Trade among coastal villages consisted of unevenly distributed resources such as walrus and *ugruk*.

The technology used for whaling was relatively simple, but the gear was effective enough for the whaling villages to take perhaps a total of one hundred whales a year (Bockstoce 1986). Both the Iñupiat and St. Lawrence Islanders hunted whales using open, flat-bottom boats made of a frame

of driftwood lashed together with sinew and covered with *ugruk* or walrus hides (Hughes 1984; Murdoch 1892; Rainey 1947; Spencer 1959). The boats were called *umiat* (s. *umiak*) by the Iñupiat and *angyapiget* (s. *angyapik*) by the St. Lawrence Islanders. Murdoch (1892:335) noted that the boats were "exceedingly light and buoyant, and capable of considerable speed when fully manned."

Each whaling crew generally consisted of eight to ten members (Murdoch 1892)[4]. When the bowhead's fall and spring migration routes brought them close enough to the coast, each crew would camp at the edge of the shorefast ice, waiting for the whales to pass through the open leads.[5] During this vigil there were severe restrictions on comfort, both to make hunters worthy of their prey and to assure their readiness (Nelson 1982; Rainey 1947).[6] When a whale came within striking distance, the *umiak/angyapik* was launched and the crew would approach the whale as quietly as possible.[7] If they managed to get sufficiently close, the crewmember designated as the harpooner employed a heavy toggle-harpoon to strike the whale.[8] The harpoon was attached by a heavy line of walrus hide to a number of sealskin floats and sometimes to a wooden drag as well (Brower 1965; Hughes 1984; Rainey 1947). The floats made it hard for a whale, when struck, to submerge, marked the location of a dead whale, and helped keep the carcass buoyant (Allen 1978; Spencer 1959). If the harpoon only wounded the animal, the

[4] The degree to which crew membership was based mainly on kinship or on socially negotiated alliances couched in kinship terms is discussed by Cassell (2000) in an analysis that draws from Spencer (1972), Burch (1975), and Burch (1980). Cassell noted that a wide variety of mechanisms to establish relationships between and among members of a whaling crew have been documented in the ethnographic record. Others (e.g., Bodenhorn, 2000a) who have addressed this topic concede that the idiom and ideology of kinship fundamentally permeate all Iñupiaq social relations. Many, perhaps most, Iñupiat are to some degree related to each other, and such relationships can often be traced in more than one way. Consequently, distinguishing between "real" (biological) kinship and "fictive" kinship is a complex endeavor. Adding to this complexity is the question of whether adoption and other societal practices are "real kinship" or a form of socially negotiated alliance.

[5] In addition to a spring season, whaling was also conducted in the fall, mostly north of Point Hope (Burch 1981). In 1855, a Euro-American observer noted that the Iñupiaq settlement at Point Barrow "owes its existence to the proximity of the deep sea, in which the whale can be successfully pursued in the summer and autumn" (Bockstoce 1988). According to Spencer (1959:349), "Preparations for the fall whaling were not so ceremonially marked as they were in the spring." In the early 1880s, Murdoch (1892:54) recorded that the Iñupiat at Point Barrow "have given up fall whaling, possibly on account of the presence of the [American whaling] ships at that season." Burch (1981) suggested that the negative impact of the American fleet on the bowhead population after 1848 severely affected the success of the fall subsistence hunt. Hadley (1915) reported that fall whaling had resumed at Point Barrow by 1907. Information on pre-contact fall whaling east of Point Barrow is uncertain. The Iñupiat conducted fall whaling in the mid-Beaufort at least from the early 20th century, and while some contemporary Iñupiat report that their more distant ancestors had also done so, firm archaeological evidence or other supporting information is lacking (Carnahan 1979).

[6] Describing the traditional whale hunt by the inhabitants of Point Hope, Rainey (1947:159) stated that, "The crews were allowed no sleeping bags, no shelter other than a windbreak made of ice blocks, no hot cooked meat, and no change of clothing until they returned to shore with a south wind." Descriptions by Euro-Americans of the whale hunt during the early 1880s also mentioned the harsh living conditions at the whaling camps but note that women regularly brought food from the village to the whaling crews (Brower 1965; Hadley 1915; Murdoch 1892).

[7] At times, a whale would approach so close that the *umiak* with only the harpooner aboard would be shoved across the top of whale by the other crew members (Brower 1965; Hadley 1915).

[8] Harpoon heads made to "toggle" (flex 90° crosswise) are less apt to tear free from a harpooned whale (Durham 1973). The toggle principle was not introduced into an American whaling harpoon until the development of the "Temple Iron" in 1848 (Kaplan 1953).

paddlers brought the boat up swiftly, and long lances with sharp points of antler, bone, or stone were used to cut the tendons of the whale's tail to prevent it from sounding and to pierce the whale in some vital organ (Brower 1965; Nelson 1982; Rainey 1947; Spencer 1959). Whaling crews in other boats would assist in the kill, thereby guaranteeing for themselves a share of the meat (Hughes 1960; Spencer 1959). Once the whale was dead it was towed to the shorefast ice and butchered with specialized knives and other implements (Brower 1965; Pulu et al. 1980).[9] During the butchering process the men in some villages wore waterproof suits fabricated from seal gut (Smith and Smith 2001). Stoker and Krupnik (1993) noted that teams of sled dogs were a great asset, lightening the job of moving boats across shorefast ice to open leads and hauling loads of meat and *maktak* from whaling sites to the village.[10]

Every stage of the whale hunt, including preparation for the whaling season, the hunt itself, and the receiving and distributing of shares of meat and *maktak* (whale skin and the attached blubber),[11] was highly ritualized. Prior to the start of each whaling season all gear used in the hunt was brought to a ceremonial house where it was consecrated in a ceremony consisting of drumming and singing (Murdoch 1892). In addition, every article of whaling gear – harpoons, lances, paddles, and even the timbers of the boats – was carefully cleaned and overhauled to insure a successful hunt (Murdoch 1892; Spencer 1959). While whaling was going on, no hammering or other loud noise was allowed in the village for fear of frightening away the whales (Murdoch 1892; Ray 1885). Certain other activities were also forbidden when the boats were out on the ice; for example, Spencer (1959:338) noted that the wives of crew members were not allowed to sew, "lest by this action the whale be made to foul the lines and escape."[12]

Songs, charms, and amulets were a vital part of the whaling process (Spencer 1959; Rainey 1947). Whaling amulets included wolf-skulls, stuffed ravens and eagles, fox tails, bunches of feathers, and other animal parts (Murdoch 1892). Amulets also included images of the bowhead in ivory, stone, or baleen; these were attached to hunting equipment, to the boat, or were hung about the whaler's neck and clothing (Murdoch 1892; Rainey 1947). Prayer songs were sung during all stages of whaling and, like the amulets, were believed to have a compulsive effect, serving to bring the whale close to the boat, to make the animal more tractable and amenable to harpooning, to prevent the lines from slipping and fouling, to hasten the death of a wounded whale, and the like (Nelson 1982; Rainey 1947).

[9] Hadley (1915:916) reported that, "A slip or runway had to be cut to the edge of the water and the whale was secured by walrus hide lines passed around a sort of windlass constructed from a rounded cake of ice and a piece of driftwood. Then the creature could be heaved up…If the edge of the ice was very rough and uneven a somewhat different method would be employed; the whale would be rolled alongside the ice and rolling and cutting be substituted for heaving and cutting." Brower (1965) described the use of a similar type of "windlass" made of ice blocks and driftwood, and Smith (1937:17) described the use of a "crude block and tackle" on St. Lawrence Island.

[10] Stoker and Krupnik (1993) suggested that successful whaling could have provided the large food surpluses necessary to support dog teams.

[11] This delicacy is referred to as *mangtak* by St. Lawrence Islanders (Jolles 1995b).

[12] Ray (1885:39) observed that, should the garments of a member of a whaling crew be accidentally torn, "the woman must take them far back on the *tundra* out of sight of the sea and mend them; they have little tents in which just one person can sit, in which this work is done."

The social organization of whaling developed in unique ways in different places and across time (NSF 2000b), but there were some similarities among the socioterritorial structures of the St. Lawrence Island and Iñupiaq whaling villages. For example, it appears that all of the permanent settlements that developed around whaling were composed of one or more cooperative kinship groups of fluctuating numbers (Burch 1986; Rainey 1947; Hughes 1984). Through exogamy, trading relations, and exchange marriages connections were established between otherwise separate groups (Chance 1990). In the Iñupiaq whaling communities large, bilateral, extended families were headed by an *umialik* (literally "boat owner"; pl. *umialit*) (Burch 1975; Rainey 1947).[13] The *umialik* was normally the wealthiest man in the family group, the captain of its whaling crew, and often an *angatkok* (shaman; pl. *angatkut*) as well (Rainey 1947).[14] The position of *umialik* was achieved through personal attributes, such as skill in hunting, intelligence, energy, and generosity, reinforced by sufficient wealth to support a boat crew or hunting group (Hennigh 1983; Rainey 1947). In 1855, John Simpson, the surgeon aboard HMS *Plover*, described the social status of the *umialit*:

> *In some of their pursuits, necessity compels the men of different establishments to combine their strength, as in taking the whale, and in such circumstances, some must take the lead. It would seem an easy step from this to the permanent ascendancy of individuals over the others, and some have accordingly considerable weight in the community; but there is nothing among them resembling acknowledged authority or chieftainship. A man who has a boat out in the whaling season, engages a crew for the time, but while in the boat he does not appear to have any control over them, and asks their opinion as to where they should direct their course, which, however, they generally leave him to determine, as well as to keep the principal look-out for whales. The chief men are called* [umialit]*, and have acquired their position by being more thrifty and intelligent, better traders, and usually better hunters, as well as physically stronger and more daring* (Bockstoce 1988).

An *umiak* might be inherited from a father or another relative thereby giving the recipient an opportunity to excel beyond others at his generational level (Lowenstein 1986; Oswalt 1967). However, an ineffectual individual who inherited all the whaling gear would not continue to be an *umialik* for long because other men would not work as his crew; his wealth and property would eventually become meaningless (Rainey 1947).

Outside of his family and whaling crew, which was generally drawn from the men of his extended kin group, an *umialik* had no real authority (Murdoch 1892; Rainey 1947). Unlike the marine hunting societies to the east, however, virtually all of the western Arctic whaling societies developed formal institutions that existed external to the household (NSF 2000b). Of particular importance among the Iñupiat was the *qargi* (pl. *qargit*), or ceremonial house. Each *umialik* was affiliated with a particular *qargi* and the crewmembers were, in turn, members of that same *qargi*

[13] An extended family could involve 80 or more people distributed among 10 houses, and the largest settlements, such as those at Point Barrow, Wales, and Point Hope, could consist of several such families (Burch 1986).

[14] Most men owned boats, but only a few had the necessary equipment, amulets, songs, and personality to captain a whaling crew (Lantis 1938).

(Larson 1995). The *qargit* was the focus of social, political, and economic life, where men met to work on tools and equipment, where the entire community gathered for dancing and storytelling in the evenings, where important matters of state were decided, where celebratory feasts marking the annual whaling cycle took place, and where intervillage trading feasts were held (NSF 2000b). The *umialit* had special seats at the center of activities and were the leaders in the organization (Rainey 1947).

Among the St. Lawrence Islanders certain ties to the kinsmen of an individual's mother were culturally recognized, but a man took his primary social identity from his father (Hughes 1960). In addition, individuals were affiliated through patrilineage to broader clan-like groups called *ramke* (s. *ramket*). Each *ramket* was led by the group's oldest male member (Hughes 1960). Although the general clan leadership role strongly resembled the role of the *umialik* in Iñupiaq villages, St Lawrence Islander leadership was hereditary, and it was always passed down in the patrilineage from father to son (Harritt 1995). Assuming that whaling crews were organized in precontact times as they are today, a boat captain (*angyalek*; pl. *angyalget*) was the head of his clan, head of the local segment of his clan, or head of a prominent extended family within the clan (Jorgensen 1990). The makeup of each whaling crew served as a key example of the functioning of the principal structure in the social organization, the patrilineal *ramke*, for crews were composed of members drawn from the same clan – generally, sons of the boat captain, or sometimes his brothers and brothers' sons (Hughes 1984). Each *ramket* had specialized whaling traditions and practices that its members alone were privy to and performed (Jolles 1995a), as was the case with individual *qargit* in Iñupiaq villages (Larson 1995).

In both St. Lawrence Island and Iñupiaq whaling communities, the whaling crew was highly cohesive, tied by *ramke* or *qargi* affiliation and reinforced by other overriding bonds of kinship (Hughes 1984; Larson 1995; Spencer 1972). Moreover, it was the responsibility of the boat captain to provide economic support to his crew (Hughes 1960; Spencer 1959). Not only did the crew get a share of whatever they communally harvested (whales, walrus, *ugruk*, or caribou), but they also were supplied by the boat captain with clothing, weapons, kayaks, and other useful things. The boat captain, in turn, acquired greater community prestige and recognition (Hughes 1960; Rainey 1947). In Iñupiaq whaling villages the boat captain received a large share of each whale landed (Rainey 1947). However, in accordance with his status as a whaling captain and a provider for the community, he was expected to be generous and to give most of the meat apportioned to him to his crew and the broader community (Spencer 1959). The boat captain used other portions of his share of whale meat to trade for goods that in turn were passed to crewmembers for their loyalty (Spencer 1959; see also Sheehan 1995).

Only through strong family support could a boat captain keep the wealth in hand for such crew support (Spencer 1959). In Iñupiaq whaling communities the wife of the *umialik* played an especially important supportive role. She was closely involved in the logistics of preparing the necessary gear in the months prior to the whale hunt, and she assumed a leading role in the various ritual activities associated with the hunt based on the belief that she was spiritually linked to the whales (Bodenhorn 1989; Lowenstein 1994; Rainey 1947; Spencer 1959). Moreover, the wife of the *umialik* kept track of food obtained from hunting and oversaw its redistribution (Chance 1990). Similar organizational and ceremonial duties were expected of the

wife of the *angyalek* in St. Lawrence Island whaling communities (Hughes 1960; Jolles 1991; Keim 1969; Smith 1937).

For both the Iñupiat and St. Lawrence Islanders, the relationship between animals and humans was considered one of mutual cooperation and respect (Bodenhorn 2000b; Hughes 1984). Hunters did not exactly go out and "kill" the animals which were required as food; the body of each animal was, in a sense, "borrowed," and the spirit of the creature then returned to become reincarnated (Lowenstein 1986). It was believed that the spirit of the whale could see the *umialit* and their wives "a long time ahead," and their behavior determined whether the whale allowed itself to be killed (Rainey 1947; see also Hughes 1984). The norm of sharing was an especially important way to show respect to animals, for sharing signified generosity, which was a virtue, and an appropriate use for the gift of food the animal provided (Freeman et al. 1998). The appreciation shown by sharing the whale meat helped ensure that the same whales would offer themselves up to the hunters next year (Bodenhorn 1989; Milan 1964). The rewards of the harvest were distributed throughout the community in accordance with a formalized system. For example, sharing was one of the tenets exhibited through the annual cycle of celebrations and feasts (Larson 1995). One of the most important of these celebrations among the Iñupiat was called *Nalukataq* and was held by each crew at the end of a successful whaling season. Larson (1995) reported that these social festivals were highly competitive, with each crew trying to hold its celebration first and attempting to outdo the others in terms of generosity.

Arrival of Euro-Americans and the Period of Commercial Whaling

By the early 19th century, the indigenous people of the Bering Sea region were regularly obtaining tobacco, alcohol, firearms, knives, and other goods from Euro-American traders in exchange for furs and ivory (Bockstoce 1986). The trade goods were carried far from the Bering Sea via the well-integrated Native trade networks.[15] Direct contact between the indigenous people and outsiders increased in the mid-1800s, when commercial whaling vessels, predominately American, began exploiting the Bering Sea stock of bowhead whales. The first commercial whaling ship entered the Bering Sea in 1848, and by 1850, 200 ships were whaling in the area (Bockstoce 1986). The peak bowhead harvest was reached in 1852, when 2,682 bowheads were taken. The rewards of the fishery encouraged commercial whalers to expand their range to the east of Point Barrow in 1854, and eventually into Canadian waters around Herschel Island in the 1890s – the summer feeding waters of the stock (Bockstoce 1977, 1986).

At first, the American whalers took bowheads for their oil, but by 1875 petroleum was widely available and the focus of commercial whaling shifted toward the harvesting of baleen (Bockstoce 1986). Among the many commercial articles produced from baleen during the 19th century were women's corset stays, buggy whips, umbrella ribs, scrubbing brushes, trunk frames, fishing rods, and mattress stuffing (Lee 1998). Commercial whaling for bowhead whales in the arctic waters of Alaska and the eastern Beaufort Sea was dangerous because of the ice and weather, but the profits were worth the risk (Bockstoce 1986). Between 1893 and 1895, for

[15] Rainey (1947) stated that some European manufactured goods from Russian trading posts in Siberia were reaching the coastal villages of northwest Alaska before the beginning of the 18th century.

example, the *Narwhal* took 69 whales, the *Balaena* caught 67, and the *Beluga* captured 64 (Adams 1966). The total catch of 200 whales was valued at $1,800,000 [$37,500,000 in 2004 dollars], with each whale worth $9,000 [$187,000] on the market.

However, the fishery was not prosecuted on a sustainable basis. Rather, as with the American bison, the commercial hunt decimated the bowhead whale stock and almost pushed the species to extinction. After 1870, commercial harvests were sparser and more erratic due to the decline of the resource.[16] Vessels had to range farther east to find whales, requiring more time (eventually voyages of more than one year were common so that the ships could overwinter in Canadian waters) and increasing encounters with dangerous ice conditions. The establishment of whaling stations during the 1880s at various points along the Arctic coast was another attempt to adapt to the decline in the biological resource and the changing economic conditions of the industry. By the early years of the 20th century, however, the commercial bowhead fishery had effectively ended (Bockstoce 1986).

The weapons used by the American whalers were more effective than those used by the indigenous inhabitants (Bockstoce 1986). Most significantly, the harpoon used by the Americans was equipped with a darting gun, which fired a small bomb into the whale, where it would explode several seconds later.[17] In addition, the American whalers often employed a heavy brass rifle with a short barrel, called a "shoulder gun," that could shoot a similar bomb into a whale over a short distance. However, it was the ability of the American whaling vessels to pursue the bowheads over great distances and the sheer number of ships that were attracted to the region by the prospect of commercial gain that caused the bowhead catch to soar far higher than the previous subsistence catch of the Natives (Bockstoce 1986).

With the advent of commercial whaling in the western Arctic, the trade between the indigenous people and Euro-Americans increased and expanded to northwest Alaska. Iñupiat and St. Lawrence Islanders began selling the baleen from the whales they killed, while continuing to use the edible parts for subsistence purposes. For example, Bean (1887:110) reported that

> *Many of* [the Natives] *go with whaling vessels, and all who are able to do so unite with a will in taking whales during the absence of the fleet as well. In the spring of 1880, the inhabitants of Point Hope sold the* [baleen] *from five whales which they had killed after the vessels left in 1879. Natives all along the coast from Kotzebue Sound up are supplied with whaling gear such as the whites use, and in their trustworthy* [umiat] *they show great skill and courage in this chase.* [Baleen] *is brought out to every vessel that comes in sight anywhere in the Arctic.*

The trade for baleen, along with ivory and furs, became an important source of profits to the whaling vessels as well as a way for the Native whalers to obtain Western goods (Bockstoce

[16] By the end of the 19th century the number of bowheads that had been killed for the whaling industry totaled over 18,000 (Bockstoce 1986).

[17] The darting gun was developed in 1867 for the specific whaling conditions of the Arctic (Bockstoce 1986; Brown 1887). By killing whales more quickly, the weapon reduced the number that could escape into the ice. Brown (1887:254) stated that, "Were it not for this kind of gun, ice-whaling could not be successfully pursued."

1986). At the same time, the indigenous people of the region also began acquiring trade goods directly by working aboard the whaling ships, first as interpreters and guides and later as ordinary seamen and occasionally as boatsteerers (harpooners) (Bockstoce 1986). Foote (1964) states that residents of St. Lawrence Island were being hired onto whaling ships by the early 1860s. As some ships began wintering over for earlier access to the migrating whales, whole families were signed aboard as "ships natives," the women to serve as seamstresses, the men as hunters and dog drivers in the winter and as seamen in the summer (Bockstoce 1986; Bodfish 1991).

The establishment of the aforementioned shore whaling stations during the 1880s intensified contact between the commercial whalers and Native populations (VanStone 1958). By hunting whales in the spring, long before the whaling ships could make their way into the area, the catch and amount of baleen shipped south later in the year could be considerably increased (Allen 1978). By 1897-98, 13 such stations were strung out at intervals along the coast between Point Hope and Cape Seppings, with 70 whaling crews (Bockstoce 1986; VanStone 1958).[18] These stations hired many indigenous residents to help crew the boats during the whaling season. In 1890, 400 Iñupiat were engaged in shore whaling at Point Barrow alone, using 70 *umiat* and ten wooden whaleboats (Freeman et al. 1998). A mutually beneficial arrangement soon evolved whereby the indigenous whalers hunted bowheads, exchanged the baleen at the stations for money or trade goods and kept the carcasses for food (Braund and Moorehead 1995). With the pressing need of the shore-based whaling stations for labor, most of the people from the Bering Sea to the Canadian border became involved in the whaling industry (Bockstoce 1986).

Gradually the Iñupiaq and St. Lawrence Island whaling communities adopted the whaling gear of the Yankee whalers. Given the critical importance of whaling to the coastal villages, there was some reluctance to deviate from the traditional practices of their ancestors (Bockstoce 1986; Rainey 1947). By 1880, however, a foreign observer reported that nearly every *umiak* that he saw equipped for whaling was fitted out with iron lances, darting guns, and manila lines (VanStone 1958).[19] In addition, many Iñupiaq and St. Lawrence Island boat captains replaced

[18] Hughes (1984) noted that it is uncertain if a shore-whaling station was established at St. Lawrence Island but speculated that it was not unlikely.

[19] Ray (1885:48) reported that, "In the spring of 1883, when [the hunters of Point Barrow] came to prepare their boats for whaling, they decided after many grave debates that the bad luck of the previous year was owing entirely to their having equipped their boats with white man's gear, of which they had abundance, obtained from wrecked whalers; so it was decided that they would go back to the implements of their fathers, and the old ivory and stone harpoon and lance heads were brought forth and repaired, and that they took one whale was attributed entirely to this change; the fact that the whale was killed by a shot from a bomb gun we loaned them to the contrary notwithstanding." At around the same time, Murdoch (1892:53) observed that, "Although [the Iñupiat] have plenty of the most improved modern whaling gear, they are not likely to forget the manufacture of their own implements for this purpose, as this important fishery is ruled by tradition and superstition, which insists that at least one harpoon of the ancient pattern must be used in taking every whale." Brower (1965:124) stated that, "the spring of 1888 marked the last season in which many of them kept to their old whaling customs. After that the younger crowd began generally to adopt our whaling gear, tackles, guns, bombs and all. They even insisted on hard bread and tea out on the ice. Tents, however, were not to be used for many years yet; not until we began to hire Eskimos to whale regularly for the station. Then they demanded everything exactly the same as the white men."

their *umiat* with sail-powered wooden whaleboats provided by the land stations or acquired from the whaling ships in exchange for baleen, ivory, or furs (Allen 1978; Braund 1988).[20]

With the adoption of this new and more effective technology, participation by the indigenous people in commercial whaling became very lucrative, and Rainey (1947:281) noted that "many Eskimo made a small fortune out of the sale of baleen."[21] Some accumulated sufficient capital to organize their own commercial whaling crews, and by the early 20th century many had purchased schooners for whaling and trading (Bockstoce 1986). In 1908, the explorer-anthropologist Vilhjalmur Stefansson (1926) found several Iñupiat at Point Barrow hiring boat crews and paying equal wages with Euro-Americans.[22] He recorded the prosperity enjoyed by the Natives at Point Barrow as well as how easily commercial whaling was integrated into their traditional subsistence lifestyle:

> *Some of the Eskimo at Point Barrow carry on whaling on a large scale, maintaining as many as five or six boat crews. Irrespective of whether their employers are white or Eskimo, these men get each year as wages about two hundred dollars'* [$4,000 in 2004 dollars] *worth of supplies. This means that the Point Barrow community leads an easier life than any other community does as a whole in any land where I have ever traveled. The whaling season in the spring is six weeks, and is six weeks of fairly easy work at that. For all the rest of the year the men have nothing to do,—are their own masters, and can go wherever they like, while their employers must not only pay them a year's wages for six weeks' work, but also furnish them houses to live in, usually, and rations for the entire year. Of course the men are expected to get their own fresh meat, which they do by seal and walrus hunting, and by cutting in the whales,—only the bone (baleen) of which goes to their employers. The employer supplies them with cloth for garments, and such suitable provisions as flour, tea, beans, rice, and even condensed milk, canned meats and fruits. Each man each year gets, among other things, a new rifle with loading tools and ammunition. The result is*

[20] Whaleboats were also often used to remunerate "ship's natives" at the end of their contracts, as they became highly prized for their seaworthiness, speed, and maneuverability under sail (Bockstoce 1986; Braund 1988). The Iñupiat seemed to have preferred wooden whaleboats for open-water whaling under sail but continued to use lighter *umiat* for spring hunting in the leads (Bockstoce 1986). On St. Lawrence Island the wooden whaleboat eventually completely replaced the traditional, flat-bottom skin boat for whaling (Braund 1988). Later, St. Lawrence Islanders adopted a round-bottom skin boat equipped with sails, an exterior keel, and an inboard motor (Braund 1988).

[21] The term "Eskimo" generally refers to the Native peoples of northwestern and northern Alaska. Although among some Alaska Natives there is a pejorative connotation to this term, it is often used as a means of self-identification, particularly in the context of game and marine life management. For example, it can be found in the names of organizations working on resource co-management issues, such as the "Alaska Eskimo whaling commission" and the "Eskimo Walrus Commission." Interestingly, no other term encompasses both Yup'ik and Iñupiat peoples while excluding other Alaska Native groups.

[22] In the early years of the 20th century, a missionary at Barrow noted that "all natives but two are dependent on white men for rations or they work on capital and materials furnished by whites. The two mentioned that are free from debt are running whaling crews on their own credit" (Jackson 1908). Murdoch (1892) noted that crewmembers were typically paid by the *umialit* with shares of the baleen obtained from harvested whales. Murdoch also reported that all boats in sight at the time a whale was struck were entitled to a share of the baleen.

> *that firearms are probably nowhere in the world cheaper than they are at Point Barrow* … (Stefansson 1926:60-1).

Hadley (1915:920) observed that the expenses of the station at Point Barrow to recompense the Natives "with food, clothes, rifles and ammunition, exactly as good or even better than the white man's" were from $15,000 to $20,000 [$300,000 to $400,000 in 2004 dollars] per year. But as Stefansson (1926:61) noted, "whaling was so fabulously profitable an industry that the whaling companies cared scarcely at all what they paid for services as long as they got the whales."

Although Stefansson only mentions male participants in commercial shore whaling, other chroniclers of this period indicate that women also worked in the whaling crews. According to Murdoch (1892:273), for example, "men are preferred for the whaling crews when enough can be secured, otherwise the vacancies are filled by women, who make efficient paddlers" (see also Bodenhorn 1990).[23]

During this period, the indigenous people of the region were assimilated into the market economy in other ways as well. For example, the residents of Wainwright found employment in nearby mines that provided coal to the whaling ships (steam powered by the 1880s), while St. Lawrence Islanders made decorative articles, such as ivory carvings, especially for outside markets (Jorgensen 1990).[24]

Contact with Euro-Americans brought more than economic change to Iñupiaq and St. Lawrence Island communities. The destruction of a large part of the pre-contact ceremonialism related to the whale hunt occurred in the late 19th century, partly as a result of contact with white traders and whaling crews, and in part as a result of the arrival of Christian missionaries (Lowenstein 1986). The first government schoolhouses were erected at Point Hope, Cape Prince of Wales, and Point Barrow in 1890; on St. Lawrence Island in 1894; and at Wainwright in 1904 (Milan 1964). The presence of schoolteachers was important in accelerating the acculturation process. Milan (1964) noted that the schoolteachers were salesmen of their own social practices and on occasion doubled as lay missionaries.[25] The teacher/missionary at Point Barrow was usually a physician as well.[26] Shown by the Yankee whalers that bowhead could efficiently be taken without elaborate traditional ceremonies, and rather quickly convinced by early missionaries of the Christian message, much of the ancient whaling belief system collapsed – or went underground – in a matter of decades (Lowenstein 1986).[27] By 1910, most of the *qargi* structures in the whaling villages had been abandoned or demolished as a result of their connection to shamanic activity and "pagan" ceremonialism (Larson 1995). According to Spencer (1959), the

[23] Women were also responsible for hauling supplies from the villages out to the whaling camps at the edge of the shore ice (Murdoch 1892).

[24] St. Lawrence Island ivory carvers became known for their high quality work, and each piece they made was distinctively marked as having come from the island (Hughes 1960).

[25] Each school was organized with the support of a church: the Presbyterians at Point Barrow, the Episcopalians at Point Hope, and the Congregationalists at Cape Prince of Wales (Smith and Smith 2001).

[26] Chance (1990) suggested that the educational, medical, and economic services offered by the missionaries helped considerably in converting the Iñupiat to Christianity.

[27] Nevertheless, it took a number of decades for shamanism to die out. Spencer (1959) reported that the last of the shamans at Barrow was still practicing in 1935.

close interpersonal alliances within whaling crews remained, but the structure was eventually stripped of its former religious and ceremonial trappings. Chance (1990) noted that in many whaling communities Christian prayers soon replaced the traditional rituals associated with the whale hunt.[28] However, in some villages, such as those on St. Lawrence Island, the traditional whaling ceremonies continued to be followed well into the 20th century (Jolles 1995a; Geist 1937; Keim 1969; Smith 1937).

Rapid and dramatic social change also resulted from a severe demographic shock caused mainly by the introduction of foreign diseases and famine. Throughout the latter half of the 19th century, the Native population of northwest Alaska and the Arctic slope was in general decline. Small settlements disappeared and larger ones lost many of their members (Burch 1975). In some Iñupiaq coastal villages that were severely depopulated following contact with Euro-Americans, the previous residents were replaced by inland people who came to the coastal settlements and maintained the whaling focus, joining and sustaining decimated whaling crews, but depopulating the interior (Sheehan 1995).[29]

In a particularly tragic incident approximately 1,000 people on St. Lawrence Island (two-thirds of the island population) starved to death in the winter of 1878-79 as a result of depletion of the walrus population by the Euro-American whaling fleet and possibly other factors (Bockstoce 1986).[30] All the small outlying settlements were abandoned and the remaining population concentrated at Sivuqaq, the major village of the island (Hughes 1984; Jolles 1995a).[31] By 1903, the island was inhabited by only 261 people (Bureau of Indian Affairs 1974). The St. Lawrence Island population was supplemented by people migrating from the Chukotsk Peninsula of eastern Siberia (Bureau of Indian Affairs 1974). As a result of these demographic changes the previously coherent network of kinship ties throughout the region was disrupted, and some clans and descent lines were erased (Burch 1975).

The population decline, together with the participation in commercial whaling and trading, also appears to have allowed already influential individuals in the whaling communities to accumulate even more wealth, power, and prestige and perhaps led to a greater socioeconomic

[28] Milan (1964) stated that for a time the traditional amulets carried aboard a whaling *umiak* were replaced by pages torn from the Bible, or even pieces of pilot bread representing the sacrament. Pilot bread (also known as the hardtack, crown pilot biscuit, sea bread, ship bread) is a staple food for all cultures in Alaska because of its hardiness and use among sailors, fishermen, explorers, and pioneers. Pilot bread is a round biscuit popular today throughout Alaska. The first Crown Pilot bakery was established by Pearson & Sons Bakery in 1792 to serve sailors who needed a durable substitute for fresh bread that would last during long sea voyages. A century later, Pearson & Sons formed with other bakeries the National Biscuit Company, known today as Nabisco. Pilot bread was carried on-board by fishermen and commercial whalers setting sail from Massachusetts, and was eventually brought to Alaska.

[29] The movement of many inland peoples to the coast during the end of the 19th century was also prompted by an abnormally low point in the cyclical pattern of caribou population dynamics (Bockstoce 1986).

[30] During the early 1880s, devastating famines struck other whaling villages, including Point Barrow (Bockstoce 1986).

[31] In 1898, the village of Sivuqaq was renamed Gambell in honor of the island's first teacher/missionary (Hughes 1960).

differentiation within villages (Bockstoce 1986).[32] Murdoch (1892:429-30) noted how the interest of Euro-Americans in identifying "middlemen or spokesmen" in order to facilitate their transactions with the indigenous people led to a concentration of authority and wealth:

> *This sort of prominence … appears to have been conferred upon them by the traders, who, ignorant of the very democratic state of Eskimo society, naturally look for "chiefs" to deal with. They pick out the best looking and best dressed man in the village and endeavor to win his favor by giving him presents, receiving him into the cabin, and conducting all their dealings with the natives through him. The chief, thus selected, is generally shrewd enough to make the most of the greatness thrust upon him, and no doubt often pretends to more influence and power than he actually possesses.*

After the U.S. Bureau of Education began introducing domesticated reindeer into the region in 1892 out of concern over the dwindling food resources (Milan 1964; Rainey 1941),[33] the rapid growth of large reindeer herds intensified socioeconomic differences in Iñupiaq society (Worl and Smythe 1986). According to Rainey (1941), in a short time most of the reindeer were owned by few wealthy individuals who hired members of their extended family to herd them.[34]

Social change was also caused by the adoption of Euro-American technology in other subsistence activities besides whaling. Although the Iñupiat and St. Lawrence Islanders continued to hunt land animals for food, modern firearms soon replaced their traditional hunting weapons.[35] By the early 1880s, the residents of Point Barrow had acquired the most up-to-date repeating rifles (Bockstoce 1986; Murdoch 1892). The use of the rifle made hunting seals, walruses, and caribou easier and, according to Sonnenfeld (1960), reduced the need for sharing and cooperation within kin groups. Rainey (1947) reported that the disappearance of feuds and warfare during the 19th century also diminished the necessity of maintaining large cooperative kinship groups, and by the early 1900s, nuclear family households had assumed a more important social and economic role.

In short, during the sixty or so years that commercial whaling was pursued in the western Arctic, the traditional Iñupiaq and St. Lawrence Island whaling societies underwent some far-reaching

[32] During this period a number of individuals, such as Attungoruk of the village of Tigara (Point Hope), accumulated enough power to almost completely dominate their communities (Bockstoce 1986; Brower 1965; VanStone 1958).

[33] Reindeer husbandry became a vocational part of the school system in participating villages (Lopp 2001). Although the reindeer herds were primarily a subsistence resource, some reindeer herders also sold the skins and meat to traders (Bodfish 1991). However, it was difficult to develop a market for reindeer products outside of Alaska due to competition from the beef industry (Schneider 1991).

[34] Rainey (1941) stated that in 1926 the Bureau of Education introduced a system of community or company ownership in an apparent attempt to distribute the reindeer among a greater number of people. According to Rainey, the elimination of the possibility of increasing one's wealth through individual enterprise contributed to the disappearance of most of the reindeer herds by the 1940s.

[35] Murdoch (1892) reported the Iñupiat at Point Barrow were afforded the opportunity to obtain rifles and ammunition every year after 1854, when Euro-American whalers first came as far north as the Point. When Murdoch visited Point Barrow in the early 1880s he noted that rifles and revolvers had almost completely replaced bows for actual hunting.

and permanent transformations. In the 1980s, a village elder remarked that the problems experienced by contemporary Iñupiat were "only approaching" the turmoil of that earlier era (Bodenhorn 1989:32). Notwithstanding the degree of social upheaval, the Iñupiat and St. Lawrence Islanders of the 19th century, in contrast to other indigenous Americans such as the Plains Indians, were able to retain access to their traditional resource base (although the bowhead population had been severely depleted by the end of the century [Bockstoce 1986]). Moreover, the participation of the Iñupiat and St. Lawrence Islanders in commercial whaling may have helped preserve traditional leadership roles, economic ties among extended family members and sharing practices within the broader community at a time when other outside forces threatened to sweep away the foundations of their culture (cf. Stevenson 1997). Through a complex process of assimilation (of Western technology, wage employment, capitalist ventures, etc.) the Iñupiaq and St. Lawrence Island whaling communities used commercial whaling as a vehicle to adapt to Western culture while still retaining many of the critical elements of their traditional culture, much as other groups of Alaska Natives used commercial fishing (NPS 1998).

Post-Commercial Subsistence Whaling

Between 1908 and 1914, the whaling industry in the western Arctic gradually disappeared. The drastic depletion of the bowheads by commercial whaling operations and the invention of baleen substitutes such as spring steel and celluloid both contributed to its demise (Allen 1978; Bockstoce 1986). Some Alaskan trading companies continued to deal in small amounts of baleen into the 1920s (NMFS 1977),[36] but the end of the Arctic whaling industry ushered in the return to whaling as primarily a subsistence activity (IWC 1982).

With bowheads nearly commercially valueless, the number of whaling crews fell almost to the level prior to Euro-American contact (Bockstoce 1977). The available data suggest that the number of bowheads harvested during the years immediately following the cessation of large-scale commercial whaling was relatively low even compared to pre-contact levels (Table A.1). This was a lean economic time for the indigenous people of north and northwest Alaska (Jorgensen 1990). After the collapse of the baleen market in the early 1900s, Iñupiaq and St. Lawrence Island whaling villages still relied heavily on the bowhead for subsistence needs; but the cost of guns, ammunition, and other supplies effectively limited the number of boat crews that could afford to hunt (Sonnenfeld 1960). Since the whaling communities had little interest in returning to their earlier techniques, the number of boats used in hunting the whale was governed by a potential crew captain's ability to raise the funds necessary for outfitting (Sonnenfeld 1960).

[36] As late as 1950, the native store at Point Hope shipped to Seattle by the annual supply ship 40 drums of whale and seal oil for the manufacture of candles and soap; however, such shipments were unprofitable and were discontinued (Fejes 1966). Whale meat and *maktak* continued to be sold in local stores (Milan 1964), and baleen and other whale parts were made into arts and crafts products by the Iñupiat and St. Lawrence Islanders and sold (Lee 1998; Worl 1980).

Table A.1. Bowhead Whales Landed per Year by Decade during the Post-Commercial Subsistence Whaling Era

Decade	Number of villages with reported takes[a]	Average number of whales landed per year	Total landings	Approximate annual number of whaling crews
1915-1919	8	10	50	49
1920-1929	8	16	157	47
1930-1939	9	12	122	52
1940-1949	9	12	120	36
1950-1959	7	10	101	41
1960-1969	8	14	144	62
1970-1979	10	27	266	85
1980-1989	9	16	158	95
1990-2000	10	51	506	>100
2000-2002	NA	57	172	>100

[a] According to the IWC (1982), from 1920 to 1970, crews were based continuously in five communities (Barrow, Wainwright, Point Hope, Wales, and Gambell) and for less than the full-time span at four others (Savoonga, Point Lay, Kivalina, and Kaktovik). The village of Nuiqsut was resettled in 1973 and landed its first whale that same year (Okakok 1973). Some crews whaled in the mid-Beaufort Sea during the 1920s-1940s from Cross Island and other barrier islands (Carnahan 1979).

Sources: Braham (1995); IWC (2004)

Further disrupting subsistence activities during this period was the influenza epidemic of 1917-1918. In the whaling village of Wales at the eastern tip of Seward Peninsula more than one-third of the 600 residents died within a week; most of the whaling captains in the village succumbed to the disease, and whaling activity was suspended (Chance 1990; Collins 1939). And on St. Lawrence Island the epidemic caused Gambell residents to flee to unoccupied village sites around the coast to isolate themselves from the infectious disease (Jorgensen 1990).[37]

At the conclusion of World War I, however, the worldwide fur trade accelerated sharply and the Iñupiat and St. Lawrence Islanders quickly turned to this activity in order to supply their commodity needs (Bockstace 1986; NSF 2000a). Trappers made partnerships with individual trading ships or shore-based traders.[38] A particular trapper would arrange a year ahead for the ship or company to bring certain supplies to him. In exchange, the trapper would trade his arctic fox pelts and other furs with that "partner" (Libbey and Schneider 1987).

[37] Jorgensen (1990) indicated that the epidemic contributed to the establishment of Savoonga as a separate village on St. Lawrence Island. Savoonga was started as a reindeer camp in 1914 after the U.S. Board of Education introduced the animals to the island in an attempt to help residents develop a food resource (Hughes 1984).

[38] Some of the most prominent managers of the shore-based fur trading stations, such as Charles Brower of Barrow, Tom Gordon of Barter Island (Kaktovik), and Jim Allen of Wainwright, were initially commercial whalers. The trading stations of Brower, Gordon, and Allen were branch stores of H. Liebes and Company, a San Francisco-based fur buying business (Schnieder 1991).

For some individuals, income from trapping exceeded what had been possible from commercial whaling (Hughes 1984). An annual income of $3,000 to $4,000 [$31,500 to $41,200 in 2004 dollars] was not unusual (Chance 1990).[39] By the 1920s, the whaling villages used the large sums that could be garnered from running trap lines to capitalize their subsistence pursuits (Jorgensen 1990). Outboard motors, shotguns, rifles, and binoculars were purchased to harvest and transport sea mammals, and portable camping goods, from thermos bottles to stoves to canvas wall tents, soon came to be standard equipment in whaling camps.[40]

Data on the subsistence bowhead catch show a substantial increase for the period 1920-1929 (Table A.1). However, unlike commercial whaling, trapping required that some subsistence activities be less actively pursued, mainly early and mid-winter sealing and late winter-early spring caribou hunting (Chance 1990). Furthermore, trapping cut deeply into the winter period previously devoted to community activities and affected long-standing patterns of family and village cohesion (Chance 1990). In addition, by the 1920s and 1930s, there was increased mixing of Iñupiaq and non-Native attitudes and norms. Contact with the outside world increased in the form of visits from federal officials (most notably Bureau of Indian Affair employees) and longer stays of schoolteachers and missionaries (VanStone 1960; Milan 1964).[41]

The collapse of the market for furs caused by the stock market crash of 1929 and repeal of the embargo on Russian furs following the recognition by the United States of the Soviet Union in 1933 caused another economic downturn in the whaling communities (Bockstoce 1986). As this source of income disappeared a more self-sufficient subsistence mode of life and earlier patterns of cooperation and interdependence reemerged (Chance 1990; Hughes 1960; Spencer 1959). Not until the onset of World War II did the whaling villages experience economic relief, this time mainly in the form of public sector jobs.

Military bases were established along the Arctic coast, and many Iñupiat and St. Lawrence Islanders served in the Alaska Territorial Guard or were absorbed into the regular ranks of the U.S. Army (Chance 1990; Hughes 1984; Klausner and Foulks 1982). World War II-era military exploration of petroleum reserves and post-war government defense projects such as the Distant Early Warning sites (DEW Line) led to a further increase in employment opportunities (Chance 1990). Many of the Iñupiat hired by the Navy for oil exploration in the Naval Petroleum Reserve No. 4 shifted to jobs offered by the Arctic Research Laboratory when it was established at Barrow in 1947 (Brewster 2001). To take advantage of these job opportunities some Iñupiat relocated to Barrow and other larger villages to be near employment sites. Iñupiat found jobs as tractor drivers, carpenters, mechanics, machine operators, boat skippers, office support, and laborers and received standard wages (Brewster 2001; Milan 1964). Although these jobs were

[39] Bodfish (1991) reported that hunters received $45 ($470 in current dollars) for each fox fur sold to traders.

[40] As early as 1916, American schoolteachers on St. Lawrence Island reported that the natives had purchased "two powerful gasoline motors … to be used in their whaling operations" (Anon. 1916). Ole Evinrude had received a U.S. patent for the first commercially produced outboard motor only five years earlier. Rodahl (1963) observed that the St. Lawrence Island whaling crews used outboard motor-powered boats to scout for whales. When a boat crew sighted a whale they hoisted a blue flag at the stern, which was a signal to stop all motors and to use only sails in order not to frighten the whale. See also Smith (1937).

[41] Brewster (2004) noted that this was a period when adventurous young Euro-American teachers and missionaries traveling to "exotic" and remote places were quite common among certain circles of Lower 48 society.

taken primarily by men, women started to enter the labor force as new jobs opened in education, health, and other government services (Kruse 1984). In addition to wage employment, government assistance programs, such as Old Age Pensions, Aid to Dependent Children, and General Relief, were made available to qualifying Iñupiaq households (Milan 1964).

The boost in village purchasing power, in turn, led to almost complete "Americanization" of household and personal material goods, together with those involving the subsistence economy (VanStone 1960). In 1955, for instance, Milan (1964:29) noted that, while some traditional items of clothing were still common, "emulation of White dress and adornment is carried to extremes by the younger people." Moreover, as life became easier with the availability of high-paying jobs some individuals expressed concern that cooperative relationships were weakening. Worl and Smythe (1986:38-9) provided the following quote from a Barrow resident:

> *When construction began on the NARL* [Naval Arctic Research Laboratory]*, there was a very definite change in the attitude of the people due to the introduction of employment to the community. You could really see a change in the cooperative sharing. Right after employment was introduced, everyone sort of abandoned the fur trading as a mean of bartering for making ends meet. When everyone got jobs, things became easier. People began building wood frame homes, build some boats, outboard motors. As things got a little easier, people started to stick to themselves around their immediate families since everyone was now in a position of self-reliance.*

In addition, post-war research predicted a waning of subsistence activities and the full integration of Alaska Natives into a cash economy (Jorgensen 1990). Nelson (1969:384) reported that the introduction and acceptance of steady-wage jobs partially or totally precluded subsistence hunting. He noted that "the majority of the 1,200 Native residents [of Barrow] work a six-day week and hunt only on days off" (Nelson 1969:4). Writing of the inhabitants of Point Hope, VanStone (1960:190) stated that it "seems likely that as more young people leave the village to complete their education and become more oriented toward a money economy, they will become correspondingly disoriented from village subsistence activities and would seek economic opportunities away from the villages."[42] Nelson (1969:387) also observed that the majority of the youths that returned to their home villages after outside schooling or employment were unwilling to learn the skills of hunting, and he predicted "that the native economy will die with the passing of the present generation." He even predicted an end to whaling in some villages: "at Wainwright whaling is becoming a lost art" and "is degenerating even in its greatest stronghold at Point Hope" (Nelson 1969:213-4).[43]

[42] During the 1960s, the Bureau of Indian Affairs expanded its programs of sending Alaska Native young adults away for school and then sending them to cities, such as Seattle and San Francisco, for employment (Burch 1975; Jorgensen 1990).

[43] Nelson (1982) later reversed his view on the demise of whaling, explaining that his earlier conclusions resulted from a misunderstanding of how deeply subsistence activities are embedded in community life and how integral they are to Iñupiaq values and cultural continuity.

However, other researchers recorded that the Iñupiat and St. Lawrence Islanders were successfully integrating cash and subsistence economies (e.g., Hippler 1970; Milan 1964). Milan (1964) reported that in Wainwright whaling was still one of the more important activities, not only for the meat obtained but also because it was a traditional and enjoyable pursuit for the hunters. Kruse (1984:137) also discussed the reasons why interest in whaling remained high through the 1950s and 1960s:

> *First, the prospect of more secure food supplies increased the relative attractiveness of whaling over the traditional mainstays of the subsistence economy—seal and caribou—both of which provided little meat per kill. Second, active whaling consumed only a few weeks a year and could be fitted among other activities. Third, whaling captains were accorded high social status. Finally, and perhaps most important, whaling continued to involve a large segment of the community and remained the most visible tie to traditional Iñupiaq activities.*

Popular media accounts of whaling on the North Slope also emphasized the importance of the activity in terms of unifying the members of each community through both work and celebration (Osborne 1963).

Kruse (1984) reported that the findings of household surveys suggested that wage employment opportunities had led to a decline in the economic importance of subsistence products in North Slope communities. He added, however, that existing levels of wage income and subsistence harvests were not strictly substitutes for each other (Kruse 1984). According to Kruse and a number of other observers, wage employment helped in some ways to financially support subsistence activities such as whaling. Milan (1964), for example, noted that it was expensive to be an *umialik*, and a reliable source of income was necessary to achieve this status. Sonnenfeld (1960) observed that the costs had become a much less important factor in limiting the number of crews able to participate in whaling since wages from construction and other employment made ample funds available to support whaling activities. The relative economic prosperity may have contributed to the resumption of subsistence whaling in some communities. Whaling in Kivalina and Kaktovik was revived with whale harvests in 1964, and in 1970 Wales harvested its first whale since 1934 (Durham 1979).

Expansion of Subsistence Whaling

Oil exploration at Prudhoe Bay was followed by corporate production during the late 1960s and construction of the Trans-Alaska Pipeline in the mid-1970s. The petroleum industry had little direct effect on employment and income.[44] Most jobs required a high skill level and, whereas the

[44] The North Slope Borough (NSB) estimated that less than 1% of the jobs available at the major North Slope oil operations were filled by Alaska Natives (National Research Council 1994). On the other hand, several oilfield-service companies (for catering, etc.) owned by Alaska Native corporations hire a high proportion of Iñupiaq workers (National Research Council 1994). In particular, the Arctic Slope Regional Corporation (ASRC) is heavily invested in the oilfield-service industry. In addition, several ASRC subsidiaries were involved in the construction and drilling of the Alpine field, which recently came on line, and the ASRC owns, with the state, the

development phase required high peak employment for a short time, production employment levels were substantially lower (Tuck and Huskey 1986). The jobs that were offered to Iñupiat were viewed by many as unattractive—the jobs were menial and required employees to live at work sites for long shifts because of the length of the commute to get to the sites (Kruse et al. 1983). Moreover, existing work schedules provided for time off, but only according to a rigid pattern that did not fit well with Iñupiaq desires to mix wage employment with hunting, fishing, and village social activities (Kruse 1984).

However, Iñupiat took advantage of state legislation that made it possible to form regional governments (boroughs) with a taxing authority on property (Jorgensen 1990). Through this instrument, taxes could be levied on oil industry facilities and infrastructure at Prudhoe Bay. The North Slope Borough (NSB) was incorporated in 1972 and through its taxing authority received large revenues from Prudhoe Bay oil production.[45] In addition, Congress passed the Alaska Native Claims Settlement Act (ANCSA) in 1971. The act settled Alaska Native land claims with a grant of 44 million acres and payment of one billion dollars. It also provided for village and regional corporations to manage the settlement. Land and money were channeled to the Iñupiaq villages on the North Slope through the Arctic Slope Regional Corporation (ASRC), a for-profit regional corporation formed under ANCSA.[46]

The Iñupiat demonstrated a remarkable ability to develop and adapt to these new institutions and to utilize them to promote their political and economic welfare (Worl and Smythe 1986). The meaning and importance of these institutions were incorporated into and expressed through the existing "traditional" Iñupiaq cultural rhetoric and ideology as part of this adaptation. Iñupiaq values were still paramount even within a political and economic structure imposed by an outside authority. Charles "Etok" Edwardsen, Jr. invoked a hunting (and primarily whaling) metaphor when he called ANCSA and the Native corporations the "new harpoon" and described the economic self-determination they afforded the Iñupiat:

> [ANCSA] *contains a tool that can be implemented to fulfill the socioeconomic needs of the Alaska Native people. So with the Native claims bill it was not really the size of the land grant or the amount of the cash settlement that was important. It was the concept, the mechanism that was created. … Now the Eskimo has a new harpoon. He has the tool in the Alaska Land Claims Settlement Act—a regional corporation—to manage his own internal affairs, with dignity, as an <u>owner</u>* (Edwardsen 1974:251-2).

subsurface mineral rights to the Alpine field (National Research Council 2003). Though many of the shareholders initially opposed ASRC's investment in the oil industry the opposition subsided (Worl and Smythe 1986).

[45] During fiscal year 1980, for example, the NSB government collected more than $52 million in tax levies, 94 percent of this from ten energy corporations (Klausner and Foulks 1982).

[46] Under the terms of ANCSA the ASRC was designated to receive about four million acres of land and $52 million from which each of the region's eight village corporations was to receive a portion (Bodenhorn 2000a). Approximately half of the original funds to establish regional and village corporations statewide came from the federal government and half came from state royalties on petroleum (National Research Council 2003).

The NSB was also viewed as the vehicle to unify Barrow with the other North Slope villages, to maintain their political autonomy, and to protect their land ownership and utilization, while allowing the Iñupiat to benefit from petroleum development on the North Slope (Worl and Smythe 1986). The NSB was politically controlled by the Iñupiat, who elected a mayor and assembly members. Although this arena became subject to substantial competition among Iñupiaq families and factions, the creation and control of the NSB allowed the Iñupiat to use tax revenues derived from Prudhoe Bay oil-field facilities in ways that were congruent with Iñupiaq values (Worl and Smythe 1986; see also Hess 1993 and Hopson 1976).

As a result of the ANCSA settlement and the tax money from oil production there was dramatic growth of government and government-related jobs in the Iñupiaq whaling communities. The revenues were used to underwrite the creation of a government bureaucracy and to fund the Capital Improvement Project (CIP) (National Research Council 1994). Substantial investment in all North Slope communities was made in new, upgraded housing; in freshwater and sewage treatment systems; in airport runways; in modern high schools; and in government buildings (National Research Council 1994).

Under the NSB's local hire program, Iñupiaq men took the majority of construction-related jobs created by the CIP during the 1970s; these jobs were highly paid, seasonal, and offered enough flexibility to allow men to continue subsistence hunting (Kleinfeld et al. 1983; Worl and Smythe 1986). Iñupiaq women tended to hold lower-paying, but permanent, jobs in administration and to achieve leadership positions in new institutions (Worl and Smythe 1986). Men also filled the top positions in the ASRC as well as in the NSB, all of which had liberal "subsistence leave" policies.[47] At the start of the decade working women were most frequently in permanent "pink collar" clerical jobs, but by the late 1970s they had begun to move into managerial and administrative positions (Worl and Smythe 1986).

By the end of the 1970s, approximately 50 percent of the jobs held by the North Slope Iñupiat were financed through the borough while an additional 25 percent came from the regional corporation (Chance 1990). The most immediate and obvious accompaniment of this economic activity was the sudden enrichment of North Slope residents (Chance 1990); in constant 1970 dollars, the median Iñupiaq family income rose from $6,923 [$33,284 in 2004 dollars] in 1970 to $10,850 [$52,163] in 1977 and $16,969 [$81,582] in 1979 (Kruse 1984).

The St. Lawrence Island whaling villages also benefited economically from the oil production at Prudhoe Bay, but because they were located outside the NSB they did not benefit as greatly as the Iñupiaq communities.[48] Nor did they receive a large payment under ANCSA, as the St. Lawrence Islanders chose to take fee simple title to the surface and sub-surface lands of the island, thereby foregoing cash awards to underwrite their for-profit village corporations

[47] Kleinfeld et al. (1983) reported that during the whaling season operations virtually come to a halt as workers participate in whaling activities. The authors also noted that workers irregularly absent from work for subsistence or other reasons were usually rehired.

[48] The State of Alaska received billions of dollars in revenues from North Slope oil operations during the late 1970s and early 1980s. It redistributed many of these funds to projects statewide, including among villages on St. Lawrence Island (Jorgensen 1990).

established under the Act (Jorgensen 1990).[49] However, the public sector at the federal and state levels became an important source of income. By 1981, nearly one-half of the households received food stamps, and welfare transfers accounted for one-third of the per capita income. As in the past, many St. Lawrence Islanders volunteered for military service in the Army National Guard (formerly the Alaska Territorial Guard) (Hughes 1960). In Savoonga, the major source of earned income was employment provided by the Army National Guard together with jobs offered by the Bureau of Indian Affairs, U.S. Public Health Service, and the Native Store (Bureau of Indian Affairs 1974). In addition, the digging for raw walrus ivory and ivory artifacts and the carving of ivory became an important source of cash for the majority of families in Savoonga (Bureau of Indian Affairs 1974). Baleen taken from harvested whales was also used to make various handicrafts for the tourist market.

By the late 1970s, even isolated villages in Alaska had access to resourFtoces to build high schools, which raised education levels in a way that did not require each community's youths to spend extended periods of time away from home during their adolescent years (Jorgensen 1990). The schools also gave a larger number of young people a better chance of going to college in Fairbanks, Anchorage, or some other large population center. Median years of education among North Slope residents ages 25 and over doubled between 1960 and 1977, moving from less than 4 years to nearly 9 years (Kruse et al. 1981). Younger Iñupiat had much higher levels of education than older Iñupiat; North Slope residents ages 18-34 in 1977 had a median of more than 12 years of education.

As a result of expanded employment and education opportunities, the 1960s and 1970s saw increased acculturation among Alaska Natives (Lee 1998). However, these changes did not imply a weakening of Native cultural identity, as measured by participation in subsistence activities. Instead of resulting in a decline in subsistence activities, the higher levels of household cash income were directly correlated with peoples' commitment to, and their returns from, natural resource harvesting (National Research Council 1999). Research showed that young Iñupiaq men participated in major subsistence activities as much as the older generation, and those who had been exposed to Western influences through outside schooling tended to be *more* interested in subsistence (Kruse 1986). Increased income, moreover, led to the adoption of more efficient, reliable, useful, and less-demanding subsistence technology (Kruse et al. 1981; Jorgenson 1990; Lonner 1986). For example, those with financial resources frequently counterbalance limited "free time" by spending more money on transportation such as chartering a small plane to fly out to fish-camp (Bodenhorn 1989). In short, cash derived from wage employment did not replace subsistence but underwrote it (Lonner 1986).

During the early 1970s, the Iñupiat reversed their trend of moving from smaller to larger population centers (Worl 1980), and three North Slope villages were resettled–Nuiqsut, Point Lay, and Atqasuk. The influx of money and employment opportunities in communities provided an incentive to lure people back to their villages (Jorgensen 1990). Between 1953 and 1982, for instance, the population of Barrow doubled. The widespread use of outboard motors and snow

[49] Under a special provision enacted subsequent to ANCSA the village for-profit corporations on St. Lawrence Island each received a modest start-up payment (Jorgensen 1990).

machines made it possible for large numbers of people to concentrate residentially in a single settlement and still hunt and fish over a large area (Burch 1975).

As a result of these economic and demographic changes, the 1960s and early 1970s saw a marked expansion of subsistence whaling, especially within some Iñupiaq communities (Table A.1). With the ready availability of high-paying jobs, the money to purchase new whaling gear could be earned in less than six months, and younger men started crews (Bockstoce 1977; Brewster 2004). At Barrow, the number of whaling crews increased by more than 50 percent over the level in the early 1960s; there was a substantial increase on St. Lawrence Island and a small increase at Point Hope (Bockstoce 1977). The number of landed bowheads also increased considerably from the previous decade (Braham 1995; Braund and Moorehead 1995).

The economic growth in the region and increased access to cash to finance whaling crews wasn't the only reason for the resurgence in subsistence whaling. Technological changes such as the introduction of snow machines and relaxation of prohibitions on comfort made whaling more attractive to young Iñupiat (Nelson 1982). In addition, revitalized interest in Iñupiaq traditions during the 1970s placed a greater emphasis on whaling as an expression of cultural identity (Nelson 1982).[50] Growing external pressures against subsistence whaling during the 1970s further heightened its prominent role as a symbol of cultural survival and intensified people's commitment to continue the hunt (Nelson 1982; see also Worl et al. 1981).

On the other hand, some of the new captains did not undergo the traditional rigorous apprenticeship in the art of hunting whales (Morgan 1977). This inexperience, together with the lessening in the rigidity and intensity of the hunt, led to an increase in accidents and higher loss of whales (Morgan 1977; Nelson 1982). The substantial prestige derived from harvesting a whale impelled some captains to accept these risks. As one captain noted, "Everyone knows the honor of getting a whale and some hunt just for that purpose" (quoted in Morgan 1977:8). However, many of the more experienced captains lamented the taking of unnecessary risks as evidenced by the following quote from Harry Brower, Sr., a whaling captain at Barrow:

> *… there was one guy who was camped way down the coast so he'd be ahead of everybody when the whales came up. He kept on shooting all these whales that passed by going close to him just with the shoulder gun. He didn't use any floats. He did this so if they found his bomb in a whale that was killed by someone else, then he'd get the whale. … The scientists were using a microphone that goes under the water, under the ice, to see which way and how many whales passed by. Every time when a bomb exploded it was recorded. And that guy shot twenty-seven whales, but got nothing. We found one whale floating towards the Point and took it ashore. It belonged to him; there was one bomb of his in it* (Brewster 2004:155).[51]

[50] Another example of this cultural renaissance was Iñupiat Ilitqusiat, which roughly translates as "wisdom and lessons of Iñupiaq people." This was a social movement that became institutionalized in northwest Alaska during the 1980s (McNabb 1991).

[51] The inefficiency of using the shoulder gun alone to capture bowhead whales had been noted by earlier observers. Murdoch (1892:276) reported that, "When the leads are very narrow the whales are sometimes shot with the

Imposition of a Quota and Establishment of the Alaska Eskimo Whaling Commission (AEWC)

In the early 1970s, environmental groups began campaigning to save the world's whales and opposition to commercial whaling operations started to grow (Freeman 1989). The U.S. Marine Mammal Protection Act (MMPA) was enacted in 1972 to protect and manage marine mammals. Alaska Natives received an exemption from the moratorium on the taking of marine mammals provided certain conditions were met.[52] In that same year, the International Whaling Commission (IWC)[53] requested that the United States begin to gather data on the Bering Sea bowhead stock and monitor the Alaska subsistence hunt (Braund and Moorehead 1995). Under the 1946 International Convention for the Regulation of Whaling, exceptions were made to allow subsistence whaling by indigenous peoples.[54] By the mid-1970s, however, there was increasing apprehension within the IWC about the status of all bowhead stocks and particular concern over the Bering Sea stock because of the intensifying subsistence harvest (Braham 1995; NMFS 1977). At that time the IWC Scientific Committee estimated that the population of the Bering Sea stock of bowhead whales was between 600 and 1,800 animals (Freeman 1989). Fearing the whale population would be depleted beyond recovery, the IWC voted to delete the Native exemption for the subsistence harvest of bowhead whales in June 1977, effectively creating a ban on subsistence whaling.

The Iñupiaq and St. Lawrence Island whaling communities had not been apprized by the U.S. federal agencies of the international concerns about the status of the Bering Sea stock of bowhead whales (Ahmaogak, M. 2000; Freeman 1989). When news of the IWC action reached the whaling communities they immediately initiated an organized opposition to the ban. In August 1977, with the authority vested in the Iñupiat Community of the Arctic Slope (ICAS),[55]

bombgun from the edge of the ice. Success in this appears to be variable." Sonnenfeld (1960:175) also discussed the problem of "misuse, or excessive and wasteful use" of the shoulder gun. The AEWC Management Plan as amended specifies that the shoulder gun may be only used after a line has been secured to the bowhead whale or when pursuing a wounded bowhead whale with a f1oat attached to it.

[52] Section 101(b) of the MMPA states that "…the provisions of this chapter shall not apply with respect to the taking of any marine mammal by any Indian, Aleut, or Eskimo who resides in Alaska and who dwells on the coast of the North Pacific Ocean or the Arctic Ocean if such taking (1) is for subsistence purposes; or (2) is done for purposes of creating and selling authentic native articles of handicrafts and clothing: Provided, That only authentic native articles of handicrafts and clothing may be sold in interstate commerce: And provided further, That any edible portion of marine mammals may be sold in native villages and towns in Alaska or for native consumption. … (3) in each case, is not accomplished in a wasteful manner."

[53] The IWC was established under the International Convention for the Regulation of Whaling in 1946 and currently has 42 member countries, including the United States. The IWC is empowered by contracting governments to set harvest quotas for stocks of certain whale species that are subject to commercial or aboriginal subsistence whaling.

[54] Paragraph 7 of the Schedule to the Convention, revised 1976, specifies that "… the taking of gray or right [bowhead] whales by aborigines or a Contracting Government on behalf of aborigines is permitted but only when the meat and products of such whales are to be used exclusively for local consumption by the aborigines" (NMFS 1977).

[55] The ICAS is a regional tribal organization formed in 1971 under the amended federal Indian Reorganization Act of 1936. As such, it was recognized by the federal government as having the authority to generate local policies concerning natural resources important for Iñupiat. The AEWC was incorporated as an independent entity in 1981 (Ahmaogak, M. 2000).

the Alaska Eskimo Whaling Commission (AEWC) was formed to represent the interests of the nine active Iñupiaq and St. Lawrence Island whaling communities: Gambell, Savoonga, Wales, Kivalina, Point Hope, Wainwright, Barrow, Nuiqsut, and Kaktovik (Ahmaogak, M. 2000).[56] The AEWC lobbied against the moratorium, arguing that the bowhead population was much larger than the scientists' estimate and that the subsistence hunt was of profound cultural importance to the whaling communities (Freeman 1989). The U.S. government agreed to raise the issues at a special meeting of the IWC. The IWC acknowledged the cultural importance of the bowhead hunt to the whaling villages and agreed in December 1977 to remove the ban, granting a limited subsistence quota of 12 bowhead whales killed or 18 struck, whichever came first.[57] The quota of 12 whales were divided among 10 whaling villages; resulting in substantially lower takes than in the previous several years (Braham 1995). Since that time the quota has been periodically increased; most recently, the IWC approved a 5-year (2003 – 2007) subsistence quota for bowhead whales that allows strikes of no more than 67 bowhead whales annually.

From the onset, the whaling communities had made it clear that they fully shared the concern of non-Natives that the bowhead be managed in a way that would ensure its continued survival (Freeman 1989). However, the first years of the externally imposed management regime brought hardship to some communities, as no whales were landed because the strike quota was so small (Jolles 1995b). As a result, the early years of the quota were marked by threats of court action and civil disobedience in support of Native subsistence rights (Freeman 1989). Confrontations with the federal government over enforcement of the quota led to a bitter standoff in the fall of 1980 (Huntington 1992a; 1992b).

Out of this conflict came a cooperative management agreement between the National Oceanic and Atmospheric Administration (NOAA), the federal agency responsible for managing whales, and the AEWC. Signed in March 1981, the agreement delegated to the AEWC the management authority for the Eskimo whale harvest, allowing the AEWC to manage the hunt without the presence of federal agents in the whaling communities (Huntington 1992a). Although AEWC and federal government positions on the quota issue were by no means congruent in the years following the signing of the cooperative management agreement, the agreement has remained operative and is considered a successful model for local user-state comanagement arrangements, especially for marine mammal management in the North American Arctic region (Freeman 1989).[58]

[56] The community of Little Diomede was granted membership in the AEWC in 1988, and in 1994, the IWC recognized Little Diomede as a whaling community entitled to hunt bowheads under the quota (Braund and Moorehead 1995). In 2004, the village of Point Lay requested that it also receive a bowhead quota to meet subsistence needs (Gay 2004). To receive a quota from the AEWC, the IWC will have to approve Point Lay's eligibility under that body's aboriginal-subsistence whaling regime. This requires submission of a detailed cultural needs assessment, as occurred when Little Diomede successfully applied for a quota. The NSB has agreed to help fund the study to prove Point Lay's heritage as a subsistence whaling community (Gay 2004).

[57] According to the Schedule to the International Convention on the Regulation of Whaling, the definition of a "strike" is "to penetrate with a weapon used for whaling."

[58] For example, the Eskimo Walrus Commission, established in 1978, can be seen, in part, as an adaptation of the successful example of the AEWC (Langdon 1989). More recently, NMFS has entered into an agreement with the Cook Inlet Marine Mammal Council for the cooperative management of the Cook Inlet beluga whale.

The AEWC exists today as a tax-exempt nonprofit corporation whose purpose, as stated in its current by-laws (AEWC 1998), is to:

- preserve and enhance the marine resource of the bowhead whale including the protection of its habitat
- protect Eskimo subsistence bowhead whaling
- protect and enhance the Eskimo culture, traditions, and activities associated with bowhead whales and subsistence bowhead whaling
- undertake research and educational activities related to bowhead whales

The members of the AEWC are the registered whaling captains and their crewmembers of the ten whaling communities (Ahmaogak, M. 2000). The registered whaling captains are voting members, while the crewmembers are nonvoting members. The AEWC is directed by a board of ten Commissioners. Each member village elects one of these commissioners through its whaling captains association. This board has complete authority over all of the Commission's affairs. Staff is hired to oversee the AEWC's administrative and day-to-day activities.

The AEWC ensures that the hunt of the bowhead whale is conducted according to the AEWC Management Plan (AEWC 1995; Ahmaogak, M. 2000). The plan requires that all whaling captains register with the AEWC and submit detailed reports on all whale strikes and landings. Permissible harvesting methods are restricted to "traditional" methods as defined by the AEWC. Claims to the bowhead whale also must follow traditional rules, starting with the captain and crew that first struck the whale. During whaling, all crews are required to bring their garbage back to land and dispose of it in a proper manner. The meat and products, except for traditional Native handicrafts, may not be sold or offered for sale. The AEWC is also very concerned with safety during the hunt and the qualifications of the crews that are participating in the hunt (Impact Assessment, Inc. 1990). In addition to registering all whaling captains, the AEWC collects information on their crewmembers. These provisions serve as a restricting mechanism on who can organize a whaling crew (Impact Assessment, Inc. 1990).

As noted above, from the first imposition of the IWC quota, the AEWC asserted that their hunt was being unduly restricted because scientists were not counting the whales accurately (Albert 2001). Iñupiaq hunters cited their own experiences, as well as knowledge passed down through the generations, that bowheads passing Point Barrow move on a broad front and that many travel under the broken and drifting ice. In the early 1980s, the responsibility for estimating bowhead population size was transferred to the AEWC (Albert 2001).[59] An ongoing bowhead whale census off of Point Barrow was initiated by the North Slope Borough Department of Wildlife Management on behalf of the AEWC and NOAA. By 1997, these census data had led to an IWC estimate of bowhead population size of 8,200, which was about 400 percent higher than the 1978 population size estimate (Albert 2001). Thus, after many years of intensive study, the assertions of the AEWC were fully verified (Albert 2001). Moreover, the better methods for estimation of

[59] In 1982, an agreement between the AEWC and the NSB was formalized whereby the NSB would be responsible for providing the AEWC with technical advice on scientific issues related to the bowhead whale (Freeman 1989).

the population of bowheads and data indicating that the population is recovering have helped the AEWC secure an increased quota since 1986 (Braham 1995).

The five-year quotas established by the IWC are based in part upon the borough's population estimates (Ahmaogak, M. 2000). For the 2003-2007 quota period the total number of bowhead whales landed by Alaska Natives cannot exceed 255, with an annual strike quota of 67 whales per year. Any unused portion of the strike quota is carried forward from that year and added to the strike quota of any subsequent years, provided that no more than 15 strikes are added to the strike quota for any one year.

It is up to the AEWC membership to decide how best to divide the IWC quota among the member villages (Ahmaogak, M. 2000). The whaling captains set the quota for each whaling community based on historical, cultural, and subsistence needs. To increase the possibility that the total allowable catch (quota) is harvested, communities unable to use all of their allotted strikes are likely to transfer their strikes to a community that still has an opportunity to hunt that year. The transference of strikes is a decision made by the association of whaling captains in the village with the unused strikes (Braund and Moorehead 1995).[60] Once the village quota has been agreed upon, it is up to the local association of whaling captains to manage the hunt as it is conducted in each community. Each association has developed and adopted rules and regulations concerning the hunt, which all whalers from that village have agreed to abide by (Ahmaogak, M. 2000). In Barrow, for example, if one crew attempts to strike and misses it must withdraw for a day to give another crew a chance (Bodenhorn 2000b).

In general, whaling captains agree that the quota has helped make whaling practices more efficient and humane (Brewster 2004). However, some older captains have expressed concern that, with a limit on how many whales can be caught, crews have become more anxious to get whales before the quota is filled. They suggest this may encourage some whalers to take less care in placement of the harpoon when initially striking a whale, and that some crews may now be more interested in pursuing their own whales than in helping others land a previously shot whale (Brewster 2004).[61]

[60] Crews from the St. Lawrence Island villages of Gambell and Savoonga are usually the first to begin the subsistence bowhead whale hunt each year, followed by Diomede, Wales and Kivalina (Gay 2004). The spring hunt continues past Point Hope and Wainwright to Barrow, where the season begins in late April. The fall migration brings the whales back south, past Kaktovik, Nuiqsut and Barrow, then far enough offshore that they are out of range of whaling crews until the following spring. At times, whalers in Wainwright and on St. Lawrence Island have tried to whale in the fall, but they have met with relatively little success.

[61] The following quote from Harry Brower, Sr. provided by Brewster (2004:152-3) expressed the concern that some captains may be deviating from the traditional code of conduct:

> *Once a crew sends a message that they've struck and are chasing a whale, then we always all go out to help. When someone says they've put a float in a whale, then all the other crews are supposed to go help look for that one whale. But now, last year when the quota was getting lower [near the end of the season and they had few allowable strikes remaining], they were trying to strike any old way even though they were supposed to be looking for the ones that were struck already …. Some crews went after other whales instead of helping to find the lost ones. And there are some crews who don't even want to get out from the ice-they just want to stay in their tent-and then get a share when the others catch that wounded whale.*

The Current Socio-Political Context of Subsistence Whaling

For the most part, the AEWC is regarded locally as an effective political instrument (Bodenhorn 2000b). However, over the years the IWC quota has caused considerable dissension within the whaling communities (Hess 1999). Some residents have wanted to defy the restrictions on their traditional right to hunt the whale, claiming that neither the IWC nor the AEWC has the right to restrict a subsistence hunt (Bodenhorn 2000b; Hess 1999).[62] Others have vowed to abide by the cooperative agreement to prove that the whale population was strong and that Iñupiat were responsible hunters. Still others have elected to stop whaling altogether while the quota was in effect. The often adversarial nature of quota negotiations and other aspects of the management regime is in itself a source of tension. Having to fight for one's rights in an intensely adversarial setting requires breaking Iñupiaq cultural rules concerning harmony and cooperation (Bodenhorn 2000b). Further, as another observer has noted, "In the hearts and minds of the people, the gift of sustenance provided by the Creator was never intended to be a subject of strife" (Anungazuk 1995:341).

The periodic increases in the quota have only partially allayed the concerns of the Iñupiaq and St. Lawrence Island whaling communities regarding their ability to meet their cultural and subsistence needs under the externally prescribed harvest regulations for bowhead whales.[63] Incidents such as the vote at the May 2002 meeting of the IWC that temporarily denied the Alaska Natives a bowhead whale quota underscored the continuing vulnerability of the quota to the vagaries of international politics.[64]

What's more, the regulatory regime of the IWC has not been the only perceived threat to whaling activities. Offshore oil and gas exploration in the Bering Sea and Arctic Ocean is of equal, if not greater, concern to many Iñupiat and St. Lawrence Islanders. Concern with the possible effects of oil-related operations on marine resources has been expressed by person after person over the past decades (Jorgensen 1990).[65]

> *And I told 'em, I said, "Everyone has to help!" Well, they mention it's a different way now, that they only have to come help after the whale is killed, after the whale is on the ice and has to be butchered. If they don't show up then to help butcher that whale, they're going to be left out. That's the rules that they had. They say if they don't show up when they start butchering, they're supposed not to get a share. They don't say nothing about helping to kill or find someone else's whale. The captains talk about everybody going after the same whale after it's shot, but it doesn't work.*

[62] Freeman (1989) described a case in 1985 in which a whaling captain decided to challenge the authority of the AEWC and went whaling on two occasions after the quota for his community (Barrow) had been filled. The captain was fined and banned from the whale hunt for five years even though his infraction at the village level did not result in the overall 1985 quota being exceeded.

[63] Whales were not the only traditional food species being controlled by outside agencies. As Bodenhorn (2000a) noted, every element of the Iñupiaq diet is now under external regulations.

[64] The denial of the quota by the IWC was widely seen as a response to the opposition of the United States and other nations to the attempts by Japan to lift the IWC's commercial whaling ban (Kizzia 2002). The AEWC pursued diplomatic measures through the U.S. State Department to conduct another vote on the bowhead whale quota and were successful in getting the quota restored (Gay 2002).

[65] Public testimony related to oil exploration and production on the Arctic continental shelf is compiled by the Minerals Management Service (2003). The documentation of public concern over the potential impacts of offshore oil and gas development in the Beaufort Sea and Chukchi Outer Continental Shelf spans more than three

The National Research Council (2003) reported that the concerns of the whaling communities with offshore oil and gas development fall into three categories, all involving the bowhead whale. The first is that the Iñupiat do not believe anyone has demonstrated the ability to clean up oil spilled in a frozen sea or in broken ice. Along the coast, the first concern is that a spill during the migration of the bowhead will injure or kill significant numbers of whales. The Iñupiat believe this would be especially critical during the spring migration when both spilled oil and whales may be concentrated in leads. The second concern is that a spill would cause the IWC to judge the bowhead to be under greater threat than is currently perceived, causing that group to curtail or reduce quotas for the striking of whales. The final concern is that the day-to-day noise associated with offshore exploration and production would alter the migration routes of the bowhead.

Further, Iñupiaq community leaders (for example, see Ahmaogak, M. 2001) have noted that, unlike the onshore oil and gas development that has occurred on the North Slope, offshore oil and gas activities in the Beaufort Sea do not offer the Iñupiat economic benefits that are commensurate with the environmental risks.[66] Both the Iñupiat and St. Lawrence Islanders feel their concerns and opinions concerning offshore oil and gas development have often been disregarded. For example, Iñupiaq hunters in the coastal villages first expressed their concerns about seismic noise affecting fall-migrating bowheads in the 1980s (Ahmaogak, G. 1985, 1986, 1989 cited in National Research Council 2003).[67] Whaling captains argued that industrial noise, especially seismic noise, caused migrating bowhead whales to deflect offshore and to become "skittish" and more difficult to hunt (Ahmaogak, M. 1999). The longer travel distances caused by displacement due to industrial noise not only increases the risk for hunters, it increases the risk that a killed whale will decay before it can be towed to shore for processing. If a whale spoils during towing, it counts as a "landed" whale and therefore counts against the quota. Alternatively, if a "skittish" whale is struck and the whale's unusual behavior causes the crew to be unable to track it or to complete the take, that whale counts as a struck but lost whale (Ahmaogak, M. 1999).

Data needed for an improved assessment of the effects of seismic noise were delayed for many years due to overreliance on a study that underestimated such effects, and because of inadequate

decades. In 1983, for example, Kruse et al. (1983) reported that conclusions from 10 years of Iñupiaq testimony indicate the existence of an intense, widespread fear that offshore development will inevitably harm subsistence resources. The early litigation over outer continental shelf (OCS) development in the Beaufort Sea is described by Chance (1990). Jorgensen (1990) provided an account of the prolonged legal battle waged by St. Lawrence Islanders against offshore oil exploration and drilling in the Bering Sea.

[66] Knapp and Nebesky (1983) concluded that offshore development will probably not have a significant effect upon NSB revenues because a large share of the total value of offshore facilities will not be taxable by the NSB. The authors also noted that offshore development is not likely to have a significant impact upon Iñupiaq employment in the oil industry unless sale conditions impose legal requirements for local hire or other measures for specifically pursuing this goal. See also Kruse et al. (1983).

[67] Kruse (1984) noted that the Iñupiat also believe that the Western scientific community has underestimated the power of ice and currents in the Arctic. He reported that the Iñupiat cite personal experiences in which sea ice covered a 200-yard-long, 20-foot-high barrier island, surmounted a 30-foot cliff on the coast, and destroyed a building 100 yards from shore. According to Kruse, these and other experiences lead the Iñupiat to believe that offshore oil development, particularly beyond the protection of the barrier islands, will result in oil spills with adverse effects to the bowhead whale and other marine life.

consideration given to relevant observations by subsistence hunters (National Research Council 2003). Recent research has demonstrated that bowheads will avoid seismic activity, moving as much as 20 to 30 km away from their normal migration routes (Richardson 1997, 1998, 1999 cited in National Research Council 2003). As was true of early bowhead whale censuses, the current understanding of the effects of noise on bowheads was achieved only after long efforts of Alaska Native hunters to correct early, imperfect studies (National Research Council 2003).[68] The frustration that many Iñupiat feel because of these events was expressed by Maggie Ahmaogak (1999:20-2), Executive Director of the AEWC:

> *Twenty-two years ago, the Federal Government refused to listen to our people on issues related to the size and health of the bowhead whale population. Yet today, after the millions of dollars the North Slope Borough has had to spend on this, they must acknowledge that our Whaling Captains were right all along. Again, seven years ago, we were ignored* [when we told the National Marine Fisheries Service and ARCO Alaska that seismic noise caused the bowhead whale migration to deflect off shore] *and again millions of dollars were spent to find that, again, our Whaling Captains were right. Despite this history, when we speak today on issues related to bowhead whale behavior, we continue to be scoffed at or ignored. I ask you, how successful would a bowhead whale subsistence hunter be if he did not have an intimate knowledge of the whale's behavior? … It appears to us that the MMS has begun to pay a little bit more attention to this information and to the "traditional knowledge" of our people. However, overall Federal agencies have a very long way to go in understanding the true depth of our people's knowledge of the Arctic, based on countless generations of direct experience*.

At times the dissatisfaction the Iñupiat and St. Lawrence Islanders have with the federal environmental review process has led them to withdraw from public participation in that process. On Lease Sale 170, for example, the Barrow Association of Whaling Captains boycotted the public meeting that was held for the draft environmental impact statement (Ahmaogak, G. 1999). Yet, as the following statement by George Ahmaogak (1999:27), former mayor of the NSB, suggests, any such withdrawal is likely to be temporary:

> *We have learned a lot. We have come a long way. We are still going to be vigilant to whatever is going to happen in the future. We will be there to make public comment. Whenever we need to protect our interests we will be there. We are all connected, coordinated, and we communicate often. We are a tightly knit organization.*

[68] In recent years, the AEWC and seismic-exploration operators have reached an agreement that reduces the effects of seismic noise. The "oil-whaler agreement" restricts seismic vessel operations to the west of the Nuiqsut and Kaktovik hunting areas until the subsistence hunt has been completed (National Research Council 2003). The agreement must be renegotiated annually because the areas of seismic operation vary each year. Although the agreement is helpful, substantial expense of time and resources is required for AEWC negotiations each year in full consultation with its members in the affected villages.

As reflected in the following finding of the National Research Council (2003:139), the Iñupiat and St. Lawrence Islanders are acutely aware that subsistence resources need to be protected in order to maintain the activities that help ensure cultural continuity:

> *They also see vastly increased time, effort, and funding necessary to respond politically and administratively to the ever-multiplying number of projects proposed in their own back yards. Alaska Natives told the committee that anxiety over increasing offshore and onshore oil and gas activity is widespread in North Slope communities … They … are faced with the need to attend industry-related meetings and hearings, and review documents, because they believe that decisions will be made that can significantly affect their daily lives and those of generations to come.*

On the other hand, the Iñupiat, in particular, also recognize that their economic future and the modern lifestyle they have been accustomed to are closely intertwined with the petroleum industry.[69] This dependence has become especially apparent in recent years with the decline in property tax revenue from petroleum installations.[70] The resulting decline in tax revenues flowing to the NSB led to a sharp curtailment in CIPs and employment opportunities.

The NSB continues to be the primary source of employment in the region, but income inequalities have emerged, both among the Iñupiat and between them and non-Iñupiat (Chance 1990; Bodenhorn 2000b; Worl and Smythe 1986).[71] Furthermore, the prospect of expanding oil and gas exploration and production activities became an increasing source of social tension and stress not only because these are activities over which the Iñupiat have little effective control, but also because there is disagreement between and within Iñupiaq communities over the extent to which this development represents a threat or an opportunity. As noted by Impact Assessment, Inc. (1990), the degree to which the Iñupiat should compromise with the oil industry is a complex issue potentially pitting cultural values against economic interests, potentially dividing villages into opposing camps and potentially creating conflicts between institutions in the region.

Recently, the Iñupiat have also become alarmed about the deleterious effects of large-scale climate changes on the bowhead subsistence hunt. The earth's upper latitudes are experiencing

[69] An economic dependence on the oil and gas industry is shared by the state as a whole. Berardi (1998) stated that economic development in Alaska, including the availability of public sector funding for transfers, is closely tied to oil production and markets. She noted that 85 percent of Alaska state revenues are derived from one resource – oil, and about one of every three jobs in Alaska is supported by state spending. According to Berardi, no other state shows such a dramatic dependence on a single resource as Alaska.

[70] The North Slope Borough Mayor's Office (undated) explained the "budget challenge" as follows:

> *The borough derives a major source of its revenue by taxing oil and gas properties on the North Slope. These properties value has depreciated over the past 25 years, thus reducing the available taxable income to the Borough. The lack of new discoveries and oil infrastructure has contributed to the decline in available property taxes. As a result, the Boroughs operating budget must have a corresponding decrease, as these funds are not available.*

[71] Worl and Smythe (1986:382) noted, however, that the extended family networks of the Iñupiat "mediate the distribution of benefits among households, as the differential economic (cash) success of some households is transferred into the production of native foods that is distributed within and beyond the family group."

unprecedented increases in temperature, glacial melting, and weather pattern changes (Arctic Council and the International Arctic Science Committee 2004). According to the National Research Council (2003:58), if the Arctic ice cover continues to decrease at its current rate, "within 50 years the sea ice could disappear entirely in summer. Even if changes are less dramatic, the amount and duration of open water near the north coast of Alaska is likely to increase substantially." If the migrations of bowhead whales were to shift farther offshore, the consequences for Alaska's subsistence whaling communities could be dramatic (National Research Council 2003). Already, the earlier recession of the sea ice each year has increased the danger of whaling by creating poor ice conditions during the spring hunt and rough sea conditions in the fall (Wohlforth 2004).[72] The National Research Council (2003) also noted that increases in the amount and duration of open water could make the Northwest Passage available for increased ship traffic, leading to new environmental effects caused by spills, noise, or collisions that could accumulate with effects of offshore oil and gas development.

A.3 THE CULTURAL SIGNIFICANCE OF CONTEMPORARY SUBSISTENCE WHALING

Each of the Iñupiaq and St. Lawrence Island whaling communities had its own experiences with commercial whalers, missionaries, and agents of the government, and those experiences shaped the distinct ways people do things in the communities today (NSF 2000b). Nevertheless, the literature suggests that the whaling communities hold in common certain beliefs and values concerning human-whale relationships, the distribution of whale meat, the nutritional importance of subsistence foods, and other aspects of whaling. Furthermore, repeated observations in the extensive ethnographic record suggest that there is considerable continuity in those beliefs and values from the early historical period to the present.

This part of the literature review examines the contemporary cultural significance of whaling for the Iñupiat and St. Lawrence Islanders from the standpoint of its conceptual, social, technical, and commodity value. These value categories are derived, in part, from a discussion by Moeran (1992) of the variables in the cultural construction of value in the specific context of whaling. The categories chosen are clearly closely interrelated and are employed simply as a convenient way to organize the information compiled.[73] In reality, the various values behind the whale hunt are inseparable elements of what Jolles (1995b:336) describes as a life system that "embraces both men and women in its web of responsibility by providing a pragmatic association of deep meaning with taken for granted acts of living." A selection of transcribed quotes is included to further illustrate the multiple meanings that the bowhead whale hunt has for the Iñupiat and St. Lawrence Islanders.

[72] Wohlforth (2004) reported that some Barrow whaling captains state that they are already adapting to climate change by buying larger boats for fall whaling. The author noted, however, that the large boats with high-powered engines are prohibitively expensive for individuals whose cash income is derived from a few weeks of employment.

[73] This is not the only conceptual framework that might have been used. See, for example, Freeman et al. (1998) and IWC (1982) for alternative frameworks for depicting the cultural importance of whaling.

Conceptual Value

> *The animals come to me, they know I share.*
> *– H. Brower, Sr. (quoted in Bodenhorn 1989)*

> *This is where our lives take their meaning … Sitting here on the ice, I can forget my troubles and the lifestyle of the naluagmiut (white men) … I just look out at the ocean and watch for the animals my ancestors hunted. Then I feel I belong to them. …*
> *– Point Hope whaling captain (paraphrased in Lowenstein 1986)*

Conceptual values stem from the ways in which an object or activity is perceived and symbolized (Moeran 1992). Contemporary accounts of the whaling activities of Iñupiaq and St. Lawrence Island communities affirm that these communities still imbue whales and whaling with rich and complex symbolic meanings. Bodenhorn (1989), for example, stated that the elaboration of the spiritual interconnection between humans and animals remains one of the most profound, and persistently conserved, elements of Iñupiaq beliefs. And Jorgensen (1990) observed that in both Iñupiaq and St. Lawrence Island whaling communities people continue to have deep respect for animal life, especially marine animal life, and this respect is shown in pursuing, dispatching, butchering and distributing them.

Of all the animal/human relationships, the one between whales and humans continues to receive the most weight (Bodenhorn 1989). This enduring spiritual connection was expressed by Harry Brower, Sr. as follows:

> *It's hard to explain what it's like when the whale gives itself to you unless you see it. The whale is given to you out of nowhere. Many times I've caught a whale I did not see in advance … all of a sudden right under my boat on the edge of the ice the whale would appear. When this happens, no matter what you do it's yours – it has been given to you. You could shout at it, try to chase it away, but it will stay there* (Brewster 2004:136).

These traditional spiritual aspects of whaling have become interwoven with contemporary community religious life. Today, both Christian and traditional supplications play an important part in the hunt for bowhead whales (Nelson 1982; Turner 1996). Modern Iñupiaq whalers believe, as they say their ancestors did, that whales must be treated with respect, and that the whale gives itself to a hunter who is deserving of the gift (Brewster 2004). Some captains say that the whale itself chooses the worthy captain, while others explain the whale as a gift from God. Prayers are offered to struck and landed whales by elders, and some villages continue to practice the ritual of returning the head to the sea so that the spirit of the whale will be reincarnated (Brewster 2004; Jolles 1995b).

This lasting belief that humans must show gratitude and respect when a whale has been taken and that humans must share with each other so that the animals will share with them is most clearly apparent during the community feasts that celebrate a successful whaling season. The

most important within the Iñupiaq whaling communities continue to be the spring *Nalukataq* festivals.[74] Here, food from the whale is distributed, prayers of thanks are offered, and Iñupiaq dances are performed, in a gathering dedicated to the animals that have given themselves to people (Nelson 1982).[75] The St. Lawrence Islanders sponsor the Whale Carnival, which occurs the day before or after the Fourth of July (Jorgensen 1990).[76]

For many of residents of the whaling communities, the whaling complex has come to symbolize the persistence of cultural values, customs, and traditions in the face of continuing economic and social change. Chance (1990:215) stated, for example, that for the Iñupiat "as an affirmation of their culture and in their continuing efforts to distinguish themselves from the non-Iñupiat outside world, the whaling complex serves as an excellent designator of cultural distinctiveness." Lowenstein (1986) underscored this point in his statement that "… the Point Hope people today at whaling become themselves again in a special sense: the collective identity of Tikigaq Eskimo, eroded in so many aspects by white institutions, white foods, white religion, white transport, white houses, white clothing and an increasingly white language, forcefully emerges again and becomes dominant."

Over the past century, the conceptual value of whaling for the Iñupiat and St. Lawrence Islanders has been transformed by the introduction of Christianity and by other Western influences. However, all evidence suggests that there has been a continuity in the underlying spirituality of the whaling experience. What Lowenstein (1986) described for the contemporary residents of Point Hope is likely true for the inhabitants of all other whaling communities in north and northwest Alaska:

> *It is difficult to describe to a non-Eskimo, or to someone who has had no contact with the Point Hope people, exactly what the spiritual and emotional value of whaling is today in the village. The feeling for the hunt is so deep, and the loyalty to tradition so strong, that although today, the whaling ceremonials as they were practiced in the aboriginal period have been partially eroded, what remains, is in effect, a cult, despite the disappearance of many of the cult's original trappings. Whaling remains, in fact, perhaps the closest thing to a religion which is common to all age groups in Point Hope today: and by 'religion,' I mean a powerful, binding belief in a set of values larger than any individual, and which consolidates the community into the brightest and most positive level of its own consciousness.*

[74] The celebration is referred to as *Kaqruq* (*Qagruq)* in Point Hope (Lowenstein 1986).

[75] In Barrow, successful captains in the fall hunt do not host *Nalukataq* celebrations so they give away larger portions of their whale at Christmas and Thanksgiving than do the captains who catch whales in the spring (Brewster 2004).

[76] Unlike the Whale Carnival, there are generally as many *Nalukataq* festivals each year as there are whales killed (successful crews). At the *Nalukataq* festivals the successful whaling crews distribute the portions of meat and *maktak* among community members; at the Whale Carnival the Association of Whaling Captains directs the distribution.

Social Value

> *I stuck all the tail in my [ice] cellar … I use it up for the feasts, Nalukataq, Christmas, Thanksgiving … that's what everyone does. That's what we believe: it's not mine – I'm just taking care of it.*
>
> *– Barrow whaling captain (quoted in Freeman et al. 1998)*

> *What's the point of catching a whale if I don't just give away as much of it as I can?*
>
> *– Point Hope whaling captain (quoted in Lowenstein 1986)*

> *As a whaling captain, I am responsible for feeding my community and for the safety of my crew. For my people, the greatest honor is to be a whaling captain, but it is also the greatest responsibility.*
>
> *– B. "Atqaan" Rexford (1997)*

Social values derive from the social networks that are created among those involved in the production and consumption of a commodity (Moeran 1992). Whaling, above all other subsistence activities on the North Slope, appears to generate social interactions that make people interdependent (Kruse 1986). What Hess (1999) described as the communal and family ties dependent on the bowhead hunt and the complex system of sharing and ceremonial celebration surrounding it are perhaps most evident immediately after a whale is caught:

> *As soon as a crew has caught a whale, word goes out and the other crews rush to help tow the whale to the edge of the lead, they and many community members help to land it on the ice and crews then help to butcher it. The captain and his wife must feed all the crews who help to butcher the whale – usually with boiled maktak, coffee and or tea in order to keep everyone as warm as possible. The next day, the captain and his wife must feed the entire town. A third of the uati, or Community share, is served to the community at this time, along with half of the heart, kidney, a quarter of the tongue, and half of the small intestines. The tavsi (the share of the successful crew) is divided among the captain and his crew. The rest of the whale is shared in very specific ways – some to the successful crew; some to all of the crews; some set aside for community feasts. Finally comes pilianiaq – when women who are present at the end of the butchering are invited to remove whatever meat is left* (Ahmaogak, M. 2000).

The above passage describes the formalized system of distribution as it is practiced in Barrow. In other whaling communities, different customary laws may dictate how a whale is distributed (IWC 1982; Worl 1980).[77] But in all the whaling communities the thousands of pounds of meat and *maktak* that each whale provides are shared by all the residents of those communities. Despite the predominance of nuclear family households, responsibilities to share encompass a much wider network of kinspersons, affines, friends, and elderly acquaintances (Jorgensen

[77] A local association of whaling captains may apply sanctions when customary sharing patterns are disregarded (Worl 1980). Although violators may not be openly chastised, captains are subtly reminded that those who do not abide by the laws will not be assisted in securing, towing, and butchering whales.

1990). In addition to the initial distribution when a whale is landed, secondary distribution occurs during the annual series of ceremonies (Ahmaogak, M. 2000). There are a number of occasions throughout the year for which whale meat and *maktak* are very important. In Barrow, for example, portions of each whale are saved for celebrations at *Nalukataq*, Thanksgiving, and Christmas and for various potlucks (Ahmaogak, M. 2000).[78]

Often, sharing of whale products, especially the prized *maktak*, goes well beyond the village itself. Giving special parts of the bowhead to relatives and friends from other communities shows affection and reinforces social bonds (Nelson 1982). In 1982, for example, when the whaling crews in Barrow were unsuccessful in landing any of the whales that they struck, a very large contingent of Barrow residents arrived in Wainwright to collect shares of the meat and *maktak* that were provided at *Nalukataq* (Jorgensen 1990).

Cultural traditions of sharing also ensure that the enjoyment of the whale harvest extends well beyond the ten whaling villages. Shortly after a whale is captured, airlines are carrying *maktak* to relatives and friends in the urban areas of Alaska and elsewhere (Jorgensen 1990). The receipt of this Native food is eagerly anticipated by these city households. Recollection of other whaling seasons and anticipation of future ones add to the level of enthusiasm (Fogel-Chance 1994). The individuals who receive these gifts will, in turn, give some of it away, in portions or meals, to cousins or other friends and relatives who also live in the city (Jorgensen 1990).

Although it is during the whale hunt and subsequent distribution of whale products that the social aspects of whaling are most apparent, activities connected directly to whaling take place throughout the entire year, sometimes as a part of communal effort and sometimes in much smaller groups (Ahmaogak, M. 2000). Exactly what those activities are and when they happen will vary from community to community. Table A.2 provides an overview of the annual round of whaling-related activities in and around the Barrow area.

The interdependence of whaling with other subsistence activities is the basis for the whaling complex that forms the core of Iñupiaq life. Even when no bowheads are taken, this whaling complex still fulfills many important social, personal, and economic functions (Nelson 1982). The year-round effort still goes on, uniting people to one purpose in the greatest collective venture that their way of life allows.

Social values can also be seen in the prestige that accrues to someone who has the wealth, leadership skills, energy, and technical knowledge to organize a successful whaling crew (Moeran 1992). Stoker and Krupnik (1993:606) noted that, "while whaling is not an absolute prerequisite to social and political status in major whaling communities, it is certainly one of the more common avenues of success." Some adult men focus their individual identity around their role as whale hunters or boat captains (Nelson 1982). Community leadership continues to be strongly vested in the whaling captains, who have achieved their stature through success in the hunt and ability to make intelligent decisions in all spheres of life.

[78] A recently revived traditional festival is *Kivgiq* (Messenger Feast). This celebration disappeared until the 1980s, when it was reintroduced in Barrow (Hess 1993). According to Pulu et al. (1980), *Kivgiq* was held to share food with those who did not have enough to last them through winter, and was the Iñupiaq way of showing generosity to everyone who needed it.

Table A.2. The Annual Round of Whaling-Related Activities in Barrow

Men's Activities	Women's Activities
Winter	
[Construct boat frame – long-term investment] Repair boat frame – ready crew (purchase lumber, nails, etc.), under captain's direction (coffee, tea, etc.). Hunt caribou – meat needed for whaling; skins needed as mattresses; responsibility of the captain. Purchase food, fuel, ammunition.	Begin to consider sewing needs: fur parkas, fur socks, fur hats; kammiks, if needed. Responsibility of whaling captain wife. Furs, needles, thread, time. Pull, scrape, dry caribou tendons for sinew.
Spring	
Prepare ugruk skins for umiaq (thawing with natural gas; storing so they will stay pliable); purchase supplemental skins if not enough have been caught during the summer; rope for lashing; natural gas. Captain's responsibility. Put on new boat cover (approximately every two years). Men bring the skins into the sheltered area where women will sew. Once the cover has been put together, the men take it to the boat frame and cover the frame. The entire process for both women and men takes a full day. Clean ice cellar Check and repair gear (whaling gear; camping gear; communication technology, etc.); replace if needed. Whaling captain's responsibility, with crew's help. Make ice road (snow-machines, fuel, utensils).	Begin to prepare braided sinew whaling captain wife responsibility; is otherwise purchased. Single or collective activity. According to M. Aiken, this is THE single, most important responsibility of the whaling captain wife – namely the safety of the crew – which is jeopardized if anything happens to the skin boat while out on the water. Prepare new boat cover – professional sewers, invited by the whaling captain wife, arrive to sew the ugruk skins. They will be paid and often bring their own equipment (needles, thread, etc.); whaling captain wife responsible for ensuring proper supply is on hand. Coffee, tea, snacks also on hand. The sewers then check the cover for tears and repair them. Distribute meat/fish from ice cellar Check over camping clothing; make sure crew's gear is in good condition; sew qatignisi, snow shirts. Whaling captain wife responsibility. Cloth, etc. Begin to stock "grub box"; buy groceries, supply cooking utensils.
Summer	
Ugruk hunting: skins, meat, oil will all be used for the following whaling season. Motorized boats will be used; must be maintained, repaired. Sealing equipment (guns, floats, harpoon, ammunition, etc.) bought or repaired. Gunnysacks for seal skins; fuel, etc. purchased.	
Both men and women help to cut up blubber for rendering into oil; and to cut up meat for drying, preparing, and storing. Ulus (women's knives) need to be kept sharp and in good repair.	
Walrus hunting – particularly warming whaling food. Same repair, purchase needs as above. Primary butchering usually done by the men on the ice floes.	
Once meat is brought back to shore, both men and women finish butchering and preservation, and fermentation of flipper and storage.	

Table A.2. Continued

Men's Activities	Women's Activities
Fall	
Caribou hunting: for dried meat, sinew, and fresh meat. Often camping is undertaken by couples and/or families. Equipment for inland camping needed. Butchering includes removal of sinew from legs and back for thread. Meat is dried on rack.	
Fall whaling – demands a sea-going vessel that can withstand potentially rough weather/seas. Basic gear is the same as in the spring. But because this is not ice-based whaling, separate expenses include transportation of whaleboat to launch several miles out of town; equipment usage when whale is pulled up onto sand and then transported to butchering site on the tundra. Plastic sheeting laid out on the ground before the whale is placed on the butchering site. Gendered responsibilities are generally the same.	

Source: Bodenhorn (2000b)

As shown in Table A.2, whaling crews, headed by a whaling captain and his wife, constitute an important social unit throughout the year (Bodenhorn 2000b). A whaling crew is typically made up of the captain, who is also often the "boat steerer," a "shoulder-gun man," a harpooner or "striker," and a number of paddlers (Chance 1990). In addition, a crew may consist of one or more cooks and a boyer (apprentice boy whaler who is old enough to wash dishes, chop wood for the fire and get snow for water)[79] (Lowenstein 1986; Pulu et al. 1980). Total crew size may be as small as five or as high as eighteen or more, which thus allows for a certain amount of personnel change and "part time" whaling by those who have responsibilities in the village (Braund and Moorehead 1995; Lowenstein 1986; Worl 1980).

Traditionally, crews were usually comprised of members of the whaling captain's extended family. Many whaling crews are still formed along family lines, thereby reinforcing extended family structures (Stoker and Krupnik 1993). However, the pattern of crew membership has become increasingly flexible in recent years (Chance 1990; Braund and Moorehead 1995; Worl 1980). Some crewmembers may be unrelated to the captain, and some may be from other communities (including non-whaling villages) (Braund and Moorehead 1995). Members of a given household level often whale with different crews, any of which may receive shares of a whale depending on whether they struck it, killed it, or were one of those helping to tow it to shore (Bodenhorn 2000b).[80] Thus by joining different crews, household members have access to

[79] At the upper end of the age-scale, the most senior captains and crewmen are generally in their late fifties; few men over sixty go out on the ice on a regular basis, though they are often much in demand when their advice is needed at an occasion such as the whale-butchering (Lowenstein 1986).

[80] Brewster (2004:214) described the division of shares in Barrow as follows:

> *To participate and earn a share during spring whaling a person must be on a crew officially registered with the AEWC. In the fall, crew membership is more flexible. Men can go in their own boat and catch a whale in the name of their captain's crew, or join someone else's crew for that season by going in their boat. Also, in the fall someone who is not part of a crew can earn a personal cutter's share just by helping butcher, and women can earn individual shares by helping cook and serve at a captain's house even if they are not part of that crew. While these also can be done in the spring, it is less common. Most of the women working belong to that captain's crew and get a portion of the crew's share.*

the largest possible number of shares. Although tending to be fairly stable from year-to-year, crew membership is not rigid (Braund and Moorehead 1995).

The whaling captain must recruit (or maintain from prior seasons) a group of competent and experienced crewmembers. And he must accumulate enough resources to feed and shelter his crew throughout the six-week season. The costs of the major equipment, supplies and services necessary to participate in whaling are high (Worl 1980). Examples of long-term and annual expenses incurred by a whaling crew in Barrow are listed in Table A.3. Although each crewmember must bear some of the expenses, much of the cost is incurred by the captain. Yet, if his crew is successful in landing a whale, the whaling captain keeps only a small part for himself and his immediate family; the rest he gives away, as each captain is tied by tradition to the ethic of generosity (Hess 1999; Lowenstein 1986).[81] Today, as in the past, an individual can only launch his own whaling enterprise if he has been economically successful during the eight or nine months between whaling seasons (Lowenstein 1986). This requires many months of wage labor and hunting activity.[82]

Nelson (1982) observes that, besides leadership and status, community integration and social relationships are bound to the collective whaling effort. A successful whale hunt depends on coordinated activity, not just by the crews but by the entire family. Nearly all adults contribute to whaling in some way, whether or not they participate in the actual hunt.

The myriad activities of the whaling complex also provide an opportunity to elevate the social standing of other individuals besides the whaling captain. For example, *ugruk* hunting provides an opportunity for men who have worked with a whaling captain during the whaling season, to be, as it were, "their own *umialik*" (Lowenstein 1986). Traditionally, the *ugruk* skins that furnished the *umiak* cover for the next spring's whale hunt were obtained by the prospective captain by going out and hunting (Pulu et al. 1980). However, because the majority of whaling captains now hold jobs during most of the year (or at least during the summer *ugruk* hunting season) they either have to salvage some of their last years' boat skins or buy skins from successful, non-boat owning hunters. Lowenstein (1986) noted that a large number of the most successful *ugruk* hunters are men in their twenties or thirties who are not whaling captains.

A focus on the social aspects of whaling also reveals the gendered organization of the whale hunt (NSF 2000a). As in the past, the wife of the whaling captain plays a particularly critical role.[83] The following recent statement by a whaling captain from Nuiqsut suggests that the traditional belief that animals give themselves up to wives through their husbands is still held:

[81] Although the meat and blubber of each bowhead are largely apportioned according to strict rules (so much for each member of certain crews, so much for the boat captain, etc.), there is still plenty of room during the period that follows whaling (or for as long as the meat lasts) for a boat captain to express his or her generosity or lack of it (Lowenstein 1986).

[82] The AEWC recently successfully lobbied to have the Internal Revenue Service code changed so that the costs whaling captains incur in the support of whaling are tax deductible as community-oriented charitable contributions.

[83] Lowenstein (1986) suggests that "wife of the whaling captain" is an inadequate term, since the woman partner in the whaling enterprise is on equal terms with her husband, and is an *umialik* in her own right.

Table A.3. Supplies and Services Necessary to Participate in Whaling in Barrow

Examples of long-term purchases

- fall whaling boat (motor, etc.) – capable of navigating rough seas in the fall
- navigational equipment (personal locator beacon, CB radio, etc.)
- other equipment specific to whaling: darting guns, shoulder guns, lances, harpoons, winches, block and tackle, butchering utensils, etc.

Examples of occasional expenditures that are incurred only with a successful hunt

- feeding everyone who comes to help butcher: coffee, tea, uunaaliit (hot boiled maktak); this is likely to be for well over 100 people.
- feeding entire community. This happens on three different occasions, each of which varies slightly.
  (a) Immediately after the catch, a hot meal is served at the house of the whaling captain couple for all who wish to attend. The niqipiaq, or real food, is whale – which demands considerable time to cut up and cook. As well, stewed fruit, Eskimo donuts, sometimes cake, coffee, tea, and cold drinks are prepared for 2,000± [sic] people. Paper plates, cups, towels are supplied.
  (b) At appugauti (when the whaling boat is brought up for the last time of the season), community members are invited to eat on the beach. The captain and crewmembers have gone geese hunting in order to provide the basics for goose soup (demanding equipment needed for inland hunting); mikigaq (fermented whale meat and blood) has also been prepared, demanding special containers as well as close attention so that the fermentation process does not go wrong.
  (c) Nalukatak is the most elaborate celebration of all and will attract not only community members but visitors from many other communities. All are welcomed. In Barrow the feast demands three separate servings, each of which involves different sorts of foods as well as different kinds of preparation: at noon, soup, coffee, tea; at 3 p m., mikigak, stewed fruit, coffee, and tea; at 6 p m., quaq, or frozen meat, multiple kinds of maktak, cakes, coffee, and tea. The preparation is organized by the whaling captain wife, although the preparation itself is by no means carried out only by the women connected to the successful crew.
- Freight costs incurred shipping meat to other communities (sometimes, if as a gift from the whaling captain couple, at their expense; if as part of a share, at the expense of the receiving community).

Equipment that lasts more than one season, but needs regular replacement

- snow-machines
- snow-machine parts
- sleds
- skinboat frame
- Coleman [sic] stoves, lanterns, etc.
- fur for clothing: parkas, socks, hats
- tents, tarpaulins for covering sleds, etc.
- skinboat cover (approx. every two years), women to sew; men crew to put cover on frame
- braided sinew or other thread, either made by whaling captain wife and helpers, or purchased
- storage containers, e.g., for mikigaq (currently kept apart to lessen likelihood of botulism)
- materials for setting up Nalukatak: windbreak, tables

Annual replacement needed

- Qatignisi – white snowshirts that are necessary for hunting on the ice, especially for whales – the responsibility of wives.[84]

Ongoing expenses

- food
- clothing
- ammunition: whale bombs, shells
- fuel for snow-machines, Coleman stoves, lanterns, trucks for transporting boats out to launching site, etc.

Source: Bodenhorn (2000c)

[84] The whaling captain's wife makes the white parka covers of those crew members who have no one to sew for them (Solomon 1985).

> *… the woman, the captain's wife, is like a general. Her responsibilities are so great that the captain doesn't go out to seek the whale. To my understanding, the captain's wife, who is the supporter and provider at home, is the main "catcher" of the crew. She "brings in" the whale … She makes it easier for the captain to harvest a whale, but the woman has to be in a proper state of mind, because she is actually the "bearer" of the crew and is called a "crew captain"* (F. Long Jr. quoted in Jolles 1995b:331).[85]

As indicated in Table A.2, many of the activities of the whaling complex are organized by the wife of the whaling captain (see also Solomon 1985). This is especially true among families where the whaling captain is wage-earning and has limited time to organize pre-whaling activities (Lowenstein 1986). After preparations for the hunt are completed, she may stay in the background – though many women spend as much time out on the ice in the cook's tent as their husbands do with their crew by the boat (Lowenstein 1986; see also Bodenhorn 1990 and Jolles 1995b). Although predominately male, some whaling crews have women female members, and a few crews are captained by women (Braund and Moorehead 1995; Worl 1980). It is also a common pattern for a wife to seek wage employment or sell handicrafts in order to raise money to help support the whale hunt (Worl 1980). As Bodenhorn (1990) noted, women can more easily accommodate the "real work" of subsistence and jobs because the work they perform to support subsistence activities (e.g., sewing and butchering) is based in the community, whereas men are primarily responsible for the work of hunting.[86]

A number of observers have also remarked on the intergenerational social relationships that develop from the whaling complex. Chance (1966), for example, found substantial value conflicts occurring between generations by the early 1960s, and in the early 1980s Worl and Smythe (1986) found that intergenerational segmentation in Barrow had became even more pronounced. But Nelson (1982) noted that whaling is one modern activity that allows young people and adults to work closely together over a prolonged period. Thus, it helps to bring the sharply divided generations together, while also providing a means for transmitting knowledge and values from one generation to the next. By helping to close the generational gap, whaling also preserves the traditional respect shown for elders. As one elder declared,

> *We exist because of those older than we are. We live because we follow their example. … We want our descendents to follow this example. Those of us who are getting older, even older than I, want our descendents to follow the teachings and to be obedient* (Attungana 1985).

The deference shown to elders is apparent in many aspects of the whaling complex. Elders, for instance, are given special portions of whale meat or *maktak* as a sign of respect and affection (Freeman et al. 1998).

[85] Bodenhorn (1990) stated that the conviction that the whales see and respond to the welcome held out by the whaling captain's wife also remains very strong in Barrow.

[86] However, Worl and Smythe (1986) noted that some employed women have had to decrease their traditional production activities, primarily in the manufacture of clothing.

Finally, whaling also strengthens bonds between generations more distant in time. Lowenstein (1986) wrote that, "Whaling is practiced today so that the present community may live according to an order which was established by ancestors who lived so that they might pass on a tradition. Present life receives its justification through being carefully, deliberately maintained in connection with the past." Or as one participant has expressed it, "The memory of our ancestors drives the spirit within us" (Anungazuk 1995:341).

While it is apparent that whaling continues to be important in promoting cooperation and social solidarity, it is equally apparent that the social structures of the whaling communities have been radically transformed by the introduction of a cash economy and by other factors that undermined the socio-cultural basis of the traditional subsistence lifestyle. Writing of village life in the 1950s and early 1960s, for example, Chance (1966) recorded that the increased geographical mobility of village residents reduced the opportunity for the active expression of cooperation and sharing. With specific reference to whaling, other observers lamented the loss or diminishment of certain social relationships following the acquisition of modern technology. Pulu et al. (1980), for instance, noted the social effects when floats and other accessories of the whale hunt were no longer prepared in the old way:

> *It was not an easy task to prepare the needed tools for whale hunting. It was a lot of hard work, but everyone enjoyed it. The captain, his wife, and their crew members looked forward with anticipation to the time when they started to work on their tools. Most often, the tool preparation occupied a great deal of their time in the winter. The companionship and the oneness of purpose in preparing the best tools on which they relied for obtaining most of the food they needed to feed their people were binding forces that molded them into one group of people. This same spirit is lost when commercial equipment is used. The wonderful feeling of working together is mostly gone. In terms of money and the cost of financing a whaling crew, the old way is far more economical. The old way also helped the people to perpetuate their skills in their traditional art of tool making, as well as giving them a sense of pride in the completion a job well done. It gave them, too, great joy in the cooperative work that went into the preparation of the necessary equipment for the whale hunt.*

Technical Value

> *When I became a whaler, I found it was hard to handle the equipment and the people. The advice given to us, generation after generation, through the Iñupiat, to follow their teachings from time immemorial, so far away; changing, changing, changing.*
>
> *– P. Attungana (1985)*

> *These things we use now don't last forever, they break, get destroyed. If you leave your way of living to your children, it will never go away.*
>
> *– E. Kignak (quoted in Bodenhorn 2000b)*

Keeping alive the culture of the Iñupiat people does not mean we have to live as I did as a boy.

– E. Hopson, Sr. (quote displayed at the Alaska Native Heritage Center, Anchorage)

Our system has developed to a degree that we are using the best of both worlds to live this unique lifestyle.

– J. Waghiyi (quote displayed at the Alaska Native Heritage Center, Anchorage)

Technical values are held by those who are closely involved in the technical production of any occupation (Moeran 1992). These values are concerned with the problems of how to achieve certain effects with the technology available. The basic pattern of traditional whaling in north and northwest Alaska continues from the distant past into modern times, based on an unbroken lineage of whaling knowledge and skills that were handed down between the generations (NSF 2000c). While today's subsistence whalers have added technological advances such as bomb darts, aluminum boats (in some villages),[87] Global Positioning Systems, and two-way radios to the repertoire of whaling apparatus, the basic pattern of pursuing bowheads from shore camps during the migration season with hand-thrown harpoons, with all the accompanying dangers, has not changed.

Because of Arctic conditions, indigenous hunters developed specific techniques for hunting on land, in the snow, in the water and on ice (NSF 2000b). Whether in the spring or in the fall, whaling success required – and still requires – great skill in reading weather conditions, currents, and the whales' travel routes and carefully navigating the offshore waters. Reading the Arctic environment reflects skills that tie the past with the present. The accumulated knowledge spans at least a thousand years, and, as the following passage from Nelson (1982) suggests, the quest for greater understanding of the environment continues today:

The members of our crew are completely fascinated by whales. One day, bowheads passed hour after hour and the men watched them ceaselessly, even though there was no hope of catching them. Each peculiar thing they did warranted comment and discussion. It seems as if they never tire of observing whales, though they might see scores in a day, hundreds in a season, and thousands in their lifetime. Small wonder that they know them so well.

This continuing search for knowledge is concisely articulated in the statement by Anungazuk (1995:343) that, "The stories of the whale never cease."

[87] Barrow and Point Hope are the only North Slope villages that still use skin boats (Brewster 2004). According to Brewster (2004), a few years ago some whaling captains in Barrow began covering the standard wooden boat frame with fiberglass instead of ugruk skins. The captains believed that the fiberglass boats were faster, more durable, and less expensive to make than skin boats. However, other captains contended that fiberglass boats were too heavy and more easily damaged than skin boats, which flex, and that they make more noise, which scares the whales away. Moreover, skin boats are easier to repair in the field, and they provide income to the women who sew the skins on the boats (Brewster 2004; Wohlforth 2004).

The material technology of the whale hunt also has considerable significance. Keim and Bacon (1963:25) reported that the weapons used during the hunt are valued possessions and "have been lovingly handed down from father to son as family heirlooms." Yet, this technology also continues to evolve. For example, the AEWC is currently conducting a NOAA-funded, multi-year Weapons Improvement Program to improve the safety, efficiency, and humaneness of the weapons used in the subsistence hunt of bowhead whales.[88] At the same time, the whaling communities have initiated self-imposed constraints on technology or how the hunt is conducted that may appear to lessen the probability of striking a whale, at least in the short term, but that increase the probability of successfully landing a whale once struck. The Barrow Whaling Captain's Association, for example, has adopted the following rules regarding the use of snow machines and outboard engines:[89]

> *Whaling captains should caution their crew members to restrict the use of snow machines during the time whales are running. Those snow-mobilers who do not belong to a whaling crew are not to go beyond certain points designated on the trails to the whale camps.*
>
> *Outboard motors are to be used only at times they are needed:*
>
> *a) to go after a wounded whale*
>
> *b) emergency situations*
>
> *c) if it is determined that the whales are migrating a substantial distance away from the shore fast ice, between Walapah and Point Barrow. This shall be determined by radio contact with the whalers between the two points* (Freeman 1989).

In addition, the Iñupiat and St. Lawrence Islanders are concerned that increased contact with mainstream American culture may lead to a gradual loss of traditional knowledge and skills. Although close to half of the Iñupiaq population on the North Slope is still fluent in the Iñupiaq language, that fluency may not now include the very detailed vocabulary that describes the land, the ice, and the animals (Bodenhorn 2000b).[90] Many of today's adults spent a good deal of their teenage years out of the village, at boarding schools, and may never have had an opportunity to adequately develop their hunting skills (Lowenstein 1986). Moreover, the present availability of store-bought goods often makes it by no means urgent to hunt or gather. Other observers have

[88] Worl (1980) noted that the federal government did not allow improvements to be made in the guns and bombs until 1978. Since that time the AEWC has worked with Norwegian weapons expert, Egil Ole Øen to develop a penthrite bomb that increases hunting efficiency and reduces the time to death (Brewster 2004; IWC 2003). Data collected by the AEWC show a steady increase in hunting efficiency; the average reported ratio of whales secured to whales struck for 1976-77 was 38%; 1978–87, 57%; 1988–97, 74%; 1998-2002, 76% (Reeves 2002; IWC 2003).

[89] With so few whales near the ice in recent years during the spring hunt there has been a movement within the Barrow Whaling Captain's Association to allow the use of motorized aluminum boats all along the lead (Wohlforth 2004).

[90] The NSB School District's Bilingual Department has developed an Iñupiaq immersion curriculum for preschool through second grade (Brewster 2004).

noted that young Iñupiaq women may be starting to focus on activities which lead to better jobs, rather than spending the time necessary to learn traditional subsistence skills (Kruse 1986).[91]

Some communities have responded to concerns that traditional knowledge systems are being lost. [92] In Barrow, for example, some whaling captains were having a difficult time finding sewers because an insufficient number of young women were being trained in the art of skin sewing. A three-day workshop was conducted on the braiding of caribou sinew into thread to be used in sewing *umiak* covers (NSF 2000a). The workshop was attended by 26 people, among them professional skin boat sewers, whaling captain's wives, curriculum developers from the school district, college students earning a credit in Iñupiaq studies and young women hoping to become acquainted with the skill for the first time.

Commodity Value

> *[Bowheads] are very important for nutrition up here … People think that because we have jobs that maybe it isn't as important, but people like myself grew up on native food and we're not accustomed to butter and beef and chicken fat. All that stuff makes me sick.*
>
> *– M. Carroll (quoted in Freeman et al. 1998)*

> *[Even] if they stop us, I'm going to take my boat and go whaling. I have to have it for food; it is part of my body.*
>
> *– E. Brower (quoted in Freeman et al. 1998)*

Moeran (1992) states that commodity values are concerned with exchange and are the price that will be fixed to objects on the market. Currently, no well-established market exists for bowhead whale products (at least the edible portions of the whale) within the Iñupiaq and St. Lawrence Island whaling communities.[93] Although *maktak* was reportedly sold among community members in the past, the general exchange is based on sharing practices (Worl 1980). However, whale meat and *maktak* have a significant *potential* commodity value, as evidenced by the high level of demand for these customary foods among the Iñupiat and St. Lawrence Islanders living in the whaling villages and in Anchorage and other urban centers. In this section the reasons for

[91] Kruse (1986) notes that new technology has increased hunting effectiveness and mobility for men, but the difficulty of women's skin sewing and subsistence food preparation activities has remained relatively unchanged.

[92] The NSB has promoted the preservation and retention of Iñupiaq cultural knowledge and tradition (National Research Council 1994). Annual elders conferences have been funded, and biographies and information about the history and practices of the Iñupiat have been recorded. An Office of History and Cultural Heritage has been created to oversee the collection, storage, and use of this material. In addition, the Ilisagvik College in Barrow offers a course that blends Western scientific knowledge and traditional Iñupiaq knowledge about the bowhead whale (Willingham 2001), and the NSB School District gives high school students classroom credit for academic work related to whaling (Wohlforth 2004).

[93] A small amount of income is generated from the sale of arts and crafts products from whale bone, baleen, and the ear drum (Worl 1980). The AEWC Management Plan as amended states that the meat and products, except for traditional Native handicrafts, of whales taken in the subsistence hunt must be exclusively for Native consumption and may not be sold or offered for sale.

this high demand for bowhead whale products are examined. Specifically, the sustenance benefits derived from consuming whale meat and *maktak* are examined.

Despite the high wage rates in some whaling communities, most households cannot afford to rely solely on imported food. Naturally occurring resources harvested by local residents continue to comprise a significant proportion of villagers' diets (Jorgensen 1990). Although whales may have never been the sole source of food for the indigenous people of north and northwest Alaska, they remain in many ways their most important resource (NSF 2000b). Freeman et al. (1998) suggested that, generally speaking, whaling is cost-effective compared to gathering, fowling, and fishing, owing to the large size of the landed carcass. A single bowhead whale produces tons of usable food. Perhaps the most common way to eat whale meat and *maktak* is to have them frozen raw, but there are many other ways of preparing these whale products (see Pulu et al. 1980). Permafrost makes it possible to construct "ice cellars" in which whale meat can be stored for a year or more.

Indigenous foods are believed by many Iñupiat and St. Lawrence Islanders to be indispensable to human strength and health. Some of them say that they cannot live without them (Pulu et al. 1980). In addition to extolling the health-promoting properties of oil, blubber, and fresh meat, many believe that the ingestion of these foods in a frozen form has a warming effect on the human body (Pulu et al. 1980).[94] Nutritional research has corroborated the health benefits of the traditional Arctic Eskimo diet.[95] Researchers have found that the traditional Greenland Inuit diet, which consists mainly of seal and whales, accounts for the very low incidence of cardiovascular disease among Greenlanders (Mulvad and Pedersen 1992). Freeman et al. (1998) noted that *maktak* contains rich sources of vitamins A and C, thiamin, riboflavin, and niacin and is a major source of antioxidants. The authors further note that this food is a highly enriched source of selenium, an element that also contributes to the antioxidation process. In addition, selenium appears to provide critical protection against the potentially harmful effects of mercury and other heavy metals that occur in varying amounts in local sources of food throughout the Arctic.

Apart from the economic and nutritional aspects of indigenous foods, Iñupiaq and St. Lawrence Island communities attach strong conceptual and social values to these foods. While the amount of imported food consumed in these communities is high, the proportion of the diet that a particular type of food contributes is not necessarily indicative of its perceived worth in a community; the sentiments directed toward food are also responsible for its value to community members (Lee 1982 cited by Jolles 1991). The customary diet of traditional food continues to be central to what it means to be Iñupiat, and it is not uncommon to hear the phrase, "I'm Iñupiaq; I eat Iñupiaq food" (Bodenhorn 2000b). Jorgensen (1990:87) recorded that, "To hear Eskimos talk about the desire to taste whale and about the revitalization they experience when tasting it after a long period without impresses the observer that such persons feel as if they have had their

[94] One Barrow whaling captain related a story about his wife, a Caucasian from the "lower 48": "I was ice fishing with my wife when I first got married, and she had decent warm clothes, but her hands and feet were cold. My sister sent her back to the cabin to eat some maktak blubber and frozen fish, and she came back and started peeling clothes off" (quoted in Stewardson 1997).

[95] An early account of the benefits of the traditional diet of Alaska Natives can be found in Stefansson (1946).

cultural batteries recharged … ."[96] The high regard for Native food is reflected in the Iñupiaq term used to designate it – *niqipiaq* – which means real or genuine food (IWC 1982), and whale meat and *maktak* may be regarded as the quintessential example of *niqipiaq* (Jolles 1995b).[97]

Bodenhorn (2000b:137) stated that, "not only is the opportunity to eat Iñupiaq food important for one's own sense of Iñupiaq identity, the opportunity to share it with others is crucial in creating a sense of Iñupiaq community." Native food, according to Bodenhorn (1989:118), is the "sine quo non of reciprocal relationships." The Iñupiaq term, *yokoq*, means to participate in a specially recognized form of sharing by consuming Native food together (Jorgensen 1990). The giving of Native food and eating in the company of others continues to have inestimable importance to life – perhaps as much importance for social reasons of kinship and friendship and personal reasons of pleasure and sense of self-worth as for the economic reasons of subsistence need (Jorgensen 1990).

[96] "Taste" is used to convey the idea that some food is desired at a certain moment or during a certain season, even if the amount of food desired or available is small (Jorgensen 1990).
[97] In St. Lawrence Yup'ik, the word for "real food" is *nekpek* (Jolles 1995b).

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