Environmental education: The cultural bridge

Theresa M. Ferraro

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ENVIRONMENTAL EDUCATION: THE CULTURAL BRIDGE

By
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B.S., Cook College, Rutgers University, 1982
M.S. Ed., Northern Illinois University, 1984

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for the degree of
Master of Science
University of Montana
1993

Approved by

Chairman, Board of Examiners

Dean, Graduate School

Date May 10, 1993
ACKNOWLEDGMENTS

Special thanks to Mr. Victor Karmun for opening the door into the Inupiaq community and to the people of the Northwest Arctic Borough for sharing their words so that others may understand. I am also grateful to Shannon McNew for editing this paper and to Beth Beringer for her sense of humor during subzero weather as well as for her patience and insightfulness throughout this project.


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Chapter 1

INTRODUCTION

In the northwestern corner of Alaska, Inupiaq residents of the Northwest Arctic Borough (Figure 1) remain dependent upon the land for their physical, spiritual, and psychological well-being. However, today the Inupiat feel disenfranchised from the land they consider to be theirs by birthright albeit surrendered (extinguished) in 1971 with the passage of the Alaska Native Claims Settlement Act (ANCSA). For thousands of years prior to western expansion, Inupiat hunted and lived freely throughout this region. Today, many of their hunting and fishing grounds are occupied by National Parks, Monuments and Refuges established under the 1980 Alaska National Interest Land Conservation Act (ANILCA). Once providing sustenance without interference from outsiders, these areas are now highly regulated and managed for wildlife conservation, hunting and recreation. Government enforcement of culturally insensitive hunting regulations has created an antagonistic relationship between Inupiaq hunters and federal and state officials. In turn, state and federal land managers and biologists in northwest Alaska have done little to heighten public awareness of: general conservation issues, the purpose for game regulations, and the functions of land managing agencies. As a result of this bureaucratic mismanagement there is little community support for government conservation initiatives in the Northwest Arctic Borough.

To successfully maintain healthy wildlife populations in northwest Alaska, conservation agencies must have the support of the local citizenry. Local residents are likely to endorse management practices that are beneficial
to them; hence, the Inupiat will encourage agency policies that benefit their subsistence lifestyle. Education can be used by land managing agencies to communicate common interests to local residents. A public education program, uniting community land use values with refuge management goals, can provide a new paradigm of understanding between land managers and Native residents in the Northwest Arctic Borough. Although the current project leader at Selawik Refuge is eager to implement a public education program, the U.S. Fish and Wildlife Service (USFWS) Regional Office refuses to allocate funding for an education specialist at the Refuge. Regional Office directors remain unconvinced that education is the most effective management tool available to the Selawik Refuge.

It is the objective of this research and the concurrent research of Elizabeth A. Beringer to illustrate why education, communication and community involvement are immediately needed at the Selawik National Wildlife Refuge. This paper will illustrate the necessary considerations and steps to create and implement a community-based resource education program for the Selawik Refuge. This refuge was selected as a case study because of its problematic relationship with local residents and inadequate effort towards community outreach at the time of inquiry. The problems confronted at Selawik are not exclusive to the northwest Alaska. Similar situations exist throughout Alaska and anywhere different cultures, philosophies or users meet.
Chapter II

PROCEDURE (Beringer and Ferraro 1993)

In early January of 1991, Researcher Elizabeth A. Beringer and I traveled to Anchorage, Alaska to meet with USFWS officials. We met with Alaska Region Deputy Refuge Manager Jerald Stroebele (past Refuge Manager of the Selawik National Wildlife Refuge), and Education Specialist Beverly Farfan, to determine the status of resource education on the Selawik National Wildlife Refuge. While at the USFWS Regional Office in Anchorage, we reviewed relevant environmental education curricula available to USFWS personnel.

After several days in Anchorage, we traveled to Kotzebue, Alaska, which served as the base for our field work through March, 1991. During this three month period, we conducted over thirty five formal and informal interviews with Inupiaq and non-Native residents of the Northwest Arctic Borough. Initial interviewees were selected by recommendations from area land managing agency personnel and anthropologist Richard Nelson. Each interviewee was asked who they thought we ought to speak with and so our list of interviewees grew. We spoke with regional educators, Inupiaq elders, community adults and children, and employees of the following organizations: NANA Regional Corporation, Northwest Arctic Borough, Northwest Arctic Borough School District (NWABSD), Maniilaq Association (Native social service organization), IRA (Indian Reorganization Act) or Village Councils, Regional Elders Council, Alaska Department of Fish & Game (ADF&G), National Park Service (NPS) and the USFWS.
We developed two general interview questionnaires; one designed for regional educators and a second for all other interviewees. Questionnaires were used as starting points to generate topical and meaningful discussion. Interviews lasted approximately one hour to an hour and a half in length. Our goals for interviews were twofold: 1) to solicit Native and non-Native local residents' opinions about the presence and policies of regional wildlife managing agencies, specifically the USFWS; 2) to assess the potential of environmental education to build partnerships and to foster cooperation between cultures in land and wildlife management. Because of the sensitive nature of the interview topics, all quotes used in this paper will remain anonymous.

In addition to interviews, Researcher Beringer and I observed and conducted classes in both Kotzebue and Selawik schools. Through this experience we were exposed to cross-cultural teaching styles, children's perceptions of customary and traditional subsistence practices as well as their understanding of the USFWS and other land managing agencies that operate in northwest Alaska.

To understand the political structure of the Northwest Arctic Borough, we attended the NANA Regional Corporation Annual Board of Directors Meeting, the Kikiktaruk Inupiat Corporation Annual Shareholders Meeting and the Northwest Arctic Borough School District January Board Meeting.

In early March we traveled to Anchorage to participate in two USFWS training sessions. We attended an Alaska Region USFWS Environmental Education Workshop to become familiar with the present USFWS education and information policy and its future direction. Additionally, we presented initial findings from our Selawik study to Workshop participants. The second training session was for USFWS Refuge Information Technicians
(RITs). These employees are Native representatives of villages which now fall within National Wildlife Refuge boundaries. Their job is to dispense and gather information in selected Native villages to facilitate communication between the USFWS and local residents. This training session was most beneficial for it gave us an opportunity to appreciate the perspective of Native employees who work for the USFWS.

The information collected during the above field work provides the foundation for our manuscripts. The joint effort and collaboration of Researcher Beringer and myself present the background, current issues and possible solutions for successfully managing public lands in areas of rural Alaska. The following outline merges the Ferraro and Beringer documents.
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Chapter III

The Inupiat of Northwest Alaska

The Northwest Arctic Borough, encompassing 36,000 square miles, is a land of rolling hills, windswept tundra, and rugged mountains. In the west, the region is bounded by the Chukchi Sea, extending from Cape Thompson, in the north, to twenty miles west of Cape Espenberg, in the south (Figure 1). The central portion of the Borough is dominated by the Noatak, Kobuk and Selawik river drainages, with minor tributaries winding their way to the sea in the north and south.

Figure 1 - The Northwest Arctic Borough

It is a land of climatic extremes with brief summers punctuating long cold winters. In the darkness of winter, relentless maritime winds pound the coast creating bone-chilling conditions. Even when days are calm, temperatures plunge well below zero. Summers by contrast are short and
cool with long days. July and August are generally wet months with temperatures averaging about sixty degrees. Occasionally, the mercury rises into the eighties, but only for brief spells. Average precipitation in the region is nine inches, yet average annual snowfall tallies to nearly four feet.

The varied climate and topography are responsible for the region's rich biological diversity. More than 500 vascular plants species, representing about 60 families, inhabit the Northwest Arctic Borough's forests, bogs, shrub thickets, seashore, and estuaries (Selawik Refuge Comprehensive Conservation Plan [CCP] 1987). Lichen, moss and grass are by far the most prevalent species dominating the vast mosaic of wet and alpine tundra. The complexity of habitats within the Borough supports abundant populations of waterfowl, salt and freshwater fish, marine mammals, big game, and furbearers. These animals and plants contribute to the welfare of the Inupiat people who continue to occupy this region and hunt, fish and gather in the tradition of their forefathers.

Archeological evidence reveals that humans have occupied this northern region for at least 12,500 years. Artifacts have been unearthed along the Kobuk River, 125 miles east of Kotzebue, at Onion Portage and 35 miles northwest of Kotzebue on the beach of Cape Krusenstern (Minerals Management Service [MMS] 1988, Anderson 1977). Archeologists have recovered stone, bone and antler tools, pottery shards and bone fragments from prehistoric hunters who lived and camped along the Kobuk at Onion Portage (Anderson 1977).

In the nineteenth century, ten societies inhabited the Kotzebue region (Burch 1984a). Although each society shared the same Inupiaq dialect, they remained unique in their dress, traditions, taboos, rituals and subsistence base. Animal and plant varieties and abundance differ from one territory to
the next creating distinctive societal economies (Burch 1984a). Relying on the bounty of the land for their food, clothes and tools, it was not uncommon for these hunters and gatherers to move along the landscape with the migration of species. Intersocietal trading became a significant means of acquiring valuable resources. Every summer, people living up-river would travel to the coast at Sisualik to hunt beluga and participate in intersocietal feasting, dancing and trading. Sisualik evolved as the gathering place for the annual trading fair because of its prime location at the confluence of the Noatak, Kobuk, and Selawik rivers.

In 1816, Otto von Kotzebue was the first explorer to sail into what is now called Kotzebue Sound. Other explorers soon followed. The Sisualik fair, originally centered around large concentrations of beluga and salmon, grew to include the trading of furs for firearms. With the influx of non-Inupiaq traders also came whiskey and disease. Epidemics swept across the region decimating Inupiaq families. A crash in the caribou population from 1881-1883, coupled with declining numbers of seal and fish, added to regional hardship. Survivors wandered to the north and south to escape disease and locate other sources of food. Overtime, the return of the caribou and expansion of moose into the northwest territory allowed the Inupiat to reoccupy depopulated territories and continue to harvest local resources for much of their nutrition and clothing (Burch 1984a).

Eventually, the site of the trade fair shifted from Sisualik to Kotzebue as an increasing number of vessels landed there. Kotzebue grew as a major population center within the region. With the establishment of the first Friends mission in 1897, Inupiaq society began to unravel. Cultural changes came quickly as the missions spread. In the early twentieth century the
Inupiat became sedentarized in mission villages. Anthropologist Norman Chance comments on the effects of missionaries upon Native peoples:

...missionaries actively worked to convert the Native population to the 'superior ways' of the western world. Along with their particular form of religious teaching they attempted to limit the use of the Native language, change cultural practices, destroy the Eskimo religion, instill guilt over existing sexual mores and other 'barbarous customs,' and promote new forms of behavior and thought more acceptable to their own world (Chance 1984, 648).

By the 1960s, ten permanent villages occupied what is now the Northwest Arctic Borough (incorporated in 1986). Each village supported a school, store, church and airstrip. Simple wooden frame houses replaced traditional caribou skin covered tents and semisubterranean sod homes. Residents heated their dwellings with seal blubber, driftwood and timber. Homes once lit by seal-oil lamps now used gasoline lanterns and kerosene lamps. Snow machines began to replace dog teams as a method of winter travel. In summer, boats powered by outboard motor replaced traditional Inupiaq water crafts. Welfare and wage employment joined hunting and fishing as means to support a household. Perhaps the most poignant change was the rise of English vying with Inupiaq for the first language of the people.

The 1960's also marked the awaking of Native political consciousness in Alaska. Opposition to Project Chariot (the Atomic Energy Commission proposal for blasting a harbor at Cape Thompson with the use of nuclear devices) provoked the formation of the Northwest Alaska Native Association (NANA). In 1966 NANA joined with other regional Native organizations to form the Alaska Federation of Natives (AFN). The AFN coordinated a statewide effort advocating Native land rights, culminating in the passage of the Alaska Native Claims Settlement Act in 1971. The Act ensured Alaskan
Natives 44 million acres of land and 962.5 million dollars. In return, all claim to aboriginal lands rights, including hunting and fishing rights, were extinguished. Both the settlement land and money would be administered by 13 regional corporations and more than 200 village corporations (See Beringer 1993, for a full discussion of the ramifications of the ANCSA settlement). In 1972 the NANA Regional Corporation was established to govern Native lands in the Northwest Arctic Borough. The former Northwest Alaska Native Association evolved into the Maniilaq non-profit social service corporation.

As land ownership became redefined in Alaska, so did education. Prior to the 1960s, village curricula were designed to assimilate Native children into western society. Anthropologist Wendell Oswalt declares, "The Americanization of Native Alaskans was a long-established federal policy, and education was considered the most effective means to achieve this goal" (Oswalt 1990, 137). Much of a child's primary education was devoted to learning how to read and to write in English. Inupiaq parents were often unsupportive of education because they saw little long-term benefits for their children. Long hours in school meant time away from learning traditional skills necessary for successful village life (Oswalt 1990). Most villages typically did not have high schools until the 1970s so students who wished to continue their formal education had to go to boarding schools. Leaving home further alienated children from their cultural traditions; Inupiaq language, culture, and subsistence skills were not part of the high school curriculum. Students permitted to speak only English lost touch with their native language creating a generation unable to pass traditions to their children. In the 1960's, Native activists strived for social reform of village schools.
In 1970, the Alaska State Operated School System was created in an attempt to improve rural education. However, the program failed due to "organizational defects and political pressure" (Oswalt 1990, 140). In 1976 the Regional Educational Attendance Areas Plan replaced the state school system. This plan established regional and local school districts throughout the state to increase local control over education in rural regions. The Kotzebue area is now served by the Northwest Arctic Borough School District. Today, with funding from oil revenues, modern schools with impressive physical plants are located throughout the district.

Trying to recover from generations of cultural suppression, Inupiaq Teachers (one or more per community) in the Northwest Arctic Borough School District provide thirty minute lessons daily to students on all aspects of traditional Native culture and language. Although this education program is helpful as a method of restoring culture, Inupiaq students must also be equipped with the skills to survive in the city as well as in the rural village. Residents of the Northwest Arctic Borough must be prepared to leave their homes to seek employment as there are not enough local jobs for all those who wish to work. Anthropologist Wendell Oswalt suggests the dilemma of retaining a sense of ethnic identity "while preparing students to compete effectively with other Alaskans for jobs has not yet been solved" (Oswalt 1990, 143). Unfortunately, many students graduating from village schools are unable to compete with students from urban areas due to the inferior quality of village education. Education researcher Frank Darnell of the University of Alaska suggests that regional education will not be effective until the curricula reflects contemporary community life (in Oswalt 1990). Education must help students retain their cultural identity while preparing them for life outside of the village. Oswalt insists, "It appears that although progress has
been made, there is yet to be developed an amalgam that will lead to a viable sense of being Eskimo at the same time it produces individuals who can succeed socially and economically in contemporary Alaska" (Oswalt 1990, 143). To improve the quality of district wide education, the Northwest Arctic Borough School District is considering replacing village secondary schools with a regional high school in Kotzebue (Craig 1992). It is clear to the District that the future of the Inupiat rests with today's students and every effort must be made to provide these youngsters with a well rounded education.

Table 1
Northwest Arctic Borough Villages - 1990
Population and Ethnicity

<table>
<thead>
<tr>
<th>Village</th>
<th>Total</th>
<th>Native</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ambler</td>
<td>311</td>
<td>89.7%</td>
</tr>
<tr>
<td>Buckland</td>
<td>318</td>
<td>95%</td>
</tr>
<tr>
<td>Deering</td>
<td>157</td>
<td>94.3%</td>
</tr>
<tr>
<td>Kiana</td>
<td>385</td>
<td>93.5%</td>
</tr>
<tr>
<td>Kivalina</td>
<td>317</td>
<td>97.5%</td>
</tr>
<tr>
<td>Kobuk</td>
<td>69</td>
<td>89.9%</td>
</tr>
<tr>
<td>Kotzebue</td>
<td>2751</td>
<td>75.1%</td>
</tr>
<tr>
<td>Noatak</td>
<td>333</td>
<td>96.7%</td>
</tr>
<tr>
<td>Noorvik</td>
<td>531</td>
<td>93.8%</td>
</tr>
<tr>
<td>Selawik</td>
<td>596</td>
<td>95.5%</td>
</tr>
<tr>
<td>Shungnak</td>
<td>223</td>
<td>94.6%</td>
</tr>
</tbody>
</table>


According to the 1990 U.S. Census, 6113 people occupy the eleven villages of the Northwest Arctic Borough (Table 1). Eighty five percent of the population is Inupiaq. Ninety percent of the regional employment is based in federal, state and local government jobs. As the largest community in the Borough, Kotzebue serves as the regional political and economic center. All based in Kotzebue, the main governing bodies for the region are the Maniilaq Association (social services), NANA Regional Corporation, Northwest Arctic
Borough School District, and the Northwest Arctic Borough. On a local level, tribal Councils have limited power. A Regional Elders Council composed of representatives from each village meets periodically to discuss regional issues. Representatives from the other political institutions attend Elders Council meetings to report on current projects and to seek guidance on how their organization can best implement programs in a manner condoned by the Elders. Ultimately, however, most of the political power rest with NANA and the Borough.

Most residents of the Borough, especially those of Kotzebue, live in multi-room frame houses. Homes are heated with oil, propane and firewood. Each community has access to electricity, telephone, and television services. Residents are mobile, traveling in planes, snowmachines, fourwheelers, automobiles and motorboats. Fresh produce and meat line the shelves and coolers in Kotzebue's well-stocked stores, however, many Inupiat prefer to hunt and fish for their food. An Elder from Kotzebue describes the importance of traditional foods in the Inupiaq diet:

....the food we eat will never change. Those people fifty and older, maybe forty, eat the traditional foods. We've developed a taste, and eat the traditional ways. Up at Red Dog, they have every thing at the mine site. They have pop and ice cream, everything. But still they say, this is nice but there's no seal oil! Even though we go through changes, nothing will replace the foods. We must get up and go hunt....(Anonymous 3/1/91).

Another Kotzebue Elder declares: "No matter how much things change, we have to have our seal oil!" (Craig 1992). Although most hunters use modern technology, many Inupiat continue to practice traditional rituals when hunting. One Inupiaq hunter spoke of two customs he performs after killing specific animals:
When I kill an animal, there are certain traditions that I follow. I cut the little tongue under the tongue of a bear, and on a beaver, I cut the little toe. Polar bear and Dall sheep are the two animals that are more difficult to kill...they are so beautiful. Yet, the taste of the meat is what makes us kill it. Beluga, are the most intelligent creature out there. It is a continual battle for me to outsmart the beluga. He knows our modern technology and can outsmart us (Anonymous, 2/12/91).

Another Inupiaq hunter explains the status awarded to a good hunter in Inupiaq society:

If you’re good at subsistence, you’re somebody. We are dependent on subsistence, the river, the ocean, the land....We have lived this way forever; we will continue no matter what....(Luke Sampson, Kotzebue, 11/2/90)

Clearly, subsistence activities continue to define the native culture in northwest Alaska.

Like their ancestors, many Inupiat of the Northwest Arctic Borough participate in a seasonal round of subsistence activities. Marine mammals, fish, caribou, moose, waterfowl, and berries comprise the mainstay of subsistence foods harvested in the region. Harvest numbers vary from year to year reflecting changes in weather, traveling conditions and species availability. A 1987 Alaska Department of Fish and Game survey indicated that caribou was a staple food for Kotzebue residents in 1986. While only 45.2 percent of the participating households actually harvested caribou, 88.1 percent of the households surveyed used caribou during the study year. Inupiat frequently shared caribou; 57.9 percent of the households received meat from other households and 40.3 gave some away (ADF&G, 1987). Table 2 tabulates harvests of 90 Kotzebue households in 1986.

In Kotzebue, spring break-up marks the beginning of the subsistence year for Inupiaq residents. As the sea ice melts, people begin fishing for herring, sheefish and char. The Inupiat hunt marine mammals such as
Table 2
HARVESTS OF SUBSISTENCE SPECIES IN KOTZEBUE
Total Estimated Harvest And Mean Household Harvest (pounds)

<table>
<thead>
<tr>
<th>SPECIES NAME</th>
<th>MEAN HARVEST (dressed weight)</th>
<th>TOTAL HARVEST (dressed weight)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bearded seal</td>
<td>242.969</td>
<td>185871.0</td>
</tr>
<tr>
<td>Bearded seal (juv)</td>
<td>21.641</td>
<td>16555.7</td>
</tr>
<tr>
<td>Ringed seal</td>
<td>42.588</td>
<td>32579.7</td>
</tr>
<tr>
<td>Spotted seal</td>
<td>25.800</td>
<td>19737.2</td>
</tr>
<tr>
<td>Walrus</td>
<td>15.434</td>
<td>11806.7</td>
</tr>
<tr>
<td>Beluga</td>
<td>26.360</td>
<td>20165.3</td>
</tr>
<tr>
<td>Salmon</td>
<td>256.184</td>
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(ADF&G Division of Subsistence 1987)

bearded and ringed seal and walrus in the open water north of Kotzebue. Traditionally, they also hunted waterfowl in spring, however, current federal regulations prohibit a spring hunt because of low population numbers among several of the nesting species. Later, in June and July the Native residents take to the sea to hunt beluga whale and occasionally bowhead whale. In early July, many residents begin subsistence and commercial fishing for salmon. Inupiat also pick sourdock greens early in the summer and collect blueberries, blackberries, and cranberries as the season progresses. Before
freeze-up caribou and moose are hunted along the Noatak, Kobuk and Selawik rivers. Caribou cross the Kobuk River at Onion Portage "in such great numbers and on such regular routes that they form trails that are obvious from the air and ground" (Interim Interpretive Plan 1990, 3). Archaeological studies document Onion Portage as an important hunting site for the Native people for more than 10,000 years. "Each fall for thousands of years, people have waited at Onion Portage for the caribou to arrive" (Interim Interpretive Plan 1990, 4). The Inupiat continue this tradition today.

The extensive wetlands of northwest Alaska provide nesting habitat for thousands of breeding birds. Inupiat eager to add diversity to their diet hunt for waterfowl in early autumn, as birds from all four North American flyways begin their journey south. Fall is also the time when some local residents travel into the mountains in pursuit of bear and sheep. Coastal people fish for whitefish and char along the beaches of Cape Krusenstern. As ice begins to form on the sea, Native hunters once again pursue bearded and spotted seals. When the sea freezes, coastal residents jig for tomcod along the beaches and lagoons. The chill of winter is felt in this region from early October through mid April. Frozen rivers and snowcover opens up the land to snowmachine travel. Subsistence activities continue into the winter with the harvest of caribou, moose, ptarmigan, and rabbits. Although not as common as in the past, some residents set traplines for furbearers. As daylight lengthens and ice begins to melt, the cycle begins anew.

Unlike their ancestors, today Alaska Natives must adhere to state and federal hunting regulations. This is a source of much controversy in both Native and non-Native communities throughout the state. As a result of the current debate, Natives are uncertain about the future of their subsistence lifestyle. A concerned Kotzebue Inupiaq submitted the following comments
to the Kotzebue Federal Subsistence Board Public Meeting (see Beringer 1993) in November of 1990. The comment conveys the importance of subsistence to northwest Alaska Inupiat and their concern about land ownership and hunting regulations:

I would like to submit my testimony on behalf of my ancestors who have used this land for centuries, and also on behalf of the future native people yet to be born. This land has been used by the native people without restrictions or regulations for centuries and the resources are still maintained at healthy levels. The knowledge of what to hunt, when and how much have been passed on to each generation, because it is the only way to survive. This is the way we live.

The land has been taken from us. There is nothing left to give. We have given all there is and we are tired of being told what to do. Now the rights to hunt and fish on the land are in question. Hunting and fishing as a way of survival is the most important thing left, which we cannot afford to give up. Slowly outside forces have invaded our land and want everything we have left.

The priority for subsistence must not be taken from us. We are dependent on what the land gives. It is the only connection which I have to my ancestors. They hunted and fished and I hunted and fished. I would like to see my children, grandchildren, and great-grandchildren have and feel the same connection. Its like a chain....We only are trying to survive the way our forefathers did. That's all most people know how to do, because that is the way we live. It is the only identity I feel which is left along with the language. We still need to live the way we choose, not the way someone else wants us to live. Once you accept that, then you may be able to start to understand how we feel about what is left of what we had (Unknown, November 2, 1990).

Through the ages, Inupiat have cultivated their identity as proficient hunters deeply connected to the land. As I discuss in the next chapter, there are numerous threats to Native subsistence hunting in Alaska. Wildlife managers and state and federal legislators must respect the needs of Native citizens by working together in an effort to sustain healthy ecosystems and to provide continued subsistence opportunities for Native Alaskans.
Chapter IV

ALASKA NATIVE SUBSISTENCE ISSUES

As a boy, he rode inside an open kayak with his father who hunted waterfowl with throwing board and bird dart. Today, his own son rides behind him on a snow machine while he hunts with a high-powered rifle (in Anderson et. al. 1977, 652).

A. The Legal Status of Subsistence

For thousands of years Native peoples have made their livelihood by hunting, fishing, and gathering the non-domesticated plants from their physical environment. Today, Alaska's rural Native population continues to depend upon these subsistence activities for their economic and cultural well-being. Despite this association, two major pieces of Congressional legislation in the past two decades have significantly altered resource use patterns in Alaska. In 1971, after much deliberation between Alaskan Native organizations and the United States Government about aboriginal land rights, Congress passed the Alaska Native Claims Settlement Act (ANCSA). ANCSA entitled Native people to select approximately 44 million acres of land from public domain for their own, while simultaneously extinguishing Native claims (including hunting and fishing rights) to all other Alaska lands. Additionally, nearly one billion dollars were paid to Alaska Natives in compensation for settlement. Thirteen regional and over 200 village corporations were established to manage the land and money for the people.

A second piece of legislation affecting Alaska Natives was the Alaska National Interest Lands Conservation Act (ANILCA) passed in 1980. The Act established over 100 million acres of National Parks, Monuments, Preserves,
and Wildlife Refuges throughout Alaska. Most importantly for Alaska Natives, ANILCA recognized their subsistence need and use of fish and wildlife. Additionally, the Act guarantees rural residents (Native and non-Native) priority access to resources on the newly created federal reserves. Title VIII of ANILCA outlines subsistence management. In summary, Title VIII provides:

a) formal recognition of the importance of, and threats to subsistence in rural Alaska:

The Congress finds and declares that...the continuation of the opportunity for subsistence uses by rural residents of Alaska, including both Natives and non-Natives, on the public lands and by Alaska Natives on Native lands is essential to Native physical, economic, traditional, and cultural existence and to non-Native physical, economic, traditional, and social existence;...(Section 801 (1)).

b) protection of subsistence opportunities for rural residents on federal lands in Alaska:

...in order to fulfill the policies and purposes of the Alaska Native Claims Settlement Act and as a matter of equity, it is necessary for the Congress to invoke its constitutional authority over Native affairs and its constitutional authority under the property clause and the commerce clause to protect and provide the opportunity for continued subsistence uses on the public lands by Native and non-Native rural residents; (Section 801(4))[emphasis added].

c) the establishment of a regional advisory structure to provide for local input into resource management:

...the national interest in the proper regulation, protection and conservation of fish and wildlife on the public lands in Alaska and the continuation of the opportunity for a subsistence way of life by residents of rural Alaska require that an administrative structure be established for the purpose of enabling rural residents who have personal knowledge of local conditions and requirements to have a meaningful role in the management of fish and wildlife and of subsistence uses on the public lands in Alaska (Section 801 (5)).
ANCSA and ANILCA created a mosaic of federal, state and Native land ownership within Alaska that hinders Native hunting practices. In northwest Alaska, Natives have become owners of small parcels of land surrounded by large state, federal and private holdings (Figure 2). Consequently, all subsistence hunters are dependent upon public lands to ensure harvest success. Historically, Native members of hunting and fishing cultures have adjusted their activities according to the availability of game without boundaries and government regulation. Today, however, hunters must adhere to political boundaries invisible to wild game. As one Inupiaq Elder explains: "In Inupiaq culture, hunting lands were everyone's, and they did have some sense of ownership regarding use. Then the feds came in and
said no 'you're just squatters!' They divided the land into square lots, blocks and put up maps" (Anonymous 1/16/90).

Moreover, conflicting management goals of the Alaska Department of Fish and Game (ADF&G), National Park Service and the USFWS reduce the accessibility of resources on public lands. Hunting practices that are legal within a National Wildlife Refuge may be illegal within a National Park or Monument or on state land. Those Inupiat with allotments bordering public property are threatened with a loss of self-sufficiency, and possibly even a loss of self-dignity if unable to hunt and fish on adjacent public lands.

Furthermore, voluminous regulations make it difficult for hunters to wade through the legalities of where, when, and how one can subsist, even within a single refuge or park. Coordinated agency planning resulting in common regulations may serve rural communities better by eliminating confusion.

By Congressional agreement in ANILCA, the Alaska Department of Fish and Game managed fish and game resources on state and federal public land according to Title VIII. On December 22, 1989, the Alaska Supreme Court (McDowell versus State of Alaska) ruled that it was unconstitutional for the State of Alaska to provide a subsistence priority for rural Alaskans. After the Court decision, the federal government granted the state six months by to rectify the situation by either changing their constitution or by returning to compliance with ANILCA. Unable to reach an agreement, the State of Alaska relinquished subsistence management on federal lands because it could no longer adhere to a subsistence priority as accorded in Title VIII of ANILCA. As a result, the federal government, bound by Title VIII to provide subsistence priority to rural residents, accepted responsibility for monitoring subsistence activities on federal public lands as of July 1, 1990. A Federal Subsistence Board was created to organize and to implement a subsistence
management plan for federal land in Alaska. Board members include the Alaska regional directors of the U.S. Fish and Wildlife Service (lead agency), Bureau of Land Management, National Park Service, U.S. Forest Service and the Bureau of Indian Affairs. Now, as a result of the McDowell decision, sport hunters and subsistence hunters compete equally for wildlife on state lands whereas subsistence users are given preference over other hunters on federal land when it is necessary to restrict harvest.

The complicated tangle of laws and regulations compounded by competition from in-state and out-of-state trophy hunters has threatened Native Alaskans' way of life. John Schaeffer, former executive director of Northwest Alaska Native Corporation, expounds on the topic of subsistence priority with his rhetorical question, "Who is going to starve if the resources are made available to the subsistence hunter before they are made available to some trophy hunter? That is the whole point of the game. It is not just food for the stomach. It is food for the soul" (in Watkins 1990, 47).

Moreover, coordinated agency planning along with a culturally sensitive attitude on the part of land managers are necessary to earn the cooperation of rural hunters. A Yupik Eskimo planning council has interpreted clearly the issues:

For if the rural people understand the regulations, and if the regulations are not handed down in a condescending manner ...then people in the villages may become the strongest supporters of the regulations and management policies. There is no group which has a greater interest in protecting fish and game resources than village people who depend upon them for subsistence (in Yupiktk Bista 1974, 40).

The responsibility for compliance rests as much with the governing agency as with the resource user. Regulations must be presented to hunters in a understandable format; subsistence hunters will choose to ignore confusing
regulations before they will choose to forgo subsistence products. To promote compliance with subsistence regulations, government land managing officials must work with and get opinions from hunters when developing hunting regulations.

B. Native Public Involvement in Subsistence Management

Encouraging rural residents, especially Alaska Natives, to be part of the land management process is essential. Unless their participation is successful, urban, corporate, and bureaucratic interests will continue to determine how the land is managed. Natives must be provided adequate means to participate in the planning that effects their subsistence lifestyle. The National Environmental Policy Act (NEPA) requires an Environmental Impact Statement (EIS) for any federal action having a significant impact on the quality of the human environment. Obligated by NEPA, the Federal Subsistence Board conducted fifty-eight public meetings throughout the state to obtain community input for the development of a subsistence management plan for federal public lands in Alaska. Although it is vital for Alaska Natives to have a forum for expressing concerns and influencing agency managers and policy makers, public meetings are ineffective avenues for Native and non-Native communication (Noland 1989, Gallagher 1988).

Public meetings fail to account for cultural differences in several ways: they force people to meet at a particular time; they encourage debate which is discouraged in certain cultures; and forums require speaking out, which may be looked upon as boasting and most people, Native or non-Native, do not wish to speak in public about a subject that may not be fully understood (Gallagher 1988). Differences in communication styles may create barriers to
understanding. Western culture employs direct questioning as an acceptable and common method for gathering information. Traditional Inuit and Athabascans may consider such direct questioning inappropriate as they are more likely to "talk around a question" (Nelson 1969). Anthropologist Richard Nelson observed that Inuit tend to provide information by narratives thus frustration may develop when a Native strives to make a point, and the non-Native planner misses the meaning or becomes impatient.

In addition, Native cultures have inherent differences in their attitudes toward planning for the future. The Athabascans of Alaska, for example, perceive the future as beyond control and filled with uncertainties. From this perspective, to speak and to plan of the future with certainty would be presumptuous (Gallagher 1987, Nelson 1978). This world view may create an unwillingness for Native people to participate in the processes of resource planning.

Participation by Alaskan Natives in agency decisions is essential for perpetuating subsistence lifeways. Cultural communication barriers must be removed before successful dialogue can occur between rural Natives and land managers. Intensive cross-cultural training for all non-Native planners who must meet with the Native community leaders is recommended to abate obstacles to communication and understanding. Land managers must recognize and become sensitive to diverse cultural world views, decision making styles, and communication styles among Alaska Native peoples.
C. Subsistence As a Lifeway

Alaska Native identity is still defined by the harvesting of wildfoods for daily sustenance. Natives maintain this lifeway despite the legal and jurisdictional upheaval in land laws over the past several decades. W. Schneider (1982), a historian from the University of Alaska, outlines four major contemporary subsistence issues affecting rural Native Alaskans. The voices of Alaska Natives best reflect these concerns:

1) maintaining a way of life that is important to them:

Subsistence to us is...our spiritual way of life, our culture...(Gladys Derendoff of Huslia in Berger 1985).

I came from a subsistence family, I grew up that way. I am very proud of it. I want my children to grow up that way. I want my great-great-great grandchildren to grow up that way and be proud of it because it brings strength to us as Inupiats. It is something different than giving to AC [Alaska Commercial Store], or Hansen's. Our grocery store is millions of acres wide, not just a few thousand feet, and it brings us pride (Suzy Erlich of Kotzebue in Berger 1985)

2) acquiring and maintaining the means with which to participate in subsistence:

Only five to seven percent of the village has jobs here. That means year around. And the rest of people are the fishermen, which they catch from this bay over here in three and a half to four months. And the rest of the year, there's no jobs. So therefore, we are relying on subsistence (Pete Abraham of Togiak in Berger 1985).

A person unable to set traps, hunt or fish, and without any money, would literally starve (Mathias James of Tununak in Berger 1985).

3) access to resources:

....And seems like the way things...is going...it will get to the end where we are not on our own, on our own land, because of too many different urban peoples’ law, which we have not brought up with, which we have not lived with...Our own belief about
the land is as strong as urban people's law, but it's not recognized... (Katherine Attla of Huslia in Berger 1985).

The Bering Land Bridge Preserve was created using our village land withdrawal line as the Preserve's boundary. Therefore, our hunting grounds are inside the Preserve. The [National] Park Service said they can close the area to hunting and travel, if they feel the resource is being depleted by man and the surface of land damaged by Snogos [snowmobiles] and all-terrain transportation (William Barr of Shishmaref in Berger 1985).

4) competition for scarce resources:

Right now we have more and more sport fishermen coming up here taking over the streams, and they even fly up to the lakes and, you know, they carry a lot of fish out of here. And sooner or later, we're not going to have any left for our people. And they [the Natives] depend on all this for their living (Mary Gallagher of Kodiak in Berger 1985).

These testimonies illustrate that for many individuals and cultural groups, subsistence is an integral part of their identity and worldview. Without subsistence, many Native people would be forced to redefine their lives, their ideas of achievement, and the concept of the place they call home (Schneider 1982). The remainder of this chapter addresses the contemporary subsistence issues of rural Alaska Natives.

Anthropologists, lawyers, economists, and state and federal land managers have made many varied attempts to define subsistence. Subsistence researcher Ernest Burch (1985, 17) defines the term as, "The production of raw materials by the same individual or group intending to be the ultimate consumer(s) of those materials." Burch specifically orients his definition to the activities of subsistence hunting, fishing and gathering. Written in terms of uses, Title VIII of ANILCA stipulates that subsistence means "the customary and traditional uses by rural Alaska residents of wild, renewable resources for direct personal or family consumption as food,
shelter, fuel, clothing, tools, or transportation..." (Comprehensive Conservation Plan 1987, 88). For the people living off the land, these bureaucratic definitions ring hollow.

Managerial definitions fail to account for the historical heritage reflecting the important survival values of flexibility, innovation, and change inherent to Alaskan Native cultures. An Inupiaq woman from Kotzebue provides her reaction to the term subsistence:

To many Natives, "subsistence" is a white man's term denoting poverty and second-class citizenship. But there is nothing bleak and joyless in the Native tradition. It involves so much more than merely hunting and fishing for table food that no single word could be coined that would adequately convey all the levels of history, tradition, religion, and family and community obligation involved in the process of taking sustenance from the bounty all around them (in Watkins 1990, 44).

Aleut, Athabascans, and Inuit of Alaska refer to "subsistence" as their "way of life"; it is this lifeway they wish to protect. The activities involved in producing subsistence from fish and game populations require a complex division of labor, strongly rooted in cooperation and sharing. Subsistence roles within Native groups differ not only between the lines of age and gender, but also with skill and knowledge. Involvement in fishing and hunting reinforces each person's identity within the family and village, and group-shared subsistence activities bind the family and community together (Langdon 1986, Noble 1987, Burch 1984, Graburn 1990). Community ties are further reinforced by traditional use and distribution of fish and game. Hunters typically share their game with other extended family members, and with elder or disabled persons unable to fish and hunt for themselves (Anderson et. al. 1977).
Today, domestic use of fish and game is still vital to most rural Alaskans. Beyond directly satisfying food requirements, subsistence activities preserve Native cultures and traditions. Continuous access to traditional game allows Alaska Natives to find self-respect in roles that make sense within their own cultural traditions, rather than constantly measuring success in terms dictated by mainstream American culture (Yupiktak Bista 1974, Anderson et. al. 1977). Inupiaq hunters continue to associate self worth with hunting success. In a Federal Subsistence Public Meeting an Inupiaq hunter from Kotzebue stressed: Titles mean nothing. If you're good at subsistence, you're somebody (Luke Sampson, 11/2/90).

**Figure 3 - Resource Harvests by Region**

![Resource Harvests by Region](image)

Upper and lower lines indicate U.S. mean and recommended use of purchased meat, fish and poultry (Wolfe 1987).

Although much of the traditional technology has yielded to industrially manufactured items, the underlying patterns and values of Native culture are very much alive (Carey 1987). As indicated by researchers Wolfe and Burch, subsistence harvests make a major economic and dietary
contribution to many rural communities. In a statewide survey, conducted in the 1980's, subsistence productivity was substantial in all study areas except for the four large urban population centers of Anchorage, Fairbanks, Juneau, and the Matanuska-Susitna Borough (Figure 3). Eighty-two of the 98 sample Alaskan communities harvested fish and game at levels half or greater than the mean per capita use of fish, meat and poultry in the United States (Wolfe 1987). In another study, Ernest Burch (1985), monitored subsistence harvest for two, two-year periods, in a small village along the northwest Alaskan coast. Taking into account a decline in the dog population (and therefore the need to catch fish for dog food) and an increase in the human population, Burch's data documents few changes between the two study periods. Total subsistence harvests were as follows:

1964-65 = 372,144 pounds  1982-83 = 442,798 pounds
1965-66 = 446,903 pounds  1983-84 = 500,767 pounds

These results indicate harvest of traditional fish and game was as important, if not more in 1984 as in 1964.

Despite the primary orientation of many villages toward traditional subsistence values, a modern day subsistence system cannot succeed without cash. Virtually all modern day subsistence systems involve the use of manufactured items that must be purchased with money (Lonner 1986, Anderson et. al. 1977). Necessary equipment includes snowmachines, nylon nets, rifles, ammunition, traps, motors, boats, tents, camp stoves, etc... There are also increasing demands on the hunter to pay for the new technology and fuel imported from "outside" regions. Furthermore, modern housing, electricity, running water and sewage facilities all generate a demand for cash. To sustain these recent amenities of most villages, residents must participate in a wage economy. A cash-free society is no longer possible for rural Alaska.
As a result, a major problem confronting rural Alaskans is how to reconcile the growing need to earn a wage with the desire to make a living off the land. When accepting a job, an individual must weigh costs between time spent earning a wage versus time taken away from subsistence production. Job opportunities in rural Alaska are usually short term or seasonal, and often take the employee away from home. When long periods of time are spent away from the village, social structures are displaced creating a burden for the family members remaining at home (Anderson et. al. 1977). The optimum situation is to schedule wage employment during periods of low subsistence activity, but this is not always possible.

One theory of cultural change in hunter-gatherer economies predicts that an increase in time invested in a wage economy is directly correlated to a decreased participation in subsistence food production (Murphy and Steward in Wolfe 1986). The reasons are two-fold: 1) time spent earning wages competes with the time available for hunting and fishing and 2) monetary incomes gives people the means to buy foods imported into the village, rather than depending upon subsistence harvests. Consequently, according to this theory, working for wages and purchasing imported foods could eventually replace subsistence hunting and fishing in rural Alaska. This theory fails on three accounts.

First, subsistence hunting plays a more critical role than providing remote villages with a viable economic base: it reaffirms for each hunter his identity within his cultural tradition. Subsistence is an entire process of living and therefore cannot be reduced to Western methods of cost-benefit analysis. For many people in rural Alaska, there simply are no substitutes or replacements for the fish, seals, birds and other wild bounty. Food from imported sources is an important, but clearly "secondary element", in the
Native diet (Anderson et. al. 1977). The indigenous cultures of Alaska universally agree on this point: No matter how much "white man food" you eat, you will never be satisfied until you have wild meat or fish (Anderson et. al. 1977, Nelson 1978, Yupiktak Bista 1974, Berger 1985). Two Yupiks of Hooper Bay attest to their need for traditional foods:

And believe me, my body must have seal oil. I eat it almost daily. It is necessary for us like you people have salad oil in your salad...My body is used to seal oil and must have seal oil, I will continue to buy seal oil no matter what (Margaret Nick Cooke of Bethel, in Yupiktak Bista, 1974, 17).

Every time when we eat we take seal oil...and when we eat something without seal oil, our stomachs kind of sick (Guy Mann of Hooper Bay, in Yupiktak Bista, 1974, 17).

Second, this theory is not economically realistic for rural Alaska. A study conducted in the village of Kotlik, Alaska in 1977 found retail costs per pound of imported meat and fish considerably higher than the costs of hunting and gathering subsistence foods (Wolfe 1985). To maintain a diet with imported meat products comparable to those acquired through subsistence hunting and fishing, a Kotlik household would have to increase its income. The increase would exceed what the families already spent on snowmachines, boats, motors, fishnets, and basic transportation needs. All things being equal, each household would have to double its annual income to maintain a comparable diet. This income level is not sustainable in rural Alaska, thus, subsistence is an economic necessity (Wolfe 1985).

Third, the prediction that increasing incomes decrease dependence upon and use of subsistence food has not been supported by Wolfe's Kotlik data. Research throughout Alaska suggests a linear relationship between a large income and the quantity of subsistence food products in a family's diet (Wolfe 1985, Jorgensen et. al. 1985, Chance 1987). Families with more money
to spend on subsistence inputs (fuel, ammunition, transportation, and equipment) attain greater success in the subsistence quest. Rather than decreasing subsistence use, large cash incomes enable families to procure more subsistence food than those with smaller incomes (Wolfe 1985). Anthropologist Richard Nelson asserts, "the fact that they take jobs at all, is a clear indication of their dedication to maintaining a subsistence living as successfully as possible. The residents most avidly seeking jobs outside are often those most dedicated to subsistence living" (in Anderson et. al. 1977, 578). Participation in a market economy enhances participation in the subsistence economy, providing it does not severely limit the time one could devote to subsistence pursuits (Wolfe 1985, Nelson 1978, Jorgensen et. al. 1985).

D. Conclusions

The Inupiat of the Northwest Arctic Borough hunt, fish and gather to fulfill their need for familiar foods and to maintain their cultural autonomy. Each time a hunter sets forth onto the tundra or sea, he reaffirms his Inupiaq heritage. With each harvest of caribou, seal, whale, moose, and duck, the subsistence hunter brings home quarry for the stomach and fuel for the spirit. When traditional foods are consumed, Inupiat affirm their relationship with the life giving force of the land and the animals it is able to support. Kinship ties are renewed as food is shared among family and friends. Tales of the hunt are celebrated in traditional stories and dance. Subsistence is more than gathering food; it is Inupiaq identity.

Today, Inupiaq subsistence issues are integrally tied to claims for land and wildlife resources through ANCSA and ANILCA. Land use activities
affect the habitats of fish and game and hence their populations, which in turn may adversely affect the chances for successful subsistence opportunities for Native residents. The most immediate threats to subsistence are changes in subsistence regulations initiated by the 1989 McDowell versus State of Alaska decision. Natives, in their pursuit for wild game, are now forced to compete with sport hunters on state lands. Meanwhile, subsistence regulations governing federal lands hang with uncertainty. Although currently upheld, the fate of ANILCA's "subsistence priority through rural preference" remains to be decided by the courts. Since the McDowell versus State of Alaska decision, several lawsuits have been filed against the federal subsistence management program; one complaint challenges the constitutionality of Title VIII of ANILCA, and four complaints challenge the concept of state and federal subsistence management (pers. comm. Dematteo 1990).

Without the support of a subsistence priority mandate, a lifestyle sustained for generations by reaping the bounties of the land will move quickly towards extinction. In 1977, an Inupiaq man from the Kobuk Valley stated his concern over the federal presence in northwest Alaska.

Too much is happening to the people. Too many outside pressures are forcing in on us. Changes are coming too fast, and we are being pushed in all different directions by forces that come from some place Outside... People thought that the land claims settlement was the end of our problems, that it meant the future was secure; but it was only the beginning... Instead of open access to the land, the Eskimos might be surrounded by huge pieces of country that are declared national resources for "all the people." Land that has always belonged to the Natives is being parceled up and divided among the takers (Kobuk Valley Eskimo in Anderson et. al. 1977, 647).

Sixteen years later, his prophetic words haunt Native people throughout the State of Alaska. In a letter to Secretary of the Interior Manuel Lujan, Maureen
Obert of Hoonah emphatically states her displeasure with and distrust of government intervention in Native subsistence activities:

...To jump to the conclusion that ANCSA and ANILCA took all of our rights away is wrong. These two acts of Congress is [sic] just a part of a plan to strip every Tlingit of everything we live for....

   We have always been able to go out and get our traditional foods with the seasons. Now days we have to have a permit for everything we eat. We are limited to how much we can get and where we can get it. There are restrictions on everything. Things like bag limits are attached to every move we make....This is very ridiculous management.

   Tlingits are free people, we have our own culture, our own rules, our own way of life. Since we became subject to the Whiteman's way of life, we are all drowning in rules and regulations. The establishment is killing us all off very slowly and torturing us as they move along....

   We are only asking for our SOVEREIGNTY. 'So give us back our rights, our land...and most of all give us JUSTICE AND LIBERTY'(in Tundra Times 1993, 2).

It is evident that the issue of subsistence management has yet to be reconciled between the United States government and the residents of Alaska. For Native people, ANILCA is not enough.
There is a critical need to keep the public effectively informed and committed to objectives that are, in the long term, very much linked to their own well-being and possible survival (USFWS White Paper 1992, 2).

A. Introduction

Beringer (1993) addresses several areas of conflict between Inupiaq residents and state and federal land management agencies in northwest Alaska. Much of this conflict is the result of poor communication by agency staff. Instead of education, law enforcement has historically been the government's primary method to bring local residents into compliance with game regulations. This enforcement presence in rural villages has diminished local support for government conservation initiatives. To encourage community involvement, the government must effectively communicate the objectives, intents and policies of conservation agencies to local people. Wildlife management agencies must begin an education effort that demonstrates the shared community/government goal of wildlife conservation.

Environmental education can facilitate communication and encourage resident involvement in the land management process. A public outreach program, incorporating community land use values with refuge management goals, can benefit local residents and land managing agencies. The Selawik Refuge Comprehensive Conservation Plan (CCP), prepared in compliance with ANILCA, states the need for public education in the Refuge
vicinity. Recognizing the tenuous relationship between local residents and USFWS in Alaska, the authors acknowledge:

The success of most of the management activities outlined in this plan will depend to a large extent on the actions of refuge staff, refuge users, adjacent landowners, local residents, and other interested citizens. An effective educational/interpretive program will help avoid potential problems by increasing public understanding of and support for refuge management goals and actions (CCP 1987, 150) (emphasis added).

A culturally relevant continuing education program can achieve three primary objectives:

1. Demonstrate how refuge conservation activities benefit all members of the community;

2. Improve the relationship between government land managing agencies and the local people;

3. Generate an interest in science in students, thereby encouraging them to pursue resource-related careers.

This chapter will address U.S. Fish and Wildlife Service public outreach policy, the necessity for resource education in the communities surrounding the Selawik National Wildlife Refuge, and outline an Environmental Education Plan for the Selawik Refuge.

B. USFWS Education and Information Policy

Outreach is any effort designed to communicate information to, impart knowledge to, promote involvement by, or create behavioral change in the public regarding fish and wildlife resources (USFWS White Paper 1992, 2).

Encouraging public support and awareness of wildlife issues through education is standard policy within the USFWS. In 1991, the USFWS issued a draft entitled, EE StrataGEM for Fish and Wildlife: Environmental Education
Strategies and Goals for Enhancing Management for Fish and Wildlife.

Thoughtfully conceived, this plan outlines a comprehensive strategy strongly advocating the use of environmental education as management tool throughout the Agency. It is unfortunate that this manuscript was never completed and approved by USFWS as it recognizes the need for multi-disciplinary and multi-cultural education programs.

The U.S. Fish and Wildlife Service's mission is to conserve, protect, and enhance fish, wildlife, and their habitats for the continuing benefit of the American people. Environmental education is a tool to achieve this mission and establish a partnership with the American people to foster a conservation ethic and encourage active participation in resource protection.

GUIDING PRINCIPLES

(1) Environmental education is an important and effective management tool and should be resource-based to meet Service management goals and objectives.

(2) Environmental education services should be multi-disciplinary and multi-cultural to meet the needs of all populations.

(3) Environmental education should aim to develop in people of all ages an understanding, appreciation, and support for fish and wildlife management and encourage active participation in resource protection....

OUTCOMES
A sense of ownership in the fish and wildlife related issues of the local area will generate a sense of concern and support for fish and wildlife management policies and national programs. Environmental education programs developed and implemented within the Fish and Wildlife Service must...be tailored to meet each region's needs and issues....

GOALS
If the Service is to "manage wildlife for the benefit of people," then people must be included in the management via a vital information and education program....
GOAL 2: To enhance environmental education program management and staffing in the Fish and Wildlife Service to ensure the accomplishment of Service goals....

* Establish environmental education specialist positions in all regions and identified field units....

EE StrataGEM, along with the USFWS document, Vision For The Future - Total Quality Management Plan 1991, (Visions), distinctly endorses the use of education to enhance public understanding and involvement in land use policy.

Public support and awareness is absolutely essential to the conservation and continued viability of our nation's fish and wildlife resources... The Service is committed to educating people about the values of fish and wildlife resources, the threats to these values and action that each citizen can take to promote resource conservation... We must have grass roots support (Visions 1991, 3).

USFWS education and information policy did not originate with either the Visions or the draft EE StrataGEM documents. Rather, standard refuge public use policy has been reinforced by these two works.

The USFWS issues a Refuge Manual to each field station which serves as a tool to educate all employees about basic refuge operations. The section on Public Use Management is particularly useful to this education study. Although general, it provides the principles for initiating effective communication and promoting good public relations between the Agency and local constituents. In summation, USFWS public use policy dictates that refuge personnel inform interested public of "refuge objectives, programs, policies, and activities," and "foster a spirit of cooperation and goodwill between refuge staff and residents" in the refuge vicinity (USFWS Refuge Manual - Public Use Management, Section 2.1-2, 1982). In addition, the manual states (emphasis added):
Good public relations depend upon many factors. Important among these is **open and continuing communication** between the refuge and the public. Various means are available to refuge managers by which information can be effectively communicated to the public. These include:

A. **Public contacts**

...The dissemination of information regarding Service programs, policies, and objectives can serve to educate the public, build an identity for the Service, and possibly lessen future conflicts with groups or individuals who would support the refuge system if they understood the reasons why particular actions are taken....

Interpretive programs provide avenues for communication and information exchange. For example, local children are unaware of the purpose of the Selawik Refuge and how it relates to their lives. Programming on regional ecosystems can be developed to cultivate an interest in conservation among the local youth and explain the purpose of wildlife refuges. The Public Use Management section addresses interpretation:

...**The goal of interpretation is not only the conveyance of information, but also cultivation of interest and understanding.** It is advantageous to have **staffed facilities** and **programs** to provide direct answers to questions and clarification of messages....

Interpretation is also a valuable tool for resource management:

...**Interpretation is an integral part of refuge management and perpetuation of wildlife/wildland resources.** Through interpretive programs, the public is provided with an understanding of man's impact upon the environment. **Interpretive programs also supply insight into management practices which may appear controversial to the uninformed public.**
C. A Case for Environmental Education on Selawik Refuge

....historically the agency's approach to public outreach has been haphazard, uncoordinated, and less than outstanding in many areas. This is not surprising when one considers that Service outreach programs have had inconsistent management attention and funding support over the years (USFWS White Paper 1992, 4).

1. The Need for Environmental Education on Selawik Refuge

Very little resource education occurs in the Selawik Refuge area. U.S. Fish and Wildlife Service, Alaska Department of Fish & Game (ADF&G) and National Park Service (NPS) occasionally visit local classrooms and sponsor teacher workshops but this is done without consistency and regularity. Topics rarely stray beyond gun safety, and the significance of the USFWS and the NPS in northwest Alaska. The NPS, USFWS, and the Bureau of Land Management (BLM), jointly administer the Visitor Center in Kotzebue which tailors its summer interpretive activities to "Above the Arctic Circle" tourists, while, unfortunately, neglecting programming for local residents.

Unlike Selawik Refuge, the necessity for wildlife education is taken seriously on the Yukon Delta National Wildlife Refuge, and the benefits are obvious. In 1984, the USFWS, Fish and Game Departments of Alaska and California, and tribal governments in southwestern Alaska formed a cooperative management agreement to protect four migratory waterfowl species along the Pacific flyway. The Canada goose, white-fronted goose, Emperor goose, and the black brant suffered severe population declines over the past twenty years as a result of sport hunting, loss of habitat, pollution and predation. Traditionally relying upon these birds as a food source in late spring, the Yupik Eskimos now comply with goose harvest restrictions. Their compliance is largely the result of an improved communication program
between user groups and the government (Anonymous 1/16/91, Osherenko 1988). On the Delta, education and information provide a management tool more powerful than law enforcement. In an effort to reach all populations, the Yukon Delta Goose Management Plan emphasizes hunter education and classroom lessons. A former member of the Yukon Delta Refuge staff remarks upon the success of the school programming:

The educational efforts directed at school age children on the Delta has been the most effective thing we have done to date. We found that the kids were going home to tell their parents what they had learned (Anonymous 2/26/91).

The cooperative efforts between Native organizations and state and federal agencies on the Delta have become a paradigm for other refuges to follow. The USFWS must recognize that the need for education does not diminish with the size of a refuge; implementation of an educational program is long overdue on the Selawik Refuge. An Inupiaq man from Kotzebue believes, "If education and service to the people and the resource was first, people would respond much better to the Fed presence" (Anonymous 1/18/91). Certainly education has enhanced the relationship between community residents and the federal government on the Yukon Delta.

Understanding the potential for using education as part of an effective proactive management plan, the Selawik Refuge staff has repeatedly requested funding for public education. Convinced that sound wildlife management is not possible without education, the Selawik Refuge 1990 Annual Narrative Report outlines the necessity for public outreach funding:

For the long term, there is a dire need for a position to work with schools and villages in education about wildlife management and the role of wildlife refuges in maintaining healthy populations of fish and game. Currently, any attempt to impose bag limits or seasons on game in subsistence hunts is interpreted by local residents as an attempt to interfere in
traditional hunting practices. Furthermore, allowing sports hunters to harvest animals from healthy populations is criticized as taking animals away from subsistence hunters, even when sport hunts occur far from villages. **None of the game management organizations in Kotzebue have much credibility with the local people, since local residents are not convinced that any of the rules created by these agencies will benefit them or the game populations in any way** (emphasis added). Establishing credibility with the local community will require a long term commitment on the part of the USFWS, requiring both careful review of regulations to assure that they are necessary and appropriate to insure the health of wildlife populations, and an educational program to explain to the community how bag limits and seasons are used to maintain healthy populations.

In the spring of 1991, each Alaskan refuge was asked to submit an environmental education plan to the USFWS Regional Office. In response to this request, the acting Refuge Manager of the Selawik Refuge submitted the following:

> The current, and very temporary, administration at the Selawik Refuge is delighted to see the emphasis on environmental education as one of the most important fish and wildlife management tools....

Currently, the refuge is understaffed, and your environmental education information request was neglected in the confusion for having numerous acting managers, trying to complete biological field work, and having the Kotzebue telephone system burn up. In the meanwhile, your sample Environmental Education Plan Work Sheet looks like a good beginning for this refuge, so I have taken the liberty of submitting it as Selawik Refuge's plan.

I apologize for not using the requested format. We are already working evenings and weekends. **The apparent lack of effort at this station is not to imply that there is no interest in, or need for an education program. To the contrary, this is probably the single most important management tool for northwest Alaska, and we haven't even begun to utilize it** (emphasis added). I hope this refuge is not once again "left out in the cold" because of our perpetual Catch-22 situation: we are insufficiently staffed to aggressively pursue adequate staffing to address refuge needs (USFWS Memorandum 5/31/91)
Obviously, the administration of a bush refuge is not an easy task. Staff members are often required to be simultaneously biologist, manager, secretary and maintenance person. Although interested in pursuing environmental education, understaffing at the Selawik Refuge prohibited the preparation of a viable plan, thereby eliminating the possibility for funding at the regional level. Since the petition for an environmental education plan, the positions of refuge manager and assistant have been filled with permanent staff. Selawik Refuge, however, remains without a full-time staff member to provide public outreach programming. The new project leader at Selawik Refuge has witnessed the success of public outreach program while a staff member of the Yukon Delta Refuge. It is now this manager's responsibility to aggressively solicit funding for a similar program at Selawik Refuge.

2. USFWS Environmental Education Budgeting Trends

The current education trend of the USFWS in Alaska is to develop in-depth curricula targeting specific land management issues. Topics generating the most concern are waterfowl, wetlands, and the role of fire in habitat management. These curricula, *Teach about Geese, Wetlands and Waterfowl,* and *Teach About Fire,* are distributed statewide to refuges and schools. The highly successful program, *Teach About Geese (TAG),* was originally designed for the Yukon-Kuskokwim Delta to teach children about wildlife conservation issues specific to the Delta. On the Yukon Delta Refuge, USFWS personnel provide in-service teacher training to familiarize educators on how to effectively use the large curriculum.
TAG has been distributed to other Alaska regions where it has received mixed reviews. A teacher in Selawik comments, "We don't have the same issues here [Selawik] as on the Delta; the geese population isn't threatened - we don't even have the same species here" (Anonymous 2/14/91b). One USFWS employee reports that TAG is inappropriate outside the Delta because, "the pictures in the lessons depict Yupiks; Inupiat and Athabascans don't feel comfortable with that" (Anonymous 1/9/91). Another obstacle to its success is size: "TAG is too involved - too big - not useful to an overworked teacher. It would be better if it were just a few lessons" (Anonymous 2/7/91). "The big curriculums are not useful to teachers, who are already overworked and loaded with extra lessons to include in cramped day, for the benefit of an outside interest" (Anonymous 1/10/91).

No one would challenge the accomplishments of the TAG program on the Yukon Delta; however, the above comments raise the point that what works in one area may be inappropriate for another. The reasons are twofold: cultures and resource issues vary throughout the state, and refuge environmental education budgets are not equal. USFWS personnel must not assume that Indians and Eskimos are all the same; Inupiat, Yupiks, Athabascans and Aleuts have customs and traditions unique to their own culture, just as Salish, Hopi and Iroquois. Educators must be careful to acknowledge and incorporate cultural differences in regional programs.

Contrary to the situation on the Yukon Delta Refuge, funding has not been granted for a education specialist on the Selawik Refuge. Lacking appropriate personnel, Selawik Refuge is ill-prepared to demonstrate to teachers how USFWS curricula can best serve their classroom needs. Consequently, teachers choose to ignore large USFWS curricula such as TAG. Although these award-winning lessons deserve merit, what purpose do they
serve if they are not being used? Selawik Refuge needs an education specialist to teach and assist teachers with curricula.

Moreover, the production costs of these comprehensive curricula eat away at the heart of the Regional Office environmental education budget. In 1992, Regional Office allocated $75,000 for printing and teacher/staff training of *Teach About Fire*. This curriculum explains how and why fire can be beneficial for improving wildlife habitat. Hence, it is particularly useful in addressing management issues relevant to interior Alaska. Also in 1992, $42,000 was earmarked for reprinting, and teacher/staff training for *TAG* and *Wetlands and Wildlife*. An additional $65,000 went to wetlands management education with a balance of $9,000 for purchase of "resource materials and development of Service-oriented fact sheets, lessons plans and materials" (Environmental Education Planning Report 12/12/91).

This budgeting pattern reflects the agency's predilection for producing glossy page curricula while neglecting to fund public use positions on bush refuges. Unfortunately, an occasional teacher workshop taught in the villages by a Regional Office employee is proving to be unsatisfactory in many areas of rural Alaska. A classroom teacher using the *Wetlands and Wildlife* curriculum is apt to instruct her children about waterfowl and habitat whereas a USFWS employee visiting a classroom is more likely to demonstrate the relationship between waterfowl, the community and Refuge lands while simultaneously cultivating a rapport between the USFWS, the students and the community. This last objective cannot be underestimated. These curricula need the sustained attention of trained refuge staff, otherwise, the best efforts of the Regional Office will merely collect dust on office shelves.
To be effective in using education as management tool, the Regional Office must appropriate funding to hire information and education specialists on all Alaskan Refuges. Selawik Refuge remains without the appropriate staff to teach the material in schools and/or train teachers to use USFWS curricula. Regional Office has approved an Outdoor Recreation Planner (individual responsible for refuge education) position for Selawik Refuge yet continues to withhold funding. Suffering from understaffing and a subsequent lack of managerial direction (at the time of research), the needs of this small bush refuge are habitually overlooked. Money for education continues to be funneled to high profile refuges situated on the road system and to the established program at the Yukon-Kuskokwim Delta Refuge. One USFWS employee believes Selawik Refuge can obtain funding for education with the correct management focus:

If the [Selawik Refuge] placed a priority on education in their budget, they would get the money and be able to follow through. In past years, out of all interpretive/education funding from Regional Office, the Delta got about 90%, just because they had a concrete plan for education and Regional Office knew it would be used (Anonymous 2/26/91a).

Without funding for outreach personnel, any attempt at education becomes the responsibility of staff biologists and management, ultimately short-changing the community. Although their inclusion is extremely beneficial and necessary, not all staff members feel comfortable dealing with the public or have the skills to make complex issues simple and interesting for children. Additionally, biologists and managers are often under project constraints and have little time to spare for educational endeavors. Education should not be an afterthought: it must be at the forefront of resource management, uniting cultures and ideas to protect natural resources and a way of life.
D. Environmental Education Strategy

Researcher Beringer and I recommend funding one permanent full-time refuge position for the purpose of coordinating a USFWS community education program in the Northwest Arctic Borough. This effort must be a long-term commitment on behalf of Regional Office and the Selawik Refuge. A minimum of an 8-month, GS-7 Education Specialist is required for the inception of a successful program. A highly desirable candidate for the position should have a background in natural resource management, environmental education, and knowledge of, and/or a strong interest in learning about life within Inupiaq culture. Such a person should be able to understand complex biological and management information and effectively transmit this material to others.

The Education Specialist will involve herself in many aspects of outreach programming targeting school children, area teachers, and community residents living in and around the Selawik Refuge. Responsibilities will also include preparing and maintaining a library of slides, teaching materials, and books of regional wildlife, Inupiaq culture and history, and contemporary village life, for use by Service staff and area teachers. The remainder of this chapter outlines USFWS educational programming in schools, the interagency Visitor Center, and the local communities.

1. School Programming

Our most effective work will be accomplished in the schools (Anonymous 2/26/91a).

Concentrate efforts on the young (Anonymous 2/11/91).

We must work through the kids (Anonymous 2/8/91).
Teachers would welcome resource personnel in their classroom (Anonymous 1/30/91).

Any outreach program in the schools would be well received (Anonymous 2/7/91).

Most teachers and Selawik Refuge personnel believe that USFWS presence in the classroom is essential for opening lines of communication between villagers and the USFWS. Although important, refuge-sponsored teacher workshops should in no way substitute for direct interaction between USFWS personnel and school children. Primary educational efforts must focus on planned and constructive classroom activities to foster a positive relationship with village residents. One Kotzebue teacher suggests:

Probably, the first priority would be to have Refuge personnel come into the classes. First though, they should go to a staff meeting and say "Hey, the caribou are moving through the Refuge this month and I've got this great program about it. Sign up for the program on this paper, this works!" (Anonymous 2/7/91).

There is a great need for a comprehensive resource education effort in the local schools. Regional teachers have expressed their concern over the piecemeal approach to environmental education done in the past: one lesson, one year, just for the fifth graders... and then nothing for two years because lack of adequate refuge staffing. "An education program needs to be on-going; not a one shot deal" (Anonymous 2/15/91). USFWS programming should be organized and sustained, with personnel visiting the classroom each week or month.

When school visits are not possible, teachers suggest the Service provide "boxed" lessons: a packet with one sheet of background information on a specific topic (i.e. caribou), and a few activities that can be included in a
science, social studies, reading or math lesson. Although Teach About Geese (TAG) was distributed in a Kotzebue workshop led by USFWS Regional Office staff in 1989, there is little use of the curriculum throughout the local schools. Approximately one teacher per school has used a portion of the TAG program, however, most teachers view TAG as too big, time consuming, and inappropriate for the Selawik region (few of the geese species are found on Selawik Refuge). Teachers prefer simple lessons that can be easily incorporated into the existent curriculum with little preparation.

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<th># AGES 5-12</th>
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**Area Schools**

The Northwest Arctic Borough School District (NWABSD) is based in Kotzebue and serves all eleven communities in the Borough. The two largest
village schools, Noorvik and Selawik, are both located within Selawik Refuge boundaries. These students, as well as those in the city of Kotzebue and the other villages strongly associated with Refuge lands, provide a large population for Service resource education efforts. At the very least, the Service needs to put a sustained educational effort into the communities of Selawik, Noorvik and Kotzebue. Table 3 profiles Borough enrollment during the 1990-91 school year.

**Logistics**

Other than Kotzebue, all school and village visits require the use of Refuge or charter aircraft or Refuge snowmachine or boat. All of these methods are costly and/or require considerable time commitment. In the primary schools of Selawik and Noorvik, the combined number of students exceeds 300 representing a significant target audience for Refuge educational efforts. These two villages can be reached by scheduled aircraft on one loop trip from Kotzebue, thereby considerably reducing costs from independent trips to each village. This is also true of the Kobuk River villages of Kiana, Ambler, Shungnak, and Kobuk. In addition, multiple mission trips, with overnight stays in the village, make the travel expenses worthwhile in light of the Refuge's information and education goals.

**Refuge Information Technicians**

In 1983, the Refuge Information Technician (RIT) position was created on the Yukon Delta Refuge. Under this program, local residents are hired part-time by the USFWS to explain refuge policy and regulations to fellow villagers, and to participate in school programs. Since it's inception, the RIT program has expanded to other refuges. RITs agree that the program
strengthens community relations with the USFWS, however improvements are still necessary. At the 1991 USFWS Refuge Information Technician Training Seminar (March 4-8), RITs suggested the following ways to enhance the program: expand training to two weeks; provide more education programs in schools; get together more often to coordinate programs; and be guaranteed a set number of hours. Unfortunately, a former Selawik Refuge RIT told us he resigned because the pay was too low: "I could work one month in construction and make more wages than working six months with the USFWS" (Anonymous 2/14/91b). Although supportive of the idea, this RIT never took part in USFWS educational programming for children. Refuge managers can benefit by heeding the RITs request for greater participation in school programs. With the appropriate support, training, and funding these individuals could provide educational experiences for village children on a regular basis.

Walking In Two Worlds With One Spirit

The western education system retired our Elders (Anonymous 2/12/91).

Use lessons that stress different values (Anonymous 1/10/91).

Give the facts and attempt to give both sides of an issue (Anonymous 1/30/91).

Teachers must know they are here to educate us, not change us.... Some kids are being raised with a strong spiritual relationship to animals, and others have very little knowledge of the outdoors. We need lessons for both....A cross-cultural program would stress our Inupiaq treasures....(Anonymous 1/25/91).

Children of the northwest arctic region belong to the world of their grandparents and to the Outside; educational endeavors must reflect this
reality. The complementary blending of Inupiaq values and knowledge, with western science should be intrinsic to all USFWS programming. Team teaching represents an immense potential for breaking down cultural barriers by uniting the western and Inupiaq worlds. Borough residents encourage using Inupiaq Elders, hunters, and interested community members in the classroom along with USFWS personnel as part of a bicultural conservation education effort in the local schools. This union of two worlds must be the foundation of the USFWS Environmental Education Strategy in rural Alaska.

An Inupiaq resident of Kotzebue declares:

We may understand the wildlife and the natural systems out there, but not know how to describe in scientific terms. We have the knowledge. Any lessons that would bridge the information gap--the practical, observational, and the scientific would be great (Anonymous 1/18/91).

Two educators from the region give the following advice:

Use Native role models; do hands on activities; take kids in field trips to see what is done on the Refuge or even in the office (Anonymous 2/7/91).

Use activities that emphasize cooperative decisions. Don't have winners and losers, that is definitely not what we are trying to emphasize. They have been losers for a long time (Anonymous 1/10/91).

The loss of biodiversity ultimately affects all people. The most successful education program will demonstrate how resource management can benefit the local community, as much as the global community. For many Inupiat, access to a diversity of biological resources is fundamental to their physical and cultural survival. A USFWS education program promoting local welfare is more likely to succeed than a program addressing less immediate concerns. However, a program that ignores the connection between regional, national and international ecological issues is a disservice
to the children. Three subsistence hunters from Kotzebue agree on the necessity for environmental education in the local schools:

There needs to be education now, let the kids know that incidents such as the passenger pigeon can happen here. Extinction can happen (Anonymous 2/26/91b).

School presentations are good. Educate the kids on the fish and wildlife of the region, and the impact of things (Anonymous 3/1/91).

We all live in the global world and whether a child stays here or in the villages, or goes to Anchorage or Seattle, they need to know about basic environmental issues (Anonymous 1/25/91).

Coordinating Educational Efforts With Community Organizations

There definitely needs to be major cooperation if things are to get better (Anonymous 2/8/91).

The mistake we learned from the TAG development and implementation was not getting everyone’s involvement at the ground level. Public involvement is critical to education efforts (Anonymous 2/26/91a).

We [NANA] want to work with the USFWS because we are stuck with them (Anonymous 1/25/91).

If people know they have some control, then people will want to participate (Anonymous 2/21/91).

A successful education program in the Selawik region needs the support and cooperation of the NWABSD, Elders Council, the Borough, IRA Councils, Maniilaq, and the NANA Corporation (Anonymous 1/10/91, Anonymous 2/15/91, Anonymous 2/21/91). We spoke with members of each of these groups and all endorsed a USFWS-sponsored education effort for local villages.
The most obvious community entity for the USFWS to collaborate with in educational endeavors is the NWABSD. Their curriculum provides a multitude of subjects that correlate with land and wildlife management. Too often, however, conservation and environmental education are considered solely as a branch of science. By addressing environmental education as strictly science, the educator misses opportunities to incorporate environmental issues into all disciplines from English to social studies. Teachers must be willing and able to demonstrate to their students the relationships between all issues and disciplines. Revised in 1989, the NWABSD curriculum directs sixth grade science classes to, "develop student awareness and understanding of interactions between science, society, technology and self" (NWABSD Science: Sixth 1989, 6-9). This curriculum provides many lessons which correspond to USFWS objectives. These include teaching children how to: differentiate between renewable and nonrenewable resources; identify ways in which wildlife is protected; recognize how the growing human population increases demand for resources; and describe ways to conserve resources (NWABSD Science: Sixth 1989, 6-9). In third grade, social studies students learn about resources and their conservation and how local job opportunities are related to the local environment (NWABSD Social Studies: Third 1989, 3-1). These curriculum goals and objectives provide perfect opportunities for resource personnel to visit local classrooms and discuss what they do for a living, where and why.

Science and social studies are two of the most obvious disciplines in which to teach about the environment. However, a well thought out project can stress skills from many disciplines. An excellent holistic approach to education was suggested by a NANA administrator (Anonymous 2/12/91a). His idea is to have students participate in a caribou hunt organized by
teachers, parents, and USFWS personnel. Using their math skills, students will calculate the following: the distance to the herd, quantity and cost of snowmachine fuel round-trip, amount and cost of food needed to complete the journey. After all costs are figured, students will calculate the pounds of caribou meat brought home and the resulting cost per pound. Students will participate in skinning and preparing the caribou using traditional Inupiaq methods and terminology. Agency personnel will discuss why and how caribou are collared and tracked and explain to the students why the information gathered from tracking is important to the hunter. The lesson will include orienteering and a review of traditional place names to help students interpret the local geography and provide landmarks for future travel. In the classroom, students will write about their hunting experiences. This exercise includes math, English, home economics, geography, history, social studies, and science. It connects aspects of traditional life with that of western science and technology. Most importantly, it demonstrates respect for each culture by highlighting the wisdom of each.

Challenge Grants provide a sensible method for community and refuge educational partnerships by sharing project costs. The USFWS has developed a multidisciplinary Challenge Grant project for school children on the Yukon-Kuskokwim Delta with matching funds from the city government and a local school district. Every two weeks, the participating class receives a computer disk of radio-tracking information from the USFWS enabling children to study the movements of collared moose near their community. With the use of a project-funded computer, students and their teachers incorporate math, science and other subjects as they study the significance of the wandering moose. A former Yukon Delta Refuge staff member explains, "this project [moose collaring] has really snowballed. We have five districts
on the Kuskokwim now, $56,000 has been raised through Challenge Grants to begin a caribou collaring project. This would be easily done here [Selawik Refuge], with NANA, Maniilaq or another entity" (Anonymous 2/26/91a).

**Topics for School Programming**

The Selawik National Wildlife Refuge environmental education program needs to address several key resource issues. In order of priority they are:

a. The role of the U.S. Fish & Wildlife Service in managing wildlife and habitat and as lead agency in subsistence management on federal lands in Alaska.

People still don't understand what a Refuge is !(Anonymous 2/14/91a)

Northwest Alaska residents do not clearly understand the mission of the USFWS. Considerable confusion exists about the differences between the federal and state land and wildlife managing agencies such as ADF&G, Alaska State Fish & Wildlife Protection Officers, NPS, and the USFWS. To promote good relations residents must have the opportunity to learn about wildlife and land management techniques employed by the Selawik Refuge. A resource education and information program should include themes such as wildlife inventories, subsistence hunting regulations, local involvement in refuge management policy development, harvest data collection, and other topics that affect local residents.

As the lead agency in the federal takeover of subsistence management, the USFWS is responsible for acquiring subsistence harvest data from local hunters. Biologists use these numbers to determine the health and size of game populations. Many Borough residents do not understand reasons for
harvest data collection or subsistence regulations and, because they view the Service as "game wardens", they hesitate to cooperate with USFWS sponsored harvest data surveys (Beringer 1993). Community members remain skeptical of requests for information fearing their participation will result in enforcement actions or tighter control over subsistence activities. Consequently, without local hunter participation it becomes impossible to collect accurate data. Community education explaining the purpose for harvest surveys may be the only way to successfully acquire accurate information and build community support for wildlife management programs.

b. Information on current projects in on Selawik Refuge.

Show kids how biologist's information helps their communities (Anonymous 2/7/91).

Have a biologist do even a twenty minute program on his or her way through Selawik.... just let people know if you are working on wolves or bear or waterfowl, caribou or whatever. It doesn't have to be some huge, prepared lesson with multimedia and all that (Anonymous 2/7/91).

The profession of a biologist is poorly understood. Little is known of Service biologists work with waterfowl inventories, aerial caribou surveys, radio telemetry and collaring of animals and other wildlife management techniques. Highlighting biologists work on the Refuge not only informs local people about activities on the Refuge, but can also interest youngsters in wildlife careers. This educational issue is essential if the Service wants to increase local hire of biological technicians, Refuge Information Technicians (RITs), biologists and managers.
c. Waterfowl population dynamics and importance of wetlands.

Migratory birds are an attention getter. People want to learn more about them. Lead birding programs for kids or adults (Anonymous 2/7/91).

Alaska Natives have the impression that USFWS officials blame local hunters for the decline of waterfowl. Many Natives believe that the USFWS grows ducks in Alaska so rich California hunters can shoot them (Anonymous 2/15/91). These issues must be addressed. Understanding the purposes for the Service, and knowledge of nationwide migration and hunting regulations may create a willingness to comply with the controversial restrictions on the spring harvest of waterfowl. USFWS-sponsored education is fundamental in this arena and several curricula are available which address waterfowl and wetlands education. An Education Specialist can use *Teach about Geese, Wetlands and Wildlife, and Project Wild - Aquatic Version* as written, or with slight adaptations for the Selawik Refuge.

d. Moose population dynamics and the increase of sporthunting on the Selawik Refuge.

Local residents are extremely concerned with the increase of sporthunting of moose on the Refuge and its effect on their subsistence economy. Education is critical to describe the Refuge's population studies of moose, the vitality (or lack of) of the Refuge moose population, and actual numbers of moose taken through sporthunting.

e. Wanton waste of big game on the Refuge, specifically caribou.

The Selawik Refuge was designated in ANILCA to conserve populations and habitat of the Western Arctic Caribou Herd, the largest
caribou herd in Alaska. The Refuge has traditionally been the heart of this herd's wintering grounds as well as spring and fall migration gathering areas. There is a need for education about caribou migration, traditional hunting practices and waste of caribou. This would be best done by the Service in conjunction with active adult hunters and elders from local villages.

f. **Fisheries, primarily sheefish, management and overharvest concerns.**

Many Inupiat believe catch and release sportfishing may be harming sheefish populations. The Selawik Refuge is specifically mandated through ANILCA to conserve sheefish and salmon populations. It is the responsibility of the USFWS to investigate the impacts of sport and subsistence fishing on the sheefish population and inform local residents of research findings. The USFWS should coordinate this effort with the managing agencies of nearby waters.

**USFWS Teacher Education**

Although a few NWABSD teachers spend their careers in the region, most teachers only stay two or three years. This high turnover rate necessitates ongoing teacher education in regional wildlife and ecology. To make the transition easier for new teachers, the USFWS Education Specialist should prepare a teacher resource information packet highlighting refuge objectives and materials available for loan. In addition, new teachers have expressed a desire for an elementary workbook on regional animals to use with their classes. Finally, the Education Specialist should conduct teacher workshops on various Alaska wildlife curricula and regional bird and plant field identification. By helping teachers learn more about the local
environment, the USFWS can ensure they do not ignore conservation issues in the classroom.

2. Interagency Visitor Center

The NPS, USFWS, and the BLM each contribute funds towards the operation of the Kotzebue Interagency Visitor Center. This small facility consists of 1500 square feet of exhibit space, 1000 square feet of office space, and 500 square feet of retail space. The Center has a sparse look. A glass case displays a few regional artifacts and several mounted birds dangle from the ceiling. Photographs hang on panels, identifying some NPS resource management projects. Perhaps the most unappealing display belongs to the USFWS. It consists of approximately ten, 5" x 7" unmatted photographs without captions (Figure 4). Unfortunately for the USFWS, 9459 visitors toured the Center in 1990 (National Park Service 1990, 13) and witnessed this exhibit.

Figure 4 - USFWS Display at the Kotzebue Visitor Center
Almost all the visitors to the Center are non-Native. The great majority of visitors are tourists spending a "Night Above The Arctic Circle." Package tours include a stop at the Interagency Visitor Center where tourists receive a fifteen minute "map orientation" talk familiarizing them with the northwest area National Parks. NPS rangers also guide tundra and bird walks during the summer. A Native resident of Kotzebue expresses his displeasure over the lack of Native involvement in the tours at the Center: "The walks are designed for non-natives, and done by non-natives that have only book knowledge" (Anonymous 2/12/91).

The Center sponsors a winter film series depicting natural and cultural history of the arctic region. Although this film series is designed for local residents, Inupiat rarely attend. Researcher Beringer and I attended the film series while conducting research in 1991 and were often the only attendants. Once two other local Anglos were present. Beringer attended films in winter 1989 and also noted no Inupiat attended. It is the responsibility of NPS and USFWS staff to figure out why Inupiaq residents do not visit the Center, and how to remedy this situation.

In 1990-91, the USFWS employed one part-time biological technician to assist with programming and operations of the Interagency Visitor Center. When asked what type of things he discussed with visitors, this elderly Inupiaq hunter told us he spoke of the importance of the NPS in northwest Alaska and answered questions regarding Inupiaq culture. There was no evidence that he mentioned the USFWS in his talks. As an advocate of his people, this self-taught photographer made a film about traditional Inupiaq culture. His self-stated mission is to help children rediscover the voices of their elders. It is unfortunate that this charismatic Inupiaq employee never participated in USFWS school programs. Many people interviewed in our
study urged USFWS to hire local people to serve as role models for regional children. Instead of promoting the NPS to foreign tourists, this man could have built cultural bridges between the USFWS and his community. The USFWS failed to recognize the talent and professional potential of this employee.

As of 1991, the USFWS still overlooked the potential of the Visitor Center. Few interviewees (except for agency personnel) had ever been inside the Visitor Center. Those who visited, expressed disappointment. Asked if she ever brought her class to the Center, one local educator summed up the feeling of many.

Frankly there is nothing inviting about the center, and it is not a place I'd choose to take a bunch of children. If you want people to go there, make it a place you'd want to go! The people there are fine, but the building layout, displays and all do not stimulate interest. Make sensory oriented displays that include people - hands-on! (Anonymous 1/30/91)

This individual was not alone in the assessment of the Center. Several educators offered ways to make it more inviting to children and adults from the region.

Make it a children's museum...lots to touch, like birds, feathers, bones, antlers and racks. Include movies, videos and maps and giveaways for teachers if they bring their class there.. they love that! (Anonymous 2/8/91)

Make it a social environment where people will come to visit the person, their friend there.... People don't like uniforms, they don't like to wear them.... Have furs to touch, have displays on geography, archaeology from Cape Krusenstern type places.... Don't teach about their own culture, be careful. Show how science fits in with stories they've heard like Onion Portage caribou crossing (Anonymous 2/11/91).
Utilizing any facility in Kotzebue and Selawik for meetings would be appreciated by the village. If it is possible, holding meetings in the Visitor Center would show support for community activities (Anonymous 1/18/91).

It needs good displays and movies available there to include the townspeople. The Visitor Center should offer more field trips and take classes on little walks on the tundra (Anonymous 2/7/91).

Community involvement with programs at the Visitor Center would work, and are needed. NANA could perhaps offer some areas of interest. Teach the function of the state and federal government. Tap into student's knowledge of their surroundings and their subsistence lifestyle (Anonymous 1/16/91).

Unquestionably, programs designed for the local community are underrepresented at the Center. Community members basically believe the center caters to organized tour groups; the hiring of additional NPS interpretive staff during the tourist season simply reinforces this belief. Future programming must consider the needs of the local residents. For instance, the winter film series should reflect the interests of Native residents rather than alienating them by offering films that may appear condescending; Inupiaq adults do not want to go to the Visitor Center to learn about their own culture. When interviewing Inupiaq residents in Kotzebue we were warned that USFWS personnel, no matter how knowledgeable they think they are, should not "teach us our own culture" (Anonymous 2/11/91, Anonymous 1/17/91). The interagency nature of the center makes it the ideal place to promote the common objectives of the local subsistence user and those of the federal land managing agencies in the Borough. Exhibits and programming should appeal to the needs of local residents and in doing so, will demonstrate to tourists the benefits of these lands.
The following are general recommendations for Visitor Center exhibits and programming:

**Outreach - Children**

Provide summer and school year programming for regional children. Coordinate USFWS and NPS employees with community volunteers to develop and present lessons on topics such as: wetlands and wildlife, animals of the tundra, marine mammals, migration of caribou and birds, and Inupiaq culture.

**Outreach - Adults**

Provide information on agency management policy and research. For example, one Kotzebue resident suggests: "The Visitor Center should host researchers who have done things here and come back to do a program and talk about their findings. Have programs about the region, in common person's language rather than scientific" (Anonymous 2/11/91).

**Field walks**

Sponsor tundra walks for school children and adults guided by Elders and agency personnel focusing upon regional natural and cultural history.

**Displays**

Inspire community pride by creating exhibits which depict regional cultural and natural history.

Demonstrate past and present uses of regional natural resources. Focus on the common goals of the biologist and subsistence user.

Feature interactive exhibits for children.

3. **Community Outreach**

Community outreach is an essential element of any environmental education strategy. It is a means to provide information and gain support for refuge objectives and activities within the local community. Residents of the Northwest Arctic Borough suggest the following ways to promote better communication:
a. Produce occasional newsletters for village distribution. This one or two page bulletin should include pictures or local children's drawings, updates on wildlife studies, a profile on a particular species, USFWS meeting times, puzzles for children, etc.

b. Produce short, bi-weekly radio spot using on-staff Native voice blending traditional knowledge with western wildlife management. This can be a short, fun fact.

"KOTZ is the public radio station here, and they are always looking for 15 or 30 second spots. If the USFWS had the appropriate voice, the spots could advertise, in a way, the Government's positive role in this community. Again though, this needs to be the right voice, and positive, constructive, and non-demeaning" (Anonymous 1/18/91).

c. Provide bi-monthly informational press releases for local newspaper.

d. Create a three to five minute video on the role of Selawik Refuge or career opportunities to local cable TV station.

e. Sponsor displays/exhibits at appropriate local events.

f. Sponsor an occasional nature film on TV cable network. This could be done on Rural Access Television Network (RATNET) which is distributed throughout rural Alaska.

g. Research, publish, and distribute to the villages a historical name place map of the refuge area. There is much interest in preserving the traditional names of hills, camping spots, bends in a river etc.. Use RIT's or other local people to accomplish this task.

h. Coordinate bird identification workshops with local Native volunteers during migrations. This may help alleviate stress concerning illegal spring waterfowl hunting regulations.

Multiculturalism

The government here view from the Outside in; they stay out of the community. They must realize that they are seeing what's left of a hunting culture (Anonymous 1/25/91).
Don’t expect to give presentations and get answers in a village. Silence is not bad! People must feel comfortable with information before they will openly question or give comment (Anonymous 2/4/91a).

Effective communication and cross-cultural knowledge are requisite elements of successful educational programming. USFWS personnel, coming from areas outside rural Alaska, must be aware of the different values, beliefs, customs, and communication styles of Inupiaq and western culture. Without such knowledge, USFWS educators are doomed to failure. All Selawik Refuge personnel should participate in cross-cultural communication training as a first step towards bridging understanding. Learning about another culture can be a life long process; employees must not be taught they are experts just because they attended a workshop or class. Additionally, the Interagency Visitor Center in Kotzebue is home to a library containing books and videos of Inupiaq culture to help educate agency staff. The Inupiaq Heritage Video Series, produced for the Northwest Arctic Television Center, is also an excellent primer on traditional Inupiaq life. Certainly, the most effective learning will come from day to day experiences in area villages.

Encouraging Local Hire

The best thing would be to get local people in resource management agencies (Anonymous 2/26/91b).

By nature, careers in biology and other USFWS type things should go to Natives (Anonymous 2/4/91b).

The Native communities feels good knowing that there are local people working in the federal agencies, and they are people that village people can call up and ask questions of... they feel comfortable with them so it works (Anonymous 2/4/91a).
They [USFWS] must be willing to lose their job to a local person. This will take putting away the selfish ideas most people have (Anonymous 2/26/91b).

The answer is to train local managers. This would be best for the resource, for the community. There are too many USFWS people who feel they can manage a duck in Texas, so they can manage one in rural Alaska. This won't work. A local person can work with their own Native organizations and work on cooperative agreements most effectively. We really don't have a choice but to train Natives to take our jobs (Anonymous 2/26/91a).

Early in our project planning, Researcher Beringer and I received a letter from the (former) manager of Selawik Refuge stating several Refuge environmental education objectives. They include:

a. Encourage students to become interested in science, go on to college, and someday replace us in our professional jobs.

b. Encourage students to understand sciences, graduate from high school and work for us during the field seasons as competent technicians able to observe and count phenomena in the field and record their observations accurately.

Without an active education and recruitment campaign on behalf of the USFWS, these goals will amount to nothing more than Agency rhetoric. Students must be exposed to career opportunities and be encouraged to participate in summer academic enrichment programs and Agency summer employment programs.

One obstacle to local hire is the lack of community/family incentives to complete formal education. Currently many Alaska Native youths do not finish high school and 70% of those going to college drop out in their freshman year.

Becoming managers and biologists...that's great but the chances are slim. The number of young people going to college is small, and those that do, often come back disillusioned or once there, do not finish and return to the region (Anonymous 1/16/91).
Academic requirements discourage students from completing degrees.

Right now there are more females finishing college than males. Most of the students earn degrees in business administration and education. Biology would be a natural for the boys who love to hunt and fish and have knowledge of the environment, but often they go to school and the prerequisites for the degree end up discouraging them. Students that get A’s and B’s here, end up with seventh grade reading levels and an enormous amount of frustration at college (Anonymous 1/16/91).

Lack of student awareness of local agency career opportunities is an additional obstacle to local hire at this time. Exemplifying this concern, the Natural Resources Program at the Kotzebue Technical Center was recently dropped because of low enrollment. USFWS participation in local career fairs is an excellent starting point for generating interest among area students.

There are career fairs, the USFWS could put up a booth. People want to know what type of classes they have to take, competition, and how long they need to be in school. USFWS could join in Maniilaq’s career fair and work together (Anonymous 2/4/91a).

Often just seeing a career in action, seeing what a dental hygienist does, or a biologist for that matter, and seeing positive role models for them to follow is really helpful (Anonymous 2/4/91a).

Emphasize careers in the USFWS, and government. Attend career days and stress opportunities for local people, show them how their way of life fits in with the roles in some government jobs (Anonymous 1/18/91).

Utilize TV. Make a video with [Native federal employees]. Show careers in USFWS and show what is in a day’s work. Emphasize reading, math, and writing and give them role models of their own culture. Many students would strive if they thought they could do biology (Anonymous 2/4/91b).

Additionally, social barriers prevent local residents from seeking employment with government agencies (Beringer 1993). As one Inupiat
reveals, "Natives working for the other camp [government] often are viewed
as 'Uncle Toms'" (Anonymous 1/25/91). Another Kotzebue Native concurs:

People may like to work for the Government, but this splits their
loyalty. The uniform makes them say things so they can keep
their job, rather than being there to work for Natives
(Anonymous 1/16/91).

These local hire barriers can only be overcome by cooperative efforts
between Native organizations such as Maniilaq and NANA and government
land management agencies. The Resource Apprenticeship Program for
Students (RAPS) is an example of a cooperative effort between agency and
local organizations that facilitates Native employment in land managing
agencies. Recognizing the poor representation of Alaska Natives in resource
management occupations, the BLM initiated RAPS in 1987 to provide
opportunities for high school students to gain experience and understanding
of resource management through summer employment with federal
agencies. Since its inception, the NPS and USFWS have become participants.
NANA corporation is one of several financial sponsors supporting the
program. Unless Selawik Refuge personnel aggressively pursue candidates
for this program, RAPS will never reach its potential in northwest Alaska.

RAPS is just one of several educational enrichment programs available
to Alaska Natives. The Rural Alaska Honors Institute (RAHI) selects talented
rural Alaska Native students to attend a six-week summer program at the
University of Alaska at Fairbanks. Students participate in classes taught by
college professors and high school teachers. Students can elect to take classes
in science and natural resource management as part of their studies. If the
USFWS became involved in this program, the Agency could arrange for
students to participate in summer projects on refuges. One Native NWABSD
employee suggests:
USFWS could participate in the several different enrichment programs available for Native high school students who wish to go to college. An added incentive with any of this summer program, could perhaps be that the valedictorian or salutatorian could go help collar a moose, or wolf, or go on an aerial survey. This would be a thrill for any young person. Also USFWS could participation or use the facilities of Camp Sivuniqvik. The program could be academic, but also show kids what it is like to work for the USFWS (Anonymous 2/21/91).

Hiring Inupiat, especially youth from Noorvik and Selawik, as biological technicians and Youth Conservation Corps (YCC) are other means to involving local people on the Selawik Refuge (Anonymous 2/7/91). The USFWS could offer a biological technician skills camp where students can become familiar with wildlife censusing techniques and studies. For younger children, Camp Sivuniqvik (Spirit Camp) offers a host of opportunities for cross-cultural education. Camp Sivuniqvik, sponsored by Maniilaq and NANA, is a place for youngsters aged 7-18 to come and learn Inupiaq values, skills, history and culture during a week long experience. Over 300 Borough children participate in the camp each summer. In the past, USFWS personnel have taught gun safety at Spirit Camp, yet this program offers an excellent opportunity for USFWS conservation education. A Kotzebue teacher suggests the USFWS should: "Work in coordination with NANA's Camp Sivuniqvik which now teaches Inupiaq values, but also could include education about habitats or species of this region" (Anonymous 2/8/91).

E. Conclusions

To begin an environmental education program, we recommend the Selawik Refuge hire an Education Specialist to implement the following
initiatives. In the interim, before funding becomes available for an Education Specialist, the Selawik Refuge should implement as much as possible using staff members and community volunteers.

Resource Education For Children

1. Develop issue or subject specific programs for the local region. Emphasize Selawik Refuge management species such as waterfowl, caribou, moose and fish.

2. Conduct school programs in conjunction with local adults and Elders, Refuge Native liaison, RITs, or NWABSD Inupiaq teachers. The NWABSD curricula provides innumerable opportunities for wildlife related topics in science, social studies and other disciplines.

3. Prepare simple Refuge displays for Selawik and Noorvik schools.

4. Update, organize and improve slide library to make useful for school programming.

5. Develop Kotzebue Interagency Visitor Center displays and programming. Design a few hands-on displays and offer dynamic programs to make this a place where Kotzebue teachers want to bring their classes. Create an atmosphere where local people feel comfortable.

Teacher Education

1. Initiate contact with school teachers/administrators. Attend the district-wide August in-service held in Kotzebue to plan for village visitation throughout the year. Attend Kotzebue school staff meetings and offer class programs.

2. Develop a teacher resource information packet highlighting Refuge's objectives and materials available for loan.

3. Sponsor teacher workshops on various Alaska wildlife curricula available with the help of Regional Office staff.

4. Develop an elementary workbook on regional animals for teachers new to the area.

5. Conduct bird and plant field identification classes for teachers.
Staff Development

1. Compile a resource library for use by USFWS staff and local educators which includes materials on regional wildlife, local flora, appropriate environmental education curricula, Inupiaq culture, cross-cultural interactions.

2. Attend regional and national training and conferences to remain current on environmental education techniques and materials.

Community Outreach and Public Involvement

1. Actively participate in career opportunity awareness programs such as Resource Apprenticeship Program, Youth Conservation Corp, CO-OP students, career fairs, and career development programs with Maniilaq and NANA.

2. Produce Refuge video and/or slide show highlighting career opportunities.

3. Conduct a two or three-day bio-tech skills camp for local high school students.

4. Incorporate resource education into Spirit Camp program in cooperation with NANA and Maniilaq.

5. Coordinate resource education with other agencies and organizations including NPS, NANA, Maniilaq, and ADF&G.

6. Conduct a local poster/calendar contest and distribute in regional communities. This has worked well on the Yukon Delta and would be beneficial here in fostering a positive view of the Refuge, even if on a much smaller scale requiring less funding.
CONCLUSION

In an earnest attempt to preserve wildlife diversity and habitats, federal and state wildlife managers and legislators have discounted Alaska's cultural diversity. Illegal spring waterfowl hunts (resulting from the Migratory Bird Treaty Act of 1916) and game bag limits that discourage sharing of wild food among indigenous peoples are two examples of how game laws are slowly strangling Native cultures. Although most Inupiat of northwest Alaska can physically survive today without eating wild ducks in spring, prohibiting a hunt dismisses the importance of Inupiaq cultural tradition. Likewise, enforcing western style bag limits reveals an insensitivity towards traditional sharing among Native peoples. One hunter may be supplying many people in a village with game; bag limits make this type of sharing a crime. Fall hunting seasons and bag limits are manifestations of a western sport hunting tradition. In contrast, for centuries Inupiaq hunters have pursued game as available and as needed; hunting seasons make little sense to hungry families. Unsympathetic to physical, social and spiritual needs of the Inupiat, game wardens historically have had few qualms about confiscating weapons, boats, and game from Native hunters. Moreover, Inupiaq hunters who are either unfamiliar or discontent with western style wildlife management show little interest in heeding alien hunting regulations.

Game regulations and law enforcement activities in rural Alaska have generated skepticism and mistrust of government agencies among Native peoples who have survived in the Arctic for millennia without foreign intervention. Accounts of confrontations with game wardens are remembered by contemporary Inupiaq hunters and their families. The
warden's historical image as an insensitive bully hinders wildlife conservation efforts in northwest Alaska. Today, residents make few distinctions between game wardens, biologists, and land managers. This categorical lumping of personnel by local residents has created a populace that is uncomfortable with all employees in government uniforms. This cultural antagonism, generated by a history of law enforcement, must be put to rest before the USFWS and the Inupiat can work together in land and wildlife management decisions.

Albeit for different reasons, the Inupiat and the management of Selawik National Wildlife Refuge share a vested interest in the conservation of wildlife on the Selawik Refuge. Inupiat must have healthy wildlife populations to continue their cultural traditions as a hunting society. As mandated by ANILCA, Selawik land managers must ensure the existence of viable animal populations and provide for subsistence opportunities within the Refuge. Although Inupiaq and Refuge goals are complimentary, there is little dialogue and cooperation between Northwest Arctic Borough residents and USFWS employees. Before there can be cooperation, there must be communication and education. USFWS employees working on Alaskan "bush" refuges, as well as Regional Office directors, must be cognizant of differing world views and communication styles of Native peoples throughout the State. Furthermore, conservation planning and policy must reflect the cultural needs of indigenous people. This is best accomplished by working with, not dictating to, Alaska Native peoples.

Certainly, contemporary wildlife managers face complex issues. Loss of wildlife habitat originating from national and international development and human population growth has stressed migratory and local wildlife populations across the United States. Perhaps the greatest challenge facing
land managers in Alaska is how to balance the livelihood of Native peoples with the need for protecting biological diversity. In our national desire to maintain wildlife diversity we must be careful to maintain cultural diversity. The time has come for land managing agencies to bury the image of game warden and put a new face forward. Community information and education programming must be at the forefront of all wildlife management administered by the U.S. Fish and Wildlife Service and other land and wildlife managing agencies, especially in rural Alaska.
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