

# SUBSISTENCE RESEARCH IN ALASKA: A THIRTY YEAR RETROSPECTIVE

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**Abstract:** Subsistence hunting, fishing, and gathering has been the foundation of Alaska Natives' historical existence and the most contentious and intractable political issue of Alaska's modern history as a state. As both a basic cultural system and thorny public policy issue, subsistence has provided a rich base for anthropological inquiry, especially in the past thirty years, since the birth of the Alaska Anthropological Association. While anthropological inquiry into subsistence in Alaska certainly did not begin with the inception of the Association, it could be argued that the history of the Association, and the focus of many of its members, are intimately tied to understanding and explaining the unique economic, political, cultural and ideological phenomena associated with subsistence. This review essay highlights important findings and themes in subsistence research over the past 30 years and how they bear on contemporary subsistence policy and research emphases and needs. We close by offering some general conclusions about subsistence research in relation to public policy, as well as some practical directions for future anthropological work on this important, enduring issue.

**Keywords:** political ecology, culture change, TEK

## INTRODUCTION

The 30<sup>th</sup> anniversary of the Alaska Anthropological Association roughly coincides with the passage of the Alaska Native Claims Settlement Act (ANCSA), signed into law by President Nixon on December 18, 1971. ANCSA extinguished aboriginal rights in exchange for fee simple title to 44 million acres of land and \$962.5 million dollars.<sup>1</sup> Chief among the rights extinguished were rights to hunt and fish in perpetuity. Although a small part in this massive social engineering legislation, both the federal and state governments considered the forfeit of aboriginal rights requisite for industrial development in the state to continue unimpeded.

At the time of ANCSA's development and ultimate passage, Congress expressed intent to deal with the loss

of indigenous hunting and fishing rights, a central tenet of what it means to be Alaska Native. But the question of how to deal with subsistence was largely deferred until 1980, when the Alaska National Interest Lands Conservation Act (ANILCA) [PL 96-487], the federal subsistence law,<sup>2</sup> was passed. The issue of including specific hunting and fishing rights for Alaska Natives was hotly contested during the framing of ANILCA, but, in the end, the federal government acquiesced to urban sport hunting interests, and provided only a weak priority for subsistence over other consumptive uses and an allocation preference on the basis of rural residency, not ethnicity.<sup>3</sup> Thornton (2001: 84) notes that "... for subsistence cultures, extinguishing these aboriginal rights proved to be an Achilles heel through which general weakening of

<sup>1</sup>For a more detailed discussion, refer to Arnold (1976), Case (1984, 1989), Kancewick and Smith (1991) or Thornton (1998).

<sup>2</sup>While often referred to as the federal subsistence law, ANILCA is broader than that. ANILCA basically delineates the major outlines of federal land ownership and management over roughly 65% of Alaska's lands owned by the federal government. In addition to establishing the rural priority, ANILCA also established and expanded federal conservation units throughout Alaska, effectively closing of these lands to all consumptive uses of fish and wildlife resources except subsistence uses as defined under Title VIII of ANILCA. Title VIII also called for unified management of subsistence activities, provided the state was in compliance with its provisions.

<sup>3</sup>Under ANILCA, subsistence use of resources has priority over commercial and sport uses of resources, and subsistence users are loosely categorized as rural residents. Specifically, ANILCA provides for "...the customary and traditional uses by rural Alaska residents of wild, renewable resources for direct personal or family consumption such as food, shelter, fuel, clothing, tools or transportation..." (Title VIII: Sec. 803). While not providing for an allocation preference based on ethnicity (such as exists under the Marine Mammal Protection Act, passed in 1972 and including an exemption for

subsistence protections could be effected over time." Sadly, and in spite of repeated attempts, more than 30 years later the subsistence issue remains unresolved and is perhaps the most contentious, intractable public policy dilemma Alaska has faced in its history as a state.

While anthropological inquiry into subsistence in Alaska certainly did not begin with the passage of ANCSA nor with the inception of the Alaska Anthropological Association,<sup>4</sup> it could be argued that the history of the Association, and the focus of many of its members, are intimately tied to understanding and explaining the unique economic, political, cultural and ideological phenomena associated with subsistence. Indeed, the topic of subsistence has provided a rich basis for anthropological inquiry in Alaska over the past 30 years; and as we shall illustrate, anthropological approaches to understanding subsistence are rich and varied. The focus of this review essay, then, is on the variety of anthropological approaches to understanding and explaining subsistence in Alaska over the course of the past thirty years, the life of the Alaska Anthropological Association.

While our focus is on anthropological research on *Alaskan* subsistence economies, other perspectives, including those of our neighbors to the east, are relevant. While the political and historical reality in Canada is different than it is in Alaska, anthropologists on both sides of the border share much in common in terms of their understanding and approaches to subsistence. Indeed, one could argue the basic issues are the same on both sides of the border, as they are perhaps for all minority communities seeking to maintain subsistence lifeways within the context of development and the modern global political economy. We would note, however, that there is a distinct difference between Alaska and Canada (and Russia, Greenland, and elsewhere), in terms of how the subsistence issue is framed and analyzed; Alaska subsistence laws generally emphasize rural use, not Native or indigenous use.

Before going any further, it is useful to discuss the meaning of subsistence, both in terms of the Euro-American consciousness as well as the understanding shared by Alaska Natives, and most anthropologists (see Bennet 1982; Berger 1985; Lonner 1986 for further discussion). Euro-American conceptions tend to be static, restrictive and minimalist, often defining subsistence as "the minimum resources necessary to support life." As Case (1989: 1009) observes, "...to many people, the term subsistence connotes the bare eking out of an existence, a marginal and generally miserable way of life." The latter perspective leads to the mistaken view that subsistence is (or should be) a welfare policy to combat poverty. Likewise, it fails to take into account the dynamic nature of subsistence,<sup>5</sup> as well as the rich cultural and historical context within which subsistence exists among Alaska Natives. As noted by Schneider (1982: 169):

Attempts to define subsistence characteristically fail to account for the historical record which reflects the important survival values of flexibility, innovation, and change. Survival in a subsistence economy depends upon a blend of traditionally proven patterns and an opportunistic eye for improving chances in the hunt. This has always been the case even though the modern European concept of subsistence emphasizes the traditional patterns and fails to appreciate the adaptive dimensions.

These understandings of subsistence as a meager economic existence, or as a static relic of the past, are the antithesis of the Alaska Native (and, generally, the anthropological) view and have no basis in law or in practice. In contrast to Euro-American conceptions, Alaska Natives typically define subsistence in dynamic, broad, and holistic ways, as "our culture," "our way of being," or "our life." As described by Harold Napoleon, a Yup'ik

Alaska Natives from the moratorium on hunting marine mammals), ANILCA nonetheless acknowledges a difference between Native and non-Native subsistence: specifically, the law states that "... the continuation of the opportunity for subsistence uses by rural residents of Alaska, including both Natives and non-Natives is essential to Native physical, economic, traditional and cultural existence, but only to non-Native physical, economic, traditional and social existence."

Nonetheless, the failure of Congress and the State to provide for an allocation preference based on ethnicity, in part out of deference to non-Native sport hunting groups, is a source of continued frustration for many Alaska Natives, as reflected in the following statement:

"... We must never forget that subsistence is a Native issue. The form of the preference in federal law may be rural, but if the only people living in rural Alaska had been a few thousand non-Native homesteaders, miners and modern day sourdoughs, there never would have been any title VIII of ANILCA. It was enacted for the protection of Natives. They are what this is all about..." (John Shively, October 28, 1991, in Alaska Native Commission 1994:11).

<sup>4</sup>Indeed, some of the earliest anthropological studies of subsistence pre-date ANCSA by a decade or more (cf. Hadleigh-West 1963; Loyens 1966; Saario and Kessel 1966; Sonnenfeld 1957; Sullivan 1942).

<sup>5</sup>As noted by Berger (1985:67), "...Subsistence is a dynamic enterprise, but government regulatory regimes try to confine subsistence activities within a steel web of exact definitions, exact locations and exact numbers. Such precision cannot respond quickly to ever-changing human needs and environmental conditions."

leader, "... Subsistence is directly related to and affected by everything that is happening ... in the way of education, land use, economic development, wildlife management and other areas of public policy. Subsistence really is an entire way of life" (Yupiktak Bista 1974: 2). The late Inupiaq leader Eileen MacLean (1998) put it this way: "Subsistence is not about poverty; it is about wealth. This wealth is expressed in the harvest and in the sharing and celebration that result from the harvest." Interestingly, while the broad anthropological understanding of subsistence generally reflects the Native view, the focus of much of the work, as illustrated in this essay, continues to be on economic aspects of subsistence. With that said, we turn now to a discussion of early approaches to describing and understanding subsistence.

### EARLY APPROACHES TO SUBSISTENCE: SALVAGE AND ACCULTURATION

From the beginning, anthropological studies of northern hunter-gatherers have emphasized the centrality of the subsistence economy in social life. Practitioners of "salvage anthropology" were eager to document the comparatively "pure" subsistence lifeways of hunter-gatherers in the Far North extremes before they became domesticated by modern "civilization," as had already occurred in the temperate zones. Of course, by the time of anthropology's birth as an academic discipline at the turn of the twentieth century, northern hunter-gatherers were already entwined in the modern industrial economy in important ways, especially through the fur trade. Still, many were living in ways seemingly consistent with their aboriginal past. Thus, it seemed especially important to document their traditional lifeways before they were irrevocably transformed. This was the focus of many anthropologists in the Boasian tradition, and also of many popular ethnographers. For example, Robert Flaherty, in his landmark film, *Nanook of the North* (1922), sought to provide an "authentic reconstruction" of Eskimo life through a biographical "seasons in the life" portrait of an extraordinary hunter, Nanook, sans guns and other trappings of modernity (though he had them). Despite being shot in the Eastern Canadian Arctic, this film was influ-

ential in shaping the popular understanding of Alaskan Eskimos and northern hunting peoples in general.

Ethnographic reconstruction of the past has remained an important thread in Alaskan subsistence research. However, beginning in the 1940s, new conceptual and theoretical paradigms emphasizing the dynamics of culture, personality, development and sociocultural change, increasingly began to influence anthropological studies in Alaska and elsewhere. The decade preceding the inception of the Alaska Anthropological Association was characterized by a considerable focus on development, and the likely outcome of such activity, throughout the north. Large-scale economic development projects and related political developments such as the James Bay Hydroelectric Project, the Mackenzie Valley Pipeline, the Trans-Alaska Pipeline and Alaska Statehood all stimulated considerable anthropological focus on hunter-gatherer resource use — subsistence — in Alaska. Anthropologists flocked to the north to view and document the indigenous cultures before they succumbed to the glamour's of Western civilization (Chance 1960, 1965, 1984; Hippler 1969; Milan 1964; Oswalt and VanStone 1963; VanStone 1962, 1965). Many of these early studies were rooted in evolutionary models of change, acculturation and modernization theories<sup>6</sup> (world systems and dependency theories came later). Usher (1993:104) sums up the powerful influence of these models in explaining economic and social change in the North from the late 1950s through the early 1970s:

...The modernization/acculturation model ... was then virtually the sole paradigm of social change and economic development and a large body of anthropological literature appeared to support this case. In this view, the concepts of modernization and industrialization were virtually interchangeable.

Whether intentionally or not, this evolutionary perspective supported a strong political and economic agenda, including development goals of the government.<sup>7</sup> And it clearly contributed to the development of subsistence

<sup>6</sup>Modernization theory developed out of the post-World War II pro-development thinking, and dependency theory developed in partial response to the progressive assumptions of modernization thought. The two schools of thought held different but related perspectives on development and/or progress. While modernization theorists viewed the elimination of pre-capitalist economies in a positive light due to the material benefits that would come to these formerly 'uncivilized' cultures, dependency theorists feared that pre-capitalist economies would be decimated in the course of development. Dependency or world systems theory presented the interaction between capitalist and non-capitalist economies as a violent meeting, while modernization theorists predicted more of a benevolent absorption. According to dependency or world systems theory, which stresses the unity of the world system, the core areas of a market system exploit the peripheral areas through a process of unequal exchange (Wallerstein 1974, 1986). Thus, the periphery is portrayed as a passive victim, at the mercy of the will of the distant but dominant market system, or 'core' (see Nash 1981 and Hoben 1982 for further discussion). Development theory assumes that the industrial capitalist system developed in a global context with Europe at the core and served to under-develop nations and cultures at the periphery (cf. Chance 1990: 216 for a discussion of the distinction between modernization theory and world systems theory).

policy in Alaska.<sup>8</sup> Development and modernization were seen as inevitable and largely unilateral, with the dominant non-Native culture inexorably transforming subordinate Native cultures through processes of acculturation. An illustration of this perspective can be found in an excerpt from the 1968 *Statement of Purpose of the Arctic Institute of North America*, which reads as follows:

The Northern Indians and Eskimos are faced already with adaptation to a strange way of living which eventually will absorb them and extinguish their own cultures. Research is needed on how best to ease their problems in becoming adapted to conditions that require them to work in time controlled, wage earning economy, and to accept life in a developed community. Historic, linguistic, and ethnological research is needed to record for posterity their historical cultures.

The goal of much anthropological work at this time, therefore, was to document the effects of modernization, development, and acculturation on the individual within society and on traditional social and cultural institutions, including subsistence. This approach proved popular among anthropologists in the North<sup>9</sup> (e.g., Chance 1960, 1965, 1966, 1970, 1984; Hippler 1969; Hobart 1981; Honigman and Honigman 1965, 1970; Milan 1964; Pelto 1973, 1978; Sonnenfeld 1957; Strong 1972; Tanner 1979; Vanstone 1962, 1965; Vitt 1971).

A key theoretical tenet in much of this literature was that changes in the "cultural core," especially the subsistence economy, created the most profound impacts on traditional societies as a whole. Murphy and Steward's

(1956) "Tappers and Trappers: Parallel Processes in Acculturation," grounded firmly in the cultural ecology and acculturation paradigms, was particularly influential as a model for analyzing hunter-gatherer economic change in the north and elsewhere. Murphy and Steward predicted that with increasing involvement in the Euro-American market economy, largely through commercializing resource extractive activities, the Mundurucu and the Montagnais would develop insatiable desires for European trade goods. As a result of seemingly unlimited appetites for industrially produced goods, effort would then go into production for exchange rather than for consumption, ultimately resulting in the demise of the subsistence economy and traditional cultural core, and complete dependence on European goods.

When the people of an unstratified native society barter wild products found in extensive distribution and obtained through individual effort, the structure of the native cultures will be destroyed, and the final culmination will be a culture-type characterized by individual families having delimited rights to marketable resources and linked to the larger nations through trading centers (Murphy and Steward 1956:353).

Obviously this has not happened, for the processes of cultural change are more dynamic and complex than Murphy and Steward posit. Indeed, some anthropologists (e.g., Sahlins 1968, 1972) argued that a defining characteristic of hunter-gatherer cultures is their "limited needs" for goods. Obviously needs and wants change with cultural disruption, but the interplay of factors responsible

<sup>7</sup>Usher (1993: 103-104) observes:

...Advocates of oil and gas development—industry, all levels of government, local business interests—characterized the north as a frontier awaiting development, which could only benefit from the pipeline. In both formal statements and informal advocacy, Native people were said to suffer from too much unemployment and welfare, too little income and too little education and training to take advantage of wage employment opportunities; hence they would benefit from industrialization. The fur trade and life on the land were dying, and in any event the youth did not want such a life. Only industrial employment generated by the extraction of oil, gas, and minerals could provide for the needs of the growing population.

<sup>8</sup>Subsistence policy in Alaska was created within a unique political and economic context that essentially embraces the assumptions of acculturation and development. Alaska subsistence policy thus evolved not to enhance, protect, or conserve Alaska Native subsistence economies and cultures, but rather to pursue a much more modest aim, namely to insure that impacts to "subsistence uses" were minimized within the context of economic development. Moreover, racial and ethnic politics within the increasingly non-Native state of Alaska succeeded in redirecting subsistence protections away from Alaska Natives, as envisioned in ANCSA and realized in the MMPA, and toward rural communities such that non-Natives would not be "discriminated against." Thus only subsistence "uses" are defined in legislation and the problem of culture is reduced to a confusing sentence in the preamble of ANILCA Title VIII. Moreover, urban "subsistence users" (especially non-Native sport hunters and fishermen) within the state objected to this already weakened preference and eventually succeeded in challenging the rural preference as an unconstitutional form of discrimination.

<sup>9</sup>Part of this focus was also driven by funding, specifically the interests of the funding agency, as noted by Chance (1990:xvi):

...Just as governments in the earlier colonial era once sought ethnographic information from anthropologists, enabling them to more effectively control their regions of dominance, so, too, anthropologists of a more contemporary period have been asked to undertake investigations of a similar ethnographic nature. In the 1950s and 1960s, many sociocultural studies of Arctic Alaska were given substantial logistic and financial assistance by the US Office of Naval Research and its affiliated Arctic Research Laboratory in Barrow; the US Air Force supported Arctic Aeromedical Laboratory, and the US Atomic Energy Commission. ... The basic task of the military was defense. And that defense included the need to determine the status of Alaska Native populations living within the military's defined perimeter of interest— including the Natives' economic, social and political relations with one another and the outside world... Those anthropologists interested in undertaking such acculturation studies were welcome to apply for support. Those wishing to explore other topics pertaining to art, mythology, religion, or similar ethnographic subject usually had to find their own support.

for that change, whether forces of modernization or individual motivations, must be examined in their specific social, historical, political, economic and ecological contexts.

### POST ACCULTURATION: NEW APPROACHES AND UNDERSTANDINGS

Subsequent anthropological inquiry in Alaska and elsewhere has challenged the basic assumptions and analytical utility of early modernization and acculturation theories, as well as calling into question the dire predictions for indigenous cultures put forth by the likes of Murphy and Steward. One problem with these theories, it seems, is that:

...No matter what the condition of Indian society is when analyzed by the anthropologist, it is always somewhere along the acculturation path, headed toward full acculturation. Because acculturation explains everything, it explains nothing (Jorgenson 1971: 68).

Chance (1990) is an example of an early proponent of modernization-acculturation studies who has come to question his basic assumptions and looked to other macro-level theories of political-economy and development to understand sociocultural change among the Inupiat of the North Slope. Critical of large scale forms of development that have been carried out in the name of progress in Alaska and elsewhere (largely to the detriment of Native peoples), Chance offers an indictment of the relationship between the burgeoning capitalist world system, increasing inequalities in wealth, and ecological deterioration of the environment due to the global economy's emphasis on increasing production and consumption. Chance's theoretical transformation is emblematic of a broader evolution in anthropological theory towards political-economy and political ecology approaches, rather than the "acculturation ecology" of Murphy and Steward and others. We examine these more recent approaches in more detail below.

While anthropological theory has gone beyond modernization and acculturation, there is still the need for fine-grained analyses of sociocultural change in relation to impacts of the modern industrial economy on subsistence activities in Alaska and elsewhere in the north. Such impact studies have proliferated as oil development and the growing infrastructure of the state have prompted myriad studies on the effects of development and related growth on subsistence economies (e.g., Bone 1989; Braund 1986, 1988, 1993; Braund and

Moorehead 1995; Fall and Utermohle 1999; Jorgensen 1990; Kruse 1986, 1991; Lutton 1985; Wolfe and Walker 1987). Importantly, these studies suggest that while development often adversely affects resource use, resulting in harvest disruptions or increasing burdens to the hunters (e.g., Wolfe et al. 2001), in some cases, it may spur an increase in the extent and duration of subsistence resource use because of the availability of additional economic resources (e.g., Freeman et al. 1998; Kruse 1986; Wenzel 1995). In other words, larger levels of cash can lead to enrichment of subsistence activities rather than displacement of them. Such studies not only revise the simplistic economic evolutionism of Murphy and Steward (and others in the Marxist tradition), but also invoke the need for awareness of subsistence as a *cultural system*- not merely an economic one- and a Weberian sensitivity to the negotiation of cultural identity, status and motivation through both economic and non-economic channels. Thus, an Inupiaq man with newfound oil wealth may not hoard or fetishize it, but instead may choose to invest the money in a whaling boat and crew so as to earn social prestige and status according to Inupiat criteria — i.e., as a captain, hunter, and provider of important traditional food.

Overall, the extent to which development affects subsistence over the long term has not been adequately researched, and, as discussed further below, remains a fertile topic for investigation. It is possible that short term gains, such as the availability of additional resources or access, ultimately may be overshadowed by losses affecting subsistence, such as habitat loss, environmental degradation, or dependency.

### ANCSA, ANILCA, STATE SUBSISTENCE LAWS, AND APPLIED RESEARCH

Beyond assessing acculturation, modernization, and development impacts, the context and impetus for applied subsistence research in Alaska over the past 30 years has been framed largely by the federal mandates of ANCSA and ANILCA, as well as state of Alaska subsistence laws. In examining this unique legal context it is important to consider both what is in the law and what is left out. Missing from both state and federal law, for example, is any concrete definition of "subsistence" itself. This is an important omission and a source of confusion since conceptions of the term vary widely across cultures, as previously discussed.

Not only is a definition of "subsistence" absent in state and federal law, but it is also worth remembering that subsistence does not equate to hunting and fishing

rights. As previously noted, Congress clearly expressed intent to protect Native subsistence interests and subsistence resource lands at the time of the passage of ANCSA. However, while the inclusion of specific hunting and fishing rights for Alaska Natives was debated during the framing of ANILCA (referred to by some as the "second chapter of ANCSA" [Alaska Federation of Natives 1991:5]), in the end, Congress bowed to the pressure of urban sport hunting groups, and provided a subsistence priority based not on ethnicity or tribal affiliation, but rather on geography of residence. Thus, while ANILCA paid rhetorical homage to the vital role of subsistence in Native "cultural existence" (as opposed to non-Native "social existence"), in practice, both state and federal governments sought only to define and regulate "subsistence uses." This continues to be the case, and over time, the protections promised by Congress to Alaska Natives in ANCSA, are disappearing. As presciently observed by Schneider (1982: 176) shortly after the passage of ANILCA, "... While some would consider the legal recognition of subsistence values a victory for subsistence users, there will be greater pressure on individuals to work with managers in justifying their claims. At best, we are entering a paperwork maze of permits and tight control of subsistence options." That said, research on subsistence uses of fish and wildlife in rural Alaska abounds.

The majority of research on subsistence uses of fish and wildlife in Alaska has been conducted by the Division of Subsistence, a research division housed in the Alaska Department of Fish and Game. Established under the state's Subsistence Statute of 1978<sup>10</sup> the Division of Subsistence is "... unique as a branch of a state resource agency" (Fall 1990: 68). Partly because of its uniqueness and partly because of its distinct minority status as a small social science arm of a large natural resource management agency directed and staffed primarily by biologists, institutionalizing and legitimizing anthropologically oriented investigations of subsistence has proved a challenge. Considerable tension exists between biologists and anthropologists in the subsistence management and policy arena. This tension is rooted at least in part in different disciplinary agendas, perspectives, world

view, and methodological approaches. Nonetheless, in spite of significant efforts by and contributions from anthropologists, the dominant paradigm for natural resource management in Alaska is biological (i.e., the emphasis is on managing resources rather than on managing people), and subsistence continues to be treated largely as a biological, rather than cultural, issue. This tension was evidenced by the clear ideological resistance on the part of many within Alaska Department of Fish and Game to the creation of the Division of Subsistence; while somewhat muted, hostilities exist to this day (both within and outside of the Department).

Primarily a research entity, the responsibilities of the Division are to "... compile existing data and conduct studies to gather information... on all aspects of the role of subsistence hunting and fishing in the lives of the residents of the state..." and, to "... quantify the amount, nutritional value and extent of dependence on food acquired through subsistence hunting and fishing..." (Alaska Administrative Code [AAC] 16.05.094(1)(2)). While the state of Alaska subsistence law has subsequently been ruled unconstitutional (due to its rural preference), and repealed, the Division's mandate remains the same, namely to "...document all aspects of subsistence hunting and fishing so that the provisions of state and federal law can be implemented..." (Fall 1990:70). Following this mandate, researchers have collected information on fish and game resource use by residents of more than 190 communities in the state, in addition to resource use by residents of the major urban centers, Juneau, Anchorage, and Fairbanks (cf. Fall 1990).

From its inception in 1978, the Division of Subsistence focused its research efforts on describing and documenting the subsistence economies of primarily *rural*<sup>11</sup> Alaska (Fall 1990; Wolfe 1981, 1983; Wolfe and Walker 1987). As Fall (1990: 70) notes, "...When the division's research program began [in 1980], there was very little information available about contemporary subsistence hunting and fishing in rural Alaska communities..." Thus a key focus was to develop quantitative measures of subsistence production, distribution and consumption in Alaska's rural communities, including not only

<sup>10</sup>In addition to establishing the Subsistence Division, the state's first subsistence law also authorized and protected subsistence use as priority use of wild, renewable resources over other consumptive uses (e.g., commercial, sport, personal use). While it did not define who was a subsistence user, state law defined subsistence uses as follows:

The customary and traditional uses of wild, renewable resources for direct personal or family consumption, such as food, shelter, fuel, clothing, tools, or transportation; for the making and selling of handicraft articles out of non-edible by-products of fish and wildlife taken for personal or family consumption [AAC 16.05.940 (30)].

<sup>11</sup>As noted, the state subsistence law did not define users, nor did it differentiate between rural and urban users. In contrast, ANILCA provided for a subsistence priority for rural residents (in other words, an allocation preference for rural Alaskans in times of scarcity). While a rural preference was added to state statute in 1986, it was subsequently found to be unconstitutional in the 1989 McDowell decision. The State's inability to accommodate a rural preference put it out of compliance with federal law, which set the stage for federal assumption of management authority for subsistence on federal lands and waters over which there is federal jurisdiction.

small villages, but also mid-sized communities (with populations of up to 9,000) dependent on wild foods. This effort has led to the production of an impressive community profile database (cpdb) based largely on information gathered through household surveys (CPDB 2002). These data clearly illustrate that rural communities are far more dependent on fish and wildlife resources than urban areas like Anchorage, Fairbanks and Juneau. Annual per capita harvest levels in rural Alaska ranges from 153 to 664 pounds, about ten times higher than those in urban areas, which range from 16-40 pounds (Wolfe 1998). Major components of the statewide subsistence harvest include fish (roughly 60 percent), land mammals (20 percent) and marine mammals (14 percent) as well as a broad portfolio of invertebrates, birds, and plants. While substantial, it the total statewide subsistence harvest represents less than four percent of the total fish and game harvest in the state (Wolfe 2000).

Largely following Canadian and other research on contemporary northern hunting cultures (Asch 1976, 1977; Feit 1979; Freeman 1976; Usher 1976, 1981; Usher et al. 1985; Usher and Wenzel 1987), the Division portrays rural Alaska as having a "mixed economy" characterized by "mutually supportive market and subsistence sectors" (Wolfe and Ellanna 1983:272). This economy, also referred to as a rural subsistence-based socioeconomic system (Wolfe 1998), is characterized not only by high levels of production, distribution and consumption of wild foods, but also by several important structural features.

The distinguishing feature of subsistence-based socioeconomic systems is the primary economic, social, and cultural reliance on fish and game resources. Cash and current technologies are utilized, but they are integrated into the community's economic and social activities "...so as to be mutually supportive" (Wolfe and Ellanna 1983: 252). This stands in stark contrast to market-based societies in which the market sector is the cog of economic and social organization. Other characteristics of subsistence economies include domestic mode of production, resource diversity, efficiency of production, and inter-dependent household organization and sharing, among others (Bosworth 1989; Callaway 1995; Ellanna and Sherrod 1984; Magdanz, Utermohle and Wolfe 2002; Wenzel 1986; Wolfe 1979, 1986a, 1986b, 1987, 1992, 1998).

A key characteristic of the rural socioeconomic system is a domestic mode of production, in which produc-

tion capital, land, and labor are controlled by extended, kinship-based units. Kin groups are economic firms that organize and carry out production. Typically, family groups use small-scale, efficient technologies that represent a blend of traditional and modern equipment. For example, a fish camp may feature old-style, handmade fish drying racks or smokehouses alongside new technologies purchased with cash, such as aluminum skiffs with outboard motors.

Another distinguishing feature of the rural subsistence economy is that there is specialization in production combined with a high degree of sharing or exchange. Wolfe (1987) also found that specialization is organized along kinship lines, and termed the most productive kin groups "super households." A super-household does not necessarily exist under a single roof but is comprised of a very productive "core household" with which related households (e.g., elderly parents or married children) are aligned. Goods flow from the core household to related households, often in exchange for services (such as processing, etc.). This type of division of labor leads to a pattern of production throughout rural Alaska called the "30-70" rule, where about 30 percent of the households produce roughly 70 percent of the subsistence harvest (Wolfe 1987). The bounty is not hoarded, but rather is widely shared. Thus, a core household may consume only a fraction of its total harvest, distributing the majority to relatives and community members in need. Often subsistence products are bartered or traded in exchange or other products, services, and in some cases, cash. These harvests and distribution patterns prevail despite (federal and state) fish and game regulations, such as bag limits, which are generally geared towards individual needs of recreational hunters and fishers rather than the communal needs of subsistence users in the rural socioeconomic system.

Finally, another distinguishing characteristic of rural socioeconomic systems is their emphasis on territories and place. Provided they remain accessible and productive, subsistence users generally prefer to hunt, fish, trap, and gather in resource areas for which they have intimate knowledge, ancestral ties, and often traditional systems of managing both the land and its resources. Customary rules and customs concerning access and use of particular resources and resource areas continue to exist alongside government regulations. Significantly, neither state nor federal subsistence laws contain provisions to

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In 1990, the Federal Subsistence Board determined that rural determinations would be based on aggregated population and community characteristics. Under federal law, communities smaller than 2,500 are considered rural unless they exhibit non-rural characteristics. For communities ranging in size from 2,500 to 7,000, there is presumption of rural, but they are considered on a case-by-case basis. Finally, communities larger than 7,000 are considered non-rural. The rural methodology is currently under reconsideration by the Federal Subsistence Board.

protect ties to place; only customary and traditional *uses* are safeguarded (and some would argue those safeguards are fragile.)

Significantly, both state and federal law focus on these key distinguishing characteristics of rural socio-economic systems in identifying customary and traditional uses. Based on early research conducted by the Division of Subsistence, the state derived eight criteria<sup>12</sup> to identify customary and traditional uses on an area by area, case by case basis, considering information from the department and the public (Wolfe 1989:1). As described by Wolfe (1989), the eight criteria cover a number of use characteristics: (1) length of use; (2) seasonality of use, (3) means and methods of harvest; (4) geography of harvest; (5) means of handling, preparing, preserving and storing; (6) intergenerational transmission of knowledge; (7) distribution, exchange, barter and trade; and, (8) diversity and reliance. In describing the overall effect of the eight criteria, Wolfe (1989: 2) notes that:

... Subsistence uses are part of the patterns of belief, knowledge and practice passed on across generations by learning and practice. The patterns are relatively long term and stable, but also change over time to incorporate new methods, technologies and areas. The means and methods of harvest tend to be efficient terms of effort and cost. Harvests occur during regular, traditional seasons. Harvesting areas are recurring, known to and accessible to harvesters. Harvested items are commonly used by a wider social group, through sharing, gifts, barter, and customary trade. The pattern of use provides substantial economic, cultural, social and nutritional elements to the user's life.

Together, the eight criteria describe a pattern of use characteristic of rural Alaskan communities, especially Alaska Native communities (though notably, neither state nor federal law speak specifically to Alaska Native subsistence). The eight criteria are not intended to be a check-

list or formula, but rather considered together so that they provide a whole that is more than the sum of its individual parts. The criteria were adopted by the federal subsistence management program when it assumed management authority for subsistence uses on federal conservation units and non-navigable waters in 1990.<sup>13</sup> The federal program modified the criteria slightly and renamed them "factors," but they nonetheless form the basis for recognizing a customary and traditional pattern of use.

The utilization of the eight criteria/factors for identifying customary and traditional uses under both state and federal law is significant for several reasons. First, it identifies a *community-based* pattern — not a pattern of an individual — as one that is customary and traditional. Thus, it appears to be more consistent with the anthropological definition of subsistence. Second, while state and federal law do not define subsistence, subsistence uses clearly incorporate much more than the economics of use, or the harvest. Finally, the eight criteria/factors point to the lasting input of anthropologists in the implementation of state and federal subsistence law and policy.

In recent years, the Division of Subsistence has shifted its focus from baseline community studies of subsistence production, which provided the basis for development of the eight criteria, to research on specific resource or regulatory issues. This transition is evident in the Division's technical paper series, which currently numbers more than 270 reports.<sup>14</sup> Throughout the 1980s and early 1990s, technical papers were typically detailed community studies (Andrews 1988, 1989; Behnke 1982; Burch 1985; Caulfield 1983; Chamley 1984; Coffing 1991; Halpin 1987; Kari 1983; Marcotte 1986; Marcotte and Haynes 1984; Marcotte et al. 1992; Martin 1983; Olanna and Magdanz 1990; Pete 1991; Schroeder 1987; Sobelman 1984; Stanek 1985; Stokes 1984; Stratton and Chisum 1986; Sumida 1988, 1989; Sumida and Andersen 1988; Wheeler 1987; Wolfe 1981, 1983; Wolfe et al. 1986). While regulatory issues prompted many of these studies, a number of the earlier studies were generated by a need to document resource use in a particular area. Increasingly,

<sup>12</sup>The origin of the eight criteria was in December 1980, when a subcommittee of the Board of Fisheries developed ten criteria to identify subsistence use of salmon in Cook Inlet. As noted by Wolfe (1989:1), "...the criteria were used to determine that salmon uses by residents of Tyonek, Port Graham, English Bay and Seldovia were customary and traditional subsistence uses." The ten criteria were reduced to eight by the Alaska Joint Boards of Fisheries and Game, and they were adopted as regulation and Board policy in 1982. The eight criteria became part of the state's implementation of the state subsistence statute.

<sup>13</sup>As published in the Federal Register, the reference to the eight factors is as follows:

Existing regulations at 36CFR 242.16(b) and 50 CFR 100.16(b) identify eight factors that exemplify customary and traditional subsistence use of a community or area. Although the customary and traditional use of a resource may be self evident to local users, the (federal Subsistence) Board will base its determination of customary and traditional use on substantial information of a reasonable and defensible nature. The extent to which a community, group of communities, or area meet the characteristics of customary and traditional use are exemplified by eight factors.

<sup>14</sup>For a listing of the Division's Technical Paper Series and abstracts, see <http://www.state.ak.us/local/akpages/FISH.GAME/subsist/geninfo/publctns/subabs/htm>



regulatory issues and shrinking budgets<sup>15</sup> have resulted in fewer baseline studies, and in more studies that are either issue specific or solely focused on harvest assessment (cf. Andersen 1992 [feeding subsistence fish to dogs]; Andersen et al. 1999 [Koyukuk River big game harvests]; Coffing and Utermohle 1999 [Kuskokwim River subsistence salmon harvests]; Fall and Chythlook 1999 [Bristol Bay subsistence salmon]; Georgette 1989 [brown bears], 1999a [subsistence use of brown bear in Northwest], 1999b [Kotzebue Sound subsistence salmon harvests], 2000 [subsistence use of migratory birds in Northwest Alaska; Thornton 1992 [subsistence use of brown bear in Southeast], Wolfe et al. 1999 [subsistence use of harbor seals]).

While the Division is unique as a government agency, its mandate has constrained its research agenda in important ways. For example, because it is a division of the Department of Fish and Game, emphasis on non-fish and game resources is limited (Thornton 1999a); and because its mission stems from the legislative triumph of subsistence “uses” over subsistence cultures, and of “rural” communities over Alaska Native groups, economic and community (as defined by the State) aspects of subsistence (production, distribution, consumption) are stressed over non-economic and communal dimensions (as defined by Natives). The politics of fish and game management also have tended to favor the wealthy and more influential commercial and sport interests over subsistence interests. Also, because management of subsistence (both on the state and federal level) is largely by biologists, the Division is often marginalized within the Department. In addition, severely restricted budgets in recent years have forced research staff away from the extended ethnographic fieldwork that characterized the Division’s early work, and more towards harvest assessment, lacking in rich ethnography. The exception to this general shift in focus can be seen in some recent fisheries projects that have been supported with funding provided by the Federal Office of Subsistence Management<sup>16</sup> (e.g., Andersen and Fleener 2001; Simeone and Kari 2002).

ANCSA and related federal legislation also resulted in a limited number of primarily descriptive studies of subsistence use of fish and game resources by Alaska Natives in and around areas being considered for National Park status (Behnke 1978; Bishop 1978; Reckord 1983). The Cooperative Park Studies Unit (CPSU), a research branch of the National Park Service, generated some

important ethnographic research into subsistence use by Alaska Native people (cf. Caulfield 1979; Nelson, Mautner and Bane 1982), although its duration was short-lived. Other federal agencies, including the U.S. Minerals Management Service, U.S. Department of Agriculture, National Marine Fisheries Service and Department of Interior agencies, National Park Service, and Fish and Wildlife Service have produced similarly detailed and anthropological analyses of subsistence production in rural and Alaska Native communities. While many of these studies do not rise above the level of “harvest monitoring” or “impact assessment” in relation to proposed development or environmental change, others have involved substantial fieldwork and represent significant contributions to the ethnographic literature (Anderson et al 1998; Braund 1986, 1993; Ellanna 1983; Jacobsen and Wentworth 1982)

In the realm of public policy, where scarce resources must be allocated, there has been a strong push to put a dollar value on subsistence resources and activities in order to assess costs and benefits in relation to industrial development. Some argue that the non-economic benefits of subsistence activities are myriad and incalculable and, therefore, putting a simple replacement value on subsistence resources (e.g., \$7.00 per pound for moose meat) vastly underestimates their worth. Such calculations have been carried out to illustrate the efficiency of subsistence production in rendering meat and fish at a lower cost than market prices of comparable goods in rural Alaska (Wolfe 1986a), but also to argue against using income as a basis for “qualifying” for subsistence (Wolfe 1986b). But such analyses clearly constitute only a partial valuation of subsistence economies. An alternative approach suggests that it may be possible to calculate the economic worth of subsistence activities more accurately by calculating compensation value — namely the amount of money subsistence participants would be willing to accept to forfeit a particular subsistence harvest or activity (Brown and Burch 1992; Muller-Wille 1978; Nowak 1975, 1977). This approach has been used successfully in several lawsuits (cf. Kavairlook et al v. Ryan Air). Although relatively little work has been done in this area to date, in part due to the anthropological prejudice against reducing human cultural activities to money values, such modes of analysis have the potential to influence policy and development decisions as well as court judgments regarding subsistence.

<sup>15</sup>With the exception of the early 1980s, the state legislature has consistently underfunded the Division, sometimes threatening to eliminate its budget altogether. The budget shortage is increasingly being addressed by funding from other agencies, which may have different mandates than the state (notable among these is the Fisheries Monitoring Program, housed within the Office of Subsistence Management).

<sup>16</sup>See Buklis (2002) for a discussion of the Office of Subsistence Management’s Fisheries Resource Monitoring Program.

The role of cash in modern subsistence economies continues to be debated. While it has been shown convincingly that the subsistence and commercial sectors of the economy do not exist as separate dual economies (Wilmott 1961; Berger 1978) but rather are "mixed," the health and sustainability of the mixture continues to be an issue (Bodenhorn 1988; Langdon 1986a, 1986b, 1991; Orback and Holmes 1986; Wenzel 1995; Wheeler 1998). On the one hand there is the benign integration perspective, espoused in much of the Division of Subsistence literature, where the "mixed economy" is characterized by mutually supportive, market and subsistence sectors (Wolfe and Ellanna 1983: 272). On the other, the two sectors are presented as separate and competing forces. Following Wenzel (1989:4), who argues that "...economic analyses of contemporary Inuit ecological activities have, by and large, continued a misleading distinction begun in the late 1950s and early 1960s between a subsistence and a market sector...." Bodenhorn (1988: 173) summarizes the mixed economy perspectives as follows:

...Until recently, most discussion about economic relations in rural, indigenous Alaska has been couched in terms of "dual economies." People refer to a subsistence economy (in which money does not play a central role) and a "cash" economy" (in which people work and exchange their services and goods for money) as if they were two different entities. As an economic model this is misleading. It does not acknowledge the degree to which the two systems today have incorporated elements of each other: cash becomes part of subsistence when used to purchase hunting equipment as well as to pay the fuel bill; subsistence enters the market place when people catch and dry fish, make sleds, make ulus, sew parkas or sew walrus skins for an umiaq in exchange for money.

Maintaining a rigid distinction between market economy and subsistence economies is a false dichotomy, for, in terms of capital investments, the two are solidly intertwined.<sup>17</sup> The issue remains muddy, and in need of further analyses, however. If the Murphy and Steward model is flawed, then so too is the simple "mixed economy" characterization that assumes a kind of benign integra-

tion and mutual support between the two economies. Industrial capitalist economies are inherently accumulative and unequal and have often proved destructive to local economies and environments. Implicitly, if not explicitly, some researchers have begun to question the benign integration model by focusing on the internal differentiation and stratification arising in and between Alaska Native villages as a result of resource conflicts between ANCSA corporations focused on development, and their shareholders and offspring who are still dependent on the rural subsistence economy (Dombrowski 2001). Given the extreme possibilities — mutually supportive integration of the two economies or destructive consumption of the resource by the commercial economy — and a range of possibilities in between, it seems logical to posit a set of conditions under which mixed economies can be achieved and sustained. Among other things, conditions would seem to require the maintenance of a high degree of environmental integrity such that subsistence resource habitats are conserved, there are some limitations on demand (through population growth, etc.), and the development of an ethic of conservation towards both the environmental and cultural resources that support subsistence.

Integral to understanding the relationship between cash and subsistence production is the nature of exchange in subsistence economies. Not surprisingly, this has garnered considerable attention among northern anthropologists (Burch 1988; Cassell 1988; Ellanna and Balluta 1992; Langdon and Worl 1981; Magdanz, Utermohle, and Wolfe 2002; Nuttall 1998). As noted above, goods and services, and in many instances labor, have been shown to be exchanged along kin-based lines. Of course, hunter-gatherer social organization itself is an adaptation to the historical exigencies of making a living, and as such kin-based networks remain flexible but fundamental channels for the organization of labor. Despite the predictions of evolutionary models for the eventual displacement of the kin-based economy with a commodity economy, in which the personal relationship is absent from the exchange, this has yet to occur in subsistence economies. In fact, with the involvement of cash, both types of exchange can and do occur simultaneously, and cash transactions are not restricted to the latter. In their study of the Inland Dena'ina of Nondalton, for example, Ellanna and Balluta (1992: 250), note that:

"Gift exchange," in which there is a personal relationship between the individuals who

<sup>17</sup>As noted by Wenzel (1989: 4-6):

...Cash became an intermediate necessary for the capitalization, operation, and maintenance of the imported equipment that now replaced traditional harvesting outfit. Moreover, money also took on the quality of a strategic resource because of 1) the escalating costs of these new artifacts and 2) fluctuations in the value of Inuit produced wildlife products in North American and European markets...Money was, by the 1970s, a critical resource in the Inuit subsistence system.

exchange goods and services and “commodity exchange,” in which impersonality and individual maximization prevail, were both operative among the inland Dena’ina of Nondalton in the mid 1980s. All-purpose money (cash) was involved in both types of exchanges as well.... The data derived from the inland Dena’ina raise some serious questions about the assumption that cash and services for which people are paid actually form a separate, albeit, integrated economic sector.

This is an important point, and one that further explodes the notion of a dual economy. If, as it appears, cash is included in the context of gift relations of exchange, then it is arguable that cash and services for which cash is paid do not signify or comprise a separate sector. The question still remains, however, are they joint resources in the same system? Is the subsistence economic system a single system characterized by both money and harvests, so that money and food and hunting and other capital are joint economic resources in the same system?<sup>18</sup> Clearly, the role of money in subsistence systems has been and will likely continue to be a topic of ethnographic inquiry among anthropologists working with hunter-gatherers, especially in the north (cf. Langdon 1991; Petersen and Matsayuma 1991; Wenzel 1989, 1995; Wheeler 1998).

Other issues worthy of further attention along these lines include the importance of money as a symbol, as well as its role in fostering changes in patterns of production, distribution, and consumption. Lee (2002) explores how urban Natives, Yup’ik women in particular, use cash to purchase gift items — typically store-bought luxury food commodities not found in rural Alaska — to share with rural relatives, who may reciprocate by sending (typically via plane in a cooler) valued cultural subsistence foods, forming what she calls “The Cooler Ring” (playing on Malinowski’s “Kula Ring”). Such studies raise a number of interesting questions about local “Stone-aged” (Sahlins 1972) versus modern global economics that have yet to be sorted out.

## SUBSISTENCE RESEARCH AND LEGAL PROCEEDINGS

The unique legal framework of subsistence law and Native rights in Alaska has created ambiguities and con-

flicts that federal and state courts have had to address. Most of the issues have revolved around three questions: who qualifies for subsistence, how it should be valued, and how users should be managed. The major conflict in terms of who qualifies for subsistence has been (and will likely continue to be) between rural and urban users. Through the 1989 McDowell decision, urban sport interests succeeded in challenging the constitutionality of the rural preference in state law, though the preference in ANILCA has withstood challenges in the federal court system. The rural preference may be further affected by the lack of clear definition of the term “rural” in federal law. Communities like Sitka and Kodiak do not fit conventional definitions of rural based on their large populations (>5,000); as these communities grow, their rural status may be questioned in court.

While ANCSA has been viewed by the US Supreme Court as having extinguished the concept of Indian country, it is still Indian law and the government’s promise to “take any action necessary to protect the subsistence needs of Alaska Natives” is one that has only been partially fulfilled through ANILCA’s restoration of subsistence rights to rural Alaskans. ANILCA, too, is Indian law. As Congressperson Morris Udall made clear with respect to ANILCA Title VIII:

It is the intent of this legislation to protect the Alaska Native subsistence way of life, and the Alaska Native culture of which it is a primary and essential element, for generation upon generation, for as long as the Alaska Native people themselves choose to participate in that way of life, and to leave for the Alaska Native people themselves, if any, of the evolution of the subsistence way of life and of Alaska Native culture (126 Cong. Rec. H. 10545, Nov. 12, 1980).

This clearly has not happened, although Alaska Natives have been able to affect the pace and direction of subsistence law through key court decisions and supporting testimony and documentation by anthropologists. One such case was *Bobby v. Alaska*, filed by Lime Village residents against the state in protest of alien, non “customary and traditional” seasons and bag limits (evolved for sport hunting) arbitrarily being imposed on their subsistence hunting traditions (Caldwell 1998). Similarly, in the Katie John decision, the ANILCA standard of “customary and traditional” was used to gain access to

<sup>18</sup>In support of this approach, Lonner (1986: 21) argues that “... cash is only one medium of exchange among many: food, clothing, gas, equipment, services...” And Wenzel (1985) claims for the Baffin Island Inuit, “... cash has become as fully a part of the resource environment as food or other natural raw materials...”

Batzulnetas, a long used Upper Ahtna Native fishing site, which had been closed by the state (*Katie John et al. v. United States of America*).

Another area of legal intervention engaged in by anthropologists has been the valuation of subsistence production for interpreting (among other things) the value of customary trade as well as compensation for losses due to industrial disasters such as the Exxon Valdez oil spill. As with the term "rural" in ANILCA, the definition of "customary trade" is vague<sup>19</sup> and cases involving potentially "commercial" levels of trade of subsistence resources for cash have been taken to court. Using anthropological testimony on the role of trade, courts have generally interpreted the principle of customary trade broadly to include most transactions initiated by Alaska Natives, in one case even upholding as "customary" a trade of thousands of pounds of herring eggs by Southeast Natives to Japanese interests for tens of thousands of dollars in cash.

Valuation of subsistence resources became a major component of lawsuits in the wake of the Exxon Valdez oil spill. This environmental disaster severely affected water and shoreline resources in Prince William Sound and the communities that rely on them. Chief Walter Meganek of Port Graham described it "as the time the water died" (Meganek 1989). Unfortunately, while hundreds of millions of dollars were put into cleaning up the spill and documenting the environmental and social impacts, in the end the courts rejected compensating victims for cultural losses as a result of their having to forfeit subsistence harvests of contaminated species.

The effects of environmental contamination and changes in subsistence will likely continue to command applied anthropological attention in the future. There is increasing evidence of toxins in subsistence foods throughout the North, and anthropologists can help to assess the perception of risk, disruption of harvests, and sociocultural impacts of environmental damage in communities (cf. Picou et al. 1999). In the area of environmental change, the issues of climate change looms large. Recently, a range of collaborative work between indigenous people, anthropologists and natural scientists is beginning to document historical and contemporary climate change and its impacts on subsistence resources and local habitats (cf. Krupnik and Jolly 2002). More research along these lines is clearly needed, especially in communities in the Northwest Arctic, some of which are

facing myriad economic, political and cultural problems due to rising sea levels and loss of sea ice buffers.

## POLITICAL ECOLOGY AND PUBLIC POLICY APPROACHES TO SUBSISTENCE

The highly-charged, contentious realm of subsistence politics in Alaska lends itself to the emerging fields of political ecology and public policy anthropology. One outcome of the contentious subsistence debate has been a number of analyses examining various policy implications of the subsistence issue (cf. Caulfield 1988, 1992; Kelso 1982; Lonner 1981, 1982; Morehouse and Holleman 1994; Thornton 1998, 2001; Young 1992). The very intractability of the issue suggests that social scientists need to go beyond resource and regulatory studies and examine the broader political and economic forces and political-economic contexts that inform subsistence as public policy.

Political ecology focuses on the competition among groups for scarce resources in modern state, regional, and global contexts (Greenberg and Park 1994). This paradigm is useful in understanding and predicting when, where, and potentially why resource conflicts arise. Why is it, for example, that we find major conflicts over the allocation of salmon and ungulate resources, while relatively little fuss has been made over seal harvests, which are largely self managed by Alaska Native communities? Political ecology stresses that the answer lies in understanding the political-economics that drive competition for increasingly scarce resources, a major issue in the fight for salmon between commercial, sport, and subsistence salmon fishing interests, but not an issue in seal harvesting, which has no commercial or sport interests competing against subsistence interests. The dynamics of political ecology extend beyond the local and state levels to the regional and international arenas, as evidenced in the fights over management of other species, such as migratory birds and whales (Hensel and Morrow 1998).

A key underpinning of political ecology theory is recognition of the power of the world capitalist system on contemporary political economy and environmental regulation. In his study of Arctic politics, Young (1992) applied the world systems theory concepts of core/periphery relations to explain the exploitation of rural Alaska and other circumpolar north communities that lie on the margins of developed (core) states. Young sees

<sup>19</sup>The federal subsistence management program attempted to address the vagueness of federal definitions of customary trade beginning in 2002, by developing regional guidelines for customary sale that fell below "significant commercial enterprise."

the emergence of transnational political organizations, such as the Inuit Circumpolar Conference and economic entities, such as transnational corporations, as complicating core-periphery dynamics (see also Nuttall 1998). Young (1992:56-72) accepts that rural subsistence economies are inextricably tied to the cash economy, and therefore rural communities need to pursue policy options that: "(1) secure an adequate flow of cash to sustain their economies; (2) reduce their exposure to outside forces; and (3) protect the integrity of their cultures and the viability of the ecosystems upon which they depend" (1992:64). This can be achieved only if rural villages gain greater control over economic development in their regions. Young advocates that they do this through a multi-pronged strategy, emphasizing a number of key factors, including: (a) greater economic returns and rents, most of which currently flow out of the peripheral communities back to the core economic and political centers; (b) enclave development that allows selected capital-intensive industries in if adverse impacts on subsistence are minimal; (c) commercialization of selected renewable resources, especially those consistent with subsistence economies, such as trapping and fishing; (d) domestic production outlets such as cooperatives, skill exchanges, and community enterprises; and (e) Income Security Programs. Of the latter, Young specifically points to one such as that piloted among the Canadian Cree subsequent to the James Bay and Northern Quebec Agreement of 1975, which provides state transfer payments to subsistence hunters and trappers who labor in productive harvesting activities but do not earn adequate cash. While each of these strategies offers some advantages, most also run the risk of increasing economic vulnerability to global economic forces, if not dependency on the state, and thus must be weighed carefully to insure long-term protection for local users.

Other researchers see the evolution of contemporary subsistence management regimes as an outcome of asymmetries in political power between competing constituencies, among which rural subsistence-oriented Natives are basically disempowered (Alaska Natives Commission 1994; Freeman 1997; Hensel and Morrow 1998; Morehouse and Hollman 1994; Osherenko 1988; Thornton 1998, 1999a; Wolfe 1993). Thornton (1999) argues that, at base, the subsistence issue represents a clash between Alaska Native and non-Native cultures in which Natives hold subsistence as a fundamental right and means of self-determination, but lack the power to protect their rights through the political process. While

the federal government has pursued its constitutional trust responsibilities towards Natives, it has been opposed in efforts to manage or create exclusive hunting and fishing rights for Natives by a state that is increasingly dominated by a non-Native majority. Even the fragile rural compromise, forged by the state in its lobbying efforts to temper ANILCA as federal Indian law, has fallen victim to an increasing majority of urban representatives in the state legislature who refuse to consider passage of a constitutional amendment to allow for a rural preference. These cross-cutting political cleavages — Natives vs. Non-Native, federal vs. state, and rural vs. urban constituencies — have thus far largely cut against Native interests, though not against Native resolve. Moreover, they serve to undermine a stable and just policy resolution of the subsistence issue. At the same time, these structural cleavages and inequalities have been reproduced at the management and regulatory levels through the state Fish and Game Boards, dominated by the commercial and sport interests appointed through the political process (Wolfe 1993). Creation of the Federal Subsistence Board and Regional Advisory Council system<sup>20</sup> subsequent to the federal assumption of management authority over subsistence on federal conservation units has mitigated this problem to some degree by making the subsistence priority more central in public policy. However, Native interests remain under-represented in the larger debate. Moreover, recent structural changes to the Regional Advisory Councils have again given increased representation to sport and commercial interests at the expense of subsistence users. Citing conflicts with the Federal Advisory Committee Act, the Department of the Interior added seats to each of the Regional Advisory Councils to accommodate other interests. While subsistence users still hold the majority of seats on the Regional Advisory Councils, this change is another indication of the political power of commercial and sport interest groups in Alaska's fish and wildlife management system.

Perhaps the most striking feature of the public policy surrounding subsistence to date, however, is how circumscribed it remains. Despite Native holistic conceptualizations of subsistence as foundational to identity, health, and cultural survival (cf. Active 1998; Andersen 1998; Appasingok 1998; Brower and Hepa 1998; Fast 1998; Johns 1998; Kitka 1998; Phillips 1998), and clear recognition by anthropologists that for northern hunter-gatherers, subsistence practices have a strong social, cultural, and ideological importance<sup>21</sup> (Asch 1979;

<sup>20</sup>There are ten Regional Advisory Councils, each representing a distinct geographic region of the state. There are a total of 109 Regional Advisory Council members. See Buklis (2002) for more detailed discussion on the structure of the Federal subsistence management program.

<sup>21</sup>Towards this end, Usher (1976b:14) notes the following:

... These facts demonstrate a fundamental and continuing economic dependence by Native people on the traditional resources. This economic

Berkes 1977, 1988; Condon et al. 1995; Dolitsky 1992; Ellanna and Balluta 1992; Feit 1986; Fienup-Riordan 1986a, 1986b, 1990, 1999; Freeman 1986; Hensel 1996; Nelson 1969, 1973, 1983, 2001; Simeone 1995; Thornton 2001; Usher 1976), public policy remains geared primarily towards allocation of scarce natural resources of economic value and mitigating environmental impacts of development on those resources and their uses. State health, education, and welfare agencies have few, if any, policies to promote, protect, or enhance subsistence lifestyles, and even the commerce and natural resources departments, centers of economic policy, do not recognize subsistence uses as a legitimate component of the modern economy. Thornton (2001) suggests that this is not only a consequence of the state having little incentive to support non-revenue producing subsistence economies, but also a result of the modern, compartmentalized bureaucratic state being ill-equipped to relate to the holistic, interconnected values embedded in the social economy of subsistence in Native communities.

Because anthropologists thus far have played only a narrow role within state bureaucratic management structures, which themselves exhibit only a marginal interest in subsistence, they have been largely unsuccessful in enlarging public policy beyond the economics of subsistence. To be sure, many anthropologists have pointed out that subsistence is more than economics, as Nelson (1982: 229) observes:

...Aside from economics, there are other very important dimensions that reinforce the Native people's dependency upon subsistence. Our studies of Koyukuk villages find that food from the land provides much more than subsistence alone- indeed it is a focal point of Koyukon culture. Native food is a source of psychological well being, it comprises the matrix for social and ceremonial events and it is a vital component in traditional religious practices.

Nonetheless, approaches to subsistence outside of an economic or political focus remain scarce. One example is Hensel (1996), who identifies the importance of "subsistence talk" in public construction and maintenance of Yup'ik identity in Bethel, and also investigates gender differences in orientation, valuation, and practice of subsistence in Yup'ik culture. Similarly, Jolles (2002) exam-

ines the complex linkages between gender, subsistence, spirituality and Christianity among Siberian Yup'ik of St. Lawrence Island. Ellanna and Sherrod (1995) examine gender bias in understanding modern hunter gatherers, specifically Inupiaq society of northwest Alaska. They challenge the paradigm of male dominance among Inupiat hunters, and argue that newly emergent patterns of behavior are the result of transformation of preexisting strategies and roles into new social and cultural forms, rather than a product of westernization. Despite these and other innovative studies, economic aspects of subsistence have tended to be the focus of attention in Alaska and elsewhere in the north. In addition to reflecting state interests, this bias also may be because the economic issues underlying subsistence are some of the most basic and long standing in hunter-gatherer studies (cf. Petersen and Matsuyuma 1991).

### SUBSISTENCE, TRADITIONAL ECOLOGICAL KNOWLEDGE AND CONSERVATION

As threats multiply to local subsistence economies from the dominant, expanding global capitalist economy, interest in recording local users' traditional ecological or environmental knowledge (TEK or indigenous knowledge) is growing in both the scientific and Native communities. While definitions vary,<sup>22</sup> most simply, TEK is "... a system of knowledge developed by a given culture to classify the objects, activities, and events of its universe..." (Hardesty 1977:291). In recent years, TEK has been a topic of increasing interest and concern to scientists and local people alike (Bielawski 1996; Berkes 1999; Freeman 1992; Hunn 1988; Hunn, et al. 2003; Johannes 1989; Johnson 1992; McDonald et al 1997; Stevenson 1996; Wenzel 1999). Posey (2002: 38-39) succinctly sums up several issues of concern surrounding TEK research and application:

The study of indigenous knowledge is fraught with methodological, theoretical, political and practical difficulties. Today, anthropologists must operate in a relative policy and legal vacuum that makes the study of indigenous knowledge a highly political act, especially given the highly charged atmosphere of mistrust that has been generated by fears of biopiracy. On the one hand, we are accused of *scientizing* indigenous

dependence explains why Native people have from time to time told this inquiry that the land is like a bank to them, their constant and reliable sustenance so long as it remains healthy. But there is also a deep-rooted social and cultural reliance on the land. To Native people, the land is more than just a source of food or cash. It is the permanent source of their security and of their sense of well-being. It is the basis of what they are as people. They know that the land, and the birds, fish and animals it supports, has sustained them and their ancestors since time immemorial. Properly cared for, they feel it can always do so.

<sup>22</sup>For a detailed discussion on the issues surrounding defining TEK, see Sillitoe (2002).

knowledge, while on the other we are suspected of being criminals out to loot national heritage. Somewhere in the middle we are even accused of romanticizing indigenous peoples and their knowledge, to create (paraphrasing from Kent Redford) 'intellectual noble savages.'

However, as Wenzel (1999:14) points out in reference to Canadian Inuit, "... as a conceptualization and expression of what Inuit know about their environment and its processes, [TEK] has formed an important aspect of scientific inquiry among Inuit far longer than TEK, as a "research type" has had 'intellectual currency.'" Clearly, local people have been active observers of their environment for many hundreds if not thousands of years. It has only been relatively recently that these observations have begun to be considered in the context of western scientific inquiry, or vice versa. However, because TEK is a combination of worldview and technical knowledge, the nexus between local knowledge, or TEK, and western scientific inquiry can be an uneasy one.

The relatively recent rush to document TEK is motivated in part by the same "salvage anthropology" agenda that stimulated earlier researchers to try to document traditional subsistence lifestyles before they succumbed to modernization. Only now it is the intellectual domain and "memory culture" itself that is threatened, including knowledge of Native languages, historic resource populations, harvest areas and techniques, and other beliefs and customs concerning relationships with the natural world. The assumption is that the intellectual culture supporting TEK will soon disappear, hence so will TEK. By extension, when traditional knowledge systems and the languages that support them are threatened, a culture's library of knowledge and a unique worldview also become endangered, and not only is valuable knowledge of the natural world lost, but so are ways of seeing and interpreting phenomena that might be of value to the cultures that possess them and to the whole of humankind. Yet, while we have an endangered species act, we have no endangered languages or cultures act, even though linguistic and cultural diversity are strongly correlated with biological diversity and the conservation of endangered species (cf. Maffi 2001). To avoid the loss of biocultural diversity then, it is important to go beyond salvage anthropol-

ogy and look at means of protecting and enhancing biological and cultural systems that provide the foundations for knowledge. Subsistence is one of the most important cultural systems that support TEK, for subsistence is itself a knowledge-producing system, a way of perceiving the environment that is bolstered, renewed, and refined through the exigencies of making a living on the land (Hunn 1999; Ingold 1996; Thornton 2001). To a large degree, the viability of TEK systems depends on continued opportunities to subsist on traditional lands and resources.

A second motivation for documenting TEK is to evaluate its potential utility for resource management. Indeed the relevance and value of TEK as a component of cooperative management of subsistence resources between government agencies and local communities has been widely touted in recent years<sup>23</sup> (cf. Berkes 1999; Feit 1998; Freeman 1992; Freeman and Carbyn 1988; Hunn et al. 2003; Huntington et al 1999; Wheeler 1988). While many are supportive of this marriage, and see preliminary results as encouraging, others argue that the quest of modern science to "integrate" TEK into its data and management systems is essentially a neo-colonialist enterprise to mine yet another local resource without confronting the sociocultural context that informs it. Nadasday (1999), for example, critiques the basic terms framing these projects, such as "management," "conservation," and "traditional," as "incommensurable" with Native concepts and world view and suggests that such "cooperative" efforts by scientists to document TEK rarely result in benefits to local communities. Some social scientists have called for a "paradigm shift" in modern science to more fully accommodate the cultural context of TEK systems (Berkes 1999; Cruikshank 2001). But others see this as weaving a "tangled web" and fear that the spiritual beliefs and values inherent in TEK, if uncritically accepted by science, may result in poor decision-making and environmental policy (Howard and Widdowson 1997: 46-48). Significantly, Native communities are beginning to insist that management authorities recognize their knowledge and include it in management. Thus, when the results of a large-scale interviewing effort (ADF&G, Division of Subsistence 1992-1994) to document Alaska Native TEK of harbor seal and sea lion ecology initially were dismissed by National Marine Fisheries biologists as merely "anecdotal," members of the Alaska Native

<sup>23</sup>Beginning in the 1960s increasing attention has been directed at what some refer to as the "global predicament" – the result of human overpopulation and over-exploitation of resources (Orr and Soroos 1979). In recognition of the crisis regarding over-utilization of resources, and perhaps in partial recognition of the lack of adequate explanations for how things work, increasing attention was directed at alternative theories and models of resource management (Firey 1960; Segerstedt and Nilsson 1974). Perhaps not surprisingly, indigenous populations rarely received attention in many of these works. By the late 1970s, however, anthropological attention began to be directed at understanding indigenous management systems, and examining the relationship between indigenous and western natural resource management in the North (cf. Berkes 1977, 1979, 1981a, 1981b; Feit 1979). Both Feit and Berkes pioneered the idea of self-management or indigenous management systems in the Canadian North (cf. Berkes 1981a, 1981b, 1985; Feit 1986, 1988, 1998; Freeman 1985; Freeman and Carbyn 1988). Their ideas were further explored and applied by others to the Alaskan context (Fienup-Riordan 1990; Linkous 1995; Nelson 1982; Wheeler 1988).

Harbor Seal Commission reacted with anger, pointing out that management biologists too often were misguided by their own limited data, and insisted that Natives' understanding of the marine mammal ecology be taken seriously (Harold P. Martin, personal communication, 1999). However, just how to most effectively incorporate TEK into management remains a contentious and unresolved issue. Nonetheless, increasingly, the recognition of Native knowledge systems and involvement in research design, data collection, and management decisions resulting from human environmental investigations are becoming requisite for researchers in Alaska Native communities.

Another issue regarding the incorporation of TEK into modern resource management concerns whether Native knowledge and practices are consistent with modern principles of conservation. Some cultural relativists (e.g., Brightman 1987, 1993; Fienup-Riordan 1990, 1999, 2000, 2001) argue that Native and non-Native conservation principles are frequently at odds and that traditional Native ideologies often support the notion that animals are non-human persons and can be repeatedly "reincarnated," so long as hunters scrupulously followed cultural protocols and prescriptions. Another perspective is that Alaska Natives and other foraging peoples never had the population density or technological capacity to exploit resources to depletion and therefore had no need to develop a conservation ideology. The latter argument has been soundly refuted by ethnographic, archeological, and historical investigations showing that overharvesting has occurred in indigenous communities (cf. Berkes 1999; Krech 1999; Smith and Wishnie 2000). Taking a more universalist position, Berkes (1989; 1999:95) posits that a conservation ethic develops only when "a resource is important or limiting, predictable and depletable, and if it is effectively under the control of the social group in question, so that the group can reap the benefits of its conservation." Smith and Wishnie (2000) apply an even more stringent rational economic standard, arguing that conservation must be intentional (as opposed to accidental or epiphenomenal) and is likely to occur only under conditions of: (1) controlled or exclusive access/land rights; (2) distinct or confined resource populations; (3) resilient resources populations; (4) low discount rates favoring the value of sustained yield over immediate harvest; and (5) social parameters (small groups with stable membership) and institutions (sanctions, monitoring, etc.) to counter "cheaters." Critics of this perspective argue that these conditions place an unreasonable burden on Natives to meet ethnocentric Euro-American ideals of conservation while neglecting the more important benchmark of

sustainability (Hunn et al. 2003; Langdon n.d.), and as a consequence often play into the hands of skeptics who would dismiss TEK as irrelevant if not antithetical to resource management (e.g., Zavaleta 1999). Based on a study of Huna Tlingit bird egg gathering TEK and practices that met Smith and Wishnie's conditions, Hunn et al (2003: S92) add an important sixth criterion to the maintenance of conservation and sustainability, namely, that "the community have an adequate empirically-grounded understanding of the local environment sufficient to recognize how their harvests affect the sustainability of local populations of plants and animals" as a prerequisite for "conserving the balance between the needs of the community and the recuperative powers of the ecosystem that sustains it." Here again it would seem that among the best ways to insure such understanding and balance is to support the maintenance of healthy subsistence economies and local knowledge and resource management systems that have proved sustainable. This principle is one of conservation through cultural survival (Stevens 1997; Thornton 1998). It requires more than just managing resources to maximize yield. Equally important is creating conditions under which culturally diverse traditions of ecological wisdom, practice, and sense of place are sustained (Thornton 1999b).

If as anthropologists we accept that there are important similarities *and* differences between indigenous knowledge systems and western science, then the dynamic interactions between indigenous and western natural resource management systems should themselves be worthy of study. Some have found the apparent disconnect between the two systems attributable in large part to widely divergent views of the relationships between animals and humans (cf. Fienup-Riordan 1990, 1999; Hensel and Morrow 1998; Mercurieff 1991; Morrow and Hensel 1992). Others see the disconnect as being rooted in who controls the debate, which is tied in large part to who defines the meanings of the words (cf. Asch 1989; Nadasdy 1999). Another approach has been to look at the politics of resource management, and how—or if—power is shared (cf. Braund 1992; Huntington 1992; McCall 2002; Osherenko 1988; Schwarber 1992). While there are a few examples of effective sharing of power (cf. Fall and Chythlook 1998), overall the practice of co-management continues to be elusive in Alaska. This is partly a function of the asymmetrical politics that continue to shape subsistence policy, and the fact that Alaska subsistence policy evolved not to enhance, protect, or conserve Alaska Native subsistence economies and cultures, but rather to insure that impacts to "subsistence uses" were minimized within the context of economic



development and government control over land.<sup>24</sup> In this environment, urban hunters' desires are addressed and largely taken care of by the management system, and Alaska Natives are increasingly disenfranchised by the process (cf. Hensel and Morrow 1998; Spaeder 2000; Worl 1998).

## CONCLUSIONS AND RECOMMENDATIONS

While we are confident in saying that anthropological knowledge regarding attributes of subsistence economies is far more rich and comprehensive than it was when the Alaska Anthropological Association began some 30 odd years ago, we must question if this is enough? Why, if so much anthropological work has addressed various aspects of subsistence in Alaska, are we not any closer to deriving effective subsistence policy? Why is it that after so much work, the central paradigm for fish and game management in the state continues to be biological? Why, in spite of a common anthropological understanding of subsistence as being so much more than economics, do we continue to have that as the driving question in most subsistence research? Why is TEK rarely incorporated into fisheries and wildlife management? What, if anything, has the 30+ years of anthropological focus on subsistence contributed to the overall debate? Are there elements that we can consider to further effective policy, and if so, is there resolution to the dilemma? Is it possible to agree on a common goal?

While most anthropologists would agree with ANILCA that "the continuation of the opportunity for subsistence...is essential to Native physical, economic, traditional, and cultural existence," how do we get there and [how] can anthropology help? We would suggest that more anthropological studies of subsistence knowledge and practices alone are not enough. A broader emphasis on the role of anthropology in understanding both the formation of public policy and the implementation of its directives in local communities is needed. Anthropology alone cannot achieve what numerous subsistence "summits" and "task forces" have failed to accomplish in resolving the subsistence dilemma. But anthropological studies can shed more light on why and how the subsistence sector of the economy continues to be underrepresented, if not misunderstood or undermined, within the current realm of public policy.

Ethnographic methods remain one of anthropology's most important assets, and should continue to be emphasized, for without utilizing a complete ethnographic "tool kit," research will suffer, as will communities, and the discipline will lose its relevancy. With its emphasis on "being there," the ethnographic approach has yielded important insights into the holistic and integrated nature of subsistence lifeways. Ethnography continues to be the best way to evaluate the ongoing adaptation and evolution of subsistence economies and the changing patterns of subsistence in relation to regional and global developments. Given this, it is important that subsistence studies not be reduced to monitoring harvest levels and that basic ethnographic research continues. That said, the nature of ethnographic research is changing. The model of the lone researcher in a remote village is gradually giving way to collaborative team-oriented approaches in which local people are empowered partners in all facets of the research, from project design to data collection to analysis and interpretation of results, and implementation of the findings. Already, collaborative approaches are proving effective at the community level. But ethnographies of subsistence should not limit themselves to the boundaries of single communities or to the statutory definitions of "subsistence uses"; rather, they must also examine articulations between subsistence lifeways and the broader demographic, cultural, political, and economic forces at work in every Alaskan village today.

With this in mind, we anticipate that anthropologists will work closely with local communities and management authorities to define a broad agenda of subsistence research needs for the twenty-first century, which, in turn, will further our understanding of this most basic, diverse, and life-enriching aspect of Alaska's economy and indigenous cultures, and insure that it remains sustainable in the future.

<sup>24</sup>Along these lines, Schneider (1982:172) makes the point that, "... the subsistence issue is integrally tied to the history of competing claims for land and resources. Competing land uses affect the habitats of fish and game, which, in turn, affect adversely the chances for successful subsistence activities."

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