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Interrelationships and Implications of Subsistence vs. Sport Stewardship of Salmon in the Aleutians East Borough Region of the Alaska Peninsula:

A comparison of ethos in traditional and recreational use

by

Jaime Campbell-Lavallee

A thesis submitted in partial fulfillment

of the requirements for the degree of

Masters of Arts in the Department of Anthropology

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Spring 2019

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COMMITTEE APPROVAL

To the Graduate Faculty:

The members of the committee appointed to examine the thesis of JAIME L. CAMPBELL-LAVALLEE find it satisfactory and recommend that it be accepted.

_____

Dr. Katherine Reedy, Major Advisor

_____

Dr. Christopher Loether, Committee Member

_____

Dr. Justin Dolan Stover, Committee Member

This thesis document falls under the supervision of the research project approved below*

March 1, 2017

Katherine Reedy
Anthropology
MS 8005

RE: regarding study number IRB-FY2017-150 : Western Gulf of Alaska Subsistence and Use of Federal Lands and Waters

Dear Dr. Reedy:

Thank you for your responses from a previous full-board review of the study listed above. Your responses are eligible for expedited review under OHRP and FDA guidelines. This is to confirm that I have approved your application.

Notify the HSC of any adverse events. Serious, unexpected adverse events must be reported in writing within 10 business days.

You may conduct your study as described in your application effective immediately. The study is subject to renewal on or before Mar 1, 2018, unless closed before that date.

Please note that any changes to the study as approved must be promptly reported and approved. Some changes may be approved by expedited review; others require full board review. Contact Tom Bailey (208-282-2179; email humsubj@isu.edu) if you have any questions or require further information.

Sincerely,

Ralph Baergen, PhD, MPH, CIP
Human Subjects Chair

ACKNOWLEDGEMENT

In developing this thesis, I wish to thank Dr. Katherine Reedy for the unlimited opportunity she opened for me and her level-headed guidance. I have been extremely fortunate to learn from her in the classroom, in the field, and in her other professional arenas. Without her willingness to take me along to the far-flung Aleut villages, I might never have visited Alaska, pursued sport fisheries in my research, or lived to tell the tale of graduate school at all. In a field as broad as Anthropology she has provided me with an invaluable example of how to navigate one's own path, and proven that even a student from a small town and a small university can make a contribution.

I would also like to thank the delightful people of the communities of Sand Point, Cold Bay, and King Cove for their kindness, generosity, and wisdom. Their cultural passion for fish and fishing has shown me how special our fish resources everywhere truly are. I wish them all happiness, prosperity, and an always plentiful catch.

Also, for my fishing partner, to whom I owe a debt of gratitude. Who helped me balance life, education, and the call of river, with an abundance of patience and love. That encouragement and support has kept me sane through every paper, every fish, and every C.O.J.

Finally, I owe my thanks to fishing itself. Which, in its own inimitable way provided me with opportunities to grow and learn, all the while being in some of the most fantastical places. For those fishing to live and those living to fish.

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LIST OF ABBREVIATIONS

ADF&G……..……Alaska Department of Fish & Game

AEB……..…….Aleutians East Borough

APICDA…….Aleutian Pribilof Island Community Development Association

INWR……..Izembek National Wildlife Refuge

OSM……..Office of Subsistence Management

SES……..Social-Ecological System

TAC……The Aleut Corporation

Interrelationships and Implications of Subsistence vs. Sport Stewardship of Salmon in the Aleutians East Borough Region of the Alaska Peninsula:

A comparison of ethos in traditional and recreational use

Thesis Abstract--Idaho State University (2019)

Shared interests in the use and value of salmon have resulted in disparate access and participation in multiple economies surrounding common pool resources within the Alaska Peninsula region. This thesis explores the complex intersections of the social ecological system between salmon, local Aleut (Unangan) subsistence users, and both local and outsider sport users. Recently, political influence resulted in a Federal land exchange intended as a road corridor bisecting the Izembek National Wildlife Refuge. This has potential to disrupt the current system of human-human and human-fish relationships, causing structural vulnerability within and among user groups, and damaging the overall resiliency of the shared milieu. Data suggests that heuristic visitor exposure to local community perspectives and increased involvement of local users in sport fishing may encourage a shared stewardship based on traditional (Aleut) values. Using a political ecology framework, this thesis exposes the onset of a critical moment in social and economic development, highlighting evolving human-fish and human-human relationships.

Keywords: Salmon, Alaska, Aleut, Subsistence, Sport Fishing, Commercial Fishing, Political Ecology, Participant Observation

PREFACE

A harbor, even if it is a little harbor, is a good thing, since adventurers come into it as well as go out, and the life in it grows strong, because it takes something from the world, and has something to give in return.

— Sarah Orne Jewett, *River Driftwood* 1881

I felt like one of those adventurers as the tiny Piper Navajo banked itself around over the ocean and delivered us safely to the King Cove airport. We were beyond lucky to have agreeable weather despite a dramatic sky over snow covered mountains and a glittering sea. Chris, the pilot, was generously patient with the exuberance we expressed at being the only two passengers on board. He managed the plane and its many dials and switches with ease; truly seasoned in his work as well as the journey, in stark contrast to our unyielding awe. Neither of us missed his smirk when he pulled the hair-pin turn, unannounced, over the ocean before our descent. The short journey from Cold Bay to King Cove was an adventure I will never forget, though I hope it was only the first of many visits. Exhilarated though I was to glimpse the vast wetland areas of the Izembek National Wildlife Refuge, I thought to myself even then that no matter how many trips I hoped to make to this hidden village gem, that the topography below me would likely never look the same. While in the process of gathering data for this thesis, it became clear that after 30 years of debate, a federal land exchange agreement between the U.S. Government and the King Cove Native Corporation was imminent. While this gives as much cause for concern as it does celebration, it also represented a monkey wrench for the future of the ideas I intended to present in my thesis. As I hope to relate clearly in the pages to come, the future of sport fishing in the Alaska Peninsula has nearly unlimited potential; and, the factors that comprise that potential are as numerous as the returning salmon and as vast as the Izembek wetlands.

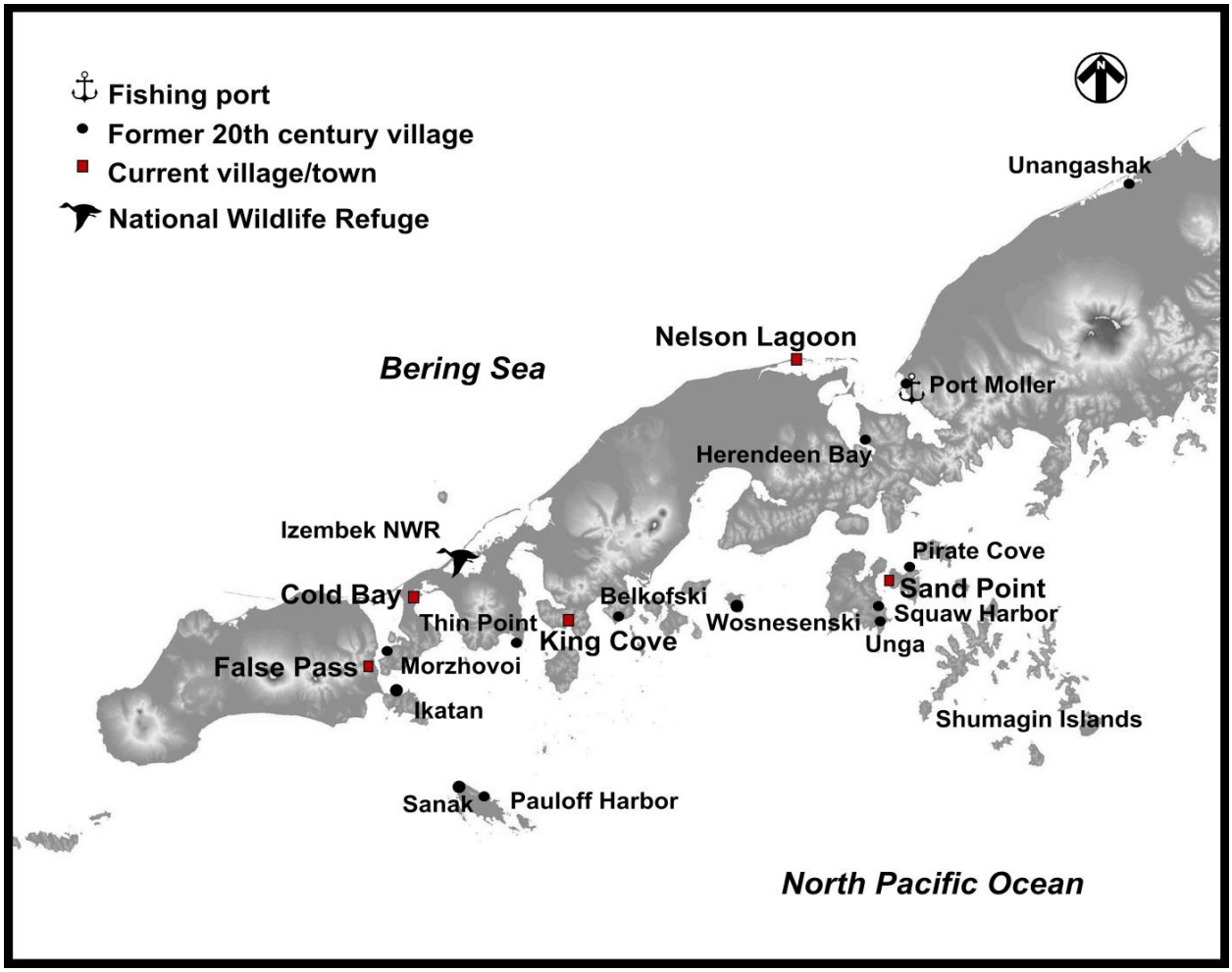
CHAPTER ONE

INTRODUCTION AND INTENT

Fishing in the Alaska Peninsula is the locus of survival, occupation, social structure, and community identity. Alaska itself evokes notions of wildness, self-reliance, and a dependence on natural resources more intimately so than in most of the world. As places like this are continually exposed through processes of globalization, even the most remote areas of Alaska are now known secrets. Cardinal to the draw to Alaska's wild places are the near mythological fishing opportunities, tempting fishermen from all over the world. With sport fishing and recreational angling gaining popularity across the globe, wild Alaskan salmon species have increasingly become a "bucket list" target for anglers. While this may be perceived as a simple interaction between fish and a group with a shared hobby, the social-ecological system that they are contained within proves to be intrinsically complex and evolving at a rapid pace. In order to appropriately manage fish and people, it is essential that we take stock of the many relationship networks surrounding Alaskan salmon.

This thesis serves to identify the social, political, and environmental factors contributing to the relationships between a changing set of user-groups exerting pressure over common-pool resources (salmon) at the end of the Alaska Peninsula. Research on subsistence and commercial fishing in Alaska generally (Carothers 2010; Fields 1997; Langdon 1991; Mishler and Mason 1996) and the Alaska Peninsula and Eastern Aleutian Islands specifically (Maschner and Reedy-Maschner 2005; Reedy-Maschner 2009; Reedy-Maschner 2013; Reedy-Maschner 2010; Reedy 2016; Reedy 2018) have explored the indigenous relationship to the environment and its role within a political ecology framework. The focus of this research however, has not typically

included factors related to the changing landscape involving sport user groups. By addressing the dynamics surrounding this growing presence, this study aims to reveal gaps in understanding of relationship parameters, potential areas for improved management, and discern stresses inflicted on humans and fish so that they may be mitigated for more positive outcomes.



This study serves to explore these dynamics within three communities on the Alaska Peninsula, and one in the Shumagin Islands. During my time spent in these Aleut (Unangan) communities of Sand Point and King Cove, and the mixed community comprising Cold Bay, it became clear that although sport fishing was by no means a new enterprise to the area, it was

lacking in formal study and documentation as is often endemic to Alaska's remote regions owing to travel challenges and prohibitive costs. My initial reason for visiting these places was to participate as part of a study team performing fieldwork for a grant funded by the U.S. Fish & Wildlife Service's Office of Subsistence Management (OSM). This involved a large scale survey regarding subsistence harvest and use of local plant, animal, and marine species, aimed at generating baseline data that has not yet been explored in those communities. During this work, reports from and interactions with local people revealed that there was little concern for the impact that sport fishing has or may have on the fish species they depend on to live in their small communities. It was hardly even considered as an economic opportunity, supporting visiting anglers in search of landing a once-in-a-lifetime trophy salmon. Lack of local cognizance is compensated for by outsider owned and operated lodge and guide services that cater to the sport fishermen targeting seasonal salmon runs. As subsistence activity is undeniably an essential part of living on the Alaska Peninsula, and sport fishing is a voracious hobby performed by outsiders, I noticed an opportunity for investigating potentially dichotomous use, stewardship, and perspectives regarding salmon and the human relationship with salmon.

The "problem" in this area is many faceted, and at this point in time (since this is a moving target) is composed of a rather nebulous mix of interrelationships. Multilevel power differentials exist between the Native/local population, outside proprietors, recreational fishers, and subsistence/commercial fishers. Additionally complicating these dynamics is the recent introduction of a federal land exchange between the King Cove Native Corporation and the U.S. Government, implicating the Izembek National Wildlife Refuge with a controversial road corridor intended to physically connect the rural communities of King Cove and Cold Bay. Concurrent with these more local concerns is a steadily increasing influx of sport fishermen,

which constitute something of an unknown in the continued evolution of this social-ecological-economic system.

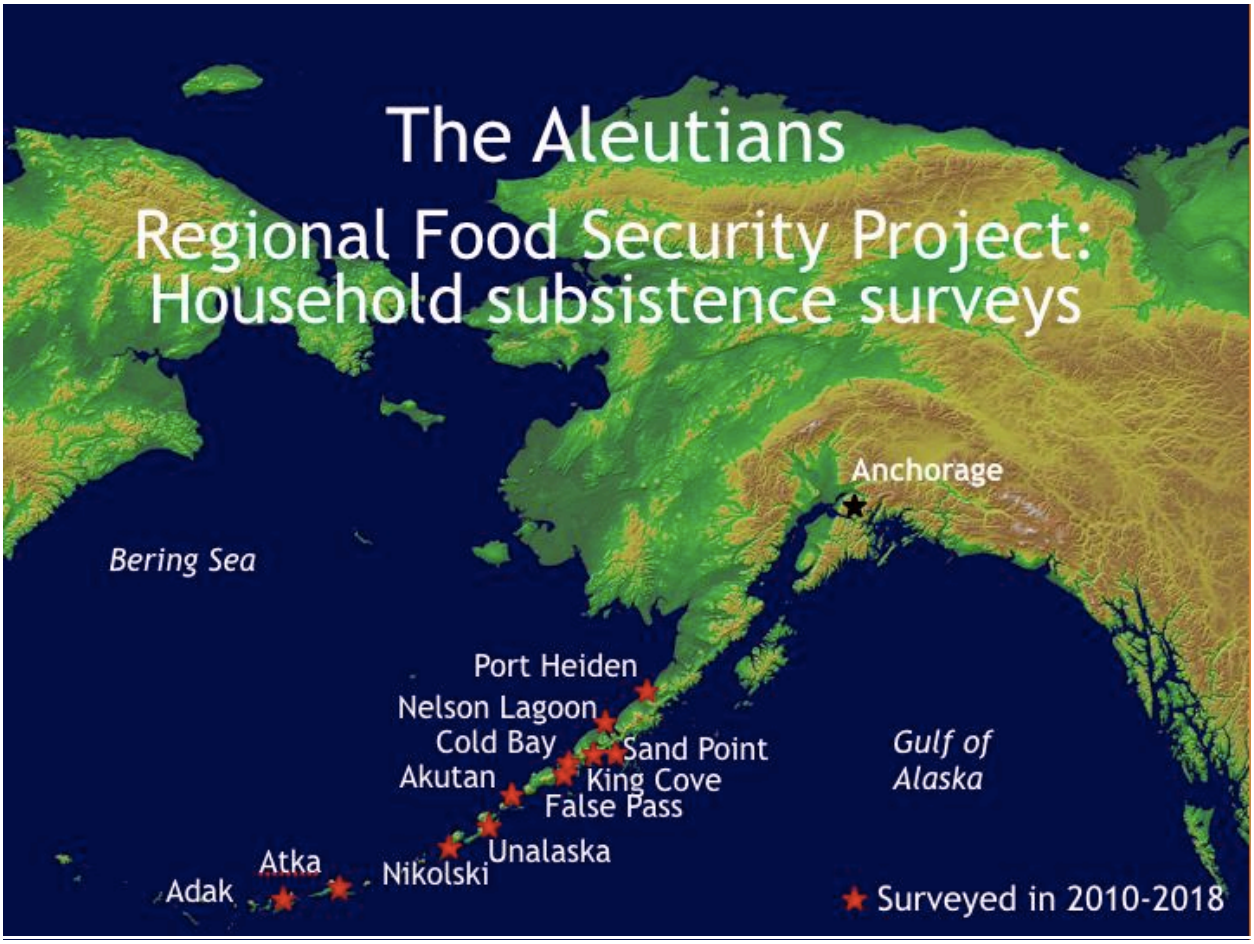
Drawing from Escobar's political ecology framework (Escobar 2006) and Jentoft and McCay's social theory of user group viability (Jentoft & McCay 1998), this thesis will disentangle these complex relationships and their implications for the future development in the region. Escobar's framework requires that we move towards the equal inclusion of ecological, economic and cultural factors when considering natural resources conflicts in the neo-liberalized world. Employing a more holistic systems approach to these user relationships is an ambitious and seemingly unattainable undertaking, but promotes a goal oriented management scheme over a static one. To compliment the simplification of the user group relationships in the focus communities, Ferguson's investigations of development under neoliberal agendas are useful when examining how companies are starting to operate in Alaska (Ferguson 2005). He demonstrates that the development and use of local infrastructure and labor are no longer necessary to the function of corporations, thereby changing the relationships on the ground.

To understand the cumulative relationships between people and fish in the study area, I will first identify the individual players, user groups, and communities. These designations are not intended to imply complete group homogeneity, but to identify active participants designated by similar intent and use of salmon. The groupings of users are identified as follows: (1) Local communities; (2) local subsistence users; (3) locally owned fishing operations; (4) outside owned fishing operations; (5) visiting anglers/sport fishermen; (6) fish (salmon).

USER GROUPS of the SES

1 - Local Communities

The terminus of the Alaska Peninsula contains the three focus communities of this research, as well as one ancillary community of importance. Cold Bay, King Cove, and Nelson Lagoon are located on the edges of the Izembek National Wildlife Refuge, in the most geographically favorable areas on the coast. They form an acute triangle containing the refuge, and are not currently connected by any roads. The fourth community, Sand Point of Popof Island, is located to the South of this area on the Pacific side of the Peninsula in the Shumagin Island group.



Thus far I have personally visited and worked in the communities of Sand Point, Cold Bay, and King Cove. Although much of the following discussion also includes Nelson Lagoon, it is important to note that it relies directly on its relationship with the surrounding communities, and that it is essentially dormant during the off-season during which I was able to conduct this research. Despite not having been to Nelson Lagoon, the information presented about the community comes from literature research and conversations with individuals who have first-hand knowledge of it, including former residents. Additionally, Sand Point does not have a viable sport fishing claim of its own as it lacks interior waterways, and does not engage in the charter fishing sector. However, there is a great deal of inter-community fluidity in the Aleutians East Borough area, and many former residents of Nelson Lagoon reside in Sand Point, which makes my visit to Sand Point valuable to this discussion.

These communities are inextricably tied by their relationship with Cold Bay's airport. Cold Bay is a smaller community than the others but has an airport with a paved runway significant enough in length to land nearly any kind of aircraft. This is left over from a large army camp that was formed in Cold Bay during World War II and the runway serves as an emergency landing strip for trans-Pacific flights. King Cove and Nelson Lagoon also have runways, though they are only sufficient to receive flights directly from Cold Bay on small planes suited to short gravel runways that are part of a regional airline or personally chartered crafts. In King Cove, limited and fairly specific traffic continue to make due with a gravel runway, which is not suitable for large planes. This means that the only way (at present) for King Cove or Nelson Lagoon residents to travel outside of their communities is by plane to Cold Bay, or by boat between King Cove and Cold Bay.

All four communities are part of the Aleutians East Borough, incorporating Native groups that identify primarily as Aleut (Unangan). All communities exhibit high rates of subsistence activity in hunting, fishing, and gathering (OSM, 2018). Subsistence is dictated by cultural tradition and social organization, as well as a way to supplement the high cost of living in such remote areas. Nelson Lagoon exhibits these same traits, but has a considerably reduced population (about 55 people) and is more isolated even than King Cove, with a population of about 900. Nelson Lagoon is virtually dormant in the off-season (non-summer months). Due to the difficulty of traveling in and out of the village during the winter months, many of its residents choose to stay with family elsewhere in Alaska, or winter in other states. As is the case with many rural and Native communities, loss of residents and a corresponding loss of services, has put Nelson Lagoon in danger of disappearing altogether. The state closed the school in 2015 leaving little incentive for young families to stay there or to move there. Fortunately, the Aleutian Pribilof Island Community Development Association (APICDA), via their Joint Ventures branch, have successfully integrated a guided sport fishing lodge outside Nelson Lagoon helping to reinvigorate the local economy.

If each community were to have an identifier, Cold Bay would tout their fully functional airport; King Cove, its successful harbor and cannery; and Nelson Lagoon would elicit its salmon fishery as well as being a sport fishing and hunting destination. As each of these communities are so different, they depend on each other for strength and support. There is a great deal of inter-community fluidity between residents, and certainly in the distribution of family members.

2 - Local Subsistence Users

Each of these communities demonstrate a high level of dependence on subsistence activity (Reedy-Maschner and Maschner 2012; Reedy-Maschner 2010), and the nuanced nature of subsistence within them will be defined more formally later in this thesis. For the purposes of describing this particular group, one can think of a subsistence user as a permanent resident of one of the aforementioned communities that depends on the acquisition of local natural resources to provide for their needs. Give some description here about what that means and what it entails.

Presently, Alaska is the only state in the U.S. that currently employs a formal management scheme for subsistence activity (Huntington, 1992). This is because so many individuals depend on access to traditional subsistence for survival. Survival may be literal, tied to culture, a particular worldview, or all three and more. Regardless of the individual impetus, subsistence activity is so widespread in the state that it required a more focused directive to understand its impact on local ecosystems (Gerlach and Loring, 2013). Housed within the Alaska Department of Fish & Game (ADF&G) is the Division of Subsistence. Housed within the Federal US Fish & Wildlife Service is the Office of Subsistence Management (OSM). It is important to note that these agencies were not created to cater to the Native population, which are sometimes considered to be pursuing a traditional lifestyle as a choice. Subsistence rights are needs based and apply to all Alaskans regardless of culture or ethnicity (Huntington, 1992). Most areas of Alaska are still so rural relative to the conveniences common to the Lower 48 States, that subsistence is a necessary undertaking. Attempts to live without this strategy would be prohibitively expensive as all supplies come from outside locations. The exceptions to this rule are located around the few metropolitan areas, including Anchorage, Fairbanks, Juneau, and Ketchikan.

3 - Locally Owned Fishing Operations

This group has internal distinctions which offer additional stratification. Locally owned fishing operations include those individuals that are permanent residents of one of the focus communities and that participate in commercial fishing. This may be in conjunction with personal subsistence activity depending on the individual's role in the commercial fishery. Additionally, the Aleutian Pribilof Island Community Development Association (APICDA), via their Joint Ventures branch, have successfully integrated a guided sport fishing lodge in Nelson Lagoon helping to reinvigorate the local economy. APICDA, though not universally popular, or effective in its mission, aims to support programs that emphasize a continued cultural relationship with fishing throughout their communities. Aleutian Adventures is an outfitter operated by APICDA Joint Ventures offering a fishing camp on the Sapsuk River, a fishing lodge on the Sandy River, and a remote island camp for reindeer hunting (Pers. comm. Angel Drobnika, December 2017). The Sandy River lodge has only been recently acquired. Previously belonging to non-local Mel Gillis, APICDA seized the opportunity of his retirement to purchase the lodge and take over its regular operation. This has been a relatively seamless transition for APICDA as the lodge had regular customers and a positive reputation that they have been able to maintain since May 2017 (Pers. Comm. Ernie Weiss, December 2017).

4 - Outside Owned Fishing Operations

Outside owned fishing operations include fishermen that obtain permits to fish the productive waters surrounding the focus area, but that are not permanent residents to those communities. These individuals may live in a metropolitan area excluded from subsistence, or may not even live in Alaska, and therefore represent an external interest or foreign user group. Also included in this category are the various sport fishing outfitters and guides, owned and

operated by outside sources of the same kind. This group is exemplified in this study by the Hoodoo Lodge located in Nelson Lagoon. The Hoodoo Lodge is owned by individuals that are transplants to Alaska, and who spend the majority of their time in the state of Washington. This operation constitutes direct competition for the Aleutian Adventures operation, and personal communications have indicated a somewhat contentious relationship between the differentially owned services. The relative prominence of these operations represents a notable difference in access and power over other user groups, which depend on the presence and availability of salmon throughout the year.

5 - Visiting Anglers/Sport Fishermen

This group consists of those individuals utilizing the areas of Cold Bay, King Cove, and Nelson Lagoon for recreational fishing. This effort focuses on sport fishermen that travel to the area as a destination for a fishing experience, but may also include anyone that fishes for entertainment outside of or in addition to economic or subsistence necessity. Sport fishermen in this area may find opportunities to fish for many species, both inland and at sea. For the purposes of this investigation however, the primary concern surrounds users that are recreating within the freshwater systems contained by the focus communities. Many visitors rely on fishing services offered in a vacation style package, where their experience is carefully curated from arrival to departure. As successful fishing is not a guaranteed activity, services that outfitters and guides offer are particularly attractive. Fishermen may also visit this area without formal guide expertise, but must then be responsible for their own supplies, provisions, housing, and transport. Rural communities such as Cold Bay, King Cove, and Nelson Lagoon have limited opportunity for amenities, which complicates a self-directed fishing trip.

6 - Fish (Salmon)

Alaska's salmon fishery includes 5 species: King, Sockeye, Coho, Pink, and Chum salmon. The five salmon species all contribute to a lucrative commercial fishery, local subsistence, and are desirable to sport fishermen as a collection. Each species exhibits an anadromous lifecycle in which they have particular seasonality for returning to the freshwater systems of their birth to spawn. These return trips from the ocean to reproduce are often referred to as 'runs', and for a brief portion of the year are concurrent such that an angler may be able to catch every species in a single excursion. Colloquially named the "Salmon Grand Slam", the opportunity to collect all five species is an important point of advertisement to entice visiting fishermen to the area.

These same fish support local life and culture, both literally providing sustenance and in the social organization that they support in the focus communities. As will later be described, salmon constitute the locus of social, political and environmental factors in this region. They are intrinsically tied to success from the individual to a global scale.

SCIENTIFIC NAME	COMMON NAME	COLLOQUIAL NAME	ADDITIONAL NAMES
Oncorhynchus tshawytscha	Chinook Salmon	King Salmon "Kings"	Tyee Salmon Blackmouth Salmon
Oncorhynchus nerka	Sockeye Salmon	Red Salmon "Reds"	Kokanee (if landlocked)
Oncorhynchus kisutch	Coho Salmon	Silver Salmon "Silvers"	
Oncorhynchus gorbuscha	Pink Salmon	Humpback Salmon "Humpies"	
Oncorhynchus keta	Chum Salmon	Dog Salmon "Dogs"	Calico

Figure 3 Pacific Salmon Species Nomenclature (Campbell-Lavallee 2017).

By identifying the aforementioned participant groups in this social-ecological system we can begin to take stock of the varied degree of interconnectedness between them and how they influence the successes or failures of one another's engagement with natural resources. In so doing, imbalances of access and power should indicate areas of potential improvement for the future, particularly where new entities with unknown agendas are being introduced. Taking stock of these relationships gives baseline data that may prove beneficial in advocating for user groups or fish themselves as the area contends with impending dynamic changes.

THEORETICAL FRAMEWORKS FOR EVALUATION

Of paramount importance in understanding the human-fish and human-human interactions described in this area is a focus on political ecology. Political ecology itself refers broadly to methods of interpreting a social ecological system (SES) (Fabinyi, Evans, Foale 2014) inclusive of the human influence as active participants rather than passive or controlling ones. For this project, traditional political ecology theory is widely applicable due to the presence of multilayered power relationships (Escobar, 2006). Political ecology presents as inherently power laden, often defining power differential relationships in terms of economic standing, excluding other factors that may contribute to overall ability to exert dominant power (Fabinyi, Evans, Foale 2014). Evoking Raymond Firth's "Gut Marxism" (Goldstein 2014 via Firth 1975) (which describes an inherent reaction to judge power as dictated by one's role within a market economy), it is overly simplistic to view the primary benefit of Alaska's salmon as an economic one, rather than a more sustainable and productive social one. A broader application of political ecology, invoking Escobar's framework and inclusive 'social ecology' is more appropriate in this scenario. Postmodern modes of thought adapted political ecology along these lines, to

include consideration of political aspects of a system without assuming that they are necessarily of primary importance, while taking additional care to take stock of other political influence on a more local scale (Vayda & Walters, 1999). Here, political ecology is applied on a local, regional, and state level as fish are managed alongside user groups.

In the United States in particular, this idea of Gut Marxism can be disruptive to gaining a comprehensive view of a system. Tendencies to consider our relationship(s) with natural resources in terms of economic benefit can shroud other truths about the system at large. To do this investigation justice, I believe a healthy pushback against 'political ecology' in the traditional sense is prudent because it is tied so closely to capitalistic interpretations of resource use. It may well describe portions of the situation here, but the relationships interacting with each other are better served if approached holistically, laterally across groups, and throughout time. Fiscally based ideas of power struggles cannot be addressed without empowering those contending with structural vulnerabilities, and in this area in the present economic climate, fishermen are unlikely to wholly overcome this particular barrier. Political ecology may present this as locals being eternally relegated to a backseat both in terms of power and prosperity, participating in and even perpetuating their position. In response to this, I will extrapolate on Svein Jetoft's (Jentoft & McCay, 1995; Jentoft & McCay, 1998) ideas of managing people before resources to ensure viability of human communities as well as the viability of the living resources they depend upon (Berkes & Nayak, 2018). This incorporates ideas of place-based management as well as co-management, as methods for arbitrating user group relations.

While monetary returns and costs are descriptions of the conditions in which people relate to salmon are used at length, it is important to exemplify their importance external to economic roles. The impact that salmon have on successful human experience and the positive

influences that they exert over shared mentalities and identities are invaluable and entirely renewable. To view salmon merely as a resource best exploited for economic benefit, is to discount the long-term success of the local Aleut culture's carefully curated relationship with fish. Salmon offer us a much more compelling argument for use that extends beyond Marxist ideas of social structure, to a more sustainable relationship that incorporates multi-use among many (and) cooperative user groups. To better understand the benefits of a human-fish relationship that may extend beyond a dollar sign, I believe it is important to understand what subsistence truly means in the AEB, and how that might be used to bolster their power in influencing more sustainable relationships with other user groups.

DEFINING 'SUBSISTENCE' IN ALASKA

Subsistence is widely used as a term interchangeable with others indicating food acquisition techniques, or sometimes for food itself. A discussion regarding the meaning of the word 'subsistence' as it is applied in different contexts seems to accurately describe the place where subsistence and sport fishing can come together. Alaska is one of the few places in the world that has established a formal strategy for managing small scale fisheries, including regulation of subsistence activity (Macinko, 2007; Huntington 1992; Wolfe and Walker 1987). Viewing the fundamental role of fish resources in the Alaskan communities of Cold Bay, King Cove, and Sand Point firsthand led me to an understanding of what subsistence constituted in the area and for its residents. I think, however, that the more common understanding (or more accurately, impression) of subsistence activity is the romanticized version. This depicts subsistence harvest of resources as a choice defying Westernized ideals, where tradition is of more importance than eating, and every part of an animal has a specific and significant use. A

rustic novelty of culture. This, of course, is not the reality, at least not in such a utopian wilderness fashion. Taking this into consideration, it seems salient to consider the conventional Anthropological definition of subsistence, as well as a more dynamic definition of subsistence in the present-day.

Fish, especially salmon, are a primary resource in subsistence activity in the Aleutians East Borough. The archaeological record demonstrates a 12,000 year ongoing habitation of Alaska, including a marked dependence on a variety of fish species throughout that time and into the present, salmon principal among them (Jordan and Maschner, 2000). Within the focus communities every household surveyed reported some role in traditional subsistence activity whether directly or indirectly, proving that subsistence is still integral to the way of life in the Alaska Peninsula. The individual reasons for this may vary tremendously based on one's socioeconomic standing, culture, or desire to interact with the local environment. Participation for any, all, or more of these reasons ensures a role in the local social reticulum. In any case, subsistence, by any of the definitions this work explores, is undeniably and demonstrably an intrinsic part of living in Cold Bay, King Cove, Sand Point, and Nelson Lagoon.

A generic definition of subsistence within anthropology can be described as, "the suite of resources necessary to provide life at a minimal level" (Lavenda and Shultz, 2014). While this defines the basic functionality of the word itself, it is conspicuously lacking in real world application. Furthermore, it fails to account for differences in the meaning of subsistence across time and space. In traditional Aleut culture, this unassuming definition of subsistence could have adequately described the local resource acquisition required for survival. Now, however, subsistence has evolved to represent something more significant in the Cold Bay, King Cove, and Nelson Lagoon which in turn exposes the culture to a globalized economic system. Putting

food on the table is now intermingled with wage work, or includes running one's own business; here, often a boat and crew. Now that a market economy is a part of everyday life and even identity, access to and dependence on purchased items are also a part of practical and successful 'subsistence'. Despite this, even the most prominent fishing captains will cite their ability to incorporate subsistence fishing with their commercial activity as integral to their success. This continued relationship with traditional means helps to literally subsidize food resource needs, as well as maintaining a place for fish in the local psyche that resonates more deeply than as a paycheck. As user groups of salmon resources, both local subsistence users and communities are beholden to the continued success and viability of the salmon population. As salmon are providers in the SES of this region, it is imperative that people are managed as viable groups within and amongst each other. If user groups are interacting with the salmon stock in ways that undermine each other or produce contentious relationships, the viability of salmon stock itself is negatively affected (Jentoft & McCay, 1998).

There are many schools of thought on appropriate and effective fisheries management schemes. If this history and literature has taught us anything, it is that fisheries are dynamic and require a tailored approach to be successful. Alaska already employs a formal management scheme for fish resources in commercial harvest, subsistence harvest, and sport interactions. Much of how Western culture considers resources like these, stems from political interest. This, in itself, was the primary catalyst prompting the Aleut culture integrate commercial fishing with their traditional subsistence; because government understands and values resource extraction over traditional use. The terms used to describe a typical way of life to many living in the Alaska Peninsula have themselves been codified in an attempt to integrate this aspect into a regulatory scheme (Morrow and Hensel, 1992). This then relegates these management schemes to ones that

have come to include a power differential between minority-majority groups (Morrow and Hensel, 1992). In commercial harvest, the differential exists between outsider/non-Native fishing operations and local/Native ones, where gaining prosperity in the industry is based on initial access and socioeconomic standing. Ultimately, subsistence as a regulated activity challenges notions of what it means to be 'traditional" in the first place. Despite this, the demand to incorporate commercial fishing with subsistence fishing has made such regulation a necessity. In monetizing something so essential to life and culture, local user groups have experienced this dichotomy more literally as an identity crisis. Rather than traditional use (here, subsistence) defining "who I am", social, political, and even environmental interferences have resulted in a "what do I qualify as" paradox (Morrow and Hensel, 1992).

POLITICAL ECOLOGY

Escobar informs us that identifying states of "difference" is key in understanding these power laden relationships because it influences hierarchically designated notions of equality which inspires conflict. In the focus communities, the local and Native population is at a socioeconomic disadvantage for having identified themselves as part of a minority. The Aleut culture has already had to adapt to this power struggle by commoditizing their most sacred resource, their subsistence strategy. The multilayered management in the Alaska region has allowed for subsistence specific designations, but participating within those parameters alters the perception of the expected archetype of 'traditional' (Huntington 1992). This limits the potential influence that the local and Native population groups can have over the management of their natural resources because they are systematically involved in the political and economic aspects of commoditizing salmon.

Political ecology (Escobar 2006; Berkes & Nayak 2018; Vayda & Walters 1999) and ecological anthropology are well suited to describing topics surrounding recent ecological degradation (Shoreman-Ouimet and Kopnina, 2011). The many user groups interacting with the local environment in the focus communities are having a continual and disparate effect on the regional ecosystem, but should not necessarily be interpreted as degrading it. It is arguable that the wide ranging users help in establishing a system of checks and balances which protect the environment from intensified degradation by a single group. Within the Cold Bay, King Cove, Nelson Lagoon area, this status quo is presently faced with a new user with a poorly defined agenda for use. As this thesis will discuss the presence and interest of the Federal Government in an area largely managed at a local level suggests a further division of cumulative power distribution. Through identifying vulnerabilities between the user groups at present, their viability as a united force is increased. Seemingly the user group with the largest potential for influencing this social ecological system in the near future is visiting anglers. With proper initiative to incorporate them into the other user groups, their contribution is varied, dispersed, and positive. If they continue to be captured by non-local interests their understanding of and sympathy toward the local human-fish relationship is diminished, exacerbating existing power instability between locals and outsiders.

Cold Bay, King Cove, Nelson Lagoon (and Sand Point) constitute ideal candidates for the benefits to bringing human dimensions and perspectives (Peterson 2000) to the forefront of investigations into political ecology, natural resource conflict, and resilience. Such inclusion offers insight into a larger, more dynamic system which draws equally on social, political, and environmental factors (Berkes & Nayak, 2018). Ultimately, addressing vulnerabilities amongst

people better prepares the salmon user groups of Alaska Peninsula to maintain productive relationships with each other and fish, than does managing fish stocks alone.

CHAPTER TWO

METHODS

HISTORICAL DATA and LITERATURE REVIEW

Alaska as a whole is an under-studied area, owing to its remoteness and small, dispersed population. Much of the Alaska Native culture investigation has been focused on recording historic states of culture through archaeological excavations contributing to our understanding of traditional subsistence strategies, ways in which people moved seasonally throughout their landscape, and their maritime specific material culture. This provides excellent insight into the continuing vestiges of culture, and when compared to the observed culture at present indicates areas of change. In this study the main focus is the human relationship with salmon, including how the Aleut people have adapted their use of salmon to participate in modern culture.

Literature review offers a historical background, a cultural background, and an ecological background to analyze how and why the social reticulum in Cold Bay, King Cove, and Nelson Lagoon has manifested itself today. By understanding the nature in which user groups became interrelated in the first place, we can better understand their present commonalities and/or contention and make informed extrapolations for their future interaction. Previous literature is also important in this investigation in situating the rate of change concerning human-fish interaction. This helps us take stock of the pressures exerted on salmon directly by people and consider the ways in which it has been managed or neglected in the past. This Boasian approach considers the ethnographic background of the local culture from a historical particularism perspective, informing us of the cultural and social evolutions contributing to the present.

PARTICIPANT OBSERVATION

Participant observation has long been an integral part of ethnographic pursuits. Widely credited to Bronislaw Malinowski, this method relies on the active role of the Anthropologist in participating with the focus group to gain new perspective on their situation (Pelto, 2013). This method relies on immersion and an open mind to be successful. In many ways it is a 'go with the flow' method of being in a place and allowing the trajectory of activity to be dictated by the people and things around you. It is important to point out that this is not the same as interviewing. Participant observation is considerably less formal and unstructured, and something that may occur naturally without planning by the researcher.

One benefit of this method is in establishing a rapport with people that eases future communication. As a visitor immersed in the day to day life of others, the researcher may draw focus, excitement, or even disdain. All of these things can contribute to data issues as people are over-willing to share or unwilling to share at all. These reactions may inhibit the accuracy and credibility of information. Participating in local activity and life relieves some of the novelty represented by being a guest and helps to ensure more consistent and accurate reporting from local people. Of course, the amount of time available to be in the field is a huge factor in this method, but is something that should be attempted in an on-going fashion regardless.

Due to its subjective and potentially inconsistent nature, participant observation has come to bear less prestige as a research method than it has enjoyed historically. In the type of immersive and conversationally based research of this project however, participant observation is still a useful tool for identifying problems and directing the mode of methodology for future

research design. In the case of this study, participant observation led to the ascertainment of the central query: sport fishing. Further investigation revealed the future impact of sport fishing as a relative unknown in the Alaska Peninsula that deserved some attention. Participant observation, as will be described on a case to case basis, was an important part of this research, providing direction as well as fostering positive relationships with local people.

In addition to traditional participant observation were the indirect observations that informed the research goals of this thesis during the earliest formative stages. A short trip to Anchorage cultivated contacts with individuals and exposure to the concerns of the many parties involved in fishing in the Alaska region. Questions and conversations at that point were tentative and exploratory but guiding nonetheless. The contribution of this amounted largely to reflections on how to hone the scope of this research such that it was attainable within a single project. Personal communications during this stage also lended themselves to further resource identification and make an appearance in the data chapters as the quotes of identity protected individuals.

FORMAL INTERVIEW AND KEY INFORMANTS

Key informants are local people that have expertise in or deep knowledge of the research questions being investigated. Identifying key informants is ideal for a researcher because they give a well-grounded source of information and can be consulted throughout the research phase for direction, opinions, and fact checking. Sometimes referred to as “gatekeepers” (Pelto, 2013), key informants have invaluable insight into the emic cultural perspective, and can suggest avenues for exploration that may not be immediately obvious to an outsider. It is important to understand that key informants can be nearly anyone from within the focus group as long as they

demonstrate a vital role in the community, are well versed in and have access to the topics of interest, and are willing to work with the researcher on a continued basis.

Ideally, more than one key informant should be identified for a well-rounded source of information. Particularly in projects that aim to encompass a broad topic or group of topics, identifying key informants that occupy different social roles is a good idea to ensure holistic accuracy. In the case of immersive fieldwork, it is useful to identify key informants before the fieldwork begins so that the researcher may have a more stable research design from the outset. This cannot always happen, but can go a long way in preventing spending valuable field time planning or being unproductively idle. For this research, both of those scenarios played out. Although the Cold Bay, King Cove, Nelson Lagoon area was not somewhere I had yet explored or had any significant contact with, I had the benefit of being pointed toward potential key informants from individuals in a neighboring community as well as benefitting from the local acquaintances of the Primary Investigator on the OSM project.

The OSM project, which instigated (precipitated?) this research, incorporated formal interview based on an extensive survey regarding subsistence activity and living expenses. This information is intended to serve as a baseline for understanding the importance and often the reliance on continued subsistence activity for traditional users. As such, the questions were pointed and very specific, and provided concise answers. After using this method in my first ever week of fieldwork, the ongoing formulation of this research did not seem to lend itself to formal survey. The answers that people would give to any question could be too varied in content and depth for it to offer much clarity on the topic of sport fishing, which is broad and not well-defined itself, even to local people. To remedy this, I constructed an informal survey packet which provided sport fishing specific questions directed toward OSM respondents who presented

as knowledgeable or interested in the sport fishing topics I wanted to explore.

INFORMAL SURVEY AND DISCUSSION

The informal survey for this research was based largely off of my personal understanding of the sport fishing industry, including questions based on observations made as an active participant in sport fisheries. Questions were also created with consideration to tangential conversations that occurred about fishing activity during my initial work with OSM surveys. Realizing that my main goal was to understand perceptions about sport fishing and how local people interacted with it, I formulated broad and open ended questions. In doing this, I hoped not to dictate the direction that each individual wanted to take our discussion on the topic, but rather encourage extrapolation of certain items that I aimed to identify. This was intended to be entirely non-exclusionary, taking into account the testimonies of all age groups, socioeconomic groups, genders, and ethnic identities. Respondents had to be residents of the focus group areas at the time, but the duration of their residency was not a limiting factor. Despite this demographically all-encompassing group, most information was provided by male respondents between the ages of 20-25, with outliers of 15 and 60. This distribution of respondents reflects the active fishing population, which is typically pre-retirement and male dominated. The final survey questions are as follows:

1. Now that the Cold Bay road is moving forward, what changes do you anticipate for King Cove/Cold Bay residents?
2. How might this road project influence your own hunting and fishing activities?
3. How might this influence sport fishing generally in your area?
4. Has sport fishing had positive or negative effects on your community? Or on your personal fishing experience, habits, or needs?

5. Are you familiar with, and/or do you interact with the sport fishing operations in your area?

6. Do you have any personal, community, or environmental concerns about the impact of sport fishing visitors to your area? (Including outfitters, guides, charters, sports, etc.)

7. Do you use the Izembek refuge area? How?

8. Is there anything about the sport fishing regs you would like to see changed?

9. Have you ever, do you now, or might you ever have an interest in guiding as an income source?

10. Do you have any additional comments, questions, or concerns regarding any of the topics in this survey?

11. Additional space for interview notes

ADAPTATION

Adaptation of research goals is formally listed here as a methodology owing to the constantly fluid ilk of the topics within this paper. Both in the field and in composition, new data complicated and altered the trajectory of this investigation in ways that required a new response. Such is the nature of the relationships being explored within a social ecological system, it is in research as well. It became apparent that a continuous snowballing of questions would occur in such a multifaceted system that it was prudent to make the observations and assertions within this text as a function of a certain place in time. The human interaction with the environment in the Alaska Peninsula will continuously evolve well beyond the construction of a road, beyond the scope or lifespan of this investigation, and beyond any of the individuals participating within it at this point. This acceptance and even embrace of adaptation parallels one of the most important truths that Anthropology has gleaned as a discipline: that cultures and the networks that they exist in are never static.

This suite of methods gives on-the-ground context of the realities of living in a small Alaskan community, highlighting the importance of subsistence to individuals and to community relationships. Integrating traditional ethnographic fieldwork methodology, with historical and background data, and personal experience provides a holistic view of the situation and offers insight into how these many interconnected parts may continue to evolve alongside human dimensions in the future.

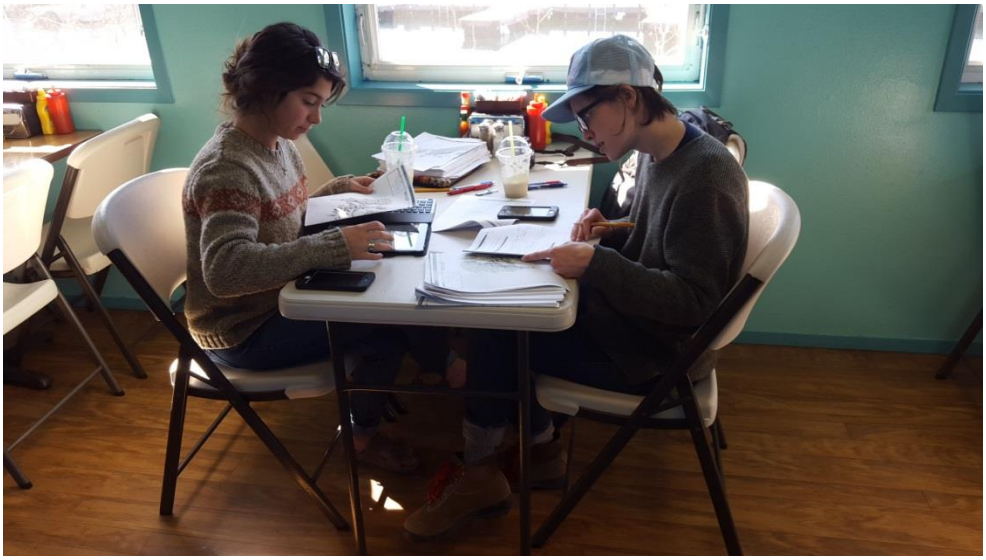


Figure 4 J. Campbell-Lavallee and K. Heaps going over surveys and field notes, Sand Point, Alaska 2017.

CHAPTER THREE

REGIONAL HISTORY AND COMMUNITY BACKGROUND

ALASKA PENINSULA AND ALEUTIAN ISLANDS

The Alaska Peninsula reaches from the continental landmass containing mainland Alaska, through the Bering Sea and Pacific Ocean before fragmenting into the Aleutian Island Chain. This area is the traditional cultural region of the Aleut people, home to the most productive salmon fishery in the world, and contains a series of National Wildlife Refuges (Jones 1976; Laughlin 1980; Maschner 1998; Maschner and Reedy-Maschner 2005). This research focuses on the communities surrounding the Izembek National Wildlife Refuge: Cold Bay, King Cove, and Nelson Lagoon. The Izembek National Wildlife Refuge (INWR) itself is inextricably related to the investigations of these communities as it constitutes a communal area where subsistence and/or sport activity may be pursued. The INWR may soon come to play a larger role in these realms as political changes threaten its ecological protection.

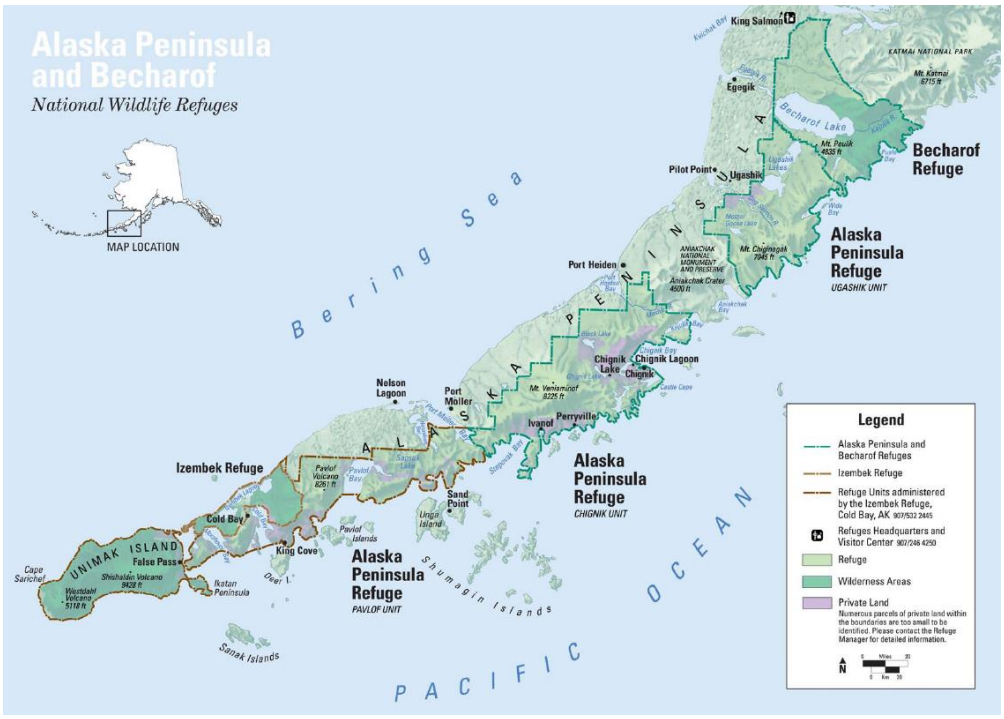


Figure 5 Alaska Peninsula and Izembek National Wildlife Refuges.

The focus communities, among others in the Alaska Peninsula and the Aleutian Islands, comprise The Aleut Corporation, commonly referred to as TAC. The state of Alaska is divided into thirteen similar Native corporation groups, based on biogeographical potential and traditional cultural territories/boundaries. This system is unique to Alaska within the United States, in contrast to the reservation system employed elsewhere. Devised under the Alaska Native Claims Settlement Act of 1971 (ANSCA, web. 2017) ANCSA and the corporation system provided Native peoples with renewed control over their traditional lands and resources, in conjunction with the State and Federal government (Case 1984; Flanders 1989). These designations are further organized into nineteen boroughs (Reedy, 2014). Cold Bay, King Cove, and Nelson Lagoon are part of the Aleutians East Borough, or the AEB, within the TAC region.

Initial colonial claims on present day Alaskan territories began in the late 1700's, when Russian-employed Danish explorer Vitus Bering (namesake of the Bering Sea), journeyed East seeking potential locations for Russian outposts. Later, when Russian Navigator Gavril Pribilof

discovered what would come to be called the Pribilof Islands (St. Paul and St. George) in the Bering Sea, Russian fur traders found the surrounding area to be abundant with seals and otters. Specifically targeting sea otters, Russian traders soon harnessed the monopoly on a booming economy based in trading of otter skins (Black, 2004). Marine mammals, including sea otters and fur seals, had constituted a traditional subsistence target for many of the Native groups. As such, they were accomplished at harvesting and processing seals, as well as exerting responsible and sustainable stewardship practices over a key resource. Observing this prowess as a potential for free labor, Russian traders forcibly relocated Aleut hunters to the Pribilof Islands to commercialize the harvest of seals for a world market. By the 1820's concurrent with the formation of the Russian-American Company, it became clear that otter and seal harvest required immediate regulatory intervention or risk collapse of the populations, and subsequently the demise of the fur trading economy. Around this time, the Aleut people had well adapted their lifeways to occupy a lucrative niche relative to the plight of other oppressed Native groups. They were entitled to rights as full citizens of Russia, most were literate in Russian and English in addition to their Native language, were paid fairly for their labor, and were allowed to continue to govern themselves on local matters.

This time of (relative) prosperity was interrupted when the United States purchased Alaska in 1867 (Black 1987; Black 2004; McGowan 1999; Reedy 2019). Aleut seal hunters lost their rights as Russian citizens and were not offered corresponding ones as Americans. The U.S. spent the following decades in complete disregard for sustainable harvest practice decimating the seal population and imposing their laws and culture on the Aleut people. The maltreatment of the Aleut reached its apex in 1942, when the Pribilof Aleuts were forcibly evacuated from their homes and relocated to abandoned canneries on the mainland in response to threats during World

War II. They lived in deplorable conditions for months before being allowed to return home to find their villages dismantled, buildings condemned, and their islands decimated by wartime occupation (Corbett and Swibold, 1986).

The Aleut people were eventually able to assert their rights to the U.S. government by organizing themselves under the Alaska Federation of Natives (AFN) - a multilayered system which recognized the traditional rights and practices of Native Alaskan culture, and gave them the power to govern themselves according to their own preferences. By presenting themselves as a unified group, they prompted legislation for the Alaska Native Claims Settlement Act (ANCSA), which was signed by President Nixon in 1971. ANCSA represented the largest land claims settlement in American history, renewing Native Alaskans' control over local lands and resources as overseen by the regional and village Native Corporations (Williams, 2005.)

The Aleut have been arguably some of the most successful groups at maintaining their culture while also adapting to a world that was changing around them (Reedy-Maschner 2010). They have pioneered their methods of incorporating modernization and globalization while still adhering to the tenets central to their culture. Perhaps one of the most integral parts of their culture is their dependence on fishing adaptations. A key aspect of Aleut subsistence is the relationship with salmon. Aleut oral histories and a well-documented archaeological record indicate dependence on maritime resources for over 10,000 years (Maschner and Reedy-Maschner 2008). Chief among them are the variety of salmon species that use the river-ways in Alaska each year for their spawning grounds. The Chinook, Sockeye, Coho, Chum, and Pink salmon (affectionately referred to by Native peoples as King, Red, Silver, Dog, and Humpy salmon respectively) play a vital role in continuing Aleut culture. The Aleut, particularly those on the western end of the Alaska Peninsula and in the Aleutian Islands have little by way of land

based resources to sustain them. Early in their evolution occupation, they perfected a maritime specific material culture which enabled them to capitalize on the surrounding productive oceans, rather than deplete what few land resources existed (APIA, web). The tundra, being essentially Arctic desert does produce seasonal plants, a wide variety of sea birds, and in some places game mammals, but the volumes of salmon returning from their anadromous ocean journeys each year offer a greater abundance to effort ratio. The Aleut have also been tremendously successful at fine tuning methods for storing fish to ensure a year round food supply. Fish are smoked, canned, pickled, dried, and with the help of modern appliances, now also frozen (Freeman, 2000). The ability to create and maintain a surplus of food allowed the Aleut people to find a successful home in one of the harshest environments known to man.

Salmon, although one of the most important food resources for the Aleut, bear a much deeper meaning in Aleutians East Borough (Aleutians East Borough, web). Demonstrably throughout the history of humankind, population drives social complexity in turn contributing to social constructs (McGee & Warms, 2003). While the Aleut find salmon and fishing in general to be central to their way of life, it is primarily up to able bodied males to do the fishing that supports not only their own families, but also their communities (The Aleut Corporation, web). Subsistence fishing has always been essential in the social organization of the Aleut people (Reedy, 2014). The sharing networks created by giving and/or receiving salmon largely determine the social reticulum, and therefore reciprocity dictates the strength and viability of individual communities (Reedy 2015).

It is for this reason that a shift toward commercial fishing was a difficult cultural adjustment, though it ultimately seems to have been a cleverly executed adaptation. Commercial fishing is one of the few cash economies that the Aleut can directly participate in if they choose

to remain in the Aleutian Islands (Reedy, 2014). With the productive Bering Sea to the North, and the diverse offerings of the Pacific Ocean to the South, they find themselves in prime position for harvesting some of the most popular and valuable fish species in the world. Traditionally, Aleut fisherman only had to harvest enough to sustain their families and extended networks of community members. Since other interests in the world have discovered their location to be resource rich however, their Native fishing grounds were rapidly targeted by other commercial fishing interests operating under State and Federal management guidelines (Reedy, 2019). Being further exposed to the demands of modernity, the Aleut became involved in commercial harvest themselves rather than allow their resources to be controlled and depleted by outsiders. This is not to say that the fisheries there have not suffered damages akin to East coast fisheries, but the Aleutian fishermen's continued involvement has helped to avoid massive stock collapse. Now, they participate in a lucrative multi-national economy, while simultaneously continuing to fish for personal subsistence usage (Reedy, 2014). The vast majority of the subsistence fishing that occurs in the so-called Southcentral region of Alaska is a combined effort with commercial take (Alaska Department of Fish & Game Subsistence, web.). Fishermen allocate part of their commercial harvest to take home to their communities directly, rather than selling their entire catch to processors and distributors. This is regulated per species, per season, and per outfit. Alaska is one of the few areas of the world that employs specific subsistence harvest regulations as dictated by a government entity. While this method is far from flawless, it does exemplify the fact that subsistence is an activity and way of life that is inherent to the Alaska area.

Commercial and subsistence harvest are not the only interests acting on the salmon fishery in Alaska though. Recreational fishing has been popular worldwide for decades, and has

demonstrated continual growth within Alaska's tourism industry. Avid sport fishermen travel the world without limits in search opportunities to target rare, large, and/or exotic species. Alaska has been no exception to this tourism draw, boasting some of the largest salmon anywhere and pristine, remote conditions to enjoy fishing in. Here again, fish represent one of the few natural resources that Native Alaskans have ready access to, being located near the terminus of the Alaska Peninsula and throughout the remote Aleutian Islands. In this instance however, Native peoples have been able to capitalize on a niche economy that can provide them with steady income and which presumably exerts less overall impact on the fitness of salmon stock. As this thesis will continue to explore, salmon are valuable economically, environmentally, and socially. When user groups interact with salmon as a sport fishery, they have the potential to be all three simultaneously.

AREA M FISHERY CONTROVERSY

The Area M fishery is a point of conflict between the Aleutians East Borough and neighboring boroughs to the East. It has been referred to as an intercept fishery by those who believe fishermen permitted in Area M are subject to an unfair advantage in sockeye salmon harvest due to their location. As salmon return from the ocean to spawn in the rivers and streams of their birth they must first pass through Area M. State and Federal management has imposed permitting laws, seasons, quotas, and escapement demands among other limitations. All intended to even the opportunistic harvest in Area M and ensure viable salmon stock for fishermen further east toward mainland Alaska. While this is not perhaps of much relevance to the research goals of this thesis, it is an important reminder that fishing has become highly competitive, intensely regulated and still evokes contentious relationships between fishermen. The AEB laments, "The

Area M sockeye salmon fishery may be one of Alaska's most misunderstood fisheries. Few have visited this remote region. Many seem to have opinions about it" (Aleutians East Borough, web). These strained human-human interactions in the face of resource conflict threaten fish most of all. While fishery mismanagement results in economic instability for some, for the native and local populations in this area loss of fishery viability or access can result in an inability to remain in their villages. Merging subsistence fishing with commercial fishing is a holdover strategy from days when Native fishermen worked exclusively for canneries and were in essence paid with fish. Since adapting to commercial fishing, these traditional users have experienced an increase in fishing pressure and an increase in fish resource demand. To counter this nearly all fishermen have had to diversify their target species from sockeye and other salmon to include cod, pollock, and often crab. In so doing, they have extended their ability to fish year round and have become masters of occupational pluralism. A similar adaptation may be waiting to be had in a more direct attention to the local sport fishing industry as a potential for additional or alternate employment.

SPORT FISHING

Alaska Department of Fish and Game (ADF&G) issues roughly 500,000 individual sport fishing licenses each year. This number has been as high as 800,000, but the last 5 years have yielded consistent license sales hovering closely in the 500,000 range. Of these, as many as two-thirds may be purchased by non-residents; representing both a substantial income for ADF&G and an indication of how prevalent fishing visitors to the state really are.

Nonresident Fishing & Hunting Licenses:		
Nonresident 1 Day Sport Fishing License		$25.00
Nonresident 3 Day Sport Fishing License		$45.00
Nonresident 7 Day Sport Fishing License		$70.00
Nonresident 14 Day Sport Fishing License		$105.00
Nonresident Annual Sport Fishing License		$145.00
Nonresident Annual Hunting and Sport Fishing License		$305.00
Nonresident Annual Hunting and 1 Day Sport Fishing License		$185.00
Nonresident Annual Hunting and 3 Day Sport Fishing License		$205.00
Nonresident Annual Hunting and 7 Day Sport Fishing License		$230.00
Nonresident Annual Hunting and 14 Day Sport Fishing License		$265.00
Nonresident Annual Hunting		$160.00
Nonresident Annual Hunting and Trapping		$405.00
Nonresident Annual Hunting – Small Game only		$60.00
Nonresident Duplicate (replacement) License		$5.00

Figure 6 Alaska Department of Fish and Game Non-resident Sport Licensure Costs, 2018.

It is also worth noting that in these estimations permits are not required for resident anglers under 18 years of age or for non-resident anglers under 16 years of age (Alaska Department of Fish and Game Sport Data, 2017). This demographic makes up a substantial amount of the sport angler population, and is largely unreported, meaning that their overall impact is unknown and unquantifiable under current regulations (Carson and Hanneman, 2009).

Despite the massive number of visiting sport fishermen, adults and youths alike, the sport fishery in Alaska appears to be in fantastic shape. Lack of participant data does not seem to present itself as an issue when the health of fish and various watersheds can speak for themselves. The recorded sport fishery itself however, is operated almost entirely artificially.

ADF&G has two large scale sport hatcheries that produce up to 12 million fish annually; the William Jack Hernandez Sport Fish Hatchery in Anchorage, and the Ruth Burnett Sport Fish Hatchery in Fairbanks (Alaska Department of Fish and Game Sport Data, 2017). These hatcheries are located specifically to support population and genetic diversity in areas closed to subsistence activity based on their designation as 'urban' under state management. These 'urban'

population centers do not extend subsistence rights to residents, although they are permitted to participate in sport harvest. Urban areas are considered to provide sufficient access to other sources of food and services, rendering the 'need' for subsistence obsolete.

This of course does not consider the indelible fact that subsistence activity, especially concerning fishing, is of paramount cultural importance to the Aleut and other indigenous groups in Alaska. Further investigation into the stocking plan for both hatcheries reveals that they target lakes and ponds with triploid fish (sterile) and place other fish in the waterways closest to these more urban (by Alaska's standards) areas (Alaska Department of Fish and Game Sport Data, 2017). This, in itself, has proven to be a successful campaign notably increasing the bio-diversity of stocked regions and has supported the health the indigenous fish population. Since stocking occurs in more easily accessible areas (Anchorage, Fairbanks, Juneau, and Ketchikan) they bear the burden of most of the visiting anglers. In response to this it is logical to bolster the fishery against exploitation via sport usage by target. However, 25% of the funding for both sport hatcheries comes from sport license sales (Alaska Department of Fish and Game Sport Data, 2017), meaning that purchase of the appropriate fishing permit for non-resident anglers who are not fishing in a stocked area, are not directly supporting the area in which they are fishing.

User groups within the focus communities display limited concern regarding issues like this. A prominent figure within the Cold Bay and King Cove communities remarked, "We love all fishermen! There's plenty of fish to go around" (Pers. Comm. Cold Bay, March 2018). The more remote the location, the less worry regarding the potential for negative impacts that fishermen or other visitors may have on the ecosystem (Pers. Comm. Anchorage, December 2017). Furthermore, it is concerning that permit sales represent yet another example of resource benefit displacement. I use this term to describe a problem that is prevalent in the lower part of

the Alaska Peninsula and the Aleutian Islands. As resource rich areas they invite extraction and consumption, but the small villages themselves are rarely direct beneficiaries of the cash economies comprising most commercial fishing. This is not to say that their marine resources do not support them, but that the vast majority of the monetary benefit coming from finfish and shellfish harvested there goes to line the coffers of outside interests (Freeman, 2000).

Fishing is ubiquitous in Aleut communities and plays a central role in personal and cultural identity. Given this, many indigenous Alaskans view sport fishing as a patently ridiculous use of time particularly if it occurs inland instead of on a charter boat and does not directly result in food on the table (Pers. comm. March 2017). In truth it is not uncommon for sport anglers to harvest fish, although whether that constitutes subsistence activity performed within sport regulations would be situationally dependent. This same disconnect inherent in emic vs. etic perspectives is an inhibitor to the potential that the sport fishing could offer small villages, both in terms of economy and social stability.

The actual number of outfitters for guided fishing excursions in Alaska far surpasses the number that can be readily identified in an at-home internet search. By all appearances and testimonies, many successful operations rely almost exclusively on travel advisors and word-of-mouth recommendations for their clientele (George Weaver pers. comm. December 2017). Data made available by Alaska's Department of Fish and Game website reveals that ADF&G is potentially only aware of the most successful outfitters on the Alaska Peninsula, specifically those in the easternmost part, closest to mainland Alaska. Correspondingly, ADF&G's data on such matters is compiled from the sources that they have identified, implying that their data does not convey the full scope of the cumulative sport fishing industry. Per Alaska's recreational use management scheme, the south-central region is partitioned into three sectors: Kodiak, Alaska

Peninsula, and Aleutians. This is further specified as a remote area because it exists almost entirely outside the extent of the federal and state road system. Kodiak receives the most recreational pressure, therefore demanding ADF&G's main focus. Unfortunately that translates to a lack of reliable data concerning the other two sectors. Published data available to sport anglers reports the types of fish present in the area and their specific seasonality indicates that King Salmon return rates to the freshwater regions there are relatively low, and states that little is known about the abundance or usage of Rainbow and Steelhead populations. They are referred to as "some of the most remote, and less fished" (ADF&G, 2018).

Sport fishing as an emerging industry is having a continued role within the AEB, and offers many adaptive parallels to the Aleut's incorporation of commercial harvest with subsistence. Alaska has been well-known to anglers for decades, but the recent surge in sport fishing as a competitive and prestige signaling activity has presented new occupational realms. Outfitters and guiding operations are widespread across North America and rapidly increasing in other areas of the world attempting to incorporate ecotourism as a sustainable facet aspect of their regional economies. Mainland Alaska and the areas which ADF&G targets with their stocking efforts offer a multitude of sport fishing opportunities from complete luxury to self-guided excursions. The focus communities are located in what is referred to as the Area M fishery, and the first location to experience salmon runs as they return from the ocean. To capitalize on this fishing opportunity there are two officially operated guide services. Aleutian Adventures, operated by the Aleutian Pribilof Islands Community Development Association (APICDA) is locally owned and operated by indigenous residents. The other, the Hoodoo Lodge, is operated by an outside owner and conducts business nearly entirely sealed off from the local communities and residents.

CHAPTER FOUR

THE ROLE OF SALMON IN ALEUTIANS EAST COMMUNITIES

This thesis was constructed as a tangential personal research goal during participation in the ongoing data collection project for the Office of Subsistence Management on "*Western Gulf of Alaska Salmon and Other Harvests on Federal Lands and Waters".* Data produced from that has been invaluable in providing community specific insight into the role of subsistence in the Alaska Peninsula, as well as indicating the many factors that influence the human relationship with fish. Data collected regarding salmon interaction was compiled to describe local sharing networks and how they directly relate to community resiliency. Almost every household interviewed within the focus communities actively participated in subsistence, and every household listed salmon specifically as a top wild food.

Within the villages of Cold Bay, King Cove, Nelson Lagoon, and Sand Point, community structure is deeply rooted in sharing and reciprocity, fueled in large proportion by exchange of salmon. As an understudied area, general perceptions of the salmon fishery have connotations amongst neoliberal agendas in a global market, or regarding conservation and sustainability. For residents of these communities, these thoughts are part of one elaborate system which creates their individual fishing communities. Some studies have questioned the relevance of coastal fishing communities as they contend with the commercialization of their traditional resources. These communities however, make it clear that sense of community still exists and constitutes *the* relevant social cohesion structure. Demonstrably in the Alaska Peninsula and particularly within the Aleut culture, community is constructed by socially maintained expectations of sharing and reciprocity centered around the distribution of salmon. Participating in this network

is not limited to only to acquisition and giving of fish, but often involves an exchange of labor followed by a multilevel redistribution of the resultant fish items. As an example, one man in King Cove had retired from commercial fishing and was dependent on the generosity of others in the community to keep his freezer and pantry adequately stocked to provide for him and his wife. As elders in the community they were recipients of many varied small quantities of wild resources. As net receivers of wild foods, they became altruistic re-distributors through the time they spent reprocessing those items to give away in turn. Salmon that they received re-entered the network as fish pie for community functions. In the same fashion, resources such as gathered berries were dropped off to them for jelly and jam processing that others could not afford to commit time to. The exchange involved resource acquisition for labor and helped to maintain a community relationship with individuals who were not primary subsistence harvesters.

Households surveyed in every community remarked that a limiting factor in the proportion of wild resources they consumed was time. The continually increasing competition in commercial fishing has resulted in more time and energy spent fishing, less time at home, and therefore less available time to process wild foods for sharing and/or long term storage. The volatility of seasonal salmon abundance means that it is difficult to plan ahead for times of food scarcity, making secondary subsistence activity such as canning, jarring, pickling, and drying of ever growing importance. While this reinforces community members' dependency on each other, it also disperses the efficacy of providing adequate food resources to each community member.

To compensate for this many families have experienced an increased dependence on purchased food items. The relative remoteness of the Alaska Peninsula causes inflation of the price of imported items causing resource stress and altered financial dynamics. Within the

households interviewed, grocery items constituted the largest percentage of household expenses, rivaling or even outcompeting rent and mortgage costs.

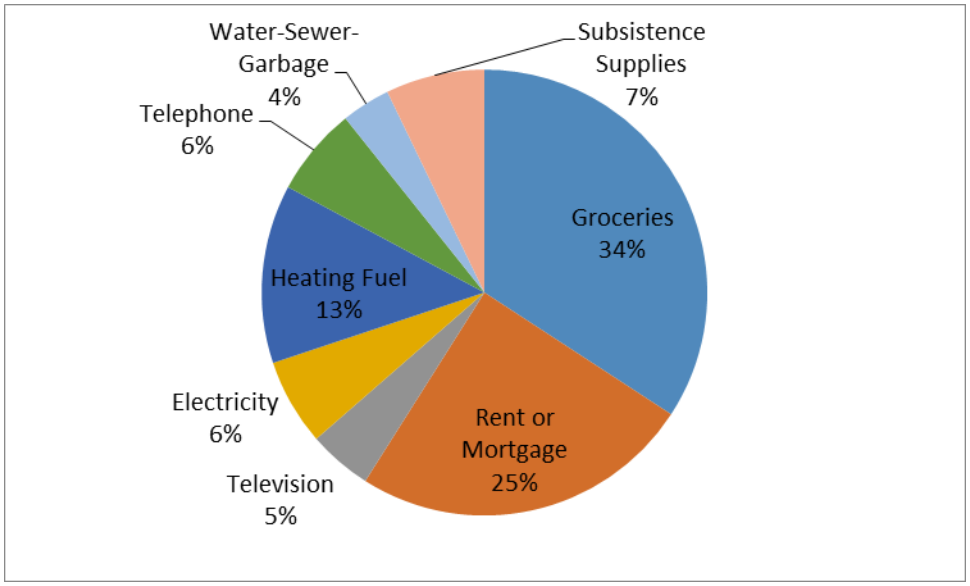


Figure 8 Relative Percentages of Household Expenses, Sand Point 2017 (Reedy 2019).

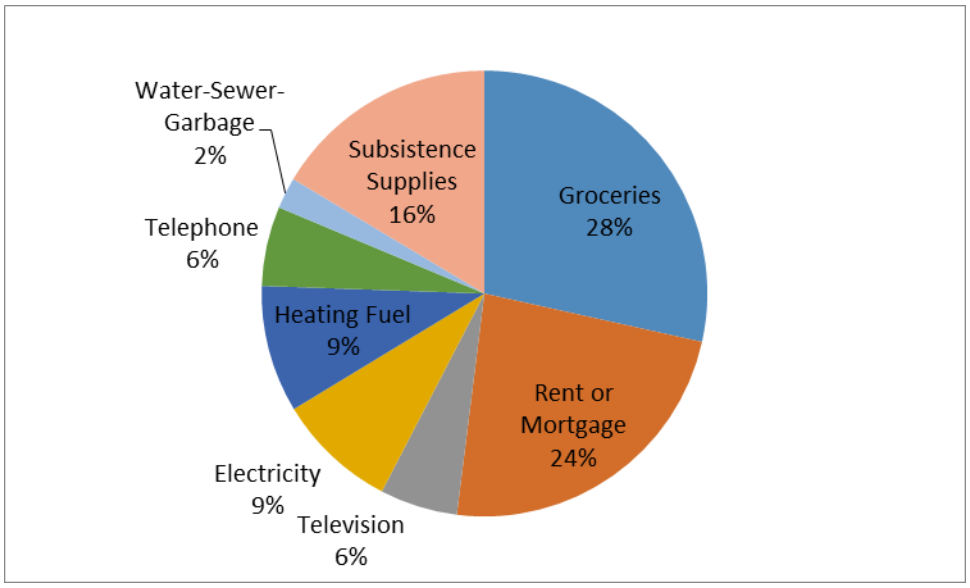


Figure 9 Relative Percentages of Household Expenses, King Cove 2018 (Reedy 2019).

One woman in Sand Point said, "I only get avocados on my birthday" because they were so prohibitively expensive that they had become special occasion items. Many other grocery

items taken for granted in the Lower 48 States display similar cost restrictions. Delicate items such as chips and eggs take space and care in shipping. Personal field notes from King Cove recorded a single bag of potato chips costing over $11.00. Other more perishable items are also expensive because they demand a delivery schedule that cannot always contend with late orders or inclement weather preventing a shipment from dock. A household in Sand Point reported intentionally skipping meals to give preference to the nutrition of dependents. Having recently lost the male head of household, the mother of three was dependent on wild resources shared from the community to supplement the food resources that they usually had from her husband's commercial fishing take. His loss of income meant that items which were typically purchased were no longer attainable and put pressure on the eldest son (15 years old) to contribute a commercial fishing income to the family.

Young individuals and families are an essential part to the continued existence of small coastal fishing villages across the Alaska Peninsula. Representing the next generation of subsistence and commercial fishers, it is important that young people have viable opportunities for the future to remain in their home villages. They are also a primary reason for access to or loss of community services. Population trends in the AEB have been closely related to school closures, infrastructure loss, and cost of living (Figure x). Communities that cannot maintain a minimum student enrollment or afford to subsidize it from local funds may lose their school and subsequently the families with children are faced with outmigration. Smaller communities have been periodically absorbed by larger ones in response to school closures or the need for fish processing infrastructure to support their commercial work. Nelson Lagoon is one such community threatened by the loss of their school in 2015, as well as the by the disadvantage of

not having a local fish processing plant. Cold Bay has experienced similar population difficulty but persists as the regional travel hub.

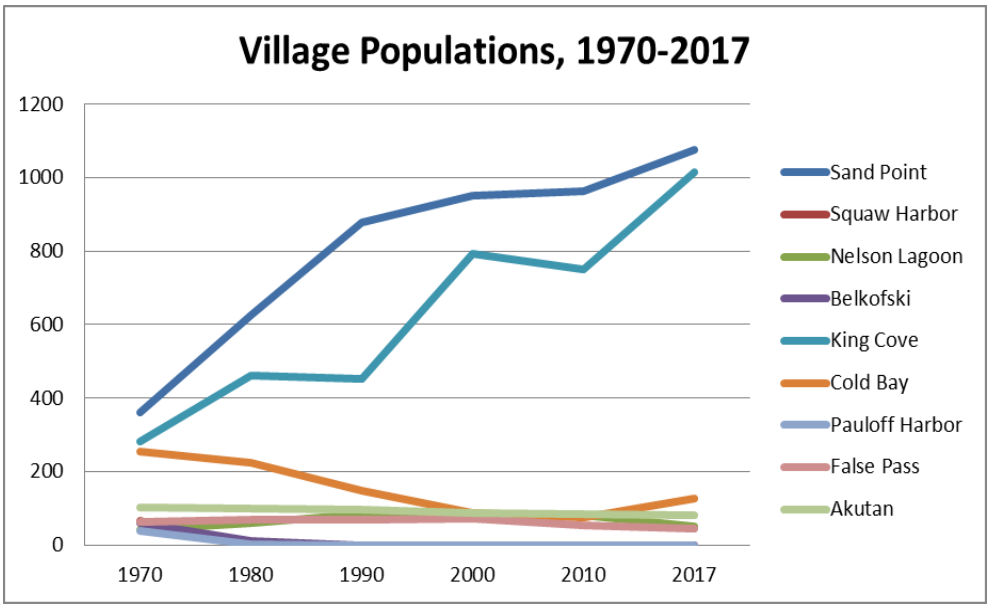


Figure 10 Village Populations, 1970-2017.

Communities are heavily reliant on fish processors and in King Cove and Nelson Lagoon rural population centers have evolved around them. Data shows that in addition to school trends, population in rural villages are partially dictated by the proximity to a processor/distributor allowing local fishermen to sell their catch into a market economy. Without these facilities most local fishermen would be unable to reasonably distribute their catch, not having the equipment to store fish or the range required to deliver them elsewhere. Two major corporations operate six facilities in the AEB (Figure 12) (Reedy 2019). These facilities constitute a necessary middle step between fishermen and making wild caught Alaskan fish available to consumers. Additionally, each facility represents primary employer in the villages where they are present, employing both local residents as tenderers and laborers as well as a pool of transient and

migrant laborers. Despite the convenience of local fish processors most local fishermen find themselves at a disadvantage in competing with other commercial fishermen.

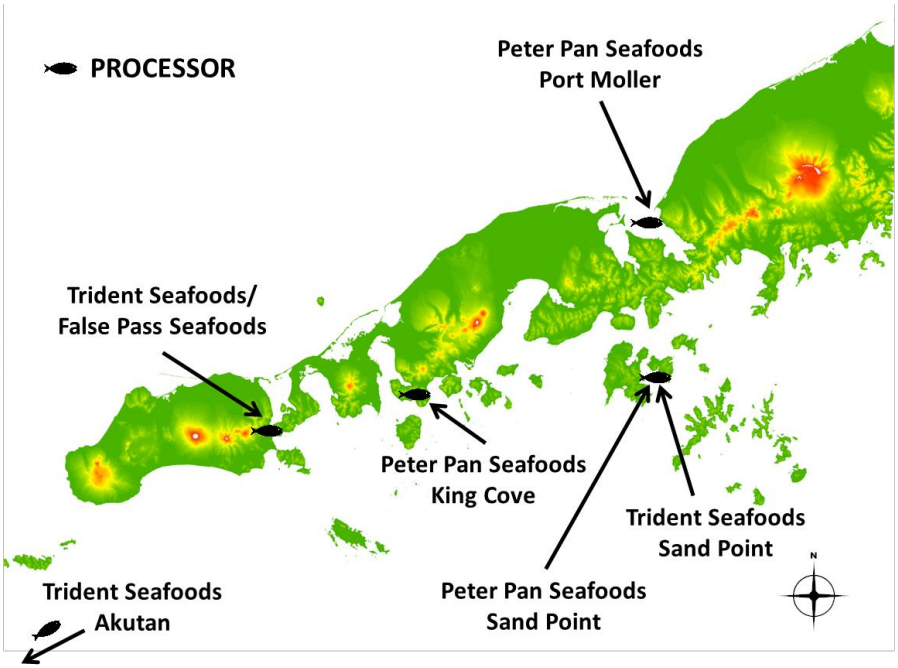


Figure 11 Fish Processors in the Aleutians East Borough (Reedy 2019).

Fishermen are competing with each other on all levels. Locally, fishermen enjoy competition for bragging rights and prestige. More significantly however, many fishermen in the AEB are competing for permits to participate in commercial fishing at all. This has very serious consequences for fishermen extending beyond their livelihood. The majority of subsistence harvests in these communities occur in the context of commercial fishing (Reedy-Maschner 2010). Restrictions in the commercial fishing sector translate directly to restrictions on subsistence harvest, resulting in a twofold loss for fishermen, their families, and by extension their communities. Difficulty in overcoming financial and social barriers to acquire fishing permits in Alaska has led to an aging fleet, disproportionately impacting small rural villages (Donkersloot & Carothers 2016; Reedy 2019). State management adopted Limited Entry in an

attempt to bolster community based fishing operations and prevent permits from being sold to outside interests. Much like the user groups defined in chapter one, Limited Entry divides Area M salmon permits into three categories; Aleut, Local, and Other. Operation costs and living expenses in the AEB have limited local fishermen's ability to expand their operations, and many have been unable to contend with the new equipment that more affluent permit holders can afford to use. Figure 13 shows how the number of permits in 1975 favored the indigenous population, but that socioeconomic disparities between groups has led to a competitive intersection between Aleut fishermen and outsiders since the early 2000's.

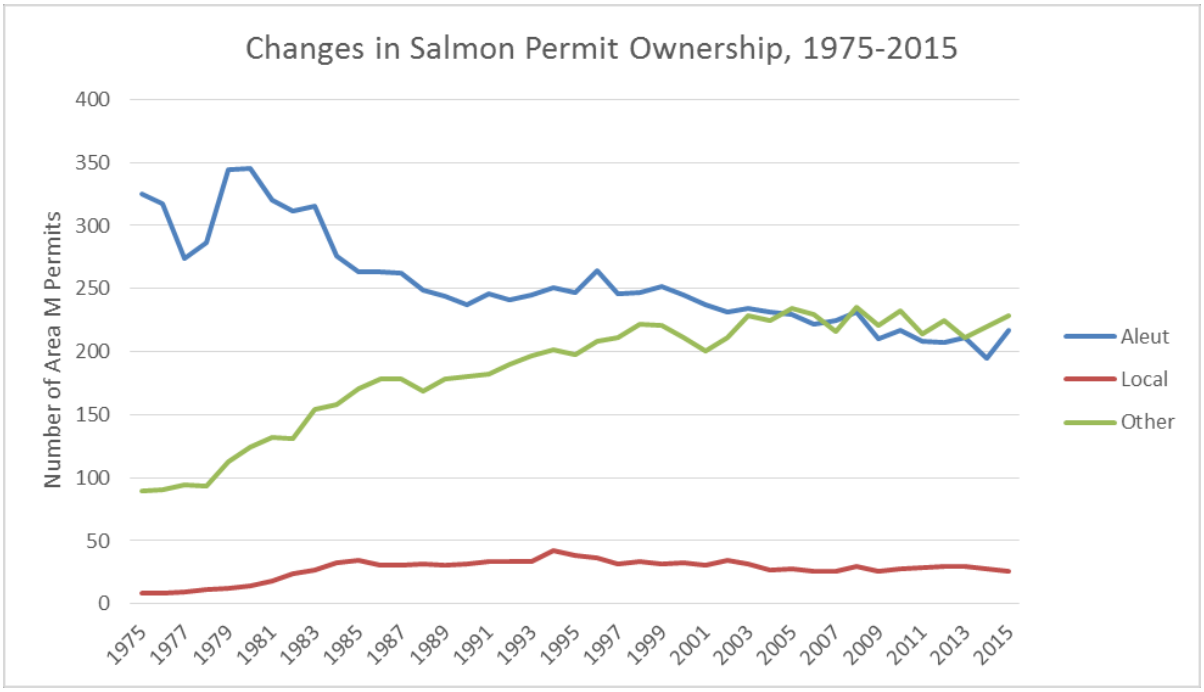


Figure 12 Changes in salmon permit ownership in Area M, 1975-2015 (Reedy 2019).

During a survey interview in King Cove, one man said that the boat in his yard, "wasn't worth selling because it was outdated." His inability to update his boat with modern conveniences and compliant equipment was a contributor to his decision to leave commercial

fishing. He decided to keep the boat on hand and sell parts as a more lucrative form of liquidation over selling the boat as a unit. A part time mechanic in King Cove would purchase parts from boats like this to fix boats temporarily while fishermen waited for parts to be shipped in or so that they could manage the broken boat to a larger harbor with more resources. These are small and short term financial options for those fishermen who have been unable to maintain their fishing operations as expenses steadily increased and fish prices fluctuated. These same processes have been exclusionary to new and young entrants to commercial salmon fishing, demographic groups which each community desperately needs. Despite the dwindling access to permits, the drive and desire for Native and local residents to obtain and maintain them is high. Young men and women regularly aspire to partake in commercial fishing following in a family member's path or sometimes reviving a family fishing tradition after loss of permits, vessels, or crew. Due to the high entrance and maintenance costs of commercial fishing, most fishermen have diversified their target species to be actively harvesting year round. This is ideal for maintaining a seasonal income, as well as for providing subsistence fishing opportunities. Other common commercial pursuits include pollock, Pacific cod, opilio crab, red king crab, and the much sought after halibut charter.

Of the salmon species, sockeye represent the most desirable and fortunately some of the most prevalent fish. Survey respondents show a clear preference for sockeye over other types of salmon for its taste and versatility among long term storage methods. Survey respondents regularly commented that they "wanted more reds", saying that they could never have enough. In recent years the fluctuations in sockeye stock have been somewhat unpredictable leading AEB residents to exhibit stockpiling tendencies as protection for resource scarcity. This is a response

to subsistence need and does not address the corresponding financial hardship resulting from a poor salmon season.

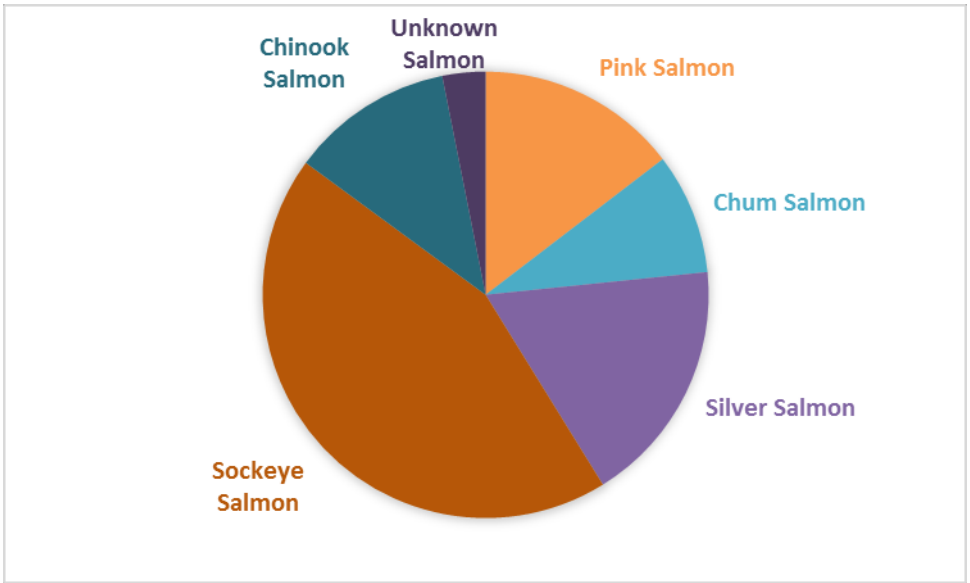


Figure 13 Relative Salmon Subsistence Harvests, Sand Point, 2017.

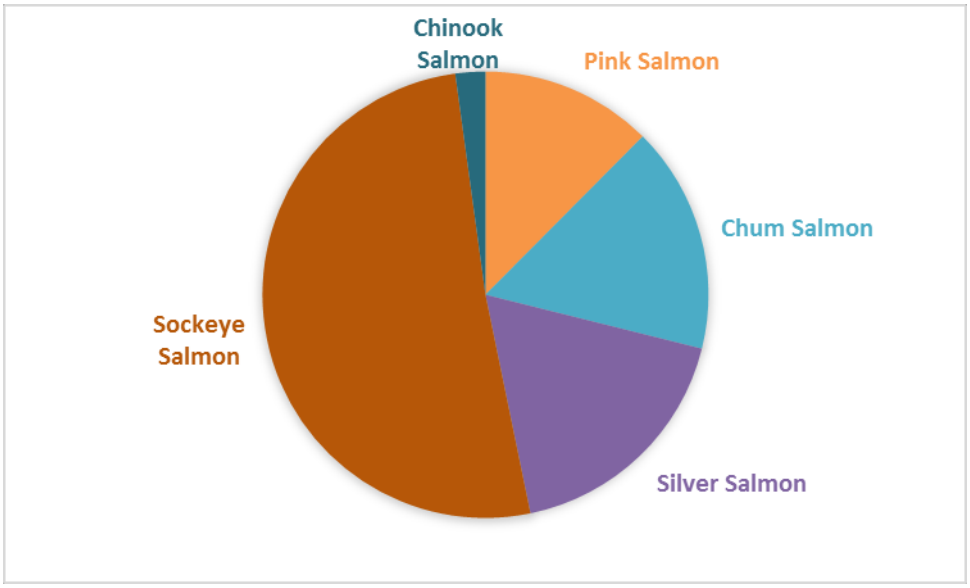


Figure 14 Relative Salmon Subsistence Harvests, King Cove, 2018.

In addition to the threats posed to subsistence via mixed commercial fisheries management, it is important to note that the idea of subsistence and traditional lifeways are threatened by the terminology that has been used to describe such activity. Subsistence and traditional use are contestable terms to salmon users of an etic perspective (Morrow & Hensel, 1999), situationally negotiable in ways that leave them open to interpretation to anyone and everyone. This means that their definitions and use can be cherry picked to support whichever agenda seeks to incorporate them as buzzwords in their favor (Cruikshank 2001). To those that practice subsistence, these are not contestable but understood. The disconnect between a population that internalizes ideas of subsistence across and throughout their experience versus one which finds subsistence interruptive to capitalistic ideas of resource consumption is the primary reason for having officially codified these terms in the state of Alaska. While this guarantees the formal observation of subsistence, it also dictates firm boundaries and conditions for it, in stark contrast to the realities of maintaining a close relationship wild foods in a fluctuating environment. Policy employed in this way promotes an *us vs. them* mentality from all perspectives and instigates further dissension between those with subsistence rights and those who depend on the same resources to provide for them in an economic sense (Morrow & Hensel 1992).

Extensive ethnographic research in the area (Maschner and Reedy-Maschner 2005; Reedy-Maschner 2009; Reedy-Maschner 2013; Reedy-Maschner 2010; Reedy 2016; Reedy 2018; Reedy 2018) has demonstrated that commercial and subsistence fisheries are critical parts of the structure and function of the communities in the AEB, including Cold Bay, King Cove, Nelson Lagoon and Sand Point. These studies also demonstrate frequent and vast sharing networks, indicating that they are a valuable tool in understanding the vulnerability and

resilience of these communities and of the region as a whole (Reedy, 2019). Implicated in every social, economic, and environmental process is the human dependence on salmon. The many factors exerting pressures on the success of mixed commercial and subsistence fishing in the AEB lend themselves to theoretical frameworks outlining the viability of communities and their ability to foster a viable relationship with their natural resources. In this case it is not only the local population vying for access to and use of natural resources. The varied user groups must cope (short-term solutions), and adapt (long-term solutions) to overcome disparities between them (Berkes & Nayak, 2018). The shared values and sense of community in these villages have empowered their continued relevance to coastal fisheries and management.

CHAPTER FIVE

DATA and TALES FROM THE FIELD

USER GROUP INTERACTIONS and THE ROAD

Acknowledging the specific history of the Cold Bay, King Cove, and Nelson Lagoon area is essential to clarifying community specific identities and network contributions, as well as demonstrating the deep history between people and salmon as a natural resource. The Native Alaskan and local populations exhibit dependence on fish to construct and uphold their social networks, as a food resource, as their main economic income source, and as a pillar of the local ecosystem. The usage intent for salmon is so varied within and across user groups that their interests often intersect, dictating the strengths and weaknesses of their interactions. Certainly, across all user groups is a common understanding of salmon as essential to existence in all of the focus communities, though the manner and means by which each group exert that is as variable as their reasons for doing so.

This chapter serves to present and analyze the sport specific field data collected informing us of the salmon user group relationships and networks. These data, in conjunction with the theoretical frameworks outlined for interpretation, aids in compiling a holistic view of the social ecological system comprised by human-human and human-fish interactions. Bearing in mind the user groups identified in chapter one (Local Communities, Local Subsistence Users, Locally Owned Fishing Operations, Outside Owned Fishing Operations, and Fish) this chapter will provide specific examples of user group interactions and the processes contributing to their tenor. From this, it is possible to forecast ways in which small behavioral alterations may

strengthen relationships and create resilience as a more united group mutually invested in the success of salmon.

What follows are a series of interview and field note excerpts which exemplify how the salmon user groups are experiencing resource conflicts due to power differential relationships. Discussions of the conditions which created those relationship parameters will help to reveal vulnerabilities that might be addressed for more positive and resilient relationships in the future. Many of the following assessments will stem from what is perhaps the most dichotomous and starkly defined human-human relationship in this system - that between the local and outsider-owned fishing operations. Following this key relationship characterization are three separate cases providing insight into the real-life experiences caused by the ripple effect of local vs. outsider. To close, this chapter will elaborate on an impending development which may have a profound influence on the social system.

LOCAL vs. OUTSIDER (US vs. THEM)

The discussion of local vs. outsider-owned fishing operations can be focused specifically to two entities which embody the identities and interests of each user group. This particularly dichotomous user relationship contributes to instabilities between all users as a source of unresolved contention. Difference in salmon resource utility and perspectives between user groups perpetuate hierarchical power and solidify sociocultural vulnerability among them. There are two primary outfitter/guide operations supporting the sport fishery within the focus area. The Aleutian Adventures service, owned and operated by the Aleutian Pribilof Islands Community Development Association (APICDA) Joint Ventures branch, represents the ‘locally owned fishing operation’. Conversely the ‘outside owned fishing operation’ is represented by the

Hoodoo Lodge. Each outfitter operates multiple use lodges and camps throughout the peninsula. Aleutian Adventures operates the Sandy River Lodge as well as a seasonal camp on the Sapsuk River. The Hoodoo Lodge operates from their home base with a variety of small lake and river camps in the area. These are the primary sport fishing outfitters, among other guided hunting services. Cold Bay Adventures caters mostly to waterfowl hunters, while the Bear Lake Lodge is used primarily for big game hunters.

Aleutian Adventures operated by APICDA Joint Ventures has been an important investment for the local culture. APICDA, though not universally popular, aims to support programs that emphasize a continued cultural relationship with fishing throughout their AEB communities. Aleutian Adventures operates a fishing camp on the Sapsuk River, a fishing lodge on the Sandy River, and a remote island camp for reindeer hunting on Umnak Island (Pers. comm. Angel Drobnika, December 2017). The Sandy River lodge has only been recently

acquired. Previously belonging to long time Nelson Lagoon resident Mel Gillis, APICDA seized the opportunity of his retirement to purchase the lodge and take over its regular operation. This has been a relatively seamless transition for APICDA as the lodge had regular return of customers and a positive reputation that they have been able to maintain since May 2017 (Pers. comm. Ernie Weiss, December 2017). Aleutian Adventures embody an experience closer to the environment, mirroring the near reverent ethos surrounding fishing in the AEB. Anglers arrive to Nelson Lagoon via small bush planes, but are likely to have travelled first to Cold Bay. Sports are then ferried though the community on their way to the lodge or more remote fishing camps.

The Hoodoo Lodge, which is located outside Nelson Lagoon, represents something of a competitive entity to the two Native owned Aleutian Adventures outfits. The Hoodoo Lodge, owned and operated by an outside entity has enjoyed tremendous success at offering a high-level fishing experience, commonly referred to as the "Salmon Grand Slam" in which an angler may catch all five salmon species in a single trip. In addition to promising guaranteed fishing success, the lodge itself boasts a luxurious and amenity rich experience, limiting the "roughing it" usually necessary in an untamed Alaska wilderness. Sports can expect their hours on the river to be meticulously orchestrated and tended by guides so as to maximize their fishing time and potential. Guides are expected to direct, offer expertise, and tend tirelessly to anglers' gear in between preparing indulgent riverside meals and services. Numerous blog-type testimonies of the ease and quality of experience at the Hoodoo can be found on the web without much difficulty. Among these participants are groups of high socioeconomic status elsewhere in the world, eager to boast their fishing prowess and entitled access.

This, it appears, is one of the main issues contributing the disparate outfitter options available to sport fishermen in the Cold Bay, King Cove, Nelson Lagoon Area. The starkly

different experience offered by local guides and outside operators lends advantage to the success of the outsider over locals. This dichotomy is derived in large part from the standard of luxury and accommodations each has at their disposal to provide to sports. Using the Hoodoo Lodge in the Nelson Lagoon area as the example, initial access to investment capital allowed for the creation of an experience that is entirely self-reliant and contained. Sport fishermen are flown directly to the lodge from Anchorage via personal charter utilizing the controversial private airstrip. The Hoodoo Lodge itself looks much like an après ski hangout. Dressed in knotted pine, the interior has space for anglers to hang up their waders and boots to dry before entrance into a vaulted living space complete with full bar. The Aleutian Adventures locations offer similar services and comforts but on a more modest scale.

The relationship between the Hoodoo Lodge, Aleutian Adventures and the local communities has been reported as somewhat contentious, largely due to the means by which land was acquired for the lodge. The parcel was purchased from a Native family from Nelson Lagoon, which is a controversial mode of real estate exchange following the Alaska Native Claims Settlement Act which allocated traditional lands back to the Native population, including privately owned allotments. Following the purchase, lodge owners immediately began excavation and construction of a runway for small planes chartering sport fishermen from Anchorage directly to the lodge, bypassing the communities. As this event occurred on private property, most of what is 'known' about it comes from informal discussions with local residents. Despite the lack of official record on the topic, the chronology was corroborated by enough people that it lends itself to verification of negative outcomes. Among them was an incident caused by construction of the runway, which churned up significant archaeological artifacts. These sites and their mitigation became the subject of ISU investigation by a team of

archaeologists (Benson 2017). Although now technically the property of outsiders who own the land, this constituted a major disturbance of context, damaging invaluable material culture of the Aleut community's past. This lack of consideration for local culture by the land owner and a rushed archaeological mitigation project (although thorough and respectful of Nelson Lagoon's concerns) was a poor way to begin a relationship with the existing user groups. Since that point it seems that relations between the locals and the Hoodoo Lodge have improved, though that itself has been presented as professional necessity.

The success that fishing operations has enjoyed have not led to much direct competition with the Hoodoo Lodge as they are operating at their maximum capacity for each fishing season. APICDA employees remarked that there was little concern for the impact that sport fishing had on the Sapsuk or Sandy Rivers because it was still such a remote place that required time, money, bear protection, and tenacity to visit. Mainland Alaska has many more accessible areas to fish recreationally, and the idea of people finding their way to the Sapsuk or Sandy to fish without a guide was laughable. The APICDA operation in Nelson Lagoon is said to serve approximately 7-8 guests at a time, each individual staying for an average of 5-7 days. The Hoodoo has a similar capacity. The Hoodoo uses local resources to directly benefit their operation which is owned by a non-resident and non-Native. The APICDA lodge was an effort to diversify community development opportunities, and benefit the community and borough as a whole. This is an important consideration when comparing the interactions that visiting sport fishermen may or may not have with local communities. In one instance sport fishermen are completely sealed off from the communities that depend on the salmon that they are vying for. In the case of Aleutian Adventures, sports have spent considerable time in the village, creating

opportunities to explore and create positive and potentially enduring relationships within the community.

Drawing on Ferguson's work with corporations in rural Africa, we see how the introduction of privately owned infrastructure limits local and outsider interactions. This is dually concerning because it creates a closed system for anglers to participate in sport fishing with outside operations, and means that local services and infrastructure are not being supported by each visitor to the area. This has already been described as an issue considering sport fishing licensure, which disproportionately benefits small areas of Alaska rather than directly contributing to the ecosystems that anglers are interacting with. Cold Bay, as the transportation hub in this region, also commands much of the tourism economy. Altering visitor use by offering personal charters from larger airports means the loss of that income and subsequently a reduction in operations/flights from Cold Bay. As a community Cold Bay is estimated to host approximately 1000 visitors each year for guided fishing and/or hunting, wildlife observation, or other naturalist pursuits (Reedy, 2019). At present there is very little intensive advertisement depicting the recreational opportunities available to visitors in the AEB, meaning that tourism is fostered mostly by word of mouth and return users. Limiting visitors' experience of the focus area by keeping them separate from the local communities does a disservice to the local economy as well as to the interpretation tourists take away from the area. It is important to integrate the user group experiences and increase positive contact so that they can be cooperative rather than hostile during overlap of resource use.

This visiting vacuum enabled by the outsider operation also promotes exclusivity of services, an option sought by the socioeconomic elite. This also contributes to perpetuating an 'us vs. them' mentality through exclusion in modes of access to common pool resources. These

disjointed ideas of resource access and use fuel conflict, which can result in outward aggression between groups or excessively consumptive behavior of the resource (salmon). In any case, contention between these two groups has a ripple effect throughout the other user groups, promoting a relationship with salmon that demands choosing a side in the social ideology.

This interaction is important and is two-directional. Anglers paying for guided services are a powerful user group with limited interaction with the salmon fishery. As such, they represent a vulnerability to both the human-fish, and human-human relationships in the focus area. Cultivating positive relationships with visiting anglers has a far reaching benefit potential. The common ground between the user groups here is salmon, and it is important that all users are able to express expectations of one another concerning salmon viability. Visiting anglers come from so many places far and wide, that they are an excellent way to increase the broader understanding of how salmon contribute to the success of the local people. In this way, the fish are not just valuable in cash economies, but as the focal point for promoting a regional identity to the world. This helps empower local user groups, strengthening their share of influence over the use of their natural resources.

The power and access distribution at present, however, puts local users at a disadvantage to reach a wider audience with their culture. As sport fishing continues to increase in popularity causing areas like King Cove and Nelson Lagoon to be discovered and shared, communities need to be prepared to deal with their new visitors. Aleutian Adventures is akin to an all-inclusive vacation packaging travel, lodging, and most accommodations conveniently together. This ability to simplify planning for visitors adds to the perceived level of prestige for participants. When spending $1000-$2000 a day for a fishing vacation, anglers will capitalize on ‘bang for their buck.’ In order to be competitive with highbrow offerings of outside owned operations, the

local user groups must expand their potential to meet growing demand. Aleutian Adventures had financial and implementation support of APICDA Joint Ventures, and still have only expanded slowly. For other local groups, the barriers to participation are even greater.

Most individuals available for interview in King Cove were either retired or the second head of household. In a spontaneous interview, I was able to talk with a group of young people all fortuitously home for lunch from dock work. The following depiction of that interview is taken from field notes and a particularly robust contribution to the sport survey which demonstrates the locally perceived barriers to engagement with sport fishing.

> Today Bryan [fellow student and research assistant] and I interviewed a house full of young adults, which led to a great conversation about their involvement with sport fishing and hunting in their community. The household consisted of a two boyfriend-girlfriend couples and a male friend of similar age. Halfway through the interview two other older men joined the discussion - they were transient to the household, a family member and friend. Getting over last night's hangover even though the others were home from work for a late lunch. This was the largest interview I'd done so it was nice to have help, especially since they had so much to say about their experience with guiding as an alternate source of income. One had actually spent a summer in Washington with a family member who was a fishing guide. He helped him with small tasks on guided trips, for which he was paid but under the table. At the time he was underage and a non-resident, so he couldn't formally participate - he didn't know even if he had a fishing license or if it was necessary in that situation. Years later he opportunistically guided bear hunts for friends of a friend who were visiting from out of state. He did this informally

too, but said he was paid $300 a day. I didn't want to ask directly if he knew that that was a deal for the hunters, but he seemed to feel that it was adequate compensation. South Fork guides [Snake River Plain, Idaho] make up to $600 a day per sport, plus tip. I asked him why he hadn't continued to do this since the money was good and it was fairly low impact on him in contrast to working on a crab boat. His first concern was finding sports to hire him. The guiding that he did was requested of him as a favor, not something he sought out. He didn't think that he could reasonably compete with the outfitters in the area because they had reputations, supplies, advertising, etc. He was also unsure of where he would have to start to be properly permitted and licensed to be a 'guide'. Since his commercial fishing job and subsistence was important to him he worried that advertising himself as a guide without knowing if he was totally legal, might get him in trouble or limit his subsistence rights in some way. It was hard not to continue the conversation in a way that offered support or even information on the 'right' way to approach this potential that he knew was there but didn't feel like he could pull off. He felt like he would need a role model/example from someone else who guides, so that he could get started. Even if that came to fruition he said he would still want to fish commercially because it's so lucrative, but that he liked the idea of a secondary income.

As has been described, there are a great variety of user groups interacting with each other all while exerting their own unique pressures over salmon. If this is illustrated to indicate directional pressure, one would note that salmon give a great deal to their human counterparts, but may not be receiving such similar support in return. Jentoft argues that in order for a fishery to be viable, the communities that depend on them must also be, and must do so ahead of fish which are self-regulatory without human interference. Essentially what this indicates is that a

'community'; which in this instance refers to the cumulative interaction of all user groups; must be stable from within or risk damage to their common resource. Evoking Hardin's "Tragedy of the Commons", internal discord among users regarding the shared resource results in resource instability and structural vulnerability, expressed as a hierarchy of power and access. In commercial fisheries similar relationships on a larger scale have been mitigated by regimes including co-management and place based management, both of which call for active participation of local user groups, thereby shifting power toward a more proportional distribution.

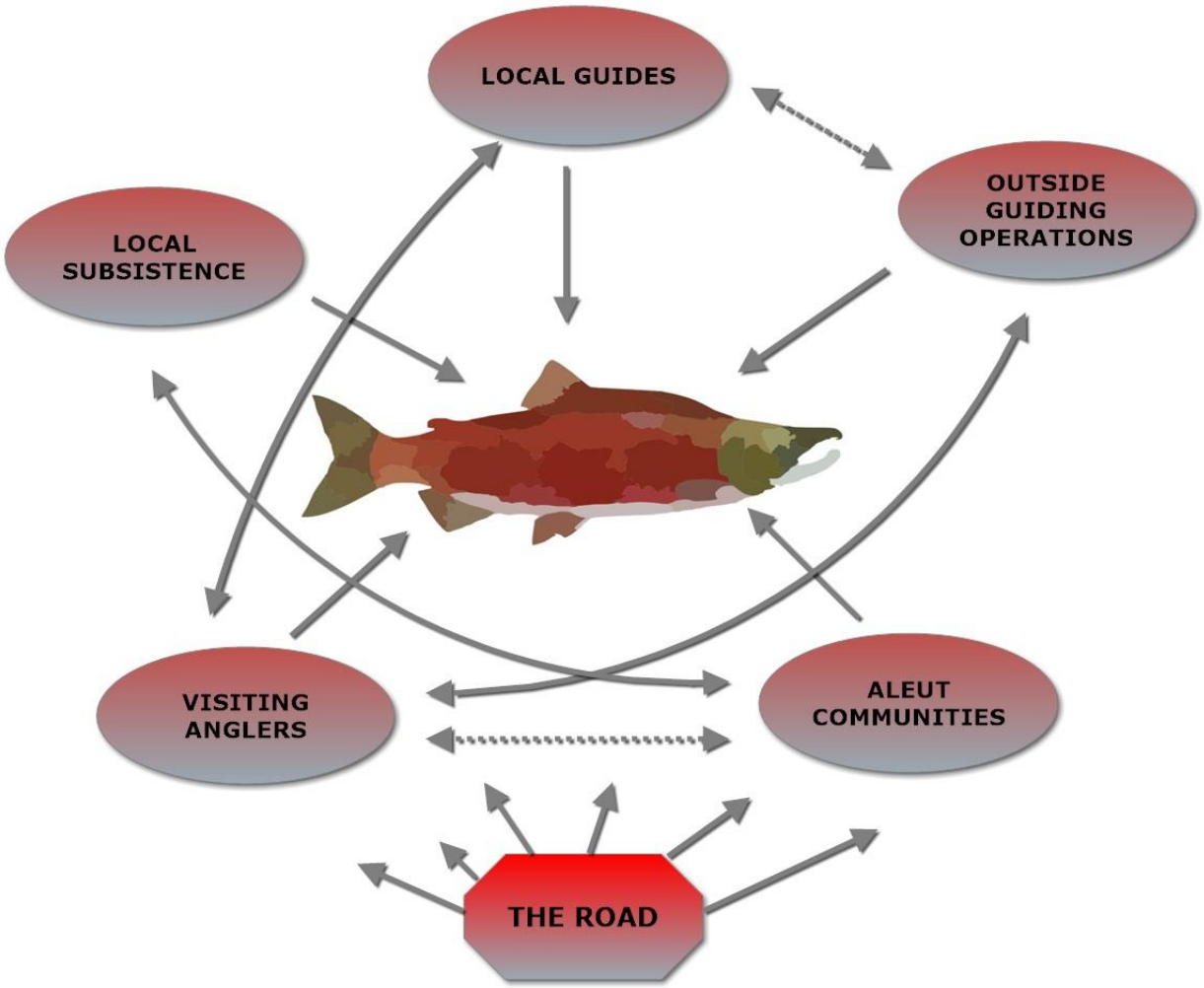


Figure 16 Schema of Interactions and Dependencies.

Management schemes and enforcement employed on a local scale evoke romanticized ideologies of stewardship. While this may work on a theoretical basis it is less successful as a real world application despite its obvious appeal and potential. Using local vs. outsider sport operations as the continuing example, it is clear that lack of exposure to local culture has a profound impact on the behavior of visitors to the Alaska Peninsula area. A discussion surrounding wanton waste of fish and game was one of the most concerning indicators of user group instabilities. While the following excerpt(s) from field notes deals with waterfowl rather than fishing, it represents a disconnect in local vs. outsider mentalities that must be addressed.

> We arrived in Cold Bay at about 12:30PM. A nice guy named [name removed] called the Inn for us to request that the owner come get Kiley and I and our luggage. He showed up in a white minivan and drove us what turned out to be about 100 yards to the Inn. He was chivalrous, bringing our luggage inside and having us each choose a room where he deposited our things. The Inn is also part of the same building as the local store and the bar.
>
> Kiley and I are in Cold Bay alone until Monday. We've been told that the store and bar will be closed until then and that there are approximately 10-12 people in town at the moment. We've already met about half of them, so we're a bit worried about having enough survey work to keep us busy until we get to King Cove on Monday morning. There weren't enough seats on the plane to King Cove today for our whole team, so we're the obvious candidates to stay behind. We've been told that bears are in process of waking up from hibernation, so doing much exploring on foot isn't a good idea. We've

been assured that the Inn/store/bar is the hub of community activity even when they're technically closed, so we should be able to talk to a few people.

We talked to the Inn owners periodically over the weekend. They came in to check on us and take care of chores. [The man who drove us from the airport] said that Cold Bay, King Cove, and Nelson Lagoon all relied on seasonal income from tourists. He said that visitors are generally welcome, a mentality that seems to be part of the indigenous and regional culture in general. We both came around to talking to him about the sport fishing and hunting attraction to the area. He was generous and gregarious about this too, but was concerned about unsportsmanlike behavior among some visitors. He had had poor experiences with the local guiding operation taking sports on waterfowl hunts within KC, CB, NL and the IWR. Hunts guided by non-locals for visitors were not held to a high level of accountability because enforcement is nearly absent in such a remote area. He referred to this as an honor-system, which he said guides and sports regularly disregarded. Guides and dogs were known to flush birds in the direction of hunters, which is disruptive to many of the species that use the refuge as a resting place. Hunters would shoot whatever presented itself with little concern for species identification. Some species in the area are protected/at risk/endangered. Many birds were being left in the field. As an individual active in subsistence harvest and that understands the importance of natural resources to CB, KC, and NL, he was more upset by wasted game than the fact that animals were being targeted recreationally. Hoping to help mitigate this on a local level he approached guides and asked that they make a greater effort to recover birds. Whatever they or sports didn't want, he offered to take and distribute throughout the community(ies). This was well received but slow to work at first. Guides and sports did

not appropriately field dress birds and many arrived spoiled. This improved over time and birds were salvaged.

The State of Alaska expects that hunters will bring any edible meat back from the field and either take it home with them or distribute it to local communities. Neglect to do so is a misdemeanor, and certain offenses within this legal definition are subject to fines and/or the forfeiture of hunting and fishing licenses (Anchorage Daily News, 2015). The wanton waste law is described specially as, "a person (who) kill a big game animal or a species of wild fowl and fail intentionally, knowingly, recklessly, or with criminal negligence to salvage for human consumption the edible meat of the animal or fowl" (via Anchorage Daily News, 2015). This portrayal was a prime example of how different user groups may interact unexpectedly with common resources given a lack of communication or failure to cultivate positive relationships between them. In this instance, under Berkes and Nayak's evaluation of Jentoft's community parameters, this individual instituted a local innovation to solve a problem that political ecology and government management had not. In addition, this locally implemented solution represented a compromise between users that strengthened their relationship rather than damaging it. While this may not be a viable long term solution as the area plays host to an increasing number of visiting hunters and fishers, it does promote inter-community and inter-group continuity. The implications of this act of altruism transpired to have a far reaching effect within Cold Bay, King Cove, and even Nelson Lagoon. OSM survey interviews in King Cove revealed that this initiative had supported elders and families in need through times of financial hardship and food scarcity. Within the OSM surveys, this individual was listed as a person playing a vital role in the King Cove community, despite being a Cold Bay resident. This demonstrates the high regard

for and dependence on wild food sources, as well as indicating how closely interrelated communities in this area truly are.

In order to effectively create viable communities and viable salmon stock, it is important to identify vulnerabilities to the cooperation between users. Using that information, we can begin to construct a management scheme for people that is rigorous enough to be adaptable concurrent with unpredictability and factors which are less easily mitigated. Here, I refer directly to the road corridor agreement and the modes by which it has potential to alter the SES as we understand it presently in the focus communities.

THE ROAD: Adding a new 'user' to the system

Over the last 30 years, residents of King Cove have lobbied for a land exchange agreement that would allow them to connect their community to Cold Bay via an 11-12 mile road bisecting the Izembek National Wildlife Refuge. As previously discussed, the Izembek NWR provides haven to innumerable migratory sea birds, along with delicate ecosystems of plants and other resident animals such as large and small game, and of course, salmon. Without the support of the federal government, such an area could never house a formal roadway.

King Cove is well-located to keep residents relatively sheltered from inclement weather both in town and in the harbor. Despite this small area of respite, traveling to and from King Cove can be very difficult and often dangerous. There are no roads to King Cove. It is accessible only by air or sea, both of which are wholly weather dependent. As this region is subject to exceptionally violent winds and seas there are regular instances when there is no access or escape possible. This poses serious concerns for the residents of King Cove in terms of their ability to travel to and from their community as well how reliably supplies may arrive in harbor.

A high number of residents are demographically susceptible to requiring emergency services based on their age or physical health.

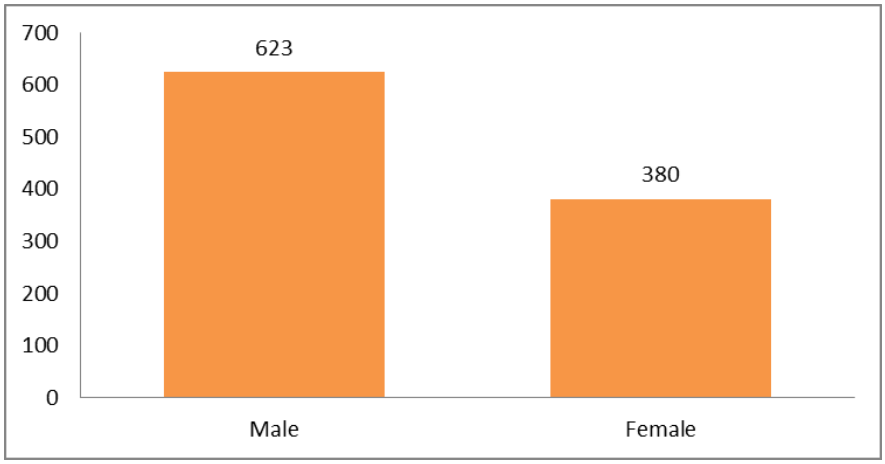


Figure 17 King Cove Populations, 2017 (census.gov).

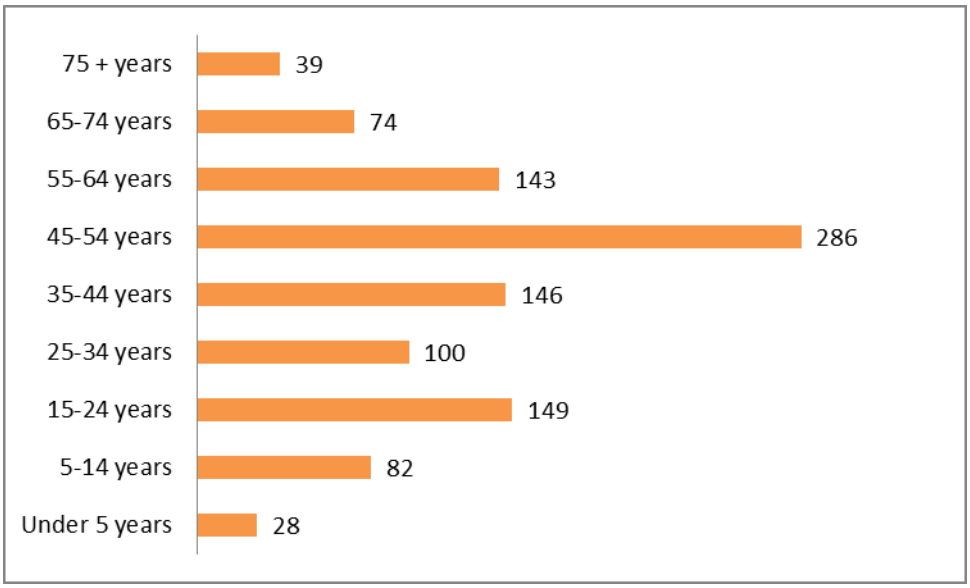


Figure 18 King Cove age ranges, 2017 (census.gov).

The only route from King Cove for personal travel must first be received through Cold Bay (or personal charter). Cold Bay boasts a robust airport, capable of servicing nearly any type of aircraft. In contrast to the gravel runway in King Cove, Cold Bay's airstrip is paved and

considerably longer even than average commercial ones. Most cancelled flights between King Cove and Cold Bay are due to concerns related to taking off from or landing on King Cove's limited runway. Of additional consideration are the wind shears from crossing mountainous terrain and lengthy stretches of ocean. Between 1980 and 1994 this treacherous journey resulted in 12 deaths, as ill-advised flights were unavoidable in medical emergencies. There have been no deaths since 1994, but understandably, King Cove has been keen to pursue new options to prevent such tragedy in the future (Eilperin, 2018).

As previously mentioned, during the research stages and early compilation of this project there were closed-door deals in the making allowing for such an exchange for a corridor within Izembek National Wildlife Refuge (INWR) connecting Cold Bay and King Cove (See Project Map below). In January 2018, U.S. Secretary of the Interior Ryan Zinke approved the agreement. This project will not be completed within a span of time to be wholly included within this thesis, and therefore represents a continuing point of concern for investigation.

It is irrefutable that this impending construction will have a profound impact on a delicate and important ecosystem (Eilperin, 2017). The Izembek is an irreplaceable habitat to many species, the Black Brant Goose and the threatened Steller's eider and Emperor Goose among them. Additionally, it is a critical resting ground in the migration path of many sea and shorebirds including the entire living population of emperor geese (U.S. Fish and Wildlife Service, Izembek 2017). These species depend on the respite within the narrow strip of land at the end of the Alaska Peninsula, and rely on the rare beds of eel grass it offers to recharge them for the remainder of their migrations. Disappointingly, the INWR does not carry any additional use regulations compared to the surrounding area. Being of principal importance to at-risk species of flora and fauna, it seems that more aggressive restrictions ought to apply, particularly

where we find ourselves on the brink of making it accessible to an undefined number of people. Wildlife refuges generally observe special regulations or at minimum, seasonally specific ones. In the Izembek it is unclear if that was deemed unnecessary due to remoteness and (perceived) limited use, or because the refuge itself was intended to cater specifically to the protection of seabirds rather than fish and other wildlife. In the future, trophic cascade may well become a greater concern as this new human interaction disturbs the habitat and the behavior of lower level species that support the species under protection. It is also worth mentioning that the only additional use permitting requirements that the refuge demands are for scientific research. Lack of proper permissions whether initial or during active research, relegates the data as subject to seizure and may not be returned if they choose not to issue a renewal permit (U.S. Fish and Wildlife Service, Izembek 2017).

The King Cove - Cold Bay road constitutes a complication to the SES this thesis has discussed in that it has the potential to disrupt existing relationships as well as involving new user groups and political agendas. Here, political ecology is intrinsically tied to the prediction of new interactions requiring additional management. The road is intended as an emergency passage for King Cove residents to access more reliable flight travel. Despite this positive appearance, political interests may not be forthright and residents may find the road to be cumbersome for its intended purpose.

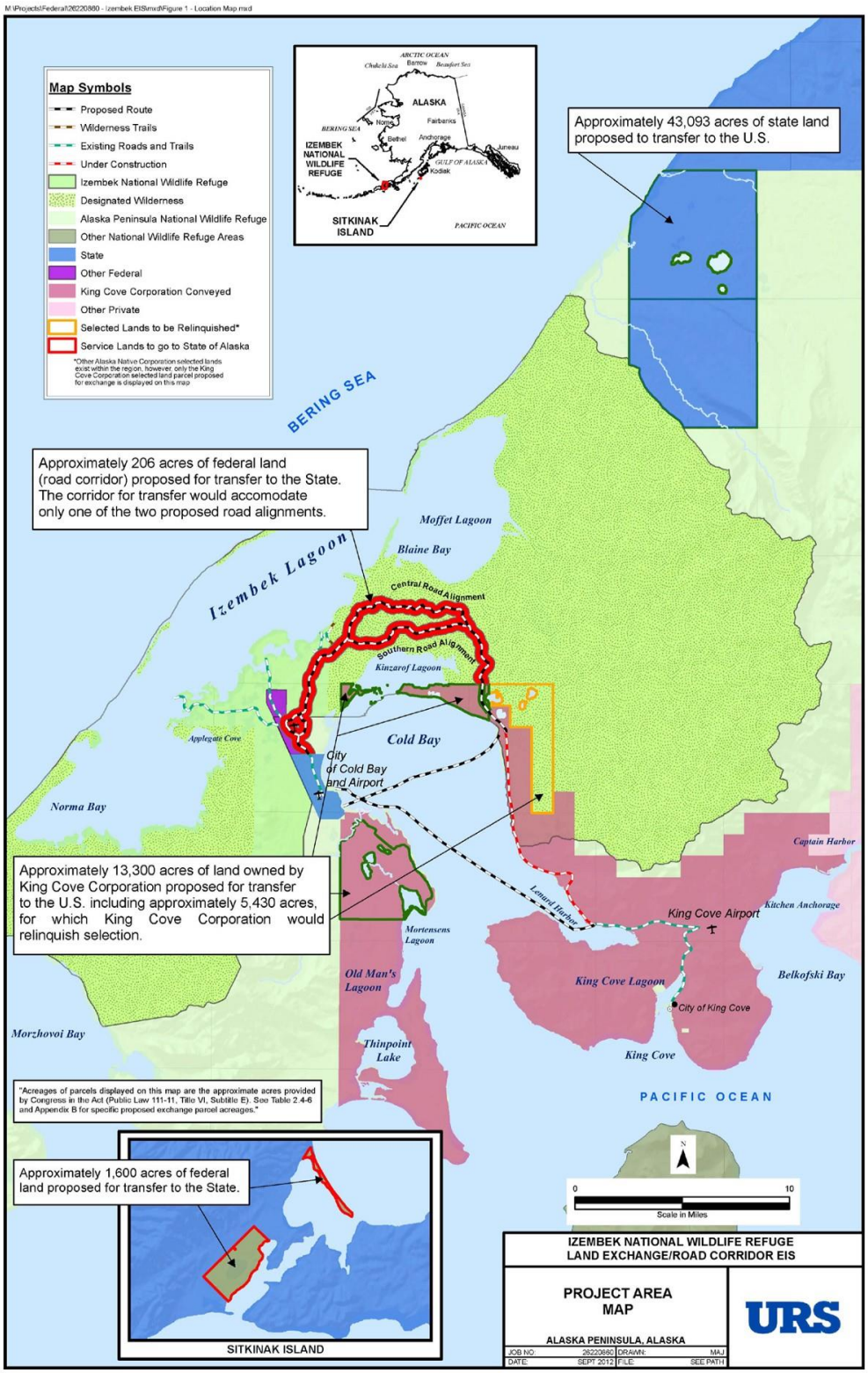


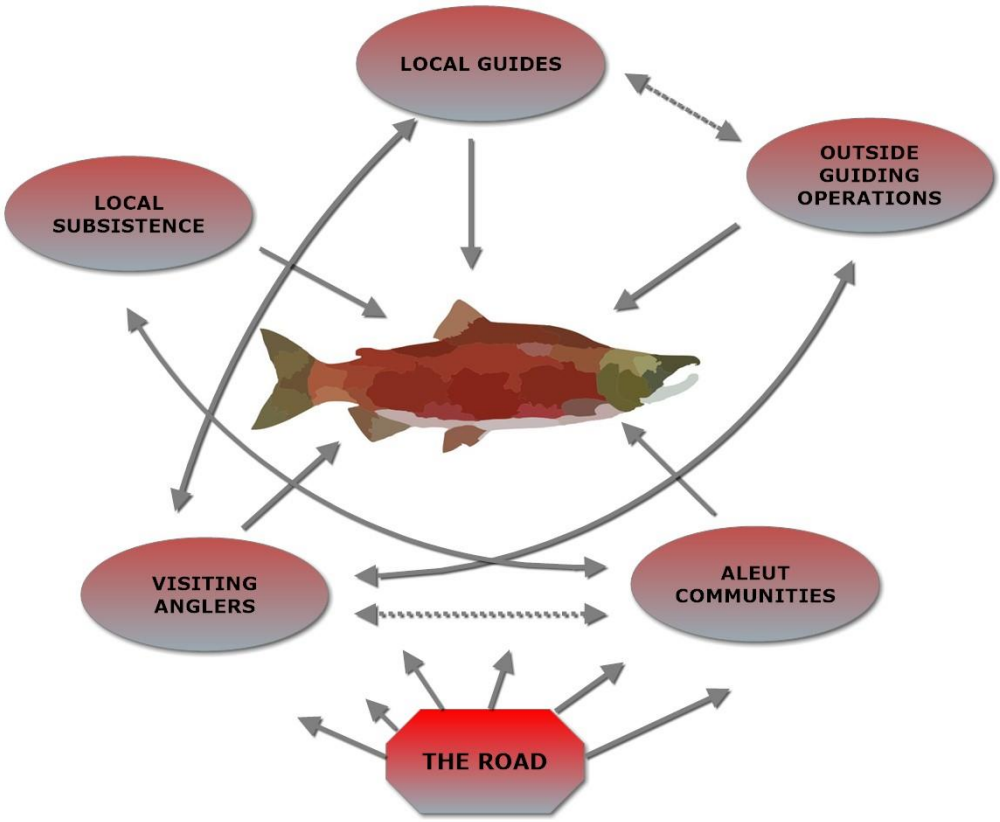
Figure 19 Via Trustees for Alaska, 2018.

King Cove has attempted other modes of transport between the two communities, with limited success. A hovercraft as an emergency transport vehicle proved to be cost prohibitive and subject to similar disadvantages of other modes of travel during inclement weather. The road corridor was suggested as a physical solution to attempts to bypass the Izembek wetlands which present varied complications according to season. A road, similarly, would require seasonal maintenance to be a viable connection between the two communities. Concerns among residents during OSM interviews indicated that very little is known regarding the who, when, and how surrounding upkeep of the corridor so that it is passable year-round. During a survey in King Cove it was revealed how little residents knew about the project that they have tenaciously lobbied for. The following story is taken from field notes gathered in King Cove:

> I interviewed the wife of an active and successful commercial fisherman. She was home alone, her husband on his boat, and her kids all grown and dispersed. She was somewhat guarded in her responses to the (OSM) survey, though many people of comparative affluence have been. They owned two homes in the community and were in the process of consolidating to one in preparation to sell the home where they raised their family. It was just too big to keep up between two people and the other house was more conveniently located. She was one of only a few people willing to discuss the road, more than giving her opinion about whether or not she wanted it. She had been in favor of it she said, but wasn't sure how it would be utilized or regulated, only that it was important to her as a safety concern for the elderly and/or medical emergencies. She was worried that because the road had such an important purpose that additional use might be a bad thing. She mentioned people joy riding, using the road as an access

> point for primitive roads within the IWR, sight hunting from vehicles, and increased access to waterfowl hunters. She didn't want people driving drunk, causing damage to the roadway, or harassing wildlife. I asked how she thought those concerns might be managed and by whom. She said she thought it should be patrolled, maybe with manned gates at each entrance. She thought that charging a toll to use the road would generate income to maintain it. She didn't know who would be in charge overseeing that or if it was even something that could be done, not knowing who really owns the road. (Campbell-Lavallee field notes, King Cove, March 2018)

Not knowing who holds power is disarming for users with limited influence in politics and monetary economies. Residents in favor of the road corridor have agreed to unknown terms out of desperation, demonstrating how local vulnerabilities can be used to the advantage of political agendas. Furthermore, uncertainties surrounding this development cause internal discord among local and native groups. This is additionally polarizing between local and outsider groups because the concern extended for health of the social structure, economy, and ecosystem there is limited to one's personal investment as part of that system. Outsiders are much less concerned for the long term welfare of the focus areas communities and resources because they have the option to leave. For residents, maintaining positive human-human and human-fish relationships is key in their continued ability to remain in their home villages.



Though sport activity may not have a negative effect on subsistence fishing directly, because the former is done inland and the latter is generally combined with commercial catch, it may still have a pervasive impact on the people who depend on subsistence activity. The more influence of globalization is thrust upon small communities in the Aleutians East Borough, the greater danger they are in of being permanently altered. Opportunities arising elsewhere that deviate from traditional ways of life are an ever-growing draw for young Aleut men and women (Boots, 2017). Many are making choices to pursue college or careers that take them away from their Native communities, jeopardizing community resiliency through lack of economic resources from fewer people calling these areas home (Freeman, 2000). To that end, as sport fishing continues in areas like Cold Bay, King Cove, and Nelson Lagoon, it will be important to maintain positive mutualistic relationships between locally owned and operated ventures and the outside competition. It seems unavoidable that there will be a more vested interest in effective

stewardship (of salmon) from the Native perspective than from the privately operated outfitters, as has already been demonstrated. However, attempts to integrate visitor experience with local user groups can promote shared stewardship of salmon as a common access resource. Aligning user groups' mentalities in united support of each other's resource goals, strengthens their influence over the new users to be introduced as the road implicates a heightened state and federal presence. Furthermore, such developed infrastructure will allow for increased visitor access as an additional pressure on the social, economic, and ecological system.

Considering that the connector between Cold Bay and King Cove will be a federally funded road project it seems reasonable to expect that in time it may also come to include passage to Nelson Lagoon, thereby opening a vast expanse of the peninsula. This would further transect the wildlife area, and the cumulative effect of such a development cannot be accurately predicted socially, economically or environmentally. The resultant ease of transportation between these communities will impose increased stress on the landscape from local and outsider user groups. While this may provide economic benefit to the focus communities by increasing visitor carrying capacity it will come at a price. There will be additional wear and tear on the road structure, requiring an unpredictable amount of maintenance. Furthermore, the additional income from recreational fishing and hunting will continue to disproportionately benefit outsider operations that have the capital investment capabilities to expand their operations to meet an increased demand.

As far back even as the early 1980's (Wolfe for ADF&G, 1984) tribal leaders have complained about the influence of visiting anglers on the environment and on the fish. Local ethos and indigenous culture function with an innate generosity that is extended to all. Locals reported generally enjoying the diverse company that sport fishing and hunting brought to their

communities, despite the many misgivings described in this thesis. The reality is that access increases impact. This has been demonstrable throughout the history of commercial fisheries, and will correspondingly impact the regional sport fishery. While locals may enjoy benefits of visitors now, the negative effects of a booming recreational fishing industry could have unprecedented effects on the local ecosystem, directly impacting the interdependent user groups.

Guests, like fish, begin to smell after three days. - Benjamin Franklin

I believe that the intersection between local subsistence/commercial use and outside commercial salmon use can be found within the sport fishing industry. Sport fishing may also constitute the compromise between multiple use, resource conflict, and stewardship that has failed to work in so many other applications, such as the cod and lobster fisheries in the New England region of the Atlantic (Kurlanksy, 1998). As has been demonstrated by the subsistence survey data and the direct participation in, sport fishing widens sharing networks well beyond the rural communities it occurs in. This reinforces positive local/outsider relations and serves to expose visitors to the foundations of mixed Aleut and local culture.

Fisheries management is not about managing fish so much as it is managing people (Acheson 1981). At present sport fishery norms are being shaped by non-resident outfitters and guides that are capable of providing disparate experiences with salmon access to visiting anglers. While state specific regulations on sport anglers may suffice to protect fish, they do not necessarily take into consideration the effect that sport fishermen may have on other human-fish relationships. Considering a political ecology framework, it is clear that the sport fishing scene in these small communities will continue to be shaped by those forces implementing the road

corridor. With the continued increase of outside presence, common-pool resources will become increasingly more competitive items, contributing to disparities in access, wealth, and traditional resource management. Incorporating an emphasis on community-based management in addition to political and socioeconomic management, will continue to be important in distributing power amongst all groups invested in salmon as a resource. The power differentials that currently exist among the salmon user groups of the Alaska Peninsula region have potential to grow, uncontested, concurrent with the rate of impending development.

Conceptualizing these interrelationships through a more modern and "heterodox" (Khan, 2013) approach leads me to identify the area as experiencing a critical moment. A critical moment is defined as a conspicuous and sensitive moment that offers a specific insight into the interplay and autonomy of the actors involved in an event, one that illustrates or informs a political ecology analysis (Khan, 2013). The user groups in the region to this point have been able to mitigate differences more or less based on local solutions. The Aleut have already experienced and adapted to a massive cultural paradigm shift as they combined commercial fishing with subsistence, which bodes well for their response to resource conflict inherently implicated in regional development.

CHAPTER 6

This attempt to disentangle human-human and human-fish relationships at the end of the Alaska Peninsula may present as having limited consequence compared to the global trends observable in commercial and recreational fisheries management. However the resource concerns in the Alaska Peninsula represent something of a microcosm to larger social-ecological systems contributing to national salmon fisheries. This regional fishery evolution offers invaluable comparative data to the analysis and potential implementation of new small-scale management strategies elsewhere. As humans continue to exert pressure on fish resources it will be necessary to adapt user responses concurrent with changes imposed on fish systems. Though the Alaska Peninsula occupies a relatively small area, its culture and fisheries play large roles permeating far beyond the communities in the Aleutians East Borough. Alaska provides the largest salmon economy in the world, Native peoples have relied on salmon and other marine resources for thousands of years, and this area still exists in a largely unadulterated environment ideal for recreational experiences. From an anthropological perspective, this study serves to show how resources and social constructs intrinsically tied to subsistence are evolving in the Aleutians.

In order to identify the local vs. outsider relationships in the sport fishing industry of the AEB, it was first necessary to understand the local way of life. An exploration of Aleut cultural evolution from prehistory, through colonization, and into a modernized world revealed their adaptability in the face of change. Their interdependency on established social networks empowered them to make a large paradigm shift concerning their traditional subsistence strategies into a market economy that blended commercial and subsistence activity. These community networks have their foundations in the relationship with subsistence activity in the first place, and its continued contributions to the local social organization can be seen through

modes of sharing and reciprocity. This well-established local interaction with wild resources, particularly salmon, is recently documented through ethnographic data and the OSM survey data as an essential part of survival as well as culture. Given this intensive human-fish social-ecological system, it was clear that other user groups interacting with the same common pool resources would have an effect on local and indigenous culture. The presence of outside operations and outside visitors proved to be under documented and presented as an ideal research topic to enhance the ethnographic, subsistence, and ecological data already investigated in the area.

The interview data collected supports the notion that difference and power contributes to a variable level of access for individual user groups to capitalize on the different usage potentials for salmon. Interviews show that local people have concerns regarding how other user groups interact with natural resources, and that they feel limited in addressing those disconnects themselves. In some instances local solutions to power and resource use perspectives were implemented, but may become inadequate as visitor use and political interest increases. Infrastructure developments such as the road corridor allow for increased access and multiple uses of the natural environment. This process is introducing new factors to the social ecological system requiring local coping mechanisms as well as State and Federal level management adjustments. The impending road construction is politically charged, and therefore inherently power laden. An evolving power distribution has the potential to further polarize the local and outsider user groups through resource conflict, or else prompt their cumulative empowerment in defense of their shared resource; salmon. Salmon have value in this region extending far beyond their price per pound at the dock or for their prestige in a sport fishing photo. They support survival, livelihoods, ecosystems, and communities. Shared responsibility in fostering positive

local and outsider relationships can create inter-group resiliency, which ideally will produce a more resilient salmon stock.

The future of this research depends greatly on continued active participant observation within Cold Bay, King Cove, and Nelson Lagoon. I believe it is important to take stock of the dichotomous guided fishing opportunities, both from the varied user perspectives and as personal participant. Pursing an experience with both the Hoodoo Lodge and Aleutian Adventures would provide a relevant investigation into the stewardship practices and resource uses presented to visiting anglers by local and outsider perspectives. Additionally, it will be important to keep tabs on the developing road construction to identify new political agendas, common use concerns, and other unanticipated research questions it will generate. Presently, the project has been identified to be in opposition to the Alaska National Interest Lands Conservation Act (ANILCA) (Trustees for Alaska, 2018), which will (at least temporarily) stall the project in litigation. Environmental impact assessments to this point have indicated two potential corridor options, both of which incorporate known environmental risks. Bearing these two obstacles in mind, the actual date for construction looms at an unknown point in the future.

This undertaking as a whole has proven too complex and too volatile at the present time to encapsulate within one project. This thesis should be understood to serve as an investigation into the salmon user group dynamics of the Alaska Peninsula as they relate directly and indirectly to the growing sport fishery. The social, economic, and ecological vulnerabilities that contribute to differentially distributed power indicate areas for potential improvement, however, continued investigation would be required for any formal proposal for future management. As a preliminary recommendation, I believe the data and analysis here support the need to create more opportunities for local and indigenous culture to be shared with outside user groups. This can

create only create an increased empathy between user groups and their varied uses and dependences on salmons. Additional investigations into the user group relationships identified in this study may result in more quantitate data which can be interpreted into management recommendations for the future success of the human-fish interactions in this region. The sheer complexity of the dynamics described here should further exemplify the need for continual data collection and a management scheme which evolves alongside the needs of the user groups.

Perhaps one of the biggest concerns with this project/research moving forward is that it will be largely based on anecdotal information and participant observation. While these are traditional methods within anthropological research, they may provide less clout in present day, particularly where other delicate issues such as climate, environmental impact, and politics are so intimately involved in the salmon sport fishery. The cooperation of local people in conjunction with research goals will be imperative, as this aims to identify cumulative impact of these developments specifically for them. That there is little recorded, though there may be much known, is a gap that I aim to assist in closing and perhaps inspire a greater attention to the future potential sport fishing may have for communities like Cold Bay, King Cove, and Nelson Lagoon. As former Aleutians East Borough Mayor, Stanley Mack said of the Aleut people and salmon, "Sockeye salmon is our lifeblood. That's what it is. That's what it has been. That's what it will always be."

EPILOGUE STATEMENT

As a follow-up to this document, it is important to note recent events which unfolded during the thesis submission and defense process. Concurrent with the final draft the King Cove - Cold Bay road corridor underwent court proceedings in which a federal judge halted the project. The court deemed that the exchange of federal lands for private lands was illegal, despite its previous approval by the former Secretary of the Interior. This has been a grave disappointment to many King Cove residents, who have lobbied for decades to improve their access to safe land based travel. The King Cove Corporation vowed to continue their efforts until they feel an appropriate compromise can be met to provide them with a route to and from the Cold Bay airport.

This proved to be thought provoking in the final stages of this thesis because it alters the trajectory of future research. Given the King Cove Corporation's devotion to securing a road corridor, the primary factor that has been introduced is *time*. There is now more time to explore the user group relationships described in this thesis and further investigate the ways in which they intersect socially, ecologically, and economically. The road corridor posed a concern for the overall system as it increases access and use in the focus area, thereby introducing an unknown number of variables which would simultaneously impact the present human-human and human-fish networks. By postponing the construction of road in this ecologically sensitive area we can only increase our ability to make informed decisions about future social and infrastructure developments.

The significance and application of this research remain the same despite these new circumstances. Data represents a continuation of under documentation endemic to the Alaska Peninsula, indicates a lack of interest and concern regarding salmon research not directly related

to their monetary value, and identifies areas of vulnerability between salmon user groups. This data demonstrated that the outside user groups exhibit a socioeconomic power over local users that limits inter-group exposure which may result in unproductive relationships. These key points may now be approached more deliberately and without haste, providing all user groups with invaluable baseline data regarding their connections to salmon.

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COMMITTEE APPROVAL

To the Graduate Faculty:

The members of the committee appointed to examine the thesis of JAIME L. CAMPBELL-LAVALLEE find it satisfactory and recommend that it be accepted.

Dr. Katherine Reedy, Major Advisor

Dr. Christopher Loether, Committee Member

Dr. Justin Dolan Stover, Committee Member

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Dr. Christopher Loether, Committee Member

_____

Dr. Justin Dolan Stover, Committee Member

This thesis document falls under the supervision of the research project approved below*

March 1, 2017

Katherine Reedy
Anthropology
MS 8005

RE: regarding study number IRB-FY2017-150 : Western Gulf of Alaska Subsistence and Use of Federal Lands and Waters

Dear Dr. Reedy:

Thank you for your responses from a previous full-board review of the study listed above. Your responses are eligible for expedited review under OHRP and FDA guidelines. This is to confirm that I have approved your application.

Notify the HSC of any adverse events. Serious, unexpected adverse events must be reported in writing within 10 business days.

You may conduct your study as described in your application effective immediately. The study is subject to renewal on or before Mar 1, 2018, unless closed before that date.

Please note that any changes to the study as approved must be promptly reported and approved. Some changes may be approved by expedited review; others require full board review. Contact Tom Bailey (208-282-2179; email humsubj@isu.edu) if you have any questions or require further information.

Sincerely,

Ralph Baergen, PhD, MPH, CIP
Human Subjects Chair

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Also, for my fishing partner, to whom I owe a debt of gratitude. Who helped me balance life, education, and the call of river, with an abundance of patience and love. That encouragement and support has kept me sane through every paper, every fish, and every C.O.J.

Finally, I owe my thanks to fishing itself. Which, in its own inimitable way provided me with opportunities to grow and learn, all the while being in some of the most fantastical places. For those fishing to live and those living to fish.

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LIST OF ABBREVIATIONS

ADF&G……..……Alaska Department of Fish & Game

AEB……..…….Aleutians East Borough

APICDA…….Aleutian Pribilof Island Community Development Association

INWR……..Izembek National Wildlife Refuge

OSM……..Office of Subsistence Management

SES……..Social-Ecological System

TAC……The Aleut Corporation

Interrelationships and Implications of Subsistence vs. Sport Stewardship of Salmon in the Aleutians East Borough Region of the Alaska Peninsula:

A comparison of ethos in traditional and recreational use

Thesis Abstract--Idaho State University (2019)

Shared interests in the use and value of salmon have resulted in disparate access and participation in multiple economies surrounding common pool resources within the Alaska Peninsula region. This thesis explores the complex intersections of the social ecological system between salmon, local Aleut (Unangan) subsistence users, and both local and outsider sport users. Recently, political influence resulted in a Federal land exchange intended as a road corridor bisecting the Izembek National Wildlife Refuge. This has potential to disrupt the current system of human-human and human-fish relationships, causing structural vulnerability within and among user groups, and damaging the overall resiliency of the shared milieu. Data suggests that heuristic visitor exposure to local community perspectives and increased involvement of local users in sport fishing may encourage a shared stewardship based on traditional (Aleut) values. Using a political ecology framework, this thesis exposes the onset of a critical moment in social and economic development, highlighting evolving human-fish and human-human relationships.

Keywords: Salmon, Alaska, Aleut, Subsistence, Sport Fishing, Commercial Fishing, Political Ecology, Participant Observation

PREFACE

A harbor, even if it is a little harbor, is a good thing, since adventurers come into it as well as go out, and the life in it grows strong, because it takes something from the world, and has something to give in return.

— Sarah Orne Jewett, *River Driftwood* 1881

I felt like one of those adventurers as the tiny Piper Navajo banked itself around over the ocean and delivered us safely to the King Cove airport. We were beyond lucky to have agreeable weather despite a dramatic sky over snow covered mountains and a glittering sea. Chris, the pilot, was generously patient with the exuberance we expressed at being the only two passengers on board. He managed the plane and its many dials and switches with ease; truly seasoned in his work as well as the journey, in stark contrast to our unyielding awe. Neither of us missed his smirk when he pulled the hair-pin turn, unannounced, over the ocean before our descent. The short journey from Cold Bay to King Cove was an adventure I will never forget, though I hope it was only the first of many visits. Exhilarated though I was to glimpse the vast wetland areas of the Izembek National Wildlife Refuge, I thought to myself even then that no matter how many trips I hoped to make to this hidden village gem, that the topography below me would likely never look the same. While in the process of gathering data for this thesis, it became clear that after 30 years of debate, a federal land exchange agreement between the U.S. Government and the King Cove Native Corporation was imminent. While this gives as much cause for concern as it does celebration, it also represented a monkey wrench for the future of the ideas I intended to present in my thesis. As I hope to relate clearly in the pages to come, the future of sport fishing in the Alaska Peninsula has nearly unlimited potential; and, the factors that comprise that potential are as numerous as the returning salmon and as vast as the Izembek wetlands.

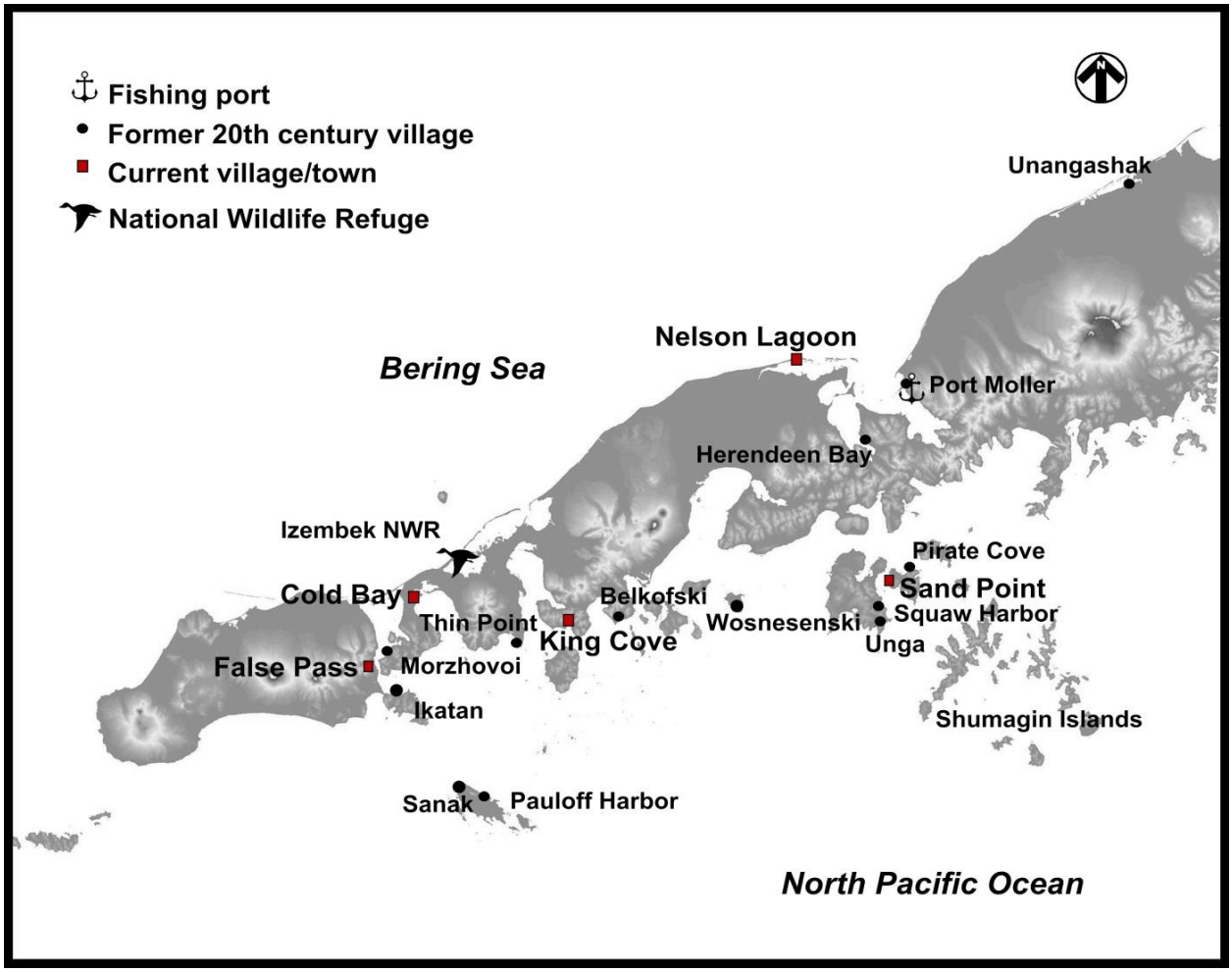
CHAPTER ONE

INTRODUCTION AND INTENT

Fishing in the Alaska Peninsula is the locus of survival, occupation, social structure, and community identity. Alaska itself evokes notions of wildness, self-reliance, and a dependence on natural resources more intimately so than in most of the world. As places like this are continually exposed through processes of globalization, even the most remote areas of Alaska are now known secrets. Cardinal to the draw to Alaska's wild places are the near mythological fishing opportunities, tempting fishermen from all over the world. With sport fishing and recreational angling gaining popularity across the globe, wild Alaskan salmon species have increasingly become a "bucket list" target for anglers. While this may be perceived as a simple interaction between fish and a group with a shared hobby, the social-ecological system that they are contained within proves to be intrinsically complex and evolving at a rapid pace. In order to appropriately manage fish and people, it is essential that we take stock of the many relationship networks surrounding Alaskan salmon.

This thesis serves to identify the social, political, and environmental factors contributing to the relationships between a changing set of user-groups exerting pressure over common-pool resources (salmon) at the end of the Alaska Peninsula. Research on subsistence and commercial fishing in Alaska generally (Carothers 2010; Fields 1997; Langdon 1991; Mishler and Mason 1996) and the Alaska Peninsula and Eastern Aleutian Islands specifically (Maschner and Reedy-Maschner 2005; Reedy-Maschner 2009; Reedy-Maschner 2013; Reedy-Maschner 2010; Reedy 2016; Reedy 2018) have explored the indigenous relationship to the environment and its role within a political ecology framework. The focus of this research however, has not typically

included factors related to the changing landscape involving sport user groups. By addressing the dynamics surrounding this growing presence, this study aims to reveal gaps in understanding of relationship parameters, potential areas for improved management, and discern stresses inflicted on humans and fish so that they may be mitigated for more positive outcomes.



This study serves to explore these dynamics within three communities on the Alaska Peninsula, and one in the Shumagin Islands. During my time spent in these Aleut (Unangan) communities of Sand Point and King Cove, and the mixed community comprising Cold Bay, it became clear that although sport fishing was by no means a new enterprise to the area, it was

lacking in formal study and documentation as is often endemic to Alaska's remote regions owing to travel challenges and prohibitive costs. My initial reason for visiting these places was to participate as part of a study team performing fieldwork for a grant funded by the U.S. Fish & Wildlife Service's Office of Subsistence Management (OSM). This involved a large scale survey regarding subsistence harvest and use of local plant, animal, and marine species, aimed at generating baseline data that has not yet been explored in those communities. During this work, reports from and interactions with local people revealed that there was little concern for the impact that sport fishing has or may have on the fish species they depend on to live in their small communities. It was hardly even considered as an economic opportunity, supporting visiting anglers in search of landing a once-in-a-lifetime trophy salmon. Lack of local cognizance is compensated for by outsider owned and operated lodge and guide services that cater to the sport fishermen targeting seasonal salmon runs. As subsistence activity is undeniably an essential part of living on the Alaska Peninsula, and sport fishing is a voracious hobby performed by outsiders, I noticed an opportunity for investigating potentially dichotomous use, stewardship, and perspectives regarding salmon and the human relationship with salmon.

The "problem" in this area is many faceted, and at this point in time (since this is a moving target) is composed of a rather nebulous mix of interrelationships. Multilevel power differentials exist between the Native/local population, outside proprietors, recreational fishers, and subsistence/commercial fishers. Additionally complicating these dynamics is the recent introduction of a federal land exchange between the King Cove Native Corporation and the U.S. Government, implicating the Izembek National Wildlife Refuge with a controversial road corridor intended to physically connect the rural communities of King Cove and Cold Bay. Concurrent with these more local concerns is a steadily increasing influx of sport fishermen,

which constitute something of an unknown in the continued evolution of this social-ecological-economic system.

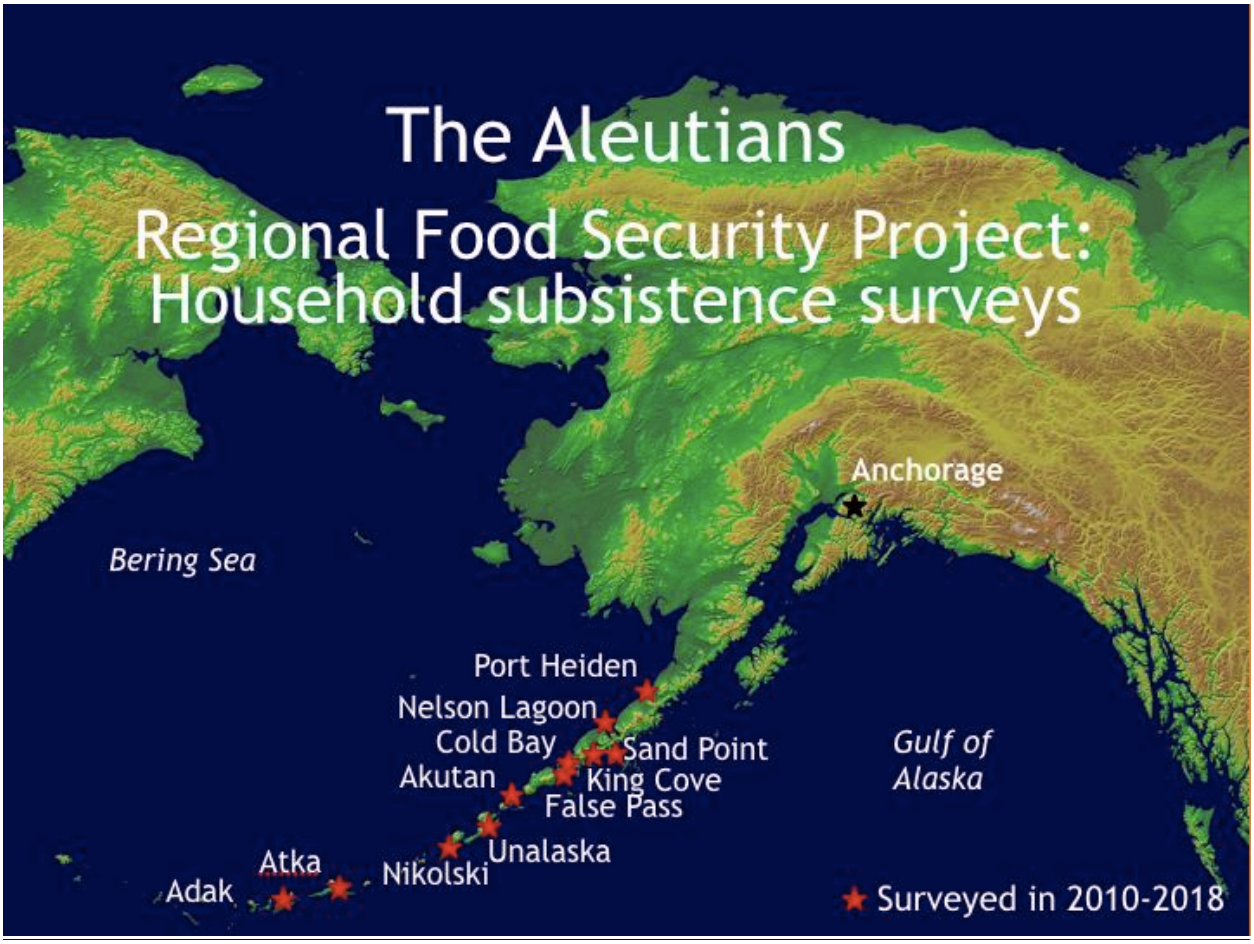
Drawing from Escobar's political ecology framework (Escobar 2006) and Jentoft and McCay's social theory of user group viability (Jentoft & McCay 1998), this thesis will disentangle these complex relationships and their implications for the future development in the region. Escobar's framework requires that we move towards the equal inclusion of ecological, economic and cultural factors when considering natural resources conflicts in the neo-liberalized world. Employing a more holistic systems approach to these user relationships is an ambitious and seemingly unattainable undertaking, but promotes a goal oriented management scheme over a static one. To compliment the simplification of the user group relationships in the focus communities, Ferguson's investigations of development under neoliberal agendas are useful when examining how companies are starting to operate in Alaska (Ferguson 2005). He demonstrates that the development and use of local infrastructure and labor are no longer necessary to the function of corporations, thereby changing the relationships on the ground.

To understand the cumulative relationships between people and fish in the study area, I will first identify the individual players, user groups, and communities. These designations are not intended to imply complete group homogeneity, but to identify active participants designated by similar intent and use of salmon. The groupings of users are identified as follows: (1) Local communities; (2) local subsistence users; (3) locally owned fishing operations; (4) outside owned fishing operations; (5) visiting anglers/sport fishermen; (6) fish (salmon).

USER GROUPS of the SES

1 - Local Communities

The terminus of the Alaska Peninsula contains the three focus communities of this research, as well as one ancillary community of importance. Cold Bay, King Cove, and Nelson Lagoon are located on the edges of the Izembek National Wildlife Refuge, in the most geographically favorable areas on the coast. They form an acute triangle containing the refuge, and are not currently connected by any roads. The fourth community, Sand Point of Popof Island, is located to the South of this area on the Pacific side of the Peninsula in the Shumagin Island group.



Thus far I have personally visited and worked in the communities of Sand Point, Cold Bay, and King Cove. Although much of the following discussion also includes Nelson Lagoon, it is important to note that it relies directly on its relationship with the surrounding communities, and that it is essentially dormant during the off-season during which I was able to conduct this research. Despite not having been to Nelson Lagoon, the information presented about the community comes from literature research and conversations with individuals who have first-hand knowledge of it, including former residents. Additionally, Sand Point does not have a viable sport fishing claim of its own as it lacks interior waterways, and does not engage in the charter fishing sector. However, there is a great deal of inter-community fluidity in the Aleutians East Borough area, and many former residents of Nelson Lagoon reside in Sand Point, which makes my visit to Sand Point valuable to this discussion.

These communities are inextricably tied by their relationship with Cold Bay's airport. Cold Bay is a smaller community than the others but has an airport with a paved runway significant enough in length to land nearly any kind of aircraft. This is left over from a large army camp that was formed in Cold Bay during World War II and the runway serves as an emergency landing strip for trans-Pacific flights. King Cove and Nelson Lagoon also have runways, though they are only sufficient to receive flights directly from Cold Bay on small planes suited to short gravel runways that are part of a regional airline or personally chartered crafts. In King Cove, limited and fairly specific traffic continue to make due with a gravel runway, which is not suitable for large planes. This means that the only way (at present) for King Cove or Nelson Lagoon residents to travel outside of their communities is by plane to Cold Bay, or by boat between King Cove and Cold Bay.

All four communities are part of the Aleutians East Borough, incorporating Native groups that identify primarily as Aleut (Unangan). All communities exhibit high rates of subsistence activity in hunting, fishing, and gathering (OSM, 2018). Subsistence is dictated by cultural tradition and social organization, as well as a way to supplement the high cost of living in such remote areas. Nelson Lagoon exhibits these same traits, but has a considerably reduced population (about 55 people) and is more isolated even than King Cove, with a population of about 900. Nelson Lagoon is virtually dormant in the off-season (non-summer months). Due to the difficulty of traveling in and out of the village during the winter months, many of its residents choose to stay with family elsewhere in Alaska, or winter in other states. As is the case with many rural and Native communities, loss of residents and a corresponding loss of services, has put Nelson Lagoon in danger of disappearing altogether. The state closed the school in 2015 leaving little incentive for young families to stay there or to move there. Fortunately, the Aleutian Pribilof Island Community Development Association (APICDA), via their Joint Ventures branch, have successfully integrated a guided sport fishing lodge outside Nelson Lagoon helping to reinvigorate the local economy.

If each community were to have an identifier, Cold Bay would tout their fully functional airport; King Cove, its successful harbor and cannery; and Nelson Lagoon would elicit its salmon fishery as well as being a sport fishing and hunting destination. As each of these communities are so different, they depend on each other for strength and support. There is a great deal of inter-community fluidity between residents, and certainly in the distribution of family members.

2 - Local Subsistence Users

Each of these communities demonstrate a high level of dependence on subsistence activity (Reedy-Maschner and Maschner 2012; Reedy-Maschner 2010), and the nuanced nature of subsistence within them will be defined more formally later in this thesis. For the purposes of describing this particular group, one can think of a subsistence user as a permanent resident of one of the aforementioned communities that depends on the acquisition of local natural resources to provide for their needs. Give some description here about what that means and what it entails.

Presently, Alaska is the only state in the U.S. that currently employs a formal management scheme for subsistence activity (Huntington, 1992). This is because so many individuals depend on access to traditional subsistence for survival. Survival may be literal, tied to culture, a particular worldview, or all three and more. Regardless of the individual impetus, subsistence activity is so widespread in the state that it required a more focused directive to understand its impact on local ecosystems (Gerlach and Loring, 2013). Housed within the Alaska Department of Fish & Game (ADF&G) is the Division of Subsistence. Housed within the Federal US Fish & Wildlife Service is the Office of Subsistence Management (OSM). It is important to note that these agencies were not created to cater to the Native population, which are sometimes considered to be pursuing a traditional lifestyle as a choice. Subsistence rights are needs based and apply to all Alaskans regardless of culture or ethnicity (Huntington, 1992). Most areas of Alaska are still so rural relative to the conveniences common to the Lower 48 States, that subsistence is a necessary undertaking. Attempts to live without this strategy would be prohibitively expensive as all supplies come from outside locations. The exceptions to this rule are located around the few metropolitan areas, including Anchorage, Fairbanks, Juneau, and Ketchikan.

3 - Locally Owned Fishing Operations

This group has internal distinctions which offer additional stratification. Locally owned fishing operations include those individuals that are permanent residents of one of the focus communities and that participate in commercial fishing. This may be in conjunction with personal subsistence activity depending on the individual's role in the commercial fishery. Additionally, the Aleutian Pribilof Island Community Development Association (APICDA), via their Joint Ventures branch, have successfully integrated a guided sport fishing lodge in Nelson Lagoon helping to reinvigorate the local economy. APICDA, though not universally popular, or effective in its mission, aims to support programs that emphasize a continued cultural relationship with fishing throughout their communities. Aleutian Adventures is an outfitter operated by APICDA Joint Ventures offering a fishing camp on the Sapsuk River, a fishing lodge on the Sandy River, and a remote island camp for reindeer hunting (Pers. comm. Angel Drobnika, December 2017). The Sandy River lodge has only been recently acquired. Previously belonging to non-local Mel Gillis, APICDA seized the opportunity of his retirement to purchase the lodge and take over its regular operation. This has been a relatively seamless transition for APICDA as the lodge had regular customers and a positive reputation that they have been able to maintain since May 2017 (Pers. Comm. Ernie Weiss, December 2017).

4 - Outside Owned Fishing Operations

Outside owned fishing operations include fishermen that obtain permits to fish the productive waters surrounding the focus area, but that are not permanent residents to those communities. These individuals may live in a metropolitan area excluded from subsistence, or may not even live in Alaska, and therefore represent an external interest or foreign user group. Also included in this category are the various sport fishing outfitters and guides, owned and

operated by outside sources of the same kind. This group is exemplified in this study by the Hoodoo Lodge located in Nelson Lagoon. The Hoodoo Lodge is owned by individuals that are transplants to Alaska, and who spend the majority of their time in the state of Washington. This operation constitutes direct competition for the Aleutian Adventures operation, and personal communications have indicated a somewhat contentious relationship between the differentially owned services. The relative prominence of these operations represents a notable difference in access and power over other user groups, which depend on the presence and availability of salmon throughout the year.

5 - Visiting Anglers/Sport Fishermen

This group consists of those individuals utilizing the areas of Cold Bay, King Cove, and Nelson Lagoon for recreational fishing. This effort focuses on sport fishermen that travel to the area as a destination for a fishing experience, but may also include anyone that fishes for entertainment outside of or in addition to economic or subsistence necessity. Sport fishermen in this area may find opportunities to fish for many species, both inland and at sea. For the purposes of this investigation however, the primary concern surrounds users that are recreating within the freshwater systems contained by the focus communities. Many visitors rely on fishing services offered in a vacation style package, where their experience is carefully curated from arrival to departure. As successful fishing is not a guaranteed activity, services that outfitters and guides offer are particularly attractive. Fishermen may also visit this area without formal guide expertise, but must then be responsible for their own supplies, provisions, housing, and transport. Rural communities such as Cold Bay, King Cove, and Nelson Lagoon have limited opportunity for amenities, which complicates a self-directed fishing trip.

6 - Fish (Salmon)

Alaska's salmon fishery includes 5 species: King, Sockeye, Coho, Pink, and Chum salmon. The five salmon species all contribute to a lucrative commercial fishery, local subsistence, and are desirable to sport fishermen as a collection. Each species exhibits an anadromous lifecycle in which they have particular seasonality for returning to the freshwater systems of their birth to spawn. These return trips from the ocean to reproduce are often referred to as 'runs', and for a brief portion of the year are concurrent such that an angler may be able to catch every species in a single excursion. Colloquially named the "Salmon Grand Slam", the opportunity to collect all five species is an important point of advertisement to entice visiting fishermen to the area.

These same fish support local life and culture, both literally providing sustenance and in the social organization that they support in the focus communities. As will later be described, salmon constitute the locus of social, political and environmental factors in this region. They are intrinsically tied to success from the individual to a global scale.

SCIENTIFIC NAME	COMMON NAME	COLLOQUIAL NAME	ADDITIONAL NAMES
Oncorhynchus tshawytscha	Chinook Salmon	King Salmon "Kings"	Tyee Salmon Blackmouth Salmon
Oncorhynchus nerka	Sockeye Salmon	Red Salmon "Reds"	Kokanee (if landlocked)
Oncorhynchus kisutch	Coho Salmon	Silver Salmon "Silvers"	
Oncorhynchus gorbuscha	Pink Salmon	Humpback Salmon "Humpies"	
Oncorhynchus keta	Chum Salmon	Dog Salmon "Dogs"	Calico

Figure 3 Pacific Salmon Species Nomenclature (Campbell-Lavallee 2017).

By identifying the aforementioned participant groups in this social-ecological system we can begin to take stock of the varied degree of interconnectedness between them and how they influence the successes or failures of one another's engagement with natural resources. In so doing, imbalances of access and power should indicate areas of potential improvement for the future, particularly where new entities with unknown agendas are being introduced. Taking stock of these relationships gives baseline data that may prove beneficial in advocating for user groups or fish themselves as the area contends with impending dynamic changes.

THEORETICAL FRAMEWORKS FOR EVALUATION

Of paramount importance in understanding the human-fish and human-human interactions described in this area is a focus on political ecology. Political ecology itself refers broadly to methods of interpreting a social ecological system (SES) (Fabinyi, Evans, Foale 2014) inclusive of the human influence as active participants rather than passive or controlling ones. For this project, traditional political ecology theory is widely applicable due to the presence of multilayered power relationships (Escobar, 2006). Political ecology presents as inherently power laden, often defining power differential relationships in terms of economic standing, excluding other factors that may contribute to overall ability to exert dominant power (Fabinyi, Evans, Foale 2014). Evoking Raymond Firth's "Gut Marxism" (Goldstein 2014 via Firth 1975) (which describes an inherent reaction to judge power as dictated by one's role within a market economy), it is overly simplistic to view the primary benefit of Alaska's salmon as an economic one, rather than a more sustainable and productive social one. A broader application of political ecology, invoking Escobar's framework and inclusive 'social ecology' is more appropriate in this scenario. Postmodern modes of thought adapted political ecology along these lines, to

include consideration of political aspects of a system without assuming that they are necessarily of primary importance, while taking additional care to take stock of other political influence on a more local scale (Vayda & Walters, 1999). Here, political ecology is applied on a local, regional, and state level as fish are managed alongside user groups.

In the United States in particular, this idea of Gut Marxism can be disruptive to gaining a comprehensive view of a system. Tendencies to consider our relationship(s) with natural resources in terms of economic benefit can shroud other truths about the system at large. To do this investigation justice, I believe a healthy pushback against 'political ecology' in the traditional sense is prudent because it is tied so closely to capitalistic interpretations of resource use. It may well describe portions of the situation here, but the relationships interacting with each other are better served if approached holistically, laterally across groups, and throughout time. Fiscally based ideas of power struggles cannot be addressed without empowering those contending with structural vulnerabilities, and in this area in the present economic climate, fishermen are unlikely to wholly overcome this particular barrier. Political ecology may present this as locals being eternally relegated to a backseat both in terms of power and prosperity, participating in and even perpetuating their position. In response to this, I will extrapolate on Svein Jetoft's (Jentoft & McCay, 1995; Jentoft & McCay, 1998) ideas of managing people before resources to ensure viability of human communities as well as the viability of the living resources they depend upon (Berkes & Nayak, 2018). This incorporates ideas of place-based management as well as co-management, as methods for arbitrating user group relations.

While monetary returns and costs are descriptions of the conditions in which people relate to salmon are used at length, it is important to exemplify their importance external to economic roles. The impact that salmon have on successful human experience and the positive

influences that they exert over shared mentalities and identities are invaluable and entirely renewable. To view salmon merely as a resource best exploited for economic benefit, is to discount the long-term success of the local Aleut culture's carefully curated relationship with fish. Salmon offer us a much more compelling argument for use that extends beyond Marxist ideas of social structure, to a more sustainable relationship that incorporates multi-use among many (and) cooperative user groups. To better understand the benefits of a human-fish relationship that may extend beyond a dollar sign, I believe it is important to understand what subsistence truly means in the AEB, and how that might be used to bolster their power in influencing more sustainable relationships with other user groups.

DEFINING 'SUBSISTENCE' IN ALASKA

Subsistence is widely used as a term interchangeable with others indicating food acquisition techniques, or sometimes for food itself. A discussion regarding the meaning of the word 'subsistence' as it is applied in different contexts seems to accurately describe the place where subsistence and sport fishing can come together. Alaska is one of the few places in the world that has established a formal strategy for managing small scale fisheries, including regulation of subsistence activity (Macinko, 2007; Huntington 1992; Wolfe and Walker 1987). Viewing the fundamental role of fish resources in the Alaskan communities of Cold Bay, King Cove, and Sand Point firsthand led me to an understanding of what subsistence constituted in the area and for its residents. I think, however, that the more common understanding (or more accurately, impression) of subsistence activity is the romanticized version. This depicts subsistence harvest of resources as a choice defying Westernized ideals, where tradition is of more importance than eating, and every part of an animal has a specific and significant use. A

rustic novelty of culture. This, of course, is not the reality, at least not in such a utopian wilderness fashion. Taking this into consideration, it seems salient to consider the conventional Anthropological definition of subsistence, as well as a more dynamic definition of subsistence in the present-day.

Fish, especially salmon, are a primary resource in subsistence activity in the Aleutians East Borough. The archaeological record demonstrates a 12,000 year ongoing habitation of Alaska, including a marked dependence on a variety of fish species throughout that time and into the present, salmon principal among them (Jordan and Maschner, 2000). Within the focus communities every household surveyed reported some role in traditional subsistence activity whether directly or indirectly, proving that subsistence is still integral to the way of life in the Alaska Peninsula. The individual reasons for this may vary tremendously based on one's socioeconomic standing, culture, or desire to interact with the local environment. Participation for any, all, or more of these reasons ensures a role in the local social reticulum. In any case, subsistence, by any of the definitions this work explores, is undeniably and demonstrably an intrinsic part of living in Cold Bay, King Cove, Sand Point, and Nelson Lagoon.

A generic definition of subsistence within anthropology can be described as, "the suite of resources necessary to provide life at a minimal level" (Lavenda and Shultz, 2014). While this defines the basic functionality of the word itself, it is conspicuously lacking in real world application. Furthermore, it fails to account for differences in the meaning of subsistence across time and space. In traditional Aleut culture, this unassuming definition of subsistence could have adequately described the local resource acquisition required for survival. Now, however, subsistence has evolved to represent something more significant in the Cold Bay, King Cove, and Nelson Lagoon which in turn exposes the culture to a globalized economic system. Putting

food on the table is now intermingled with wage work, or includes running one's own business; here, often a boat and crew. Now that a market economy is a part of everyday life and even identity, access to and dependence on purchased items are also a part of practical and successful 'subsistence'. Despite this, even the most prominent fishing captains will cite their ability to incorporate subsistence fishing with their commercial activity as integral to their success. This continued relationship with traditional means helps to literally subsidize food resource needs, as well as maintaining a place for fish in the local psyche that resonates more deeply than as a paycheck. As user groups of salmon resources, both local subsistence users and communities are beholden to the continued success and viability of the salmon population. As salmon are providers in the SES of this region, it is imperative that people are managed as viable groups within and amongst each other. If user groups are interacting with the salmon stock in ways that undermine each other or produce contentious relationships, the viability of salmon stock itself is negatively affected (Jentoft & McCay, 1998).

There are many schools of thought on appropriate and effective fisheries management schemes. If this history and literature has taught us anything, it is that fisheries are dynamic and require a tailored approach to be successful. Alaska already employs a formal management scheme for fish resources in commercial harvest, subsistence harvest, and sport interactions. Much of how Western culture considers resources like these, stems from political interest. This, in itself, was the primary catalyst prompting the Aleut culture integrate commercial fishing with their traditional subsistence; because government understands and values resource extraction over traditional use. The terms used to describe a typical way of life to many living in the Alaska Peninsula have themselves been codified in an attempt to integrate this aspect into a regulatory scheme (Morrow and Hensel, 1992). This then relegates these management schemes to ones that

have come to include a power differential between minority-majority groups (Morrow and Hensel, 1992). In commercial harvest, the differential exists between outsider/non-Native fishing operations and local/Native ones, where gaining prosperity in the industry is based on initial access and socioeconomic standing. Ultimately, subsistence as a regulated activity challenges notions of what it means to be 'traditional" in the first place. Despite this, the demand to incorporate commercial fishing with subsistence fishing has made such regulation a necessity. In monetizing something so essential to life and culture, local user groups have experienced this dichotomy more literally as an identity crisis. Rather than traditional use (here, subsistence) defining "who I am", social, political, and even environmental interferences have resulted in a "what do I qualify as" paradox (Morrow and Hensel, 1992).

POLITICAL ECOLOGY

Escobar informs us that identifying states of "difference" is key in understanding these power laden relationships because it influences hierarchically designated notions of equality which inspires conflict. In the focus communities, the local and Native population is at a socioeconomic disadvantage for having identified themselves as part of a minority. The Aleut culture has already had to adapt to this power struggle by commoditizing their most sacred resource, their subsistence strategy. The multilayered management in the Alaska region has allowed for subsistence specific designations, but participating within those parameters alters the perception of the expected archetype of 'traditional' (Huntington 1992). This limits the potential influence that the local and Native population groups can have over the management of their natural resources because they are systematically involved in the political and economic aspects of commoditizing salmon.

Political ecology (Escobar 2006; Berkes & Nayak 2018; Vayda & Walters 1999) and ecological anthropology are well suited to describing topics surrounding recent ecological degradation (Shoreman-Ouimet and Kopnina, 2011). The many user groups interacting with the local environment in the focus communities are having a continual and disparate effect on the regional ecosystem, but should not necessarily be interpreted as degrading it. It is arguable that the wide ranging users help in establishing a system of checks and balances which protect the environment from intensified degradation by a single group. Within the Cold Bay, King Cove, Nelson Lagoon area, this status quo is presently faced with a new user with a poorly defined agenda for use. As this thesis will discuss the presence and interest of the Federal Government in an area largely managed at a local level suggests a further division of cumulative power distribution. Through identifying vulnerabilities between the user groups at present, their viability as a united force is increased. Seemingly the user group with the largest potential for influencing this social ecological system in the near future is visiting anglers. With proper initiative to incorporate them into the other user groups, their contribution is varied, dispersed, and positive. If they continue to be captured by non-local interests their understanding of and sympathy toward the local human-fish relationship is diminished, exacerbating existing power instability between locals and outsiders.

Cold Bay, King Cove, Nelson Lagoon (and Sand Point) constitute ideal candidates for the benefits to bringing human dimensions and perspectives (Peterson 2000) to the forefront of investigations into political ecology, natural resource conflict, and resilience. Such inclusion offers insight into a larger, more dynamic system which draws equally on social, political, and environmental factors (Berkes & Nayak, 2018). Ultimately, addressing vulnerabilities amongst

people better prepares the salmon user groups of Alaska Peninsula to maintain productive relationships with each other and fish, than does managing fish stocks alone.

CHAPTER TWO

METHODS

HISTORICAL DATA and LITERATURE REVIEW

Alaska as a whole is an under-studied area, owing to its remoteness and small, dispersed population. Much of the Alaska Native culture investigation has been focused on recording historic states of culture through archaeological excavations contributing to our understanding of traditional subsistence strategies, ways in which people moved seasonally throughout their landscape, and their maritime specific material culture. This provides excellent insight into the continuing vestiges of culture, and when compared to the observed culture at present indicates areas of change. In this study the main focus is the human relationship with salmon, including how the Aleut people have adapted their use of salmon to participate in modern culture.

Literature review offers a historical background, a cultural background, and an ecological background to analyze how and why the social reticulum in Cold Bay, King Cove, and Nelson Lagoon has manifested itself today. By understanding the nature in which user groups became interrelated in the first place, we can better understand their present commonalities and/or contention and make informed extrapolations for their future interaction. Previous literature is also important in this investigation in situating the rate of change concerning human-fish interaction. This helps us take stock of the pressures exerted on salmon directly by people and consider the ways in which it has been managed or neglected in the past. This Boasian approach considers the ethnographic background of the local culture from a historical particularism perspective, informing us of the cultural and social evolutions contributing to the present.

PARTICIPANT OBSERVATION

Participant observation has long been an integral part of ethnographic pursuits. Widely credited to Bronislaw Malinowski, this method relies on the active role of the Anthropologist in participating with the focus group to gain new perspective on their situation (Pelto, 2013). This method relies on immersion and an open mind to be successful. In many ways it is a 'go with the flow' method of being in a place and allowing the trajectory of activity to be dictated by the people and things around you. It is important to point out that this is not the same as interviewing. Participant observation is considerably less formal and unstructured, and something that may occur naturally without planning by the researcher.

One benefit of this method is in establishing a rapport with people that eases future communication. As a visitor immersed in the day to day life of others, the researcher may draw focus, excitement, or even disdain. All of these things can contribute to data issues as people are over-willing to share or unwilling to share at all. These reactions may inhibit the accuracy and credibility of information. Participating in local activity and life relieves some of the novelty represented by being a guest and helps to ensure more consistent and accurate reporting from local people. Of course, the amount of time available to be in the field is a huge factor in this method, but is something that should be attempted in an on-going fashion regardless.

Due to its subjective and potentially inconsistent nature, participant observation has come to bear less prestige as a research method than it has enjoyed historically. In the type of immersive and conversationally based research of this project however, participant observation is still a useful tool for identifying problems and directing the mode of methodology for future

research design. In the case of this study, participant observation led to the ascertainment of the central query: sport fishing. Further investigation revealed the future impact of sport fishing as a relative unknown in the Alaska Peninsula that deserved some attention. Participant observation, as will be described on a case to case basis, was an important part of this research, providing direction as well as fostering positive relationships with local people.

In addition to traditional participant observation were the indirect observations that informed the research goals of this thesis during the earliest formative stages. A short trip to Anchorage cultivated contacts with individuals and exposure to the concerns of the many parties involved in fishing in the Alaska region. Questions and conversations at that point were tentative and exploratory but guiding nonetheless. The contribution of this amounted largely to reflections on how to hone the scope of this research such that it was attainable within a single project. Personal communications during this stage also lended themselves to further resource identification and make an appearance in the data chapters as the quotes of identity protected individuals.

FORMAL INTERVIEW AND KEY INFORMANTS

Key informants are local people that have expertise in or deep knowledge of the research questions being investigated. Identifying key informants is ideal for a researcher because they give a well-grounded source of information and can be consulted throughout the research phase for direction, opinions, and fact checking. Sometimes referred to as “gatekeepers” (Pelto, 2013), key informants have invaluable insight into the emic cultural perspective, and can suggest avenues for exploration that may not be immediately obvious to an outsider. It is important to understand that key informants can be nearly anyone from within the focus group as long as they

demonstrate a vital role in the community, are well versed in and have access to the topics of interest, and are willing to work with the researcher on a continued basis.

Ideally, more than one key informant should be identified for a well-rounded source of information. Particularly in projects that aim to encompass a broad topic or group of topics, identifying key informants that occupy different social roles is a good idea to ensure holistic accuracy. In the case of immersive fieldwork, it is useful to identify key informants before the fieldwork begins so that the researcher may have a more stable research design from the outset. This cannot always happen, but can go a long way in preventing spending valuable field time planning or being unproductively idle. For this research, both of those scenarios played out. Although the Cold Bay, King Cove, Nelson Lagoon area was not somewhere I had yet explored or had any significant contact with, I had the benefit of being pointed toward potential key informants from individuals in a neighboring community as well as benefitting from the local acquaintances of the Primary Investigator on the OSM project.

The OSM project, which instigated (precipitated?) this research, incorporated formal interview based on an extensive survey regarding subsistence activity and living expenses. This information is intended to serve as a baseline for understanding the importance and often the reliance on continued subsistence activity for traditional users. As such, the questions were pointed and very specific, and provided concise answers. After using this method in my first ever week of fieldwork, the ongoing formulation of this research did not seem to lend itself to formal survey. The answers that people would give to any question could be too varied in content and depth for it to offer much clarity on the topic of sport fishing, which is broad and not well-defined itself, even to local people. To remedy this, I constructed an informal survey packet which provided sport fishing specific questions directed toward OSM respondents who presented

as knowledgeable or interested in the sport fishing topics I wanted to explore.

INFORMAL SURVEY AND DISCUSSION

The informal survey for this research was based largely off of my personal understanding of the sport fishing industry, including questions based on observations made as an active participant in sport fisheries. Questions were also created with consideration to tangential conversations that occurred about fishing activity during my initial work with OSM surveys. Realizing that my main goal was to understand perceptions about sport fishing and how local people interacted with it, I formulated broad and open ended questions. In doing this, I hoped not to dictate the direction that each individual wanted to take our discussion on the topic, but rather encourage extrapolation of certain items that I aimed to identify. This was intended to be entirely non-exclusionary, taking into account the testimonies of all age groups, socioeconomic groups, genders, and ethnic identities. Respondents had to be residents of the focus group areas at the time, but the duration of their residency was not a limiting factor. Despite this demographically all-encompassing group, most information was provided by male respondents between the ages of 20-25, with outliers of 15 and 60. This distribution of respondents reflects the active fishing population, which is typically pre-retirement and male dominated. The final survey questions are as follows:

1. Now that the Cold Bay road is moving forward, what changes do you anticipate for King Cove/Cold Bay residents?
2. How might this road project influence your own hunting and fishing activities?
3. How might this influence sport fishing generally in your area?
4. Has sport fishing had positive or negative effects on your community? Or on your personal fishing experience, habits, or needs?

5. Are you familiar with, and/or do you interact with the sport fishing operations in your area?

6. Do you have any personal, community, or environmental concerns about the impact of sport fishing visitors to your area? (Including outfitters, guides, charters, sports, etc.)

7. Do you use the Izembek refuge area? How?

8. Is there anything about the sport fishing regs you would like to see changed?

9. Have you ever, do you now, or might you ever have an interest in guiding as an income source?

10. Do you have any additional comments, questions, or concerns regarding any of the topics in this survey?

11. Additional space for interview notes

ADAPTATION

Adaptation of research goals is formally listed here as a methodology owing to the constantly fluid ilk of the topics within this paper. Both in the field and in composition, new data complicated and altered the trajectory of this investigation in ways that required a new response. Such is the nature of the relationships being explored within a social ecological system, it is in research as well. It became apparent that a continuous snowballing of questions would occur in such a multifaceted system that it was prudent to make the observations and assertions within this text as a function of a certain place in time. The human interaction with the environment in the Alaska Peninsula will continuously evolve well beyond the construction of a road, beyond the scope or lifespan of this investigation, and beyond any of the individuals participating within it at this point. This acceptance and even embrace of adaptation parallels one of the most important truths that Anthropology has gleaned as a discipline: that cultures and the networks that they exist in are never static.

This suite of methods gives on-the-ground context of the realities of living in a small Alaskan community, highlighting the importance of subsistence to individuals and to community relationships. Integrating traditional ethnographic fieldwork methodology, with historical and background data, and personal experience provides a holistic view of the situation and offers insight into how these many interconnected parts may continue to evolve alongside human dimensions in the future.

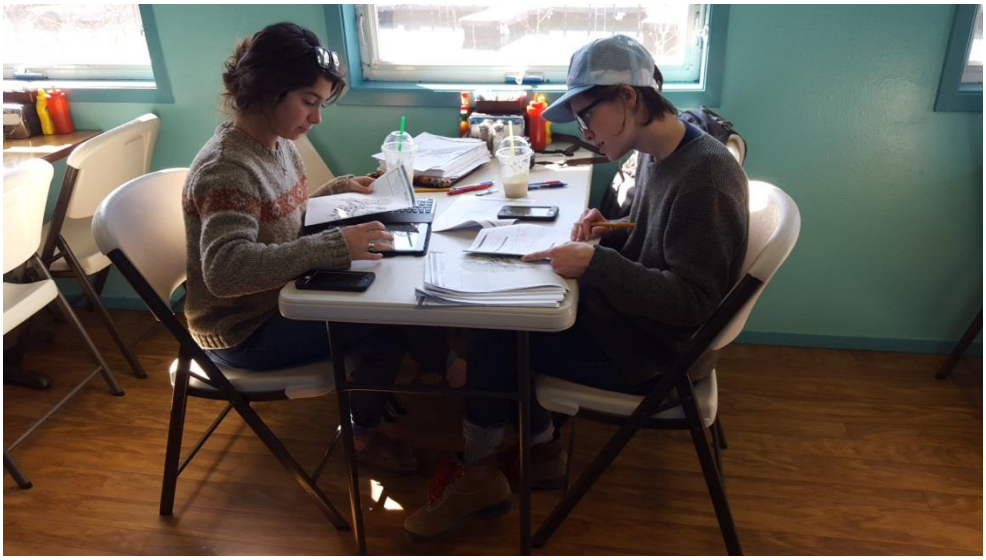


Figure 4 J. Campbell-Lavallee and K. Heaps going over surveys and field notes, Sand Point, Alaska 2017.

CHAPTER THREE

REGIONAL HISTORY AND COMMUNITY BACKGROUND

ALASKA PENINSULA AND ALEUTIAN ISLANDS

The Alaska Peninsula reaches from the continental landmass containing mainland Alaska, through the Bering Sea and Pacific Ocean before fragmenting into the Aleutian Island Chain. This area is the traditional cultural region of the Aleut people, home to the most productive salmon fishery in the world, and contains a series of National Wildlife Refuges (Jones 1976; Laughlin 1980; Maschner 1998; Maschner and Reedy-Maschner 2005). This research focuses on the communities surrounding the Izembek National Wildlife Refuge: Cold Bay, King Cove, and Nelson Lagoon. The Izembek National Wildlife Refuge (INWR) itself is inextricably related to the investigations of these communities as it constitutes a communal area where subsistence and/or sport activity may be pursued. The INWR may soon come to play a larger role in these realms as political changes threaten its ecological protection.

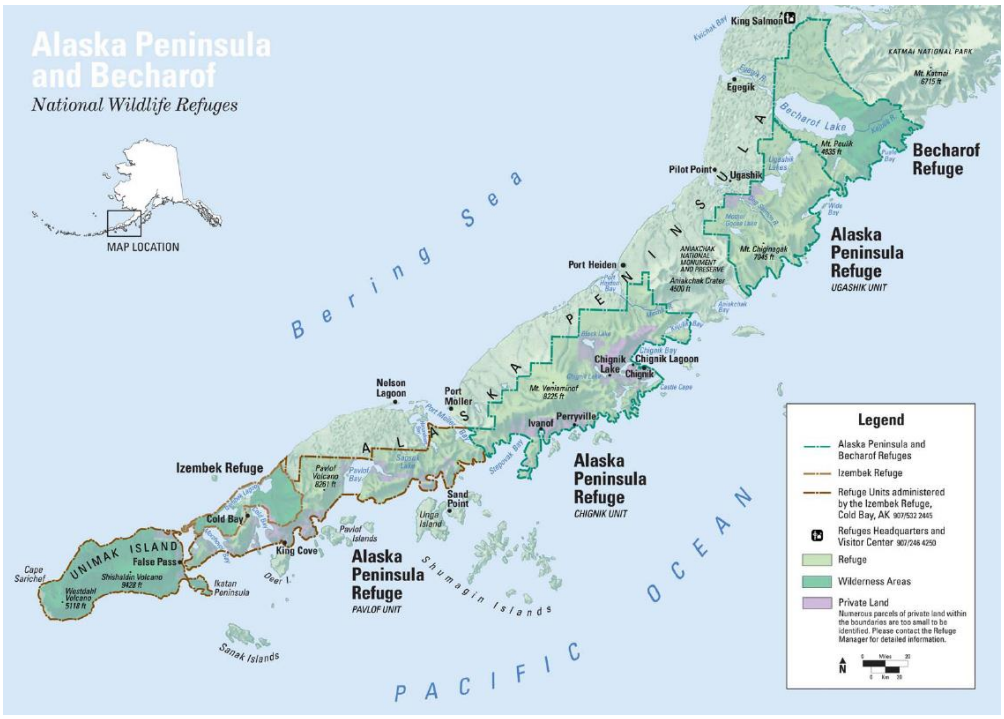


Figure 5 Alaska Peninsula and Izembek National Wildlife Refuges.

The focus communities, among others in the Alaska Peninsula and the Aleutian Islands, comprise The Aleut Corporation, commonly referred to as TAC. The state of Alaska is divided into thirteen similar Native corporation groups, based on biogeographical potential and traditional cultural territories/boundaries. This system is unique to Alaska within the United States, in contrast to the reservation system employed elsewhere. Devised under the Alaska Native Claims Settlement Act of 1971 (ANSCA, web. 2017) ANCSA and the corporation system provided Native peoples with renewed control over their traditional lands and resources, in conjunction with the State and Federal government (Case 1984; Flanders 1989). These designations are further organized into nineteen boroughs (Reedy, 2014). Cold Bay, King Cove, and Nelson Lagoon are part of the Aleutians East Borough, or the AEB, within the TAC region.

Initial colonial claims on present day Alaskan territories began in the late 1700's, when Russian-employed Danish explorer Vitus Bering (namesake of the Bering Sea), journeyed East seeking potential locations for Russian outposts. Later, when Russian Navigator Gavril Pribilof

discovered what would come to be called the Pribilof Islands (St. Paul and St. George) in the Bering Sea, Russian fur traders found the surrounding area to be abundant with seals and otters. Specifically targeting sea otters, Russian traders soon harnessed the monopoly on a booming economy based in trading of otter skins (Black, 2004). Marine mammals, including sea otters and fur seals, had constituted a traditional subsistence target for many of the Native groups. As such, they were accomplished at harvesting and processing seals, as well as exerting responsible and sustainable stewardship practices over a key resource. Observing this prowess as a potential for free labor, Russian traders forcibly relocated Aleut hunters to the Pribilof Islands to commercialize the harvest of seals for a world market. By the 1820's concurrent with the formation of the Russian-American Company, it became clear that otter and seal harvest required immediate regulatory intervention or risk collapse of the populations, and subsequently the demise of the fur trading economy. Around this time, the Aleut people had well adapted their lifeways to occupy a lucrative niche relative to the plight of other oppressed Native groups. They were entitled to rights as full citizens of Russia, most were literate in Russian and English in addition to their Native language, were paid fairly for their labor, and were allowed to continue to govern themselves on local matters.

This time of (relative) prosperity was interrupted when the United States purchased Alaska in 1867 (Black 1987; Black 2004; McGowan 1999; Reedy 2019). Aleut seal hunters lost their rights as Russian citizens and were not offered corresponding ones as Americans. The U.S. spent the following decades in complete disregard for sustainable harvest practice decimating the seal population and imposing their laws and culture on the Aleut people. The maltreatment of the Aleut reached its apex in 1942, when the Pribilof Aleuts were forcibly evacuated from their homes and relocated to abandoned canneries on the mainland in response to threats during World

War II. They lived in deplorable conditions for months before being allowed to return home to find their villages dismantled, buildings condemned, and their islands decimated by wartime occupation (Corbett and Swibold, 1986).

The Aleut people were eventually able to assert their rights to the U.S. government by organizing themselves under the Alaska Federation of Natives (AFN) - a multilayered system which recognized the traditional rights and practices of Native Alaskan culture, and gave them the power to govern themselves according to their own preferences. By presenting themselves as a unified group, they prompted legislation for the Alaska Native Claims Settlement Act (ANCSA), which was signed by President Nixon in 1971. ANCSA represented the largest land claims settlement in American history, renewing Native Alaskans' control over local lands and resources as overseen by the regional and village Native Corporations (Williams, 2005.)

The Aleut have been arguably some of the most successful groups at maintaining their culture while also adapting to a world that was changing around them (Reedy-Maschner 2010). They have pioneered their methods of incorporating modernization and globalization while still adhering to the tenets central to their culture. Perhaps one of the most integral parts of their culture is their dependence on fishing adaptations. A key aspect of Aleut subsistence is the relationship with salmon. Aleut oral histories and a well-documented archaeological record indicate dependence on maritime resources for over 10,000 years (Maschner and Reedy-Maschner 2008). Chief among them are the variety of salmon species that use the river-ways in Alaska each year for their spawning grounds. The Chinook, Sockeye, Coho, Chum, and Pink salmon (affectionately referred to by Native peoples as King, Red, Silver, Dog, and Humpy salmon respectively) play a vital role in continuing Aleut culture. The Aleut, particularly those on the western end of the Alaska Peninsula and in the Aleutian Islands have little by way of land

based resources to sustain them. Early in their evolution occupation, they perfected a maritime specific material culture which enabled them to capitalize on the surrounding productive oceans, rather than deplete what few land resources existed (APIA, web). The tundra, being essentially Arctic desert does produce seasonal plants, a wide variety of sea birds, and in some places game mammals, but the volumes of salmon returning from their anadromous ocean journeys each year offer a greater abundance to effort ratio. The Aleut have also been tremendously successful at fine tuning methods for storing fish to ensure a year round food supply. Fish are smoked, canned, pickled, dried, and with the help of modern appliances, now also frozen (Freeman, 2000). The ability to create and maintain a surplus of food allowed the Aleut people to find a successful home in one of the harshest environments known to man.

Salmon, although one of the most important food resources for the Aleut, bear a much deeper meaning in Aleutians East Borough (Aleutians East Borough, web). Demonstrably throughout the history of humankind, population drives social complexity in turn contributing to social constructs (McGee & Warms, 2003). While the Aleut find salmon and fishing in general to be central to their way of life, it is primarily up to able bodied males to do the fishing that supports not only their own families, but also their communities (The Aleut Corporation, web). Subsistence fishing has always been essential in the social organization of the Aleut people (Reedy, 2014). The sharing networks created by giving and/or receiving salmon largely determine the social reticulum, and therefore reciprocity dictates the strength and viability of individual communities (Reedy 2015).

It is for this reason that a shift toward commercial fishing was a difficult cultural adjustment, though it ultimately seems to have been a cleverly executed adaptation. Commercial fishing is one of the few cash economies that the Aleut can directly participate in if they choose

to remain in the Aleutian Islands (Reedy, 2014). With the productive Bering Sea to the North, and the diverse offerings of the Pacific Ocean to the South, they find themselves in prime position for harvesting some of the most popular and valuable fish species in the world. Traditionally, Aleut fisherman only had to harvest enough to sustain their families and extended networks of community members. Since other interests in the world have discovered their location to be resource rich however, their Native fishing grounds were rapidly targeted by other commercial fishing interests operating under State and Federal management guidelines (Reedy, 2019). Being further exposed to the demands of modernity, the Aleut became involved in commercial harvest themselves rather than allow their resources to be controlled and depleted by outsiders. This is not to say that the fisheries there have not suffered damages akin to East coast fisheries, but the Aleutian fishermen's continued involvement has helped to avoid massive stock collapse. Now, they participate in a lucrative multi-national economy, while simultaneously continuing to fish for personal subsistence usage (Reedy, 2014). The vast majority of the subsistence fishing that occurs in the so-called Southcentral region of Alaska is a combined effort with commercial take (Alaska Department of Fish & Game Subsistence, web.). Fishermen allocate part of their commercial harvest to take home to their communities directly, rather than selling their entire catch to processors and distributors. This is regulated per species, per season, and per outfit. Alaska is one of the few areas of the world that employs specific subsistence harvest regulations as dictated by a government entity. While this method is far from flawless, it does exemplify the fact that subsistence is an activity and way of life that is inherent to the Alaska area.

Commercial and subsistence harvest are not the only interests acting on the salmon fishery in Alaska though. Recreational fishing has been popular worldwide for decades, and has

demonstrated continual growth within Alaska's tourism industry. Avid sport fishermen travel the world without limits in search opportunities to target rare, large, and/or exotic species. Alaska has been no exception to this tourism draw, boasting some of the largest salmon anywhere and pristine, remote conditions to enjoy fishing in. Here again, fish represent one of the few natural resources that Native Alaskans have ready access to, being located near the terminus of the Alaska Peninsula and throughout the remote Aleutian Islands. In this instance however, Native peoples have been able to capitalize on a niche economy that can provide them with steady income and which presumably exerts less overall impact on the fitness of salmon stock. As this thesis will continue to explore, salmon are valuable economically, environmentally, and socially. When user groups interact with salmon as a sport fishery, they have the potential to be all three simultaneously.

AREA M FISHERY CONTROVERSY

The Area M fishery is a point of conflict between the Aleutians East Borough and neighboring boroughs to the East. It has been referred to as an intercept fishery by those who believe fishermen permitted in Area M are subject to an unfair advantage in sockeye salmon harvest due to their location. As salmon return from the ocean to spawn in the rivers and streams of their birth they must first pass through Area M. State and Federal management has imposed permitting laws, seasons, quotas, and escapement demands among other limitations. All intended to even the opportunistic harvest in Area M and ensure viable salmon stock for fishermen further east toward mainland Alaska. While this is not perhaps of much relevance to the research goals of this thesis, it is an important reminder that fishing has become highly competitive, intensely regulated and still evokes contentious relationships between fishermen. The AEB laments, "The

Area M sockeye salmon fishery may be one of Alaska's most misunderstood fisheries. Few have visited this remote region. Many seem to have opinions about it" (Aleutians East Borough, web). These strained human-human interactions in the face of resource conflict threaten fish most of all. While fishery mismanagement results in economic instability for some, for the native and local populations in this area loss of fishery viability or access can result in an inability to remain in their villages. Merging subsistence fishing with commercial fishing is a holdover strategy from days when Native fishermen worked exclusively for canneries and were in essence paid with fish. Since adapting to commercial fishing, these traditional users have experienced an increase in fishing pressure and an increase in fish resource demand. To counter this nearly all fishermen have had to diversify their target species from sockeye and other salmon to include cod, pollock, and often crab. In so doing, they have extended their ability to fish year round and have become masters of occupational pluralism. A similar adaptation may be waiting to be had in a more direct attention to the local sport fishing industry as a potential for additional or alternate employment.

SPORT FISHING

Alaska Department of Fish and Game (ADF&G) issues roughly 500,000 individual sport fishing licenses each year. This number has been as high as 800,000, but the last 5 years have yielded consistent license sales hovering closely in the 500,000 range. Of these, as many as two-thirds may be purchased by non-residents; representing both a substantial income for ADF&G and an indication of how prevalent fishing visitors to the state really are.

Nonresident Fishing & Hunting Licenses:		
Nonresident 1 Day Sport Fishing License		$25.00
Nonresident 3 Day Sport Fishing License		$45.00
Nonresident 7 Day Sport Fishing License		$70.00
Nonresident 14 Day Sport Fishing License		$105.00
Nonresident Annual Sport Fishing License		$145.00
Nonresident Annual Hunting and Sport Fishing License		$305.00
Nonresident Annual Hunting and 1 Day Sport Fishing License		$185.00
Nonresident Annual Hunting and 3 Day Sport Fishing License		$205.00
Nonresident Annual Hunting and 7 Day Sport Fishing License		$230.00
Nonresident Annual Hunting and 14 Day Sport Fishing License		$265.00
Nonresident Annual Hunting		$160.00
Nonresident Annual Hunting and Trapping		$405.00
Nonresident Annual Hunting – Small Game only		$60.00
Nonresident Duplicate (replacement) License		$5.00

Figure 6 Alaska Department of Fish and Game Non-resident Sport Licensure Costs, 2018.

It is also worth noting that in these estimations permits are not required for resident anglers under 18 years of age or for non-resident anglers under 16 years of age (Alaska Department of Fish and Game Sport Data, 2017). This demographic makes up a substantial amount of the sport angler population, and is largely unreported, meaning that their overall impact is unknown and unquantifiable under current regulations (Carson and Hanneman, 2009).

Despite the massive number of visiting sport fishermen, adults and youths alike, the sport fishery in Alaska appears to be in fantastic shape. Lack of participant data does not seem to present itself as an issue when the health of fish and various watersheds can speak for themselves. The recorded sport fishery itself however, is operated almost entirely artificially.

ADF&G has two large scale sport hatcheries that produce up to 12 million fish annually; the William Jack Hernandez Sport Fish Hatchery in Anchorage, and the Ruth Burnett Sport Fish Hatchery in Fairbanks (Alaska Department of Fish and Game Sport Data, 2017). These hatcheries are located specifically to support population and genetic diversity in areas closed to subsistence activity based on their designation as 'urban' under state management. These 'urban'

population centers do not extend subsistence rights to residents, although they are permitted to participate in sport harvest. Urban areas are considered to provide sufficient access to other sources of food and services, rendering the 'need' for subsistence obsolete.

This of course does not consider the indelible fact that subsistence activity, especially concerning fishing, is of paramount cultural importance to the Aleut and other indigenous groups in Alaska. Further investigation into the stocking plan for both hatcheries reveals that they target lakes and ponds with triploid fish (sterile) and place other fish in the waterways closest to these more urban (by Alaska's standards) areas (Alaska Department of Fish and Game Sport Data, 2017). This, in itself, has proven to be a successful campaign notably increasing the bio-diversity of stocked regions and has supported the health the indigenous fish population. Since stocking occurs in more easily accessible areas (Anchorage, Fairbanks, Juneau, and Ketchikan) they bear the burden of most of the visiting anglers. In response to this it is logical to bolster the fishery against exploitation via sport usage by target. However, 25% of the funding for both sport hatcheries comes from sport license sales (Alaska Department of Fish and Game Sport Data, 2017), meaning that purchase of the appropriate fishing permit for non-resident anglers who are not fishing in a stocked area, are not directly supporting the area in which they are fishing.

User groups within the focus communities display limited concern regarding issues like this. A prominent figure within the Cold Bay and King Cove communities remarked, "We love all fishermen! There's plenty of fish to go around" (Pers. Comm. Cold Bay, March 2018). The more remote the location, the less worry regarding the potential for negative impacts that fishermen or other visitors may have on the ecosystem (Pers. Comm. Anchorage, December 2017). Furthermore, it is concerning that permit sales represent yet another example of resource benefit displacement. I use this term to describe a problem that is prevalent in the lower part of

the Alaska Peninsula and the Aleutian Islands. As resource rich areas they invite extraction and consumption, but the small villages themselves are rarely direct beneficiaries of the cash economies comprising most commercial fishing. This is not to say that their marine resources do not support them, but that the vast majority of the monetary benefit coming from finfish and shellfish harvested there goes to line the coffers of outside interests (Freeman, 2000).

Fishing is ubiquitous in Aleut communities and plays a central role in personal and cultural identity. Given this, many indigenous Alaskans view sport fishing as a patently ridiculous use of time particularly if it occurs inland instead of on a charter boat and does not directly result in food on the table (Pers. comm. March 2017). In truth it is not uncommon for sport anglers to harvest fish, although whether that constitutes subsistence activity performed within sport regulations would be situationally dependent. This same disconnect inherent in emic vs. etic perspectives is an inhibitor to the potential that the sport fishing could offer small villages, both in terms of economy and social stability.

The actual number of outfitters for guided fishing excursions in Alaska far surpasses the number that can be readily identified in an at-home internet search. By all appearances and testimonies, many successful operations rely almost exclusively on travel advisors and word-of-mouth recommendations for their clientele (George Weaver pers. comm. December 2017). Data made available by Alaska's Department of Fish and Game website reveals that ADF&G is potentially only aware of the most successful outfitters on the Alaska Peninsula, specifically those in the easternmost part, closest to mainland Alaska. Correspondingly, ADF&G's data on such matters is compiled from the sources that they have identified, implying that their data does not convey the full scope of the cumulative sport fishing industry. Per Alaska's recreational use management scheme, the south-central region is partitioned into three sectors: Kodiak, Alaska

Peninsula, and Aleutians. This is further specified as a remote area because it exists almost entirely outside the extent of the federal and state road system. Kodiak receives the most recreational pressure, therefore demanding ADF&G's main focus. Unfortunately that translates to a lack of reliable data concerning the other two sectors. Published data available to sport anglers reports the types of fish present in the area and their specific seasonality indicates that King Salmon return rates to the freshwater regions there are relatively low, and states that little is known about the abundance or usage of Rainbow and Steelhead populations. They are referred to as "some of the most remote, and less fished" (ADF&G, 2018).

Sport fishing as an emerging industry is having a continued role within the AEB, and offers many adaptive parallels to the Aleut's incorporation of commercial harvest with subsistence. Alaska has been well-known to anglers for decades, but the recent surge in sport fishing as a competitive and prestige signaling activity has presented new occupational realms. Outfitters and guiding operations are widespread across North America and rapidly increasing in other areas of the world attempting to incorporate ecotourism as a sustainable facet aspect of their regional economies. Mainland Alaska and the areas which ADF&G targets with their stocking efforts offer a multitude of sport fishing opportunities from complete luxury to self-guided excursions. The focus communities are located in what is referred to as the Area M fishery, and the first location to experience salmon runs as they return from the ocean. To capitalize on this fishing opportunity there are two officially operated guide services. Aleutian Adventures, operated by the Aleutian Pribilof Islands Community Development Association (APICDA) is locally owned and operated by indigenous residents. The other, the Hoodoo Lodge, is operated by an outside owner and conducts business nearly entirely sealed off from the local communities and residents.

CHAPTER FOUR

THE ROLE OF SALMON IN ALEUTIANS EAST COMMUNITIES

This thesis was constructed as a tangential personal research goal during participation in the ongoing data collection project for the Office of Subsistence Management on "*Western Gulf of Alaska Salmon and Other Harvests on Federal Lands and Waters".* Data produced from that has been invaluable in providing community specific insight into the role of subsistence in the Alaska Peninsula, as well as indicating the many factors that influence the human relationship with fish. Data collected regarding salmon interaction was compiled to describe local sharing networks and how they directly relate to community resiliency. Almost every household interviewed within the focus communities actively participated in subsistence, and every household listed salmon specifically as a top wild food.

Within the villages of Cold Bay, King Cove, Nelson Lagoon, and Sand Point, community structure is deeply rooted in sharing and reciprocity, fueled in large proportion by exchange of salmon. As an understudied area, general perceptions of the salmon fishery have connotations amongst neoliberal agendas in a global market, or regarding conservation and sustainability. For residents of these communities, these thoughts are part of one elaborate system which creates their individual fishing communities. Some studies have questioned the relevance of coastal fishing communities as they contend with the commercialization of their traditional resources. These communities however, make it clear that sense of community still exists and constitutes *the* relevant social cohesion structure. Demonstrably in the Alaska Peninsula and particularly within the Aleut culture, community is constructed by socially maintained expectations of sharing and reciprocity centered around the distribution of salmon. Participating in this network

is not limited to only to acquisition and giving of fish, but often involves an exchange of labor followed by a multilevel redistribution of the resultant fish items. As an example, one man in King Cove had retired from commercial fishing and was dependent on the generosity of others in the community to keep his freezer and pantry adequately stocked to provide for him and his wife. As elders in the community they were recipients of many varied small quantities of wild resources. As net receivers of wild foods, they became altruistic re-distributors through the time they spent reprocessing those items to give away in turn. Salmon that they received re-entered the network as fish pie for community functions. In the same fashion, resources such as gathered berries were dropped off to them for jelly and jam processing that others could not afford to commit time to. The exchange involved resource acquisition for labor and helped to maintain a community relationship with individuals who were not primary subsistence harvesters.

Households surveyed in every community remarked that a limiting factor in the proportion of wild resources they consumed was time. The continually increasing competition in commercial fishing has resulted in more time and energy spent fishing, less time at home, and therefore less available time to process wild foods for sharing and/or long term storage. The volatility of seasonal salmon abundance means that it is difficult to plan ahead for times of food scarcity, making secondary subsistence activity such as canning, jarring, pickling, and drying of ever growing importance. While this reinforces community members' dependency on each other, it also disperses the efficacy of providing adequate food resources to each community member.

To compensate for this many families have experienced an increased dependence on purchased food items. The relative remoteness of the Alaska Peninsula causes inflation of the price of imported items causing resource stress and altered financial dynamics. Within the

households interviewed, grocery items constituted the largest percentage of household expenses, rivaling or even outcompeting rent and mortgage costs.

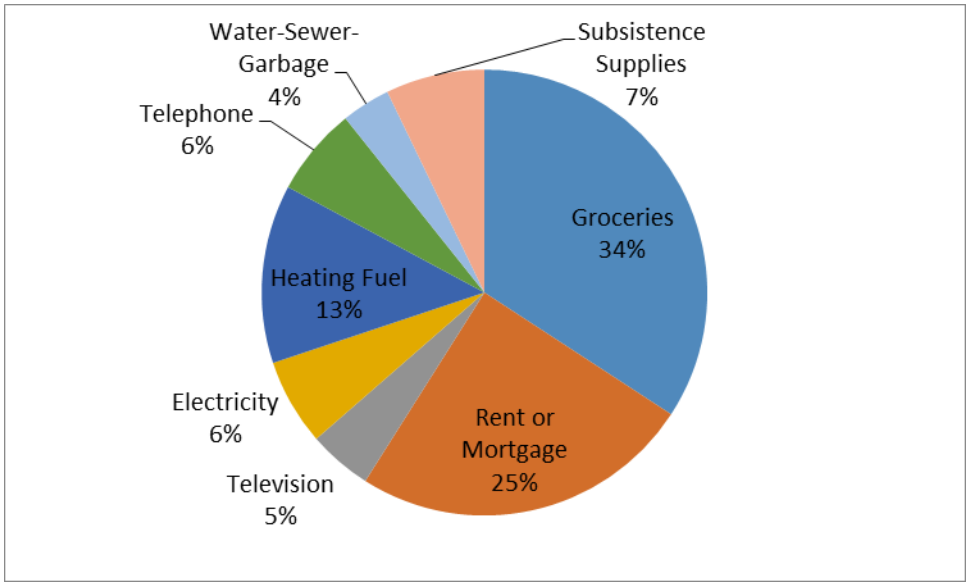


Figure 8 Relative Percentages of Household Expenses, Sand Point 2017 (Reedy 2019).

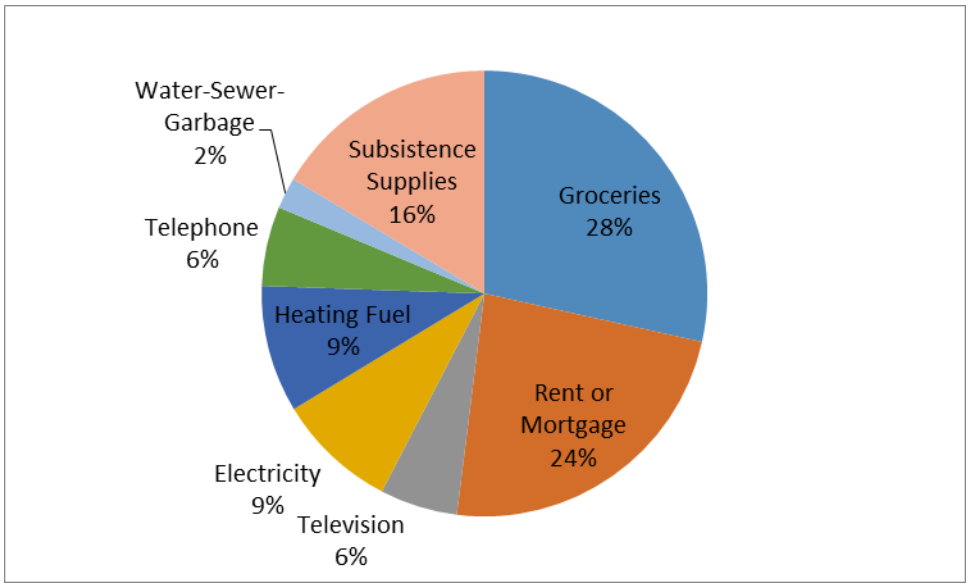


Figure 9 Relative Percentages of Household Expenses, King Cove 2018 (Reedy 2019).

One woman in Sand Point said, "I only get avocados on my birthday" because they were so prohibitively expensive that they had become special occasion items. Many other grocery

items taken for granted in the Lower 48 States display similar cost restrictions. Delicate items such as chips and eggs take space and care in shipping. Personal field notes from King Cove recorded a single bag of potato chips costing over $11.00. Other more perishable items are also expensive because they demand a delivery schedule that cannot always contend with late orders or inclement weather preventing a shipment from dock. A household in Sand Point reported intentionally skipping meals to give preference to the nutrition of dependents. Having recently lost the male head of household, the mother of three was dependent on wild resources shared from the community to supplement the food resources that they usually had from her husband's commercial fishing take. His loss of income meant that items which were typically purchased were no longer attainable and put pressure on the eldest son (15 years old) to contribute a commercial fishing income to the family.

Young individuals and families are an essential part to the continued existence of small coastal fishing villages across the Alaska Peninsula. Representing the next generation of subsistence and commercial fishers, it is important that young people have viable opportunities for the future to remain in their home villages. They are also a primary reason for access to or loss of community services. Population trends in the AEB have been closely related to school closures, infrastructure loss, and cost of living (Figure x). Communities that cannot maintain a minimum student enrollment or afford to subsidize it from local funds may lose their school and subsequently the families with children are faced with outmigration. Smaller communities have been periodically absorbed by larger ones in response to school closures or the need for fish processing infrastructure to support their commercial work. Nelson Lagoon is one such community threatened by the loss of their school in 2015, as well as the by the disadvantage of

not having a local fish processing plant. Cold Bay has experienced similar population difficulty but persists as the regional travel hub.

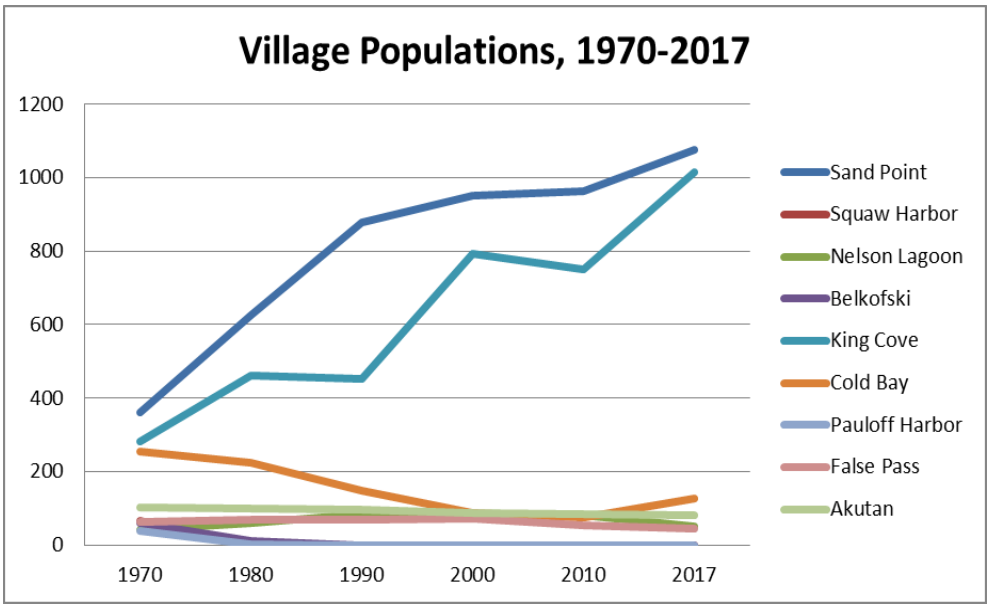


Figure 10 Village Populations, 1970-2017.

Communities are heavily reliant on fish processors and in King Cove and Nelson Lagoon rural population centers have evolved around them. Data shows that in addition to school trends, population in rural villages are partially dictated by the proximity to a processor/distributor allowing local fishermen to sell their catch into a market economy. Without these facilities most local fishermen would be unable to reasonably distribute their catch, not having the equipment to store fish or the range required to deliver them elsewhere. Two major corporations operate six facilities in the AEB (Figure 12) (Reedy 2019). These facilities constitute a necessary middle step between fishermen and making wild caught Alaskan fish available to consumers. Additionally, each facility represents primary employer in the villages where they are present, employing both local residents as tenderers and laborers as well as a pool of transient and

migrant laborers. Despite the convenience of local fish processors most local fishermen find themselves at a disadvantage in competing with other commercial fishermen.

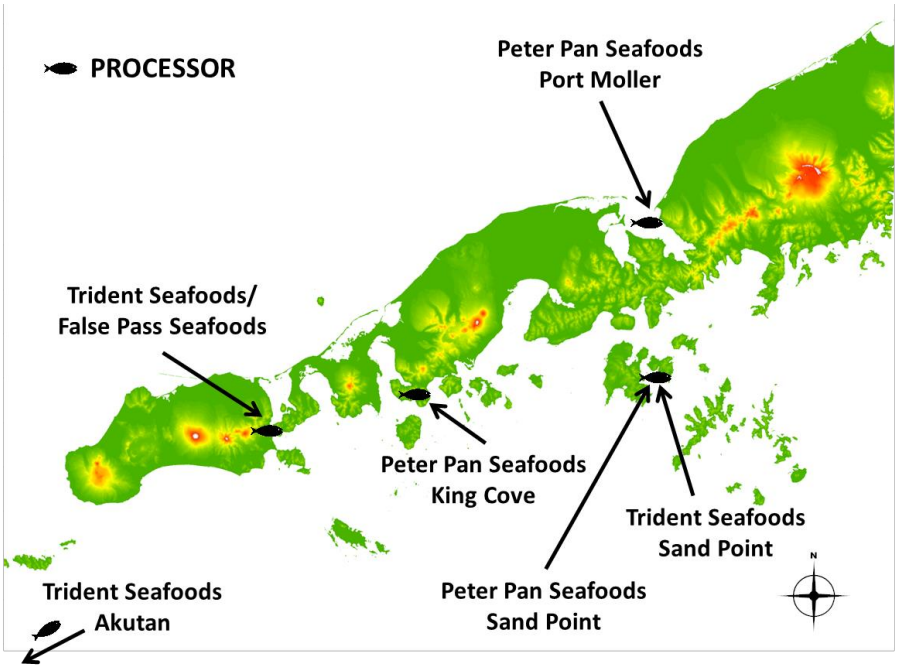


Figure 11 Fish Processors in the Aleutians East Borough (Reedy 2019).

Fishermen are competing with each other on all levels. Locally, fishermen enjoy competition for bragging rights and prestige. More significantly however, many fishermen in the AEB are competing for permits to participate in commercial fishing at all. This has very serious consequences for fishermen extending beyond their livelihood. The majority of subsistence harvests in these communities occur in the context of commercial fishing (Reedy-Maschner 2010). Restrictions in the commercial fishing sector translate directly to restrictions on subsistence harvest, resulting in a twofold loss for fishermen, their families, and by extension their communities. Difficulty in overcoming financial and social barriers to acquire fishing permits in Alaska has led to an aging fleet, disproportionately impacting small rural villages (Donkersloot & Carothers 2016; Reedy 2019). State management adopted Limited Entry in an

attempt to bolster community based fishing operations and prevent permits from being sold to outside interests. Much like the user groups defined in chapter one, Limited Entry divides Area M salmon permits into three categories; Aleut, Local, and Other. Operation costs and living expenses in the AEB have limited local fishermen's ability to expand their operations, and many have been unable to contend with the new equipment that more affluent permit holders can afford to use. Figure 13 shows how the number of permits in 1975 favored the indigenous population, but that socioeconomic disparities between groups has led to a competitive intersection between Aleut fishermen and outsiders since the early 2000's.

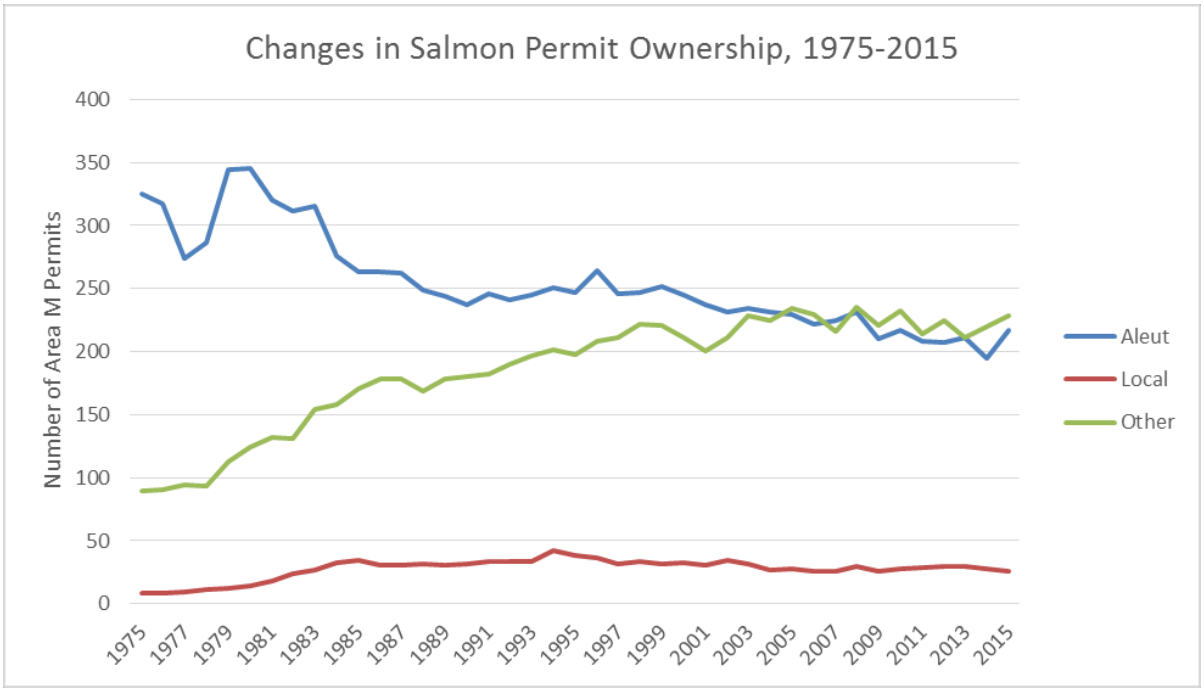


Figure 12 Changes in salmon permit ownership in Area M, 1975-2015 (Reedy 2019).

During a survey interview in King Cove, one man said that the boat in his yard, "wasn't worth selling because it was outdated." His inability to update his boat with modern conveniences and compliant equipment was a contributor to his decision to leave commercial

fishing. He decided to keep the boat on hand and sell parts as a more lucrative form of liquidation over selling the boat as a unit. A part time mechanic in King Cove would purchase parts from boats like this to fix boats temporarily while fishermen waited for parts to be shipped in or so that they could manage the broken boat to a larger harbor with more resources. These are small and short term financial options for those fishermen who have been unable to maintain their fishing operations as expenses steadily increased and fish prices fluctuated. These same processes have been exclusionary to new and young entrants to commercial salmon fishing, demographic groups which each community desperately needs. Despite the dwindling access to permits, the drive and desire for Native and local residents to obtain and maintain them is high. Young men and women regularly aspire to partake in commercial fishing following in a family member's path or sometimes reviving a family fishing tradition after loss of permits, vessels, or crew. Due to the high entrance and maintenance costs of commercial fishing, most fishermen have diversified their target species to be actively harvesting year round. This is ideal for maintaining a seasonal income, as well as for providing subsistence fishing opportunities. Other common commercial pursuits include pollock, Pacific cod, opilio crab, red king crab, and the much sought after halibut charter.

Of the salmon species, sockeye represent the most desirable and fortunately some of the most prevalent fish. Survey respondents show a clear preference for sockeye over other types of salmon for its taste and versatility among long term storage methods. Survey respondents regularly commented that they "wanted more reds", saying that they could never have enough. In recent years the fluctuations in sockeye stock have been somewhat unpredictable leading AEB residents to exhibit stockpiling tendencies as protection for resource scarcity. This is a response

to subsistence need and does not address the corresponding financial hardship resulting from a poor salmon season.

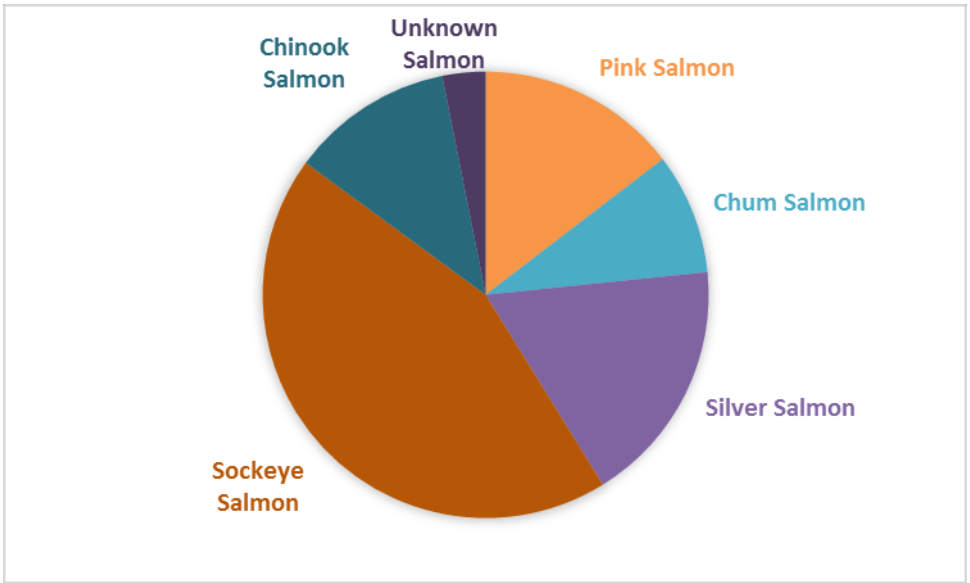


Figure 13 Relative Salmon Subsistence Harvests, Sand Point, 2017.

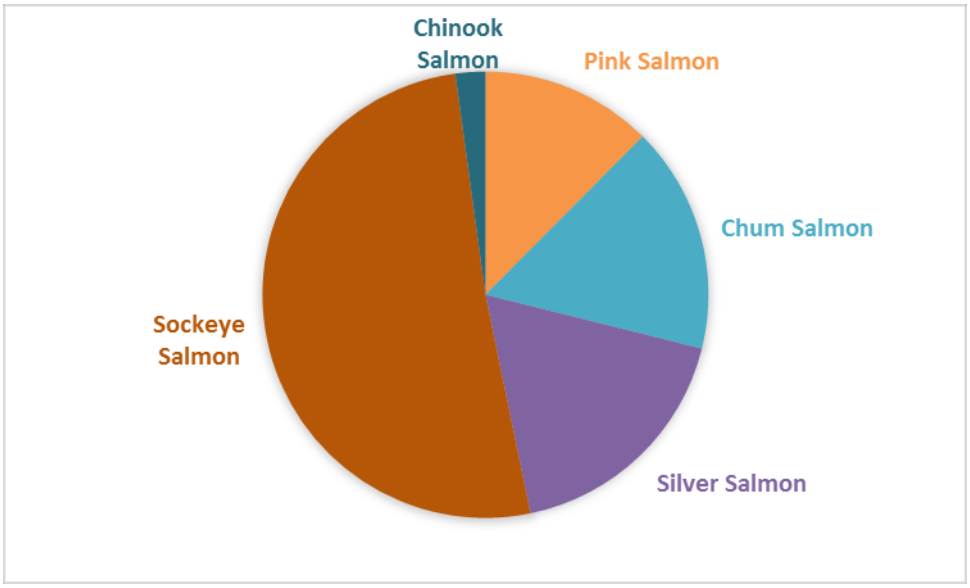


Figure 14 Relative Salmon Subsistence Harvests, King Cove, 2018.

In addition to the threats posed to subsistence via mixed commercial fisheries management, it is important to note that the idea of subsistence and traditional lifeways are threatened by the terminology that has been used to describe such activity. Subsistence and traditional use are contestable terms to salmon users of an etic perspective (Morrow & Hensel, 1999), situationally negotiable in ways that leave them open to interpretation to anyone and everyone. This means that their definitions and use can be cherry picked to support whichever agenda seeks to incorporate them as buzzwords in their favor (Cruikshank 2001). To those that practice subsistence, these are not contestable but understood. The disconnect between a population that internalizes ideas of subsistence across and throughout their experience versus one which finds subsistence interruptive to capitalistic ideas of resource consumption is the primary reason for having officially codified these terms in the state of Alaska. While this guarantees the formal observation of subsistence, it also dictates firm boundaries and conditions for it, in stark contrast to the realities of maintaining a close relationship wild foods in a fluctuating environment. Policy employed in this way promotes an *us vs. them* mentality from all perspectives and instigates further dissension between those with subsistence rights and those who depend on the same resources to provide for them in an economic sense (Morrow & Hensel 1992).

Extensive ethnographic research in the area (Maschner and Reedy-Maschner 2005; Reedy-Maschner 2009; Reedy-Maschner 2013; Reedy-Maschner 2010; Reedy 2016; Reedy 2018; Reedy 2018) has demonstrated that commercial and subsistence fisheries are critical parts of the structure and function of the communities in the AEB, including Cold Bay, King Cove, Nelson Lagoon and Sand Point. These studies also demonstrate frequent and vast sharing networks, indicating that they are a valuable tool in understanding the vulnerability and

resilience of these communities and of the region as a whole (Reedy, 2019). Implicated in every social, economic, and environmental process is the human dependence on salmon. The many factors exerting pressures on the success of mixed commercial and subsistence fishing in the AEB lend themselves to theoretical frameworks outlining the viability of communities and their ability to foster a viable relationship with their natural resources. In this case it is not only the local population vying for access to and use of natural resources. The varied user groups must cope (short-term solutions), and adapt (long-term solutions) to overcome disparities between them (Berkes & Nayak, 2018). The shared values and sense of community in these villages have empowered their continued relevance to coastal fisheries and management.

CHAPTER FIVE

DATA and TALES FROM THE FIELD

USER GROUP INTERACTIONS and THE ROAD

Acknowledging the specific history of the Cold Bay, King Cove, and Nelson Lagoon area is essential to clarifying community specific identities and network contributions, as well as demonstrating the deep history between people and salmon as a natural resource. The Native Alaskan and local populations exhibit dependence on fish to construct and uphold their social networks, as a food resource, as their main economic income source, and as a pillar of the local ecosystem. The usage intent for salmon is so varied within and across user groups that their interests often intersect, dictating the strengths and weaknesses of their interactions. Certainly, across all user groups is a common understanding of salmon as essential to existence in all of the focus communities, though the manner and means by which each group exert that is as variable as their reasons for doing so.

This chapter serves to present and analyze the sport specific field data collected informing us of the salmon user group relationships and networks. These data, in conjunction with the theoretical frameworks outlined for interpretation, aids in compiling a holistic view of the social ecological system comprised by human-human and human-fish interactions. Bearing in mind the user groups identified in chapter one (Local Communities, Local Subsistence Users, Locally Owned Fishing Operations, Outside Owned Fishing Operations, and Fish) this chapter will provide specific examples of user group interactions and the processes contributing to their tenor. From this, it is possible to forecast ways in which small behavioral alterations may

strengthen relationships and create resilience as a more united group mutually invested in the success of salmon.

What follows are a series of interview and field note excerpts which exemplify how the salmon user groups are experiencing resource conflicts due to power differential relationships. Discussions of the conditions which created those relationship parameters will help to reveal vulnerabilities that might be addressed for more positive and resilient relationships in the future. Many of the following assessments will stem from what is perhaps the most dichotomous and starkly defined human-human relationship in this system - that between the local and outsider-owned fishing operations. Following this key relationship characterization are three separate cases providing insight into the real-life experiences caused by the ripple effect of local vs. outsider. To close, this chapter will elaborate on an impending development which may have a profound influence on the social system.

LOCAL vs. OUTSIDER (US vs. THEM)

The discussion of local vs. outsider-owned fishing operations can be focused specifically to two entities which embody the identities and interests of each user group. This particularly dichotomous user relationship contributes to instabilities between all users as a source of unresolved contention. Difference in salmon resource utility and perspectives between user groups perpetuate hierarchical power and solidify sociocultural vulnerability among them. There are two primary outfitter/guide operations supporting the sport fishery within the focus area. The Aleutian Adventures service, owned and operated by the Aleutian Pribilof Islands Community Development Association (APICDA) Joint Ventures branch, represents the ‘locally owned fishing operation’. Conversely the ‘outside owned fishing operation’ is represented by the

Hoodoo Lodge. Each outfitter operates multiple use lodges and camps throughout the peninsula. Aleutian Adventures operates the Sandy River Lodge as well as a seasonal camp on the Sapsuk River. The Hoodoo Lodge operates from their home base with a variety of small lake and river camps in the area. These are the primary sport fishing outfitters, among other guided hunting services. Cold Bay Adventures caters mostly to waterfowl hunters, while the Bear Lake Lodge is used primarily for big game hunters.

Aleutian Adventures operated by APICDA Joint Ventures has been an important investment for the local culture. APICDA, though not universally popular, aims to support programs that emphasize a continued cultural relationship with fishing throughout their AEB communities. Aleutian Adventures operates a fishing camp on the Sapsuk River, a fishing lodge on the Sandy River, and a remote island camp for reindeer hunting on Umnak Island (Pers. comm. Angel Drobnika, December 2017). The Sandy River lodge has only been recently

acquired. Previously belonging to long time Nelson Lagoon resident Mel Gillis, APICDA seized the opportunity of his retirement to purchase the lodge and take over its regular operation. This has been a relatively seamless transition for APICDA as the lodge had regular return of customers and a positive reputation that they have been able to maintain since May 2017 (Pers. comm. Ernie Weiss, December 2017). Aleutian Adventures embody an experience closer to the environment, mirroring the near reverent ethos surrounding fishing in the AEB. Anglers arrive to Nelson Lagoon via small bush planes, but are likely to have travelled first to Cold Bay. Sports are then ferried though the community on their way to the lodge or more remote fishing camps.

The Hoodoo Lodge, which is located outside Nelson Lagoon, represents something of a competitive entity to the two Native owned Aleutian Adventures outfits. The Hoodoo Lodge, owned and operated by an outside entity has enjoyed tremendous success at offering a high-level fishing experience, commonly referred to as the "Salmon Grand Slam" in which an angler may catch all five salmon species in a single trip. In addition to promising guaranteed fishing success, the lodge itself boasts a luxurious and amenity rich experience, limiting the "roughing it" usually necessary in an untamed Alaska wilderness. Sports can expect their hours on the river to be meticulously orchestrated and tended by guides so as to maximize their fishing time and potential. Guides are expected to direct, offer expertise, and tend tirelessly to anglers' gear in between preparing indulgent riverside meals and services. Numerous blog-type testimonies of the ease and quality of experience at the Hoodoo can be found on the web without much difficulty. Among these participants are groups of high socioeconomic status elsewhere in the world, eager to boast their fishing prowess and entitled access.

This, it appears, is one of the main issues contributing the disparate outfitter options available to sport fishermen in the Cold Bay, King Cove, Nelson Lagoon Area. The starkly

different experience offered by local guides and outside operators lends advantage to the success of the outsider over locals. This dichotomy is derived in large part from the standard of luxury and accommodations each has at their disposal to provide to sports. Using the Hoodoo Lodge in the Nelson Lagoon area as the example, initial access to investment capital allowed for the creation of an experience that is entirely self-reliant and contained. Sport fishermen are flown directly to the lodge from Anchorage via personal charter utilizing the controversial private airstrip. The Hoodoo Lodge itself looks much like an après ski hangout. Dressed in knotted pine, the interior has space for anglers to hang up their waders and boots to dry before entrance into a vaulted living space complete with full bar. The Aleutian Adventures locations offer similar services and comforts but on a more modest scale.

The relationship between the Hoodoo Lodge, Aleutian Adventures and the local communities has been reported as somewhat contentious, largely due to the means by which land was acquired for the lodge. The parcel was purchased from a Native family from Nelson Lagoon, which is a controversial mode of real estate exchange following the Alaska Native Claims Settlement Act which allocated traditional lands back to the Native population, including privately owned allotments. Following the purchase, lodge owners immediately began excavation and construction of a runway for small planes chartering sport fishermen from Anchorage directly to the lodge, bypassing the communities. As this event occurred on private property, most of what is 'known' about it comes from informal discussions with local residents. Despite the lack of official record on the topic, the chronology was corroborated by enough people that it lends itself to verification of negative outcomes. Among them was an incident caused by construction of the runway, which churned up significant archaeological artifacts. These sites and their mitigation became the subject of ISU investigation by a team of

archaeologists (Benson 2017). Although now technically the property of outsiders who own the land, this constituted a major disturbance of context, damaging invaluable material culture of the Aleut community's past. This lack of consideration for local culture by the land owner and a rushed archaeological mitigation project (although thorough and respectful of Nelson Lagoon's concerns) was a poor way to begin a relationship with the existing user groups. Since that point it seems that relations between the locals and the Hoodoo Lodge have improved, though that itself has been presented as professional necessity.

The success that fishing operations has enjoyed have not led to much direct competition with the Hoodoo Lodge as they are operating at their maximum capacity for each fishing season. APICDA employees remarked that there was little concern for the impact that sport fishing had on the Sapsuk or Sandy Rivers because it was still such a remote place that required time, money, bear protection, and tenacity to visit. Mainland Alaska has many more accessible areas to fish recreationally, and the idea of people finding their way to the Sapsuk or Sandy to fish without a guide was laughable. The APICDA operation in Nelson Lagoon is said to serve approximately 7-8 guests at a time, each individual staying for an average of 5-7 days. The Hoodoo has a similar capacity. The Hoodoo uses local resources to directly benefit their operation which is owned by a non-resident and non-Native. The APICDA lodge was an effort to diversify community development opportunities, and benefit the community and borough as a whole. This is an important consideration when comparing the interactions that visiting sport fishermen may or may not have with local communities. In one instance sport fishermen are completely sealed off from the communities that depend on the salmon that they are vying for. In the case of Aleutian Adventures, sports have spent considerable time in the village, creating

opportunities to explore and create positive and potentially enduring relationships within the community.

Drawing on Ferguson's work with corporations in rural Africa, we see how the introduction of privately owned infrastructure limits local and outsider interactions. This is dually concerning because it creates a closed system for anglers to participate in sport fishing with outside operations, and means that local services and infrastructure are not being supported by each visitor to the area. This has already been described as an issue considering sport fishing licensure, which disproportionately benefits small areas of Alaska rather than directly contributing to the ecosystems that anglers are interacting with. Cold Bay, as the transportation hub in this region, also commands much of the tourism economy. Altering visitor use by offering personal charters from larger airports means the loss of that income and subsequently a reduction in operations/flights from Cold Bay. As a community Cold Bay is estimated to host approximately 1000 visitors each year for guided fishing and/or hunting, wildlife observation, or other naturalist pursuits (Reedy, 2019). At present there is very little intensive advertisement depicting the recreational opportunities available to visitors in the AEB, meaning that tourism is fostered mostly by word of mouth and return users. Limiting visitors' experience of the focus area by keeping them separate from the local communities does a disservice to the local economy as well as to the interpretation tourists take away from the area. It is important to integrate the user group experiences and increase positive contact so that they can be cooperative rather than hostile during overlap of resource use.

This visiting vacuum enabled by the outsider operation also promotes exclusivity of services, an option sought by the socioeconomic elite. This also contributes to perpetuating an 'us vs. them' mentality through exclusion in modes of access to common pool resources. These

disjointed ideas of resource access and use fuel conflict, which can result in outward aggression between groups or excessively consumptive behavior of the resource (salmon). In any case, contention between these two groups has a ripple effect throughout the other user groups, promoting a relationship with salmon that demands choosing a side in the social ideology.

This interaction is important and is two-directional. Anglers paying for guided services are a powerful user group with limited interaction with the salmon fishery. As such, they represent a vulnerability to both the human-fish, and human-human relationships in the focus area. Cultivating positive relationships with visiting anglers has a far reaching benefit potential. The common ground between the user groups here is salmon, and it is important that all users are able to express expectations of one another concerning salmon viability. Visiting anglers come from so many places far and wide, that they are an excellent way to increase the broader understanding of how salmon contribute to the success of the local people. In this way, the fish are not just valuable in cash economies, but as the focal point for promoting a regional identity to the world. This helps empower local user groups, strengthening their share of influence over the use of their natural resources.

The power and access distribution at present, however, puts local users at a disadvantage to reach a wider audience with their culture. As sport fishing continues to increase in popularity causing areas like King Cove and Nelson Lagoon to be discovered and shared, communities need to be prepared to deal with their new visitors. Aleutian Adventures is akin to an all-inclusive vacation packaging travel, lodging, and most accommodations conveniently together. This ability to simplify planning for visitors adds to the perceived level of prestige for participants. When spending $1000-$2000 a day for a fishing vacation, anglers will capitalize on ‘bang for their buck.’ In order to be competitive with highbrow offerings of outside owned operations, the

local user groups must expand their potential to meet growing demand. Aleutian Adventures had financial and implementation support of APICDA Joint Ventures, and still have only expanded slowly. For other local groups, the barriers to participation are even greater.

Most individuals available for interview in King Cove were either retired or the second head of household. In a spontaneous interview, I was able to talk with a group of young people all fortuitously home for lunch from dock work. The following depiction of that interview is taken from field notes and a particularly robust contribution to the sport survey which demonstrates the locally perceived barriers to engagement with sport fishing.

> Today Bryan [fellow student and research assistant] and I interviewed a house full of young adults, which led to a great conversation about their involvement with sport fishing and hunting in their community. The household consisted of a two boyfriend-girlfriend couples and a male friend of similar age. Halfway through the interview two other older men joined the discussion - they were transient to the household, a family member and friend. Getting over last night's hangover even though the others were home from work for a late lunch. This was the largest interview I'd done so it was nice to have help, especially since they had so much to say about their experience with guiding as an alternate source of income. One had actually spent a summer in Washington with a family member who was a fishing guide. He helped him with small tasks on guided trips, for which he was paid but under the table. At the time he was underage and a non-resident, so he couldn't formally participate - he didn't know even if he had a fishing license or if it was necessary in that situation. Years later he opportunistically guided bear hunts for friends of a friend who were visiting from out of state. He did this informally

too, but said he was paid $300 a day. I didn't want to ask directly if he knew that that was a deal for the hunters, but he seemed to feel that it was adequate compensation. South Fork guides [Snake River Plain, Idaho] make up to $600 a day per sport, plus tip. I asked him why he hadn't continued to do this since the money was good and it was fairly low impact on him in contrast to working on a crab boat. His first concern was finding sports to hire him. The guiding that he did was requested of him as a favor, not something he sought out. He didn't think that he could reasonably compete with the outfitters in the area because they had reputations, supplies, advertising, etc. He was also unsure of where he would have to start to be properly permitted and licensed to be a 'guide'. Since his commercial fishing job and subsistence was important to him he worried that advertising himself as a guide without knowing if he was totally legal, might get him in trouble or limit his subsistence rights in some way. It was hard not to continue the conversation in a way that offered support or even information on the 'right' way to approach this potential that he knew was there but didn't feel like he could pull off. He felt like he would need a role model/example from someone else who guides, so that he could get started. Even if that came to fruition he said he would still want to fish commercially because it's so lucrative, but that he liked the idea of a secondary income.

As has been described, there are a great variety of user groups interacting with each other all while exerting their own unique pressures over salmon. If this is illustrated to indicate directional pressure, one would note that salmon give a great deal to their human counterparts, but may not be receiving such similar support in return. Jentoft argues that in order for a fishery to be viable, the communities that depend on them must also be, and must do so ahead of fish which are self-regulatory without human interference. Essentially what this indicates is that a

'community'; which in this instance refers to the cumulative interaction of all user groups; must be stable from within or risk damage to their common resource. Evoking Hardin's "Tragedy of the Commons", internal discord among users regarding the shared resource results in resource instability and structural vulnerability, expressed as a hierarchy of power and access. In commercial fisheries similar relationships on a larger scale have been mitigated by regimes including co-management and place based management, both of which call for active participation of local user groups, thereby shifting power toward a more proportional distribution.

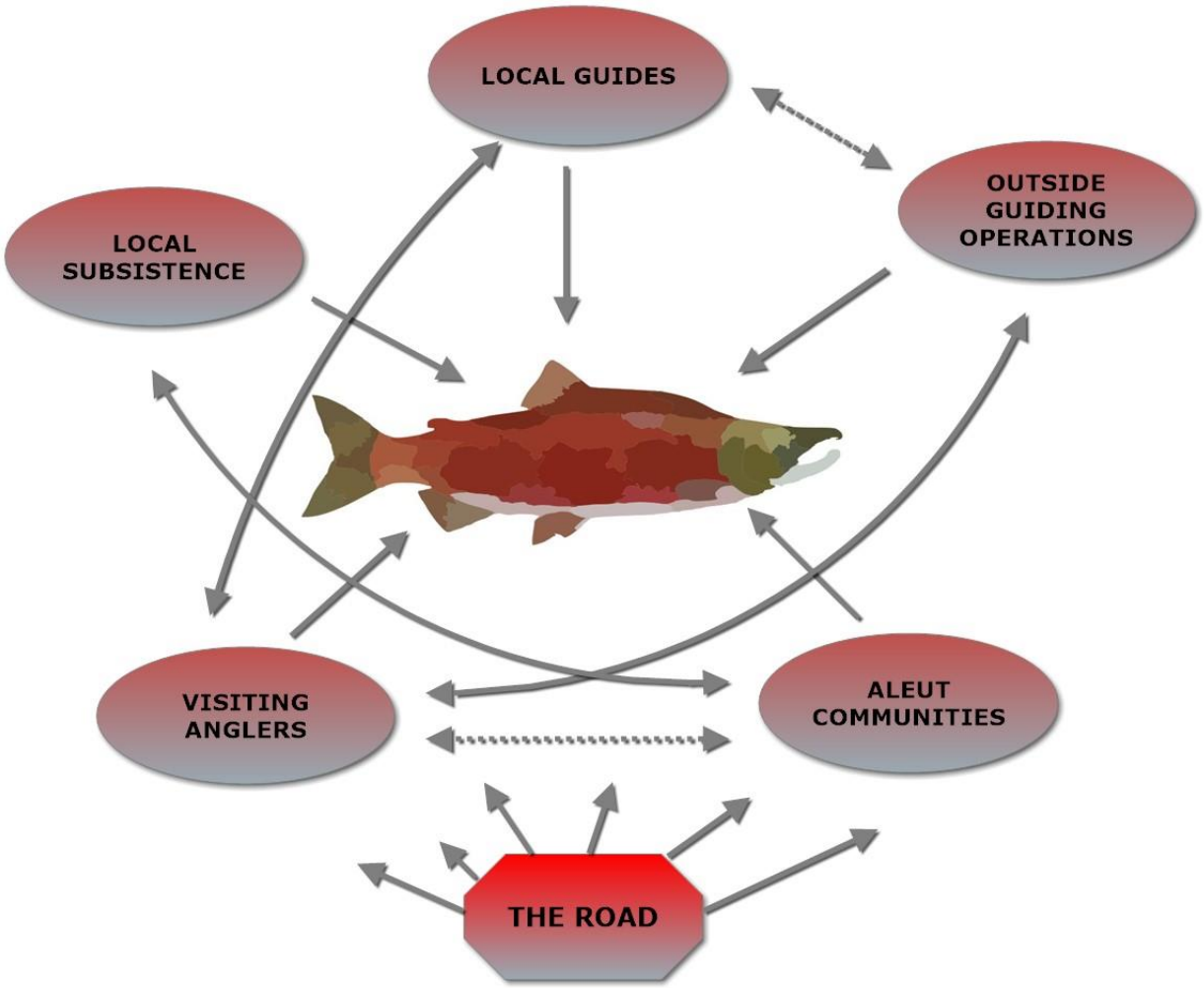


Figure 16 Schema of Interactions and Dependencies.

Management schemes and enforcement employed on a local scale evoke romanticized ideologies of stewardship. While this may work on a theoretical basis it is less successful as a real world application despite its obvious appeal and potential. Using local vs. outsider sport operations as the continuing example, it is clear that lack of exposure to local culture has a profound impact on the behavior of visitors to the Alaska Peninsula area. A discussion surrounding wanton waste of fish and game was one of the most concerning indicators of user group instabilities. While the following excerpt(s) from field notes deals with waterfowl rather than fishing, it represents a disconnect in local vs. outsider mentalities that must be addressed.

> We arrived in Cold Bay at about 12:30PM. A nice guy named [name removed] called the Inn for us to request that the owner come get Kiley and I and our luggage. He showed up in a white minivan and drove us what turned out to be about 100 yards to the Inn. He was chivalrous, bringing our luggage inside and having us each choose a room where he deposited our things. The Inn is also part of the same building as the local store and the bar.
>
> Kiley and I are in Cold Bay alone until Monday. We've been told that the store and bar will be closed until then and that there are approximately 10-12 people in town at the moment. We've already met about half of them, so we're a bit worried about having enough survey work to keep us busy until we get to King Cove on Monday morning. There weren't enough seats on the plane to King Cove today for our whole team, so we're the obvious candidates to stay behind. We've been told that bears are in process of waking up from hibernation, so doing much exploring on foot isn't a good idea. We've

been assured that the Inn/store/bar is the hub of community activity even when they're technically closed, so we should be able to talk to a few people.

We talked to the Inn owners periodically over the weekend. They came in to check on us and take care of chores. [The man who drove us from the airport] said that Cold Bay, King Cove, and Nelson Lagoon all relied on seasonal income from tourists. He said that visitors are generally welcome, a mentality that seems to be part of the indigenous and regional culture in general. We both came around to talking to him about the sport fishing and hunting attraction to the area. He was generous and gregarious about this too, but was concerned about unsportsmanlike behavior among some visitors. He had had poor experiences with the local guiding operation taking sports on waterfowl hunts within KC, CB, NL and the IWR. Hunts guided by non-locals for visitors were not held to a high level of accountability because enforcement is nearly absent in such a remote area. He referred to this as an honor-system, which he said guides and sports regularly disregarded. Guides and dogs were known to flush birds in the direction of hunters, which is disruptive to many of the species that use the refuge as a resting place. Hunters would shoot whatever presented itself with little concern for species identification. Some species in the area are protected/at risk/endangered. Many birds were being left in the field. As an individual active in subsistence harvest and that understands the importance of natural resources to CB, KC, and NL, he was more upset by wasted game than the fact that animals were being targeted recreationally. Hoping to help mitigate this on a local level he approached guides and asked that they make a greater effort to recover birds. Whatever they or sports didn't want, he offered to take and distribute throughout the community(ies). This was well received but slow to work at first. Guides and sports did

not appropriately field dress birds and many arrived spoiled. This improved over time and birds were salvaged.

The State of Alaska expects that hunters will bring any edible meat back from the field and either take it home with them or distribute it to local communities. Neglect to do so is a misdemeanor, and certain offenses within this legal definition are subject to fines and/or the forfeiture of hunting and fishing licenses (Anchorage Daily News, 2015). The wanton waste law is described specially as, "a person (who) kill a big game animal or a species of wild fowl and fail intentionally, knowingly, recklessly, or with criminal negligence to salvage for human consumption the edible meat of the animal or fowl" (via Anchorage Daily News, 2015). This portrayal was a prime example of how different user groups may interact unexpectedly with common resources given a lack of communication or failure to cultivate positive relationships between them. In this instance, under Berkes and Nayak's evaluation of Jentoft's community parameters, this individual instituted a local innovation to solve a problem that political ecology and government management had not. In addition, this locally implemented solution represented a compromise between users that strengthened their relationship rather than damaging it. While this may not be a viable long term solution as the area plays host to an increasing number of visiting hunters and fishers, it does promote inter-community and inter-group continuity. The implications of this act of altruism transpired to have a far reaching effect within Cold Bay, King Cove, and even Nelson Lagoon. OSM survey interviews in King Cove revealed that this initiative had supported elders and families in need through times of financial hardship and food scarcity. Within the OSM surveys, this individual was listed as a person playing a vital role in the King Cove community, despite being a Cold Bay resident. This demonstrates the high regard

for and dependence on wild food sources, as well as indicating how closely interrelated communities in this area truly are.

In order to effectively create viable communities and viable salmon stock, it is important to identify vulnerabilities to the cooperation between users. Using that information, we can begin to construct a management scheme for people that is rigorous enough to be adaptable concurrent with unpredictability and factors which are less easily mitigated. Here, I refer directly to the road corridor agreement and the modes by which it has potential to alter the SES as we understand it presently in the focus communities.

THE ROAD: Adding a new 'user' to the system

Over the last 30 years, residents of King Cove have lobbied for a land exchange agreement that would allow them to connect their community to Cold Bay via an 11-12 mile road bisecting the Izembek National Wildlife Refuge. As previously discussed, the Izembek NWR provides haven to innumerable migratory sea birds, along with delicate ecosystems of plants and other resident animals such as large and small game, and of course, salmon. Without the support of the federal government, such an area could never house a formal roadway.

King Cove is well-located to keep residents relatively sheltered from inclement weather both in town and in the harbor. Despite this small area of respite, traveling to and from King Cove can be very difficult and often dangerous. There are no roads to King Cove. It is accessible only by air or sea, both of which are wholly weather dependent. As this region is subject to exceptionally violent winds and seas there are regular instances when there is no access or escape possible. This poses serious concerns for the residents of King Cove in terms of their ability to travel to and from their community as well how reliably supplies may arrive in harbor.

A high number of residents are demographically susceptible to requiring emergency services based on their age or physical health.

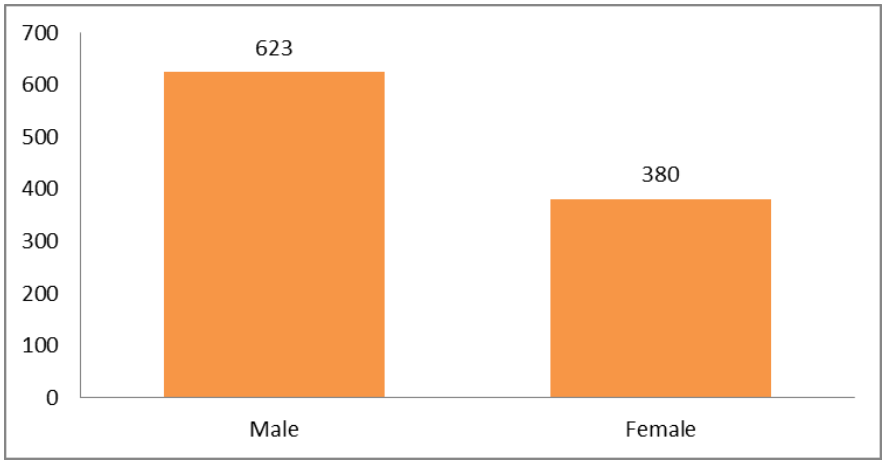


Figure 17 King Cove Populations, 2017 (census.gov).

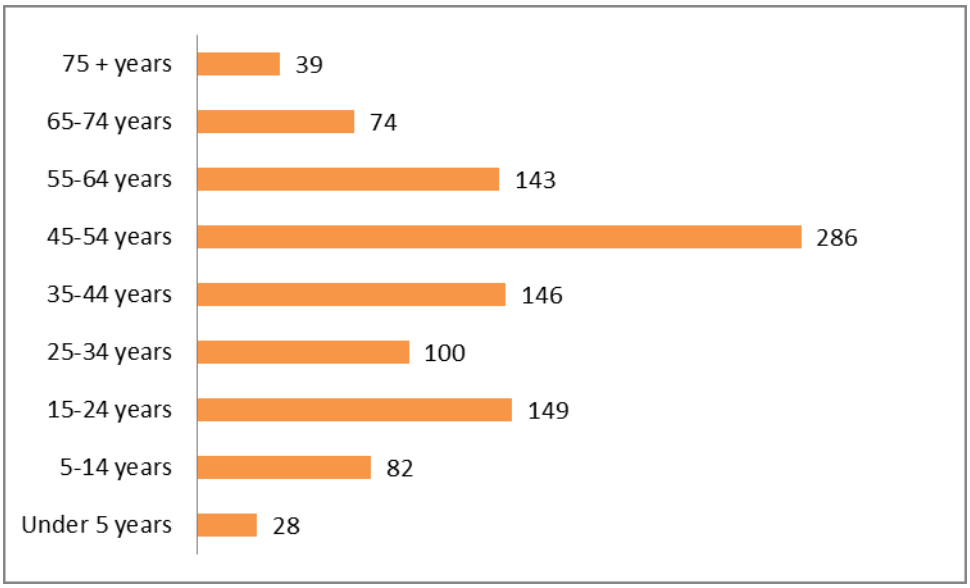


Figure 18 King Cove age ranges, 2017 (census.gov).

The only route from King Cove for personal travel must first be received through Cold Bay (or personal charter). Cold Bay boasts a robust airport, capable of servicing nearly any type of aircraft. In contrast to the gravel runway in King Cove, Cold Bay's airstrip is paved and

considerably longer even than average commercial ones. Most cancelled flights between King Cove and Cold Bay are due to concerns related to taking off from or landing on King Cove's limited runway. Of additional consideration are the wind shears from crossing mountainous terrain and lengthy stretches of ocean. Between 1980 and 1994 this treacherous journey resulted in 12 deaths, as ill-advised flights were unavoidable in medical emergencies. There have been no deaths since 1994, but understandably, King Cove has been keen to pursue new options to prevent such tragedy in the future (Eilperin, 2018).

As previously mentioned, during the research stages and early compilation of this project there were closed-door deals in the making allowing for such an exchange for a corridor within Izembek National Wildlife Refuge (INWR) connecting Cold Bay and King Cove (See Project Map below). In January 2018, U.S. Secretary of the Interior Ryan Zinke approved the agreement. This project will not be completed within a span of time to be wholly included within this thesis, and therefore represents a continuing point of concern for investigation.

It is irrefutable that this impending construction will have a profound impact on a delicate and important ecosystem (Eilperin, 2017). The Izembek is an irreplaceable habitat to many species, the Black Brant Goose and the threatened Steller's eider and Emperor Goose among them. Additionally, it is a critical resting ground in the migration path of many sea and shorebirds including the entire living population of emperor geese (U.S. Fish and Wildlife Service, Izembek 2017). These species depend on the respite within the narrow strip of land at the end of the Alaska Peninsula, and rely on the rare beds of eel grass it offers to recharge them for the remainder of their migrations. Disappointingly, the INWR does not carry any additional use regulations compared to the surrounding area. Being of principal importance to at-risk species of flora and fauna, it seems that more aggressive restrictions ought to apply, particularly

where we find ourselves on the brink of making it accessible to an undefined number of people. Wildlife refuges generally observe special regulations or at minimum, seasonally specific ones. In the Izembek it is unclear if that was deemed unnecessary due to remoteness and (perceived) limited use, or because the refuge itself was intended to cater specifically to the protection of seabirds rather than fish and other wildlife. In the future, trophic cascade may well become a greater concern as this new human interaction disturbs the habitat and the behavior of lower level species that support the species under protection. It is also worth mentioning that the only additional use permitting requirements that the refuge demands are for scientific research. Lack of proper permissions whether initial or during active research, relegates the data as subject to seizure and may not be returned if they choose not to issue a renewal permit (U.S. Fish and Wildlife Service, Izembek 2017).

The King Cove - Cold Bay road constitutes a complication to the SES this thesis has discussed in that it has the potential to disrupt existing relationships as well as involving new user groups and political agendas. Here, political ecology is intrinsically tied to the prediction of new interactions requiring additional management. The road is intended as an emergency passage for King Cove residents to access more reliable flight travel. Despite this positive appearance, political interests may not be forthright and residents may find the road to be cumbersome for its intended purpose.

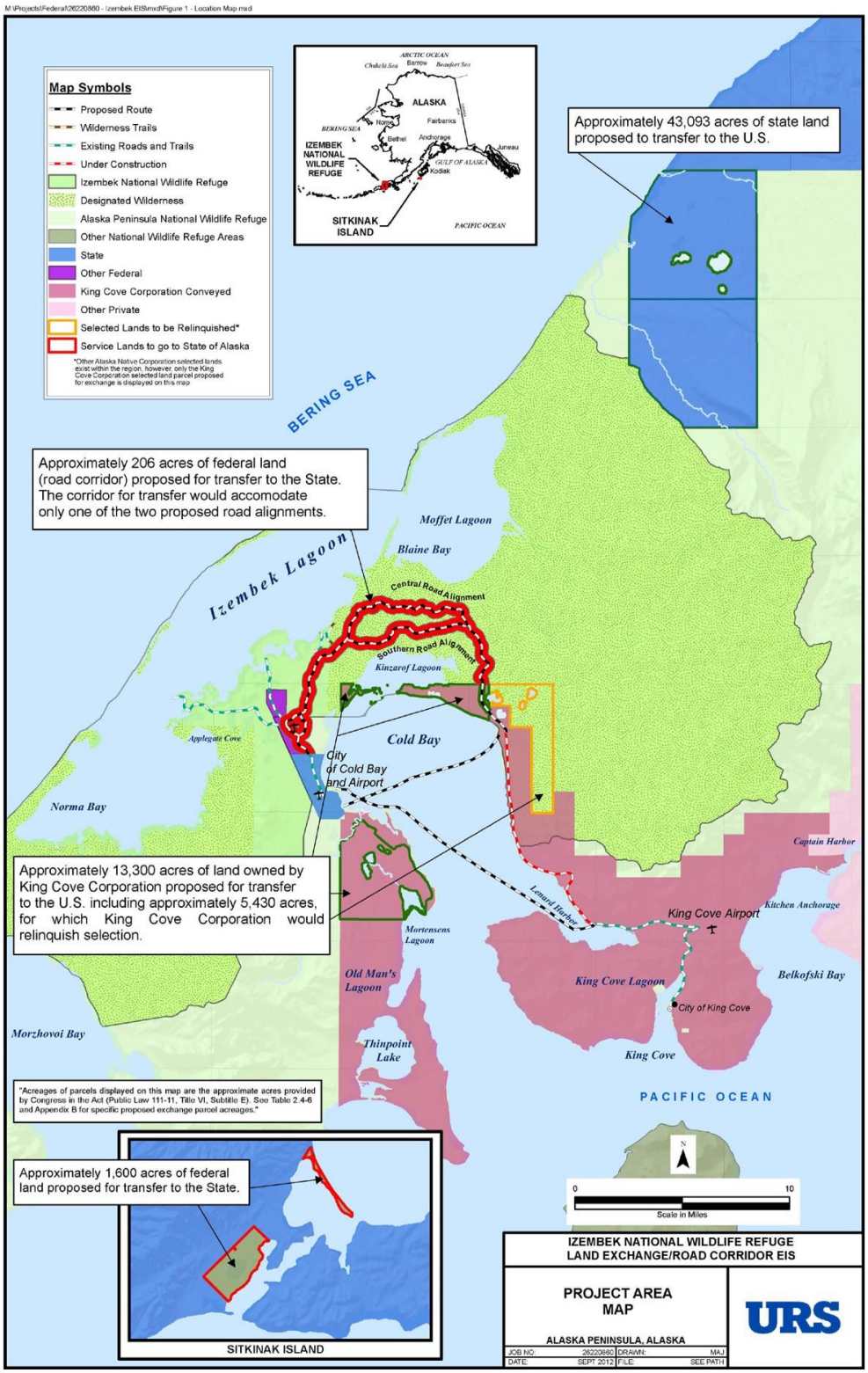


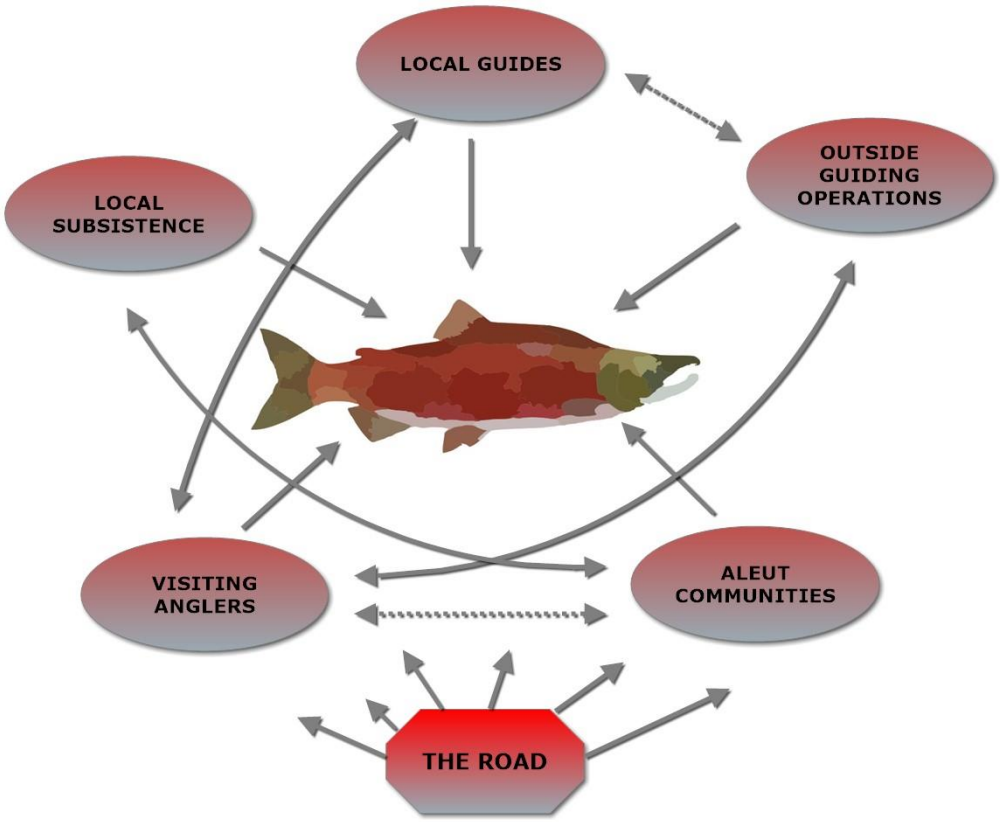
Figure 19 Via Trustees for Alaska, 2018.

King Cove has attempted other modes of transport between the two communities, with limited success. A hovercraft as an emergency transport vehicle proved to be cost prohibitive and subject to similar disadvantages of other modes of travel during inclement weather. The road corridor was suggested as a physical solution to attempts to bypass the Izembek wetlands which present varied complications according to season. A road, similarly, would require seasonal maintenance to be a viable connection between the two communities. Concerns among residents during OSM interviews indicated that very little is known regarding the who, when, and how surrounding upkeep of the corridor so that it is passable year-round. During a survey in King Cove it was revealed how little residents knew about the project that they have tenaciously lobbied for. The following story is taken from field notes gathered in King Cove:

> I interviewed the wife of an active and successful commercial fisherman. She was home alone, her husband on his boat, and her kids all grown and dispersed. She was somewhat guarded in her responses to the (OSM) survey, though many people of comparative affluence have been. They owned two homes in the community and were in the process of consolidating to one in preparation to sell the home where they raised their family. It was just too big to keep up between two people and the other house was more conveniently located. She was one of only a few people willing to discuss the road, more than giving her opinion about whether or not she wanted it. She had been in favor of it she said, but wasn't sure how it would be utilized or regulated, only that it was important to her as a safety concern for the elderly and/or medical emergencies. She was worried that because the road had such an important purpose that additional use might be a bad thing. She mentioned people joy riding, using the road as an access

> point for primitive roads within the IWR, sight hunting from vehicles, and increased access to waterfowl hunters. She didn't want people driving drunk, causing damage to the roadway, or harassing wildlife. I asked how she thought those concerns might be managed and by whom. She said she thought it should be patrolled, maybe with manned gates at each entrance. She thought that charging a toll to use the road would generate income to maintain it. She didn't know who would be in charge overseeing that or if it was even something that could be done, not knowing who really owns the road. (Campbell-Lavallee field notes, King Cove, March 2018)

Not knowing who holds power is disarming for users with limited influence in politics and monetary economies. Residents in favor of the road corridor have agreed to unknown terms out of desperation, demonstrating how local vulnerabilities can be used to the advantage of political agendas. Furthermore, uncertainties surrounding this development cause internal discord among local and native groups. This is additionally polarizing between local and outsider groups because the concern extended for health of the social structure, economy, and ecosystem there is limited to one's personal investment as part of that system. Outsiders are much less concerned for the long term welfare of the focus areas communities and resources because they have the option to leave. For residents, maintaining positive human-human and human-fish relationships is key in their continued ability to remain in their home villages.



Though sport activity may not have a negative effect on subsistence fishing directly, because the former is done inland and the latter is generally combined with commercial catch, it may still have a pervasive impact on the people who depend on subsistence activity. The more influence of globalization is thrust upon small communities in the Aleutians East Borough, the greater danger they are in of being permanently altered. Opportunities arising elsewhere that deviate from traditional ways of life are an ever-growing draw for young Aleut men and women (Boots, 2017). Many are making choices to pursue college or careers that take them away from their Native communities, jeopardizing community resiliency through lack of economic resources from fewer people calling these areas home (Freeman, 2000). To that end, as sport fishing continues in areas like Cold Bay, King Cove, and Nelson Lagoon, it will be important to maintain positive mutualistic relationships between locally owned and operated ventures and the outside competition. It seems unavoidable that there will be a more vested interest in effective

stewardship (of salmon) from the Native perspective than from the privately operated outfitters, as has already been demonstrated. However, attempts to integrate visitor experience with local user groups can promote shared stewardship of salmon as a common access resource. Aligning user groups' mentalities in united support of each other's resource goals, strengthens their influence over the new users to be introduced as the road implicates a heightened state and federal presence. Furthermore, such developed infrastructure will allow for increased visitor access as an additional pressure on the social, economic, and ecological system.

Considering that the connector between Cold Bay and King Cove will be a federally funded road project it seems reasonable to expect that in time it may also come to include passage to Nelson Lagoon, thereby opening a vast expanse of the peninsula. This would further transect the wildlife area, and the cumulative effect of such a development cannot be accurately predicted socially, economically or environmentally. The resultant ease of transportation between these communities will impose increased stress on the landscape from local and outsider user groups. While this may provide economic benefit to the focus communities by increasing visitor carrying capacity it will come at a price. There will be additional wear and tear on the road structure, requiring an unpredictable amount of maintenance. Furthermore, the additional income from recreational fishing and hunting will continue to disproportionately benefit outsider operations that have the capital investment capabilities to expand their operations to meet an increased demand.

As far back even as the early 1980's (Wolfe for ADF&G, 1984) tribal leaders have complained about the influence of visiting anglers on the environment and on the fish. Local ethos and indigenous culture function with an innate generosity that is extended to all. Locals reported generally enjoying the diverse company that sport fishing and hunting brought to their

communities, despite the many misgivings described in this thesis. The reality is that access increases impact. This has been demonstrable throughout the history of commercial fisheries, and will correspondingly impact the regional sport fishery. While locals may enjoy benefits of visitors now, the negative effects of a booming recreational fishing industry could have unprecedented effects on the local ecosystem, directly impacting the interdependent user groups.

Guests, like fish, begin to smell after three days. - Benjamin Franklin

I believe that the intersection between local subsistence/commercial use and outside commercial salmon use can be found within the sport fishing industry. Sport fishing may also constitute the compromise between multiple use, resource conflict, and stewardship that has failed to work in so many other applications, such as the cod and lobster fisheries in the New England region of the Atlantic (Kurlanksy, 1998). As has been demonstrated by the subsistence survey data and the direct participation in, sport fishing widens sharing networks well beyond the rural communities it occurs in. This reinforces positive local/outsider relations and serves to expose visitors to the foundations of mixed Aleut and local culture.

Fisheries management is not about managing fish so much as it is managing people (Acheson 1981). At present sport fishery norms are being shaped by non-resident outfitters and guides that are capable of providing disparate experiences with salmon access to visiting anglers. While state specific regulations on sport anglers may suffice to protect fish, they do not necessarily take into consideration the effect that sport fishermen may have on other human-fish relationships. Considering a political ecology framework, it is clear that the sport fishing scene in these small communities will continue to be shaped by those forces implementing the road

corridor. With the continued increase of outside presence, common-pool resources will become increasingly more competitive items, contributing to disparities in access, wealth, and traditional resource management. Incorporating an emphasis on community-based management in addition to political and socioeconomic management, will continue to be important in distributing power amongst all groups invested in salmon as a resource. The power differentials that currently exist among the salmon user groups of the Alaska Peninsula region have potential to grow, uncontested, concurrent with the rate of impending development.

Conceptualizing these interrelationships through a more modern and "heterodox" (Khan, 2013) approach leads me to identify the area as experiencing a critical moment. A critical moment is defined as a conspicuous and sensitive moment that offers a specific insight into the interplay and autonomy of the actors involved in an event, one that illustrates or informs a political ecology analysis (Khan, 2013). The user groups in the region to this point have been able to mitigate differences more or less based on local solutions. The Aleut have already experienced and adapted to a massive cultural paradigm shift as they combined commercial fishing with subsistence, which bodes well for their response to resource conflict inherently implicated in regional development.

CHAPTER 6

This attempt to disentangle human-human and human-fish relationships at the end of the Alaska Peninsula may present as having limited consequence compared to the global trends observable in commercial and recreational fisheries management. However the resource concerns in the Alaska Peninsula represent something of a microcosm to larger social-ecological systems contributing to national salmon fisheries. This regional fishery evolution offers invaluable comparative data to the analysis and potential implementation of new small-scale management strategies elsewhere. As humans continue to exert pressure on fish resources it will be necessary to adapt user responses concurrent with changes imposed on fish systems. Though the Alaska Peninsula occupies a relatively small area, its culture and fisheries play large roles permeating far beyond the communities in the Aleutians East Borough. Alaska provides the largest salmon economy in the world, Native peoples have relied on salmon and other marine resources for thousands of years, and this area still exists in a largely unadulterated environment ideal for recreational experiences. From an anthropological perspective, this study serves to show how resources and social constructs intrinsically tied to subsistence are evolving in the Aleutians.

In order to identify the local vs. outsider relationships in the sport fishing industry of the AEB, it was first necessary to understand the local way of life. An exploration of Aleut cultural evolution from prehistory, through colonization, and into a modernized world revealed their adaptability in the face of change. Their interdependency on established social networks empowered them to make a large paradigm shift concerning their traditional subsistence strategies into a market economy that blended commercial and subsistence activity. These community networks have their foundations in the relationship with subsistence activity in the first place, and its continued contributions to the local social organization can be seen through

modes of sharing and reciprocity. This well-established local interaction with wild resources, particularly salmon, is recently documented through ethnographic data and the OSM survey data as an essential part of survival as well as culture. Given this intensive human-fish social-ecological system, it was clear that other user groups interacting with the same common pool resources would have an effect on local and indigenous culture. The presence of outside operations and outside visitors proved to be under documented and presented as an ideal research topic to enhance the ethnographic, subsistence, and ecological data already investigated in the area.

The interview data collected supports the notion that difference and power contributes to a variable level of access for individual user groups to capitalize on the different usage potentials for salmon. Interviews show that local people have concerns regarding how other user groups interact with natural resources, and that they feel limited in addressing those disconnects themselves. In some instances local solutions to power and resource use perspectives were implemented, but may become inadequate as visitor use and political interest increases. Infrastructure developments such as the road corridor allow for increased access and multiple uses of the natural environment. This process is introducing new factors to the social ecological system requiring local coping mechanisms as well as State and Federal level management adjustments. The impending road construction is politically charged, and therefore inherently power laden. An evolving power distribution has the potential to further polarize the local and outsider user groups through resource conflict, or else prompt their cumulative empowerment in defense of their shared resource; salmon. Salmon have value in this region extending far beyond their price per pound at the dock or for their prestige in a sport fishing photo. They support survival, livelihoods, ecosystems, and communities. Shared responsibility in fostering positive

local and outsider relationships can create inter-group resiliency, which ideally will produce a more resilient salmon stock.

The future of this research depends greatly on continued active participant observation within Cold Bay, King Cove, and Nelson Lagoon. I believe it is important to take stock of the dichotomous guided fishing opportunities, both from the varied user perspectives and as personal participant. Pursing an experience with both the Hoodoo Lodge and Aleutian Adventures would provide a relevant investigation into the stewardship practices and resource uses presented to visiting anglers by local and outsider perspectives. Additionally, it will be important to keep tabs on the developing road construction to identify new political agendas, common use concerns, and other unanticipated research questions it will generate. Presently, the project has been identified to be in opposition to the Alaska National Interest Lands Conservation Act (ANILCA) (Trustees for Alaska, 2018), which will (at least temporarily) stall the project in litigation. Environmental impact assessments to this point have indicated two potential corridor options, both of which incorporate known environmental risks. Bearing these two obstacles in mind, the actual date for construction looms at an unknown point in the future.

This undertaking as a whole has proven too complex and too volatile at the present time to encapsulate within one project. This thesis should be understood to serve as an investigation into the salmon user group dynamics of the Alaska Peninsula as they relate directly and indirectly to the growing sport fishery. The social, economic, and ecological vulnerabilities that contribute to differentially distributed power indicate areas for potential improvement, however, continued investigation would be required for any formal proposal for future management. As a preliminary recommendation, I believe the data and analysis here support the need to create more opportunities for local and indigenous culture to be shared with outside user groups. This can

create only create an increased empathy between user groups and their varied uses and dependences on salmons. Additional investigations into the user group relationships identified in this study may result in more quantitate data which can be interpreted into management recommendations for the future success of the human-fish interactions in this region. The sheer complexity of the dynamics described here should further exemplify the need for continual data collection and a management scheme which evolves alongside the needs of the user groups.

Perhaps one of the biggest concerns with this project/research moving forward is that it will be largely based on anecdotal information and participant observation. While these are traditional methods within anthropological research, they may provide less clout in present day, particularly where other delicate issues such as climate, environmental impact, and politics are so intimately involved in the salmon sport fishery. The cooperation of local people in conjunction with research goals will be imperative, as this aims to identify cumulative impact of these developments specifically for them. That there is little recorded, though there may be much known, is a gap that I aim to assist in closing and perhaps inspire a greater attention to the future potential sport fishing may have for communities like Cold Bay, King Cove, and Nelson Lagoon. As former Aleutians East Borough Mayor, Stanley Mack said of the Aleut people and salmon, "Sockeye salmon is our lifeblood. That's what it is. That's what it has been. That's what it will always be."

EPILOGUE STATEMENT

As a follow-up to this document, it is important to note recent events which unfolded during the thesis submission and defense process. Concurrent with the final draft the King Cove - Cold Bay road corridor underwent court proceedings in which a federal judge halted the project. The court deemed that the exchange of federal lands for private lands was illegal, despite its previous approval by the former Secretary of the Interior. This has been a grave disappointment to many King Cove residents, who have lobbied for decades to improve their access to safe land based travel. The King Cove Corporation vowed to continue their efforts until they feel an appropriate compromise can be met to provide them with a route to and from the Cold Bay airport.

This proved to be thought provoking in the final stages of this thesis because it alters the trajectory of future research. Given the King Cove Corporation's devotion to securing a road corridor, the primary factor that has been introduced is *time*. There is now more time to explore the user group relationships described in this thesis and further investigate the ways in which they intersect socially, ecologically, and economically. The road corridor posed a concern for the overall system as it increases access and use in the focus area, thereby introducing an unknown number of variables which would simultaneously impact the present human-human and human-fish networks. By postponing the construction of road in this ecologically sensitive area we can only increase our ability to make informed decisions about future social and infrastructure developments.

The significance and application of this research remain the same despite these new circumstances. Data represents a continuation of under documentation endemic to the Alaska Peninsula, indicates a lack of interest and concern regarding salmon research not directly related

to their monetary value, and identifies areas of vulnerability between salmon user groups. This data demonstrated that the outside user groups exhibit a socioeconomic power over local users that limits inter-group exposure which may result in unproductive relationships. These key points may now be approached more deliberately and without haste, providing all user groups with invaluable baseline data regarding their connections to salmon.

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