

ANTECEDENTS TO COLLABORATIVE RESOURCE MANAGEMENT:
AN ASSESSMENT OF STAKEHOLDERS' PERCEPTIONS OF RESOURCE
MANAGEMENT IN THE COPPER RIVER WATERSHED, ALASKA

by

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Collaborative approaches to watershed management have become more common due to the increasing complexity of environmental issues, the amount of information needed to develop sustainable solutions and the multiple government jurisdictions often contained within a watershed's boundaries. This thesis applies a case study research design to explore the factors that inhibit and facilitate collaborative resource management in the Copper River watershed of southcentral Alaska.

Interviews with diverse stakeholders revealed that healthy salmon populations are at the core of most parties' interests. Stakeholders also agreed on the threats to the region's salmon populations. Together, these provide common ground for establishing a

collaborative management framework. However, there is a strong history of distrust between stakeholders as well as major communication and coordination challenges inherent to large, undeveloped regions. This study helps illuminate how a collaborative management framework can overcome these challenges and better integrate traditionally underrepresented populations into natural resource management decisions.

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“So that’s the challenge, to get folks off this my way, my land, my rights, my freedom,
into our way, our land, our rights, our freedoms, which include embracing the commons.”

-Interview Respondent, Cordova, AK

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CHAPTER I

INTRODUCTION

Defining the Problem

Many watersheds within the Pacific Northwest are home to Pacific salmon, a natural resource that has significantly contributed to the culture and the economic vitality of the communities within them. With increased population growth in coastal regions and increased pressures on the natural resources of the Pacific Northwest, such as lumber, salmon, minerals and oil, the natural integrity of watershed ecosystems continues to decline. Increased development pressures and environmental change is negatively impacting salmon and their habitat.

Watersheds are integrated, complex systems defined by a geographic area of land that drains water to a shared catchment (Salmonid Habitat Restoration Planning Resource 2007). Many environmental problems such as salmon habitat degradation and water quality issues require large-scale planning and management efforts within watershed boundaries. For example, the efforts to improve water quality put forth by one region or community within the watershed can be impeded or set back by the actions of another region or community upriver. “The salmon problem is a problem of how to match the scales of management, governance, fishing, research, and understanding with scales of biology, hydrology, and environmental change in space and time (National Research Council 1996, p.358).”

What Is Collaboration in a Resource Management Context?

Collaborative processes bring together diverse stakeholders to engage in a self-governed process in order to address complex public problems. Participants strive to develop comprehensive, creative solutions that all participants can agree to and establish lasting relationships for future cooperation. Decision makers apply collaborative approaches more and more frequently in the context of watershed management due to the complexity of watershed issues, the substantial amounts of data and information needed to develop sustainable policies, and the overlapping federal, state, local and tribal jurisdictions contained within watershed boundaries.

Collaboration is also seen as a process to improve public participation in environmental planning and management by transcending the increasingly turbulent social and political environment surrounding natural resource decisions (Selin & Chavez 1995). The need for collaborative approaches has become particularly important in the face of climate change, where uncertainty of future conditions requires solid governance structures that are adaptable to change (Dukes & Firehock 2001).

Many challenges exist to establishing effective collaborative management structures, including the definition and identification of stakeholders, differences in access and power among stakeholders, history of distrust between stakeholders, characteristics inherent to public organizations, and gathering and managing the immense amount of data necessary for making natural resource decisions. However, “understanding those underlying forces that both facilitate and inhibit collaboration in

environmental settings should be the first step towards designing new forms of public participation in resource policy decision making (Selin & Chavez 1995, p.194)”.

Case Study: Copper River Watershed

This thesis uses the Copper River watershed in southcentral Alaska as a case study to explore the antecedents of collaborative resource management efforts at a watershed scale. Specifically, I ask “what are the factors that will help and hinder a collaborative approach to resource management at a watershed scale?”

The Copper River watershed covers 26,500 acres of southcentral Alaska and is the home to all five species of Pacific salmon as well as a variety of flora, fauna and geology found in few other places (Figure 1.1). The Copper River delta is the second largest contiguous wetland in North America and an internationally recognized stopover point for shorebirds as they migrate along the Pacific flyway to their Arctic nesting grounds. Large amounts of nutrients are deposited by the river into the ocean environment that are vital to the survival of Pacific salmon, halibut and other internationally migrating marine fauna.

There are twenty three communities scattered throughout the watershed, ranging in size from Cordova (pop. 2,372) to McCarthy (pop. 53), and including eight federally recognized tribes (Ecotrust 2005). The cultural integrity and economic survival of the communities within this region are largely dependent on sustainable wild salmon runs. While stakeholders currently enjoy healthy salmon runs in the Copper River watershed, salmon and their habitat face multiple threats at a local, regional and global level.



Figure 1.1. Map of the Copper River watershed, Alaska (Ecotrust 2005).

Threats at the local level include irresponsible lake and river-side development, ATV impacts and resulting erosion, blocked and perched culverts, and wetland fills (Lowe 2007). At a regional level, the threats include a potential breach in the Trans-Alaska Pipeline and pressure for mineral development (Lowe 2007). At a global level, recent research documents that northern latitudes will feel the greatest impacts of climate change, where changing water levels and increasing temperature could be detrimental to wild salmon stocks (Battin et al. 2007; IPCC 2007).

Intact habitat is imperative to the survival of salmon populations, an anadromous group of species that spends various life stages in both fresh and saltwater. The main

requirements of salmon in fresh water include well-drained gravels in streams or lakes for laying eggs, bank-side vegetation to provide shade and reduce erosion, a source of woody debris to provide shelter, and water in sufficient quantity and quality (clear, cool, oxygenated). Salmon also require open passage to the ocean where they migrate for a number of years to feed and grow larger before returning to their home stream to spawn and start the salmon life cycle again (National Research Council 1996). Because of the complexity of the life cycle of salmon, an entire, healthy watershed is required to sustain healthy populations.

In the Copper River watershed, land ownership is divided amongst a wide range of federal, state and private entities including Alaska Natives (Figure 1.2). Landowners are often located great distances from one another and have different policies and regulations for their lands. These characteristics are the core challenges to be addressed in the development of an effective comprehensive management approach.

Purpose of this Study

This case study contributes to public management theory by identifying specific cultural and logistical challenges that can inhibit the development of a collaborative resource management approach. The Copper River watershed is an ideal case in which to explore these factors due to the diversity of stakeholders and the range of opinions regarding the management of wild salmon populations. Furthermore, with the future of our environment uncertain in the face of climate change, this research identifies strategies for an adaptive governance structure that can more readily respond to future environmental changes.

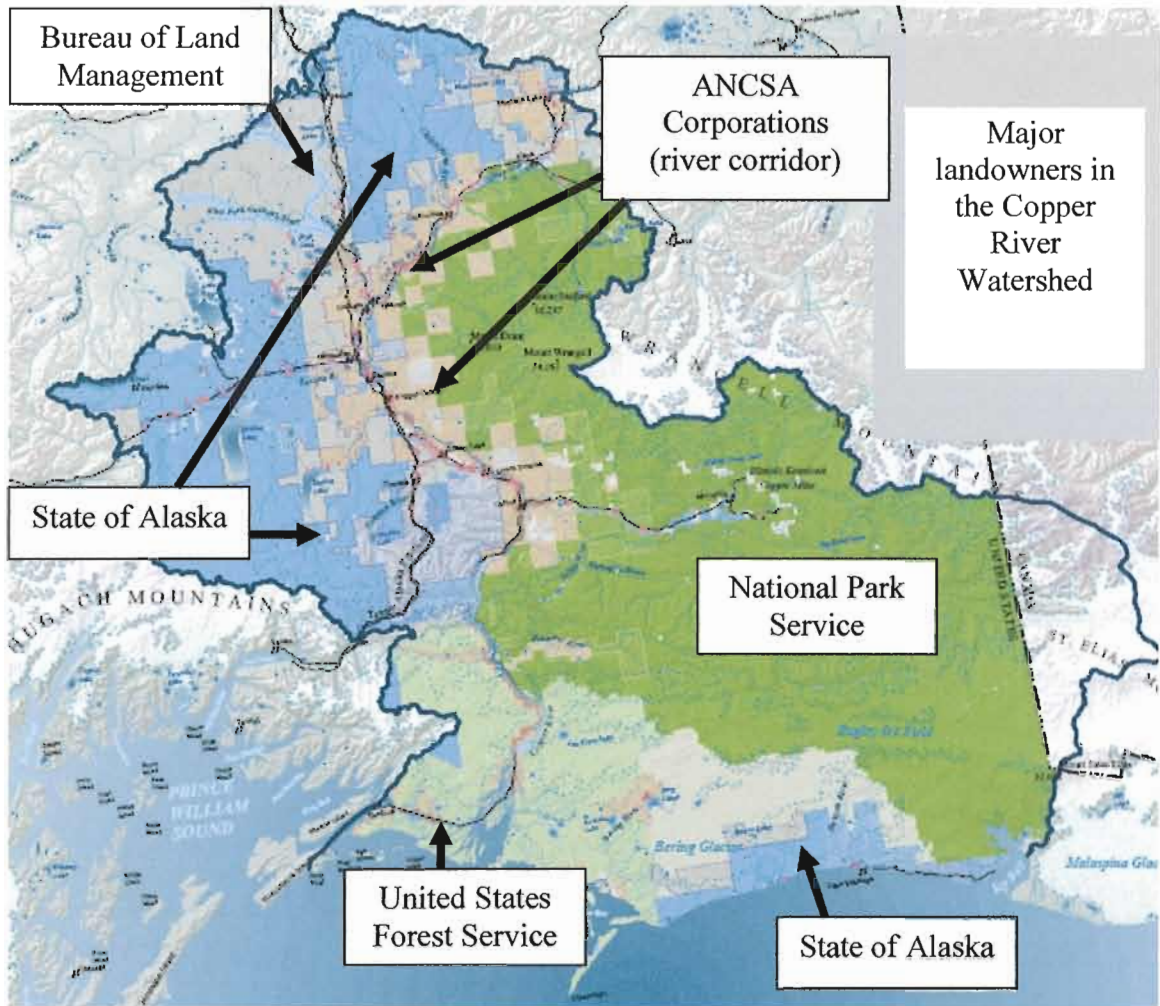


Figure 1.2. Major landowners in the Copper River watershed, Alaska (adapted from Ecotrust 2005).

An evaluation of the research methodology of this study will inform future stakeholder assessments about collaborative efforts and will help to determine the best methodology and questions needed to effectively identify the antecedents to collaboration. It will also bring to light opportunities for further research in the realm of collaborative resource management.

This thesis also informs the efforts of organizations currently working to develop collaborative structures in the Copper River watershed. Current efforts include the

development of a strategic approach to data collection and dissemination, prioritization of habitat and salmon monitoring and restoration efforts, public education and outreach efforts, and establishment of strategic coalitions to leverage funding sources for the region. This thesis identifies areas of common ground and areas of conflict amongst stakeholders regarding resource management and presents recommendations on how to take advantage of the factors in the region that could help in the establishment of a collaborative structure in order to overcome the potential challenges to collaborative resource management at a watershed scale.

Organization of Thesis

The remainder of this document is organized into five chapters and three appendices.

- **Chapter II: Review of the Literature** provides an overview of collaborative management and discusses what existing research has identified as the factors that help or hinder collaborative processes.
- **Chapter III: Methodology** explains the interview protocol through which primary data was obtained and analyzed.
- **Chapter IV: Findings** presents key findings from the data collected through in-person interviews.
- **Chapter V: Summary, Conclusions, and Recommendations** discusses conclusions regarding the antecedents to collaborative watershed management in the Copper River watershed and includes recommendations for organizations

working in the region to consider as they move forward with their work to establish collaborative efforts in the Copper River watershed.

- **Appendix A: Overview: Copper River Watershed, Alaska** provides historic context for resource management and land ownership in the Copper River watershed, Alaska.
- **Appendix B: Stakeholders in the Copper River Watershed, Alaska** includes a list of stakeholders.
- **Appendix C: Interview Instrument** includes a copy of the interview guide.

CHAPTER II

REVIEW OF THE LITERATURE

What Is Collaboration?

As defined by Gray (1985) collaboration is the “pooling of appreciations and/or tangible resources, e.g. information, money, labor, etc., by two or more stakeholders to solve a set of problems which neither can solve individually (p.912).” In environmental issues, a stakeholder is often defined as an individual, group, or formal organization that has a perceived interest or impact on a particular resource, where one’s interest can be financial, aesthetic, moral, legal or personal (Selin & Chavez 1995; Dukes & Firehock 2001; Susskind 1999).

Selin & Chavez (1995) present five forces that lead to collaboration in environmental planning and management, including an environmental crisis, an intervention of a third party, a legal mandate (e.g. National Forest Management Act), a common vision or understanding that exists among a set of resource stakeholders, and/or a strong leader whose energy and vision mobilizes others to participate and provides clear incentives to potential participants.

Furthermore, communities today face increasingly complex environmental issues such as climate change and nonpoint air and water pollution that know no boundaries. Researchers refers to these types of problems as “wicked” because of the difficulty in defining them, the diffuse nature of these problems, the complexity of public and private interested involved, and the interdependence of public agencies responsible for

addressing them (Dukes & Firehock 2001; Keast et al. 2004; Koontz & Thomas 2006; McGuire 2006; Agranoff 2006; Kettl 2006; Margerum & Whitall, 2003; Rittel & Webber 1973). Wicked problems are also contentious and difficult to address because of increased competition between organizations for limited financial resources, decreasing concentrations of natural resources, an increased understanding of the complexity of natural and social systems, and rapid changes in technology (Agranoff 2006; Margerum & Whitall 2003, Thompson & Perry 2006).

Existing research discusses reasons for why, on its own, the current structure of government is ineffective for addressing these complex, “wicked” problems. For example, these sorts of problems cut across traditional, stable policy and service boundaries, making it difficult for one agency to address the entire problem (Keast et al. 2004; Kettl 2006; McGuire 2006; Lurie & Hibbard 2008). These boundaries have typically been vertical due to the bureaucratic and hierarchical nature of public organizations and it is difficult to communicate or pass resources across these boundaries because of their rigidity (Kettl 2006; Rainey 2003). Dukes and Firehock (2001) suggest that there is inadequate environmental protection provided by formal legal and administrative processes, such as fragmentation of authority, weak laws and regulations, and decreased funding for natural resource protection and management at all levels of government.

The rise of the information age has increased the knowledge base for policy decisions, but it has overwhelmed the abilities of individual data managers and has led to an increased demand for sharing information (Agranoff 2006; McGuire 2006; Lurie &

Hibbard 2008). Overall, it is “virtually impossible to find any public program in which a single government organization’s jurisdiction can capture the features that determine success (Kettl 2006, p.13)”.

Furthermore, policy decisions are typically based on scientific data, creating a demand for extensive scientific research in order to develop potential solutions to environmental issues. Subsequently, traditional and local ecological knowledge are often overlooked in policy decisions. However, collaboration presents an opportunity to incorporate a broader scope of knowledge into resource decisions, including the collective wisdom of the people living in a region (Lane & McDonald 2005).

Upon determining to move forward with a collaborative effort, the next step of the planning process is to define the problem setting, or determine who has a stake in the issue (Gray 1985; Selin & Chavez 1995). Efforts should be made to include all stakeholders in the process, especially those with the power to make the changes the group is working towards (Gray 1989; Dukes & Firehock 2001; Julian 1994; Wondolleck & Yaffee 2000; Selin & Chavez 1995). Stakeholders maintain their autonomy in a collaborative, where they retain their independent decision making powers and can withdraw from the group at any point (Wondolleck & Yaffee 2000; Wood & Gray 1991).

Once stakeholders are convened, the parties need to identify a common purpose and together develop a structure that will manage their interactions in a systematic way (Gray 1985; Wood & Gray 1991; Selin & Chavez 1995). The group should also create a common language and information database with their collaborative partners. For example, if a collaborative is focused on the management of a watershed, it should

develop a common definition for a healthy ecosystem, measurable indicators of ecosystem health, and a system to ensure consistent data is collected across the region of focus (Koontz & Thomas 2006; Margerum & Whitall 2003).

Oftentimes collaborative groups use a facilitator to help develop and/or guide the group process. The facilitator does not have decision making authority but can serve as the driver of the process and help guide discussions between participants (Keast et al. 2004; Dukes & Firehock 2001; Margerum & Whitall 2003; McGuire 2006).

As laid out by Selin & Chavez (1995), the final stage of collaborative processes is creation of outcomes, where stakeholders implement their collective agreements, assess the impacts and determine whether to continue with the collaboration.

Benefits of Collaboration

Collaboration is increasingly being used to address natural resource issues because of a variety of benefits. Collaborative processes present an opportunity to incorporate diverse perspectives and information into resource policy decisions, which can result in better quality decisions and more empowered and engaged citizens (Beierle & Konisky 2000; Dukes & Firehock 2001; Wondolleck & Yaffee 2000; Singleton 2002; Lane & McDonald 2005). Stakeholder participation in developing solutions results in greater buy-in, activities that have a higher likelihood of being implemented, and reduces the potential for unintended consequences of policies (Smith et al. 1997; Wondolleck & Yaffee 2000; McGuire 2006; Dukes & Firehock 2001; Lane & McDonald 2005).

Conflicts are common in resource management, as “disputes are inevitable when stakeholders have conflicting values or objectives for the allocation and use of resources

(Smith et al. 1997, p.139)”. However, an effective collaborative structure can sustain communication between stakeholders, helping them to establish trust in each other and move discussions forward with a shared vision that encompasses environmental, social and economic goals (Selin & Chavez 1995; Beierle & Konisky 2000; Dukes & Firehock 2001). McGuire (2006) believes collaboration can help to renew public trust in government agencies.

New coalitions established through collaborative efforts can bring power to certain interests that are not possible to develop in other ways (Dukes & Firehock 2001). These coalitions are also better prepared to anticipate and address future challenges and can transition management efforts to be more proactive rather than reactive (Keast et al. 2004; Wondolleck & Yaffee 2000; Singleton 2002). Collaboration is viewed by some as a positive response to policy gridlock and litigation (Koontz & Thomas 2006; Marston 2000).

The sharing of information, expertise and resources is another major benefit to collaborations (Magerum & Whitall 2003; Agranoff 2006; Wondolleck & Yaffee 2000; Dukes & Firehock 2001). With more information at the table, it is likely that the group will be better able to identify and define the problem (Smith et al. 1997). With such a large quantity of information necessary to make informed natural resource decisions, it also allows agencies to share data collection and management costs and incorporate outside resources not available inside agencies (Wondolleck & Yaffee 2000; Daniels & Walker 1996).

Local knowledge is important to incorporate into natural resource decisions as people who live and work in the region typically have a day to day connection with the natural resources of the area. By soliciting local knowledge from people in the region, citizens gain a further understanding for the environmental issues at hand (Smith et al. 1997; Dukes & Firehock 2001). Researchers refer to this mutual learning as collaborative learning and explain that it can provide the public with a more meaningful voice in resource decisions and provide agencies with more useful public comment (Daniels & Walker 1996).

Challenges to Collaboration

Resources

Despite the many benefits to collaboration, the process is not without its challenges. Time and money are the two most important resources needed to effectively participate in collaborative efforts (Kettl 2006; Thompson & Perry 2006; Margerum & Whittall 2003, Lurie & Hibbard 2008). Organizations differ in their access to such resources and therefore collaborations can be biased in favor of those with more resources (Smith et al. 1997). There is also the opportunity cost of participation, where certain organizations cannot afford to have people participate in a collaborative effort without decreasing the quality or impact of other programs in the organization, especially due to the usual advisory-status of collaborative groups (Dukes & Firehock 2001).

Stakeholders

Incomplete stakeholder representation can reduce the legitimacy of a collaborative effort and ultimately mimic and reinforce existing power imbalances

between stakeholders (Dukes & Firehock 2001; Leach 2006). However, in some cases it is difficult to determine who best represents a specific interest, such as in issues dealing with public lands, who can best represent the perspective of the general public (Smith et al. 1997; Dukes & Firehock 2001)?

Power differentials between stakeholders are also a major challenge to overcome in order to implement an effective collaborative management structure, and can come in the form of increased money or time resources, access to politicians, ability to articulate interests and concerns, or veto power to thwart efforts of a collaborative whether they are a part of the effort or not (Lane & McDonald 2005). In decisions regarding federal lands, critics of collaboration believe that collaborative efforts can sway decisions and “threatens to displace traditional practices of democracy and constitutional governance and increase local (neighboring communities) influence over public resources, including federal lands (Dukes & Firehock 2001, p.10).” (For similar sentiments see Lane & McDonald 2005)

Environmental advocacy groups believe their mission and ultimately environmental protection gets watered down through collaboration and that not all disputes are negotiable (Smith et al. 1997; Selin & Chavez 1995; McCloskey 1996). Power differentials also exist between stakeholders where certain participants can be seen as not having a legitimate stake in the resource to participate in a collaborative process, and certain parties may feel pressure to succumb to the ideas of those in power (Dukes & Firehock 2001, Selin & Chavez 1995).

Participants can also have different levels of engagement in the collaborative group which can impact the dynamics of the process. Huxham & Vangen (2000) explain that the extent an individual represents their organization can be outlined on a continuum. On one end the organization takes little interest in the collaboration and the individual is effectively collaborating for his or her own interest, while at the other end the organization is deeply invested in the process and outcomes and the individual is intended to serve as the representative of the organization. Where an organization falls on the spectrum can be influenced by institutional culture, previous experiences in collaborative efforts, or the life cycle of an organization, where newer organizations are less likely to be able to participate in outside processes due to the need to focus on building organizational capacity (Selin & Chavez 1995; Lane & McDonald 2005).

The more interests that are represented in a collaboration, the more challenging it is to communicate between all parties. Not only do participants need to effectively communicate with each other, but they are responsible for bringing their constituency and/or host organization up to speed, leading to two or three opportunities for group thoughts and ideas to be misunderstood or mis-communicated (Dukes & Firehock 2001). Leach (2004) suggests one way to minimize the size of the group and balance interests representation is to establish special caucuses and have them elect a representative to participate in the collaborative. The group can then develop guidelines for communication to help ensure all participants are keeping their constituents up to speed.

A history of distrust between stakeholders can inhibit the success of a collaborative effort by making communication and trust building between participants

even more challenging (Selin & Chavez 1995; Julian 1994; Rich et. al 2001; Lurie & Hibbard 2008).

Characteristics of Public Agencies

The implementation of resource decisions on public lands are the responsibility of public land managers at the federal, state and local levels, making it important to understand characteristics specific to public agencies that make it challenging for them to participate in collaborative structures. With regard to representation, it is important that agency personnel at the table have relevant knowledge and authority from their parent organization necessary to participate. For example, if a collaborative is working to influence policies, representatives at the table need to have the knowledge of existing policies and an understanding for the role the agency can play in new solutions developed by the collaborative. This is particularly challenging for regulatory agencies because they are legally responsible for fulfilling their role and not able to share their regulatory responsibilities with others (Agranoff 2006; Keast et al. 2004; Margerum & Whitall 2003; Rainey 2003; Selin & Chavez 1995; Thompson & Perry 2006; Golann & Van Loon 1999).

Participating in collaborative structures adds another dimension of accountability for public agencies, where they are accountable to other organizations within the collaborative in addition to elected officials and their constituents (Bardach 1998). When an agency joins a collaborative they need to manage its own programs in alignment with its mission as well as connect seamlessly with other closely related organizations under a new, potentially broader mission (Thompson & Perry 2006; Kettl 2006; Agranoff 2006).

Within watershed boundaries, there are typically many levels of government involved in the management of resources, and the individual boundaries of an agencies' jurisdictions do not match the spatial, temporal or functional scales of specific ecosystems (McGuire 2006; Lane & McDonald 2005; Lurie & Hibbard 2008). Furthermore, because federal agencies are accountable to the broader public, it can be difficult to balance local and regional needs with national concerns and issues (Margerum & Whitall 2003; Lane & McDonald 2005).

Staff turnover due to elections or promotion through a public agency also add time to collaborative efforts because new participants in a collaboration need to be brought up to speed and trust needs to be established between all participants (Margerum & Whitall 2003; Rainey 2003). Furthermore, new participants could potentially have a different level of commitment to the collaborative and negatively impact the progress of the group (Margerum & Whitall 2003).

Elected officials run for office on certain positions and if elected, they are expected to implement policies based on their positions. Elections cycles and changes in political leadership can drastically change policies or funding for an agency, making it challenging for agency personnel to maintain consistent engagement in collaborative projects. The pressure of an election can also influence policy decisions as public officials strive to maintain a positive political image and get re-elected if possible. Constituents are often interested in seeing a rapid response to issues that results in a visible change and can get frustrated if they do not see measurable outcomes immediately (Margerum & Whitall 2003; Rainey 2003). In the realm of environmental management,

these short timeframes can place unrealistic demands for performance and outcomes that in reality could take years to see and measure. It is also possible that certain performance outcomes can't be measured due to the complexity of interacting variables in ecosystems that make it difficult to measure outcomes specific to the collaborative group's efforts (Koontz & Thomas 2006).

Information

Data collection and management are also major challenges to collaborations. The information necessary to make effective management decisions for sustainable salmon and salmon habitat is so immense that no individual can know it all (National Resource Council 1996; McGuire 2006; Kettl 2006). Data needs to be in a consistent format, however many agencies have strict policies and procedures on how to manage their data, and it takes time and money to manipulate it in order to effectively share and use the information in cross-organizational models (Margerum & Whitall 2003; Adler et al. 2007).

It is also likely that there will be local residents or city officials participating in collaborative structures and it can take time to effectively communicate highly technical scientific concepts to non-science lay-people. Without complete understanding for science, stakeholders can also place unrealistic demands on scientific information for making decisions, but the desired information might not be feasible to retrieve (Adler et al. 2007). Communities of the Pacific Northwest retain a strong native cultural presence and it can be difficult to blend data collected by scientists with local knowledge because of debates over what constitutes quality data (Margerum & Whitall 2003; Adler et al.

2007). Data can also be politicized, where information is manipulated with a political spin or through the media (Adler et al. 2007).

The identification of these challenges to collaboration combined with an understanding for the forces in place that could help move a collaborative process forward are important to identify in order to effectively implement a collaborative management structure. By understanding the environment in which a collaborative effort is to be sustained, the process can be developed to circumvent potentially debilitating roadblocks and maximize the strengths and resources of the region.

CHAPTER III

METHODOLOGY

The purpose of this thesis is to contribute to the ongoing scholarly and professional exploration of the factors that help and hinder collaborative approaches to natural resource management. I addressed this through in-depth key informant interviews with stakeholders in the watershed, with the aim of understanding their views of the antecedents to collaboration. The overall question is: “What are stakeholders’ perceptions of the factors that will help and hinder a collaborative approach to resource management within the Copper River watershed?”

Why Interviews?

Because the research question focuses on determining stakeholders’ perceptions, qualitative interviews were selected as the primary data-collection technique because a semi-structured approach allows the respondent to guide conversation rather than requiring participants to select from pre-determined answers as in a survey. In-person interviews were also important due to the recognition that resource management is a sensitive issue in rural regions largely dependent on resource extraction. It was assumed that respondents would be less likely to share their thoughts and opinions in an alternative approach such as a mailing or online survey.

Because of the desire to meet with Native Alaskans, personal connections were also important to exhibit a more culturally sensitive approach. Finally, due the fact

many respondents live within the watershed and the summer season is the primary harvest season for fish, game and other natural resources, in-person interviews allowed fewer opportunities for potential participants to forgo responding.

Selection of Participants

Interviews took place with twenty-one key informant stakeholders located throughout the Copper River watershed and in Anchorage, Alaska. Participants were selected based on their ability to provide in-depth information on a unique management perspective within the watershed due to their personal or professional experiences. Interests represented included Alaska Native, commercial, sport, and subsistence fisheries, recreation (motorized and non-motorized), nonprofit (advocacy, education, planning), city governments and tribal council. In some instances, stakeholders represented more than one interest, and clarifying questions were asked of respondents to determine which perspective they were reflecting in their responses. Most individuals approached agreed to participate in the interviews. However, summer season is busy for Alaskans both for work and subsistence, and it was difficult to reach certain stakeholders. Also, due to the potentially sensitive nature of the topic, it is possible certain stakeholders were not interested in participating in this study.

The initial list of stakeholders was developed in conjunction with Ecotrust, a nonprofit corporation in the region which has conducted a series of salmon-related workshops and identified a wide range of stakeholders in the Copper River watershed. A snowball process was also used, where each respondent was asked to recommend additional groups or individuals that should be included in the study, and this connection

was acknowledged when approaching potential respondents not personally familiar with the researcher. The list was assumed to be complete when respondents were repeating the names of individuals or groups that were already included on the list.

Interview Process

Interviews took place in Alaska during the months of July-September 2007 and lasted an average of 45 minutes, with the shortest interview lasting 30 minutes and the longest lasting 3 hours. When possible, interviews were done in person at a place of the respondent's choice; however due to time and money limitations, three interviews took place via telephone. A consistent interview guide was used with all respondents and sought information on respondents' perceptions of the watershed, current management practices and recommended management improvements. Maps of the watershed available through Ecotrust's Copper River Knowledge System were shared to participants during interviews so they could point to specific areas if necessary.

The interview guide was developed in conjunction with Ecotrust in order to identify what type of information would be most useful to organizations working in the region. This guide was also reviewed by faculty from the Department of Planning, Public Policy and Management at the University of Oregon with experience in collaborative planning and management and watershed stakeholder assessments. An informal outline rather than a strict script was developed in order to allow for flexibility in discussion and because the intent was not to generalize responses across the region's population. The major themes discussed in the interviews were:

- interest in the watershed;

- perceived main threats facing the watershed;
- perceived strengths and shortcomings in the current management approach;
- recommended actions to improve management and governance, including who should be involved and what potential management entities could look like.

Analysis

Responses to interviews were digitally recorded to ensure respondents' words and ideas were effectively captured for future reference. Recordings were made available to respondents if they desired. After transcribing interview recordings, topic themes related to strengths and weaknesses of current resource management and the challenges and opportunities for collaborative management were identified in all interviews. Interviews analyzed earlier in the process were re-visited to ensure consistent identification of topic themes. Respondents' quotes were listed under topic themes and continually re-organized to identify subgroupings of themes within topics. Weekly discussions about data with an independent research advisor helped to ensure unbiased analysis of interview results.

Limitations

It should be noted that the researcher lived in Cordova, AK approximately 4.5 years prior to conducting the study, which has the potential to influence participants' responses because of previous personal and professional relationships and introduce researcher bias into data analysis. However, being a familiar name in the region was essential to securing interviews with many of the respondents, and due to the diversity of

interview responses, I do not believe this was a major limitation. Discussions of data took place on a weekly basis with an independent research advisor in order to reduce researcher bias during analysis of interview responses.

A wide range of residents and resource users consider themselves stakeholders in the management of the Copper River watershed and it was challenging to accurately identify and meet with an individual from every perspective due to time and money limitations. This thesis is not considered to be an exhaustive representation of stakeholder interests, but instead aims to provide as broad of an understanding of resource management as possible given the logistical challenges of meeting with stakeholders located over such a large area. Results are not intended to be generalized to the entire population in the region, rather they are to shed light on the factors that could help and hinder collaborative resource management processes.

CHAPTER IV

FINDINGS

The interview protocol for this project was designed to address the research question, “what are the factors that will help and hinder a collaborative approach to resource management at a watershed scale?” This chapter presents respondents’ perspectives on the factors that could enhance the possibilities for collaboration and those that have the potential to hinder the effectiveness of a collaborative resource management structure. These factors are summarized in Table 4.1 at the end of the chapter.

Factors that Enhance the Possibilities for Collaboration

Common Interest Amongst Stakeholders

Discussions indicated that there is a common interest in the watershed amongst diverse stakeholders. At the core of all parties’ interests is salmon, although they value salmon for diverse reasons; cultural significance, economic livelihood (tourism, commercial fishery, etc.) and non-native subsistence. A few stakeholders also believe the Copper River watershed is important for its intrinsic value, “It’s a unique place on the planet and so it commands attention”.

Most stakeholders connected their interest in the watershed to a management goal of keeping the watershed system intact to support healthy salmon populations for future generations. When asked if this goal is consistent with other stakeholders, most respondents believed the major difference between stakeholders is how willing one is to

make environmental tradeoffs for development. In the words of one nonprofit representative, “I think that most folks would like to say that they have sustainable resource development and clean water as primary goals but I think those things change when folks are faced with decisions that evolve around financial incentives.”

Agreement on Threats to Watershed Integrity

Interviews also revealed general agreement amongst stakeholders on current and potential threats to the salmon and the ecosystem upon which they depend. Those most commonly mentioned were:

- Oil spill from the Trans-Alaskan Pipeline
- Increased use of the watershed as a result of increased tourism and growing state population
- Impacts of motorized use on habitat and game movement
- Limited accountability for actual number of fish harvested
- Impacts to the ecosystem as a result of unchecked development
- Consequences associated with checkerboard landownership
- Potential for of nonrenewable resource extraction
- Impacts of climate change

A smaller number of respondents identified natural disasters as potential threats to salmon populations and the integrity of the Copper River watershed, where events such as landslides or earthquakes could impact fish passage and degrade water quality.

Differing Levels of Confidence in Current Management Structure

When asked if the current management structure for the region is sufficient to protect the watershed from potential threats, no respondent believed the current system is enough, thereby creating an opportunity for discussions on ways to improve the existing management regime.

Most respondents identified Alaska Department of Fish and Game as having a major role in resource management as the regulatory body for the harvest of fish and game. Management decisions are made through a Board of Fish process, in which governor-appointed board members host public forums for input into management decisions. Any stakeholder is able to participate in this process in person or in writing.

Many respondents emphasized the importance of protecting habitat in order to sustain healthy fish and game populations and cited the major land owners as other key players in the management of the region's resources.

When asked to compare the region's management regime with management structures in other watershed regions of the Pacific Northwest, many respondents believe there is not a difference and sited intact landscape as the main difference between watershed health in Alaska and the lower 48. A majority of the habitat in Alaska is still intact whereas there has been significant human development and the establishment of dams and irrigations channels in regions like Washington, Oregon and California, negatively impacting salmon populations. Representatives from nonprofits, Native organizations and the commercial fishery all believe it is only a matter of time until the same negative consequences befall the salmon populations of Alaska that are seen in

salmon runs in the lower 48 states. The following quotes from respondents express these sentiments:

Nonprofit perspectives

The current [structure], if it is working at all, is working only because we haven't had a major disaster and we don't have the kinds of pressure at this time, perhaps.

I've heard the professional fishing guides in here talking over coffee saying that they wish that they would regulate the times that people could fish because the fish aren't getting a rest, they're just getting beaten to death, and that's the guides saying that. That's money out of their pocket. It's really important I think to put some regulations on the river. It's time, before there becomes a problem because you don't see a problem for seven years down the road, so are we going to wait?

Commercial fishing perspectives

I think the concept is good - we could get it cleaned up and take some of the corruption out of it, it'd probably work pretty well.

I wish there was more, more communication. I think that there tends to be lots of misunderstandings, especially between commercial fishers and subsistence users and, well, among all the user groups. Subsistence, personal use, commercial, sport. They all have their own, essentially their own world view and a lot of times it tends to exclude all the other fisheries.

Native Alaskan perspective

The first thing you do is get rid of the Department of Fish and Game and the state agencies that manage resources. Then the user groups will have to get together and determine how they'll use the game. The problem right now with management is that the [dipnetter association] doesn't have to collaborate or to deal with us, they deal with Fish and Game.

Shift in State Politics

The discovery of oil in Prudhoe Bay had major implications on the state of Alaska by attracting large numbers of people to urban areas interested in pursuing work in the budding oil industry. This influx of people resulted in a transition from people moving to

Alaska looking to experience the “last frontier” to a more extractive-minded majority. This increased population in urban areas shifted state politics, where rural voices were no longer the dominant voice in politics, providing an incentive for rural stakeholders to develop a means to integrate their perspective into policy-decisions at the state level.

We were a small state and we didn't have such large cities at that time...and people were more in Alaska for one reason or another because they loved being here. I think with the advent of the pipeline we had a lot of people who came here for economic activity, and a lot of them came from places like Oklahoma and Texas and were oil industry folks, and I think that changed the philosophy of a majority of Alaskans.

Shift in Mentality in the Region

Representatives of nonprofits working to protect the region's resources detected that there is a shift in the environmental mentality of the region, where, “It's no longer quite a frightening thing to say that you're a conservationist out here.”

Economic Incentive

One stakeholder presented an economic incentive for altering the approach to resource management, where “if you look at the cost of preserving rather than restoring, the cost of preserving is much less then ever trying to restore anything.”

Political Opportunity

A stakeholder living in Alaska during the time of the Exxon Valdez Oil Spill explained how political opportunities that arise can help lead to policy changes. Climate change was identified as being the current political opportunity for the Copper River watershed.

We think though because of the issues relating to climate shift, global warming, and the issues to the arctic and sub-arctic, in which we are a major player, are

going to accelerate concerns, and that means political opportunity. I learned these lessons post Exxon Valdez Oil Spill —political opportunity only comes in cycles, a place in time, a place in space. And if you can take advantage of those by articulating concepts that can be adopted during that time that can effectively change downstream things. After the Exxon Valdez Oil Spill, all Alaskans were environmentalists, every Alaskan was a conservationist, and the ability to effectively change better legislation was huge because of the reaction to that tragedy.

Better Data Tools

One stakeholder identified the benefits of improved data collection systems such as Geographic Information Systems (GIS) that allow for a better understanding of the forces at play in an ecosystem. As one respondent stated, “The strengths are probably better databases, we have a lot better tools like GIS and we didn’t have that 10, 12, 15 years ago when we first got started.”

Common Efforts to Rally Around

Stakeholders identified potential issues around which a collaborative could garner wide support, such as a citizen oversight council for the pipeline, education of both local residents and visitors to the region, developing a comprehensive development plan for the watershed, and value-adding to the resources of the region to maximize the gain from activities such as tourism and marketing of wild salmon. If these gains can be effectively translated into measurable outcomes for policy makers, such as economic gains from increased tourism, there is a higher likelihood that policy makers can buy into these regional efforts. Stakeholders also expressed concern over the lack of accountability for actual fish harvest due to lack of resources and the size of the region, creating an opportunity to collaborate to ensure better enforcement of existing regulations.

Citizen oversight for pipeline

The thing is that, we already know from first hand experience what can go wrong and so we can't believe that everybody's doing all they can, we have to make sure as watchdogs on our watch, that we do everything we possible can to make sure we minimize their opportunities to destroy our watersheds.

Education

Comes down to users—people need to police themselves. Educate public on what they can do.

Watershed plan for sustainable development

Simple matter of cooperation and co-management—of being able to respect and acknowledge and adhere to a set of principles that's going to maintain the strength of the wild run, at the same time looking at a strategy to figure out how certain types of development will be limited in certain areas so as not to allow any adverse impacts to spawning beds.

Add value to the resources of the region

Value add the experiences of the people and make them better people and better tourists rather than just herding them through like cattle... I feel we can do a lower volume of people and get a higher return on investment by value-adding the lives of the people...and so they'll go away looking around their own neighborhood and trying to figure out what to do back home rather than saying 'Well, let's go visit AK because it's the only place that there's trees or salmon.'

Existing Coalitions and Partnership Efforts

A majority of stakeholders reported a promise for collaboration due to the existing coalition and partnership structures operating in the watershed between private, nonprofit and the public sector. Specific examples sited include the Copper Basin Land Managers meetings and Ecotrust salmon workshops. Not only do nonprofits of the region work with a wide range of stakeholders, but organizations like the Copper River Watershed Project have program teams and a Board of Directors made up of diverse representatives from throughout the watershed.

Stakeholders identified the following benefits to working collaboratively with others in the watershed:

- Sharing of information: “It’s the way I use all that networking...information sources. And that’s super valuable. Those information sharing things are great. That’s a good exercise. It’s not threatening, it’s good.”
- Sharing of resources: “ “One of the things that’s required for applying for Indian water rights is having [scientific] data...and right there the Copper River Watershed Project is beneficial to the tribes when they’re going through that application process-it’s partnership, and that’s just one example.”
- Opportunity to communicate in a new setting that is different than the traditional allocation battles at Board of Fish meetings: “I think a lot of times in the past, the only times the players would see each other would be at a Board of Fish meeting where they were arguing about one proposal or another.”
- Develop common vision and goals: “What really we’re talking about now is permanent protection and legislation to figure out how to better manage the Copper River in a way that preserves the integrity of not only for the wild salmon but for its habitat, that if that’s really what it’s about, then all the people need to feel that it’s part of their vision and it’s a part of their idea and how can they bring what they do forward ...”
- Reduce competition between parties to maximize common goals: “We all fight for the same funding and we’re all competing with different strategies to end up with the same goal, and we ended up losing more and saving less because we’re

not working together...so it seems to me we need to figure out how to put our egos and differences aside and work together for the common goal and that's maintaining the strength of the run."

Positive Relationships with Personnel from Local Agencies, Nonprofits,
and Native Alaskan Organizations

Despite a historic distrust of government throughout the region, there are positive relationships with local agency personnel who have helped establish relationships and build trust with stakeholders in the region. An upriver respondent explained, "The staff at BLM is just really committed to doing a good job and they're excellent scientists...I'm pretty impressed with the BLM staff below the level of the top manager."

Most stakeholders upriver and down also identified the Copper River Watershed Project as doing an excellent job of working with a wide range of communities throughout the watershed. When asked why they are doing a good job, a commercial fishermen responded, "I don't think they have some secret agenda or anything; they're doing what they say they're doing. They're trying to protect the watershed on the Copper River ...I don't think they really have an agenda other than a good watershed."

Respondents also recognized the growing capacity of Native organizations to participate in the current management structure. In the words of one representative from a nonprofit upriver, "There are more and more good solid people in the Native organizations that are hardworking and really know their stuff."

Obstacles to Overcome

The following are obstacles to collaboration identified by respondents.

Identification of Stakeholders

There is disagreement on how to define a “stakeholder”, making it challenging to ensure all stakeholders are identified. Is it someone with a profit at stake in the issue? Someone who lives off the resources? Someone who lives in the state of Alaska? Someone who lives in the watershed? There are also large pieces of federal lands in the watershed—how can meaningful feedback be integrated from the broader public of the United States who all have a stake in the management of federal public lands.

Urban Alaskan perspective

I’d say it’s all Alaskans... Once you get off of the road system, the amount of human traffic you see is really small, so because the Copper River is so accessible and has been for so long, that I think that ...all Alaskans are concerned.

Rural Alaskan perspective

Definitely say year-round residents should have priority, but I don’t want to diminish the people who come to use it, too. But definitely the people that live there—they can effect it the most by any regulation or regulation change—they’re the ones who have to live with it, the other people don’t.

One stakeholder used the term “degrees of stakeholder-ness” to describe the different stakeholders involved in resource management. “Some people think that since we’re Americans we all should have equal shared access no matter where we are. Some people think that there should be differential considerations based on where you reside and where you contribute to a region.”

Another challenge to identifying stakeholders is designating the correct representative for each group. Oftentimes the same people are involved with community efforts, which can lead to burn-out and a lack of desire to participate in “yet another meeting.”

One respondent explained the issues with assuming there is one Native Alaskan perspective in resource discussions;

I think you're also dealing with issues of native governments who traditionally didn't get along too well. There's eight tribes are under the Ahtna Corporation and they bicker amongst each other. Traditionally there was trading between tribes, emigration/immigration between tribes, but there's still their own distinct nation and they were fighting over the same resources we're fighting over now.

Defining stakeholder was particularly tenuous when discussing subsistence use. Differing subsistence definitions on state and federal lands has created conflict between urban and rural users, while Native Alaskans struggle to distinguish themselves from other subsistence users.

Alaska Native perspective

In my opinion I think the word Alaskan, Alaskan Native, needs to be redefined, because, I'm Alaskan Native and I don't want to be in any way demeaning any other race, but we originated from here, my ancestors originated from here, and these resources, when there was nothing out there, this was how they lived their life and this is what they've passed down from generations to my generations and I'm passing down--I have 2 brand new grandchildren here and I'm teaching them to eat dry moose meat, you know, the way we prepare it so that we can preserve it. And fish. My one year old granddaughter, she's eating our foods because I'm passing this down to them, it's their resources, it's our way of life and it's a means to survive. So it's really important to me. Not just because of our culture or our traditions, it's survival... and there's just too many of those people coming from the urban areas, taking our foods from us—and that's how I feel.

Urban Alaskan perspective

Unfortunately because the state subsistence laws that gives priority that we've come in conflict with all of the rural residents and in particular of course then the native corporations

Rural Alaskan perspective

Subsistence is for feeding your family, it's because you have limited means and in the Copper Basin, people who live there definitely have limited means, and they definitely depend on having that salmon and putting up that fish. But if you're living in Anchorage working a job and your driving your \$500,000 motor home out to the banks of the Copper River to harvest fish, there's no way in hell that you're using that for your own family.

History of Relationships Between Stakeholders

There are many layers of distrust throughout the region. For one, it is not uncommon for rural residents to distrust government entities of any kind. Though respondents in this study did not directly express a distaste for government, respondents from the upper watershed shared their perceptions of their community; "A lot of the people that live in the watershed are very independent and don't want to be managed. We know from the fact that residents of Glenn Allen would not provide gas to any people who work for the Park Service for many, many years."

Respondents from both up and down river discussed a difference in mentality between upriver and downriver residents of the watershed.

Upriver Resident perspective

I think a lot of it is people in the upper watershed getting to know the people in the lower watershed, that's a challenge, to get to know them before they go and make judgments on them, because the people up in the upper watershed are pretty independent. A lot of them are very independent and they don't want "nobody" to tell them what to do. And if somebody comes up here from down there and

they say “We should get together and do this and this and this.” They say, “Well who are you? And where are you from?”

Downriver Resident perspective

I think that us downriver folks have quite a different view then upriver folks.

Some respondents presented a strong distrust of Alaskan state government due to its history of boom and bust-oriented politicians running the state from both the governor’s seat and from Congress in Washington, D.C., implementing policies and encouraging permits that favor extraction interests. A few stakeholders expressed that current public input processes are done as courtesy rather than as a means to collect meaningful public input. In the words of one respondent, “You can’t do good conservation in this state because that’s not what the higher ups want...that isn’t their priority.”

Tensions also exist between Native Alaskan and Western cultures, both in the impacts western ways have on Native Alaskan culture and due to the history of negative interactions between the Natives and White settlers, even when interactions with Natives were made with the best of intentions. As one Native Alaskan respondent reminded me, “The road to hell is paved with good intentions.”

The following quotes reflect Native Alaskans sentiments regarding the tension between Native Alaskan and Western cultures:

The outside world, the Western world I should say, and that lifestyle has really come in and made an impact on our young people. It’s made life easier for them. My grandfather didn’t have a dishwasher, or a sitting lawnmower...there’s just too many comforts... I also have a perspective working in health for the last 10 years. I have seen our people become obese because of different diet changes, processed foods.

We just need the freedom to be able to practice [subsistence] without stipulations or regulations pushed upon us from a culture that has no idea how to do it.

[It's] hard to match visions when the guy on the other side of the table is saying I'm here to save the world, that includes you... Our automatic reaction is, "well then go away, the world can take care of itself fine, it did really well until humanity come into the picture.

I was sitting in Ahtna office in 1977 when some drunken fishermen called me from a bar and said "We can see you through the window. Won't take nothing to put a .30-06 into that window."

Distrust also exists around the built-in financial incentives of corporations created by the Alaska Native Claim Settlement Act (ANCSA). Some respondents believe that ANCSA corporations pose a large threat to the watershed ecosystem with the potential to extract the resources of the land, while others believe that Native Alaskans will not do anything that would incur damage on their resources. It should be noted here that the discrepancy between these comments may stem from a misunderstanding about the nature of ANCSA corporations and tribal governments. Native Alaskans are the shareholders in ANCSA corporations, but the corporation can be governed by non-Native individuals. Tribal Governments are sovereign governments made up of Native tribal members.

[ANCSA] defined people as shareholders in a profit-driven corporation-like that was their interest in being whatever ethnicity they were. Which is weird. You don't do that to any other people. [Government] wrote it to incentive-ise them—the whole point was to get oil out of ground and spur development and that was a convenient—served both purposes. Native claims were holding it up so they had to give them money and land...set it up so they had to develop it, tied it to profits, made them into corporations.

Native corporations own a lot of land and they could potentially subdivide—but I have never heard any talk of that happening. They are very protective of their land. Several people who have tried to get leases haven't been able to.

I think Native people do a good job managing their land...I think they're concerned about saving their cultural spaces and protecting them...the fish are really, really important to them—it's part of their livelihood, their lifestyle, their culture. It's really imbedded. I don't think that they would do anything to harm the fish or the river. It's not what they're about. They're not about money; we're trying to make them about money.

A history of distrust can make working collaboratively challenging due to the emotions associated with the past. In the words of one respondent from an upriver community, it is important to understand “how management affects the human element—I mean it's causing one person I know, who was instrumental in the place becoming a National Park in the 80s; He couldn't sleep at night, it was affecting his health and I guess that is tied to the management...If people are getting emotionally distraught about what's going on, it really affects everything, so they'll either just stop being involved all together or the emotions will be so high that you can't even talk to people about it and so you can't have effective management if people can't communicate because the emotions are so high.”

Power Imbalances Between Stakeholders

There are power imbalances associated with time and money that make it hard for certain parties to get to the table and make others not want to come to the table. The poverty rate of some communities in the region is as high as 40%. The University of Alaska created an index to estimate the cost of living throughout the state compared to Anchorage, the largest city in the state. The upper Copper River basin cost of living is

estimated to be 135% higher than Anchorage, while downriver in Cordova it is estimated to be 153% higher. This high incidence of poverty combined with the high cost of living makes for an uneven playing field between stakeholders (Ecotrust, 2005).

In the more remote, rural areas of the watershed, there are often not even formal organizations established because of the expenses and challenges of running an office. For organizations that do arise, there is the opportunity cost to participation in collaborative groups. It is hard enough to keep doors open for regular business, let alone participate in collaborative efforts. These organizations are also often competing with each other for resources, and moving forward with a collaborative effort will require a shift from a competition-based to a cooperation-based mentality.

The [Native governments] priority was getting a structure in place and there was no monies for subsistence because they were just trying to get their organizations in place. There wasn't anything...they didn't really have the funds to advocate for subsistence.

Power differentials also exist in relation to visibility of stakeholders or issues, where some stakeholders can be consistently louder than others.

There's certain areas you hear from where people are very vocal, and then there are areas where you know there are things going on, but you don't hear anybody at all. And that's why at certain times I feel like you're not getting the full picture, the whole picture of an area just cause you have a couple players that are extremely vocal and know how to focus on that. You're missing people that, lets say in the native community, that it's not their nature to come out and discuss issues.

With a good battle cry and a good banner, you can completely refocus the discussion and make the good guys the bad guys.

Organizations located outside the watershed have the advantage of access to politicians and resources to influence politicians and do not currently feel the need to participate in collaborative discussions. The development of the Trans-Alaska Pipeline doubled the population of the state, primarily in the urban centers of Fairbanks and Anchorage. This changed the political dynamics in the state since the dominant voice of the state moved from the rural, subsistence communities to urban centers. As stated by a respondent from the upper watershed, “By their weight and mass and population, Anchorage tells us what to do.”

For example, Alaska Outdoor Council is an outdoor club with approximately 10,000 members who are Alaskan residents mainly living in urban areas. Many of these users recreate in the Copper River watershed, primarily using motorized vehicles and harvesting fish and game. On their website they announce that they are ranked by the University of Alaska as one of the most influential advocacy organizations in the state, and a respondent from this organization said he would not participate in a collaborative process because he is able to effectively move his agenda forward by other means. (The researcher’s question is depicted in italics in the following quote.)

...[Collaborative groups] spend a lot of time having meetings and gathering up information but they don’t have any regulatory authority, so I know as far as my time for my membership of the Outdoor Council, I’m way more effective by participating in the State’s public process as opposed to those work groups and then if we’re to satisfy, if those work groups come up with recommendations that we oppose, then what we do is we go to our congressional delegation and then we just we go look at their funding and object if it’s not significant...we’re getting too far off track--they spend a lot of time having meetings but in my experience they’ve been really ineffective...*and so to you being more effective would be dealing with where change happens, at the policy level? ...yes*

Rural Constraints on Stakeholder Involvement

Involvement in management discussions takes time, whether through a collaborative effort or as part of a NEPA public input process. Participants can get restless if they don't see anything tangible come out of discussions. Summer and fall are peak harvest times for resources in Alaska, whether for commercial or subsistence purposes. It can be difficult to get residents of the watershed to pay attention let alone participate in non-harvest related activities during these times. On the flip side, winters in Alaska can be harsh and it is not uncommon for people to leave the state for extended periods of time. This also makes it challenging for bringing stakeholders together.

Summer season of fishing/harvesting/hunting—government agencies not always being sensitive to that—they're holding comment periods in the middle of the summer b/c you can't get people's attention when they're out fishing, harvesting, and hunting. Lifestyle isn't always taken into account when people are trying to hold a public process.

That's why I say the road to hell is paved with good intentions because I already know what the intentions are of the people that are coming into the region, I want to know the intentions of the people who are living here. They live here, they have goals, missions and they're buried in everyday work paying the bills and doing car repairs and having problems with their kids and grandkids what have you, so they never have time to sit down and say this is what I think should be.

A few nonprofit representatives from both ends of the watershed explained the tendency for the same people to be involved in community issues; "People get tired, you just can't do that much...and people stop being effective in that regard."

Finally, the mere remoteness of stakeholders makes it challenging to maintain effective communication throughout the formulation and implementation of projects and solutions. It is also challenging to determine the best place to meet. Cordova, at the

bottom of the watershed, is home to almost half of the residents of the Copper River watershed, but it is located off the road system and is only accessible by boat or plane, making it time consuming and expensive to gather there.

Balancing a Cash Economy with a Subsistence Lifestyle

Corporations established by the 1971 Alaska Native Claims Settlement Act (ANCSA) demonstrate a major clash of cash economy with traditional, subsistence lifestyles. Native Alaskans had been living from the land and its resources for generations, but with the passage of ANCSA they were incorporated and became shareholders for the very resources off which they survived. As mentioned earlier, some stakeholders believe this structure created an incentive to extract resources rather than to subsist from them. In the words of one Alaska Native respondent;

[In the past], as long as you had wild salmon and a way to feed your people, then the chance of you surviving over the winter is pretty good, where, if they allow those runs to be decimated, in a time of hardship that may not be the case and the people are going to have to leave those villages. In the past they perished. Now they just go to college or they try to get another job at McDonalds and subsist in grocery stores. It's really important that the Native people realize they can be part of the larger conservation vision if the conservation community would endorse comprehensive conservation easements that would help them financially and at the same time preserve their wild salmon culture.

The challenge of balancing a subsistence lifestyle in a cash economy has put a stress on Native Alaska culture, making it difficult for the younger generation to buy into the traditions of their culture.

And then the other generation, they want it because they're Alaskans and they want jobs. They're not thinking subsistence way of life anymore. It's an economy that's getting really bad...it's sad to see your own people not paying attention to you anymore. It's just money, money, money now. And that's it.

Today, both native and non-native lifestyles in the watershed depend on salmon and intact salmon habitat, but there are certain types of developments proposed in the watershed that result in direct impacts to salmon habitat. Without local government entities in the upper watershed, it is difficult to come to an agreement on where and how to develop, or to hold people accountable for alterations to the landscape. How can these rural areas capture economic opportunities that might arise while maintaining a subsistence way of life throughout the watershed? In the words of a representative from a nonprofit organization working in the region, “We certainly recognize that people are always going to worry about feeding their families first, so you have to work within the confines of the economy in the region and so our goal is to say, ‘What kind of economic development can we promote that will allow people and fish to live side by side?’”

Characteristics of Public Agencies

Representing constituents

Stakeholders identified many aspects of public agencies that create barriers to their effective participation in collaborative efforts. One stakeholder mentioned how pressures for elections can cause elected officials work for votes, not resources; “They are business men or they are lawyers or professional politicians and they are pretty clueless about science and they are pretty focused on votes and you don’t get any votes out of a moose and that’s about basically what it boils down to.”

Elected officials are expected to represent their constituents' interests, which can be challenging when looking at land owned by different levels of government.

I think the State is much more sensitive on a regional level to what people need and what people want and I think the federal government is very sensitive to the whole, being the whole United States, and I don't think they always agree with what I think most of us would like to see happen.

One respondent explained how constituents within the upper watershed are divided by arbitrary legislative boundaries; "The dividing line is in many places the Richardson Highway, so you and the guy across the highway may be in different legislative districts."

Specific jurisdictions

Public agencies are designed to carry out explicit functions and are responsible for specific jurisdictions. Bureau of Land Management, National Park Service, United States Forest Service are all federal agencies that are also major land owners in the Copper River watershed. Agencies' missions drive each organization's management regime, but there is no way to ensure missions align between landowners, including neighboring private landowners. Specifically, ANCSA corporations are profit-driven, which can lead to different land-use decisions than the National Park Service might make on land designated as a national park, which is to be managed for conservation.

They have their own respective mandates and confines and authorizing legislation that they work under. It isn't always in their mandate to collaborate and look at the watershed system as a whole. One respondent stated, "By having different managers, they may have different goals, and they may do things that are contrary to each other."

Having responsibility within a specific jurisdiction limits the ability of any one organization to think of the watershed as a whole. A recreation outfitter explained how each agency has its own permitting structure, but there is not communication between agencies to ensure there are not too many users recreating at once. This is not a problem yet, but if left unchecked could create issues in the future.

[There is] really no effective trans-boundary management protocols that represent a continuity in language and enforcement and implementation across boundaries and corridors. So federal rules, state rules, and even jurisdiction rules between land managers, the Park Service, the BLM, the State, the Department of Natural resources versus whoever...all of those, sometimes key up and cue in different kind of management protocols. And the management protocols are currently aligned with proposed activities, so if you're going to use a dredge of some kind to do gold mining, certain rules affect you and if you're going to build a house and use some fill, certain rules affect you, and if they're in the middle of or adjacent to a spawning habitat then some additional rules might or might not kick in, but we don't have any rules, really that protect hydrology and river function and that cross over between administrative agencies.

Coordination between multiple landowners requires effective communication, which is hard to maintain over large distances and with tight budgets. One respondent with previous experience working for BLM explained there is also contention between agencies to work together.

I think BLM is doing a good job managing their lands. I think one of the things they struggle with is working with the State. You know, Like, they don't manage animals, you know, they manage habitat, and a lot of times they have to work with the state on that. And that's where I saw contention a lot of the times with the resource management, was working with other agencies.

Public Participation processes

Public agencies are required to follow certain protocols to guide public input processes. Stakeholders have varying opinions over the effectiveness of such processes,

where an urban representative believed these processes were effective, while both Native and non-Native respondents living within the watershed were in disagreement.

Urban perspective

Alaska is pretty good in that respect, it's probably the most open to the public process as far as wildlife management, that's ever been conceived and at this point there's strong participation by all user groups. I don't see that anybody's being left out you know before the Board of Fisheries and the Board of Game, you can really see that turn out-and you can see that wide spectrum of people that have interests, the preservationist, the anti-hunters...

Non-Native rural perspectives

In many cases, they don't involve the public from the get-go. The public is asked for its input so far down the line that whatever the state was planning to do has already become inevitable.

I did all the public meetings, and gathered all of the data and we wrote the plan as the public, you know, from their input and how we should manage the resources and what was best was best for the resources—on BLM land—and then we passed it to the head of the BLM and he said no, that's not how it's going to be. Re-write it, it's going to be this way. That's why I quit. And so the plan was completely different than what the public wanted or how the resources should be handled.

Native perspective

[Sometimes we are] not even notified or informed about the process—we just heard about it after the fact and as a group we should be informed and get to make comments on it. I think [public agencies] could do better at involving the tribes in some of the things they're doing.

One stakeholder explained how public agencies' timelines for making decisions do not mesh well with how other groups, such as Native Alaskans, traditionally make their decisions, making participation in collaborative structures with diverse stakeholders a challenge; "The Native way of thinking is everything is decided by the village, not by one person. It's consensus building."

Funding

State agencies responsible for natural resource management continue to be underfunded in the eyes of many respondents. Limited funding makes it challenging for representatives from public agencies to maintain consistent involvement in collaborative efforts, especially with the political nature of public funding. One respondent who works for the State of Alaska stated, “I think the major thing impacting [participation] is the department doesn’t have funding to enter any more collaborative projects. If we did, it would be to enter into collaboration to try to get future funding.”

Furthermore, public agencies compete for the same resources across the country, despite the natural resources, climate, communities, needs etc. all being different between locations. In times of limited public funding, resources are typically rewarded to regions closer to crisis situation and it can be difficult for public agencies to secure funding for proactive rather than reactive management. As one nonprofit representative stated, “Another challenge is that it’s hard to get people’s attention when you’re talking about assessing what we have instead of restoration. People respond to a crisis; that’s what galvanizes action.”

Bureaucratic structure

The bureaucratic structure of public agencies promotes employees across all agency offices, not just within a region. This results in high turn-over of agency personnel in rural communities, inhibiting the ability of these managers to build relationships and establish trust within the communities in which they work and losing their valuable historic perspective. Hiring new staff can also take a long time, leaving

vacant positions in public agencies which further reduces their ability to participate in collaborative efforts.

And that, nothing against that, but boy, there's a lot of history here, and if you're going to bring somebody from outside, they need to be involved with the players that have been involved here. And what I see is a lot of new people coming into this system, especially with the state, that don't have the history, they almost want to re-write the book instead of looking at what's been done, because there has been a lot done. And that's been a big, big problem as far as I can see.

We were really excited by [the new Park Service superintendent], he was just really personable, but then he left and he got replaced by a guy who was a joke—he was all smiles—he was like a politician—all smiles and talk and he did nothing.

A respondent from the commercial fishery recognized that a strength of the commercial fishery is the fact that local people are making the decisions for the length of commercial fishing openers; “And that's generally a strength b/c people on the ground here generally have a better idea of what's happening. But it can be a weakness if they can't stand the pressure.”

The bureaucratic structure of public agencies also results in a lot of decisions being made outside the watershed, in places as far as Juneau, AK and Washington, D.C. In these cases, it is likely that decision makers have not had the experience of or exposure to a subsistence lifestyle. Some respondents in the watershed believe that too many decisions are made by people who don't understand what it truly means to subsist off of the land. There are subsistence committees in the region, such as the Ahtna Land and Resource group, but these bodies are only able to provide guidance and recommendations to resource decisions and can not guarantee their needs will be carried through to the final decision.

Our local managers are hired by the state and we have one elected official at the state level who's kind of hired everyone else and they hired everyone else and it just kind of trickles down and supposedly by voting in that one person we're going to have all these fixations, but it doesn't happen that way.

Issues Related to Information

Gathering data

With the Copper River watershed covering an area roughly the size of West Virginia, there is a large amount of data required to understand the system. Data on the watershed is collected by many different agencies and nonprofits and comes in many formats. Because of the size, remoteness and weather of the region, it can be expensive or merely impossible to collect data from all ideal locations. Specifically, there are 156 sockeye stocks alone in the Copper River watershed, and collecting data on all of these populations is nearly impossible with the resources currently available, especially because resource managers need data over time in order to make effective management decisions.

We have good age composition data but then below Miles Lake our escapement estimates are all based on aerial surveys and those are not nearly as precise so we can't separate the commercial harvest. We don't know when the people bring in catch, we can't separate what portion was returning to Delta streams and what portion was returning upstream, so we can't build a good brood table.

They fly and look and have indicator streams and spots that they fly and look for escapement. Sometimes that's hard if it happens to have rained a lot and the streams are muddy.

The presence of hatchery fish makes it challenging to ensure the health of wild populations because of the difficulties associated with managing wild versus hatchery fish.

When they're managing the fishery and letting the fishermen catch fish, the wild fish get mixed in with hatchery fish, so if you have a huge hatchery run and so they are just letting them hammer on those, it could be that little wild runs are getting wiped out because they're caught in the mix with the hatchery fish.

Some respondents mentioned an anadromous stream catalog managed by state.

One respondent from a nonprofit feared this catalog was inadequate and that as much as 50% of streams that actually have fish in them are not in the catalog. Development permits are distributed based on this catalog, and if all streams are not accurately identified as being anadromous, development could unknowing eliminate salmon productivity. As one respondent explained; "Roughly 7 percent of an entire stream channel network is used for spawning and rearing. Even if that number was 25 percent it's critical that human use is not happening in that 25percent, where productivity is happening. It's what we can't afford to lose."

Agencies format data in different ways. As one nonprofit respondent stated; "Different agencies use different counting systems for their fisheries, for resource users, so sometimes it's hard to get data that shows you the whole picture of what's happening, because everybody uses a different data set."

Because so many organizations are involved in data collection for the region, it's also challenging to accurately account for what data is available, where people working in the region might not realize what data is available in outside organizations, and vice versa.

Involvement of multiple public and private agencies in the gathering data can lead to competition between organizations for the resources necessary to collect data. One

respondent explained his perspective of the post-Exxon Valdez Oil Spill rush to gather data in the Prince William Sound region.

You're not supposed to go into an arena with the aftermath of that kind, with the impact and damage to the ecosystem, and compete with other competing interests, or make other interests compete with you as to the information. You're supposed to have the ability to say we all have our piece of this rope. We need to determine which way the group is going. When you're in the middle you're pulling against everybody.

It is important to ensure that data does not become the hold-up for resource management, where stakeholders are stuck on collecting certain data that might not be feasible to collect or necessary for making resource decisions. As one representative with experience working in a state agency expressed, "You think just managing the Copper River, one system, would be simple, but it gets more complex every year and it may be approaching the point where it's really difficult for us to achieve [management] goals."

Type of data

With the diversity of the populations in the region, there is also a variety of data types, including traditional ecological knowledge (TEK), local knowledge and western science knowledge. Currently management decisions are based primarily on Western science knowledge and it is challenging to integrate other forms of data into the current decision-making structure. Both Alaska Native and representatives from nonprofits reflected this sentiment.

Alaska Native perspective

Climate change began to become very noticeable to the old timers about 1955. And by 1965 they were talking about it. I listened to it, I didn't understand it. But these voices in the wilderness were already saying something serious is

happening here, that was 65. This is 2007 and now the media is all in an uproar, and to a whole generation it is old news, long ago forgotten.

Nonprofit perspective

The traditional community's been in the field, lets see, 365 days a year, they're very livelihood, their very survival depends on traditionally passing on what they know about the natural system to the next generation, they have folks who have earned their doctorals in synthesis and they are called elders. They are both the filters and the holders and the sharers of this common knowledge, and when it ends up in common lore, it's based on a 1000 years of observation.

One respondent believed overcoming this challenge is necessary to help establish trust and develop a common goal between Native and non-native stakeholders.

...if the indigenous peoples were respected by nonnative culture and they brought this science together with this traditional knowledge that we would then be able to feel comfortable sharing this information and trusting that we're working together for the same goal.

Accurate data

Effective management of salmon resources requires an understanding of how many fish are being taken in the commercial, subsistence, personal use and sport fisheries. However, it's challenging to enforce fishing regulations to get an accurate measurement of how many fish are really being taken due to lack of agency resources, the large size of the region and the inability to monitor harvest on private lands.

Respondents also believe there is a lack of accountability for non-fish harvest, too.

People from urban areas—no ones enforcing them to make sure they're catching their harvest limit. I've heard people at subsistence meetings say that [fish wheels] are being run 24 hours a day, they just keep running and running and I don't know if they're only catching their harvest limit and if they're reporting it accurately. I think that better harvest records need to be enforced.

Some respondents believe the commercial fishery, despite taking the largest number of fish, has the best records due to the fact fishermen are selling fish to make money and therefore have an incentive to sell as many fish as possible. However, they are not required to record fish they keep for subsistence purposes.

You mention that commercial fishermen have to report everything on a fish ticket, but that's only for fish sold. On the Copper River they can keep as many sockeye as they want that don't have to be reported anywhere for their own personal use. They have to report Chinook, but sockeye, or pink or chum or coho, they can keep as many as they want.

Not only is it challenging to get accurate harvest data, but the timing of when data is collected is not ideal.

Right now the commercial fishermen, probably a majority of their harvest is reported, sportfishing it's a mail-out survey, and so we usually we don't have estimates for at least a year, and for subsistence and personal use they have permits and they have to report generally by Oct. 31st.

Politics surrounding certain information

Respondents had diverse opinions about hatcheries in the watershed. Some expressed a need for more information to better understand how the sockeye hatchery impacts wild salmon stocks. Other respondents, particularly commercial fishermen, admit that learning more about hatcheries could have an impact on their livelihoods. A respondent also believed that the hatchery could not be discussed because of how it quiets the allocation battles between resource users. Therefore, there can be economic and political disincentives to learn about certain aspects of the ecosystem.

To me, if you tamper with Mother Nature, you're going to see large effects, and that's a large effect. And I know we need the hatcheries, but I don't know, if our natural resources are declining then there's something wrong with that system.

The interesting thing is in talking to a lot of fishermen, they don't want to see the river managed scientifically because there's a certain amount of gray matter, and as long as there are unknown questions, they may end up with more fishing time, they're more concerned about their bottom line...

Because the way that Prince William Sound Aquaculture Corporation is they won't put a cap on themselves...they'll keep producing fish as long as there's more allocation wars, as long as there are many user groups fighting over the same stock of fish, their answer is to produce more salmon. And then this way everyone has got their salmon and they'll leave us alone. And yes, that may work for a certain length of time or a certain period, but over the long haul, if you mine out that entire brood stock, than the strength and quality of the run is going to start to deteriorate.

One respondent questioned the need for more information because of his concern that the incentive of scientists is to secure more funding rather than to gather the best data.

I'm afraid of everybody messing around with the watershed because I don't see any big problems, but you can bet for sure if a bunch of Ph.D.s are betting their grant monies and future papers on it they are going to find problems and they are going to exploit those problems and they have to get public and I mean, that's how they move on, move forward and I'm worried about that level of scrutiny.

Interpretation of data and distribution of information

The interpretation and dissemination of information to a wide range of stakeholders is challenging. Not only is it difficult to distribute information to a broadly dispersed population, but it has to be in a form that is interpretable by a wide range of stakeholders and presented in a way that will not put stakeholders on the defense. The large expense of distributing data and information to the region can be limiting to some organizations and capitalized on by others, for example industry is often able to distribute glossy brochures with their interpretation of the issue at hand.

Risk Assessment

Despite the fact that there is agreement on the types of threats to salmon and salmon habitat, there is a varying degree of risk associated with certain threats by different stakeholders. For example, respondents have different beliefs in the effectiveness of mitigating environmental damage in mining projects.

Perceptions of Collaboration

Respondents also have perceptions of collaborations that can influence their interest in participating in collaborative efforts. Preconceptions expressed by stakeholders include:

- Watering down of organizations' mission; "That's the thing I think the tribes, if you're protecting the three S's (sovereignty, subsistence and spirituality), that would get watered down in a multi-stakeholder organization."
- Potential for visible outcomes to take too long to see; "I guess you hear this word collaboration an awful lot and there are a ton of people sitting around talking and I think everyone has a fair sense of what the other people want and everything thinks they know what needs to happen and it'd be nice if something actually came of it at the end of it...like I said, that burn out point, everyone just gets sick of talking I think, and sick of seeing the same presentations and hearing the same complaints."
- Potential to depend on nonprofits rather than government for governance of resources, "And that's why I say you never want to make the mistake of looking at nonprofits and contractors as governmental entities. You can't be

governmental entities, we're in it for survival. However leadership can be nurtured, trained and established in nonprofits.”

Summary of Findings

The antecedents to collaboration have been categorized into factors that can help with the establishment of a collaborative resource management structure and those that could hinder a collaborative effort. These factors are summarized below in table 4.1.

Table 4.1. Summary of factors that could help or hinder collaborative resource management efforts in the Copper River watershed, Alaska.

Factors that could help efforts	Factors that could hinder efforts
Common interest amongst stakeholders	Identification of stakeholders
Agreement on threats to watershed integrity	History of relationships between stakeholders
Differing levels of confidence in current management structure	Power imbalances between stakeholders
Shift in state politics	Rural constraints on stakeholder involvement
Shift in mentality in the region	Balancing a cash economy with a subsistence lifestyle
Economic incentive	Characteristics of public agencies
Political opportunity	Issues related to information
Better data tools	Risk assessment
Common efforts to rally around	Perceptions of collaboration
Existing coalitions and partnership efforts	
Positive relationships with personnel from local agencies, nonprofits, and Native Alaskan organizations	

CHAPTER V

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

This chapter presents a summary of conclusions and recommendations regarding the antecedents for a collaborative resource management structure based on the findings presented in the previous chapter. Following the conclusions and recommendations is a general commentary on findings from this case study as they can be applied to the broader context of environmental collaboration as well as reflections on the research methodology as a means to collect broad stakeholder input on the antecedents of collaboration.

Antecedents to Collaboration in the Copper River Watershed

Checkerboard landownership in the Copper River watershed is the core challenge to collaborative resource management in the region. The major landowners include federal agencies, the State of Alaska and Native corporations. Developing effective management practices to protect the landscape by one entity is not sufficient to protect the overall watershed due to the interconnectedness of watershed systems. Impacts in one area can have impacts on the entire region, and actions of one entity can either leverage or thwart efforts of other landowners. A well-designed collaborative approach that builds off the strength of the region and avoids the potential obstacles that could hinder the process can help to overcome these challenges to resource management.

Not only do all of the landowners have different goals and policies driving the management regime on their land, but each entity is responsible to a different constituency, making it even more difficult to develop a watershed-scale vision for the resources of the region. Federal land managers are responsible to the public of the United States, state agencies are responsible to residents of Alaska and Native Corporations are responsible to their shareholders. A collaborative process in the region can be a tool to facilitate communication between landowners and allow for better integration of the diverse interests and ideas of constituents into a comprehensive management regime for the watershed.

A collaborative effort can be initiated within the watershed, leveraging the efforts and voices of stakeholders of the region in resource decisions that tend to be dominated by industry and urban interests. Creating a stronger voice and organizational infrastructure in the region will draw the attention of these more powerful political groups, creating an opportunity to collaborate on a broader scale in regards to resource management. The following sections outline the antecedents to collaboration identified through stakeholder interviews that could hinder a collaborative resource management process. Each section explores how positive antecedents can potentially help overcome these challenges.

Issues Related to Stakeholders

Identification of stakeholders

In identifying the major landowners and their constituents, it appears as if a majority of residents in the region are left out of having a dominant voice in land

management processes. However, alterations to the landscape can have detrimental impacts to salmon populations, and inability to influence land management makes it challenging to ensure lasting protection for the subsistence lifestyle practiced by a majority of residents in the region.

Specifically, residents in the Copper River watershed are far outnumbered in regards to management on public lands, where the entire population of the United States has a stake in the land. Urban areas such as Anchorage, Fairbanks and Juneau are perceived to dominate the politics in the State of Alaska, and only Native Alaskans can be shareholders of Native Corporations and influence corporate decisions. Private land inholdings also exist throughout the watershed, but due their small size relative to the rest of the watershed they were not discussed here.

Native corporation lands have the highest likelihood of being managed for subsistence resources because the land and its resources make up part of the foundation of the cultures of the region. However, compared to stakeholders across the United States and in the urban parts of Alaska, rural residents of the region have a very different understanding of what it means to subsist off of resources.

While the Native Alaskan and rural stakeholders in the region might not agree on the preferred definition of subsistence stakeholder, relationship building and better communication can establish trust and improve understanding within the region for the struggle for subsistence resources. Specifically, interviews with Native Alaskans expressed an interest in defining subsistence user as a Native Alaskan, but they also recognized this was not likely to change in the near future. Sensitivity to this perspective

might not change the definition, but sends a positive message to Native Alaskans that their struggle is respected and acknowledged. By bringing together these subsistence voices in the region through a collaborative effort, there can be a stronger subsistence presence in resource discussions.

History of relationships between stakeholders

Improved communication between stakeholders in the region can help to identify a common interest amongst stakeholders, agreement on the perceived threats to the Copper River watershed ecosystem, and a general skepticism about the abilities of the current management structure to respond to threats to the watershed, all factors that create a solid foundation on which to establish a collaborative effort that can help to overcome historically poor relationships between stakeholders.

Recognition of the lack of political weight the rural subsistence users have in management decisions impacting their surrounding landscape can also spur stakeholders in the region towards collaboration. Focusing on the management structure and its tendency to “leave out” the local perspective rather than focusing on individual interests can help stakeholders within the watershed who were historically in conflict with each other look beyond personal issues and at the larger implications of the current management structure on their subsistence and economic lifestyles.

Any collaborative process also must move forward in a culturally sensitive manner by approaching Native Alaskan entities in an appropriate manner and recognizing the history behind their people, traditions and the challenges they have faced. Native Alaskan respondents expressed frustration with those who say they are interested in using

Western ways to “save” Native Alaskans, as it is those very ways that have led to many of the challenges Native Alaskans face today. Instead, listening to their struggles and challenges and working together to develop a vision for how Native issues can be addressed through the proposed effort demonstrates sensitivity to Native Alaskans and invites their input into how to move forward collaboratively in an appropriate manner.

The presence of positive working relationships between public agency personnel in the region, nonprofits and Native organizations is an essential starting place for collaboration in the region. Respondents and personal experiences of the researcher have made it clear that mobilizing the people and resources in the region is important to ensure stakeholder buy-in to any collaborative process. In recognition of the potential burn-out of active citizens in rural areas, building off of existing efforts reduces the need to participate in new efforts that can instead be incorporated into existing organizations’ agendas.

A collaborative effort should also focus on existing efforts in the region so as not to put existing organizations on the defense with the proposal of a collaborative structure that may initially seem threatening because of the potential to replace these organizations or come across as more government. The intention should not be to replace any organizations or government processes, instead it should be to provide a structure that improves and enhances the efforts of organizations in the region and strives to level the playing field in resource policy discussions.

Power imbalances between stakeholders

A regional collaborative can help to level the playing field between different power players in resource management. Specifically, the representative from the Alaska Outdoor Council expressed a lack of interest in participating in collaboration due to the fact the organization's agenda is better pursued through other means. Industry representatives have also failed to participate in current stakeholder meetings hosted by Ecotrust. However, developing political and organization capacity within the region through collaboration can get the attention of other stakeholders over time and cause them to reconsider participation in the collaborative management structure.

Rural constraints on stakeholder participation

In issues on both state and public lands, public processes exist that allow for wide stakeholder input, including voices from the region. However, the logistics of rural living can make it difficult to residents to consistently participate in public participation processes. By developing a common goal for watershed management, a regional collaborative structure can serve as a voice for the region in resource management decisions, streamlining information back and forth between stakeholders in the region and decision makers in a way that ensures the interests of the region are communicated but do not rely solely on individual participation in public processes.

Trusted individuals working in the region such as the Copper River Watershed Project appear to be in a position to effectively communicate between the range of stakeholders in order to get a balanced understanding and perspective of resource issues

in the region, and can be a liaison for the region in public processes and overcome the challenges of rural constraints on stakeholder involvement.

Balancing a Cash Economy with a Subsistence Lifestyle

Increased stakeholder communication in the region can focus on the challenge of balancing a cash economy with a subsistence lifestyle. Broader stakeholder participation in resource discussions can lead to better identification of the challenges around the integration of a cash economy and subsistence lifestyle and lead to a better strategies for maximizing economic opportunities in a way that minimizes the impacts on subsistence living.

The establishment of a regional collaborative structure can serve to reduce the duplication of efforts and maximize the impact of skills, expertise and resources put forth by public and private organizations in the region currently working to protect the regions' subsistence lifestyle while identifying and developing economic opportunities. There are many small nonprofits in the region working in areas such as sustainable community development, public education and environmental advocacy. Establishing better relationships in a collaborative network can serve as an opportunity to acknowledge the specific niche that these organizations fill and identify ways for them to leverage the resource and efforts of each other rather than competing against each other for resources and support.

Characteristics of Public Agencies

By developing a better appreciation for the challenges faced by public agencies when participating in collaborative entities, stakeholders can focus on developing strategies to overcome these challenges rather than focusing on frustrations beyond their direct control. Strategies should maximize opportunities available to public agencies while buffering the potential impacts of challenges such as changes in funding streams and turnover of local personnel.

Representatives from public agencies need a clear understanding of the challenges they face to participating in collaborative efforts as well as the skills necessary to effectively communicate these challenges to other stakeholders. Early discussions in a collaborative process should highlight challenges and identify the best means for specific agencies to participate. Case studies in the literature highlight a variety of ways agencies can be involved, including as a funder of an effort, an active participant at the table, or in an advisory role.

Issues Related to Information

A collaborative body can help overcome the challenges of collecting and managing the immense amount of data need to better understand the ecosystem as well as work to better integrate local and traditional ecological knowledge with Western scientific data. Current efforts of nonprofits such as Ecotrust have focused on getting stakeholders to look at the entire watershed to identify data sources and gaps and prioritize areas in the watershed for future research. These efforts help to create a better understanding amongst stakeholders for the region as a whole and can potentially reduce

competition between stakeholders for the resources necessary to collect data due to stakeholders' recognition that money spent on data collection outside one's immediate jurisdiction can still benefit all inhabitants of the watershed due to the interconnectedness of watershed ecosystems.

Integration of local and Traditional ecological knowledge is challenging due to the fact that a majority of policy decisions are traditionally based on Western scientific data. Current partnership efforts already demonstrate how nonprofits can help Native entities produce the Western scientific data needed to get public funding. However, it is possible that through increased communication, diverse stakeholders can become better communicators about concerns and perceived changes in watershed resources, and this improved communication can allow for the exchange and incorporation of anecdotal observations into resource decisions. Efforts to expose decision makers and stakeholders outside the watershed to the perspectives and lifestyles of stakeholders in the region through field trips and other means can also help to establish a better understanding for the issues faced by stakeholders in the region. This reduces the tendency for decisions to be made by someone who never even sees the region and helps establish personal connections between watershed stakeholders and decision makers.

Funding

Although not previously recognized in this thesis as an independent issue, funding is inherent to issues such as power imbalances between stakeholders, challenges faced by public agencies and is necessary for improving the ability to catalog the information necessary for making resource decisions. A collaborative structure can lead to a more

effective use of resources within the region and make the region more competitive in accessing outside funds. Specifically, the threat of climate change creates a political opportunity to garner public funding for work in a region that is already suffering the consequences of the changing climate. By working together, organizations can develop competitive proposals for federal funds that can benefit the entire region.

Risk Assessment

Stakeholders identified specific issues, such as oversight of the Trans-Alaskan pipeline and public education that can serve as a neutral starting point for collaborative efforts. Starting with issues surrounded by less controversy will allow stakeholders to work through differences and enhance their ability to communicate with each other, creating the potential for diverse stakeholders to address the more contentious issues down the road. Furthermore, building trust between stakeholders, including government entities, and developing a common understanding for the issues facing the region can help reduce conflict over how stakeholders assess the risk of potential threats, such as unchecked development or hatchery fish. Employing an impartial facilitator to assist a collaborative process can help stakeholders communicate more effectively with each other.

Furthermore, due to the inability to collect accurate data in remote areas because of cost and weather restrictions, federal managers are limited in their ability to accurately assess risk in the watershed as required through NEPA processes. Collaboration that aims to leverage local and traditional knowledge can supplement Western scientific data

that is infeasible to collect and help ensure public managers are making responsible resource decisions.

Perceptions of Collaboration

Including all stakeholders in the region in the development of a collaborative structure will help overcome stakeholders' preconceptions of collaborative processes. Identifying stakeholder concerns ahead of time can help a group develop a collaborative structure that best fits the culture and needs of the region and can avoid the development of a process that reflects the preconceptions expressed by stakeholders.

Contribution to the Broader Field of Collaboration

This case study provides a better understanding for the environmental, social and political conditions in rural regions that can help or hinder a collaborative resource management effort. Finding common ground among diverse stakeholders can serve as a solid foundation on which to build a collaborative effort, however it appears that many of the factors that divide stakeholders are regionally dependent, for example the politics of the state of Alaska, the matrix of land-ownership in the watershed and the history of relationship between stakeholders.

Further case studies in Alaska can help to better understand the impacts of state policies and politics on collaborative resource management in the state, while case studies beyond Alaska can help identify what region-specific and political characteristics are most important to identify prior to moving forward with collaborative efforts.

Balancing subsistence lifestyles with a cash economy is a major challenge to collaboration that is not largely discussed in the broader literature on collaborative resource management. Perhaps the fact that subsistence is not widely practiced in other regions where collaborative efforts have been studied is the reason behind this. However, internationally there are still rural, isolated populations that live directly from the land yet have little say in the management of the resources upon which their very survival depends. When the dominant majority does not have a solid understanding for subsistence, it is important to establish a culturally sensitive means to better insert subsistence voices into the management of resources as well as work to build a broader understanding for subsistence living.

Integration of local and traditional ecological knowledge with Western scientific data is another challenge to resource management and to collaborative efforts, where stakeholders who traditionally do not naturally think from a Western science perspective will be less likely to buy-in to an effort that does not respect their method of measuring ecosystem changes. This challenge is founded in the fact that policy decisions are typically based on Western scientific data, but this case highlights how it can be infeasible to collect scientific data due to high costs and inclimate weather. Future research should explore ways to effectively and respectfully integrate local and traditional ecological knowledge into policy decisions and public agencies' assessments of risk. Furthermore, public administration programs should prepare public employees to effectively participate in collaborative structures, providing them with the skills and tools

necessary to address the challenges of participation in collaborative structures inherent to public agencies

This case study also demonstrates how collaboration can help to level the political playing field between disparate power players in resource management decisions. Future research should look at how a collaborative structure can effectively adapt over time as the stakeholders involved grow to represent a broader range of constituents.

Reflection on Methodology

In-person key-informant interviews were essential to the success of this research project and were largely made possible because respondents were familiar with the researcher or because the researcher came recommended by a common peer. Many respondents appreciated the fact interviews were recorded because it ensured their thoughts were accurately captured. All participants appreciated being asked to participate in the study and believed such personal interactions are effective for gathering meaningful input about resource management. While this might not be feasible all the time due to money and time issues, it is important to explore the possibility of in-person conversations due to the ability to gather information as well as establish trust with stakeholders.

The interview guide provided an effective framework for conversations with stakeholders. By providing open-ended questions, participants were able to take the conversation in their own direction, raising points the researcher might not anticipate prior to the conversation. Rather than identifying various management structures for participants to respond to, it would have been helpful to discuss with participants the

components of a collaborative effort they think are important to include in a collaborative process, especially those that would lead them to consider participating in a collaboration. This question would allow the researcher to gain a better understanding of participants' perceptions of collaboration as well as provide valuable information for moving forward with a collaborative effort.

Conclusion

By identifying the antecedents to collaboration, one is able to discover opportunities for establishing a collaborative structure. Building on these opportunities and effectively communicating them to stakeholders will help build buy-in to a collaborative structure. By identifying potential roadblocks to collaboration, it is possible to strategize ways to overcome or avoid pitfalls so as not to waste resources or reduce stakeholders' buy-in to the process.

In the case of the Copper River watershed, the interests of a wide range of stakeholders are rooted in salmon, and there is largely agreement among stakeholders on the current and potential threats to salmon and salmon habitat in this region. These factors creates an incentive to develop a proactive rather than reactive governance structure over the resources of the Copper River watershed, and can be the foundation upon which a collaborative approach to resource management is built. Additionally, recognition for the lack of political weight the region currently carries in resource discussions can also provide incentives for participating in a collaborative structure.

Improved communication between stakeholders as a result of collaboration can result in a better understanding for broad stakeholder concerns and experiences and can

improve trust between stakeholders. By uniting the voices and leveraging the efforts of organizations in the region, a collaborative structure can also help to level the power playing field between stakeholders in resource discussions in Alaska.

A collaborative structure in this sense is not intended to replace the existing public processes, but instead can ensure a wider range of perspectives are considered in resource management decisions than traditionally is the case.

APPENDIX A

OVERVIEW: COPPER RIVER WATERSHED, ALASKA

Information for this section was primarily drawn from Ecotrust's Copper River Knowledge System as well as from the researcher's personal experience of living and teaching informal science education in the region for 4.5 years.

Ecosystem Overview

The Copper River watershed covers approximately 27,275 square miles in southcentral AK (about the size of W. Virginia). The watershed is home to 5 Pacific salmon species (sockeye, king, silver, pink and dog salmon) and is an important component in the watersheds of the Pacific Rim due to the largely intact nature of the ecosystem. As other watersheds are increasingly impacted by harvest pressure and habitat alterations, healthy watersheds such that of the Copper River will play an important role in sustaining healthy, wild salmon populations in the Pacific ocean. The Copper River is also a major contributor of nutrients to the marine system which are important for marine life-cycles, and the freshwater from the Copper River helps to drive major circulation patterns in the Gulf of AK.

The Copper River watershed is divided into an upper and lower region by the Chugach Mountains. The top of the watershed is a basin surrounded by the Wrangell-St. Elias, Alaska Range, Talkeetna and the Chugach mountains. The climate is typical of 'interior' Alaska, complete with permafrost, black spruce forests, minimal rainfall

(approximately 12 inches/year in most places) and large temperature variations from winter to summer (-50-90 °F). Game harvested in the upper basin include moose, caribou, dall sheep, mountain goat, bison, deer, brown and black bear. Also found are grey wolf, coyote, fox, wolverine, lynx, martin, otter, mink, muskrat, beaver, shrews, voles, bats, hares, marmot, and lemmings.

The lower part of the watershed encompasses the northern reaches of Cascade bioregion that extends from San Francisco to Kodiak Island. This bioregion is made up largely of temperate rainforest and has a much smaller variation in temperature (30-75°F) and a much larger annual rainfall (160 inches rain/year).

The Copper River delta at the mouth of the Copper River is the second largest contiguous wetland in North America. It is important nesting grounds for waterfowl (It is the only nesting ground for the Dusky Canada Geese) and a crucial site in the Western Hemisphere Shorebird Reserve Network. An estimated 12 million shorebirds, the largest gathering of shorebirds in the western hemisphere, stop along the shores of the Copper River Delta on their way to more northern nesting grounds. Game species harvested are primarily moose, brown and black bears. Other mammals include weasels, mink, wolverine, land otter, muskrat, wolves, marten, porcupine and beavers.

Overview of Human Societies

Native Alaskans

The diverse human cultures of the watershed are also defined in part by the division of the watershed by the Chugach Mountains. The first people in region were the Alaska natives, with the Ahtna people living in the Copper River basin and the Eyak

people living on the coast. The Ahtna people caught their salmon from the river and harvested caribou, sheep and other interior game for food and trade. The Eyak people were primarily boat-based, catching their salmon in the ocean as well as other marine mammals, including seal, sea otters and whales. These tribes were historically at odds with each other, however today relations are peaceful despite the cultures still remaining distinct from each other. There are 8 federally recognized tribal governments throughout the Copper River watershed, including Chistochina, Chitina, Eyak, Kluti-Kaah, Gakona, Gulkana, Mentasta Lake and Tazlina who have sovereign agreements with both state and federal governments.

Early Explorers

There were approximately 35,000 people total in Alaska, mostly native, when the United States purchased Alaska from Russia in 1867. There were many explorations of the newly purchased territory, and in 1885 Lt. Henry Allen led the first expedition up the Copper River corridor and out the Yukon River drainage. At the same time explorations were pushing interior, the first cannery was established on the Prince William Sound at the bottom of the Copper River watershed in 1887.

On his journey, Lt. Allen observed the Natives using tools made from copper, which subsequently increased the number of expeditions in the Copper River basin in order to find the source of copper. In 1900, copper was discovered in what is now known as Kennecott. The copper found here was 70% Ore (Chalcocite) and is richest deposit ever found, worth \$200 million (present value). A 196 mile railroad, built from 1907-1911 by Michael J. Heney and his men, connected Kennecott with the port of Cordova

where copper could be shipped via boat to the rest of the world. The mine was lucrative until it closed in 1938. Attempts have been made to re-open the mine, but due to the high cost of accessing and transporting the remaining ore, it has not been worthwhile. In 1978, Kennecott was designated a National Historic Landmark as the best remaining example of early 20th century Copper Mining. Many of the structures along the river have been re-claimed by the dynamic nature of the river system.

In 1959, Alaska became the 50th state of the United States of America. Prior to statehood, all 375 million acres in the territory were considered federal lands, but 104 million acres became state land with statehood. There was an interest amongst some of societies' more affluent (and therefore influential) members to handle native land claims in a different means than the reservation approach in the lower 48. Therefore the state was pushed to settle the land claims prior to selecting their 104 million acres. In 1968, oil was discovered at Prudhoe Bay on the northern coast of AK, resulting in the desire to build a pipeline across the state. This in turn created more incentive to settle the AK Native land claims.

Alaska Native Land Claims Settlement Act

Alaska Native Land Claims Settlement Act¹ (ANCSA) was established in 1971 and granted Native Alaskans 1/9th of Alaska's land, or 44 million acres, and \$962.5 million in compensation for the remaining land. Native Alaskans were given access to this land and money through corporations. There were thirteen regional corporations

¹ For further information on ANCSA, the author recommends Mitchell, Donald. 2001. *Take My Land Take My Life; The Story of Congress's Historic Settlement of Alaska Native Land Claims, 1960-1971*. University of Alaska Press.

created that had access to surface and sub-surface land rights. Policies were created that equally distributed profits between regional corporations in order to make up for the fact that not all regions are equally resource-rich. There were also 220 village corporations created that only had access to surface land rights and included claims to original village sites, hunting grounds, burial grounds and traditional ceremonial places.

Native Alaskans were made shareholders through an ill-defined, poorly communicated process. One interview participant explained that where a native became a shareholder largely depended on the time and place they were. It should also be noted that shareholders in the corporations must be native, but managers of these entities do not. In the Copper River watershed, five different ANSCA corporations are landowners, including Chugach, Ahtna, Tatitlek, Chitina and Eyak Corporation.

Despite ANCSA settling Native Land Claims, there are still un-conveyed lands remaining today. Both the state and natives over-selected their allotted amount and the claims yet to be settled remain the most contentious. No deadline exists for the resolution of these claims and interview participants were uncertain as to when these claims will be finalized. The land that has not yet been conveyed to the state of Alaska or to native corporations is currently under the jurisdiction of the Bureau of Land Management (BLM). It is estimated that by the time selections are finalized, BLM will go from managing approximately 3 million acres in the watershed to about 830,000 acres.

Alaska National Interest Land Claims Act

The Alaska National Interests Land Claims Act (ANILCA) of 1980 was the next major policy that influenced landownership in Alaska and the Copper River watershed.

Under ANILCA, 104 million acres in Alaska were put into national parks, wildlife refuges (e.g. Arctic National Wildlife Refuge) and conservation areas. In the Copper River watershed, this had two major implications.

The first was the establishment of Wrangell St. Elias National Park and Preserve, the largest national park in the United States and largest land owner in the Copper River watershed (7.8 million acres in watershed). The establishment of the national park was not without controversy due to the fact that a national park is defined by the Park Service as an “area of unusual scenic or historic interest owned by the federal government and administered by the National Park Service, U.S. Department of the Interior, to conserve the scenery, the flora and fauna, and any natural and historical objects within its boundaries for public enjoyment in perpetuity (NPS website).” There were already people settled in what is now the park, living off of the resources of the region which could be put off-limits with a national park designation. Therefore, portions of the region were established as a national preserve, which allows for the taking of wildlife under certain conditions.

The other implication of ANILCA in the Copper River watershed was the requirement that the Copper River region in the Chugach National Forest be managed for fish and wildlife—the first and only National Forest of its kind.

Communities Today

This brief overview of the history of the state provides the background of the major landowners in the Copper River watershed. However, there are also other smaller private and municipal land holdings scattered throughout the watershed. Today the total

population of the watershed is 5,037 residents scattered between 14 different communities.

Upper watershed

There are approximately 13 isolated, rural communities throughout the upper watershed with no formal municipal governments. Three communities have over 350 residents while 10 range in size from 53-192 residents. A vast majority of these residents practice subsistence, which means they harvest food and other materials from the land (in the upper watershed, up to 340lbs of food per person). In some communities it is not uncommon for a family to live off of less than \$15,000 a year and meet most of their needs by harvesting resources from the land.

The upper watershed is connected to Anchorage, Fairbanks and the lower 48 via approximately 600 miles of roads and these roads are a major influence on the economy of the upper basin. The Copper River watershed is the 1st watershed accessed when tourists travel up the Alkan from the lower 48. During the summer months, an estimated 200,000 salmon are sought after in the region's lucrative sportfishing industry (valued approximately \$5 million). Furthermore, the AK State Constitution grants all AK residents equal rights to resources throughout the state. The Copper River watershed is the easiest watershed to access via roads making it a destination for much of the state's population that is centered in Anchorage and Fairbanks. All of these visitors that are attracted by salmon to the region help to support a small tourism industry in the upper watershed.

Large-scale cruises also have a major presence in the state of Alaska and the Copper River watershed is no exception—there is a Princess Lodge located in the middle of the watershed in Copper Center. This corporation does not hire local staff and because of the lack of local government it does not pay any local taxes. Therefore, the corporation does not give much back to the region yet continues to be a freerider on the volunteer emergency services and other infrastructure supported by the local residents.

Lower watershed

At the other end of the watershed is Cordova, the only community south of the Chugach Mountains. Cordova is home to almost half of the total population in the watershed (2,372 residents) and has the only formalized government (7 member city council). Cordova is only accessible by boat or plane, with approximately three car and passenger ferry runs/week across the Prince William Sound from Valdez or Whittier and at least 2 jet flights daily to/from Anchorage.

The reason for the high number of flights is attributed to the world-famous Copper River salmon fishery that makes up the base of Cordova's economy. An estimated 50% of households in Cordova are involved in the commercial fishing industry in some way, while an estimated 1.4 million salmon are harvested each year, bringing approximately \$20 million to regional economy. The commercial fishery is managed by the state of Alaska and is known world-wide for its management regime.

With the passage of the 1973 Limited Entry Act, a fisherman must buy-in to the fishery by purchasing a costly permit and a fisherman is only able to fish on that permit during designated commercial "openers". It should be noted that during the transition

from open to limited entry fishing, the percentage of Native fishermen went making up approximately 90% of fishermen to only approximately 10% of the fishermen.

A fishing opener is determined by escapement goals, or the number of fish managers estimate is needed upriver to spawn in order to sustain salmon populations into the future. The escapement formula incorporates an estimate of the number of fish targeted for human use (sport, personal use, commercial and subsistence fishing), wildlife use, as well as a goal for retaining a healthy spawning population. When the escapement goal is reached, a commercial fishing opener will occur.

There is also a sockeye salmon hatchery located in the northern reaches of the watershed. This is different than salmon farming and is considered salmon ranching, where eggs are incubated and protected in a hatchery until they hatch and grow into fry. This increases egg to fry survivorship from as low as 13 percent in the wild to over 75 percent in the hatchery. Salmon fry are then released into the wild to live the rest of the traditional salmon life cycle (migrate out to the ocean for a number of years before returning to their home stream to spawn and die). In the lower-48 hatcheries are often used to offset impact of dams and other habitat destruction. In Alaska they were established by the state government as a means to reduce fishing pressure on wild stocks and fisheries are ideally to be managed to target hatchery fish, not wild stocks. Today these hatcheries are run by a private nonprofit corporation and managed for compliance by the state.

Cordova's economy also depends on small-scale tourism and a large percentage of the local population practices subsistence (175 lbs of food/person).

Resource Extraction Pressure

It is important to note that there is a long history of resource extraction promoted by the state that has implications in the watershed. Specifically, it was mentioned that oil was discovered in Prudhoe Bay in 1968. After this discovery was a desire to move the oil to the first ice-free port in the state, which happened to be 800 miles south of Prudhoe Bay in Valdez, AK. This resulted in the construction of the Trans-Alaska pipeline which crosses over 76 spawning streams of the Copper River.

The pipeline infrastructure currently provides a limited number of monitoring and technical jobs to the region. There is a proposal to develop a natural gas line in the same pipeline corridor that could provide more construction and service jobs for residents. It should be noted, however, that the development of the Trans-AK pipeline more than doubled the size of the state's total population and had a series implications on the politics and therefore public policies of the state, which can continue with the development of the natural gas line.

There is also a strong history of appeasing mining interests throughout the state. Currently there are not strong extraction-specific interests within the watershed, but the road infrastructure of the region provides prime access to other high-valued sites and could lead to development to improve access to resources just outside the perimeter of the watershed. There has also been efforts put forth from the state to re-punch a road along the Copper River railroad corridor to improve access to other portions of the watershed, however all attempts at this have been halted thus far.

Finally, there have also been small-scale logging attempts in the watershed, although lumber pressure is lower here relative to other regions in the state and throughout the Pacific Northwest. The largest timber sales in the watershed were associated with a massive kill-off of trees due to a spruce-bark beetle invasion. Timber-pressure is not anticipated to increase in this region in the near future.

APPENDIX B

STAKEHOLDERS IN THE COPPER RIVER WATERSHED

There are a wide range of stakeholders in the Copper River watershed, with a stakeholder defined as a party directly or indirectly impacted by the management of land and resources in the Copper River watershed. The following list summarizes the stakeholders, with those interviewed distinguished by an asterisk. In many cases, a respondent was associated with various perspectives and therefore not every asterisk designates a separate conversation.

- Native AK*
- Native Corporations (5 total)*
- Fishing
 - Subsistence *
 - Personal use
 - Sport*
 - Commercial*
 - Hatchery*
- Government
 - Local
 - Tribal Governments (8 total)*
 - City (1 total)*
 - State of Alaska
 - Department of Natural Resources
 - Alaska Department of Fish & Game*
 - Department of Transportation
 - Federal
 - Bureau of Land Management
 - National Park Service
 - United States Forest Service*
- Recreation
 - Motorized (snow machines, boats, ATVs, ARGOs)*
 - Non-motorized (rafting, hiking, camping, etc.)*
- Nonprofits

- Science*
- Education*
- Advocacy*
- Sustainable Development*
- Public at large

APPENDIX C

INTERVIEW GUIDE

I. Introduction and project explanation

- Review and answer questions about the consent form
- Emphasize the voluntary nature of the project
- Explain the justification for voice recording, ensure participant agrees
- Ask if participant wants a copy of the digital recording. If yes, get mailing information.
- Ask participant how they want to receive a copy of the interview summary (email, mail, etc.) and get mailing/email address.

II. Gather descriptive information

- Name (if participant agrees to be identified)
- Community in which participant resides
- Is the participant a property owner in the Copper River watershed (where?, how much land?)
- Occupation/relation to the Copper River watershed
- Number of years living/working in Copper River watershed
- Interest in the Copper River watershed
- Perceived threats to the Copper River watershed—use black and white map so participant can point to locations and mark locations on the map
- What should be the goal or outcome of effective management in the Copper River watershed?
- Do you believe they are common or inconsistent with other stakeholder groups goals?

III. Current resource management practices in the Copper River watershed

- Review land ownership map in Copper River watershed.
- Ask participants who they perceive to be the key players in salmon habitat management in the Copper River watershed.
- Ask participant what they perceive to be the strengths of how land is managed in the Copper River watershed.
- Ask participant about what they perceived to be the weakness of how land is managed in the Copper River watershed.

IV. Potential changes that could take place to management in the Copper River watershed (open-ended)

- Ask participant about opportunities for altering the approach to land management in the Copper River watershed.
- Ask participant who should be involved in the management discussions in the Copper River watershed.
- Ask participant who should be involved in management decisions in the Copper River watershed.
- Response to specific governance models (citizen council, Board of Habitat, etc)
- Ask participants to recommend specific examples of effective management structures
- Ask participants what challenges need to be overcome in the Copper River watershed in order to implement effective land management practices that protect salmon habitat.

V. Identification of Key Stakeholders

- Ask respondents' to identify who they believe are key stakeholders in the Copper River watershed
- Ask respondent to provide an assessment of their views in comparison to other similar stakeholders (e.g. if a respondent is a commercial fisherman, they will be asked if their viewpoints are typical of other commercial fisherman. If no, they will be asked to recommend other individuals who have a different perspective who could be a potential interview candidate)

VI. Provide Time for Participants' Questions

- Ask participant if they have any questions for me
- Ask participant if they have any feedback on the project/interview
- Ask participant if they would like to be notified when project is completed

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