FROM STATE COLLECTIVES TO LOCAL COMMONS: COOPERATION AND COLLECTIVE ACTION AMONG SALMON FISHERS AND REINDEER HERDERS IN KAMCHATKA, RUSSIA

By

ANDREW PATRICK GERKEY

A dissertation submitted to the

Graduate School – New Brunswick

Rutgers, The State University of New Jersey

in partial fulfillment of the requirements

for the degree of

Doctor of Philosophy

Graduate Program in Anthropology

written under the direction of

Lee Cronk

and approved by

_____

_____

_____

_____

_____

New Brunswick, New Jersey

October 2010

ABSRACT OF THE DISSERTATION

FROM STATE COLLECTIVES TO LOCAL COMMONS:

COOPERATION AND COLLECTIVE ACTION AMONG SALMON FISHERS AND REINDEER HERDERS IN KAMCHATKA, RUSSIA

By

ANDREW PATRICK GERKEY

Dissertation Advisor:

Dr. Lee Cronk

This dissertation examines the factors influencing the emergence and stability of cooperation and collective action among salmon fishers and reindeer herders living on the Kamchatka Peninsula, Russia. Patterns of cooperation and the practices that sustain them have undergone dramatic changes following the collectivization and cultural construction of the Soviet era and the subsequent privatization and collapse of Soviet collectives in the 1990s. I examine the effects of these events in three contexts: (1) contemporary foraging activities; (2) post-Soviet collective institutions that continue to coordinate these activities; and (3) collective action movements addressing issues of indigenous rights, economic development, environmental conservation, and natural resource use.

During 19 months of ethnographic research, I collected data on cooperation in these three contexts by combining qualitative and quantitative methods. Using a structured survey, I collected measures of food-sharing for hunted, gathered, and gardened foods that allow me to

trace networks of social support within communities. I also conducted experimental economic games with fishers and herders in two villages, comparing levels of cooperation in Kamchatka with large and small-scale societies throughout the world. Combining standard versions of the games with versions "framed" to reference collective institutions, I forged connections between the abstract structure of the games and the lived experiences of the people who participated in them. I explored these connections further by comparing experimental measures of cooperation with the food-sharing behaviors of game participants, assessing the external validity of economic games as measures of cooperation. Using post-game interviews, I invited game participants to provide their own interpretations of the results and reflect on how the games related to experiences in their everyday lives. These interviews continued ongoing conversations that emerged as I participated in and observed daily life in Kamchatka throughout the seasons. By accompanying fishers and herders on foraging excursions in the tundra, observing efforts to transform and manage post-Soviet collective institutions within the village, and locating points of contact between local leaders and outside organizations, I gained an intimate understanding of the cultural norms and values used to form and sustain cooperative relationships within the community and across broader scales.

Preface

I would not have been able to complete this dissertation without the tremendous support of my family, friends, and colleagues. First, I want to thank my graduate advisor, Lee Cronk. Since my first visit to Rutgers, Lee has been a constant presence, never failing to provide me with opportunities to challenge myself, wise advice in the face of big decisions, and much needed reassurance to keep moving forward. Lee's book *That Complex Whole* outlined an approach to understanding behavior, culture, and evolution that I found tremendously inspiring when I began to consider pursuing a doctorate in anthropology, and his research in Kenya was a model of the kind of research I wanted to do as I designed my project in Kamchatka. I could not have asked for a better mentor to help me develop my ideas into a viable research project. He was always willing to meet with me, read drafts of my work, and provide unique and insightful feedback. No less important, Lee has become a good friend whose kindness and sense of humor made graduate school easier to tackle.

I thank all the members of my dissertation committee for the valuable guidance and insight they gave at every stage of my journey from Rutgers to Kamchatka and back. Robin Fox kindled my interest in the intellectual history of anthropology through a seminar he taught during my first year at Rutgers and a field statement he supervised on kinship later on. The way his research synthesizes the study of biology and culture inspires me to want to do the same, while his creativity and wit set the bar high. Bonnie McCay taught an excellent course on environmental anthropology that challenged me to develop a deeper interest in the interactions between humans and their environments. Her suggestions and ideas pushed my research in Kamchatka to expand in directions I had not anticipated, and her research on the commons helped me make sense of what I found there. Ryne Palombit time-and-again provided the kind

of encouragement that arrives just when it is needed most. His seminars on primate behavior were challenging, particularly for a student with little prior training in primatology, but he instilled a sense of camaraderie that consistently made the efforts rewarding. I thank my external committee member John Ziker for bringing his expertise on Siberian ethnography to help improve my research. His work on food-sharing and collective institutions provided knowledge and ideas that influenced the design of my project in Kamchatka at its earliest stages. Finally, I thank Robert Trivers for serving on my dissertation proposal defense committee and Laura Ahearn for helpful advice about ethnographic methods and research design.

There are many other people in the Rutgers Anthropology Department whose assistance and companionship on a day-to-day basis I am very thankful for. Dillon Mahoney, Bria Dunham, Montserrat Soler, Marc Shur, Michael Pante, Stephen Merritt, Adam Henrich, Noelle Molé, Darine Zaatari, Sarasij Majumder, Sharon Baskind, Benjamin Neimark, and other senior graduate students showed me the ropes, while Luca Morino, Emily McDonald, Chelsea Booth, Chaunetta Jones, Emmanuel Ndiema, Fatimah Williams Castro, Rolando de Aguiar, Helen Wasielewski, Frank Batiste, Robert Lynch, Kari Prassack, Sarah Schaeffer, Debarati Sen, Lincoln Addison, Nell Quest, Inga Veksler, Assaf Harel, Kartikeya Saboo, Michael Allen, Marshall Brooks, and other members of my cohort were always there to help plan, commiserate, and let loose. I am grateful to Penny Burness, Virginia Caputo, and the rest of the staff in the Anthropology Department for saving me from slipping through the cracks at Rutgers more than once!

I was very fortunate to have financial support for graduate study from the Andrew W. Mellon Foundation and the Rutgers Graduate School-New Brunswick, as well as teaching assistantships from the Rutgers Department of Anthropology and the Rutgers Writing Program.

I received pre-dissertation research grants and conference travel grants from the Rutgers Graduate School-New Brunswick, the Rutgers Department of Anthropology, and the Rutgers Center of Human Evolutionary Studies that were crucial to designing my dissertation project. I also thank Teresa Delcorso and David Pickens at the Rutgers Chaser resource center for graduate student external support for their assistance in locating funding for my dissertation fieldwork and their advice that made my applications stronger. I am also very thankful for funding from the Fulbright Institute for International Education, the U.S. National Science Foundation Arctic Social Sciences Program, and the Wenner-Gren Foundation, which made it possible to conduct long-term fieldwork in Kamchatka.

Before I first visited Kamchatka, I spoke with Alexander King, who provided information and encouragement that helped convince me to venture to this new and amazing place. When I first arrived in Kamchatka, Viktoria V. Petrasheva, Yulia V. Vasileva, and Tatiana S. Degai took me in, introduced me to Petropavlovsk-Kamchatskii, and helped me feel like I was at home. The Kamchatka Pacific Institute for Geography and its late director, Robert S. Moiseev, were kind enough to provide me with an academic affiliation and assist me in obtaining the necessary permissions to conduct research in Kamchatka. Still, my research in the Oliutorskii Raion would never have been possible without the wonderful, hospitable people I met there from my first arrival onward. Albina V. Yailgina met me when I first landed in Tilichiki and helped me find my way to Khailino and Vyvenka on many subsequent occasions. During my visits to Tilichiki, she always kept me on my toes with interesting conversations, and I thank her for helping me understand life in Kamchatka's rural villages. She also introduced me to Anatolii A. Sorokin, my good friend and research assistant whose kindness and intelligence I am so thankful for. His parents, Nina I. Kiyaurgina and Anatolii N. Sorokin, took me into their home in a moment of

true need when I was still a stranger, and since then they have treated me like a son, for which I will always be grateful. Other people who showed me tremendous hospitality are Pyotr I. Petukhov, Larisa V. Petukhov, Leonid P. Petukhov, Ivan Osipov and his late mother Galina I. Osipova, Irina A. Makarova, Tatiana Z. Cherkasova, Svetlana I. Muluve, Elena P. Markina, Lidia G. Galganinvid, Oleg P. Galganinvid, Giorgi N. Ivkumnin, Sergei Ravyvylin, Anastasia O. Galganinvid, Svetlana V. Bunina, Larisa Ankudinova, and Ildar Aziukov. These people took me into their homes, looked after my health and safety, and made my time in Kamchatka truly enjoyable. I owe special thanks to Rosalia G. Dechuli and Giorgi N. Ivkumnin for providing me with research assistance, as well as Zhana Mamycheva and Elena Abramyan for help while conducting the experiments with economic games. There are many, many people living in Tilichiki, Khailino, Vyvenka, and elsewhere in Kamchatka who deserve to be thanked for welcoming me as a guest in their homes and sharing their lives with me. Though I can't name them all here, I want to acknowledge them collectively and tell them that they have shown me things about life that I will never forget.

My final words of thanks go to my family. I have learned a lot from my grandparents, Elsie Madeline Goss, Clarence Goss, and Mary Jane Gerkey, who always let me feel their love. My uncle, Stephen Gerkey, has given me welcomed advice and good humor, particularly about navigating the challenges of graduate school. Finally, I want to express my deep and eternal gratitude to my parents, Patrick Gerkey and Martha Gerkey. They brought me into the world, showed me how to live, told me to follow my bliss, and supported me even when it took me far from home. They were always there for me when I was frustrated or anxious, finding a way to help me through. None of this would have been possible without them. They also read every

word of this dissertation, shared their thoughts, and made suggestions that greatly improved my work. I dedicate this dissertation to them with love.

Table of Contents

List of Figures

List of Tables

Chapter 1:

Continuity amid Uncertainty

Introduction

The Kamchatka Peninsula stretches south into the Pacific Ocean from the northeastern corner of Asia, located in a region called the Russian Far East. The Itelmen philosopher and ethnographer Viktoria Petrasheva noticed that if you look at Kamchatka on a world map, tilting your head slightly to the left, the peninsula looks like a salmon leaping into the ocean from land. This mental image is apt considering that Kamchatka is one of the world's last strongholds for wild salmon. All seven species of Pacific salmon—pink, sockeye, coho, chinook, chum, cherry, and steelhead/rainbow trout—spawn in the many rivers and streams that flow into the ocean through the mountain valleys and volcanoes that run like a spine up the peninsula. Indigenous peoples who inhabit Kamchatka—Itelmens, Koryaks, Chukchis, and Evens—have long relied on these salmon populations to sustain their communities. However, some people who live in the expansive tundra that covers the northern part of the peninsula have relied more heavily instead on herding reindeer. These two traditional subsistence activities, salmon fishing and reindeer herding, are the starting point for my research. In the chapters that follow, I examine how the ways of life these activities support and the people who practice them have transformed through periods of Russian colonial expansion, Soviet collectivization, and post-Soviet *perestroika* or "reconstruction."

Salmon fishing and reindeer herding are inherently cooperative subsistence strategies that require the coordinated talents and efforts of multiple individuals. Spending time along the river or in the tundra observing how people perform these activities today, one can easily find continuity with the earliest descriptions of fishing and herding produced by ethnographers who

arrived in the first years of the 20th century. Yet, even then, the practices, knowledge, skills, and social relationships underlying fishing and herding were already transforming as a result of two centuries of contact with Russian colonial expansion. In the 1930s, these transformations accelerated when Soviet officials began to compel and coerce fishers and herders to participate in collectivization, forming institutions designed to bring salmon fishing and reindeer herding under state control and to industrialize these activities according to the logic of Soviet modernity. For the next 60 years, indigenous people in Kamchatka went from autonomous herders, fishers, and foragers to workers in collective institutions and citizens of the Soviet Union. While some people actively resisted these changes, others either found tactful ways to maintain continuity with their past or chose simply to embrace their new identities. By the time the Soviet Union collapsed in the 1990s, few people were left who had ever lived without it. Indigenous peoples faced newfound freedoms, but they also struggled with the profound uncertainties of the post-Soviet era. Throughout these dramatic transformations, people have continued to practice salmon fishing and reindeer herding. Thus, these activities and the patterns of cooperation that emerge from them are a major source of continuity for indigenous peoples in Kamchatka.

The importance of cooperation in the unique histories of Kamchatka's indigenous peoples initially attracted me to conducting research there. I was interested to understand the factors that led to the emergence and stability of cooperation, to observe how cooperative relationships were negotiated among fishers and herders, and to learn how these relationships and the cultural norms and values that informed them had transformed over the years. But I would not be able to pursue these questions if I had not initially experienced a taste of cooperation in Kamchatka first-hand. I made my first trip to Kamchatka in the summer of 2005, spending one month in Petropavlovsk-Kamchatskii, the regional capital of the Kamchatskii Krai,

as well as two villages called Tilichiki and Khailino, located on the northern part of the peninsula in the Oliutorskii Raion.[1]

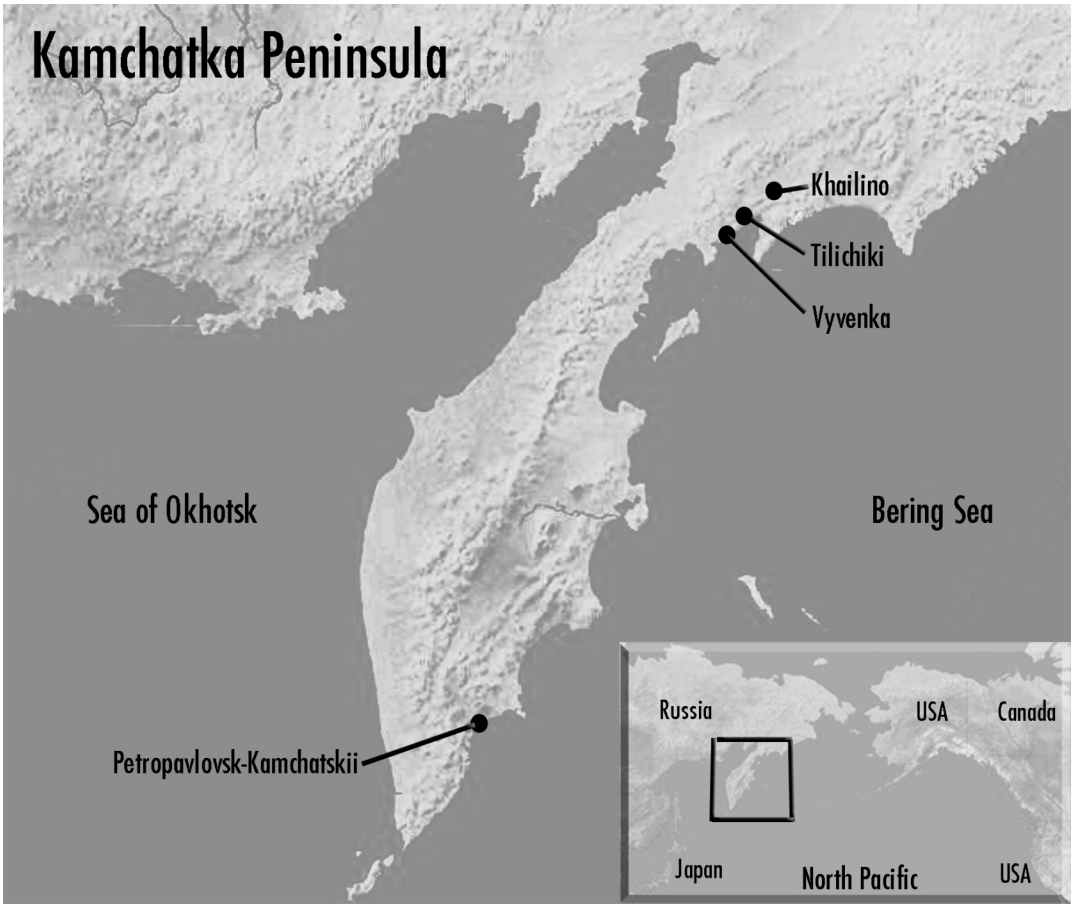

Figure 1.1. Map of the Kamchatka Peninsula and the North Pacific

I arrived with only the names of two people, one living in Petropavlovsk-Kamchatskii and the other in Tilichiki. I had completed one year of Russian language instruction, but I would not have accomplished much on that first trip without the help I received from two young relatives of my initial contacts, both university students about my age who spoke English. Their kindness was matched by the people I met in the city and villages, who tolerated my poor Russian and the

[1] The Kamchatskii Krai is an administrative and political entity that encompasses the entire Kamchatka Peninsula. Prior to a 2007 referendum, the peninsula was divided into the Kamchatka Oblast on the southern half and the Koryak Autonomous Okrug on the northern half. The Oliutorskii Raion is located in the former Koryak Autonomous Okrug on the northeastern shore of the peninsula. There are no clear and consistent English translations for the Russian terms "Krai," "Oblast'," "Okrug," and "Raion" so to avoid confusion I do not translate them. They are generally equivalent to a state or province, though a Raion is a kind of district or county.

excruciating pace of speaking through translators. What these people told me and the tolerance they showed in telling it convinced me that I could do research in Kamchatka. The connections I made with the people in these places also inspired me to study Russian for the next three years, so we could speak to each other directly the next time I arrived. Between 2007-2009, I spent 18 more months conducting research in Russia, including 15 months in Kamchatka. The majority of the time I spent in Kamchatka was divided among Tilichiki, Khailino, and another village in the Oliutorskii Raion called Vyvenka. Before describing my research questions and the theories and methods I use to explore these questions, I want to share some more detail about the contexts of cooperation in Kamchatka that intrigued me when I first arrived.

Salmon fishing & reindeer herding

While one can imagine that salmon fishing and reindeer herding would require a certain level of cooperation in order to be successful, I only began to appreciate fully the many different forms of cooperation underlying these activities after spending time observing people closely and eventually participating in the practices of fishing and herding myself. In the summer, people living in the rural villages where I worked spend the majority of their time in seasonal fishing camps along the river. A fishing camp, called a *rybalka*, is usually established in the same place from one year to next, with certain locations informally recognized as belonging to individuals or families. Some people remain at the rybalka for days and weeks on end, while others shuttle back and forth between the rybalka and the village. On any given day, a person visiting a rybalka might find a unique collection of people working together who belong to an extended family, spanning two or three generations, but may also be close friends or simple acquaintances. Fishing techniques vary from one location to the next, depending primarily on the speed of the

current as well as the width and depth of the river. In areas where the river is wide and the current slow, people set medium sized nets perpendicular to the shore, anchoring them at the far end, with flotation devices keeping the top of the net just below the surface of the water and metal weights pulling the net down toward the river bottom. If salmon are migrating in small numbers, people periodically check the net by moving along the top in a small boat, removing the salmon that they find there one by one. When salmon migrations are at their height, nets are set, quickly filled with hundreds of salmon, and pulled in to process the catch.

In narrow and fast-moving parts of the river, people use a different technique. The net is folded on the bow of the boat, and two people wait there as the person piloting the boat from the stern moves toward the shore. Once the boat reaches the shore, one person jumps out from the bow, holding a rope attached to one end of the net in hand. The pilot backs the boat away from shore at a perpendicular angle, allowing the net to slip off the bow and into the water until it becomes taut, held on one end by the person on the shore and on the other by a person standing in the bow. The pilot turns the boat downstream, and the person on shore walks downstream as well, keeping the net perpendicular to the shore. After 15-20 yards, the pilot turns the boat back toward shore where the person holding the net stands, bringing both ends of the net together. Quickly, people begin to pull each end of the net on shore. For the first 20-30 seconds, the net bulges but everything is silent, until suddenly the surface of the water explodes and begins to churn with hundreds of salmon entangled in the net. The net is pulled into shallow water or onto shore, the salmon are removed and thrown into the boat, and then the catch is brought back to the rybalka for processing.

Although one person could certainly process salmon working alone, due to the large amounts of salmon that are caught in a single cast, people usually need to work together. For the

most part, men operate the nets to catch salmon and women work to process the salmon on shore. However, these gendered divisions of labor are flexible to the circumstances, so it is not uncommon to find men and women doing both tasks. Salmon that are not eaten fresh are processed by drying, salting, or smoking in order to preserve them for consumption throughout the year. Among these techniques, drying and salting are most common. Salted salmon is prepared by cutting salmon into filets of different sizes, and placing them in barrels or plastic buckets along with handfuls of salt. Dried salmon, called *yukola*, is prepared by cutting thin filets along each side of the salmon, leaving them attached at the tail, with the skin on the outside. These filets are placed on horizontal wooden poles, with the tail sticking up into the air and the filets hanging down from either side. When the weather is dry and there is a steady breeze, the surface of these filets begins to dry and harden, protecting the yukola from spoiling. Eventually, the moisture from the filets is almost entirely gone, resulting in a kind of salmon jerky that will not spoil if properly stored. Working together over several weeks or a month, a group of 5-10 people can process enough salmon to feed their families for the rest of the year.

Reindeer herding today occurs far from the villages, with groups of about 5-10 people migrating through the tundra as they guide a herd of reindeer from pasture to pasture. These groups were once composed of extended families, but during the Soviet era they were transformed into a "brigade" (*brigad*) that usually includes a leader called the "brigadier," several other male herders, and one or two female herders called "tent workers" (*chum rabotnitsi*"). Although some members of the brigade may belong to the same family, most of the herders have children, partners, or family members who reside permanently in the village. As a result, herders work for several months with the herds on the tundra, sometimes living as far as 200 km from the village, before being replaced by other herders so they can spend several

months in the village with their families. While working with the herds, members of a brigade take turns attending to the reindeer, keeping them together, monitoring their condition, and protecting them from wolves and bears. Each night, in winter and in summer, one or two herders stand watch over the herds to minimize wolf predation until replacements arrive in the morning. This daily practice is particularly impressive considering that the northern latitude of Kamchatka means that winter nights are long and temperatures can easily drop as low as minus 40 degrees Fahrenheit. Clothing sewn from reindeer hides by female herders makes these feats possible, providing a level of protection from wind and cold that few other materials can match.

The level of cooperation necessary in reindeer herding was illustrated to me vividly one day when I had the opportunity to observe a spring corral. The goals of the spring corral were to count the number of reindeer in the herd prior to the spring calving season and to castrate a large number of juvenile males in order to maintain a ratio of 10 females for every reproductive male. The herders migrated to a particular location about 150 km from Khailino, where a circle of poles had been planted in the ground, with a row of hedges cut to extend like a V-shaped funnel with the narrow point touching the edge of the circle. While some herders began to move the herd toward the corral, others took burlap and canvas sheets and strung them from post to post, creating an enclosure with an opening about 30 yards across. Lengths of canvas stretched to each side of this opening, lying on the ground along the hedge. As the herd approached the corral, I sat with several herders as they squatted along the hedge, ready to close in behind the herd once it had entered the corral.

Domesticated reindeer tolerate the presence of people who know how to act around them, but with the exception of a small number of reindeer that are trained for use with sleds, a person cannot generally walk up to one and lead it somewhere. When herders need to hold a particular

reindeer, they usually lasso it and pull it toward them until it calms down and allows them to handle it. Moving entire herds can be difficult. Reindeer herds are fluid, so if a herder presses the herd too forcefully or unevenly on one side, the reindeer simply scatter in different directions, rather than maintaining their shape as a single group. Watching how herders were able to move the herd into the corral helped me appreciate the skills and coordination that are essential to their work. As the herders slowly pushed the herd toward the opening of the corral, the reindeer began to form a tight circle, with about 1,500 animals running counter clockwise around the edges or mingling in the middle. One herder crouched at the corral opening behind two trained sled reindeer that he held by a rope, hoping that their presence would put the herd at ease. Three or four other herders moved along the far side, slowly walking toward the herd in an attempt to push it closer to the corral. Reindeer hooves pounded the snow that still covered the tundra, combining with the clicking of tendons to create a sound like heavy rainfall. Above the noises of the herd, I could hear the herders communicating with the animals, cajoling them with words, calls, whistles, grunts, and other noises as they pressed forward. The herders could not physically force the reindeer to enter the corral, but had to channel them like water, altering the physical and emotional landscapes around them.

As the herders coaxed the herd toward the corral opening, a few animals would begin to enter, their movements slowing into a kind of eddy outside the current that engulfed the rest of the herd. The herders struggled to master the fluidity of the herd with subtle gestures rather than direct force, pressing forward but then shifting sideways or retreating in response to the movements of the herd. Several times it appeared that the herd would enter the corral, only to have some reindeer spook and scatter, causing the entire herd to run out onto the open plain. Each time, the herders chased after them, brought them back into a single, circling mass, and

pushed them back toward the opening of the corral. The herders were patient, and aside from moments of frustration when the herd ran off, things appeared to be going well. They shouted occasional instructions to each other, especially when a few reindeer began to break off in another direction or when the herd began to shift away from the corral. However, for the most part they simply talked to the herd, each performing his part of the task. After multiple attempts, the flow of reindeer into the corral finally exceeded some threshold, and the herd quickly ran into the center of the corral. Grabbing the line of canvas from the ground along the hedge, the herders rushed to close the opening, sealing the herd inside. While the herd began to circle in the center of the corral, poles were brought to hold the final wall in place. A small opening about 10 ft. wide was left in the canvas as a gate to allow reindeer to exit in small bursts, enabling the herders to count them accurately.

These brief descriptions of salmon fishing and reindeer herding are intended to capture some of the forms that cooperation takes among the people who practice these activities, though there are certainly many others. Another form of cooperation that is important to emphasize is the way the food these activities produce is redistributed throughout rural villages. When reindeer herders arrive in the village, they bring reindeer meat with them and circulate it among family, friends, and acquaintances. Similarly, a fisher returning from the rybalka with fresh fish often gives part of the catch to people who were not able to fish for themselves. Salmon that is salted and dried for storage moves between households according to shifting needs throughout the year. The same is true for gardened foods like potatoes and vegetables as well as berries, mushrooms, and other foods gathered from the tundra. These food-sharing practices have long been an important form of cooperation for people living in Kamchatka's rural villages.

Cooperation & collective institutions

Upon arriving in a rural village in Kamchatka with an interest in salmon fishing and reindeer herding, one notices the influence of collectivization in either the continued presence or the glaring absence of Soviet collective institutions. In each village, at least one *sovkhoz* ("state farm") or *kolkhoz* ("collective farm") was founded during the Soviet era, becoming what some have called a "total social institution" (Humphrey 1998). Sovkhoz and kolkhoz collectives not only coordinated economic activities like reindeer herding, salmon fishing, and hunting, but also introduced forms of agriculture and animal husbandry, initiated construction projects, and provided jobs, housing and a range of public goods. While these collective institutions enjoyed substantial government support during the Soviet era, one of the first changes brought by post-Soviet policies of perestroika was to push these collectives toward privatization. Sovkhoz and kolkhoz collectives were expected to divide their resources, equipment, and assets among their members, or to transform their organizational structure into one of several different kinds of private companies. In some villages, people resisted this policy and found ways to maintain Soviet collectives more or less unchanged by shifting responsibilities of ownership and management from the state to regional or district governments. In villages where Soviet collectives collapsed or were privatized, the contributions they made to the community were sharply curtailed or ceased to exist entirely. In villages where Soviet collectives struggled to remain viable on substantially reduced government subsidies and support, salaries were delayed for months on end, resources dwindled, technology broke down, and the collective's role as a total social institution wavered.

Amid all the uncertainty over the future of Soviet collectives, indigenous activists and ethnographers began to advocate for a new kind of collective institution, called an *obshchina*.

The word "obshchina" referred to what Russian and Soviet ethnographers described earlier as the fundamental socioeconomic unit among indigenous peoples throughout Siberia, prior to collectivization. In its post-Soviet incarnation, the obshchina became a formally recognized collective institution whose purpose was "to support the traditional economic activities and ways of life for indigenous peoples." Although the early laws that created the obshchina were ambiguous about formal rights and obligations, indigenous people in many communities founded obshchina collectives (pl. *obshchiny*) in order to establish a degree of autonomy from Soviet collectives. For example, in Khailino an obshchina was founded in the early 1990s to assume control over the private reindeer that were owned by individuals within the village during the Soviet era but had always remained a part of the sovkhoz herds. As people began to found obshchiny throughout Siberia, indigenous activists and community leaders pushed harder to specify the formal rights to access land, natural resources, territories, and forms of government support available to these collectives. When I first arrived in Kamchatka in 2005, these efforts had taken an interesting turn. Obshchina collectives were successfully lobbying to receive "industrial" salmon quotas that would allow them to harvest far greater amounts of fish than indigenous people had previously been allowed under existing "subsistence" quotas. At that time, I was told there were between 5-7 obshchiny in the Oliutorskii Raion. When I returned in 2007 to begin 12 months of research, that number had tripled and showed signs of increasing even further.

These newly formed obshchiny, combined with the lingering Soviet collectives and their privatized counterparts, represent an increasing level of institutional diversity among the collectives coordinating salmon fishing and reindeer herding in Kamchatka. Ethnographers working throughout Siberia have documented a similar trend. These different collective

institutions, their unique organizational structures, and the combination of cultural norms and values within them, provide an opportunity to understand the factors that lead to the emergence and stability of cooperation. I was interested to learn more about this institutional diversity. Why did people chose to support one collective institution and not another? Did these institutions combine different aspects of culture that could be traced back to Soviet or pre-Soviet pasts? How did these collectives establish a balance between individual and common interests among their members?

Collective action

The emergence of obshchina collectives and the forms of advocacy involved in them raise additional questions. What role do collective institutions play in broader collective action movements that have arisen during the post-Soviet era to address issues of indigenous rights, economic development, and environmental conservation? One reason the obshchiny in Kamchatka eventually received access to industrial salmon quotas was the involvement of the Russian Association for Indigenous Peoples (RAIPON), a national indigenous rights group founded in the early 1990s that included smaller regional and district branches composed of representatives from rural villages like Khailino, Tilichiki, and Vyvenka. RAIPON was already actively participating in international forums like the United Nations and the Arctic Council, also forming partnerships with a variety of non-governmental organizations. People in rural villages could potentially benefit from these efforts, but participating in such collective action movements also posed a number of dilemmas. Who would take their time and devote the effort to work in village and district associations on behalf of others in the village? Where would funds be found so that representatives could attend regional and national RAIPON meetings? How

would partnerships with outside organizations be formed and negotiated, and what new skills, knowledge, and experience would be required? Would participating in these collective action movements entail further transformations in reindeer herding and salmon fishing, as well as the ways of life people sought to preserve and develop?

Theories of cooperation

The questions these forms of cooperation and collective action in Kamchatka inspire can be examined by drawing upon research that spans the natural and social sciences. Theories of cooperation in the natural sciences focus on understanding the social dynamics between individuals who must decide whether or not to cooperate with one another. These theories are stated in broad terms and applied to a variety of species, but research that focuses on cooperation among humans has attracted significant attention. One reason is that human cooperative behaviors are expansive, moving beyond dyadic interactions to include institutions that coordinate the actions of multiple individuals and collective action movements that bring together hundreds and thousands of people. Although approaching these phenomena from different perspectives, social scientists have also devoted a great deal of attention to cooperation and collective action. However, despite these common interests, theoretical and methodological synthesis between the natural and social sciences has been slow in forming around these research themes.

As an anthropologist whose interests lie in both evolutionary and cultural anthropology, I am particularly excited by the possibility of such a synthesis. Evolutionary anthropologists have already developed an insightful body of research by applying theories of cooperation from the natural sciences to the study of cooperative behaviors among humans in a variety of contexts.

One strength of this approach is that evolutionary theories of cooperation are intended to identify conditions where cooperation can emerge and stabilize over generations, a temporal perspective that is much broader than most theories developed in the social sciences. A second strength of evolutionary theories is the focus on identifying factors that can be found in different contexts throughout the world, improving the likelihood that insights from research among people in one place can be applied to others. However, the focus on these common factors often means that evolutionary theories have difficulty addressing the particularities of people and place. With regard to humans, cross-cultural diversity and the many different contexts where people do and do not cooperate throughout the world are still not well understood in evolutionary terms. Cultural anthropologists, on the other hand, are inclined to devote a great deal of effort to documenting this diversity and understanding how it affects cooperation in different contexts. Yet, the explanations they develop are often tailored to the particularities of people and place in ways that make it difficult to apply their insights to cooperation in other contexts.

One reason for the difficulty in synthesizing research on cooperation in evolutionary and cultural anthropology—or between the natural and social sciences more broadly—is that the methodologies different researchers use rarely overlap with one another. Shared methodologies produce data that engages researchers who may hold different theoretical perspectives in dialogues over the contexts where data was collected, the techniques used to analyze it, and the interpretations of results. Establishing such dialogues in the research on cooperation is one of the aims of my methodological approach.

Research design

My research on cooperation and collective action in Kamchatka was designed to generate measures of cooperation in a variety of contexts, utilizing both quantitative and qualitative

ethnographic research methods. These contexts include: (1) experimental economic games, (2) networks of food-sharing, and (3) post-Soviet institutions and collective action movements.

Experimental economic games

Experimental economic games are among the most widely utilized methods for studying cooperation in the natural and social sciences. Derived from the theoretical perspectives and empirical models of game theory, economic games reflect an attempt to isolate and understand how specific factors influence an individual's decision to cooperate or defect (Maynard Smith 1982; Gintis 2000). These factors can include the structural properties of a social dilemma, the range of options provided to individuals, the costs and benefits that determine the consequences of particular decisions, and the information available for making those decisions. While game theorists designed quantitative models that explored these factors by positing different theories of individual behavior, this line of research was invigorated by transforming these models into experimental games that people could actually play. Participants in these games were initially drawn for the most part from the United States and Western Europe, later expanding to other large-scale societies. Recently, anthropologists have adapted these economic games to study cooperation among more diverse participants living in small-scale societies throughout the word, beginning with Henrich *et al.*'s (2004) landmark cross-cultural project. By conducting these economic games in Kamchatka, I sought to generate experimental measures of cooperation that could be compared with and contribute to this growing body of research.

The opportunity to compare patterns of cooperation in diverse contexts throughout the world is not the only advantage of economic games as a research method. Because economic games represent an experimental environment for individual action, researchers can modify the

structure of these environments in ways that control some variables and explore the causal effects of others. If a researcher is successful in doing so, experiments can provide insights into the causal connections between variables and individual behaviors that can only be derived from other methods with greater difficulty and less reliability. This is because research on cooperation or any other behavior in naturally occurring contexts cannot isolate the influence of particular variables by randomly assigning individuals to different treatment conditions. Although random assignment in experiments is not a perfect solution to the problem of determining causality, it does provide a degree of confidence in making certain knowledge claims that other quantitative and qualitative methods cannot provide, when the appropriate assumptions are valid. With this strength of economic games in mind, I designed games that would allow me to explore the influence of collective institutions on patterns of cooperation in experimental contexts.

I combined a standard version of an economic game called the "public goods game" (PGG) with versions of the PGG that were "framed" to reference two kinds of post-Soviet collective institutions, the sovkhoz and the obshchina. Participants were randomly assigned to one of the three versions of the PGG, allowing me to determine whether or not framing the game in reference to collective institutions affected patterns of cooperation in Kamchatka. Thus, these experiments were designed to connect with comparative studies of cooperation throughout the world, but also to generate insights about the unique contexts of cooperation in Kamchatka represented by post-Soviet collective institutions. My interpretations of the results of these experiments were also informed by semi-structured and informal interviews that I conducted with participants in the days and weeks following the games. In these interviews, I asked participants to share their understanding of the experiment, explain the factors that influenced their decisions, and assist me in interpreting the results. In this way, I hoped to uncover

connections between cooperation in experimental and naturally occurring contexts in Kamchatka.

The behavioral ecology of food-sharing

An important question about experimental economic games as a method for studying cooperation is the extent to which individual decisions in these experimental contexts correspond to decisions in naturally occurring contexts of cooperation. In order to address this question, I used a structured survey to generate measures of food-sharing between households in the rural villages in Kamchatka where I worked. Roughly 43 of the 70 participants in the PGG completed these surveys, along with 42 additional people who completed the survey alone. The overlap in participants who completed the PGG and the survey allows me to compare measures of cooperation in both contexts, while analyzing the complete sample of surveys separately allows me to explore additional factors that influence cooperation in the naturally occurring context of food-sharing.

These factors include demographic and economic variables, such as age, education, and income, as well as variables that evolutionary theories of cooperation predict will be influential, including kinship and reciprocity. First, I analyze the effects these variables have on patterns of cooperation using quantitative statistical models. Then, I complement this analysis with insights gained through more qualitative ethnographic methods, including participant observation with people engaged in subsistence activities in the tundra as well as semi-structured and informal interviews about these practices and the cultural norms and values that inform them. My research on cooperation in this context contributes to the extensive literature on food-sharing in evolutionary anthropology and establishes the importance of social networks of support for residents of rural villages as they adapt to the mixed economy of post-Soviet Kamchatka.

Post-Soviet institutions & collective action movements

Traditional subsistence activities like reindeer herding, salmon fishing, and foraging remain integrated with collective institutions in significant ways. Post-Soviet collective institutions structure the opportunities and dilemmas that influence contemporary practices, as well as the cultural norms and values that inform individual decisions. In order to secure formal and informal rights to access the capital, equipment, and resources that are essential to successfully practice herding, fishing, and foraging, individuals often pursue their own interests by acting collectively in a variety of economic and political arenas that extend beyond their villages. Doing so brings indigenous residents of rural villages into contact with governmental and non-governmental organizations, in turn connecting them to collective action movements focused on indigenous rights, economic development, and environmental conservation. The politics of these movements in Kamchatka reflect the historical and cultural legacies of indigenous peoples in Russia. The ways people discuss, debate, and devise strategies for action express the unique post-Soviet subjectivities that have emerged among indigenous people who draw on these legacies as they plan for the future.

In order to understand these subjectivities, I documented the institutional diversity in post-Soviet collectives and explored how these collectives are both shaped by and re-shape broader cultural, ecological, economic, and political contexts on the one hand, and contingent perceptions, ideas, interests and identities of individuals on the other. Focusing on collective action dilemmas associated with Kamchatka's legendary salmon fisheries, I draw on my experiences participating in and observing meetings among indigenous rights activists, the daily activities of fishers and herders in different kinds of collectives, and development programs designed to guide these practices.

Synthesis

Synthesizing these quantitative and qualitative approaches to studying cooperation and collective action in Kamchatka, I focus on how the cooperative practices of salmon fishing and reindeer herding illustrate a major source of continuity for the indigenous peoples in Kamchatka as they negotiate their way through the uncertainties of the post-Soviet era. Examining how patterns of cooperation within rural villages relate to collective action movements extending beyond, I contribute insights about the effectiveness of post-Soviet collectives, the challenges they continue to face, and the ways that individuals who animate them reflect on their past and envision their future.

Chapter 2:

Cultural & Historical Legacies of Cooperation in Siberia

Introduction

At the beginning of the 21st century, indigenous peoples throughout Siberia and the Russian Far East find themselves in the difficult position of having to adapt to unfamiliar and uncertain cultural, economic, ecological, and political climates. In Kamchatka, reindeer herders and salmon fishers who relied on state and collective farms for employment and markets for their products discovered that they can no longer count on the government to provide them with either. Nor can they easily return to a life subsisting primarily on herding, fishing, and foraging. The knowledge, social relations, and daily practices that once enabled these subsistence strategies have been dramatically altered or altogether lost during Soviet collectivization and cultural construction. *Perestroika*, privatization, and other post-Soviet policies demand yet another phase of transformation. After being compelled and coerced to abandon traditional ways of life in pursuit of a Soviet modernity that suddenly collapsed, what principles and past experiences are left to guide indigenous peoples in the post-Soviet era?

Although many people in the West celebrated the collapse of the Soviet Union, Grant describes this event as a "dual tragedy," forcing indigenous peoples throughout Russia to face "the collapse of their visions of *both* tradition and modernity, leaving [them] sorting through the remains of each of the different pasts to which they at one time subscribed" (Grant 1995: 16). While Grant's imagery of "sorting through the remains" of the past is bleak, he succeeds in capturing the profound sense of loss that accompanies the newfound freedom available to the people I encountered when I began my fieldwork in Kamchatka in 2005. The nostalgia that many people in Kamchatka feel today when reflecting on life during the Soviet era is no less

strong than the sense of loss they share when discussing the traditional ways of life that were transformed so dramatically in order to shape Soviet modernity. Revisiting the early acts of these dramatic histories is important for understanding how indigenous peoples are now reinventing their lives and livelihoods to be economically viable and socially meaningful in the post-Soviet era.

In the following sections, I will briefly survey the historical and ethnographic literature on indigenous peoples in Russia, focusing on how colonial expansions, Soviet collectivization, and post-Soviet perestroika have transformed their lives. My descriptions rely heavily on the work of historian Yuri Slezkine (1994), who has synthesized an impressive range of published and archival sources to provide the most comprehensive analysis of the encounters between European Russians and indigenous peoples in Siberia. Slezkine argues that throughout their history of contact with Russians, indigenous peoples have been "antipodes" to shifting notions of "whatever it meant to be Russian," providing "a remote but crucial point of reference for speculations on human and Russian identity" and "serving as a convenient testing ground for policies and images that grew out of those speculations" (1994: ix). Slezkine illustrates how indigenous peoples in Russia have been consistently labeled as "primitive," while deftly tracing how the implications of that word continually shifted over time. Initially considered hopelessly "backward," indigenous peoples were subsequently romanticized as "primitive communists," politicized as "capitalist exploiters," and modernized as "Soviet citizens." These representations were influenced by broader intellectual and social currents that were shaped significantly by succeeding generations of Russian ethnologists and ethnographers, who were inspired to understand indigenous peoples, to transform their lives, and to develop their potential.

Although the histories of indigenous peoples in Russia can be framed by focusing on cultural identity, economic exploitation, political autonomy, or other important themes, many of the most dramatic transformations have been driven by attempts to understand, cultivate, and harness cooperation. Among the first Russian ethnographers were revolutionary intellectuals and activists who were exiled to Siberia. They saw the cooperative subsistence activities, food-sharing practices, and communal land tenures of indigenous peoples through the same romantic, populist lens they used to envision the liberation of the Russian peasantry. Later, when ethnographers were charged with the task of implementing Soviet policies of collectivization, they attempted to develop indigenous cooperation by forming collective (*kolkhoz*) and state (*sovkhoz*) farms, then integrate these collective institutions into the industrializing state economy. These development programs required asserting forms of power and authority that entailed a rejection of romanticism in favor of a form of paternalism, ultimately intended to ensure that indigenous peoples would become fully integrated, modern Soviet citizens. Following the collapse of the state economy, indigenous peoples' cultural identities and collective institutions continue to be reimagined and reshaped. Yet, recent ethnographic accounts of these processes make it clear that indigenous peoples are—and always have been—active participants who both contested and collaborated in their own transformations. I was often reminded of this point when observing how people in Kamchatka drew creatively upon past legacies and new ideologies as they planned for the future. Collective institutions continue to occupy a central place in their plans, though the forms of cooperation and collective action they coordinate continue to change rapidly and in unexpected ways along with the world around them. By framing my discussion of Siberian history and ethnography with the theme of

cooperation, I trace the historical and cultural trajectories of these contemporary institutions, showing how they extend from the past to influence the present.

Colonial Expansion

Prior to the Soviet era, indigenous peoples throughout Russia had long struggled to maintain economic and political autonomy from Tsarist officials, Cossack mercenaries, and Russian merchants, all of whom were lured East by the lucrative fur trade. Beginning in the 16th century, this colonial expansion flowed along Siberian waterways, where forts were established and fur tributes demanded from the indigenous peoples living there. Once the natural resources of an area were exhausted or the settlements became too large to administer, the expansion would continue eastward (Slezkine 1994: 13). By the middle of the 18th century, the Russian empire had established its presence in even the most isolated parts of its territory, including the Kamchatka peninsula.

Encounters between indigenous communities and representatives of the Russian empire primarily concerned the negotiations of *iasak* or "fur tribute" (Forsyth 1992; Slezkine 1994). Official instructions for engaging indigenous communities called for merchants and mercenaries to offer metal tools, food, and clothes in trade for furs, but this apparent goodwill was mostly a strategic attempt to increase the amounts of furs extracted by avoiding open conflict. Fur tribute was an obligation that indigenous peoples where expected to accept as subjects of the Russian Empire. As Slezkine reports, "If they accepted the deal as fair, they would become in the eyes of the Russians, the tribute-paying 'iasak people' [...]. If they did not, the Cossacks were under strict instructions to 'beat them a little bit' and, if that did not help, 'to wage war and to capture their wives and children'" (1994: 15). Whether taken by force or exchanged in reciprocal trade,

the flow of furs from indigenous communities, through local merchants and officials, and on to Moscow and St. Petersburg reinforced the primitivism that characterized the early years of colonial expansion. Indigenous communities figured into the Russian Empire more as economic resources than as political subjects.

Kamchatka was one of the last places where indigenous people were successful in resisting the imposition of fur tributes (Slezkine 1994: 17). Driven by the increasing demands for sable and other valuable firs that were already vanishing from many regions to the west in Siberia, excursions into Kamchatka from a fort to the north in Anadyr, Chukotka were made in the last years of the 17th century (Forsyth 1992: 131-2). The excursions succeeded in charting a course to exploit Kamchatkan sables—considered larger and more plentiful than in other regions—and led to establishing several settlements in southern Kamchatka. But indigenous inhabitants, particularly the Koryak in the northern part of the peninsula, violently resisted colonial expansion, continually disrupting trade routes over land between Kamchatka and the mainland (Forsyth 1992: 135). Following a decree from Peter the Great, shipping routes from a port on the mainland side of the Sea of Okhotsk were explored starting in 1716, ultimately succeeding in cutting in half a difficult and dangerous overland journey that had been over 3,200 km long (Forsyth 1992: 136). Crucial to these efforts were explorations along the coasts of Kamchatka and throughout the North Pacific made by the Danish captain Vitus Bering between 1727-1743. Bering's voyages helped to increase colonial expansion in southern Kamchatka, in turn exacerbating the repression of indigenous Itelmen communities living there and inciting several major uprisings (Forsyth 1992: 138-140). To the north, Koryak groups continued to actively resist colonial expansion, frequently assaulting Russian forts until the second half of the 18th century. By the time most Koryaks had finally submitted to paying fur tributes, Forsyth

reports that their population had decreased more than 60%, from 12,910 in 1698 to 4,880 in the 1760s (1992: 149).

Bering's voyages to Kamchatka brought two naturalists, Georg Wilhelm Steller and Stepan Krasheninnikov, who eventually contributed some of the most detailed early descriptions of colonial expansion on the peninsula (Steller [1776] 2003; Krasheninnikov [1755] 1973). Although both men were primarily interested in documenting Kamchatka's unique flora and fauna, they also gathered ethnographic material on indigenous peoples living on the peninsula, including Itelmens, Evens, and Koryaks. These descriptions focus primarily on the practical and exotic details of these people's ways of life, but occasional passages describe how the demand for fur tributes affected their relationships with representatives of the Russian empire. Regarding the Koryaks, Krasheninnikov wrote:

> Before they were subject to the Empire of Russia they never had any government or chief magistrate among them, only those that were rich had some sort of authority over the poor; nor before that did they know anything of an oath. At present, instead of swearing upon the cross or gospel, our Cossacks oblige them to hold a musket by the barrel, threatening, that whoever does not observe this oath will certainly be shot by a ball. ([1755] 1973: 231)

Although there were official policies that condemned violence against indigenous communities who had become "iasak people," the punishments for Russian officials and merchants who failed to extract the required number of furs were far more severe than those for assaulting, capturing hostages, enslaving, and killing indigenous people who actively resisted or cunningly avoided paying tribute (Forsyth 1992: 135; Slezkine 1994: 22). This tolerance for cruelty was due in large part to the fact that most Russians, whether directing the fur trade from St. Petersburg or carrying it out in Siberia, saw indigenous peoples as exceedingly primitive. Krasheninnikov's description of Koryaks is typical:

> The whole nation is rude, passionate, revengeful, and cruel; and the wandering [Koryaks] are also proud and vain: they imagine that no people in the world are so happy as

> themselves, regarding all the accounts that strangers give of the advantages of other countries, as so many lies and fables; for, say they, "If you could enjoy these advantages at home, what made you take so much trouble to come to us? You seem to want several things which we have; we, on the contrary, are satisfied with what we possess, and never come to you to seek anything." ([1755] 1973: 224)

While the dismissive, moralized tone of such descriptions clearly expresses an air of Russian superiority, Slezkine makes the important point that the Russians were "acutely conscious" of the appearances, smells, and crude customs of "primitive" peoples because this was the way western Europeans had long looked at the Russians themselves: "Their own perfection was fairly recent. Fresh converts to the cause of scientific progress, they judged the northerners by the loftiest standards of reason and civility and found them severely wanting" (1994: 56). These insecurities perhaps reinforced the notions of superiority evident in Krasheninnikov's incredulous description of the pride that Koryaks, Itelmens, and other indigenous inhabitants of Kamchatka had for their ways of life.

While notions of primitiveness justified impositions on indigenous autonomy, there were ways indigenous peoples managed to reconfigure economic relations according to their own cultural norms and values of reciprocity and trade. While Russian officials often used extremely coercive methods to extract iasak, they also conceded to demands made by indigenous people for reciprocal "gifts" or "presents" in exchange for fur tributes (Forsyth 1992: 150; Slezkine 1994: 19-20). These demands often exceeded what Russian officials were inclined to give, but the concessions reflected the difficulty of enforcing policies of tribute in dispersed and remote areas, among communities that were fluid and frequently migrating. However, they also reflect the abilities of indigenous peoples to negotiate the terms of colonial encounters (Ssorin-Chaikov 2003). Slezkine suggests that many indigenous people took Russian tribute as a trade of furs for tin, beads, flour, butter, and fat (1994: 19). This hybridization of tribute and trade shows how

indigenous people's cultural norms and values of reciprocity were used to resist economic and political conquest, an important reminder of their influence as political actors.

As 18th century enlightenment began to shine on Russia through Peter the Great's "window on the west," Russian characterizations of indigenous peoples began to change. Rather than viewing them as hopelessly "primitive," Russian officials, intellectuals, and missionaries used words like "backward" and "unenlightened" to describe indigenous peoples, seeing in them potential for the progress of Russian society as well as the profit of the Empire (Sirina 2004; Slezkine 1994). By the 19th century, colonial expansion became a strategy to exploit natural resources *and* develop political subjects. Indigenous peoples provided an opportunity to demonstrate the strength of the Russian empire to conquer new lands, assimilate "savage" peoples, and assist them in reaching higher stages in "social evolution." Inherent to these new notions of "backwardness," Slezkine argues, was a "romantic primitivism" that held indigenous peoples as "lost somewhere between the inferno of 'brutes and savage cannibals' and 'the happiest state of harmony and perfect equality'" (1994: 78).

These visions also featured prominently in the growth of Russian ethnological research. Informed by debates over the work of Lewis Henry Morgan and Friedrich Engels, Russian scholars began to craft unique theories of social evolution that explored the origins of class struggle and egalitarianism (Artemova 2004; Sirina 2004). These intellectual pursuits, in turn, inspired a growing number of Russian populist intellectuals and political revolutionaries in the last half of the 19th century. They argued passionately that Siberia was a land whose natural resources were being appropriated and exploited, but whose people had developed social institutions around the noble principles of interdependence and egalitarianism (Slezkine 1994: 116). When their political beliefs and activities ultimately led to exile in remote corners of the

Empire, young revolutionaries were brought face-to-face with people who previously only occupied an abstract evolutionary stage on the pages of books or existed in the philosophical musings of the mind. Political radicalism led them into exile, but it made virtuous the newfound opportunities to conduct ethnographic fieldwork. Three of Russia's most influential early ethnographers, Lev Shternberg, Vladimir Bogoras, and Vladimir Jochelson, were all intellectuals affiliated with the populist revolutionary group *Narodnaia Volia* ("People's Will") who initiated field research while in exile (Kan 2009; Slezkine 1994: 125). After returning from his first extensive visit to a Nivkh community on Sakhalin Island, Shternberg wrote, "many of the things that were admired (by the westerners) in 'savage' life were real and not some utopia. Their life is wholesome and full, and the individual and the group are linked together by natural bonds" (Kan 2009: 48). Such descriptions expressed the aspects of indigenous people's ways of life whose absence in Russian society these revolutionary ethnographers lamented.

Vladimir Jochelson was the first ethnographer to live with and document Koryak communities in Kamchatka. Having fled Russia to avoid arrest in 1875, Jochelson worked in a publishing house for People's Will while studying at the University of Bern in Switzerland (Freed *et al.* 1988: 17; Bloch & Kendall 2004: 57-58). Jochelson was arrested while trying to re-enter Russia in 1884, sentenced to three years in solitary confinement, and eventually exiled for 10 years to Kolyma, a remote region in northeastern Siberia across the Sea of Okhotsk from Kamchatka (Freed *et al.* 1988: 17). Jochelson's first ethnographic research was with local Yukaghir communities in Kolyma, but his experiences there led to being recommended—along with his friend and fellow revolutionary ethnographer Vladimir Bogoras—for the Jesup North Pacific Expedition, organized by Franz Boas for the American Museum of Natural History (AMNH) (Freed *et al.* 1988: 12; Bloch & Kendall 2004). Beginning in 1900, Jochelson traveled

for months at a time in the northern part of the Kamchatka Peninsula with his wife, Dina Brodsky Jochelson, collecting ethnographic data, material objects, and physiological measurements for AMNH. Combined with Bogoras (1904), whose studies of the Chukchi included research on neighboring Koryak communities, Jochelson's two-part 842-page ethnography called *The Koryak* (1908) is the first extensive ethnographic description of Koryak cultures and ways of life based primarily on first-hand experience.

Jochelson's ethnography touches upon many aspects of Koryak life, but I focus on his descriptions of reindeer herding, fishing, and foraging. These descriptions provide one of the few first-hand, detailed accounts of traditional subsistence activities prior to collectivization, so they are valuable for understanding transformations in the knowledge, practices, and social relations that enabled these activities. Jochelson found that Koryaks could be divided into two distinct but interrelated groups: nomadic reindeer herders who lived inland on the tundra and more sedentary maritime fishers who lived along ocean coasts and large rivers. Jochelson notes that reindeer herders migrated widely, traveling in small groups of several families that formed fluidly (1908: 431). These groups usually managed a single reindeer herd, but herders retained knowledge of the identity of each deer and considered it the property of an individual (1908: 492). Still, these forms of personal property coexisted with multiple forms of common property, including equipment, access to pastures, and obligations to care for the collective herd (1908: 431, 492, 747). Similar property relations existed among sedentary Koryak fishers, who lived in larger residential groups that varied in size depending on the season, but often included multiple families (1908: 467-468). Jochelson reports that "clothing and ornaments alone are considered personal property," adding that houses, fishing nets, and boats were shared by more than one family (1908: 746). Maritime Koryak relied heavily on summer salmon migrations, but also had

a diverse foraging repertoire that included hunting sea mammals, birds, and land mammals as well as gathering berries and other food on the tundra. They performed these activities by working with other members of the community, usually immediate and extended family.

Jochelson's descriptions of property relations among reindeer herding and maritime Koryaks are rarely accompanied by theoretical analysis, but occasionally he elaborates in ways that reveal the influence of 19th and early 20th century Russian philosophy and social theory. Noting that notions of individual property had "already become lodged in the tribal consciousness," Jochelson adds, "We still meet remnants of communal ideas in this sphere" (1908: 746). Describing property relations in the context of food produced through fishing and foraging, he writes, "People in need of food may lay claim [...] to the game obtained by the successful hunter or fisherman. The social union among separate families is based on this" (1908: 746). These comments probably reflect the influence of Russian strains of social evolutionism as well as broader philosophies of society that were influential at the time. In the intellectual traditions of Marx and Engels, 19th century Russian scholars like Alexander Herzen, Mikhail Bakunin, Nikolai Chernyshevskii, and Nikolai Mikhailovskii drew inspiration from so-called "primitive" forms of social organization in searching for a unique, non-capitalist path for Russian development (Chamberlain 2004; Walicki 1988). Although he does not cite their works in his ethnography, it is reasonable to speculate that Jochelson's ideas about property relations among the Koryak were influenced by this uniquely Russian synthesis of evolutionary and socialist theories of human nature and progress.

Jochelson's tendency to understand Koryak social relations according to models of progress is also evident in his analysis of reindeer herding. Jochelson suggests that the advent of reindeer herding had strengthened notions of individual property (1908: 758), leading to the

accumulation of capital and the demand for labor. Describing reindeer herding among the Koryaks as a "primitive economic stage," Jochelson explains that "the herd of the Koryak may be said to constitute his capital, in so far as the labor of hired herdsmen furthers the accumulation of that capital," but he defuses the potential negative implications of this analogy by explaining that "the only benefit" of capital accumulation for Koryaks is to "satisfy the needs of the family" (1908: 758). This analysis of property relations reflects the greater importance of capital accumulation and labor in the developmental stages of Russian social evolutionism. Yet, by dismissing the potential benefits of accumulating reindeer to "only" fulfilling "the needs of the family," Jochelson appears hesitant to support the implication that class differences between wealthy herders and individuals who own fewer deer might reflect a form of exploitation. Although Jochelson is silent on this matter, these passages reflect the growing importance of debates over the origins of cooperation and competition, egalitarianism and inequality throughout Russia prior to the revolution. At the end of the 19th century, revolutionary groups that grew out of People's Will and other populist movements were fomenting these debates in an attempt to seize greater power to transform the Russian Empire. Though not often recognized, indigenous peoples and their social relationships occupied an important place in efforts to imagine alternative values and ideals for Russian society. Ethnographic descriptions of indigenous peoples "without land ownership" and for whom "communism and individualism coexist without tensions" reflect this admiration explicitly (Grant 1995: 58). Once dismissed as hopelessly backwards, their "primitivism" now seemed to embody for some the romantic "remnants of communal ideas" that could inspire future progress.

Revolution & Soviet Collectivization

At the end of the revolution and the beginning of the Soviet era, indigenous peoples found themselves more isolated from the steady flows of tribute and trade than they had been in hundreds of years. In relatively accessible areas of western Siberia, the fur trade was disrupted by war, and in more remote areas of eastern Siberia and the Far East, its flow had trickled to a stop (Slezkine 1994: 132). For those cut off from the supplies and equipment they had come to depend on, the immediate effects of the revolution were severe. Slezkine notes that among reindeer herders throughout Siberia, herd sizes dwindled to as low as 50% of their pre-revolutionary count (1994: 132). Thus, when officials from the newly formed Soviet regime traveled to Siberia and the Far East to take stock of the situation, they were shocked by the "appalling backwardness" of the people and their "wretched living conditions" (Slezkine 1994: 133).

Blaming these conditions on previous policies of colonial expansion as well as the local officials, merchants, and settlers who implemented them, the Soviet government turned to the generation of exiled ethnographers who could draw on a great deal of experience and expertise in working with indigenous communities:

> The Bolshevik politicians-turned-ethnographers recognized the need for protecting the natives and training future officials in northern languages and anthropology, while the populist ethnographers-turned-politicians subscribed to the idea of progressive change brought from the outside. Many of them had shared the same Siberian exile, and most of them shared the same intellectual roots. Both distrusted local officials and, in slightly different terms, agreed about the backwardness and helplessness of the 'native tribes.' Both believed in evolution, progress, and the role of conscious intelligentsia in helping them along. (Slezkine 1994: 150)

The consensus established between these hybrid politician-ethnographers and ethnographer-politicians led some scholars, including Lev Shternberg and Vladimir Jochelson, to take positions at the Institute of Geography and the Museum of Anthropology and Ethnography in St.

Petersburg, while others like Vladimir Bogoras became active in politics and public policy aimed at indigenous peoples. In 1924 the Committee for the Assistance to the Peoples of the Northern Borderlands (commonly known as the Committee of the North) was formed, with Bogoras playing an active role early on and throughout the rest of his career (Slezkine 1994: 152). The Committee declared that indigenous peoples were egalitarian victims of poverty, exploitation, and oppression, with "no notion of rational economy" and the primary goal of staving off "hunger and the elements" (Slezkine 1994: 153). In a passage that echoes Jochelson's descriptions from nearly 20 years earlier, a member of the committee explained, "Although every Samoed dreams of owning his own herd and never stops collecting reindeer, he does not treat his herd as capital, as a means of obtaining profit and exploiting others" (Slezkine 1994: 152). In addition to the task of helping indigenous communities meet their basic practical needs, the Committee's "true and sacred vocation was to assist the small peoples in their difficult climb up the evolutionary ladder" (Slezkine 1994: 155-6). This climb initially proved difficult. The Committee was limited by financial shortages and lacked sufficient political authority, not to mention the practical challenges of implementing policies in remote areas of Siberia far from Moscow and St. Petersburg.

The Committee's first step was to form local "clan councils" (*rodovye sovety*), composed of three members whose primary directive was "to follow traditional customs unless such customs directly contradicted the Constitution of the Russian Republic" (Slezkine 1994: 158). This attempt to graft policies of governance onto existing local institutions and social structures was actually a continuation of a longstanding approach utilized by the Russian empire in extracting fur tributes (Slezkine 1994: 85). This approach consisted of deliberate attempts to take advantage of social relationships and forms of authority among indigenous peoples, first by

seizing hostages from large groups of kin and holding them until tribute was paid, and later by appointing "clan elders" and assigning them the responsibility of collecting tributes. However, Russian representations of these social relationships were not always accurate and often entirely imaginary. In communities without clans or other structured descent groups, including Chukchi and Koryak reindeer herders in Kamchatka, individuals resisted appointment to positions of authority, and clan councils were formed based on crudely rendered territorial divisions (Slezkine 1994: 173-4). One Chukchi man expressed the limitations of this approach to Bogoras with amusement: "Now I am a chief, and I have this dagger and a package of paper as signs of my dignity. Still where in the world are my people? I am unable to find any" (Slezkine 1994: 106). Despite the ideological shift signaled by the introduction of clan councils, indigenous peoples found themselves within a system of governance that resembled little more than a "slightly reshaped version" of the old one (Slezkine 1994: 159).

The implementation of clan soviets throughout Siberia and the Far East reflected the gradualist early Soviet approach to governance of indigenous peoples. Despite considerable optimism for the possibility of realizing the Committee of the North's "sacred vocation," the challenges that remained reinforced notions that indigenous peoples were still embodiments of "timeless tradition," living apart from the historical forces that shaped other Russians (Grant 1995: 157). Through dedicated ethnographic research, pursued by the students of Shternberg and Bogoras, the Committee hoped to chart a steady path of progress that would build upon the cultural values of equality and common property they admired among indigenous peoples, while also seeking to improve their economic and political conditions by harnessing the logic of Soviet modernization and development.

However, the Committee's plan was dramatically altered when Stalin came to power in 1928. Officials and ethnographers on the Committee of the North were severely criticized for their slow progress in turning the "primitive communists" into modern Soviet citizens (Slezkine 1994: 188). Stalin's supporters were aided by a group of scholars called the "orientalists," who had been cultivating a rivalry with Bogoras and other "northerners," whom they accused of "populist culture-mongering," sentimentalism, and the denial of "the existence of classes among the natives" (Slezkine 1994: 189). In the broader climate of intensifying class struggle, the intellectual debates that shaped subsequent policies toward indigenous peoples were haunted by the unspoken imperative that "one had to find class enemies or face the risk of becoming one" (Slezkine 1994: 192).

The search for exploitation *within* indigenous communities represented another turning point in Russian plans for developing indigenous peoples. No longer simply egalitarian "primitive communists," Stalinist officials and allied intellectuals used the momentum of class struggle to "draw the class line across the natives," singling out individuals in positions of perceived authority and villainizing them as capitalist exploiters (Slezkine 1994: 191). The two most common targets were wealthy reindeer herders and shamans, but officials' sights were soon aimed at any indigenous person who seemed to be in a position of authority. Despite the careful arguments of ethnographers who tried to demonstrate the inherent ethnocentrism and outright distortion of classifying these individuals as "*kulaki*" (sing. *kulak*, a Russian term for wealthy farmers and landowners, literally meaning "clenched fist"), political ideology and power trumped ethnographic authority. Artemova describes this period in Soviet anthropology as a radical shift toward highly politicized scholarship, where "any deviation…threatened the scholars not only with the loss of opportunities to write and publish their works but also with real

mortal danger" (2004: 83; see also Sirina 2004). Using the rhetoric of class struggle, Soviet officials began in 1930 to disenfranchise indigenous *kulaki* forcefully, seizing reindeer herds and eliminating both those who resisted and any officials who were perceived as sympathetic (Slezkine 1994: 195). To paraphrase Slezkine, the "backwardness" of indigenous peoples was no longer something to be "enlightened" but rather something to be "conquered" (Slezkine 1994: 187).

Indigenous communities were soon swept up in Stalin's frenetic drive to industrialize the country through collectivization and the formation of a highly structured, top-down state economy. The initial reasons for extending this structural model to Siberia and the Far East were political and ideological. Noting that there was no "great and urgent demand for reindeer meat," Slezkine explains that collectivization was initially "the crucial test of loyalty, political reliability, and professional ability for all rural officials" (Slezkine 1994: 195). This test applied equally to the collectivization of wheat production as it did to walruses (Slezkine 1994: 195). Yet, the dramatic attempts to bring every herd and fishing camp under state oversight also indicated that the shift toward viewing Siberia as a source of both natural resources *and* political subjects was complete.

In such an intensely politicized climate, the ideologies and actions used to identify and eliminate class exploitation within indigenous communities were not subtle. In the northern part of Kamchatka, an agent of the Committee of the North who worked with Koryak reindeer herders, N. N. Bilibin, documented his attempts to establish Soviet collectives between 1930-1931. Bilibin describes the difficulties he had convincing herders with medium-sized (100-1,000 deer) and small (less than 100 deer) personal herds to turn against the wealthier herders (greater than 1,000 deer) with whom many of the less wealthy herders traveled and worked. Bilibin

reports that some of these herders did not understand why they should do so, saying "We cannot live without rich herders. We do not need deer from the rich" (1933: 7). Others disputed that they were being exploited by more wealthy herders, explaining "We don't have such people who don't help the poor; if they see someone is hungry, they feed them" (1933: 10). Reflecting on the scene he saw after a meeting where these sentiments were shared, which had coincided with a "fair" where several nomadic groups of herders had gathered to trade and socialize, Bilibin laments: "But in the consciousness of the local people, this order of things has caused no doubts. Everything is ok! Eleven kulak masters, exploiting the poor, are eleven 'benefactors' of the Parapolskii Valley!" (1933: 12).

Bilibin managed to convince a few poor herders to make a formal request to the Soviet government to found a kolkhoz for them, but still frustrated by such limited successes, he took more dramatic steps:

> We went to the herds to buy live reindeer. We knew that the Koryaks considered it a sin to sell live reindeer. Our goal was to demolish age-old prejudices that darken the minds of the masses and set them against transactions with living reindeer. Our cheerfulness was dampened by our apprehensions in persisting to insult the high feelings of national prejudices against transforming the provider of the tundra. At the same time we were conscious of our responsibility to carry out the assignment of buying a herd. Such work is required in the northern outskirts. (Bilibin 1933: 13)

Bilibin goes on to tell of an arrangement made by a local Soviet "cultural station" (*kul'tbaz*) to purchase 350 slaughtered reindeer from two separate Koryak herds. Eight Koryak herders arrived with the animals, and over the next two days proceeded to slaughter 100 deer. However, either because of a prior agreement with their leader or because they simply wanted to go home, the herders decided to leave before the rest of the animals had been slaughtered. Perhaps the herders trusted that the Russians would do this job themselves. Instead, the Russians chose to keep the 250 remaining deer alive, intending to use them for a kolkhoz herd. Bilibin assumes that the herders expected this outcome, or that they must have felt they were not committing a

"sin" or "violating any custom," leading him to conclude that the prohibition against selling live reindeer was just another "kulak fairy tale" (1933: 14).

Bilibin draws on this incident to argue that for the "naïve" observer the prohibition against selling live deer appears to follow from "national origins," but to someone familiar with Koryak practices of herding and social relationships, it is obviously a tool used by kulaks to keep "strong property" and power "inaccessible from external influence" (1933: 14). Interestingly, nearly 30 years before while working in the same part of Kamchatka, Jochelson observed that the Koryak had begun to purchase deer from neighboring "Tungus" (Even/Evenk), but still refused to sell their own deer, considering it a sin:

> Reindeer that are sold carry with them the luck of the herd: therefore, when selling their reindeer for slaughter, the Koryak do not part with them alive, but kill them themselves. Under such circumstances, the slaughter of a reindeer that is sold is considered as a sacrifice to the Supreme Deity, and can bring no bad consequences. (1908: 492)

Viewed in this light, it seems unlikely that Bilibin's analysis was anything more than an attempt to justify increased pressure on local reindeer herders to sell living reindeer and swell the kolkhoz herd. It is difficult to say whether he ignored or was simply unaware of Jochelson's data. Since Jochelson's ethnography was originally published by AMNH in English in 1908, it may not have been widely available in Russia at the time. At the very least, however, the differences between these two ethnographic descriptions illustrate how quickly attitudes toward Koryak cultural norms and values of property and trade had changed in the early years leading up to collectivization.

Bilibin was not mistaken in asserting that there were significant differences in the number of personal reindeer from one person to the next in the Koryak communities where he worked. However, he and other agents insisted on applying their own assumptions about the causes of this inequality and imposing moral judgments that were strange to the people they were

supposedly intended to benefit. One fact Bilibin notes but does not appreciate fully is that many of the "poor" herders who "worked" for wealthy herders were actually married to their "master's" daughter, who likely owned a significant number of deer herself and also stood to inherit more upon her father's passing (1932: 29). Moreover, as the herders understood all too well, the size of an individual's herd could be dramatically reduced by disease, predation by wolves, poor weather, or any number of factors that undermined stable patterns of inequality. Instead of exploring and seeking to understand Koryak cultural norms and values of equality, cooperation, and property, Bilibin titled his short monograph "Class Stratification among the Nomadic Koryaks" and riddled it with politicized phrases like "backward community characteristics," "ideology of strong property," and "the oligarchic hands of strong herders." These rhetorical flourishes were probably as much signals of solidarity intended for Soviet authorities supervising his work as they were ethnographic descriptions. Bilibin's motivation for producing such prose may have been affected by incidents in which Soviet officials from the Penzhinskii district where he worked were executed by firing squad for "protecting the kulaks" (1994: 195). Although Slezkine does not provide exact dates, he implies that these events occurred sometime around 1930, meaning that the incident could have happened shortly before or even while Bilibin was trying to identify his own kulaks and convince their relatives and community members to rise against them.

Among the many cultural norms and values that were distorted and villainized by the imperative of class struggle, those related to altruism, reciprocity and kinship particularly revealed the distance Soviet officials had strayed from visions of "primitive communism." Trying to explain the unexpected infrequency of herders who worked as "hired labor" for wealthy herders in Kamchatka, one official characterized the "free transfers" of reindeer among

relatives as “hidden payments” that were being “disguised by declarations of brotherhood and mutual aid among kin” (Slezkine 1994: 199). In Sakhalin, one Nivkh fisher who cooperated with others but received slightly larger shares of the catch was accused of using his access to boats, nets, and other common properties to exploit his partners, who were actually members of his immediate family (Slezkine 1994: 198). Yet, indigenous communities also resisted the subjugation of their reciprocal relationships and the erosion of established patterns of cooperation. An interesting counter-narrative to the top-down enforcement of collectivization can be composed from numerous fragmentary anecdotes of these acts of resistance. Herders and heads of households appeared before officials who had accused them of being kulaks, explaining “if somebody is really poor, we invite him and say: go ahead and eat, drink, and work” (Slezkine 1994: 201). They also responded by redistributing their property among their kin to escape impressions of inequality and exploitation, appearing to conform to the Soviet norms of collective action while continuing to work together as they had before (Slezkine 1994: 203). When these strategies failed, more extreme acts of resistance were common, including the slaughter of entire herds before they could be taken, the murder of those who aimed to take them, and even suicide when other forms of resistance proved impossible (Slezkine 1994: 203-204).

From an economic standpoint, collectivization initially failed to generate the desired results. In the northern part of Kamchatka, herd sizes decreased by 49% between 1930-1934 (Slezkine 1994: 212). Fishing catches in one part of Kamchatka fell from 1931-1933 by 50% to only 2,000 tons (Slezkine 1994: 210). Soviet officials applied pressure on local agents to reverse the trend by ceasing the “mechanical and crude application” of collectivization policies and reconsidering whether or not the sovkhoz and kolkhoz could be built upon existing kin-based collectives (Slezkine 1994: 205-206). But collectivization continued to expand. Between 1930s

and 1960s, policies were designed to incorporate Russia's indigenous peoples into the state economy by forming sovkhoz and kolkhoz collectives from transitional collectives called "*arteli*" and "*tovarishchestva*" that had been coordinating traditional subsistence activities like reindeer herding, fishing, and foraging by relying on existing forms of knowledge, authority, and organization. In 1933 there were 21 arteli and 34 tovarishchestva collectives that incorporated about 67% of the population of the Koryak National Okrug, a recently formed administrative region that encompassed the northern half of the Kamchatka Peninsula (Antropova 1971: 130). By 1940 these collectives had been consolidated into 33 kolkhoz collectives divided more or less evenly across four districts, increasing the percentage of collectivized people to 80% (Antropova 1971: 131).

At this time in the Oliutorskii Raion, there were seven kolkhoz collectives. These collectives and others like them throughout Siberia were named after key Soviet figures like Maxim Gorky and Lenin, key events like the 20th Communist Party Congress, as well as locally significant names like "*Tumgutum*," the reindeer Koryak word for "friend." Although kolkhoz collectives in the Oliutorskii Raion were engaged in fishing, herding, and some non-traditional economic activities featuring imported domesticated animals and crops, Antropova reports that fishing was "the most profitable and promising" branch of the kolkhoz (1971: 133). Still, developing reindeer herding remained a priority as well. Around the end of the 1960s, several kin-based kolkhoz collectives in the Oliutorskii Raion were united to form two sovkhoz collectives focused on reindeer herding, one based in Khailino and the other in Srednie Pakhachi (Antropova 1971: 133). By 1961 the total number of reindeer in kolkhoz and sovkhoz herds had increased to just over 140,000 deer from a little more than 39,000 deer in 1940, with almost 16,000 deer remaining the personal property of herders working in these Soviet collectives

(Korchmit 2001: 94-5). The strategy of consolidating smaller collectives was designed to increase their efficiency and production by improving the availability of equipment and technology. At the same time, sovkhoz collectives were considered more advanced parts of the developing state economy because they featured vertically integrated production plans and oversight. In 1969 the total number of kolkhoz collectives in the Koryak region had decreased to just seven from 46 in 1950 (Antropova 1971: 134). The number of sovkhoz collectives in the Koryak region increased to at least ten by 1975 (Korchmit 2001: 103). This consolidation of local collectives, combined with the transition to state managed sovkhoz collectives, reflected the increasing centralization of traditional subsistence activities as they became industrialized components of the Soviet state economy.

Synthesizing economic & cultural construction

Once established, Soviet collectives coordinated economic activities within an overarching top-down system of centralized planning, subverting local forms of authority, contradicting local knowledge systems, and dramatically altering the cultural norms and values underlying traditional practices to reflect Soviet ideology. Indeed, the authority, knowledge, and values of indigenous herders, hunters and fishers were precisely the economic strategies that Soviet ethnographers and officials had previously defined as irrational and immoral from the perspective of Soviet economic and political ideology. In order to implement this new ideology, new "cadres" of young indigenous peoples were sent off to universities and technical schools, while outside experts were brought into rural villages to ensure that the collectives would be working properly when the new generation of Soviet-educated indigenous specialists returned. In addition to sovkhoz and kolkhoz directors who were imported from outside Kamchatka, there

were 39 veterinarians and 51 livestock experts (*zootekhnika*) working in the Koryak region in 1968, including 28 "reindeer-technics" who specialized in the new methods of Soviet industrialized reindeer herding (Antropova 1971: 144). These new "professionals" had significant authority over the indigenous "brigadiers," "tent-workers," and other herders who traveled from pasture to pasture with the collective herds. However, Soviet officials also felt pressure to modify their economic and cultural ideologies to accommodate demands from herders. They sometimes allowed indigenous members of the collective the flexibility to work in groups of their choosing, uniting them with friends and relatives (Kerttula 2000: 101-102). Also, herders were often allowed to retain small numbers of deer as private property within the collective herds (Konstantinov 2002). Indeed, the tension stemming from these compromises between the scientific and political authority of directors and the practical experience and expertise of herders remained until the end of the Soviet era, when a new generation of ethnographers arrived to document it (Anderson 2000; Humphrey 1998; Kerttula 2000; Vladimirova 2006)

Education and "cultural construction" were ways to compel indigenous peoples to alter their cultural norms and values to fit the new ideology of the state economy, or for that matter all other parts of Soviet society. These initiatives were not only framed in practical and instrumental terms, but also as part of realizing the broader vision of Soviet modernity. Amid the ethnocentrism and oppression of the Soviet era, an undying vision of progress remained among Soviet intellectuals and politicians. Indigenous peoples were still seen as central actors in the Soviet project of realizing communist ideals, and significant numbers of them actively embraced these roles. Their desires to participate in their own development were as essential to visions of Soviet modernity as the construction of collective institutions. In order to achieve

these ideals, government officials, state farm directors, teachers, and many others were asked to assist in the formation of Soviet subjectivities among indigenous peoples (Grant 1995; Gray 2005; Slezkine 1994; Ssorin-Chaikov 2003). Beginning with the establishment of local "cultural stations" (*kul'tbazy*) or "red tents," communist missions provided social services and educational opportunities (Grant 1995: 72; Slezkine 1994: 229). Later, these efforts were expanded with the construction of "houses of culture" (*dom kul'tury*), meant to cultivate appreciation for European arts and entertainment. Local museums celebrated the historical passing of "traditional" indigenous cultures and "preserved" their "charming" cultural relics (Gray 2005: 142-3). These spaces of cultural construction occupied prominent places in newly built villages, physical reminders of an extremely explicit effort on the part of the Soviet government to use its power and knowledge to impose cultural norms, values, and institutions on indigenous peoples (Grant 1995). Indigenous peoples who had embraced these Soviet subjectivities would demonstrate the strength of the Soviet Union through their dramatic transformations from "primitive communists" to fully modern Soviet citizens.

Inherent in this "headlong rush of modernity" (Grant 1995: 3) was the ambitious assumption that the Soviet state would not only bring indigenous peoples to higher levels of social evolution, but that it would provide for their essential cultural, economic, and political needs once they had arrived. The top-down imposition of culture was matched by the structure of the state economy, where the science and rationality of centralized planning, production quotas, and five-year plans were handed down to local communities from authorities above. Verdery (1996) describes the logic underlying the state economy, the unique conditions of production and consumption that it created, and the effects these conditions had on the social relations of Soviet communities (also see Ssorin-Chaikov 2003; Yurchak 2005). The economic

ideology of production in the socialist economy, Verdery suggests, differed from capitalist economies in important ways. In the socialist economy, centralized planners established levels of production for sovkhoz directors, and determined the amount of materials they would supply based on these figures. For the directors, however, the production plans increased every year, and supplies often arrived late, if at all. Anticipating these difficulties, directors responded by demanding more materials than they actually needed, hoarding any extra materials they could obtain, and using their surplus to procure missing supplies through networks of barter and exchange. Verdery calls this strategy "bargaining their plan" (1996: 21). These common responses to the top-down authority structure inform characterizations of the socialist economy as an "economy of shortage," where widespread deficits in materials and products were the result of failures in communication between local producers and central planners (Verdery 1996: 21). Thus, the main problem in socialist economies was not meeting or generating demand, as in a capitalist market, but procuring adequate supplies.

This contrast between selling and procuring had interesting implications for the relationships between local and state-level actors, leading to hoarding labor (i.e. people) in addition to materials (Verdery 1996: 22). These modes of production influenced patterns of consumption, establishing a kind of paternalism where the state claimed authority over both defining and fulfilling individual needs (Verdery 1996: 25). The tension inherent in this dual authority fed the "second" or "informal" economy in socialist states, and created a symbiosis between the two (Verdery 1996: 27). When individuals and households decided that their needs as consumers were not being met, they responded much as the state farm directors, through barter and exchange within the informal economies of their communities (Ledeneva 1999). The parallel flow of goods and services through these two economies made production and

consumption "deeply political," and Verdery's analysis nicely complements ethnographic accounts demonstrating the continued importance of networks of kinship and reciprocity among indigenous peoples throughout Soviet and post-Soviet Russia (Crate 2006; Humphrey 1998; Kerttula 2000; Konstantinov 2002; Vladimirova 2006; Ziker 2005).

By the second half of the 20th century, the Soviet economy was faltering and new generations of ethnographers working in indigenous communities were becoming increasingly disillusioned with visions of Soviet modernity and the bureaucracies that supported them (Slezkine 1994: 341). Collectivization had entered a new stage of industrializing reindeer herding, hunting, and fishing. Kolkhoz collectives coordinating hunting and fishing were consolidated into sovkhoz collectives, entire villages were closed, and their inhabitants forcibly relocated, all in the name of moving toward a more "rational" and "productive" economy (Slezkine 1994: 340). For reindeer herders accustomed to traveling with their families as they tended the collective herds, this also meant leaving their wives and children in the village while they were forced "to adopt 'nomadism as production' (*proizvodstvennoe kochevanie*) as opposed to 'nomadism as a way of life' (*bytovoe kochevanie*)" (Slezkine 1994: 341). Herders' wives were forced to choose between living in the village separated from their husbands for months at a time and placing their children in a boarding school (*internat*) so they could labor with their husbands as "tent workers" (*chum rabotnitsy*) in the tundra. In many cases, their children were placed in the boarding school whether their mothers and fathers remained in the village or not. In the village, the only extensive contact that children had with the reindeer herds in the tundra came during the summer break from school, magnifying the effectiveness of villages as spaces of cultural construction. Through boarding schools, forced migrations, and structurally imposed, gendered divisions of labor, indigenous peoples were further displaced from their communities,

severing continuities they had struggled to maintain with their past (Fondahl 1998; Rethmann 2001; Vitebsky 2006). At the same time, ethnographic research in Siberia and the Far East was expanding, and scholars were cautiously beginning to question current Marxist-Leninist ethnological orthodoxy, exploring questions of ethnic identity and the roots of "traditional" indigenous socioeconomic institutions like the *obshchina* (Sirina 2004: 92). These developments would set the stage for the dramatic changes that would soon follow from the Soviet collapse, signaling yet another era of cultural, economic, and political restructuring for indigenous peoples.

Perestroika & Post-Soviet Privatization

Introduced and implemented in the late 1980's and early 1990's, Mikhail Gorbachev's policies of *glasnost* (openness) and *perestroika* (restructuring) created a political and intellectual space for debating previous policies toward indigenous peoples. These policies also accompanied an imperative to reform Soviet collectives that had become the "total social institutions" that touched nearly all aspects of life within rural villages throughout Siberia and the Far East (Slezkine 1994: 371). Glasnost marked a dramatic shift away from the top-down attempts at constructing Soviet subjectivities. Perestroika forced sovkhoz and kolkhoz collectives to begin privatizing, thus dissolving the vertical authority structure of the state economy and withdrawing the flow of supplies, subsidies, and wages that these collectives had relied upon. While these policies allowed indigenous leaders and ethnographers to finally give voice to the difficulties facing indigenous communities without fear of censure (Pika 1999), they also introduced a considerable degree of uncertainty about the precise steps to take in moving forward.

The future role of Soviet collective institutions was one of the more serious and challenging uncertainties that arose in the early years of the post-Soviet era. Plans to restructure the state economy made it clear that sovkhoz and kolkhoz collectives would not be able to continue operating with the help of government subsidies and the organizational structures of central planning. Privatization or liquidation seemed to be the only options, and neither provided reassurances that collectives would continue to act as "total social institutions" in rural villages. New kinds of privatized collectives and businesses were formed, some vanishing before their presence could be noticed due to the chaotic ways new regulations interacted with existing conditions. Many sovkhoz directors, village officials, and other local leaders left rural villages or retired, and new entrepreneurs suddenly appeared, including foreigners interested in establishing business partnerships with the remnants of Soviet collectives. Indigenous leaders who had been waiting for opportunities to explore alternatives to the Soviet model of reindeer herding, fishing, and hunting began to urge the government to recognize their political autonomy and award them formal rights to land and natural resources. Others simply endured with the hope that the Soviet system would be reconfigured in some way that allowed the sovkhoz and kolkhoz to continue providing them with employment. Amid inflation, salary delays, and dwindling influxes of goods and other resources, the economic environment of rural villages became dire, leaving people with little choice but to subsist by producing food and earning money with whatever means were available. Individuals and families focused on their own needs, but their common history of pursuing personal needs through collective institutions also weighed on their plans for the future. This history was now a complex mix of cultural legacies rooted in both traditional pasts and Soviet modernities. Centuries of contact between European Russians and indigenous peoples had been punctuated by a particularly intense, decades long

push to bridge the divide once and for all. It was now as difficult to identify differences between tradition and modernity as it once had been to deny them.

From the 1990s onward, a growing number of ethnographers from western Europe and America arrived to cities and villages throughout Siberia and the Far East with the goal of documenting these historical and cultural legacies as they continued to unfold in the present. Many of them focused their attention on post-Soviet collectives, a testament to the importance these institutions continued to have for indigenous communities. What had once been a remarkably uniform system of collectives that spanned across the entirety of the world's largest country was now being replaced by institutions that differed from one region to the next. Still, post-Soviet institutions fit into one of three basic categories: government collectives, privatized collectives, or obshchina collectives. Some sovkhoz and kolkhoz collectives resisted privatization by becoming the responsibility of regional governments, who allowed them to operate much as they did during the Soviet era. Other Soviet collectives privatized, reorienting their organizational structures and economic strategies toward newly emerging markets. Finally, a new kind of collective called the "obshchina" emerged in response to efforts made by indigenous rights activists.

The specific factors underlying this institutional diversity remain unclear, but several common themes have emerged, including the difficulty of dismantling Soviet collectives, the demand for increasing indigenous autonomy, and the imperative to adapt to market economies. After describing how these processes have shaped post-Soviet collectives, I explore how these institutions reflect attempts by indigenous peoples to reconcile the legacies of their unique past with the exigencies of the present. Highlighting the ways that economic incentives combine with cultural norms and values to create dynamic tensions between individual and common interests, I

suggest that contemporary collective institutions reflect ongoing debates about cooperation that have deep roots in the past.

Privatizing the Soviet collective

Following government mandates that all state enterprises begin to privatize in 1991, sovkhoz and kolkhoz collectives were forced to become private corporations or 'joint stock companies' (Gray 2003; Humphrey 1998). Although the burden of implementing these policies was placed on local state farm directors, the expectation was that all individuals in the community would have the opportunity to claim "land shares" and "property shares" previously owned by the state and managed by the collectives, or to consolidate those shares in a newly privatized collective (Gray 2003: 304-305). Comparing this process in two villages, one located west of the Ural Mountains in European Russia and the other located in the northeastern Siberian region of Chukotka, Gray found that in both places there were considerable practical and emotional obstacles to claiming these shares (Gray 2003: 309). Obstacles ranged from bureaucratic procedures requiring individuals to demonstrate that they could work land profitably to the symbolic act of defecting from the collective (Gray 2003: 305-306). In places where pre-collectivization titles to land and territory could be supported by records or other means, individuals found it easier to initiate claims to land shares. Yet, the process was still complicated by competing memories and moral justifications that had been altered by over a half-century of collective ownership. Examining land claims among Evenki communities in southeastern Siberia, Fondahl found conflicts occurring between individuals who had hunted in territories prior to collectivization but were forced to relocate to other areas during the Soviet era, and individuals who had worked for the sovkhoz in those same territories, and wished to

continue using them in the post-Soviet era (1998: 94). Drawing on fieldwork in other Evenki communities, Anderson argues that conceptions of ethnic identity, collective membership, and territoriality that appeared to represent the reemerging indigenous traditions were actually reproducing "senses of belonging" that first arose during the Soviet era (2000: 201). Despite the apparent structural uniformity of Soviet collectives, the diverging paths of perestroika from one village to the next revealed the importance of local factors, either insulating the collective from change or hastening its transformation.

In many places, Soviet collectives were simply liquidated. Their equipment and facilities were sold or allowed to pass into private hands. If a collective was viewed as economically viable in the new market economy, private investors from outside the village often arrived, transforming Soviet collectives into private businesses. These privatized collectives quickly abandoned activities that provided services that village residents once relied upon but were now unprofitable. Yet, some sovkhoz and kolkhoz directors resisted the call to privatize, transferring the ownership and management of the collective to regional government authorities to create a "government unitary enterprise" (*gosudarstvennoe unitarnoe predriatie* or GUP). Others were able to privatize Soviet institutions without compromising their collective forms of property and authority. Although the official classifications of these enterprises have varied along with post-Soviet policies, many collectives continue to operate as they had during the Soviet era, albeit with drastically reduced subsidies and budgetary support. Though their economic viability is continually in question, these collectives survive largely on practical and emotional inertia, preventing government authorities from liquidating them and keeping people working despite salary delays that last for months at a time.

Having studied Soviet collectives in Buryatia both before and soon after the collapse of the state economy, Humphrey suggests that the endurance of Soviet collectives despite pressures to privatize stems from the vacuum in political authority, economic opportunities, and social services that was left by the collapse of the Soviet state:

> In these circumstances people are attached to collectives because they are the only thing that looks like a functioning intermediate institution and stand in for what is almost a nonfunctioning state at the village level. ...In this situation, and with the abeyance of law, to want the dissolution of collectives would be to vote for anarchy. (Humphrey 1998: 461)

Research on Soviet collectives that have resisted privatization in other regions suggests that these institutions do more than keep anarchy at bay. As long as a sovkhoz or kolkhoz continues to exist, people who work there can maintain access to the equipment, institutional structures, and other resources that are left from the days when the collective was vertically integrated with the state economy. Even when the collective struggles to produce profits or to pay salaries, it shields individuals from the risks and uncertainties of the market, while providing them access to resources that enable them to generate private benefits (Habeck 2005; Konstantinov 2002; Stammler & Ventsel 2003; Vladimirova 2006). Thus, collective institutions strengthen networks of social support within communities, even when the flow of resources through vertical channels has been disrupted or has disappeared entirely. With the state failing to provide for their basic needs, local communities are forced to redirect and expand the horizontal flows of goods and services that previously formed the "second economy" of the Soviet era. Echoing Verdery (1996), Humphrey suggests that the increased importance of kin ties in establishing networks of reciprocity is an indicator of this shift from vertical to "horizontal" channels of support, where goods and services circulate through social relationships within or between villages (1998: 444-445). While these horizontal channels are closely tied to the re-emergence of the household as a fundamental locus of cooperation and production (Crate 2006; Ziker 2002), collective

institutions continue to play an important role in maintaining personal networks of social support (Vladimirova 2006).

Neotraditional development & the obshchina

While many people in indigenous communities had come to accept the role of Soviet collectives in their lives and opposed attempts to privatize them, there were others who had long waited for the opportunity to develop an alternative. The number of Soviet collectives that were bought by private investors, liquidated by government officials, or allowed to collapse in bankruptcy during the 1990s was large enough to leave a clear institutional vacuum in many rural villages. People had already begun to practice traditional subsistence activities like fishing, hunting, and foraging outside the structures of the collective as simple strategies of survival. Yet, years of industrialization had left many without the appropriate knowledge, skills, and experience to rely entirely on these subsistence activities to produce food to feed their families. The percentage of people engaged in traditional subsistence activities had fallen from 70% to 43% between 1959-1979 (Slezkine 1994: 373). These circumstances raised practical concerns about people's ability to provide food for themselves, as well as broader issues related to the role that subsistence activities played in sustaining indigenous cultures. In order to reverse this trend, ethnographers began to advocate a development strategy called "neotraditionalism" (Pika 1999). In the words of a leading advocate, the Russian ethnographer Aleksandr Pika, neotraditionalism represents "a rejection of state 'modernizing drive' in favor of demands for legal protection for northern peoples, freedom for independent economic and cultural development, and self-government" (1999: xxiii). Focusing on issues of indigenous autonomy, local food production, and small-scale community management of economic and natural resources, ethnographers and

indigenous activists began to call for the Russian government to take concrete steps to provide indigenous communities with the rights and resources to continue practicing "traditional economic activities and ways of life" in the post-Soviet economy (Fondahl 1998; Gray 2006; Pika 1999; Stammler 2005a, 2005b). These efforts received recognition in a series of laws drafted and revised by the Russian government between 1992-2004, formally establishing the obshchina as a new kind of collective institution that would allow indigenous peoples to pursue "traditional" economic activities on state owned lands surrounding their communities (Donahoe 2009; Pika 1999).

The word "obshchina" (pl. *obshchiny*) is often translated in English as "community" or "commune," but neither of these words sufficiently captures the unique social, economic, and political relations among individuals within these collective institutions. Ethnographers have long described the traditional socioeconomic unit of indigenous peoples in Russia using the term obshchina (Antropova 1971; Pika 1999; Schweitzer 2000; Sirina 2004). However, the term originally referred to the collective institutions of pre-revolutionary Russian peasant communities. Among the Russian peasantry, obshchina was a general term referring to a group of individuals who shared access to and ownership of common fields at the village level (*mir*) and met in assembly at the broader community level (*skhod, volost*) in order to determine annual redistributions of land, enforce agreements, resolve disputes, and collect taxes (Bartlett 1990; Gaudin 2007). Russian obshchiny were lauded by 19th century populist intellectuals like Alexander Herzen, whose ideas influenced Shternberg, Jochelson, Bogoras and other exiled ethnographers. These ethnographers found parallels between the cultural norms and values of equality and common property among the Russian peasantry and indigenous peoples in Siberia and the Far East (Slezkine 1994: 124). This parallel is no longer explicit in contemporary

discourses among ethnographers or within indigenous communities (Stammler 2005a, 2005b). Instead, the word "obshchina" most often refers solely to cultural norms, values, and institutions among indigenous peoples prior to the Soviet era, reflecting its role in the "neotraditional" movement (Pika 1999).

When anthropologists and indigenous activists wrote the first drafts of laws to formally re-establish the obshchina, they defined it as "an institution of self-government, economic enterprise, and as a land-owner" (Novikova 2002: 85). However, as these drafts were revised and amended by Russian Federation officials, the policies made no specific provisions for indigenous rights to own land or manage natural resources (Novikova 2002). Thus, despite the connections to both traditional indigenous socioeconomic structures and Russian peasant institutions of land tenure that are implied by the term obshchina, the specific property rights and relations that are legally established for indigenous communities seeking to revive reindeer herding, fishing, and foraging through the creation of obshchina collectives remain vaguely defined and highly negotiable (Donahoe 2009).

Anthropologists have described emerging obshchina collectives as "neotraditional" institutions, while both Russian legislation and indigenous activists have cast them as "ideal umbrellas for collective action," contrasting the cultural norms and values of property and equality they embody with those of newly privatized Soviet collectives (Fondahl 1998; Pika 1999; Gray 2006). Others have argued that neither Soviet collectives nor obshchiny should be seen as more or less "traditional," and that both can be utilized by indigenous people to assert claims to land and natural resources, reaffirm cultural identities, and establish a foothold in the post-socialist economy (Konstantinov 2002; Osherenko 1995; Stammler 2005a, 2005b; Ziker 2002, 2003a). Like newly privatized Soviet collectives, obshchiny blur the boundaries between

"public" and "private" property and reflect the inextricable, dual legacies of traditional and Soviet pasts.

Working in Evenki communities seeking to establish obshchina collectives, Fondahl (1998) found two competing views of what this neotraditional development strategy meant for individuals pursuing it. Some saw the obshchina as a strategy for reestablishing self-governance, identifying the primary challenges they faced as convincing government officials to grant them an allocation of land or territory and the need to acquire the financial resources to purchase equipment and begin to generate income (Fondahl 1998: 126). Communities throughout Siberia share this view. Many see the obshchina is a way of establishing economic and political autonomy, while also reclaiming and rebuilding their identity as indigenous peoples on the foundation of traditional economies (Gray 2006; Stammler 2005a, 2005b). However, other Evenki told Fondahl that they viewed the property rights and relations established by obshchina collectives as just another form of land enclosure "that fails to recognize fully the flexibility, as well as communality, of land tenure which underpinned Evenki traditional activities" (1998: 127). This last view reflects the dissatisfaction many Evenki feel with the ways that government policies have altered longstanding patterns of land tenure and restricted their ability to maintain traditional property rights and relations. Prior to the Soviet era, Evenki communities were composed of several extended families that shared membership in a broader network of patrilineal clans (*rod*), hunting and herding in a series of overlapping territories (Fondahl 1998: 32). Rights to these territories and the natural resources within them were seen as "exceedingly permeable" and "flimsy" from the perspective of Russians who settled among the Evenki during the Tsarist era (Fondahl 1998: 33). But to the Evenki, these rights were determined by an equally rigorous set of criteria:

> Intimate knowledge of the land, coupled with requisite respect for the spirits of the place and beings which they inhabit (animal, plants, rocks, etc.) entitle indigenous obshchinas to use the land and its resources. This knowledge and familiarity constitutes the core of Evenki territorial tenure. It differs so fundamentally from Western bases of land ownership that Westerners commonly failed to recognize *any* form of indigenous tenure over land among the Evenkis and other northern nomadic peoples. (Fondahl 1998: 35)

The contrast between boundaries and rights of property established through knowledge as opposed to those established by ownership led Russians to characterize property relations among the Evenki as an "open access commons" rather than "communal property" (Fondahl 1998: 36). Governing Evenki communities by imposing new systems of land tenure on obshchina collectives constitutes an "exogenously imposed organizational structure" of land enclosure that was expanded during the Soviet era of collectivization (Fondahl 1998: 43). However, Fondahl also notes that Evenki continued to maintain patterns of land use that reflected their own cultural values, creating an informal moral economy of rights and territory that operated in opposition to top-down authority (Fondahl 1998: 62).

Similar acts of resistance were common throughout Siberia and the Far East, where the endurance of these informal systems of land tenure can be found despite the top-down institutional structures of the Soviet and post-Soviet era (Konstantinov 2002; Ziker 2002, 2003a). Working with Dolgan and Nganasan communities in the central Siberian region of Taimyr, Ziker (2003a) discusses informal property relations among hunters and foragers adopting two formal land tenure strategies in the post-Soviet era. Responding to the collapse of social services and the state economy, individuals choose either to remain as nominal employees of government collectives while utilizing its land and resources according to their own notions of land tenure, or to establish an obshchina collective with kin and other community members according to newly established policies of collective ownership. These two collectives were often seen as competitors (Ziker 2003: 348), and the choice between membership in one or the other seemed to

be driven primarily by market access and proximity to the village center, with formal land claims made more frequently in urbanized locations closer to markets (2003: 346). Yet, despite contrasting institutional structures, both these strategies unfold in a commons, where property boundaries and use rights are not "open access," but flexible and governed by community norms and values of sharing and respect (Ziker 2002: 217). In this way, Ziker sees the relatively few individuals establishing obshchina collectives as a move away from formal, market oriented property regimes (2002: 219, 2003a: 353). Thus, Fondahl and Ziker provide evidence that the formation of obshchina collectives is not always a necessary step for indigenous communities seeking to reestablish elements of traditional economies according to cultural norms and values of property that emerge from the negotiations of local actors rather than being imposed from above.

Cooperation, collective institutions, & development

Among the many profound effects of the Soviet collapse, the rapid withdrawal of vertical structures of cultural, economic, and political governance that followed from *glasnost* and *perestroika* created a vacuum in political authority and social support in indigenous communities throughout Siberia and the Far East. Within this vacuum, Soviet collectives continue to function as nexus points between the vertical and horizontal flows of goods and services that were established during the Soviet era. As individuals support Soviet collectives for practical, economic, and emotional reasons, these collectives remain cardinal points on the post-Soviet moral compass, maintaining social services that the state ceased to provide. In some indigenous communities, however, neotraditional development strategies propose alternative ways to fill this vacuum by creating obshchina collectives to coordinate traditional economic activities and

reestablish a degree of indigenous autonomy over land and natural resources. The coexistence of these contemporary collective institutions, and the distinct sets of cultural norms and values embodied in them, provides a unique opportunity to understand the factors that influence cooperation and collective action in contemporary Russia.

Recent ethnographic research examining these collective institutions shows that each can be utilized by indigenous people to assert claims to land and natural resources, reaffirm cultural identities, and establish a foothold in the post-Soviet economy. Whether local actors choose to reform Soviet collectives or develop obshchina collectives may ultimately depend on the extent to which these institutions facilitate connections between the horizontal flows of goods and services in the informal moral economy of rural villages and the vertical flows of an expanding market economy in post-Soviet Russia (Humphrey 1998; Stammler & Ventsel 2003). Though horizontal networks have recently risen to prominence, they also played an important role throughout the Soviet era, indicating continuity between the collective institutions of pre and post-Soviet Russia (Humphrey 1998; Verdery 1996). This continuity is evident in the cultural norms and values of altruism, kinship, reciprocity, and common property that continue to inform practices of herding, hunting, and fishing. But continuity can also be seen in the policies and ideals of Russian officials seeking to govern these activities from above. The legal and bureaucratic processes of privatization and neotraditional development are simply the latest acts in a longstanding effort to govern indigenous peoples. Thus, the different strategies adopted by indigenous peoples seeking to meet their basic cultural, economic, and political needs, and the role assumed by the state in structuring those strategies, raises a number of questions with both scholarly and practical importance.

Do some contemporary collective institutions provide greater benefits to residents of rural villages than others? Should collective institutions exist solely to benefit their members, or do they have broader obligations to contribute to the community? Do some collective institutions deserve special rights and privileged access to natural resources that are distinct from those available to private businesses? How should collective institutions contribute to the mixed economies of rural villages and connect to regional, domestic, and international markets?

These questions are fundamentally questions about cooperation. On a basic level, collective institutions exist to coordinate the activities of individuals and to reconcile tensions between individual and common interests. Understanding factors affecting the emergence and stability of cooperation has long occupied scholars in a variety of disciplines, and this area of research has experienced substantial growth in recent years. Collective institutions, variously conceived, have been the focus of an expanding body of comparative research that draws on examples from throughout the world. With a few notable exceptions (Stammler 2005a; Ziker 2002; Ziker & Schnegg 2005), collective institutions among indigenous peoples in Siberia have not been examined using the theoretical perspectives and comparative research on cooperation, collective action, and the commons. Yet, the unique historical and cultural legacies of indigenous peoples in Russia reflect numerous attempts to cultivate, maintain, and develop some forms of cooperation while restricting or eliminating others. Viewing these legacies from the vantage point of cooperation highlights the ways contemporary debates about collective institutions have connections to the past that are often partially obscured or unrecognized.

Theories of cooperation in the natural and social sciences can contribute to improving our understanding of the emergence and stability of cooperation and collective institutions in the post-Soviet era. The activities that individuals pursue when cultivating and maintaining

horizontal networks—including household-level food production, inter-household transfers of resources, and informal exchanges of goods and labor—can be studied as cooperative behaviors. The contexts in which they do and do not occur can be predicted using theories that have been supported by previous examinations of these forms of cooperation in other places, thus generating insights about factors that influence the emergence and stability of cooperation in rural villages in Siberia and the Far East. Once identified, these factors could be used to re-examine post-Soviet collective institutions. If collective institutions exist in part to facilitate cooperation among their members, then examining how collective institutions enhance or inhibit the factors that lead to cooperation in horizontal networks should help explain the institutional diversity found in post-Soviet collectives from one village to the next. On a practical level, understanding these factors may lead to identifying solutions to the challenges that these institutions face amid the many uncertainties of the post-Soviet era. Despite the fact that cooperation is clearly an important aspect of post-Soviet collective institutions, only a few ethnographers have focused their research on identifying how collectives influence these factors. My choice to do so not only reflects the importance of cooperation in the present moment, but follows from the extent to which cooperation is an important part of the cultural and historical legacies of indigenous peoples in Russia. These legacies are the remains of multiple pasts that people in Kamchatka are now using to reconstruct the present and envision a new path for the future.

Chapter 3:

Synthesizing Theories of Cooperation

Introduction

In 1864 a member of the Russian Imperial Army joined a geographical survey expedition in Siberia, traveling through the Transbaikalia region north of Mongolia and along the Amur River. As a graduate of the Corp of Pages, a military school located in St. Petersburg that trained young members of the Russian nobility for careers in the Army, the 22 year old man had chosen this appointment because it would provide him the opportunity to travel in a remote and relatively unknown land, experiencing a way of life far different from the urbanized, highly structured society of Russian nobility in Moscow and St. Petersburg (Woodcock & Avakumovic 1990). The man's name was Pyotr Kropotkin, and the observations he made of the natural environments and indigenous communities in this part of Siberia ultimately inspired him to leave the military and devote the rest of his life to the scholarly study of cooperation and revolutionary political activism.

Kropotkin's life and work reflect the historical and cultural legacies of cooperation that run throughout centuries of interactions between European Russians and indigenous peoples throughout Siberia and the Far East. Like many other scholars and activists of his time, Kropotkin sought to harness contemporary scientific theories and philosophies of human nature, social organization, and progress in order to chart a unique path for the development of Russian society that would allow the country to bypass forms of industrial capitalism. Kropotkin shared the belief—widespread among Russian intellectuals at the time—that these theories indicated the potential for building upon existing cultural norms, values, and institutions found among the Russian peasantry, embodied in the *obshchina*. His descriptions of so-called "savage" peoples in

Siberia and throughout the world made connections between indigenous forms of social organization and those found among the Russian peasantry and elsewhere in Europe. Yet, his ideas distinguished themselves in two ways. First, he was an influential proponent of Russian forms of anarchism, joining Mikhail Bakunin and others in the belief that the development of Russian society needed to proceed from the ground up, through voluntary forms of cooperation and association chosen by individuals and communities as opposed to state structures and regulations imposed from above. Second, Kropotkin was uniquely focused on formulating a scientific theory of human nature that explained the role of cooperation in the evolution of humans and non-human animals. Influenced by the publication of Darwin's theory of evolution by natural selection, as well as the flourish of intellectual debates that it inspired, Kropotkin sought to correct what he saw as misinterpretations of Darwin's theory, particularly among those who rushed to apply it to human societies.

In 1902 Kropotkin published a book called *Mutual aid: A factor of evolution*, in which he formally presented his objections to the widespread tendency to privilege the effects of competition over cooperation in the evolution of individual behavior and social life. He was inspired by the publication of an article by Thomas Henry Huxley in 1888, titled "The Struggle for Existence and its Bearing upon Man," where Huxley stated that life was "a continuous free fight, and beyond the limited and temporary relations of the family, the Hobbesian war of each against all was the normal state of existence" (Kropotkin 1902: 4). Kropotkin's argument against this view made three central claims, presented in a social evolutionist scheme of development that began with "mutual aid among the animals," continued with evidence among "savages" and "barbarians," eventually concluding with "mutual aid among ourselves." Kropotkin first claimed that competition between individuals of the same species was far less

prevalent in nature than competition between different species or against natural challenges posed by the environment. Second, he claimed that cooperation was a more powerful evolutionary force than competition in that it led to more complex forms of social organization that were advantageous in overcoming inter-specific and environmental challenges. Third, Kropotkin suggested that individual self interest and intra-specific competition were being misrepresented by evolutionary scholars, and were actually "something quite different from, and far larger and deeper than, the petty, unintelligent narrow-mindedness, which, with a large class of writers, goes for 'individualism' and 'self-assertion'" (1902: xvii). Instead, Kropotkin proposed that evolution had provided humans, and perhaps other species, with "instincts" and "conscience" for "solidarity":

> But it is not love and not even sympathy upon which Society is based in mankind. It is the conscience—be it only at the stage of an instinct—of human solidarity. It is the unconscious recognition of the force that is borrowed by each man from the practice of mutual aid; of the close dependency of every one's happiness upon the happiness of all; and of the sense of justice, or equity, which brings the individual to consider the rights of every other individual as equal to his own. (1902: xiii)

Although Kropotkin's scientific and political ideas fell out of favor in the years leading up to and after the Russian revolution, they capture connections that are often otherwise obscured between the cultural and historical legacies of cooperation in Russia and the scholarly study of cooperation throughout Europe and America since the publication of Darwin's *Origin of Species* (Stack 2003; Todes 1989). Contemporary knowledge of evolutionary theory leads us to reject some of Kropotkin's claims, particularly his tendency to privilege the success of a group or entire species over the success of individuals who constitute them (Gould 1988). However, in other ways, the growth of research on the evolution of cooperation that has occurred during the past 50 years vindicates some of Kropotkin's critiques, especially his attempt to broaden the narrow conceptions of individualism and self-interest that were usually justified through

interpretations of Darwin's theory. By presenting contemporary theories of cooperation in the natural and social sciences, the connection between the cultural, historical, and intellectual traditions that inspired Kropotkin and the study of cooperation and collective institutions in Siberia can be remade.

Theories of cooperation

In order to understand the emergence and stability of cooperative behaviors, I draw on theories of cooperation from both the natural and social sciences. The natural sciences provide an evolutionary framework for understanding the long-term consequences of individual actions and social interactions. Evolutionary theories of cooperation have flourished recently, resulting in several models that identify specific mechanisms that can lead to the evolution of cooperative behavior. While these models may apply to a variety of species, the conditions required for cooperation to emerge and persist suggest that cooperation should be particularly important for humans. Yet, evolutionary models of cooperation have only recently begun to incorporate the complexities of human culture, whose norms and values clearly play an important role in the cooperative behaviors of our species.

Theories of cooperation in the social sciences can facilitate the inclusion of cultural norms and values in evolutionary models of cooperation (Cronk & Leech In prep.). Anthropologists, economists, geographers, political scientists, psychologists, and sociologists are intimately familiar with the diverse patterns of cooperation found in societies throughout the world, and several interdisciplinary theoretical frameworks have been developed to account for the many similarities and differences documented by them. Among these frameworks, two are particularly promising for integration with the natural sciences: *collective action* and *the*

commons. Research in these two related areas examines the successes and failures of cooperation in a number of natural contexts. Specifically, researchers studying collective action and the commons focus on the key aspects of resources that are used cooperatively and identify the design principles that can facilitate stable cooperative institutions to utilize those resources. Yet, theories of cooperation in the social sciences generally rely on proximate measures of costs and benefits that are tied to interactions occurring in specific historical and cultural contexts over a relatively limited period of time. As a result, the insights from studying cooperative behavior in one spatial or temporal context are often difficult to apply to understanding cooperation in other contexts. An evolutionary framework may provide social scientists with a common currency for calculating costs and benefits and assessing the consequences of cooperative interactions that would unite the study of cooperation across a variety of temporal and spatial contexts.

One challenge of interdisciplinary research on cooperation is that the term "cooperation" is often used to describe a wide range of behaviors that differs from one researcher or discipline to the next. Cooperation can be narrowly defined as altruism, where one individual endures a cost in order to provide a benefit to another individual. More broadly, cooperation can describe instances where two or more individuals act in consort to pursue common interests. Some researchers reserve the term "altruism" for behaviors that entail a cost to the individual who performs the act and a benefit for the recipient, using "cooperation" to describe only behaviors that benefit both actor and recipient, also know as "mutualism" in behavioral ecology. Cronk and Leech (In prep.) have argued that adopting broader definitions of cooperation has the advantage of drawing researchers' attention to a number of behaviors, institutions, and cultural norms and values that may be excluded or obscured by focusing solely on more narrow

definitions of altruism and mutualism. Moreover, Cronk and Leech make the important point that cooperation should be distinguished from "cooperativeness," an individual's propensity to cooperate in certain situations. While cooperative behaviors may indeed be influenced by individual propensities, institutions or other structural features of social dilemmas that lead to cooperative behaviors may not require any kind of individual predisposition for cooperativeness. My use of the term cooperation generally corresponds to this broader perspective, reflecting the range of phenomena present in the different contexts of cooperation in Kamchatka that I explore. However, in certain cases I use cooperation in the more narrow sense of the term, particularly when applying evolutionary theories and models that are focused on altruism.

As one of the only disciplines with well-established connections to both the natural and social sciences, anthropology may offer a space for theoretical integration between evolutionary theory and cultural complexity. This integration must rely equally on concepts of evolution and culture, despite the fact that most anthropologists are inclined to accept one and reject or simply ignore the other. My approach to seeking this integration happens to begin with evolution and move toward culture, adopting the theoretical and methodological perspective of human behavioral ecology (Borgerhoff Mulder 1991, 2004; Cronk 1991; Winterhalder & Smith 2000; Winterhalder 2002). Human behavioral ecologists have already made considerable progress applying insights from evolutionary theory to the study of cooperative behavior in humans (Chagnon & Irons 1979; Betzig 1997; Cronk *et al.* 2000). Although human behavioral ecologists approach the study of cooperation in a manner similar to scientists who study other species, they have increasingly begun to realize the importance of understanding the influence that cultural norms and values have on the emergence and stability of cooperative behaviors (Alvard 2003a; Cronk 1995,1999). Therefore, I begin with a summary of the evolutionary models that human

behavioral ecologists have applied to the study of cooperation in a variety of contexts. Then, I identify ways that social scientific research on collective action and the commons can contribute to the further development of evolutionary perspectives. Finally, I synthesize insights from both approaches, suggesting how integration between theories from the natural and social sciences can be applied to the study of cooperation and collective action among salmon fishers and reindeer herders in Kamchatka.

Evolutionary Theories of Cooperation

Six models, six mechanisms

Contemporary evolutionary theory suggests that cooperative behavior—defined narrowly as "altruism"—can evolve in six ways: (1) kin selection, (2) direct reciprocity, (3) indirect reciprocity, (4) signaling, (5) genetic group selection, and (6) cultural group selection (Nowak 2006; Lehman & Keller 2006; Henrich 2004). Each of these six models identifies a key variable that determines whether or not a cooperative behavior will evolve via natural selection in a given context. These models provide a theoretical foundation that has been successfully applied to the study of naturally occurring cooperative behavior in a variety of species, including our own.

Kin selection

Cooperative behavior can evolve through kin selection when individuals interact differently with kin than non-kin (Hamilton 1964). In this model, the key variable is the coefficient of relatedness between the actor and recipient, defined as the probability that two individuals share a gene underlying altruistic behavior. According to Hamilton's Rule, $c < b*r$, the cost (c) of an interaction for the actor must be less than the benefit (b) for the recipient,

devalued by the coefficient of relatedness (*r*) between them. In other words, kin selection suggests that the direct costs of an altruistic interaction return to the actor as indirect benefits when the recipient is related to the actor, providing a net fitness gain for both individuals. Though the coefficient of relatedness is often the focus of kin selection models, it is important to recognize that factors altering the calculation of costs and benefits for the actor and recipient are equally influential in determining cooperative outcomes.

Hamilton's model of kin selection introduced the concept of *inclusive fitness*, where an actor's fitness includes not only the number of offspring he or she produces, but also the number of offspring produced by the actor's relatives as a result of aid provided by the actor, devalued by the coefficient of relatedness between them. When applied to the study of cooperative behavior, kin selection directs our attention to the degree of *relatedness* between interacting individuals as a key explanatory factor.

Direct reciprocity

When two individuals take turns fulfilling the role of actor and recipient in a series of altruistic interactions, cooperation can evolve through direct reciprocity (Trivers 1971). Because this role-reversal often entails interactions that do not occur simultaneously, the *reciprocal contingency* between initial and subsequent interactions is the key focus of this model. Reciprocal contingency is a general term that can be influenced by multiple variables, including the overall frequency of interactions, the probability of encountering partners from previous interactions, as well as the ability to recognize those partners and remember their behavior. When interactions are frequent and individuals encounter past partners often, cooperation through direct reciprocity is more likely to evolve, even when individuals possess only a limited

ability to recognize each other and remember their past behaviors (Trivers 1971: 21). Enhanced abilities in recognition and memory make direct reciprocity an even more effective pathway toward the evolution of cooperation.

While direct reciprocity models can apply to interactions among kin, they are particularly important because they also apply to interactions between unrelated individuals. Although the immediate and certain benefits of cooperating with relatives make models of kin selection more stable, the degree of relatedness between the actor and recipient often limits the scale at which cooperation can evolve. Beyond the closest circles of kin—parents, offspring, and siblings—kin selection cannot lead to the evolution of cooperation unless the costs of an interaction are low and the benefits high. However, direct reciprocity can lead to the evolution of cooperative behavior, even among entirely unrelated individuals or between members of different species, as long as the direct costs of an interaction are offset by future benefits that are contingent upon the initial interaction. Although direct reciprocity lacks the certainty of kin selection, it expands the potential network of cooperative partners to significantly larger social scales.

Indirect reciprocity

The evolution of cooperative behavior through indirect reciprocity occurs when an actor considers the past behavior of recipients, cooperating only with those who have cooperated with others previously (Alexander 1987; Nowak & Sigmund 2005). Because individuals may not have interacted with each other in the past, *reputation* is the key variable in models of indirect reciprocity. The outcomes of dyadic interactions within a deme are either observed directly by other individuals or communicated to them, and this information determines whether or not cooperation will occur in future interactions between new dyads. Both the actor and recipient

share a concern for how the outcome will affect their reputations, and subsequent models of indirect reciprocity have demonstrated the importance of a variety of "reputational dynamics" (Ohtsuki & Iwasa 2006). Individual traits and social structures that enable individuals to acquire accurate information about other individuals' reputations improve the effectiveness of indirect reciprocity. When the information used to form individual reputations is more reliable and less difficult to acquire, cooperation is more likely to evolve via indirect reciprocity.

Signaling

In the absence of directly or indirectly observed information about an individual's past interactions, cooperation can evolve when reliable signals about future behaviors pass from the recipient to the actor. In signaling models, a potential recipient of cooperation uses a physical trait or behavior to signal the indirect benefits that will return to the actor as a result of cooperating with the signaler. Thus, the key variable in signaling models is the relationship between the signal and the underlying *quality* of the signaler. When applying signaling theory to the study of cooperative behavior, quality is defined according to the indirect benefits that would return to the actor as a result of cooperating with the signaler in the initial encounter. Signaling models are often applied to mating behaviors, where mating is considered a cooperative interaction and quality is defined in reproductive terms, usually some form of "good genes" or parental investment (Zahavi & Zahavi 1997). Signaling models have also been applied to the provision of public goods, with individuals using past cooperative behavior to signal their quality as partners in subsequent social interactions (Gintis *et al.* 2001; Bliege Bird & Smith 2005). While these signaling models may resemble models of indirect reciprocity, the crucial difference

is that signaling models direct attention to the medium through which information about reputation passes between individuals in an interaction.

There are three basic ways that signals can convey reliable information about the quality of the signaler. First, a signal can be reliable when it is causally related to the quality of the signaler, meaning that it cannot be faked. This type of signal is called an "index," borrowing the term from research on semiotics[1] (Maynard Smith & Harper 2003: 15). Second, a signal can be reliable when it is hard-to-fake, meaning that the cost-benefit ratio of producing the signal is lower for high quality individuals than for low quality individuals. This type of signal is called a "handicap" by some theorists, though all costly signals do not necessarily handicap the signaler in some way (Grafen 1990; Zahavi 1975). In both of these cases, the cost of the signal is closely tied to its reliability. The cost of an index prohibits individuals of insufficient quality from producing the signal, while the cost of a handicap makes it difficult and ultimately unbeneficial for individuals of low quality to produce it. This distinction between an index and a handicap may seem unnecessary, but Maynard Smith and Harper have argued that it is an important one to make when accessing factors that could bolster or undermine a signal's reliability (2003: 45-47). Such signals may be particularly helpful in altruistic interactions, where there is an asymmetry in the costs and benefits of the actor and recipient. However, the third way signals can be reliable focuses on how common interests arise between the signaler and recipient. While some signaling theorists emphasize that reliable signals evolve when two individuals have conflicting interests, Cronk has pointed out that hard-to-fake signals—including indices and handicaps—can evolve when two *classes* of organisms (predators and prey, males and females) have conflicting interests, yet the *individual* signalers and receivers have a confluence of interests (Cronk 2005a, 2005b). This confluence of interests arises when a signal sent by one individual makes the other

[1] I thank Lee Cronk for pointing out this connection between signaling theory and semiotics to me.

aware of their mutual interest and is sufficiently reliable to assuage doubts held by the signal's recipient.

Genetic group selection

In standard models of genetic group selection, two key variables determine whether cooperation will evolve: migration and competition. First, cooperation is more likely to evolve when individuals interact within stable, isolated groups, with little to no migration occurring between the groups in a deme. Second, as competition between groups increases, cooperation is more likely to evolve. The combined costs and benefits of dyadic interactions within a group determine that group's fitness relative to other groups. Within a deme, groups with higher fitness out-compete those with lower fitness, conferring additional benefits to the individual members of successful groups. Thus, natural selection can operate at two levels: between individuals and between groups. Cooperation that is costly at the level of the individual can evolve when it results in benefits to the group, as long as these group benefits are sufficient to counter the individual costs of cooperation.

There is widespread agreement among evolutionary scholars that standard models of genetic group selection are unlikely to account for the evolution of cooperation documented in most naturally occurring contexts (Williams 1966; Henrich 2004; Okasha 2006). This is because levels of inter-group migration are often too high and levels of inter-group competition too low for the costs of cooperation at the individual level to result in sufficient benefits at the group level. However, new models of genetic group selection have been proposed that attempt to resolve this problem (Wilson 1975; Sober & Wilson 1998; Bowles 2006). Whereas standard genetic group selection models were focused primarily on costs and benefits at the group level,

newer models attempt to capture the way that both individual and group traits simultaneously affect costs and benefits at the individual level. Thus, these models are often referred to as examples of "multilevel selection" or MLS. Okasha (2006) suggests a useful conceptual distinction between the various models of group selection according to the emphasis placed on individual or group reproductive success. In standard models (MLS2), the reproductive success of groups is focal. Groups interact and reproduce in a manner analogous to individuals, and the proportion of cooperators within a group passes from one generation to the next. In newer models (MLS1), the fitness of individuals remains focal, but groups also influence individual reproductive success by altering the structure of interactions among multiple individuals. In other words, MLS1 models divide the calculation of individual fitness into costs and benefits that result from individual traits and costs and benefits that result from group traits.

Whether or not MLS1 models of genetic group selection represent a unique pathway toward the evolution of cooperation remains controversial (Okasha 2006). However, a general principle has emerged from this debate: variables that reduce variance in reproductive success at one level increase the strength of selection at another level. One simple way to reduce variance at an individual level is through a mechanism of positive assortment that operates during the formation of groups (Hamilton 1975; Okasha 2006: 68). Positive assortment leads to groups with higher proportions of cooperators than would occur if groups were formed at random. In these groups, the costs of cooperation for individuals are decreased and the indirect benefits for group members are increased, because individuals who cooperate are more likely to interact with others who do the same. Proponents of MLS1 models point to the key variables in models of kin selection, direct reciprocity, and indirect reciprocity—relatedness, reciprocal contingency, and reputation, respectively—suggesting that these are actually mechanisms of positive assortment

that facilitate MLS1 group selection (Henrich 2004; Okasha 2006: 180-185). Thus, relatedness, reciprocal contingency, and reputation each reduce variance in reproductive success at the individual level by ensuring that the benefits of cooperation are directed toward individuals who also cooperate and denied to those who do not. Yet, this argument defines a "group" so broadly as to include networks of individuals who are separated from other individuals within the deme only in the sense that they interact differently with each other than they do with individuals outside of their network. Whether these networks include closely related individuals (kin selection), reciprocal cooperators (direct reciprocity), reputable cooperators (indirect reciprocity), or some combination of these, their emergence and stability relies on mechanisms of positive assortment that constitute adaptations at the individual level, succeeding in part because they alter the group structure of social interactions.

Cultural group selection

All of the first five models discussed above assume that cooperation evolves as an individual trait that is encoded in genes and passed from one generation to the next. However, an alternative model called "cultural group selection" has recently been developed based on the assumption that individuals choose to cooperate as a result of acquiring cultural norms and values through social learning (Henrich 2004). As the name suggests, this model is closely related to MLS1 group selection, except that the groups in question do not necessarily differ genetically but rather in the patterns of cultural norms and values that their individual members hold. Henrich suggests that these cultural differences between groups are maintained through biases in social learning and preferences that compel individuals to adopt behaviors that are the most frequent in their group (conformist transmission), behaviors displayed by prestigious group

members (prestige-biased transmission), behaviors that do not deviate from established norms, or behaviors that will not result in punishment from other group members (2004: 22-23). These mechanisms can increase cooperation within groups, but the key to their evolution comes in the advantages that they provide to all members of the group, either in inter-group conflict, demographic expansion, or prestige-biased cultural diffusion (Henrich 2004: 28). Crucially, because cultural group selection models do not require the genetic inheritance of cooperative traits, they are more resistant to inter-group migration, less reliant on inter-group competition, and potentially more rapid than models of genetic group selection. More controversially, some proponents of cultural group selection suggest that patterns of cooperation that evolve through this model can alter the selective pressures on individuals in ways that favor genetically inherited, group beneficial individual traits that are unlikely to evolve through genetic group selection alone (Henrich 2004: 30; Henrich & Boyd 2001).

Summary of the six models

Each model for the evolution of cooperation marks the edge of one of many circles. Beginning with interactions among close relatives, kin selection suggests that cooperative behavior can evolve because of indirect benefits that return to the actor in the currency of inclusive fitness. Because these benefits are realized immediately and are not contingent on future interactions, cooperation within this circle can provide a stable foundation for social life. Stepping outside this circle increases the uncertainty that cooperative behavior will ultimately benefit an actor, who must rely on the reciprocal contingency between present costs and future benefits that defines direct reciprocity. While direct reciprocity extends cooperative interactions to unrelated individuals, this circle remains limited to reliable former and future partners. By

observing and acquiring information about interactions among other individuals, an actor can formulate reputations that facilitate the evolution of cooperation via indirect reciprocity. This model expands the circle further to include individuals whose good reputations precede them. When an individual's identity and reputation are unknown, the circle extends deeper into uncertainty, but cooperative behavior can still evolve with the help of signals. An actor can use reliable signals to determine the signaler's relatedness, propensity to reciprocate, or some other quality that ensures the initial costs of cooperation will be offset by subsequent benefits. Beyond this part of the circle's curve, cooperation becomes more innuendo than inflection. Can cooperative acts be given more or less indiscriminately to all members of a group? When solidarity within the group is high, migration between groups low, and competition among groups fierce, it is possible for the circle to reach this far, though few may live to tell of it. Alternatively, when stable differences in cultural norms and values that inform cooperative behaviors are maintained between groups, through some combination of conformity, prestige, and punishment, cooperation within these groups can become expansive.

Although each of these models is usually described and studied separately, there are both practical and theoretical reasons for synthesis when studying cooperation among humans (Roberts 2005). From a practical standpoint, people are likely to utilize the mechanisms from each model according to the varying individuals and contexts that they encounter. If we identify a specific kind of cooperative behavior and observe its frequency, each model will likely explain only a fraction of cooperative interactions. However, if we examine variables relevant to each model simultaneously and determine the instances of cooperation explained by each, we will have a more complete and accurate understanding of the factors that influence the emergence and stability of that cooperative behavior (Allen-Arave *et al*. 2008; Nolin In press; Ziker & Schnegg

2005). The fact that each of these models is effective because it facilitates the positive assortment of individuals who cooperate provides a reason for theoretical synthesis. Each mechanism represents a different strategy for enabling cooperators to direct benefits toward those who cooperate and away from those who do not. Each strategy has unique strengths and weaknesses that are likely to make particular models—or combinations of models—more effective at explaining cooperation in some contexts and less effective in others. By beginning with the challenges of establishing positive assortment in a given context, theoretical models can be formulated using the variables that apply most directly to those challenges.

Conceptualizing kin selection, direct reciprocity, indirect reciprocity, signaling, genetic group selection, and cultural group selection as strategies for achieving positive assortment also changes our theoretical perspective on the relationship between individuals and groups. What constitutes a "group" from an evolutionary perspective? What aspects of a group are significant from an individual's perspective? Traditionally, evolutionary models of group selection have defined "groups" as temporally stable, spatially bounded entities. Individuals either are or are not members of a group, and group size and composition remain consistent for each member of the group. However, if we define a group based on persistent differences in the way an individual interacts with some members of the population compared with others, we are left with something that looks more like a social network. Social networks differ from traditional groups in two important ways. First, groups defined by interactions between individuals are actually networks embedded within and potentially extending beyond the temporal and spatial boundaries of traditional groups. The boundaries of these networks are not maintained by excluding some individuals from social interactions but simply by treating them differently. Thus, focusing on spatially and temporally defined groups may obscure networks of interaction that are more

relevant from an evolutionary perspective. Moreover, these networks of interaction are closer to the existing patterns of affiliation in "groups" or "societies" among a variety of species, bringing evolutionary theories of cooperation in line with field research in behavioral ecology. Second, while traditional groups use objective criteria to define group membership, networks are formed and maintained subjectively by individuals. This means that interactions within a traditional group occur between a relatively uniform set of individuals, whereas networks are composed of partially overlapping but unique constellations of interactions that change over time for each individual. Thus, focusing on traditional "objective groups" may distort a researcher's perspective on what aspects of a "group" are most important from a particular individual's perspective.

Because the structure of networks differs from the structure of objective groups, we should expect the factors that influence an individual's decision to cooperate in a given context to differ accordingly. In other words, mechanisms designed to achieve positive assortment among cooperators and to isolate non-cooperators should be effective at forming and maintaining networks, rather than building and defending the boundaries of objective groups. Thus, network formation can be considered an expression of individual agency in relation to existing social structures. Although social structures (including temporally and spatially defined groups) may limit the range of partners an individual can interact with, individuals are also expected to take an active role in forming personal networks of cooperation that benefit themselves, and by implication, their partners as well. Social network analysis is an emerging area of research in part due to novel theoretical and methodological approaches to understanding the relationship between individual agency and social (network) structure (Wasserman & Faust 1994). Evolutionary theories of cooperation have not often been expressed in these terms, but one can

easily describe mechanisms of positive assortment as a kind of biological agency that is not excessively deterministic but responds to existing variations in social structures and attempts to modify them to benefit the individual who holds these evolved propensities for network formation[2].

Many cultural anthropologists who utilize the theoretical perspectives of individual agency and social structure would perhaps be hostile or indifferent to the claim that individual agency has biological dimensions and that these dimensions can influence social structure. However, this possibility was raised over 25 years ago by Ortner (1984: 145-146), though neither cultural anthropologists nor evolutionary anthropologists have explicitly pursued theoretical synthesis in these terms. That such a synthesis could be insightful is indicated by attempts to understand the factors leading to the emergence and stability of cooperative behaviors in humans. Evolutionary theories of cooperation suggest that cooperation between individuals can emerge from mechanisms of positive assortment that attend to genetic relatedness, reciprocal contingency, reputation, signals of quality, and stable boundaries between groups. While in principle these mechanisms can be found in a variety of species, in practice they appear to predominate among humans, who are often claimed to be a singularly cooperative species (Richerson & Boyd 2005). Humans are also singular in their reliance on culture. Whereas some non-human animals may possess forms of culture (Whiten & van Schaik 2007; Fragaszy & Perry 2003; Mesoudi *et al*. 2006), no humans live without it. Therefore, biological mechanisms of positive assortment are unlikely to operate in isolation from culture, including both cultural dimensions of individual agency and the social structures in which individuals are embedded. While biological mechanisms influencing the formation of networks among human may not require the direct input of cultural information to function, their effectiveness is likely tied to

[2] See Nowak 2006 for an overview of recent evolutionary models that incorporate basic network structure.

aspects of human cultural environments through processes of coevolution. Understanding how cooperative behaviors evolved among humans requires synthesizing research on both biological and cultural dimensions of individual agency and social structure.

On a general theoretical level, this synthesis has already begun to emerge under the labels of gene-culture coevolution (Durham 1991), dual inheritance (Boyd & Richerson 1985; Cavalli-Sforza & Feldman 1981; Henrich & McElreath 2007), and niche-construction (Laland *et al.* 2000; Odling-Smee *et al.* 2003). Models of cultural group selection apply these broader theories to the study of cooperation (Henrich 2004), but this research has yet to lead to in-depth examinations of human cooperative behaviors in naturally occurring contexts. Human behavioral ecologists have long been studying cooperation in these contexts, but the relationship between biological and cultural dimensions of individual agency is not always explicit in their analysis. Cronk's (2002, 2004) research on parental investment, marriage practices, ethnic identity, and the effects of colonialism among Mukogodo peoples in Kenya is a notable exception, demonstrating how evolutionary theories of parental investment can be used to generate novel insights on the relationship between individual agency and social change (others include Alvard & Nolin 2002; Alvard 2003b). Making this relationship explicit is extremely difficult methodologically, more so given that the theoretical foundations of this approach were only recently outlined and are still being developed. Still, a starting point is provided by the widespread consensus among evolutionary anthropologists on defining culture as information that is socially learned and transmitted from one individual to the next (Alvard 2003a; Barkow 1989; Durham 1991; Cronk 1995, 1999). While concepts of culture remain debatable among cultural anthropologists, with some suggesting that they be abandoned altogether (Ortner 1999), the consensus definition among evolutionary anthropologists actually resembles closely the

"ideational" definitions of culture that explain it as "patterns for behavior" rather than "patterns of behavior" (Geertz 1973). As Cronk argues, defining culture as information that is one of multiple factors that potentially influences an individual's behavior can make the concept of culture tractable in analysis:

> By separating behavior from culture we can finally hope to use the culture concept to actually explain behavior in a fundamental way—in terms outside of itself—without making the mistake of thinking that all behavior is caused by culture or that behavior reflects the influence of culture in any simple or straightforward way. Discrepancies between behavior and culture are suddenly transformed from embarrassments to be swept under the great rug of Tylor's definition to exciting opportunities for insights into the real relationship between behavior and culture. (1999: 12)

Evolutionary anthropologists who share this perspective are currently developing approaches to studying culture on multiple levels, from mental representations that are created by cognitive processes within the minds of individuals to collective patterns of cultural norms and values that change over time and vary from one social group to the next. While these approaches are new and continue developing, they are being applied to the study of human behaviors and cultural phenomena that have long occupied scholars in the social sciences. In doing so, evolutionary anthropologists may generate novel perspectives and insights, but they also risk reinventing knowledge that other researchers have already contributed. New questions for some researchers are often old questions for others, and though the methods for pursuing these questions might differ from one discipline to the next, making progress toward the answers is likely to proceed more quickly if the insights of past research are incorporated into future investigations (Cronk & Leech In prep.). In this spirit, I turn to examine theories of cooperation in the social sciences that have developed in parallel but have remained for the most part isolated from theories of cooperation in the natural sciences.

Theories of Cooperation in the Social Sciences

Models & metaphors of cooperation

Understanding the individual desires and institutional designs underlying the emergence and stability of cooperation and collective action in human societies throughout the world remains a crucial challenge for social scientists. Although research by anthropologists, economists, geographers, political scientists, psychologists, and sociologists reflects well-guarded disciplinary boundaries, their models of individual behavior, collective action, and common-pool resource use remain connected by a shared interest in a unifying metaphor called "the tragedy of the commons" (Hardin 1968). In his classic paper, Hardin imagined a pastoral commons, where individual herders shared a pasture for their herds. He populated this commons with actors motivated by self-interested desires to increase their herds at the expense of any common interest in the sustainable management of their pasture. When unleashed in the unique ecology of the commons, Hardin argued that these herders would continue to utilize the pasture as long as it remained profitable to do so or until the pasture vanished entirely. Thus, the inevitability of "tragedy" in Hardin's model followed from the combination of self-interested actors who are motivated to focus on short-term gains and the difficulties of restricting access to common pool resources.

As a model for individual behavior and collective management of natural resources, Hardin's portrayal of the commons has proven controversial. However, as a metaphor for the dilemmas underlying cooperation and collective action in diverse contexts throughout the world, "the tragedy of the commons" has inspired a flourish of interdisciplinary research. Subsequent research suggests that "tragedy" can be avoided without the dramatic policy interventions that Hardin advocated (Ostrom 1990; McCay & Acheson 1987b). Yet, there are also a number of

cases where Hardin's dire scenario has either come to pass or threatens to do so (McCay & Acheson 1987a: 29-30). The causes of "tragedy"—and whether or not it can be averted—depend on how social realities mediate the ways that individuals encounter and adapt to the physical properties of a resource. Hardin's model assumed that the pastoral commons was "open access" and that herders had no ability to reliably communicate or coordinate their actions with one another. However, as case studies of a variety of common-pool resources show, collective institutions often emerge to facilitate resource use and management among individuals (McCay & Acheson 1987b). Social scientists studing common-pool resources often define institutions as "prescriptions that humans use to organize all forms of repetitive and structured interactions," including both formal organizations and informal entities (Ostrom 2005: 3). Institutions control resource access, establish regulations, monitor use, and resolve conflicts for both members and non-members (Ostrom 1990, 2005). More subtly, institutions embody cultural norms and values that influence individual behaviors by establishing preferences, defining moral behavior, channeling the flow of information, mitigating uncertainty, and signaling commitment (McCay 2002; Richerson *et al.* 2002). Finally, institutions are embedded within broader cultural, economic, historical, and political contexts that influence both existing and potential patterns of resource use and management. Although understanding the precise relationships between broader contexts, institutional diversity, individual actions, and common-pool resource use remains challenging for social scientists, a number of general "design principles" for successful institutions and "lessons" for resource management have already been identified (Ostrom 1990, 2005).

Theories of cooperation in the social sciences begin with the unique physical properties of shared resources (common-pool resources, public goods) and the dilemmas that these

resources pose for individuals seeking to utilize them. Relying on assumptions about the factors influencing individual behavior, researchers then examine the social realities that emerge to mediate these dilemmas. While some researchers focus more on institutions and the rules and regulations that affect the use and management of shared resources, others attend more closely to the cultural norms and values among resource users and examine how these are "embedded" within broader cultural, economic, historical, and political contexts. Together, these approaches have much to contribute to the integrated study of cooperation.

Dilemmas posed by shared resources

Shared resources have long intrigued social scientists because of the dilemmas that they pose for individuals who rely upon them. In contrast to private goods, common-pool resources and public goods have physical properties that make it difficult or impossible for an individual—or group of individuals—to exclude others from using them. Often, using a common-pool resource or creating a public good requires individuals to make some kind of sacrifice, either by limiting their consumption of the resource or contributing to its production. Yet, individuals who make this sacrifice will find it difficult to prevent the benefits of the resource from reaching those who do not sacrifice. The non-exclusive property of shared resources prevents contingency between sacrifice and reward, leading to a dilemma known as the "free-rider dilemma." The recurring structural dimensions of this dilemma were identified by Mancur Olson (1965) in his analysis of collective action movements and the production of public goods, generating insights that have strong parallels to Hardin's "tragedy of the commons."

Although the free-rider dilemma applies to both common-pool resources and public goods, unique dynamics are created by a key difference between them: "subtractability."

Common-pool resources are "subtractible" (or "rivalrous") meaning that one individual's use of the resource limits another individual's use of the resource. Public goods are non-subtractible (or non-rivalrous) because one individual's use of the resource has no effect on another's ability to do so. In both cases, the subtractability of the resource determines the implications that the free-rider dilemma has for the existence and sustainability of a resource. Because common-pool resources are "subtractible," the free-rider dilemma draws attention to sacrifices that individuals must make by limiting their consumption in order to ensure that the existing resource is not destroyed. Because public goods are "non-subtractible," the free-rider dilemma concerns the sacrifices that individuals must make in order to produce the resource. Whereas common-pool resources require sacrifices to prevent depletion and destruction, public goods require sacrifices to establish and sustain their existence. These dilemmas are made more difficult by the fact that the physical properties of shared resources confound what often appears to be the most simple solution: limit the benefits of resource access to only those individuals who make sacrifices for and responsibly utilize the resource.

Social realities: Institutions and rules

Considering only the physical properties of common-pool resources and public goods leads to an unduly pessimistic vision of their long-term existence and sustainable use. As a number of scholars have noted, Hardin's "tragedy of the commons" follows from the absence of crucial social realities in his model. In particular, Hardin assumed that herders have no ability to regulate who among them has access to pasture, resulting in an "open access" commons (Ciriacy-Wantrup & Bishop 1975; McCay & Acheson 1987a; Ostrom 1990). However, researchers who have studied fisheries, forests, pastures, irrigation systems, and other prominent

common-pool resources repeatedly emphasize the social realities that mediate the use of shared resources (McCay & Acheson 1987b; Ostrom 1990). Often, these social realities are maintained by institutions that emerge "bottom-up" from within a community of resource users or are imposed on them "top-down" by external authorities. Broadly defined, institutions establish who has access to a shared resource, how individuals can utilize the resource, and the consequences of adhering to or transgressing norms of resource access and use. Because of the role that institutions play as intermediaries between individuals and the resources they rely upon, the dilemmas posed by common-pool resources and public goods cannot be fully understood by attending to their unique physical properties alone.

The importance of social realities has led a diverse group of scholars from throughout the social sciences to focus on the factors leading to the emergence and stability of institutions that alter the dilemmas of shared resources. Among these, the Institutional Analysis and Development framework (IAD), formulated by Elinor Ostrom and her colleagues, has been particularly influential (Ostrom 1990, 2005). The IAD framework defines the focal unit of analysis as an "action arena" that includes seven key factors: (1) *participants* who utilize the resource, (2) *positions* that represent how a resource can be utilized, (3) the *potential outcomes* of different positions, (4) the *action-outcome* linkages that follow from them, (5) the participants' ability to *control* the nature of these linkages, (6) the *information* available to participants as they assess their options and take action, and (7) the *costs and benefits* of these actions (Ostrom 2005). The IAD framework also connects "action arenas" to *exogenous variables*, which include the physical/material conditions of resource use, the community dynamics influencing resource users, and the rules established by institutions. As individuals make decisions within an "action arena," these exogenous variables affect factors within the

action arena, influencing interactions between resource users and their environment. These interactions lead to outcomes that are evaluated by resource users, subsequently altering or reinforcing future interactions in the "action arena" (see Ostrom 2005: 15 for a visual representation of the IAD framework).

Two key contributions made by researchers working within the IAD framework are (1) exploring the analytic usefulness of rational choice theories of individual behavior and (2) establishing the importance of institutions in structuring individual behavior. Although researchers studying common-pool resources and cooperation continue to rely on assumptions that individual behavior is determined by rational calculations of self-interest, Ostrom and her colleagues have advocated the importance of pluralism. The IAD framework encourages researchers to simultaneously consider models that assume short-term self-interest (rational choice), self-interest constrained by limited information and cognitive biases ("bounded" rationality), and self-interest influenced by cultural norms and values ("embedded" choice). This pluralistic approach reflects the fact that empirical studies of cooperation in a wide range of contexts, from experimental economic games to case studies of common-pool resource users, reveal patterns of behavior that often depart from the predictions of models based solely on short-term self-interest (Henrich *et al.* 2004; McCay & Acheson 1987b). When individuals interact in an action arena that is an open, competitive, and transparent market, short-term self-interest often explains their choices and actions quite well (Ostrom 2005). However, patterns of cooperation and competition in other contexts require theories of individual behavior that are sensitive to the information a person possesses, the cognitive biases used to assess options and reach decisions, and the cultural norms and values that alter perceptions of actions and outcomes. Formulating such theories of individual behavior has been identified by IAD researchers as one

of the most fundamental tasks for understanding cooperation and shared resources (Ostrom 2005: 101).

Efforts to move beyond rational choice models relate closely to the importance of institutions in structuring individual behavior. One of the primary reasons Hardin's "tragedy of the commons" can be averted is because institutions provide "the tools that fallible humans use to change incentives to enable fallible humans to overcome social dilemmas" (Ostrom 2005: 125). Here, the "fallibility" of humans refers to the very real phenomenon of myopic selfishness that is either present to some extent or possible in any situation where individual resource users experience both conflicts and confluences of interest. Yet, it is important to add that the institutions that help "fallible humans" realize cooperation and collective action are often fallible themselves.

Researchers using the IAD framework have succeeded in moving beyond the simple recognition that "institutions matter" by documenting the properties or "design principles" of successful and enduring institutions (Ostrom 1990). First, successful institutions establish *clearly defined boundaries*. These boundaries help define the resource being managed as well as the individuals who are allowed to use the resource, facilitating the formulation of rules that limit consumption of a common-pool resource or mandate contribution to a public good. Successful institutions also feature *congruity between rules and local conditions*, where the unique ecological, technological, and social dimensions of resource use are reflected in the regulations that apply to resource users. *Collective choice arrangements* are one key way to ensure that the congruity between rules and local conditions is maintained when resource users encounter complexity, uncertainty, and change. When individuals who are affected by rules are given the opportunity to collectively modify them, institutions can respond flexibly to changing conditions

by utilizing the knowledge of those who work most closely with the shared resource: herders, fishers, foresters, irrigators and other resource users.

Another key property of successful institutions is a system of *monitoring* compliance with regulations and *sanctioning* those who do not adhere to them. Monitoring is most effective when its costs are reduced. Interestingly, one widely used strategy for reducing monitoring costs is to involve individual resource users in the process of monitoring each other. Mutual monitoring can succeed when (1) the direct interests of individuals are affected by others who precede them in accessing a resource, (2) when the immediate costs of monitoring are lowered by providing material or social benefits to monitors, or (3) when information about other individuals' resource use is strategically useful but difficult to obtain, meaning that a monitor can use observations of others to improve his or her own strategies. Since the goal of monitoring is to identify individuals who fail to adhere to rules regulating resource use, graduated sanctions are often an effective way of restoring compliance. Successful institutions often punish initial offences with small sanctions and subsequent offences with larger sanctions, essentially providing a path of reconciliation for those who momentarily succumb to temptation and impeding those who persistently violate rules from further transgression.

The potential conflicts implied by the presence of systems for monitoring and sanctioning point to another feature of successful institutions: *conflict-resolution mechanisms*. By providing accessible and affordable spaces for resolving disputes over rules and regulations among resource users—or between resource users and monitors—conflicts of interest are minimized and confluences of interest maintained. Fundamentally, each of Ostrom's principles assumes that local resource user's *rights to organize* are acknowledged, enabling them to participate directly in the process of governance by developing informal agreements that complement formal

regulations. In complex commons, where individuals, institutions, and shared resources are affected by actions at multiple scales, *nested enterprises* can ensure that these design principles are maintained at all levels. Once the boundaries of a shared resource are well-defined, collective-choice arrangements and conflict resolution mechanisms can be used to establish rules that mediate how individual resource users respond to the dilemmas posed by the unique physical properties of shared resources.

Within the IAD framework, institutional "design principles" structure individual interactions within the action arena primarily through rules. In other words, institutions support the production and reproduction of enforced prescriptions for individual behavior, defining what actions are required, prohibited, or permitted (Ostrom 2005: 18). These prescriptions for behavior constitute an important part of the social realities that are fundamentally intertwined with the physical properties that define common-pool resources and public goods: exclusion and subtractibility. By defining who may and may not access a shared resource, institutions can effectively transform a "non-exclusive" common-pool resource or public good from "open access" into some form of regulated common property. In many cases, regulated common property appears similar to private property to those who are excluded. However, crucial differences between the forms of common property that some institutions create and true private goods must also be recognized. By establishing regulations on how and how much a shared resource may be utilized, institutions can cope with potential conflicts of interest that arise when a resource is subtractible and when one individual's use affects the use of others. Yet, institutions are not solely responsible for establishing the social realities to which resource users must adapt. The IAD framework includes a third exogenous variable, *community*, representing the cultural norms and values that are "embedded" within broader historical and social contexts.

While *community* has received comparatively less attention than institutions and the rules that they establish, a number of researchers have noted that institutions and rules cannot be fully understood without an examination of this crucial aspect of social reality (Agrawal 2002, 2005; McCay 2002).

Social realities: Community, context, and subjectivity

"Community" is useful as a general term that can refer to the local context of institutions as well as broader regional, national, and international contexts that influence the use and management of shared resources. Whereas the word "community" is generally understood as a small-scale, exclusively "local" entity or space, there are compelling theoretical and practical reasons for including broader contexts when using community as an analytic concept to understand cooperation and collective action. One practical reason is that researchers working in so-called "small-scale" communities increasingly note the difficulty of defining which arenas, actors, and interactions should be considered "local" as opposed to "global" or some other term meant to capture movement across scales (Friedman 1990; Haugerud 2002; Kearney 1995). In social theory, community is often used to represent patterns of cultural norms and values that are produced and reproduced, altered or abandoned by individuals who interact with one another across space and time. Because these processes are clearly influenced by factors that extend beyond local actors, entities, and spaces, the concept of community has expanded accordingly. Today, individuals relying on shared resources must usually contend with government regulations, development projects, conservation initiatives, and market regimes whose origins and influence spread across multiple scales. In the study of cooperation, collective action, and shared resources, community thus captures the ways that individuals and institutions relying on

common-pool resources or public goods are "embedded" in broader contexts that must be examined along with the rights and rules of shared resources (McCay 2002).

Describing an individual or institution as "embedded" entails two claims about the factors influencing individual behavior and collective action (McCay & Jentoft 1998: 24). First, when an individual or institution is "embedded," its actions cannot be understood by simply considering economic factors pertaining to costs and benefits in isolation from the social dimensions of economic activities, including norms of acceptable behavior, values for specific outcomes, and the symbolic meanings attached to different actions. Second, the economic activities of some individuals and institutions are "embedded" in social life to a greater or lesser extent than others, meaning that some communities can be "disembedded" by limiting their ability to "control economic matters and governance" (McCay & Jentoft 1998: 24). Thus, examining the role that community plays in constructing the social realities that mediate the use and management of shared resources encourages increased attention to the ways that institutions—and the rules and regulations that they establish—are embedded within local patterns of cultural norms and values as well as broader social and historical contexts.

Just as researchers who focus primarily on institutions have moved beyond the simple assertion that "institutions matter," scholars who focus primarily on communities have taken the abstract idea that individuals and institutions are embedded in broader contexts as a starting point for developing intimate and compelling case studies with important implications for understanding the relationship between individual behavior and social structure (Agrawal 2005; Lansing 1991, 2007; McCay 1998). McCay suggests that an "embedded" choice model of individual behavior provides "a way of resolving the discrepancy between agency and structure-based approaches" to understanding the use and management of shared resources:

> Hence, at one extreme we have the image of self-seeking individuals who, faced with a common-pool resource or public good, can only defect or free ride. At the other extreme is the romanticized society or local community imbued with the moral economy of "the commons" as belonging to and cared for by everyone but besieged by larger forces, such as commercialization or capitalism. Surely there is a more realistic middle ground […]. (McCay 2002: 381)

Models of embedded choice can help us locate this "middle ground" by encouraging us to devote more attention to documenting and analyzing the cultural norms and values that are present in a community and shared to some extent by its individual members. Whereas agency-based approaches often diminish or deny the influence of norms and values, structure-based approaches tend to underestimate or ignore an individual's ability to contest, alter, and invent these aspects of culture. When examining the confluences and conflicts of interest among individuals and groups, models of embedded choice require a researcher to specify more precisely the active role that individuals take in the production and re-production of particular norms and values, as well as the ways that existing patterns of norms and values channel and shape individual behaviors. As a result, researchers using models of embedded choice to understand the use and management of shared resources rely on assumptions about factors influencing the behaviors of an individual subject as well as explorations of an individual's "subjectivity." Each individual subject may be, to varying degrees, inherently self-interested or selfless, cooperative or competitive, adaptable or intransigent, but these proclivities are also shaped by the cultural ideas, norms, and values that individuals are exposed to during their lives. Therefore, the individual is embedded within and influenced by contextual factors that influence the formation of his or her subjectivity—historically and culturally contingent perceptions, ideas, interests and identities that reflect both individual agency and social structure.

Explorations of subjectivity cannot be revealing without an understanding of the processes and purposes of subject formation. Processes of subject formation include the

information and experiences that each individual is exposed to as his or her multiple dimensions of identity—such as gender, race, ethnicity, spirituality, nationality, class, kinship, biology, and more—interact across space and time. Purposes of subject formation also reflect the attempts by individuals, groups, and governments to cultivate some cultural norms, values, and ideas in their communities and weed out others. Recently, Agrawal (2002, 2003) noted that studies of cooperation, collective action, and shared resources have not devoted significant attention to these processes and purposes. Drawing on insights from political ecology, common property studies, and feminist environmentalism to examine the management of forest resources in Kumaon, India, Agrawal attempts to demonstrate how and why "environmental subjects" are created:

> It is critical to understand and explain how people came to accept the importance of environmental regulation, to respect the authority of the community to sanction actions that do not respect regulation, and to participate actively in regulating the behavior of their fellow community members. (2005: 97)

Agrawal suggests that the analysis of environmental politics should focus on how knowledge, power, institutions, and subjectivities "shape each other and are themselves constituted," rather than isolating these concepts as separate analytic foundations (2005: 203). He describes this approach as the study of "environmentality," drawing inspiration from "governmentality," the term Foucault used to describe connections between "micropractices of power" and "macropolitical relations" formed when responsibility for "the administration of life" is assumed by the state (2005: 216-217). Environmentality directs attention toward the formation of expert knowledge (2005: 34, 62), the use of power to regulate social practices, the institutions that connect these goals to local social, ecological, and political relationships, and the behaviors these institutions seek to change (2005: 229). In this way, environmentality defines the emergence of

environmental regulation and protection as a consequence of links formed between forms of knowledge, politics, institutions, and subjectivities (2005: 226).

Summary

Agrawal's theoretical ideas of environmentality can be applied to the study of collective action and common-pool resources in many contexts; however, in order to generate these insights, Agrawal pursued an in-depth examination of a single group of people occupying a particular place and moment in time. From this starting point, he pushed back in time and broadened the space of his inquiry in order to explore the social and historical legacies that influenced the subjectivities of those with whom he worked. This approach is one example of how researchers can understand the ways that individuals are embedded within broader contexts, resulting in decisions that rational choice theories may not predict (also see Lansing 1991, 2007; McCay 1998). Like individuals, institutions are also embedded within these contexts. Understanding the effectiveness of institutions in guiding individual choices toward outcomes that yield common benefits necessitates the same attention to social and historical contexts that vary from place to place. The design principles of successful institutions that researchers have identified using the IAD framework have stimulated an impressive body of comparative research, but the precise ways that these structural aspects of institutions interact with historically contingent, individual subjectivities remains to be explored further. As Agrawal argues:

> The seemingly diverse fields of social action and change denoted by knowledge, politics, institutions, and subjectivities in reality run through each other. In treating them as separable domains of human practices and scholarly analyses, we are forced to consider their articulation inadequately at best. But it is precisely in examining how these concepts and their referents make each other that it becomes possible to imagine what a new environmental politics might look like. (2005: 203-204)

Doing so is likely to improve our understanding for how the structures of authority inherent in different forms of knowledge, politics, and institutions attempt to form subjects, as well as the many ways that individuals in turn exercise agency in order to shape their social relationships and alter structures that both constrain and coordinate their actions.

Among all the disciplines in the natural and social sciences that are involved in studying cooperation, collective action, and common-pool resources, it is ironic that anthropology is home to researchers who embrace both extremes. On the one hand, cultural anthropologists pursue detailed historical and ethnographic examinations of individuals and institutions, attending to the processes and purposes of subject formation. On the other hand, evolutionary anthropologists draw on quantitative biological theories to generate and test predictions about the conditions that favor cooperation. Cultural anthropologists examine historically and culturally contingent subjectivities; evolutionary anthropologists examine biologically and culturally coevolved propensities. While these two lines of research rarely intersect, both cultural and evolutionary anthropologists share a secondary interest in understanding how institutions influence individual behaviors. Research by social scientists from a variety of disciplines that focuses primarily on the role of institutions in facilitating or inhibiting cooperative behavior represents a stable middle ground where these two lines of research can meet, but many anthropologists who are secure in their approach will ask: "why should they?"

Institutions & forms of agency

Although interdisciplinary research on institutions has succeeded in identifying a number of design principles that enhance cooperation and collective action, theories of individual behavior that explain precisely why these design principles are effective remain elusive. Many

researchers in the social sciences adopt some form of rational choice theory, "bounded" by constraints such as incomplete information, insufficient cognitive capacity, or restrictions on the ability to act (Ostrom 1998). Such theories of "bounded rationality" are limited in two ways. First, they often fail to predict behaviors that reflect the influence of broader historical and social contexts on an individual's subjectivity (McCay 2002). Second, the cost-benefit calculations that constitute the "rational" element of these theories are conducted almost exclusively in proximate currencies whose connections to underlying biological measures, such as reproductive success or inclusive fitness, are unclear. The first limitation makes it challenging to take insights about individual behaviors and institutions from one place and time and apply them to others. The second limitation leaves our understanding of the long-term, evolutionary consequences of particular behaviors and institutional configurations incomplete. Presumably, the human ability to develop institutions and utilize them to coordinate individual and collective actions reflects the unique evolutionary history of our species, since no other species does these things to the extent that we do. In this respect, anthropologists who are focused on understanding the influence that our evolutionary history has on contemporary human behavior can make unique contributions to our understanding of institutions. Yet, this common evolutionary history has also spawned a remarkable degree of cultural diversity, and understanding this diversity has long been one of the central tasks of cultural anthropology, distinguishing the discipline from other social sciences. The relationship between evolved propensities and historically contingent subjectivities remains unclear, but any progress made in clarifying this relationship would certainly make valuable contributions to our understanding of institutions that help individuals successfully solve collective action dilemmas and manage common-pool resources.

Documenting and explaining the relationship between evolved propensities and historically contingent subjectivities would be a monumental task for any discipline, even more so for one as internally divided as anthropology. My small contribution is to suggest that anthropologists can expand collaboration on this task—each working from his or her own area of specialization if need be—by focusing on how institutions interact with individual agency to lead to the emergence and stability of cooperation and collective action. Institutions are a tractable way to study theories about the relationship between individual agency and social structure that circulate in some form among both cultural anthropologists and evolutionary anthropologists. I suggest that one way to unite these efforts is to examine the extent that individual agency has cultural *and* biological components, often respectively called "subjectivities" and "evolved propensities." Together, these components of individual agency are shaped by past and present social structures, also holding the potential to re-shape these structures for the future. Institutions are one aspect of human life that clearly reflects the ways that individual agency and social structures influence and transform each other. If researchers seek to synthesize insights on institutions developed in the natural and social sciences, our understanding of cooperation and collective action will improve accordingly.

Cooperation & Collective Action in Kamchatka

My research on cooperation and collective action among salmon fishers and reindeer herders in Kamchatka is an attempt to begin developing this synthesis between theories of cooperation in the natural and social sciences. I was initially attracted to this goal by the ongoing importance of cooperation in the subsistence activities and social networks of support that sustain indigenous communities in Kamchatka. These communities have unique histories as a

result of the dramatic transformations that they experienced during the colonial expansion of the Russian empire, the formation of the Soviet Union, and the subsequent collapse that marked the beginning of the post-Soviet era. Cooperation is a theme that runs throughout these histories and figures in many of the most dramatic and decisive events. The history of collective institutions that coordinate salmon fishing, reindeer herding, and foraging is a particularly prominent example of this theme. These subsistence activities not only entail a significant degree of cooperation among the people who rely on them, but are also based on successfully negotiating access to and use of common-pool resources. Indigenous forms of individual rights, common property, and structures of authority influenced how these common-pool resources were used prior to the Soviet era. Through Soviet collectivization, these ways of life were replaced by a strongly centralized, structured system of collective institutions that seized control of traditional subsistence activities and industrialized them according to visions of Soviet modernity. Now in the post-Soviet era, some of these Soviet collectives have collapsed, while others were either privatized or allowed to remain tenuously under government authority. Adding to the institutional diversity of post-Soviet collectives, a new "neotraditional" collective called an "*obshchina*" has emerged, drawing on links between the pre-revolutionary pasts of Russian peasants and Siberian natives and harnessing their moral and cultural resonance to pursue new paths of development. Understanding this institutional diversity in post-Soviet collectives and how it influences the emergence and stability of cooperation and collective action in Kamchatka is the central goal of my research.

Taking collective institutions as my starting point, I pursue this goal by documenting and analyzing cooperation and collective action in multiple contexts. These contexts include the experimental context of economic games, the naturally occurring contexts of food-sharing

between individuals and households, the institutional contexts of post-Soviet collectives, and the broader cultural, ecological, economic, and political contexts in which all of these are embedded. In each context, I seek to describe and analyze the relationships between biological and cultural dimensions of individual agency, post-Soviet collective institutions, and the broader contexts in which both individuals and institutions are embedded.

Chapter 4

Cooperation in Context: Public Goods Games & Post-Soviet Collectives

Introduction

My research on cooperation and collective action in Kamchatka begins with the experimental context of economic games. Derived from the theoretical perspectives and empirical models of game theory, economic games are among the most widely utilized methods for studying cooperation in the natural and social sciences. These games reflect an attempt to isolate and understand how specific factors influence an individual's decision to cooperate or defect from one instance to the next. These factors can include the structural properties of a dilemma, the range of options that are provided to individuals, the costs and benefits that determine the consequences of particular decisions, and the information that is available for making those decisions. While game theorists designed quantitative models that explored these factors by positing different theories of individual behavior, this line of research was invigorated when these mathematical models were transformed into experimental games that people could actually play. Whereas the models of game theory promised to predict when and why individuals would cooperate, economic games provided an opportunity to document existing patterns of cooperation and compare them from one place to the next, putting theories of individual behavior to empirical tests. Participants in these games were initially drawn for the most part from the United States and Western Europe, later expanding to other so-called "industrialized" or "developed" countries. These experiments initially provided economists with novel methods and data that challenged canonical theories, particularly those that relied on preferences for some form of strict, individualistically rational behavior often described by the term *Homo economicus*. One of the clear strengths of experimental economic games is the

opportunity they provide for comparing measures of cooperation in one place and time with another. Yet, the strength of comparative research done by experimental economists remained limited by the fact that most participants were drawn from populations that were either convenient for or particularly interesting to economists working at universities in countries that captured only a small fraction of human diversity.

Although anthropologists have only recently begun to incorporate economic games into their ethnographic research, those who have done so have already made unique contributions to our understanding of cross-cultural diversity in cooperative behavior. Henrich *et al*'s (2004) innovative project combining economic games with ongoing ethnographic research in fifteen small-scale societies throughout the world has been particularly influential. This project and the wave of research that it inspired have demonstrated empirically that patterns of cooperation in economic games vary significantly across cultures, suggesting that cultural values, norms, and institutions are important for understanding this variation (see Henrich *et al.* 2006, 2010). This approach to studying cooperation has also helped to convince many economists, political scientists, and other social scientists to devote greater attention to ethnographic research methods and to seek ways to integrate cultural dimensions into their theories of utility and rationality. Yet, despite these advances, the precise connections between patterns of cooperation in economic games and patterns of cooperation in naturally occurring contexts remain uncertain.

Building upon the insights of this initial wave of research, I suggest that the connections between measures of cooperation in experimental and naturally occurring contexts can be explored further by research that is designed to reveal "framing effects" and assess "external validity." In experimental economic games, framing effects are differences in patterns of cooperation that follow from how participants interpret the cost-benefit structure and rules of the

game, using contextual cues provided by game instructions, similarities between the game, real life, and past experiences. For example, labeling an economic game the "Wall Street Game" instead of the "Community Game" (Liberman *et al* 2004), or naming a counterpart in the game an "opponent" instead of a "partner" (Burnham *et al* 2000), can be enough to change patterns of cooperation. Although the early experiments conducted by anthropologists were not designed to explore framing effects in a systematic way, the results suggest that understanding how participants interpreted the games may be a key to explaining cross-cultural patterns in game play. While framing effects reflect congruencies between factors influencing decisions in experimental and naturally occurring contexts, assessing external validity involves establishing a correlation between observed patterns of behavior in both contexts. Do individuals who frequently engage in altruism or reciprocity in economic, political, or religious contexts also make cooperative decisions in economic games? This correlation is assumed by game theorists when they use mathematical models that resemble the structure and rules of economic games, but when these games are animated by living actors, either in a laboratory or in the field, this correlation can be empirically tested. However, as the results of early experiments by anthropologists show, there are considerable theoretical and methodological challenges to assessing external validity (Hill & Gurven 2004). After providing a brief review of the existing literature on framing effects and external validity in economic games, I describe the results of a multi-method ethnographic study that was designed to examine connections between cooperation in economic games and cooperation in naturally occurring contexts among indigenous salmon fishers and reindeer herders living in Kamchatka.

Framing Effects

Evidence for the framing effects of cultural values, norms, and institutions is evident in the earliest experiments that combined economic games with ethnographic research. After conducting public goods game experiments with Orma people in Kenya, Ensminger (2004) reported that participants in the game spontaneously found congruence between the structure of the game and *harambee*, an institution that coordinates individual contributions for local community development projects. Ensminger concluded that participants' familiarity with and trust in the *harambee* institution increased their contributions in the public goods game by reducing the perceived risk of free-riders. Tracer (2003) also found intriguing evidence linking cultural norms and values to unique patterns of game play among Au and Gnau peoples in Papua New Guinea. The participants in Tracer's study displayed a very high propensity to reject offers in ultimatum games, and most surprisingly, they rejected high offers almost as often as they rejected low offers. Tracer suggests that these unusual patterns of rejection are influenced by Au and Gnau cultural norms and values linked to reciprocity and competitive gift giving, where accepting a gift entails future obligations that indebt the receiver to the giver. Like the Orma, the Au and Gnau appear to be recognizing congruities between the structure of economic games and the contexts of cooperation that they are intimately familiar with in their daily lives, making decisions in the games that reflect culturally appropriate behavior in real-world settings.

While Ensminger's and Tracer's accounts of the cultural factors underlying cooperative behavior in economic games are intriguing, their experiments were not designed to examine these congruities explicitly. Although it seems very likely that the Orma *harambee* institution and the Au/Gnau system of competitive gift giving can explain why participants played the games the way they did, there are also many other potential factors that cannot be eliminated.

One way around this problem is to design experiments that directly refer to prominent cultural values, norms, and institutions that inform cooperative behavior in naturally occurring contexts, then pair these experiments with standard versions of economic games, randomly assigning participants to one of the two versions. Lesorogol (2007) did this successfully when she combined standard dictator games among Samburu participants in Kenya with dictator games that framed an individual's decision in the context of sharing food rather than money. Lesorogol found that patterns of cooperation in the framed version of the dictator game corresponded closely to Samburu norms of food-sharing, whereas contributions in standard dictator games were less consistent from one participant to another. Similarly, Cronk (2007) designed a series of trust game experiments with Maasai men in Kenya, where half of the participants played a standard trust game while the other half played a version of the trust game that was framed to reference a long-term, need-based gift giving relationship called *osotua*. Individuals who share an osotua relationship with one another are obligated to give to their partner when he is in need. In turn, their partner is obligated to ask for help only when he needs it. Contributions made by Maasai in the standard version of the trust game reflect strategies based on trust, investment, and reciprocity, with a positive correlation between amounts of money given by one player and amounts returned by another. Conversely, contributions in the osotua-framed trust game reflected a greater concern for signs of need, with a negative correlation between amounts of money given by one player and returned by another. While the results of the standard versions of the game appear to support the underlying logic of trust that the game was designed to test, Cronk warns that it would be wrong to apply this logic to results from the osotua-framed trust game. A high offer in the osotua-framed trust game appears to signal an absence of need for the person who gives, while a low offer signals the opposite. Rather than reflecting a lack of trust

between the two players, the negative correlation between amounts given and returned reflect expressions of and responses to genuine need, interpreted according to the logic of osotua relationships (see also Cronk & Wasielewski 2008).

These studies and others like them support the notion that patterns of cooperation in economic games are sensitive to framing effects (Burnham *et al* 2000; Liberman *et al* 2004). Economic games were intentionally designed to create an abstract, controlled decision making environment that would encourage participants to consider only the rules of the game and the structure of immediate costs and benefits that the rules establish. Game instructions and protocols were carefully constructed to isolate, minimize, or eliminate entirely, important components of cooperation in natural settings, such as communication, reputation, repeated interactions, and group identity. In this respect, economic games reflect the primary interests of the economists who designed them and the disciplines in which the games have flourished methodologically. The abstract, controlled structure of economic games has an important advantage: in addition to isolating the utility and rationality dimensions of decision making, game structures facilitate comparative research. However, by attempting to isolate decisions in economic games from naturally occurring contexts of cooperation, researchers may be simply inviting participants to apply their own contextual frames to the games (Hagen & Hammerstein 2006). Whether frames are explicitly included by the researcher or spontaneously applied by the participants themselves, their influence on patterns of behavior in experimental economic games must be accounted for when developing and testing theories of cooperation. Anthropologists are uniquely situated to turn this methodological weakness of economic games into an analytic strength. By combining standard versions of economic games with games that are explicitly framed to reference naturally occurring contexts of cooperation, researchers can better

understand how cultural values, norms, and institutions influence decisions, while also retaining the ability to compare patterns of cooperation across space and time.

External Validity

An individual's decision to cooperate in the context of an economic game may be influenced by the extent to which the structure or framing of the game coincides with contexts of cooperation from his or her daily life. But does an individual's behavior in an economic game reflect how likely he or she is to cooperate in these real-world settings? Do patterns of cooperation that differ cross-culturally reveal corresponding differences in the ways that individuals in these places negotiate cooperative partnerships? These questions concern the external validity of economic games as measures of an individual's or a group's propensity to cooperate, an assumption that underlies the prominent role that economic games play in theories of cooperation.

One way to assess the external validity of economic games is to combine them with more traditional ethnographic methods used to study cooperative behaviors. Gurven and Winking (2008) combined data from economic games with quantitative data on food-sharing, time spent socializing, and contributions to public goods (community feasts, public works projects) among Tsimane peoples in lowland Bolivia. Their study did not find significant correlations between measures of cooperation in experimental and natural contexts. Gurven and Winking concluded that this result may reflect a tension between relatively stable personality traits—such as an individual's propensity to cooperate, perceptions of risk, tendency to conform—and a variety of contextual factors that alter the costs and benefits of cooperation—including reputation maintenance, resource properties, possibility of punishment, and past interactions between giver

and receiver. They suggest that the cost-benefit structure of the economic games that they conducted with Tsimane (dictator games, ultimatum games, and third-party punishment games) may not correspond closely to the full range of contextual factors that influence a Tsimane's decision to share food, socialize, or contribute to a group feast or project. However, when the structure and frames of economic games coincide with the context-rich environments in which people usually negotiate cooperative relationships, Gurven and Winking suggest that games may still provide valuable information about variations in cooperative behavior between individuals and groups.

Other researchers have addressed the problem of external validity by conducting games with structures and frames that more closely parallel the real-world contexts of cooperation that they are trying to understand. In a study of secular and religious kibbutz communities in Israel, Sosis and Ruffle (2003) designed a common-pool resource game that reflected situations that kibbutz members face daily as they live and work together. Sosis and Ruffle wanted to test the idea—often assumed but rarely empirically tested—that rituals maintain cohesion and solidarity within a religious community, increasing levels of cooperation among its members. They compared levels of cooperation between men and women in both religious and secular kibbutzim, since men in religious kibbutzim are expected to frequently attend synagogue services, while religious women, secular men, and secular women are not. They found that levels of cooperation were higher among men than among women in religious kibbutzim, while no gender difference was observed in secular kibbutzim. In order to further assess the external validity of the economic games, Sosis and Ruffle asked participants to report how frequently they attended communal rituals—synagogue services in the case of religious kibbutzim and communal events in the case of secular kibbutzim. Again, they found that men in religious

kibbutzim who reported attending synagogue frequently (at least once per day) had higher levels of cooperation than religious and secular women, secular men, and religious men who attended synagogue less frequently. There was also a marginally significant association between levels of cooperation and attendance at communal events among secular men and women, with higher levels of cooperation among those who attended these secular rituals more frequently. These results suggest that the structure of the common-pool resource game coincided closely with the contexts of cooperation in Israeli kibbutzim. Those individuals who more frequently participated in religious and secular rituals also chose to make decisions that increased levels of cooperation in the experimental contexts of the game.

While Sosis and Ruffle's research supports the assumption that cooperation in experimental contexts reflects an individual's propensity to cooperate in natural contexts, the measures that they used to assess external validity could still be improved. In their study, a participant's gender is a proxy measure for a broad range of communal obligations that differ between men and women in religious kibbutzim but not in secular kibbutzim. Similarly, the frequency of attending religious or secular communal events is an indirect measure of cooperative behavior in kibbutzim, so the precise connections between these measures of secular and religious obligation and patterns of cooperative behavior remain unclear.

Soler (n.d., 2008) uncovered these connections by examining the relationship between cooperation and signals of commitment in groups that practice the Afro-Brazilian religion Candomblé. Soler used public goods games to obtain an experimental measure of cooperation for comparative purposes, then collected data from all game participants in two areas meant to assess cooperation in natural contexts: (1) the frequency of performing and receiving cooperative behavior and (2) a scale of religious commitment. These two measures of cooperative behaviors

in Candomblé groups can be used to assess the external validity of public goods games in different dimensions. The self-reported measures of performing and receiving cooperative behaviors, such as lending money or helping a sick person, are direct measures of how often a person participates in cooperative interactions. The religious commitment scale, composed of responses to questions about how often a person performs public or private rituals and obligations, is a measure of behaviors that are not inherently cooperative, but costly enough that they serve as honest signals of a person's commitment to the religious group and his or her willingness to cooperate with its members (Iannacone 1992, 1994; Irons 1996, 2001). Soler found that participants who scored higher on the scale of religious commitment contributed more money in public goods games than those who scored lower on the commitment scale. She also found that high scores on the religious commitment scale were associated with participants who reported performing and receiving cooperative behavior more often than those who scored lower. These results suggest that for members of Brazilian Candomblé religious groups, the public goods games reflect important dimensions of naturally occurring cooperative behavior. Moreover, the connections between cultural values and norms that define commitment in Candomblé religious institutions, measures of cooperation in natural contexts, and individual variations in experimental measures of cooperation become clearer as a result of synthesizing economic games and ethnographic methods.

Field Experiments & the Social Sciences

Anthropologists are uniquely situated to take advantage of the methodological strengths of experimental economic games and to counter their weaknesses by combining them with ethnographic methods. Incorporating contextual factors into the abstract structure of economic

games by designing research that reveals framing effects and assesses external validity can facilitate both cross-cultural comparisons of the factors influencing levels of cooperation and case studies that focus on how these factors operate on particular cultural and historical trajectories.

Research combining economic games with ethnographic studies of cooperation in naturally occurring contexts is part of a broader emerging trend in social scientific research. A variety of researchers, often working across disciplinary boundaries, are utilizing "field experiments" to bridge mathematical models, laboratory experiments, quantitative surveys, and qualitative observational studies (see reviews by Levitt & List 2009; Cardenas & Carpenter 2008). These studies have examined the factors affecting common-pool resource use (Cardenas 2003; Rodriguez-Sickert *et al.* 2008; Velez *et al.* 2010), micro-credit lending programs (Karlan 2005), in-group/out-group biases (Ruffle & Sosis 2006), attitudes toward fairness and inequality (Efferson *et al.* 2007a), social learning (Efferson *et al.* 2007b), and many other phenomena that are also the focus of mainstream anthropological research. These new methodological approaches promise to make unique contributions to ongoing research in economic, environmental, and evolutionary anthropology. Economic games and other experiments occur in a unique environment for individual action. Researchers can attempt to modify the structure of these environments in ways that control some variables and explore the causal effects of others. If the researcher is successful in doing so, experiments can provide insights into the causal connections between variables and individual behaviors that are derived from other methods with much more difficulty and less reliability. This is because research on cooperation or any other behavior in naturally occurring contexts cannot isolate the influence of particular variables by randomly assigning individuals to different treatment conditions. Although random assignment

in experiments is not a perfect solution to the problem of determining causality, it does provide a degree of confidence in making certain knowledge claims that other quantitative and qualitative methods cannot, given that the appropriate assumptions are valid.

While economic games provide ethnographers with unique opportunities to compare measures of cooperation across varying geographic and cultural contexts, they also pose methodological and theoretical challenges. One of the major challenges is maintaining a consistent research design while adapting instructions and protocols in ways that make the experiments intelligible and meaningful from one place to the next. Doing so often requires a great deal of familiarity with contexts of cooperation that occur naturally in a given place, particularly the cultural norms and values that inform individual behaviors. This is one reason why ethnographers bring unique skills to this line of research. Yet, many ethnographers who are unaccustomed to using experiments in their research may wonder whether or not studying cooperation in experimental contexts can contribute unique insights into their ongoing research on cooperation in naturally occurring contexts that already uses more traditional ethnographic methods.

Many ethnographers are less interested in generating comparative knowledge of social phenomena than they are in understanding how people in a particular place think and act in response to their own unique realities. The importance of understanding these social particularities is not necessarily validated by the extent to which doing so reveals universal insights that apply cross-culturally. Rather, the in-depth understanding of the particulars of people and place is an equally valid end in itself. Yet, by going through the process of designing and implementing experiments in the field, ethnographers may actually generate novel insights on the unique forms that cooperation takes where they work. Like structured surveys, semi-

structured interviews, or participant observation, field experiments can lead to dialogues between ethnographers and the participants in their research that provide opportunities for mutual engagement and understanding. Many of these more traditional ethnographic methods often "work" to improve a researcher's understanding even when they fail to generate the data that was originally intended. In other words, a poorly designed survey or a clumsily posed interview question sometimes becomes an effective way of understanding what is unique about particular peoples' perspectives and ways of life. So too with economic games. These experiments can be opportunities to engage ethnographers in conversations with participants in their research that would not otherwise occur, particularly when synthesized with more traditional ethnographic methods. My research with economic games is intended not only to generate measures of cooperation that can be compared with other places throughout the world, but also to generate unique perspectives on cooperation and collective action in naturally occurring contexts that express the unique cultural and historical legacies of indigenous peoples in Kamchatka.

Public Goods Games & Post-Soviet Collectives in Kamchatka, Russia

I explore the connections between cooperation as a universal social phenomenon and as a particular expression of unique cultural and historical legacies through a multi-method ethnographic study of salmon fishers and reindeer herders in Kamchatka. I invited fishers and herders to participate in a public goods game (PGG), randomly assigning them to either a standard PGG or a PGG that was framed to reference one of two post-Soviet collective institutions that coordinate fishing and herding. I assess how PGG contributions reflect the importance of cooperation in the daily lives of fishers and herders in three ways: (1) I compare standard and framed versions of the PGG, examining how contributions and expectations are

influenced by the experiences of Soviet collectivization and post-Soviet privatization. (2) I combine data on PGG contributions with quantitative data on food-sharing networks of fishers and herders who participated in the games. (3) I use post-game interviews to learn how fishers and herders explain their decisions in the PGG and interpret connections between patterns of cooperation in games and the broader cultural and historical contexts of cooperation in Kamchatka.

Public goods games

Following the general protocols established by previous researchers who have adapted public goods game experiments in field settings (Henrich *et al.* 2004), I conducted single-round public goods games in two villages, Khailino and Vyvenka. The experiments were conducted in one day, first in Khailino and several weeks later in Vyvenka. A total of 70 people participated, 42 in Khailino and 28 in Vyvenka. The sample of participants is female-biased, with 46 women and 24 men. Participants were not asked to identify their ethnicity, though the majority in both villages belonged to one or more of the indigenous ethnicities: Koryak, Chukchi, or Even.

Participants were provided with an initial endowment of 200 rubles (≈$8), which was roughly equivalent to a half-day's wage for most people in these locations at the time of the study. Then participants were asked to decide how much of this money to contribute to a group fund that would be shared with three other people. Participants were told that the total amount of money contributed to the group fund would be doubled and then divided equally among the four group members, regardless of how much each person initially contributed. Because the 200 rubles were given to participants as one 100 ruble note, one 50 ruble note, and five 10 ruble notes, contributing any multiple of 10 rubles between 0 and 200 rubles was possible. In order to

understand the relationship between participants' decisions and their expectations about the decisions others would make, I also asked them to complete a short questionnaire, including: (1) the amount they wanted to contribute, (2) the amount they expected the average person to contribute, (3) whether or not they thought at least one person would contribute 0 rubles to the group, (4) whether or not they thought at least one person would contribute 200 rubles to the group, and (5) whether or not they thought the game was "similar to situations that they faced in their daily lives." Participants were told that their contributions and answers to the questionnaire would be confidential, and that only I would know the identities of group members.

Participants were randomly assigned to one of three versions of the public goods game: (1) a standard version whose structure was similar to games used previously in other places throughout the world; (2) a version framed to reference the *sovkhoz* or "state farm," a collective institution that was formed to coordinate fishing and herding during the Soviet era; and (3) a version framed to reference the *obshchina*, a collective institution created to support the "traditional economic activities and ways of life" of indigenous peoples in Russia during the post-Soviet era (Pika 1999; Stammler 2005b). The instructions and examples given to participants in all three versions of the game were identical, with only two exceptions: First, in the standard version, participants were asked to contribute to a "group fund," but in the framed versions, they were asked to contribute to a "sovkhoz fund" or "obshchina fund." Second, each of the framed versions began with the statement: "This game is called the sovkhoz/obshchina game." Both of these collective institutions and the roles that they played in Khailino and Vyvenka when the games were conducted are described in greater detail below. A total of 23 people played the standard version, 22 played the sovkhoz version, and 25 played the obshchina version.

Food-sharing

Prior to or following the public goods games, I invited people to complete a structured survey of food-sharing behaviors. The surveys measured annual household production of key resources, including salted salmon, potatoes, gathered berries, and reindeer meat. Survey participants were asked to state the amount of these resources that they had given to or received from another person outside their household in the previous year. Additionally, participants were asked to list the number of times that they gave or received a meal or tea with a person from another household in the two days prior to the interview. The data on resource production and distribution provide measures of cooperation that operate according to seasonal cycles, while the data on meal and tea-sharing provide measures of cooperation that constitute a short-term "snap-shot" of an individual's food-sharing practices.

Post-game interviews

In the days and weeks following the public goods games, I conducted 26 informal and semi-structured interviews with participants. All participants were asked similar questions about why they decided to contribute the amount they did, how they interpreted the structure and purpose of the game, and what explanations they had for the overall pattern of results in Kamchatka and in comparison to other parts of the world. However, I did not follow a standard script. Each interview constituted a unique dialogue between myself and the participant, whose personal experiences and perspectives varied in important ways.

Ethnographic setting

The two villages where the public goods games were conducted, Khailino and Vyvenka, are both located in the Oliutorskii District on the northern half of the Kamchatka Peninsula[1]. In 2009, Khailino had an official population of 802 people, with about 84% belonging to one of the three major indigenous ethnicities: Koryak, Chukchi, and Even. Vyvenka is smaller, with an official population of 460 people, 77% belonging to indigenous ethnicities. As a result, people in Oliutorskii District often refer to Khailino and Vyvenka as "ethnic villages" (*natsionalnye poselki*) in contrast to the district administrative center, Tilichiki, where Russians, Ukrainians, and other non-indigenous ethnicities are the majority (2009 population: 1716, 29% indigenous).

Both villages are located along the Vyvenka River, with Vyvenka near the mouth of the river on the Bering Sea and Khailino far upstream, along a tributary called the Tilgovayam River. However, people rarely travel directly between Khailino and Vyvenka, more often moving via Tilichiki, which is about 90 km through the tundra from Khailino and about 45 km up the coastline from Vyvenka. There are significant transportation difficulties in the Oliutorskii District and throughout northern Kamchatka in general, so most people make few trips to Tilichiki or beyond each year.

Although both reindeer herding and salmon fishing have long been practiced in each village, only Khailino currently has reindeer herds. Two of Khailino's three reindeer herds are managed by the "Korfskii Sovkhoz," a Soviet era collective institution that resisted pressures to privatize during *perestroika* in the 1990s and now struggles to survive on limited governmental budget support and subsidies. The third reindeer herd in Khailino is managed by the "Khailino-

[1] The Oliutorskii District was formerly part of the Koryak Autonomous Okrug (KAO), which was one of many administrative subjects of the Russian Federation that were intended to grant a degree of autonomy and authority to indigenous or minority peoples—such as the Koryak, Chukchi, Even, and Itelmen in Kamchatka—who reside in regions throughout the former Soviet Union. Following a 2007 referendum, the KAO was combined with the Kamchatka Oblast, uniting the northern and southern halves of the peninsula into the Kamchatka Krai.

Vetvei Obshchina," which was formed in the early 1990s to assume responsibility for the private reindeer owned by a number of people in Khailino. Like the sovkhoz, the obshchina has few material or financial resources, relying instead on the skill, ingenuity, and dedication of its members. Despite the prominence of reindeer herding in Khailino, salmon fishing also plays a very important role in the community, with the vast majority of people spending their summers living in small camps along the Tilgovayam and Vyvenka Rivers, harvesting and processing salmon for food and salmon caviar for sale. Dried and salted salmon, along with potatoes and other gardened foods, provide the foundation of most people's diets in the village.

Some indigenous people in Khailino have begun to form smaller, kin-based obshchina collectives (*rodovie obshchiny*) in order to obtain larger salmon quotas than they would otherwise receive for "subsistence" purposes. In Vyvenka, the individual practices and collective institutions association with salmon fishing are very similar to Khailino, with one important exception. Vyvenka is home to a privately owned and managed fish factory, "OOO Vyvenskoe," that harvests large amounts of salmon using seine nets that are set along the coastline on either side of the mouth of the Vyvenka River. This company was formed in the mid 1990's by privatizing the former Soviet collective farm, "Gorky Kolkhoz." During the Soviet era, Gorky Kolkhoz managed several reindeer herds, but herd sizes declined rapidly during perestroika and by the last years of the 90s, the few deer that remained were butchered and sold. Today, OOO Vyvenskoe is involved solely in the production and sale of fish, after liquidating many of the other economic activities that were formerly part of the Gorky Kolkhoz. Some residents of Vyvenka work for OOO Vyvenskoe to clean and process fish, but few are employed in more lucrative jobs harvesting fish on the seine nets. For these jobs, the company chooses instead to import seasonal workers from outside the village. Many of Vyvenka's salmon

fishers who previously worked for the kolkhoz have been active in forming obshchina collectives and lobbying for increased salmon quotas.

Khailino and Vyvenka provide interesting cultural and historical contexts for examining the influence of cultural values, norms, and institutions on patterns of cooperative behavior. Reindeer herding and salmon fishing are inherently cooperative activities, requiring the coordinated skills and actions of multiple individuals who utilize common-pool resources, such as pastures and fisheries. Yet, the ways that fishers and herders perform these activities have changed dramatically as a result of Soviet collectivization and post-Soviet privatization (Anderson 2000; Gray 2003; King 2002, 2003b; Konstantinov 2002; Stammler & Ventsel 2003; Ziker 2003a). These changes reflect broader cultural, economic, and political transformations in the lives of indigenous peoples throughout Siberia that were first driven by Russian colonial expansion and later by Soviet development regimes (Forsyth 1992; King 2006; Slezkine 1994; Ssorin-Chaikov 2003). The collapse of the Soviet Union and the formation of the Russian Federation have enabled new freedoms but also entailed profound losses (Crate 2006; Grant 1995; Gray 2005; Kerttula 2000; Koester 2005; Pika 1999). The collective institutions that are emerging in this uncertain environment embody overlapping but unique constellations of cultural values and norms that affect how people negotiate cooperative partnerships. By combining standard versions of public goods games with versions framed to reference post-Soviet collective institutions, I obtain measures of cooperation that can be used to compare with other places throughout the world. These measures can also be used to understand how fishers' and herders' experiences and memories of collective institutions affect levels of cooperation among them. By combining these experimental measures of cooperation with data on naturally occurring cooperative behaviors associated with food-sharing, I assess connections between patterns of

cooperation in games and in real-world contexts. Finally, by engaging in dialogues with participants in my research, I enliven my analysis of these connections with the ideas, interpretations, and explanations offered by the fishers and herders themselves, who are experts when it comes to understanding cooperation in context.

Game Procedures

People in both villages were invited to participate in the games through a combination of public advertisement and snowball sample recruitment. Several days prior to the experiment, written advertisements were placed in prominent places throughout the village, such as stores, the bread bakery, the post-office, the school, the club, etc. Additionally, I told people about the time and date for the experiment while conducting surveys, interviews, or participating in daily life in the village. I also tried to make myself accessible to answer questions about the experiment by going on walks throughout the village in the morning and late afternoon, when people were on their way to work, visiting friends, or shopping. I also asked my research assistants to do the same. Although many people wanted to know details about the experiment, my assistants and I only told them that they would be playing a game that would involve making decisions about what to do with money, and that they could earn between 100 and 500 rubles.

The experiments were conducted in a single day in each village. In Khailino, the experiment was conducted on Sunday, May 18th 2008 in the village's "club" (the former "House of Culture"), where dance performances, birthday parties, holiday celebrations, and weekend discos are usually held. In Vyvenka, the experiment was conducted on Sunday, June 15th 2008 in the village's school, which hosts similar events because Vyvenka does not currently have a "club."

When participants arrived at the venue, a research assistant recorded their full name and age, then handed them a token with a player identification number. At this time, a matching number token was placed in a hat. Participants were asked to gather in a large room where chairs were provided for them. Once all participants had arrived, some brief instructions were read to them. They were told that they would be divided at random into three groups, and that groups would be called one at a time to play the game. When a group's turn arrived, they were invited to leave the main room and enter the game room, where the game instructions were read to them. While one group played the game, the other groups watched a film and waited. The participants were asked several times to refrain from discussing the game with anyone until after the experiment had been completed, and research assistants monitored people in both rooms to ensure that this rule was followed.

In the game room, all the members of a group sat together and listened to the game instructions. The instructions included both a description of the game rules, four examples of how the game might be played, and what the results would be in each scenario. Both the instructions and the examples were identical for each group with two exceptions. First, the framed versions of the game began with statement "This game is called the sovkhoz/obshchina game." Second, the phrase "group fund" in the standard version of the game was replaced by "sovkhoz fund" or "obshchina fund" in the framed versions. Participants were not aware that the instructions differed between the groups until after the experiment was completed. While everyone in the group sat together, participants were able to ask questions. People were reminded that their partners in the public goods game would be drawn at random after everyone had played the game, and could include people who had already played the game or were still waiting to play. When all questions had been answered and people felt that they understood the

game, each person was handed an envelope containing a short questionnaire (see Appendix C) and 200 rubles, divided into one 100 ruble note, one 50 ruble note, and five 10 ruble notes. Each envelope and questionnaire were labeled with only the player ID number, and players were instructed not to write their names or any other identifying information on them.

In order to play the game, each player was asked to fill out the questionnaire, then decide how much money to withdraw from the envelope for their own use. The money left in the envelope represented that person's contribution to the group. In Vyvenka, players were called one at a time and led to a third room, where they completed the questionnaire and decided how much money to withdraw from the envelope without any audience present. In Khailino, however, a third room was not available, so players were asked to fill out their questionnaire and withdraw money while they sat in the game room. Players in Khailino were told not to watch one other as they did this, and no blatant instances of monitoring were observed. Moreover, a statistical analysis comparing contributions in Vyvenka and Khailino shows that there is no significant difference between the two villages (Table 4.1). This suggests that the presence of other people in the room while players decided how much to contribute likely did not create an audience effect[2]. One reason why there was no audience effect may be due to the fact that several people who contributed less than 100% of their endowments to the group left all the money in the envelope but indicated that they wanted to keep some portion of their endowments on the questionnaire. When I interviewed some of these people in the days following the games, two indicated that they intentionally left all the money in the envelope so that others could not see how much they kept for themselves. Others said that they simply didn't notice the money in

[2] It is possible that the difference in procedure created an audience effect, but that this effect was countered by a difference in contributions between the two villages that was opposite and equal in magnitude. This alternate explanation seems unlikely, but cannot be ruled out by statistical analysis.

the envelope when they took out the questionnaire. As a result, the contributions indicated on the questionnaire are the ones used in all statistical analysis.

When all the people in a group had completed their questionnaires and made their contributions, the envelopes were collected and participants were told they could return to the main room to watch the movie or go home if they needed to. They were reminded not to discuss the game with anyone still waiting to play or even among themselves. Returning to the main room, the movie was paused, a second group called into the game room, and the entire process was repeated. When the second group was finished, the third group was called to the game room to play. Once all groups had played the game, I sat alone in the game room, randomly drawing groups and calculating contributions. Each individual's earnings were placed in his or her envelope and when all the envelopes were ready, I returned to the main room and called participants one at a time to receive their envelopes. In each village, only 1 or 2 people left before the envelopes had been returned to them. I visited these people the next day to give them their earnings.

Public Goods Game Results

Result 1: Contributions in Kamchatka are high

Across all versions of the public goods game, contributions in Kamchatka were much higher than contributions reported in other parts of the world. Overall, participants contributed an average of 89% of their initial endowment to the group. The level of cooperation in Kamchatka was this high primarily because about 77% of the participants chose to contribute their entire endowment to the group. Among the lower offers, only three were below 50% of the initial endowment (Figure 4.1).

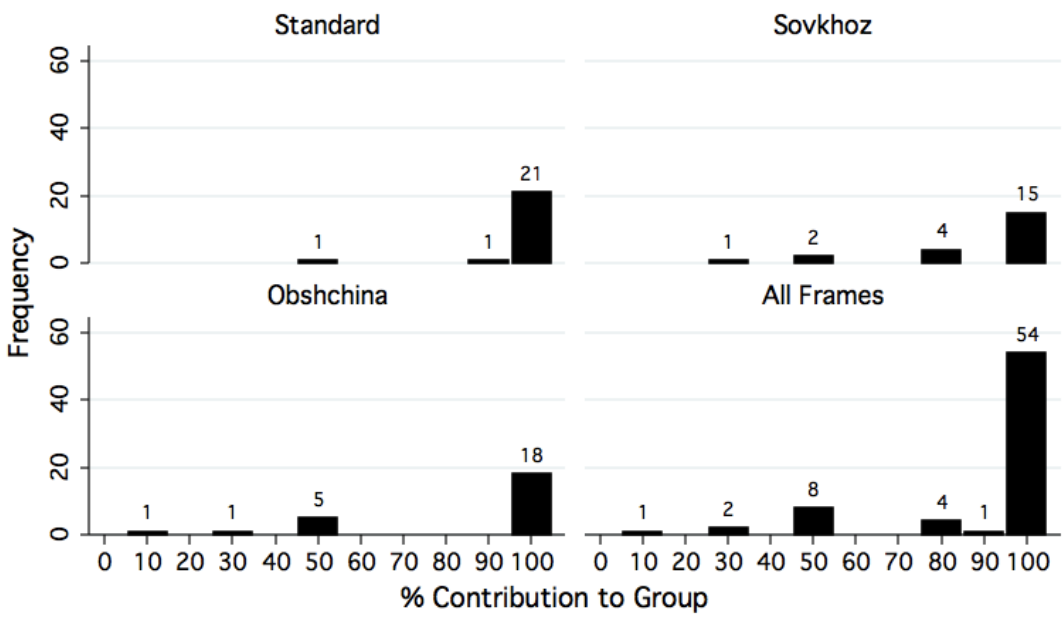

Figure 4.1. Frequency of individual contributions in standard and framed public goods games.

Previous research with public goods games shows that average contributions are usually between 40-60% of the endowment (Ledyard 1995; Henrich *et al.* 2004; Herrmann *et al.* 2008). Studies using public goods games have been conducted in several urban and rural cities throughout Russia, reporting average contributions of 44% among students and 51.9% among adults (Gaechter *et al.* 2004). The next highest average contribution in a one-shot public goods game or in the first round of a repeated public goods game that has been published is 80%, which was reported among university students in Boston, USA (Herrmann *et al.* 2008). Thus, to my knowledge, contributions in the public goods game in Kamchatka are higher than in any other part of Russia, and also higher than any other place in the world where this experiment has been conducted.

The responses that participants gave on the questionnaire about their expectations for how others would play the game provide additional insights. Overall, participants expected the average person to contribute 64.3% of the endowment. 93% of participants thought there would

be a person who gave his or her entire endowment to the group, while only 68% thought that there would be a person who gave nothing to the group. 83% of participants thought that the game was similar to situations that they encountered in their daily lives.

Result 2: Framing effects

Average contributions were 97.4% in the standard version of the game, 87.5% in the sovkhoz version, and 83.2% in the obshchina version. Comparing the distribution of contributions in the three versions shows that levels of cooperation in the standard version were significantly higher than both the sovkhoz version (Mann-Whitney U, $p=0.049$) and the obshchina version (Mann-Whitney U, $p=0.068$). However, there is no significant difference between contributions in the sovkhoz and obshchina versions (Mann-Whitney U, $p=0.926$). This suggests that framing the games to reference post-Soviet collective institutions slightly but significantly decreases contributions in the public goods game.

In order to investigate these framing effects further, I constructed a series of OLS regression models, with the percent of the endowment contributed to the group as the dependent variable (Table 4.1). Because there was no statistically significant difference between contributions in the two framed versions, they were combined and compared to standard versions by using a dichotomous variable in the regression models. Additional independent variables were included that recorded the village where the games were played, as well as the sex and age of the participant.

Table 4.1. OLS multiple regression models estimating factors influencing individual contributions (dependent variable) in standard and framed public goods games.

Model	**1**		**2**		**3**		**4**	
Variable	*Coeff.*	*p =*	*Coeff*	*p =*	*Coeff.*	*p =*	*Coeff.*	*p =*
PGG Version 0=Collective Frame 1=Standard Frame	12.5	**.029****	14.1	**.017****	12.3	**.035****	39.6	**.014****
Village 0=Vyvenka, 1=Khailino	-4	.460	-2.7	.634	-1	.864	3.9	.538
Expected Contribution % of endowment			.2	**.031****	.2	**.027****	.4	**.004*****
Free-rider? 0=No, 1=Yes			2.1	.719	1	.862	2.4	.672
Altruist? 0=No, 1=Yes			10	.367	8.3	.459	11.5	.300
Relevance? 0=No, 1=Yes			-9.6	.198	-10.9	.142	-11.8	.106
Age In years					.4	**.059***	.4	**.062***
Sex 0=Male, 1=Female					3.2	.605	4.6	.452
Interaction Term Standard*Expected Contribution							-.4	**.066***
Constant	87.5		68.1		53.9		39	
Adjusted R^2	.046		.138		.165		.201	
Prob. > F	.077		.022		.018		.009	
N=	70		65		65		65	

Coeff. = unstandardized coefficients
Significance levels: *p <.10, **p <.05, ***p <.01

Four variables measuring expectations for how other participants would play the game were also included, corresponding to the answers provided on the game questionnaire. Analyzing the results of the regression models shows that the framing effects remain significant even when control and expectations variables are included in the model (Table 4.1, Model 3). The amount of money that a participant expected others to contribute also has a significant, positive correlation with contributions in the public goods game (*b* = 12.3, p= .035). Among the control variables, neither the village residence (p= .864) nor sex (p= .605) of a participant has any significant correlation with contributions. However, there is a marginally significant correlation

between age and contributions, with older participants contributing more than younger participants (b = .4, p= .059)[3].

Result 3: Interaction between contributions, frames, and expectations

Examining the distribution of contributions in each version of the game in relation to the amount that people expect others to contribute suggests that there may be an interaction between how a game is framed and how people expect others to play (Figure 4.2).

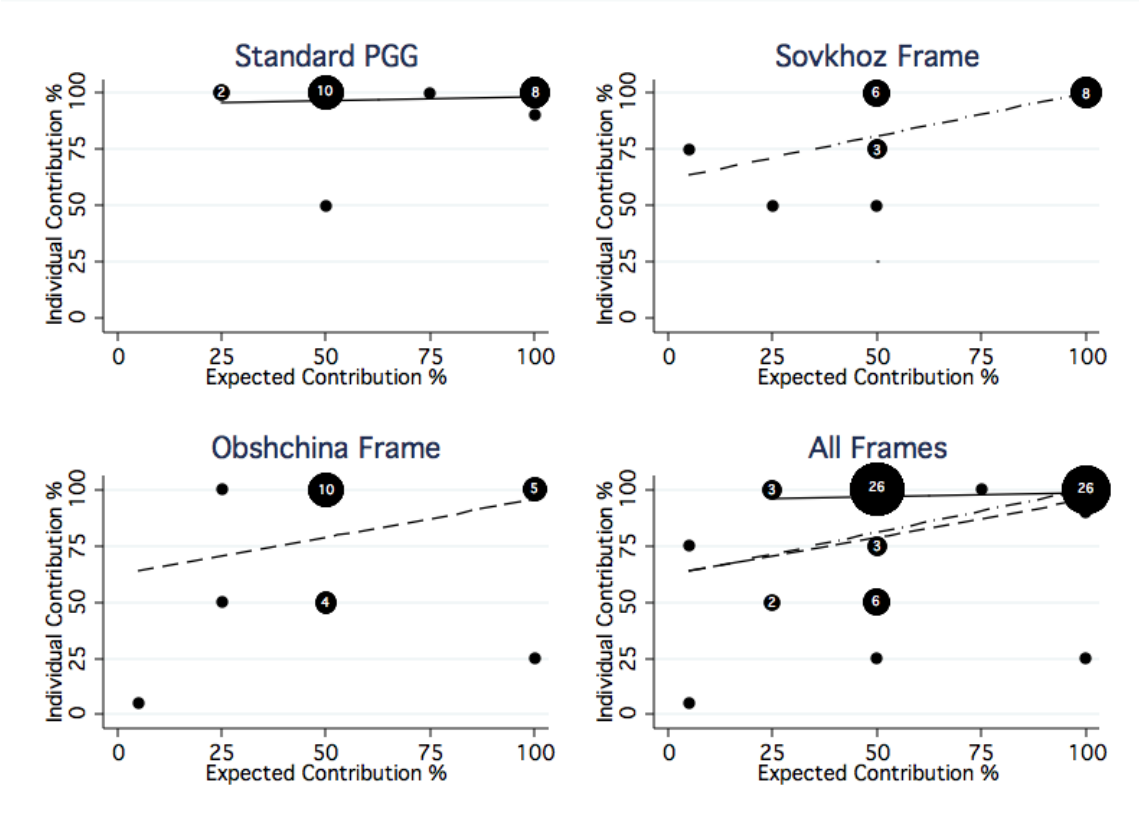

Figure 4.2. Frequency of individual contributions and expected contributions of others in standard and framed public goods games. Size of markers reflects the number of observations, with labels for all values >1. Lines represent bivariate regression estimates for individual contribution (dependent variable) and expected contribution.

[3] Using the sub-sample of game participants who also participated in a structured demographic and economic survey (n=43), I explored the effects of additional control variables, including: ethnicity, income, participation in subsistence activities, and membership in collective institutions. None of these variables had a significant effect on contributions. Moreover, including these control variables did not significantly affect the framing effects and other results derived from analysis of the full sample, with one exception. Participants who had ever worked in a sovkhoz or kolkhoz, according to the model, contribute more in the public goods game than those who have never been affiliated with these collective institutions. This result is discussed in more detail during the analysis of framing effects.

A large percentage of participants in each version of the game adopted a strategy of *generosity*, contributing 100% of their endowments regardless of how much they expected others to contribute. However, there are also many participants who appeared to adopt a strategy of *conditional cooperation*, contributing the same amount of money that they expected others to contribute. Although there are some participants who fall somewhere on the continuum between *generosity* and *conditional cooperation*, only one person adopted a strategy of *selfishness*, contributing less than he or she expected others to contribute.

Adding an interaction term between frame and expected contribution, this relationship can be examined statistically in the regression models (Table 4.1, Model 4). The marginal statistical significance of the interaction term (p= .066) suggests that framing a game to reference a post-Soviet collective institution may have altered the relationship between an individual's contribution in a public goods game and his or her expectations about how much others would contribute. In other words, contributions made by participants in framed versions of the games appear to be influenced by their expectations about how much others will contribute. Those who expected others to give less than 100% of their endowment decided to contribute less than 100% themselves. The same does not appear to be true in the standard versions of the game, although this result may be driven by the fact that only 2 of 23 participants in the standard version contributed less than 100% of their endowment. The relatively small sample sizes in each frame, combined with the marginal significance of the interaction term suggest a cautious interpretation of this result.

Summary

The regression models show that there are significant, independent correlations between contributions and both frame and expectations in public goods games in Kamchatka.

Participants who played in a framed version of the game contributed less than those who played in a standard version of the game. Also, participants who expected others to contribute less than 100% to the group reduced their own contributions accordingly. Examining the relationship between contributions, frames, and expectations suggests that most participants adopted either a strategy of *generosity* or *conditional cooperation*. The *selfish* strategies predicted by game theory—where individuals attempt to benefit disproportionately from the contributions of others by contributing less than they expect others to contribute or by contributing nothing at all—were almost entirely absent in these experiments. Considered along with the unusually high levels of cooperation observed in all versions of the public goods game, these experiments provide some interesting patterns of cooperation to analyze. Later, I analyze these patterns in comparison to other places throughout the world as well as in relation to the historical and cultural contexts of salmon fishers and reindeer herders in Kamchatka. But first, I synthesize data from the public goods games with data on food-sharing networks in order to assess connections between cooperation in experimental and natural contexts.

Connections between Public Goods Games & Food-sharing

Surveys of food production and sharing were conducted with 43 of the 70 people who participated in the public goods games. Some of these surveys were completed in 2008 during the months prior to or following the games, while others were completed later during the summer of 2009. Because the survey questions measure resource production and distribution at the household level, only one participant from each household was included in the analysis. Among the participants in the game who did not complete the survey, most were absent from the village following the game. Four people who participated in the game without completing the survey

died during the period between 2008 when the games were played and 2009 when additional surveys were conducted.

There is no significant difference between the contributions of participants who completed the survey and the contributions of those who did not (Mann-Whitney U, p=.549). Comparing patterns of cooperation using OLS regression models for the total sample (Table 4.1, Model 3) and the sub-sample of individuals who participated in both the game and the survey (Table 4.2, Model 1), there are only a few differences to note between the two. First, the amount that a person expected others to contribute has a significant, positive correlation with contributions in the total sample (p=.027) but not in the sub-sample (p=.346). Second, when a person felt that the game was similar to situations in everyday life ("relevance") there is a significant, negative correlation with contributions in the sub-sample (p=.014) but not the total sample (p=.142). Third, a participant's age has a significant, positive correlation with contributions in the sub-sample (p=.006), but this correlation is only marginally significant in the total sample (p=.059). Finally, the difference between contributions in standard and framed versions of the public goods game is significant in the total sample (p=.035), but marginally significant in the sub-sample (p=.061). Overall, the regression model explains 16.5% of the variation in contributions in the total sample, compared to 26.5% of the variation in contributions in the sub-sample.

I analyzed the connections between cooperation in the public goods games and two naturally occurring contexts of food-sharing. First, I included variables that measure the amount of food produced, the amount given to a member of another household, and the amount received from a member of another household in the past year. I focused on four foods with both practical and symbolic significance for people in Kamchatka's rural villages: potatoes, salted

salmon, berries, and reindeer meat. I asked each participant to tell me how many kilograms of these resources their household had produced in the previous year (past 12 months). Then I asked participants to tell me (1) how many kilograms of these resources they had given to a person in another household and (2) how many kilograms they had received from a person in another household. Due to the survival of reindeer herding in Khailino, reindeer meat was far more prevalent there, where most people purchased it from the Sovkhoz or received it as a gift from friends or relatives who worked with the herds. Yet, several people in Vyvenka reported acquiring reindeer meat as well. Still, since very few people in either village own enough reindeer to slaughter, I did not measure the amount of reindeer meat that each individual produced.

The second context of food-sharing comprises variables that measure the frequency that an individual engaged in meal or tea-sharing in the two days prior to the interview. First, I asked participants whether or not they had visited anyone in the day before the interview. If they responded yes, I asked them whether they (1) had a meal or (2) had tea during their visit. Responses were coded as (1) "meal" if a participant had both a meal and tea, since tea is a common part of any meal in Kamchatka. If a participant visited another person but did not drink tea or eat a meal, no instance of food-sharing was recorded. I repeated this process for the second day before the interview. Then I asked each participant if they had been visited by anyone from another household in the day before the interview, whether they provided their guest with tea or a meal, and so on in the same manner outlined above. Each of the variables measuring cooperation in these two contexts of food-sharing was included in a series of OLS regression models (Table 4.2). The standard model (Table 4.2, Model 1) examines the effects of frame, village residence, and expectations on contributions in the public goods game, controlling

for the age and sex of the participant. The subsequent models (Table 4.2, Models 2-7) combine the standard model with the food-sharing variables described above. For more details on these measures of food-sharing, see Chapter Five.

Result 1: Measures of resource production and distribution do not correlate with contributions in the public goods game

None of the variables that measure producing, giving, or receiving food have a significant correlation with contributions in the regression models (Table 4.2, Models 2-5). Regardless of whether seasonal patterns of food-sharing are measured in the currency of gardened potatoes, gathered berries, foraged salmon, or herded reindeer, the amounts that an individual produced, gave or received were not associated with the amount of money he or she chose to contribute to the group in the game.

Including variables of resource production and distribution in the regression models also had few effects on the significance of other variables, such as the game frame, the game's relevance to daily life, and the age of a participant. Only the inclusion of the production and distribution of potatoes altered the significance of the game frame and relevance. The effect of a participant's age was unchanged across all models where variables for resource production and distribution were included. These results suggest that differences in contributions that are associated with framing effects, expectations, and age remain when controlling for an individual's participation in seasonal food-sharing networks.

Table 4.2. OLS multiple regression models estimating factors influencing individual contributions (dependent variable) in standard and framed public goods games, with additional independent variables for resource production, distribution, and food-sharing.

Model	**1**		**2**		**3**		**4**		**5**		**6**		**7**	
Variable	*Coeff.*	*p =*	*Coeff.*	*p =*	*Coeff.*	*p =*	*Coeff.*	*p =*	*Coeff.*	*p =*	*Coeff.*	*p =*	*Coeff.*	*p =*
PGG Version	12.1	**.06***	11.5	.20	14.9	**.06***	17.9	**.04****	15.8	**.05***	13.8	**.05***	10	.14
0=Collective Frame														
1=Standard Frame														
Village	1.1	.85	1.7	.81	-1.9	.80	.2	.98	.1	.99	.5	.94	5	.49
0=Vyvenka,														
1=Khailino														
Expected	.1	.35	.1	.33	.1	.49	.1	.60	.1	.29	.1	.46	.1	.43
Contribution														
% of endowment														
Free-rider?	6.6	.30	6	.42	8.7	.24	3.6	.68	-2.3	.75	7.7	.25	4.6	.50
0=No, 1=Yes														
Altruist?	8.5	.56	10.2	.59	5.1	.76	7.7	.64	17	.29	8.1	.59	9.2	.54
0=No, 1=Yes														
Relevance?	-21.3	**.01****	-18.2	.11	-22	**.03****	-24.9	**.03****	-20.1	**.03****	-21.7	**.02****	-22.6	**.01****
0=No, 1=Yes														
Age	.6	**.01*****	.7	**.07***	.7	**.01****	.8	**.01*****	.6	**.01****	.7	**.01*****	.7	**.01*****
In years														
Sex	-.4	.96	-3.2	.76	-6.2	.56	-12.9	.30	-12.6	.26	1	.90	-1.5	.85
0=Male, 1=Female														
Food			***Potatoes***		***Salmon***		***Berries***		***Reindeer***		***Meal-sharing***		***Tea-sharing***	
Produced			.003	.85	-.011	.79	.115	.33						
Given			-.003	.96	.010	.94	-.178	.49	-.689	.19	-1.2	.45	2.03	.31
Received			.057	.73	.137	.31	.955	.34	.029	.86	.868	.89	.018	.99
Constant	58.8		52.9		63.1		63.5		69.1		58.1		57.1	
Adjusted R^2	.265		.156		.217		.233		.249		.231		.245	
Prob. > F	.018		.158		.088		.094		.069		.046		.038	
N=	41		37		37		34		34		41		41	

Coeff. = unstandardized coefficients; p=values are rounded to nearest hundredth of a decimal
Significance levels: *p <.10, **p <.05, ***p <.01

Result 2: Frequency of meal and tea-sharing do not correlate with contributions in the public goods game

The frequency that individuals engaged in meal or tea-sharing with people from different households is not associated with the amount of money that they chose to contribute in the public goods game. None of the variables that measure giving or receiving a meal or tea have significant correlations with contributions in the regression models (Table 4.2, Models 6-7).

When the variables for meal and tea-sharing are included in the standard regression model, they do not cause dramatic changes in the correlations of other key variables. In all models, the relevance of the game to daily life and the age of the participant remain significant predictors of an individual's contribution in the public goods game. Differences in contributions tied to how the game is framed are affected by including variables for tea-sharing, but not by including variables for meal-sharing. These results suggest that while the effects of expectations and age are robust, the framing effects on contributions may lose their significance when controlling for the frequency that an individual engages in tea-sharing.

Post-game Interviews

How did players interpret the game?

In the days following the games, I sought out the people who had played. I listened to them describe their strategies and asked for their help in explaining the unusually high contributions. We also discussed their impressions of the people who contributed less than others, how the structure of the game could be modified to yield more interesting results, and what relevance the game had for their lived experiences in Kamchatka.

Often these interviews were conducted with people who knew me well, people who had become comfortable sharing their thoughts and feelings with me. Sometimes, however, the

opportunity to discuss the games brought me closer to people with whom I had previously spent little time. Sitting together drinking tea in her kitchen, my neighbor Anna explained to me, "I understood the point as how much people trust each other." Despite the fact that we had been neighbors for several months, we had done little more than greet each other as we entered and exited the building or passed each other on the streets of the village. Anna lived alone while her son was away completing his mandatory military service, but she had frequent visitors, including a young nephew and newborn niece, as well as a sister who lived nearby. This was the first time I had been invited into her apartment. I asked her why she thought trust was important. "Well, how to explain it…" she said, laughing a bit:

> "Well, for example, now I think, 'I contribute these 200 rubles, and others might not contribute anything, and what would I get out of it?' Well, it ended up that I, and many others in my group, we trusted each other. So, everyone thought to themselves, 'I could contribute nothing.' But we all simply knew what people would do. There was trust. I simply trusted people."

I asked people whether or not they were afraid that others in their group would make low contributions. Most acknowledged the concern but quickly discounted or dismissed it entirely. One man, Dima, told me, "Well, yes, there was of course a doubt that there would be people who wouldn't give anything in general or only half. But I thought that the majority would give more." Before I told him about the results of the games, Dima guessed (correctly) that only "a pair of people, five maximum" gave very little. His expectations about how much others would contribute were echoed by many of the people I interviewed. When I asked Galina this same question, she responded with shock and amusement, "Definitely not! I looked around and thought, 'Now, everyone will contribute everything.' I watched people and thought who might contribute, who might not, approximately. […] Well, everyone acts differently, of course. I acted according to how much I thought people might contribute."

These responses and others like them suggest that the high contributions to the group in Kamchatka reflect a strategy of conditional cooperation: an individual's contributions are influenced by how much they expect others to give. Anna, Dima, and Galina all chose to contribute their entire endowment to the group, explaining their thought process in terms of confidence in and trust for others. But is the opposite also true? Was a lack of confidence or trust offered as an explanation by those who contributed less than others?

One person who contributed less than others, Artur, explained to me that he decided to give 150 rubles to the group and keep 50 for himself "as insurance [...] because it's possible that my partner won't contribute anything!" As he went on to explain, the fact that groups were drawn randomly influenced his decision. If Artur had known exactly who would be in his group, he said he might have contributed the full amount. I interviewed two other men who contributed less than 200 rubles (one gave 100, the other 150), and each of them gave a similar explanation about wanting to make sure that they left the game with some money for themselves. The idea that money not contributed to the group could act as "insurance" was also mentioned by people who had contributed their entire endowments when speculating why other people might contribute less.

The strategy of conditional cooperation based on confidence and trust is consistent with the overall pattern of individual contributions and expectations in Kamchatka. Fewer than 5% of people who played the game (3 out of 67) contributed less than they expected others to give (Figure 4.2). This suggests that very few people attempted to take advantage of the high expected contributions by keeping more of their endowment for themselves. In other words, few people sought to increase their own earnings at the expense of other members of their group. I interviewed one of these three people, a woman in her twenties named Nadia, whose family I

was quite close with. She explained that she had chosen to contribute only 50 rubles because she calculated that she could earn more money that way. She expected others to contribute much more. Nadia was one of several people in the village who gathered in the evenings a few times a week to play cards for money, and she applied a similar mentality to the public goods game. Listening to Nadia explain her approach to the game, I heard pride in her voice, but also a bit of embarrassment for taking advantage of others. It was as if she felt guilty for treating the game as a competition when, after she learned how others had played, it became clear that most people had approached the game with a cooperative mentality. As the results in Figure 4.2 show, many people adopted a strategy of conditional cooperation, tying their own contributions to their expectations of others. A large percentage chose a strategy of generosity, contributing more than they expected others to give, with the majority of these expecting others to contribute 50% of the endowment but deciding to contribute 100% of their own endowments all the same. Trust alone does not seem to explain this generosity.

One possibility is that people did not view their contributions as confidential decisions in a one-shot environment, but as decisions influenced by past entitlements and entailing future ramifications. Despite the fact that I assured participants several times that their identities and decisions in the games would be confidential, I also observed participants openly discussing the contributions they made with one another after the game was over and their earnings had been handed out. One woman even walked from person to person, chiding them with a bit of humor when their reported contributions did not match her expectations. In my interview with her, Anna also alluded to the lack of perceived confidentiality, explaining "What would people think [about me] if I didn't contribute, and they know I didn't contribute? How are they going to look at me then?" I reminded her about my promise of confidentiality, and she replied, "It has

nothing to do with you! The players themselves would discuss it afterward." At first, these remarks appear to explain the high level of contributions in Kamchatka. However, public goods games have been played in many places similar to Khailino and Vyvenka, where participants know one another and will encounter each other often after the game, but contributions in these places still do not reach the level that they do in Kamchatka (see Henrich *et al.* 2004). This difference may be due to cultural values and norms of privacy. As Anna's words and the actions of others suggest, even when the structure of the experiment promises anonymity, in these villages it may be considered inappropriate to be deceptive or unwilling to divulge information about one's decisions when questioned directly by others.

Interdependence, altruism, & reciprocity

When I shared the results of the public goods games with people, most were not surprised that contributions were so high. What did surprise them was that contributions in other places throughout the world are much lower than in Kamchatka (see Henrich *et al.* 2004; Herrmann *et al.* 2008). When I told Anna that average contributions in public goods games elsewhere usually fall between 40-60%, she speculated that the small size of her village could explain the higher contributions there. Anna noted the fact that most people had grown up together and knew each other well as a source of their confidence and trust in one another. I explained to her that previous studies included places that were similar to Khailino and Vyvenka, even much smaller in size. "And all the same, you mean there was such a small percentage?" she replied. I nodded and she smiled, adding, "I don't know. That means that people simply don't trust each other. No, in general, we have a village with a lot of trust. We have it better in terms of trust. It's good here in terms of trust." When I asked others how they would understand and explain the

uniqueness of the game results in Kamchatka, many people told me about the importance of cultural values and norms of interdependence, altruism, and reciprocity.

Altruism—the act of sacrificing personally in order to help another person—is a cultural value that indigenous people in Kamchatka often present as a defining and essential part of their lives. Like any other ideal, people acknowledge both the overall pattern and the exceptions. Altruism frequently occurs, but help does not arrive in every case when it is needed. Still, people who have traveled abroad, lived in bigger cities, or arrive from other parts of Russia insist that people are generally more helpful and altruistic in Kamchatka's rural villages than elsewhere. The fact that average contributions in the public goods games in Kamchatka were 89%—which is significantly higher than averages of 44% and 51.9% reported elsewhere in Russia (Gaechter *et al.* 2004)—supports these claims. Indeed, many people, indigenous and Russian alike, have cited the prevalence of these cultural values as the main reason why they would never seriously consider moving away from the village. Even though moving to the regional capital, Petropavlovsk-Kamchatskii, or another part of Russia might alleviate some of the economic hardships they face, this would be accompanied by a lost sense of social support and familiarity that define the best parts of life in rural villages for people in Kamchatka. The reason for this, they explain, is that the challenges of living in an isolated and often unforgiving environment cannot be overcome without the help of others. In other words, people help one another when they are in need, and this establishes a level of interdependence that people feel is essential to their ability to survive and thrive.

Artur explained this to me by making an analogy between these widespread ethics of reciprocity and a common and important economic activity: planting potatoes in one's garden. "You plant a potato, you grow not one potato, you grow many. That is, a person does a good

deed and later receives even more good deeds." Artur suggested that this ethic is an essential part of the "traditional upbringing" (*natsional'oe vospitanie*) of indigenous people in the village, and also serves as a kind of "spiritual law" (*dukhovnyi zakon*) that is "even in the blood of our northern people."

After hearing me describe some of the more striking and unique results of the games—how high contributions in Kamchatka were, how nobody kept their entire endowment for themselves, and that the lowest contribution was made by a single person who gave 10 rubles—Irina, a former schoolteacher, echoed Artur's explanation:

> "From their spirit! From their spirit, simply! Because people, our village, anyone who has misfortune or is unhappy, they give their last to them. […] And everyone interacts with one another. Because in the North, I say, a loner doesn't survive. That's why we support each other. We help each other. And with this experiment, with money, we also, all the same, no one took it all [for themselves]. Because then it's possible that someone needs that money. And he took it for himself."

Irina added that she knew of one woman who kept 100 rubles for herself because, as she explained to Irina, she needed money to buy milk powder for her child. To Irina, the woman's lower contribution to the group was not an expression of selfishness but of need. Indeed, the most common response that I received to questions about why a person would contribute less than 200 rubles to the group was need. Another former schoolteacher, Marina, shared her impression of the person who gave only 10 rubles to the group. Although she did not know the person's identity, she said, "He's not bad. It's not out of greed, so to say. It says that, probably, he has children at home. He still thinks about his own children." Interpreting low contributions as expressions of need also influenced people's willingness to cooperate in the presence of lower contributors. When I asked Dima, "Would you still have contributed 200 rubles if you had known that someone in your group would contribute very little?" he said, "Yes. All the same, I

would have given." I rephrased my question, "Even if you knew that he would earn more as a result of keeping more for himself?" Dima replied, "Well, he probably doesn't have enough of something." Another man, Aleksandr, said simply, "Consider that I have 1,000 rubles or nothing, all the same I live. Consider 5,000 rubles or none, it makes no difference to me. We have this kind of mentality that emerges here in the North." Interested to understand this "mentality," I asked him if people felt that money was not as important as personal relationships in order to survive, but before I could finish the question, he continued:

> "Well, everyone here thinks money is necessary, but we all come to each other's aid. Any kind of drunkard or alcoholic, all the same we help. They arrive hungry, 'Here, eat!' 'Give me salted, dried fish.' 'Here!' 'Give me cabbage.' 'Here!' 'Give me bread.' 'Here!' 'Give me vodka, 100 rubles.' 'Here!' When money arrives, you hand it out, you buy things. You buy things, you hand it out. No difference! We don't have that kind of harsh buy and sell like other people in Tilichiki."

By contrasting the ethic of helping those in need with the "harsh buy and sell" of Tilichiki, Aleksandr appears to suggest that these ethics are rooted in differences between an "ethnic village" like Khailino, and a village that is populated primarily by non-indigenous people like Tilichiki. This contrast implies that indigenous cultural values and norms, which are more prominent in Khailino, may have a greater influence on levels of cooperation in the game than those that follow from the shared Soviet/Russian past that the two villages share. Irina made a similar connection to the game results with several other examples of these indigenous cultural values in action. She talked about the widespread practice of keeping the shared hunting cabins that are scattered throughout the tundra stocked with dry wood and supplies. When a person arrives, they are free to make use of these amenities, but they are also obligated to replenish them before they leave. For Irina, this ethic connects to generous contributions in the game: "All the time, leave something behind in the tundra, because there should be reciprocity

(*vzaimopomoshch'*). And for that reason, nevertheless, I was confident that you wouldn't find the kind of person who wouldn't contribute anything to the till. That's why reciprocity is necessary in the North." She continued:

> "Because when we are all together here, we feel trust stronger. Yes, it's general. […] I don't believe that there would be the kind of person, who would contribute nothing in general. For that reason, we have special people. Because without helping each other, we cannot survive in the North. And that's why everyone tries to help. For example, if you don't have fish, and if your neighbors do, by all means they will share some with you. Even if you ask someone, everyone [shares] without compensation, without asking for anything, even money. That's the kind of people we have. Kamchatka is special, this land."

In addition to trusting that other people playing the game would contribute their endowments to the group, people in Kamchatka conceptualized the few who did not contribute as in need of help. Low contributors were occasionally described as immoral free-riders, but even then people found these actions humorously ironic and macabre, rather than feeling offended or indignant. Far more often, low contributors were described as people who probably needed money to support themselves or their family. The words of Irina, Dima, Aleksandr, and others suggest that generous contributors understood their contributions as altruistic acts, similar to replenishing the supply of wood in a shared hunting cabin or providing food to a neighbor. These altruistic acts are seen as essential components of people's ability to survive and thrive, as well as expressions of their sense of cultural identity and community.

"Risk is a noble act"

Several people that I interviewed did not explain their understanding of the game entirely in terms of trust or altruism but emphasized "risk" instead. When I asked people why they decided to contribute so much to the group when they were aware of the possibility that others

might contribute less, many replied that they were not afraid to risk such a small amount of money when there was a chance that they could earn more by contributing. A Russian man named Vova summed up this view succinctly, "If you compare it to life, these kinds of moments exist, do you understand? Someone contributes, someone doesn't. Only those who contribute can benefit, but you can also go bankrupt. Economists can figure it all out. But in life it's true that people who don't contribute don't receive anything. Do you understand?" Vova's remarks indicate two important points to consider when generating predictions and interpreting results in economic games. First, people faced with making decisions in games may rarely use backward induction to arrive at income maximizing strategies, instead relying on heuristics or biases that reflect naturally occurring contexts of cooperation[1] (Gigerenzer & Selten 2002). Second, the amount of money at stake in an economic game may represent different levels of perceived risk for participants in different places. Following previous research with economic games (Henrich *et al* 2004), the size of the initial endowment in these experiments was standardized to the equivalent of about a half-day's wage in Khailino and Vyvenka. In an objective sense, this amount of money is significant for people in these villages. Yet, as a woman named Larisa put it, "Well, I receive 500 rubles per day in salary. For me, all the same, it's not money." Larisa's comment reflects a bitter irony that people in Kamchatka's rural villages face daily: the prices of food and other goods in the village are much higher than elsewhere in Russia—including Moscow, which is considered one of the most expensive cities in the world—yet jobs are scarce and the government's practice of raising wages and pensions in the North hardly keeps pace with inflation.

So, I began to ask people how they might play the game differently if the initial endowment were larger. What if people had been given endowments of 2,000 rubles (about

[1] I thank Lee Cronk for alerting me to this point.

$80), rather than 200 rubles? Many people responded that the increase in endowments would not lead to a substantial decrease in the percentage that individuals contributed to the group. These responses echo the results of high-stakes economic games in other places (Camerer 2003). When I asked Aleksandr if he would still contribute 100% of his endowment if it were 2,000 rubles not 200 rubles, he did not waver. "All the same, I would contribute it all." I asked him if he thought other people would do the same, and he insisted: "Yes, it's *chuzhie* money! It's not my blood, my earned money! It's *chuzhie* money!"

Aleksandr's use of the word "chuzhie" to describe the money given to him in the game is interesting. In Russian, the adjective *chuzhoi* (pl. chuzhie) refers to either an object that belongs to somebody else or something that is "strange" or "foreign." Interestingly, chuzhoi is also used in opposition to the word "*svoi*," something that belongs to a person, including his or her friends and family. Many foreigners who visit Russia place a great deal of importance on this distinction between svoi and chuzhoi. They arrive without close friends or family and are treated as chuzhoi until they are accepted into a circle of Russian friends and treated as svoi. I also experienced this transition during my fieldwork in Kamchatka, noting several times in different villages when people began to explicitly refer to me as svoi, either when talking to me or about me with other people. One instance that I clearly recall occurred when a person who I had recently traveled with to visit the reindeer herds in Khailino was introducing me to another person in the village. The new person was shy and hesitant to talk to me, but my friend reassured him by saying, "Don't worry, he's already svoi!"

While Aleksandr's use of chuzhoi indicated that he was more willing to risk money that had been given to him without earning it, other people used the word "chuzhoi" differently. As Anna told me, this word was not referring to me as a stranger, but to the money that they were

given, which they had not earned. Laughing, she said, "The money was chuzhie, the money was chuzhie. I'm not that kind of person to take chuzhoi [things], even if they are given freely. No. If it's given to you, that means you need to spend it on something!" Anna's statement suggests that she viewed the money as belonging to someone else, so she treated it according to well-known cultural values and norms that decry stealing. Her logic was typical of statements by others who considered the money chuzhie. Despite the fact that the game instructions emphasized that the 200 ruble endowments were being given to the players and should be considered their own property, some people did not accept this immediately. Although the instructions emphasized that the money was not my personal money, that it was provided by grants to my university for the purposes of research, some people either treated the money as a windfall or as a kind of gift. A young man named Danil felt that the game would be improved if this point was made more emphatically:

> "You thought that people consider these 200 rubles [their own]. It's apparent that some people didn't understand. How? 200 rubles, fallen from the sky? Of course, I didn't earn them. You should have done it differently somehow, in order to explain to people that this money, these 200 rubles, they earned them. It's their money."

Like Danil, Marina felt that the individual endowments represented a windfall, using the phrase "like manna falls from the sky, from the sky to the sovkhoz!" Marina's words parallel previous suggestions that participants in economic games treat endowments as windfalls that are obtained without cost (Gurven 2004c). Yet, for others in Kamchatka the money was conceptualized as a gift and treated according to cultural norms of reciprocity. As Dima explained, "Well, it's as if, for us it's unusual. Chuzhoi—well not chuzhoi, but what is given to you—you need to return it. […] I received 200 rubles, and I gave back 200 rubles." However, considering the money a gift did not prevent people from accepting the money that they had earned at the end of the game.

No one who played the game returned their earnings to me after they had been given them, though it's possible that they used the money to purchase gifts for others.

A third common response to chuzhie money reflected a diminished sense of risk, discounting the possibility of losing money by contributing to the group. Aleksandr was certainly expressing this feeling when he said that the game would have been more interesting if I asked people to contribute their own money. "If you consider, right away, that the money is chuzhie, what will we lose? They gave me 200 rubles, and I contributed 200 rubles. It comes and goes. For me, there's no kind of emotion because it's not my money, it's chuzhie money." So I pressed him further: what if I gave him 20,000 rubles (about $800)? He smiled, "Well, then everyone would think it over! That's already a little bit of money! Free money, but money!" Still, he expected that people would continue to contribute a large portion of their endowments. He smiled, "Risk, as they say, is a noble act."

Aleksandr's comments about risk were echoed by several other people as a connection between the structure of the game and their everyday lives in Kamchatka. When asked to interpret the high contributions, a woman named Vera and her daughter Oksana suggested that people's lives here involve a level of risk that is greater than that experienced by people in other places. Vera and Oksana live in Vyvenka, located on a part of the coastline of the Bering Sea that is usually only accessible in summer by boat. Helicopters from neighboring Tilichiki arrive very infrequently, and a person would need to traverse a rough and rocky shore for about 10-15 hours to travel between the two villages by foot. I experienced this difficult journey first hand one summer when bad weather forced me to walk from Vyvenka to Tilichiki in order to make my flight back to Petropavlovsk-Kamchatskii. When the weather is good, most people make the journey in 2-3 hours by ocean, using small, 15-20 foot fishing boats, powered by 30-45

horsepower motors. Months before playing the games, on my first summer trip to Vyvenka, I traveled this way with Oksana's husband, Viktor. The trip was uneventful, and after we arrived, sitting in Vera's kitchen drinking tea, Oksana asked me how the trip had been. "Were you afraid?" she wanted to know. When I said that I was not, she replied, "That's because you have never done it before. You don't know how dangerous it is."

Every summer, people traveling by boat between Vyvenka and Tilichiki drown as a result of bad weather, equipment malfunction, lack of skill, poor judgment, or some combination of these. In fact, later that summer, I learned this lesson in a very personal way. Vova—the Russian man who told me that both the game and life involved risk, but that one needed to take risks in order to benefit—went missing on a trip from Vyvenka to Tilichiki. Earlier that same day, I had made the trip in the opposite direction, traveling again with Oksana's husband Viktor. Later that evening, I was sitting with Vova's family when I learned that they had not heard from him. For the next few days, there was no word from him or the friend that he had been traveling with. They called everyone they could think of, but no one had seen either of them. To this day, no one has.

Vera and Oksana explained that people are accustomed to living with this kind of risk because they have no other choice. Trips from Vyvenka to Tilichiki are often necessary to purchase supplies, receive official documents, register for salmon quotas, visit the hospital, and for many other reasons. During the Soviet era, helicopters regularly flew from village to village, but now these flights occur only once or twice a week at best. Even so, Vyvenka is not considered a major stop on this route, so it is quite common to spend three weeks there and never see a helicopter land. This isolation is one of the primary difficulties that people in Kamchatka's rural villages face in the post-Soviet era. In the mid 1990s, many people told me the story of

how Vyvenka's electrical station broke down. A single part was needed to make the necessary repairs. The problem was that the necessary part was difficult to locate, and this was exacerbated by the lack of transportation between the villages. For two years the part didn't come. A few people were able to use small gasoline powered generators sparingly, but most adjusted their lives to live without electricity. In this context, Vera and Oksana said, the risk of losing 100 rubles in an economic game did not weigh so heavily.

Communities & collectives: The sovkhoz

While some players conceptualized their contributions as providing support to an individual in need, others emphasized how their decisions were influenced by connections that they perceived between the structure of the game and their experiences working in collective institutions. These responses usually came from people who had played one of the framed versions of the public goods games, suggesting that framing the game in reference to collective institutions influenced how some people interpreted their decisions as well as the overall pattern of contributions made by others. One woman, a retired schoolteacher and pensioner named Marina, was particularly emphatic that her contribution was a contribution to the sovkhoz: "I said, 200 rubles for the sovkhoz. In general, I gave to the sovkhoz. Why? Because the sovkhoz, we all dream that it will recover." Later while discussing the differences between game results in Kamchatka and in other places, I mentioned to Marina that, because the contributions here were so much higher than elsewhere, some people might not believe that people in Kamchatka understood the games entirely. She replied:

> "They should believe. First, because, when you arrive home, that's all your country. Here, we have a different mentality. We live inside this sovkhoz. It used to have so many profits, everything came from it: gifts, wages for people. Here the

> sovkhoz was connected to many things. We had sour cream, they sold eggs, meat in the store, any piece [of meat]. And now the sovkhoz has fallen, and people understand. They would like it to recover, and for that reason, they contributed everything."

Marina's words expressed sentiments about the sovkhoz as a "total social institution" that I had heard many times while listening to people reflect on the Soviet era. These accounts noted the key role that the sovkhoz previously played in providing housing, electricity, employment, products, construction, and a variety of public goods for the village. They are also backed by research from a number of ethnographers working throughout post-Soviet Siberia (Humphrey 1998; Vladimirova 2006). Yet, I also knew from these conversations that the sovkhoz is currently in a prolonged state of crisis, tenuously existing on unreliable government subsidies, ageing equipment, limited access to markets, and a host of other problems associated with *perestroika* and the uncertainties following the collapse of the Soviet state economy. I asked Marina if people made these contributions to the sovkhoz even though the sovkhoz is now weak and cannot pay salaries to its workers for months at a time? She said:

> "Yes. All the same. They support it. And those people that were connected to that organization. It was profitable, strong. There were 20,000 head [of reindeer]. And today, only somewhere around 3,000? Practically 17,000 lost! But, this perestroika, it began in '91, there was that kind of idea that took hold. […] But to people who are left here, there remains the question, 'How to help the sovkhoz?' Here, this game forum that you organized, practically 70% gave everything and did not keep a single ruble for themselves. 200 rubles? Here, give it to the sovkhoz to recover, and they consider that if the sovkhoz recovers, we will live well. There will be meat and milk. There were 20 cows, and now 3! It was all lost with this perestroika. And for that reason I think that our people, those who were in their 30s or 40s, they understand that there was a time when they lived well. And now, there's no sovkhoz. There's no meat in the store. Beef? Previously our people didn't eat beef! And now? They eat it. There are no other supplies. And for that reason, in that game forum, you shouldn't be surprised about 70%."

Prior to the games, I had heard many people recount memories about the Soviet era sovkhoz with similar nostalgia. Marina's point that people in Khailino previously did not eat beef is a particularly interesting indication of the role that the sovkhoz used to play in Khailino. When the sovkhoz herd sizes were regularly around 20,000 reindeer, there was no shortage of reindeer meat in the village, even after exporting a large amount of meat to distant locations. People in Khailino much prefer reindeer meat to non-native alternatives like beef, pork, and chicken, and the fact that these imported varieties are now, more or less, the only option is both an economically and symbolically poignant reminder of what has been lost since the collapse of the Soviet sovkhoz system.

While post-game interviews often touched upon memories of the Soviet era that I had heard many times in other contexts, some of these interviews generated accounts of that time that were new to me. When asked what situations in daily life the game reminded her of, Tonia, a women that I knew well, told me that the structure of the game was similar to a "black till" (*chiornaya kassa*). I had never heard of a "black till," so Tonia explained to me that it was a kind of informal group savings plan that she participated in with her colleagues at the kindergarten during the Soviet era[2]. Every month, she said, they would contribute a small portion of their pay to the "black till," then each month a different person would receive the total, according to a predetermined order, until each person had taken turns as beneficiary. She noted that people usually used this windfall to make large purchases, such as a television or refrigerator, that would be difficult to afford otherwise. I asked her why people didn't just

[2] The use of the term "black" may refer to the informal nature of the savings plan, similar to the phrase "black market." Yet, it may also reference that word's association with peasants in pre-revolutionary Russia. The Russian word for "fallow lands" (*chiornyi pary*) uses the same adjective, as does "Black Repartition" (*Chiornyi Peredel*), the traditionalist branch of 19th century revolutionary populists, who chose to name their group after the portions of land ("repartitions") given to individual peasants within an obshchina (Walicki 1988: 233). More generally, the adjective "black" was commonly used to refer to peasants during this time period. Researchers working in Kyrgyzstan and Uzbekistan note that the "black till" operates in these places similarly to Tonia's descriptions in Kamchatka, and is considered as a part of "traditional" life by Kyrgyz and Uzbeks (Giffen *et al* 2005: 66; see also Kandiyoti 1998).

decide to save the same amount for themselves each week until they had enough? She explained that it was easier to save when others were counting on you to make your contribution each month. And besides, most people would receive a relatively large amount of money sooner than if they chose to save each month on their own. Tonia also emphasized that the "black till" only worked when all the contributors and beneficiaries were part of the same "collective" (*kollektiv*), using the term, as it is still commonly used today, to refer to a group of people in any profession who work together. Working together with the same people each day provided confidence that people would continue to make contributions to the group.

In other interviews, several people felt that the logic of the public goods game was similar to the "reciprocity till" (*kassa zaimopomoshchi*), which was a group fund organized and maintained by the sovkhoz or kolkhoz during the Soviet era. The logic of the "reciprocity till" was similar to the "black till," with a small portion of each worker's paycheck being added each month. If a person working for the collective needed money for a trip to Petropavlovsk-Kamchatksii or to the mainland, he or she could request money from the "reciprocity till." Some people said that the person was obligated to pay the money back, while others insisted that the money did not need to be repaid if the reason for the request was justified (i.e. not solely for leisure or personal use).

Despite the fact that both the "black till" and "reciprocity till" have clear parallels to the theme of interdependence, I did not learn about them until after the games were played. As we discussed the structure and logic underlying the games, these connections to people's lived experiences emerged in a way that my previous conversations with these people had been unable to inspire. Tonia, for example, was one of the first people that I met while visiting Khailino for the first time in 2005. During the course of my subsequent trips, we had gotten to know each

other well, and I considered her one of my closer friends in the village. In the months leading up to the games, we sat together at her kitchen table for many hours, drinking tea, discussing life in Khailino, and talking about my research. Tonia was very familiar with my interest in altruism, reciprocity, and cooperation, yet she had never thought to mention the "black register" during these conversations. Once she had done so, I expressed my interest and asked her why she hadn't brought it up before. She said that, for whatever reason, the thought hadn't occurred to her until she played the game. Reflecting on her experience with the public goods game, she remembered the "black till" and decided to mention it when I asked her about her impressions of the game later. In this way, the game provided a shared context that grounded the abstract theme of interdependence, allowing us to find a common space of knowledge and experience from which we could explore and forge connections between our own unique perspectives.

Communities & collectives: The obshchina

Connections between the public goods game and the obshchina were also evident in post-game interviews. These comments sometimes referred directly to the way the game was framed as an "obshchina game." For Irina, the frame clearly connected to traditional subsistence strategies, like reindeer herding, and the cultural values that inform them. When I asked her if she thought about the word "obshchina" when it was mentioned during the game instructions, she replied:

> "Yes, because the obshchina, it's in common. Everything should be in common. It's like in the tundra, how the reindeer herders work, everything is in common. There, no one sets aside or hides. If someone has something, it's all on the table. The obshchina. That's what it's called. In common, for everyone."

Another woman, Zina, contrasted her decision to contribute to the obshchina with a different mentality. When I asked her why she decided to contribute the amount that she did, she replied,

"I, for example, contributed everything for the obshchina. Others who followed logical thinking did not contribute fully, because you need to survive in case another person does the same." Zina's use of "logical thinking" as a counterpart to her decision to contribute to the obshchina suggests the importance of individual sacrifice, a cultural value that may run counter to strictly individualistic, economic assessments of value and utility. Instead, Zina's words reflect the importance of interdependence, where an individual's decisions are influenced not only by individualistic calculations, but also by definitions of value and utility that take into account reciprocity, kinship, reputation, and other interpersonal dynamics (Roberts 2005).

I asked Danil, a young man in his late 20s, if the word "obshchina" was important to him when he decided how much to contribute. He replied that the word had "many meanings," but that he defined it as "a community (*soobshchestvo*) of people that have a common idea, common interests." I noted that there were three versions of the game, and that some people played a game that used the word "obshchina," some played with the word "sovkhoz," and others played only a "standard" version. He replied:

> "Obshchina. You pointed it out correctly. I don't know if you pointed it out yourself, or if someone helped, but very good. Obshchina. It's especially good that you made use of that word. The obshchina game. It's immediate, precise. You won't find a better word."

Lighting a cigarette, Danil went on to talk about the obshchina and its many meanings. "The obshchina, you can make use of it everywhere. If I arrive, if there are three of us, we find common interests, something to do. You can call this an obshchina. […] That's how it is. An obshchina is a team, right?" Then he described a second meaning of the word, referring to formal institutions called "territorial obshchiny" (*teritorial'no-sosedskie obshchiny* or TSO) and "kin-based obshchiny" (*rodovie obshchiny* or RO). The main difference between the two is that a TSO is conceptualized as an obshchina that potentially includes all the members of a village,

whereas an RO usually includes only 1 or 2 extended families within a village. Danil talked about how a territorial obshchina had been formed in Khailino shortly after the initial laws were drafted that established the obshchina as a formally recognized collective institution. In Khailino, this meant that the TSO assumed management of all privately owned reindeer that had survived the precipitous decline of the sovkhoz herds in the post-Soviet era. However, in recent years, the obshchina had also successfully lobbied for increased access to salmon quotas. Although these quotas were less than the "industrial" quotas given to privatized sovkhoz and kolkhoz collectives (10-100 tons in an obshchina compared to 200-900 tons in a privatized sovkhoz/kolkhoz), they were far more than the standard 200-350 kilogram subsistence quotas given to each indigenous person in the village. Once the precedent of granting salmon quotas to obshchiny was established, people began to found their own kin-based obshchiny. These obshchiny usually had fewer members, so they were given lower quotas, but a group of 5-10 individuals could still expect a quota between 10-30 tons, compared to the 1-4 tons they would collectively receive as a subsistence quota. Danil explained:

> "Now obshchiny will be founded. It's good. And they will open—some will open—in order to receive limits. You know yourself. You understand, right? To receive a fishing limit for the legalization of their activities. [...] The inspectors arrive to check documents, and [you say] 'Here, I have this kind of a limit.' 'Here's my *yukola* (dried fish) hanging, here's this, here's that.' And, already, we won't be fooling around like this 200 kg per summer, per person. You pull in your net one or two times, and there's your limit. In two or three days, you can do that. Now they will already be free to fish."

While extolling the beneficial aspects of the increasing number of kin-based obshchiny, Danil also noted that at some point soon, the leaders of these obshchiny would need to come together and found a *soyuz* ("union" or "alliance") of obshchiny. Although he didn't specify the reason for the soyuz beyond coordinating to "achieve goals" and "beneficial activities," I had discussed

this topic many times with other people in several villages. Most people who felt there should be a soyuz suggested that individuals who were divided into many different kin-based obshchiny would be a less effective political entity when lobbying for salmon quotas. These people also noted that the soyuz could provide a forum for resolving disputes that might arise within the community over quota allocations, fishing locations, and other instances where the interests of multiple obshchiny imperfectly aligned. Others added that the soyuz could coordinate development projects and efforts to assist people who needed extra help, such as the elderly or single parents.

These visions of an alliance of obshchiny reflect the ways that both Soviet and indigenous pasts continue to inform notions of community in the present (Grant 1995). The word "obshchina" was used by early Russian ethnographers to refer to the fundamental socioeconomic unit of indigenous peoples throughout Siberia, usually a group of extended families that shared access to common resources (Schweitzer 2000; Sirina 2004). However, the term originally referred to pre-revolutionary agricultural collectives among the Russian peasantry, whose practices of common property and self-governance were both romanticized by populist revolutionaries and reviled by reformers (Walicki 1988). The analogy between Russian peasants and indigenous Siberians can be traced back to several of the early Russian ethnographers who began their research only after being exiled to Siberia as a result of their revolutionary sympathies and activities (Slezkine 1994). After the revolution and in the early years of the Soviet regime, these same ethnographers were called upon to set a new path for the governance and development of indigenous peoples. The Soviet system of sovkhoz and kolkhoz collectives, fully integrated into the state economy, played a foundational role in subsequent efforts to transform the lives of indigenous peoples according to visions of Soviet modernity.

Yet, when the cultural, economic, and political foundations of that system collapsed, both indigenous leaders and government authorities perceived a troubling institutional vacuum in the post-Soviet era. The series of laws that were subsequently created to establish territorial and kin-based obshchiny have been presented as possible solutions to this vacuum, even characterized by some as a "neotraditional" movement (Fondahl 1998; Pika 1999). Although the cultural values, norms, and institutions that informed cooperation and the use of common pool resources among indigenous peoples throughout Siberia prior to the revolution continue to be manifested in the present, the ways that contemporary indigenous peoples in Kamchatka conceptualize the role of collective institutions in the post-Soviet era also draws heavily on their experiences of Soviet collectivization. Post-Soviet collective institutions like the obshchina are not only seen as ways for individuals to coordinate the economic activities of fishing and herding, but also as focal points for broader collective action movements, addressing questions of economic development, environmental conservation, and indigenous rights that necessarily extend far beyond the village.

However, despite frequent discussions, no concrete steps had been taken to form a soyuz of obshchiny in this region of Kamchatka. When I asked one long-time activist why a soyuz had not been formed, she said that they simply lacked a leader who could get people to set aside their own interests and focus on their common concerns. Implicit in her explanation was the frustration that came with her years of activism as a leader of the local branch of the Russian Association of Peoples of the North (RAIPON). Danil's family had been part of the formation of the first "territorial obshchina" in Khailino and was also active in the local branch of RAIPON. He was certainly aware of these difficulties. Although he did not refer to them directly, his juxtaposition of the emergence of kin-based obshchiny with the soyuz question captured some of the contradictory emotions that accompany the word "obshchina." While playing an important

role in bringing people together to realize their common interests in the form of increased salmon quotas, the formalization of obshchiny as collective institutions could also create conflicts of interests that might threaten to destabilize what he called "a community of people with a common idea."

Communities & collectives: A negative framing effect?

While several people explained their high contributions to the group in the public goods games by making connections to a collective institution, either the sovkhoz or the obshchina, statistical analysis of the overall patterns suggests that average contributions in the two versions of the game that were framed to reference these collectives are slightly but significantly lower than the standard version of the game (Table 4.1). Contributions in the framed versions of the games are still much higher than the 40-60% contributions that are usually observed in public goods games elsewhere, yet the fact that contributions in framed versions are lower than in the standard version of the public goods game in Kamchatka needs to be explained.

One possibility is that the positive sentiments associated with these collective institutions, expressed by people like Marina, Irina, Zina, and Danil, are offset by a smaller number of people who harbor negative feelings about the sovkhoz or the obshchina. Perhaps the standard version of the game does not tap into these negative feelings to the extent that the framed versions do, and so the contributions in un-framed games are slightly higher? When I asked Artur, who played in a version of the game that referenced the sovkhoz, to explain the high contributions in the village, he offered an alternative to his earlier statements about the importance of reciprocity:

> "It's just that many people worked in the sovkhoz here, and it's as if the communist influence still continues to this day. The main religion of the Soviet Union was work. That is, you should work as much as you can, but receive kopeks, meager kopeks. People

> worked, they contributed it all to that production: the government, the firm. They toiled so much. And for that work, they received very little. And they are already accustomed to sacrifice. That is, give a lot, receive little. This survives from the past."

Artur's comments did not surprise me when he said them. In the months leading up to the games, I had gotten to know him, and on many occasions he shared his mixed feelings about life during the Soviet era. Describing work as the "main religion" of the Soviet era also expressed a special distaste for Artur, who I knew as a devout Christian, one of the few indigenous people who had recently converted to a non-Russian Orthodox form of Christianity. Yet, he also recounted with sadness many secular critiques of the Soviet era, including the boarding school system that took him and his brothers away from their parents, who worked as reindeer herders and spent months away from the village with the herds in the tundra. The boarding school allowed Artur and his brothers to grow up in what he felt was an environment that left them accustomed to having their needs defined and provided for by the government, rather than teaching them the independence to solve problems for themselves. Artur partly blamed the boarding schools for his brothers' struggles with alcoholism, and said that an entire generation of people had been ruined by the schools, a common refrain that I heard from other people as well (also see Bloch 2003).

However, Artur had earlier explained his own decision to contribute only 150 rubles to the "sovkhoz fund" as a reflection of his uncertainty about who would be in his group and his willingness to have "insurance" in case others contributed little. Indeed, his statements about the sovkhoz were intended to explain *why others had contributed so much*, not why he had contributed so little. Overall, there were very few people who explicitly expressed negative sentiments about collective institutions or used these feelings to explain their own or other people's contributions. Yet, it's possible that hearing the word "sovkhoz" or "obshchina" was

enough to diminish some players' confidence or trust that others would contribute to the public good. Perhaps framing the game in this way led more people to adopt a strategy of conditional cooperation?

Results from the regression models provide some support for these interpretations, suggesting that the association between contributions and expectations is different in standard and framed versions of the game (Table 4.1). In other words, people's expectations about what others will give influences their contributions in framed games but not in unframed games. People contribute less in framed games and expect others to do the same. Similarly, the regression models suggest that participants who considered the structure of the public goods game similar to situations that they faced in their daily lives also contributed less. Although the statistical significance of this finding varies depending on the model, the direction of the effect is consistently negative in all models (Table 4.1, Table 4.2). This result suggests that individuals who felt there was congruence between the structure of the game and naturally occurring contexts of cooperation responded by slightly lowering their contributions, in a way similar to those who participated in framed versions of the games. Yet, this possible link between collective institutions, expectations, and contributions is complicated by analysis that combined data from the economic games with survey data. I asked survey participants to state whether they had ever belonged to a Soviet collective (sovkhoz or kolkhoz) or an obshchina. When these variables are included in the OLS regression models as dichotomous variables, I found that participants who reported belonging to a Soviet collective contributed significantly more than those who did not (b= 15, p= .025). There was no similar effect for individuals who had belonged to an obshchina collective (b= -.3, p=.957). Although the effect of Soviet collective membership was significant even when controlling for a participant's age, the regression model

also predicted that older people would contribute more than younger people (*b*= .5, p=.029). Taking all of these results into consideration, I speculate that the negative effects of frame and relevance and the positive effects of age and Soviet collective membership indicate shifting attitudes toward collective institutions among younger participants in Kamchatka.

Artur noted that the anonymity of his group was the primary factor underlying his desire to keep 50 rubles for himself as "insurance." Yet, it is still possible that both Artur's confidence in other people and his desire for "insurance" were affected by the way that the game was framed as a "sovkhoz game." When I interviewed Artur, he was in his early 30's, meaning that he was raised during the Soviet era but came of age just as it began to collapse. He reported briefly working for the sovkhoz in Khailino, but had long since left to work elsewhere. He had recently found work as a carpenter for a building company that had received government contracts to rebuild homes, school facilities, and other buildings that had been severely damaged during a large earthquake in 2006, whose epicenter was not far from Khailino. Two of his brothers still worked for the sovkhoz as reindeer herders and technicians, but they often went 3 or 4 months without salary. There were many other participants in the game who were Artur's age or younger and had never worked for the sovkhoz, nor were they old enough to fully appreciate how far it had fallen. Perhaps the emotions that framed games elicit, whether or not people are consciously aware of them, follow not only from the Soviet era, but also the extreme hardships that have characterized the early part of the post-Soviet era?

Defection

I chose to conduct experiments with economic games in Kamchatka, not only because I was interested to learn how people's behavior would compare to other parts of the world, but

also because I thought the games might help me better understand how people in Kamchatka thought about cooperative relationships. Compared to other economic games, the public goods game is particularly well suited as an analog to real-life situations that present people with an opportunity to work together to achieve a common goal, but also pose an important dilemma: individuals who do not contribute to the common goal—so called "free riders"—can nonetheless benefit from the contributions of others. Examining people's contributions in relation to their expectations of others suggests that free riders were quite rare among those who participated in the games in Kamchatka. Most low contributors expected other people to contribute equal amounts or less than they did. Many people assumed that the few low contributors were in need of extra money, so they did not begrudge them their extra earnings. However, there were several people who did express some frustration when the amount of money that they earned made it apparent that not everyone in their group had contributed the full amount. Larisa, a woman who contributed 200 rubles and expected others to do the same, said to me, "It's just that somehow I always live with some kind of debt. And that's why it seems to me that it was even offensive that I contributed so much, and another person so little." Although Larisa was in the minority with her feelings that unequal contributions were "offensive," there were others who told me they would give less to the group if they were to play the game again. These statements parallel a widely replicated result in multi-round public goods games played throughout the world: contributions begin to decrease after the first round, as people experience the presence of free-riders (Ledyard 1995; Fehr & Schmidt 1999).

For some people, this aspect of the games reminded them of instances where local people had been taken advantage of by others, usually *priezzhie* or "newcomers." This term is usually applied to people who arrived in Kamchatka's rural villages during the Soviet era but did not

adopt local cultural norms and values to the extent that many other Russians who continue to live in Kamchatka's rural villages have done. But the term is also used more generally to describe anyone who is a temporary or repeated visitor to the community.

When I asked my neighbor Anna why she contributed the full 200 rubles to the group, she told me that she trusted other people. But in the next breath, laughing a bit, she added, "In general, I trust. I am too trusting!" I asked her if she had experienced any problems as a result of trusting others. She answered, "There are situations when you believe and it ends up that people let you down." She began to have difficulty finding the right words, "All this…in money…I'm left back where I started…well…no matter…not everyone is like that…most are like…normal people…who answer for their words." Anna was still laughing as she spoke, but her smile was strained. Later in the interview, as we discussed possible connections between the game and everyday life in Kamchatka, she returned to the theme of trust:

> "But here [in Khailino] it ends up that without trust there won't be any kind of reciprocity. In order to help, you have to trust. Well, I don't know. Even if you don't trust, you help all the same. What are you going to do? Our people, for example, our ethnicities: Koryaks, Chukchi. We trust too much, and others use that. Well, I don't know. If we trusted less, maybe it would be easier for us to live with such people, people who don't answer for their words. They promise and then take it away. [They say], 'Of course it will be. Yes. Yes. Yes.' And then we're left with nothing. [They say], 'That means, you know, it didn't work out.' And us? They simply gather us up and throw us away. How many situations were there like this? All the same, we continue to trust. We don't learn. It seems to me we won't learn not to trust. I don't know. It seems to me it would be better to be harder, trust less."

Anna was still laughing, but as she continued I could see that the idea that it might be better for people to trust less bothered her:

> "Business is all around. It's all around. We have, in terms of meat, in terms of caviar, they swindle. Purely swindle! They promise! It's the same with the gold, for example, the platinum that they extract. They promise mountains! [They say], 'Khailino

> will be prosperous.' It's OUR land where they extract platinum! They've done this to us. All the rivers are spoiled, the fish are vanishing. They compensate us all. To this day they compensate us! And we're not hard, at all. Somewhere you can say, 'They're not right. We need to do something.' But when it comes down to it, for example, when the person is sitting there. 'Go ahead, tell him…she got sick!' No. Silent. You're silent. I don't know. To put another person in an uncomfortable position, it's uncomfortable somehow. He'll begin to ask questions, extract himself from it, search for loopholes, explain everything, begin to…ahhh…I don't know. It's uncomfortable. You even become embarrassed yourself how he stands in front of you, justifying himself, right? And you sit and listen to him. And what? He justifies himself, you can't add anything. Well, that's how we live. And trust. Poor. But yes, if we would be firm, if there were people who promised us everything, the prosperity of the village, and if they would support their words. Even if there were trust. We wouldn't lose that gift, that trust. But this is all going away."

Anna's image of wanting to confront a person who had failed to live up to his promises but somehow being unable to do so captured some of the laments that other people shared with me when talking about the difficulties of the post-Soviet era. They described the exploitation of local people by visitors who did not share their sense of trust and altruistic obligations. In some cases, this took the form of people riding to the reindeer herds on snowmobiles with a case of vodka. They knew that with the sovkhoz struggling to adjust after the collapse of the state economy, the herders hadn't been paid their salaries or provided with adequate supplies. So they used vodka to "purchase" reindeer that belonged to the sovkhoz or obshchina illegally. Anna was not the only one who drew this parallel between the dilemma posed by the public goods game and the exploitation of local people. Artur was similarly dismayed by the trade in caviar that brought merchants (*kommersanty*) to the town every summer, employing local people to harvest fish and prepare caviar but either paying them less than originally promised or paying them in alcohol instead of money. Artur explained:

> "Here we have people that are very trusting. They can give a lot, and if someone makes promises to return it, they give it. […] And

> very many people who are newcomers (*priezzhie*)…they take advantage of that. Because people here, they give for pleasure. They even believe all promises, as if they believe another person. But very many people have taken advantage of people's trust. It's of course very bad, because when a person has been deceived many times, he begins to drink, he begins to lose himself. Although on the inside, he doesn't change. He just begins to use a lot of alcohol and all the same, he becomes so victimized."

This kind of behavior was roundly condemned by almost everyone who I discussed it with in the villages, but in the early years of perestroika it was unfortunately all too common. Still, to a lesser extent, it persists today. Yet, local people find it hard to confront the people who do these things and hold them responsible. As Anna says, "It's uncomfortable. You even become embarrassed yourself how he stands in front of you, justifying himself." The consequence, according to Anna, is that collectively people begin to lose the "gift" of trust that they feel is such an essential part of their identity. For Artur, the tragedy is more personal: a person begins to "lose himself," to literally "sink" or "let himself go."

Anna and Artur's words reminded me of something Irina told me about the importance of trust to people in the village:

> "Here in Khailino, we all know each other. We know what kind of person he is. Every person is plainly visible like an open palm. We know him from his childhood, how he grew up, how he was born here. So in a big city, it's possible they would contribute less. Here it's an entirely different matter. We live like a big family here in Khailino. A common family. Everyone roots for each other, survives. If someone has misfortunes, you try to support them, so the person isn't let loose. That is, reciprocity here is a very good, necessary thing."

Irina had explained how cultural values of trust, altruism and reciprocity encourage everyone to be "like an open palm," to "root" for one another, and to support people who suffer from misfortune. All this so that a person isn't "let loose." Deception, cheating, and exploitation, Artur observed, cause a person to "lose himself." This happens because, in Anna's words, local

people have been "gathered up and thrown away," they have been "promised mountains" with words that are rarely "answered for."

The interviews where Anna, Artur, and Irina shared these thoughts were very emotional events for me. They seemed to capture both the happiest and saddest moments, the parts of life in Kamchatka's rural villages that people are most proud of, as well as those parts they would often rather forget. The topics of exploitation, deception, and violation of trust between indigenous people and "newcomers" are extremely sensitive and potentially divisive. Perhaps due to the legacy of the cold war, people from Western Europe and the United States are especially likely to focus on this topic when trying to understand the lives of indigenous peoples in Siberia. One of the participants in the public goods game, Tonia, told me a story about a researcher from this part of the world who visited her village in the early 1990s, shortly after the end of the Soviet Union. She and some of her friends were sitting with the researcher, talking about life during the Soviet era, when the researcher began to ask them about discrimination and the repression of indigenous peoples. Tonia and her friends told the researcher that there was nothing like that going on back then, nor was there a concern with that today. The researcher persisted with more questions, refusing to accept the initial explanation that they provided. Tonia found this very amusing, and the encounter was one of the few things she could still recall about her conversations with the researcher. Yet, as the comments made by Anna, Artur, and others that I met during my time in Kamchatka attest, there are people with vivid memories of negative encounters with "newcomers" and powerful emotions about the transformations that have occurred since their arrival in Kamchatka.

Discussion: Implications for Cooperation in Kamchatka

Taken together, these perspectives on the past and present highlight the complicated and sometimes contradictory way that different cultural norms and values inform the negotiations of cooperative relationships in Kamchatka today. As the data from economic games and interviews show, people in Kamchatka contributed remarkably large percentages of their endowments to the public good, explaining these decisions as a result of their expectations that other people would make similar contributions, their trust in other people, and their generosity toward those in need. They also interpreted their behavior in the context of cultural norms of reciprocity, altruism, and a willingness to contribute individual effort and resources to collective institutions and common endeavors. Yet, despite the positive emotions inspired by connections between the abstract structure of the games and these broader cultural contexts, statistical analysis shows that average contributions were slightly lower in versions of the games that were framed to reference post-Soviet collective institutions. Because most of the people interviewed who contributed less than 200 rubles to the group explained their decisions in broader terms of "insurance" against "risk"—rather than explicitly associating the game with negative emotions about collective institutions—this framing effect on contributions may be more subconscious than conscious. One possibility, supported by statistical analysis, is that framing the game to reference collective institutions caused people to adopt a strategy of conditional cooperation, contributing either exactly or slightly more to the public good than the amount that they expected others to contribute. This effect is likely driven by a slight increase in the number of people who contribute less than 100% to the public good in the framed versions of the games. Overall, only about 22% (15 out of 67) of the players contributed anything less than 200 rubles. Among these, only 2 people played the standard version of the public goods game, with the remaining 13

divided more or less equally between the sovkhoz frame (6) and the obshchina frame (7). Replicating this framing effect in other villages in Kamchatka, or elsewhere in Siberia, would increase confidence in this interpretation. But the evidence presented here suggests that people's responses to the cooperative dilemmas posed by standard versions of the public goods games can be altered by framing the games in ways that reference their lived experiences and existing cooperative relationships. In this case, putting cooperation in context affected people's contributions by altering the relationship between their level of cooperation and the extent to which they expected others to do the same. This suggests that researchers using economic games may learn more about the factors influencing the emergence and stability of cooperative behavior by devoting greater attention to the relationship between contributions and expectations, particularly the ways that cultural values, norms, and institutions affect people's assessments of the costs and benefits of their actions.

Theories of cooperation often implicitly assume a relationship between expectations and contributions when positing different individual strategies. Yet, researchers using economic games do not always gather data on participants' expectations, and even when they do, these data are rarely considered as important as data on actual contributions in their analysis. However, without data on both expectations and contributions, it can be difficult to identify the strategies adopted by participants in economic games. For example, an individual who contributes nothing to the group in a public goods game may do so because he or she does not expect others to contribute either. While this strategy is not necessarily cooperative, it is also not necessarily selfish. Given more optimistic expectations following from playing the game with different partners, frames that cue real-world contexts, or other information, perhaps the same individual would choose to increase contributions to the group. Such a strategy is very different from both

a classic "free-rider"—who does not contribute in order to take advantage of the expected contributions of others—as well as an indiscriminate altruist—who cooperates unconditionally, regardless of expectations about how much others will cooperate. These two extremes reflect the only strategies that are entirely uninfluenced by an individual's expectations. While some individuals may pursue these extreme strategies, many others are likely to fall somewhere in between, either contributing exactly as much as they expect others to contribute, or erring either to the side of generosity or the side of selfishness. When plotted crudely on a simple grid diagram, the relationship between expectations and contributions in a given place will reflect unique patterns of cooperation that emerge from a variety of individual strategies (Figure 4.3).

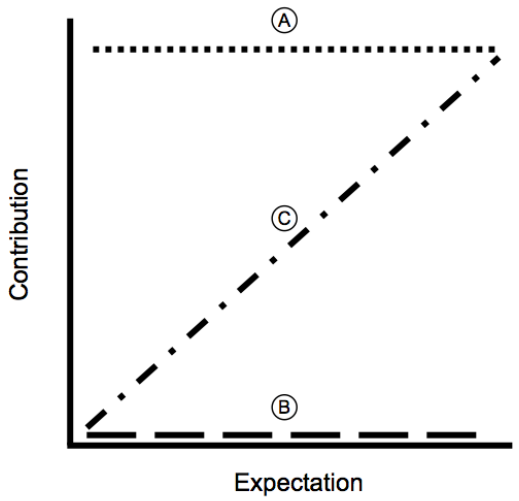

Figure 4.3. Relationship between contributions and expectations. Line (A) represents "unconditional cooperation," line (B) represents "selfishness," and line (C) represents "conditional cooperation."

While framing effects were evident when comparing different versions of the public goods games, assessments of external validity did not establish clear connections between patterns of cooperation in experimental and naturally occurring contexts. The absence of statistically significant associations between patterns of food-sharing and patterns of contributions in the public goods games suggests caution when interpreting the theoretical and

practical significance of results from economic games. Perhaps, as Gurven and Winking suggest (2008), researchers must develop experiments that more closely correspond to the contexts in which people in a particular place find themselves compelled to cooperate. The context of food-sharing in Kamchatka, which entails an altruistic sacrifice by one individual in order to benefit another, may not align closely with a public goods game. However, a collective institution, where individuals routinely coordinate their actions to achieve a common goal but may encounter free-riders, seems to provide a better real-world counterpart to the rules and cost-benefit structure established in the experiment. The closer congruence between the public goods games and post-Soviet collectives may explain why levels of cooperation in experimental contexts were sensitive to framing effects but lacked external validity, assessed in terms of food-sharing. If measures of individuals' contributions to the common endeavors of collective institutions were used instead, perhaps levels of cooperation in these two contexts would more closely align. Thus, researchers seeking to reveal connections between economic games and naturally occurring contexts of cooperation should attend more carefully to the interaction between individual propensities, contextual cues, and cultural values, norms, and institutions that influence levels of cooperation.

This study also makes a methodological contribution to the study of cooperation. Although post-game interviews are commonly used by researchers studying cooperative behaviors in the experimental contexts of economic games, the data that they generate are rarely analyzed extensively in the ways that ethnographers often do. The narrative presented above is one that I have constructed from these conversations and combined with my own statistical analysis, but I feel it is faithful to the people with whom I spoke. Whenever possible, I have made extensive use of quotations so that people's own ideas and explanations could stand

together with mine. These interviews provided me with valuable insights as I sought to interpret the results of this experiment. They also provided a range of explanations for the strategies people adopted when making contributions, the cultural norms and values informed their decisions, and the interpretations they gave for overall patterns of cooperation in Kamchatka. They helped me identify aspects of life in Kamchatka that might explain the high level of contributions there, compared to other parts of the world. Through these interviews, I became acquainted with people I had barely known previously. Through them, I also gained new insights from people I thought I already knew well. In both instances, the games provided us with a shared experience that we could reflect upon, discuss, and debate. In fact, many of the insights that I gained about cooperation in Kamchatka through these interviews might not have emerged if I had not chosen to combine them with economic games.

One of the major challenges of qualitatively studying the cultural norms and values associated with cooperative behavior is that researchers may not share the same understandings of key concepts like "altruism," "reciprocity," "deception," and "free-riding" with the people who participate in their studies. Economic games provide a concrete event, with shared rules and structure that both researcher and participant can draw upon when seeking to understand one another. Moreover, economic games generate measures of cooperation that researchers can use to compare levels of cooperation in one place and point in time, with people inhabiting other cultural and historical trajectories. My understanding of people's ideas about cooperation in Kamchatka was significantly enhanced by the opportunity to refer back to the game when explaining my ideas and posing my questions, and the participants in my research made similar use of the games while trying to help me understand the important role that cooperation plays in defining their identities and ensuring that they survive and thrive.

Chapter 5

The Behavioral Ecology of Food-sharing in a Post-Soviet Commons

Introduction

The dialogues that I established with people who participated in public goods games indicate that cultural norms and values of altruism and reciprocity influenced levels of cooperation in the experimental context of the games. People often pointed to practices of food-sharing as prominent examples of these ethics in action, suggesting that their expectations about how others would play the game were formed in part by the prevalence of this naturally occurring form of cooperation. Food-sharing has long played an important role in building and maintaining relationships within and between families among indigenous peoples in Kamchatka. As Jochelson noted more than 100 years ago, "People in need of food may lay claim [...] to the game obtained by the successful hunter or fisherman. The social union among separate families is based this" (1908: 746). Although many of these practices were altered during Soviet era collectivization and cultural construction, recent ethnographic research throughout Siberia indicates that many of the cultural norms and values that underlie food-sharing acts remain important in rural villages. The importance of food-sharing to social networks of support in Kamchatka and throughout Siberia may help explain the uniquely high levels of cooperation observed in the experimental context of public goods games, but the precise connections to cooperation in naturally occurring contexts remain unclear.

In this chapter, I explore these connections between cooperation in experimental and naturally occurring contexts further by documenting and analyzing contemporary food-sharing practices in rural villages in northern Kamchatka. Beginning with a description of the practical and symbolic importance of traditional subsistence practices like herding, fishing, and foraging, I

review previous ethnographic research that has focused on the relationship between these practices and different post-Soviet collective institutions that continue to coordinate them. This research indicates that the interplay of individual and collective interests embodied in these collective institutions can be better understood by attending to the circulation of resources within the community, rather than simply focusing on resource production. Following research by Ziker (2002) and Crate (2006), I trace the social networks of support that are formed and maintained as subsistence foods circulate between households in Khailino and Vyvenka. My goal is to answer the following questions:

Q1: What factors explain the formation and maintenance of networks of food-sharing?
Q2: How do these networks reflect social relationships in the village?
Q3: What is the practical and symbolic importance of food-sharing in Kamchatka?

Research design

In order to answer these questions, I use a combination of qualitative and quantitative methods to collect data on patterns of food-sharing within the village. My approach to collecting and analyzing these data stems from the theories and empirical findings of human behavioral ecology, a research program that has generated insights on food-sharing practices that can be applied and examined throughout the world. First, I conducted a structured survey of household food production and re-distribution, generating measures of food-sharing that could be quantified and analyzed statistically. These interviews also provided me with opportunities to discuss specific instances of food-sharing as well as the cultural ideas, values, and norms that guide these behaviors in Kamchatka. These less-structured conversations provided qualitative data on food-sharing that dramatically improved my ability to understand the quantitative patterns of giving and receiving food generated using the survey. Second, I frequently accompanied people while they were engaged in fishing, herding, or gathering food in the tundra. Whenever possible, I

participated in these activities as well, which gave me valuable insights into the challenges they present, the skills people use to solve them, and the sense of joy people in Kamchatka find in the food that they produce. Finally, my involvement in people's daily lives often allowed me to witness acts of food-sharing firsthand. As a guest in people's homes, I was often invited to share meals. In some cases, I lived for extended periods with friends who treated me like a member of the family, eating meals with them and entertaining guests when they arrived. Even when I lived alone, several families who had come to know me well insisted that I eat meals with them instead of preparing food for myself. I was grateful for these opportunities, not only because my hosts' generosity allowed me to observe directly how they built and maintained food-sharing networks, but also because they spared me from subsisting on the "meals" that I was capable of producing for myself. My research synthesizes these experiences, gained through observing, participating in, and discussing these practices with people who rely upon them, with a quantitative analysis of the behavioral ecology of food-sharing in Kamchatka.

Subsistence in Post-Soviet Kamchatka

Fishing, herding, hunting, and gathering are traditional subsistence strategies for indigenous peoples in Kamchatka. Although these strategies have changed significantly since the time when Koryak, Chukchi, Even, and Itelmen peoples exclusively relied on them to subsist, they remain tremendously important in the post-Soviet era. For people living in Kamchatka's rural villages—including many non-indigenous Russians—the food produced through fishing, hunting, and gathering is a substantial part of their diet. Although most people are not directly involved in herding, reindeer meat is still sought because it is widely considered superior to imported frozen beef, pork, and chicken. Today, people also rely heavily on gardened foods like

potatoes, cabbage, onions, tomatoes, carrots, and other vegetables that they grow in small plots or greenhouses during the long days and short months of summer. Still, people need to purchase goods in the growing number of village stores, where staples like flour, sugar, oil, rice, pasta, and tea are found, alongside luxuries like candy, chocolate, cheese, butter, sausage, canned vegetables, fruit, juice, carbonated beverages, alcohol, and cigarettes. While there are few families who live without purchased goods, there are also few who rely entirely upon them. Almost everyone in the village is to some extent a food producer. This is in large part because of a bitter post-Soviet paradox facing people in rural Kamchatka. Prices in stores are very high—sometimes one or two times higher than Moscow, which was at this time one of the most expensive cities in the world—but wage labor is difficult to secure, with the number of employable adults far exceeding the number of full-time jobs in the village. As a result, contemporary subsistence strategies in Kamchatka are adapted to what is generally called a "mixed economy," with subsistence activities operating in tandem with wage labor.

Seasonal cycles

Contemporary subsistence strategies in Kamchatka are dramatically cyclical. As in other northern locales, seasonal changes in temperature, precipitation, and daylight create an annual rhythm of activities that are enabled by regularly fluctuating extremes. Summer is short but intense, with daylight beginning in the earliest hours of morning and extending late into the evening. Gardens and greenhouses flourish in the extended days of summer, while berries and mushrooms cover the tundra that surrounds the villages. But the most dramatic events are tied to the legendary migrations of salmon. Kamchatka's rivers and streams provide spawning grounds for all seven species of Pacific salmon, including chinook, sockeye, pink, chum, silver, and masu

salmon, as well as steelhead/rainbow trout. Among these, pink salmon predominate in the Oliutorskii District, but sockeye, chum, and silver salmon are also caught in significant numbers. Chinook salmon are relatively rare, but their gargantuan size and good taste make them highly desired. In the summer, rural villages in Kamchatka often resemble ghost towns. When salmon are migrating through in large numbers, people spend most of their time living in seasonal camps scattered along the nearby rivers, sometimes staying there for weeks at a time. Salmon are caught using nets set off the shore or cast downstream and pulled tight like a purse, with different techniques utilized depending on the speed of the current and the width and depth of the water. People process salmon along the shore, and the fish are eaten fresh or salted, smoked, or dried for long-term storage. Recently, fishers have begun to prepare salmon caviar, consuming limited amounts and selling the rest to local merchants or exporting to larger cities to generate much needed income. Between tending the potatoes grown in gardens and catching salmon in rivers, people work long hours during these few summer months to produce a disproportionately large amount of the food that will feed them for the entire year.

Salmon runs continue into the fall, but some people also hunt frequently during this season. Fall migrations of birds—including several species of geese, ducks, eiders, and swans—provide fresh meat. In coastal villages, seals are occasionally hunted during the fall as well. Like the passing birds, fall in Kamchatka arrives with a flourish of color and activity but disappears suddenly, giving way to a long winter. Although the cold and snow appear to constrict daily activity, with people drawing themselves into the village, winter is also a time for travel. During summer, travel between remote villages usually requires accessing complicated modes of transportation, such as helicopters, freight ships, or all-terrain tanks called *vezdekhody* (sing. *vezdekhod*). In winter, however, people are able to use snowmobiles that are owned by or

accessible to most households to travel quickly from one village to the next. Travel is also enabled by the relatively large amount of free time that accompanies winter, when the primary subsistence activities are trapping snowshoe hare, hunting for ptarmigan, or ice fishing for smelt, grayling, char, burbot, and other fish that remain in the rivers. These sources of food are important additions to many people's diet, but few rely upon them to the extent that they do the salmon and potatoes produced during the summer.

Migrating birds signal winter's end as well as its beginning. People anticipate their arrival and hunters make daily treks to intercept them when they are careless enough to pass near the village. Some hunters occasionally take longer excursions, venturing for a few days or weeks further from the village, where birds are usually encountered in greater numbers as they make their way toward the numerous lakes and wetlands dotting the interior of northern Kamchatka. Gulls and other shore birds that nest in rocky cliffs along the coast also provide fresh eggs in large numbers during several weeks in spring. While snow still unevenly covers the landscape, days begin to warm and melt the ice in rivers and lakes. The ground remains frozen for a few weeks longer, resulting in a layer of mud and puddles in the village and damp tundra beyond. For a few weeks, travel between villages over land becomes difficult and even dangerous because of the soft land and swollen rivers. But people are busy in the villages anyway, rushing to aerate the thawed soil in their gardens, repair greenhouses, transport supplies to fishing camps, and prepare once again for summer.

Symbolic significance of subsistence

Seasonal cycles dictate the practical aspects of people's lives in rural Kamchatka, but they are imbued with deep symbolic significance as well. The access that people have to the

environments where plants and animals thrive is one of their most cherished possessions, and it is one that they share with each other. Despite the pressures of privatization, the land that surrounds rural villages in the northern part of Kamchatka remains owned almost entirely by the Russian government. Regulations on hunting and fishing exist, but are difficult to enforce on the local level, meaning that subsistence resources are effectively accessible to all members of the community. Though bureaucracy occasionally intrudes, particularly when it comes to licensing firearms and granting fishing quotas, local residents and authorities largely determine for themselves who uses subsistence resources and in what quantities. For this reason, I describe the parts of Kamchatka where I worked as a kind of "post-Soviet commons."

Community members share this post-Soviet commons by harvesting resources together, working with one another in the garden, processing fish along the river, and venturing out into the tundra to hunt or forage. They also share an identity with others in the community who practice these activities, indigenous and Russian alike, even if they do not actually engage in them together. Whether people rely heavily on the foods these activities produce or selectively supplement their diet with them, a common rhythm emerges through the practices of fishing, hunting, herding, and gathering. People in rural Kamchatka clearly define their individual identities and their relationships with others according to the physical and psychological rhythms these practices establish.

By participating in these activities myself, I not only gained an appreciation for the skills and knowledge they entail, I also glimpsed the sense of belonging they give to an individual as a part of the community. Walking down the summer streets of a village in my high rubber boots, people could see that I had been on the river and asked me how the salmon were running. Riding into town on a snowmobile and dismounting with stiff joints and a bag of frozen fish, people

wanted me to tell them where we had been and what we had caught. In these moments, I felt strong connections with the community. I found myself in conversations with people who did not know me well and had previously shown little interest in me. The longer I spent in rural villages, the more I came to appreciate how this unique sense of belonging makes these spaces into places worth living for people in Kamchatka.

One day I was sitting with my friend Nastia in her kitchen, talking about a recent trip she had made with her father, brother, and husband to hunt geese far outside the village. Nastia is my age, in her late twenties at the time, and had lived for several years in the regional capital, Petropavlovsk-Kamchatskii, while completing her university degree in legal studies. Although she could have attended professional school to become a lawyer or gone directly to work in other areas of law enforcement, she chose to return to Vyvenka to start a family in the village where she was born and raised.

The decision Nastia faced is one that confronts most young people from Kamchatka's rural villages: to relocate to a larger city, where economic opportunities are more plentiful, or remain in the village, surrounded by close friends and relatives. Nastia told me that once she had completed her study, she felt she couldn't remain in the city. When I asked her to explain why, she pointed to her recent trip hunting geese as an example. Not only would such a trip be more difficult to plan and execute if she were living in the city, but she wouldn't have been able to share the experience with her father and brother. She told me about the beautiful places they visited and how far away she felt from the village, traveling over 100 km from the eastern shore of Kamchatka, where Vyvenka is located, to the western shore, along the Sea of Okhotsk. As she spoke, I recalled a similar trip I recently made with her father, brother, and husband. The day we left was her father's birthday, and since Oleg Pavlovich was not inclined to celebrate

with a party and visitors as others might, he decided to take us to a place called Gecko Bay, known simply to many locals as "the Lagoon."

We traveled the 20 km down the coastline from Vyvenka, around the point, and into a large bay, where several rivers emptied into the ocean. As we skipped over ocean swells, drawing closer to the Lagoon, I saw a large cabin with several smaller adjacent buildings. Oleg explained that these buildings served as a winter base for fishers who worked for OOO Vyvenskoe, the village's privatized collective farm, harvesting cod from underneath the ice. After stopping at the cabin to visit with some other men who were staying there, we spent the rest of the afternoon and most of the next day hunting eider in the bay, gathering gull eggs from atop the rocky cliffs along the shore, fishing for char, eating some of our bounty, and relaxing in the warm sun of a spring day. When we finished, Nastia's husband and brother drove the boat back to Vyvenka, while Oleg Pavlovich and I walked back along the shoreline. The trip back took several hours, and I was tired by the time we returned. Oleg Pavlovich said that he hadn't walked back from the Lagoon in several years, and he seemed pleased I had agreed to walk with him. While we were walking, he told me stories about how he and others used to walk back and forth between Vyvenka and the Lagoon in the same day. Some stories even took on a mythical character. Oleg Pavlovich told me about a man who walked all the way from the Lagoon to Vyvenka, realized he had forgotten his knife, walked back to retrieve it, and then promptly returned home to Vyvenka in the same day. Another man used to walk to the Lagoon in the morning to set his fishing net, return to Vyvenka to wait in the comfort of his home, then walk back and forth between the village and Lagoon, checking his net each time, until the end of the day, when he finally pulled in his net and walked home. Our journey was not so impressive, but Oleg still told everyone who visited the house in the next few days about our walk from the

Lagoon. People seemed impressed, and I was proud. The experience not only made me feel closer to Oleg, but also to others in the community who could appreciate the trip we made because they had done it themselves.

This sense of community emerges as a result of engaging in subsistence activities while sharing access to common resources. These experiences are absent in larger cities. Nastia explained that in the city a person is always surrounded by strangers. One can even live for years in the same apartment building and never really get to know his or her neighbors, though they climb the same stairs and wait at the same bus stops each day. This was a common complaint I heard from other people when they explained why they preferred to live in the village. Nastia added that in Vyvenka, she is surrounded by people she knows, people she has grown up with and feels close to. These relationships provide a sense of social security that for many people outweighs the economic uncertainty that permeates life in rural villages (King 2003a). Although the difficulty of securing reliable and rewarding wage labor is ever present, the absence of this specific kind of economic opportunity paradoxically enables other opportunities. People in Kamchatka's rural villages are able to produce much of their own food for some of the same reasons they are unable to purchase much of their food. Nastia had recently secured a job in the village, working in one of the local stores, but she often complained that her job prevented her from accompanying her family and friends on their trips to the fishing camps as often as she would like. Working in the store was simple and boring. She had to stay there all day running the register, when she could be out on the river, active in the open air.

Though she was still able to go hunting and fishing frequently, she made the decision to work because she needed money to support her husband and two children. Money was necessary for purchasing sugar, flour, rice, tea, and other goods, as well as the gasoline that fueled the

snowmobiles and boats essential to hunting and fishing. But even this small compromise was sometimes difficult to stomach. Sitting with Nastia and listening to her explain how she weighed the relative benefits of economic security, access to an environment that supports subsistence activities, and proximity to friends and family, I was able to appreciate the role that herding, fishing, and foraging play in forming the identities of people in places like Vyvenka. Not only had she chosen not to pursue a job in the city, she was also constantly weighing the pros and cons of part-time work in the village against the enjoyment she took in producing her own food. Coming from an entirely different place and imagining a different life for myself, I don't think I could have made the same decisions that she did, but now I felt I was beginning to better understand those decisions.

On the day after Oleg Pavlovich's birthday, Nastia's brother and husband returned to Vyvenka from the Lagoon with three eiders, about 10 char, and close to 150 gull eggs, carefully placed in plastic baskets that were lined with dried grass to protect them from the jostling caused by the ocean waves. When Oleg Pavlovich and I arrived from our walk, we found a full table awaiting us. Nastia's mom Lidia had prepared a soup with one of the eiders, which we happily ate along with hard-boiled gull eggs, bread, butter, and tea. I remember feeling exhausted but deeply satisfied. At the time, I did not ask what portion of these foods was shared with other households, but I later heard from some of their relatives and friends how much they enjoyed the eggs we gathered. The experience of traveling to the Lagoon gave me a brief look at both the practical and symbolic importance of subsistence practices, one that allowed me to feel this importance for myself.

Food-sharing

In the months that followed, I spent many days with different families in Vyvenka and Khailino, catching and processing fish along the rivers, gathering berries and mushrooms in the tundra, and engaging in other activities related to the mixed economy in Kamchatka's rural villages. From my many conversations with people about these subsistence strategies, I knew the food they produced was not simply consumed within the household, but circulated throughout the community. When I asked people to explain why they shared food and with whom, they usually responded that they shared with people who were in need. In some cases, being in need meant a person was not able to feed their family with the amount of food that they could produce or buy themselves. Their inability might stem from old age, the demands of being a single parent, insufficient access to necessary equipment and transportation, a lack of skills and experience, injury, illness, simple bad luck, or a combination of these. Sometimes people work hard during the summer to prepare enough salted salmon and potatoes to last until the next year, but then their barrel of fish spoils or their root cellar freezes and their potatoes rot. In such circumstances, a person can expect to receive salmon or vegetables from a friend, relative, neighbor, or acquaintance to get them through to the next season.

However, need might also mean that a person simply lacks something that another could give them, even if the gift is not strictly a matter of necessity. For example, a person who has just spent the day picking cloudberries in the tundra might know her neighbor likes cloudberries, but has not had the opportunity to pick some for herself because she is busy with work or other obligations. In this case, a few liters of cloudberries are welcomed gifts that express the bond existing between neighbors. Or perhaps more commonly, such gifts are taken when visiting friends and relatives in neighboring villages, regional centers, or in other cities throughout

Russia. People in rural villages are well attuned to the foods they can offer to people who might not otherwise be able to enjoy them. For example, villages along the ocean have easier access to smelt in winter than villages further inland, so a visitor from the coast might take care to bring plenty of smelt while visiting friends or relatives in a village located deeper in the tundra. Likewise, cloudberries primarily grow in the northern part of the peninsula, so people in Petropavlovsk-Kamchatskii cannot pick cloudberries for themselves. Thus, people in the city are very appreciative of receiving cloudberries from visitors arriving from northern villages for a vacation, business, or medical treatment.

I noticed this practice of traveling with relatively exotic gifts by watching friends who traveled with me from village to village. As I traveled more, people engaged me as courier to help maintain their own food-sharing networks between villages. On one occasion when I was in Vyvenka preparing for a trip to Moscow, my friends loaded my bags with cloudberry jam, frozen lingonberries, dried smelt, and smoked salmon. I was instructed to give the lingonberries to their friend in Petropavlovsk-Kamchatskii, who would meet me when I arrived at the airport. Then they told me to give the cloudberry jam, smelt, and smoked salmon to the friends I would be staying with in Moscow. Surely my friends would not be able to purchase these items in the city's stores, they explained. Doing as they said, I not only impressed my friends in Moscow, but I made a new acquaintance in Petropavlovsk-Kamchatskii, who met me under the pleasant circumstances of receiving an unexpected and much appreciated gift from friends that he had not seen in some time. As I traveled from place to place, my own growing network of friends and acquaintances began to graft on to existing networks of social support, providing me with a welcome sense of belonging and security while living far from home.

Whether out of novelty or true necessity, both kinds of need were frequently mentioned as explanations for the underlying sentiments that motivate food-sharing practices in Kamchatka. These practices are offered by people in the village as explanations for how individuals are able to survive in the post-Soviet environment of economic uncertainty and insecurity. They are also used by people to define their identities in relation to other parts of Kamchatka or other regions of Russia more generally. When I asked people to explain why living in the village was preferable to living in the city, food-sharing practices were prominent in their responses. Their responses echoed Nastia's thoughts on why she had chosen to sacrifice the economic security of the city for the more expansive networks of social support in the village. People in the village help one another when they are in need, and many insist that this help is given without expectation of repayment, regardless of whether or not the person is a close relative, friend, or even a distant acquaintance. I was even told by one young couple whose salmon had recently spoiled that their friends and relatives quickly offered them salmon, before the couple even had the chance to ask for help. According this couple and many other people I spoke with, one should always be alert for others in need and take the initiative to offer them help so that they are not forced to ask for it.

Yet, I occasionally encountered people who, for one reason or another, seemed to exist outside these networks of support. One woman in Vyvenka, Daria, shared with me her difficulties providing for herself and her young daughter. Though she had a part time job as a custodian at the school, she did not earn enough money to purchase all of her food. She kept a garden to supplement their diet, and was able to catch and process a small amount of salmon each summer, but it was clear in her tone and expression that she had difficulties keeping up. She explained that she originally moved from a village further north because her husband was

from Vyvenka. Sadly, he died shortly thereafter, leaving her to raise their daughter on her own. She said that she was close to her husband's aunt, and visited with her regularly, but for reasons that she did not explain, she had made few other friends in the village. My conversation with her reinforced for me the importance that personal relationships have for people in Kamchatka's rural villages. It also reminded me that not all people shared Nastia's extensive network of support.

Before exploring these forms of cooperation in Kamchatka further, I will briefly discuss previous ethnographic investigations that touch upon aspects of food-sharing and subsistence activities in other parts of Siberia. While food-sharing networks have rarely been the focus of previous research in Siberia (Ziker 2002 and Crate 2006 are notable exceptions), there are compelling connections between the circulation of subsistence resources and the broader contexts of post-Soviet collective institutions. Using the theoretical framework of human behavioral ecology, I develop some basic predictions that are meant to capture important factors influencing food-sharing practices in a variety of cross-cultural contexts. Finally, I examine these predictions using data on patterns of food-sharing in Kamchatka.

Food-sharing in Siberia

Food-sharing practices are often mentioned in ethnographic studies of post-Soviet Siberia within the broader context of traditional subsistence activities. For western European and American researchers entering Russia during or shortly after the collapse of the Soviet Union, examinations of hunting, reindeer herding, fishing, and foraging inevitably focused on collective institutions. For these ethnographers, collective institutions were tangible representations of some of the most dramatic organizational and ideological transformations in the economic,

political, social, and spiritual lives of indigenous peoples in Siberia. With the beginning of the Soviet era, people previously accustomed to autonomy in establishing diverse patterns of migration and settlement were compelled and coerced into permanent residence in villages, which then became spaces for the cultural construction of indigeneity and modernity. In each village, state (*sovkhoz*) or collective (*kolkhoz*) farms were formed with the dual purposes of incorporating traditional subsistence activities into the state economy and developing these modes of production with the techniques and ideologies of industrialization.

Then, after nearly 50 years of adjustment to these profound changes, the system underlying Soviet collectives began to collapse, signaling a new era of equally dramatic and traumatic change. In some places, activities like reindeer herding—which remained a powerful conduit of traditional culture but had also now become a manifestation of Soviet modernity—collapsed entirely. Herds that had once numbered in the tens of thousands were reduced to just hundreds of reindeer. The few reindeer that remained were often completely liquidated. Herders who had been among the most respected and well-compensated members of their communities during the Soviet era found themselves either unemployed or working under difficult and dangerous conditions with little to no compensation. Other activities like hunting and fishing—that had been limited to a handful of specialist practitioners during the Soviet era—began to re-emerge as essential for survival. When food supplies in stores became unreliable, salary payments were made irregularly, and unemployment increased, many people in remote villages found themselves in the predicament of having to produce the majority of their own food. Those who had continued to practice these activities professionally or recreationally during the Soviet era stepped up their production, but many others struggled to re-acquire the necessary equipment, skills, and experience after being previously encouraged to abandon them. Although

Soviet authorities had labored for decades to establish an unprecedented uniformity among the residential villages and collective institutions scattered throughout Siberia, the chaotic conditions of the 1990s began to produce diverse individual and institutional strategies that varied from one region to the next.

Despite this diversity in strategies, collective institutions remain conspicuous in the lives of people in Siberian villages. In some places, collectives continue to take on new legal identities and organizational ideologies, to varying degrees maintaining or altering property relations with the village. In other places, all that is left are skeleton-like buildings, rusting machinery, and the memories of people who once animated them. Yet, even these collective remnants continue to be incorporated into people's perspectives on the present and future. Thus, it is not difficult to understand why collectives have figured so prominently in post-Soviet Siberian ethnography. Humphrey's (1983) groundbreaking ethnography of Soviet collectives in the central Siberian region Buryatia emphasized the fundamental role of the sovkhoz and kolkhoz as "total social institutions," responsible for providing the vast majority of employment, housing, and other public goods on the local level. Her subsequent follow-up study of the same communities captured their struggle to sustain this ideal, despite the innumerable obstacles that appeared in the early years of the post-Soviet era (Humphrey 1998). Subsequently, many ethnographers have skillfully documented and explored the relationship between traditional subsistence activities and collective institutions in the post-Soviet era (Anderson 2000; Crate 2006; Fondahl 1997; Grant 1996; Habeck 2005; Kerttula 2000; Stammler 2005a; Ventsel 2005; Vladimirova 2006; Ziker 2002). While these studies have made essential contributions to our understanding of the contemporary practices of reindeer herding, hunting, fishing, and foraging in Siberia, they have, with a few important exceptions, focused primarily on the practical and

symbolic dimensions of production, devoting less attention to how the resources these activities generate circulate within the community.

Ideologies of production & re-distribution

One of the more striking interventions in traditional subsistence activities during the process of collectivization was the state's seizure of the productive process and the subsequent re-distribution of its products. Whereas reindeer herders previously owned and managed their own herds, trading or giving the meat and furs that they produced to whomever they chose, collectivization transformed herders into wage employees of the state, divesting them of the authority to determine the distribution of the products that their collective labor produced. The same was true for fishers and hunters, whose efforts were added to the collective's productive portfolio, along with agricultural activities imported from European Russia. A vertical system of authority was established, whereby the state sought to plan the levels of production and dictate the distribution of consumption. Yet, in many places herders refused to give up the personal ownership of reindeer entirely, maintaining limited numbers of private reindeer within the collective herd. Ethnographers have seized upon these points of tension within the Soviet system of property relations to illustrate some of the dynamics that emerged within post-Soviet collective institutions (Konstantinov 2002, 2004; Vladimirova 2006). Moreover, during the Soviet era reindeer herders were frequently granted privileged access to scarce commodities in village stores (Kerttula 2000), perhaps reflecting a tacit recognition of their authority to influence the redistribution of products within their communities. These privileges were similar to those granted formally to or seized informally by sovkhoz and kolkhoz directors, party members, and other individuals occupying positions of influence within the village. This system encouraged

the growth of a "second economy," where individuals used their connections and "pull" (in Russian: *blat*) to acquire goods for themselves or re-distribute resources according to their personal interests and obligations.

Verdery (1996) argues that this second economy operated on a horizontal plane in communities throughout the Soviet Union, circulating goods within an individual's social network in opposition to the vertical flow of goods and services through official channels, from state authorities to village residents. Vladimirova's (2006) ethnography of post-Soviet collectives in the northwestern Siberian region of Murmansk illustrates how these two channels for circulating goods and services—the vertical and the horizontal—are now inextricable. Connecting her analysis of the cultural norms and values of labor in these Siberian collectives to research on informal economies of influence and "pull" in Russia more broadly (Ledeneva 1999), Vladimirova builds on earlier work by Konstantinov (1997) that described the relationship between collective and individual economic strategies as both mutually sustaining and undermining. Individuals support collective institutions as a means of furthering their own private endeavors because the collective provides them with access to essential equipment, resources, and authority while shielding them from the risks inherent for private enterprises in the uncertain post-Soviet legal and economic environment (Konstantinov 2002, 2004). Konstantinov's decision to call this "private within the collective" ideology "sovkhoism" reflects the extent to which ethnographers working directly with herders, transportation technicians, accountants, and administrators see these strategies as engrained within the Soviet sovkhoz and kolkhoz system itself. Yet, ethnographers also see in this system of "sovkhoism" the influence of pre-Soviet cultural norms and values held by the herders themselves, suggesting that the inherently collective nature of traditional subsistence activities may have contributed to the

growth of this ideology during the Soviet era and its continued viability today (Habeck 2005: 126; Vladimirova 2006: 98).

As important as this research has been in revealing dynamics between individuals and institutions, analysis of this interplay between the vertical and horizontal circulation of resources has primarily been focused on economic production within collectives, rather than the subsequent re-distribution of the resources that these activities generate within the community. Focusing on the re-distribution of resources within the community is important because the benefits that individuals accumulate and allocate among friends, relatives, and acquaintances are ostensibly a crucial factor underlying the stability of both formal and informal economies in post-Soviet Siberia. Indeed, as Vladimirova notes, studies of Soviet and post-Soviet institutions suggest that the official Soviet ideology of subsuming individual interests within collective interests blurs the boundaries between the two, making it difficult to determine whether individuals are acting in a given moment to further their own interests or those of the collective (2006: 100). As many researchers have described, personal relationships and connections were used extensively during the Soviet era by a variety of actors to overcome challenges and limitations that the state economy unintentionally imposed on them as they pursued the collective "plan" (Verdery 1996). However, focusing on the internal dynamics of collective institutions reveals the means but not necessarily the ends of individual and collective interests. More so than collective institutions, social networks of re-distribution reflect the patterns of social support and security that sustain people living in rural villages. Thus, these social networks of re-distribution should be examined in tandem with the productive activities and ideologies of post-Soviet collectives in order to generate a more complete picture of life in Siberian villages.

Subsistence & social networks of support

Several ethnographies that focus on productive activities in collective institutions provide compelling glimpses into the circulation of goods and services through social networks within the village. Habeck briefly discusses how social networks between households in the Komi Republic of northern Siberia play an important role in determining an individual's access to subsistence resources and the technology needed to produce them (2005: 131-132). Working further east in the Republic of Sakha, Ventsel provides an extensive discussion of how social networks of support are maintained through reciprocity and trust, cultural norms and values that have attained renewed prominence amid the economic hardships of the post-Soviet era (2005: 171). Vladimirova also includes several accounts of how social networks facilitate access to reindeer meat, transportation, and other limited resources in the Murmansk Region (2006: 186-188). This information about social networks of support consists primarily of descriptions of broad tendencies supported by illustrative anecdotes, perhaps because these ethnographies are focused primarily on extensively documenting and analyzing productive activities.

The increased reliance on traditional subsistence activities to provide food for people in rural communities following the collapse of the Soviet state economy has been the focus of several important ethnographic studies in Siberia. In the Taimyr region of central Siberia, Ziker (2002) has shown how Dolgan and Nganasan people have utilized their skills as hunters, fishers, and foragers to produce for themselves amid the collapse of a system that had once promised to provide for them. He describes contemporary subsistence activities in great detail, demonstrating how people access natural resources through a mix of formal channels tied to post-Soviet collective institutions and informal channels contingent on cultural norms and values

tailored to a local commons. While Ziker explores the relationships between these subsistence activities and the collective institutions that remained in the villages he studied (Ziker 2003a), his focus is on the social relationships that are formed and maintained by individuals engaged in these activities (Ziker 2003b; Ziker & Schnegg 2005). He suggests that people in the Taimyr region see food-sharing as an essential practice that maintains both the human-animal relationships underlying successful subsistence strategies and the interpersonal relationships that people rely upon to consistently provide for themselves. A person who does not share food with others not only risks exclusion from networks of social support within the village, but also risks offending the animals themselves, who may not choose to offer themselves again as prey (Ziker 2002: 48). Ziker stresses that these ethics are active outside the realm of economic exchange, and that reliance upon them has increased in response to the dramatic collapse of the Soviet economy and the traumatic transition to new markets (2002: 139).

Crate (2006) documents a similar response to changing economic environments in the post-Soviet era among Sakha cattle herders in the Sakha Republic of northeastern Siberia. Again, reliance on household production using traditional subsistence activities—including raising cattle, gardening, and foraging—increased dramatically with the collapse of collective institutions during privatization. Having worked extensively with the Sakha from the early 1990s onward, Crate has been able to document this shift in detail, noting that only 10% of the households she surveyed kept cattle in 1992, whereas 55% were doing so in 2000 (2006: 140). Like Ziker, Crate focused on understanding how these subsistence strategies sustained social networks of support within villages. She used structured surveys to document the circulation of labor and goods between households, revealing patterns of interdependence that existed primarily among kin. Depending on the resource in question, between 30-80% of Sakha

households reported sharing food with other households (Crate 2006: 127) and 57% of households said that it would be difficult or impossible to survive without kin (Crate 2006: 124). Although relationships among kin had been suppressed and partially dismantled during the Soviet era, Crate argues that their resurgence during the post-Soviet era has been the key to the resilience of Sakha communities (2006: 100). A similar trend has been reported in other regions throughout Siberia (Humphrey 1989: 280-283; Ventsel 2005: 153).

These studies suggest that examining re-distribution in the context of traditional subsistence activities like herding, fishing, and foraging may help illuminate connections between social networks and collective institutions. Each of these activities were transformed by the processes of collectivization and privatization, so contemporary practices embody a variety of cultural norms, values, and institutional arrangements drawn from both Soviet and pre-Soviet pasts. Yet, the respective roles of these activities in post-Soviet collective institutions vary considerably from region to region, reflecting local factors such as market access, ecology, land rights, and political authority, among others. In some places, the intertwined vertical and horizontal channels of the Soviet system remain largely intact, albeit modified in important ways to reflect the new conditions of the post-Soviet era. In others, new vertical connections have been constructed that by-pass regional and national governments in favor of private and non-governmental enterprises that operate within Russia and also internationally. While these vertical channels are available individually or in tandem in many places, there are still villages whose ability to tap into the flow of resources, labor, and authority from the world beyond has been severely limited or collapsed entirely. It is in these places where the reliance on horizontal networks is most evident. Still, the ethnographies of Ziker, Crate, and others suggest that

horizontal channels are likely to play a key role in the circulation of goods and services through social networks, even in places where post-Soviet collectives remain.

Toward an ethnography of interests

An integrated examination of the production and re-distribution of resources tied to traditional subsistence activities can be achieved by focusing on the interplay between individual and collective interests. Here, I define interests broadly to include the various biological, economic, environmental, political, social, and spiritual benefits that motivate the actions of individuals and shape institutions. Such interests underlie ethnographic analysis of both collective institutions and social networks of support. Some ethnographers have attempted to understand how the dynamic tension between individual and collective interests influences the diversity in post-Soviet collective institutions in contemporary Siberia (Konstantinov 2002, 2004; Stammler & Ventsel 2003; Vladimirova 2006; Ziker 2003a). However, few researchers have sought to understand the origins of this institutional diversity by tracing the flow of benefits through social networks of support within the community. In other words, ethnographers have acknowledged the important role that collective institutions play in the lives of people in Siberian villages and generated richly detailed accounts of their cultural, economic, and political dimensions, but they have devoted less attention to how these dimensions emerge from the interests of individuals who utilize them to cultivate and maintain social networks of support.

Ethnographic research that focuses on social networks of support has shown that throughout Siberia the circulation of resources within communities reflects complex interdependencies that are deeply rooted in the pre-Soviet past and influenced by Soviet collectivization and cultural construction. Thus, identifying and assessing individual interests is

not a straightforward process of moving from individual to individual or household to household. Rather, individual interests are embedded in social networks that are unique to each individual but overlap substantially, encompassing the entire community. Collective institutions exist on a plane above, in some instances supporting the growth of these social networks and benefiting from them and in other instances impeding them or being undermined by them. I suggest that by documenting existing social networks and attempting to understand how individual and collective interests sustain them, ethnographers may be able to contribute further to the growing body of literature on post-Soviet Siberia.

Behavioral Ecology of Food-sharing

There are many ways to define "interests." When examining the factors that motivate individual and collective actions, one can focus on economic costs and benefits, political power, access to environmental resources, social status and prestige, spiritual solidarity, or any number of ways that actors become interested in the outcome of events as they unfold. However, defining interests biologically has been far less common within the social sciences. Yet, in the natural sciences, the field of behavioral ecology has developed a unique and insightful approach to studying animal behavior that grounds interests in the evolutionary currency of reproductive success (Krebs & Davies 1997). Anthropologists inspired by behavioral ecology have recently begun to examine human behavior using similar theoretical and methodological approaches (Borgerhoff Mulder 1991, 2004; Chagnon & Irons 1979; Cronk 1991; Winterhalder & Smith 2000; Winterhalder 2002). They have been joined by psychologists, economists, political scientists, philosophers, and researchers from other disciplines who share the view that evolutionary theory can be used to understand the behavior of our own species as well as many

others (Buss 2005; Dunbar & Barrett 2007a; Laland & Brown 2002). While this research is variously identified as "human behavioral ecology," "evolutionary psychology," "sociobiology," "gene-culture co-evolution," "dual inheritance," "niche construction," and other labels, the distinctions between these approaches are becoming blurred (Dunbar & Barrett 2007b). More and more, researchers are using methodologies that are usually considered the provenance of other disciplines, and theoretical disagreements among researchers who identify with these different approaches are relatively few.

I situate my approach to studying food-sharing networks in Kamchatka within the field of human behavioral ecology (HBE). Researchers that contribute to HBE are often anthropologists who use evolutionary theory to guide their examinations of human behavior in natural contexts, which often correspond to the settings that anthropologists refer to as "the field," both in the traditional sense of the term and the many ways it is now defined. HBE researchers are usually interested in the flexibility and adaptability of human behavior and culture to diverse and changing ecological contexts broadly construed. Thus, HBE is a particularly promising approach for studying behaviors that are found throughout the world, yet vary in important ways that are tied to the particulars of people and place. Food-sharing is clearly one such behavior. Food is shared in some form almost everywhere, yet the details of how and why food is shared are far from identical across cultures. The HBE approach begins with a general prediction that food-sharing behaviors are not random or idiosyncratic, nor can they be understood solely as the result of cultural influences. The HBE approach suggests that these similarities and differences constitute patterns that can be understood by taking the biological interests of individuals into account and exploring how individuals pursue these interests in various social and ecological contexts.

A number of evolutionary theories for understanding these patterns of food-sharing have been developed and tested, generating a body of literature that informs my research on Kamchatka. These theories are often derived from evolutionary theories of cooperation that apply in multiple contexts, including kin selection, reciprocal altruism, and costly signaling (Nowak 2006; Lehmann & Keller 2006; Gintis *et al.* 2001) but other theories have been developed specifically in the context of food-sharing, such as "tolerated theft," also known as "tolerated scrounging" (Blurton Jones 1984). Theories of kin selection suggest that genetic relatedness between individuals can affect patterns of cooperation by providing indirect benefits to the cooperative actor through inclusive fitness (Hamilton 1964). In the domain of food-sharing, kin selection has been used to explain preferences for producing and sharing food with close kin over more distant kin and non-kin (Allen-Arave *et al.* 2008; Betzig & Turke 1986; Flinn 1988; Hames 1987; Patton 2005; Smith 1991; Ziker & Schnegg 2005). Theories of reciprocal altruism (or direct reciprocity) predict that patterns of cooperation are influenced by a variety of factors that affect the contingency of cooperative behaviors between two individuals (Axelrod & Hamilton 1981; Trivers 1971). Research on food-sharing has supported theories of reciprocity by demonstrating contingency in the frequency and amount of food exchanged between individuals and households (Bliege Bird *et al.* 2002; Gurven 2006; Gurven *et al.* 2000a, 2000b; Hames 2000; Hames & McCabe 2007). While kin selection and reciprocal altruism are often more prominent in studies of food-sharing, tolerated theft and costly signaling may explain cooperative behaviors that these theories cannot. Tolerated theft can lead to cooperative food-sharing when resources hold greater value for some individuals than others, and the ability to control resources is minimal (Blurton Jones 1987; Winterhalder 1996a). These conditions are found in several studies of food-sharing, particularly in economic and social contexts that make

it difficult to store and control access to food, discouraging self-interested accumulation and consumption (Bliege Bird & Bird 1997; Tucker 2004). Alternatively, costly signaling theory suggests that patterns of cooperation can be maintained by the benefits accrued through reputation and prestige (Bliege Bird & Smith 2005; Cronk 2005; Gintis *et al*. 2001). Sharing food may in some contexts benefit an individual because the sacrifice of producing and giving away food is a costly, reliable signal of an individual's quality, which in turn makes that individual a more effective leader, a more trustworthy partner, or a more attractive mate (Bliege Bird *et al.* 2001; Smith & Bliege Bird 2000; Smith *et al.* 2003; Sosis 2000, 2001).

In a recent review of research in human behavioral ecology on food-sharing, Gurven (2004a: 546) suggests that three key variables—control, need, and contingency—can be used to predict which theories apply to a given context of food-sharing. First, researchers should assess the extent to which individuals have control over food resources. Theories of kin selection and reciprocal altruism assume that individuals decide whether or not to share food with others, so in order for these decisions to occur, individuals must have a sufficient amount of control over food resources. In contrast, theories of tolerated theft and costly signaling do not necessarily require a significant amount of resource control. Moreover, in the case of tolerated theft, the inability to control resources is necessary for the evolution of food-sharing. The second key variable identified by Gurven is need. Theories of tolerated scrounging hinge upon the relative need between givers and receivers of food, whereas theories of kin selection, reciprocal altruism, and costly signaling do not necessarily require food to flow from those with lesser need to those with greater need. In these other models, need may be one of several variables affecting the flow of resources, but its importance is exceeded by other variables, such as degree of relatedness (kin

selection), contingency (reciprocal altruism), or signals of individual quality (costly signaling)[1]. Finally, Gurven suggests that measuring the contingency between food exchanges can help determine whether a particular model applies to a given context of food-sharing. Only reciprocal altruism requires contingency in food-sharing exchanges between individuals, while the other models are either incompatible with contingency (tolerated theft) or compatible with varying degrees of contingency (kin selection, costly signaling). Although these variables do not lead to mutually exclusive assessments of each theory's applicability to food-sharing in all contexts, they do provide a starting point for deciding which predictions to test and the kind of data needed.

Many researchers agree that theories of kin selection, reciprocal altruism, tolerated theft, and costly signaling capture aspects of food-sharing that may overlap, suggesting that future theoretical and empirical work should seek to integrate multiple models and illustrate how they interact with one another (Allen-Arave *et al.* 2008; Gurven 2004a; Wiessner 2002). Roberts (2005) has taken a step in this direction by developing a model of cooperation through "interdependence," which he defines as the extent to which one individual's reproductive success depends on another individual's reproductive success. For Roberts, interdependence may follow from genetic relatedness, reliance on reciprocity, or other contexts in which individuals have a "stake" in each other's well-being (2005: 902). Though Roberts briefly suggests that interdependence may help explain patterns of food-sharing, his model has not been

---

[1] Although Gurven is justified in emphasizing that need is a more important variable in theories of tolerated scrounging than other theories of cooperation (2004a: 546), this variable may still be quite important in theories of kin selection, reciprocal altruism, and costly signaling. To the extent that need influences the calculation of costs and benefits for a cooperative act, it may influence whether or not these theories predict that an individual will cooperate. For example, in Wilkinson's (1984, 1990) classic study of reciprocal altruism in vampire bats, it appears that patterns of cooperation emerge in large part from the fact that vampire bats need to feed frequently to avoid starvation. Because individuals often fail to feed themselves on a day-to-day basis, they rely on other individuals to provide them with food that sustains them until they can find food themselves. If bats were able to survive longer between meals, their need to feed frequently would be reduced, perhaps limiting patterns of reciprocity. Need may influence the costs and benefits of kin selection and costly signaling in similar ways.

operationalized and tested to the extent that the theories it seeks to integrate have been. Still, the concept of interdependence is consistent with recent research that attempts to use multivariate statistical analysis to determine the relative importance of different theories of cooperation and explain how key variables in one model interact with those in other models (Allen-Arave *et al.* 2008).

The Behavioral Ecology of Food-sharing in Kamchatka

Considering these theories in relation to the contexts of food-sharing in Kamchatka, I suggest that theories of kin selection and reciprocity are most likely to apply. People in Kamchatka's rural villages certainly possess the technology and skills to store food, and cultural values of property allow individuals to control access to the food they produce. Cultural norms dictating that all individuals should share the food they produce with the entire community are not prevalent, as they are in other places where support for theories of tolerated theft has been found (Marlowe 2004). However, there are widely held and commonly expressed cultural values for sharing food with those in need, which means that tolerated theft cannot be eliminated from consideration entirely. Similarly, food-sharing in Kamchatka rarely occurs in the highly public contexts of community feasts, where support for theories of costly-signaling has often been found (Smith & Bliege Bird 2000; Smith *et al* 2003). Still, the fact that food-sharing is primarily a private act does not preclude the influence of reputations, as information about food-sharing acts circulates throughout the village. Although I rarely heard people discuss the reputations of other people in the village while talking about food-sharing, Kamchatka's rural villages are sufficiently small to allow the boundary between public and private actions to become blurred.

The contingency of food-sharing acts in Kamchatka is similarly complicated. In my conversations with people about the cultural values that inform decisions to give and receive food, I was often told that food should be given without expectation or obligation. A cursory analysis of these statements might lead one to conclude that contingency is absent in Kamchatka, but this view is too narrow. If everyone in the village attempts to embody the ideal of giving to those in need without consideration of past or future obligations, then the patterns of cooperation that emerge should be similar to those that would follow from an ethic of reciprocal contingency. In either case, a person should feel compelled to give to someone in need. The key difference is that an ethic of giving without contingency encourages people to expand their food-sharing networks to include those who remain unable to reciprocate or have not yet had the opportunity to do so. Relaxing the importance of contingency in this way may be particularly effective as a risk-reduction strategy in uncertain environments, where the needs and means of individuals can change quickly. Denying aid to a person in need because he or she had not reciprocated in the past or seemed unlikely to do so in the future might limit potential sources of support, should one's fortunes change. Though the people I spoke with rarely stated so explicitly, my impression is that failing to help someone who has helped you in the past—when you have the means to do so—is a serious transgression. Contingency of some kind is important.

Ziker has conducted research on food-sharing in contexts similar to Kamchatka in the Taimyr region of central Siberia (Ziker 2002, 2005; Ziker & Schnegg 2005). Examining meals shared by multiple households, Ziker found support for theories of kin selection and reciprocal altruism, though the significance of variables related to relative need between households possibly supports theories of tolerated theft as well (Ziker & Schnegg 2005: 204). In the villages where Ziker worked, kin selection appears to explain two extremes of reciprocity in meal-sharing

between households: very low degrees of reciprocity occur more often among close kin, as do very high degrees of reciprocity. These results support the more general preference to assist kin that Crate reports in the Sakha region of Northeast Siberia (2006). Both Ziker and Crate emphasize the central role that cultural norms and values of cooperation play in forming patterns of food-sharing. Ziker's research builds on these qualitative observations and quantitative data by using the theoretical and methodological perspectives of human behavioral ecology to connect these ethnographic data to evolutionary theories of cooperation. My goal in studying food-sharing in Kamchatka was to follow a similar approach. I focused my investigation on testing theories of kin selection and reciprocal altruism, despite the fact that tolerated theft and costly signaling may also apply to patterns of food-sharing in Kamchatka. This decision is based on the research by Ziker and Crate, as well as my own assessment of the relative importance of control, need, and contingency in the villages where I worked. Using a structured survey, I collected data on food-sharing in two contexts: (1) the production and re-distribution of four important subsistence foods between households and (2) the act of sharing meals or tea with individuals from other households.

Predictions

Based on previous research on food-sharing in human behavioral ecology, I developed the following four predictions:

P1: Subsistence foods will be shared more frequently and in greater amounts among kin than among non-related individuals.

P2: Subsistence foods will be shared more frequently and in greater amounts in reciprocal relationships than in non-reciprocal relationships.

P3: Meal and tea-sharing will occur more frequently among kin than among non-related individuals.

P4: Meal and tea-sharing will occur more frequently in reciprocal relationships than in non-reciprocal relationships.

Before analyzing data on food-sharing in Kamchatka to test these predictions, I will describe the methods I used to collect these data in greater detail and explain more precisely the unique insights that each provides for understanding food-sharing networks in Kamchatka.

Methods

Structured survey

Structured surveys were completed with 85 individuals—51 in Khailino and 34 in Vyvenka—representing a total of 80 households. Participants were recruited through prior contacts or mutual acquaintances, either by me or by a research assistant acting on my behalf. This method of sampling, known as "snow-ball sampling," is common in ethnographic research (Bernard 2002). Although the resulting sample of participants is not randomly drawn from the population, I am confident that the sample represents much of the variety of households found in each of the villages (see description of the sample below).

The survey included demographic questions about age, sex, ethnicity, marital status, household composition, children, education, and languages spoken, as well as economic questions about sources of income and membership in sovkhoz, kolkhoz, and obshchina collective institutions, both in the past and present. However, the majority of questions were focused on generating measures of food-sharing in several different contexts. First, questions about household production and re-distribution generated measures of food-sharing for key subsistence resources. I asked participants in the survey to recall the amounts of potatoes, salmon, reindeer, and berries that they had produced in the previous year. Then I asked how much of each resource they had given to or received from a member of another household during

that same period. Additional information about each food-sharing act was collected, including the kind of relationship that existed between the two actors (acquaintance, friend, kin, neighbor, or organization[2]) and whether or not the relationship was reciprocal. Relationship categories were defined by the participants themselves in response to the question: "Who is this person to you?" In the case of the "kin" category, participants sometimes used a specific kin term, like "grandmother" (*babushka*) or "son" (*syn*), but other people used the more general term "relative" (*rodstvennik*), which could include affinal relatives. For the purposes of the survey, a relationship was considered reciprocal if the participant reported that, at some point in the past, he or she had reciprocated a given food-sharing act in kind, by either giving or receiving any amount of the same resource.

Second, I asked each participant to tell me how many times he or she had (1) shared a meal or (2) shared tea with a person from another household in the two days prior to the interview. This relatively short recall period was chosen after conducting a number of practice surveys that used longer intervals up to seven days. People in Kamchatka visit one another to share a meal or tea very frequently. As a result, participants in practice surveys had difficulty recalling specific acts of meal or tea-sharing beyond a few days. When the recall time was limited to the two days before the interview, participants had far fewer difficulties recalling these food-sharing acts in sufficient detail. Responses to questions about meal and tea-sharing were recorded according to whether the participant had received a visitor in their home (given meal or tea) or had visited another household as a guest (received meal or tea). If a person gave or received both a meal and tea in the same sitting, the event was recorded as a meal. However, if small amounts of food, such as cookies, candy, or bread were served with tea, the event was

[2] In some cases, individuals reported giving food to organizations, such as the local school, the sovkhoz, or an obshchina. Although I recognize that these acts of sharing may differ from those between individuals, I include them in the analysis to reflect the full range of actors involved in the flow of food through the village.

recorded as tea. If a person reported being a host or guest, but no meal or tea-sharing was included in the visit, no food-sharing event was recorded. When participants reported multiple acts of meal or tea-sharing over the two days, each individual visitor or household host was recorded as a partner in a separate food-sharing act. As in the questions on household production and distribution, I asked participants to describe their relationship to each person with whom they shared a meal or tea, and also state whether or not this relationship was reciprocated at some point in the past.

Together, these questions about household production, re-distribution, and consumption generated measures of food-sharing that differ according to the resource being transferred. Resources like potatoes, salmon, reindeer, and berries were shared at some point during the course of the previous year. This sampling period has the benefit of increasing the number of food-sharing acts that are recorded by the survey, but because participants are asked to recall events that occurred weeks and months in the past, there are likely biases in omission or in the estimated amount of food transferred. Participants were encouraged to take their time to recall these food-sharing acts, but they were also told that they could respond "I don't know" if they could not recall specific amounts or individuals. Thus, there are occasionally data missing for some variables, which reflects the fact that an individual may have recalled giving an amount of food to someone, but could not remember to whom they had given or whether or not the act had been reciprocated in the past. In contrast, meal and tea-sharing events were sampled over a short time period, which decreases the amount of food-sharing acts that will be observed, but should increase the reliability of these data. Together, these measures provide a glimpse into both short-term and long-term patterns of food-sharing.

Questions were administered verbally in Russian, and responses were recorded in a notebook as they were given. I conducted most of the surveys over the course of several months in the winter, spring, and summer of 2008. During the summer of 2009, I conducted additional surveys with help from my research assistant, Anatolii Sorokin. Anatolii was then a graduate student at Kamchatka State University-Vitus Bering, who traveled with me while collecting material for his research on the Aliutor dialect of Koryak. The date of each survey and the identity of the researcher conducting it were recorded along with responses to the survey questions.

Description of the sample

Before presenting the data on food-sharing, I will describe the sample of participants in the survey. The average age of survey participants was about 42 years, ranging from 19 to 75 years. One clear bias in the sample worth noting is that the majority of participants (67%) are female. This bias is partly due to the fact that I sought to interview the primary decision-makers in the household, who were responsible for acquiring resources and distributing them within the household. Although both men and women often share this role, the primary decision-maker in many households was a single or widowed adult female who lived with her children and other family members. However, I also noticed that in households where a man and woman lived together, the woman was often more willing to participate in the survey. I cannot say for certain why. I never specified a preference to speak with men or women, either directly to survey participants or to my research assistants, so the female bias in my sample may reflect several undetermined factors.

When asked to describe their ethnicity, about 84% of participants identified themselves as indigenous (44% Koryak, 32.1% Chukchi, 8.3% Even). Slightly more than 2% identified as Russian or Ukrainian, while 13.1% described themselves as belonging to multiple ethnicities, usually including at least one of the indigenous ethnicities. The large percentage of indigenous participants in the survey reflects the prevalence of indigenous people in Khailino and Vyvenka as well as my efforts to generate a sample that was tailored to the focus of my research. The endangered status of languages associated with these indigenous identities is a prominent concern of both linguists and members of the communities themselves. All interviews were conducted in Russian, which is considered by the majority of people in these villages as a "first language." A little more than 51% of participants reported being able to speak "Koryak" (one of the coastal dialects often glossed as "*Nymylan*"), and 65% of these individuals said that they spoke Koryak "well" or "very well." Similarly, about 52% of participants said that they were able to speak "Chukchi" (a reindeer Koryak dialect, often called "*Chavchuven*"[3]), with 74% of these individuals responding that they could speak "well" or "very well." A smaller percentage of participants (about 12%) said that they could speak Even (90% "well" or "very well"), probably reflecting the relatively fewer numbers of people who identified themselves as Even in the sample. Participants also reported abilities in speaking several other languages, including German, French, and Japanese, but these languages were less prevalent than English, which about 10% of respondents said they could speak (11% of these speaking "well" or "very well"). Because the questions about language ability involved very basic self-assessments, these data

[3] The classification of indigenous languages and dialects in Kamchatka is complicated by the uncertain historical and linguistic connections among them. King (2005b) notes that linguists generally group all these languages and dialects together into the "Chukotko-Kamchatkan" language family, distinguishing four languages within this family (Chukchi, Alutor, Kerek, Koryak). However, as King explains, Russian linguists have frequently used the term "*Chavchuven*" to refer to languages spoken by Koryaks who practiced reindeer herding, while using the term "*Nymylan*" to refer to the various dialects spoken by Koryaks who lived in settlements along the coastlines and major rivers, relying primarily on salmon fishing and hunting.

should be taken as a rough indication of the status of indigenous languages in Khailino and Vyvenka. Generally speaking, people who reported that they spoke a language "well" felt they had the ability to understand fluent speakers (usually older people in the case of indigenous languages) and speak in limited ways themselves. People who reported that they spoke "very well" felt that they could understand, speak, and freely converse with fluent speakers, even if they still forgot important words or felt some difficulties in expressing themselves.

Participants reported living in households with an average size of about 4 people, though there was a wide range, from some who lived alone to others who lived with as many as 12 other people. The average number of children among participants was 2.2, with a range from 1 to 8 children. Partly reflecting the role of mandatory education during the Soviet era, the average number of school years that participants completed was 11.4 years. Currently, Russian citizens are required to complete 11 years of primary school, though older village residents grew up when the minimum number of years in the village schools was as low as 4 or 8 years. As a result, education levels ranged from a low of 8 years to a high of 20 years. For the purposes of the survey, years of secondary education, either in a university or a technical school, were simply added on top of the 11 years of primary school.

The data on past and present membership in collective institutions among survey participants reflects the changes brought on by the fall of the Soviet state economy and *perestroika*. Whereas 63% of participants reported working in a sovkhoz or kolkhoz in the past, only 13.6% currently work for one of these collective institutions. By contrast, only 3.6% of participants previously belonged to an obshchina, while nearly 26% now belong to one of these new collectives. Although many of the laws that established the obshchina as a formally recognized collective institution were drafted only in the late 1990s and early 2000s, there have

been obshchina collectives in the Oliutorskii Raion since the early 1990s. Some of these early obshchina collectives have been dissolved, explaining the small percentage of participants who belonged to an *obshchina* in the past but currently do not belong to one. Finally, it is important to note that a small percentage of people have belonged to both a sovkhoz or kolkhoz and an obshchina, either in the past (3.6%) or in the present (6.2%). These people demonstrate that belonging to these collective institutions has never been mutually exclusive, with individuals continuing to be employed by a sovkhoz or kolkhoz while also belonging to an obshchina formed with other members of the community.

Results

Sharing subsistence resources, meals, & tea

Survey participants reported a total of 435 food-sharing acts for four important subsistence resources: potatoes, salmon, reindeer, and berries (Figure 5.1). Among these resources, potatoes and salmon were shared most frequently, though reindeer and berries were also shared quite often. Overall, participants reported giving food more frequently than receiving food, which may reflect a bias for recalling food-sharing events when a person is the giver as opposed to the recipient.

Do practices of food-sharing that involve the flow of raw resources between households during the course of the entire year correspond to day-to-day practices of sharing prepared foods or even conversations over tea? Despite the fact that the recall period was limited to only two days prior to the interview, the survey generated data on 247 meal and tea-sharing acts, including 86 for meals and 161 for tea, (Figure 5.2).

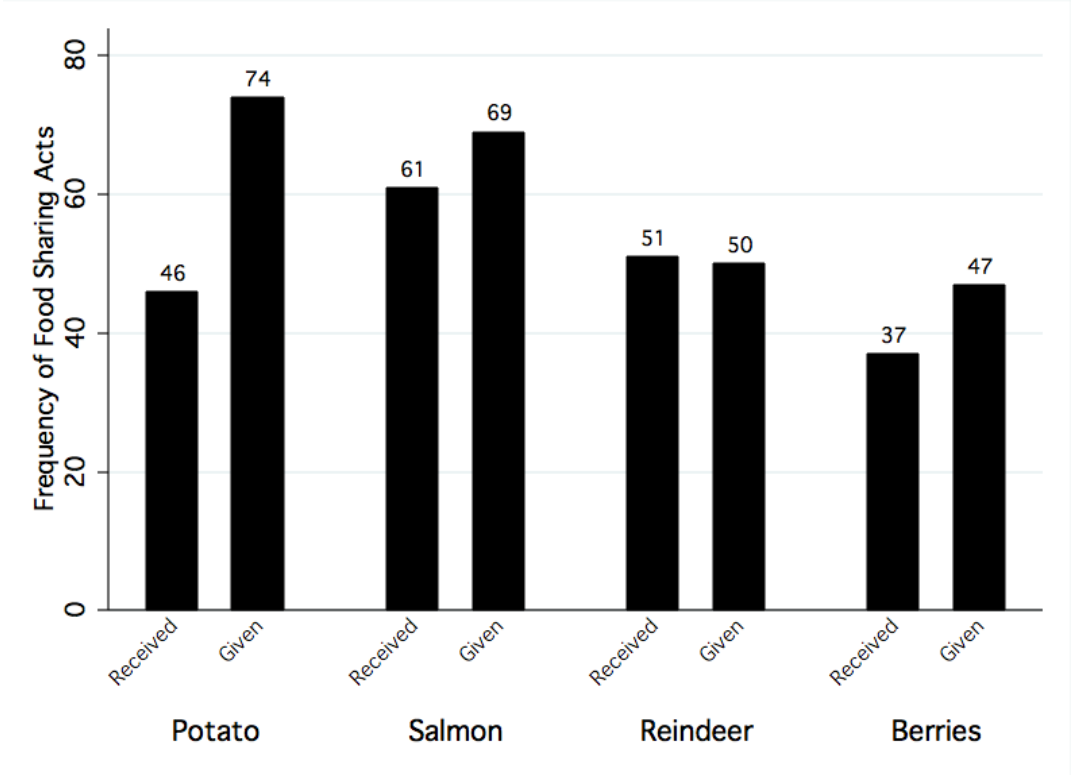

Figure 5.1. Frequency of food-sharing acts received and given for four important subsistence resources. Numbers above the bars indicate the number of acts observed.

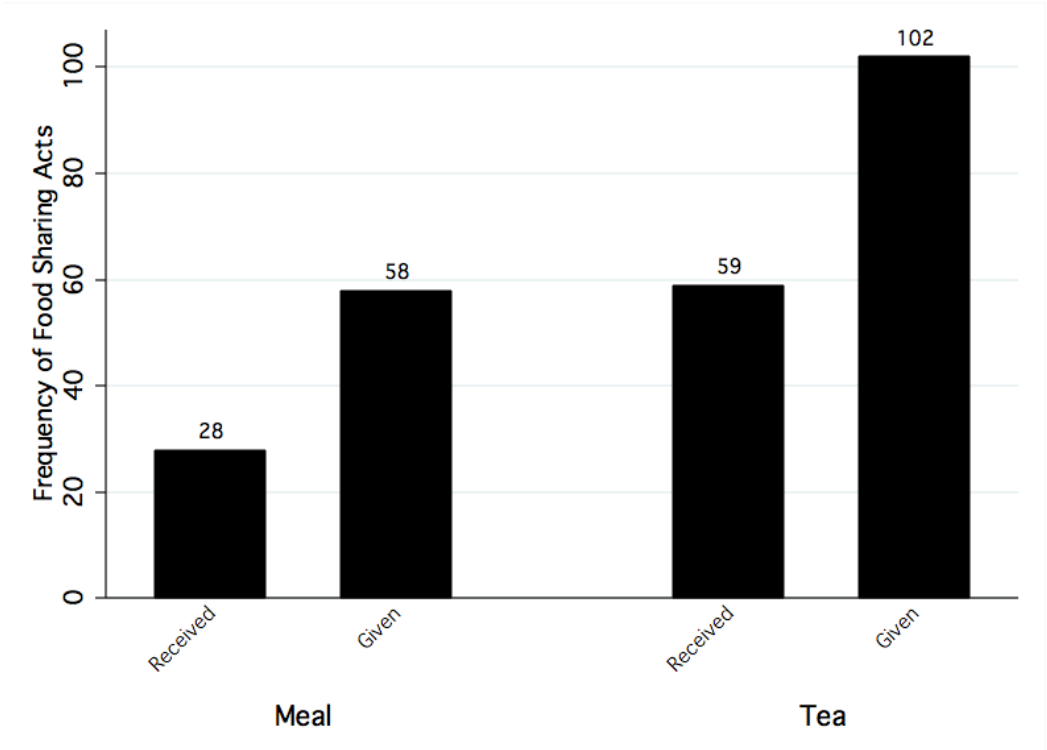

Figure 5.2. Frequency of meal and tea-sharing, given and received. Numbers above bars report the number of each act.

Tea-sharing was more common than meal-sharing, perhaps because it is relatively less costly in terms of resources and preparation time. For both meals and tea, there were more acts of giving reported (64.8%) than receiving (35.2%), again suggesting that there may be a recall bias, even at such short recall periods. Alternatively, the disparity between giving and receiving meals and tea may reflect the fact that the people who participated in the survey were heads of households who are more able to host visitors in their home than younger individuals in the household. Perhaps if individuals of all ages were surveyed, this overall disparity would be less pronounced or disappear entirely.

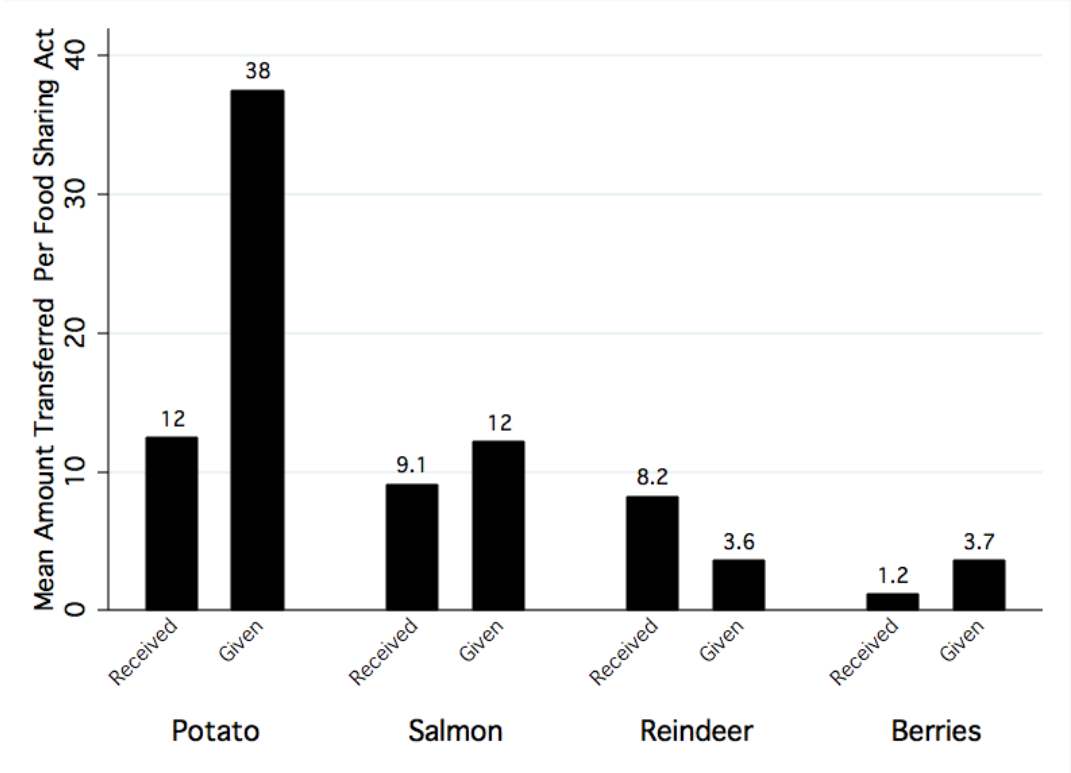

Figure 5.3. Mean amounts of food shared per act for four important subsistence resources. Amounts of potatoes, salmon, and reindeer are measured in kilograms, while berries are measured in liters. Numbers above the bars report the mean amount for each act.

The average amount of food shared per act differed from one resource to the next (Figure 5.3). Larger amounts of potatoes were shared, followed by salmon and reindeer. The average amounts of food given were larger than the amounts received. This disparity was greatest for

potatoes and berries, with more than twice the average amount given than received. However, the disparity was reversed for reindeer, which were received in greater amounts than given.

The frequency and amount of food-sharing was very similar in Khailino and Vyvenka. There were only two significant differences between patterns of food-sharing in the two villages (Table 4.1). First, reindeer meat was given more frequently and in greater amounts in Khailino. Second, berries were given more frequently and in greater amounts in Vyvenka. The difference in sharing reindeer is probably explained by the greater access to reindeer meat in Khailino than in Vyvenka. Khailino's sovkhoz continues to maintain about 3,000 reindeer, and a smaller herd of about 300 reindeer is managed by the Khailino-Vetvey obshchina. There are currently no reindeer herds in Vyvenka. The privatization of Vyvenka's kolkhoz in the late 1990s was accompanied by a dramatic decrease in herd sizes and eventually the liquidation of the few remaining reindeer. However, people in Vyvenka who are able to acquire reindeer meat from outside the village continue to share it within the community.

Relationships

Examining the frequency of food-sharing acts according to the kind of relationship that exists between individuals reveals some clear patterns. Food-sharing acts were far more frequent among kin than among any other kind of relationship (Figure 5.4). Roughly 64% of all food-sharing acts occurred among kin, with the second most frequent sharing acts occurring among friends (16.5%).

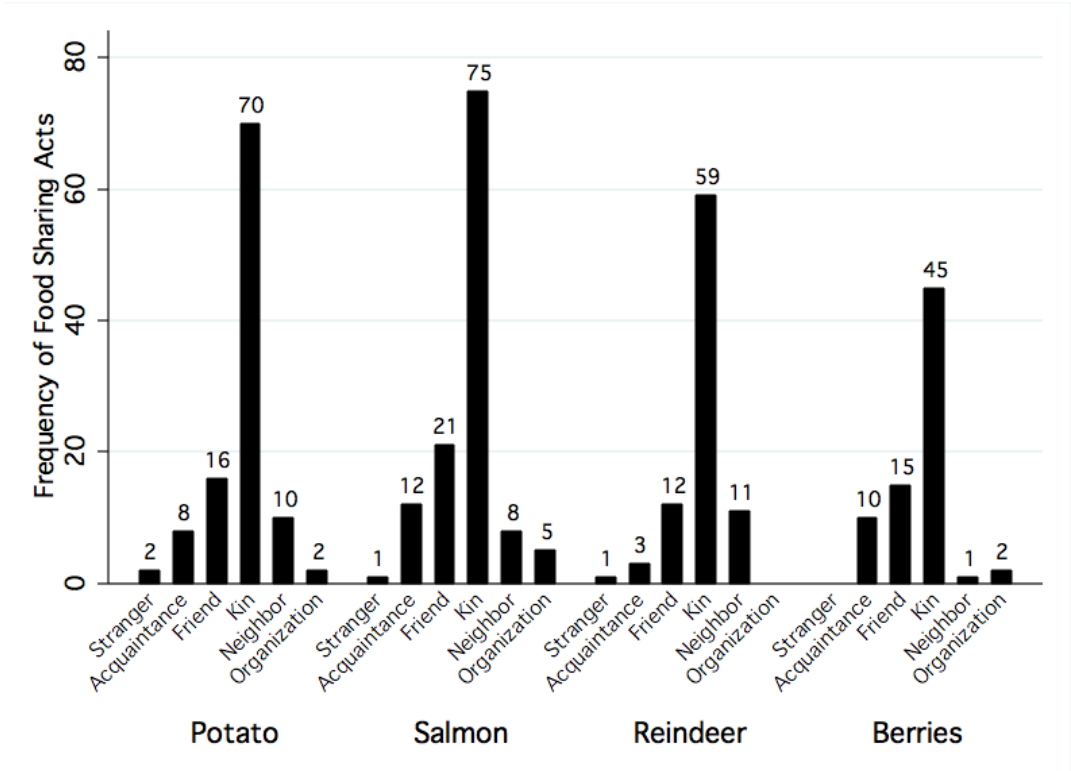

Figure 5.4. Frequency of food-sharing acts according to the relationship between individuals for four important subsistence resources. Numbers above the bars indicate the number of acts observed.

Comparing different subsistence resources, the relative distribution of food-sharing acts among kin, friends, neighbors, and acquaintances was remarkably similar. For patterns of sharing meals and tea, the relative distributions among different kinds of relationships was nearly identical to those observed for subsistence resources (Figure 5.5). The vast majority of meal and tea-sharing acts occured among kin (61%), with a large number among friends as well (28.6%). These results suggest that patterns of sharing subsistence foods, meals, and tea in Kamchatka reflect a consistent preference—either conscious or unconscious—for sharing a variety of resources with kin.

Turning to the amount of food shared, the patterns for different relationships were less clear (Figure 5.6). In order to explore the influence relationships between kin, friends,

neighbors, and acquaintances have in channeling the flow of resources within the village, I constructed a series of OLS multiple regression models (Table 5.1).

Table 5.1. OLS Robust Multiple Regression Models predicting the influence of relationship and reciprocity on mean amounts of food transferred. The sample is composed of all food-sharing acts. Since some individuals reported more than one food-sharing act, the model is clustered on individuals. Controls are included for village (1=Khailino, O=Vyvenka) and direction (1=give, 0=receive). Relationships that were not observed in food-sharing acts for a given resource are dropped from the model.

	Potatoes (kg)		**Salmon** (kg)		**Reindeer** (kg)		**Berries** (lit.)	
Model	**1**	**A**	**2**	**B**	**3**	**C**	**4**	**D**
Village								
b	-2.3	6.9	1.7	1.5	**7.8*** **	**5.9** **	**-3.8***	**-5.3***
se	10.1	11.0	3.92	4.4	2.8	2.8	2.0	2.6
Direction								
b	**28.6** **	**27.9*** **	2.1	.4	**-6.5** **	-3	2.8	4.2
se	11.8	9.9	4.2	2.9	3.0	2.3	2.1	2.6
Stranger								
b	-15.8		3.1		**-5.7*** **		Dropped	
se	11.2		3.5		1.4			
Acquaintance								
b	-10.1		**-9.2*** **		**-7.9** **		-.7	
se	7.3		3.0		3.0		1.0	
Friend								
b	6.2		1.4		-4.0		**4.8*** **	
se	16.9		4.9		2.4		1.4	
Neighbor								
b	-8.8		**-8.3*** **		**-5.9** **		-3.2	
se	12.3		2.7		2.7		2.7	
Organization								
b	3.1		4.6		Dropped		**12.2***	
se	8.6		3.6				7.0	
Reciprocity								
b		-16.5		**-14.9*** **		-1.1		**3.2** **
se		9.9		5.3		2.9		1.9
Constant	24.4	24.7	14.8	22	7.4	5.4	4.3	3.6
R^2	.105	.122	.049	.206	.129	.078	.342	.220
n	108	105	122	104	86	73	73	74

b=unstandardized coefficient, se = robust standard error
Significance: *p<.10, **p<.05, ***p<.01

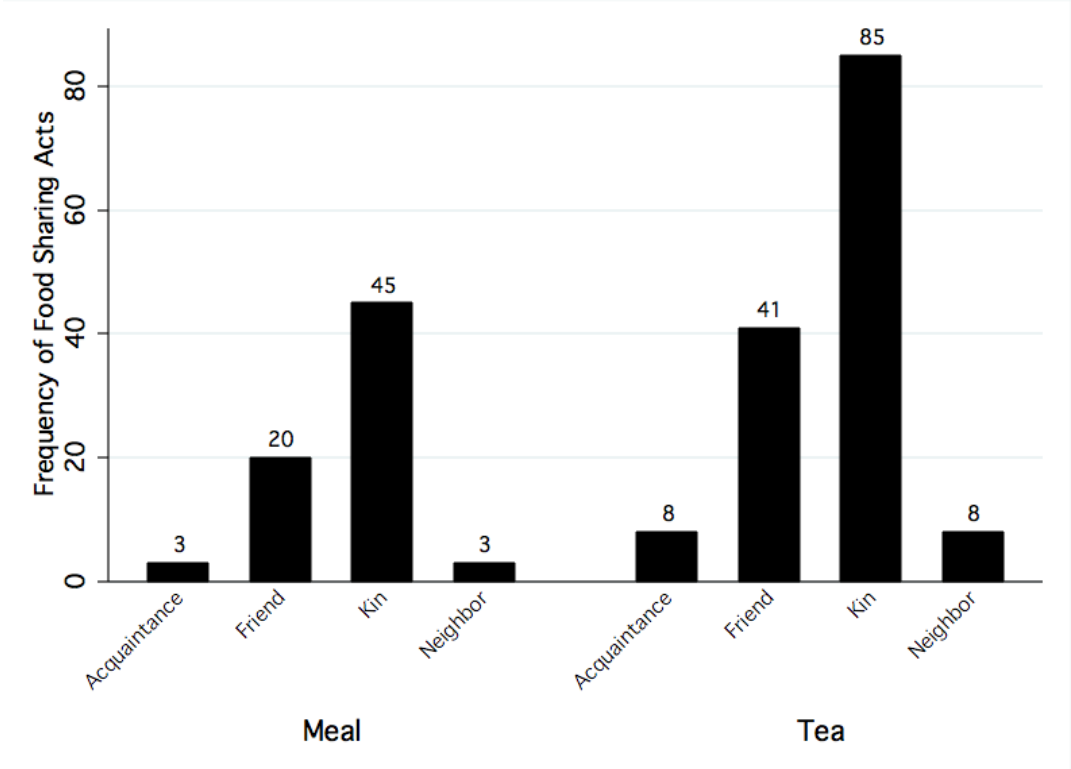

Figure 5.5. Frequency of meal and tea-sharing according to the relationship between individuals. Numbers above the bars indicate the number of acts observed.

The data used in these models included all food-sharing acts of subsistence resources recorded in the survey. Since some individuals reported more food-sharing acts than others, the data violate the standard statistical assumption that observations are independent. In order to account for this problem, I estimated robust regression models, clustered on the individual who reported each food-sharing act.[4] Each resource—potatoes, salmon, reindeer, and berries—was analyzed separately (Models 1-4). Food-sharing acts of giving and receiving were combined, but a control variable indicating the direction of the transfer was included, along with a control for the village where the act occurred. I did not include sex in these models because it did not have a

[4] As Nolin (In press) and others (Allen-Arave *et al.* 2008) have pointed out, there are several ways that food-sharing data may violate the standard assumptions of statistical models such as OLS regression. While estimating robust models clustered on each individual does not entirely resolve the problem of non-independence, the technique that I have used is one way to account for the fact that underlying differences between individuals may bias the model. I considered other techniques, such as quadratic assignment procedure (QAP) regression (Ziker & Schnegg 2005) and exponential random graph modeling (ERGM) (Nolin In press), but the incompleteness of my data make these models inappropriate, since missing values cannot simply be dropped as in an OLS regression model.

significant effect on the amount of food offered, nor did including it affect the significance of variables for relationships and reciprocity in preliminary statistical analysis.

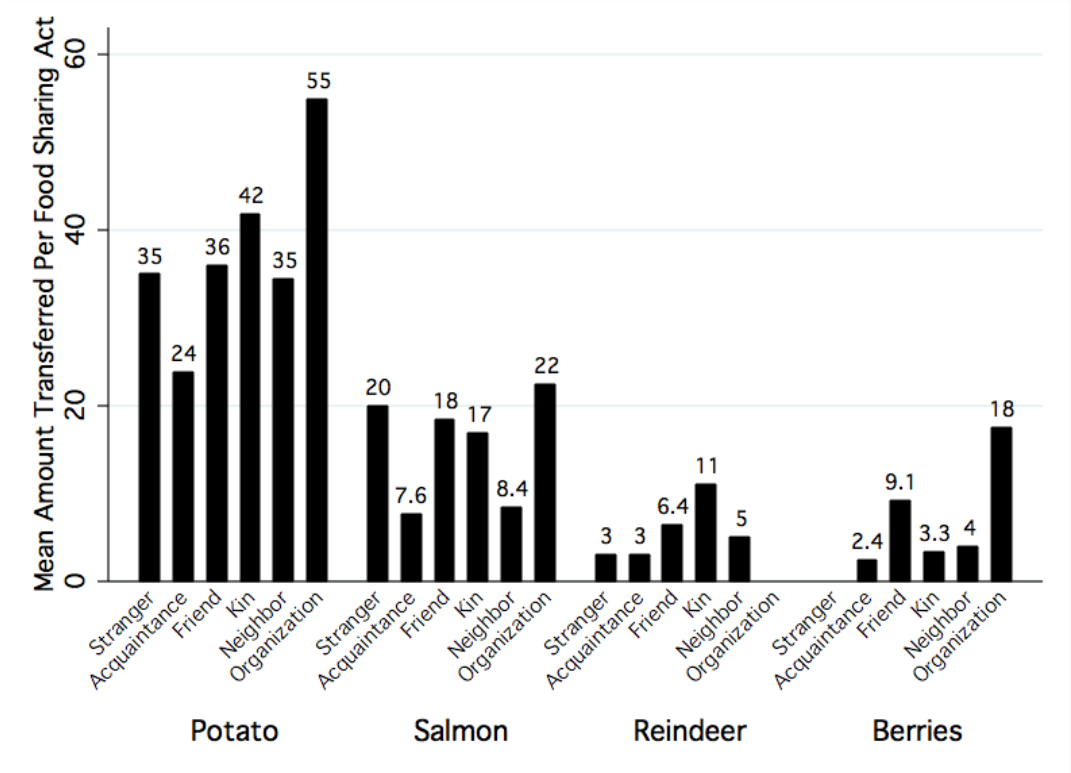

Figure 5.6. Mean amounts of food shared per act for four important subsistence resources, according to the relationship between individuals. Amounts of potatoes, salmon, and reindeer are measured in kilograms, while berries are measured in liters. Numbers above the bars report the mean amount for each act.

With the average amount of food transferred between kin as a reference point, examining the coefficients (*b*) and significance (p-value) for the other relationships allows us to determine whether more or less food was transferred between strangers, acquaintances, friends, and neighbors compared to kin. The models show that patterns of food-sharing were influenced by the relationship between two individuals, but that the magnitude, direction, and significance of the correlations differ depending on the resource. For example, significantly greater amounts of reindeer were transferred among kin than among all other types of relationships, with the exception of friends (Model 3). In other words, the model suggests that kin shared about 6 kg of reindeer meat more than neighbors and strangers, and nearly 8 kg more than acquaintances.

However, these differences across relationships are not the same for other resources. For salmon, greater amounts of food were transferred between kin than between acquaintances and neighbors, though the magnitude of these differences (8-9 kg) is comparable to those found for reindeer (Model 2). In the case of potatoes, there are no significant differences in the amounts of food transferred through different types of relationships (Model 1). For berries, the general trend of sharing greater amounts among kin is reversed somewhat (Model 4). Friends shared about 5 liters of berries more than kin. While these results indicate a broad tendency to favor friends and kin, they also suggest that understanding the influence of relationships on food-sharing practices requires greater attention to the specific resources that are being transferred.

Reciprocity

Although the survey only generated data on food-sharing during one year, questions about reciprocity allow me to explore how patterns of food-sharing were affected by repeated acts of giving and receiving between two individuals over time. Comparing the frequency and amounts of food shared according to the presence or absence of reciprocity between two individuals further illuminates the circulation of subsistence resources within the community. The majority of food-sharing acts for subsistence resources (56.5%) occurred between individuals who reported sharing a resource reciprocally (Figure 5.7). Examining each resource separately, this general trend is most pronounced for salmon and berries, which were shared nearly twice as often in reciprocal relationships than in non-reciprocal relationships. The same is true for reindeer, but the difference is small enough that it is probably not significant. Conversely, potatoes were shared more often in non-reciprocal relationships than in reciprocal relationships.

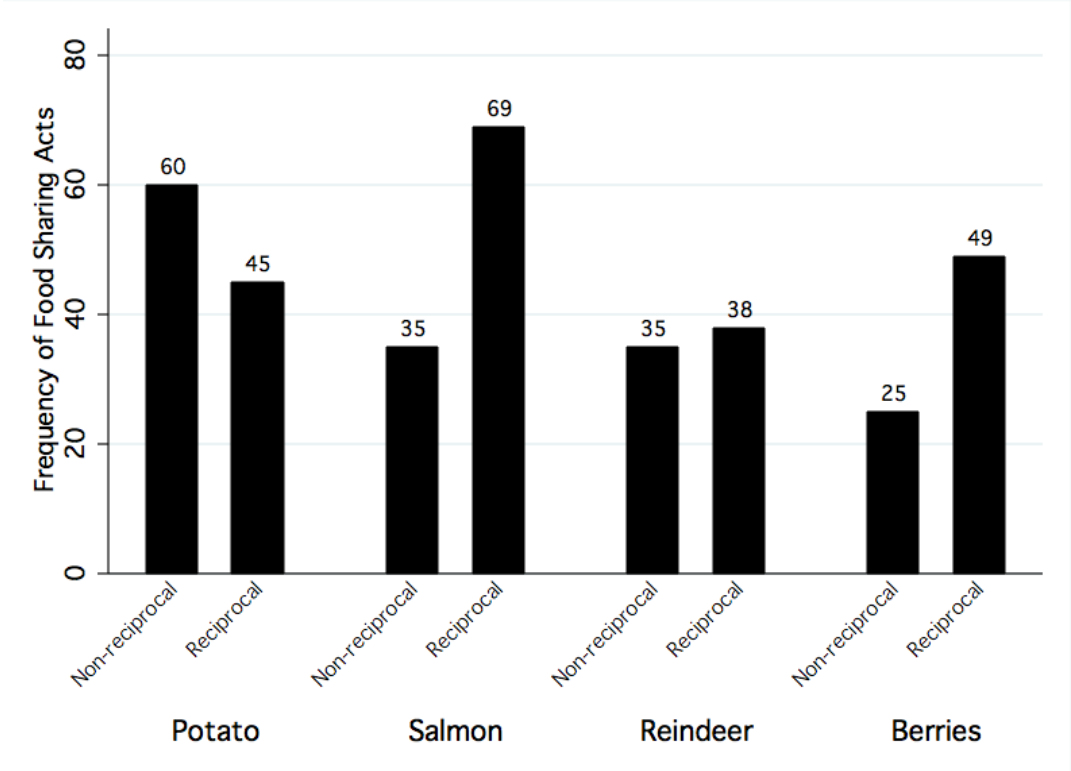

Figure 5.7. Frequency of food-sharing acts in reciprocal and non-reciprocal relationships for four important subsistence resources. Numbers above the bars indicate the number of acts observed.

Meal and tea-sharing occured more frequently in reciprocal relationships than non-reciprocal relationships, with about 73% of both meal and tea-sharing acts observed in reciprocal relationships (Figure 5.8). Together, these measures of food-sharing suggest that reciprocal relationships were more frequent than non-reciprocal relationships, though the disparity between the two was greater for meal and tea-sharing than for sharing subsistence foods. Examining the average amounts of subsistence foods shared in reciprocal and non-reciprocal relationships, there only appeared to be differences for potatoes and salmon (Figure 5.9). In both cases, the amount of food shared in non-reciprocal relationships is greater than the amount shared in reciprocal relationships. These differences in the relative frequencies and amounts of food shared in the presence or absence of reciprocity between individuals may reflect the underlying needs and motivations of the individuals involved, varying depending on the resource.

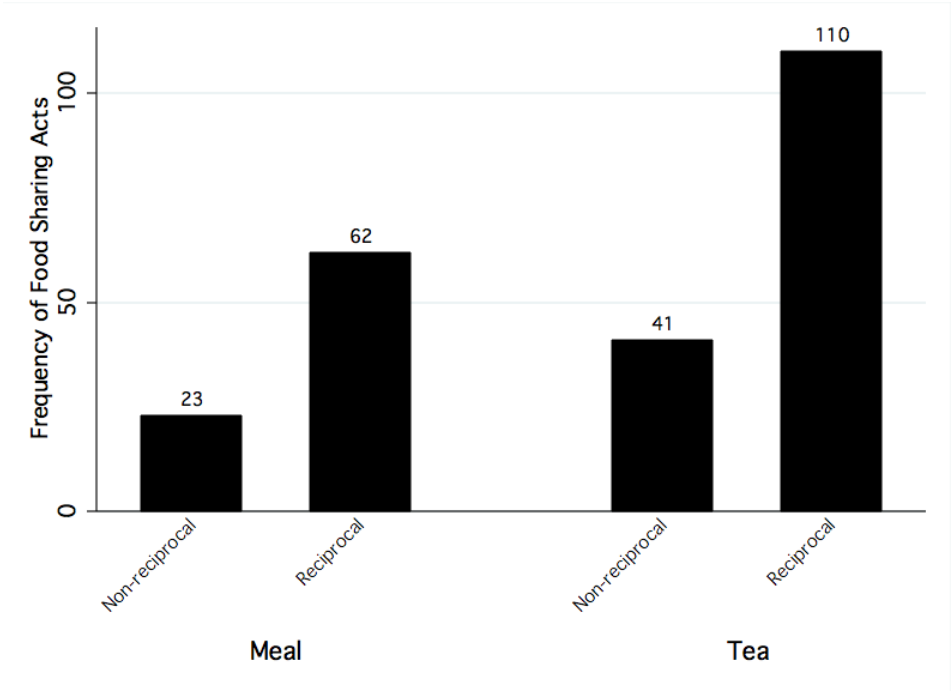

Figure 5.8. Frequency of meal and tea-sharing in reciprocal and non-reciprocal relationships. Numbers above bars indicate the number of acts observed.

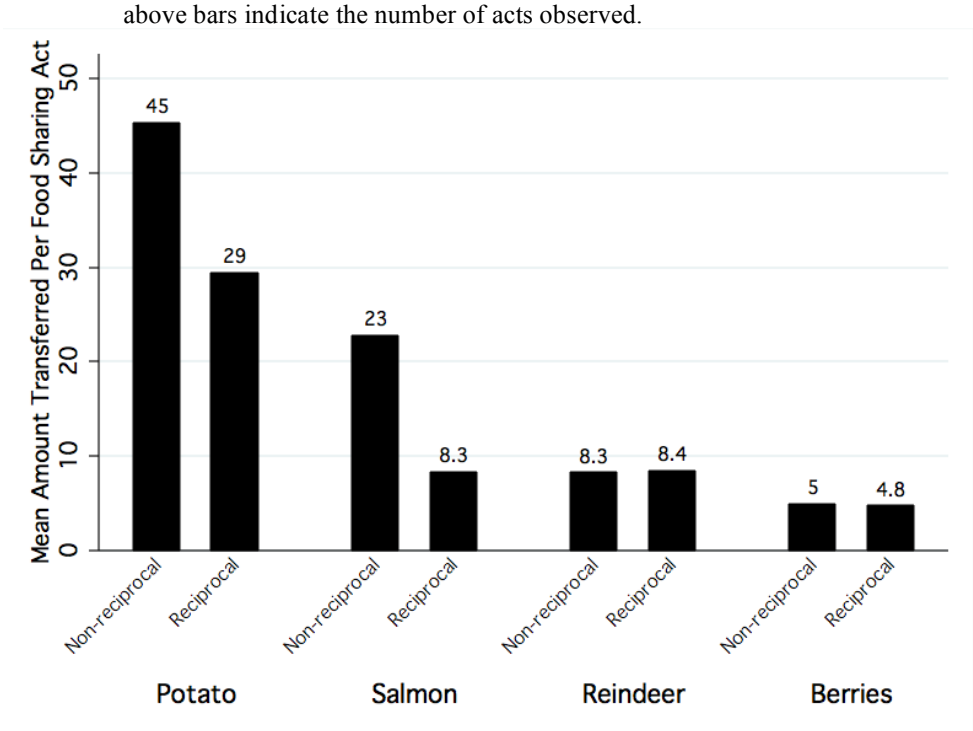

Figure 5.9. Mean amounts of food shared per act in reciprocal and non-reciprocal relationships for four important subsistence resources. Amounts of potatoes, salmon, and reindeer are measured in kilograms, while berries are measured in liters. Numbers above the bars report the mean amount for each act.

Further statistical analysis is needed to determine how patterns of food-sharing are influenced by reciprocity. As in the analysis of food-sharing and relationships, I constructed a

series of robust OLS multiple regression models, clustered on the individual who reported the food-sharing acts (Table 5.1). As before, each resource was analyzed separately (Models A-D). Food-sharing acts of giving and receiving were combined, with a control variable indicating the direction of the transfer. A control variable for village was also included. Sex was not included as a control variable because preliminary statistical analysis showed that it had no effect on the relationship between reciprocity and the amount of food shared.

The results of the regression models indicate that the amounts of salmon shared were greater in non-reciprocal relationships (Model B), with about 15 kg more salmon transferred in non-reciprocal relationships than in reciprocal relationships. Although the difference in reciprocity for potatoes is not statistically significant ($p=.104$), it approaches marginal significance at the $p < .10$ level (Model A). Moreover, the effect size is large, with the model predicting that about 16.5 kg more potatoes were shared in non-reciprocal relationships.

As in the analysis of relationships, patterns of reciprocity for berries differed from other resources. The regression model suggests that about 3 kg more berries were shared in reciprocal relationships than in non-reciprocal relationships (Model D). This result appears to contradict those reported in Figure 5.9, where the average amounts did not appear to differ according to reciprocity. However, the regression model takes into account the significant difference in the amount of berries shared between the two villages. In other words, more berries were shared in reciprocal relationships when controlling for the fact that more berries were shared in Vyvenka than in Khailino overall. Considering that greater amounts of berries were shared among friends and also in reciprocal relationships, I speculate that sharing berries is primarily an expression of friendship through reciprocal giving and receiving. In this respect, sharing berries differs from sharing resources like potatoes and salmon, which often involve asymmetries of need.

These results also highlight a methodological challenge to studying the influence of reciprocity on patterns of food-sharing. Rather than reciprocally sharing resources in kind, partners may exchange foods that they are able to produce in abundance for those they lack. While this kind of exchange may appear to resemble barter or trade, people in Kamchatka often insist that they give "freely," without feelings of expectation or obligation. In some respects, the data on patterns of food-sharing support these cultural norms and values. Food-sharing occured almost as often in non-reciprocal relationships as it did in reciprocal relationships, and with the exception of berries, food is either shared in greater or equal amounts in non-reciprocal relationships than in reciprocal relationships.

These patterns of food-sharing and the cultural norms and values that underlie them appear to run counter to evolutionary theories of direct reciprocity. A simple prediction from these theories would suggest that a significant majority of food-sharing acts should occur in relationships where sharing has been reciprocated in the past or is expected to be in the future. Yet, it may make little sense for an individual who has greater difficulty in producing a particular resource, like salmon, to feel an obligation to reciprocate in kind when the people who give salmon can produce plenty of it on their own. Reciprocity in kind makes more sense in situations where individuals often find themselves in unstable asymmetries of need, allowing partners to alternate between the roles of giver and receiver. This form of reciprocity is captured in the "risk-reduction" food-sharing models of human behavioral ecology (Gurven 2004b; Winterhalder 1996; Winterhalder *et al.* 1999). Another possibility is that asymmetries of need fluctuate throughout the life histories of individuals within a household. Recently, Hill and Hurtado (2009) have shown that households of Ache forager-horticulturalists and Hiwi foragers in South America experience extended periods where their food needs exceed their food

production. They present data on household composition, production, and consumption that indicates flows of food from small households with fewer dependents to larger households with more dependents as a solution to this dilemma. Circumstances in Kamchatka and elsewhere often lead to stable asymmetries in need that prevent people from alternating between giving and receiving a particular resource. If a person works in the village almost every day during the summer and cannot fish, he or she will consistently be in need of salmon. If someone lacks a garden, he or she will never be able to reciprocate the gifts of potatoes given by others. Instead, such people may choose to give some other resource that their partners lack in sufficient quantity or help them in some other way.

Data that combine patterns of reciprocity in kind with patterns of reciprocity that cut across different resources support this line of thinking. Because I collected food-sharing data for multiple resources, I was able to extend my examination of reciprocity to reflect the fact that some individuals reciprocated a food-sharing act by sharing a different resource. Whereas only 56% of food-sharing acts where reciprocated in kind, including multiple resources raised the levels of reciprocity to 68% of all food-sharing acts. In other words, over two-thirds of the 622 food-sharing acts recorded in sufficient detail by the survey occurred between individuals who maintained a reciprocal pattern of food-sharing.

Discussion

Although each individual shares a network of connections with other households that is unique, both quantitative data on patterns of food-sharing and qualitative observations of visitors coming and going suggest that in these contexts of cooperation, people in Kamchatka display a clear preference for kinship and reciprocity.

1. Patterns of sharing meals & tea mirror patterns of sharing subsistence foods

Both preferences for sharing meals and tea with kin and for sharing in reciprocal relationships closely resemble the patterns observed for subsistence resources. The similarity between these two contexts of food-sharing is understandable considering that guests often bring their hosts a small gift of food when visiting for a meal or tea. Yet, the fact that both contexts reveal clear preferences for kinship and reciprocity also suggests that the two forms of cooperation may operate in tandem. Relatively more frequent, less costly forms of cooperation like sharing a meal or tea may help cultivate and maintain social relationships through which less frequent but more costly acts of food-sharing eventually flow. Indeed, I noticed while conducting surveys that the same individuals named as food-sharing partners often appeared again when participants were asked to name the people that they had shared a meal or tea with in the two days prior to the interview. These data also complement the regular patterns of visiting that I observed in households where I lived or spent a substantial amount of time as a guest. The longer one lives in a particular household, the clearer these patterns become.

From a methodological perspective, the results from my food-sharing survey suggest that researchers may be able to use relatively frequent, low cost cooperative behaviors as proxy measures for less frequent, high cost cooperative behaviors that are substantially more difficult to observe and document. If I were to return to each household several more times a month or year, asking only about meal and tea-sharing, it may be possible to trace the food-sharing networks between households more quickly and accurately than either trying to observe transfers of subsistence resource directly or record them by asking participants to recall food-sharing acts from months past. Recording both kinds of food-sharing may also lead to a better understanding

of how social networks of support are formed and maintained. Although individuals may only receive significant amounts of subsistence resources from others when they are in need, they can visit one another frequently, sharing small amounts of prepared foods as a way of expressing the presence of support, should support ever be needed.

2. Preferences for kin & friends

Patterns of food-sharing in Kamchatka provide some support for theories of kin selection. Food-sharing occurs most frequently among kin, whether individuals are exchanging resources or sharing in their consumption. However, the relative amounts of food shared across different relationships appear to differ depending on the resource. For reindeer meat, a scarce resource with both practical and symbolic significance, greater amounts of food are shared among friends and relatives than among more distant relationships, such as strangers, acquaintances, and neighbors. The same pattern is found to a lesser extent for salmon, a less scarce resource whose symbolic importance is similar to reindeer meat, but whose practical importance currently far outweighs it. Still, differences in the amount of food shared through different relationships are absent for other important resources like potatoes, suggesting that the preference for sharing with kin is sensitive to properties of different resources that are difficult to untangle.

Resources & relationships

Reindeer meat is different from potatoes, salmon, and berries in that it is both more expensive to buy and more difficult to harvest. The dramatic declines in reindeer herds in Kamchatka during the post-Soviet era have transformed reindeer meat from an almost daily part of the diet to a scarce luxury. Reindeer meat also has a great deal of spiritual significance—

perhaps only rivaled by salmon—in that the food itself is a powerful symbol of Koryak, Chukchi, and Even cultural identity in Kamchatka. As reindeer herders in a neighboring Kamchatka village once told King (2003b), "Without deer there is no culture, nothing." Although indigenous people living in villages like Vyvenka have not necessarily "lost" their culture along with the collapse of their reindeer herds, they do often lament the absence of reindeer herding, whose "pragmatics," as King describes, "are intertwined with spiritual awareness, self-worth, and value as a human being" (2003b: 158). I began to appreciate this more fully one day in Khailino while I sat with a retired reindeer herder named Roman Akuguk.

When I met Roman, I had only recently arrived in Khailino. I was still meeting people and getting comfortable with life in the village. Entering the homes of strangers in order to conduct interviews felt awkward to me, and in my discomfort, I often focused as much on my surroundings as I did the people with whom I sat. Roman and his wife Raisa were retired herders, and the decoration of their kitchen reflected this. Roman and I sat across from each other at a small wooden table, covered with a worn plastic table cover that had been nailed on to the surface. We were perched on short wooden stools, which I noticed were the only other furnishings in the kitchen, aside from a handmade wooden counter, whose open underside made it look more like a workbench. Large and small pots were placed carefully on the floor along the wall, resting atop pieces of wood to protect the floor from the pots' heat once they had been removed from the large cement stove in the corner of the kitchen. Near the stove lay a pile of small logs and kindling, taken from larger stacks that lined the entry to the house.

Only a few days earlier, I had made a short visit to one of the reindeer herds in the surrounding tundra, and the kitchen reminded me of the tent where we ate our meals: minimalist, functional, clean, and comfortable. Raisa shuffled across the kitchen floor in boot liners sewn

from reindeer hides, the fur turned inside for extra warmth and comfort. She picked up a small kettle with strong, steeped tea in one hand and a larger kettle with hot water in the other, deftly pouring the contents of each into our cups. My eyes moved back and forth between her, her husband, and the room in which we sat while I listened to Roman recall his life during the Soviet era as a reindeer herder for Khailino's "Korfskii Sovkhoz."

Roman talked at length about the daily routines of reindeer herding. He described how he was alert to changes in weather conditions while moving his herd from pasture to pasture, through narrow valleys and broad plains, monitoring the movements of the herd to keep deer from straying. He told me about staying up all night to protect the herd from wolves in winter, and about watching over mothers and their newborn calves in spring. Raisa told a story about how women in Khailino had sewn reindeer fur clothing to send to the front during World War II, and Roman added stories about strenuous working conditions in the village during that time of scarcity. But as I review the notes I made early on in our interview, I see that I recorded few details about these practices until Roman explained, to my surprise, that all the nuances of his labor could be tasted in the reindeer meat that he produced.

Roman had been expressing his dissatisfaction with the current state of reindeer herding in Khailino, pining a bit for the old days when the sovkhoz was blessed with a strict but well-liked director, sufficient resources, and knowledgeable and experienced brigades of herders. Lest I think he was just a retired herder whose view no longer extended beyond the stool in his kitchen, Roman explained that today when he tastes the reindeer meat that is brought to him from Khailino's herds, he knows that something is wrong out in the tundra. The taste, he said, tells him that the deer are not being taken care of properly, given enough water, fed the right amount, or any other number of concerns that a skilled herder attends to. I asked him how he

could tell all this from the taste of the meat alone, and he launched into a long discussion of seasonal movements and ecological conditions that a herder must know intimately. Many of these nuances were lost on me as I struggled to follow along and take notes at the same time, suddenly wishing that I had asked to record our interview with my digital recorder. Roman emphasized that the good herder is constantly seeking clues in the reindeer's behaviors that would tell him if they were hungry, thirsty, sick or tired. As the seasons turn, the results of this labor are seen in changes in the animals. By autumn, he said, the progress and health of the herd is already visible, just in time for the early winter harvest.

Listing to Roman, I realized that he was a connoisseur of Koryak culture as well as Koryak cuisine. The reindeer meat consumed by people in the village is not only a welcome addition to the daily diet, but an expression of skill, experience, effort, and care. Reindeer herding, which is so central to many indigenous people's sense of identity in Kamchatka, produces food that has tremendous symbolic as well as practical significance. When people share reindeer with one another, they share these expressions of a common culture with one another as well, whether they have Roman's keen sense of taste or simply the more widely expressed sentiment that reindeer meat is superior to the frozen imported beef, pork, and chicken that sits in the freezers in the village stores. They can sense the practices that produce the meat, so consuming reindeer becomes an act of cultural expression and affirmation. My impression is that people would gladly share reindeer meat with anyone who asked if it were not currently so scarce. But with herd sizes in Khailino plummeting from about 15,000 reindeer in the early 1990s to about 3,000 reindeer today—not to mention reindeer herds vanishing entirely from Vyvenka—people tend to share reindeer meat with those to whom they feel closest: their kin.

Yet, this is a statistical pattern, not an absolute preference. Reindeer meat is still offered freely, albeit less frequently and in smaller amounts, to acquaintances, neighbors, and even strangers. Indeed, one of the acts of sharing reindeer between strangers included in my data occurred following an interview with a woman in Khailino. After asking her questions about her food-sharing practices, she apparently decided that the best way for me to learn about them was to experience them myself. As I got up to leave after completing our interview, she offered me a few kilograms of reindeer meat from the bundle that she had just received from friends working in one of the village's herds. I was surprised by her generosity, since we had only just met, but I gladly accepted her gift. I also heard people describe how they had given reindeer meat and other foods to construction workers who had recently arrived in the village from Kyrgyzstan, Vladivostok, and Petropavlovsk-Kamchatskii. In these cases, the gifts were intended to help out people who clearly had not been able to produce their own food during the previous summer, but they also served as a kind of welcome to the village, perhaps establishing new relationships of social support, however transitory these might prove to be.

The tendency to share greater amounts of food with kin is less strong for salmon, and generally absent for potatoes and berries. This may be because these subsistence resources are readily available to most people in the village. Although people preserve salmon by drying, smoking, and salting, the survey only records the sharing of salted salmon. Drying and salting are used to store the bulk of the salmon that people rely upon as a staple throughout the year, and though they are always enjoyed, their presence at a meal is not often noteworthy. Sharing salted salmon is usually based on need, occurring when someone has either been unable to prepare or has run out of their own supply. On some occasions, however, I noticed people sharing small amounts of salted salmon in order to sample each other's preparation techniques. This also

occurs between villages. Many people explained that they can tell the difference between salmon caught in Vyvenka and Khailino. Vyvenka's location near the mouth of the river means that the salmon caught there are still laden with the fat reserves that power their spectacular spawning migrations against the current. Salmon that reach Khailino's nets, on the other hand, are leaner, having burned much of this fat as they move upstream. People get used to and usually prefer the salmon from their own village, but they occasionally like to sample other people's salmon for variety. Still, salted salmon is so plentiful and ubiquitous that sharing patterns expand beyond the confines of close kin. The same is true for potatoes, which are grown in large amounts by most households in the village. Patterns of sharing scarce foods appear to be different. For example, smoked salmon is more labor intensive and requires some special equipment and expertise, so it is not prepared by everyone. Although I did not collect data on smoked salmon, I speculate that patterns of sharing for a limited resource like this would be more similar to reindeer meat than salted salmon, since smoked salmon is produced in smaller amounts and its presence on the table is more noteworthy.

Food flows through relationships

While patterns of food-sharing tend to favor kin, the frequency and amount of food shared among friends is also important. Though all foods in the survey were shared more *frequently* among kin than among friends, there are no differences in the *amounts* of food shared among friends and kin, with the exception of reindeer. These results may reflect the importance that people in Kamchatka place on friendship. Indeed, good friends often share a feeling of closeness that is difficult to distinguish from that felt among kin. Thus, it is interesting that the regression model suggests that friends actually share berries in greater amounts than kin. Berries

are always welcomed as gifts, but they are far from staples in people's diets. At the right time of year, they are widely available to anyone willing to take an afternoon to walk in the tundra outside the village. As different kinds of berries begin to appear in the summer, people often gather a group of friends and relatives to make a trek outside the village, visiting well-known patches and secret spots. People enjoy berry picking because it takes them on wandering journeys outside the village, where they find wildflowers and mushrooms as well. But they also enjoy the trips because they allow people to spend an afternoon or an entire day together in each other's company. Having joined people on several of these excursions, I experienced the strong sense of connection that walking the tundra together gives. People mingle side-by-side, talking about where the best patches for berries might be or sharing observations about changes in the landscape from one year to the next. Then they wander apart, left to their own thoughts, before returning to each other's company once again. In these common spaces, memories and relationships are rekindled, shared, and fashioned anew. Perhaps sharing berries occurs in greater amounts among friends as a way of extending the circulation of these sentiments to those who could not be there, but whose presence was missed.

Despite the subtle differences in the amount of food shared according to the relationship between people or the resource in question, there is still a clear preference for sharing food among kin. For each resource, food-sharing acts are far more frequent among kin. Yet, the fact that there are relatively few differences in the amount of food shared between individuals with different relationships is also important. When people decide to share food with one another, they do so in ways that differ little depending on whether they are close kin or simple acquaintances. The general equality in the amount that people share once they have decided to share suggests that these networks of social support are flexible enough to incorporate a variety

of relationships. Indeed, the act of repeatedly sharing food may cause relationships to deepen, transforming strangers and acquaintances into friends and distant relatives. However, the greater frequency of food-sharing among kin means that over time, greater amounts of potatoes, salmon, reindeer, and berries flow between individuals who are related to one another.

Kin selection in Kamchatka

These patterns of food-sharing in Kamchatka provide support for theories of kin selection. Yet, it is important to note that kinship was defined here by the people participating in the survey, following their own cultural norms and values, rather than by coefficients of genetic relatedness. In the absence of complete and accurate data to calculate these coefficients of relatedness, the kin terms that people call one another can be used as an imperfect but useful proxy.

There are two main limitations for this approach when it comes to assessing theories of kin selection. First, people living in small villages like Vyvenka and Khailino can often find some kind of genealogical connection that makes them kin, however distantly related they might be. In fact, as my research assistant Anatolii and I traveled from village to village, it did not take long for him to acquire many new relatives. When people learned that he was from neighboring Tilichiki, they started to ask him questions about his parents, grandparents, aunts, uncles, and so on until they had grafted him onto their own existing genealogies. Second, in the absence of some kind of genealogical connection, people often create one, however fictive it may seem. In Khailino, one family that I developed a close relationship with began to refer to me as “Andrei Petrovich,” changing my English first name to its Russian equivalent and adding a Russian patronymic, which I shared with their children, whose father was called Pyotr. I often noticed

similar expressions of "fictive kinship," particularly with the terms for uncle (*diadia*), aunt (*tiotia*), niece (*plemiannitsa*), and nephew (*plemiannik*). These kin terms are used to express respect and affection between older and younger members of the community, even when genealogical connections are more distant or absent entirely.

Creative calculations of genealogy that bring distant kin closer or transform unrelated individuals into fictive kin are well studied in anthropology. Whereas previous generations of anthropologists often documented departures from local kin terminologies or calculations of genetic relatedness, most anthropologists today have internalized the critique that western notions of kinship may correspond more closely with biological definitions of relatedness than notions of kinship in other places (Carsten 2004; Schneider 1984). Unfortunately, this critique is often used to justify an anthropologist's choice to diminish or ignore the role of genetic relatedness entirely (McKinnon 2005; Sahlins 1976). As a result, the empirical question about the extent to which cultural and biological definitions of relatedness correspond to one another in a particular place often remains unanswered, as does the relative influence of culturally and biologically defined relatedness on social interactions among kin and non-kin (Fox 1979, 1989; Cronk & Gerkey 2007).

In Kamchatka the clear preference for sharing food with kin—defined by cultural norms and values—raises the possibility that cooperation may be more prevalent among biological kin in the manner suggested by theories of kin selection. For the families that I knew well, food-sharing appeared to flourish among parents and their adult children and grandchildren who had established their own households, among adult siblings, and also among aunts, uncles, nieces, and nephews. Although I collected genealogical information on survey participants, I was not able to gather this data for all the individuals they named as food-sharing partners. As a result, I

do not have the complete genealogical information needed to calculate coefficients of relatedness and explore the relationship between culturally and biologically defined kinship further. This would be a promising direction for future research.

3. Preferences for reciprocity

Food-sharing also occurs more frequently when two individuals share reciprocally, either alternating between giving and receiving resources in kind or in exchange for another resource. This pattern is true for all resources, with the exception of potatoes. However, the relative amounts of food shared in reciprocal and non-reciprocal relationships differ depending on the resource. Salmon (and possibly potatoes) are shared in greater amounts in non-reciprocal relationships, perhaps reflecting stable asymmetries in need between the two partners.

Resources & reciprocity

Why do patterns of reciprocity differ from one resource to the next? When salmon are shared reciprocally, they are shared in smaller amounts, perhaps expressing the simple existence of a relationship or just the desire to try another person's preparation techniques. Conversely, when salmon are not shared reciprocally, they are shared in larger amounts, which may reflect an underlying presence of need for the recipient. Since salmon are generally available to anyone with the time and inclination to catch them, these imbalances in reciprocity could indicate long-term asymmetries of need between the two individuals. Though it is tempting to conclude that need indicates vulnerability in this case, it is important to note that some people do not fish because they have full time jobs, keeping them in the village for most of the summer fishing season. Others may be forced to remain in the village due to old age, sickness, or the demands of

childcare. More rarely, people simply lack the necessary equipment and experience to fish for themselves. In these cases, it is common to find that people who cannot fish make arrangements with those who are able to spend week after week in the summer at their fishing camps, helping out in other ways in exchange for salmon. Similar arrangements are common within households, where some members spend most of their time engaged in wage labor, earning money for the household, while others devote themselves to fishing, hunting, herding, gathering, and gardening, which provides food for the household.

Patterns of reciprocity for potatoes support this interpretation. Like salted salmon, potatoes are considered a staple in people's diets. However, some people find themselves unable to grow them, either because they spend too much of their time on the river fishing or because they are not able to secure a plot of land in the village to grow their own crops. It is quite common for several households to share a single potato garden, to rely on other households to provide for them, or as a last resort, to purchase potatoes from the store or someone in the village with a surplus[5]. When several households share a single garden, potatoes are stored in a single location, to which individuals from each household have free access. Though I did not collect data on these shared gardens, I noticed that such arrangements were common between parents and their adult children and among adult siblings. Similarly, extended families that comprise several households often work together in a single fishing camp for the summer to process dried and salted salmon for the winter. These salmon are usually stored in a single location, with each household withdrawing the food that they need throughout the year. The greater amounts of salmon and potatoes shared in non-reciprocal relationships may reflect the stability of these

[5] Selling surplus potatoes instead of giving them away seems to be a recent phenomenon, and I sensed some discomfort in discussing this source of income with people. Perhaps the decision to grow surplus potatoes and sell them to those who are in need conflicts with local norms and values of sharing? There are many people who produce surpluses of potatoes that do not sell them, choosing instead to give to those whose supply runs out or spoils.

arrangements over time, with one household consistently receiving from another without necessarily reciprocating in kind.

Asymmetries of need and contingency

Because reciprocity was defined so broadly in the survey, it is surprising that potatoes are shared more frequently in non-reciprocal relationships, and that salmon are shared in greater amounts in non-reciprocal relationships. Whenever two individuals reported that a food-sharing act had been reciprocated in kind at some point in the past, regardless of the balance in frequency or amount of exchanges, their relationship was considered reciprocal. The fact that many acts of food-sharing had not been reciprocated over such a broad time frame suggests that there may be long-term, stable asymmetries of need between households in these communities. That these asymmetries are found for potatoes and salmon, widely recognized as the staples of most people's diets, suggests that explaining non-reciprocal food-sharing may be important for understanding networks of social support in Kamchatka.

If food-sharing practices in Kamchatka are a strategy of risk reduction (Winterhalder *et al.* 1999) that enables individuals to cope with uncertainties involved in producing their own food, we might expect a greater proportion of food-sharing acts to occur in reciprocal relationships. While this pattern is found when examining all resources combined, the survey results also indicate the prevalence of non-reciprocal food-sharing acts for salmon and potatoes, arguably two of the most important parts of people's diets. Rather than indicating a risk reduction strategy of *production*, non-reciprocal food-sharing acts may provide evidence of a strategy of cooperative *reproduction* (Hrdy 2009; Hill & Hurtado 2009).

The stable asymmetries of need indicated by the prevalence of sharing salmon and potatoes in non-reciprocal relationships may occur during life history periods when, due to the presence of dependent children and adolescents, levels of household production do not meet household needs of consumption. Hill and Hurtado (2009) have documented these patterns among foragers and forager-horticulturalists in South America, but there is some evidence that similar patterns may be found in parts of Siberia. Crate's research in the Sakha Republic (2006) emphasizes the importance of kin-based networks of social support, arguing that kin are a key part of Sakha people's resilience in the face of severe challenges posed by the collapse of the Soviet Union and the transition to a mixed economy. Ziker's research in Taimyr echoes Crate's conclusion, adding crucial detail to the picture. Ziker found that differences in productive potential between households, measured as the number of hunters in each household, significantly predicted patterns of meal-sharing between households (Ziker & Schnegg 2005). Kinship and reciprocity also had significant effects on patterns of meal-sharing in Ziker's research, suggesting that these variables may operate in tandem with relative differences in household production and consumption. This possibility is supported by Allen-Arave *et al.*'s (2008) analysis of food-sharing among Ache forager-horticulturalists in Paraguay, where food flows between households according to relative need, and food-sharing occurs in greater amounts between related households that give and receive reciprocally.

When relationships and reciprocity are plotted together, reciprocal transfers among kin are by far the most frequent food-sharing acts (Figure 5.10).

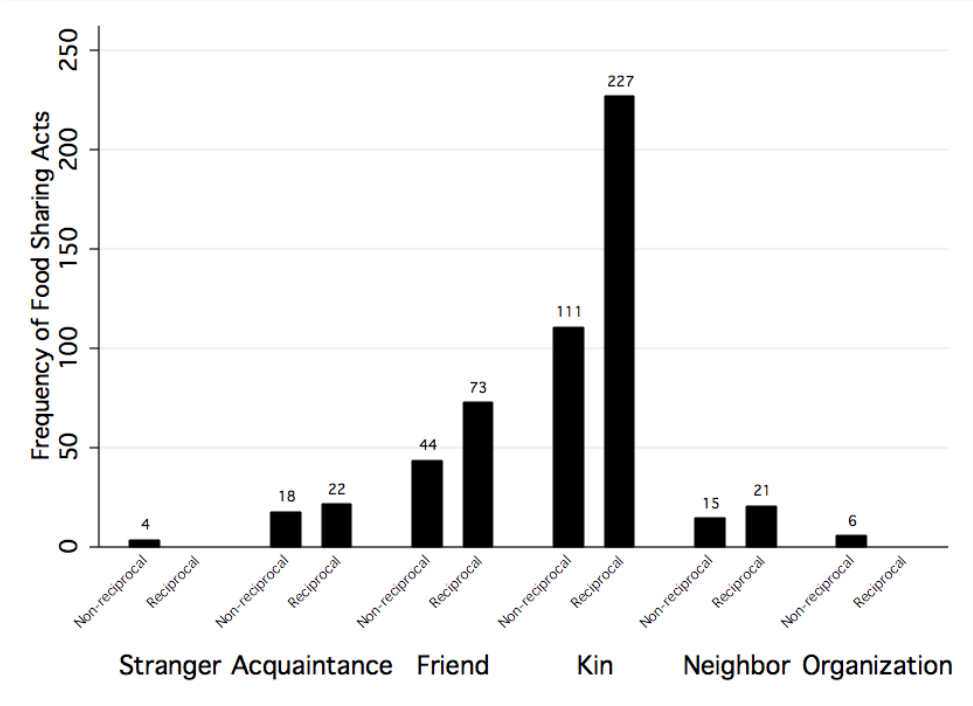

Figure 5.10. Frequency of food-sharing acts by relationships and reciprocity. Numbers above bars indicate the number of acts observed.

This result supports Allen-Arave *et al.*'s and Ziker's suggestions that theories of kin selection and reciprocity may often operate in tandem. Although theories of kin selection do not generally emphasize the importance of reciprocal contingency, the fact that coefficients of genetic relatedness are relational properties of dyads—as opposed to properties of individuals—implies that kin have a mutual interest in cooperating with one another, assuming that their relative means and needs are symmetrical over time. However, the advantage of cooperating with kin is that an altruist can benefit indirectly, through inclusive fitness, even in the absence of reciprocity. Indeed, the second most frequent food-sharing acts in my data are non-reciprocal transfers between kin. These patterns of non-reciprocal cooperation may reflect stable asymmetries of need that are more likely to be maintained through kin selection than reciprocal altruism. Further research that documents patterns of food-sharing according to relationships,

reciprocity, and the fluctuations in relative need between households may enable a synthesis between these two important theories of cooperation.

Significance

Subsistence activities, collective institutions, & social networks of support in Kamchatka

Ethnographers working throughout post-Soviet Siberia have often focused on collective institutions, skillfully documenting and exploring the practical and symbolic dimensions of production. While this research reveals the means with which individual and collective interests are pursued, the ends that motivate these interests lie on a plane below, visible in the social networks of support within and between households in rural communities. During the Soviet era, ideologies of production and re-distribution established vertical channels for the flow of resources from state actors and institutions to villages and households. Yet, these vertical networks did not entirely replace horizontal networks of support within communities, and may have even encouraged them to flourish in unintended ways. With the collapse of the Soviet Union and the state economy, people throughout Siberia began to cultivate anew and heavily rely upon on these horizontal networks as a way of adapting to the instability and uncertainty of vertical networks of state support in the post-Soviet environment.

In the mixed economies found throughout Siberia, horizontal networks of support often facilitate the production and re-distribution of subsistence foods. Building on research by Crate and Ziker, my investigation of food-sharing in Kamchatka suggests that kinship and reciprocity are important factors guiding the formation and maintenance of these social networks of support. The theories and methods of human behavioral ecology are useful for understanding how kinship and reciprocity can lead to the emergence of cooperative behaviors like food-sharing. Following

this approach, my research suggests that an individual's biological interests should be taken into account when seeking to understand patterns of food-sharing, along with the economic, political, social, and spiritual interests that ethnographers often focus upon. Indeed, attending more closely to biological interests may help researchers enhance their understanding of the complex interplay between individual and collective interests that are found in post-Soviet collective institutions. Post-Soviet collective institutions continue to play an important role in coordinating herding, fishing, foraging, and other traditional subsistence activities among indigenous peoples in Siberia. Considering how the resources from these productive activities circulate widely throughout the village, flowing through networks of social support according to preferences for kinship and reciprocity, we might expect that individuals would seek to shape collective institutions in ways that enable them to better maintain these patterns of cooperation. In this way, a better understanding of how different collective institutions facilitate or impede individuals as they cultivate and maintain networks of social support may help illuminate the factors underlying the emergence of unprecedented institutional diversity throughout post-Soviet Siberia. Such knowledge would be useful for the wide variety of actors, including indigenous activists, community leaders, government officials, NGOs, and academics who are seeking to help improve the economic and social security of rural communities in Siberia.

Chapter 6:

Post-Soviet Institutions & Collective Action in Kamchatka's Salmon Fisheries

"Community work is work without compensation"

I wrote this phrase, "*obshchestvennaya rabota—eta besplatnaya rabota,"* in my notebook as it was spoken by Albina Viktorovna Yailgina, a local journalist and indigenous rights activist who had organized a meeting that I attended on June 10-11th, 2009 with community leaders from villages throughout the Oliutorskii Raion (OR). Albina Viktorovna thanked the ten people who had taken their time to attend the meeting, both acknowledging their sacrifice and reminding them of their purpose. For me, her words reflected a recurring challenge in the collective action movements that I had been studying since the fall of 2007, when I began my dissertation fieldwork in Kamchatka. In seeking to address issues of indigenous rights, economic development, and environmental conservation, community leaders often struggled to balance their efforts toward the public good with the ever-present need to make private gains in order to support themselves and their families. Although the phrase implies a strict separation between "community work" and "compensation," one of the most urgent imperatives of collective action movements in post-Soviet Kamchatka is to reconcile the two. The transition to new markets brought on by *perestroika* and privatization are transforming the social and economic structures of the Soviet era, as well as the cultural norms and values that sustain or undermine them. These transformations have serious implications for the lives and livelihoods of individuals, as well as their shared sense of community and cultural identity. While Albina Viktorovna's words captured something fundamental about the dynamic tension between individual and collective interests, the meeting itself helped me see more clearly the complex relationships that connected individuals, collective institutions, and broader collective action movements that I had been

attempting to document and understand during 19 months of ethnographic research in Russia as well as several years of preparation and reflection back home in the United States.

Taking Albina Viktorovna's personal story and the RAIPON meeting that she organized as starting points, I examine the collective action dilemmas posed by a classic common-pool resource, Kamchatka's salmon fisheries. After introducing the theoretical perspectives of institutional analysis and development (IAD), human ecology, and political ecology, I describe the institutional diversity that has emerged in post-Soviet collectives in the Oliutorskii Raion. These collective institutions play an important role in structuring the dilemmas of ensuring the just and sustainable use of Kamchatka's salmon fisheries. Yet, post-Soviet collectives are also reflections of the unique historical and cultural legacies of the people who populate them. The cultural norms and values that these people hold influence how they identify problems, establish causes and effects, and debate solutions. Thus, understanding collective action dilemmas in Kamchatka requires analysis of post-Soviet collective institutions as well as the individual subjectivities of fishers, herders, activists, and others who debate the use and management of salmon fisheries. My analysis has two parts. In this chapter, I focus on how debates over salmon poaching connect to the role of collective institutions in the community life of rural villages, economic development, and cultural continuity. In the next chapter, I use Ostrom's "design principles" for successful institutions to assess post-Soviet collectives in Kamchatka, concluding with a more detailed analysis of the June 2009 RAIPON meeting as an event that illustrates how individual subjectivities shape, and are being shaped by, these collective institutions. Together, these two chapters explore how the practices of salmon fishing and reindeer herding—and the ways of life that they support—are increasingly becoming integrated

with broader collective action movements for indigenous rights, economic development, and environmental conservation.

An Activist, An Association

After meeting Albina Viktorovna on my first visit to Tilichiki in 2005 and subsequently spending much time with her discussing collective action movements in Kamchatka, I knew that her words also expressed weariness with her work as a leader of the local branch of the Russian Association of Indigenous Peoples of the North[1] (RAIPON). She had told me several times in the months before the meeting that she felt the need to take a break from her advocacy work, hoping to focus her time and effort on becoming more economically secure, either by opening a small grocery store in the village or by seeking more lucrative employment elsewhere. Indeed, she alluded to these intentions later on during the meeting, encouraging some of the younger participants to begin taking a more prominent role in the Association's activities. Though she did not say so publicly at the time, I knew from past conversations that she had become frustrated by the feeling that she spent most of her energy working for other people and not enough energy working for herself. Still, the fact that she had succeeded in gathering us all together for the meeting was one more among many occasions where I observed her devotion to pursuing the rights and concerns that she shared with other indigenous people in the region.

Albina's personal story includes strands shared by other community leaders that I became acquainted with during the course of my project. I focus on her because she has played a central role in many of the collective action movements that I encountered during my research, but also because I spent more time with her and came to know her better than I do most other people in

[1] *Assotsiatsia Korennykh Malochislennykh Narodov Severa, Sibiri i Dalnego Vostoka Rossiiskoi Federatsia (AKMNS)*

the villages where I worked. Albina arrived at her position of leadership by leaving home and coming back again. First, she left Tilichiki for St. Petersburg, completing her university degree in journalism along with many other indigenous students from villages throughout Siberia. University education was part of the broader vision of Soviet modernity: to achieve the integration of indigenous peoples into the Soviet system through cultural and intellectual development (Bloch 2004; Grant 1995; Slezkine 1994; Ssorin-Chaikov 2003). Students gathered at universities in St. Petersburg, Moscow, or regional capitals, then returned home to become leaders who would labor toward the construction of Soviet modernity in their communities. Though she was younger than most, at the time in her early 40s, Albina was one of several people I met in Kamchatka's rural villages who had taken advantage of educational opportunities provided to indigenous students during the Soviet era, acquiring skills and experiences that helped them achieve positions of influence and authority in the village's administration, collective institutions, hospitals, schools, and other occupations. Albina eventually took a position as a reporter for the *Oliutorskii Vestnik*, a bi-weekly newspaper based in Tilichiki that covered events in the Oliutorskii Raion and throughout Kamchatka. Her articles usually focused on issues facing indigenous peoples, but she was also a well-informed, persistent, and daring commentator on political and economic affairs. These interests naturally complemented her advocacy work with RAIPON, which she pursued in her spare time or in tandem with her reporting.

Since completing her university degree, Albina spent most of her time living and working in Tilichiki. Yet, the professional skills and personal connections that she acquired during her education in St. Petersburg, along with her work as a journalist, made her effective at bringing the concerns of indigenous people in rural villages to broader audiences. By engaging these

audiences, Albina and other activists like her were sometimes able to bring resources back to their communities. Through her work with RAIPON, she had frequently traveled back and forth between Tilichiki and Petropavlovsk-Kamchatskii, also venturing to other regions in Russia to participate in RAIPON conferences, academic meetings, and community projects. Once, Albina was invited to travel to Alaska to participate in a cultural exchange between Russia and the United States, but due to visa problems she was ultimately unable to make the trip. Still, she had succeeded in establishing connections with a variety of international organizations, collaborating on projects with the Danish government, the United Nations Development Program, and Pacific Environment, among others. Development projects like these have become common throughout Kamchatka since the 1990s, when the Peninsula became open to foreign visitors who were drawn there by its unique combination of wilderness, natural resources, and indigenous cultures. These projects often seek to engage local communities. Examining large-scale development projects elsewhere in Kamchatka, Wilson and Koester (2008) discuss how the opportunities that these projects provide are often accompanied by dilemmas, particularly concerning community participation. Local leaders like Albina have played an important role in overcoming these dilemmas. On the whole, her leadership was largely responsible for the fact that the Oliutorskii branch of RAIPON celebrated its 10th anniversary in the weeks following the June 2009 meeting, making it the oldest regional association in northern Kamchatka.

The June 2009 meeting was officially titled "Exploring Alternatives to Poaching." Albina's original goal was to provide a workshop where community leaders could learn how to develop a grant application, often called a *"biznes plan*" in a Russian variant of the English phrase. The grant applications were intended for a recently announced community development initiative funded by the Russian Federation. Although the development initiative was broad in

purpose, Albina framed its relevance for local residents in the context of poaching salmon, an issue that had attracted considerable attention from governmental authorities and non-governmental organizations in Kamchatka and abroad (Quammen 2009; Dronova & Spiridonov 2008; Chivers 2006; Webster 2003). Since the collapse of the Soviet state economy, selling salmon caviar has become one of the few reliable sources of income for indigenous and non-indigenous residents of Kamchatka's rural villages. Therefore, finding alternative sources of income is a priority for village residents and outside actors alike. The government's community development initiative would be one of many past, present, and future attempts to find solutions to this problem.

By assembling leaders from different villages and providing them with the training to develop grant applications, Albina hoped to increase the number of successful grants from the region. She asked each participant to assist others in their village in preparing grant applications, using the knowledge and skills that they acquired during the workshop. By doing so, she was replicating her own experiences, both as a university student during the Soviet era and also later on as an activist. This strategy is known in other development circles as "capacity building," but in Russia it reflects a long tradition of education, training, and civic activity that extends back to the Soviet era (Gray 2005; Metzo 2009; Slezkine 1994: 182-183). Albina had participated in similar RAIPON sponsored workshops that brought community leaders from rural villages to Petropavlovsk-Kamchatskii to learn skills from more seasoned activists, applying these experiences to her work in Oliutorskii Raion. Thus, the meeting was a continuation of collective action movements that began years ago, as well as a concerted effort to redirect and strengthen those movements for the future.

Aside from the relatively small collection of people assembled in Tilichiki, the presence of other individuals and institutions was also felt. Albina received funding for the meeting from *Lach*, an "ethno-ecological information center" based in Petropavlovsk-Kamchatskii and affiliated with RAIPON. Lach received funding from international non-governmental organizations (NGOs) like Pacific Environment and the Wild Salmon Center, using some of these resources to sponsor "mini-grant" competitions for a variety of projects in Kamchatka. Albina also volunteered for Lach as a correspondent, contributing news briefs from Tilichiki and other villages in the region for Lach's weekly news digest, which was published in the print newspaper *Aborigen Kamchatki*, posted online at Lach's website (www.lach-kamchatka.ru), and distributed free via e-mail to Lach's list of subscribers. Partnerships between Lach, RAIPON, and other local institutions on the one hand and international NGOs on the other have played an increasingly important role in collective action movements in Kamchatka and throughout Siberia since the fall of the Soviet Union.

Though the grant-writing workshop was the original purpose of the meeting, equally pressing concerns arose in the weeks before that demanded immediate attention. After several years of relative stability, the system for allocating salmon quotas among the various collective institutions throughout Kamchatka changed suddenly and dramatically. For the past several years, obshchina collectives (pl. *obshchiny*) had been able to receive quotas by submitting their requests along with a few documents specifying their existence, location, and membership. However, in 2009 they were required to enter a newly devised "competition" (*konkurs*) for a limited number of fishing territories (*uchastki*) by submitting a more extensive application. 20 of the 36 registered obshchiny in the OR submitted applications by the April 17th deadline, but 12 of these applications were rejected because they were incomplete or incorrectly formatted. Only

5 of the obshchiny were awarded quotas and territories, leaving the remaining obshchiny without the legal right to harvest salmon above subsistence levels. I first learned about this issue from Lach's website in May 2009, while I was preparing to depart the U.S. for a summer of fieldwork in Kamchatka. When I arrived in Petropavlovsk-Kamchatskii, I read several newspaper articles in *Aborigen Kamchatki*, written by regional RAIPON associations and obshchina leaders from throughout Kamchatka who were protesting the results of the new competition. Upon arriving in Tilichiki in early June, I began to hear first-hand accounts from people in the village who were angered and dismayed at being denied quotas and having their territories "taken" (*sniali*) from them through a process that they felt was confusing and lacked transparency.

With these concerns in mind, the meeting became a venue to voice frustrations, get answers, and devise a response. The agenda was modified to discuss how the quota competition had been carried out and to draft a statement protesting the results. The morning session of the first day was devoted to this discussion. After a break for lunch, two representatives from the Oliutorskii Raion office of fishery inspections, the local authorities responsible for enforcing regulations on salmon fishing, were brought in to help obshchina leaders examine the implications for collectives that had not received quotas. The fishery inspectors were polite and sympathetic, but openly admitted that they had no authority over quota allocation, only quota enforcement. After they left, the rest of Day 1 was spent discussing the components of a successful grant application and working in small groups to practice preparing one. Knowing that I had been successful obtaining grants to fund my research in Kamchatka, Albina wanted me to attend so that I could contribute advice about the process, though she did not choose to notify me of her intentions until moments before we began to discuss grant-writing! Put on the spot, I had not prepared for the possibility of participating so directly in the meeting. I helped as much

as I could, despite feeling a bit uneasy about affecting processes that I was still struggling to understand. We spent the afternoon of Day 2 presenting outlines of our grant applications and discussing their strengths and weaknesses. Then the meeting returned to the problem of the quota competition, and the participants drafted a letter to the governor of the Kamchatskii Krai as the Association's formal response.

Although the June 2009 meeting of the Oliutorskii Raion branch of RAIPON was a brief moment in a broader collective action movement, this event provides an opportunity to identify the movement's roots in the past and explore the factors that have influenced its growth. Koester (2005) has used this approach in his research with Itelmen communities elsewhere in Kamchatka. Focusing on a meeting of people in the village of Kovran in 1993 that ultimately resulted in a letter to the United Nations, Koester used this single event to illuminate "the historical and political grounding of local practices and the channels of communication by which ideas, hopes, and fears are conveyed, the means by which people know about the world, work with ideas, debate, and make plans" (2005: 645). Koester's approach was inspired by the work of Marshall Sahlins, Veena Das, and other cultural anthropologists interested in how the analysis of key events can reveal relationships between social structures and individual agency (Koester 2005: 643-644). A similar analytic focus on events has also been developed in environmental anthropology. Vayda and Walters' "event ecology" approach urges researchers seeking to understand environmental change to begin with key events, then "work backward in time and outward in space . . . to construct chains of causes and effects leading to those events or changes" (1999: 169). With both of these approaches in mind, I focus on the meeting in Tilichiki as a concrete event in the ongoing drama over the use and management of Kamchatka's salmon fisheries in rural villages. Though my ability to construct complete causal chains is limited by

the data that I have collected, I do identify influential actors and institutions, analyze key questions, and suggest directions for future research on contemporary fishing practices, disputes over quota allocations, allegations of poaching, and the impacts that these have on Kamchatka's salmon populations.

After introducing the key theoretical and methodological perspectives that inform my research on collective action movements in Kamchatka, I describe in greater detail the various participants in these movements. I focus on the ways that post-Soviet collective institutions act as nexus points, connecting patterns of cooperation within the village to collective action movements extending beyond. A more detailed analysis of the June 2009 RAIPON meeting in Tilichiki helps illustrate these connections, but I also draw upon other events that I participated in and observed while living in several villages in the Oliutorskii Raion. Because these events are part of broader collective action movements that change in significant and unanticipated ways from month to month and year to year, I am concerned more with documenting what has occurred and delineating important issues that deserve further attention than I am with arriving at strong conclusions. Still, the analysis of collective action movements in Kamchatka provides some valuable insights about the factors influencing the emergence and stability of cooperation at multiple levels, extending ethnographic investigations from rural villages to transnational arenas.

Collective Action & Human Ecologies

The tension between individual and collective interests—expressed in Albina's statement that "community work is work without compensation"—has been the focus of a growing body of research on cooperation, collective action, and common-pool resource use. The growth of this

research reflects a widespread interest in what has been called a "collective action dilemma" (Olson 1965). A collective action dilemma occurs when coordinating the actions of multiple individuals toward a common purpose would lead to a beneficial outcome for all, but the realization of that outcome is threatened by individual incentives to abandon group obligations and pursue personal gains. Several influential models have been developed to represent collective action dilemmas, including the Prisoner's Dilemma (Axelrod 1984; Axelrod & Hamilton 1981), the Public Goods Game (Ledyard 1995), the Tragedy of the Commons (Hardin 1968), and many more. Though each of these abstract models has limitations when applied to collective action dilemmas occurring among actual individuals who occupy concrete points in space and time, these models have been tremendously successful as common metaphors that allow researchers from many different disciplines to communicate their empirical findings and debate the implications for theory and practice.

Spanning the social and natural sciences, a number of interdisciplinary research programs have taken up the enduring intellectual and practical questions posed by collective action dilemmas (Agrawal 2003; Baland & Platteau 1996; Dolsak & Ostrom 2003; McCay & Acheson 1987b; National Research Council 2002). This research embraces a wide-range of innovative methodologies and endeavors to solve pressing problems that threaten to undermine the sustainability of common resources and the individuals and communities who rely upon them. One of the more prolific approaches is the Institutional Analysis and Development framework (IAD), crafted by Elinor Ostrom and colleagues (Ostrom 1990, 2005; Ostrom *et al.* 1994). The IAD framework is an attempt to build a comparative approach or "conceptual map" (Ostrom 2005: 8) that helps researchers navigate the recurring structural challenges that are found in many contexts of cooperation, collective action, and common-pool resource use. This goal has

been pursued first by identifying "design principles" shared by institutions that have been successful in solving collective action dilemmas (Ostrom 1990) and later by seeking to understand how institutional diversity leads to dynamics between individuals, institutions, and exogenous factors that are unique from place to place (Ostrom 2005).

While the IAD framework has attracted the attention of researchers in many disciplines who have successfully applied it to their own research, the dominant theoretical and methodological perspectives that inform it are primarily derived from economics, political science, and to a lesser extent sociology and psychology. More specifically, the IAD framework focuses on rational choice models that examine collective action dilemmas as trade-offs between calculated costs and benefits in various currencies, subject to constraints imposed by limitations in cognitive capacity, available information, and individual agency (Ostrom 1998). Theories of individual decision making processes based on some kind of rational choice model are clearly an important part of understanding collective action dilemmas. But anthropologists have argued convincingly that it is also essential to understand the broader social and historical contexts in which individuals are embedded (McCay & Acheson 1987a). McCay suggests that researchers should attend more closely to "situated choice," which entails the recognition that:

> Rational choices are embedded in situations or contexts that structure the preferences people have, the knowledge available to them, its quality and levels of uncertainty, the risks they face, the resources to which they have access, the people with whom they interact, and more, including the institutions—norms, rules, values, organizations, and patterns of behavior—that frame and structure their lives. (2002: 363)

Among these aspects of situated choice, McCay devotes special attention to the cultural norms and values explicitly or implicitly expressed in institutions (2002: 361-362). Although anthropologists are developing new ways to quantify the cumulative effects of cultural norms and values (McElreath & Boyd 2007; McElreath & Henrich 2007), analyzing how individual choices are situated within social and historical contexts will continue to rely heavily on classic

qualitative ethnographic methods like participant observation, unstructured interviews, and archival work, as well as the interpretive forms of analysis that these methods facilitate (McCay 1998). I utilized these qualitative methods while conducting my research on collective action in Kamchatka.

Several related approaches to studying human-environment interactions—including cultural ecology (Sutton & Anderson 2004), human ecology (Bates & Tucker 2010), and political ecology (Robbins 2004)—share theoretical and methodological perspectives that focus primarily on the elements of situated choice that McCay identifies. While there are some differences between these approaches (McCay 2008; Vayda & Walters 1999), they each devote greater attention to the ways that cultural, economic, environmental, historical, and political contexts shape the structure of collective action dilemmas, affect individual choices, and influence outcomes. Among the unique insights of this increased attention to contexts, I focus on two themes: (1) how the "politics of distribution" for natural resources become linked to the "politics of recognition" (Watts 2000: 258) and (2) how cultural norms and values alter perceptions of collective action dilemmas, assessments of cause and effect, and debates over solutions (McCay 2002). Attending to these two themes also leads to an appreciation for a wide range of phenomena that are important for understanding collective action dilemmas.

Returning to the meeting in Tilichiki with these themes in mind, certain details come into focus and invite further analysis. The fact that the meeting was organized by a branch of RAIPON, an organization whose purpose is to advocate indigenous peoples' political rights, illustrates how closely intertwined the politics of distribution and the politics of recognition have become in Kamchatka. Though the central issues on the meeting's agenda were encouraging economic development and securing access to salmon quotas, matters that are often but not

inherently politicized, acting collectively to solve these issues presented obstacles that were unlikely to be overcome without RAIPON's involvement. The Association has played a key role in the growth of an indigenous rights movement in Russia that has roots in the Soviet past and is now part of a growing global phenomenon (Gray 2005). RAIPON's network taps into forms of economic, political, and social capital that have been crucial to the limited successes that indigenous people in Kamchatka have had in adapting traditional subsistence strategies like salmon fishing to fit their needs in the post-Soviet mixed economy.

Contemporary collective institutions, particularly obshchina collectives, are a clear example of how securing access to natural resources and pursuing political advocacy have become part of the same process for salmon fishers in Kamchatka. That many of the participants in the meeting in Tilichiki were representatives of obshchina collectives from throughout the Oliutorskii Raion was not a coincidence. Albina had invited these representatives because their involvement in an obshchina indicated to her that they had interest in devoting their time and efforts to "community work" but also because she recognized that members of obshchina collectives had more at stake in the results of the 2009 salmon quota competition. The relationship between organizations like RAIPON and collective institutions provides an opportunity to link analysis of the political and cultural dimensions of natural resource use. Like other institutions that have been the focus of research in the IAD framework, post-Soviet collectives can be examined according to the extent to which they share the "design principles" of successful institutions. Yet, post-Soviet collectives also embody unique constellations of cultural norms and values whose present manifestations reflect the unique histories of indigenous peoples in Russia.

The discussions that occurred among participants in the meeting provide a glimpse at how problems are identified, causes assigned, and potential solutions debated. Thus, a closer look at these discussions may provide insights into the "situated choices" of individuals in Kamchatka's rural villages, including both those who participated and those who did not but are presumed to share some of the same cultural norms and values. By combining the IAD approach with the insights provided by human and political ecology, I hope to advance our understanding of how the recurring structures of collective action dilemmas interact with the situated choices of people embedded in particular contexts. I also hope that this analysis will contribute to the goal of documenting and understanding important issues facing indigenous peoples in Kamchatka and elsewhere throughout Siberia, perhaps eventually playing a part in the development of solutions.

Poaching in a Post-Soviet Commons

Poaching salmon is an issue that illustrates some of the most difficult economic challenges and important collective action dilemmas in Kamchatka today. Salmon have long been a staple of the diet for people living in rural villages, but recently salmon have also become an important source of income through the sale of raw salmon roe and prepared salmon caviar. Pacific salmon provide the foundation for Kamchatka's commercial fishing industry, contributing between 40%-80% of Russia's total catch for pink, chum, and coho salmon and 100% of sockeye and chinook salmon. Between 2004-2006, an average of 232 thousand tons of Pacific Salmon was caught in the Russian Far East (Dronova & Spiridonov 2008). These figures are on the higher end of the range between 150-260 thousand tons recorded during the period of 1995-2006 (Dronova & Spiridonov 2008). Pacific salmon generate an annual value estimated around 600 million dollars for the Russian economy through the sale of fresh, frozen, smoked,

and salted salmon sold in local markets, shipped throughout the Russian Federation, and exported abroad to markets in China, Japan, and the South Korea (Chivers 2006). A report commissioned by WWF, TRAFFIC, and the Moore Foundation recently estimated that an average of 18 thousand tons of salmon caviar are produced annually in the Russian Federation, including 3-6 thousand tons produced illegally (Dronova & Spiridonov 2008). Overall, the report estimated that 54 thousand tons of salmon are poached annually in Kamchatka (Dronova & Spiridonov 2008). Aside from its economic value, Kamchatka is one of the few remaining strongholds of salmon conservation and biodiversity, providing spawning grounds for an estimated 25% of the wild salmon populations in the Pacific, including all seven species of Pacific salmon (Augerot 2005).

Table 6.1. Information on Pacific species that spawn on the Kamchatka Peninsula, Russia.

Common Name	**Russian Name**	**Species**	**Abundance*** (in hundreds of thousand fish)	**% of Total Russian Catch****	**% of Russian Catch from Kamchatka*****
Pink	*Gorbusha*	*Oncorhynchus gorbuscha*	10.0-1.0	90%	40-80%
Chum	*Keta*	*Oncorhynchus keta*	100.0-10.0	6%	40-80%
Sockeye	*Nerka*	*Oncorhynchus nerka*	100.0-10.0	4%	100%
Coho	*Kizhiuch*	*Oncorhynchus kisutch*	10.0-1.0	<0.5%	40-80%
Chinook	*Chavycha*	*Oncorhynchus tshawytscha*	10.0-1.0	<0.1%	100%
Cherry	*Sima*	*Oncorhynchus masou*	Not assessed	Negligible	Not reported
Steelhead / Rainbow Trout	*Raduzhnaia forel'*	*Oncorhynchus mykiss*	Not assessed	Negligible	Not reported

*Abundance based on catch data reported for Bering Slope/Kamchatka eco-region, which includes Oliutorskii Raion (Augerot 2005).
**Data on total Russian catch reported in Augerot 2005
***Data from Dronova & Spiridonov 2008

At every level of salmon fishing in Kamchatka, from industrial fishing companies to small-scale subsistence fishers, there are a number of short-term economic incentives to harvest salmon in amounts that exceed assigned quotas. As in any fishery—and for other common-pool resources

more broadly—these incentives are part of a collective action dilemma that a variety of actors and institutions are interested in solving.

A complete analysis of the collective action dilemma in Kamchatka's salmon fisheries is beyond the scope of my project, requiring detailed studies of commercial fishing companies, federal regulatory agencies, domestic and international markets, conservation groups, and so on. Instead, my approach to studying this collective action dilemma begins with communities of small-scale fishers in rural Kamchatka, expanding to include the various collective institutions, NGOs, and government authorities that attempt in different ways to monitor and intervene in their fishing practices. Although the Russian Federation officially owns and manages Kamchatka's salmon fisheries, there is a strong sense of entitlement to harvest salmon that often supersedes government authority among both indigenous and non-indigenous residents of rural villages. Combined with the notorious difficulties of quota enforcement, these informal entitlements establish patterns of natural resource use on a local level that resemble a kind of post-Soviet "commons," where resources are accessible to all community members, but utilized according to a mix of formal regulations and intangible but equally influential cultural norms and values that are held and enforced to varying degrees by local residents.

Depending on whose perspective one adopts, these commons can be seen as either embodiments of or obstacles to the just and sustainable management of salmon fisheries in Kamchatka. For many indigenous peoples, small-scale fishing practices are traditional ways of life and expressions of cultural identity that deserve recognition and protection. For indigenous rights activists, these practices are the starting point on a path to "neotraditional" development (Pika 1999), with the ultimate goal of improving the ability of small-scale fishers to meet their economic needs by accessing new markets while also expanding their political authority to

participate in fisheries management. For the commercial fishing industry, these developments transform small-scale fishers from employees to potential competitors or partners, leading to complex relationships among fishing companies, local residents, and activists. From the perspective of the Russian government, the relationship between local fishing practices and official regulations is perhaps even more complex, with some factions pushing for more strict enforcement while others feel pressure to cope with the economic and political realities that complicate enforcement in rural communities. Non-governmental organizations are relatively free from the imperative to enforce official regulations, yet their efforts are complicated by the extent to which their interests and goals imperfectly overlap with small-scale fishers on one hand and the government authorities that they must respect and with whom they often must collaborate on the other. These multiple perspectives inform and interact with one another throughout Kamchatka, challenging straightforward solutions to the collective action dilemma posed by salmon poaching.

Institutional diversity in post-Soviet collectives

In December 2007, a few months after I arrived in Kamchatka to begin the bulk of fieldwork for my dissertation, I interviewed Albina Yailgina in her office at the *Oliutorskii Vestnik*. Most of my questions for her concerned the processes necessary for people to found obshchina collectives in the Oliutorskii Raion. I already knew that Albina was a strong proponent of increasing the number of obshchiny and had advocated on their behalf for increased access to fishing quotas, development funds, and other resources. As one of the few people in the region who was familiar with all the documents, procedures, and rules for founding these collectives, she had assisted many people in navigating this potentially confusing bureaucratic

process. Still, Albina told me stories about people who sent off their application, only to learn months later when it was returned to them in the mail that some document had been missing or completed improperly:

> "We have an obshchina in Achaivayam, and it is already the second obshchina that has been registering for almost an entire year! This is because when the documents arrived to the [Tax] Service, they read them and didn't like one letter! They returned [the application], and it was sent back and forth...the bureaucrats (*chinovniki*) interfere. It's very bad."

Considering the slow speed of mail between rural villages in the northern part of the Peninsula and Petropavlovsk-Kamchatskii on the southern tip, making the necessary revisions would require several more months of waiting. In the end, Albina explained, "As people send [applications] back and forth, they already lose the desire to register that obshchina, to be involved with that obshchina, and they abandon the matter and don't register that obshchina." Despite these bureaucratic obstacles, Albina noted that there had been a significant increase in the number of obshchina collectives founded in the Oliutorskii Raion. "Just two years ago, no one wanted to get involved in obshchiny, but now more and more do. In the last year, it has been connected with the fact that they were given quotas...industry quotas. That's why they have quickly begun to register and register, and now the influx continues."

When I first traveled to the Oliutorskii Raion in the summer of 2005, I was told there were between five and seven obshchiny in the region. Now in the winter of 2007, Albina put the number of obshchiny around 20, and the figure would later grow to at least 36 by spring 2009. The same trend appeared to be evident throughout Kamchatka. I read several newspaper articles and online posts in spring 2009 that had the total number of obshchiny in Kamchatka eclipsing 300, a figure that representatives of the Petropavlovsk-Kamchatskii branch of RAIPON who were knowledgeable of the official tally told me they felt was accurate. This influx of formally

registered obshchina collectives was certainly due in large part, as Albina suggested, to the fact that existing obshchiny had begun to receive "industry quotas" which could be anywhere between 5-100 tons of salmon. These quotas stood in stark contrast to the 200-350 kg of salmon that every indigenous person in the Oliutorskii Raion is allowed to claim as part of their "subsistence" quota each summer[2]. Yet, the reality on the ground in fishing camps along the rivers where I traveled was that it was often difficult to distinguish between a formally registered obshchina and an informal group of relatives, friends, and acquaintances who shared a fishing camp for the summer. Exploring the factors that led some of these informal groups to become formal collective institutions illustrates some important elements of the relationship between the politics of distribution and the politics of recognition in Kamchatka.

Formal & informal obshchiny

Prior to the laws that enabled people to found obshchina collectives, indigenous people in Kamchatka who wanted to fish were required to form a *brigad* ("brigade," pl. *brigady*) by gathering a group of relatives, friends, and acquaintances, then submitting the list to the local village administration. The administration would record this information, calculate the total amount of salmon that could be legally harvested by the brigade, and require a single leader (the "brigadier") to record each day's catch in a notebook that could be checked at any moment by passing fishery inspectors. The composition of these brigades was not restricted, aside from the fact that all members needed to belong to a recognized indigenous ethnicity. However, after the laws that created the obshchina as a formally recognized collective institution were passed and

[2] The size of personal "subsistence" quotas varies according to a person's place of residence and the year. Indigenous residents of Petropavlovsk-Kamchatksii, for example, may receive as little as 30 kg for subsistence use while a resident of Tilichiki may receive as much as 300 kg in the same year. These figures change from year to year depending on predictions about the number of migrating salmon and the total allowable catch for the region. For example, the subsistence quota in Oliutorskii Raion in 2008 was 200 kg, but increased to about 350 kg in 2009.

indigenous rights activists began to advocate on the obshchina's behalf, the options available to small-scale fishers changed. If a group of people was willing to deal with the bureaucratic process of founding an obshchina, they could receive the right to legally harvest a far greater amount of salmon. For example, with a 200 kg subsistence quota, a 10 person brigade would be able to harvest about 2 tons of salmon. The same group would likely receive between 10-20 tons of salmon as an obshchina, with the possibility of increasing that amount in subsequent years by adding more members or by fishing efficiently and without violations.

Though the use of the Russian word "brigad" implies a connection to the Soviet era work groups that were nested within the organizational structure of a state (*sovkhoz*) or collective (*kolkhoz*) farm, the fact that the majority of these groups of small-scale fishers are composed of individuals who share ties of kinship implies a closer connection to the Russian word "obshchina" and its reference to pre-revolutionary forms of socioeconomic organization among indigenous peoples. Indeed, these patterns of social organization inspired the use of the term "obshchina" for the newly formed collective institutions that officially bear that name. Thus, the primary differences between brigady and obshchiny concern the formal rights to access salmon that these two kinds of collective institutions can claim. Though the most prominent among these rights is access to larger salmon quotas, establishing a formally recognized obshchina can also lead to increased access to economic capital in the form of development grants as well as political capital through partnerships with RAIPON, international NGOs, and other organizations.

"Neotraditional" development

Although an obshchina might receive an "industrial quota," its ability to process and preserve salmon, either for personal use or for sale, is often limited by inadequate equipment and isolation from markets. Due to the general abundance of salmon in the village during the summer, there is weak demand for fresh fish in local markets. While this demand increases during the winter months, very few if any individuals have the refrigeration technology necessary to keep large amounts of salmon fresh until the winter, when temperatures stay well below freezing. Instead, people need to salt, dry, or smoke salmon to preserve it. But these preservation methods are labor intensive and, with the exception of smoked salmon, produce products that command lower prices than fresh or frozen fish. Moreover, because village residents have scarce financial resources, most people try to limit purchased foods to those items that they cannot produce themselves. Thus, the only realistic market for salmon lies outside the village, either in Petropavlovsk-Kamchatskii or beyond, where consumers are unable to produce their own salmon. Yet, the cost of exporting salmon from isolated, rural villages to regional centers requires large transactions, business connections, and transportation infrastructure that obshchina collectives almost always lack, not to mention the certifications that would be required to engage in the legal production of food as a commodity. For these reasons, the only source of income for most obshchina collectives comes through the sale of caviar. Due to the fact that salmon caviar commands a higher price per kg than salmon, ranging from about 500 rubles ($20) in the village to 1,000-1,500 rubles ($40-60) in Petropavlovsk-Kamchatskii, the costs of storage and transportation associated with exporting it are lower, making it easier to access outside markets. These market conditions limit the opportunities for an obshchina to develop beyond strategies of harvesting salmon for personal consumption and caviar for sale.

While members of an obshchina may have difficulties bringing surplus salmon to markets, their goals are sometimes broader, including not only economic development but also strengthening networks of social support in the village. I encountered a few obshchiny in the Oliutorskii Raion that used part of their quota to catch and prepare salmon for people in the village who could not fish for themselves, either because of old age, injury, sickness, or due to the demands of being a single parent. These acts of altruism were made without ceremony, but I often heard them recounted in conversations, newspaper articles, and other venues where people discussed collective institutions and debated their roles within the community. Although I rarely heard people openly criticize obshchiny who chose not to help others in this way, I did gain a strong impression that many felt that these contributions to community life were an important reflection of the ideals driving the obshchina movement. Still, the emotional and reputational benefits of sharing surplus salmon did not obviate the need for an obshchina to generate the income necessary for acquiring and maintaining boats, motors, gasoline, nets, salt and other essential equipment and supplies. Even the obshchiny that considered contributions to the community an essential part of their mission were interested in circumventing the obstacles preventing them from preserving, transporting, and selling salmon in markets.

Some obshchiny in Kamchatka have sought to overcome these limitations by applying for development capital to purchase equipment that would allow them to freeze and refrigerate fresh salmon or produce smoked salmon in larger quantities than they would be able to otherwise. Yet, even when an obshchina is successful in acquiring such equipment, the energy costs of maintaining it can be prohibitive. Moreover, these capital investments must be made in advance of receiving the necessary certifications to legalize food production and sale, not to mention the challenge of consistently accessing markets beyond the village. For many obshchiny, the

uncertainties associated with this path toward development are too great. Instead, they have sought partnerships with fishing companies who operate in their village or in a neighboring one, agreeing to sell fresh salmon or caviar directly to a company that has the ability to preserve and sell it in external markets. Before exploring these partnerships, it is worth describing the fishing companies that operate in Kamchatka's rural villages in detail.

Privatized Soviet collectives

Quotas given to obshchiny pale in comparison to the quotas given to large-scale, industrial fishing companies operating in the same villages. Fishing companies in the Oliutorskii Raion generally receive between 30-900 tons of salmon per summer, with the average amount around 458 tons in 2006. One reason for the disparity between "industrial" quotas given to obshchiny and those given to large-scale fishing companies is tied to technological differences between these two kinds of collective institutions. Fishing companies often utilize equipment and facilities that formerly belonged to a sovkhoz or kolkhoz, but have since been privatized through capital investments made by individuals and groups of investors from outside the village. The ownership and authority that controls these companies are often located in Petropavlovsk-Kamchatskii, elsewhere in the Russian Far East, or even nine time zones away in Moscow. While fishing had been only one key part of these institutions during their existence as Soviet collectives, one of the first acts of privatization was often to liquidate small-scale agriculture, animal husbandry, building construction, maintenance, transportation, cafeterias, and other important economic activities that provided services upon which village residents relied. Though privatized collectives may maintain dormitories, stores, and cafeterias for their employees, their focus is almost exclusively on fishing. They occupy the same spaces and often

employ the same people within the village, but these privatized fish companies are now known by new names, beginning with acronyms like OOO[3] or "limited liability organization," ZAO[4] or "closed public company," and OAO[5] or "open joint-stock company." People in the villages where I worked often simply referred to these privatized collectives as the "*rybzavod*" or "fish factory."

From 'total social institution' to 'fish factory'

Although these "fish factories" bear little resemblance to the Soviet collectives they once were, I describe them as "privatized collectives" instead of simply calling them private companies. The latter term does not capture how the roles and obligations of these institutions within the community have changed over time. Since they were founded in the 1930s and 1940s, sovkhoz and kolkhoz collectives became the dominant organizational force for coordinated labor and economic production in rural villages (Humphrey 1998). They were not only places of employment for village residents, but often sources of pride as well. In every village I visited in Oliutorskii Raion, there were some people who met my inquiries about the status of the sovkhoz or kolkhoz during the Soviet era with a uniform response: "Our kolkhoz was a millionaire!" Considering that Soviet authorities saw these collectives as important symbols of progress toward Soviet modernity, these sentiments were undoubtedly affected by propaganda in the village. Still, the claim that the kolkhoz was a "millionaire" cannot be dismissed as entirely misleading or meaningless. Even in cases where the success of Soviet collectives was predicated on state subsidies and investments that were not considered in the calculation of the collective's status as a "millionaire," the sovkhoz and kolkhoz provided village residents with regular pay

---

[3] *obshchestvo s ogranichenoi otvetstvennost'iu*
[4] *zakrytoe aktsionernoe obshchestvo*
[5] *otkrytoe aktsionernoe obshchestvo*

and meaningful vocation. Many older village residents that I spoke with lamented the lost feeling that one's work was respected by his or her peers, as well as the constant reminder that one was contributing to the construction of the community. For a few especially patriotic people, usually those in their fifties, sixties, or seventies, there was also a strong sense of pride in contributing to something bigger, whether that be strengthening a sense of Soviet nationalism or achieving the more intangible goals of Soviet modernity.

Both these material benefits and their sense of meaning collapsed along with the Soviet collectives in the 1990s. In Oliutorskii Raion, Soviet collectives located in villages along the coast and at the mouths of rivers that specialized in salmon fishing were quickly privatized. In contrast to collectives that coordinated reindeer herding farther off in the tundra, fishing collectives promised more immediate and secure returns on capital investments. Salmon migrations remained strong and reliable, requiring only equipment and personnel to intercept the fish, process them, and ship them to market. While reindeer herds required the constant care of herders in the tundra, supported by a complex and expensive system for transporting supplies to the herds and meat to market, salmon populations were self-sufficient, spawning in the rivers and streams and migrating out to the open ocean, away from the human chaos, before arriving again ready to be caught in their natal waters. By the fall of 2007 when I began in earnest to document institutional diversity in the Oliutorskii Raion, every Soviet collective in the region's four coastal villages had either been privatized or liquidated, while sovkhoz collectives continued to manage reindeer herds under government ownership and oversight in two of three villages located upstream in the tundra[6].

---

[6] The one exception, a sovkhoz reindeer herd in the village of Srednie Pakhachi that was acquired in 2009 by a privatized fishing collective located in a nearby village Apuka, illustrates some interesting dynamics that are emerging in the attempt to "revive" reindeer herding in Kamchatka. I discuss this collective in greater detail later in the chapter.

The process of privatization was murky, so I had a hard time getting concrete details from village residents, even those who had worked for the sovkhoz or kolkhoz during that period. My difficulties were probably due in part to the fact that most people were not privy to the transactions that transferred state property into private hands. Yet, even those who did have information about this process seemed hesitant to discuss it beyond general descriptions of major changes. Their hesitancy likely stems from the moral and legal ambiguity of these transactions, but also because of a reluctance to dredge up traumatic events from the past and excite emotions that linger on. Although privatization is an important phenomenon for historians and ethnographers to document and understand, these events still have powerful emotional resonance for the people who lived through them. From many people's perspectives, the failure of their collectives was sudden and somewhat arbitrary, but not altogether unanticipated. Supplies began to diminish and salaries stopped being paid, but there was hope that these issues could be resolved with perseverance until it became clear—either through official proclamation or prolonged silence—they would not. People's feelings about this process in Kamchatka seem to correspond closely with those of people living elsewhere in the USSR at that time. Yurchak captures these feelings with the phrase, "Everything was forever until it was no more," a paradox that reflects the mutually contradictory and constitutive conditions that "made the collapse impossible while keeping that possibility invisible" (2003: 480, see also Yurchak 2005).

Once this collapse became inevitable in Kamchatka, many people with connections outside the village left as soon as they could, especially non-indigenous residents who had been lured there by the promise of higher salaries and pensions given in Northern regions. Others tried to secure one of the few remaining jobs in the village or began the uncertain entrepreneurial path to generating their own sources of income. Many indigenous people who had worked for

Soviet collectives shifted to strategies of small-scale subsistence fishing to provide for their families. Some of these people eventually returned to work in the newly privatized collectives, though the numbers of local residents employed was diminished by an influx of seasonal workers from Petropavlovsk-Kamchatskii. The role that these privatized collectives now play in village life has changed substantially, despite the lingering expectations of locals who would like the fish factories to be more like the total social institutions of the Soviet era. Although village residents who work in fish factories today feel fortunate to be employed—even if only on a seasonal basis—they no longer claim to be proud to work for a "millionaire," even though it is more likely true today than it was during the Soviet era.

"Only dogs are not poachers"

One day a woman named Sveta and I were discussing the complicated moral terrain of Kamchatka's salmon fisheries when she exclaimed in a moment of levity, "Only dogs are not poachers!" She had just finished explaining to me the reasons why informal arrangements between individuals, obshchiny, and privatized collectives from the Oliutorskii Raion were difficult to enforce when broken. "It often ends up that you sell fish wholesale, and then you never see the money. We have this in Russia...it happens unceremoniously." I began to ask Sveta, naively perhaps, why people didn't just turn to the police, the village administration, RAIPON, the local media, or other authorities for help. But before I could get beyond the verb to name an authority, she interjected. "They can't. There is no way you can go to legal authorities. For us here, basically, honest people are poachers! That's why. What can they do? I myself am a criminal! How can I think another is a criminal?"

I asked Sveta how all people could be "poachers" (*brakon'ery*) when many received subsistence and industrial quotas to harvest fish, and her reply was blunt. "They catch everything. Ten times more than the quota allows them. Everyone is a poacher. There is no place to work. No adequate pay." She continued to explain, with an example of how expanded economic opportunities brought by state-sponsored construction following a 2006 earthquake that struck the region might discourage poaching:

> "This year and last, for the first time in many years, in Khailino where there are many poachers...practically the entire villages poaches on the river...children and adults...only dogs are not poachers! Well, they started to build a new village, and now men and women have left the river and begun to work in construction. That is, if there were work and normal pay, people would work. But there is nowhere to work, so people go to the river, catch fish, and abandon them empty."

Sveta's assessment of Khailino, that "practically the entire village poaches," was hyperbole, evident in the way that she audibly laughed after saying "only dogs are not poachers." But her rhetoric emphasized a moral paradox: in the villages where she lives and works, "honest people are poachers." Exploring this paradox further reveals important contextual dimensions of the collective action dilemma in Kamchatka's salmon fisheries, highlighting the challenges that individuals and institutions face in attempting to find solutions.

Honest people become poachers because of the imperfect way that formal regulations and informal entitlements align with the needs of people and the opportunities available to them in rural villages. If a "poacher" is defined as anyone who exceeds allocated quotas, whether that be a 200 kg subsistence quota or a 200 ton industrial quota, then Sveta is perhaps not far off in stating that many people in each village are poachers. This is the definition adopted by environmentalists in the most current and comprehensive report on poaching in Kamchatka (Dronova & Spiridonov 2008: 4). However, feelings of entitlement to fish among village

residents, as well as the cultural norms and values that inform fishing practices, establish a more complicated sense of who a "poacher" is.

One morning in Vyvenka, early in the summer of 2008, I walked out from the village along the beach, toward a narrow spit of land at the mouth of the Vyvenka River, where people often fish. A small group of people had gathered there that morning, and I sat in the sand watching them cast short, 15-20 foot nets from the banks just inside the river. Following the nets as the current carried them through the river's mouth, the fishers walked along the shore, pulling their nets in when they had reached the ocean. They repeated this process over and over, catching a few salmon at a time. It was early in the fishing season, so the fishers were mostly catching sockeye or an occasional pink salmon, though they were hoping to land one of the gargantuan, relatively rare, and highly prized chinook salmon. I hadn't been sitting there for long, when a Koryak man I had never met walked up to me. With a smile on his face, he asked me who I was, but did not introduce himself. After sharing my name, I told him that I was an anthropologist interested in studying cooperation, collective institutions, and traditional economic activities like fishing and reindeer herding. This answer was what I usually began with when meeting new people, expanding upon it when the person seemed interested to know more. The man did not stay to talk with me, but before he walked back toward the village, he turned and pointed to the people still fishing and said, "Do you know that these people are not poachers?" He paused for a second, as if waiting for a response, and then added, "They are feeding their families." And with that, he walked away.

I returned to watching the fishers work along the mouth of the river, considering what the man said. I had already developed sympathy for the fishers in the region, and I was well aware that many of the people I met probably caught fish in excess of their limits. But with the man's

words in mind, I looked more closely at what the fishers in front of me were doing. They certainly didn't look like poachers. Later, I learned that fishing at the river's mouth in Vyvenka is illegal, yet almost every day early in the season one can find people, mostly indigenous but some non-indigenous as well, catching fish there. They can do so, in part because fishery inspectors are often absent and there are no police permanently based in the village. Local people recognize the intent of these practices and support them. Village administrators do not seem to actively intervene. A similar situation can be found further up along the river in fishing camps, later in the summer when the salmon migrations are in full swing. Although poaching is clearly a sensitive subject, many people readily discuss it in general. But in doing so, they rarely draw on their own experiences to provide specific examples. For my part, I engaged in these discussions when they occurred, but I did not press people beyond what I perceived to be their level of comfort. I also assured them that while writing about poaching, I would not use their names or describe them in ways that could somehow be traced back to them. Thus, my description of the ways that people define "poaching," the extent to which they tolerate it in their communities, and the range of solutions that they consider viable and desirable is limited to generalizations that I feel reflect the various perspectives that I encountered while talking with people in several villages in the Oliutorskii Raion. I see this account as a starting point for individuals and organizations who are seeking to understand the perspectives on poaching that small-scale fishers in rural villages hold, providing information that will hopefully help them engage with these fishers directly in their efforts to solve this collective action dilemma.

Moral Landscapes of Salmon Fishing

Most of the small-scale fishers that I met in the Oliutorskii Raion generally respect the fact that the government has the right to manage Kamchatka's salmon fisheries and limit who can access them. Though they are proud of the indigenous identity and heritage that distinguishes them from other Russians, they also consider themselves citizens of the Russian Federation similar to any other. However, they place their own needs to produce food and generate income for their families above the collective sacrifice that the system for allocating quotas often demands of them. They feel morally justified in doing so for several reasons. First, they feel that their relationship to the land and its natural resources—built through many generations of subsisting as salmon fishers, reindeer herders, and foragers—entitles them to use these resources with a certain degree of autonomy and respect from the authorities who now officially claim ownership of these resources. This desire for autonomy often conflicts with bureaucratic and regulatory structures. Some people are willing to tolerate basic limitations on their autonomy, but others resent attempts by local officials and outside authorities to alter their fishing practices, leading them to circumvent rules and regulations. Though opinions about the appropriate balance between regulation and autonomy may differ, there appears to be a consensus that the limited economic options currently available to people in rural villages justify a range of fishing practices, including those that many people would agree can be called "poaching."

People are also well aware that their economic opportunities are limited in large part due to the collapse of the Soviet economy and the transformations of the collective institutions that accompanied it. Justifiably, they feel minimal to no responsibility for this collapse. As a result, some believe the government is obligated either to facilitate new opportunities or to allow them

to return to salmon fishing on their own terms, an economic strategy that provided for their communities long before the Soviet government took on that responsibility. Yet, the continued presence of privatized collectives that engage in industrial-scale salmon fishing in rural villages complicates these feelings. Privatized collectives receive quotas that dwarf the total amount of salmon that indigenous people are allowed to catch, including both subsistence quotas and the "industrial" quotas recently given to obshchiny. People look at these privatized collectives and compare their role in the community to what the sovkhoz or kolkhoz once was, and the result is often feelings of nostalgia and disillusionment. Considering rumors and accounts that circulate within the village, telling of large-scale poaching, bribery of officials, and other questionable business practices committed by privatized collectives, it is understandable that small-scale fishers may feel justified in exceeding the quotas that they receive, especially given that their gains in doing so are very small in comparison to spoils of poaching at larger scales.

Finally, small-scale fishers in rural villages are limited in their ability to participate directly in or contribute meaningfully in other ways to the process of quota allocation. Annual quotas are determined from calculations about salmon stocks made by scientists at KamchatNIRO[7] (in English: the "Kamchatka Scientific Research Institute on Fisheries and Oceanography"), with the perceptions and knowledge of small-scale fishers playing no role whatsoever. Estimates of annual salmon stocks are then sent to the Northeastern Territorial Administration of the Federal Agency on Fishing[8], where a committee reviews applications and assigns quotas. The committee is composed of specialists on the conservation of marine biological resources, the distribution of fishing territories, fisheries science, commercial fishing industries, anti-monopoly, and anti-corruption. Despite the fact that this committee oversees the

---

[7] *Kamchatskii Nauchno-issledovatel'skii Institut Rybnogo Khozaistva i Okeanografy*
[8] *Severo-Vostochnoe Territorial'noe Upravlenie Federal'nogo Agenstva Po Rybolovstvu*

allocation of subsistence and industrial quotas designated specifically for indigenous peoples and collective institutions, there is no member of the committee who either represents or is a specialist on the issues concerning Kamchatka's indigenous peoples. Excluding small-scale fishers from the process of estimating the health of salmon populations and allocating quotas likely reinforces their sense of entitlement to fish in ways that meet their own needs, even when doing so brings them in conflict with formal regulations.

The reasons underlying the moral entitlements of small-scale fishers to exceed allocated quotas outlined above are widely recognized among governmental authorities, NGOs, and within rural communities themselves. However, there is a temptation for these external actors to conclude that small-scale fishers do not regulate their fishing practices in any way, necessitating solutions that are based on expanding the scope of formal rules and the severity of punishments. Instead, if one listens to small-scale fishers discuss poaching and observes how they fish, an appreciation for the cultural norms and values that guide their practices emerges. These norms and values are distinct from—but not necessarily incompatible with—the spirit of policies that direct the formal management of Kamchatka's salmon fisheries.

Abandoning fish

One of the most evocative manifestations of poaching in Kamchatka can be seen when encountering a large pile of salmon—bellies sliced open, caviar removed, but otherwise untouched—lying partly buried in a hole or out in the open along an isolated stretch of river. This extreme form of poaching has been documented extensively in words and images that circulate through various media in Kamchatka and abroad (Quammen 2009; BBC 2004; Glikman 2005; Wachter 2006). People in the villages where I work simply describe it as "abandoning

fish," using the Russian verb "*brosat'*" which means both to cast away something that has no value and to abandon something less tangible but of great value, like personal relationships. People who abandon fish cast their nets without regard for quotas, doing their best to elude fisheries inspectors and remain out of view from other village residents by working at odd hours on remote parts of rivers. When they empty their nets, they throw back male salmon and keep only the females, which they unceremoniously cut open by inserting a knife in the small opening of the belly near the tail, where roe naturally exits the body during spawning, then quickly slicing up to the gills. Reaching inside, the roe is pinched off at the place near the head where it attaches to the body, removed from the belly, and dropped in a bag or bucket for later processing. The rest of the fish is discarded, and the process is repeated hundreds upon hundreds of times, with speed the clear priority.

The contrast is great between this practice and the processing techniques that eventually yield salted, smoked, or dried salmon that can be eaten or shared with others throughout the year. People who catch salmon for food pull in their nets and leisurely begin to remove male and female salmon. Grabbing them by the gills and opening them slightly, they insert the straight end of a 4-5 feet long branch that has been stripped of its bark and shaped like a hockey stick with the blade bent sharply upward at a 45 degree angle. Once the stick has passed through the gills and out the mouth, the fish is let go and slides down the branch, resting at the bottom in a neat row that accumulates there but does not fall off, due to the bent blade at the end. This specially shaped branch is called a *kukun*, and from a distance it looks like a feather when it's full of fish that have collected on both sides, floating in the water. The *kukun* allows people to store fish underwater overnight by tying a weight to the top and allowing the branch to drift on a rope downstream. Once people are ready to begin processing the salmon, they embark on a

laborious task that involves multiple, skillfully made cuts that differ depending on whether one wants to make salted, smoked, or dried salmon. The salmon are brought to a cutting table or a pile of green grasses on shore, where they are removed one by one from the *kukun* and attended to.

Even when a person is interested primarily in caviar, taking the time to avoid wasting the rest of the fish limits the amount of fish one can catch and process. This is why some poachers choose to abandon this responsibility. The widespread disgust that people in rural villages hold for this kind of poaching shows that they mean "abandon" in both the materialistic and interpersonal sense of the word. Not surprisingly, I never witnessed this practice firsthand, nor did anyone admit to me that they had done it themselves. However, one does hear rumors about particular people in the village, often but not always non-indigenous people, who have done this extreme form of poaching in the past and may continue to do so. I never heard stories of individuals attempting to punish this kind of behavior, either by confronting the guilty parties or informing the authorities. Doing so could be dangerous for most people, considering the animosity that such punishment would likely provoke and the possibility of retaliation. Instead, my sense is that people who disapprove of this behavior simply avoid interacting with the individuals involved, which can have a unique set of consequences for those who poach in this way, potentially isolating them from networks of social support. Indeed, a few instances where I was told that a person in the village was involved in abandoning fish, the information was meant as a warning to consider my interactions with them more closely.

Both formal regulations and local cultural norms and values establish the practice of abandoning fish as an egregious moral transgression that should not be tolerated. Agreement on this issue could provide the basis for developing solutions to poaching more broadly. Both the

practice itself and the moral condemnations of it highlight the importance of incentives to process the entire fish instead of producing only caviar. These incentives could be economic, perhaps by supporting more viable local markets or accessible external markets for salmon. Abandoning fish would be even more inexcusable if it were at least modestly profitable to process and bring that fish to market. Solutions could also rely on the strong emotions that abandoning fish elicits, perhaps harnessing these emotions through more effective forms of monitoring and enforcement that involve village residents without putting them at risk. A solution that incorporates the emotions that many small-scale fishers feel about "abandoning fish" would only be effective if developed by engaging local residents in the process of altering current rules and regulations. Whatever form these incentives take, it is important to recognize that people in rural villages make moral distinctions among different kinds of "poachers" and the interests that motivate harvesting in excess of quotas when discussing solutions to this aspect of the collective action dilemma.

Dilemmas & dangers of development

Access to larger "industrial" quotas provides obshchiny with new opportunities but also presents difficult dilemmas. Even the largest obshchina is likely to be left with a surplus of salmon. The need to generate income combined with the technological limitations of processing that surplus and accessing markets leaves partnerships with fish factories one of the only alternatives. These partnerships were rare during the summers of 2008 and 2009 when I spent much of my time in villages and on rivers where salmon fishers were active. However, I did learn about some of the dilemmas they posed through extensive discussions with members of an obshchina based in Vyvenka, that I call by the pseudonym "Miti." The leaders of Miti were a

married couple, a woman named Yulia and a man named Dmitri (also pseudonyms). The other obshchina members were their siblings, nieces, and nephews in addition to their own children and a few friends. In many ways, Miti represented both the hopes and challenges of the obshchina movement. Focusing on how it was founded, the efforts that it enabled, and the partnerships it formed illustrates the range of successes and failures experienced by other obshchiny in the Oliutorskii Raion.

The leaders of Miti each brought different skills to the obshchina that made it uniquely successful. Yulia simultaneously possessed an interest in engaging with the world outside the village and an urgent desire to sustain Koryak culture within it. She was compelled to communicate with and learn from people outside the village and abroad, but she also wanted to impart the perspectives and beliefs that she had learned as a Koryak to her children and grandchildren, as well as visitors like me who showed interest. This combination allowed her to function as an intermediary between people in the village who were trying to strengthen their community and external individuals or institutions who could impede or enhance these efforts. In the fall of 2005, Yulia participated in a RAIPON project, organized locally by Albina Yailgina, which brought indigenous people from rural villages to Petropavlovsk-Kamchatskii to learn how to found and operate an obshchina. The seminar also included people from other regions of Kamchatka who had already founded obshchiny. Recounting her experience at the seminar, Yulia said, "I enjoyed that seminar so much. I found out about everything. I asked all the obshchina leaders about everything, what they were involved in, how everything is done, and then I knew what kind of problems they had." After she returned to Vyvenka energized by the possibilities of an obshchina, Yulia began to work with Dmitri and their extended family to found one less than a month after the meeting.

Though Yulia's skills were instrumental to founding the obshchina and keeping track of all the necessary documents and regulations, her husband Dmitri was no less essential to the obshchina's success. Like Yulia, Dmitri had grown up in Vyvenka. During the Soviet era, he worked as a fisher in the kolkhoz, operating the large seine nets (sing. *nevod*) set up and down the coast that the collective used to catch the majority of its salmon each summer. Since the collapse of the kolkhoz, he and some of his friends had harbored hopes of starting their own fishing operation. During the chaotic period when the kolkhoz's equipment was being sold or simply taken by people inside and outside the village, Dmitri and his friends gathered the equipment they had been using to fish, placed it in a large shed on the kolkhoz grounds near his house, and locked the equipment inside. He explained that although they did not then possess the means to use the equipment, he and his friends thought it was possible that one day they would. They felt entitled to claim ownership of this small part of the kolkhoz's resources as compensation for their contributions to the collective during the Soviet era, a sense that was strengthened by the fact that they were witnessing these resources disappear all around them.

Walking through the grounds of the old kolkhoz in Vyvenka, Dmitri's act was even more impressive to me. Aside from the renovated fish processing facilities on the opposite side of town, all that is left of the kolkhoz are cement walls, the ceilings and roofs either collapsed or removed so that their materials could be used for private purposes. Hidden by wild plants and exposed to the sky, rusted equipment and scraps of metal are scattered throughout the grounds, where only a few cattle now graze. The scene, like many others I encountered in different villages, reminded me of a kind of post-industrial Tintern Abbey, though it was accompanied by a fearful sense of the sublime that reminded me more of walking among those church ruins than reading Wordsworth's poem. When Dmitri told me about the equipment they had secured, I

asked him how they were able to keep other people from breaking in and taking it. He replied that people in the village knew to whom the equipment now belonged. They would not take it, though he did not explain what enforced their respect.

Dmitri provides for his family by fishing in summer for salmon and in winter for smelt, grayling, and other species that can be caught through the ice on the Vyvenka River. He is also an active trapper in winter, catching snowshoe hare and other small fur-bearing mammals, as well as a seasonal hunter, focusing on geese and ducks in the spring and fall, along with several seals. In the summer, he and Yulia spend almost every day at their fishing camp, located up the Vyvenka River from the village. I spent a lot of my time there during the fishing season, along with a continually changing collection of their friends and relatives, only some of whom officially belonged to the obshchina.

Dmitri was not only an expert at navigating the spaces outside the village to obtain resources for his family. He also had an extensive network of personal connections in villages throughout the region that he put to good use. He seemed particularly skillful at making the kinds of informal arrangements through which even "official" business often gets done in Kamchatka and elsewhere in Russia. Though I never directly inquired about the details of his business in our discussions about the obshchina, he was forthcoming about a series of arrangements that the obshchina had made with several privatized collectives-cum-fish factories that operated in the Oliutorskii Raion.

A few days after I first met Yulia and Dmitri in the winter of 2007, during my first trip to Vyvenka, we sat in their kitchen discussing their experiences since founding the obshchina. For each of the past two summers, they had made an informal agreement with a fish factory to sell some of their surplus salmon. In 2006 they had given the factory about 7 tons of fresh salmon,

for which they were supposed to be compensated 20 rubles per kilogram according to the agreement, for a total of 140,000 rubles (about $5,600 in 2007). To put this sum of money in local context, the obshchina stood to earn an amount—when broken down on a monthly basis for an entire year—that doubled the size of most monthly pensions and equaled a standard, full-time monthly salary for many of the wage earners in the village. The people managing the factory first told Yulia and Dmitri they would be compensated later in the summer when the fish had been sold, but as summer turned to fall, the explanation for the continuing delay shifted to unnamed budgetary issues that were preventing the factory from paying. They were promised these issues would soon be resolved. By the summer of 2007, Yulia and Dmitri had still not received payment, but they decided once again to sell fish to the factory, trusting redoubled assurances that they were given and lacking other options. This time, they gave a little over 10 tons to the factory. But as we sat there in their kitchen in December 2007, they had still not been paid for either summer. At that point, Yulia and Dmitri had more or less given up on the possibility of receiving compensation for the salmon that they had sold. Though they possessed a folder full of papers documenting their obshchina and the agreements they had made, they explained that they had chosen not to turn to legal authorities. They simply resolved never to work with that fish factory again. A year later, the factory came under new management, effectively eliminating any possibility of compensation.

When I asked Yulia and Dmitri how they imagined their obshchina could develop, they replied that someday they would like to receive permission to operate a seine net along the ocean coastline, in addition to continuing small-scale harvesting along the river. Albina had mentioned to me earlier that this was a goal shared by many obshchina leaders and advocates throughout Kamchatka. Doing so would require substantial capital investments to acquire the necessary

infrastructure, but people felt this would be possible through development projects in partnership with governmental and non-governmental organizations. The biggest challenge, however, would be convincing the authorities that determine quota allocations to award some of the limited number of lucrative fishing territories to obshchiny instead of privatized collectives. Doing so would place these two kinds of post-Soviet collectives in direct competition with one another. One had ties to indigenous communities and the other connections to distant oligarchs operating in domestic and international markets. Though Dmitri and his friends had stashed equipment away in a locked shed among the remains of the kolkhoz, waiting for the opportunity to fish on the ocean, the door appeared to be a long time from opening.

One day I walked to a friend's house, a small wooden structure of three rooms built around a large cement stove (*pechka*) in the center. No one was home, so I continued on through their back yard and onto the beach, deciding I would sit for a while and look out over the ocean to the mountains of the Goven Peninsula across the bay. When I crested the small hill of sand and entered the beach, I saw two men sitting 20 feet down to the right. I knew one of the men, Eduard, from an interview he had participated in some weeks before about food-sharing practices in the village. He waved and invited me over, where I saw that the other man was one of Yulia and Dmitri's neighbors. Lying between them on the sand was a plastic bag, covered with several hard-boiled gull eggs that someone had gathered from the cliffs the lined the coasts north and south of Vyvenka. Along with the eggs, a liter-sized plastic bottle of beer stood three-quarters full. I sat down, and we chatted about where I had been and what I was up to with my research. They invited me to partake in their meal, and I declined an egg but took a swig of beer. Eduard began to talk about how life was difficult now in the village without work, reminiscing about when he used to work on seine nets catching salmon for the kolkhoz. Eduard was in his mid-

forties, and his friend looked only slightly younger, so they had probably worked for the kolkhoz for 10-15 years before it was privatized. He said he would like to work for the privatized collective, but he had only been offered a position in the factory, processing salmon. These jobs meant 12 hour shifts, either from nine in the morning to nine at night or vice versa, and they paid far less than the job that he was trained to do previously for the kolkhoz.

Eduard pointed out to the ocean, where a long, thick woven metal line supported by flotation devices stretched out from its anchor on the shore, a seine net that belonged to the fish factory hanging below it. Several hundred yards out, the line formed a T junction, where a square metal barge was attached, housing the fishermen who hauled the salmon in from the net and passed the fish on to a ship that would take it back to the factory for processing. Eduard explained how difficult it was for him to sit here on the shore without work, when other people were out there doing the job that was once his. Previously, I had heard from several people that only one of the seven or eight seine nets owned by the Vyvenka fish factory was operated by village residents. The rest were all seasonal workers who were imported from Petropavlovsk-Kamchatskii or elsewhere, mostly Russians or members of other non-indigenous ethnicities. Some people in the village suggested that these seasonal workers were chosen deliberately because they were easier to deceive. Payments were promised, but delayed until after the factory had processed the fish and brought it to market. In the meantime, the migrant workers were living in dormitories and eating in cafeterias owned by the privatized collective, accruing debts that would be deducted from their salaries. According to the people who described these practices, the factory justified hiring migrant workers by claiming that village residents were unreliable, didn't work as hard, and were prone to drinking. An indigenous man who held one of these jobs repeated this claim to me, and he had no complaints to share about his employer. No

one disputed the claim that *some* people in the village fit the unfavorable description, but many adamantly insisted that the characterization was unfair for the majority. Eduard's pain was shared by many others and helped explain why Dmitri and his friends would rather find a way to practice their fishing outside of the privatized collective, however unlikely that possibility seemed at the moment. I never had the courage to ask the people who managed the fish factory about these accusations, so my account is one-sided. Despite my attempts to be accessible and open to anyone who wanted to know about my research, I did not feel comfortable wading directly into these debates as an outsider who local authorities already viewed with occasional suspicion. However, I repeat the claims here because I believe they are essential for understanding the responses of small-scale fishers to the dilemmas they face.

Evaluating the success of an obshchina

The failure of Yulia and Dmitri's informal agreements with the fish factory make it seem unlikely their efforts with the obshchina could in any way be considered a success. However, examining what happened to the portion of Miti's salmon quotas that did not go to the fish factory suggests otherwise. Naturally, the majority of the remaining quota went to its members, who salted, smoked, and dried the salmon to feed their families throughout the year. But a substantial portion was also circulated throughout the community to a variety of individuals and organizations. In 2006 the obshchina donated 350 kg of salted salmon to Vyvenka's kindergarten, school, and *internat* (student boarding house), along with 600 kg of fresh salmon that was frozen by the fish factory for the school. They also gave 400 kg of salted salmon to the border guards (*pogranichniki*) posted in Tilichiki. Additionally, they prepared smaller amounts of salted salmon for several people in the village who were either too old, injured, or sick to fish

for themselves, or who had large families and needed extra food. They continued to make these donations in 2007 and 2008, considering it an important part of their obshchina's mission. As Yulia explained, "Basically, it's necessary to help people who can't [fish for themselves]." She started to list different people in the village, most of them elderly women, adding, "It's not just that they can't fish. They can't even cut up the fish! They don't have the health. That's why we prepare salted salmon for them, so at least they will have that fish for the winter."

There are no formal requirements for obshchiny to make these donations, but there is a general feeling among some people involved in the obshchina movement that there should be an obligation to make some kind of contribution to the community. One woman in Vyvenka named Natalia insisted that such contributions were essential to fulfilling the purposes for which the obshchina was created. Although she did not belong to an obshchina, Natalia was actively involved in the debates over these collectives, and indigenous rights more generally. She was born to a Koryak mother from Vyvenka and a Russian father who had migrated to the village during the Soviet era. One of the first times I met her, she told me that she was proud to have a *kulak*[9] on both sides of her family, one a grandfather who owned lots of farmland in rural Russia and the other a wealthy reindeer herder who lived in the tundra surrounding Vyvenka before his herds were taken during collectivization. In her childhood, Natalia was a diligent student and a member of the village *Komsomol*, the youth wing of the Communist Party during the Soviet Era. She recalled a conversation with a relative on her father's side, who chastised her for allowing their family icons to lie discarded in a box of miscellaneous items instead of placing them in the corner of the room or another prominent place in the house according to the traditions of Russian

[9] As discussed in Chapter 2, the Russian word "*kulak*" was used to describe wealthy landowners during the periods of class struggle that preceded collectivization, eventually applying even to wealthy reindeer herders in Siberia.

Orthodox Christianity. She said that when she was a part of the Komsomol she had learned to abandon such beliefs, but as she repeated these arguments to defend herself against her relative, she could see they were wrong. Later on, long after her father had passed, she decided to return the icons to their proper place.

Since that time, the ideals that inspired Natalia's activism had shifted, and she embraced her dual Russian and Koryak heritage. Her personal experiences growing up in Vyvenka during the Soviet era and attending university in Petropavlovsk-Kamchatskii informed her perspectives about how "success" should be defined for obshchiny. She shared with many others the idea that an obshchina should not exist solely to provide economic benefits for individuals and their extended families, though that was obviously an important part of its overall mission. She envisioned the obshchina playing a role in sponsoring celebrations for traditional Koryak holidays, supporting dance groups, producing reindeer fur clothing for practical and ceremonial use, and organizing summer camps and expeditions that would bring village children out to the tundra, teaching them traditional ecological knowledge, Koryak legends, and other facets of their cultural heritage. One aspect of Natalia's broader vision for the obshchina that interested me was the way it seemed to reflect aspects of Koryak culture that were celebrated during the Soviet era. As other ethnographers working in Kamchatka (Kasten 2004; King 2004, 2005a; Koester 2002) and elsewhere in Siberia (Grant 1995) have described, dramatically visible forms of indigenous culture—such as stories, songs, dance, and traditional clothing—were celebrated during the Soviet era while other spiritual, economic, and political elements of cultural identity that did not fit within the ideals of Soviet modernity were repressed. That the Russian government no longer provided such strong support to the dance groups, sewing cooperatives, and other artists was one

of the most troubling aspects of post-Soviet life for indigenous people in rural villages who were actively involved in and skilled at expressing these formerly celebrated forms of culture.

For Natalia, an obshchina that did not contribute to the community in some way did not deserve the same rights and opportunities as those that did. By providing material support in the form of food for those who needed it or by strengthening the ability to express symbolic forms of traditional culture, she felt that obshchiny earned their privileged access to increased salmon quotas. Her feelings were shared by others I spoke with in several villages, magnified by the presence of a number of obshchiny that were fairly explicit in their lack of intentions to make these contributions. Some of these obshchiny were almost entirely instrumental in purpose, founded by indigenous people who had made agreements to work with local non-indigenous partners, who in turn directed the process of fishing, sold the spoils, and compensated the original founders according to a prior agreement. From the perspectives of the indigenous people who founded these obshchiny, they were capitalizing on an opportunity to form a partnership with a person who could tap into personal connections and informal markets they otherwise might not be able to access. In some cases, the founders of these obshchiny might have had little interest in navigating the necessary bureaucratic obstacles were it not for the encouragement and assistance of their sponsor. Although it is probably true that these motives were not part of the original intent of establishing the obshchina as an officially recognized institution, it is still unclear whether or not the obshchiny formed through partnerships with non-indigenous residents of rural villages fulfill the stated goal of "supporting the traditional economic activities and way of life for indigenous peoples." Though there is some confusion about the extent to which these partnerships are legal, I was told by several knowledgeable people that an obshchina could draft "agreements" (*soglashenia*) with any individual who did not

belong to the obshchina, regardless of whether they were indigenous or non-indigenous. These agreements allowed a variety of people within the village to work together in various capacities. Still, the fact that many of these partnerships were consummated and kept behind closed doors indicates they were still somewhat illicit for both formal authorities and the community at large.

One indication of the general sense that obshchiny have obligations to the community is that their contributions are occasionally publicized during debates over quota allocations, development projects, and other issues where tensions between individual and common interests emerge. After I arrived in Tilichiki in the fall of 2007, I first became familiar with some of these debates by reading articles in the Oliutorskii Vestnik. One article, published on November 6, 2007 and signed by an author from Vyvenka named A. Shmagin, mentioned the contributions of collective institutions to the community in the broader context of the upcoming elections. The author subtly contrasted these contributions with skepticism about whether or not candidates in the upcoming regional elections would eventually do more than their predecessors to help solve the problems facing Vyvenka. Shmagin singled out OOO "Vyvenskoe," the privatized collective that was once the village's kolkhoz, for providing help with transportation between villages. He shared hopes that the company's newly renovated fish processing facilities would provide work for "all the inhabitants in the village who desired to work there." Shmagin also advised future village administrators and regional representatives to "go to the people, consult with them, and solve [...] the problems of vital village activities together with them." Suggesting that a key part of engaging the local community would be "to draw in" (*privlekat'*) the obshchiny and "other small organizations," Shmagin mentioned the donations of salmon that a local obshchina had made and thanked them publicly for it. Though the Oliutorskii Vestnik was published twice weekly in Tilichiki, it circulated more slowly throughout the region. Still, by publicizing the

contributions of collective institutions and inserting them into commentary about upcoming elections, Shmagin was asserting the importance that people in Vyvenka placed on these collectives as part of the solution to their problems.

These sentiments echoed an earlier article, written on October 30, 2007 by A. Markhinin, an author from the village of Pakhachi in the northern part of the Oliutorskii Raion. The title of Markhinin's article stated the matter bluntly, asking if the obshchina would become an obstacle or help enable progress: *"Rodovye Obshchiny – Tormoz ili Razvite?"* Although not mentioning specific collectives by name, Markhinin contrasted the positive work of obshchiny with past and present politicians, whom he characterized sarcastically in a single word as "benefactors" (*blagoditeli*). Asserting that "every group of people (*narod*) has the right to development," Markhinin added that the obshchina was "one of the trampolines for quick and effective development in the region." Markhinin went on to urge increased support for the obshchiny to acquire the rights and means to access more lucrative markets, allowing people to "live" (*zhit'*) and not only "survive" (*vyzhivat'*):

> "The only real possibility to receive the means to develop obshchiny and other forms of traditional activity is industrial fishing. For many obshchiny, industrial fishing is not an end in itself, but a possibility to survive and develop, carrying people away from the poacher's river and granting people year round employment. The conclusion is self-evident: kin-based obshchiny should receive the chance to work on an equal level with industrial fishing companies. I think that the leaders of kin-based obshchiny need to gather together and discuss the prospect for development. In this case, it is desirable to require the presence and participation of the local and regional heads of administration."

Markhinin concluded by asking which political parties were prepared to contribute financial and organization support to this initiative, adding that he was prepared to offer three potential development projects of his own and hoped that others would bring forward more for consideration.

Collective institutions as nexus points for collective action

The newspaper articles written by Shmagin and Markhinin are simply some of the more tangible manifestations of the complex ways that small-scale fishing practices in Kamchatka's rural villages have become intertwined with politics of distribution and politics of recognition. Collective institutions like the obshchina figure so prominently in their narratives because of the integral role that they play as nexus points between cooperation within the village and collective action movements beyond the village. Taking the steps to formally organize groups of friends, family members, neighbors, and business partners into an obshchina provides increased access to salmon quotas, in turn providing opportunities to generate income, enhance networks of social support, and strengthen important facets of cultural identity. Yet, these opportunities are accompanied by difficult dilemmas in determining the process and path of development. Among these dilemmas, I have focused on the economic challenges of small-scale fishing in the mixed economy of rural villages, the difficulties in accessing lucrative external markets, and the challenges of forming partnerships among individuals and organizations with imperfectly overlapping interests and unequal access to power and resources. The importance of post-Soviet collectives is also evident in the morally complicated, emotionally charged debates over how collective institutions should contribute to the common life of the community. I now turn to explore these debates in greater detail.

Chapter 7:

Collective Action Movements & Post-Soviet Subjectivities

Introduction

The institutional diversity found among formal and informal *obshchiny*, privatized Soviet collectives, fish factories, and *sovkhoz* collectives located in villages throughout the Oliutorskii Raion reflects the cultural and historical legacies of the past and the contemporary realities of the present for indigenous peoples in Kamchatka. Stepping back from my ethnographic descriptions of the collective action dilemmas in Kamchatka's salmon fisheries, I examine how these post-Soviet institutions factor in finding solutions by drawing upon research that analyzes principles underlying the successes and failures of other institutions associated with common-pool resources throughout the world. I identify a number of ways that the management of these salmon fisheries could be improved by establishing a better balance between formal rules and regulatory structures, and informal ethics and obligations that are equally influential in shaping the practices of small-scale fishers in rural villages. The June 2009 RAIPON meeting again illustrates some of the tensions between formal and informal domains of natural resource use and governance. By examining the debates over the future of reindeer herding and salmon fishing that occurred during the meeting, I explore how the individual subjectivities that drive these debates are expressed through and altered by different forms of communication. These forms of communication, including discourses of development, markets, conservation, and cultural identity, convey messages about the appropriate balance between individual and common interests. Establishing this balance properly has long been a concern of indigenous peoples in Kamchatka, though the ways that people do so have changed significantly over time. Attending

to the relationship between collective institutions and individual subjectivities today helps us understand how collective action dilemmas can be overcome in the future.

Ostrom's Design Principles of Successful Institutions

In her classic analysis of the relationship between institutions and common-pool resources, *Governing the Commons*, Elinor Ostrom identified eight "design principles" of successful institutions. These include: (1) clearly defined boundaries for the common-pool resource, (2) congruity between rules and local conditions, (3) collective-choice arrangements, (4) effective monitoring, (5) graduated sanctions, (6) conflict-resolution mechanisms, (7) recognition of rights to organize, and (8) nested enterprises (Ostrom 1990: 90). When successfully integrated into an institution, Ostrom suggests that these design principles can alter the incentives of individuals and groups who use a common-pool resource (CPR), leading to compliance with rules and regulations designed to ensure the resource's sustainability over long periods of time. Using Ostrom's approach to analyze post-Soviet collectives in Kamchatka, I assess the extent to which these emerging institutions incorporate Ostrom's design principles. I also explore steps that could be taken to enhance the role these institutions play in developing solutions to the collective action dilemmas I have described in Kamchatka's salmon fisheries.

Clearly defined boundaries

Ostrom argues, "individuals or households who have rights to withdraw resource units from the CPR must be clearly defined, as must the boundaries of the CPR itself" (1990: 91). Boundaries help establish a shared understanding of what resource is being conserved, as well as the individuals and groups who will benefit from the sacrifices necessary to do so. As many

researchers have noted, Hardin's famous "Tragedy of the Commons" assumes that common-pool resources lack meaningful boundaries, creating an "open-access" system of resource use that makes it difficult or impossible to regulate resource users without drastically altering the commons through privatization, external oversight, or other forms of enclosure (McCay & Acheson 1987a). An important contribution of subsequent research on common-pool resources and institutions is a greater awareness of the variety of ways, some subtle and previously unrecognized, that "open-access" systems can be transformed into a commons, where a defined group of individuals share equal rights and responsibilities (Acheson 1987; Acheson & Gardner 2004; Ciriacy-Wantrup & Bishop 1975).

In Kamchatka's salmon fishery, boundaries are defined, but differ depending on whether one focuses on formal regulations or informal norms and values. The Russian Federation claims sole ownership over fisheries and other marine resources in Kamchatka, partnering with regional government authorities and agencies to control access to these resources through a system of territory leases and quota allocation (Hønneland 2004; Johnson 2004). As mentioned previously, all members of officially recognized indigenous ethnicities living in Kamchatka are entitled to an annual subsistence quota that varies from one region to the next. In principle, this policy establishes a clear boundary between indigenous and non-indigenous village residents. However, generations of intermarriage and shared residence within these communities have made establishing clear boundaries that identify a person as "indigenous" extremely difficult. The official practice has long been based on the ethnicity that was recorded on an individual's passport, chosen from one belonging to either parent, but the practice of indicating ethnicity on passports ended in 1997 (Donahoe *et al*. 2008). To my knowledge and that of the people who were actually aware of this change in the villages where I worked, no alternative way to formally

define a person as "indigenous" had been developed to replace this common practice. Moreover, as Donahoe *et al*. discuss in great detail, the politics of recognition for indigenous peoples in Russia has become increasingly contentious, with only 45 out of a possible 130 ethnicities included in the privileged category of *korennye molochislenye narody* or "indigenous small-numbered peoples" (2008: 995). In Kamchatka subsistence salmon quotas are one of many rights given to people who fall into this category, a policy that until 1991 excluded the Kamchadals, an ethnic group that identifies with the dual cultural heritages of a local indigenous group called the Itelmen and groups of Russians who immigrated to Kamchatka as early as the 18th century (Hancock 2002; Koester 2005).

The debates over defining Kamchadals as "indigenous" highlight the broader difficulties of allocating quotas in ways that divide residents of rural villages and violate their shared sense of identity. I was told by several people in the Oliutorskii Raion, including a local fisheries inspector, that anyone who had lived in the region for at least 25 years was allowed to receive a subsistence quota, regardless of ethnicity. Though I was not able to verify that this policy was legally documented and mandated, there was widespread support for it among the people with whom I spoke. Whether officially sanctioned or not, this boundary establishes entitlements to salmon quotas that are based on long-term residence in the community, reflecting a recognition that many non-indigenous residents who could have left during the chaotic and difficult period of the Soviet collapse chose not to abandon the lives, livelihoods, and personal relationships they had built in the village.

Appreciating feelings of entitlement to fish that are based on long-term shared residence instead of strictly defined ethnic divisions provides a valuable perspective on the debate over the boundaries established through the formation of obshchina collectives. The same problems of

defining "indigenous" apply to the obshchina, whose members must be officially recognized as such. These problems have been resolved, albeit imperfectly, by allowing an obshchina to create agreements and work with any member of the community, regardless of ethnicity. Obshchina advocates like Natalia, who focus on the instances where these agreements allow non-indigenous people to exploit indigenous residents, may be pointing to a bigger problem: while cultural norms and values in the village emphasize altruism, reciprocity, interdependence, and a shared sense of identity, a number of individuals still seem unaffected by these principles and exploit those who do follow them. That these individuals can do so without fear of punishment or ostracism probably reflects enduring economic and political inequalities between "locals" of all kinds (*mestnye*) and "newcomers" (*priezzhie*) who have not adopted these ways of life. Perhaps the policy allowing obshchiny to form agreements could be adapted in some way to reflect these inequalities, encouraging the partnerships established through these agreements to be more mutually beneficial.

A similar concern looms over the ways that privatized collectives have transformed their contributions to the communities where they work. Once providing a range of services and public goods, these privatized collectives now contribute little beyond the opportunity for seasonal employment for a relatively small number of village residents. Though occasionally there are public calls for the fish factories to expand the range of contributions they make, these calls are often muted by fears of provoking or alienating one of the only employers in town. Instead, village residents are left with small donations of supplies or money to the school, contributions to holiday celebrations, and occasional rides between villages on the company's transports. These altruistic acts emerge in response to local expectations and are often well publicized, but they reflect an underlying tension in the boundaries that are being established

between individuals and institutions who share access to salmon fisheries in post-Soviet Kamchatka. That the individuals and groups who represent the controlling interests in these privatized collectives are themselves "newcomers" who rarely if ever step foot in the community, only exacerbates these tensions. Still, a minimal recognition remains among these privatized collectives that their contributions to the community are expected to extend beyond mere employment, providing hope that the boundaries of local fisheries can be improved.

Congruity between rules and local conditions & Collective choice arrangements

The fact that many "newcomers" have resorted to forming partnerships with local indigenous people, whether exploitative or mutually beneficial, signals that the boundaries established by the dual action of formal regulations and informal entitlements are indeed defined, though perhaps not clearly enough. One way to improve the effectiveness of these boundaries would be to involve residents of rural villages in the process of drafting official regulations over who has access to subsistence quotas and who can join or work with an obshchina. Existing rules provide a uniform framework that could be augmented by different communities to fit their unique needs. Such a change would follow Ostrom's second and third design principles: (2) that the rules for accessing a common-pool resource should be sensitive to local conditions and (3) that the individuals directly affected by these rules should be allowed to participate in the process of defining and modifying them (1990: 92-93). Although discussed separately, Ostrom emphasizes that these two design principles are related: "CPR institutions that use [collective choice arrangements] are better able to tailor their rules to local circumstances, because the individuals who directly interact with one another and with the physical world can modify the rules over time so as to better fit them to the specific characteristics of their setting" (1990: 93).

Although existing formal regulations for salmon fishing include ambiguities, limitations on monitoring, and incomplete enforcement that give individuals a limited amount of freedom to alter their fishing practices as they see fit, the fact that these regulations continue to be dictated by a vertical, top-down structure of authority compromises their effectiveness. The efforts of RAIPON activists and obshchina leaders to assert their right to participate in the politics of distributing salmon quotas suggests that residents of rural villages are prepared to expand their participation in the process of defining and modifying formal regulations. Allowing them to do so would mean significant changes for the institutions that estimate the size of salmon populations and allocate quotas. However, both salmon populations and the people who rely upon them occupy relatively well-defined territories, potentially providing a pathway for implementing these changes. KamchatNIRO studies the size and strength of distinct salmon populations, separating major rivers and shared drainage basins from neighboring ones in their analysis. The information and recommendations they provide the regional branch of the Federal Agency on Fishing are used to determine quota allocations tailored to these same geographic divisions. Yet, both the scientists of KamchatNIRO and the officials who set quotas reside outside of the geographic spaces that these divisions establish. Since the individuals and collective institutions that receive salmon quotas *do* share these geographic spaces, new regional forms of governance that bring together the people who fish in these territories could be formed and incorporated into the processes of estimating salmon stocks and allocating quotas.

One obstacle to incorporating individuals and collective institutions into these processes would be determining how collective-choice arrangements should be made within and between villages that share the same river or drainage basin. Existing collective institutions like the obshchina have already proven effective at coordinating individuals within the village, but

dividing a common quota among their members and organizing labor are generally the extent of their collective-choice arrangements. Significant conflicts among obshchiny in the same village have yet to emerge, but as the number of these collectives increases from year to year, they now find themselves in competition for access to quotas. Elsewhere in Kamchatka, obshchiny who share a village or administrative region have formed a *soyuz* or "union" of obshchiny" whose dual purpose is to resolve these potential conflicts between obshchiny and present a collective voice when engaging in political advocacy. Although the idea of forming a *soyuz* in Oliutorskii Raion was often discussed in private conversations, public meetings, and newspaper articles, no such union had been formed as of the summer of 2009. As the number of individuals and collectives claiming quotas increases, existing tensions may become open conflicts among a heterogeneous collection of actors, including groups of people who catch fish under subsistence quotas in brigades, in formally recognized obshchina collectives, and through employment in privatized collectives. When extended to include multiple villages, this heterogeneity of institutions, interests, and authority presents a challenge for developing effective collective-choice arrangements that move from the bottom-up.

This challenge is similar to the one facing privatized collectives that compete with one another for industrial quotas throughout Kamchatka. The companies have responded by securing political representation through elected offices. As Markhinin noted in his article in the Oliutorskii Vestnik, "No one is surprised that the two previous governors [of Kamchatka] have become strong members of the fishing industry." RAIPON activists and obshchina leaders alike, including Albina Yailgina, stood as candidates for four posts as "regional deputies" to the Kamchatskii Krai General Council (*zakonodatel'noe sobranie*) in elections that occurred while I was in Oliutorskii Raion in December 2007. None of them was elected. The first three posts

went to men who were influential figures in the fishing industry (first with 962 votes), the construction industry (second with 909 votes), and the mining industry (third with 869 votes). The final spot was won by a standing member of the Russian Federal Council, who received 156 votes. Trailing only slightly behind him was Valerii Tnagirgin, the Oliutorskii Raion Specialist on Indigenous Affairs (150 votes) and Albina Yailgina (137 votes), along with several others. Still, there are some prominent indigenous politicians who hold elected offices elsewhere in Kamchatka, particularly those who previously occupied places in the former administration of the Koryak Autonomous Okrug. They form part of a complicated, changing political landscape that will continue to affect the solutions pursued. In the meantime, an initial step toward increasing the participation of small-scale fishers in the process of quota allocation could be to allow a member of the Kamchatka regional branch of RAIPON to sit on the council convened by the Federal Agency on Fishing to review applications for industrial quotas. This step would have symbolic implications for the perception of participation by indigenous peoples in collective-choice arrangements. It would improve the transparency of the quota allocation process, while perhaps providing valuable insights for collectives seeking to improve their chances.

Though taking steps to improve the congruence between rules and local conditions by enhancing the abilities of rural villagers to participate in collective choice arrangements is crucial, Ostrom warns that this does not provide a final solution:

> The presence of good rules, however, does not ensure that appropriators will follow them. Nor is the fact that appropriators themselves designed and initially agreed to the operational rules in our case studies an adequate explanations for centuries of compliance by individuals who were not involved in the initial agreement. [...] Agreeing to follow rules ex ante is an easy commitment to make. Actually following rules ex post, when strong temptations arise, is the significant accomplishment. (1990: 93)

Two keys to strengthening these commitments against temptations to abandon them, Ostrom argues, are effective systems for monitoring and graduated sanctions.

Monitoring & Graduated sanctions

Ostrom initially presents these design principles separately, but discusses them together, emphasizing the reciprocal connections between the two that are often crucial to common-pool resource management. Monitors are most effective when they actively observe appropriation and provision of resources, but are also accountable to the appropriators. In some cases, the monitors are themselves appropriators, either formally assigned to the duty or authorized to informally enforce rules. Graduated sanctions are important for establishing compliance, using penalties that take into account the severity of the offense. Effective monitoring often relies on the voluntary compliance of the majority of resource users, and graduated sanctions can enhance compliance by avoiding excessively punitive punishments that inspire animosity and further weaken shared commitments.

Individual appropriators in institutions with effective monitoring and sanctioning systems appear to consistently overcome the second order collective action dilemma. Whereas monitoring and sanctions can solve the first order collective action dilemma—the temptation to "free-ride" by abandoning commitments for the use of a common-pool resource—a second order collective action dilemma arises over who will bear the costs of monitoring and sanctioning. Whereas Hardin argued that government intervention and enclosure were needed to solve this dilemma, Ostrom suggests that solutions can be accomplished by beginning with the assumption that resource users are "quasi-voluntary" or "contingent" cooperators (1990: 94-95). According to this assumption, compliance is "quasi-voluntary" because the possibility of sanctions is credible, even when monitoring is incomplete. As long as resource users view systems of

monitoring and sanctioning as credible, their cooperation with rules can be "contingent" on their perception that others are also complying and that those who do not will be sanctioned.

Almost everyone involved in the management and use of Kamchatka's salmon fisheries agrees that the credibility of the current system for monitoring and sanctioning needs to improve. At the 2009 RAIPON meeting in Tilichiki, the head fisheries inspector for the Oliutorskii Raion, Vladimir Lenskii, stated there would be six inspectors working in the region that summer. The Oliutorskii Raion spans a little more than 72 thousand square kilometers, an area larger and much more remote than the state of West Virginia. The majority of small-scale fishers operate near one of seven villages in the region, fishing along one of three major rivers that run through them. Inspectors can travel up and down these rivers relatively quickly on boats. For example, a trip upstream from Vyvenka to Khailino takes about 10-12 hours. But moving from one river, which may include fishers from only one or two villages, to another river is much more difficult, due to the overall difficulties of transportation in the region. Admitting the number of inspectors was small for such a large area, Lenskii added that he hoped to raise the number of inspectors to 20 at some point in the future.

Even if the number of inspectors increases, there are several important obstacles to improving their effectiveness. First, the relationship between inspectors and village residents is inconsistent at best. Some inspectors who live in the region and have developed personal connections within the community treat fishers with respect and fairness, but fishers often complain about inspectors who appear in the region for the first time each summer, arriving from Petropavlovsk-Kamchatskii or elsewhere in the southern part of the Peninsula. It is common to hear accusations of corruption leveled at these outside inspectors, who are reported to demand bribes in the form of money or caviar in exchange for even minor violations. Setting aside the

difficulty of assessing the veracity of these accusations, the simple fact that they circulate so frequently within rural villages illustrates that the credibility of this form of monitoring can improve. In fairness to the inspectors, I also heard stories from fishers about local inspectors who were sympathetic to the economic challenges people in rural villages faced, giving warnings for minor violations or smaller sanctions that took both the individual's actions and intent into account.

While improving the formal system of monitoring and sanctioning would help enhance compliance, one of the strong lessons of Ostrom's research is that these goals can be achieved in tandem with mutual monitoring done by resource users themselves. With so few inspectors covering such a large area, fishers find little difficulty monitoring their movements, passing information among themselves, and circumventing the regulations inspectors are trying to enforce. This situation alone should provide the impetus to take steps that enhance voluntary compliance and mutual monitoring among small-scale fishers. As I suggested earlier, a combination of economic and moral incentives could be established to identify and sanction individuals engaged in the most destructive and reprehensible form of poaching, abandoning fish by taking only its caviar. This could be accomplished by making it economically profitable for individuals to sell salmon *and* caviar, encouraging fishers to do the hard work necessary to process fish and strengthening consensus on the already common sentiment that allowing fish to rot along the shore is a moral transgression.

Conflict resolution mechanisms

Along with effective systems for monitoring and sanctioning, Ostrom emphasizes the importance of conflict-resolution mechanisms that provide individuals and authorities with

"rapid access to low-cost local arenas to resolve conflicts among appropriators or between appropriators and officials" (1990: 100). The only formal mechanisms available in the Oliutorskii Raion when I conducted my research were through the regional prosecutors office (*prokuratura*) in Tilichiki. Making a long, difficult, and expensive trip to Tilichiki in order to file a complaint is rarely done by residents of rural villages in the region, based on my impressions of talking with people involved in disputes that could warrant such actions. There are several reasons for this. First, many people lack experience with these formal conflict resolution mechanisms, preferring to solve their own disputes locally by minimizing further interactions with the offending individual or institution, engaging in indirect forms of punishment through gossip, and, much more rarely, gathering a group of sympathetic people to engage in direct confrontation. A second reason stems from Sveta's remark that "only dogs are not poachers." In a broader context where "even honest people are poachers," appeals to legal forms of authority become less viable forms of conflict resolution. The fact many people chose to found obshchina collectives once these collectives began to receive larger industrial salmon quotas illustrates their desire to escape a situation where they cannot meet their economic needs by remaining within their legal rights. Interestingly, in other parts of Kamchatka, obshchina leaders have begun to pursue lawsuits when they perceive that their legal rights or economic agreements have been violated (Donahoe 2009; Koester 2005). Yet, these actions remain exceptional, perhaps in large part because they demand a degree of legal expertise many fishers and their advocates currently lack.

In addition to supporting quota policies that correspond to the economic realities of small-scale fishers in rural villages, compliance with formal regulations might be improved by providing collective institutions with a more direct role in conflict resolution on a local level.

Although actual legal authority could remain the sole responsibility of the regional prosecutor, the steps taken to expand the participation of collective institutions and RAIPON in collective-choice arrangements could include collaboration among government officials, legal authorities, and village residents to develop informal arenas for raising and resolving conflicts before they reach the regional prosecutor.

Recognition of rights to organize

Many of the steps that I have suggested thus far as ways to improve the effectiveness of institutions associated with Kamchatka's salmon fisheries involve the explicit recognition of the importance of informal regulations. Ostrom includes such recognition as a design principle, suggesting that in effective institutions "the rights of appropriators to devise their own institutions are not challenged by external governmental authorities" (1990: 101). While formal regulations and structures of authority remain important, they should provide resource users with some freedom to develop their own informal rules. Informal rules can add both flexibility and moral authority to the management and use of common-pool resources, contributing to the effectiveness of each of the previous design principles.

Although the formal regulations for assigning salmon fishing territories and quotas do not explicitly recognize a role for informal regulations, there are several ways small-scale fishers are able to implement their own rules. First, the locations of fishing camps along rivers are largely determined by informal arrangements made among village residents, who acknowledge the territorial rights established by individuals, families, and other groups who have fished at particular locations year after year. Second, the quotas allocated to obshchiny can be divided among its members in any way that they see fit, enabling a variety of informal arrangements that

reflect the relationships among obshchina members. Third, the ability to draft agreements with individuals who do not belong to the obshchina, including non-indigenous residents, further expands the flexibility of these institutions, albeit in ways that some people feel are negative as well as positive. Finally, the limited resources the government invests in monitoring and enforcement all but invite small-scale fishers to alter formal regulations as they see fit, a tacit acknowledgement of a certain degree of autonomy whether or not it is intended as such. Together, these kinds of informal arrangements signal that formal regulations could be improved by recognizing more explicitly the rights of small-scale fishers to determine their own practices. Doing so would likely improve the effectiveness of formal regulations by delimiting the areas where individuals have the rights and responsibilities to develop their own solutions to the problems they face. Advocacy efforts by RAIPON on behalf of small-scale fishers and obshchiny often echo these suggestions, although they are usually focused on shaping existing formal regulations to better reflect informal practices.

Nested enterprises

When local common-pool resources are embedded within complex, interdependent cultural, economic, political, and environmental contexts, Ostrom argues that resource appropriation, monitoring, enforcement, conflict resolution, and governance should be "organized in multiple layers of nested enterprises" (1990: 101). Part of the Soviet legacy in Kamchatka is a hierarchical structure for estimating the size of salmon populations and allocating quotas. As government agencies, these structures articulate clearly with the broader political structures of the Kamchatskii Krai and the Russian Federation. However, indigenous rights organizations like RAIPON continue to operate parallel to these structures of authority

while remaining less clearly articulated with them. To a greater extent than any other organization or branch of government in Kamchatka, RAIPON forms layers of "nested enterprises" that gather groups of indigenous people from small regions like the Oliutorskii Raion, assemble them into regional councils that include all of Kamchatka, and elect regional representatives who gather in Moscow to pursue advocacy in national and international arenas, including the Arctic Council and the United Nations. Through RAIPON's organizational network, many valuable resources flow, including development capital, information, experience, expertise, and access to politicians, NGOs, and other potential partners for a variety of projects focused on cultural identity and expression, economic development, environmental conservation, and indigenous rights. Like any organization faced with carrying out initiatives that bring together a culturally diverse, geographically far flung group of people, RAIPON sometimes struggles to maintain the channels through which these resources flow in ways that satisfy its members. Still, considering that RAIPON was only founded in 1990 and now includes indigenous peoples who inhabit nearly every corner of Russia, by far the world's largest country, these efforts deserve continued recognition and support.

Perhaps the willingness of small-scale fishers to participate in the obshchina movement can provide the impetus for expanding existing partnerships between RAIPON, the regional Kamchatka government, the Russian Federation, and obshchina leaders. While RAIPON already interacts with these government authorities on multiple levels, indigenous peoples in Kamchatka currently lack ways to participate directly in the processes of implementing existing formal regulations and adopting new ones. While there are many potential solutions to this aspect of the collective action dilemma posed by Kamchatka's salmon fisheries, the existing hierarchical

structures of RAIPON provide a readily available option for increasing the participation of small-scale fishers.

Collective action movements and communication

Ostrom's set of design principles does not include a principle that directly addresses how institutions facilitate communication among individuals who use and manage a common-pool resource, but elsewhere she and her colleagues have emphasized its importance (Ostrom *et al.* 1994). Many models of cooperation and collective action intentionally exclude communication as a tool individuals can use to develop and enforce agreements, either because communication is seen as "cheap" and therefore unreliable or because communication is viewed as too effective, disguising the influence of other variables (Ostrom 1998: 6). Excluding communication can be useful for understanding other factors that influence cooperation and collective action, yet it is important to remember that communication needs to be brought back into these models before the conclusions derived from them can be applied to real-world settings (Ostrom 1990: 184). Empirical research using mathematical models and experiments to study the role of communication support the conclusions of qualitative case studies examining how rituals, focal points, and other forms of behavior enhance coordination: even "cheap talk" can often contribute to solving collective action dilemmas (Ostrom *et al.* 1994; Cronk & Leech In press; Smith 2010). Focusing on how post-Soviet collective institutions affect communication occurring among small-scale fishers, indigenous activists, government officials, and NGOs highlights additional challenges to the sustainable and just use of Kamchatka's salmon fisheries. Moreover, because communication is fundamentally a cultural process, attending to communication from an

anthropological perspective uncovers connections among individuals, institutions, and the broader contexts in which they are embedded.

McCay's situated choices & the importance of context

Ostrom's design principles are focused on the ways institutions structure the incentives, opportunities, and dilemmas for individuals and groups who share a common-pool resource. But the formal and informal regulations established by institutions also reflect an ongoing dialogue between these individuals and the forms of authority that shape institutions. This dialogue communicates information about what behaviors are desirable, acceptable, and forbidden. Yet, an individual's choice to behave in ways that conform to this valuation of potential actions is influenced by additional dialogues extending beyond the immediate context of a common-pool resource. Thus, institutions embody one of many existing channels of communication with the potential to influence patterns of behavior in response to a collective action dilemma. Other influential channels of communication may include an individual's unique life experiences, the patterns of cultural norms and values that have emerged over generations in the community, and the broader economic and political system that makes some options available while restricting others. McCay explains the importance of recognizing these influences when studying the collective action dilemmas posed by common-pool resources:

> Depending on their situations, some people simply may be unaware of environmental problems; others may be aware but not convinced they can do anything about them; and others simply may not have the resources required to do something about them or may reckon that the effort is not worth it, given costs and other obligations. (2002: 365)

When there is dissonance between the chords struck by these multiple channels of communication, institutions are unlikely to guide individuals toward patterns of behavior that successfully sustain common-pool resources. These dynamics can be framed in many different

ways, but a focus on communication has practical and theoretical advantages. First, the prominent role communication plays in forming and re-shaping institutions indicates that understanding how rules and regulations interact with broader contexts is a key to developing successful institutions. As McCay suggests, "Emergence of institutions for the commons requires situations with the possibility of truly open and constructive deliberation as much as it calls for decision-making structures that are able to overcome free-rider and other perverse incentives that plague situations involving the provision of public goods" (2002: 383). Second, the existence of such "situations" where individuals engage in "open and constructive deliberation" provides researchers with a valuable opportunity to observe, document, and analyze how individual values, beliefs, and subjectivities are formed. Even when institutions do not succeed in creating these situations, attending to their absence is likely to alert researchers to other contexts or forms of expression where such deliberation does occur. The information gained from attending to these channels of communication is an essential component of explanations for the choices people make, the patterns of behavior that result, and the implications for collective action and common-pool resource use.

McCay's "step-wise model of situated rational choice" provides a useful approach to studying how communication affects collective action dilemmas (2002: 365-370). Beginning with the question of whether or not individuals recognize a particular problem, we can understand how various channels of communication influence individual perceptions, make certain narratives more or less persuasive than others, and lead to dialogues for determining potential actions. Once begun, these dialogues often hinge on "determining cause and effect" (McCay 2002: 367), a process that is informed by perceptions that stem from individual experience as well as the past and present experiences communicated by others. Finally, the

assignment of causation helps guide consensus on "what to do and whether it is worth doing" (McCay 2002: 369). Solutions to collective action dilemmas are often based on agreed links between causes and effects, but in order for people to pursue them, they need to perceive that there are viable and attractive individual or collective actions to take. Communication at this stage can be particularly complicated for collective actions, because institutions that coordinate these actions may need to be significantly altered or crafted entirely anew amid a considerable degree of risk and uncertainty about whether or not the solution will actually work (McCay 2002: 369). In light of such risk and uncertainty, McCay suggests that the most prudent, effective, and just form of institutional change might involve smaller, less costly, incremental steps, a method known as "muddling through" (McCay 2002: 374).

With these points in mind, I return to a more detailed analysis of the June 2009 RAIPON meeting in Tilichiki. Following McCay's approach to understanding "situated choice," I explore how the channels of communication contribute to the dialogues I observed in the meeting. These dialogues reflect the broader contexts of cooperation and collective action in Kamchatka, particularly the processes that contribute to the formation of individual subjectivities. These subjectivities are historically and culturally contingent perceptions, ideas, interests and identities that emerge from both individual agency and social structure. The 2009 RAIPON meeting was both a moment where these subjectivities revealed themselves, as well as an event that could potentially play a role in influencing the transformations of individual subjectivities in the future.

"Developing Alternatives to Poaching" Revisited

We gathered around a glossy wooden table in the former office of the Head of Administration for the Oliutorskii Raion. The building sits in the heart of Old Tilichiki,

overlooking the town square and its life-size silver Lenin statue, but most of the offices had recently been vacated following a major 7.6 point earthquake that struck near Tilichiki in April 2006 as well as several more quakes between 4-6 points in magnitude over the next week or so. To replace buildings that had been damaged, a new administration building had recently been completed on the plateau above the old section of Tilichiki, along with a new school, hospital, and multiple apartment buildings. Yet, the transition to the new Tilichiki was not complete, so the old administration building continued to serve people working for the Office of Fisheries Inspectors, the Oliutorskii Vestnik newspaper, and other parts of the regional administration. We waited for everyone to arrive in the newspaper's office, but ultimately chose to hold the meeting in the Head of Administration's former office on the floor above because it provided a convenient space where we could spread out and sit across from one another to discuss development projects, salmon quota competitions, and other items on the agenda.

Though the room's glass cabinets and desks were almost empty, filled only with boxes of electrical parts, books, and brochures that had been deemed unnecessary, the furnishings still added a sense of formality to the meeting. On the wall hung a large topographic map of the region, indicating the names and locations of prominent rivers, mountains, and villages. The map also featured boxes that charted the prospective dynamics of increasing gross output for potatoes, milk, eggs, chickens, pigs, cattle, reindeer and other products for the regions sovkhoz and kolkhoz collectives during the years 1985, 1990, and 2000, with the bars reaching steadily upward. Though the year when the estimates were made was not indicated, most of Soviet collectives that coordinated the production of these foods had since been privatized, so if one were to bring the map and its projections up to date, most of the bars would indicate substantial decreases or disappear entirely. Sitting in the room, I felt we had entered a space where plans

were formulated and decisions made, but the map's presence was a reminder of an uncertain future. Still, the map was more of a curiosity to me than it was to the other people gathered in the room, who appeared to ignore such relics and focus on the task at hand.

Earlier, Albina Yailgina had given a short speech back in her office that was meant to set the tone for the meeting. The people who arrived early had already begun to talk about some of the issues on the meeting's agenda, so Albina began by stressing the importance of the regional branch of RAIPON as a tool for developing solutions to these problems. She thanked everyone for taking the time to travel from their villages to Tilichiki. Some had arrived from Achaivayam, Apuka, and Srednie Pakhachi, isolated villages primarily accessible by helicopter flights that made a circle from village to village and were available once a week when weather permitted. Others had found their own transportation, arriving by hitching a ride on a tank-like all-terrain vehicle that transports cargo between villages, called a "*vezdekhod*." Although the costs of their trip were being covered by a grant Albina received from Lach, they were not being compensated for their time. This was already a busy time of year, when people in the villages were rushing to aerate their recently thawed gardens and plant potatoes, prepare their greenhouses for tomatoes, cucumbers, carrots, and other vegetables, all while moving back and forth between the village and their fishing camps along the river, where they would soon meet the waves of salmon migrating upstream to spawn. Although the meeting was planned to last only two days, the difficulties of transportation in the region meant the participants might wait as long as an extra week or more to get home again.

Albina acknowledged these personal sacrifices by stating a kind of proverb, "Community work is work without compensation." Elaborating on the phrase, she explained that the Association's primary goal is to help indigenous people, whether they participate in the

association or not and regardless of the kind of collectives they choose to form. Her latter point referred to the different institutions that individuals in the region had joined in order to coordinate salmon fishing, reindeer herding, and other economic activities. Although the Association had been active in supporting obshchina collectives and advocating on their behalf, it also worked with several sovkhoz collectives that continued to coordinate reindeer herding in Khailino and Achaivayam. To a lesser extent, the association had engaged with privatized collectives that ran fish factories in the region, as well as a large mining company that extracted platinum and gold from sites scattered throughout the tundra surrounding Tilichiki and Khailino. In principle, any and all of these collectives could contribute to the lives of indigenous peoples, though their contributions were constantly being established and re-negotiated.

Looking around the office at two or three younger participants who were in their late twenties and early thirties, Albina encouraged them to take more initiative in the Association's activities and get other young people involved. "We need to activate our brains!" (*nado mozgi vkliuchit'*) she added with a serious look that made me smile. It reminded me of the times when she had similarly scolded me in the past. In the present context, she was referring to a development program that had been recently announced by the Russian Federation. Individuals and organizations throughout the country were being invited to develop grant applications to fund projects that would contribute in some way to improving the cultural and economic development of their communities. Albina had chosen to call the meeting "Developing Alternatives to Poaching" as a way of emphasizing the necessity of finding economic alternatives to ease the reliance on selling salmon caviar, a troubling reality for many people in the region. She concluded by saying, "There are new ways to make money. We don't need to

rely only on exploiting our name as indigenous people or the special status that the government gives us."

The "new ways to make money" Albina was referring to connected in one way or another with the market ideologies that have appeared since *perestroika*, privatization, and other post-Soviet transformations of the previous system of state farms and five-year plans. Poaching among small-scale salmon fishers was an unintended consequence of these changes, reflecting the worst aspects of the new system. The scarcity of viable employment, coupled with the high cost of food in local stores, left caviar as one of the only ways for local people to make money. People inside and outside the region recognize this problem, and some have chosen to implement development programs to address it. These programs generally seek to provide small capital investments to groups of people who would use the money to purchase essential equipment and supplies for a variety of economic activities, including many that can be considered "traditional" in some way or another. The applicants often include informally organized groups of relatives, friends, and partners as well as formal collectives like an obshchina. The size of the grants varies from 10,000- 100,000 rubles (about $400-$4,000), thus they are sometimes called "mini-grants" to distinguish them from the much larger development projects carried about by the United Nations Development Program (UNDP), the World Wide Fund For Nature (WWF), the Wild Salmon Centre, and other organizations elsewhere in Kamchatka (Wilson & Koester 2008). Instead of supporting large-scale projects like nature reserves, world heritage sites, scientific investigations of biodiversity, and community development programs, these "mini-grants" enable the purchase of new boat motors, materials for sewing fur clothing, supplies to grow and sell vegetables, and other resources that individuals are expected to utilize to while pursuing their livelihoods in the village's mixed economy. Yet, the market logic intended to guide these

activities is still new, presenting a challenge for people participating in these programs. Ideally, the activities these grants support would generate income that could provide for the participants' immediate needs, while enabling them to continue investing in their productive activities year after year. Thus, the underlying logic of the grants was to provide people in rural villages with opportunities to improve their living conditions through participation in local markets, explaining the common use of the term "*biznes plan*" to describe the application.

After Albina outlined the key elements of a "biznes plan," we broke into two groups to practice identifying a suitable problem, articulating a clear goal, describing available resources, drafting a budget, and assessing risks that could keep of us from achieving our desired results. Albina arranged us into groups she felt reflected the shared interests and experiences of the meeting's participants. One group, including all five of the women in attendance, planned to work on a project supporting the preparation and sale of traditional, reindeer fur clothing by a group of seamstresses living in Achaivayam. The other group, which I joined, was composed of the four other men in attendance and focused on a project to support the construction of traditional, wooden sleds still being used by reindeer herders in Khailino, Srednie Pakhachi, and Achaivayam. After spending an entire afternoon on the first day developing our proposals, we met on the second day to present and discuss them.

During the discussion of our projects, the challenges of developing a plan with long-term viability in a market context arose again and again. Albina and a few other participants from Tilichiki seemed most adept at identifying holes in our plans. Did we plan to sell reindeer sleds and fur clothing in the village, or access external markets? If our market was in the village, would we have enough customers with sufficient cash to purchase these expensive items? Would we barter? If so, how would exchanging our products for non-monetary forms of

compensation affect our business model? If we planned to sell our products outside the village where there were more potential customers with sufficient money, how would we make connections with these customers? Once we located them, how would we keep up with demand if it increased? Did we have any plan for how incorporating technology for mass production would affect the quality of the fur clothing and wooden sleds we sold? Would mass production change the value of the activities themselves for the people who performed them? All of these questions were difficult to answer but helpful to consider. We did our best to answer them, but they also made one thing clear: it was hard to reconcile the imperative to generate a profit with the underlying goal of supporting these activities, whose worth was greater than the products they produced.

The process of developing a successful grant application communicated a set of values and goals that were sometimes difficult to incorporate into the activities people in rural villages wanted the grants to support. It was not that market logic was difficult for people to grasp, but rather that many of the important practices associated with "traditional ways of life" had been carried out under other ideologies prior to and during the Soviet era. In this sense, these development initiatives signal a shift in the "practices" and "purposes" of subject formation in post-Soviet Kamchatka. The structure and content of grant applications compels people in rural villages to imagine ways that development capital can be used to find market solutions to the problems that they face. Although both the authorities who sponsor these grants and village residents who apply for them may share a general understanding of the problems, it is left to the applicants to develop a solution. The range of solutions that are available expresses new "purposes" of subject formation among village residents. Whether intentionally or unintentionally, projects that have clear connections to expanding markets in the village and

beyond are attractive and likely to be successful, while projects that seem less viable in this context become difficult to develop and support.

Participating in the process of writing grants provided me with insights into the way people identified problems, assigned causation, and determined possible courses of action. Everyone considered the limited sources of income in rural villages to be a serious problem, but equally serious was the imperative to adapt traditional subsistence activities like reindeer herding, salmon fishing, and foraging in ways that made these activities viable in the mixed economy of the villages. By posing this second problem as an equally important target for development, the participants in the meeting were expressing the widely held sentiment in their villages that these activities entail important practices, perspectives, and knowledge that constitute "traditional ways of life." This phrase is often invoked by indigenous activists, obshchina leaders, and government officials alike to encapsulate what should be simultaneously sustained and developed. While there is a strong degree of consensus about the problems of poaching and the broader challenges of making traditional subsistence strategies like salmon fishing viable, the causes and effects of these problems are more difficult for people to agree upon. These disagreements about causation lead people to support different courses of action intended to address the dilemmas of development. A debate over the future of reindeer herding in the Oliutorskii Raion that occurred toward the end of the second day of the meeting illustrates these dynamics.

Private & public paths toward development

In contrast to collectives involved in industrial salmon fishing during the Soviet era, sovkhoz collectives that managed reindeer herds in the Oliutorskii Raion had so far, for the most

part, resisted privatization. One of the major reasons for this was the considerable number of obstacles to making reindeer herding viable in the existing market economies of Kamchatka. The local demand for reindeer meat has not been sufficient to generate the revenue necessary to pay reindeer herders' salaries, provide them with necessary supplies, and maintain the expensive transportation infrastructure to keep supplies flowing from the village to the herds and reindeer meat flowing back from the tundra to village. Moreover, the dramatic declines in government subsidies and support that accompanied the collapse of the Soviet Union made it increasingly difficult for the sovkhoz to expand to more lucrative external markets. Although still owned and operated by the government in 2009, the sovkhoz reindeer herds in Khailino and Achaivayam were in a tenuous state, forced to delay paying salaries months at a time and left hoping for some kind of outside intervention. By 2007 the regional government had decided to consolidate the management of all the existing sovkhoz reindeer herds in the Oliutorskii Raion and neighboring Penzhinskii Raion, creating a new umbrella institution called KamchatOlenProm (a short form of a Russian title for "Kamchatka Reindeer Industry"), through which all subsequent resources would be funneled. However, by December 2007, Albina Yailgina reported in the Oliutorskii Vestnik that the director of a privatized fishing collective in the nearby village of Apuka had purchased a smaller reindeer herd managed by an obshchina in Srednie Pakhachi, along with a percentage of the reindeer belonging to the village sovkhoz, combining the two into a single herd whose ownership was split between KamchatOlenProm and the privatized fishing collective. The owner of the fish factory had taken on the responsibility of paying the herders' salaries and improving their equipment and supplies beyond what KamchatOlenProm offered.

The new configuration of reindeer herding in Srednie Pakhachi provoked a lot of discussion and debate at the RAIPON meeting. Vladimir, a leader in the territorial obshchina

that had previously managed the herd in Srednie Pakhachi, reported that herders were satisfied with their new working conditions and had been receiving their salaries on time. The size of the herd had grown, following the purchase of several hundred reindeer in the past two years. Still, several people considered the involvement of the privatized fishing collective a troubling trend. One person mentioned rumors that the leaders of a company that had arrived to oversee construction in the region following the 2006 earthquake had also made overtures to purchase herds elsewhere in the region. Many of the people in attendance felt these attempts by privatized collectives and other companies were strategies to leverage the symbolic power of reindeer herding to expand access to lucrative industrial fishing quotas and government subsidies. These attempts also appeared to be a political ploy to harness support for the owners of these companies, both of whom had recently become elected officials representing the region.

The people holding these views suggested an alternative: transfer the ownership and government resources currently held by KamchatOlenProm to the local obshchiny. In Khailino and Achaivayam, territorial obshchiny continued to manage relatively small herds comprising deer owned by individuals within the village. While the model of ownership was private, the responsibilities of management were collective, coordinated by the leaders of the obshchiny, who gathered fees and used them to provide the herders with limited monetary compensation and supplies. Although these obshchiny often struggled to support herders, they continued to maintain herd sizes through a combination of sacrifice and self-interest. Obshchina members often sent salted and dried salmon or other foods to the herders, particularly if they were unable to make monthly payments for the animals they owned. The herders also possessed a strong incentive to look after the herd, since many of them owned more animals than most other members of the obshchina. Once obshchiny began to receive industrial salmon quotas, the

members who remained in the village harvested salmon on behalf of the obshchina as a whole and generated further income and resources. In this way, the obshchiny that managed reindeer herding continued to embody some of the organizational principles and cultural values of reindeer herding prior to Soviet collectivization, achieving individual benefits through collective action by combining forms of public and private property.

Advocates of transferring sovkhoz herds to the local obshchiny envisioned a herd where 50% of the deer were owned by individuals, who could do with the animals whatever they wanted, and 50% were common property. A small percentage of the common herd would be harvested each year to pay for expenses and access the market. The rest would be conserved, so that the herd would grow in size each year. They clarified that they were not against government or business involvement in reindeer herding, but they emphasized that the deer had always been taken care of by indigenous people, who had a stronger long-term interest in preserving reindeer herding than privatized collectives and companies. They believed that the obshchiny had not been given a fair chance to take over the management of reindeer herds, since the government had resisted allowing obshchiny to assume control over reindeer that were not individually owned during the Soviet era.

The debates between these two alternative strategies for the development of reindeer herding illustrate how different channels of communication inform open deliberations over the individual choices and collective actions available to people living in Kamchatka's rural villages. On the one hand, the difficulties of accessing resources, developing economic strategies, and making connections necessary to thrive in markets compel people to support the transfer of ownership and authority to private companies. On the other, the desire for a meaningful degree of autonomy and the struggle to maintain connections with the past inspire people to seek their

own difficult path while continuing to develop "traditional ways of life." Is the institutional crisis in reindeer herding caused by a lack of government support, a resistance to local autonomy, or an absence of successful market actors? Both of the options debated at the meeting reflect a tacit lack of confidence in government management as a solution to the obstacles of development, though each also appears to count on a substantial degree of government support to realize its plans. Advocates of expanding privatization by partnering with industrial fishing companies or other established market actors communicate a certain degree of faith that these privatized collectives and the individuals who control them will be able to use their resources to make reindeer herding viable again, preserving an economic activity that is important to local people in many fundamental ways. Advocates of obshchiny find solutions to the problem by looking to adapt past practices to the present moment, assuming a greater role for village residents and the collective institutions they are seeking to build for themselves. In this meeting, when these two strategies for development were articulated, compared, and considered, the influence of broader cultural, economic, political, and historical contexts came to the fore.

The changing forms of collective institutions that have coordinated reindeer herding in Kamchatka prior to and during the Soviet era sometimes disguise continuity in the cultural norms and values these institutions embodied. One of these continuities is the importance of the commons. The special configuration of natural resources in Kamchatka that provides pastures for reindeer and spawning grounds for salmon represents a classic common-pool resource that people have utilized and managed generation after generation. The formation of sovkhoz and kolkhoz collectives transformed the practices of salmon fishing and reindeer herding by attempting to industrialize them and integrate them into the Soviet state economy, a process that dramatically circumscribed the autonomy of fishers and herders in maintaining this commons.

Yet, a strong sense remained among people in rural villages that governing these resources was still their right and responsibility, even if structures of authority affected how they could express those entitlements. Some people found spaces of freedom within the system, using these to support or subvert it. Others endured privately until the system collapsed, providing greater possibilities for action. This collapse created the uncertain cultural, ecological, economic, and political environments to which people are still struggling to adapt. Their attempts to do so reveal a second continuity: the importance of striking a correct balance between individual and common interests.

Debates over reindeer herding are important for the people I met in the 2009 RAIPON meeting because they reflect this tension between individual and common interests in a unique way. At the time, reindeer herding was not providing many economic benefits for anyone. Herders were owed months of back salary, sovkhoz directors complained of budgetary shortfalls, and the majority of people in each village had been reduced to the role of spectators by the dramatic declines in herd sizes that occurred during the transition to the Post-Soviet era. Yet, the symbolic importance of reindeer herding as a "traditional way of life" stems from its role in maintaining practices, knowledge, values, perspectives, and experiences that people feel are essential components of their culture, making reindeer herding too important to lose without a struggle. A reindeer herder in Srednie Pakhachi explained this importance bluntly when he told the American anthropologist Alexander King: "The last deer are everything. Without deer we are not people. Without deer there is no culture, nothing" (2003: 138). Thus, when people deliberate over whether to entrust these last deer to a sovkhoz, a privatized collective or an obshchina, they are deliberating over something more than individual interests. They are deliberating over something they hold in common.

Concluding Thoughts

Perhaps the insights gained from analyzing debates over reindeer herding, an unprofitable activity with tremendous symbolic importance, can cast the collective action dilemmas of salmon fishing in a new light. For many people who participate in or observe the debates over salmon quotas, poaching, and the role of collective institutions, the economic incentives of harvesting salmon drive the dilemma and confound the solution. My approach has been to consider these incentives while expanding the inquiry to include other factors that reflect the importance of broader contexts.

I have focused on how the formal system for regulating Kamchatka's salmon fisheries has led "the politics of distribution" to become intertwined with "the politics of recognition" for indigenous peoples in Kamchatka. After describing the role of post-Soviet collective institutions, I used Ostrom's "design principles" to assess the effectiveness of these institutions and suggest ways they could be further improved. However, before improvements are made, it is important to consider the principles guiding these solutions, the extent to which they are shared with small-scale fishers, and the ways residents of rural villages may seek to modify or supplement them. I have tried to illustrate how the cultural norms and values held by small-scale fishers alter their perceptions of the collective action dilemmas associated with economic development, influence how they assess cause and effect, and guide their attempts to devise solutions. As in reindeer herding, the longstanding importance of the commons for indigenous people in Kamchatka adds a special urgency to debates over salmon fishing. Salmon fishing not only provides essential food and income for people in rural villages that would be difficult or impossible to replace, it also sustains fundamental expressions of cultural identity. This sense of

urgency makes it all the more important that the correct balance is struck between individual and common interests among those who rely on Kamchatka's salmon fisheries, including indigenous and non-indigenous people alike.

The responses to the competition for salmon quotas among obshchina collectives that was conducted for the first time in spring 2009 reflect how difficult striking this balance can be. People who attended the RAIPON meeting in Tilichiki and obshchina leaders I spoke with in several villages were shocked by the results. Of the 20 obshchiny in the Oliutorskii Raion that had applied for quotas, only 8 had been considered for territories, with 5 of these ultimately coming through successful. A total of 12 obshchiny had been eliminated on procedural grounds due to incomplete or improperly completed applications, including several obshchiny whose past contributions to their communities had been widely acknowledged and appreciated. A phone call made earlier to an official in Petropavlovsk-Kamchatskii confirmed that there would be no second opportunity to receive quotas for the summer of 2009. To make matters worse, the territories awarded through the competition were to remain assigned to the winners for a 20 year period. This move was intended to provide collectives with a more secure foundation to develop, but now it appeared to effectively eliminate that hope for all but a few obshchiny. Considering that the competition was new and the consequences so severe, people were understandably upset.

Despite the flaws and shortcomings of the obshchina, the rapid increase in the number of these collectives in the Oliutorskii Raion from around 5 in 2005 to more than 30 in 2009 was an indication that people viewed this institution as an attractive and viable form of development. This increase also illustrates the way that collective institutions like the obshchina can be a nexus point connecting patterns of cooperation within the community to collective action movements

extending beyond. In seeking to organize groups of friends, relatives, and business partners to form an obshchina, people found ways to connect to and draw on the resources offered by development programs and indigenous rights movements. Such resources enabled the members of an obshchina to generate much needed income and produce food for themselves and others, strengthening networks of social support within the village. The obshchina also provided people with a combination of formal rights and autonomy that allowed them to coordinate their actions in ways that struck a balance between individual and common interests. While each obshchina set this balance differently, the variety of strategies that emerged sparked debates about the role that collective institutions should play in the community. These debates expanded to include privatized collectives, fish factories, and other institutions relying on local salmon fisheries, raising questions about the relationship between public and private gain in the post-Soviet era.

Focusing on how these debates reflect the relationship between individual subjectivities, collective institutions, and broader social structures illustrates the emergence of new forms of governance in the post-Soviet era. Rather than dictating the goals and practices of production and consumption from above as done during the Soviet era, perestroika, privatization, and other post-Soviet policies seem to encourage individuals and institutions to pursue their interests from the bottom-up. Formal rules and regulatory structures delineate a certain degree of freedom among diverse collective institutions and the individual subjects who support them. Yet, as Agrawal emphasizes in his discussion of "environmentality," these actors, institutions, and social structures "shape each other" through the interaction of multiple forms of knowledge, power, and agency (2005: 203). The ways that different collective institutions are supported from below by village residents and from above by governmental and non-governmental authorities demonstrate these interactions vividly. Thus, post-Soviet collectives offer a tangible expression of the

relationship between individual agency and social structure that researchers can use to understand how collective action dilemmas are identified, understood, and ultimately overcome or abandoned. Since individual and common interests are often fundamentally concerned with the use and management of common-pool resources, the strategies that people choose and the relationships they develop to pursue them are informed by cultural and historical legacies that stretch far back into Soviet and pre-Soviet pasts. The continued role that collectives play in coordinating salmon fishing, reindeer herding, and other traditional subsistence activities with tremendous practical and symbolic importance for indigenous peoples suggests that understanding how these legacies affect contemporary institutional diversity should remain a goal for ethnographers, activists, and officials.

Considering how dramatically the contexts for debates over collective institutions changed in just one year through the 2009 quota competition, it is difficult to make predictions about what will come next. One conclusion that seems warranted, however, is a reconsideration of Albina's opening remark that "community work is work without compensation." Albina implied that the sacrifices people made to attend the 2009 RAIPON meeting in Tilichiki would not be accompanied by personal gain. Yet, this did not necessarily mean that the association's broader efforts to improve the lives of indigenous people in the rural villages scattered throughout the region would be without benefits for the leaders who worked toward these ends. Community work may often be work without direct, individual, economic compensation, but for the people who pursue it, the goals continue to be much broader. In the next issue of Oliutorskii Vestnik, Albina wrote an article titled: "The Association – 10 years." After thanking people who had contributed to this milestone and outlining the continued importance of the association's activities, she concluded:

> "On such a significant date, it is desirable to wish the new members of the Oliutorskii Raion RAIPON committee success, and also to wish them inexhaustible reserves of patience, since community work is difficult and without compensation. It is filled with enthusiasm solely when the pain and problems of one's people passes through one's own heart."

Chapter 8:

From State Collectives to Local Commons

Passing through the heart

Albina Yailgina's observation—that community work "is filled with enthusiasm solely when the pain and problems of one's people passes through one's own heart"—is an important expression of her subjectivity. Although community work is often "work without compensation," the goals that motivate Albina, other activists, and community leaders like her to continue pursuing this work reflect a broader range of common interests. At the heart of these common interests are the practices, knowledge, skills, and experiences of traditional subsistence activities like reindeer herding, salmon fishing, and foraging. While these activities have been transformed along with the people who practice them, they continue to establish continuity with Soviet and pre-Soviet pasts, helping people preserve their unique ways of life. Two key elements of this continuity are the importance of the commons and the balance between individual and common interests. People in the villages where I work feel and express the importance of these elements of their way of life differently, some to a greater or lesser extent than others. Yet, the patterns of cooperation I have documented in multiple contexts—from public goods games to food-sharing networks and collective institutions—express forms of individual agency and illustrate the importance of cooperation and collective action. Synthesizing the insights gained by studying cooperation and collective action in each of these contexts makes these continuities clearer. These patterns of cooperation follow from unique cultural and historical legacies, but provide insights that can be applied among people in other places.

Legacies of cooperation

The cultural and historical legacies of indigenous peoples in Kamchatka and the transformations they have experienced reflect the longstanding importance of cooperation for their ways of life. When agents of the Russian Empire began to explore and settle in Siberia, they were driven by the desire to exploit Siberia's vast natural resources for personal and professional gain. They encountered indigenous peoples who first appeared to them exceedingly "primitive" and "backward." These early encounters were dominated by transactions of tribute and trade that treated indigenous peoples essentially as economic resources whose value was limited to the number of furs they produced. Over time these encounters became complicated by interdependencies that developed in the isolation of rural settlements, far from Moscow and St. Petersburg. Russian officials, merchants, and mercenaries were separated from the structures of authority that gave them power, limiting their abilities to govern indigenous peoples. In turn, indigenous fishers, herders, and foragers were able to negotiate the terms of colonial encounters in ways that transformed tributes into trade, asserting their own cultural norms and values of kinship and reciprocity. Despite the considerable suffering they endured from many forms of exploitation, indigenous peoples preserved forms of cooperation within their own communities, allowing them to assert a level of autonomy that eventually forced the Russian empire to treat them as political subjects.

Although indigenous peoples were still considered "primitive" by most Russians, the descriptions explorers and ethnographers produced about their unique ways of life led some intellectuals and activists to begin to see them differently. Dismayed by levels of inequality and competition in Russian society, populist revolutionary intellectuals and activists—some ethnographers among them—admired the way that indigenous peoples reconciled tensions

between cooperation and competition through cultural norms and values that blended forms of individual and common property with ethics of altruism, reciprocity, kinship, and equality. They drew upon this new knowledge of indigenous peoples while engaging in intellectual debates about human nature, social evolution, and development. The stages of progress they imagined often centered on shifting balances between individual and collective interests that led to new forms of cooperation. Rather than remaining intellectual exercises, these debates were daringly applied to political realities in the Russian Empire. Convinced by critiques of capitalist development in Western Europe, revolutionaries were inspired by indigenous peoples to imagine new forms of sociality that would lead Russia down a unique path toward development. One of the distinguishing features of this path was the emphasis it placed on pursuing the common good. Although the forms of cooperation achieved by indigenous peoples were still considered "primitive," the principles underlying them could be used to illustrate alternatives and inspire action toward more modern, advanced forms of cooperation.

After the revolution, new opportunities arose for Russians to put their principles to practice in building a new society. Indigenous peoples were now undeniably a part of this new society, but after centuries of colonial expansion, there were considerable obstacles to overcome in transforming them from "primitive communists" to "Soviet citizens." Early on in the Soviet era, the expertise of ethnographers in these matters was recognized, and they were given an important role in the governance of indigenous peoples. Consistent with the blend of romanticism and paternalism that characterized their scholarship, ethnographers acting on behalf of the state sought a gradualist policy of integration that tried to graft government interventions onto existing institutions and forms of authority among indigenous peoples. Although differing from one place to the next, social structures within indigenous communities were often based

primarily on a blend of kinship and common property, where extended families worked together to meet their needs while making informal arrangements with other groups that shared access to the same territories for herding reindeer, catching fish, and foraging. Soviet officials ultimately envisioned incorporating these activities into the state economy by modernizing and industrializing them, a process that would unfold along with the social construction of new Soviet subjectivities. Yet, indigenous peoples in many parts of Siberia were unwilling to abandon their traditional ways of life entirely in order to embrace the new Soviet modernity.

Throughout the rest of the Soviet Union, collectivization and industrialization proceeded rapidly, and the political imperatives of class struggle soon cast scrutiny on policies toward indigenous peoples. Officials were accused of an overly sentimental, romanticized view of indigenous people's social relationships, and opponents began to claim that capitalist exploiters and class enemies could be found in the taiga and tundra. By politicizing economic inequalities and hierarchies of authority in indigenous communities, the next generation of Soviet officials and ethnographers was able to justify the dramatic impositions on indigenous autonomy that were necessary in order to complete the process of collectivization. Once these impositions were complete, the cultural norms and values that previously sustained patterns of cooperation in indigenous communities were replaced by a structured system of Soviet collective institutions that were vertically integrated into the state economy, with authority trickling down to rural villages from Moscow. An extremely overt and ambitious effort to "construct" new cultural norms and values was an essential part of this economic transformation, further distancing indigenous peoples from their traditional ways of life in the pursuit of modernity.

While many indigenous people struggled to resist these transformations, it is important to acknowledge the extent to which others came to embrace the cultural norms and values of the

Soviet system. The emergence of Soviet subjectivities among indigenous peoples was due in large part to the ways boarding schools and universities were used to separate children from their parents, turning them against each other if need be. Yet, these efforts had some unintended consequences. Indigenous people continued to find ways to conduct their social relationships according to continuities with the past. Although the vertical structures of political authority and the state economy appeared to claim the right to both define and meet individual needs, a second "informal economy" flourished, feeding on the inefficiencies of Soviet collectives and the contradictions of the broader Soviet system. Horizontal networks of exchange and social support were cultivated by people who did not believe the state economy was meeting all of their needs. In rural villages, these horizontal networks often resembled forms of social organization and expressed underlying cultural principles that existed prior to the Soviet era. Though these continuities with the past were often disguised during the Soviet era, they reemerged with renewed importance after the Soviet system collapsed.

Now in the post-Soviet era, indigenous people are trying to adapt to yet another round of transformations. The legacies of cooperation established prior to and during the Soviet era continue to impact plans for the future. I sought to document and understand the importance of these legacies by studying cooperation and collective action among salmon fishers and reindeer herders living on the Kamchatka Peninsula in the Russian Far East. My research examined cooperation in multiple contexts, from the experimental context of economic games to naturally occurring contexts of food-sharing, institutions, and collective action movements. Theories of cooperation in the natural and social sciences informed my approach to studying cooperation in these contexts, and the connections I draw between them are intended to synthesize the strengths of these different theoretical and methodological perspectives.

The Emergence & Stability of Cooperation in Kamchatka

Ethics of altruism and reciprocity

Despite the dramatic transformations that occurred during Russian colonial expansion, Soviet collectivization, and post-Soviet perestroika, patterns of cooperation and the cultural norms and values that underlie them persist in Kamchatka's rural villages. While ethnographers often note the importance of cooperation for indigenous peoples throughout Siberia, it is difficult to know how to compare these accounts with other places. For this reason, I chose to begin my project with an examination of cooperation in the experimental context of public goods games. These games and others like them have been played with an ever-expanding range of participants, including members of large-scale and small-scale societies throughout the world. Thus, they provide an opportunity to compare levels of cooperation in one place with those in another, while examining whether or not the factors that influence cooperation are consistent cross-culturally.

The levels of cooperation in public goods games played by people in Kamchatka were higher than any previously published study I was able to locate. About 77% of participants contributed their entire endowment to the group, and the overall average contribution of 89% is far above the typical range between 40%-60% reported elsewhere throughout the world. After completing the first round of public goods games in Khailino, I was surprised by these results and wondered if they would be replicated when I conducted the second round of experiments in Vyvenka. Subsequent statistical analysis suggested there was no significant difference between the results of the games in the two villages, indicating that people's decisions to contribute to the public good may have been informed by the common experiences, cultures, and histories people

living in Kamchatka's rural villages share. I pursued explanations for these high levels of cooperation during follow-up interviews with people who participated in the games, asking them to explain how they made their decisions and to help me interpret the decisions of others. These conversations revealed many interesting insights, often returning to a common theme: the importance of naturally occurring contexts of cooperation in people's daily lives.

Some explained that they were confident that most people would contribute all or most of their money to the public good. Others discounted the risk of contributing, either declaring they were willing to lose money they had not earned or were happy to give money to those in need. People who contributed less were not necessarily seen as "defectors" or "free-riders" by others, but rather as people who needed more money to support their families. People expressed these sentiments with a confidence they traced back to ethics of altruism and reciprocity that were widespread in their villages, distinguishing them from larger villages like Tilichiki or the regional capital Petropavlovsk-Kamchatskii. As one woman explained, "Everyone roots for each other, survives. If someone has misfortunes, you try to support them, so the person isn't let loose. That is, reciprocity here is a very good, necessary thing."

I recognize these statements may not convince some skeptical empiricists and ethnographers. So rather than settling for statements about cooperation in naturally occurring contexts, I collected quantitative data on food-sharing practices between households, a form of cooperation that Jochelson described as the basis for the social unions between families in the Koryak communities he visited over 100 years ago (1908: 746). Tracing the flow of important subsistence foods like salted salmon, reindeer meat, potatoes, and berries between households, I gained measures of cooperation that occurred over the course of the previous year. I complimented these long-term measures by gathering data on meal and tea-sharing, short-term

measures of cooperation that are easier to accurately record. The patterns of cooperation I found in these two contexts support people's claims for the importance of altruism and reciprocity in their communities. The 85 participants in my survey reported 435 food-sharing acts for subsistence resources during the past year, giving average amounts of about 38 kg of potatoes, 12 kg of salmon, 4 kg of reindeer meat, and 4 liters of berries. In addition to sharing raw foods, people also reported 247 meal and tea-sharing events in just the two days prior to the interviews, averaging 1 meal-sharing event and almost 2 tea-sharing events per person. These food-sharing acts are an important way that people in these villages form and maintain social networks of support in order to cope with the economic challenges and uncertainties of the post-Soviet mixed economy.

Social networks of support

When people articulate the cultural norms and values that underlie social networks of support within the village, they emphasize that acts of altruism and reciprocity occur—for the most part—among all individuals and without regard for past and future obligations. Yet, it is important to examine the relationship between statements that may provide patterns *for* behavior and documented patterns *of* behavior (Cronk 1999). Although each individual shares a unique network of connections with other households, people display clear preferences, consciously or unconsciously, for kinship and reciprocity. About 64% of all food-sharing acts occurred between kin, while 68% of all food-sharing acts occurred between people who shared meals, tea, and food reciprocally. These preferences were similar whether analyzing data on short-term measures of sharing meals and tea or long-term measures of sharing subsistence resources. However, there were still some important differences in patterns of food-sharing for each

subsistence resource that reveal interesting perspectives on preferences for kinship and reciprocity.

Reindeer meat, a scarce resource with symbolic significance for people in these villages, is shared more frequently and in greater amounts among kin than among friends, neighbors, acquaintances, and strangers. Although people share all subsistence foods more frequently with kin, the preference for sharing greater amounts of food with kin is less strong for salmon, and generally absent for potatoes and berries. Reindeer meat is far more scarce and thus more highly prized than these other subsistence foods. But salted salmon and potatoes hold greater practical importance than reindeer meat in the diets of people in rural villages. That people generally share foods in equal amounts with only minor regard for the relationship between them is consistent with the cultural norms and values of altruism that they articulate verbally. Yet, the fact that people share all foods with relatives more frequently suggests that other factors help maintain these patterns of cooperation among kin. Evolutionary theories of kin selection may provide one explanation. An evolved propensity to direct altruistic acts toward kin under the conditions specified by Hamilton's Rule could shape the food-sharing practices I documented. Further data on genetic relatedness among the individuals whose food sharing networks I traced is needed to support this possibility, but the evidence presented so far points in this direction.

Preferences for reciprocity in patterns of food-sharing also reveal some important discrepancies between cultural norms and values and observed behaviors. While food-sharing is generally more frequent in reciprocal relationships than in non-reciprocal relationships, the amounts of food shared in each case differs depending on the resource. Potatoes and salted salmon, arguably two of the most important subsistence foods from a practical perspective, are shared in greater amounts in non-reciprocal relationships than reciprocal ones. Non-reciprocal

transfers of these foods may indicate stable asymmetries of need that exist between households. Whereas smaller reciprocal transfers may be used to maintain networks of social support, until one partner experiences hardship and is compelled to active them. People in the villages where I worked often articulated cultural norms and values that emphasized the importance of helping people in need. Similar statements were recorded by Bilibin in the 1930s and described by Jochelson 30 years before that. It is interesting to note, however, that none of these accounts emphasize reciprocal contingency. While such statements appear to run counter to evolutionary theories of direct reciprocity, patterns of food-sharing actually provide support to these theories. In addition to the broader preference for reciprocity between partners, 56% of all non-reciprocal food transfers occur among kin and 22% occur among friends. These results suggest that preferences for kinship and reciprocity may operate in tandem.

If non-reciprocal food transfers indicate stable asymmetries of need, then people who consistently provide food to households that do not reciprocate can be expected to choose such food-sharing partners carefully. While reciprocity remains frequent among kin and friends, asymmetries of need that lead to non-reciprocal transfers may reflect the special importance of these relationships for people in Kamchatka. When Jochelson and Bilibin observed food-sharing practices among Koryak groups, most of these people lived in settlements composed of several extended families that were much smaller than the rural villages where I gathered data on contemporary food-sharing practices. Still, people appear to sustain the personal relationships and levels of social support that these earlier groups offered by forming less tangible but equally important social networks within the villages they now inhabit. This transformation in the locus of cooperation—from visible residential groups to intangible social networks—has implications for theories of cooperation as well as Siberian ethnography.

Forms of agency

Understanding how cultural norms and values shape patterns of behavior is one of anthropology's central tasks. Cultural anthropologists often represent this process as a dialogue between individual agency and social structure. Following Cronk (1999), I consider cultural norms and values as sources of information that are among many potential factors that consciously and unconsciously influence behavior. While cultural anthropologists focus on these cultural factors, evolutionary anthropologists direct more attention to documenting and understanding biologically and culturally coevolved individual propensities. These propensities are rarely recognized as forms of agency, yet in some cases they correspond more closely to documented patterns of behavior than cultural norms and values do.

My definition of individual agency differs from others in that I suggest there are cultural and biological forms of agency. In addition to the historically and culturally contingent subjectivities that usually constitute individual agency for cultural anthropologists and other social scientists, I argue that biologically and culturally coevolved propensities are equally important forms of individual agency. The interactions between these two forms of agency and the structures of collective action dilemmas may explain the similarities and differences found in the many institutions that have emerged to set the balance between individual and common interests in different contexts throughout the world.

Preferences for kinship and reciprocity when sharing food in Kamchatka may reflect the importance of mechanisms of positive assortment that allow people to cooperate with partners who will return the favor in one way or another. Kin selection, direct reciprocity, indirect reciprocity, and signaling are all evolutionary theories that posit such mechanisms as adaptations that benefit the individual who holds them. These theories contrast with theories of group

selection that claim cooperation is an individual adaptation that evolves because it benefits the group. A major weakness of these claims is that they rely heavily on competition between stable, objectively defined groups. Subsequent theories of group selection have sought to address this weakness by relaxing the definition of a "group" to the point that groups come to resemble egocentric social networks. The contrast between the traditional notion of groups and social networks is important for understanding how to test these theories with empirical data. Traditional groups are stable, objectively defined entities that multiple individuals either share or are excluded from, making it relatively easy to identify them and document their properties. In contrast, social networks are formed subjectively by individuals, allowing them to overlap partially or exist in isolation from the networks of other individuals who occupy the same place. These aspects of social networks make them difficult to identify and examine, yet the differences between one individual's social network and another's may have important consequences for their relative success in realizing opportunities to cooperate. Thus, understanding the dynamics between individual traits and the properties of networks they belong to becomes important for researchers studying patterns of cooperation in naturally occurring contexts.

The contrast between traditionally defined objective groups and subjective social networks is analogous to the contrast between post-Soviet collective institutions and networks of social support within villages. Like objective groups, collective institutions have boundaries that determine relatively unambiguously who is and is not a member. But each member of a collective institution also cultivates and maintains his or her own unique social network within the village and beyond. Indeed, the benefits that accrue to individuals as a result of membership in a collective institution rarely remain confined to circulating among its members. Instead, these benefits flow to individuals outside the collective through each member's social network.

Applying evolutionary theories to the study of these social networks may contribute new insights on the institutional diversity that has emerged in post-Soviet collectives throughout Siberia.

Collective institutions & the circulation of resources

Ethnographers who have studied contemporary collectives in different parts of Siberia have suggested that the type of institution is less important than the ways different institutions allow their members to cultivate and maintain personal networks of social support (Konstantinov 2002; Vladimirova 2006; Ziker 2003a). In other words, from the perspectives of members in a collective institution, it is less important that they belong to a sovkhoz, an obshchina, or another kind of collective. What is important is that the collective provides them access to resources, equipment, territory, and authority that allows them to pursue their own interests. These interests are not inherently individualistic in the way that self-interest is often represented in theories of rational choice or bounded rationality. Instead, an individual's self-interest often reflects interdependencies with his or her family, friends, acquaintances, and community members.

This idea about the relationship between post-Soviet collectives and personal networks connects to arguments about the relationship between the Soviet state economy and the "second economy" that emerged along with it. Inefficiencies, contradictions, and injustices in the vertical structures of the Soviet state economy created spaces for a second, horizontal economy that sovkhoz directors and workers alike used to procure resources and make ends meet when the state could not or would not provide assistance (Verdery 1996; Humphrey 1998). The collective nature of traditional subsistence activities may have contributed to the growth of this horizontal economy among indigenous peoples, establishing continuity between social relations prior to and during the Soviet era (Habeck 2005; Vladimirova 2006). The similarities in the cultural norms

and values of food-sharing that people articulated to me with those that were recorded by ethnographers who worked in Kamchatka in the early 1900s and 1930s may reflect this continuity. However, as my analysis of food-sharing showed, preferences for kinship and reciprocity—often unarticulated—are nonetheless evident in observed patterns of cooperation. While ethnographers studying post-Soviet collective institutions are inclined to focus on how collective institutions coordinate cooperation and collective action in the context of productive activities like herding, fishing, and foraging, this perspective highlights the means but not the ends of individual and common interests. Examining how the benefits of collective membership circulate through the social networks that lie within and extend beyond these objective groups may help us better understand post-Soviet collective institutions, perhaps generating insights that lead to their improvement.

Examining the social networks within post-Soviet collectives should help reveal some of the tensions between individual and common interests that threaten to destabilize these institutions. In collectives where the social networks of members only partially overlap, we might expect these tensions to increase, requiring rules and regulations that establish ways for mediating conflicts and ensuring collective choice arrangements among members with diverging individual interests. In these situations, Ostrom's design principles provide guidance in assessing the strengths and weaknesses of institutions. Conversely, in collectives where the social networks of members significantly overlap, allowing individual and common interests to converge, these tensions are likely to diminish. The proliferation of obshchina collectives in Kamchatka and other regions in Siberia may reflect the importance of this relationship between the structure of institutions and the extent to which the social networks of their members overlap.

Although some obshchiny in Oliutorskii Raion, called "territorial obshchiny," are large enough to include an entire village, many individuals are instead choosing to form a smaller, kin-based collective called a "*rodovaia obshchina*." I was unable to identify any substantive differences between the formal rights and obligations of these two kinds of obshchiny. Instead, the primary difference appears to be in how people imagine the relationships among their members. In "rodovaia obshchina," the adjective "rodovaia" is derived from the root word "rod," meaning "kin" or "clan" in Russian. Like the word "obshchina" it modifies, this adjective evokes Russian and Soviet ethnographic descriptions of the traditional socioeconomic organizational structure of indigenous peoples throughout Siberia. Although members of contemporary kin-based obshchiny are not actually required to be kin, many of these collectives are indeed formed by extended families. Thus, the social networks among members of kin-based obshchiny often overlap significantly with one another, in contrast to larger territorial obshchiny as well as the Soviet sovkhoz and kolkhoz collectives that once stood alone as the total social institutions in every rural village.

While the use of words like "sovkhoz," "kolkhoz," and "obshchina" may suggest that some of these post-Soviet collectives can make claims that they embody aspects of "tradition" or "modernity" better than others, the people in villages where I worked took a more pragmatic approach. They do not consider these categories diametrically opposed. Rather, they seek to shape collective institutions that embody important aspects of their pasts and address their present needs. This pragmatic approach can be seen throughout Siberia in the research of ethnographers who study institutional diversity in post-Soviet collectives. People appear to adopt and support whatever kind of collective institution allows them to cultivate and maintain personal networks of social support, whether they live in Taimyr (Ziker 2003a), Murmansk

(Konstantinov 2002; Vladimirova 2006), Yamal (Stammler 2005a; Stammler & Ventsel 2003), or Evenkia (Fondahl 1998). In each case, the ethnographers working in these regions report that the attractiveness of different kinds of collective institutions for people living in rural villages depends significantly upon the ways formal and informal arrangements in these institutions facilitate or impede the circulation of resources through the personal networks of members, as opposed to confining benefits to the boundaries of the collective.

In order to facilitate the continued growth of this horizontal economy of networks, collective institutions must tap into the vertical channels through which formal rights and access to resources flow into rural communities. During the Soviet era, this vertical economy was highly structured and relatively uniform compared to the uncertain and ever-changing post-Soviet economy. Although dramatically reduced following the Soviet collapse, forms of government authority and support remain important for post-Soviet collectives. Yet, collectives in rural villages are also beginning to tap into new vertical structures of authority provided by private companies, non-governmental organizations, and foreign governments. Increasingly, in order to gain access to the resources necessary to meet needs and fulfill obligations, institutions are engaging in collective action movements that address indigenous rights, environmental conservation, and economic development. These collective action movements entail new opportunities for cooperation, but also pose new dilemmas. The presence of multiple collectives within a village, the ways they benefit their members, and the contributions they make to the community at large become topics of debate, inspiring discussions about future development.

Collective institutions as nexus points

Situated at the intersections of vertical and horizontal economies, post-Soviet collectives become nexus points connecting patterns of cooperation within communities to collective action

movements that extend beyond them. The opportunities and dilemmas for development posed by Kamchatka's salmon fisheries illustrate how institutions fulfill this role. Through their claims to salmon quotas, collectives acquire formal rights to access resources that residents of rural villages in Kamchatka need in order to succeed in the mixed economy of the post-Soviet era. Yet, the politics of distributing these resources among different kinds of collective institutions—from fish factories to obshchiny—remain sources of contention. The debates I described over quota allocation, salmon poaching, and the role of collective institutions in the community life of rural villages provide an opportunity to understand how the unique cultural and historical legacies of indigenous people in Kamchatka animate and shape the structures of collective action dilemmas that they share with people in other places.

While the politics of distribution have become intertwined with the politics of recognition in Kamchatka, a closer examination of the rights and obligations that indigenous people want recognized reveals more complex dimensions of identity than concepts like "tradition," "modernity," and "development" might suggest. Instead, indigenous people are pursuing what Grant would call the reconstruction of the present from "the remains of each of the different pasts to which they at one time subscribed" (1995: 16). First, indigenous salmon fishers want recognition of their rights to harvest salmon in amounts that are sufficient to provide food for their families, assist others in need, and generate income. Expressions of these rights can be traced back through the Soviet era to the earliest ethnographic accounts of indigenous peoples living in Kamchatka. These rights were once negotiated according to cultural norms and values of authority and property that established relationships between people and natural resources that constituted a kind of local commons. Although these relationships were transformed through Soviet collectivization and cultural construction, people also found ways to maintain continuity

with the commons. This continuity entailed a concern for establishing the appropriate balance between individual and common interests. The formal recognition of this balance and the right to participate in establishing it continues to be important for indigenous people in Kamchatka.

People's ideas about how this balance should be struck today differ, but many emphasize that collective institutions and the individuals who benefit from them have obligations to contribute to the life of the community. This sense of obligation is evident in the ways that some collectives engage in practices of food-sharing by harvesting and preparing salmon for people who are unable to fish for themselves or by giving salmon to local schools, boarding houses, and clinics. By adopting cultural norms and values of food-sharing that usually apply to relationships between individuals and families, collective institutions signal their contributions to the community and support their continued presence there. These forms of cooperation expand the traditional context of food-sharing in ways that reflect the influence of ideas about collective institutions that emerged during the Soviet era. Soviet sovkhoz and kolkhoz collectives were total social institutions whose contributions to the community where expansive and explicit. The collapse of these collectives and the subsequent decline in their contributions was traumatic for people who came to rely upon them. While most people today do not seek to rebuild these Soviet collectives, the belief that institutions have obligations to the community is one that they continue to hold onto and hope to realize once again. For indigenous people in Kamchatka, these two elements of continuity—the importance of the commons and the balance between individual and common interests—are principles that guide them on the path from state collectives to local commons.

Bibliography

Acheson, J. M. 1987. "The Lobster Fiefs Revisited: Economic and ecological effects of territoriality in Maine lobster fishing." In *The Question of the Commons: The Culture and Ecology of Human Resources*. B. J. McCay & J. M. Acheson, Eds. Pp. 37-65. Tucson, AZ: The University of Arizona Press.

Acheson, J. M. & Gardner, R. 2004. "Strategies, Conflict and the Emergence of Territoriality: The Case of the Maine Lobster Industry." *American Anthropologist* 106(2): 296-307.

Agrawal, A. 2003. "Sustainable Governance of Common-Pool Resources: Context Methods, and Politics." *Annual Review of Anthropology* 32: 243-262.

Agrawal, A. 2005. *Environmentality: Technologies of Government and the Making of Subjects*. Durham, NC: Duke University Press.

Alexander, R. 1987. *The Biology of Moral Systems*. Hawthorne, NY: Aldine de Gruyter.

Allen-Arave, W., Gurven, M., & Hill, K. 2008. "Reciprocal Altruism, Rather than Kin Selection, Maintains Nepotistic Food Transfers on an Ache Reservation." *Evolution and Human Behavior* 29: 305-318.

Alvard, M. S. 2003a. "The Adaptive Nature of Culture." *Evolutionary Anthropology* 12(3): 136-149.

Alvard, M. S. 2003b. "Kinship, Lineage, and an Evolutionary Perspective on Cooperative Hunting Groups in Indonesia." *Human Nature* 14(2): 129-163.

Alvard, M. S. & Nolin, D. A. 2002. "Rousseau's Whale Hunt? Coordination among big-game hunters." *Current Anthropology* 43(4): 533-559.

Anderson, D. G. 2000. *Identity and Ecology in Arctic Siberia*. Oxford, UK: Oxford University Press

Antropova, V. V. 1971. *Kultura i Byt Koryakov*. [*Culture and Daily Life of the Koryaks*]. Leningrad, RU: Izdaltel'stvo Nauka.

Artemova, O. Yu. 2004. "Hunter-Gatherer Studies in Russia and the Soviet Union." In *Hunter-Gatherers in History, Archaeology, and Anthropology*. A. Barnard, Ed. Pp. 77-88. New York, NY: Berg Publishers.

Augerot, X. 2005. *Atlas of Pacific Salmon*. Berkeley, CA: University of California Press.

Axelrod, R. 1984. *The Evolution of Cooperation*. New York: Basic Books.

Axelrod, R., & Hamilton, W. D. 1981. "The Evolution of Cooperation." *Science* 211: 1390-1396.

Baland, J. & Platteau, J. 1996. *Halting Degradation of Natural Resources: Is there a role for local communities?* Food and Agricultural Organization of the United Nations.

Barkow, J. H. 1989. *Darwin, Sex, and Status: Biological approaches to mind and culture*. Toronto, CA: University of Toronto Press.

Bartlett, R. (Ed.). 1990. *Land Commune and Peasant Community in Russia: Communal forms in Imperial and early Soviet society.* New York, NY: Palgrave Macmillan.

Bates, D. G. & Tucker, J. 2010. *Human Ecology: Contemporary research and practice.* New York: Springer.

Bernard, H. R. 2002. *Research Methods in Anthropology: Qualitative and Quantitative Approaches*. 3rd Edition. Walnut Creek, CA: AltaMira.

Betzig, L. (Ed.). 1997. *Human Nature: A critical reader*. Oxford, UK: Oxford University Press.

Betzig, L. & Turke, P. 1986. "Food Sharing on Ifaluk." *Current Anthropology* 27: 397–400.

Bilibin, N. 1933. *Klassovoe Rassloenie Kochevykh Koryakov.* [*Class Stratification among*

Nomadic Koryaks]. Vladivostok, RU: Dal'giz.
Bliege Bird, R. L. & Bird, D. W. 1997. "Delayed Reciprocity and Tolerated Theft: The behavioral ecology of food-sharing strategies." *Current Anthropology* 38: 49–77.
Bliege Bird, R. & Smith, E. A. 2005. "Signaling Theory, Strategic Interaction, and Symbolic Capital." *Current Anthropology* 46(2): 221-248.
Bliege Bird, R. L., Smith, E. A. & Bird, D. W. 2001. "The Hunting Handicap: Costly signaling in human foraging strategies." *Behavioral Ecology and Sociobiology* 50: 9–19.
Bliege Bird, R. L., Bird, D. W., Kushnick, G. & Smith, E. A. 2002. "Risk and Reciprocity in Meriam Food Sharing." *Evolution and Human Behavior* 23: 297–321.
Bloch, A. 2004. *Red Ties and Residential Schools: Indigenous Siberians in a post-Soviet state.* Philadelphia, PA: University of Pennsylvania Press.
Bloch, A. & Kendall, L. 2004. *The Museum at the End of the World: Encounters in the Russian Far East*. Philadelphia, PA: University of Pennsylvania Press.
Blurton Jones, N. G. 1984. "A Selfish Origin for Human Food Sharing: Tolerated theft. *Ethology and Sociobiology* 5(1): 1–3.
Blurton Jones, N. G. 1987. "Tolerated Theft: Suggestions about the ecology and evolution of sharing, hoarding, and scrounging*." Social Science Information* 26: 31–54.
Bogoras, V. 1904. *The Chukchee*. The Jessup North Pacific Expedition, Vol. 7, Parts 1-3. New York, NY: Memoirs of the American Museum of Natural History.
Borgerhoff Mulder, M. 1991. "Human Behavioral Ecology." In *Behavioral Ecology: An evolutionary approach*. J. R. Krebs & N. B. Davies, Eds. Pp. 69-98. Oxford: Blackwell.
Borgerhoff Mulder, M. 2004. "Human Behavioral Ecology." *Encyclopedia of Life Sciences*. Nature Publishing Group. http://www.els.net/
Bowles, S. 2006. "Group Competition, Reproductive Leveling, and the Evolution of Human Altruism." *Science* 314: 1569–1572.
B.B.C. 2004. "Salmon at Risk in Pacific Russia." *BBC News*: October 30th. http://news.bbc.co.uk/2/hi/science/nature/3964997.stm
Burnham, T., McCabe, K. & Smith, V. 2000. "Friend-or-Foe Intentionality Priming in an Extensive Form Trust Game." *Journal of Economic Behavior and Organization* 43: 57–73.
Buss, D. (Ed.). 2005. *The Handbook of Evolutionary Psychology*. Hoboken, NJ: Wiley & Sons.
Chamberlain, L. 2004. *Motherland: A philosophical history of Russia*. New York, NY: Rookery.
Camerer, C. 2003. *Behavioral Game Theory: Experiments in strategic interaction*. Princeton, NJ: Princeton University Press.
Cardenas, J. C. 2003. "Real Wealth and Experimental Cooperation: Experiments in the field lab." *Journal of Development Economics* 70: 263-289.
Cardenas, J. C. & Carpenter, J. 2008. "Behavioural Development Economics: Lessons from field labs in the developing world." *Journal of Development Studies* 44(3): 337-364.
Carsten, J. 2004. *After Kinship*. Cambridge, UK: Cambridge University Press.
Cavalli-Sforza, L. L. & Feldman, M. W. 1981. *Cultural Transmission and Evolution: A Quantitative Approach.* Princeton, NJ: Princeton University Press.
Chagnon, N. A. & Irons, W. (Eds.). 1979. *Evolutionary Biology and Human Social Behavior: An anthropological perspective.* North Scituate, MA: Duxbury Press.
Chibnik, M. 2005. "Experimental Economics in Anthropology: A critical assessment." *American Ethnologist* 32(2): 198-209.

Chivers, C. J. 2006. “Salmon Find an Ally in the Far East of Russia.” *New York Times*, October 15.

Ciriacy-Wantrup, S. & Bishop, R. 1975. “‘Common property’ as a Concept in Natural Resources Policy.” *Natural Resources Journal* 15: 713-727.

Crate, S. 2006. *Cows, Kin, and Globalization: An ethnography on sustainability*. Walnut Creek, CA: Alta Mira Press.

Cronk, L. 1991. "Human Behavioral Ecology." *Annual Review of Anthropology* 20: 25-53.

Cronk, L. 1995. "Is There a Role for Culture in Human Behavioral Ecology." *Ethology and Sociobiology* 16(3): 181-205.

Cronk, L. 1999. *That Complex Whole: Culture and the evolution of human behavior*. Cambridge, MA: Westview Press.

Cronk, L. 2002. "From True Dorobo to Mukogodo Maasai: Contested ethnicity in Kenya." *Ethnology* 41(1): 27-49.

Cronk, L. 2004. *From Mukogodo to Maasai: Ethnicity and Cultural Change in Kenya*. Cambridge, MA: Westview Press.

Cronk, L. 2005a. “The Application of Animal Signaling Theory to Human Phenomena: Some thoughts and clarifications.” *Social Science Information/Information sur les Sciences Sociales* 44(4): 603-620.

Cronk, L. 2005b. “Comment” on ‘Signaling Theory, Strategic Interaction, and Symbolic Capital’ by R. Bliege Bird and E. A. Smith. *Current Anthropology* 46(2): 239-240.

Cronk, L. 2007. “The Influence of Cultural Framing on Play in the Trust Game: A Maasai example.” *Evolution and Human Behavior* 28: 352-358.

Cronk, L., Chagnon, N., & Irons, W. (Eds.). 2000. *Adaptation and Human Behavior: An anthropological perspective*. Hawthorne, NY: Aldine de Gruyter.

Cronk, L. & Gerkey, D. 2007. “Kinship and Descent.” In *The Oxford Handbook of Evolutionary Psychology*. R. I. M. Dunbar & L. Barrett, Eds. Pp. 463-478. Oxford, UK: Oxford University Press.

Cronk, L. & Leech, B. In prep. *Meeting at Grand Central: Cooperation, coordination, and collective action.* Book Manuscript.

Cronk, L. & Wasielewski, H. 2008. “An Unfamiliar Social Norm Rapidly Produces Framing Effects in an Economic Game.” *Journal of Evolutionary Psychology* 6(4): 283-308.

Dolsak, N. & Ostrom, E. (Eds.). 2003. *The Commons in the New Millennium: Challenges and adaptation.* Cambridge, MA: MIT Press.

Donahoe , B. 2009. “The Law as a Source of Environmental Justice in the Russian Federation.” In *Environmental Justice and Sustainability in the Former Soviet Union*. J. Agyeman & Y. Ogneva-Himmelbarger, Eds. Pp. 21-46. Cambridge, MA: MIT Press.

Donahoe, B., Habeck, J., Halemba, A. & Santha, I. 2008. “Size and Place in the Construction of Indigeneity in the Russian Federation.” *Current Anthropology* 49(6): 993-1020.

Dronova, N. A. & Spiridonov, V. A. 2008. *Illegal, Unreported, and Unregulated: Pacific salmon fishing in Kamchatka*. Moscow, RF: TRAFFIC/WWF/Moore Foundation.

Dunbar, R. I. M. & Barrett, L. (Eds.). 2007a. *The Oxford Handbook of Evolutionary Psychology*. Oxford, UK: Oxford University Press.

Dunbar, R. I. M. & Barrett, L. 2007b. “Evolutionary Psychology in the Round.” In *The Oxford Handbook of Evolutionary Psychology*. R. I. M. Dunbar & L. Barrett, Eds. Pp. 3-10. Oxford, UK: Oxford University Press.

Durham, W. H. 1991. *Coevolution: Genes, culture, and human diversity.* Stanford, CA: Stanford University Press.

Efferson, C., Takezawa, M., & McElreath, R. 2007a. "New Methods in Quantitative Ethnography: Economic experiments and variation in the price of equality." *Current Anthropology* 48: 912-919.

Efferson, C., Richerson, P. J., McElreath, R., Lubell, M., Edsten, E., Waring, T. M., Paciotti, B., & Baum, W. 2007b. "Learning, Productivity, and Noise: An experimental study of cultural transmission on the Bolivian Altiplano." *Evolution and Human Behavior* 28: 11-17.

Ensminger, J. 2004. "Market Integration and Fairness: Evidence from ultimatum, dictator, and public goods experiments in East Africa." In *Foundations of Human Sociality: Economic experiments and ethnographic evidence from 15 small-scale societies*. Henrich, J. *et al.,* Eds. Pp. 356-381. Oxford, UK: Oxford University Press.

Fehr, E. & Schmidt, K. M. 1999. "A Theory of Fairness, Competition, and Cooperation." *Quarterly Journal of Economics* 114(3): 817-868.

Flinn, M. V. 1988. "Step- and Genetic Parent/offspring Relationships in a Caribbean Village." *Ethology and Sociobiology* 9: 335-369.

Fondahl, G. 1998. *Gaining Ground? Evenkis, Land, and Reform in Southeastern Siberia*. Cultural Survival Studies in Ethnicity and Change. Boston, MA: Allyn and Bacon.

Forsyth, J. 1992. *A History of the Peoples of Siberia*. Cambridge, UK: Cambridge University Press.

Fox, R. 1979. "Kinship Categories as Natural Categories." In *Evolutionary Biology and Human Social Behavior: An anthropological perspective*. N. A. Chagnon & W. Irons, Eds. Pp. 374-401. North Scituate, MA: Duxbury Press.

Fox, R. 1989. *Search for Society: Quest for a biosocial science and morality*. New Brunswick, NJ: Rutgers University Press.

Fragaszy, D. & Perry, S. 2003. *The Biology of Traditions: Models and evidence*. Cambridge, UK: Cambridge University Press.

Freed, S. A., Freed, R. S., & Williamson, L. 1988. "Capitalist Philanthropy and Russian Revolutionaries: The Jesup North Pacific Expedition (1897-1902)." *American Anthropologist* 90: 7-24.

Friedman, J. 1990. "Being in the World: Globalization and localization." In *Global Culture: Nationalism, globalization, and modernity*. M. Featherstone, Ed. Pp. 311-328. London, UK: Sage Publications.

Gaechter, S., Herrmann, B., & Thoni, C. 2004. "Trust, Voluntary Cooperation, and Socio-economic Background: Survey and experimental evidence." *Journal of Economic Behavior & Organization* 55: 505–531.

Gaudin, C. 2007. *Ruling Peasants: Village and state in Late Imperial Russia*. Dekalb, Il: University of Northern Illinois Press.

Geertz, C. 1972. *The Interpretation of Cultures: Selected essays.* New York, NY: Basic.

Giffen, J., Earle, L.. & Buxton, C. 2005. *The Development of Civil Society in Central Asia.* INTRAC: The International NGO and Training Center.

Gigerenzer, G. & Selten, R. (Eds.). 2002. *Bounded Rationality: The adaptive toolbox.* Cambridge, MA: MIT Press.

Gintis, H. 2000. *Game Theory Evolving: A problem-centered introduction to modeling strategic interaction.* Princeton, NJ: Princeton University Press.

Gintis, H., Smith, E. A. & Bowles, S. 2001. "Costly Signaling and Cooperation." *Journal of Theoretical Biology* 213: 103-119.

Glikman, E. 2005. "Krasnyi Rybnyi Poias." *Novaya Gazeta* 91: Dec. 5th. "The Red Fish Belt." J. Castner, Trans. *Pacific Environment*. http://www.pacificenvironment.org/article.php?id=638

Gould, S. J. 1988. "Kropotkin Was No Crackpot." *Natural History* 97(7): 12-17.

Grafen, A. 1990. "Biological Signals as Handicaps." *Journal of Theoretical Biology* 144: 517-546.

Grant, B. 1995. *In the Soviet House of Culture: A century of perestroikas.* Princeton, NJ: Princeton University Press.

Gray, P. A. 2003. "Volga Farmers and Arctic Herders: Common (post)Socialist experiences in rural Russia." In *The Postsocialist Agrarian Question: Property relations and the rural condition*. C. Hann, Ed. Pp. 293-320. New Brunswick, NJ: Transaction Publishers.

Gray, P. A. 2005. *The Predicament of Chukotka's Indigenous Movement: Post-Soviet activism in the Russian Far North.* Cambridge, UK: Cambridge University Press.

Gray, P. A. 2005. "'The Last Kulak' and Other Stories of Post-privatization Life in Chukotka's Tundra." *Nomadic Peoples* 10(2): 50-67.

Gurven, M. 2004a. "To Give and To Give Not: The behavioral ecology of human food transfers." *Behavioral and Brain Sciences* 27: 543-583.

Gurven, M. 2004b. "Reciprocal Altruism and Food Sharing Decisions among Hiwi and Ache Hunter-gatherers." *Behavioral Ecology and Sociobiology* 15: 366-380.

Gurven, M. 2004c. "Does Market Exposure Affect Economic Game Behavior? The Ultimatum Game and the Public Goods Game among the Tsimane of Bolivia." In *Foundations of Human Sociality: Economic experiments and ethnographic evidence from 15 small-scale societies*. Henrich, J. *et al.,* Eds. Pp. 382-412. Oxford, UK: Oxford University Press.

Gurven, M. 2006. "The Evolution of Contingent Cooperation." *Current Anthropology* 41: 185-192.

Gurven, M. & Winking, J. 2008. "Collective Action in Action: Prosocial behavior in and out of the laboratory." *American Anthropologist* 110(2): 179-190.

Gurven, M., Allen-Arave, W., Hill, K. & Hurtado, A. M. 2000a. "'It's a Wonderful Life': Signaling generosity among the Ache of Paraguay." *Evolution and Human Behavior* 21: 263–82.

Gurven, M., Hill, K., Kaplan, H., Hurtado, A. M. & Lyles, R. 2000b. "Food Transfers among Hiwi Foragers of Venezuela: Tests of reciprocity." *Human Ecology* 28: 171–218.

Habeck, J. O. 2005. *What it Means to Be a Herdsman: The practice and image of reindeer husbandry among the Komi of Northern Russia*. Muenster: Litverlag (Halle Studies in the Anthropology of Eurasia).

Hagen, E. & Hammerstein, P. 2006. "Game Theory and Human Evolution: A critique of some recent interpretations of experimental games." *Theoretical Population Biology* 69: 339-48.

Hames, R. 1987. "Relatedness and Garden Labor Exchange among the Ye'kwana." *Ethology and Sociobiology* 9: 354-392.

Hames, R. 2000. "Reciprocal Altruism in Yanomamö Food Exchange." In *Adaptation and Human Behavior: An anthropological perspective.* L. Cronk, N. Chagnon & W. Irons, Eds. Pp. 397-416. Hawthorne, NY: Aldine de Gruyter.

Hames, R., & McCabe, C. 2007. "Meal Sharing among the Ye'kwana." *Human Nature* 18: 1-21.

Hamilton, W.D. 1964. "The Genetical Evolution of Social Behaviour I and II". *Journal of Theoretical Biology* 7: 1-16 & 17-52.

Hamilton, W. D. 1975. "Innate Social Aptitudes of Man: An approach from evolutionary genetics." In *Biosocial Anthropology*. R. Fox, Ed. Pp. 133–156. London, UK: Malaby Press.

Hancock, N. 2002. "Is Trade Traditional? — Theorizing Economic Histories and Futures in the New Kamchatka." In *People and the Land: Pathways to reform in post-Soviet Siberia*. E. Kasten, Ed. Pp. 225–243. Berlin: Dietrich Reimer Verlag.

Hardin, G. 1968. "The Tragedy of the Commons." *Science* 162: 1243-1248.

Haugerud, A. 2002. "The Disappearing Local: Rethinking global-local connections." In *Localizing Knowledge in a Globalizing World: Recasting the area studies debate.* A. Mirsepassi, A. Basu & F. Weaver, Eds. Pp. 60-81. Syracuse, NY: Syracuse University Press.

Henrich, J. 2004. "Cultural Group Selection, Coevolutionary Processes and Large-scale Cooperation." *Journal of Economic Behavior & Organization* 53: 3-35.

Henrich, J. & Boyd, R. 2001. "Why People Punish Defectors: Conformist transmission stabilizes costly enforcement of norms in cooperative dilemmas." *Journal of Theoretical Biology* 208: 79-89.

Henrich, J. & McElreath, R. 2007. "Dual-inheritance Theory: The evolution of human cultural capacities and cultural evolution." In *The Oxford Handbook of Evolutionary Psychology*. R. I. M. Dunbar & L. Barrett, Eds. Pp. 555-570. Oxford, UK: Oxford University Press.

Henrich J., Boyd, R., Bowles, S., Camerer, C., Fehr, E., Gintis, H. (Eds.) 2004. *Foundations of Human Sociality: Economic experiments and ethnographic evidence from 15 small-scale societies*. Oxford, UK: Oxford University Press.

Henrich, J., McElreath, R., Barr, A., Ensminger, J., Barrett, C., Bolyantz, A., Cardenas, J. C., Gurven, M., Gwako, E., Henrich, N., Lesorogol, C., Marlowe, F., Tracer, D. & Ziker, J. 2006. "Costly Punishment across Human Societies." *Science* 312: 1767-1770.

Henrich, J., Ensminger, J., McElreath, R., Barr, A., Barrett, C., Bolyantz, A., Cardenas, J. C., Gurven, M., Gwako, E., Henrich, N., Lesorogol, C., Marlowe, F., Tracer, D. & Ziker, J. 2010. "Markets, Religion, Community Size and the Evolution of Fairness and Punishment." *Science* 327: 1480-1484.

Herrmann, B., Thoni, C. & Gaechter, S. 2008. "Antisocial Punishment Across Societies." *Science* 319: 1362-1367.

Hill, K. & Gurven, M. 2004. "Economic Experiments to Examine Fairness and Cooperation among the Ache Indians of Paraguay." In. *Foundations of Human Sociality: Economic experiments and ethnographic evidence from 15 small-scale societies*. Henrich, J. *et al.*, Eds. Pp. 382-412. Oxford, UK: Oxford University Press.

Hill, K. & Hurtado, A. M. 2009. "Cooperative Breeding in South American Hunter-Gatherers." *Proceedings of the Royal Society B* 276: 3863-3870.

Hrdy, S. B. 2009. *Mothers and Others: The evolutionary origins of mutual understanding*. Cambridge, MA: Harvard University Press.

Humphrey, C. 1998. *Marx Went Away—But Karl Stayed Behind.* Updated edition of *Karl Marx Collective: Economy, society, and religion in a Siberian collective farm*. Ann Arbor, MI: University of Michigan Press.

Humphrey, C. 1983. *Karl Marx Collective: Economy, society, and religion in a Siberian collective farm*. Cambridge, UK: Cambridge University Press.

Hønneland, G. 2004. *Russian Fisheries Management: The precautionary approach in theory and practice*. Boston, MA: Martinus Nijhoff.

Iannaccone, L. R. 1992. "Sacrifice and Stigma: Reducing free-riding in cults, communes, and other collectives." *Journal of Political Economy* 100: 271-292.

Iannaccone, L. R. 1994. "Why Strict Churches are Strong." *American Journal of Sociology* 99: 1180-1211.

Irons, W. 1996. "In Our Own Self-image: The evolution of morality, deception and religion." *Skeptic* 4: 50-61.

Irons, W. 2001. "Religion as a Hard-to-Fake Sign of Commitment." In *Evolution and the Capacity for Commitment*. R.M. Nesse, Ed. Pp. 292-309. NewYork, NY: Russell Sage Foundation.

Jochelson, V. 1908. *The Koryak*. Memoirs of the American Museum of Natural History 10. Publications of the Jesup North Pacific Expedition 6. Leidon: E. J. Brill.

Johnson, T. 2004. *Russian Far East Fisheries*. Fairbanks, AK: Alaska Sea Grant College Program, University of Alaska Fairbanks.

Kan, S. 2009. *Lev Shternberg: Anthropologist, Russian socialist, Jewish activist*. Lincoln, NE: University of Nebraska Press.

Kandiyoti, D. 1998. "Rural Livelihoods and Social Networks in Uzbekistan: Perspectives from Andijan." *Central Asian Survey* 17(4): 561-578.

Karlan, D. S. 2005. "Using Experimental Economics to Measure Social Capital and Predict Financial Decisions." *The American Economic Review* 95(5): 1688-1699.

Kasten, E. 2004. "Ways of Owning and Sharing Cultural Property." In *Properties of Culture – Culture as Property: Pathways to reform in post-Soviet Siberia*. E. Kasten, Ed. Pp. 9–32. Berlin: Dietrich Reimer Verlag.

Kearney, M. 1995. "The Local and the Global: The anthropology of globalization and transnationalism." *Annual Review of Anthropology* 24(1): 547-565.

Kerttula, A. M. 2000. *Antler on the Sea: The Yup'ik and Chukchi of the Russian Far East*. Ithaca, NY: Cornell University Press.

King, A. D. 2002. "Reindeer Herders Culturescapes in the Koryak Autonomous Okrug" In *People and the Land: Pathways to reform in post-Soviet Siberia.* E. Kasten, Ed. Pp. 63-80. Berlin: Dietrich Reimer Verlag.

King, A. D. 2003a. "Social Security in Kamchatka: Rural and urban comparisons." In *The Postsocialist Agrarian Question: Property relations and the rural condition*. C. Hann, Ed. Pp. 391-418. New Brunswick, NJ: Transaction Publishers.

King, A. D. 2003b. "Without Deer There is No Culture, Nothing." *Anthropology and Humanism* 27(2): 133-164.

King, A. D. 2004. "The Authenticity of Cultural Properties in the Russian Far East." In *Properties of Culture – Culture as Property: Pathways to reform in post-Soviet Siberia*. E. Kasten, Ed. Pp. 51–65. Berlin: Dietrich Reimer Verlag.

King, A. D. 2005a. "Genuine and Spurious Dance Forms in Kamchatka, Russia." Max Planck Institute for Social Anthropology. Working Paper No. 79. Halle/Saale.

King, A. D. 2005b. "Koryak Languages." http://www.koryaks.net/language.html

King, A. D. 2006. "The Siberia Studies Manifesto." *Sibirica*: *Journal of Siberian Studies* 5(1): V–XV.

Koester, D. 2002. "When the Fat Raven Sings: Mimesis and environmental alterity in Kamchatka's environmentalist age." In *People and the Land: Pathways to reform in post-Soviet Siberia*. E. Kasten, Ed. Pp. 45–62. Berlin: Dietrich Reimer Verlag.

Koester, D. 2005. "Global Movements and Local Historical Events: Itelmens of Kamchatka appeal to the United Nations." *American Ethnologist* 32(4): 642-659.

Konstantinov, Y. 2002. "Soviet and Post-Soviet Reindeer-Herding Collectives: Transitional slogans in Murmansk Region. In *People & the Land: Pathways to reform in post-Soviet Siberia*. E. Kasten, Ed. Pp. 172-187. Seattle, WA: University of Washington Press.

Konstantinov, Y. 2004. *Towards a Model of Comparing Transitional Forms in Russian Reindeer Herding*. Max Planck Institute for Social Anthropology Working Papers: No. 70.

Korchmit, V. A. 2001. *Olenevodstvo Koryakii: Etapi, razvitia, perspektivy vozrozhdenia.* [*Reindeer Herding in Koryakia: Periods, development, perspectives of revival*.] Petropavlovsk-Kamchatskii, RU: Kamchatskii Gosudarstvennyi Tekhnicheskii Universitet.

Krasheninnikov, S. P. [1755] 1973. *The History of Kamtschatka*. Surrey, UK: Richmond Publishing Company.

Krebs, J. R. & Davies, N. B. (Eds.) 1997. *Behavioural Ecology: An evolutionary approach*. 4th Edition. Oxford: Blackwell.

Kropotkin, P. 1902. *Mutual Aid: A factor of evolution*. New York, NY: McClure Phillips, & Co.

Laland, K. N. & Brown, G. R. 2002. *Sense and Nonsense: Evolutionary perspectives on human behavior*. Oxford, UK: Oxford University Press.

Laland, K. N., Odling-Smee, J. & Feldman, M. W. 2000. "Niche Construction, Biological Evolution, and Cultural Change." *Behavioral and Brain Sciences* 23(1): 131-146.

Lansing, S. 1991. *Priests and Programmers: Technologies of power in the engineered landscape of Bali.* Princeton, NJ: Princeton University Press.

Lansing, S. 2007. *Perfect Order: Recognizing complexity in Bali.* Princeton, NJ: Princeton University Press.

Ledeneva, A. V. 1999. *Russia's Economy of Favours: Blat, networking, and informal exchange*. Cambridge, UK: Cambridge University Press.

Ledyard, J. 1995. "Public Goods: A survey of experimental research." In A. Roth & J. Kagel, Eds. Pp. 11-194. *Handbook of Experimental Economics*. Princeton, NJ: Princeton University Press.

Lehmann, L. & Keller, L. 2006. "The Evolution of Cooperation and Altruism: A general framework and a classification of models." *Journal of Evolutionary Biology* 19: 1365-1376.

Lesorogol, C. K. 2007. "Bringing Norms In: The role of context in experimental dictator games." *Current Anthropology* 48(6): 920-926.

Levitt, S. D. & List, J. A. 2009. "Field Experiments: The past, the present, and the future." *European Economic Review* 53: 1-18.

Liberman, V., Samuels, S.M. & Ross, L. 2004. The Name of the Game: Predictive power of reputations versus situational labels in determining prisoner's dilemma game moves. *Personality and Social Psychology Bulletin* 30: 1175-1185.

Marlowe, F.W. 2004. "What Explains Hadza Food Sharing?" *Research in Economic Anthropology* 23: 69-88.

Maynard Smith, J. 1982. *Evolution and the Theory of Games*. Cambridge, UK: Cambridge University Press.

Maynard Smith, J. & Harper, D. 2003. *Animal Signals*. Oxford, UK: Oxford University Press.

Mesoudi, A., Whiten, A., Laland, K. 2006. "Toward a Unified Science of Cultural Evolution." *Behavioral and Brain Sciences* 29(4): 329-347.

Metzo, K. 2009. "Civil Society and the Debate over Pipelines in Tunka National Park, Russia." In *Environmental Justice and Sustainability in the Former Soviet Union*. J. Agyeman & Y. Ogneva-Himmelbarger, Eds. Pp. 119-140. Cambridge, MA: MIT Press.

McCay, B. J. 1998. *Oyster Wars and the Public Trust: Property, law, and ecology in New Jersey history.* Tucson, AZ: University of Arizona Press.

McCay, B. J. 2002. "Emergence of Institutions for the Commons: Contexts, situations, and events." In *The Drama of the Commons*. National Research Council. Committee on the Human Dimensions of Environmental Change. E. Ostrom, T. Dietz, N. Dolsak, P.C. Stern, S. Stovich and E. U. Weber, Eds. Pp. 361-402. Division of Behavioral and Social Sciences and Education. Washington, DC: National Academy Press.

McCay, B. J. 2008. "An Intellectual History of Ecological Anthropology." In *Against the Grain: The Vayda tradition in human ecology and ecological anthropology*. B. Walters, B. J. McCay, P. West, & S. Lees, Eds. Pp. 11-26. Lanham, MD: AltaMira.

McCay, B. J. & Jentoft, S. 1998. "Market or Community Failure? Critical perspectives on common property research." *Human Organization* 57(1): 21-29.

McCay, B. J. & Acheson, J. M. 1987a. "Human Ecology of the Commons." In *The Question of the Commons: The culture and ecology of human resources*. B. J. McCay & J. M. Acheson, Eds. Pp. 1-36. Tucson, AZ: The University of Arizona Press.

McCay, B. J. & Acheson, J. M. (Eds.) 1987b. *The Question of the Commons: The culture and ecology of human resources*. Tucson, AZ: The University of Arizona Press.

McElreath, R. & Boyd, R. 2007. *Mathematical Models of Social Evolution: A guide for the perplexed*. Chicago, Il: University of Chicago Press.

McElreath, R. & Henrich, J. 2007. "Modeling Cultural Evolution." In *The Oxford Handbook of Evolutionary Psychology*. R. Dunbar & L. Barrett, Eds. Pp. 571-585. Oxford, UK: Oxford University Press.

McKinnon, S. 2005. "On Kinship and Marriage: A critique of the genetic and gender calculus of evolutionary psychology." In *Complexities: Beyond nature and nurture.* S. McKinnon & S. Silverman, Eds. Pp. 106-31. Chicago: University of Chicago Press.

National Research Council. 2002. *The Drama of the Commons*. Committee on the Human Dimensions of Environmental Change. E. Ostrom, T. Dietz, N. Dolsak, P.C. Stern, S. Stovich and E. U. Weber, Eds. Division of Behavioral and Social Sciences and Education. Washington, DC: National Academy Press.

Nolin, D. A. In press. "Food-sharing Networks in Lamalera, Indonesia: Reciprocity, kinship, and distance." *Human Nature*.

Novikova, N. 2002. "Self-Government of the Indigenous Minority Peoples of West Siberia: Analysis of law and practice." In *People & the Land: Pathways to reform in post-Soviet Siberia*. E. Kasten, Ed. Pp. 83-97. Seattle, WA: University of Washington Press.

Nowak, M. A. 2006. "Five Rules for the Evolution of Cooperation." *Science* 314: 1560-3.

Nowak, M. A. & Sigmund, K. 2005. "Evolution of Indirect Reciprocity." *Nature* 437**:** 1291-1298.

Odling-Smee, J., Laland, K. N., & Feldman, M. W. 2003. *Niche Construction: The neglected process in evolution*. Princeton, NJ: Princeton University Press.

Ohtsuki, H. & Iwasa, Y. 2006. "The Leading Eight: Social norms that can maintain cooperation by indirect reciprocity." *Journal of Theoretical Biology* 239: 435-444.

Okasha, S. 2006. *Evolution and the Levels of Selection*. Oxford, UK: Oxford University Press.

Olson, M. 1965. *The Logic of Collective Action: Public goods and the theory of groups.* Cambridge, MA: Harvard University Press.

Ortner, S. B. 1984. "Theory in Anthropology Since the Sixties." *Comparative Studies in Society and History* 126(1): 126-166.

Ortner, S. B. (Ed.) 1999. *The Fate of Culture: Geertz and beyond.* Berkeley, CA: University of California Press.

Osherenko, G. 1995. "Property Rights and Transformation in Russia: Institutional change in the Far North." *Europe-Asia Studies* 47(7): 1077-1108.

Ostrom, E. 1990. *Governing the Commons: The evolution of institutions for collective action*. Cambridge, UK: Cambridge University Press

Ostrom, E. 1998. "A Behavioral Approach to the Rational Choice Theory of Collective Action: Presidential address, American Political Science Association, 1997." *American Political Science Review* 92 (1): 1-22.

Ostrom, E. 2005. *Understanding Institutional Diversity*. Princeton, NJ: Princeton University Press.

Ostrom, E., Gardner, R., and Walker, J. 1994. *Rules, Games, and Common-Pool Resources.* Ann Arbor, MI: University of Michigan Press.

Patton, J. 2005. "Meat Sharing for Coalitional Support*." Evolution and Human Behavior* 26: 137-157.

Pika, A. (Ed). 1999. *Neotraditionalism in the Russian North: Indigenous peoples and the legacy of perestroika*. B. Grant, Trans. Seattle, WA: University of Washington Press.

Quammen, D. 2009. "Where the Salmon Rule." *National Geographic* 216(2): 28-55.

Rethmann, P. 2001. *Tundra Passages: History and gender in the Russian Far East*. University Park, PA: Pennsylvania State University Press.

Richerson, P. J. & Boyd, R. 2005. *Not By Genes Alone: How culture transformed the human species*. Chicago, Il: University of Chicago Press.

Richerson, P. J., Boyd, R., Paciotti, B. "An Evolutionary Theory of Commons Management." In *The Drama of the Commons*. National Research Council. Committee on the Human Dimensions of Environmental Change. E. Ostrom, T. Dietz, N. Dolsak, P.C. Stern, S. Stovich and E. U. Weber, Eds. Pp. 403-442. Division of Behavioral and Social Sciences and Education. Washington, DC: National Academy Press.

Robbins, P. 2004. *Political Ecology*. Oxford, UK: Blackwell.

Roberts, G. 2005. "Cooperation Through Interdependence." *Animal Behaviour* 70: 901-908.

Rodriguez-Sickert, C., Guzman, R. A., & Cardenas, J. C. 2008. "Institutions Influence Preferences: Evidence from a common pool resource experiment." *Journal of Economic Behavior & Organization* 67: 215-227.

Ruffle, B. J. & Sosis, R. 2006. "Cooperation and the In-group-out-group Bias: A field test on Israeli kibbutz members and city residents." *Journal of Economic Behavior and Organization* 60: 147-63.

Sahlins, M. 1976*. The Use and Abuse of Biology: An anthropological critique of sociobiology*. Ann Arbor: University of Michigan Press.

Schneider, D. M. 1984. *A Critique of the Study of Kinship*. Ann Arbor, MI: University of Michigan Press.

Schweitzer, P. 2000. "Silence and Other Misunderstandings: Russian anthropology, Western hunter-gatherer debates, and Siberian peoples." In *Hunters & Gatherers in the Modern World*. P. Schweitzer, M. Biesele, & R. Hitchcock, Eds. Pp. 29-51. New York: Berghahn Books.

Sirina, A. A. 2004. "Soviet Traditions in the Study of Siberian Hunter-Gatherer Society." In *Hunter-Gatherers in History, Archaeology, and Anthropology*. A. Barnard, Ed. Pp. 89-101. New York, NY: Berg Publishers..

Slezkine, Y. 1994. *Arctic Mirrors: Russia and the small peoples of the north*. Ithaca, NY: Cornell University Press.

Smith, E. A. 1991. *Inujjuamiut Foraging Strategies: Evolutionary ecology of an arctic hunting economy*. Hawthorne, NY: Aldine de Gruyter.

Smith, E. A. 2010. "Communication and Collective Action: Language and the evolution of human cooperation." *Evolution and Human Behavior* 31: 231-245.

Smith, E. A. & Bliege Bird, R. 2000. "Turtle Hunting and Tombstone Opening: Public generosity as costly signaling." *Evolution and Human Behavior* 21: 245–61.

Smith, E. A., Bliege Bird, R. & Bird, D. 2003. "The Benefits of Costly Signaling: Meriam turtle hunters." *Behavioral Ecology* 14: 116–26.

Sober, E. & Wilson, D.S. 1998. *Unto Others: The Evolution and Psychology of Unselfish Behavior.* Cambridge, UK: Harvard University Press.

Soler, M. N.d. "Commitment and Cooperation in Candomblé: A Test of the Costly Signaling Theory of Religion." Manuscript Under Review.

Sosis, R. H. 2000. "Costly Signaling and Torch Fishing on Ifaluk Atoll." *Evolution and Human Behavior* 21: 223–44.

Sosis, R. H. 2001. "Sharing, Consumption, and Patch Choice on Ifaluk Atoll: Evaluating an explanatory hypothesis of why Ifaluk men torch fish." *Human Nature* 12: 221–45.

Sosis, R. & Ruffle, B. 2006. "Religious Ritual and Cooperation: Testing for a relationship on Israeli religious and secular Kibbutzim." *Current Anthropology* 44(5): 713-722.

Ssorin-Chaikov, N. 2003. *The Social Life of the State in Subarctic Siberia.* Stanford, CA: Stanford University Press.

Steller, G. W. [1776] 2003. *Steller's History of Kamchatka*. Historical Translation Series, Vol. 12. M. Engel & K. Willmore, Trans. Fairbanks, AK: University of Alaska Press.

Stack, D. 2003. *The First Darwinian Left: Socialism and Darwinism 1859-1914*. Cheltenham, UK: New Clarion Press.

Stammler, F. 2005a. *Reindeer Nomads Meet the Market: Culture, property, and globalization at the end of the land.* Halle Studies in the Anthropology of Eurasia. Muenster: Litverlag.

Stammler, F. 2005b. "The *Obshchina* Movement in Yamal: Defending territories to build identities?" Pp. 109-34. In *Rebuilding Identities*: *Pathways to reform in post-Soviet Siberia*. E. Kasten, Ed. Pp. 109-134. Seattle, WA: University of Washington Press.

Stammler, F. & Ventsel, A. 2003. "Between Neo-Liberalism and Dirigisme: Approaches to reindeer herding in Yamal and Sakha." In *The Postsocialist Agrarian Question: Property relations and the rural condition*. C. Hann, Ed. Pp. 321-362. New Brunswick, NJ: Transaction Publishers.

Sutton, M. Q. & Anderson, E. N. 2004. *Introduction to Cultural Ecology*. Lanham, MD: AltaMira.

Todes, D. P. 1989. *Darwin without Malthus: The struggle for existence in Russian evolutionary thought.* Oxford, UK: Oxford University Press.

Tracer, D. 2003. "Selfishness and Fairness in Economic and Evolutionary Perspective: An experimental economic study in Papua New Guinea." *Current Anthropology* 44: 432-438.

Trivers, R. L. 1971. "The Evolution of Reciprocal Altruism." *Quarterly Review of Biology* 46: 35–57.

Tucker, B. 2004. "Giving, Scrounging, Hiding, and Selling: Minimal food sharing among Mikea forager-farmers of Madagascar." *Research in Economic Anthropology* 23: 43-66.

Vayda, A. P. & Walters, B. 1999. "Against Political Ecology." *Human Ecology* 27: 167-179.

Velez, M. A., Murphy, J. J., & Stranlund, J. K. 2010. "Centralized and Decentralized Management of Local Common Pool Resources in the Developing World: Experimental evidence from fishing communities in Colombia." *Economic Inquiry* 48(2): 254-265.

Ventsel, A. 2006. *Reindeer, Rodina, and Reciprocity: Kinship and property relations in a Siberian village*. Halle Studies in the Anthropology of Eurasia. Muenster: Litverlag.

Verdery, K. 1996. *What Was Socialism and What Comes Next?* Princeton, NJ: Princeton University Press.

Vitebsky, P. 2006. *The Reindeer People: Living with animals and spirits in Siberia.* New York, NY: Harper Collins.

Vladimirova, V. 2006. *Just Labor: Labor ethic in a post-Soviet reindeer herding community*. Uppsala: Acta Universitatis Upsaliensis.

Yurchak, A. 2003. "Soviet Hegemony of Form: Everything was forever, until it was no more." *Comparative Studies in History and Society* 45(3): 480-510.

Yurchak, A. 2005. *Everything Was Forever, Until it Was No More.* Princeton, NJ: Princeton University Press.

Wachter, S. 2006. "Illegal Fishing Empties Russia's Sea." *International Herald Tribune* September 11. *Pacific Environment*. http://www.pacificenvironment.org/section.php?id=84

Walicki, A. 1988. *A History of Russian Thought from the Enlightenment to Marxism*. H. Andrews-Rusiecka, Trans. Oxford, UK: Clarendon Press.

Wasserman, S. & Faust, K. 1994. *Social Network Analysis: Methods and applications*. Cambridge, UK: Cambridge University Press.

Watts, M. 2000. "Political Ecology." In *A Companion to Economic Geography*. E. Sheppard & T. J. Barnes, Eds. Pp. 257-274. Oxford, UK: Blackwell.

Webster, P. 2003. "U.N. Joins Russia's Fight to Save Western Pacific Salmon." *Science* 301: 1167.

Whiten, A. & van Schaik, C. P. 2007. "The Evolution of Animal 'Cultures' and Social Intelligence." *Philosophical Transactions of the Royal Society B* 362: 603-620.

Wiessner, P. 2002. "Hunting, Healing and Hxaro Exchange: A long-term perspective on !Kung (Ju/'hoansi) large game hunting." *Evolution and Human Behavior* 23: 407–36.

Wilkinson, G. S. 1984. "Reciprocal Food Sharing in the Vampire Bat." *Nature* 308: 181-184.

Wilkinson, G. S. 1990. "Food Sharing in Vampire Bats." *Scientific American* 262: 76-82.

Williams, G. C. 1966. *Adaptation and Natural Selection*. Princeton, NJ: Princeton University Press.

Wilson, D. S. 1975. "A Theory of Group Selection." *Proceedings of the National Academy of Sciences, USA* 72(1): 143-146.

Wilson, E. & Koester, D. 2008. "Community Participation in International Projects: An analytical perspective from the Russian Far East." *Environment, Development and Sustainability* 10: 267-290.

Winterhalder, B. 2002. "Behavioral and Other Human Ecologies: Critique, response and progress through criticism." *Journal of Ecological Anthropology* 6: 4-23.

Winterhalder, B. 1996a. "A Marginal Model of Tolerated Theft." *Ethology and Sociobiology* 17: 37–53.

Winterhalder, B. & Smith, E. A. 2000. "Analyzing Adaptive Strategies: Human behavioral ecology at twenty-five." *Evolutionary Anthropology* 9(2): 51-72.

Winterhalder, B., Lu, F. & Tucker, B. 1999. "Risk-Sensitive Adaptive Tactics: Models and evidence from subsistence studies in biology and anthropology." *Journal of Anthropological Research* 7(4): 301-347.

Woodcock, G. & Avakumovic, I. 1990. *Peter Kropotkin: From prince to rebel*. Montreal: Black Rose Books.

Zahavi, A. 1975. "Mate Selection: A selection for a handicap." *Journal of Theoretical Biology* 53: 205-214.

Zahavi, A. & Zahavi, A. 1997. *The Handicap Principle: A missing piece of Darwin 's puzzle*. Oxford, UK: Oxford University Press.

Ziker, J. 2002. *Peoples of the Tundra: Native Siberians in the post-communist transition*. Prospect Heights, IL: Waveland Press.

Ziker, J. 2003a. "Assigned Territories, Family/Clan/Communal Holdings, and Common Pool Resources in the Taimyr Autonomous Region, Northern Russia." *Human Ecology* 31(3): 331-368.

Ziker, J. 2003b. "'Horseradish Is No Sweeter than Turnips': Entitlements and sustainability in the Taimyr Autonomous Region, Northern Russia." In *The Postsocialist Agrarian Question: Property relations and the rural condition*. C. Hann, Ed. Pp.363-390. New Brunswick, NJ: Transaction Publishers.

Ziker, J. 2005. "Property, Hunting, and Food Sharing in the Taimyr Autonomous Region (North-Central Siberia)." In. *Property Relations: The Halle focus group 2000-2005.* C. Hann, Ed. Pp. 98-101. New Brunswick, NJ: Transaction Publishers.

Ziker, J. & Schnegg, M. 2005. "Food Sharing at Meals: Kinship, reciprocity, and clustering in the Taimyr Autonomous Okrug, Northern Russia." *Human Nature* 16(2): 178-211.

Curriculum Vitae

Andrew Patrick Gerkey

Education

2010	Ph.D.	Rutgers University	Anthropology
2007	M.A.	Rutgers University	Anthropology
2002	B.A.	Kenyon College	Anthropology & English Literature

Occupation & Positions Held

2010	Instructor, Anthropology, Rutgers University (Winter Term)
2010-2008	Teaching Assistant/Instructor, Writing Program, Rutgers University
2007-2005	Teaching Assistant, Anthropology, Rutgers University
2005-2004	Graduate Fellow, Anthropology, Rutgers University
2004-2003	Mellon Fellow, Anthropology, Rutgers University

Publications

2009 Lee Cronk, Drew Gerkey, & William Irons
"Interviews as Experiments: Using audience effects to examine social relationships." *Field Methods* 21(4): 331-346.

2008 Drew Gerkey
"Cooperative Networks and Collective Institutions: Opportunities and dilemmas for development on Russia's Kamchatka Peninsula." In *Seeking Balance in a Changing North:* Report from the 5th Open Assembly of the Northern Research Forum.

2007 Lee Cronk & Drew Gerkey
"Kinship and Descent." In *The Oxford Handbook of Evolutionary Psychology*. R. Dunbar & L. Barrett, Eds. Pp. 463-78. Oxford, UK: Oxford University Press.