The interconnections between social and ecological systems are especially illuminated during periods of rapid change. This became clear to me while growing up in Boise, where I spent most of my youth traversing popular trails in the foothills and escaping the city in favor of the woods. Before I had even learned to read, my parents took me exploring in the Boise National Forest. As a teenager, I camped each month for over two years, embedding myself in the sage steppe, canyonlands, and mountain ranges just beyond the city limits. Through the years, my connections with the outdoors continued to grow, as did the size of Idaho's capital. In the two decades that I lived there, the population of Boise doubled. Two lane roads became four, then six, and subdivisions began to sprawl, consuming the last remaining natural corridors through the city. Herds of deer began taking refuge on lawns and in backyards, and cougar encounters in the city became more common. For some residents, urban development was a sign of distinction and progress. For others, like myself, it was a poignant premonition of what might become of our beloved ecosystems. Through these experiences, I developed a keen interest in the interdependence of social and ecological systems, and how they respond and adapt to change.

I attended Boise State University (BSU) to pursue my interests in evolutionary change and human-environment interactions. I found a home in the Department of Anthropology where I focused on ecology, collective action, and common pool resources (CPRs). As an undergraduate, I was fortunate to have opportunities to apply what I had learned in my courses to research projects. I worked closely with my advisor, Dr. John Ziker, in the Human Cooperation Lab, to design and lead a behavioral economics study of philanthropy. Our goal was to apply our theoretical interests in the evolution of cooperation to the practical problem of soliciting charitable donations for the common good. I had the opportunity to co-present our results at the 2015 American Anthropological Association meeting in Denver. Our work was so well received that the Evolutionary Anthropology Society created a "Special Undergraduate Recognition Award" to recognize our efforts. Through this process, I developed the skills required to lead a research project from conception to publication.

At BSU I also helped to design and implement a project led by Dr. Katie Demps and Dr. Kristin Snopkowski. The goal of this study was to understand the connection between endocrinology and social learning by investigating student stress in the classroom. To communicate our findings, I participated in poster presentations at the 2016 Northwest Evolution, Ecology, and Human Behavior Symposium and the 2017 Human Behavior and Evolution Society (HBES) meetings. I am included as a co-author on a manuscript from this project that is being prepared for publication. For me, this project was a tremendous opportunity to integrate perspectives from anthropology and biology to explore the components of sociality.

In my senior year, I had the opportunity to take part in a project that directly investigated my interest in human-environment interactions. I worked as an undergraduate research intern on a project to assess the impact of recreationists on golden eagle populations that nest in Idaho's Owyhee Mountains. I conducted field surveys and collected GPS data on off-highway vehicle mobility. I gained crucial fieldwork experience and learned about the temporal and spatial scope needed to investigate human-environment interactions. I came to better understand the intimate connections between humans, public landscapes, and the nonhumans that coexist in these spaces.

Through connections that I made to BSU's Biology Department, I volunteered to help with a variety of ecological studies. I helped build and identify plant and insect collections; conduct raptor nest surveys; band golden eagles, barn owls, and hummingbirds; and set nets to study the migration of songbirds along the Boise River. These experiences were important for maintaining my familiarity with ecological methods and helped improve my understanding of the process of conceptualizing and implementing research projects in other disciplines. Moreover, the diverse ways that I have researched behavior, ecology, and change have inspired me to be a methodological pluralist with the capability of drawing on evolutionary, economic, biological, and cultural perspectives.

The depth and breadth of my research experiences at BSU motivated me to pursue graduate work. I chose to attend Oregon State University (OSU) for many reasons. The Applied Anthropology program at OSU includes faculty that study human impacts on the environment with an emphasis on practical outcomes. My advisor, Dr. Drew Gerkey, has expertise in ecological anthropology and has worked extensively in Siberia and Alaska exploring human subsistence and the management and conservation of CPRs. Beyond anthropology, OSU has strong traditions in the biophysical and social sciences. OSU's forestry and oceanography programs are listed among the top 3 in the world. OSU also has newly formed graduate programs that are explicitly designed to better understand the links between human impacts and environmental change, such as the Forestry's School's Forests, Ecosystems, and Society program and the Environmental Arts and Humanities program in the College of Liberal Arts. Access to this academic network provides many opportunities to develop my research on human-environment interactions.

Beyond OSU, I am completing an internship with the Alaska Department of Fish and Game (ADFG). In February 2017, I conducted fieldwork with a representative of the Bristol Bay Native Association, Dr. Gerkey, and two subsistence specialists from ADFG to assess salmon harvests and sharing networks on the Alaskan Peninsula. This project put us at the crux of climate change and subarctic subsistence. I gained important connections with the tribal and state agencies responsible for managing natural resources. I also had the chance to experience the rigors of traveling to field sites in Alaska and conducting surveys and key respondent interviews with the help of local research assistants.

In the first 9 months of my graduate coursework, I have been able to dig much deeper into my primary field of interest: ecological anthropology. I have broadened my qualitative repertoire with coursework in ethnographic methods and the psychology of environmental decisions. These courses have provided me with foundational tools required to investigate local ecological knowledge (LEK), such as participant observation, thematic and contextual analysis, stakeholder analysis, and cognitive mapping. Additionally, I have further developed my quantitative skills with courses in social network analysis (SNA), statistics, community and theoretical ecology, and trophic cascades. In these courses, I honed my ability to use R for statistics, SNA, and the computational modeling of ecological dynamics. I have learned techniques for studying animal foraging, food-webs, and community structure and gained insights about the impact of extinction, demography, and environmental change on these dynamics.

My master's thesis focuses on the diversity of resources harvested by subsistence users in subarctic Alaska and how these resources are shared from household to household. Using data from ADFG, I am investigating the relationship between a household's demographic and economic composition, the diversity of its subsistence harvests, and the household's position in networks of harvesting and sharing food. I am using ecological measures of biodiversity, such as the Shannon-Wiener Index, to better understand variation in the number of species that are harvested by rural and native Alaskans. This project is grounded in the perspective that there are challenging trade-offs between participating in cash economies and subsistence livelihoods. These trade-offs manifest at the level of the individual, household, and community, and are exacerbated by climatic and environmental change. Explaining how these communities diversify their resource use and work together to pool resources is fundamental for understanding resilience in an unstable environment. The insights I have gained from this analysis can improve efforts to conserve natural resources, inform management practices, and advocate for the needs of subsistence users.

**Intellectual Merit & Broader Impacts** – The change that I witnessed in Boise and that I am studying in Alaska is representative of a global pattern. Understanding human impacts on the environment, and how these impacts feedback on the well-being of human communities and ecosystems is only becoming more important as communities struggle to navigate the Anthropocene. Having an interdisciplinary foundation that makes use of mixed methods, firmly rooted in both social and biophysical sciences, is necessary to address one of humanity's toughest problems: social-ecological resilience and adaptation to climate change. There is practical value in collaborating with local communities and scientific experts to tackle this issue. By focusing on community-based research projects, underrepresented groups can take part in the scientific process. Moreover, local experts have insights into the strategies and obstacles that are created by climatic and environmental change. Establishing lines of communication between scientists and marginalized communities will help to identify novel spaces for intervention and community support, as well as stimulate interdisciplinary research that will address the ecological, economic, and cultural impacts of climate change. With my connections to state and tribal agencies, an audience is already in place to receive evidence that can inform policies and management strategies in a time of uncertainty. Alaska is unique in that the ADFG has subsistence data that goes back close to 40 years. This provides an informative baseline for continued study. However, ecological studies in AK tend to focus on primary species like salmon and caribou. With NSF support, I can provide a more detailed analysis of a broader array of species and expand previous study to focus on different kinds of networks.

**NSF Support** – My master's work has made use of pre-existing data and a small amount of fieldwork. With support from the GRFP, I will have the time and resources that I need to fortify connections with marginalized communities and develop my own, extended field projects, rather than work on the periphery of ongoing projects. Establishing new projects provides opportunities for young researchers to become engaged in research that addresses climate change and it's many global and regional impacts. As a fellow, I can allocate time to honing the mixed methods that I have been learning. To date, I have made a concerted effort to communicate my research at academic conferences. With NSF support, I can continue these efforts and will be able to expand to a broader audience by attending conferences at the regional and international levels.