

Continuity & Change: Commercial Fishing & Community Resilience on the Oregon Coast

by

Courtney L. Flathers

MPP Essay

Submitted to

Oregon State University

In partial fulfillment of

the requirements for the

degree of

Master of Public Policy

Presented May 9, 2017
Commencement June 17, 2017

Master of Public Policy essay of Courtney Flathers presented on May 9, 2017

APPROVED:

Lori A. Cramer, representing Sociology

Flaxen D.L. Conway, representing Sociology

Bryan Tilt, representing Anthropology

Courtney Flathers, Author

Abstract

Commercial fishing is deeply embedded in the economy and culture of many coastal communities. Recent ecological, economic, and regulatory changes impacting fisheries are likely to have important consequences for this industry and the communities it supports. The objective of this study is to improve understanding of coastal community resilience through examination of the graying of the fleet phenomenon in two fishing communities in Oregon. This phenomenon has been studied extensively in Alaska, but little is known about this trend in the Pacific Northwest. This study uses qualitative research methods to examine the occurrence of the graying of the fleet in Oregon, factors contributing to this phenomenon, and implications for the resilience of fishing communities. Findings indicate that community leaders do not perceive graying of the fleet as an issue of local concern. However, regulatory changes in the fishing industry that have contributed to changes in the structure of local fleets may obscure the full spectrum of social and economic consequences resulting from fisheries management decisions. Such changes may have negative implications for resilience should they diminish the amount of financial, cultural, and human capital in these communities. Greater understanding of the relationship between fisheries management policies and community resilience will enable those in fisheries management and policymaking arenas to make more informed choices that fully account for the broad range of consequences stemming from their decisions. This research will also help communities develop effective strategies to enhance resilience in the face of ongoing change.

Acknowledgements

This project would not have been possible without the support and encouragement of many people. My major professor Dr. Lori Cramer provided insightful feedback, a steady influence, and welcome encouragement throughout this process. I am also grateful to Flaxen Conway who provided valuable guidance and generously shared her expertise on Oregon fishing communities, and to Dr. Bryan Tilt who shared his knowledge and perspective from near and far to help me improve this research. Thank you also to Dr. Hilary Boudet for helping me become a better qualitative researcher through the opportunity to participate in your research work while in graduate school.

I must also thank the people of Newport and Port Orford who graciously shared their time and experience with me. My family – especially my Mom – and my friends provided invaluable support. My research partner Deanna Caracciolo was a constant source of encouragement, laughter, and friendship. This experience would not have been the same without her. Finally, I am particularly indebted to my partner Beka for her emotional and financial support during graduate school, unrelenting faith in my abilities, and constant reassurance during the past two years.

Table of Contents

1. Introduction.....	6
2. Literature Review.....	10
2.1. Modern Fisheries Management	10
2.2. Graying of the Fleet.....	15
2.3 Resilience.....	17
3. Theoretical Framework.....	19
4. Research Questions	21
5. Community Profiles	22
5.1 Newport.....	22
5.2 Port Orford.....	23
6. Research Methods	24
7. Results and Discussion	26
7.1 Graying of the Fleet	27
7.2 Community Resilience.....	31
7.2.1 Financial Capital	32
7.2.2 Cultural Capital.....	35
7.2.3 Human Capital	39
8. Policy Recommendations.....	45
10. Limitations	48
11. Conclusion	50
References.....	53
Appendices.....	63
Appendix A: Research Participants	64
Appendix B: NOAA Consent Form.....	65
Appendix C: IRB Verbal Consent Card.....	67
Appendix D: Interview Protocol.....	69

List of Figures

Figure 1. Age Range of Trawl Harvesters in Pacific Groundfish Fishery.....	17
Figure 2. Home-Port Vessel Counts and Annual Average Revenue Per Vessel	29

1. Introduction

Commercial fishing has played an integral role in coastal communities in the United States for hundreds of years (Pomeroy, Hall-Arber & Conway, 2015). In addition to being a primary driver of coastal economies, fishing profoundly shapes local culture and identity (Sharma, 2006). This is true in Oregon where commercial fishing has been central to the economic vitality and social fabric of many coastal communities for generations (Gilden, 1999). These communities are well acquainted with the high degree of change and uncertainty that is characteristic of this industry. Such change is continual and multifaceted, driven by factors including ecological variability, market fluctuations, technological innovation, shifts in public opinion, and changes in fisheries management that often result from efforts to respond to changes in the aforementioned factors (Hanna, 2000; Himes-Cornell & Hoelting, 2015).

Though the fishing industry is dynamic by nature, commercial fisheries in the United States experienced a particularly significant degree of change during the last quarter of the twentieth century. Beginning in the late 1970s and early 1980s the development of new technologies allowed many commercial fisheries to expand rapidly (Hanna & Hall-Arber, 2000). Within a handful of decades, however, the industry began to experience decline as advances in technology and overcapitalization outstripped available fishery resources (Conway, Gilden & Zvonkovic, 2002). New policies that sharply reduced allowable catch and otherwise severely curtailed the industry were put in place to address resource scarcity and rebuild fish stocks (Hanna & Hall-Arber, 2000). The fishing industry has continued to experience profound change as a result of globalization of the world economy and the rapid growth of aquaculture. These factors “have greatly increased the pressure on the commercial fishing industry to increase efficiency, reduce costs and respond to market demands for better quality and more consistent

supply” (Mecum, 2006, p. 11). Because of these policies and pressures, many coastal communities have experienced reductions in participation in the fishing sector, the consolidation of fleets and fishing businesses, and a loss of jobs, revenue, and infrastructure (Mecum, 2006).

In recognition of the importance of the relationship between marine fisheries and human communities, the U.S. Congress adopted National Standard 8 of the Magnuson-Stevens Fishery Conservation and Management Act (MSA) in 1996.¹ This policy requires that fishery management plans identify and consider the social and economic consequences of fisheries management actions on fishing communities (Jacob, Farmer, Jepson & Adams, 2001). The MSA specifically defines a fishing community as “... a community which is substantially dependent on or substantially engaged in the harvest or processing of fishery resources to meet social and economic needs, and includes fishing vessel owners, operators, and crew and United States fish processors that are based in such community” (Pacific Fishery Management Council, n.d.-a). The National Marine Fisheries Service (NMFS) has since interpreted this definition in such a way that a fishing community is understood as a social or economic group whose members reside in a specific location (Pacific Fishery Management Council, n.d.-a). This place-oriented definition of community is the focus of this research project.

Despite the adoption of National Standard 8, little information about the broader community-level impacts of fisheries management plans is often considered in the policymaking process (Smith, 1995). This stems in part from the fact that a limited amount of research regarding the social and economic implications of marine fisheries management has been completed to date, particularly in the Pacific Northwest (Cramer, 2000; Tuler et al., 2008). Most funding for fisheries management is allocated to biological research and management. The

¹ First passed in 1976, the Magnuson-Stevens Fishery Conservation and Management Act is the primary law governing marine fisheries management in U.S. federal waters. The primary objective of this Act is foster the long-term biological and economic sustainability of the nation’s marine fisheries (NOAA Fisheries, n.d.-a).

instability and complexity of the fishing industry provide additional challenges to systematic evaluation of this industry and associated impacts on communities (Pacific Fishery Management Council, n.d.-a). Though limited, there have been increased efforts to assess community-level impacts of changes in fisheries management in recent years using primarily quantitative data. This includes economic analyses of the fishing industry (The Research Group, LLC, 2016). In addition, NOAA Fisheries is in the process of developing social vulnerability indices using quantitative data from a variety of secondary sources to assess fishing community vulnerability and identify communities that may be susceptible to social impacts from changes to fishery policies or fishing conditions (Jepson & Colburn, 2013; Miller, 2014). Such indices have been constructed using place-based data from sources including the U.S. Census, American Community Survey, NOAA Fisheries, and state fish and wildlife agencies, among others (Miller, 2014). While quantitative assessment of fisheries management changes continues to advance, qualitative research examining the social and economic impacts of fisheries management on fishing communities remains particularly scarce (Jepson & Jacob, 2007).

The goal of this research project is to help address the qualitative gap in social scientific understanding of the impacts of fisheries management policies by focusing on one particular change in the commercial fishing industry that has been documented in the Pacific Northwest, which may have long-term consequences for both the industry and the communities it supports. This phenomenon is known as the graying of the fleet, a term that has been coined to refer to the increase in the average age of commercial fishermen frequently attributed to a lack of young entrants into the industry (Russell et al., 2014). The graying of the fleet has been studied extensively in some locations including Alaska, yet little is known about this phenomenon in Oregon. Coastal communities in this state remain dependent on natural resource industries,

including commercial fishing, for their economic and cultural livelihoods. These industries face a variety of challenges in the twenty-first century, including shifting local, national, and international economies, political and legal mandates, ecological and environmental concerns, technological advances displacing workers, and dwindling access to and of natural resources. An in-depth examination of the graying of the fleet helps illuminate the impacts of such challenges on natural resource dependent communities in this region.

To accomplish this goal, this research project uses qualitative research methods to examine the extent to which the graying of the fleet is occurring in Oregon, factors contributing to this phenomenon, and the implications for the resilience of fishing communities. Traditionally, fisheries managers have relied on quantitative data to assess the effects of current and potential fisheries management measures. Management decisions based on these measures often fail to address the impact of such measures on fishing communities (Sharp & Lach, 2003). In recent years, a new natural resource management framework known as ecosystem-based management (EBM) aims to better understand social-ecological systems through incorporating human dimensions data (McLeod & Leslie, 2009). In accordance with EBM, utilizing qualitative data that assesses community-level impacts, including data collected through this research project, will enable fisheries managers to ascertain the full spectrum of impacts associated with management decisions.

Findings suggest that local leaders in Newport and Port Orford do not perceive the graying of the fleet to be occurring in their respective communities despite some data indicating that the phenomenon is an issue of concern among commercial fishing fleets in Oregon. However, regulatory changes in the commercial fishing industry that have contributed to changes in the structure of local fleets may be obscuring the full spectrum of social and economic

consequences resulting from fisheries management decisions. Furthermore, these changes may have negative implications for the resilience of these communities to the extent they diminish the amount of financial, cultural, and human capital in each location. Better understanding of this relationship between fisheries management policies and community resilience will enable those in the fisheries management and policymaking arenas to make more informed choices that fully account for the broad range of consequences stemming from their decisions. This research will also help coastal communities that are reliant on the commercial fishing industry develop effective strategies to adapt to new challenges to their way of life and remain resilient in the face of ever-changing circumstances.

The following literature review considers drivers of change in fishery systems and associated community-level impacts, focusing in particular on recent shifts in regulatory structure and the graying of the fleet phenomenon. This review also includes a brief discussion about scholars' current understanding of community resilience. This is followed by an explanation of the theoretical framework and research questions guiding this investigation. Background on the two communities where this research is conducted is also provided, followed by a description of the research methodology. This paper concludes with a thorough discussion of the results of the analysis as well as consideration of policy implications and limitations related to this research.

2. Literature Review

2.1. Modern Fisheries Management

A multitude of factors are known to effect change in fishery systems and are thus likely to influence the resilience of fishing communities. These include shifts in the natural

environment, fluctuation in economic markets, technological developments, and changes in management or regulatory structures (Tuler et al., 2008). A thorough examination of these factors is beyond the scope of this research project. Instead, this literature review focuses on changes in regulatory structure, which have been shown to have demonstrable social and economic consequences for fishing communities. A brief history of significant shifts in marine fisheries management as well as a description of the current structure of marine fisheries management in Oregon provides context for this review.

Throughout much of human history the oceans were treated as common property open to all people with the means to create and exploit opportunities in this environment. It was not until the mid-twentieth century that the ocean management regime shifted from one of primarily open access to one in which individual coastal states claimed sovereign rights to control and exploit economic resources in large areas of ocean adjacent to their land (Mansfield, 2004). In the United States, this process took the form of the establishment of an “exclusive economic zone” (EEZ) off the nation’s coastlines with the passage of the Magnuson-Stevens Fishery Conservation and Management Act (MSA) in 1976. Prior to the passage of this Act, waters beyond 12 nautical miles were considered international waters and fished by fleets from other countries. The MSA extended U.S. jurisdiction to 200 nautical miles offshore and established eight regional fishery management councils charged with the development of fishery management plans for their respective regions. These plans must comply with several conservation and management requirements, including 10 National Standards designed to promote sustainable fisheries management (NOAA Fisheries, n.d.-a). Councils are composed of both voting and non-voting members representing the commercial and recreational fishing sectors in addition to environmental, academic, and government interests. The public is invited to

participate in this fisheries management process through providing feedback to these councils at regular intervals (NOAA Fisheries, n.d.-d). Oregon is a member of the Pacific Fishery Management Council (PFMC) along with Washington, California, and Idaho. This Council is responsible for management of 119 species of salmon, groundfish, coastal pelagic species, and highly migratory species (NOAA Fisheries, n.d.-c).

Alongside this federal management structure, the state of Oregon plays an important role in marine fisheries management. The Marine Resources Program (MRP) within the Oregon Department of Fish and Wildlife (ODFW) bears primary responsibility for the study and management of the animals and habitats found in Oregon's Territorial Sea (from shoreline to three miles). In addition to direct authority in this area, the MRP shares responsibility for the management of marine fisheries in federal waters with national and international regulatory bodies. In some cases, the MSA delegates full regulatory authority (in state and federal waters) to state management. In Oregon, this is the case for Dungeness crab and pink shrimp fisheries (Kirchner, 2013). Similar to the federal system, the public is encouraged to participate in the state's regulatory process through opportunities to provide public testimony at a variety of ODFW meetings (ODFW, 2015).

Numerous methods have been used to manage fishery populations following the establishment of the EEZ in the United States. Input controls restrict how much fishing takes place and what equipment is used. Examples include fishing licenses requirements, restrictions on the amount of time people can spending fishing, and fishing gear regulations. Output controls limit how much fish can be taken in a certain time period. Technical measures include limitations on the size of fish that can be taken and restrictions on where fishing can take place. Several types of restrictions are often used simultaneously in efforts to maintain or restore fish

populations. Despite the use of these tools, many species remain overfished. Some management efforts have also created new challenges. For instance, certain output controls have contributed to the race-to-fish phenomenon, which often involves dangerous fishing practices, leads to large amounts of fish on the market at one time depressing prices, and encourages wasteful investment in fishing and processing equipment (Massachusetts Institute of Technology, 2011).

Due in part to the failure of traditional management methods to preserve healthy fish stocks, a new management paradigm known as rationalization achieved increasing popularity during the late twentieth century (Carothers, 2008). Many commercial fisheries expanded rapidly with the development of new technologies during the late 1970s and early 1980s (Hanna & Hall-Arber, 2000). Soon, however, the industry began to decline as these advances in technology and the rapid expansion of fishing fleets outpaced available fishery resources (Conway, Gilden & Zvonkovic, 2002). Rapid implementation of regulations designed to limit fishing pressure and allow for the regeneration of fish stocks followed (Hanna & Hall-Arber, 2000). These measures favored a market-based approach to fisheries management premised on a system of private property rights (Mansfield, 2004). H. Scott Gordon (1954) is credited with the emergence of this new management paradigm. During the mid-twentieth century, he authored a seminal paper titled “The Economic Theory of a Common Property Resource: The Fishery,” which spurred a profound shift in how economists, scientists, and government officials think about management of ocean resources. In short, Gordon argued that problems associated with overcapitalization and overfishing within the fishing industry resulted from open access to ocean resources (Copes, 1986; Olson, 2011). These problems could be addressed by creating a system of enclosure within the ocean, establishing private property rights, and creating markets for buying and selling these rights in order to maximize economic efficiency. Rationalization is a term used to refer to the

privatization of fisheries resources through the establishment of individual quota systems (Carothers, 2008; Mansfield). Individual quota may also be referred to as catch shares (Pomeroy et al., 2015).

Rationalization has taken multiple forms since it first gained popularity during the late twentieth century (Copes, 1986; McCay, 1995). Of particular significance to this research project are Individual Transferable Quotas (ITQs), a catch share system first implemented in New Zealand and Iceland in the early 1980s (McCay, 2004). Under this system, individual fishermen receive an initial quota allocation that represents a percentage of the Total Allowable Catch (TAC) for a given fishery. Allocations can be based on different criteria, such as historical catch, fishing vessel or gear capacity, or number of crew, for example (Copes, 1986). After these allocations are made, individual fishermen can lease or sell their quota allocation to other fishermen (Mansfield, 2004). In this way, a market, rather than management agencies, is responsible for the allocation of resources (McCay, 1995). This model is presumed to lead to increased efficiency as the least efficient operations sell their quota to the most efficient operations thus reducing total capacity (Pomeroy et al., 2015). In addition, this model is believed to contribute to better stewardship of ocean resources based on the assumption that an individual with ownership of a resource is more likely to care for that resource than an individual without ownership (McCay, 1995; Mansfield, 2004).

While ITQs have yielded considerable benefits, including increased efficiency, environmental improvements, enhanced product quality, greater safety, and increased profits for those who remain in the industry (Olson, 2011; Carothers, 2013; Allen, 2009; McCay, 2004; Pinkerton & Edwards, 2009), scholars have also identified a variety of unintended negative consequences associated with this management structure. These include job loss, consolidation

of fishing fleets, concentration of rights, power, and wealth within the industry, loss of professional expertise and knowledge, decreasing local participation, changing social structures within communities, and migration of fishing activity and supporting industries away from rural, coastal communities (Copes, 1986; McCay, 1995; McCay, 2004; Cullenberg, 2005; Carothers 2008, 2010, 2012, 2013; Carothers & Chambers, 2012, Olson, 2011; Jentoft, 2000).

2.2 Graying of the Fleet

In recent years, scholars examining the social and economic consequences of fisheries management have devoted particular attention to an emerging topic of study known as the graying of the fleet. This term is used to refer to the increase in the average age of commercial fishermen due to a lack of young entrants into the industry. To date, the graying of the fleet has been the subject of a significant amount of inquiry in Alaska. As early as the 1980s, Koslow (1982) identified the relationship between the establishment of limited entry permits and decreasing opportunities for young fishermen to become engaged in commercial fishing in Bristol Bay, Alaska. Carothers (2008, 2010) expanded the discussion about the graying of the fleet with her ethnographic study of three Alutiiq fishing villages in Alaska in which she found that privatization policies have contributed to the growth of a generation of young people with few social, cultural, or economic ties to commercial fishing. Older individuals interviewed as part of this study feared this development posed serious challenges for the sustainability of these fishing communities (Carothers, 2008).

The age of the workforce within the commercial fishing industry continues to be a source of significant concern in state of Alaska. In 2014, the average age of a state fishing permit holder was 50 years old. This is an increase from 40 years old in 1980. During the same period, the

number of Alaska residents under the age of 40 holding fishing permits has fallen from 38% of the total number of permits in 1980 to 17% in 2013 (Donkersloot & Carothers, 2016). Some of the factors associated with this demographic shift in the commercial fishing industry in Alaska include the high cost of fishing rights, lack of fishing experience and knowledge among young residents, lack of alternative fishery and non-fishery employment opportunities in rural fishing communities, and rising social problems such as drug and alcohol abuse (Carothers, 2015; Donkersloot & Carothers, 2016; Lowe, 2015). Ongoing study of the graying of the fleet continues to raise concerns about how to ensure rural fishing communities in this region maintain access to local fisheries that have played an integral role in the social, cultural, and economic fabric of these places for generations (Donkersloot & Carothers, 2016).

The graying of the fleet has only recently become the subject of inquiry in the Pacific Northwest. In January 2011, the PFMFC and the NMFS implemented a new rationalization program for the Pacific Trawl Groundfish and Whiting fisheries. An assessment of the impact of this management change conducted by Russell et al. (2014) found that a majority of harvesters in the Pacific Coast groundfish fishery are approaching retirement age and “there does not appear to be an equivalent population of younger fishermen who will replace those retiring in the fishery” (p. 11). Specifically, data reveal that the mean age of trawl harvesters was 50.8 years in 2010 and 51.1 years in 2012. In 2010, 22.5% of individuals surveyed were 61 years old or older as compared to 27.2% of fishermen who fit this description in 2012. Only 10.4% of harvesters were 30 years old or younger in 2010. The percentage fitting this description fell to just 5.8% in 2012 (see Figure 1) (Russell et al., 2014). This trend is attributed in part to financial barriers to entry into the fishery, lack of fishing knowledge among youth, and the perception that the groundfish fishery is highly regulated and not particularly lucrative. As in Alaska, this observation about the

changing demographics of the fleet has begun to raise questions about the sustainability of the fishery as well as the broader social impacts to fishing communities on the West Coast of the United States (Russell et al., 2014). The graying of the fleet phenomenon is just beginning to be studied in this region; much more work is needed to fully understand its causes as well as its consequences for the fishing industry specifically and coastal communities generally.

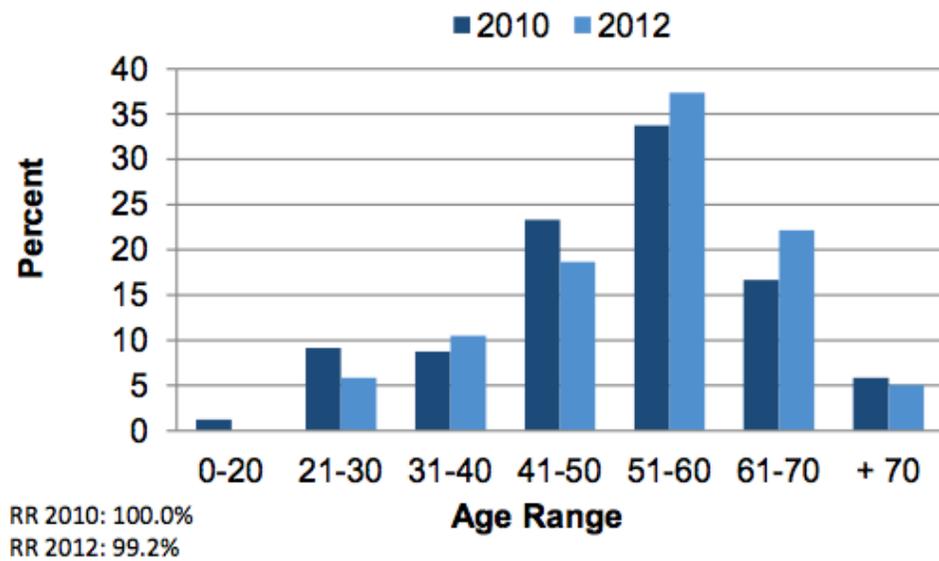


Figure 1. Age Range of Trawl Harvesters in Pacific Groundfish Fishery (Russell et al., 2014)

2.3 Resilience

In addition to examining the occurrence of the graying of the fleet, a primary focus of this study is to better understand the relationship between this phenomenon and the resilience of fishing communities in Oregon. Though changing in many ways, these communities continue to play an important role in the state’s economy, culture, and identity. Accordingly, there is great interest in ensuring these places have the opportunity to grow, evolve, and thrive in the twenty-first century. Interest in and commitment to ensuring the resilience of coastal communities in the state has grown even more so in recent years given increasing understanding of climate change

and projected impacts on coastal regions (Dalton et al., 2017) as well as ongoing research related to the Cascadia Subduction Zone earthquake and the associated tsunami predicted to occur off the Oregon Coast (Oregon Military Department Office of Emergency Management, n.d.).

Academic interest in the topic of resilience has proliferated since Holling (1973) first introduced the idea in the field of ecology in the 1970s (Folke, 2016). In its original manifestation, resilience was defined as the capacity of a system to absorb a perturbation or disturbance and still persist in the same form (Holling, 1973). During the past several decades, application of this concept has expanded significantly to include the study of human resilience at both the individual and community level (Folke, 2016; Mayunga, 2007; Norris, Stevens, Pfefferbaum, Wyche & Pfefferbaum, 2008). Individual resilience is frequently examined through the lens of “psychological resilience,” defined as a person’s ability to use available resources to overcome stress and adversity (Berkes & Ross, 2013; Himes-Cornell & Hoelting, 2015). Community resilience has been conceptualized in myriad ways in a variety of academic disciplines (Magis, 2010). For the purposes of this research, community resilience is defined as “the ability of groups or communities to cope with external stresses and disturbances as a result of social, political, or environmental change” (Adger, 2000, p. 347).

During the past several decades scholars of community resilience have contributed to increased understanding of the mutual dependence of human and ecological systems through study of the resilience of natural resource dependent communities (e.g., Walker & Salt, 2012; Marshall, Fenton, Marshall & Sutton, 2007; Johnson, Henry & Thompson, 2014; Davidson, 2010; Maclean, Cuthill & Ross, 2014; Buikstra, Ross, King, Baker, Hegney, MacLachlan & Rogers-Clark, 2010; Himes-Cornell & Hoelting, 2015). Within this field there is no universal measure of community resilience (Folke, 2016). Instead, scholarship in this area has largely

focused on the resources a community possesses and the degree to which the community can collectively develop and engage these resources to improve wellbeing (Magis, 2010). In particular, resilient communities are understood as those with a high degree of economic resources, infrastructure, assets and skills, information and knowledge, community networks, access to services, and shared values that can be leveraged on behalf of the community (Mayunga, 2007; Maclean, Cuthill & Ross, 2014; Adger, Kelly, Winkels, Huy & Locke, 2002; Mayunga, 2007; Berkes & Ross, 2013; Himes-Cornell & Hoelting, 2015). The Community Capitals Framework (Flora & Flora, 2008) has been referenced by a handful of scholars in this arena as one means of conceptualizing community resilience (Magis, 2010; Buikstra, Ross, King, Baker, Hegney, MacLachlan & Rogers-Clark, 2010). This framework, described below, is used in this study to examine the relationship between the graying of the fleet and resilience in two fishing communities in Oregon.

3. Theoretical Framework

The Community Capitals Framework (CCF) was initially developed by Flora and Flora (2008) in an effort to identify the characteristics of sustainable communities. According to this framework, communities that are most successful in supporting healthy, sustainable community and economic development nurture seven types of capital: natural, cultural, human, social, political, financial, and built. To apply the CCF it is first necessary to specify what is meant by the term “community.” Sociologists use the word in several ways including: a term that refers to a place or location in which a group of people interact with one another; a term to describe a social system including the organization or set of organizations through which a group of people meet their needs; and a term to describe a shared sense of identity held by a group of people

(Flora, Flora & Gasteyer, 2016). Consistent with the definition of fishing community put forth by NMFS and described above, this study employs the first concept of community based on a shared sense of place, also known as a community of place. Concurrent research examined the relationship between the graying of the fleet and community resilience in Oregon wherein community is defined as a shared sense of identity held by a group (commercial fishermen), also known as community of interest (Conway, 2001).

The CCF is based on the premise that every community, however rural, isolated, or poor, has some amount of resources or assets. These resources can be invested to create new resources, thus becoming a form of capital. Flora and Flora (2008) identified seven particular types of capital that individually and together may contribute to or detract from community sustainability. Natural capital is comprised of the physical assets found in a particular location, including geographic features, air, water, soil, wildlife, vegetation, weather, and natural beauty. Cultural capital shapes how communities and groups within them see the world and how they act within it. This includes what is valued, what is taken for granted, and what things appear amenable to change. Human capital refers to the skills and abilities of people, often measured in terms of education and training or the potential to enhance these attributes. Social capital is defined in terms of the connections among people and organizations. Two particular types of social capital considered by the CCF include bonding social capital, or those interactions within a specific group or community, and bridging social capital, or those interactions that occur across social groups. Political capital refers to the ability of a community or group to influence standards, rules, regulations, and their enforcement as a result of gaining access to power or power brokers. Financial capital is conceptualized in terms of the financial resources available to invest in community capacity-building, to underwrite business development, to support civic and social

entrepreneurship, and to facilitate the accumulation of wealth for future community development. Finally, built capital consists of the human-constructed infrastructure that supports the community (Flora, Flora & Gasteyer, 2016).

In this project, the CCF is used to assess community resilience by examining how the commercial fishing industry contributes to the development of community capitals as well as how changes observed among local fishing fleets are perceived to influence stocks of these capitals. Given time and resource constraints this study is limited to consideration of three types of capital included in this framework that were particularly salient among research participants. These include financial capital, cultural capital, and human capital.

4. Research Questions

The following research questions guided this investigation of the relationship between the graying of the fleet and community resilience. Understanding how external factors contribute to the graying of the fleet, including how community leaders perceive these factors, is critical if policymakers are to make more fully informed decisions about management of marine fisheries. Better understanding of the relationship between the graying of the fleet and community resilience is also critical if we are to help coastal communities learn and adapt for the future.

- 1) Is the graying of the fleet occurring in Oregon?
- 2) If graying is taking place, what factors are contributing to this change?
- 3) How does the graying of the fleet impact the resilience of fishing communities in Oregon?

5. Community Profiles

This research is focused on two fishing communities on the Oregon Coast: Newport and Port Orford. These two communities were purposefully selected for this research because they share important similarities, but also have unique attributes. Both communities are significantly dependent on commercial fishing and are home to vessels that harvest a mix of fisheries, including Dungeness crab, albacore tuna, salmon, and a variety of rockfish. At the same time, these communities differ in size, geographic location, and degree of economic diversity. These two distinct cases were chosen with the goal of examining how the graying of the fleet may impact fishing communities in different ways (Creswell, 2013).

5.1 Newport

Newport is centrally located on the Oregon Coast at the mouth of the Yaquina River in Lincoln County (Norman et al., 2007). According to the 2010 U.S. Census, Newport has a population of approximately 9,989 (United States Census Bureau, n.d.-a). Fishing and timber played a central role in the local economy following the arrival of the first European settlers in the mid-nineteenth century (Gilden, 1999; Norman et al., 2007). The Yaquina Head Lighthouse, dredging of the river mouth, and harbor and jetty construction helped foster early growth in these industries (Norman et al., 2007). While the timber industry has declined in significance in recent decades, Newport remains home to the state's largest commercial fishing fleet, which includes a distant water fleet, as well as multiple processing facilities (Dillman, 2013; Gilden, 1999). Commercial fishing generates economic activity in the form of direct income through landings delivered to the community, through businesses that support the industry, and by drawing tourists to the city's working waterfront (Package & Conway, April 2010; Norman et al., 2007).

In addition to the fishing and tourism industries, Newport is home to a burgeoning marine science sector. The Hatfield Marine Science Center operated by Oregon State University, Oregon Coast Community College, National Oceanic & Atmospheric Administration (NOAA)'s Marine Operations Center – Pacific, the Oregon Coast Aquarium, and the Oregon Museum of Science and Industry (OMSI)'s Coastal Discovery Center at Camp Gray are located here (Gilden, 1999; Dillman, 2013; OMSI, 2016). Offices for numerous county, state, and federal agencies are also found in Newport, the Lincoln County seat (Gilden, 1999).

5.2 Port Orford

Port Orford is located in Curry County, approximately 70 miles north of the California border (Norman et al., 2007). According to the 2010 U.S. Census, the community has a population of approximately 1,133 (United States Census Bureau, n.d.-b). Commercial fishing and tourism are the primary drivers of the economy in Port Orford, although the timber industry played a significant role historically (Norman et al., 2007). Port Orford is home to the only true ocean harbor in Oregon. Because the port is not positioned within a riverine area, a crane on the dock lifts vessels in and out of the water daily. For this reason, vessels cannot exceed 40 feet in length (Package & Conway, February 2010). Due to its remoteness, local fishermen rely on larger communities in the region for boat repair and other services. Limited fish processing is available in the community, with the majority of fish being shipped to live markets in California or processed in a community approximately 45 miles north of Port Orford (Package & Conway, February 2010; Norman et al., 2007).

6. Research Methods

This research project included primary and secondary data collection methods. Secondary data analysis included the collection and review of previous studies related to the graying of the fleet, U.S. census data, relevant state and federal policies, and NOAA websites related to the Voices from the West Coast database. This information was used to contextualize information gathered through the interview process.

Primary data was collected through documenting oral histories and conducting in-person, semi-structured interviews with community leaders in Newport and Port Orford. This population was selected to ascertain community-level impacts of the graying of the fleet. An initial list of potential interviewees was compiled using publicly available information from government and non-profit websites. This list included the chair or president of local elected bodies including the board of county commissioners, city council, port district, and school board most closely associated with each community. This list also included the chair or president of community-based organizations including the Chamber of Commerce and other civic groups including the Lions Club and Rotary Club in each respective location. Potential interviewees were initially contacted via email. If there was no response within one week, these individuals received one additional email and phone call to inquire as to their interest in participating in this research project. A modified snowball sampling method in which interviewees were asked to make recommendations about other community leaders to interview was used to capture individuals perceived as leaders in their community who did not hold a formal leadership position at the time this research was conducted (Creswell, 2013). The Port Orford Ocean Resources Team (POORT) also assisted in identifying community leaders to interview in Port Orford. POORT is a non-profit organization dedicated to maintaining access to natural resources while promoting

sustainable fisheries and protecting marine biological diversity (Community Fisheries Network, n.d.).

A primary goal of the larger research project involved collecting oral histories to contribute content to NOAA's Voices from the West Coast (VFWC) database. In 2003, NOAA launched the Voices from the Fisheries oral history database as part of a local knowledge initiative called the Local Fisheries Knowledge (LFK) Pilot Project (Abbott-Jamieson, 2007). Through interviews with local fishermen and others in fishing-related industries, high school students in Maine explored connections between fisheries, the marine environment, their communities, and their own lives while documenting and preserving the knowledge and experience of local residents for future generations (Abbott-Jamieson, 2007). The success of the project inspired further efforts to document oral histories along the East and Gulf Coasts. The Voices from the Fisheries database now functions as a central repository for archiving oral history interviews related to commercial, recreational, and subsistence fishing in the United States and its territories. VFWC was launched in an effort to augment the Voices from the Fisheries database through collecting, documenting, and preserving knowledge of commercial and recreational fishing activities on the U.S. West Coast (NOAA Fisheries, n.d.-b).

In total, 16 interviews were conducted between April and September 2016. Seven interviews were conducted in Newport and nine interviews were conducted in Port Orford. Three participants were currently or formerly directly involved in the commercial fishing industry. Interview subjects were recruited until the point of saturation, or the point at which no new concepts or themes emerged during the interviews (Robson, 2011). Interviews lasted between 23 minutes and one hour and 25 minutes. Video and audio recordings were taken during each interview with the permission of the research participant to ensure accuracy of response and for

purposes of being shared through the VFWC project (Creswell, 2013). Each interviewee signed a release giving his or her permission to post video clips on the VFWC online database (see Appendix B). Interviews consisted of open-ended questions about individual participants' perceptions of the demographic composition of the local fishing fleet, changes observed over time, and impacts on the fishing industry and community. An interview protocol (see Appendix D) was used to guide each conversation, with probing or clarifying questions asked as necessary (Patton, 2014). All questions were piloted with members of the research team for clarity prior to conducting interviews (Creswell, 2013).

Audio recordings were used to transcribe each interview verbatim. With the assistance of the software program MAXQDA12, interview transcripts were open-coded using an inductive approach in which important concepts emerge from the data (Maxwell, 2013). A list of codes was developed and refined throughout the analysis process (Miles & Huberman, 1994). All interview transcripts were read at least two times to ensure all data was coded appropriately. Ultimately, the codes developed through this process were further consolidated into broad themes (Creswell, 2013). An inter-coder reliability test was conducted with four members of the research team in which we independently coded one interview transcript and compared our analyses. There was a high degree of similarity in our analyses, which indicates the validity of the findings (Miles & Huberman, 1994).

7. Results and Discussion

The primary objectives of this study were to identify if the graying of the fleet is occurring in Oregon, what factors contribute to changes in the demographic composition of this industry, and the implications of any changes for community resilience. To date, local leaders

interviewed for this study in Newport and Port Orford do not perceive the graying of the fleet to be occurring in their communities. This is the case despite the fact that research conducted by Russell et al. (2014) identified the graying of the fleet as an emerging concern within the Pacific Coast Groundfish Fishery. For this reason, the following analysis does not directly address the original research question regarding factors contributing to this phenomenon.

Although the graying of the fleet did not emerge as an issue of concern among research participants, these individuals did identify other changes that have occurred within their local fishing fleets, in particular consolidation and increasing barriers to entry for young people. The insights provided have important implications for our understanding of the graying phenomenon in addition to the relationship between regulatory changes in marine fisheries management and community resilience. Findings suggest that regulatory changes in the commercial fishing industry have contributed to changes in the structure of local fleets that may obscure the full spectrum of social and economic consequences resulting from fisheries management decisions. Furthermore, these changes may have negative implications for the resilience of fishing communities to the extent they detract from the amount of financial, cultural, and human capital in each location. The following section describes these results in detail using direct quotes from interview participants to give voice to the experiences and perspectives of community leaders in Newport and Port Orford.

7.1 Graying of the Fleet

A majority of the individuals interviewed in Newport and Port Orford maintained that the graying of the fleet is not an issue of concern in their respective communities. As older fishermen retire or leave the industry there appears to be a sufficient number of young people to

replace them. In describing the fishing industry, one official stated:

“A lot of the old time fishermen are dying off and are gone. But there are some of them like the [name] family, their children are taking over and doing well with the business. There are some younger people that are coming in and buying boats and starting businesses and trying to get started. They usually start out working on a crew and they work their way up....So I think the fishing business is probably sustainable with younger people coming in, some of them with the families that keep fishing and some of the younger people that are coming in buying boats and trying to get started.”

Several community leaders echoed this sentiment, describing the transition between generations as a natural cycle that occurs in the fishing industry. The commercial fishing fleet in Newport, in particular, appears well positioned for the future according to one community leader who shared the following:

“One of the things that I’ve heard from one of our seafood processors, and one of the reasons they’re making significant investments in Newport, is they see the commercial fishing business in Newport as more sustainable than in some of the other ports. There seems to be a younger generation that’s stepping into commercial fishing here that they haven’t seen in a couple of the other locations that they’re in.”

Just one interviewee voiced concern that the aging of fishermen posed a challenge for the community. This individual formerly participated in the commercial fishing industry. Another interviewee who currently participates in this industry acknowledged that there had been some concern about the age of the fleet expressed in the past, but that concern has since dissipated.

“It seems like I’ve seen a whole new young group. We saw the old timers getting old and we wondered what was going to happen. Well, as it has played out you look around and there’s young men running boats.”

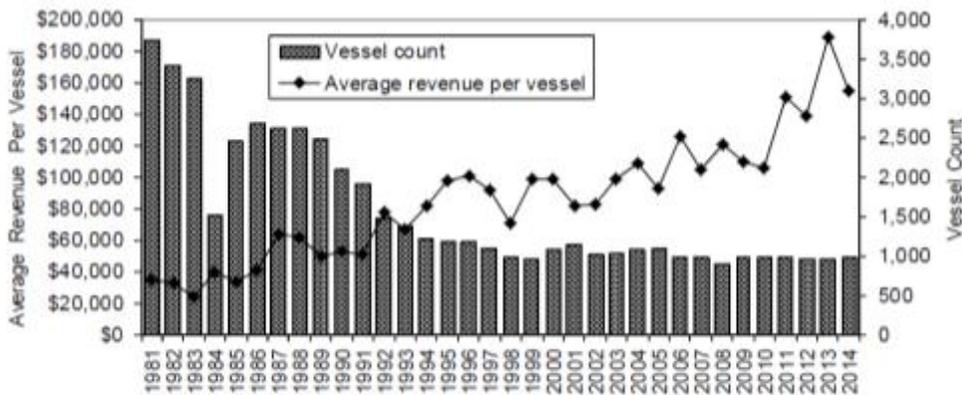
While nearly every community leader participating in this study agreed there are enough young people available to fill the place of older fishermen, several interviewees acknowledged that younger individuals involved in the industry today are likely to have family connections in the industry.

“I think that the young ones that are getting in have a connection and that’s usually family-based, a relative or someone who will bring them along and show them the

ropes.”

“With all the implementation of new laws and fishing regulations it makes it really tough unless you’re born into a family of fishermen to get started on it. Not saying you can’t do it. But it’s tough to get going.”

Even though a majority of individuals interviewed did not perceive the graying of the fleet to be of concern in their community, they did identify other changes that had occurred in their local commercial fishing fleets. Such changes, particularly the consolidation of fishing fleets (see Figure 2), may be closely linked to leaders’ understanding of generational transfer and demographic change within the industry. In short, as fleets get smaller and the number of individuals involved in the industry decreases overall fewer young people are needed to replace older individuals that leave the industry. Community leaders may not perceive the graying of the fleet so long as some young people are able to enter the industry to fill the smaller number of places remaining after consolidation.



Notes: 1. Revenues adjusted to 2014 dollars.
2. Average revenue per vessel is for onshore landings; distant water fisheries revenue is not included. The revenue may be from landings made in California and Washington as well as Oregon.

Figure 2. Home-Port Vessel Counts and Annual Average Revenue Per Vessel (The Research Group, LLC, 2014)

Several interviewees raised the topic of consolidation of fishing fleets being driven by rationalization policies, including the establishment of ITQs in the groundfish fishery off the Oregon Coast. The following quotes reflect what was said about changes in fisheries

management contributing to consolidation of fishing fleets in the region:

“I think like in so many industries there’s just a concentration of resources because of the buy-backs... Some of the families have gotten out of it, and the ones who’ve stayed, I think just as a matter of economic survival they have had to get bigger, either acquiring more vessels or building larger vessels or expanding existing ones.”

“A lot of what tended to happen was larger successful operations were more likely to stay in fisheries and in many cases actually ended up buying out smaller operations. It’s kind of like the business ag[riculture] versus the small farmer type of idea. If that goes too far pretty soon there really is no opportunity to get in at the ground level because, you know, where are you gonna come up with several million dollars to get started?”

In contrast to those who attributed fishing fleet consolidation to changes in fisheries management, two interviewees drew parallels between consolidation in the commercial fishing industry and consolidation in other economic sectors. From their perspective, this shift in structure is characteristic of modern capitalist society and not necessarily unique to the fishing industry. Another interviewee discussed the relationship between consolidation and advances in technology, noting that fewer vessels are needed to harvest the same quantity of fish as vessels become more technologically advanced and efficient.

In addition to raising concerns about fishing fleet consolidation among some research participants, there was widespread agreement among those interviewed that rationalization has made it more difficult for young people to gain access to the commercial fishing industry. This is largely due to the increasing cost of entry into the industry.

“It’s tough trying to get the younger generation interested in fishing. There are a lot of new rules and regulations that weren’t there back in the day. A lot stricter guidelines as far as how much, what type of fish. It makes it difficult and the permitting fees are very expensive. To go buy a crabbing permit, I mean that’s hundreds of thousands of dollars. And for a younger person trying to fish, that’s hard. That’s a lot of money.”

“There’s a lot of quota restrictions and licensing restrictions.... Today it’s a quarter of a million [dollars] or more just to get into the business. So you don’t see a lot of young guys stepping up other than through a family. Fishermen here tend to be generational or they’re brought in by an uncle or a father or a grandfather or something to become fishermen because it’s a specialized trade.”

While discussing challenges related to the increasing cost of entry, one interviewee noted the particular difficulty associated with ascending within the industry today given the increase in size and cost of fishing vessels as compared to several decades ago. Similarly, another participant speculated that young people may encounter fewer cost-related barriers to entry in a location such as Port Orford, where the cost of acquiring a boat is less than in a larger community due to the size restrictions in place because of the community's limited infrastructure.

“There’s a lot of difference between starting out as a young man or woman kicking around on the docks when you’re eight years old, making your way into a multi-million dollar fishing vessel than there necessarily was making it up to the typical size trawler when I first started. You know, there’s wasn’t a whole lot of difference in size between a small trawler and a mid-size double-rigged shrimp vessel at that time.”

“I know that’s been a real concern. That passing the torch would be tough. And maybe on these bigger boats in other ports – it’s probably really hard for a 30 year old to get a million dollar boat. But maybe not a 100 or 200,000 dollar boat. Maybe it’s not that hard. Maybe it’s easier than what we thought and that it’s actually, maybe the torch is being passed despite our concerns.”

These insights highlight the importance of location as it relates to our understanding of the graying of the fleet, including how barriers to entry may vary between communities depending on local features such as infrastructure.

7.2 Community Resilience

The individuals interviewed for this study provided insights into how changes observed among local commercial fishing fleets have impacted community resilience or may do so in the future. The CCF guided the following analysis of these changes and implications for the resilience of fishing communities. In particular, I focus on three types of capital featured in this framework: financial, cultural, and human.

7.2.1 Financial Capital

According to the CCF, financial capital is one of seven types of capital that contributes to community sustainability. Financial capital includes the financial assets available to invest in community capacity building, underwrite business development, support civic and social entrepreneurship, and facilitate the accumulation of wealth for future community development (Flora, Flora & Gasteyer, 2016). Leaders in Newport and Port Orford agree that the commercial fishing industry is a fundamental component of the local economy generating substantial financial capital in each location. At the same time, several interviewees acknowledged that consolidation of fishing fleets driven by rationalization has contributed to some loss of financial capital in both places, which may negatively impact community resilience over time. Though Newport and Port Orford have maintained local fishing fleets that consist primarily of several dozen (Port Orford) to several hundred (Newport) small, family-based businesses thus far, community leaders voiced concern that further consolidation could have a negative impact on the ability to generate local wealth and ensure continued economic stability.

In Port Orford, respondents indicated that commercial fishing accounts for as much as 35 percent of local economic activity. In addition to providing a critical source of income fishing helps to stabilize the local economy, which is also highly dependent on a seasonal tourism industry. Community leaders in Newport are similarly aware of the significant economic contribution of the commercial fishing fleet. Though the industry accounts for just over 10 percent of economic activity in Lincoln County (The Research Group, LLC, 2014), it is perceived as profoundly important to the local economy.

“Commercial fishing is certainly a critical component of our economy. It’s something that builds significant wealth in the community. It creates a lot of jobs both from the fishing standpoint as well as the processing standpoint.”

“I don’t think [people] realize what a source of income it is. Maybe that’s starting to change. I know there was a story all over the media last year that Newport is now the number one fishing port all up and down the entire West Coast including Alaska and I think that opened a few eyes. And people realize certainly it’s not just the owners and the crews, but it drives industry in so many other ways.”

In both communities, fishermen were seen as particularly important to the economy due to the fact that each fishing vessel is an independent small business generating local wealth and new revenue in the community. This point was highlighted by several interviewees who stated the following:

“I think the beauty of commercial fishing is, again, these are all business people, and it’s small business. And it really creates local wealth, particularly when they’re successful in fishing for the community. And that’s an important thing. These aren’t service jobs. These are substantial paying jobs that help keep the economy of this community going strong.”

“A tourist coming in here, that’s a dollar that was created somewhere else. The money that is created here from the fishing industry, that’s a brand new dollar that’s brought in here...and that money is spread out throughout the community. The fisherman here comes and buys something here at Englund Marine and that makes the owner here able to pay his people, keeps his business here. The fuel they buy is trucked in here by a local person who drives a truck. That money that they bring in here buys clothes for their kids. It buys food at grocery stores. It’s created here and it stays here for the most part.”

Interviewees also discussed the importance of the fishing industry to other local economic activity in both Newport and Port Orford. The relationship between fishing and tourism was deemed especially important to the extent that tourists are drawn to the community by the opportunity to observe the commercial fishing industry in action at the waterfront in Newport or the unique dolly dock in Port Orford.

Even as leaders in these two communities praised the economic contributions of the fishing industry, numerous participants discussed the fact that regulatory changes, namely rationalization, have contributed to a loss of some financial capital generated by the industry as quota were sold to entities outside the area and barriers to entry into the industry increased. Smaller family fishing businesses faced particular pressure to sell quota to outside entities with

greater resources. Interviewees in Port Orford stressed the fact that once a vessel leaves the area it is often gone permanently.

“The biggest barrier is when you go to limited entry or individual fishermen’s quotas... It really created a big barrier because there’s so few people who own the quotas.... I watched, I figured, 16 million dollars of boats in about 30 days sail outta here. Business just gone.... The quota...were bought up by people who had more money in Seattle.”

“Bigger family businesses are able to survive, but, you know, individual guys that have to sell out, they...the boats leave, they leave, go somewhere else. They don’t have the money.”

“There used to be I think 33 active vessels on the port. And that’s gone down by four or five. There’s been a couple lost at sea, which was terrible this year. And they don’t seem to, we’ve had one new boat...that had been worked on for years that is now on the port but other than that and a number of sport fishermen I really can’t think of anybody that has recently come into being at the port as an active commercial fisherman. Usually when you lose somebody it’s lost. Not always, but usually.”

Thus far it does not appear that the amount of financial capital lost as a result of rationalization in Newport and Port Orford has generated significant concern among community leaders in either location. However, there is widespread recognition that further loss of financial capital in the form of additional loss of quota and fewer opportunities for young people to get started in the industry could have a significant negative impact on the community over time. In discussing the ramifications of losing additional financial capital that is generated by the commercial fishing industry, research participants cited impacts to the generation of wealth in the community, loss of local control as well as negative impacts to other economic sectors that are closely linked with the industry.

“It’s a big piece of the pie for Newport. And to have that missing... it would be hard for me to imagine this place. It would have to reinvent itself. It’d be as devastating as losing the timber.”

“I think, again, that’s kind of the same scenario...that we’ve seen across the country with your traditional downtown stores that were all individually owned, that have basically gone out of business because of the national and international merchandising of everything today. What you lose in a community is that entrepreneurial spirit. You lose

that ability to keep those profits local versus those profits going to some of sort regional or national or international company. If someone is a Newport-based commercial fishermen or a Newport-based businessperson, the profit they make stays right in this community. And so I think if the fishing fleet changed from being a whole series of independent small business owners fishing then it would certainly have a significant impact on the generation of income in this community.”

I believe it's 30 percent of the workforce and it's a small workforce in Port Orford... If there's not that work...the economy, the culture becomes a different place. The other part of that equation is the fishermen's wives [and] families... are probably in the service industry and that's all there is left in Port Orford. There's the waitresses, the cashiers, real estate agents, you know, that kinda thing. Fishermen go away, the wives go away, there's less of that service. So to me it's essential...if Port Orford's gonna survive, the industry has to survive.”

7.2.2 Cultural Capital

Cultural capital emerged as another significant factor contributing to the resilience of fishing communities on the Oregon Coast. Cultural capital in the CCF refers to the way members of a community perceive the world, including what is valued and what may be taken for granted (Flora, Flora & Gasteyer, 2016). Research participants in Newport and Port Orford described the unique culture that has developed in both places as a result of having a commercial fleet based in the community. The cultural capital associated with being a fishing community is perceived as a fundamental component of local identity, shapes broad patterns of interaction in the community, and is closely linked with the generation of financial capital. Preserving the cultural values associated with the fishing industry can thus be understood as an integral component of community resilience in these places.

Nearly every interviewee discussed how the unique culture associated with the fishing industry in his or her community contributed to a shared sense of identity among people living in the town. On this point, interviewees described the sense of authenticity and connectedness to the ocean that pervaded the community, which many attributed specifically to the fishing industry.

Several individuals also discussed events and activities including the annual Blessing of the Fleet and traditions of buying seafood directly from local fishermen as elements uniquely associated with being a fishing community that contributed to a shared sense of place among residents. The following quotes portray the admiration and respect with which leaders spoke about how commercial fishing shapes community identity in Newport and Port Orford:

“It gives a connectedness to our oceans and to what that means over the centuries back from time on... There’s no middleman. You can see it transparent from the kid that goes on the boat to the fish to the processing to the ocean.... So it brings the economy but it also brings this wonderful ambience.”

“One only has to go down to the bay front and look at all the shops and look at the places to sit and to walk and you can look out and see our fishing fleet. So it adds without even having anything to do with the fishing initially because people come and love to see all the beautiful boats and love to see the working port. We’re a...working town, and that’s part of the charm. The actual fishing nobody really gets to see, but it’s all the activity leading up to and coming back from and offloading and it’s just kind of fun to see big boats moving about.”

Similarly, interviewees drew attention to several ways in which the community’s relationship to the sea due to the presence of the commercial fishing industry shaped broad patterns of interaction in the community. In Port Orford, in particular, two participants described how the community’s schedule is intimately linked to the natural world as a result of its dependence on the sea.

“There’s no time. Everybody goes on tidal time, because everything depends on the wind and the tide.”

“It’s driven by the ocean. It’s driven by the tides. It’s driven by the wind. It’s driven by the waves. It’s driven by the weather, by the temperature. And all of a sudden you’re living a life that is, for good or bad, is more or less dictated by the natural world.”

The risk that is inherent in the fishing industry surfaced as another factor shaping the broader community. On this point, one participant said the following:

“And sometimes that decision is to go [to sea], even under adverse conditions. And unfortunately sometimes the outcome of that is a sad one. And we’ve lost people here. In

the time I've been here I've lost friends... But it's part of the experience. You can't really ignore it... And at the same time, coastal fishing communities like this are resilient and strong and don't spend a lot of time crying into their beards. It's part of the equation. It's part of the life. It's I think dealt with with respect and honor and people try to hold their heads up high and not let it bring them down and I think that's also part of the culture. Because if you can't do that it makes it really hard to keep at it, maintain as a community."

Local leaders in Newport also spoke about how the fishing industry has shaped interactions within the community, albeit in a different way. One participant described how the fishing industry has helped to shape a community characterized by its willingness to work together and to innovate. Another participant described how the community's geographic location contributed to a spirit of independence and self-sufficiency.

"People say that one of the reasons why Newport has so many successes as a community, like for instance bringing the NOAA fleet here...people keep saying Newport has a competitive spirit, a spirit of cooperation, a spirit of accomplishment, a spirit of accommodation and I think a lot of that comes out of the fishing industry...Certainly fishing, commercial fishing is an extremely cyclical industry with ups and downs but the people I know in the industry, or I hear from indirectly, say because Newport is willing to diversify and willing to innovate it has probably ridden out the challenges better than a lot of West Coast ports and that's probably why the Newport fleet is in the position where it is today. And I think that really maybe has kind of seeped over into the larger community in the way that we view business."

"There's enough isolation on the coast that you really create a self-sufficiency among people. You get that kinda, that spirit that we can, we can do this and nobody else is gonna do it for us so we've got to roll our sleeves up and get involved with the effort. So I think the fact that the coast is isolated from the valley really kinda creates a spirit of independence, a spirit of resourcefulness, of these communities that make them a lot of fun to manage and to live in."

In addition to discussing how the cultural capital generated by the fishing industry shapes Newport and Port Orford and how they view themselves as communities, research participants also recognized that this culture has important linkages to the financial capital generated in their towns. Specifically, interviewees noted that the culture associated with the fishing industry is an important draw for their local tourism economies.

“This town would be severely affected [if people stopped fishing out of Port Orford]. Absolutely. It’s a huge business here. And it’s a neat business... We got some pretty fertile grounds right out here. And the unique thing about Port Orford is it’s the only dolly dock in the entire United States. One of only five in the entire world that actually lift boats, put ‘em over and lower ‘em down to the water. We’re the only port that’s not on a river.”

“In the early years fishermen came and went fishing to catch fish, to sell fish, to have a livelihood and to harvest from our oceans. And I think that the tourism industry has evolved because of that. And I think that we have something special and unique. Unless you’re in a port city you’ll never get to see up close and personal all of the inter-workings of the fishermen and the fishing fleet and how they deal with their livelihood. From offloading fish to how they weigh things to how they prepare all their rigging and even fueling their boats and cleaning. It’s all integral and I think people that are exposed or have an opportunity to see that really love it.”

Community leaders in Newport and Port Orford speculated that further loss of local ownership of quota or continued decline in opportunities for young people to enter the fishing industry may negatively impact the generation of financial capital thereby eroding community resilience over time. Research participants also recognized the central role of the fishing industry in shaping each community’s culture and sense of place. It follows that changes to the industry, including changes in fisheries management, have the potential to impact cultural capital in these communities. Interviewees did not express concern that changes in the fishing industry had impacted the local culture thus far. However, several individuals spoke about the importance of maintaining this culture, and the sense of place that is derived in large part from this resource, indicating the importance of cultural capital to community resilience. The following quotes illustrate community leaders’ perceptions of this relationship.

“I think if one has to prove one’s worth to be in Newport, if one is a fisherman you’re automatically accepted. You’ve earned your right... it is such a natural part of this area. You know, there are so many pictures of this bridge, but with this bridge are all those boats, those fishing boats. And those boats have been painted by artists. People love to take pictures by them... it wouldn’t be the same. It would lose I think a big part of what makes us unique.”

“As a nation, as a greater community, we have to go beyond lip service in terms of our interest in coastal culture. It has to be more than just, ‘We want to be able to go to the

shore and have that experience.’ We have to be willing to say, ‘That experience is valuable. It has value. And we value it enough that we will commit to making sure the people who actually create that experience for us can afford to live and create that experience for us.’ It’s not a given. And I think that we are doing ourselves a disservice as a culture if we don’t recognize that it’s not a given. ... I think it’s very tenuous. I don’t know if people know how tenuous it is. That how quickly you can go from a viable fishing community that creates that culture that you love to a community that used to be a fishing community... And it’s a different kind of community at that point that I think ends up with a more nostalgic perspective on what a coastal fishing community is as opposed to actually being one.”

7.2.3 Human Capital

The final capital considered in this analysis is that of human capital. The CCF defines human capital as the skills and abilities of people, often measured in terms of education or training or the potential to enhance these attributes (Flora, Flora & Gasteyer, 2016). Research participants in Newport and Port Orford discussed multiple ways in which the fishing industry contributes to and helps preserve human capital.

Numerous community leaders who participated in this study shared an awareness of the importance of fishermen’s knowledge, or human capital, in terms of their understanding of the ocean as well as the knowledge and expertise required to be a successful fisherman. Both forms of knowledge contribute to the success of the fishing industry and help preserve the natural environment on which it depends. The topic of the value of human capital in the fishing industry often surfaced during discussions about the importance of passing institutional knowledge about how to fish from one generation to the next, particularly through family linkages. For example, one interviewee said:

“As long as there’s a desire for seafood I think there’s gonna have to be a family-involved aspect of it. The learning curve is too steep. You can’t just buy one of these boats and be successful. You have to be taught, whether as a deckhand or growing up on a boat or even being a neighbor of a fisherman. You can’t just jump on these boats and be successful. You have to have some way to get that institutional knowledge passed down.”

Another interviewee highlighted the importance of young people in the fishing industry learning from their parents, particularly as it relates to getting involved in political issues involving fisheries.

“I think the newer generation coming in, I think they’re a lot more up to date...as far as the political processes and things like that. They’ve seen what their parents have gone through, their grandparents, how it’s changed. They’re able to, with help from their parents, to get into the business, learn the ropes of it, but also what’s coming down the path and to pay attention to what the political climate is. Regulations, upcoming policy changes that might affect their businesses. And the way fisheries are structured now, they can’t just go fishing anymore. They have to become part of the process...There’s a lot of changes that could happen and it needs input of the people that are involved in the resource and in the industry to make sure that they protect their interests and be able to pass on that heritage to their kids.”

From these quotes it is apparent that community leaders perceive the passage of institutional knowledge from one generation of fishermen to the next as critical to the long-term viability of the industry. In addition, participants talked about the knowledge of the ocean environment that fishermen have acquired over long periods of time. This can be understood as a form of local ecological knowledge (LEK). NOAA defines LEK as knowledge tied to a specific place that is acquired through experience and observation (NOAA Fisheries, 2007). One interviewee, a former commercial fisherman, described the extensive knowledge he acquired about the ocean and its inhabitants during his decades-long career that included a substantial amount of exploring and experimentation motivated by his personal interest in knowing more about this environment. This knowledge has not been written down in a book; instead, he says, *“When I die, it’ll all just go away.”*

Another interviewee referenced the value of this knowledge of the marine environment in discussing the role fishermen played in the establishment of a marine reserve near Port Orford and subsequent research efforts to understand the impact of the reserve. On this point, the

interviewee shared the following:

“They actually had their own questions because they had been part of designing the reserve and establishing the boundaries, the very specific boundaries of the reserve. And they did that based on experiential knowledge of years of fishing in that area.”

Participants also described how this deep understanding of the marine environment and the transfer of this knowledge between generations of fishermen help to foster an ethic of sustainability among people in the industry. In this way, fishermen and the human capital they maintain help to preserve the resource on which their industry depends. One community leader stated the following in discussing fishermen’s efforts to preserve fishery resources for future generations:

“The leaders in the fishing industry understand that, they know that to continue this is what they’re gonna have to do. So they work with Oregon State and put information in on fishing grounds and what should be left for the rockfish recovery, that sort of thing.”

In recognition of the value of the knowledge and expertise acquired by fishermen over generations, another research participant emphasized the importance of creating outlets to preserve this capital for future generations as older people leave the industry.

“I also think there’s a lot of value culturally in creating opportunities for those fishermen and women who are in the group that’s graying out, so to speak, I think there’s a lot of value there. A lot of experiential knowledge. A lot of just practical knowledge and I don’t want to lose that either. You know that African proverb – ‘When an elder dies a library burns down.’ Well, the same thing applies. And I know in my work as a researcher I’ve worked and depended on commercial fishermen who’ve spent their lives doing that kind of work to help me develop my gear. To help me get the work done. And I’ve benefitted greatly from those relationships. I would like to see us... develop other opportunities for guys that I know that are retiring.”

In addition to discussing the specialized knowledge and skills acquired by fishermen over generations, participants drew attention to the relationship between the fishing industry and the community’s ability to attract and retain skilled and educated people. Nearly every interviewee talked about the challenge of keeping young people in the community due to a lack of job

opportunities. For those individuals who can overcome potential barriers to entry, the fishing industry remains one of the few economic sectors in which young people have an opportunity to remain in the community and earn a good wage. The following quote from one community leader reflects this sentiment expressed by interviewees.

“Most of the high school graduates don’t stay here. A few come back if they have a family opportunity or a family business or just plain want to be here and are willing to do what it takes to be here. But most of ‘em leave. Most of the graduates from our high school spend at least three to five, sometimes ten, fifteen or twenty years somewhere else. And a lot of ‘em consider this home, but it’s difficult for them to come back and make a living here.”

The fishing industry helps to attract and retain local human capital in one additional way, albeit somewhat indirect. Several research participants discussed the growth of the marine science sector in their community, which draws well-educated, highly skilled people to the area. Discussion about the significance of this industry was particularly pronounced in Newport, where research participants highlighted the fact that the Hatfield Marine Science Center, NOAA’s Marine Operators Center – Pacific, the Oregon Coast Aquarium and OMSI’s Camp Gray are all located in the community. According to one interviewee, one reason these entities are clustered here has to do with the presence of the commercial fishing industry.

“We have the entire NOAA fleet here now. I doubt that they’re gonna be interested in necessarily being home ported here if there’s not a fishing fleet. That would be a huge loss to lose fishing out of this community.”

Another interviewee spoke about the relationship between the fishing industry and the marine science community in a similar way. In particular, this individual described a mutually beneficial relationship that has developed between the two sectors as a result of being located in the same area. In this way, the fishing industry helps to retain the human capital associated with the marine science sector.

“The Marine Science Center has changed this community as much as anything...Because

we're right here in one little small community and you have all these different agencies, ODFW, the Marine Science [Center], all these different people. You get to know 'em personally... You have a vast amount of skill on the marine science side and you have a vast amount of skill on the fishery side. It's just trying to bring it together and you do it simply 'cause we're in close proximity."

The marine science community has a lesser presence in Port Orford, a much smaller, more geographically isolated community. Nonetheless, community leaders identified unique opportunities where this sector can complement current activities to the benefit of the larger community. One interviewee discussed how local fishermen can supplement their income by engaging in research work with agencies such as the Oregon Department of Fish and Wildlife (ODFW).

"[I've been] encouraging them to get involved in doing some of the research work as contractors. So some of the dive work that's been done with the marine reserves in other places, the urchin boat [from Port Orford] does the urchin surveys. They also have a contract with ODFW to do another project here where we go out and sample juvenile rockfish as part of the monitoring that goes on at the marine reserve. And I think generally that's something that I've promoted and tried to do more of here in Port Orford is to encourage fishermen who are willing and interested to add research work to their sort of economic portfolio."

In addition to supplementing fishermen's income, growth of the marine science sector in Port Orford may also help ensure the port's infrastructure remains intact and the fishing fleet continues to be able to access local waters by helping draw attention to the community's substantial dredging challenges. Much like the relationship between the fishing industry and cultural capital, a great deal of human capital in fishing communities is tied to the commercial fishing industry. Community leaders did not express concern that rationalization has contributed to loss of human capital thus far; however, from the previous discussion it is clear that management changes that profoundly impact the industry could result in declining human capital in these communities further reducing resilience.

As described above, the majority of research participants in Newport and Port Orford did

not identify the graying of the fleet as an issue of concern in their community. Local leaders believe there is a sufficient number of young people to replace older fishermen who retire or leave the industry through a natural replenishment cycle. This is interesting in light of the fact that some research has identified this phenomenon as an emerging concern among particular fisheries in the region (Russell et al., 2014). In other locations, the increasing age of fishermen on account of decreased opportunities for young people to enter the industry has been identified as one indicator of the negative social and economic consequences of rationalization. In Oregon, it appears this type of demographic change may be obscured by the fact that fishing fleets have decreased in size as a result of these policies. Fewer fishermen are needed to fill the smaller number of openings remaining in the industry. If this is the case, community leaders may underestimate the consequences of policies such as rationalization. In turn, this suggests that the graying of the fleet could be a problematic indicator of the consequences brought about by changes in fisheries management. This is not to say further investigation of the graying of the fleet is not valuable; rather, this finding indicates the importance of using multiple measures to understand the full scope of social and economic impacts of marine fisheries management decisions.

While research participants were largely unconcerned about the existing demographic composition of their local fleet, these individuals drew attention to other changes in the industry that are likely to negatively impact the resilience of fishing communities. In particular, management changes have contributed to consolidation of local fleets and increasing barriers to entry for young people, particularly those without a family connection to the industry. Research participants in Newport and Port Orford agree that that the commercial fishing industry is a central component of the local economy, generating substantial financial capital in each location.

To the extent that rationalization has resulted in these negative impacts it can be seen as diminishing financial capital and reducing community resilience.

Interviewees in Newport and Port Orford also highlighted the unique culture that has developed in both places as a result of having a commercial fleet consisting of family-based businesses located in the community. This cultural capital that is associated with being a fishing community is perceived as a fundamental component of local identity and shapes broader patterns of interaction in the community. Changes in management that result in negative impacts to local fleets could thus negatively impact cultural capital and community resilience.

Additionally, research participants described the central role the fishing industry plays in retaining and attracting human capital in the community. If family-based fishing businesses continue to face mounting pressure to sell quota outside of the community, loss of the extensive knowledge of fishing and of the ocean that fishermen have developed over generations could follow. The loss of family-based fishing businesses may also result in even fewer opportunities for young people to remain in the community in a well-paying job or perhaps slowed growth, if not decline, in the marine science sector in these locations. Loss of this kind can be understood as loss of human capital, which in turn weakens community resilience.

8. Policy Recommendations

This research has established that changes in fisheries management known as rationalization may diminish community resilience in fishing communities in Oregon to the extent these policies result in a loss of financial capital generated by the industry. The production of cultural and human capital is closely intertwined with commercial fishing industry in these places, meaning that such changes in fisheries management may also negatively impact these resources further reducing community resilience. This greater understanding of the social and

economic consequences of such policy decisions should be incorporated into analyses of future management plans put forth by state and federal management entities including the Oregon Department of Fish and Wildlife and the Pacific Fishery Management Council.

In addition to yielding new insights that can inform state and federal fisheries management, this research helps to illuminate areas where local, state, and federal policies and programs could be implemented or expanded to enhance community resilience in coastal Oregon. The loss of financial capital in fishing communities due to rationalization could be stemmed in part through the creation of programs that help to alleviate the financial barriers that prevent young and/or local residents from entering the industry. There are a variety of programs in existence elsewhere that could be replicated in this state to achieve this objective. For example, under certain circumstances eligible communities in Alaska can form nonprofit entities called Community Quota Entities (CQEs). CQEs may request no-cost community permits or purchase quota share, which can then be leased to community residents (NOAA Fisheries Alaska Regional Office, n.d.). In this way, the community is able to preserve opportunities for residents to participate in the fishery and ensure financial capital remains in the local area.

A recently enacted program in Oregon aimed at increasing opportunities for new entrants to the farming industry could also be replicated in the fishing industry. The purpose of the Aggie Bonds Program, also known as the Beginning and Expanding Farmer Loan Program, is to provide affordable financing to new farmers for financing capital purchases including the purchase of farm land and equipment (Business Oregon, n.d.). A similar program that provides affordable financing for quota and fishing vessels could help to alleviate financial barriers to entry facing young and/or local residents of fishing communities.

In addition to establishing programs that seek to mitigate the financial barriers facing

prospective fishermen, the state of Alaska has been leading efforts to engage and empower the next generation of fishermen to be successful in their careers through the creation of education and mentorship programs. For example, the Alaska Young Fishermen's Network connects young fishermen to each other, to strong mentors, and to the resources they need to be successful through social gatherings, educational opportunities, and resource sharing (Alaska Marine Conservation Council, n.d.). In April 2017, the federal government took action in this direction with the introduction of the *Young Fishermen's Development Act of 2017* (H.R. 2079), a bill that would establish the first coordinated, nationwide effort to train, educate, and assist the next generation of commercial fishermen. The program would provide grants of up to \$200,000 (totaling \$2 million annually) through NOAA's Sea Grant program. This legislation is modeled after the USDA's successful Beginning Farmer and Rancher Development Program, which is credited with preparing hundreds of young farmers and ranchers for rewarding careers in agriculture (Alaska Marine Conservation Council Blog, 2017). These efforts can be seen as a step toward preserving human capital associated with the commercial fishing industry.

Multiple research participants highlighted the importance of local infrastructure to attracting and retaining small fishing businesses. This is another area where public investment could help to curtail the loss of financial capital from fishing communities in Oregon. Infrastructure is critical to the success of local fishing fleets to the extent that it enables fishermen to get to sea and back safely and provides an opportunity for them to market and sell their product. Infrastructure that is vital to the success of the fishing industry includes port infrastructure such as jetties and dock facilities as well as local facilities dedicated to the sale and marketing of ocean products. In Port Orford, community leaders are currently engaged in efforts to redevelop the old cannery building in order to create, among other things, a venue in which

fishermen can more easily sell their products to community members and visitors. Similarly, Port Orford Sustainable Seafood, a Community Supported Fishery, provides an outlet for local fishermen to market and sell their product throughout the state, an opportunity that has been severely limited in Port Orford in the past. By making these investments, local leaders are helping to ensure fishing businesses in Port Orford remain in the community. These efforts should be supported at the state and federal level to help preserve financial capital and bolster the resilience of fishing communities.

One final area where public investment may enhance community resilience in coastal Oregon concerns the growing marine science sector. Further investments in this area can bolster local fishing fleets through providing opportunities to earn supplemental income, helping to raise awareness about local infrastructure needs (particularly as they relate to dredging and jetty maintenance), and facilitating the accumulation of human capital in these communities. Oregon State University has already made a step in this direction with its Marine Studies Initiative, which includes the construction of a new, state-of-the-art \$50 million research and teaching facility in Newport (Oregon State University, n.d.).

10. Limitations

As with any research endeavor, this project is subject to certain limitations. First and foremost, this study examined the graying of the fleet phenomenon in two specific communities on the Oregon Coast. Though Newport and Port Orford were purposefully selected for this study based on several important criteria, it remains that data collected in these communities may not adequately reflect the experience of other communities. Each coastal community in Oregon has a unique geography, history, and economy, which likely influences how the local population

experiences fisheries management policies. Additional research is needed to ascertain the social and economic consequences of rationalization in other coastal communities, including whether the graying of the fleet is an issue of concern in these places.

This study is also limited in the fact that this investigation treated the fishing community as one homogenous entity. In reality, fishing fleets in Newport and Port Orford are comprised of fishermen that target different species of fish using different equipment and techniques. It is possible that it may be more or less difficult for young people to gain entry into one particular segment of the fishing industry as compared to another. That is, the graying of the fleet may be of concern in one fishery and not another. There is reason to believe this could be the case in Oregon. For example, research conducted by Russell et al. in 2014 that identified the graying of the fleet as an emerging issue for further study specifically examined the West Coast groundfish fishery. However, my research that did not distinguish between fishery or gear type finds little evidence that the graying of the fleet is occurring, at least from the perspective of community leaders. Further study of the graying of the fleet in Oregon should take these potentially significant differences across fisheries into consideration in order to provide a more nuanced understanding of this phenomenon.

An additional limitation of this study concerns the selection of research participants. A primary aim of this research project was to understand the implications of the graying of the fleet for community resilience. Local leaders were targeted for interviews in an effort to ascertain community-level impacts of changes in the commercial fishing industry. Although attempts were made to interview a wide range of elected and non-elected individuals from local political bodies and civic organizations, not every entity was ultimately represented in the interview process. This occurred for a variety of reasons. For example, several local elected officials chose not to

participate in this research project. This decision may have been influenced by the fact that interview content will be made public because this research was conducted in part to collect material for the VFWC project. This research was also conducted during the spring and summer prior to the 2016 election cycle. Public officials may be reluctant to discuss particular issues in this context. Newport and Port Orford also differ in terms of the number and level of activity of local civic groups. While there is a strong tradition of civic engagement in Port Orford and several individuals from these groups were willing to participate in this research project, it was more difficult to identify individuals from civic organizations to speak with in Newport. It should also be noted that as with any qualitative study in which a relatively small number of individuals are interviewed the views of those who participated in the research might not necessarily reflect the views and experiences of the communities they represent.

One final note about limitations related to my analysis is necessary. As described above, the Community Capitals Framework consists of seven types of capital believed to contribute to community sustainability. Given that my analysis considered three of the seven capitals included in this framework, a more comprehensive understanding of the relationship between the graying of the fleet and community resilience could be garnered through an in-depth analysis that considers all seven types of capital.

10. Conclusion

Fishing communities in the United States are in a state of transition that is arguably more significant than the perpetual cycles of change to which they have become accustomed over generations. New management structures aimed at curbing overfishing and restoring fish stocks have had significant impacts on the industry and the communities that depend on it for their livelihoods. Simultaneously, a rapidly globalizing economy and the growth of aquaculture are

exerting new economic pressures. Ecological variability is likely to increase as the effects of global climate change begin to be realized. Despite these pressures, commercial fishing continues to play an integral role in fishing communities in Oregon.

Through this investigation into the causes and consequences of the graying of the fleet in the Pacific Northwest I find that changes in fisheries management have resulted in notable social and economic consequences for fishing communities in this region. Rationalization may significantly impact community resilience over time should it lead to substantial loss of financial capital in these communities. This is consistent with prior scholarly inquiry that has demonstrated the negative unintended consequences of rationalization including consolidation of fishing fleets, concentration of rights, power, and wealth within the industry, decreasing opportunities for young people, and migration of fishing activity and supporting industries away from rural, coastal communities (Copes, 1986; McCay, 1995; McCay, 2004; Cullenberg, 2005; Carothers 2008, 2010, 2012, 2013; Carothers & Chambers, 2012, Olson, 2011; Jentoft, 2000; Koslow, 1982).

In addition to ascertaining the impacts of rationalization on the generation of financial capital in fishing communities in Oregon, this research expands understanding of the social and economic consequences of this management structure through consideration of potential impacts to cultural and human capitals. Community resilience, or the ability of a community to cope with external stresses and disturbances, must be understood as more than the ability of a community to preserve financial resources and maintain economic stability, though these factors are important. Sense of place and community identity are deeply intertwined with the creation of cultural and human capital in each location. Understanding the relationship between fisheries management and community resilience thus requires consideration of these factors, which I

suggest are closely linked with the commercial fishing industry in these communities and therefore may also be impacted by shift in fisheries management such as rationalization. Better understanding of this relationship between the commercial fishing industry, communities of place, and community resilience provides useful information to policymakers charged with considering the broad scope of social and economic consequences resulting from fisheries management plans.

These insights also highlight areas where policymakers can implement new policies or invest public resources to help bolster the resilience of fishing communities in Oregon. Such opportunities include the development of programs that provide financial resources that enable young and/or local people to enter or remain in the industry, investment in local infrastructure that is critical to health of this industry, and continued support of the marine science sector that is likely to continue to grow in significance in the state. Taking steps to enhance community resilience in these places is a worthwhile goal to the extent we continue to honor and value the unique and important role fishing communities play in Oregon's economy, culture, and way of life.

References

- Abbott-Jamieson, S. (2007). Using oral history techniques in a NOAA fisheries service (NMFS) education and outreach project: Preserving local fisheries knowledge, linking generations, and improving environmental literacy. *NAPA Bulletin*, 28(1), 136-147.
- Adger, W.N. (2000). Social and ecological resilience: are they related? *Progress in Human Geography*, 24(3), 347-364.
- Adger, W.N. Kelly, P.M., Winkels, A., Huy, L.Q. & Locke, C. (2002). Migration, remittances, livelihood trajectories, and social resilience. *Ambio*, (31)4, 358-366.
- Alaska Marine Conservation Council. (n.d.). Alaska Young Fishermen's Network. Retrieved from <https://www.akyoungfishermen.org>
- Alaska Marine Conservation Council Blog. (2017, April 13). Bill to Establish National Young Fishermen's Program Introduced. Retrieved from <http://www.akmarine.org/bill-to-establish-national-young-fishermens-program-introduced/>
- Allen, M. (2009, December 10). NOAA Encourages Use of Catch Shares to End Overfishing, Rebuild Fisheries and Fishing Communities. [News Release]. Retrieved from <https://alaskafisheries.noaa.gov/node/10707>
- Berkes, F. & Ross, H. (2013). Community resilience: Toward an integrated approach. *Society & Natural Resources*, 26(1), 5-20.
- Buikstra, E., Ross, H., King, C.A., Baker, P.G., Hegney, D., McLachlan, K. & Rogers-Clark, C. (2010). The components of resilience – Perceptions of an Australian rural community. *Journal of Community Psychology*, (38)8, 975-991.
- Business Oregon. (n.d.) Aggie Bond Program. Retrieved from <http://www.oregon4biz.com/How-We-Can-Help/Finance-Programs/Aggie-Bond/>

- Carothers, C. (2008). *Privatizing the Right to Fish: Challenges to Livelihood and Community in Kodiak, Alaska* (Doctoral dissertation). University of Washington, Seattle, Washington.
- Carothers, C. (2010). Tragedy of commodification: Transitions in Alutiiq fishing communities in the Gulf of Alaska. *Maritime Studies (MAST)*, 90(2), 91-115.
- Carothers, C. (2012). A survey of US halibut IFQ holders: Market participation, attitudes, and impacts. *Marine Policy*, 38, 515-522.
- Carothers, C. (2013). A survey of US halibut IFQ holders: Market participation, attitudes, and impacts. *Marine Policy*, 38, 515-522.
- Carothers, C. (2015). Fisheries privatization, social transitions, and well-being in Kodiak, Alaska. *Marine Policy*, 61, 313-322.
- Carothers, C. & Chambers, C. (2012). Fisheries privatization and the remaking of fishery systems. *Environment and Society: Advances in Research*, 3, 39-59.
- Community Fisheries Network. (n.d.) Port Orford Ocean Resources Team. Retrieved from <http://communityfisheriesnetwork.net/POORT.html>
- Conway, F. D. L. (2001). Changes & Fishery Management: Impacts, Communication, and Fishing Communities. In: *Microbehavior and Macroresults: Proceedings of the Tenth Biennial Conference of the International Institute of Fisheries Economics and Trade*, July 10-14, 2000, Corvallis, Oregon, USA. Edited by Richard S. Johnston and compiled by Ann L. Shriver. International Institute of Fisheries Economics and Trade (IIFET), Corvallis, OR, 2001.
- Conway, F.D.L, Gliden, J. & Zvonkovic, A. (2002). Changing communication and

- roles: Innovations in Oregon's fishing families, communities, and management. *Fisheries*, 27(10), 20-29.
- Copes, P. (1986). A critical review of the individual quota as a device in fisheries management. *Land Economics*, 62(3), 278-291.
- Cramer, L. (2000). Chapter 4: Community Infrastructure and the Development of Human Capital: A Pacific View. In S. Hanna & M. Hall-Arber (Eds.), *Change and Resilience in Fishing*. Corvallis, OR: Oregon Sea Grant.
- Creswell, J.W. (2013). *Qualitative Inquiry & Research Design: Choosing Among Five Approaches* (3rd ed.). Thousand Oaks, CA: SAGE Publications, Inc.
- Cullenberg, P. (Ed.). (2005). Proceedings from Managing Fisheries, Empowering Communities Conference. Fairbanks, AK: Alaska Sea Grant College Program, University of Alaska Fairbanks.
- Dalton, M.M., Dello, K.D., Hawkins, L., Mote, P.W. & Rupp, D.E. (2017). *The Third Oregon Climate Assessment Report*, Oregon Climate Change Research Institute, College of Earth, Ocean and Atmospheric Sciences, Oregon State University, Corvallis, OR.
- Davidson, D.J. (2010). The applicability of the concept of resilience to social systems: Some sources of optimism and nagging doubts. *Society & Natural Resources*, 23(12), 1135-1149.
- Dillman, T. (2013, May 1). Oregon Ports Stimulate Coastal, State Economy. *Fishermen's News*. Retrieved from <http://www.fishermensnews.com/story/2013/05/01/features/oregon-ports-stimulate-coastal-state-economy/171.html>
- Donkersloot, R & Carothers, C. (2016). The graying of the Alaskan fishing fleet.

- Environment: Science and Policy for Sustainable Development*, 58(3), 30-42.
- Flora, C. & Flora, J. (2008). 5th Annual Community Capitals Framework Institute.
- Flora, C.B., Flora, J.L. & S.P. Gasteyer. (2016). *Rural Communities: Legacy and Change* (5th ed.). Boulder, CO: Westview Press.
- Folke, C. (2016). Resilience (Republished). *Ecology and Society*, 21(4).
- Gilden, J. (1999). Oregon's Changing Coastal Fishing Communities. Corvallis, OR: Oregon State University.
- Gordon, H.S. (1954). The economic theory of a common-property resource: The fishery. *Journal of Political Economy*, 62(2), 124-142.
- Hanna, S. (2000). Chapter 2: Change and Resilience in New England and Pacific Groundfish Fisheries. In S. Hanna & M. Hall-Arber (Eds.), *Change and Resilience in Fishing*. Corvallis, OR: Oregon Sea Grant.
- Hanna, S. & Hall-Arber, M. (2000). Chapter 1: Introduction. In S. Hanna & M. Hall-Arber (Eds.), *Change and Resilience in Fishing*. Corvallis, OR: Oregon Sea Grant.
- Himes-Cornell, A. & Hoelting, K. (2015). Resilience strategies in the face of short- and long-term change: out-migration and fisheries regulation in Alaskan fishing communities. *Ecology and Society*, 20(2).
- Holling, C.S. (1973). Resilience and stability of ecological systems. *Annual Review of Ecology and Systematics*, 4, 1-23.
- Jacob, S., Farmer, F.L., Jepson, M., & Adams, C. (2001). Landing a definition of fishing dependent communities: Potential social science contributions to meeting National Standard 8. *Fisheries*, 26(10), 16-22.
- Jentoft, S. (2000). The community: a missing link in fisheries management. *Marine*

Policy, 24, 53-59.

Jepson, M. & Colburn, L.L. (2013). Development of social indicators of fishing community vulnerability and resilience in the U.S. Southeast and Northeast Regions. U.S. Dept. of Commerce, NOAA Technical Memorandum NMFS-F/SPO-129, 64 p.

Jepson, M. & Jacob, S. (2007). Social indicators and measurements of vulnerability for Gulf Coast fishing communities. *NAPA Bulletin*, 28, 57-68.

Johnson, T.R., Henry, A.M. & Thompson, C. (2014). Qualitative indicators of social resilience in small-scale fishing communities: An emphasis on perceptions and practice. *Human Ecology Review*, 20(2), 97-115.

Kirchner, G. (2013) Marine Resources Program Overview. Oregon Department of Fish and Wildlife. Retrieved from http://www.dfw.state.or.us/MRP/docs/E1_Backgrounder_MRP_Overview_2013-10-03.pdf

Koslow, J.A. (1982). Limited entry policy and the Bristol Bay, Alaska salmon fishermen. *Canadian Journal of Fisheries and Aquatic Sciences*, 39(3), 415-425.

Lowe, M.E. (2015). Localized practices and globalized futures: challenges for Alaska coastal community youth. *Maritime Studies*, 14(6), 1-25.

Maclean, K., Cuthill, M. & Ross, H. (2014). Six attributes of social resilience. *Journal of Environmental Planning and Management*, 57(1), 144-156.

Magis, K. (2010). Community resilience: An indicator of social sustainability. *Society & Natural Resources*, 23(5), 401-416.

Mansfield, B. (2004). Neoliberalism in the oceans: "rationalization," property rights, and the commons question. *Geoforum*, 35, 313-326.

- Marshall, N.A., Fenton, D.M., Marshall, P.A. & Sutton, S.G. (2007). How resource dependency can influence social resilience within a primary resource industry. *Rural Sociology*, 72(3), 359-390.
- Massachusetts Institute of Technology. (2011). Mission 2011: Saving the Oceans. Retrieved from <http://web.mit.edu/12.000/www/m2011/finalwebsite/problem/problem.shtml>
- Maxwell, J. (2013). *Qualitative Research Design: An Interactive Approach* (3rd ed.). Thousand Oaks, CA: Sage Publications
- Mayunga, J.S. (2007). Understanding and applying the concept of community disaster resilience: A capital-based approach. Draft working paper prepared for the Summer Academy for Social Vulnerability and Resilience Building, Munich, Germany.
- McCay, B. J. (1995). Social and ecological implications of ITQs: an overview. *Ocean & Coastal Management*, 28(1-3), 3-22.
- McCay, B.J. (2004). ITQs and community: An essay on environmental governance. *Agricultural and Resource Economics Review*, 33(2), 162-170.
- McLeod, K.L., & Leslie, H.M. (2009). Why Ecosystem-Based Management. In K.L. McLeod & H.M. Leslie (Eds.), *Ecosystem-Based Management for the Oceans*. Washington, D.C.: Island Press.
- Mecum, D. (2006). Welcome. In P. Cullenberg (Ed.), *Alaska's Fishing Communities: Harvesting the Future Conference Proceedings*. Fairbanks, AK: Alaska Sea Grant.
- Miles, M.B., & Huberman, A.M. (1994). *Qualitative data analysis: An expanded sourcebook*. Thousand Oaks, CA: Sage Publications.
- Miller, S.D. (2014). Indicators of Social Vulnerability in Fishing Communities along the West

- Coast Region of the U.S. (Unpublished master's thesis). Oregon State University, Corvallis, Oregon.
- NOAA Fisheries. (n.d.-a). Magnuson-Stevens Fishery Conservation and Management Act. Retrieved from http://www.nmfs.noaa.gov/sfa/laws_policies/msa/.
- NOAA Fisheries. (n.d.-b). Voices from the Fisheries: About the Project. Retrieved from http://www.st.nmfs.noaa.gov/voicesfromthefisheries/about_the_project.html
- NOAA Fisheries. (n.d.-c) Pacific Fishery Management Council. Who We Are and What We Do. Retrieved from <http://www.pcouncil.org>
- NOAA Fisheries. (n.d.-d). Regional Fishery Management Councils. Retrieved from <http://www.nmfs.noaa.gov/sfa/management/councils/>
- NOAA Fisheries. (2007). Local Fisheries Knowledge (LFK) Project. Retrieved from http://www.st.nmfs.noaa.gov/lfkproject/02_c.definitions.htm
- NOAA Fisheries Alaska Regional Office. (n.d.). Community Quota and License Programs and Community Quota Entities. Retrieved from <https://alaskafisheries.noaa.gov/fisheries/cqp>
- Norman, K., Sepez, J., Lazrus, H., Milne, N., Package, C., Russell, ... Vaccaro, I. (2007). Community profiles for West Coast and North Pacific fisheries – Washington, Oregon, California, and other U.S. States. U.S. Dept. Commer, NOAA Tech. Memo. NMFS-NWFST-85, 602 p.
- Norris, F.H., Stevens, S.P., Pfefferbaum, B., Wyche, K.F. & Pfefferbaum, R.L. (2008). Community resilience as a metaphor, theory, set of capacities, and strategy for disaster readiness. *American Journal of Community Psychology*, 41, 127-150.
- Olson, J. (2011). Understanding and contextualizing social impacts from the privatization

- of fisheries: An overview. *Ocean & Coastal Management*, 54, 353-363.
- Oregon Department of Fish and Wildlife. (2015). Oregon Marine Fisheries Management Plan Framework. Retrieved from http://www.dfw.state.or.us/MRP/publications/docs/MFMP%20Framework_01-09-15.pdf
- Oregon Military Department Office of Emergency Management. (n.d.). Cascadia Subduction Zone. Retrieved from <http://www.oregon.gov/oem/hazardsprep/Pages/Cascadia-Subduction-Zone.aspx>
- Oregon Museum of Science and Industry (OMSI). (2016, February 25). OMSI's New Marine Science Camp to Open March 12. Retrieved from <http://www.omsis.edu/press-releases/omsis-new-marine-science-camp-to-open-march-12>
- Oregon State University. (n.d.). Marine Studies Initiative. Retrieved from <http://marinestudies.oregonstate.edu>
- Pacific Fishery Management Council. (n.d.-a). Habitat and Communities: Fishing Communities. Retrieved from <http://www.pcouncil.org/habitat-and-communities/fishing-communities/>
- Pacific Fishery Management Council. (n.d.-b). Who We Are and What We Do. Retrieved from <http://www.pcouncil.org>
- Package, C. & Conway, F. (2010, February). Long Form Fishing Community Profile: Port Orford, Oregon. Corvallis, OR: Oregon State University/Oregon Sea Grant.
- Package, C. & Conway, F. (2010, April). Long Form Fishing Community Profile: Newport, Oregon. Corvallis, OR: Oregon State University/Oregon Sea Grant.
- Patton, M. Q. (2014). *Qualitative evaluation and research methods* (4th ed.). Thousand Oaks, CA: Sage Publications.
- Pinkerton, E. & Edwards, D.N. (2009). The elephant in the room: The hidden costs of

- leasing individual transferable fishing quotas. *Marine Policy*, 33, 707-713.
- Pomeroy, C., Hall-Arber, M. & Conway, F. (2015). Power and perspective: Fisheries and the ocean beset by demands of development. *Marine Policy*, 61, 339-346.
- Robson, C. (2011). *Real World Research: A Resource for Users of Social Research Methods in Applied Settings* (3rd ed.). Padstow, Great Britain: TJ International Ltd.
- Russell, S.M., Sparks, K., Arias-Arthur, A., Varney, A. (2014). The Pacific Groundfish Fishery Social Study: An Initial Theme Based Report.
- Sharma, C. (2006). Rural Communities in a Global Marketplace: Can Fisheries Be a Part of Community Sustainability? In P. Cullenberg (Ed.), *Alaska's Fishing Communities: Harvesting the Future Conference Proceedings*. Fairbanks, AK: Alaska Sea Grant.
- Sharp, S.B. & Lach, D. (2003). Integrating Social Values into Fisheries Management. *Fisheries*, 28(4), 10-15.
- Smith, S. (1995). Social implications of changes in fisheries regulations for commercial fishing families. *Fisheries*, 20(7), 24-36.
- The Research Group, LLC. (2016). Oregon Commercial Fishing Industry in 2015, Briefing Report. Prepared for Oregon Department of Fish and Wildlife. Retrieved from http://www.dfw.state.or.us/agency/economic_impact.asp
- The Research Group, LLC. (2014). Ten Year Update on Lincoln County, Oregon's Economy. Prepared for Lincoln County Board of Commissioners. Retrieved from <http://portoftoledo.org/wp-content/uploads/2014/06/Lincoln-Co-Ec-Analysis-main-report-Aug-15-2014-2.pdf>
- Tuler, S., Agyeman, J., Pinta da Silva, P., LoRusso, K.R. & Kay, R. (2008). Assessing

vulnerabilities: Integrating information about driving forces that affect risks and resilience in fishing communities. *Human Ecology Review*, 15(2), 171-184.

United States Census Bureau. (n.d.-a). QuickFacts: Newport city, Oregon. Retrieved from <http://www.census.gov/quickfacts/table/PST045215/4152450>

United States Census Bureau (n.d.-b). American FactFinder: Port Orford city, Oregon. Retrieved from http://factfinder.census.gov/faces/nav/jsf/pages/community_facts.xhtml?src=bkmk

Walker, B. & Salt, D. (2012). Resilience Thinking: Sustaining Ecosystems and People in a Changing World. Washington, D.C.: Island Press.

Appendices

Appendix A: Research Participants

Community	Name	Title	Affiliation	Interview Date
Newport	J. Protiva	President	Greater Newport Chamber of Commerce	5/20/16
	W. Chuck	Port Commissioner	Port of Newport	5/27/16
	S. Roumagoux	Mayor	City of Newport	5/27/16
	B. Hall	County Commissioner	Lincoln County	5/20/16
	S. Nebel	City Manager	City of Newport	5/27/16
	M. Saelens	City Councilor	City of Newport	8/1/16
	T. Thompson	County Commissioner, commercial fisherman	Lincoln County	8/1/16
Port Orford	G. Anderson	Port Commissioner, former Port Manager and commercial fisherman	Port of Port Orford	4/30/16
	P. Johns	Chair	Port-Orford Langlois School District	6/17/16
	J. Auburn	Mayor	City of Port Orford	7/7/16
	B. Webb	Port Commissioner, City Councilor, commercial fisherman	Port of Port Orford, City of Port Orford	9/11/16
	T. Calvanese	Station Manager, Port Commissioner	OSU Port Orford Field Station, Port of Port Orford	8/12/16
	T. Richards	City Administrator	City of Port Orford	8/10/16
	S. Courtier	Port Manager	Port of Port Orford	8/10/16
	R. Johnson	Rotarian	Rotary Club of Port Orford	8/11/16
	D. Bassett	Club President, Port Commissioner	Rotary Club of Port Orford, Port of Port Orford	7/7/16

Appendix B: NOAA Consent Form

TO BE COMPLETED BY THE PERSON BEING INTERVIEWED

I, _____, am a participant in the Voices from the West Coast Project (hereinafter “VFWC”) of the National Oceanic and Atmospheric Administration’s National Marine Fisheries Service, Northwest Fisheries Science Center (NOAA/NMFS/NWFSC), and inclusive of collaborators at the NMFS West Coast Regional Office (WRO), Oregon State University (OSU), Warrenton High Fisheries Inc. (WarHF), and the Newport Fishermen’s Wives (NFW). I understand that the purpose of the VFWC is to collect audio- and video- recorded oral histories of the United States of America and its territories’ commercial, recreational, and subsistence fishermen and women, and those who support them, other community members engaged and with knowledge of environmental issues in their communities such as climate change, wave energy and other issues, scientists, and environmental managers, as well as selected related documentary materials such as photographs for inclusion in the Voices from the Fisheries Database (hereinafter “VFF DB”). The VFF DB is housed on NOAA/NMFS servers and will be accessible to the public through a website. These oral histories and related materials serve as a record of the Nation’s commercial, recreational, and subsistence fisheries and as a scholarly and educational resource for NOAA and the general public.

I understand that NOAA/NMFS/NWFSC/WRO/OSU/WarHF/NFW plans to retain the product of my participation in the VFWC in digital form, including but not limited to my interview, presentation, video, photographs, statements, name, images or likeness, voice, and written materials (“My Collection”) as part of its permanent collections in the VFF Database.

I also understand that VFWC and its partners plan to retain the product of my participation for potential use in a public display(s) on website(s), community festival(s), possible museum(s), and for other outreach and educational materials.

I hereby grant to NOAA/NMFS/NMFS/WRO/OSU/WarHF/NFW of the physical property comprising My Collection. Additionally, I hereby grant to NOAA/NMFS/NWFSC/WRO/OSU/WarHF/NFW, at no cost, the perpetual, nonexclusive, transferable, worldwide right to use, reproduce, transmit, display, perform, prepare derivative works from, distribute, and authorize the redistribution of the materials in MY Collection in any medium. By giving this permission, I understand that I retain any copyright and related rights that I may hold.

I hereby release NOAA/NMFS/NWFSC/WRO/OSU/WarHF/NFW and their assignees and designees, from any and all claims and demands arising out of or in connection with the use of My Collection, including but not limited to any claims for copyright infringement, defamation, invasion of privacy; or right of publicity.

Should any part of My Collection be found to include materials that NOAA/NMFS/NWFSC/WRO/OSU/WarHF/NFW deems inappropriate for retention with the collection or for transfer to other collections, NOAA/NMFS/NWFSC/WRO/OSU/WarHF/NFW

may dispose of such materials in accordance with its procedures for disposition of materials not needed for NOAA's collections.

I hereby state that I am of legal age and competent to sign this release. I agree that this release shall be binding on me, my legal representatives, heirs, and assigns. I have read this release form and am fully aware of its contents.

ACCEPTED AND AGREED

Signature_____ Date_____

Printed Name_____

Name of Interviewer (if applicable)_____

Appendix C: IRB Verbal Consent Card

Conway&Cramer: Using Oral Histories to Track Change

Purpose. We want to understand the intergenerational fishing family business, the presence or absence of the “graying of the fishing industry,” and any impact on community resiliency. You’ve been identified as a research subject based on your participation in VFWC.

Activities. We want to listen to your oral history, as shared through answering six broad questions, and compare your experience with the literature on this topic.

Time. The length of the oral history is up to you; they generally last anywhere from 30-90 minutes.

Risks. There are no possible risks and/or discomforts associated with being in the study.

Benefits. There are no direct benefits for participation; the benefit is that you get to share your stories and life histories on the VFWC website for the public to view.

Payment. You will not be paid for participation.

Confidentiality. The VFWC oral history recordings and transcripts will be made public upon uploading to the Voices from the Fisheries website. Participants have the right to choose anonymity or remove their associated oral history data from the record at any time, but this rarely happens; most tend to take great pride in their stories and their participation. If a participant refuses to have their oral history interview placed on the website, their confidentiality will be maintained by de-identifying data gathered (although there is a small chance that we could disclose information that might identify the participant).

Voluntariness. Your participation and consent are voluntary. There is no penalty for choosing not to participate or for leaving the study at any time. You are free to remain silent on any topic. You may choose to take part in the VFWC oral history project and not this research project.

Contact information. Flaxen Conway is the leader (541-737-1339; fconway@coas.oregonstate.edu) and Deanna Caracciolo and Courtney Flathers are the student researchers (631-702-3553, caraccid@oregonstate.edu; 541-260-4323, flatherc@oregonstate.edu) on this project. The IRB at OSU oversees all research (541-737-8008).

Sponsor. This research is supported by NOAA and Oregon Sea Grant.

Conway&Cramer: Using Oral Histories to Track Change

Purpose. We want to understand the intergenerational fishing family business, the presence or absence of the “graying of the fishing industry,” and any impact on community resiliency. You’ve been identified as a research subject based on your participation in VFWC.

Activities. We want to listen to your oral history, as shared through answering six broad questions, and compare your experience with the literature on this topic.

Time. The length of the oral history is up to you; they generally last anywhere from 30-90 minutes.

Risks. There are no possible risks and/or discomforts associated with being in the study.

Benefits. There are no direct benefits for participation; the benefit is that you get to share your stories and life histories on the VFWC website for the public to view.

Payment. You will not be paid for participation.

Confidentiality. The VFWC oral history recordings and transcripts will be made public upon uploading to the Voices from the Fisheries website. Participants have the right to choose anonymity or remove their associated oral history data from the record at any time, but this rarely happens; most tend to take great pride in their stories and their participation. If a participant refuses to have their oral history interview placed on the website, their confidentiality will be maintained by de-identifying data gathered (although there is a small chance that we could disclose information that might identify the participant).

Voluntariness. Your participation and consent are voluntary. There is no penalty for choosing not to participate or for leaving the study at any time. You are free to remain silent on any topic. You may choose to take part in the VFWC oral history project and not this research project.

Contact information. Flaxen Conway is the leader (541-737-1339; fconway@coas.oregonstate.edu) and Deanna Caracciolo and Courtney Flathers are the student researchers (631-702-3553, caraccid@oregonstate.edu; 541-260-4323, flatherc@oregonstate.edu) on this project. The IRB at OSU oversees all research (541-737-8008).

Sponsor. This research is supported by NOAA and Oregon Sea Grant.

Appendix D: Interview Protocol

Questions for Non-fishing-related people (fisheries-related managers and/or community leaders)

1. Describe your community (Demographics, economic aspects of this place, technological aspects of this place, and environmental aspects of them place).
2. Can you tell me about the role of fishing in the economy of (PLACE)?
 - a. What about the role of fishing in the culture of (PLACE)?
3. Have you seen a lot of family-based fishing businesses in (PLACE)?
 - a. Have you noticed any changes in these businesses?
4. What are you seeing in terms of the age of fishermen in (PLACE)?
 - a. In your opinion, has this always been the case, or is the fleet “graying” or getting older? Examples?
 - b. In your experience, why do young adults want to get into fishing related businesses? If young people are not involved in this industry, why might this be the case?
 - c. If the fleet is getting older, do you have a sense of how that might impact the fishing community over time?
 - d. Do you have any thoughts about how this might ripple out to supporting industries over time?
5. From your perspective, how might the fact that the average age of fishermen seems to be getting older impact (PLACE) or other coastal towns?
 - a. What are some potential (social, cultural, economic, environmental) impacts of this graying?
6. Is there a “tipping point” for the impact of an aging fleet? In other words, what would happen in (PLACE) if most (or all) of the fishing family businesses were sold?
7. What are other options for careers for young adults in (PLACE)?
8. Is there anything else related to the graying of the fleet that you’d like to talk about that I haven’t mentioned yet?