Commercial fishing research often focuses on ecological (gear, stock assessment, traceability) or economic factors. Truly understanding the social-ecological system requires considering the entire “human dimension” and this includes the social, cultural, and legal/policy aspects as well. An understudied yet important factor is women’s contribution to fishing at the family and community level. There is a national and international understanding that if we are to understand and develop strategies for coastal resilience, we must take a holistic approach that includes an understanding of the intersection between the dynamics of fisheries management and women’s participation within fishing. This research directly addresses this intersection.

The objective of this study was to collect oral history data related to past/current strategies for addressing fishing family and community resilience over time. Literature has documented ways in which limited access and catch share programs affect fishing community resilience and sustainability, but have few data that look at how these management systems may be affecting women’s roles and participation within the
industry. This work takes a closer look at the role of women in adapting to this impact and other market- and management-driven changes on the Oregon coast.

A qualitative approach was used to identify and document the historical and current changes and related coping strategies occurring in Oregon’s coastal communities. Data were collected, transcribed and analyzed for the Voices from the West Coast Project (VFWC), a collaborative project with Oregon State University (OSU), NOAA’s Northwest Fisheries Science Center (NWFSC) and Newport Fishermen’s Wives (NFW).

The themes developed in this study were meant to be representative of what was important and true to the participants involved in the project. ‘Complexity’ and ‘resilience’ were two of the larger abstract themes created to illustrate the common concerns and actions of women in Oregon’s commercial fishing industry. ‘Connections’ and ‘marriage and family roles’ were more descriptive themes of how women identified themselves within the fishing industry and the types of social networks that evolved out of community connections. Overall, women mentioned changes in their individual roles managing the family business, especially as regulations became more complex and family dynamics changed over time. Individual adaptive strategies were especially common among fishing families that owned quota shares.

The results from this research add to the literature on women’s roles in the US and provide needed attention to their contribution to the well-being, resilience, and adaptive capacity of Oregon’s evolving fishing industry.
Oregon’s Fishing Community Adapting to Change in Policy, Management, and Markets: Documenting Women’s Roles and Adaptive Capacity in an Evolving Industry

by

Sarah M. Calhoun

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APPROVED:

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Dean of the Graduate School

I understand that my thesis will become part of the permanent collection of Oregon State University libraries. My signature below authorizes release of my thesis to any reader upon request.

________________________________________________________________________
Sarah M. Calhoun, Author
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It’s difficult to put into words the amount of gratitude I have for everyone who has supported me over the past two years. I came into the Marine Resource Management Program with some uncertainties as to where my graduate experience would take me. I was fortunate to be advised by Flaxen Conway who acknowledged my potential and helped me build on my past experiences to create a new path. She supported my creativity and pushed me to think critically about broader implications. Flaxen has been instrumental to my growth and success at Oregon State University, she has been an advisor, a mentor, and a friend, thank you. I’m equally grateful for the continued support and encouragement from my committee members Suzanne Russell and Bryan Tilt. Suzanne was instrumental in the success of this research by helping me to understand the bigger picture around fisheries management and providing a needed perspective to the overall project. Thank you Bryan, for providing insight throughout the coding process and offering sources to strengthen my work. More importantly, thank you for introducing me to the world of anthropology and helping me strengthen my writing and critical thinking skills through additional course work. I’d like to thank David Kling, my GCR, for continuing to provide sources and advice as I move forward with publishing. Thank you to the faculty at OSU who provided advice and knowledge along the way, through individual meetings and coursework. Thank you Oregon Sea Grant and NOAA for providing the financial support needed for this important work. I’m grateful for Lori Hartline’s stream of reminders and for always checking in to make sure I was happy and where I needed to be. Thank you to Robert Allan for reminding me to always consider my values. A huge thanks to Newport Fishermen’s Wives and all the other families that invited me into their homes and allowed me the privilege to listen to their stories. I’m forever grateful to my family and friends, near and far, old and new, who have supported me. no. matter. what. To my partner and best friend, Taylor: Thank you for joining me on this wild ride and never doubting me for a second. My success and achievements would not have been possible without each of you, thank you. Love, Sarah.
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FORMAT AND THESIS OUTLINE

This document follows the OSU manuscript document format and includes a general introduction, one stand-alone journal article, additional results & discussion, and a concluding chapter. The information provided here is intended for marine resource managers, fisheries social scientists, marine policy makers, and the local fishing communities whose stories provide the foundation for the following narrative.

Chapter one includes an introduction to fisheries social science, literature review of women’s roles in the fishing industry, methodology, and research justification. Chapter two is a stand-alone journal article to be submitted to the journal Marine Policy. This article is anticipated to be part of a special issue with the overall theme "how to better include communities in fisheries management." Chapter three provides an additional overview of the results and discussion, which includes pieces from chapter two, but also offers additional results to create a more thorough narrative. Chapter four is a concluding chapter that is meant to synthesize the findings from the overall project and reflect on the usefulness of this research for fisheries social scientists, managers, policy makers, and the fishing communities.
CHAPTER ONE: INTRODUCTION, CONTEXT, & METHODS

“Understanding how people operate in the fishery system helps to understand how the system works. To properly plan and set management objectives, a thorough understanding is needed of coastal resources, institutional arrangements and social, cultural, and economic values of fishing and the overall environment in which fishers operate” (Salas, 2004 pp. 155).

The Magnuson-Stevens Fishery Conservation Management Act (MSA) is the primary law for governing marine fisheries management in the United States. It has been reauthorized and amended various times since its first enactment in 1976 to regulate overfished stocks and accommodate changes in regulatory structure. The MSA requires any proposed fishery management plan to follow ten national standards for fishery conservation and management. For the purpose of this study, focus will remain on National Standard 8:

“Conservation and management measures shall, consistent with the conservation requirements of this Act (including the prevention of overfishing and rebuilding of overfished stocks), take into account the importance of fishery resources to fishing communities in order to (A) provide for the sustained participation of such communities, and (B) to the extent practicable, minimize adverse economic impacts on such communities.”

National Standard 8 was implemented in 1996 when the MSA was reauthorized (16 U.S.C. §1851(2)(8)) to include human dimensions within fisheries management plans. Currently, the MSA requires a fishery impact statement (FIS) for all management actions to document potential and realized ecological, social, and economic impacts to

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fishing communities. FIS’s are often achieved through the Environmental Impact Statement (EIS) process as required under the National Environmental Policy Act of 1969 (NEPA; 42 U.S.C. § 4321). This legal framework requires resource managers to go beyond addressing ecological impacts independent of its human components to include a social impact assessment (SIA) “to assess or estimate, in advance, the social consequences that are likely to follow from specific policy actions.” SIA’s look at how communities are or could be affected by changes in management by predicting changes in well-being of the individual, family, or community (Colburn & Clay, 2012; Pollnac et al., 2006). SIA’s have been conducted using a variety of mixed methods including both quantitative and qualitative approaches. A remaining challenge is how to communicate wide-ranging qualitative findings to managers and policymakers in a way that allows and encourages them to use the data. This does not minimize the validity of qualitative human dimensions analysis, but rather opens up the conversation of what could be included in SIA’s to identify measures of vulnerability and resilience and how it can be interpreted for policy needs.

The current natural resource management framework has attempted to move away from the sector-based approach of the past to that of ecosystem-based management (EBM). The primary goals of EBM emphasize a wide range of social and ecological linkages that focus on the long-term health of coasts and oceans, while ensuring human well-being through sustainable use of ecosystem services (McLeod and Leslie 2009). Through the use of both qualitative and quantitative methods, social scientists can add to

---

the EBM framework by describing changes in fishing communities that address vulnerability, well-being, and resilience at the individual, family, and community level (Clay and Olson 2008).

Significant attention has been provided by fisheries social scientists in defining vulnerability and resilience (e.g., Berkes & Ross, 2013; Clay & Olson, 2008; Coulthard, 2012; Folke, 2006; Gallopín, 2006; Johnson et al., 2014; Marshall et al., 2007; Mederer, 1999; Smit & Wandel, 2006; Tuler et al., 2008), including a special section in Human Ecology Review on Vulnerability and Resilience in Fisheries (Pinto de Silva and Hall-Arber 2008). Tuler et al. (2008, pp. 172) define vulnerability as “a function of the stresses people experience and their ability to cope with them… with specific attention given to differences among groups and regions.” Although simply defined here, those ‘stresses’ are constructed via institutions, gender, ethnicity and class, and labor relations (Clay and Olson 2008), which vary by individuals and communities and require place-based research (Turner et al., 2003).

The definition of resilience (i.e., ability to endure and/or adapt to changing conditions (Johnson et al. 2014)) is equally complex and requires context to differentiate between social and ecological resilience (Folke 2006). Resilience is broadly defined as the ability of a system to recover from a perturbation on the system, i.e., the capacity to recover from difficulties. Resilience science represents a large piece of EBM that illustrates the need for adaptive management and an evolving framework that couples ecological (Holling, 1973) and sociological systems (McLeod and Leslie 2009). Social, economic, and ecological definitions of resilience exist in various contexts, but the focus here will remain on social resilience, defined by Adger (2000, pp. 347) as “the ability of
groups or communities to cope with external stresses and disturbances as a result of social, political, and environmental change.”

The concept of well-being is often defined by fisheries social scientists as an indicator of job satisfaction and integral to the fisheries SIA model (Figure 1.1). Blount et al. (2015) conceptualized well-being as a function of resilience and vulnerability levels (i.e., communities with low resilience and high vulnerability have lower well-being).

Figure 1.1 Simplified fishery SIA model with selected indicators.
Although regulatory bodies now include this suite of human dimensions in their management plans, there are still challenges to integrating social science (Sievanen et al. 2012) into the decision-making process. Regardless of the challenges, further emphasis can and should be placed on social interactions within the marine environment and coastal communities to better understand these types of human-environment linkages.

One method of expanding the knowledge and applicability of human dimensions of fisheries is through the use of oral histories and semi-structured interviews (Abbott-Jamieson & Clay, 2010; Colburn & Clay, 2012). Oral history methods are a way to collect data that can be used to document many things, including changes over time. They can be used to provide in-depth information for social impact assessments to estimate social and cultural impacts to help guide management and policy (Colburn and Clay 2012). Through the use of oral histories we can gain a better understanding of well-being at the individual, family, and community level as a result of changing regulations (Abbott-Jamieson 2007). This type of social analysis goes beyond job satisfaction measures and economic valuation of ecosystem services and is a way to evaluate the behaviors and potential behavior changes of communities over time based on the ecosystems they rely on.

**The Role of Social Science in Fisheries Management**

The ability of a system to adapt to change and respond to disturbances can reduce vulnerability and allow for more dynamic management approaches. Understanding how communities adapt to change and what tools may lead to resilience can help resource-managers minimize impacts to resource users while still obtaining the maximum sustainable yield of the resource (Marshall et al. 2007).
Due to the large shift from top-down fisheries management, which was previously based on quantitative stock assessments (Clay and Olson 2008), to that of including socioeconomic assessments, there has been a continued struggle to fit social science into fisheries management decisions. Harper et al. (2013) point out that these data are not often incorporated into policy and decision-making due to the complexity of qualitative data and the inability of fisheries managers to generalize and use these qualitative findings. Sievanen et al. (2012) discuss an underlying problem of using social science as an additional piece to a predefined goal in the research plan. Other challenges of interdisciplinary research are those of conceptual nature and the inability of scientists to communicate across disciplines. Unlike natural science research that addresses ecological impacts, social impact studies require additional analyses to verify results. This adds to the struggle of incorporating social science data into management frameworks by adding time and effort towards costly data collection and analysis. In order to successfully integrate these disciplines into a larger framework, scientists must accept the challenge of building adaptive frameworks that address coupled social-ecological systems and support a greater investment in social science research (Lester et al. 2010; Sepez et al. 2006).

The relevance of social science integration into the decision making process for fisheries management is not unknown, but rather a change in the management framework for successful integration is needed (Sharp and Lach 2003). This type of restructuring can evolve out of an EBM framework when developed for a particular case. As Olson (2011 pp. 354) describes in another study around social impacts of privatization, it’s important to recognize “the role of context and social relations through which privatization is constituted.”
A way to help managers and decision makers accept and use social science data provided to them is to employ a multi-method approach when gathering data and then provide contextual information around which the data was retrieved. In other words, multiple studies and forms of qualitative data can be combined to triangulate results and paint a truer picture of reality. By supporting quantitative analysis with qualitative findings, such as oral history data, fisheries managers can ensure a more comprehensive understanding of socioeconomic effects prior to implementing new policies.

“Recognizing diversity in families is critical for policymakers and program managers so they can design policies that have minimal impact on most fishing families and buffer the impacts of policies on fishers and families who are most vulnerable” (Zvonkovic et al. 2000, pp. 84).

**Sociocultural Impacts of Catch Share Programs**

To deal with the issue of overexploitation of ocean resources and the increase in industrialized fishing practices, global fisheries management has transitioned to the neoliberal model of economic efficiency and privatization (Pomeroy et al., 2014). The most common form of rationalizing fishing rights is that of individual quotas or ‘catch shares’, created by dividing a federal stock assessment measure or ‘total allowable catch’ (TAC) of a specific species into smaller allocations, which are distributed to participants in the fishery (Pomeroy et al., 2014). How the catch shares are distributed varies by fishery and is determined by the fisheries management councils, but result in various ecological and social impacts (McCay 1995).

Catch share programs are put into action to increase economic profitability and efficiency, and they have indeed generated wealth for the recipients of fishing rights (Olson 2011). They have also, however, led to consolidation of fishing fleets, shifting
social dynamics, and substantial barriers to entry (Carothers 2013; Carothers et al., 2008; Olson 2011; Russell et al., 2014). Literature continues to document the ways in which limited access and catch share programs affect fishing community resilience and sustainability (e.g., Carothers 2013; Olson 2011; McCay 1995; McCay 2008; Zhao et al. 2013), but have few data that look at how these quota systems may be affecting women’s roles and participation within the industry. There are even fewer data documenting impacts to community resilience in the Pacific Northwest.

A recent example of this type of regulatory change was the implementation of the West Coast Groundfish Trawl Catch Share Program in 2011 (called ‘trawl rationalization’ throughout the rest of this document). Current research is being conducted by NOAA Fisheries to evaluate social impacts from rationalization of the groundfish fishery (Russell et al., 2014).

This study was not meant to be an exhaustive review of the effects of catch share programs. Rather, the trawl rationalization program was used to as an example of change in Oregon’s fishing industry. Furthermore, recent research has identified broad impacts of catch share programs on fishing towns and suggests additional emphasis on social and economic implications for fishing families (Zhao et al. 2013). This research builds on this emphasis by taking a closer look at the role of women in adapting to this impact on the Oregon coast.

Some impacts to women’s roles from catch share programs have been identified in other geographic regions during various time periods. From a study done on the US halibut fishing community, Carothers (2013) showed trends of women taking on ownership roles in the fishery by purchasing quota. Not only are women taking on greater
occupational roles, family dynamics may also be shifting with the increased presence of
the fishermen in the home (Mederer & Barker 2000). Zhao et al. (2013 pp.73) also
mention a “renegotiation of roles between men and women” due to impacts of a quota
system in Northern England, which caused women to take on additional jobs to provide
for the household. Another trend documented by Zhao et al. (2013) supports previous
research (Conway et al. 2002) that fishermen’s wives are becoming more politically
involved as regulations increase in complexity. As a result, some places have had an
increase in social network involvement to represent their husbands on an individual level
and their communities at the group level.

Ultimately, there is a need for a larger dialogue about fisheries management and
women’s involvements in Oregon, regional, or national commercial fisheries over time to
fill in the current informational gaps about how women’s roles have evolved with the
implementation of quota allocations and individual transferable quotas (ITQ’s) and other
market- and management-driven changes. Zvonkovic et al. (2000 pp. 91) stated “women
are deserving of an official voice and place at the table when decisions are being made
that affect their lives and their communities.” This research is an important piece of the
human dimensions dialogue that can be used to support other socioeconomic studies. It
contributes to fisheries social science through an innovative approach that strengthens the
“voice of women” in a subset of Oregon’s coastal fishing communities.

The Role of Women and the Value of this Research

If we are to understand and develop strategies for coastal resilience on a local,
regional, national and international level, we must take a holistic approach that includes
an understanding of the intersection between the dynamics of fisheries management and
women’s participation within the fishing family business. Most of the recent literature on women’s roles in fishing focuses on their contribution to food security in small-scale fisheries and is beyond the scope of this research project. However, the value of women’s participation as fishermen, wives, and support crew in industrialized economies is equally diverse and deserving of attention.

The vast majority of the research on women’s roles in the industrialized maritime industries was conducted from mid-1980 to late-1990 (e.g., Allison, C., Jacobs, S., & Porter, M, 1989; De Santis, M, 1984; Fields, L, 1997; Kaplan, I., 1988; Skaptadóttir, U., 1996; Skaptadóttir, U., 2000; Hall-Arber, M., 1996; Davis, D., 1986; Davis, D. L., & Nadel-Klein, J., 1988; Davis, D. L., & Nadel-Klein, J., 1992; Gilden, 1999; Manoogian-O’Dell, McGraw, & Zvonkovic, 1998). The majority of the literature on this topic has come from fishing communities in Newfoundland and Nova Scotia (e.g., Davis & Nadel-Klein, 1992; Kaplan & McCay, 2004; Skaptadóttir, 2000) and remains outdated. More recent studies have come from regions such as Northern Europe (Britton, 2012; Coulthard, 2012; Zhao et al., 2013) and can be used as guiding frameworks for recognizing the role of women in US fisheries.

Much of the this literature focuses on women in the processing sector, becoming participants in the extractive sector, and taking on more occupational roles within the industry. Other common themes, more commonly referenced in older studies, focused on caring for the maritime household, the family, and handling the financial aspects of the fishing business. There was also considerable mention of an increase in women’s advocacy roles, as a result of regulatory changes, and potential for moving further into the political sphere.
Mederer and Barker (2000) demonstrate the three domains of human existence that are ultimately affected by fisheries regulation: occupational identity, family and community. Understanding the effects of regulations on fishing communities goes beyond the people at sea and includes the shore-side business and/or evolution of the fishing family. For example, some fishermen may need to adapt their fishing techniques due to changes in fish stocks and a need to re-direct their efforts to another fishery (Clay and Olson 2008). This shift, in turn, can lead to changes in the management and bookkeeping required of the family business, often conducted by fishermen’s wives.

**Defining the Case: Women’s Roles in Oregon’s Commercial Fishing Industry**

Women’s role in fishing is a topic well documented in the past with increasing efforts focused on small-scale fisheries in developing nations, Canadian fisheries, and Northern Europe. However, the relevance of these roles in the United States and their potential adaptive capacity over time is not well documented. The aim of this research was to discover whether or not women’s roles in Oregon’s fishing communities were changing over time, specifically over 20 years, and if they were, how so and at what level. By asking broad questions (Appendix D) using oral history methodology (Charlton et al., 2007; Hunt, 2003), current and past roles were documented while addressing how women identified themselves within the fishing community.

The results from this research will add to the literature of women’s roles in the US and provide needed attention to their contribution to the well-being, resilience, and adaptive capacity of Oregon’s evolving commercial fishing industry. Three broad research questions were used to help better understand these roles in the past and how they may be changing over time:
1. Have women's roles changed in the commercial fishing industry over the last 20 years? If so, how?
2. Have women's roles in the fishing family/business changed over the last 20 years? If so, how?
3. What changes have women seen and/or been a part of with regards to fisheries, markets, or fisheries management?

A timeframe of twenty years was selected due to the vast amount of literature on women’s roles published in the 80’s, 90’s and early 2000’s. In order to help address this particular timeframe women were interviewed in Oregon, particularly Newport, that had been participants in previous research conducted by Oregon State University and Oregon Sea Grant in the mid 1990s, some of which resulted in a short documentary “Family, Business, and Community: The Lives of Fishermen’s Wives.” Other interviews were collected from a larger geographic range of the Oregon coast (Table 1.1) from various parts of the fishing industry (i.e., processors, crew, vessel owners, fishermen’s wives, coastal commissioners, and those born into fishing families). This broad range of participants and places allowed the researcher to address diversity of individuals and communities at various levels.

Using the open-ended research questions, a grounded theory approach was used to generate hypotheses based on the information provided by the research participants (Auerbach and Silverstein, 2003). Rather than using a deductive approach through hypothesis-testing, the researcher chose to use an inductive method of building theory up from the data itself (Birks and Mills, 2011). Grounded theory was coined by Glaser and Strauss in 1967 (pp. 2) as a way to “generate theory that will be relevant to scientists’ research.” This method uses the participants as a source of knowledge. Auerbach and

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Silverstein (2003 pp. 15) describe the use of grounded theory as a way to “look for issues that are open and unclear… research issues are found by looking for perspectives that are left out, and assumptions that need to be challenged.” Oral history interview methodology was used to construct interviews that allowed participants to talk through their history with the topic of women’s roles in Oregon’s commercial fishing industry interwoven within the interview.

**NOAA Voices from the Fisheries**

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) project (Abbott-Jamieson & Clay, 2010). The project was initially created to engage high school students with their coastal fishing communities and increase ocean literacy. High school students were trained in oral history collection and transcription to add stories from their own coastal communities to NOAA’s oral history database. The success of the project led to future engagements along the East and Gulf Coasts and included efforts to document understudied populations such as women and minority groups in the Northeast (Abbott-Jamieson & Clay, 2010). The Voices from the Fisheries Database now serves as a repository for storing oral history interviews that can be accessed and used by the public and researchers.

“Separately, each history provides an in depth view into the professional and personal lives of individual participants. Together, they have the power to illuminate common themes, issues and concerns across diverse fishing communities over time. The Voices from the Fisheries Database is a powerful resource available to the public to inform, educate, and provide
primary information for researchers interested in our local, human experience with the surrounding marine environment” (NOAA Fisheries).4

However, there was a large gap within the Voices from the Fisheries Database. Very few oral histories were from the West Coast. ‘Voices from the West Coast’ was created to add to the Voices from the Fisheries Database by contributing oral histories from Washington, Oregon, and California.

Voices from the West Coast

Voices from the West Coast (VFWC) is a collaborative project with the National Oceanic and Atmospheric Administration’s Northwest Fisheries Science Center (NOAA-NWFSC), Oregon State University (OSU), Newport Fishermen’s Wives (NFW), and Warrenton High Fisheries Inc. (WarHF). Beginning in 2013, project partners worked together to develop potential types of people to interview (e.g., fishermen, fishermen’s wives, processors, United States Coast Guard, fish mongers, etc.), questions to guide interviews, and timelines for project goals.

Various efforts were made to coordinate and train WarHF with little success and/or involvement from high school students and so collaborative efforts between WarHF and OSU have been discontinued. However, collaboration with NFW has led to stronger connections in the Newport community and continued collaborative efforts with OSU and NOAA. NFW continues to encourage women in the Newport community to help collect interviews, transcribe completed work, and add to the collective effort. In addition to adding to the West Coast historical database, NFW is working towards

placing these stories (and photographs) in community displays (e.g., at the local Maritime Museum) and spreading the word at local events (e.g., at the local Fishermen’s Ball, seafood festivals, etc.).

This research contributes to the larger VFWC oral history project by adding a subset of interview questions specifically related to women’s roles in Oregon’s fishing communities. This study, therefore, is an example of how various thematic components that emerge from a broad history provided by Voices from the Fisheries can be used to address specific issues and reveal common themes within a community of interest.

**Research Methods**

Data was collected using a blend of oral history and semi-structured interview methodology. The primary goal of collecting oral histories is to let the participant tell their story fully and completely without any probing from the interviewer. However, to address specific thematic areas, a series of semi-structured questions were used to collect data directly related to the research questions around women’s roles in the fishery. To communicate this combination of methodologies, it is referred to as ‘oral history interviews’ throughout this document.

In total, 26 oral history interviews were conducted in five communities on the Oregon Coast: Newport, OR; Port Orford, OR; Garibaldi, OR; Astoria, OR; and Warrenton, OR. One additional interview was conducted in Morro Bay, California (Table 1.1 and Figure 1.2).

**Table 1.1** Communities and number of participants interviewed

<table>
<thead>
<tr>
<th>Community</th>
<th># Of Participants</th>
</tr>
</thead>
<tbody>
<tr>
<td>Astoria, OR</td>
<td>1 fisherman (female)</td>
</tr>
<tr>
<td></td>
<td>1 fisherman (male)</td>
</tr>
<tr>
<td>Location</td>
<td>Interviews</td>
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<tr>
<td>---------------</td>
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</tr>
<tr>
<td>Garibaldi, OR</td>
<td>1 fisherman’s wife, 1 processor’s wife</td>
</tr>
<tr>
<td>Morro Bay, CA</td>
<td>1 fisherman's wife</td>
</tr>
<tr>
<td>Newport, OR</td>
<td>7 fishermen's wives, 2 fishing family members/industry involvement, 1 fisherman (male skipper), 1 fisherman (male vessel owner), 1 fisherman (male deckhand)</td>
</tr>
<tr>
<td>Port Orford, OR</td>
<td>5 fishermen (male), 1 fisherman (female), 1 fisherman's wife</td>
</tr>
<tr>
<td>Warrenton, OR</td>
<td>1 processor (male)</td>
</tr>
</tbody>
</table>

**Figure 1.2** Map of Oregon coast with marked study sites
Participant recruitment and data gathering

Participants were selected initially from a convenience sample (Miles et al., 2014) of the Newport fishing community; the close proximity of Newport from Corvallis made it geographically accessible and contacts were made with the help of NFW. In addition to the original convenience sample, purposive sampling was also used to contact the four fishermen’s wives that were involved in an Oregon Sea Grant (OSG) video produced in mid-1990, “Family, Business, and Community: The Lives of Fishermen’s Wives.” Three of the four wives were interviewed for this study, which allowed for comparison of these women’s roles 20 years ago. This portion of data collection allowed for a more in-depth focus on the unique characteristics of Newport fishermen’s wives and their social networks. Miles et al. (2014 pp.32) describe these types of qualitative sampling strategies as “strategic and purposive because we are focusing on a case’s unique contexts.” In this case, convenience and purposive sampling techniques were used to focus on the Newport fishing community.

Additional interviews were conducted outside of the Newport area. During a community fishing festival in Astoria, OR, the FisherPoets Gathering, contacts were made and interested individuals were followed up with to conduct individual interviews. A similar approach was also used in Port Orford, OR, which led to a snowball sampling (Miles et al. 2014) of seven individuals from a local fishing association. Auerbach and Silverstein (2003 pp.18) define snowball sampling as “starting with a convenience sample of a few research participants and asking them to select others.” One interview

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was conducted in Morro Bay, California with a fisherman’s wife whose fishing family left Oregon due to unintended consequences of the trawl rationalization.

Interviews were collected and transcribed for the VFWC project. All transcriptions were completed verbatim by the principal researcher to ensure consistency and allow for open-coding analysis (McLellan, MacQueen, & Neidig, 2003). Interview questions (Appendix C) were initially developed with NFW and OSU to be used as a template to help guide the oral history (Charlton 2007). A second set of semi-structured interview questions (Appendix D) was developed to answer specific research questions in addition to the oral history. Each interview started with the question: ‘How did you get started in the fishing business?’ Not all questions were answered in each interview. Due to the nature of the oral history structure, the tone and content of the interview was very organic and could take any direction the participant chose to go. The Oral History Association defines oral histories as distinguished from other forms of interviews by content and context:

“Oral history interviews seek an in-depth account of personal experience and reflections, with sufficient time allowed for the narrators to give their story the fullness they desire. The content of oral history interviews is grounded in reflections on the past as opposed to commentary on purely contemporary events.”

Interviews ranged from 30 minutes to 2.5 hours in length and were audio-recorded for transcription and sharing purposes for VFWC.

Feedback was solicited from participants as a form of “member checking” (Miles et al. 2014) to verify accuracy of interviews. Transcripts were sent to all participants that

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signed the consent form for their interview to be uploaded to the Voices from the Fisheries database. Transcripts were edited for accuracy; however, no content was removed or changed during this process.

The final piece of data collection was a group interview with six women involved in NFW. The group interview was used to ground-truth findings from the individual interviews, and to capture additional data. Participants included three fishermen’s wives from the original OSG video, now viewed as the “older” generation, as well as three wives from the community’s “younger” generation. The three main research questions were presented to the group after viewing the OSG video to start the conversation around what has or hasn’t changed over the last 20 years.

Data Analysis

Qualitative data analysis was conducted through the help of a computer assisted coding program, MAXQDA. Using Auerbach and Silversteins’s (2003) method of grounded-theory coding, an inductive approach was used to generate repeating ideas, themes, and eventually the theoretical narrative. Initial groupings of relevant text were created according to original indicators of analysis (i.e., management, markets, economics, family dynamics, ocean conditions). The second round of groupings was a result of refining the preliminary codes according to grounded theory discovery (Miles et al. 2014).

Although various researchers claim there is no “one right way” to interpret the data, there is still a need to ensure the reliability and validity of the data (Auerbach and Silverstein 2003; Ryan and Bernard 2003; Miles et al. 2014). An intercoder reliability check was used to verify the repeating ideas and generation of themes. Two other social
scientists coded three of the transcripts independently and created a codebook, which was then compared to the original analysis. There was notable overlap between the three codebooks, indicating confidence that the themes were valid (Ryan & Bernard, 2003).

*Ethical Issues in Data Gathering and Analysis*

Standard verification protocol was used to ensure acceptance by the Institutional Review Board (IRB) due to the participation and interaction of human subjects within this research project. Ethical training was completed prior to data collection in order to be familiar with consent and confidentiality as well as tracking data collection and storage of materials. No vulnerable populations were interviewed for this study. Consent was obtained from all interview participants with a consent form developed with the IRB and NOAA affiliates (Appendices A & B). Subject and researcher signatures were obtained for all oral histories collected and published to the VFWC website. The VWCF oral history recordings and transcripts will be made public upon uploading to the Voices of the Fisheries website. Participants have the right to choose anonymity or remove their associated oral history data from the record at any time.
Literature Cited


CHAPTER TWO: JOURNAL ARTICLE [Marine Policy]

Acknowledging the Voice of Women: Implications for Fisheries Management and Policy

ABSTRACT
Commercial fishing research often focuses on ecological (gear, stock-assessment, traceability) or economic factors or indicators. Truly understanding the social-ecological system requires considering the social, cultural, historical, and policy aspects as well. Although regulatory bodies now include human dimensions in their management plans, there are still challenges to integrating social science into the decision-making process. There is a national and international understanding that if we are to understand and develop strategies for coastal resilience, we must take a holistic approach that includes an understanding of the intersection between the dynamics of fisheries management and women’s participation within fishing. The objective of this study was to collect oral history data related to past and current strategies for addressing fishing family and community resilience over time. Literature has documented ways in which limited access and catch share programs affect fishing community resilience and sustainability, but have few data that look at how these management systems may be affecting women’s roles and participation within the industry. Research results contribute to the literature on women’s roles in the US and provide needed attention to their contribution to the well-being, resilience, and adaptive capacity of Oregon’s evolving fishing industry.

Keywords: Women, Fishermen’s wives, Resilience, Social networks, Fisheries regulations, and Local knowledge
1. Introduction

Currently, the Magnuson-Stevens Fishery Conservation Management Act (MSA) (16 U.S.C. §1851(2)(8)) requires a fishery impact statement (FIS) for all management actions to document potential and realized ecological, social, and economic impacts to fishing communities. This legal framework requires managers to go beyond addressing ecological impacts independent of its human components to include human dimension analysis, or social impact assessments (SIA)\(^8\). SIA’s look at how communities are or could be affected by changes in management by predicting changes in well-being of the individual, family, or community (Pollnac et al., 2006). SIA’s have been conducted using a variety of mixed methods including both quantitative and qualitative approaches. A remaining challenge is how to communicate wide-ranging qualitative findings to managers and policymakers. This does not minimize the validity of human dimensions analysis, but rather opens up the conversation of what could be included in SIA’s to identify measures of vulnerability and resilience and how it can be interpreted for policy needs.

One method of expanding the knowledge and applicability of human dimensions in fisheries is through the use of oral histories and semi-structured interviews (Abbott-Jamieson & Clay, 2010; Colburn & Clay, 2012). Oral history methods are a way to collect data that can be used to document many things, including changes over time. They can be used to provide contextual information for quantitative results derived from community impact assessment surveys to help guide management and policy.

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Clay, 2012). Semi-structured interviews differ slightly by providing a set of questions with the goal of discussing specific topics. Conversations still vary by participant during semi-structured interviews as not all questions need to be answered and may be brought up at different times during the interview (Wengraf, 2001). Through the use of oral histories and semi-structured interviews we can gain a better understanding of well-being at the individual, family, and community level as a result of changing regulations (Abbott-Jamieson & Clay, 2010).

The concept of well-being is often defined by fisheries social scientists as an indicator of job satisfaction and integral to the fisheries SIA model (Pollnac et al., 2006). Blount et al. (2015) conceptualized well-being as a function of resilience and vulnerability levels (i.e., communities with low resilience and high vulnerability have lower well-being). Social resilience, defined by Adger (2000, pp. 347) is “the ability of groups or communities to cope with external stresses and disturbances as a result of social, political, and environmental change.” Understanding how communities adapt to change and what tools may lead to resilience can help resource-managers minimize impacts to resource users when implementing policies.

An understudied yet important factor is women’s contribution to fishing at the family and community level. There is a national (Coulthard, 2012; Dyer & Poggie, 2000; Hall-Arber, 1996; Mederer, 1999) and international (Britton, 2012; Harper et al., 2013; Kilpatrick et al., 2015; Matsue et al., 2014; Zhao et al., 2013) understanding that if we are to understand and develop strategies for coastal resilience, we must take a holistic approach that includes an understanding of the intersection between the dynamics of fisheries management and women’s participation within fishing industry. This research
directly addresses this intersection by helping fill gaps within the literature around women’s participation in US West Coast fisheries, specifically Oregon. The objective was to collect oral history data related to past/current strategies for addressing fishing family and community resilience over time.

1.1. Sociocultural impacts of catch share programs

To deal with the issue of overexploitation of ocean resources and the increase in industrialized fishing practices, global fisheries management has transitioned to the neoliberal model of economic efficiency and privatization (Olson, 2011; Pomeroy et al., 2014). The most common form of rationalizing fishing rights is that of individual quotas or ‘catch shares’, created by dividing a federal stock assessment measure or ‘total allowable catch’ (TAC) of a specific species into smaller allocations, which are distributed to participants in the fishery (Pomeroy et al., 2014). How the catch shares are distributed varies by fishery and is determined by the regional Fisheries Management Council, but results in various ecological and social impacts (B. J. McCay, 1995).

Catch share programs are put into action to increase economic profitability and efficiency, and they have indeed generated wealth for the recipients of fishing rights (Olson, 2011). They have also, however, led to consolidation of fishing fleets, shifting social relationships, and substantial barriers to entry (Carothers et al., 2008; Olson, 2011; Russell et al., 2014). Literature continues to document the ways in which limited access and catch share programs affect fishing community resilience and sustainability (Carothers et al., 2008.; B. J. McCay, 1995; B. McCay, 2003; Olson, 2011; Zhao et al., 2013). Few have looked at how these quota systems may be affecting women’s roles and participation within the industry; even fewer document impacts in the Pacific Northwest.
A recent example of this type of regulatory change was the implementation of the West Coast Groundfish Trawl Catch Share Program in 2011. Current research is being conducted by NOAA Fisheries to evaluate social impacts from rationalization of the groundfish fishery (Russell et al., 2014). This work takes a closer look at the role of women in adapting to this impact and other market- and management-driven changes on the Oregon coast.

1.2. Women’s roles in an evolving industry: A review

Most of the recent literature on women’s roles in the fishing focuses on their contribution to food security in small-scale fisheries. However, the value of women’s participation as fishermen, wives, and support crew in industrialized economies is equally diverse and deserving of attention. A vast majority of the literature on women’s roles in the industrialized maritime industries occurs from mid-1980 to late-1990 (Allison & Jacobs, 1989; D. L. Davis & Nadel-Klein, 1988, 1992; D. Davis, 1986; Fields, 1997; Gilden, 1999; Hall-Arber, 1996; I. Kaplan, 1988; Manoogian-O’Dell, McGraw, & Zvonkovic, 1998; Santis, 1984; Skaptadóttir, 1996, 2000). Furthermore, most of the literature on this topic has come from fishing communities in Newfoundland and Nova Scotia, e.g., (D. L. Davis & Nadel-Klein, 1992; I. M. Kaplan & McCay, 2004; B. McCay, 2003; Skaptadóttir, 2000) and remains outdated. Common themes focused on caring for the maritime household, the family, and handling the financial aspects of the fishing business. There was also mention of an increase in women’s advocacy roles, as a result of regulatory changes, and potential for moving further into the political sphere.

More recent studies have come from regions such as Northern Europe (Britton, 2012; Coulthard, 2012; Zhao et al., 2013) and can be used as guiding frameworks for
recognizing the role of women in US fisheries. However, much of the this literature focuses on women in the processing sector, becoming participants in the extractive sector, and taking on more occupational roles within the industry.

Recent research has identified broad impacts of catch share programs on fishing towns and suggests additional emphasis on social and economic implications for fishing families (Zhao et al., 2013). Some impacts to women’s roles from catch share programs have been identified in other geographic regions during various time periods. From a study done on the US halibut fishing community, Carothers (2013) showed trends of women taking on ownership roles in the fishery by purchasing quota. Not only are women taking on greater occupational roles, family dynamics may also be shifting with the increased presence of the fishermen in the home (Mederer, 1999). Zhao et al. (2013) also mention a “renegotiation of roles between men and women” due to impacts of a quota system in Northern England, which caused women to take on additional jobs to provide for the household. Another trend documented by Zhao et al. (2013) supports previous research from the Pacific Northwest (Conway, Gilden, & Zvonkovic, 2002) that fishermen’s wives are becoming more politically involved as regulations increase in complexity.

Ultimately, there is a need for a larger dialogue about fisheries management and women’s involvements in state, regional, or national commercial fisheries over time. This will help to fill in the current gaps about how women’s roles have evolved with the implementation of quota allocations and individual transferable quotas (ITQ’s) and other market- and management-driven changes. This research provides an important piece of the human dimensions dialogue that can be used to support other socioeconomic studies.
Oral history data contribute to fisheries social science through an innovative approach that strengthens the “voice of women” in a subset of Oregon’s coastal fishing communities.

1.3. Voices from the West Coast

Voices from the West Coast (VFWC) was created in 2013 to add to NOAA’s ‘Voices from the Fisheries’ existing oral history database by contributing stories from Washington, Oregon, and California. VFWC is a collaborative project with the National Oceanic and Atmospheric Administration’s Northwest Fisheries Science Center (NOAA/NWFSC), Oregon State University (OSU), and Newport Fishermen’s Wives (NFW).

This research contributes to the larger VFWC project by adding a subset of interview questions specifically related to women’s roles in Oregon’s fishing communities. This study, therefore, is an example of how various thematic components that emerge from a broad history provided by Voices from the Fisheries can be used to address specific issues and reveal common themes within a community of interest.

2. Research methods

Oral history interviews were used as the primary data collection method in this study (Charlton et al., 2007; Hunt, 2003). Interview questions were intentionally broad to

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“The Voices from the Fisheries Database is a powerful resource available to the public to inform, educate, and provide primary information for researchers interested in our local, human experience with the surrounding marine environment”
allow the participant to direct the conversation around what was important to them. In total, 26 interviews were conducted in five communities on the Oregon Coast: Newport, OR; Port Orford, OR; Garibaldi, OR; Astoria, OR; and Warrenton, OR. One interview was conducted in Morro Bay, California (Table 1 and Figure 1).

**Table 1**
Communities and number of participants interviewed

<table>
<thead>
<tr>
<th>Community</th>
<th>Participants</th>
</tr>
</thead>
<tbody>
<tr>
<td>Astoria, OR</td>
<td>1 fisherman (female)</td>
</tr>
<tr>
<td></td>
<td>1 fisherman (male)</td>
</tr>
<tr>
<td></td>
<td>1 fisherman’s wife</td>
</tr>
<tr>
<td>Garibaldi, OR</td>
<td>1 fisherman's wife</td>
</tr>
<tr>
<td></td>
<td>1 processor’s wife</td>
</tr>
<tr>
<td>Morro Bay, CA</td>
<td>1 fisherman's wife</td>
</tr>
<tr>
<td>Newport, OR</td>
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<td>1 fisherman (male vessel owner)</td>
</tr>
<tr>
<td></td>
<td>1 fisherman (male deckhand)</td>
</tr>
<tr>
<td>Port Orford, OR</td>
<td>5 fishermen (male)</td>
</tr>
<tr>
<td></td>
<td>2 women (fisherman &amp; fisherman's wife)</td>
</tr>
<tr>
<td>Warrenton, OR</td>
<td>1 processor (male)</td>
</tr>
</tbody>
</table>
Interviews were collected and transcribed for the VFWC project. All transcriptions were completed verbatim by the principal researcher to ensure consistency and allow for open-coding analysis (McLellan et al., 2003). Due to the nature of the oral history structure, the tone and content of the interview was very organic and could take on any direction the participant chose to go. Interviews ranged from 30 minutes to 2.5 hours in length and were audio-recorded for transcription and sharing purposes for VFWC.

Qualitative data analysis was conducted through the help of a computer assisted coding program, MAXQDA. Using Auerbach and Silversteins’s (2003) method of grounded-theory coding, an inductive approach was used to generate common themes.
Initial groupings of relevant text were created according to original indicators of analysis (i.e., management, markets, economics, family dynamics, ocean conditions). The second round of groupings was a result of refining the preliminary codes according to grounded theory discovery (Miles, Huberman, & Saldana, 2014).

3. Results and discussion

To best reflect the results collected for this study, direct quotes from interview transcripts are used to accurately represent the participant’s voice and collective experiences of the community. Some data have been collected indicating changes in the extraction, processing, and distribution sectors, which is supported by the literature and could benefit from further analysis. However, focus here will remain on the fishing ‘way of life’ for families and communities. The majority of the data looks at the roles of fishermen’s wives in Oregon’s fishing industry.

3.1. Women’s individual roles in Oregon’s commercial fishing industry

The role of fisherman’s wife in the home, taking care of the family and maritime household, is perhaps the most recognized role of women in the fishing sector. Although this role too has changed over time, in duties and precedence, one fisherman’s wife claims, “The fundamentals of being a fisherman’s wife have not changed.” It was common to hear about traditional logistical roles of cooking for the crew, distributing paychecks, picking up parts, and taking care of the financial side of the business. One fisherman spoke very fondly of his wife’s contribution beyond taking care of the children and the family:

“Obviously with the children and the family, but there are times I’ve had her call fish markets, up and down the coast to find the price of fish so I
can figure out where I was going to go and sell my fish. So she does a lot of legwork. You know, that and keeps in touch with the boat owner for me, lets him know what’s going on, or vice versa, he’ll let her know, ‘hey this is where (husband) is at’ ... So she does a lot of work. Grocery shopping, she’ll go grocery shopping for me or with me. So yeah, or she cooks food. She’ll cook food on the boat, or cook food at home and package it up and bring it out fishing so we can just heat it up in the microwave... and plus she’s just a good ear. A good person to talk to and she does quite a bit. She’s like the unsung hero.”

Although many traditional fishermen’s wives roles have not changed over time, as documented by both younger and older fishermen’s wives participants, some roles have transitioned over time. One of the biggest changes comes from a general shift in the direct family’s needs. Many women talked about a shift in roles as the kids grew and took on roles themselves or became involved in other activities:

“You know, before I was pretty busy with soccer and football and gymnastics, school. The kids are older now so I have more time. I think that’s why, when I first got to town I joined (local fishermen’s wives group). I just had more time, is why I’m more involved now.”

Some participants mentioned an increase in women’s roles at various levels in science, fisheries management, policy, and the decision-making process. Although participants recognized these changes in women’s roles over time, they also claimed it was part of general societal change and not necessarily indicative of the fishing industry.

“I used to go to groundfish management team meetings 25 years ago and if there was one woman scientist in the groundfish management team, it was a big deal. And now you see women are the chairs of the groundfish management team. So seeing changes, growth of women in both management and in science. Although I know those areas are still a challenge too. And then the rise of women participating in the decision-making process.”

Other women that came from fishing families, chose not to fish as an occupation, but instead chose other opportunities to remain a part of the fishing industry.
“I also am involved at the state level for policymaking... policy for the state-managed fisheries, as well as other kinds of task forces and commissions that are involved in various aspects in seafood, be it marketing or policy or research.”

Another major topic of women’s role in fishing is in the processing sector (Biswas, 2010; Gilden, 1999; Hall-Arber, Pomeroy, & Conway, 2009; Hall-Arber, 1996; Harper et al., 2013; Mercier, 2001; Skaptadóttir, 2000; Yodanis, 2000; Zhao et al., 2013). Although two individuals from the processing sector were interviewed for this study, this topic deserves more attention to address changes in women’s roles directly related to processing on the Oregon coast over time. Some of the data collected for this project does provide a glimpse of what the processing sector was like in the past and how it may have shaped some relationships among women.

“The girls would routinely beat the guys as far as pounds per hour unloaded and things of that nature and they were also, they kind of took over the butchering operation for crab. You know, removing the shell and splitting the crab, a lot of the physical work, which was really interesting and very productive for the company as far as I was concerned. So, it might be one of the earlier involvements in direct production in West Coast fisheries for women.”

“And never being a fisherman, of course I wouldn't have been involved with fishermen's wives because they wouldn’t want a processor in there with them.”

One woman commented on the changing role of processor-fisher relationships as a result of catch share programs. She went on to describe her direct role in this relationship:

“The other thing that has happened, is processors now don’t just own vessels, but they own quota... some processors are able to now control a larger ownership of fish and fishermen are concerned about becoming serfs, sharecroppers... or processors will own quota and fishermen will simply fish for them. So infrastructure, markets, access to fish; processors are playing an increasing role in all of those.”
“I work with our processor directly, they have a role in whether or not we... they find quota for boats. So I interact with them directly. Also people who are competing for your fish, they’ll call and I think if you take an active role in the business then they’ll realize if they can’t reach the husband they’ll get you or they’ll try for you. Then if they see you are an active participant then they’ll reach you first sometimes. I don’t find that they discriminate if there’s a sale or an advantage to be made.”

Oregon’s fishing communities are primarily composed of small fishing businesses (Gilden, 1999; Hanna & Hall-Arber, 2000) that require effort from the entire family to keep the business running successfully:

“The whole family is part of that because we support one another. The money earned supports a lot of what the family does and having emotional support, and logistical support from home enables the fishing activity.”

Despite efforts from each individual, many things impacting the fishing business are out of the family’s control (e.g., weather, markets, fluctuating fish stocks, regulations, etc.). Women’s roles at the individual and family level require an ability to be flexible to changing conditions and many claim to understand this risk when choosing to become a fishing family. As Britton (2012) states, “women understand how changes in the fishing industry are intimately linked to the well-being of their families and communities.” The continually evolving structure of the fishing industry shapes the way individuals and communities choose to cope with complex changes.

3.2. Resilience and adaptive capacity of fishermen’s wives

Fishing is an extractive activity that is considered cyclical and evolving, which requires the ability to deal with changing conditions. Most participants mentioned huge management changes over the years that affected individual roles and participation within the industry. These increases in complexity of fisheries regulations and markets had
various impacts on women’s participation in the industry. For example, a fisherman’s wife talks about the challenges of catch share management for small boat fishing families, including her own, which opened up a new avenue of involvement for her:

“I got involved in the politics of fishing in 1994, when our Pacific Fishery Management Council really made its first move into catch share management or what we called then ‘individual quota management’. It was really obvious that our boat and our community was going to be entirely left out of it, that we weren't at the table to participate in the really finer details of the design of the program and so that's when I got involved.”

A fisherman’s wife from a different community mentioned a similar situation for her family, which led them to pursue another fishing opportunity outside of Oregon.

“My husband was a skipper of fishing vessels, the ten years prior to the IFQ going into effect. So when they allocated quota to fishing vessels, we didn't get any quota because we were just, he was just a skipper, he wasn't the owner. The owner's of the boats, or the corporations of the boats got the quota and we pretty much, skippers didn't get anything. So I think that's a huge flaw in the IFQ system.”

Increased complexity of regulations, including the catch share program, caused one fishing family to question whether or not they would remain in the business.

“I don't know what the future holds for that, but it's certainly something I think as wives and daughters and others involved in the industry, where they sort of stay in or get out as these people age and get out, it is a role that many of us have to take on. And it's not an easy one. Because management is really complicated, quotas are really difficult to deal with; there are a lot of rules around how you can manage them.”

Fishermen’s wives also claimed to spend more time at Pacific Fisheries Management Council (PFMC) meetings to be the “ear” and, at times, the “voice” for their husbands while they were out at sea. One fisherman’s wife spoke of encouraging her daughter to follow the same path in order to understand regulations that might affect the
family business. Another fisherman’s wife stated the importance of staying up to date on regulatory changes and the increase in this role over time:

“I think that one of the things that has changed, is that more women and fishermen’s wives are much more aware of the regulatory issues than they were 20 years ago, and are much more active. Whether it’s self-educating or attending the meetings or pushing their husbands out the door and telling them you need to go to this.”

There are various ways complexities of the fishing industry, especially complexities of fisheries management and markets, have shaped women’s participation within the industry and family business. There are clear differences of impacts to individuals and communities depending on level of participation. Regardless, to deal with increases in complexity, whether it’s markets, regulations, family dynamics, or ocean conditions, some fishing families have acquired needed skills to cope with change.

One fisherman’s wife put it simply:

“Fishing isn't what it used to be. It isn't the same. So I think you have to be able to adapt to change.”

Some of the ways resilience surfaced in the data was through changes in the way individuals deal with uncertainty and risk of ocean conditions, fluctuating markets, and regulatory changes. Many of these changes have led to challenges endured by the fishing family, but also lead to increased adaptive capacity over time. Adaptation strategies that were mentioned as beneficial to the community, and therefore a positive indicator of well-being, included collaborative research, development of community networks, innovative market opportunities, and increased skill sets for managing the family business.
One of the younger fisherman’s wives spoke of increased collaboration between fishermen and scientists and how it might be opening up additional space for women’s roles:

“I think because of the scientific and fishermen collaboration it has opened up more roles for women because you already have that basis of yeah, we do book work and whatnot, but now it’s more accepted for you to attend meetings and show an interest where before, when it was just a boys club, you weren’t accepted, you weren’t wanted there. I don’t feel like we have fully carved out our niche, but I think it’s getting there... I think that’s what I like about it; you can see the generational difference you’re making as women.”

Another participant shared her family’s adaptive strategy when transitioning to a new fishery and a new community in a different state:

“So my husband rigged up the boat with totes and circulation and salt and started targeting live fish. We would get 800-1200 pounds of live fish and only do, with live fish you have to make shorter trips so he goes and he gets fish, gets the live fish in and he comes in. So he makes shorter trips and more value fish so that we get more money, but it costs less fuel. It costs less quota lease, so that's how it has changed. We're learning how to fish differently and how to fish with the rules of the IFQ system.”

Other fishermen’s wives described how they’ve adjusted to regulatory complexities by creating individual adaptive strategies when managing the family business. Some roles involved more investment towards learning new skill sets, while others required more space and simple willingness to adapt. Regardless of the level of commitment towards managing the family business, these women have made personal adjustments to remain successful with the fishing business. The following quotes describe some of the impacts catch share programs have had on the individual roles of fisherman’s wives:
“Basically individual quotas have been this huge change, but it’s made me into a commodities broker. It’s like I’m a trader on the floor of Chicago exchange.”

“Looking at who’s going to loan what to who and who’s going to trade this. I’m looking at the National Marine Fisheries Service, the website for quota share... how do I open a quota share account, how do I trade quota, how do I transfer it from account to account... that’s the kind of constant learning as regulations change, the continued learning. And I think that the learning curve, as opposed to 20 years ago, it’s grown exponentially.”

“It seems like the paperwork is a lot more than it used to be... there are economic reports that you have to do now, your vessel accounts and your quota share, everything has to line up and so we work hard together to maintain and keep the business running smoothly with all of the extra rules and regulations and areas that we’ve had to adapt.”

It is important to recognize variations in experience between individuals and communities, not only along the Oregon coast, but in national and international fisheries as well. For managers and decision-makers to take into account these differences in impacts and capacity to adapt, there is a need for acceptance of the social science language where researchers are provided the opportunity to “prioritize and honor the participant’s voice” (Miles et al., 2014).

“There isn’t enough ability of the state and feds to, in terms of their resources, to engage in the communities as much as I think needs to be done. I don’t fault them, I understand they’re under restricted time constraints and budgets, but they’re not hearing from enough people about how regulations can affect the fishery.”

Another strategy for resilience is through the formation of supportive social networks like that of fishermen’s wives groups or other ‘women-in-fisheries’ associations (Berkes & Ross, 2013; Britton, 2012). Regardless of the recognized contributions these groups have on individual and community levels of well-being, their existence is not always lasting. Many wives groups have been established over the years for various
reasons (e.g., community fishing festival organization, emotional support, regulatory advisement, advocacy, etc.), but only a few remain broadly active today, most notably Newport Fishermen’s Wives and Gloucester Fishermen’s Wives (Hall-Arber, 1996; Hanna & Hall-Arber, 2000). Hall-Arber (1996) listed a number of factors (e.g., “the economic environment of their city, the existence or absence of active fishermen’s organizations, and individual personalities”) that can interfere with social organization and hinder recognition of women’s roles and contributions. This data contributes to the understanding of this web of connections created within a fishing community of interest: Newport, OR.

3.3. Fishermen’s wives groups contribute to local knowledge

Connections between and among fishing communities creates the framework of social capital (Woolcock & Narayan, 2000), which can lead to social and economic resilience. Some of the ways these connections are built are through common interests, shared knowledge, and at times through crisis. Woolcock & Narayan (2000) define social capital as the norms and networks that enable people to act collectively, which leads to an ability to confront issues of vulnerability. Membership in informal and formal associations is a common measure of positive social capital.

NFW has provided a supportive social network for the Newport fishing community in a number of ways. They provide guidance to new wives marrying into a fishing family, financial support for families that have lost someone at sea, and serve as a general support group for raising kids and dealing with the complex dynamics of a being a fishing family. NFW has also played the role of ‘advocacy group’ by participating in various decision-making platforms, promoting seafood, and participating as leaders in the
stationing of the United States Coast Guard (USCG) Newport Rescue Air Facility. NFW is an example of community organization that can lead to adaptive capacity and social capital. Social learning, or the passing of local knowledge, can help to build social networks and ultimately lead to community resilience (Berkes & Ross, 2013).

Harper et al. (2013) bring up the use of traditional ecological knowledge (TEK) passed from mothers to daughters during fishing activities in small-scale fisheries. This type of knowledge is extremely valuable in developing countries where environmental monitoring is limited and resources for conservation lacking. Women’s knowledge is still underutilized, but could prove beneficial to management initiatives. This holds true for Oregon’s commercial fisheries and the increased presence of women at Council meetings as biologists, fishermen, managers, and wives representing their husbands out at sea.

Although local knowledge (LK) is often referenced in terms of ecological knowledge, it has broader applications in the community as described by Kliskey and Alessa (2009 pp.151):

“TEK and LK may serve not only to illuminate potential ecosystem indicators but to articulate the intimate relationships that cultures have with their marine environment. Such relationships include not only rules and guidelines for the use and conservation of resources, but also those for social interactions, traditions, and community building.”

Traditional knowledge provided by women in fisheries goes beyond TEK. Fishermen’s wives mentioned the support of older generations in helping manage the fishing business, dealing with fluctuating markets, increasingly complex regulations, and the day-to-day tasks of caring for the fishing family.

“Because on your own, I don't think you can figure out the best way to, and on our own we can't figure out how to make things work because there's so much changing and there's just so much going on all the time.”
NFW can provide insight into social and economic analyses by describing changes in the business, community, and well-being of the fishing family. Those involved with selling seafood may also provide knowledge about markets, fish availability, and customer needs. Local knowledge goes beyond the ecological expertise often provided by fishermen and includes the community knowledge that may be strengthened and passed on by women’s fishing associations. One Newport fisherman talked about the importance of NFW and how they benefit the community:

“Oh I think they're fantastic. They do a good job. I know that they were responsible for getting the coast guard here on the coast. They do a lot, you know. The fishermen's appreciation day, they do blessing of the fleet, they have a cook off... whenever something happens to somebody, a boat goes down, somebody gets hurt, somebody dies; they have a fund to help the families get through... They're a great organization; we're very, very lucky to have them because there are a lot of communities that don't have them.”

Other communities mentioned having access to fishermen’s wives groups, but not in the formal sense of NFW. Regardless, these types of groups also contributed to passing of local knowledge. A fisherman’s wife in another location mentioned the usefulness of fishermen’s wives groups in learning how to deal with the complexities of being a fishing family:

“Um, it was a struggle, but there again, the network that was good is the fishermen's wives with the children. We all had each other, you know in our own little group, knowing that our men are at sea. We would have playtime with our kids and do things together and we could compare notes on how it is to be a fisherman's wife.”

In some communities there is an absence of these types of women’s social networks even though they have been referenced as a strength of the fishing community:
“In different situations, in different communities, there's very tight-nit fishermen's wives groups and I think that would be very, very much an asset for the fishing community to have that culture of the tight-nit, information sharing, nurturing, advice-giving, that type of thing. But I can't say that that's how it was here.”

NFW has been used here as an example of a supportive social network that contributes to the shared knowledge of a particular fishing community. By focusing on women’s roles we can better understand the type of local knowledge transfer occurring on the shore side of the industry. Other studies have referenced a dependence of the fishing industry on social networks for continued longevity of the industry (Ross, 2013).

4. Conclusion

Women are very much a part of the human dimensions of fishery systems even though it is still primarily thought of as a male-dominated industry. Some studies focus on the gender dimension of fisheries, especially in developing countries (D. L. Davis & Nadel-Klein, 1992; Matsue, Daw, & Garrett, 2014; Williams, Williams, & Choo, 2002; Yodanis, 2000), while others have focused on bringing the fishing family into sociocultural analyses (Conway et al., 2002; Gilden, 1999; Manoogian-O’Dell et al., 1998). Whether the role of women lies is in the maritime household, the occupational fishing sector, or in the heart of fisheries management, they have been, and continue to be, integrated within the fishing industry in a unique way that has not always been visible (Zhao et al., 2013). However, over time this visibility has increased and continues to grow with a changing society.

Recently, emphasis has shifted towards women’s adaptive capacity and contribution to well-being in fishing households and communities (Britton, 2012; Coulthard, 2012; Kilpatrick et al., 2015). Often the change is a result of shifting
regulations due to changes in fishery stocks or environmental conditions. Women not only understand how changes are affecting their families and communities, but are often the ones making sacrifices to their personal well-being to ensure success of their business or husbands out at sea. Coulthard (2012) references these types of sacrifices as trade-offs between adaptation and well-being. Britton (2012) encourages the use of a social well-being approach to demonstrate the reality of what is really important to people and create policies that are informed by societal values.

As regulations evolve into increasingly complex systems, analysis could benefit from addressing economic and sociocultural vulnerability and well-being at all levels of the community. Structure and function of a community of interest can have varying degrees of resilience and adaptive capacity depending on active social networks and individual values. Women have been shown to contribute to the social capital of their communities and often take the leading role in advocacy efforts on behalf of their families and fishing communities. Researchers, community stakeholders, and women at the individual level have worked hard to bring visibility of women in fisheries to the surface of fisheries policy considerations. By integrating women’s roles and adaptive capacity into social impact assessments and ensuring the visibility of their contributions, managers and decision-makers have a better chance of creating policies that reflect the truly minimize adverse economic and social impacts to fishing communities.

This research provides much needed data for fisheries management and the policymaking community, data that could be used in policy and management deliberation and in the making of explicit tradeoffs. Today’s opportunity for academics, policy makers, fisheries managers, and industry practitioners alike lies in the ability to work
together to gather the optimal depth of information to assess, and to make the decisions
that balance human well-being and conservation. This research addresses an often
overlooked, but important, component of this challenge and opportunity.

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Dancing Moon Press.

Fishing Family Life.


CHAPTER THREE: RESULTS AND DISCUSSION

General Changes in Women’s Roles

This chapter begins with an overview of general changes in women’s roles observed or experienced by men and women. Some data have been collected indicating changes in the extraction, processing, and distribution sectors, which is supported by the literature and could benefit from further analysis. However, focus here will remain on the fishing ‘way of life’ for families and communities. The majority of this data looks at the roles of fishermen’s wives in Oregon’s fishing industry.

Various participants commented on the increase of women participating in the extractive sector over time as fishermen or crew, outside of the family business.

“At one time, when I was a kid, it was mostly family oriented, if there was a woman on board it was skipper’s wife. But now you see more and more women as workers, as fishermen coming into the industry.”

Despite recognition of the increase of women participating in the extractive sector, it is still deemed by most as ‘non-traditional’:

“Whether they run their own boats or work as crew or work with their spouses, it's not a traditional role for women to fill.”

“I don't think a woman can come out of the city and just say, I want to be a fisherman. I don't think it will happen. I just think you have to grow up rough, tough, be in a man's world.”

Some mentioned an increase in women’s roles at various levels in science, fisheries management, policy, and the decision-making process. Although participants recognized these changes in women’s roles over time, they also claimed it was part of general societal change and not necessarily indicative of the fishing industry itself.

“I used to go to groundfish management team meetings 25 years ago and if there was one woman scientist in the groundfish management team, it
was a big deal. And now you see women are the chairs of the groundfish management team. So seeing changes, growth of women in both management and in science. Although I know those areas are still a challenge too. And then the rise of women participating in the decision-making process.”

Other women came from fishing families, chose not to fish as an occupation, but instead chose other opportunities to remain a part of the fishing industry.

“There's certainly a lot of women that are involved in the industry, a lot of fishermen's wives, a lot of managers and observers now are women. So that's changed. A lot of the scientists are women.”

“I also am involved at the state level for policymaking... policy for the state-managed fisheries, as well as other kinds of task forces and commissions that are involved in various aspects in seafood, be it marketing or policy or research.”

During the group interview, wives also mentioned an increase in women buying seafood at expos. Increased involvement of women buying fish appears to be a slow, but progressive shift in women’s roles. Howell (2001) described a similar change in an older study, which documented a shift from women wearing revealing clothing, handing out drinks, to more leadership roles of buying and selling fish at the Boston International Seafood Show.

Another major topic of women’s role in fishing is in the processing sector (Biswas, 2010; Gilden, 1999; Hall-Arber, Pomeroy, & Conway, 2009; Hall-Arber, 1996; Harper et al. 2013; Mercier, 2001; Skaptadóttir, 2000; Yodanis, 2000; Zhao et al., 2013). Although two individuals were interviewed from the processing sector, this topic deserves more attention to address changes over time in women’s roles directly related to processing on the Oregon coast. Some of the data collected for this project does provide a
glimpse of what the processing sector was like in the past and how it may have shaped some relationships among women.

“The girls would routinely beat the guys as far as pounds per hour, unloading, and things of that nature. And... they kind of took over the butchering operation for crab. You know, removing the shell and splitting the crab. A lot of the physical work, which was really interesting and very productive for the company as far as I was concerned. One of the gals that worked in Alaska for me, came down... I transferred her down to Newport... and she was an actual shift manager for us for 3 or 4 years before she moved on to something else. So, it might be one of the earlier involvements in direct production in West Coast fisheries for women.”

“And never being a fisherman, of course I wouldn’t have been involved with fishermen’s wives because they wouldn’t want a processor in there with them.”

The remainder of the data presented here will describe the themes and subthemes that were developed around women’s roles in the fishing family business. These results incorporate findings from all participants and communities, however the majority of analysis focused on the role of fisherman’s wife. A grounded-theory approach (Auerbach & Silverstein, 2003) was used to identify four abstract themes to categorize findings, i.e., Marriage and Family Roles, Complexity, Resilience, and Connections. Beneath each theme are various subthemes or repeating ideas that allowed for more in-depth analysis of the data. Themes occurred across the six study communities despite variations in experience. However some themes consisted of subthemes that were more strongly linked to specific communities of place (i.e., women’s roles in NFW).

**Marriage and Family Roles**

The role of fisherman’s wife in the home, taking care of the family and maritime household, is perhaps the most recognized role of women in the fishing sector. Although this role too has changed over time, in duties and precedence, one fisherman’s wife
claims, “The fundamentals of being a fisherman’s wife have not changed.” It was common to hear about traditional logistical roles of cooking for the crew, distributing paychecks, picking up parts, and taking care of the financial side of the business.

“And so there was driving up to take, to get laundry, to take crew checks, pick up fish checks, um, you know, deliver groceries or home cooked meals or whatever you could do to support the boat.”

It was common for the male participants interviewed to speak highly of their wives’ contribution to the fishing business. One fisherman spoke very fondly of his wife’s contribution beyond taking care of the children and the family:

“Obviously with the children and the family, but there are times I’ve had her call fish markets, up and down the coast to find the price of fish so I can figure out where I was going to go and sell my fish. So she does a lot of legwork. You know, that and keeps in touch with the boat owner for me, lets him know what’s going on, or vice versa, he’ll let her know, ’hey this is where (husband) is at’ ... So she does a lot of work. Grocery shopping, she’ll go grocery shopping for me or with me. So yeah, or she cooks food. She'll cook food on the boat, or cook food at home and package it up and bring it out fishing so we can just heat it up in the microwave... and plus she's just a good ear, a good person to talk to, and she does quite a bit. She's like the unsung hero.”

Although many traditional fishermen’s wives roles have not changed over time, as documented by both younger and older fishermen’s wives participants, some roles have transitioned over time. One of the biggest changes comes from a general shift in the direct family’s needs. Many women talked about a shift in roles as the kids grew and took on roles themselves or became involved in other activities.

“Yeah, I don’t think my role has changed a whole lot, honestly. Yeah, I mean our kids are older; I have less responsibility in the day-to-day with the kids, as the kids get more responsible, obviously.”

Some women mentioned taking on more advocacy roles, or becoming more involved with management and regulatory issues as a result of their time becoming more available:
“You know, before I was pretty busy with soccer and football and gymnastics, school. The kids are older now so I have more time. I think that’s why, when I first got to town I joined (local fishermen’s wives group). I just had more time, is why I’m more involved now.”

“And there's every reason for fishermen's wives to get more involved in politics when their husband's busy fishing. If you can have a voice, whether it's writing a letter or attending a council meeting, and I've certainly done more of that in the past ten years than I did in the first ten years my husband and I were together.”

Another common subtheme for marriage and family roles was emotional support. Various participants, men and women, mentioned the need for a listening ear. One fisherman’s wife mentioned her most important role as being a sounding board for when her husband is out at sea:

“I think my role, more than anything, and it always has been this, but I see it more and more is to... when he calls, be available for him to talk.”

There was also mention of the overall support provided by the family and the need to work together for the business to be successful. A younger fisherman’s wife mentioned a common worry of her husband when expanding the family business due to his mother’s role in managing the logistics of the vessel permits, reports, and financial roles.

“When we bought another boat, the biggest worry, laying in bed with my husband, was how much more work his mom was going to have to do. That’s always been the issue, because she puts in everything.”

Although there is a significant range of marriage and family roles that the woman takes on as part of being a fisherman’s wife, participants continuously made a point of mentioning the work that is done by the rest of the family, whether it’s the kids at home or the husband out at sea.

“...The whole family is part of that because we support one another. The money earned supports a lot of what the family does and having, having
emotional support, and logistical support from home enables the fishing activity."

Oregon’s fishing communities are primarily composed of small fishing businesses (Gilden, 1999; Hanna & Hall-Arber, 2000) that require effort from the entire family to keep the business running successfully. Despite efforts from each individual, many things impacting the fishing business are out of the family’s control (e.g., weather, markets, fluctuating fish stocks, regulations, etc.). Women’s roles at the individual and family level require an ability to be flexible to changing conditions and many claim to understand this risk when choosing to become a fishing family. As Britton (2012 pp. 18) states, “women understand how changes in the fishing industry are intimately linked to the well-being of their families and communities.” This leads to the next theme of complexity and how the continually evolving structure of the fishing industry shapes the way individuals and communities cope with complex changes.

Complexity

The complexity of the fishing industry itself is not a new concept. Fishing is an extractive activity that is considered cyclical and evolving, which requires the ability to deal with changing conditions. A woman at the FisherPoets Gathering in February 2014 described this inherent complexity with the following quote:

“All of us are dealing with the contrast between tradition and adaptability. If there’s anything a fisherman is, it’s adaptable. Changing crewmembers, changing family dynamics, changing weather and prices from the water to the docks."

Due to the evolving structure of the commercial fishing industry, individuals, families, and communities are continuously adapting to changing conditions and exhibiting various levels of resilience and adaptive capacity.
Some individuals addressed the issue of complexity through changes in management and how that may affect participation at the individual level.

“So it's not just as easy as fishermen go out fish, come back, sell your fish, and do it again the next day. They've got to attend these meetings; they have to be there to protect their industry because if they're not out there protecting it then someone may try to take it away. And so there's an evolution of fishermen... It's not just as simple as it used to be. Changes in the industry, changes as far as what they're doing and how they do it and their involvement, but this makes them a better fisherman also, because they do see the big picture.”

Participants had different ways of describing the dynamics of the fishing industry. Both fishermen and their wives talked about the changes in ocean conditions and the importance of knowing where the fish are:

“Get into the dynamics of oceanography so you can understand where the fish are and why they’re there... It’s a science. Fishing isn’t just hard work.”

“When we came to (place), we had no idea of the grounds. He had no idea where the fish were. The trips did not go well. And it was very scary and nerve-wracking because the IFQ system was in place and some of those overfished species, if you catch 365 pounds of them; you’re shut down for the year. So it's very critical that you know your area, that you know where to get these fish.”

Others mentioned the need to adapt to changes in markets. Markets are a major component of the fishing industry that determines a season’s profitability. Buyer-seller relationships were also considered an added complexity to the fishing lifestyle. The market price of fish has shifted only slightly over time and often lags behind fluctuating fuel prices and other operating costs of the vessels:

“Those expenses have all increased astronomically in some regards, whereas the price of fish and crab has not increased proportionately.”
Balancing these constant changes and marketing the vessel’s catch was often another role of fisherman’s wife.

“You know the whole supply of seafood is controlled by what seasons are set and how quotas are set and what gear is allowed to harvest so we're completely dependent on being able to access our product from right out our own back door.”

The largest subtheme of complexity was regulation. Most participants mentioned huge management changes over the years that affected individual roles and participation within the industry. These increases in complexity of fisheries regulations and markets had various impacts on women’s participation in the industry at the individual, family, and community level. For example, a fisherman’s wife talks about the challenges of trawl rationalization for small boat fishing families, including her own, which opened up a new avenue of involvement for her:

“I got involved in the politics of fishing and then in 1994, when our Pacific Fishery Management Council really made its first move into catch share management or what we called then ‘individual quota management’. It was really obvious that our boat and our community was going to be entirely left out of it, that we weren't at the table to participate in the really finer details of the design of the program and so that's when I got involved.”

A fisherman’s wife from a different community mentioned a similar situation for her family, which led them to pursue another fishing opportunity outside of Oregon.

“My husband was a skipper of fishing vessels, the ten years prior to the IFQ going into effect. So when they allocated quota to fishing vessels, we didn't get any quota because we were just, he was just a skipper, he wasn't the owner. The owner's of the boats, or the corporations of the boats got the quota and we pretty much, skippers didn't get anything. So I think that's a huge flaw in the IFQ system.”
Other women mentioned an increase in their time allocated towards managing the family business. Not only was increased time and effort towards managing the business a factor, but also the need for additional skills to do so successfully.

“It also brought in more work for the families, my husband comes home and is constantly trying to buy himself fish because the boys will call and say, well there’s this much fish in the account, because of the individual fishing quotas.”

Increased complexity of regulations, including the trawl rationalization, caused one fishing family to question whether or not they would remain in the business.

“I don't know what the future holds for that, but it's certainly something I think as wives and daughters and others involved in the industry, where they sort of stay in or get out as these people age and get out, it is a role that many of us have to take on. And it's not an easy one. Because management is really complicated, quotas are really difficult to deal with; there are a lot of rules around how you can manage them.”

Fishermen’s wives also claimed to spend more time at Pacific Fisheries Management Council (PFMC) meetings to be the “ear” and, at times, the “voice” for their husbands while they were out at sea. One fisherman’s wife spoke of encouraging her daughter to follow the same path in order to understand regulations that might affect the family business. Another fisherman’s wife stated the importance of staying up to date on regulatory changes and the increase in this role over time.

“State laws, federal laws, rules and regulations frequently change and since we’re a very highly regulated industry, it’s important that one of us stays on top of all the changes. And that’s part of what I do as a fisherman’s wife.”

“I think that one of the things that has changed, is that more women and fishermen’s wives are much more aware of the regulatory issues than they were 20 years ago, and are much more active. Whether it’s self-educating or attending the meetings or pushing their husbands out the door and telling them you need to go to this.”
There are various ways complexities of the fishing industry, especially complexities of fisheries management and markets, have shaped women’s participation within the industry and family business. There are clear differences of impacts to individuals and communities depending on level of participation. To deal with increases in complexity, whether it’s markets, regulations, family dynamics, or ocean conditions, some fishing families have acquired needed skills to cope with change.

**Resilience**

One fisherman’s wife put it simply:

“Fishing isn't what it used to be. It isn't the same. So I think you have to be able to adapt to change.”

Some of the ways resilience surfaced in the data was through changes in the way individuals deal with uncertainty and risk of ocean conditions, fluctuating markets, and regulatory changes. Many of these changes have led to challenges endured by the fishing family, but also lead to increased adaptive capacity over time. Coulthard (2012 pp. 5) describes an additional need to consider well-being impacts as individuals adapt to change: “it is people’s capacity to put up with hardship that may foster resilience and, as such, they risk reduction in well-being.” Adaptation strategies that were mentioned as beneficial to the community, and therefore a positive indicator of well-being, included collaborative research, development of community networks, innovative market opportunities, and increased skill sets for managing the family business.

Various women in Newport mentioned an increase in working with scientists over time. Most claimed this was nothing new, but rather an increase in cooperation over time was apparent.
“I think the drag crisis forced scientists and fishermen to work together. I think there were fishermen that worked with scientists before, but I think that brought it to the forefront. Also just having a NOAA survey and quota, it’s just changed how it’s managed so it’s brought everybody to the table whether or not they want to be there. If they want to continue fishing then they have to.”

Another fisherman’s wife explained how her family business transitioned to selling seafood directly off the vessel. This ability to adapt to changing markets eventually led to their selling of the boat with retirement. However, because of the investment in a seafood market they still operate a successful business, purchasing seafood from other vessels in the community.

“We finally transitioned over to having our catch custom canned. There was a little cannery in town that would take your fish and can them. We started selling fish that way and slowly moved over from selling whole fish off the boat to going, and this was a several year process, to full-fledged custom canned albacore. We’d can it, it had our own label on it and marketed it to health food stores and individuals across the country.”

Another participant shared a similar adaptive strategy when transitioning to a new fishery and a new community in a different state:

“So my husband rigged up the boat with totes and circulation and salt and started targeting live fish. We would get 800-1200 pounds of live fish and only do, with live fish you have to make shorter trips so he goes and he gets fish, gets the live fish in and he comes in. So he makes shorter trips and more value fish so that we get more money, but it costs less fuel. It costs less quota lease, so that's how it has changed. We're learning how to fish differently and how to fish with the rules of the IFQ system.”

She went on to mention another adaptive strategy to dealing with the IFQ system or trawl rationalization. Although this was only mentioned in one location, and could be considered an outlier in the data, it was worth mentioning as potential adaptive capacity of a community dealing with change:
“Community quota funds are the key to making IFQ systems work. It keeps quota in small fishing ports, it helps new entrants get into the fishing industry, and that's what it is. I think it's pretty much, if anything is going to help small communities and small fishing vessels, there, we'll be seeing a lot more quota funds or we're going to see a lot more big vessels catching all the fish and small fishing communities won't exist.”

Other fishermen’s wives described how they’ve adjusted to regulatory complexities by creating individual adaptive strategies when managing the family business. Some roles involved more investment towards learning new skill sets, while others required more space and simple willingness to adapt. Some mentioned the need to learn technological shortcuts and described some efforts to attend community college classes to better understand programs such as Excel or QuickBooks. Regardless of the level of commitment towards managing the family business, these women have made personal adjustments to remain successful with the fishing business. The following quotes describe some of the impacts trawl rationalization has had on the individual roles of fisherman’s wives:

“Basically individual quotas have been this huge change, but it’s made me into a commodities broker. It’s like I’m a trader on the floor of Chicago exchange.”

“So it’s just expanded. I feel like now, I know how to buy boats, I know how to buy permits, I know how to buy fish quota, I know how to fill out forms that I would have never... I’m constantly forced to learn how to apply for a new license, a new documentation, there’s always something more.”

“Looking at who’s going to loan what to who and who’s going to trade this. I’m looking at the National Marine Fisheries Service, the website for quota share... how do I open a quota share account, how do I trade quota, how do I transfer it from account to account... that’s the kind of constant learning as regulations change, the continued learning. And I think that the learning curve, as opposed to 20 years ago, it’s grown exponentially.”
“It seems like the paperwork is a lot more than it used to be... there are economic reports that you have to do now, your vessel accounts and your quota share, everything has to line up and so we work hard together to maintain and keep the business running smoothly with all of the extra rules and regulations and areas that we've had to adapt.”

Another strategy for resilience is through the formation of supportive social networks like that of fishermen’s wives groups or other ‘women-in-fisheries’ associations (Berkes & Ross, 2013; Britton, 2012). Regardless of the recognized contributions these groups have on individual and community levels of well-being, their existence is not always lasting. Many wives groups have been established over the years for various reasons (e.g., community fishing festival organization, emotional support, regulatory advisement, advocacy, etc.), but only a few remain broadly active today, most notably Newport Fishermen’s Wives and Gloucester Fishermen’s Wives (Hall-Arber, 1996; Hanna & Hall-Arber, 2000). Hall-Arber (1996 pp. 243) listed a number of factors (e.g., “the economic environment of their city, the existence or absence of active fishermen’s organizations, and individual personalities”) that can interfere with social organization and hinder recognition of women’s roles and contributions.

This research contributes to the understanding of this web of connections created within a fishing community. Similar to fishermen’s wives groups, some connections within the fishing industry have strengthened or weakened over time, depending on location and individual circumstances. Those that have remained strong and active may lead to increases in knowledge transfer and contribute to the resilience of the fishing community.
Connections

The final theme was connections, which encompasses additional ideas and diversity measures, however it also blends with the previous themes. Some of the most common connections were: the connection between families and the transfer of power or knowledge, fishing associations and their connection to the community, relationships with processors, links between individuals and groups, and the connection to the sea. As one fisherman’s wife stated, “the fishing community is symbiotically, biologically, cosmically, every which way connected.” Connections between and among fishing communities creates the framework of social capital (Woolcock & Narayan, 2000), which can lead to social and economic resilience. Some of the ways these connections are built are through common interests, shared knowledge, and at times through crisis. Woolcock & Narayan (2012) defines social capital as the norms and networks that enable people to act collectively, which leads to an ability to confront issues of vulnerability.

In some communities these connections have grown stronger over the years and in others they have weakened:

“When it was really going good, like in the 70's, it was a really close knit, little community. You know, there were lots of fishermen, lots of kids. But as the fishery dwindled, the community got smaller, people died, people moved away. You'd find it hard now to go into (community) and find a group of fishermen standing around talking. But it used to be like that all the time. (Local restaurant) was always full of fishermen; (different local restaurant) was full of fishermen. You could go down to the docks and find fishermen, but you don't see that now. It's just different.”

However in other regions, they have made efforts to reach out to the larger geographic community to educate them on the local fishery and the benefits of selling whole fish. Some of this has been done through efforts by the fisherman’s wife in setting up a fish
market at the local farmer’s market. She talks about the benefits of selling to local venues and keeping the fish within the community:

“So I think it’s great to go out there and tell these people that we bring in live fish and that we work with the (national conservation NGO) and that we’re fishing (local) community quota. That we work with the (local) sanctuary. We want our children to be able to harvest fish in years to come. We don’t want the fish to be gone. So it’s very important to us, to let people know, and to harvest sustainably.”

Others spoke of the importance to facilitate connections between fishermen, scientists and agencies. One of the younger fisherman’s wives spoke of increased collaboration between fishermen and scientists and how it might be opening up additional space for women’s roles:

“I think because of the scientific and fishermen collaboration it was opened up more roles for women because you already have that basis of ‘yeah, we do book work and whatnot.’ But now it’s more accepted for you to attend meetings and show an interest where before. When it was just a boys club, you weren’t accepted, you weren’t wanted there. I don’t feel like we have fully carved out our niche, but I think it’s getting there... I think that’s what I like about it; you can see the generational difference you’re making as women.”

Multiple fishermen’s wives talked about the important connections between the fishing community and the larger geographic community, especially in times of crisis or tragedy. These types of connections could easily fall beneath social capital factors supported by Woolcock & Narayan (2012 pp. 241), i.e., “participation in the local community, feelings of trust and safety, connections with family and friends, and value of life.”

“Fabulous support group and the support comes, I guess like we talked earlier about the connections and the interactions and communication with the fishing industry and the community and community leaders and because of that, when the fishing industry says, this is a real problem, we’re concerned, the community listens and takes action.”
“So, it is, it makes kind of an interesting balance, but the community itself loves the fishing community it seems like. Maybe it's because we give them seafood. It does seem like the community of (location) is very supportive and especially when there's a tragedy. Everybody kind of pulls together and you really see the love for the fishermen.”

Another common subtheme of connections was the inherent connection to the ocean.

Many of the wives mentioned an intrinsic love for the sea held by their husbands and often their children. Some participants mentioned the common saying that fishing was ‘in their blood’, a part of their identity. Many fishermen’s wives claimed their love for the sea was a product of their husband’s passion: “It's in his blood and it's in my kids' blood. And I love it. I can't imagine not being a part of a fishing family.” However, some fishing family members seemed to have a more direct connection to the sea:

“I had a really different, unique experience growing up. Really connected to the ocean, really connected to my dad's work, really connected to, just kind of the environment.”

Beyond connections to the family, the sea, and the larger community are those within the fishing community itself. For this study, the most frequently discussed association was that of Newport Fishermen’s Wives (NFW). Although other participants mentioned informal versions of fishermen’s wives groups in their own communities, the focus here will remain on NFW and how this type of community connection can lead to a sharing of local knowledge and increase social capital of the Newport fishing community.

A Historical Perspective from Newport Fishermen’s Wives Association (NFW): A Form of Local Knowledge and Social Capital

“I think for me, Fishermen’s Wives afforded me the connection -- when he was gone -- to the industry, to our community in general. And I enjoyed working with the community and making sure that the community understood the connections between the fishing community and just the community of place that Newport is.”
Newport Fishermen’s Wives Association is a group of women that was first formed in the 1960’s. It eventually grew to non-profit status in mid-1970, just as regulatory oversight for the 200-mile exclusive economic zone (EEZ) was coming into US waters (Ginny Goblirsch, personal communication). Since then, NFW has provided a supportive social network for the Newport fishing community in a number of ways. They provide guidance to new wives marrying into a fishing family, financial support for families that have lost someone at sea, and serve as a general support group for raising kids and dealing with the complex dynamics of a being a fishing family.

NFW has also played the role of ‘advocacy group’ by participating in various decision-making platforms, promoting seafood, and participating as leaders in the stationing of the United States Coast Guard (USCG) Newport Rescue Air Facility. NFW is an example of community organization that can lead to adaptive capacity and social capital. Woolcock & Narayan (2012) described membership in informal and formal associations as a measure of positive social capital. Social learning, or the passing of local knowledge, can help to build social networks and ultimately lead to community resilience (Berkes & Ross, 2013).

“We’re passing on that passion, and that hope and future that we have here in Newport, with the people and the industry. I look at all of you guys, and I just love you to pieces, because it’s because of all of us that it’s possible.”

Harper et al. (2013) bring up the use of traditional ecological knowledge (TEK) passed from mothers to daughters during fishing activities in small-scale fisheries. This type of knowledge is extremely valuable in developing countries where environmental monitoring is limited and resources for conservation lacking. Women’s knowledge is still
underutilized, but could prove beneficial to management initiatives. This holds true for Oregon’s commercial fisheries and the increased presence of women at PFMC meetings as biologists, fishermen, managers, and wives representing their husbands out at sea.

Although local knowledge (LK) is often referenced in terms of ecological knowledge, it has broader applications in the community as described by Kliskey and Alessa (2009 pp.151):

“TEK and LK may serve not only to illuminate potential ecosystem indicators but to articulate the intimate relationships that cultures have with their marine environment. Such relationships include not only rules and guidelines for the use and conservation of resources, but also those for social interactions, traditions, and community building.”

Traditional knowledge provided by women in fisheries goes beyond ecological knowledge. Various types of traditional knowledge documented in this study include the transfer of power at the individual and group level. Fishermen’s wives mentioned the support of older generations in helping manage the fishing business, dealing with fluctuating markets, increasingly complex regulations, and the day-to-day tasks of caring for the fishing family.

“Because on your own, I don't think you can figure out the best way to... we can't figure out how to make things work because there's so much changing and there's just so much going on all the time.”

Another fisherman’s wife emphasizes the type of knowledge transfer that can be provided for family support and community building:

“Well I think as a wife of a fisherman, you have to plug yourself into other wives of fishermen, because if you don't, it's a lonely world... And then getting involved with Fishermen's Wives (Association), it's a great place to start; it's a great place to be, to meet those with the same kind of lifestyle... other wives can bring in what they've learned that has worked for their relationships and it really takes a village to raise kids.”
Another type of local knowledge passed through NFW is how to be politically active. This can range from staying up to date on fisheries regulations, working with (or against) environmentalist initiatives, and government lobbying for safety issues. The most recent and prominent example of this is that of the Newport United States Coast Guard (USCG) Helicopter Rescue Air Facility. In the late 1980’s the group succeeded in having the USCG air facility stationed in Newport. Since then, fishermen’s wives have created a good relationship with the USCG “to help them to feel part of the community” (Package and Conway, 2010 pp. 10).

In early October of 2014, the USCG announced its decision to close the Newport, OR Rescue Air Facility. The closure was determined to be necessary due to national budget cuts (the Consolidated Appropriations Act of 2014) and the USCG standard response time of two hours, which could be accomplished from Oregon’s southern Air Station in North Bend. The decision to close the Newport station was made without any notice to the community or involvement from local stakeholders in the decision making process. This decision upset the Newport community and resulted in local efforts to advocate for the cancellation of the proposed closure.

Along with the communities’ political representatives, NFW continues to work towards keeping the air facility permanently open. Older wives that had been less active over the past ten years resurfaced politically to help the younger wives work the political process and collectively succeeded in having the closure postponed until January 2016.

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10 List of testimonials and Newport community actions taken to support the USCG Air Station: Retrieved May 21, 2015, from http://www.portofnewport.com/save-our-air-station.php
“You have the experience that retires, and then the youth comes on and learns from the experience. When it’s necessary, those of us who used to be active in Fishermen’s Wives come forward to help the current group if we have skills or knowledge that’s useful. So that’s kind of the way it works, and that’s the way it works in this particular situation. Yeah, when I retired... there were no pressing issues in NFW or the industry that I felt strongly enough about to stay involved with. So I just wanted to kind of just go into a hole, and live a quiet life and do some things. I did that until October of 2014, when the Coast Guard announced they were closing our facility here and I had to come out of my hole. I couldn’t let that happen.”

A fisherman’s wife that is no longer part of the association, spoke fondly of another fisherman’s wife: “she has so much knowledge about the helicopter and about fishermen’s wives in general.” Mederer and Barker (2000) describe this type of “collective response to crisis” as an illustration of the persistence and strength of a resilient community with the capacity to adapt.

NFW can provide insight into social and economic analyses by describing changes in the business, community, and well-being of the fishing family. Those involved with selling seafood may also provide knowledge about markets, fish availability, and customer needs. Local knowledge goes beyond the ecological expertise often provided by fishermen, and includes the community knowledge that may be strengthened and passed on by women’s fishing associations. One Newport fisherman talked about the importance of NFW and how they benefit the community:

“Oh I think they're fantastic. They do a good job. I know that they were responsible for getting the coast guard here on the coast. They do a lot, you know. The fishermen's appreciation day, they do blessing of the fleet, they have a cook off. Whenever something happens to somebody, a boat goes down, somebody gets hurt, somebody dies; they have a fund to help the families get through... They're a great organization; we're very, very lucky to have them because there are a lot of communities that don't have them.”
Other communities mentioned having access to fishermen’s wives groups, but not in the formal sense of NFW. Regardless, these types of groups also contributed to passing of local knowledge. A fisherman’s wife in another location mentioned the usefulness of fishermen’s wives groups in learning how to deal with the complexities of being a fishing family:

“Um, it was a struggle, but there again, the network that was good is the fishermen's wives with the children. We all had each other, you know in our own little group, knowing that our men are at sea. We would have playtime with our kids and do things together and we could compare notes on how it is to be a fisherman's wife.”

In some communities there is an absence of these types of women’s social networks even though they have been referenced as a strength of the fishing community.

“In different situations, in different communities, there's very tight-knit fishermen's wives groups and I think that would be very, very much an asset for the fishing community to have that culture of the tight-nit, information sharing, nurturing, advice-giving, that type of thing. But I can't say that that's how it was here.”

NFW has been used here as an example of a supportive social network that contributes to the shared knowledge of a particular fishing community. By focusing on women’s roles we can better understand the type of local knowledge transfer occurring on the shore side of the industry. Ross (2013) conducted a study to explore concepts of ‘dependency’ and ‘community’ in Scotland and mentions a dependence of the fishing industry on social networks for continued longevity of the industry. These types of networks range from informal societal connections built on common interests or that of more formal organizations created as a form of social support leading to beneficial social capital of a community. Berkes and Ross (2013) describe social networks as an avenue for adaptive capacity and can lead to resilience of a system (Figure 3.1).
Figure 3.1 Community Resilience as a function of the strengths or characteristics that have been identified as important, leading to agency and self-organization.
Literature Cited


CHAPTER FOUR: CONCLUSION

Human Dimensions of Fisheries

To bring humans into the conversation of natural resource management as part of the ecosystem, the term ‘human dimensions’ was coined. Human dimensions of fisheries refer to the social behaviors around resource use and are largely a component of ecosystem-based management (EBM) (McLeod & Leslie, 2009). Hall-Arber et al. (2009) describe the importance of understanding the human dimensions of fisheries and adds that it is really more about ‘people management’ than resource management. The abundance of recent human dimensions literature in fisheries (Clay & Olson, 2008; Hall-Arber et al., 2009; Johnson et al., 2014; Lester et al., 2010; Norman & Holland, 2012; Olson, 2011; Pollnac et al., 2006; Pomeroy et al., 2014; Sharp & Lach, 2003; Tuler et al., 2008) is evidence of its applicability to fisheries management and the continued shift to more holistic and adaptive forms of management (i.e., EBM).

As a result of regulatory and management decisions, including National Standard 8 of the MSA, NOAA fisheries and its NWFSC has a human dimensions team that “conducts economic and sociocultural research spanning all marine species and ecosystems.” NOAA’s human dimensions projects include ecosystem service assessments, socioeconomic survey data, socio-cultural data collection for measurement of regulatory impacts, and community vulnerability analysis. Although each of these studies may contribute something innovative to the ‘human dimension’ dialogue, they all add to the conversation around vulnerability, resilience, and adaptive capacity of US

coastal fishing communities. One of these projects is the VFWC oral history project, which created the foundation for this study.

Women are very much a part of the human dimensions of fishery systems even though it is still primarily thought of as a male-dominated industry. Some studies focus on the gender dimension of fisheries, especially in developing countries (Davis & Nadel-Klein, 1992; Matsue, Daw, & Garrett, 2014; Williams & Choo, 2002; Yodanis, 2000), while others have focused on bringing the fishing family into sociocultural analyses (Gilden, 1999; Manoogian-O’Dell, McGraw, & Zvonkovic, 1998; Conway et al., 2002). Whether the role of women lies is in the maritime household, the occupational fishing sector, or in the heart of fisheries management, they have been, and continue to be, integrated within the fishing industry in a unique way that has not always been visible (Zhao et al., 2013). However, over time this visibility has increased and continues to grow with a changing society.

“And I think the men, in 20 years of time, rely on us publically more. They’ve always been, honey it’s so nice to be home, but out in the public we’re becoming more go-to people. I think they’re a lot prouder and able to understand that we, of course, are part and parcel of it all” (Fisherman’s Wife).

In the long term, the large project (VFWC) and the results of this research project could benefit society by helping stakeholders and the public to gain a better understanding of EBM; not the framework or nomenclature, per se, but the core concepts of connection, cumulative impacts, scale, and anticipating and adapting to change (McLeod & Leslie 2009); i.e., the foundation of social-ecological system (SES) thinking. This includes, but is not limited to, understanding the “context” of fishing, the connections between this industry and other ocean users and the public, and the tradeoffs
facing the community, decision makers, and society. VFWC provided the framework and methodology to illuminate women’s roles in Oregon’s fishing communities, but it certainly goes beyond a single thematic component to add to the understanding of human dimensions of fisheries.

**Acknowledging Women’s Roles and Contributions: Who Cares?**

“I started the book because, really originally after doing that video with OSU Sea Grant in 1997-98... I realized that we had a unique story to tell. And that's why I appreciate so much what you're doing today in terms of talking to fishing families and fishermen's wives, because from a cultural perspective, really other than OSU Sea Grant, nobody was telling our story” (Fisherman’s Wife).

There is a plethora of literature, symposiums, books, and blogs dedicated to the women of the sea. Some paint portraits of the unconventional woman deckhand or bar pilot taking on duties often claimed to be ‘man’s work’ (Allison & Jacobs, 1989; Fields, 1997; Greenlaw, 1999; Santis, 1984). Others detail the trials and tribulations of being a fisherman’s wife and the duties that come with loving a man devoted to the ocean’s call (Longo Eder, 2008). Regardless of their role, this increase in acknowledging women’s roles and contributions to the fishing industry shows that society does care about women’s place in an often-perceived male-dominated world.

Recently, emphasis has shifted towards women’s adaptive capacity and contribution to well-being in fishing households and communities (Britton, 2012; Coulthard, 2012; Kilpatrick et al., 2015). Often the change is a result of shifting regulations due to changes in fishery stocks or environmental conditions. Women not only understand how changes are affecting their families and communities, but are often the ones making sacrifices to their personal well-being to ensure success of their business.
or husbands out at sea. Coulthard (2012) references these types of sacrifices as trade-offs between adaptation and well-being. Britton (2012) encourages the use of a social well-being approach to demonstrate the reality of what is really important to people and create policies that are informed by societal values.

Oral history interviews were used in this study as a way to gather data around what was most important to the participants involved. Questions were intentionally broad to allow the participant to direct the conversation around what was important to them. The themes discussed here are representative of what is true and valued by those interviewed along the Oregon coast. Combining reoccurring ideas by multiple individuals and eventually creating more abstract codes to umbrella the concerns and actions of women in Oregon’s commercial fishing industry led to the themes of ‘complexity’ and ‘resilience’. ‘Connections’ and ‘marriage and family roles’ were more descriptive themes of how women identified themselves within the fishing industry and the types of social networks that evolved out of community connections. Each of the themes were meant to be representative of what was important to women involved in Oregon’s fishing industry and how their individual roles in the industry change over time.

As regulations evolve into increasingly complex systems, analysis should address vulnerability and well-being at all levels of the community. Structure and function of a community of interest can have varying degrees of resilience and adaptive capacity depending on active social networks and individual values. Women have been shown to contribute to the social capital of their communities and often take the leading role in advocacy efforts on behalf of their family businesses. Researchers, community stakeholders, and women at the individual level have worked hard to bring visibility of
women in fisheries to the surface of fisheries policy considerations. By integrating women’s roles and adaptive capacity into social impact assessments and ensuring the visibility of their contributions, managers and decision-makers have a better chance of creating policies that reflect the truly minimize adverse economic and social impacts to fishing communities.

This research provides much needed data for the fisheries management and policymaking community, data that could be used in policy and management deliberation and in the making of explicit tradeoffs. This data can assist these stakeholder groups (and others) to work within and between their communities, and with academia (research, education, and outreach and engagement), to evaluate progress and adjust plans as needed.

**Variations in Experience and the Community of Place**

These results are a piece of a larger dialogue around human dimensions of the fishing industry and are not generalizable, but rather transferable; this study may serve as a guide for investigating a new or larger study around women’s roles in fisheries and could expand to include other aspects of the fishing industry. Even though people were interviewed across sectors and communities for this study, more effort can be placed towards understanding women’s roles in the processing sector or as participants in the extractive sector. Some of this work is currently being done in by graduate students at University of Oregon as part of the Oregon Folklife Network12 (Personal communication, Dr. Rachelle Saltzman).

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12 Oregon Folklife Network. (n.d.). Retrieved May 21, 2015, from ofn.uoregon.edu
A large majority of participants, especially fishermen’s wives, in this study were also vessel owners. It is important to not only recognize diversity within the fleet, but also within individual circumstances. Crewmembers and families of crewmembers will likely have a much different story to tell and may not always have the opportunity to tell it.

“And this is why our input... it affects every vessel differently. Sometimes it has some overall effects, how it’s going to affect everybody. But every regulatory change affects every fishing vessel differently. So depending on who’s at those meetings, telling their story, it’s just this waxing and waning and back and forth. And so, the telling of the stories is so important in terms of whether it’s Congress passing some rule that has unintended effects, or the fisheries management council, or the fish and wildlife commission, it’s just huge.”

Although variations in women’s roles and adaptive capacity within Oregon’s fishing industry have been documented in this paper, it is essential to revisit the theoretical discussions of vulnerability to better assess various levels of exposure, sensitivity, and resilience to a particular system and place (Tuler et al. 2008). Recognizing diversity in and among families along the Oregon coast is a way to identify those that are most at risk. While some fishing families and communities benefit from changes in markets and regulations, others may be placed at a disadvantage and experience negative effects.

“There isn't enough ability of the State and Feds to, in terms of their resources, to engage in the communities as much as I think needs to be done. I don't fault them, I understand they're under restricted time constraints and budgets. But they're not hearing from enough people about how regulations can affect the fishery.”

It is important to recognize variations in experience between individuals and communities, not only along the Oregon coast, but in national and international fisheries
as well. For managers and decision-makers to take into account these differences in impacts and capacity to adapt, there is a need for acceptance of the social science language where researchers are provided the opportunity to “prioritize and honor the participant’s voice” (Miles et al. 2014, pp. 74).

“One of my hopes for the fisheries is that fisheries management continues to make an effort to understand that these are small family businesses that are being regulated and that more effort be put into understanding, before enacting regulations.”

Limitations and Recommendations for Future Research

As with any research project there are some limitations and avenues for improved study and/or assessment. It is easy to think about all the things that could have been done differently if provided ample time and funding, and then of course ‘if I knew then, what I know now’… but that would defeat the purpose of a masters. Ideally, it would have been nice to interview equal numbers of types of participants (i.e., processors, skippers, crewmembers, vessel owners, fishermen’s wives, etc.) spread proportionately across geographic regions (i.e., ten interviews from Newport, ten from Port Orford, ten from Astoria…). It is important to note that this was an explorative research design in that there was no specific hypothesis being tested, beyond assessing whether or not women’s roles in Oregon’s fishing industry had changed over time. Similar to the nature of the fishing industry, this study evolved and morphed into something more focused over time, driven by what was most important to the participants interviewed. Nonetheless, there are ways to improve and add to the results identified here.

Triangulating qualitative and quantitative survey data could strengthen this study, especially data that could provide demographic profiling to better analyze women’s
current and historical role in the fishing industry. Analyzing well-being measures or
dimensions (e.g., material, relational, and subjective) could also be done via survey
instrumentation. This type of analysis would allow for future development of
vulnerability indices that go beyond economic measures currently being used by
NOAA’s Integrated Ecosystem Assessment (IEA) program (Norman & Holland, 2012)
and address broader social impacts. A similar strategy, conducted by Britton (2012) in
Northern Ireland’s fishing communities, was used to create ‘quality of life’ surveys and
semi-structured interviews to analyze gender dimensions of well-being in fisheries.

By triangulating these research methods with oral history data and fishing
community profiles (Colburn & Clay, 2012), researchers can design and implement
social impact assessment models that are understandable and usable by resource
managers. Building on the social network data provided here (e.g., NFW), fisheries
decision makers could use the structure of fishing community networks to “learn how
information is shared and interpreted so that outreach efforts can be made more effective”
(Hall-Arber et al. 2009, pp. 306). Britton (2012) also suggests branching out to other
avenues of policy structures such as social and welfare policy when fisheries regulations
unintentionally create adverse situations for individuals, families, and even communities.

The focus on women, especially fishermen’s wives, in Oregon’s coastal
communities allowed for an exploration of how fishing families adapt to changing
conditions. This research was broad in scope, taking a grounded-theory approach, which
allowed for theory generation and development of potential hypotheses for future studies.
By using oral history methodology or existing data, researchers can identify needed
avenues of research. For example, ‘relationships with processors’ was a reoccurring sub-
theme that surfaced in the data during individual interviews and the group interview with fishermen’s wives. Changes in regulations, including the implementation of quota shares, may be driving a new kind of buyer-seller relationship as processors obtain quota and even help vessel owners obtain quota shares of their own. This is an interesting example of a theme that didn’t acquire the attention needed from this study, but could be explored further by digging into Oregon’s community profiles, conducting baseline surveys, and collecting more oral histories from those with stories and insights to share.

Regardless of the technical approach to constructing a proposal, theory, or theme of interest, there is a difference between understanding and action. As Miles et al. (2014 pp. 61) state, “if you approach your analytic work with a deeper sense of its action implications, your understanding will be deeper—and the benefits to participants more equitable.” This is a good reminder of why this type of research is done in the first place. It encourages the researcher to think beyond their personal interests at the start of a project and always consider what can be offered back to the participants. In this case, using ‘voices from the fisheries’ to tell a story that reflects the reality of what the ‘human dimensions of fisheries’ really are when integrating results into decision-making platforms.
Literature Cited


Bibliography


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APPENDICES
Appendix A. 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/NWFSC/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____________

month/day/year
Printed Name_________________________________________

Name of Interviewer (if applicable)__________________________
Appendix B. IRB Verbal Consent Card

Conway & Calhoun: Using Oral Histories to Track Change

Purpose. We want to understand if and how women’s roles and identities in the Oregon coast fishing industry have evolved with the changing industry.

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 VWCF 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.

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 VWCF oral history project and not this research project.

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Appendix C. VFWC Semi-Structured Questions for Oral History Interviews

1. What was your first job in fishing/fish processing/service?
   a. What made you get into it? (family business, choice, necessity…)
   b. How many years have you been in the industry and how have your jobs changed over the years?

2. Which fisheries have you worked in?
   a. Best ones for you?
   b. Worse ones for you?

3. What changes have you seen in the ocean, coast and/or fishing over time?

4. What role has your wife/husband played in your fishing-related business and how has this changed over time?

5. What role has your kid(s) played in your fishing-related business and how has this changed over time?

6. What does fishing mean to you?
   a. What was the high and low of your career?
   b. What brings you the most joy and the most grief in this industry?
   c. What are your greatest hopes for fishing?
Appendix D. Interview Template for Women’s Roles

1. How did you first get involved in the fishing industry?

2. What do you enjoy about being a fishing family?

3. Please describe for me your role(s) in the fishing business.
   a. How have your role(s) changed or not changed over time?

4. What is it like being a fisherman’s wife?
   a. Can you describe what a ‘day in the life’ of a fisherman’s wife would be like? (Then & now perspective if she mentions changes)
   b. Highs and lows of loving a man at sea?

5. What is it like being a woman at sea?
   a. Can you describe what a ‘day in the life’ on the boat would be like?
   b. Highs and lows of working in a male-dominated industry?
   c. Do you have additional roles on the boat?

6. Please talk with me about how your fishing business has changed over time.
   a. For example, how have (or haven’t) changes in management affected your business over the years? (Groundfish catch share program…)
   b. Economic changes/effects?

7. How would you describe the fishing community?
   a. Any involvement in community associations? [Yes/No]: What is that like? Any reasons for lack of involvement?

8. What advise would you give to a young women thinking of marrying a fisherman?

9. What advise would you give to a young women thinking of becoming a fisherman?