



Graying of the fleet: Perceived impacts on coastal resilience and local policy

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ABSTRACT

Commercial fishing is deeply embedded in the economy and culture of many communities on the Oregon coast. Recent economic, environmental, and regulatory changes impacting fisheries have exacerbated the need to investigate the relationship between the commercial fishing industry and their host communities. The objective of this study is to examine the impact of the ‘graying of the fleet’ phenomenon (e.g., the increase in the average age of commercial fishermen) on community resilience in two coastal communities in Oregon. Utilizing qualitative research methods, the occurrence of the graying of the fleet in Oregon, factors contributing to this phenomenon, and implications for fishing community resilience are examined. Data consisted of interviews with commercial fishermen ($n = 48$) and community leaders ($n = 17$). Findings indicate graying is perceived as occurring by members of the fishing industry, but is not a concern for community leaders. Members of the fishing community and local community leaders agree that regulatory changes and shifting societal norms have resulted in notable impacts to commercial fishing fleets and their host communities. Participants identified the important cultural role of the commercial fishing industry to community identity and sense of place, and expressed concerns that changes in tightening fisheries management could detract from this culture. Implications of the relationship between perceptions of graying of the fleet, fisheries policy and community resilience are discussed.

1. Introduction

Commercial fishing is a dynamic industry characterized by changing regulations, fluctuating environmental conditions, and shifting global economic markets. Despite its fluidity, this industry continues to play an integral role in coastal communities in the United States [67,74]. This is the case in Oregon where commercial fishing has played a crucial role in the economic vitality and social fabric of many rural coastal communities, shaping cultural heritage and identity [34]. In Oregon, the strength of the commercial fishing industry is the basis for resilient coastal communities. The objective of this project is to explore perceptions of community resiliency through examination of the “graying of the fleet” phenomenon in Oregon. This phenomenon denotes an increase in the average age of commercial fishermen, resulting in part from a lack of young entrants into the industry. Graying of the fleet can be connected to several overlying themes including rationalization in fisheries management, dynamic social influences, and the complex role of cultural heritage within fishing communities. This connection is examined through the use of two complementary, yet occasionally conflicting social lenses – perceptions from the “community of place” and “community of interest” – in order to provide a more thorough, nuanced understanding of the impacts of this phenomenon.

2. Conceptual and policy foundation

2.1. Community resilience

Holling [38] is credited with introducing the concept of resilience in the field of ecology in the 1970s [32] and defined the term as the capacity of a system to absorb a perturbation and persist in essentially the same form. During the past several decades, academic interest in the topic of resilience has proliferated and application of this concept has expanded significantly to include the study of human resilience at both the individual and the community level [32,55,61]. Individual resilience is frequently defined as a person's ability to use available resources to overcome stress and adversity [37,7].

Community resilience has been conceptualized in a myriad of ways in a variety of academic disciplines [51]. Scholars have devoted particular attention to the mutual dependence of human and ecological systems through the examination of natural resource dependent communities [10,24,37,40,45,50,53,80]. There is no universal measure of community resilience within this field of study [32]. Rather, scholarship has largely focused on the resources a community possesses and the degree to which the community can collectively develop and engage these resources to improve wellbeing [51,58]. Resilient communities are understood as those with a high degree of economic resources, infrastructure, assets and skills, information and knowledge,

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community networks, access to services, and shared values that can be leveraged on behalf of the community [3,7,29,31,37,50,55]. For the purposes of this project, community resilience is defined as “the ability of groups or communities to cope with external stresses and disturbances as a result of social, political, or environmental change” ([1], p. 347).

2.2. Community of interest and community of place

Although previous studies provide a robust body of knowledge on resilient community research, caution is warranted when assuming a geographic region is homogenous. Even in rural coastal communities, there can be a great deal of diversity on what constitutes resilience. This research provides an examination of the relationship between the graying of the fleet and community resilience by assessing potential impacts of this phenomenon on both “community of interest” and “community of place.” Community of interest (COI) is a term used to describe a shared sense of identity or pursuit. Community of place (COP) refers to a geographic location in which a group of people interact with one another [18,28,31,73]. In this case, COI refers to representatives of the commercial fishing industry, including fishermen, members of fishing families, and fishing support industry representatives. COP refers to communities geographically located on the Oregon coast which house commercial fishing fleets.

This unique parallel approach of involving perceptions between COI and COP is vital to the understanding of community resilience given the inherent connection between the natural environment and human communities, also known as social ecological systems [37,7]. Natural resource dependent communities face dramatic changes in the twenty-first century from diverse economic, ecological, political, and social fronts. Detailed understanding of how such forces of change influence different types of communities is vital to understanding the full spectrum of resilience. This information will also aid local, regional, and national policymakers in assessing the current and potential impacts of their decisions on the fishing industry and biological environment, as well as the social context in which they occur.

2.3. Graying of the fleet

The term “graying of the fleet” refers to the increase in the average age of commercial fishermen, due in part to a lack of young entrants into the industry. Koslow [46] and Carothers [13,14] were among the first to identify the relationship between privatization policies in fisheries management and decreasing opportunities for young people in commercial fishing in Alaska. The age of the fishing industry workforce in Alaska continues to be a source of significant concern [48] with the average age of state fishing permit holders increasing from 40 years old in 1980 to 50 years old in 2014. During the same period, the number of Alaska residents under the age of 40 holding fishing permits fell from 38% of the total number of permits in 1980 to 17% in 2013 [27]. Factors associated with this demographic shift include the high cost of fishing rights, lack of fishing experience and knowledge among young residents, lack of alternative fishery and non-fishery employment opportunities in rural fishing communities, and rising social problems including drug and alcohol abuse [15,27,48]. Overall, a majority of graying research has focused on the commercial fishing industry in Alaska, with studies only recently expanding to other regions.

In the Pacific Northwest, an assessment of a new rationalization program (a neoliberal model of economic efficiency and privatization [62,67] for the Pacific Trawl Groundfish and Whiting fisheries identified an aging workforce as an emerging concern [71]. Data indicate that the mean age of trawl harvesters was 50.8 years in 2010 and 51.1 years in 2012. In 2010, 22.5% of individuals surveyed were 61 years old or older; 27.2% of fishermen fit this description in 2012. Just 10.4% of harvesters were 30 years old or younger in 2010 and this number fell to 5.8% in 2012 [71]. This aging trend is attributed in part to financial

barriers to entry into the fishery, lack of fishing knowledge among youth, and the perception that the groundfish fishery is highly regulated and not particularly lucrative. Assessments of changing demographics of commercial fishing fleets in Alaska and the Pacific Northwest fleet have begun to raise questions about the sustainability of the industry as well as the broader social impacts to fishing communities on the West Coast of the United States [71].

2.4. Policy influences

In recognition of the significance of the relationship between marine fisheries and human communities, the 1996 reauthorization of the Magnuson-Stevens Fishery Conservation and Management Act (MSA) included the addition of National Standard 8. This Standard requires that fishery management plans identify and consider the social and economic consequences of fisheries management actions on fishing communities [20,35,42]. Despite the adoption of National Standard 8 more than two decades ago, often little information about the broader community-level impacts of fisheries management plans is considered formally in this decision making process [75]. This occurs for a variety of reasons, including limited research regarding the social (non-economic) implications of marine fisheries policies having been completed to date, particularly in the Pacific Northwest [22,79]. The National Oceanic and Atmospheric Administration (NOAA) Fisheries unit has created social vulnerability indices using quantitative data from a variety of secondary sources in an effort to assess fishing community vulnerability and identify communities that may be susceptible to social impacts from changes to fishery policies or fishing conditions. However, qualitative research in this area remains scarce [43,44,78].

Commercial fisheries in the United States underwent an unprecedented degree of change during the latter half of the twentieth century that refocused attention on the need to consider the social and economic implications of fisheries management decisions [36]. During the 1970s and 1980s, technological developments that allowed for the rapid expansion of commercial fleets led to increased pressure on fish stocks and a dramatic reduction in fish populations [19]. Regulations were quickly implemented to combat overharvesting and rebuild fish stocks [36]. These measures sought to address economic inefficiencies in the fishing industry through championing a market-based approach to fisheries management premised on a system of private property rights [21,52,62]. The term rationalization, or catch shares, is frequently used to describe the privatization of fisheries resources through the establishment of individual quota systems [13,52,67]. In conjunction with these new management measures, rapid globalization of the world economy and the growth of aquaculture have placed additional pressures on commercial fishing fleets. As a result of these policies and pressures, many coastal communities have experienced profound changes, including reductions in participation in the fishing sector, the consolidation of fleets and fishing businesses, and a loss of jobs, revenue, and infrastructure [15,56].

2.5. Research questions

The aim of this project is to examine community resilience in Oregon through investigation of the “graying of the fleet” phenomenon. Specifically, the objective of this qualitative study is to examine the extent to which the graying of the fleet is perceived in coastal Oregon, factors contributing to this phenomenon, and implications for community resilience and policy. The investigation was guided by the following broad questions:

1. How have marine policies and management decisions and other external drivers of change (e.g., demographic, economic, technological and environmental factors) affected a) the “graying of the fleet?” and b) intergenerational family business practices?
2. Historically, rural coastal communities have been culturally and

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