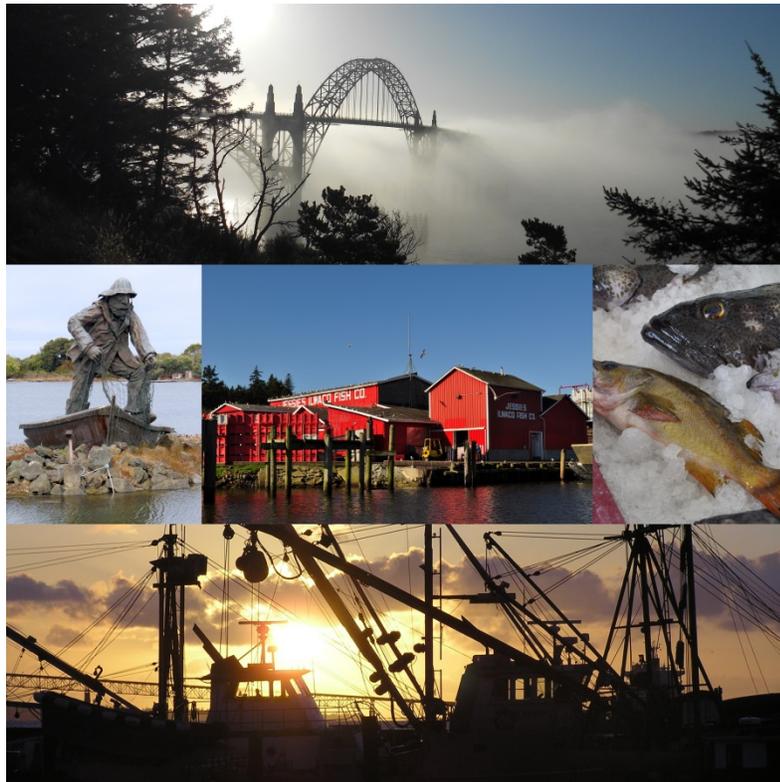


The Pacific Groundfish Fishery Social Study

An Initial Theme Based Report



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Contents

| | |
|--|----|
| Acknowledgements..... | i |
| List of Tables | iv |
| List of Figures..... | iv |
| Summary..... | vi |
| Introduction..... | 1 |
| Legal Background..... | 2 |
| Research Design..... | 2 |
| Data Collection Methods..... | 3 |
| Response Rates..... | 5 |
| Repeat Response Rate and Non-Response | 7 |
| Data Analysis..... | 9 |
| Survey Analysis..... | 9 |
| Interview Analysis..... | 10 |
| Theme Development | 10 |
| Themes..... | 11 |
| Graying of the Fleet | 11 |
| Results..... | 11 |
| Groundfishing is not lucrative..... | 15 |
| Financial Barriers | 16 |
| Loss of knowledge | 18 |
| Industry Suppliers | 18 |
| Changing Social Relationships | 20 |
| Results..... | 20 |
| Fishermen | 22 |
| Processors..... | 28 |
| Crew and Quota Leasing..... | 30 |
| Program Perceptions | 31 |
| Results..... | 31 |
| Effects of Uncertainty on the Perception of Catch Shares | 33 |

| | |
|---|----|
| Uncertainty factor reduced | 33 |
| Knowledge of the catch shares program..... | 35 |
| Non-response rate | 36 |
| Reasons for Respondent’s Support or Rejection of Catch Shares | 36 |
| Survey Data | 36 |
| Qualitative Data Program Perceptions | 39 |
| Benefits | 39 |
| Concerns | 41 |
| Variation of Support for Catch Shares by Fishery | 44 |
| Contradictions, Program Misperceptions, Unexpected Results | 44 |
| Fisheries Participation..... | 48 |
| Results | 48 |
| Fisheries Participation..... | 48 |
| Gear Use..... | 50 |
| Fishermen and Processing Information..... | 52 |
| Change in personnel | 55 |
| Future Plans..... | 60 |
| Discussion..... | 63 |
| Graying of the Fleet..... | 63 |
| Changing Social Relationships | 64 |
| Program Perceptions | 65 |
| Fisheries Participation..... | 66 |
| Conclusion | 67 |
| Bibliography | 69 |

List of Tables

| | |
|--|----|
| Table 1. Geographic distribution of researchers for data collection..... | 4 |
| Table 2. Description of survey sections..... | 5 |
| Table 3. Response rates..... | 6 |
| Table 4. Survey response rates by state..... | 6 |
| Table 5. Repeat response rate for surveys only..... | 8 |
| Table 6. Non response description..... | 8 |
| Table 7. Open ended response to why relationships have changed between fishermen and other harvester roles., mainly observers..... | 24 |
| Table 8. Open ended response to why relationships have changed between fishermen and sellers..... | 27 |
| Table 9. Top 5 reasons respondent's supported Catch Shares..... | 37 |
| Table 10. Top 5 reasons respondents did not Support Catch Shares..... | 37 |
| Table 11. Description of the unexpected results from the transition to Catch Shares..... | 47 |
| Table 12. Why respondents transferred quota pounds to another vessel account..... | 58 |

List of Figures

| | |
|--|----|
| Figure 1. Roles in the industry. NOTE: This is a multiple response set, so participants were able to select more than one role that represented their participation..... | 7 |
| Figure 2. Age range of trawl harvesters..... | 12 |
| Figure 3. Age Started Fishing..... | 12 |
| Figure 4. Number of Years Fishing..... | 13 |
| Figure 5. Frequency cross-tabulation of Age Started Fishing with Total Years Fishing (2012) | 14 |
| Figure 6. Generational Fishing History..... | 17 |
| Figure 7. Age of Trawl Industry Suppliers..... | 19 |
| Figure 8. Quality of Life. Likert scale responses..... | 21 |
| Figure 9. Fishermen's quality of relationships..... | 22 |
| Figure 10. Have fishermen's relationships with other harvester roles changed?..... | 23 |
| Figure 11. Quality of Relationships with sellers (processors)..... | 25 |
| Figure 12. Have Fishermen's relationships with seller's changed?..... | 26 |
| Figure 13. Processor's quality of relationships..... | 28 |
| Figure 14. Have processor's relationships changed with other roles both in the harvesting and processing sectors?..... | 29 |
| Figure 15. Support for catch shares..... | 31 |
| Figure 16. Support for catch shares by state..... | 32 |
| Figure 17. Personally impacted by catch shares..... | 33 |

| | |
|--|----|
| Figure 18. Support for catch shares. | 34 |
| Figure 19. Frequency cross-tabulation of support for catch shares based on knowledge of the program (2010). | 35 |
| Figure 20. Reasons to support or not support catch shares. | 38 |
| Figure 21. Frequency cross-tabulation showing support of Catch Shares by the most important fisheries (2012) | 44 |
| Figure 22. Frequency cross-tabulation of support of Catch Shares and how participants were personally affected by the program (2012). | 45 |
| Figure 23. Fisheries participation in most West Coast and Alaska fisheries. | 48 |
| Figure 24. Most important fisheries for trawl harvesters in 2012. | 49 |
| Figure 25. Most commonly used gear types. | 50 |
| Figure 26. Have targeted species changed? | 50 |
| Figure 27. Processors fishermen sell to. | 52 |
| Figure 28. Fishermen's limitations on selling fish. | 53 |
| Figure 29. Fishermen's considerations where to sell groundfish. | 54 |
| Figure 30. Processor's considerations where to buy groundfish. | 54 |
| Figure 31. Change in crew 2012 (personnel aboard vessels). | 55 |
| Figure 32. Frequency cross-tabulation of whether people have changed by the individual fisheries (2012). | 56 |
| Figure 33. Transfer of quota pounds. | 57 |
| Figure 34. Receive quota pounds from another vessel account? | 59 |
| Figure 35. Why additional pounds were received. | 59 |
| Figure 36. Initial allocation meets expectations? | 60 |
| Figure 37. Continued participation in the Groundfish fishery. | 60 |
| Figure 38. Quota shareholders future plans for the Groundfish fishery. | 61 |
| Figure 39. Continued participation in other fisheries. | 61 |
| Figure 40. Planned participation on other commercial fisheries. | 62 |

Summary

This report is intended to be an abbreviated representation of the social data collected under the Pacific Coast Groundfish Fishery Social Study. This study aims to capture social changes to fishing communities as a result of the rationalization of the fishery. The results are organized into themes, which aim to provide a greater context to the data collected. The results represent two data sets. Baseline data was collected in 2010 prior to implementation. A second round of data was collected in 2012, post implementation. The results represent comparisons between both sets of data. Data is provided in descriptive statistics only. Continued and more in-depth analysis will be released in future reports.

The themes represented in this report include 1) Graying of the fleet, 2) Changing social relationships, 3) program perceptions, and 4) fisheries participation. Information from multiple sections of the survey and interview data informs each theme. Additional themes are expected to arise with future analysis.

Introduction

The Pacific Fisheries Management Council (PFMC) and the National Marine Fisheries Service (NMFS) implemented a new rationalization program for the Pacific Trawl Groundfish and Whiting Fisheries in January 2011.

The management change was driven by biological, bycatch reduction, and economic goals (NMFS 2011; PFMC and NMFS 2010; Steiner et al. 2014). However, rationalization will not only result in changes in stock abundance, bycatch reduction, species recovery, species conservation, and economic efficiency, but also social impacts and changes on people and communities associated with the fishery. Both positive and negative impacts and changes are possible. Impacts are likely to vary geographically and across participant groups (e.g. harvesters, processors, suppliers, etc.).

Scientific literature extensively discusses the impacts rationalization programs have on fishing communities (Lowe and Carothers 2008; Petursdottir and Palsson 1996). Barriers for new entrants have been discussed to include financial barriers, lack of quota (retired quota owners hold onto quota and lease it), lack of knowledge, and lack of work ethic (Deweese 2008; Ecotrust 2004). Community affects may vary where some communities benefit from consolidation and retain the necessary quota and resources to succeed where others lose labor, processing plants may close down, and individuals and families may leave the communities seeking employment elsewhere (Karlsdottir 2008; NRC 1999). Changing social relationships where shifts in power either between owners and captains/crew or owners and processors may be strained when owners retain control of quota shares, (McCay 1995; NRC 1999). Rising values of quota and lease costs being shifted down to crew, have been shown to result in less pay for crew and longer hours at sea (Copes 1996; McCay and Brandt 2001). These longer hours at sea may create not only stressors aboard vessels but also onshore within families, that may already be strained by participation in multiple fisheries to make ends meet. In addition, the ability of communities to adapt to changing fishing conditions as the ecosystem and ocean conditions change may be limited under rationalization programs (Lowe 2008). Social and cultural changes affecting fishermen, processors, and other industry members, such as net suppliers, are probable. Expected outcomes of rationalization such as consolidation and increased efficiency have benefits to the catch, but may also have negative consequences on some people involved in the fishery (Carothers 2013; Olsen 2011)

The extent of the social and cultural changes is likely to depend on the specific characteristics of the fishery being rationalized (Olsen 2011). Changes are also likely to vary across communities. The Pacific Coast Groundfish Fishery spans a considerable length of the West Coast of the United States with fishermen and processors participating in the fishery from Blaine, WA, to approximately Morro Bay, CA. Communities of varying characteristics from small communities with small docks and minimal infrastructure to larger communities with large vessels and extensive infrastructure all are represented within this fishery. As a result, social and cultural changes may vary from port to port or community to community.

In 2010 prior to implementation of the rationalization program we surveyed and interviewed a broad range of direct and indirect participants in the groundfish fishery in order to collect baseline information. Data was collected on demographics, participation, connections and relationships, well-being and perceptions of rationalization. A second, post rationalization, round of data collection was undertaken data in 2012. We anticipate a third round of data collection in 2015. By collecting data before and after rationalization we hope to identify and quantify social and cultural changes associated with implementation of rationalization across the breadth of the diverse communities involved with this fishery.

This report presents a theme-based subset of results from the two data collection efforts undertaken so far. In future we plan to prepare a more extensive report which will include 2015 data to contribute to the five year review of the rationalization program. The research effort also collected information that pertains to other fisheries, which will be available to assist in better understanding similar characteristics in those fisheries as well as ecosystem management applications.

Legal Background

This research supports several legal requirements, not only for this specific management effort, but possibly for other fisheries. Results will support legal requirements by illustrating the importance of the fishery to fishing communities, by taking the first step to identifying the social characteristics of the fishery, as well as initiating an understanding of the relationships between individuals in the industry. All these results will support various sections of the MSA as well as NEPA and other legal directives¹.

Research Design

This research project was planned to collected data over time in phases. Data collection is linked not only to the inception of the program (i.e., pre and post implementation) but also the design elements of the program. Specifically, the commencement of the quota share transfers which were prohibited in the initial years of the program. Initial data was collected from June – December of 2010, prior to the implementation of the catch shares program. This data serves as a baseline. Any future data collections could then be compared to this data set to assess any social changes.

¹ MSA National Standard 8 Sec 301 (a)(8), Section 303 A.(c)(1)(C), Sec. 404(a), & Sec. 404 (c)(3)

After implementation, a second round of data collection was conducted from June 2012 – February 2013. This was the first round of data collection post-implementation and before any other program elements were triggered. The timing of this data collection was after a full year of the program had been in place. This allows for measurements of any changes as a result of the initial implementation.

A third round of data collection is planned for at minimum one year after the authorization of quota share trading. This round of measurements will serve both to understand any changes related to the trading of quota shares, as well as provide a longer duration since implementation to measure change. It will also provide a comparison to the 2012 data set. Funding has been requested to conduct this round of data collection during the summer of 2015 but has not yet been appropriated.

Data Collection Methods

Data was collected using a mixed methodology. A combination of a survey instrument and semi-structured interviews were used to maximize the amount and type of information gathered from study participants (Bernard 2000; Russell and Schneider-Ruff 2014; Schensul et al. 1999). The goal of the survey is to attempt to survey all known participants of the industry (Bernard 2000; Schensul et al. 1999). These known individuals were initially found through the Limited Entry Permits held prior to the catch shares program, and double checked with the Quota Share Permits databases for the 2012 data collection effort². Additional participants were sought through snowball sampling, a type of purposive sampling, where referrals were obtained from existing participants to locate new participants (Bernard 2002; Robson 2002). This was necessary to approach participants such as crew members and fishermen's wives where no identifying information is available. Participants from the 2010 baseline collection were approached again for participation in the 2012 data collection effort.

Surveys were primarily conducted in-person, which allowed for in-person interviews. Interviews supplemented survey questions, and allowed for participants to raise discuss other related topics. Researchers were distributed throughout the West Coast to increase accessibility to local communities (Table 1). All surveys and interviews were completely voluntary and confidential. The survey was also available electronically, on the study website, could be emailed upon request, and hard copies were mailed upon request. The option to conduct the survey in person was selected to improve response rates and to reach those communities that are more remote and would be less likely to respond to other forms of data collection (Rea and Parker 1997; Russell and Schneider-Ruff 2014).

² NOAA Fisheries Pacific Coast Fisheries Permit System, West Coast Regional Office.
http://www.westcoast.fisheries.noaa.gov/fisheries/groundfish_catch_shares/quota_share_permits_accounts.html.
Accessed October 7, 2014.

Table 1. Geographic distribution of researchers for data collection.

| Location of Researcher(s) | Responsible Communities* |
|----------------------------------|---|
| Seattle, WA | All WA State, Astoria, OR, Garibaldi, OR, Other Oregon as needed |
| Newport, OR | Newport, OR Florence, OR Coos Bay, OR Brookings, OR Port Orford, OR |
| Eureka, CA | Crescent City, CA Eureka, CA Fort Bragg, CA |
| San Francisco, CA | Bodega Bay, CA Princeton/Half Moon Bay, CA San Francisco, CA |
| Monterey, CA | Monterey, CA Moss Landing, CA Morro Bay, CA |

*NOTE: Researchers would travel to other communities within a 25 mile radius of these identified communities to capture viable participation.

Study participants include several types of people connected to the fishery and affiliated fishing communities. This includes fishermen, vessel owners, vessel operators, groundfish limited entry permit owners, quota allocation recipients\permit owners, crew aboard groundfish/whiting vessels, mothership operations, catcher-processor operations, shoreside processors, first receivers/buyers, and other individuals who are stakeholders in the fishery such as partners or spouses, businesses that are directly tied to the groundfish/whiting communities through the supply of commercial items to include, but are not limited to net suppliers, fuel suppliers, equipment suppliers, dry docks, etc.. We were also approached by fixed gear fishermen who wished to participate in the study. Resources to conduct this effort were limited to the trawl fishery participants, however, researchers obtained fixed gear participation where possible. As a result, the data set does contain a limited representation of the fixed gear fishermen. All results that contain fixed gear responses are clearly identified.

Data included in the survey is extensive. The 2010 survey was reviewed and minor adjustments to provide additional clarity were applied to the 2012 survey. Where any changes affected the results, it is noted in the results. In addition, the 2012 survey contains an additional section as noted below in Table 2.

Table 2. Description of survey sections.

| Survey Data Section | Description |
|-----------------------------------|--|
| Demographic | Comparable to U.S. Census data where it is not otherwise obtainable for fishermen |
| Individual Participation | Expansion to include individual role information, family participation, and job characteristics information |
| Connections | Collects information to inform social networks within the fishery and communities |
| Quota Perspectives | Collects information to gauge perceptions of the catch shares program and identify key areas of support and concern. |
| Fishermen | Collects information to understand how fisherman fish, what they fish for, how so they work with processors, and how they move between fisheries. |
| Processors | Collects information to understand what species are important to processors and why, how do they work with fishermen, and how do they market and distribute product. |
| 2012: Quota Allocation Recipients | Collects information to understand leasing and retaining of pounds, and how do different people manage their allocation. |

In conjunction with the survey, or in the event a participant was not interested in taking the survey but would participate through an interview, semi-structured interviews were conducted. These interviews provided the opportunity to capture additional information about survey questions as well as pursue lines of questions independent of the survey. The majority of interviews were conducted in-person and a few interviews were conducted over the phone when in-person interviewing was not feasible. Interviews were audio recorded with permission and general were completed within 60 minutes, although they ranged in length from 10 minutes to 4 hours.

Response Rates

Response rates have been calculated for both the 2010 and 2012 survey results based on the total response as well as for the trawl only response rate (Table 3). Trawl only responses remove any fixed gear participation and only reflect participants with any connection to the groundfish trawl industry. While both the overall and trawl response rates were lower in 2012, the study had a much higher target in 2012. Study participants had the option of taking the survey, participating in an interview or participating in both formats. Response rates by state show declines in participation in Oregon and California and an increase in participation in Washington (Table 4).

Table 3. Response rates.

| | Survey and Interview | Survey Only | Interview Only | Total Survey | Total Interview | Targeted | Response Rate |
|-------------------------|-------------------------------------|------------------------|---------------------------|-------------------------|----------------------------|-----------------|--------------------------|
| 2010 Overall | 201 | 41 | 32 | 242 | 200 | 379 | 63.9% |
| 2012 Overall | 235 | 24 | 31 | 259 | 236 | 500 | 51.8% |
| 2010 Trawl | 172 | 38 | 31 | 210 | 171 | 340 | 61.8% |
| 2012 Trawl | 195 | 22 | 25 | 217 | 195 | 386 | 56.2% |

Table 4. Survey response rates by state.

| | WA | OR | CA |
|---------------------|-----------|-----------|-----------|
| 2010 Overall | 60.0% | 60.4% | 71.0% |
| 2012 Overall | 51.7% | 49.0% | 54.6% |
| 2010 Trawl | 47.6% | 58.7% | 68.9% |
| 2012 Trawl | 63.6% | 51.3% | 60.0% |

In 2010 there were 200 interviews conducted in total, 24 of which were with two more respondents. 171 of these interviews were categorized as trawl, 21 of which were conducted with two or more people. In 2012 there were 236 interviews conducted in total, 26 of which were with two or more respondents. 195 of these interviews were categorized as trawl, 19 of which were conducted with two or more people. The breakdown of participant's roles as reported by the participants is described in Figure 1.

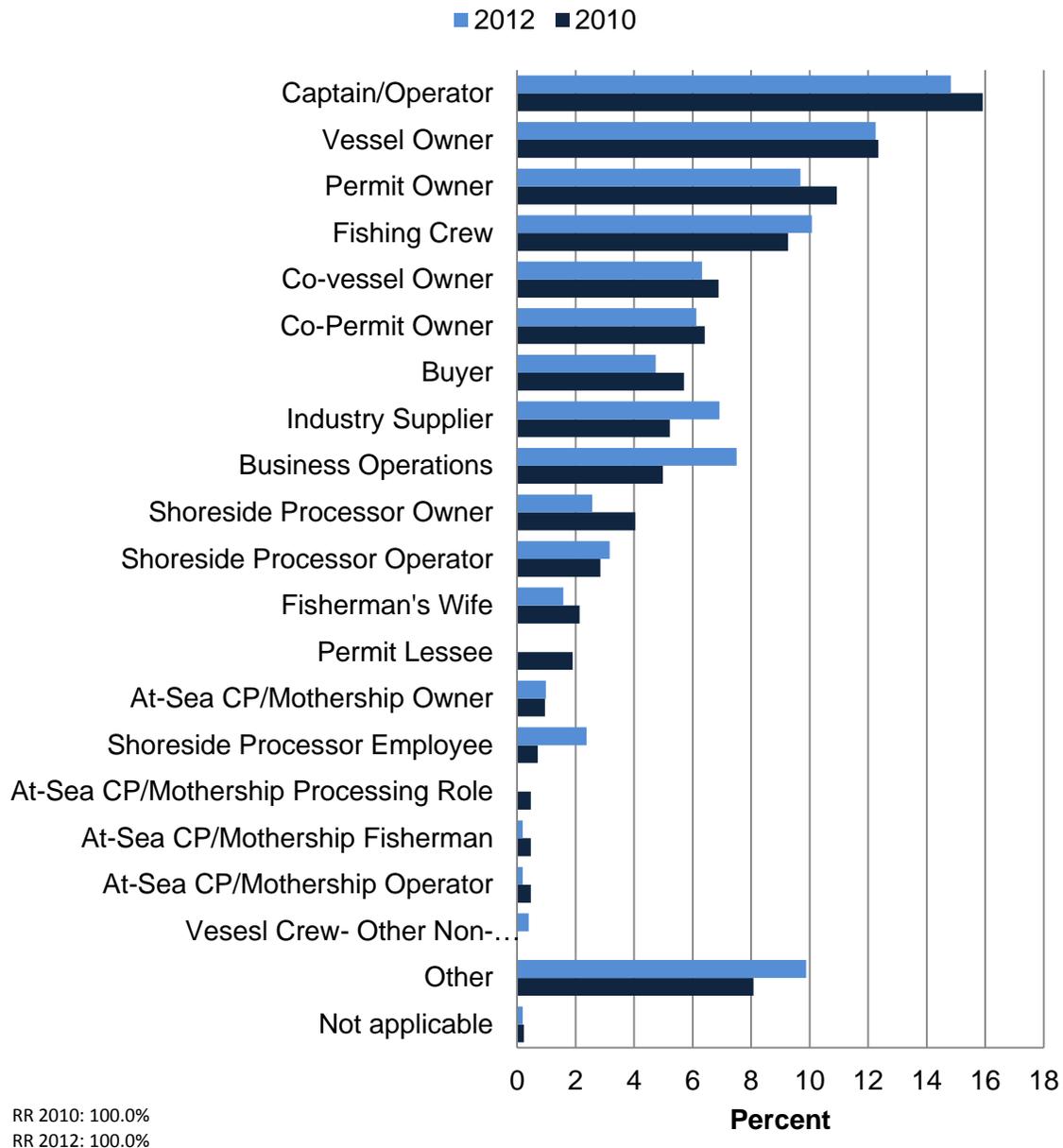


Figure 1. Roles in the industry. NOTE: This is a multiple response set, so participants were able to select more than one role that represented their participation.

Repeat Response Rate and Non-Response

This study attempts to understand the impacts of Catch Shares over time, and thus targeted many of the 2010 participants in the 2012 data collection process. The repeat response rate for the 2010/2012 survey efforts has been calculated as the number of repeat respondents who participated in either the survey or the interview, or both. This more accurately describes the

amount of respondents who participated as some respondents switched the format in which they participated. For example, in 2010 a participant might have only taken the survey, but in 2012 decided to only participate in the interview or vice versa. This combined response rate is 54.2%, reflecting any type of participation by 2010 respondents also participated in 2012. Response rates may also be calculated for repeat survey participation only as well. Calculations of those participants that repeated the survey portion of the study only are represented in Table 5.

Table 5. Repeat response rate for surveys only.

| | Total surveys | | Total surveys | N new | % New Respondents | N repeat surveys in 2012 | % Repeat Response |
|---------------------|----------------------|---------------------|----------------------|--------------|--------------------------|---------------------------------|--------------------------|
| 2010 Overall | 242 | 2012 Overall | 259 | 137 | 53.0% | 122 | 50.4% |
| 2010 Trawl | 210 | 2012 Trawl | 217 | 109 | 50.2% | 108 | 51.4% |

Table 6. Non response description.

| Reason | Non-response Rate | |
|---|--------------------------|-------------|
| | 2010 | 2012 |
| Left messages, No return response | 34.2% | 36.1% |
| Unable to contact due to bad information | 3.4% | 16.6% |
| Agreed to participate but unable to arrange | 8.5% | 13.7% |
| Not applicable to study | - | 9.8% |
| Surveys not returned | 31.6% | 7.3% |
| Immediate decline – Multiple reasons | 3.4% | 5.4% |
| Immediate decline – No reason | 7.7% | 2.4% |
| Health Condition Prohibitive/Deceased | 0.9% | 2.9% |
| Other | 10.3% | 5.9% |

Non-response was recorded by researchers in the participant tracking process. If we were able speak with participants and they declined to participate, they were asked questions to ascertain their reasons why they did not wish to participate. If reasons were indiscernible, standard codes were applied based on levels of contact (Table 6). The highest levels of non-response were in the inability to obtain a return response from primarily phone messages. Researchers would attempt to make contact up to three times. If no response was achieved, further contact was not pursued. One caveat to this contact, is if the participant was a permit owner and address information was available. Under these circumstances a letter and flyer were mailed to the individuals as well. This category of non-response, includes small percentages of lack of response to these letters and any email communications, where addresses were available.

Contact information, either provided by referrals, from the 2010 information, or through the permit documentations often yielded disconnected phone numbers or ‘return to sender’ addresses. The category of ‘unable to contact due to bad information’ is reflective of these circumstances. In the case we were able to make contact and participants agreed to participate but schedules were very busy, we followed up with participants throughout the entire study period. Often four to five attempts were made to accommodate schedules. However, 8.5% (2010) and 13.7% (2012) of the time, researchers were unable to make a final connection to secure participation. We attempted to reach additional members within targeted communities, usually through referrals and 10.3% (2012) of those we approached felt they did not meet the criteria to participate in the study either because they did not participate in the groundfish fishery, or felt they were too far removed from the fishery to contribute to the study. Surveys were available to be mailed, dropped off, and they were accessible on the study web page. 31.6% in 2010 and 7.4% in 2012 of the surveys that were not conducted in person were not returned. These included surveys that had been dropped off by researchers, mailed, and accessed on-line. Several individuals declined to participate. 7.7% in 2010 and 2.9% in 2012 did not provide any specific reasons. However, for those who did, 3.4% in 2010 and 4.4% in 2012 showed a consistent trend of anger towards NOAA and the catch shares system. Post implementation reasons included the loss of jobs, low allocations affecting the ability to fish, or general negativity towards the catch shares program. Other reasons some did not participate included people having moved out of state, selling of boats, retiring, some participants yielded to other family members who participated, and some felt uncomfortable participating and referred us to senior personnel in their businesses. In some of these cases, we had still hoped to gain participation, however participants did not want to have any input into the study.

Data Analysis

Survey Analysis

Surveys were analyzed across all data, by all trawl respondents, all trawl harvesters, all trawl processors, fishermen’s wives/other industry operations, by state, by community (where confidentiality allows), and by fixed gear. Each of these types of analysis allows for a more detailed perspective of the data. This detail provides a greater understanding of differences between variables, for example, states or communities. For the purpose of this report, the majority of the results presented will be representative of the ‘all trawl respondent’ analysis. Additional reports will expand on the full range of analysis. A primary focus of this report is a comparison of response in 2010 and 2012, pre and post rationalization.

Interview Analysis

Interview data was transcribed and analyzed using Atlas.ti version 6.2 and MaxQDA version 11 software. Transcripts were analyzed with a grounded theory framework using in vivo coding and descriptive coding (Corbin and Strauss). Grounded theory and the use of in vivo coding allow concepts and themes to emerge directly from the data in the language of the participants rather than in terms of preexisting theory (Saldana 2009). The end result of grounded theory analysis is often verbatim quotes from participants that help demonstrate key ideas and theories (Ryan and Bernard 2003). Data was reviewed in an iterative process to identify information relevant to the research questions, which included paying special detail to frequency, omission and declaration of data (LeCompte 2000). 121 codes such as “availability of observers” or “business planning” were created to reflect interview content. Definitions and memos were created for each of the codes which helped to elucidate code meanings and conceptualize similarities and differences; codes were then clustered together to form categories (Kendall 1999). The categories were then examined for their relationship to one another, which paved the way for categories to be woven together to form a broader narrative (Holloway and Todres 2003).

Theme Development

The broad range of data available from this research is very informative and comprehensive, but also too extensive to present in this short report. The analysis for each survey question will be available to be viewed in future technical memoranda that will be released after the 2015 data collection effort. However, to better show the utility of this data, we have organized information both from specific sections of the survey and between sections of the survey to illustrate key themes. These themes are further supported with qualitative data results. This report is based in the identification of four initial themes generated from both the 2010 and 2012 data sets. Additional themes will likely be identified as analysis continues. This report serves as an initial communication of these results. The themes discussed in this report are as follows:

- 1) Graying of the Fleet
- 2) Changing Social Relationships
- 3) Program Perceptions
- 4) Fisheries Participation

Each theme will be discussed and supported in the remainder of this report.

Themes

Graying of the Fleet

The realization that members of the fishing industry inclusive of fishermen, vessel owners (where differentiated), crew, as well as in other industry support business members are aging is one that is gaining attention in recent years. This is coupled by the concern of the lack of new entrants to the industry. The Pacific Coast Ecosystem Plan discusses age parameters for various fisheries on the West Coast and suggests the need for new recruitment approaches to draw future generations of fishermen into the business (PFMC 2013). Understanding where past generations of fishermen came from may not assist in recruiting new generations of fishermen, but understanding perspectives on the issue may go a long way to plan for the future. We present several indicators that relate to this issue we refer to as “graying of the fleet.” We also present qualitative information in the form of excerpts from interviews that provide context to the quantitative results.

Results

The majority of harvesters³ in the Pacific Coast Groundfish Fishery are approaching ages where they may consider retiring and exiting the fishery in the next 10-15 years. Currently, there does not appear to be an equivalent population of younger fishermen who will replace those retiring in the fishery. Qualitative data reveal that younger fishermen may not want to enter the Groundfish fishery because it is not considered lucrative or they cannot enter because of financial barriers. The majority of the current fishermen have been fishing for more than 26 years and entered the fishery at a very young age (6-20). These fishermen have participated in the Groundfish Fishery for a while and have gained working knowledge of the fishery and the grounds. Therefore, there could potentially be a loss of knowledge as seasoned fishermen retire without passing on their skills to crew working their way up the back deck.

³ Harvesters are defined as all members related to ‘fishing’ inclusive of captains, crew, Limited Entry permit owners (2010), quota share permit owners, vessel owners, and any other vessel roles.

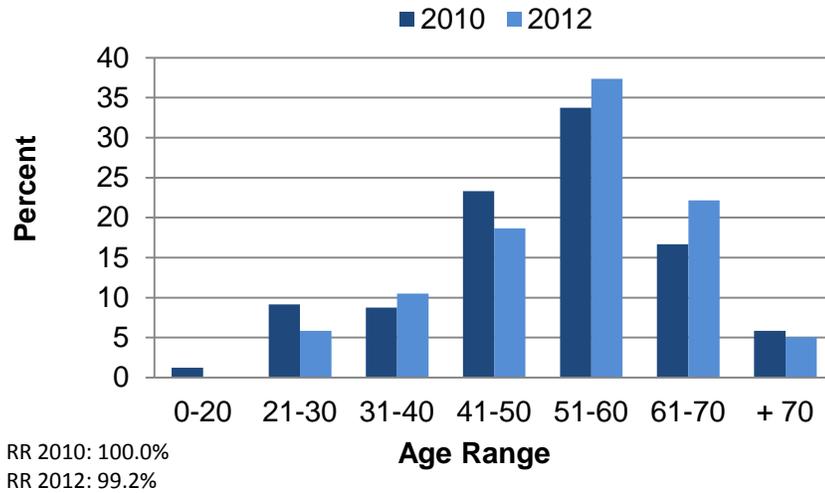


Figure 2. Age range of trawl harvesters.

Harvesters in the Pacific Coast Groundfish Fishery are aging. The mean age of trawl harvesters in 2010 was 50.8 years, in 2012 it was 51.1 years. A slight majority of trawl harvesters fall in the 51-60 year old range for both survey years, 33.8% and 37.8% respectively (Figure 2). Over half the harvesters in both years are over 50 years old (51-70+ years), 56.3% in 2010 and 64.6% in 2012. The increasing percentage of fishermen who are 61 years old or older is also noteworthy. In 2010, 22.5% of groundfish trawl fishermen surveyed were 61 years old or older, whereas this percentage increased to 27.2% in 2012. Fishermen at this age are close to retirement, and are typically replaced by younger captains and deckhands who may be physically more capable and who want to establish their own fishing careers. On the contrary, the data available show a lack of younger fishermen. Only 10.4% of harvesters were 30 years old or younger in 2010, and this percentage decreased to just 5.8% in 2012.

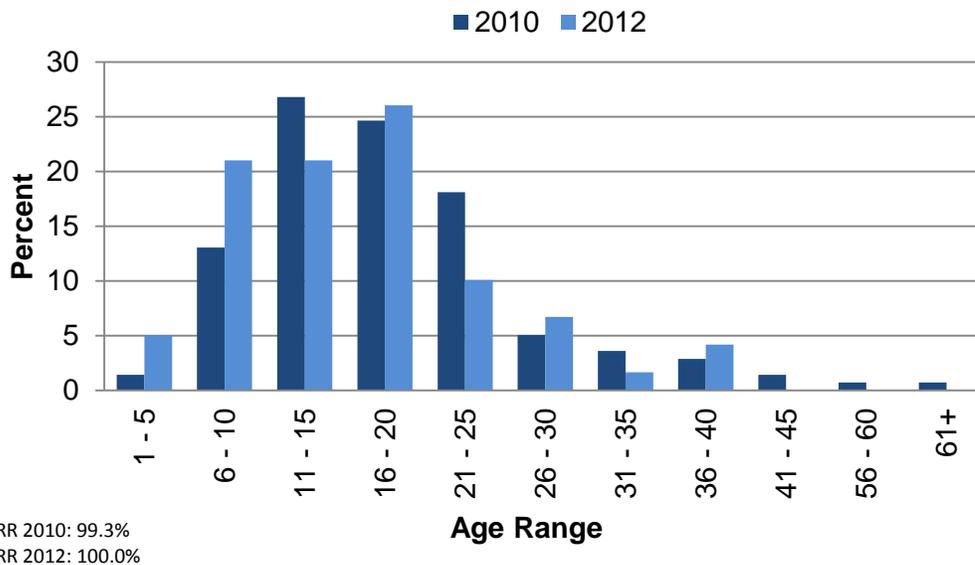


Figure 3. Age Started Fishing

The vast majority of survey respondents (82.6% in 2010 and 78.2% in 2012) stated that they typically began fishing between the ages of 6-25 (Figure 3). It is interesting to note in the previous graph that in 2012 there were no fishermen under the age of 20, and relatively few (5.8%) were between the ages of 21-30. If the majority of Groundfish fishermen typically enter the fishery before they are 25 years old, this suggests that either the younger fishermen are not entering the Groundfish fishery or the participants may be currently entering at a later age.

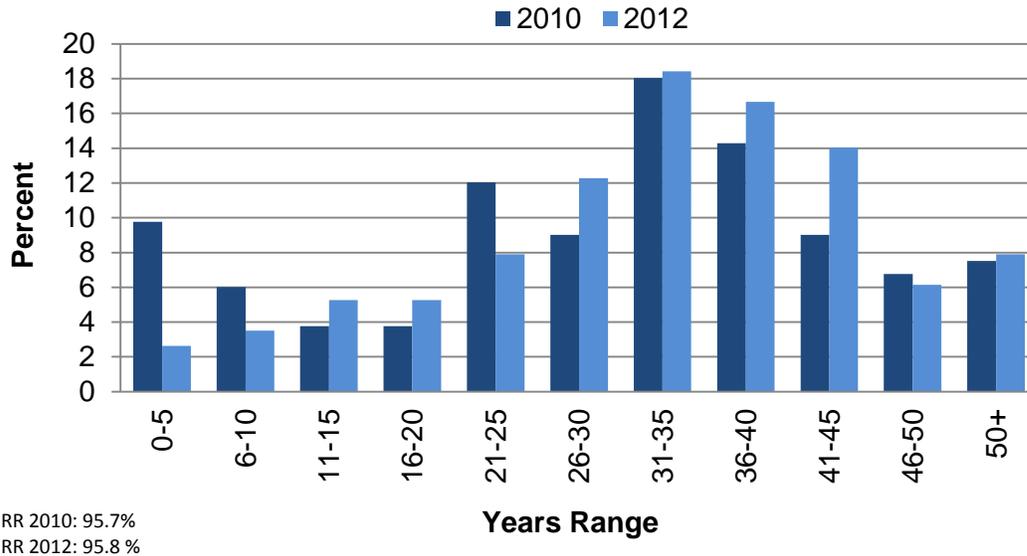


Figure 4. Number of Years Fishing

The majority of participants have been in the commercial fishing industry for 31- 35 years, 18.0% in 2010 and 18.4% in 2012 (Figure 4). Over half of the fishermen indicate they have been fishing for more than 31 years, 55.6% in 2010, 63.2% in 2012. While there were some newer entrants in 2010, represented by low years of fishing, that number dropped from 9.8% in 2010 to 2.6% in 2012.

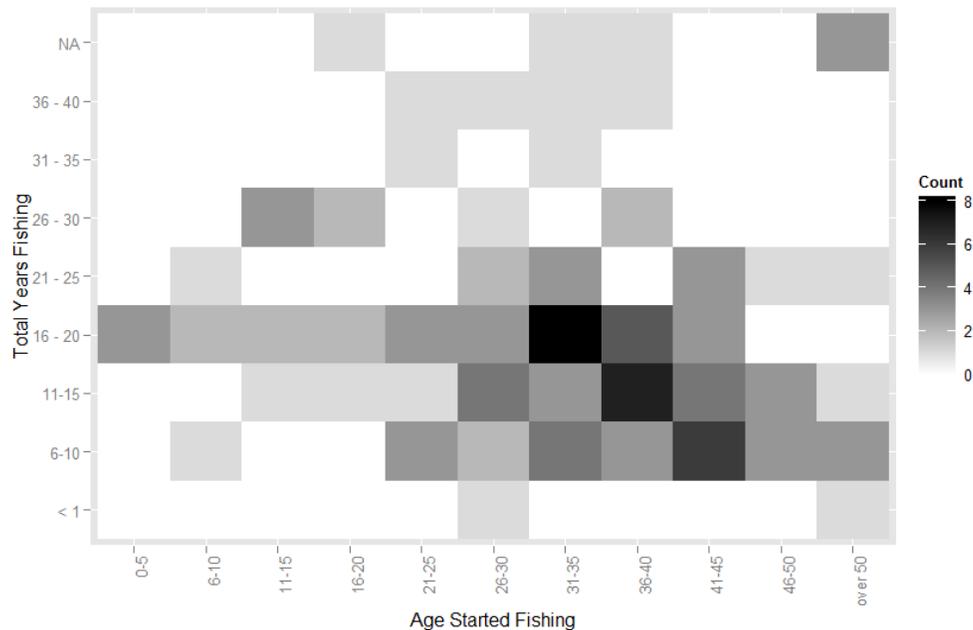


Figure 5. Frequency cross-tabulation of Age Started Fishing with Total Years Fishing (2012)

A cross-tabulation of age started fishing and the number of years fished reveals that the majority of current fishermen are older, experienced fishermen who have been fishing for a substantial amount of years (Figure 5). While there are some outliers of younger fishermen currently entering the fishery within the last 5 years, the majority of current fishermen (75%) have been fishing for more than 26 years and entered the fishery at a younger age (6-20).

Groundfish fishermen themselves confirm the finding that the population of participating harvesters is aging and that these participants are not being replaced by younger fishermen. A survey respondent from Seattle states that:

“We’ve got a major problem with the aging of the crews. In our fleet, for example, most of our guys are close to 50 years old or older. And we don’t see young people getting involved in fishery, it’s just not happening (2012).”

Another participant in Bodega Bay states that

“All our fishermen are cotton tops, white hairs. There’s no new blood (2010.)”

This trend is concerning given the fact that coast wide, older fishermen are continuing to participate in a demanding fishery, which may have implications for health and safety. It also raises questions such as why aren’t new entrants coming into the fishery? And what barriers to entry do they face?

Qualitative data help to shed light on why the Groundfish fishery is not attracting new entrants. Fishermen identify that potential entrants either do not want enter the groundfish fishery or can’t because of financial barriers.

Groundfishing is not lucrative

Data reveal that younger entrants might not want to enter the Groundfish fishery because it appears that the industry is shrinking, perhaps even dying. Participants report that at the moment the Groundfish fishery looks like a dying industry that no one wants to invest in; infrastructure is falling apart and it is apparent that the fleet is aging out:

“If there’s success, yeah there’s a lot of people that wanna be fishermen. If you have a healthy industry that induces, especially young people, to take part in it. When they see somebody’s making a living at it. When they can see, you know, that it’s being conducive to makin’ a living and all that, then people are gonna want to get into it. If you’re looking at it in disarray and there are boats that are failing and anything else like that... it doesn’t take too much to figure out that, “Well, I don’t want to do that.” You know ‘cause fishing is not an easy way to make a living by any stretch of the imagination... So if you’re not making a living you’re certainly not gonna do it. So we need to have an industry, one of the things we’ve always talked about is we call “providing for entry level”, where we’re providing for new participants... well short of giving somebody some money you’re not gonna get new participants unless the business itself looks like it’s something that new participants want to get into.” (Industry provider, Fort Bragg, 2012)

“The way it was before the catch share program was easier to find crew. I mean...I can't... I had a guy quit me in probably April. I can, I can't hardly replace him. Because nobody's coming into fishery anymore. This fishery is dying, I mean literally going away. There nobody comin'... why would you? I mean, we're...there's no stability whatsoever, I mean.. every time you turn around the share or the quotas are getting cut or bam! you go out and make an unlucky tow. You're outta fish.” (Eureka Fisherman, 2012)

Fishermen also state that the Groundfish fishery is highly regulated. They don't make that much money compared to other West Coast and Alaskan Fisheries, with the exception of Pacific Whiting. The Groundfish fishery is not perceived as lucrative or financially able to support livelihoods. Participants state that Groundfish fishing needs to be lucrative; new entrants are not going to enter a profession that they can't make a living at:

“Like I say, you can't, you can't spend money without some kind of return. You know, we're not in the charity business, so it makes it a little frustrating in that regard. In fact I mentioned to someone just a while ago that there's not a lot of young people entering the fisheries. There's a lot of old, grey haired guys like me in the business. And the statement that I said got a chuckle out of a couple of em. I said, “Look. If a young guy has got the money to get in the fishery, to buy quota, to buy a boat, and to get into the fishery...you probably shouldn't.” I mean, seriously, if you've got...if you've got that kind of money, invest it somewhere else. Uh, I mean you're talking, to just get started, it's going to cost you half a million dollars!” (Astoria Fisherman, 2012)

Given the choice, younger fishermen would rather participate in other fisheries. Many children of fishermen are dissuaded from entering the fisheries altogether. It is unclear whether the

transition to Catch Shares management will eventually change the perception of the Groundfish Fishery being a dying industry.

“What we’ve done now is we have no expertise to carry on the industry. I mean, my kid’s 45 years old. And I don’t see any one of his 3 children going into the fishing business. I have another grandchild in another family that is going in the fishing business, but...the one that runs my boat, I’d be surprised if...I don’t, I don’t expect any of them, they show no inclination to go into it. They don’t even go on the boat. And so where are we going to get the people to run these boats down the road?” (Fort Bragg Fisherman,2012)

‘I think that at one time it was looking very...kind of an unstable thing and you know 2 years ago, or 5 years ago when we were cut back so far on limits, guys were out there 2 manning just to keep things going so, maybe...maybe they’ll be able to see more future in it with this program, if it continues to be successful. Maybe that will change, but I don’t see that happening right now.’ (Astoria Fisherman, 2012)

Financial Barriers

“There is no avenue for new entrants, unless you’re exceptionally wealthy or exceptionally lucky.” (Monterey Fisherman, 2012)

While there are a few respondents who believe that the Groundfish fishery is still accessible to new entrants, most fishermen state that it’s very difficult for new entrants to come up with the financial capital needed to enter the Groundfish fishery. Most newer entrants do not have the startup capital needed to buy a boat, a trawl permit, and quota share. There are very few places that will finance this type of loan, and even then loan payments might be too high.

“You know, I’ve been lucky. I’ve been fishin’ my whole life. I’ve had some good seasons and would like to believe I’ve managed my money fairly well. My boat’s paid for. All my permits are paid for, you know, and I’m okay...So I could afford to fish fairly cheaply. I don’t have a mortgage, I don’t have payments on, you know, permits or IFQ or, you know, that I bought or anything like that. So I can afford to fish fairly cheaply. And when guys like me are startin’ to suffer a little bit...There’s no chance for somebody new to come in. You know and make a go of it. I mean, yeah, if somebody has just an atrocious amount of money, sure they could get in. But for the average person to come in, you know, borrow some money, maybe have a little bit of money saved up and make a go of it...it’s impossible.” (Fort Bragg Fisherman,2012)

“You know the saddest thing about all of this coming down now...I’m sure it’s going to work out good for me, I don’t know what I can get for it, but I’ll get something. But a young man that’s coming into the business and wants to work hard...there’s no way in hell he’s going to get a million or whatever it takes to get into it. Let alone buy a boat. So unless NMFS comes up with some kind of a...loan program to help crew members or whatever that...I mean there’s guys who want to fish, but it’s financially impossible to do.” (Astoria Fisherman, 2012)

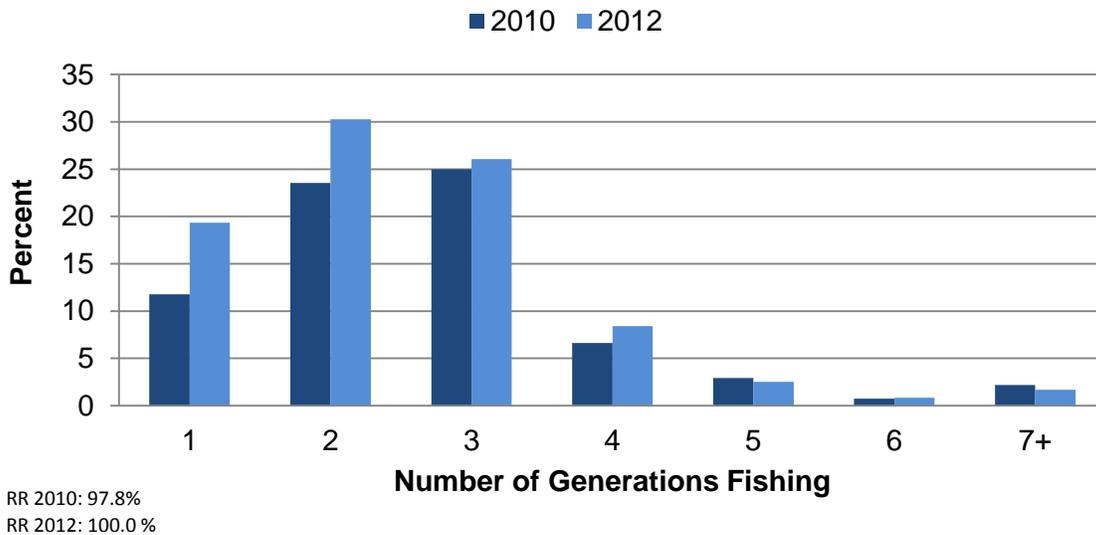


Figure 6. Generational Fishing History

Data indicate that fishermen are more likely to come from a multi-generational family fishing background. The majority of responses indicate fishermen are second or third generation fishermen, while some, 12.5 % in 2010, and 13.4% in 2012 indicate they come from over three generations of fishermen (Figure 6). Most of these responses are families with strong Norwegian and Scandinavian fishing heritage.

Although this background may make it more likely for younger fishermen to become established, it does not necessarily guarantee newer entrants a better financial position. Current groundfish fishermen usually rely on the price of their boat, permit and quota as their retirement. Some state that although they would like to gift their operation to their sons and other family members, they financially can't afford to do that, and will end up selling to the highest bidder.

The natural progression from crew to operator to owner is not as functional in the Groundfish fishery. The crew often does not make enough money to work their way up the back deck (Copes 1996). This is exasperated due to additional costs of the Catch Shares program in the future (cost of buying quota) as well as current decreased pay due to the additional cost of lease rates:

“But I’d even recommend talking to some of the other draggers that have just even leased out their quota. Again, that’s taking away from the crew that’s on their boat, that’s income that now they’re losing out, and so not only is the crew on that boat losing out on those fish, the quotas being leased out and everyone on the other boat is not getting paid what they normally would have.” (Astoria Fishermen 2012)

“The lease rate comes off the fish price, so under that scenario you have to catch more product to make the same amount of money. So, yeah, there have been some guys that say, I can’t do this. There’s been guys that have completely switched out of the fishery, and do something else.” (Astoria Fishermen, 2012)

Loss of knowledge

The finding that the Groundfish fleet is aging raises questions about the sustainability of the fishery in terms of preserving skills and knowledge necessary to prosecute the Groundfish fishery. There could potentially be a loss of knowledge as seasoned fishermen retire without passing on their skills to crew working their way up the back deck. Who is learning how to fish for groundfish if younger fishermen are not entering the fishery and learning from more experienced operators? Fishermen state that optimally the fishery operates much like an apprentice program would:

“We need to support the older guy with the knowledge, as they are needed to mentor the young guys coming in to the fishery. We have to support that natural transition from older to younger practitioners, like an apprentice program would.” (Morro Bay Fisherman, 2012)

Experienced fishermen express concern that unexperienced captains will not be able to prosecute the fishery. Groundfish fishing is a learned skill:

“Yeah, anybody can go run a shrimp boat. All you gotta know how to do is run the gear up and down. With trawl it is, it's experience. That's the only way you can get it is by doing it.” (Eureka Fisherman, 2012)

There is not a lot of room for error in the Groundfish fishery under the Catch Share system. Operators need to know the grounds well, their gear well, and be very aware where they might catch constraining bycatch species. The consequences of having an overage range from having to purchase more quota, to potentially getting shut down and losing a job. Most older fishermen have had years to perfect their skills, and are currently participating in the Catch Shares program. What will happen when older fishermen retire and ‘green captains’ attempt to participate in the Groundfish fishery?

“I don't see a lot of younger people getting into this, as a way to make a living, so that kind of concerns me a little bit. I've got deck hands that are 50 years old, I mean, how long can these guys continue to do this...with such low bycatch rates or poundage issued on yelloweye or canaries? I mean, how can you trust a green captain to go out and actually participate in the fishery? So sooner, you know, some of these captains are getting older too, you know. Some of these guys are going to start wanting to not...they're not going to do it after a while, and I don't see a lot of young people coming in to learn the bottom and I'm a little bit concerned about that. I mean, probably not in my lifetime, it's going to be fine for me, but 30 years from now? You know, it might be a little different.” (Astoria Fisherman, 2012)

Industry Suppliers

Harvesters in the Pacific Coast Groundfish Fishery are not the only ones aging. There is a clear trend for fishery industry suppliers as well. The mean age for industry suppliers in 2010 is 52 years old, and in 2012 is 56 years old. Results indicate that the majority of industry suppliers

41.7% in 2010 and 43.8% in 2012 were 51-60 years old (Figure 7). 81.3% of industry suppliers in 2012 were 51 years old or older, as compared to 66.7% of industry suppliers who were 51 years old or older in 2010. The percentage of industry suppliers in the 61-70 year old bracket more than doubled from 2010 to 2012.

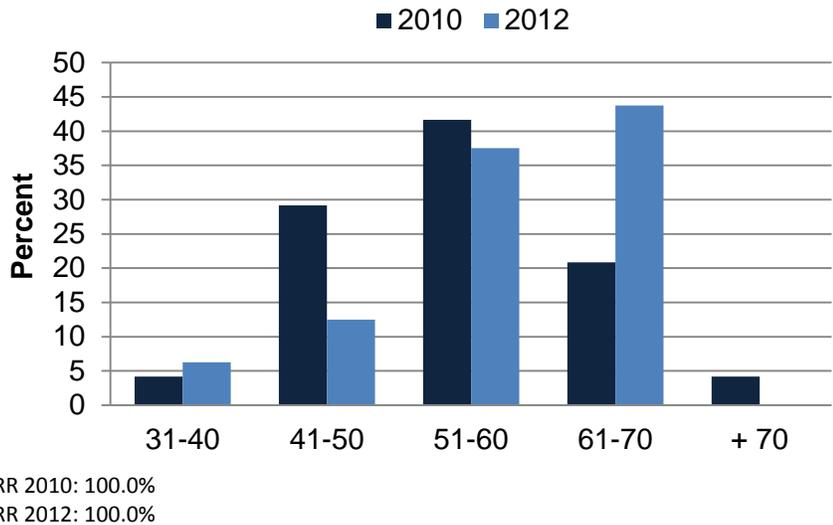


Figure 7. Age of Trawl Industry Suppliers

Loss of industry knowledge is also a concern for industry suppliers. Many suppliers report that they are the only ones that supply a specific service over a wide portion of the coast. They state that they are getting older, and that their family has no desire to continue the business. Some suppliers go so far as to say that they have tried to find an apprentice to train, but that they haven't found anyone interested. When the current generation retires, it is unclear who will have the knowledge to provide industry services, considering that:

“Working on boats is different than working on anything else and there are no schools for it. You either get in or get down or get dirty and have somebody with experience teach you. Boats are systems they are not just boats. They are fuel systems, hydraulic systems, propulsion systems, electronic systems, there is a myriad of things that they are. They are floating, living spaces that work and so all these systems interact and you need to have a basis of knowledge of how the interactions take place....As I have gotten older, I start looking at, I am only going to do this a little bit longer, you are not going to have me, and unfortunately for you in this area there is no more ‘mes’ out there.” (Industry Supplier, 2012)

Changing Social Relationships

To establish a successful fishing, processing, or other fishing industry associated business, social relationships are needed. Whether you need suppliers for fuel for your vessel, or boxes to ship your fish, or line to build a net, you need connections and relationships to function. In the previous section we've discussed the age of the fishermen and when they started fishing. This suggests many of them have been fishing for a very long time. It stands to reason, that they have established quite a few relationships to run their business effectively over those years. The changes in the fishery associated with rationalization have the potential to change relationships in both negative and positive ways.

Information in this section provides indicators of whether any of these changes appear to be occurring in this fishery. Potential changes in relationships between fishermen and processors, are explored.

Results

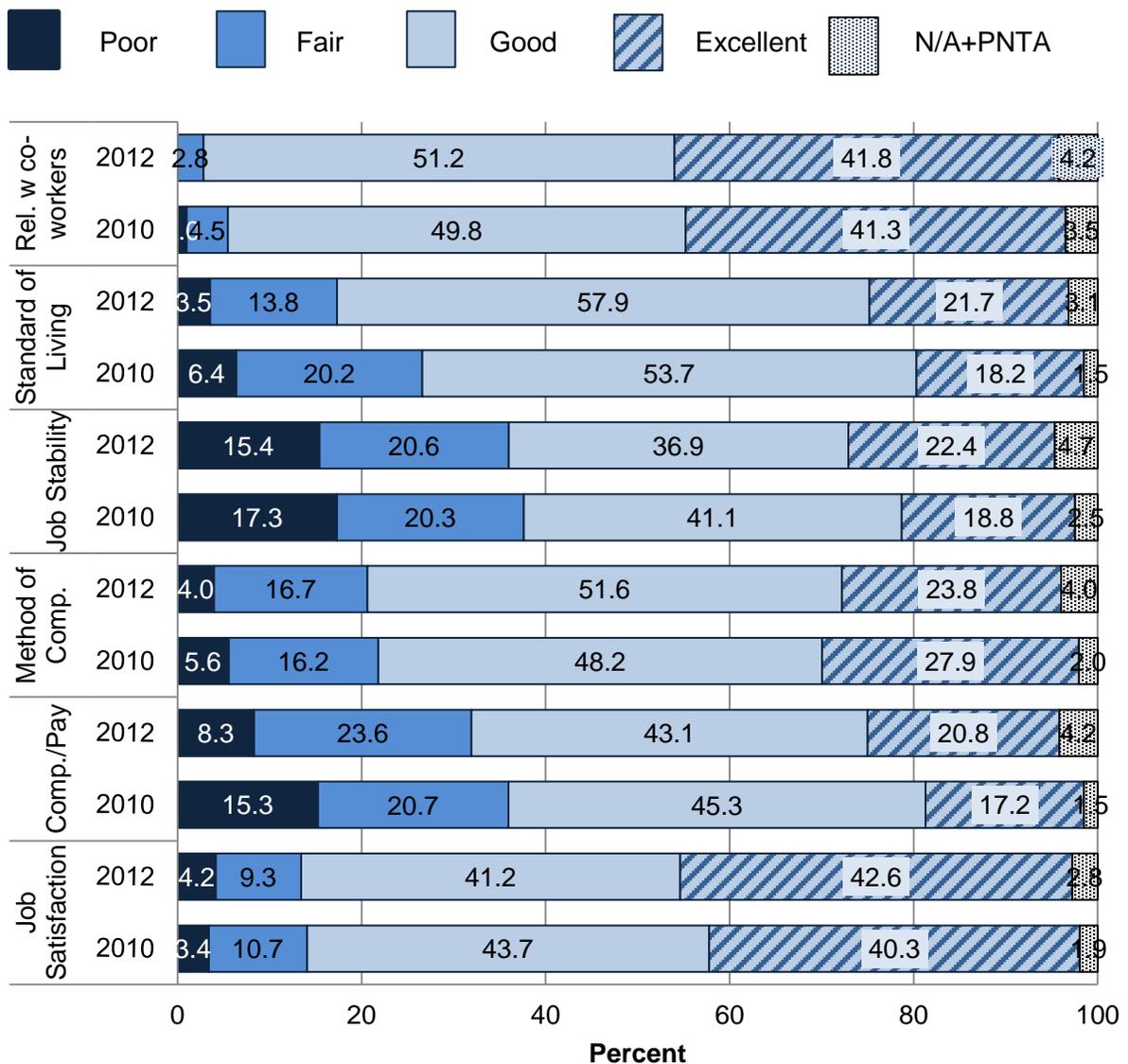


Figure 8. Quality of Life. Likert scale responses. NOTE: PNTA = Prefer Not To Answer

Respondents were asked to rate their relationship with co-workers, standard of living, job stability, method of compensation, compensation/pay and job satisfaction based on a Likert scale of poor, fair, good or excellent as they related to their role within the commercial fishing industry. Ratings have remained relatively stable between 2010 and 2012 with the exception of standard of living, and compensation and pay, which appear to have improved (Figure 8). Overall, respondents indicated that they were most satisfied with their relationship with their coworkers, while they were the most unsatisfied with job stability.

Relationships with coworkers, standard of living, and compensation and pay appear to have universally improved in 2012. Fewer respondents indicate that job stability is poor, however fewer also report that it is excellent. Job satisfaction in 2012 appears to be more polarized in

contrast to 2010; more respondents indicate that job satisfaction is poor and excellent. It is important to note that this particular question asked about fishing in general, and not specifically about groundfish.

Fishermen

Fishermen were asked to rate the quality of their relationships with the people they work with on a positive, neutral, or negative scale. They were then asked whether the quality of these relationships had changed since the implementation of Catch Shares. Overall, relationships seem to have gotten slightly worse, especially with observers, and to some extent permit owners, crew and boat owners (Figure 9).

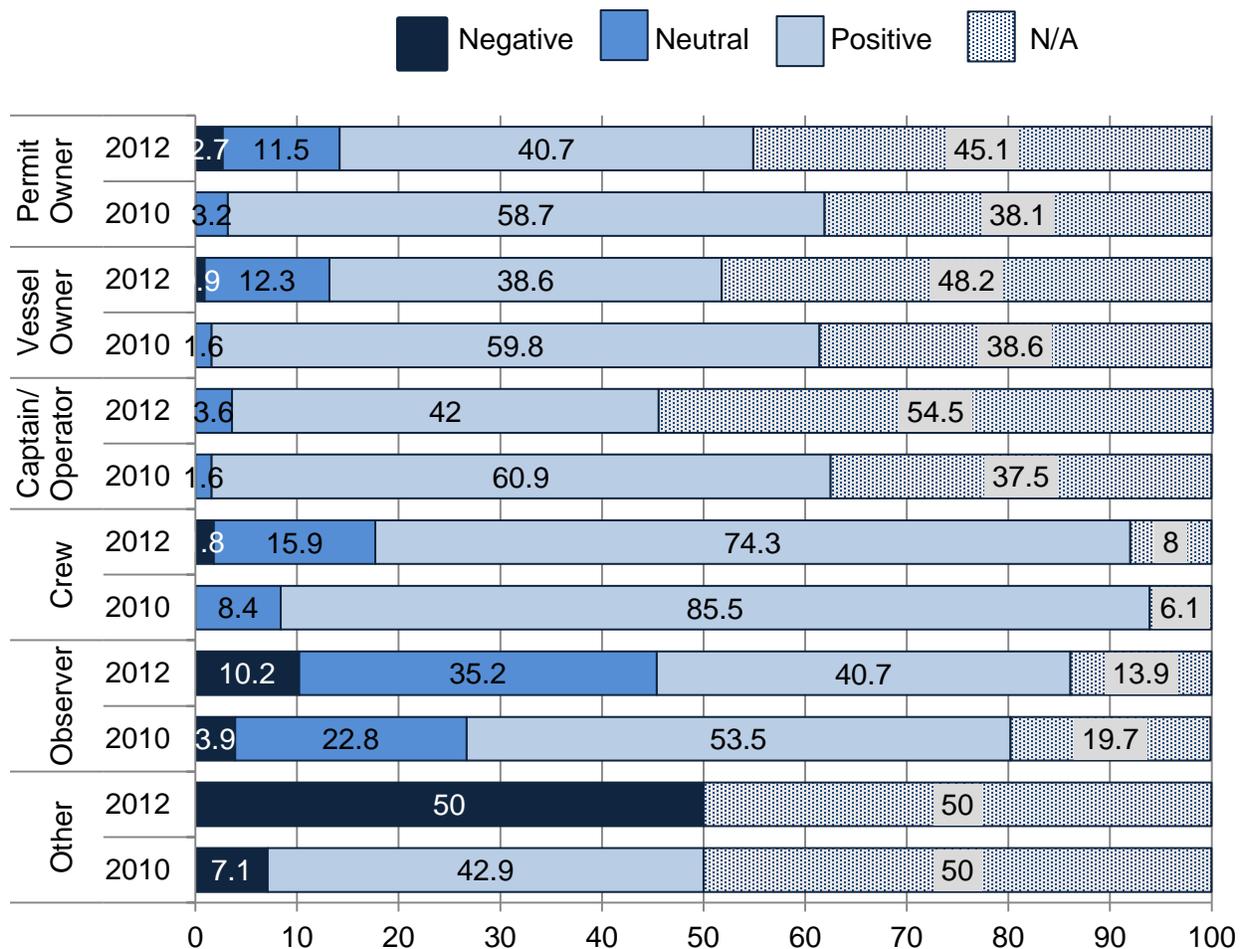


Figure 9. Fishermen's quality of relationships.

In 2012, there was a 6.3% increase of respondents who indicated that they had a negative relationship with their observer; likewise there was a 12.8% decrease of respondents who indicated that they had a positive relationship with their observer. This same trend is applicable to permit owners. In 2012, there was a 2.7% increase of respondents who indicated that they had a negative relationship with the permit owner; likewise there was a 19% decrease of respondents

who indicated that they had a positive relationship with the permit owner. Relationships to vessel owners showed a minor increase in a negative response in 2012 to .9%, but more noticeably, there was a 21.3% decrease of respondents who indicated a positive response. This trend with a few negative relationships noted, but decreased positive relationships continues with crew showing a 19% decrease and captain/owner showing a 11% decrease in positive relationships.

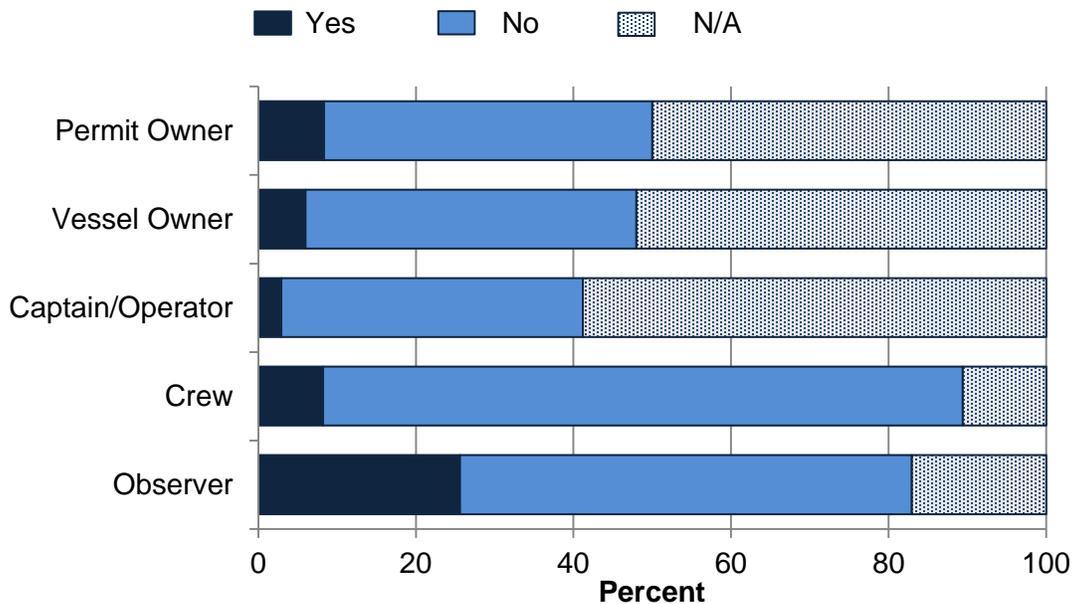


Figure 10. Have fishermen's relationships with other harvester roles changed?

25.6% of respondent's indicate that their relationship with observers has changed since the implementation of catch shares (Figure 10). 8.3% indicate that their relationship with the permit owner has changed; 8.2% indicate that their relationship with the crew has changed since the implementation of catch shares. 6% indicate that their relationship with the vessel owner has changed, and only 2.9% indicate that their relationship with the captain/operator has changed since the implementation of catch shares.

Respondents were asked to explain why they thought relationships had changed. Table 7 shows open ended responses to why respondents believed that their relationships had changed; all open ended answers indicate that relationships have changed due to Catch Shares. Most relationship changes involved the observers.

Table 7. Open ended response to why relationships have changed between fishermen and other harvester roles., mainly observers.

| | Themes | N |
|-----------------|--|----------|
| Positive | Observer relationships are new | 4 |
| | More cooperation between captains and permit/vessel owners | 3 |
| | Have better relationship with crew because crew like fishing under the ITQ | 2 |
| | Observers - data has direct impact on fishing activities | 1 |
| Neutral | Observer is on the vessel 100% of the time | 3 |
| | Observer relationships are new | 2 |
| | Observer changes; different people each time | 1 |
| Negative | Observers make mistakes/are unexperienced | 5 |
| | Crew are getting paid less for the same amount of work | 2 |
| | Quota/Vessel owner unwilling to invest in boat/sold fish | 2 |
| | Observer is on the vessel 100% of the time | 1 |
| | Quota holders own paper that guarantees fish | 1 |
| | I have to pay for the observer to be here | 1 |

Fishermen were also asked to rate their relationships with the people related to the selling of their trawl caught Pacific Coast groundfish on a positive, neutral, or negative scale. They were asked whether the quality of these relationships had changed since the implementation of Catch Shares. The most notable change is that fishermen were less willing to indicate that they had a positive relationship with their buyer/first receiver as well as their processor in 2012. 66.9% of fishermen indicated that they had a good relationship with their buyer/first receiver in 2010, as compared to 44% in 2012 (Figure 11). Likewise, 63.2% of fishermen indicated that they had a good relationship with their processor in 2010, as compared to 44.4% in 2012.

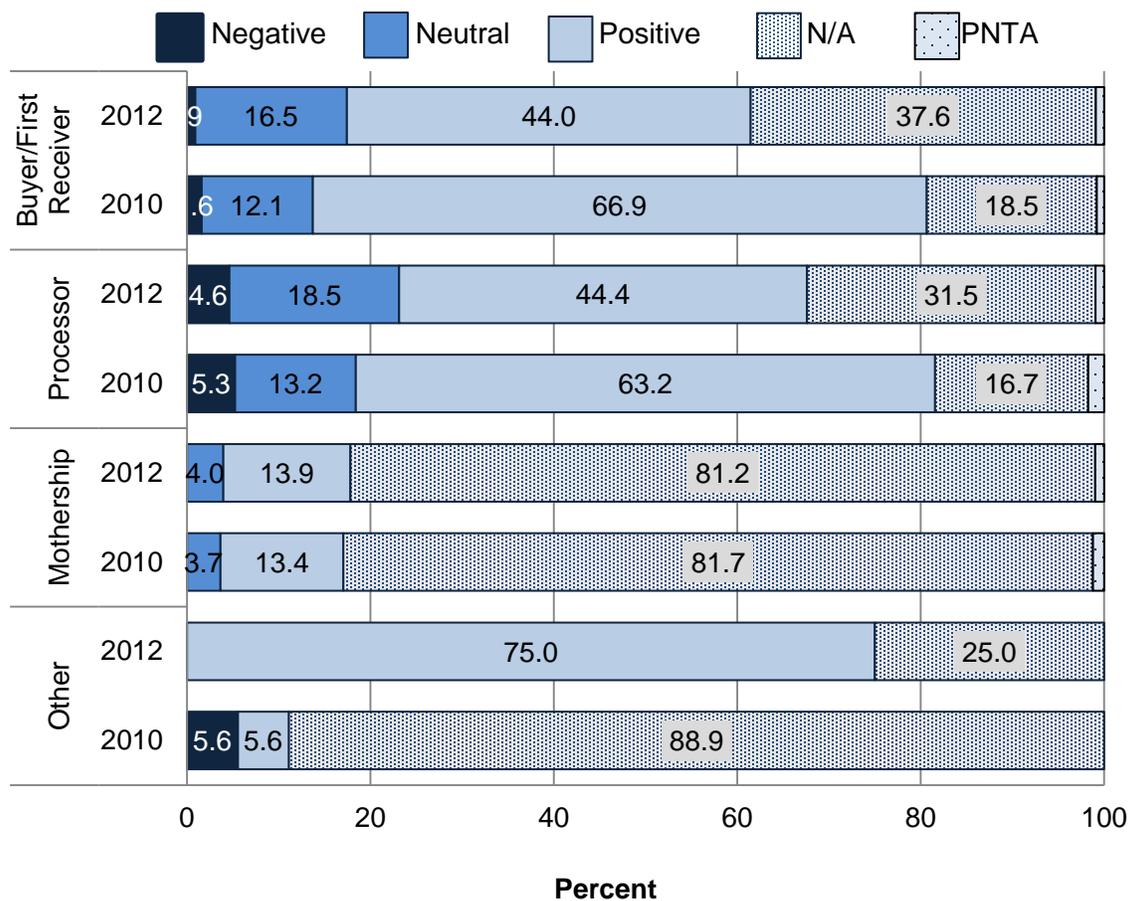


Figure 11. Quality of Relationships with sellers (processors).

12.6% of respondent’s indicate that their relationship with their buyer/first receiver had changed since the implementation of catch shares (Figure 12). 12.4% of respondent’s indicate that their relationship with their processor had changed since the implementation of catch shares. Only 3.1% indicate that their relationship with their mothership had changed. Table 8 shows open ended responses to why respondents believed that relationships had changed.

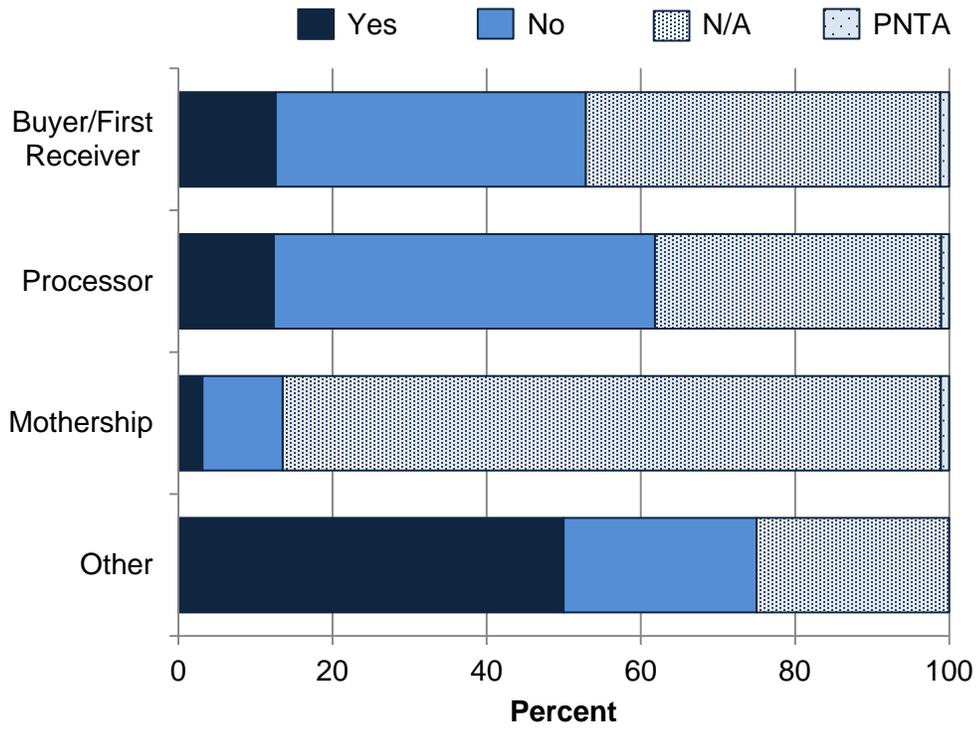


Figure 12. Have Fishermen’s relationships with seller’s changed?

Table 8. Open ended response to why relationships have changed between fishermen and sellers. These are qualitative answers to a survey question asking participants to describe why the relationships have changed. *NOTE: This data is repeated in both positive and negative areas because the shift in processors was positive with the new processor and negative with the old processor.

| | | Themes | N |
|--|------------|---|---|
| Buyer | Positive | Improved relationship: fishermen have leverage with quota and buyer acknowledges | 1 |
| | | Relationship grew closer trying to work with program requirements | 2 |
| | Neutral | Observers noticed shorting us on pounds | 1 |
| | | Price problems | 1 |
| | | No relationship now, they control everything. When to get ice, what to catch. Just go along with processor controls | 1 |
| | Negative | Other vessel's input | 1 |
| Price manipulation and delivery dates , monopoly, favoritism | | 1 | |
| Processor | Positive | Gotten better with Bornstein. Work more together; networking that Andrew does, he can swap quota to keep boats going. | 1 |
| | | Gotten better: they want us more then we want them | 1 |
| | | I shifted to pink shrimp, so had to shift processors from Caito to Pac Choice because they take both* | 1 |
| | | Improved | 1 |
| | | More superficial | 1 |
| | | Only so many boats now, processor has to be nice. Choice of other catch | 1 |
| | | Relationship with inshore processor has gotten better, everybody is getting used to program. New relationships with processors, give them consistency, they reward that. No problems with actual people or motherships. | 1 |
| | | The processor realizes I can go to the competition and they want me to stay. | 1 |
| | | We trade fish now | 1 |
| | Neutral | Processor has more control - plant still controls flexibility. | 1 |
| | | They tried to work with us - gave plant more power | 1 |
| | Negative | Shifted to pink shrimp, so had to shift processors from Caito to Pac Choice because they take both | 1 |
| | Mothership | Positive | Gotten better they want us more then we want them |
| Improved | | | 1 |
| More opportunity to get more fish before, less opportunity now | | | 1 |

Processors

Processors were asked to rate the quality of their relationships with the people they interact with in the fishing industry on a positive, neutral, or negative scale. They were then asked whether the quality of these relationships had changed since the implementation of Catch Shares. Relationships with vessel owners and the processor's own labor force appear to have become more negative, whereas relationships with quota holders have actually improved.

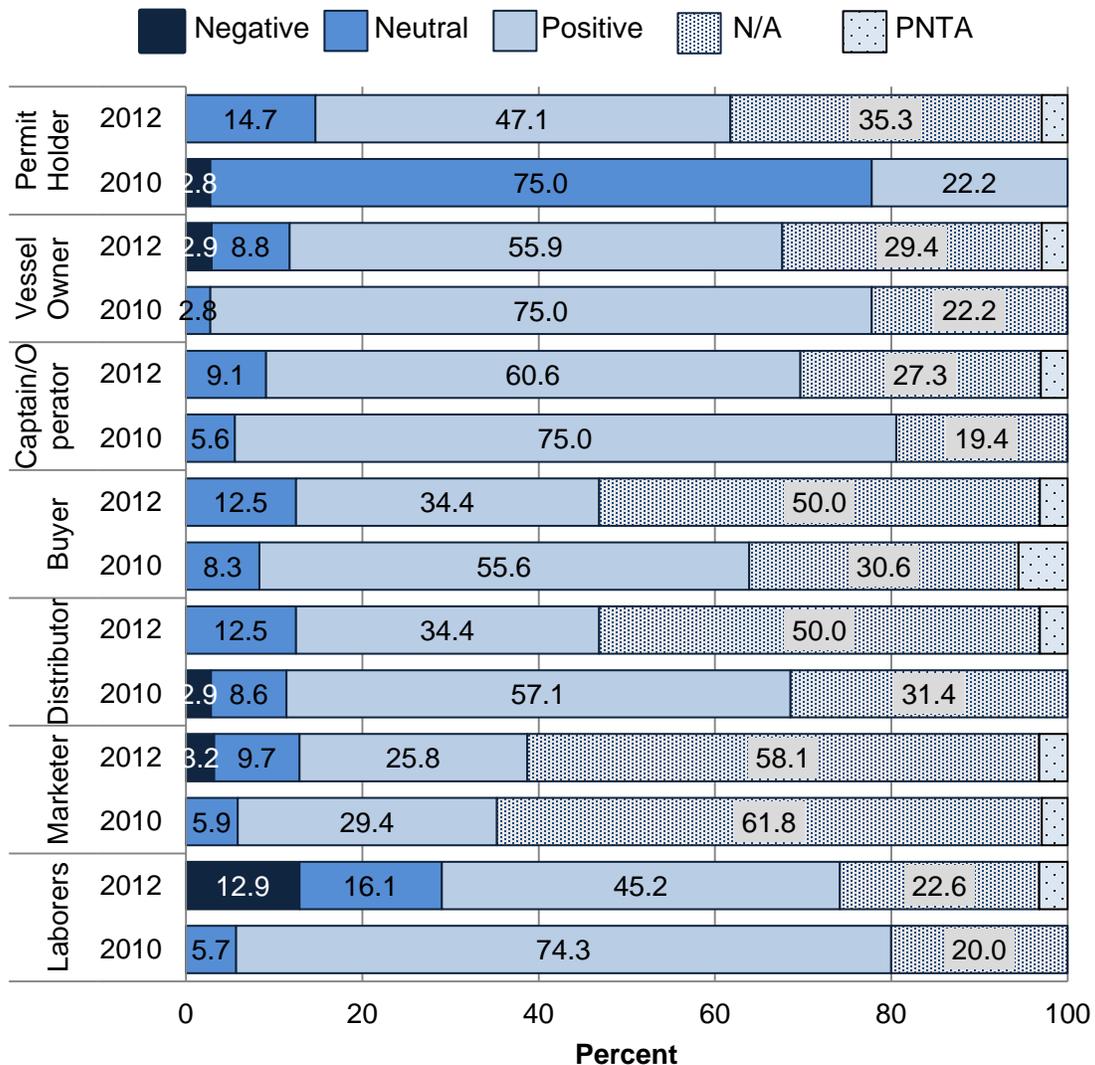


Figure 13. Processor's quality of relationships.

The most dramatic decline in processor relationships was actually with their own workforce (Figure 13). In 2010, 74.3% of processors indicated that they had a positive relationship with their laborers; this decreased to 45.2% in 2012. 12.9% of processors indicated that they had a negative relationship with their workforce in 2012, as compared to 0% in 2010. 27.6% of

processors indicate that their relationship with their laborers has changed since the implementation of Catch Shares. Processors indicate that they believe relationships have worsened *because “laborers are upset due to the lack of work”* and that there is a lack of supply to their plants due to Catch Shares.

Processors also indicate that their relationships with vessel owners have deteriorated. In 2010, 75% of processors indicated that they had a positive relationship with vessel owners; this decreased to 55.9% in 2012. Processors indicated that they had negative relationships with vessel owners in 2012. One processor states that relationships have deteriorated because:

“There used to be a mutual understanding between vessel owners and processors. They work together, not anymore. Now the fish goes to the highest bidder. Processors helped out harvesters, but harvesters don't honor old relationships anymore.”

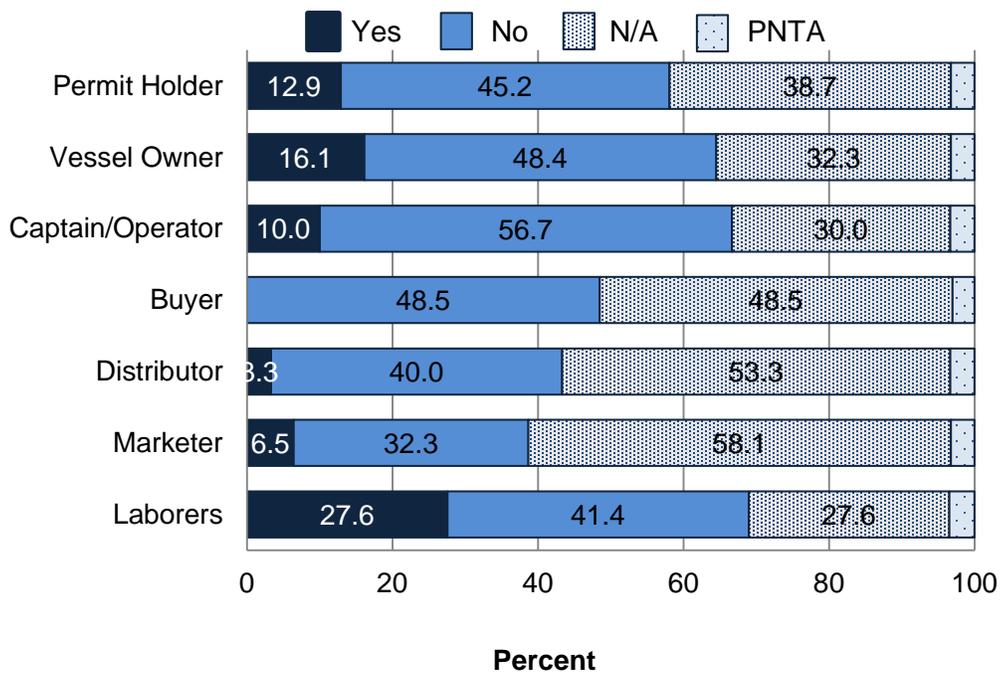


Figure 14. Have processor’s relationships changed with other roles both in the harvesting and processing sectors?

Processors were less likely to indicate that they had positive relationships with captain/operators, buyers, and distributors in 2012. They also were more likely to indicate that they felt that these relationships were not applicable in 2012. 10% of processors felt that their relationships with captains had changed, 3.3% believed that their relationships with distributors had changed, and 0% indicated that their relationships with buyers had changed since the implementation of Catch Shares (Figure 14).

Permit holders appear to have a better relationship with processors in 2012. In 2010, 22.2% of processors indicated that they had a positive relationship with the permit holder; this increased to 47.1% in 2012. In 2012, no processors indicated that they had a negative relationship with quota holders. 12.9% of processors indicated that their relationships with quota holders had changed since the implementation of Catch Shares. Processors indicated that their relationships with quota holders have improved because they are “forced to talk to each other and understand process and how to make it work,” and that there is “more trust” between processors and quota holders.

Crew and Quota Leasing

Results from qualitative data point to the fact that crew relationships with owners are potentially becoming more negative if the owner decides to lease quota. Crew/captains are typically negatively affected by leasing trawl fish. On the one hand leasing quota provides the opportunity to continue employment if the vessel did not receive a large enough initial allocation; however additional lease fees tend to be added to the general overhead expenses of the boat. Crew that work for vessels that are leasing fish generally have decreased pay rates because of the additional lease fees that are taken off the top. This theme tends to be localized in Northern and Central Oregon.

“We actually had to talk to guys before we hired em, said, “Look, this is different than it used to be.” One guy been out of the fishery a couple of years, and when he came back in, we’d been doing the rationalization program for over a year. And I said, “Hey, Jeff you know, this...this is not like it used to be,” you know the crew share is generally like 10%. Said well your 10% is no longer 10%. I said by the time you see all the deductions...and the cost of observer fee, the lease rates...I said you’re looking at about 5.5%. “5.5%?!? I can’t do that!!” he says. I said “Well, it’s either that or nothing, you know, what do you want to do?” (Astoria Fisherman, 2012)

“I would have to say [my relationship with crew is] negative to be truthful because the amount of fish we catch doesn’t add up on the guys’ checks like it used to. And, so yeah...I hear about it. Well, they’re getting paid less for the same amount of work. And that’s kind of across the board industry, it’s not just a personal thing, just the way it is. A boat owner has to go out and buy or lease fish, well you couldn’t buy, you had to lease it. And so when you have more investment in the fish, you can’t pay the crew the same so.” (Astoria Fisherman, 2012)

Some fishermen point out that crew that work on vessels where the quota/vessel owner has decided to lease out trawl fish also potentially lose out on the income that they might have made fishing groundfish:

“But I’d even recommend talking to some of the other draggers that have just even leased out their quota. Again, that’s taking away from the crew that’s on their boat, that’s income that now they’re losing out, and so not only is the crew on that boat losing out on those fish, the quotas being leased out and everyone on the other boat is not getting paid what they normally would have.” (Astoria Captain, 2012)

Program Perceptions

This section illustrates study participants perceptions of the catch shares program during each data collection effort. Results in this section can help reveal the concerns within the fishery, and what part of the program works well. Information on why participants support or do not support the program directly speak to what is happening within the communities as a result of the catch share program.

Results

Support for Catch Shares in 2012 is more evenly split between participants who support the program and those who don't compared to the 2010 results. There was no clear change in individuals who do not support the program, but individuals who felt like they didn't know or were unsure about their opinion of the program in 2010, generally were in favor of the program in 2012. This increase can likely be explained by a combination of many factors: reduced uncertainty and increased knowledge of the program, refusal of survey participation, and how individuals were personally affected by the program. Washington State continues to be the most supportive of Catch Shares followed by Oregon, while respondents from California are the least supportive of Catch Shares. Catch Shares is not a black and white issue; data support the idea that some respondents support and reject aspects of Catch Shares.

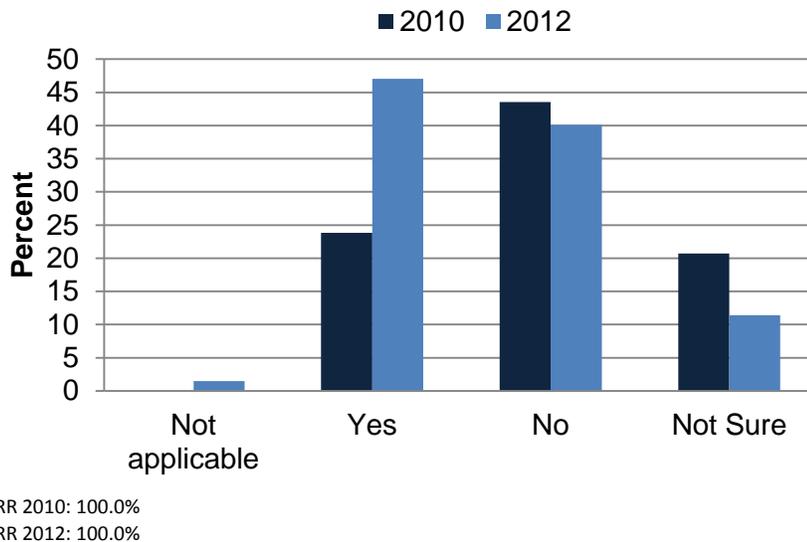


Figure 15. Support for catch shares.

Support for Catch Shares in 2012 is more evenly split between participants who support the program and those who don't, as compared to the 2010 results (Figure 15). 47% of respondents support Catch Shares in 2012, whereas 40.1% respondents do not support Catch Shares. This is a more even split than in 2010 where 23.8% of respondents supported the program and 43.5% did not support it. There was a 23.2% increase for those who support Catch Shares between 2010 and 2012, as well as a 3.4% decrease of participants who do not support the program.

There is also a 9.3% decrease of respondents who were unsure of whether they supported Catch Shares. Results show a minimal change for individuals who did not support the program, but individuals who felt like they didn't know or were unsure about their opinion of the program in 2010, generally were later in favor of the program in 2012.

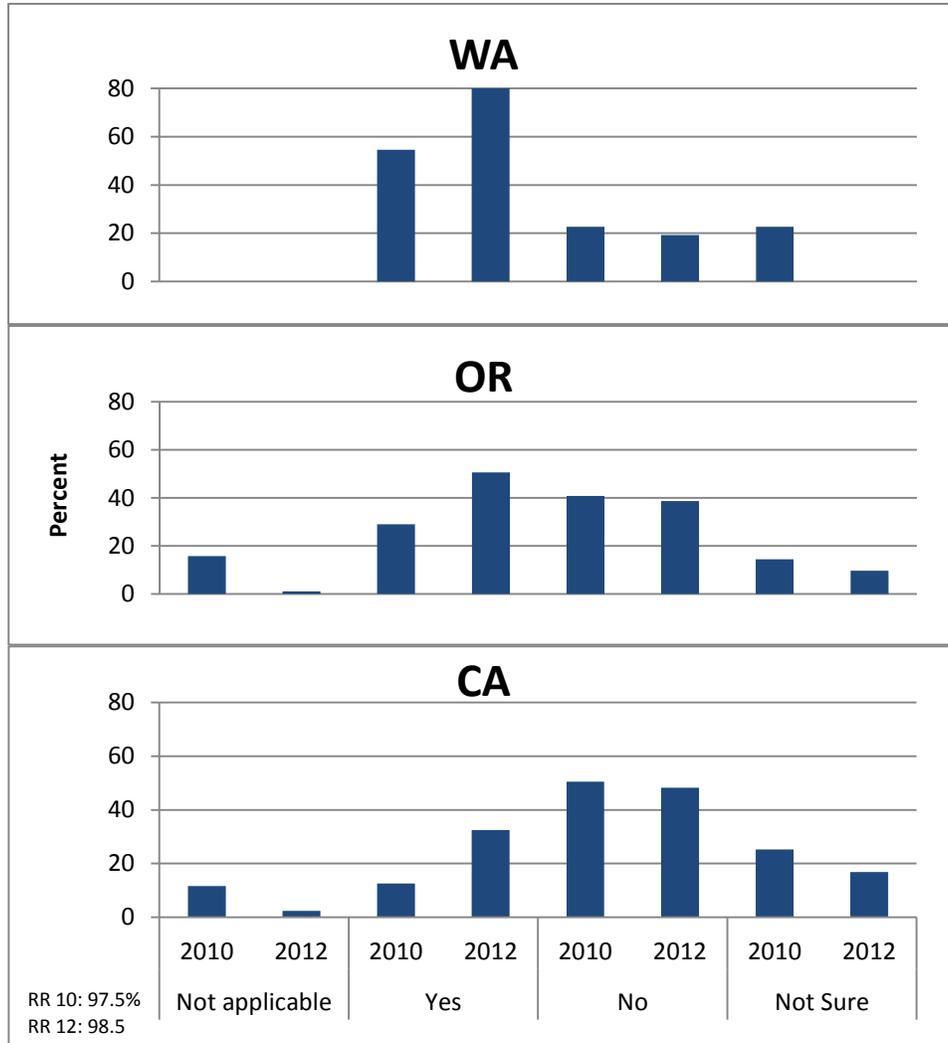


Figure 16. Support for catch shares by state.

A more in-depth analysis showing the support of the catch shares program by state illustrates where the program is more widely supported. Washington State showed the highest levels of support for the program in both 2010 and 2012 at 54.5% jumping to 80.8% respectively (Figure 16). Oregon also showed an increase in support of the program from 28.9% in 2010 to 50.5% in 2012. This is interesting as the level of individuals whom did not support the program in 2010, 40.8%, only slightly decreased in 2012 to 38.7%. The additional support for the program in Oregon is interpreted to come from a combination those individuals who changed their minds, those, who were not sure in 2010, or new participants in the 2012 data collection effort. The highest levels of lack of support for the program are fairly consistent in California at 50.5% in 2010 and 48.2% in 2012. It is interesting to note as well that while California has the lowest

levels of support for the program, they had an increase of support of the program from 12.6% in 2010 to 32.5% in 2012.

Effects of Uncertainty on the Perception of Catch Shares

The most interesting part of the above graph is the dramatic increase of respondents who support catch shares from 2010 to 2012. This increase can likely be explained by a combination of many factors: reduced uncertainty and increased knowledge of the program, refusal of survey participation by people who were unhappy with the program, and how individuals were personally affected by the program.

Uncertainty factor reduced

“Anytime there’s a change, I mean, it’s hard to change a fisherman. That’s the hardest thing in the world.” (Coos Bay Fishermen, 2012)

People are typically adverse to unknown change, and fishermen are no exception to the rule. While some respondents may have had some previous experience with Catch Share programs in Alaska, all Catch Share programs are different. In 2010, respondents were not able to fully anticipate changes that this particular Catch Share program would bring. Figure 17 below demonstrates a high level of uncertainty about how respondents would be personally impacted by Catch Shares in 2010.

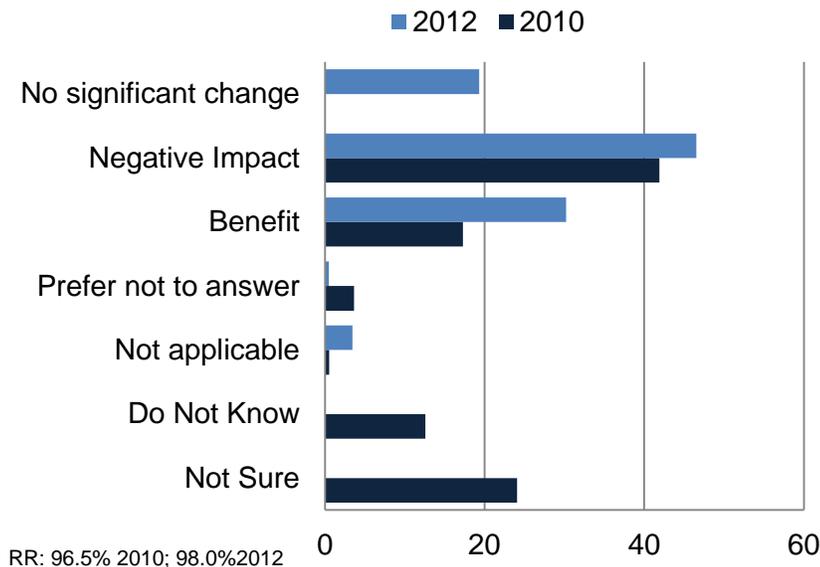


Figure 17. Personally impacted by catch shares.

In 2010, 36.6% of respondents either did not know or were not sure how they expected to be personally impacted by the transition to Catch Shares. In 2010, 41.9% of individuals indicated

that they felt that they were going to be negatively impacted by the program, and 17.3% felt that they would benefit. The perceived risk of change would have been high for many respondents, considering that this management program had a direct impact on their livelihoods. Thus, many respondents were unsure of their support of the program or felt that they would be negatively impacted.

Change that has high stakes and is uncertain is likely to illicit a negative/unsure response initially even if the change may actually be beneficial. Qualitative data from respondents who indicated that they were unsure whether they supported catch shares in the survey data indicate that these respondents were concerned about the transition to catch shares:

“The quota program scares me because it gives me an uncertain future. It seems like it’s designed to get rid of boats like the one I work on, so I have a great level of uncertainty in the future. The program increases pressure on existing fisheries. Instead of putting in more controls, before we do anything else, we should confirm or correct the accuracy of the stock assessment - what if we’re working on wrong information? How could anybody make a good management decision then?” (Monterey Fisherman, 2010)

“I am real apprehensive about the whole thing, it is a little scary. It is taking a good part of people’s lives, livelihoods for my crew the people that run the boat which are very important to me, if it puts them out business that is an impact to my community. I won’t be the only one it will be boat after boat.” (Crescent City Fisherman, 2010)

“The IFQ? I don’t know. I think it can work, but I think there’s a lot of bugs to be worked out. That’s a hard question.” (Astoria Fisherman, 2010)

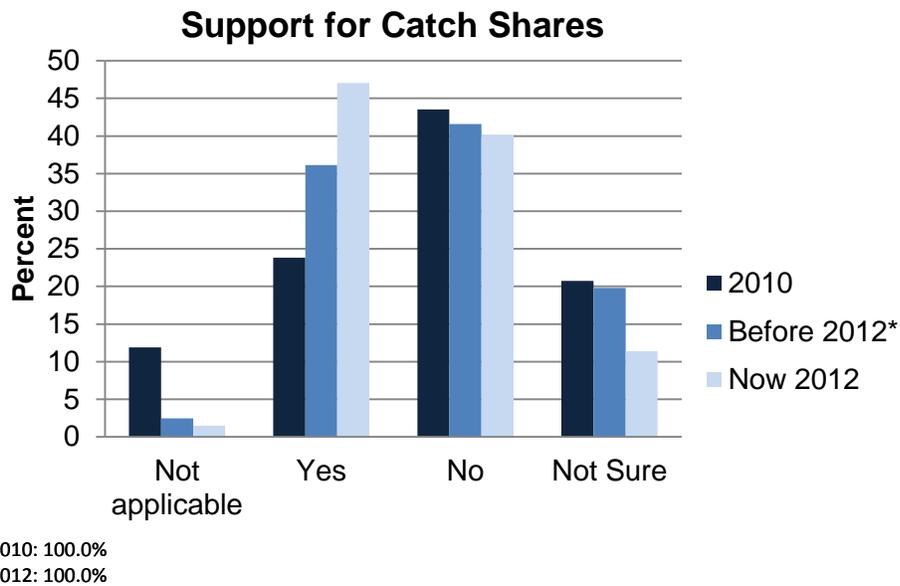


Figure 18. Support for catch shares.

Hind sight is 20/20. It is interesting to note that respondents' recollections of how they felt about Catch Shares in 2012 were less extreme than their actual responses in the 2010 survey. Respondents were asked in the 2012 survey whether they supported catch shares before the management change in 2011. For individuals who support Catch Shares in 2012, there is a difference of 12.3% between how respondents actually answered in 2010 and what they remember indicating (Figure 18). Again, this speaks to the fact that some aspects of uncertainty were removed; respondents had a better idea in 2012 how they had been impacted under catch shares.

Knowledge of the catch shares program

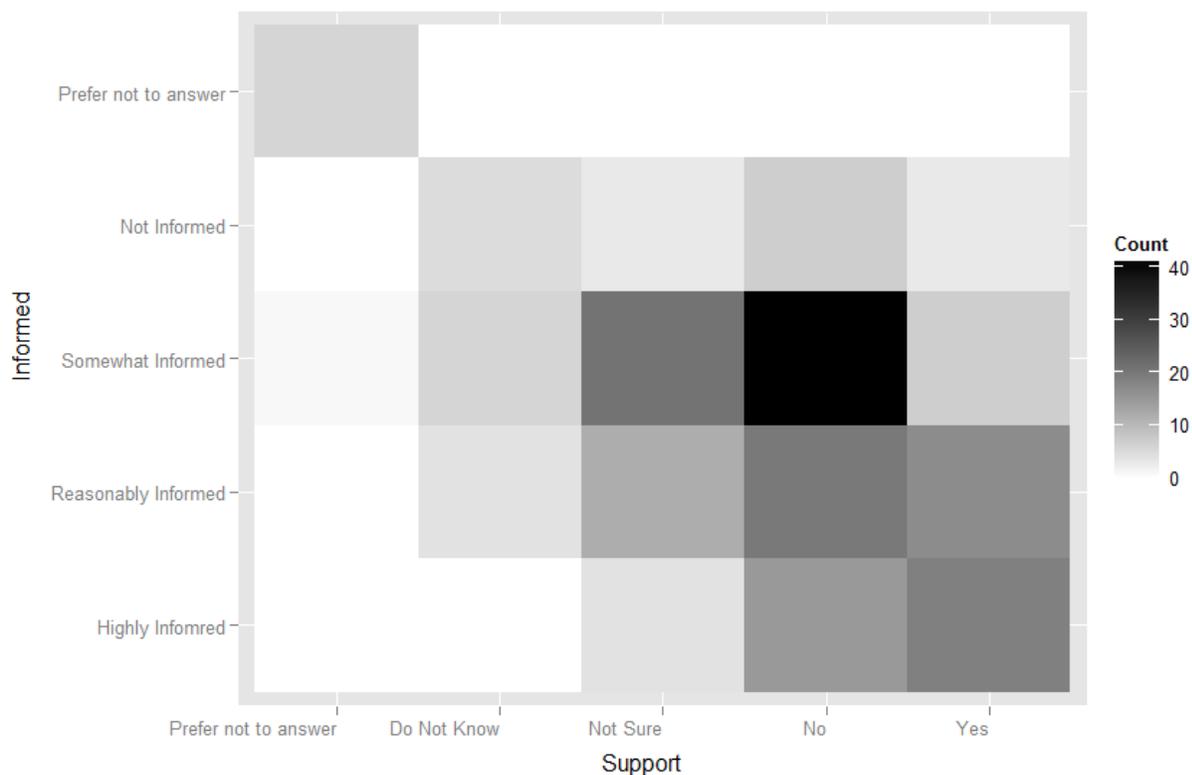


Figure 19. Frequency cross-tabulation of support for catch shares based on knowledge of the program (2010).

In 2010, half of individuals who considered themselves highly educated about Catch Shares indicated that they supported the program. This percentage decreased to 32% for those individuals who considered themselves reasonably informed about Catch Shares. Only 9% of individuals who considered themselves somewhat informed about Catch Shares indicated that they supported the Catch Shares program in 2010. There is a correlation between support of Catch Shares and knowledge about Catch Shares: The less informed respondents were, the more

likely they were to indicate that they did not support the Catch Shares program in 2010 (Figure 19). This supports the idea that unknown change is generally perceived as a negative impact, and that increased education and outreach in future Catch Share programs could result in smoother transitions.

Non-response rate

Non response rate also helps explain the surge of support for Catch Shares. While every effort was made to talk to every respondent who participated in the 2010 baseline survey, there were respondents who flatly refused to talk to researchers because they were upset with the program⁴. Thus, inevitably survey results will naturally, disproportionately remove extreme negative perceptions of Catch Shares, and this needs to be considered.

Respondents are genuinely supportive of the program for varying reasons

The top five survey responses why respondents support Catch Shares include the fact that there is reduced bycatch, an increase in individual accountability, an increase in business flexibility, an increase in safety, and an increase in market value. More detailed analysis of why respondents support catch shares is addressed in the following section.

Reasons for Respondent's Support or Rejection of Catch Shares

Survey Data

Respondents were asked to indicate specific reasons why they might support or not support Catch Shares in 2010 as well as in 2012. These reasons to support and concerns have changed slightly over time (Table 9). Initially in 2010, respondents supported Catch Shares because they expected to have reduced bycatch in the fishery, increased market value for their product, increased business flexibility, improved product quality, and more stable income. In 2012 top reasons included of an increase individual accountability and increase in safety while improvement of product quality or more stable income dropped out of the top five.

The top reasons that respondents do not support Catch Shares has also altered (Table 10). In 2010, respondents cited that they did not support catch shares because boats would leave the fishery and negatively impact the community, there would be a loss of business and community infrastructure, there would be fewer jobs, a decrease in income, and an increased cost to remain in the fishery. Top reasons in 2012 include the fact that observer coverage is problematic, there is an increased cost to enter the fishery and that Catch Shares impacts small boats and small businesses negatively.

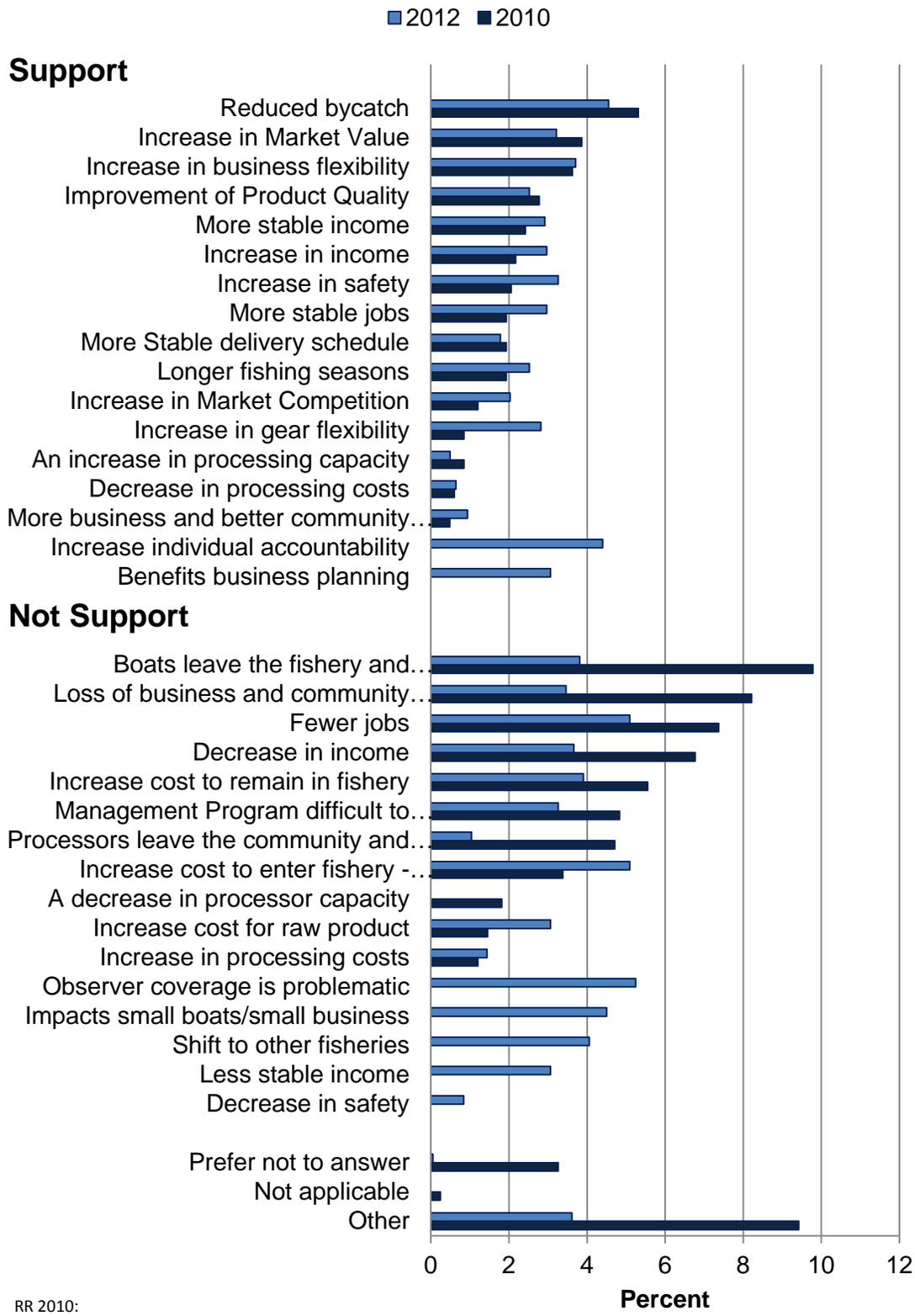
⁴ See Non-response bias in Response Rate section.

Table 9. Top 5 reasons respondent's supported Catch Shares.

| 2010 | 2012 |
|----------------------------------|---------------------------------------|
| Reduced bycatch | Reduced bycatch |
| Increase in market value | Increase in individual accountability |
| Increase in business flexibility | Increase in business flexibility |
| Improvement of product quality | Increase in safety |
| More stable income | Increase in market value |

Table 10. Top 5 reasons respondents did not Support Catch Shares.

| 2010 | 2012 |
|---|---|
| Boats leave the fishery and negatively impact the community | Observer coverage is problematic |
| Loss of business and community infrastructure | Increased cost to enter the fishery |
| Fewer jobs | Fewer jobs |
| Decrease in income | Impacts small boats/small businesses negatively |
| Increased cost to remain in the fishery | Increased cost to remain in the fishery |



RR 2010:
100.0%

Figure 20. Reasons to support or not support catch shares. * NOTE: The options of Observer coverage is problematic, Impacts small boats/small businesses negatively, Increase in individual accountability,

Shift to other fisheries, Less stable income, Benefits business planning, Increase in product quality, and Decrease in safety were options added in the 2012 survey and a result of high qualitative open ended responses in 2010.

Qualitative Data Program Perceptions

2012 qualitative data mirrors survey results. While there were still considerable concerns raised in the 2012 data, there were more respondents who felt that they had seen positive attributes of the program as compared to the 2010 qualitative data where the majority of respondents expressed fear, uncertainty and concern about Catch Shares (Figure 20).

Benefits

“But again, for the first 2 years it’s exceeded everybody’s expectations and, you can prove things like bycatch have gone down. The price of the fish has gone up. There’s some variables that you can, that are proven that are better. Now there are some guys that maybe didn’t think they got enough or want to go back to the old system or you know, but...that’s not the new world, you know, this is kinda a new world we’re living in.” (Newport Fisherman, 2012)

Advocates of Catch Shares feel that the program has brought some stability and business flexibility to the groundfish fishery. Even respondents who don’t fully support the program acknowledge positive things, like reduced bycatch, have occurred. While there are still fewer respondents who support the program than those who do not support the program in the 2012 qualitative data, there is a dramatic increase in support compared to the 2010 qualitative data, where very few respondents expressed that they were in support of Catch Shares.

Stability and Business Flexibility

One of the main benefits that respondents cite is the ability to plan their operations rather than have their fishing dictated by trip limits. This ultimately creates more stability for fishermen, and to some extent processors, as fishermen have a known quantity of fish to catch. While fishermen may still be limited by markets and weather, respondents state that Catch Shares gives them a lot more options in terms of maximizing their participation in multiple fisheries, maintaining vessels, and planning their fishing schedules to maximize market value.

Respondents state that they like the flexibility of being able to prosecute other fisheries, while still having guaranteed access to their groundfish. Before catch shares, respondents state that they were constantly switching back and forth from different fisheries in order to fully utilize their 2 month groundfish allocation. If fishermen did not switch over in time, or chose not to, they lost their allocation of groundfish for that 2 month period. Respondents state that they now have the ability to plan when they want to groundfish and prosecute other fisheries without losing access to groundfish.

“Basically we’ve got all year to catch the entire quota instead of the 2 months system, because we also crab and salmon. So when we used to crab and salmon we’d lose at least half of that, half of our fish...and then once you didn’t get it in 2 months, you’d lose that fish. So now we wait til September, and then we can get our entire quota. So that definitely works better for us, being a multi-fishery boat.” (Fort Bragg Fisherman, 2012)

While numerous respondents state that fishing is an inherently unstable profession, advocates of Catch Shares state that the program brings a fair amount of stability. Fishermen know better what they are allocated for the year, and can plan to prosecute the fishery in a way that makes the most sense for them:

“The reason it is positive for us is because we can manage our fisheries like a business. We schedule when we fish, we schedule when we can do maintenance, which is absolutely a positive for us even though we might be catching less fish we still generate more cash because we can program it. [Even though there is] potentially less fish, it’s still a better cash flow for the boat, a better income for the boat because you can now plan your season and your maintenance.” (Newport Fisherman, 2012)

“I had to give up a bunch of quota but still my business is much more stable. I had to give up a bunch of my history I should say, but I was willing to do that because I want stability.” (Newport Fisherman, 2012)

Having guaranteed quota has allowed respondents to take time off fishing to devote time to vessel maintenance. Respondents state that they are able to take time off in the middle of the season without worrying about lost income, and that they never would have considered this in a derby fishery. Respondents can plan out maintenance in better weather, when the shipyard is less busy and when it is more convenient for them:

“This year we stopped fishing for a week or 10 days right in the middle of the season. Took our boat down to Reedsport, hauled it out. Painted it. Put it back in the water and went fishing again. Would have never done that before. Ever. Rather let the bottom of the boat fall off.” (Newport Fisherman, 2012)

To some extent, respondents state that Catch Shares has provided the opportunity to plan with their processor for the best price and market conditions:

“I think flexibility and your fishing schedule is positive. I think being able to go out and targeting different species in different market conditions, I think is good. I think if the market says “Hey, the market is really good on rockfish, could you guys go target chilipeppers, you know, for this trip?” you can do that because you got so much of this quota for the year. You can go do that in a certain month instead of before, getting 5,000lbs...spread out, you know, every 2 months for the whole year, that limits you on what you can do.” (Fort Bragg, 2012)

Reduced Bycatch

Proponents of the Catch Share system support the program because they believe that bycatch has been reduced. Many respondents believed that the previous management system of 2 month trip limits had the unfortunate effect of encouraging or allowing large amounts of discard. Respondents state that they are now accountable for their bycatch, and that many fishermen have changed their fishing practices to avoid areas with overfished species. Some fishermen state that they have changed their gear to incorporate excluder devices and cameras. While some respondents believe that there is potentially less bycatch because there are fewer vessels fishing, even those who do not fully support Catch Shares acknowledge that they support the fact that there has been reduced bycatch:

“I’m a very big advocate of this and it’s just worked beautifully. I mean the race for fish is over. The reckless, I know fishermen that would, had to fish in places where they just had to, because if they didn’t catch the fish, the next guy was gonna. And catch the bycatch and it just...you know, there was some bad actors out there.” (Newport Fisherman, 2012)

“I think it’s worked out well. I hear fewer bitches from people that said it would never work, and they’d starve to death tomorrow. And I think people have been creative and given the economic and resource protection that’s happened, reduction of bycatch, I mean you gotta call it a success. I would think.” (Washington State Fisherman, 2012)

“One benefit of the catch share program is reduced bycatch – I definitely support that.” (Morro Bay Fisherman, 2012)

Concerns

Respondents in the 2012 data set express many of the major concerns they did in the 2010 qualitative data. However, some of these concerns have shifted slightly in response to actual experience with the program. This is in comparison to 2010 data, where respondents had concerns about Catch Shares, yet were ultimately unsure as to how the program would actually affect them.

Bycatch

“The Catch share program will succeed or fail based on limits of choke species.” (Oregon Processor, 2012)

Issues around bycatch and bycatch allocation continue to permeate the qualitative data set. The most common concern is about the fact that the west coast Catch Shares is managing multiple species, and that many species intermingle so that it is unlikely to catch one species without catching the other. Respondents often state that they allocated species that they will not be able to prosecute because they did not receive enough of the other species that co-exist. Fishermen refer to these species as ‘choke species’, and state that unless they are able to trade or lease, these species often prevent them from harvesting target species. There are communities that state that they received zero bycatch allocation, and that this severely limits their fishing opportunity under Catch Shares.

“But that’s the kind of disparity that we see. When fisherman cannot get the full bulk of the benefits of the catch shares program because they’re strung up or hamstrung so much by some minor species. Now am, so I’m, that kind of really just bothers the hell out of me and it’s the biggest, probably the biggest comment and pain you’re gonna get from the fishermen, from the industry, they’re gonna say the same thing, how can you have a system where 6lbs of fish shuts down 100,000lbs of fish over here when this 6lbs was never, and never will be, a target fishery. It’s an incidental catch.” (Fort Bragg Fisherman, 2012)

Some fishermen also state that they were surprised at which species became choke species for them. Some anticipated that overfished species such as Canary rockfish, Yelloweye or Bocaccio would potentially be a major problem in 2010. The small allocations of these overfished species continue to pose problems for many fishermen; however fishermen also state that small allocations of petrale or black cod prevent them from targeting some of their main fisheries. Many respondents stated that they effectively save their allocation of black cod as a bycatch quota for other targeted fisheries, whereas in the past they would have specifically targeted black cod as well.

“This trawl rationalization program was very overreaching in a lot of respects. And I think we’re only now coming to the realization of how many problems we have associated with it, from a constraining species standpoint. The things that weren’t really thought of as constraining species before, are now. And I think that sablefish is a perfect example of that. You know, as sablefish quotas get ratcheted down, you need so much sablefish bycatch to execute a lot of fisheries. Particularly petrale, particularly dover, particularly those and...it isn’t going to be readily available, just like halibut is a huge problem, and it will become even more of a problem and ah....you know when we were thinking of constraining species, we were focused more on things like canary bycatch, widow bycatch and...yelloweye rockfish bycatch and while they’re bad, and they are constraining, they’re proving to be...almost less of a problem than some of these other things.” (Westport, 2012)

Many respondents anticipated the possibility of having a ‘lightning tow,’ in the 2010 data, which refers to unexpectedly catching a large amount of overfished species in a single tow. Respondents were concerned that under the catch share program a lightning tow could occur, and that they would be unlikely to find the fish to cover their overage. This in effect, would shut down their fishing operation for the remainder of the year or until the overage could be covered. There are almost no mentions of lightning tows in the 2012 data set. This could be because this has not actually occurred that often, or because fishermen are able to procure quota to avoid or cover an overage.

Observers

The observer program continues to be a major concern for the majority of respondents. In 2010, respondents had experience with observers who monitored the West Coast Groundfish fishery approximately 20% of the time. Some had experience with observers through other catch share programs in AK. While the majority of the fishery had some observer experience, there was a

substantial portion of respondents who objected to the physical presence of observers on their vessel. Many of these respondents stated that there wasn't enough room for the observer on their vessel, they were concerned about safety, or that they just didn't want a government representative watching them. A large proportion of 2010 respondents were concerned about the cost of the observer as well, and whether they could make the program work for them with such high observer costs.

While there are still respondents who object to the physical presence of observers in 2012, there is a slight shift about respondent's concerns about the observer program. Some respondents now state that they actually have had positive experiences with observers. There are still a lot of stories told about 'that one observer' or 'that one guy' that didn't work out well, but many captains and owners state that observers do their jobs and that they generally get along.

Major concerns now focus on the cost and availability of observers. Availability of observers is just as problematic as the cost of observers; these were both major themes in the 2012 data. Many fishermen have stated that they are unable to obtain an observer when they wish to go out because of the lack of observers in their port. This results in lost trips and income. Some state that they have to schedule an observer days in advance of when they actually want to go out; in some cases the weather is good and in other cases it is not. Respondents report that if they have obtained an observer and the weather changes for the worse, they are still going out. Respondents suggest that availability of the observers potentially negates benefits in business flexibility and actually decreases safety.

"You gotta wait on the observer and then when the observer came you had to go in whatever weather was available. And once you could get one...there was a waiting time. So when you get one, and the weather's rough, you gotta go." (San Francisco Fisherman, 2012)

The cost of observers is a prominent concern for many respondents. Fishermen often bring up the fact that many vessels are barely making ends meet with existing overhead costs such as the rising cost of fuel, the Federal Buyback loan payments, as well as other NMFS administrative fees of the Catch Shares program. Many fishermen feel that the cost of the observers is disproportionately harmful to smaller vessels, as these vessels have to pay the same costs as larger trawlers who have a much larger profit margin and can more easily absorb the cost of observers. There have been some fishermen that state that they will exit the fishery once they have to absorb the full cost of the observers because at that point the ground fishery will no longer be an economically viable fishery. Many respondents are hopeful about the possibility of going to a camera monitoring system as a way to alleviate costs.

"The cost of the observer program is going to be one of the deciding factors whether in the long-term this is a successful program or not. Um... we're looking at costs approaching \$400 a day for observers. And NMFS right now is subsidizing that but when the subsidy removed in a few years that's going to be one tremendous financial blow to anybody's ability to make any money." (Eureka Fisherman, 2012)

Variation of Support for Catch Shares by Fishery

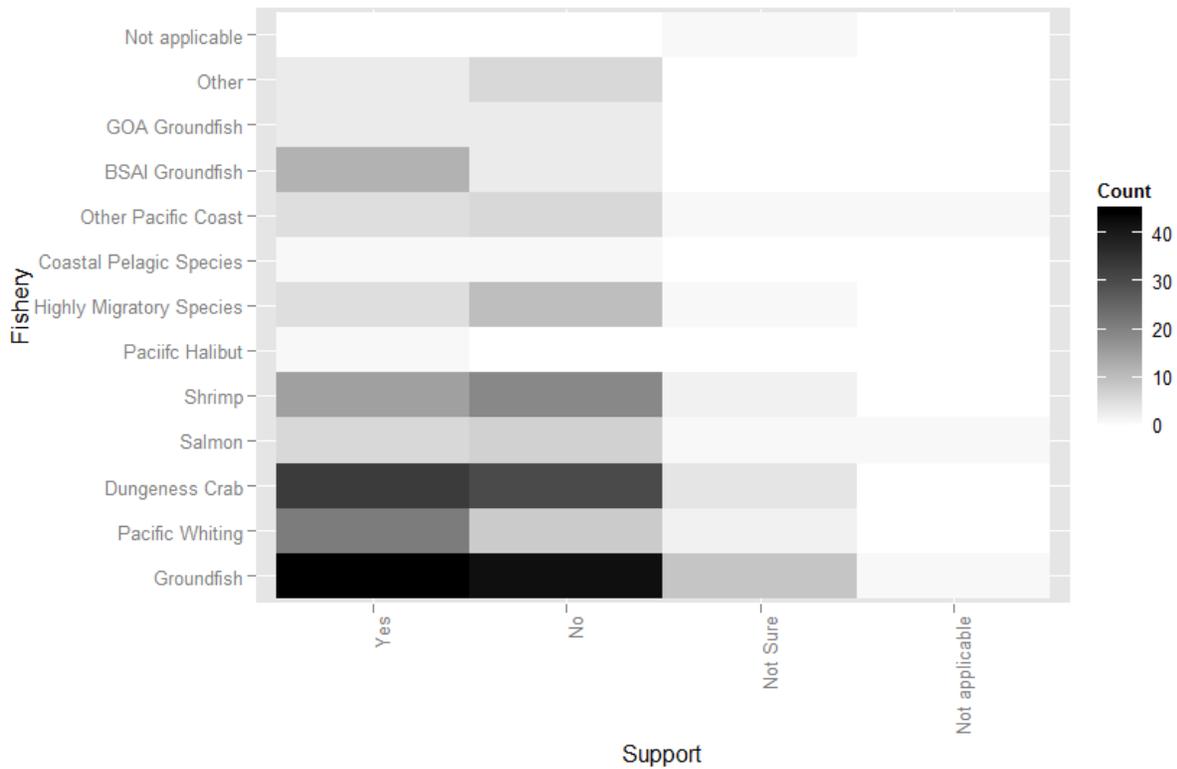


Figure 21. Frequency cross-tabulation showing support of Catch Shares by the most important fisheries (2012).

Figure 21 shows a cross-tabulation between respondents’ most important fishery and whether or not they support Catch Shares in 2012. Respondents who indicate that groundfish is their most important fishery are evenly split between those who support catch shares and those who do not. Over two thirds of respondents who indicated that their most important fishery was Pacific Whiting support Catch Shares. Respondents who indicated that their most important fishery was Dungeness Crab were slightly more likely to support catch shares, whereas respondents who indicated that their most important fishery was Shrimp were slightly more likely to not support the program. 75% of respondents who indicated that their most important fishery was Bering Sea and Aleutian Islands Groundfish support Catch Shares.

Contradictions, Program Misperceptions, Unexpected Results

Catch Shares is not a black and white issue; data support the idea that some respondents are inconsistent in their perceptions. Respondents often indicated that they support and reject elements within catch shares. Some respondents indicated that they made more money, but still did not support the program or vice versa. Qualitative data reveal that there were program misperceptions about specific elements of Catch Shares as well as unexpected results of the transition to Catch Shares.

Contradictions

Catch Shares 2012 program perceptions are more evenly spread across the board than in 2010. Overall program perceptions are more positive (47%) than negative (40%); however it is important to note that Catch Shares is not a black and white issue. Many respondents indicated that they love/hate specific elements of Catch Shares; this does not necessarily reflect how they feel about the program as a whole. Many respondents indicated that they supported Catch Shares, but then would state that there were a lot of negative aspects of Catch Shares. Other respondents stated that they did not support Catch Shares, but then would note that positive things, such as reduced bycatch, had occurred. Likewise, how respondents were personally impacted by Catch Shares did not always determine their opinion of the program (Figure 22). 15 respondents indicated that they had been negatively impacted by Catch Shares, yet still indicated that they supported the program.

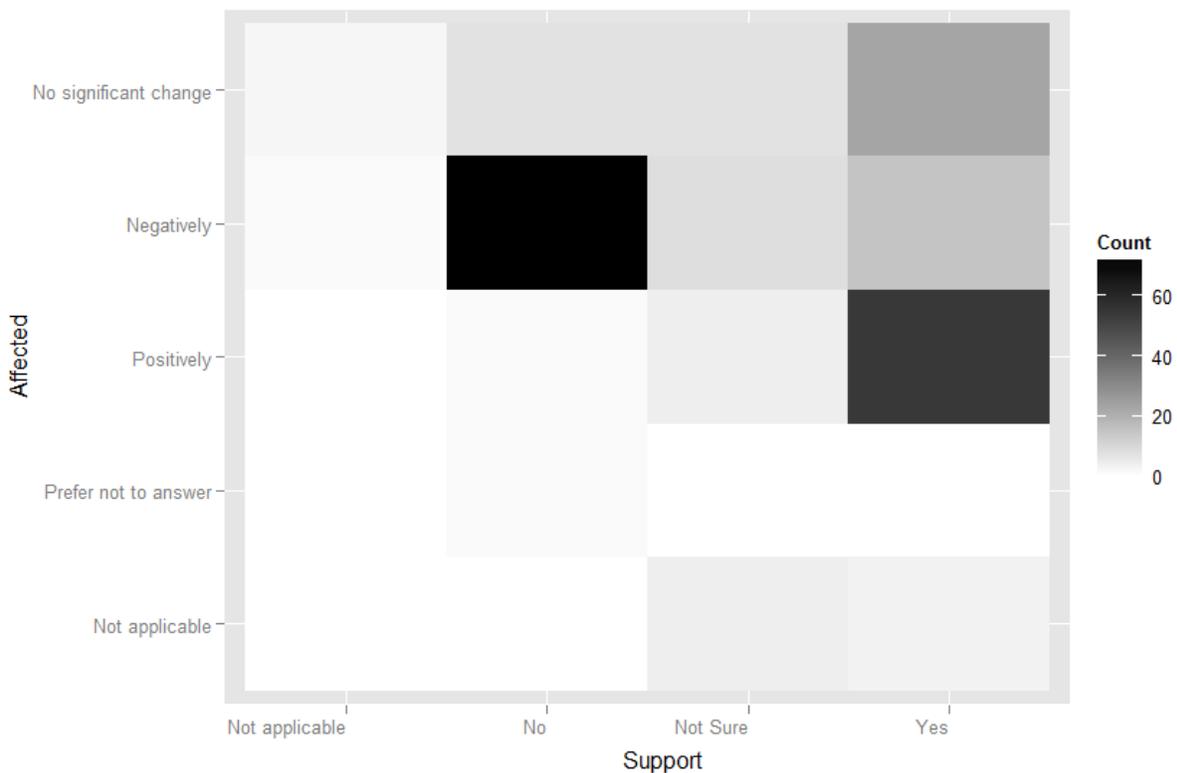


Figure 22. Frequency cross-tabulation of support of Catch Shares and how participants were personally affected by the program (2012).

Program Misperceptions

A minor, but consistent theme in the qualitative data was that respondents felt that gear restrictions need to be removed with the implementation of Catch Shares. Some respondents felt that this had been promised to them as a 'selling point' of catch shares before it was implemented, whereas others simply felt that having gear and area restrictions was redundant

with the program. Respondents specifically stated that the idea of 100% accountability that came with the observer program negated the need for the Rockfish Conservation Areas (RCA). These respondents are especially frustrated that they cannot access species they were allocated because they live almost exclusively in the RCA.

“All this other stuff that theoretically should come along with catch shares and individual accountability is some relaxing of a lot of the old regs. Gear restrictions, RCAs...none of that’s happened. It’s happened, well...gear not at all. And RCAs very little, very very little. Well, with the regs the way they are, it’s hard to go try to target these underutilized species because of all the different old regs that really have no point anymore.” (Astoria Fisherman, 2012)

“I think having gear restrictions like...small footrope or big footrope, I think is kinda redundant now. You’re already accountable for yourself, for what you’re going to catch...if you’re stupid enough to go somewhere with a big footrope...and catch a bunch of canaries, you’re the only one who’s going to be hurtin from it, I think you should be able to make that decision on your own. I think some of the gear restrictions are kinda funny and I think some of the areas that you can’t fish should be lifted because you have account for all your fish that you’re gonna catch. I mean, if you’re that dumb...to go somewhere to catch 5,000lbs of Widows where you know there’s a possibility you’re going to catch 30,00lbs, why would you even be in there? But I think if you have the quota to go catch a few...I think you should be able to go in there and catch what...cause there’s going to be a lot of fish left on the table if they don’t do something about it.” (Fort Bragg Fisherman, 2012)

“All of our net restrictions, mesh sizes...that was all supposed to go away. It hasn’t. RCAs, they were supposed to go away. They haven’t. So all the things that we were promised in this program haven’t happened.” (Astoria Fisherman, 2012)

Unexpected Results

The survey asked respondents to describe any results of the transition to Catch Shares that occurred, but were unexpected. A little under half of the respondents that replied to this question indicated that this was not applicable or that there were no surprises (Table 11). The most common unexpected results involved quota allocation, bycatch allocation and issues with the observer program.

Table 11. Description of the unexpected results from the transition to Catch Shares.

| Theme | N |
|--|----|
| None; no unexpected results | 17 |
| Allocation of Target Species wasn't what expected | 17 |
| 1. Quota Share Less Than Expected/cut in limits (13) | |
| 2. Allocated more fish/more work (1) | |
| Bycatch; bycatch limits are too low | 13 |
| Observers problematic | 12 |
| 1. Availability/coverage problematic (6) | |
| 2. Cost problematic (4) | |
| No Surprises; Anticipated Everything | 9 |
| Catch shares working Well/Pleasantly Surprised | 4 |
| Rollover of Species did not occur | 4 |
| Old gear restrictions still in place | 4 |
| Increased communication/networking amongst fishermen | 3 |
| Lawsuits | 3 |
| Fishing Less/fewer trips | 3 |
| Additional costs of program | 3 |
| Didn't expect new position/job | 2 |
| Working Poorly/management failure | 2 |
| Less Fish to Catch | 2 |
| Accumulation caps on quota | 2 |
| More reporting and monitoring | 2 |
| Program better at reducing bycatch | 2 |
| Retention of juvenile fish (black cod) | 2 |
| Other | 36 |
| Not Applicable | 51 |
| Prefer Not To Answer | 2 |
| Didn't know what to expect/ don't know | 2 |

Fisheries Participation

The goal of fisheries participation section of the data collection is to monitor how individuals are working within the industry and how that has changed over time. The Catch Shares program will likely require changes in participation. These changes may be related to which fisheries are targeted, which gears are used, who people work with, or how people work with each other. Some of the changes, such as increased participation in other fisheries, may result in additional management concerns. These changes may be slow to be seen, however, this data aims to better understand what they may be, when they happen, and what factors may influence them.

Results

Fisheries Participation

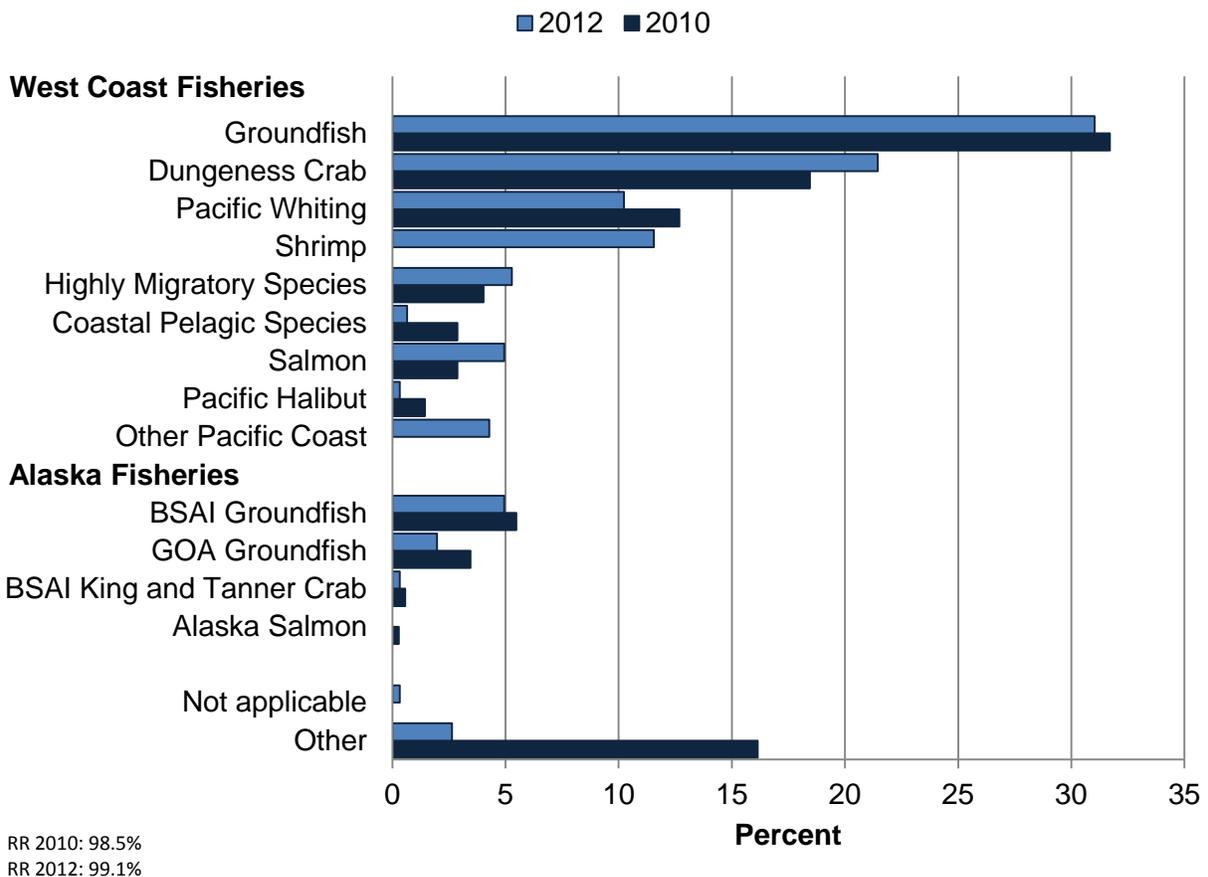


Figure 23. Fisheries participation in most West Coast and Alaska fisheries.

Figure 23 identifies the fisheries that survey participants have participated in on a regular basis before Catch Shares was implemented in 2010, as well as fisheries they participated in since the implementation of Catch Shares. The high percentage of the 2010 “Other” category is comprised mainly of shrimp, which was added as a separate category in 2012. There appears to

be a slight increase in respondents who participate in the Dungeness crab fishery, Highly Migratory species, Salmon as well as other Pacific Coast fisheries. On the other hand, there appears to be a slight decrease in respondents who participate in Groundfish, Pacific Whiting, Coastal Pelagic species, Pacific Halibut and Alaska fisheries.

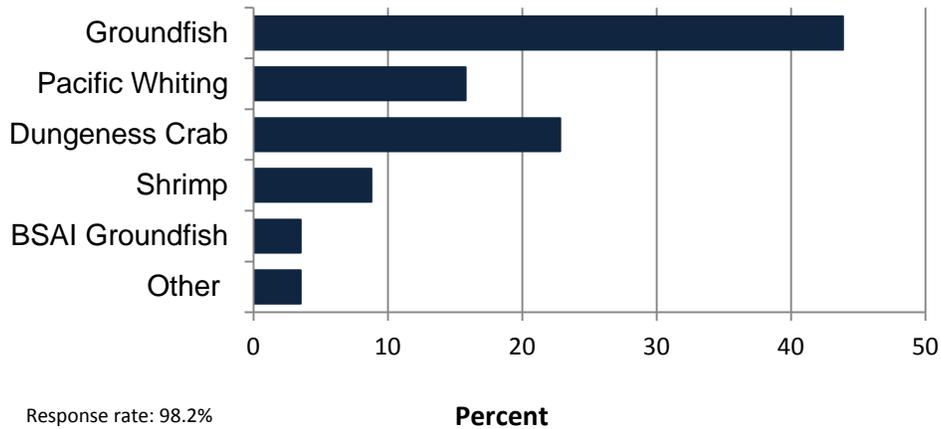


Figure 24. Most important fisheries for trawl harvesters in 2012. NOTE: The question that provided this data was identical in both the 2010 and 2012 survey tools. Instructions requested responses to be ranked in order of importance. The responses in 2010 were inconsistent and most simply selected fisheries and did not rank them. This was emphasized in 2012 and accurately resulted in a ranking order.

Trawl caught Pacific Coast Groundfish was considered the most important fishery for 43.9% of respondents in 2012 (Figure 24). Pacific Whiting, Dungeness crab and Shrimp together made up another 47.4%. More over 18.4% of respondents indicated that Pacific Coast Groundfish was their sole fishery in 2012, as compared to 9.5% of respondents in 2010 who indicated that Pacific Coast Groundfish was their sole fishery.

Gear Use

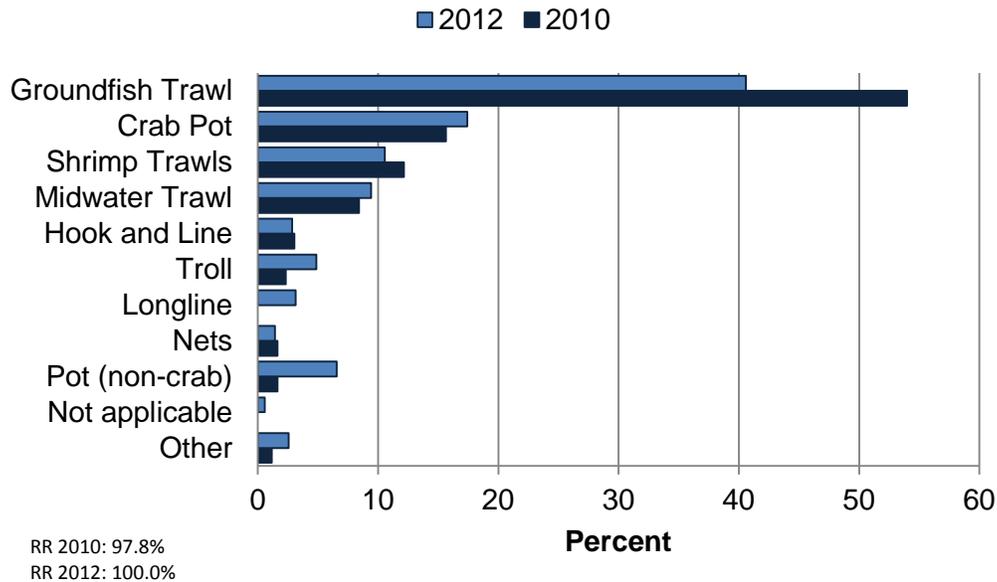


Figure 25. Most commonly used gear types.

From 2010 to 2012 there has been a 13.4% decrease in the amount of respondents who use a groundfish trawl (Figure 25). There has also been a 5% increase in the use of fish pots, suggesting that fishermen may be utilizing their ability to switch to fixed gear under Catch Shares. In addition, there has been a 2.6% increase in the use of troll gear. The use of crab pots and midwater trawl have increased marginally, while there appears to be a slight decrease in the use of shrimp trawls.

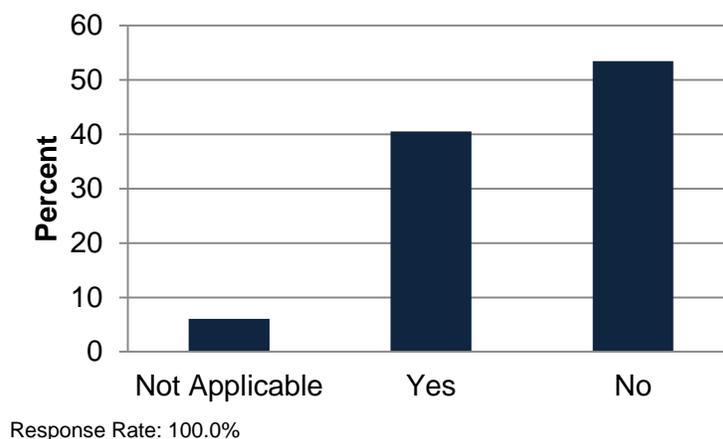


Figure 26. Have targeted species changed?

40.5% of respondents indicated that they have changed the species they target since the implementation of Catch Shares (Figure 26). Qualitative data reveal that fishermen are changing

the species they target within the groundfish fishery, as well as shifting some of their effort to other fisheries such as Dungeness crab and Pink Shrimp.

Respondents state that they have changed the groundfish species they target in response to low quota allocations on certain species. This often has a spatial element, as many fishermen explained that they had changed the areas they fish in order to avoid species of concern that would potentially cause an overage. This included both areas that were known to have a high potential of catching an overfished species, or areas where species were known to co-exist:

“It [species targeted] has changed because of the potential to catch species that you don’t have a catch share for...in other words I don’t go for Petrale because I catch Boccaccio, and I don’t go for the Chili’s (I got a fairly big chili quota) because I might catch a Cowcod.” (San Francisco Fisherman, 2012)

Many respondents have stated that they have been unable to fish “the beach,” or the nearshore fishing grounds shoreward of the RCA because they either do not have enough bycatch quota or target species of fish that intermingle:

“The other problem with the IFQ program is incidental catch on the beach. We used to beach fish. Now everybody’s afraid to beach fish. I go two pounds of yellow eye. That’s a fillet. How am I going to deliver a fillet? I can’t even deliver a whole fish. So nobody, well not, there might be one boat in this area that beach fishes now. He’ll gather up all the bycatch he can and beach fish. One boat out of Eureka, the rest of us are afraid to do that. So it’s changed the dynamics of fishing” (Crescent City Fisherman, 2012)

There may have been increased effort shift in other fisheries. Most of the time fishermen explained that a shift in fisheries effort meant that they were more fully utilizing permits that they already had, rather than purchasing new permits. Qualitative data speak to the fact that this switch may have happened simply because other fisheries such as Dungeness crab and Pink shrimp, had good years, and it was simply more profitable to fish in those fisheries. Fishermen state that this was a shift in effort they would have made regardless of Catch Shares; they will participate in the fishery that is the most profitable in any given season.

“I crab longer than normally would. And I’m pink shrimp fishing now. We do one week pink shrimp and the next week groundfish, where normally we groundfish every week. That’s because the market’s good, but that can change.” (San Francisco Fisherman, 2012)

Other respondents state that they used increased activity in those fisheries to supplement their groundfish catch. Some respondents expressed concern that they were currently financially stable only because other fisheries were having good years and that these fisheries were cyclical. They are concerned that once these fisheries taper off, they will not have enough groundfish to make ends meet.

“I mean, we’re able to fish as much as we want for the most part, but this is good shrimp years though. When we get down to poor shrimp years, this whole thing’s going to change.” (Brookings Fisherman, 2012)

“Last year, this is also somewhat distorted because it was an exceptional pink shrimp year and so some of those people that chose not to [ground] fish went pink shrimp fishing instead. When pink shrimp fishing isn’t good, if the El Nino that is predicted for next year arrives, it won’t be good. And those people will be relying on groundfish trawling again. In which case we may find ourselves back again where we had been, in terms of the flexibility being removed and people being restricted in how much fish they can actually land. So that remains to be seen.” (Eureka Fisherman, 2012)

Fishermen and Processing Information

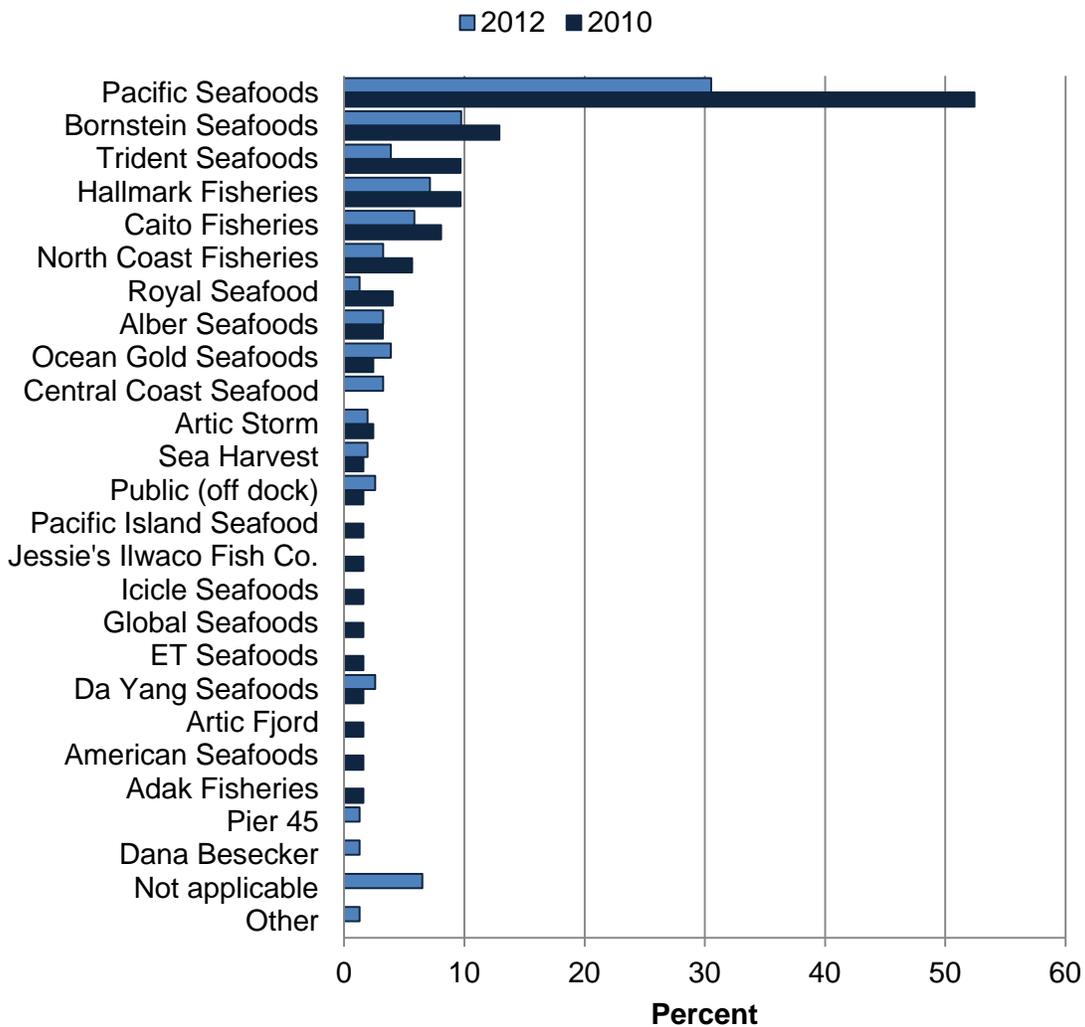


Figure 27. Processors fishermen sell to.

Figure 27 identifies the processors that fishermen sell their trawl caught groundfish to. Most of the prominent processors that purchase West Coast Trawl caught Groundfish appear to have less fishermen selling to them in 2012 relative to 2010. This could be because there are fewer trawl participants in 2012 due to vessel consolidation. Pacific Seafoods appears to have been impacted the most, with a 21.9% decrease in the amount of respondents who say they deliver to Pacific.

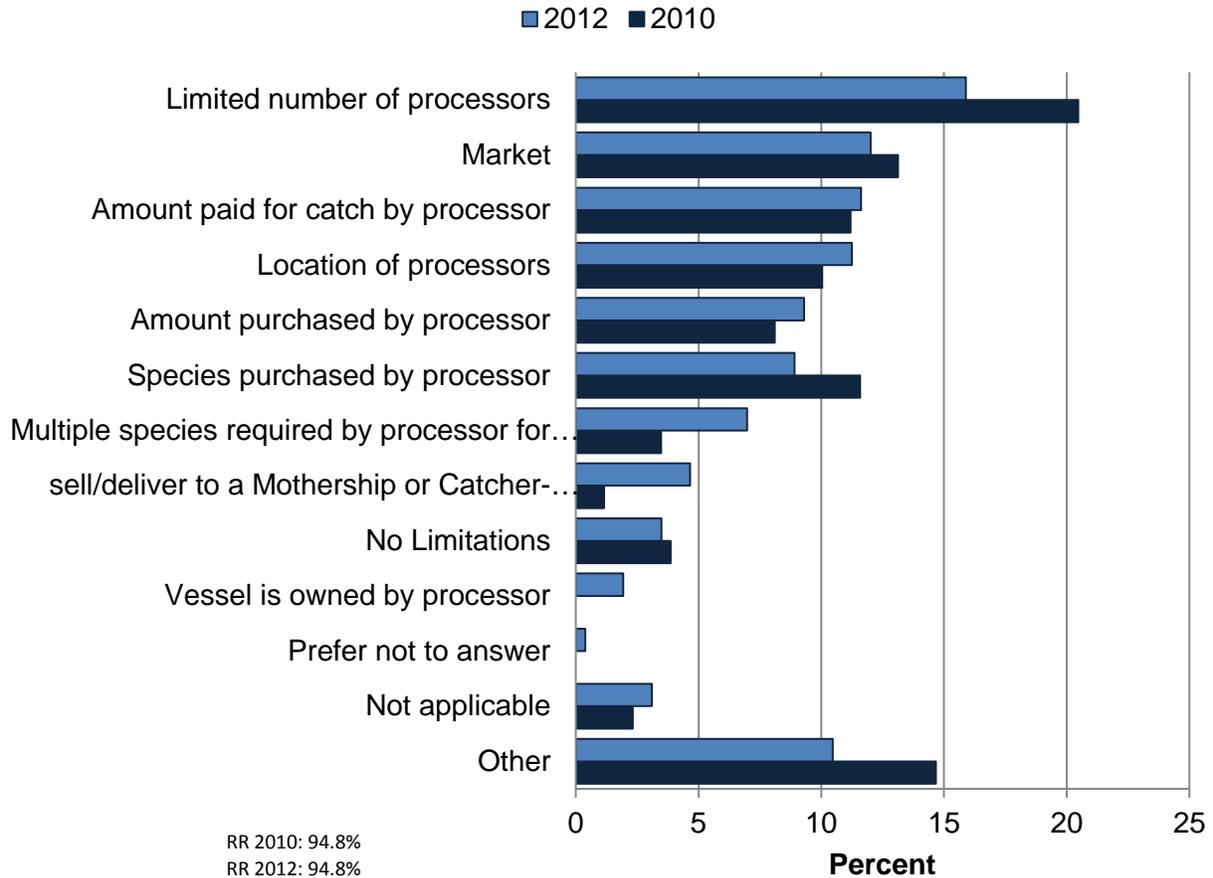


Figure 28. Fishermen's limitations on selling fish.

Fishermen were asked to specify what limits their choice of where they sell their fish, and were given the option to select multiple answers. Fishermen feel most limited by the number of processors both in 2010 and 2012 (Figure 28). Other included responses such as do not know, and the owner limits where the fish is sold.

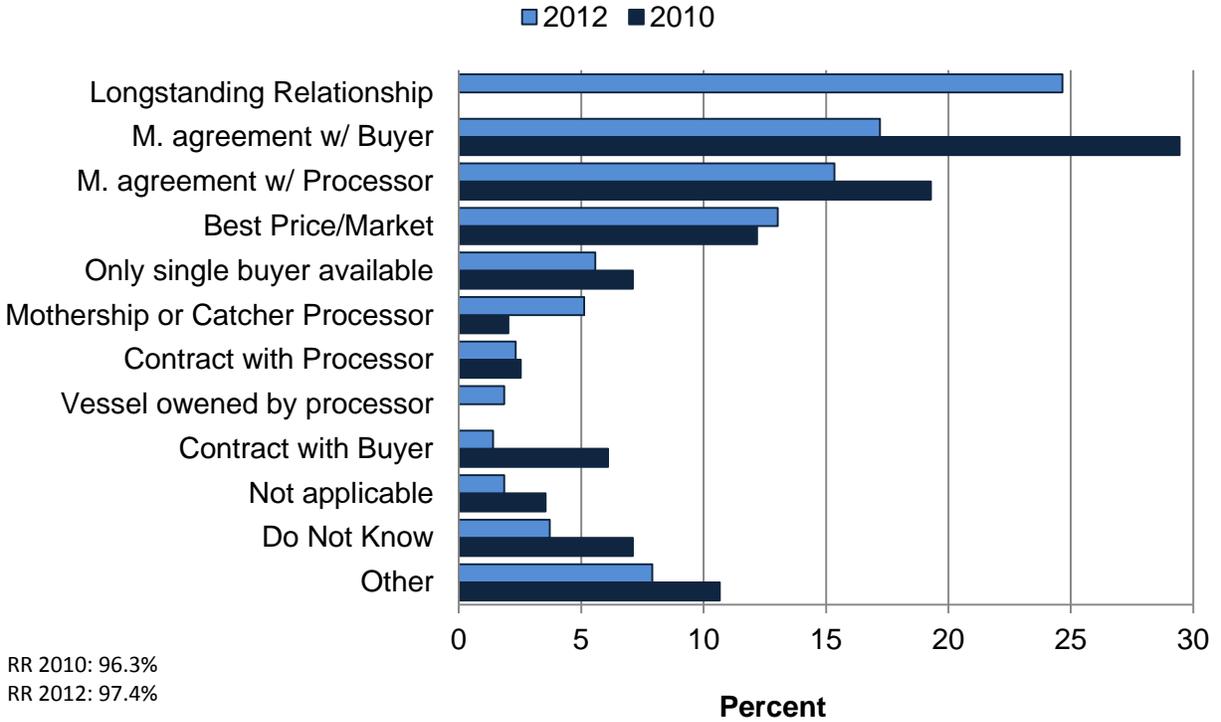


Figure 29. Fishermen's considerations where to sell groundfish. Note: M. agreement refers to mutual agreement.

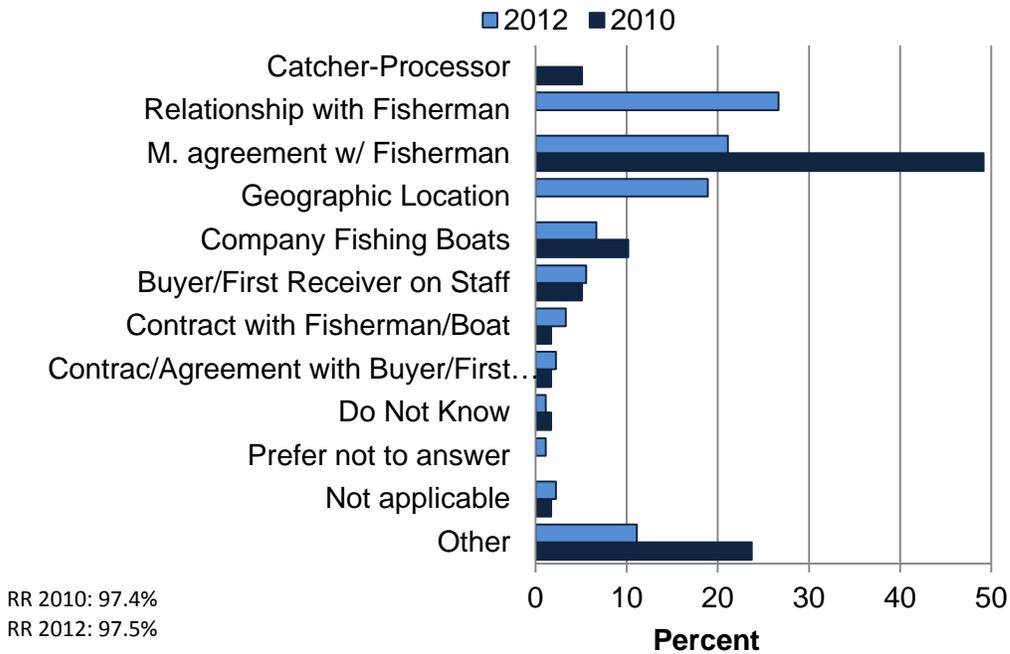
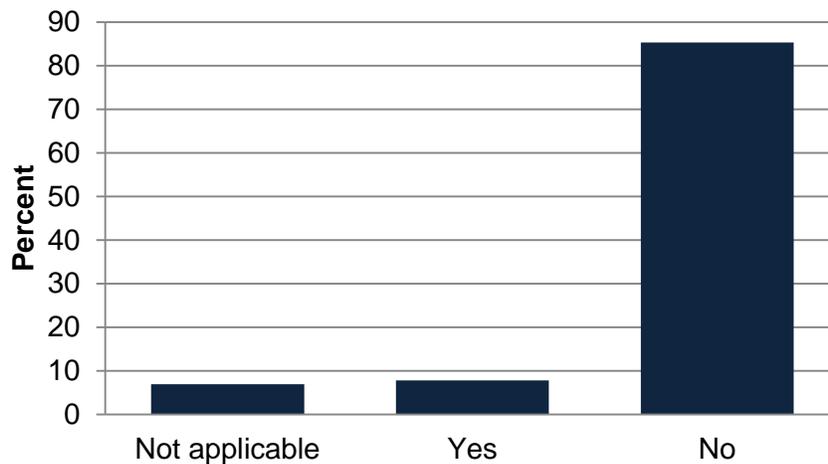


Figure 30. Processor's considerations where to buy groundfish.

Both fishermen and processors were asked what they take into consideration when selling/buying Pacific Coast Trawl Groundfish. Overall fishermen and processors appear to rely on longstanding relationships, as well as mutual agreements to buy/sell fish (Figures 29 and 30). Contracts are not frequently used. This does not appear to be affected by catch shares. The option of “Longstanding Relationship” was added in the 2012 survey. This may just be a more commonly used term by the study participants that was captured in the 2010 data set, and was therefore added. Both the relationships between fishermen and processors and the mutual agreements between the parties represent a ‘good faith’ informal arrangement that has withstood the first years of the program. Considering processing perspectives, it is interesting to note that they report contracts with fishermen/boats did almost double from 1.7% in 2010 to 3.3% in 2012, hardly a noticeable value, but notable and worth watching in the future.

Change in personnel



Response Rate: 94.8%

Figure 31. Change in crew 2012 (personnel aboard vessels).

85.3% of respondents state that the people they work with on their vessel have not changed as a result of the catch shares program (Figure 31). 7.8% reported that the people they work with had changed directly because of the program. This is important to note because often the effect of catch shares programs is consolidation, which has the potential to negatively harm crew if quota is consolidated on fewer boats and there are fewer jobs available. This is not to say that crew may have been impacted in other ways, but it appears that the majority of the respondents still work with the same people, regardless of Catch Shares.

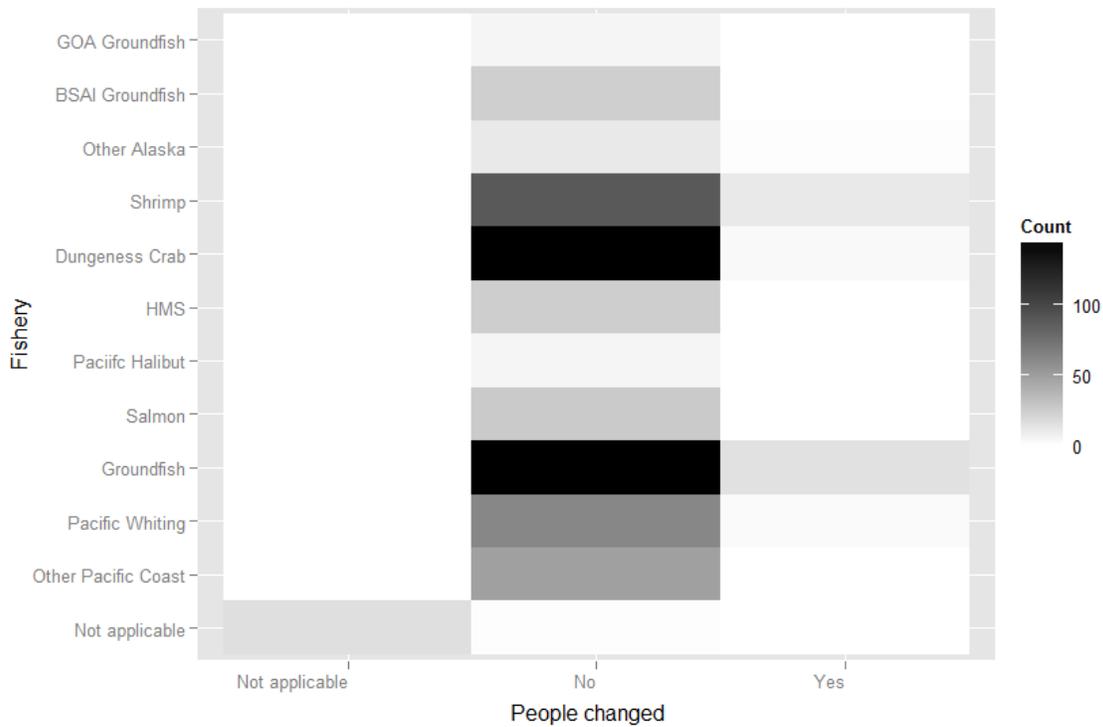


Figure 32. Frequency cross-tabulation of whether people have changed by the individual fisheries (2012).

As previous data indicate a majority of groundfish fishermen target the crab fishery as well, it is not surprising to see little movement of staff in both the groundfish and crab fisheries. Highest levels in the change of people in the fishery are indeed found in the groundfish fishery and the Dungeness crab fishery followed by the shrimp fishery (Figure 32). As consolidation continues this may become a more prevalent and noticeable issue.

Permit owner activities post implementation

The following section describes actions that quota holders have taken in response to the rationalization of the West Coast Groundfish fishery. The majority of trawl participants did not feel like their initial allocation of quota pounds met their expectations. Over two thirds of quota permit owners surveyed have received quota pounds from another vessel account.

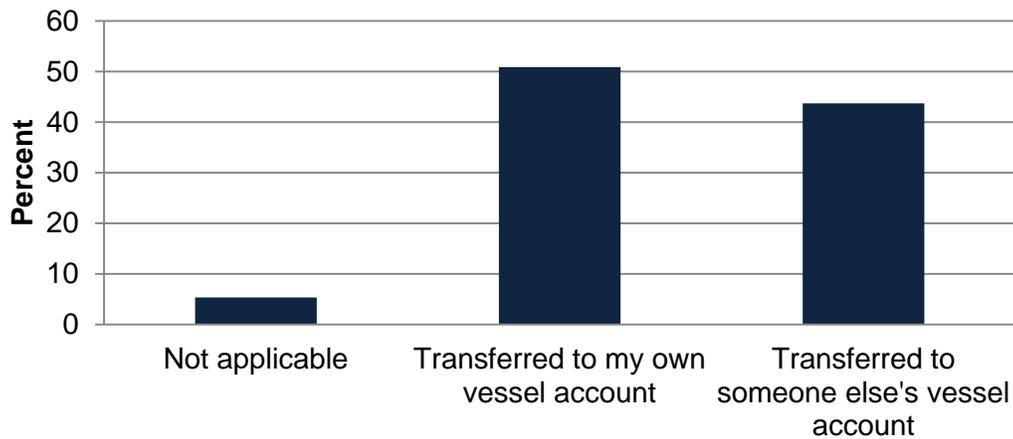
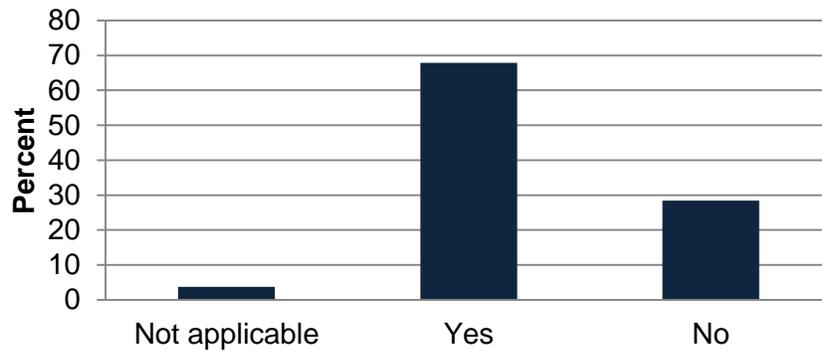


Figure 33. Transfer of quota pounds.

50.9% of respondents stated that they transferred their quota pounds to their own vessel accounts, whereas 43.8% transferred their quota pounds to someone else’s vessel account (Figure 33). When asked why they transferred their quota pounds, most respondents indicated that they transferred because they were leasing their quota pounds or that they were trading quota pounds. Table 12 gives examples of the most common reasons why respondents transferred quota pounds to another vessel account.

Table 12. Why respondents transferred quota pounds to another vessel account.

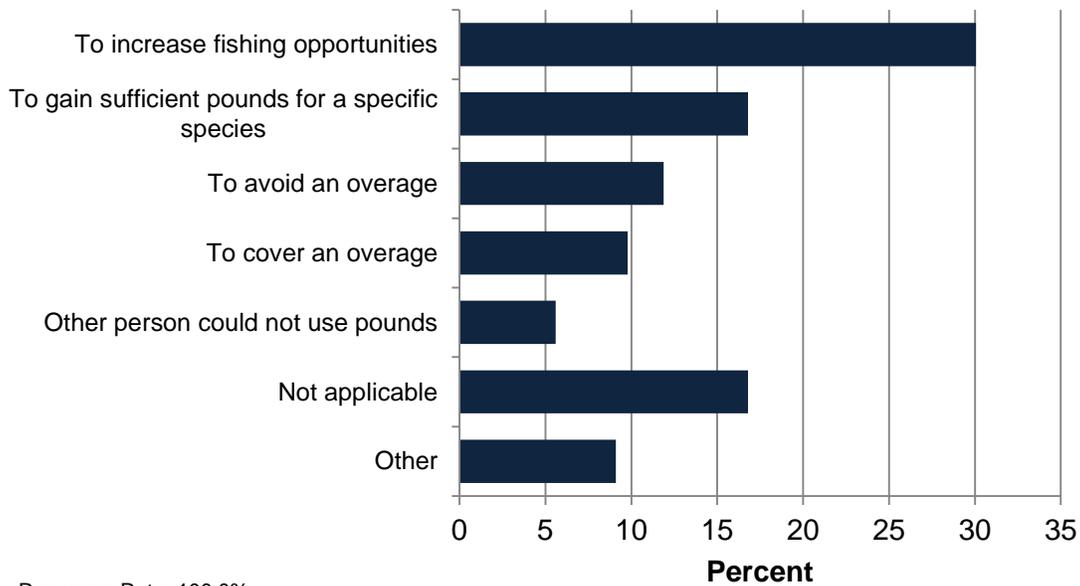
| Reason | Examples of Responses | N |
|--|---|----------|
| Leased/Sold Quota Pounds | Have to lease initial allocation to other boats besides company boats (to get fish we need for processing; have to lease pounds). No money gained. Have to give quota pounds to outside vessels to ensure those vessels will deliver product to us. | 18 |
| | Not actively fishing, transferred it out to leases. | |
| | Mix of species worked better to lease than to fish ourselves. | |
| | Small amount of groundfish was leased out. | |
| | Wasn't able to catch North/South blackcod. Leased below 36 - Jefferson St.com. | |
| | Because some of it was allocated below the 36 (further south); they wanted it and I didn't want the additional expense of catching it. | |
| Traded Pounds | Used for trade because that's what you can do in a rationalized fishery. | 11 |
| | Traded some whiting quota pounds for black cod and petrale. | |
| | Some trading occurred, petrale trades for black cod. | |
| | Trading quota because of different species. We trade because one guy is using whiting and we're using the groundfish. We traded black cod, there's the north south aspect of it. | |
| | Traded pounds to get what I wanted. | |
| Transferred because wasn't going to catch species | We weren't gonna use it, we were shrimping and gambled. We stayed shrimping. | 4 |
| | Transferred fish I wasn't going to catch - due to gear type (petrale/whiting). | |
| Don't fish own vessel at this time | Not able to fish my own boat at the time. | 4 |
| | Because I don't own boat anymore to fish quota; just hired as skipper on boat (partners in permit). Would prefer to catch my own quota, but make more money on leasing. | |
| Increased Income | To get money to cover vessel dry dock and repair. Hake transferred since not used. | 3 |
| Transferred because no longer fishing | Transferred to a couple different vessels; no longer feasible to fish. | 3 |
| Extra fish | Had to spread out shortspine for south to keep it. Had too much (over the max allowed). | 2 |
| Processors transferred to fishermen | Transferred to vessels outside the company for processor to have access to 20% whiting. Try to make fishermen whole. | 2 |
| Transferred to risk pool | We contribute them to the risk pool. | 2 |
| Other | Misc. | 7 |



Response Rate: 100.0%

Figure 34. Receive quota pounds from another vessel account?

67.9% of quota holders received quota pounds from another vessel account (Figure 33). Respondents indicate that the top reason additional pounds were received was to increase fishing opportunities (30.1%), followed by the ability to gain sufficient pounds for a specific species (16.8%) (Figure 35). This makes sense in light of the fact that only 36.9% of quota share permit owners received an allocation that met their expectations. Qualitative data reveal that permit owners generally did not believe that they received enough fish in the initial allocation. Many stated that they “*had to lease bycatch in order to target harvested species,*” or that they “*felt like I should have gotten more; [it was a] strange mix of species I never used to catch.*”



Response Rate: 100.0%

Figure 35. Why additional pounds were received.

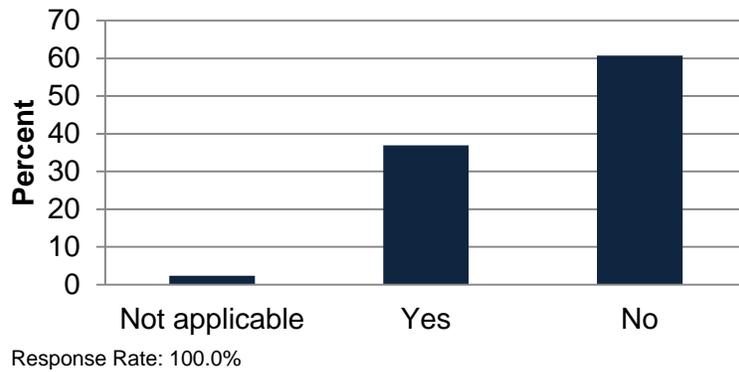


Figure 36. Initial allocation meets expectations?

The initial allocation of quota pounds did not meet 60.7% of quota share permit owners' expectations (Figure 36). The allocation met the expectations of 36.9% of permit owners.

Future Plans

It appears that the majority of respondents plan to continue their participation in the West Coast Groundfish Trawl fishery (Figure 37). More respondents plan on acquiring more quota pounds and quota shares in order to prosecute the fishery. The majority of participants also plan on participating in other commercial fisheries, with the top three being Dungeness crab, shrimp, and albacore.

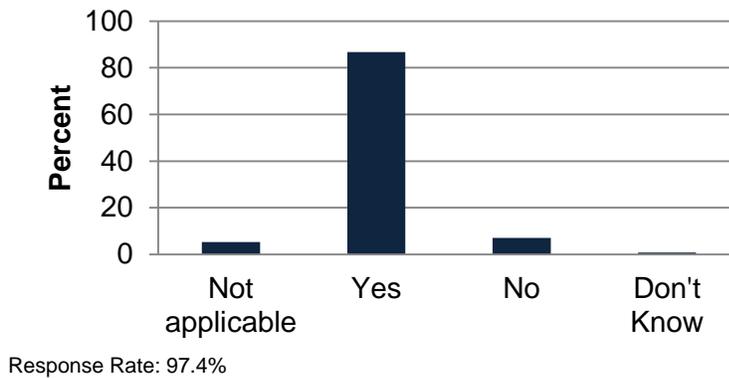


Figure 37. Continued participation in the Groundfish fishery.

When asked if they planned on continuing their participation in the Pacific Coast Groundfish Fishery, 86.7% of respondents indicated that they planned to continue.

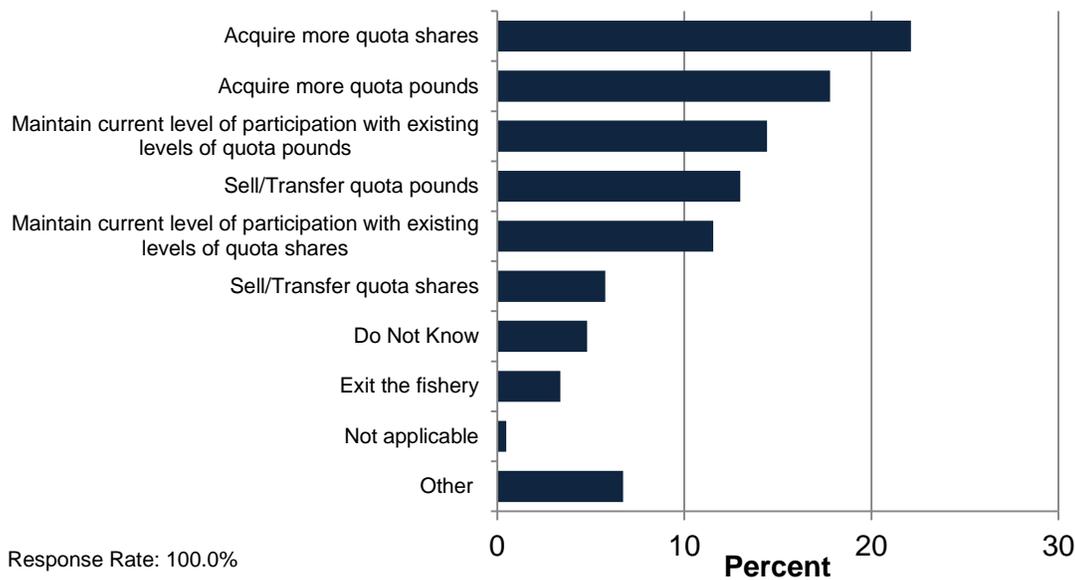


Figure 38. Quota shareholders future plans for the Groundfish fishery.

Quota Share Permit owners were asked what their future plans were regarding their quota pounds as well as their quota shares. Respondents were able to select all the options that applied. 22.1% of respondents indicated that they wanted to acquire more quota shares when possible; 17.8% planned on acquiring more quota pounds (Figure 38). More respondents indicated that they planned on selling/transferring quota pounds before they would consider selling transferring their quota shares. 3.4% of respondents plan on exiting the groundfish fishery altogether. Overall, there appears to be a desire to remain in the groundfish fishery.

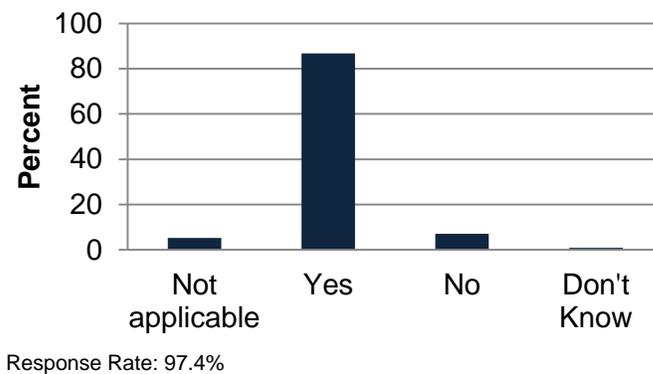


Figure 39. Continued participation in other fisheries.

86.7% of respondents indicated that they planned to continue participation in other commercial fisheries (Figure 39). The top three other fisheries that fishermen plan on participating in include Dungeness crab (25.1%), Shrimp (18.65), and Tuna/Albacore (9.5%) (Figure 40).

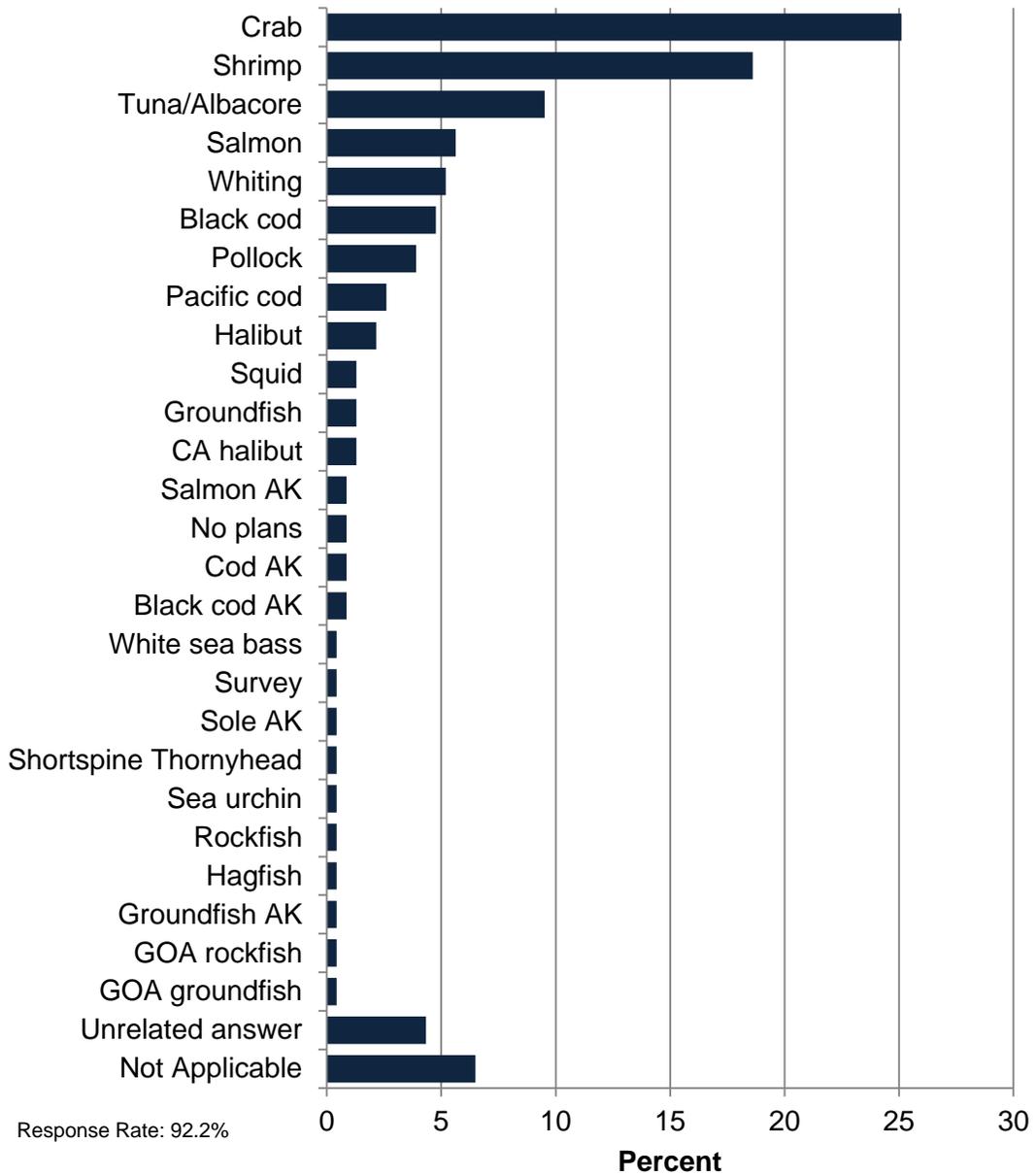


Figure 40. Planned participation on other commercial fisheries.

Discussion

The organization of results from our survey and interviews by theme is intended to more clearly communicate our findings in a means that has utility to managers and stakeholders. The augmentation of the survey data with the interview data, provides a clearer context to the information. Each of the themes, graying of the fleet, changing social relationships, program perceptions, and fisheries participation, provide unique information on what is happening in the fisheries.

Graying of the Fleet

The perception of graying of the fleet is pervasive and is supported by the survey results and interviews. Data indicates it is indeed present in the Groundfish fishery, over half of the fishermen are 50 years old or older. This is also acknowledged by study participants in their interviews. Most of these older fishermen started fishing when they were young, by the age of 25 and then stayed in the industry. Over half of the fishermen in both data collection years indicated they had been fishing for more than 31 years, some as many as 50 years. Younger entrants were indicated by the number of years fishing (0-5 years) in 2010, 9.8%, which dramatically dropped to 2.6% in 2012. Many of these fishermen also indicate a they come from multi-generational fishing families. They worked on their family member's boats and became fishermen themselves. This graying is not limited to fishermen, other industry suppliers such as net suppliers and service providers also show over half of the respondents are over 51 years old for both survey years.

Qualitative data provides insight into the lack of new entrants into the fishery. Perceptions that the Groundfish fishery is consolidating is as is a dying fishery doesn't draw the interest of new fishermen are perceived as discouraging new entrants. Respondents indicate the fishery needs to be more lucrative to draw new entrants, and that regulatory restrictions and financial barriers are contributing factors that discourage entry.

Why is this important? Many wonder who the future fishermen will be. Respondents worry about a loss of knowledge in the fishery. Some respondents have described the old process of becoming a fishermen like an apprentice program, where you worked on the back deck learning from more skilled fishermen. While this issue may be prevalent in different types of fisheries, respondents indicate groundfish fishing is more complex and with prohibited species, higher levels of skill are required to successfully execute the fishery. Industry suppliers also provide insight into the difficulty to recruit and train new staff. Respondents comment on the need for programs to draw new entrants. These programs shouldn't be limited to teaching skills but should also assist with financial limitations that otherwise would limit fishery participation. While the perception of 'greying of the fleet/ is not necessarily a result of the Catch Shares system, respondents communication of several limitations due to the catch shares program may be a contributing factor.

Changing Social Relationships

As pressures of a changing fishery management system affect the business practices of those operating in the system. Relationships between individuals and businesses are likely to change as well and these changes in turn affect the well-being of the people involved in the fishery. Relationships may change for better or worse in some cases. Measurements of quality of life exhibited little movement between 2010 and 2012 before and after implementation of the catch share program. Concepts such as ‘standard of living’ have shown a small overall improvement between survey years, and ‘compensation and pay’ shows improvement as well. Job stability appears to be changing slowly where there is a slight increase in excellent responses in 2012 as well as a decrease in poor responses, but a slight decrease in those reporting a good response in 2012. Our study suggests a prevalent perception that stability is improved overall.

Fishermen were specifically asked about their relationships in the industry. Results for people in ‘harvesting’ roles from the 2012 survey indicated the greatest changes in relationships between fishermen and observers, permit owners, and vessel owners, and captains/operators. Relationships with all these entities overall trended toward the negative, whereas positive ratings declined. Observers were the highest level of concern, where inexperience of the observers was a major contributor to the concern. With regards to the permit holders and crew, the first poor ratings appear in the 2012 and there is a dramatic decrease in good ratings. Qualitative data also indicated greater issues for crew/captains on boats who lease pounds where pay is less due to more fees to cover observer costs and lease fees are taken out of their cut. This bears concern as more people are less willing to indicate positive relationships and over time may contribute to lower job satisfaction or people shifting within the industry to try and find better socially acceptable arrangement for work.

When fishermen were asked to rate their relationships to the processing sector, results also trended towards the negative. In this case the negative ratings did not increase, but, the positive ratings decreased, especially between fishermen and buyers/first receivers and fishermen and processors. A small number of qualitative responses as to why relationships change speak to pricing issues, delivery date issues, other processor controls. However, others speak of improved and new relationships as everyone was learning how to work in the new system. The data with regards to how fishermen relate to processors is still changing, and this information is an indication of how its changing.

Processors also showed similar negative trends in relationships as fishermen with an additional complication. Processors showed their greatest challenges in relationships with laborers or plant workers. Results show an appearance of a negative rating in 2012 that was not present in 2010. Indications from qualitative data suggest the lack of work is a contributing factor. Other relationships appear to be suffering as well with the exception of the relationships with permit owners. Again we infer from the qualitative data that some reasons for this success were the necessity to work together to work under the new system which ultimately generated some trust. Data show both on boats and onshore relationships are changing. We are starting to see issues due to the pressures of the system. Will these issues contribute to the difficulty in finding crew in the future? Will plant workers have to find other jobs? Will relationships need to bend and

become more flexible to be successful in this fishery. These are all questions we should continue to explore as the new management system matures.

Program Perceptions

Our study provides information on how people viewed the rationalization program, both prior to and after implementation. This provides insights into concerns, benefits, difficulties, and challenges of the catch shares program. Rather than pre-supposing areas of concern, we asked questions outright to better gauge the atmosphere in the communities as it relates to the Catch Shares program.

The measurements of support of the program changed between survey years, where more support was indicated in 2012. The percentage of respondents not supportive of the program only decreased slightly as well, so the responses are more evenly distributed post implementation than prior to it. The relative increase in support could be coming from some of the undecided responses in 2010, but may be due in part to refusals to participate by disaffected individuals. However, we can't overlook the lack of support of the program only decreased slightly as well, State analysis also show the majority of lack of support of the program comes from California, while the majority of support for the program comes from Washington, followed by Oregon. This is interesting to note, as the fleets in different states and the alternate fisheries they participate in are different up and down the coast. As a result, the impacts of the program on different geographies appear to be different, as we expected.

Support of the program appears to have been influenced in 2010 by uncertainty and lack of knowledge of the program, which resulted in more negative responses. This underscores the importance of good outreach and communication as new management programs are developed and implemented. In addition, in 2012, it is believed that positive responses were affected by the non-response rate, where those whom were removed from the fishery within the first year after implementation, and refused to participate in our data collection effort, may have contributed alternate perceptions here. With that said, the results are so similar, rates may only have leveled out more.

When asked why they support the catch shares program the top reason in both years, is a reduction in bycatch. An increase in market value and an increase in business flexibility were also in the top five in both years, though their ranking changed. Changes in 2012 included the addition of an increase in individual accountability and an increase in safety. Improvement of product quality and more stable income, which had been top reasons for support in 2010, dropped out of the top reasons in 2012.

In considering why respondents did not support the catch shares program, the reasons changed between survey years. In 2012, the top reason became problematic observer coverage, followed by an increased cost to enter the fishery, fewer jobs, impacts small boats/small businesses negatively, and increased cost to remain in the fishery. This removed the responses of a decrease in income, loss of business and community infrastructure, and boats leaving the fishery and negatively impacting the community from the top 5 reasons in 2010. This may represent a difference from what was expected when surveyed in 2010 and what was experienced in the 2012 survey effort.

These survey data were supported by interview data where some common themes reflected benefits and concerns of the program. Benefits include stability and business flexibility which allows for better planning and participation in multiple fisheries. Some speak to a using the flexibility for vessel repairs at earlier times as their catch is guaranteed. The issue of bycatch is an enigma. Participants communicate the benefits of reduced bycatch, where gear changes to include excluder devices and changed fishing practices have contributed to the success of bycatch reduction. On the flip side, others communicate concerns of being shut down for catching minimal 'choke species' and having to lease 'choke species' because they didn't receive any in their allocations. Observers are continue to be a vocal issue. While some indicated positive relationships in 2012, most still communicate issues with space on the vessel and cost being prohibitive. One of the new issues that arose during 2012 is the availability of observers, where fishermen would have to wait to get one, and sometimes this would work against them, as they would then fish in bad weather or when they didn't want to because an observer was available. Interview data here continues to provide a little more detail that further explains what we have learned in the survey data.

Through the measurement of program perceptions from pre to post catch shares we can see the difference between what people expected in a new program and what happened upon implementation. Support levels changed, the reasons for support or not supporting the program changed based on what happened in the first year and a half of the program.

Fisheries Participation

Fisheries participation helps inform what fisheries are being targeted, whether there have been changes in effort in other fisheries, is gear use changing, are there changes in business transactions, and are there changes on the boats. All this information informs how members of the industry are adjusting to sustain, maintain, succeed, or merely survive under this system.

Trawl fishermen appear to be shifting some of the species they catch, the gear they use, and the fisheries that they participate in slightly. Pacific Coast Trawl harvesters may be focusing more effort on Dungeness crab, and to a limited extent Shrimp. Qualitative data also indicates they are changing the Groundfish species they target due to both allocated species as well as to reduce the potential of catching overfished species. Shift in effort also refers to fishermen who are more fully utilizing permits that they already owned, but have not fished in recent years, rather than fishermen entering entirely new fisheries. Whether this shift is due to Catch Shares or other factors such as good Dungeness and Shrimp years, market forces, or reductions in the overall TAC for certain groundfish species, remains unclear. Fishermen also report when working with processors, consistently across both data collection years they are limited in the number of processors available to them to sell their fish. Other considerations when selling fish include market, the amount paid by processors, and the location of the processors. Both fishermen and processors consistently indicate they maintain 'longstanding relationships' or 'mutual agreements' as to the sale/purchase of fish.

On the 2012 survey instrument additional questions asked about quota allocation and pound transfer activities. Slightly less than half, 43.8%, of the respondents to this question indicated they transferred their pounds to another vessel. Primary reasons to do so include mixes of species they didn't typically fish, because the allocations didn't make it feasible to fish, so

leasing was the only option available, or to transfer for other species for processors to obtain sufficient deliverables of specific species. A majority of respondents also indicated they leased quota pounds primarily to increase fishing opportunities.

Despite these limitations or changes, the vast majority of respondents report that they intend to continue participating in the Pacific Coast Groundfish Fishery. Quota shareholders indicated they intend to acquire more shares and pounds in the future. Fishermen indicate they intend to stay in the Groundfish fishery and also continue participation in the crab and shrimp fisheries as well.

Conclusion

The information presented here is a theme based subset of the larger data set collected. It is important to emphasize the design of this research. Each year of data collection represents perspectives and provides insight into what is happening in the fishery at the time of data collection. A snapshot in time, if you will. Many factors can influence those perspectives between data collection periods. Hence the need for supplemental data collection efforts to understand influences and factors that may elicit change.

Some changes within systems may be rapid, while other may take time to emerge. The information presented here is early in the process and represents some of the immediate changes seen in the system. Some of the information may also raise new questions that bear further exploration.

We believe this information is indeed showing change as a result of signs of consolidation, observer coverage, bycatch species, and other pressures continue to influence business considerations. While some fishermen have learned to succeed, others have exited the Groundfish fishery and either retired from fishing overall, or moved to other fisheries.

It is our aim to continue this research through more in-depth analysis, and funding dependent, more data collection, to learn what else has changed since the 2012 data collection period.

Some caveats to our results, particularly to comparisons between 2010 and 2012 are in order. While our results indicate many changes between 2010 and 2012 our ability to determine whether these changes reflect statistically significant change in our population of interest is limited by the lack of a known sampling frame for participant groups other than permit holders. This makes it difficult to distinguish in some cases whether changes are due to changes for a given set of individuals vs. changes in the sample itself. The latter could reflect both changes in who is participating in the fishery, but could also be impacted by who participated in the survey (or refused to).

Additional analysis will be continued to determine more specific trends and clarify perceptions within the data. This will include analysis at the community level where confidentiality can be protected, and analysis on the repeat participants only to determine if there are differences in

their perceptions over time. Each question asked and piece of data run, provided an additional layer of insight. We aim to continue to provide such insight in future reports.

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