

# Limiting Entry into the Prince William Sound Shrimp Pot Fisheries

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Commercial Fisheries Entry Commission

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## **Abstract**

In December 2023, the commissioners of the Commercial Fishery Entry Commission (CFEC) unanimously agreed to propose new regulations aimed at limiting entry into the Prince William Sound Commercial Shrimp Pot Fishery. This report compiles the findings from CFEC's thorough research into the potential benefits and consequences of regulating entry into this fishery. It also includes insights from a comprehensive survey where permit holders shared their views on the proposed limitations, as well as feedback gathered from the public during a CFEC-hosted meeting. Furthermore, this document reviews the criteria for regulating entry as outlined by the Limited Entry Act and discusses the key concerns that motivated the commissioners' decision to vote to propose limited entry regulations.

Prepared by Reid Johnson

## **Acknowledgements**

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## 1.0 Introduction

On December 6, 2021, the Shrimp Pros Association, led by Chairman Brett Wilbanks and Vice Chairman Bruce Bowman, submitted a petition to the Commercial Fisheries Entry Commission (CFEC or commission) advocating for the implementation of a limited entry regime in the Prince William Sound (PWS) shrimp pot fishery. The CFEC commissioners tasked the CFEC Research Section to conduct a comprehensive assessment concerning the necessity of limited entry and its potential advantages for the fishery's sustainability and regulatory compliance under the existing limited entry statutes.

Pursuant to AS 16.43, the commission is obligated to ensure that any decision to restrict access to a fishery is predicated on the goals of promoting both the conservation of the fishery resource and the ongoing economic viability and stability of the fishery itself. For a fishery's access to be restricted, there must be clear evidence that the resource is experiencing unsustainable pressure and that introducing a limited entry system would significantly mitigate this issue. Consequently, when a petition for limiting access to an open-access fishery is received, the commission evaluates it based on the following criteria:

1. Participation trends: Whether the number of fishery participants is on the rise, decline, or stable. An upward trend in participation could signal growing stress on the fishery resource.
2. Harvest levels: Whether the fishery's harvests are consistently below, within, or exceed established guideline harvest levels (GHL), and whether the set quotas are being met. Regularly exceeding harvest GHL suggests the resource may be under significant stress.
3. Average gross earnings estimates: Whether the fishery's average gross earnings are increasing, decreasing, or stable. A continuous decline in this metric could reflect underlying economic pressures affecting the fishery's health.

In addition to these criteria, CFEC also takes into account observations and recommendations put forth by active participants in the fishery under examination. In their petition to CFEC, Shrimp Pros made the following assertions:

1. Non-commercial users are using the open entry permit to get around pot limits in the subsistence and sport fisheries: Due to pot limits in the non-commercial fishery, there is an increase in speculative hobbyists in the commercial fishery.
2. Harvests by sport and subsistence users is in excess of the GHL for those user groups: overharvests by the non-commercial fishery are straining the shrimp resource.
3. Individuals are using commercial permits to get a greater portion of the GHL: Individuals are coming into the fishery from the sport and subsistence fisheries and are doing so to obtain additional allocation, removing product from the market, and reducing average earnings for commercial harvesters.

On December 21, 2023, the commission held a public meeting where the CFEC research section presented its findings to CFEC commissioners. Public notice of this meeting was posted both on the Alaska Online Public notice system, as well as on the CFEC website. At this meeting both commissioners voted to limit the PWS shrimp pot fishery. This document serves as a summary of both findings and the rationale for limitation.

The investigation into limitation was complex and included an investigation into many different aspects of the fishery. Each of the following will be examined individually in subsequent chapters of this document.

- An analysis of gross earnings and permit participation over time.
- An examination of harvests as they compare to the GHL.
- A survey of the user groups (P09E and P91E permit holders) regarding support for limitation.
- A public meeting in which individuals were allowed to voice their concerns.
- An examination of the concerns raised by Shrimp Pros.

## 1.2 Background of the PWS Shrimp Pot Fishery

Commercial harvests of shrimp in PWS have been documented as far back as the 1960s. Spot shrimp (*Pandalus platyceros*) and coonstripe shrimp (*Pandalus hypsinotus*) are both harvested in this fishery, although by volume spot shrimp make up the greater portion of the harvest. From the 1960s until the mid-1980s both harvests and participation increased. Harvests dropped rapidly from over 200,000 pounds annually in the 1980s to just under 18,000 pounds in 1991. As a result of this rapid decline, the fishery closed in 1992. In the 1990s the Alaska Board of Fisheries (BOF or the board) took action to address how the fishery was managed. However, shrimp populations did not recover until the late 2000s. In 2010, the fishery opened under a new management regime. This new fishery was managed in a conservative manner to avoid the boom-and-bust that caused the fishery to be closed for two decades.

The PWS shrimp pot fishery is currently managed using a fixed exploitation rate management system. Under this system, GHL's are set each year for both commercial and non-commercial users. It is the responsibility of management biologists to prosecute the fishery in a manner that achieves the GHL without exceeding it.

Two permits are issued for the commercial fishery, the P09E permit, for boats under 60 feet in length, and the P91E permit, for boats 60 feet in length or more. While the permits differ based on vessel size, both permit types are subject to the same regulations and are considered part of the same fishery. The number of pots a vessel may have onboard is regulated in this fishery, and each vessel must register with the Alaska Department of Fish and Game (ADFG) management biologists to participate in the fishery. Once management biologist know the number of vessels that will participate in the fishery for a given year, the amount of shrimp pots each vessel may have on board is calculated to keep effort at a level that can be managed in an orderly manner without risk of overexploitation of the resource. These measures have largely prevented GHL from being exceeded since 2010. When the GHL has been exceeded, it is only by a marginal amount.

In addition to the commercial fishery, a robust non-commercial fishery made up of sport fish and subsistence fish user groups also exists. Permit holders are allowed a maximum of three shrimp pots and limited to two in areas with significant effort. Due to the high levels of participation and an extremely variable number of participants across years, the GHL for the non-commercial user groups has been exceeded in some years, sometimes by significant amounts.

## 1.3 Data Included for Analysis

Central to the discussion and investigation regarding limitation in this fishery, is the distinction between shrimp harvested for commercial purposes, and shrimp harvested for non-commercial purposes. The commission historically examines only fish harvested for commercial purposes and with a CFEC issued commercial fishing permit. However, CFEC commercial fishing permits also provide the opportunity for fish to be harvested under non-commercial purposes. These non-commercial harvests include things like personal use, confiscated catches, waste, diseased fish, and discarded fish. Non-commercial harvests of fish resources can also take place under sport or subsistence fishing permits, issued separately by ADFG. For the purpose of this analysis, the following categories have been defined to compare rates of harvest and their function:

- a. Commercial harvest of fish with a CFEC commercial fishing permit. This category constitutes the majority of fish harvested under a CFEC commercial fishing permit. These fish are caught with a commercial permit and sold for money.
- b. Non-commercial harvest of fish with a CFEC commercial fishing permit. This category constitutes fish harvested under CFEC commercial fishing permits and not sold for money. These harvests include fish retained by fishermen for personal use, confiscated catches, donated fish, discarded fish, diseased fish, waste, and more.
- c. Personal use harvest of fish with a CFEC commercial fishing permit. This category exclusively examines non-commercial harvests of fish with a CFEC commercial fishing permit for personal use.

- d. Subsistence and sport harvest of fish with a ADFG sport or subsistence shrimp pot permit. These harvests are conducted by individuals and have no commercial purpose. It is important to note that it is illegal to sell these fish for money or use these fish in a commercial setting, such as restaurant.

Information analyzed in this report comes primarily from the CFEC Gross Earnings files. These files are based on fish ticket data from ADFG and are augmented with permit holder information and ex-vessel value estimates for harvests. CFEC files contain information only from commercial fishing permits. No subsistence or sport fish harvest are included in CFEC Gross Earnings files. Ex-vessel value estimates are determined on a per ticket basis, and generally use commercial operators annual report (COAR) information. Values included in this document and associated appendices are not adjusted for inflation and are provided in nominal dollar amounts.

The following filters were used to generate a data set of fish tickets and estimated ex-vessel values:

1. Harvests between 1985 and 2022.
2. Harvests that occurred with P09E or P91E permit types.
3. Harvest conducted with Interim entry, interim use, moratorium, permanent, or vessel permit types.
4. Harvests that were commercial or were indicated to be for personal use either with disposition code 95, or delivery code 95.

In addition, this report discusses harvests as they relate to GHL. The achievement of a GHL falls under the purview of ADFG, and as such, it is necessary to discuss harvests in the manner that ADFG management biologists define harvests as they relate to GHLs. In these circumstances, it is noted within the report, and the figures are taken directly from ADFG management reports.

## 2.0 Analysis of Participation and Gross Earnings Over Time

### 2.1 Data Included for Analysis

Participation and gross earnings trends were analyzed from 2010 – 2022, as these years reflect harvest rates since the adoption of the Board of Fish new management plan of the PWS shrimp pot fishery. Data collected for this analysis included all harvests that occurred under CFEC issued permits, with the objective of examining participation and harvests in relation to GHL. As mentioned, typically CFEC methodology examines only commercial harvests, however, this analysis includes all commercial and non-commercial harvests such personal use, waste, discards, donations, and confiscations.

### 2.1 Participation and Average Gross Earnings

Participation and harvest levels were examined in the P09E and P91E fisheries from 2010 through 2022 (Appendix A). The analysis found that the number of permits sold on an annual basis was consistent overall, but the proportion of permits used has increased over time (Figure 1). The number of permits harvesting shrimp in these fisheries appears to be increasing, but this increase hit a plateau in 2019, and since then, participation has decreased slightly. A total of 67 permits participated in 2022 (Appendix A: Page 8). The proportion of permits participating has increased, and this increase is statistically significant (Appendix A).

Economic analysis has revealed that average gross earnings (AGE) are highly variable on an annual basis. The high variability confounds attempts to determine long term trends. While no evidence was found that AGE is changing over time (Appendix A), this absence of evidence should not be viewed as evidence of no change occurring.

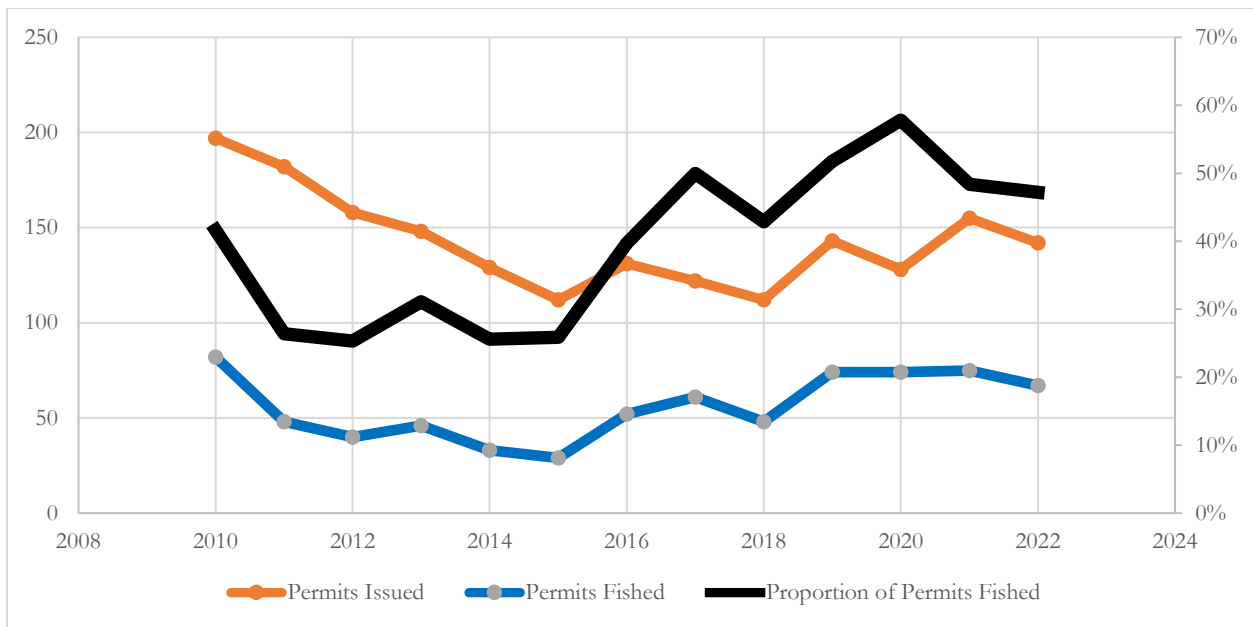


Figure 1: Permits Issued and Fished by Year

<sup>a</sup> This chart includes all permits, regardless of whether they sold any fish for commercial use. CFEC does not normally include permits in any analysis that were not used for commercial purposes.

## 2.2 Examination of Harvests

Harvest was found to be increasing over the last 10 years, however, the GHL has not been exceeded by more than 3% in recent years. A thorough examination of harvest levels and how they pertain to GHL is not the purview of CFEC. Typically, CFEC will defer to ADFG for interpretation of harvests and GHL if GHL appears to be exceeded consistently. In this case, the consistent nature of the harvest from year to year relative to the GHL does not appear to be a cause for concern in any respect (Table 1, Appendix A).



Table 1: PWS Shrimp Harvest 2010 - 2022

Year	Total Allowable Harvest	Total Harvest	Percent of TAH Achieved	Commercial GHL	Commercial Harvest <sup>a</sup>	% of Commercial GHL Achieved	Non-Commercial GHL	Non-Commercial Harvest <sup>b</sup>	% of Non-Commercial GHL Achieved
2010	137,500	133,048	97%	55,000	45,349	82%	82,200	87,699	107%
2011	131,900	111,732	85%	52,760	52,550	100%	79,200	59,182	75%
2012	128,100	77,326	60%	51,240	21,561	42%	76,860	55,765	73%
2013	165,750	147,632	89%	66,300	61,644	93%	99,450	85,988	86%
2014	166,500	157,619	95%	66,600	68,464	103%	99,900	89,155	89%
2015	167,000	115,210	69%	67,000	23,138	35%	100,000	92,072	92%
2016	117,653	151,208	129%	47,061	48,423	103%	70,500	102,785	146%
2017	167,000	159,248	95%	67,000	67,421	101%	100,000	91,827	92%
2018	168,000	196,235	117%	67,200	67,375	100%	100,700	128,860	128%
2019	170,200	171,866	101%	68,100	68,947	101%	102,100	102,919	101%
2020	170,209	210,386	124%	68,100	69,898	103%	102,109	140,488	138%
2021	174,978	159,140	91%	70,000	70,168	100%	104,987	88,972	85%
2022	167,200	150,821	90%	66,900	65,872	98%	100,300	84,949	85%
Total 2010 - 2022		1,941,471			730,810			1,210,661	

<sup>a</sup> Commercial harvest as defined by ADFG. This includes all harvests conducted by commercial permit holders, regardless of the end use of that harvest. Harvests such as personal use, discards, waste, confiscation, and more, are included.

<sup>b</sup> Non-commercial harvest includes all harvests conducted by subsistence or sport fish permit holders, regardless of the end use of that harvest.

### 3.0 Survey of User Groups

A survey of the user groups (P09E and P91E permit holders) was conducted in August and September of 2023 (Appendix B). Roughly 71 percent of those surveyed were in support of limitation. An inverse relationship appears to exist between a respondent's indication that they had received a PWS sport or subsistence permit, and their support for limitation (Figure 2), indicating that those who have received a sport/subsistence permit were proportionally less in favor of limitation. Despite this, a majority in both categories were still in favor of limitation.

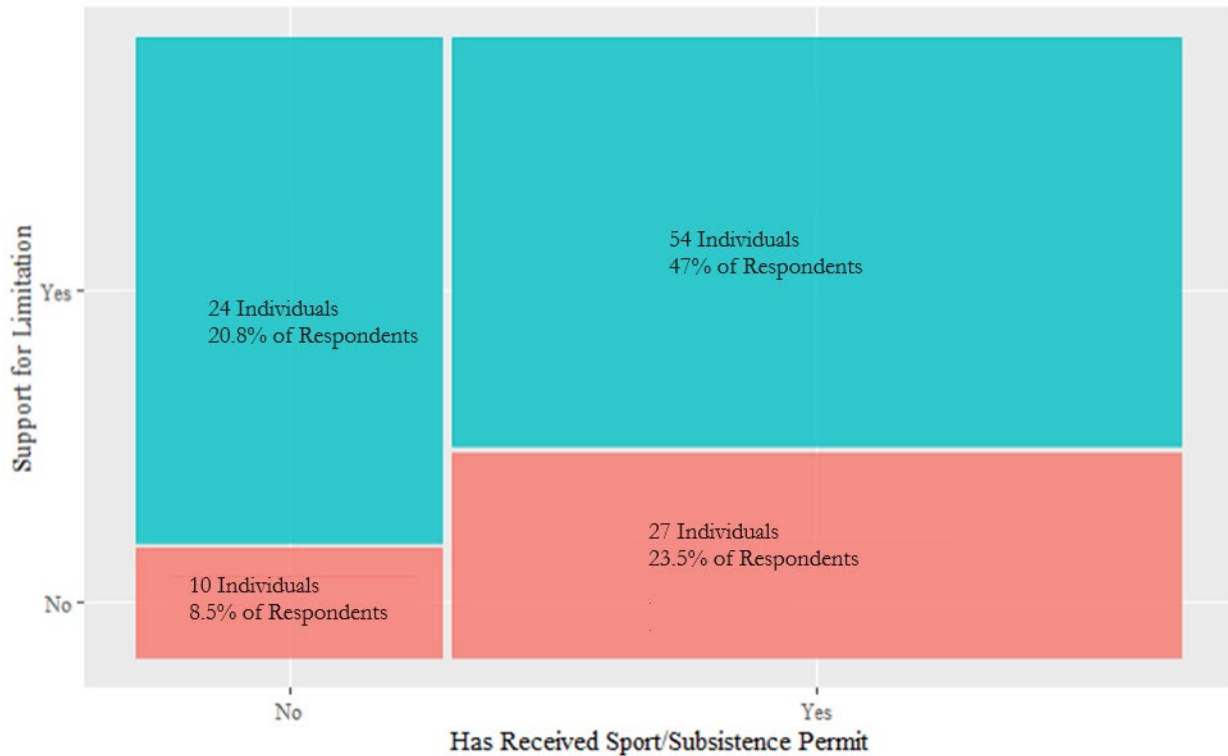


Figure 2: Mosaic Plot of Limitation Support VS Sport/Subsistence Permit Possession

### 4.0 Results of the Public Meeting

On October 14, a public meeting was held in downtown Anchorage to present the findings of the CFEC economic and participation analysis and survey results of PWS shrimp pot permit holders. This meeting allowed user groups and concerned parties an opportunity to speak on the issue of limitation in the PWS shrimp pot fishery (Appendix A and B). Several arguments were made in favor of and against the possible limitation of the PWS shrimp pot fishery. These points made by the public included:

Points in Favor:

- The number of participants and new entrants is rapidly increasing.
- Limitation will lead to longer seasons and more earnings for permit holders.
- The fishery cannot support the number of permits participating on a yearly basis.

### Points Against:

- Open entry allows commercial fishermen to be professionals and conduct their fishery while keeping hobby fishermen from catching a significant portion of the catch. Limitation would likely cause many “hobby” fishermen to either become professional fishermen or sell their permit to professional fishermen. The fishery cannot support a fleet of full time professional commercial fishermen, but it can support some professional fishermen and a group of “hobby” fishermen.
- Most of the GHL is caught by a small group of commercial permit holders, and hobbyist fishermen are a negligible portion of the harvest.
- Few open access fisheries remain; this fishery can be used for younger fishermen to enter other fisheries.

While there was some opposition to limitation, most individuals who participated in the public meeting were in favor of limitation. These opinions largely echoed the results of the survey of PWS shrimp pot permit holders. There was broad but not universal support, for limitation among both those who responded and those who participated in the meeting.

## 6.0 Examination of Shrimp Pros Concerns

CFEC investigated the specific concerns expressed by Shrimp Pros in their initial petition to examine limited entry. Shrimp Pros brought forth the following concerns:

4. **Hobbyists (CFEC permit holders that are not fishing to make money) are using the open entry permit to get around pot limits in the subsistence and sport fisheries:** Due to pot limits in the non-commercial fishery, there is an increase in speculative hobbyists in the commercial fishery.
5. **Harvest by sport and subsistence users is in excess of GHL:** Overharvests by the sport and subsistence fishers are straining the shrimp resource.
6. **Individuals are using commercial permits to get a greater portion of the GHL:** Individuals are coming into the fishery from the sport and subsistence fishery and are doing so to obtain additional allocation, removing product from the market, and reducing average earnings for “true” commercial harvesters that are fishing with the objective of monetary gain.

The following are the results of CFEC’s investigation into these specific points.

### 6.1 Data Included for Analysis

The gross earnings data files were used to examine the points raised by Shrimp Pros. The following filters were used:

1. Harvests between 2010 through 2022.
2. Harvests that occurred with P09E or P91E permit types.
3. Harvest conducted with Interim entry, interim use, moratorium, permanent, or vessel permit types.
4. Harvests that were commercial or were indicated to be for personal use either with disposition code 95, or delivery code 95.

Please note that non-commercial harvests other than personal use are not included. The specific question being addressed in this section of the document discusses the impact of category C harvests i.e. personal use harvests conducted with CFEC issued PWS shrimp pot permits, relate to commercial harvests conducted with those same permits.

### 6.2 The Use of Commercial Permits to Circumvent Pot Limits in the Subsistence and Sport Shrimp Fishery

Personal use that takes place under a commercial permit appears to be consistent across all years, and accounts for about 10 percent of the total commercial harvest (Table 2). The proportion of individuals who

harvested under a commercial permit and kept all shrimp harvest for personal use is exceedingly small, and confidentiality rules prohibit reporting of this information by year. Across all years, from 2010 through 2022, a total of 12,902 pounds of shrimp (all species) were harvested by 40 individuals who have never posted a single commercial delivery sale. These individuals do not appear to be returning from one year to the next. Of the 40 individuals who have exclusively harvested shrimp for personal use, 31 of them have never reported harvesting shrimp for more than one year, and less than four have reported harvesting shrimp for personal use for more than three years.

Table 2: Personal Use and Total Commercial Harvest in Pounds 2010 - 2022

Year	CFEC Permit Holders <sup>a</sup>	Personal Use Harvest (lbs)	Commercial Harvest (lbs)	Personal Use Harvest Percentage of Total Harvest	Harvest by CFEC Permit Holders with No Commercial Deliveries (lbs)	CFEC Permit Holders with Only Personal Use Deliveries	% of Harvest by CFEC Permit Holders with No Commercial Deliveries
2010	71	4,566	41,709	10.9%	1,390	9	3.3%
2011	42	3,369	49,188	6.8%	68	1	0.1%
2012	35	2,793	18,879	14.8%	331	2	1.8%
2013	45	5,885	56,863	10.3%	342	1	0.6%
2014	30	4,350	64,261	6.8%	616	2	1.0%
2015	25	2,703	20,752	13.0%	405	2	2.0%
2016	45	4,967	43,499	11.4%	1,401	6	3.2%
2017	50	6,179	61,565	10.0%	493	4	0.8%
2018	39	4,739	63,502	7.5%	768	4	1.2%
2019	63	6,775	63,191	10.7%	2,311	8	3.7%
2020	63	7,013	63,490	11.0%	1,942	7	3.1%
2021	58	4,891	66,100	7.4%	822	9	1.2%
2022	54	6,014	59,833	10.1%	2,013	8	3.4%
Total		64,244	672,832	10.1%	12,902		1.9%
Mean	47.7	4,942	51,756	10.1%	992	4.8	1.9%

<sup>a</sup> These yearly numbers include CFEC permit holders that posted commercial deliveries on ADFG fish tickets.

<sup>b</sup> Commercial harvest as defined by CFEC. This includes all commercial harvests conducted by commercial permit holders. Harvests such as personal use, discards, waste, confiscation, and more, are excluded.

<sup>c</sup> These yearly numbers include CFEC permit holders that only posted personal use deliveries on ADFG fish tickets. Individuals that posted both personal use and commercial harvests are excluded from these totals.

It is worth noting that shrimp harvested for personal use may still have a commercial purpose, such as in a personally owned restaurant or catering company, or the feeding of paying guests at a hunting or fishing lodge. In contrast, subsistence harvested fish may not be used for commercial purposes.

Only 1.80% of all shrimp harvested under a commercial PWS shrimp pot permit is harvested by 40 individuals who have never reported a commercial sale. Most individuals who have harvested shrimp exclusively for personal use with a commercial permit only do so for one year, and do not appear to fish in subsequent years.

The number of permit holders that report only non-commercial with CFEC issued permits has increased in recent years. From 2018 – 2022 the average number of CFEC permit holders with only personal use harvest reported was about 7, compared to the 2013 – 2017 average of 3. This doubling of non-commercial users with CFEC issued commercial fishing permits is concerning. It should be noted that ADFG has taken measures (discussed in the next section) to curtail harvest effort by subsistence and sport fish permit holders, which may have caused an increase in the number of individuals purchasing CFEC commercial permits to

circumvent regulations around pot limitations. Limitation would keep individuals from purchasing a CFEC commercial fishing permit in lieu of a subsistence or sport fish permit when that individual true objective is the harvesting of fish for sporting or subsistence purposes.

### 6.3 Overharvest of the non-commercial GHL

Concerns over non-commercial shrimp harvest in excess of the non-commercial GHL appear to be warranted. The non-commercial GHL was exceeded substantially in 2016, 2018, and 2020 by 46%, 28% and 38%. In response to overharvest of the non-commercial GHL, ADFG management biologists lowered the number of pots allowed per sport or subsistence fisher. Prior to 2017, non-commercial fishermen were limited to five shrimp pots. In 2017, the shrimp pot limit was decreased to 4 pots. In 2019, the limit was further decreased to three pots. In 2020, the non-commercial guideline harvest level was again exceeded, and the response was to decrease the limit to 2 pots in 2021. In 2022 ADFG began to allow only two pots in specific areas with high levels of effort, while three pots were allowed in more remote areas with substantially less effort.

The non-commercial GHL was not exceeded in either 2021 or 2022. Judging by the consistency of effort over the last few years by the sport and subsistence management biologists, and the resulting drop in the percent of the non-commercial GHL harvested, overharvest of the non-commercial GHL does not appear to be a pressing concern at this time. CFEC will, however, continue to monitor the percent of the GHL harvested for both commercial and non-commercial fisheries on an annual basis. Currently, the issue of overharvest of non-commercial GHL appears to have been addressed through ADFG management action.

### 6.3 The Use of Commercial Permits to Increase Access to the Total Allowable Harvest, and Reduction in Market Share

Since 2010, there has been a total sport and subsistence harvest of 1.2 million pounds, and a commercial harvest of approximately 731,000 pounds by CFEC PWS shrimp pot permit holders (Table 1). The total personal use harvest across all year's totals to 64,000 pounds, which is about 5,000 pounds in any given year. Of those 64,000 pounds, only 12,902 pounds were harvested by individuals who have never reported a sale of shrimp on a fish ticket. This amount is not insignificant. Profit margins are often small in commercial fisheries, especially in those that are supplemental to larger ones. The majority of respondents to the survey of user groups indicated that the PWS shrimp pot fishery was only a small proportion of their total income, indicating that most fishermen either participate in another fishery, or have other jobs or sources of income (Appendix B).

When accounting for the small number of fishermen in this fishery that appear to make a consistent concerted effort to make a commercial profit, and the number of years across which that 13,000 pounds is spread, it would be difficult to conclusively say that this harvest is insignificant to professional fishermen. The objective of participation in any fishery is not simply to break even, but to be gainfully employed. Given that the market price per pound for shrimp ranges between \$10 and \$20, five thousand pounds in any given year is equivalent to someplace between \$50,000 and \$100,000. Divided among the relatively few CFEC commercial permit holders that fish consistently from one year to the next, this amount looms large.

The increase in individuals who harvest shrimp exclusively for personal use and the increase in total pounds harvested by those individuals is cause for concern. Limiting the PWS fishery and only awarding permits to individuals who fish for economic gain would directly address these concerns.

## 7.0 Other Considerations

Of note, the total GHL for this fishery has remained consistent at around 170,000 pounds since 2017. Some variation exists from year to year, but this variation is not large and does not appear to be a part of a long-term trend. In 2016, there was a low total GHL (commercial and non-commercial) of 117,653 pounds, and in 2021 there was a total GHL of 174,978 pounds. The deviation from year to year in total GHL is small, and

on average, one can expect a total GHL that is within 20,000 pounds of the 2010 – 2022 average of about 156,000 pounds. Hence, despite the recent harvest in excess of the non-commercial GHL, the total yearly GHL appears stable.

### 7.1 The Effects of Limitation:

Limitation will change the effort seen in the commercial fishery. People are under no obligation to fish open entry fisheries and may choose not to participate. Limited entry permits carry with them an obligation to take advantage of the opportunity to harvest resources, and failure to do so may result in the loss of the limited entry permit. Since 2010, only four commercial fishermen with CFEC limited entry permits have participated in the P09E fishery and posted commercial harvests every year. Thirty-eight commercial fishermen have participated in at least five years, and 81 commercial fishermen have participated in at least three years. A significant proportion of commercial fishermen who have participated in three or more years in the fishery have done so with gaps of 2, 3, or even 4 years between. The ability for individuals to choose not to participate in this fishery reduces harvest effort in the P09E fishery. Typically, the maximum number of allowable permits in a fishery is initially determined by the highest number of participants in the last four years. If limitation were to occur today, that number would be 63 which reflects the number of permit holders that participated in commercial harvests in 2019 and 2020.

Much of the shrimp harvested in the PWS shrimp pot fishery are harvested by a core group of individuals (less than 10) who can be considered professional fishermen committed to the PWS shrimp pot season. Many of these professionals have participated on a consistent annual basis; however, these individuals take breaks, perhaps to participate in other fisheries or to meet other obligations. Limitation would likely result in significantly higher effort from these fishermen than they currently exert.

It should also be noted that limitation will likely have little effect on the non-commercial sport and subsistence GHL, or the number of individuals who participate in the sport and subsistence fisheries.

## 8.0 Decision to Limit

On December 21, both CFEC commissioners met to discuss information presented by the CFEC research section, and to vote on the decision to limit the PWS Commercial Shrimp Pot fishery. The commissioners voted unanimously to propose regulations for the limitation of the PWS Commercial Shrimp Pot fishery. This decision was based upon the following factors:

1. The number of CFEC commercial permit holders without reported commercial earnings has doubled from 2017 to 2022 (Table 2). This trend, while representing a small fraction of the overall harvest, is concerning, and indicates a shift towards personal use which is detrimental to professional commercial fishermen. The increase in CFEC permit holders using CFEC permits to harvest fish exclusively for personal use is concerning and can be addressed through limitation.
2. ADFG has been proactive in limiting effort in the sport and subsistence PWS shrimp pot fisheries, taking steps to limit the number of pots each sport or subsistence permit holder is allowed to use. ADFG reduced the allowable number of pots for these users from eight to four in 2016, then to three in 2019, and finally in 2021 to only two. This has likely led to a situation in which subsistence and sport fish permit holders use CFEC commercial permits to get around pot limitations in the sport and subsistence fishery. Limitation would address this issue as well.
3. The significant increase in permits fished from 2018 to 2019 plays a significant role in the decision to limit. The GHL in this fishery is relatively stable, and the fishery likely cannot continue to support increased participation. Another jump in participation would bring participation up to levels seen in 2010 when the fishery first began (Figure 1), which was followed by a significant decline in participation, which could be indicative of too many CFEC permit holders trying to access a resource that has not seen any increase in GHL.

## 8.1 The Path Forward

The vote to propose regulations is one step forward in the path to limitation. This step will be followed by the publication of proposed regulations, with the goal to release these regulations for review by late-March of 2024. The proposed regulations will include the maximum number of permits available, a scoring system by which to award applicants' points, a detailed outline of what needs to be included in an application, and a defined eligibility period during which applicants must demonstrate participation. The public and concerned parties will be given ample time in which to examine and provide commentary on the proposed regulations. Following the review period, CFEC will review all feedback, and if necessary, make changes to the proposed regulations. The final decision to limit the fishery will be made only after all feedback has been evaluated and a comprehensive analysis of all issues raised has been completed.

It is the goal of the commission to have these regulations finalized by the fall of 2024, at which point, CFEC would begin accepting and evaluating applications for limited entry permits.

## 8.2 Applications and Scoring

Applications will begin to be accepted in late 2024. By the fall of 2024 regulations should be finalized, and ample time will have passed for the public to comment on the proposed regulations, and for comments to be incorporated if necessary. Tentatively, the application period is set for September 1, 2024 – October 31, 2024.

Applicants will be scored based upon past participation from 2019 – 2022. This is in line with previous limitation decisions, in which applicants are judged upon participation in the fishery in question during the four years immediately preceding the vote for limitation. Where participation is measured in harvest activity only commercial harvests will be considered.

Points will be awarded based upon the level of economic dependence demonstrated by applicants throughout the 2019 – 2022 period. Many participants in this fishery have invested significant time and resources in both processing and marketing their own products, points will be awarded based upon the level of investment demonstrated in this over the years in addition to points awarded based upon harvest levels.

## 8.3 Maximum Number of Permits to be Awarded and Criteria

The maximum number of permits to be awarded is 63, which is the maximum number of permits that participated in the fishery from 2019 – 2022. This number is not based upon the total number of CFEC issued commercial fishing permits that fished, but instead the total number of CFEC commercial fishing permits that had commercial landings. As a reminder, commercial landings DO NOT include harvests for personal use or other harvests that have no commercial value (diseased fish, waste, confiscations).

CFEC is required to establish point levels for significant economic hardship, and minor economic hardship when evaluating applications for limited entry permits. These categories will determine if an applicant receives a permit, as well as what type of permit an individual may receive. Regulations pertaining to this requirement are still in the process of being drafted and will be published by the end of March 2024.

Once applications have been scored, limited entry permits for the PWS shrimp pot fishery will be awarded. Permits will be awarded to the highest scoring applicants first. Any individuals that have demonstrated that they would undergo significant financial hardship if they were excluded from the fishery will receive a permit regardless of the number of permits already awarded. In other words, if 74 applicants demonstrate that they would undergo significant financial hardship if they were to be excluded, all 74 applicants would receive a permit.

After awarding permanent transferrable permits to those applicants whose scores rank in the significant hardship range, the Commission will begin awarding points to the next lowest level of scores in decreasing application point values. This awarding will continue until all the permits are awarded. Individuals who would suffer only minor economic hardship if they were denied a permit, will receive a non-transferable permanent

entry permit if there are still permits left to award (63 permits have not yet been awarded). These non-transferable permits are valid for the life of the individual and may not be transferred.



# **Evaluating the Criteria to Limit Entry in Prince William Sound Shrimp Pot Fisheries**

## **Research Section**

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## 1 Introduction

On 6 December 2021, the Commercial Fisheries Entry Commission (CFEC) received a petition to limit entry in the Prince William Sound (PWS) shrimp pot fishery from the ShrimpPros Association. The CFEC Commissioners directed the CFEC Research Section to gather relevant data about this fishery and provide a report to the Commission to evaluate the need for limited entry and any potential benefits the program might convey to the fishery, while at the same time ensuring that the Commission meets its statutory obligations under the limited entry program.

Under AS 16.43, for CFEC to limit a fishery it must find that limited entry is necessary to promote the conservation and sustained yield management of the fishery resource, and the economic health and stability of the fishery. In other words, to justify a limitation of a fishery, CFEC must be able to show that the fishery resource is under pressure and that limited entry would help to alleviate that pressure. When CFEC receives a petition to limit entry for an open-access fishery, we thus evaluate the following criteria:

1. Participation: Is the number of participants increasing, decreasing, or remaining stable? A sustained increase in participation over time might indicate increasing pressure on the fishery resource.
2. Harvest: Has harvest been below, within, or above guidelines? Have allocations been achieved? If harvests are often above guidelines, this might indicate pressure on the fishery resource.
3. Estimated average gross earnings: Are estimated average gross earnings increasing, decreasing, or remaining stable? A sustained decrease in estimated average gross earnings might indicate pressure on the economic health of the fishery.

This report summarizes the historical trends and current status for the Prince William Sound (PWS) commercial shrimp pot fishery permit types (P09E and P91E), including guideline harvest levels, changes in participation and harvest, and estimated average gross earnings, with the aim of evaluating these three criteria.

This fishery may be participated in with either P09E permit for vessels under 60 feet of length, or a P91E permit for vessels in excess of 60 feet in length. This report will evaluate the PWS shrimp pot fishery based on data gathered from these two permit types which will be examined in tandem (data from both permit types combined). The purpose for doing so is firstly because the Alaska Department of Fish and Game (ADFG) makes no distinction between vessel size when managing the fishery. Secondly, CFEC may not disclose information about individual permit holders or in aggregates of less than four permit holders. Participation from P91E permit holders is often below this four permit holder cut off mark, and would be excluded from analysis available to the public if the permits were not examined in a combined data set.

This report differs in methodology from other published CFEC documents when it comes to aggregating data. Every effort has been made to define the PWS shrimp pot fishery in the same way that ADFG defines the PWS shrimp pot fishery. This is because evaluating Guideline Harvest Levels (GHL) is an essential portion of evaluating this fishery. It is the task of ADFG, not CFEC, to define harvest as it pertains to GHL. CFEC normally excludes certain harvests and permit types from analysis, such as fish kept for personal use. ADFG includes these harvests as commercial harvest that counts towards the commercial guideline harvest level.

Throughout this report, Spearman’s rank coefficient is used to examine the relationship between time and yearly aggregates of harvest and participation. Spearman’s rank coefficient, denoted with rho ( $\rho$ ), is a non-parametric statistical measure used to evaluate the correlation between two variables. In this report we use it to examine the relationship between ordered years and harvest or participation totals. Values greater than zero denote a positive correlation, while values less than zero denote a negative correlation. Values of  $\rho$  are always bounded by 1 and -1. P-values are used to determine if the correlation is statistically significant or not.

All dollar amounts are reported in 2023 dollars.

## 2 Participation

### 2.1 Historical changes in the number of fishable permits and participation rate

Figure 2.1 shows the changes over time in the number of fishable PWS shrimp pot permits. A fishable permit is a permit with an embossed permit card. Since the PWS commercial shrimp pot fishery re-opened in 2010, the number of fishable permits has averaged 143 for PWS shrimp pot permits. The number of fishable PWS permits was 197 in 2010 and 142 in 2022.

Figure 2.2 shows the changes over time in the percentage of fishable PWS shrimp pot permits that recorded landings. Over 2010-2022, the percentage of fishable PWS shrimp pot permits with landings averaged 40%. The percentage of fishable permits with landings was 42% in 2010 and 47% in 2022.

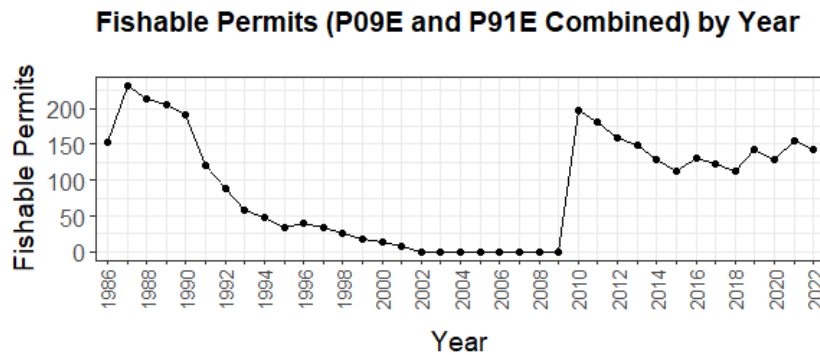


Figure 2.1: Number of fishable permits

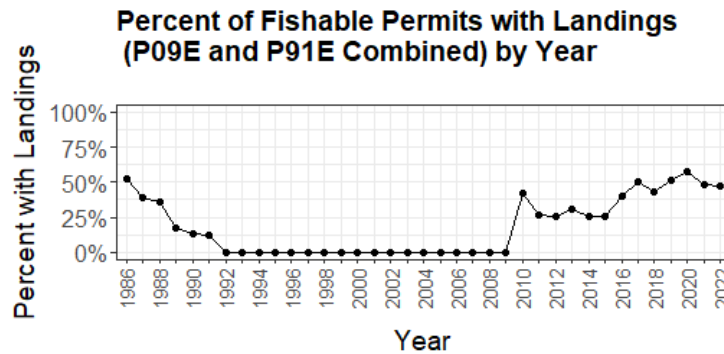


Figure 2.2: Participation rate (the percentage of fishable permits with recorded landings).

## 2.2 Is participation increasing, decreasing, or remaining stable?

To address this question, we first truncated the data set to include only years after the PWS commercial shrimp pot fishery re-opened in 2010 to capture the relevant trends in the fishery. We then calculated the Spearman’s rank correlation coefficient for the relationship between year and the number of fishable permits, as well as between year and the proportion of fishable permits that reported landings.

There is no evidence that the number of fishable PWS shrimp pot permits is either increase or decreasing year by year (Spearman’s  $\rho = 0.4$ ,  $p = 0.18$ ). The proportion of permits with landings had a significant positive association with year (Spearman’s  $\rho = 0.72$ ,  $p = 0.01$ ). The proportion of permits participating does appear to be increasing over time, although the number of fishable permits in any given year shows no significant changes over time.

## 3 Harvest

### 3.1 Historical changes in harvest

Figure 3.1 shows the changes over time in the total annual pounds of shrimp harvested for P09E and P91E permit types combined.

Since the PWS commercial shrimp pot fishery re-opened in 2010, the total annual harvest has averaged 56,795 pounds for P09E and P91E permits combined. The total annual harvest by PWS shrimp pot permit holders was 46,277 pounds in 2010 and 65,879 pounds in 2022.

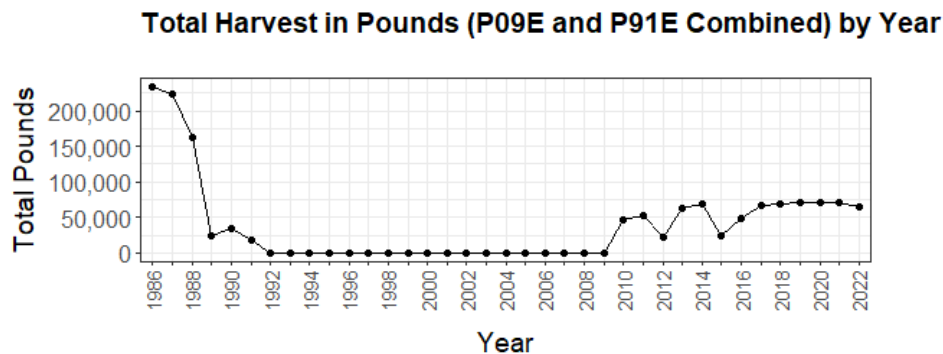


Figure 3.1: Total Annual Pounds Harvested

### 3.2 Guideline Harvest Level

Over the time period 2010-2022, harvest was usually very close to the Guideline Harvest Level (GHL)<sup>1</sup> (Table ??). Since 2010, the GHL has not been exceeded by more than 3% in any given year. The GHL for 2023 is 63,100 lbs <sup>2</sup>.

<sup>1</sup> <https://www.adfg.alaska.gov/FedAidPDFs/FMR22-03.pdf>

<sup>2</sup> <https://www.adfg.alaska.gov/static/applications/dcfnewsrelease/1454985837.pdf>

### 3.3 Is harvest increasing, decreasing, or remaining stable?

As in the participation section, the data set includes only years after the PWS commercial shrimp pot fishery re-opened in 2010. We then calculated the Spearman’s rank correlation coefficient for the relationship between year and the total number of pounds harvested.

The total number of pounds harvested had a positive association with year (Spearman’s  $\rho = 0.7$ ,  $p = 0.01$ ). The pounds of shrimp harvested in this fishery does appear to be increasing as time goes on, but this increase has not gone beyond the GHL.

## 4 Estimated Average Gross Earnings

### 4.1 Historical changes in estimated average gross earnings

Figure 3 shows the changes over time in the estimated average annual gross earnings per permit holder with landings for P09E and P91E permit types.

Since the PWS commercial shrimp pot fishery re-opened in 2010, mean estimated annual gross earnings averaged \$7,277 for both permit types. Mean estimated annual gross earnings for PWS shrimp pot permit holders with landings was \$2,914 in 2010 and \$8,059 in 2022.

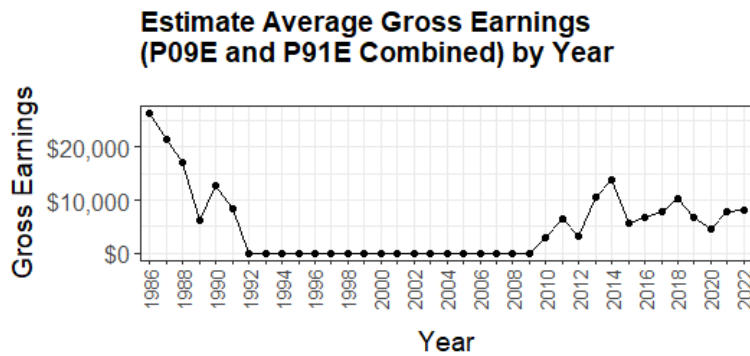


Figure 4.1: Estimated Average Gross Earnings

### 4.2 Are estimated average gross earnings increasing, decreasing, or remaining stable?

As in the participation and harvest sections, we truncated the data set to include only years after the PWS commercial shrimp pot fishery re-opened in 2010. We then calculated the Spearman’s rank correlation coefficient for the relationship between year and estimated average gross earnings.

For the both P09E and P91E permit types combined, estimated average gross earnings had no association with year (Spearman’s  $\rho = 0.31$ ,  $p = 0.31$ ).

## 5 Conclusions

With respect to each of the criteria for limiting entry, this report shows the following:

#### 1. Participation. Is the number of participants increasing, decreasing, or remaining stable?

We did not find compelling evidence that the number of fishable permits is increasing. There was evidence that the proportion of fishable permits with landings is increasing over time. Essentially,

the same number of people are buying permits from one year to another, but a larger proportion of them are fishing.

*2. Harvest. Has harvest been below, within, or above guidelines? Have allocations been achieved?*

We found some evidence that the PWS shrimp pot harvest is increasing. It should be noted that the total harvest has been very close to the Guideline Harvest Level (GHL) in recent years: for each of the past seven years, the total harvest has been within 3% of the GHL.

*3. Estimated average gross earnings.*

We did not find any evidence that the estimated average gross earnings was changing in a consistent way over time for the P09E and P91E permit types.

## 6 Appendix: Summary Tables

These tables contain all the information analyzed in the previous sections of this report. Note that all dollar values are presented in 2023 real dollars. Values from previous years were adjusted using the US Department of Labor's annual Consumer Price Index. This table includes both commercial and non-commercial (personal use, discards, confiscations, waste, etc.) harvests.

Year	Fishable Permits	Permits with Landings	Percentage of Fishable Permits with Landings	Mean Estimated Gross Earnings	Total Pounds <sup>a</sup>
1986	153	81	53%	\$26,329.30	234,286
1987	232	91	39%	\$21,418.60	224,318
1988	213	77	36%	\$17,070.30	163,026
1989	205	35	17%	\$6,174.70	24,478
1990	191	26	14%	\$12,846.80	34,040
1991	121	15	12%	\$8,456.20	17,663
1992	88	0	0%	\$0.00	0
1993	59	0	0%	\$0.00	0
1994	48	0	0%	\$0.00	0
1995	35	0	0%	\$0.00	0
1996	40	0	0%	\$0.00	0
1997	35	0	0%	\$0.00	0
1998	26	0	0%	\$0.00	0
1999	17	0	0%	\$0.00	0
2000	13	0	0%	\$0.00	0
2001	7	0	0%	\$0.00	0
2002	0	0	0%	\$0.00	0
2003	0	0	0%	\$0.00	0
2004	0	0	0%	\$0.00	0
2005	0	0	0%	\$0.00	0
2006	0	0	0%	\$0.00	0
2007	0	0	0%	\$0.00	0
2008	0	0	0%	\$0.00	0
2009	0	0	0%	\$0.00	0
2010	197	82	42%	\$2,913.70	46,277
2011	182	48	26%	\$6,577.80	52,557
2012	158	40	25%	\$3,182.40	21,672
2013	148	46	31%	\$10,530.60	62,748
2014	129	33	26%	\$13,897.20	68,955
2015	112	29	26%	\$5,632.90	23,502
2016	131	52	40%	\$6,731.70	48,635
2017	122	61	50%	\$7,833.00	67,915
2018	112	48	43%	\$10,227.50	68,463
2019	143	74	52%	\$6,633.00	70,196
2020	128	74	58%	\$4,607.90	70,509
2021	155	75	48%	\$7,780.80	71,029
2022	142	67	47%	\$8,058.70	65,879

*Note:* Mean estimated gross earnings are smaller than what would normally be reported by CFEC, as this analysis included all permit holders harvests regardless of that harvest being sold for commercial purposes.

<sup>a</sup> These numbers are from the CFEC Gross Earnings data files, and differ slightly from published ADFG harvests.



# Prince William Sound Shrimp Pot Limitation Survey Results

## An Investigation into Permit Holder Support for Limitation

Reid Johnson

Last compiled on October 17, 2023

### Introduction

In 2021, the Commercial Fisheries Entry Commission (CFEC) received a request from Shrimp Pros to examine the possibility of limitation in the Prince William Sound (PWS) commercial shrimp pot fishery. Since then, CFEC has undertaken the task of examining the economic and ecological realities of the fishery, and soliciting feedback from the commercial fishing permit holders in the PWS shrimp pot fishery.

The purpose of this report is to provide a summary of the PWS Shrimp Pot Survey. This survey was short, and designed to get the **maximum feedback** from respondents regarding support of limitation efforts. This survey is not designed to gather high-resolution economic information regarding fixed or variable costs, or the amount of profit required for participation in the PWS shrimp pot fishery.

### Historical Background

Commercial shrimp pot landings in Prince William Sound (PWS) started in 1960, with records indicating harvests in the Inside District's Traditional Harvest Area. Between 1960 and 1977, harvests fluctuated, reaching 25,000 lb in 1974. The industry saw growth from 1978 to 1982 as local markets developed. However, overfishing led to regulatory changes, such as shortened seasons from 1982-1984 and the introduction of a split season in 1985. Despite regulations, harvests surpassed guidelines, peaking at 290,600 lb in 1986. Conservation concerns arose in 1988, exacerbated by the Exxon Valdez oil spill in 1989. Subsequent years saw tighter regulations, but declining shrimp abundance led to an 18-year closure (1992-2009). A revised management plan was introduced in 2009, rotating fishing across three areas.

Since its reopening in 2010, the PWS commercial shrimp pot fishery has operated for 12 seasons under a new management plan that divides the region into three areas. Guideline harvest levels (GHL) have been fairly consistent since 2017, ranging from 67,000 to 70,000 lb. Strict regulations require participants to report harvests and trips, allowing the ADF&G to closely monitor the GHL, which has been almost fully utilized over the last six seasons. Area 1 has seen the most success in the modern fishery, with the highest catch per unit effort (CPUE). Although the number of Commercial Fisheries Entry Commission (CFEC) permits has varied, actual participation ranged from 23 in 2015 to 70 in 2010. Vessel registration, a good indicator of effort, peaked in 2010 with 156 vessels, but not all registered vessels participate. In recent years, participation peaked at 63 permits in 2019, and has decreased to 53 permits in 2022. In open-access fisheries, typically one individual has one permit, and emergency transfers do not take place except in rare circumstances; the number of permits fished indicates how many individuals participated.

## Survey Methodology

The survey was digitally dispatched to individuals assigned a permit in the Prince William Sound Shrimp Pot fishery from 2018 through 2022 for whom the CFEC had valid email addresses. The decision to target this specific group was underpinned by the belief that they possess a historically informed and current understanding of the fishery, thereby making their insights valuable. The survey consisted of a series of questions ranging from the individual's support or opposition to the limitation efforts, their economic reliance on the fishery, their roles within the industry, affiliations, and more. The introductory letter and the survey itself can be viewed in appendix A.

It is important to note that not all individuals who received a permit fished their shrimp pot permit.

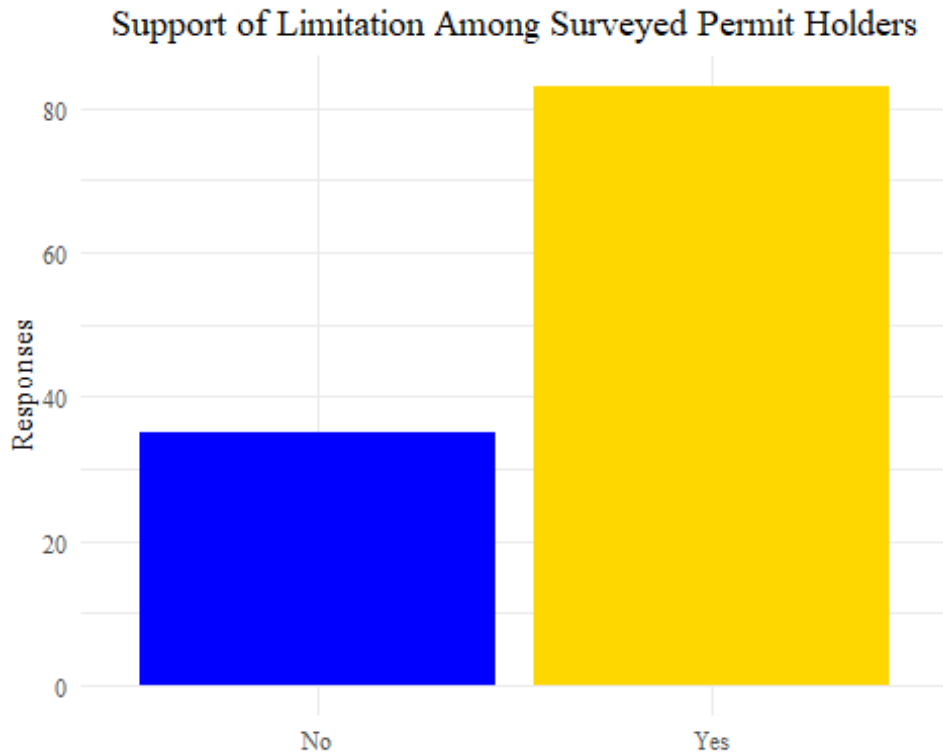
Individuals received an initial email on August 1, 2023. The email contained an introductory letter, along with a link to the survey questions. Follow up reminder emails were sent to individuals who did not respond on August 8 and August 15. Starting on August 15, individuals who responded to none of the emails were called and a survey was attempted over the phone. Response rates for phone surveys were considerably lower than for email surveys.

Out of the 208 individuals with valid email addresses recorded by CFEC, a total of 118 individuals responded to the survey.

## Survey Results

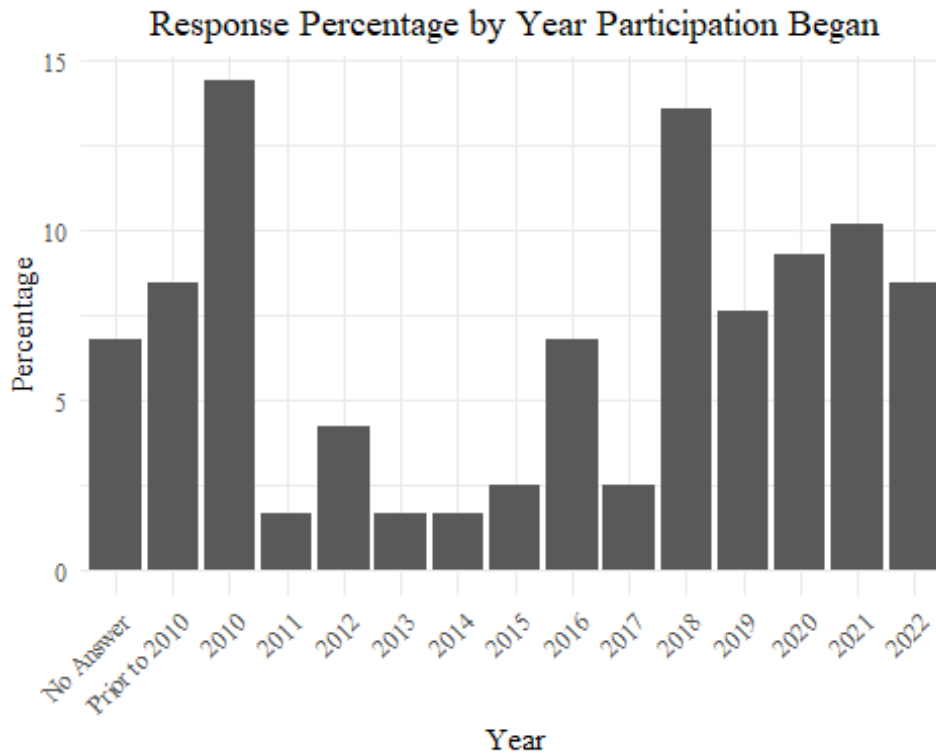
Survey results are provided question by question. Where relevant, graphics are provided in order to put the overall data set into perspective. Summary statistics are also provided when relevant.

**Question 1: Are you in support of efforts to limit the Prince William Sound shrimp pot fishery?**



The purpose of this survey was to gauge support for limitation among individuals who have held a PWS shrimp pot permit, and as such, question one was the most important question in the survey. A total of 70.6 percent of respondents were in favor of limiting the PWS shrimp pot fishery. This support for limitation was broad across all categories of respondents. Out of the 119 people who responded to the survey, every one of them answered this question.

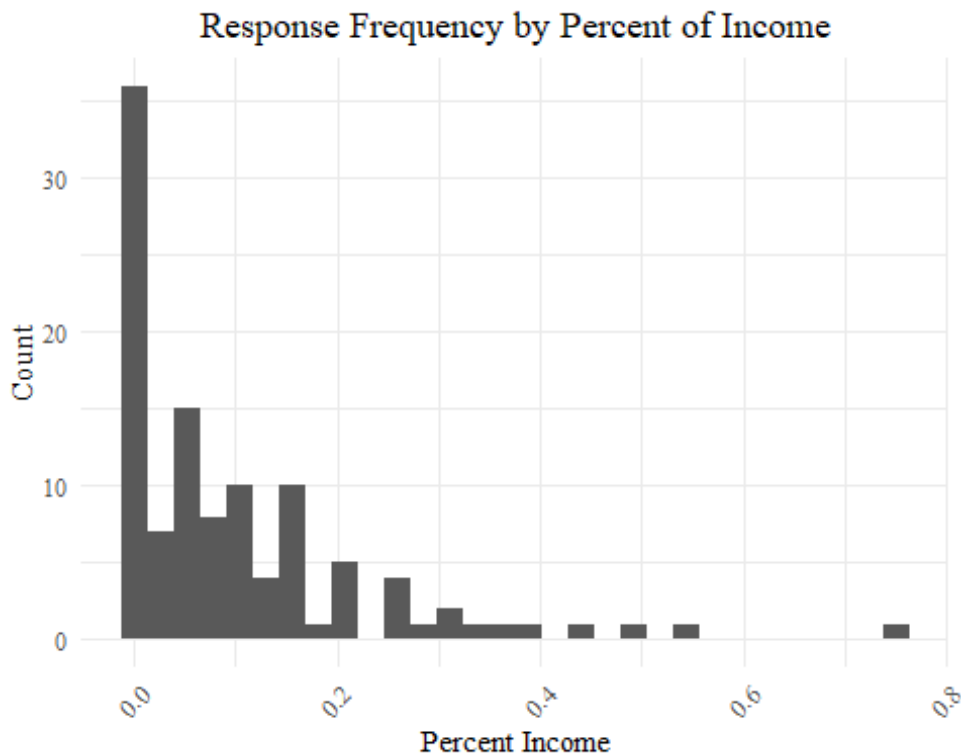
Question 2: What year did you begin participation in the PWS commercial shrimp pot fishery?



Question two was asked in an attempt to distinguish if there was a split in opinion regarding limitation based upon length of participation in the fishery. No relationship was found between length of participation in the fishery, and support for limitation. Interestingly, a proportionally large number of individuals began participation the year the fishery reopened in 2010, or indicated their participation in the fishery prior to 2010. Few individuals surveyed began participation between the years 2011 and 2018 (inclusive). Out of the 118 respondents to the survey, 110 answered this question, and 8 abstained from answering.

**Question 3: Roughly what percentage of your yearly income is from the PWS shrimp pot fishery?**

Across the board, respondents indicated that the amount of money made from the PWS shrimp pot fishery was proportionally small compared to their main source of income. The mean reported percentage of yearly income from the PWS shrimp pot fishery was reported as 11.2 percent. This value ranged from a minimum of zero to 75 percent at the upper end. No correlation was found between percentage of yearly income, and support for limitation. Zero was taken to mean either that net income was zero, or that they never participated (brought a permit, but never landed a harvest). Answers to this question are ambiguous, but can still be taken to strongly indicate that participants are not making a large proportion of the income from this fishery not matter how the data is chosen to be interpreted. Out of the 118 respondents to this survey, 110 chose to answer this question.



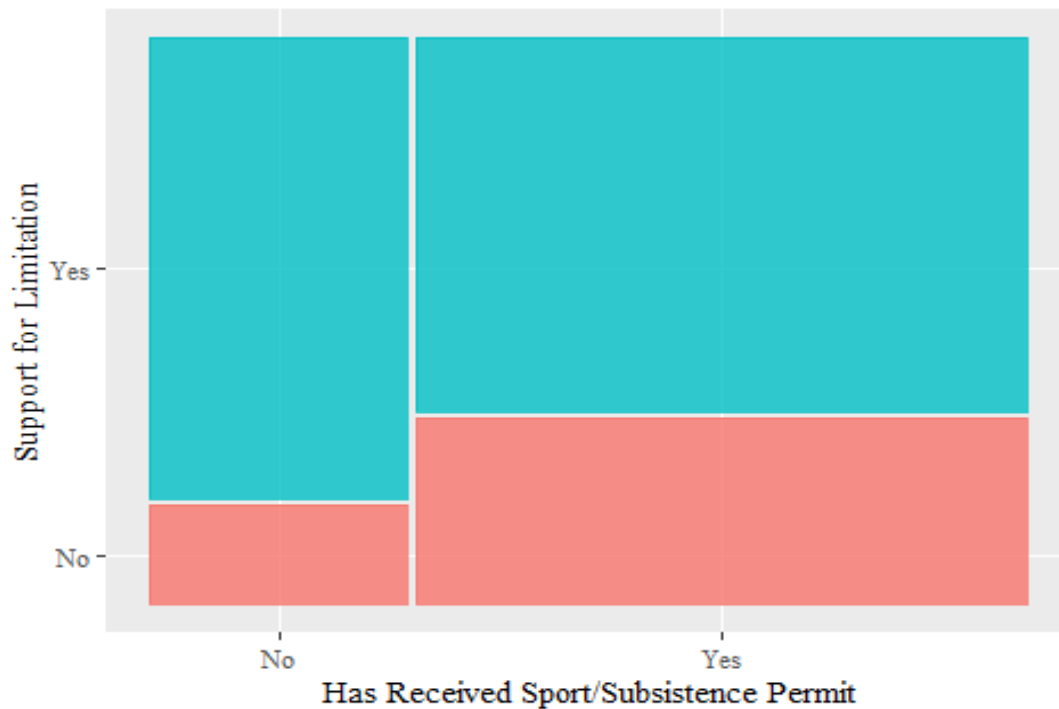
**Question 4: Are you a catcher/seller, catcher/processor, or direct marketer of your own shrimp harvest?**

A total of 86.5 percent of respondents indicated that they sold, processed, or marketed their own harvest. Out of the 118 respondents, 114 answered this question.

**Question 5: Have you ever received a subsistence or sport fish permit for Prince William Sound?**

Seventy percent of respondents indicate that they have received a sport fish or subsistence fish permit for shrimp in PWS at some point in the past. There is a slight inverse correlation between having received a sport fish or subsistence fish permit for PWS shrimp and support for limitation. In other words, proportionally more people who indicated they received a sport or subsistence permit indicated that they were *not in support* of limitation than could be expected if the two answers were not related in any way. The mosaic plot below illustrates this, although in depth analysis beyond graphical investigation is outside the scope of this report. Out of 118 respondents, 115 answered this question with 81 answering that they had received a permit. Of the 81 individuals who received a subsistence/sport fish permit, 54 were in favor of limitation, or 66.6 percent. A total of 34 individuals indicated that they had never received a sport or subsistence shrimp pot permit, with 24 of those individuals (82 percent) indicating support for limitation.

**Mosaic Plot of Support vs Subsistence/Sport Fish Permit Posses:**



**Question 6: Do you belong to, or participate in, any organization(s) that represent fishers in Prince William Sound? Is so, which one(s)?**

A total of 71.26% of respondents indicated that they were involved in some way in with fisher organizations in PWS. A total of 87 of respondents answered this question, with three opting not to answer. The most common organization named in this question was the Cordova District Fishermen United, which is a non-profit organization formed to represent fishermen in PWS.

**Question 7: What is your primary source of income?**

The majority of respondents to this question indicated that their primary source of income was commercial fishing (59), followed by individuals who indicated that they were retired (11).

**Question 8: (Optional) What is your driver's license number? This will be used for identity verification only.**

As the answers to this question are confidential, they are not reported.

**Conclusion:**

The survey results are clear: among respondents' support is overwhelmingly in favor of limitation. There is some evidence that sport or subsistence permit holders in the PWS shrimp fishery are more likely not to support limitation than individuals who have never had a sport or subsistence shrimp pot permit in PWS. However, even among individuals who have received subsistence/sport fish PWS shrimp permits, 66.6 percent were in favor of limitation.