



Marine
Resources



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Oregon's Market Squid Fishery: Considerations for Implementing a Limited Entry System

Interim Report to the Oregon Fish and Wildlife Commission

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Introduction

The commercial market squid fishery is a relatively new opportunity in Oregon. While the increase in market squid fishing has brought economic benefits to Oregon’s coastal fishing communities, it has also created the need for additional management measures to minimize bycatch of Dungeness crab and other species, reduce interactions between squid nets and Dungeness crab pots, and ensure the squid population remains productive into the future. To promote sustainability of the resource and fishery, the Oregon Fish and Wildlife Commission (Commission) adopted several rules in March 2021, February 2022, and March 2023. Additionally, at its March 2023 meeting, the Commission directed Oregon Department of Fish and Wildlife (ODFW) staff to develop a proposal for a limited-entry (LE) system for the market squid fishery or provide an interim report about the fishery and potential to implement an LE system in Oregon. After considering the recent state of the fishery, the regulations currently in place for the market squid fishery, the long and extensive process involved in developing an LE system, and the current and future resources available to undertake such an endeavor, ODFW staff chose to provide an interim report to the Commission.

While it has long been a substantial fishery in California, commercial market squid fishing in Oregon has been more sporadic with most effort and harvest occurring since 2016 (Figure 1). During public hearings and in discussions with ODFW, fishery participants have raised concerns about the long-term sustainability of the market squid resource off Oregon in the face of increasing fishing pressure. Some fishery participants have advocated for limiting the number of vessels allowed to participate in the Oregon fishery through an LE permit system. At their March 2021 meeting, the Commission heard from ODFW staff about the



Market squid (Doryteuthis opalescens). Photo: David Andrew, WDFW

rapid growth in participation in the market squid fishery and public testimony advocating for developing an LE permit system, starting with establishing a control date. A control date is a regulatory mechanism that establishes a cutoff date, after which landings may not be considered for initial permit eligibility. Control dates are used to discourage speculative participation in a fishery when a management entity has signaled a possible intent to implement LE. Control dates do not specify any criteria for permit eligibility other than the cutoff date for considering historical participation. The Commission directed staff to establish an advisory panel and evaluate a control date recommendation over the next year.

After the March 2021 Commission meeting, staff sent applications for a Market Squid Advisory Panel (MSAP) to vessel and dealer license holders that had participated in the fishery. Ten applicants were selected, representing a range of participant types (catcher vessels, processors, light boats, recent entrants, longer-term participants), and locations (Oregon, out-of-state) to serve as advisors.

To inform their control date recommendation, ODFW staff evaluated fishery participation and landings, and discussed a control date at the April 2021 public meeting and two MSAP

meetings in the fall of 2021. While there was unanimous support from the MSAP for setting a control date of Jan. 1, 2022, there was mixed input on the need and timeline for moving forward with LE.

At the February 2022 Commission meeting, staff presented their findings and based on their recommendation, Commissioners set a control date of Jan. 1, 2022 for establishing eligibility related to past participation in the commercial market squid purse seine fishery if it adopts a license limitation measure in the future, meaning that only boats participating in the fishery prior to Jan. 1, 2022, could be eligible for a permit.



Market squid purse seine vessel heading to Newport, OR. Photo: ODFW

Following the Commission's March 2023 direction, staff at ODFW have worked with the MSAP and the affected public to evaluate potential qualifications, costs, and benefits. In September 2023, ODFW held a meeting with the MSAP to discuss the Commission's directive for staff to investigate the move to an LE system in the Oregon market squid fishery. In February 2024, staff conducted an online survey on LE open to commercial fishing license holders in ODFW's commercial licensing system. In August 2024, staff held a second MSAP meeting to present results from the LE opinion survey, a summary of the draft interim report and obtain input from members. Summaries of the discussions from the two MSAP meetings and the survey results are presented in this report.

Background

Squid Biology, Ecology, and Population Trends

Market squid are found from the southern tip of Baja California, Mexico (23° N latitude) to southeastern Alaska (55° N latitude) but are most abundant off the central and southern coasts of California (Wing and Mercer 1990; Vojtkovich 1998). They are a short-lived species with a life cycle of less than one year. Market squid form large mating and spawning aggregations, which are the target of fisheries, and these aggregations often occur in relatively shallow nearshore waters over sandy bottoms. Males insert spermatophores into the mantle cavity of the females (mating) and eggs are fertilized as they are extruded (spawning). Mating occurs on spawning grounds but may also occur before they move to the spawning grounds. Egg cases are attached to the seafloor, where they can form dense and extensive beds. The eggs hatch in about three to eight weeks producing paralarvae. Juveniles are found throughout the water column during the day but return to the bottom at night. As they grow into adults they move to deeper water off the continental shelf, where they can be found at depths of roughly 2,000 feet during the day, moving up to about 300 feet at night to feed (Hunt et al. 2000; Zeidberg and Hamner 2002). Adults migrate back to the shallow nearshore water for spawning.

The distribution and abundance of market squid are associated with ocean temperature. Increased squid fishery catches in Oregon have usually coincided with warm water events like large El Niños and the recent marine heatwaves. A recent analysis of fishery-

independent surveys by NOAA Fisheries from 1998 through 2019 found that the market squid resource off Oregon increased during that period (Chasco et al. 2022).

The long-term trend is for the ocean to warm, have more heatwaves, and become more acidic (Di Lorenzo and Mantua 2016; Oliver et al. 2019; Pörtner et al. 2019; Laufkötter et al. 2020). The California Current Ecosystem (CCE) has generally followed that trend which suggests that market squid are likely to become more abundant off Oregon over the long-term. However, temperature is only a proxy for the true mechanisms that drive changes in market squid distribution and abundance, which are poorly understood. Despite the long-term trend, it is likely that squid abundance will continue to vary dramatically year to year off Oregon.

Population Status

Short- and long-term changes in the market squid population are poorly understood. Several science-based methods for developing fishery management strategies were explored during the California Department of Fish and Game's (CDFG, now the California Department of Fish and Wildlife, CDFW) 1998-2001 study of the market squid resource, however, it was determined that traditional assessment methods used to estimate biomass could not be applied to market squid (CDFW 2024). Because market squid are short-lived, highly responsive to changing environmental conditions, and do not behave like most fish, the traditional mathematical models used to estimate fish population size and sustainable yield are ineffective (CDFW 2020). To date, the stock has not been assessed, there are no reliable estimates of the population size, and coastwide population trends are unknown (NOAA Fisheries 2024).

At present, ODFW does not have information available to quantify the size of the market squid population or to estimate fishing mortality rates in Oregon. Squid are expected to be resilient to fishing pressure due to their extremely short life span (less than one year), as long as sufficient successful spawning occurs. Due to the difficulty in applying standard stock assessment methods to market squid, in 2001 the Pacific Fishery Management Council adopted an "egg escapement" goal of 30 percent as an alternative, meaning management should ensure that at least 30 percent of the population's potential egg production is conserved (PFMC 2024). A sustainable level of egg escapement can be interpreted as a level of reproductive escapement (from fishing) at or near a minimum level necessary to allow the population to maintain productivity into the future. Thirty percent was chosen based on the best information available on the natural mortality rate for market squid, and a modeled daily egg-laying rate (CDFG 2005); this level was also intended to recognize the important role of market squid as a forage species. It is important to note that the egg escapement goal is not practical for in-season management or to establish a quota for the season as the methods developed to estimate it take far too long and are too complex for that type of use. In addition, egg escapement has seldom been estimated in practice. To allow for egg escapement, the Commission implemented weekend closures for commercial take of market squid using purse seine net, dipnet, and trawl gear, including use of lights to attract market squid. Prohibiting fishing for two days per week protects spawning populations about 29% of the time, very near the 30% egg escapement metric.

Market Squid Fishery

Catcher vessels usually use purse seines to encircle and capture market squid in relatively nearshore waters as they aggregate to spawn. Light boats often work together with the catcher vessels to locate and attract squid. Light boats do not typically catch or land squid themselves but use powerful lights to attract squid for capture by purse seine vessels. While this practice continues in the California fishery, light boats have been prohibited in the Oregon market squid fishery since March 2023. Other gear types that are legal for commercial harvest of market squid in Oregon include trawl (in state waters only), "brail" or dipnet, and hook-and-line gear. However, there has been little to no directed market squid fishing using these gear types in the recent fishery.

Management

ODFW began managing the commercial squid fishery in the mid-1980s in response to new interest and fishery effort that lasted from 1982 to 1986. At the time, an Experimental Gear Fishing Permit (EGFP) was already required for trawl gear with less than three-inch mesh, but the number of permits issued wasn't limited until 1984. For 1984, ODFW limited the number of squid trawl EGFPs available at any one time to five in each of four major fishing areas (20 total), limited the permit duration to three weeks, and restricted the depth to less than 50 fathoms. Permits were renewable if the vessel searched for squid for at least 20 hours or landed at least 2,000 pounds of squid. Twenty-six squid trawl EGFPs were issued over the year. No permits were required for seine or lampara gear. For 1985, the Commission directed ODFW to remove the limits on EGFPs and set the Harvest Guideline at 4.5 million pounds, which is still in place today. Interest and effort all but disappeared by 1987, and management remained unchanged until the mid-1990s.

A second period of more intensive management began with the adoption of the Developmental Fisheries Program (DFP) in 1995. The Commission added market squid to the "Category A" list at the start of the program, which meant that permits were required to target squid. The Commission set the number of available squid permits at 30 for trawl and 30 for "other" gear (primarily lampara and purse seine), allocated permits for both gear categories 50 percent north and 50 percent south of Heceta Head based on vessel homeport, and adopted a lottery to issue permits if there were more applications than available permits for a gear and area by a filing deadline. After the filing deadline, remaining permits were issued on a first-come, first-served basis. Permits were non-transferable, except to another vessel owned by the permit holder, and could be renewed the following year if the vessel made five squid landings of at least 500 pounds or one squid landing of at least 5,000 pounds. Trawl gear still required an EGFP in addition to the DFP permit.

There was considerable interest in DFP squid permits initially, and all available permits were issued for trawl gear south of Heceta Head in 1995 and "other" gear north of Heceta Head in 1997 (Table 1). No lotteries were held because fewer applications than available permits were submitted by the filing deadline. Interest spiked in 1998 due an El Niño, which fishers predicted would increase squid biomass off Oregon, and ODFW held the first and only lottery for squid permits. Many of the permits issued through the lottery went to vessels based outside of Oregon, and several Oregon-based vessels with squid landings history were unsuccessful. In response, the Commission increased the number of available permits by 15, and 13 of these were issued for a total of 73 permits in 1998. However, squid production turned out to be poor and interest dropped sharply. Across all years of DFP management, relatively few permitted vessels made landings, and zero to 14 vessels landed enough squid to renew permits in any year. The Commission eventually removed market squid from the DFP list, and the fishery returned to open access in 2004. Management again remained unchanged until the start of the recent fishery in 2016.

Responding to rapid development of the recent fishery, the Commission adopted several new fishery conservation measures in March 2021, February 2022, and March 2023, including:

- Weekend closures for seine, dip net, and trawl gear, and attracting squid by light, to allow uninterrupted spawning.
- Restricting seine net size to prevent excessive growth in catching efficiency, mitigate gear conflicts, and limit fishing depth.
- Prohibiting the use of independent light boats to prevent overcapitalization and reduce fishery conflicts.
- Requiring rib lines which purse the net above the bottom to reduce habitat impacts, bycatch of benthic animals (especially crab), impacts on squid egg cases, and conflicts with crab gear.

- Prohibiting steel cable purse lines to limit habitat impacts.

A public hearing must also be held to evaluate the fishery prior to reaching a harvest of 4.5 million pounds of squid, with not more than three million pounds taken north or south of Heceta Head. In addition, the Commission has set a control date of Jan. 1, 2022 for establishing eligibility related to past participation in the commercial market squid purse seine fishery should they consider LE in the future. These management measures remain in place today.

Participation and Landings

From 1982 to 2015, directed commercial fishing for market squid off Oregon was sporadic and small scale, with landings over that entire period totaling almost 3.3 million pounds (Figure 1) since the market squid fishery was almost exclusively concentrated off central and southern California. A directed fishery in Oregon developed in 2016, conducted largely by seine vessels that had traditionally participated in the sardine, California market squid, Alaska herring, and Alaska salmon fisheries, as closures or downturns in those fisheries caused seine vessels to seek other opportunities. Oregon's market squid fishery grew dramatically from 2016 to 2020, then declined in 2021 and 2022. From 2016 to 2022, over 38.7 million pounds of market squid were landed in Oregon, with catch exceeding 10 million pounds in 2020. This represents from three percent to 19 percent of the annual total landings made in California and Oregon in those years. There were no landings of market squid in Oregon in 2017 or 2023, and while 2024 has seen some effort, landings as of August 8, 2024 totaled less than 325,000 pounds. This is the fourth year of decline for this emerging fishery. Little or no directed commercial market squid effort has occurred off Washington to date.

Participation in the Oregon fishery from 2016 through 2021 (prior to the Jan. 1, 2022 control date) has ranged from 11 to 40 seine vessels with a generally increasing trend, although participation declined to 31 vessels in 2021. A total of 57 unique vessels have made at least one landing with seine gear during this period. The number of new entrants each year has been variable, ranging from eight to 17 vessels with the highest number of new entrants in 2020 (Table 3). Only two vessels have made landings in every year (except 2017) prior to the control date, and 26 vessels have only made landings in one year (Figure 2). It is not clear if the high number of single-year participants reflects speculative fishing behavior by fishers hoping to qualify for a future LE permit or if single-year participants may simply be taking advantage of an opportunity between other seine fisheries with seasons and profitability that change year to year. Cumulative landings by individual vessels from 2016 through 2021 have ranged from a high of just over four million pounds to a low of 223 pounds. Ten vessels have landed over one million pounds each, while five vessels have landed less than 10,000 pounds (Figure 3). The number of landings by individual vessels shows a similar pattern with 13 vessels having 20 or more landings and 10 vessels with only a single landing (Figure 4).

Participation in the Oregon market squid fishery declined to 25 vessels in 2022 after the Commission set Jan. 1, 2022 as the control date. Two new entrants joined the fleet in 2022, bringing the total number of vessels that have participated in the fishery to 59 since 2016. No vessels made landings in 2023. As of August 8, 2024, only three vessels have landed market squid in Oregon, with four landings in March and one landing in August.

Fishery Management Tools

To accomplish the management goals of a fishery, managers can employ a number of measures that control the amount of fishing activity occurring in a given period of time (input or effort controls) or measures that directly control the amount of the resource caught (output or catch controls; ODFW 2015, Appendix B Table 2). Some common regulatory tools include catch quotas, limits on the number of vessels or trips, size or sex restrictions, gear restrictions, access controls such as permits or licenses, allocation of catch

shares, and time- and/or area-based management. Is it important that fishery analysts and managers evaluate the tools available and utilize those that suit the individual fishery best (ODFW 2015).

Limited Entry

Limited entry is a common input control in which the total number of vessels is limited by restricting the number of permits allowed. It is important to note that a permit only allows participation in the LE fishery and does not guarantee catch (Hilborn et al. 2005). Most often, no new permits are issued after initial allocation and the only way to obtain a permit is to buy an existing transferable permit or through a lottery if participation falls below a predetermined level.

The initial number of permits are usually allocated to vessels or individuals based on qualifying criteria. There are several ways that initial allocation of permits has been implemented in U.S. fisheries including by lottery, auction, proof of investment, record of participation, or a combination of these. In Oregon, LE permits have typically been initially allocated based on a record of participation from landing receipts, or "fish tickets," which are a state-mandated record of the transaction between the catching vessel and a wholesale fish dealer.

It can often be difficult for a new fisher to obtain an LE permit. Transferable permits in high demand carry a high monetary value and while this may benefit existing permit holders when permits are sold, it can be a steep barrier for new entrants, particularly young fishers entering the fishery. For example, the current market price of a California squid seine permit for 58.19 maximum gross tonnage is \$895,000 and a 500-pot Oregon Dungeness crab permit for vessels up to 82' in length overall is \$650,000 (Dock Street Brokers 2024). In some cases, high LE permit prices can lead to consolidation of permits and wealth over time, unless the system is designed to avoid it. On the other hand, permits for an LE fishery may become worthless if the fishery is not prosecuted due to a lack of the resource for an extended period.

If LE is successful, the limit on vessels helps to conserve the resource and can also generate higher incomes for the permit holders. For this reason, those who will likely obtain an initial permit are usually in favor of LE, while those who would not meet the qualifying criteria are opposed. It should be noted that LE cannot solve all management problems (e.g. gear conflicts between fisheries) and it does not deal with managing the existing fleet. For example, if permit holders are allowed to gain fishing capacity or become more efficient, the program can become ineffective (FAO 2024). An LE system will likely be more successful if it is implemented before the catching power of the fleet or number of participants in the fishery becomes too large, as once permits are issued, it is more difficult to bring the catching power in line with desired levels (FAO 2024). Another issue to consider is that management entities are typically liberal with qualifying criteria when developing LE systems, which means that the potential conservation benefit of limiting effort or catch is often not realized. This is often done because it is difficult to set qualifying criteria in a manner that does not cause controversy.

The topic of LE has long been of interest to West Coast fishers. In 1985, members of the fishing industry, along with state and federal agencies, management bodies, and other interested parties, held a conference in Newport, Oregon to discuss their experiences with various LE systems and share their different perspectives. One of the main takeaways was that while LE programs can work in certain circumstances, it is just one management tool and is not the only solution. Participants felt LE should also be something that industry promotes and supports and while the government can help formulate sound objectives and guidelines, avoid pitfalls, review proposals, and offer alternatives, it should not promote or take the lead on LE (OSU 1987).

Oregon Limited Entry Systems

Currently, there are nine LE fisheries in Oregon (Table 2). The majority were implemented by the Legislature through statute, but Sardine and Bay Clam Dive were created by the Commission through administrative rule. The Ocean Troll Salmon fishery became the first Oregon LE fishery in 1980. The most recent implementation of LE was in the Bay Clam Dive and Sardine fisheries in 2006. The Ocean Dungeness Crab, Ocean Troll Salmon, and Pink Shrimp fisheries remained open access for decades before the switch to LE occurred, while others became LE a few months or years after the start of commercial fishing. Conversely, many fisheries in Oregon have remained open access, including albacore tuna, hagfish, some groundfish, intertidal clam, and Coastal Pelagic Species (CPS) except sardine, among others.

The number of permits issued at the start of LE in Oregon fisheries ranged from 10 in the Yaquina Bay Roe Herring fishery to 4,311 in the Ocean Troll Salmon fishery. Over time, most fisheries have experienced a reduction in the number of permits, which is often a goal of LE. Permit numbers in 2022 ranged between 8 and 836 permits. For most LE fisheries in Oregon, permits can be issued via lottery if the number of permits falls below a given threshold, although there is no lottery system for Ocean Dungeness Crab permits. Permits must be renewed annually and are transferable in most cases. Permits are issued to either a vessel or person, or in the case of Bay Clam Dive, both.

California Market Squid Fishery Restricted Access Program

Prior to 1998, the California market squid fishery was lightly regulated and open access. Concern over growing harvest rates and the rapid increase in the number of out-of-state vessels entering the fishery led to industry-sponsored legislation in 1997 and the passing of Senate Bill (SB) 364 (Sher) (CDFG 2005). SB 364 required the purchase of an annual permit to land or to attract squid by using light for purposes of commercial harvest, placed a moratorium on new vessels entering the fishery, established a \$2,500 permit fee on market squid vessels and lights boats to fund a three-year study of the fishery by the CDFG, and provided the California Fish and Game Commission with regulatory authority over the fishery for the duration of the moratorium (CDFG 2005).

The Market Squid Fishery Management Plan (MSFMP) was finalized in 2005 and established the management program for California's market squid. Fishery control rules include seasonal catch limits to prevent the fishery from over-expanding, weekend closures to provide uninterrupted spawning, gear regulations regarding light shields and wattage used to attract squid, and monitoring programs to evaluate the fishery's impact on the squid resource. Other management measures include a seabird closure that restricts the use of attracting lights for commercial purposes within the Gulf of the Farallones National Marine Sanctuary and an LE permit system that limits access to the fishery (CDFG 2005).

The MSFMP's Market Squid Fishery Restricted Access Program included provisions for initial permit allocation, types of permits, permit fees, and permit transferability. Three permit types exist. A market squid vessel permit allows a vessel to attract squid with lights and use round haul gear, including purse seine, drum seine, and lampara nets, or brail gear, including dip and scoop nets. A brail permit allows a vessel to attract squid with lights, but squid must be captured with brail gear. A light boat permit only allows a vessel to attract squid with lights. Upgrades may occur through the purchase of a transferable brail permit by a transferable light boat permit holder if the transferable light boat permit is surrendered. Non-transferable light boat permits are not eligible for upgrade. At the start of the restricted access program in 2005, 92 vessel permits (12 non-transferable, three experimental), 14 brail permits, and 61 light boat permits were issued (CDFW 2019). Since then, the number of permits issued has changed due to permit transfers, upgrades, or attrition. As of July 2024, 68 vessel permits (one non-transferable), 48 brail permits (all transferable), and 28 light boat permits (two non-transferable) had been issued (CDFW

Automated License Database System; CDFW 2024). Of the 68 LE vessel permits issued, 58 vessels reported market squid landings and of those, 29 made 80 percent of the landings by weight in 2023. There were 48 brail permits issued in 2023 and 14 vessels reported squid landings, which suggests that most brail-permitted vessels are solely acting as light boats or catching squid for sale as live bait (CDFW 2024).

Under the restricted access program of the MSFMP, fishery capacity goals in the market squid fishery were set as 55 vessel permits, 18 brail permits, and 34 light boat permits. The capacity goal for non-transferable permits is zero (CDFG 2005). When the capacity goals were created, there were 165 vessels and 40 light boats in the fishery. While these goals have not been met as of July 2024, it appears that the fishery is moving toward reaching these goals (OPC 2019).

Considerations for Implementing Limited Entry in the Oregon Market Squid Fishery

Policy Goals

If the Commission chooses to move forward with an LE program in the Oregon market squid fishery, the Commission should determine management goals for the resource and for the fishery. These may include biological, ecological, social, or economic goals, as well as goals related to interactions with federal and adjacent state fishery management. Metrics used to measure achievement of the management goals and monitoring strategies to track those metrics should also be considered (ODFW 2015).

Management tools should be evaluated prior to being applied to the fishery to ensure their feasibility and appropriateness in helping achieve the management goals. For example, while an LE system in Oregon may reduce the number of vessels in the fishery, the least efficient boats may be removed, leaving the catching power of the fleet almost unchanged. As with many fisheries, relatively few vessels are responsible for the majority of Oregon market squid landings. Ten vessels account for 69% of the landings made between 2016 and 2021, 15 vessels account for 79% of the landings, 20 vessels account for 86% of the landings, and 25 vessels account for 92% of the landings (Figure 5). Additionally, if boat size and capacity in terms of gross tonnage is not also restricted, then boats with permits may simply get bigger and more efficient over time and capacity would thereby increase from the time that LE is put in place.

The California MSFMP's goals are "to manage the market squid resource to ensure long term resource conservation and sustainability, reduce the potential for overfishing, and institute a framework for management that will be responsive to environmental and socioeconomic changes" (CDFG 2005). If an FMP was developed for the Oregon market squid fishery, management tools could include fishery control rules, such as seasonal limits or area closures, or a restricted access program, similar to those used to manage the market squid fishery in California. Fishery monitoring programs and management procedures would also need to be developed. The process of developing a market squid FMP for Oregon would take several years, requiring a large investment of staff time and financial resources, as well as coordination with researchers, industry stakeholders, and the public. Currently ODFW is facing capacity reductions due to budget shortfalls and the Commission should take this into consideration as well.

Fleet Size and Capacity

In directing ODFW to investigate an LE system for the Oregon market squid fishery, the Commission expressed a desire to prevent or reduce overcapitalization, which is typically associated with addressing economics of a fishery. When the capital investment in fishing vessels and gear exceeds that needed to harvest the available resource, the fishery is considered overcapitalized. Overcapitalization does not necessarily lead to overfishing if the

resource is protected by other means such as time and area closures. Rather, overcapitalization tends to create intense competition, economic inefficiencies, and lower profits for individual participants.

With no fishery-independent estimate of total squid biomass off Oregon, it is difficult to objectively evaluate whether the fishery is already overcapitalized. However, many participants have stated at public meetings and via the MSAP that they believe the current productivity of the market squid population off Oregon could support up to 25 to 30 vessels annually. Participation exceeded that level in 2020 and 2021. Participation by 59 unique vessels in total since 2016 shows the potential for participation by more than 25 to 30 vessels in future years.

An alternative approach to determine a target size for the Oregon fleet is to use a simple ratio comparing market squid landings in Oregon over a given period to the size of and landings made by the California fleet over the same period. Between 2016 and 2023, California landings averaged 82,221,310 pounds, while Oregon landings averaged 4,841,159 pounds (PacFIN 2024). Based on the most recent Market Squid Enhanced Status report, there are currently 58 active vessel permits in California. When Oregon and California landings are compared to the number of active vessels in California, the corresponding number of vessels for the Oregon market squid fleet would be approximately three (3.42).

In addition to the number of vessels, many other factors can affect overcapitalization of a fleet under LE, such as vessel size and speed, hold size, and gear or other technology that increases catching power. For example, permits could be transferred to larger vessels or permitted vessels could be widened or lengthened. To move forward with an LE system, the Commission will need to determine fleet size and capacity goals, as related to controlling overcapitalization.

Fishery Sustainability

The Commission has highlighted its interest in ensuring sustainable harvest rates in the Oregon fishery. A sustainable harvest rate allows a population to maintain a specified level of productivity over the long-term. Policymakers often seek to achieve a harvest rate that is as high as possible without negatively affecting future production (Maximum Sustainable Yield, MSY). As described above, this is difficult to determine given the life history of market squid and the lack of reliable estimates of population size or trends or even the MSY proxy of 30% egg escapement. Instead, fishery managers have relied on measures such as time and area closures to protect future production in squid fisheries. The Commission could consider goals related to sustainable harvest rates. However, it is usually difficult to limit or reduce fleet capacity to a level that significantly impacts harvest rates as it necessarily excludes many participants. More often, LE systems cap or reduce capacity growth with little effect on harvest rates. The Commission has already adopted more direct management measures, such as weekend closures, intended to protect squid productivity for sustainability of both the fishery and the ecosystem. In addition, Oregon's system of Marine Reserves and Marine Protected Areas provide some conservation benefits for market squid, which are known to spawn in at least the Cascade Head and Cape Perpetua Marine Reserves.

Value of Squid as Forage Fish

In the CCE, market squid play an ecologically important role in the transfer of energy from lower to higher trophic levels. As larvae and juveniles, market squid feed on copepods and euphausiids, while adults feed on fish, polychaete worms, other squid, and crustaceans such as shrimp and pelagic red crab (CDFG 2005). Market squid are one of the most common prey items in predator diets in the CCE and are an important food source for many commercially important fish species, such as salmon, lingcod, rockfish, halibut, and tuna, as well as for seabirds and marine mammals (CDFG 2005; NOAA Fisheries 2024; Chasco et al. 2022). However, information is not currently available to quantify the value of market squid

as a forage fish in the CCE and none of the species mentioned are known to specialize in targeting market squid as prey. The Commission could consider policy goals related to preserving the role of squid as a forage fish, but since LE does not directly control catch, other management tools may be more effective at achieving such a goal.

Economic Value

Market squid are also a valuable resource to commercial fisheries and coastal economies on the U.S. West Coast. In 2023, no market squid were landed in Oregon, but over 52 million pounds were landed in California, generating roughly \$33 million in revenue (CDFW 2024). In 2022, commercial landings of market squid in Oregon and California totaled 147 million pounds and were valued at \$88 million, with almost \$3.7 million from Oregon alone. From 2016 to 2022, commercial landings in Oregon totaled almost 39 million pounds and were valued at over \$21 million (PacFIN 2024).

Squid is a popular seafood choice and can be found in a variety of forms in the market, from whole, fresh squid to processed products like calamari rings, steaks, and dried snacks. Market squid are also used for aquaculture feed and are an important source of bait for recreational and commercial fisheries. While some product enters the domestic market, most is shipped frozen to China, Japan, and Europe for processing prior to sale and exported to international markets from there (CDFW 2024).

The Commission could consider policy goals related to the economic and food production values of squid fishing to Oregon. However, like ecosystem value, LE may not be the most direct or efficient management tool to achieve such a goal.

Fishery Adaptation to Climate Change

The Commission has expressed an interest in mitigating climate change effects on fisheries. LE systems inherently reduce flexibility of fishers to adapt to environmentally driven changes in fish distribution and abundance because they make it difficult and expensive for fishers to enter a fishery they don't already have a permit for. The design of an LE system can incorporate some degree of flexibility, for example by setting aside a certain number of permits for allocation to new entrants through an annual lottery or auction, similar to the permit system implemented in Oregon under DFP management. The Commission should consider climate change adaptation goals if moving forward with an LE system.

Cost of Entry Currently

The cost of entering the fishery by purchasing a purse seine vessel or outfitting an existing vessel to run purse seine gear may limit further expansion of the market squid fleet. The current price to purchase a purse seiner varies widely, from \$25,000 to \$2.6 million, depending on boat specifications, and the gear and permits included (Pacific Boat Brokers 2024, Dock Street Brokers 2024). To estimate the cost of outfitting an existing vessel, ODFW staff asked the MSAP members to provide input. Estimates ranged from \$100,000 to \$500,000 for the main pieces of equipment like a net, boom, and skiff, depending on quality and condition. For someone new to the fishery, members thought it would cost about \$250,000 to set up a vessel, but also noted that a fleet of highly mobile West Coast and Alaska purse seine vessels already exists, and their investment would just be time and fuel to get to the fishing grounds.

Market Squid Advisory Panel (MSAP) Discussions

ODFW convened two MSAP meetings (September 2023 and August 2024) to gather input on a potential move to an LE system. While there were many opinions on LE, no consensus was reached by the panel. Several MSAP members thought that the Oregon market squid fishery should remain an open access fishery, as economics would self-regulate the number of participants given the control date in place, the steep cost of entry, and the inconsistency of the fishery. Many in favor of LE thought it would protect the investments

participants have made to enter the fishery. MSAP members were hesitant to suggest or comment on specific criteria or the number of permits, especially given the uncertainty of the market squid biomass in Oregon, stating that details could be worked out later if the Commission decided to move toward implementing an LE system. More information on the MSAP, including membership and meeting agendas and summaries, can be found on the ODFW website at https://www.dfw.state.or.us/MRP/market_squid/index.asp.

License Holder Survey

In February 2024, ODFW conducted a survey to seek input from Oregon commercial fishery license holders on potentially moving the Oregon Market Squid Fishery to an LE fishery (Appendix A). The survey was distributed electronically to wholesale fish dealers, bait dealers, fish buyers, Resident and Nonresident Individual and Vessel License holders in 2022 and 2023 with a valid email address on the ODFW Commercial Licensing Server. ODFW informed survey participants that survey results would be part of the interim report to the Commission and that their responses would remain anonymous. The survey remained open for four weeks, with three reminders sent before the closing date on March 4, 2024.

Survey Results

The survey was sent to 2,174 email addresses and 283 responses were received, for a response rate of 13 percent. When asked about their fishery interest, there were 355 responses, with participants in other fisheries being the largest group (130), followed by potential future squid harvesters (92), current/recent squid harvesters (87), potential future squid processors (20), members of the public/interested parties (15), and current/recent squid processors (11) (Figure 6). Most respondents in each interest group were not in favor of LE, except for current/recent harvesters, which were almost equally for (44) and against LE (43). Most respondents participated in multiple commercial fisheries in the last 10 years including Dungeness crab (271), groundfish (181), market squid (156), other CPS (181), salmon (237), shrimp (90), and other fisheries (184). Oregon market squid fishery participants were almost equally for and against LE (23 for, 24 against), while the majority of those that participated in the California fishery were against LE (4 for, 11 against). A greater number of respondents that participated in both the Oregon and California market squid fisheries were in favor of LE (27 for, 20 against), while the majority (74 percent) of participants in all other fisheries were against LE (43 for, 129 against, 2 undecided; Figure 7).

Most survey respondents were Oregon residents (189), with 42 from Washington, 24 from California, 16 from Alaska, and 12 from other states (Figure 8).

Overall, 184 survey respondents (65 percent) were not in favor of moving the Oregon market squid fishery to a state LE system, 97 (34 percent) were in favor, and two (< 1 percent) were undecided. Respondents were able to provide reasons for their opinion and many gave more than one. Reasons were grouped into several categories based on the general themes expressed.

Of the 97 survey respondents in favor of moving forward with an LE system, 80 provided reasons for their choice. In a few instances, responses seemed contrary to support for LE. The most common reasons were sustainability and protecting the resource, with many noting market squid's importance in the ecosystem (39) and to prevent overcapitalization by limiting future participation, with several respondents noting that there are already too many vessels in the fishery (39). Other reasons provided were that additional management measures are needed (17), to limit out of state participation (6), to protect industry investments and financially reward industry pioneers and current participants (6), for safety reasons due to conflicts with crab gear (4), and because little is known about the resource (3), along with other responses that did not fall under these themes (Figure 9).

Of the 184 survey respondents against moving to an LE system, 146 provided reasons for their choice. The most common reason was to allow for opportunity and diversification in Oregon fisheries (77). There were also concerns over fishery consolidation, the concentration of wealth, and privatization of a public resource (39). Many thought that the fishery is still developing and not consistent enough to warrant LE (37), or that not enough vessels are participating (8). Others questioned the motivation behind the push for LE (29). Another common response was that economics will regulate the fishery (26). Many respondents felt that LE is bad for the fishing industry or questioned whether LE was the right management tool (21). Others believed that there should be opportunities for Oregon fishermen since many would not qualify for LE (with the control date and landings history) (14). Many felt that there were already regulations in place, with perhaps too much government control of the fishery (10), while others thought that the move to LE was a waste of ODFW's time, money, and a 'cash grab' (9). Similar to those in favor, some of those against LE stated that they needed more information about the LE system and the market squid resource (5). Conflicts with crab gear were a concern (3), along with others that did not fall under these themes (Figure 10).

The remaining survey questions asked respondents to provide input on the number of permits, qualifying criteria, permit transferability, permit transfer restrictions, and allowing for new entrants into the fishery if an LE system is implemented in Oregon. As such, these survey results are reported in the Program Components section below. Complete survey results can be found in Appendix B.

Potential Program Components if Commission moves forward with Limited Entry

Although the Commission adopted Jan. 1, 2022, as the control date for establishing eligibility related to past participation in the Oregon commercial market squid purse seine fishery, a control date does not, by itself, guarantee that any vessel would or would not be able to participate in the fishery in the future. Initial eligibility criteria, or the permit system itself, could include specifications such as a minimum number or amount of landings, and one or more mechanisms to allocate permits through lottery, auction, proof of investment, or other means that would not require any past participation. This would need to be balanced with achieving fleet size and capacity goals.

Many issues will need to be considered both by the public and by the Commission before implementing LE. Some of these include overcrowding, safety, inter- and intra- fishery conflict, the relationship between participation and opportunities (or lack thereof) in other fisheries, including California market squid and Alaska herring and salmon seine fisheries, increased stewardship by fishers who are invested in the long-term health of the fishery as permit holders, and an established and limited number of vessels for management and enforcement to track. The capacity of ODFW staff to undertake an extensive study of the market squid resource, evaluate all the components that would need to go into an LE system, and develop a program to monitor the market squid fishery should also be taken into consideration.

Initial Qualification

If an LE system is implemented in the Oregon market squid fishery, an initial number of permits will need to be allocated to vessels or individuals based on some type of qualifying criteria. These criteria potentially include the number of landings before the control date, the number of years of participation documented by landings, total pounds landed before the control date, some combination of these, or other criteria. If the Commission determines a fleet size goal, selecting landings-based criteria to achieve the goal is relatively straightforward but the criteria used may change which vessels are allocated a permit. For example, setting qualification criteria at three years of participation or 440,000 pounds

landed would result in 20 permits allocated in both cases, but not to the same vessels. As a result, qualification criteria are invariably contentious. Alternatively, the Commission could select criteria based on other factors and allow whatever number of permits such criteria result in. For example, if the criteria included any vessel that participated in more than one year prior to the control date, 31 permits would be allocated.

When asked how many catcher vessel LE permits were appropriate, 71 (46 percent) of the 156 survey respondents to this question selected 40 permits, which was the highest number of permits of the options provided. The second choice was 20 permits (12 percent; Figure 11). Most survey respondents that provided input thought that qualifying criteria for an initial LE permit should include a combination of the number of landings, number of years, or the total pounds landed before the control date (Figure 12). Suggestions for other criteria included Oregon residency, Oregon vessels, or participants in other Oregon fisheries, lottery, vessel size, and regional participation, among others (Figure 13). Several survey respondents suggested that anyone who had made landings or had participated in the market squid fishery should be given a permit. During discussions with the MSAP, it was suggested that respondents may have selected the highest option because it best reflected the total number of vessels that have participated in the Oregon fishery. The MSAP asked whether respondents specifically mentioned trawl landings or historical (pre-2016) landings in their write-in answers, but staff noted that no further information was provided by respondents.

Transfer

Permit transferability will also need to be considered. In LE fisheries, permits are often transferable, meaning they can be bought and sold on the open market. Restrictions for permit transfer, if any, could include length or size restrictions for the vessel's permit, landing requirements, or both, to address capacity goals. Transfer may be restricted to a sub-set of permits at the time of issuance, usually based on historical participation criteria. For example, vessels with higher levels of participation may receive a transferable permit, while those with lower levels receive a non-transferable permit which expires when it is not renewed, or the vessel otherwise ceases to participate in the fishery. Another common approach is to prohibit transfer until a vessel has met future participation criteria, after which the permit becomes fully transferable. However, this can incentivize participation that wouldn't occur otherwise, as permit holders may participate, even at a short-term economic loss, solely to achieve transferability. The Commission will need to consider the effects of transfer restrictions relative to management goals in selecting criteria.

Of the 239 survey respondents that provided an answer when asked about permit transferability, 205 (86 percent) thought all permits should be transferable. When asked what restrictions or requirements should be considered for permit transfer, 136 (49 percent) of the 278 respondents that provided an answer favored no restrictions, while 81 (29 percent) selected length or size requirements, 44 (16 percent) selected landings requirements, and 17 (6 percent) selected a combination of both (Figure 14).

Renewal

LE permits usually require annual renewal to remain valid in the next year. In some Oregon LE fisheries, renewals require purchase of a vessel license at the time of permit renewal, a completed logbook prior to permit renewal, or a minimum number of commercial landings in Oregon during the calendar year prior to the request for renewal. Participation-based renewal criteria can be particularly challenging for sporadic fisheries like the Oregon market squid fishery, but this can be partially mitigated by only applying renewal criteria to years that the fishery reaches a specified level of participation or landings. While participation-based renewal requirements are usually implemented to achieve permit attrition over time, like transfer restrictions, they can incentivize participation in a way that is contrary to program goals and criteria must be carefully considered.

New Entrants

In LE programs, permits are typically no longer issued after the initial distribution. To enter an LE fishery, new entrants must either purchase or lease an existing LE permit. However, they can also be designed with elements to mitigate the difficulty of entry. For example, permits may be issued through a lottery or auction if existing permits fall below a specified number through non-renewal. Alternatively, a number of permits may be set aside for new entrants at the outset, and issued through a lottery, auction, or by meeting other professional standards or criteria. A system to allow for new entrants will need to be considered.

Of the 242 survey respondents that provided input on new entrants into the fishery, 126 (52 percent) thought they should be allowed by the transfer of existing permits, 101 (42 percent) were in favor of a lottery, and 15 (6 percent) were in favor of an auction if the number of permits falls below a threshold (Figure 15).

Vessel Size or Capacity Restrictions

The intent of an LE program is to control the capacity of the fishing fleet. If permit holders are allowed to gain fishing capacity or efficiencies after fishery participation is limited, the program can be undermined and become ineffective. Capacity limits can be achieved by directly restricting tonnage or hold capacity for permitted vessels, prohibiting lengthening or widening of permitted vessels after permit issuance, or restricting permit transfer to a larger vessel.

Accounting for History of Vessels Sold During Qualifying Period

Vessel ownership may have changed over the qualifying period. The Commission would need to decide whether a vessel's participation history is credited to the new owner who may or may not have participated in the fishery, the previous owner that participated in the fishery, or some combination of both.

Owner Onboard Requirements

An owner-operator system aims to promote viable and profitable operations for the average fishing enterprise by requiring that those who are issued permits fish them personally so that the associated benefits remain in the hands of independent owners rather than processors, corporations, or speculative investors. An owner-operator system would require LE permit holders to be active harvesters.

Scope of Gears Included in Limited Entry

There are three permit classifications in the California market squid fishery restricted access program: the vessel permit, the brail permit, and the light boat permit. The Jan. 1, 2022 control date set by the Commission applies to the commercial market squid purse seine fishery and it is not clear if the fishery would remain open access to those vessels capturing squid with other gear types (brail, lampara, etc.). A number of survey respondents suggested keeping the market squid fishery open access for small boats using non-seine gear or for those that target squid for bait.

While the Commission adopted rules that prohibited the use of light boats in the Oregon market squid fishery, one Commissioner expressed during the March 2023 Commission meeting that they may be open to allowing light boats in the future under an LE system with fewer purse seine vessels. The Jan.1, 2022 control date set by the Commission was intended for purse seine vessels, not light boats. If an LE system was implemented in the market squid fishery and light boats were once again allowed to participate, consideration will need to be given as to whether light boats would require permits and if so, how many would be permitted and how to allocate that type of permit. Light boat participation has been difficult to track as they seldom make landings and the light boat logbook requirement

was only established in 2021. Light boats that have participated in the fishery but have not made landings will need to be accounted for when considering qualifying criteria.

Conclusions

For years, the topic of restricted participation in the commercial market squid fishery in Oregon has been raised at public hearings and in discussions with ODFW. While some fishery participants have advocated for an LE permit systems, others have been clearly against it. Many opinions on LE were provided at the MSAP meetings, however, panel members did not reach a consensus. Results from ODFW's opinion survey on LE showed that the vast majority of survey respondents were not in favor of an LE permit system for the Oregon market squid fishery. Recent market squid harvesters were nearly evenly split for and against LE, as were Oregon market squid fishery participants. Most California market squid fishery participants who have experience with an LE system were against LE, while those that have participated in both the Oregon and California market squid fisheries were slightly in favor of LE.

It is important to note that LE is just one of many regulatory tools available to manage a fishery. At present, the Oregon market squid fishery already has a number of regulations in place. Market squid are federally managed under the Coastal Pelagic Species Fishery Management Plan and are subject to all federal regulations, which are also adopted by reference for state waters ([OAR 635-004-0375](#)). The Commission has already adopted several regulations intended to keep the fishery sustainable through closures, gear limits, etc., and set a control date of Jan.1, 2022 for establishing eligibility to participate in the commercial market squid purse seine fishery if it adopts an LE system in the future.

In 2022, ODFW staff stated that their recommendation for or against implementation of an LE permit system in the future would depend on how the fishery unfolded in the coming years. They noted that if fishing effort and harvest remained high or increased, LE could be a valuable management tool. However, if fishing effort and harvest stabilized or declined, continuing open access may be justified. Landings have declined dramatically since the historic high of over 10 million pounds in 2020, with no directed fishery in 2023 and only three vessels participating in the fishery in 2024. Whether the market squid fishery becomes a consistent and viable fishery in Oregon in the long term remains to be seen. From a biological standpoint, it appears that there is no need to implement an LE system in the market squid fishery in Oregon at this time.

Implementing an LE program for the market squid fishery would be a heavy lift for ODFW. The market squid fishery remains sporadic in Oregon, but it is clear that there is a highly mobile fleet of vessels capable of harvesting this resource when it is available in sufficient quantity. As mentioned, there are no reliable estimates of market squid population size or trends either off Oregon or in the CCE, nor is there consensus among fishery participants that Oregon should move this fishery to an LE system at this time. Nor does there appear to be consensus on criteria for allocating permits is the Commission decides to move the fishery to an LE system.

Market squid are a short-lived opportunistic species that has been likened by some experts to insect populations. Like many CPS species, market squid appear to go through boom-and-bust cycles but the mechanisms driving these population swings are poorly understood at present. ODFW is presently limited in its capacity and there are planned reductions for the next biennium that includes the loss of a position specifically tasked to work on CPS management matters. It is not clear to staff that there are concerns about sustainability of the resource that warrant the time and effort required to evaluate and develop the components of an LE system for this fishery or that one is needed at this time. Staff recommend not pursuing LE for the market squid fishery in Oregon at this time, and evaluating how the management measures in place and the economic considerations for fishermen play out over a longer time period.

If an LE system is pursued in the future, staff recommend undertaking an additional and focused public process to arrive at recommendations for complete initial eligibility criteria, and program components that would be included.

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Tables

Table 1. Squid permits issued each year from the Developmental Fisheries Program reports. Reports typically gave permit numbers as of mid-September so may not reflect final numbers, but likely were given timing of squid fishery in spring and early summer. Reports did not give geographic location of permits for 1999-2003, however the geographic allocation remained in place during this period.

Year	Trawl North	Trawl South	Other North	Other South	Total	Renewals
1995	7	15	8	2	32	NA
1996	5	9	2	0	16	2 trawl
1997	2	7	15	2	26	3 trawl
1998	17	17	24	15	73	6 trawl, 4 other
1999	18		8		26	12 trawl, 2 other
2000	10		8		18	0
2001	5		2		7	0
2002	4		0		4	0
2003	6		9		15	0

Table 2. Limited entry programs in other Oregon fisheries. LE: Limited entry; S: Statute; R: Rule. *Active permit renewals as of 2022. **Does not include 1930s-1940s fishery.

Fishery	Statute vs. Rule	Start of Fishery	Start of LE	Initial # Permits	Current # Permits*	Lottery	Annual Renewal Required	Permit Transfers Allowed	Permit issued to Vessel or Person
Bay Clam Dive	R	~1995	2006	15	10	Yes	Yes	No	Vessel or Person
Black & Blue/Nearshore	S	~1995	2004	116/73	40/68	Yes	Yes	Yes	Vessel
Dungeness Crab (Ocean)	S	~1915	1999	465	420	No	Yes	Yes	Vessel
Ocean Scallop	S	1981	1981	25	14	Yes	Yes	Yes	Vessel
Ocean Troll Salmon	S	1912	1980	4,311	836	Yes	Yes	Yes	Vessel
Pink Shrimp	S	1957	1987	235	136	Yes	Yes	Yes	Vessel
Roe Herring	S	1978	1984	10	8	Yes	Yes	Yes	Vessel
Sardine	R	1999**	2006	21 (26)	21	Yes	Yes	Yes	Vessel
Sea Urchin	S	1986	1988	38	13	Yes	Yes	Yes	Person

Table 3. Count of unique vessels in the Oregon market squid fishery between 2016 and 2023.

Year	Number of vessels by Year	Cumulative number	Number of new participants
2016	14	14	14
2017	0	14	0
2018	11	29	6
2019	23	32	12
2020	40	49	17
2021	31	57	8
2022	25	59	2
2023	0	59	0

Figures

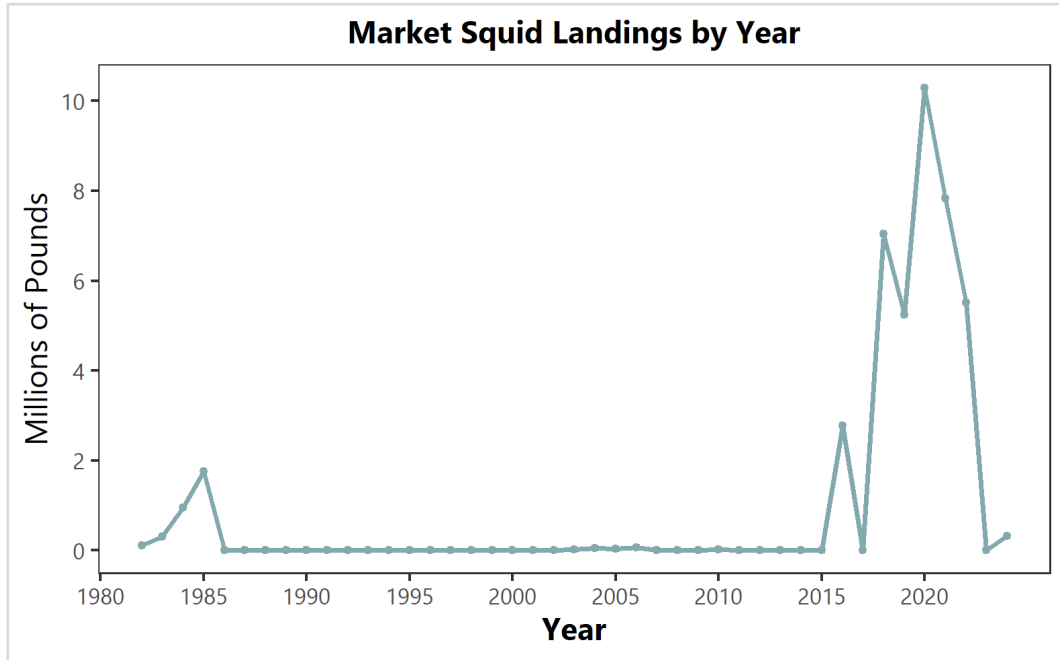


Figure 1. History of market squid landings in Oregon (1982-2023).

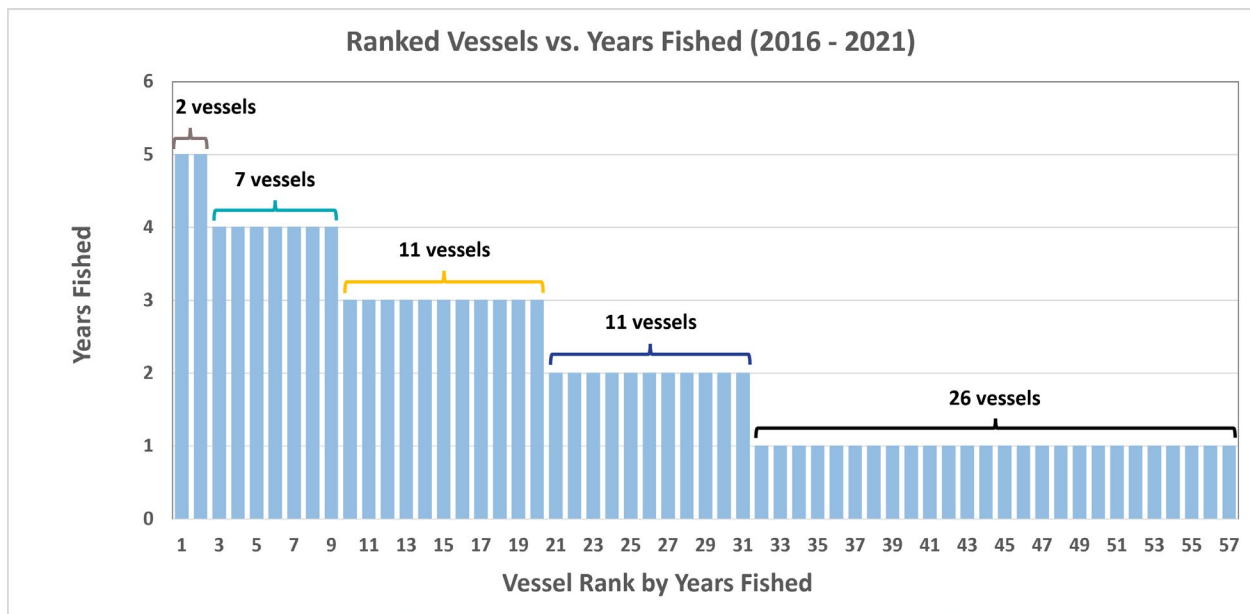


Figure 2. Market squid seine vessels ranked according to the number of years fished in Oregon from 2016 through 2021.

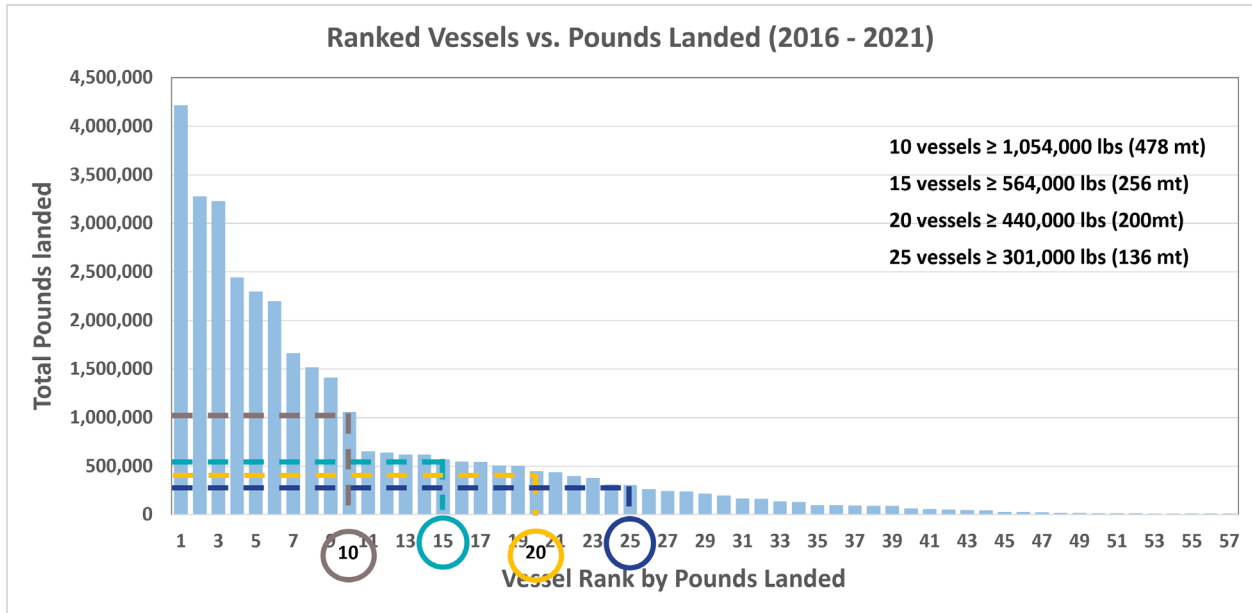


Figure 3. Market squid seine vessels ranked according to pounds landed in Oregon from 2016 through 2021.

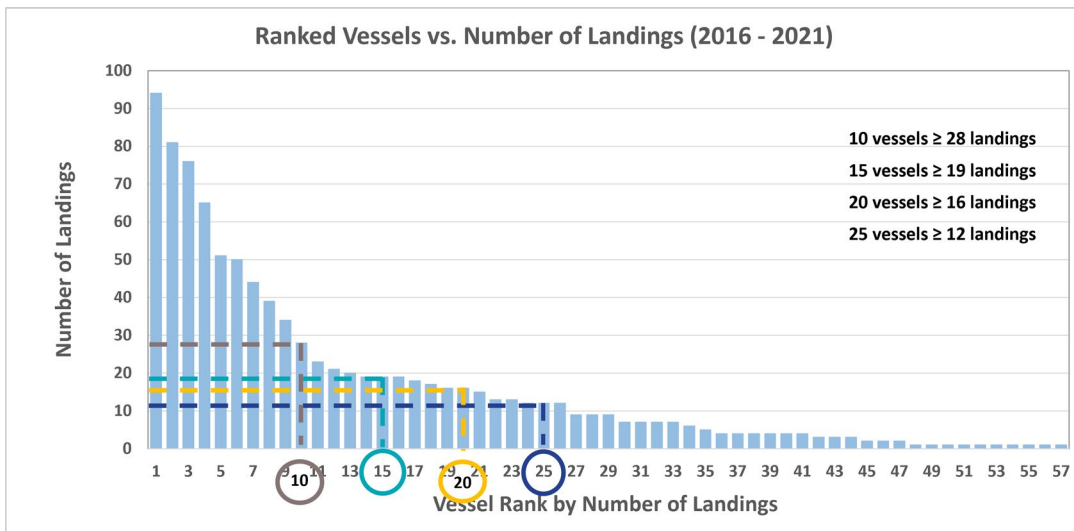


Figure 4. Market squid seine vessels ranked according to the number of landings made in Oregon from 2016 through 2021.

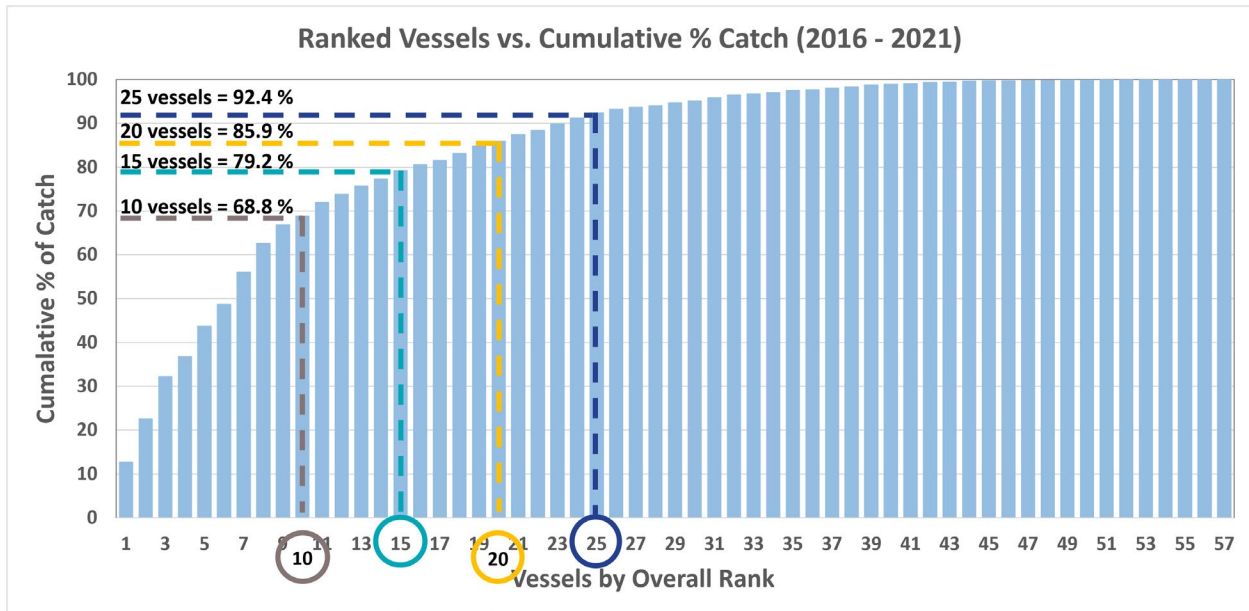


Figure 5. Market squid seine vessels ranked according to cumulative percent catch landed in Oregon from 2016 through 2021.

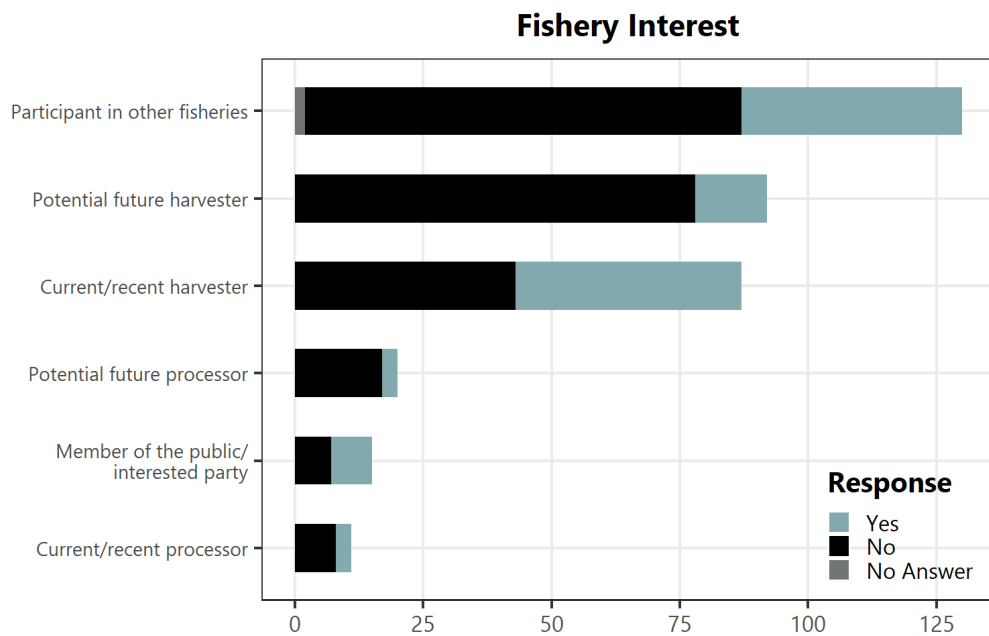


Figure 6. Limited entry response of market squid survey respondents by fishery interest.

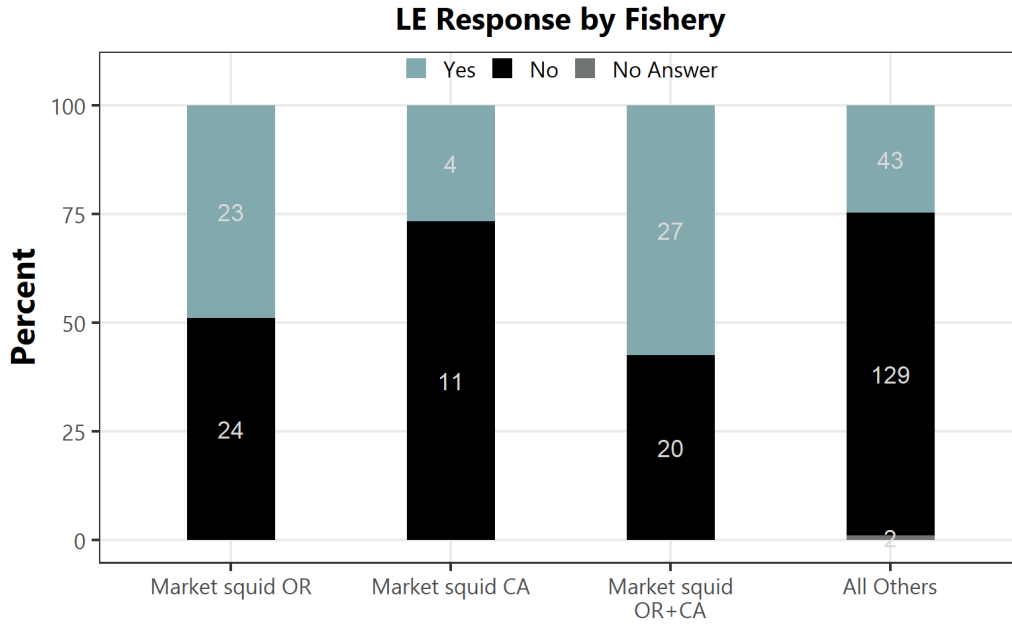


Figure 7. Limited entry response of market squid survey respondents by fishery participation. All Others category includes participants in Dungeness crab, groundfish, other coastal pelagic species, salmon, shrimp, and other fisheries.

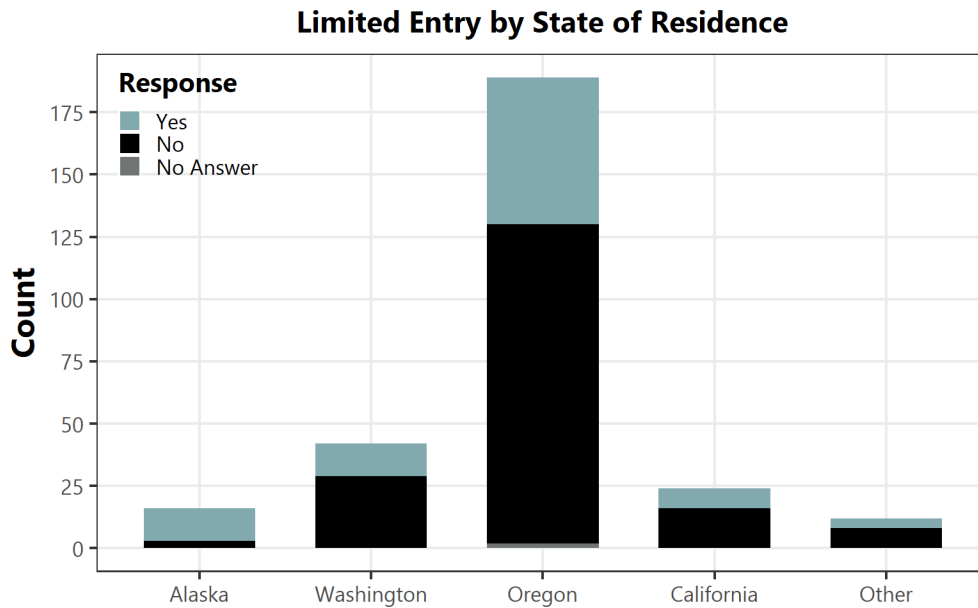


Figure 8. Limited entry response of market squid survey respondents by state of residence.

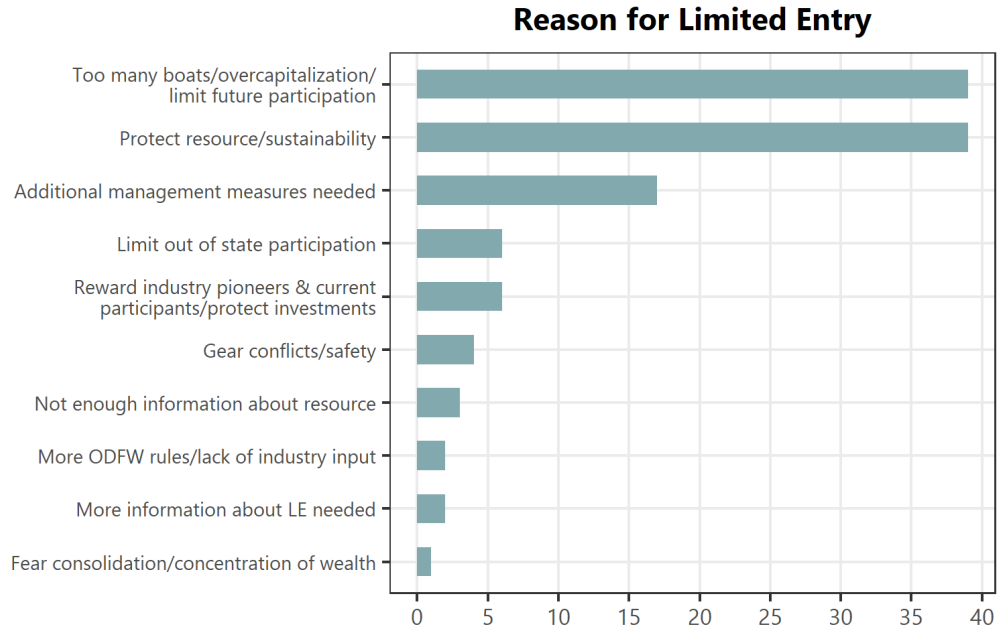


Figure 9. Responses provided by those in favor of limited entry in the Oregon market squid fishery. Note that some responses seem contrary to support for limited entry.

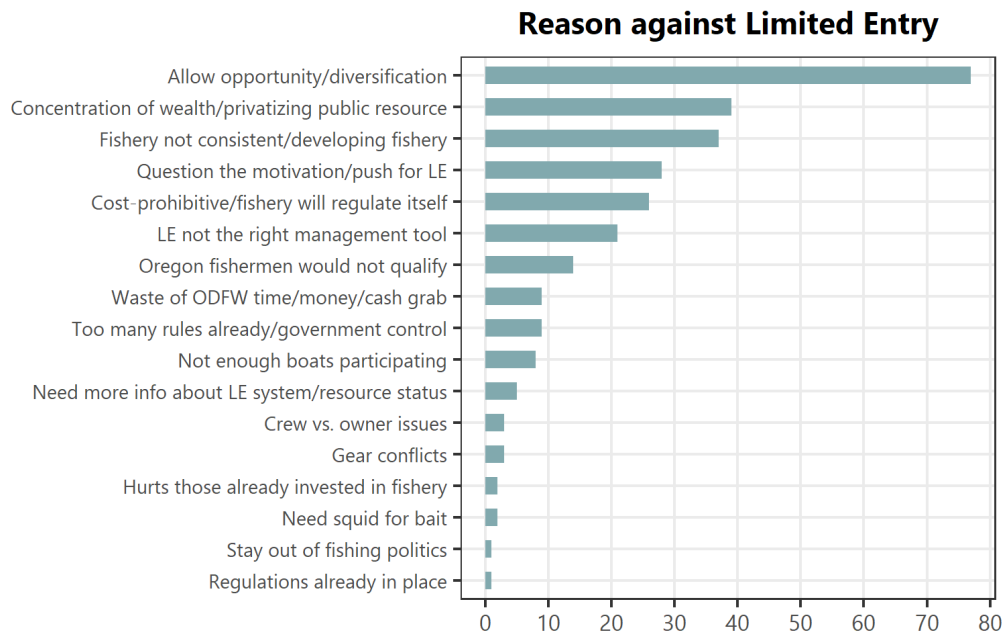


Figure 10. Responses provided by those against limited entry in the Oregon market squid fishery.

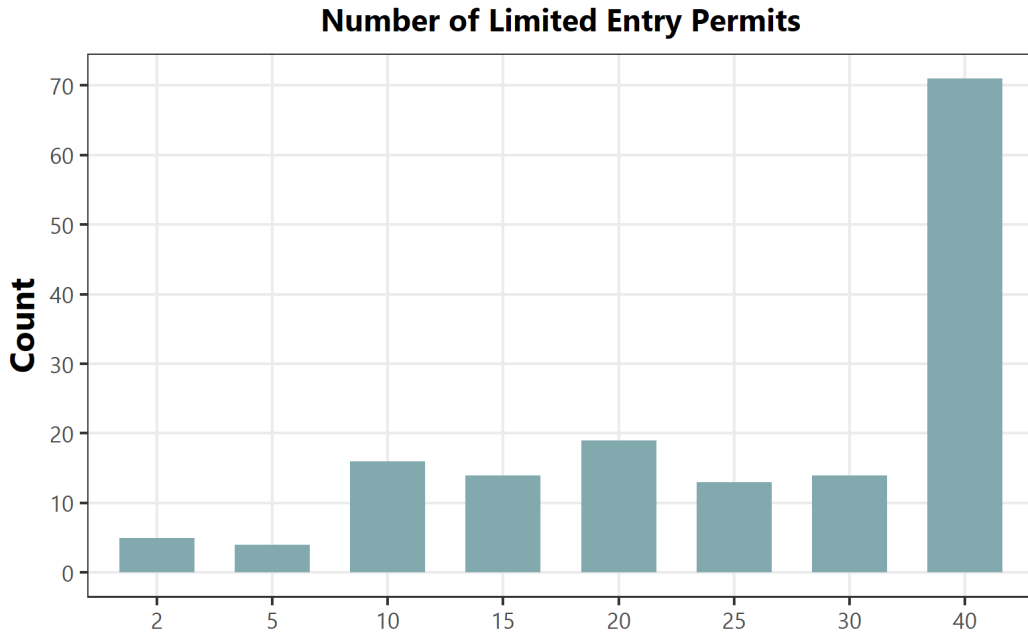


Figure 11. Survey respondent choice for the number of limited-entry permits in the Oregon market squid fishery.

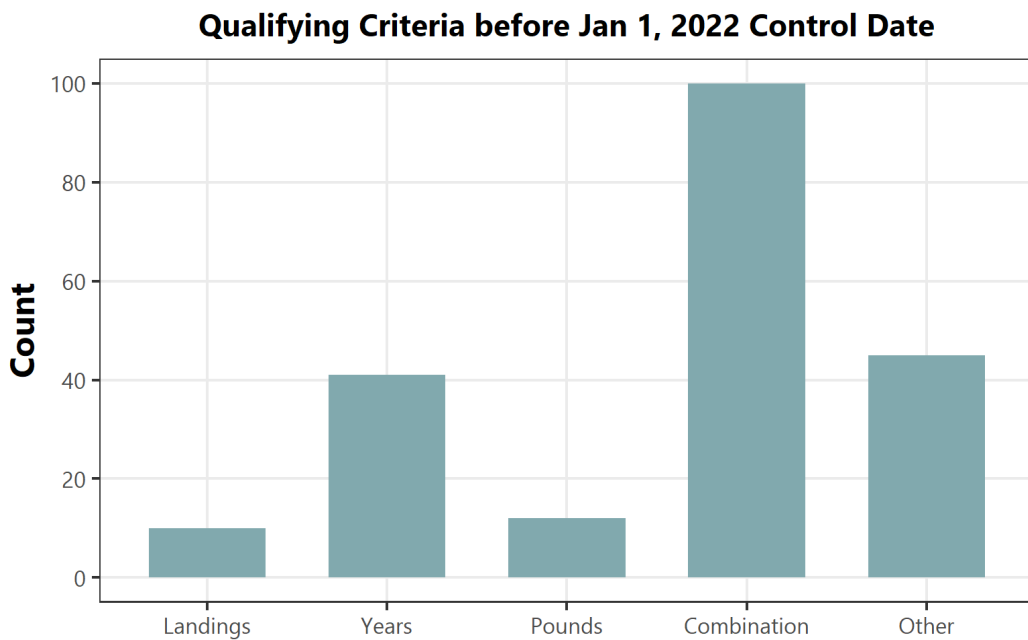


Figure 12. Potential qualifying criteria for limited-entry permits in the Oregon market squid fishery.

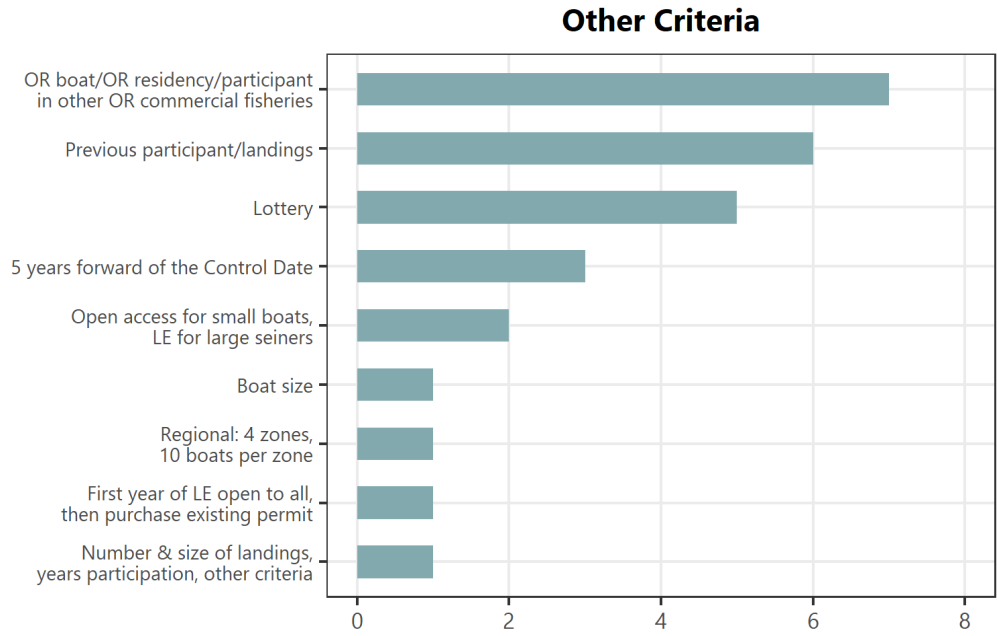


Figure 13. Other suggested qualifying criteria for limited-entry permits in the Oregon market squid fishery.



Figure 14. Transferability restrictions for limited-entry permits in the Oregon market squid fishery.

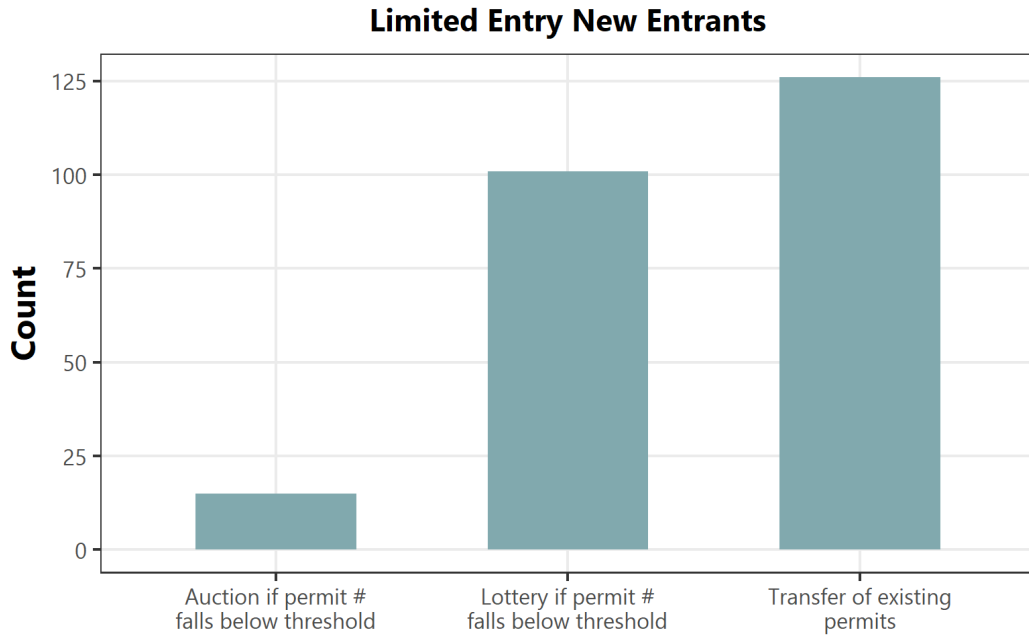


Figure 15. Limited-entry permit allowance for new entrants in the Oregon market squid fishery.

Appendices

Appendix A: Market Squid Limited Entry Survey

Market Squid Limited Entry Survey

ODFW is conducting this survey to seek input from you on potentially moving the Oregon Market Squid Fishery to a limited entry fishery. The Oregon Fish and Wildlife Commission (OFWC) directed ODFW to produce an interim report on the potential for moving the Oregon Market Squid Fishery from an open access fishery to a limited entry fishery at its [March 2023 meeting](#). This survey may take approximately 5 minutes to complete and the results from this survey will be part of the interim report for the OFWC.

Definitions:

Open access fishery: allows anyone with an appropriately equipped vessel to enter the fishery and catch market squid and land them in Oregon.

Limited entry fishery: restricts the number of licenses or permits available to participate in the fishery. It is one tool that managers can use to control effort in a fishery.

How does a limited entry fishery work?

Qualification for initial issuance of a license or permit for a limited entry fishery is usually based on historical fishing patterns before a control date. The OFWC set a control date of January 1, 2022, for the market squid purse seine fishery. After initial issuance, licenses or permits typically must be renewed annually, and are usually only available to new entrants by purchasing an existing license or permit from the owner and transferring it to a new vessel or person. Limited entry systems often provide for issuing licenses or permits by lottery or auction if the number existing falls below a threshold due to non-renewal.

BEGIN SURVEY

- 1) How would you describe your interest in the market squid fishery in Oregon? (Please select all that apply.)
 - a. Current/recent harvester
 - b. Potential future harvester
 - c. Current/recent processor
 - d. Potential future processor
 - e. Participant in other fisheries
 - f. Member of the public/interested party

- 2) What fisheries have you participated in during the last 10 years? (Please select all that apply.)
 - a. Market squid fishery in Oregon
 - b. Market squid fishery in California
 - c. Other coastal pelagic species in Oregon
 - d. Other coastal pelagic species fisheries in other states
 - e. Groundfish fisheries in Oregon
 - f. Groundfish fisheries in other states
 - g. Salmon fisheries in Oregon
 - h. Salmon fisheries in other states
 - i. Crab fisheries in Oregon
 - j. Crab fisheries in other states
 - k. Shrimp fisheries in Oregon
 - l. Shrimp fisheries in other states
 - m. Other fisheries in Oregon
 - n. Other fisheries in other states

- 3) What is your current state of residence?
 - a. California

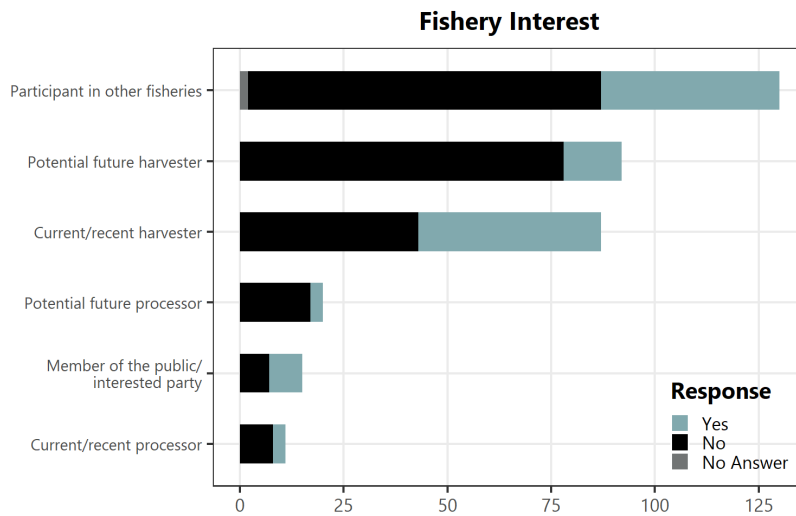
- b. Oregon
 - c. Washington
 - d. Alaska
 - e. Other
- 4) Do you think it is time to move the Oregon market squid fishery to a state limited entry system?
- a. Yes
 - b. No
- 5) Why or why not? Please give your reasons.
- 6) If you think the Oregon market squid fishery should be moved to a limited entry system, how many catcher vessel permits do you think is appropriate?
- a. 2
 - b. 5
 - c. 10
 - d. 15
 - e. 20
 - f. 25
 - g. 30
 - h. 40
- 7) The OFWC set a control date of January 1, 2022 to be utilized if the Oregon market squid fishery were moved to a limited entry system. What should be the qualifying criteria to be issued an initial permit?
- a. Number of years of participation documented by landings before the control date
 - b. Number of landings before the control date
 - c. Total pounds landed before the control date
 - d. Some combination of a, b, and c above
 - e. Other (write in your suggested criteria)
- 8) If the Oregon market squid fishery were moved to a limited entry system should some or all of the permits be transferable?
- a. All permits should be transferable
 - b. Only some permits should be transferable
- 9) What restrictions or requirements should be considered for permit transfer (Please select all that apply)?
- a. None
 - b. Length or size restrictions for the boats permits are transferred
 - c. Landing requirements
- 10) If the Oregon market squid fishery becomes a limited entry system how should new entrants into the fishery be allowed?
- a. Transfer of existing permits
 - b. Lottery for permits if the number of permits falls below a threshold
 - c. Auction for permits if the number of permits falls below a threshold

Appendix B: Market Squid Limited Entry Survey Results

1) How would you describe your interest in the market squid fishery in Oregon? (Please select all that apply.)

Interest	LE	Count
Current/recent harvester	No	43
Current/recent harvester	Yes	44
Potential future harvester	No	78

Potential future harvester	Yes	14
Current/recent processor	No	8
Current/recent processor	Yes	3
Potential future processor	No	17
Potential future processor	Yes	3
Participant in other fisheries	No	85
Participant in other fisheries	No Answer	2
Participant in other fisheries	Yes	43
Member of the public/interested party	No	7
Member of the public/interested party	Yes	8

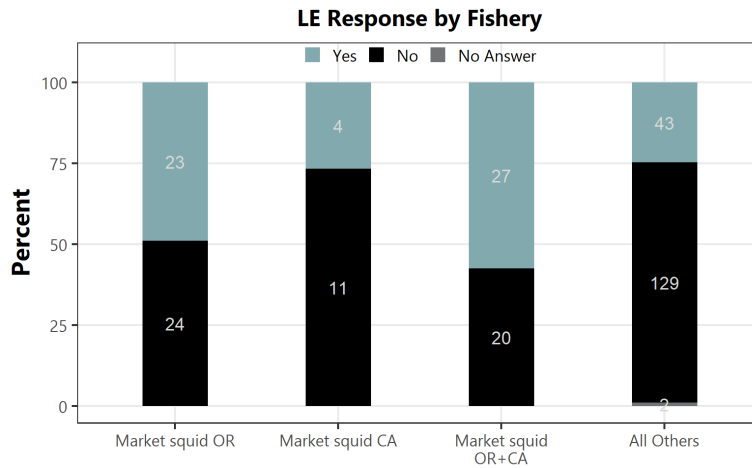


2) What fisheries have you participated in during the last 10 years? (Please select all that apply.)

Fishery participant	Count
Market squid fishery in Oregon	94
Market squid fishery in California	62
Other coastal pelagic species in Oregon	112
Other coastal pelagic species fisheries in other states	69
Groundfish fisheries in Oregon	119
Groundfish fisheries in other states	62
Salmon fisheries in Oregon	133
Salmon fisheries in other states	104

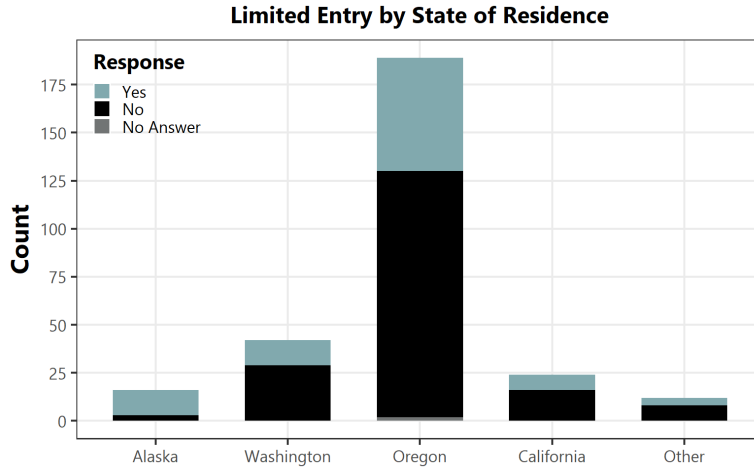
Crab fisheries in Oregon	177
Crab fisheries in other states	94
Shrimp fisheries in Oregon	54
Shrimp fisheries in other states	36
Other fisheries in Oregon	104
Other fisheries in other states	80

Fishery Participant	LE	Count	Percent
Market squid fishery in Oregon	No	24	51.1
Market squid fishery in Oregon	Yes	23	48.9
Market squid fishery in California	No	11	73.3
Market squid fishery in California	Yes	4	26.7
Market squid fishery in OR/CA	No	20	42.6
Market squid fishery in OR/CA	Yes	27	57.4
Other	No	129	74.1
Other	Yes	43	24.7
Other	No Answer	2	1.15



3) What is your current state of residence? (LE response)

- a. California: 24 (Yes: 8 (33.3%); No: 16 (66.7%))
- b. Oregon: 189 (Yes: 59 (31.2%); No: 128 (67.7%); Undecided: 2 (1.1%))
- c. Washington: 42 (Yes: 13 (30.9%); No: 29 (69.0%))
- d. Alaska: 16 (Yes: 13 (81.2%); No: 3 (18.8%))
- e. Other: 12 (Yes: 4 (33.3%); No: 8 (66.7%))

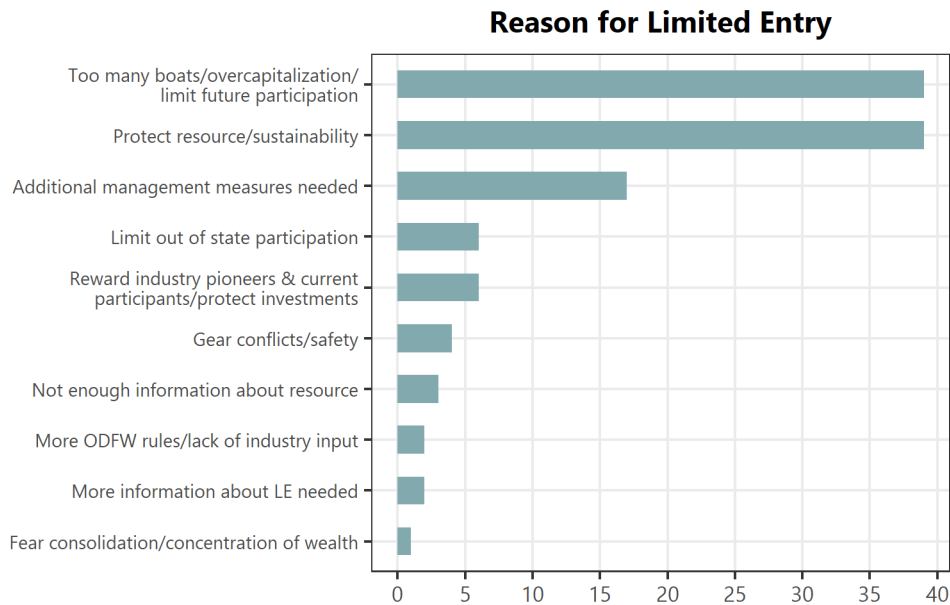


4) Do you think it is time to move the Oregon market squid fishery to a state limited entry system?

- a. Yes: 97 (34.3%)
- b. No: 184 (65.0%)
- c. No answer: 2 (0.7%)

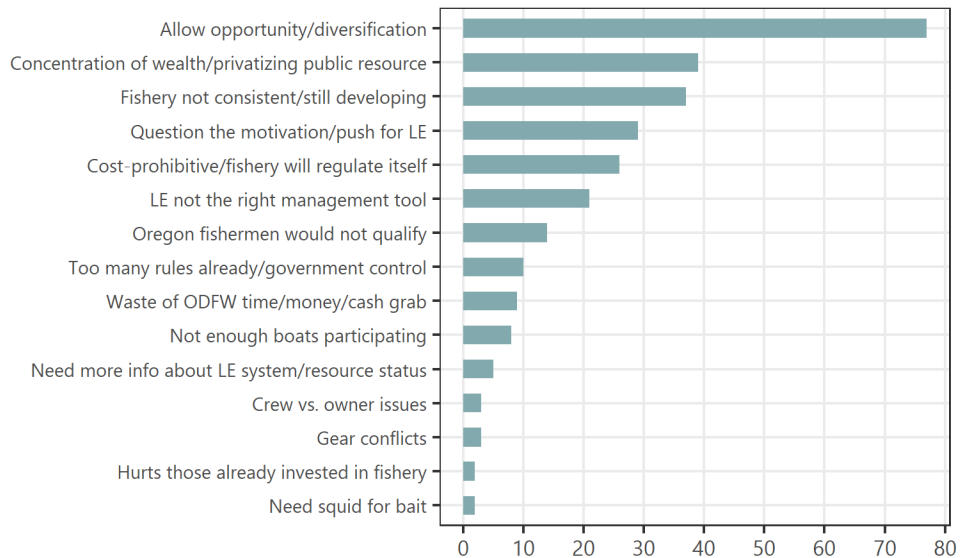
5) Why or why not? Please give your reasons.

Yes / Reason	Count
Too many boats/overcapitalization	39
Protect resource/sustainability	39
Additional management measures needed	17
Reward industry pioneers/current participants/protect investments	6
Limit out of state participation	6
Gear conflicts/safety	4
Not enough information about resource	3
More ODFW rules/lack of industry input	2
More information about LE needed	2
Fear consolidation/concentration of wealth	1



No / Reason	Count
Allow opportunity/diversification	77
Fear consolidation/concentration of wealth/privatization of public resource	39
Fishery not consistent/developing fishery	37
Questioning the motivation/push for LE	29
Cost-prohibitive/economics will regulate the fishery	26
Is LE the right management tool?/LE bad for fishing industry	21
Local fishermen would not qualify/allow options for Oregon fishermen	14
Too many rules already/government control	10
Waste of ODFW time, money/cash grab	9
Not enough boats participating	8
Need more information about LE system/resource status	5
Crew vs. owner issue	3
Gear conflicts	3
Need squid for bait	2
Hurts those that made/are making investments in fishery	2

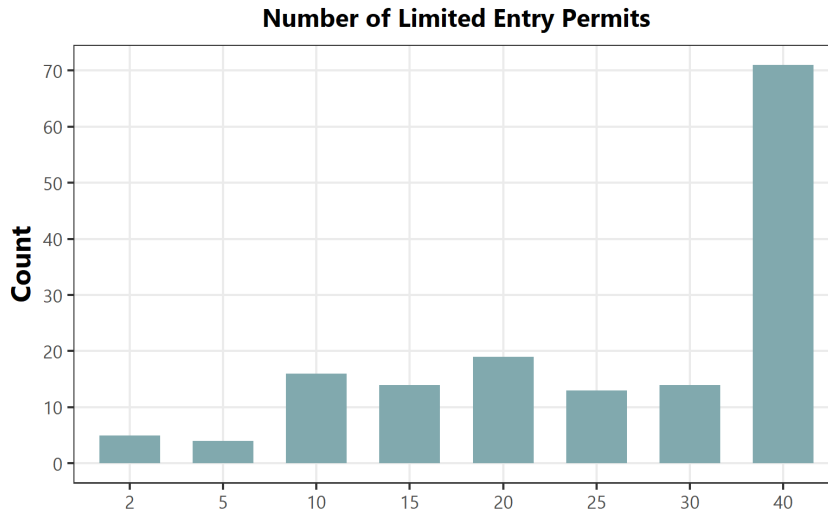
Reason against Limited Entry



No Answer/Undecided: 2 respondents

6) If you think the Oregon market squid fishery should be moved to a limited entry system, how many catcher vessel permits do you think is appropriate? 156 responses 100.2% due to rounding

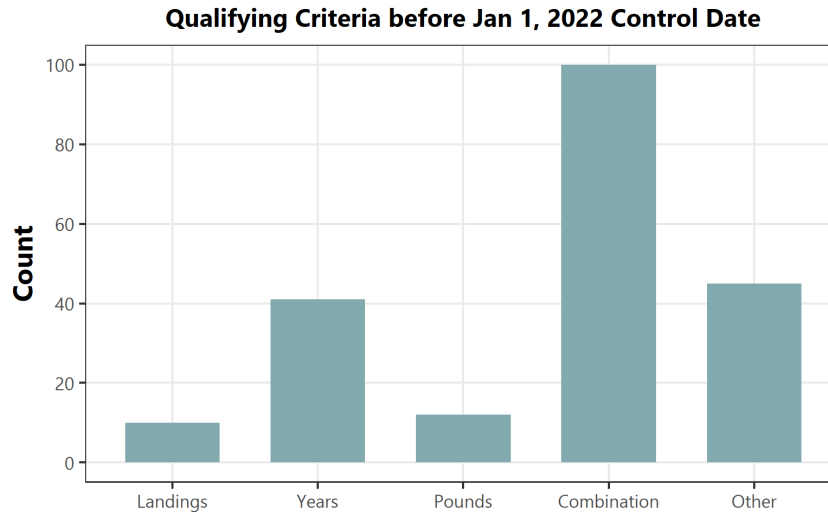
2:	5	(3.2%)
5:	4	(2.7%)
10:	16	(10.3%)
15:	14	(8.97%)
20:	19	(12.2%)
25:	13	(8.3%)
30:	14	(8.97%)
40:	71	(45.5%)
N/A:	127	



7) The OFWC set a control date of January 1, 2022 to be utilized if the Oregon market squid fishery were moved to a limited entry system. What should be the qualifying criteria to be issued an initial permit?

Total: 208

- a. Number of landings before the control date: 10 (4.8%)
- b. Number of years of participation documented by landings before the control date: 41 (19.7%)
- c. Total pounds landed before the control date: 12 (5.76%)
- d. Some combination of a, b, and c above: 100 (48.1%)
- e. Other: 45 (21.6%)



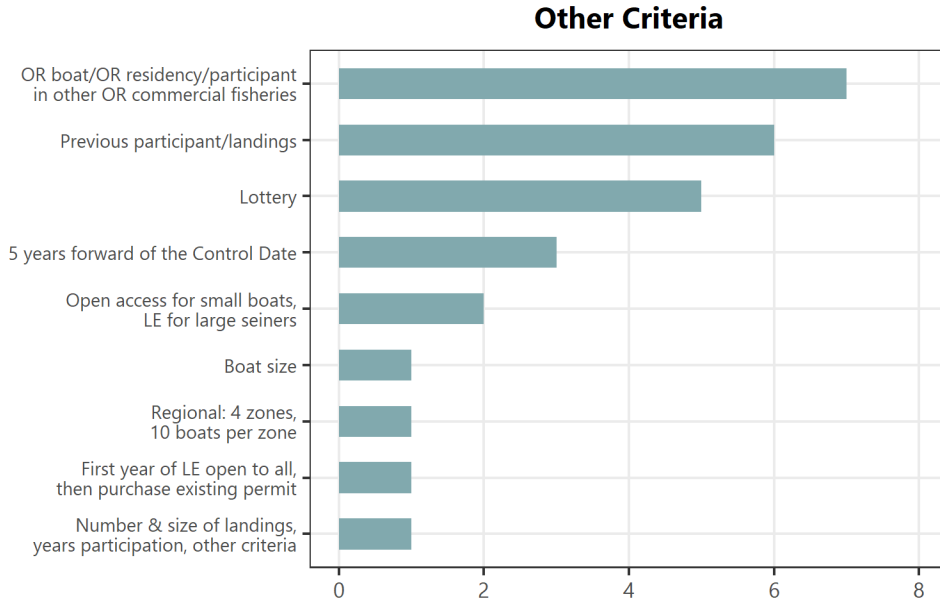
Other criteria

OR boat/OR residency/participant in other OR commercial fisheries
 Previous participant/landings
 Lottery
 5 years forward of the Control Date, not past

Count

7
 6
 5
 3

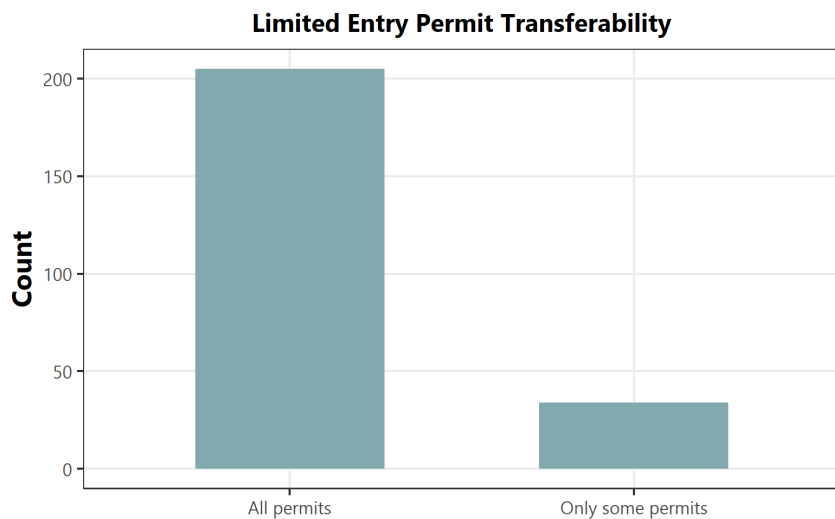
Open access for small boats (jigging/lampara/bait), LE for large seiners	2
Boat size	1
Regional: 4 zones, 10 boats per zone	1
First year of LE open to all vessels, then buy permit from existing permits	1
Number & size of landings/years of participation, plus other criteria	1



8) If the Oregon market squid fishery were moved to a limited entry system should some or all of the permits be transferable?

Total: 239

- a. All permits should be transferable: 205 (85.8 %)
- b. Only some permits should be transferable: 34 (14.2%)

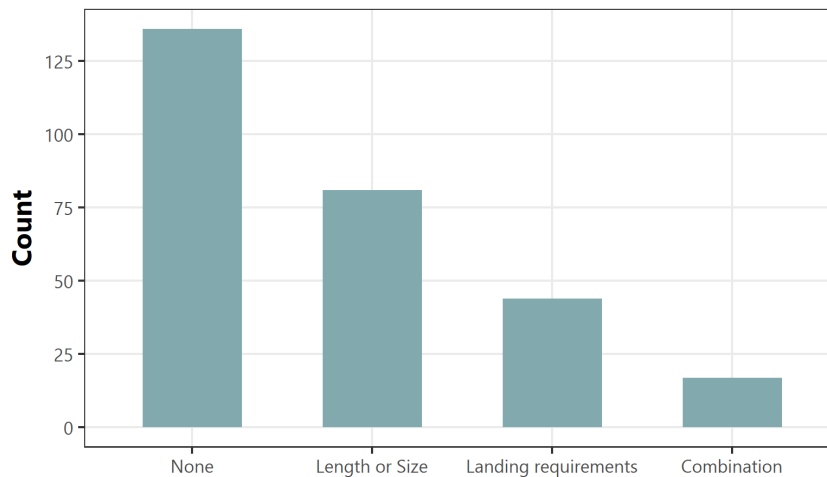


9) What restrictions or requirements should be considered for permit transfer (Please select all that apply)?

Total: 278 (Not including response that combined None/Length or Size)

Restriction	Count	Percentage
a. None	136	(48.9%)
b. Length or Size	81	(29.1%)
c. Landing requirements	44	(15.8%)
d. Combination	17	(6.1%)

Restriction Requirements for Permit Transferability



10) If the Oregon market squid fishery becomes a limited entry system how should new entrants into the fishery be allowed?

Total: 242

- a. Transfer of existing permits: 126 (52%)
- b. Lottery for permits if the number of permits falls below a threshold: 101 (42%)
- c. Auction for permits if the number of permits falls below a threshold: 15 (6%)

Limited Entry New Entrants

