



AGENDA ITEM SUMMARY

BACKGROUND

Market Squid Fishery

The commercial market squid fishery is a relatively new fishery to Oregon, with most landings and activity occurring from 2016-present (Figure 1). From 1980-2015, directed commercial fishing for market squid off Oregon was sporadic and small scale, with landings over that entire period totaling just over 4.5 million pounds. During that period, 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 California market squid, Alaska herring, and Alaska salmon fisheries, as downturns in those fisheries caused seine vessels to seek other opportunities. From 2016-2020, nearly 25.4 million pounds of market squid were landed in Oregon ports, although no directed fishing occurred in 2017. This represents from 3% to 19% of the annual total Oregon and California landings for those years. Little or no directed commercial market squid effort has occurred off Washington to date.

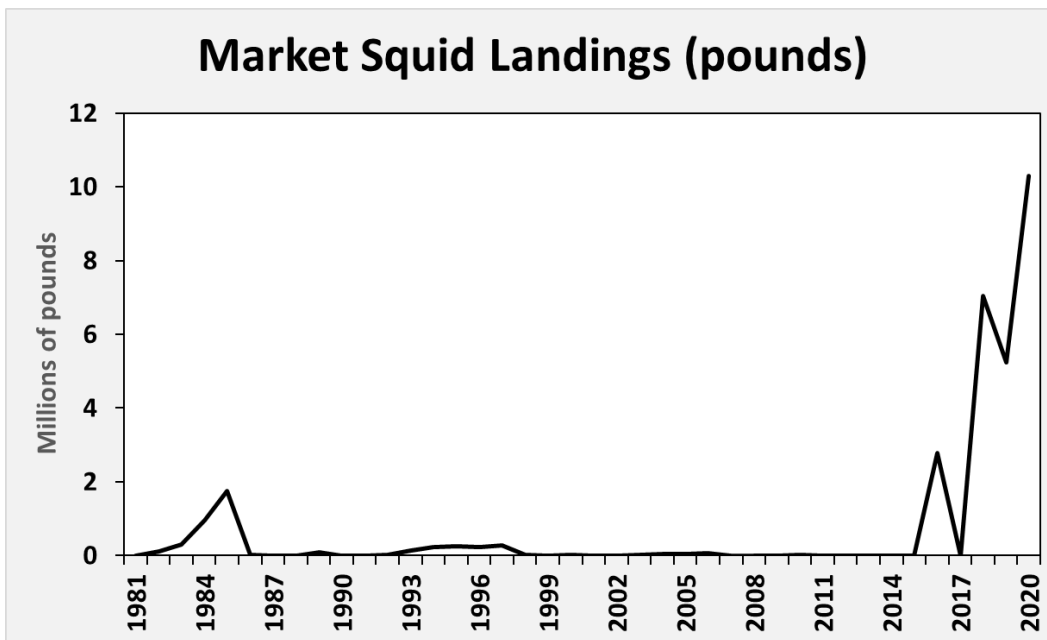


Figure 1. Market squid landings into Oregon ports, Oregon Department of Fish and Wildlife fish receiving tickets data, 1981-2020.

Recent directed effort in Oregon has almost exclusively used purse seines. A purse seine is an encircling net that is set around a school of squid, and the bottom of the net is closed or “purse” using a purse line running through metal rings at or near the bottom of the net. Once the net is closed with squid entrained, the net is brought alongside the catching vessel and squid are transferred from the net, which remains in the water, into the vessel hold using a hydraulic pump. 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.

The market squid fishery is unique among Oregon fisheries in the use of independent light boats. Light boats do not typically catch or land squid themselves, but use powerful lights to attract squid for capture by purse seine vessels. Under current Oregon regulations, independent light boats are treated as fishing vessels in that they are also required to have a commercial fishing boat license, and all crew members must have either a crew member license or individual commercial fishing license.

Current management of the market squid fishery is primarily governed by general regulations for commercial fishing. ODFW maintains a “Frequently Asked Questions” document which describes the requirements in detail (Attachment 4). Take of groundfish, salmon, halibut and crab with purse seine, brail net, or dip net is prohibited. Take of squid is prohibited in Marine Reserves and take of squid or use of common squid fishing gears such as purse seine is prohibited in some Marine Protected Areas. Oregon rules contain a market squid Harvest Guideline (HG) regulation (OAR 635-005-0925) that requires that ODFW hold a public hearing to evaluate the fishery when Oregon harvest approaches 4.5 million pounds (whole Oregon coast) or 3 million pounds either north or south of Heceta Head. No other management response is required by the current HG rule.

In 2016, anticipating that the decline of the sardine population and subsequent directed fishery closure may shift purse seine effort to other Coastal Pelagic Species (CPS), the Commission extended a number of regulations specific to the sardine fishery at the time to apply all commercial CPS fisheries, including the market squid fishery. These amendments:

- 1) Prohibited reduction fisheries (e.g., fish meal or fertilizer) for CPS by making it unlawful to convert more than 10% of CPS landings to products for purposes other than human consumption or fishing bait;
- 2) Required that every effort be made to dipnet groundfish and salmon out of the seine net before they go through a pump system, and return them immediately to the water; and
- 3) Allowed a CPS catching vessel to pump up to 20% of each landing from the pursed seine of another CPS catching vessel. This rule allows catching vessels to more fully utilize already-pursed catch, reducing the number of total fishing sets that are made.

Several issues specific to the market squid fishery have arisen with its rapid development and are not addressed by current management measures. These include sustainability of the market squid stock with increasing harvest levels, bycatch of non-target and prohibited species, interactions with Dungeness crab gear, and use of light boats. Staff is proposing regulatory changes to address these issues and to provide clarification for enforcement purposes.

Market Squid Biology

Market squid are short lived with a life cycle of less than one year. They 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. Females may engage in a number of these spawning aggregations, but have a fixed reproductive output related to their size and may die before all of their eggs are deposited. The eggs hatch in about 3 to 8 weeks into what are called 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. Adults migrate back to the shallow nearshore water for spawning.

A recent analysis of fishery-independent surveys conducted by National Marine Fisheries Service (NMFS) from 1998 through 2019 found that the market squid resource off Oregon has increased during that period. Recent analysis by NMFS has found that the large shifts in squid distribution were associated with marine heatwaves, adding another example of the spatiotemporal response of marine resources to both long-term trends in ocean warming and episodic events. These conclusions are consistent with the pattern of increased market squid catches in Oregon, which have usually occurred with warm water events like large El Niños in the past and the recent marine heatwaves.

PUBLIC INVOLVEMENT

Oregon's market squid HG rule requires that ODFW hold a public meeting to evaluate the fishery when the HG is approached. This occurred in 2016 and in each year from 2018-2020. The public meetings were attended by squid fishers, processors and buyers, commercial fishers that participate in other fisheries that interact with the squid fishery, and representatives of environmental non-governmental organizations. All of the management measures addressed in this exhibit were discussed in these meetings and input received informed development of the regulations being recommended by staff.

In December 2020, ODFW sent an online survey to fishery participants to obtain more targeted and detailed input on particular aspects of the potential regulations (Attachment 5). This survey was used to further develop staff recommendations and also provided early notice that staff would be proposing regulations to the Commission.

ISSUE 1

Commercial Market Squid Management Measures

ANALYSIS

Weekly Fishery Closure

Staff recommends closing commercial fishing for market squid for 48 consecutive hours each week to allow periods of undisturbed spawning activity. The closure would apply to purse seine, trawl, and brail gears, and prohibit attracting market squid by light during the closure period.

Market squid are targeted by the commercial fishery when they concentrate in shallow water spawning areas, primarily from April through June in Oregon. Market squid move to spawning areas in multiple pulses, and the fleet is extremely efficient at finding and

capturing spawning aggregations. As these pulses of market squid move into shallow waters, the fleet is capable of taking a very high proportion of the biomass in these areas within a matter of days when weather is favorable for fishing.

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 1 year) as long as sufficient successful spawning occurs. However, robust scientific information on sustainable harvest levels is lacking. In 2002, the Pacific Fishery Management Council adopted an “egg escapement” goal of 30%, i.e., management should ensure that at least 30% of the population’s potential egg production is conserved. A sustainable level of egg escapement can be interpreted as a level of reproductive escapement (from fishing) that is believed to be 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; this level was also intended to recognize the important role of market squid as a forage species.

While ODFW does not collect information to directly estimate egg escapement, prohibiting fishing for two days per week should protect spawning populations about 29% of the time, very near the 30% egg escapement metric. Purse seines used in the market squid fishery commonly disturb the bottom, and thus market squid eggs deposited there. In addition to protecting the adult spawning squid, weekly closures will also reduce the disturbance of squid eggs.

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. While periodic closures are not universally supported by participants, a number have advocated for them. The primary argument against periodic closures has been that variable weather conditions off Oregon already create breaks in fishing effort that offer some temporal protection for spawning market squid, and that the same variability in weather could constrain fishing more than intended, e.g. if favorable weather conditions align with closed periods over a period of weeks. Staff sought focused input on periodic closures in the December industry survey by asking about preferences for the day of week and time of day that a closure should begin. Respondents slightly favored weekend closures over weekday closures and most did not express any preference for time of day. While the survey did not directly ask about support for periodic closures, an open-ended question about other preferences for closures was included. Responses included advocacy for longer closures (e.g., three days per week, one week per month), including light boats in the closure, and weekend closures to reduce overlap with recreational ocean fishing. There were no comments stating general opposition to periodic closures.

ODFW consulted with Oregon State Police (OSP) regarding potential enforcement issues with closure timing. OSP does not have a strong preference regarding days of the week but preferred a daylight starting time for a closure.

California regulations for the commercial market squid fishery include a statewide weekend closure from noon Friday through noon Sunday, for reasons similar to the staff recommendation here. Per California’s Final Market Squid Fishery Management Plan (2005), the closure is intended to provide two days of uninterrupted spawning in areas where squid are being harvested, which spreads spawning escapement throughout year

rather than concentrating it during a particular period, as would be the case under a seasonal closure for example. Alleviating conflicts with other user groups (e.g., divers, recreational vessels) is also cited as a reason for the weekend closures.

Staff recommends closing the commercial market squid fishery by prohibiting commercial take of market squid using purse seine net, dipnet, and trawl gear, including use of lights to attract market squid, from 12:01 pm Friday through 11:59 am Sunday weekly throughout the year.

Rib Line Requirement

Purse seines are constructed such that there is a floated line at the surface and weighted “lead line” at the bottom with variable sized webbing between. The purse line, used to close the bottom of the net, typically runs through steel rings attached at or near the lead line. However, this purse line can also be attached some distance above the lead line, in which case it is termed a “rib line”.

As described above, purse seine nets used in the market squid fishery are commonly deep enough to touch bottom on the relatively shallow market squid fishing grounds. This can result in habitat disturbance, market squid egg disturbance, interactions with Dungeness crab fishing gear, and bycatch of benthic organisms, in particular juvenile Dungeness crab which are a prohibited species in squid and other CPS fisheries. Fish dealers are required to sort and report the weight of bycatch species on fish tickets, and this data shows that from 2016-2020, at least 39% of purse seine market squid landings reported some Dungeness crab bycatch, ranging from 0-454 pounds per landing (averaging 24 pounds).

Use of a rib line can reduce bottom impacts by reducing the propensity of the net to dig into the bottom, and instead let the loose netting below the rib line brush over the bottom and benthic organisms or objects in its path. As described by fishery participants, a net pursed on the lead line will tend to form a “scoop” at the bottom, while a net pursed above the lead line will tend to form a “skirt” at the bottom. Anecdotal reports from participants and enforcement indicate that rib lines are highly effective in reducing benthic impacts and bycatch of benthic species. Most vessels that have participated in the Oregon market squid fishery to date have installed rib lines voluntarily because reducing bycatch means less sorting is needed and reduces the potential for enforcement actions related to bycatch of prohibited species.

Fishery participants have advocated for a rib line requirement during public hearings and in discussions with ODFW staff. Support for a rib line requirement among fishery participants appears to be nearly universal, with little to no stated opposition. ODFW addressed rib lines in the December 2020 industry survey with a question about how far above the lead line a rib line should be. Answers were variable, with all but one response indicating 18 inches or greater. Therefore, staff recommend adopting a requirement that purse seine nets used in the market squid fishery have and use a rib line installed at least 18 inches above the lead line.

Based on survey responses and discussions with fishery participants, staff believe that most vessels that have participated in the Oregon fishery will be able to meet this requirement with little or no modification to their nets. New participants may not have rib lines installed, and staff recommend that this requirement become effective two weeks after Commission adoption to allow vessels time to modify their nets.

Light Boat Logbook Requirement

Since light boats do not land market squid for commercial purposes, and the commercial fishing licenses required for light boat operation are not fishery specific, there is currently no way to record their participation in the fishery. In order to track light boat effort, staff recommend adopting a logbook requirement for any vessel using lights to attract squid for commercial purposes. This information will be important for interpreting patterns of effort and catch in the fishery, and for consideration of future management measures. Participants may need some time to obtain a light boat logbook, and staff recommends that this requirement become effective two weeks after Commission adoption.

Definition of Take

The current definition of take is to “fish for, hunt, pursue, catch, capture or kill or attempt to fish for, hunt, pursue, catch, capture or kill” (ORS 506.006; OAR 635-005-0240(38)), OSP has recommended explicitly clarifying that this definition includes the use of light boats to attract fish or shellfish for commercial purposes. Therefore, staff recommend adopting an addition to the definition of take, specific to squid fisheries, that includes attracting any squid by light.

Definition of Purse Seine

In the development of this package, staff recognized that the current definition of a purse seine may not adequately describe the gear that is used in Oregon’s ocean seine fisheries. The current definition refers to a purse line threaded through the bottom of the net, while purse seines used in ocean fisheries use a purse line threaded through steel rings. The current definition is also inconsistent with the federal regulatory definition of a purse seine. Staff recommend amending the definition of purse seine as applicable to ocean food fish and shellfish fisheries (OAR Divisions 004 and 005, respectively) to be consistent with federal regulation language and more accurately describe the gear in use.

Cascade Head South Marine Protected Area Prohibition

The Cascade Head South Marine Protected Area (CHSMPA) uniquely prohibits take of any fish species (defined to include any animal over which the Commission has jurisdiction) using any type of net gear. No other Marine Reserve or Marine Protected Area includes this specific prohibition. During the 2020 market squid fishery, OSP and ODFW received inquiries about the legality of using light boats within the CHSMPA to draw squid outside the boundaries to be taken by purse seine nets. ODFW believes this activity violates the intent of the CHSMPA prohibition on take by net gear, but recommends that current regulations be modified to make this more explicitly clear. Staff recommend amending regulations to both define take to include attracting squid by light for Marine Reserves and Marine Protected Areas in the Territorial Sea (OAR Division 12) and to prohibit the use of any appliance or device (including lights) to attract or aggregate any fish species within the CHSMPA boundaries for eventual take by net gear outside the boundaries. While ODFW is unaware of any other fisheries that have attempted or would attempt a similar strategy, the rationale to apply this regulation to all fish species is the same as for the squid fishery, in that ODFW believes that such activity violates the intent of the prohibition on take by net gears.

OPTIONS

1. Summary of staff recommendations, as reflected in draft OAR's (Attachment 3):
 - Prohibit commercial take of market squid using purse seine net, dipnet, and trawl gear, including use of lights to attract market squid, from 12:01 pm Friday through 11:59 am Sunday weekly throughout the year;
 - Require that purse seine nets used in the market squid fishery have and use a rib line installed at least 18 inches above the lead line;
 - Require a logbook for any vessel using lights to attract market squid for commercial purposes;
 - Adopt an addition to the definition of take, specific to squid fisheries, that includes attracting any squid by light;
 - Amend the definition of purse seine as applicable to ocean food fish and shellfish fisheries;
 - Define take to include attracting squid by light for Marine Reserves and Marine Protected Areas in the Territorial Sea; and
 - Prohibit the use of any appliance or device to attract or aggregate any fish species within the CHSMPA boundaries for eventual take by net gear outside the boundaries.
2. Modify staff recommendation for one or more items
3. Status quo

STAFF RECOMMENDATION

1. Option 1.

DRAFT MOTION

I move to amend OAR 635 Divisions 004, 005 and 012 as proposed by staff in Attachment 3.

EFFECTIVE DATE: Upon filing