



Exhibit D


Commercial Market Squid

Oregon Fish and Wildlife Commission
March 17, 2023
Greg Krutzikowsky, Marine Resources Program

Photo by Heather Van Meter, OSP





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Outline

- **Background**
 - Biology and ecology
 - Fishery and management
 - Fishery update
- **Examination of light boat prohibition**
 - Survey of catcher vessels
 - Survey of interested parties
- **Commission action options**



*By Unknown author - NOAA FishWatch, Public Domain,
<https://commons.wikimedia.org/w/index.php?curid=22537248>*



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Biology and Ecology

- **Single species – *Doryteuthis (Loligo) opalescens***
- **Short lived**
 - Less than 1 year
 - Average age at harvest is 6 months (in CA)
- **Spawning occurs at end of lifespan**
 - Females may spawn multiple times during single spawning event
- **Shallow water mating/spawning aggregations**
 - Concentrated in spring and fall off Oregon
- **Eggs deposited on sandy bottom**
- **Hatch in 3-8 weeks**
- **Move to deeper water off continental shelf as they grow and mature**

Market squid egg cases

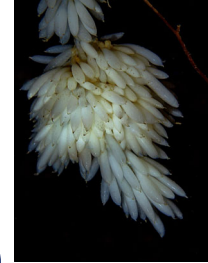


Photo by Greg Amptman (unaltered) [Creative Commons Attribution 4.0 International](#)



Marine Heatwaves in the Pacific

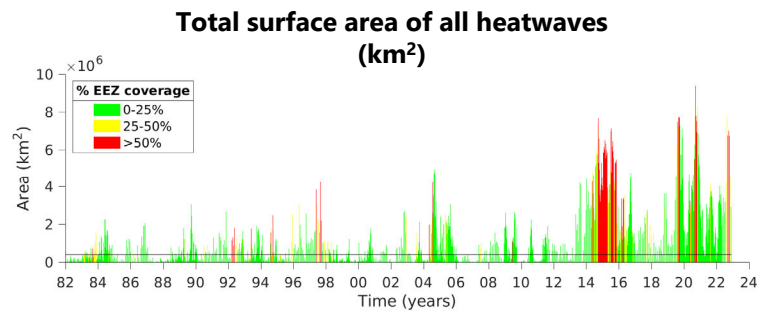
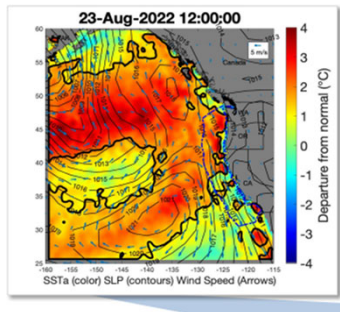


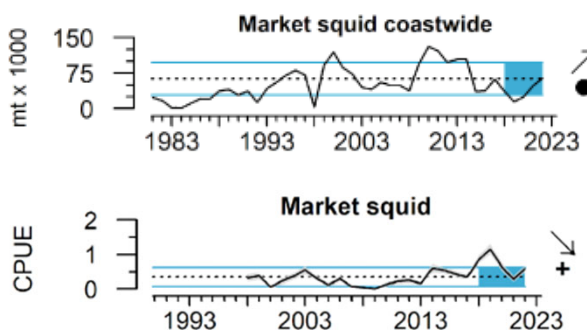
Figure source NOAA <https://www.integratedecosystemassessment.noaa.gov/regions/california-current/california-current-marine-heatwave-tracker-blobtracker>





Market Squid, Climate and Ocean Change

- **Part of forage base for many species of fish, marine mammals, and seabirds**
 - No known market squid specialists
- **“Boom and bust” population cycles**
- **Affected by El Niño/La Niña**
 - More productive in northern areas during El Niño
- **Recent increase off Oregon related to Marine Heat Wave (Chasco et al. 2022)**



Figures adapted from PFMC [Integrated Ecosystem Assessment Team Report 1 – Ecosystem Status Report, March 2023](#)



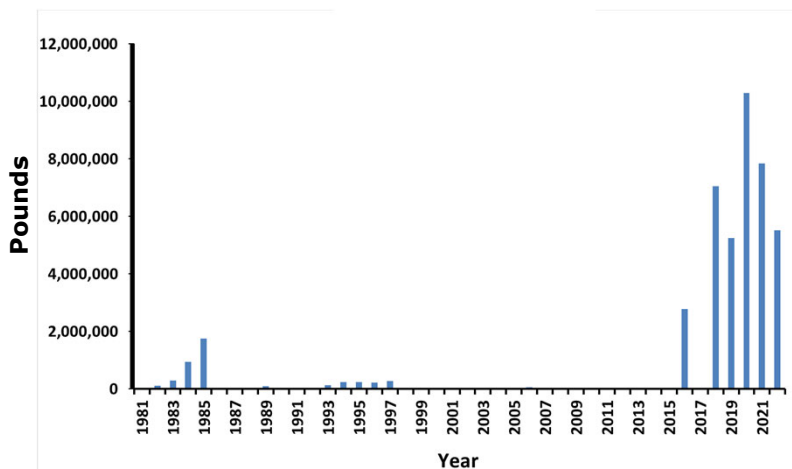
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Oregon Commercial Fishery

Market Squid Landed in Oregon By Year



- Landings go back to the 1980s
- Fishery most active since 2016
- Landings in 2022 were 4th highest on record
- Most fishing off the central coast
- Landings from March through October in recent years



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Current Oregon Fishery Management

- Open access with commercial licenses
- Harvest Guideline
- Market squid advisory panel
- Two day per week closure
- Closed areas
- Gear regulations
- No reduction fishery
- Logbook
- Bycatch limits (sardine, smelt)
- Prohibited species handling requirements



Frequently Asked Questions Commercial Market Squid

Market Economics Program
Oregon Department of Fish and Wildlife
2502 15 Marine Center Drive
Newport, OR 97158
www.oregon.gov/odfw

February 22, 2023

What's required to fish for market squid off Oregon?

- To fish in state waters (inside 3 nautical miles) or to land squid in the state, Oregon commercial licenses, including for the boat, skipper and crew, are required for:
 - Any vessel fishing for squid, including a skiff used with purse seine gear.
 - Any vessel participating in the fishery by "lighting" for squid.
 - Vessels must have a state registration or federal documentation number to obtain an Oregon commercial boat license.
- The skipper must complete and submit a logbook, according to the instructions in the logbook. A seine logbook is required for vessels using purse seine or lampara net. A light boat and trawl logbook is required for any vessel that attracts squid by light for a separate catcher vessel or takes squid by brailing. Vessels that hold spots for day sets are also asked to submit a logbook.
 - Seine logbooks are preprinted and may be requested from ODFW offices in Astoria, Newport, Charleston, or Brookings (phone numbers below). If using a light boat, please record the name of the light boat in the comments section for each set where one was used.
 - Light boat and trawl logbooks are not preprinted, but can be downloaded to print here: https://www.oregon.gov/odfw/regulations/commercial_fishing/index.asp, or printouts can be requested from ODFW by calling the Newport office.
- A commercial vessel may pump market squid onboard directly from the pursued seine of another vessel provided these squid make up no more than 20% of each landing of the receiving vessel, and the vessel receiving squid:
 - Has fished purse seine gear during the current year and pumped resultant catch onboard the same vessel for delivery in Oregon; and
 - Has legal seine gear onboard, in good working order; and
 - Documents the vessel that made the set, any other vessel pumping squid from the pursued seine, and documents catch and location in the ODFW logbook.
- No more than 10% of a squid landing may go toward reduction (e.g., fish meal, fertilizer, etc.)

When is the market squid fishery open?

- Squid fishing is open year-round in Oregon
- The fishery is **closed** to purse seine (including lampara nets), trawl, and brail net gear from **noon Friday through noon Sunday** each week. This closure includes attracting squid by light, for both independent light boats and catcher vessels.

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Commission Directed Staff to Examine Prohibiting Light Boats

- Light is used in many squid fisheries worldwide
- Light boats have been used in the CA market squid fishery for more than 100 years
- Light boat use poses no known concerns for the market squid resource
- Light boat use in OR (~4-6 boats/year) has posed concerns among some fishery participants



Picture of two light boats and a purse seine vessel. Photo CDFW



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ODFW Conducted Surveys on Light Boat Use

Light boats are a vessel, other than a seiner's skiff, equipped with lights to attract squid so that another boat or boats can deploy seine nets to catch squid attracted by the light

Survey for catcher vessels that have participated in the fishery since 2016

- Mailed survey to 57 vessels -- 31 responded (54%)

Online survey open to all interested parties

- 453 responses



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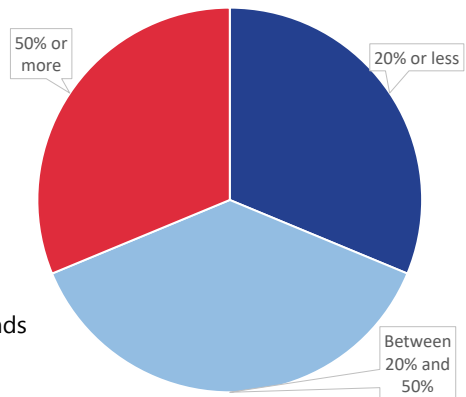
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Catcher Vessel Responses

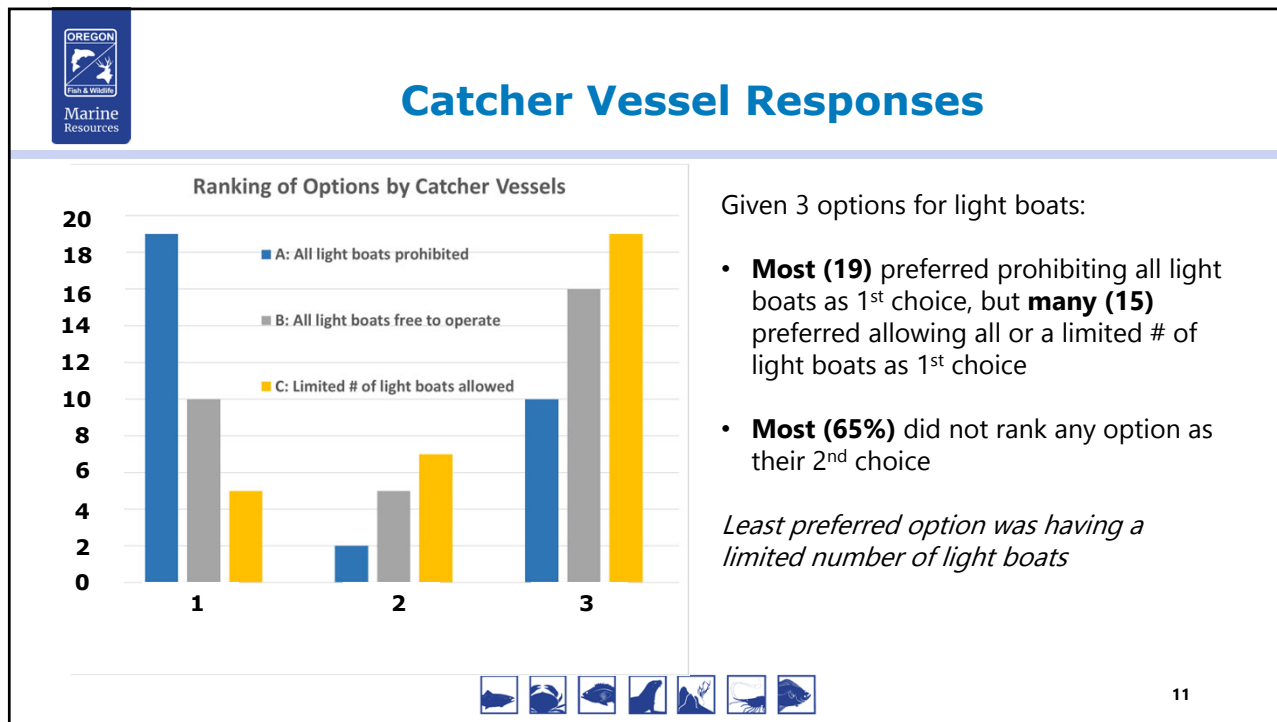
- 61% used a light boat (19 of 31)
- 16 of 31 provided estimates of their catch when using a light boat (0 – 80% of a vessel's catch)
 - 5 estimated 20% or less
 - 5 estimated 50% or more
 - 6 estimated between 20 and 50%
 - Some estimates were year specific and varied among years
- 6 light boat log books from 2022 indicate they assisted 9 of 25 catcher vessels (36%) in catching approximately 1.7 million pounds (31% of 2022 total catch)

Estimated Portion of Catch from Using Light Boat

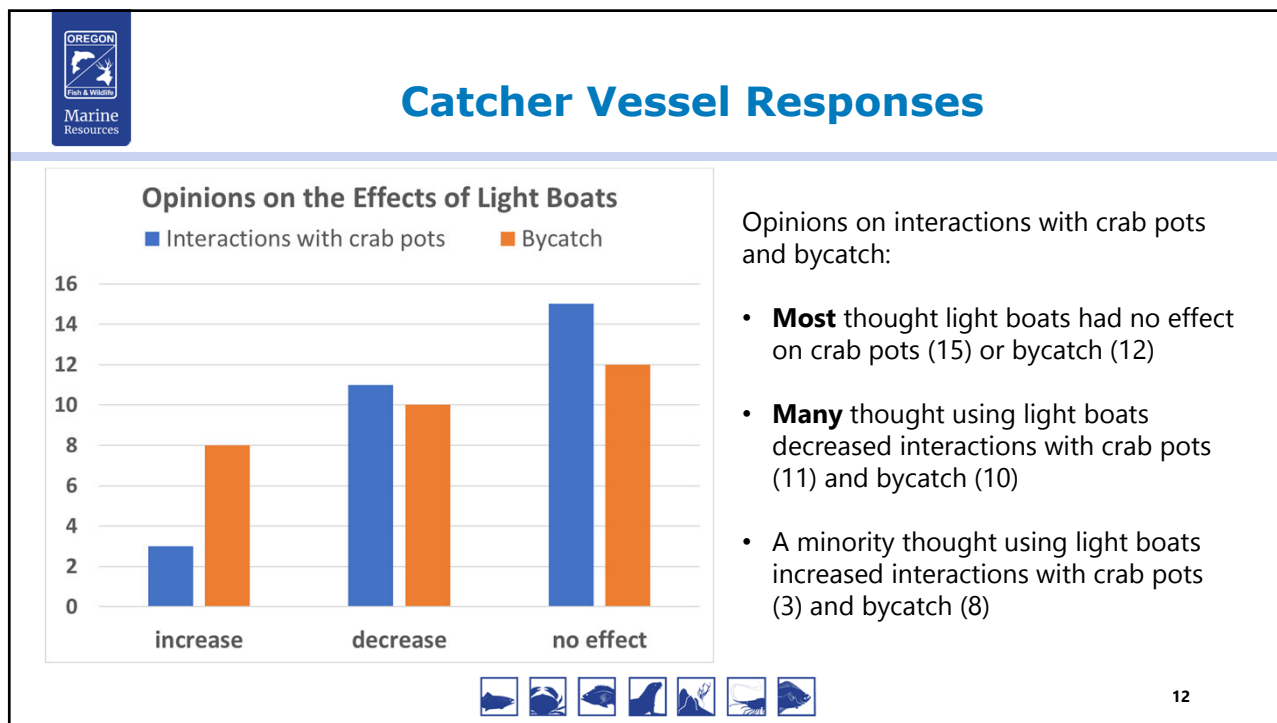


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Catcher Vessel Responses

Asked for any other comments on the use and management of light boats in the Oregon market squid fishery:

- 17 of the 31 (55%) provided comments
- Received a wide variety of comments both on the use of light boats and other aspects of management of the fishery



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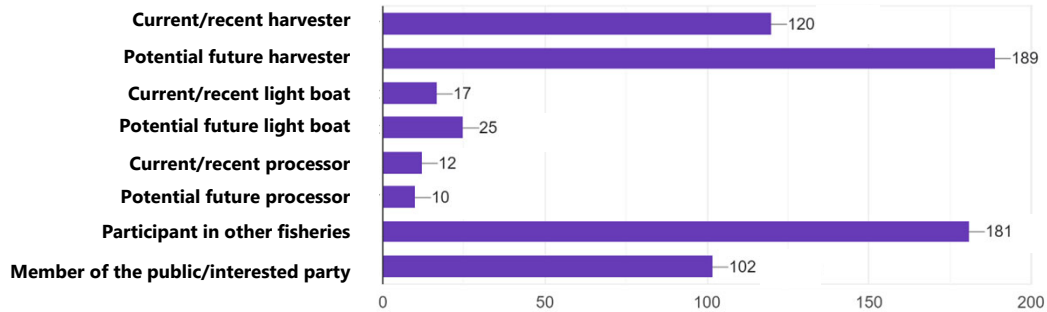
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Online Survey Responses

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

449 respondents provided 656 responses



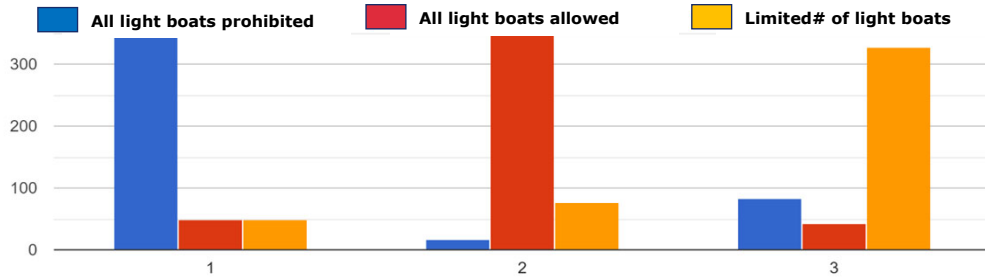
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Online Survey Responses

3) Please rank the following options in order of your preference, with 1 being most preferred and 3 being least preferred:



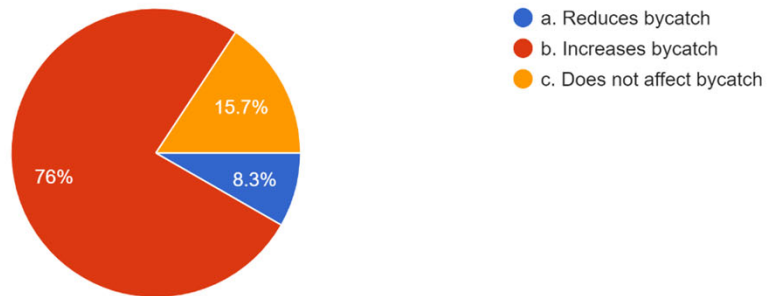
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Online Survey Responses

4) In my opinion the use of light boats (check one):
446 responses



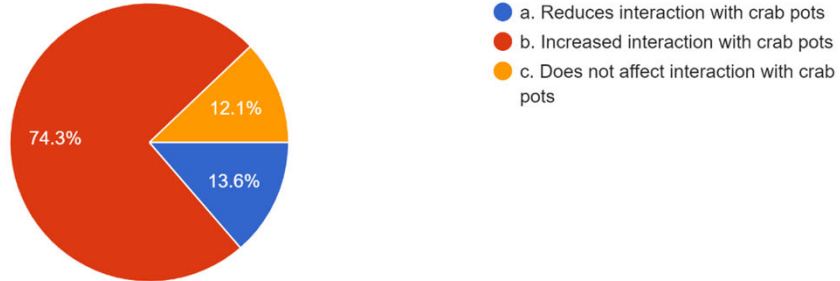
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Online Survey Responses

5) In my opinion the use of light boats (check one)
447 responses



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Seine Skiffs

Seine skiffs are used to help set purse seine nets around schools of coastal pelagic species

Seine skiffs need commercial fishing boat license



Photo: Greg Krutzikowsky

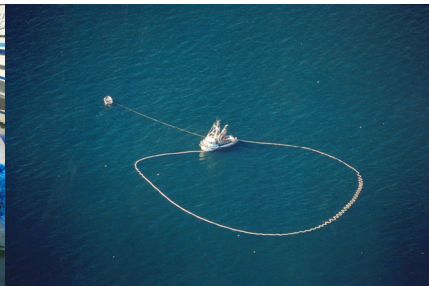


Photo: ODFW



Photo: Heather Van Meter, OSP



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Options and Staff Recommendations

Staff found strong opinions both for and against the use of light boats in the squid fishery.

- No staff recommendation on light boat prohibition.
- Staff recommend adopting the definition of seine skiff

Commission actions could include any of the following management measures:

- 1) Adopt amendments to OAR 635 Division 004 and 005 as presented
- 2) Revise presented OARs to allow limited # of light boats
- 3) Adopt definition of seine skiffs but not the prohibition of light boats
- 4) Status quo



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Draft Motion

DRAFT MOTION (CONSISTENT WITH OPTION 1)

I move to amend OAR 635 Division 004 and 005 to adopt the fishery management measures as proposed in Attachment 3.



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Questions?



Photo by Heather VanMeter, OSP



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