



Marine
Resources

Oregon Dungeness Crab & Whale Entanglement



Photo by Greg Krutzikowsky, ODFW



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Ocean Commercial Dungeness Crab Fishery

- Most valuable single-species commercial fishery in Oregon
- 3-S management system – size, sex, season
- Limited entry and pot limit systems
- State-managed
 - ODFW is lead agency
 - Governed by a series of OARs and ORSs
- Tri-State coordination

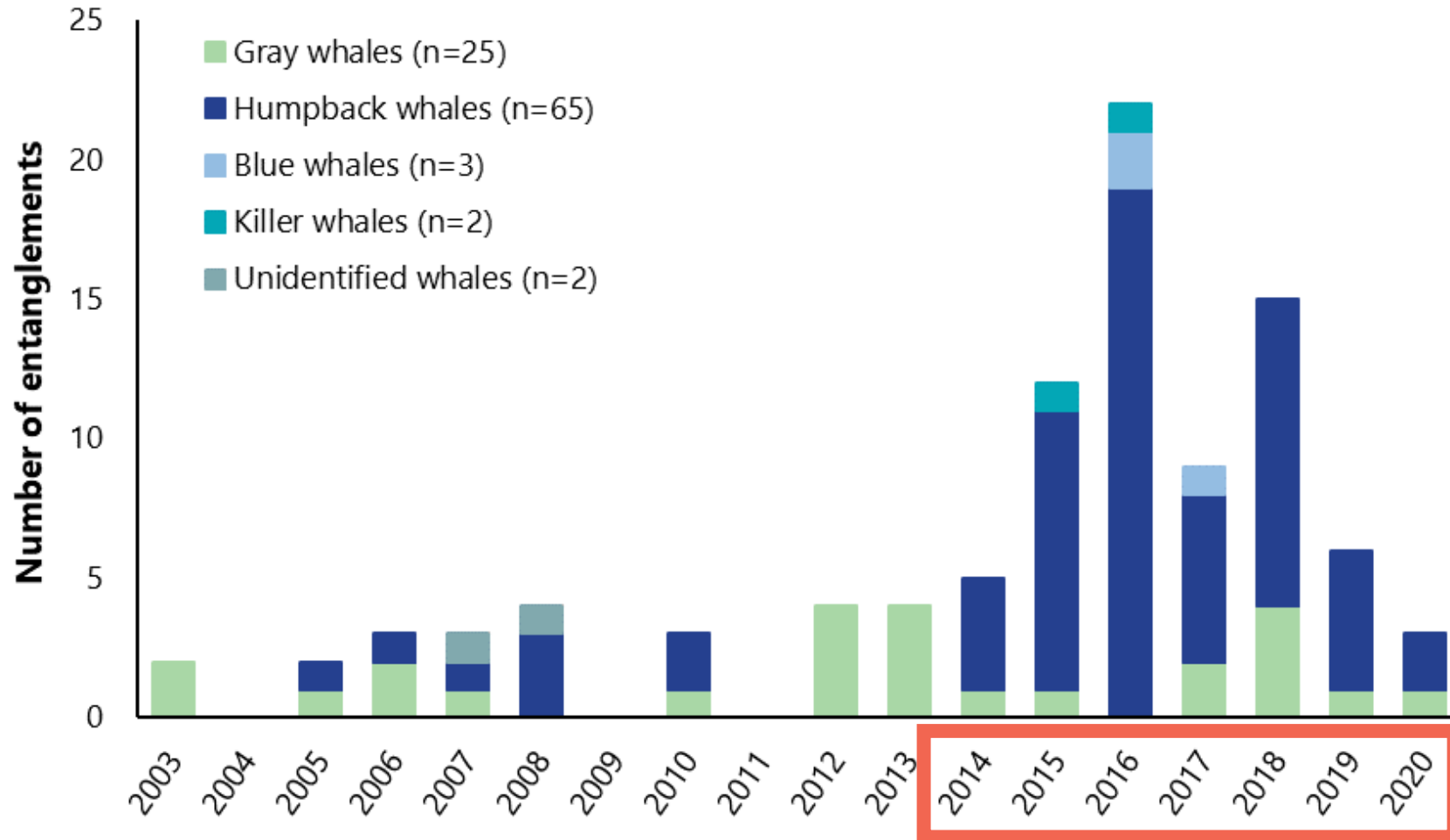


Photo by Greg Krutzikowsky, ODFW



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Whale Entanglements in West Coast Crab Gear



- Increase in reports since 2014
- Driven largely by humpback whales
- Appearance of blue and transient killer whale entanglements
- Quality of data and reporting is improving



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Why Have Entanglements Increased?

- Public awareness and reporting
- Increasing whale population
- Cascade of ocean changes since 2014
 - Prey distribution and abundance shifts
 - Humpback foraging locations
 - Crab distribution shifts, biotoxin load
 - Fishery effort shifts

Co-occurrence
of humpbacks & fishery
in space & time



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Oregon Management Strategy

Goal 1

Reduce risk of future entanglements

- Reduce co-occurrence (in time and space) of whales and crab gear
- Reduce the number of vertical lines in the water
- Improve gear configuration and design
- Implement adaptive management

Goal 2

Ensure management is well-informed by science and strategic

- Enhance gear marking to improve identification
- Improve collection of real-time harvest information
- Fill critical management information and research gaps



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Oregon Whale Entanglement Working Group (OWEWG)

- Requested by Oregon fishers and convened by Oregon Sea Grant in May 2017
- Representatives include:
 - Commercial fixed gear fishers
 - A recreational crabber
 - A whale disentanglement specialist
 - A fishing gear expert
 - An OSU marine mammal expert
 - Non-governmental organizations
 - The Oregon Dungeness Crab Commission (ODCC)
 - ODFW staff
- Industry survey and preliminary recommendations
- Best Fishing Practices directive
- Oregon whale surveys and co-occurrence modeling

Oregon Commercial Dungeness Crab Fishing Directive to Minimize Whale Entanglement Risk

Recommended by the Oregon Whale Entanglement Working Group
Last Updated Fall 2018



Reasons for Directives

National Marine Fisheries Service has confirmed significant increases in large whale entanglements starting in 2014, and specifically in Dungeness crab fishing gear. This situation threatens the stability of the fishery and coastal fishing communities. By using these voluntary best practices, the Oregon Dungeness crab fleet can take an important step towards reducing the risk of whale entanglements.

The best known way to reduce risk of whale entanglement is to reduce the amount of gear and line in the water during the spring and summer months, when threatened whales are in the area.

Best Practices During Crab Season

- Use the minimum amount of scope required to compensate for tides, currents and weather. Whales are more likely to become entangled with slack lines, which can potentially create a "floating snare".
- When changing set location across depths, adjust the length of pot lines by adjusting shots (i.e., measured length of line) to maintain taut vertical lines.
- No excess lines should be floating at the surface. Floating line should only be between the main buoy and trailer buoy(s).
- Remove any fishing gear you are not actively tending during the season.
- Avoid setting gear in the vicinity of large feeding aggregations of whales, especially humpback whales, whenever possible.
- Communicate the locations of unusually high whale activity to other fishermen.



Keep line between pot and main buoy running taut and as vertical as possible.

Why Report?

Understanding where, when, and how entanglements occur is essential to prevent future entanglements. Timely reporting is critical to facilitate response efforts, when appropriate.

Report Entangled Whales

1-877-SOS-WHALE



Report entangled whales **IMMEDIATELY** to the NIMFS whale entanglement response hotline at 1-877-SOS-WHALE (1-877-767-9425) or hail the U.S. Coast Guard on Channel 16. If possible, stand by.

Photograph Entangled Whales

WHALE: side view of dorsal fin (or hump); tail flukes (especially if underside is raised); head; any part of the body where gear may be present.

ENTANGLEMENT: buoy(s); tags; lines on the body; trailing lines (including distance from whale); netting (if present); any other gear if present. Do not approach within 100 yards.

Respond Promptly if Contacted

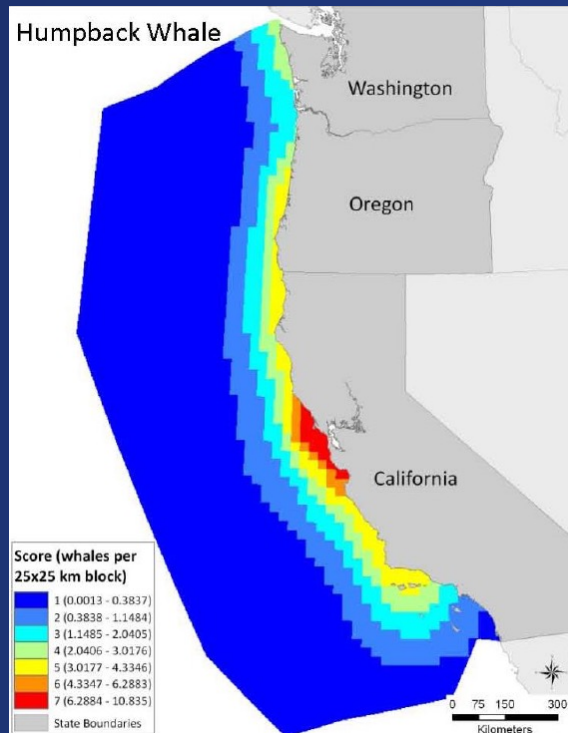
If you are contacted about a whale entangled in your gear, please respond. You can help prevent future entanglements by providing as much information as possible about your fishing gear and practices.



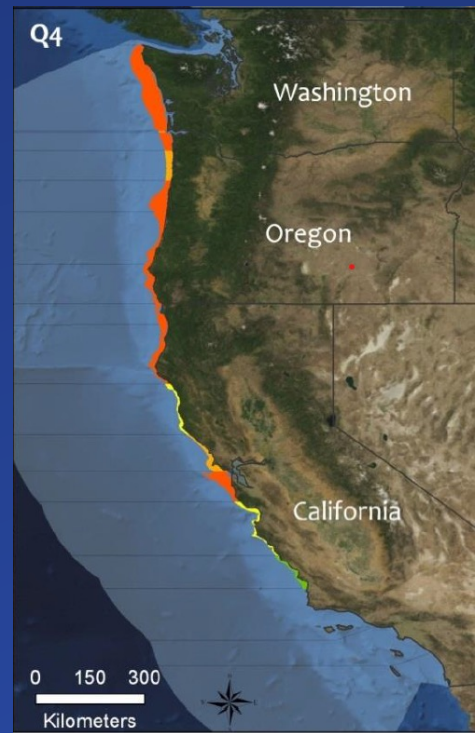
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Reduce the Risk of Future Entanglements

- Largely focused on reducing co-occurrence, or overlap of whales and crab gear in time and space



Whale density



Fishery intensity



Co-occurrence

Co-occurrence model by Saez et al. 2013



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Phase 1 Management Measures (Adopted Sept 2019)

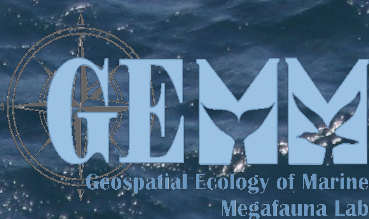
- Gear marking
 - Commercial crab gear buoy color and pattern registration
 - Recreation crab gear marking
 - Other commercial fixed-gear marking
 - Double-sided buoy tags (non-rulemaking)
- Fishery Information
 - Electronic fish tickets with crab areas
- Preparing for risk reduction
 - Late season limited entry control date



Filling in the knowledge gap on whale distribution in Oregon waters (co-occurrence modeling)



Oregon State
University



Risk Reduction – Depth Exclusion

- Humpback observations in deeper waters
 - Crit Hab 27 fm
 - Research 30 fm
- Fishermen advocated to use depth
- Both 30 fm and 40 fm are currently used management lines

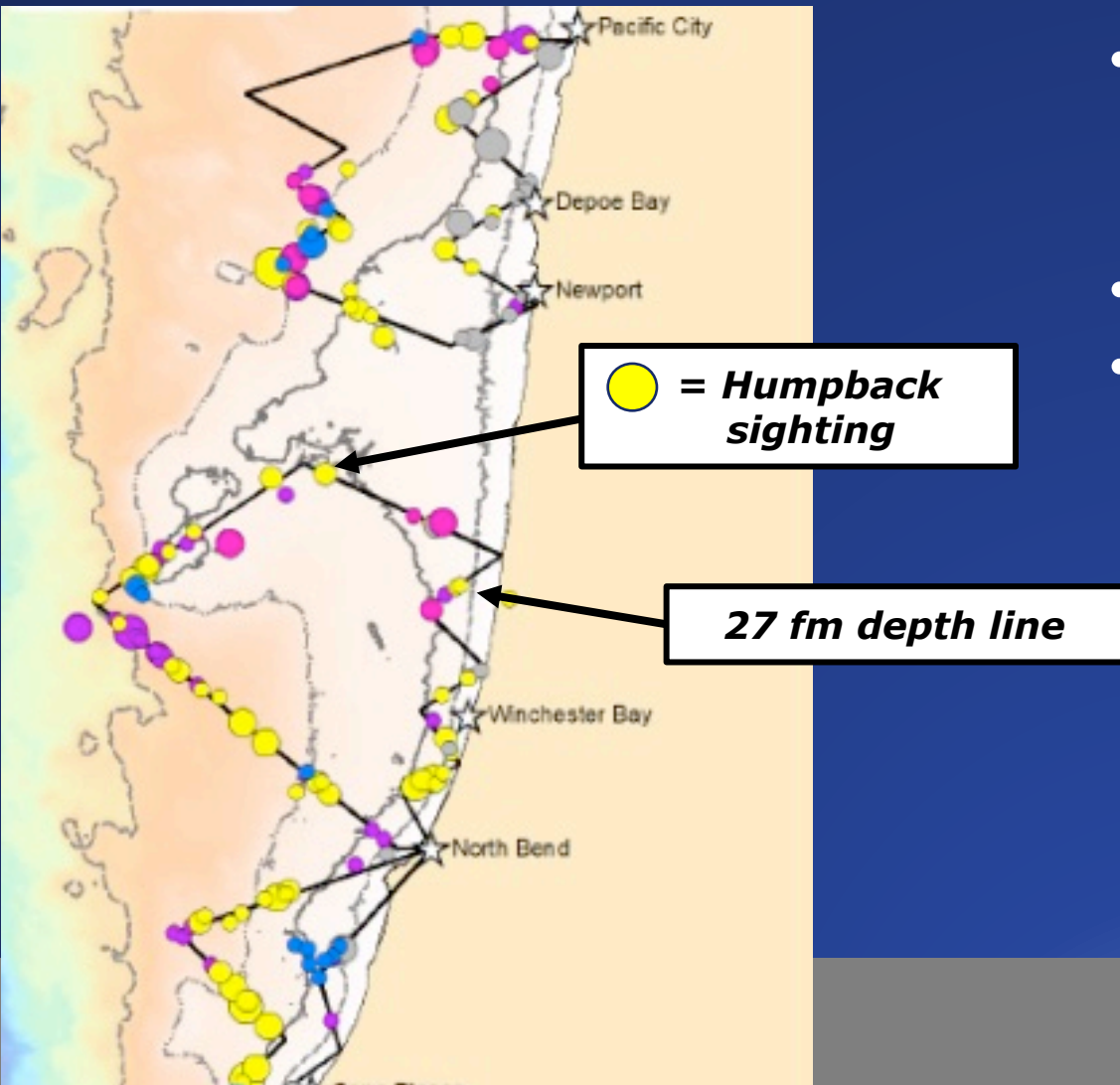
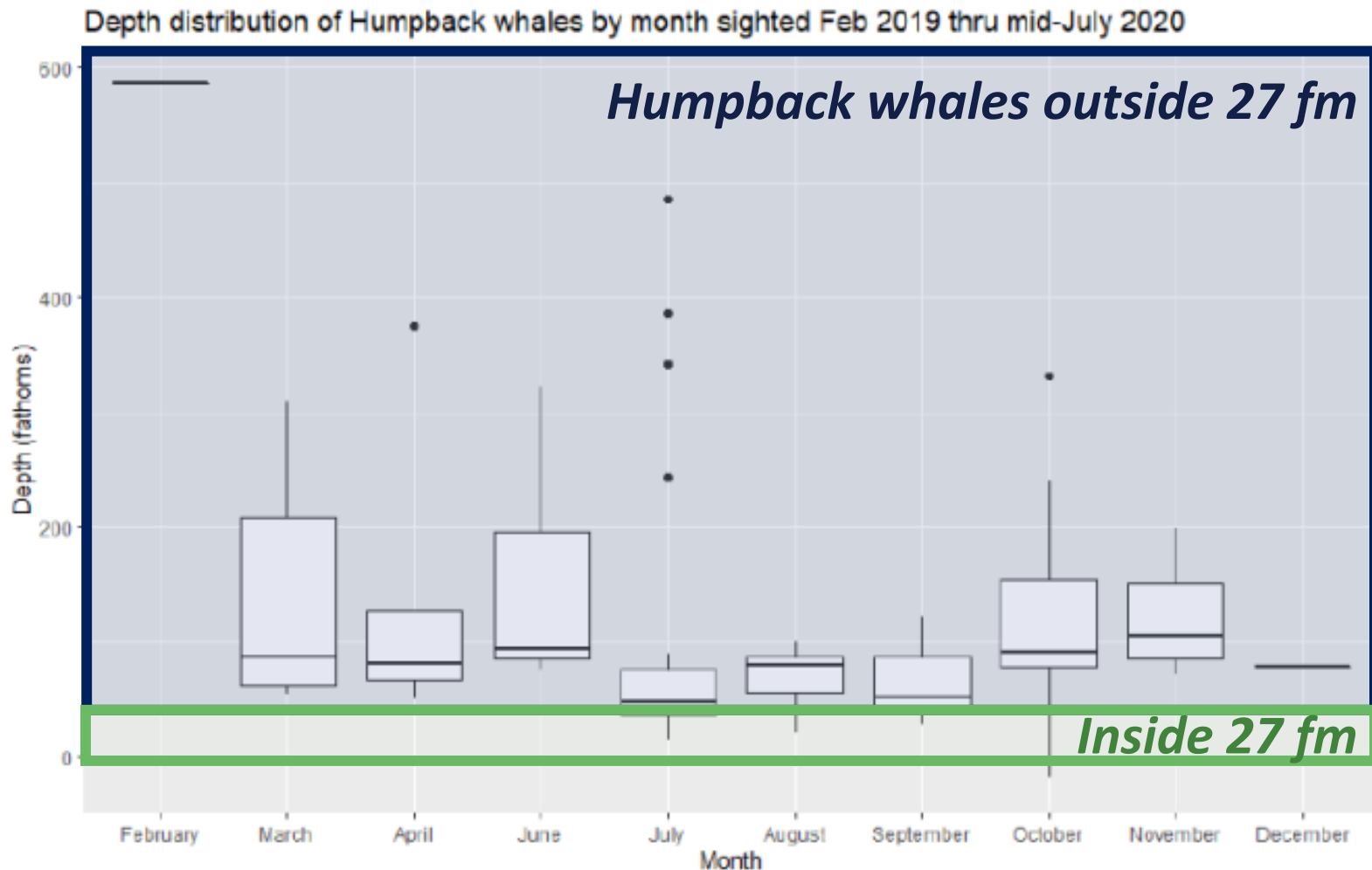


Photo courtesy of Dr. Leigh Torres, Oregon State



Risk Reduction – Depth Exclusion

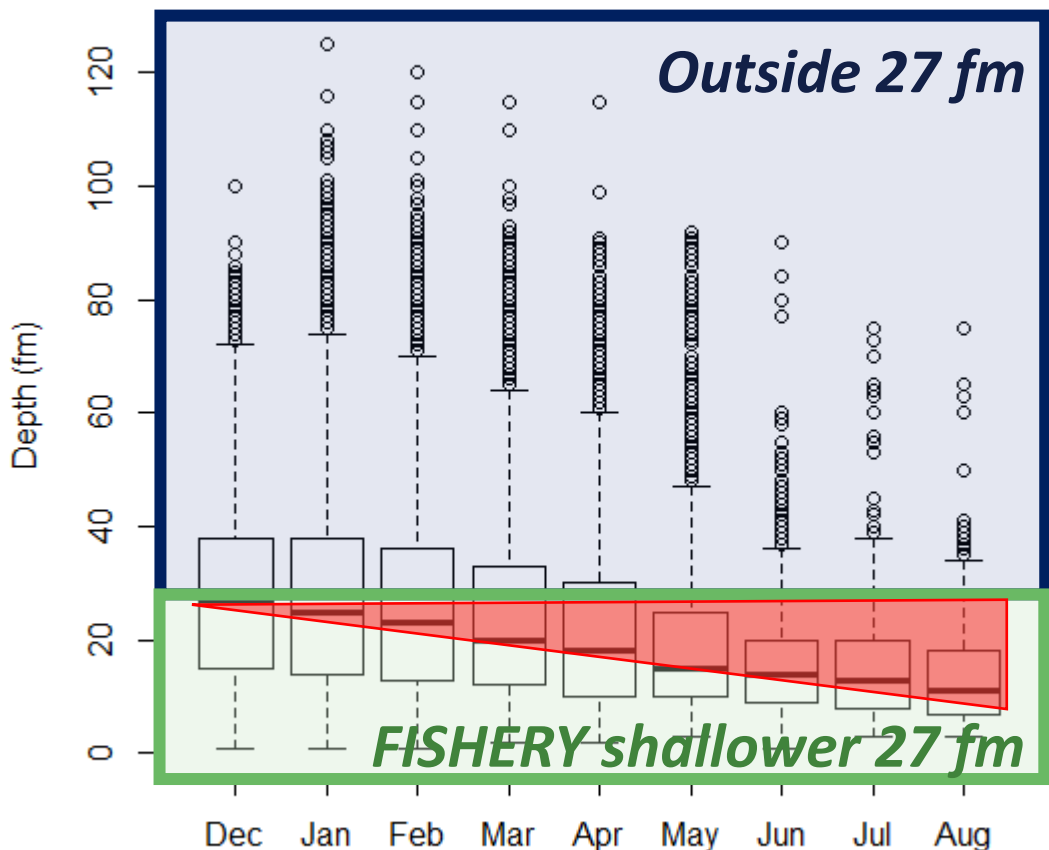


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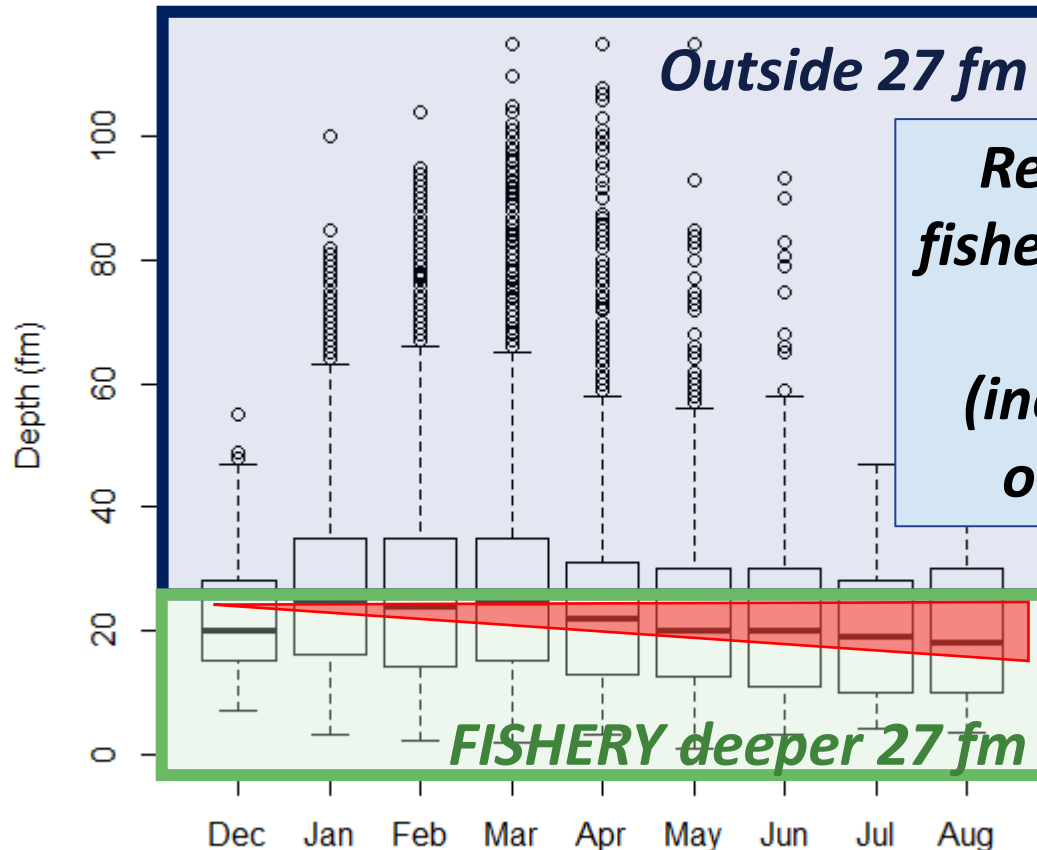


Risk Reduction – Depth Exclusion

Depth of Pot Pulls by Month, 2007-08 - 2014-15



Depth of Pot Pulls by Month, 2015-16 - 2017-18



Recent years, fishery has stayed deeper (increasing co-occurrence)



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Phase II Management Measures (Adopted Sept 2020)

- Late-season reduction of pot limits by 20% effective May 1, combined with a 40 fathom depth restriction
 - Requirement for additional late-season tag
 - Sunset after three crab seasons
- Elimination of replacement tags
- Elimination of two-week gear clean-up period
- Taut line best practice requirement





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OEAC Continued Engagement in the Process



Advise ODFW on efforts to reduce the risk of marine life entanglements in Oregon Dungeness crab gear and support ODFW commitments detailed in the CP



Provide ODFW with information and broad perspectives on strategies to support the co-occurrence of economically viable fixed gear fisheries and thriving marine life populations off Oregon





Questions?