

Reducing Whale and Sea Turtle Entanglements in Oregon Dungeness Crab Fishing Gear

Entanglement in fishing gear is a primary threat impeding the recovery of threatened and endangered humpback whales, endangered blue whales, and endangered leatherback sea turtles. Between 2012 and 2022 there were 333 confirmed West Coast whale entanglements. Once entangled, whales experience significant physical trauma, starvation, severe tissue damage, infection, and death.

The Oregon commercial Dungeness crab fishery contributes to the cumulative impacts West Coast fisheries are having on threatened and endangered whale populations. In response, the Oregon Department of Fish and Wildlife (ODFW) is developing a Conservation Plan under the Endangered Species Act and, since 2021, the department has implemented a set of management measures intended to reduce whale entanglements in the Oregon crab fishery.



A humpback whale in Oregon Dungeness crab gear. NOAA Fisheries MMHSRP Permit #18786-06

Oregon's Entanglement Risk Reduction Measures Are Insufficient to Protect Whales and Sea Turtles

In August 2023, after a two-year evaluation period (2021-2022), the Oregon Fish and Wildlife Commission adopted and indefinitely extended current entanglement risk reduction measures for the Oregon Dungeness crab fishery. This is despite humpback whale entanglements not declining during the initial evaluation period, indicating that the measures have been ineffective. And cumulatively, humpback whale entanglements are exceeding conservation thresholds. In 2022 there were 30 confirmed whale entanglements off the West Coast including 18 humpback whales, 10 gray whales, one killer whale, and one fin whale. Eight of those entanglements were in commercial Dungeness crab gear. In more than half of all reported entanglements, the gear type and fishery cannot be identified. And according to the National Marine Fisheries Service, about 75 percent of all reported whale entanglements are fatal.

Most whale entanglements go undetected. The number of reported entangled whales is estimated to be only 10% of the actual number of whales entangled. With the known risks, Oregon needs to take additional actions to reduce whale entanglements in commercial Dungeness crab gear.

Risk Reduction Measure #1: Pot limits assigned to each Oregon commercial crab permit are reduced by 20% from May 1 to the end of the crabbing season (August 14). Oregon's tiered pot system limits permit holders to either 200, 300, or 500 pots. From May 1 to August 14 those limits are set at 160, 240 and 400 pots.

Why it's Insufficient: First, May is too late to implement the 'late-season' risk reduction measures. New science shows peak exposure between humpback whales and the crab fishery in April. Second, the 20% pot limit reduction still allows for tens of thousands of pots to be set, posing significant entanglement risk.

Risk Reduction Measure #2: Ocean waters deeper than 40-fathoms (240 feet) are closed to the commercial Dungeness crab fishery May 1 to the end of the crabbing season.

Why it's Insufficient: Humpback whales are known to use waters shallower than 40-fathoms off the Oregon coast and they have been entangled in Oregon crab gear set shallower than 40 fathoms. In April 2023, a large aggregation of 30 to 50 humpbacks was seen within 40 fathoms, just outside the Columbia River mouth. Plus, the nearshore boundary for humpback whale critical habitat is set at 28 fathoms (168 feet).

Risk Reduction Measure #3: A maximum of 36 feet between the front end of the main buoy and the front end of the final trailer buoy is allowed. This reduction of slack in the surface line is thought to reduce the likelihood of entanglement.

Accountability Measures: Oregon has various accountability measures in place to help managers identify if an observed entanglement was in Oregon Dungeness crab gear. These include a requirement for registration of buoy color patterns, electronic fish tickets with harvest area information, and buoy tags.

Why it's Insufficient: Oregon has not yet proposed any line marking requirements. This creates a significant hurdle to being able to properly document 'unidentified' whale and sea turtle entanglements.

Recommendations for the Oregon Fish and Wildlife Commission

- Implement 'late-season' pot limits and depth restrictions no later than April 15.
- Prohibit commercial crabbing deeper than 28 fathoms (168 feet) during the late season in accordance with the nearshore boundary of humpback whale critical habitat.
- Reduce pot limits by 40% in the late season. Combined with the above measures coinciding with the time and area of increased whale presence off Oregon, a 40% pot limit reduction would result in a significant and meaningful reduction in the number of lines in the water that are entangling whales.
- Establish an adaptive management approach. Establish rules that allow ODFW to close areas and reduce pot limits based on real-time observed, elevated risk to humpback whales, blue whales, or leatherback sea turtles, plus emergency closures if an endangered North Pacific right whale or Southern Resident orca are confirmed entangled. As ocean conditions change and animal migratory patterns shift, an adaptive approach is needed to quickly respond to on-the-water observations.
- Establish a time-certain deadline for line-marking requirements in coordination with West Coast states and the National Marine Fisheries Service.
- Encourage the use of "pop-up" gear. Pop-up fishing gear is a viable way to fish for crab safely in the presence of whales, as fishing lines and buoys remain with the traps on the seafloor until the gear is ready to be retrieved. This removes the threat caused by vertical fishing lines spanning hundreds of feet in the water for days on end. ODFW should start work now with the crabbing industry to test different pop-up technologies and authorize this gear with incentives for its use.

1. NOAA West Coast Large Whale Entanglement Response Program. Available: [here](#)
2. Reducing Risk of Marine Life Entanglements in Oregon Dungeness Crab Gear, ODFW. Available: [here](#)
3. NOAA Draft U.S. Pacific Marine Mammal Stock Assessments, 2022, at 34.
4. NOAA, *supra* note 1
5. NOAA Fisheries. Process for Injury Determination, Distinguishing Serious from Non-Serious Injury of Marine Mammals (Procedural Directive 02-038-01).
6. Calambokidis et al. 2020. Insights into entanglements from whale population monitoring. Available : [here](#)
7. Derville et al. 2023. Exposure of whales to entanglement risk in Dungeness crab fishing gear in Oregon. Available: [here](#)

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