



AGENDA ITEM SUMMARY

BACKGROUND

This exhibit proposes a suite of regulations to implement a second phase of whale entanglement mitigation measures within the Oregon commercial Dungeness crab fishery. These measures are intended to contribute to reducing the risk of future interactions between whales and commercial crab gear along the West Coast. Additionally, this exhibit proposes two amendments to crab fishery biotoxin management regulations to achieve consistency with recently adopted Oregon Department of Agriculture (ODA) rules regarding monitoring and management responses.

The Oregon commercial Dungeness crab fishery is, on average, Oregon's most valuable, single-species commercial fishery, accounting for up to forty percent of all commercial landings (ex-vessel value) each year. The commercial Dungeness crab fleet is diverse, with vessels ranging from small dories making day trips to large vessels that can remain at sea for days or weeks and deliver over 100,000 pounds of crab from a single trip.

While the commercial Dungeness crab fishery operates in both state (0-3 nautical miles (nm)) and federal (3-200 nm) waters, management authority for the U.S. West Coast fishery is delegated to the states of Washington, Oregon, and California through specific provisions of the Magnuson-Stevens Fishery Conservation and Management Act (MSA).

Management has been largely stable over the history of the fishery, consisting primarily of restrictions on size, sex, and season of harvest. From the mid-1990's through 2006, management of the commercial fishery was transformed by several actions including: implementation of a limited entry permit system which restricted the number of vessels, the Pre-Season Testing Protocol for the Tri-State Coastal Dungeness Crab Commercial Fishery establishing crab quality criteria for opening the season, and pot limits restricting the number of crab pots each permitted vessel could fish. More recently, a number of management challenges related to changing ocean conditions have emerged across the entire U.S. West Coast fishery. These include increased interactions with protected species such as humpback whales, increased frequency and duration of harmful algal blooms that produce biotoxins leading to concerns about human health effects (and concerns about fishery interactions with protected species), and changes in the timing of crab molting that affect quality and marketability at the beginning of the season.

This exhibit primarily recommends regulatory changes addressing the emerging issue of increased fishery interactions with federal Endangered Species Act (ESA) listed humpback whales, but also recommends minor rule amendments addressing crab fishery biotoxin management.

Whale Entanglements in Fishing Gear

Whale populations in the United States are protected, assessed, and managed by the federal government under the Marine Mammal Protection Act (MMPA) for all species, and additionally under the ESA for threatened or endangered populations. Interactions between large whales and fishing gear has been documented as one of the largest contributors to human-caused serious injury and mortality of large whales on the West Coast, including fishing gear that has been

definitively linked with the West Coast and Oregon commercial Dungeness crab fisheries. Management measures are needed to ensure that whales and economically viable fisheries can sustainably co-exist and that fisheries remain in compliance with federal and state laws.

Over the past five years, Oregon Department of Fish and Wildlife (Department) staff have been actively working to address whale entanglements in Oregon's fixed-gear fisheries with increased effort over the last two years. In particular, staff have built off of the Oregon Whale Entanglement Working Group's (OWEWG) preliminary draft recommendations for reducing the risk of whale entanglements to design and implement a proactive, phased management strategy for Oregon. The strategy has two primary goals: (1) to learn more from any future entanglements, and (2) to reduce the risk of future entanglements. In September 2019, the Oregon Fish and Wildlife Commission (Commission) adopted measures focused on the first goal of learning more from any future entanglements by requiring enhanced surface gear marking in state-managed commercial and recreational fixed-gear fisheries operating off Oregon. This exhibit proposes measures to address the second goal of reducing co-occurrence of whales and commercial Dungeness crab gear to minimize the risk of interactions.

Biotoxin Management

Biotoxin management for Oregon's commercial fisheries is a joint responsibility of the ODA and the Department. In September 2019, the Commission adopted regulations that automatically implement crab fishery harvest restrictions (evisceration or closure) in each harvest area based on test results in an effort to reduce the administrative burden of promulgating temporary rules for each event. ODA adopted similar permanent rules in March of 2020, and in the process staff identified some inconsistencies between the Department and ODA rules. This regulatory package includes amendments to the Department's crab fishery biotoxin management regulations to make them consistent with ODA's revised permanent biotoxin regulations (OAR 635-025-0410). Additional background on this issue can be found in Exhibit B from the September 2019 Commission meeting.

PUBLIC INVOLVEMENT

Department staff have informed, discussed with, and solicited input from stakeholders in the development of this package of recommended regulatory changes through a variety of methods. These have included:

Oregon Whale Entanglement Working Group – Beginning in May 2017, Oregon Sea Grant convened a collaborative Oregon Whale Entanglement Working Group (OWEWG). The working group consisted of representatives of Oregon's commercial fixed gear fishing fleet (crab and sablefish), a recreational crabber, a whale disentanglement specialist, a fishing gear expert, an Oregon State University (OSU) marine mammal expert, non-governmental organizations, the Oregon Dungeness Crab Commission (ODCC), and Department staff. The OWEWG's goals were to develop and help prioritize options for short- and long-term modifications to gear and fishery practices to reduce the risk of whale entanglements in gear from Dungeness crab and other fixed gear fisheries. In winter 2017 and spring 2018, the OWEWG sent Dungeness crab permit holders a survey to gather fleet-wide input regarding concerns about whale entanglements, a set of voluntary fishing guidelines developed by the OWEWG, and potential management options developed by the OWEWG to reduce risk of entanglement. Utilizing input from the survey, the OWEWG developed preliminary recommendations focused on improving information about entanglements, as well as management options to reduce risk. The OWEWG

has served as an opportunity for collaboration and an avenue for Department staff to gather public input regarding the fishery and practices to best protect whales and maintain a vibrant crab fishery.

Summarized results from the survey, the voluntary set of fishing guidelines, and proceedings of OWEWG meetings are on Sea Grant's website at <https://seagrant.oregonstate.edu/whale-entanglement>.

Public Meetings – In October 2018 and 2019, Department staff hosted a series of four commercial crab industry public meetings in the major crabbing ports of Brookings, Charleston, Newport, and Astoria. The purpose of the meetings was to discuss and gather industry input on current management issues concerning the commercial Dungeness crab fishery including both issues addressed in this exhibit. Staff from the National Oceanic and Atmospheric Administration (NOAA) Fisheries (whale entanglement experts) and Oregon State Police (OSP) Fish and Wildlife officers participated in presenting information and discussions.

During the 2019 meeting series, staff distributed a survey to solicit input on whale entanglement mitigation measures being considered by the Department. A total of 90 meeting participants submitted responses to the survey, summarized in Attachment 4.

Industry Notices – Department staff have mailed multiple industry notices to all commercial crab permit holders and crab buyers providing updates and information about this suite of whale entanglement mitigation measures; soliciting input on specific management measures; and communicating the Department's original intent to bring these items before the Commission in April 2020. Notice went out in the spring that COVID-19 response would delay this exhibit to August or September 2020 (Attachment 5).

Oregon Dungeness Crab Advisory Committee (ODCAC) – The Department works with a standing industry advisory body to foster industry input on commercial crab management decisions, a subset of which also represents industry at Tri-State meetings. The group is comprised of harvesters and processors from all of the major crabbing ports in Oregon. Participation is voluntary, and the Department strives to have representation from all sectors by including persons from all ports, pot tiers, vessel sizes, and a diversity of business plans. ODA, OSP, and ODCC staff often participate in advisory meeting discussions, which are open to the public.

In October 2019, this group was augmented to include members of the ODCC, crab associations, and industry members from the OWEWG to further advise the Department on regulatory proposals to mitigate whale entanglements in Dungeness crab gear. The expanded group currently includes 26 harvesters and six crab buyers. The Department has consulted the augmented advisory group on three occasions to continue to develop and solicit input on this suite of mitigation measures. Meeting materials, summaries, and a current membership list are posted here:

https://www.dfw.state.or.us/MRP/shellfish/commercial/crab/whale_entanglement.asp.

Annual Crab Newsletter – Department staff have produced an annual newsletter for the commercial Dungeness crab industry since 2007. The purpose of the newsletter is to share current information about the fishery, ongoing monitoring and research efforts, upcoming management changes, and current issues. In recent years, both whale entanglement and crab

biotoxin management have been prominently featured to raise awareness within the industry about these issues, the Department’s management strategy, and methods for providing input. All newsletters are posted here:

https://www.dfw.state.or.us/MRP/shellfish/commercial/crab/news_publications.asp

Tri-State Dungeness Crab Committee meeting – Department staff, along with six Oregon industry representatives, met with Washington and California delegations at a Tri-State Committee virtual meeting in May 2020. Discussions centered on building more flexibility into the season opening protocols and coordination of whale entanglement informational and risk reduction measures. A summary of this meeting can be found here: <http://www.psmfc.org/crab/>.

Oregon Fish and Wildlife Commission Director’s Report Briefing– Department staff briefed the Commission at the June 6, 2019 meeting and at the August 7, 2020 meeting. These briefings included background information about whale entanglements on the West Coast, a summary of existing regulations in Oregon that reduce entanglement risk, the OWEWG’s preliminary recommendations, and the Department’s recommendation to implement regulations to improve information on entanglements and further reduce risk through a phased approach.

Dungeness Crab and Biotoxin Rules Advisory Committee (RAC) – During the summer of 2017, ODA and the Department co-convened the Dungeness Crab and Biotoxin Rules Advisory Committee (RAC) to develop recommendations on administrative rules, statutes, and non-regulatory measures to mitigate impacts of biotoxin events on the Dungeness crab fishery. The proposed changes to biotoxin rules are consistent with RAC recommendations. See https://www.dfw.state.or.us/MRP/shellfish/commercial/crab/domoic_acid.asp for more information on the RAC.

Additional Public Involvement - In addition to these formal outreach methods, Department staff have answered numerous calls, emails, and in-person communications regarding various aspects of the proposed regulatory changes and have considered this input in developing recommendations for the permanent rules. Department staff have also regularly attended ODCC meetings to provide updates on the proposed regulations.

ISSUE 1

Whale Entanglement Mitigation Measures

ANALYSIS

Elevated Rate of Whale Entanglements

Since 2014, the number of reported and confirmed whale entanglements in fishing gear from fixed gear fisheries along the West Coast has been elevated over historical levels. Over 50% of confirmed entanglements in this time period cannot be attributed to a specific gear type, approximately 29% are attributed to commercial Dungeness crab gear, 8% are from other pot and trap fisheries and approximately 11% involve nets (NOAA, 2020). Since 2014, entanglement in all fishing gear has been above historical levels (Figure 1), including elevated entanglements in

commercial Dungeness crab gear. In some cases, entanglement in fishing gear has led to serious injury and mortality of whales.

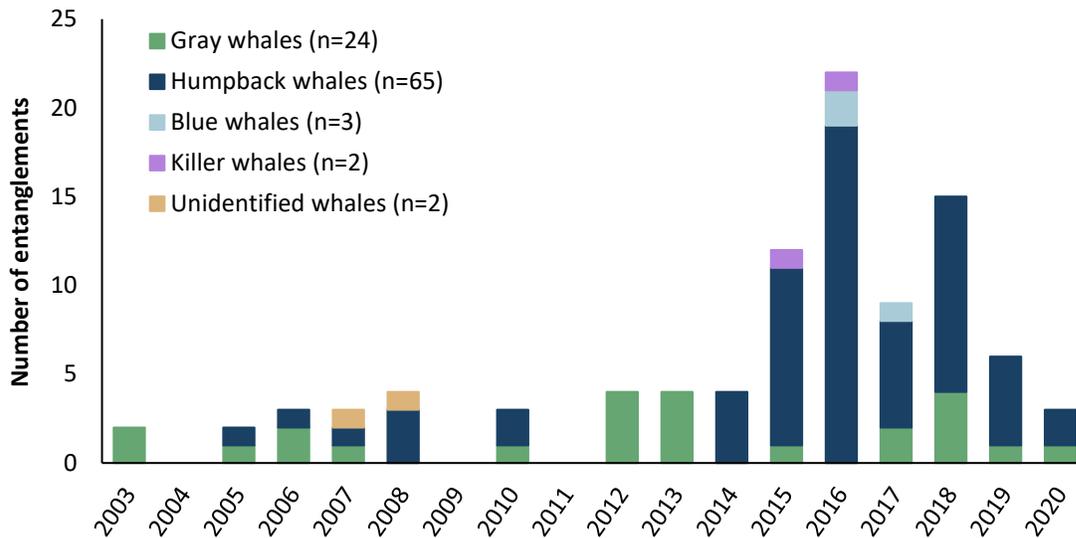


Figure 1. Confirmed whale entanglements with commercial Dungeness crab gear for West Coast states (California gear only n=57, Oregon gear only n=11, Washington gear only n=19, Oregon and Washington gear n=1, Oregon and California gear n=1, state unknown n=7) from 2003-2020. *Note: The data from 2020 is preliminary.*

While gray whale entanglements have remained low and relatively consistent overtime, humpback whale entanglements increased starting in 2014 (Figure 1). Of note is the first appearance of blue and transient killer whale entanglements (both confirmed in California commercial Dungeness crab gear) beginning in 2015 (NOAA, July 2020). Also of note is that the West Coast was subject to an unprecedented marine heatwave (“the blob”) in 2015, which correlated with a cascade of ecosystem responses. Because of the sharp increase in entanglements, NOAA Fisheries started publishing annual summaries of large whale entanglements, the most recent of which can be found here:

<https://www.fisheries.noaa.gov/resource/document/2019-west-coast-whale-entanglement-summary-and-infographic>. NOAA suggests that the increase in entanglements in recent years is due to a combination of factors including changes in the distribution of whales and their prey, changes in fishing patterns, and increased public reporting (NOAA, 2019).

Whales Confirmed Entangled in Oregon Dungeness Crab Gear

The West Coast is a significant component of the feeding grounds or migratory corridors for many whale species including the commonly observed gray and humpback whales, as well as more rarely seen killer, fin, minke, sperm, blue, and other whale species. Four whale species (gray, humpback, blue, and killer whales) have been confirmed entangled in West Coast commercial Dungeness crab gear. In addition to the protections provided to all marine mammals under the Marine Mammal Protection Act (MMPA), these four species have unique population characteristics and MMPA protections, and certain population segments have additional protections under the Endangered Species Act (ESA), as detailed below. To date, only humpback and gray whales have been confirmed entangled in Oregon Dungeness crab gear.

Since 2003, there have been 13 whale entanglements attributed to Oregon commercial Dungeness crab gear (Figure 2). Seven of these have been entanglements with ESA-listed

humpback whales, the remainder have been with gray whales. The observations have been reported from across the West Coast (Washington to Mexico), indicating that whales entangled in Oregon waters can travel great distances before being observed and documented. The observations have been reported from April-October, with April and May having the highest number of reports.

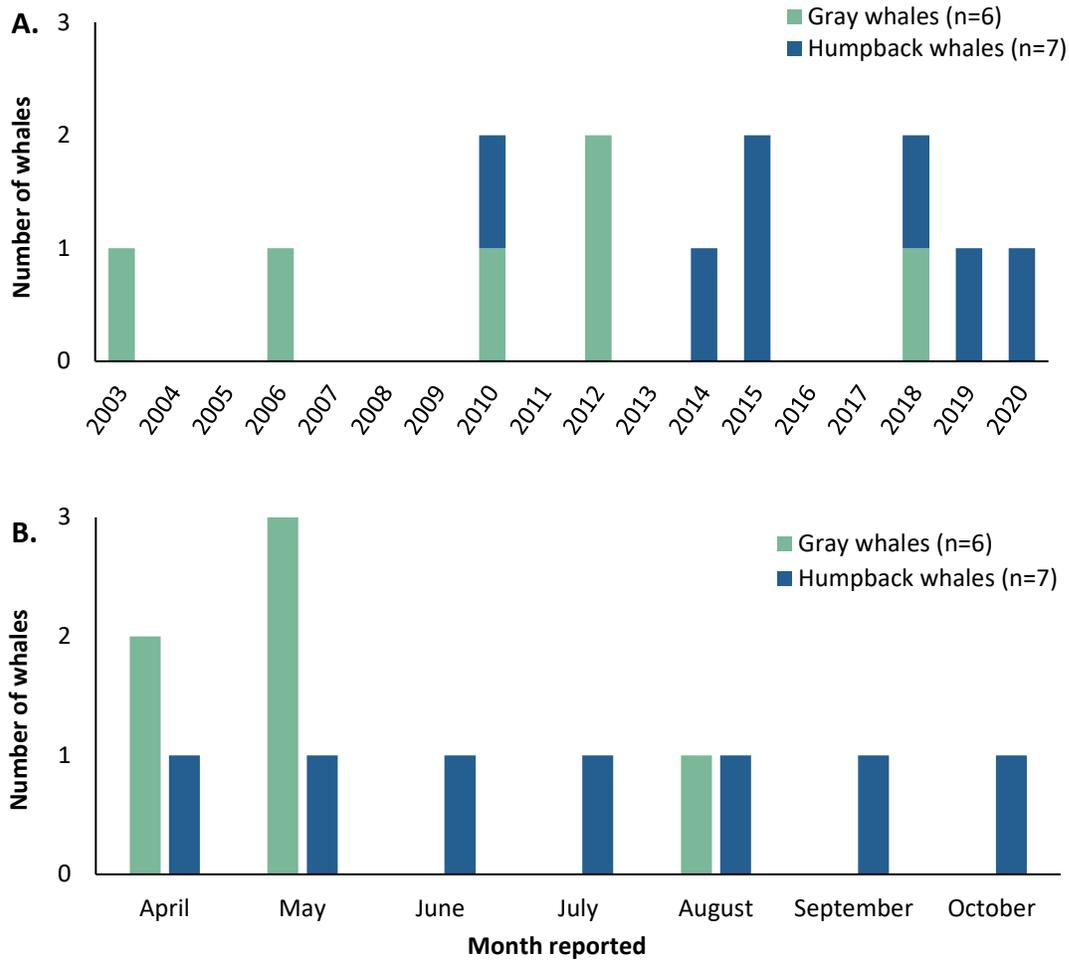


Figure 2. Confirmed whale entanglements attributed to Oregon commercial Dungeness crab gear from 2003-2020. (A) The number of whales confirmed in Oregon Dungeness crab gear annually. (B) The number of whales confirmed entangled in Oregon Dungeness crab gear by month reported (NOAA, July 2020). *Note: The data from 2020 is preliminary.*

Gray Whale Populations and Entanglements

Currently, there are two stocks of gray whales (*Eschrichtius robustus*), as defined under the MMPA: the Eastern North Pacific (ENP) and the Western North Pacific (WNP). The ENP stock of gray whales is the most prevalent stock off the West Coast and migrates twice a year along the coast traveling between winter breeding grounds in Mexico and summer feeding grounds off Alaska. The ENP stock is estimated to be about 27,000 whales (Carretta et al., 2019) and has been delisted under the ESA since 1994.

Within the ENP stock, there is a small group that feeds in the coastal waters of the Pacific Northwest during the summer months called the Pacific Coast Feeding Group (PCFG). The estimated population size of the PCFG is estimated to be much smaller (243 whales; Carretta et al., 2019) and has not been declared a distinct stock under the MMPA.

The WNP stock is designated as a distinct population segment (DPS) under the ESA, with an estimated population size of 290 whales (Carretta et al., 2019), and is currently listed as endangered. The WNP stock primarily occurs along the coast of East Asia, though recent tagging, photo-identification, and genetic studies have shown there is some movement of individual whales between the western and eastern North Pacific. However, ENP and WNP gray whales remain designated as separate stocks or populations under the MMPA and ESA at this time.

While there has been some variation from year to year, West Coast observations of gray whale entanglements have remained relatively low and constant over time (Figure 1).

Humpback Whale Populations and Entanglements

During the spring and summer, Oregon waters are utilized as feeding grounds for some groups of migrating humpback whales (*Megaptera novaeangliae*). The most recent Stock Assessment Report (SAR) for humpback whales defines those animals occurring off California, Oregon, and Washington as a single stock (the CA/OR/WA stock) under the MMPA, with an estimated population size of 2,900 whales (Carretta et al., 2019). Some humpback whale population segments are also listed under the ESA; the ESA distinguishes these populations based on their affiliation with specific breeding ground locations. Three breeding populations, or DPSs, forage on the West Coast including the Hawaii DPS (11,000 animals; de-listed), Mexico DPS (2,800 animals; ESA-threatened) and Central America DPS (780 animals; ESA-endangered). Humpbacks seen in California and Oregon waters are estimated to be entirely comprised of animals from the threatened Mexico DPS and endangered Central America DPS (Carretta et al., 2019).

Humpback whales have been the most common species reported as entangled in recent years (2014-present) across the West Coast and have largely driven the overall increased rate of entanglements (Figure 1). Humpbacks confirmed entangled in Dungeness crab gear have been reported in all months of the year except February, with the majority reported from April through September (Figure 3; NOAA data, 2020). However, whales can carry entangled gear for months while travelling long distances before they are observed, so the place and time of entanglement reports do not necessarily reflect the place and time that the whales encountered the gear (Saez, et al., 2020).

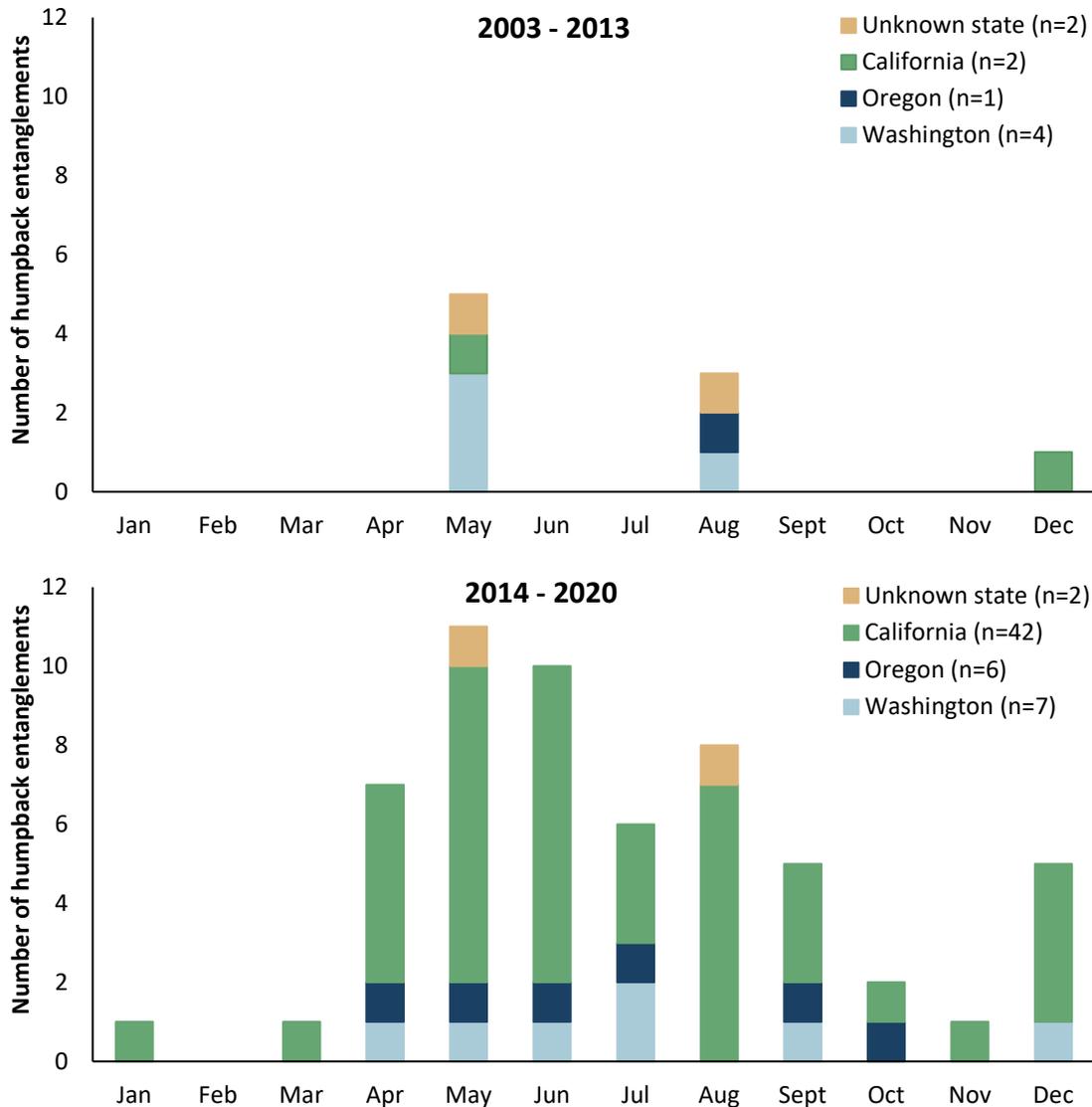


Figure 3. Number of confirmed monthly reports of entangled humpback whales in commercial Dungeness crab gear from California, Oregon, and Washington. In the legend, “n” represents the total number of humpback whales confirmed entangled by state during each time period. Entanglements during the last six years are compared to pre-2014 levels due to the large increase in coastwide entanglements that has occurred since 2014. Washington entanglements include whales entangled in state and tribal commercial crab gear. One whale is double counted that was entangled in both OR and WA crab gear in 2010 (NOAA, July 2020). The data from 2020 is preliminary.

Based on the increased rate of ESA-listed humpbacks confirmed entangled in California Dungeness crab gear and the insufficiency of California management measures to address the growing conservation concerns, the California Department of Fish and Wildlife (CDFW) was sued over their management of the Dungeness crab fishery. The lawsuit was settled out of court through a signed agreement between the plaintiffs and CDFW in March 2019. CDFW has been operating under the provisions of the settlement agreement, which have included early season closures in 2019 (April 15 coastwide) and 2020 (May 15 southern management area only), and active development of a long-term plan for reducing risk of marine life interactions with the commercial crab fishery. The legal deliberation surrounding the lawsuit has raised awareness

about the need and opportunities for improving large whale protections in fixed gear fisheries across the West Coast. All three West Coast states are actively developing and implementing measures to minimize the risk of entanglements.

Oregon Management Measures

Department staff have been actively working with many different entities on multiple fronts to develop management measures to reduce the risk of whale entanglements in Oregon fishing gear. These have included the commercial crab industry, OWEWG, NOAA Fisheries, Pacific States Marine Fish Commission, Washington Department Fish Wildlife (WDFW), California Department Fish and Wildlife (CDFW), and marine mammal, disentanglement, and gear experts.

Through these efforts, Department staff have developed recommendations for the second phase of management measures to address whale entanglements focused on reducing the risk of future entanglements. It is worthy of note that staff have heard strong fleet opinions both in support of action and status quo, as well as strong opinions for and against all the management measures described; fleet opinion is described below, with more detail related to each management measure. Recommendations here represent staff integration of our knowledge of fishery effort, whale ecology, and a common sense approach to increase conservation benefit to the whales and maintain a vibrant fishery.

Risk Reduction Measures

The Oregon commercial Dungeness crab fishery is most active during the winter months when nearly all active permit holders are making landings. Through the spring and summer, fishing effort, in terms of both landings and vessels participating, greatly diminishes. The season start date is set through an annual Tri-State management action and, in recent years, has ranged from December 1 to as late as February 7. Regardless of the specific opening dates within this range, fishery effort starts to significantly decline beginning in April, and continues to decline through the end of the season (August 14), as shown by an estimation of pots being utilized in the fishery (Figure 4), as well as other metrics such as the number of active permits (data not shown). Despite this annual attrition of effort throughout the season, there has still been an increase in confirmed entanglements of ESA-listed humpback whales in Oregon commercial crab gear in recent years.

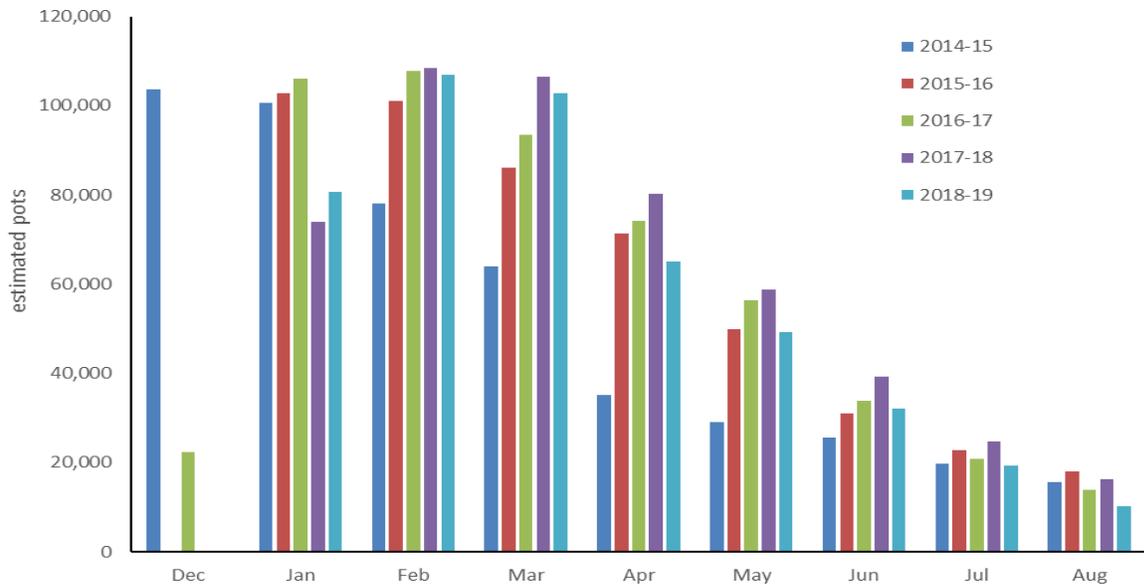


Figure 4. The estimated number of pots utilized in the Oregon Dungeness crab fishery in the past five crab seasons by month. The season opening date has been delayed in recent seasons due to low meat yield, elevated domoic acid detected in the viscera of crab, or a combination of both. Pounds landed by season ranged from 8.2 million (2014-15 season) to 23.1 million (2017-18 season).

The regulatory approach recommended herein is a set of management measures intended to reduce the amount of crab gear (fishing lines) in the water when and where ESA-listed humpback whales are feeding in Oregon’s coastal and offshore waters. There is currently limited information on the quantitative relationship between co-occurrence of whales and gear, and the resultant entanglement risk. However, it is logical to assume that every line in the water has the potential to interact with a marine mammal. Without fishing lines in the water, interactions with whales would not occur; therefore, line reduction is the most widely accepted means to reduce the risk of interactions of whales and is central to the recommendations put forth by whale entanglement working groups in multiple states working on reducing whale entanglements in fixed gear fisheries. For example, reduction of gear (fishing lines) in fixed-gear fisheries has been implemented to address lobster pot gear and North Atlantic right whale entanglements on the U.S. East Coast, and Dungeness crab pot gear and humpback whale entanglements in Washington on the U.S. West Coast (OWEWG, 2018; WWEWG, 2018). Although the focus of the recommended approach for Oregon is designed to reduce co-occurrence with humpback whales, the recommended approach (reduction in gear) will also reduce entanglement risk for all marine life, such as ESA-listed blue whales and leatherback sea turtles that have been confirmed entangled in California commercial Dungeness crab gear. Additionally, because the recommendations combine reduction in gear with a depth exclusion (gear prohibited outside of 30 fathoms), the Oregon approach will mitigate fishery ground crowding that might otherwise be caused by bringing crab gear closer to shore (inside of 30 fathoms), to avoid primary humpback habitat (outside of 27 fathoms).

1. Late-season Reduction of Pot Limits by 20% Effective May 1 including (OAR 635-005-0405):

- **Requirement for additional late-season tag (OAR 635-005-0480)**
- **30 fathom depth restriction (OAR 635-005-0460)**
- **Sunset after three crab seasons (OAR 635-005-0405, 635-004 0480 and 635-005-0460)**

Month of Pot Reduction – Staff recommend initiating pot reduction in May of each year to decrease the co-occurrence of crab gear and whales in Oregon based on the estimated timing of the humpback whale feeding migration to Oregon waters and timing of observed humpback entanglements involving Oregon crab gear.

Humpback whale feeding aggregations are widely known to be off Oregon in highest abundance during the spring, summer and fall months (Bettridge, 2015; National Marine Fisheries Service, 2019). Beginning in 2019, a collaborative research project was initiated between the Department, Oregon State University (OSU), Cascadia Research Collective, and the U.S. Coast Guard to collect finer-scale whale distribution information in Oregon waters. Preliminary raw data from the first year of aerial surveys from this project include humpback observations off Oregon from February through December, with a general increase during summer and fall months, excepting a notable peak in November (when the crab fishery is already closed). A gear reduction beginning on May 1 reduces the amount of gear during the months that humpback whales are currently estimated to be in greater abundance off Oregon.

Secondly, confirmed entanglements in Oregon Dungeness crab gear have been reported from April through October (Figure 2). With active gear in Oregon from April-Aug, the May 1 reduction reduces gear during 4 of the 7 months when there have been confirmed entanglement reports attributed to Oregon gear.

The Department conducted an analysis to compare the conservation benefit (reduction in gear, or pot days, to reduce co-occurrence of gear and whales) of a range of alternatives, varying pot limit reduction by implementation date and percent reduction. Estimates were made for the number of pot days reduced (one pot day equals one pot fished for one day) by a series of combined actions. The results of this analysis indicate that the greatest risk reduction is attained by smaller percent reduction in pot limits implemented earlier in the season.

Percentage of Pot Reduction and Depth Restriction – This measure will reduce each permit holder’s pot limit by 20% (i.e., 200 pot limit to 160 pots, 300 pot limit to 240 pots, and 500 pot limit to 400 pots), in combination with a 30 fathom depth restriction (gear excluded outside of 30 fathoms). The depth restriction is intended to move gear out of deeper waters where humpback whales have been typically observed off Oregon, and is approximately coincident with inshore limit of the humpback whale critical habitat designation established in 2020 (~27 fathoms). Preliminary raw data from OSU’s recent whale aerial surveys (Feb 2019 – Dec 2020) have observed humpback whales between 27-546 fathoms, with the highest concentrations from 54-109 fathoms.

Analysis of fishing locations from logbooks revealed that in recent seasons (2015-16 through 2017-18), approximately 22% of gear in use is being used outside of 30 fathoms in the later months of the season, from May-August. The pot reduction, in combination with the depth restriction, is intended to reduce gear in humpback whale primary habitat (outside 27 fathoms) and avoid concentrating gear being used shoreward of the exclusion area. Of note, the analysis

showed that the harvest activity has moved into deeper waters from historical activity (2007-2015), which averaged 6-16% of gear being used outside of 30 fathoms in the later months of the season.

The bathymetric exclusion also allows for any gear outside 30 fathoms after May 1 to be retrieved as derelict by any commercial fishing vessel.

Late-season Tag – This will require crabbers fishing after May 1 each crab season to affix an additional late-season tag to each remaining pot, along with the primary season tag already required. The late-season tag will serve as the enforcement mechanism to implement the reduced pot limit for each permit holder (i.e., only the reduced number of late-season tags will be available for purchase from the Department by each permit holder). Lack of a late-season tag will also identify derelict gear from earlier in the season, and all gear without a late-season tag after May 1 will be allowed to be retrieved as derelict gear by any commercial fishing vessel. The presence or absence of late-season tags on entangling gear will provide additional information on the timing of any future entanglement events involving Oregon Dungeness crab gear. Staff recommends prohibiting deployment of late-season tags until two weeks prior to May 1 to support this informational goal.

Sunset Date – The staff recommendation includes a sunset date to allow for evaluation of the conservation benefit and economic impacts of the above four management measures (month, pot reduction, bathymetric exclusion, season tag). After three years, this set of rules would be vacated unless the Commission elects to extend or modify them. Any impacts of these four combined measures therefore are limited to the three year timeframe, absent additional Commission action.

Industry Support – At the 2019 October industry meetings, staff discussed three options to modify the season structure (i.e., pot reduction, early closure, and brief in-season season closure – also described as a season “intermission”) that represent the best known options for strategically and effectively reducing risk of interactions between whales and crab gear and that could also be ready for implementation in the 2019-2020 commercial season. These three options were selected following extensive discussions with the OWEWG, evaluation of the OWEWG’s preliminary recommendations, and evaluation of measures that neighboring states and other regions are taking to address this issue. During the course of the public meetings (both privately and in verbal oral testimony), stakeholders expressed support for and also significant opposition to all three options, with the strongest concerns regarding early closure and season intermission. Many stakeholders expressed concerns with the economic impacts of all three of these options, as well as potential safety risks of stacking out gear mid-season in the event of a season intermission. Stakeholders also expressed concern with implementing permanent measures to address this issue due to the uncertainty in the timing and mechanisms of whale entanglements.

In response to these concerns, staff have focused regulations development on a late-season pot reduction, since this option received the least opposition of the three options. The continued discussions with ODCAC have reinforced that the main concern of many industry advisors is the economic impacts of implementing these measures on May 1. To reduce this impact, they would favor an implementation date of June 1 for the first three crab seasons that these measures are in place. On the other hand, there is a group of advisors and industry participants that strongly believe that the risk reduction measures should be significantly more stringent than the current staff recommendations. This group has expressed that pot reductions should be implemented

earlier in the season (e.g. April 1), at a higher percentage (e.g. 50%), and includes opinions that pot limits should be reduced for the entire season (e.g. 10%).

Late-season reduction of pots will have a proportionately larger economic impact to participants that typically continue crabbing later into the season (after April). As detailed in the fiscal impact statement accompanying this exhibit, it is difficult to measure the exact economic impact of a late-season pot reduction as there are many interacting biological and behavioral variables. However, for context, the average total ex-vessel value of the Oregon fishery in the past five crab seasons from May through the end of the season is \$2.8 million dollars, or 5% of the total season value. Staff estimates the maximum ex-vessel revenue loss, absent any behavioral changes or inherent biological responses, would be equal to the percent reduction in allowable pots under the proposed measures. Twenty percent of the 5-year average ex-vessel value from May through the end of the season would represent an estimated \$567,895, or 1% annual loss of ex-vessel revenue to the fishery, as a whole. This is likely an overestimate of direct economic impacts as it does not take into account crabbers potentially finding ways to be more efficient with fewer pots by moving pots around more frequently and decreased pot competition due to less gear in the water.

To address industry concerns about permanent rulemaking with a high degree of uncertainty, staff added the sunset provision to allow for revision of this set of regulations as we learn more about the entanglement problem. To date, there has been no opposition expressed to the sunset clause included in this set of provisions.

2. Elimination of Replacement Tags (OAR 635-005-0480)

Since pot limits were implemented in 2006, crab fishery permit holders have been able to apply for replacement tags for up to 10% of their pot limit, after the first 30 days of the season, to accommodate for pot loss due to normal fishing conditions (i.e. cut-off gear, kelp, large swells, strong currents, etc.). During the past five crab seasons, an average of nearly 3,000 replacement tags (or an average of 27% of the total allowable that could be issued) have been issued each season, with the majority of replacement tags issued from January through March. Elimination of the replacement tags provision will remove permit holder's ability to obtain replacement tags, except for loss due to extraordinary events (requirements defined in OAR 635-005-0480) or catastrophic loss (as defined in OAR 635-005-0240). This measure reduces risk of whale entanglements by reducing the amount of gear allowed to be deployed each crab season. Since permit holders were able to apply for replacement tags after the first month of the season, the entanglement risk reduction will also be realized earlier in the season, with the highest number of pot days reduced on average in the month of March but also will reduce pot days throughout the remainder of the season. Staff recommends eliminating the standard allowance for issuance of up to 10% replacement tags beginning with the start of next crab season (2020-21).

Although not discussed at length during the public meetings, just over 40% of survey respondents supported eliminating replacement tags. Since the public meetings, many ODCAC advisors and industry participants have stated support for this measure. There has also been minority advisory support for reducing the 10% replacement tag provision to 5% with those tags expiring on May 1 each year, as a compromise that both reduces risk and maintains some ability to accommodate for normal pot loss.

3. Elimination of Two-week Gear Clean-up Period (OAR 635-005-0485)

By permanent rule, the crab season ends each year on August 14. For the two weeks following the season closure, crabbers are allowed to still have crab pots in the water so long as they are un-baited with open lids. Many vessels do not have the onboard capacity to remove all of their pots in a single trip. The clean-up period allows vessels to make landings all the way to the end of season, then remove any remaining gear after the season has ended. Oregon is the only state on the West Coast that currently has this provision. This period was eliminated during the 2018-19 crab season by temporary rule as an entanglement risk reduction measure, and again during the 2019-20 crab season due to covid-19-related interruptions to the permanent rulemaking process. The temporary rule also expanded the timeframe for allowing unlimited retrieval of derelict gear from August 29-October 31 to August 15-October 31 to coincide with the new date that any non-derelict gear must be removed from the water. Elimination of this provision essentially reduces total pot days (and provides a conservation benefit) for the entire month of August, since late-season crabbers will most likely have to begin removing gear from the ocean earlier than they have done in years past.

Since the temporary implementations of this provision, staff have received only a small amount of input in opposition of this measure. These concerns have been from fishery participants that operate smaller vessels and fish through the end of the season. The main concern expressed has been in regards to the economic loss incurred from not being able to have all of their gear actively fishing through the end of season. In order to mitigate the economic impact of this measure, the proposed regulations contain a provision to allow another crab permitted vessel to assist in the removal of gear during the last two weeks of the season under a waiver issued by the Department. However, there is typically a cost associated with this type of assistance, so it is unknown how widely this mechanism may be used or how the cost of assistance compares with the cost of removing gear earlier in the season.

This measure was included as one of the OWEWG's preliminary recommendations to reduce risk of whale entanglements. Although not discussed at length at the public meetings, over 40% of survey respondents supported eliminating the post-season gear clean-up period. Since the public meetings, many ODCAC advisors and industry participants have stated support for this measure.

4. Taut Line Best Practice Requirement (OAR 635-005-0485)

This measure is intended to minimize scope and excess line in the water column that can occur when fishery participants move gear into shallower waters and forgo efforts to shorten line. Staff do not consider this a widespread practice within the fishery, however, this measure provides a regulatory approach to implementing one of the crab fishing best practices (OWEWG, 2018) and provides a regulatory expectation that fishery participants are more accountable for responsible deployment of gear. While the proposed regulation is not highly specific in order to maintain flexibility for the variety of ways crab gear can be responsibly deployed, Oregon State Police has indicated that gross violations will be enforceable. For example, when crab gear is moved from deeper to shallower waters without shortening the line to account for the change in depth (an occurrence that has been observed and reported by other crabbers), it would likely be obvious that more line is being used than necessary to account for tides, currents, and weather, and OSP would be able to issue a citation.

Although not discussed at length during the public meetings, just over 35% of survey respondent's supported implementing a taut line regulation. Since the public meetings, many ODCAC advisors and industry participants have stated support for this measure. This measure

was implemented by temporary rule for the end of the 2019-20 crab season (effective July 1) due to covid-19-related interruptions to the permanent rulemaking process and staff has not received any feedback in opposition of this provision.

5. Prohibition of Other West Coast Fishery Buoy Line Markings (OAR 635-005-0480)

Each observed entangled whale is carefully documented, evaluated, and analyzed to glean information on the activity and geographic origin of the entangling gear. Despite this effort, over 50% of the confirmed entanglements in putative fishing gear that has been observed and/or recovered in recent years from West Coast whale entanglements has not been attributable to a specific fishery and/or state of origin. From NOAA Fisheries' most comprehensive forensic review of entanglement events from 2013-to mid-2018, nearly three-fourths of reports included buoys; however, nearly half of these could not be attributed to a specific fishery. Fishery and state of origin information is currently being used to design recommendations for entanglement risk reduction as accurate information about every entanglement is essential for creating effective changes in fishing practices to protect whales.

One way to potentially improve attribution rates is to require lines, not just buoys, to be marked in a way that identifies the specific fishery and/or state that it was used in. Marked line could be helpful when entanglements are observed with only a line on the whale (no buoys, tags or pots to identify the source fishery). WDFW has recently adopted the first buoy line marking requirement for a fixed gear fishery on the West Coast for their coastal Dungeness crab fishery, for planned implementation at the beginning of this upcoming crab season (2020-21 season). The WDFW regulation requires a red mark (12 inch minimum) on buoy lines within one fathom of the main buoy and the crab pot.

At this year's May Tri-State Dungeness Crab Committee meeting there was significant discussion about the rationale and goals for buoy line marking regulations. The Committee generally agreed that goals for current and future line marking regulations include that they are: (1) identifiable and accurate, (2) visible (primarily in photographs), (3) reasonable and cost-effective, (4) coordinated across West Coast Dungeness crab fisheries and potentially other fixed gear fisheries, and (5) environmentally friendly. Department staff are proposing prohibiting use of buoy lines with markings that are required in another West Coast fishery to support both goals one and four. The measure enhances coordination of buoy line requirements across the West Coast and will help increase the probability of accurate identification of any Washington gear (and other fisheries if they require line marking in the future) involved in future entanglement events. This initial step to prohibit other buoy line markings will build on the gear marking regulations adopted by the Commission in September 2019. It is also a direct response to NOAA Protected Resource Division's recommended future work to prioritize expansion of fishery gear marking initiatives to be able to accurately identify the origins of entanglements (Saez, et al., 2020).

Although Oregon industry members have generally supported the concept of line marking to help identify the fishery source for entanglements, there is little consensus on how best to implement buoy line marking in Oregon at this time. Significant concerns have been raised about the risk of false positive and false negative gear attributions with line marking schemes proposed to-date. More time is needed to further develop additional details of an Oregon line marking scheme with industry, NMFS, and the other West Coast states.

6. Reduction of the Meat Yield Criteria for Opening the Season South of Cascade Head (OAR 635-005-0465)

Discussions at the Tri-State meeting in May 2020 centered on building more flexibility into the season opening protocols and coordination of whale entanglements risk reduction measures. At this meeting, the Tri-State Dungeness Crab Committee agreed to modify the Pre-Season Testing Protocol to reduce the meat yield criteria south of Cascade Head from 25% (rounding allowed) to 24% (no rounding) (Attachment 6). The intent of this change is to increase flexibility in the season opening protocol so that areas open earlier; since the number of pots declines over the season (Figure 4), an earlier season opening will lead to decreased pots in the water in later months, when risk of whale entanglements is higher. The Tri-State Committee recognized the desire to maintain a high quality product, and that this measure strikes a compromise between the threat of whale entanglements and the threat of eroding meat quality standards. A retrospective analysis by the Department indicates this change would have only potentially affected the opening date, and therefore meat yield, at the beginning of the season in one of the last seven seasons.

This measure was originally proposed by the California industry delegation at the 2019 Tri-State meeting and all three states committed to getting broader industry input before reaching a decision. Over the past year, the Department has largely received support for this change in industry feedback received in response to the Department's industry notice mailed in June 2019 and from discussions during ODCAC conference calls in July 2019 and April 2020. Industry members have largely expressed support for implementing measures to allow fishing to start as early as possible and retaining consistent meat quality criterion with California, while still maintaining an acceptable level of crab quality before opening the season.

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ISSUE 2

Crab Biotoxin Management Consistency Measures

ANALYSIS

As background, accumulation of biotoxins in Dungeness crab can occur in the viscera and the meat of the crab; biotoxin thresholds in meat are exceeded much more rarely than those for viscera but when they are, the only management response is to prohibit harvest and consumption to protect public health. However, when biotoxins accumulate at higher concentrations only in the viscera, an effective management option is to implement requirements to remove the viscera of the crab (i.e., evisceration) and thereby the accumulated biotoxins, leaving the untainted meat safe for consumption. Oregon implemented regulations in 2016 to allow commercial evisceration of crab when biotoxin accumulation warrants it and when management and industry confirm a benefit to employing this tool. After two seasons of implementing management measures in response to multiple events, some adjustments of the regulations were adopted by this Commission in 2019, particularly to eliminate the need for temporary rule-making to initiate and remove management measures during each biotoxin event. Complementary rules by ODFW and ODA in 2019 led to inadvertent inconsistencies, and staff recommends two rule amendments to address the inconsistencies:

- 1. Define separate management measures for the buffer zones of a biotoxin management zone (BMZ) with an elevated meat biotoxin sample.** The existing Department rule requires closure of the buffer zones adjacent to a designated closed BMZ if it was designated due to an elevated crab meat sample. ODA's rule provides for less restrictive measures in the buffer zones of a closed BMZ due to elevated meat biotoxin levels, and only requires evisceration of crab harvested within the buffer. This proposed amendment revises the Department's regulation to match ODA's management requirements in these areas.
- 2. Remove specific 'time' of sample collection from rule language.** The existing Department rule requires evisceration in specific circumstances based on the date and time that a crab sample was landed. Under these same circumstances, ODA requires evisceration based on the date the crab sample was landed, regardless of the specific time within that date the sample was landed. This proposed amendment removes the reference to time of sample collection in the Department's regulation to be consistent with ODA's rule.

These proposed changes, in combination with the efforts already implemented, will allow the agencies to implement management decisions more efficiently, allow industry to respond quickly to management decisions, and continue to strengthen the protection of public health while minimizing fishery disruptions and economic impacts. Crab industry members have been largely supportive of measures that continue to strengthen the confidence that crab harvested from Oregon waters are safe for consumption, and these regulations do this.

OPTIONS

ISSUE 1 – WHALE ENTANGLEMENT MITIGATION

1. Adopt staff recommendations for whale entanglement mitigation measures as described in Attachment 3.
2. Make modifications to staff recommendations.
3. Status quo.

STAFF RECOMMENDATION

1. Option 1

OPTIONS

ISSUE 2 – CRAB BIOTOXIN CONSISTENCY MEASURES

1. Adopt staff recommendations for crab biotoxin management measures as described in Attachment 3.
2. Make modifications to staff recommendations.
3. Status quo.

STAFF RECOMMENDATION

1. Option 1

DRAFT MOTION

I move to adopt the staff recommendations to OAR's proposed in Attachment 3.

EFFECTIVE DATE: Upon filing.