AGENDA ITEM SUMMARY

BACKGROUND

Marine Life Entanglements in Fishing Gear

Marine life entanglements in gear from various fisheries are a concern for many species, including certain whales and sea turtles. In Oregon, entanglements have been documented for large whales, most commonly humpback and gray whales. 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 Endangered Species Act (ESA) for threatened or endangered populations. Interactions with fishing gear have 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 laws.

Over the past six years, the Oregon Department of Fish and Wildlife has been actively working to address whale entanglements in Oregon's fixed-gear fisheries with increased effort over the last three 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. Many parts of this strategy have already been implemented in regulations. The draft Habitat Conservation Plan (CP) describes this strategy, including future measures and activities that will contribute to mitigating this problem. The states of California, Oregon, and Washington are in the process of developing separate but analogous CPs.

Habitat Conservation Plan

Section 10 of the ESA provides a mechanism for the authorization of a limited and carefully controlled amount of incidental take to listed species, through an Incidental Take Permit (ITP). The foundation of an ITP application is the CP, which is a planning document that describes the activities that are being proposed, how these activities impact ESA-listed species, and the mitigation measures that will be used to minimize those impacts to the maximum extent practicable. CPs are widely used by the U.S. Fish and Wildlife Service (USFWS) for activities proposed that impact ESA-listed species under their authority (largely for terrestrial and freshwater systems). To address the emerging whale entanglement issue, the department has worked closely with federal and state agency partners over the past two years to develop and draft the CP, which will be submitted to the National Marine Fisheries Service (NMFS), which has authority over whales and sea turtles at sea.

Input received from public comment on the CP and from the Oregon Fish & Wildlife Commission will be considered by the department as the CP is finalized for submission to NMFS later this year. After submission, NMFS will consider all aspects of the CP and make a determination on ITP issuance. This process is expected to take multiple years to complete.

PUBLIC INVOLVEMENT

Department staff have involved stakeholders in the development of the draft Conservation Plan (CP), and the regulatory approaches within the CP, through a variety of methods over many years. Stakeholders include the public at large, members of the crab fleet, governmental and non-governmental organizations with an interest in this issue, management counterparts in other states, and federal managers and researchers. Recent engagement activities include:

Public Comment on CP – The CP was released on August 18, 2021 and posted on the department's Commercial Crab website (below) for public comment.

Oregon Whale Entanglement Working Group (OWEWG) – Beginning in May 2017, Oregon Sea Grant first convened the collaborative OWEWG and department staff have been active participants throughout. In January 2021, the department met with members of OWEWG to develop the monitoring program described in the CP.

Public Meetings –In 2020, two virtual meetings were held to brief industry on the drafting of the CP, incorporation of the commission-adopted regulations packages (2019 and 2020) and, in particular, the addition of anticipated take levels, short-term adaptive management triggers and responses, and long-term alternative risk reduction measures.

Industry Notice – In August 2021, department staff mailed an industry notice to all commercial crab permit holders and licensed seafood dealers regarding the CP draft, September commission meeting, and request for public comment; this most recent industry notice adds to multiple industry notices from 2017-2021 on marine life entanglements regulations development.

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 Committee (Tri-State) meetings. Advisory meetings are open to the public.

Annual Crab Newsletter – Department staff have produced an annual newsletter for the commercial Dungeness crab industry since 2007. In recent years, marine life entanglement issues have been prominently featured, including in the most recent one issued November 2020.

Additional details on engagement are available in commission documents from the September 2019 and 2020 exhibits and posted on the commercial crab webpage:

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

Tri-State Dungeness Crab Meetings – Department staff, along with Oregon industry representatives, met with Washington and California delegations at a Tri-State meeting in May 2020. A summary of this meeting can be found here: http://www.psmfc.org/crab/.

Department staff have also been meeting regularly with Tri-State crab fishery managers and NMFS Protected Resource Division staff since August 2019 to share information and coordinate on the development of CPs in all three states. Additionally, these meetings initiated the development of the 2020 West Coast Entanglement Science Workshop. Workshop proceedings are located here: https://www.opc.ca.gov/west-coast-entanglement-science-workshop.

Oregon Fish and Wildlife Commission Briefings and Exhibits – Department staff have briefed the commission multiple times on this issue (June 2019, September 2019, August 2020, and September 2020 meetings).

Additional Public Involvement - In addition to these formal outreach methods, department staff have answered numerous calls, emails, and in-person communications and have considered this input in developing recommendations for permanent rules.

ISSUE 1

Conservation Plan Development Process and Timeline

ANALYSIS

The CP describes the ocean commercial Dungeness crab fishery and the historical and anticipated future impacts of entanglements on species covered under the anticipated ITP. The CP is an in-depth document that plans for the co-existence of a vibrant crab fishery and the recovery of covered species (humpback whales, blue whales, and leatherback sea turtles) in ocean waters off Oregon. This exhibit provides a brief summary of key components of the CP; the department encourages review of the full CP document referenced above under "Public Involvement".

Development of a CP is a costly, time-intensive, analytical and writing endeavor, and the department has dedicated significant staff time and funds to preparing the CP. The two regulatory packages adopted by the commission in 2019 and 2020 included major regulatory changes and were vetted through an intensive public process prior to commission consideration. During this same period of time, the department received federal grant funding in support of collaborative research to fill a data gap, describing whale distribution and fishery overlap (or "co-occurrence"), following an initial investment in the pilot project for this research by industry (through the ODCC).

In the coming months, the department will consider public comment and commission guidance, finalize the draft document, and submit the CP to NMFS as part of a complete ITP application package in late 2021 or early 2022. After NMFS conducts internal scoping and planning, they will initiate a public scoping and National Environmental Policy Act (NEPA) evaluation process (including development of an Environmental Assessment or Environmental Impact Statement) that will inform NMFS consideration and modification of the CP and ITP terms and conditions. As mentioned above, the NMFS process is expected to take multiple years to complete.

Concurrently, the department will continue to monitor the management measures that have already been put into rule by the commission and recommend adjustments, as needed. The department will recommend the first minor adjustments to the regulations in support of the CP to the commission in October 2021 as part of the Dungeness Crab Fishery Management Plan exhibit. The primary rules implementing entanglement risk reduction were put in place for three crab seasons (2020-21 through 2022-23) and will need to be reconsidered by the commission for potential revision or extension before the 2023 sunset date.

Once a permit determination has been made by NMFS, any conditions of the ITP must be accepted by the department; conditions that require regulatory change to implement will be brought to the commission for their adoption. The CP will be considered final when the commission regulations and NMFS determination are aligned (as approved in the ITP).

ISSUE 2

Conservation Plan Summary

ANALYSIS

Conservation Plan Sections 1-4: Natural Resources and Management Concerns

The first four sections of the CP broadly cover the problem statement of the issue. These sections describe the scope of the proposed ITP, the fishery and its management, biological information on the covered species, and anticipated impacts and take estimates. Elements of the CP Sections 1-4 are briefly described here.

Scope of the Proposed ITP – CP Section 1

The department is proposing a 20-year ITP (renewable) for the Oregon ocean commercial Dungeness crab fishery covering the waters used by this fishery sector (all state and federal ocean waters west of the jetties of each estuary mouth and west of the Astoria-Megler bridge in the Columbia River estuary). The department is including three species for incidental take permit coverage: humpback whales, blue whales, and leatherback sea turtles. These species are all listed as endangered or threatened under the ESA, are all found in Oregon waters, and have all been subject to a confirmed entanglement in Dungeness crab gear from one or more of the three western states (Oregon, California, Washington).

Fishery and Management Description – CP Section 2

The crab fishery is a keystone of the seafood industry in Oregon, as the state's most valuable single-species commercial fishery accounting for up to forty percent of all commercially landed value each year (TRG, 2021). 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 and federal waters, management authority for the U.S. West Coast fishery is delegated to the western states through specific provisions of the Magnuson-Stevens Fishery Conservation and Management Act.

Management has been largely stable over the history of the fishery, consisting primarily of restrictions on size, sex, and season of harvest, with more recent regulations addressing limited entry participation and pot limitation. Fishery logbooks, fish landing tickets, and derelict gear retrieval provisions are cornerstones of fishery accountability. Approximately 115,000 single-line pots are used in the fishery each year, representing the bulk of the fixed gear deployed in Oregon ocean waters.

In recent years, numerous management challenges resulting from changing ocean conditions have emerged across the entire U.S. West Coast crab fishery. These include increased interactions with protected species, increased frequency and duration of harmful algal blooms and associated biotoxins, and changes in the timing of crab molting that affect quality and marketability at the beginning of the season. Season opening delays from either biotoxins or crab quality criteria can increase the seasonal co-occurrence of gear with protected species, thus making avoidance of lengthy season opening delays highly desirable. Climate and ocean change has been hypothesized to increase overlap in whale distribution and fisheries, increasing the likelihood of large whale entanglements in fixed fishing gear (Santora et al., 2020).

Covered Species – CP Section 3

Humpback Whale Populations

During the spring, summer, and fall, some groups of migrating humpback whales (*Megaptera novaeangliae*) utilize Oregon waters as feeding grounds. Recent population estimates for this population indicate a substantial increase over the minimum population estimate used in the most recent humpback whale stock assessment report (SAR) under the MMPA (NMFS, 2019a; Calambokidis and Barlow, 2020). Some humpback whale population segments are listed under the ESA, distinguished based on their affiliation with specific breeding grounds. Three breeding populations, or Distinct Population Segments (DPS), forage on the West Coast including the Hawaii DPS (not listed), Mexico DPS (ESA-threatened), and Central America DPS (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., 2021).

NMFS has designated waters off Oregon as critical habitat for humpback whales from the Central America and Mexico DPSs. This habitat includes three specific areas occupied by humpback whales of these DPSs: the Columbia River Area, Coastal Oregon, and Southern Oregon/Northern California (NMFS, 2020, 2021a). Additionally, seven Biologically Important Areas (BIAs) for humpback whales have been identified in U.S. waters, including one 2,573 km^2 area off Oregon where high concentrations have been sighted feeding from May-November (Calambokidis et al., 2015).

Blue Whale Populations

The West Coast is one of the most important feeding areas for the Eastern North Pacific (ENP) stock of blue whales (Balaenoptera musculus) in the summer and fall. There have been no BIAs identified off Oregon for blue whale feeding (Calambokidis et al., 2015), and NMFS has not designated critical habitat off Oregon for the species. However, blue whales have been shown to utilize secondary feeding areas off Oregon and Washington during the fall (Burtenshaw et al., 2004), and a northward shift of blue whales into waters off Oregon is being documented (Barlow, 2016). All global blue whale populations are listed as endangered under the ESA.

The most recent estimate of ENP blue whale minimum abundance used for SAR purposes is 1,050 whales (Barlow, 2016). However, recent work by Calambokidis and Barlow (2020) provides an updated minimum abundance of 1,767 whales, suggesting a possible increase in abundance since 2014.

Leatherback Sea Turtle Populations

The listing status of leatherback sea turtles was reviewed by NMFS and USFWS in 2020 and seven potential leatherback sea turtle DPSs were identified, all of which meet the definition of high risk of extinction. Leatherback sea turtles encountered off the U.S. West Coast are expected to belong to the potential West Pacific DPS (NMFS and UWFWS, 2020). Leatherback sea turtles have been documented arriving off the U.S. West Coast in April-July and departing in late November. Off Oregon and Washington, foraging behavior has been documented particularly in shelf and slope habitat (200 – 2000 m) adjacent to the Columbia River Plume where seasonal retention of gelatinous prey is common (Benson et al., 2011). NMFS designated waters off Oregon as critical habitat for leatherback sea turtles in 2012 (77 FR 4169). Long-term monitoring of nesting populations and at foraging grounds indicate Pacific leatherback sea turtles to be in decades of

decline (NMFS and USFWS, 2020; Benson et al., 2020). Leatherback sea turtles are listed as endangered throughout their entire range under the ESA (35 FR 8491).

Non-covered Species

The department is not seeking ITP coverage for species that are either not an ESA-listed marine mammal or turtle (even if they have been confirmed as entangled in crab gear) or that have not previously been confirmed as entangled in crab gear along the U.S. West Coast (even if they are ESA-listed). Non-covered species include gray, killer, fin, sperm, sei, North Pacific right, and minke whales, and loggerhead, green, and olive ridley sea turtles.

Gray Whale Populations

The currently recognized stock of gray whales (*Eschrichtius robustus*) in Oregon waters is not listed under the ESA and therefore the department is not seeking ITP coverage for this species. Gray whales have historically comprised the majority of entanglements involving West Coast crab gear, while in the more recent years whale entanglements have been almost exclusively of humpback whales (Figure 1). Because of the abundance of gray whales off Oregon and the record of historical gray whale entanglements, it is important to describe this species and potential impacts in the Oregon crab fishery in brief detail here, with more detail in the CP.

Currently, there are two recognized stocks of gray whales, as defined under the MMPA: the Eastern North Pacific (ENP) and the Western North Pacific (WNP). The ENP stock of gray whales is by far 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. Despite large-scale fluctuations in abundance, the ENP stock is estimated to be at or near historical levels (Stewart and Weller, 2021) and was delisted under the ESA in 1994. In addition, there is a small subgroup of the ENP stock, called the Pacific Coast Feeding Group (PCFG), that remains in the Pacific Northwest to feed during the summer when most ENP grays are in Alaska waters (Carretta et al., 2021). The WNP stock is significantly smaller than the ENP stock and is listed as an endangered distinct population segment (DPS) under the ESA. A small number of WNP whales have been documented in the Eastern North Pacific suggesting a low level of interchange between the WNP and ENP (Carretta et al., 2021).

Covered Species Impacts: Interactions with Dungeness Crab Gear – CP Section 4

Since 2014, the number of reported and confirmed marine life entanglements in fishing gear along the West Coast has been elevated over historical levels, and have led to serious injuries and mortality of whales (NMFS, 2021b). Because of the elevated entanglements, NOAA Fisheries started publishing annual summaries of large whale entanglements, the most recent of which summarizes 2020 data (NMFS, 2021c). From 2013 through 2016, the West Coast was subject to an unprecedented large marine heatwave which was associated with a cascade of ecosystem responses. Since this time, several shorter-duration large marine heatwaves have been observed as well (Harvey et al., 2020). NOAA Fisheries 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 (NMFS, 2019b).

From 2013 through 2020, approximately 29% of confirmed entanglements were attributed to commercial Dungeness crab gear, 7.2% were from other pot and trap fisheries, 12.2% involved nets and the remaining 51% could not be attributed to a specific gear type (NMFS, 2021b) (Figure 1A). Entanglements specifically involving commercial Dungeness crab gear have also been elevated since 2014, driven largely by entanglements with humpback whales (Figure 1B). While

gray whale entanglements have remained low and relatively consistent over time, the first documented blue and transient killer whale entanglements were confirmed in California commercial Dungeness crab gear in 2015.

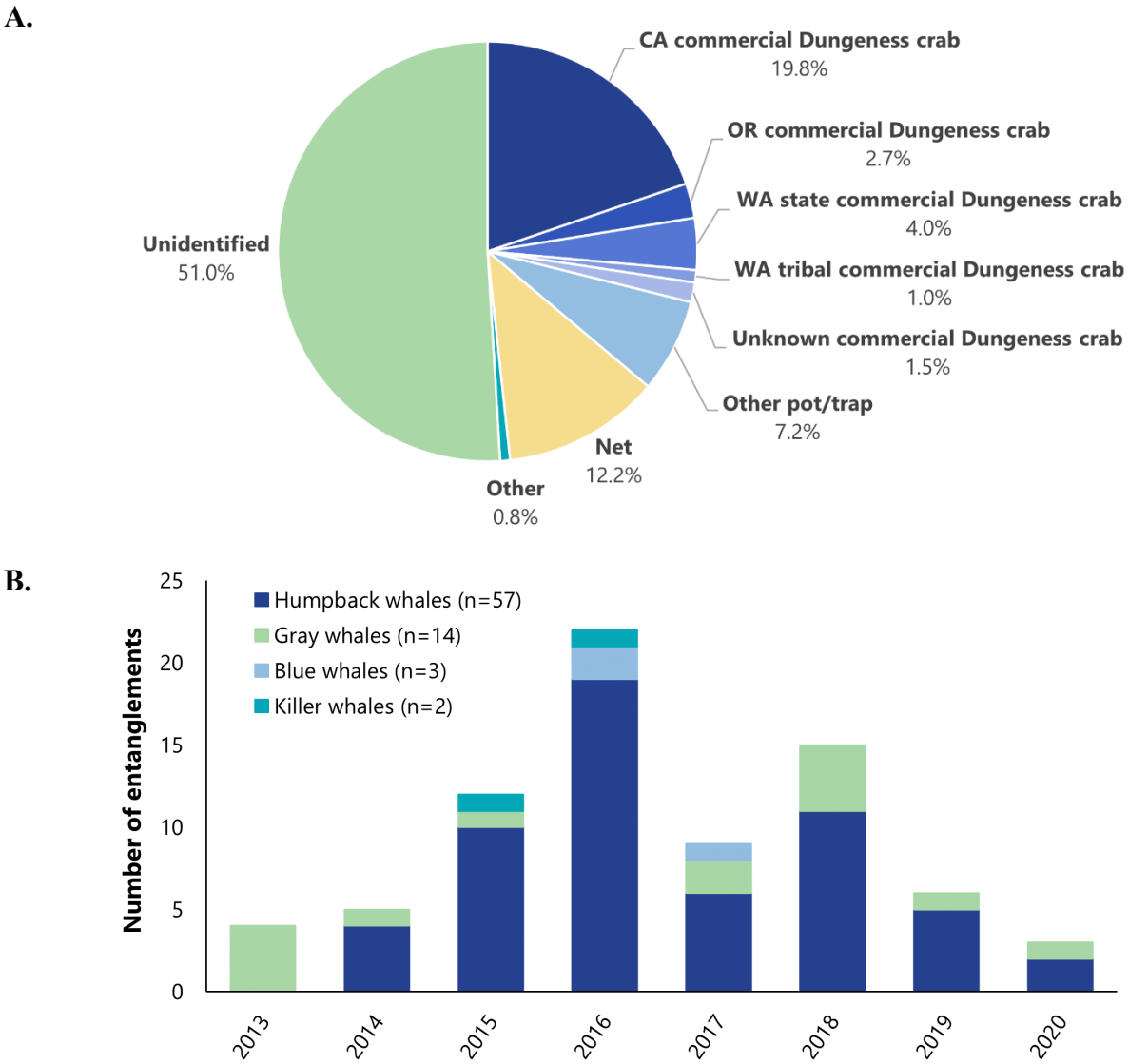

Figure 1. Confirmed whale entanglements in fishing gear from West Coast states. A) Confirmed entanglements from 2013-2020, by gear type. B) Confirmed entanglements from 2013-2020, by species, with commercial Dungeness crab gear from West Coast states. Crab gear entanglements include those attributed to Washington (n=13), Oregon (n=7), and California (n=52), in addition to four entanglements in crab gear where the state is unknown. Data provided by NMFS West Coast Region (WCR), April 2021.

Whales Confirmed Entangled in Oregon Dungeness Crab Gear

The offshore waters of the West Coast are significant feeding grounds and/or migratory corridors for many whale species, including commonly observed gray and humpback whales, as well as more rarely seen whale species. From 2013 through 2020, only humpback and gray whales were confirmed entangled in Oregon Dungeness crab gear; however, in 2021 the first minke whale entanglement was documented with gear originating from the Oregon fishery. The analysis of the minke entanglement is in progress, and data will be included in the 2021 entanglement summary, available early in 2022. While minke whales are not listed under the ESA, they are protected under

the MMPA and therefore represent a new concern for Oregon's management of marine life entanglements.

From 2013 through 2020, there were seven whale entanglements attributed to Oregon commercial Dungeness crab gear (Figure 2). Six of these have been entanglements with ESA-listed humpback whales, and one was with a gray whale. The observations have been reported from Washington to Mexico, indicating that whales entangled in Oregon waters can travel great distances before being observed and documented.

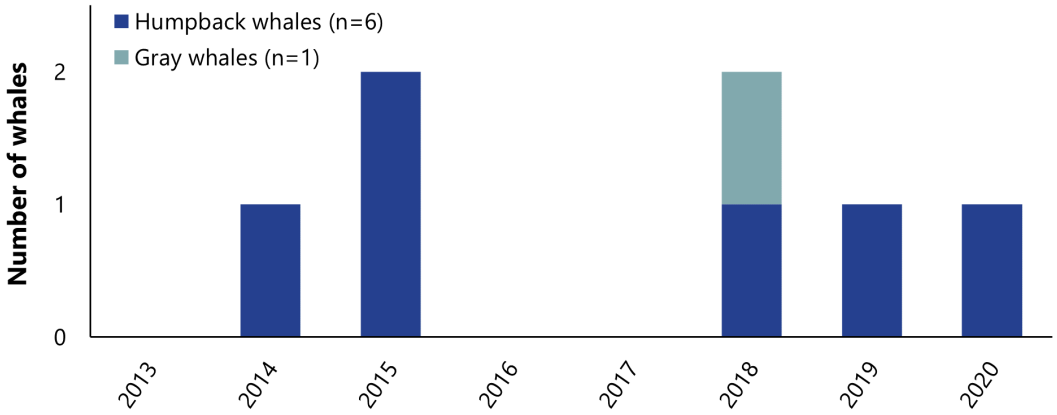

Figure 2. Confirmed whale entanglements, by species, with Oregon commercial Dungeness crab gear from 2013-2020. Data provided by NMFS WCR, April 2021.

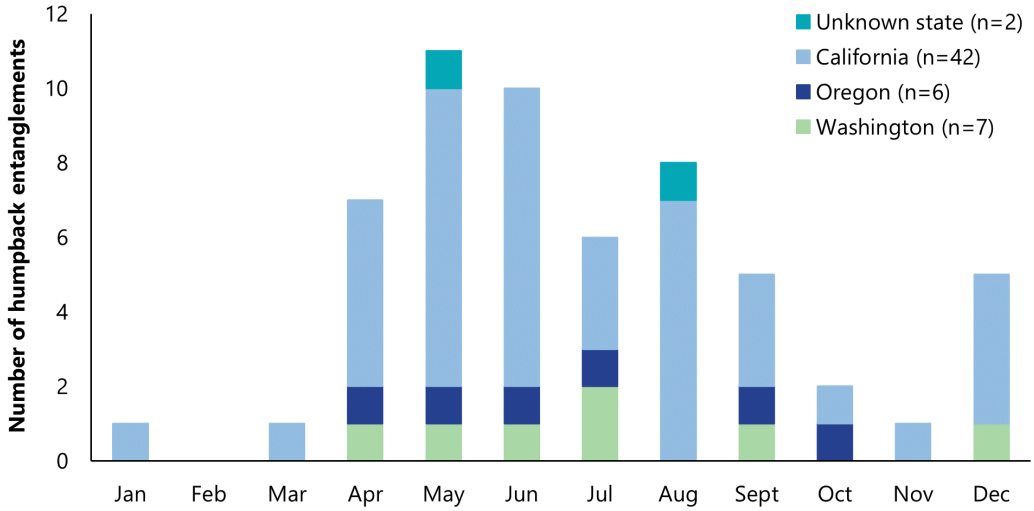

Figure 3. Confirmed monthly reports of entangled humpback whales in commercial Dungeness crab gear from California, Oregon, and Washington from 2013–2020. Data provided by NMFS WCR, April 2021.

Humpbacks confirmed entangled in West Coast Dungeness crab gear have been reported in all months of the year except February, with the majority reported from April through September, and May and June having the highest number of reports (Figure 3). 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).

Anticipated Take and Calculations for Covered Species

Under the ESA, entanglements are considered take and ITP issuance is dependent on take being reduced to the maximum extent practicable. In the department's application for an ITP, the department must first estimate the anticipated take, as explained briefly below and in detail in the CP. Under the MMPA, entanglements are also defined as take and NMFS is responsible for evaluating the impact of the anticipated take (i.e., serious injuries and mortality) on the population status of the species in question in order to make a Negligible Impact Determination (NID). A NID demonstrates that the impacts of take are not expected to be significant for a given stock and can therefore be tolerated without adversely affecting the stock. The CP goes into both the anticipated take estimation and an illustration of the NID process and calculations in detail.

The anticipated take of each covered species by the Oregon crab fishery over the requested permit period is summarized in Table 1. The amount of take for humpback whales is based on entanglement records involving the Oregon crab fishery from 2013 through 2020. There have been no confirmed entanglements of blue whales or leatherback sea turtles in Oregon gear, so the amount of take is estimated from all West Coast entanglement records involving those species. ODFW expects that the conservation program implemented through this CP will minimize interactions between covered species and crab gear so that the actual take levels will be lower than those listed below.

Table 1. Anticipated (and requested) take (i.e., entanglements) of covered species by the Oregon crab fishery over the permit period (20 years).

Species/stock	Anticipated take
Humpback whale (CA/OR/WA stock)	Up to two animals per year
Blue whale	Up to one animal every five years
Leatherback sea turtle	Up to one animal every ten years

Conservation Plan Sections 5 and 8: Biological Goals/Objectives, Conservation Measures (& Alternatives Considered), Adaptive Management, Monitoring

The foundation of the CP approach is the biological goals and objectives (CP Section 5.2) for conservation of the covered species proposed in the ITP, and the suite of conservation measures that have been or will be implemented to meet the goals and objectives adaptively over the term of the permit. Figure 4 summarizes the goals and objectives, and the conservation (CP Section 5.3) and adaptive management (CP Section 5.6) measures proposed in the CP. Figure 6 describes the approaches for monitoring the covered species and the fishery (CP Section 5.4) to support the CP/ITP performance evaluation and metrics (CP Section 5.5). The CP also documents the department's consideration of the alternatives to the proposed take and conservation measures (CP Section 8), as required in CPs.

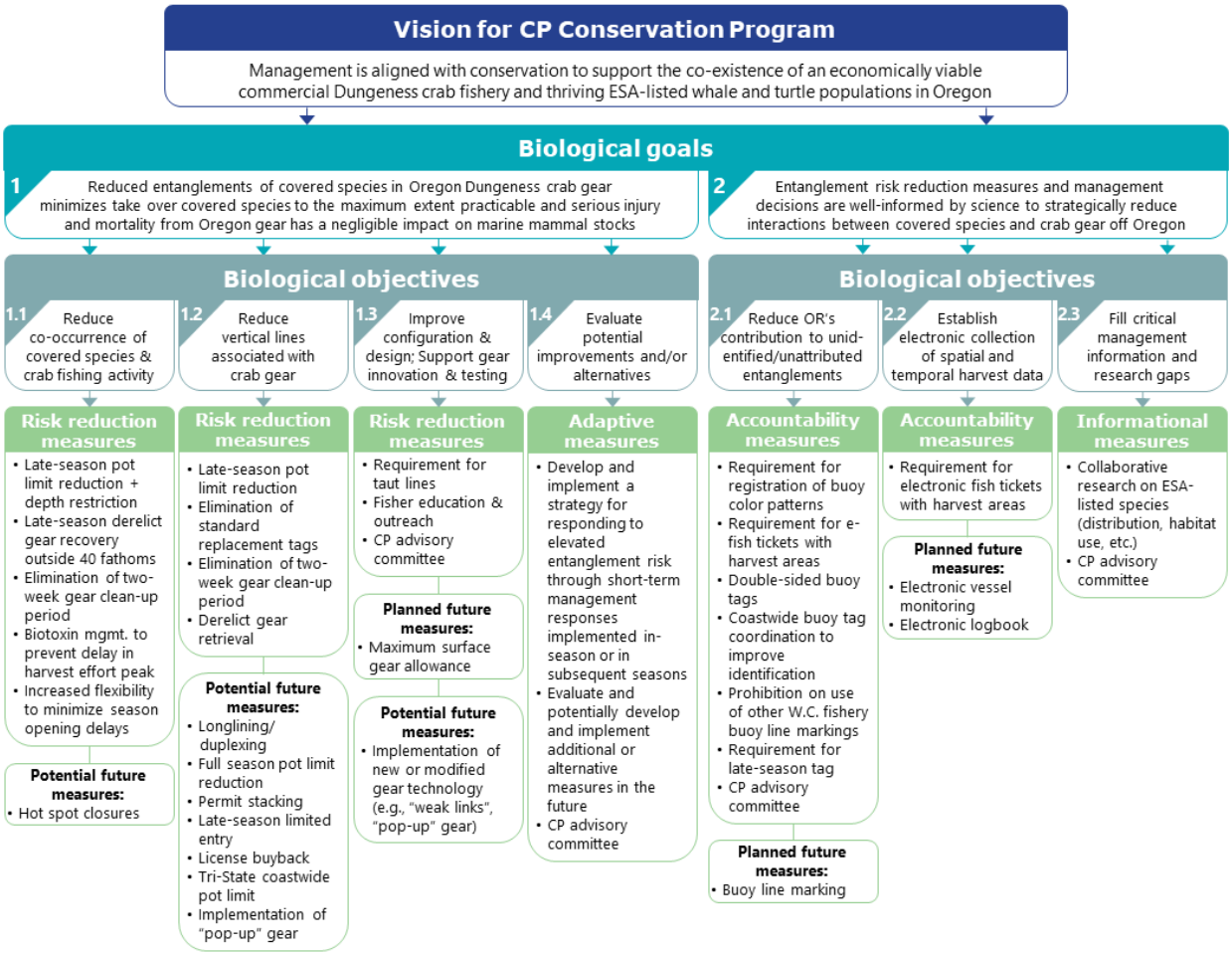

Figure 4. Relationship between the CP conservation program's vision, biological goals, biological objectives, and conservation measures implemented in support of each.

To meet the goals and objectives, the department considered both the biology and ecology of covered species, as well as the general operations of the fishery to propose conservation measures that reduce the risk of entanglement. A central theme of the conservation approach is identifying and reducing co-occurrence of covered species and fishery activity to reduce the probability of interactions. The commercial Dungeness crab fishery is most active during the winter months immediately following the season opening, when nearly all active permit holders are making landings. The season start date is set through 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, fishery effort starts to significantly decline beginning in April, and continues to decline through the end of the season (August 14; see Figure 5). An elevated level of confirmed entanglements of ESA-listed humpback whales in Oregon commercial crab gear has occurred in recent years despite this attrition of effort throughout the season.

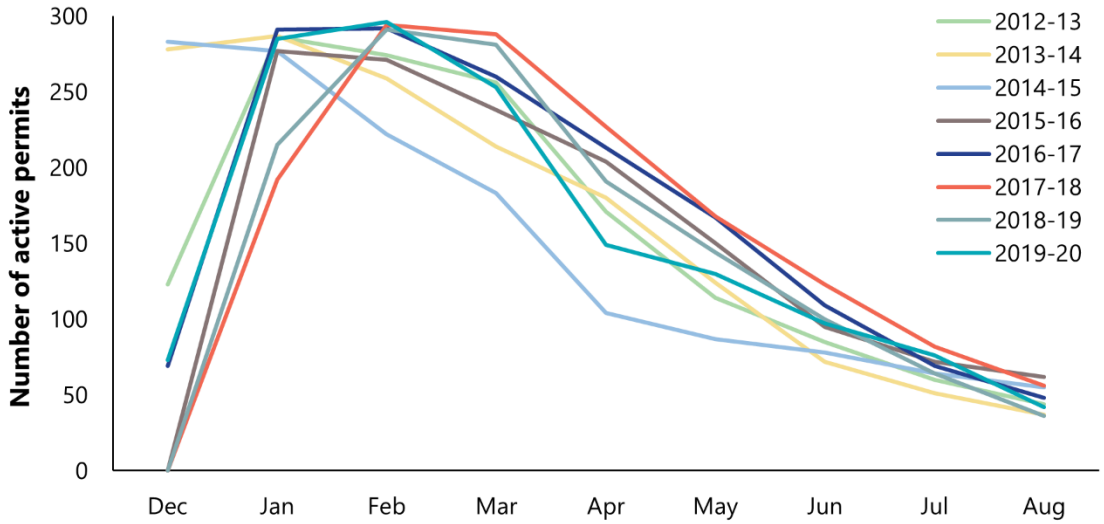

Figure 5. Number of monthly active permits utilized in the Oregon Dungeness crab fishery from the 2012-13 through 2019-20 seasons. The season opening date was delayed on some or all of the Oregon coast during all but one season (2014-15 season).

The regulatory approach recommended in the CP is a set of management measures intended to reduce the amount of crab gear (fishing lines) in the water when and where covered species are occurring in Oregon's coastal and offshore waters. There is limited information on the quantitative relationship between co-occurrence of whales and gear, and the resultant entanglement risk. However, every line in the water has the potential to interact with a marine mammal; therefore, line reduction is the most widely adopted 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 (OWEWG, 2018; WWEWG, 2018). Reduction of lines in fixed-gear fisheries has been implemented to address whale entanglements in pot gear on the U.S. East Coast (NMFS, 2014) and West Coast (ODFW, 2020; WDFW, 2020).

Primary Conservation Risk Reduction Measures

The primary risk reduction measures in the CP are already in permanent regulation. This includes a depth restriction to move vertical lines out of deeper waters during the season when and where humpback whales are most abundant off Oregon, and a 20% pot limit reduction to avoiding additional crowding of gear in shallower waters. These measures are effective May 1 annually, and should also decrease the risk of entanglement for other whale species with similar seasonal and depth preferences (e.g., blue whales). The seasonal and depth preferences of leatherback sea turtles are poorly documented in Oregon; however, the primary conservation measures designed for humpback whales are intended to prevent gear crowding in nearshore areas and should prevent additional risk of entanglement to leatherback sea turtles or other marine life that may be concentrated nearshore.

Because the department is actively engaged in research to inform and refine these conservation measures, the department recommended and the commission adopted, a three-year trial period with re-evaluation in 2023 to revisit the specific approach. At the end of this period, the department will recommend continuation or modification of the measures, as appropriate, to best meet the conservation goals and objectives, and fishery needs. Figure 4 outlines additional measures which are currently in place to reduce vertical line days, particularly during peak whale months.

Conservation Risk Reduction Measures – Future Plans

The department plans to develop and evaluate a new requirement prior to the start of the 2022-23 crab season to define maximum surface gear, with the intent of decreasing the use of surface gear that results in increased entanglements. Additional potential measures are explored below in "Adaptive Management".

Conservation Accountability Measures

Each observed entangled whale is carefully documented, evaluated, and analyzed to glean information on the origin of the gear involved. Despite this effort, more than half of the gear observed and/or recovered in recent years from West Coast whale entanglements has not been attributable to a specific fishery (Figure 1A). Information on the origin of entanglements is critical for designing measures that create effective changes in fishing practices to protect whales.

Enhanced accountability measures implemented in the Oregon crab fishery in recent years include the following (additional details are found in the CP):

1. Registration of buoy color patterns.
2. Electronic fish tickets requirement, including harvest area designation, for all commercial crab landings.
3. Prohibition on using buoy line markings of other fisheries/states.
4. Late-season tag requirement, starting May 1 each year.
5. Buoy tag shape/color, double-sided printing, regional coordination.

Additional accountability measures that have been adopted by the commission include marking requirements for all commercial fixed gear buoys used in Oregon and on recreational crab buoys.

Conservation Accountability Measures – Future Plans

The department is developing recommendations for two new accountability measures in support of the CP. These include buoy line marking, and electronic monitoring combining vessel tracking and electronic logbooks. These measures are described in the CP and require additional development with the fleet.

Monitoring & Research (Fill Data Gaps)

The ITP issuance requirements necessitate that each CP has a monitoring program to continually assess the impact that the fishery has on the covered species. The department has evaluated a wide range of monitoring activities for the near- and long-term future. The result of this is a multi-pronged, phased strategy that will augment the existing opportunistic entanglement reporting coordinated by NMFS.

The activities included in the department's monitoring strategy can be characterized as two tiers (Figure 6). The first tier includes activities that the agency is committed to implementing; however, the target implementation date differs depending on the department's readiness. Planning and funding are needed for all monitoring activities and will be part of budget planning processes. These activities provide the co-occurrence information that is the foundation of the primary conservation measures, and will also provide data to inform assessments of covered species take and management measure impacts.

The second tier includes activities that the department will support to promote research, technological development, funding, etc. with partners; however, many of the activities in the second tier are outside of the direct control of the department.

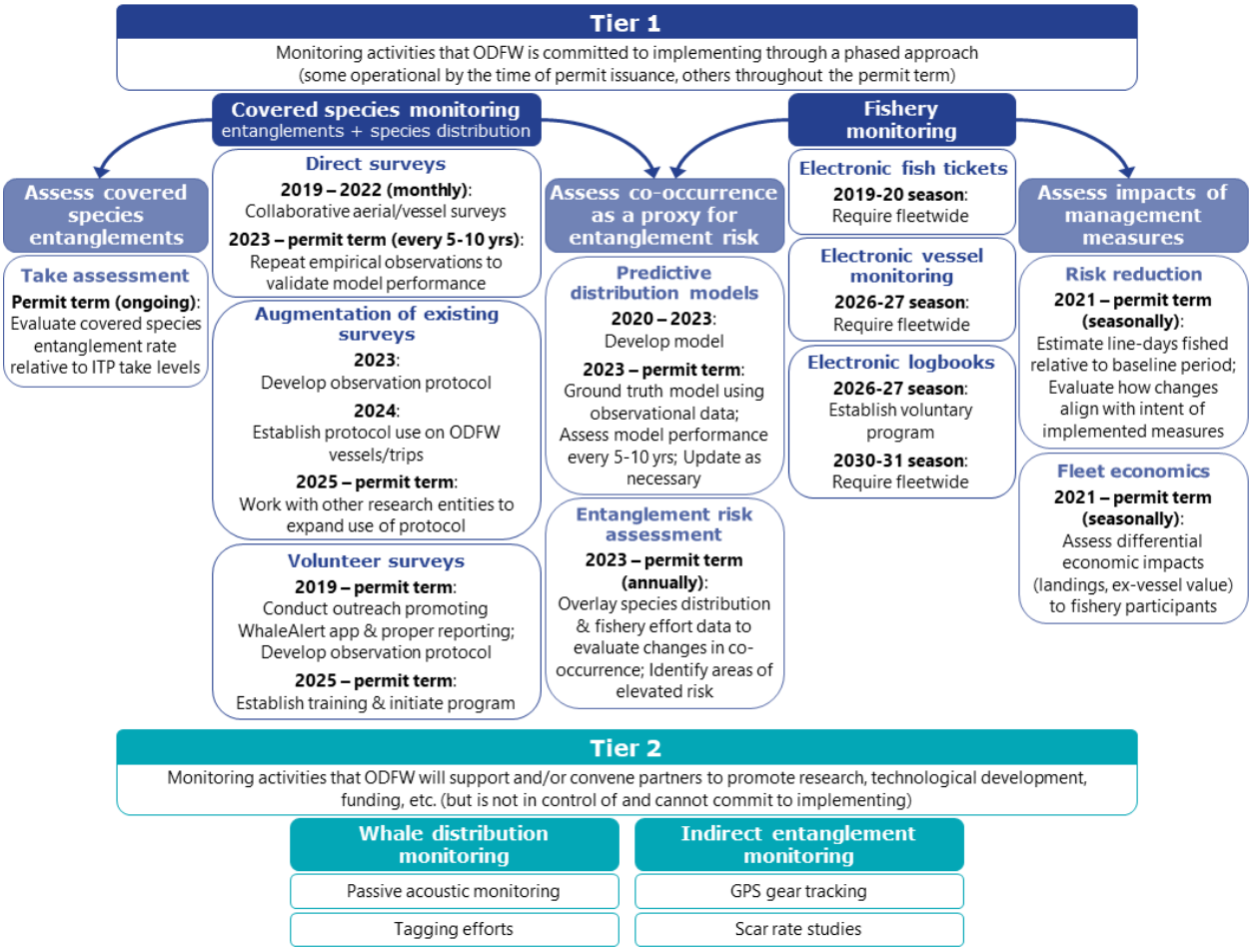

Figure 6. ODFW's two-tiered entanglement and co-occurrence monitoring strategy.

Performance Evaluation – Vertical Line-days and Success Criteria

The department has developed vertical line-day estimates as a metric to help evaluate performance of conservation measures. This metric is useful for comparing various conservation measures and quantifying changes over time in response to regulation changes.

To estimate line-days, the number of active permits (those that make at least one landing into Oregon) by half-month periods throughout the crab season was summarized. A vertical line estimate was made by multiplying the number of active permits by their associated pot limit (200, 300, or 500 pots) for each half-month period, and summing the result across all active permits. The summed vertical line estimates were multiplied by the number of days that the season was open in a given half-month period to yield total vertical line-days for the period. Analogous estimates of the anticipated reduction in vertical line-days were developed for each of the risk reduction measures in the CP.

Success criteria were set in order to track progress towards meeting CP objectives and include both quantitative (Table 2) and qualitative criteria. Table 2 shows the total reduction in vertical line-days needed to meet the established success criteria (quantitative) and the reduction in vertical line-days anticipated from implementation of the suite of management measures that are included in the conservation program (Figure 4). CP performance will also be evaluated relative to qualitative performance criteria for other objectives, as detailed in Section 5.5 of the CP. This performance evaluation will be documented in periodic reports by the department to NMFS.

Table 2. Performance and success criteria for determining progress towards achieving biological Objectives 1.1 and 1.2a. All success criteria will be measured relative to baseline levels (from 2012-13 through 2019-20), except for Objective 1.1b where baseline levels do not include 2019-20 since logbook data are not yet available for analysis.

Objective	Performance criteria	Success criteria	Baseline level	Reduction needed	Reduction anticipated
1.1a	Average active line-days fished from May 1 through the end of the season	20% reduction by 2025	2,758,024	-551,605	-808,401[a]
1.1b	Average active line-days fished outside 40 fathoms from May 1 through the end of the season	≥50%[b] reduction by 2025	122,452	-61,226	-122,452[a]
1.2a	Average active line-days fished across the season	5% reduction by 2025	12,539,336	-626,967	-1,039,498

[a]The reduction anticipated for Objective 1.1 is based on risk reduction measures that have been implemented through the 2022-23 crab season (see *CP Section 5.3.1.1*). Prior to the expiration of those rules, ODFW will evaluate the effectiveness of those measures and provide recommendations to the OFWC that will provide equal and/or more conservation benefit to the covered species as the original measures. This could result in a change to the reduction anticipated.
[b]The depth restriction that is currently implemented is expected to eliminate all active line-days outside of 40 fathoms during the late-season in the near-term; however, Objective 1.1b is drafted as a reduction of ≥50% to account for potential adaptive management actions that could result in some line-days outside of 40 fathoms in the future.

Adaptive Management

Should the conservation measures not achieve the conservation goals and objectives, the department will initiate consultation with NMFS to consider the reasons and potential solutions for improvement. In addition, should the conservation measures prove to be inappropriately burdensome to the fishery, the department may consider mechanisms to alleviate the burden. The department has listed future potential conservation measures in a table in Section 5.6.2 of the CP, ranked according to readiness and preference by industry, as synthesized from cumulative public meeting discussions and interactions with industry members. Prioritization is based on management readiness and industry support, and barriers to implementation are noted. The department plans to evaluate each measure and, if suitable for application in the crab fishery, proceed with development in the order in which they are listed.

Conservation Plan Sections 6-7: ITP Terms, Partners, Fiscal Assurance

Sections 6 and 7 of the CP describe implementation logistics, partners, and financial capability to carry out CP commitments. Of particular interest is the description of the use of advisory committees and collaborations that will be critical to successful implementation. Section 6.2 details the process and conditions under which amendments to the CP might be required. Section 7 describes the department's fiscal ability to commit to the capacity needed to implement the terms of the CP. While these sections are essential to success, they are mechanistic in nature and will not be further detailed here.

Conclusion

The CP will be finalized for submission to NMFS this winter. All comments received will be considered, provided to NMFS for NEPA evaluation, and posted on the ODFW commercial Dungeness crab website. The final draft CP will also be posted in the same location when it is submitted to NMFS.

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