

Reducing the Risk of Whale Entanglements in Washington Crab Gear: Frequently Asked Questions*

*This document has been adapted from ODFW's Entanglement FAQ, found here.

Whale distribution, abundance, and surveys

1. Which humpback whale populations (or distinct population segments) are here off Washington, and how do we know that?

<u>Take-home</u>: Humpback whales feeding off Washington are from the Hawaii (unlisted), Mexico (threatened) and Central America (endangered) DPSs.

Whale populations in the United States are protected, assessed, and managed by the federal government under the Marine Mammal Protection Action (MMPA) for all species (or stocks), and additionally under the Endangered Species Act (ESA) for threatened and endangered populations (or distinct population segments; DPSs).

In 2016, the globally endangered ESA-listing status for the humpback whale (which was in place since the 1970s) was revised to include 14 DPSs. DPSs are considered discrete from other populations of the species and significant in relation to the entire species (Bettridge, 2015). Humpback whale DPSs are geographically-designated based on winter breeding areas with at least three occurring off the coast of the Tri-state area, including:

- The **Mexico DPS** which breeds along the Pacific coast from Mexico to the Revillagigedo Islands, transits the Baja California Peninsula, and feeds from California to the Aleutian Islands;
- The **Central America DPS** which breeds along the Pacific coast of Central America and feeds off the West Coast of the United States and southern British Columbia; and
- The **Hawaii DPS** which breeds in the main Hawaiian Islands and feeds in most of the known feeding grounds in the North Pacific, particularly Southeast Alaska and northern British Columbia.

Of these, the <u>Central America DPS is listed as endangered</u>, the <u>Mexico DPS is listed as</u> <u>threatened</u>, and the <u>Hawaii DPS is no longer listed</u> under the ESA.

The relationship between ESA DPSs and MMPA stocks is complex. For MMPA purposes, NMFS defines humpback whales that feed off the U.S. West Coast as one California/Oregon/Washington stock ("CA/OR/WA stock") which primarily includes whales from the Central America DPS (endangered) and the Mexico DPS (threatened), with a small number of whales from the Hawaii DPS (non-listed). Due to the high proportion of whales originating from ESA-listed DPSs, the CA/OR/WA stock is currently considered "depleted" under the MMPA.

The CA/OR/WA stock can further be divided into two feeding groups: the California/Oregon and Washington-southern British Columbia ("WA/SBC") feeding groups. These feeding groups are recognized based on photo identification and genetics (Calambokidis *et al.*, 2017).

The CA/OR/WA stock is estimated to include ~2,900 animals (and a minimum of 2,784 whales), of which ~18% (~526 animals) form the WA/SBC feeding group (NMFS, 2018).

The WA/SBC feeding group is comprised of a mixture of the Hawaii DPS (unlisted), the Mexico DPS (threatened), and the Central America DPS (endangered). Updated abundance estimates are expected to be released soon.

2. Aren't the whale populations increasing, and could that explain why we're seeing more entanglements?

<u>Take-home</u>: While changing whale populations may be contributing to interactions with crab gear, it does not likely explain the entire observed increase in entanglements.

There is significant uncertainty about actual population sizes, but the most recent abundance estimates for the Central America DPS, Mexico DPS, and Hawaii DPS are 783, 2,806, and 11,571 whales, respectively (Wade, 2017). Several studies have utilized different methods to assess the possibility of mixing between populations. Acoustic monitoring studies have suggested that there is ongoing, but annually variable, mixing of North Pacific humpback whale populations (Darling *et al.*, 2019). However, genetic and photo identification data indicate significant genetic differences among different breeding and feeding areas in the North Pacific (NMFS, 2018).

The CA/OR/WA stock may have an estimated growth rate of 6-8% per year (NMFS 2018). However, experts have also indicated a possible leveling-off of the CA/OR/WA stock size (Calambokidis *et al.*, 2017). The WA/SBC feeding group is comprised of a mixture of the Hawaii DPS, the Mexico DPS, and the Central America DPS. Only a small proportion of these whales are estimated to be from the Central America DPS, so growth trends for the Central America DPS are considered unknown (Bettridge, 2015).

The recent increase in whale entanglements is believed to be the result of several complex factors including changes in whale abundance and distribution, shifting prey patterns and/ or availability, changes in environmental conditions, shifting fishing effort, and increased public reporting (NMFS, 2019).

3. When will threatened (Mexico) and endangered (Central America) populations of humpback whales be recovered? Can we get rid of whale entanglement mitigation management measures if they are recovered?

<u>Take-home</u>: WDFW aims to adopt flexible management measures that can be adapted as new information becomes available, so that efforts will effectively reduce the risk of entanglements based on the best available information.

An endangered species is one which is in danger of extinction throughout all or a significant portion of its range, while a threatened species is one which is likely to become an endangered species within the foreseeable future (16 U.S.C. § 1532). For a species to be delisted or downlisted (from endangered to threatened), it must be determined that the threats to the species have been eliminated or controlled based on several factors (e.g., population size and trends, stability of habitat quality and quantity). Recovery plans are developed for endangered and threatened species which outline current threats, methods for controlling those threats through beneficial activities, and benchmarks for downlisting or delisting.

A recovery plan for the humpback whale was published in 1991, prior to the species being divided into DPSs in 2016. Recovery plans have not yet been developed for the listed DPSs and it is not known at this time the timeframe in which one will be developed. The National Marine Fisheries Service (NMFS) prioritizes species for recovery plan preparation and implementation based on the species' demographic risk and recovery potential. As of 2019, the recovery priority number for the Central America DPS is 2C and the Mexico DPS is 4C. See the <u>Recovery Priority Guidelines (April 30, 2019; 84 FR 18243)</u> for an explanation of the recovery priority numbers (NMFS, 2019b).

A Conservation Plan (CP; also called a Habitat Conservation Plan or HCP) is currently being developed for the Washington Coastal Dungeness crab fishery as part of the Incidental Take Permit (ITP) process required under Section 10 of the ESA. The CP will emphasize adaptive management, the ability for management to nimbly respond to new information from monitoring efforts to reduce the risk of whale entanglements in Dungeness crab gear.

4. Is there a certain depth range or season where whales are more abundant off Washington that could be used to design management measures?

Take-home: It is known that whales are present off our coast during summer months, and a portion of the Washington coast has been designated a Biologically Important Area. Permanent rule changes adopted by the Fish and Wildlife Commission have targeted gear reduction measures and increased gear recovery opportunity for the portion of the crab season that occurs after May 1. Entanglement risk as a function of bathymetry is an area currently under investigation off the coast of Oregon, and while area-based and bathymetrybased management measures are not under consideration for Washington at this time, the Department is prepared to adaptively manage as new information becomes available.

Management measures that minimize the spatial and temporal co-occurrence of whales and fishing gear represent a potential mitigation strategy for reducing whale entanglements. Currently, the Washington Department of Fish and Wildlife (WDFW) collects data on the distribution of fishing effort through crab fishery logbooks, but complementary data on whale distributions off Washington are lacking. As of September 2019, aerial surveys off the coast of Oregon have observed humpback whales out to 1000 m (~550 fathoms) with the majority observed between 100 and 200 m (~55-110 fathoms). Humpback whales were the most commonly observed whale species. And they were largely unobserved inshore of 30 fathoms off Oregon, which aligns with the NMFS proposed critical habitat designation for humpback whales outside 50 meters (27.3fa). WDFW staff are currently exploring potential options for expanding these monitoring efforts to fill critical information gaps on whale presence and absence off Washington throughout the year.

Whale entanglements, assessment, and ITPs

5. How many whales have been entangled in active vs. derelict fishing gear?

<u>Take-home</u>: Most of Washington's confirmed whale entanglements have been with actively fished gear, but all in-water gear contributes to entanglement risk.

Whale entanglements are collected, verified, documented, and responded to by NOAA Fisheries and originate from a variety of sources including boaters, fishermen, law enforcement, state and federal agency representatives, and other private citizens. Due to the opportunistic nature of entanglement reporting, the location of observation or reporting does not necessarily reflect when or where the entanglement occurred.

Whales may become entangled in gear that is actively fishing or that is derelict. Due to the unknown difference between the time of observation and the earlier time of entanglement, it is difficult to determine whether the entangling gear was being actively fished or was derelict. Additionally, whales can travel great distances, possibly remaining entangled in gear for weeks, months, or even years (NMFS, 2019a).

Of the recent humpback whale entanglements confirmed in Washington Dungeness crab gear, one is strongly believed to have been an entanglement with derelict crab gear. The whale was observed in California in July 2019, trailing gear with WDFW tags from the 2018-19 commercial season. Because the buoy tag was able to be retrieved during an entanglement response effort, the owner of the gear was able to be identified and contacted to gain a better understanding of the entanglement incident. The owner of the gear had left the fishery earlier that year, in March. Presumably, the pot was not located when the fisher brought in his gear and the whale subsequently became entangled in this gear. Cases like this one highlight the importance of the newly-expanded gear recovery program. And the fact that, on the whole, most confirmed entanglement interactions off Washington occur in actively fished gear demonstrates that the fleet's participation in this program plays a critical role in reducing entanglement risk.

6. How is the impact to whale populations from fishing gear estimated?

<u>Take-home</u>: The impact to whale populations is a combination of population estimates, evaluations of whale injury and mortality, and fishing interactions.

NMFS uses nationally consistent and transparent guidelines for distinguishing between human-caused serious and non-serious injuries (NSI) of marine mammals, and for assessing and quantifying injuries (NMFS, 2012). A serious injury (SI) is defined as "any injury that will likely result in mortality". The annual injury determinations for each region are documented in a written report which, for the U.S. Pacific West Coast, is prepared by the Southwest Fisheries Science Center. Summarized injury determinations are also incorporated into annual marine mammal <u>Stock Assessment Reports (SARs)</u> published by NMFS.

Under the MMPA, the potential biological removal (PBR) level is "the maximum number of animals, not including natural mortalities, that may be removed from a marine mammal stock while allowing that stock to reach or maintain its optimum sustainable population. The PBR level is published in annual SARs and is the product of the following factors:

- The minimum population estimate of the stock;
- One-half the maximum theoretical or estimated net productivity rate of the stock at a small population size; and
- A recovery factor of between 0.1 and 1.0."

The most recent PBR published for the CA/OR/WA stock of humpback whales in U.S. waters is 16.7 whales per year. This is calculated as the minimum population size (2,784) times one half the estimated population growth rate for the stock (1/2 of 8%) times a recovery factor of 0.3 (for an endangered species; with minimum population estimate >1,500 and coefficient of variation <0.50; Taylor *et al.*, 2003). To get the PBR for U.S. waters, the total value is then divided by two to account for this stock spending approximately half its time outside of the U.S. Exclusive Economic Zone (EEZ).

$$\frac{2784 \times (0.08 \div 2) \times 0.3}{2} = 16.7$$
 whales per year

Under the MMPA, the incidental taking of ESA-listed (i.e., threatened or endangered) marine mammal species or stocks during commercial fishing operations must be authorized by NMFS. This may happen only after NMFS determines, among other things, that incidental mortality and serious injury (M/SI) will have a negligible impact on the listed species or stock.

A negligible impact is defined as "an impact resulting from the specified activity that cannot be reasonably expected to, and is not reasonably likely to, adversely affect the species or stock through effects on annual rates of recruitment or survival" (50 CFR 216.103).

NMFS has not issued a negligible impact determination (NID) for the CA/OR/WA stock considering the impact of M/SI resulting from interactions with U.S. commercial fisheries. However, given 10% of PBR as an upper limit of M/SI that could be considered negligible, a threshold value of 1.67 whales is reasonable for insignificant levels of M/SI.

The MMPA requires that each commercial fishery be classified according to the level of M/SI of marine mammals that occurs incidental to the fishery, which can be found in the <u>MMPA List of Fisheries (LOF)</u>. The LOF classifies fisheries into one of three categories based on the rate of incidental M/SI (in number of marine mammal individuals per year) due to commercial fishing operations, relative to the stock's PBR level. The Washington Dungeness crab pot fishery is currently classified as Category II driven by interactions with whales in the CA/OR/WA stock resulting in a mean annual M/SI rate that is >1% and <50% of the stock's PBR level.

For a variety of reasons, the number of reported entanglements is likely an underestimate of the actual number of entanglements that occur. For example, some entangled whales may never be observed or reported, or may die at sea. As a result, the total M/SI rates determined by NMFS and assigned to a specific fishery are likely also an underestimate. There is not currently a method available for estimating the number of undetected entanglements (NMFS, 2018). Additionally, there are some confirmed entanglements that cannot be assigned to a specific fishery or state due to insufficient reporting information.

7. How many whales get disentangled, and do those still count as a serious injury or mortality?

<u>Take-home</u>: Disentanglements are considered and can change the attribution of entanglements to PBR through changing the M/SI status; in other words, disentanglements by <u>trained disentanglement teams</u> are an important way to both protect whales and continue fishing.

When an authorized disentanglement team responds to an entangled whale, an injury determination will be made prior to disentanglement in the field or as part of rehabilitation. If it is classified as an SI before disentanglement, but the animal is released with no or non-serious injuries, then it will be re-classed to an NSI and will not be counted against PBR in the SAR. However, it will be included in the recorded takes for the LOF. In this way, the SARs will reflect that the animal likely survived and was not removed from the population, but the LOF will demonstrate a more accurate measure of M/SI that is occurring incidental to commercial fishing (NMFS, 2012). If a disentangled whale still has serious injuries when released, the SI will count against the PBR and the LOF.

From 2013 – 2017, disentanglement attempts were reported for approximately 25% of large whale injury reports on the West Coast. This relatively low rate of disentanglement attempts reflects the fact that many entangled whales are only seen once and/or that disentanglement attempts are often not possible due to adverse weather. Over this five-year time period, thirteen instances of large whale injury reports were down-classified from SI to NSI following successful disentanglement efforts or the animal freeing itself over time (NMFS, 2019c).

8. Can fishermen be trained and certified to disentangle whales?

<u>Take-home</u>: Fishermen (and anyone) can pursue becoming certified to help in the disentangling process. If you are interested in being involved, search on the web for the West Coast Large Whale Entanglement Response Program or use this <u>link</u>.

Whale disentanglement is a very complex and dangerous process. The Large Whale Entanglement Response Network is comprised of whale biologists, researchers, naturalists, veterinarians, veterinary technicians, whale watchers, the U.S. Coast Guard, and state agencies along the West Coast who undergo extensive training and years of apprenticeship to learn the proper techniques to ensure their own safety and the whale's safety. There are five Responder Authority Certification Levels which are directly linked to training and experience. Those levels are:

- Level 1–2: First Responders Responsible for assessing, reporting, documenting, and standing by an entangled whale;
- Level 3: Primary First Responders Qualified to deploy satellite tags and assist primary entanglement responders directly with cases; and
- Level 4–5: Primary Disentanglers Experts that lead and consult on all disentanglement events, depending on species.

Only individuals who undergo specific training (Level 4-5) are authorized and permitted under the Marine Mammal Health and Stranding Response Program to attempt to perform or assist in disentangling a whale. That being said, trainings are open to any interested parties and disentanglement teams come from a wide variety of backgrounds. Recreational and commercial boaters are often the first to see and report entangled whales, and may fill an important role in entanglement response networks. NOAA Fisheries offers an online course for Level 1 First Responder training aimed at proper assessment, documentation, and reporting prior to a response effort. This course does not prepare or qualify you to perform or assist in disentanglement efforts, but is a starting point for those interested in contributing to response efforts and understanding the various roles involved in large whale disentanglement.

9. What other human-caused impacts are there on humpback whales and how are those impacts being addressed?

<u>Take-home</u>: All human activities that have potential or realized negative impacts on marine mammal populations are subject to evaluation under the MMPA and, if appropriate, the ESA. For Washington crab fishing gear and whale entanglements, our management measures will be evaluated under Section 10 of the ESA, as well as the MMPA.

All known human-caused impacts to humpback whales are covered under the MMPA, with additional requirements under the ESA for endangered or threatened DPSs. For humpback whales, human-caused injuries detailed in recent SARs have been the result of interactions with commercial and/or recreational fishing gear, entanglement in marine debris (e.g., research instruments), or vessel strikes (NMFS, 2018).

Under the MMPA, the incidental take of small numbers of marine mammals during commercial fishing operations is covered under the Marine Mammal Authorization Program (*see Question 6 for the NID process*). The incidental take of marine mammals by activities other than commercial fishing is covered separately through two types of incidental take authorizations: Incidental Harassment Authorizations and Letters of Authorization. These authorizations have mostly been issued for activities that produce underwater sound, such as, military sonar/training, oil and gas development, renewable energy, scientific research, or construction projects. The appropriate authorization depends on the length of time of the activity, and whether the action will result only in harassment or will result in M/SI.

Additionally, there is evaluation under the ESA for impacts. For non-federal entities, activities that may result in the take of endangered or threatened species are regulated under the permit requirements in Section 10 of the ESA. ODFW is currently developing a CP as part of the application process for an ITP under Section 10. Authorization under Section 10 may occur only after NMFS conducts a NID (*see Question 6*) based on a review of incidental M/SI. NMFS provides guidance for injury determinations for all human-caused injuries of marine mammals, with the exception of noise-related injuries which are unlikely to be detected in live animals (NMFS, 2012). For federal agencies, activities that may affect a listed species are covered separately under Section 7 of the ESA and require consultation with NOAA Fisheries. Incidental take of listed species by a federally-managed commercial fishery would be addressed through Section 7.

Ship strikes are one of the primary threats to large whale species and may result from collisions between whales and all sizes and types of vessels. The establishment of shipping lanes and voluntary and incentivized speed reductions are the primary measures used to reduce the risk of lethal ship strikes.

10. What is an Incidental Take Permit, and how is it different from the Marine Mammal Protection Act take authorizations we get every year?

<u>Take-home</u>: The ITP would be a new authorization, if approved, and is separate from the annual marine mammal authorization certificates.

An ITP is required under Section 10 of the ESA for the incidental take of ESA-listed species during otherwise lawful activities by non-federal entities. WDFW is applying for an ITP to address interactions between ESA-listed species and Washington Dungeness crab fishing gear.

The ITP would be a new authorization, if approved, and is separate from the annual marine mammal authorization certificates required under the MMPA for owners of commercial fishing vessels that operate in a Category I or II fishery. These certificates are required each year because the Washington Dungeness crab pot fishery is currently classified as Category II in the MMPA LOF based on M/SI levels (*see Question 6*).

11. Why doesn't Washington already have an Incidental Take Permit? Why does the permit process take so long?

<u>Take-home</u>: An ITP is not a simple application process, but rather a long analytical and legal "discussion" between the management agencies (WDFW and NMFS), the fishing industry, and the public on the current impacts to whales and the acceptable approach to reducing those impacts.

NMFS has not previously issued an ITP for an ESA-listed marine mammal that has interactions with a commercial fishery. As such, it was not immediately apparent to all management agencies involved that this was an appropriate step in the process to reduce entanglement risk in fishing gear.

Applying for an ITP is a lengthy and iterative process. The length of time for each phase of the process can vary, but is estimated to take around 3-5 years in its entirety. It begins with a pre-application planning phase during which WDFW consults with NMFS to discuss the CP process, determine the type and scale of CP, consider the necessary level of National Environmental Policy Act (NEPA) analyses, etc. This pre-application phase is also when WDFW is working with the industry to develop the management measures that will be the core actions in the CP, including gear identification, fishery monitoring, whale monitoring, and reduction of gear-whale interaction risks (*see Question 14*). In a way, WDFW has been actively working with industry on the CP and entanglement reduction at least since the Washington Whale Entanglement Working Group started convening in 2017.

After pre-application consultation between WDFW and NMFS, WDFW will develop a statutorily complete draft CP, while NEPA documents are concurrently developed by NMFS. When the CP and NEPA documents are deemed complete drafts, NMFS then begins the CP public review and permit decision processes, which will include revisions and finalization of

all documents. When documents are finalized, a permit may be issued and the CP will be implemented along with compliance and effectiveness monitoring.

WDFW declared intent to apply for an ITP in January 2019 and is slated to have the first CP draft complete by December 2020. The process requires significant staff and financial resources. Please attend industry meetings for an overview and progress updates on the CP process and timeline.

12. Why should Washington be concerned about this since we have so few entanglements (compared to California)? What are we doing right?

<u>Take-home</u>: Any "take" of ESA-listed whales without an ITP is illegal; Washington needs to contribute meaningfully to solutions that will protect ESA-listed whales by reducing entanglement risk.

Under the ESA, the take of one endangered or threatened animal without an ITP is illegal. To bring the Washington coastal Dungeness crab fishery into compliance with federal law, Washington must address our contribution to this West Coast problem. It is not known at this time why different West Coast states have different entanglement rates, but there are a number of factors that could affect this rate (e.g., whale distribution/abundance, fishing patterns, environmental conditions). It is also possible that detection rates are a factor, since generally speaking, there are more people on the water in California that may observe entangled whales than in Oregon or Washington (NMFS, 2019a).

13. How does NMFS "confirm" an entanglement? Is false reporting an issue?

<u>Take-home</u>: The confirmation process is designed to be conservative to weed out spurious reports and ensure accuracy.

NMFS uses criteria to identify unique instances of whale entanglement, weeding out redundant and spurious reports, to maintain accuracy. Criteria are evaluated using all the information submitted by first-hand observers of entangled whales including submitted documents, follow-up sightings, and entanglement response information. The following criteria deem an entanglement report "confirmed":

- Photos/videos of the whale with entangling gear;
- Direct visual observation by NMFS staff;
- The report is from a trusted source (i.e., trained or professional reporting party);
- A NMFS expert or experienced partner from the West Coast Marine Mammal Stranding Network interview the reporting party and receive information that is detailed and specific enough to confirm; and/or
- Multiple sources provide reports with detailed descriptions of the animal and entanglement.

14. How do we know how much will be enough, and is there a specific number of reduced pots/lines that we are trying to get to? Can management measures be implemented with a review option so that we can "get something back" if it isn't working?

<u>Take-home</u>: There is not a specific number of pots/lines that we are trying to get to. Instead, the objective is to satisfy the maximum extent practicable standard by employing management measures that effectively minimize impacts to listed species. As WDFW develops the CP, the goal will to employ an adaptive management approach.

In order to issue an ITP, NMFS must determine that "the applicant will, to the extent practicable, minimize and mitigate the impacts of such taking" (16 U.S.C. § 1539). This is referred to as the Maximum Extent Practicable Standard. In applying for an ITP, WDFW will have to:

- Estimate the type and amount of take expected from Washington's coastal Dungeness crab fishery, and the impacts of such taking on listed species and/or their habitat;
- 2. Determine, from a biological perspective, how conservation measures in the CP will *minimize* the impacts of the takings on the species' status and/or habitat; and
- 3. Determine, from a biological perspective, how conservation measures in the CP will *mitigate* the remaining impact of the taking on the species' status and/or habitat (USFWS & NMFS, 2016).

NMFS will then determine whether the minimization and mitigation measures are adequate by either leaving no remaining impacts of the taking on the species or by demonstrating that the plan represents the most that the applicant (i.e., WDFW) can practicably accomplish. More details on how this is determined can be found in the <u>HCP handbook</u>.

There is not a specific number of pots/lines that we are trying to get to. Instead, the objective is to satisfy the maximum extent practicable standard by employing management measures that effectively minimize impacts to listed species. WDFW is working with the best available information to reduce the overlap between whales and fishing gear as much as possible, while maintaining the economic viability of the fishery. As WDFW develops the CP, the goal will to employ an adaptive management approach. If something is not working, or new information becomes available, the plan is to build in alternative options or next steps to consider, so that the maximum extent practicable standard is met.

15. How will economic impacts to the fishery be evaluated?

<u>Take-home</u>: Economic impacts to the fishing industry are a component of the CP/ITP process in both Washington statutes and laws (e.g. Washington FIS), as well as in federal statutes and laws (e.g. NEPA).

Economic impacts to the fishery are being considered at every step. First, as WDFW adopts rules to reduce risk of entanglement, there is economic evaluation of the management measures and impacts through the Washington fiscal impact statement (FIS). Second, during the development of the CP, WDFW will include economic analysis of recommended strategies, as well as alternatives not being pursued, as points of comparison. Once a CP draft is complete, the National Environmental Policy Act (NEPA) process requires analysis of both environmental and economic impacts of the proposed strategies in the CP.

16. How will the population status of whales be factored into the Conservation Plan?

<u>Take-home</u>: As the population status of the CA/OR/WA stock and/or the DPSs of humpback whales change, the status will be reflected in PBR, NID, and will be adaptively addressed in the CP/ITP.

Population estimates and current growth trends are included in annual SARs and contribute directly to our understanding of the stock status (including any appropriate adjustment of PBR). As such, population growth is a factor in the NID which informs the issuance of an ITP. Additionally, the CP will contain planned adaptive measures (building in flexibility to account for the future state of the stock and the fishery). See *Question 3* for a description of the ESA downlisting or de-listing procedure as it relates to humpback whales.

Proposed short-term measures

17. Where did the new regs aimed at entanglement reduction come from?

Are we exploring gear modifications and other measures?

<u>Take-home</u>: In-season pot reductions and gear recovery are management measures that are the most likely to be effective at reducing risk of entanglement, and they came from a variety of sources including coastal Dungeness crab fishery participants. In order to meet the maximum extent practicable standard (*see Question 14*), WDFW must include management measures in the CP that minimize the impacts of the crab fishery on listed species. The risk reduction and gear identification measures that were presented at the January 2020 Commission meeting (i.e., an in-season pot reduction, extended gear recovery period, reduction in replacement tag issuance, and a requirement to mark lines) represent the best known options for effectively minimizing risk of interactions between whales and crab gear (or filling critical information gaps to this end) and that could be ready for implementation in the upcoming commercial seasons. These measures were selected following extensive discussions with industry, NMFS, and whale and entanglement experts. These have moved forward for short-term implementation to achieve the greatest risk reduction and broader CP value based on the best available information.

There are a number of other risk reduction measures that may be viable options in the long-term, but are not logistically feasible at this time. Examples include gear modifications (e.g., longlining) or innovation (e.g., ropeless or breakaway gear), permit stacking, and a vessel/license buyback program. These avenues will continue to be considered, and several may be included as longer term options.

Other ideas that have been proposed, such as fisher education and best practices, are described as components of the CP, but are not considered stand-alone options that will sufficiently minimize impacts to whales.

18. What is the evidence that pots out of the water will reduce the risk of whale entanglement?

<u>Take-home</u>: Until we have information to support more strategic risk reduction, the best available information and most widely accepted method to reduce whale entanglements is to reduce the number of lines in the water when whales are present.

Reducing the amount of gear and line in the water, particularly during the summer months when ESA-listed whales are in Washington's coastal and offshore waters, is the best known way to reduce risk of whale entanglement (OWEWG, 2018; WWEWG, 2019). There is currently limited information on the quantitative relationship between co-occurrence (of whales and fishing gear) and risk, however, every line in the water has the potential to interact with a marine mammal. If there was no fishing line in the water, there would be no interactions between fishing line and whale entanglements. Therefore, line reduction is the most widely accepted means to reduce the risk of interaction of whales. Better information on the spatial and temporal distribution of whales, such as that described in *Question 4*, will improve our knowledge of patterns of co-occurrence and will be a component of the CP adaptive management strategy.

19. Is safety to the fleet being considered?

<u>Take-home</u>: WDFW has been and will continue to evaluate these concerns as we develop risk reductions measures and the CP.

Fleet safety is considered as a top priority during the planning and implementation of all management measures. WDFW staff rely on the commercial crab industry to engage in discussions about the impacts of potential management actions, including vessel safety concerns and options for minimizing risk.

20. What is the process from here, and how do I participate?

<u>Take-home</u>: There are many pathways to provide input to this process and we encourage you to participate in finding solutions to this problem.

WDFW has recently navigated the rule-making process for some important entanglement risk reduction measures. But WDFW staff continue to seek the most up-to-date science and information/input from the fleet. Two more industry meetings are planned for the summer of 2020, one in July and one in August. And a fleet survey will be distributed soon to increase our understanding of current fishing practices and industry preferences for management options to further reduce entanglement risk moving forward. Concurrently, WDFW is in the process of developing the draft CP to submit to NOAA for application of the ITP; the CP is targeted for completion in December of 2020 (*see Question 11 for additional details on the ITP process*). We want you to participate, and we have provided relevant information on our webpage so that you can learn more about this topic, and the meetings and process that have led up to this point.

WDFW staff have had many conversations on this topic at meetings, one-on-one, and in small groups over the past 3-5 years. We encourage you to reach out to us to discuss this issue on an on-going basis. Additionally, WDFW regularly seeks input from the fleet by consulting with the Crab Advisory Board. You should feel free to approach your Advisory Board representatives and provide your input on the issues and topics that are of importance to you. Advisory Board membership and recent meeting summaries are available upon request. If you feel more comfortable passing on your concerns or recommendations to the crab fishing associations or other representatives, we encourage you to do that also.

Other management measures

21. I've been hearing a lot about EM recently, what is it and how will it help whales?

<u>Take-home</u>: Electronic Monitoring (EM) provides management more detailed and accurate data on where and when the fishery occurs, and this data would be furnished in near real-time, allowing for more targeted responses to dynamic risk factors, and ultimately a successfully adaptive management of the fishery to reduce the risk of whale entanglements.

WDFW has sought grant funding for Electronic Monitoring (EM) pilot projects for several years in a row, with no success. The Quinault Indian Tribe (QIN) fleet has implemented an RFID-based EM system that provides high-quality data to Tribal co-managers. Recent communication with our Tribal co-managers has highlighted the critical role EM fills in the successful implementation of harvest sharing agreements. And it has been known for some time that an EM system for the state fleet would greatly improve our ability to adaptively manage the fishery for entanglement risk reduction as well.

Industry is invited and encouraged to engage on this issue, recognizing it will be discussed at upcoming Advisory Board and broader Industry Meetings (notifications of these public engagement opportunities are released in advance, please contact Dan Ayres at Daniel.Ayres@dfw.wa.gov to be added to the email and/or text message distribution list.

22. Has a voluntary buyback (licenses, vessels and/or pots) been considered?

<u>Take-home</u>: WDFW encourages the Coastal Dungeness Crab Advisory Group (CDCAG) and industry to investigate fleet-funded buyback options.

A voluntary buyback is a potential long-term option for reducing the risk of whale entanglements through effort reduction. Scoping for a federally-funded license buyback program was conducted in 2006-2008, and efforts to secure federal funds were unsuccessful. Some support for a fleet-funded buyback program has been expressed recently, and the Department maintains interest in this avenue. If you would like to provide your feedback or ideas to support this effort, this is of course welcomed.

23. Can we reduce vertical lines without reducing pots by allowing or requiring longlining?

<u>Take-home</u>: Longlining or duplexing crab pots remains of interest; however, there are implementation concerns (most importantly, gear conflicts) that must be alleviated before longlining would be recommended for adoption.

Longlining or a modified "duplex" configuration (i.e., two pots per line) has been proposed as a way to reduce entanglement risk by reducing the number of vertical lines in the water. Although "ropeless gear" has been a topic of discussion for years and remains an active area of research, the technology is too expensive and unreliable to date to make it an economically viable option (Shester, 2018). WDFW may consider longlining as a potential long-term option to address whale entanglements.

Longlining has been prohibited in the Washington Dungeness crab fishery, due largely to the incidence of gear conflicts with other gear users (e.g., single pot, trawl gear). Gear conflicts remain a concern today, along with the challenge of pot limit enforcement. Additionally, there are a number of information gaps that must be resolved for longlining to be considered a viable option. First, longlining is thought to affect the severity of entanglement injuries and may impact disentanglement efforts. Also, depending on the type of groundline used, there may be unintentional impacts to other species and habitat that would require evaluation.

The Pacific State Marine Fisheries Commission (PSMFC) has compiled <u>input</u> from marine mammal experts and fishermen about the potential for longlining gear to address whale entanglements. Additional fleet input is always welcomed.

24. We have heard a lot about "pingers". Do they work, and is it legal to use or at least test them?

<u>Take-home</u>: As currently designed, pingers have not been demonstrated as effective mitigation measures for large whale entanglements and, in fact, demonstrate potential acoustic harassment impacts that would need to be evaluated and mitigated before they would be authorized for use by NMFS.

Acoustic deterrent devices, or "pingers", have been effective in some cases to deter certain small cetacean species, but there is limited evidence of their ability to deter large whales. Comprehensive research is needed to test the efficacy of pingers for reducing large whale entanglements and to determine the other potential impacts of pingers (e.g., noise) on marine species.

The use of acoustic deterrent devices, or "pingers", to deter ESA-listed marine mammals in fixed gear fisheries on the U.S. West Coast is currently not authorized under the MMPA and ESA. However, a <u>federal research permit</u> can be applied for to conduct research on the effectiveness of these devices.

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