

STATE OF CALIFORNIA
DEPARTMENT OF FISH AND WILDLIFE
INITIAL STATEMENT OF REASONS FOR REGULATORY ACTION
(Pre-publication of Notice Statement)
Add Section 132.8, Title 14, California Code of Regulations
Re: Risk Assessment Mitigation Program: Commercial Dungeness Crab Fishery

I. Date of Initial Statement of Reasons: May 4, 2020

II. Dates and Locations of Scheduled Hearings:

Public Discussion Hearing: Monday, June 29, 2020

Location: Teleconference (meeting details will be made available on the Whale Safe Fisheries Page: wildlife.ca.gov/Conservation/Marine/Whale-Safe-Fisheries)

Start Time: 10:00 a.m.

III. Description of Regulatory Action:

(a) Statement of Specific Purpose of Regulation Change and Factual Basis for Determining that Regulation Change is Reasonably Necessary:

The purpose of adding Section 132.8, Title 14, California Code of Regulations (“CCR”) is to establish a Risk Assessment Mitigation Program (RAMP) which will assess and manage risk of marine life entanglement with fishing gear associated with the commercial Dungeness crab fishery.

Senate Bill (SB) 1309 (2018, McGuire) added Section 8276.1 to the Fish and Game Code (FGC). Section 8276.1 requires the California Department of Fish and Wildlife (Department), in consultation with the California Dungeness Crab Fishing Gear Working Group (Working Group) and other stakeholders, to adopt regulations establishing criteria and protocols to evaluate and respond to potential risk of marine life entanglement.

Established in September 2015, the Working Group is comprised of commercial and recreational fishermen, environmental organization representatives, members of the disentanglement network, and state and federal agencies. It was convened by the Department, in partnership with California Ocean Protection Council and National Marine Fisheries Service, to address an increase in whale entanglements in Dungeness crab fishing gear. The Working Group has several project teams including gear innovation, communication, aerial/vessel surveys and electronic monitoring. The Working Group has created a Best Management Practices guide for the commercial and recreational Dungeness crab fishery, with guidance on voluntary actions fishermen

may take to help reduce the risk of whale entanglement. Most importantly, the Working Group initially developed and piloted, and has continued to refine, a risk assessment and mitigation program to assess circumstances where entanglement risk may be elevated and provide recommendations on appropriate management responses to the Director of the Department (Director) to take action. The pilot program developed by the Working Group is the basis for the proposed regulations.

The proposed RAMP regulations implement the program as required under FGC Section 8276.1(b). The RAMP, as listed by subsection, consists of the following:

- (a) definitions;
- (b) a risk assessment schedule;
- (c) triggers for management actions;
- (d) management considerations;
- (e) management actions;
- (f) notification process;
- (g) mandatory reporting requirements; and
- (h) alternative gear authorization.

The RAMP defines the authority of the Director to restrict the commercial take of Dungeness crab when a significant entanglement risk exists, and to lift certain restrictions when the risk has abated. The program also specifies a minimum notice requirement prior to implementing any management action regarding the take of Dungeness crab, and how notice of such actions or changes in action will be disseminated.

The RAMP is the foundation and regulatory framework for the Department's draft Conservation Plan as part of an Incidental Take Permit (ITP) application under Section 10 of the federal Endangered Species Act (ESA) for protected marine species. The Conservation Plan will address endangered species interactions in the Dungeness crab fishery and support the Department's efforts to provide for a sustainable fishery while protecting marine life from entanglement.

CURRENT CODE AND REGULATIONS

The commercial Dungeness crab fishery in California is regulated by FGC sections 8275 *et seq* and implementing regulations in Title 14, CCR. These provisions address season dates, a trap limit program, ability for delays of the fishery due to crab meat quality, and a permitting structure, among other things.

Time and area closures of the Dungeness crab fishery are implemented to protect human health or because of poor Dungeness crab meat quality. Section 5523 of the FGC provides the Director, upon a recommendation from the Director of Environmental Health Hazard Assessment, the authority to restrict take of any species or subspecies that poses a human health risk from high levels of toxic substances. Section 8276.2 of the FGC authorizes the Department to oversee a crab quality testing program and the

Director to delay the opening of the commercial fishery in the Northern Management Area (Sonoma/Mendocino county line north to the California/Oregon border) if crabs are found to be soft-shelled or otherwise low quality; this delay cannot extend beyond January 15th of the following calendar year.

Existing statute and regulations also govern gear used to take Dungeness crab. FGC Section 9003 mandates provisions governing trap destruction devices and specifies that every trap shall have at least one destruction device to facilitate escape of species that cannot be retained. FGC also mandates specific provisions for trap fisheries, specifically that every trap or string of traps must be marked with a buoy (Section 9005), every trap used to take crustaceans must be marked with a buoy (Section 9006), and that any trap used without a buoy or that is not marked in accordance with Section 9006 shall be seized (Section 9007). Section 9011 specifies requirements for crab traps, including minimum requirements for circular openings and incidental species allowances. Section 9012 prohibits connecting multiple traps with a common line in the Northern Management Area.

Implementing regulations in sections 132.1 through 132.7 in Title 14, CCR are summarized as follows:

- Section 132.1. Dungeness Crab Trap Tags, Biennial Buoy Tags, and Trap and Buoy Tag Allocations (authority: FGC Section 8276.5)
- Section 132.2. Retrieval of Commercial Dungeness Crab Traps (authority: FGC Section 8276.5 and 9002.5)
- Section 132.3. Biennial Dungeness Crab Trap Limit Permit (authority: FGC Section 8276.5)
- Section 132.4. Replacement Procedures for Lost Dungeness Crab Buoy Tags (authority: FGC Section 8276.5)
- Section 132.5. Appeal of Dungeness Crab Trap and Buoy Tag Allocations and Deadlines (authority: FGC Section 8276.5)
- Section 132.6. Dungeness Crab Trap Surface Gear Limitations and Gear Removal Time (authority: FGC sections 702, 2059, 8276, 8277)
- Section 132.7. Lost or Abandoned Dungeness Crab Trap Gear Retrieval Program (authority: FGC Section 9002.5)

Under the newly added FGC Section 8276.1, subdivision (c) lays out the requirements for RAMP. This subdivision grants the Director interim authority to restrict the commercial take of Dungeness crab if the Director has determined a significant risk of entanglement exists. The Director is required to consider a variety of informational factors when determining whether a significant risk exists, and the appropriate responsive management actions, and to provide 48 hours' notice to the Working Group and other stakeholders before taking any action to close the fishery or otherwise restrict take of Dungeness crab. Any fishery closures must be minimized in duration and extent, and expeditiously lifted when the risk has abated. This interim authority expires on

November 1, 2020 or upon implementation of these proposed regulations.

Legal Actions

In October 2017, the Center for Biological Diversity sued the Department alleging violations of the federal Endangered Species Act for take of threatened and endangered humpback whales, endangered blue whales, and endangered Pacific Leatherback sea turtles in the commercial Dungeness crab fishery. The Pacific Coast Federation of Fishermen's Associations later intervened on behalf of the Dungeness crab industry. A settlement agreement between the Department, Center for Biological Diversity, and the Pacific Coast Federation of Fishermen's Associations was announced on March 26, 2019.

The settlement outlines a comprehensive approach to the problem of whale entanglements. It expedites implementation of RAMP for a November 1, 2020 effective date, ensures stakeholder input from the Working Group, and formalizes the Department's commitment to pursue the ITP under Section 10 of the federal ESA. The settlement also included an early closure for the 2018-19 Dungeness crab season and prescribes protective actions for future springtime fishing seasons, when the greatest number of whales are typically present off the California coast.

Determination of Major Regulation

The proposed RAMP regulation is determined to be a major regulation pursuant to Section 2000, Title 1, CCR because some of the scenarios explored in the Standardized Regulatory Impact Assessment (SRIA; Appendix A) exceeded the economic impact threshold of \$50 million. It is possible that within the first twelve months following full implementation (from November 2020 to November 2021) Scenario 4(c) (delays in the start of the fishing season, combined with 50% gear reduction and April 1 closure date) and Scenario 5 (full fishery closure), could cause the economic impact for California businesses and individuals to exceed \$50 million (Appendix A). The economic impact is estimated as a result of economic loss in revenue by the directly affected and supporting businesses and individuals (see additional discussion under Section VI.).

PROPOSED REGULATIONS

Add Section 132.8, Risk Assessment Mitigation Program: Commercial Dungeness Crab Fishery, with the following provisions:

Subsection (a): Definitions

This subsection defines the following terms, as used within the proposed regulations: "Actionable Species," "Alternative Gear," "Close or Closure," "Confirmed Entanglements," "Fishing Grounds," "Fishing Season," "Fishing Zone," "Fleet," "Impact Score Calculation," "Marine Life Concentration," "National Oceanic Atmospheric Administration (NOAA)," "Risk Assessment," "Unknown Fishing Gear," and "Working

Group.”

Rationale:

These definitions are necessary to clarify commonly used terminology and to define species or areas covered under the proposed program.

Subsection **(a)(1)** defines Actionable Species as species listed as threatened and endangered under the federal Endangered Species Act (ESA) and/or protected under the Marine Mammal Protection Act (MMPA) and known to be entangled in California commercial Dungeness crab gear (Table 1). This definition is necessary given their vulnerability, and in consultation with NOAA, the Department determined it was appropriate to focus the RAMP and Conservation Plan on those species.

Table 1. Confirmed entanglements of Humpback Whales, Blue Whales, and Pacific Leatherback Sea Turtles in California commercial Dungeness crab gear, by season, 2013-14 to 2018-19. Source: Saez et al. 2020; personal communications from Lauren Saez (2/24/2020) and Justin Greenman (2/26/2020), NMFS.

Season	Humpback Whales	Blue Whales	Pacific Leatherback Sea Turtles
2013-14	2	0	0
2014-15	6	0	0
2015-16	15	2	1
2016-17	3	1	0
2017-18	7	0	0
2018-19	3	0	0

For the whale species, both the ESA and the MMPA analysis of different species groupings was considered when writing this definition. The ESA and MMPA contain different definitions of a “stock”. For Blue Whales, while under the MMPA the species is divided into an Eastern North Pacific and Central North Pacific stock, the ESA more broadly lists the entire global stock as endangered. The ESA definition is more specific for Humpback Whales and defines separate Distinct Population Segments (DPS) that occur off California – the Central America DPS and the Mexico DPS. Whereas under the MMPA, Humpback Whales off California are defined more broadly as part of the California/Oregon/Washington stock. Genetic information is often necessary to identify a whale to a specific DPS but is rarely available. Making such intraspecific identification is also not necessary for the purpose of this regulation, since this regulation proposes to use thresholds derived from the MMPA framework, which would account for impact towards both the Mexico and the Central America DPS as one number. Additionally, given that these regulations must meet the standards of both ESA and MMPA for the Conservation Plan, the Department is using a broader definition to be inclusive of all Humpback Whales found off our coast (consistent with the approach under the MMPA).

Subsection **(a)(2)** defines Alternative Gear, which is further discussed later in this regulation and ISOR (see subsection (h)). This definition is necessary in order to distinguish the use of this gear type from the typical allowable gear under existing regulations or statute.

Subsection **(a)(3)** defines “close” or “closure” as prohibiting the commercial take and possession of Dungeness crab. The take prohibition is important to ensure Law Enforcement can properly enforce these provisions. Both take and possession are prohibited to prevent transiting through closed areas by vessels that have taken Dungeness crab outside a closed area; because of difficulties in knowing the exact location of take when making contact with a vessel in possession of Dungeness crab, it is necessary to prohibit both take and possession in closed areas for ease of enforcement. The only exception is the use of alternative gear which shall be authorized by the Director at the close of the regular commercial season once it has been shown to not present an entanglement risk under the authorization requirements in subsection (h). This definition is necessary to ensure all commercial fishermen understand the circumstances for a closure under the proposed regulation.

Subsection **(a)(4)** defines Confirmed Entanglements. For purpose of this regulation, an entanglement will be considered confirmed upon notification from NOAA. The Department will rely on NOAA to confirm entanglements because NOAA has developed a rigorous and detailed forensic process to evaluate and identify the species, fishery/gear of origin, and outcome of disentanglement. Entanglements can also be confirmed by the Department if the gear has clearly identifiable visible gear markings, such as a buoy tag or other marking on the buoy to identify the fishery and or fishermen; in those circumstances more rigorous investigation by NOAA is not necessary to confirm the entanglement to the fishery.

Confirmed Entanglements are broken down into two categories – California Commercial Dungeness Crab Gear and Unknown Gear. An entanglement will be categorized as California Commercial Dungeness Crab Gear based on the presence of an identifiable marker which may include a buoy tag or license number on a buoy. An Unknown Gear entanglement is one that lacks information to conclusively identify the fishery of origin. Unknown Gear entanglements may be from the Commercial Dungeness crab fishery, recreational Dungeness fishery, or other unknown commercial fishery. As further discussed below under the rationale for Subsection (c), the RAMP utilizes these categories of Confirmed Entanglements differently and therefore it is necessary to define them here.

Subsection **(a)(5)** defines Fishing Grounds as the area within 100 fathoms. Based on anecdotal information from fishery participants, experience of the Department’s Law Enforcement efforts, and fishing information reported on landing receipts, the majority of fishing effort in this fishery occurs between shore and 100 fathoms. Therefore, that is the area of most concern for entanglement risk.

Subsection **(a)(6)** defines Fishing Season, including any modifications due to public health concerns or quality testing consistent with FGC Sections 5523, 8276, and 8276.2, respectively. Because FGC defines different seasons for different parts of the state, for the purpose of this regulation the Department is defining the Fishing Season to encompass the entirety of available fishing statewide (November 15 through July 15).

Subsection **(a)(7)** defines Fishing Zones as the area between the California/Oregon Border to Horse Mountain (Zone 1), Horse Mountain to the Sonoma/Mendocino county line (Zone 2), Sonoma/Mendocino county line to Pigeon Point (Zone 3), Pigeon Point to Lopez Point (Zone 4); Lopez Point to the U.S./Mexico border (Zone 5), and Pacific Leatherback Sea Turtle Foraging Area (Zone 6) (see **Figure 1**). Zones 1 and 2 encompass the Northern Management Area and Zones 3 through 5 encompass the Central Management Zone. The zones are designed around the likely geographic resolution of available data, and behavioral dynamics of both the fleet and the Actionable Species. Data available to inform management actions in these Zones will likely include aerial surveys, telemetry, Department fishery landings data, vessel surveys, fixed point observation, and modelling results. All zones are of biological importance to whales and encompasses important Fishing Grounds. These areas are familiar with fishermen and based on well-known geographic landmarks. Each Fishing Zone extends to 200 nautical miles, which is the extent of the State's jurisdiction for this fishery. This definition is necessary to provide description of an enforceable boundary where this particular regulation applies, as well as define the different areas in which individual management actions may apply.

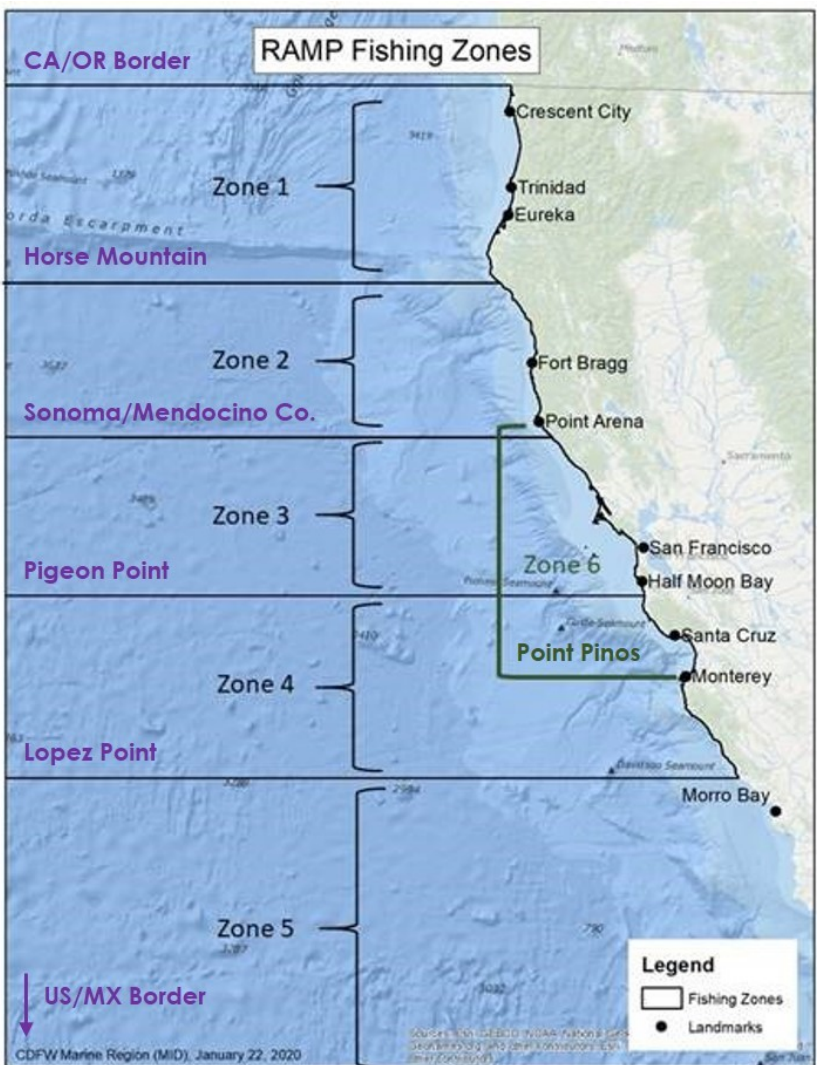


Figure 1. RAMP Fishing Zones

The Pacific Leatherback Sea Turtle Foraging Area (Zone 6), which overlaps Zones 3 and 4, are important waters off the coast of California and a subset of federally designated Pacific Leatherback Critical Habitat (50 CFR 226.07; 77 Federal Register 4169, February 27, 2012). Additionally, based on conversations with NOAA staff, it is the area where telemetry and sightings data have shown that turtles are most likely to be present, though they may be found in other fishing areas as well.

Subsection **(a)(8)** defines Fleet to specify who would be subject to management actions imposed by this regulation, which only includes holders of commercial Dungeness crab vessel permits. This definition is necessary to describe to whom this particular regulation applies.

Subsection **(a)(9)** defines Impact Score Calculation as the sum of Impact Scores as presented in subsection (c)(1)(A). Impact Scores are values representing severity of injury caused by Confirmed Entanglements with California Commercial Dungeness Crab Fishing Gear and Confirmed Entanglements with Unknown Fishing Gear. The scores are used in subsection (c) to determine need for management action. NOAA's scoring is based on a spectrum of severity of injury from an entanglement, ranging from non-serious (closer to 0) to serious (closer to 1) where the injury will likely result in mortality (NMFS 2012a). Impact Score Calculations may be revised after NOAA has completed its final determination of injury or mortality, or "Injury determination process" (NMFS 2012b). This process can take up to several years to complete due to subsequent investigation by the NOAA emergency response team that include consideration of injury severity, re-sighting of disentangled whales and evaluation of condition, and other considerations. As an example of how NOAA may adjust an Impact Score Calculation may occur during their internal process in investigating entanglement injuries, NOAA staff may determine that an injury from fishing line that is wrapped tightly and embedded in the whale's tail flesh is more severe (and thus warrant a higher score) than an entanglement where a whale is pulling a line draped across its back, with no visual injury or damage to flesh (which may warrant a lower score). The initial Impact Score Calculation is done by the Department as further discussed under subsection (c). The Department will rely on NOAA to provide input, and any revisions, on the Impact Score Calculation because NOAA has the relevant expertise and has developed a rigorous and detailed forensic process to investigate marine species entanglements, including outcome of disentanglement (e.g., severity of the injury and re-sighting of disentangled individuals). This definition is necessary to clarify the circumstance on which certain management action may be based.

Subsection **(a)(10)** defines Marine Life Concentrations. Because "Marine Life" can encompass a number of species, this definition is necessary to specify for the purpose of this regulation that Marine Life Concentrations is focused on those Actionable Species defined in this regulation. Additionally, because the Actionable Species can occur outside of California waters, the definition specifies only local abundances will be relevant for this regulation (for example, excluding information on Pacific Leatherback Sea Turtles in waters offshore of Hawaii as not relevant to the entanglement risk determination in California).

Subsection **(a)(11)** defines NOAA, an acronym used throughout the regulation text that is necessary to include due to the close coordination between the Department and the federal agency in implementing this regulation.

Subsection **(a)(12)** defines Risk Assessment as the process employed by Director and Working Group to evaluate marine life (i.e., Actionable Species) entanglement risk during the Fishing Season. The product of the Risk Assessment is to manage the risk with adaptive management actions to respond to changing fishery conditions to reduce entanglements to the extent practicable and ensure continued operation of the fishery.

This definition is necessary to establish the basis and overall goal of the proposed regulations.

Subsection **(a)(13)** defines Unknown Fishing Gear to differentiate between gear that is identifiable to a fishery and gear that is not identifiable to a known fishery. Unknown Fishing Gear does not apply to gear with non-fishery origins such as research equipment, navigational aids or to fishing gear configurations that are not used in the California Dungeness crab fishery. This definition is necessary to clarify what types of entanglements will be considered in the Risk Assessment process.

Subsection **(a)(14)** defines Working Group with the reference to FGC Section 8276.1. This definition is necessary to be included here for ease of reference, considering the significant role the Working Group plays when the Director consults with them for management action decisions based on the Risk Assessment.

Subsection (b): Risk Assessment Schedule

This subsection is necessary to describe operational details for the Risk Assessment. The Director is charged with conducting regular evaluations of entanglement risk and need for management action and will provide notice of an anticipated Risk Assessment to the Working Group and interested parties via an email list serve. The Working Group is given an opportunity to provide an independent assessment of entanglement risk and recommend management actions for the Director's for consideration. During implementation of a management action or a restriction to the Dungeness crab fishery, the Director will continue to perform additional risk analyses as information becomes available and lift or modify restrictions in a manner that promotes fair and orderly fisheries.

Rationale:

Subsection **(b)(1)** assures that the Department will implement the RAMP on an ongoing basis, with Risk Assessments occurring at least once per month from November through the end of June or the close of the Fishing Season, whichever is earlier. The scheduled commercial Dungeness crab season is from November 15 to June 30 south of the Sonoma/Mendocino county line and from December 1 to July 15 north of the Sonoma/Mendocino county line. The requirement to evaluate risk only lasts through June 30 or as long as the season is open because evaluation of risk is not needed when the fishery is closed.

Performing Risk Assessments at least monthly throughout the season will ensure that the Department seeks and monitors the latest information given changing ocean conditions, fishing location and effort, and the behavior of Actionable Species. Performing Risk Assessments more frequently than monthly presents difficulties in implementation due to anticipated rate of new information becoming available, Department staff workload and availability, and burden on stakeholders who provide

critical input through the Working Group process (particularly during the Fishing Season). Because the regulation only sets a minimum frequency, the Department and Director retain the ability to evaluate risk on a more frequent basis than monthly, if and when circumstances warrant.

Monthly risk evaluations will start November 1 so that a first evaluation may be completed in time to inform the risk level of a traditional season opener on November 15 in districts south of the Mendocino/Sonoma county line, as well as any necessary management action based on that evaluation.

Subsection **(b)(2)** requiring the Director to inform the Working Group and interested parties 48 hours in advance of an anticipated risk assessment provides reasonable notice for public input, including time for the Working Group to convene and provide a recommendation should it decide to do so. The Department will notify interested parties through an email listserv, which is the most efficient method to provide the notification to the largest number of stakeholders. This subsection informs interested stakeholders that in order to ensure notifications, the interested parties can subscribe to the listserv at the Department's Whale Safe Fisheries webpage.

Subsection **(b)(3)** specifying how Risk Assessments and management recommendations from the Working Group will be considered during the Director's evaluation of risk provides further assurances that input from this collaborative, multi-stakeholder advisory body will be included in Department decision-making. Considering the most recently dated Working Group recommendation ensures that the Director is not considering outdated information which may no longer be appropriate or reflect current fishery conditions.

Subsection **(b)(4)** requiring the Director to perform additional risk assessments during a restriction provides assurances to fishery participants that any curtailment of fishing activities, or additional costs to the fleet from gear or reporting requirements, will be minimized. The final element of section (b) stipulates that the Director consider implementing any management action in a way that considers fair and orderly fisheries. This means providing sufficient time to implement management actions that accounts for differences in fleet capability, ocean conditions, infrastructure constraints, and minimizing impacts to other users or fisheries that could be impacted by actions necessary to reduce entanglement risk.

Subsection (c): Triggers for Management Action

This subsection is necessary to identify triggers that will determine need for management action.

Rationale:

Defining triggers will ensure consistent application of Risk Assessment findings and

provide clarity and transparency to the Working Group, Dungeness crab fishery participants, and other stakeholders. In the event two triggers are attained for the same Fishing Zone(s), the more restrictive management action will apply, decreasing the probability of entanglements.

In determining the categories of triggers that were appropriate to include in these regulations, the Department reviewed available data analyses and three years of products developed by the Working Group. The triggers included were those with a high degree of confidence in their utility and reliability in reducing entanglement risk, and the underlying data were reliable enough to inform decision making. Other data sources that can be informative are included in these regulations under subsection (d) as information that the Director shall consider when determining appropriate management action in response to entanglement risk (as determined by the triggers). Categories of triggers as alternatives that were considered but ultimately rejected are discussed in Section IV of this ISOR. As other risk indicators become more fully developed, the Department may include them in the RAMP through future rulemaking action.

Confirmed Entanglement Triggers

Subsection **(c)(1)** specifies triggers related to Confirmed Entanglements, as defined in subsection (a)(4). Entanglement triggers are defined separately for the three species (Humpback Whales, Blue Whales, and Pacific Leatherback Sea Turtles), and for entanglements which are attributed to California commercial Dungeness crab gear or to Unknown Fishing Gear, as defined in subsection (a)(13).

Rationale:

Entanglement is considered “take” under both the ESA and MMPA. Section 10(a)(2)(B)(ii) of the ESA requires ITP applicants to demonstrate that they “...will, to the maximum extent practicable, minimize and mitigate the impacts of such taking.” Section 101(a)(5)(e) of the MMPA specifies that incidental take of marine mammals in commercial fisheries must “...have a negligible impact on such species or stock.” Negligible impact is defined at 50 CFR 216.103 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.” Historically, this standard has been applied through assessment of take relative to Potential Biological Removal (PBR); specifically, whether take in a given fishery is less than 10% of PBR, and whether total take (fishing and non-fishing related mortalities) is above or below PBR (64 Federal Register 102, May 27, 1999).

Department staff considered PBR, and what percentage of that value might be attributable to commercial fisheries, when developing triggers to minimize impacts on Actionable Species. Guidance based on recent discussion with NOAA staff as part of developing the Conservation Plan for the ITP application also supports the trigger value. Values may be updated as appropriate in a future rulemaking after NOAA has

completed its formal analysis of the ITP application or upon receiving an updated stock assessment.

Subsection **(c)(1)** specifies that only Confirmed Entanglements will be considered. It is necessary to specify the Department will not take action on an entanglement report unless it is confirmed by NOAA or has clearly identifiable markings that allow the Department to conclusively determine fishery of origin independently of NOAA, consistent with subsection (a)(4). Entanglements can be reported by any member of the public to the U.S. Coast Guard; however, NOAA and the California Stranding Network take the lead on investigation and response, including disentanglement. The Department will rely on NOAA to confirm entanglements because NOAA has jurisdictional and management oversight over these Actionable Species and has developed a rigorous and detailed forensic process to evaluate and identify the species and fishery of origin of an entanglement. This deliberative process requires coordination with state agency partners and access to information that is not available to the public. Having the Department undertake its own entanglement confirmation process would create unnecessary duplication of effort that NOAA is mandated to perform and would be hampered by the Department's lack of direct access to relevant expertise and information sources. Additionally, basing management response on entanglement reports could lead to restrictions that do not correlate to the risk level due to inaccuracies in reporting (e.g., multiple reports of the same whale, kelp or other debris on a whale that may resemble fishing gear). However, the Department acknowledges that in some entanglement situations the initial photograph or report may include gear markings (for example, buoy tags) that unambiguously identify the gear to a certain fishery. In such cases, the expertise developed by NOAA is not necessary to confirm the origin of the entanglement. Acting on such clearly identifiable markings will allow the Department to take any appropriate management action in a more-timely fashion.

For each species, the Department has proposed both an in-season numerical trigger of Confirmed Entanglements as well as a multi-year trigger. Responding to every individual entanglement during a Fishing Season is necessary to allow for a proactive management approach to help ensure continued operation of the fishery, while working to avoid additional impacts to Actionable Species and more restrictive management triggers. In order to balance response time, species protections, and economic impacts to the Fleet, the Department evaluated triggers within a single Fishing Season and across three calendar years (which includes the current fishing season). Triggers based on a three-year rolling average are necessary to allow the Department to be responsive to "offseason" entanglements. These are entanglements that likely occurred during the Fishing Season but not detected/or confirmed until after a closure, or entanglements that occurred in lost or abandoned fishing gear from a previous season. Including these entanglements is necessary to address, to the extent practicable, the true impacts of the commercial Dungeness crab fishery, which will be required by NOAA for issuance of an ITP. Additionally, using a three-year rolling average addresses industry concerns that a single rare entanglement would shut down the fishery. Historical data indicate that

encounters with Blue Whales and Pacific Leatherback Sea Turtles are rare, and the protective actions under the proposed regulation are expected to minimize interactions. Establishing low trigger threshold values over a three-year time period balances protection for Actionable Species and industry concerns of overly restrictive management actions.

The Department is proposing a three-year average based on guidance from NOAA staff and because it is consistent with permitting provisions under the MMPA. Allowable take limits and evaluations of impact under the federal ITP will likely be based on a three-year average. The rolling three-year average will start with the 2021 calendar year, which is the first full calendar year that the RAMP regulations will be in place. Starting the average at the beginning of a calendar year is also consistent with NOAA's accounting of marine life entanglements. The value of triggers and the duration of the evaluation cycle could change in future rulemakings once federal take allowances have been established as part of the ITP and the Department has improved information on the performance of the RAMP regulations and management actions relative to entanglement risk.

An Impact Score Calculation provides a simple and straightforward way to track progress towards entanglement triggers for Actionable Species. Because not all Confirmed Entanglements can be attributed a fishery of origin, it was necessary to address how entanglements in Unknown Fishing Gear would be considered under the RAMP. Entanglements which can be attributed to other fisheries will not lead to a restriction for the commercial Dungeness Crab fishery. However, entanglements in Unknown Fishing Gear that may involve commercial Dungeness crab gear will be included in Impact Score Calculations. This is based on a recent NMFS summary of entanglements (Saez et al. 2020) which quantified the proportion of entanglements which could be attributed to a gear type or specific fishery. Considering the proportion of entanglements of known origin already attributed to commercial Dungeness crab, and the fact that the amount of trap gear deployed by the commercial Dungeness crab fishery is higher than any other state trap fishery, the Department expects that up to 50% of those entanglements in Unknown Fishing Gear are likely to be from California commercial Dungeness crab gear. The Department's Impact Score Calculations therefore weigh such entanglements at 50% of the corresponding entanglement confirmed in California commercial Dungeness Crab gear.

The Department recognizes that by including Unknown Fishing Gear entanglements, there is the potential for the actions of another fishery to impact operations of the commercial Dungeness crab fishery. However, inclusion of Unknown Fishing Gear entanglements in Impact Score Calculations is necessary to account for the full impacts of this fishery on Actionable Species. The Department has implemented a new gear marking program for fixed gear fisheries (Section 180.5, Title 14, CCR – effective October 2019) that is expected to increase available information regarding fishery origin, thereby reducing the proportion of entanglements of unknown source and the

potential to reduce the number of Unknown Fishing Gear entanglements and associated impacts to commercial Dungeness crab operations.

Further, because some animals can be disentangled, it was necessary to address how released animals would be considered under the RAMP. Animals that can be successfully disentangled in a timely manner have a greater chance of survival depending on the severity of entanglement, duration of entanglement, and health of the animal. In order to incentivize the continued reporting of entangled animals and promote responsible stewardship, it is appropriate to use a lower Impact Score Calculation for disentangled animals. Detailed justification for each Impact Score Calculation is provided for each sub-paragraph under subsection (c)(1)(A) below.

Lastly, the Department recognizes that some portion of entanglements go undetected, making it challenging to quantify the total number of entanglements attributed to the commercial Dungeness crab fishery. Total fishery related mortalities have been estimated for certain federally managed fisheries that are subject to various levels of mandatory observer coverage. The Department is interested in developing a methodology to estimate total fishery related mortality for Actionable Species and will continue to explore options with NOAA (see Section IV, Consideration of Alternatives). When refined estimates become available, they can be considered in a future rulemaking. Until those data are available, the Department is applying a balanced approach that charges the fishery for expected share of confirmed entanglements that could be the result of their gear, but not charge it for undetected entanglements.

Subsection **(c)(1)(A)(1)** specifies Impact Score Calculations for Humpback Whales. A Confirmed Entanglement in commercial Dungeness crab fishing gear will be scored as 0.7 unless the animal is deceased, in which case it will be scored as one (1). Any value less than one assumes that an entanglement did not result in mortality. The value of 0.7 is based on a recent analysis of historical entanglement data from NOAA staff and is also used in NOAA's injury determination process (NMFS 2012b). The Impact Score Calculation for Unknown Gear is 0.35, which is based on the expected proportion of unknown entanglements to be caused by commercial Dungeness crab gear times the mortality average (0.5 times 0.7).

Subsection **(c)(1)(A)(2)** specifies that a Confirmed Entanglement of Blue Whales or Pacific Leatherback Sea Turtles in commercial Dungeness crab fishing gear shall be scored as one (1) and Unknown Fishing Gear counts as 0.5. Lower values are not contemplated for disentangled animals given the rarity of encounters and need for a precautionary management approach given their low population levels. The Department calculated a value that was half of the Confirmed Entanglement Impact Score Calculation in consideration of the proportion of entanglements attributed to the commercial Dungeness crab fishery for both Blue Whales and Pacific Leatherback Sea Turtles, and applied a similar proportion to Unknown Fishing Gear (Saez et al. 2020).

During Fishing Season

Subsection **(c)(1)(B)** specifies triggers and management response for Humpback Whales, Blue Whales, and Pacific Leatherback Sea Turtles within a single Fishing Season.

Rationale:

Under **(c)(1)(B)**, for each entanglement of an Actionable Species that occurs during a Fishing Season the Director will implement a Fishing Zone closure or other management action from those outlined in subsection (e) that the Director demonstrates protects Actionable Species based on best available science. This trigger is set at one entanglement, and each entanglement thereafter, because any entanglement raises concerns of overlap between presence of Actionable Species and fishing activity. Evaluation at that stage is necessary to ensure that an appropriate management response is taken to reduce the potential for future entanglements in the fishery for the remainder of the Fishing Season. However, since risk tolerance, effectiveness of management action, and economic impacts change throughout the Fishing Season, the timing and location of entanglement along with considerations described in subsection (d) will be important factors that the Director will need to evaluate when choosing an appropriate management action. Given the uncertainty inherent and interplay of these considerations for any given situation, it is not possible to predetermine a specific management response. Although a predetermined management response may provide clarity to the fleet on what action they could expect under a given circumstance, it may not provide for an effective or correct management response in terms of actually responding to and reducing the entanglement risk. Flexibility in the choice of a management response is necessary to ensure the Director can consider all timely and relevant information in formulating the most appropriate management response. This subsection of the proposed regulation includes a default of a minimum of a Fishing Zone closure in the zone the entanglement is believed to have occurred because any entanglement indicates overlap between fishing activity and whale presence, and if the best available science as considered in subsection (d) cannot support a different management response, a minimum of a Fishing Zone closure ensures that a protective action is taken.

Under **(c)(1)(B)(1)**, if an Impact Score Calculation of three or more is reached for Humpback Whales within a single Fishing Season, the Director will close the remainder of the Fishing Season statewide to prevent further entanglements and avoid violating the terms of the ITP. The Department selected an Impact Score Calculation of three as the trigger for an automatic fishery closure based on the evaluation of the status of the stock as a whole, the likelihood of Humpback Whales to be present in the fishing grounds, and to help prevent additional entanglements moving forward which might trigger future fishery closures based on the multi-year trigger (as discussed below). This could help to minimize economic impacts of a fishery closure. Additionally, if an Impact Score Calculation of three is reached during a single Fishing Season, it is an indication that some aspect of the RAMP process is not working correctly or could be indicative of

anomalous environmental conditions. In order to ensure appropriate protective actions on the Humpback Whale stock, it is necessary to close the fishery at that point to reduce the risk of additional entanglements and prevent unintended consequences on the stock as a whole.

Unlike for Humpback Whales, under subsection **(c)(1)(B)(2)** the Department is not proposing an automatic closure for Blue Whales from exceeding the specified Impact Score Calculation in subsection (c)(1)(A) within a single Fishing Season. Blue Whale encounters are rare because they are typically found in deeper waters farther offshore, as opposed to overlapping with the Fishing Grounds. Because of the low likelihood of co-occurrence in the Fishing Grounds, each entanglement should be evaluated on a case by case basis, in conjunction with other relevant conditions at that time, to determine the appropriate management action. In the case of Blue Whales, an automatic closure is more likely to be unnecessary or ineffective when, for example, a depth restriction could more effectively prevent fishing activity in areas where whales are located. Additionally, because the three-year average Impact Score Calculation is set at one, there is still an automatic NOAA consultation requirement should entanglements continue to occur so that appropriate management responses can be considered, which may include a Fishing Zone closure.

Under subsection **(c)(1)(B)(3)**, the Department is not proposing an automatic closure for Pacific Leatherback Sea Turtles from exceeding the specified Impact Score Calculation in subsection (c)(1)(A) within a single Fishing Season. Because of the rarity of occurrence each entanglement should be evaluated on a case by case basis, in conjunction with other relevant conditions at that time, to determine the appropriate management action. An automatic closure in the case of Pacific Leatherback Sea Turtles is more likely to be unnecessary or ineffective when, for example, a depth restriction could more effectively prevent fishing activity in areas where Pacific Leatherback Sea Turtles are located. Additionally, because the three-year annual Impact Score Calculation is set at greater than or equal to one (see subsection (c)(1)(C)(3)), there is still an automatic NOAA consultation requirement should entanglements continue to occur so that appropriate management responses can be considered, which may include a Fishing Zone closure.

During Calendar Year

Subsection **(c)(1)(C)** specifies triggers and expected management response for Humpback Whales, Blue Whales, and Pacific Leatherback Sea Turtles during a calendar year.

Rationale:

Under **(c)(1)(C)(1)** during a single calendar year, any confirmed Humpback Whale entanglement that causes a three-year average Impact Score Calculation to exceed two, the Director shall consult with NOAA and the Working Group. The trigger was set at greater than two based on the 10% of PBR analysis explained above, as well as

informal guidance from NOAA. Because NOAA has management authority over whales, it is appropriate to seek consultation on necessary management action to ensure the Department doesn't jeopardize an ITP or any future permit. Once a permit is issued, any take that exceeds allowable levels will require the Department to consult with NOAA to evaluate the effectiveness of management actions to stay within allowable take limits. Consulting the Working Group recognizes the expertise and knowledge the group possesses and is necessary in evaluating why the take threshold was exceeded and developing recommended solutions. After the Department consults with NOAA and the Working Group, the Director will consider a management action from those outlined in subsection (e). As described above, flexibility in the choice of management action will be important to ensure implementation of the most appropriate management action given each unique risk assessment and any input received during the consultation with NOAA.

Under **(c)(1)(C)(2)** during a single calendar year, any Blue Whale entanglement that causes a three-year average Impact Score Calculation to exceed one, the Director shall consult with NOAA and the Working Group. The Impact Score Calculation was set at an average of one in recognition of the rarity of encounters and low likelihood of co-occurrence in the Fishing Grounds. Because NOAA has management authority over whales, it is appropriate to seek consultation on necessary management action to ensure the Department doesn't jeopardize an ITP or any future permit. After consultation with NOAA and the Working Group, the Director will consider a management action from those outlined in subsection (e). As described in subsection **(c)(1)(B)(1)**, providing flexibility ensures implementation of the most appropriate management action.

Under **(c)(1)(C)(3)** during a single calendar year, for any Pacific Leatherback Sea Turtle entanglement where the three-year average Impact Score Calculation greater than or equal to one, the Director shall consult with NOAA and the Working Group. The Impact Score Calculation was set at an average of one in recognition of the rarity of encounters and low population levels of Pacific Leatherback Sea Turtles. Given the critical status of the population, using precaution is appropriate and the Department will consult with NOAA on taking the appropriate management action to ensure the Department doesn't jeopardize an ITP or any future permit. After consultation with NOAA and the Working Group, the Director will consider a management action from those outlined in subsection (e).

Marine Life Concentration Triggers

Subsection **(c)(2)** specifies triggers and management response related to marine life concentrations. Triggers are defined separately for two time periods, fall (November 1 through the opening of the season) and spring (March 1 through the close of the season). Triggers and management response are also defined separately for each Actionable Species.

The two time periods are identified because information on marine life concentrations collected during these two periods has different implications for management with

anticipated presence of Actionable Species based on historic migration data. Whale and sea turtle migration, or whether they are anticipated to be moving into or out of the Fishing Grounds, in conjunction with the status of the Fishing Season (open or closed) and potential for overlap between whales and fishing gear warrants identification of distinct triggers and management actions for each time period due to difference in potential co-occurrence.

Subsection **(c)(2)** specifies that the Director may only consider data from surveys and telemetry monitoring of Actionable Species designed, conducted or approved by NOAA or the Department as an indication of marine life concentrations and migrations in and out of the Fishing Grounds. It is necessary to specify that only scientifically designed surveys conducted or approved by NOAA and the Department will be used in the risk assessment to ensure consistent data collection protocols and procedures, and make clear to fishermen and the Working Group what metrics will be used to inform potential management actions.

Survey timeframes are specified in this proposed subsection to ensure information relied upon during a Risk Assessment is timely and relevant. Surveys conducted between November 1 until the season opens statewide will provide information on the number and distribution of whales remaining in the Fishing Grounds as they migrate south to their winter breeding grounds in Mexico and Central America, as well as the number and distribution of Pacific Leatherback Sea Turtles foraging off Central California before migrating to winter nesting beaches in the tropical Pacific. Based on historical migratory patterns (Benson et al. 2007, Calambokidis et al. 2015), these Actionable Species are expected to depart the Fishing Grounds in late fall (October and November). Conversely, surveys conducted later in the season will provide similar information regarding the northward migration and return of these species to the Fishing Grounds, which overlap with summer feeding grounds. Historical data indicate that relatively few whale entanglements occur between December 31 and early spring, making additional surveys during this time unnecessary. Additionally, due to winter weather patterns, vessel and aerial-based surveys are often not possible due to unfavorable survey conditions on the Fishing Grounds.

Pacific Leatherback Sea Turtle foraging areas vary from year to year, but in many years, foraging has been concentrated in very small areas (on the order of 10 x 10 square miles) within the Fishing Grounds. For several years, NOAA has successfully used a combination of aerial surveys and telemetry to track Pacific Leatherback Sea Turtles. Those efforts have provided critical information on foraging areas, trends in abundance, movement patterns, and timing of departure and return to West Coast foraging areas.

The Department is proposing trigger levels that were produced through extensive discussions by the Working Group based on the best available science and interpretations of the relationship between concentration of whales on the fishing grounds and risk of entanglement.

Fall Triggers and Management Actions

Subsection **(c)(2)(A)(1)** specifies that if marine life concentration data are not available by November 1 to inform concentrations of Actionable Species, the Fishing Season will be delayed in a Fishing Zone(s) until December 1 to ensure the fishery does not open when there is an elevated entanglement risk due to possible continued presence of Actionable Species in the Fishing Grounds. Due to weather, flight availability and lack of other resources, data collection may not always be possible. An absence of data does not mean there is no entanglement risk. Historical data suggest that during this time whales are transiting through and leaving the Fishing Grounds. Without data to suggest how many whales may still be in the Fishing Grounds, the Department needs to take a precautionary approach and delay the opening of the Fishing Season in order to reduce the risk of co-occurrence of whales and fishing gear.

Subsections **(c)(2)(A)(2)** through **(c)(2)(A)(3)** specifies that if data are not available by December 1 or December 15, the fishery will continue to be delayed until December 31, after which the fishery will open. Delaying the fishery incrementally is consistent with delays authorized for meat quality under FGC Section 8276.2 and this type of temporal structure is familiar to fishery participants. It provides clarity to the Fleet and assurances that the fishery will open on December 31 at the latest (unless otherwise delayed due to non-entanglement concerns such as meat quality or public health advisories). Additionally, the incremental delay (approximately 15 days) reflects an appropriate period in which it is anticipated that additional data can be captured showing a change in the presence of Actionable Species. Finally, this delay period represents a reasonable time window for Department staff to analyze data, provide information to the Director, prepare the necessary management documents, and provide enough time for an orderly and safe implementation of a fishery opener.

Subsection **(c)(2)(A)(4)** specifies that if marine life concentration data are available between November 1 and December 31 and the Actionable Species triggers are exceeded, management action will be taken as follows:

Humpback Whales

Subsection **(c)(2)(A)(4)(a)** specifies that if the number of Humpback Whales is greater than or equal to 20 or there is a running average of five (5) or more animals over a one-week period within a single Fishing Zone (excluding Zone 6 which is designed to protect Pacific Leatherback Sea Turtles), the Director shall implement a minimum of a Fishing Zone closure or other management action from the suite of options outlined in subsection (e) that the Director demonstrates protects Humpback Whales based on best available science. Fishing Zone 6 is excluded because it is strictly for the protection of Pacific Leatherback Sea Turtles. The trigger value of 20 Humpback whales was set in recognition that this value is applicable to a single Fishing Zone as opposed to a larger area, and presence of 20 whales indicates that the whales are still foraging in that area and have not yet left for migration south. A running average of five or more animals over a one-week period is an indication that there could be an increased risk of

entanglement. As described in subsection (c)(1)(B)(1), allowing for flexibility in the choice of a management response will ensure the Director can consider all relevant information in making the most appropriate management decision, while the minimum of a Fishing Zone closure provides a backstop should available information be insufficient to inform a different management approach.

Blue Whales

Subsection **(c)(2)(A)(4)(b)** specifies that if the number of Blue Whales is greater than or equal to three (3) or there is a running average of three (3) or more animals over a one-week period within a single Fishing Zone (excluding Zone 6) the Director shall implement a minimum of a Fishing Zone closure or other management action from those outlined in subsection (e) that the Director demonstrates protects Blue Whales based on best available science. Unlike Humpback Whales which can be found regularly in the Fishing Grounds each year, Blue Whales sightings in the Fishing Grounds are irregular. Given the lower anticipated occurrence generally, the lower trigger number of presence of 3 whales would indicate that blue whales are foraging in the area and there is a need to evaluate an appropriate management response. When they do occur, animals tend to be found in deeper waters on the continental shelf and outside the Fishing Grounds. Given the unpredictability and rarity of occurrences, it is important to maintain flexibility to ensure implementation of the most appropriate management action, especially given the rarity of encounters described in subsection (c)(1)(B)(2). The minimum of a Fishing Zone closure provides a backstop should available information be insufficient to inform a different management approach.

Pacific Leatherback Sea Turtles

Subsection **(c)(2)(A)(4)(c)** specifies that the Director shall not open any Fishing Zone containing an animal unless the Director demonstrates other management actions described in subsection (3) protects Pacific Leatherback Sea Turtles based on best available science. Due to the critical status of sea turtles, even one animal in a Fishing Zone presents an entanglement risk and indicates a need to evaluate an appropriate management response. This will allow for flexibility in the choice of a management response and ensure the Director can consider all relevant information to inform the most appropriate management response. The minimum of a Fishing Zone closure provides a backstop should available information be insufficient to inform a different management approach.

Spring Triggers and Management Action

Subsection **(c)(2)(B)(1)** specifies that if data are not available to inform concentrations of Actionable Species by March 15, the Fishing Season will close statewide on April 1. Historical data suggest whale density and entanglement risk increases during the spring and summer months when whales migrate into the Fishing Grounds. Closing the fishery if data are not available is precautionary to be protective of Actionable Species, rather than assuming it is safe to continue fishing when entanglement risk is not known but expected to increase through spring into summer.

Subsection **(c)(2)(B)(2)** specifies that if data are available to inform marine life concentrations between March 1 until the Fishing Season closes statewide in each Fishing Zone and the Actionable Species triggers are exceeded, management action will be taken as follows:

Humpback Whales

Subsection **(c)(2)(B)(2)(a)** specifies that if the number of Humpback Whales is greater than or equal to 10 or there is a running average of five (5) or more animals over a one-week period within a single Fishing Zone (excluding Zone 6), the Director shall implement a minimum of a Fishing Zone closure or other management action from those outlined in subsection (e) that the Director demonstrates protects Humpback Whales based on best available science. Entanglement risk is expected to further increase into the last spring/early summer months so implementing a management action is expected to help reduce entanglement risk. Presence of 10 whales or a running average of five is an indication that whales are foraging in the area and it is appropriate to further evaluate an appropriate management action. The minimum of a Fishing Zone closure provides a backstop should available information be insufficient to inform a different management approach.

Blue Whales

Subsection **(c)(2)(B)(2)(b)** specifies that if the number of Blue Whales is greater than or equal to three (3) or there is a running average of three (3) or more animals over a one-week period within a single Fishing Zone (excluding Zone 6), the Director shall implement a minimum of a Fishing Zone closure or other management action from those outlined in subsection (e). As described in subsection (c)(1)(B)(2), Blue Whales tend to be found in deeper waters on the continental shelf and outside the Fishing Zone. Three whales in a Fishing Zones indicates that blue whales are foraging in the area and there is a need to evaluate an appropriate management response Given the unpredictability and rarity of occurrences, it is important to maintain flexibility to ensure implementation of the most appropriate management action. The minimum of a Fishing Zone closure provides a backstop should available information be insufficient to inform a different management approach.

Pacific Leatherback Sea Turtle

Subsection **(c)(2)(B)(2)(c)** specifies that if the number of Pacific Leatherback Sea Turtles is greater than or equal to one (1) within any Fishing Zone, the Director shall implement a minimum of a Fishing Zone closure or other management action in subsection (3) that protects Leatherback Sea Turtles based on best available science. Although sightings in the Fishing Grounds are rare, entanglement risk is expected to further increase into the late spring/early summer months when they start to migrate back to their foraging grounds. Due to the critical status of sea turtles, even one animal in a Fishing Zone presents and entanglement risk and indicates a need to evaluate an appropriate management response The minimum of a Fishing Zone closure provides a backstop, should available information be insufficient to inform a different management

approach.

Subsection (d): Management Considerations

This subsection identifies sources of information that the Director shall consider when determining management action under subsection (e). When considering which management action to implement, the Director shall base decisions on best available science and will, to the maximum extent practicable, rely on scientific information relevant to the management issue which is based on statistically valid data and is publicly available. Using statistically valid data ensures that any conclusions are reasonably supported and not speculative and using publicly available data ensures transparency in decision making. Information are defined as a Working Group recommendation, information from NOAA, management action effectiveness, economic impacts, data availability, historic migration patterns, Fishing Season dynamics, forage, ocean conditions, Confirmed Entanglements, and Marine Life Concentrations.

Rationale:

In collaboration with the Working Group and its advisors, the Department evaluated several data sources to assess entanglement risk, need for management action, and effectiveness of a given management action. While some sources of information described in subsection (d) were sufficient to inform a trigger in subsection (c), other sources were not because they lacked the specificity and clarity necessary for this rulemaking. Nevertheless, the Department recognizes the value of these data for informing management decisions. Given the utility of these data and overwhelming support from the Working Group and the public, they are included in this rulemaking as a consideration to inform management actions using best available science.

Subsection **(d)(1)** emphasizes that the Director will consider recommendations from the Working Group when evaluating management actions. The Working Group is comprised of individuals who have first-hand knowledge and expertise of the fishery, ocean conditions, and Actionable Species. As such, their input will be critical to informing the Director on management decisions.

Subsection **(d)(2)** clarifies that the Director will consider a information from NOAA when evaluating a management action. There may be instances when the Department consults with NOAA to determine the need for or appropriateness of a specific management action, given their subject matter expertise and management authority. This ensures that those recommendations will be included as a consideration for informing a management action.

Subsection **(d)(3)** specifies that the effectiveness of a given management action will be evaluated to ensure that it meets the goals of the RAMP to avoid marine life entanglements to the extent practicable in commercial Dungeness crab fishing gear and minimize risk of injury to an Actionable Species if an entanglement occurs. Management

measures that are not effective will reduce species protections and conflict with program goals. The effectiveness of a given management action will vary based on the time of year, progression of fishing season, and ocean conditions.

Subsection **(d)(4)** specifies that when deciding between management actions that equivalently reduce entanglement risk, the total economic impact to the Fleet and the fishing communities will be a consideration. Economic impacts will change depending on the timing of the year and progression of the Fishing Season. Delays early in the Fishing Season have been shown to be less impactful overall to the Fleet compared to delays that cause the season to open in the late winter or early spring. Historical landings data indicate that while the timing of landings shift when a season is delayed (often by no more than a month or so), fishermen are able to make up landings later in the season, leaving economic impact relatively unchanged. Conversely, an early closure in the spring months will have differential impacts to the Fleet depending on the size of their fishing operation and business model. Small boat operators whose business model relies on direct sales to live markets throughout the year would be impacted more by an early closure. Whereas many larger boat operators have completed commercial Dungeness crab fishing activities for the season and shifted focus to participate in other fisheries may experience less of an impact. Additionally, it may be that a number of different management responses will provide similar protections to Actionable Species by reducing entanglement risk. For example, depending on the circumstances and the time of year, a statewide closure, a Fishing Zone closure, or a depth constraint may provide the same level of protection to Actionable Species. In such a case, the impacts of a depth constraint vs a Fishing Zone closure would be considered in determining final management response.

Subsection **(d)(5)** specifies that availability of data within and across Fishing Zones will be considered when implementing a management action if data are available to inform current conditions (such as location of fishing effort or Actionable Species migration patterns). When data are unavailable for an individual Fishing Zone, the Department may rely on assumed historic patterns or data from an adjacent Fishing Zone. Availability of data within a Fishing Zone may influence the Director's choice of an action, for example more restrictive actions may be implemented for areas without data in order to be more precautionary, whereas availability of data in an different area could indicate less restrictive actions are appropriate.

Subsection **(d)(6)** specifies that known historic marine life migration patterns will be an important consideration, specifically whether whales are leaving the Fishing Grounds in the fall or returning in the spring. Since risk changes by the time of year, the Director may choose to implement a less restrictive action on the Fleet in the fall because entanglement risk is decreasing as Actionable Species migrate out of the Fishing Grounds. Whereas, in the spring a more conservative management action may be implemented because it provides greater protections for Actionable Species when entanglement risk is anticipated to be increasing as Actionable Species migrate into the

Fishing Grounds.

Subsection (d)(7) specifies that Fishing Season dynamics include factors that impact the concentration or geographic location of fishing effort, amount of gear deployed, and season delays will also be an important consideration. Fishing pressure (number of vessels and amount of gear deployed) is greatest in fall when the fishery opens, and intensity declines significantly in the spring months. Historic landings data suggests that over 80% of commercial Dungeness crab landings occur within the first eight (8) weeks of the season (**Figure 2**). The scheduled season openers mean this high level of effort, and large amount of deployed gear, occur when marine life concentrations are decreasing in the Fishing Grounds, and entanglement risk is therefore declining. Historical migration patterns indicate fewer Actionable Species would be expected in the Fishing Grounds in late fall/early winter as opposed to spring. Therefore, an on-time (November 15 or December 1, depending on location) or marginally delayed fishery opener is associated with lower entanglement risk as compared to an opener later in the Fishing Season (February-April). If the fishery does not open until late winter or spring, the high levels of effort are more likely to overlap with a period of increasing marine life presence as whales and turtles return to the fishing grounds. During a compressed Fishing Season, fishing effort would likely be higher than normal during the latter part of the season as individuals try to make up for lost fishing opportunities. This would increase the likelihood of co-occurrence between gear and Actionable Species, resulting in an increased risk of entanglement.

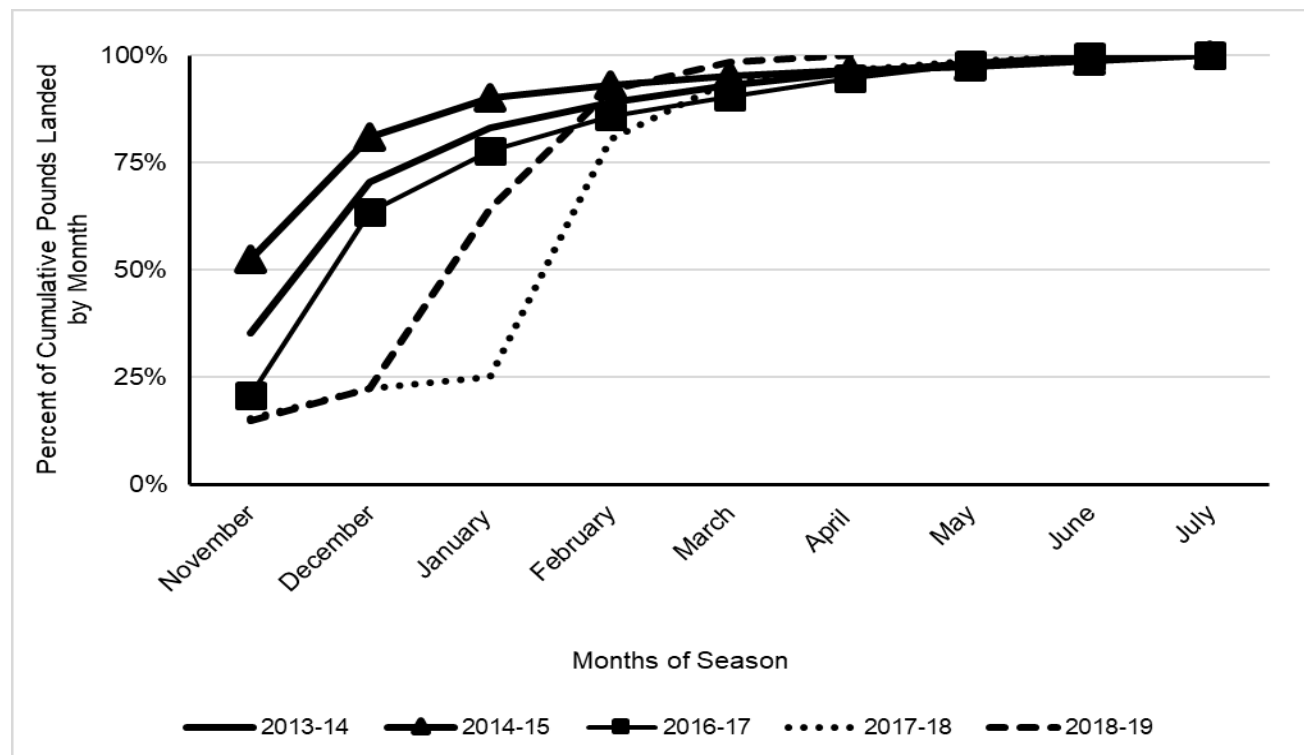


Figure 2. Percent of cumulative pounds of Dungeness crab landed by month between 2013-14 and 2018-19 Fishing Seasons. The 2015-16 season was not included due to a federal fishery disaster declaration. The 2018-19 season closed on April 15. (Source: CDFW Marine Landings Data System)

The anticipated location of the Fleet in relation to marine life presence (i.e., co-occurrence) will also be an important consideration when assessing risk tolerance. If Actionable Species are observed in locations where there is no fishing activity, the Director may choose to implement a less restrictive management action. Conversely, if there is a substantial overlap of fishing activity and Actionable Species the Director may choose a more restrictive action to maximize biological protections. Subsection (g) of this rulemaking includes reporting requirements that are intended to help provide data to inform considerations of fleet dynamics and possibility for co-occurrence of fishing activity with presence of Actionable Species.

Subsection **(d)(8)** specifies that distribution and abundance of forage and its effect on feeding behavior of Actionable Species will be an important consideration when assessing management actions. Historically, years with high anchovy abundance correlate with higher entanglement risk compared to years that are dominated by krill (Santora et al. 2020). High anchovy years tend to bring whales closer inshore, which increases co-occurrence with fishing gear. Understanding the relationship between food availability (location and abundance) and presence of marine life under differing ocean conditions will be informative for predicting risk of entanglement.

Subsection **(d)(9)** specifies that along with forage (described above) ocean conditions (such as temperature, upwelling, and El Niño) are important considerations. Ocean conditions such as high winds or strong currents, strongly influence fishing behavior and responsiveness of the Fleet. High wind and strong swell events can affect the Fleet's ability to detect and retrieve gear or be responsive to a management change.

Understanding how oceanographic change (warm water events, Pacific Decadal Oscillation, upwelling, acidification etc.) influence the timing and location of Actionable Species presence along the coast will be informative for management. The Working Group frequently considers the relationship of these factors in their recommendations.

Subsection **(d)(10)** clarifies that information on the current Impact Score Calculation within the Fishing Season and calendar year are important considerations. How close the Fleet is to reaching the Impact Score Calculation in a Fishing Season or calendar year will likely affect the type and severity of management action.

Subsection **(d)(11)** specifies that marine life concentrations and their spatial distribution will be an important consideration when choosing a management response, particularly in determining the area over which that response will apply. More concentrated presence of Actionable Species could indicate that management response on a Fishing

Zone basis is appropriate, while more disperse presence might indicate management over a larger area is necessary.

Subsection (e): Management Actions

This section describes the suite of management actions available to the Director to reduce entanglement risk and how those actions will be operationalized.

Rationale:

Identifying a suite of management options ensures clarity and certainty on the range of management options that the Director could implement to mitigate entanglement risk. Only those actions identified in subsection (e) would be available for management action. The Department could consider additional actions in a future rulemaking.

Subsection **(e)(1)** specifies the Director may issue an advisory to the Fleet to encourage voluntary efforts to reduce risk if it is elevated, or expected to increase, but a more restrictive management response is not necessary. In some instances, marine life are present, or there has been an entanglement, but management action may not be necessary to reduce risk. For example, the entire fishery may be delayed due to domoic acid, so there would not be a need to implement a management action because the fishery is closed. Or, if a trigger is hit late in the spring or early summer when most of the Fleet is no longer fishing or approaching the traditional close of the fishery, implementing a management action may not be necessary because, due to timing of implementation, it would have no practical effect.

Subsection **(e)(2)** specifies that a depth constraint may be implemented to avoid co-occurrence of Actionable Species and the Fleet. Using waypoints that approximate a line to define depth contours has been used routinely in the groundfish fishery for nearly two decades and is familiar to the Fleet because many individuals participate in both fisheries. Waypoints delineating the depth contours in California are defined in the Code of Federal Regulation (CFR), sections 660.71- 660.74 for 30, 40, 50, 75, 100, 150, 200 fathom contours (as noted by changes in the Federal Register Notice, 80 Federal Register 63970, December 12, 2018). The Department may only rely on certain contours for management actions, such as the 40 or 50-fathom contours. Implementing a 40-fathom depth constraint and prohibiting take seaward (deeper) of that line is expected to protect Pacific Leatherback Sea Turtles as they migrate into the Fishing Grounds. Prohibiting take seaward of the 50-fathom line is expected to reduce interactions with Blue Whales which are primarily found in deeper depths over the continental shelf. However, the Department proposes to incorporate into reference these four CFR sections because publication of these incorporated sections in full in the CCR would be cumbersome, unduly expensive, or otherwise impractical (Title 1, Section 20, CCR).

Subsection **(e)(3)** specifies how the Department will implement a vertical line and/or gear reduction requirement to reduce entanglement risk. Under this management action, the Director may reduce the number, or percentage of traps that permit holders can fish, e.g., a 50% gear reduction would mean half of the permitted buoy tags and respective gear can be fished, while the other half must be retained onboard the permitted vessel as proof that only half the gear is being fished. A gear reduction would be based on the total tier allocation including any lost buoy tags. Gear reduction is an important management response because reducing the number of vertical lines in the water will automatically reduce the likelihood of interaction between gear and an Actionable Species, and reduces the risk in a less economically impactful way than other management options. Requiring the Fleet to retain the specified proportion of their buoy tags onboard and have them readily available for inspection ensures that Law Enforcement personnel can monitor and enforce gear reduction management actions. In addition, on board retention allows for quick re-deployment of gear if this management action is relaxed during the season. Specifying how the Department will implement the reduction is needed to ensure compliance. This will also allow the Department to adequately monitor and enforce this management action.

Subsection **(e)(4)** specifies that the Director may close the fishery due to entanglement risk. A closure is the most certain way to reduce entanglement risk as it completely removes all gear from the water in a given area, and thus more or less completely removes the likelihood of gear interaction with Actionable Species (minus gear that has been lost or abandoned). Given the level of risk and the geographic extent of that risk, the Director may choose to close the fishery statewide or just within specific Fishing Zone(s). As discussed above under subsection (a)(3), both take and possession are prohibited to prevent transiting through closed areas and to make the closure more easily enforceable. Subsection **(e)(5)** specifies that during a closure occurring on April 1 or later, the Director shall authorize the use of Alternative Gear within any closed Fishing Zone. Alternative Gear is not allowed in an open Fishing Zone due to concerns about gear conflicts with traditional Dungeness crab trap gear and other trawl and trap fisheries. Gear certified under the process described in subsection (h) would pose lower entanglement risk, as compared to traditional gear currently in use by the fishery. Allowing for Alternative Gear (once authorized pursuant to subsection (h)) allows for potential continued fishing activity, and possibly a reduction to the economic impact, in times where the alternative would be a total fishery closure.

Subsection (f) Notification Process for Management Actions

This section identifies the description of how an action will be noticed and transmitted to the public and information supporting the choice of a management action pursuant to subsections (c) and (e).

Rationale:

Subsection **(f)(1)** describes the notification process for management actions taken in

response to entanglement risk based on the most recent Risk Assessment. Using a Director's declaration to communicate expected management action, affected area, effective date and duration will provide the necessary clarity for the public and law enforcement personnel. The Director's declaration has been the method used to communicate changes to the Fleet during the 2019-2020 Fishing Season, as well as for actions taken to address public health concerns and quality delays over the past few seasons.

The declaration will provide the information relied upon for management action and supporting rationale for the Director's determination of risk and accompanying management action (subsections **(f)(1)(A-C)**). Clearly articulating the basis and rationale for any decision will ensure transparency to interested stakeholders and provide a record of decision-making.

Subsection **(f)(1)(D)** specifies the declaration may authorize the lost gear recovery program, consistent with the requirements under FGC Section 9002.5 and Section 132.7, Title 14, CCR. It also makes clear that Alternative Gear must be authorized in the declaration as a specific management action, which is necessary for the reasons discussed in (e)(5) above.

Based on stakeholder input, specifying a minimum notice requirement of 72 hours as described in subsection **(f)(2)** establishes a reasonable time period for fishery participants to understand and make preparations to implement any required modification to their fishing practices. This timeframe is also consistent with notification requirements for public health advisories.

Providing the notice through an opt-in email list serve and posting to a designated webpage will allow the Fleet to easily access information regarding regulatory changes and provide the most efficient method of quickly noticing management changes by the Department to participants. Mailing paper notices would not be timely, especially considering fishery participants may be out on the water and not immediately receive mailed documents. The Department does not have a complete email list for the Fleet, so it does not serve as a complete tool to facilitate communication. Stipulating that the Department will request the U.S. Coast Guard to broadcast a Notice to Mariners is responsive to industry requests during scoping conversations and would increase awareness of such changes by individuals who are at sea when the notice is distributed.

Subsection (g): Mandatory Data Reporting Requirements

This section identifies mandatory reporting requirements necessary to support collection of essential fishery information and continued operation of the California commercial Dungeness crab fishery under the RAMP.

Rationale:

Subsection **(g)(1)** specifies a requirement to submit reports every two weeks on current fishing activity. The Department currently lacks important data on the location, depth, and number of traps deployed. Knowing the location and amount of gear in the water will provide important information on fishing dynamics. Collecting such baseline information will help the Department assess the level of entanglement risk with fishing effort, and need or effectiveness of management actions, such as gear reductions or closures. The Department considered shorter reporting timeframes (less than two weeks) and had concerns about the amount of workload it would create for both Department staff and permit holders. Longer reporting timeframes may not capture important changes in fishing dynamics in a timely manner. Requiring reporting to be provided by the 1st and the 16th of every month of participation during the Dungeness crab season ensures the Department is getting a current snapshot of all fleet activity at that point in time, as opposed to having the information trickle in on different timeframes by different fishermen. Updated information on all fleet activity is necessary to inform entanglement risk and appropriate management response. At the conclusion of the Fishing Season the number of lost traps shall also be reported on the final bi-weekly report that is submitted to the Department. Requiring the collection of information on lost traps will help inform lost gear recovery efforts. Requiring reports to be submitted via email or text is consistent with current communication among the Fleet and is less burdensome on Department staff.

Given the changes in fishing dynamics and the need to have this information in a timely manner, reports are to be submitted via email or text. Requiring reports to be submitted via regular hard copy mail would not provide the information in a timeframe necessary to help inform decision making. During the 2019-2020 Risk Assessments, the Fleet regularly provided the Working Group reports on their current level and location of fishing effort (number of traps). This information was used by the Working Group to inform level of entanglement risk in different locations throughout state waters. Implementing a mandatory reporting requirement, will not be completely unfamiliar nor an undue burden on the Fleet.

Subsection **(g)(2)** specifies that an operational electronic monitoring system must be affixed to each vessel when fishing during a depth constraint or when using Alternative Gear. The electronic monitoring system must be capable of tracking a vessel's unique location using GPS coordinates at a frequency of no less than one time per minute. Mandating a transmission frequency of less than once a minute will not provide the resolution necessary to ensure compliance with depth restrictions. Collecting more data at a frequency of more than once a minute would not have an increased benefit to the Department in terms of enforcing these regulations.

Electronic monitoring systems are routinely used in west coast fisheries to track vessels to ensure compliance with regulations. This device will provide details on when and where individuals are fishing and gear is set to help Law Enforcement personnel ensure individuals are following the imposed management actions to reduce entanglement risk.

This subsection also requires fisherman to make data available to the Department for tracking and analysis when requested for up to 60 days. The Department considered shorter and longer durations for requiring data storage. Under shorter time periods data could be lost that would be needed for law enforcement investigations. Maintaining data for longer periods would not have an increased benefit to the Department in terms of enforcing these regulations.

Subsection **(g)(3)** specifies that an annual report must be submitted when using Alternative Gear. The report must contain a summary of the amount of harvested crab, amount and location of gear deployed, and amount and location of any lost gear. These data are necessary to inform the Department and other interested parties as to the level of use of alternative fishing gear, which can be used to inform future management actions. Reporting the quantity of crab, amount of gear, and location of gear will provide information on fishing dynamics and effort. Reporting the amount and location of lost gear will facilitate derelict gear recovery efforts, including the Department's Lost or Abandoned Crab Trap Gear Retrieval Program.

Subsection (h): Alternative Gear

This section identifies that the Department shall consider Alternative Gear types to take Dungeness crab and specifies a process and criteria for certification of this gear. The fishery uses traps constructed from two circular iron frames 3 to 3.5 feet in diameter connected by spokes on the outer edges. The frame is wrapped with strips of rubber and the entire frame is covered with stainless steel wire mesh and weigh up to 75 lbs. Traps are placed on the seafloor and every trap is required to be marked with a buoy. Trailer buoys, which are intended to keep vertical lines buoyant and visible at the surface, are commonly used in addition to the main buoy to facilitate trap servicing. The vertical line extending to the surface can result in a marine life entanglement. Alternative gear is anticipated to reduce the risk or severity of entanglements as compared to trap configurations currently used in the fishery by eliminating the vertical surface line and buoy and/or incorporating modifications that reduce the risk. Technologies include acoustic release buoys, time release systems and weak links. Additionally, technologies are expected to become available through continued testing.

Written requests may be submitted by any person or manufacturer. This section specifies the location where authorization requests must be submitted and the timeline for Departmental response. Information which must be submitted with the request includes contact information for the requestor or manufacturer (as appropriate), a description of the gear and how it operates, results of research trials, how gear locations will be visible, specialized equipment or training needed to operate the gear, retrieval mechanism, safeguards to prevent gear loss, how gear will be identified to a Dungeness crab vessel permit, evidence that gear reduces risk or severity of entanglement and a recovery plan in the event of retrieval failure. Written requests shall include a signed statement that all information provided is accurate. The Department will assess each

request based on information provided, and maintain a list of certified gear on a specified website; the list will be updated at least once per year. Should subsequent information indicate certified gear no longer meets the identified standards, it will be deauthorized and removed from the online list.

Rationale:

Alternative Gear is not currently allowed in the commercial Dungeness crab fishery. Many of the Department's trap regulations rely on the presence of a vertical line and surface buoy attached to each trap. The Department's Law Enforcement Division has identified standards related to gear detection, gear retrieval, and gear identification which must be met prior to authorizing the use of such Alternative Gear.

Scoping conversations with the Working Group and other stakeholders have indicated a strong desire for the Department to authorize use of Alternative Gear in this fishery. Given the opportunity posed by Alternative Gear for continued fishing activity during periods or in areas of elevated entanglement risk, the Department considered mechanisms to integrate authorization of Alternative Gear into the proposed regulations. After thorough review of currently available Alternative Gears, the Department was unable to identify any manufacturers which could meet the Department's standards. Additionally, new types of Alternative Gear may continue to be developed, which could not be specified at this time.

Therefore, rather than specifying known Alternative Gear which may be used in fishery operations, the proposed regulation identifies a clear process and a set of performance standards by which Alternative Gear may be authorized for future use. This process includes the type of information the manufacturer will need to supply for certification.

Subsection **(h)(1)(A)** provides that the Department will review proposals for Alternative Gear and requires such gear to meet criteria set forth in these regulations to be authorized for use in the fishery. This is an important element allowing verification of claims made by applicant, while still showing the Department's dedication to approving all gear that is verified to meet the listed criteria. Written requests are necessary to ensure that the Department has all necessary information to ensure gear meets the listed criteria.

Subsections **(h)(1)(B)** specifies criteria the Department will use to evaluate Alternative Gear, which include detectability, retrievability, identification, benefit and enforceability. The Working Group and other members of the public have expressed a desire to utilize gear that remains submerged until it is triggered for retrieval at the surface. While this type of gear is expected to minimize entanglements by reducing the period of time vertical lines are present in the water, it does pose significant challenges. Law Enforcement personnel must know where gear is placed to ensure individuals are not fishing in closed areas. This is challenging without a surface buoy. Other fishermen or other members of the public need to be able to locate the gear to prevent gear conflicts

or disturbances through other activities (research, fiber optic cable placement, etc.). The specific details will also allow Law Enforcement personnel to evaluate whether they currently have the equipment and training necessary to retrieve, handle, and re-deploy the gear. They will also need to be able to identify gear to individual permit holders to ensure they are adhering to program rules. Since this gear is intended to be used during periods of high entanglement risk, the Department needs to ensure that gear reduces the risk or severity of an entanglement. The Retrievability standard is necessary not only to ensure the law enforcement can retrieve the gear, but also to minimize the amount of lost gear which could increase entanglement risk and general environmental damage due to marine debris. The 90% success rate is based on the current allowable rate of lost gear replacement as outlined in Section 132.4 of Title 14, CCR. It is likely impossible to ensure 100% success with any gear type, and a 10% failure rate is consistent with the anticipated loss rate for traditional gear.

Subsections **(h)(1)(C)(1)** through **(7)** specifies details to be included within written requests to help the Department evaluate how gear meets criteria described in subsection (h)(1)(B). Email submittal of requests is the most efficient and environmentally friendly way for staff to receive and review applications. Contact information is necessary to inform of the outcome of the certification process, and to have a point of contact for questions.

The description of the gear in **(h)(1)(C)(2)** is necessary to ensure the Department has a complete description of what the proposed gear looks like and how it will operate in practice.

Information provided in Subsection **(h)(1)(C)(3)** will allow the Department to evaluate the number research trials conditions, location and depth of gear testing to determine whether the gear can meet a 90% success criterion. Since ocean conditions are variable and can change quickly, this information will allow the Department to evaluate whether Alternative Gears can be successful in the Fishing Grounds, both in depths and conditions in which the fishery operates. Establishing a high threshold for success is intended to minimize the amount of lost gear which can increase risk of entanglement.

Subsection **(h)(1)(C)(4)** requires individuals to provide written documentation of how the Alternative Gear meets performance criteria outlined in Subsection (h)(1)(B). Providing written documentation will help the Department evaluate requests more efficiently and verify the required criteria are met.

Subsection **(h)(1)(C)(5)** requires a gear recovery plan to be on file should the gear fail to deploy and be recoverable. Gear left in the water presents a hazard to marine life, including Actionable Species, and the public.

Subsection **(h)(1)(C)(6)** requires a description of the gear retrieval system required to retrieve and deploy gear. This will allow Law enforcement personnel to evaluate whether they possess the necessary equipment to retrieve and redeploy the gear.

Subsection **(h)(1)(C)(7)** requires a signed statement verifying all information is true and accurate.

Subsection **(h)(1)(D)** describes under what conditions Alternative Gear would not be authorized by the department upon receipt of a written request. Alternative Gear requests for authorization will be declined by the Department within 60 days of receipt.

Subsection **(h)(1)(D)(1)** specifies that if the written request for authorization lacks sufficient detail for how the alternative gear meets criteria set forth in (h)(1)(B) it will be rejected.

Subsection **(h)(1)(D)(2)** specifies that Alternative Gear that cannot meet detection criteria, shows poor retrieval results, is too difficult to identify, shows no evidence that it reduces entanglement risk or severity or lacks enforceability criteria will be rejected as set forth in (h)(1)(B).

Subsection **(h)(1)(D)(3)** specifies that Alternative Gear retrieval equipment and and/or associated technology must be available to the Department and not cost prohibitive based on available funding.

Subsection **(h)(1)(D)(4)** specifies that Alternative Gear must comply with applicable Federal, State or local laws or regulations.

Subsection **(h)(1)(D)(5)** specifies that the Alternative Gear must not rely on technology that is proprietary or not readily available to the Department and the public or the gear will not be authorized.

Subsection **(h)(2)** describes how the Department may deauthorize Alternative Gear on a case-by-case if that equipment no longer meets the criteria listed in (h)(1)(B). Reasons for deauthorization include poor retrieval performance, increase in marine life entanglements, or the gear/technology is no longer publicly available. If deauthorization occurs during the fishing season, the Fleet will be notified by the department in the manner described in (f)(3) and will have 8 days to remove Alternative Gear from state waters or by the end of the season, whichever occurs first. Eight days is twice the required service interval for gear pursuant to FGC section 9004, a reasonable amount of time for the Fleet to remove any Alternative Gear in the water, and quick removal is necessary should the gear be determined not to meet the standards or be contributing to entanglement risk.

Subsection **(h)(3)** describes the location of a current list of authorized Alternative Gear that will be maintained by the department. Posting it allows the public to access the list, track Alternative Gear development as well as facilitate compliance by the Fleet.

- (b) Authority and Reference Sections from Fish and Game Code for Regulation:

Authority: Section 8276.1, Fish and Game Code.

Reference: Sections 8276, 8276.1, 8276.5, 9002.5, 9008, Fish and Game Code.

- (c) Specific Technology or Equipment Required by Regulatory Change: None
- (d) Identification of Reports or Documents Supporting Regulation Change:

Senate Bill 1309, 2018, McGuire:

https://leginfo.legislature.ca.gov/faces/billTextClient.xhtml?bill_id=201720180SB1309

Benson, S.R., K.A. Forney, J.T. Harvey, J.V. Carretta, and P.H. Dutton (2007). Abundance, distribution, and habitat of leatherback turtles (*Dermochelys coriacea*) off California, 1990-2003. *Fishery Bulletin*, 105(3): 337–347.

Calambokidis, J., G.H. Steiger, C. Curtice, J. Harrison, M.C. Ferguson, E. Becker, M. DeAngelis, and S.M. Van Parijs. 2015. Biologically Important Areas for Selected Cetaceans Within U.S. Waters – West Coast Region. *Aquatic Mammals*, 41(1): 39-53. DOI 10.1578/AM.41.1.2015.39

Carretta, J. V., K.A. Forney, E.M. Oleson, D.W. Weller, A.R. Lang, J. Baker, M.M. Muto, B. Hanson, A.J. Orr, H. Huber, M.S. Lowry, J. Barlow, J.E. Moore, D. Lynch, L. Carswell, and R.L. Brownell Jr. 2019. Humpback Whale (*Megaptera novaengliae*): California/ Oregon/ Washington Stock (pp. 173-182), and Blue Whale (*Balaenoptera musculus musculus*): Eastern North Pacific Stock (pp. 183-190), *In* Assessment U.S. Pacific Marine Mammal Stock Assessments: 2018. U.S. Department of Commerce, NOAA Technical Memorandum NMFSSWFSC-617.

California Dungeness Crab Fishing Gear Working Group, Guidelines for Research and Development Projects, Focus on Ropeless Gear Innovations, Feb 2019:

http://www.opc.ca.gov/webmaster/media_library/2019/02/Whales-Gear-Innovations-R-and-D-Guidelines-February-2019.pdf

California Dungeness Crab Fishing Gear Working Group, Recommendations Memo, November 12 2019:

http://www.opc.ca.gov/webmaster/media_library/2019/11/CAWhaleWorkingGroup_HighlightsRecommendationsMemo_SeptOct2019_FINAL.pdf

California Dungeness Crab Fishing Gear Working Group, Recommendations Memo, October 15 2018:

http://www.opc.ca.gov/webmaster/media_library/2018/10/Whales_WorkingGroupRecommendationsMemo_October2018_FINAL.pdf

California Dungeness Crab Fishing Gear Working Group, Call Summary, September 26 2019:

http://www.opc.ca.gov/webmaster/media_library/2019/10/CAWorkingGroup_WebinarSummary_Sept262019.pdf

California Dungeness Crab Fishing Gear Working Group, Summary of Key Themes, September 4-5 2019:

http://www.opc.ca.gov/webmaster/media_library/2019/10/CAWorkingGroup_KeyThemesSummary_FINAL_Sept4-52019.pdf

California Dungeness Crab Fishing Gear Working Group, Summary of Key Themes, March 26 2019:

http://www.opc.ca.gov/webmaster/media_library/2019/04/CAWhaleWorkingGroup_KeyThemesSummary_26March2019Meeting_FINAL.pdf

California Dungeness Crab Fishing Gear Working Group Risk Assessment and Recommendation

<https://www.wildlife.ca.gov/Conservation/Marine/Whale-Safe-Fisheries>

NMFS, 2012a. NMFS Policy Directive (PD-02-038), Process for Distinguishing Serious from Non-Serious Injury of Marine Mammals, effective January 27, 2012, available from:

https://www.avma.org/sites/default/files/resources/noaa_serious_injury_policy.pdf

NMFS, 2012b. NMFS Instruction (02-038-01), Process for Distinguishing Serious from Non-Serious Injury of Marine Mammals: Process for Injury Determinations, effective January 27, 2012, available from:

<https://www.fisheries.noaa.gov/national/marine-mammal-protection/marine-mammal-protection-act-policies-guidance-and-regulations>

Saez, L., D. Lawson, and M. DeAngelis. 2020. Large whale entanglements off the U.S. West Coast, from 1982-2017. NOAA Tech. Memo. NMFS-OPR-63, 48 p.

64 Federal Register 102, May 27, 1999. North Pacific Fishery Management Council; Public Meetings, pages 28800-28802. Available from:

<https://www.govinfo.gov/content/pkg/FR-1999-05-27/pdf/FR-1999-05-27.pdf>

77 Federal Register 4169, January 26, 2012. NOAA Endangered and Threatened Species: Final rule to revise the critical habitat designation for the endangered Leatherback Sea Turtle, pages 4170-4201. Available from <https://www.govinfo.gov/content/pkg/FR-2012-01-26/pdf/2012-995.pdf>

(e) Identification of Reports or Documents Providing Background Information:

Andersen, M. S., K. A. Forney, T. V. N. Cole, T. Eagle, R. Angliss, K. Long, L. Barre, L. Van Atta, D. Borggaard, T. Rowles, B. Norberg, J. Whaley, and L. Engleby. Differentiating Serious and Non-Serious Injury of Marine Mammals: Report of the Serious Injury Technical Workshop, 10-13 September 2007, Seattle, Washington. U.S. Dep. Commer., NOAA Tech. Memo. NMFS-OPR-39. 94 p.

Center for Biological Diversity v. California Department of Fish and Wildlife and Pacific Coast Federation of Fishermen's Associations and Institute for Fisheries Resources, U.S. District Court for the Northern District of California, Case No. 3: 17-cv-05685-MMC, Stipulation and (Proposed) Order Staying Case. Available from: <https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=166146&inline>

National Marine Fisheries Service. 2019. Endangered Species Act Section 7(a)(2) Biological Opinion for the Continued Authorization of the Hawaii Pelagic Shallow-Set Longline Fishery.

Santora, J. A., N.J. Mantua, I.D. Schroeder, J.C. Field, E.L. Hazen, S.J. Bograd, W.J. Sydeman, B.K. Wells, J. Calambokidis, L. Saez, D. Lawson, and K.A. Forney (2020). Habitat compression and ecosystem shifts as potential links between marine heatwave and record whale entanglements. *Nature Communications*, 11(1): 1–12.

(f) Public Discussions of Proposed Regulations Prior to Notice Publication:

Dungeness Crab Task Force meetings where the proposed regulations were discussed:

- October 16-18, 2017, teleconference (meeting summary: http://www.opc.ca.gov/webmaster/media_library/2009/04/DCTF_LegReportDec2017_FINAL.docx.pdf)
- June 5-6, 2018, Ukiah, CA (meeting summary: http://www.opc.ca.gov/webmaster/media_library/2009/04/DCTF_MeetingSummary_June2018_FINAL.pdf)
- October 16-17, 2019, Santa Rosa, CA

- April 14, 2020, teleconference

Working Group meetings where the proposed regulations were discussed:

- September 4-5, 2019, Santa Rosa
- September 26, 2019, Teleconference
- October 31, 2019, Teleconference
- January 8, 2020, Teleconference
- February 7, 2020, Teleconference

State public meetings where the proposed regulations were discussed:

- Working Group Meeting, September 4-5, 2019
[http://www.opc.ca.gov/webmaster/ media library/2019/08/CAWorkingGroup-Meeting-Agenda-Sept-4-5-2019.pdf](http://www.opc.ca.gov/webmaster/media_library/2019/08/CAWorkingGroup-Meeting-Agenda-Sept-4-5-2019.pdf)
- Working Group Webinar, September 26, 2019
[http://www.opc.ca.gov/webmaster/ media library/2019/09/CAWorkingGroup_PublicAgenda_Webinar_Sept262019.pdf](http://www.opc.ca.gov/webmaster/media_library/2019/09/CAWorkingGroup_PublicAgenda_Webinar_Sept262019.pdf)
- Department Public Webinar, March 19, 2020

On December 23, 2019 the Department provided formal notice to California tribal governments regarding the development of the proposed regulations and requested preliminary input by February 1, 2020. Marine staff also provided a brief update during the January Tribal Committee meeting in Los Alamitos. As of the date on this ISOR, no requests for government-to-government consultation have been received. Three tribal governments did contact the Department. Buena Vista Rancheria and Yocha Dehe Wintun Nation requested further notification as the process develops so that they may consider potential tribal impact. Jackson Rancheria did request additional information about the scope of the rulemaking but did not request additional follow-up.

Pre-notice versions of these regulations were provided to the Working Group members and other members of the public on January 2, 2020 and March 19, 2020. Opportunities for comments were given after each draft version was shared in two-week increments. Comments were received from individual commercial Dungeness crab permit holders, crew, seafood processors and from organizations that included Pacific Coast Federation of Fisherman's Associations, California Coast Crab Association, Oceana, Center for Biological Diversity, Half Moon Bay Seafood Marketing Association, Earth Justice and The Nature Conservancy.

IV. Description of Reasonable Alternatives to Regulatory Action:

(a) No Change Alternative:

Without the proposed regulations, the RAMP mandated by the legislature would not be implemented.

(b) Consideration of Alternatives:

Scope of Rulemaking

Other Fisheries

The Department considered whether to expand the scope of this rulemaking to include other commercial and recreational fishing sectors that pose an entanglement risk to marine life. Senate Bill 1309 which grants the Department authority to implement this program through FGC Section 8276.1 is only applicable to the commercial Dungeness crab fishery and did not contemplate other fishery sectors. While a RAMP approach could be considered for other fisheries, additional work would be needed to design fishery specific triggers and actions (i.e., no one size fits all). The Fish and Game Commission would need to delegate management authority to the Director for some fisheries in order to implement timely management changes. Additional delegation of authority for other fisheries not managed by the Fish and Game Commission may be required, which could not be considered under the limited scope of this Department rulemaking. Given timing and complexity, the scope of this rulemaking was limited to the commercial Dungeness crab fishery.

Other Actionable Species

In considering which Actionable Species to include within the RAMP, the Department examined confirmed entanglements in California commercial Dungeness crab fishing gear (Saez et al. 2020) and focused on those species that have been entangled on a regular basis, or whose population status warranted additional protection. Although Gray Whales have been entangled in California commercial Dungeness crab fishing gear, they were not included as part of this rulemaking because the Eastern North Pacific population once listed as endangered under the ESA successfully recovered and was delisted in 1994. Other species of whales and sea turtles have never or only very rarely been reported as entangled in California commercial Dungeness crab fishing gear.

Additionally, Working Group discussions have focused on Humpback Whales and Blue Whales. It would be very difficult for the Department to independently develop similar criteria for Grey Whales in a timely manner to include in this effort. That, paired with the non-listed status, makes Grey Whales and other species lower on the list for inclusion in this rulemaking.

Any actions implemented under the RAMP to reduce the risk of

entanglement will provide similar protections for other marine life not specifically included in this rulemaking.

Entanglement Confirmation Process

The Department considered which entities should be responsible for determining the species and gear types involved in an entanglement. As described in this rulemaking, it is the responsibility of NOAA staff to undertake the entanglement confirmation process because they have resources and access to necessary confidential data. While the Department may assist NOAA staff in a confirmation when requested, or independently confirm the origin fishery of an entanglement based on clearly visible markings such as a buoy tag, creating a duplicative program would be unnecessary and not be as effective given the lack of resources.

Some members of the public requested the establishment of “entanglement review board” to review reported entanglements. The Department feels this is unnecessary. NOAA staff possess the subject matter expertise and reach out to members of the Working Group and Department staff, when needed, to help with entanglement confirmation. Establishing a new review board would be duplicative to the current NOAA process and would only slow down implementation of any necessary management actions.

Entanglement Triggers

In developing triggers for entanglements, the Department considered guidance from NOAA and other applicable federal laws governing species of concern (under the MMPA and ESA). This rulemaking will form an integral part of the Department’s application for an ITP. Given the status of each Actionable Species and current guidance regarding allowable impacts under the MMPA and ESA, the Department anticipates authorized take levels in an issued ITP to be low. Setting higher triggers would allow additional entanglements to occur prior to taking management action, increasing the likelihood of exceeding take limits in the ITP. Exceeding these take limits would mean the Department is no longer in compliance with the terms of the ITP, and any subsequent take from commercial Dungeness crab fishing operations would violate provisions of the ESA and MMPA.

Potential Biological Removal

During scoping discussions, some Working Group members recommended higher levels for the entanglement triggers. As explained above, the Department selected triggers which are informed by anticipated permitted take levels under the ESA and the MMPA, and therefore did not incorporate the Working Group’s request for higher values. Additionally,

some members of the Working Group advocated for framing the entanglement triggers as a percentage of PBR, rather than specifying numerical caps. PBR is defined as the maximum number of animals, not including in natural mortalities, that may be removed annually from a marine mammal stock while allowing that stock to reach or maintain its optimal sustainable population level. This value includes all human caused mortality, including ship strikes, acoustic impacts, other types of net entanglements, etc. The PBR for Humpback and Blue Whales is 16.7 and 2.3 respectively (Caretta et al. 2019). While indexing the entanglement triggers to PBR would allow threshold values to automatically change as PBR changes, Working Group members were unable to specify a trigger value (i.e., percent of PBR) for consideration during this rulemaking. Setting as a percentage of PBR would require an additional step for members of the Fleet to determine the level of entanglements that would trigger management actions, and it is clearer to have the numbers outlined in this regulation. Furthermore, PBR is not anticipated to change frequently enough that this regulation could not be updated if necessary to adjust to changes in PBR.

Pacific Leatherback Sea Turtle Impact Score Calculation and Allowable Take Level

During scoping discussions, the Department received requests to revise the Impact Score Calculation to a value less than 1.0, meaning that not all entanglements are assumed to result in death, and to increase allowable take levels. Commenters referenced a NMFS report on hooking mortality and biological opinion for the Hawaii shallow-set longline fishery as the basis for the changes (Andersen et al. 2007, NMFS 2019). Based on an evaluation of available data sources (discussed below), the Department determined it was not appropriate to revise the values for the California commercial Dungeness crab fishery given the significant differences in gear with the Hawaii-based longline swordfish fishery.

The Hawaiian fishery uses shallow-set longline gear to target swordfish. Longline gear consists of a mainline suspended in the water column, with baited circle hooks attached to separate lines off the mainline. The mainline is typically more than one nautical mile in length and is set at a specific depth in the water column using floats spaced at regular intervals. Gear typically soaks for several hours before being retrieved (NMFS 2019). Turtles that do become entangled in this fishery have a higher chance of survivorship and can be more easily released due to the use of circle hooks and gear tending intervals.

The Dungeness crab fishery uses traps that are 3 to 3.5 ft in diameter and weigh up to 75 lbs. Traps are placed on the seafloor and every trap is

required to be marked with a buoy. Trailer buoys, which are intended to keep vertical lines buoyant and visible at the surface, are commonly used in addition to the main buoy to facilitate trap servicing. The Dungeness crab fishery is subject to a mandatory 96-hour service requirement (weather permitting). If an animal becomes entangled, it could remain undetected for up to 4 days or more depending on how frequently the gear is serviced. Given the differences in gear and servicing requirements, it is not appropriate to apply mortality rates from the Hawaiian fishery to the commercial Dungeness crab fishery.

During scoping discussions, the Department also received requests to increase the allowable take of Pacific Leatherback Sea Turtles. Commenters cited higher allowable take levels in the Hawaiian fishery as rationale for increasing triggers in the Dungeness crab fishery. The projected annual interaction levels for Pacific Leatherback Sea Turtles expected from the continued operation of the Hawaii shallow-set longline fishery are 24 animals (Capture – 21; Killed – 3) (NMFS 2019). Consistent with the Terms and Conditions set forth in the Biological Opinion, NOAA issued a proposed rule (85 FR 6131, February 4, 2020) which would set the interaction limit for the fishery at 16 Leatherback Turtles (approximate 25% reduction from predicted interaction numbers in the Biological Opinion).

Unlike the Dungeness crab fishery, the Hawaii shallow-set longline fishery is subject to mandatory observer coverage. Because the Hawaiian fishery has observer coverage it is possible to estimate the total number of Pacific Leatherback Sea Turtle interactions for the fishery. Although observer coverage has limitations (i.e., unable to account for entangled individuals that escaped or were subject to predation), it is acknowledged as the best available information to inform protected species impacts.

The footprint of the Hawaiian fishery has a higher degree of overlap with Leatherback Sea Turtles during seasonal migrations and therefore would be expected to interact with more animals than other fisheries. While the California Dungeness crab fishery does have some overlap with Pacific Leatherback Sea Turtles in the fall months, tagging and telemetry data suggest that degree of overlap is low in time and space compared to the Hawaiian fishery. Since few individuals are expected in the Fishing Grounds and even fewer interactions have been recorded with crab fishing gear, the Department does not support setting higher trigger values.

The Department also notes that NOAA recently implemented hard caps for Pacific Leatherback Sea Turtles in the California drift gill net swordfish fishery (85 FR 7246, February 2, 2020) which are more comparable to

those proposed in this regulation. Caps were set at two (2) Leatherback Turtles over a rolling two-year period. If a cap is reached, the fishery will close until the 2-year mortality value (i.e., two fishing seasons) falls below the hard cap value.

In consideration of the low degree of overlap with the fishery, low level of historical entanglements, consistency with permitted take levels allowed in other California fisheries, and severely depressed stock status, the Department does not support increasing allowable take levels for Pacific Leatherback Sea Turtles because based on tagging studies off Central California, a high proportion of Pacific Leatherback sea turtles (3:1) are adult nesting females (Benson et. al. 2011). Proportionally, any take from the nesting female population will have a disproportionate impact on survival and recovery of the species.

Undetected and Unreported Entanglements

The Department also considered how to account for undetected and unreported entanglements in the development of triggers. NOAA assumes that many large whale entanglements go undetected or unreported and the number of confirmed entanglements represents an unknown fraction of total entanglements. Entanglements are undetected or not reported for a several reasons - proximity to areas of high ocean use (i.e., animals are outside areas with common human activities, and thus there is no one to observe and report an entanglement), familiarity with reporting procedures, and confidence in the ability of the agency to respond in a timely manner (Saez et al. 2020).

Fishery observer programs serve as an independent source for many types of information about fishing operations, including catch and bycatch. The West Coast groundfish fishery has various levels of observer coverage for different sectors ranging from 100% to less than 5%. The California drift gill net fishery for swordfish is subject to up to 30% observer coverage. Observers in these fisheries collect independent data on marine mammal interactions. The commercial Dungeness crab fishery does not have a requirement for mandatory observer coverage to monitor marine mammal interactions, although several Dungeness crab permit holders participate in the groundfish fishery and are familiar with mandatory observer requirements.

A state or federally funded observer program could provide information on participation levels, fishing effort, location and number of pots, and marine life interactions. While not perfect, these data could help inform estimates of total fishery related mortality for Actionable Species. Given the significant workload to develop and implement this type of program, it was

not included in this rulemaking but could be considered in the future.

Marine Life Concentrations

In collaboration with the Working Group, the Department evaluated several data sources to determine their suitability for assessing marine life concentrations in Fishing Grounds. In addition to Department and NOAA surveys and satellite telemetry data, as defined in subsection (c) of the proposed regulations, the Department considered whale watch data, fishermen observations, reports from breeding grounds in Mexico, and citizen science. While these data sources showed promise, the Department determined they were not appropriate for inclusion in this rulemaking as a quantitative trigger due to limited spatiotemporal scope, lack of standardized data collection methodologies, lags between data collection and availability for management, and/or lack of a direct connection between information and entanglement risk. Data sources which are limited in scope/area may not be representative of whale presence in other areas, limiting their utility for informing management action on a statewide or finer scale. Data collected opportunistically and without standardized methodologies prevent direct comparisons between areas or over time and would require additional work before incorporating into management. Substantial lags between data collection and availability result in information which may no longer reflect current levels of risk in a given area, inhibiting the Department's ability to make informed decisions. Other data do not directly provide any information on when, or if, those same whales will transit into Fishing Grounds, and therefore are not useful when determining entanglement risk.

The Department considered but rejected whale watch data to inform quantitative triggers based on a Working Group recommendation. The Working Group previously discussed the use of whale watch data from Monterey Bay as a potential data source but did not support its use given concerns in part about potential disconnect between location of whale sightings and actual fishing effort and application of data from Monterey Bay to other areas of the state. The Working Group was also unable to provide a quantitative trigger value for inclusion in this rulemaking. Additionally, the Department notes that there are several companies in Monterey Bay that conduct whale watch trips. Working Group discussions focused on one company (Monterey Bay Whale Watch) but it is unclear why other companies were excluded.

The Department recognizes the importance of these data and has included them in subsection (d) as information the Department shall consider when assessing an appropriate management response.

Season Structure

The season structure in the proposed regulations, including potential delays and/or closures was developed to allow for adaptive inseason management based on demonstrated entanglement risk. The Department discussed whether to utilize a more static approach where allowable fishing periods were defined prior to the season opening, with no inseason adjustments made. Performance of the fishery relative to entanglement risk would then be assessed at the end of the season, and any changes deemed necessary applied to the following season.

Under a static approach, the fishery would most likely be open from January 1 through March 31, during the time of year when entanglement risk has historically been low.

While a static management approach would provide certainty to the Fleet, it could result in a fishing season that is unnecessarily restrictive and punitive. This would have negative economic consequences without necessarily reducing entanglement risk since it relies on historical data and does not consider real time changes in the fishery or migration patterns. Conversely, the absence of inseason management measures may not provide the necessary protections for species of concern by allowing fishery operations which are resulting in excessive entanglements to continue.

Given that this fishery is highly influenced by changing environmental conditions, the Department determined inseason management provided a balanced approach between providing for economic stability of coastal communities and environmental protections.

The Department notes that dynamic inseason management increases the reliance on real time data collection and the burden on those who collect data. While the Department received two full time staff dedicated to working on whale related issues, additional data collection requirements imposed by the RAMP program are an unfunded mandate. The Department recognizes the importance of this program and will attempt to meet the needs to the best of our ability given current resources.

Fishing Zones

In developing Fishing Zones, the Department explored options ranging from one Fishing Zone (statewide) to seven Fishing Zones (boundaries based on well-known geographic boundaries and/or state fishing blocks). Implementing actions on a statewide basis when data are available to inform management on a smaller scale seemed overly restrictive. While utilizing additional Fishing Zones could allow for management on a finer geographic scale, data may not be available on those same scales, posing

a logistical challenge to Department staff.

Early versions of draft regulations contemplated using two Fishing Zones to align with the management areas used in management (Northern Management Area and Central Management Area). Feedback on early drafts of the regulations indicated that a two Fishing Zone management approach was overly restrictive, and the Department determined that available data could support more Fishing Zones.

The Department received a request to further subdivide the current Fishing Zones into 14 sub-Zones. The Department determined this is not practicable or feasible. This number of zones does not fit the scale of available data, nor does it align with current fleet behavior and migration patterns. Because animals are migratory, they can move freely and quickly between smaller subzones. Given the time lag between when the need for action is identified and the action is implemented, the risk in a given area may have changed, especially as those areas get smaller and smaller. Expected protections may not be realized as animals migrate into other areas where similar protections may not exist. The Fishing Zones developed by the Department balance data availability with current capacity for data collection.

Vertical Line/Gear Reduction

In developing alternatives, the Department discussed whether a specified gear reduction would decrease entanglement risk. In other words, would a 50% reduction in amount of vertical lines/gear result in a proportional 50% decrease in entanglement risk. In the absence of other data on the number of deployed traps (e.g. logbooks), the Department assumed that individuals fish their full tier allotment but acknowledges this may overestimate the reduction in entanglement risk from a given gear reduction. If the baseline amount of gear in the water is below the allowable amount for a given vessel's permit tier, any specified reduction would not directly translate to a proportional decrease in risk.

Implementing a mandatory logbook or other vessel tracking system to aid in quantifying trap usage may help refine estimates of savings from vertical line/gear reduction because it would rely on actual, not assumed, estimates of gear usage. Through this rule making (see subsection (g)), the Department will be requiring the Fleet to submit reports every two weeks detailing their current fishing location, depths fished, and number of traps deployed. This new requirement will help to address some of the data limitations for this fishery.

Requiring individuals to double tag their buoys (use two tags instead of one) was also an option discussed to achieve gear reduction as specified

in subsection (e)(3). While it could achieve a similar result of reducing the amount of gear, it would have increased costs to replace lost tags in the event of gear loss and increase the burden on enforcement personnel when verifying compliance with such management actions.

In view of information currently possessed, no reasonable alternative considered would be more effective in carrying out the purpose for which the regulation is proposed, would be as effective and less burdensome to affected private persons than the proposed regulation, or would be more cost effective to affected private persons and equally effective in implementing the statutory policy or other provision of law.

V. Mitigation Measures Required by Regulatory Action:

The proposed regulatory action will have no negative impact on the environment; therefore, no mitigation measures are needed.

VI. Impact of Regulatory Action:

The potential for significant statewide adverse economic impacts that might result from the proposed regulatory action has been assessed, and the following initial determinations relative to the required statutory categories have been made:

(a) Significant Statewide Adverse Economic Impact Directly Affecting Businesses, Including the Ability of California Businesses to Compete with Businesses in Other States:

The proposed action will not have a significant statewide adverse economic impact directly affecting business, including the ability of California businesses to compete with businesses in other states because west coast states with commercial Dungeness crab fisheries are developing or have similar mitigation programs in effect.

As reported by NOAA, in 2018, Working Groups in Oregon and Washington (both initially formed in 2017) continued meeting to evaluate whale entanglements, develop Best Practices Guides applicable to their respective state fisheries, and discuss potential measures to avoid entanglements with Dungeness crab and other gear in their state. Potential measures that have been discussed by the Working Groups and industry at large include: limitations on gear during the later portion of the fishing season, implementing summer buoy tags to better distinguish when entanglements may be occurring, and promoting research to determine if there are particular whale “hot spot” areas that could be avoided by fishermen during certain times.

- (b) Impact on the Creation or Elimination of Jobs Within the State, the Creation of New Businesses or the Elimination of Existing Businesses, or the Expansion of Businesses in California; Benefits of the Regulation to the Health and Welfare of California Residents, Worker Safety, and the State's Environment:

The Department anticipates the potential for some seasonal impacts on the creation or elimination of jobs due to direct, indirect and induced impacts, some jobs (from 50 to 900) may be eliminated during a potential full closure period. Any fishery closures are to be minimized in duration and extent, and expeditiously lifted when the risk has been abated. The Department does not anticipate substantial impacts on the creation of new businesses or the elimination of existing businesses within the state because any fishery closures would be minimized in duration and extent, and because it's expected that businesses are diversified and are fishing other species commercially to offset the unpredictability of the Dungeness crab fishery. The Department anticipates benefits to the health and welfare of California residents from better protection of the State's natural resources and through the better management of valuable state fisheries that benefit fishing communities and consumers, among other residents of the state. The Department does not anticipate any benefits to worker safety because this regulatory action will not impact working conditions or worker safety. The Department anticipates benefits to the environment through the better protection of the State's natural resources better management of sustainable fisheries.

- (c) Cost Impacts on a Representative Private Person or Business:

The proposed regulation does not impose new compliance costs directly to businesses, most of which are commercial fishermen operating under a Dungeness crab vessel permit. However, RAMP management actions could result in season delays, early closures, and/or reductions in gear that could reduce the amount of Dungeness crab brought to market. The impacts on the total fishery and supporting businesses from a range of potential reductions in the direct expenditure from the seasonal Dungeness crab harvest is described in a Standardized Regulatory Impact Assessment (SRIA; Appendix A to this ISOR) and Supplement to the SRIA, prepared for the proposed regulation (see attached Appendix B to this ISOR).

- (d) Costs or Savings to State Agencies or Costs/Savings in Federal Funding to the State:

The Department anticipates ongoing Implementation, Monitoring, and Enforcement Costs. The Department also anticipates to experience

reductions in Landings Fee Revenue projected to range from \$0 to a maximum of \$2,057,628 per fiscal year of full implementation. No impact on costs/savings in Federal Funding to the State are anticipated.

- (e) Nondiscretionary Costs/Savings to Local Agencies: None.
- (f) Programs Mandated on Local Agencies or School Districts: None.
- (g) Costs Imposed on Any Local Agency or School District that is Required to be Reimbursed Under Part 7 (commencing with Section 17500) of Division 4, Government Code: *This regulation does not affect any local entity or program. No reimbursement is required by this act pursuant to Section 6 of Article XIII B of the California Constitution.*
- (h) Effect on Housing Costs: None.

EFFECT ON SMALL BUSINESS

The proposed regulations may affect several entities characterized as small businesses in that they are independently owned and operated business that are not dominant in their field of operation (CA GOV Code, Article 2, 11342.610). Those alternatives described under Section IV(b) of this ISOR were evaluated as means to lessen potential adverse impact on small businesses, in accordance with Government Code Section 11346.2(b)(4)(B). The Department does not collect information on the overall business diversification or size of Dungeness crab permit holders, but data on vessel size is collected (SRIA, pg. 5-8). For the state of California, about 60% of active permits are in the medium and large category or 36-99 feet in length, with the remaining 40% categorized as small vessels or less than 36 feet (per recent Department 2013-14 and 2014-15 permitting and landings data). Additionally, it is reasonable to presume that a large share of businesses that support the Dungeness crab fleet harvest and distribution are small businesses.

- VII. Results of the Standardized Regulatory Impact Assessment (Refer to SRIA – Appendix A, and Supplement to SRIA – Appendix B for more details):
 - (a) Effects of the Regulation on the Creation or Elimination of Jobs Within the State: The Department anticipates the potential for some seasonal impacts on the creation or elimination of jobs due to direct, indirect and induced impacts, some jobs (from 50 to 900) may be eliminated during a potential full closure period, but any fishery closures are to be minimized in duration and extent, and expeditiously lifted when the risk has been abated.

- (b) Effects of the Regulation on the Creation of New Businesses or the Elimination of Existing Businesses Within the State: The Department does not anticipate substantial impacts on the creation of new businesses or the elimination of existing businesses within the state because any fishery closures would be minimized in duration and extent, and because it's expected that businesses are diversified and are fishing other species commercially to offset the unpredictability of the Dungeness crab fishery.
- (c) Effects of the Regulation on Competitive Advantages or Disadvantages for Businesses Currently Doing Business Within the State: The Department does not anticipate substantial impacts on the competitive advantages or disadvantages for businesses currently doing business within the state because other west coast states with commercial Dungeness crab fisheries are developing or have similar mitigation programs in effect.
- (d) Effects of the Regulation on the increase or decrease of investment in the state: It is difficult to measure the change in investment that this regulation could induce; however, generally new requirements may induce compliance investment.

Since the environmental consequences of marine life bycatch have precipitated public and legislative action, new government regulations may act as critical triggers to prompt investment. Fishing gear designers and manufacturers are anticipated to be compelled to invest in the development new gear protocols that comply with developing alternative gear standards. The spread of new technologies may eventually bring costs down and externalities as well.

- (e) Effects of the Regulation on the incentives for innovation in products, materials, or processes in the state: Innovation typically involves research and development expenditures and prototype development at less than cost-effective scales of production. Moreover, firms that invest in innovation often have difficulty retaining all of the benefits of their expenditures because their new technologies may be copied by competing firms. In this instance the proposed regulations will spur incentives to innovate in a larger variety of crab trap gear types than are currently available. Over time, competition among manufacturers is expected to promote innovation in performance and to reduce production costs that may be passed onto consumers.
- (f) Benefits of the Regulation to the Health and Welfare of California Residents: The Department anticipates benefits to the health and welfare of California residents from better protection of the State's natural resources and through the better management of valuable state fisheries

that benefit fishing communities and consumers, among other residents of the state.

- (g) Benefits of the Regulation to Worker Safety: The Department does not anticipate any benefits to worker safety because this regulatory action will not impact working conditions or worker safety.
- (h) Benefits of the Regulation to the State's Environment: The proposed regulations will clearly define the process by which the Department, in consultation with the Working Group, will implement and remove restrictions on commercial Dungeness crab fishing activity in response to marine life entanglement risk. This will provide a measure of certainty to fishery participants regarding how their future operations may be impacted. Furthermore, regulations are expected to promote the survival and recovery of Actionable Species by reducing anthropogenic impacts from entanglement in fishing gear. These regulations are also expected to provide benefits to other marine life which co-occur in space or time with Actionable Species and are at similar risk of entanglement.

Informative Digest/Policy Statement Overview

Background

Under current regulations, the California Department of Fish and Wildlife (Department) Director's authority to alter operations of the commercial Dungeness crab fishery is limited to closures protecting human health (Fish and Game Code (FGC) Section 5523) and delays due to low crab quality (FGC Section 8276.2). Senate Bill (SB) 1309 (2018, McGuire) added Section 8276.1 to the FGC. FGC Section 8276.1(c) provides additional, interim authority for the Director to restrict take of Dungeness crab in response to significant risk of marine life entanglement. FGC Section 8276.1(b) requires the Department, in consultation with the California Dungeness Crab Fishing Gear Working Group (Working Group) and other stakeholders, to adopt regulations establishing criteria and protocols to evaluate and respond to potential risk of marine life entanglement.

Regulatory Proposal

The proposed regulation would add Section 132.8 to Title 14, California Code of Regulations (CCR) to establish a Risk Assessment Mitigation Program (RAMP) which will evaluate and respond to marine life entanglement risk from California commercial Dungeness crab fishing gear. Upon the effective date of these regulations, the RAMP would replace the Director's interim authority under FGC Section 8276.1(c) as the primary mechanism for mitigating entanglement risk in this fishery. The following is a summary of the new regulations proposed in Section 132.8:

- Define Actionable Species which will be considered under the RAMP as Blue Whales, Humpback Whales, and Pacific Leatherback Sea Turtles;
- Define six Fishing Zones which prescribe the scale at which available data will be assessed and management actions considered;
- Specify how Impact Score Calculations are used to represent severity of injury caused by Confirmed Entanglements with California Commercial Dungeness Crab Gear or Confirmed Entanglements with Unknown Fishing Gear and the necessity for management action;
- Define the Working Group and their role in assessing available information and informing management actions by the Director;
- Specify the frequency and process by which Risk Assessments will be conducted;
- Specify triggers for management action, including closure of one or more Fishing Zones, based on confirmed entanglements (Impact Score Calculation) or presence of Actionable Species;
- Identify data which will be considered when determining the need for, and appropriate category of, management action;
- Identify categories of management actions which the Director may implement in response to attainment of a specified trigger as including an advisory to the Fleet,

depth constraint, vertical line/gear reduction, closure of one or more Fishing zones, and use of Alternative Gear;

- Specify the process by which the Department will notify the Fleet of any management actions;
- Establish mandatory reporting requirements for all members of the Fleet, and additional requirements when fishing during a depth constraint or using Alternative Gear; and
- Define Alternative Gear and the process by which it will be authorized to reduce the risk of marine life entanglement, including circumstances in which the Department would not approve an initial application or later deauthorize an approved gear.

Benefits of the Proposed Regulations

The proposed regulations will clearly define the process by which the Department, in consultation with the Working Group, will implement and remove restrictions on commercial Dungeness crab fishing activity in response to marine life entanglement risk. This will provide a measure of certainty to fishery participants regarding how their future operations may be impacted. Furthermore, regulations are expected to promote the survival and recovery of Actionable Species by reducing anthropogenic impacts from entanglement in fishing gear. These regulations are also expected to provide benefits to other marine life which co-occur in space or time with Actionable Species and are at similar risk of entanglement.

Consistency and Compatibility with Existing Regulations

The Legislature has delegated authority to the Department to adopt regulations establishing criteria and protocols to evaluate and respond to risk of marine life entanglement in the commercial Dungeness crab fishery (Section 8276.1 of the FGC). The Department has reviewed existing regulations in Title 14, CCR and finds that the proposed regulations are neither inconsistent nor incompatible with existing State regulation. Department staff have searched the CCR and has found no other State regulations that implement measures to reduce marine life entanglement in commercial Dungeness crab fishing gear.