



## California Department of Fish and Wildlife Final Assessment of Marine Life Entanglement Risk and Management Recommendation

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Date: November 24, 2020

An initial assessment and preliminary recommendation was developed by California Department of Fish and Wildlife (CDFW) Marine Region staff for consideration by the California Dungeness Crab Fishing Gear Working Group (Working Group) for the Risk Assessment Mitigation Program (RAMP; Section 132.8, Title 14, California Code of Regulations) regarding Management Actions to address marine life entanglement risk in the commercial Dungeness crab fishery. The initial assessment was shared with the Working Group on November 20, 2020 and finalized at the conclusion of the Working Group meeting on November 23, 2020 based on discussions with the group.

### A. Marine life entanglement risk, relative to the triggers in subsection (c)

Confirmed Entanglements in California Commercial Dungeness Crab Gear

- During the current Fishing Season: 0
- During the current calendar year: 1 Humpback whale

Confirmed Entanglements in Unknown Fishing Gear reported from California:

- During the current Fishing Season: 0
- During the current calendar year: 3 Humpback whales

Marine Life Concentrations Surveys and/or Satellite Telemetry Observations:

Between November 8 and November 21, the following data was collected to assess Marine Life Concentrations.

- Fishing Zone 3: 15 sightings of 29 Humpback whales were observed during CDFW aerial surveys, 31 sightings of 138 Humpback whales were observed on Cascadia Research vessel-based surveys, both surveys exceed the Marine Life Concentration trigger under *RAMP (c)(2), 20 Humpback whales during a survey*
- Fishing Zone 4: 45 sightings of 74 Humpback whales and 11 sightings of 23 Blue whales on Cascadia Research vessel-based surveys, and a weekly running average of 9.7 sightings based on Monterey Bay Whale Watch data; both surveys exceed the Marine Life Concentration trigger under *RAMP (c)(2), 20 Humpback whales or 3 Blue whales during a survey or a running weekly average of 5 Humpback whales or 3 Blue whales*

## **B. Scope of elevated risk based on Management Considerations in subsection (d)**

Section 132.8(d)(2): Information from NOAA

- No additional information was made available for this risk assessment.

Section 132.8(d)(3): Effectiveness of management measures to reduce entanglement risk

- RAMP regulations 132.8(c)(2)(A)(4)(a) specify a season delay in the event of a concentration trigger being reached or other management action that the Director demonstrates protects Humpback whales and Blue whales based on the best available science. Based on available data, a season delay is likely to be the most effective Management Action because of the distribution of whales across Fishing Zones 3 and 4.

Section 132.8(d)(4): Total economic impact to the fleet and fishing communities

- Early season Management Action(s) have variable economic costs when seasons are delayed. CDFW will continue to work with the fleet to inform this management consideration and have provided recent analytical work in the Available Data document. Current economic considerations include loss of holiday markets, fishing effort shift, poor market conditions (price), crab availability and numerous impacts due to the ongoing COVID pandemic.

Section 132.8(d)(5): Data availability within and across Fishing Zones

- Aerial and vessel-based surveys were conducted across Fishing Zones 1, 2, 3, and 4. Additional observation data were contributed for Fishing Zones 3, 4 and 6 and Blue whale habitat predictions are available for all Fishing Zones.

Section 132.8(d)(6): Known historic marine life migration patterns

- Seasonal migration for Humpback whales out of California waters typically occurs in November and early December. The November/early December timeframe is anticipated, but that there is no clear indication that whales have begun their migration yet.
- Humpback whales are anticipated to migrate from central and northern areas (where high numbers of Humpback whales were observed) to breeding grounds in Mexico and Central America.
- There is some uncertainty around how much of the population will depart, given overwintering behaviors seen during and since the Large Marine Heatwave event in 2014-2016, however the bulk of the population should depart.
- Trend data from Point Blue Conservation Science indicates fewer whales are being observed in the Gulf of the Farallones, Fishing Zone 3. A concentration of Humpback and Blue whales that has been observed in prior surveys appears to have moved further offshore from the 70m contour closer to the 200m contour.
- Observed Humpback and Blue whale numbers in Fishing Zone 4 (Monterey Bay) remain above average when compared to historical averages based on Monterey Bay Whale Watch data.

Section 132.8(d)(7): Fishing Season dynamics

- No delay anticipated due to public health hazards.
- There is no fair start provision in the event of a delay due to elevated entanglement risk.

- Quality testing protocols apply to Fishing Zones 1 and 2. The Director delayed opening of the northern management area (Fishing Zones 1 and 2) because of failure to meet testing protocols of the Tri-state agreement governing crab quality. Additional tests will be conducted around Dec. 1. If successful, the season could open December 16, with a pre-soak period starting December 13. This delay triggers fair start provisions under Section 8276.3 of the Fish and Game Code.
- The timing of the quality delay has potential to shift fishing effort to the central management area, Fishing Zone 3,4 and 5.

Section 132.8(d)(8): Known distribution and abundance of key forage

- Distribution of anchovy and krill, key forage for Humpback and Blue whales was evident during aerial surveys and vessel-based surveys. Humpbacks were observed lunge feeding near the surface north of the Russian River and west of Point Reyes, Fishing Zone 3.
- High anchovy abundance is expected to drive high density aggregations of Humpback whales during fall 2020. Total krill abundance is expected to increase from below average to above average over the winter months.

Section 132.8(d)(9): Ocean conditions

- La Nina conditions are currently forecast for winter/spring 2021. High habitat compression, reflecting ongoing heatwave conditions and warmer than average sea surface temperature, is anticipated through December 2020.

Section 132.8(d)(10): Current Impact Score Calculation

- Impact score calculation under RAMP begins January 1, 2021.

Section 132.8(d)(11): Actionable Species migration into or out of Fishing Grounds and across Fishing Zones

- Based on vessel-based and aerial surveys, large numbers of Humpback whales were distributed across Fishing Zones 1, 3 and 4, an indication that the bulk of the migration out of Fishing Grounds has yet to occur. Vessel-based surveys documented continued Blue whale presence in Fishing Zones 1 and 4, though optimal Blue whale habitat is now largely confined to the Southern California Bight based on modeling work.

**C. Recommended Management Action from options identified in subsection (e)**

- Fishing Zones 1 and 2: Due to the quality delay in the northern Fishing Zones, CDFW Marine Region staff did not develop a Management Action recommendation. However, Marine Region staff note that based on Cascadia Research vessel-based surveys, the estimated number of Humpback and Blue whales is equal to or exceeds the RAMP triggers of 20 and 3, respectively. During the November 1 and 3 surveys, 85 Humpback and 3 Blue whales were observed in Fishing Zone 1. Fishing industry led pilot surveys also confirmed presence of Humpback and Blue whales in Fishing Zone 1 during a November 11, 2020 observation survey. Based on the Marine Life Concentrations triggers in RAMP, a delay would likely be the recommended Management Action for Zone 1. Zone 2 might have also been subject to a delay to avoid fishing effort shift which could raise the risk of entanglement if the adjacent zones were delayed.

- Fishing Zones 3 and 4: CDFW Marine Region staff's final recommendation is a season delay based on exceedance of Marine Life Concentration triggers for Humpback whales in Fishing Zones 3 and 4 and Blue whales for Fishing Zone 4. Fishing Zone delays are further supported by additional information outlined above under the Management Considerations. Foraging activity by large whales poses a risk of entanglement with vertical lines and surface gear if the season is allowed to begin on December 1, 2020. A season delay is the recommended Management Action based on the wide distribution of Humpback and Blue whales across Fishing Zone depths. A depth restriction or gear reduction would not minimize entanglement risk due to whale distribution and expected high gear concentrations during the season opener. As a result, CDFW Marine Staff preliminary recommendation is a delay of the Fishing Season for Fishing Zones 3 and 4 until the next risk assessment (expected to occur before December 15, 2020).
- Fishing Zone 5: Per 132.8(c)(2)(A)(1), lack of current approved survey or telemetry data in Fishing Zone 6 automatically delays the opening of the Fishing Season in that Fishing Zone until December 15.
- Fishing Zone 6: Per 132.8(c)(2)(A)(1), lack of current approved survey or telemetry data in Fishing Zone 6 automatically delays the opening of the Fishing Season in that Fishing Zone until December 15.

In the event of a delay, CDFW Marine staff recommend the Director notify the fleet as early as possible to allow them to delay gear preparation and plan for a potential delay of the season. CDFW will continue to monitor all available data and work to collect Marine Life Concentration data to inform the next risk assessment (expected to occur before December 15, 2020).

CDFW will continue to collect marine life concentrations data to inform the next risk assessment. CDFW aerial surveys are already planned and CDFW will work with its partners to bring forward as many data streams as possible to help inform the next risk assessment and to ensure a fair and orderly start to the fishery.