



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

Date: February 15, 2022

An initial assessment and preliminary recommendation were 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 February 14, 2022 and finalized at the conclusion of the Working Group meeting on February 15, 2022 based on discussions with the group.

A. Recommended Management Action(s)

Commercial Fishery

Fleet Advisory: Fishing Zones 1, 2, 3, 4, 5 and 6

CDFW Marine Region staff's final recommendation is that the Director issue a state-wide commercial Dungeness crab fishery Fleet Advisory for Fishing Zones 1-6 due to a confirmed entanglement of a humpback whale in unknown fishing gear off Cypress Point in Monterey on January 27, 2022 (Fishing Zone 4). Gear set type and location are unknown, but line type is consistent with gear used in the Dungeness crab trap fishery. The advisory would apply to the commercial fishery. However, the commercial fishing fleet and other vessels are encouraged to report any entangled whales so that a disentanglement response team can be mobilized to remove the gear. Reports can be made to 1-877-SOS-WHALE or contact the United States Coast Guard on VHF Channel 16. CDFW continues to encourage all fisheries to implement fishing best practices (e.g. by minimizing knots and line scope) and to review the [Best Practices Guide](#) during the season and when moving gear to new Fishing Grounds particularly given the entanglement event as noted above. A press release will also be issued to alert all fisheries and mariners to be on the lookout for entangled whales and report to the United States Coast Guard as quickly as possible.

Rationale: Based on available information on the entanglement event (reporting location and unidentified gear), it is appropriate to issue a state-wide Fleet Advisory due to risk of entanglement from Dungeness crab traps from the commercial fishery. Given historic migration patterns and low number of observed humpback whales, a Fleet Advisory will provide sufficient protection for Actionable Species given the time of year. This Fleet Advisory will also alert all mariners so that entanglement detection is increased, and an entanglement response can be coordinated to remove any gear from the entangled humpback whale and positively identify the responsible fishery. Monterey Bay Whale Watch observations show a weekly running average of 1.6 humpback whales and the CDFW aerial survey in Fishing Zones 3 and 4 only observed one humpback whale. In addition, it is anticipated that fishing effort will continue to decline into the spring months. Based on few observed whales, known

historic migration patterns and lower fishing effort a Fleet Advisory will be sufficiently protective of Actionable Species under RAMP.

CDFW will continue to monitor all available data to inform the next risk assessment (expected to occur on or around March 17, 2022).

Summary of RAMP triggers and Management Considerations analyzed during preparation of this Final Assessment and Final Recommendation.

B. Marine life entanglement risk, based on triggers in subsection (c)

Confirmed Entanglements in California Commercial Dungeness Crab Gear:

- During the current Fishing Season: 0
- During the current calendar year: 0
- During the 2021 calendar year: 1 humpback whale

Confirmed Entanglements in Unknown Fishing Gear reported from California:

- During the current Fishing Season: 1 humpback whale
- During the current calendar year: 1 humpback whale
- During the 2021 calendar year: 3 humpback whales

Marine Life Concentration Surveys and/or Satellite Telemetry Observations:

- **Fishing Zone 1-6:** No Management Action triggers reached

C. Scope of 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

- **Fleet Advisory:** given the unknown gear type involved in the entanglement, the reporting location and relatively low fishing effort by the commercial fishery within Fishing Zone 4 (where the entanglement was reported), a Fleet Advisory will sufficiently protect Actionable Species within the Fishing Grounds.
- **Fishing Depth Constraint:** given the low abundance of humpback whales in the Fishing Grounds, it is not possible to identify an appropriate depth-based closure which would reduce co-occurrence. Therefore, implementing a depth constraint would not be an effective management measure.
- **Fishery Closures or Vertical Line Reductions:** given the low abundance of humpback whales, would be overly restrictive given the low risk of entanglement. Historic migration patterns suggest most humpback whales have departed the fishing grounds and remain in their winter breeding areas. Combined with declining fishing effort, this

indicates low co-occurrence, and therefore low entanglement risk.

- Alternative Gear: cannot be authorized prior to April 1 and no gear is currently authorized for use.

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

- A Zone closure or Depth Restriction would have higher economic costs to the commercial fishery and given the overall entanglement risk is not warranted at this time.

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

- CDFW aerial survey data are available for Fishing Zones 3 and 4. MBWW data are available for Fishing Zone 4.

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

- Aerial surveys and MBWW indicate few humpbacks whales, which aligns with known historic migration patterns.

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

- Weekly total landing volume has decreased since the beginning of January, with the highest harvest coming from Fishing Zone 3, followed by Fishing Zone 1 (Available Data, Figure 3). So far, 67% of the total volume harvested for this season has been from Fishing Zone 1, with 29% from Fishing Zone 3 and less than five percent coming from each of the other Fishing Zones.
- Weekly vessel activity and number of landings has also declined since the beginning of January, with the highest activity in Bodega Bay, San Francisco, Crescent City, and Trinidad (Available Data, Figure 4). Overall, 42% of the total volume harvested for this season has been landed into Crescent City, with 20% landed into Eureka, 11% each landed into San Francisco and Half Moon Bay, seven percent landed into Bodega Bay, six percent landed into Trinidad, and less than five percent landed into Fort Bragg, Monterey, and Morro Bay.
- Looking at vessel activity by port over the course of the season, the highest activity has been in Crescent City (82 vessels) and Eureka (67 vessels), followed by San Francisco (53 vessels), Half Moon Bay (53 vessels), and Bodega Bay (51 vessels; Available Data, Figure 5). Vessels have also made landings into Fort Bragg (30), Trinidad (22), Monterey (14), and Morro Bay (3).

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

- Numerous bait balls (presumed to be schooling fish) were observed during the aerial survey.

- Current values and trends of the Habitat Compression Index (HCI) and North Pacific High (NPH) suggest an increase in cool thermal habitat area and an increase in krill abundance offshore (along the continental shelf). This translates into a lower likelihood of scarcity of krill for large whales. However, based on surveys conducted in 2021, the size of the anchovy population continues to be very high.

Section 132.8(d)(9): Ocean conditions

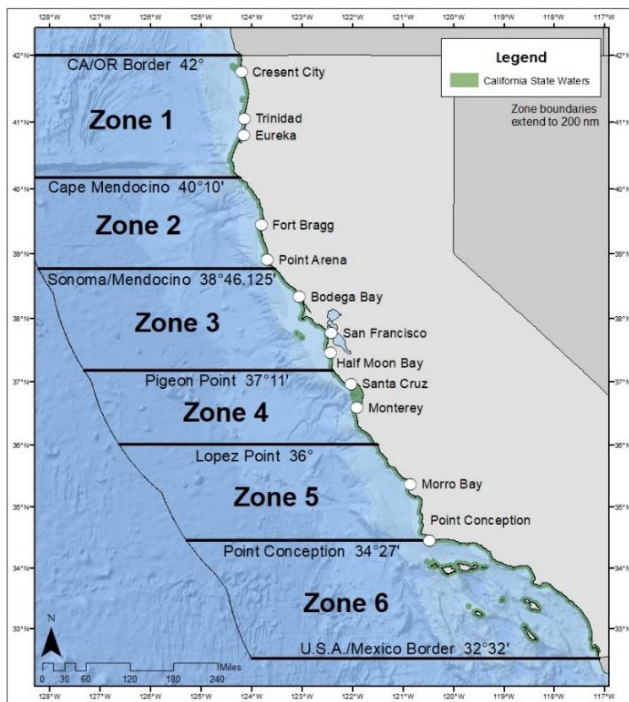
- As of February 10, 2022 La Niña conditions are expected to continue into the Northern Hemisphere spring (77% change during March-May) and then transition to ENSO-neutral (56% change during May-July).
- Due to cool SST conditions, the HCI is above average in the north and average in the central region (increasing thermal habitat area and low impact of compression nearshore). This trend is anticipated to continue through February and early March.

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

- Impact score calculation under RAMP began on January 1, 2021. The 2021 calendar year impact score is 1.89 for humpback whales and 0 for blue whales and leatherback sea turtles. The current impact scores for 2022 are 0.38 for humpback whales and 0 for blue whales and leatherback sea turtles.

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

- Based on aerial survey data and MBWW data, few whales were observed on the Fishing Grounds.



RAMP Fishing Zone Boundaries