



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

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Date: May 3, 2021

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 April 28, 2021 and finalized at the conclusion of the Working Group meeting on April 29, 2021 based on discussions with the group.

### A. Recommended Management Action

**Fishing Zones 3, 4, 5 and 6:** CDFW Marine Region staff's final recommendation is to maintain a Fleet Advisory based on the lack of recent RAMP approved survey data for Zones 5 and 6 and supported due to declining fishing effort in Zones 3-6. Based on the MBWW data for Zone 4 and Cascadia Research vessel surveys for Zones 3 and 4, relatively few Actionable Species were observed. In addition, observation data from Point Blue for Zones 3, 4 and 6 and observation data from CCCA for Zone 5 show few Actionable species. Although migration is expected to increase into all Zones based on known historic migration patterns, available data indicate the bulk of the migration has not begun to arrive in Zones 3-6.

In addition, based on favorable (low risk) oceanographic and forage condition data, cool conditions exist, resulting in low compression of available forage, decreasing the likelihood of co-occurrence of trap gear and whales as they continue arriving to California waters, particularly in Zones 3-6. This is supported by sightings of Humpback whales foraging in deep water (70-200 meters) north of Monterey Bay. Ocean and forage conditions do not warrant concern, and fleet participation is decreasing and expected to decrease further with the commercial salmon opener on May 1. Given the above, paired with continued low presence of Humpback whales and Blues whales, risk is low across all management considerations at this time for Zones 3-6.

The RAMP regulations indicate a Fleet Advisory is warranted if the level of risk is elevated and/or anticipated to increase but more restrictive management actions are not necessary at this time. The Director may issue an advisory notice to the Fleet to employ voluntary efforts and/or measures to reduce the risk of entanglements (i.e., fishing best practices) and to avoid triggering additional management actions. As a result, CDFW encourages the fleet to implement fishing best practices (e.g. minimizing knots, line scope, reducing gear) and to immediately remove all gear when an operator no longer intends to fish. Vessels fishing in all Zones should pay particular attention to the location of set gear and foraging whales and minimize entanglement risk by adhering to the [Best Practices Guide](#)

**Fishing Zones 1 and 2:** CDFW Marine Region staff's final recommendation is to maintain the Fleet Advisory and implement a Depth Constraint limiting fishing to only from 30 fathoms shoreward based on the lack of recent RAMP approved survey data for Zones 1 and 2. NOAA and CCCA observation data indicates large aggregations of Humpback whales between the 30 and 45-fathom contour, with some closer to shore. Constraining the fishery to Fishing Grounds shoreward of 30-fathoms will help minimize co-occurrence and risk of entanglement. This recommendation is based on declining fishing effort and the decreasing number of traps being fished across both zones. The final recommendation is to implement the Depth Constraint 7-days after the Declaration is made for Zones 1 and 2. Vessels fishing shoreward of 30-fathoms must carry onboard an electronic monitoring system capable of recording the vessel's location while engaged in fishing activity using GPS coordinates at a frequency of no less than once per minute during fishing operations. Electronic monitoring data must be made available to CDFW upon request for the duration of the fishing period and 60 days thereafter. This Management Action would remain in place until lifted by the Director or season closes.

CDFW will continue to monitor all available data until the next risk assessment (expected to occur on or around May 14, 2021). The Fleet should be vigilant and move or avoid setting gear in areas where whales are transiting or foraging. Particularly in areas around Reading Rock north of Trinidad. The Fleet should also be prepared to implement a change in Management Action which may include a Zone closure(s) in the coming weeks for all California waters.

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

**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

**Marine Life Concentrations Surveys and/or Satellite Telemetry Observations:**

- **Fishing Zone 1, 2, 5 and 6:** No current CDFW approved survey data are available for these Zones, which triggers management response under RAMP (c)(2)(B)(1).

**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

- Given the low relative running average sightings of Humpback whales in Monterey Bay (Zone 4) which is an indication of migration timing, low sightings in Zone 3 and 5, and declining fishing activity, a Fleet Advisory remains an effective Management Action for Zones 3, 4, 5 and 6. A Depth Constraint from 30 fathoms to deeper waters for Zone 1 and 2 will minimize co-occurrence with Humpback whales largely observed in depths greater than 30 fathoms. Based on bi-weekly reports, reported fishing gear is at depths ranging from 13-31 fathoms with some vessels fishing deeper depths. Adding a Depth Constraint is not anticipated to significantly increase overall gear concentration given the majority of gear is currently set within 30-fathoms. However, it will bring deeper set gear outside the 30-fathom contour, away from the observed Humpback aggregations.

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

- A Fleet Advisory and Depth Constraint are not anticipated to have significant economic impact on the fleet or fishing communities as it allows for continued fishing opportunity. The recommended Depth Constraint shoreward of 30 fathoms includes the depth zones currently being reported in bi-weekly reporting for Zone 1 and 2.

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

- Monterey Bay Whale Watch (MBWW) data are available for Fishing Zone 4. Cascadia Research vessel survey data are available for Zones 3 and 4. California Coast Crab Association (CCCA) and Point Blue Conservation Science (Point Blue) observation data are available for Zones 1, 3, 4, 5 and 6. The Habitat Compression Index and Whale Watch 2.0 habitat predictions are available for all Zones.

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

- Presence of Humpback whales are lower than average based on MBWW data. Humpback whale sightings from Cascadia Research were low to moderate from vessel-based surveys that were located primarily offshore. Observations of Humpback whales were also low from Point Blue. Observations from CCCA indicated high abundance of Humpback whales near Reading Rock in Zone 1. These observations were corroborated with information from a survey conducted by NOAA researchers on April 28, 2021 that observed 40-60 Humpback whales 5-7 miles SW of Crescent City in 90-100m (49-55 fathoms) of water and about 20 Humpback whales in 30-50m (16-27 fathoms) within areas of Dungeness crab gear.
- One Blue whale was sighted offshore near Monterey Bay.
- Pacific Leatherback sea turtles typically do not begin to arrive in California waters until late June based on sea turtle tagging studies. Those animals typically forage in an area extending from Monterey Bay to Point Reyes during the summer months.

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

- Season price negotiations delayed actual start of fishing following the December 23, 2020 statewide opener. Most vessels began setting gear on Monday January 11, 2021.
- Based on CDFW landings data, 358 vessels have participated in the fishery as of April 20, 2021, making at least one landing. Week 5 had the highest number of potential traps deployed across all Fishing Zones, with an estimated total of 94,675 traps. Fishing Zone 3 had the highest total (47%), followed by Zone 1 (40%). Based on the most recent landings data from week 17, overall vessel participation and subsequent landings activity has decreased from the start of the season with a 70% decline in daily statewide landings from the high in week 5. The estimated maximum number of traps is currently 28,975 which is another decrease from the last risk assessment when 39,550 traps were estimated. For the current season, Zone 3 has the highest estimated number of traps deployed at 16,100 with almost half of these originating from vessels landing in the port of Bodega Bay, estimated at 7,475.
- The most recent CDFW required bi-weekly trap reporting period of April 16 estimated a total of 24,821 (previously 37,945) traps fishing in minimum depths ranges that average 13 – 18 fathoms across the different Fishing Zones and maximum depths ranges that average 25 – 40 fathoms across the different Fishing Zones. Bi-weekly reports confirm Zone 3 has the highest number of deployed traps at 13,240. *Note: CDFW has not achieved 100% reporting by all active permits.*

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

- Krill abundance (higher offshore in the outer slope) is also anticipated to be closer to average yearly values while anchovy is still considered to be above average, given the historical record.
- Cool ocean temperatures and strong spring upwelling conditions continued from February to March and the Habitat Compression Index (HCI) for both months indicates a low compression state. It is anticipated that cool conditions with expanded upwelling habitat will continue with no impact of habitat compression that would otherwise result in increased concentrations and aggregations of whales and forage nearshore.

#### Section 132.8(d)(9): Ocean conditions

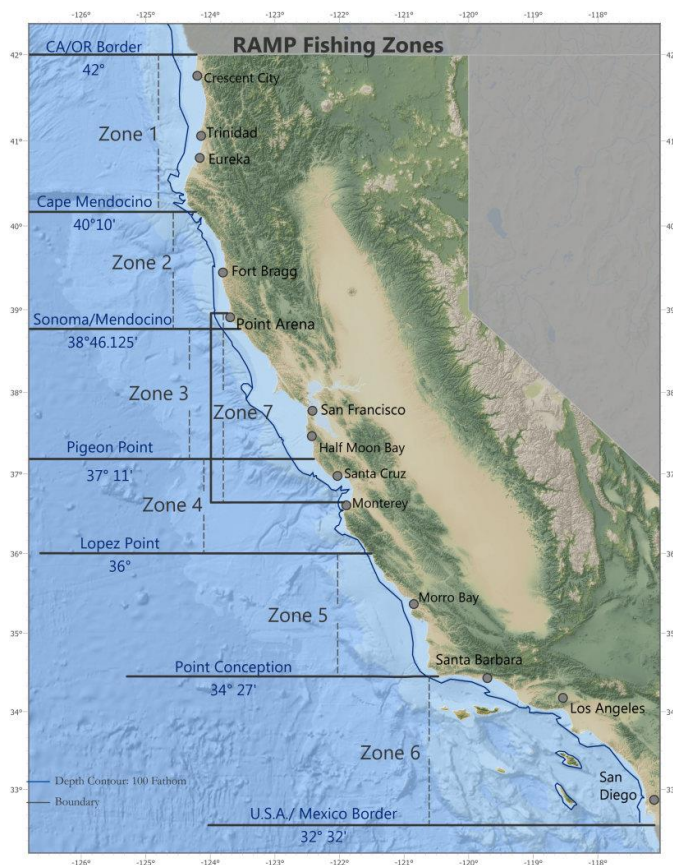
- The prediction of ENSO conditions was last updated on April 8, 2021. La Niña conditions persisted in March with an 80% chance of a transition from this condition to ENSO-neutral during May - July 2021.
- The latest outlook of late winter/spring ocean ecosystem conditions shows that ocean conditions have cooled significantly over this past winter and conditions in spring are trending toward cool and productive conditions. It is anticipated that cool conditions will continue, with expanded upwelling habitat and no signs of habitat compression that would otherwise result in increased concentrations and aggregations of whales and forage nearshore.

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

- Impact score calculation under RAMP began on January 1, 2021. The current impact score is 0.38 for Humpback whales and 0 for Blue whales and Pacific Leatherback sea turtles.

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

- Based on Monterey Bay Whale Watch data, Cascadia Research and California Coast Crab Association vessel surveys and Point Blue observation data, significant migration into the Fishing Grounds has yet to occur in Zones 3-5. Whales that are present remain primarily offshore in deep water (70-200 meters, 38-109 fathoms) and outside the depth ranges where most fishing is occurring (15-32 fathoms). Based on CCCA vessel surveys and NOAA observations, animals are beginning to migrate into Zone 1 with observations of over 50 Humpback whales in depths of 30 – 55 fathoms, with some animals deeper and shallower.



**Figure 1. RAMP Fishing Zone boundaries.**