



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

Date: May 18, 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 May 12, 2021 and finalized on May 18, 2021 based on discussions with the Working Group and after consideration of all available data.

A. Recommended Management Action

Fishing Zones 1, 2, 3, 4, 5, 6 and 7 (statewide): CDFW Marine Region staff's final recommendation is to implement a Fishery Closure for Fishing Zones 1 and 4 triggered by Marine Life Concentration data and a Fishery Closure for Zones 2, 3, 5 and 6 triggered by lack of recent RAMP approved survey data, and in both instances supported by the best available science relevant to the management considerations. Monterey Bay Whale Watch Data (MBWW) data for Zone 4 indicate Humpback whale observations are near historical average for this time of year, indicating migration to California waters is well underway and will continue to increase over the coming weeks. Cascadia Research vessel surveys in Zone 1 show continued presence of Humpback whales at moderate levels. Based on historical migration patterns and as indicated by data from Zones 1 and 4, Humpback whales are also likely to be present in higher numbers than previously observed in Zones 2, 3, 5 and 6. This increases the risk of co-occurrence between Dungeness crab gear and Actionable Species and therefore increases entanglement risk. This is particularly true for Zone 3 where trap numbers are reported to be over 8,300 and could be as high as 11,250 based on trap tier allotments of actively landing vessels. Similarly, for Zone 1, reporting indicates over 5,000 traps are currently being fished and could be as high as 7,200 based on trap tier allotments. To reduce risk of entanglement, staff's recommendation is to implement a Fishery Closure for Zones 1, 2, 3, 4, 5, 6 and 7 (statewide) beginning June 1, 2021 at 12:00pm (noon). In addition to the Fishery Closure, staff recommend the Director authorize the Lost or Abandoned Dungeness Crab Trap Gear Retrieval Program to begin on June 7, 2021 at 12:00pm (noon) for all Fishing Zones. Authorization of this program will further reduce entanglement risk by removing lost or abandoned gear.

Through the remainder of the season, the Fleet should remain vigilant and move or avoid setting gear in areas where whales are transiting or foraging until all gear is removed at the close of the season. CDFW also reminds the Fleet that final bi-weekly reports must be submitted on or before June 16, 2021.

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 (Zone 6)
- During the current calendar year: 1 Humpback whale

Marine Life Concentrations Surveys and/or Satellite Telemetry Observations:

- **Fishing Zone 1:** Number of Humpback whales observed in a single Fishing Zone exceeds 10, which triggers management response under RAMP (c)(2)(B)(2). Vessel surveys observed 30 and 15 Humpback whales during two survey days.
- **Fishing Zone 2, 3, 5 and 6:** No current CDFW approved survey data are available for these Zones, which triggers management response under RAMP (c)(2)(B)(1).
- **Fishing Zone 4:** Running weekly average exceeds 5 Humpback whales in a single Fishing Zone, which triggers management response under RAMP (c)(2)(B)(2). Running weekly average is 8.1 Humpback whales.

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

- The running average sightings of Humpback whales in Monterey Bay (Zone 4) is now near historical average, which is an indication of increased migration when compared to previous reporting periods. Vessel surveys in Zone 1 observed moderate numbers of Humpback whales. As a result of marine life concentration triggers for Humpback whales being met, and anticipated increasing densities of Humpback whales in the Fishing Grounds over the coming weeks, a Fishing Zone closure is the most effective Management Action for Zones 1 - 6 to minimize co-occurrence with Dungeness trap fishing gear and Humpback whales.

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

- A Fishing Zone closure will impact operators and businesses still participating in the

fishery. However, effort has continued to decrease with each bi-weekly reporting period as operators switch over to other fisheries, or conclude fishing for the season.

- There will be economic costs to individual operators, however given the time of year and risk of entanglement (which is expected to increase), the short-term economic costs must also be weighed against the longer-term viability of the commercial fishery across California.

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

- MBWW data are available for Fishing Zone 4. Cascadia Research vessel survey data are available for Zone 1. Point Blue Conservation Science observation data are available for Zones 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 near average based on MBWW data, an indication that migration into California waters is well underway. Humpback whale sightings from Cascadia Research vessel-based surveys observed whales between 40 and 90 fathoms off Reading Rock, near Trinidad.
- 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, 359 vessels have participated in the fishery as of May 4, 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. The estimated maximum number of traps is currently 16,750 which is another decrease from the last risk assessment when 28,975 traps were estimated. For the current season, Zone 3 has the highest estimated number of traps deployed at 11,250 with almost half of these originating from vessels landing in the port of San Francisco, estimated at 5,375.
- The most recent CDFW required bi-weekly trap reporting period of May 1 estimated a total of 17,130 (previous reporting period was 27,292) traps fishing in minimum depths of 10 – 21 fathoms and in maximum depths of 35 – 80 fathoms across all Fishing Zones. Bi-weekly reports confirm Zone 3 has the highest number of deployed traps at 8,387. *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 March to April and the Habitat Compression Index (HCI) for April indicates a continued low compression state. It is anticipated that cool conditions with expanded upwelling habitat will continue with no compression that would be anticipated to 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 be anticipated to 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 vessel surveys and Point Blue observation data, significant migration into the Fishing Grounds has begun to occur and will continue to increase over the coming weeks.

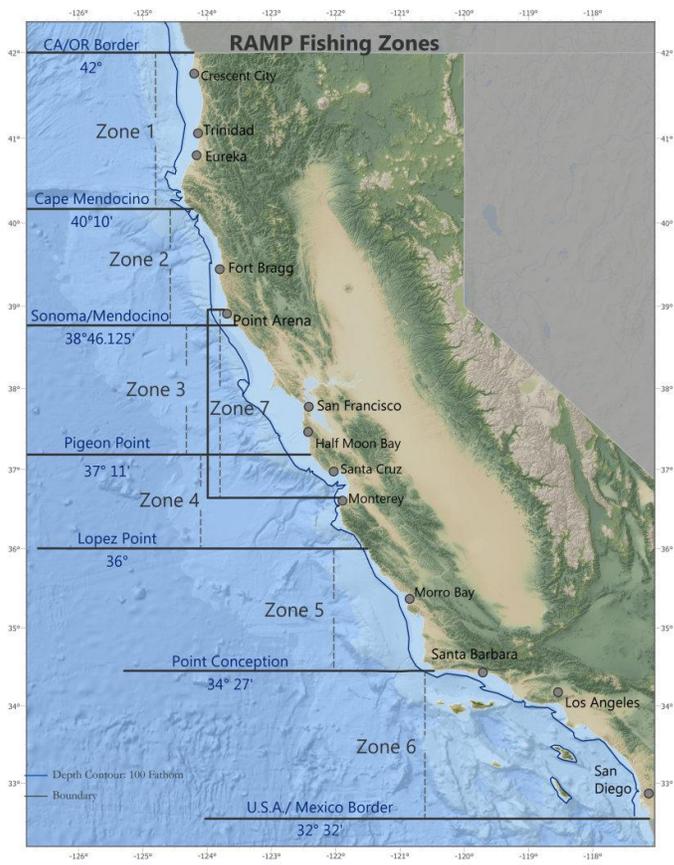


Figure 1. RAMP Fishing Zone boundaries.