



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

Date: October 29, 2021

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 recreational and commercial Dungeness crab fishery. The initial assessment and preliminary Management Action recommendation were shared with the Working Group on October 22, 2021, and finalized on October 29, 2021 based on discussions with the Working Group and after consideration of all available data. *Note: CDFW was able to coordinate an additional reconnaissance survey with the US Coast Guard for Zone 1 after the Working Group meeting; the Available data document was updated on October 29, 2021, to include this information. The document was also posted on the CDFW Whale Safe Fisheries webpage, emailed through the Whale Safe Fisheries listserv, and shared with the Working Group on October 29, 2021.*

A. Recommended Management Actions

Recreational Fishery

- **Fleet Advisory: Fishing Zones 1, 2, 5 and 6**
- **Temporary Crab Trap Prohibition: Fishing Zones 3 and 4**

Commercial Fishery

- **Fleet Advisory: Fishing Zone 5 and 6**
- **Season Delay: Fishing Zones 3 and 4**
- **Zones 1 and 2 were not evaluated**

Fleet Advisories

The recreational fishery is scheduled to open statewide on November 6, 2021 and the commercial Fishery is scheduled to open on November 15, 2021, in Zones 3, 4, 5 and 6. CDFW Marine Region staff's final recommendation is for the Director to issue a Fleet Advisory for Fishing Zones 1, 2, 5 and 6 for the recreational Dungeness crab fishery and a Fleet Advisory for Zones 5 and 6 for the commercial fishery. Based on available data, no RAMP triggers have been reached in Fishing Zones 1, 2, 5 and 6 that would require additional protective measures beyond a Fleet Advisory. However, CDFW aerial surveys and Cascadia Research vessel surveys indicated small concentrations of Humpback whales in Zones 1, 2, 5 and 6 and the recreational fleet (Zones 1, 2, 5, 6) and commercial fleet (Zones 5 and 6) should use additional precaution when setting gear in those Zones by adhering to the Fleet Advisory. It

should also be noted that the Fishing Grounds in Zones 5 and 6 have few commercially permitted vessels and, based on historic landings data, only minor landings are made in these port areas. Both the commercial and recreational fishing fleet should however remain vigilant and move or avoid setting gear in areas where whales are transiting or foraging to further minimize risk of entanglement. As a reminder, the commercial fishery opener in Zones 1 and 2 will be further evaluated at the next risk assessment (expected to occur on or before November 22, 2021).

Season Delay/Temporary Crab Trap Prohibition

Regarding the commercial season delay and temporary recreational crab trap prohibition, CDFW Marine Region staff's final recommendation is for the Director to delay the commercial fisheries in Zones 3 and 4 and temporarily prohibit the use of recreational crab traps in those Zones until the next risk assessment. This recommendation is based on exceedance of Marine Life Concentration data triggers for Humpback whales and Leatherback sea turtles in Zones 3 and 4. CDFW aerial surveys indicated large aggregations of Humpback whales in Zone 3, which was further supported by observation data from Point Blue around the Farallon Islands. NOAA and Upwell aerial surveys also indicated large aggregations of foraging Humpback whales and at least four Leatherback sea turtles foraging in areas off Half Moon Bay and Point Reyes. Humpback whales were observed foraging in 20-50 fathoms and Leatherback sea turtles were observed foraging in 20-40 fathoms. Monterey Bay Whale Watch Data (MBWW) data for Zone 4 indicate Humpback whale observations are above average based on the historical record, indicating migration out of California waters has yet to occur. Foraging activity by both Humpback whales and Leatherback sea turtles poses a risk of entanglement with vertical lines and surface gear in Zones 3 and 4 if the recreational season opens with use of crab traps on November 6, 2021, and the commercial season opens on November 15, 2021. A season delay/temporary trap prohibition in those Zones for both fisheries is the recommended Management Action based on the wide distribution of Humpback whales across Fishing Zone depths and the likelihood of Leatherback sea turtles remaining in the foraging areas of Zones 3 and 4. A depth restriction or gear reduction for the commercial fishery would not minimize entanglement risk due to whale distribution and expected high gear concentrations during the season opener. As a result, CDFW Marine Staff's final recommendation is a delay of the Fishing Season for the commercial fishery and temporary prohibition on the use of crab traps for the recreational fishery for Zones 3 and 4 until at least the next risk assessment (expected to occur on or before November 22, 2021).

Summary of RAMP triggers and Management Considerations analyzed during preparation of this Final Assessment and Management Action 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: 1 humpback whale

Confirmed Entanglements in Unknown Fishing Gear reported from California:

- During the current Fishing Season: 0
- During the current calendar year: 1 Humpback whale
 - Note: Three additional confirmed entanglements in unidentified fishing gear are under review.

Marine Life Concentration Surveys and/or Satellite Telemetry Observations:

- **Fishing Zone 3 and 4:** CDFW aerial surveys observed 48 Humpback whales in Zone 3, and NOAA and Upwell surveys documented 32 Humpback whales in Zone 3, both exceeding the trigger pursuant to Title 14, CCR, section 132.8(c)(2)(A)(4)(a). In addition, based on MBWW data, the running weekly average for Zone 4 is 18.9 Humpback whales, which exceeds 5 Humpback whales in a single Fishing Zone and triggers management response under RAMP section 132.8(c)(2)(A)(4). NOAA and Upwell Aerial surveys observed at least 4 unique Leatherback sea turtles within Zone 3, exceeding a trigger pursuant to 132.8, Title 14, CCR (c)(2)(A)(4)(c).

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

- In Zones 3 and 4, the aerial survey and vessel-based observations show continued large aggregations of foraging Humpback whales. Leatherback sea turtles were also observed in Zones 3 and 4. As a result of Marine Life Concentration triggers for Humpback whales and Leatherback sea turtles being met, a Fishing Zone delay/temporary trap prohibition is the most effective Management Action for Zones 3 and 4 to minimize co-occurrence with Dungeness crab trap fishing gear and Actionable Species.
- In Zones 1, 2, 5 and 6, a Fleet Advisory is the most effective Management Action based on the few Humpback whales observed and known migration patterns in these areas. Additionally, a Fleet Advisory is appropriate given the lower level of fishing effort by the commercial fleet in Zones 5 and 6.

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

- A Fishing Zone closure will impact operators and businesses. In particular, there will be economic costs to individual operators, however given the risk of entanglement (which is expected to decrease), 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

- CDFW and USCG aerial survey data are available for Zones 1, 2, 3, 4 and 5. NOAA and Upwell Aerial Survey Data are available for Zones 3 and 4. Satellite tagging information for Leatherback sea turtles is available for Zones 3 and 4. MBWW data are available for Fishing Zone 4. Point Blue Conservation Science observation data are available for Zones 3, 4, and 6. Cascadia Research Vessel surveys are available for Zones 3, 4, 5 and 6. The Habitat Compression Index is available for Zones 2, 3, 4 and the northern portion of Zone 5. Whale Watch 2.0 habitat predictions are available for all Zones.

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

- Aerial surveys indicate continued presence of large aggregations of Humpback whale across Zones 3 and 4.
- Presence of Humpback whales is also above average based on MBWW data, an indication that significant migration out of California waters has yet to occur.
- Leatherback sea turtles typically forage in an area extending from Monterey Bay to Point Reyes during the summer months. Recent surveys and satellite tagging information indicate foraging turtles are still present within Zones 3 and 4.

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

- Preliminary domoic acid testing results indicate a potential delay for the commercial fishery in the northern portion of Zone 3. Results for an area that encompasses Zones 5 and 6 are pending. Quality tests, which could affect the commercial fishery opener in Zones 1 and 2, are not yet available.

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

- Abundant schooling fish were documented off the San Mateo County coast and the Gulf of the Farallones during aerial surveys.
- Leatherback foraging habitat was evident between Pt. Reyes to Pigeon Point within water depths of about 20-40 fathoms as well as between Davenport and Año Nuevo, as indicated by dense aggregations of brown sea nettles and abundant large molas.
- No krill were observed during CDFW or NOAA aerial surveys.

Section 132.8(d)(9): Ocean conditions

- The prediction of ENSO conditions was last updated on October 14, 2021. La Niña conditions have developed and are expected to continue with an 87% chance of La Niña in December 2021- February 2022.

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

- Impact score calculation under RAMP began on January 1, 2021. The current impact score for the 2021 calendar year is 1.13 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 aerial surveys conducted by CDFW and NOAA, Humpback whales and Leatherback sea turtles are still present within the Gulf of the Farallones and Monterey Bay. Monterey Bay Whale Watch data and Point Blue observation data provided frequent sightings of Humpback whales as well, also indicating significant migration has yet to occur out of California waters.

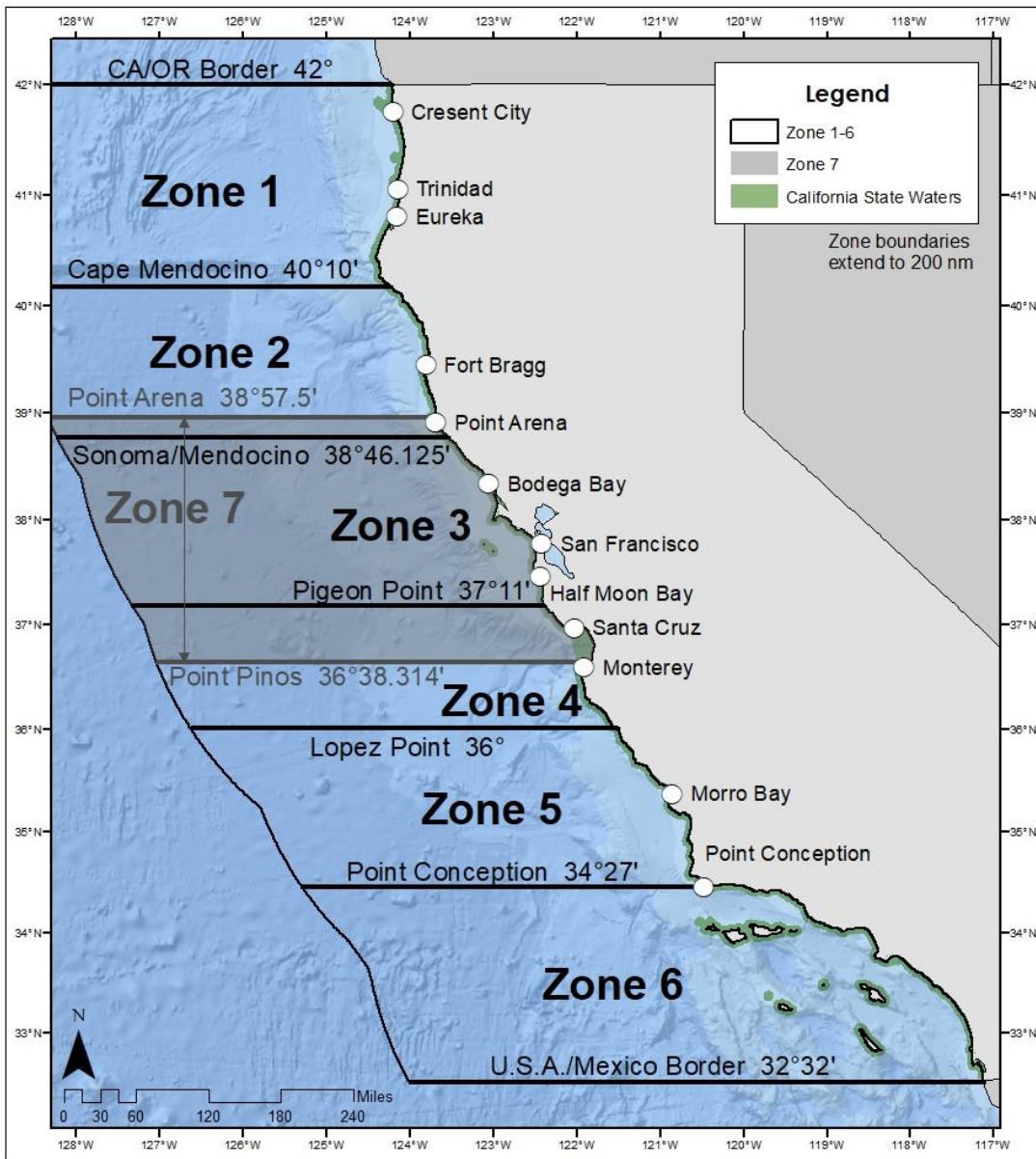


Figure 1. RAMP Fishing Zone boundaries.