



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

Date: November 19, 2021

An initial assessment and preliminary recommendation were developed by California Department of Fish and Wildlife (CDFW) Marine Region 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 November 17, 2021, and finalized on November 19, 2021, based on discussions with the Working Group and after consideration of all available data.

A. Recommended Management Actions

Recreational Fishery:

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

Commercial Fishery:

- **Fleet Advisory: Fishing Zone 1, 2, 5 and 6**
- **Season Delay: Fishing Zones 3 and 4**

Fleet Advisories

Recreational Fishery: The recreational Dungeness crab fishery is currently open statewide in all Fishing Zones. CDFW Marine Region's final recommendation is for the Director to maintain the current Fleet Advisory for Fishing Zones 1, 2, 5 and 6 for the recreational fishery.

Commercial Fishery: The commercial Dungeness crab fishery is currently open in Fishing Zones 5 and 6 and scheduled to open on December 1 in Zones 1 and 2. CDFW Marine Region's final recommendation is for the Director to maintain the current Fleet Advisory for Fishing Zones 5 and 6 and extend the Advisory to Zones 1 and 2 when the fishery opens.

Rationale: Survey data for Zones 2, 5, and 6, were available prior to the November 1 risk assessment. Therefore, the no data scenarios under RAMP are no longer applicable, and Zones can be evaluated based on the totality of the management considerations and previous survey data. Based on available data, no RAMP triggers have been reached in Fishing Zones 1, 2, 5, or 6 that would require Management Action. However, Cascadia Research vessel surveys indicated small concentrations of humpback whales in Zone 1. Due to remaining humpbacks in Zone 1 a Fleet Advisory is prudent. Based on NOAA/Upwell aerial surveys and Cascadia Research vessel surveys, several concentrations of humpback whales remain in

Zones 3 and 4. These data indicate humpback whales remain in California waters and the migration to winter breeding grounds is still ongoing and the recreational and commercial crab fleets should use additional precaution when setting gear in Zones 1, 2, 5 and 6 because humpbacks may still be present. Both the commercial and recreational fishing fleet should remain vigilant and move or avoid setting gear in areas where whales are transiting or foraging to further minimize risk of entanglement. This advisory will remain in place until the next risk assessment (expected to occur on or before December 15, 2021) and will be reevaluated based on recent data. Working Group meeting dates are scheduled on December 1 or December 6 in anticipation of new data to inform this next risk assessment.

Crab Trap Restriction/Season Delay

Recreational Fishery: A temporary recreational crab trap restriction is currently in place for Fishing Zones 3 and 4. CDFW Marine Region's final recommendation is for the Director to continue this temporary trap restriction for the recreational fishery in Zones 3 and 4.

Commercial Fishery: A season delay is currently in place for Fishing Zones 3 and 4 for the commercial Dungeness crab fishery. CDFW Marine Regions final recommendation is for the Director to continue a season delay for the commercial fishery in Zones 3 and 4.

Rationale: Based on exceedance of Marine Life Concentration triggers for humpback whales in Zones 3 and 4, continued management action is necessary. Cascadia Research vessel surveys and NOAA/Upwell aerial surveys indicated numerous aggregations of humpback whales across Zones 3 and 4. Based on both datasets, humpback whales were distributed widely both inshore and offshore. Given the significant number of humpback whales observed there is an increased risk of entanglement with vertical lines and surface gear in Zones 3 and 4 if the recreational fishery were allowed to use crab traps and the commercial season were allowed to open. A commercial season delay and temporary recreational trap restriction in those Zones is the recommended Management Action based on the wide distribution of humpback whales across all depths of Fishing Zone 3 and 4 and the potential for leatherback sea turtles to be foraging in Zones 3 based on prey availability. 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 for both fisheries. As a result, CDFW Marine Region's final recommendation is a continued delay of the Fishing Season for the commercial fishery and the continued temporary restriction on the use of crab traps for the recreational fishery for Zones 3 and 4. The recommendation is for these Management Actions to remain in place until they can be reevaluated at the next risk assessment (expected to occur on or before December 15, 2021). Working Group meeting dates are scheduled on December 1 or December 6 in anticipation of new data to inform this next risk assessment.

Summary of RAMP triggers and Management Considerations analyzed during preparation of this Initial Assessment and Preliminary 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, one of which is known not to be commercial Dungeness crab gear.

Marine Life Concentration Surveys and/or Satellite Telemetry Observations:

- **Fishing Zone 3 and 4:** NOAA/Upwell aerial surveys observed 73 humpback whales in Zone 3, exceeding the trigger pursuant to Title 14, CCR, section 132.8(c)(2)(A)(4)(a). Cascadia Research Vessel surveys observed 79 humpback whales in Zone 3 over two survey days, 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 8.7 humpback whales, which exceeds 5 humpback whales in a single Fishing Zone and triggers management response under RAMP (c)(2)(A)(4). NOAA and Upwell tagging data indicate one leatherback sea turtle in Zone 4, 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 aggregations of foraging humpback whales. As a result of Marine Life Concentration triggers for humpback whales being met, a Fishing Zone delay/trap restriction 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, based on adjacent Zone, a Fleet Advisory is appropriate given the lower level of fishing effort by the commercial fleet in Zone 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

- Upwell/NOAA aerial survey data are available for Zones 3 and 4. Cascadia Research vessel survey data are available for Zones 1, 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. 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 and vessel-based surveys indicate continued aggregations of humpback whale distributed across Zones 3 and 4.
- Presence of humpback whales is slightly above average based on MBWW data, an indication that significant migration out of California waters has yet to occur.

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

- Current domoic acid testing results indicate a potential delay for the commercial fishery in the northern portion of Zone 3 (Sonoma/Mendocino County Line to Point Reyes). Updated quality test results indicate no additional testing is required and Zones 1 and 2 will not be delayed.

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

- Humpbacks were distributed widely both inshore and offshore feeding primarily on schooling fish.
- Leatherback foraging habitat was evident from about Pt. Reyes to Pigeon Point, as indicated by aggregations of brown sea nettles and abundant large molas.
- No krill were observed during Upwell/NOAA aerial surveys.

Section 132.8(d)(9): Ocean conditions

- The prediction of ENSO conditions was last updated on November 11, 2021. La Niña is likely to continue through the Northern Hemisphere winter 2021-22 (~90% chance) and into spring 2022 (~50% chance during March-May).

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

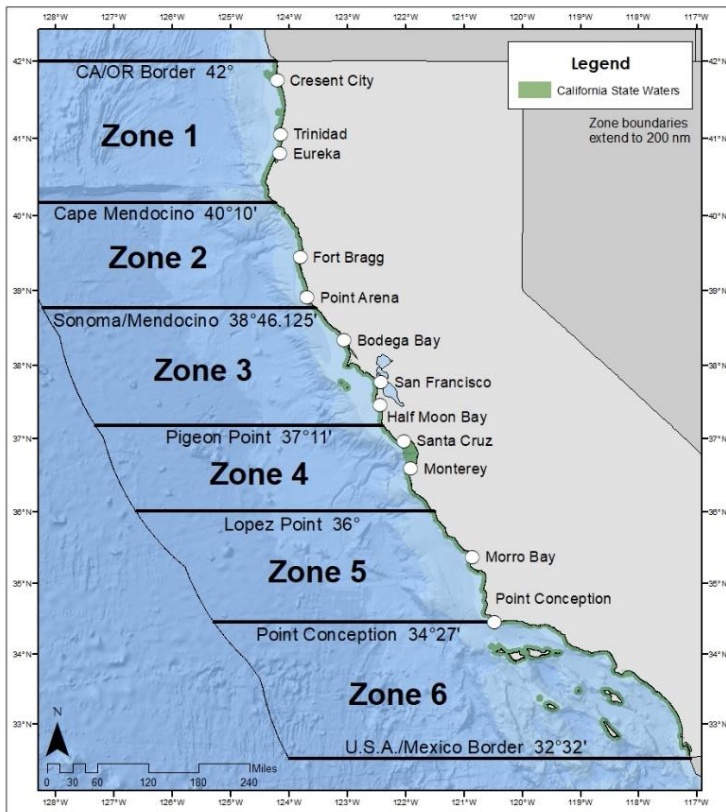
- Impact score calculation under RAMP began on January 1, 2021. The current impact score is 1.13 for humpback whales and 0 for blue whales and Pacific leatherback sea turtles.

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

- As of November 17, Cascadia Research reported at least nine humpback arrivals to mainland Mexico and Bajaj breeding grounds, which are known to be from California

waters.

- Based on aerial surveys conducted by NOAA/Upwell and vessel surveys conducted by Cascadia Research, humpback whales and are still present within the Gulf of the Farallones and Monterey Bay. Based on previous CDFW and USCG aerial surveys, few whales were observed in Zones 1 and 2, indicating migration has likely occurred from these northern zones.



RAMP Fishing Zone Boundaries