



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

Date: December 14, 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 December 13, 2021, and finalized at the conclusion of the Working Group meeting on December 14, 2021 based on discussions with the group.

A. Recommended Management Actions

Recreational Fishery:

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

Commercial Fishery:

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

Fleet Advisory

Recreational Fishery: The recreational Dungeness crab fishery is currently open statewide in all Fishing Zones (see CCR Title 14, section 29.80(e)), although use of traps is temporarily restricted in Fishing Zone 3. CDFW Marine Region's final recommendation is for the Director to maintain the current Fleet Advisory for Fishing Zones 1, 2, 4, 5 and 6 for the recreational fishery. Staff also recommend lifting the trap restriction in Zone 3 and including this Zone in a Fleet Advisory, with specific information on recent humpback whale sighting locations. The final recommendation is that the recreational trap restriction be lifted on December 17, 2021, at 9:00am in Zone 3.

Commercial Fishery: The commercial Dungeness crab fishery is currently open in Fishing Zones 1, 2, 5 and 6 under a Fleet Advisory and set to open in Zone 4 with a Depth Constraint and Fleet Advisory on December 16, 2021. CDFW Marine Region's final recommendation is for the Director to maintain the current Fleet Advisory for Fishing Zones 1, 2, 4, 5 and 6 and open Zone 3 with Fleet Advisory on December 22, 2021, with specific information on recent humpback whale sighting locations. It is also recommended that the Depth Constraint be lifted in Zone 4 on December 19, 2021, at 8:01am which would align with the start of the 64-hour pre-soak period for Zone 3.

Rationale: Survey data for Zones 1, 2, 5, and 6 were available prior to this 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. Small aggregations of humpback whales remain in Zones 3 and 4, particularly in waters south of Half Moon Bay to Pigeon Point and along the canyon edges and shelf break in Monterey Bay. However, aerial and vessel-based surveys have shown a steady decline in humpback whale observations since mid-November for Zone 3 in particular. NOAA aerial surveys documented a decline from 73 humpback whales to 33 humpback whales over a one-month period in Zone 3 (mid-November to mid-December). Cascadia vessel surveys documented a decline from 60 humpback whales to 19 humpback whales over a two-week period based on the latest data contribution (early December to mid-December). Monterey Bay Whale Watch weekly average observations have also declined from 8.7 humpback whales in mid-November to 4.9 humpback whales as of this risk assessment. All available data show a continued decline and based on this trend, CDFW anticipates risk of entanglement has abated sufficiently to allow the opening of all Fishing Grounds in Zone 3 and Zone 4 to the recreational and commercial trap fisheries. In addition, based on the most recent data indicating arrivals of humpback whales to the winter breeding grounds, entanglement risk is significantly reduced compared to previous risk assessments, as observations on the winter breeding grounds confirm humpback whales from California continue to arrive. However, to further minimize risk of entanglement, a Fleet Advisory is prudent as whales continue their migration out of California waters. Therefore, the recreational and commercial crab fleets should use precaution when setting trap gear in all Zones because humpback whales 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. Waters off the San Mateo coast (near Pigeon Point) have shown persistent aggregations of humpbacks during most surveys and both fleets should use caution when fishing on the border of Zones 3 and 4. Therefore the final recommendation is for the coastwide Fleet Advisory to remain in place until it can be reevaluated at the next risk assessment (expected to occur in mid-January 2022) by the CDFW Director.

Addendum:

A portion of the Working Group and the Port Associations/Boat Owner Associations of Bodega Bay, Half Moon Bay and San Francisco requested an additional delay of the commercial fishery in Zone 3 to provide for an orderly start of the fishery. An additional delay under the fair and orderly provision of RAMP would provide additional protection for humpback whales as they continue to migrate to winter breeding grounds before the commercial fishery opens.

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: 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 aerial surveys observed 33 humpback whales in Zone 3, exceeding the trigger pursuant to Title 14, CCR, section 132.8(c)(2)(A)(4)(a) of 20 humpback whales in a single Fishing Zone, which triggers a Management Action.

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 1, 2, 3, 4, 5 and 6, a Fleet Advisory is the most effective Management Action based on the whales observed and known migration patterns in these areas.

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

- Lifting the Season Delay in Zone 3 and the Depth Constraint in Zone 4 will maximize fishing opportunity for commercial fish businesses and vessel operators.

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

- NOAA aerial survey data are available for Zones 3 and 4. Cascadia Research vessel survey data are available for Zones 3 and 4. MBWW data are available for Zone 4.

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

- Aerial and vessel-based surveys indicate continued departures of humpback whales from Zones 3 and 4.
- Presence of humpback whales is slightly above average, but within normal ranges, based on MBWW data, an indication that migration out of California waters is still ongoing.

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

- Fishing Zones 5 and 6 opened under a Fleet Advisory on November 15, 2021, and Fishing Zones 1 and 2 opened under a Fleet Advisory on December 1, 2021. Nearly all fishing activity thus far has been in the Northern Management Area, with 96% of harvest from Fishing Zone 1 and over half of the landings made into Crescent City (58.4%) followed by Eureka (28.5%), Trinidad (9.6%), and Fort Bragg (3.5%).

- Trends in vessel activity generally mirror those of landing volume, with 79 vessels making landings into Crescent City, 61 vessels making landings into Eureka, 26 vessels making landings into Fort Bragg, and 15 vessels making landings into Trinidad.

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

- Humpback whales were observed feeding primarily on schooling fish at a variety of water depths in Zones 3 and 4.
- No sea nettles (leatherback turtle prey) were observed, and only a few large ocean sunfish (*Mola mola*), a sea nettle predator that often co-occurs with leatherback turtles, were observed during aerial surveys in Zones 3 and 4.

Section 132.8(d)(9): Ocean conditions

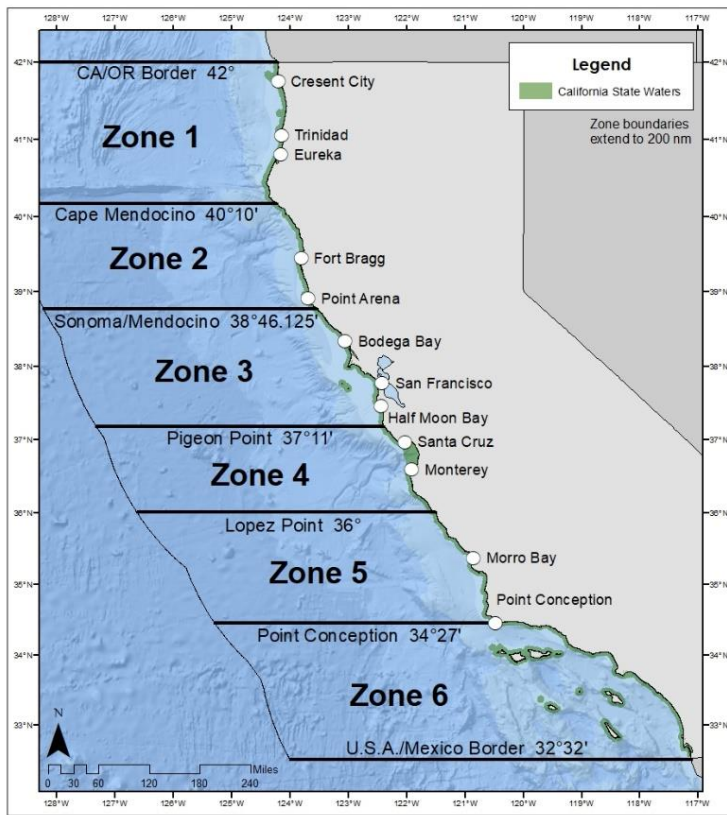
- As of December 9, 2021, there is a 95% chance of La Niña conditions continuing through the Northern Hemisphere winter 2021-22, with a 60% chance of transitioning to ENSO-neutral conditions during spring 2022.
- The most recent Habitat Compression Index values are for October 2021. At that time, there was low compression, with cooler water habitat available between 25 and 40°N. Compression is often variable during the month of December.

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 leatherback sea turtles.

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

- As of December 3, Cascadia Research reported at least 18 humpback arrivals to mainland Mexico and Baja breeding grounds, which are known to be from California waters.
- Based on NOAA aerial surveys and vessel surveys conducted by Cascadia Research, humpback whales are still present within the Gulf of the Farallones and Monterey Bay but declining across Fishing Zone 3 and 4.



RAMP Fishing Zone Boundaries