State of California – Natural Resources Agency
DEPARTMENT OF FISH AND WILDLIFE
Director's Office
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***GAVIN NEWSOM, Governor***
***CHARLTON H. BONHAM, Director***

**CALIFORNIA DEPARTMENT OF FISH AND WILDLIFE**
**DECLARATION OF FISHERY SEASON DELAY**
**IN THE COMMERCIAL DUNGENESS CRAB FISHERY**
**DUE TO RISK OF MARINE LIFE ENTANGLEMENT**

Pursuant to Fish and Game Code Section 8276.1(b) and California Code of Regulations, Title 14, Section 132.8 ("Section 132.8"), I find and declare that:

I

On November 4, 2020, I evaluated entanglement risk for the commercial Dungeness crab fishery pursuant to Section 132.8(b). I provided the California Dungeness Crab Fishing Gear Working Group (Working Group) and the Whale Safe Fisheries email listserv with notice of the risk assessment and all non-confidential data under consideration on November 2, 2020. Prior to this risk assessment and management response, I considered the Working Group's November 3, 2020 management recommendation, and other relevant information provided to my staff.

II

On October 28 and 29, 2020, staff from the Department's Marine Region conducted aerial surveys of Fishing Zones 1 through 5 and observed 48 Humpback whales in Fishing Zone 3. Additionally, an agency-approved vessel survey in Fishing Zones 3 and 4 made 118 sightings of an estimated 345 Humpback whales. Pursuant to Section 132.8(c)(2)(A)(4)(a), I must implement a Fishing Zone delay or other protective management action.

III

NOAA-standardized data from commercial whale-watching trips in Fishing Zone 4 throughout the summer and fall show a weekly running average of 11.2 Humpback whales in Monterey Bay. Pursuant to Section 132.8(c)(2)(A)(4)(a), I must implement a Fishing Zone delay or other protective management action.

IV

There are no marine life concentration data to inform risk assessment in Fishing Zone 6. Pursuant to Section 132.8(c)(2)(A)(1), the Fishing Season will be delayed in Fishing Zone 6 until December 1.

V

Upon evaluation of the management considerations pursuant to Section 132.8(d), I have determined that the management action listed below protects Humpback whales based on the best available science. Additional information on the relevant management considerations is provided in the attachment to this declaration

VI

**THEREFORE**, under the authority granted by Fish and Game Code Section 8276.1(b) and Section 132.8 of Title 14 of the California Code of Regulations, I am implementing the following management action:

1. The opening of the commercial Dungeness crab fishery in Fishing Zone(s) 3 – 6 is delayed. Take and possession of commercially caught Dungeness crab is prohibited in the delayed Fishing Zone.

This management action is in effect until the next risk assessment, which is expected to occur before December 1, 2020.

Updates and material regarding future entanglement risk evaluations in the commercial Dungeness crab fishery will be made available on the Department's web page: www.wildlife.ca.gov/Conservation/Marine/Whale-Safe-Fisheries

C M Bonham

11/4/2020 4:21 pm pacific time

Charlton H. Bonham, Director

Date/Time

ATTACHMENT TO DIRECTOR NOVEMBER 4, 2020 DECLARATION OF FISHERY SEASON DELAY IN THE COMMERCIAL DUNGENESS CRAB FISHERY DUE TO RISK OF MARINE LIFE ENTANGLEMENT

Information referenced in this Attachment is further described in the Data Summary Compilation dated November 3, 2020, and located at the Department's Whale Safe Fisheries website (https://wildlife.ca.gov/Conservation/Marine/Whale-Safe-Fisheries), which to the Department's knowledge represents the best available science informing the management considerations in Section 132.8(d).

**Information Supporting Trigger for Management Action Under Section 132.8(c)**

**Marine Life Concentrations:**

- **Fishing Zone 3:** 48 Humpback whales were observed during CDFW aerial surveys,118 sightings of an estimated 345 Humpback whales were observed during Cascadia Research vessel-based surveys
- **Fishing Zone 4:** weekly running average of 11.2 Humpback whales based on Monterey Bay Whale Watch data
- **Fishing Zone 6**: no data available

**Relevant Management Considerations Under Section 132.8(d)**

1. **Working Group Management Action Recommendation and Best Available Science Made Available to the Department**

   The Working Group recommended a season delay in Fishing Zones 3-5 (Fishing Zone 6 was not discussed). The recommendation memo is available here. Additional information from the Working Group Recommendation Memo is provided as relevant in the categories below. No other information was made available to the Department.

2. **Information from NOAA**

   No additional information was made available for this risk assessment.

3. **Effectiveness of Management Measures to Minimize Entanglement Risk**

   Based on the available information, a season delay is likely to be the most effective management action. A season delay would prevent commercial Dungeness crab traps from entering the water, which removes any entanglement risk from the commercial fishery. Additionally, a season delay is the anticipated management action in Section132.8(c)(2)(1)(4)(a) in response to concentration triggers being reached for Humpback whales.

4. **Total Economic Impact to the Fleet and Fishing Communities**

   Total economic costs are considered when deciding between management measures that equivalently reduce entanglement risk. A season delay can have variable economic cost depending on the circumstances. Current considerations include the loss of the Thanksgiving market, possible fishing effort shift, and general economic impacts due to the ongoing COVID pandemic.

5. **Data Availability Within and Across Fishing Zones**

   Aerial and vessel surveys were conducted across Fishing Zones 1-5, with additional observation data for those Fishing Zones from US Coast Guard, Point Blue Conservation Science, and Monterey Bay National Marine Sanctuary. The Department considers this comprehensive data set to adequately cover the full geographic extent of those Fishing Zones to inform the appropriate management response.

6. **Known Historic Marine Life Migration Patterns**

   Seasonal migration for Humpback whales out of California waters typically occurs in November and early December. Humpback whales are anticipated to migrate from central and northern areas (where high numbers of Humpback whales were observed) south to Mexico and Central America; this will likely take migrating whales through Fishing Zones 3-6. Based on Monterey Bay Whale Watch data, observed Humpback whale numbers are above average when compared to historical averages, which may indicate that the bulk of the migration has yet to begin.

7. **Fishing Season Dynamics**

   No delay is anticipated due to public health hazards. Quality testing is not applicable to Fishing Zones impacted by the November 15 season opener. It is unclear how fishing effort may shift given any season delays, but any season opener is expected to result in relatively high gear concentrations. Additionally, Working Group members noted that opening only Fishing Zone 5 would inhibit an orderly start to the fishery.

8. **Known Distribution and Abundance of Key Forage**

   Distribution of anchovy, a key forage item for Humpback whales was evident during aerial surveys and vessel-based surveys. Humpbacks were observed lunge feeding near the surface off Half Moon Bay, Point Reyes and Eureka, which includes Fishing Zones 4, 3 and 1, respectively.

9. **Ocean Conditions**

   La Nina conditions are currently forecast.

**10. Current Impact Score Calculations**

a. Fishing Season – n/a

b. Calendar Year – calendar year impact score calculations will begin January 1, 2021

**11. Marine Life Concentrations and Distribution During the Current Fishing Season**

The large numbers of humpback whales distributed across several Fishing Grounds is an indication that migration out of Fishing Grounds has yet to occur. This is supported by above average whale concentrations based on historical averages from the Monterey Bay Whale Watch data set and the Cascadia Research vessel-based survey estimating at least 345 humpback whales distributed across Fishing Zones 3 and 4. The Working Group Recommendation Memo noted that data contributors survey estimates may underestimate total whale presence. Whale sighting data from trained observers working for the Marine Sanctuaries and the National Park Service in Fishing Zones 3, 4, and 6 further supports continued whale presence in those areas.

**Chosen Management Action and Rationale**

Based on the management considerations outlined above, the Director will implement a delay of the November 15, 2020 opening of the commercial Dungeness crab season in Fishing Zones 3-6.

Large aggregations of foraging Humpback whales and surface feeding activity pose a risk of entanglement with surface gear. The wide distribution of Humpback whales across Fishing Zone depths indicates that a depth restriction on fishing activity would be ineffective in reducing the entanglement risk. Given the high volume of gear anticipated to be set during a season opener, in addition to possible fishing effort shift to any open areas, it has been determined that a gear reduction would not sufficiently reduce entanglement risk. A season delay is the most viable management action given the existing whale presence.

Given historical migration patterns, Humpback whales may at any time begin migrating south through Fishing Zones 3-5. Even Fishing Zones with fewer observed whales (such as Fishing Zone 5) may experience an increase in whale presence before the next risk assessment. Observed whales from Department aerial surveys and Cascadia Research vessel-based surveys in the area paired with the potential for fishing effort shift into the Fishing Zone could lead to increased entanglement risk.

Per 132.8(c)(2)(A)(1), lack of available data in Fishing Zone 6 automatically delays the opening of the Fishing Season in that Fishing Zone until December 1.

## California Dungeness Crab Fishing Gear Working Group (Working Group) Management Recommendation Form

Submitted to the California Department of Fish and Wildlife (CDFW) Director 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.

*Working Group Discussion Date: November 3, 2020* - Finalized November 4, 2020

During their discussion, the Working Group considered Available Data provided by CDFW on October 30 (and updated on November 2), as well as an initial CDFW assessment of management considerations, and preliminary management action. The initial and final versions of CDFW's assessment are available on the Whale Safe Fisheries webpage. Key elements of the Working Group discussion are summarized below, which is documented on the basis of comments made on or in addition to the CDFW initial assessment.

### A. Scope of elevated risk based on Management Considerations in subsection (d)

Section 132.8(d)(2): Information from NOAA

- No additional information was shared during the Working Group discussion.

Section 132.8(d)(3): Effectiveness of management measures to reduce entanglement risk

- Working Group members noted the reported number of observed Humpback whales represents only a portion of the estimated California/Oregon/Washington stock size. Working Group members raised concerns about the effectiveness of any management actions given the unknown location of the remainder of the stock. Working Group data contributors clarified that aerial and vessel survey methods do not provide a complete census of all animals present within the surveyed area. The actual abundance could be several times higher than the numbers reported in the Available Data. Based on available information it appears a substantial proportion of the stock is still present and has not begun their southern migration.

- Working Group members raised the importance of specifying how management measure effectiveness will be assessed.

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

- Working Group members noted the importance of determining the economic impact to both fishermen and the broader industry (e.g. processors, off loaders, fuel docks, mechanics, etc.) as part of the management measure consideration process and prior to making any management recommendation.

- Working Group members noted that marine life entanglements in California commercial Dungeness crab gear have declined over the last four years, indicating that risk reduction measures have been working. It should be noted that this has

come at a high cost to the fleet/industry and that there is a need to determine what actual costs have been.

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

- No additional information was shared during the Working Group discussion.

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

- Working Group members requested clarification regarding the specific path(s) taken by Humpback whales when they begin their winter migration, and their behavior (e.g. do they engage in foraging activity) during that migration. Working Group Advisors shared that Humpback whales generally show highly directional movement once they have begun their southward migration which may take them out of the Fishing Grounds; and thus pose a lower risk of entanglement.

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

- Working Group members noted that since there are no fair start provisions for delays under the RAMP regulations, delaying the season opener for only Fishing Zones 3 and 4 while allowing Fishing Zone 5 to open as scheduled on November 15 would inhibit an orderly start to the fishery and possibly increase risk of entanglement due to a concentration of fishing effort in the only open Fishing Zone.

- Working Group members also highlighted the challenges at the beginning of the 2019-20 season, when changing assessment of early season risk resulted in management actions being imposed on very short notice to the fleet.

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

- No additional information was shared during the Working Group discussion.

Section 132.8(d)(9): Ocean conditions

- No additional information was shared during the Working Group discussion.

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

- No additional information was shared during the Working Group discussion.

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

- Working Group members requested clarification regarding the methods used for marine life concentration surveys and the potential for observers to double count the same individuals. Data contributors stated that double counting was possible but unlikely. Undercounting was more likely and the standardization that occurs with Monterey Bay Whale Watch data mitigates the issue.

## B. Recommended Management Action from options identified in subsection (e)

**Fishing Zones 3 and 4:** The Working Group supports the CDFW's preliminary recommendation of a season a delay in Fishing Zones 3 and 4 until at least December 1, pending the next CDFW risk assessment and Working Group management recommendation discussion (anticipated on or around November 23rd). A large number of Humpback whales are still present and actively foraging in the fishing grounds, with little indication that their southward migration to winter breeding grounds in Mexico and Central America has begun. Due to expected high level of fishing effort at the start of the season, this could pose an increased risk of marine life entanglement. Working Group members requested information on the economic impact of the season delay until Dec 1 as well as economic impacts of any further proposed delays prior to making any further management recommendations. The Working Group emphasized the importance of evaluating and understanding the economic impact of a delay to the Fleet/industry/dependent communities.

**Fishing Zone 5:** While the current numbers of Actionable Species in Fishing Zone 5 do not trigger a management action under RAMP, the Working Group recommends a season delay in this Fishing Zone. This is, in part, because of the possibility that whales in the northern Zones will transit through Zone 5 during their southerly migration. Additionally, as noted above, there is no fair start for delays under RAMP. Delaying the season opener for all three Fishing Zones will ensure a fair and orderly opening for those zones and prevent concentration of effort and increased entanglement risk in this zone.

**All Fishing Zones:** The Working Group requests CDFW include information regarding the full economic impact expected from this delay and management measure effectiveness in the Available Data for the next assessment. As well as the economic impact of any other proposed delays or management measures.

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

Date: November 3, 2020

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 November 2, 2020 and finalized at the conclusion of the Working Group meeting on November 3, 2020 based on discussions with the group.

## A. Marine life entanglement risk, relative to the triggers in subsection (c)

Confirmed Entanglements in California Commercial Dungeness Crab Gear

- During the current Fishing Season: 0
- During the current calendar year: 1

Confirmed Entanglements in Unknown Fishing Gear reported from California:

- During the current Fishing Season: 0
- During the current calendar year: 3

Marine Life Concentrations Surveys and/or Satellite Telemetry Observations:

- **Fishing Zone 3:** 48 Humpback whales were observed during CDFW aerial surveys, 118 sightings of an estimated 345 Humpback whales observed during Cascadia Research vessel based surveys, both surveys exceed the Marine Life Concentration trigger under RAMP (c)(2), 20 Humpback whales during a survey
- **Fishing Zone 4:** weekly running average of 11.2 based on Monterey Bay Whale Watch data, which exceeds the running weekly average of 5

## B. Scope of elevated 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

- RAMP regulations 132.8(c)(2)(A)(4)(a) specify a season delay in the event of a concentration trigger being reached or other management action that the Director demonstrates protects Humpback whales based on the best available science. Based on available data, a season delay is likely to be the most effective management action because on the distribution of whales across Fishing Zones 3 and 4.

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

- Early season Management Action(s) have variable economic costs when seasons are delayed. CDFW will continue to work with the fleet to inform this management consideration. Current economic considerations include loss of Thanksgiving markets, fishing effort shift and impacts due to the ongoing COVID pandemic.

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

- Aerial and vessel-based surveys were conducted across Fishing Zones 1, 2, 3, 4 and 5. Additional observation data were contributed for Fishing Zones 3, 4, and 6.

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

- Seasonal migration for Humpback whales out of California waters typically occurs in November and early December to Mexico and Central America. Humpback whales are anticipated to migrate from central and northern areas (where high numbers of Humpback whales were observed) south through Fishing Zones 5 and 6.
- Observed Humpback whale numbers in Fishing Zone 4 are above average when compared to historical averages based on Monterey Bay Whale Watch data.

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

- No delay anticipated to due public health hazards.
- Quality testing is still ongoing and only applies to Fishing Zones 1 and 2.
- Fishing season openers should be done in a coordinated effort across Fishing Zones when possible to address issues of fair start and/or effort shift.

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

- Distribution of anchovy, a key forage item for Humpback whales was evident during aerial surveys and vessel-based surveys. Humpbacks were observed lunge feeding near the surface off Half Moon Bay, Point Reyes and Eureka, which includes Fishing Zones 4, 3 and 1, respectively.

Section 132.8(d)(9): Ocean conditions

- La Nina conditions are currently forecast.

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

- Impact score calculation under RAMP begins January 1, 2021.

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

- Based on vessel based and aerial surveys, large numbers of Humpback whales were distributed across several Fishing Zones, an indication that migration out of Fishing Grounds has yet to occur.

## C. Recommended Management Action from options identified in subsection (e)

- **Fishing Zones 3 and 4:** CDFW Marine Region staff's final recommendation is a season delay based on exceedance of Marine Life Concentration triggers for Humpback whales in Fishing Zones 3 and 4, and based on additional information outlined above under management considerations and further informed by Working Group discussions. The large aggregations of foraging Humpback whales and surface feeding activity pose a risk of entanglement with surface gear if the season is allowed to begin on November 15, 2020. A season delay is the recommended Management Action based on the wide distribution of Humpback whales across Fishing Zones depths. A depth restriction or gear reduction would not minimize entanglement risk due to whale distribution and expected high gear concentrations during the season opener. As a result, CDFW Marine staff recommend a delay of the Fishing Season for Fishing Zones 3 and 4 until the next risk assessment (expected to occur before December 1, 2020).
- **Fishing Zone 5:** CDFW Marine Region staff recommend a season delay for Fishing Zone 5 based on management considerations outlined above and following discussions with the Working Group. The potential for fishing effort shift into this Fishing Zone, coupled with observed whales from CDFW aerial surveys and Cascadia Research vessel surveys in the area could increase the risk of entanglement. As a result, CDFW Marine Region staff recommend a delay of the Fishing Season for Fishing Zone 5 until the next risk assessment (expected to occur before December 1, 2020).
- **Fishing Zone 6:** Per 132.8(c)(2)(A)(1), lack of available data in Fishing Zone 6 automatically delays the opening of the Fishing Season in that Fishing Zone until December 1.

CDFW Marine staff recommend the Director notify the fleet and processors as early as possible to allow them to delay season preparation and plan for a delay of the season. CDFW will continue to monitor all available data and work to collect Marine Life Concentration data to inform the next risk assessment (expected to occur before December 1, 2020).

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

Date: November 2, 2020

***CDFW will prepare a Final Assessment and Management Recommendation after review of the Working Group Recommendation and any other relevant information.***

This assessment and preliminary recommendation has been developed by California Department of Fish and Wildlife (CDFW) Marine Region staff for consideration by the California Dungeness Crab Fishing Gear 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.

## A. Marine life entanglement risk, relative to the triggers in subsection (c)

Confirmed Entanglements in California Commercial Dungeness Crab Gear

- During the current Fishing Season: 0
- During the current calendar year: 1

Confirmed Entanglements in Unknown Fishing Gear reported from California:

- During the current Fishing Season: 0
- During the current calendar year: 3

Marine Life Concentrations Surveys and/or Satellite Telemetry Observations:

- **Fishing Zone 3:** 48 Humpback whales were observed during CDFW aerial surveys,108 Humpback whales were sighted on Cascadia Research vessel based surveys, both surveys exceed the Marine Life Concentration trigger under RAMP (c)(2), 20 Humpback whales during a survey
- **Fishing Zone 4:** weekly running average of 11.2 based on Monterey Bay Whale Watch data, which exceeds the running weekly average of 5

## B. Scope of elevated 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

- RAMP regulations 132.8(c)(2)(A)(4)(a) specify a season delay in the event of a concentration trigger being reached or other management action that the Director demonstrates protects Humpback whales based on the best available science.

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

- Early season Management Action(s) have variable economic costs when seasons are delayed. CDFW will continue to work with the fleet to inform this management consideration. Current economic considerations include loss of Thanksgiving markets, fishing effort shift and impacts due to the ongoing COVID pandemic.

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

- Aerial and vessel-based surveys were conducted across Fishing Zones 1, 2, 3, 4 and 5. Additional observation data were contributed for Fishing Zones 3, 4 and 6.

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

- Seasonal migration for Humpback whales out of California waters typically occurs in November and early December to Mexico and Central America. Humpback whales are anticipated to migrate from central and northern areas (where high numbers of Humpback whales were observed) south through Fishing Zones 5 and 6.

- Observed Humpback whale numbers in Fishing Zone 4 are above average when compared to historical averages based on Monterey Bay Whale Watch data.

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

- No delay anticipated to due public health hazards.

- Quality testing is still ongoing and only applies to Fishing Zones 1 and 2.

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

- Distribution of anchovy, a key forage item for Humpback whales was evident during aerial surveys and vessel-based surveys. Humpbacks were observed lunge feeding near the surface off Half Moon Bay, Point Reyes and Eureka, which includes Fishing Zones 4, 3 and 1, respectively.

Section 132.8(d)(9): Ocean conditions

- La Nina conditions are currently forecast.

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

- Impact score calculation under RAMP begins January 1, 2021.

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

- Based on vessel based and aerial surveys, large numbers of Humpback whales were distributed across several Fishing Zones, an indication that migration out of Fishing Grounds has yet to occur.

## C. Recommended Management Action from options identified in subsection (e)

- **Fishing Zones 3 and 4:** CDFW Marine staff preliminary recommendation is a season delay based on exceedance of Marine Life Concentration triggers for Humpback whales in Fishing Zones 3 and 4, and based on additional information outlined above under the management considerations. The large aggregations of foraging Humpback whales and surface feeding activity pose a risk of entanglement with surface gear if the season is allowed to begin on November 15, 2020. A season delay is the recommended Management Action based on the wide distribution of Humpback whales across Fishing Zones depths. A depth restriction or gear reduction would not minimize entanglement risk due to whale distribution and expected high gear concentrations during the season opener. As a result, CDFW Marine Staff preliminary recommendation is a delay of the Fishing Season for Fishing Zones 3 and 4 until the next risk assessment (expected to occur before December 1, 2020).

- **Fishing Zone 5:** CDFW Marine staff continue to review available data for Fishing Zone

  5. The whales observed in Fishing Zones 3 and 4 are expected to begin their migration and may transit through Fishing Zone 5 and Fishing Zone 6. Potential Management Actions for Zone 5 include Fleet Advisory or delay of the season until the next risk assessment (expected to occur before December 1, 2020).

- **Fishing Zone 6:** Per 132.8(c)(2)(A)(1), lack of available data in Fishing Zone 6 automatically delays the opening of the Fishing Season in that Fishing Zone until December 1. Additionally, as discussed for Fishing Zone 5, whales observed in Fishing Zones 3 and 4 are expected to begin their migration and transit south through Fishing Zones 5 and 6.

CDFW Marine staff recommend the Director notify the fleet as early as possible to allow them to delay gear preparation and plan for a potential delay of the season. CDFW will continue to monitor all available data and work to collect Marine Life Concentration data to inform the next risk assessment (expected to occur before December 1, 2020).

# 2020-21 Risk Assessments
# Available Data for November 3, 2020 Working Group Discussion

Last updated: November 3, 2020[1]

## RAMP TRIGGERS

### Section 132.8(c)(1): Confirmed Entanglements

*Data provided by: Lauren Saez and Dan Lawson, National Marine Fisheries Service (NMFS)*

**Evaluation of RAMP Triggers (by CDFW)**

Total number of Confirmed Entanglements in California Commercial Dungeness Crab Gear:

- During the current Fishing Season: NA
- During the current calendar year: 1 Humpback Whale

Total number of Confirmed Entanglements in Unknown Fishing Gear reported from California:

- During the current Fishing Season: NA
- During the current calendar year: 3 Humpback Whales

**Summary of All West Coast 2020 Entanglements (by NMFS)**

Total entanglements for calendar year 2020:

- 16 confirmed (10 humpbacks whales, 5 gray whales, and 1 sperm whale)
- 9 unconfirmed (3 humpback whale, 4 gray whales, and 2 unidentified whales)

Total entanglements for calendar year 2020 (January 1 to October 14) by species:

- Humpback whales: 10 confirmed entanglements
    - One confirmed Humpback whale entanglement involved California commercial Dungeness crab gear; the gear was set in Fishing Zone 3 (Bodega Bay to Point Reyes- 38-45 fathoms) and reported in Fishing Zone 4
- Blue whales: 0 confirmed entanglements
- Leatherback turtles: 0 confirmed entanglements

[1] Minor edits were made to the November 2 version to correct errors identified during the November 3 Working Group discussion and improve document accessibility.

Additional details regarding confirmed Humpback whale entanglements (all entanglement reports are subject to further review):

- Feb 14, 2020: reported off San Diego (Zone 6), entangled with gillnet
- Feb 28, 2020: reported off Monterey (Zone 4), entangled with unidentified gear (line only)
- April 13, 2020: reported off Santa Barbara (Zone 6), entangled with CA spot prawn gear
- April 15, 2020: reported off Orange county (Zone 6), entangled with gillnet
- May 16, 2020: reported off Monterey (Zone 4), entangled with CA commercial Dungeness crab gear (set in Zone 3)
- June 13, 2020: dead stranding in Marin county (Zone 3), entangled with OR commercial Dungeness crab gear
- July 3, 2020: reported off Monterey (Zone 4), entangled with unidentified gear (line only)
- July 30, 2020: reported off Oregon, entangled with unidentified gear (line + buoys)
- Aug 31, 2020: reported off Washington, entangled with unidentified gear (line only)
- October 13, 2020: reported off Monterey (Zone 4), entangled with unidentified gear (line only)

## Section 132.8(c)(2): Marine Life Concentrations

*Data provided by: Monterey Bay Whale Watch (compiled by Karin Forney, NOAA Southwest Fisheries Science Center), Scott Benson (NOAA Southwest Fisheries Science Center), Jaime Jahncke (Point Blue Conservation Science), Karen Grimmer (Monterey Bay National Marine Sanctuary), California Department of Fish and Wildlife*

### Leatherback Sea Turtle Observations and Satellite Telemetry – *Fishing Zone 7*

- A satellite-linked transmitter that was attached to a leatherback turtle on September 20, 2019 likely sent its final signal on October 25. The turtle began approaching Half Moon Bay in late July, but returned to deeper waters in early August. The last transmissions indicated that the turtle had initiated movement away from the continent on October 22 in a southwest direction and is now more than 350 miles southwest of Pt. Sur, California.
- No aerial surveys were performed and no transmitters were deployed during October 2020 due to the ongoing COVID-19 pandemic.
- Please report any leatherback sightings via e-mail to swfsc.turtle-sightings@noaa.gov or Scott.Benson@noaa.gov.

## Point Blue Conservation Science – *Fishing Zones 3, 4 and 6*

Current observations and additional details are available at the [Point Blue Conservation Science Data Portal](#).

### Gulf of the Farallones – *Fishing Zone 3*

- Observations by trained biologists at the Farallon Islands show 50 Humpback whales were reported through the Spotter/WhaleAlert app over the last seven days (October 22-29; Figure 1).
- Zero Blue whales were reported during the last seven days.

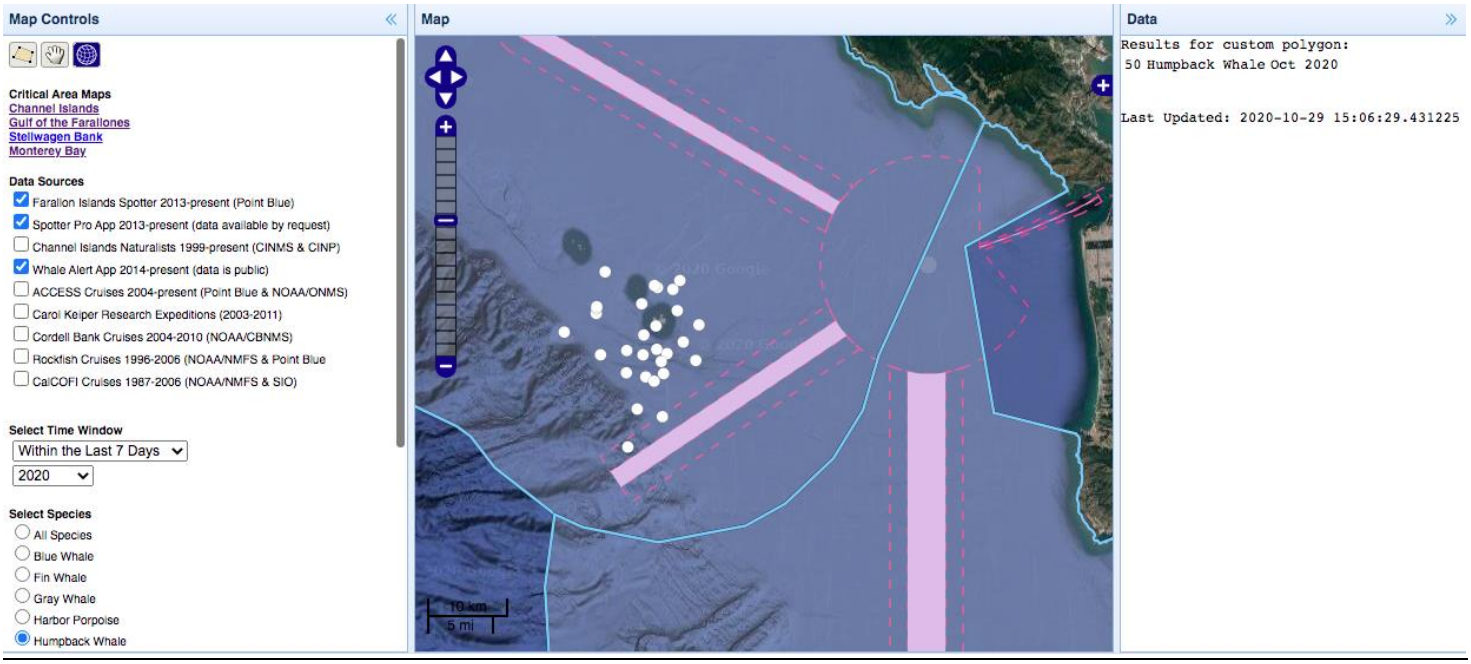


**Figure 1. 50 Humpback whale sightings in the Zone 3 from Oct 22-29, 2020. Reporting locations are represented by white circles. A given report may represent multiple individuals. Right hand panel shows total counts by species and time period.**

### Monterey Bay National Marine Sanctuary – *Fishing Zone 4*

- In the Monterey Bay region, 25 Humpback whale sightings were reported through the Spotter/WhaleAlert app over the last seven days (October 22-29; Figure 2).
- No Blue whales were reported during the last seven days.

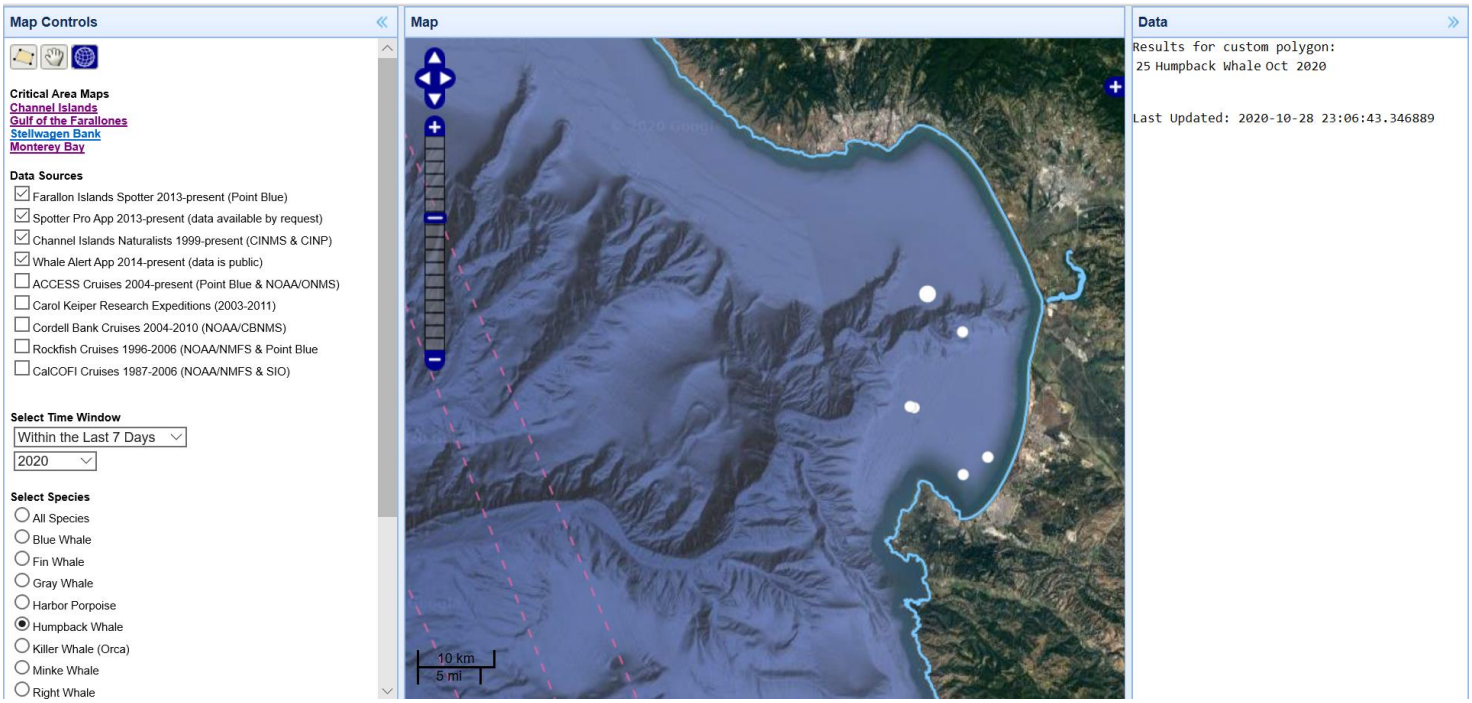


**Figure 2. 25 Humpback whale sightings in Zone 4 from Oct 22-29, 2020. Reporting locations are represented by white circles. A given report may represent multiple individuals. Right hand panel shows total counts by species and time period.**

## Channel Islands National Marine Sanctuary – *Fishing Zone 6*

- 57 Humpback whales were observed and reported by trained naturalists from Channel Islands National Marine Sanctuary and the National Park Service during the last seven days (October 22-29; Figure 3).

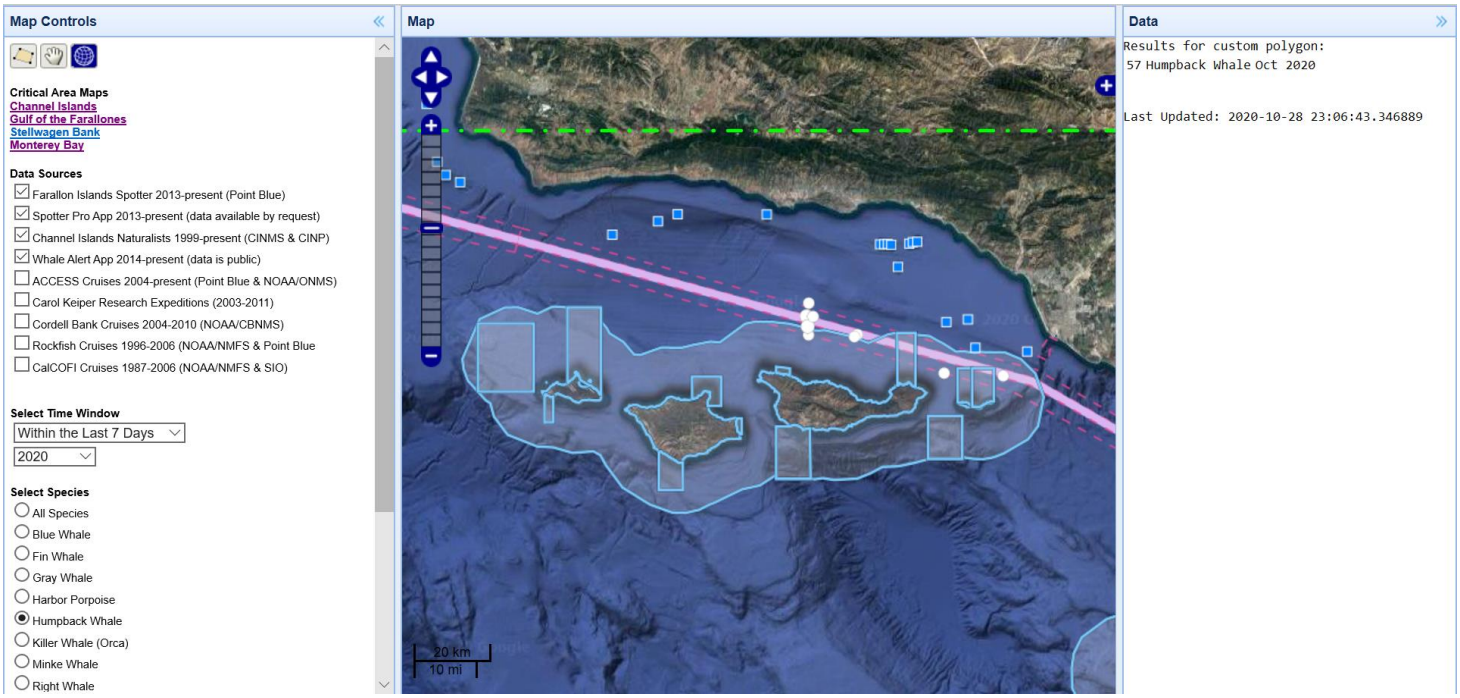


**Figure 3. 57 Humpback whale sightings in Zone 6 from Oct 22-29, 2020. Reporting locations are represented by white circles. A given report may represent multiple individuals. Right hand panel shows total counts by species and time period.**

## Cascadia Research, SR3, and The Marine Mammal Center – *Fishing Zones 3-5*

Small research vessels were used to conduct surveys from October 27-29, 2020 between Cypress Point (south of Monterey Bay) and Fort Ross (north of Bodega Bay). Track lines and sightings information are show in Table 1 and Figure 4. Additional surveys in Northern California are planned during the coming weeks.

Key findings of the surveys for the Central California region (south of Monterey Bay to north of Bodega Bay) include:

- There are widely dispersed concentrations of Humpback whales across this region at densities that would generally be associated with typical peak occurrence, with no evidence of a major exodus having occurred yet.
- Humpback whales were observed widely throughout the surveyed areas, with the highest concentrations off Point Reyes and other pockets of concentration seen off Half Moon Bay and Monterey Bay (Figure 4). In total there were 118 sightings of an estimated 345 Humpback whales during the surveys (Table 1). The surveys did not cover the entire area so many animals were likely missed. Additionally, there is some overlap where the same animal might have been encountered more than once. The photo-ID portion of the study will be able to better identify some the movements and repeat sightings.

- Multiple lines of evidence indicate the majority of Humpback whales were feeding on small schooling fish near the surface. In addition to occasions where they were surface lunge feeding and the prey was observed (see Figure 5), prey was either visible on the 50 Hz depth sounder or inferred by the association with California sea lions and fish-eating birds including gulls, murres, and pelicans.
- Depth distribution of most Humpback whale sightings, especially north of Monterey Bay, was broad. Most were in waters more than 80 m deep, and extended into waters deeper than 200 m.
- Blue whales were sighted in several areas of the surveyed regions, though in much lower concentrations than Humpback whales. A larger concentration was seen just west of Cordell Bank on October 28. A concentration of Blue whales was found near the shelf edge west of Año Nuevo along on October 29 with continued scattered Humpback whales along that route (Figure 1).
- Preliminary results from two of the four tags deployed on October 27-28 are consistent with the above observations of Humpback whale distribution and feeding (see Figure 6).

**Table 1. Summary of central California small boat survey effort and sightings, number of animals, and photo-IDs obtained during surveys through October 29, 2020.**

| | | | | | Humpbacks | | | Blue whales | | | Unident. Whales | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Date | Region | Vessel | Trans/ Opp | Transect Nmi | Sight | Anim | Photo-IDs | Sight | Anim | Photo-IDs | Sight | Anim |
| 17-Oct-2020 | Monterey Bay area | Nova | 70 m | 48 | | 18 | | 0 | | | | |
| 17-Oct-2020 | Monterey Bay area | Nova | 200 m | 60 | | 25 | | 2 | 4 | | | |
| 27-Oct-2020 | Monterey to Pigeon Pt | Nova | Opp | | 0 | | | 0 | | | 0 | |
| 27-Oct-2020 | Pigeon Point to Pt Reyes | Nova | 70 m | 53 | 1 | 1 | 0 | 0 | | | 0 | |
| 27-Oct-2020 | Pt Reyes West | Nova | Opp | | 15 | 64 | 36 | 0 | | | 1 | 1 |
| 27-Oct-2020 | South of Cordell to HMB | Nova | 200 m | 58 | 7 | 13 | 0 | 2 | 4 | | 3 | 4 |
| 27-Oct-2020 | 200m to HMB | Nova | Opp | | 2 | 9 | 2 | 0 | | | 0 | |
| 27-28 Oct 2020 | W SF Bay | Nova/MMC | 50 m | 35 | 0 | | | 0 | | | 0 | |
| 27-Oct-2020 | Pt Reyes to Ft Ross | TMMC | 70 m | 50 | 19 | 24 | | | | | 4 | 4 |
| 27-28 Oct 2020 | Off Bodega Bay | TMMC | Opp | | 4 | 12 | 4 | | | | | |
| 27-28 Oct 2020 | Ft Ross to SW Cordell | TMMC | 200 m | 57 | 3 | 7 | | 6 | 6 | | 6 | 6 |
| 28-Oct-2020 | HMB to start of 50 m | Nova | Opp | | 0 | | | 0 | | | 0 | |
| 28-Oct-2020 | HMB-Pt Reyes & SW Pt Reyes | Nova | Opp | | 26 | 96 | 63 | 0 | | | 3 | 5 |
| 27-Oct-2020 | HMB to G Farallones | MUS | Opp | | 14 | 35 | 24 | | | | | |
| 28-Oct-2020 | HMB to G Farallones | MUS | Opp | | 21 | 35 | 24 | 2 | 2 | 2 | | |
| 29-Oct-2020 | HMB to Pigeon Pt | Nova | 200 m | | 3 | 3 | 2 | 1 | 2 | 2 | 1 | 1 |
| 29-Oct-2020 | HMB to Pigeon Pt off line | | Opp | | 3 | 3 | 0 | 5 | 15 | 3 | 1 | 2 |
| | Totals | | | | 118 | 345 | 155 | 18 | 33 | 7 | 19 | 23 |

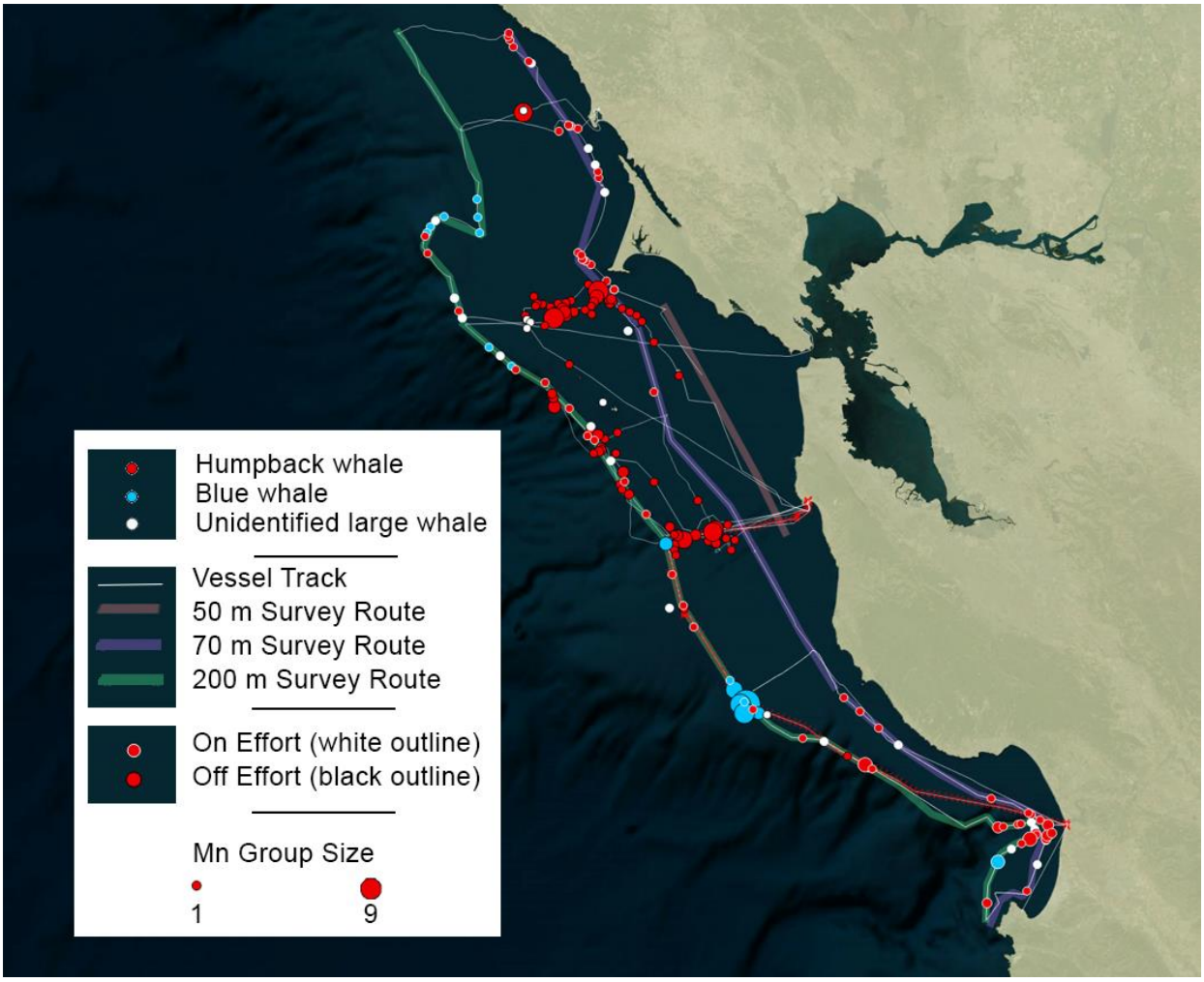


**Figure 4. Effort and sighting locations during surveys described in Table 1.**

**Figure 5. Photograph taken on October 27, 2020 of a group of Humpback whales surface lunge feeding on fish west of Half Moon Bay. Most whales appeared to be feeding on fish near the surface though generally not lunge feeding right at the surface like this group, though that was occasionally seen.**

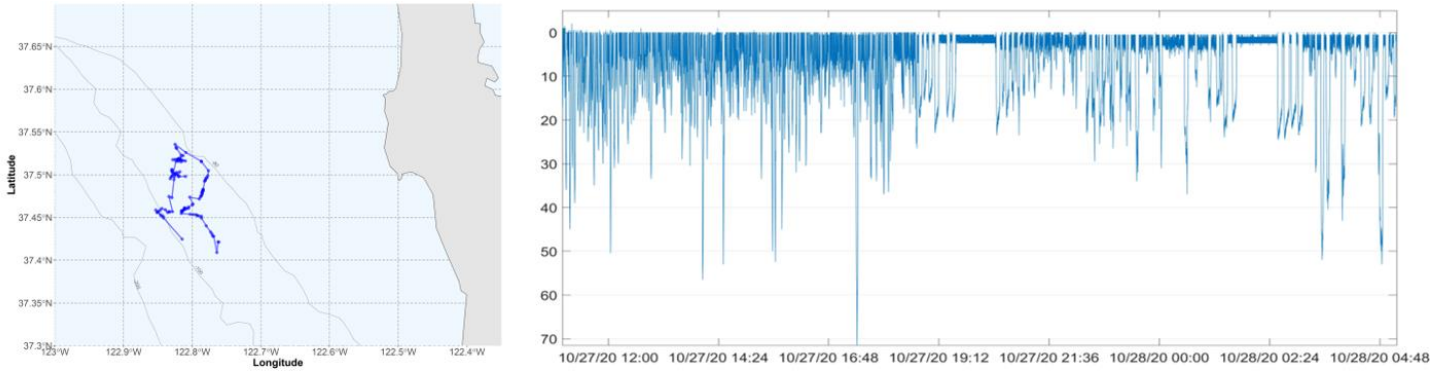


**Figure 6. Preliminary position information and movement patterns from one tag deployed on a humpback whale on October 27, 2020 off Half Moon Bay showing movements between 80 and 100 m depth contours and diving indicative of feeding on variable but shallow fish prey. Depth in m.**

An additional survey was conducted on November 1 near Morro Bay; track lines and sightings information are shown in Table 2 and Figure 7. Key findings include:

- Survey transects focused on the 70 and 200 m depth contours from north of Morro Bay down to off Point Sal.
- Small numbers of scattered Humpback whales were seen primarily closer to the 70 m depth contour (Figure 7).
- As in central California, Humpback whales appeared to be primarily feeding on fish.

**Table 2. Summary of southern California small boat survey effort and sightings, number of animals, and photo-IDs obtained during surveys on 1 November 2020.**

| | | | | | Humpbacks | | | Unident. Whales | |
|---|---|---|---|---|---|---|---|---|---|
| Date | Region | Vessel | Trans/ Opp | Transect Nmi | Sight | Anim | Photo-IDs | Sight | Anim |
| 01-Nov-2020 | S California out of Morro Bay | MUS | 70m | 48.0 | 4 | 6 | 4 | 1 | 1 |
| 01-Nov-2020 | S California out of Morro Bay | MUS | 200m | 44.0 | 1 | 1 | 0 | 0 | 0 |
| 01-Nov-2020 | Morro Bay area | MUS | Opp | | 2 | 2 | 1 | 0 | 0 |
| | Totals | | | | 7 | 9 | 5 | 1 | 1 |

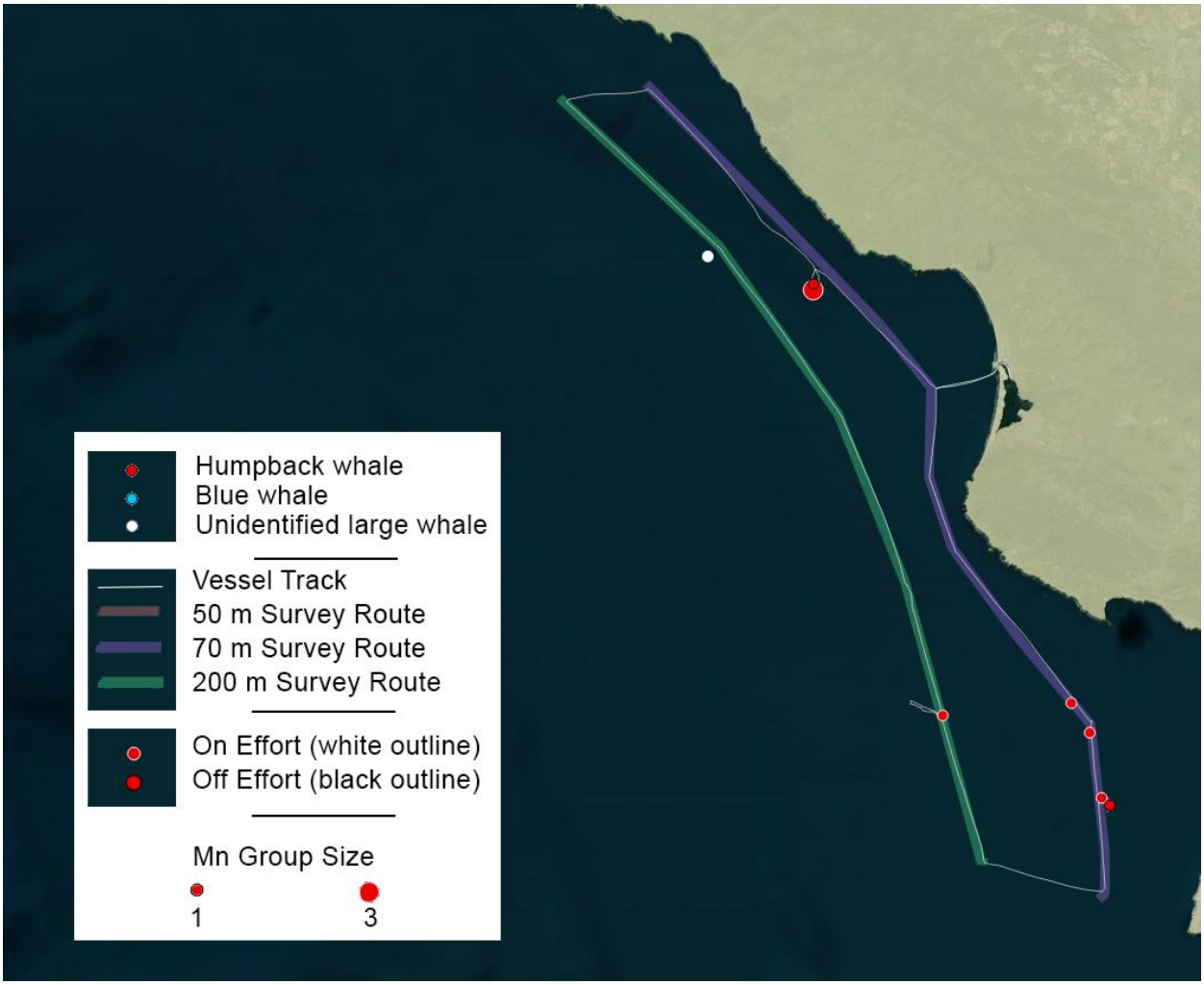


**Figure 7. Map of effort and sightings from small boat surveys on 1 November 2020 off Southern California.**

## Monterey Bay Whale Watch (MBWW) Data – *Fishing Zone 4*

- Commercial MBWW whale-watching trips have been conducted from Monterey throughout the summer and fall. Karin Forney has standardized these research trips to the same 'whales per half-day-trip' unit used in previous summaries.
- The number of documented Humpback whales has been variable during the summer and early fall (Figure 8). The most recent 7-day average is 11.2 whales per half-day-trip during October 21 –27, virtually unchanged from the 14-day average of 11.4 whales during October 14 – 27.
- The number of documented Blue whales has been low (Figure 9). During the most recent 7-day period (October 11 – 17), no Blue whales were observed. The most recent sightings were October 9 – 10, and the 14-day average for October 4 – 17 is 0.3 Blue whales per half-day trip.

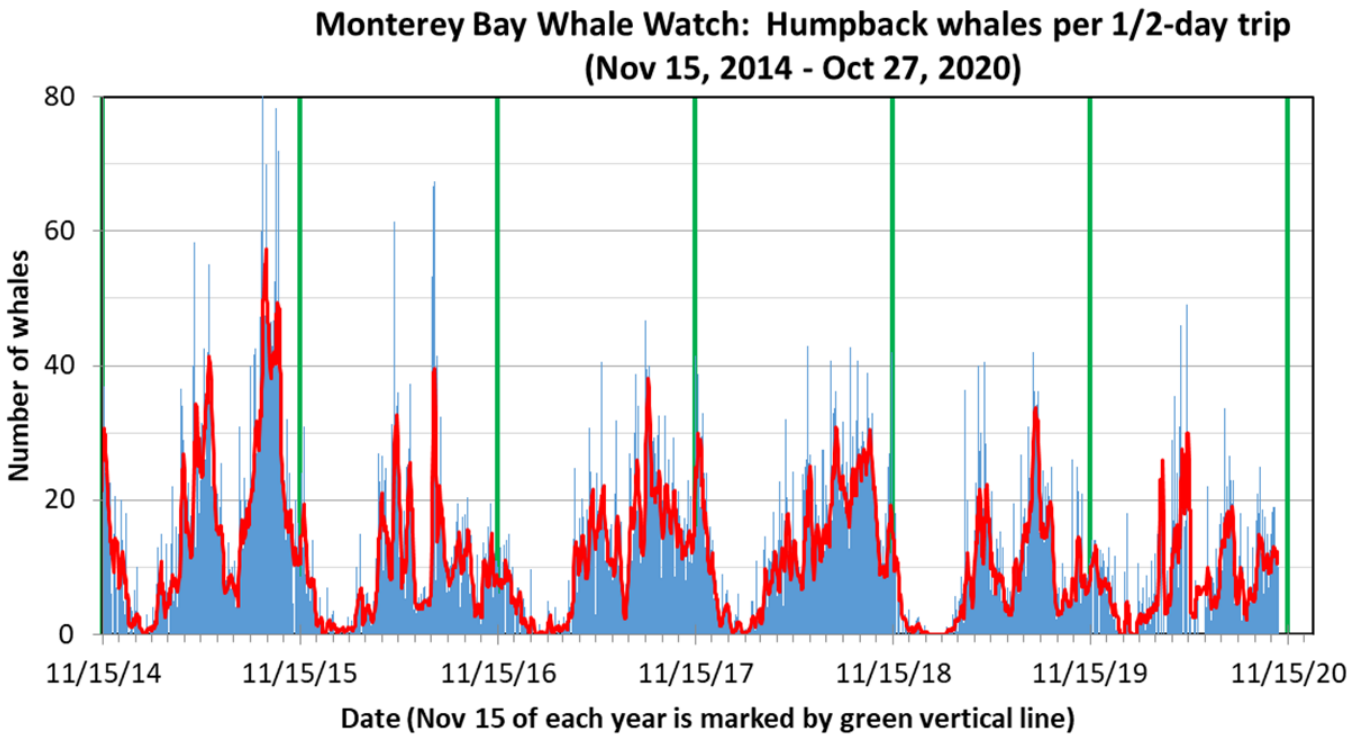


**Figure 8. Standardized number of humpback whale sightings from 15 November 2014 – 27 Oct 2020 for Monterey Bay Whale Watch. The y-axis is the number of whales per half-day trip; the thin blue bars are the average daily whale numbers, and the red line is a 7-day running average to make the patterns a bit easier to see. A vertical green line has been added at November 15 of each year for reference. Each tick mark is one month.**

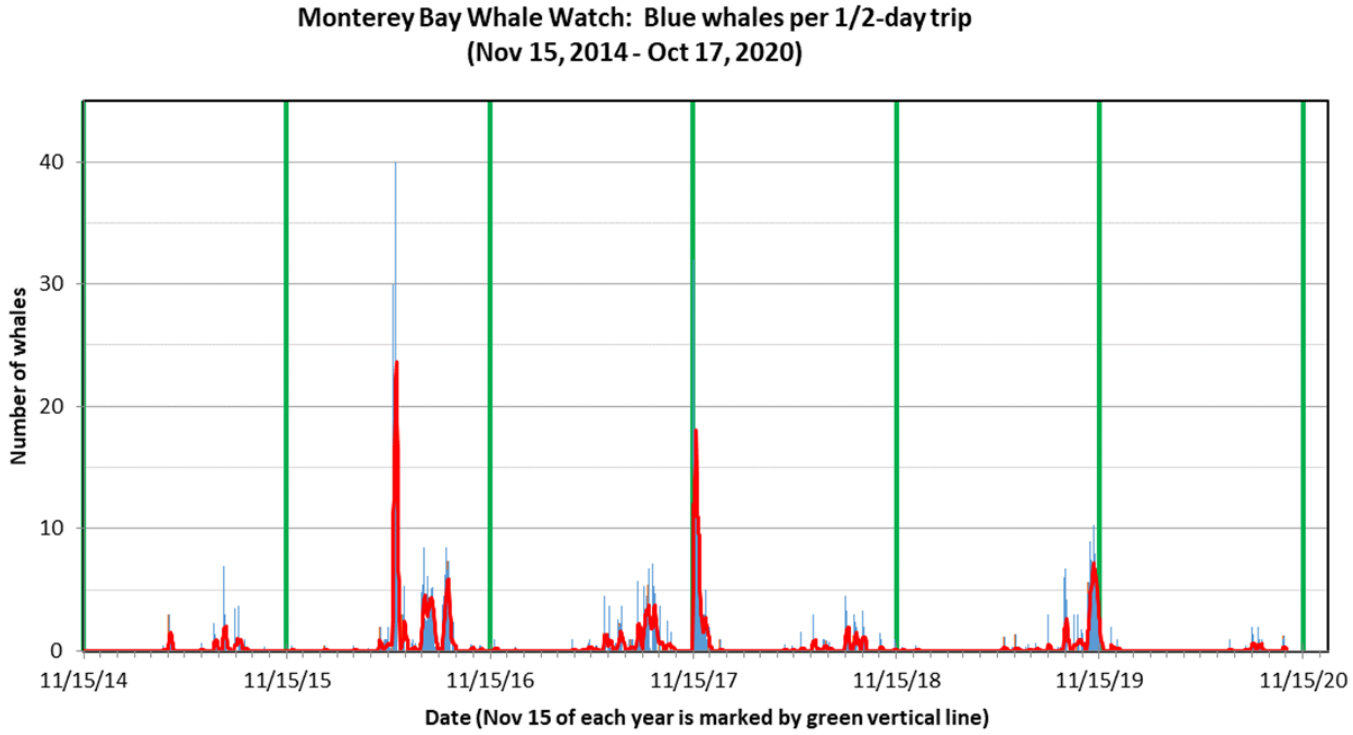


**Figure 9. Standardized number of blue whale sightings from 15 November 2014 – 17 Oct 2020 for Monterey Bay Whale Watch. The y-axis is the number of whales per half-day trip; the thin blue bars are the average daily whale numbers, and the red line is a 7-day running average to make the patterns a bit easier to see. A vertical green line has been added at November 15 of each year for reference. Each tick mark is one month.**

## CDFW Aerial Survey – *Fishing Zones 1-5*

- CDFW conducted an aerial survey on October 28, 2020 in an area extending from Piedras Blancas to Point Reyes. Aggregations of Humpback whales were observed in two primary areas off Half Moon Bay and west of Point Reyes (Fishing Zone 3). Blue whales were also observed in an area off the Big Sur coast in Fishing Zone 5. Mola mola and bait balls were observed as well from Monterey Bay north.
- CDFW conducted an aerial survey October 29, 2020 from Tomales Point to an area just north of Trinidad Head. Humpback whales were again observed in the area north of Point Reyes in Fishing Zone 3. Fog prevented surveys from Bodega Head to Little River. Surveys resumed from Little River to Trinidad Head. A large aggregation of Humpback whales was observed lunge feeding offshore of Eureka extending toward Trinidad Head in Fishing Zone 1. Blue whales were also observed feeding with the Humpback whales in Fishing Zone 1.
- Survey track lines and observations are shown in Figures 10 and 11. A total of 45 Humpback whales were observed in Fishing Zone 1, 48 Humpback whales were observed in Fishing Zone 3, and 6 Humpback whales were observed in Fishing Zone 4. A total of 3 Blue whales were observed in Fishing Zone 1 and 2 Blue whales were observed in Fishing Zone 5.

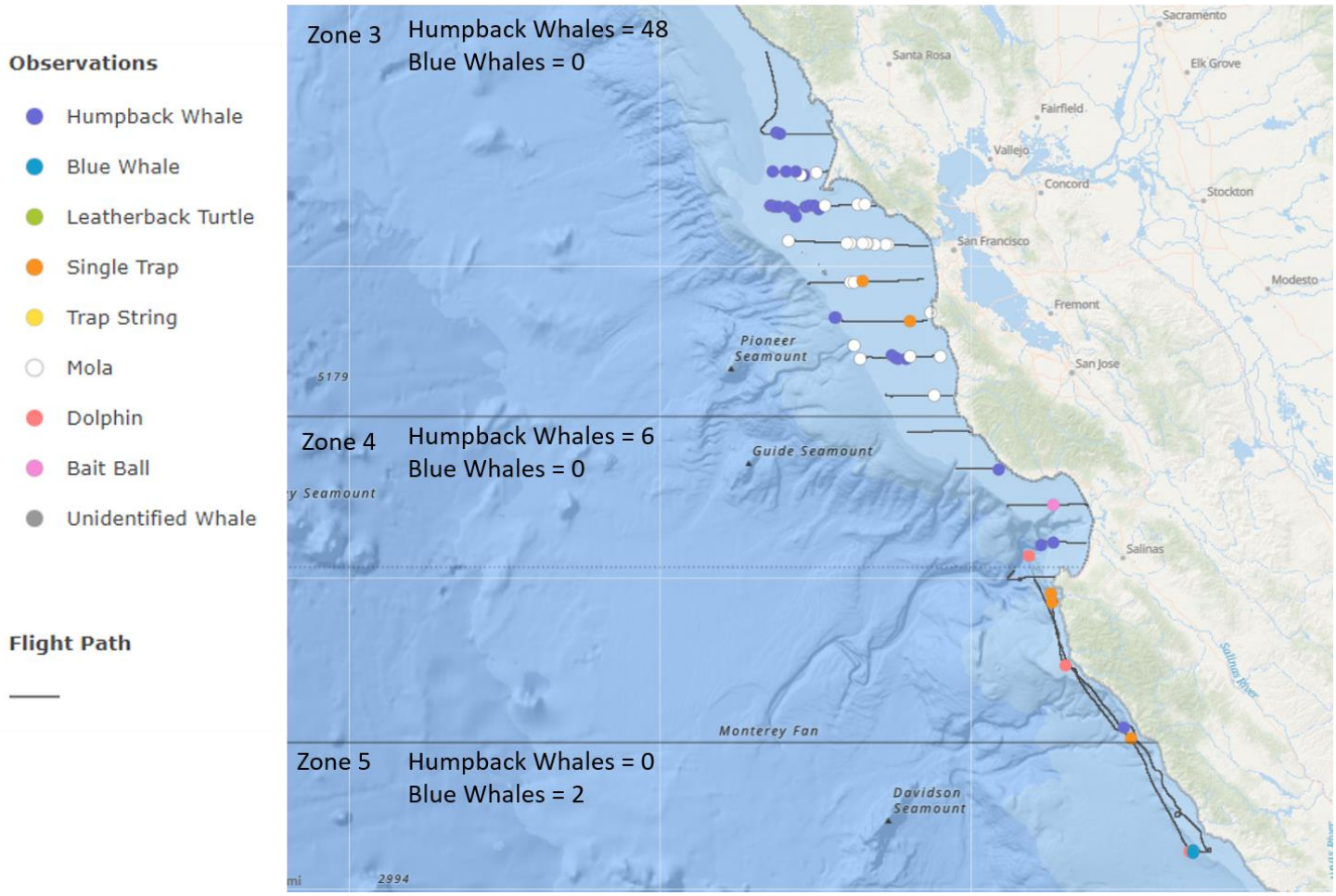


**Figure 10. Flight path and observations during CDFW aerial survey in Fishing Zones 3 - 5 on October 28 and 29, 2020. Fishing Zone 3 = 48 Humpback whales and 0 Blue whales. Fishing Zone 4 = 6 Humpback whales and 2 Blue whales. Fishing Zone 5 = 0 Humpback whales and 2 Blue whales.**

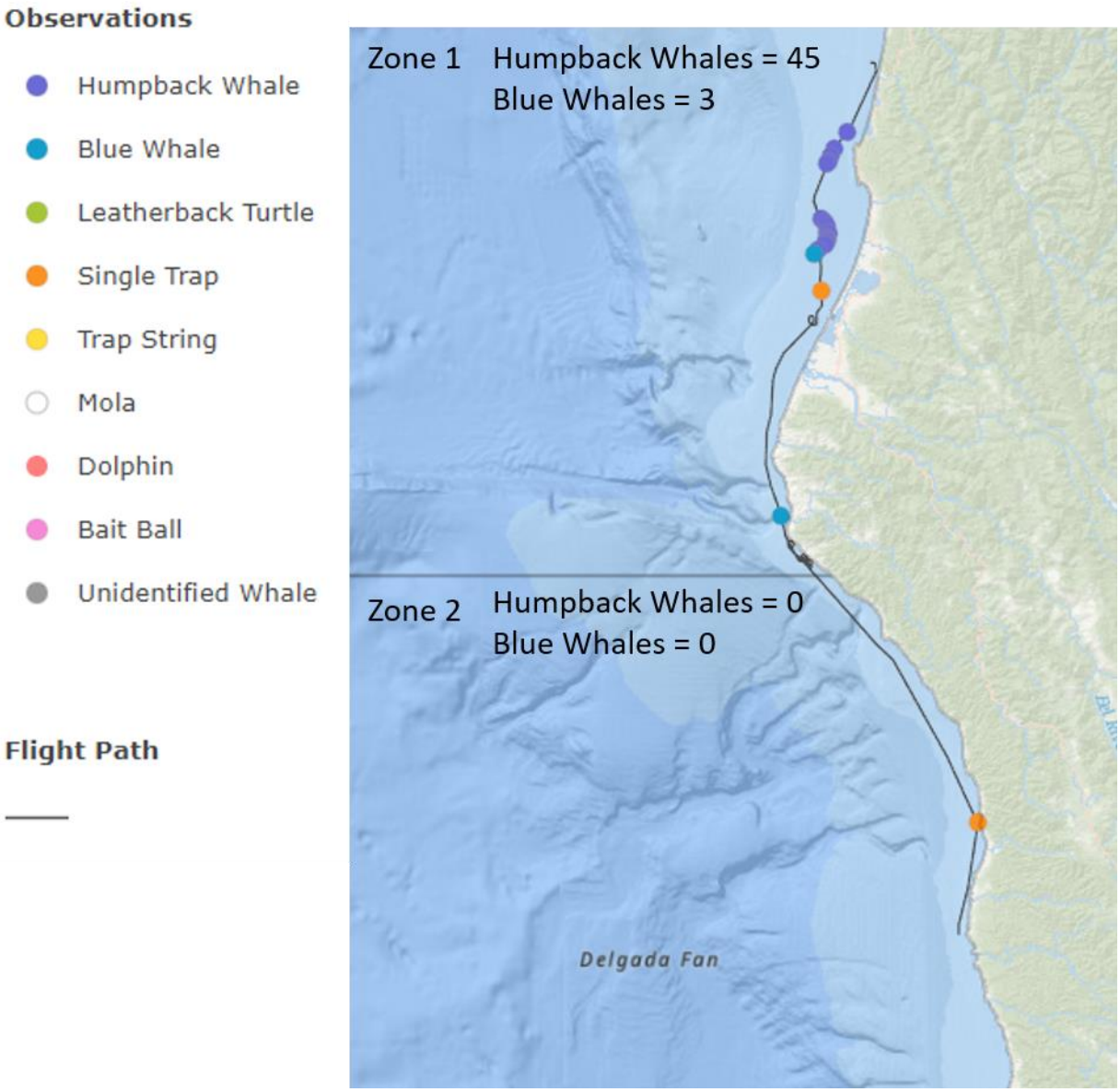


**Figure 11. Flight path and observations during CDFW aerial survey in Fishing Zones 1 and 2 on October 29, 2020. Fishing Zone 1 = 45 Humpback whales and 3 Blue whales. Fishing Zone 2 = no Humpback or Blue whales observed.**

## US Coast Guard Aerial Surveys - *Fishing Zones 3 and 4*

The US Coast Guard conducted five flights between October 20 and 30, 2020:

- October 20, 1700-1745, Point Reyes to Pillar Point (Zone 3), multiple large whales observed, species information not available
- October 22, 1200-1300, Monterey Bay (Zone 4), 21 sightings of Humpback whales in large pods, exact counts not available
- October 23, 0930-1030, Point Reyes to Bodega Bay (Zone 3), 15 sightings of Humpback whales in small groups totaling 43 individuals

- October 23, 1230-1430, Half Moon Bay (Zones 3 and 4), 1 Humpback whale sighting (2 individuals) in Zone 3; multiple sightings of Humpback whales and one Blue whale sighting in Zone 4, exact counts not available
- October 30, 1945-2015, Monterey Bay (Zone 4), 5 sightings of Humpback whales in small groups totaling 8 individuals

## MANAGEMENT CONSIDERATIONS

### Section 132.8(d)(2): Information from NOAA

- No additional information was shared.

### Section 132.8(d)(4): Total economic impact to the fleet

- CDFW will continue to engage with the fleet regarding this management consideration and provide available information for future Working Group discussions.

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

*Data provided by: Monterey Bay Whale Watch (compiled by Karin Forney, NOAA Southwest Fisheries Science Center), Scott Benson (NOAA Southwest Fisheries Science Center)*

#### Monterey Bay Whale Watch (MBWW) Data – *Fishing Zone 4*

- Compared to historical patterns (Figure 12), the most recent humpback whale numbers are above-average.
- The most recent blue whale numbers are comparable to historical patterns during the same period (Figure 13).

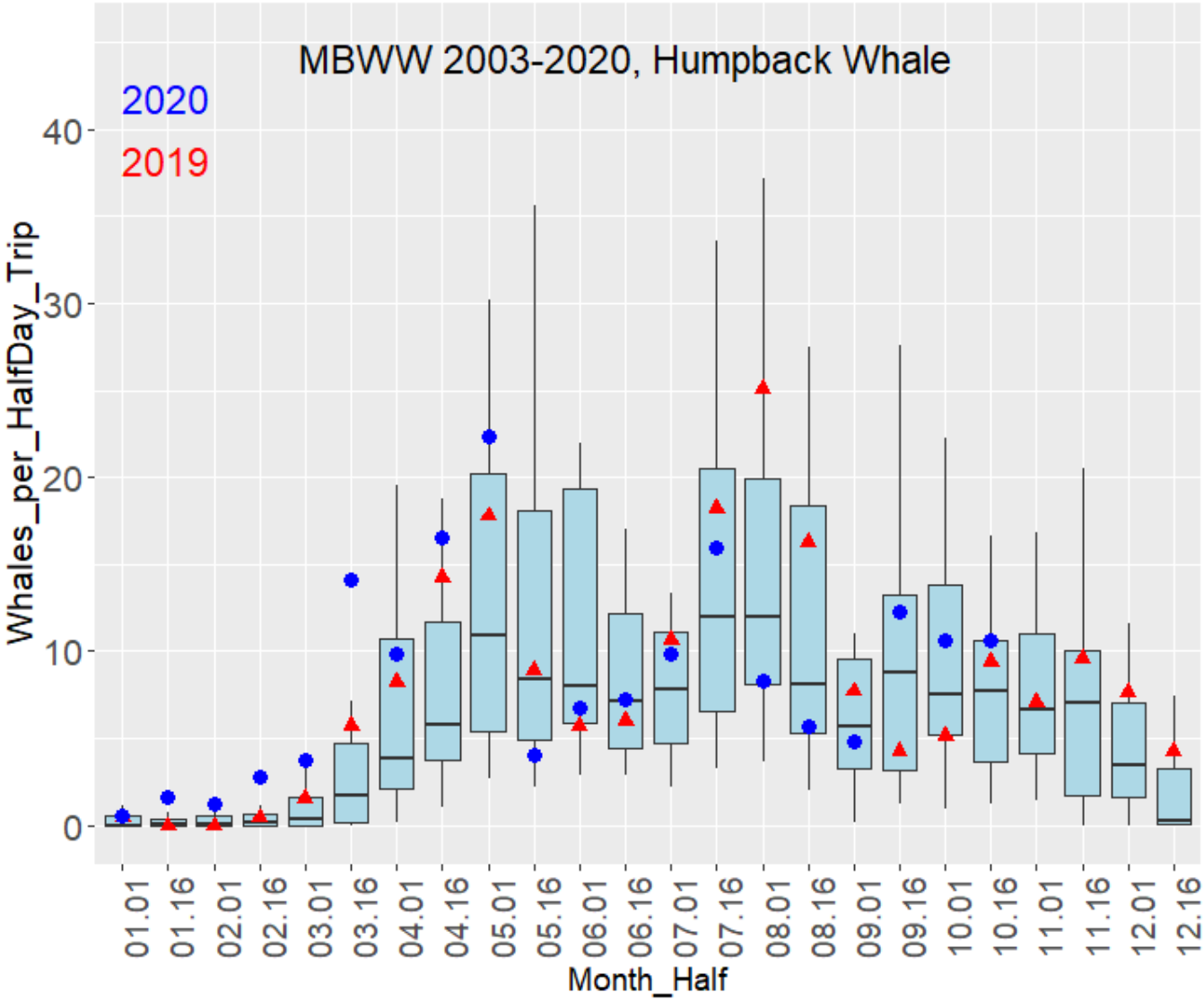


**Figure 12. Historical Monterey Bay Whale Watch data for 2003-2020, summarizing the average and variation in the number of humpback whales per half-day trip on a semi-monthly basis (1st- 15th, 16th- end of month). This boxplot follows standard statistical practice in that the black horizontal line is the average number of whales; the blue box shows the 25th -75th percentiles (i.e., half of all past whale numbers are within the blue box); the vertical lines show the range of whale numbers excluding outliers, and outliers are shown as small black dots. Values for 2019 (red triangles) and 2020 (large blue dots) are provided for reference, placing recent whale numbers in a historical context.**

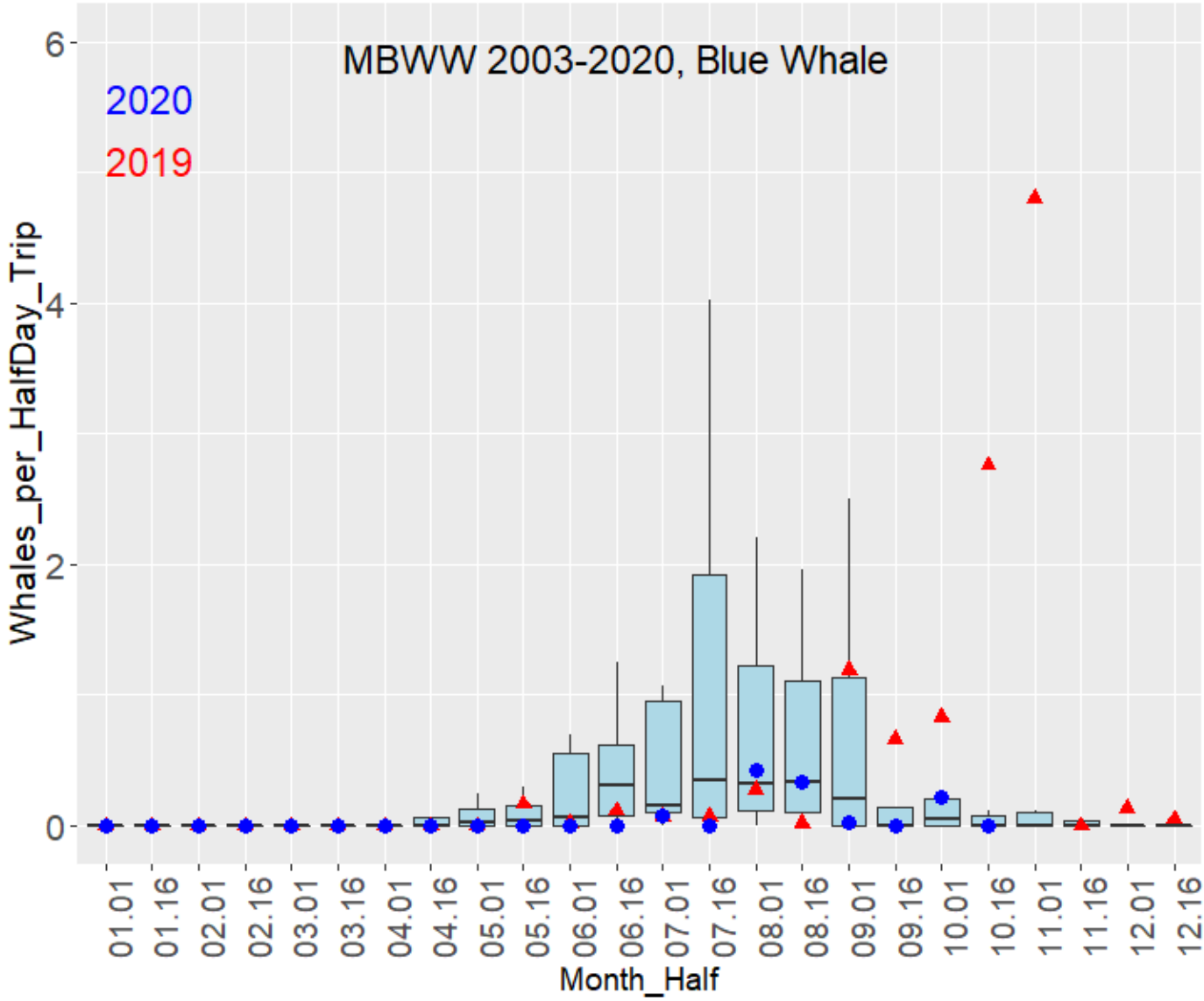


**Figure 13. Historical Monterey Bay Whale Watch data for 2003-2020, summarizing the average and variation in the number of blue whales per half-day trip on a semi-monthly basis (1st- 15th, 16th- end of month). This boxplot follows standard statistical practice in that the black horizontal line is the average number of whales; the blue box shows the 25th -75th percentiles (i.e., half of all past whale numbers are within the blue box); the vertical lines show the range of whale numbers excluding outliers, and outliers are shown as small black dots. Values for 2019 (red triangles) and 2020 (large blue dots) are provided for reference, placing recent whale numbers in a historical context.**

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

*Data provided by: California Department of Fish and Wildlife, in collaboration with commercial Dungeness crab fishermen and California Department of Public Health*

### September and October Domoic Acid and Quality Testing

- No domoic acid delays are expected for the upcoming season. All domoic acid testing sites within the Northern Management Area (north of the Sonoma/Mendocino county line) and Central Management Area (south of the Sonoma/Mendocino county line) have passed and do not require additional testing (Figure 14).

- Initial quality testing to inform the timing of the season opener in the Northern Management Area occurred on October 26-27 (Figure 15). All sampled ports (Crescent City, Trinidad, Eureka) had meat recovery levels over 24%. A second round of testing is required because samples were below the minimum poundage (300 pounds) specified in the testing protocol. Results from the second round of quality testing will be available around November 15. No quality testing is planned for ports in District 10.

**CDPH SUMMARY OF DOMOIC ACID LEVELS IN CRABS** **JULY 1, 2020 - OCTOBER 19, 2020**

| PORT | AREA | SAMPLE COLLECTION DATE | CRAB TYPE VISCERA | INDIVIDUAL SAMPLE RESULTS (FDA ACTION LEVEL >30 PPM) | | | | | | AVERAGE LEVEL (Information Only) | PERCENT OF SAMPLES EXCEEDING ACTION LEVEL |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Crescent City | George Reef | 10/8/2020 | Dungeness | <2.5 | <2.5 | <2.5 | <2.5 | 4.9 | <2.5 | 0.8 | 0% |
| | Klamath River | 10/8/2020 | Dungeness | 6.1 | 3.1 | <2.5 | <2.5 | <2.5 | <2.5 | 1.5 | 0% |
| Trinidad | Lagoons | 9/18/2020 | Dungeness | 6.8 | 3.1 | 8.0 | <2.5 | <2.5 | <2.5 | 3.0 | 0% |
| | Trinidad Head | 9/18/2020 | Dungeness | <2.5 | <2.5 | <2.5 | <2.5 | <2.5 | <2.5 | Non-Detected | 0% |
| | LP Eureka | 9/29/2020 | Dungeness | <2.5 | <2.5 | <2.5 | <2.5 | 5.0 | 3.7 | 1.5 | 0% |
| Eureka | Eel River | 9/29/2020 | Dungeness | 3.3 | 4.7 | 4.6 | <2.5 | <2.5 | <2.5 | 2.1 | 0% |
| Fort Bragg | Usal | 10/13/2020 | Dungeness | <2.5 | <2.5 | 2.9 | <2.5 | <2.5 | 3.1 | 1.0 | 0% |
| Fort Bragg | Manchester Beach | | | | | | | | | | |
| Bodega Bay | Salt Point | 9/30/2020 | Dungeness | <2.5 | <2.5 | <2.5 | 19 | <2.5 | <2.5 | 3.2 | 0% |
| | Russian River | 9/30/2020 | Dungeness | <2.5 | <2.5 | <2.5 | 12 | <2.5 | 18 | 5.0 | 0% |
| | Bodega Head | 9/20/2020 | Dungeness | <2.5 | 26 | 10 | 13 | 4.1 | <2.5 | 8.9 | 0% |
| | Point Reyes | 9/20/2020 | Dungeness | <2.5 | <2.5 | <2.5 | <2.5 | <2.5 | 26 | 4.3 | 0% |
| Half Moon Bay/ San Francisco | Duxbury Reef | 9/29/2020 | Dungeness | 46 | <2.5 | 5.6 | 3.7 | 2.6 | <2.5 | 9.7 | 17% |
| | Duxbury Reef | 10/6/2020 | Dungeness | 4.8 | 9.2 | <2.5 | 6.8 | 5.1 | 9.2 | 5.9 | 0% |
| | Duxbury Reef | 10/14/2020 | Dungeness | 4.4 | <2.5 | 2.9 | <2.5 | <2.5 | 5.8 | 2.2 | 0% |
| | HMB/Pillar Point | 10/5/2020 | Dungeness | <2.5 | <2.5 | <2.5 | <2.5 | <2.5 | <2.5 | Non-Detected | 0% |
| | Pigeon Point | 10/5/2020 | Dungeness | <2.5 | 2.7 | <2.5 | <2.5 | <2.5 | <2.5 | 0.5 | 0% |
| Monterey | Monterey Bay | 9/30/2020 | Dungeness | 5.1 | 13 | 4.6 | <2.5 | <2.5 | 8.1 | 5.1 | 0% |
| | Monterey Bay | 9/30/2020 | Rock* | 9.5 | 27 | NA | NA | NA | NA | 18.3 | 0% |
| Morro Bay | Avila Beach | | | | | | | | | | |

*Only 2 crabs available

**1 SET = 6 SAMPLES**

**Figure 14. Domoic acid testing results for Dungeness and rock crab as of October 19, 2020. See updated results.**

**2020 Preseason Coastal Dungeness crab Test Fishery Results for WA, OR and CA**

* Date is the date the pots were pulled

| | Optional Early Round | | Round 1 | | Round 2 | | Round 3 | |
|---|---|---|---|---|---|---|---|---|
| Test Area | Date* | Meat Recovery % | Date* | Meat Recovery % | Date* | Meat Recovery % | Date* | Meat Recovery % |
| **Washington** | | | | | | | | |
| Northern | no test | no test | | | | | | |
| Westport | 10/22/20 | 19.6% | | | | | | |
| Long Beach | 10/23/20 | 18.7% | | | | | | |
| **Oregon** | | | | | | | | |
| Astoria (50-A)* | no test | no test | | | | | | |
| Garibaldi (50-B)* | no test | no test | | | | | | |
| Newport North (50-C and 50-D) | no test | no test | | | | | | |
| Newport South (50-E and 50-F) | no test | no test | | | | | | |
| Coos Bay North (50-G and 50-H) | no test | no test | | | | | | |
| Coos Bay South (50-I and 50-J) | no test | no test | | | | | | |
| Port Orford (50-K)* | no test | no test | | | | | | |
| Brookings (50-L)* | no test | no test | | | | | | |
| **California** | | | | | | | | |
| Crescent City | 10/27/2020** | 25.1% | | | | | | |
| Trinidad | 10/27/2020** | 25.2% | | | | | | |
| Eureka | 10/27/2020** | 25.6% | | | | | | |
| **District 10 (not bound by Tri-State)** | | | | | | | | |
| Bodega Bay | no test | no test | | | | | | |
| San Francisco | no test | no test | | | | | | |

**below 300lb minimum poundage

**Figure 15. Quality testing results for Dungeness crab as of October 29, 2020. See updated results.**

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

*Data provided by: California Current Integrated Ecosystem Assessment*

- Prey abundance information for central California (krill, young-of-the-year anchovy, adult anchovy) is available at the Whale Entanglement Data Dashboard. Most recent values are from January 2019.

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

*Data provided by: California Current Integrated Ecosystem Assessment and NOAA National Weather Service Climate Prediction Center*

- Oceanographic indicators are available at the Whale Entanglement Data Dashboard. Most recent values are from January 2020 (mean North Pacific High), August 2020 (Oceanic Nino Index), September 2020 (Habitat Compression Index), and September 2020 (Upwelling Index, 39°).

- The most recent El Niño/Southern Oscillation Diagnostic Discussion from October 8, 2020 indicates La Niña conditions are likely to continue through the North Hemisphere winter 2020-21 (85% chance) and into spring 2021 (60% chance during February-April).

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

*Data provided by: California Department of Fish and Wildlife*

**Current Impact Score Calculation**

- All Confirmed Entanglements reported above occurred prior to the November 1, 2020 effective date of the Risk Assessment and Mitigation Program regulations (Section 132.8, Title 14, California Code of Regulations). Impact Score Calculations for each Calendar Year will be assigned for Confirmed Entanglements beginning with the 2021 calendar year.

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

*Data provided by: Briana Abrahms (University of Washington), Elliot Hazen (NOAA Southwest Fisheries Science Center), and Kathi George (The Marine Mammal Center),*

#### Whale Watch 2.0– *All Fishing Zones*

- The best Blue whale habitat predictions for October 28 2020 (Figure 16) indicate the probability of Blue whale presence is moderate in central California (Pt. Conception to Mendocino) and northern CA (Mendocino northward), but remains high in parts of southern California (e.g. south of Point Conception).

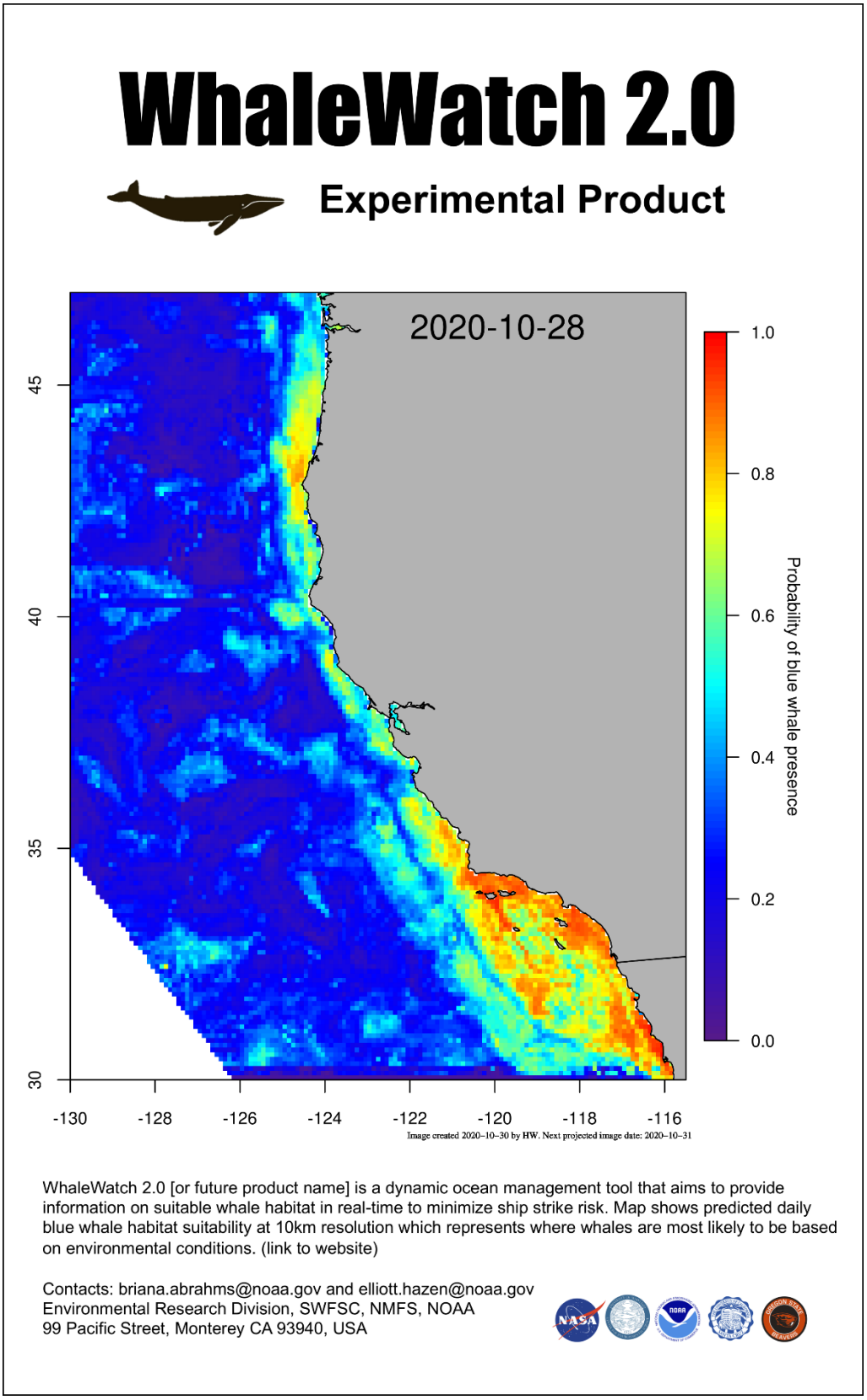


**Figure 16. WhaleWatch 2.0 map for October 28, 2020.**

## Whale Watching Vessel Solar Loggers – *Fishing Zones 3 and 4*

- Track lines for whale watching vessels participating in the solar logger project indicate a high amount of activity in the southern portion of Monterey Bay as well as some offshore

effort between Monterey and San Francisco (Figures 17-19). Only the track lines are shown; sightings and species information are not reflected in these maps.

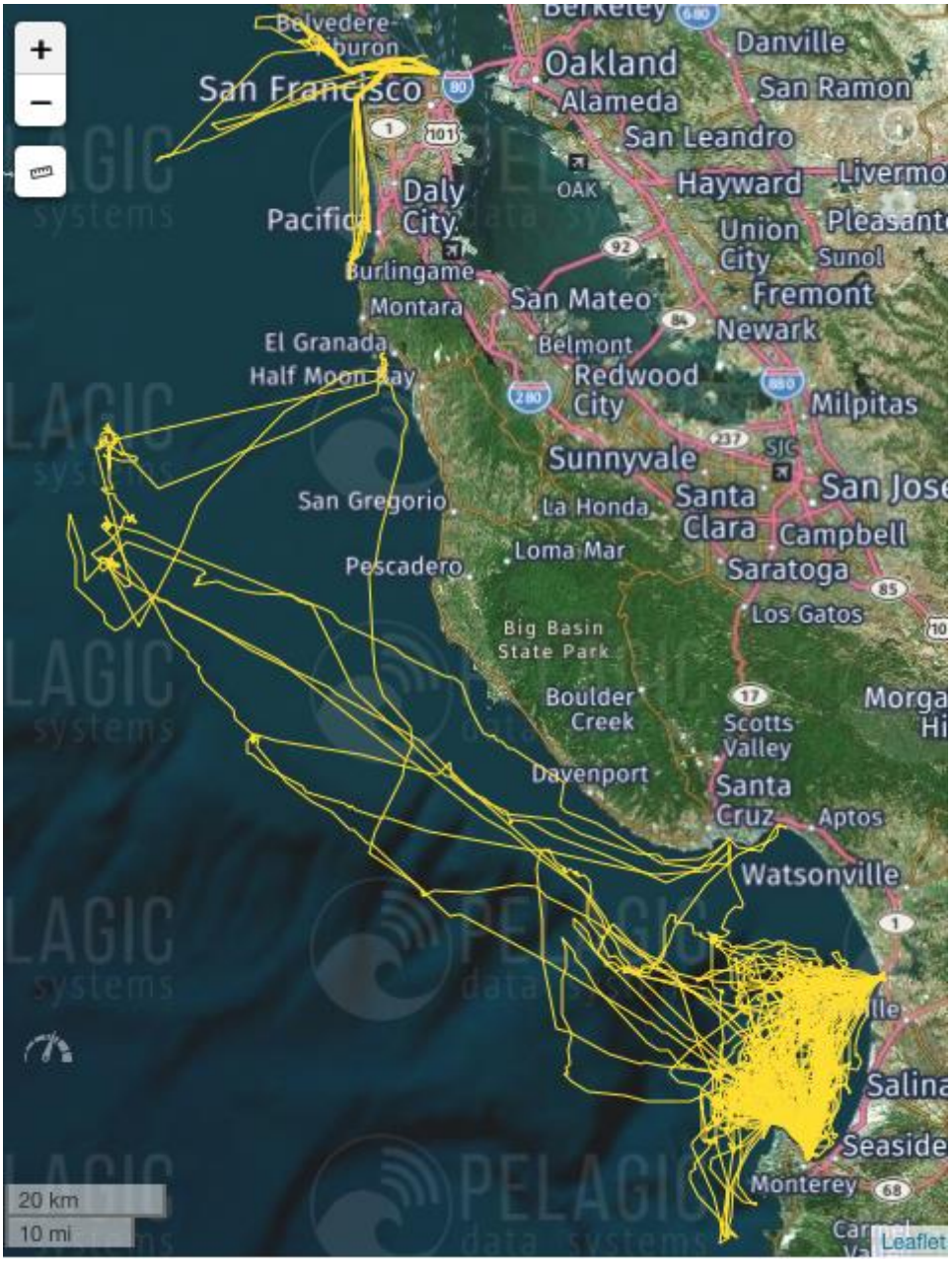


**Figure 17. Track lines for all whale watch trips from October 1-28, 2020. Sightings information is not shown.**

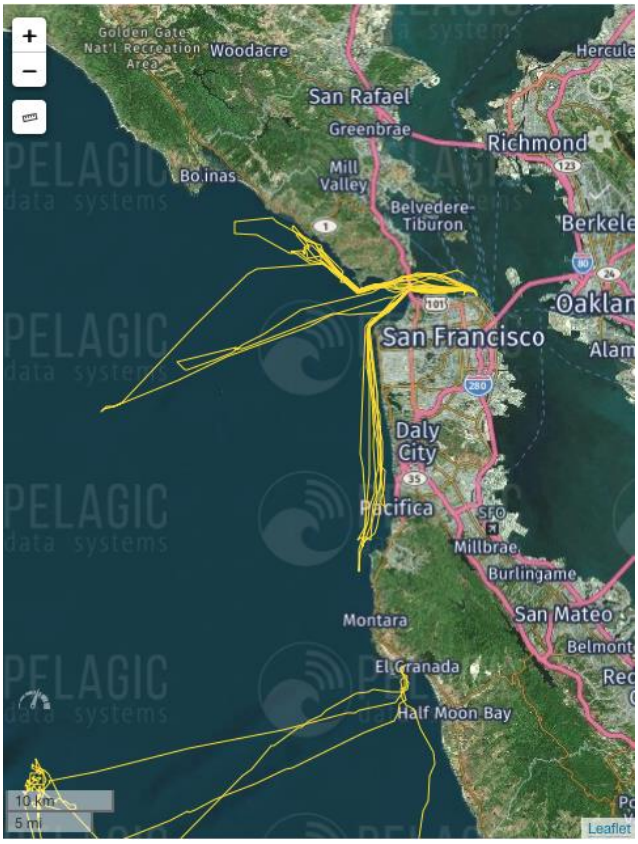


**Figure 18. Track lines for all whale watch trips from October 1-28, 2020, focused on activity near San Francisco.**

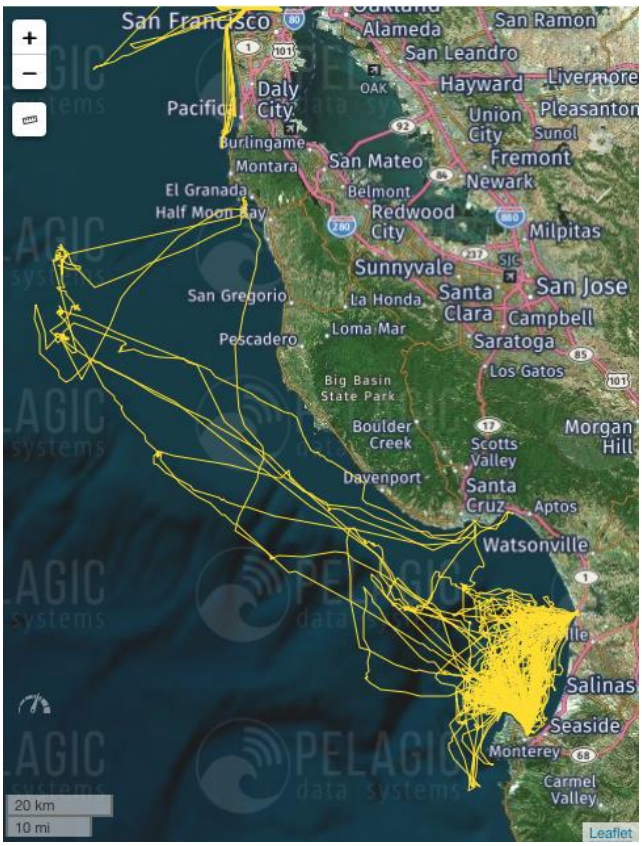


**Figure 19. Track lines for all whale watch trips from October 1-28, 2020, focused on activity near Monterey Bay.**