

2021-22 Risk Assessment: Available Data

Last updated: December 8, 2021

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TRIGGERS REQUIRING MANAGEMENT ACTION

Confirmed Entanglements: §132.8(c)(1)

There have been no updates since the last risk assessment. Please see the [November 17, 2021 Available Data document](#).

Marine Life Concentrations: §132.8(c)(1) *

Data provided by: Scott Benson (NOAA SWFSC) in collaboration with Upwell.org, Monterey Bay Whale Watch (processed by Karin Forney, NOAA SWFSC), CDFW, Cascadia Research and TMMC

Table 1. Summary of available CDFW-approved survey data for marine life concentrations for each Fishing Zone, and whether the triggers established in Section 132.8(c)(2) have been met for any Fishing Zone.

Fishing Zone	CDFW-approved survey data	Triggers attained?
Zone 1	NA	NA
Zone 2	NA	NA
Zone 3	CDFW Aerial Survey, Cascadia/TMMC surveys	Yes (Cascadia/TMMC, Nov 27 CDFW survey)
Zone 4	Monterey Bay Whale Watch, CDFW Aerial Survey, Cascadia/TMMC surveys	Yes (MBWW)
Zone 5	NA	NA
Zone 6	NA	NA

Monterey Bay Whale Watch – Fishing Zone 4

MBWW trips in Monterey Bay during the 7-day period from November 29 – December 5 documented an average of 6.3 humpback whales per half-day trip, with a peak of 10 whales observed on a single trip. This represents a continued decline from observations during the 7-day period from November 25 – December 1, with an average of 7.5 humpback whales per half-day trip and a peak of 19 whales on a single trip. One blue whale was observed by MBWW on November 13, but no additional blue whales have been seen since that date.

Leatherback Sea Turtle Telemetry

As of November 30, 2021 the adult male leatherback turtle that was captured approximately three miles northwest of Pillar Point (Half Moon Bay, CA) and tagged with a satellite-linked transmitter on October 16, 2021 remains in deep offshore waters approximately 130 miles WSW of Pt. Conception, CA (Figure 1). The turtle is moving in a southwest direction.

Male Leatherback Turtle ('Bumpy')
16 October - 30 November 2021

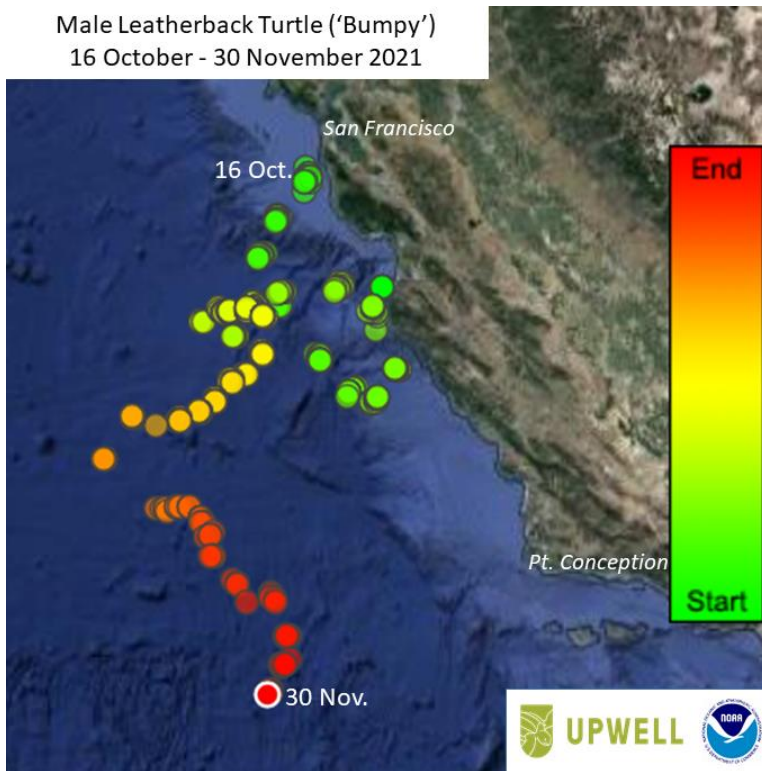


Figure 1. Telemetry track for the period October 16 - November 30, 2021 of an adult male leatherback turtle tagged off Half Moon Bay. The transmitter is reporting approximately every 24 hrs.

California Department of Fish and Wildlife Aerial Survey – *Fishing Zones 3 and 4*

On November 27, 2021 CDFW flew a series of east-west transect lines between Bodega Bay and Point Pinos, covering the southern portion of Fishing Zone 3 and the northern portion of Fishing Zone 4 (Figure 2). A total of 23 humpback whales were seen in Fishing Zone 3 and a total of three humpback whales were seen in Fishing Zone 4. No blue whales were seen. All humpback whales observed were located in water depths between 50 and 100 m.

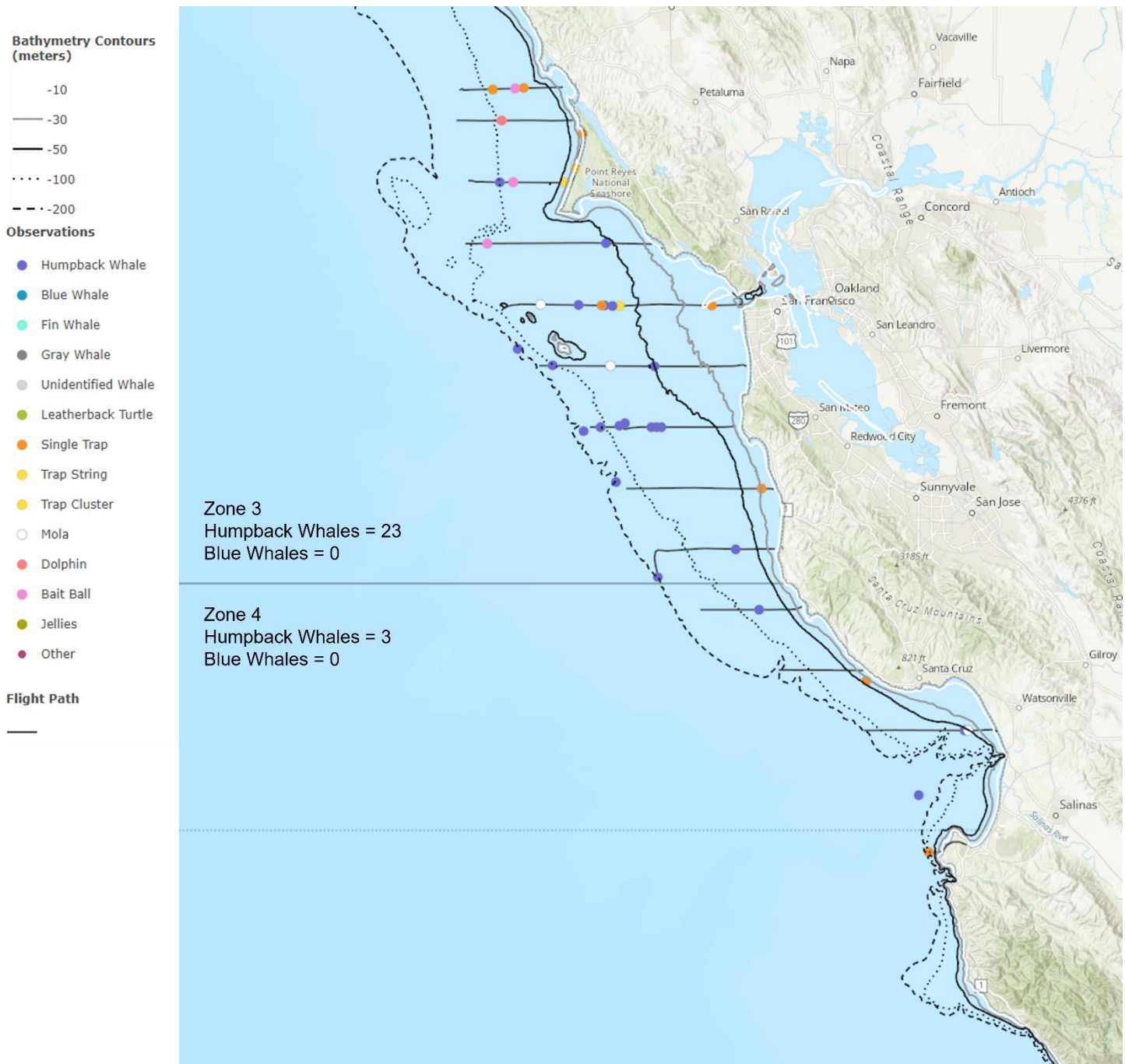
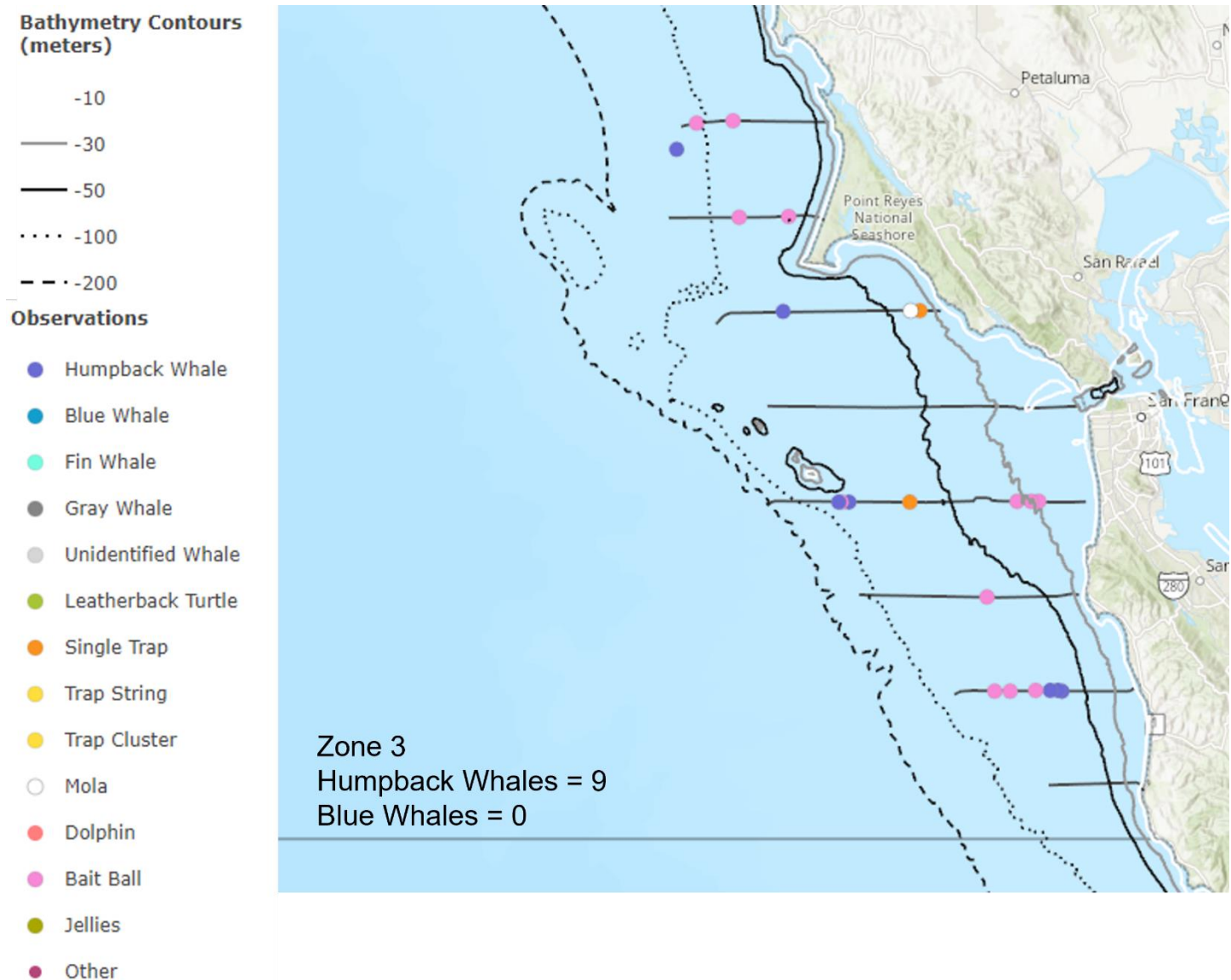


Figure 2. Map showing track lines and observations from CDFW aerial survey of Fishing Zones 3 and 4 on November 27, 2021. Survey information is overlaid onto contours showing the 10m, 30m, 50m, 100m, and 200m bathymetry lines.

CDFW flew another set of east-west transect lines between Point Reyes and Pescadero (southern half of Fishing Zone 3) on December 2, 2021 (Figure 3). A total of nine humpback whales were observed and were generally in waters between 50 and 100 m depth.



Flight Path

Figure 3. Map showing track lines and observations from CDFW aerial survey of Fishing Zone 3 on December 2, 2021. Survey information is overlaid onto contours showing the 10m, 30m, 50m, 100m, and 200m bathymetry lines.

Cascadia Research and TMMC – Fishing Zones 3 and 4

Additional surveys have been conducted since those shared in the [November 17, 2021 Available Data document](#). Multiple small boat surveys were conducted between November 8 and December 2, 2021 which in total covered most of Zone 4 and the southern portion of Zone 3. The two surveys conducted on December 2, 2021 (Figure 5) sighted nine humpback whales in Fishing Zone 4 (41 nmi of survey coverage) and 60 humpback whales in Fishing Zone 3 (223 nmi of survey coverage).

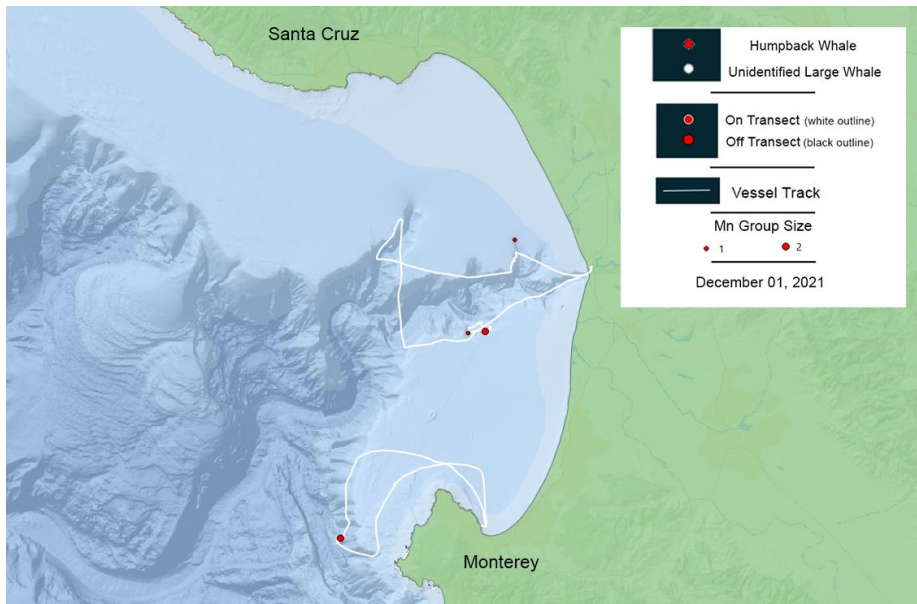


Figure 4. Small vessel survey tracks and humpback whale sightings from December 1, 2021.

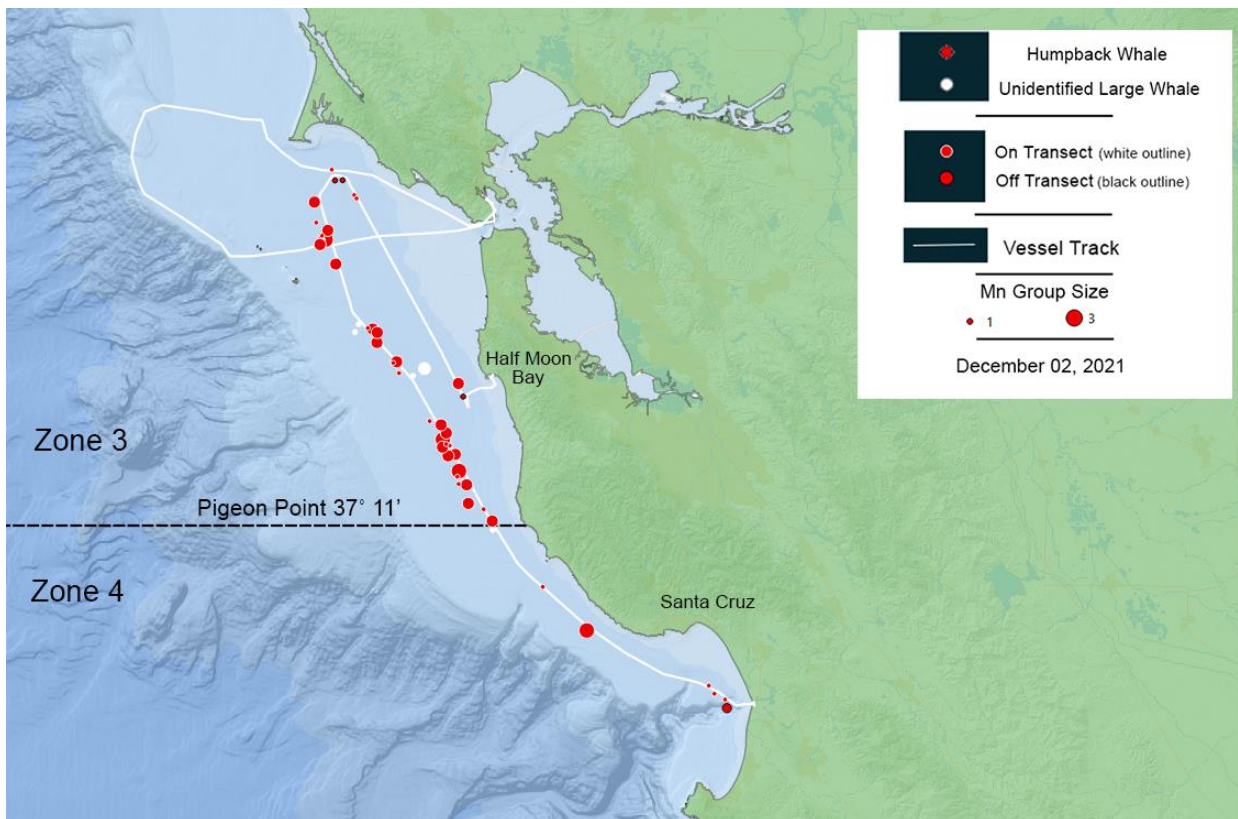


Figure 5. Tracks and sightings from two surveys on December 2, 2021 one out of San Francisco (TMMC) and the other by Cascadia and MLS from Moss Landing to Half Moon Bay.

An additional survey conducted on December 3, 2021 documented a total of 14 humpback whales between Half Moon Bay and Pigeon Point (Fishing Zone 3) and a total of 12 humpback whales between Pigeon Point and Moss Landing (Fishing Zone 4; Table 2 and Figure 6).

Table 2. Summary of sightings from surveys conducted on December 3, 2021 in Fishing Zones 3 and 4. Totals include both on effort (along the 200m transect line) and off-effort sightings.

Area (Fishing Zone)	Hours	NMi	Humpback	Unid Large Cetacean
Half Moon Bay - Pigeon Point (3)	3.2	40.9	14	2
Pigeon Point - Moss Landing (4)	4.8	63.3	12	0

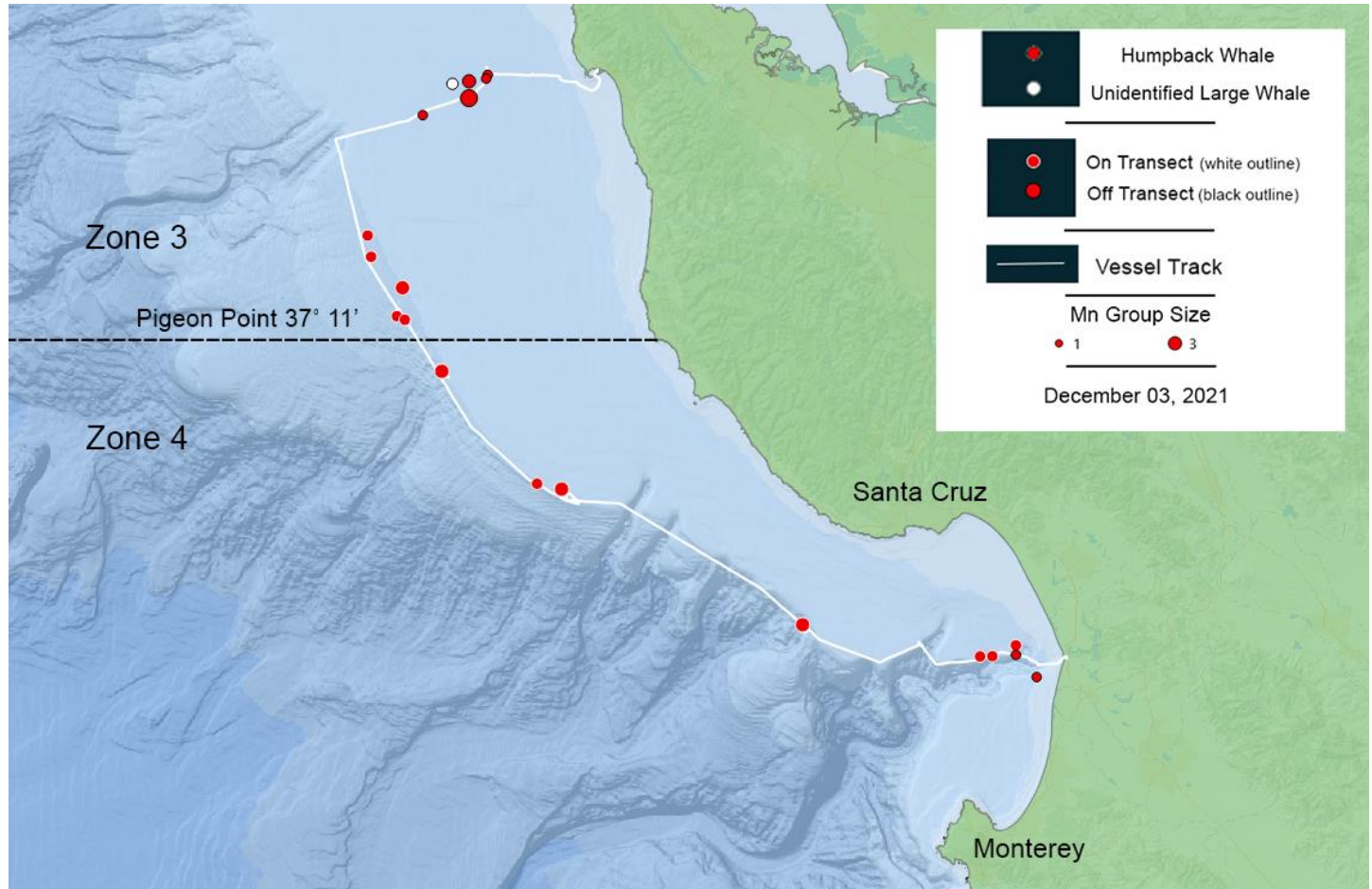


Figure 6. Tracks and sightings from December 3, 2021 survey between Half Moon Bay and Moss Landing.

MANAGEMENT CONSIDERATIONS

Information from NOAA: §132.8(d)(2)

No additional information was provided for this assessment.

Effectiveness of management measures: §132.8(d)(3)

Data provided by: CDFW

As further detailed in the [December 6, 2021 CDFW Initial Assessment](#), CDFW has evaluated effectiveness of the management actions specified in §132.8(e) as follows:

- Alternative Gear: Not applicable for this assessment; only allowed for closures occurring on or after April 1.
- Fishery Closure: Effective and appropriate for Fishing Zone 3, effective but unnecessarily restrictive for Fishing Zone 4.
- Depth Constraint: Not effective for Fishing Zone 3, may be effective for Fishing Zone 4.
- Vertical Line/Gear Reduction: Not sufficiently effective for Fishing Zone 3, may be effective for Fishing Zone 4.
- Fleet Advisory: Not sufficiently effective for Fishing Zones 3 or 4.

For equally effective measures, total economic impact to the fleet: §132.8(d)(4)

Data provided by: CDFW

The RAMP regulations specify that, when deciding amongst multiple management measures which would equivalently reduce entanglement risk, CDFW shall consider total economic impact to the fleet and fishing communities. As described in the Initial Assessment, as of December 6, 2021 CDFW has not identified multiple management measures which would equivalently reduce entanglement risk, so this consideration does not apply.

Historic patterns and current Actionable Species migration: §132.8(d)(6) and (11) *

Data provided by: Monterey Bay Whale Watch (processed by Karin Forney, NOAA SWFSC), Cascadia Research, Karen Grimmer (Monterey Bay National Marine Sanctuary) and Jaime Jahncke (Point Blue Conservation Science)

Monterey Bay Whale Watch – Fishing Zone 4

The semi-monthly average number of whales-per-half-day-trip during the second half of November is slightly above average for this time of year compared to the overall 2003-2020 record (Figure 7). The lack of blue whale sightings is largely consistent with their historical seasonal migration patterns during late summer and fall (Figure 8).

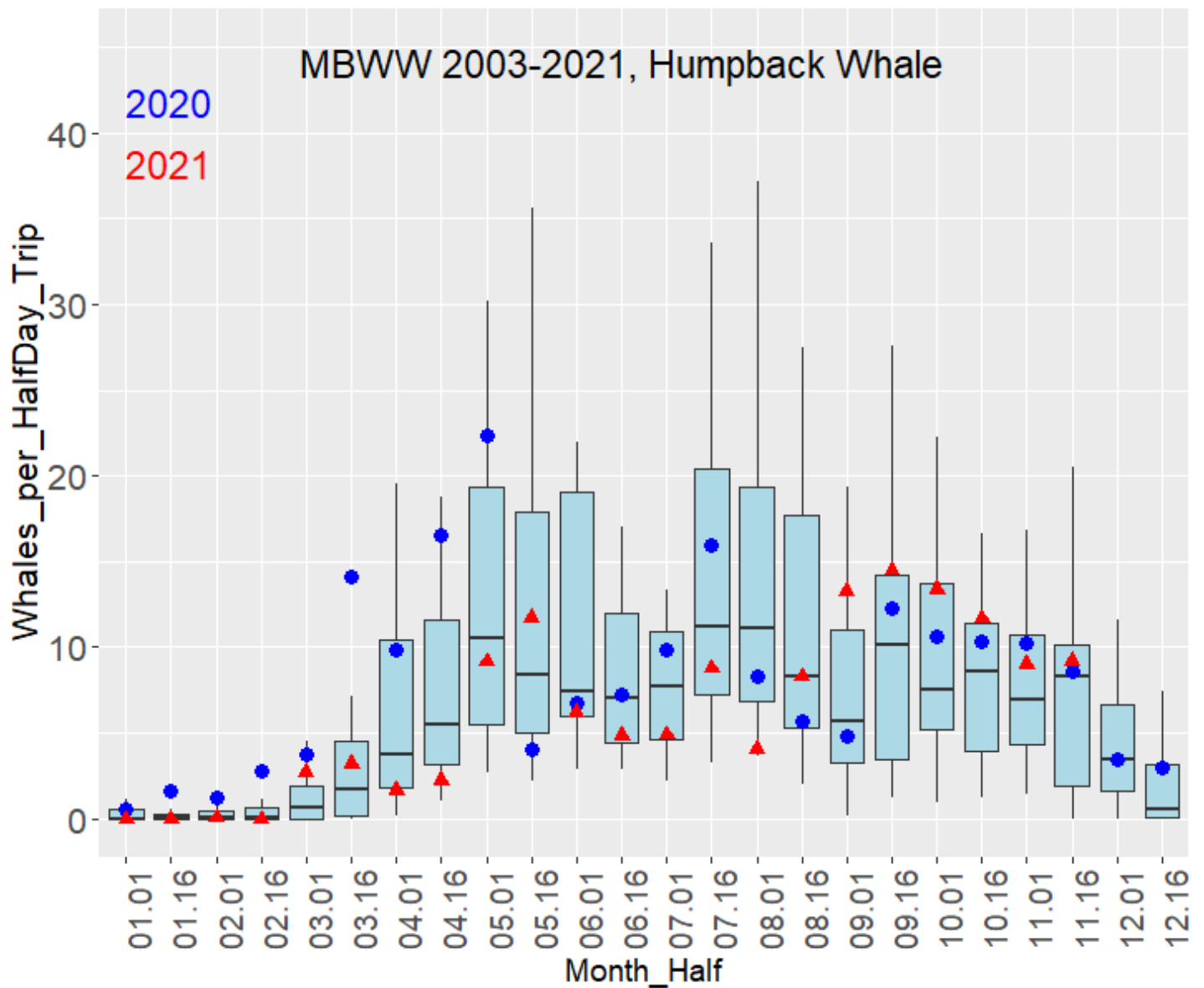


Figure 7. Historical Monterey Bay Whale Watch data for 2003-2021, summarizing the average and variation in the number of humpback whales per half-day trip on a semi-monthly basis (1st- 15th, 16th- end of month). This boxplot follows standard statistical practice in that the black horizontal line is the 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 2020 (large blue dots) and 2021 (red triangles) and are provided for reference, placing recent whale numbers in a historical context.

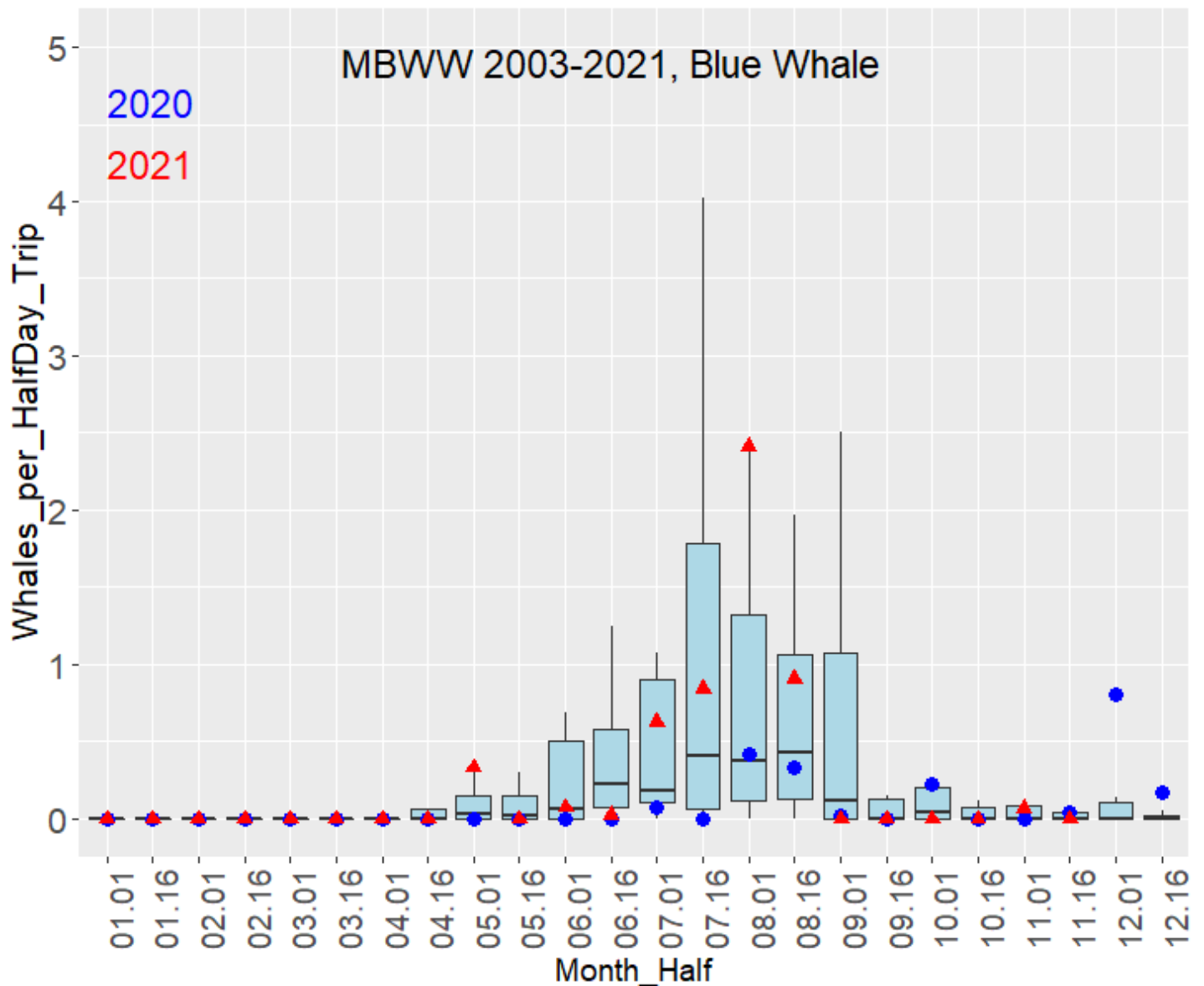


Figure 8. Historical Monterey Bay Whale Watch data for 2003-2021, summarizing the average and variation in the number of blue whales per half-day trip on a semi-monthly basis (1st- 15th, 16th- end of month). This boxplot follows standard statistical practice in that the black horizontal line is the average 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 2020 (large blue dots) and 2021 (red triangles) and are provided for reference, placing recent whale numbers in a historical context.

Breeding Ground Reports

Sightings and identification of humpback whales in Mexico during late October and November confirmed many humpback whales had already migrated from California to their wintering grounds. Of 19 humpback whales identified in Mexico, 18 had been documented feeding in previous seasons in California and 10 of these were documented feeding in California this year as late as October 10.

Preliminary photo ID analysis also indicates that some of the humpback whales seen in Fishing Zones 3 and 4 during recent weeks may be whales which foraged in waters off Oregon and

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Washington earlier this year, and are continuing to forage in central California on route to their winter breeding grounds.

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

- 22 humpback whales were reported for the Greater Farallones National Marine Sanctuary (Fishing Zone 3) over the 7-day period ending on December 6, 2021 (Figure 9). No blue whales were sighted during this period. Observations were recorded by trained observers on the Farallon Islands and reported through the Spotter/Whale Alert app.
- 30 humpback whales were reported for the Monterey Bay National Marine Sanctuary (Fishing Zone 4) over the same 7-day period (Figure 10). No blue whales were sighted during this period. Observations were reported by trained naturalists aboard Monterey Bay Whale Watch and Marine Life Studies.
- One humpback whale was reported for the Channel Islands National Marine Sanctuary (Fishing Zone 6) over this period (Figure 11). No blue whales were sighted during this period. Observations were reported by trained naturalists from the Channel Islands National Marine Sanctuary and National Park Service.

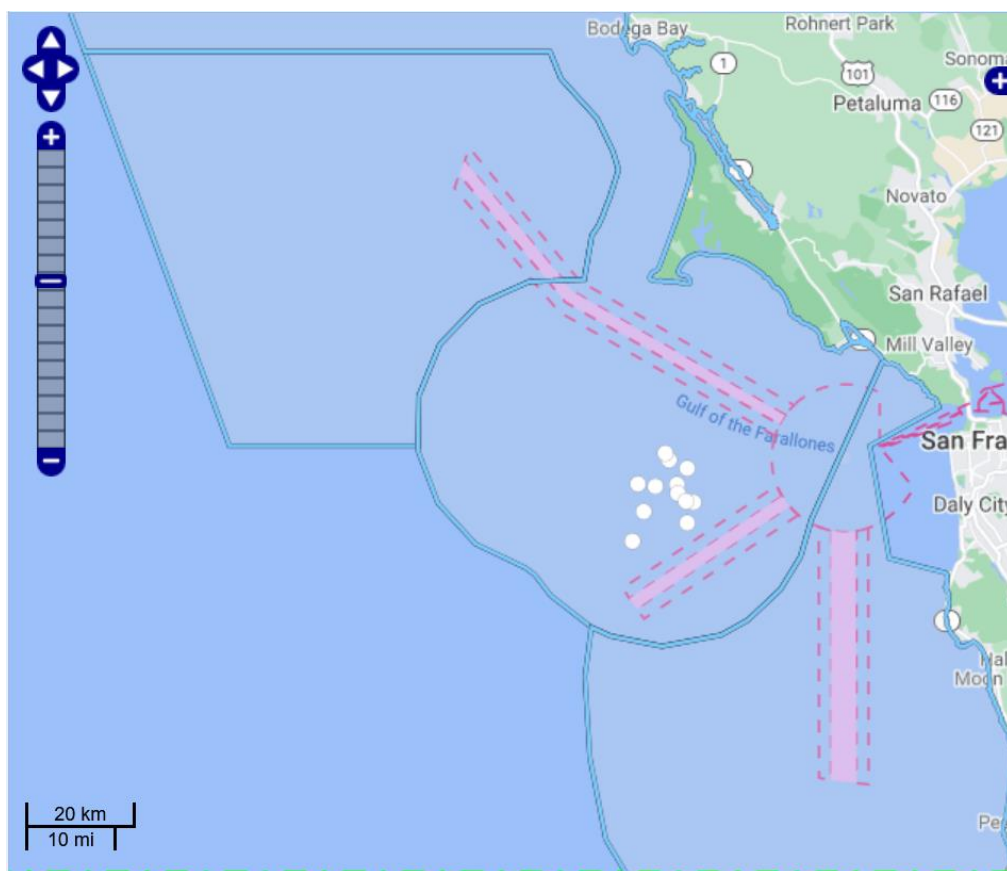


Figure 9. Location of 22 humpback whale sightings in Fishing Zone 3. Reporting locations are represented by white circles. A given report may or may not represent multiple individuals. [View updated information.](#)

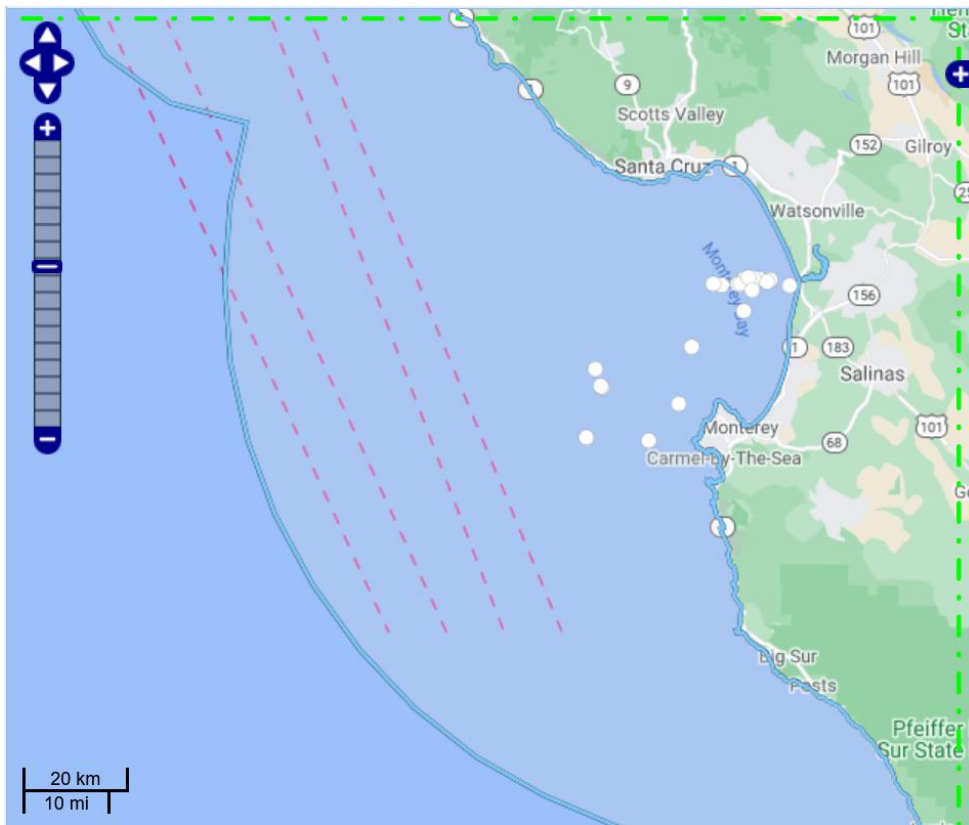


Figure 10. Location of 30 humpback whale sightings in Fishing Zone 4. Reporting locations are represented by white circles. A given report may or may not represent multiple individuals. [View updated information.](#)

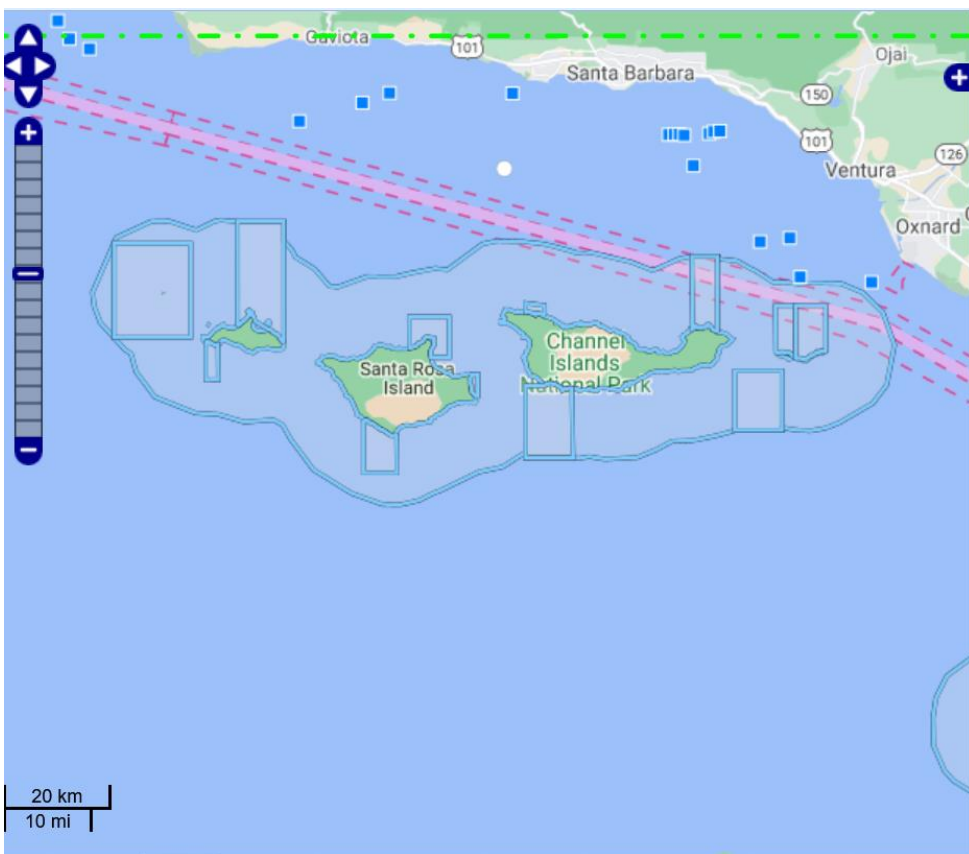


Figure 11. Location of one humpback whale sighting in Fishing Zone 6. Reporting locations are represented by white circles. A given report may or may not represent multiple individuals. [View updated information.](#)

Fishing Season dynamics: §132.8(d)(7)

Data provided by: California Department of Public Health, CDFW

Domoic Acid and Quality Testing

- The last remaining location within Zone 3 at [Russian River was cleared for domoic acid](#) after two consecutive retests for samples collected on November 11 and 18, 2021 showed all crab below federal action level. [CDPH lifted their health advisory on November 29, 2021](#).
- Quality test results for crab collected on November 15 from the three northern ports (Crescent City, Trinidad and Eureka) passed Tri-State meat quality criteria of 24% (no rounding). The results are posted on [PSMFC's crab website](#). These results allowed the northern California commercial fishery (Fishing Zones 1 and 2) to open on December 1, 2021.

2021-22 Season: Marine Landings Data System and Bi-Weekly Fishing Activity Reports (All Fishing Zones)

The commercial fishery in Fishing Zones 5 and 6 opened on November 15, 2021 and Fishing Zones 1 and 2 opened on December 1, 2021. At this time, low commercial fishing activity prevents CDFW from sharing summaries of information from either the Marine Landings Data System or Bi-Weekly Fishing Activity Reports. These summaries will be included in future Available Data documents.

Distribution and abundance of key forage: §132.8(d)(8)

Data provided by: CDFW, Cascadia Research and TMMC

CDFW Aerial Survey – Fishing Zone 3

During the November 27, 2021 survey, bait balls were observed off Bodega Bay and Point Reyes in waters between 50 and 100 m deep, and two molas were observed near the Farallon Islands. During the December 2, 2021 survey, numerous bait balls were observed across a range of depths throughout the survey area.

Cascadia Research and TMMC – Fishing Zones 3 and 4

While overall sightings have dropped, humpback whales continue to feed mostly on fish at a variety of water depths.

Ocean conditions: §132.8(d)(9)

Updated information was not requested for this management consideration; please see the [November 17, 2021 Available Data document](#).

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

There have been no updates since the last risk assessment. Please see the [November 17, 2021 Available Data document](#).