

2021-22 Risk Assessment: Available Data

Last updated: April 11, 2022

Risk Assessments were conducted on March 25, 2022 and April 4, 2022, and this assessment's focus is on the recreational crab fishery. Therefore, CDFW has prepared an abbreviated version of the typical Available Data document which includes information related to current and anticipated marine life concentrations. For relevant context regarding other management considerations, please see the [March 22, 2022 Available Data document](#).

Pursuant to Section 29.80(c)(7)(A), Title 14, California Code of Regulations, management actions in the recreational crab fishery are triggered only by Marine Life Concentrations, and not by Confirmed Entanglements. For the most recent analysis of confirmed entanglements affecting the commercial Dungeness crab fishery, please see the [April 4, 2022 Available Data document](#).

TRIGGERS REQUIRING MANAGEMENT ACTION

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

Data provided by: CDFW, Karin Forney (NOAA), John Calambokidis (Cascadia Research), Monterey Bay Whale Watch (processed by Karin Forney, NOAA)

Table 11. 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	CDFW Aerial Survey	No
Zone 2	CDFW Aerial Survey	No
Zone 3	CDFW Aerial Survey, NOAA Aerial Survey	Yes
Zone 4	NOAA Aerial Survey, Cascadia Vessel Survey, MBWW	Yes
Zone 5	NA	NA
Zone 6	NA	NA

CDFW Aerial Survey (*Fishing Zones 1-3*)

CDFW flew a series of zig-zag transects between Bodega Bay and the CA/OR border on April 7, 2022 (Figures 1-2). No humpback or blue whales were observed during the flight. Dolphins were observed in Fishing Zones 1 and 2, and five gray whales were observed in Fishing Zone 2. A total of 85 traps were observed in Fishing Zone 1, 129 traps were observed in Fishing Zone 2, and 27 traps were observed in Fishing Zone 3.

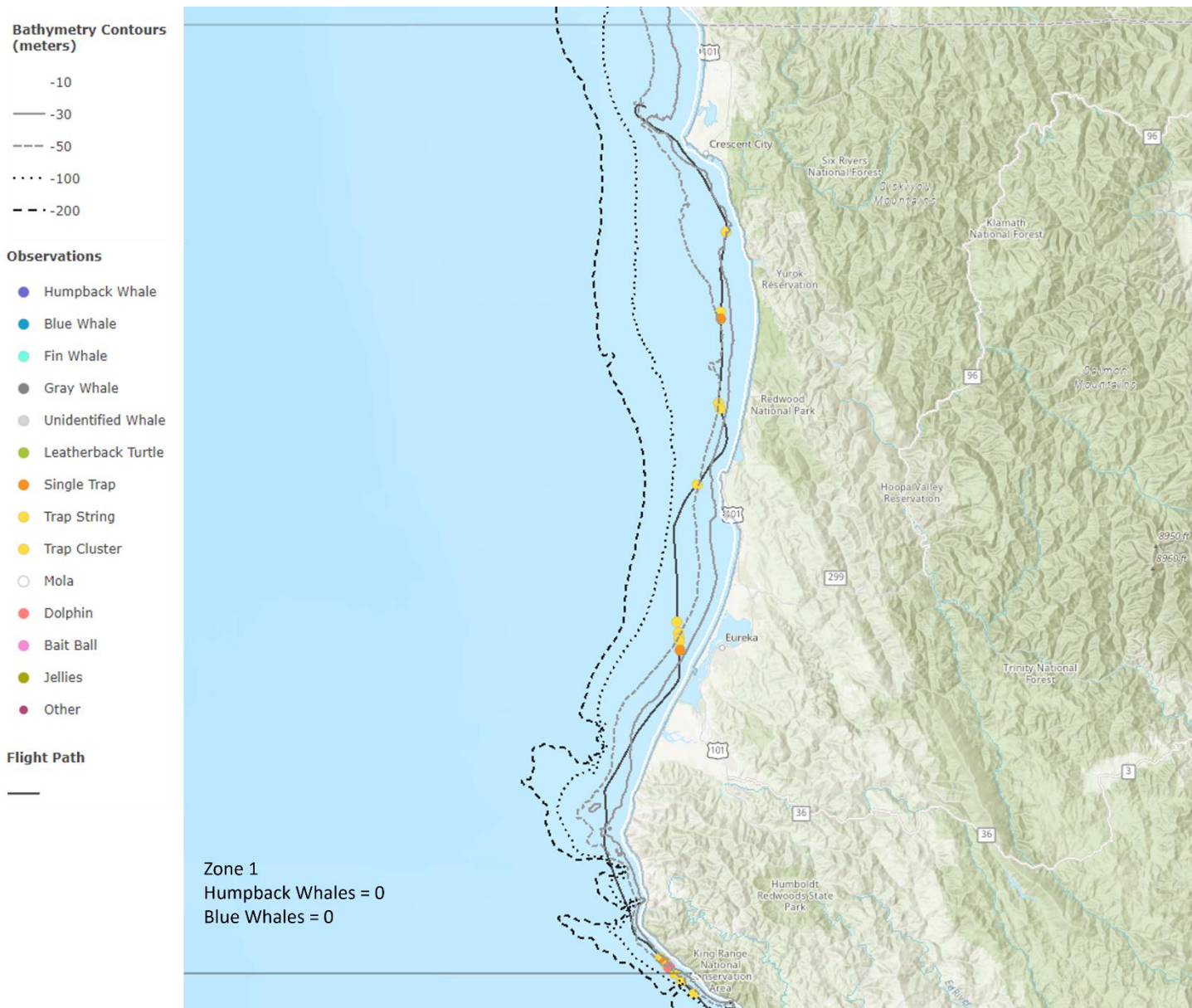


Figure 1. Map showing track lines and observations from CDFW aerial survey of Fishing Zone 1 on April 7, 2022. Survey information is overlaid onto contours showing the 10m, 30m, 50m, 100m, and 200m bathymetry lines.

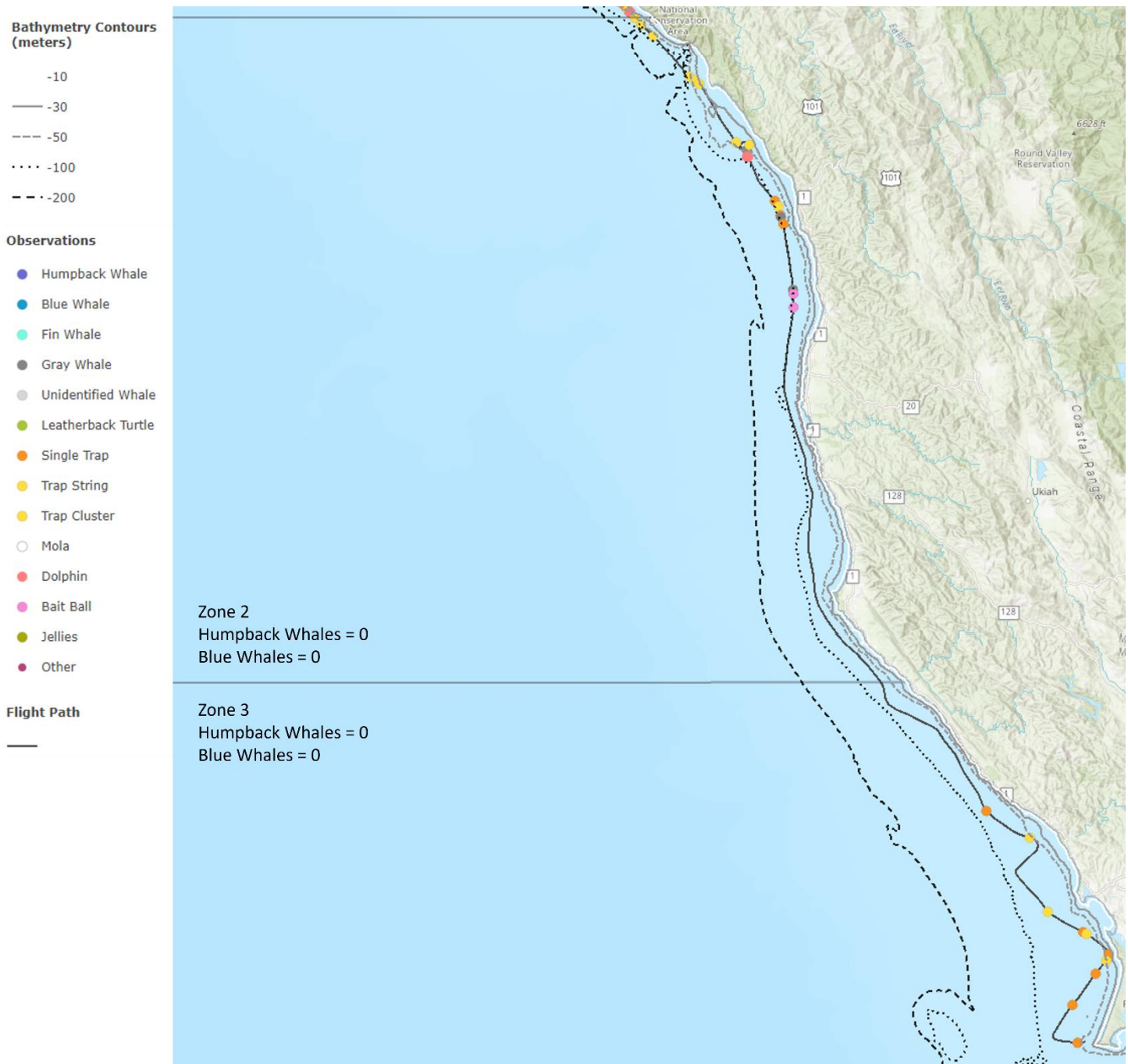


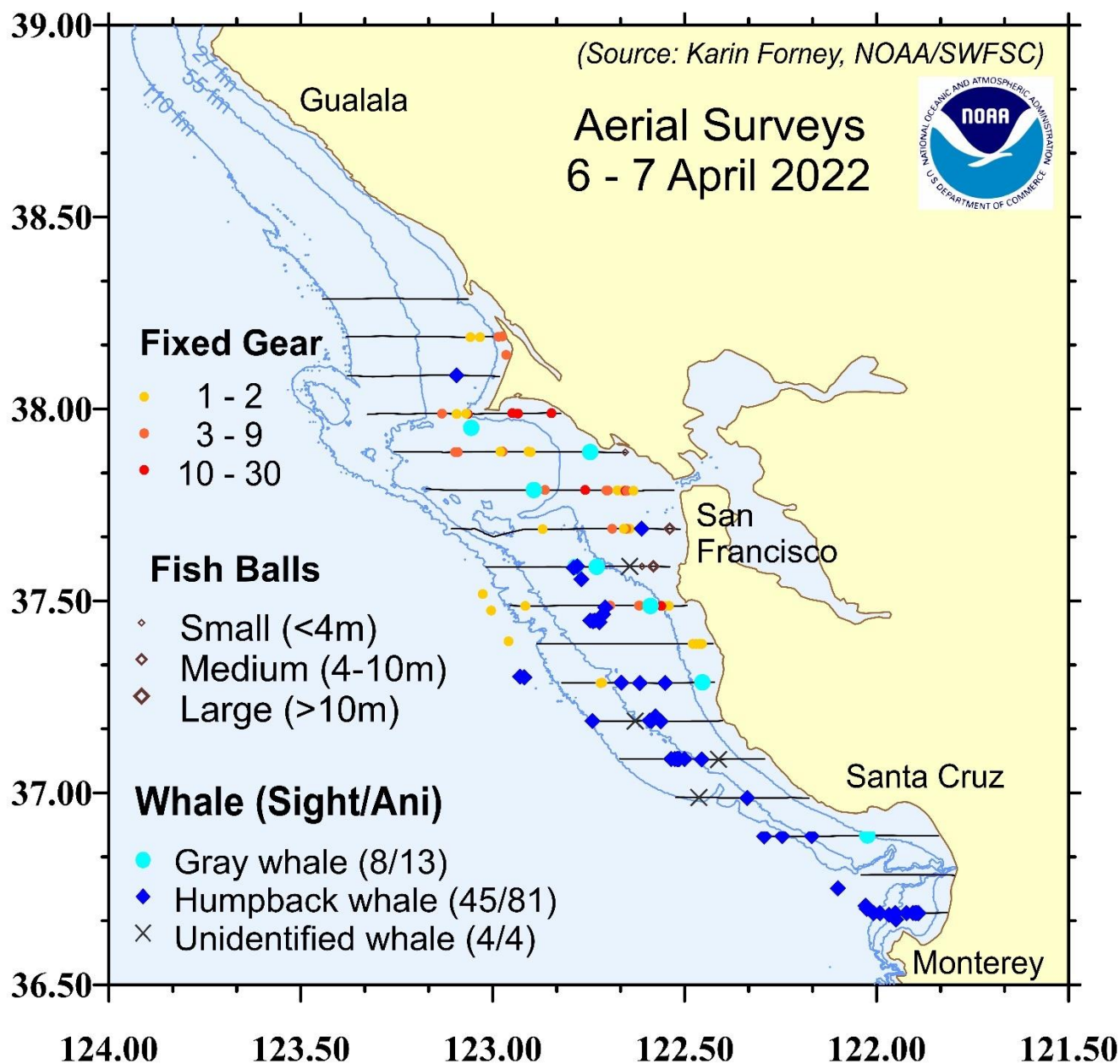
Figure 2. Map showing track lines and observations from CDFW aerial survey of Fishing Zones 2 and 3 on April 7, 2022. Survey information is overlaid onto contours showing the 10m, 30m, 50m, 100m, and 200m bathymetry lines.

NOAA Aerial Survey (*Fishing Zones 3-4*)

NOAA flew east-west transect lines between Monterey and Año Nuevo on April 6, 2022, and between Año Nuevo and Bodega Bay on April 7, 2022 (Figure 3). A total of 40 humpback whales were observed in Fishing Zone 3, and a total of 41 humpback whales were observed in Fishing Zone 4.

The total of 45 sightings of 81 humpback whales were made during the two-day survey effort. It is possible some resights occurred over the course of the survey. However, actual whale numbers in each Fishing Zone are expected to be greater than the number observed, because whales can only be documented within about one mile of the transect line and whales that are diving when the plane passes overhead will not be detected.

Based on the number and configuration of observed buoys, fixed gear sightings appeared to be primarily recreational gear in the southern portion of the survey area and commercial Dungeness crab gear in the northern portion of the survey area, with occasional sightings of deeper-water gear.



Zone 3: 20 sightings of 40 humpback whales

Zone 4: 25 sightings of 41 humpback whales

Figure 3. Aerial survey track lines and observations of large whales, fish balls, and trap gear between Monterey and Bodega Bay on April 6-7, 2022. Fish balls are scored as small/medium/large based on estimated size. The number of sightings and individual whales observed are indicated in parentheses.

Cascadia Vessel Survey (Fishing Zone 4)

During a partial-day survey on April 6, 2022 in Monterey Bay, Cascadia researchers sighted approximately 39 humpback whales. The humpback whales were largely observed in waters shallower than 100m. A mix of age classes were observed, indicating the migration from winter to summer areas has begun.

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Monterey Bay Whale Watch (*Fishing Zone 4*)

- MBWW conducted whale-watching trips in southern Monterey Bay on six of seven days during the week of March 31 – April 6, 2022.
- The average number of humpback whales-per-trip during the last seven days (March 31 – April 6) was 22.1, with a peak of 39 whales observed on a single half-day trip on April 3, 2022. This represents a substantial increase from two weeks ago, indicating whales are returning from the breeding grounds to forage off central California.
- No blue whales have been observed by MBWW since November 13, 2021, when one whale was documented.

MANAGEMENT CONSIDERATIONS

Information from NOAA: §132.8(d)(2)

No information was provided for this risk assessment.

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)

Monterey Bay Whale Watch (*Fishing Zone 4*)

- The semi-monthly average number of whales-per-half-day-trip is high compared to historical patterns for this time of the year (Figure 4).
- The absence of blue whales is consistent with their historical seasonal migration patterns to lower latitudes during winter.

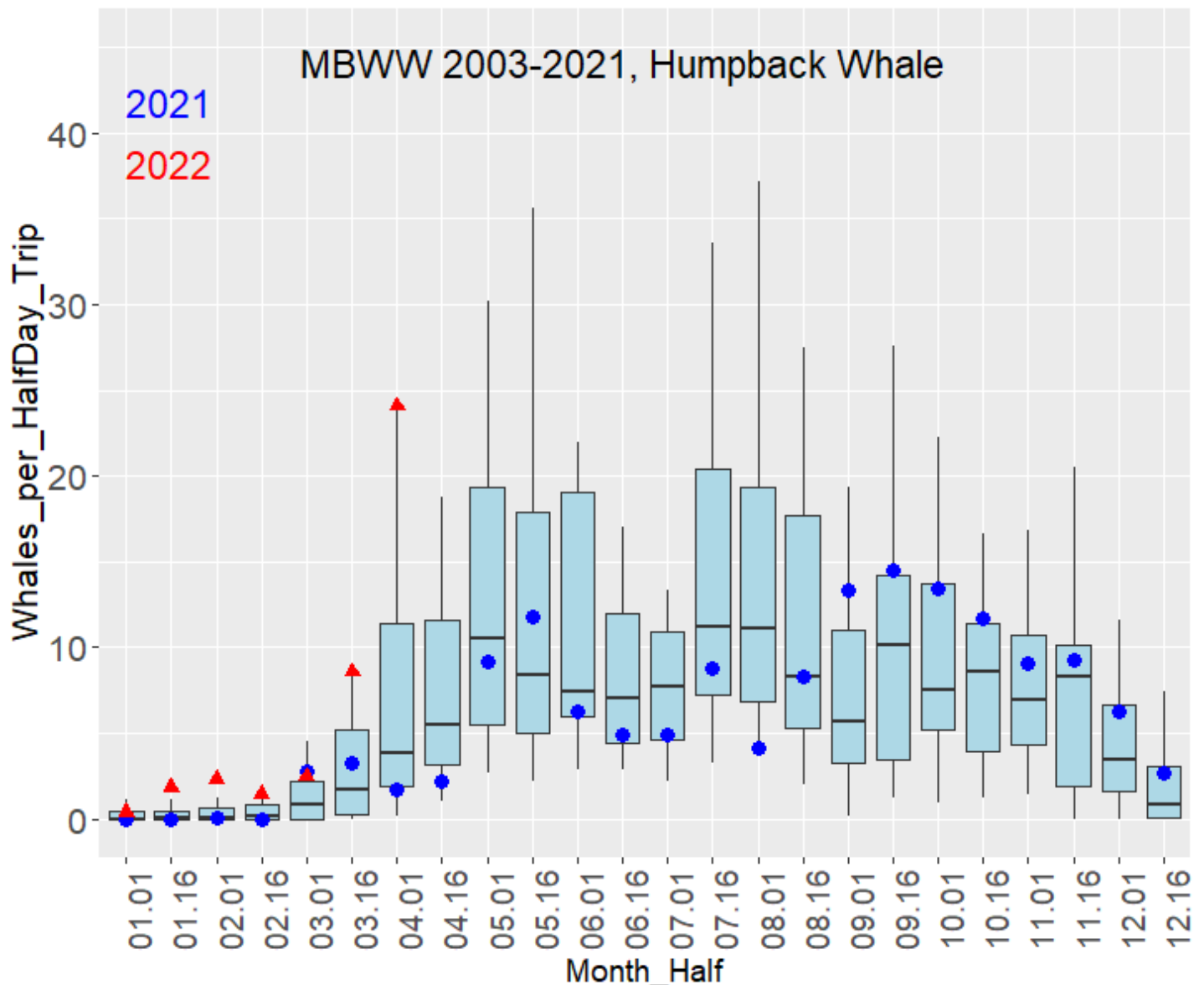


Figure 4. Historical Monterey Bay Whale Watch data for 2003-2022, summarizing the average and variation in the number of humpback whales per half-day trip on a semi-monthly basis (1st- 15th, 16th- end of month). This boxplot follows standard statistical practice in that the black horizontal line is the 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 2021 (large blue dots) and 2022 (red triangles) are provided for reference, placing recent whale numbers in a historical context.

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

During the seven-day period ending April 8, 2022 trained observers at the Farallon Islands reported a single humpback whale within Fishing Zone 3 (Figure 5), and trained naturalists aboard Monterey Bay Whale Watch and Marine Life Studies reported 51 humpback whales within Fishing Zone 4 (Figure 6). 111 humpback whales were reported within Fishing Zone 6 by trained naturalists from the Channel Islands National Marine Sanctuary and National Park Service (Figure 7). No blue whale sightings were reported from any Fishing Zone.

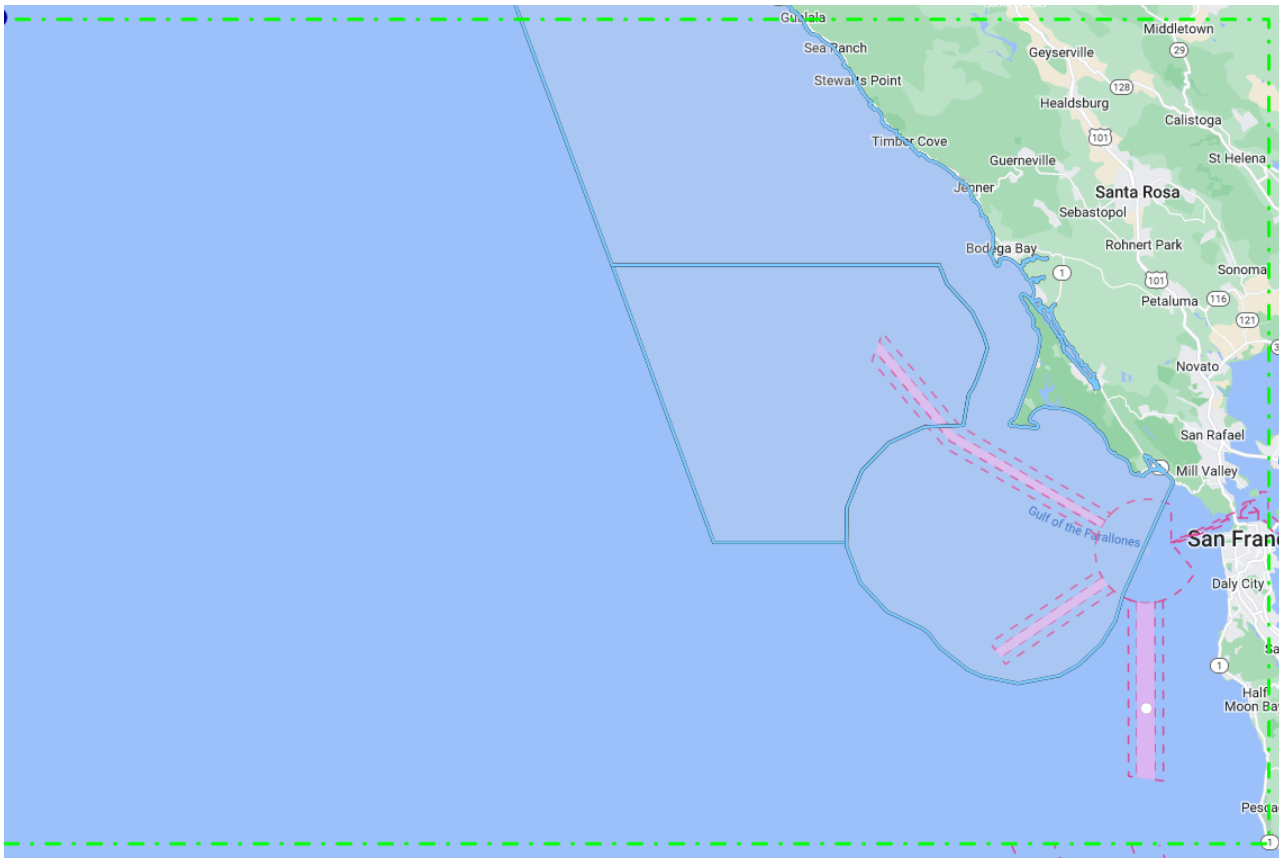


Figure 5. Locations of humpback whale sightings within Fishing Zone 3. Reporting locations are represented by white circles. A given report may or may not represent multiple individuals. Fishing Zone boundaries are represented by the dashed green line.

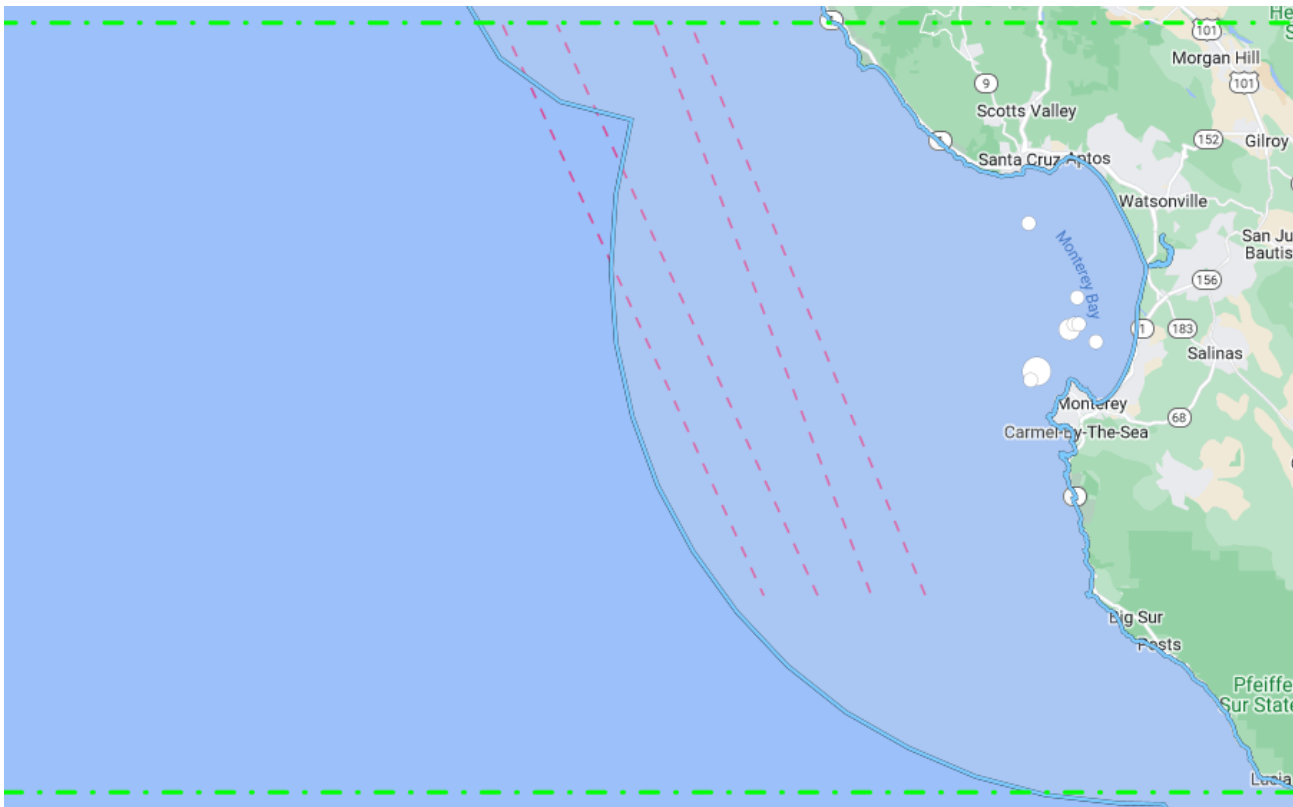


Figure 6. Locations of humpback whale sightings within Fishing Zone 4. Reporting locations are represented by white circles. A given report may or may not represent multiple individuals. Fishing Zone boundaries are represented by the dashed green line.

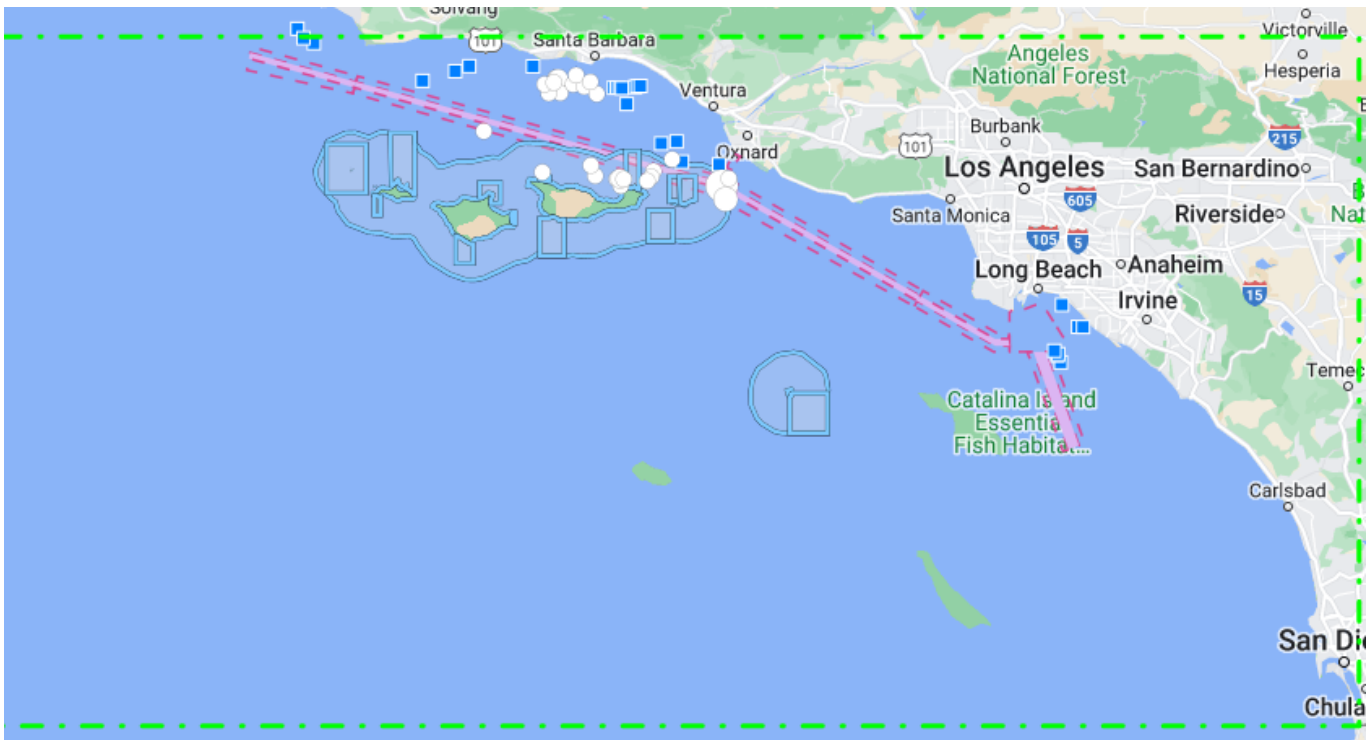


Figure 7. Locations of humpback whale sightings within Fishing Zone 6. Reporting locations are represented by white circles. A given report may or may not represent multiple individuals. Fishing Zone boundaries are represented by the dashed green line.

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

CDFW Aerial Survey (*Fishing Zones 1-3*)

Two bait balls were observed in 100m water off Ten Mile River (Fishing Zone 2).

NOAA Aerial Survey (*Fishing Zones 3-4*)

Humpback whales were observed across a range of depths within the survey area, and appeared to be feeding on krill in deeper waters and anchovies in shallower waters.

Cascadia Vessel Survey (*Fishing Zone 4*)

The humpback whales observed in Monterey Bay were feeding on fish.