2020-21 Risk Assessment: Available Data

Last updated: December 10, 2020[1]

TRIGGERS REQUIRING MANAGEMENT ACTION

Section 132.8(c)(1): Confirmed Entanglements

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

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 Humpback whales, 5 Gray whales, 1 Sperm whale)
- 10 unconfirmed (3 Humpback whales, 4 Gray whales, 1 Bryde's whale, 2 unidentified whales)

Total entanglements for calendar year 2020 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 sea turtles: 0 confirmed entanglements

[1] This document was updated following the December 10 Working Group meeting to incorporate additional information shared on the call.

Additional details regarding confirmed Humpback whale entanglements are provided in the November 24, 2020 Available Data document.

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

Data provided by: Monterey Bay Whale Watch (processed by Karin Forney, NOAA), California Department of Fish and Wildlife

Monterey Bay Whale Watch

- Commercial MBWW whale-watching trips have been conducted from Monterey throughout the summer and fall. Karin Forney has standardized these trips to the same 'whales per half-day-trip' unit used in previous summaries.
- The number of documented Humpback whales been declined slightly since the previous assessment in mid-November (Figure 1), when the 14-day average was 12.2 whales-per-half-day-trip for the period Nov 1-14. The two most recent 7-day averages are 8.7 whales per half-day-trip during Nov 18-24, and 6.2 whales per half-day-trip during Nov 28 – Dec 4.
- Following several weeks without sightings of Blue whales, this species has again been observed during the most recent assessment period (Figure 2). One whale was documented on Nov 20, and 11 and 5 whales were observed, respectively, on Dec 2 and 3.

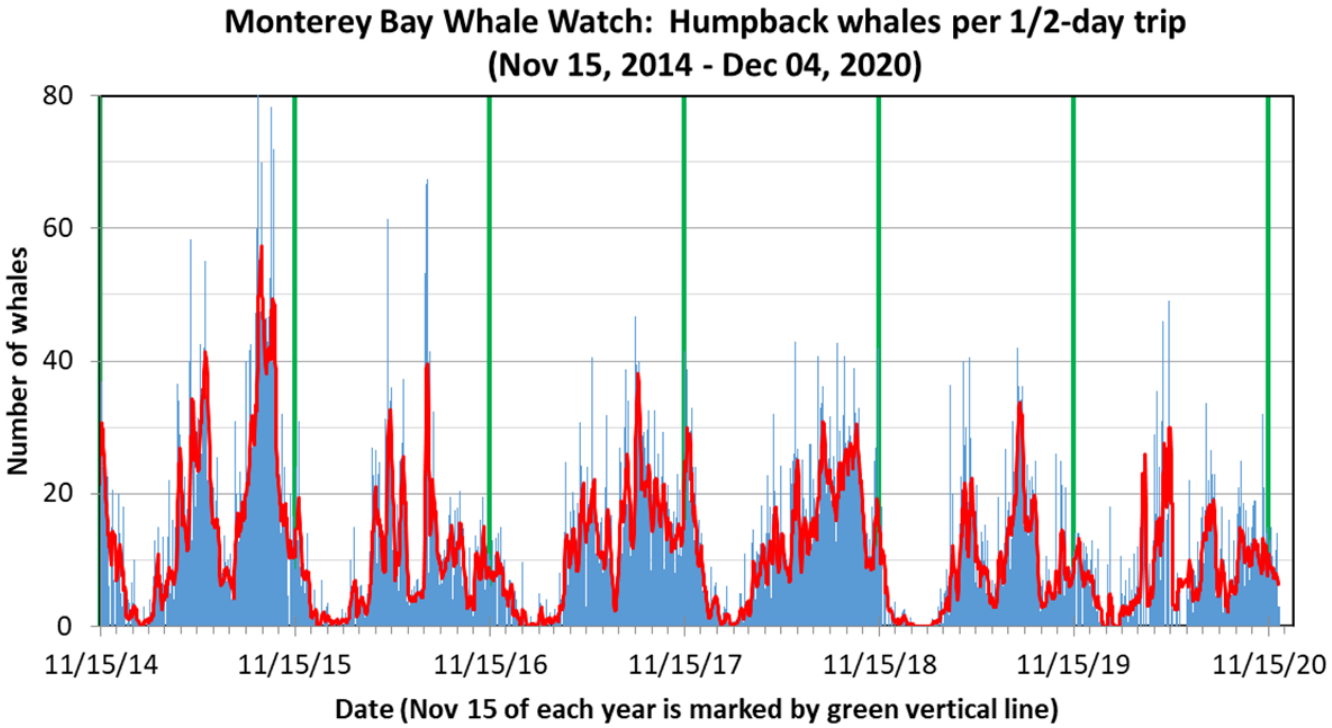

Figure 1. Standardized number of Humpback whale sightings from 15 November 2014 – 04 Dec 2020 for Monterey Bay Whale Watch. The y-axis is the number of whales per half-day trip; the thin blue bars are the average daily whale

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.

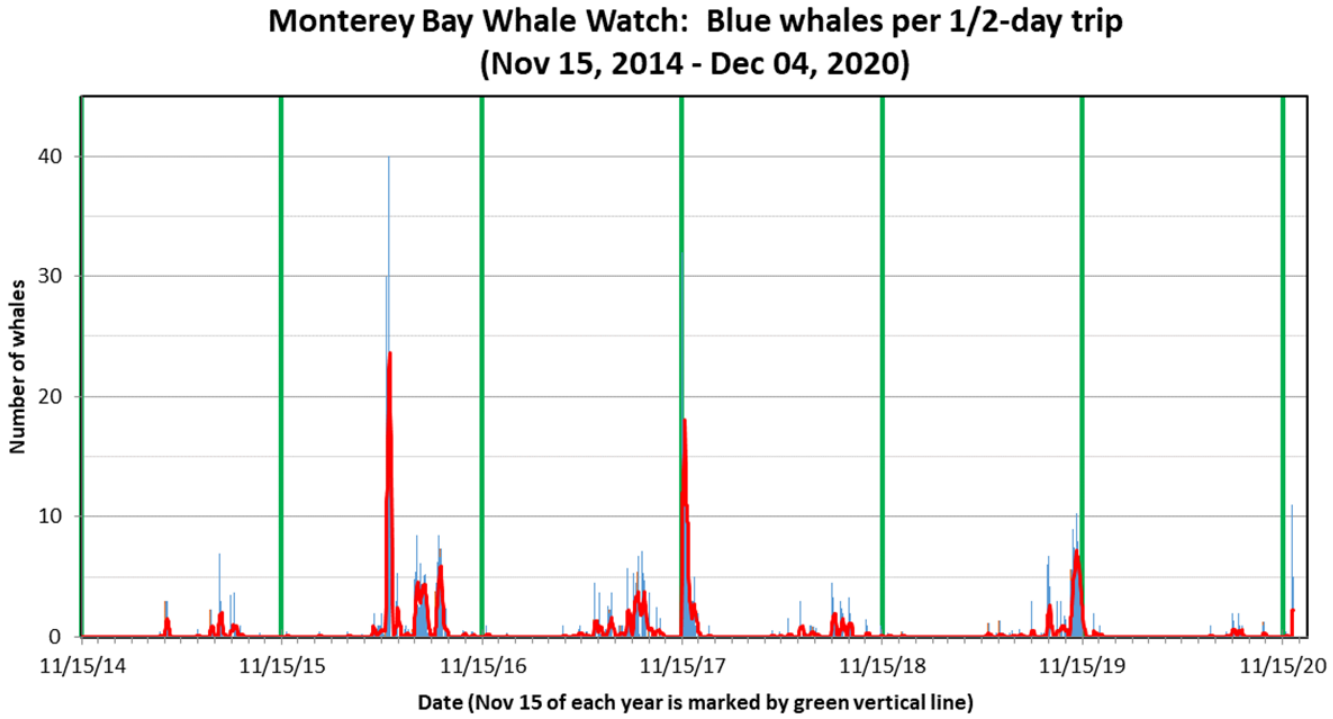

Figure 2. Standardized number of Blue whale sightings from 15 November 2014 – 04 Dec 2020 for Monterey Bay Whale Watch. The y-axis is the number of whales per half-day trip; the thin blue bars are the average daily whale numbers, and the red line is a 7-day running average to make the patterns a bit 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 1-3*

CDFW staff conducted a limited aerial survey in a portion of Fishing Zone 3 (Russian River to the Farallon Islands) on December 5, 2020 during which 7 Humpback whales were observed. An additional survey on December 7, 2020 covered the area north of Half Moon Bay to Crescent City. During the December 7 survey, 1 Blue whale was observed in Fishing Zone 2 and 5 Humpback whales were observed in Fishing Zone 3. Clusters of trap gear were observed just north of Fort Bragg, outside Humboldt Bay and north of the Farallon Islands. Bait balls were also sighted in multiple locations within Fishing Zone 3.

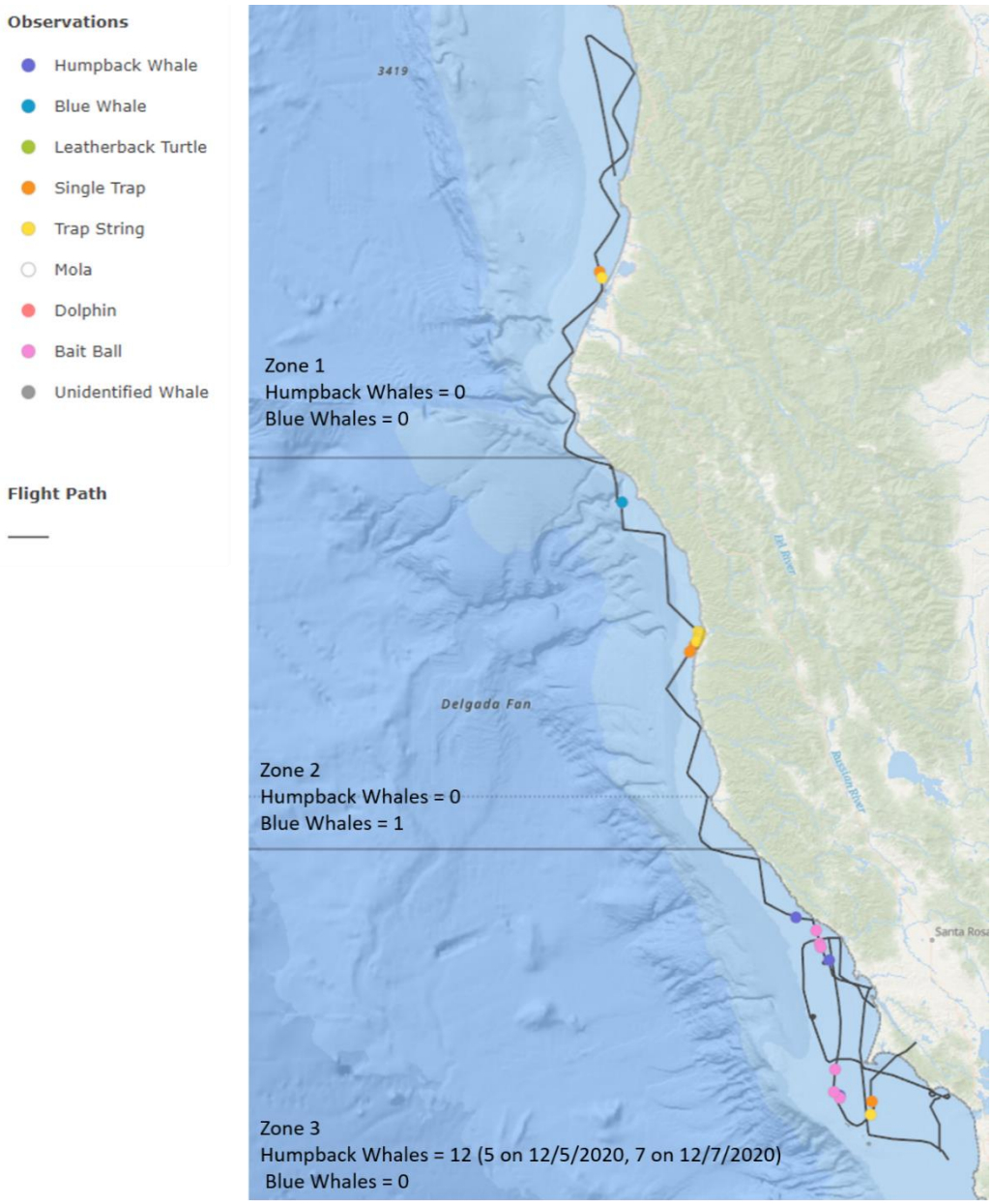

Figure 3. Flight path and observations during CDFW aerial survey in Fishing Zones 1-3 on December 5 and 7, 2020. Track lines from the two days overlap in the region between Half Moon Bay and Point Arena.

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

Data provided by: California Department of Fish and Wildlife

See analysis provided in the November 24, 2020 Available Data document.

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

Data provided by: Monterey Bay Whale Watch (processed by Karin Forney, NOAA)

Monterey Bay Whale Watch

- Compared to historical patterns (Figure 4), the most recent Humpback whale numbers are slightly above average for this time of year.
- Compared to historical patterns (Figure 5), the most recent Blue whale numbers are markedly above average for this time of year, suggesting a late-season influx of blue whales into the Monterey Bay area. The whales were observed feeding on krill.

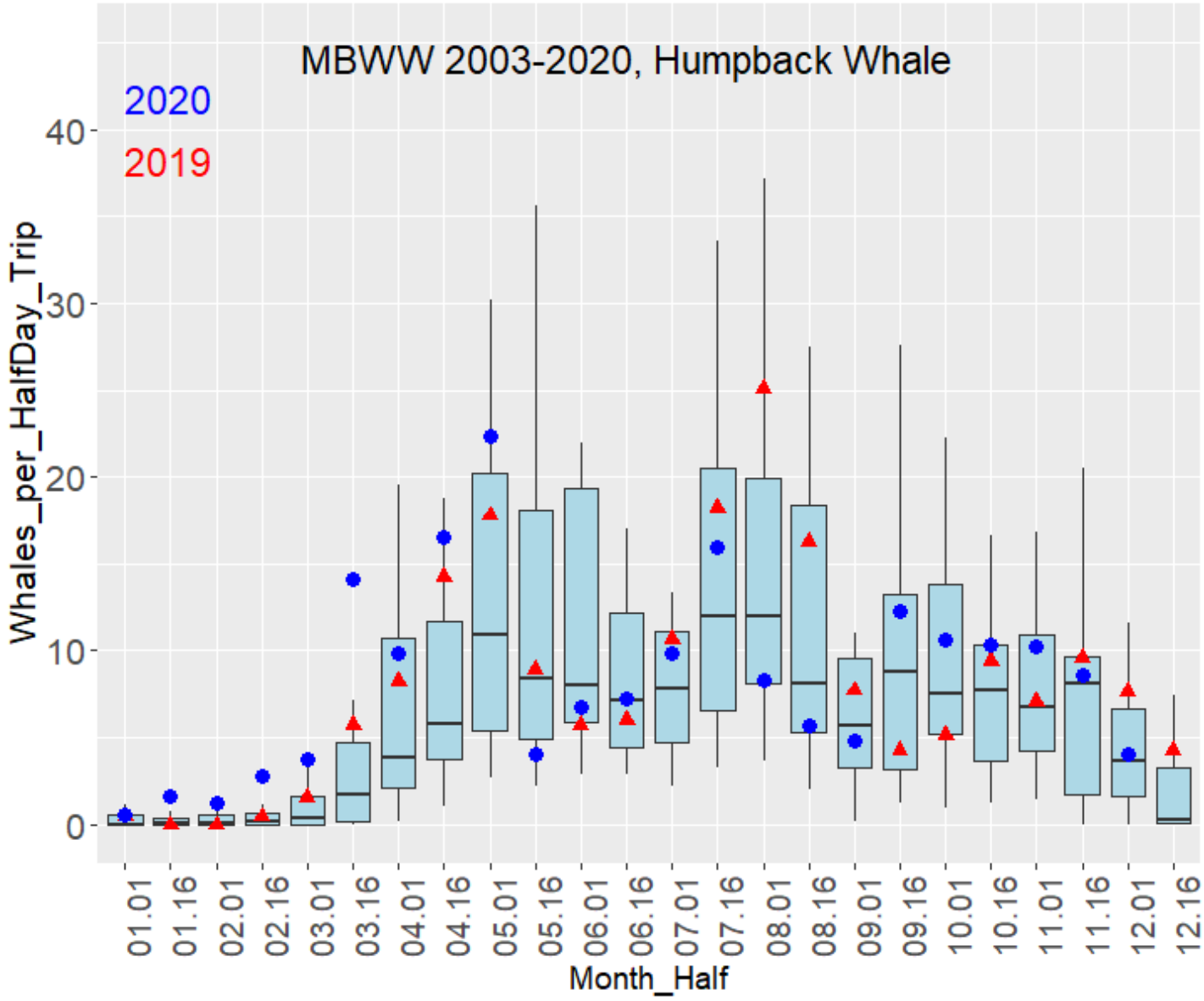

Figure 4. Historical Monterey Bay Whale Watch data for 2003-2020, summarizing the average and variation in the number of Humpback whales per half-day trip on a semi-monthly basis (1st- 15th, 16th- end of month). This boxplot follows standard statistical practice in that the black horizontal line is the 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.

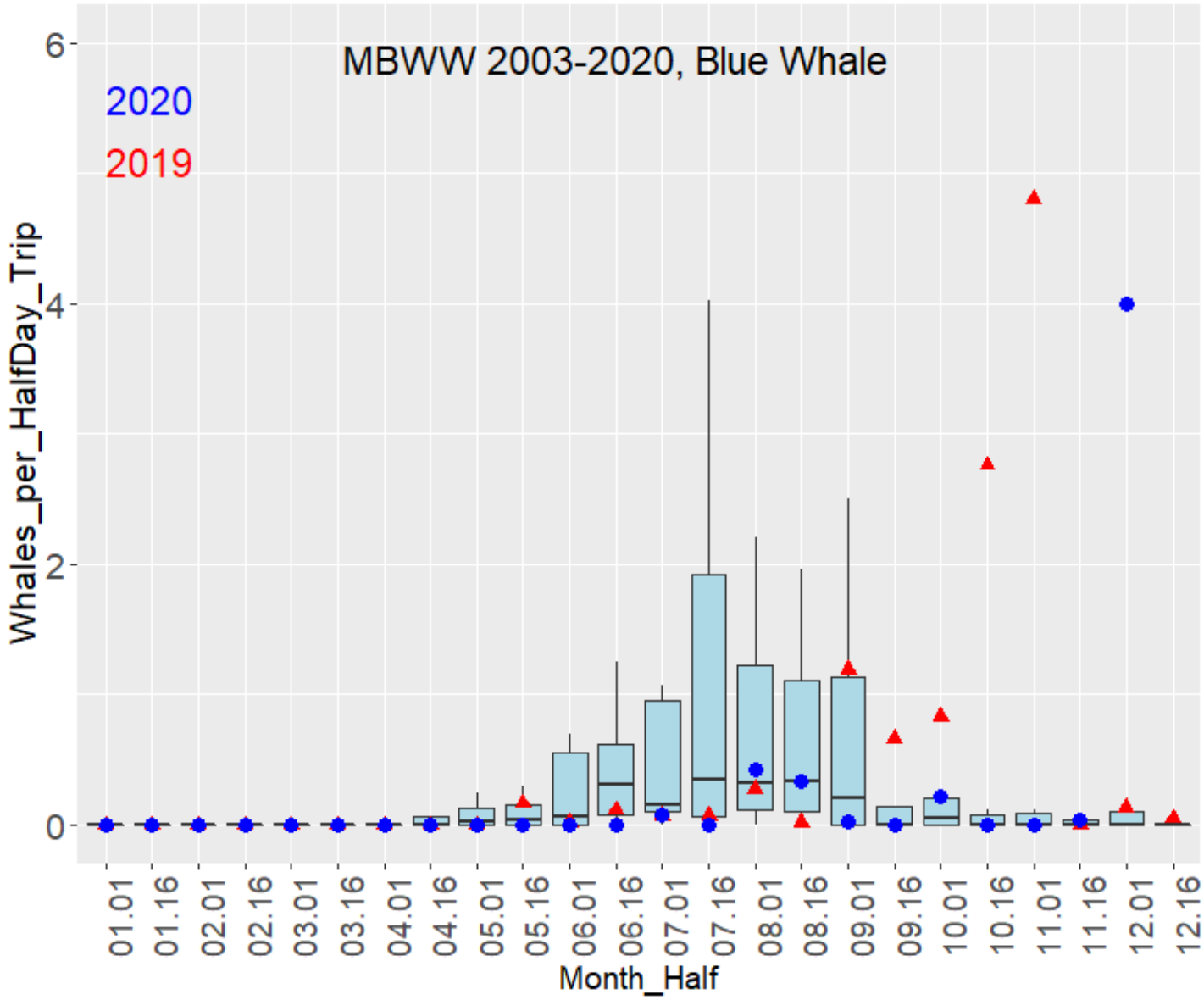

Figure 5. Historical Monterey Bay Whale Watch data for 2003-2020, summarizing the average and variation in the number of Blue whales per half-day trip on a semi-monthly basis (1st- 15th, 16th- end of month). This boxplot follows standard statistical practice in that the black horizontal line is the average 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

For previous testing results, see Available Data from 11/3 and Available Data from 11/24.

An additional test occurred on November 29 with an additional day of soak time and increased trap numbers. The number of test pots was increased by 1.5 from the original number. All 3 sites met the minimum volume of crab needed and were above the minimum meat quality criteria

(Figure 6). Tri-State managers met on Monday, December 7 and decided not to further delay the northern management area in California (Fishing Zones 1 and 2) beyond December 16 due to quality testing. All sites in Oregon and Washington have passed, with no additional quality delays needed. However, pending domoic acid testing results in Washington may further delay their season, and Oregon would like to align commercial openers with those in California and Washington.

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	Number of pots	Date*	Meat Recovery %	Date*	Meat Recovery %	Date*	Meat Recovery %	Date*	Meat Recovery %
Washington									
Northern		no test	no test	no test	no test	no test	no test		
Westport		10/22/20	19.6%	11/9/20	21.8%	11/29/20	24.0%		
Long Beach		10/23/20	18.7%	11/9/20	21.8%	11/29/20	24.0%		
Oregon									
Astoria (50-A)	18	no test	no test	11/9/20	21.6%	11/29/20	25.8%		
Garibaldi (50-B)	18	no test	no test	11/9/20 **~	24.8%	no test	no test		
Newport North (50-C and 50-D)	36	no test	no test	11/9/20	25.1%	no test	no test		
Newport South (50-E and 50-F)	36	no test	no test	11/10/20	23.5%	11/29/20	26.5%		
Coos Bay North (50-G and 50-H)	36	no test	no test	11/9/20 ~	26.4%	no test	no test		
Coos Bay South (50-I and 50-J)	36	no test	no test	11/12/20 ~	24.9%	no test	no test		
Port Orford (50-K)	18 /45	no test	no test	11/9/20 **	23.9%	11/29/20	24.0%		
Brookings (50-L)	18	11/9/20 ^	25.6%	11/12/20 ^**	25.3%	no test	no test		
California									
Crescent City	36/60/90	10/27/20 **	25.1%	11/12/20 **	26.8%	11/29/20	27.9%		
Trinidad	36/90	10/27/20 **	25.2%	no test	no test	11/29/20	26.0%		
Eureka	36/60/90	10/27/20 **	25.6%	11/12/20 **	24.8%	11/29/20	27.0%		
District 10 (not bound by Tri-State)									
Bodega Bay	no test	no test	no test	no test	no test	no test	no test		
San Francisco	no test	no test	no test	no test	no test	no test	no test		

**below 300lb minimum poundage

^ The first test (reported above in the early round column) was significantly below 150lbs allowed for a test area with 18 pots. In the re-do of this test area 45 pots were set due to the significantly low poundage.

~ less than a 24hr soak time

Figure 6. Quality testing results for Dungeness crab as of December 7, 2020. See updated results.

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

Data provided by: Jarrod Santora and Isaac Schroeder (NOAA Fisheries, Southwest Fisheries Science Center and University of California Santa Cruz)

No information was provided.

Section 132.8(d)(9): Ocean conditions

Data provided by: Jarrod Santora and Isaac Schroeder (NOAA Fisheries, Southwest Fisheries Science Center and University of California Santa Cruz)

Outlook for November, December 2020 and winter 2021:

- NOAA climate prediction center indicates La Niña conditions are expected for winter/spring 2021. Conditions may favor increase krill concentrations, depending on regional upwelling conditions during January and February 2021.
- The monthly Habitat compression Index in November 2020 indicates a medium compression state with increased cool habitat area since October (Figures 7-9). Habitat compression conditions (area and temperature) in November 2020 are improved compared to previous years and not extreme as during the previous large marine heatwave of 2014-16 (Figures 8-9). The November HCI is greater than the long-term average and nearing a low compression state.

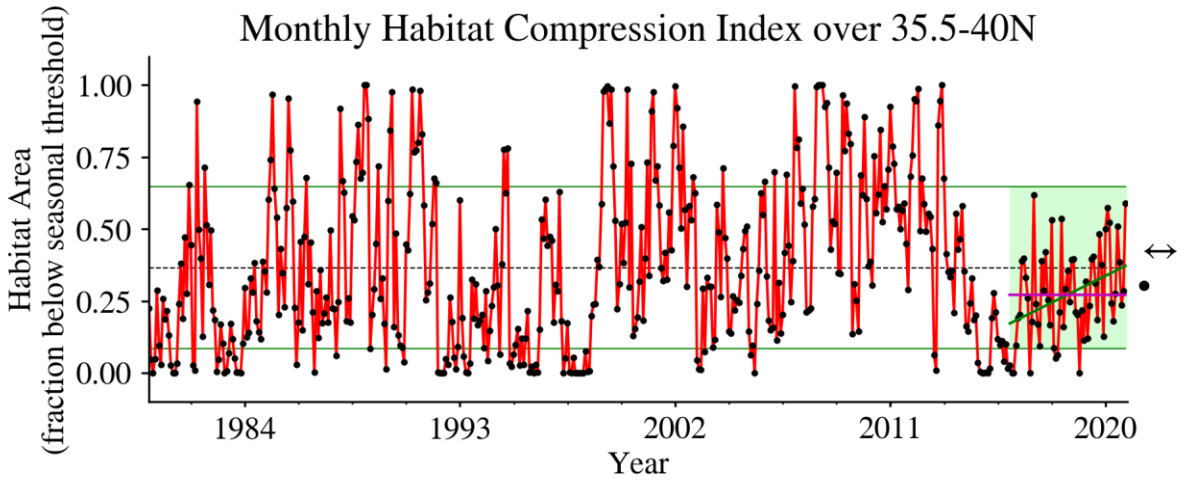

Figure 7. Seasonal standardized Habitat Compression Index (monthly); high compression ranges below the mean (dashed line) and indicates reduced cool upwelling habitat area on the shelf; low compression is above the mean and indicates increased cool habitat area. High compression may result in increased entanglement risk as per Santora et al. 2020 (Nature Communications). Updated through November 2020.

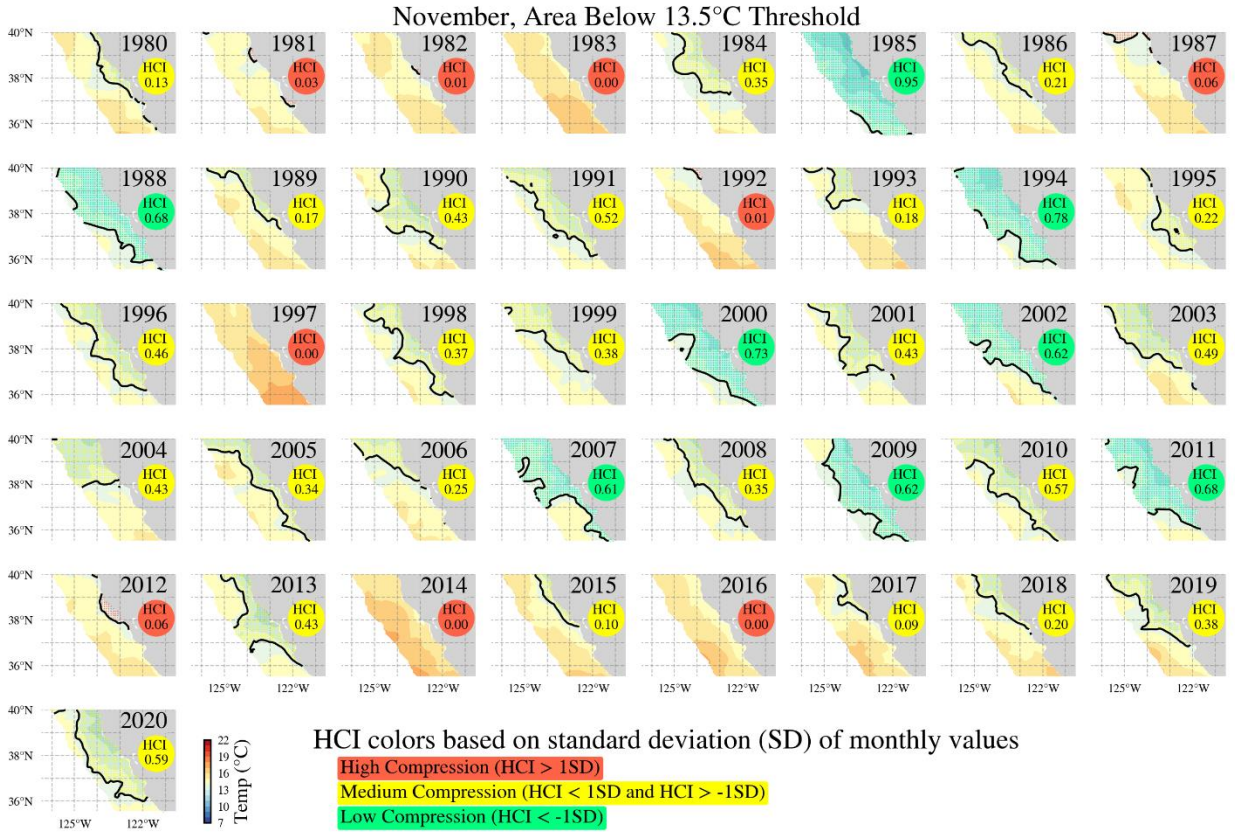

Figure 8. Habitat Compression Index (HCI): November temperature maps depicting the area of cool temperature habitat off California (40N to 35N; thin black line indicates the areal extent of cool habitat), indicating medium compression and entanglement risk as per Santora et al. 2020 (Nature Communications).

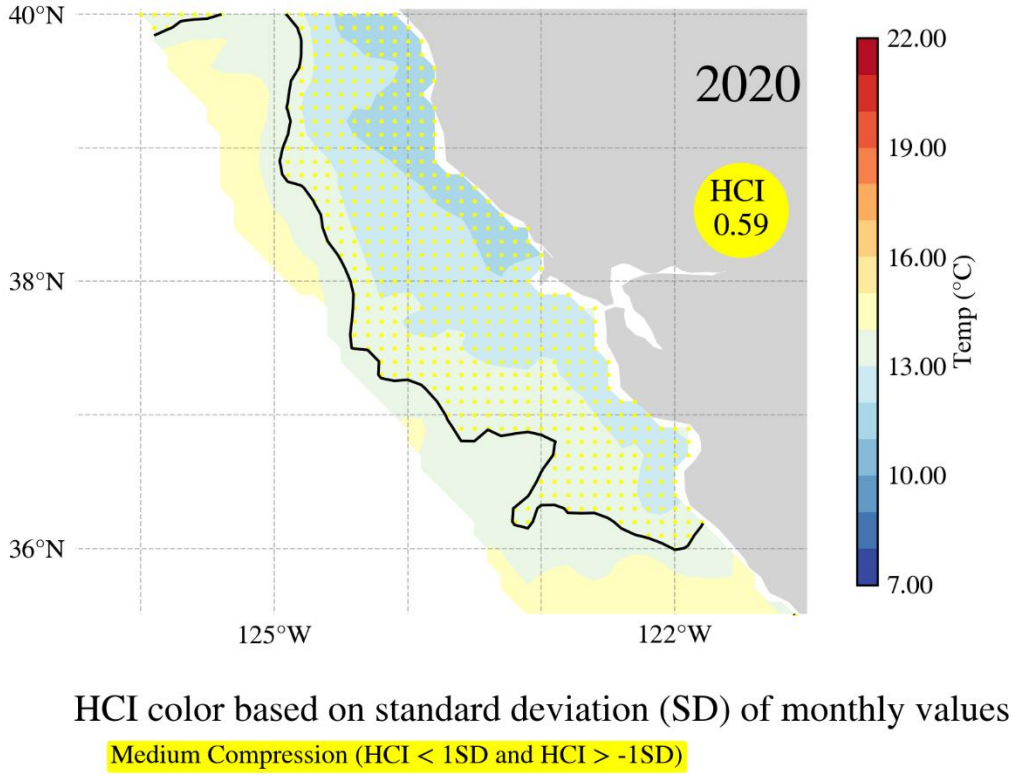

Figure 9. Habitat Compression Index (HCI): November temperature map depicting the area of cool temperature habitat off California (40N to 35N; thin black line indicates the areal extent of cool habitat) as per Santora et al. 2020 (Nature Communications).

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

Data provided by: California Department of Fish and Wildlife

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), Karen Grimmer (Monterey Bay National Marine Sanctuary) and Jaime Jahncke (Point Blue Conservation Science), Kathi George (The Marine Mammal Center), John Calambokidis (Cascadia Research)

WhaleWatch 2.0 – *All Fishing Zones*

The best Blue whale habitat predictions for November 29, 2020 indicate that probability of blue whale presence is low in Fishing Zones 1-5, and is low-moderate in parts of Fishing Zone 6 (Figure 10).

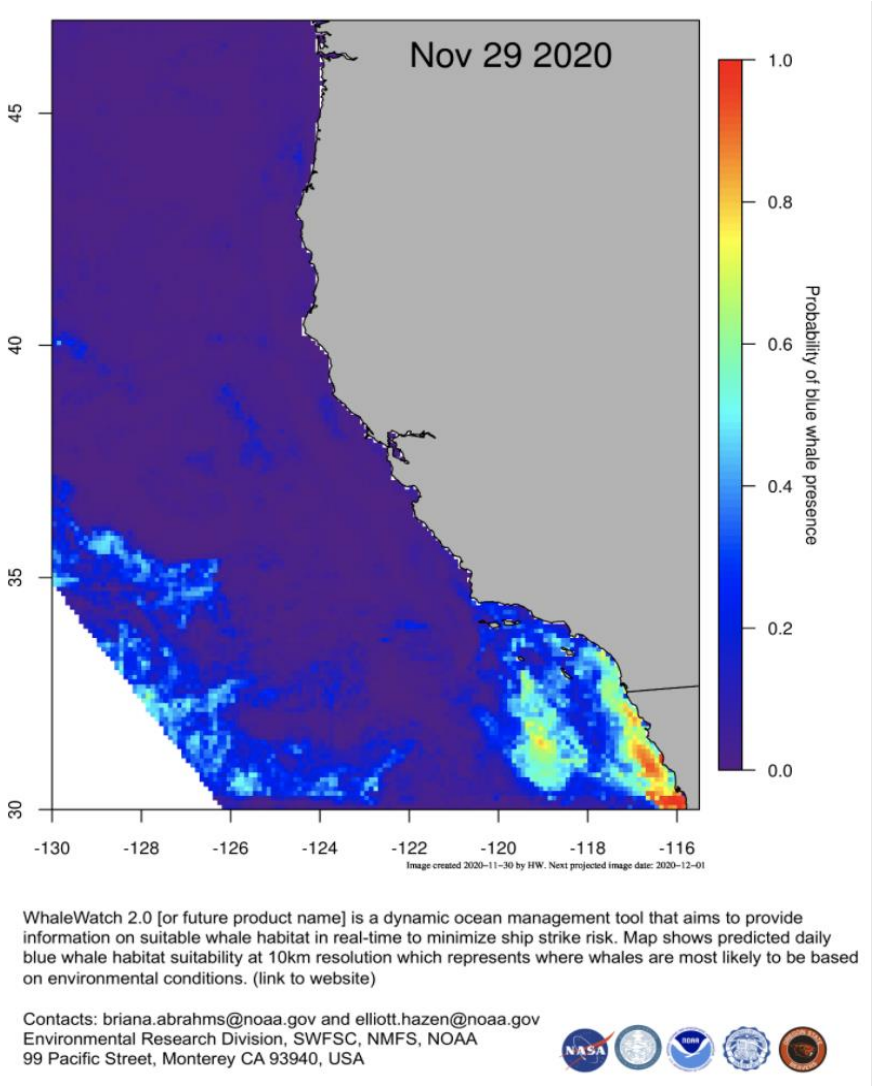

Figure 10. WhaleWatch 2.0 map for November 29, 2020. View a current map.

Point Blue Conservation Science Data Portal

Greater Farallones – *Fishing Zone 3*

Over the 7-day period ending December 4, 2020, a total of 81 Humpback whales were reported by trained biologists at the Farallon Islands through the Spotter/WhaleAlert app (Figure 11). Zero Blue whales were reported during this period.

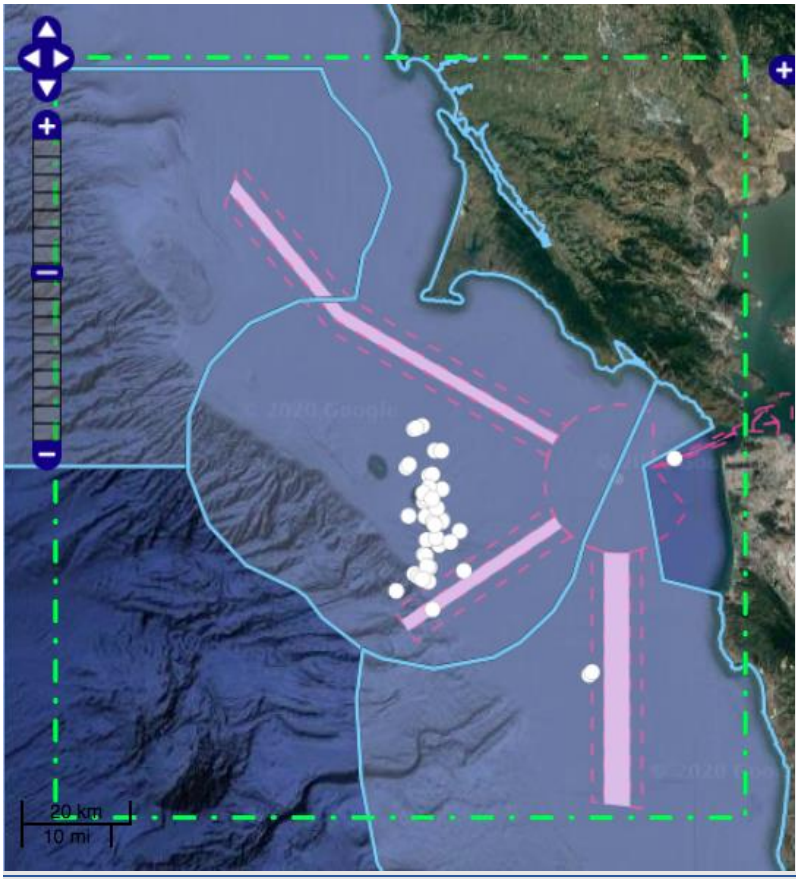

Figure 11. 81 humpback sightings in Fishing Zone 3 from November 28-December 4, 2020. Reporting locations are represented by white circles. A given report may represent multiple individuals.

Monterey Bay -- *Fishing Zone 4*

In the Monterey Bay region, 10 Humpback whale sightings were reported through the Spotter/WhaleAlert app over the seven-day period ending on December 4, 2020 (Figure 12). 15 Blue whales were reported during this period (all on Dec 3; Figure 13). Blue whales were sighted both inside and out and at the edge of the canyon foraging on krill.

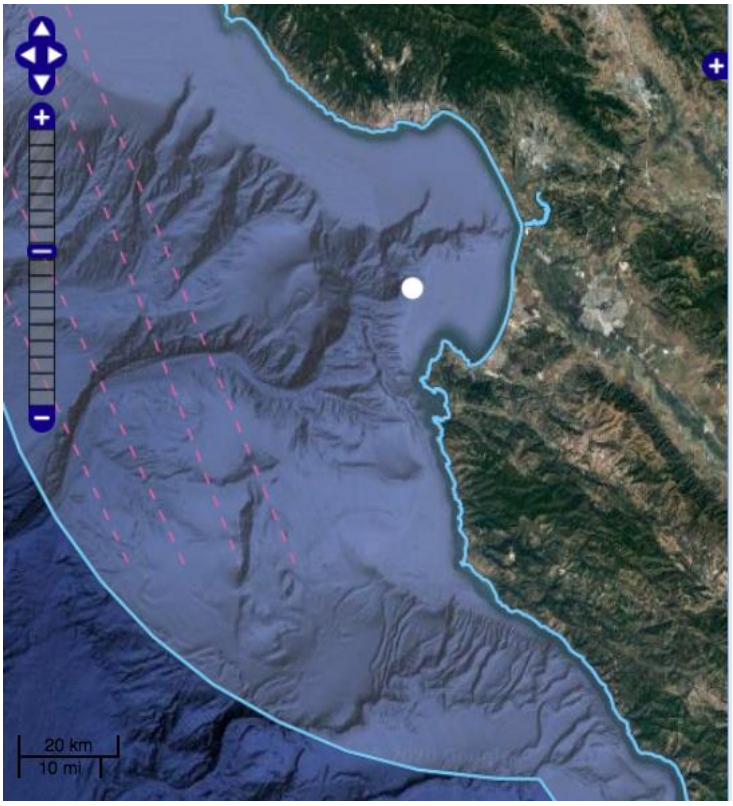

Figure 12. 10 Humpback whale sightings in Fishing Zone 4 from November 28-December 4, 2020. Reporting locations are represented by white circles. A given report may represent multiple individuals.

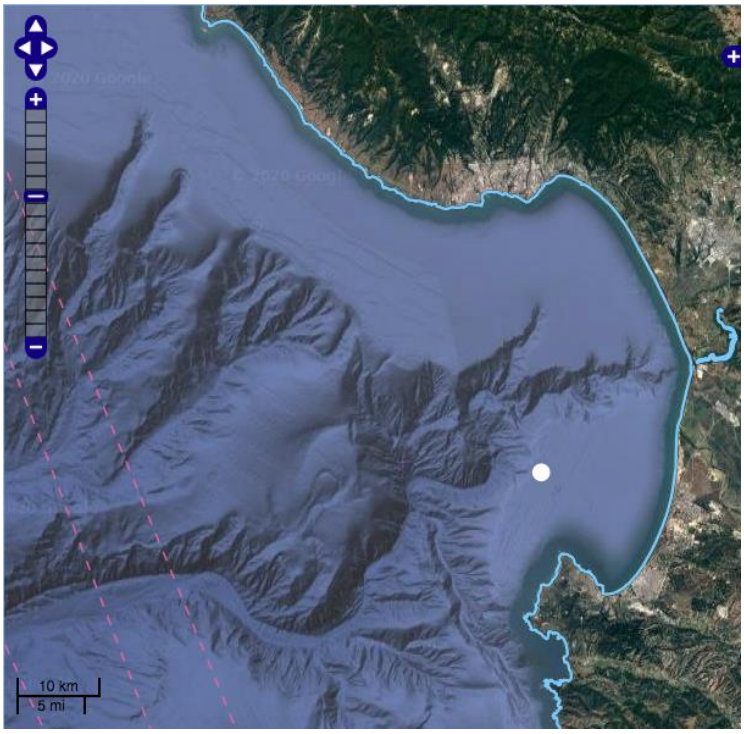

Figure 13. 15 Blue whale sightings in Fishing Zone 4 from November 28-December 4, 2020. Reporting locations are represented by white circles. A given report may represent multiple individuals.

Santa Barbara Channel -- *Fishing Zone 6*

Trained naturalists from Channel Islands National Marine Sanctuary and the National Park Service reported one Humpback whale (Figure 14) and 18 Blue whales (Figure 15) over the seven-day period ending December 4, 2020.

Figure 14. 1 Humpback whale sighting in Fishing Zone 6 from November 28-December 4, 2020. Reporting locations are represented by white circles. A given report may represent multiple individuals.

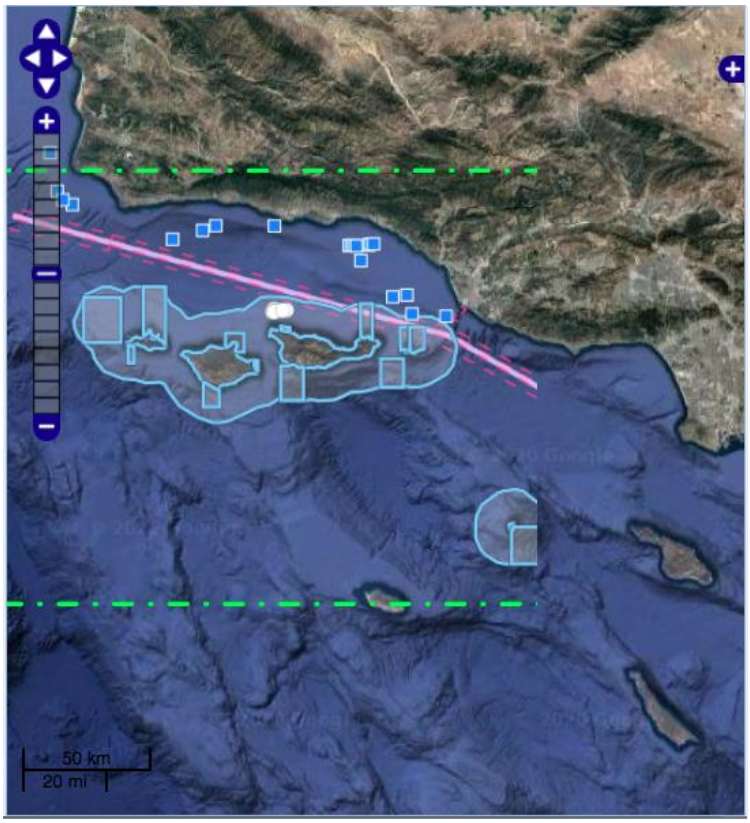

Figure 15. 18 Blue whale sightings in Fishing Zone 6 from November 28-December 4, 2020. Reporting locations are represented by white circles. A given report may represent multiple individuals.

Solar Loggers – *Fishing Zones 3 and 4*

Track lines from whale watching vessels participating in the solar logger pilot project indicate a high amount of effort out of Monterey and some effort out of Moss Landing (Figure 16) and limited effort out of San Francisco (Figure 17) during 17 trips between November 17 and December 4, 2020.

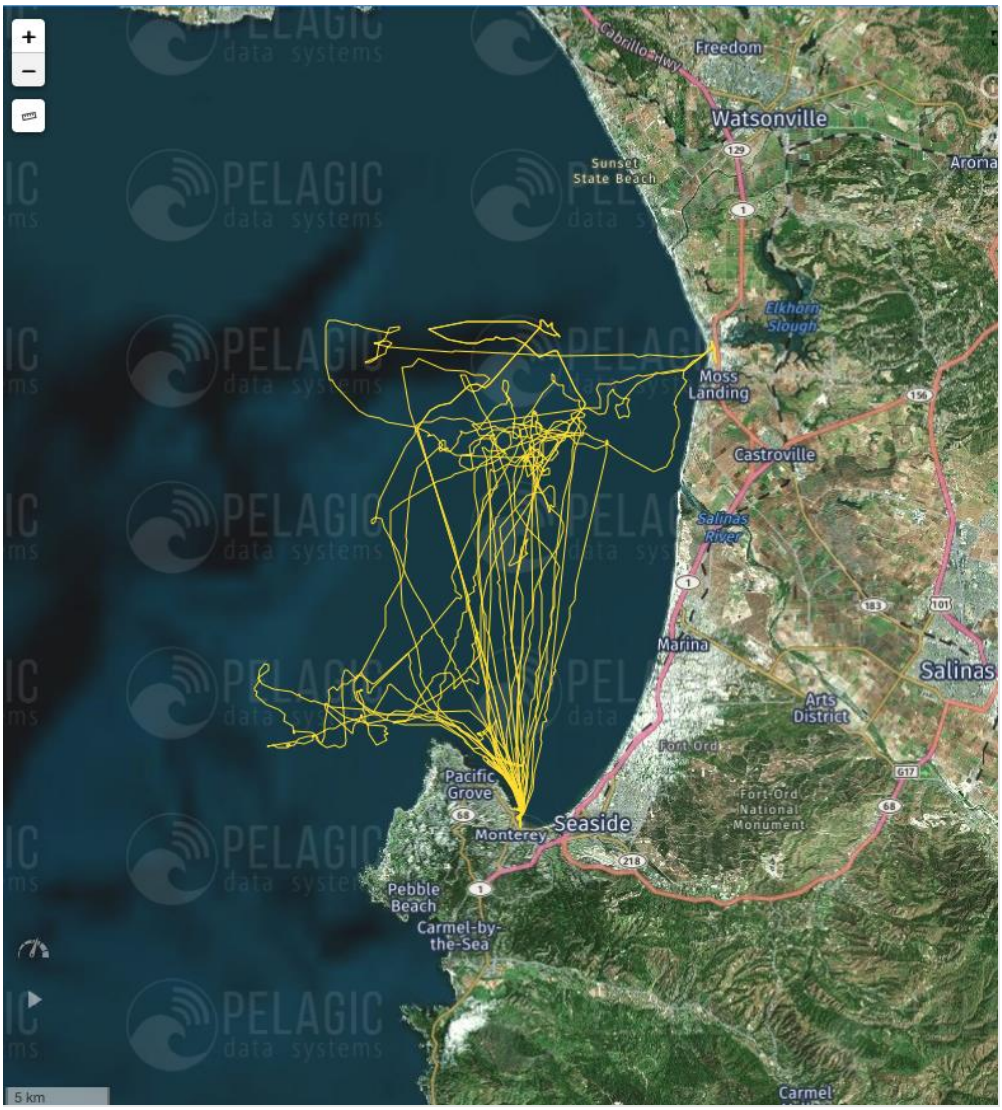

Figure 16. Track lines for all whale watch trips from November 17 – December 4, 2020 in the Monterey Bay area.

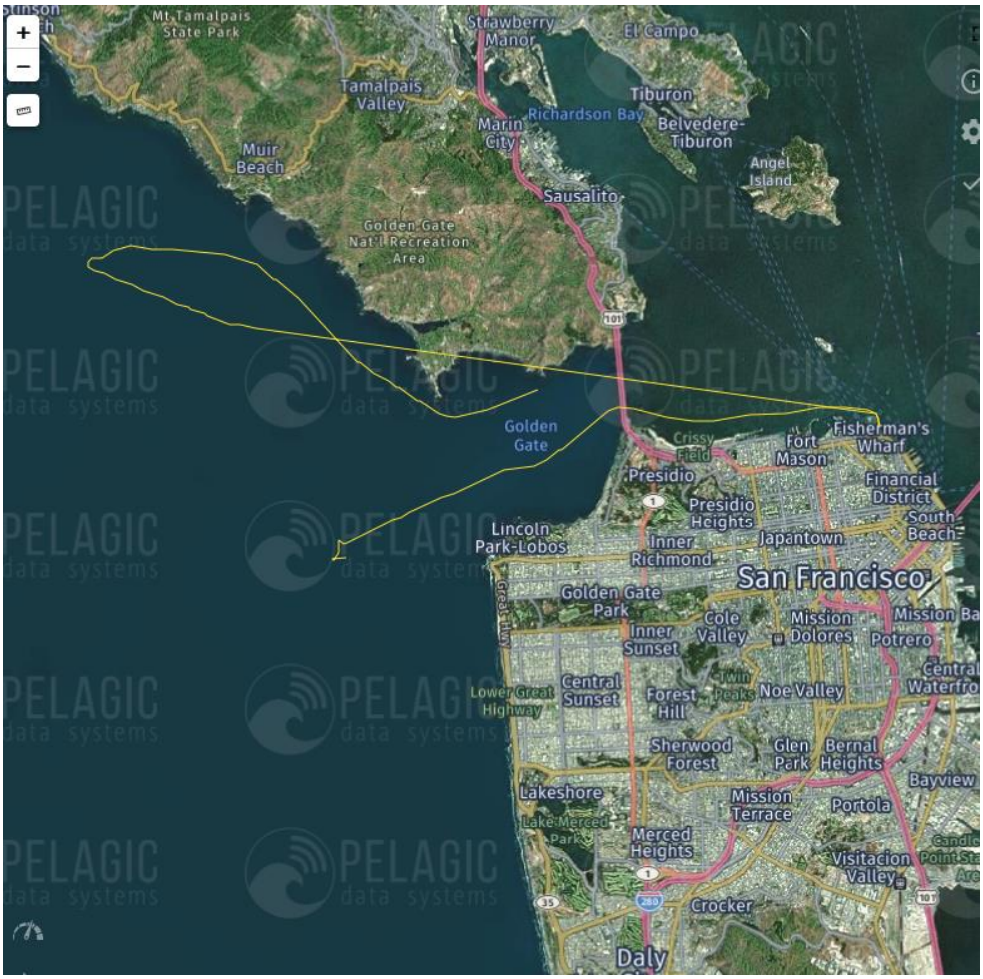

Figure 17. Track lines for all whale watch trips from November 17 – December 4, 2020 in the San Francisco Bay area.

Migration Report by Cascadia Research, SR3, The Marine Mammal Center, and Happywhale – *All Fishing Zones*

- There have been no additional small boat surveys since those described in the November 24, 2020 Available Data document, because researchers had already conducted more than the budgeted number for this period and did not have an ideal low wind/low swell opening. Working with Happywhale, continued examination of previously collected survey data provides new information on known California Humpback whale movements/migration timing.
- 2 identified Humpback whales encountered during recent surveys near Monterey Bay, CRC-10943 (October 17, 2020) and CRC-12049 (November 1, 2020), have now been confirmed on their mainland Mexico breeding ground as of November 25, 2020. This is out of a total of approximately 187 whales identified during our recent surveys.
- An additional 8 known historical California Humpback whales have also been confirmed on their mainland Mexico breeding ground.

- 11 of 12 identified migrating Humpback whales off central and northern Baja encountered November 20-25, 2020 were known whales that feed off California.
- At least 18 different identified Humpback whales have been IDed off California from December 1-7, 2020 confirming some of the individuals that had not yet started their migrations.