

2020-21 Risk Assessments

Available Data for November 3, 2020 Working Group Discussion

Last updated: November 3, 2020¹

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
 - o 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.

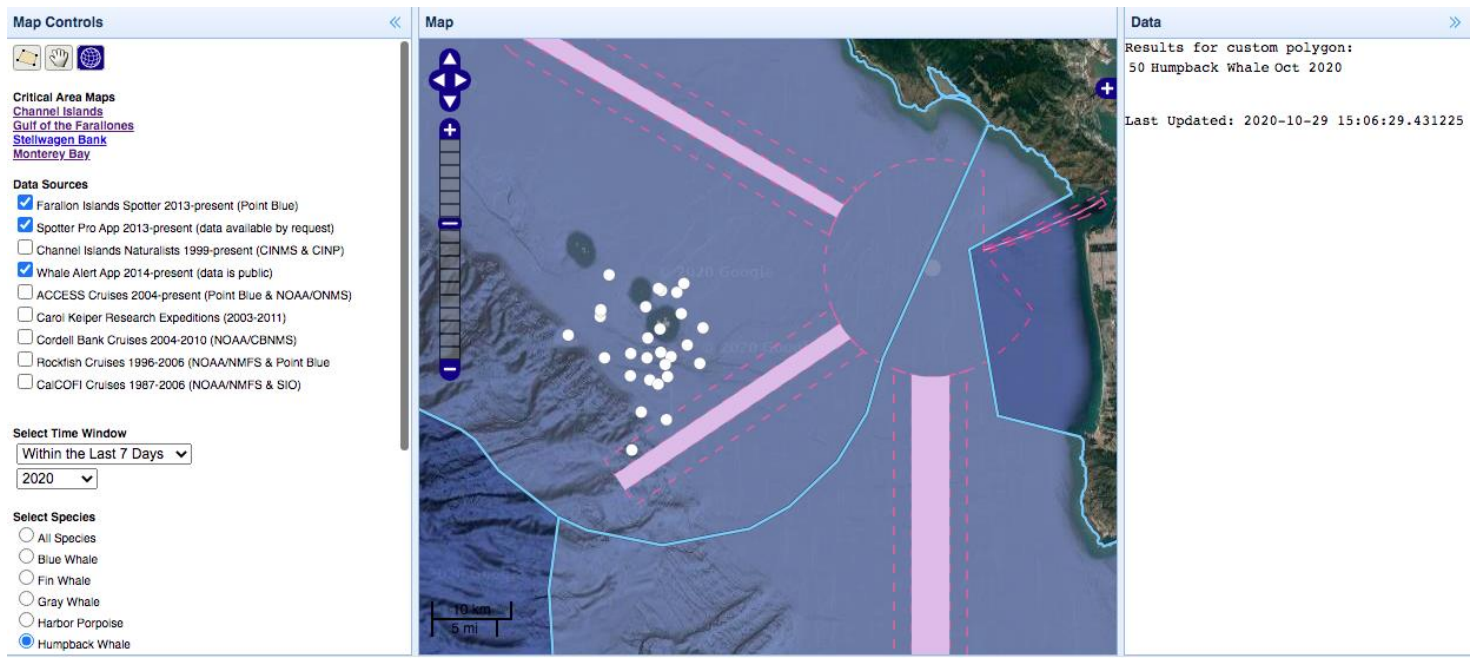


Figure 1. 50 Humpback whale sightings in the Zone 3 from Oct 22-29, 2020. Reporting locations are represented by white circles. A given report may represent multiple individuals. Right hand panel shows total counts by species and time period.

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.

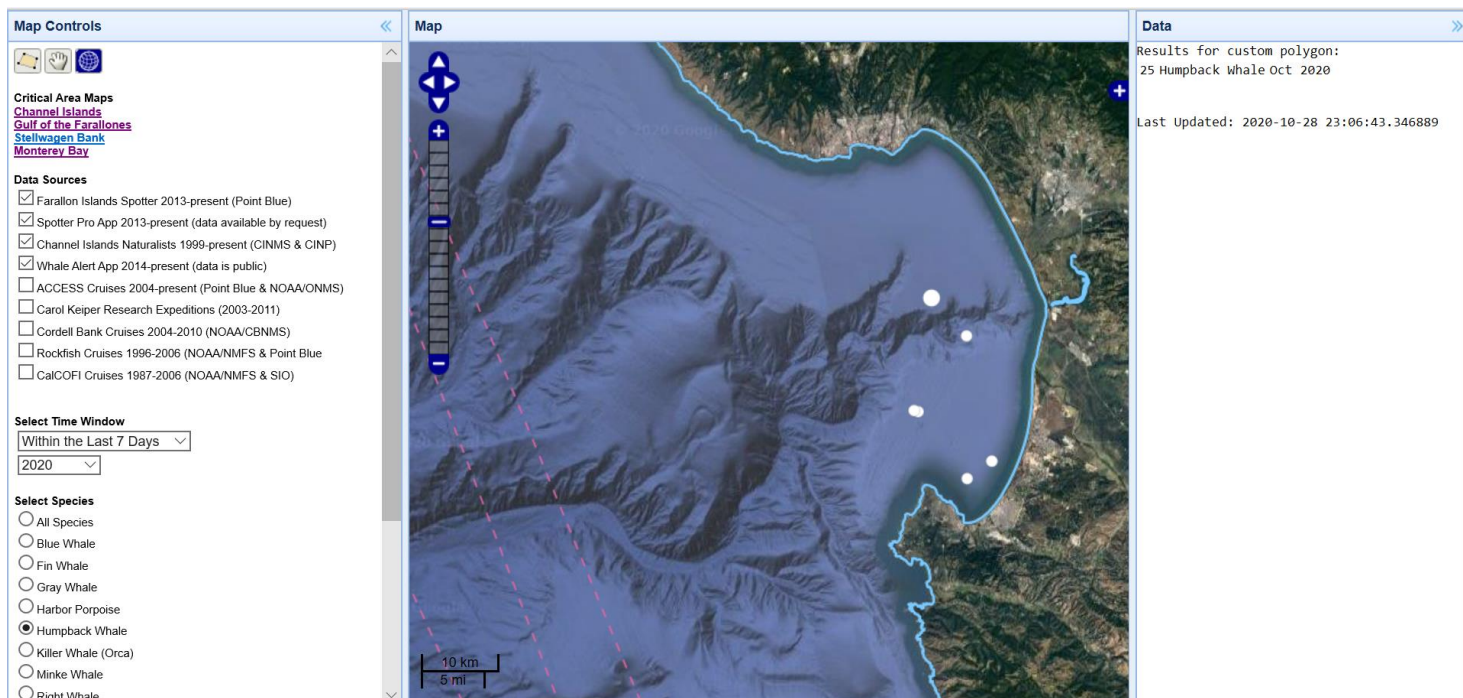


Figure 2. 25 Humpback whale sightings in Zone 4 from Oct 22-29, 2020. Reporting locations are represented by white circles. A given report may represent multiple individuals. Right hand panel shows total counts by species and time period.

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).

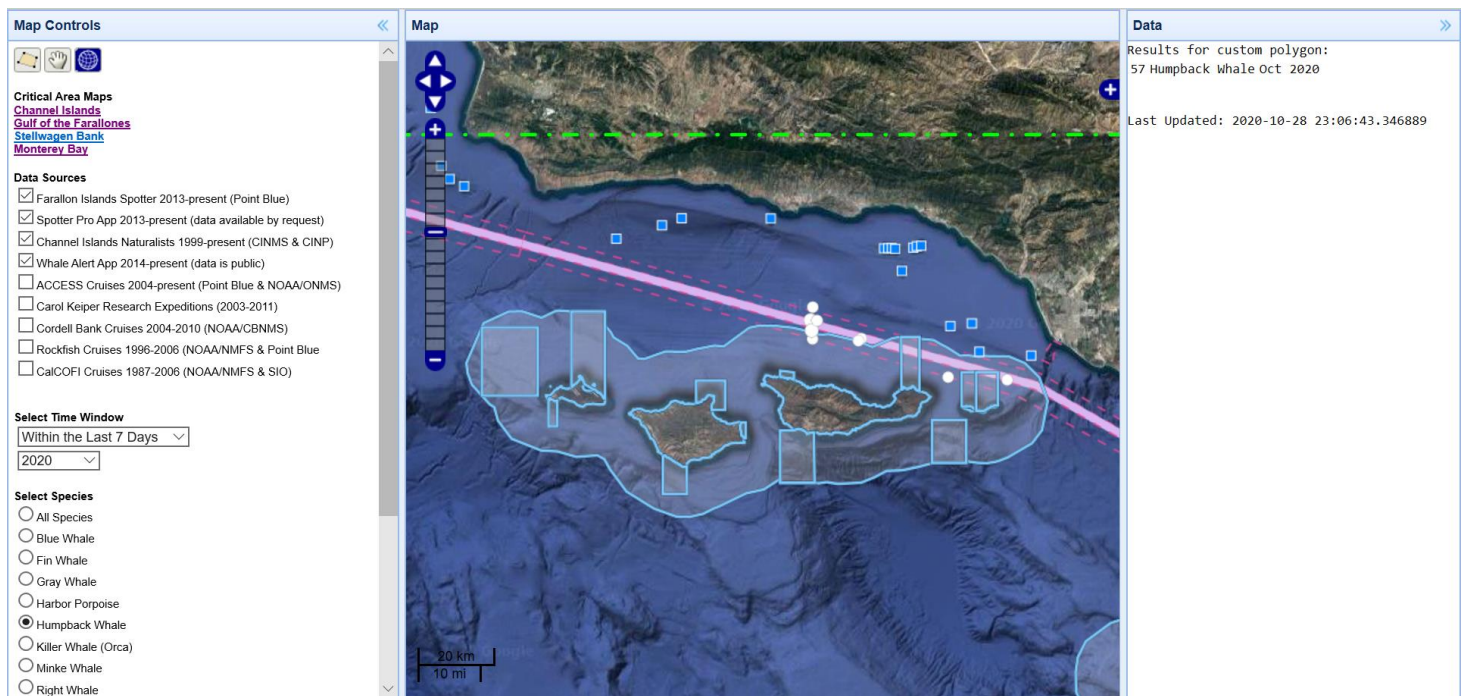


Figure 3. 57 Humpback whale sightings in Zone 6 from Oct 22-29, 2020. Reporting locations are represented by white circles. A given report may represent multiple individuals. Right hand panel shows total counts by species and time period.

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.

Date	Region	Vessel	Humpbacks						Blue whales			Unident. Whales	
			Trans/ Opp	ect Nmi	Photo- IDs			Sight	Anim	Photo- IDs	Sight	Anim	
					Sight	Anim	IDs						
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

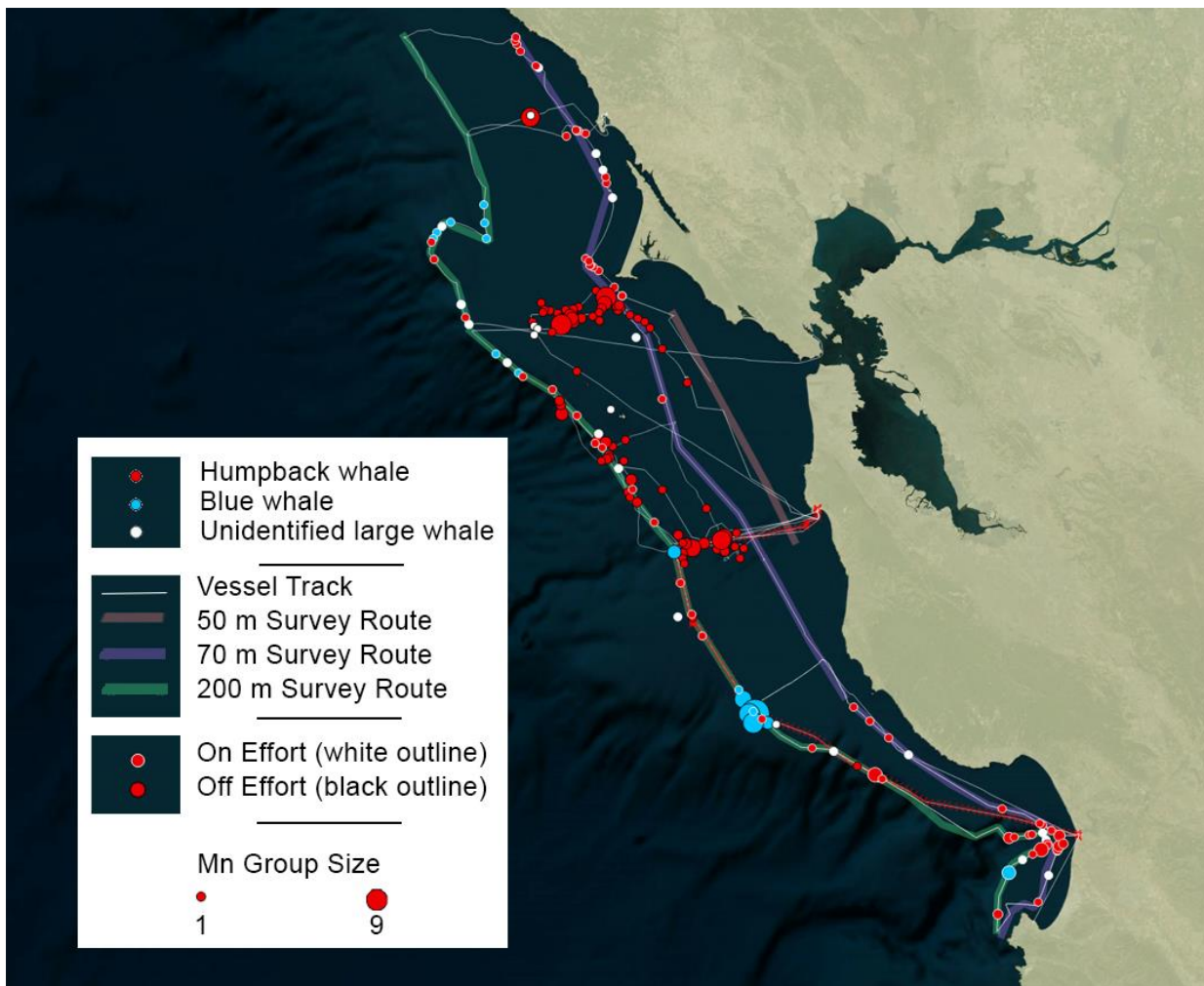


Figure 4. Effort and sighting locations during surveys described in Table 1.



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.

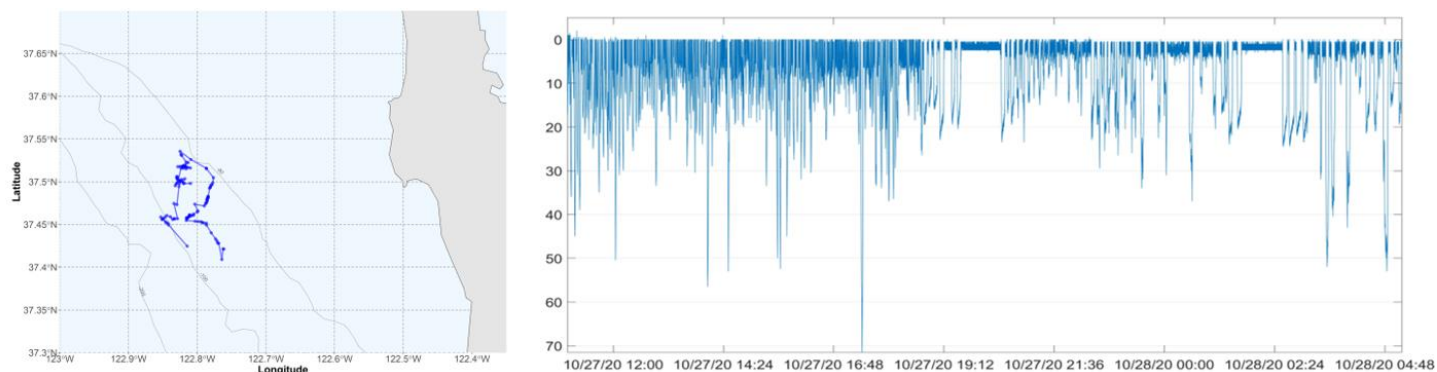


Figure 6. Preliminary position information and movement patterns from one tag deployed on a humpback whale on October 27, 2020 off Half Moon Bay showing movements between 80 and 100 m depth contours and diving indicative of feeding on variable but shallow fish prey. Depth in m.

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.

Date	Region	Vessel	Trans/ Transect	Opp Nmi	Humpbacks			Unident. Whales	
					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

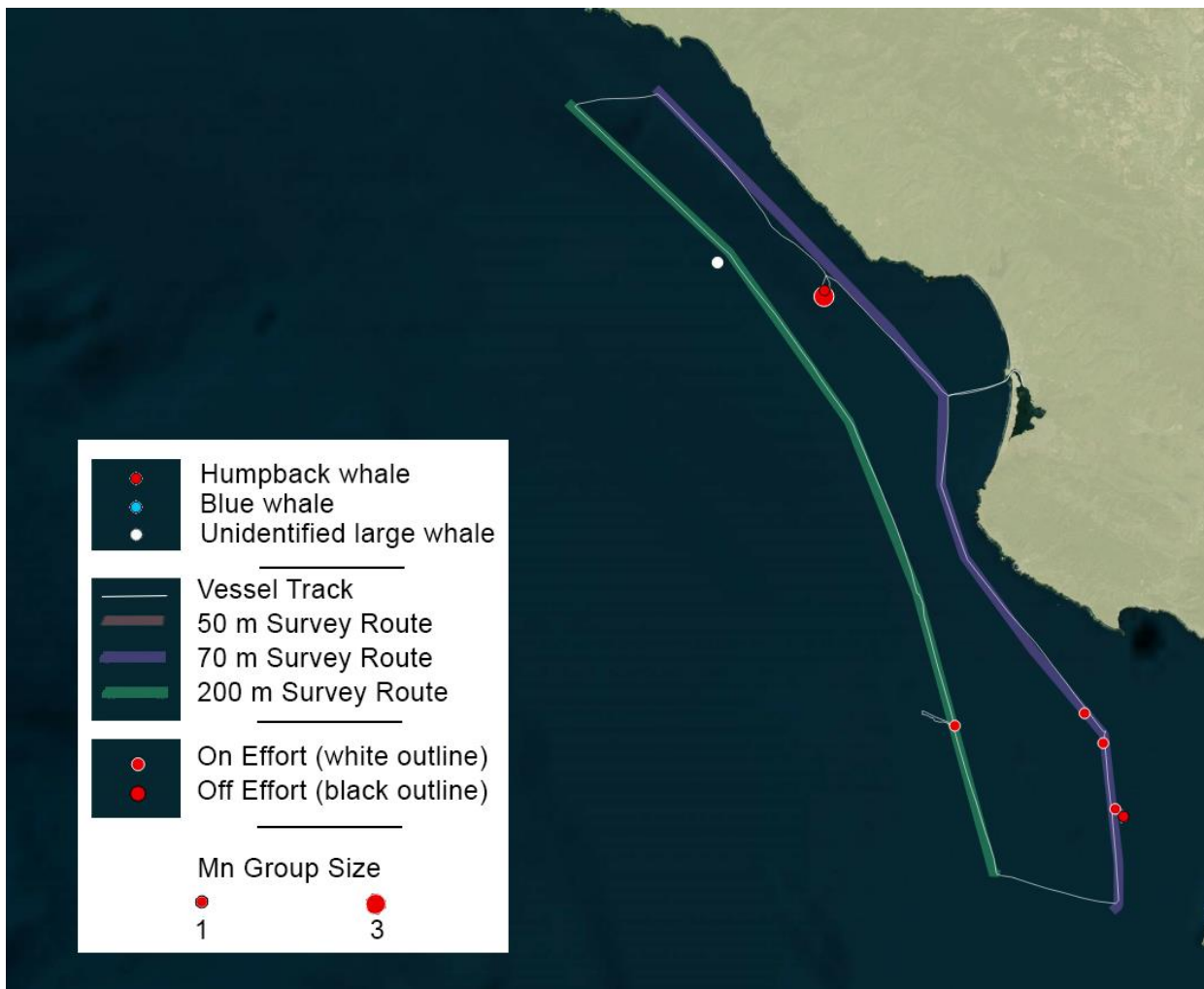


Figure 7. Map of effort and sightings from small boat surveys on 1 November 2020 off Southern California.

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.

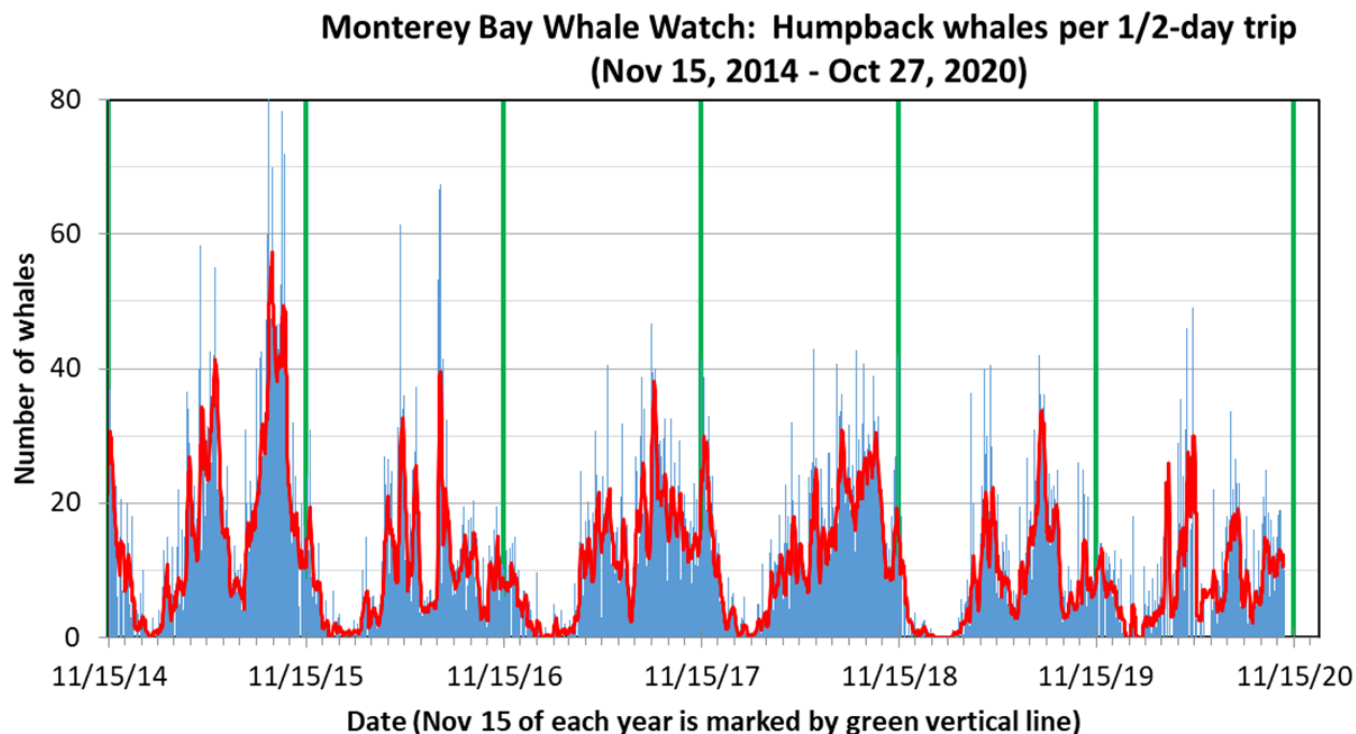


Figure 8. Standardized number of humpback whale sightings from 15 November 2014 – 27 Oct 2020 for Monterey Bay Whale Watch. The y-axis is the number of whales per half-day trip; the thin blue bars are the average daily whale numbers, and the red line is a 7-day running average to make the patterns a 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.

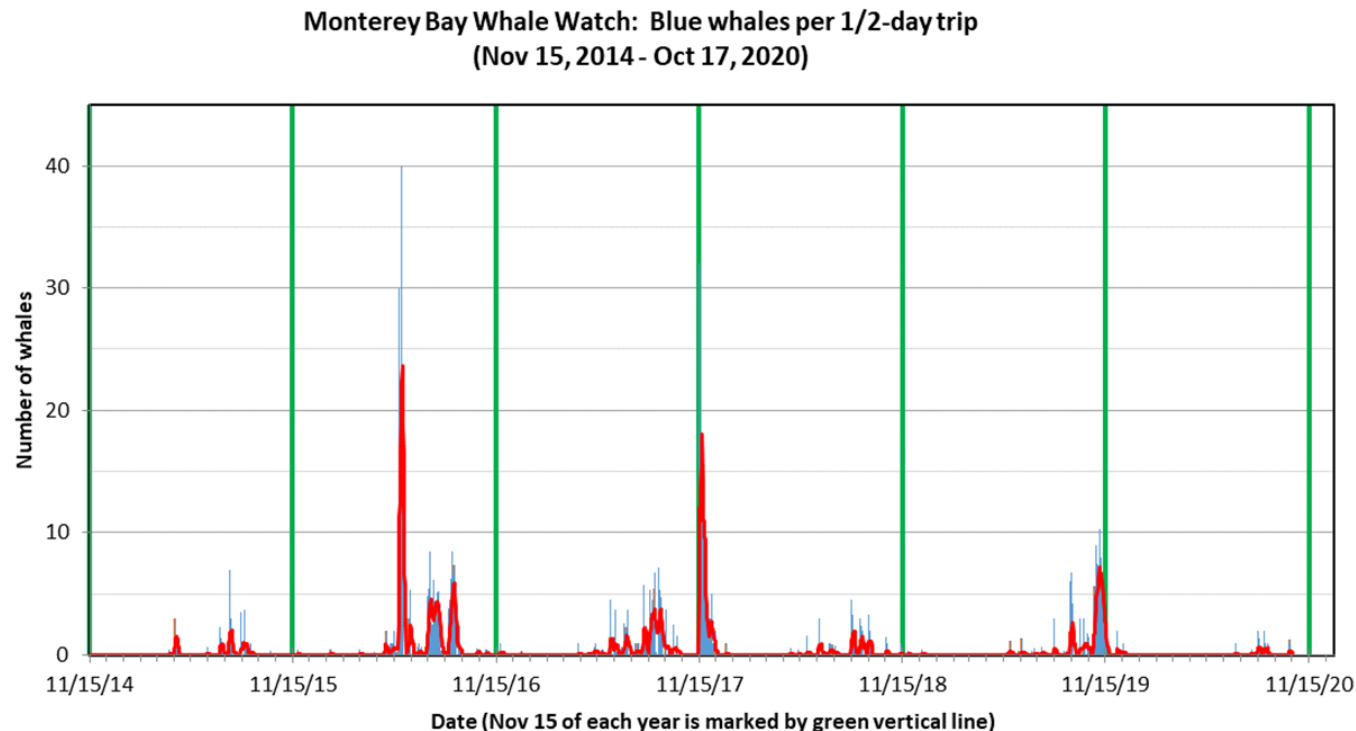


Figure 9. Standardized number of blue whale sightings from 15 November 2014 – 17 Oct 2020 for Monterey Bay Whale Watch. The y-axis is the number of whales per half-day trip; the thin blue bars are the average daily whale numbers, and the red line is a 7-day running average to make the patterns a bit 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.

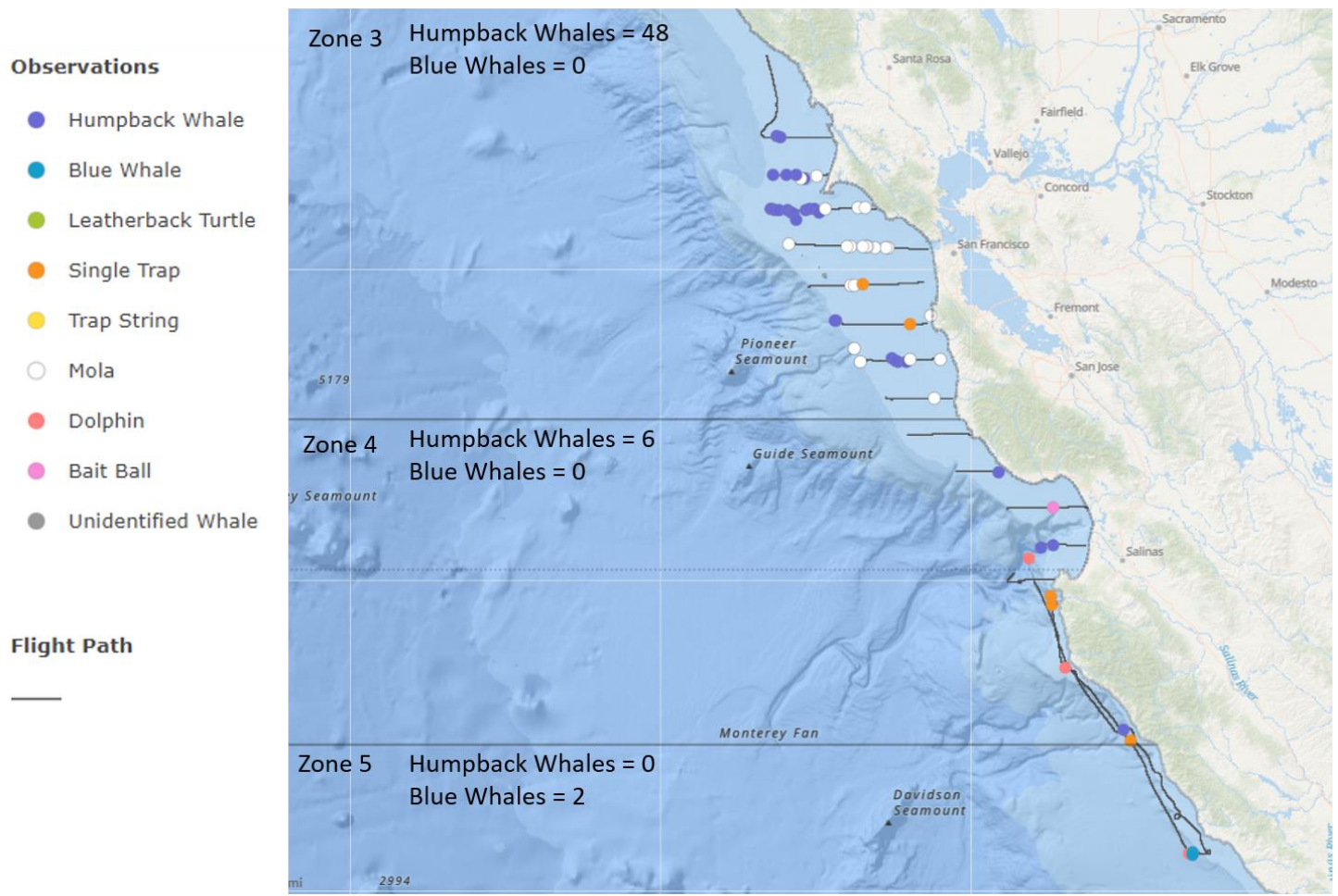


Figure 10. Flight path and observations during CDFW aerial survey in Fishing Zones 3 - 5 on October 28 and 29, 2020. Fishing Zone 3 = 48 Humpback whales and 0 Blue whales. Fishing Zone 4 = 6 Humpback whales and 2 Blue whales. Fishing Zone 5 = 0 Humpback whales and 2 Blue whales.

Observations

- Humpback Whale
- Blue Whale
- Leatherback Turtle
- Single Trap
- Trap String
- Mola
- Dolphin
- Bait Ball
- Unidentified Whale

Flight Path

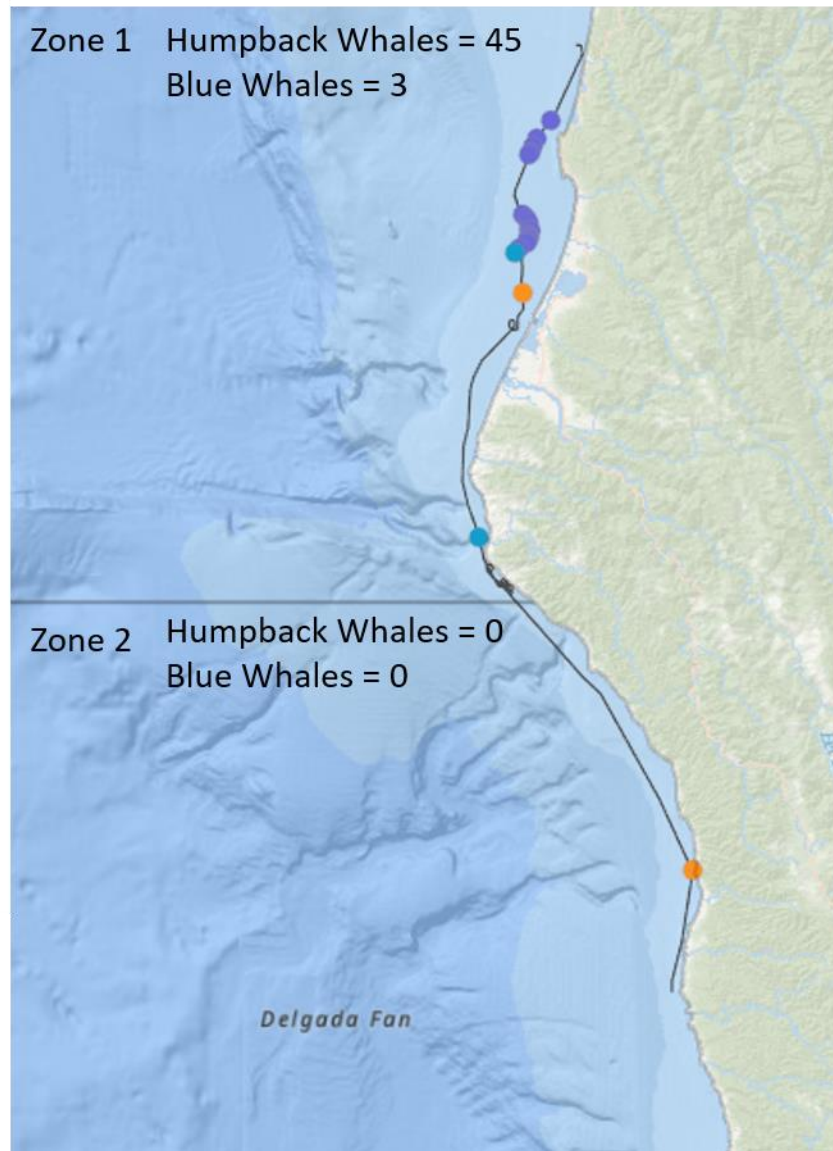


Figure 11. Flight path and observations during CDFW aerial survey in Fishing Zones 1 and 2 on October 29, 2020. Fishing Zone 1 = 45 Humpback whales and 3 Blue whales. Fishing Zone 2 = no Humpback or Blue whales observed.

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).

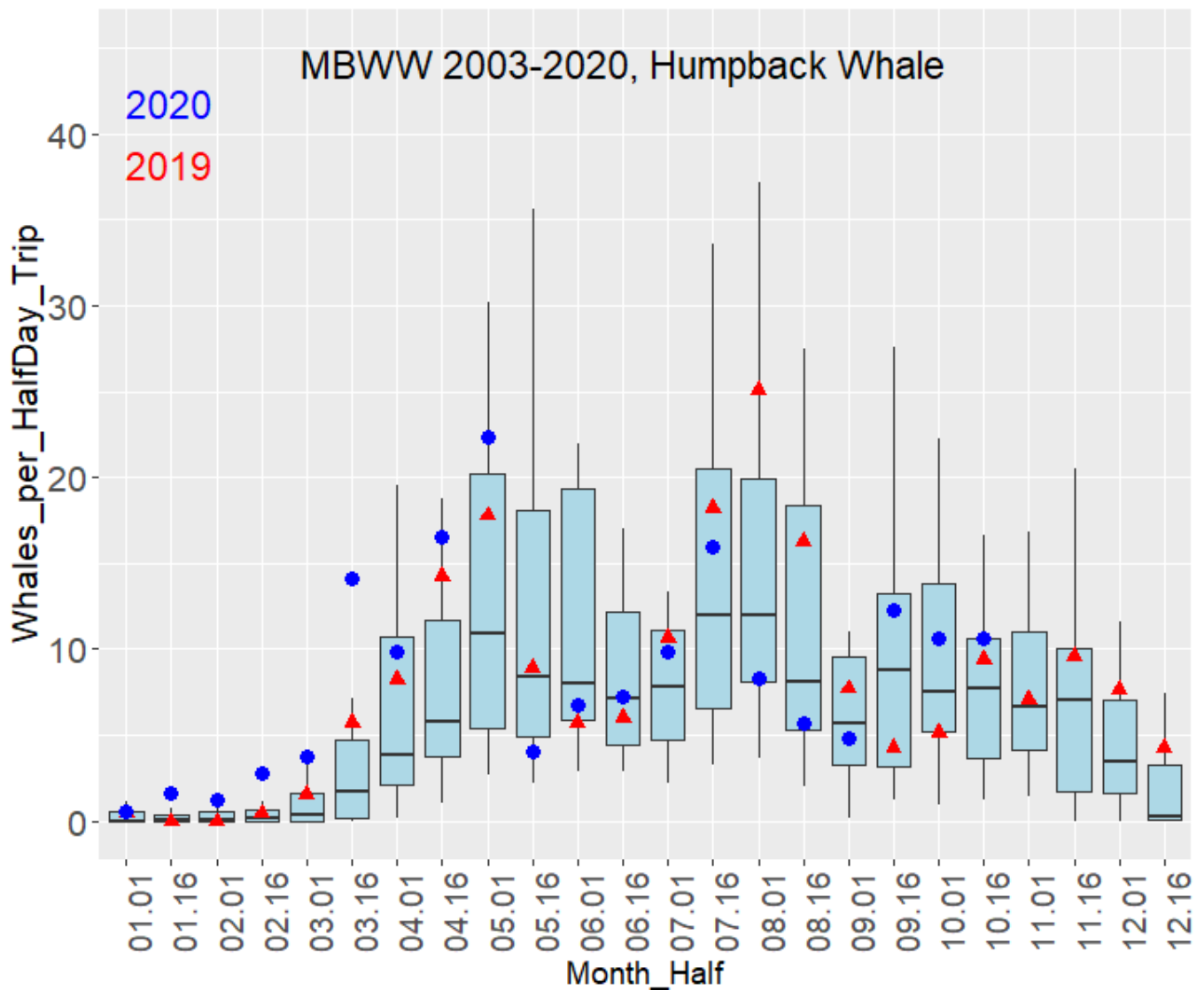


Figure 12. Historical Monterey Bay Whale Watch data for 2003-2020, summarizing the average and variation in the number of humpback whales per half-day trip on a semi-monthly basis (1st- 15th, 16th- end of month). This boxplot follows standard statistical practice in that the black horizontal line is 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.

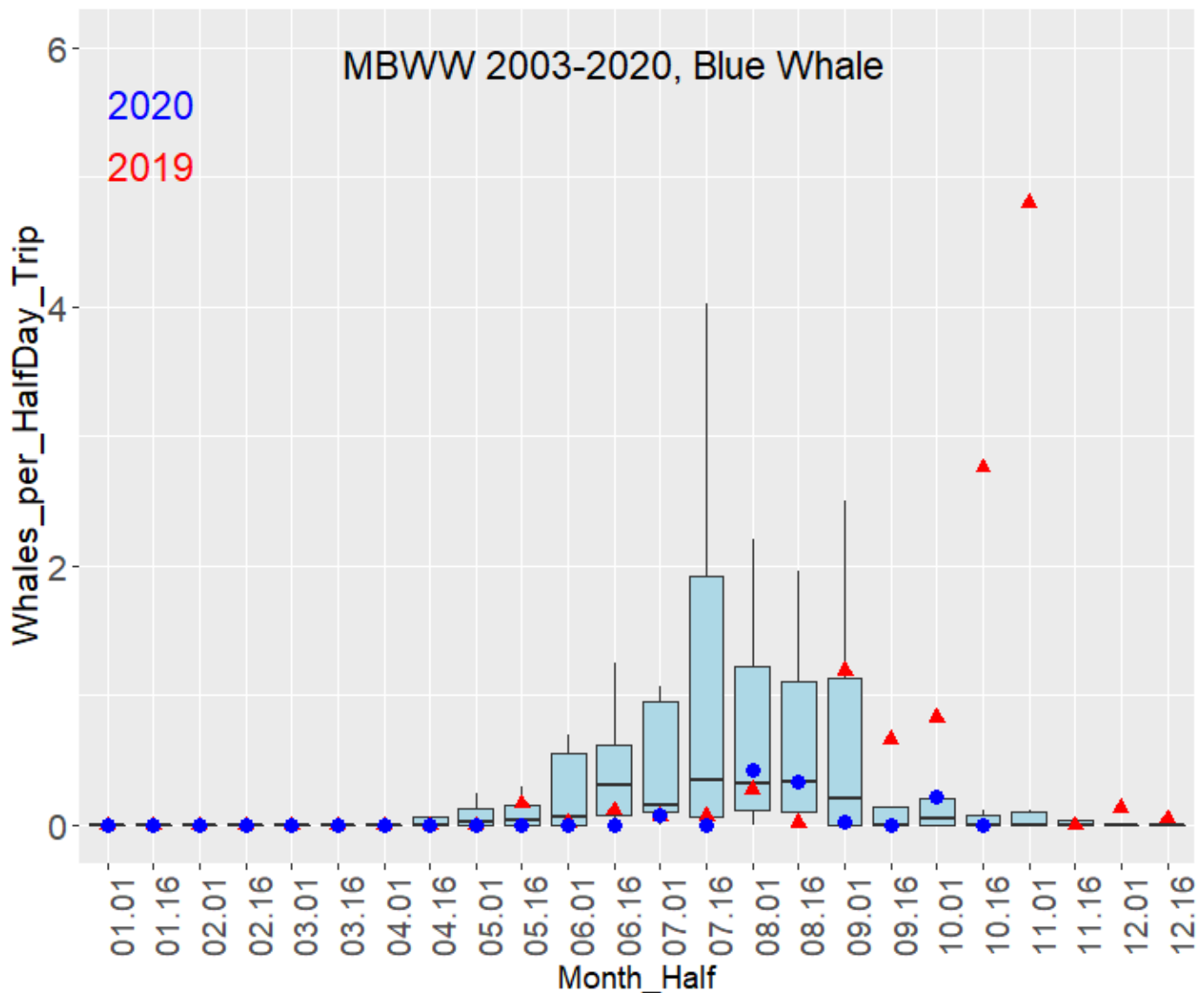


Figure 13. Historical Monterey Bay Whale Watch data for 2003-2020, summarizing the average and variation in the number of blue whales per half-day trip on a semi-monthly basis (1st- 15th, 16th- end of month). This boxplot follows standard statistical practice in that the black horizontal line is the 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),

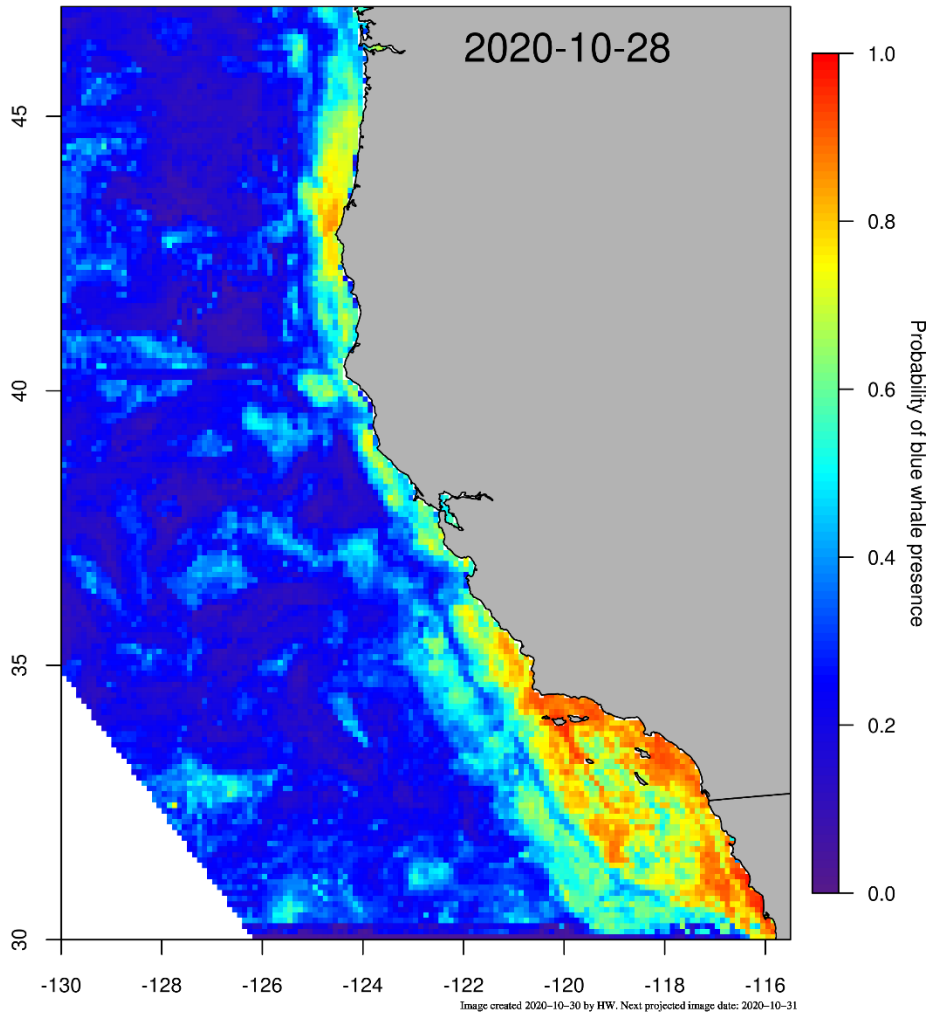
Whale Watch 2.0– All Fishing Zones

- 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).

WhaleWatch 2.0



Experimental Product



WhaleWatch 2.0 [or future product name] is a dynamic ocean management tool that aims to provide information on suitable whale habitat in real-time to minimize ship strike risk. Map shows predicted daily blue whale habitat suitability at 10km resolution which represents where whales are most likely to be based on environmental conditions. (link to website)

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99 Pacific Street, Monterey CA 93940, USA



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.

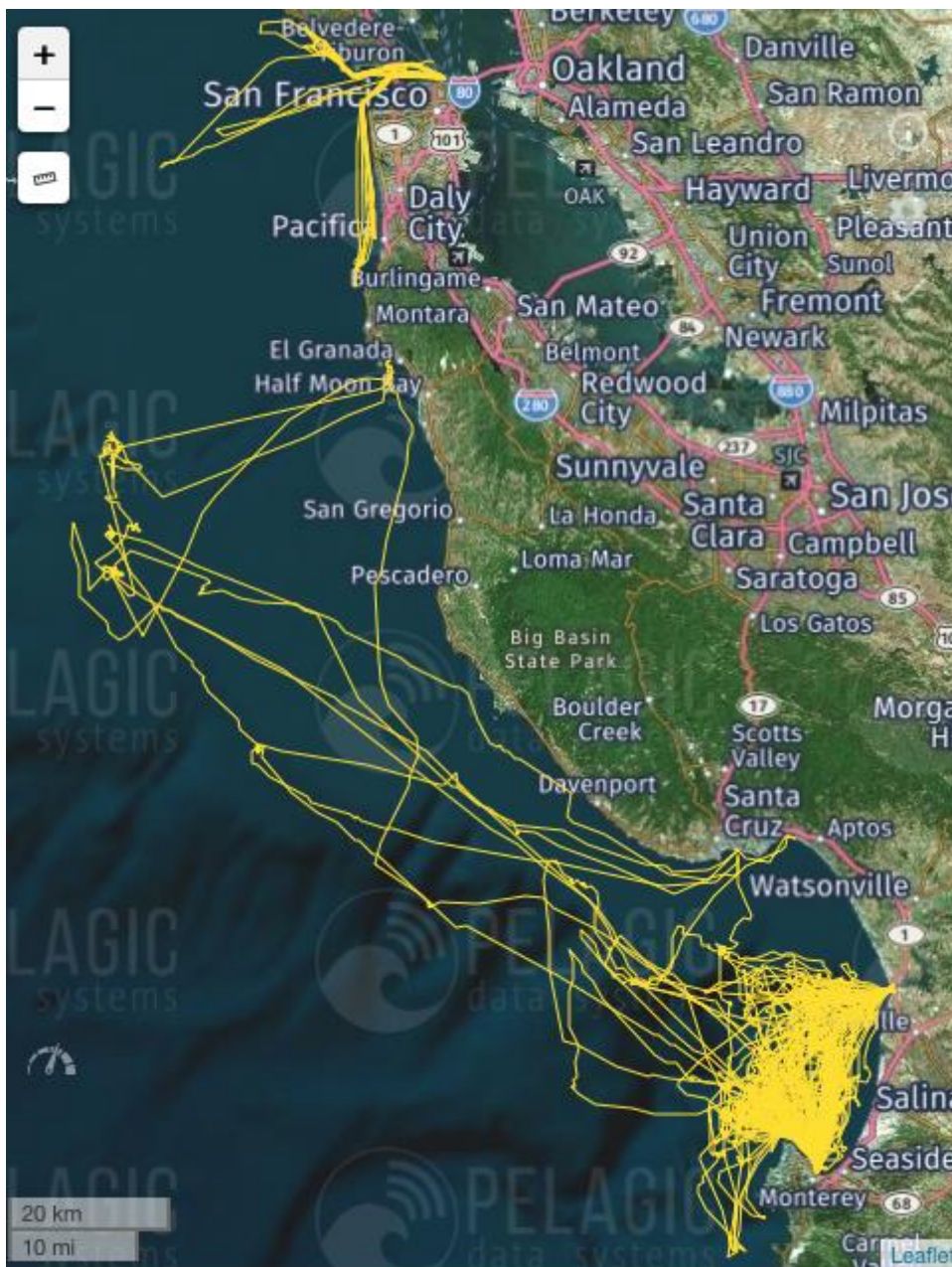


Figure 17. Track lines for all whale watch trips from October 1-28, 2020. Sightings information is not shown.

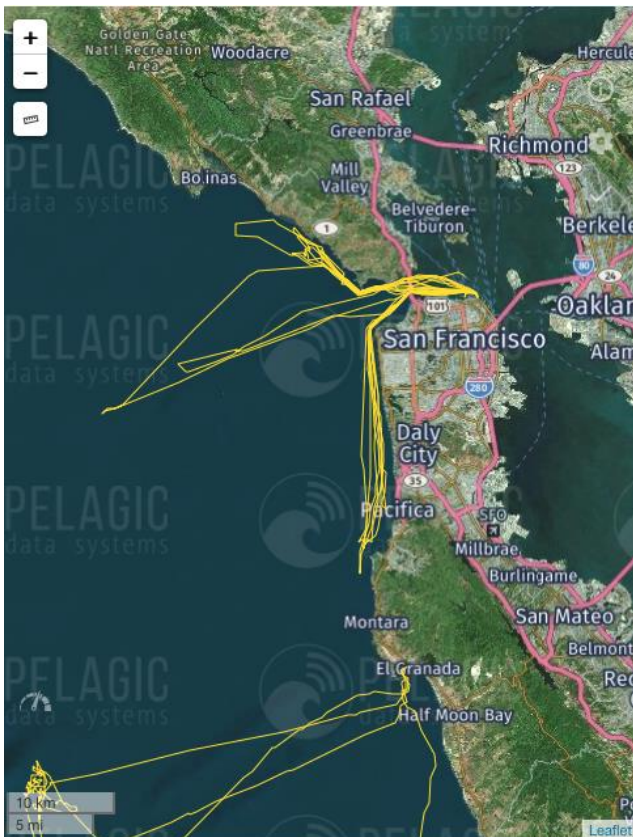


Figure 18. Track lines for all whale watch trips from October 1-28, 2020, focused on activity near San Francisco.

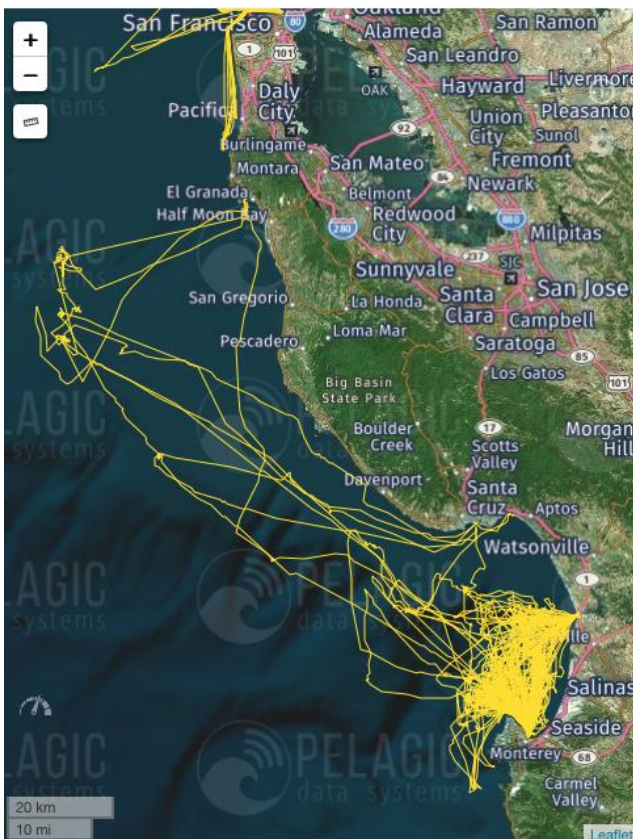


Figure 19. Track lines for all whale watch trips from October 1-28, 2020, focused on activity near Monterey Bay.