2021-22 Risk Assessment: Available Data

Last updated: January 12, 2022

Contents

Items with updated information are followed by an *.

TRIGGERS REQUIRING MANAGEMENT ACTION

Confirmed Entanglements: §132.8(c)(1)*

Data provided by: Lauren Saez and Dan Lawson (NMFS)

During 2021 there were 17 confirmed humpback whale entanglements, 0 confirmed blue whale entanglements, and 0 confirmed leatherback sea turtle entanglements reported to NMFS West Coast Region (Table 1).

- Of the 17 confirmed humpback whale entanglements
    - 11 were reported in California, three were reported from Mexico with commercial Dungeness crab gear, one was reported in Oregon, and two were reported in Washington.
    - One was in California commercial Dungeness crab gear (reported from Mexico in June, gear set location unknown).
- Of the 11 confirmed entanglements reported in California:

- Eight were identified to specific fisheries and three are considered unidentified gear entanglements
  - Three in gillnet and one each in spot prawn, experimental box crab, Washington commercial Dungeness crab gear, commercial lobster, and recreational hook & line gear
- 10 were reported in Fishing Zone 6 and one was reported in Fishing Zone 5

During 2022, there have no confirmed Actionable Species entanglements reported to NMFS West Coast Region (Table 2).

Table 1. Actionable Species entanglements in 2021, prepared by West Coast Region.

Actionable Species	Number Confirmed Entanglements in California Commercial Dungeness Crab Gear	Number Confirmed Entanglements in Unidentified Gear Reported off California
Humpback whales	1	3
Blue whales	0	0
Leatherback sea turtles	0	0

Table 2. Actionable Species entanglements in 2022, prepared by West Coast Region.

Actionable Species	Number Confirmed Entanglements in California Commercial Dungeness Crab Gear	Number Confirmed Entanglements in Unidentified Gear Reported off California
Humpback whales	0	0
Blue whales	0	0
Leatherback sea turtles	0	0

During 2021, there were no confirmed entanglements of either blue whales or leatherback sea turtles in California commercial Dungeness crab gear (reported from any location) or Unknown Fishing Gear (reported from California) during the current calendar year, so the cumulative Impact Score was 0 for these two species. See the November 17, 2021 Available Data document for additional details regarding the 2021 Calendar Year Impact Score calculation for humpback whales. CDFW anticipates providing a final determination regarding Impact Score assignments for humpback whales during 2021 in the next Available Data document (mid-February).

During 2022, there have been no confirmed Actionable Species entanglements reported to NMFS West Coast Region, therefore the cumulative Impact Score for the current calendar year is 0 for all three species (Table 3).

Thus far, there have been no entanglements of Actionable Species either confirmed in California commercial Dungeness crab gear (reported from any location) or confirmed in Unknown Fishing Gear (reported from California) during the 2021-22 fishing season, so the current Fishing Season Impact Score is 0 for all three species (Table 3).

Table 3. Impact Score Calculations based on Confirmed Entanglements in California commercial Dungeness crab gear and confirmed entanglements in Unknown Fishing Gear reported off California.

Actionable Species	Current Fishing Season Impact Score (2021-22)	Current Calendar Year Impact Score (2022)
Humpback whales	0	0
Blue whales	0	0
Leatherback sea turtles	0	0

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

Data provided by: California Department of Fish and Wildlife, Monterey Bay Whale Watch (processed by Karin Forney, NOAA), Scott Benson (NOAA SWFSC, in collaboration with Upwell.org)

Table 4. Summary of available CDFW-approved survey data for marine life concentrations for Fishing Zones 1-6, 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	No
Zone 4	CDFW Aerial Survey, MBWW	No
Zone 5	NA	NA
Zone 6	NA	NA

CDFW Aerial Survey *(Fishing Zones 1-4)*

CDFW flew zig-zag transects between Point Pinos and Trinidad on January 8, 2022 covering nearshore waters out to 50 fathoms/100 m (with the exception of the Gulf of the Farallones, where transects go out to 30 fathoms/60 m; Figures 1-2). One humpback whale was observed in Fishing Zone 1 and two humpback whales were observed in Fishing Zone 2. Gray whales were observed in each Fishing Zone: two in Fishing Zone 1, nine in Fishing Zone 2, one in Fishing Zone 3 (as well as an unidentified whale), and one in Fishing Zone 4.

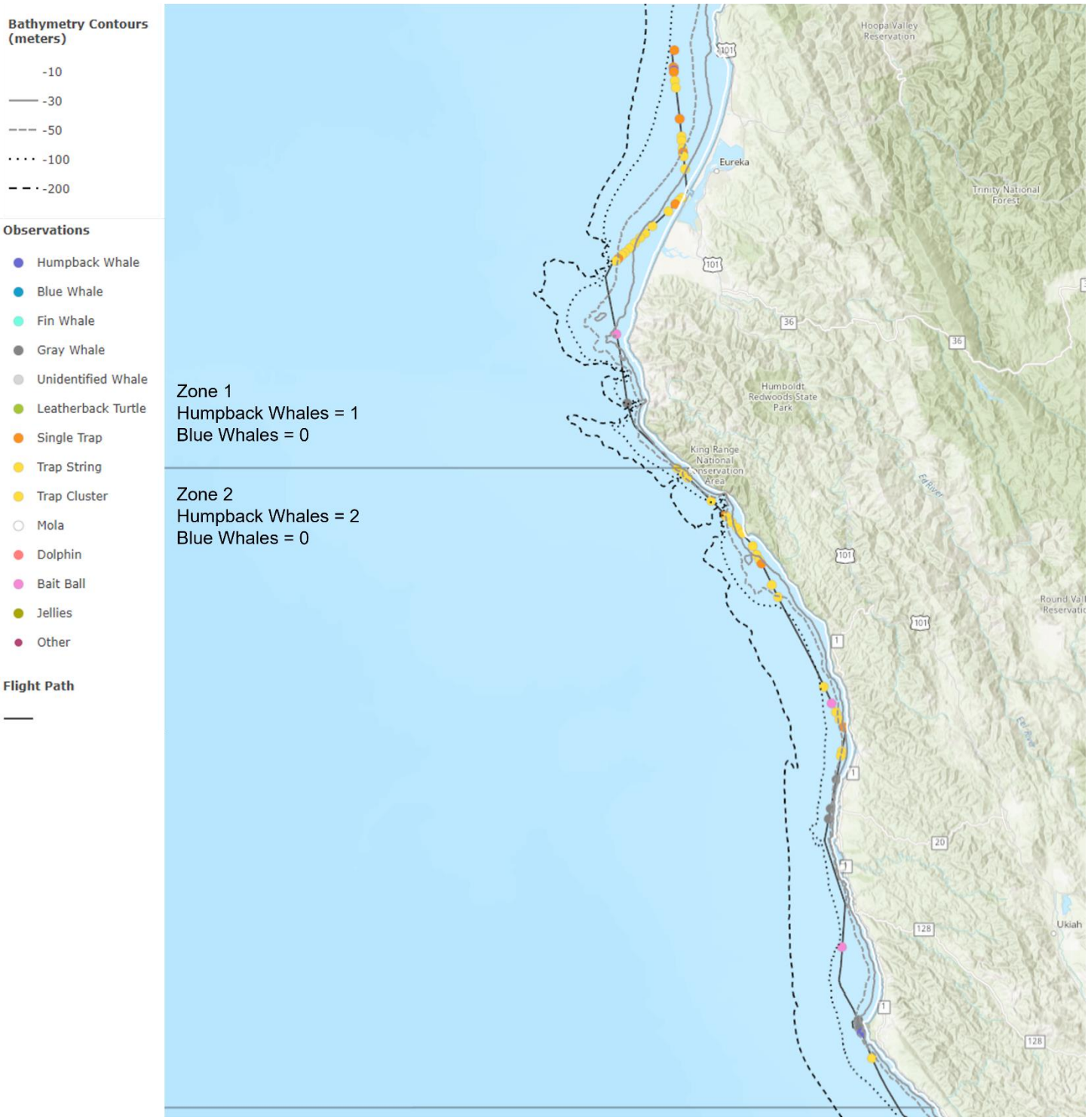

Figure 1. Map showing track lines and observations from CDFW aerial survey of Fishing Zones 1 and 2 on January 8, 2022. Survey information is overlaid onto contours showing the 10m, 30m, 50m, 100m, and 200m bathymetry lines.

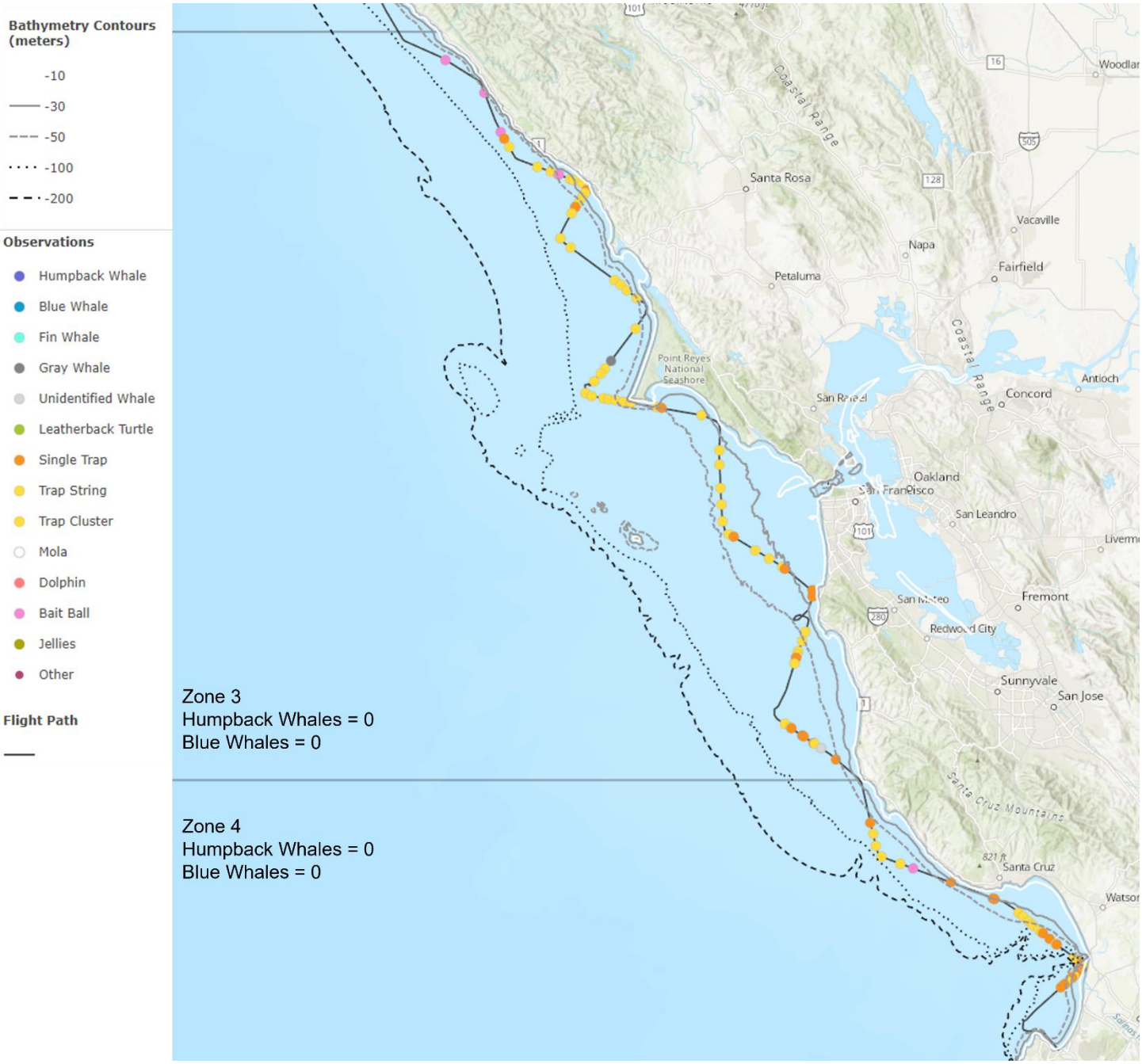

Figure 2. Map showing track lines and observations from CDFW aerial survey of Fishing Zones 3 and 4 on January 8, 2022. Survey information is overlaid onto contours showing the 10m, 30m, 50m, 100m, and 200m bathymetry lines.

Monterey Bay Whale Watch *(Fishing Zone 4)*

- MBWW conducted whale-watching trips in southern Monterey Bay on all seven days during the week of January 1 - 7, 2022.
- The average number of humpback whales-per-trip during the last seven days (January 1-7, 2022) was 0.29, with a peak of five whales observed on a single trip on January 2, 2022. No humpback whales were observed on the other six days during this seven-day period.
- No blue whales were observed during this period.

Leatherback Sea Turtle Telemetry *(All Fishing Zones)*

The adult male leatherback sea 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 is approximately 1,100 miles southwest of Point Conception. The turtle continues to move in a southwest direction.

MANAGEMENT CONSIDERATIONS

Information from NOAA: §132.8(d)(2)
No additional information was shared.

Effectiveness of management measures: §132.8(d)(3)
Data provided by: California Department of Fish and Wildlife

CDFW's effectiveness evaluation for the management actions specified in §132.8(e) will be provided in the January 12, 2022 Initial Assessment.

Total economic impact to the fleet: §132.8(d)(4)
Data provided by: California Department of Fish and Wildlife

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. CDFW will provide this evaluation in the January 12, 2022 Initial 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), Point Blue Conservation Science, NOAA Environmental Research Division

Monterey Bay Whale Watch *(Fishing Zone 4)*
- The semi-monthly average number of whales-per-half-day-trip during the first week of January is low, as expected based on historical patterns for this time of the year (Figure 3).
- No blue whales have been observed by MBWW since Nov 13, 2021, when one whale was documented. This is consistent with their historical seasonal migration patterns to lower latitudes during winter.

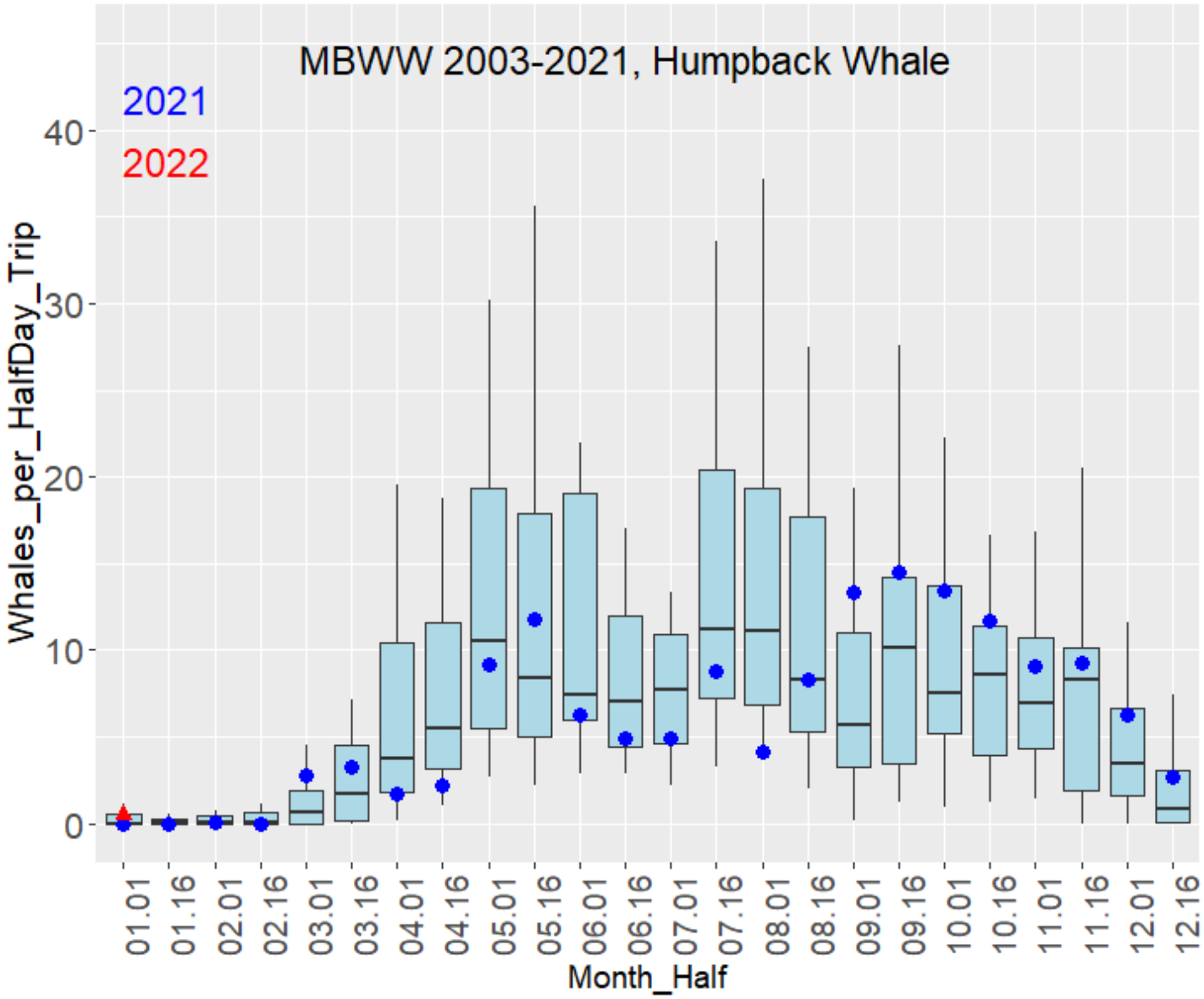

Figure 3. Historical Monterey Bay Whale Watch data for 2003-2022, summarizing the average and variation in the number of humpback whales per half-day trip on a semi-monthly basis (1st-15th, 16th-end of month). This boxplot follows standard statistical practice in that the black horizontal line is the 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) and are provided for reference, placing recent whale numbers in a historical context.

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

During the 7-day period ending January 11, 2022, trained observers at the Farallon Islands did not report any humpback or blue whales within Fishing Zone 3, and trained naturalists aboard Monterey Bay Whale Watch and Marine Life Studies did not report any humpback or blue whales within Fishing Zone 4. 14 humpback whale sightings were reported within Fishing Zone 6 by trained naturalists from the Channel Islands National Marine Sanctuary and National Park Service. All humpbacks were reported between Ventura/Oxnard and Santa Cruz Island (Figure 4).

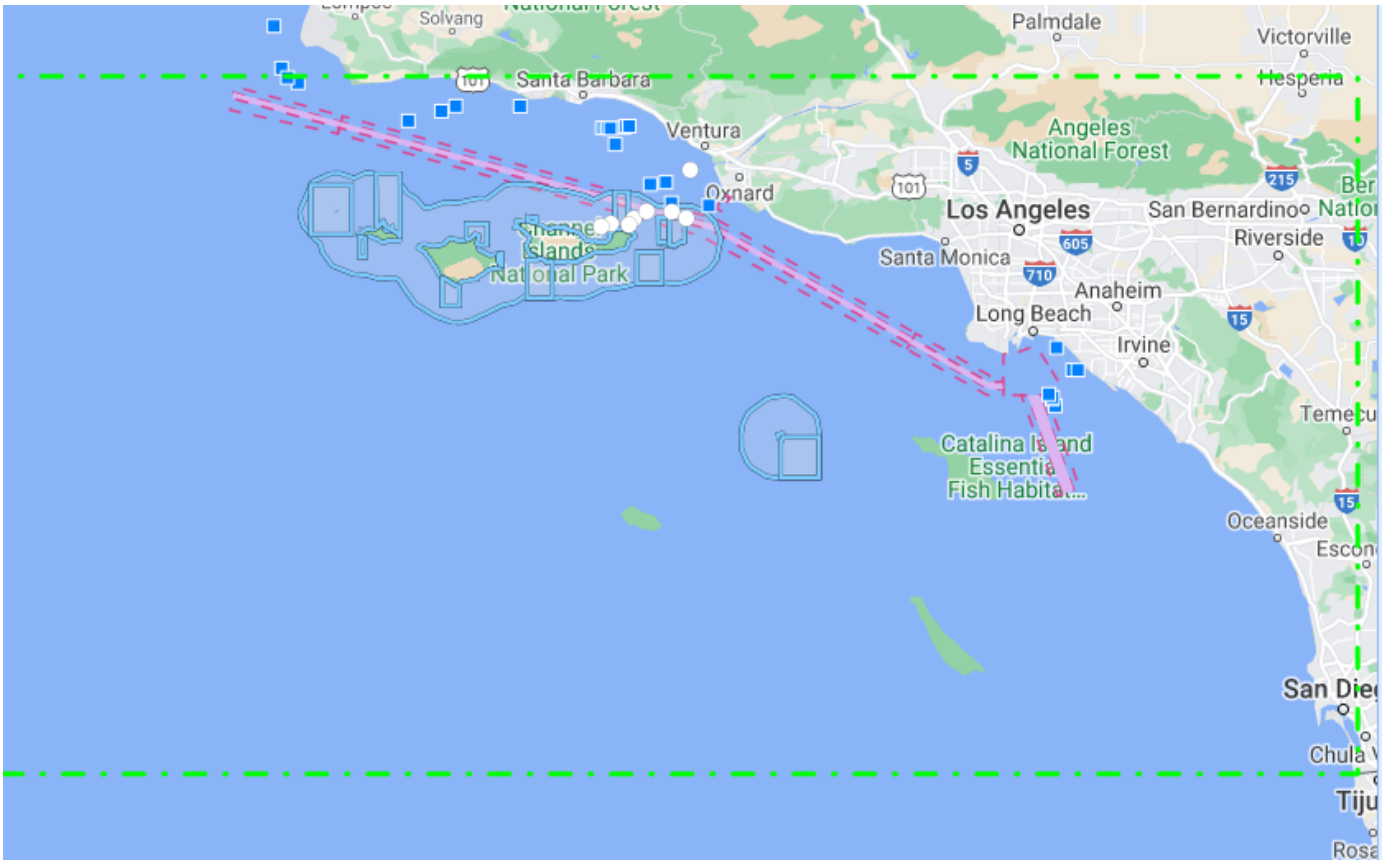

Figure 4. Location of 14 humpback whale sightings within Fishing Zone 6. Reporting locations are represented by white circles. A given report may or may not represent multiple individuals. Fishing Zone boundaries are indicated by the dashed green line.

WhaleWatch 2.0 *(All Fishing Zones)*

Blue whale habitat predictions for December 30, 2021 (Figure 5) indicate low habitat suitability in Fishing Zones 1-6.

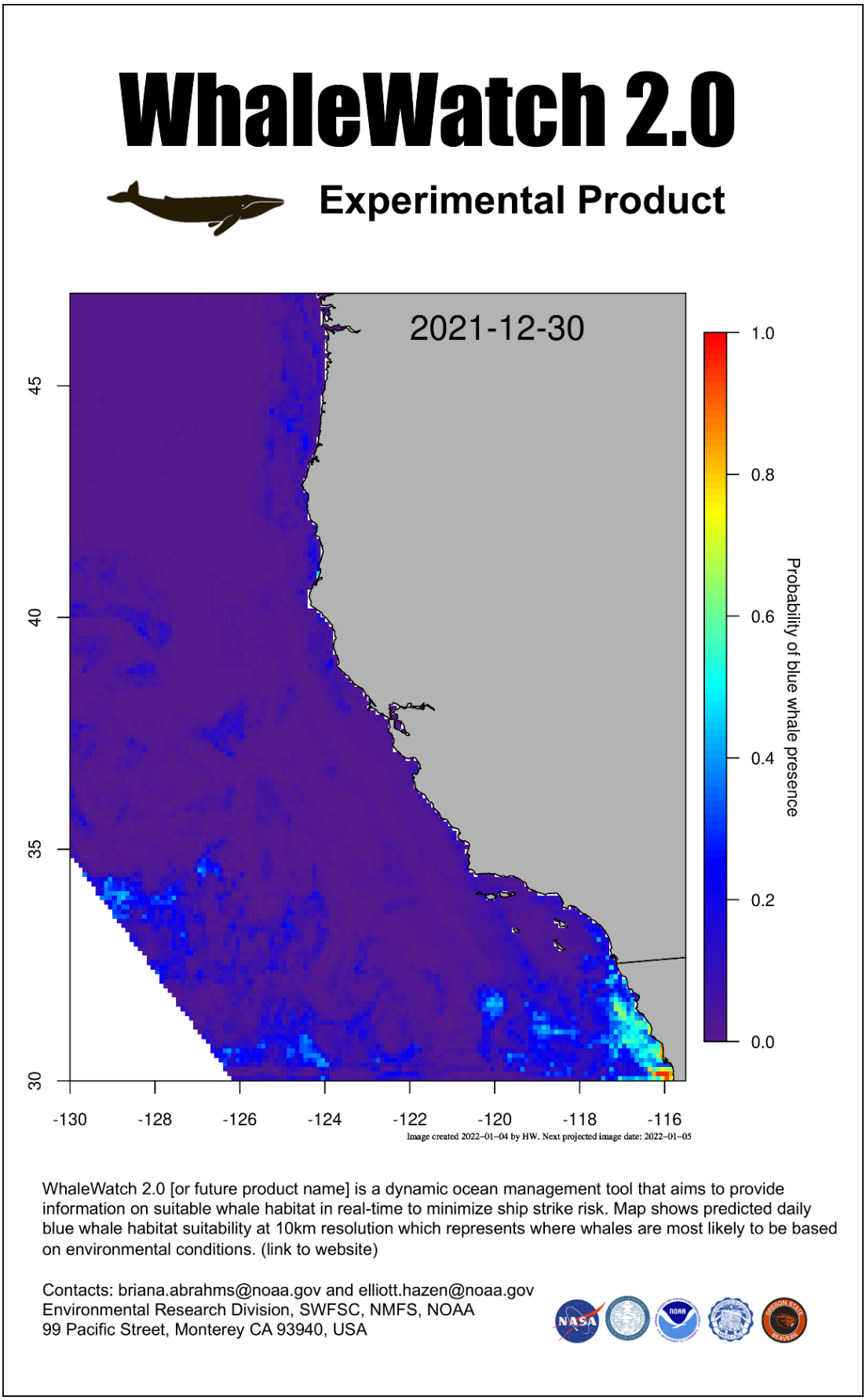

Figure 5. WhaleWatch 2.0 map for December 30, 2021. View a current map.

Fishing Season dynamics: §132.8(d)(7)*

Data provided by: California Department of Fish and Wildlife

CDFW data presented in this section is preliminary and subject to revision.

Marine Landings Data System *(All Fishing Zones)*

Fishing Zones 5 and 6 opened under a Fleet Advisory on November 15, 2021 and Fishing Zones 1 and 2 opened under a Fleet Advisory on December 1, 2021. Fishing Zone 4 opened under a depth restriction and Fleet Advisory on December 16, 2021; the depth constraint was lifted on December 26, 2021. Fishing Zone 3 opened on December 29, 2021. The fishery is currently open statewide.

The majority of fishing activity (both active vessels and landing volume) thus far has been in the Northern Management Area. 49% of the landings have come into Crescent City, with 23% coming into Eureka and between 4 and 8% each coming into the ports of San Francisco, Trinidad, Half Moon Bay, and Bodega Bay (Figure 6). 78% of the catch thus far has been harvested from Zone 1, with 19% harvested from Zone 3 (Figure 7). Total volume declined between the weeks of November 29, 2021 and December 20, 2021, then increased during the week of December 27, 2021 with the majority of catch harvested from Fishing Zone 3.

Looking at vessel activity by port (Figure 8), the highest activity has been in Crescent City (82 active vessels) and Eureka (67 active vessels), followed by San Francisco (51 active vessels), Half Moon Bay (42 active vessels), and Bodega Bay (40 active vessels). Vessels have also made landings into Trinidad, Fort Bragg, Monterey, and Morro Bay.

Table 5. Summary of fleet dynamics information, as of January 7, 2021.

Metric	Value	Additional Info
Season status	Open	All Fishing Zones are open.
Number of daily landings	2,001	NA
Total volume (pounds)	7,451,949	NA
Total Ex-Vessel Value	$36,750,599	NA
Average unit price	$4.75	NA
Total number of active vessels	331	NA
Maximum potential traps (based on active permits)	111,475	Estimates are also provided in the Bi-Weekly Fishing Activity Reports subsection.

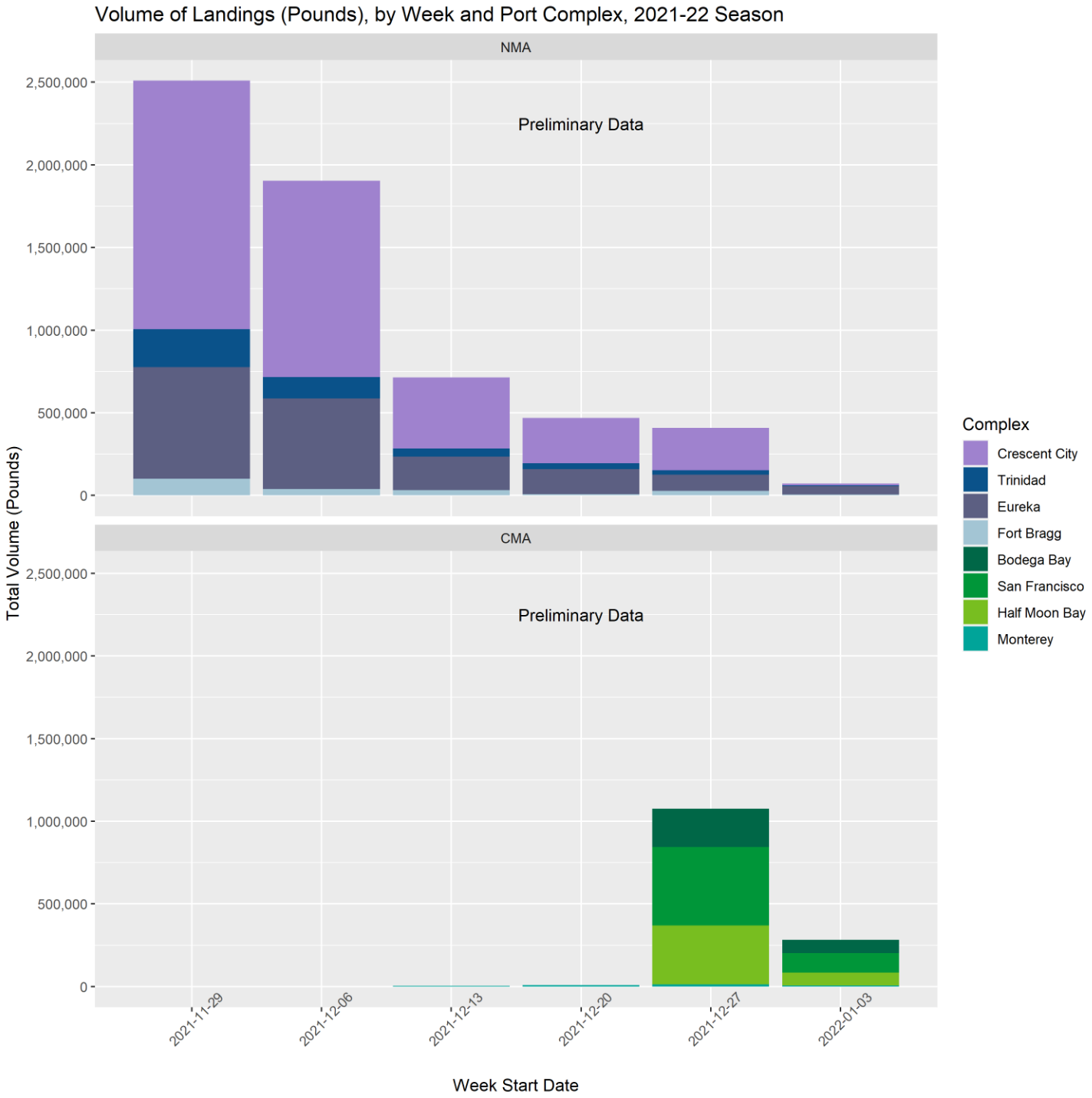

Figure 6. Cumulative volume (pounds) landed by week and port complex. Week 1 starts with the first day the commercial Dungeness crab fishery was open in any area, November 15, 2021. All data are preliminary and subject to change. Certain week*port complex combinations are withheld due to confidentiality constraints.

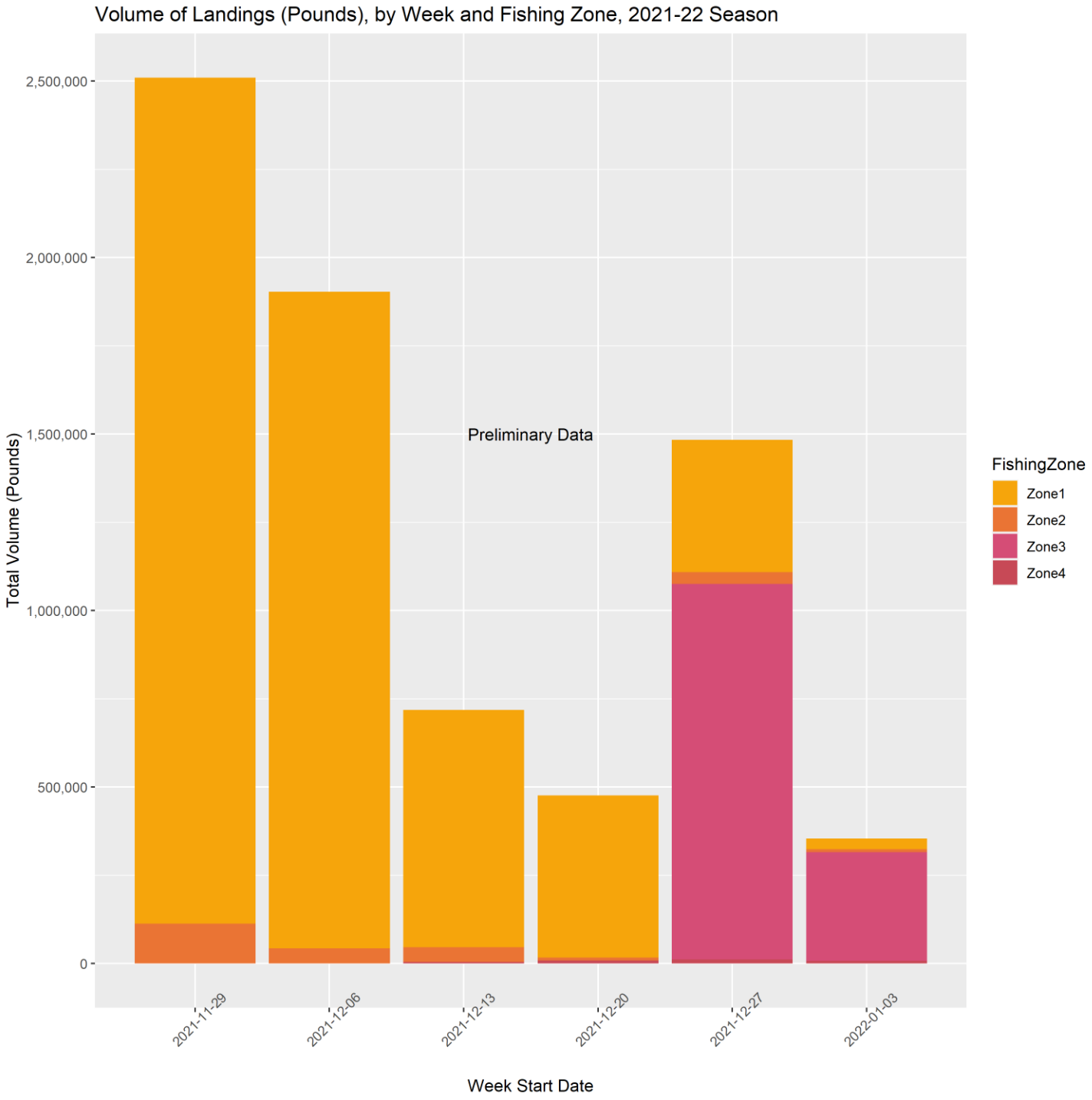

Figure 7. Cumulative volume (pounds) harvested by week and Fishing Zone. Week 1 starts with the first day the commercial Dungeness crab fishery was open in any area, November 15, 2021. All data are preliminary and subject to change. Certain week*Fishing Zone combinations are withheld due to confidentiality constraints.

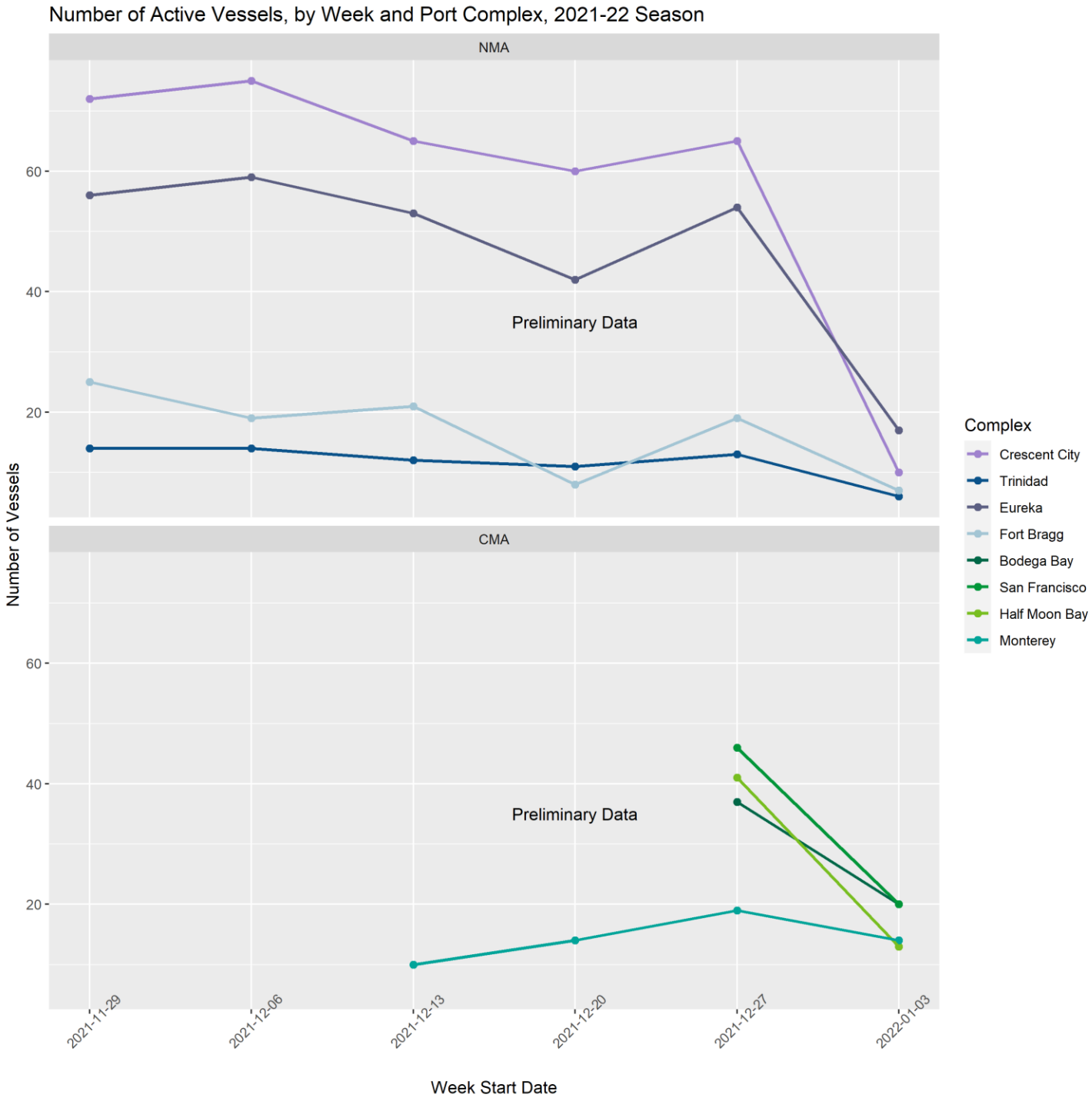

Figure 8. Number of active vessels by week and port complex. Week 1 starts with the first day the commercial Dungeness crab fishery was open in any area, November 15, 2021. All data are preliminary and subject to change. Certain week*port complex combinations are withheld due to confidentiality constraints.

Bi-Weekly Fishing Activity Reports *(All Fishing Zones)*

- CDFW has received bi-weekly reports since the first reporting period of November 16, 2021 through the most recent reporting period of January 1, 2022. Although total reports for each period may not reflect all permitted vessels participating in the fishery, summaries are

being provided for the following periods: December 1, 2021 (Table 6), December 16, 2021 (Table 7), and January 1, 2022 (Table 8).

- The January 1, 2022 reporting period covers fishery participation from December 16-31, 2021, and about 67,689 traps are estimated to be deployed statewide with just over half of these located within Fishing Zone 1 and over a third of these located within Fishing Zone 3.

Table 6. Summary of information provided for the December 1, 2021 bi-weekly reporting period by Fishing Zone (1-6). Accessed from CDFW's Bi-Weekly Reporting database on January 10, 2022. NR-C refers to data withheld due to confidentiality and all data are preliminary and subject to change.

Fishing Zone	Permits Reporting	Avg. Trap Number	Total Traps	Avg. Min. Depth (fa.)	Avg. Max. Depth (fa.)	Max. Depth (fa.)	Final Report	Number of Lost Traps
Zone 1	74	381	28,203	13	33	70	0	
Zone 2	19	198	3,763	15	30	50	0	
Zone 3	Not open							
Zone 4	Not open							
Zone 5	NR-C	NR-C	NR-C	NR-C	NR-C	NR-C	NR-C	NR-C
Zone 6	NR-C	NR-C	NR-C	NR-C	NR-C	NR-C	NR-C	NR-C
Totals	93		31,966				0	

Table 7. Summary of information provided for the December 16, 2021 bi-weekly reporting period by Fishing Zone (1-6). Accessed from CDFW's Bi-Weekly Reporting database on January 10, 2022. NR-C refers to data withheld due to confidentiality and all data are preliminary and subject to change.

Fishing Zone	Permits Reporting	Avg. Trap Number	Total Traps	Avg. Min. Depth (fa.)	Avg. Max. Depth (fa.)	Max. Depth (fa.)	Final Report	Number of Lost Traps
Zone 1	101	367	37,066	14	38	75	1	1
Zone 2	26	247	6,416	15	30	50	1	2
Zone 3	Not open							
Zone 4	5	109	544	16	36	40	0	
Zone 5	NR-C	NR-C	NR-C	NR-C	NR-C	NR-C	NR-C	NR-C
Zone 6	NR-C	NR-C	NR-C	NR-C	NR-C	NR-C	NR-C	NR-C
Totals	132		44,026				2	3

Table 8. Summary of information provided for the January 1, 2022 bi-weekly reporting period by Fishing Zone (1-6). Accessed from CDFW's Bi-Weekly Reporting database on January 10, 2022. NR-C refers to data withheld due to confidentiality and all data are preliminary and subject to change.

Fishing Zone	Permits Reporting	Avg. Trap Number	Total Traps	Avg. Min. Depth (fa.)	Avg. Max. Depth (fa.)	Max. Depth (fa.)	Final Report	Number of Lost Traps
Zone 1	97	362	35,137	13	35	100	2	16
Zone 2	21	220	4,613	14	30	50	0	
Zone 3	90	281	25,308	21	41	120	2	15
Zone 4	13	202	2,631	24	44	80	0	
Zone 5	NR-C	NR-C	NR-C	NR-C	NR-C	NR-C	NR-C	NR-C
Zone 6	NR-C	NR-C	NR-C	NR-C	NR-C	NR-C	NR-C	NR-C
Totals	221		67,689				4	31

CDFW Aerial Survey – *Fishing Zones 1-4*

A total of 1,471 traps were observed throughout the survey area. This is not an estimate of total traps deployed, only an observation of areas of high trap deployment. (Figures 1-2).

- Fishing Zone 1: 218 observed traps
  - 12 trap clusters, 147 traps total
  - 6 trap strings, 60 traps total
  - 11 single traps
- Fishing Zone 2: 454 observed traps
  - 16 trap clusters, 413 traps total
  - 3 trap strings, 37 traps total
  - 4 single traps
- Fishing Zone 3: 605 observed traps
  - 38 trap clusters, 435 traps total
  - 9 trap strings, 151 traps total
  - 19 single traps
- Fishing Zone 4: 194 observed traps
  - 5 trap clusters, 44 traps total
  - 12 trap strings, 133 traps total
  - 17 single traps

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

Data provided by: California Department of Fish and Wildlife

CDFW Aerial Survey – *Fishing Zones 1-4*

Multiple bait balls were observed in the northern portion of Fishing Zone 3 (between Jenner and Gualala), and scattered bait balls were observed throughout the other Fishing Zones (Figures 1-2).

Ocean conditions: §132.8(d)(9)*

Data provided by: National Weather Service Climate Prediction Center, California Current Integrated Ecosystem Assessment Program

El Niño/Southern Oscillation Diagnostic Discussion

See the December 13, 2021 Available Data document.

Habitat Compression Index

The most recent Habitat Compression Index values are for November 2021 (Figure 9). At that time, there was high compression between 35.5 and 40°N. Compression is often variable in January (Figure 10).

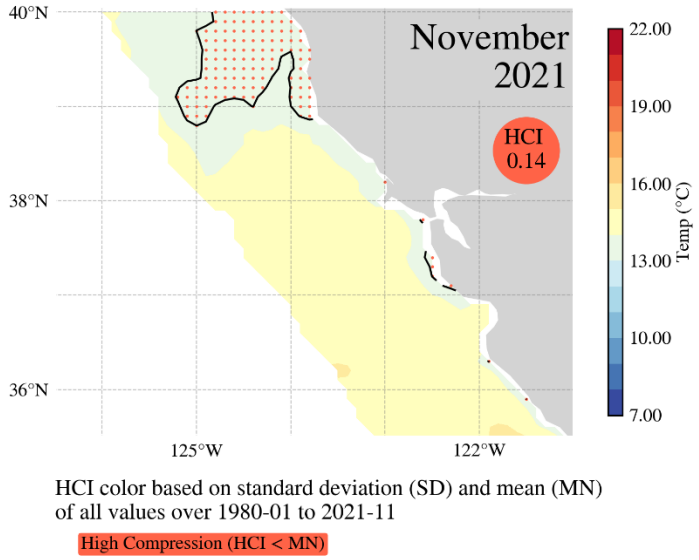

Figure 9. Map of November 2021 sea surface temperature and location of the Habitat Compression Index boundary (thin black line).

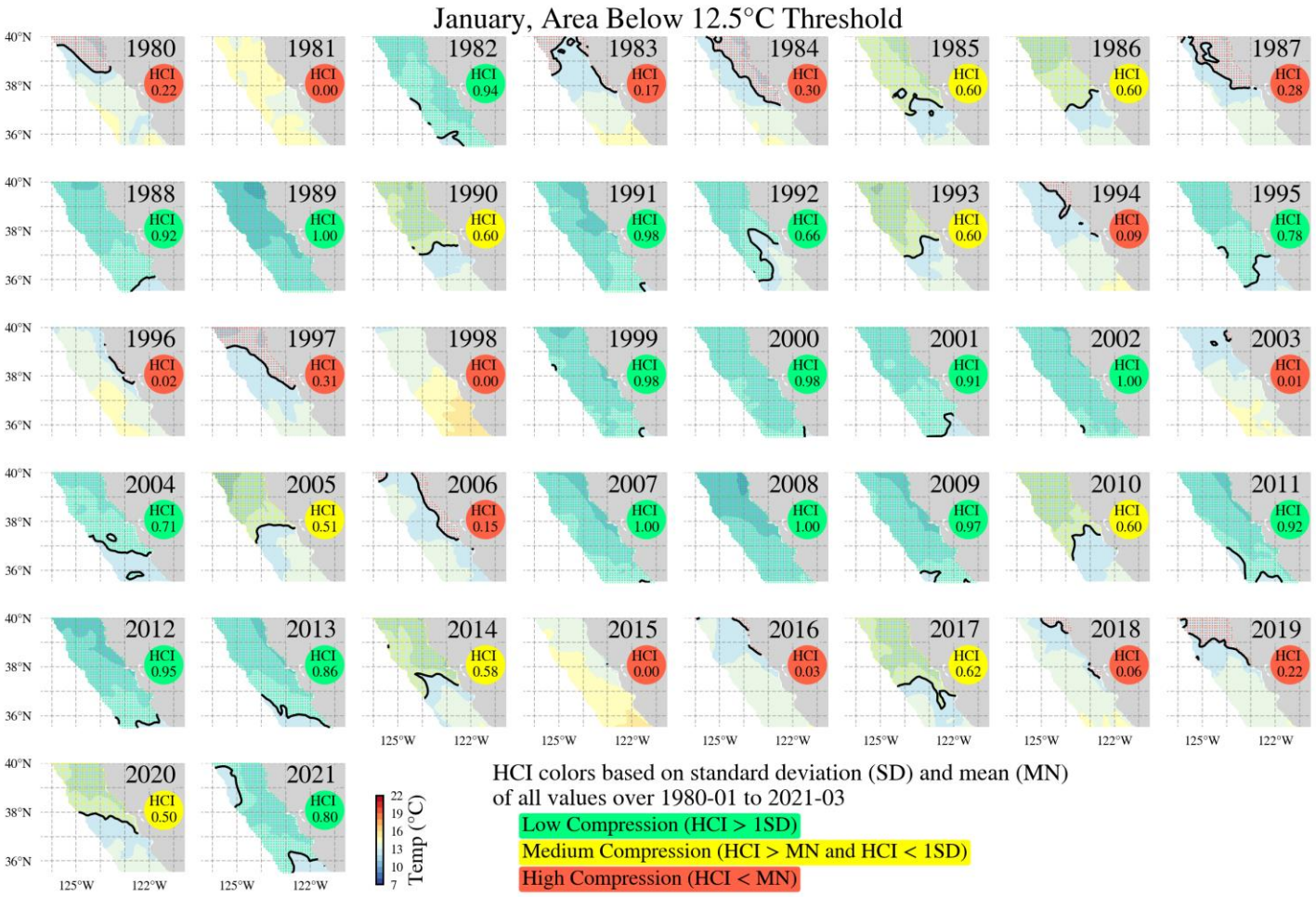

Figure 10. Maps of historical January sea surface temperature and location of the Habitat Compression Index boundary (thin black line) between 1980 and 2021.

Large Marine Heatwave Tracker

The NEP21A large marine heatwave began in late April 2021 and as of December 14, 2021 had remained relatively constant in size and location during November and December in the far offshore waters of the North Pacific. The latest satellite imagery (Figure 11) shows warm coastal anomalies separate from the marine heatwave, which is typical of the seasonal succession from summertime upwelling to wintertime downwelling.

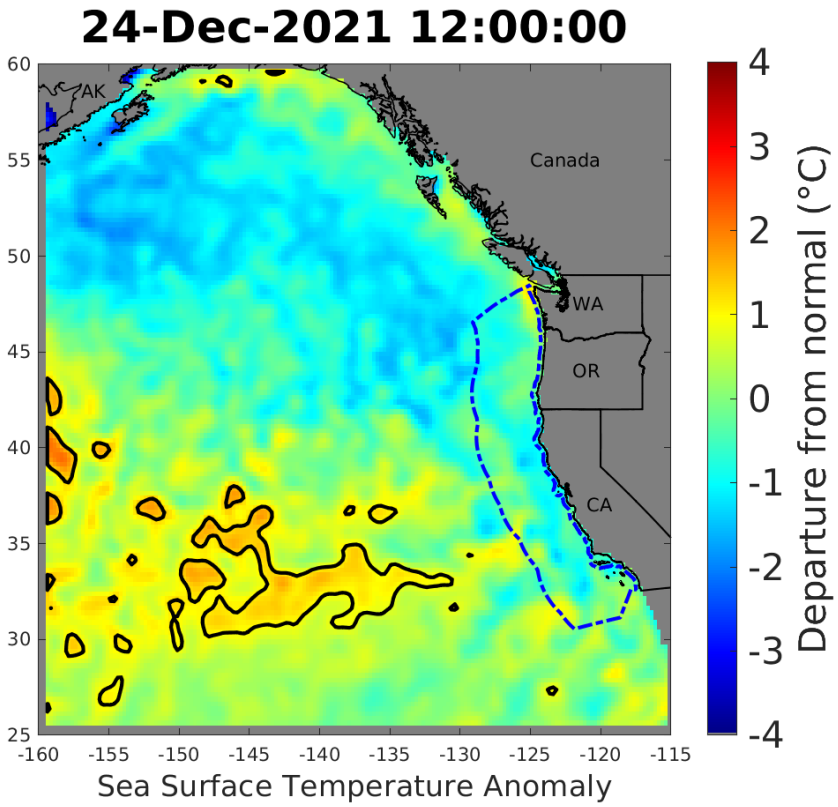

Figure 11. Science-quality (delayed 3-weeks), daily interpolated standardized sea surface temperature anomalies (SSTa) in the California Current ecosystem available for analysis of MHW presence. Dark outline shows the current extent of MHW conditions, as delineated by values of the normalized SST + 1.29 SD from normal. Blue dashed line represents the US West Coast EEZ. SST data from NOAA's Optimum interpolation Sea Surface Temperature analysis (OISST), with the SST anomaly calculated using climatology from NOAA's AVHRR-only OISST dataset.

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

Data provided by: California Department of Fish and Wildlife

Pursuant to the Risk Assessment and Mitigation Program (Section 132.8, Title 14, CCR), Impact Score Calculations will be assigned beginning with the 2021 calendar year based on confirmed entanglements of Actionable Species (humpback whales, blue whales, or leatherback sea turtles) reported to CDFW by NOAA. Impact Score totals for the current fishing season (2021-22) and calendar year (2022) are provided in Table 3 (see above). CDFW anticipates providing a final determination regarding Impact Score assignments for humpback whales during 2021 in the next Available Data document (mid-February).