



**CALIFORNIA DEPARTMENT OF FISH AND WILDLIFE
DECLARATION OF FISHERY CLOSURE
FOR THE COMMERCIAL DUNGENESS CRAB FISHERY
DUE TO RISK OF MARINE LIFE ENTANGLEMENT**

Pursuant to Fish and Game Code Section 8276.1 (b) and California Code of Regulations, Title 14, Section 132.8 ("Section 132.8") and Section 29.80(c)(7) ("Section 29.80(c)"), I find and declare that:

I

On March 30, 2023, I evaluated entanglement risk for the commercial Dungeness crab fishery pursuant to Section 132.8(b). I provided the California Dungeness Crab Fishing Gear Working Group (Working Group) and the Whale Safe Fisheries email listserv with notice of the risk assessment and all non-confidential data under consideration on March 27, 2023. Prior to this risk assessment and management response, Department staff consulted with the Working Group, and reviewed all relevant information provided to my staff.

II

Impact Score Calculation has exceeded a running average of two humpback whale entanglements over a three-year period. Pursuant to Section 132.8(c)(1)(C), I must implement a Fishing Zone closure or other protective management action.

III

Pursuant to Fish & Game Code Section 9002.5(b)(1)(A)(ii) and implementing regulations in Section 132.7 of Title 14 of the California Code of Regulations, I may authorize retrieval operations under the Lost or Abandoned Dungeness Crab Trap Gear Retrieval Program when take of crab is restricted pursuant to Section 132.8.

IV

Pursuant to Section 132.8(e)(5), I must allow use of any authorized Alternative Gear during a closure on April 1 or later.

VI

Upon evaluation of the management considerations pursuant to Section 132.8(d), I have determined that the management action listed below protects humpback

whales based on the best available science. Additional information on relevant management considerations is provided in the attachment to this declaration.

VII

THEREFORE, under the authority granted by Fish and Game Code Section 8276.1(b) and Section 132.8 of Title 14 of the California Code of Regulations, I am implementing the following management action:

1. Fishery Closure for commercial Dungeness crab for the remainder of the 2022-2023 season in Fishing Zones 3, 4, 5, and 6 starting at 12:00PM (noon) on April 15, 2023, requiring all commercial Dungeness crab traps be removed from ocean waters in those Fishing Zones by that date and time. The take and possession of Dungeness crab is therefore prohibited after 12:00PM on April 15, 2023. This closure does not apply to fishing activity with authorized Alternative Gear types as stated below.
2. All Fishing Zones (1-6) remain under a Fleet Advisory.
3. Retrieval operations under the Lost and Abandoned Dungeness Crab Trap Gear Retrieval Program may begin in Fishing Zones 3, 4, 5, and 6 on April 21, 2023, at 6:00AM.
4. Authorized Alternative Gear may be used in all closed Fishing Zones. Currently there are no authorized Alternative Gear types. If an Alternative Gear type is authorized before the statutory season closure dates, it may be used for take of Dungeness crab.

This management action is in effect until modified or through the end of the statutory season pursuant to Fish and Game Code Section 8276. The next risk assessment is expected to occur on or around April 15, 2023.

Updates and material regarding future entanglement risk evaluations in the commercial Dungeness crab fishery will be made available on the [Department's Whale Safe Fisheries web page](#).


Charlton H. Bonham, Director

3/30/23 10:19 AM PST
Date/Time

ATTACHMENT TO DIRECTOR MARCH 30, 2023 DECLARATION OF A FISHERY CLOSURE
IN THE COMMERCIAL DUNGENESS CRAB FISHERY DUE TO RISK OF MARINE LIFE
ENTANGLEMENT

Information referenced in this Attachment is further described in the Final Assessment of Marine Life Entanglement Risk and Management Recommendation dated March 29, 2023 and the Available Data document dated March 27, 2023, and located at the Department's [Whale Safe Fisheries website](#), which to the Department's knowledge represents the best available science informing this risk assessment.

Based on the management considerations identified in the Available Data document and contained in the Final Assessment of Marine Life Entanglement and Management Recommendation dated March 29, 2023, the Director will continue a Fleet Advisory for Fishing Zones 1-6 and implement a Fishery Closure for the commercial fishery in Fishing Zones 3-6.

Based on historical migration patterns, it is anticipated that humpback whales will begin returning from their winter breeding grounds over the coming weeks. In addition, the three-year running average Impact Score has exceeded two humpbacks whales between 2021 and the present. Based on subsequent analysis of the management considerations under Section 132.8(d) and appropriate management response under Section 132.8(e). Those sections anticipate a broader analysis of the factors impacting entanglement risk statewide, including accounting of the annual entanglement Impact Score.

Aerial surveys and Monterey Bay Whale Watch data indicate few to no humpback whales within Fishing Zones 3 and 4. Observation data does indicate an aggregation of humpbacks whales outside the Fishing Grounds in Fishing Zone 5. However, at this time, the number of humpback whales does not indicate an elevated risk. As result, risk is considered low at this time but expected to increase over the coming weeks. In anticipation of this, the Director is taking protective action by implementing the Fishery Closure in those Fishing Zones that typically see April arrivals of humpbacks whales. This will further reduce risk of entanglement with commercial Dungeness crab traps in Fishing Zones 3-6. At this time, the only management response available for the recreational fishery is a trap prohibition which is not required at this time because Marine Life Concentration triggers have not been reached under RAMP.



California Department of Fish and Wildlife Final Assessment of Marine Life Entanglement Risk and Management Recommendation

Date: March 29, 2023

A preliminary assessment and recommendation were developed by California Department of Fish and Wildlife (CDFW) Marine Region staff for consideration by the California Dungeness Crab Fishing Gear Working Group (Working Group) for the Risk Assessment Mitigation Program (RAMP; Section 132.8, Title 14, California Code of Regulations) regarding Management Actions to address marine life entanglement risk in the commercial Dungeness crab fishery as well as Section 29.80, Title 14, California Code of Regulations (Gear Restrictions for Recreational Take of Saltwater Crustaceans). The initial assessment was shared with the Working Group on March 27, 2023 and finalized at the conclusion of the Working Group meeting which was held on March 29, 2023.

A. Confirmed Entanglements and Marine Life Concentrations Triggers for Management Action, RAMP subsection (c)

Entanglements:

As of March 24, 2023, no entanglements have been reported to CDFW by NOAA for the 2022-23 season. Therefore, the in-season Confirmed Entanglement Impact Score is currently zero. The Impact Score for calendar year 2021 is 1.89 for humpback whales. The total Impact Score for the calendar year 2022 is 5.28 for humpback whales, which includes a recently reported entanglement from 2022 off Mexico that was attributed to the California commercial Dungeness crab fishery. The current running 3-year average Impact Score is 2.39 for humpback whales for the years 2021-2023, which exceeds the triggers in Section 132.8(c)(1)(C)(1). Note: Entanglement data are subject to revision based on review and verification by NOAA.

Marine Life Concentrations:

CDFW aerial surveys for Fishing Zones 3, 4 and 5 did not observe humpback whales, blue whales, or leatherback sea turtles. Monterey Bay Whale Watch data documented one humpback whale during the most recent seven-day trip period in Fishing Zone 4.

For additional details, see the Available Data document prepared for this Risk Assessment.

B. Recommended Management Action from options identified in subsection (e)

Recreational Fishery:

- **Continue Fleet Advisory for Fishing Zones 1-6**

Commercial Fishery:

- **Continue Fleet Advisory for Fishing Zones 1-6**
- **Fishery Closure for Fishing Zones 3, 4, 5 & 6 effective April 15, 2023 at 12:00pm (noon)**

Management Recommendation Summary Rationale:

Repeated storm events over the last few weeks have impacted CDFW's ability to collect and consider real-time survey data regarding presence of Actionable Species on the Fishing Grounds. In such instances, it is necessary to consider historical migration patterns and as a result CDFW anticipates the return of large aggregations of humpback whales to California waters in the coming weeks. Specifically, migrating humpbacks may return to key foraging areas in Monterey Bay (Fishing Zone 4) and the Gulf of the Farallones (Fishing Zone 3) in early to mid-April. Historical data indicate that once humpback whales begin returning to the Fishing Grounds their numbers can increase rapidly over a short time period. Allowing the commercial Dungeness crab fishery to remain open with no restrictions in Fishing Zones 3-6 creates entanglement risk as humpback whales transit and forage across those Fishing Zones.

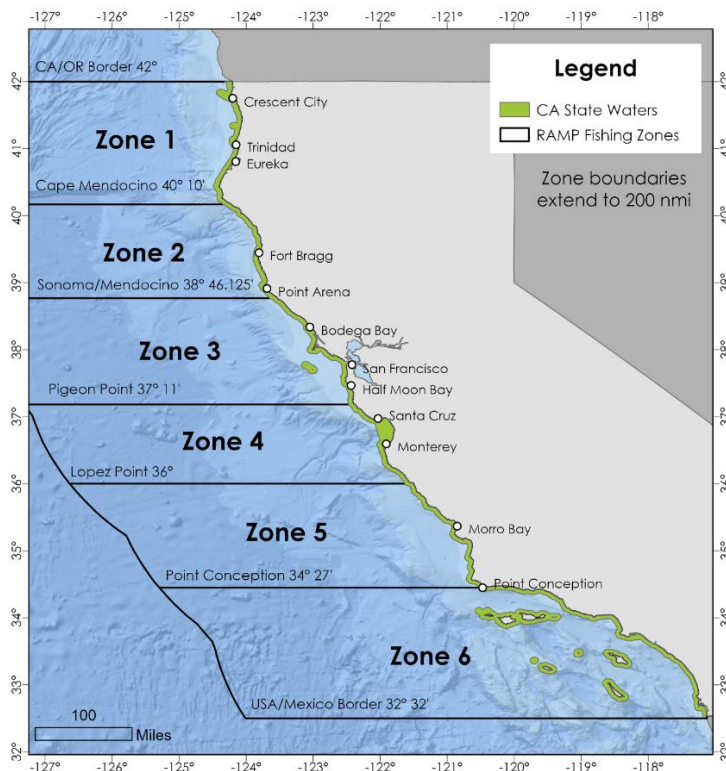
CDFW Marine Region has revised its preliminary recommendation of a Gear Reduction to a final recommendation of a Fishery Closure in Fishing Zones 3-6, effective April 15, 2023 at 12:00pm (noon). This recommendation is informed by historical migration patterns, the documented three humpback whale entanglements in commercial Dungeness crab gear that occurred in March of 2022 in Zones 3-6, input from the Working group, and exceedance of the running three-year average entanglement Impact Score for humpback whales which requires CDFW to implement precautionary management actions to avoid additional entanglements. Effective April 15, 2023 at 12:00pm (noon), pursuant to Section 132.8 (e)(4) Title 14, CCR, take and possession of Dungeness crab is prohibited in Fishing Zones 3, 4, 5 and 6. Staff also recommend the Director authorize the Lost and Abandoned Gear Retrieval Program to begin removing commercial Dungeness crab traps left in the water beginning April 21, 2022, at 6:00am in Zones 3, 4, 5 and 6.

The final recommendation is to also continue the Fleet Advisory for both the recreational and commercial fishery in all Fishing Zones until Fishing Zone closures or a trap prohibition are in effect. Both the commercial and recreational fleets should be prepared to modify fishing operations to minimize risk of entanglement. Currently, the

recreational crab fishery is not subject to any additional management actions because Marine Life Concentration triggers have not been reached. If Marine Life Concentration triggers are reached during a future risk assessment, the Director may implement a trap prohibition for the recreational fishery either by Fishing Zone or statewide. CDFW also reminds all fisherman to use best fishing practices to minimize risk of entanglement as whales begin to arrive in Fishing Zones that remain open to fishing. Staff have received anecdotal reports that strong winter storms may have increased the likelihood of silted in pots and the potential for lost gear which makes it essential that both fleets work proactively to help reduce risk of entanglement by removing gear from the Fishing Grounds.

Alternatives Considered but Rejected

- Depth Restriction – based on available data and historic migration patterns this management action will not sufficiently minimize risk of entanglement because humpback whales forage across all depth ranges and could concentrate trap gear thereby increasing risk.
- Gear Reduction – in consideration of the current three-year average impact score, historical migration patterns, and input from the Working Group this alternative may not provide adequate risk reduction.
- Alternative Gear - can be authorized after April 1st, but no gear currently is authorized for the commercial Dungeness crab fishery.



California Dungeness Crab Fishing Gear Working Group (Working Group) Management Recommendation to inform the Risk Assessment and Mitigation Program for the California Department of Fish and Wildlife

Working Group Discussion Date: March 29, 2023

Working Group Discussion: Commercial Fishery (Fishing Zones 3-6)

The Working Group discussed multiple recommendations regarding management actions for the commercial fishery in Fishing Zones 3-6 during their meeting, none of which received broad support. Their discussions centered around the following topics: acknowledgment of increasing levels of entanglement risk as Actionable Species return to the Fishing Grounds during March and April; exceedance of the 3-year rolling average Impact Score Calculation merits precautionary action by CDFW during the late season; given this, that CDFW's preliminary management recommendation of a 50% trap reduction by April 13, 2023 for Fishing Zones 3-6 is insufficiently protective of Actionable Species; and that CDFW should implement an early season closure in Fishing Zones 3-6 at some point during the month of April.

Working Group members who supported an April closure for Fishing Zones 3-6 relied upon the rationale provided in [CDFW's March 27, 2023 Initial Assessment](#), as well as input from Working Group Advisors during the call that humpback whales generally return to Fishing Zones 3-4 during March and April. Two options were discussed; closing Fishing Zones 3-6 on April 15, 2023, or closing Fishing Zones 3-6 on April 30, 2023, with an interim management action (either a vertical line reduction or depth constraint) to further reduce risk applied mid-way through the month of April. There was mixed support for both options.

An alternative option to continue the commercial Fleet Advisory in all Fishing Zones was also discussed. Working Group members who supported this status quo approach noted that gear deployment had already declined substantially from levels at the start of the season, that many fishery participants were voluntarily pulling their gear, and that Marine Life Concentration triggers had not been met. This option received some support from Working Group members, as well as select port associations.

Working Group Discussion: Commercial Fishery (Fishing Zones 1-2) and Recreational Fishery (Statewide)

There was broad support amongst the full Working Group for continuing the Fleet Advisories currently in place for the commercial fishery in Fishing Zones 1-2

and the recreational fishery in Fishing Zones 1-6. Some Working Group members expressed concern about continued deployment of traps in the recreational fishery if management actions to limit deployment of commercial gear are implemented. However, recreational fishery representatives conveyed there is currently low effort in their sector, and CDFW clarified restricting the use of traps in the recreational sector can only take place following attainment of Marine Life Concentration triggers.



California Department of Fish and Wildlife Preliminary Assessment and Management Recommendation for the Risk Assessment Mitigation Program

Date: March 27, 2023

This preliminary assessment and management recommendation has been developed by California Department of Fish and Wildlife (CDFW) Marine Region staff for consideration by the California Dungeness Crab Fishing Gear Working Group (Working Group) for the Risk Assessment Mitigation Program (RAMP; Section 132.8, Title 14, California Code of Regulations) regarding Management Actions to address marine life entanglement risk in the commercial and recreational Dungeness crab fishery. CDFW will prepare a Final Assessment and Management Recommendation after review of the Working Group Recommendation and other relevant data.

A. Confirmed Entanglements and Marine Life Concentrations Triggers for Management Action, RAMP subsection (c)

Entanglements:

As of March 24, 2023, no entanglements have been reported to CDFW by NOAA for the 2022-23 season. Therefore, the in-season Confirmed Entanglement Impact Score is currently zero. The Impact Score for calendar year 2021 is 1.89 for humpback whales. The total Impact Score for the calendar year 2022 is 5.28 for humpback whales, which includes a recently reported entanglement from 2022 off Mexico that belonged to the California commercial Dungeness crab fishery. The current running 3-year average Impact Score is 2.39 for humpback whales for the years 2021-2023, which exceeds the triggers in Section 132.8(c)(1)(C)(1). Note: Entanglement data are subject to revision based on review and verification by NOAA.

Marine Life Concentrations:

CDFW aerial surveys for Fishing Zones 3, 4 and 5 did not observe humpback whales, blue whales, or leatherback sea turtles. Monterey Bay Whale Watch data documented one humpback during the most recent seven-day trip period in Fishing Zone 4.

For additional details, see the Available Data document prepared for this Risk Assessment.

B. Recommended Management Action from options identified in subsection (e)

Recreational Fishery:

- **Continue Fleet Advisory for Fishing Zones 1-6**

Commercial Fishery:

- **Continue Fleet Advisory for Fishing Zones 1-6 until Fishery Closure**
- **50% Gear Reduction (trap reduction) for Fishing Zones 3, 4, 5 & 6 effective April 13, 2023 at 12:00pm (noon)**

Management Recommendation Summary Rationale:

Repeated storm events over the last few weeks have impacted CDFW's ability to collect and consider real-time survey data regarding presence of Actionable Species on the Fishing Grounds. In such instances, it is necessary to consider historical migration patterns and as a result CDFW anticipates large aggregations of humpback whales will be returning to California waters in the coming weeks. Specifically, migrating humpbacks may return to key foraging areas in Monterey Bay (Fishing Zone 4) and the Gulf of the Farallones (Fishing Zone 3) in early to mid-April. Allowing the commercial Dungeness crab fishery to remain open with no restrictions in Fishing Zones 3-6 creates entanglement risk as humpback whales transit and forage across those Fishing Zones.

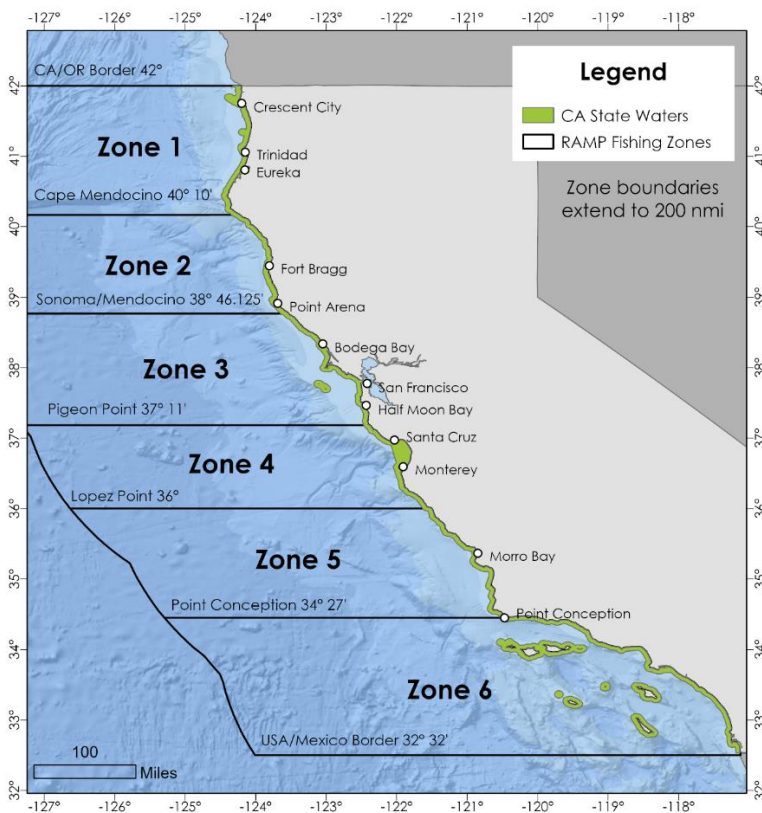
However, based on the currently available Marine Life Concentration data, entanglement risk remains low at this time. Therefore, CDFW Marine Region staff's preliminary recommendation is to implement a 50% Gear Reduction (trap reduction) for Fishing Zones 3-6 effective April 13, 2023. This recommendation is informed by historical migration patterns and exceedance of the running three-year average entanglement Impact Score for humpback whales which requires CDFW to implement precautionary management actions to avoid additional entanglements. Effective April 13, 2023 at 12:00pm (noon), any commercial Dungeness Crab vessel fishing in or transiting Fishing Zones 3-6, regardless of fishing location, would be subject to the 50% reduction and must have at least half of their valid buoy tags for the current fishing season onboard and available for inspection by CDFW at all times. All permitted vessels must comply by that date and consistent with the Director's declaration all unused buoy tags shall be onboard the permitted vessel and made available for inspection by the department upon request, pursuant to Section 132.8 (e)(3) Title 14, CCR.

The recommendation is to also continue the Fleet Advisory for both the recreational and commercial fishery in all Fishing Zones until Fishing Zone closures/Trap prohibitions are in effect. Both the commercial and recreational fleets should be prepared to modify fishing operations to minimize risk of entanglement. Currently, the recreational crab fishery is not subject to any additional management actions because Marine Life

Concentration triggers have not been reached. If Marine Life Concentration triggers are reached during a future risk assessment, the Director may implement a trap prohibition for the recreational fishery either by Fishing Zone or statewide. CDFW reminds all fisherman to use best fishing practices to minimize risk of entanglement as whales begin to arrive in Fishing Zones that remain open to fishing. Staff have received anecdotal reports that strong winter storms may have increased the likelihood of silted in pots and the potential for lost gear which makes it essential that both fleets work proactively to help reduce risk of entanglement by removing gear from the Fishing Grounds.

Alternatives Considered but Rejected

- Depth restriction – based on available data and historic migration patterns this management action will not sufficiently minimize risk of entanglement because humpback whales forage across all depth ranges and could concentrate trap gear thereby increasing risk.
- Fishery Closure – based on available data this is not currently the recommended Management Action but based on historical migration patterns CDFW anticipates this action will likely be required in the coming weeks.
- Alternative Gear - can be authorized after April 1st, but no gear currently is authorized for the commerical Dungeness crab fishery.



2022-23 Risk Assessment: Available Data

Last updated: March 27, 2023

Contents

Items with updated information are followed by an *.

2022-23 Risk Assessment: Available Data - 1 -

Triggers requiring management action - 1 -

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

 Marine Life Concentrations: § 132.8(c)(1)* - 2 -

Management considerations - 4 -

 Information from NOAA: § 132.8(d)(2) - 4 -

 Effectiveness of management measures: § 132.8(d)(3) - 5 -

 Total economic impact to the fleet: § 132.8(d)(4) - 5 -

 Historic patterns and current Actionable Species migration: § 132.8(d)(6) and (11)* - 5 -

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

 Distribution and abundance of key forage: § 132.8(d)(8)* - 13 -

 Ocean conditions: § 132.8(d)(9) - 14 -

 Current Impact Score Calculation: § 132.8(d)(10) - 15 -

TRIGGERS REQUIRING MANAGEMENT ACTION

Confirmed Entanglements: §132.8(c)(1)

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

As of March 24, 2023, there have been no entanglements of Actionable Species reported to the NMFS West Coast Region during 2023.

Table 1. Actionable Species Entanglements during 2023, prepared by West Coast Region.

Actionable Species	Number Confirmed Entanglements in California Commercial Dungeness Crab Gear	Number Confirmed Entanglements in Unknown Fishing Gear Reported off California
Humpback whales	0	0

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

There have been no reported entanglements in the 2023 calendar year in Dungeness crab gear or unidentified gear.

Table 2. 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 (2022-23)	Current Calendar Year Impact Score (2023)
Humpback whales	0	0
Blue whales	0	0
Leatherback sea turtles	0	0

The total calendar year Impact Score for 2021 was 1.89 for humpback whales and 0 for blue whales and leatherback sea turtles. The Impact Score for 2022 was 5.28 for humpback whales and zero for blue whales and leatherback sea turtles. The 3-year Rolling Average Impact Score is 2.39.

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 underlying calculation of a 3-year rolling average.

Actionable Species	2021 Calendar Year Impact Score	2022 Calendar Year Impact Score	2023 Calendar Year Impact Score	3-Year Rolling Average
Humpback whales	1.89	5.28	0	2.39
Blue whales	0	0	0	0
Leatherback sea turtles	0	0	0	0

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

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

Table 41. 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	None	No
Zone 2	None	No
Zone 3	CDFW Aerial Survey	No
Zone 4	CDFW Aerial Survey, MBWW	No
Zone 5	CDFW Aerial Survey	No
Zone 6	None	NA

CDFW Aerial Survey (Fishing Zones 3, 4, and 5)

CDFW staff conducted an aerial survey on March 18, 2023, between Moss Beach (Fishing Zone 3) and Morro Bay (Fishing Zone 5). Conditions were generally good, with Beaufort conditions of two or less across the surveyed Fishing Zones. Seven orca whales were observed off Año Nuevo (Fishing Zone 4) and numerous gray whales were observed throughout the survey area close to shore. No humpback or blue whales were observed in Fishing Zone 3, 4, or 5 (Figure 1).

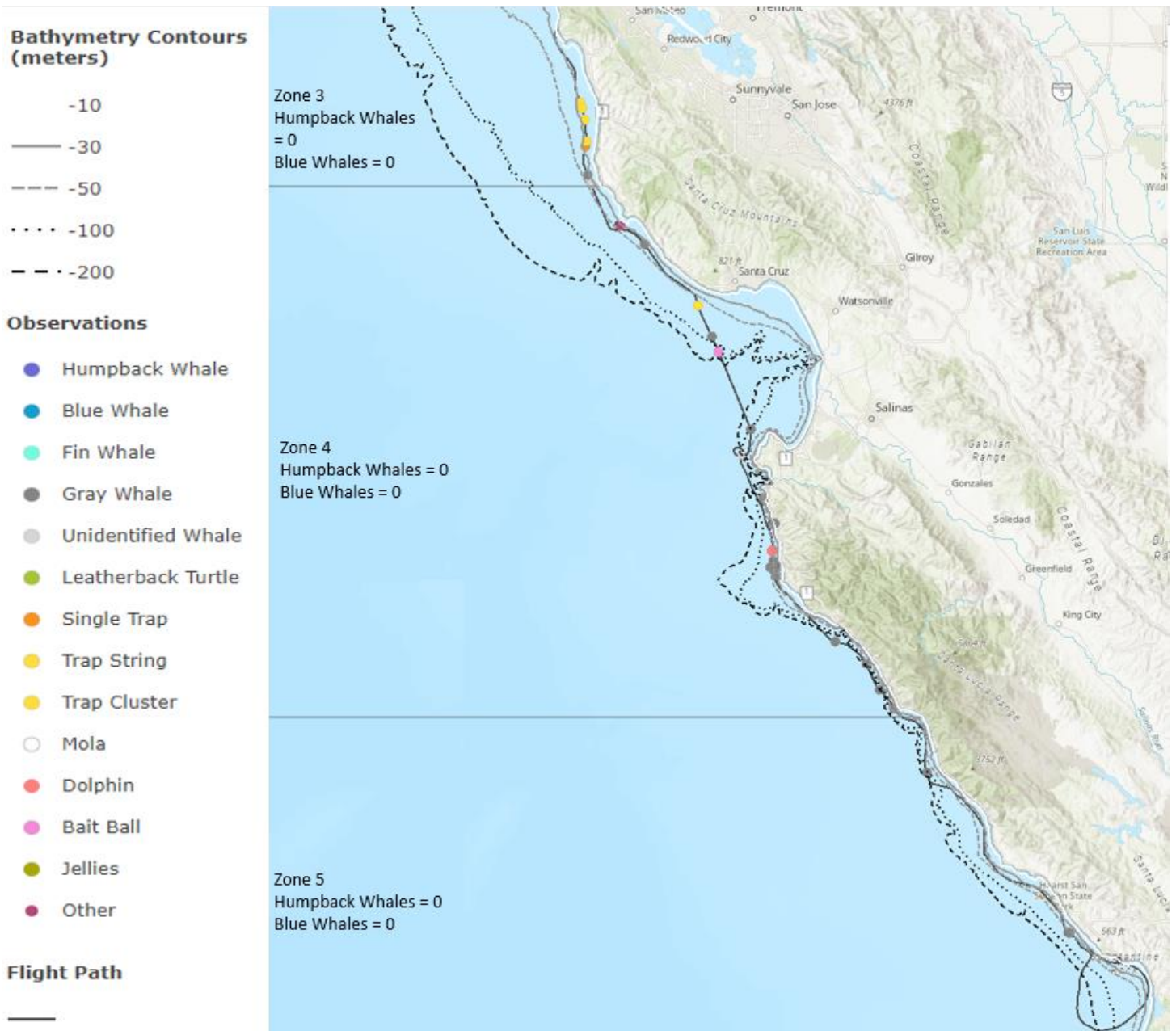


Figure 1. Map showing track lines and observations from CDFW aerial survey of Fishing Zones 3, 4, and 5 on March 18, 2023.

Monterey Bay Whale Watch (Fishing Zone 4)

- Monterey Bay Whale Watch conducted whale-watching trips in southern Monterey Bay on six of seven days during the week of March 14-20, 2023.
- Following several days with sightings of one to three humpback whales during the week of March 7-13, 2023, only one humpback whale was observed the week of March 14 - 20, 2023.
- No blue whales have been observed yet in 2023.

MANAGEMENT CONSIDERATIONS

Information from NOAA: §132.8(d)(2)

No additional information was provided for this Risk Assessment.

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

Data provided by: California Department of Fish and Wildlife

CDFW will provide this evaluation in the March 27, 2023, 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 March 27, 2023, Initial Assessment.

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

Data provided by: Point Blue Conservation Science, Monterey Bay Whale Watch (processed by Karin Forney, NOAA SWFSC)

Point Blue Conservation Science Data Portal (*Fishing Zones 5 and 6*)

During the seven-day period ending March 24, 2023, trained naturalists from the Channel Islands National Marine Sanctuary and National Park Service reported 11 humpback whales in Fishing Zone 6. No blue whales were observed in any Fishing Zone during this period (Figure 2). During this period, large aggregations of humpback whales continued to be sighted in Fishing Zone 5 at the southeastern edge of the Monterey Bay National Marine Sanctuary, with 34 humpback whales observed on March 18, 2023.

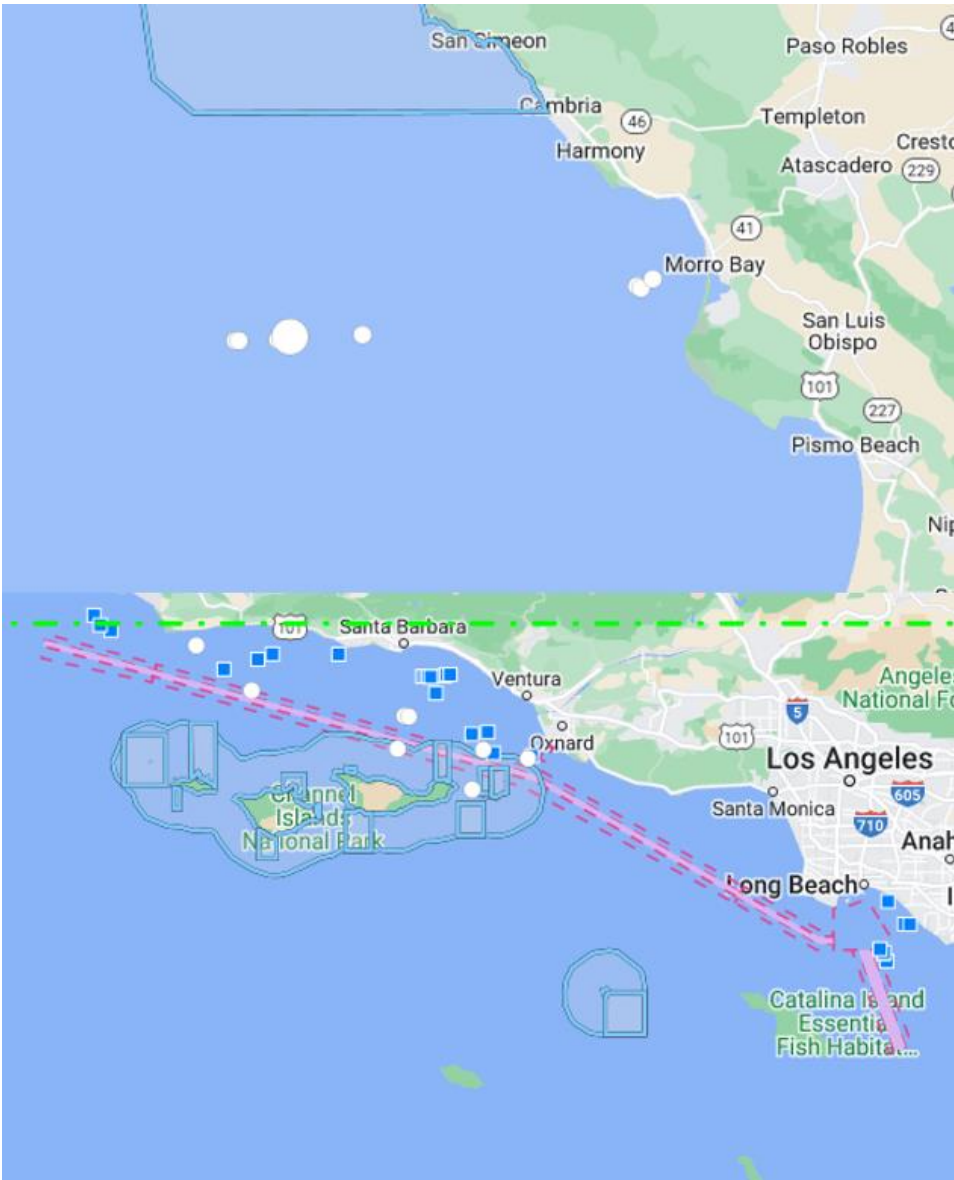


Figure 2. Locations of humpback whale sightings within Fishing Zone 5 (top) and 6 (bottom). Reporting locations are represented by white circles. A given report may or may not represent multiple individuals. Fishing Zone boundaries are represented by dashed lines.

Monterey Bay Whale Watch (Fishing Zone 4)

The semi-monthly average number of whales-per-half-daytrip is 0.06, which is below the average historical value at this time of the year, suggesting that fewer whales have returned from the breeding areas compared to previous years. Based on historical patterns, it is expected that the number of humpback whales will begin to increase markedly during the next few weeks (Figure 3). The continued absence of blue whale sightings during 2023 is consistent with their historical migration patterns.

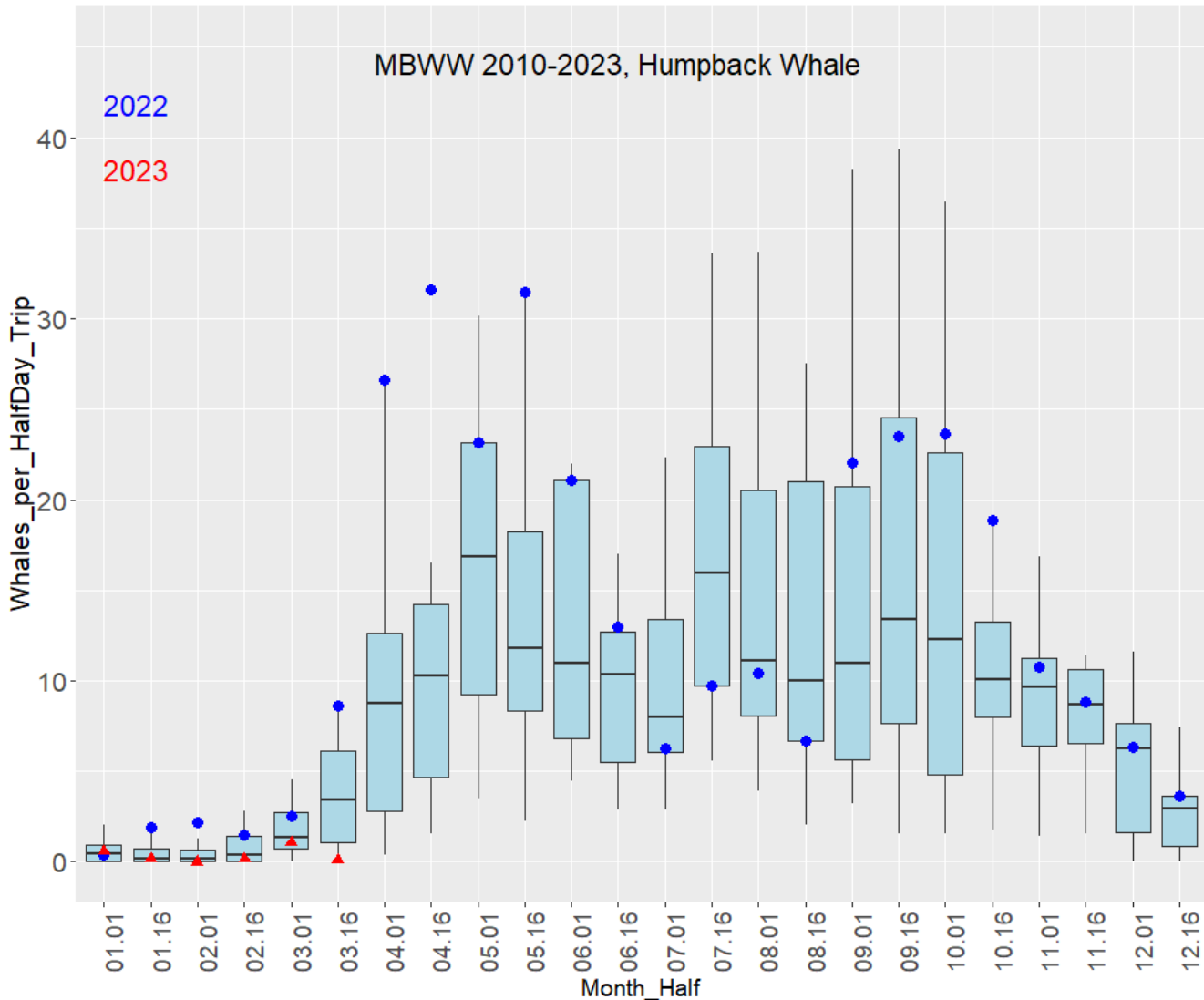


Figure 3. Historical Monterey Bay Whale Watch data for 2010-2023, summarizing the average and variation in the number of humpback whales per half-day trip on a semi-monthly basis (1st- 15th, 16th- end of month). This boxplot follows standard statistical practice in that the black horizontal line is the 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 2022 (large blue dots) and 2023 (red triangles) and are provided for reference, placing recent whale numbers in a historical context.

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)

All Fishing Zones have been open since December 31, 2022, and a summary of landings from all Fishing Zones is provided below (Table 5).

Weekly total landings volume continues to decrease since the beginning of January, with the highest harvest coming from Fishing Zone 1, followed by Fishing Zone 3 (Figure 4). So far, 75% of the total volume harvested for this season has been from Fishing Zone 1, 19% from Fishing Zone 3, five percent from Fishing Zone 2, and the remaining one percent from Fishing Zone 4. Vessel activity by Fishing Zone follows the same pattern, with the highest activity in Fishing Zones 1 and 3, and less activity in Fishing Zones 2 and 4 (Figure 5). Fishing Zones 1, 2, and 3 show decreased vessel activity since mid-February and Fishing Zone 4 has shown a slight increase since mid-February.

Weekly landings by port have been declining since the end of January with the highest activity in Crescent City, Eureka, San Francisco, and Half Moon Bay (Figure 6). Overall, 48% of the total volume harvested for the season has been landed in Crescent City, 22% from Eureka, seven percent from San Francisco and Bodega Bay, six percent from Half Moon Bay, five percent for Fort Bragg and Trinidad, and the remaining one percent from Monterey.

Looking at vessel activity by port over the course of the season, the highest activity has been in Crescent City (98 vessels) and Eureka (72 vessels), followed by Half Moon Bay (35 vessels), San Francisco (34 vessels), and Bodega Bay (32 vessels; Figure 7). Vessels have also made landings in Fort Bragg (25 vessels), Trinidad (14 vessels), and Monterey (13 vessels) (Figure 7). Overall, vessel activity has largely been decreasing since the beginning of February with Trinidad, Half Moon Bay, and San Francisco at seasonal lows.

Table 5. Summary of fleet dynamics information, as of March 23, 2023.

Metric	Value	Additional Info
Season status	Open	All Fishing Zones are Open
Number of daily landings	4,855	NA
Total volume (pounds)	19,060,525	NA
Total Ex-Vessel Value	\$46,781,090	NA
Average unit price	\$2.68	NA
Total number of active vessels	362	NA
Maximum potential traps (based on active permits)	118,150	Estimates are also provided in the Bi-Weekly Fishing Activity Reports subsection

Volume of Landings (Pounds), by Week and Fishing Zone, 2022-23 Season

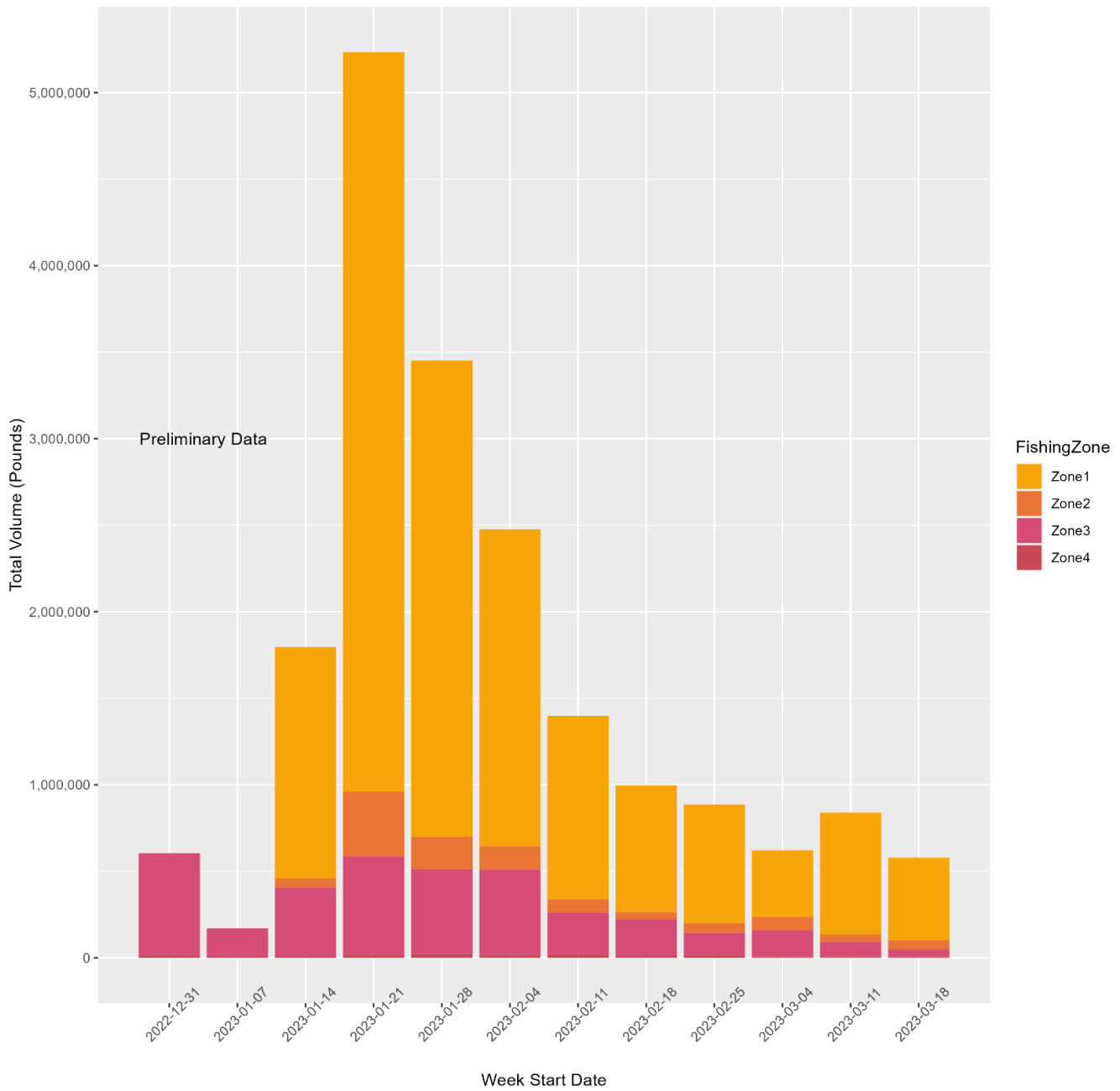


Figure 4. Cumulative volume (pounds) harvest by week and Fishing Zone. Week 1 starts with the first day the commercial Dungeness crab fishery was open in any area, December 31, 2022. All data are preliminary and subject to change.

Number of Active Vessels, by Week and Fishing Zone, 2022-23 Season

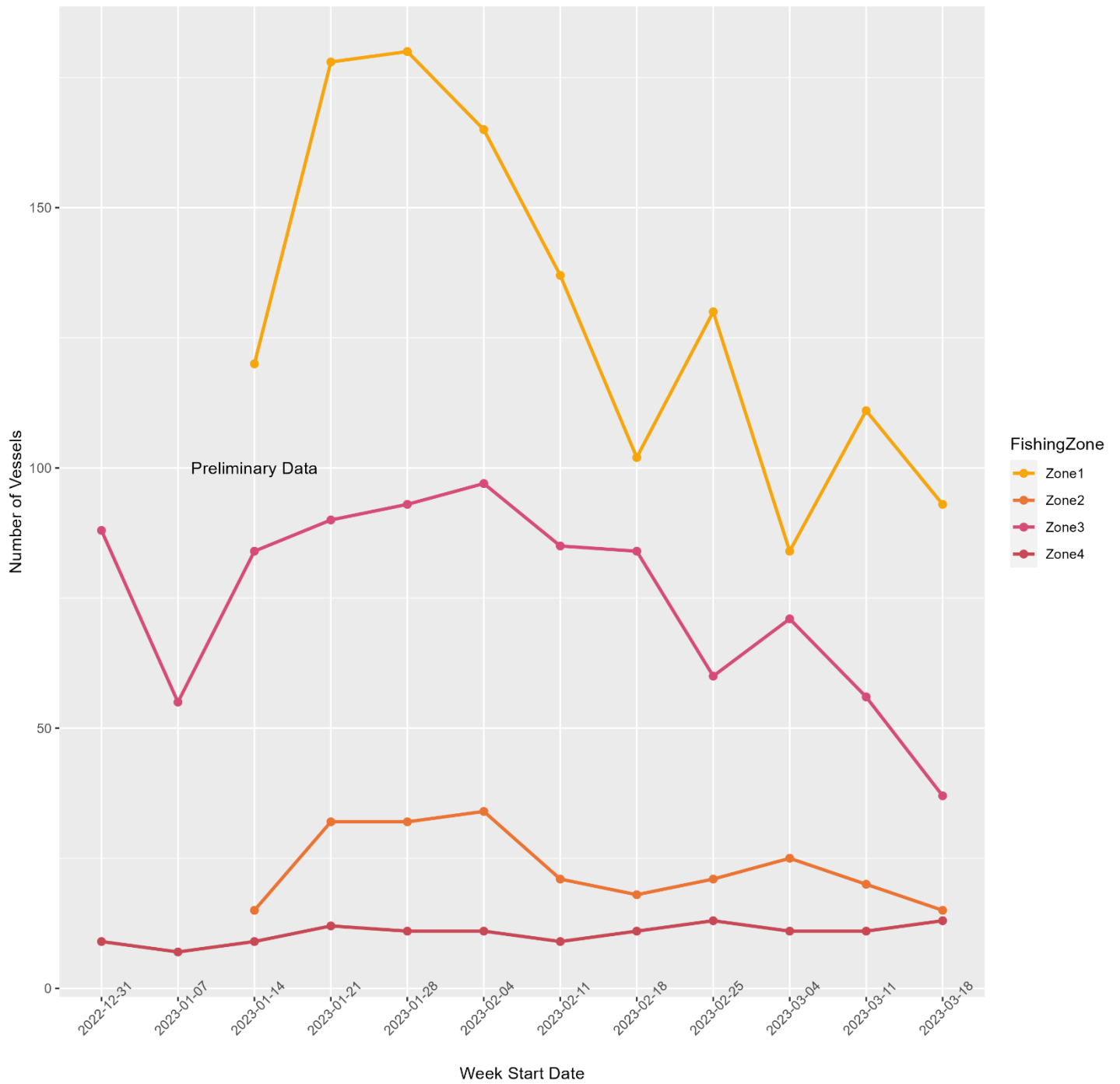


Figure 5. Number of active vessels by week and Fishing Zone. Week 1 starts with the first day the commercial Dungeness crab fishery was open in any area, December 31, 2022. All data are preliminary and subject to change.

Volume of Landings (Pounds), by Week and Port Complex, 2022-23 Season

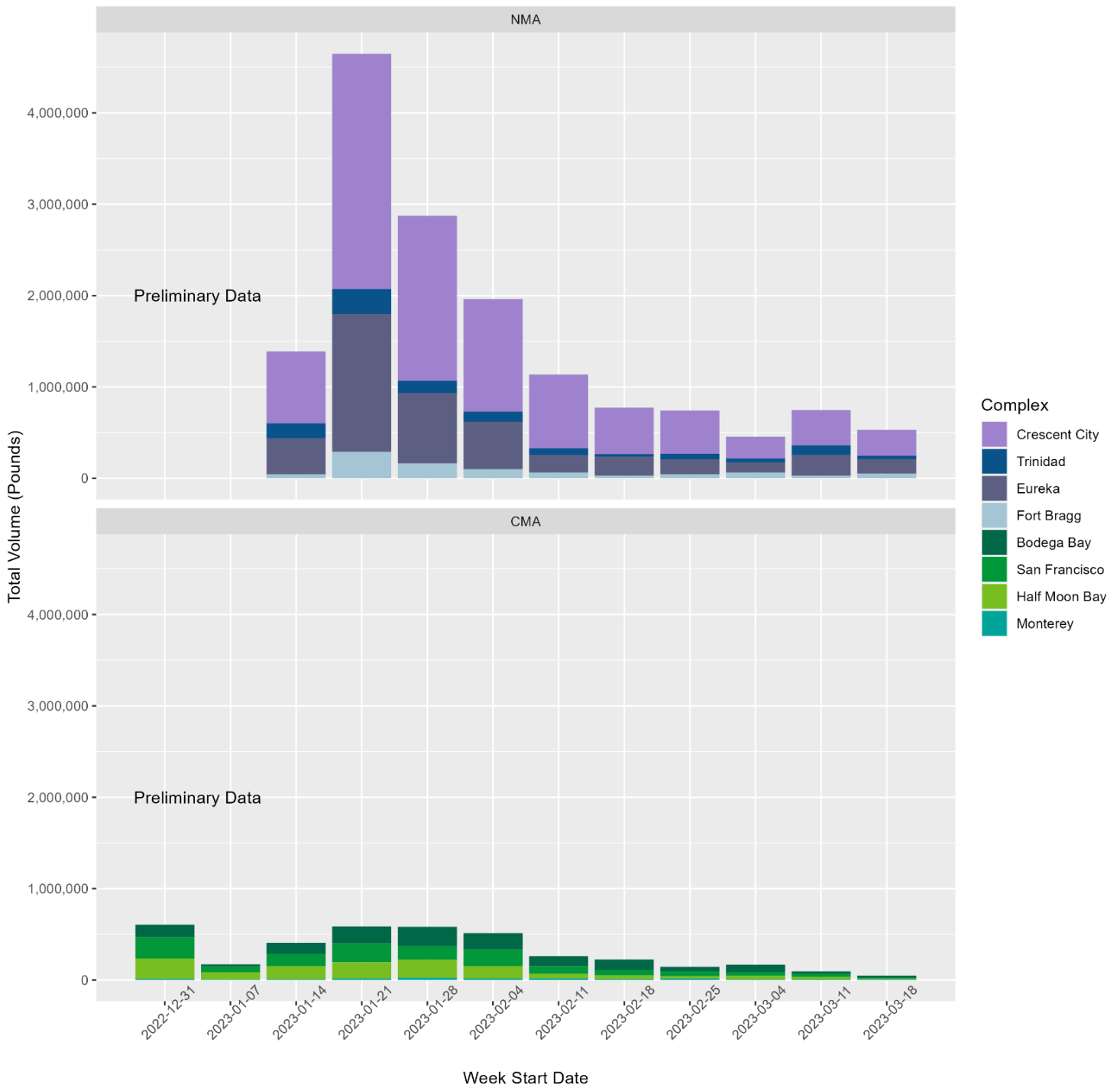


Figure 6. Cumulative volume (pounds) landed by week and port complex. Week 1 starts with the first day the commercial Dungeness crab fishery was open in any area, December 31, 2022. All data are preliminary and subject to change. Certain week*port complex combinations are withheld due to confidentiality constraints.

Number of Active Vessels, by Week and Port Complex, 2022-23 Season

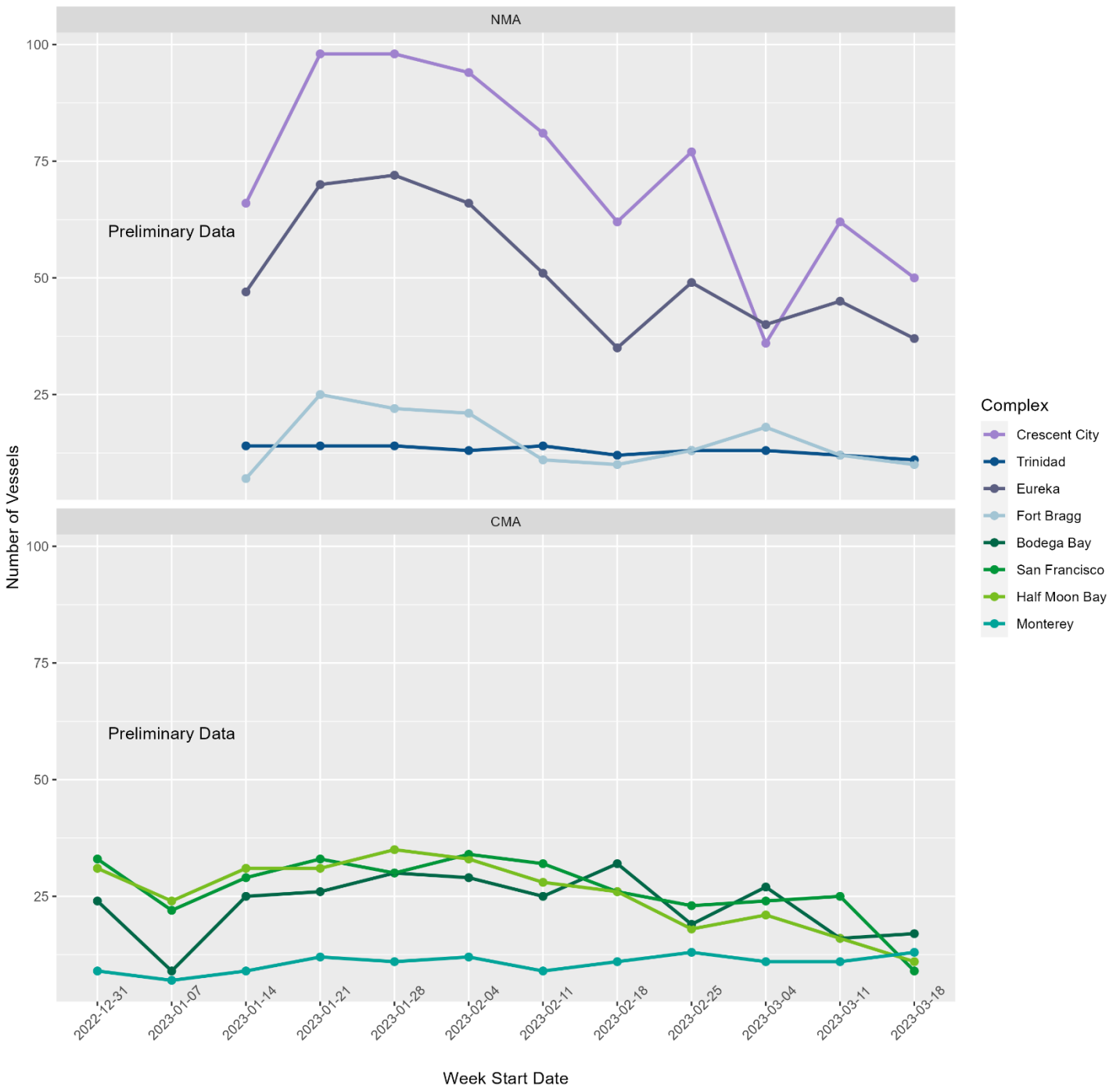


Figure 7. Number of active vessels by week and port complex. Week 1 starts with the first day the commercial Dungeness crab fishery was open in any area, December 31, 2022. All data are preliminary and subject to change. Some week*port complex combinations are withheld due to confidentiality concerns.

Bi-Weekly Fishing Activity Reports (All Fishing Zones)

CDFW has received bi-weekly reports since the first reporting period on January 1, 2023 through the most recent reporting period of March 16, 2023. A summary of reports received for March 16, 2023, is provided in Table 6; note this summary may not reflect all permitted vessels participating in the fishery. Based on this total, 60% of all estimated traps are being reported in Fishing Zone 1.

Table 6. Summary of information provided for the March 16, 2023, bi-weekly reporting period by Fishing Zone (1-6). Accessed from CDFW's Bi-Weekly Reporting database on March 24, 2023. 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	99	348	34,383	13	32	92	5	28
Zone 2	19	203	3,848	14	26	40	0	0
Zone 3	70	233	16,307	19	35	80	1	0
Zone 4	12	182	2,175	22	42	70	0	0
Zone 5	3	119	356	27	42	50	0	0
Zone 6	NA	NA	NA	NA	NA	NA	NA	NA
Totals	203	NA	57,069	NA	NA	NA	6	28

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

Data provided by: Monterey Bay Aquarium Research Institute

MBARI Krill Model

Modeled zooplankton conditions for February 2023 indicate expected concentrations from Point Conception to Point Sur, Point Arena to Cape Mendocino and near the CA/OR border. There are also pockets of higher-than-expected concentrations south of Point Conception, from Point Sur to Point Arena, from Cape Mendocino to Cape Blanco, and north of Cape Blanco.

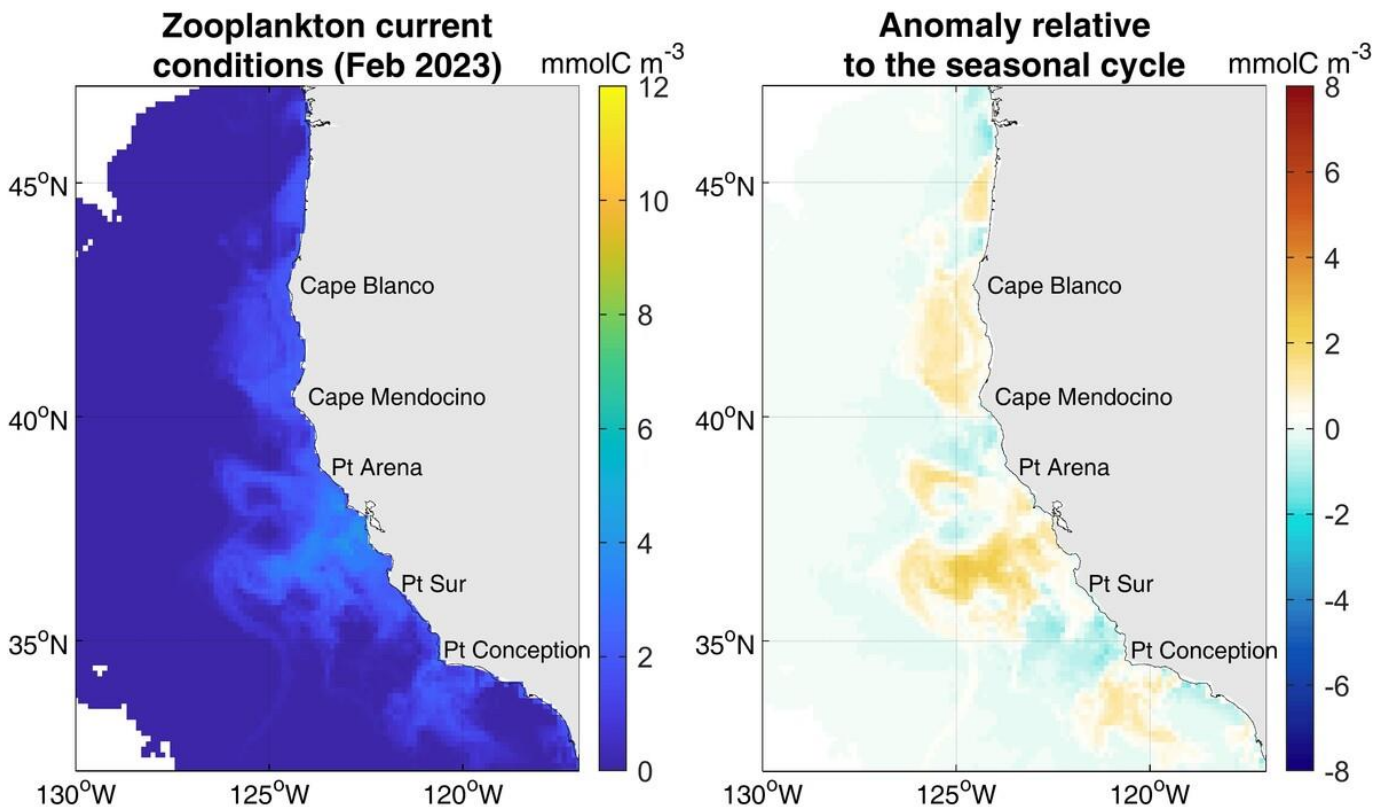


Figure 8. Latest modeled zooplankton concentrations in the California Current (left) and corresponding anomaly relative to the 1993-2018 seasonal cycle (right). Derived from the operational krill hotspot model from February 2023 accessible on the [MBARI Website](#).

Forage Abundance Indices

See the [February 13, 2023, Available Data](#) document.

Ocean conditions: §132.8(d)(9)

Data provided by: National Weather Service Climate Prediction Center, California Current Integrated Ecosystem Assessment Program, Jarrod Santora (NMFS SWFSC)

El Niño/Southern Oscillation (ENSO) Diagnostic

See the [March 13, 2023, Available Data](#) document.

Large Marine Heatwave Tracker

As of March 3, 2023, there are no new Large Marine Heatwaves (LMHs), and nearshore coastal waters are slightly colder than the average temperatures (Figure 9). The heatwave that developed in January 2022, receded and shrank from nearshore coastal waters in November of 2022.

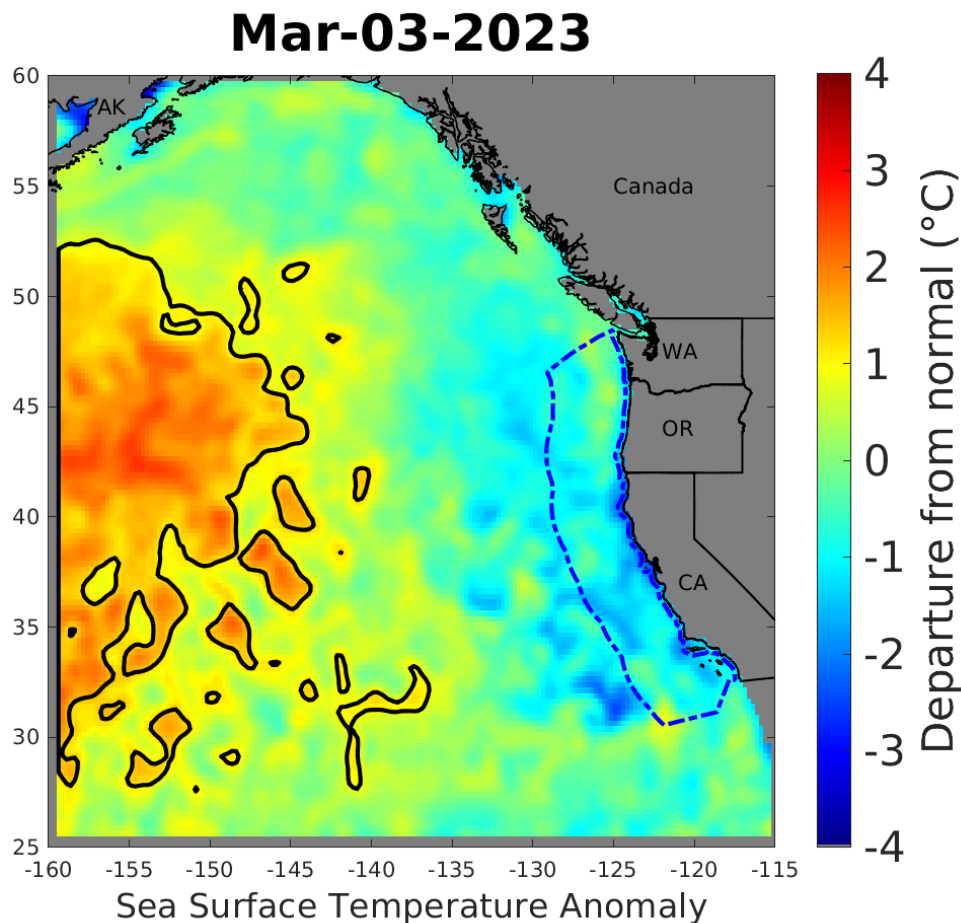


Figure 9. Science-quality (delayed 3-weeks), daily interpolated standardized sea surface temperature anomalies (SSTa) in the California Current ecosystem available for analysis of MHW presence. Dark outline shows the current extent of MHW conditions, as delineated by values of the normalized SST + 1.29 SD from normal. Blue dashed line

represents the US West Coast EEZ. SST data from [NOAA's Optimum interpolation Sea Surface Temperature](#) analysis with the SST anomaly calculated using climatology from NOAA's AVHRR-only OISST dataset.

Habitat Compression Index

See the [March 13, 2023, Available Data document](#).

North Pacific High

See the [March 13, 2023, Available Data document](#).

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

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 (2022-23) and calendar year (2023) are provided in Table 2 above. Impact Score totals for calendar year 2021 and 2022 are provided in Table 3 above.