



**NOAA
FISHERIES**

2022 West Coast Whale Entanglement Summary

Each year, NOAA Fisheries collects, verifies, documents, and responds to reports of large whale entanglements along the U.S. West Coast from a variety of sources including boaters, fishermen, law enforcement, marine resource agencies, and the public. Included in this summary are the reports received or known to have originated from U.S. West Coast sources in 2022, along with other developments related to large whale entanglements. NOAA Fisheries publishes a separate national entanglement report that summarizes national data on reports and confirmed entanglements in U.S. waters, as well as highlights emergency response activities to help whales in U.S. waters by the U.S. Large Whale Entanglement Response Network.

In 2022, entanglement reporting on the U.S. West Coast continued to be higher than what had occurred historically prior to 2014, although reports were less than what was received during the peak years from 2015-2018 (Figure 1). We confirmed 30 entangled whales off the coasts of Washington, Oregon, and California, or off the coast of other countries and states but entangled in U.S. west coast commercial fishing gear. Similar to recent years, humpback whales continue to be the most common species entangled with 18 separate entanglements confirmed in 2022. There were also ten gray whales, one transient killer whale, and one fin whale confirmed entangled.

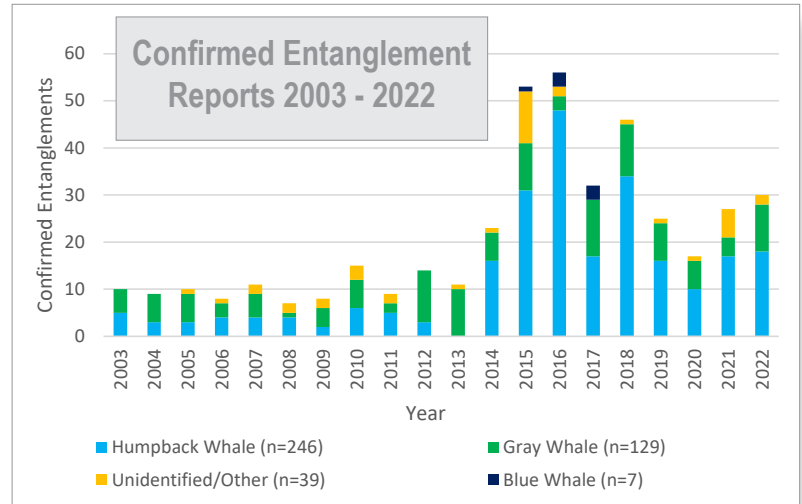


Figure 1: Number of confirmed entanglements by species reported to the West Coast Region each year from 2003 to 2022.



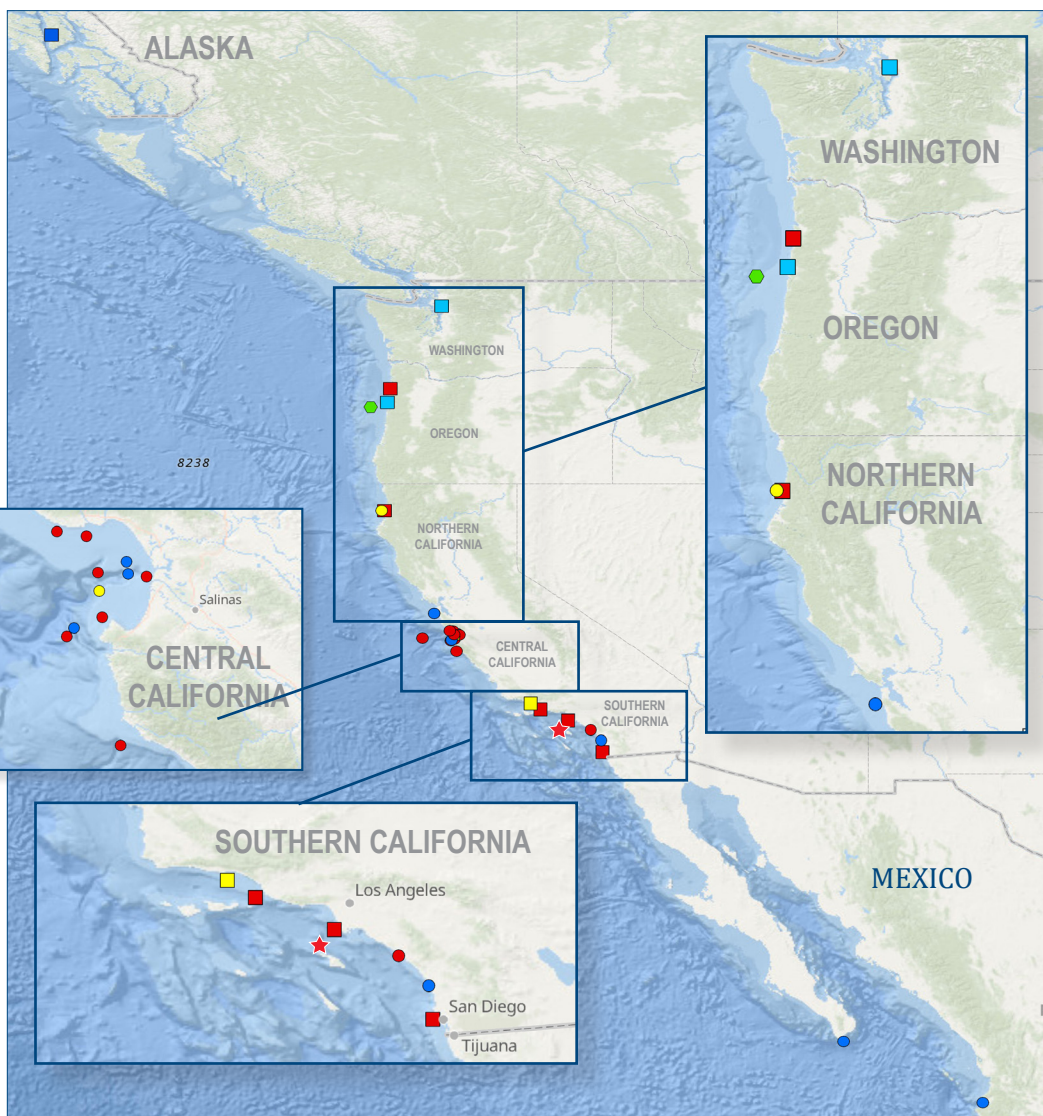
Above: Humpback whale entangled with two commercial Dungeness crab sets; line deeply embedded in the back of the whale. Entangling gear partially removed by rescue team off San Diego, CA. Credit: Sea World.

Right: Breaching humpback whale entangled with gillnet around the head, documented off Monterey, CA. Credit: Dane McDermott, Monterey Bay Whale Watch.



2022 West Coast Entanglements

Reports of entangled whales originated from throughout the U.S. West Coast in 2022, but were concentrated in central and southern California. Gray whale entanglement reports were most common in southern California, whereas humpback whales were most common off central California. Of note, gear from the Washington commercial Dungeness crab fishery was successfully removed from a gray whale in Alaska and a humpback whale in Mexico.



LEGEND

Species, fishery

- ★ Fin Whale, unknown
- Gray Whale, commercial Dungeness crab
- Gray Whale, unidentified gillnet
- Gray Whale, monofilament
- Gray Whale, unknown
- Humpback Whale, commercial Dungeness crab
- Humpback Whale, unidentified gillnet
- Humpback Whale, unknown
- Killer Whale, unidentified Dungeness crab

Species	Confirmed (Unconfirmed)	Location of Confirmed Reports	Gear Identified from Confirmed Reports
Humpback	18 (1)	16 CA, 2 Mexico	7 commercial Dungeness crab, 2 unidentified gillnet, 9 unknown
Gray	10 (3)	6 CA, 2 OR, 1 WA, 1 AK	1 commercial Dungeness crab, 1 unidentified gillnet, 2 monofilament line, 6 unknown
Transient Killer	1 (0)	1 OR	1 unidentified Dungeness crab
Fin	1 (0)	1 CA	1 unknown

Entanglement Response Outcomes

- Out of 30 confirmed whale entanglements, there were 22 cases where a response was initiated (6 gray whales and 16 humpback whales).
 - 4 response cases (2 gray whales and 2 humpback whales) where all gear was removed
 - 3 response cases (3 humpback whales) where some but not all the gear was removed
 - 13 response cases where no gear was removed
 - 4 response cases (1 gray whale and 3 humpback whales) where the animal was partially or fully self-released from the gear
- There were 10 live whale cases where no response was initiated (1 fin, 4 gray, 4 humpback, and 1 unidentified whale). Response was not possible due to time of day, weather, response team capabilities, or location of report.
- There were responses initiated for 2 unconfirmed reports.

Alive/Dead

All confirmed entanglement reports were associated with live whales except two dead whales (one gray whale and one transient killer whale). The dead entangled gray whale reported off the coast of California was examined and gear removed for review. Skin was collected from the dead entangled killer whale reported off Oregon; DNA analysis [confirmed the whale to be a transient](#), and gear was removed and reviewed. In addition to the confirmed entanglements, 7 other whales were documented with wounds consistent with previous entanglement [5 humpback whales (3 live, 2 dead) and 2 gray whales (2 dead)].

Explanatory Notes

- The origins of commercial Dungeness crab gear entanglements were: CA (4), OR (2), and WA (2).
- Included in this are 2 reports from Mexico this year; 2 humpback whales entangled with commercial Dungeness crab gear; 1 from CA and 1 from WA which included a summer tag from 2021 and a red line marking.
- In addition, a gray whale entangled with 2007-2008 commercial Dungeness crab gear from WA was confirmed entangled in Alaska.
- We also received 1 report, unconfirmed, of an unidentified species.

Response and Training Efforts

- In 2022, the West Coast Region hosted multiple entanglement response trainings with a renewed focus on safety and practicing team skills following covid restrictions. Multiple hiring promotions within the response network has elevated the number of responders and capabilities in California and Washington.



- Staff attended the national entanglement responders meeting and training hosted in San Diego.
- NOAA Fisheries partnered with National Marine Sanctuaries and fishermen for training in California and Washington.
- Two high profile successful responses were highlighted online: [Team Removes Most Rope from Entangled Humpback Whale Off California](#) and [Team Frees Humpback Whale off Southern California Coast](#).



Left, top: Training at the national large whale entanglement responders meeting, San Diego, CA. Credit: NOAA Fisheries.

Bottom: Training in Santa Barbara, CA, hosted by NOAA Fisheries and National Marine Sanctuaries. Credit: NOAA Fisheries.

Management Activities

- Three California commercial Dungeness crab entanglements of humpback whales in March prompted early closure of the commercial season on April 8, 2022 and restricted use of recreational crab traps starting April 13, 2022 for the remainder of the season. The humpback whale entanglement reports were earlier in the year compared to previous years.
- Increased communications with other countries, especially Mexico, in reviewing cases has increased our ability to identify entanglements with West Coast origins.
- West Coast Region staff reviewed the first entanglement with a line marking. Washington commercial Dungeness crab gear removed from a humpback whale in Mexico had two red line markings documented upon recovery of gear. The markings are consistent with Washington regulations.



Above: Photo of entangled humpback whale in July shared from the entanglement response network in Mexico. This photo was confirmed as a resight on a whale originally reported as entangled in March off Monterey, CA. Credit: RABEN.

More Questions Than Answers: Unknown Gear

- 16 confirmed whale entanglements were associated with unknown entangling material, see the Unknown Gear Breakdown table.
- In one "line only" case, 552 feet of line was removed from a whale and reviewed, but the source of entanglement remains unknown.
- High quality documentation was received for 3 of 4 unknown gear entanglements involving line + 2 buoys, yet the source remains unknown because no buoy markings were visible.
- Fin whales: the confirmed entanglement reported this year had similar dark entangling line gear and report location to previous fin whale entanglements.
- A gray whale cow/calf pair were documented as entangled together in the same set of unknown gear [line + 1 buoy].

Table: Unknown Gear Breakdown

Entangling material	COUNT (N=16)
Unknown	1
Line only	6
Line + 1 buoy	5
Line + 2 buoys	4



Above: A gray whale cow/calf pair entangled together off of San Diego, CA with unknown gear. Credit: San Diego Whale Watch.



Above: Drone footage documenting humpback whale entangled with blue line off Dana Point, CA. Credit: NOAA Fisheries.



Above: Entangled fin whale with unidentified mass of line or netting, reported off Los Angeles, CA. Credit: Harbor Breeze, Captain Lon Taulbee.

More Questions Than Answers: Scars Indicators of Entanglements

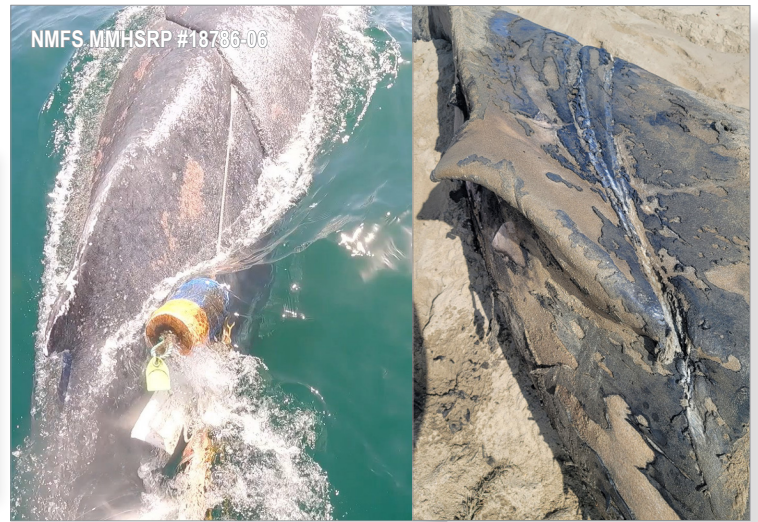
Scars are indicators of entanglements. In addition to the 29 confirmed entanglements, 5 humpback whales (3 alive, 2 dead) had wounds consistent with previous entanglements documented in 2022. Photos are from two whale cases with similar injury.



Above: Wound on left pectoral flipper of live whale, after gear removal, shows similar pattern to dead stranded whale in October. Credit: NOAA Fisheries.



Above: Dead stranded humpback whale from October shows clear signs of entanglement scar on the right pectoral flipper, down to the bone. Credit: NOAA Fisheries.



Above, left: Photograph of free-swimming entangled whale shows injury from line and buoys across dorsal fin. Right: Similar scar of the dead stranded whale in October across back near dorsal indicates previous entanglement. Credit: NOAA Fisheries.

More Questions Than Answers: Lost Gear Entanglement

A gray whale entangled in Washington commercial Dungeness crab gear was disentangled in Alaska. The entanglement included two sets of gear; one set included a gear tag from 2007-08 and the other gear appeared newer with no markings.

While there are still many unknowns, NOAA Fisheries is working collaboratively with tribal nations and communities, fishery managers, fishing industry working groups, and other stakeholders in the states of California, Oregon, and Washington to better understand the sources and dynamics of entanglements involving various types of fishing gear.

Recent Publications & Helpful Links

Tackaberry et al., 2022: Low resighting rate of entangled humpback whales within the California, Oregon, and Washington region based on photo-identification and long-term life history. <https://www.frontiersin.org/articles/10.3389/fmars.2021.779448/full>

Searly et al., 2022: Revenue loss due to whale entanglement mitigation and fishery closures. <https://rdcu.be/c1xWo>

Improving Gear Marking in the U.S. West Coast Sablefish Pot Fleet: <https://seagrant.oregonstate.edu/sqpubs/improving-gear-marking-us-west-coast-sablefish-pot-fleet>

California Department of Fish and Wildlife Whale Safe Fisheries page: <https://wildlife.ca.gov/Conservation/Marine/Whale-Safe-Fisheries>

NOAA Integrated Ecosystem Assessment page for whale entanglements: <https://www.integratedecosystemassessment.noaa.gov/regions/california-current/ecosystem-context-reducing-west-coast-whale-entanglements>

Large Whale Entanglement Photo Documentation Checklist

<https://www.fisheries.noaa.gov/resource/document/large-whale-entanglement-photo-documentation-checklist>

Large Whale Entanglement Photo Documentation Checklist
Humpback whale

Entanglement Reporting Hotline:
1-877-SOS-WHAL or
1-877-767-9425

1 Photograph Species, Overall Condition, & Entanglement

- Head (Box **A** above)
- Flukes, especially underside if raised (Box **C** above)
- Side view of dorsal fin (Box **B** above)
- Any part of the body where the entanglement or gear may be present

2 Photograph Fishing Gear

- Buoys (and other gear if present)
- Lines on the body
- Netting if present
- Other gear if present
- Tags (color, numbers, and letters if present)
- Trailing lines including the distance from the whale
- Line Markings - colored sections of line if present

3 Submit the photos and identifying information

Email photographs to wcr.entanglement@noaa.gov. Underwater documentation can also be obtained but only by trained large whale entanglement responders.

Camera Specifics

A high quality camera (Single Lens Reflex (SLR) for example) is ideal to document an entangled whale as it results in higher resolution. A cell phone can also be used if that is the only option.

Entangled whales are unpredictable and dangerous.
Keep a safe distance. Do not approach the whale.
Watch for lines in the water that may entangle your boat.

Learn more about the West Coast Large Whale Entanglement Response Program:
www.fisheries.noaa.gov/west-coast/marine-mammal-protection/west-coast-large-whale-entanglement-response-program