



Dungeness Crab Fishing Gear Working Group

Working Collaboratively to Reduce the Risk of Whale Entanglement in the California Dungeness Crab Fishery

The California Dungeness Crab Fishing Gear Working Group is a collaboration among multiple diverse stakeholder groups who have come together to tackle the challenge of reducing the risk of whale entanglements in Dungeness crab fishing gear. This group strives to find solutions that support thriving whale populations along the West Coast and a thriving and profitable Dungeness crab fishery.

THE ISSUE OF WHALE ENTANGLEMENTS IN FISHING GEAR

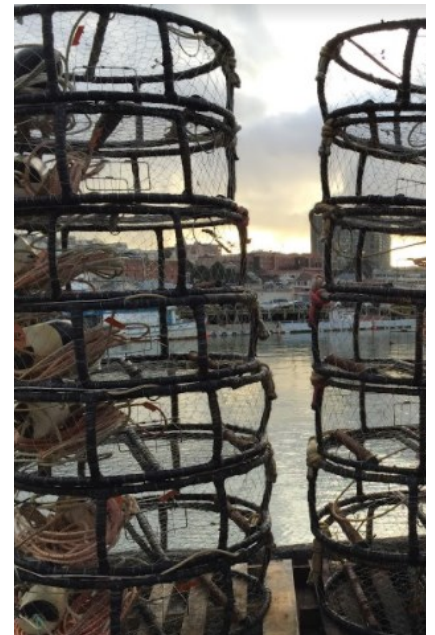
Variable, dynamic ocean conditions are impacting California's valuable natural resources, human populations, and marine life. Recently, oceanographic and biological changes due to warmer water off the West Coast have led to delays and closures of commercial and recreational fishing seasons, altering the dynamics of fishing activity. At the same time, growing whale populations and shifts in their feeding patterns have resulted in an increased risk of whales interacting with fishing gear. In recent years, reports of whales entangled in fishing gear off California have been higher as compared to the historical number of reports since NOAA Fisheries started keeping records in 1982. A variety of factors may contribute to the increase in the number of reported entanglements, including changes in the distribution and abundance of whales, changes in fishing effort, and an increase in public awareness and reporting. Although there are many unknowns, multiple fisheries have been identified as entangling whales, including the Dungeness crab fisheries on the California coast. This creates social, environmental and regulatory challenges. It also creates risk for marine mammals and threatens the stability and viability of an important fishery and coastal fishing communities dependent on this fishery. State and federal agencies, fishermen, environmental organizations and scientists have been responsive to this issue and are working collaboratively to identify and implement solutions.

THE FORMATION OF THE DUNGENESS CRAB FISHING GEAR WORKING GROUP

In response to the recent spike in whale entanglements, the California Department of Fish and Wildlife (CDFW), in partnership with National Marine Fisheries Service (NMFS) and the California Ocean Protection Council (OPC), convened the Dungeness Crab Fishing Gear Working Group (the Working Group) to tackle the challenge of reducing the risk of whale entanglements in the California Dungeness crab fishery.



Photo Courtesy of Jakara Hubbard



Established in September 2015, the 20-member Working Group is a unique coalition of diverse stakeholders, including commercial and recreational fishermen, environmental organization representatives, members of the whale entanglement response network, and state and federal agencies. All experts in their field, these individuals have voluntarily come to the Working Group with the common goal of supporting thriving whale populations along the West Coast and a thriving and profitable Dungeness crab fishery. Scientists, legislative staff, and gear manufacturers also participate in Working Group meetings to support and inform discussions. Since its creation, the Working Group has met seven times, and participants are committed to identifying solutions to this complex issue.

Members of the Working Group are committed to identifying solutions to the entanglement challenge. Participants have been responsive to the issue and have volunteered their time and expertise to work collaboratively towards feasible, tangible solutions. The Dungeness Crab Fishing Gear Working Group is a prime example of constituents with diverse expertise and interests uniting for a shared goal.

SUPPORTING COLLABORATIVE PROJECTS

The Working Group is currently working on the following activities: (1) supporting the implementation of collaborative projects to collect new information and synthesize existing information to enhance our understanding of whale distribution and fishing dynamics, and to test gear modifications; (2) developing effective communications materials and conducting outreach, such as the development and sharing of a Best Practices Guide. It is important to have the support of the Dungeness crab fleet, state legislators, and all stakeholders to advance these projects and to address the whale entanglement issue.

- **Whale forage distribution research:** Researchers from the UC Santa Cruz and the Southwest Fisheries Science Center are leading a project to: organize historical data, including existing ocean condition data, prey distribution patterns, and whale sightings; create maps of existing data relative to historical entanglement patterns; and evaluate capabilities to forecast whale distributions.



- **Disentanglement Trainings:** NMFS, in partnership with California Whale Rescue, The Nature Conservancy (TNC), and the Working Group, are training commercial and recreational fishermen in whale entanglement response.
- **Gear modification:** A federally funded Bycatch Reduction Engineering Program project is underway where scientists, in collaboration with fishermen, evaluate the line profiles and load strengths of different types of fishing line, as well as the visual contrast of different line types/colors in the water column.
- **Whale and crab gear distribution surveys:** The Working Group has worked in partnership with the National Marine Sanctuaries, Point Blue Conservation Science, NMFS, Oceana, and LightHawk to conduct a series of aerial and cruise vessel surveys to document the distribution of whales and crab fishing gear.
- **Electronic reporting tool research:** Fishing participants are working with CDFW and TNC to conduct a series of pilot projects on different types of data loggers, with a focus on solar loggers and TNC's eCatch, to gain a more comprehensive understanding of fishing dynamics.

LOOKING AHEAD: CONTINUED COLLABORATION

In addition to collaborative research projects and the Best Practices Guide, the Working Group also looks forward to piloting a draft voluntary risk assessment and mitigation program in the upcoming 2017-2018 Dungeness crab fishing season. Throughout 2017 and into 2018, the Working Group will continue to support implementation of collaborative projects and communications; provide guidance and recommendations to the California Dungeness crab fishing industry, the Dungeness Crab Task Force, and the state of California about how to reduce the risk of whale entanglements; and identify measures to address the entanglement issue.

California Dungeness Crab Fishing
2017-18 Best Practices Guide to Minimize Whale Entanglement Risk

Support for Best Practices
 National Marine Fisheries Service (NMFS) has confirmed significant increases in large whale entanglements over the last few years, and specifically in California Dungeness crab fishing gear. This situation threatens the stability of the fishery and coastal fishing communities. In response, a Working Group has developed this Best Practices Guide to highlight voluntary actions believed to be an important step towards reducing whale entanglements.

BEST PRACTICES

- No excess lines should be floating at the surface. Floating line should only be between the main buoy and trailer.
- When changing set location across depths, adjust the length of trap lines by adjusting shots (i.e., measured length of line) to maintain taut vertical lines.
- Avoid setting gear in the vicinity of whales whenever possible.
- Maintain gear to ensure lines and buoys are in good working condition and will not break under natural conditions causing gear to become lost or irretrievable. Lost gear contributes to marine debris and increases risk of whale entanglements.
- All gear should be clearly marked consistent with applicable regulation. All gear should be maintained so markings are clearly legible to facilitate correct identification of the origins of the gear involved in entanglements.
- Use the minimum amount of scope required to compensate for tides, currents and weather. Whales are more likely to become entangled with slack lines, which can potentially create a "floating snare".
- Remove all fishing gear by the end of the season when gear is no longer allowed in the water.

BUOY SET-UP BEST PRACTICES

RECREATIONAL
 shortest as possible, max of 2 fathoms (1.2M)

COMMERCIAL
 Inside 30 fathoms: shortest as possible, max of 3 fathoms (1.8M)
 30-50 fathoms: shortest as possible, max of 4 fathoms (2.4M)
 Outside 50 fathoms: shortest as possible, max of 5 fathoms (3.0M)

Minimize # of buoys in set up—no more than 1 trailer buoy inside 30 fathoms
 Keep line between trap and main buoy running vertical and taut

Trap

1 fathom = 6 feet

Best Practices Guide to Minimize Whale Entanglement Risk

The Working Group developed several voluntary "best practices" focused on recommendations for surface gear set up for the 2017-18 fishing season, including improved buoy setup, reduced slack surface line, and limited number of trailer buoys. More than 2,250 copies of the resulting Best Practices Guide are being shared widely with fishing associations, local gear stores, fishing harbors, and by CDFW Enforcement, the US Coast Guard, and the California Recreational Fishing Survey surveyors, as well as online distribution via CDFW and recreational fishing clubs.