

GEAR INNOVATION-- WHAT'S BEEN DONE?

Presentation for Entanglement Science Workshop -- September 1, 2020

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Information referred to in this presentation and additional information can be found at:

<http://habitat.psmfc.org/preventing-whale-entanglement/>

BEST MANAGEMENT PRACTICES & REGULATIONS

BEST MANAGEMENT PRACTICES:

- WA, OR, CA– Keep line tight between pot and main buoy to minimize slack that can loop
- WA, OR, CA - No excess floating line at surface; floating line minimized between main buoy and trailer buoy
- WA- reduce leads and knots that can get caught up in baleen

REGULATIONS (current or upcoming):

- CA- Surface gear restrictions- number of buoys/amount of line based on depth
- OR, WA– require taut line best practice
- WA- line marking requirement
- OR- prohibit use of line marking that is required in any other west coast fishery

WORKSHOPS

Diversity of participants– whale experts, state and tribal managers, fishermen, gear experts, conservation groups, working group representatives

Evaluated gear innovation prospects for whale benefits, costs, feasibility, and testing

Lots of ideas discussed, lots of information sharing, fishermen engaged, and some testing resulted

- **November 2013** workshop–Portland, OR– NMFS
- **March 2017** workshop- Portland, OR-- NMFS/PSMFC with support from OR Sea Grant, ODFW, HT Harvey and Associates. (*Included east coast whale/gear scientist, Maine fishermen association representative*)
- **August 2018** -Forensic workshop, Long Beach, CA. NMFS/PSMFC with support from OR Sea Grant, the Marine Mammal Commission and the Aquarium of the Pacific

GEAR TESTING

- 2017-2018 testing– CA--line profiles, load testing, colored line tests, Smart Buoy technology, manila line. (Sponsor: PSMFC through BREP grant)
- July 2018- CA-- “ropeless” gear (pop-up gear) testing (Sponsor: Oceana with support from Dungeness crab fishermen, innovators)
- Aug 2018- CA--Yale grip testing/use by individual fishermen (Sponsor: PSMFC)
- Sept 2019- WA-- Yale grips, breakaway swivels by buoys, line markings tested (Sponsor: WDFW/PSMFC)
- Sept 2019- CA– Pop-up gear testing/demonstration day of triggered and timed releases by multiple gear innovation companies. (Also smart buoy and Yale Grips were tested) (Sponsor: CDFW with support from Monterey Bay National Marine Sanctuary, and informed by the CA Dungeness Crab Working Group’s Gear Innovations Project Team [which includes fishermen, managers, environmental organizations, members of the disentanglement community, and scientific advisors].)
- 2020-2021 crab season- Systematic testing of pop up and low-tech gear innovations planned (Sponsor: Ocean Protection Council in partnership with National Marine Sanctuary Foundation, CDFW, fishermen).

OTHER WORK

- **BREP and Small Business Development grants**
 - continued testing with fishermen of pop up gear, smart buoy technologies
- **Experimental Gear Permits-- CDFW**

WHERE ARE WE?

- Better knowledge of gear innovations of interest to fleet
- Understanding that innovations are likely to be tested outside the main season
- Good working relationships have developed between fishermen, whale experts, managers
- Without gear innovations, time or area closures and gear reductions remain the way to reduce risk

Though a few fishermen have worked hard to test a lot of gear and different innovations, we haven't tested innovations at sufficient scale-- either for operational considerations or whale safety.

How do we overcome the barriers to gear innovation?