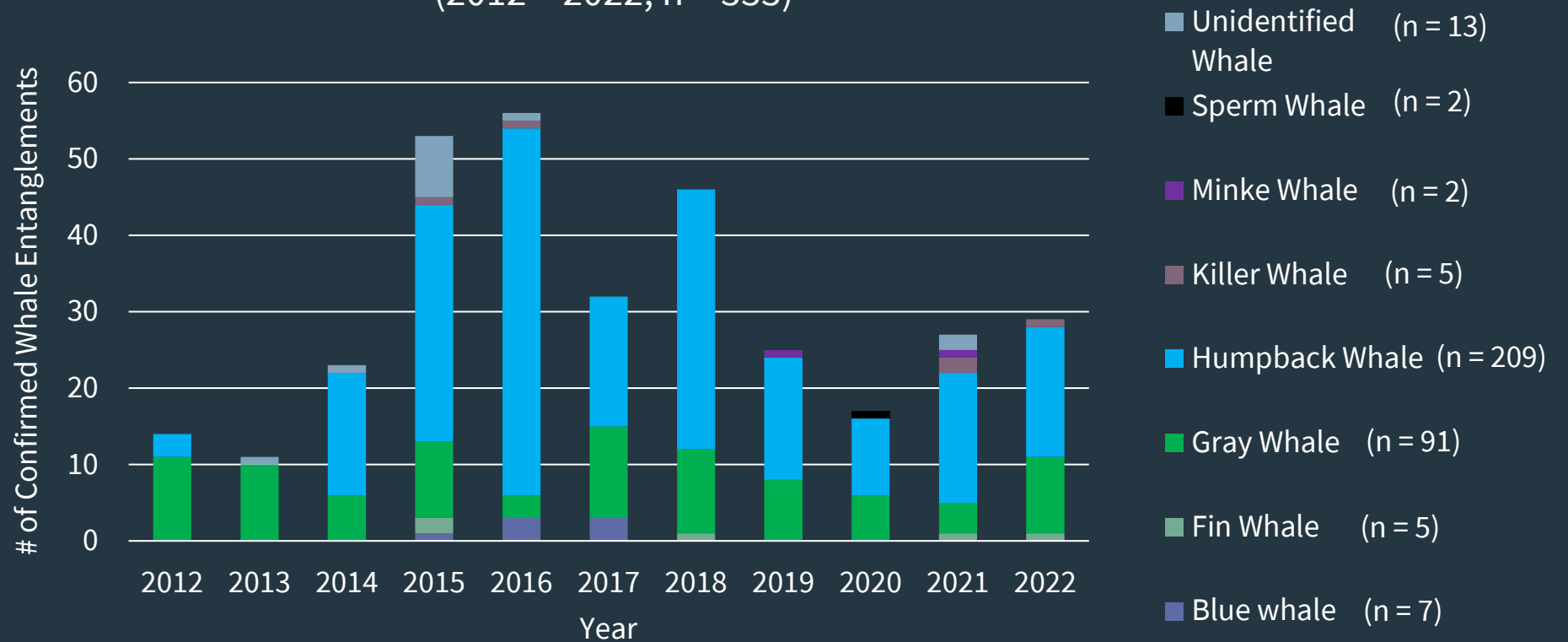


Whale Safe Oceans: Fixed Gear Marking and Entanglement Risk Reduction



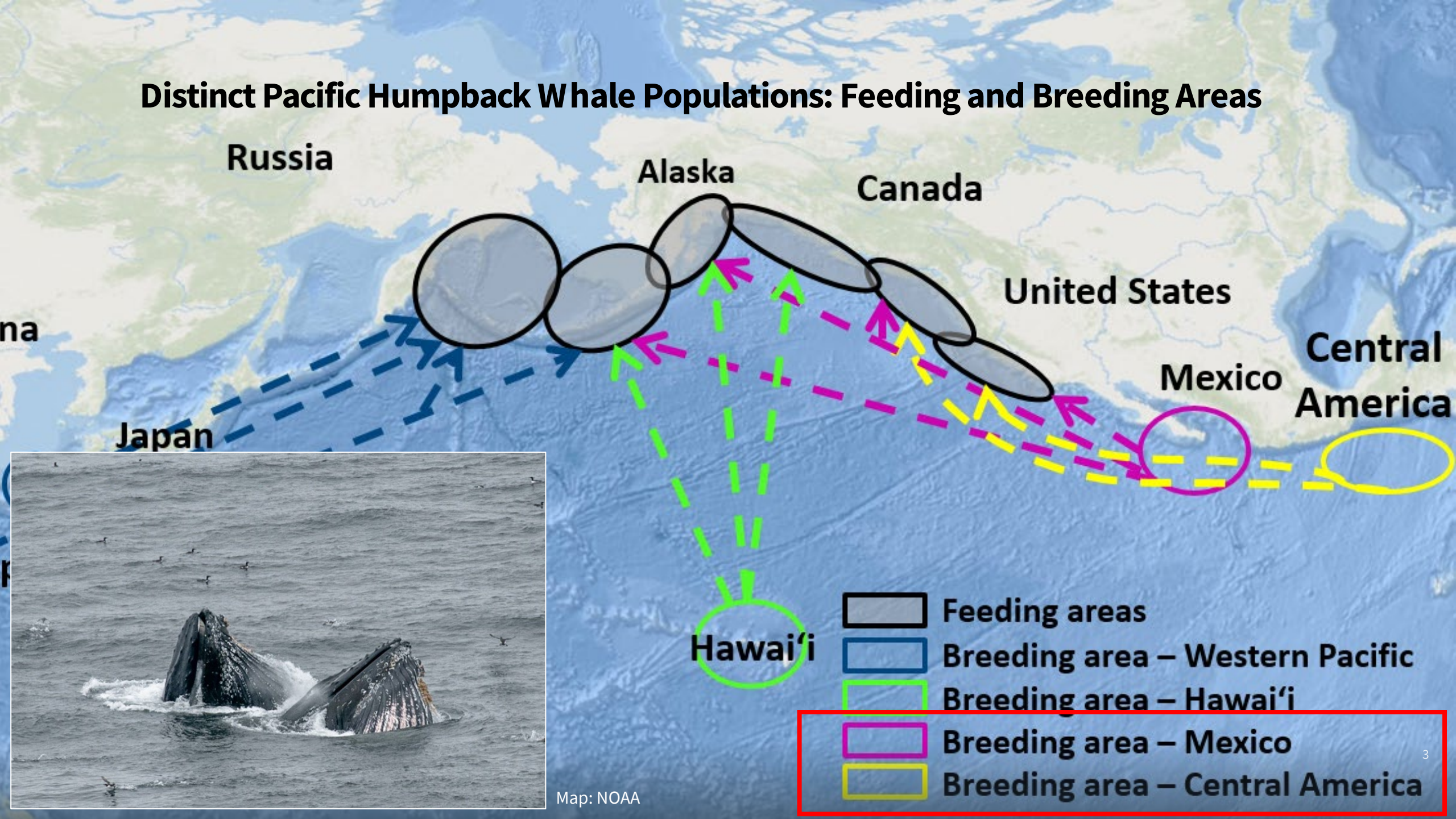
Whale Entanglements Are a Concern in Commercial Fisheries off the West Coast

Confirmed Large Whale Entanglements off the U.S. West Coast
(2012 – 2022, n = 333)



Data from NOAA Fisheries, West Coast Entanglement Program

Distinct Pacific Humpback Whale Populations: Feeding and Breeding Areas



Map: NOAA

Cumulative take levels are exceeding conservation thresholds

Central America Humpback Whale Population

(ESA Endangered)

“Total commercial fishery [mortality and serious injury] MSI (8.1/yr) is greater than the calculated [potential biological removal level] PBR (3.5) for this stock”

*- NOAA U.S. Pacific Marine Mammal Stock Assessments
2022*



75 percent of entangled whales not successfully freed by a trained response team ultimately die

NMFS 2012. Protected Resources Management Process for Distinguishing Serious from Non-Serious Injury of Marine Mammals. National Marine Fisheries Service Instruction 02-038-01 (January 27, 2012).



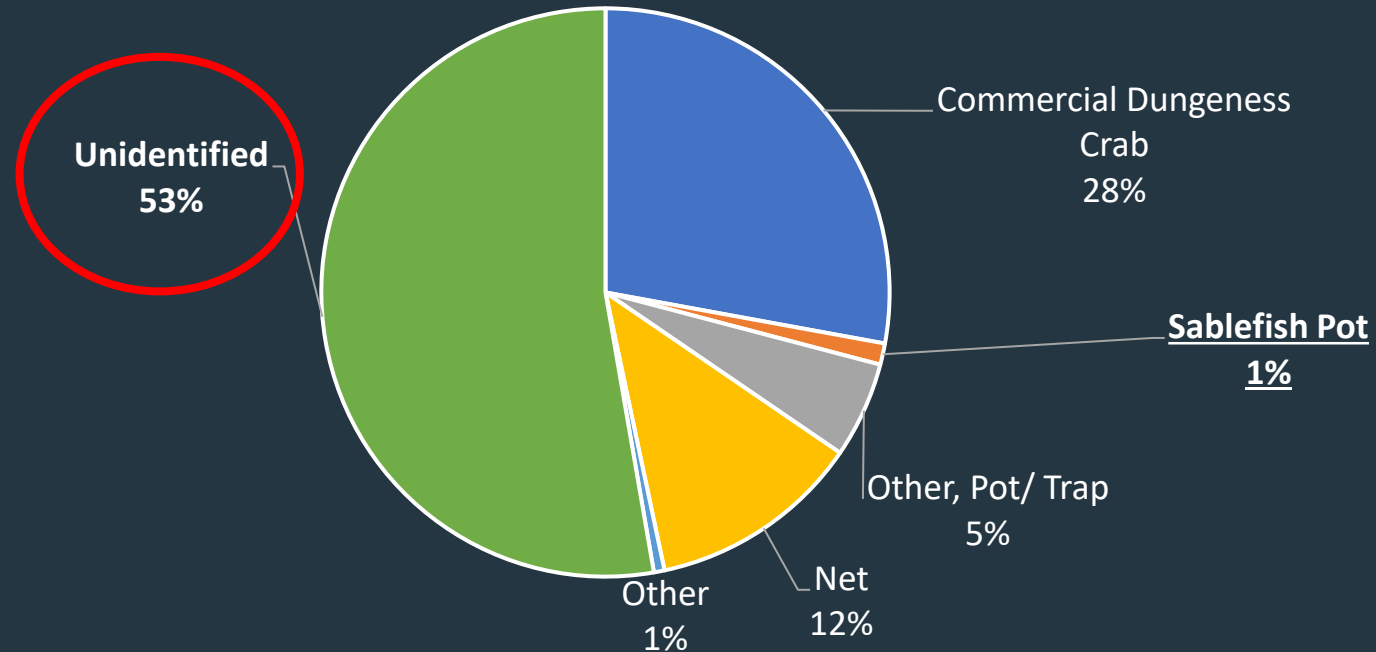
Alvaro Herrero Lopez Beltra



NOAA, MMHSRP permit # 932-1905

“The purpose of this action is to expand fixed gear marking requirements and risk reduction measures for entanglement or bycatch in the Pacific Coast groundfish fishery”

West Coast Whale Entanglements 2012-2022



Confirmed humpback whale takes in in sablefish pot gear: 1 in 2014, 2 in 2016 and 1 in 2017 that was in both sablefish pot gear and CA coonstripe shrimp pot gear (NOAA Fisheries, West Coast Entanglement Program)

Accountability Measures: Gear Marking

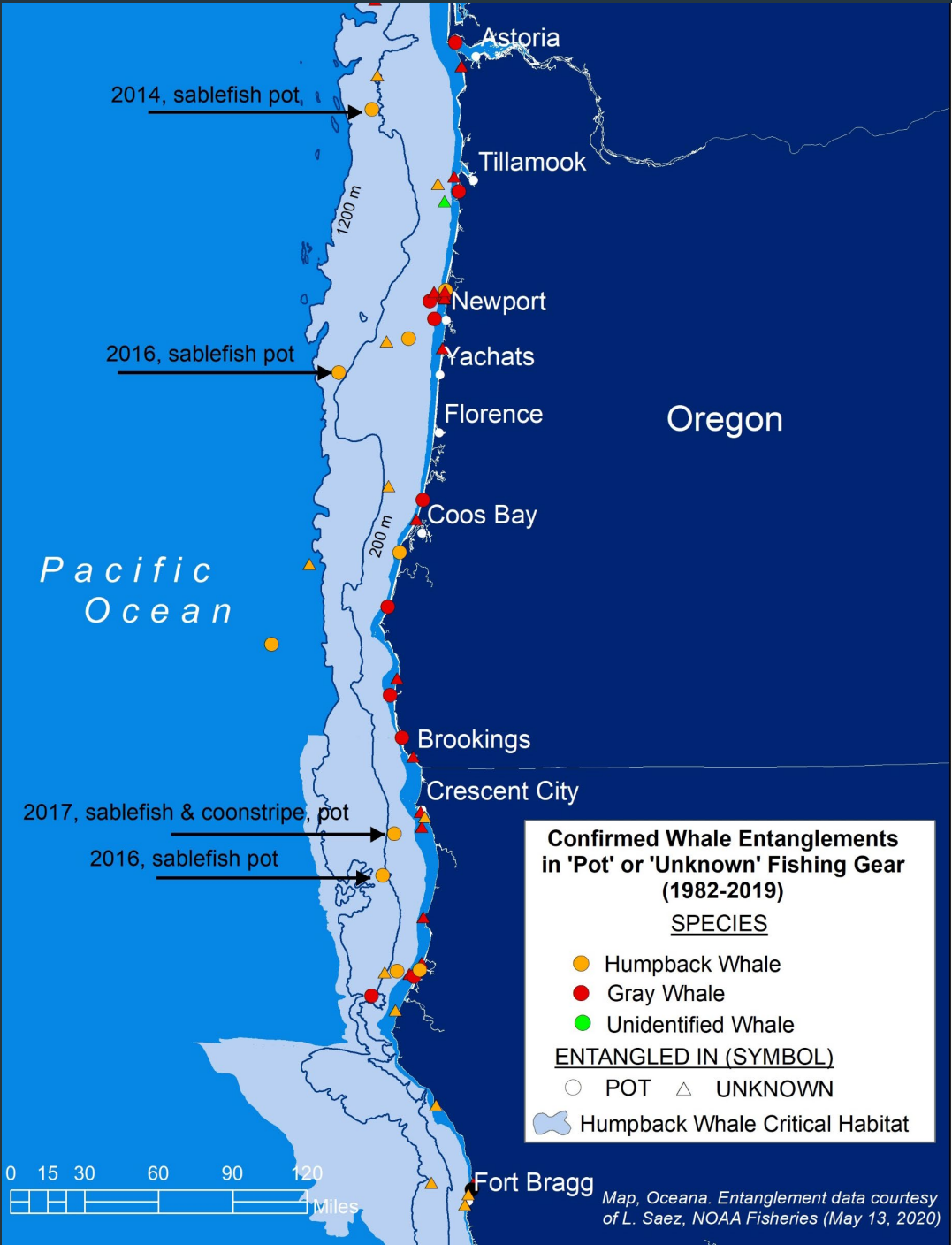
- Line and buoy marking: unique line marking manufactured through full length of line (not temporary markings), visible on any small section of line.
- Necessary to enable positive attributions when entanglements are observed in groundfish fixed gear, and definitively rule it out when it's not



Dual color braids visible throughout line

Improving Gear Marking in the U.S. West Coast Sablefish Pot Fishery (Gladics 2022)

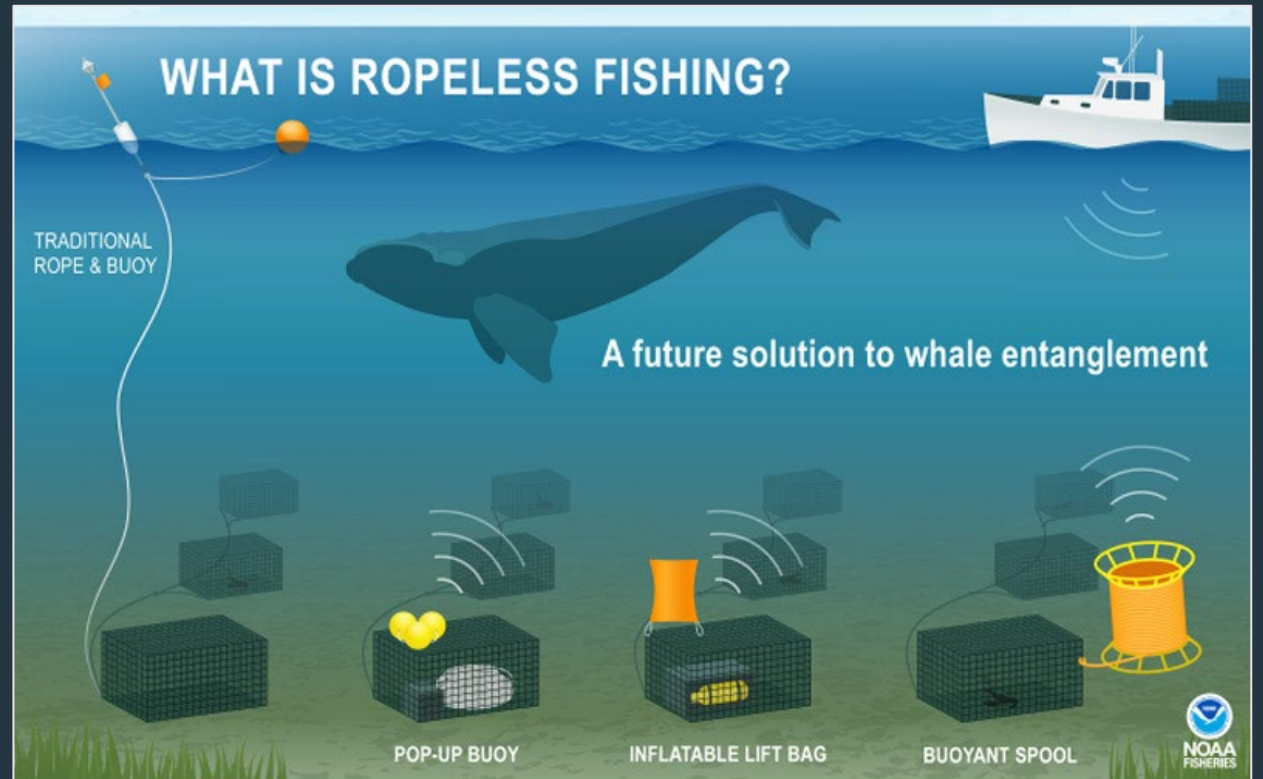
Develop a full range of risk reduction alternatives



- Time and area closures to minimize overlap between the groundfish fishery and humpback whale hotspots (e.g. California RAMP program)
- Vertical line reductions (add sub-option to make Alternative 1 mandatory & use pop-up gear on end of mainline with no surface gear)
- Authorize the use of pop-up gear in areas/ times otherwise closed to conventional gear to reduce whale entanglement risk
- Gear restrictions including limits on surface and trailing gear
- Caps on total number of confirmed takes
- Gear location monitoring (e.g., vessel tracking EM; GPS tracking)

Pop-Up Gear

- Recent pop-up gear EFP results: Sub Sea Sonics acoustic pop-up gear testing in California Dungeness crab fishery (Spring 2023)
 - Reliable: 1,191 traps set with 99.7% recovery using strings of up to 5 traps.
 - Inexpensive: \$350/unit + \$1,300/deck box
- Many ideas on how to adapt for sablefish
- Encourage testing of pop-up gear now
- Initial testing could occur without an EFP



Examples of different pop-up fishing gear systems vs. conventional gear

A proactive
approach will
benefit whales and
fishing
opportunities

