

Co-occurrence of large whales and commercial crab pot fishing gear in three central California National Marine Sanctuaries



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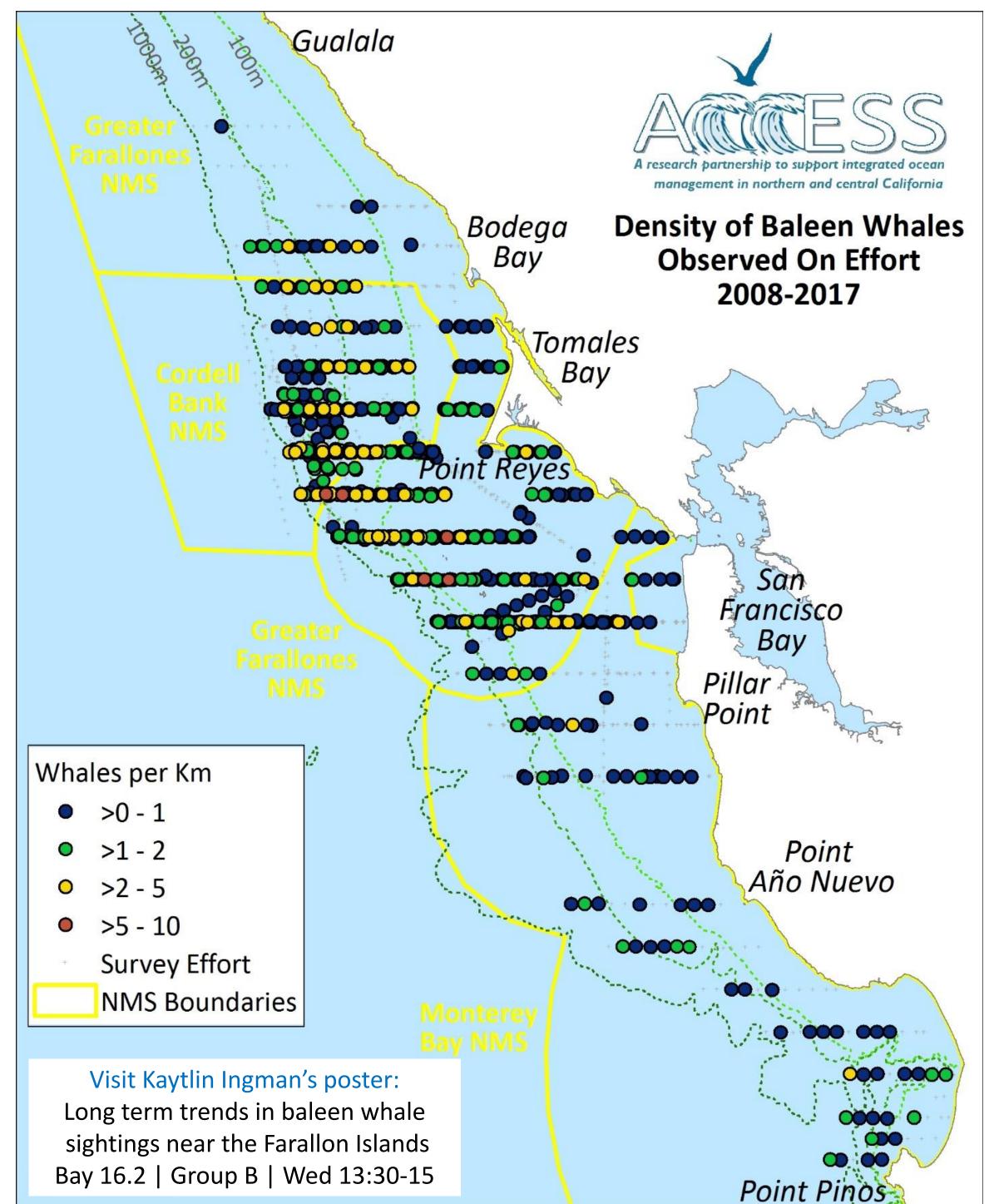
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BACKGROUND

There has been a dramatic recent increase in large whale entanglements on the U.S. West Coast. From 2000-2012 there was an annual average of 10 entanglement reports with much higher total reports in the most recent 3 years: 32 in 2014, 61 in 2015 and 71 in 2016. The vast majority of reported entanglements are in trap/pot fishing gear off California.



Fig 3. Whale data and predictive models show that preferred whale habitat for humpback and blue whales is closely associated with the shelf break (200 meters) where krill abundance is high.



APPROACH

The Applied California Current Ecosystem Studies (ACCESS) is an ongoing collaboration between Point Blue Conservation Science, Cordell Bank and Greater Farallones National Marine Sanctuaries. ACCESS is a long term ocean ecosystem monitoring program that records predator and prey distribution and abundance, and oceanographic conditions to address a variety of ocean management issues. We surveyed large whale and crab-pot distribution and abundance from 2004-2017 from Fort Ross to Half Moon Bay, central California and in 2017 expanded the surveys from Año Nuevo to Southern Monterey Bay where no comparable monitoring existed.

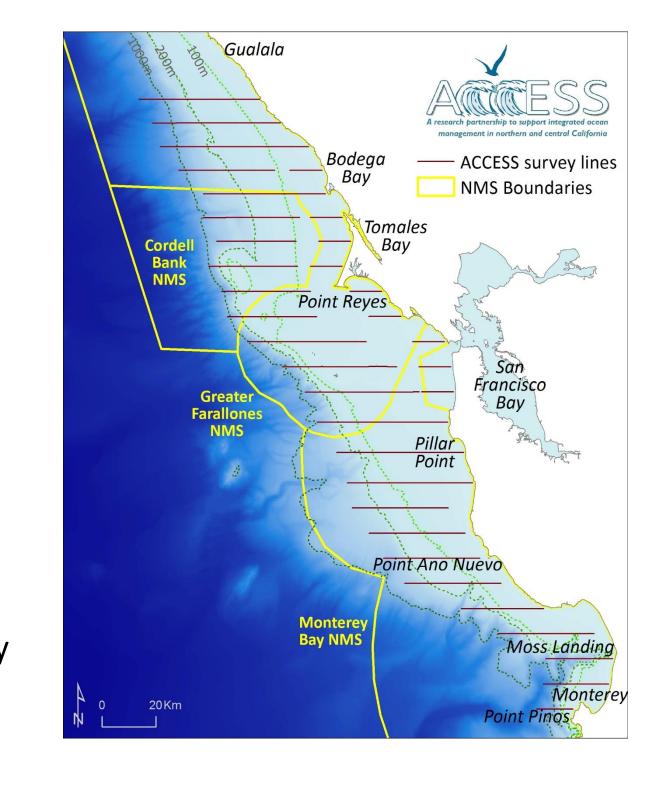


Fig 1. ACCESS study area

Fig 4. During surveys, crab pots were observed over most of the shelf with high numbers overlapping preferred whale habitat from the shelf edge to the nearshore.

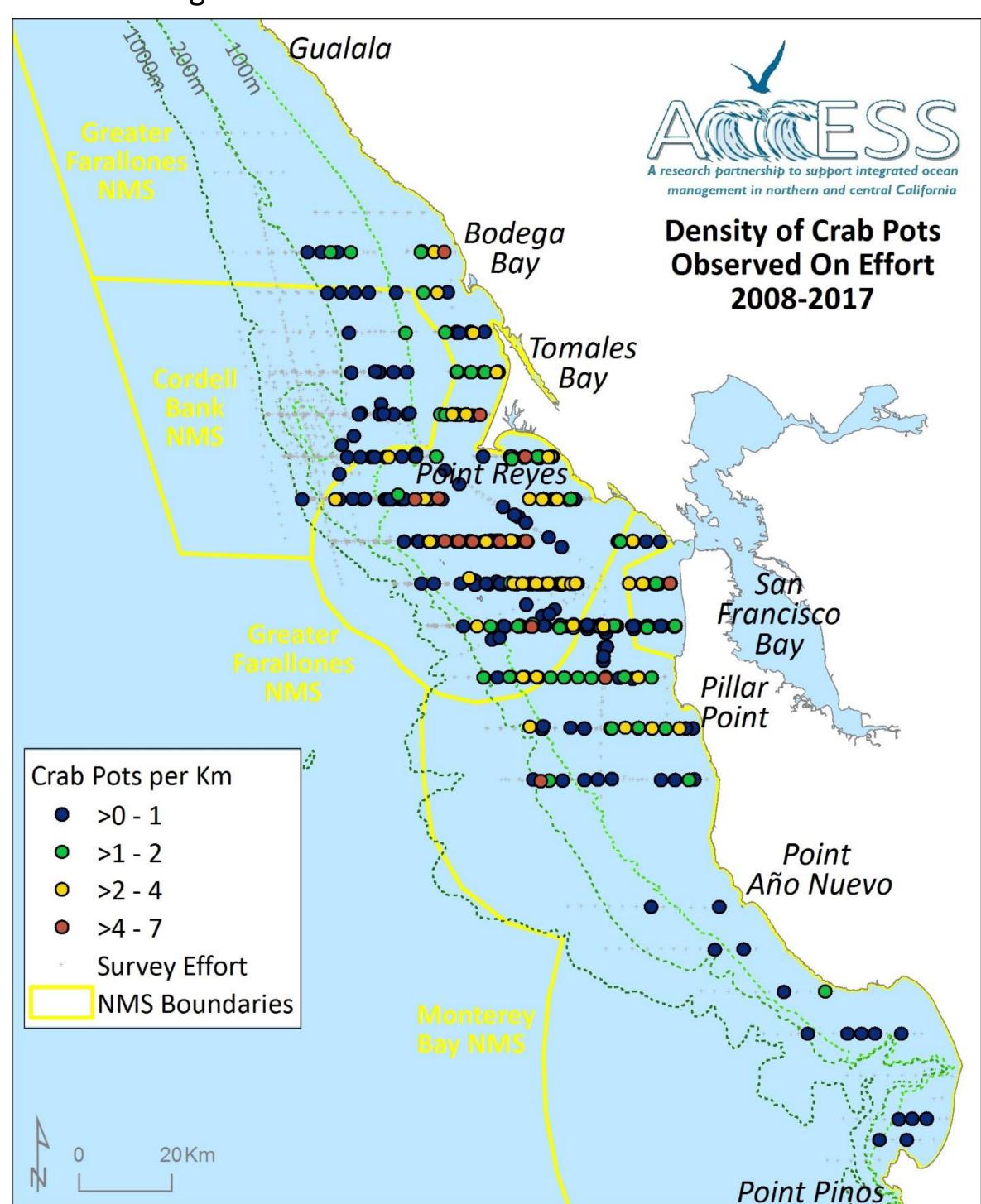


Fig 2. Maps showing increased abundance of whales nearshore during the warm water years from 2013 to 2016

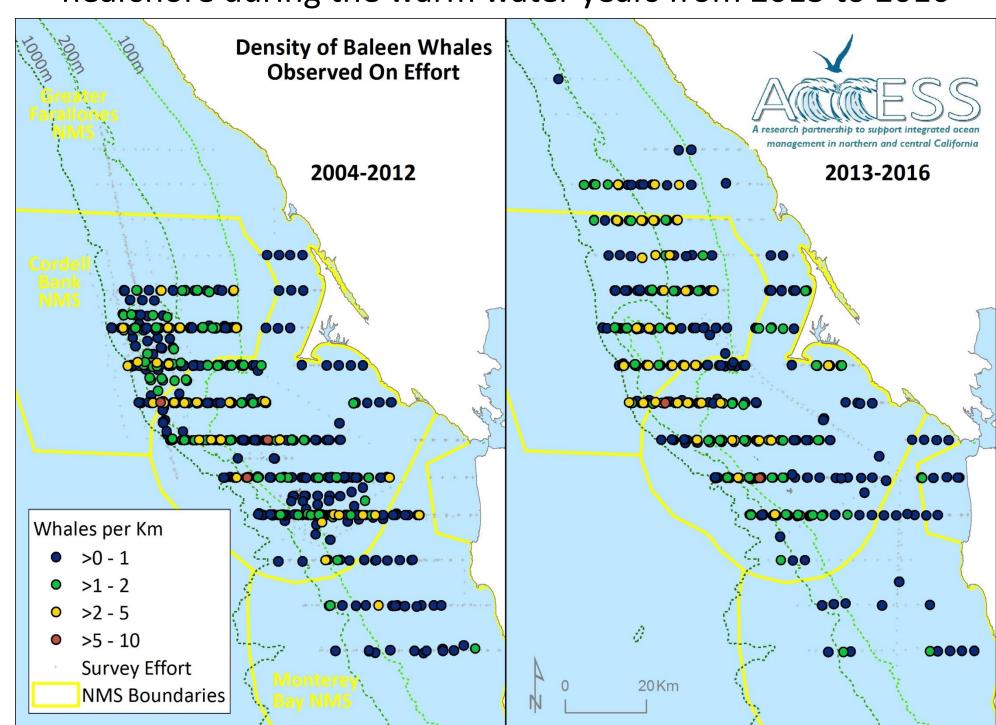
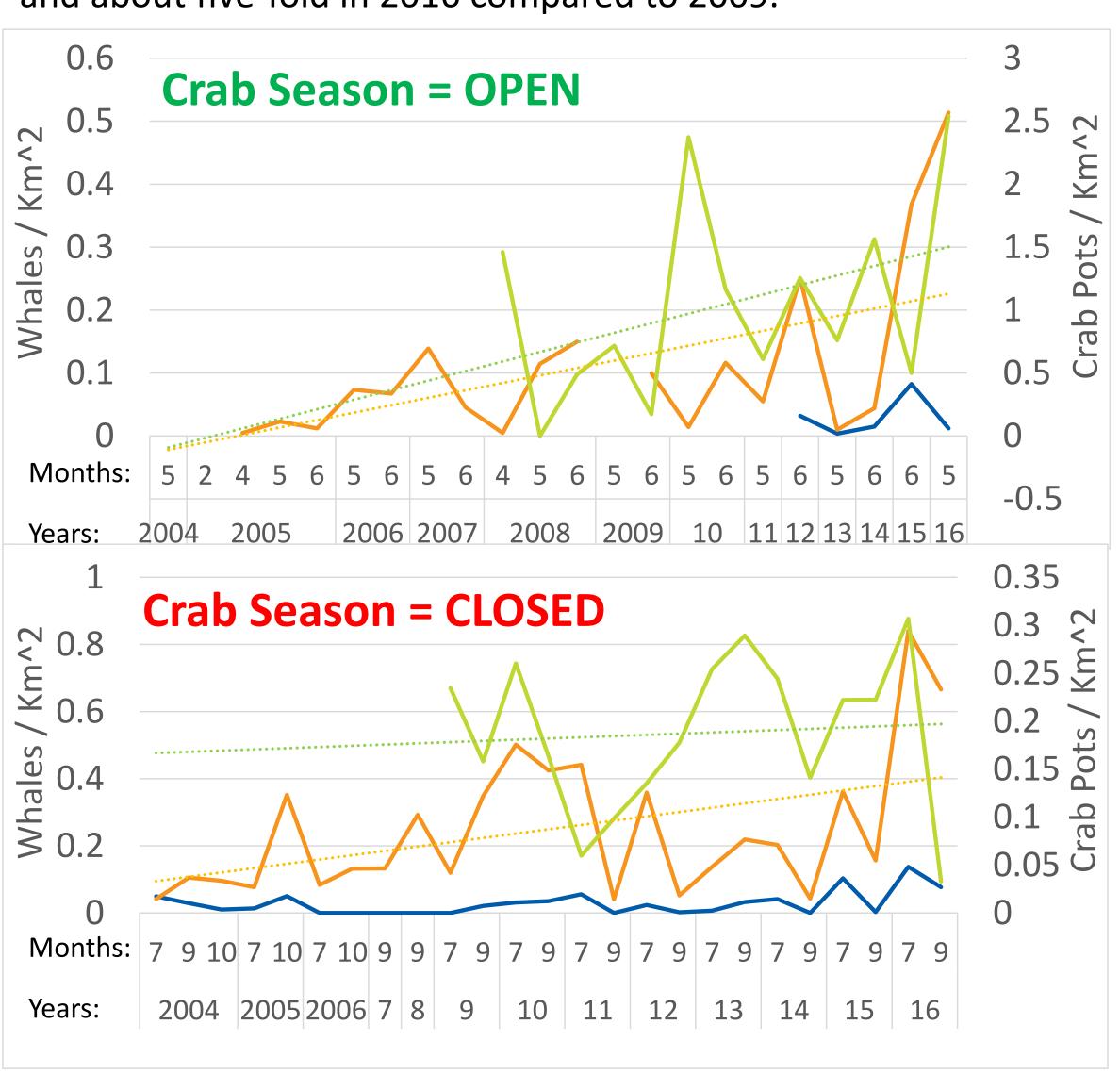


Fig 5. Co-occurrence of whales and crab pots during the fishing season appear to increase about two fold in 2012 relative to 2009, and about five-fold in 2016 compared to 2009.



Humpback Whale Blue Whale Crab Pot

Providing resource managers, fishermen, and conservationists data on co-occurrence of large whales and crab pots assist these interested parties to develop solutions to decrease the risk of entanglement of large whales in central California.