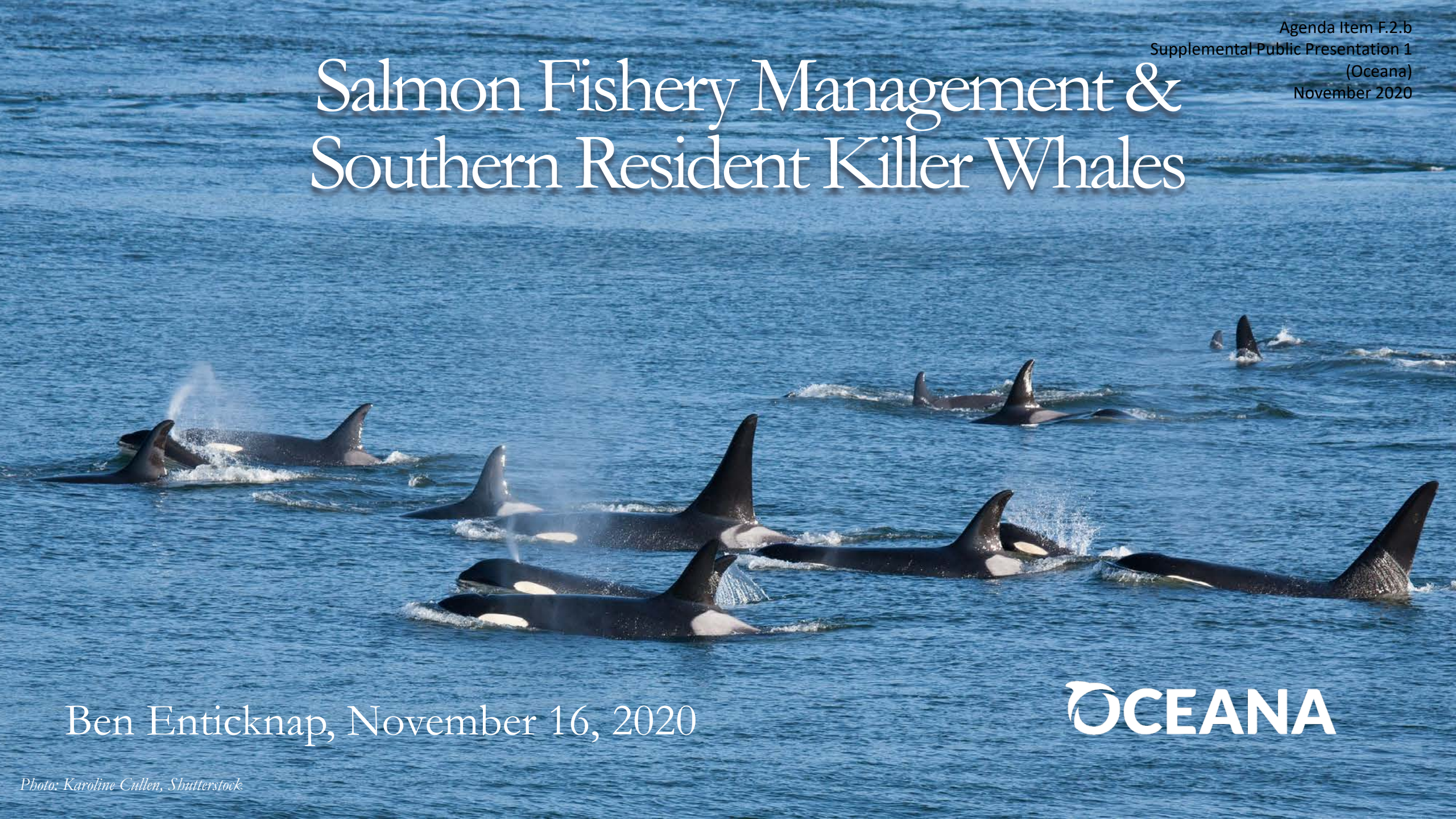


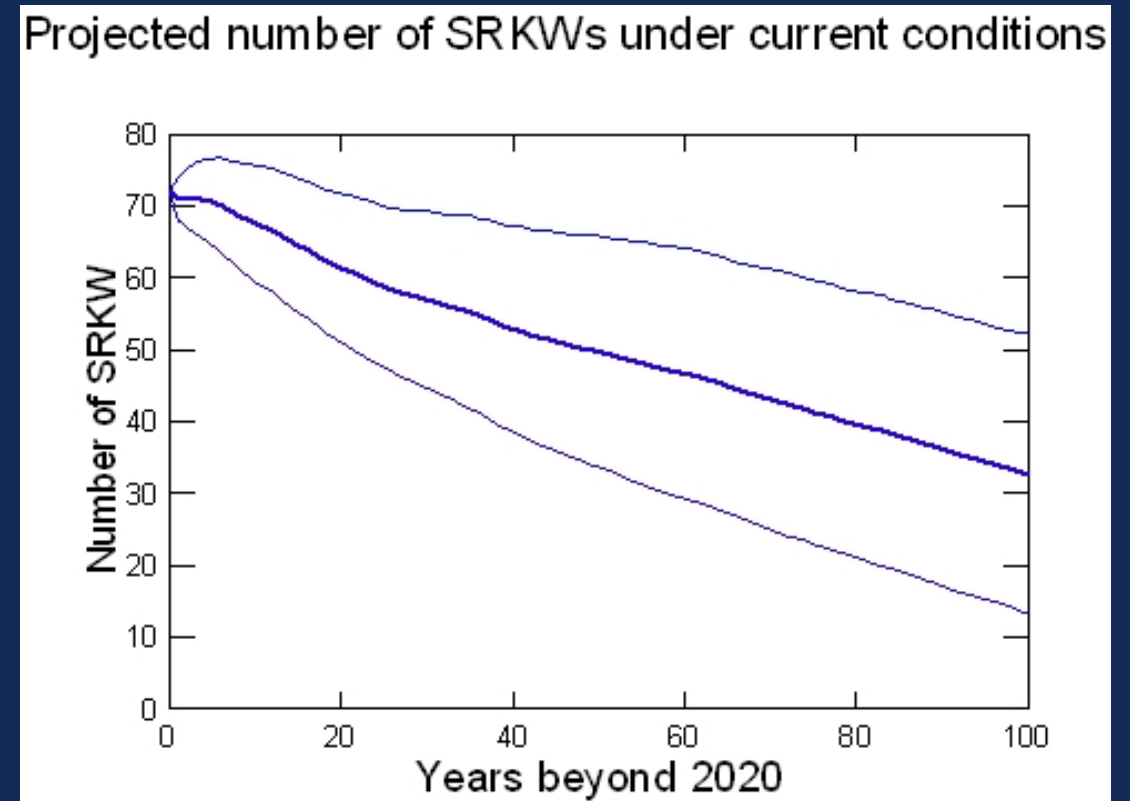
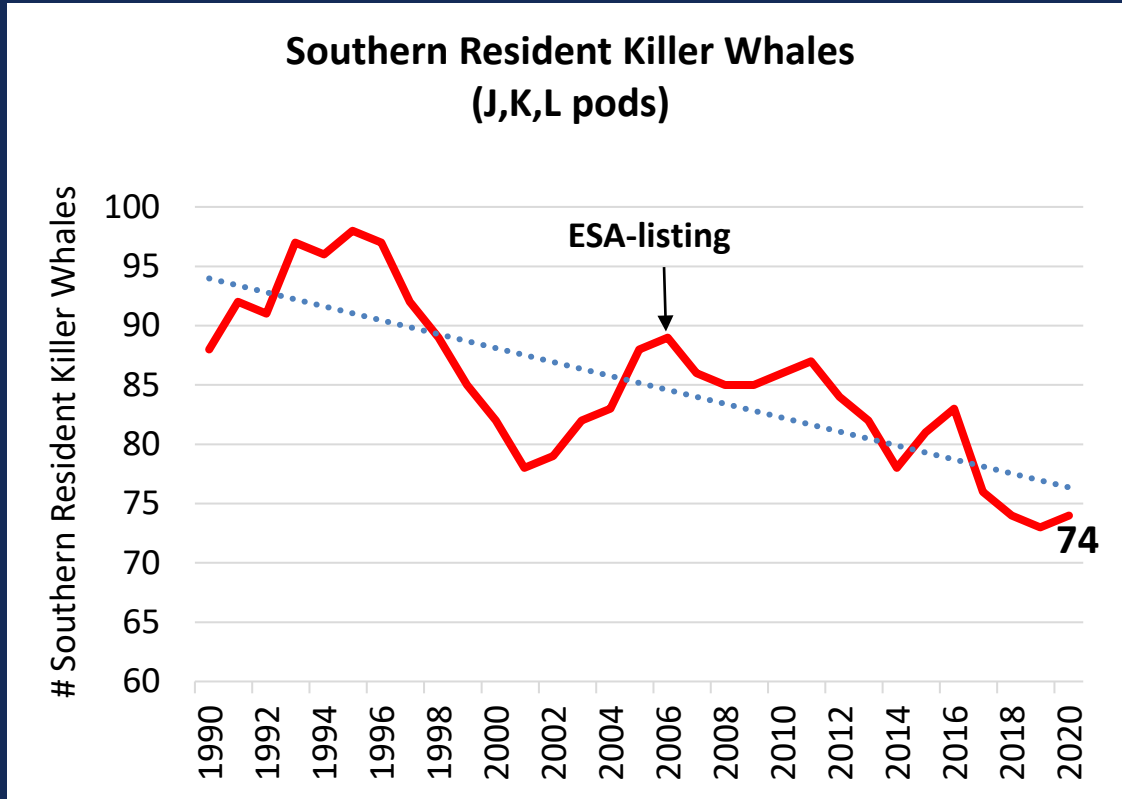
Salmon Fishery Management & Southern Resident Killer Whales



Ben Enticknap, November 16, 2020

 **OCEANA**

Current trends & conditions: a slow slide toward extinction



Adapted from Center For Whale Research, October 2020

“I now estimate a 59% probability that the population will drop below 30 animals sometime in the next 100 years, becoming functionally extinct.”

- Dr. Robert Lacy (4.6.20), updating Lacy et al. 2017

“Quantifying the effects of prey abundance on killer whale reproduction”

- Ward, Holmes and Balcomb (2009)



“killer whale fecundity is highly correlated with the abundance of Chinook salmon. For example, the probability of a female calving differed by 50% between years of low salmon abundance and high salmon abundance.”

“Population growth is limited by nutritional impacts on pregnancy success in endangered Southern Resident killer whales (Orcinus orca)”

Wasser, Lundin, Ayres, Seely, Giles, Balcomb, et al. (2017) PLoS ONE 12(6): e0179824. <https://doi.org/10.1371/journal.pone.0179824>

Between 2008 and 2014:

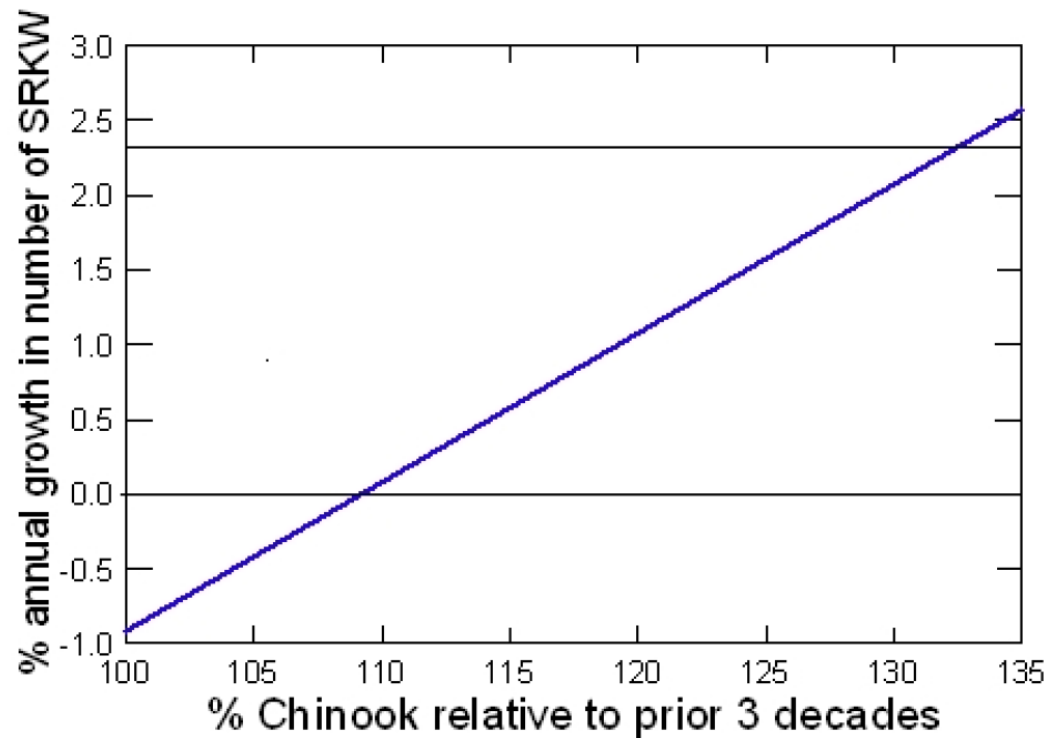
“Up to 69% of all detectable [SRKW] pregnancies were unsuccessful... Low availability of Chinook salmon appears to be an important stressor among these fish-eating whales as well as a significant cause of late pregnancy failure, including unobserved perinatal loss.”



In 2018, J35 carried her dead calf for 17 days and 1,000 miles. About 40 percent of newborn calves do not survive their first few years.

Southern Residents need more salmon now: A 35% increase in prey - Chinook salmon - is necessary to meet the SRKW recovery goal of a 2.3% population growth rate

Projected response to increased Chinook availability



Dr. Robert Lacy (4.6.20), updating Lacy et al. 2017



3-year old Scarlet, or J50, was so emaciated that she lost the fat at the base of her head - what scientists call "peanut head." Declared dead September 13, 2018.

Photo: Katy Foster/NOAA Fisheries Permit No. 18786-03

“Any activities that affect the abundance of Chinook salmon available to SRKW have the potential to impact the survival and population growth of the whales...

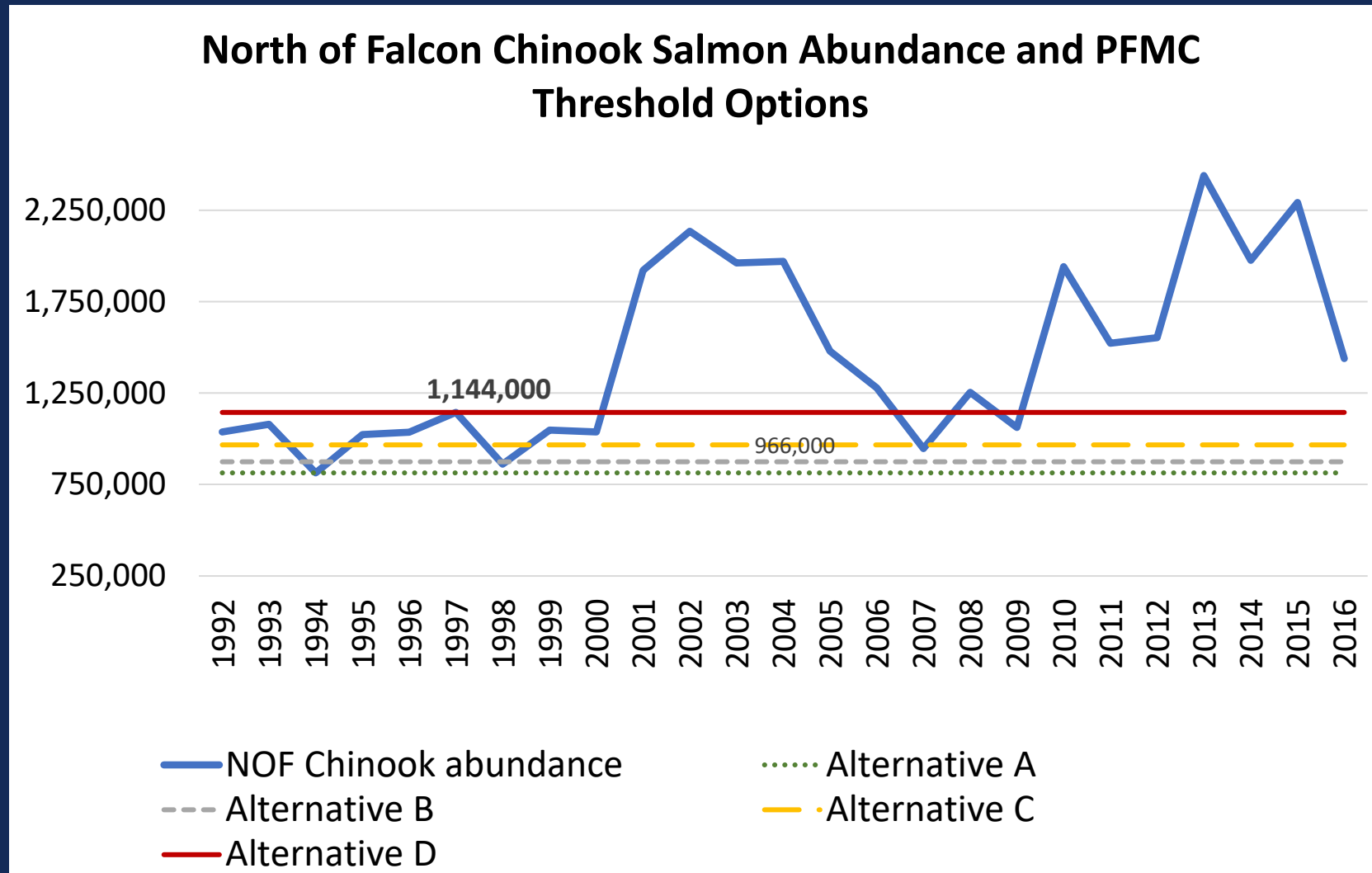
Fisheries can reduce the prey available to the whales and, in some cases, can interfere directly with their feeding.”

– Barry Thom, National Marine Fisheries Service

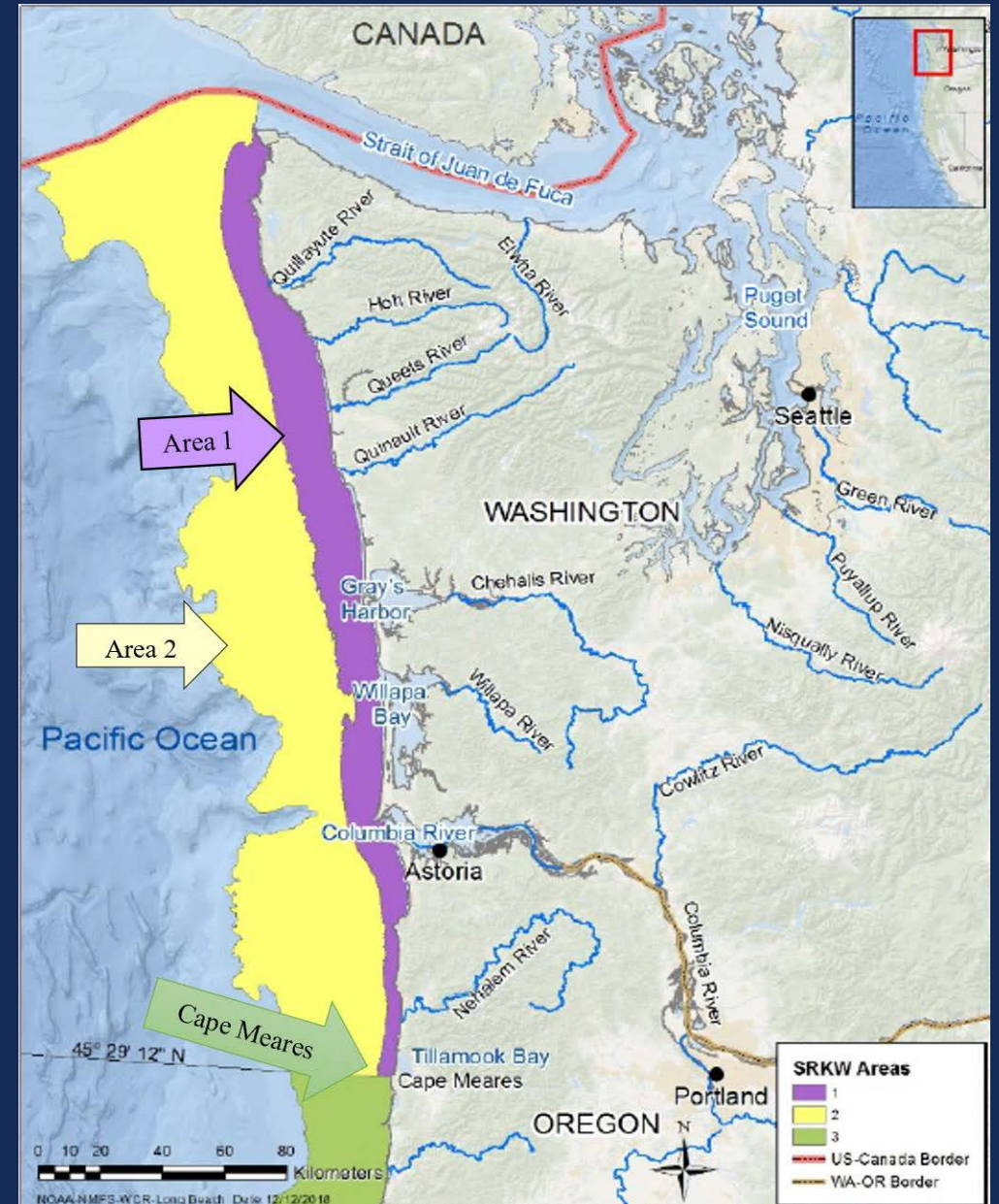


PFMC Agenda Item E.5.b Supplemental NMFS Report 1 March 2020, at 18. Available:
<https://www.pcouncil.org/documents/2020/03/e-5-b-supplemental-nmfs-report-1-guidance-letter.pdf/>

Recommendation 1: Adopt a critical Chinook salmon abundance threshold: Alternative 3.1.2 d



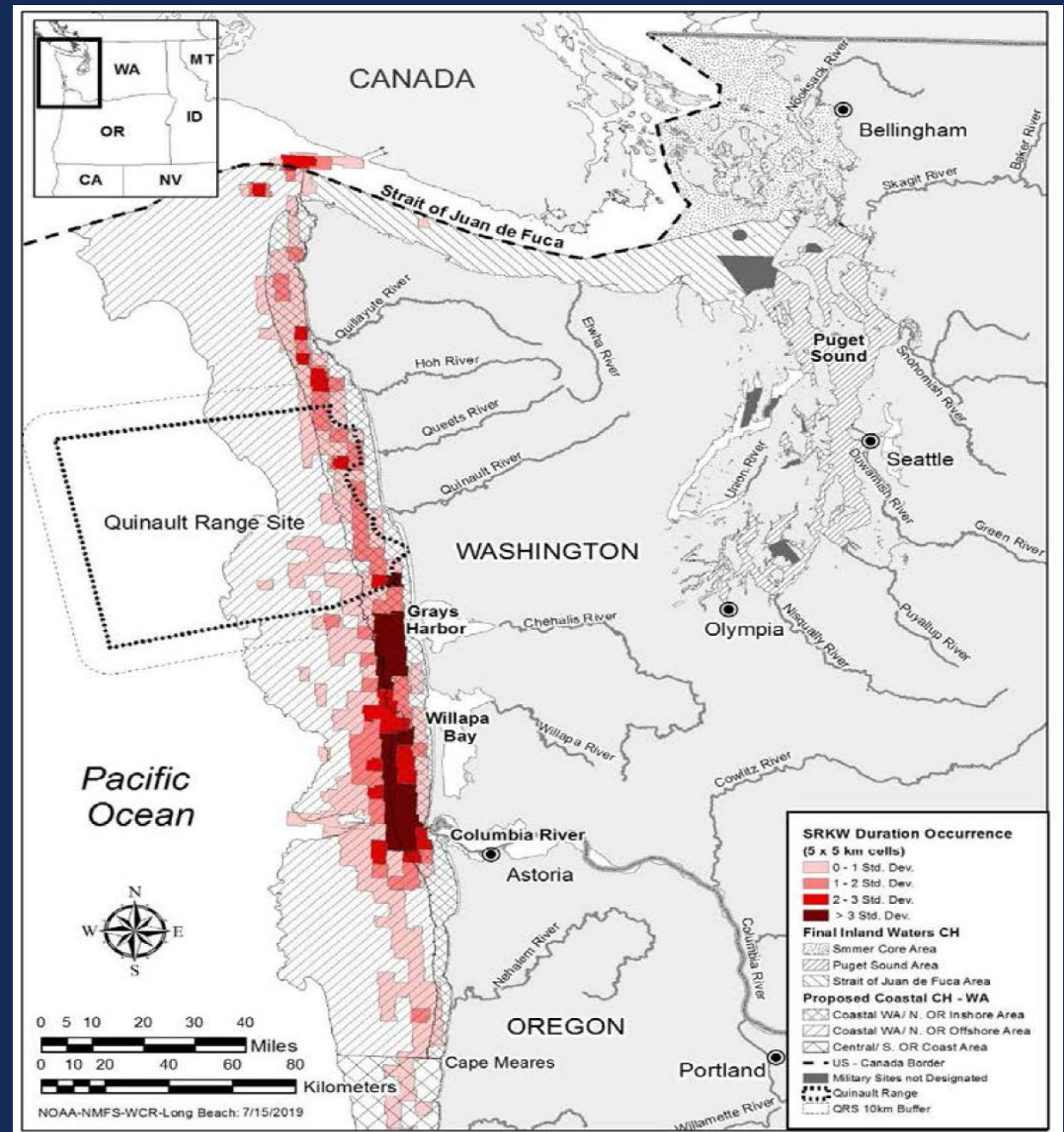
Recommendation 2: Adopt time/area closures for SRKW foraging hotspots when below the threshold: close proposed SRKW critical habitat North of Cape Meares (areas 1 and 2) + delayed fishing openings/ control zones to the south (options 5a to 6d).



Southern Resident killer whales: areas of high use off the outer Washington and Oregon Coast

- **Pods:** J, K, L
- **Months used:** January to December
- **Prey:** Chinook from the lower, mid and upper Columbia, Snake River Spring/ Summer, Central Valley (CA), Puget Sound, Oregon coast...

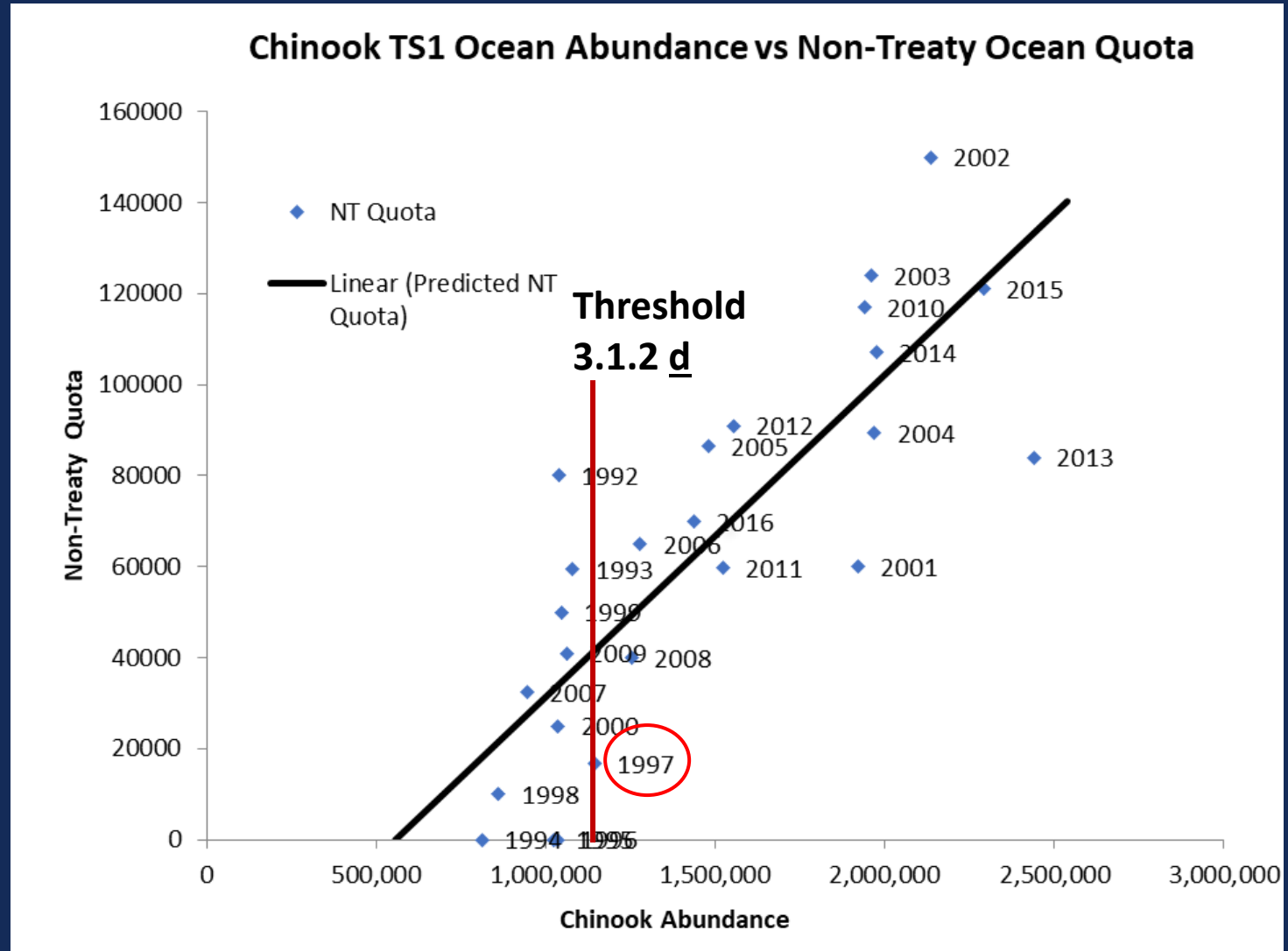
Source: NMFS 2019. Proposed Revisions to SRKW Critical Habitat



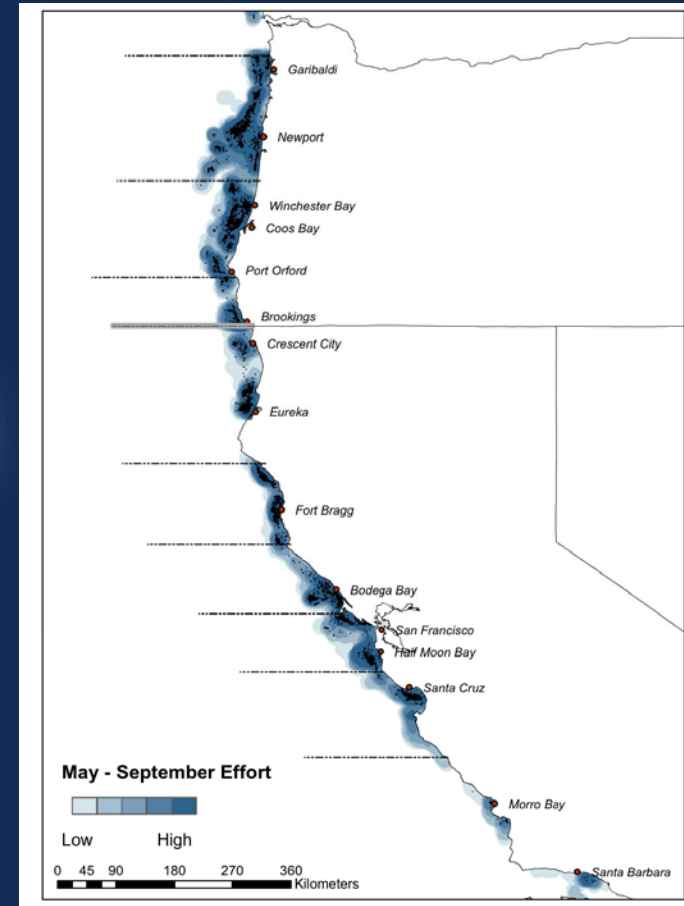
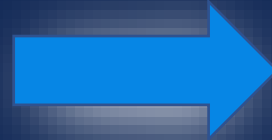
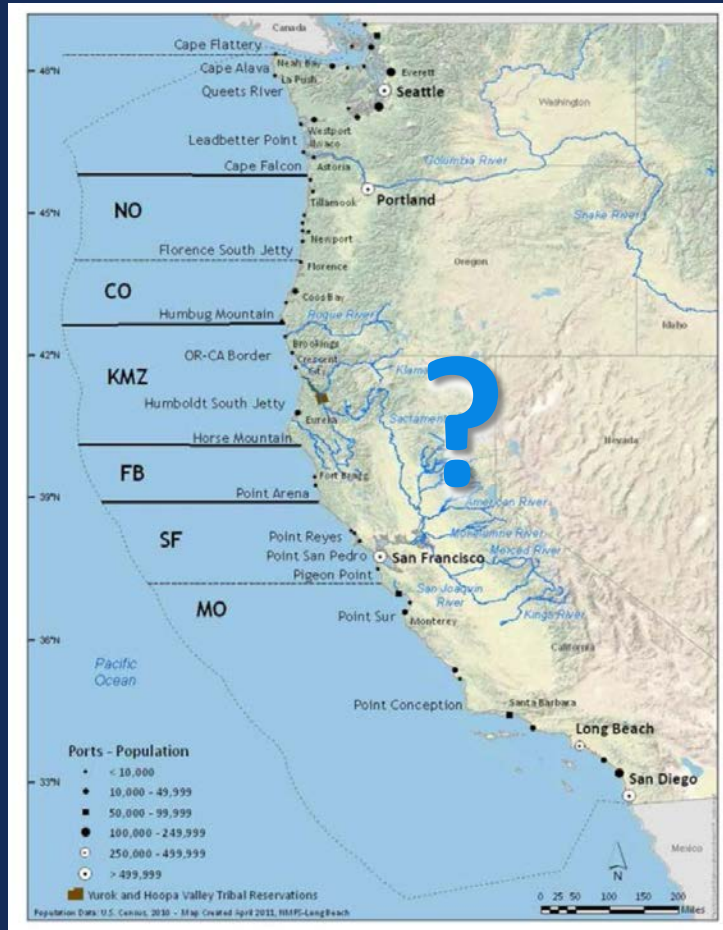
The Columbia River Control Zone + Expansion (Option 3a) and the Grays Harbor Control Zone (Option 3b) amount to ~ 0.3% of the proposed SRKW critical habitat north of Cape Meares, OR



Recommendation 3: Adopt option 1a limiting Chinook quotas north of Cape Falcon as needed to not exceed the regression analysis estimate



Recommendation 3: Require VMS or AIS on commercial ocean salmon fishing vessels and refined spatial data on ocean salmon rec. fisheries



PFMC map of ocean salmon management areas

Ocean troll fishery catch and effort, 2010.
West Coast GSI research project
<http://www.pacificfishtrax.org/>