Salmon Fishery Management
Southern Resident Killer Whale Consultation

J35 and J57

Katie Jones, Center for Whale Research

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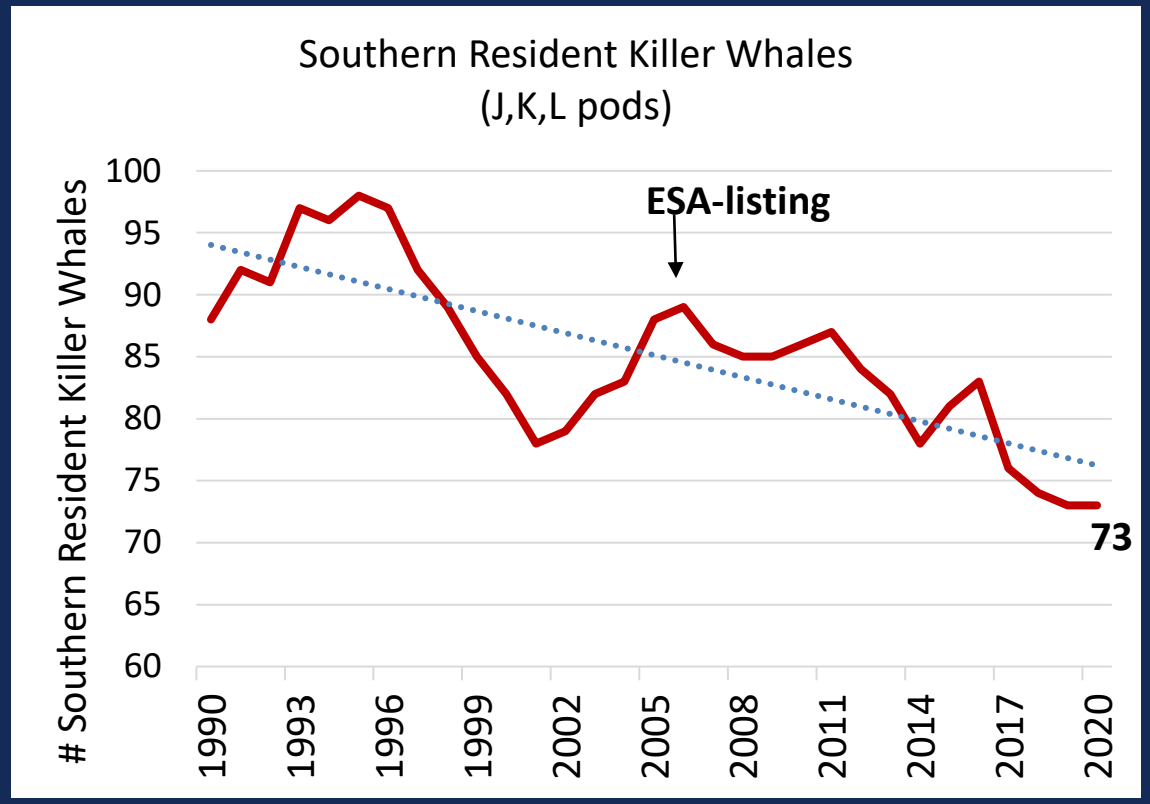
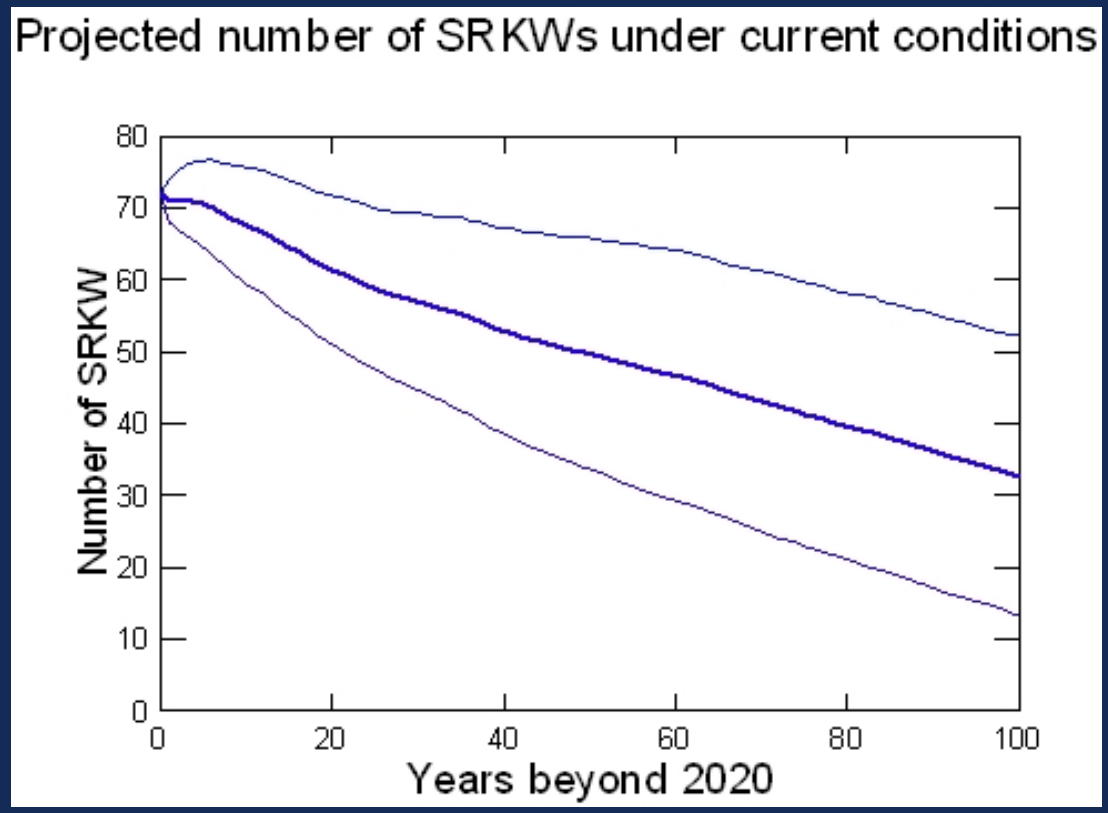
Ben Enticknap, September 17, 2020

OCEANA

Current trends & conditions: a slow slide toward extinction



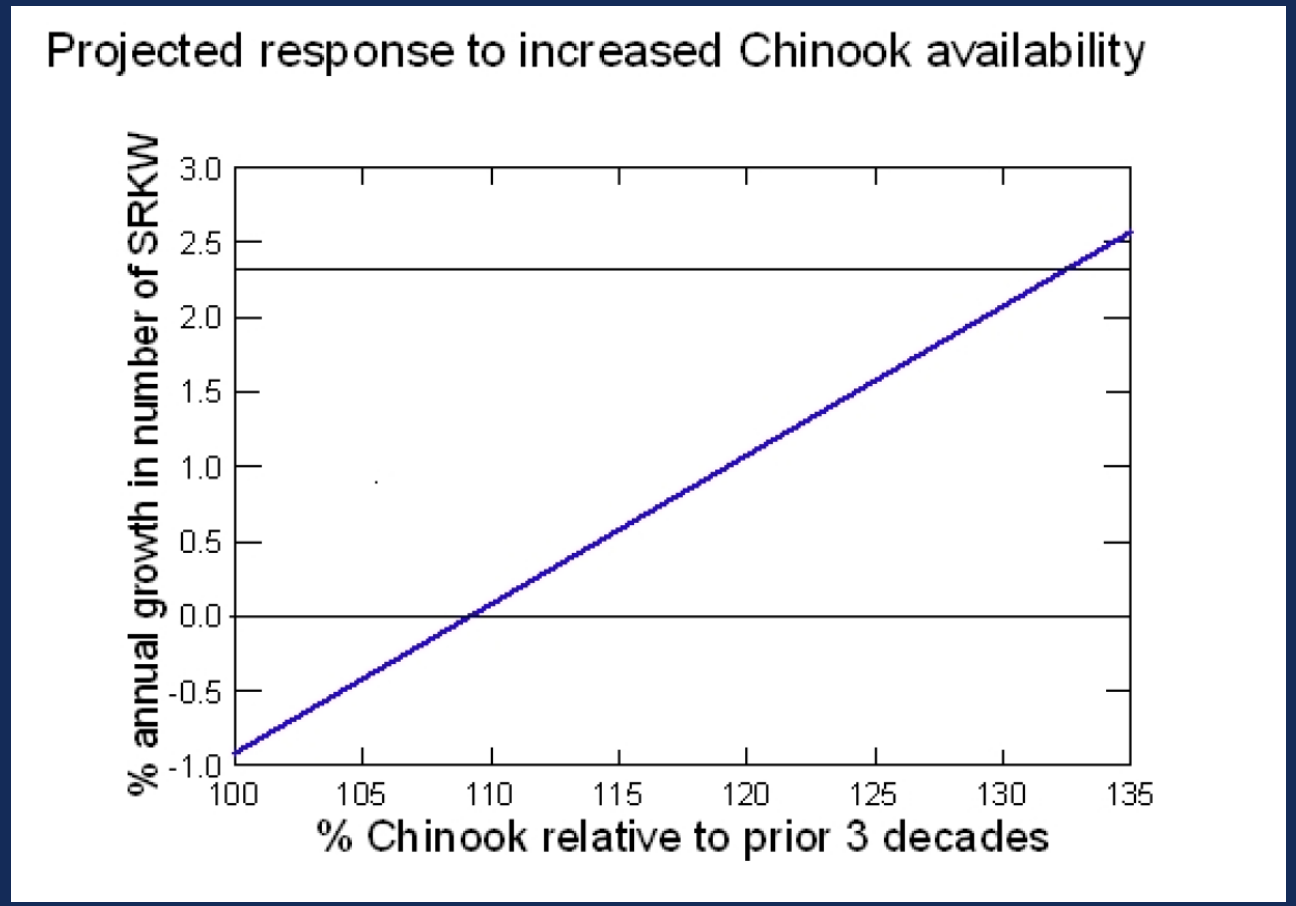


Adapted from Center For Whale Research, updated September 10, 2020

"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

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



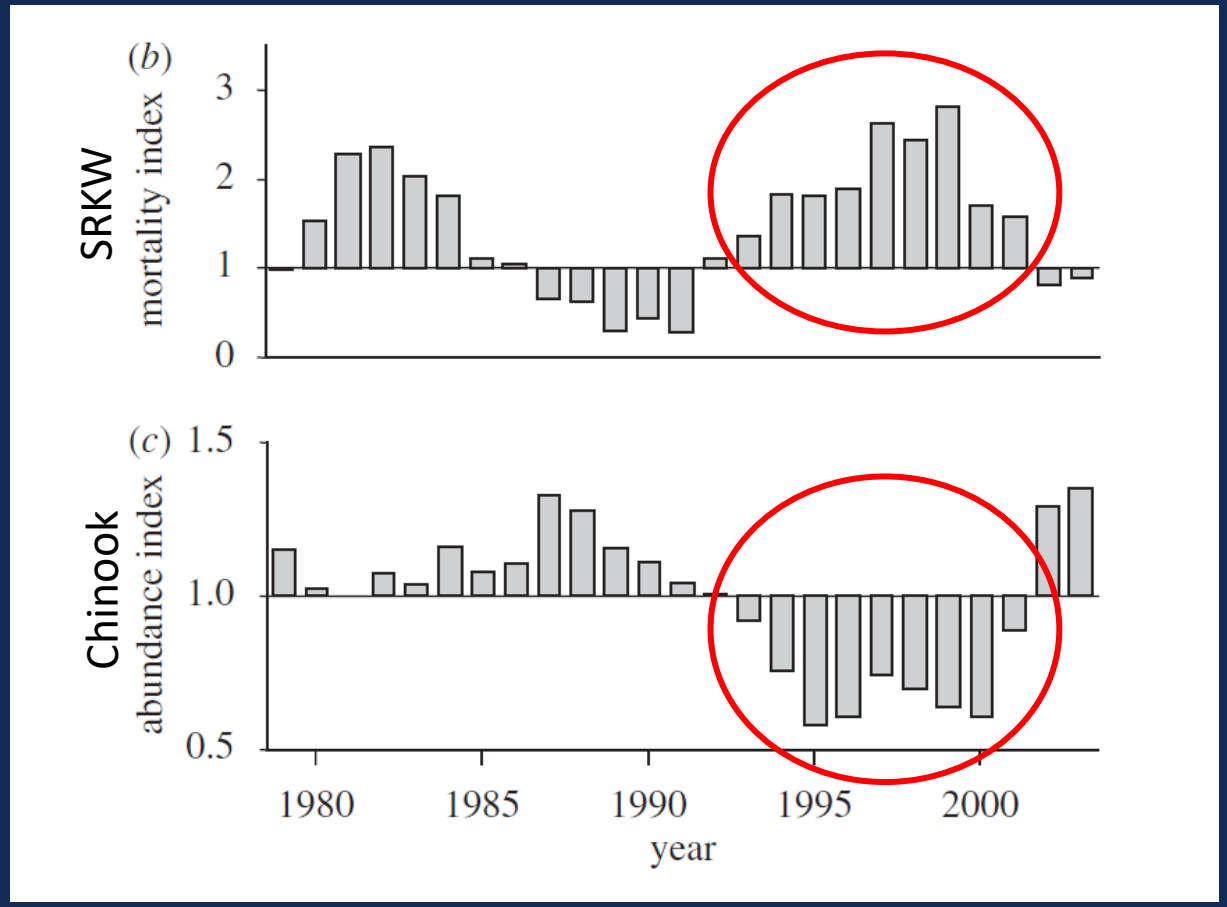
Dr. Robert Lacy (4.6.20), updating Lacy et al. 2017

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

"Linking Killer Whale Survival and Prey Abundance: food limitation in the oceans' apex predator?"

Ford et al. 2009, Biology letters 6(1):139-42 DOI: 10.1098/rsbl.2009.0468



Annual indices of mortality of (b) Southern Resident killer whales and (c) abundance of Chinook salmon, 1979-2003. Deviations from an annual index value of 1 (b) indicate higher or lower than expected mortality rates. Annual indices of Chinook salmon reflect departures from the average abundance over time series.

"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."

Photo: NOAA

"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; of these, up to 33% failed relatively late in gestation or immediately post-partum… 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.

"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."

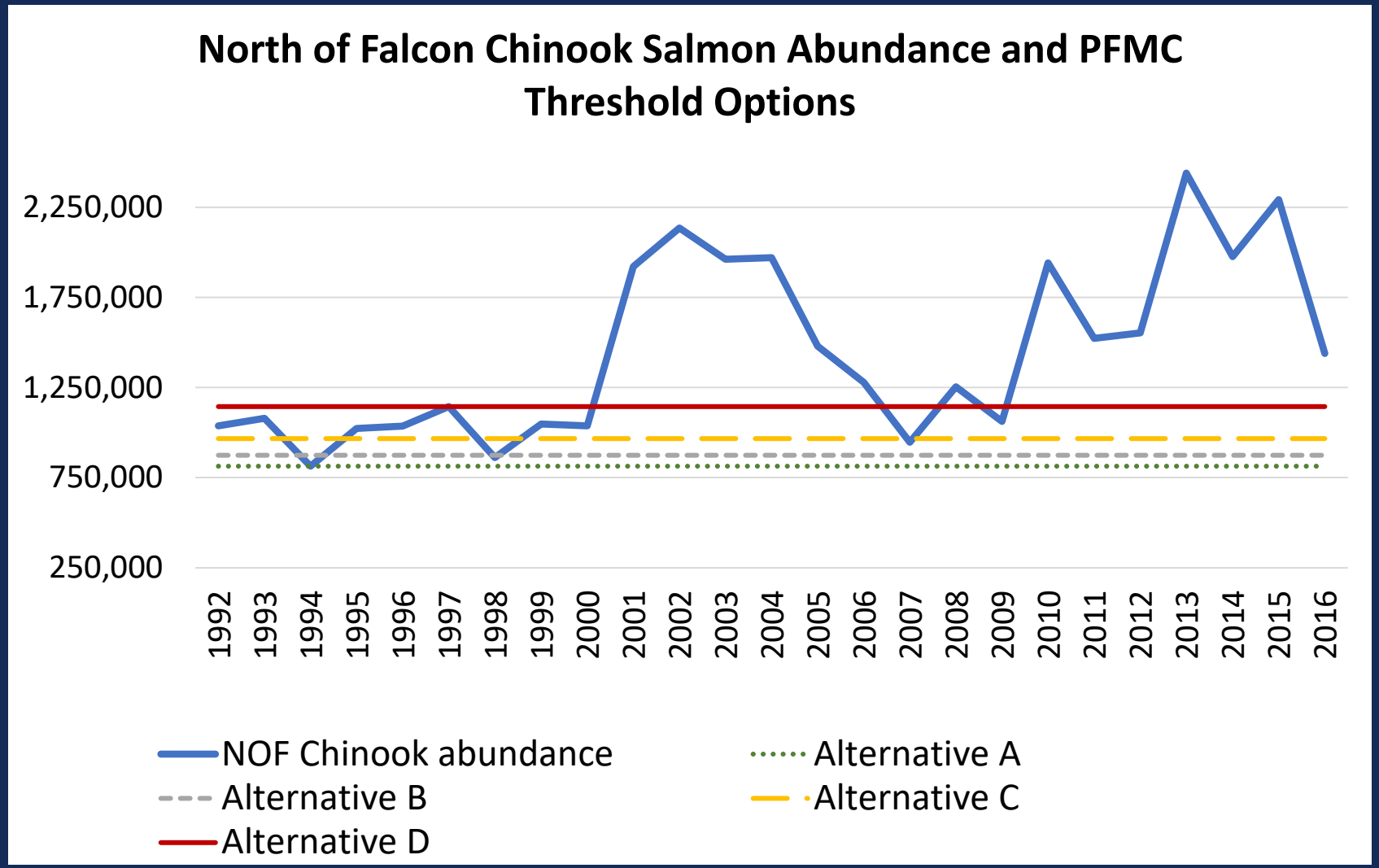
– Barry Thom, National Marine Fisheries Service

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/

A precautionary approach is warranted

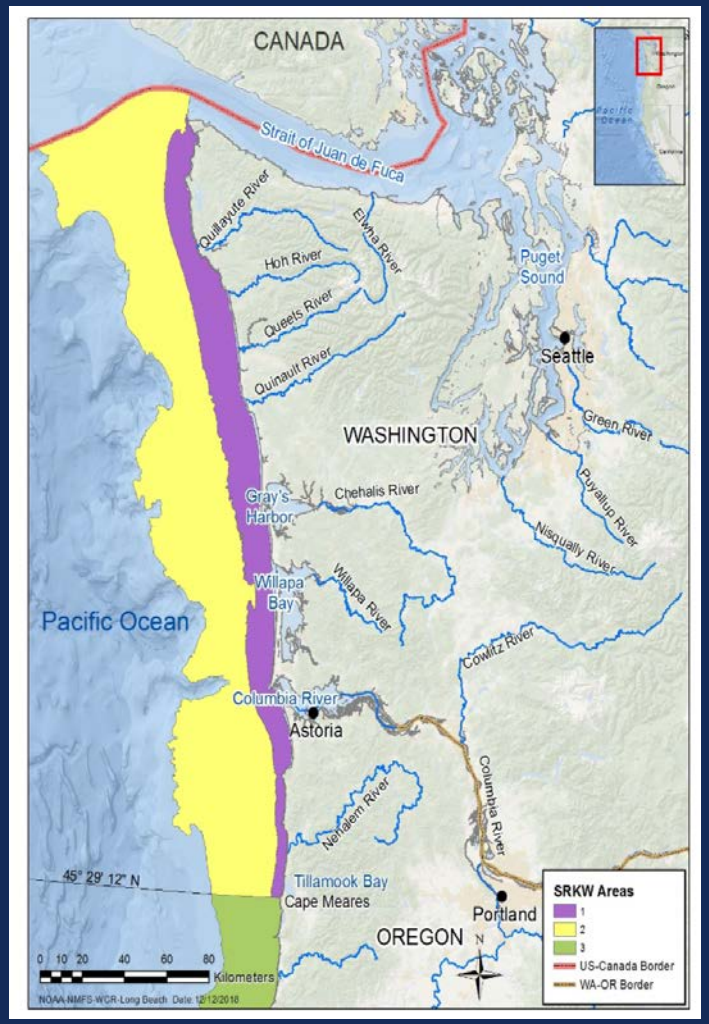
Photo: Karoline Cullen_ Shutterstock

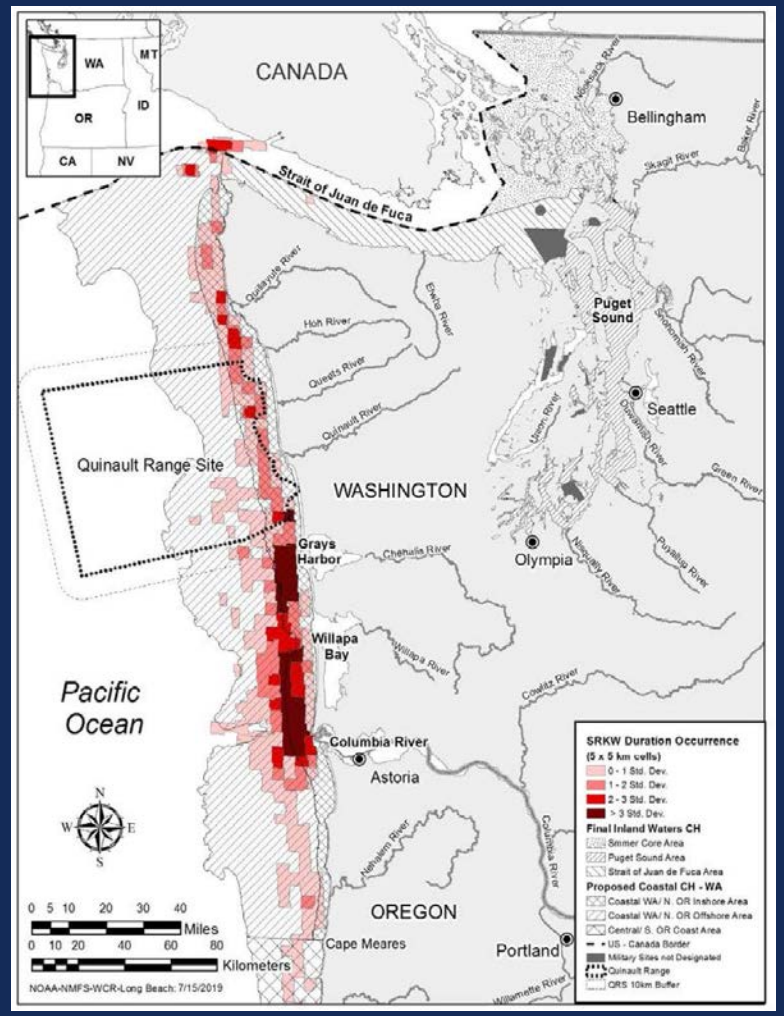
Recommendation 1: Identify and adopt a critical Chinook salmon abundance threshold (Alternative 3.1.2 d)



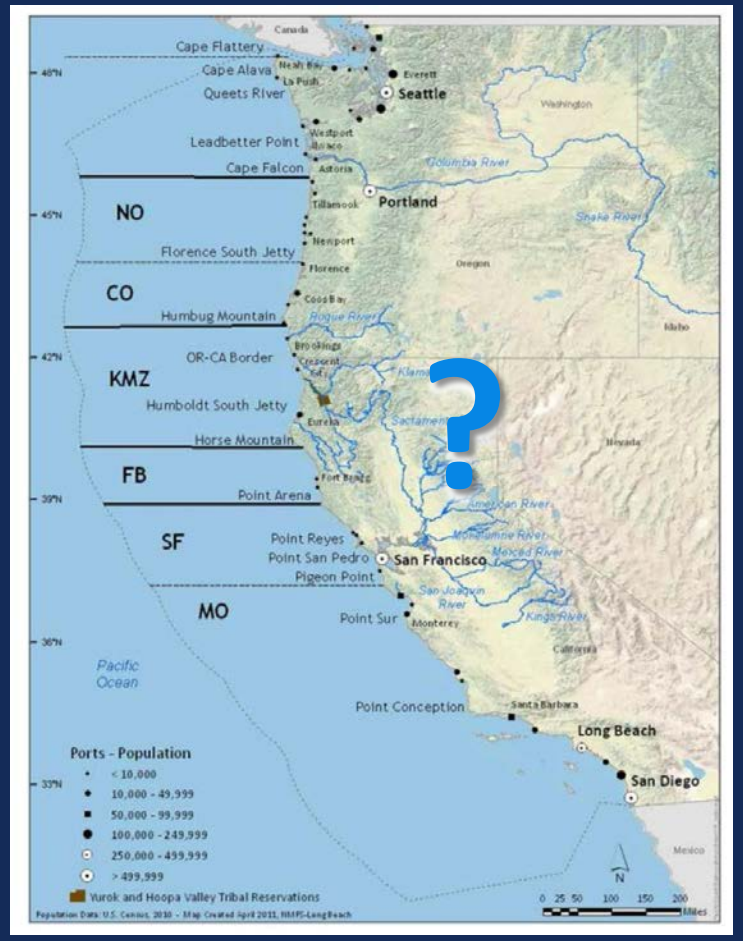
<u>Recommendation 2</u>: Adopt time/area closures for SRKW foraging hotspots when below the threshold.

+ <u>New Alternative</u>: close proposed SRKW critical habitat North of Falcon when below the threshold (areas 1 and 2).

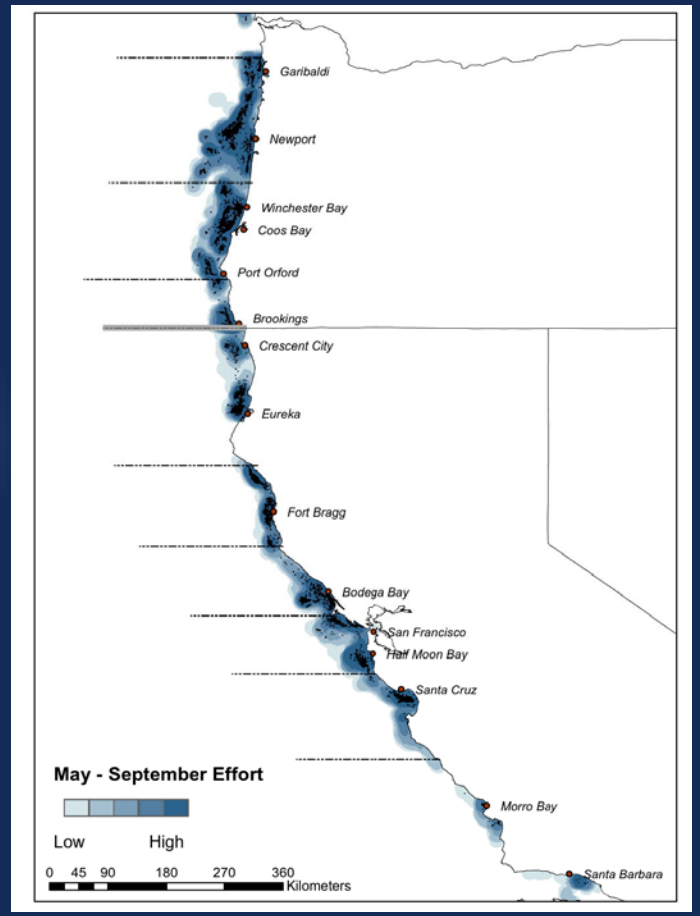




Recommendation 3: Require VMS or AIS on commercial ocean salmon fishing vessels and refined spatial data on ocean salmon rec. fisheries



PFMC map of ocean salmon management areas



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