Salmon and Orca Phenology in the Salish Sea

October 15, 2018

Research Questions

1. How does phenology of orcas (SRKW and transients?) vary across years in the Salish Sea?
   (a) First observation date?
   (b) Last observation date?
   (c) Peak "abundance" (actvitiy?)
   (d) Duration of time in the Salish Sea/Puget Sound
2. How does phenology of Chinook salmon vary across years in the Salish Sea?
   (a) First observation date?
   (b) Last observation date?
   (c) Peak "abundance"
   (d) Duration of time in the Salish Sea/Puget Sound
3. How do the phenological curves of these two species relate to one another, and how does their alignment vary across years?
4. Does variation in aligment relate to some metric of performance? (Abundance, mortality, fitness, stress levels)

Justification

Chinook salmon phenology appears to be shifting with climate change. It would be helpful to know if and how shuch shifts affect their predators in Puget Sound, in particular Southern Resident Killer Whales, which are endangered. Chinook salmon are a critical food resource for SRKW, and declines in salmon have been linked with starvation of the endaraged SRKW.

To date, much focus has been on the abundance of Chinook, the primary food of SRKW. However, if there are mismatches in phenology of salmon versus orcas (and if such mismatches are related to performance of orcas) than it suggests that managing the timing of their food resources may be important, as well.

Approach

1. Use WDFW rec data to quantify phenology of Chinook Salmon (2001-2013)

2. Use whale sighting data from the Wahle Museum (1976-2013).