SRKW Chinook Salmon Priority Prey Stocks

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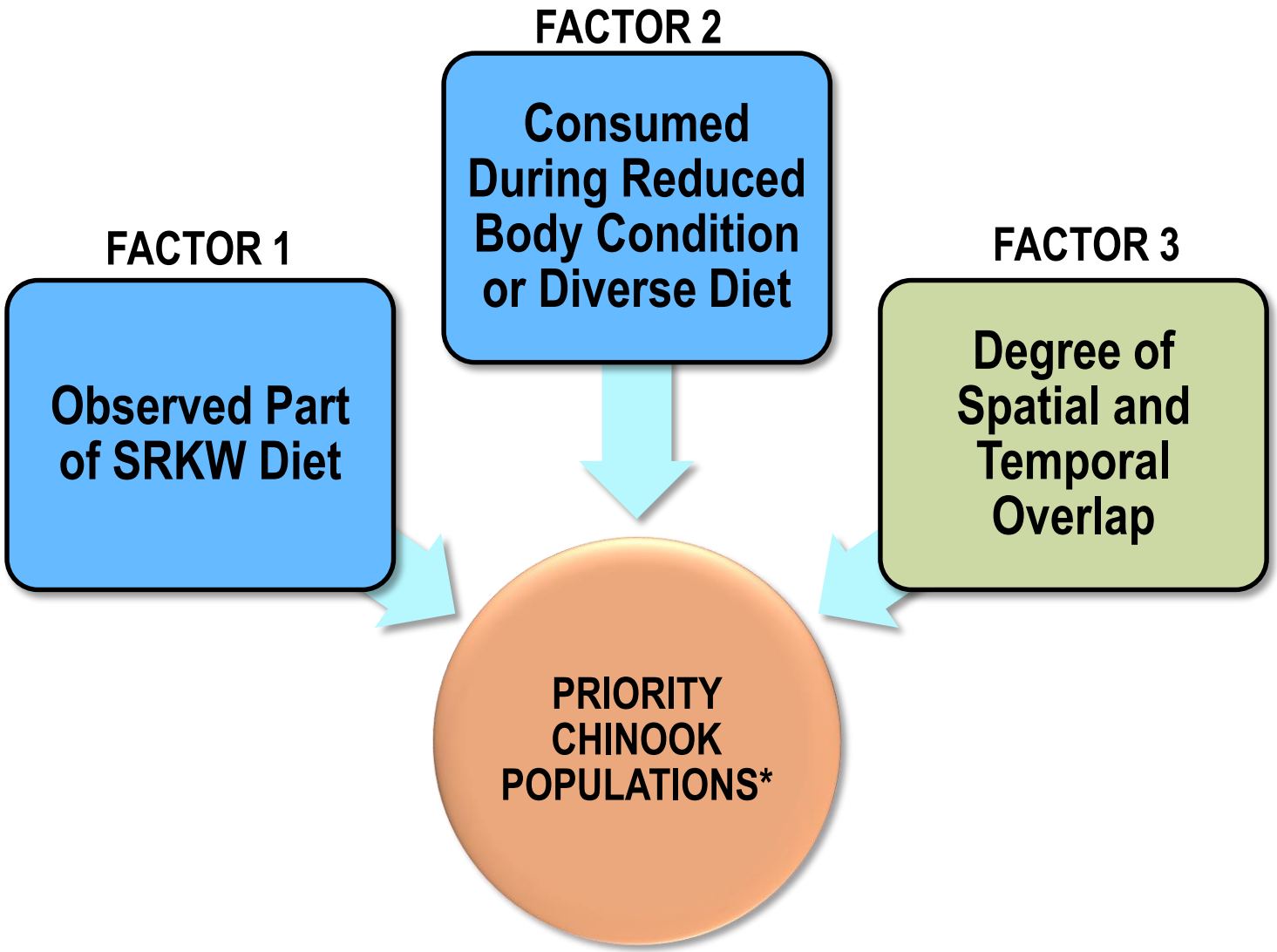
PRIORITY PREY – CHINOOK STOCKS



*Chinook Population is generally defined here to be a stock, ESU, or a run within a stock or ESU.

PRIORITY PREY – Data Sources and Assumptions

FACTOR 1

Observed Part of SRKW Diet

Data Sources

- Prey tissues/scales and fecal samples collected from 2004 – present (Hanson et al. 2010, Ford et al. 2016, Hanson et al. in prep)
- Genetic Stock Identification (GSI) of prey tissues/scales collected

Assumptions

- Chinook populations that have been observed in the diet have a higher priority than those that have not.
- Chinook populations that have been observed in diet in multiple months/seasons will have higher priority than those observed in diet only once.
- ***Caveat***: There is currently no spatial correction factor for sample collection.

PRIORITY PREY – Data Sources & Assumptions

FACTOR 2

Consumed During Reduced Body Condition or Diverse Diet

Data Sources

- Body condition- aerial photogrammetry (SWFSC, SR3, Vancouver Aq.)
- Diet diversity- estimated proportion of Chinook consumed in whales' diet by season and region; data from prey tissues/scales and fecal samples (Hanson et al. 2010, Ford et al. 2016, Hanson et al. in prep).

Assumptions

- Reduced body condition and diverse diet occurs in non-summer months (Oct –May).
- Whales switch from preferred prey, Chinook salmon, to other salmonids or prey when Chinook are less available.
- This prioritizes stocks consumed during times we believe there is less preferred prey available and during months more likely to have reduced body condition.

PRIORITY PREY – Data Sources

FACTOR 3

Degree of Spatial and Temporal Overlap

- Prey mapping from:
  - Shelton et al. 2018 (CWT data) – maps distribution/timing of all Chinook salmon stocks across whales' range (divided into weighted spatial/temporal areas), currently includes fall runs
  - For non-fall run stocks, used the distribution of Chinook mortalities (PSC's Chinook Technical Committee) and other published estimates of Chinook salmon distribution (e.g. Weitkamp 2010, Satterthwaite et al. 2013)
- SRKW distribution data from multiple sources (Whale Museum data, NWFSC satellite tagging, coastal hydrophones, coastal spring/winter NWFSC cruises, other opportunistic observations)

PRIORITY PREY – Assumptions

FACTOR 3

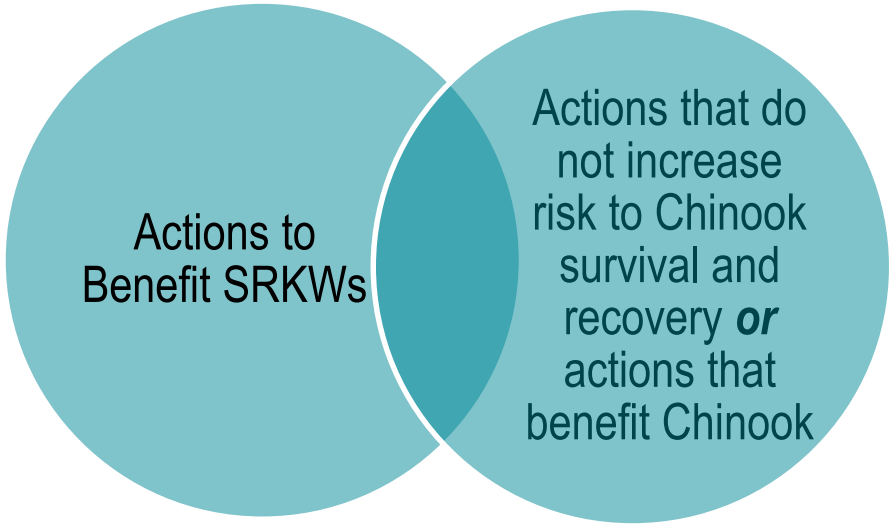
Degree of Spatial and Temporal Overlap

- Chinook stocks that overlap in space and time are potential prey.
- Weighted spatial/temporal areas accommodate variation of SRKW and Chinook distribution
- ***Caveat***- CWT model interpolates movement of stocks seasonally to account for gaps in fishing effort.

PRIORITY PREY – Draft List

Priority	ESU/Stock Group	Run Type	Rivers or Stocks in Group
1	North Puget Sound South Puget Sound	Fall	Nooksack, Elwha, Dungeness, Skagit, Stillaguamish, Snohomish, Nisqually, Puyallup, Green, Duwamish, Deschutes, Hood Canal Systems
2	Lower Columbia Strait of Georgia	Fall	Fall Tules and Fall Brights (Cowlitz, Kalama, Clackamas, Lewis, others), Lower Strait (Cowichan, Nanaimo), Upper Strait (Klinaklini, Wakeman, others), Fraser (Harrison)
3	Upper Columbia & Snake Fraser Lower Columbia	Fall Spring Spring	Upriver Brights, Spring 1.3 (Upper Pitt, Birkenhead; Mid & Upper Fraser; North and South Thompson) and Spring 1.2 (Thompson, Louis Creek, Bessette Creak); Lewis, Cowlitz, Kalama, Big White Salmon
4	Middle Columbia	Fall	Fall Brights
5	Snake River Northern Puget Sound	Spring/summer Spring	Snake, Salmon, Clearwater, Nooksack, Elwha, Dungeness, Skagit (Stillaguamish, Snohomish)
6	Washington Coast	Spring and Fall	Hoh, Queets, Quillayute, Grays Harbor
7	Central Valley	Spring	Sacramento and tributaries
8	Middle/Upper Columbia	Spring/Summer	Columbia, Yakima, Wenatchee, Methow, Okanagan
9	Fraser	Summer	Summer 0.3 (South Thompson, Lower Fraser, Shuswap, Adams, Little River, Maria Slough) and Summer 1.3 (Nechako, Chilko, Quesnel, Clearwater River)
10	Central Valley Klamath River	Fall and late Fall Fall and Spring	Sacramento, San Joaquin, Upper Klamath, and Trinity
11	Upper Willamette	Spring	Willamette
12	South Puget Sound	Spring	Nisqually, Puyallup, Green, Duwamish, Deschutes, Hood Canal systems
13	Central Valley	Winter	Sacramento and tributaries
14	North/Central Oregon Coast	Fall	Northern (Siuslaw, Nehalem, Siletz) and Central (Coos, Elk, Coquille, Umpqua)
15	West Vancouver Island	Fall	Robertson Creek, WCVI Wild
16	Southern OR & Northern CA Coastal	Fall and Spring	Rogue, Chetco, Smith, Lower Klamath, Mad, Eel, Russian

PRIORITY PREY – Considerations



- Recovery potential or stock contribution
- Ecosystem context- vulnerability to other predators
- Feasibility- ESA coverage for short-term actions, $
- Minimize effects listed ESA salmon
- Which type of actions will increase abundance the most (which H) for each stock?
- Benefit to fishing opportunities
- Opportunities for tribal collaboration/treaty trust
- Cumulative/comprehensive-portfolio of priority stocks/actions that consider diversity of run timing and distribution and historical perspective