



Apr 4th, 2:45 PM - 3:00 PM

# The Ecosystem Approach: recovering rivers to help save the Southern Resident killer whales

Colleen Weiler

*Whale and Dolphin Conservation, United States, colleen.weiler@whales.org*

Deborah Giles

*Univ. of California, Davis, United States, dagiles@ucdavis.edu*

Regina Asmutis-Silvia

*Whale and Dolphin Conservation, United States, regina.asmutis-silvia@whales.org*

Follow this and additional works at: <https://cedar.wvu.edu/ssec>

 Part of the [Fresh Water Studies Commons](#), [Marine Biology Commons](#), [Natural Resources and Conservation Commons](#), and the [Terrestrial and Aquatic Ecology Commons](#)

---

Weiler, Colleen; Giles, Deborah; and Asmutis-Silvia, Regina, "The Ecosystem Approach: recovering rivers to help save the Southern Resident killer whales" (2018). *Salish Sea Ecosystem Conference*. 57.

<https://cedar.wvu.edu/ssec/2018ssec/allsessions/57>

This Event is brought to you for free and open access by the Conferences and Events at Western CEDAR. It has been accepted for inclusion in Salish Sea Ecosystem Conference by an authorized administrator of Western CEDAR. For more information, please contact [westerncedar@wwu.edu](mailto:westerncedar@wwu.edu).

# The Ecosystem Approach: Recovering rivers to help save the Southern Resident killer whales



Colleen Weiler,<sup>1</sup> Dr. D.A. Giles,<sup>2</sup> Regina Asmutis-Silvia<sup>1</sup>

---

1) Whale and Dolphin Conservation, 2) University of Washington

Ecosystem approach: consider the land, water, and living elements when developing recovery strategies to promote conservation

**Endangered Species Act:** “The purposes of this Act are to provide a means whereby the ecosystems upon which endangered species and threatened species depend may be conserved...” (ESA section 2(b))

**Marine Mammal Protection Act:** “..efforts should be made to protect essential habitats... from the adverse effects of human actions” (MMPA section 2(2))

**US Commission of Ocean Policy:** “A comprehensive and coordinated national ocean policy requires moving away from the current fragmented, single-issue way of doing business and toward ecosystem-based management.”



# Southern Resident orcas

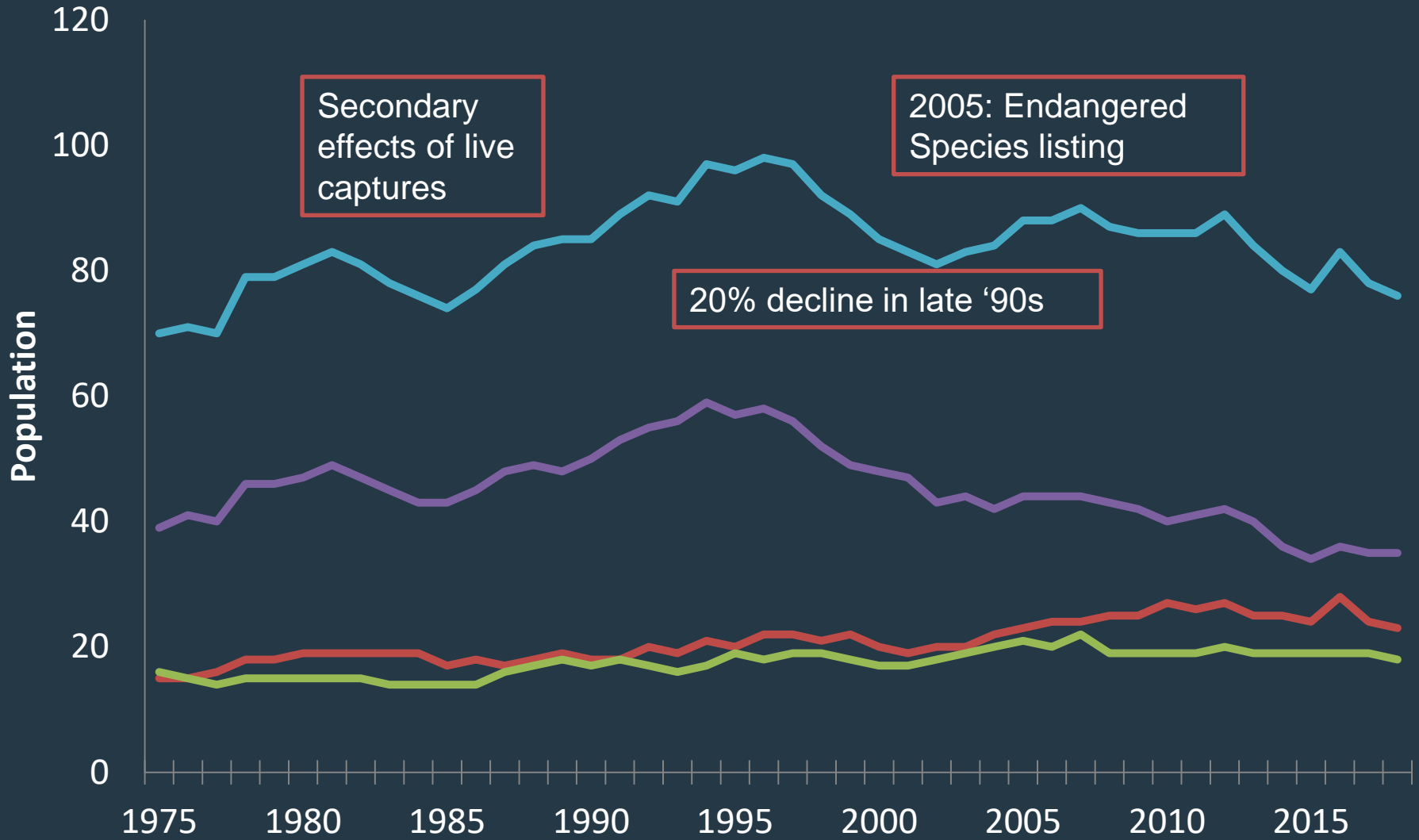


## Distinct Population Segment

- 3 pods: J, K, and L
- Pods consist of female-led matriline
- Socially complex
- Fish-eaters, particularly salmon (98% of summer diet, mostly Chinook and coho)
- Range from Monterey, CA to Southeast AK; primarily found in Salish Sea and off coast of Washington, Oregon, California
- Threats: prey depletion, toxic contamination, physical and acoustic disturbance
- Currently: **76 orcas** in population

*Image: Center for Whale Research*

# Brink of Extinction



Population data from Center for Whale Research

# Decline of salmon

- Fraser River
- Puget Sound
- **Columbia/Snake Basin** Over 400 dams
- Klamath River
- Central Valley



- dams
- habitat loss
- **access, connectivity**
- harvest
- hatchery impacts



*Images: Neil Ever Osborne, Google Maps*



Dams (and other structures) **block migration routes, destroy habitat, alter river flow.**



**B.C. stocks are an estimated 36% of historic size; Puget Sound stocks 8%;Columbia River 2%**

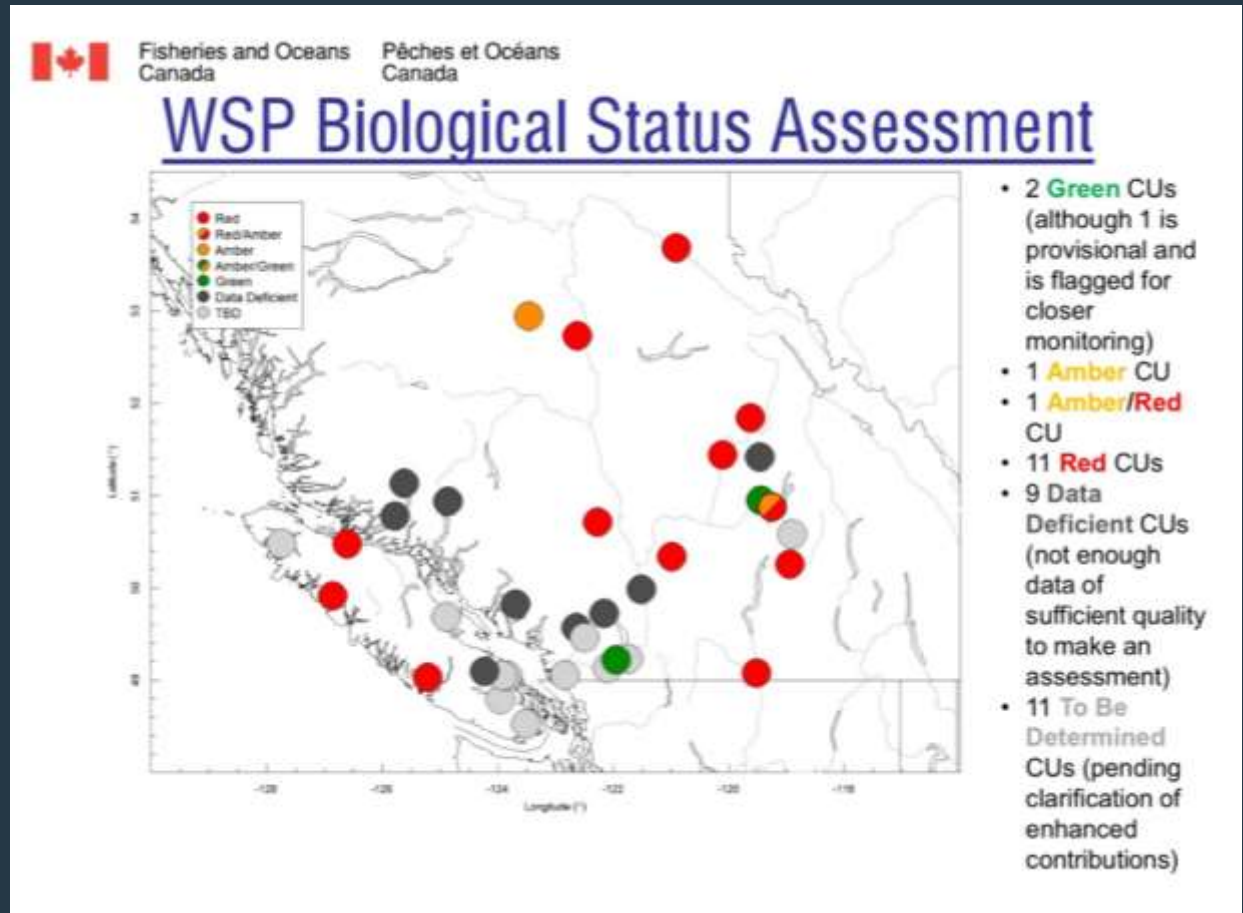
*Image: Peterson/Hawley productions*

# Fraser River

- Historically supported nearly 1 million Chinook
- Important to SRKWs in summer months
- Conservation plans developed, not implemented

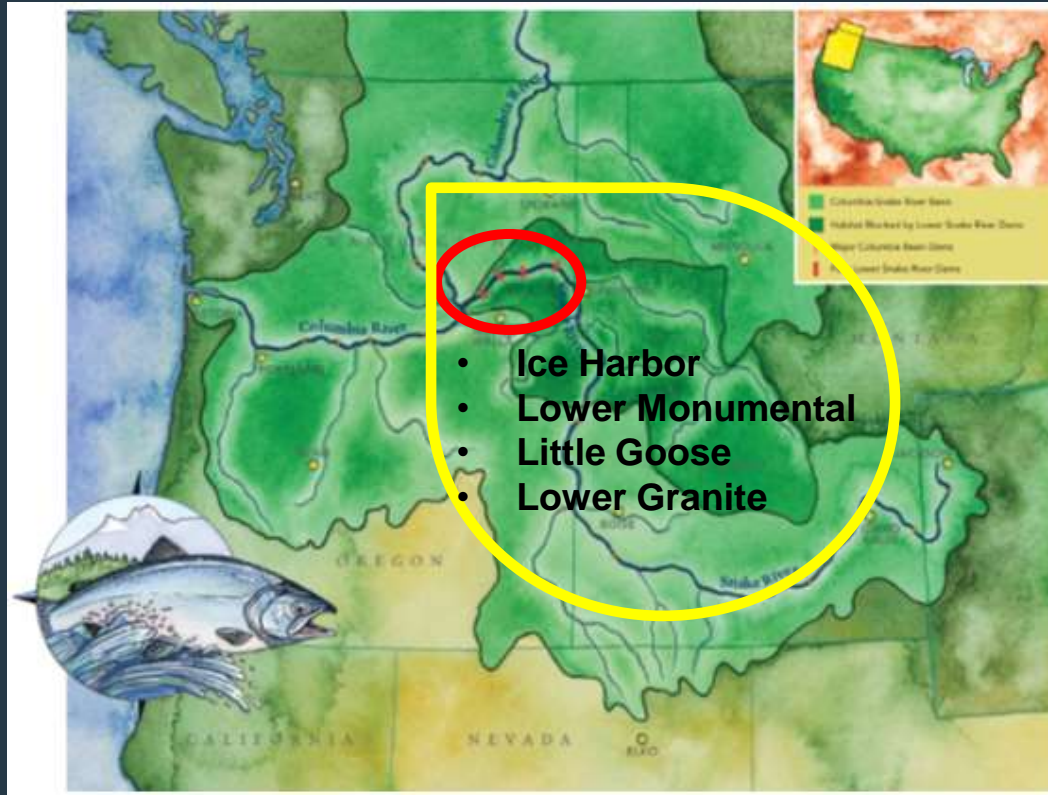
## Salmon decline:

- Loss of connectivity
- Loss of spawning habitat
- Pollution/development
- Lack of forage fish?





# Columbia Basin salmon and the Southern Residents



Dam removal opens over 5,500 miles of rivers and streams in millions of acres of pristine, high-elevation, protected wilderness and wild lands



*“Perhaps the single greatest change in food availability for resident killer whales since the late 1800s has been the decline of salmon in the Columbia River basin.”<sup>1</sup>*

1. National Marine Fisheries Service. 2008. Recovery Plan for Southern Resident Killer Whales (*Orcinus orca*). National Marine Fisheries Service, Northwest Region, Seattle, Washington

# Ecosystem approach to endangered species recovery: Southern Resident orcas and salmon

- Recognize and address **cumulative impacts**.
- Restore predator and prey together.
- **Habitat restoration** benefits salmon and helps to reduce toxin loads.
- Critical habitat designation creates the “umbrella effect” of additional protection for important prey species.
- Ecosystem recovery is necessary to ensure **long-term survival** of the SRKWs, but their decline and critical status requires EBM to be paired with short-term, immediate impact actions.
- **Coordination between agencies, across borders, with multiple stakeholders**



## RESTORING RIVERS

HELPS RECOVER SALMON  
POPULATIONS IN THE  
RANGE OF THE ORCAS

# The Future?

Each river and ecosystem is unique and presents unique challenges. River recovery benefits habitat, salmon, and Southern Residents; rivers can rebound quickly but long-term impacts may take years to realize.

---