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

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WDC WHALE AND DOLPHIN CONSERVATION

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.”

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Southern Resident orcas

Distinct Population Segment

- 3 pods: J, K, and L
- Pods consist of female-led matrilines
- 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

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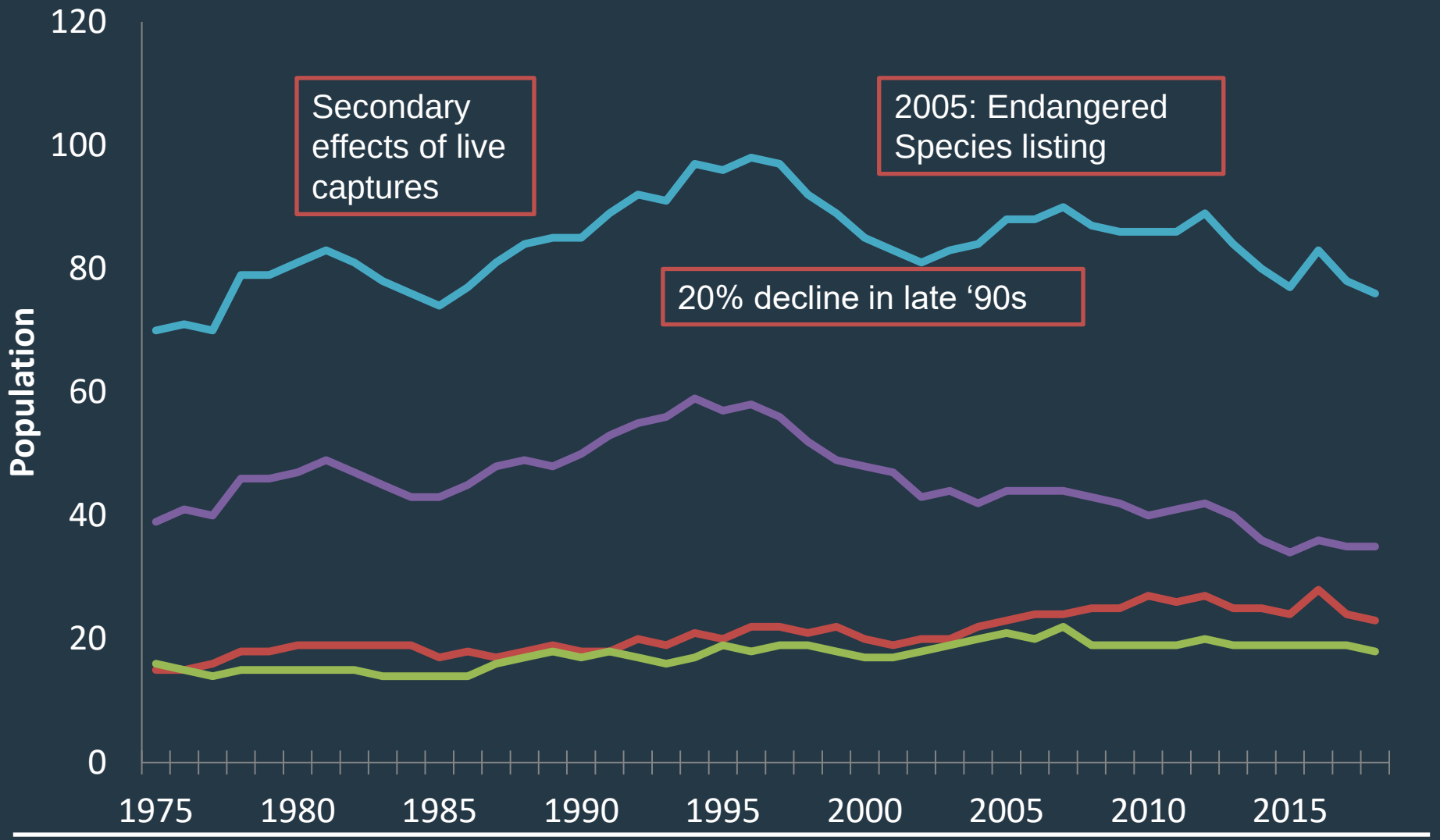
Brink of Extinction



Population data from Center for Whale Research

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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

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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

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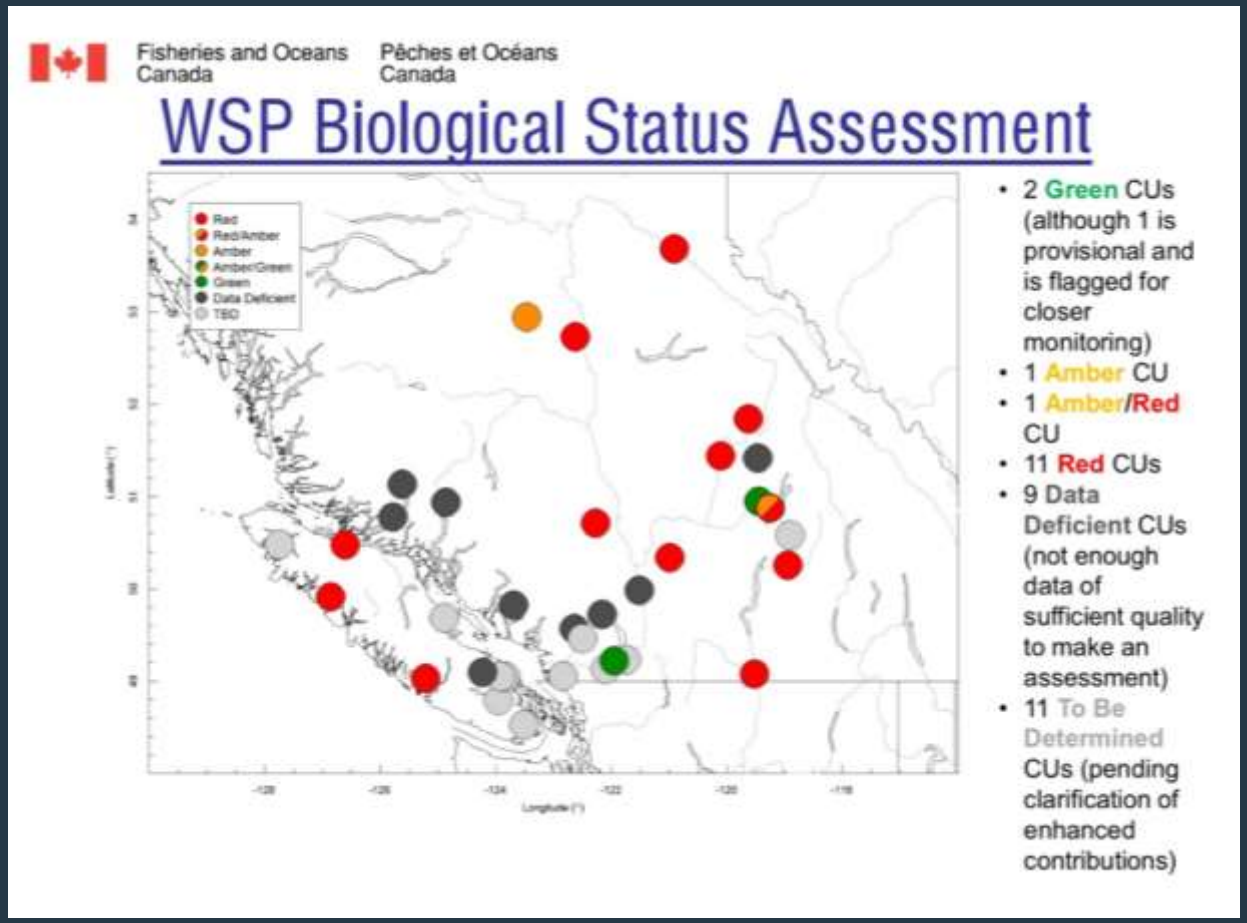
Fraser River

- 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?



Department of Fisheries and Oceans. 2016. Integrated Biological Status of Southern British Columbia Chinook Salmon (*Oncorhynchus tshawytscha*) Under the Wild Salmon Policy. DFO Can. Sci. Advis. Sec. Sci. Advis. Rep. 2016/042. 15 p

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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

ORCAS AND SALMON NEED SAFE, HEALTHY WATERS TO SURVIVE AND THRIVE

"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."[1]

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

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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

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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.

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