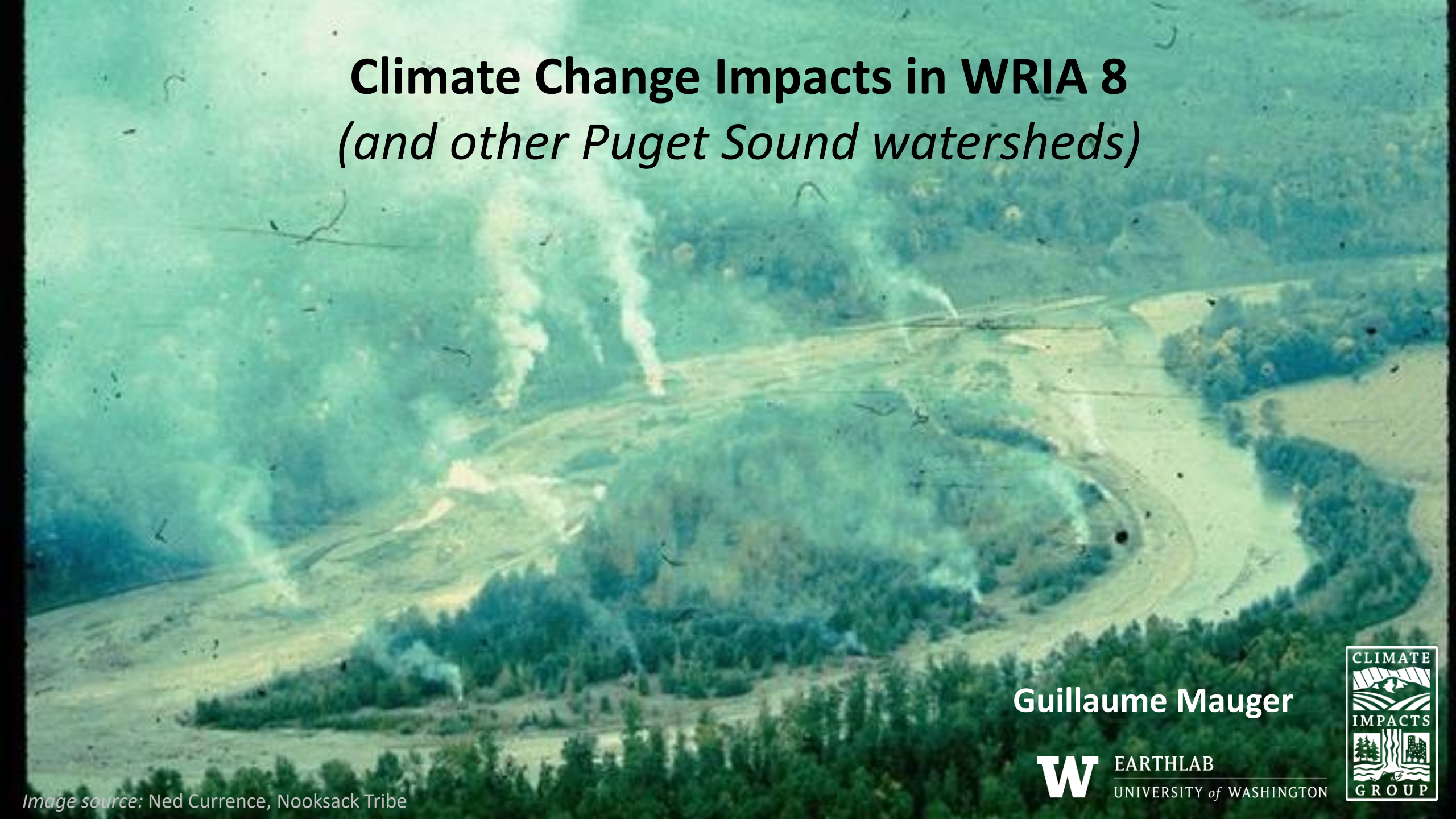
Climate Change Impacts in WRIA 8

(and other Puget Sound watersheds)



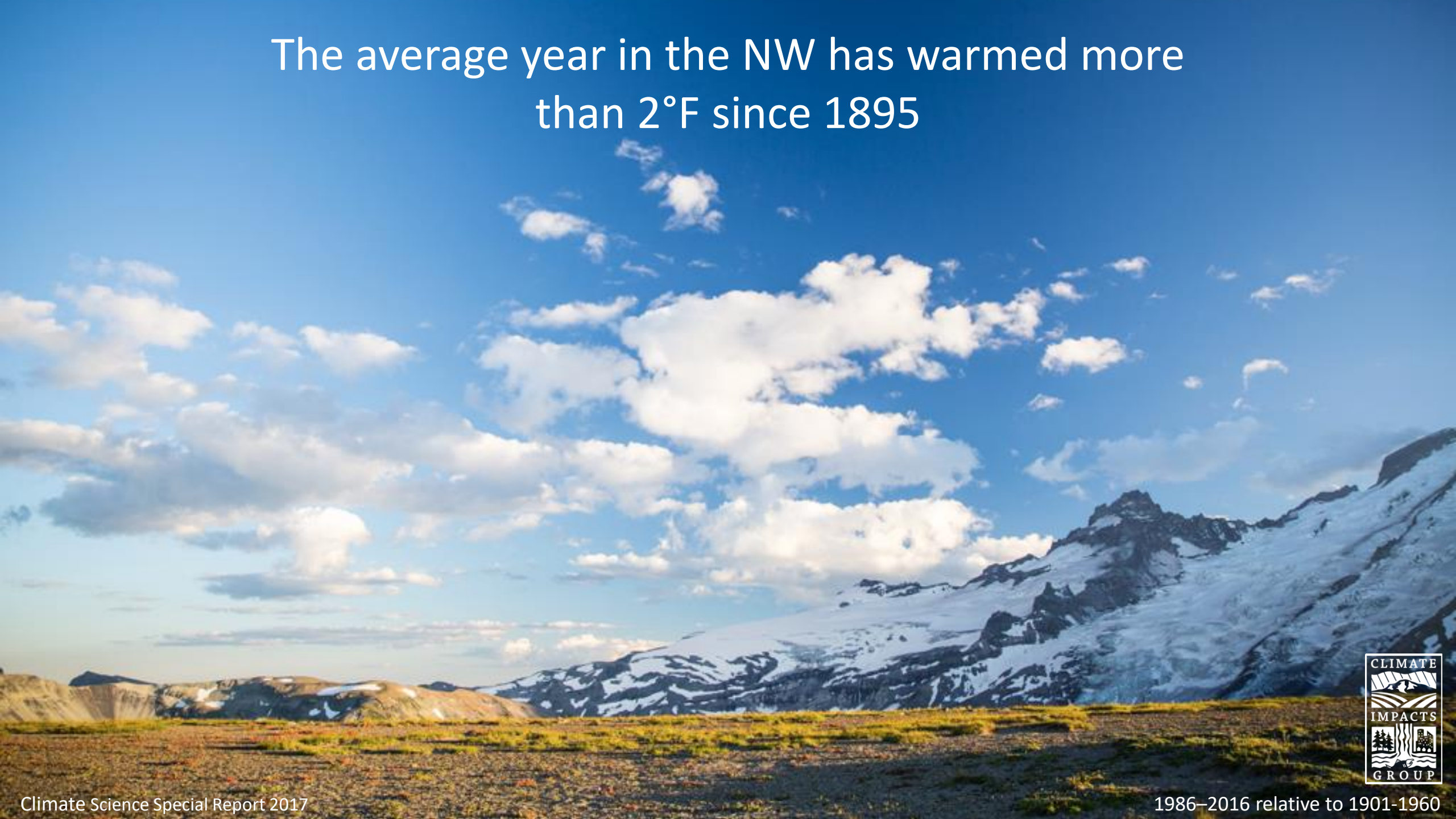
Guillaume Mauger

EARTHLAB
UNIVERSITY of WASHINGTON

CLIMATE IMPACTS GROUP

Image source: Ned Currence, Nooksack Tribe

The average year in the NW has warmed more than 2°F since 1895



Climate Science Special Report 2017

1986–2016 relative to 1901-1960

Projected changes are much larger than what we've seen so far: This will worsen existing impacts and bring on new ones that haven't been detected in the past.

Alki Beach, West Seattle, January 21, 2010
Photo: Hugh Shipman
Source: Washington Dept of Ecology

Sea Level

Friday Harbor:

1934-2018: + 4 in.

2000-2100: +2 ft.

(RCP 8.5, range: 0.9-3.5 ft)

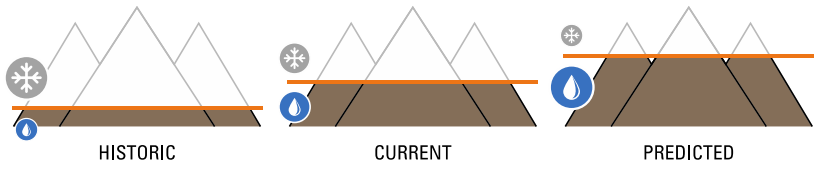
http://www.wacoastalnetwork.com/wcrp-documents.html

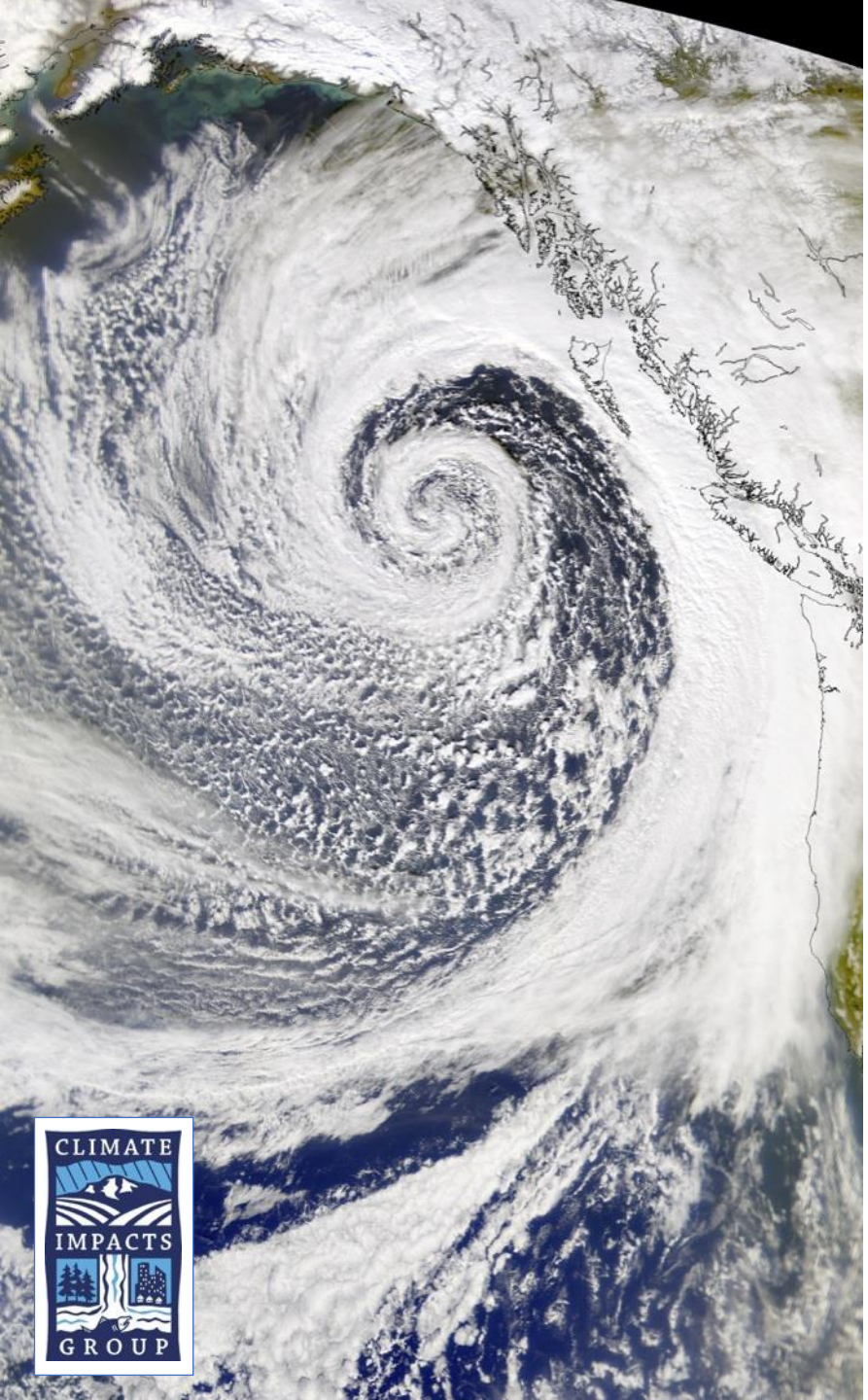
Snow

Declines for the Cascades:

1950-2016: 15-30%
(Mote et al. 2018)

1980s-2080s:
42-55%, on avg.
(Hamlet et al. 2013)



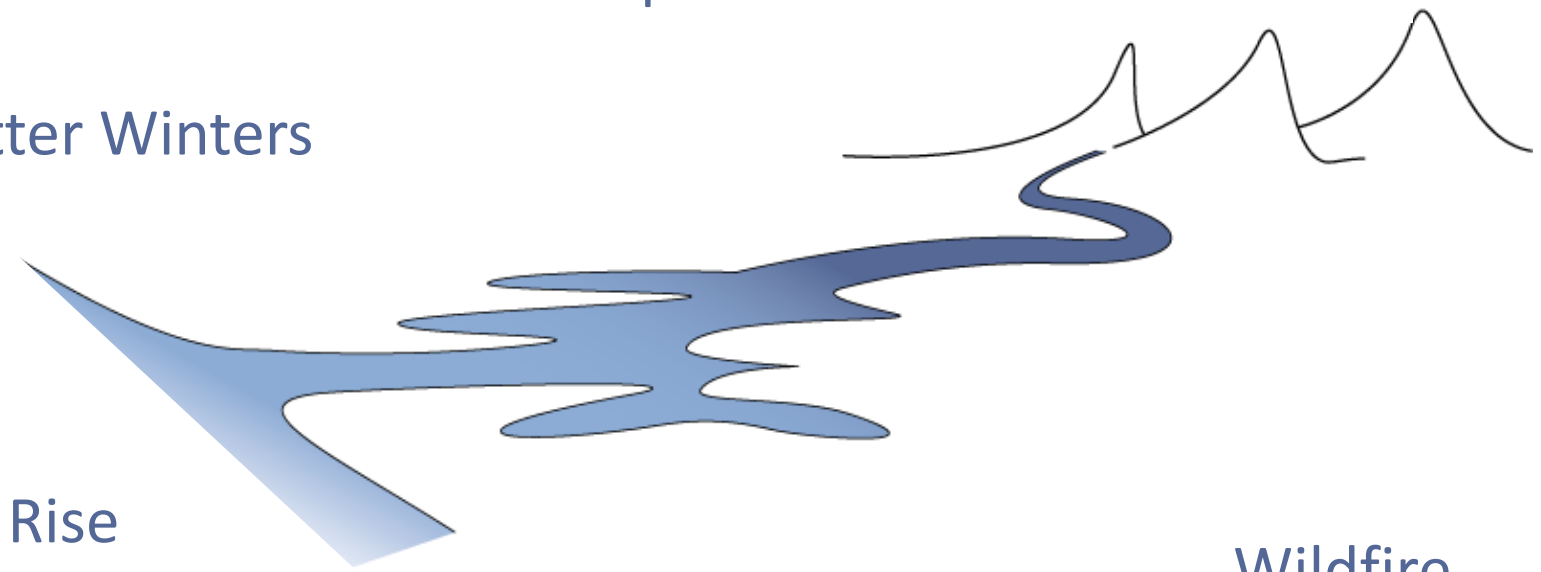


Heavy Rains

Heaviest rain events (top 1% daily) are projected to become **+22% more intense** (*range:* +5 to +34%) by the 2080s.

Warner, Mass, Salathé, J Hydromet, 2015

A spectrum of impacts:



Declining Snowpack

(and shifting Freeze-Thaw)

Heavier Precipitation

Shifting Streamflow

Wetter Winters

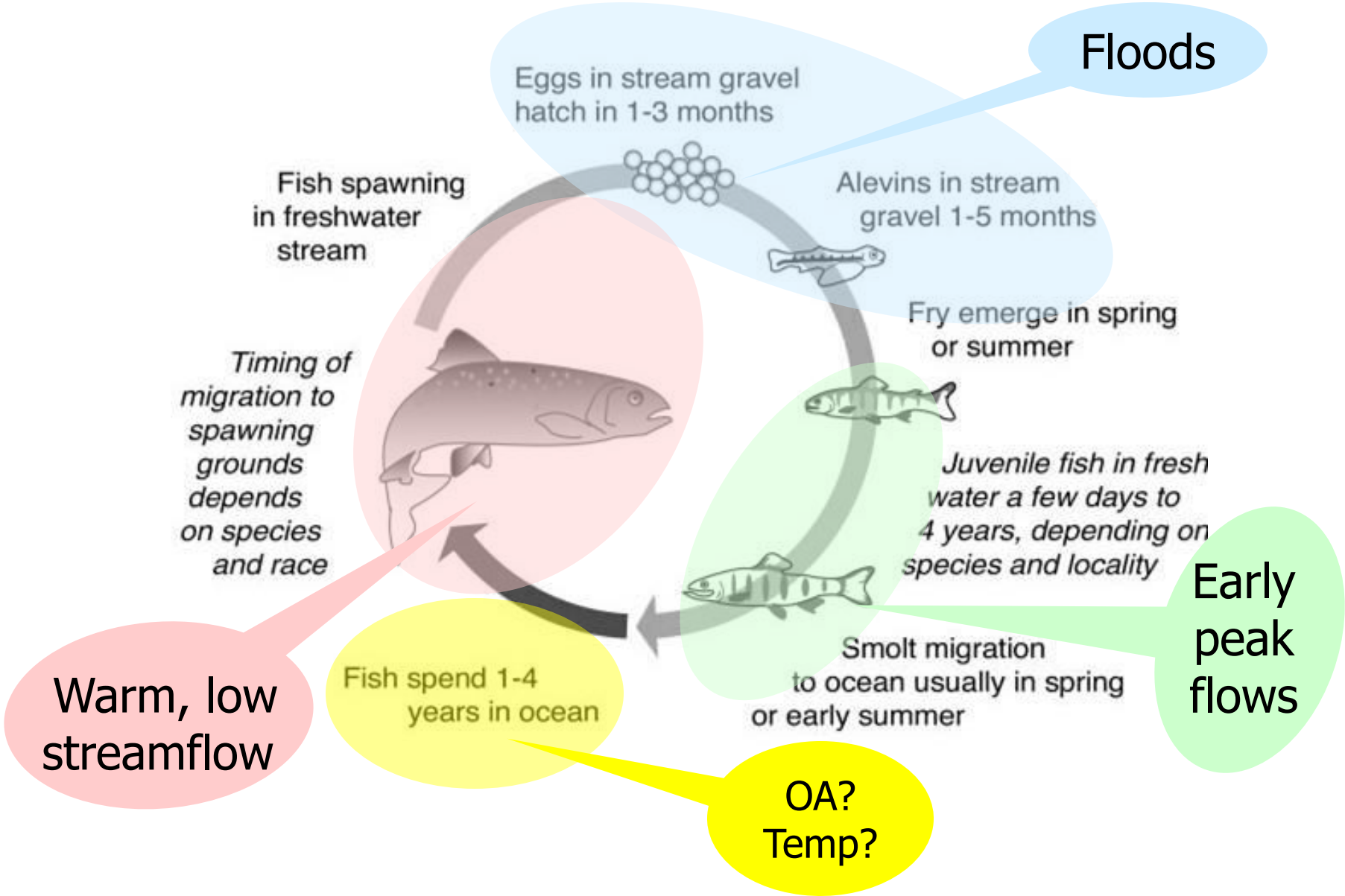
Drier Summers

Sea Level Rise

Wildfire

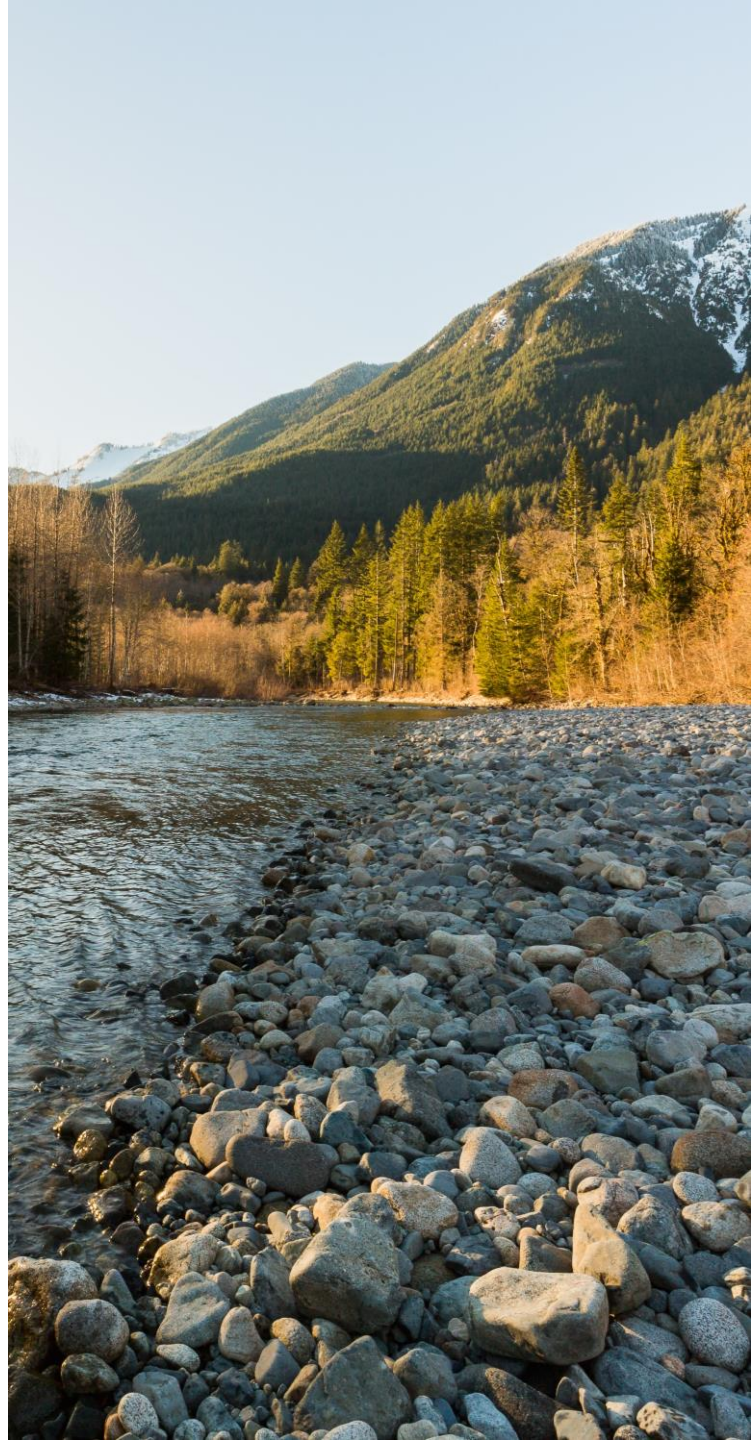
Longer Growing Season

Salmon Impacted Across Full Life-Cycle



Impacts depend on magnitude of changes *and* management flexibility

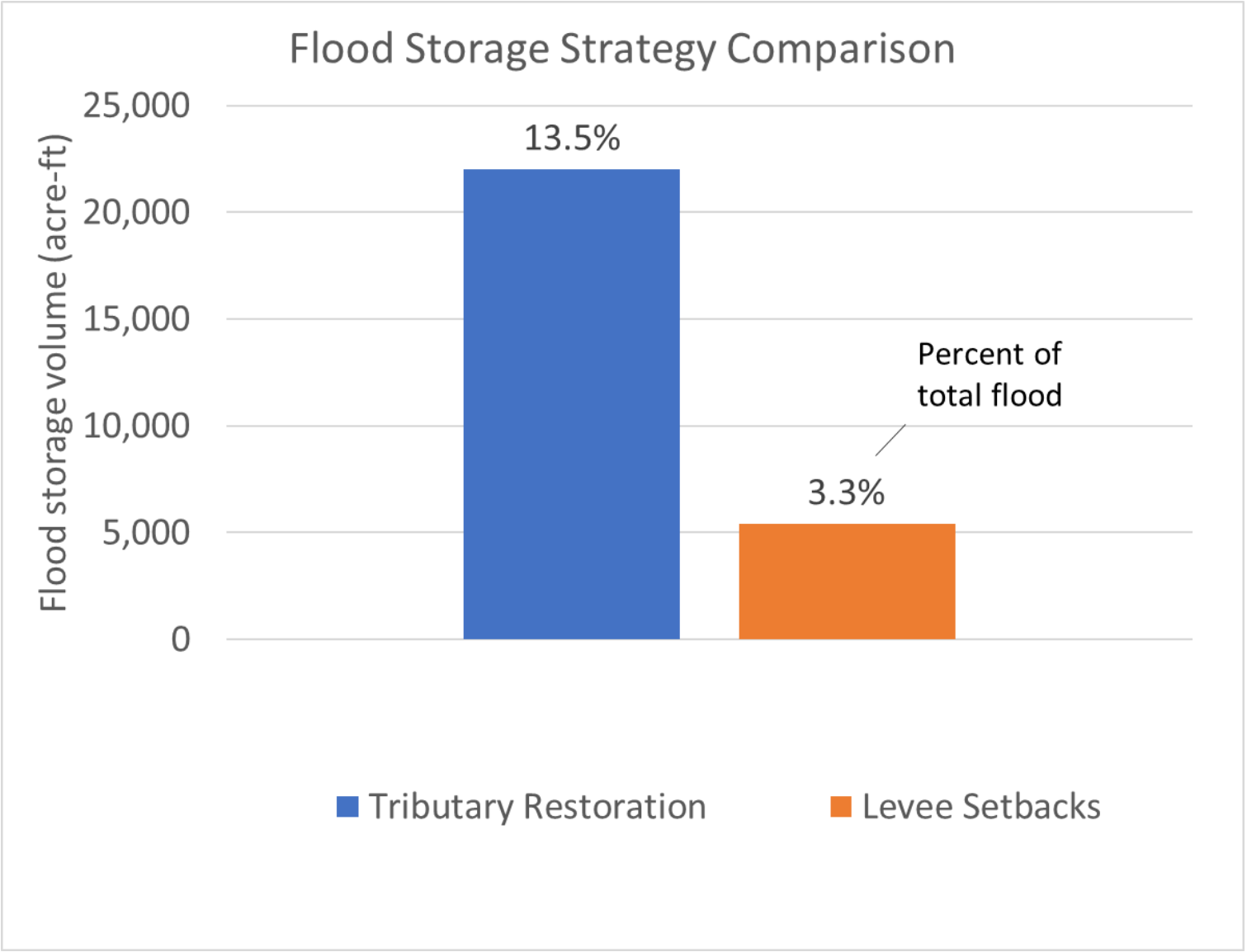
- *Yakima:* Water curtailments for junior users increase from 14% to 68% of years, by the 2080s. *(Vano et al. 2010a)*
- *Statewide:* Increased summer hydropower demand due to A/C use and population growth. *(Hamlet et al. 2010)*
- *Everett, Tacoma:* Water supply reliability remains high even with changes in demand *(Vano et al. 2010b)*
- *Seattle:* High water supply reliability except for demand increases > ~25% *(Vano et al. 2010b)*



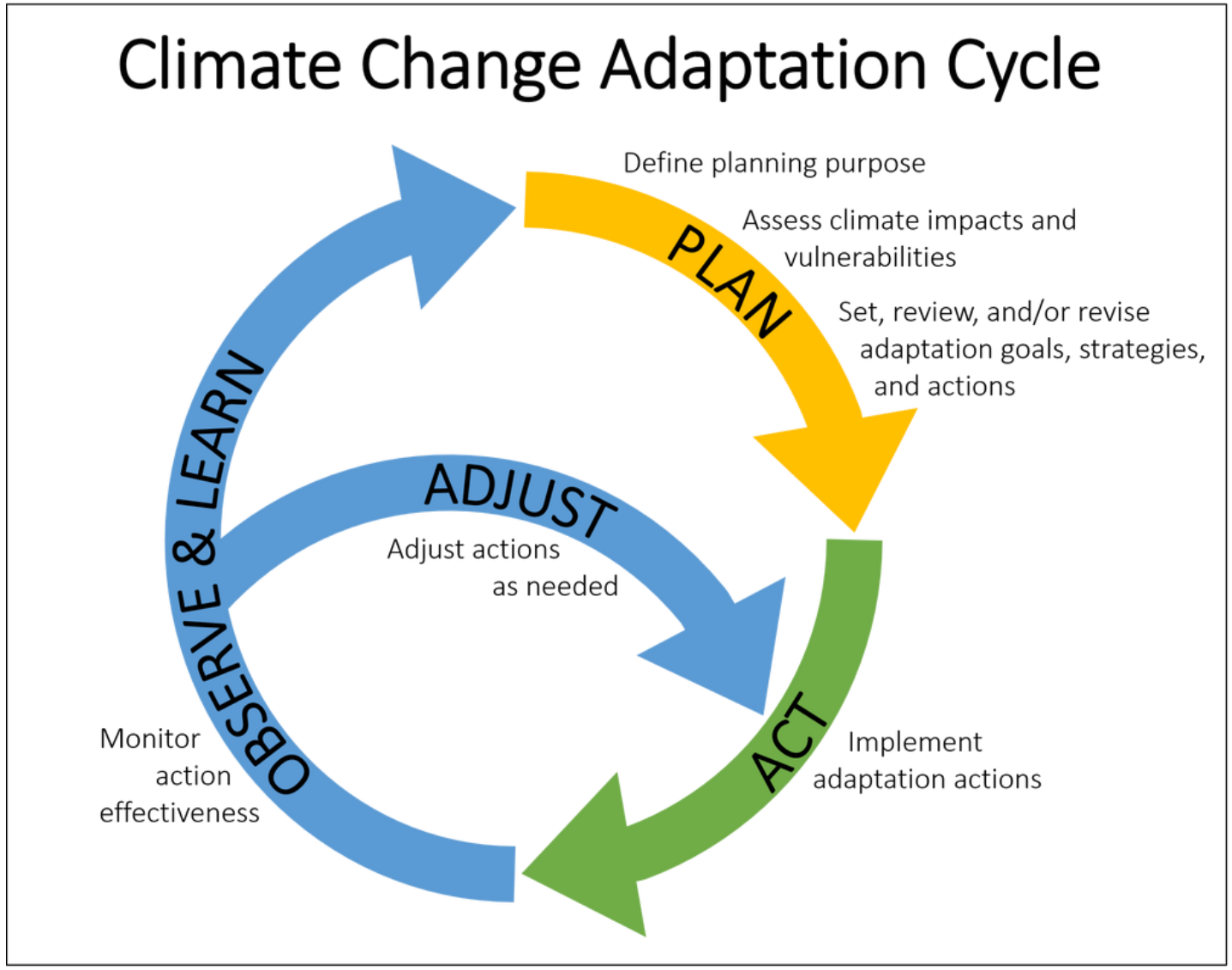
Tributary restoration as flood control

Floodplains for the Future
308 West Steward Ave, P.O. Box 1057
Puyallup, Washington, 98371
866-845-9485

Scott Katz, Susan Dickerson-Lange, Julia Jay, Danny Stratten, Shawn Higgins, and Tim Abbe
1900 N. Northlake Way, Suite 211
Seattle, WA 98103



Climate Adaptation is Iterative

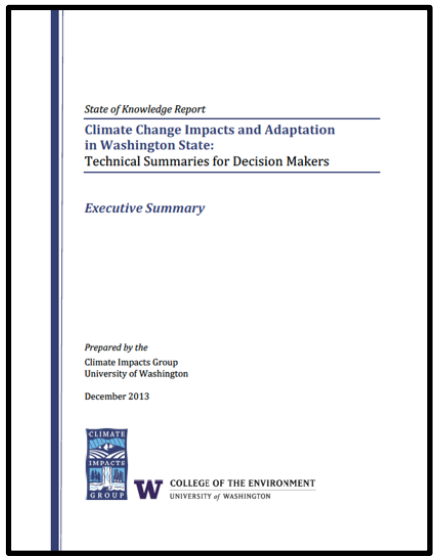


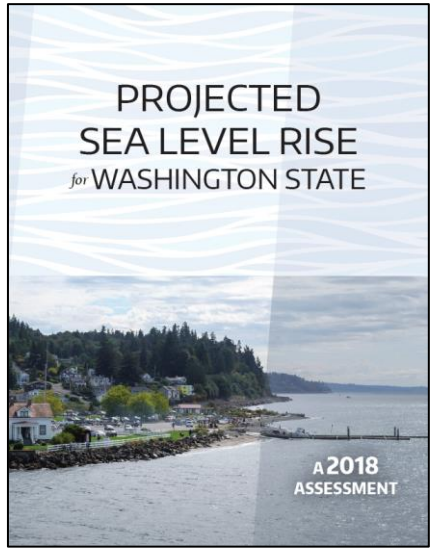
https://blackfeetclimatechange.com/our-environment/climate-change-adaptation-plan/ [accessed 29 Apr 2019]

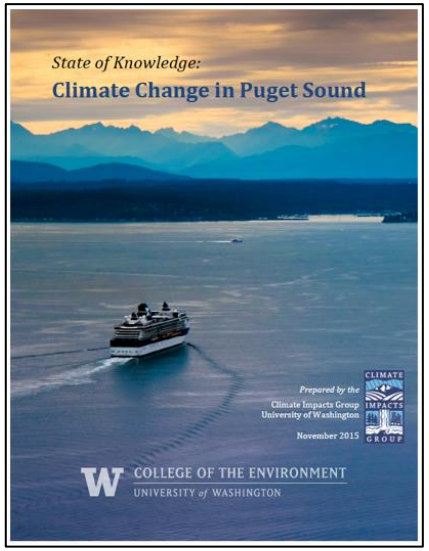
https://cig.uw.edu
gmauger@uw.edu
206.685.0317

Image Credit: Kendra Kaiser

Climate change reports for Washington







https://cig.uw.edu/resources/special-reports/