Bridging the Gap Between Science and Decision-Making

April 16, 2020

Materials will be available at: **www.eesi.org/041620data**

Tweet about the briefing: **#eesitalk** **@eesionline**

EESI

Environmental and Energy Study Institute

- Founded in **1984** by a **bipartisan** Congressional caucus.
- Now an **independent**, bipartisan **nonprofit** with no Congressional funding.
- We provide **fact-based information** on **energy** and **environmental** policy for Congress and other policymakers.
- We focus on **win-win solutions** to make our energy, buildings, and transportation sectors **sustainable** and **resilient**.

Visit www.eesi.org to:

- View **videos** of our Congressional briefings.
- Sign up to receive our **briefing notices**, and **fact sheets**.
- Subscribe to our newsletters, including ***Climate Change Solutions***.

Bridging the Gap Between Science and Decision-Making

Amy Snover, PhD

Director, Climate Impacts Group
University Director, Northwest Climate Adaptation Science Center
University of Washington

Environmental and Energy Study Institute
Climate Adaptation Data Week Briefing
April 16, 2020

Acknowledgments

Coastal Resilience

University of Washington

Guillaume Mauger
Harriet Morgan
Crystal Raymond
Heidi Roop
Robert Norheim
Ian Miller
Nicole Faghin

Tribal resources

Project Lead

Meade Krosby

University of Washington

Haley Kennard
Robert Norheim
Guillaume Mauger
Harriet Morgan
Crystal Raymond
Heidi Roop
Amy Snover
Kimberly Yazzie

University of Idaho

Katherine Hegewisch

Woven Strategies

Arwen Bird

Tribal Advisory Group

Don Sampson, ATNI
Laura Gephart, CRITFC
Eliza Ghitis, NWIFC
Scott Hauser, USRT
Chas Jones, NWCASC
Kathy Lynn, UO
David Redhorse, BIA
Kyle Whyte, MSU

Special Thanks

Testers and workshop participants
Tableau
Lara Whitely Binder

Since 1995

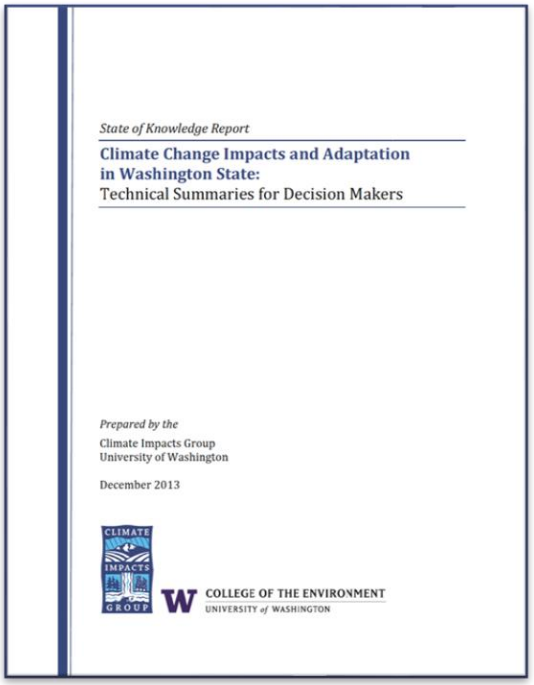
The University of Washington Climate Impacts Group builds climate resilience by advancing awareness of climate risks & enabling science-based action to manage those risks.

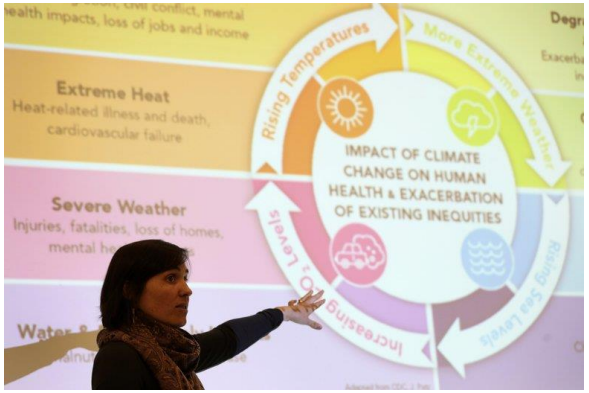
NORTHWEST
Climate Adaptation Science Center

USGS
UNIVERSITY of WASHINGTON
UNIVERSITY OF MONTANA
BOISE STATE UNIVERSITY
Oregon State University
WESTERN WASHINGTON UNIVERSITY
WASHINGTON STATE UNIVERSITY

Every single day, people are making decisions & investments that will either exacerbate or ameliorate the impacts of climate change, for decades to come.

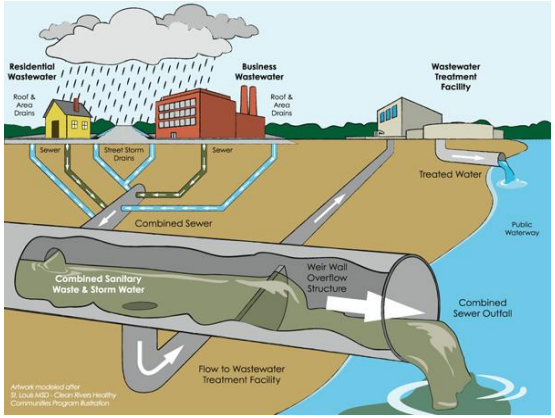
Educating key actors about climate risks & response options

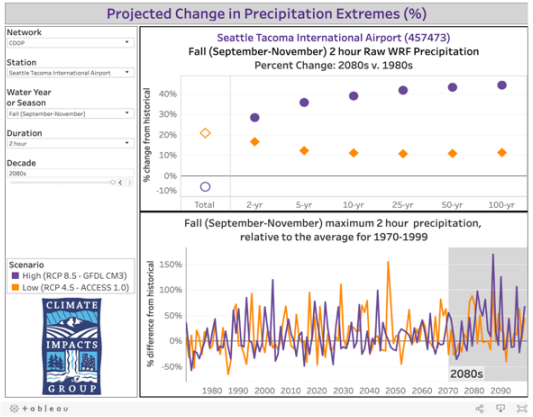




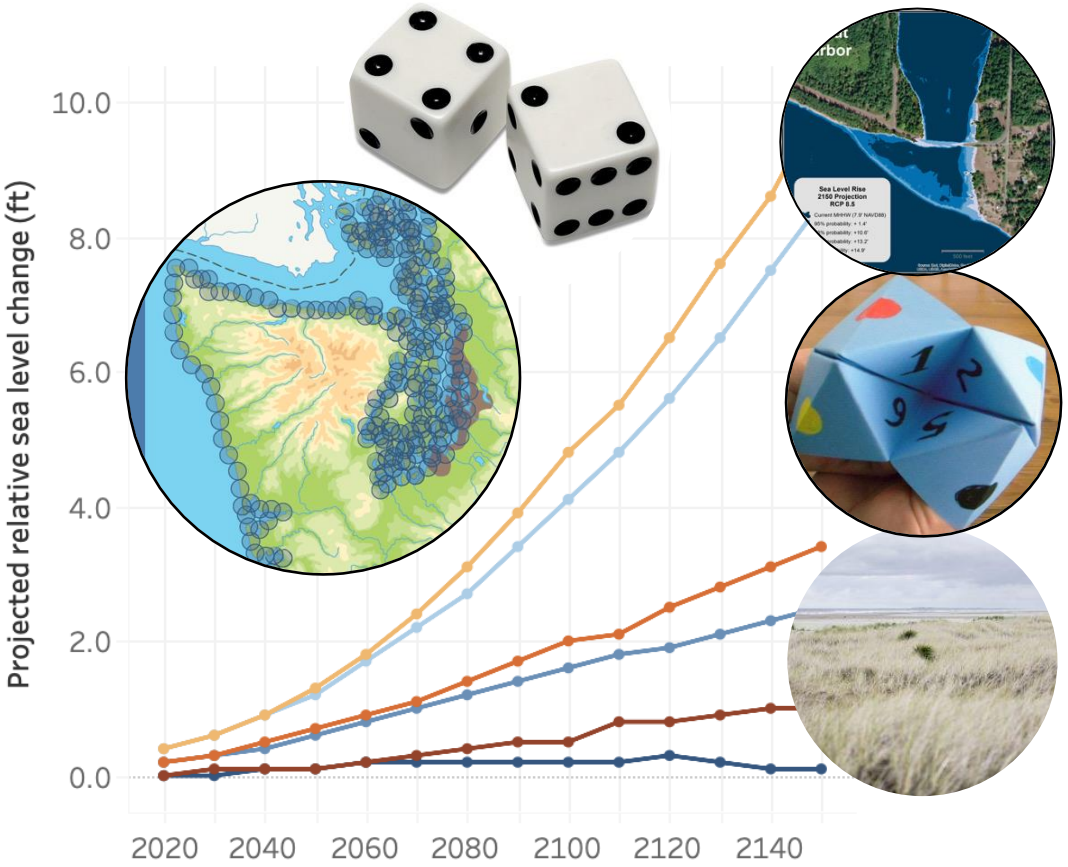
Enabling the use of climate (impacts/adaptation) science in risk assessment & management

How do we size our infrastructure for the storms of the future?



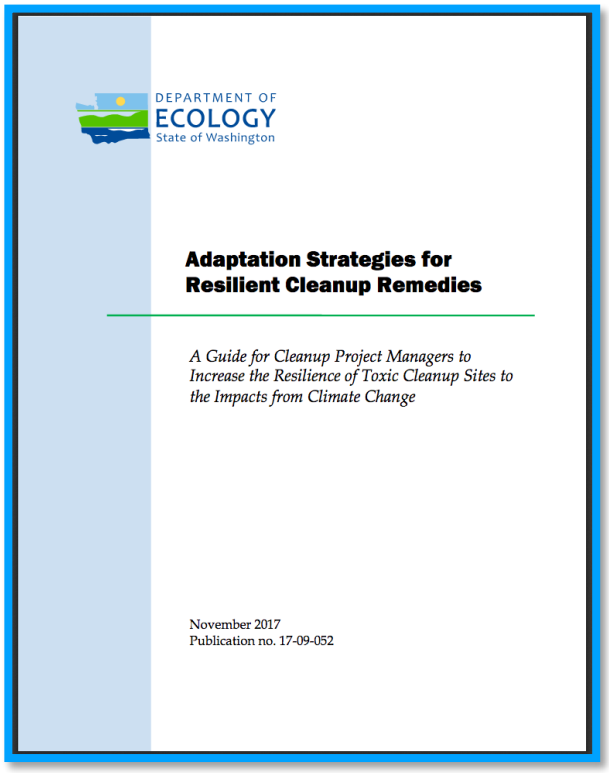


How can park planners incorporate sea level rise uncertainty into design?



Embedding scientists in management contexts & *science* in management processes

Guidance for state superfund clean-ups



Grantmaking criteria

WASHINGTON STATE Recreation and Conservation Funding Board

To date, RCO has awarded more than $861 million, which has funded 1,427 projects in nearly every county.

Embedding scientists

WASHINGTON DEPARTMENT OF NATURAL RESOURCES

King County

Seattle City Light

#1: Washington's Sea Level Rise Planning Toolkit

Image ©CIG; with aerial support from LightHawk

Increasing Washington State's Capacity to Prepare for Sea Level Rise

What will happen here?

State-of-the-art, Washington-specific sea level rise projections

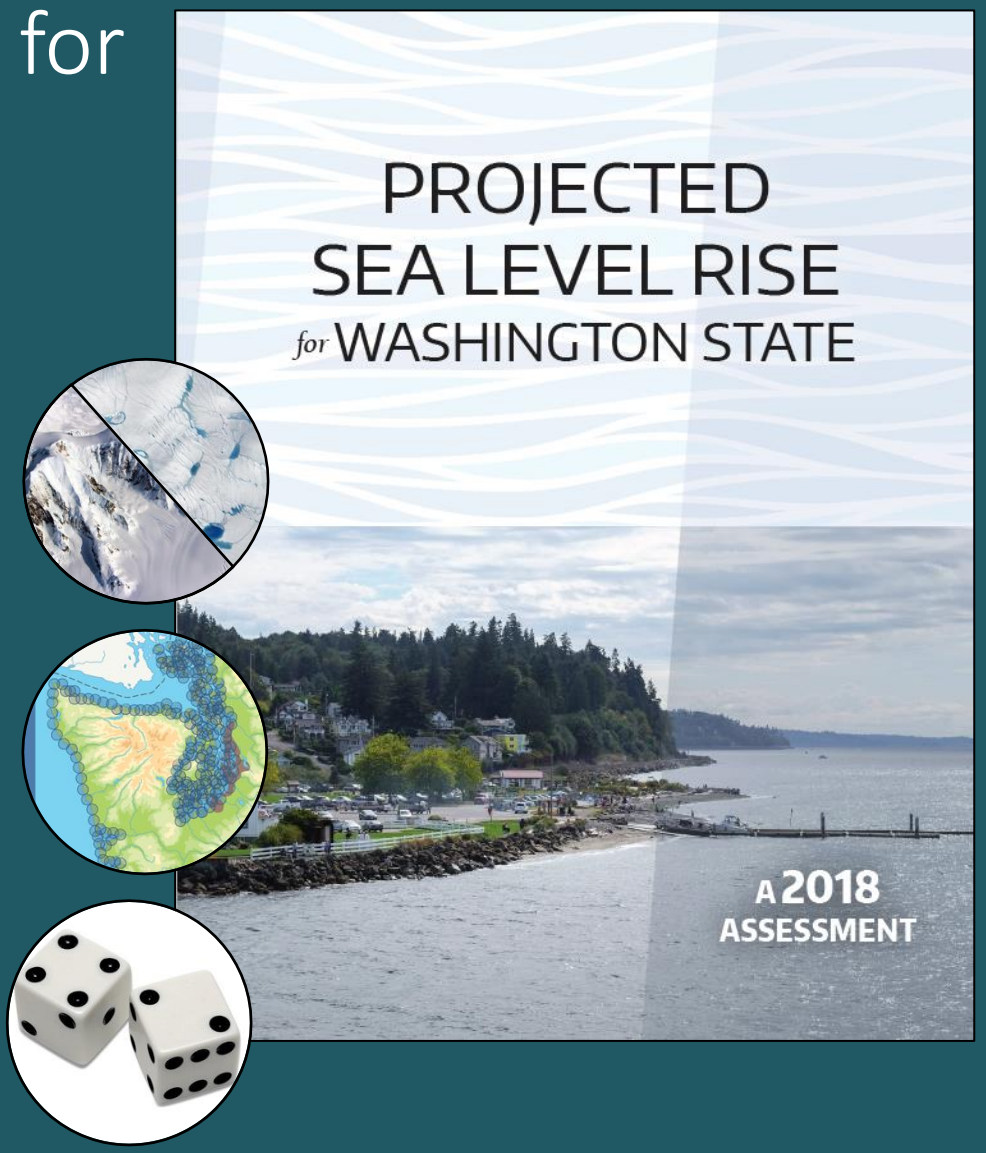
What is my specific risk?

Locally-, greenhouse gas scenario-specific, and probabilistic risk estimates

What can I do about it?

Technical guidance for a range of applications

Best available sea level rise science for Washington?

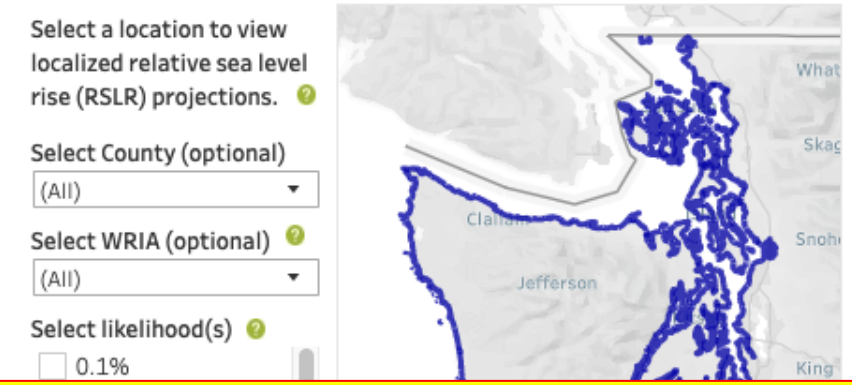


Miller et al. (2018)

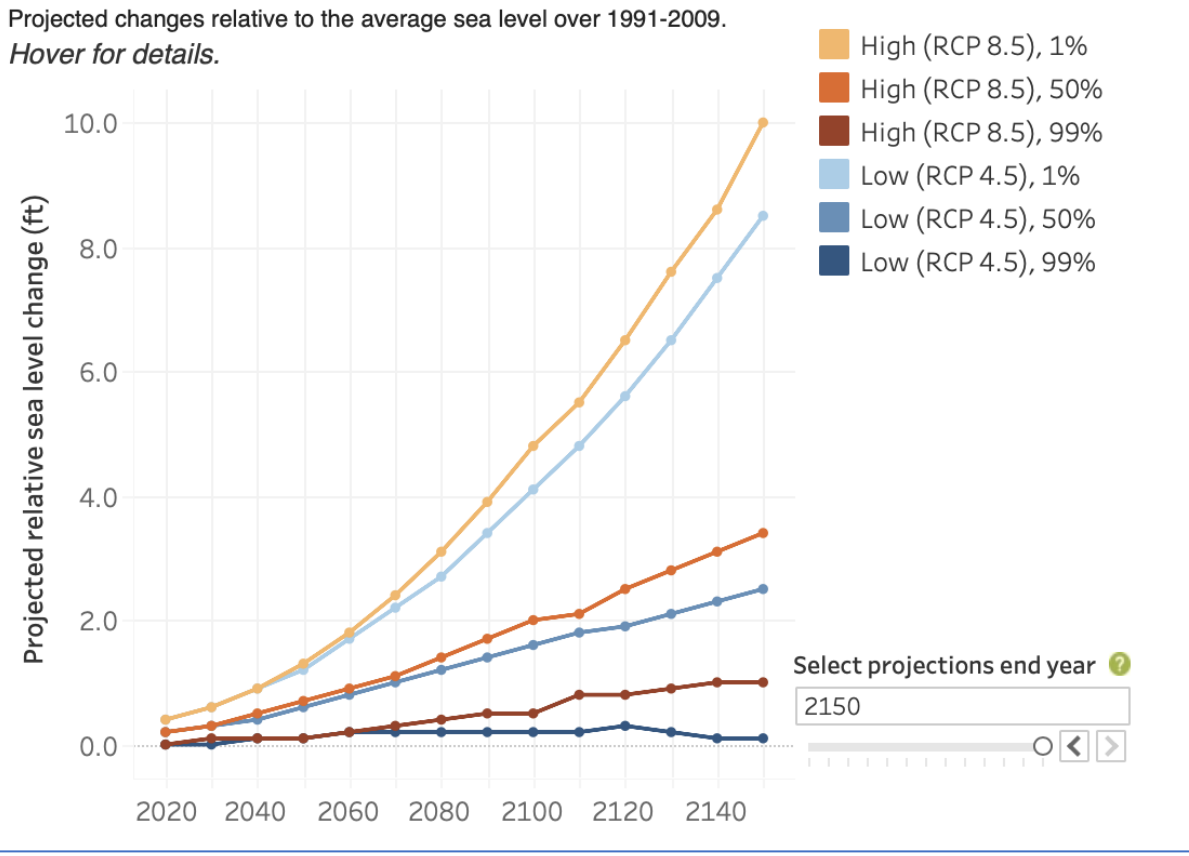
Sea Level Rise Data Visualizatio Tool

171 locations
130 years
2 GHG scenarios
10 likelihoods

bit.ly/waslrviz



"How likely is it that we will see 1.5 feet of sea level rise here by 2050?"

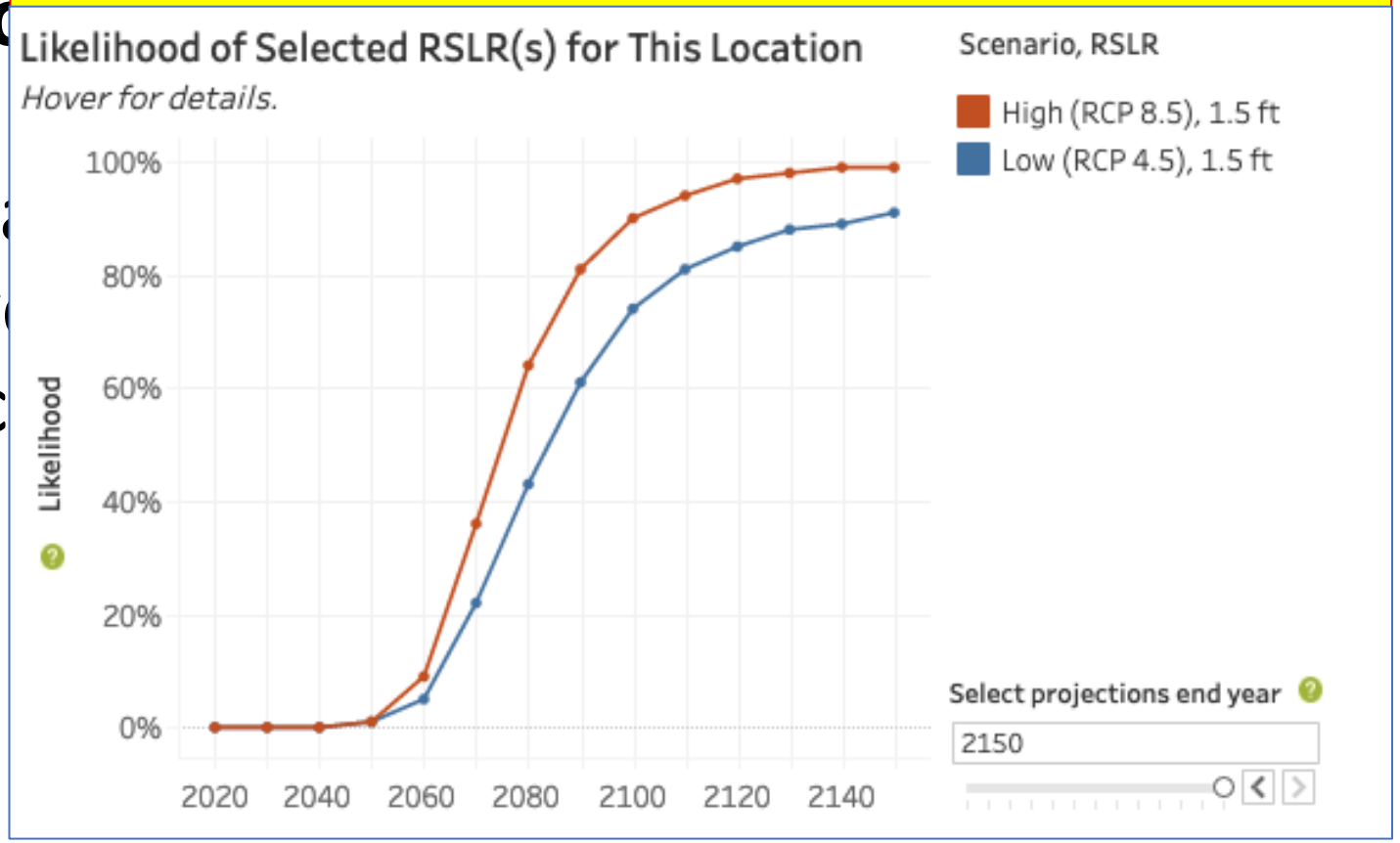


Sea Level Rise Data Visualiz Too

171 loc
130 y
2 GHG sc
10 likeli

bit.ly/waslrviz

"When are we likely to experience 1.5 feet of sea level rise here?"



What can I do about it?

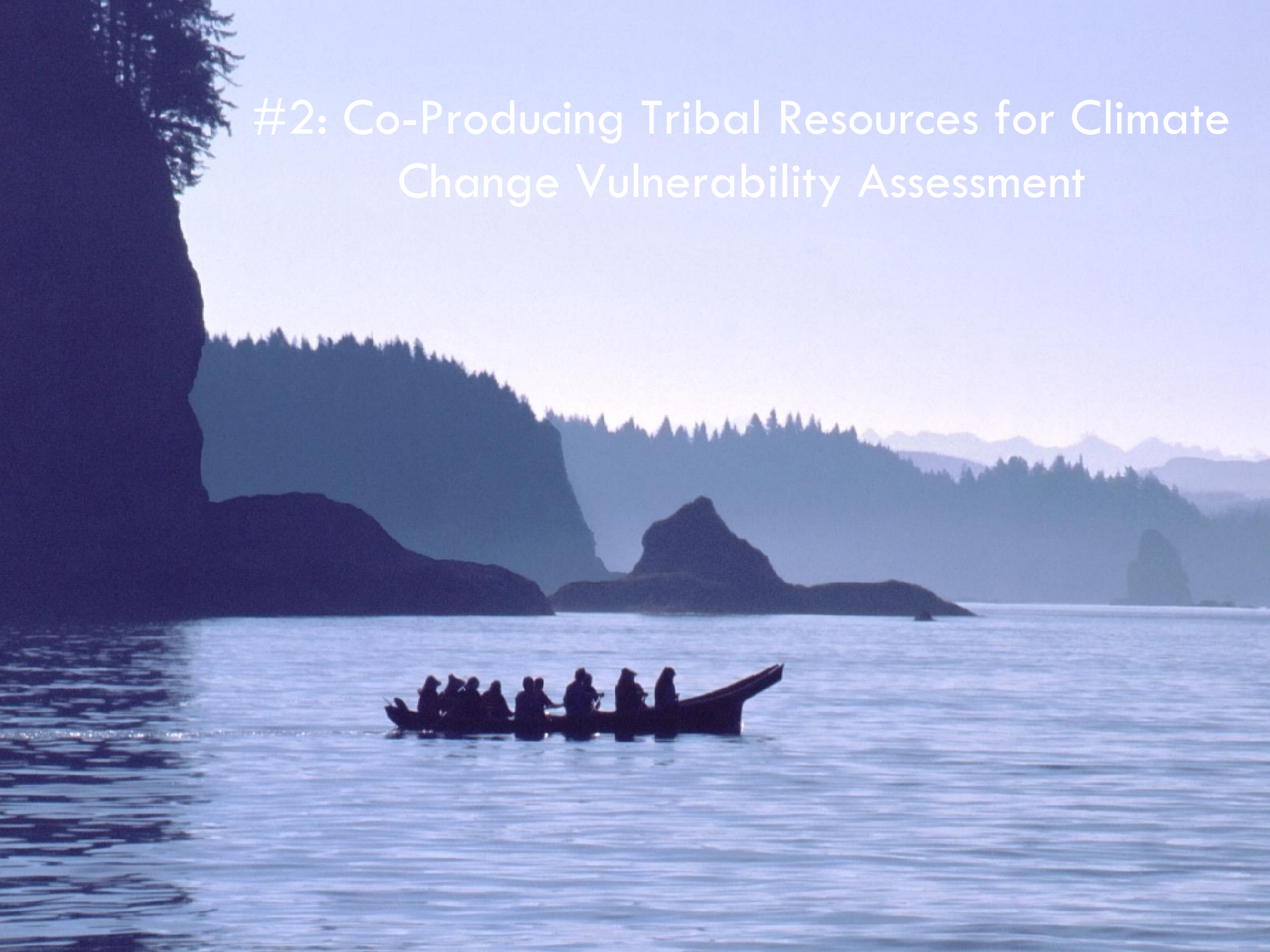
Coupling data & tools with technical advice

How to Choose
(scenarios)

How to Map
(impacts)

How to Use
(in restoration)

#2: Co-Producing Tribal Resources for Climate Change Vulnerability Assessment



Addressing gaps in Tribal capacity for vulnerability assessment

"What will happen *here*?"

Provide climate data at the scale of tribal decision-making

"What can I do about it?"

Support tribal staff through the vulnerability assessment process

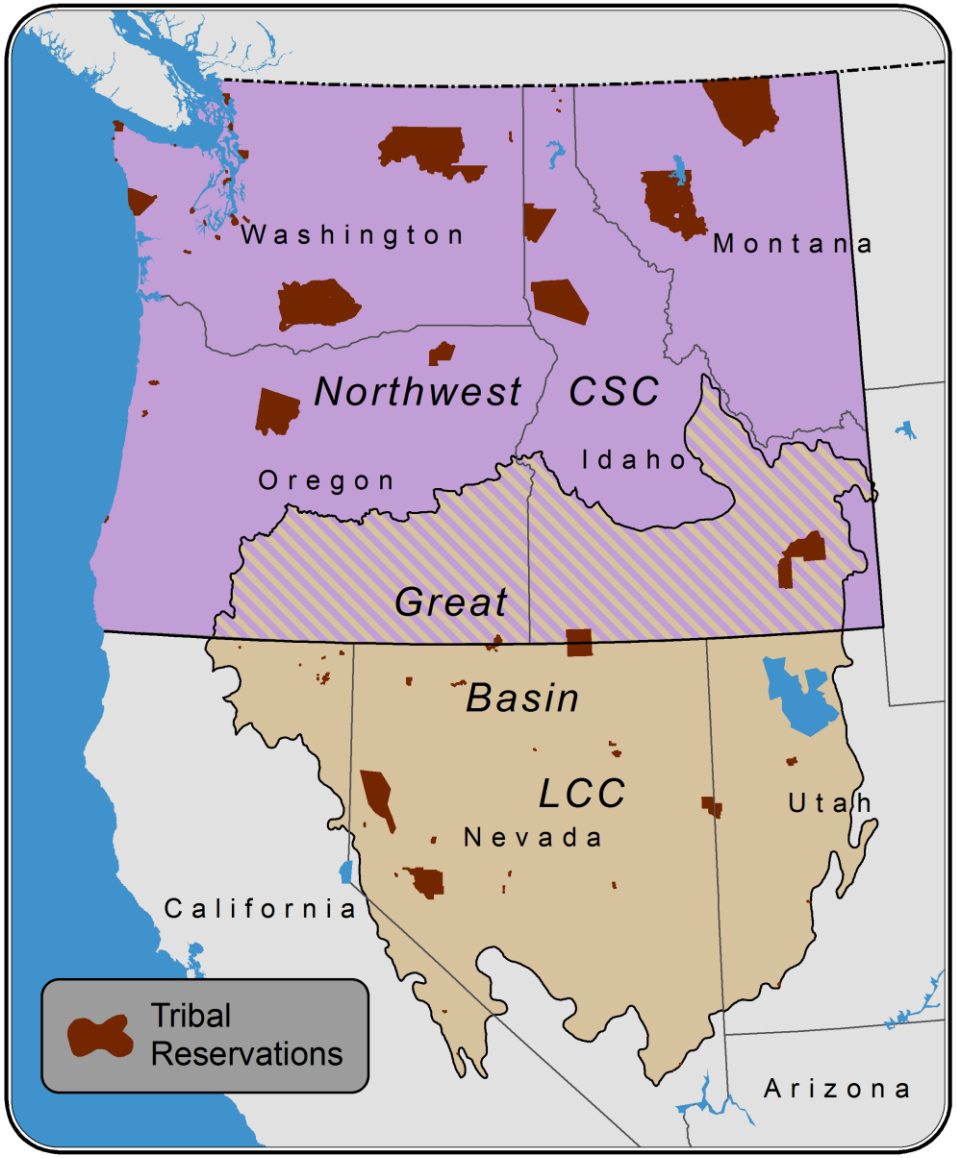
"What are best practices?"

Make the vulnerability assessment process more accessible to tribal staff

Provide tribally-relevant climate data

Previously available climate data for NW and Great Basin tribes:

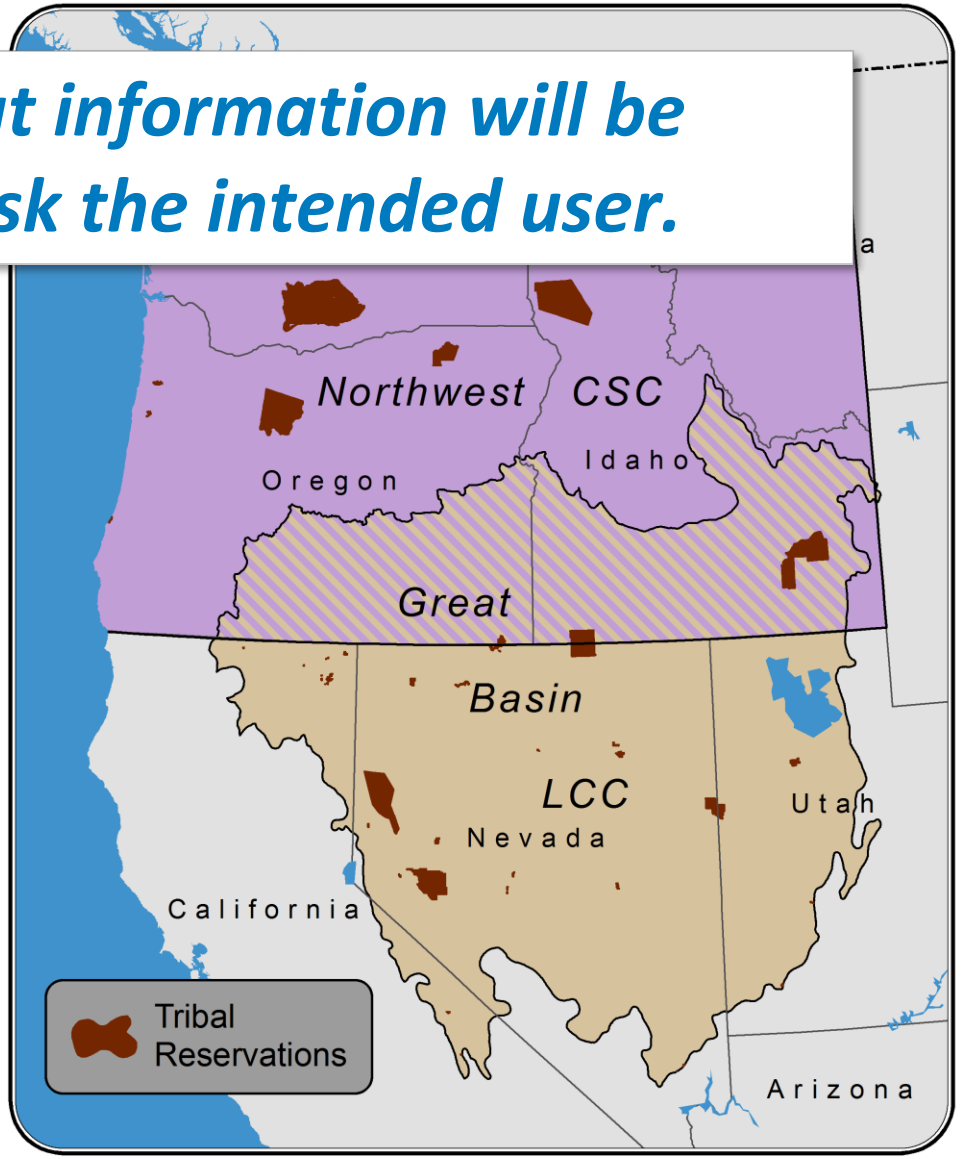
- Average annual temperature and precipitation
- Reservation scale



To know what information will be most useful, ask the intended user.

Tribes are *actually* concerned about:

- Diverse impacts (wildlife, wildfire, heat, water availability, invasives…)
- Reservations *and* watersheds, counties, traditional territories, ceded lands



Tribal Climate Tool:
Climate summaries tailored to tribes

Tribal Climate Tool

Documentation | Take a Tour | Cite Tool | Tribal Resources

Tribe: Confederated Tribes and Bands of the Yakama Nation

Area of Interest: Yakima Sub-Basin

Maps & Graphs

View maps and graphs that summarize projected changes in climate across your selected geography. You may tailor the view using the choices below.

View

Map | Graph

Climate-related Variable

Snow Water Equivalent, Apr. 1st Average

Units: inches

Time Period

2070-2099

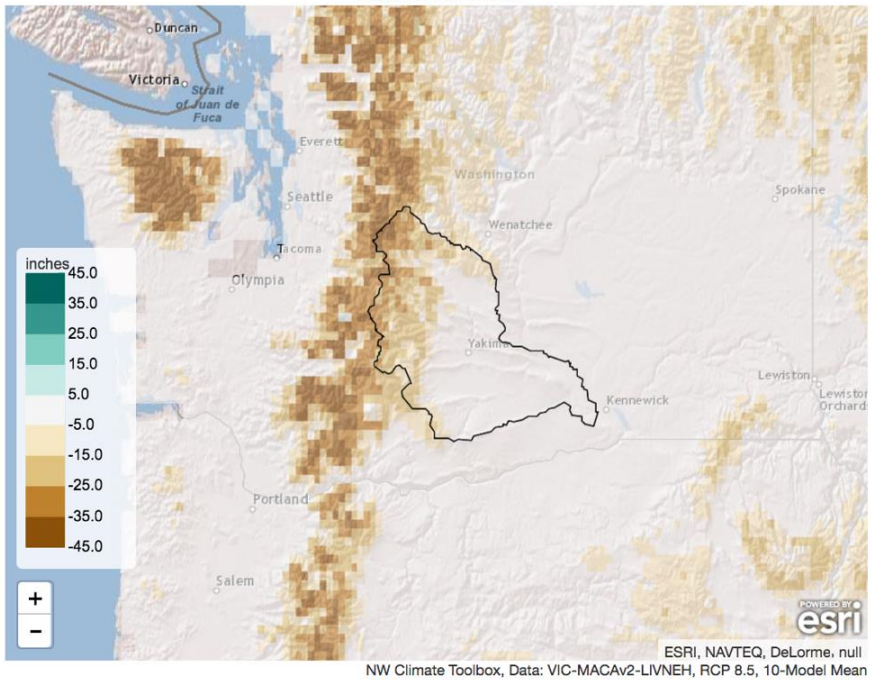
Emission Scenario

High Emissions Scenario

CREATE SUMMARY REPORT

Map

Projected Change in Apr. 1st Average Snow Water Equivalent
2070-2099 (High Emissions Scenario) vs. 1971-2000 (Historical)
Yakima Sub-Basin



NW Climate Toolbox, Data: VIC-MACAv2-LIVNEH, RCP 8.5, 10-Model Mean

TIP Click on the map to see values at specific locations.

Results

Get key results from the maps and graphs. These are offered below in tables, text or raw data.

Table | Text | Data

Projected change in Apr. 1st average snow water equivalent was averaged over the Yakima Sub-Basin.

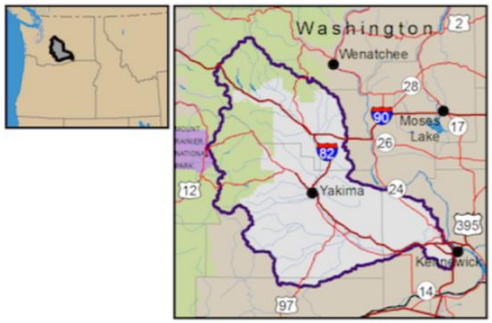
Years (Emission Scenario)	Model Avg SWE	Change
1971-2000 (Past)	11.7 inches	
2070-2099 (High)	3.9 inches	-7.8inches (-66%)

bit.ly/cigtvar

Climate Summary Report

Tribe:
Confederated Tribes and Bands of the Yakama Nation

Area of Interest:
Yakima Sub-Basin



Annual Average Temperature

Average daily temperature from January to December.

Emissions	Time	Value	Change
Historical	1990	46.2 °F	
High	2040-2069	51.7+/-1.4 °F	+5.5 °F
High	2070-2099	55.1+/-2.0 °F	+8.8 °F

Data Source: MACAv2-METDATA

Jun.-Aug. Maximum Temperature

Average daily maximum temperature from June to August.

Emissions	Time	Value	Change
Historical	1990	76.8 °F	
Low	2010-2039	79.9+/-1.0 °F	+3.1 °F
Low	2040-2069	82.3+/-1.7 °F	+5.5 °F
Low	2070-2099	83.5+/-1.9 °F	+6.8 °F
High	2010-2039	80.3+/-0.9 °F	+3.6 °F
High	2040-2069	84.2+/-1.9 °F	+7.4 °F
High	2070-2099	88.4+/-2.6 °F	+11.6 °F

To make information easy to use, solicit iterative user testing and feedback

bit.ly/cigtvar

Tribal Climate Technical Support Desk

Information on its own isn't enough; support is often needed to ensure use

Tribal Technical Support Desk remains open!

Commit to sustained partner relationships

Key Roles

Federal Government

Motivate & prepare to enable increasingly sophisticated climate-based decision making

- Require & incentivize science-based action to address climate risks
- Promote large-scale *and* targeted research (especially observation & modeling at all scales) designed to support decision-relevant questions
- Build & sustain regional/local capacity to connect science/practice
- Recognize local specificity of needs, relinquish expectations of universality, support knowledge transfer

Regional Boundary Organizations

Leverage federal resources and science programs for local benefit

- Develop & sustain mutually-beneficial long-term relationships with local partners
- Elicit local knowledge needs and adaptation priorities; innovate to meet these needs
- Develop, deliver & support the use of actionable climate information
- Develop capacities for researchers & practitioners to apply climate information in planning & implementation

UW Climate Impacts Group

@CIG_UW cig.uw.edu

Northwest Climate Adaptation Science Center

@NW_CASC nwcasc.uw.edu

COLLEGE OF THE ENVIRONMENT
UNIVERSITY of WASHINGTON

EESI

Bridging the Gap Between Science and Decision-Making

What did you think of the briefing?
Please take 2 minutes to let us know at:
www.eesi.org/survey

Materials will be available at: **www.eesi.org/041620data**

Tweet about the briefing: **#eesitalk** **@eesionline**