



Strange Passions!

Haunting Terror!

Guilty Love!



Heat Wave



starring

ALEX NICOL
HILLARY BROOKE

with SIDNEY JAMES • SUSAN STEPHEN • PAUL CARPENTER

Produced by Anthony Hinds • Directed by Ken Hughes
Screenplay by Ken Hughes • Based on his novel "High Wray"
A HAMMER PRODUCTION • A LIPPERT PICTURES PRESENTATION

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Pierce County Flooding in 2009

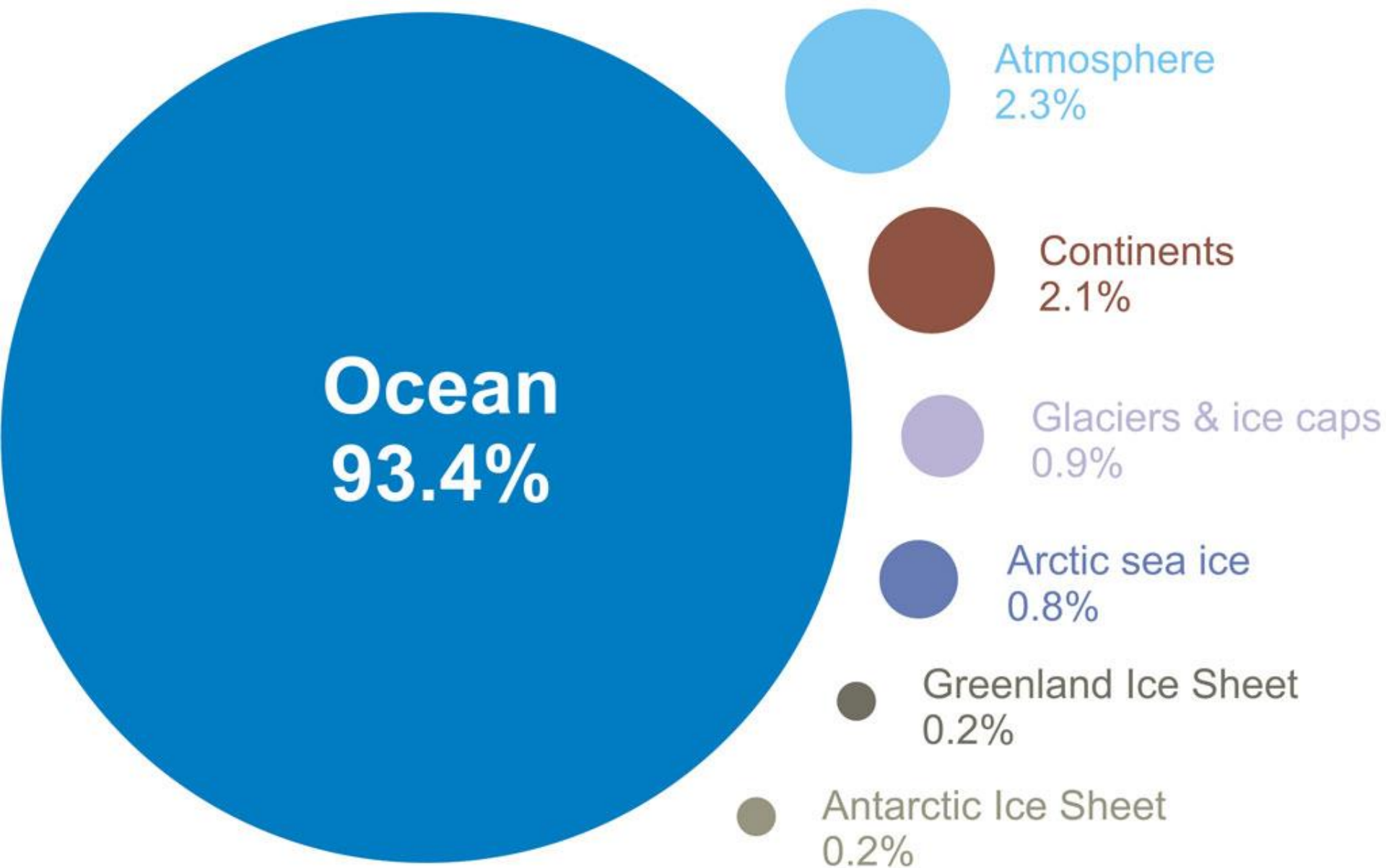
Climate Change and its Impacts on Flooding in Pierce County



Office of the Washington State Climatologist

Historical Record
Future Projections

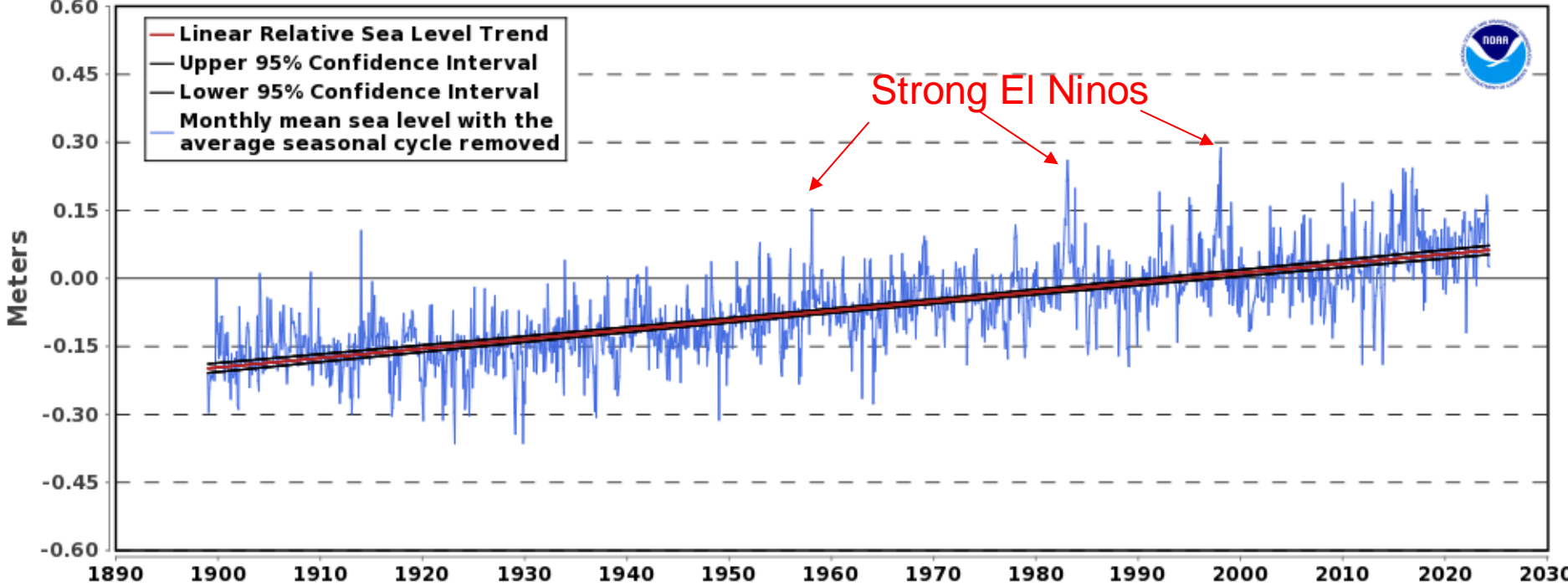
Where is global warming going?



Sea Level in Seattle's Elliott Bay

9447130 Seattle, Washington

2.08 +/- 0.14 mm/yr



INDESCRIBABLE...

INDESTRUCTIBLE!

NOTHING CAN STOP IT!

THE BLOB

STORY BY
**STEVEN
McQUEEN**

SCREENPLAY BY
**ANITA
CORSEAUT · EARL
ROWE**

PRODUCED BY **JACK H. HARRIS · IRVIN S. YEAWORTH, JR.** DIRECTED BY **THEODORE SIMONSON** AND **KATE PHILLIPS**

SCREENPLAY BY
FROM AN IDEA BY IRVING H. TULLIGATE
A TONY IN PRODUCTION · **LOU JR. DE LORE**



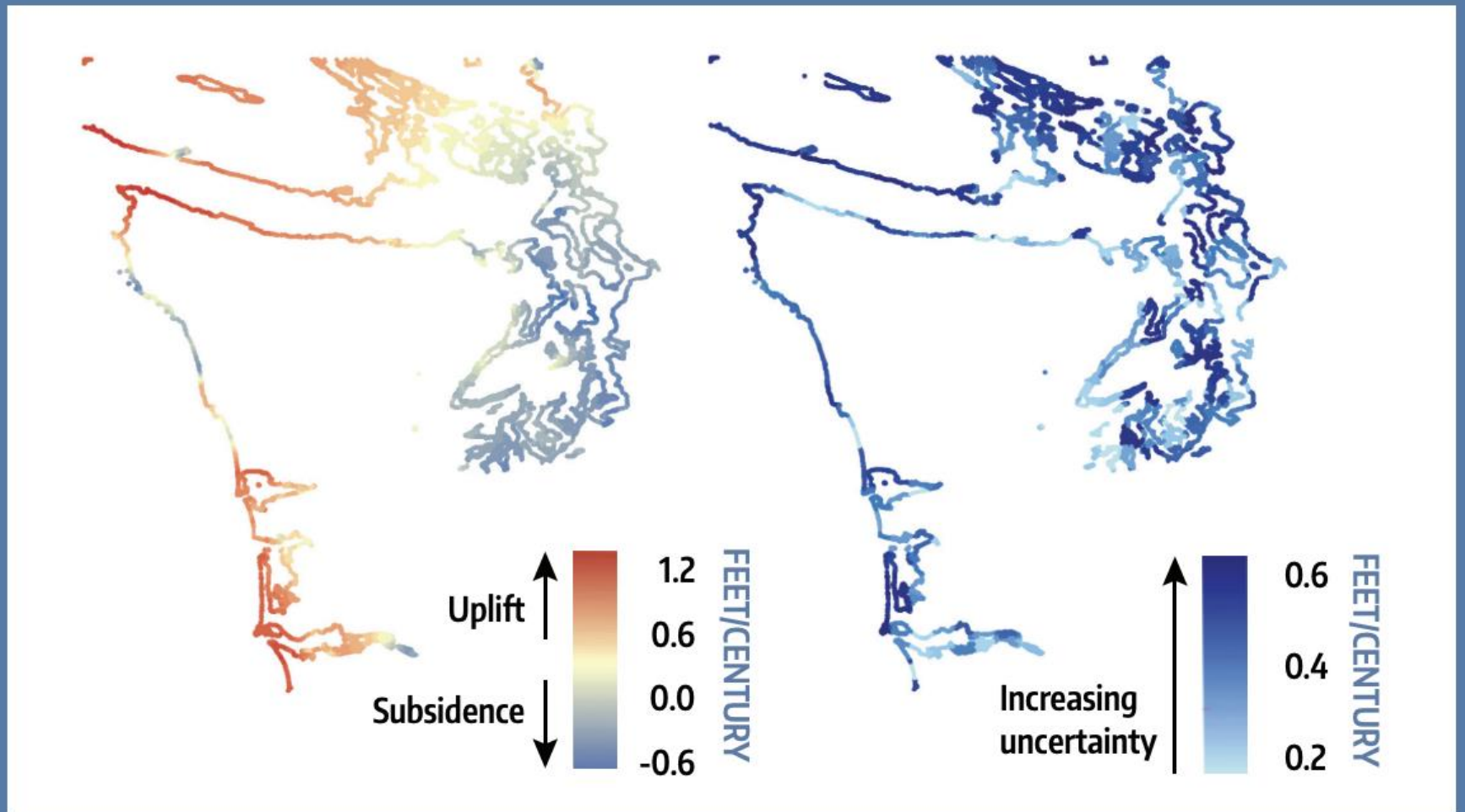
PROJECTED SEA LEVEL RISE *for* WASHINGTON STATE

The Washington
Coastal Resilience
Project (WCRP)



**A 2018
ASSESSMENT**

FIGURE 3: Vertical land movement best estimate rates (left) expressed in rates of feet/century, and their uncertainties (1 standard deviation, right) as estimated for Washington's coastline.



Projected Changes in Sea Level at Commencement Bay

Select a location to view localized relative sea level rise (RSLR) projections. ?

Select County (optional)

(All) ▾

Select WRIA (optional) ?

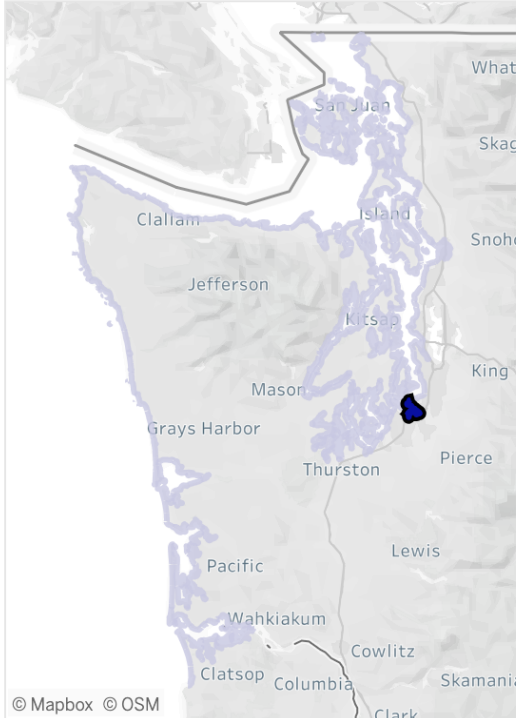
(All) ▾

Select likelihood(s) ?

- 0.1%
- 1%
- 5%
- 10%
- 17%
- 50%
- 83%
- 90%
- 95%
- 99%

Select greenhouse gas scenario(s) ?

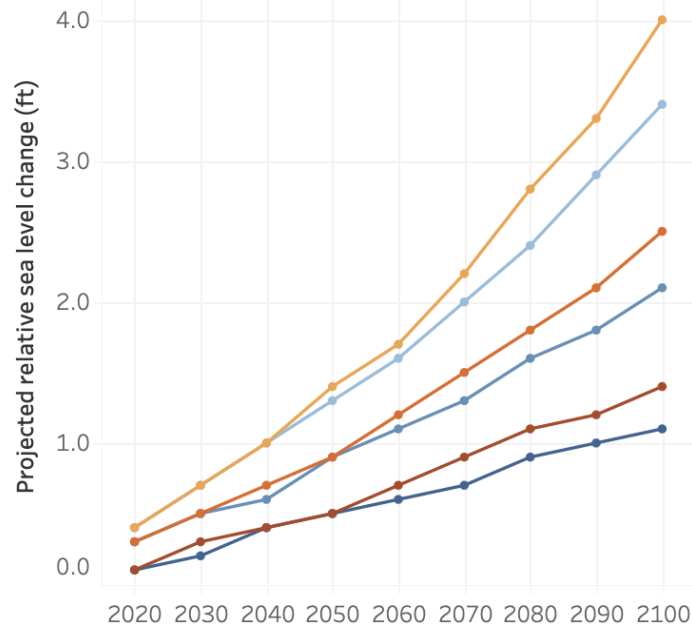
- High (RCP 8.5)
- Low (RCP 4.5)



Data Estimated for **47.3°, -122.4°**
 County: Pierce
 WRIA: 10, Puyallup - White

RSLR for Selected Location

Projected changes relative to the average sea level over 1991-2009.
 Hover for details.



Scenario, Likelihood

- High (RCP 8.5), 5%
- High (RCP 8.5), 50%
- High (RCP 8.5), 95%
- Low (RCP 4.5), 5%
- Low (RCP 4.5), 50%
- Low (RCP 4.5), 95%

Select projections end year ?

2100

◀ ▶

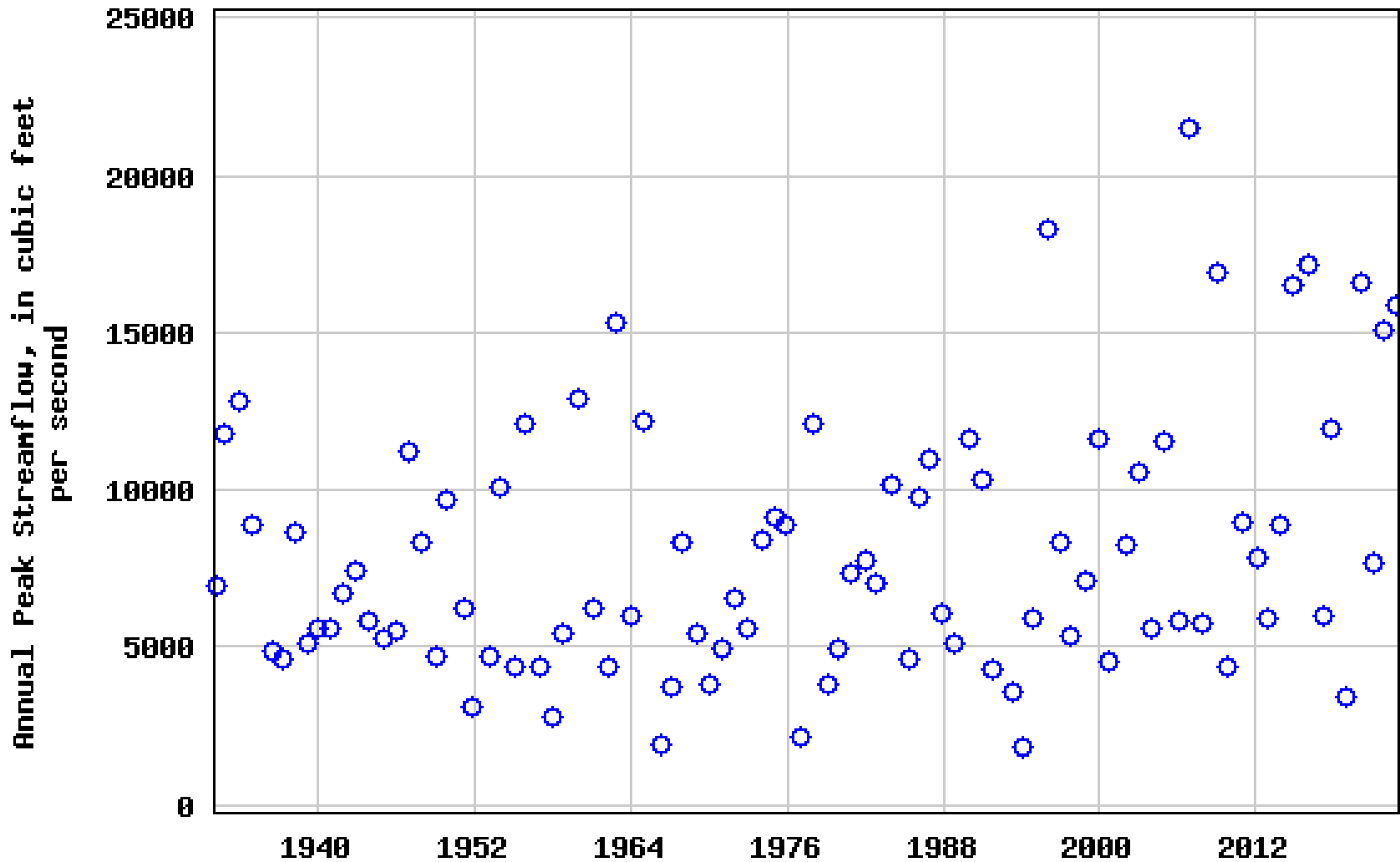
RSLR Projections (in feet) Shown Above

Assumes subsidence of 0.5 feet/century

Magnitudes of Greatest 1-Day Streamflows

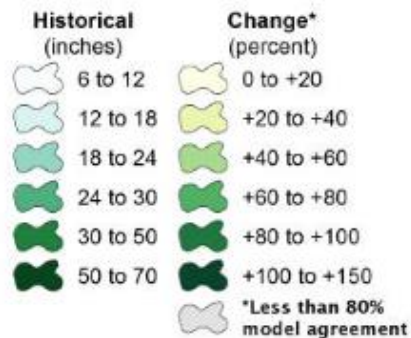
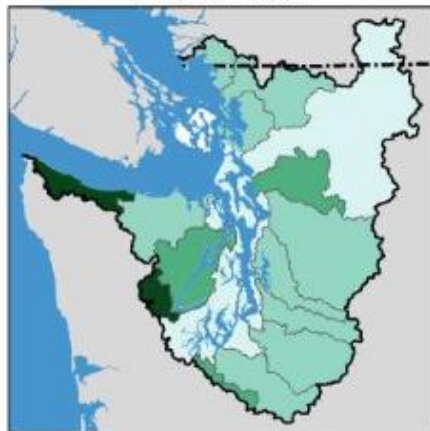


USGS 12093500 PUYALLUP RIVER NEAR ORTING, WA



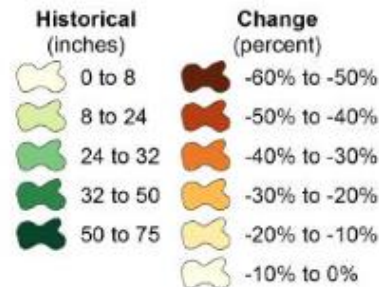
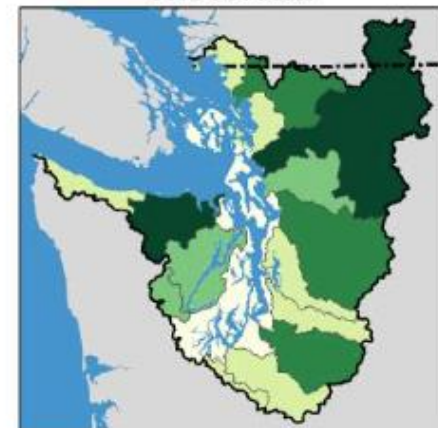
Winter Runoff (Dec-Feb)

Historical



Summer Runoff (Jul-Sep)

Historical



Low (RCP 4.5)

Source: CMIP5

High (RCP 8.5)

Low (RCP 4.5)

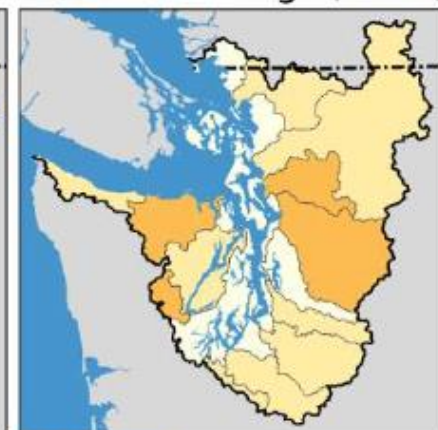
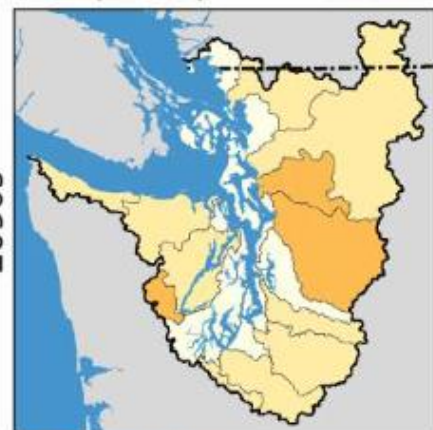
Source: CMIP5

High (RCP 8.5)

2050s



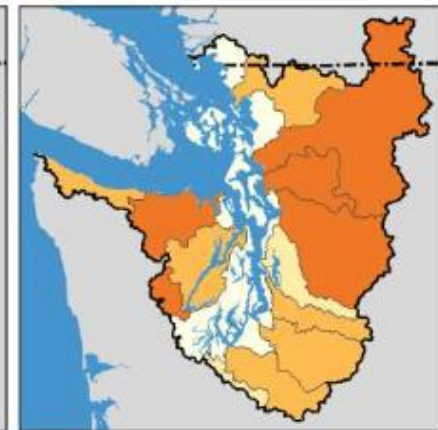
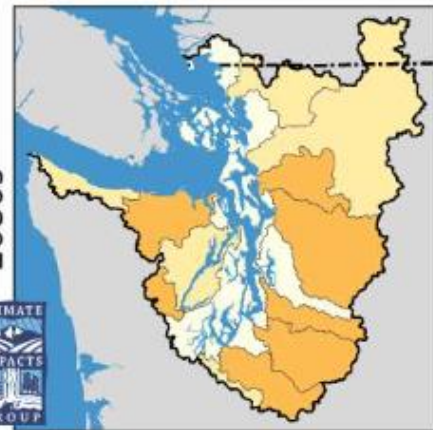
2050s



2080s



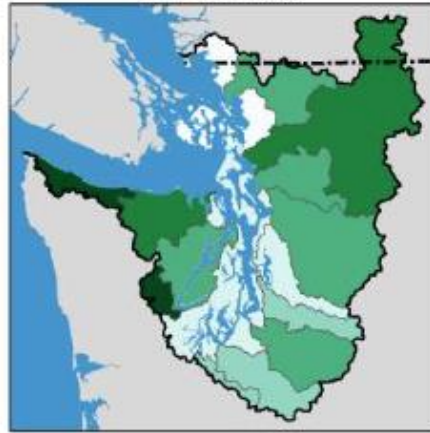
2080s



Total Winter Precipitation (Oct-Mar)



Historical



Low (RCP 4.5)

Source: CMIP5

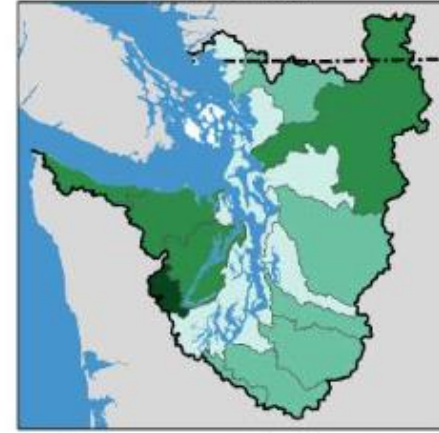
High (RCP 8.5)



Maximum 24-hour Precipitation



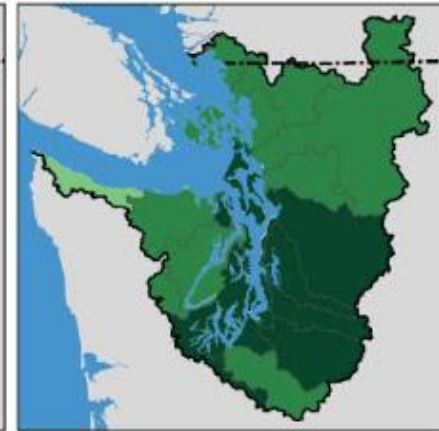
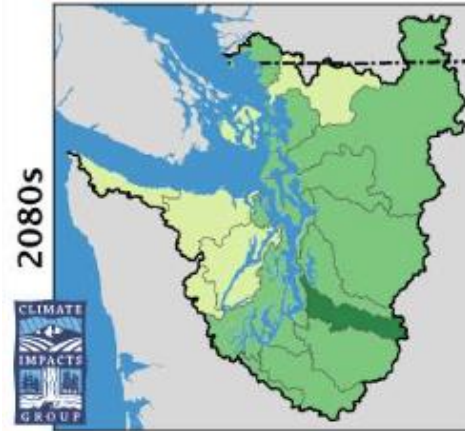
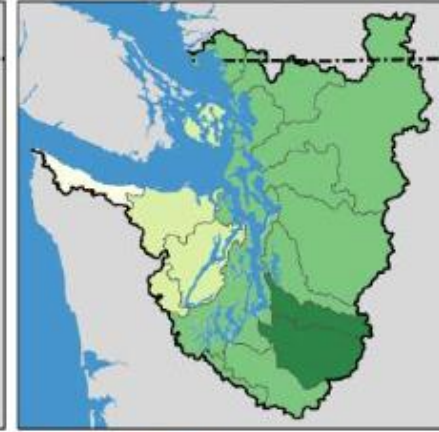
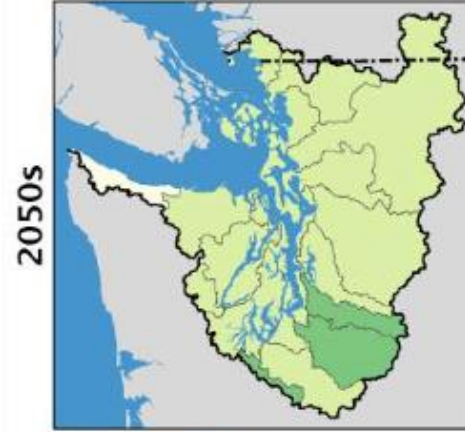
Historical



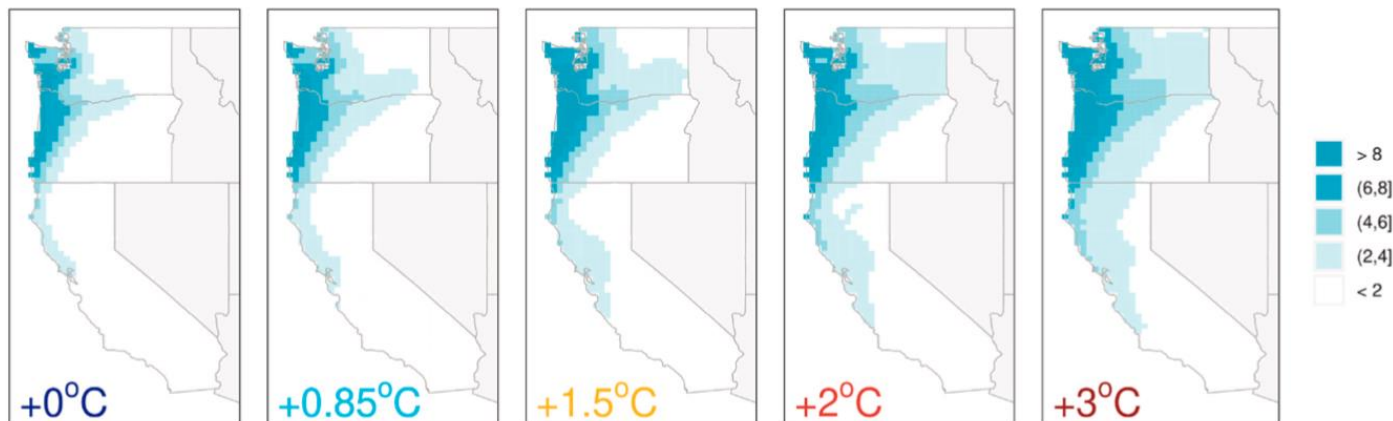
Low (RCP 4.5)

Source: CMIP5

High (RCP 8.5)



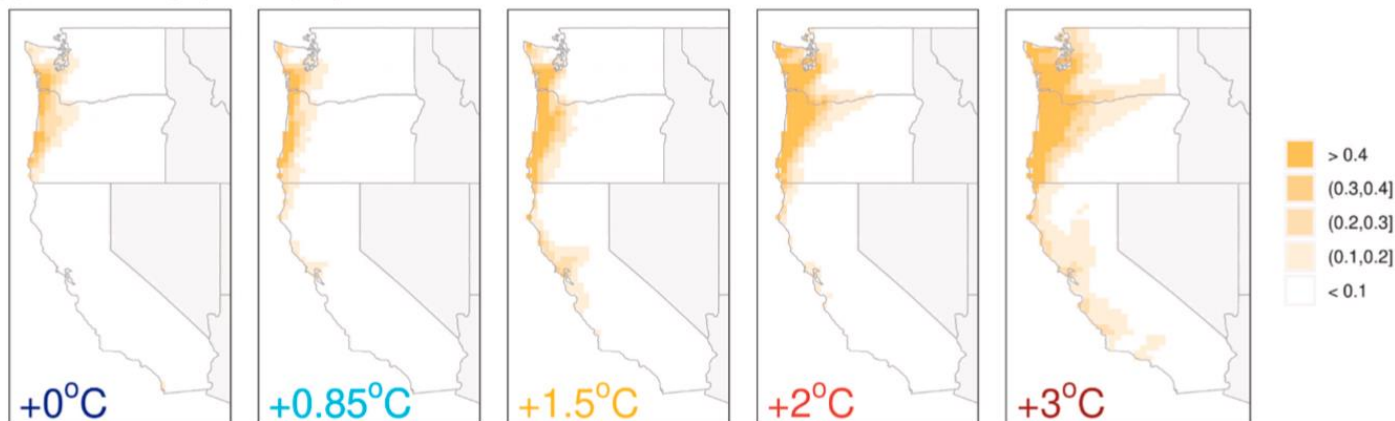
(a) Rate of Category 1/2 ARs per year



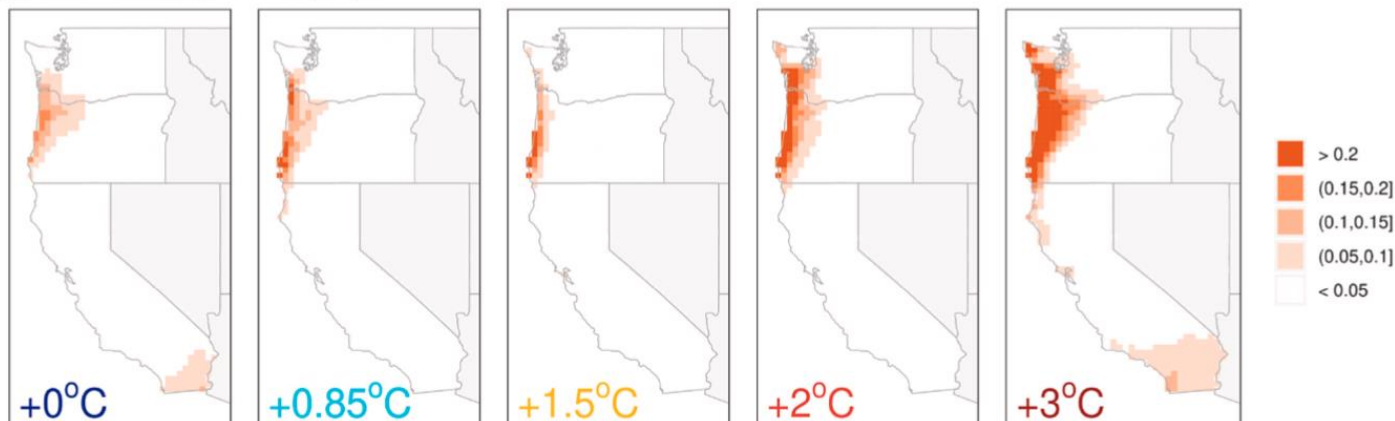
Projected Changes in Frequencies of Atmospheric Rivers

Rhoades et al. (Weather and Climate Extremes 2021)

(b) Rate of Category 3 ARs per year



(c) Rate of Category 4/5 ARs per year



Puget Sound, 2045...



YEAH, I MISS THE SALMON, TOO, BUT YOU GOTTA ADMIT GLOBAL WARMING HAS BROUGHT US SOME COOL NEW SPECIES!

© 2005
HORSEY
THE CARICAT
DRAWN BY HORSEY

Summary

- Along with increasing temperatures, in the Pacific NW we are expecting wetter winters and drier summers
- Coastal flooding due to sea level rise and high river flows is apt to become increasingly problematic
- Given present resources and the policy landscape, what actions should be taken in recognition of the changing climate?