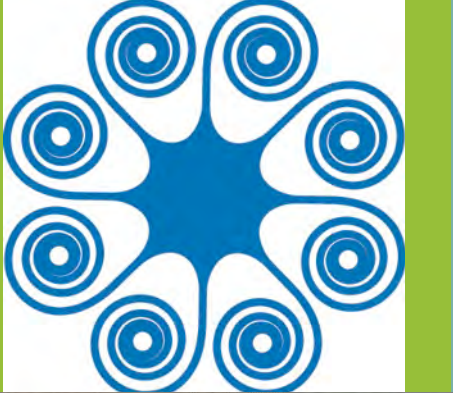




Bainbridge Island Climate Impact Assessment

Community Elicitation Workshop



Lara Hansen, Ph.D.
Chief Scientist & Executive Director

Stacey Justus Nordgren, M.A.
Principal, Foresight Consulting





Goals

1. Through a community elicitation process, gather local knowledge and community values to create a more informed Bainbridge Island Climate Impact Assessment.
2. Build local capacity to better understand the ramifications of climate change, how to access and use climate data, and how to apply it to what we each care about.
3. Create a more resilient Bainbridge Island community in the face of climate change. climate impact assessment and comprehensive plan.

Note: This workshop is **exclusively for the exploration of the issues of climate change** in relation to the Comprehensive Plan. If you are interested in exploring other facets of the Comprehensive Plan, PLEASE attend the regularly scheduled meetings that are exploring each element of the Comprehensive Plan through the Navigate Bainbridge Process

Bainbridge Island Climate Impact Assessment Workshop

Agenda



9:30- 9:50 Welcome and introductions

9:50- 9:55 Overview of process

9:55- 10:20 Introduction to findings to date

10:20- 10:30 Instructions for breakout groups

10:30 -10:40 Break to move into breakout groups

10:40- 11:40 Small group element breakout 1

11:40- 12:10 Light lunch (Provided by Sustainable Bainbridge)

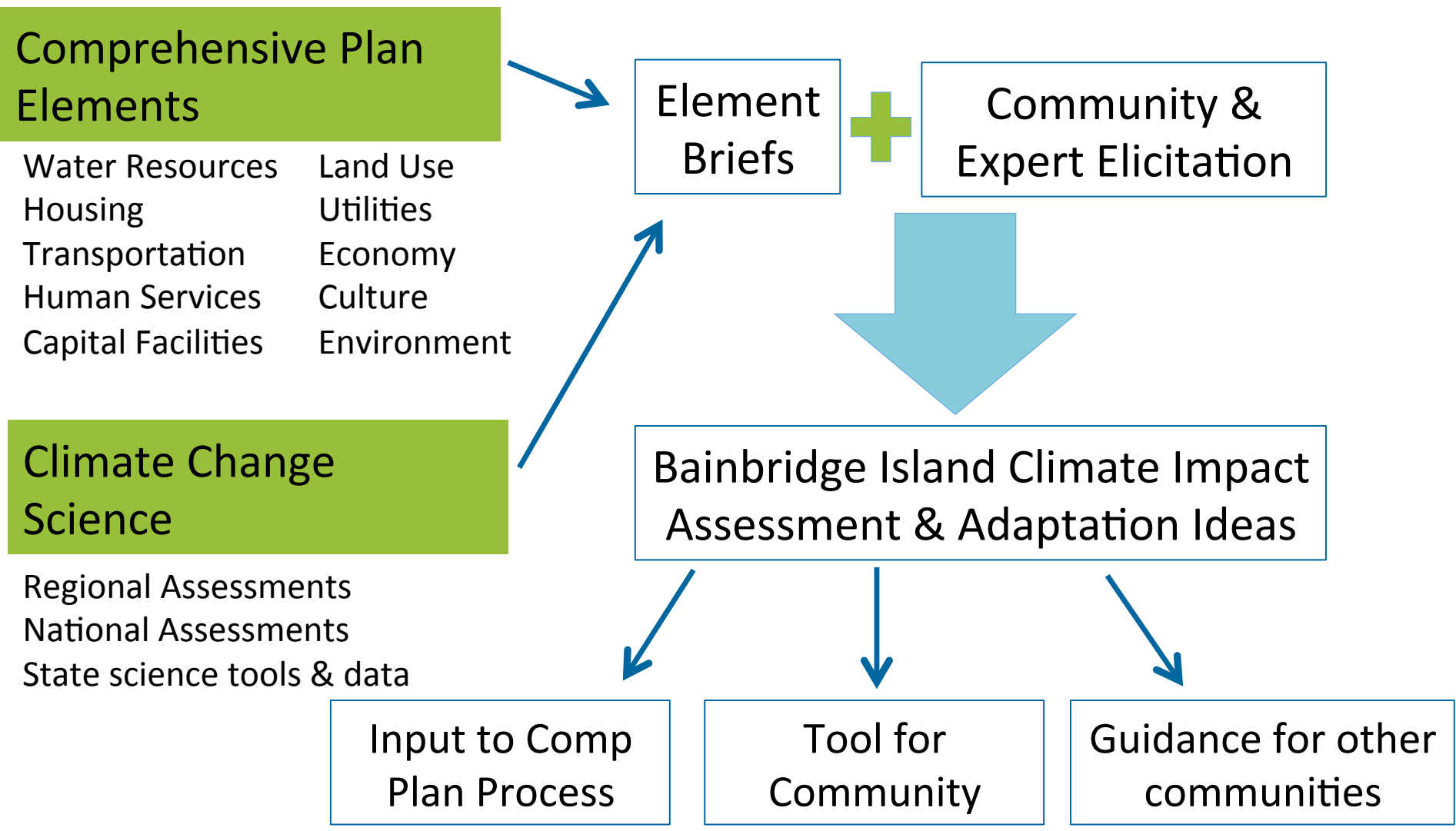
12:10- 1:10 Small group element breakout 2

1:10- 1:40 Report back

1:40- 2:00 Next steps

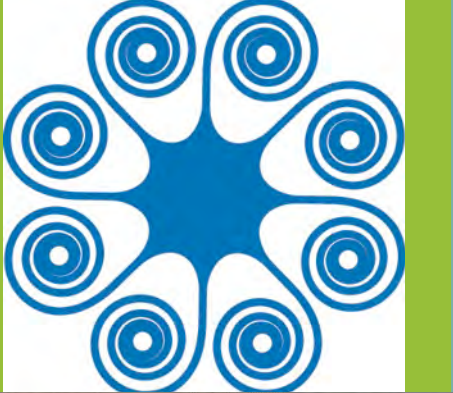


Bainbridge Island Climate Impact Assessment Process





Bainbridge Island Climate Impact Assessment – Climate Impacts Community Elicitation Workshop



Lara Hansen, Ph.D.
Chief Scientist & Executive Director



Bainbridge Island Climate Impact Assessment Workshop

Using Climate Data to Make Decisions



Bainbridge Island Climate Impact Assessment Workshop

Using Climate Data to Make Decisions



Use the information you can find to
inform what you already do!



Climate projections provide us with information that is more useful for decision making than projections based on current or historical conditions/data.

“ The climate projections that are currently available provide useful information that is sufficient for planners to integrate into decision-making today.”

- WA APA Discussion paper about community resilience, Nov.2015

Bainbridge Island Climate Impact Assessment Workshop

Using Climate Data to Make Decisions

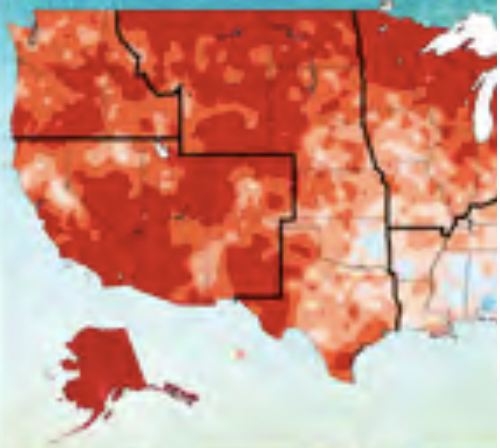


Ge

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Search

Climate Change in the United States



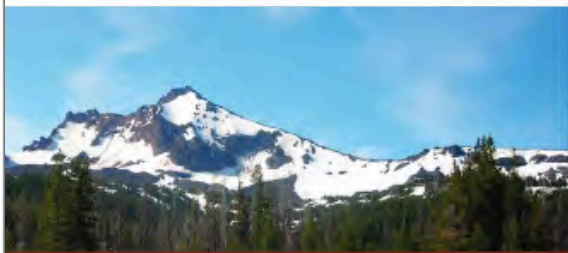
U.S. National Climate Assessment
U.S. Global Change Research Program

State of Knowledge: Climate Change in Puget Sound

Prepared by the
Climate Impacts Group
University of Washington

November 2015

W COLLEGE OF THE ENVIRONMENT
UNIVERSITY of WASHINGTON



CHANGE IN THE NORTHWEST

Implications for Our Landscapes, Waters, and Communities



ISLANDPRESS

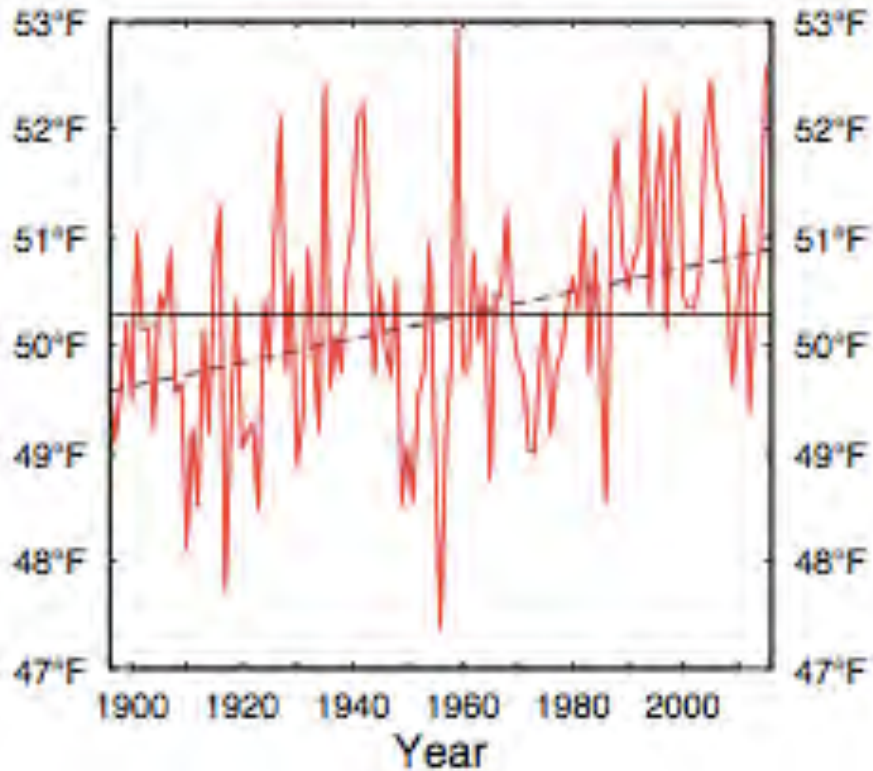
Bainbridge Island Climate Impact Assessment Workshop

Temperature



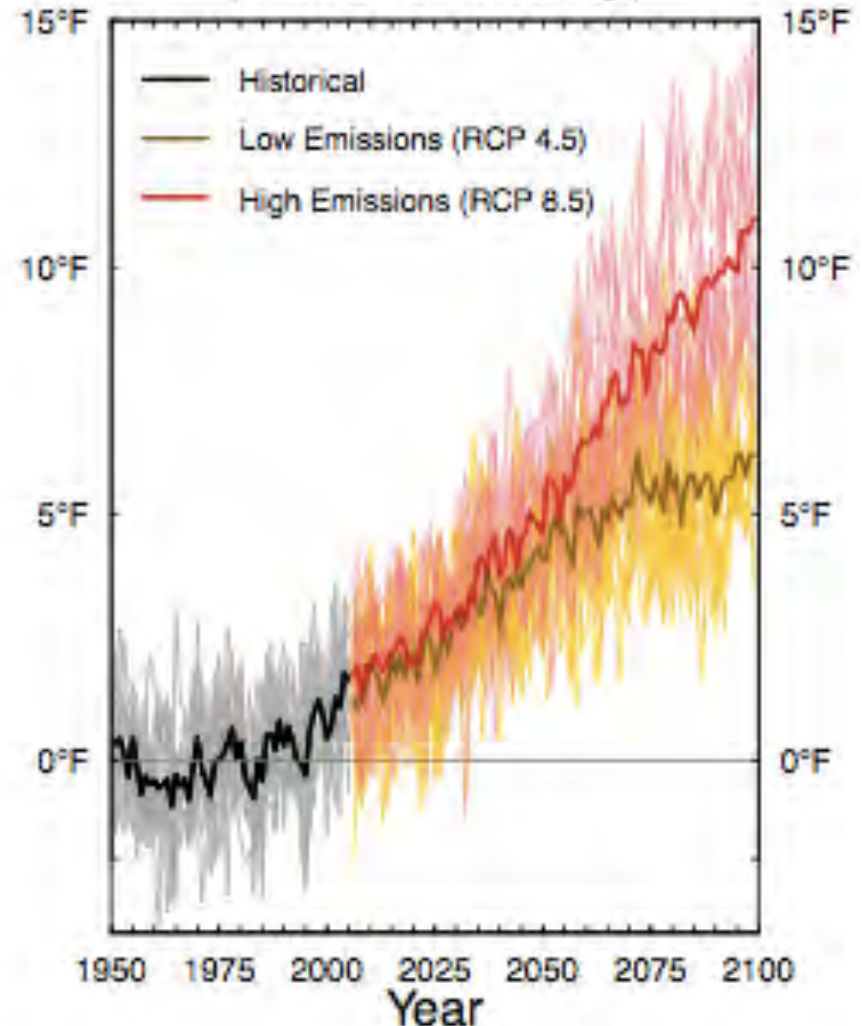
Temperature Change

(Relative to 1950-1999 average)



Temperature Difference

(Relative to 1950-1999 average)



To date: 1.3°F (0.7°C) warming

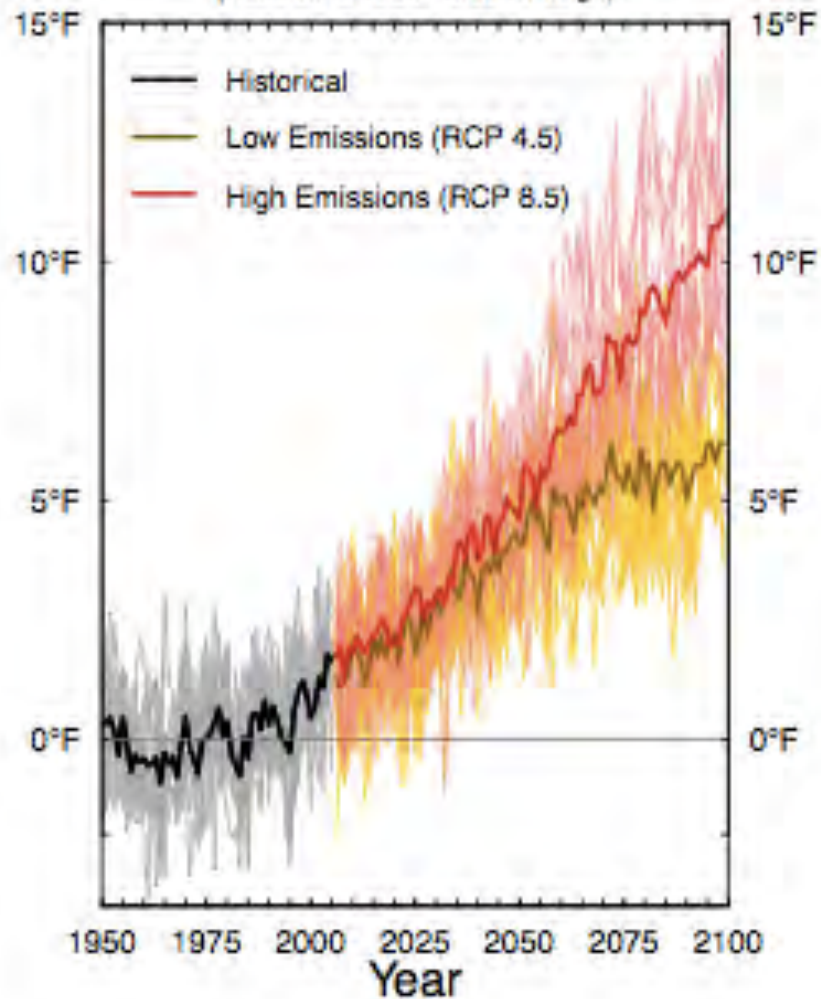
Bainbridge Island Climate Impact Assessment Workshop

Precipitation



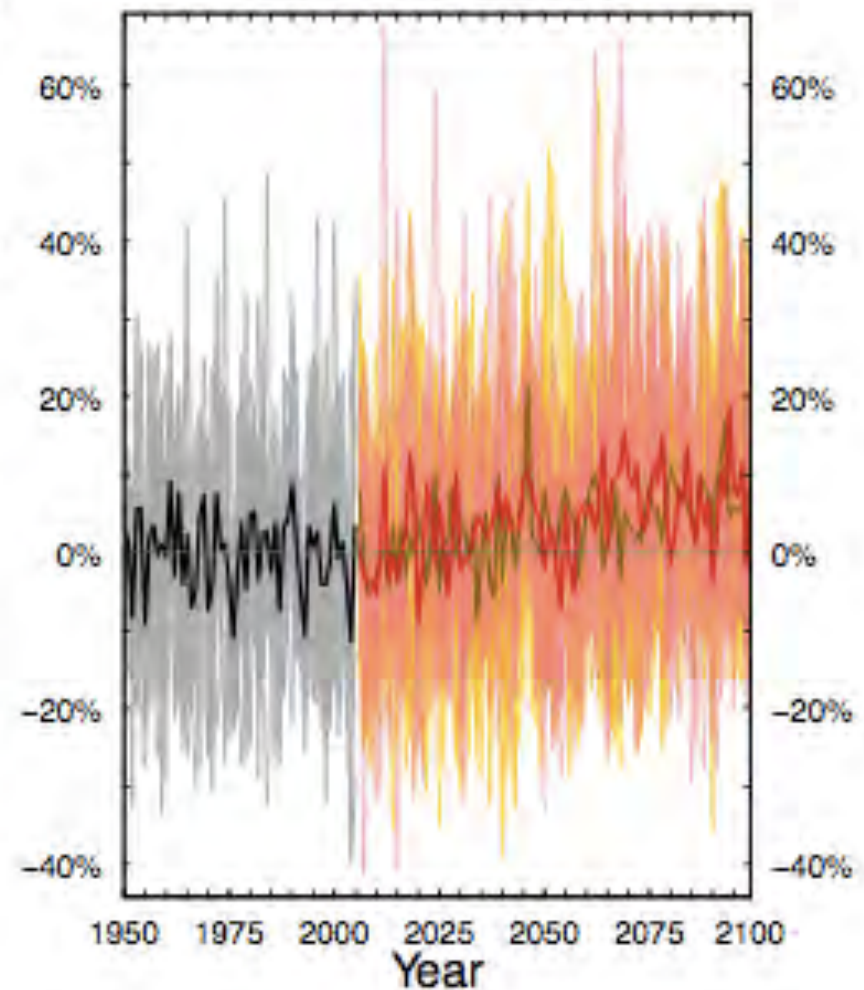
Temperature Difference

(Relative to 1950–1999 average)



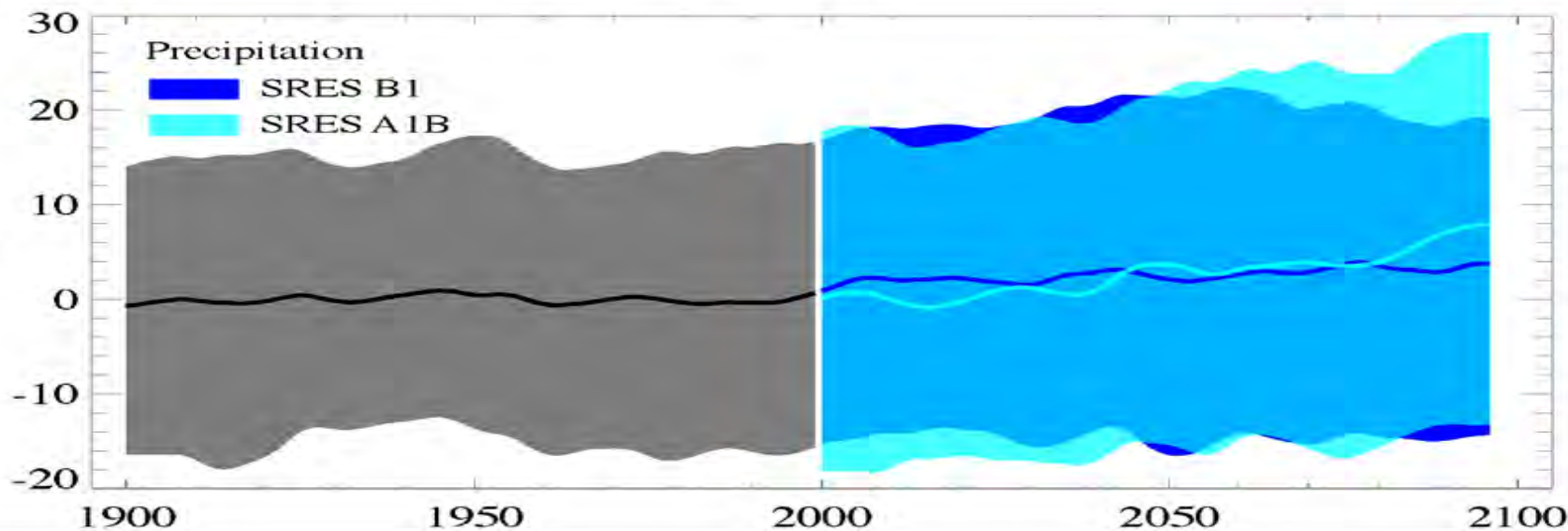
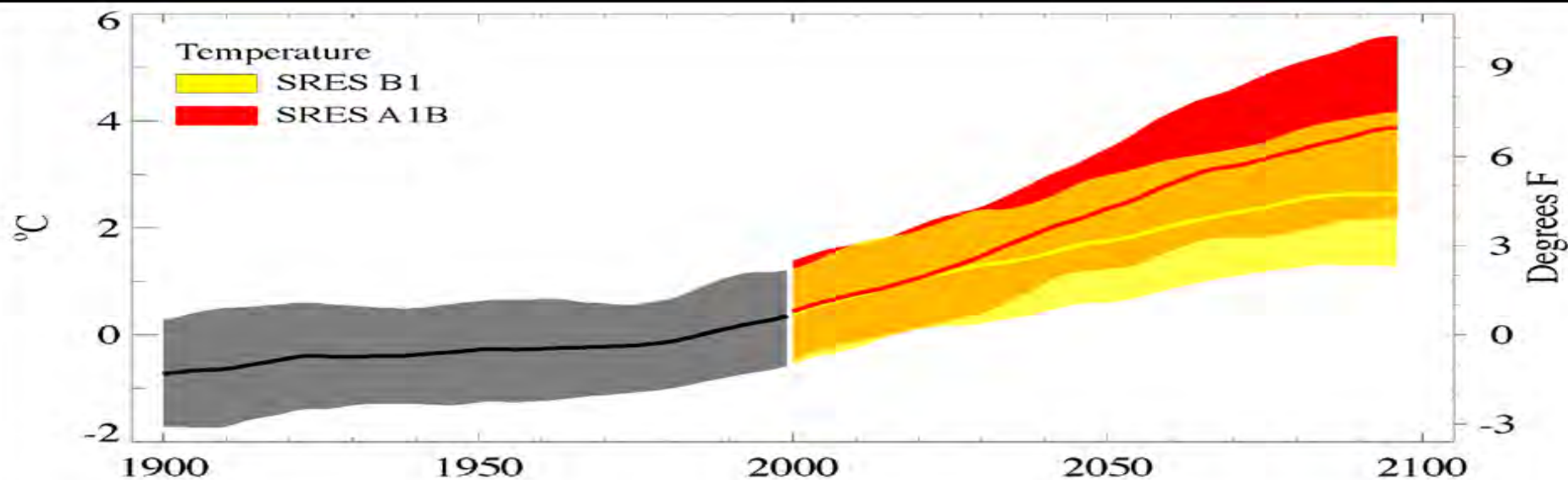
Precipitation Change

(Relative to 1950–1999 average)



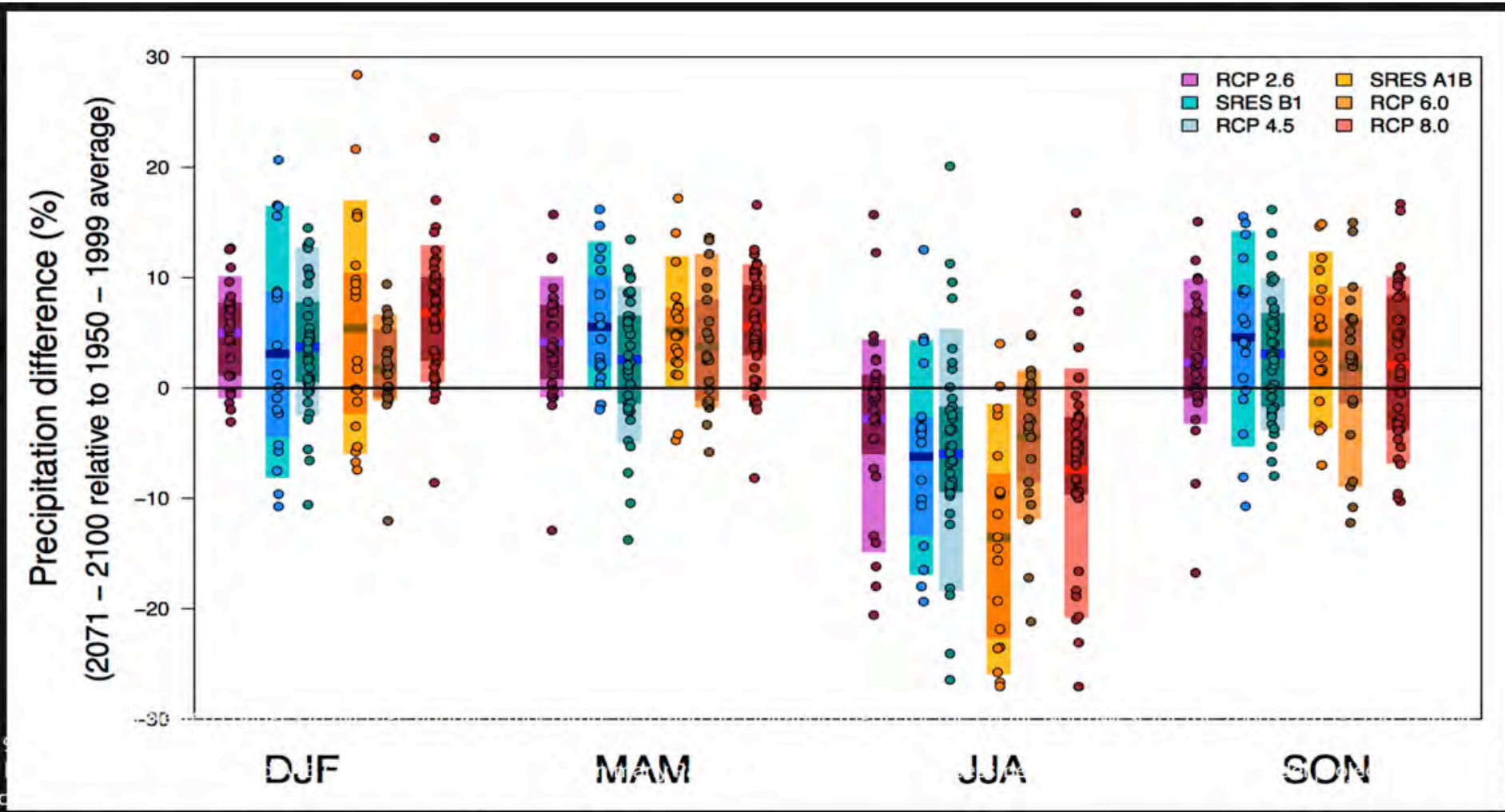
Bainbridge Island Climate Impact Assessment Workshop

Temperature and Precipitation



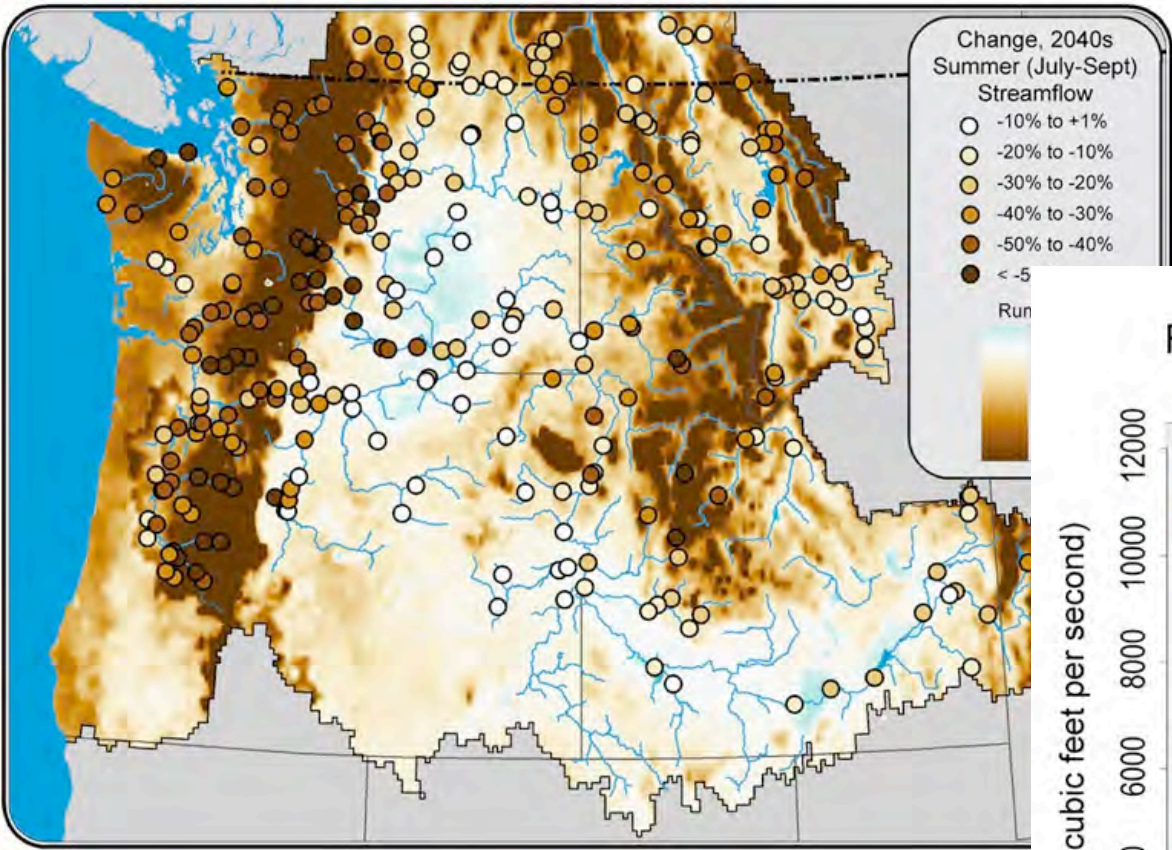


Changes in Seasonal Precipitation

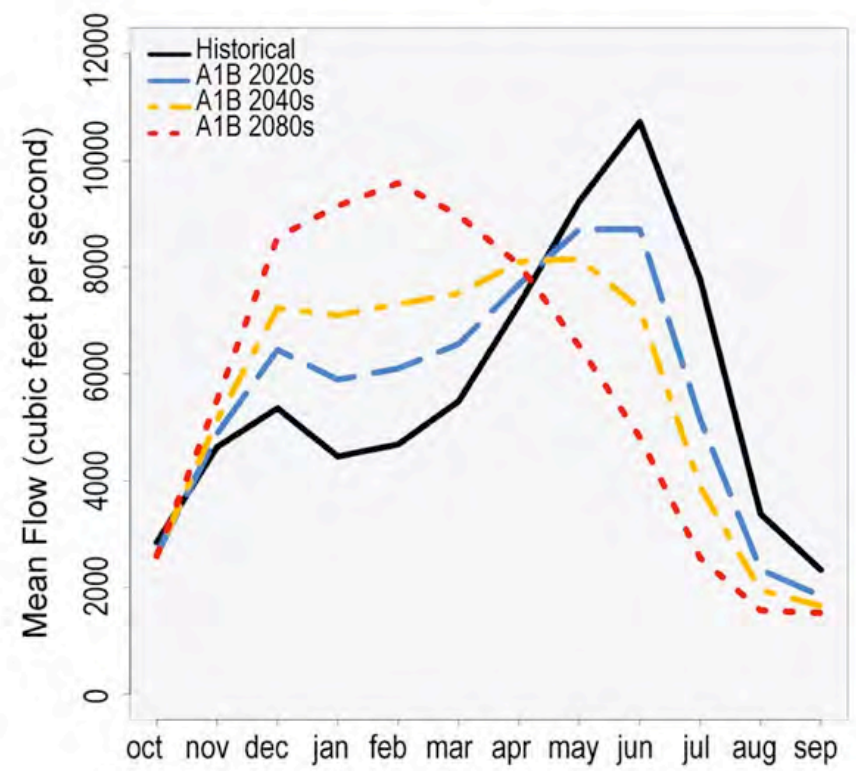




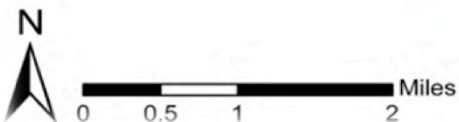
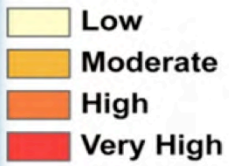
Precipitation and Stream Flow



Future Shift in Timing of Stream Flows



**Wildfire Hazards
Combined**



Wildfire Hazard



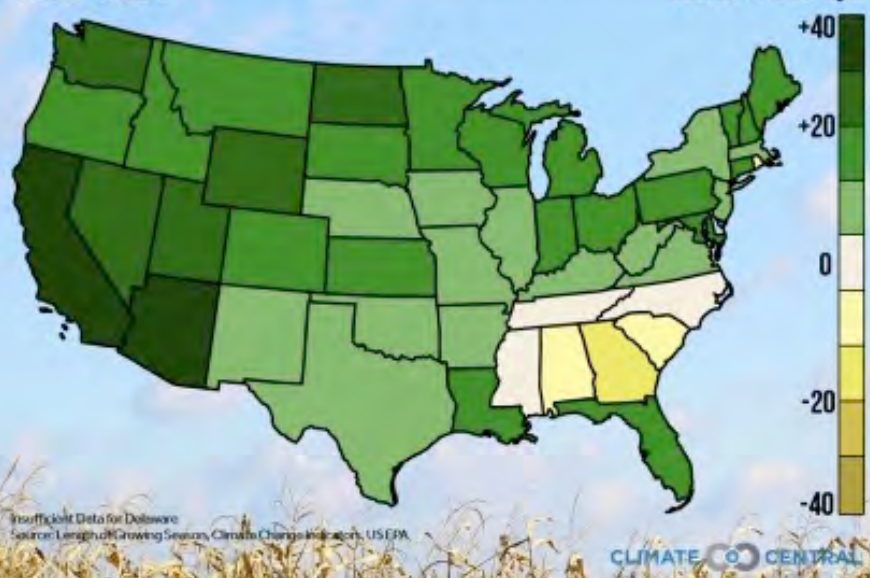
Source: 2012 Bainbridge Island Hazard
Identification and Vulnerability
Assessment, BIFD

Bainbridge Island Climate Impact Assessment Workshop

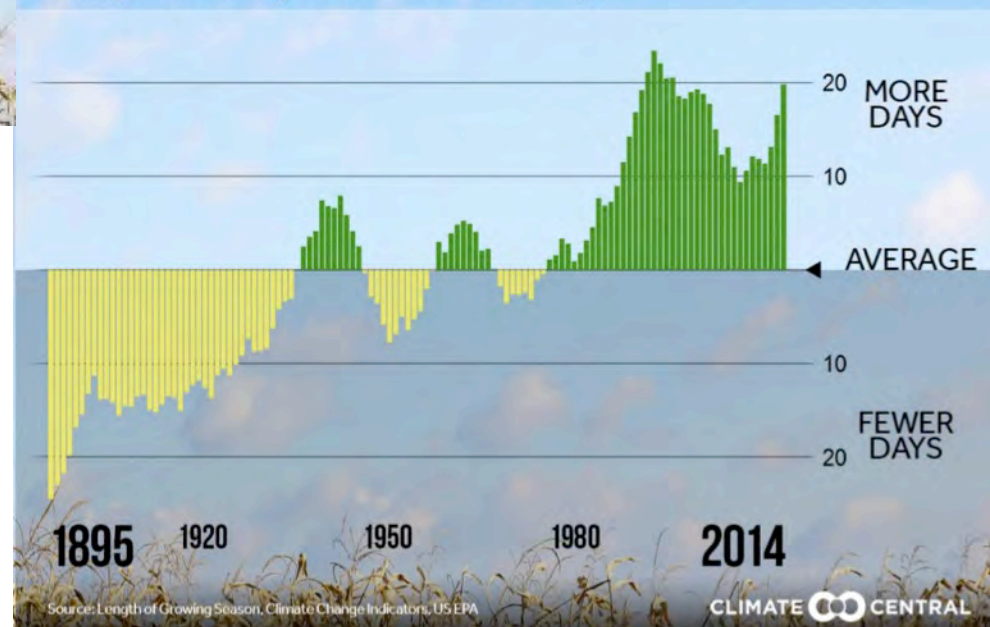
Vegetative Change



CHANGE IN THE GROWING SEASON 1895-2014



OUT-GROWING THE SEASON Longer Growing Season for Washington

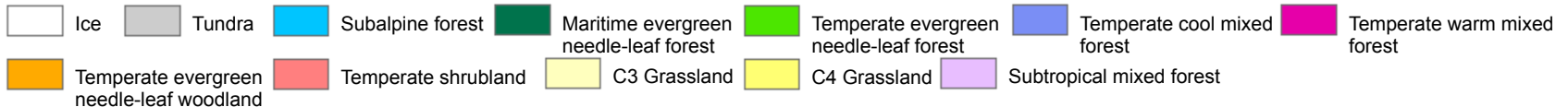


Modeled Historic Vegetation 1971-2000

Warmer & Drier Future 2070-2099

Relatively Cool & Wet Future 2070-2099

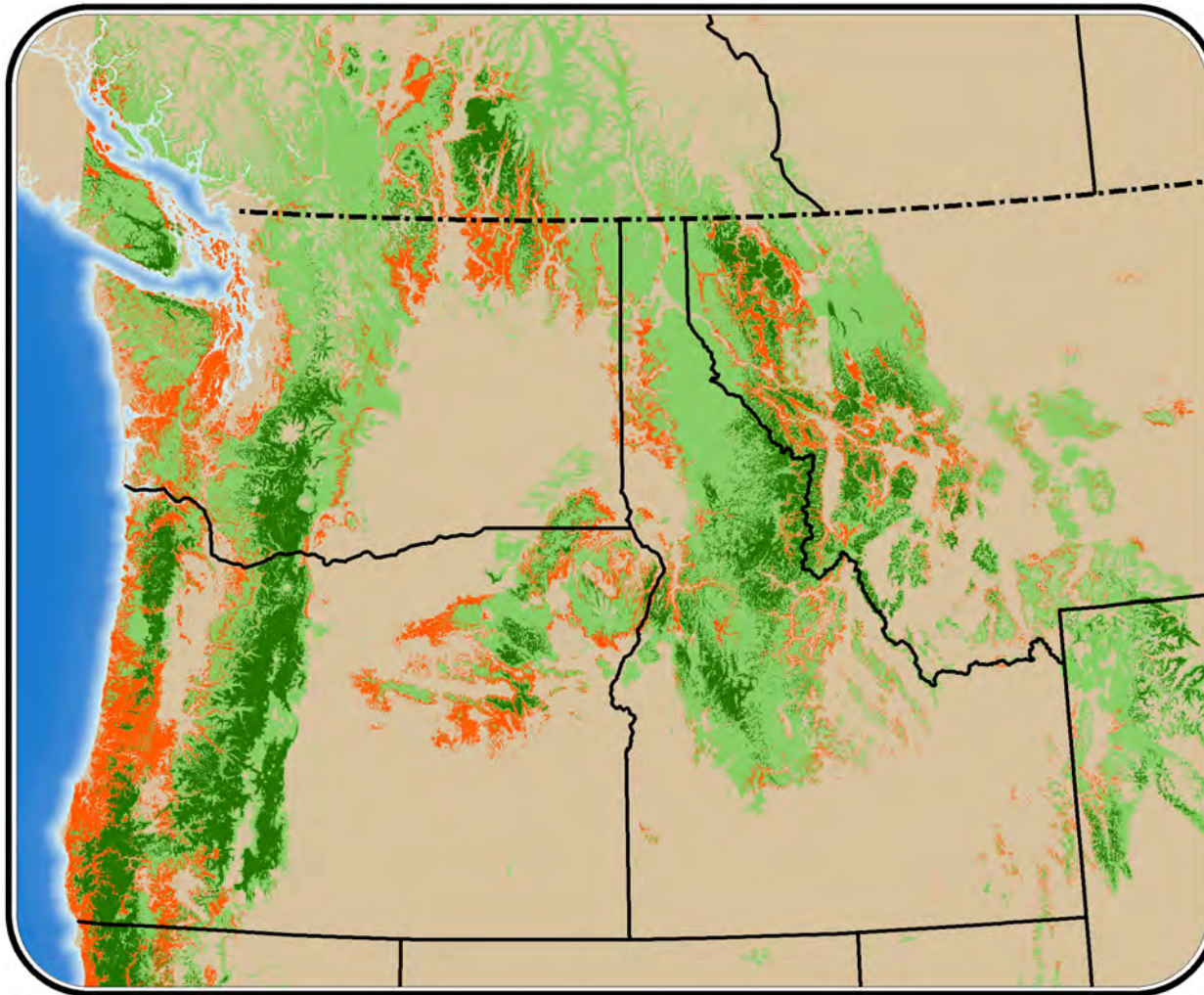
Warmer & Wetter Future 2070-2099



MC1 Vegetation change simulations using historic, CSIRO, MIROC, Hadley model ensembles w/A2 SRES emission scenario

Projected Climatic Suitability Changes: Douglas Fir (2060s)

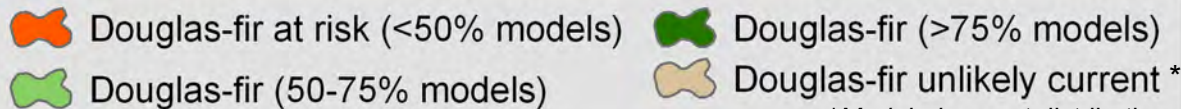
Data: Rehfeldt et al.; map: Rob Norheim, UW CIG



High percents:
High likelihood
the climate
remains suitable

Low percents:
Low climate
suitability

Regeneration,
productivity are
likely to
decrease



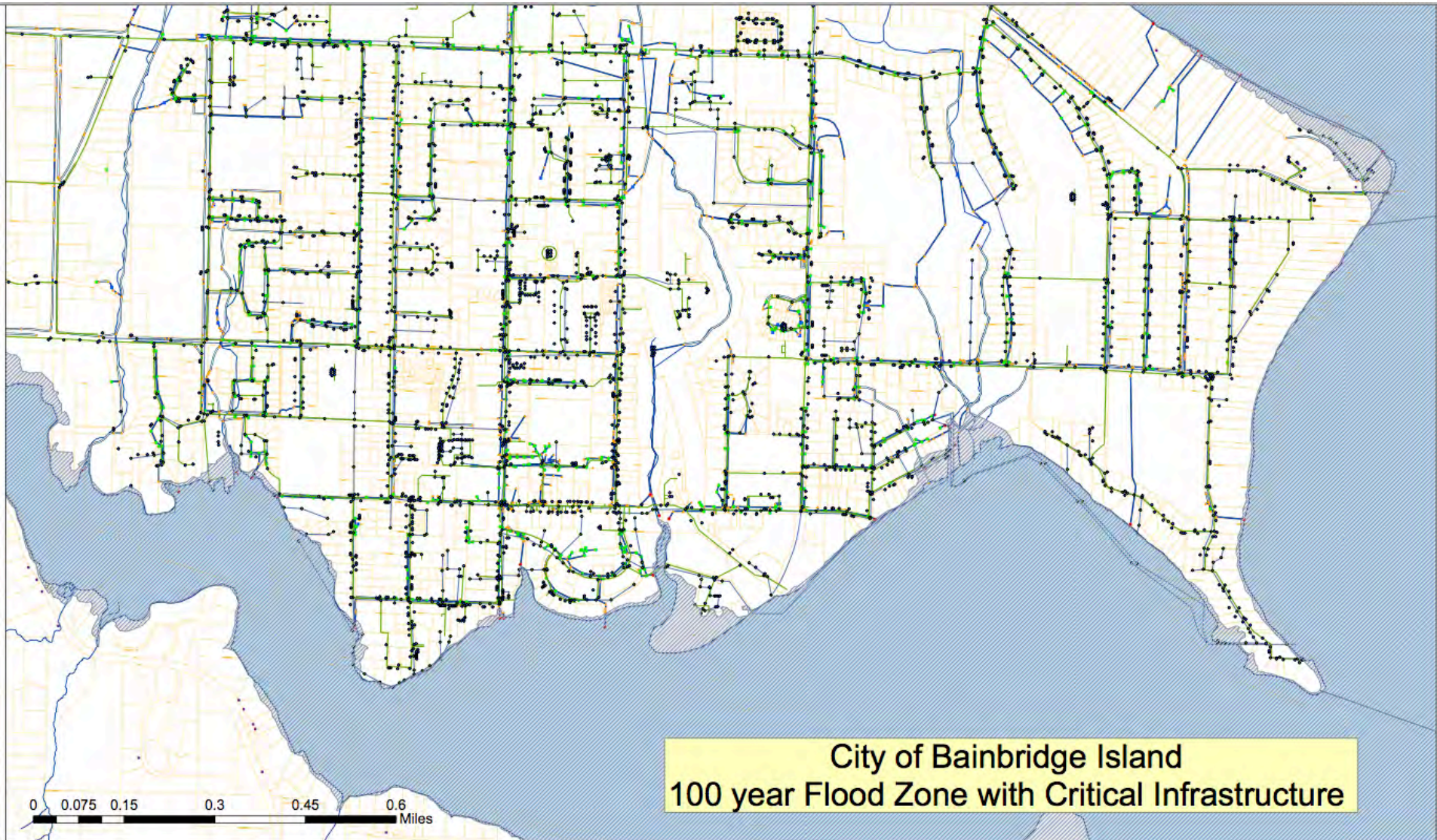
*Modeled current distribution

Littell et al. 2009



Bainbridge Island Climate Impact Assessment Workshop

Sea Level Rise





Projected Mean (mean for the A1B scenario)

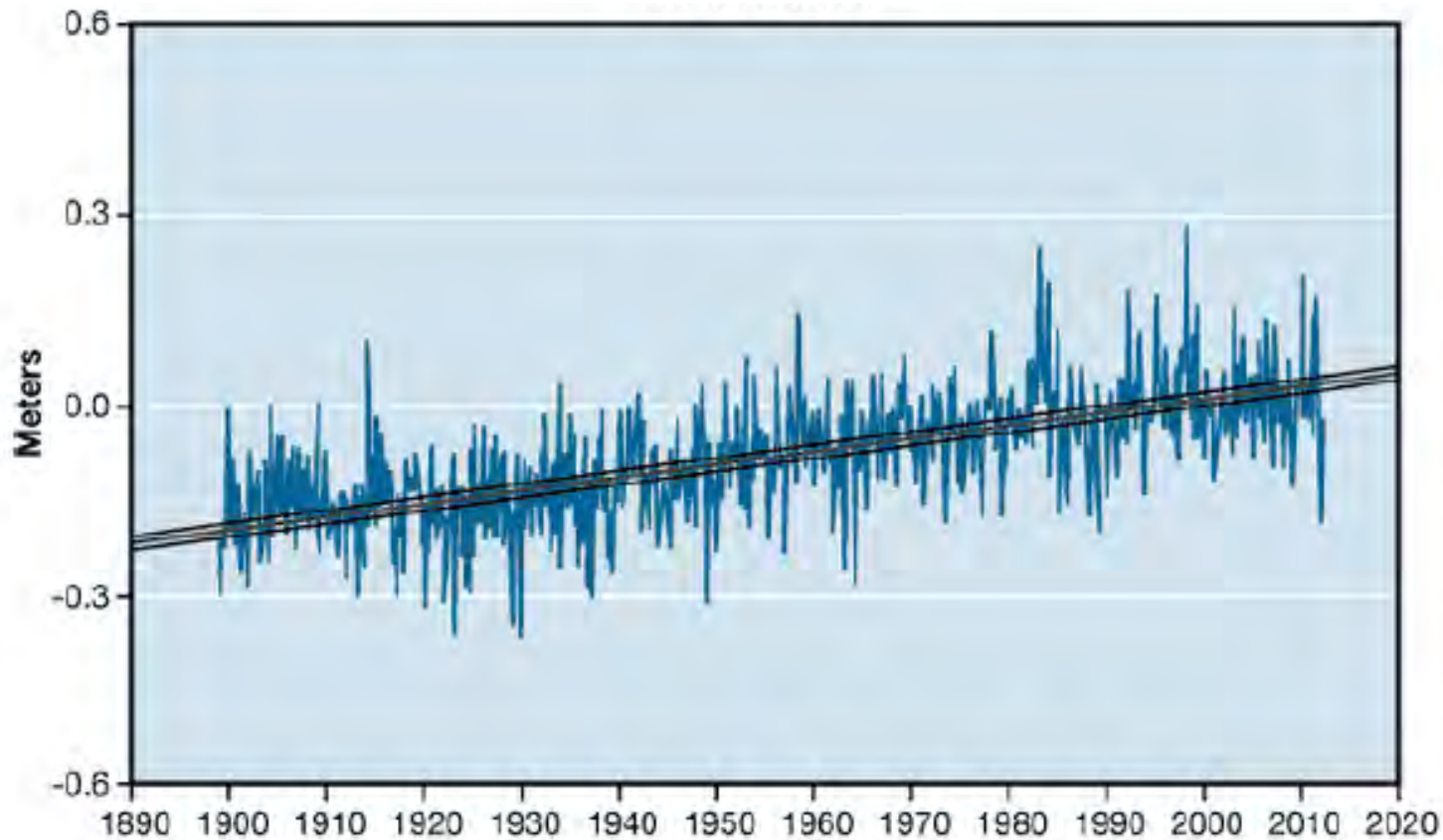
- 2030: +2.6 in. (*+/- 2.2 in*)
- 2050: +6.5 in. (*+/- 4.1 in*)
- 2100: +24.3 in. (*+/- 11.5 in*)

Projected Range (mean of B1 scenarios, A1FI scenarios)

- 2030: -1.5 in. to +8.8 in.
- 2050: - 1 in. to +18.8 in.
- 2100: +2.6 in. to +56.3 in.

Bainbridge Island Climate Impact Assessment Workshop

Mean Sea Level Rise (Seattle)



— Data with the average seasonal cycle removed

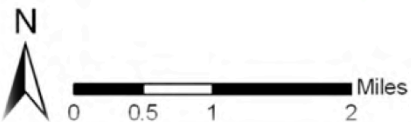
— Higher 95% confidence interval

— Linear mean sea level

— Lower 95% confidence interval

Bainbridge Island
Flood Vulnerable
Areas

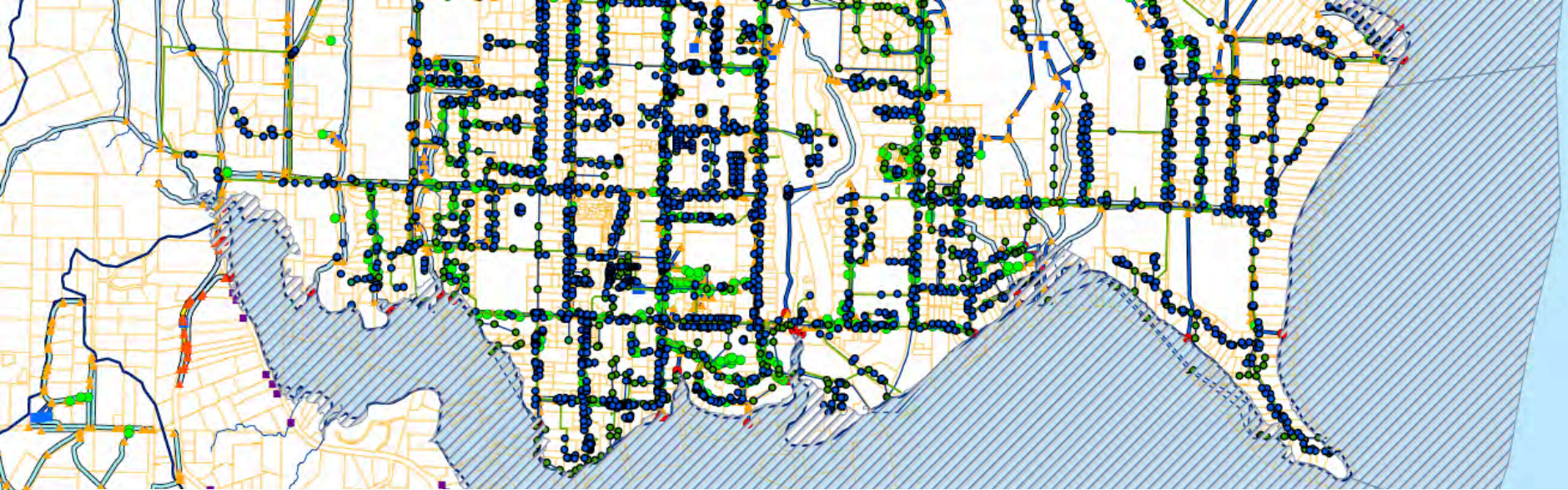
- 100 Year Flood Zones
- Wetlands
- Roads



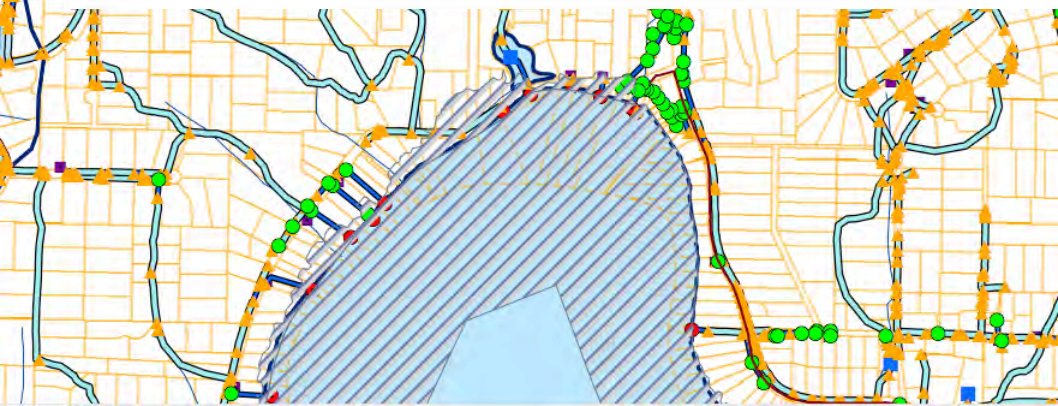
Flood Vulnerability



Source: 2012 Bainbridge Island Hazard
Identification and Vulnerability Assessment,
BIFD



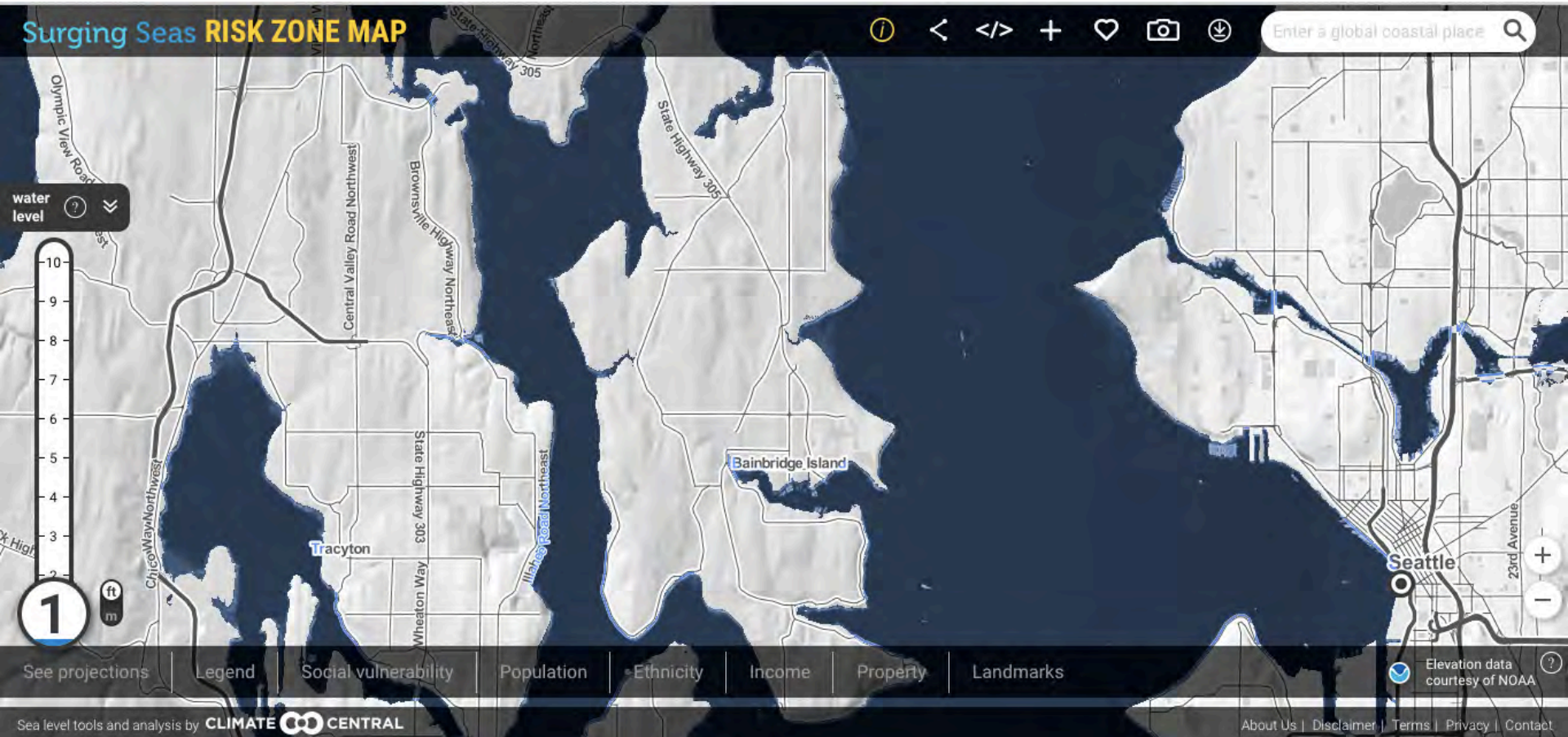
Sea level rise amount	0 inches	+3 inches	+6 inches	+12 inches	+24 inches	+50 inches
Return frequency for a storm tide reaching the current 100-year flood level	100-yr event	40-yr event	18-yr event	2-yr event	< 1-yr event	<< 1-yr event
Equivalent annual probability of occurrence	1%	2.5%	5.5%	50%	100%	100%



100 year flood maps

Bainbridge Island Climate Impact Assessment Workshop

Sea Level Rise Visualizations



Bainbridge Island Climate Impact Assessment Workshop


Slope Instability



City of Bainbridge Island Watersheds & Critical Areas Map

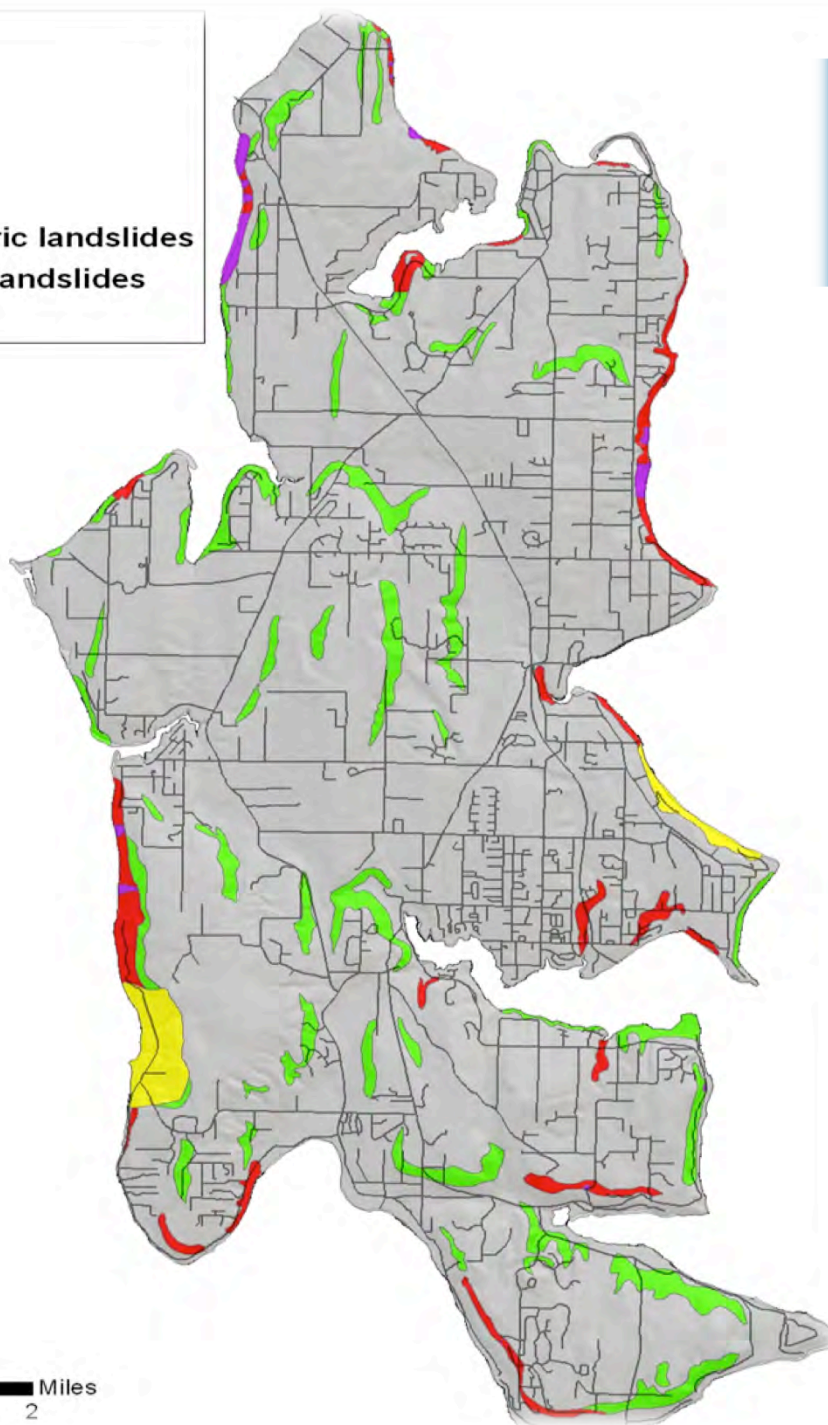


Legend

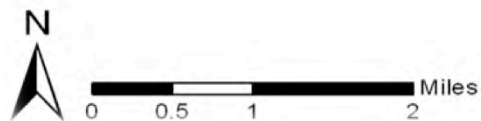
-  Slopes 40% and Greater
-  Areas of Liquefaction
-  Streams
-  USGS Mapped Landslides
-  Watersheds

Bainbridge Island Soil Stability

- Stable
- Intermediate
- Unstable
- Unstable -Prehistoric landslides
- Unstable -Historic landslides
- Roads

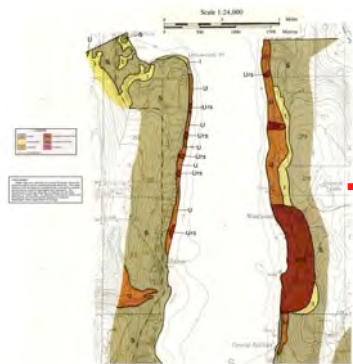
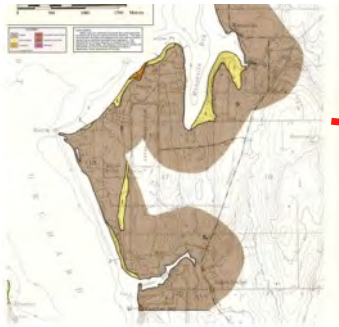
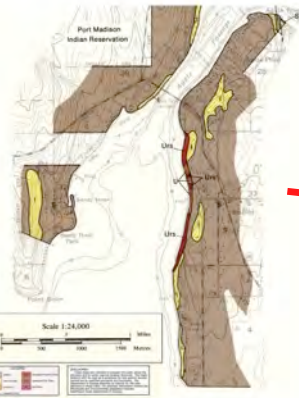


Soil Stability



Source: 2012 Bainbridge Island
Hazard Identification and
Vulnerability Assessment, BIFD

Shore-line stability



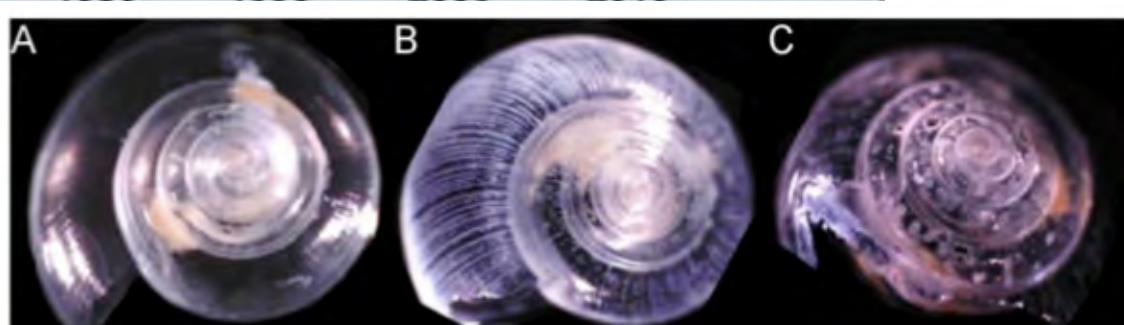
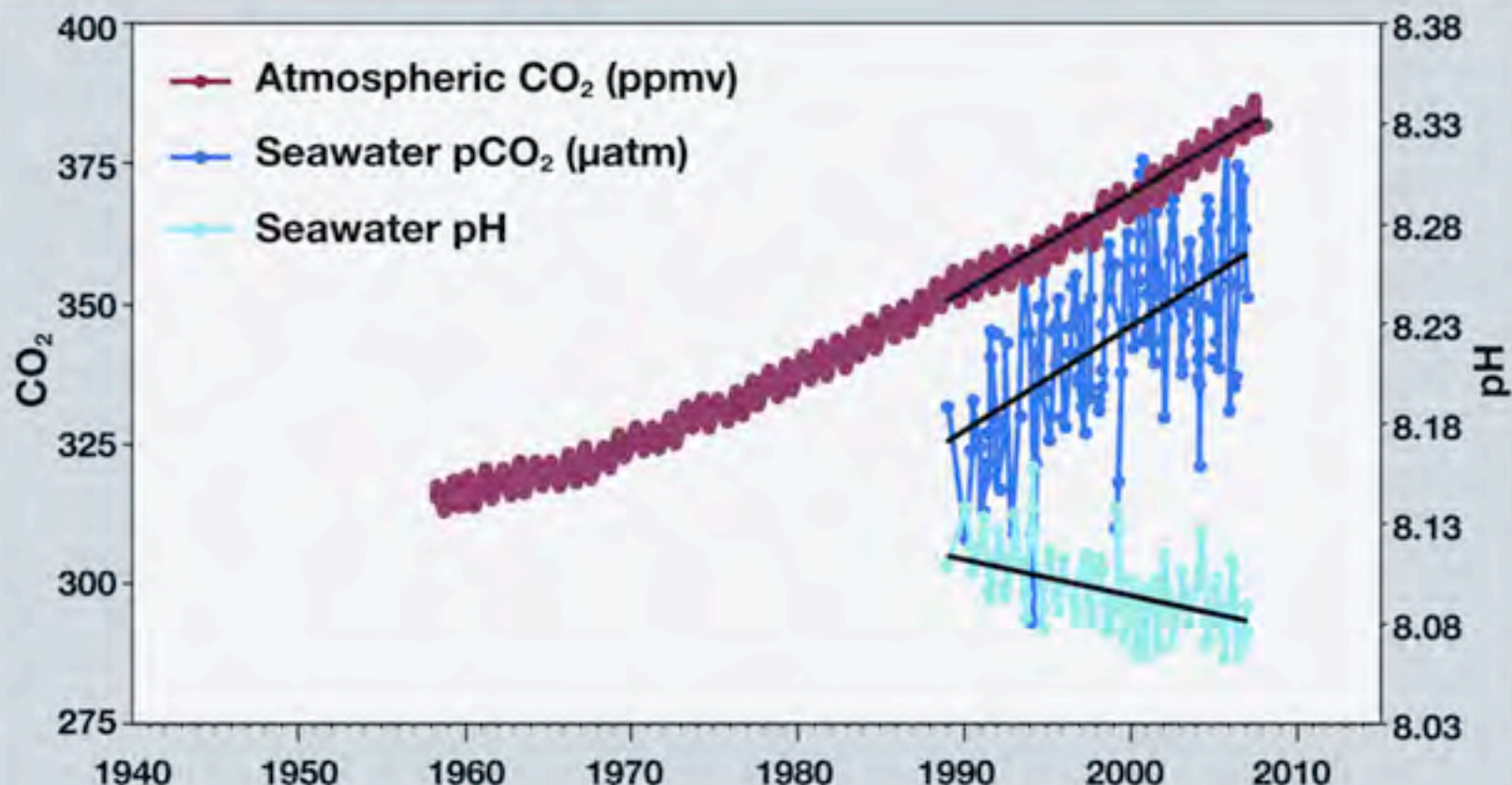
Shore-line stability

Sea level rise simulation: coast.noaa.gov/slr/

MAP LEGEND			
S	Stable	Urs	Unstable Recent Slide
I	Intermediate	Uos	Unstable Old Slide
U	Unstable	M	Modified

Bainbridge Island Climate Impact Assessment Workshop

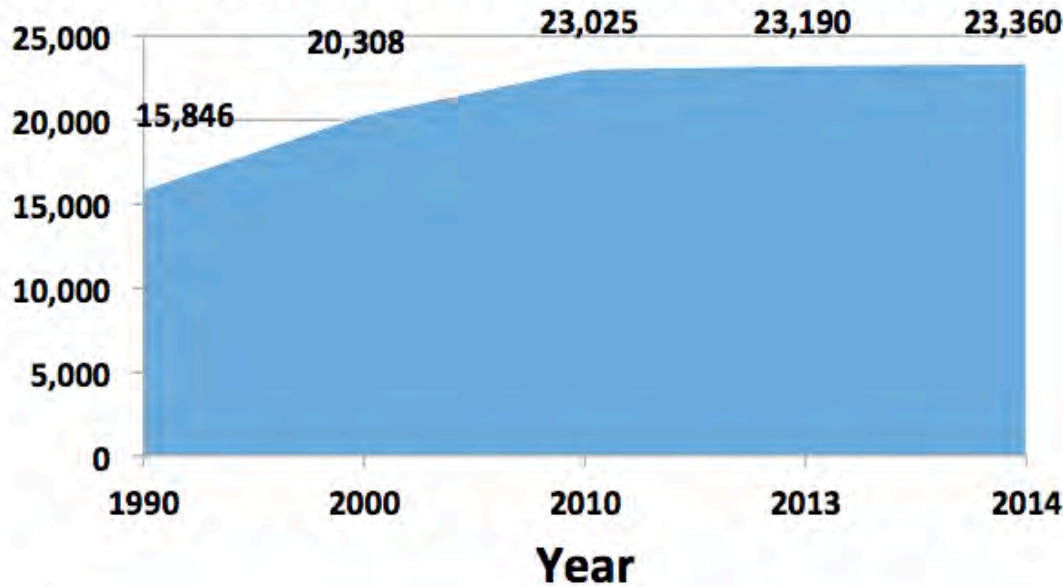
Ocean Acidification



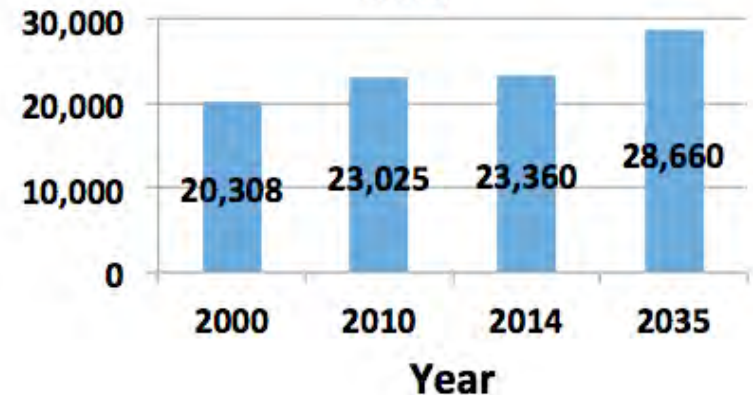


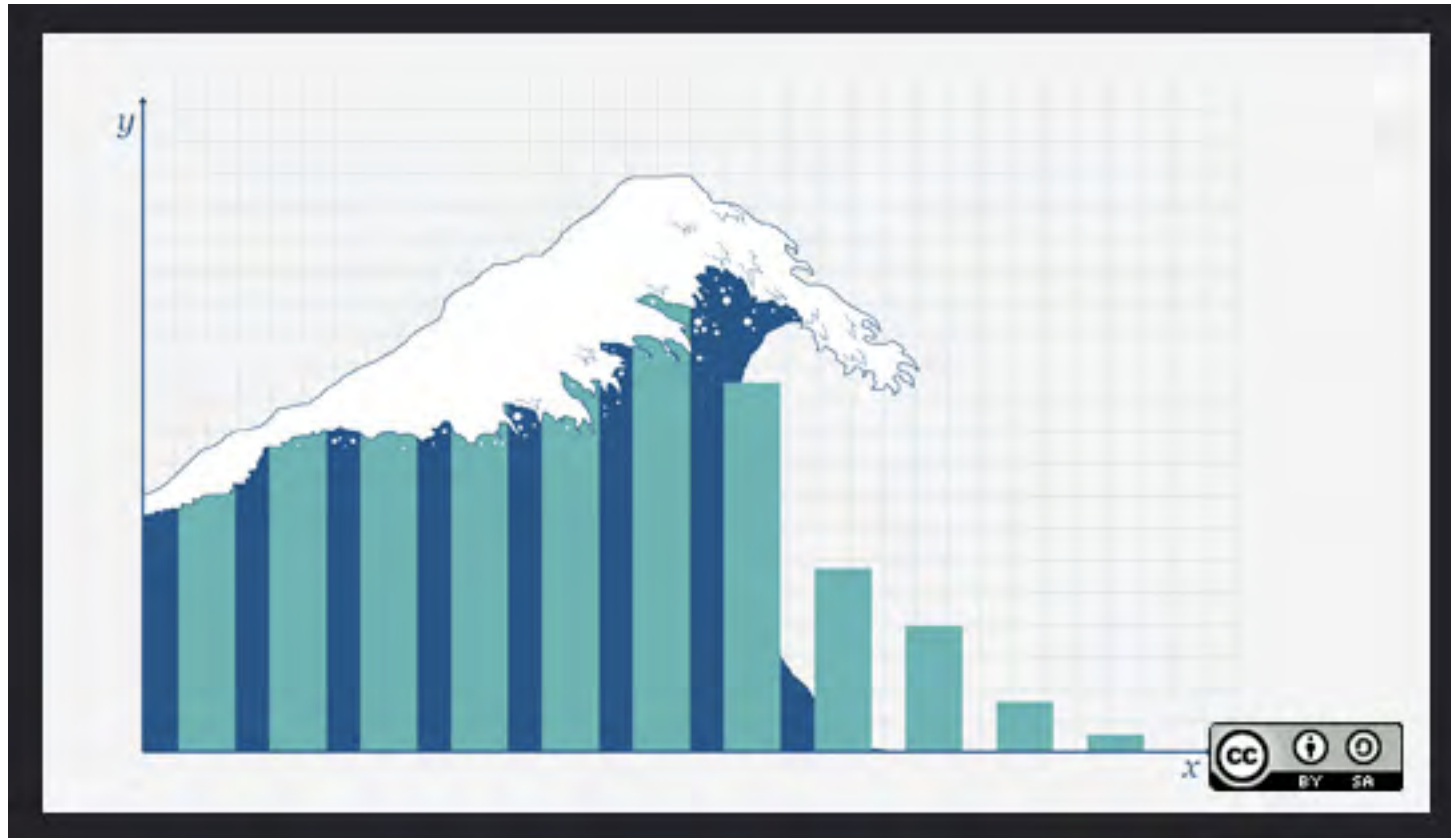
Population

Population of Bainbridge Island



Projected population of Bainbridge Island

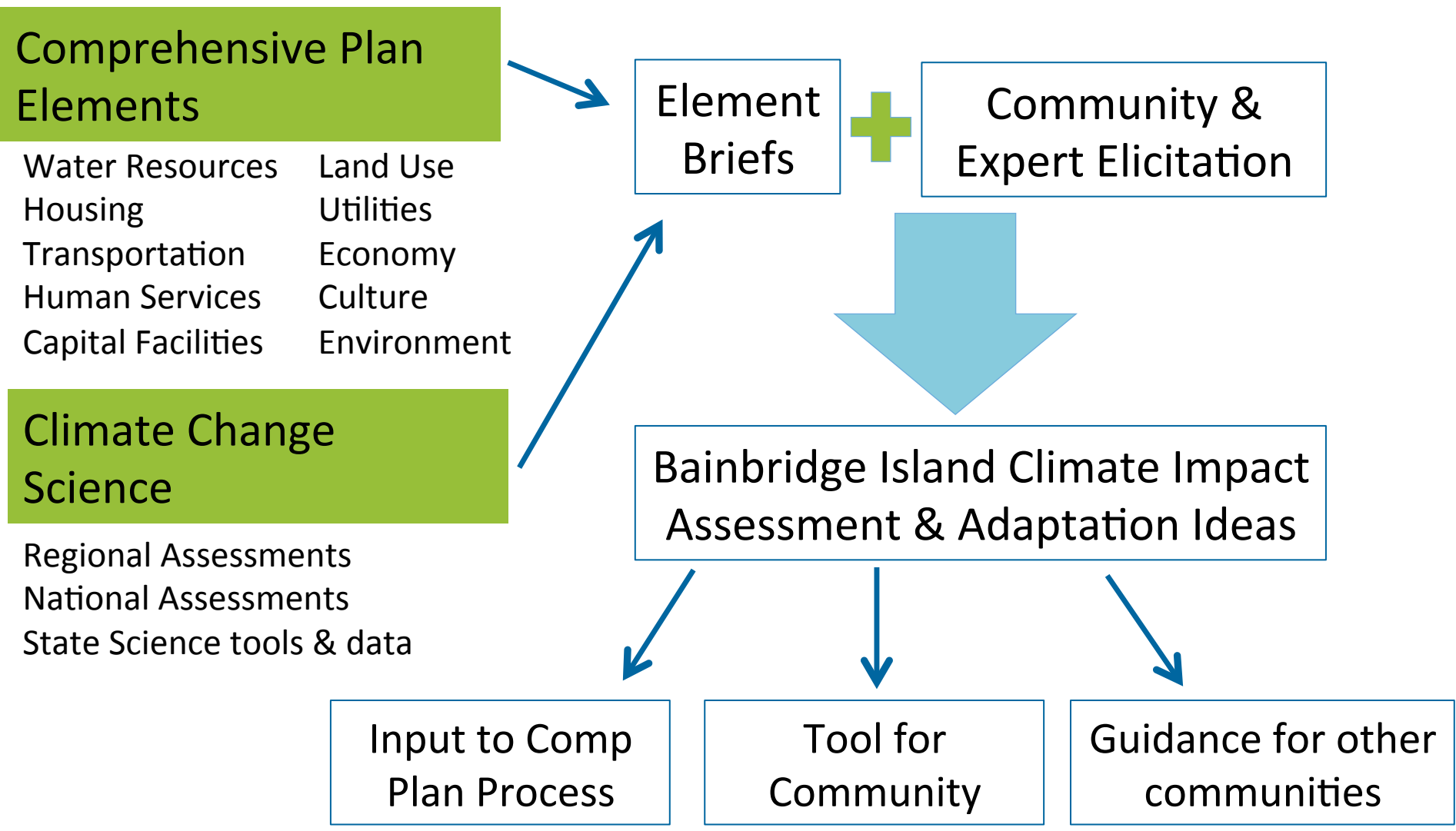




Questions?



Process



Bainbridge Island Climate Impact Assessment

Next Steps



Bainbridge Island Climate Impact Assessment & Adaptation Ideas

Input to Comp Plan Process

- Our element briefs are being submitted to the Comp Plan Process
- Participants can use these ideas to create their own submissions

Tool for Community

- BICIA will be posted on the Workshop Support Page and emailed to all participants
- Please use it for your own organizations

Guidance for other communities

- BICIA will be used as a model for other communities to incorporate climate change into their own planning
- A webinar will be held to share findings

Bainbridge Island Climate Impact Assessment Workshop

Stay Connected and Engaged



- Make sure you signed in today, provide your email address and turn in your worksheets
- Participate in the Comprehensive Plan update process
- Take home something you learned today and apply it to your own work
- Look for the BICIA and share it with others
- Keep climbing the Adaptation Ladder of Engagement
- **Help make Bainbridge Island Climate Savvy**

Adaptation Ladder of Engagement®

7 Sharing

6 Evaluation

5 Integration

4 Implementation

3 Planning

2 Assessment

1 Awareness

www.EcoAdapt.org/workshops/BICIA

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