

# Climate Change Impacts on Tacoma Power watersheds

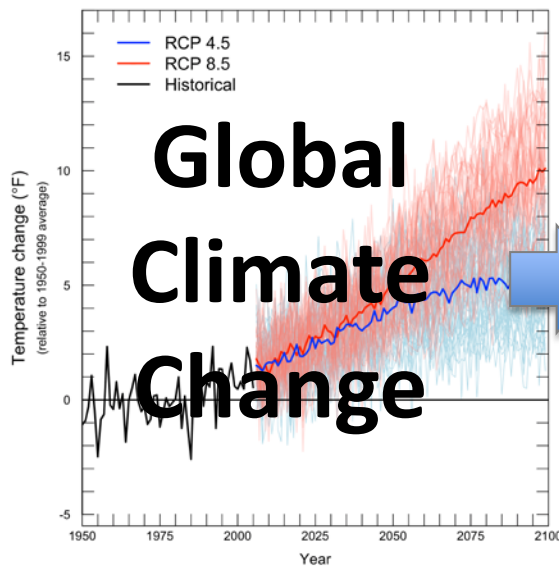
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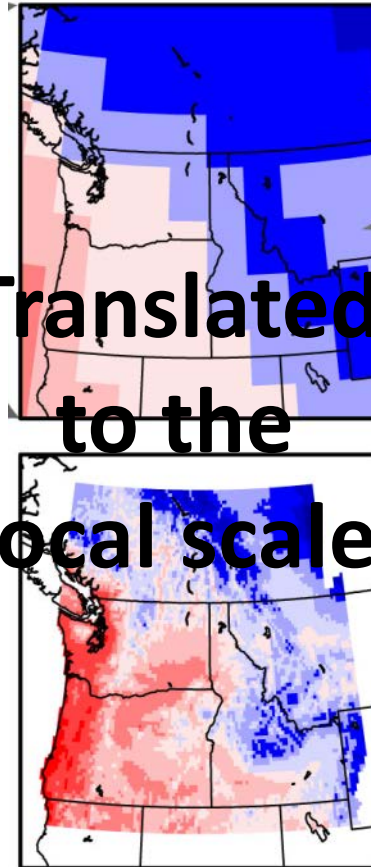
*Climate Science in the  
Public Interest*

# ***Roadmap:*** from projections to impacts

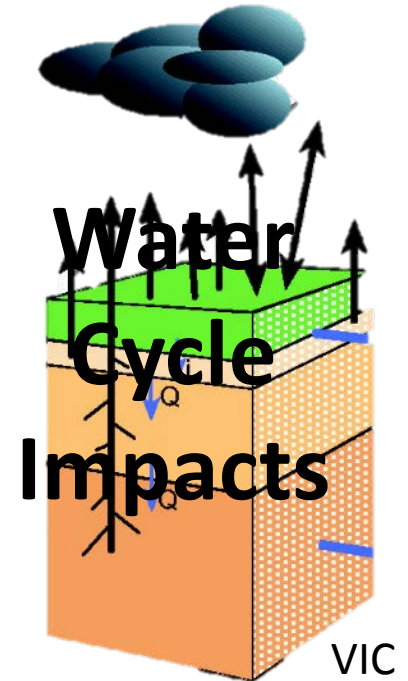


**Global  
Climate  
Change**

**Translated  
to the  
local scale**



**Downscaling**



**Climate Projections**

Global Climate Models (GCMs),  
Emissions scenarios

**Downscaling**

(Relates the "Large"  
to the "Small")

**Hydrologic Modeling**

Translation from climate  
impacts to water impacts

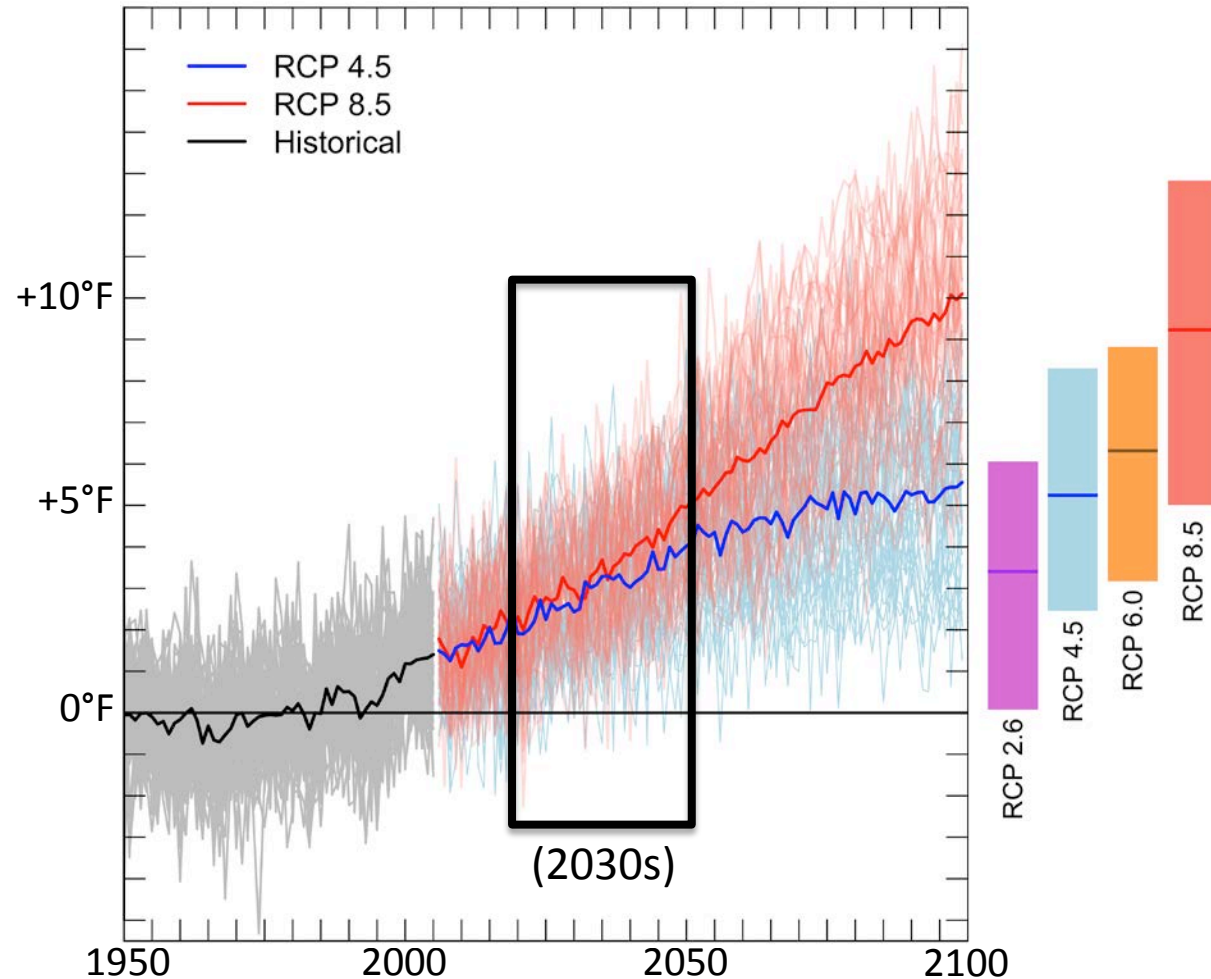
# Findings: Warming

Comparing the 2030s to  
1970-1999:

*On average:* ~3°F warmer

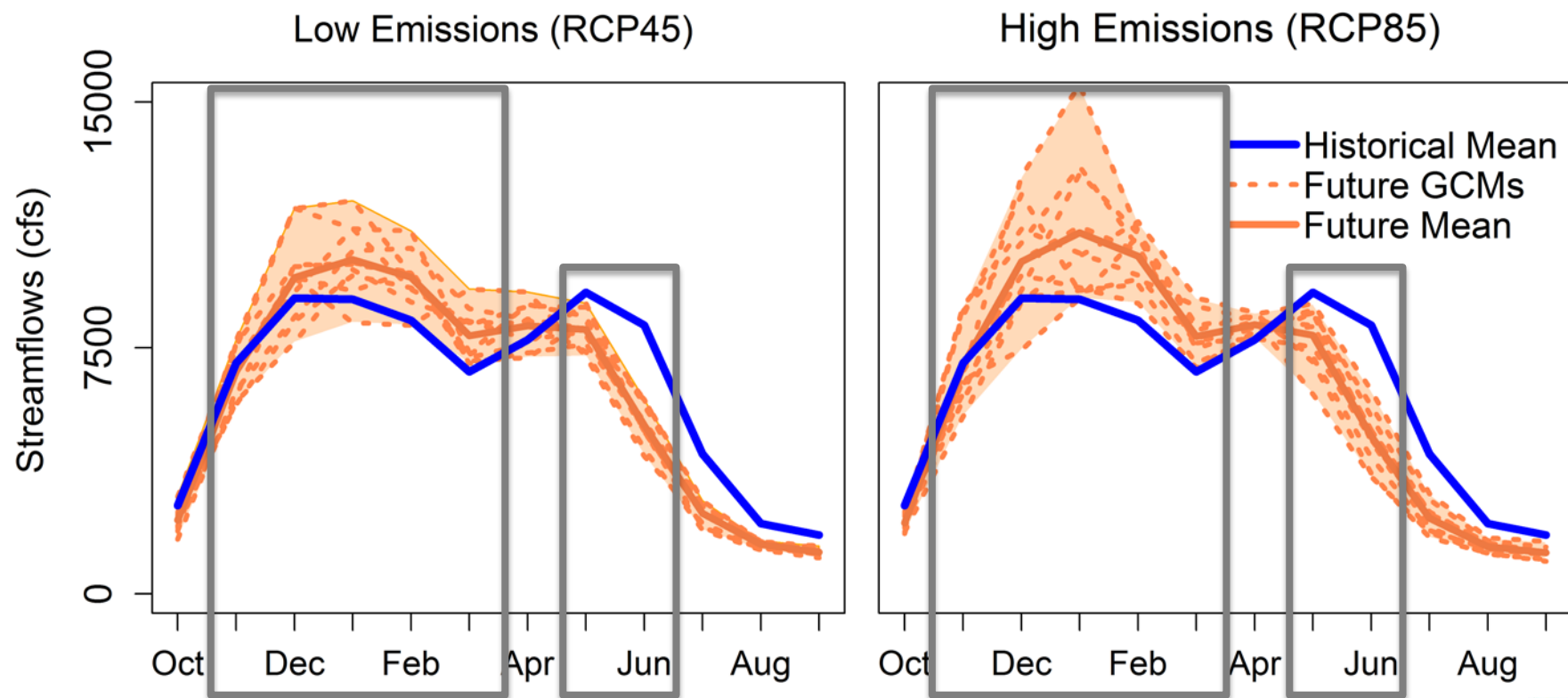
*Heating demand:*  
Large decrease  
(per capita)

*Cooling demand:*  
Small increase  
(per capita)



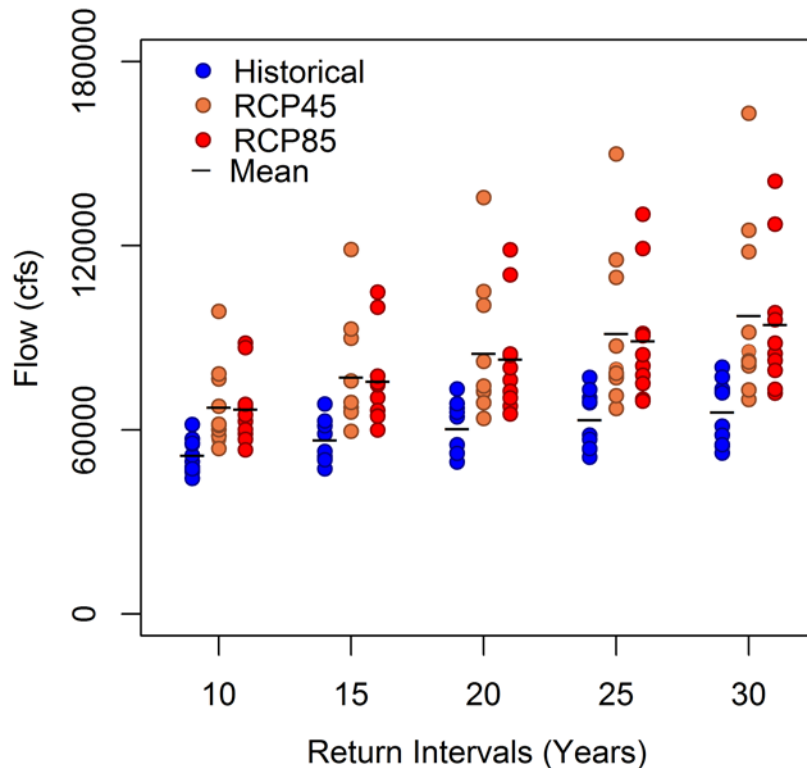
# Findings:

## More water in winter, less in Summer

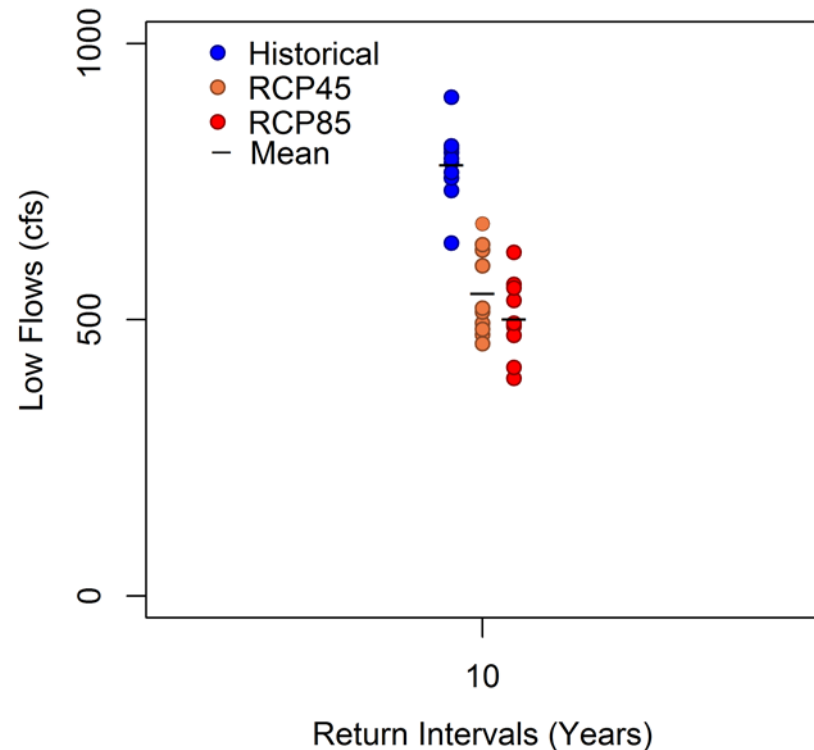


May-June  
Nov-March

# Findings: Higher peak flows, Lower minimum flows



**Increase in 10-year flood: ~30%**



**Decrease in 10-year low flow: ~30%**

# Columbia River

*Streamflow changes are smaller:*

- ~5% increase in winter
- ~15% decrease in summer

*Increased demand:*

Increasing proportion in summer

*Indirect effects:*

- Water allocation
- Stream temperatures
- Columbia R. Treaty



Source: Wikipedia





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**COLLEGE OF THE ENVIRONMENT**  
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