

Agriculture Preparation/Adaptation Working Group

**Initial Group Conference Call
June 26, 2007**

Agriculture Preparation/Adaptation Working Group

**Review Tasks and Goals of
Agriculture PAWG**

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- Review the climate impacts baseline and identify the key issues / vulnerabilities for the agriculture sector and reach agreement on what it means to be vulnerable to climate change, and to adapt and prepare
- Develop a set of limited, but fundamental issues / vulnerabilities in the agriculture sector for further examination, and where possible, identify a vulnerability threshold

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- Identify specific adaptation approaches and expectations for each of these fundamental issues / vulnerabilities
- Identify opportunity areas and additional preparation/adaptation strategies WA should pursue
- Identify any critical research needs and propose recommendations for the state to move its understanding of adapting to expected climate change forward by filling information gaps or case-study opportunities in agriculture sector

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- Participate with ECY/CTED and Climate Impacts Group in a cross-sector dialog to identify additional strategies that are broad and cross-cutting
- Prepare a draft final report of findings with suggested recommendations for consideration by the Directors of CTED and Ecology

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Baseline Climate Assumptions

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Changes in PNW climate from ten climate models for the 2020's and 2040's. All changes are benchmarked to average temperature and precipitation for 1970 -1999.

2020's Temperature Change (CIG 2005 projections)

	Annual	Oct-Mar	Apr-Sept
Low	+0.7°F (0.4°C)	+0.4°F (0.2°C)	+0.8°F (0.5°C)
Average	+1.9°F (1.1°C)	+1.7°F (0.9°C)	+2.1°F (1.2°C)
High	+3.2°F (1.8°C)	+2.6°F (1.5°C)	+3.8°F (2.1°C)

2020's Precipitation Change (CIG 2005 projections)

	Annual	Oct-Mar	Apr-Sept
Low	- 4%	- 3%	- 12%
Average	+ 2%	+ 4%	- 2%
High	+ 7%	+ 12%	+ 5%

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Changes in PNW climate from ten climate models for the 2020's and 2040's. All changes are benchmarked to average temperature and precipitation for 1970 -1999.

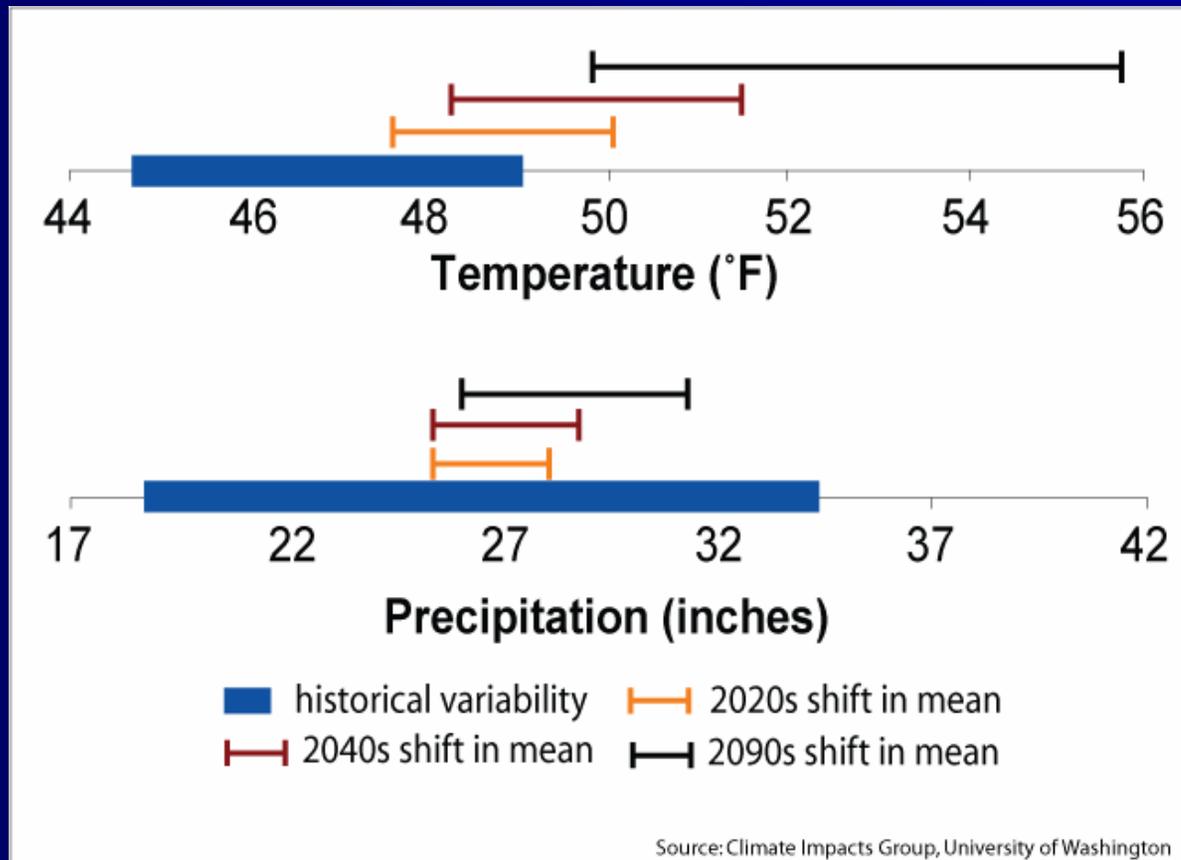
2040's Temperature Change (CIG 2005 projections)

	Annual	Oct-Mar	Apr-Sept
Low	+1.4°F (0.8°C)	+1.1°F (0.6°C)	+1.4°F (0.8°C)
Average	+2.9°F (1.6°C)	+2.5°F (1.4°C)	+3.3°F (1.8°C)
High	+4.6°F (2.6°C)	+4.1°F (2.3°C)	+5.4°F (3.0°C)

2040's Precipitation Change (CIG 2005 projections)

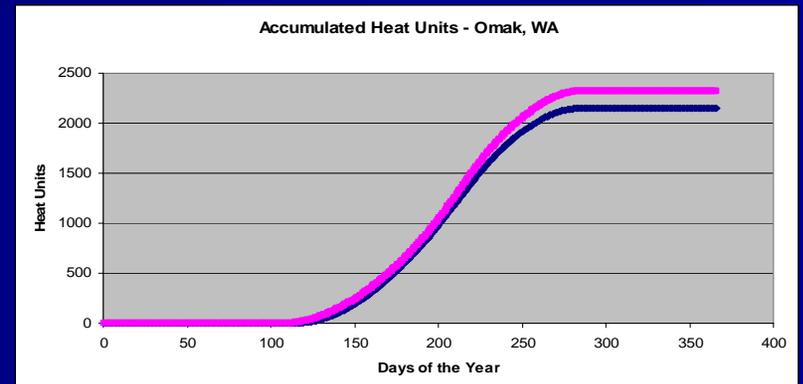
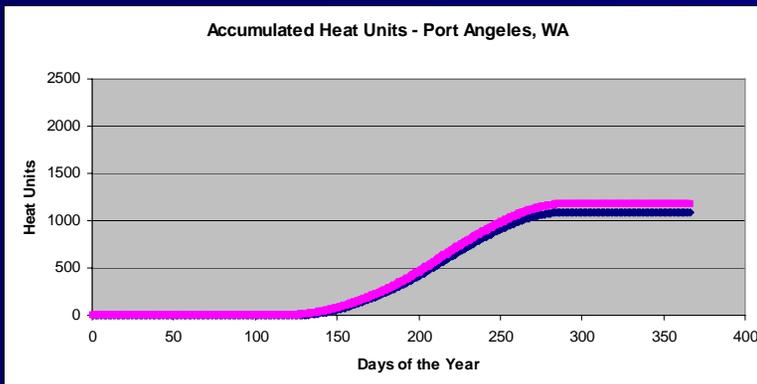
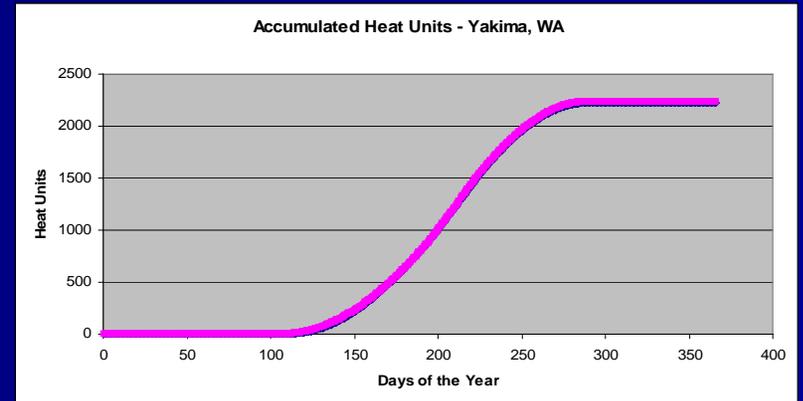
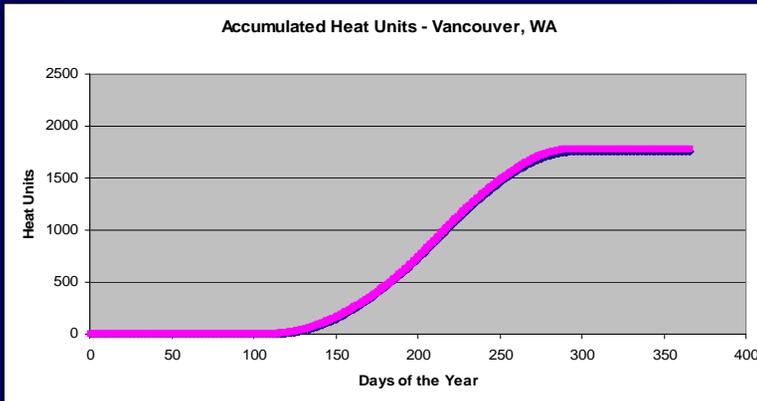
	Annual	Oct-Mar	Apr-Sept
Low	- 4%	- 1%	- 14%
Average	+ 2%	+ 5%	- 4%
High	+ 9%	+ 17%	+ 6%

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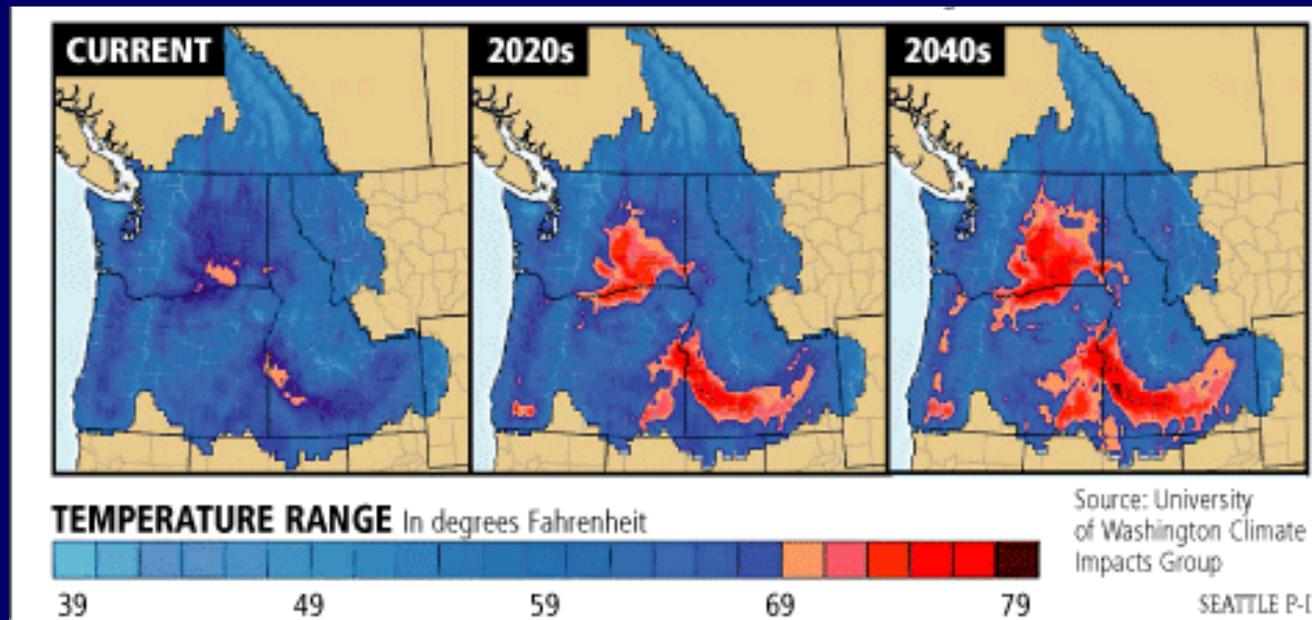
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Comparison Heat Units based on NWS temperature data (1961-1990 dk blue) and (1971-2000 pink)



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Predicted Changes in Temperature for Pacific Northwest (August)



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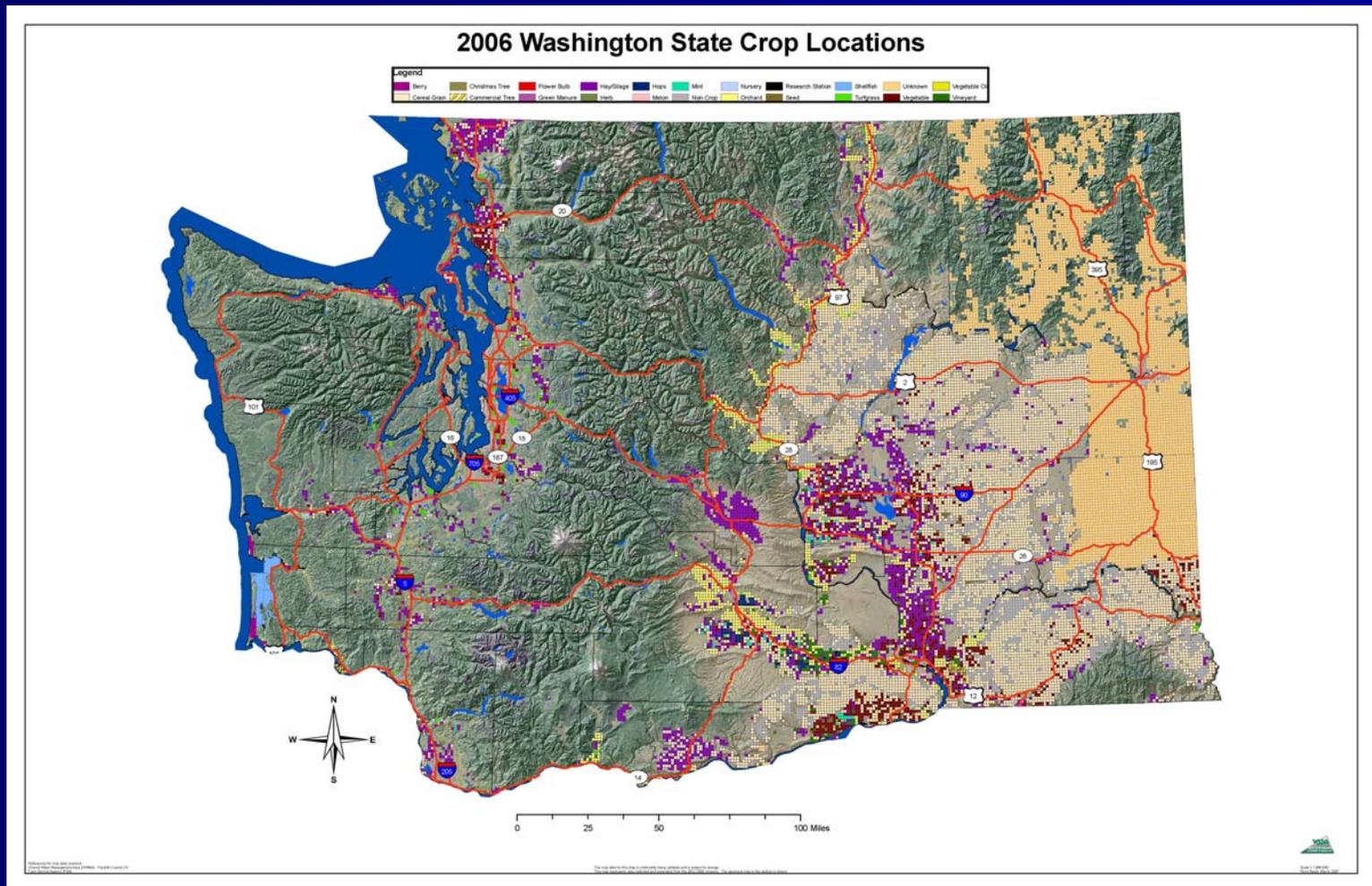
PNW Climate Prediction Summary

- Temperature to increase approximately $.5^{\circ}$ F per decade
- Increase in precipitation during fall and winter (4-5%)
- Decrease in precipitation during spring and summer (2-3%)
- Onset of warmer temperatures arriving earlier (2-3 days per decade)

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Agricultural Statistics

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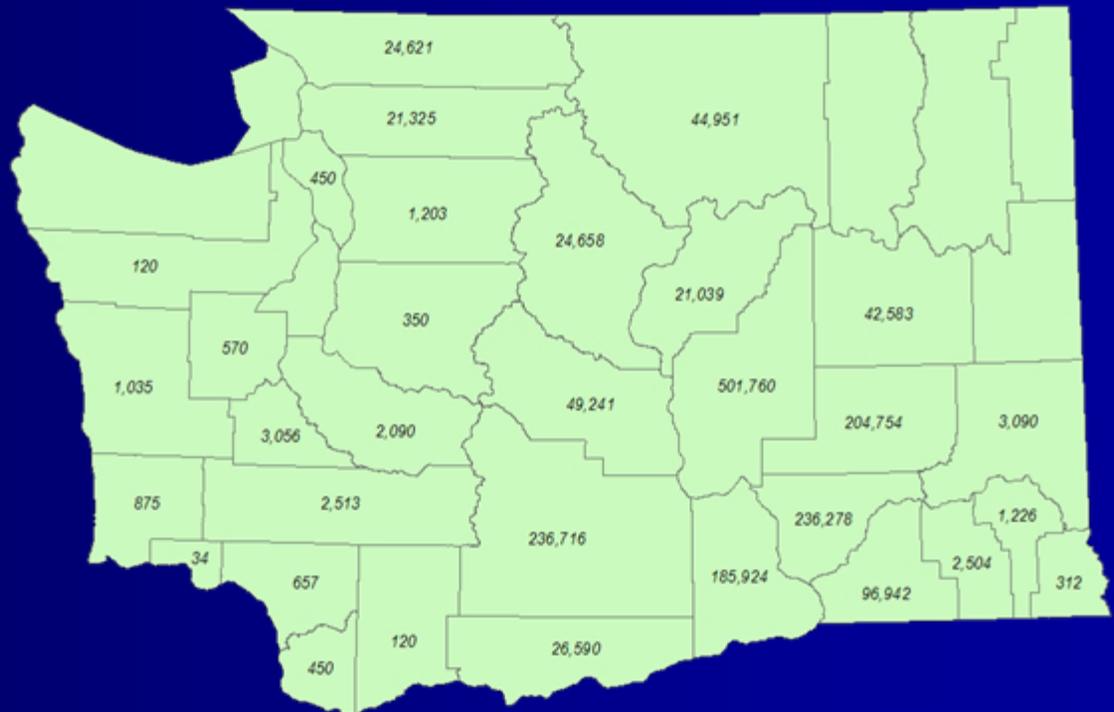


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Western
Washington:
58,434 acres

Eastern
Washington:
1,678,568 acres

Irrigated Acreage Washington State - 2006



As mapped by WSDA-NRAS

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Major Crops Grown in Washington State 2006 est.

Crop	WSDA Acres	Confidence Level	NASS/FSA Acres
Orchard	250,286	95%	267,186
Vineyard	63,452	95%	56,989
Potato	166,165	95%	160,000
Dryland	5,290,432	50%	N/A

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Market Value of Washington's Agricultural Products

Item	Value (\$1,000)
Fruit, tree nuts, berries	1,354,238
Vegetables, melons, potatoes	805,567
Grains, oilseeds, dry beans & peas	581,991
Other crops and hay	422,822
Nursery and greenhouse	391,930
Animals and animal products	1,592,255

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**Previously Identified Areas of
Concern/Change**

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■ Reduction in available water for irrigation

- Negative impact on high value crops
- Increased or improved irrigation technology
- Potential impacts on biofuel feedstocks
- Reduction in soil moisture (dryland areas)
- Impacts to water quality

■ New and/or increased pest pressures

- Reduction or elimination of winter “die off”
- Introduction of exotic/non-native pests
- Changing or increased use of pesticides

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- **Impacts to animal/animal product industry**
 - Shifts from W WA to E WA or out of state
 - Competition for feed stocks diverted to biofuels
 - Relationship of climate change to disease outbreaks
- **Commodity transportation issues**
 - Columbia barge activity and river levels
 - Increased costs of overland transportation
- **Shifting crop patterns**
 - New crops replacing traditional
 - Changes in crop/pest/pesticide relations (pro and con)
 - Impacts to food processing industry

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**PAWG membership discussion of
issues**