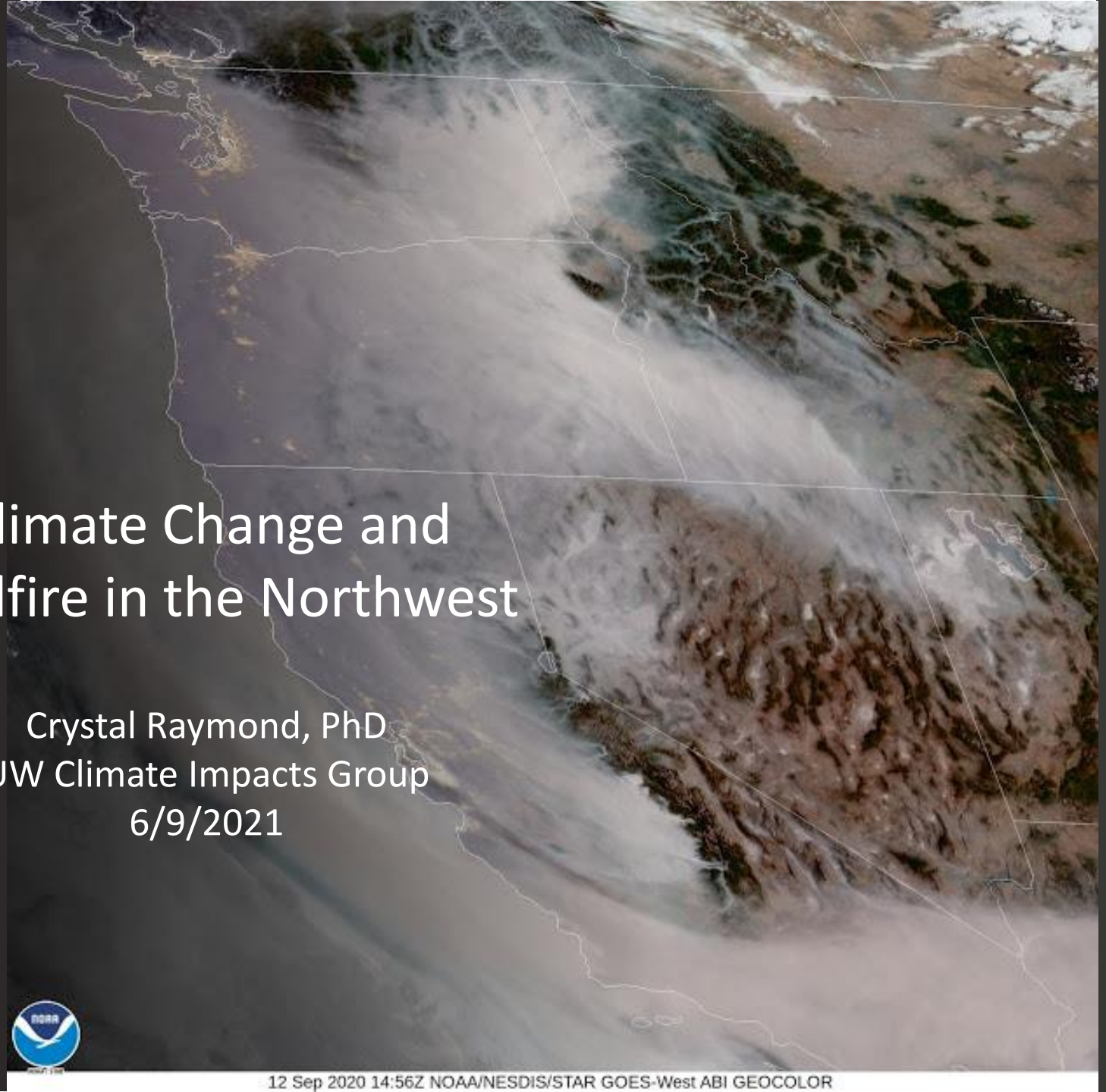

Climate Change and Wildfire in the Northwest

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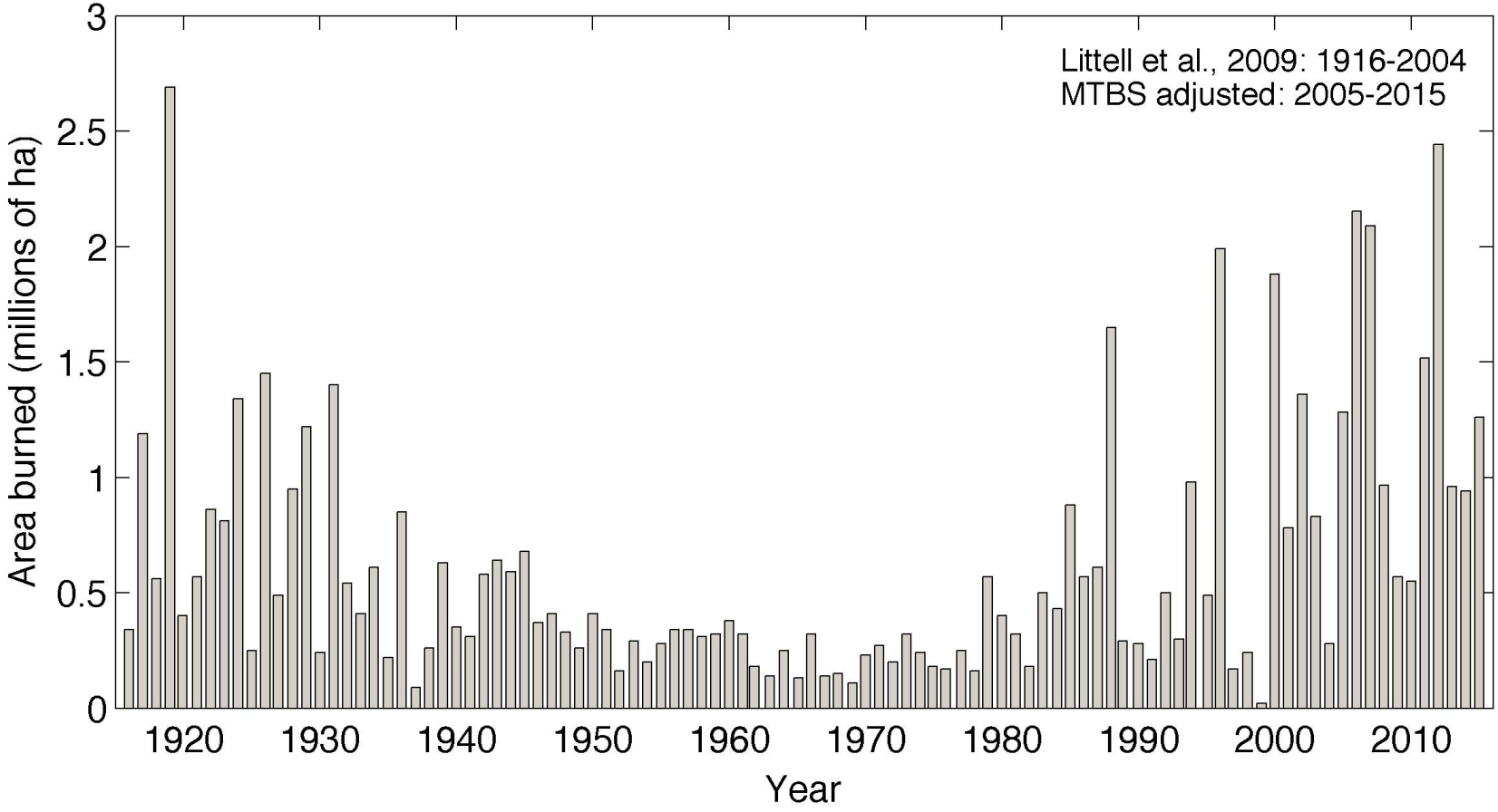
Overview

1. Climate change *is and will* continue to increase wildfire activity.
2. But it’s not the only cause.
3. And the relative importance of climate change and other factors varies by ecosystem.

Recent Trends: Wildfire in the Western US

- More large fires
- More area burned in large fires
- Longer fire seasons
- More high-severity fire



Climatic Factors Affecting Northwest Fire Potential

Temperature:
Summer

Precipitation:
Summer
Convective activity
Fall onset

Snowpack:
Spring meltout

Fuels:
Moisture
Quantity (fine fuels)

Climatic Change Affects Northwest Fire Potential

Temperature:

Increasing summer temperatures

Precipitation:

Drier summers

Wetter winters & springs

Climate change interacts with all of these…

Snowpack:

Earlier melt

Fuels:

Increasing aridity

More fine fuels

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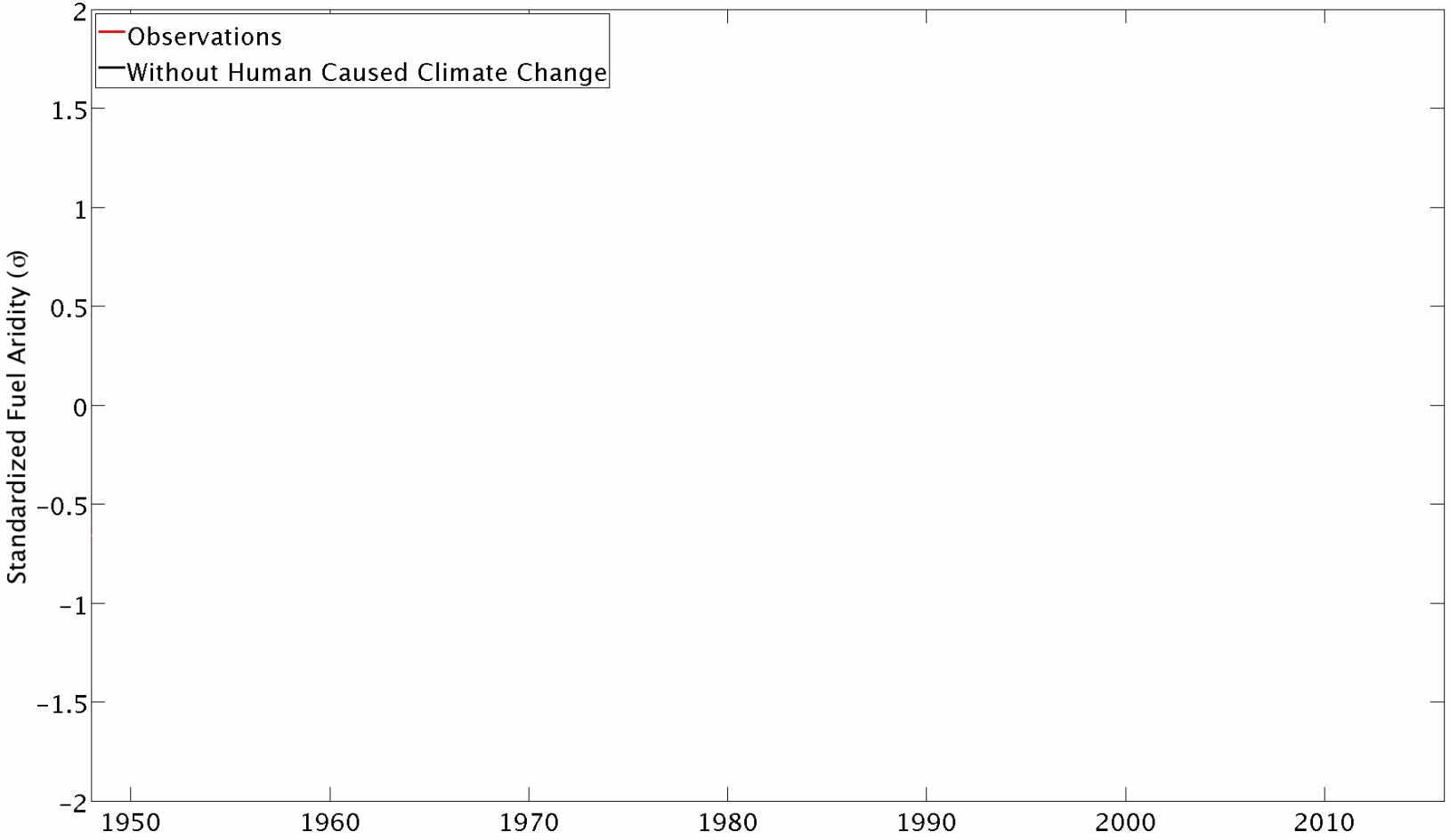
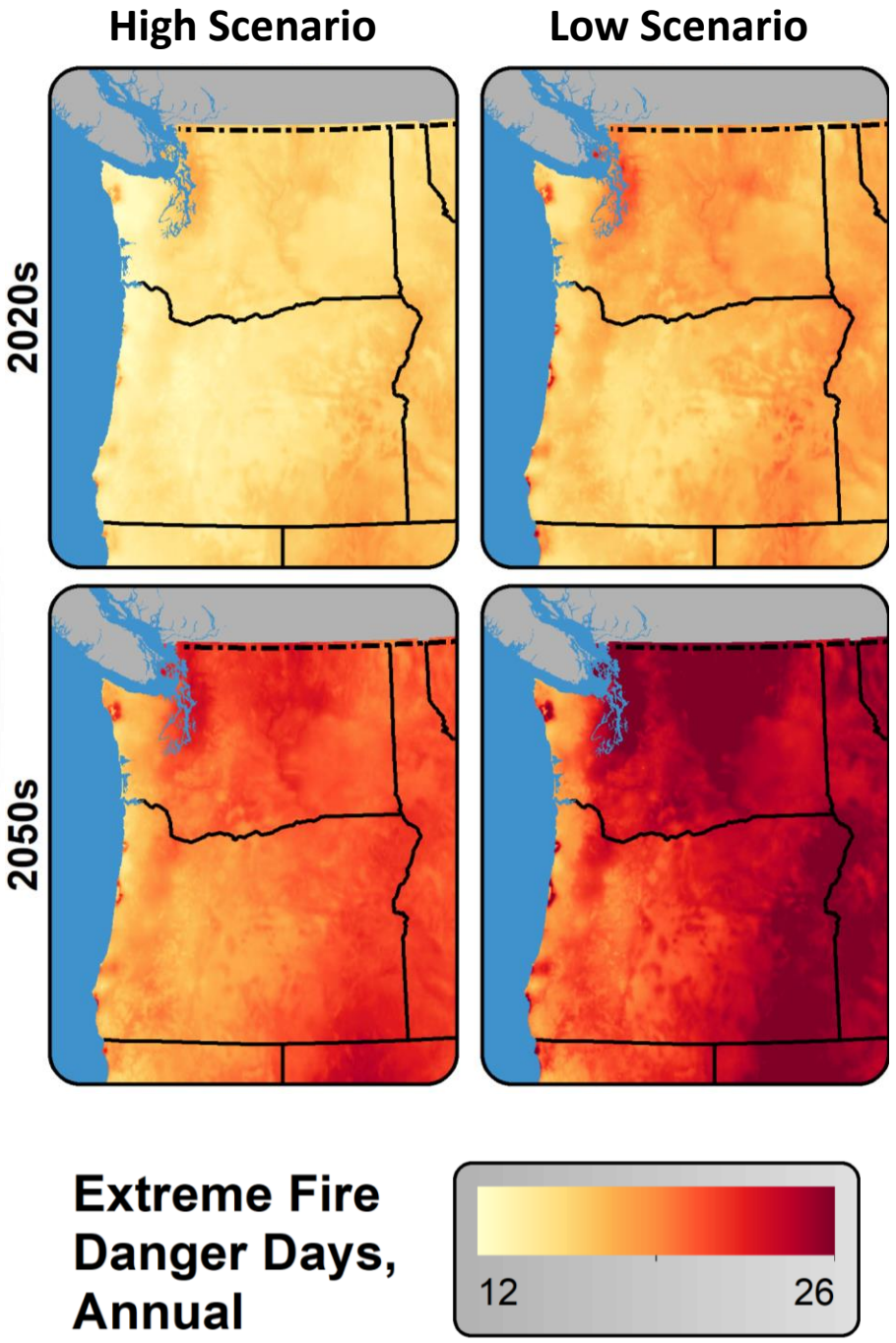
Human-caused climate change accounts for 55% of the increase in fuel dryness across the western US since 1979 (Abatzoglou and Williams 2016).



Climate Change Increases Wildfire Potential

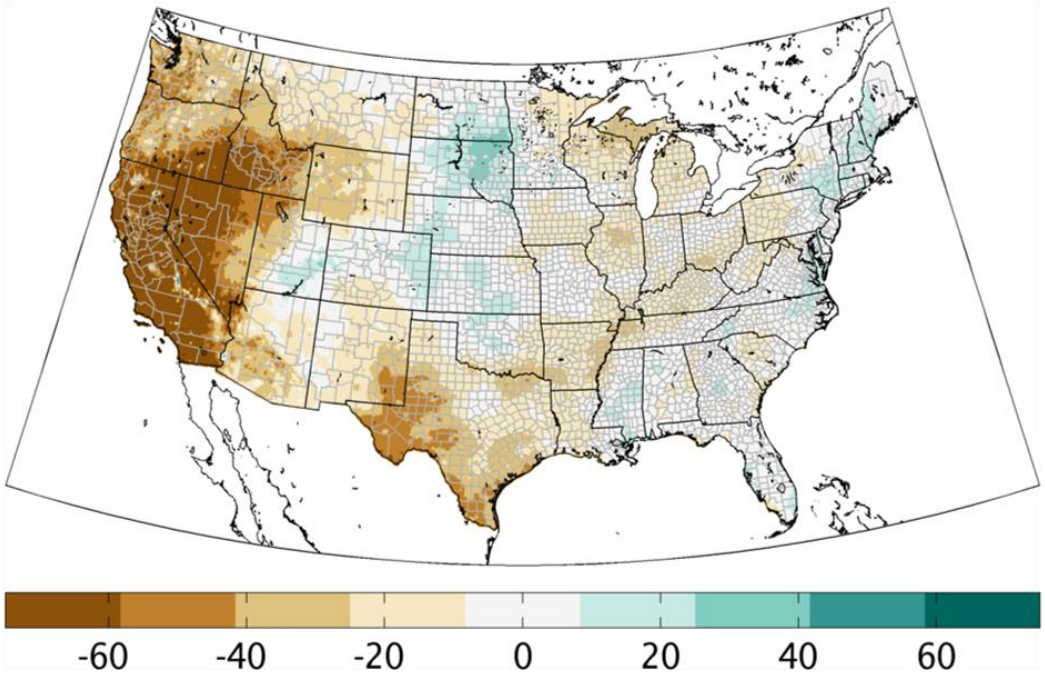
"Sets the Stage"

- Drier fuels
- Greater potential for spread
- Larger fires
- More difficult to control



Climatic Variability

- Decreased summer precipitation *(Flannigan et al. 2016)*
- June – Sept. precipitation trend 1970 - 2015



Forest Management Legacy

- Fire exclusion increases fuels
- Harvesting can favor non-fire adapted species and homogenize fuels

Invasive Species

- Invasive plants in the urban interface environment

- Cheat grass in shrub steppe

The wildland-urban interface is growing

- Nearly half of the population in the western U.S. lives in the WUI.
- Since 1990, 60% of new homes in California, Oregon, and Washington have been built in the WUI.

https://storymaps.arcgis.com/stories/7016c437623a445997c072a05e26afbb

Fire in forests of Eastern Oregon & Washington

Fire in Shrub Steppe and Grasslands

Fire in the western Pacific Northwest

Historical wildfires in western Pacific Northwest were BIG

1700 fire events

> 1 million acres on the Olympic Peninsula

3 million acres in western Washington

Yacolt complex, southwestern Wash (1902)

500,000 acres

Tillamook, northwest Oregon (1933, 1939, 1945, 1951)

350,000 acres

Increasing Wildfire Area Burned

X 2 by 2020s

X 4 by 2040s

X 2 by 2040s

Relative to 1980-2006 average; moderate greenhouse gas scenario

Littell et al. 2010, 2012

Photo, DNR 2009

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