

# Competing interests in the face of future changes

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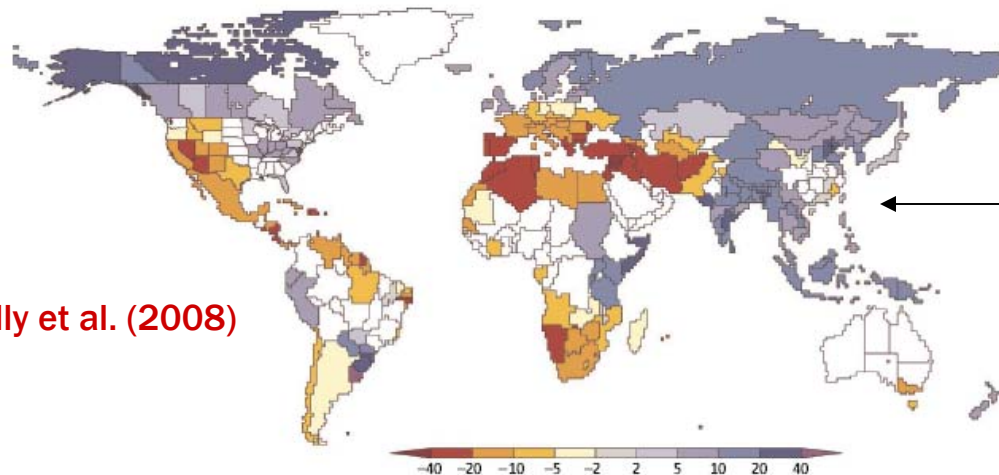
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CLIMATE CHANGE

## Stationarity Is Dead: Whither Water Management?

Climate change undermines a basic assumption that historically has facilitated management of water supplies, demands, and risks.

P. C. D. Milly,<sup>1\*</sup> Julio Betancourt,<sup>2</sup> Malin Falkenmark,<sup>3</sup> Robert M. Hirsch,<sup>4</sup> Zbigniew W. Kundzewicz,<sup>5</sup> Dennis P. Lettenmaier,<sup>6</sup> Ronald J. Stouffer<sup>7</sup>



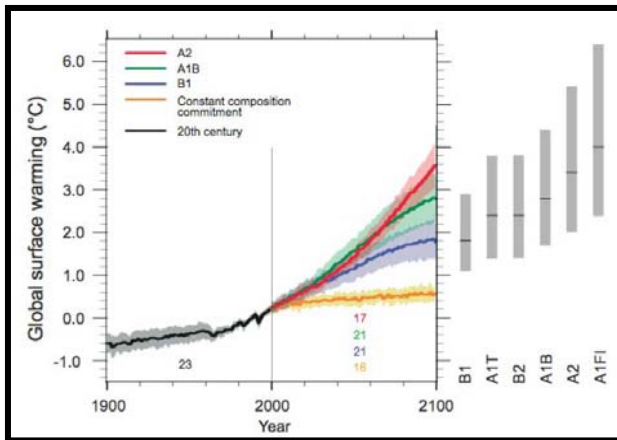
**% change in runoff  
(mid-21st Century projection)**

**Milly et al. (2008)**

**NM Water Dialogue  
Jan 14, 2010**

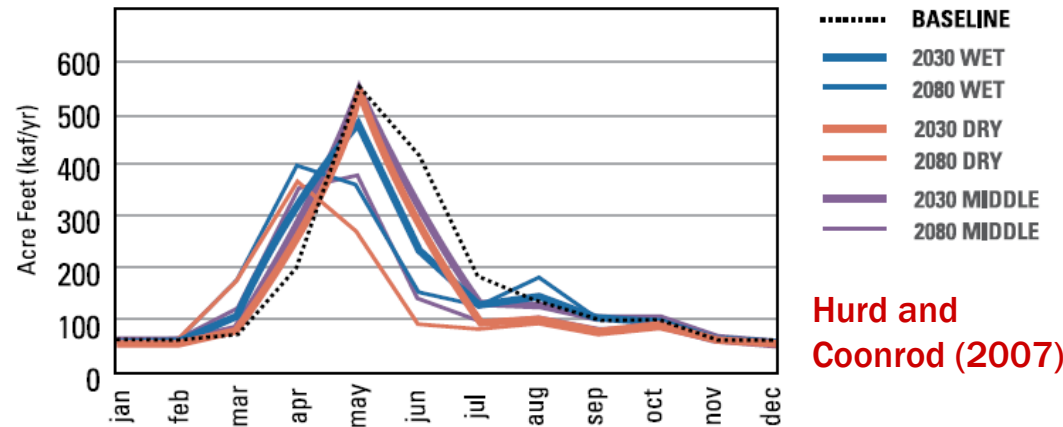
# Effects of projected climate change on Rio Grande basin streamflows

IPCC (2007)



Global-average temperature projections → **much warmer**

Future Hydrograph Shifts Under Climate Change (Aggregate Rio Grande Streamflow)



Hurd and Coonrod (2007)

Less snowpack, earlier snowmelt flood pulse, more ET during spring/summer → **much reduced streamflow volume [up to ~30% annual reduction]**

Prolonged drought, superimposed on this hydrograph trend, in the context of increased demand and depleted aquifers, is what will nail us

# Development of an updated State Water Plan

## State Water Plan Review and Update June 2008

### What Conditions Have Changed Since 2003?

Changes affecting the state's management of water resources that have occurred since 2003 include:

- Public awareness and concern over global climate change has grown:
  - The Governor issued an executive order regarding climate change.
  - The Office of the State Engineer issued a report regarding how climate change may impact water availability (available on the Governor's Drought Task Force web site <<http://www.nmdrought.state.nm.us>>).
  - The Office of the State Engineer and New Mexico First conducted statewide public workshops on climate change and issued a report.
  - Public concern regarding the likelihood and consequences of long-term drought has heightened.

**OK!**

**But how can we translate  
'public awareness and concern'  
into a useful Water Plan ...  
given 20th Century constraints  
of water rights and interstate  
compacts?**