

Agriculture and Water in the U.S.

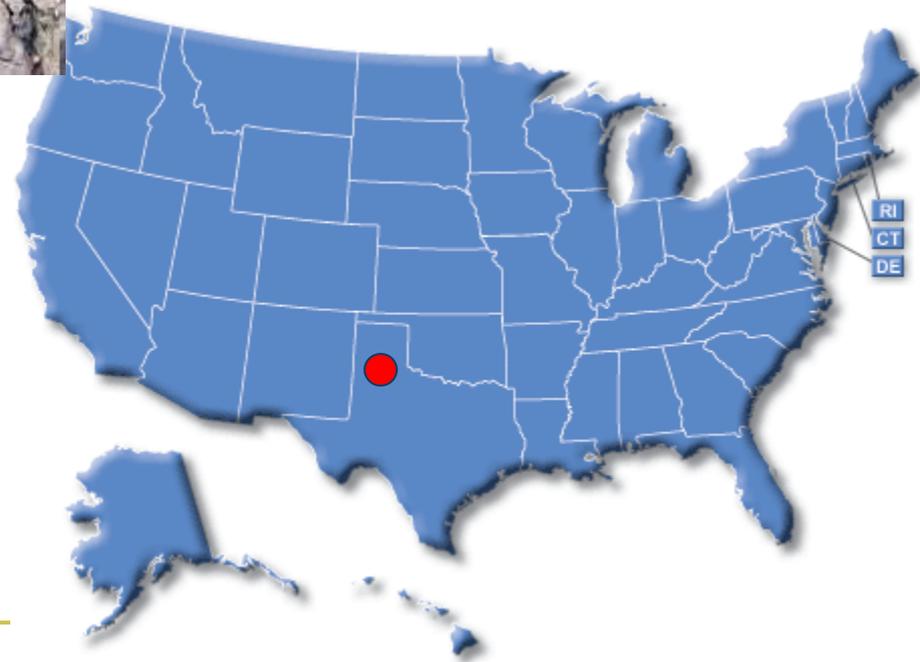
Megan Stubbs

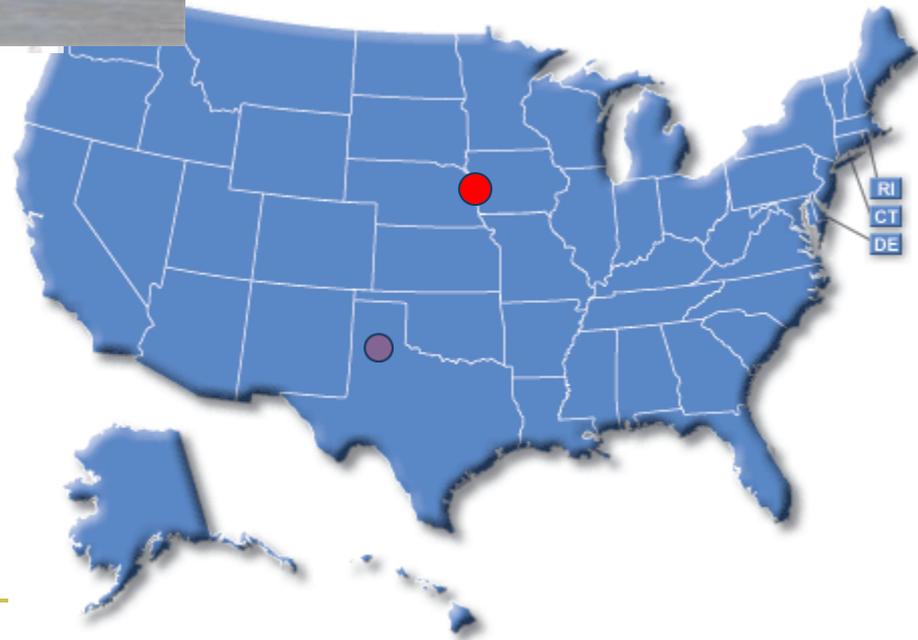
Analyst in Agricultural Conservation and Natural Resources Policy

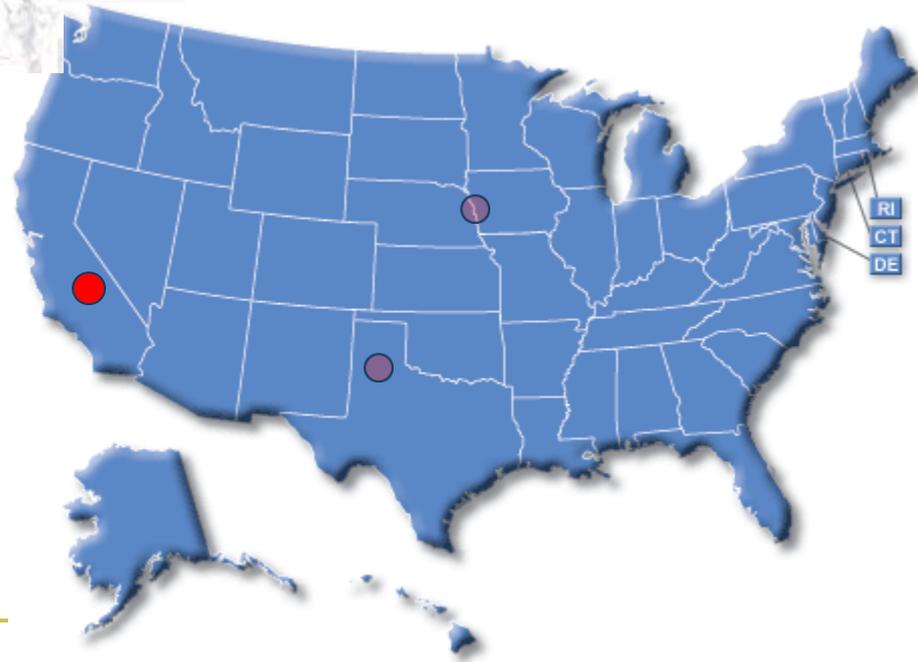
(Views expressed herein are those of the author and do not represent those of the Congressional Research Service)

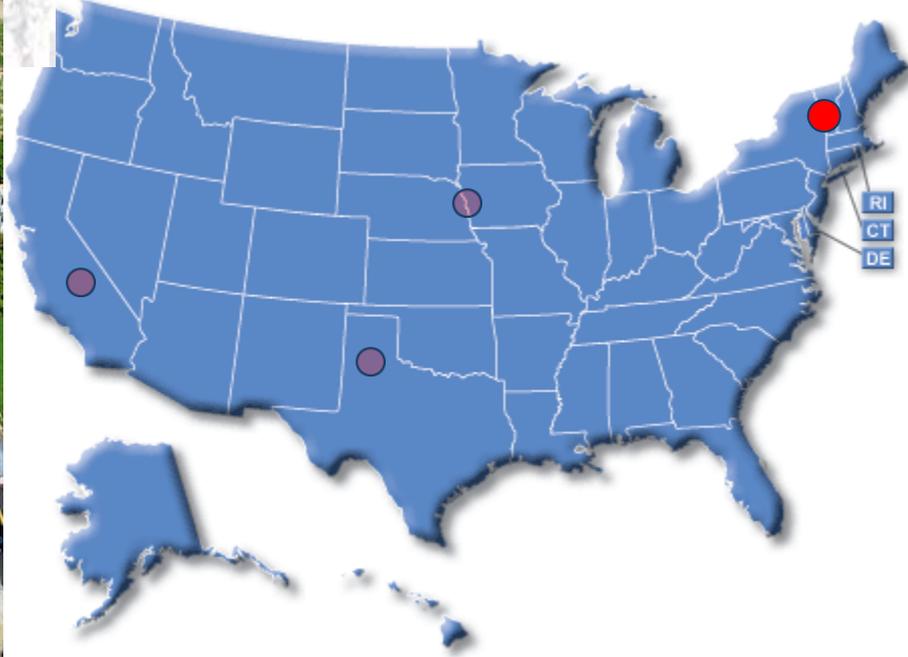


Water Quantity Concerns







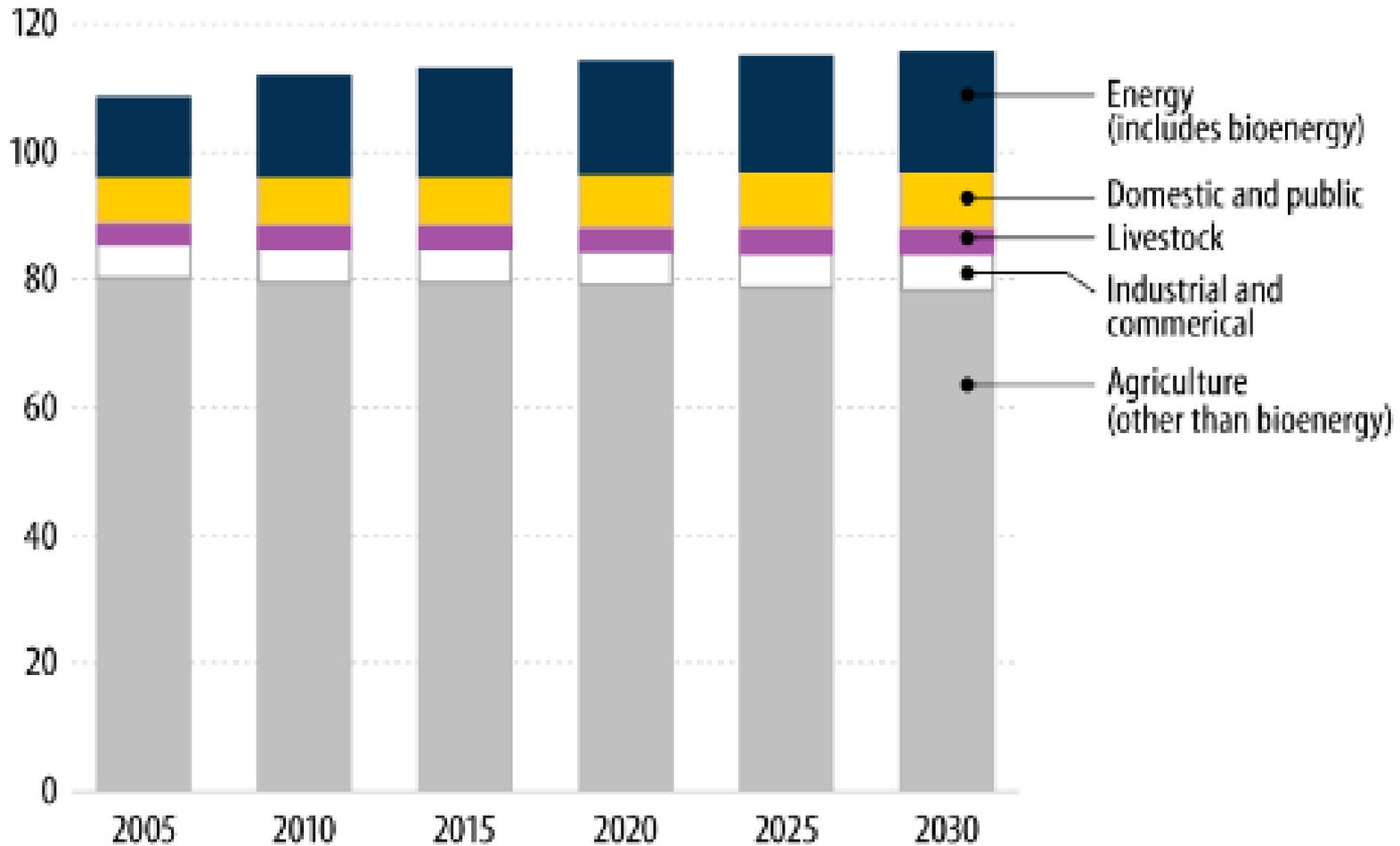


Water Quantity

- Growing Demands
 - Water supply largely allocated to historical uses
 - Controlled by states
 - Climate variation and/or change
-

Growing Demands

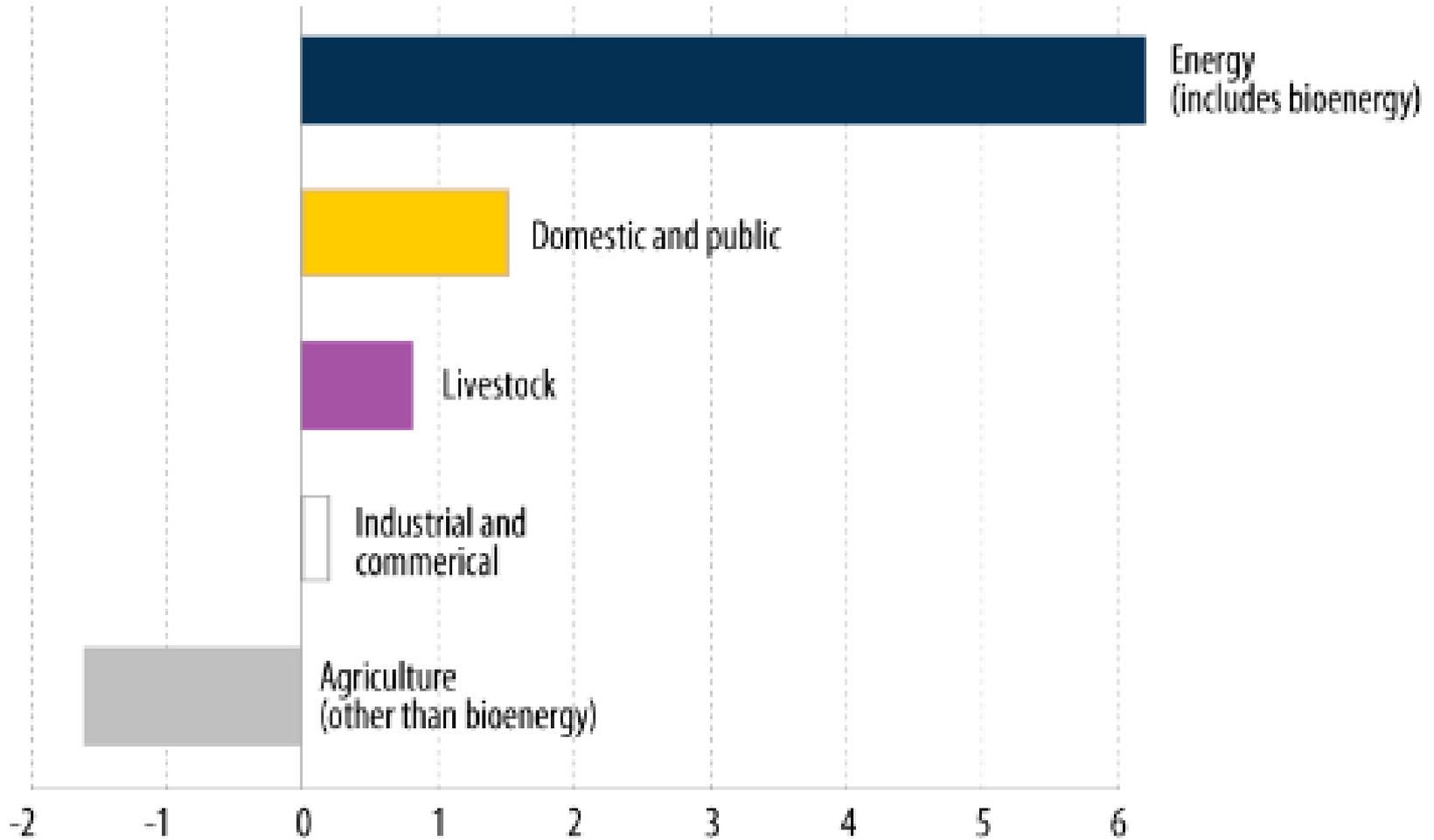
Projected water consumption in billion gallons per day



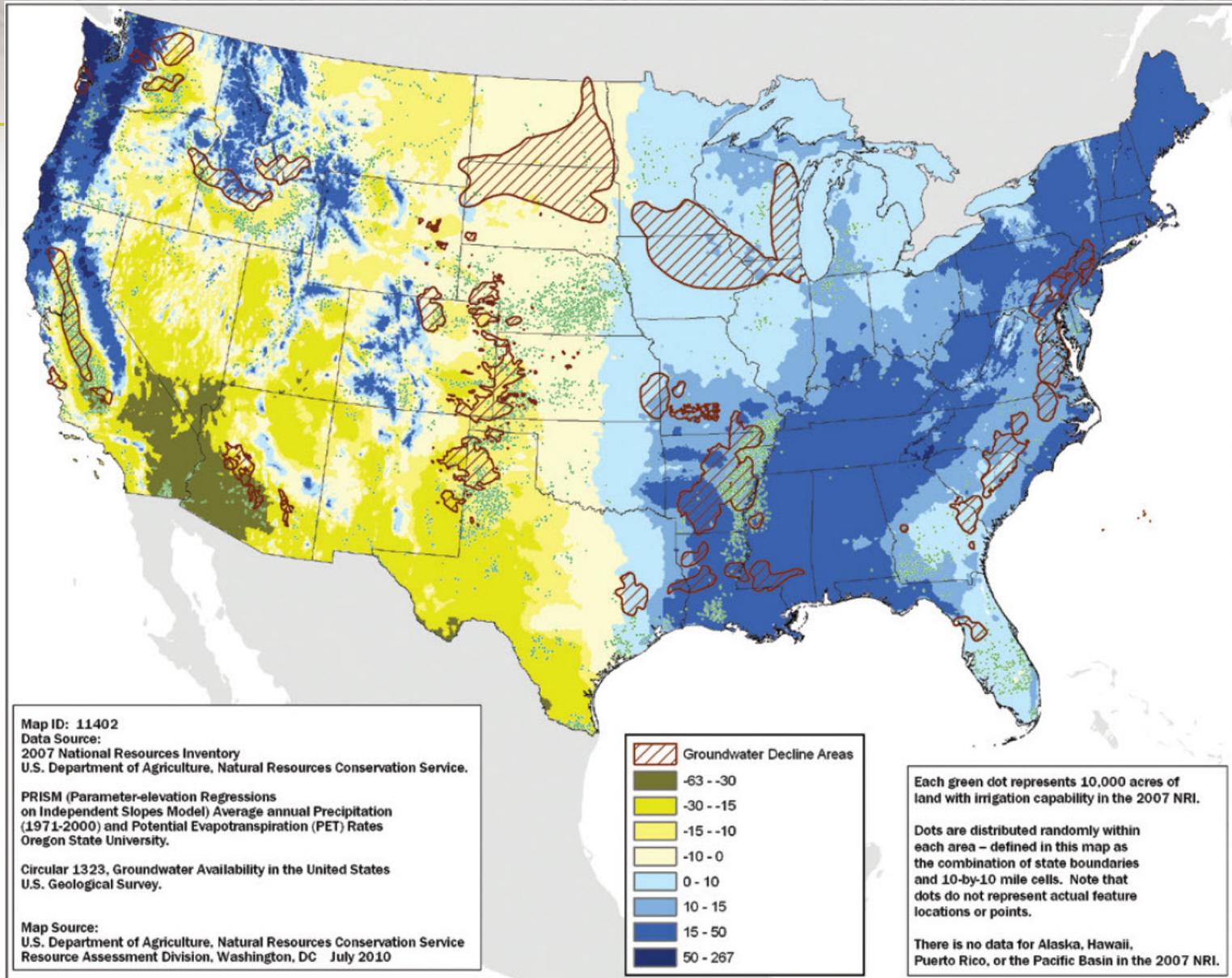
Source: Elcock 2010.

1 U.S. Gallon = 3.79 liters

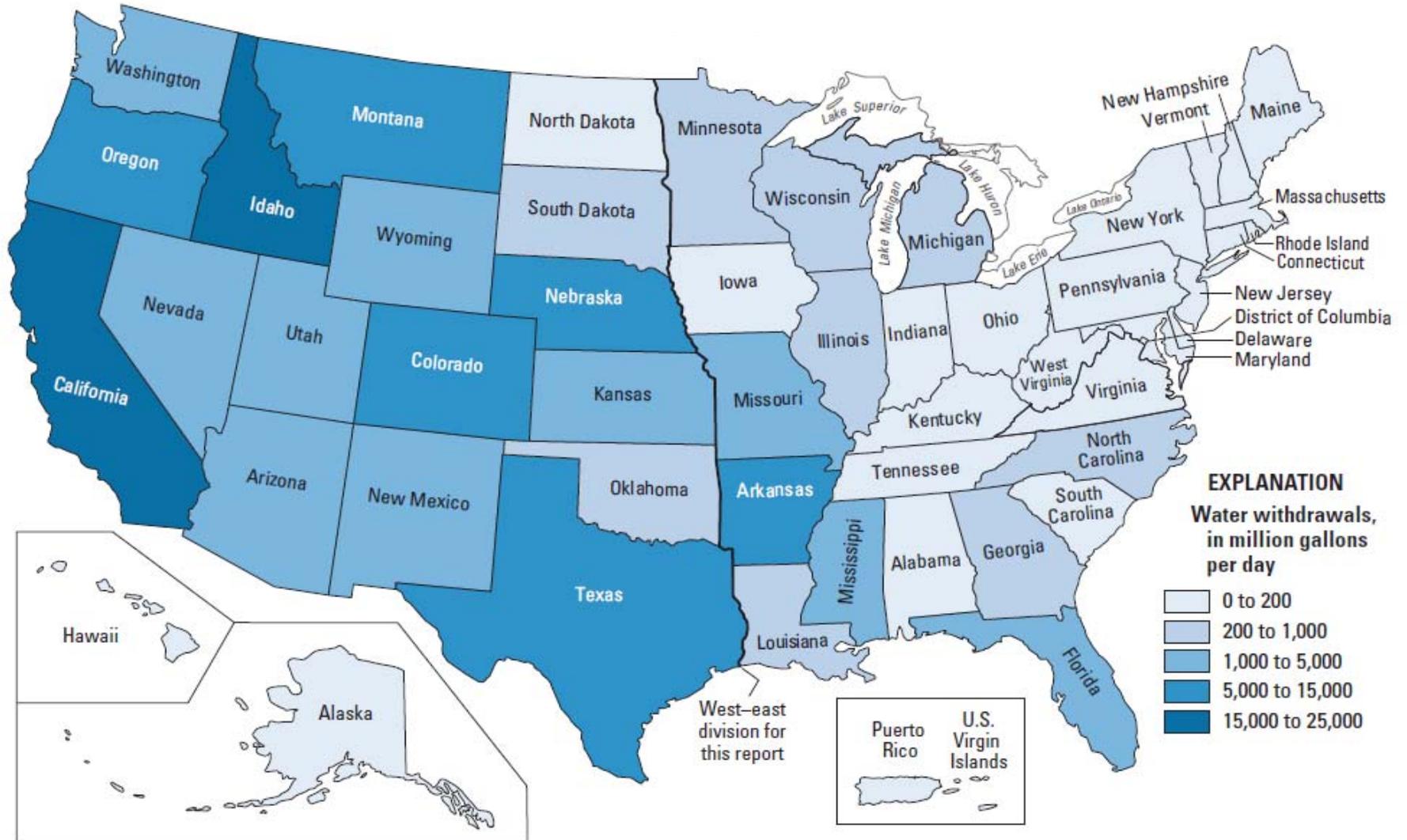
Change in U.S. Water Consumption, 2005-2030 (in billion gallons per day)



Water Availability and Irrigated Land



Total Irrigation Withdrawals, 2005



Source: U.S. Geological Survey, 2005.

Developed Supply Largely Allocated

(particularly in western U.S.)

- Water rights underlie most consumptive uses
- Irrigation water in West often supplied under long-term contract
- Complex growing demands
 - Over-allocation
 - Hydro power generation
 - Navigation obligations
 - Aquatic habitat



Climate Variation and Change



- Southwest U.S., Texas, and California are prime examples of drought potential
 - Colorado River shortages predicted under climate change scenarios
 - Water shortages now, with or without predictions
-



Water Quality Concerns

Water Quantity

- Many contributing sources
 - Most enforcement is conducted by states and overseen by the federal government
 - Agriculture is largely exempt from many federal regulations
-

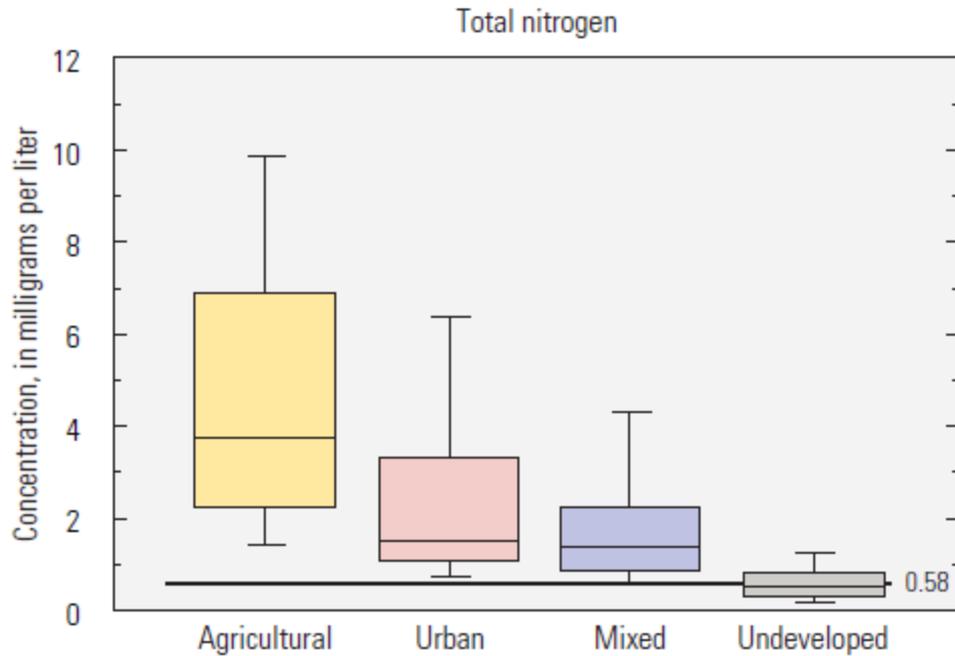
Agriculture and Water Quality

- Sediment
- Nutrients
 - Nitrogen
 - Phosphorous
- Pathogens
- Pesticides
- Salts

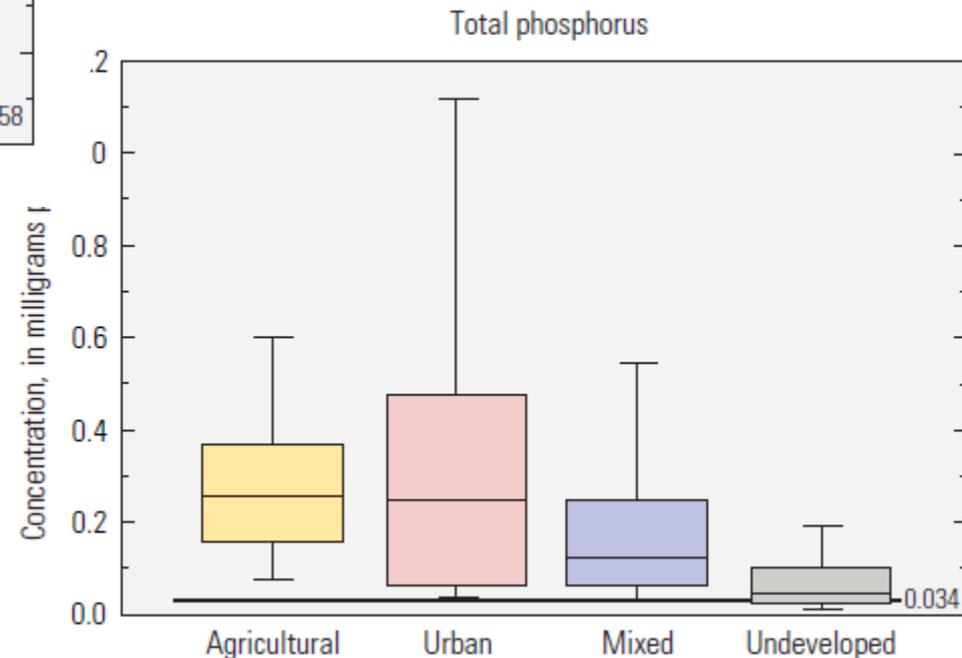


Source: USDA, ARS

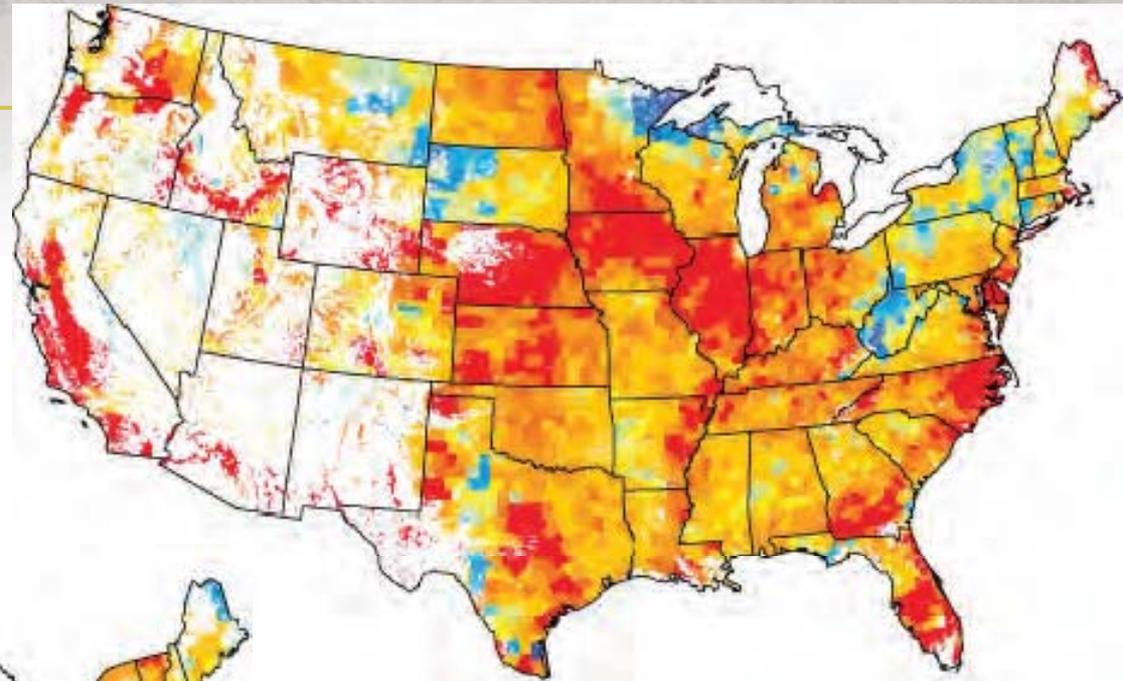
Nitrogen and Phosphorus Concentrations, by Predominant Land Use



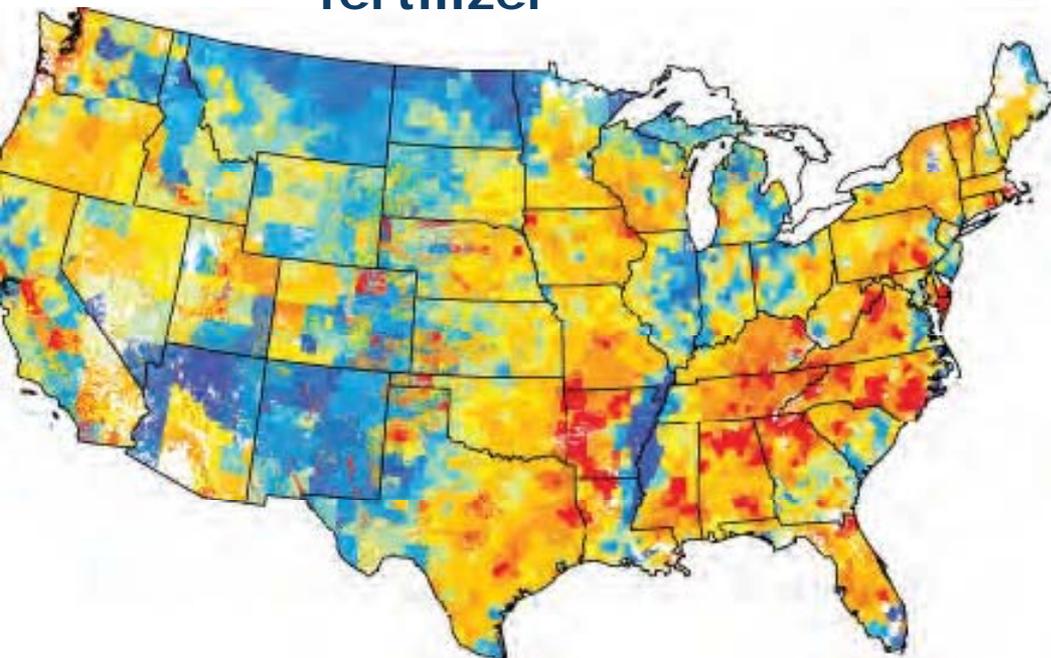
Source: Dubrovsky et al. USGS 2010



Nitrogen from livestock manure



Nitrogen from farm fertilizer



Policy Challenges

- Jurisdiction – water does not flow along state lines
 - Measuring and monitoring
 - Voluntary versus regulatory management
 - Funding
-



Questions?