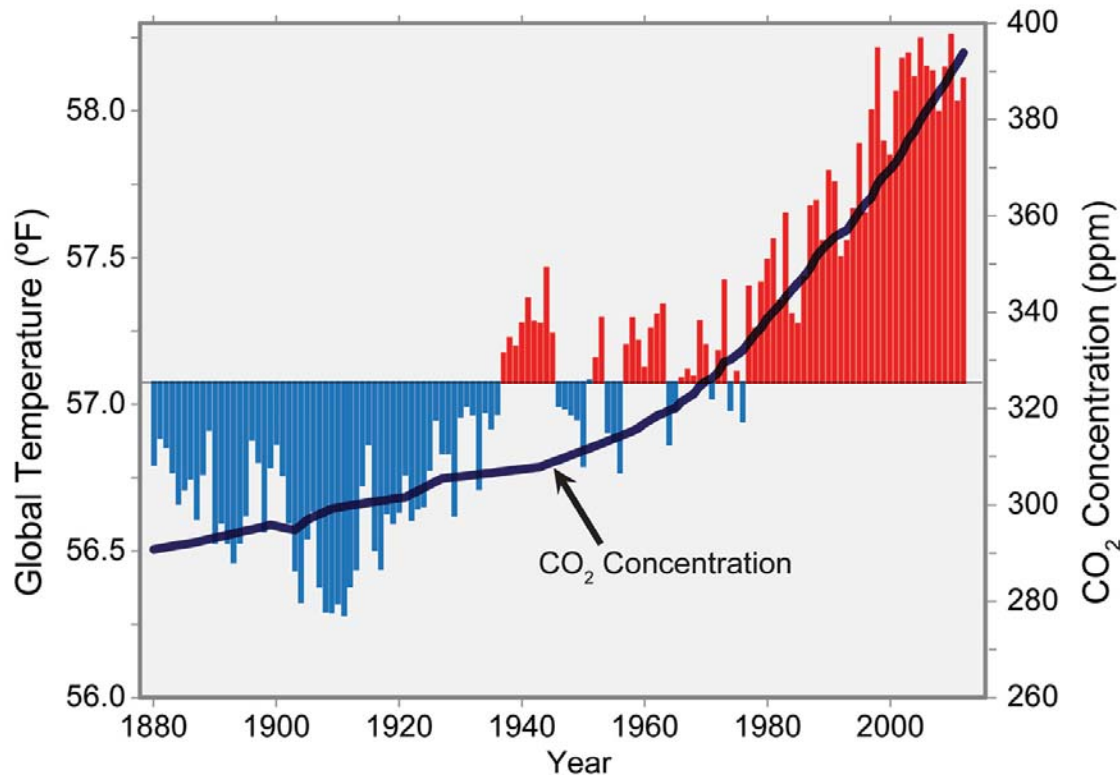


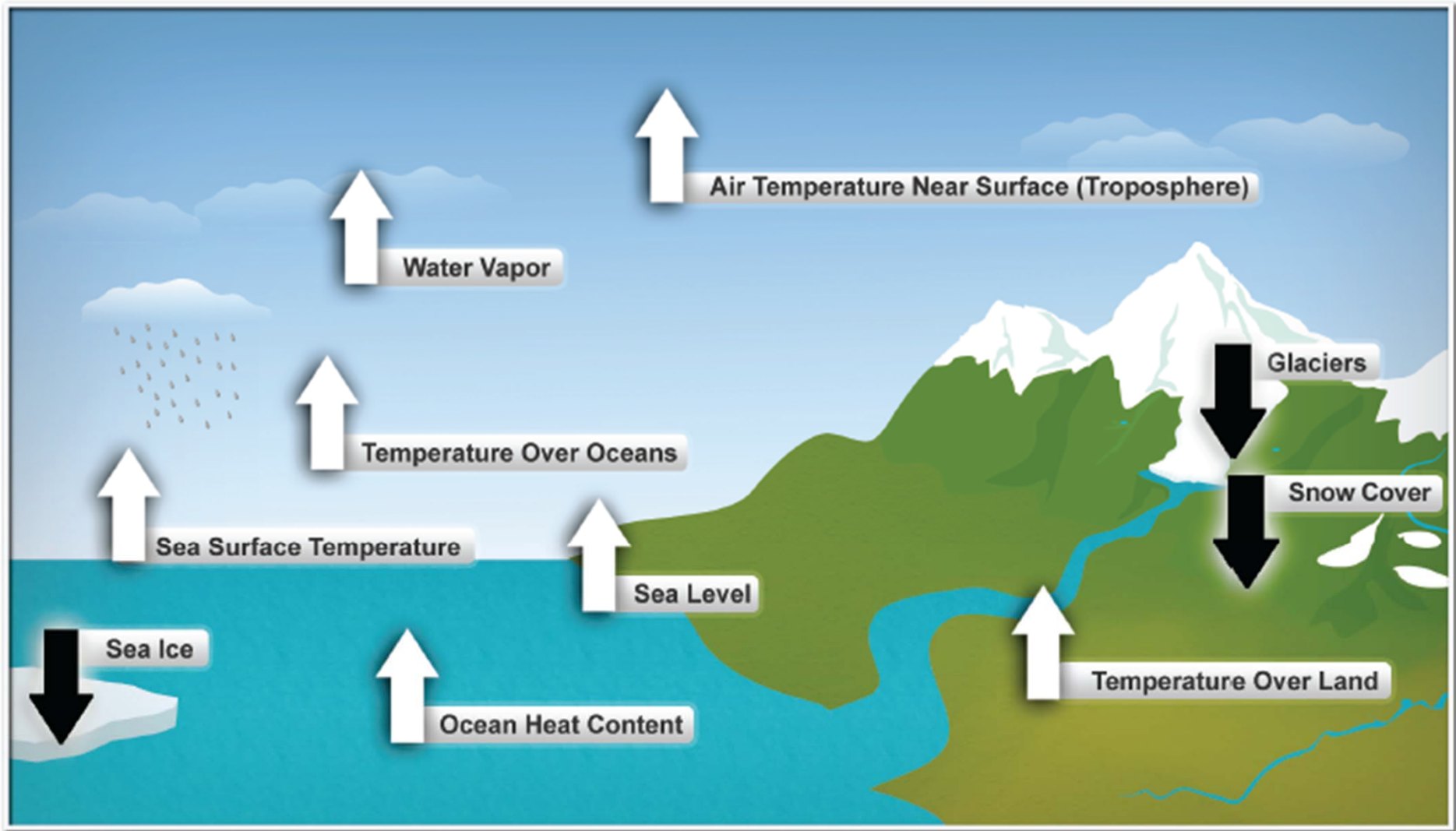
Regional Climate Change in New England: Update from the National Climate Assessment

Scott Doney, Woods Hole Oceanographic Institution

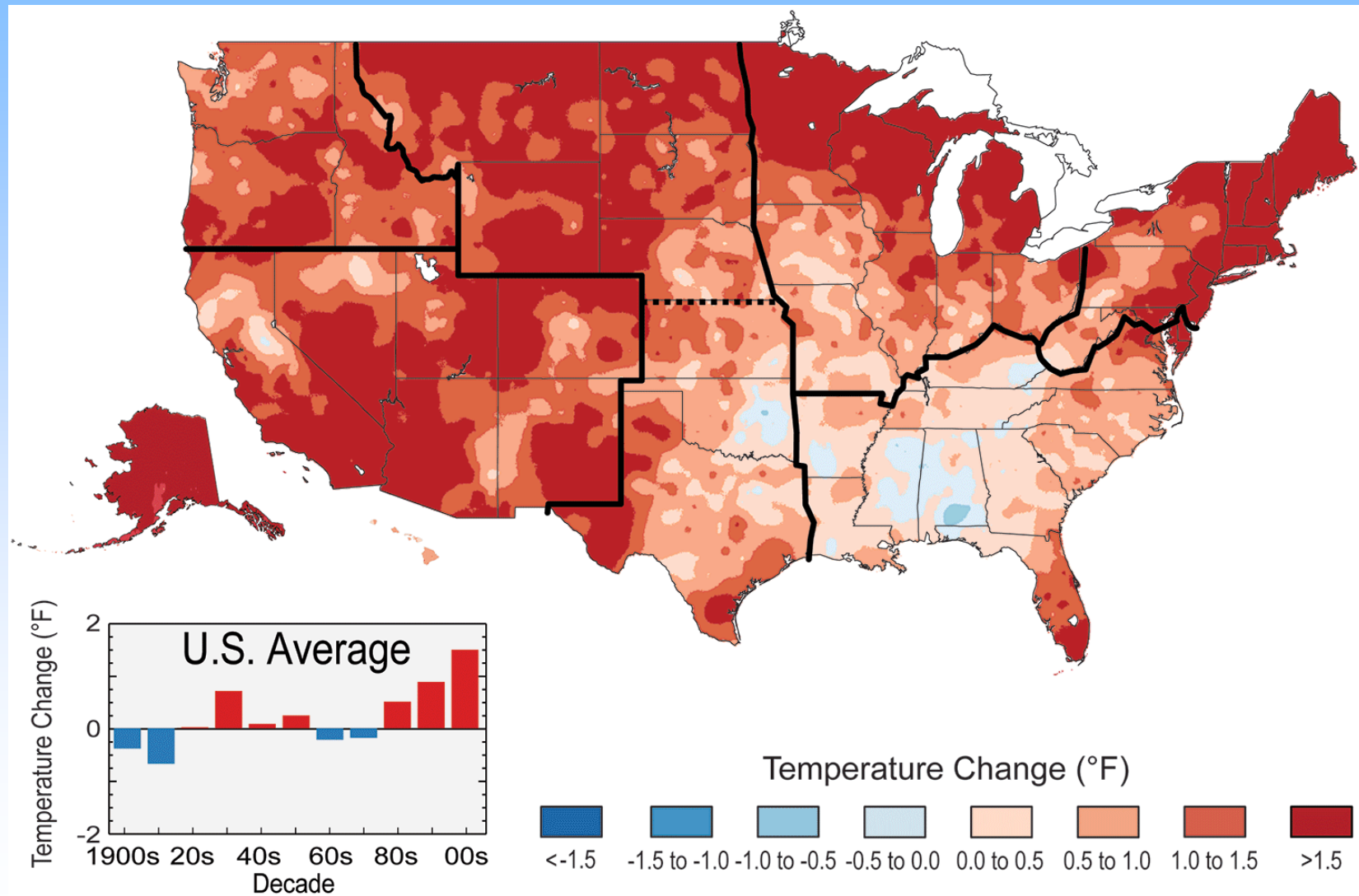


Global Climate is Changing Now

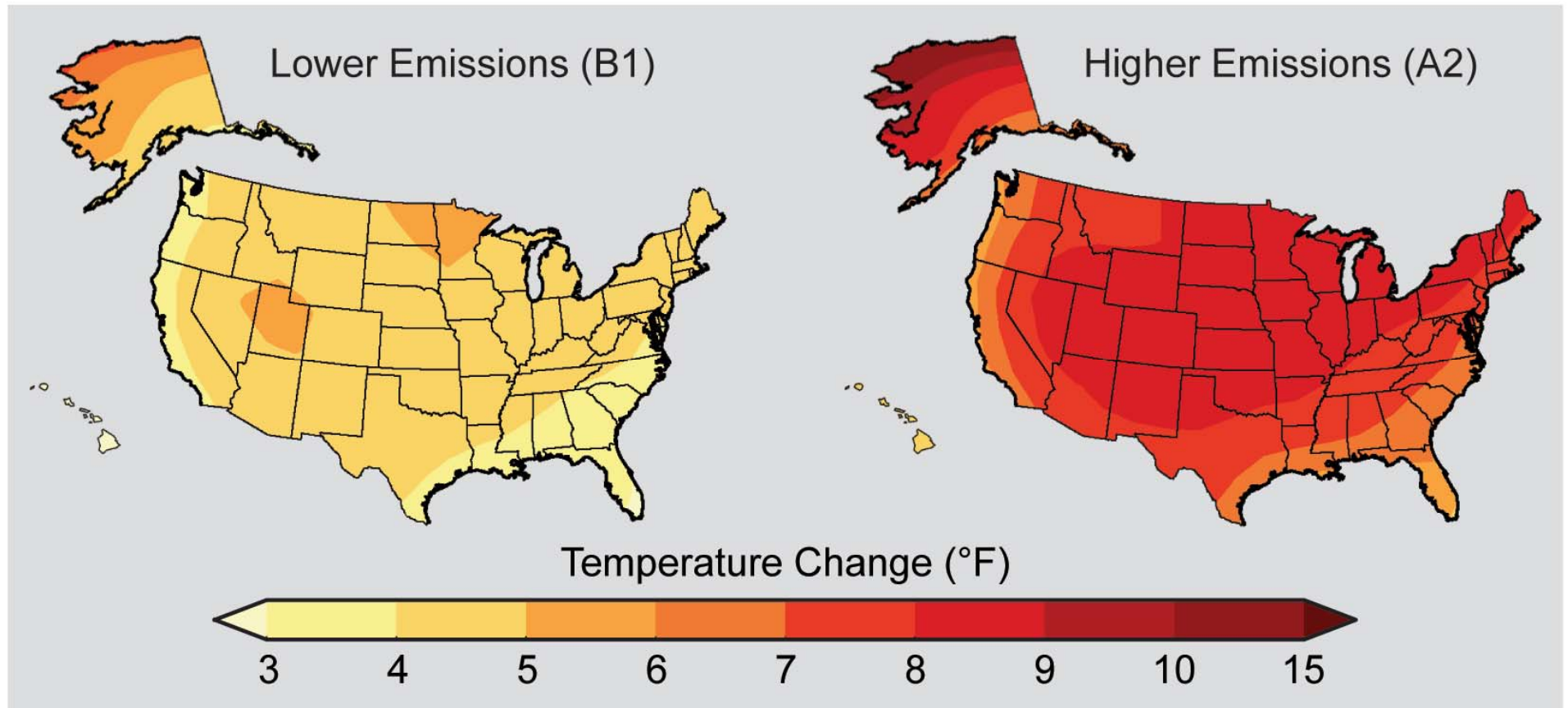
Ten Indicators of a Warming World



Observed U.S. Temperature Change

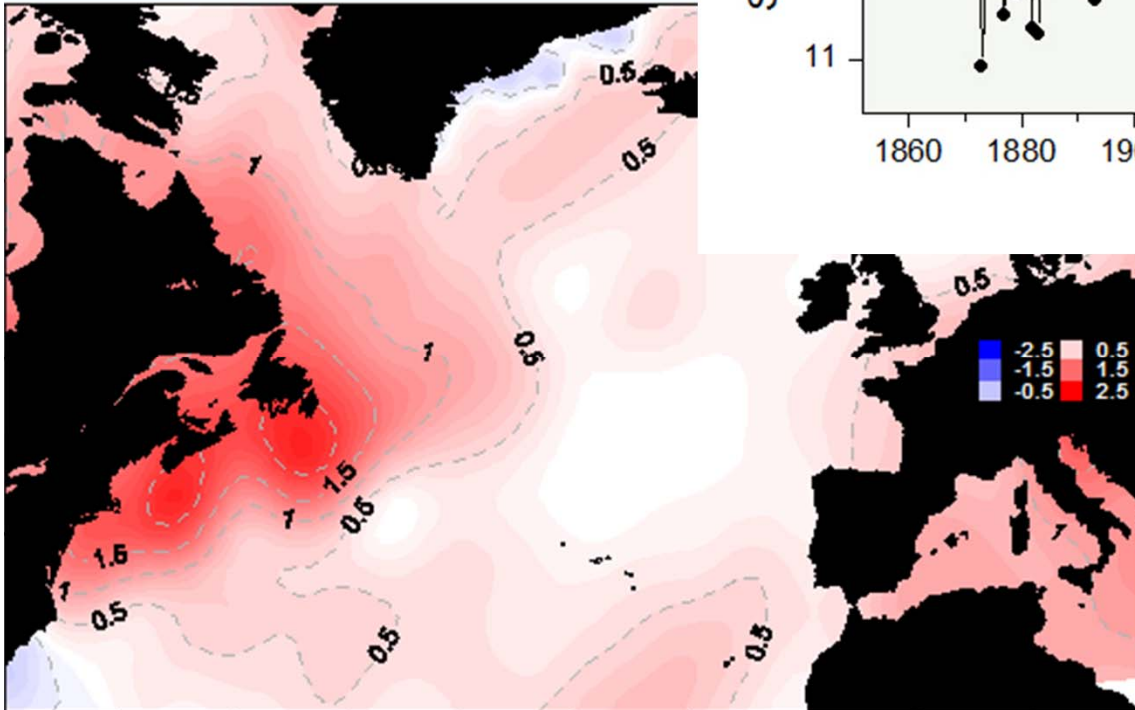


Projected Temperature Change

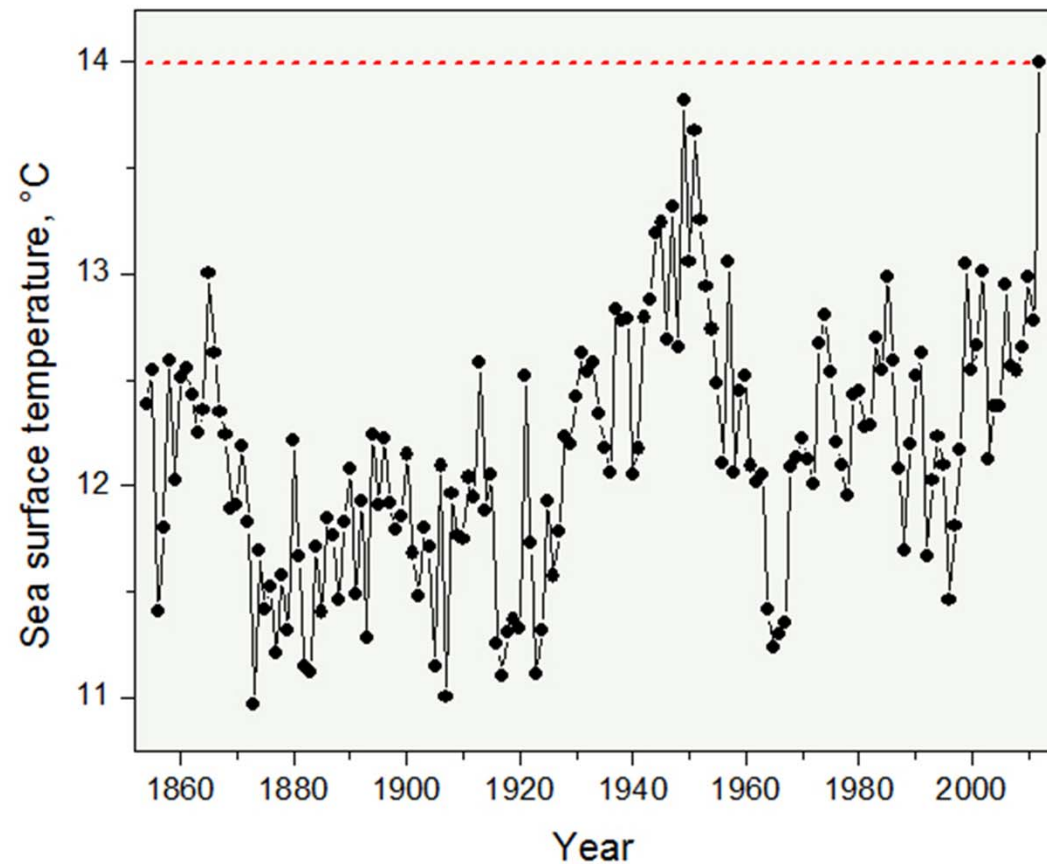


Northeast Shelf Ecosystem

2012 Sea Surface Temperature Anomalies



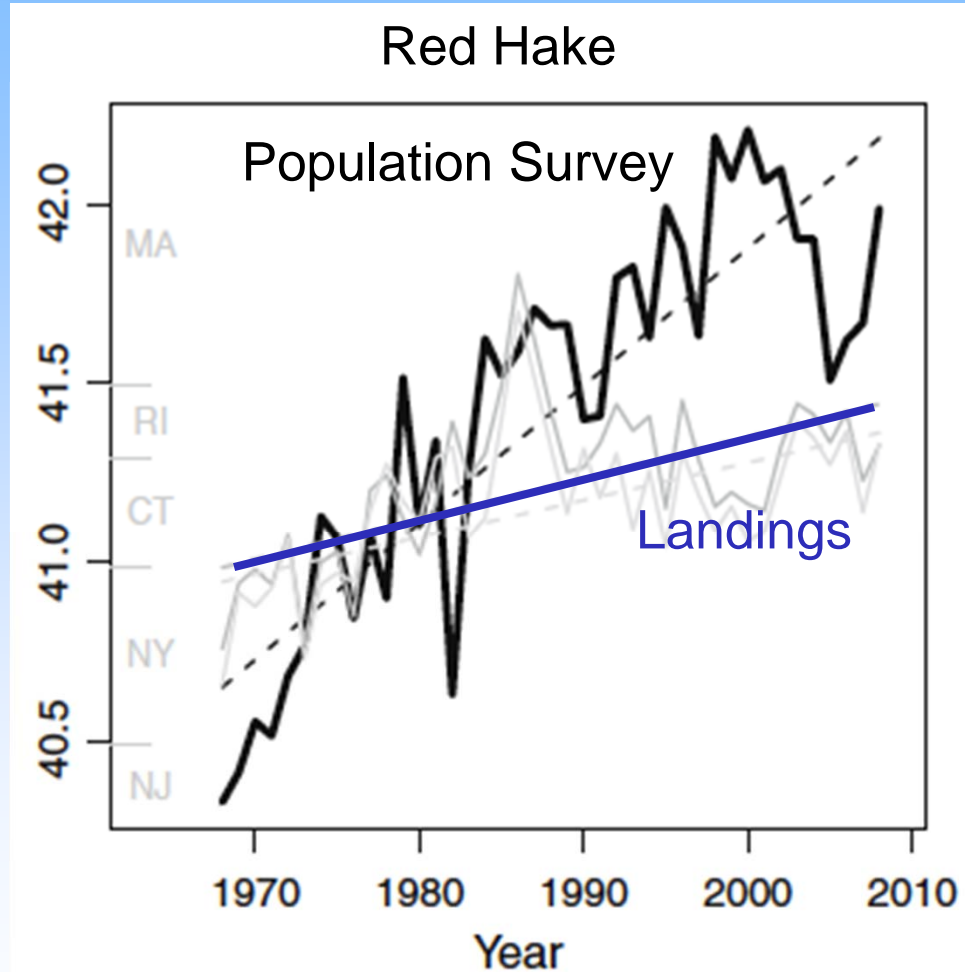
Long-Term Temperature Trends for the Northeast Shelf Ecosystem



Ecosystem Advisory
Northeast Fisheries Science
Center, NMFS

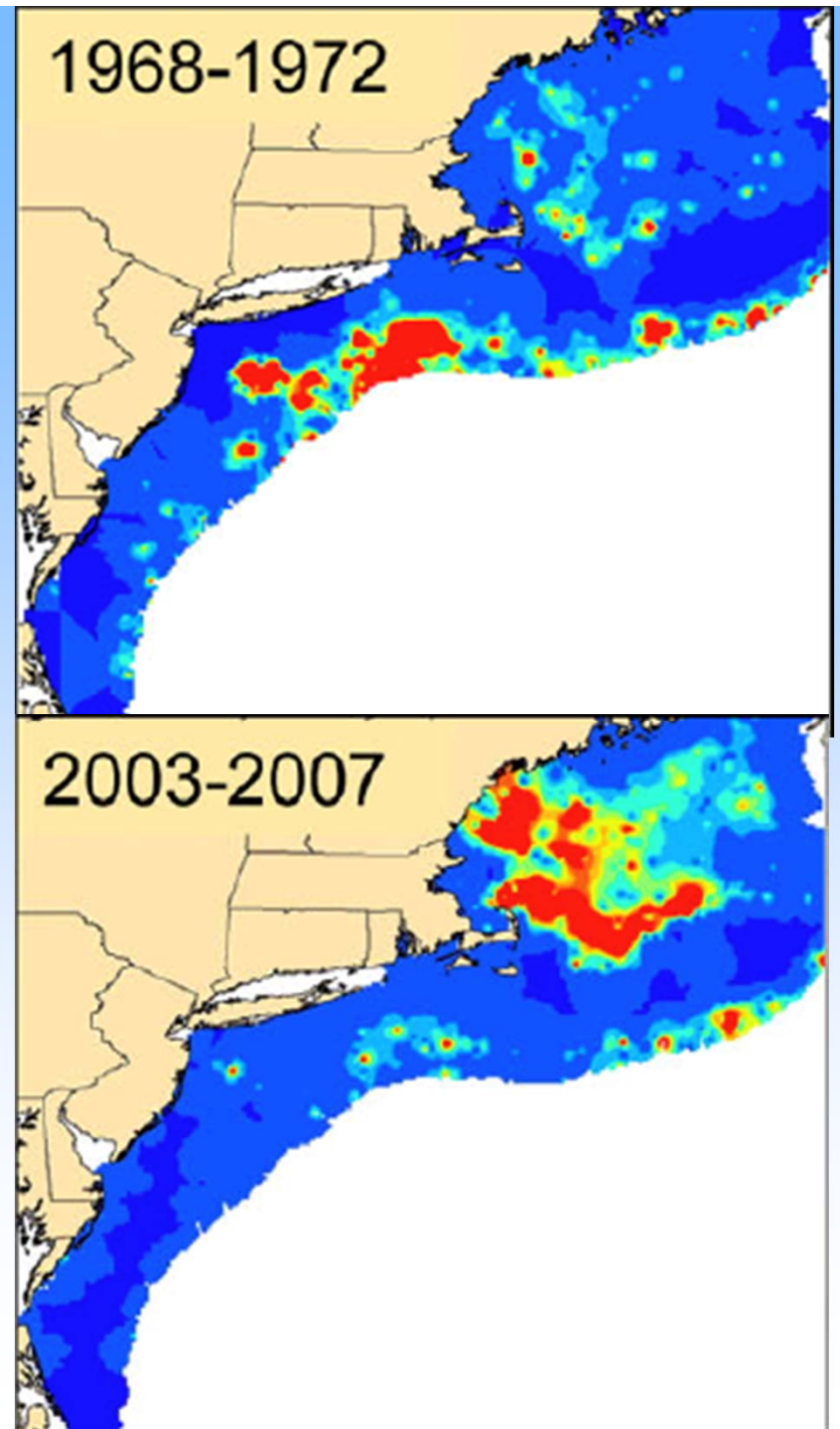


Poleward Range Shifts in Marine Species



Nye et al. MEPS 2010

Pinsky & Fogarty Climatic Change 2012



Regional Fisheries Impacts

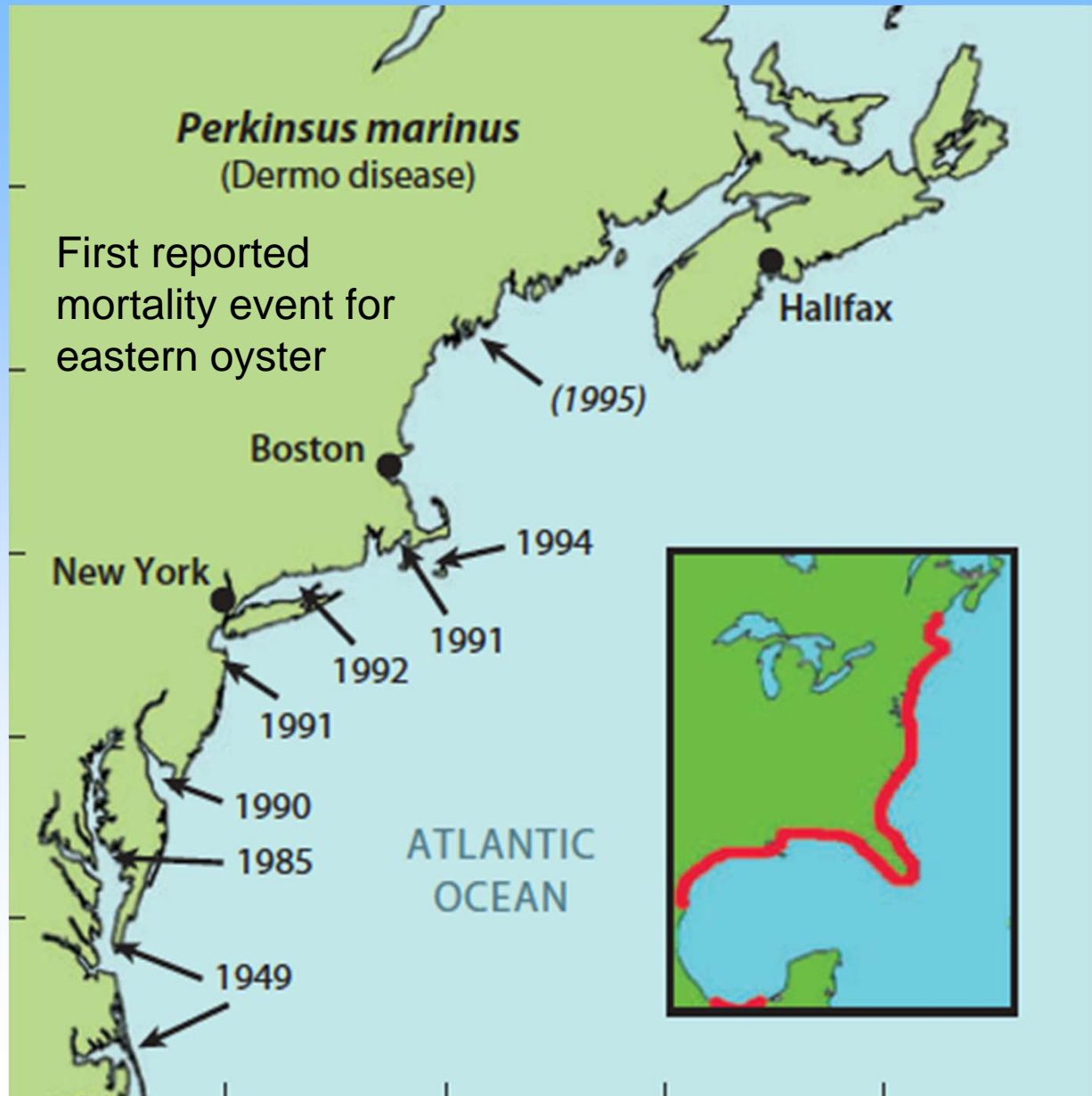
Species	Direction of Impact
Atlantic cod (<i>Gadus morhua</i>)	Negative
Atlantic croaker (<i>Micropogonias undulatus</i>)	Positive
Atlantic lobster (<i>Homarus americanus</i>)	Ambiguous, but perhaps more negative
Atlantic sea scallop (<i>Placopecten magellanicus</i>)	Negative
Blue crab (<i>Callinectes sapidus</i>)	Negative

Table 4-4. Known or expected direction of social and economic impacts on some major northeast commercial and recreational species (based on Hare et al., 2010; Fogarty et al., 2008; Frumhoff et al., 2007).

Griffis & Howard,
National Climate
Assessment
Marine Resources
Technical Input (2012)

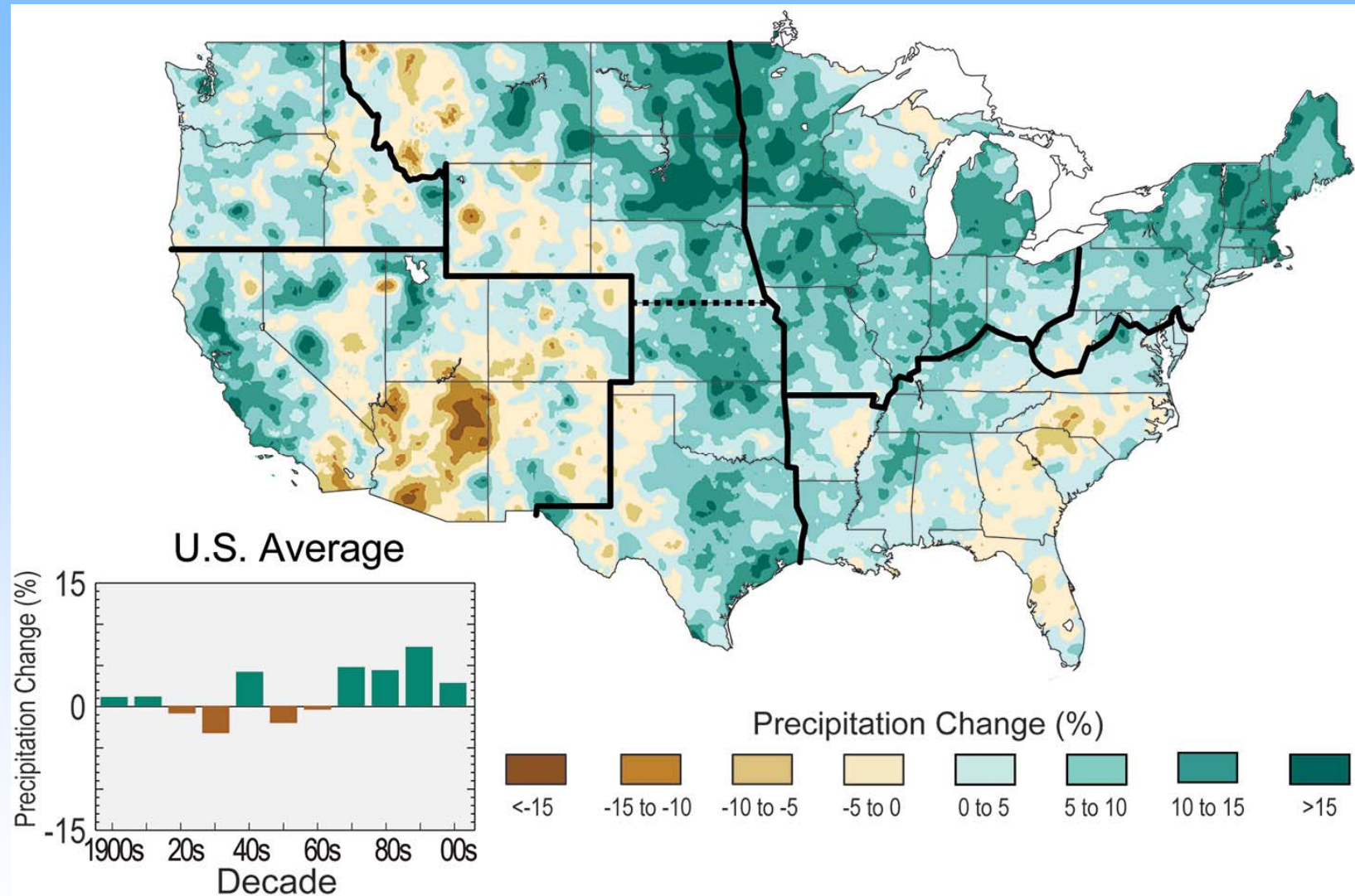


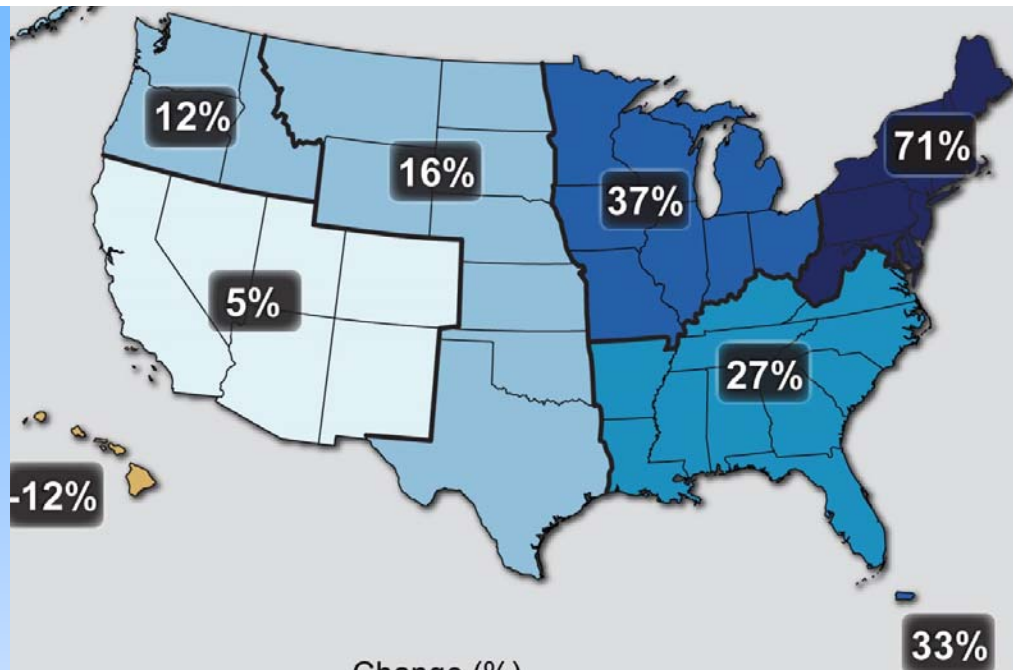
Climate Warming & Marine Diseases



Burge et al.
Ann. Rev. Marine Sci.
2014

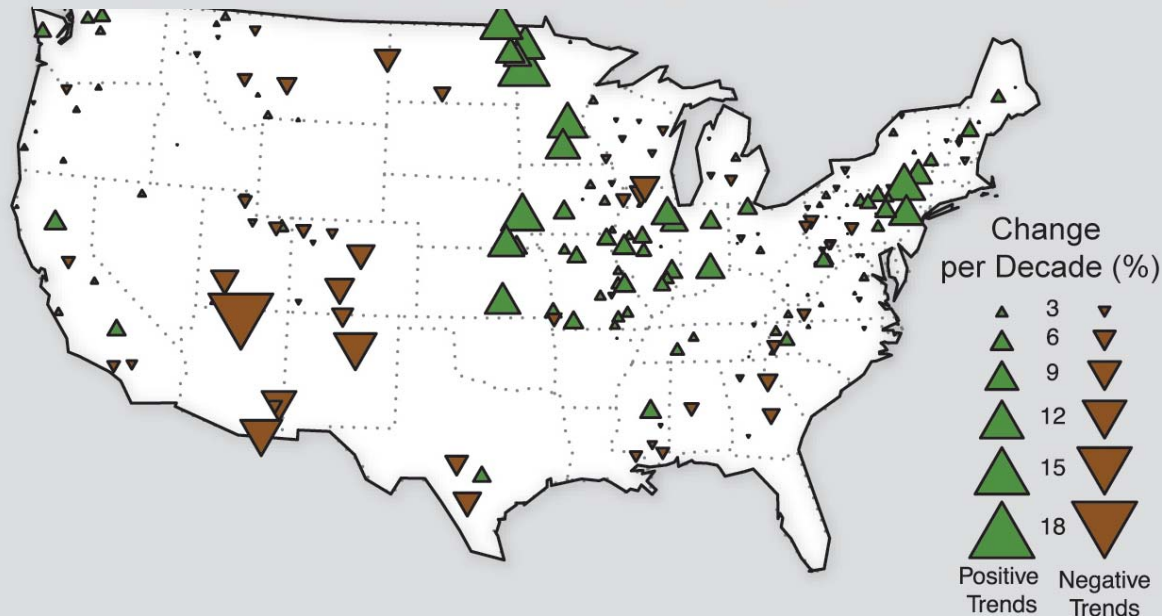
Observed U.S. Precipitation Change



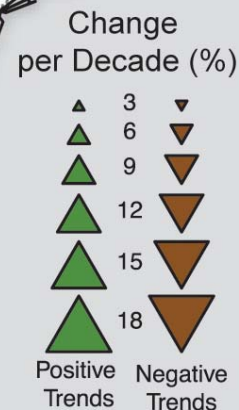


More Intense Precipitation Events & Flooding in Northeast

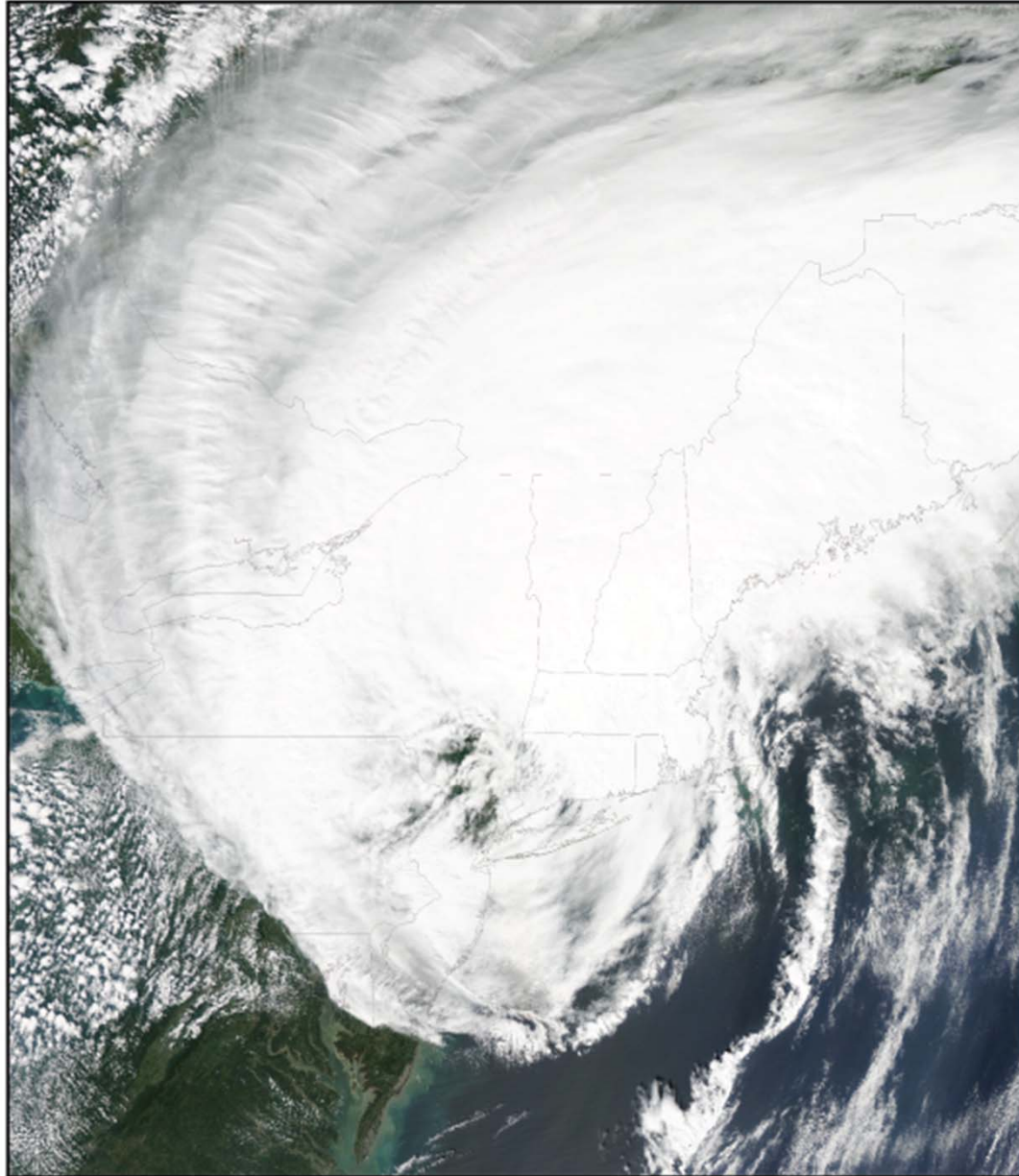
Observed Change in Very
Heavy Precipitation

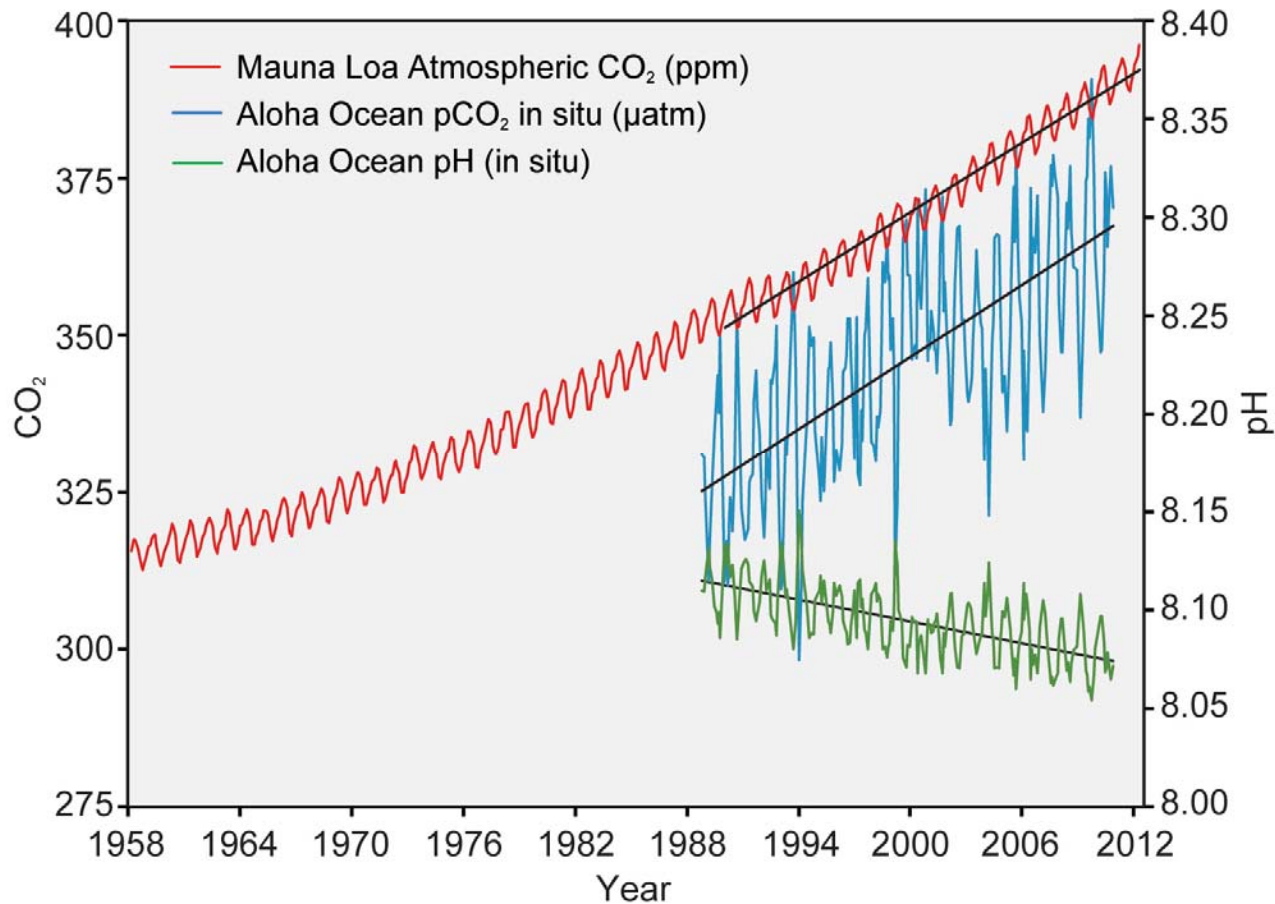


Observed U.S.
Flooding



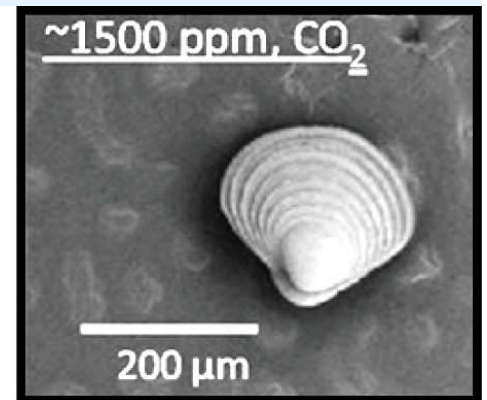
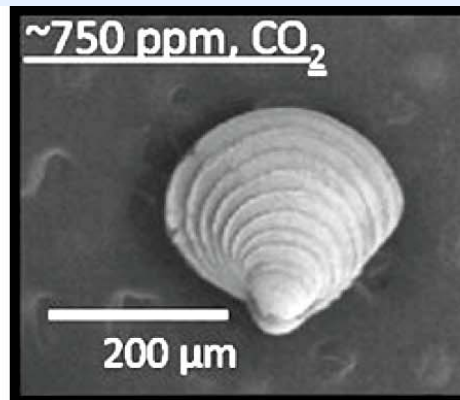
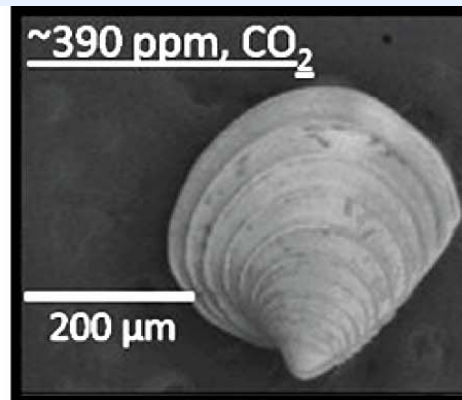
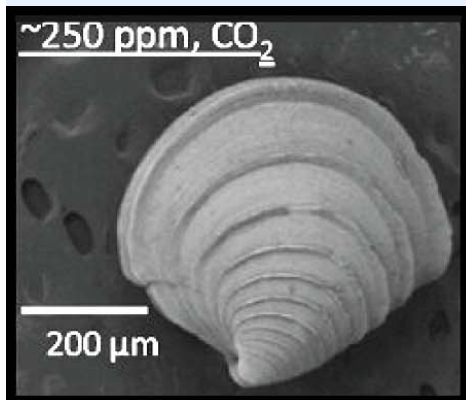
Flooding and Hurricane Irene



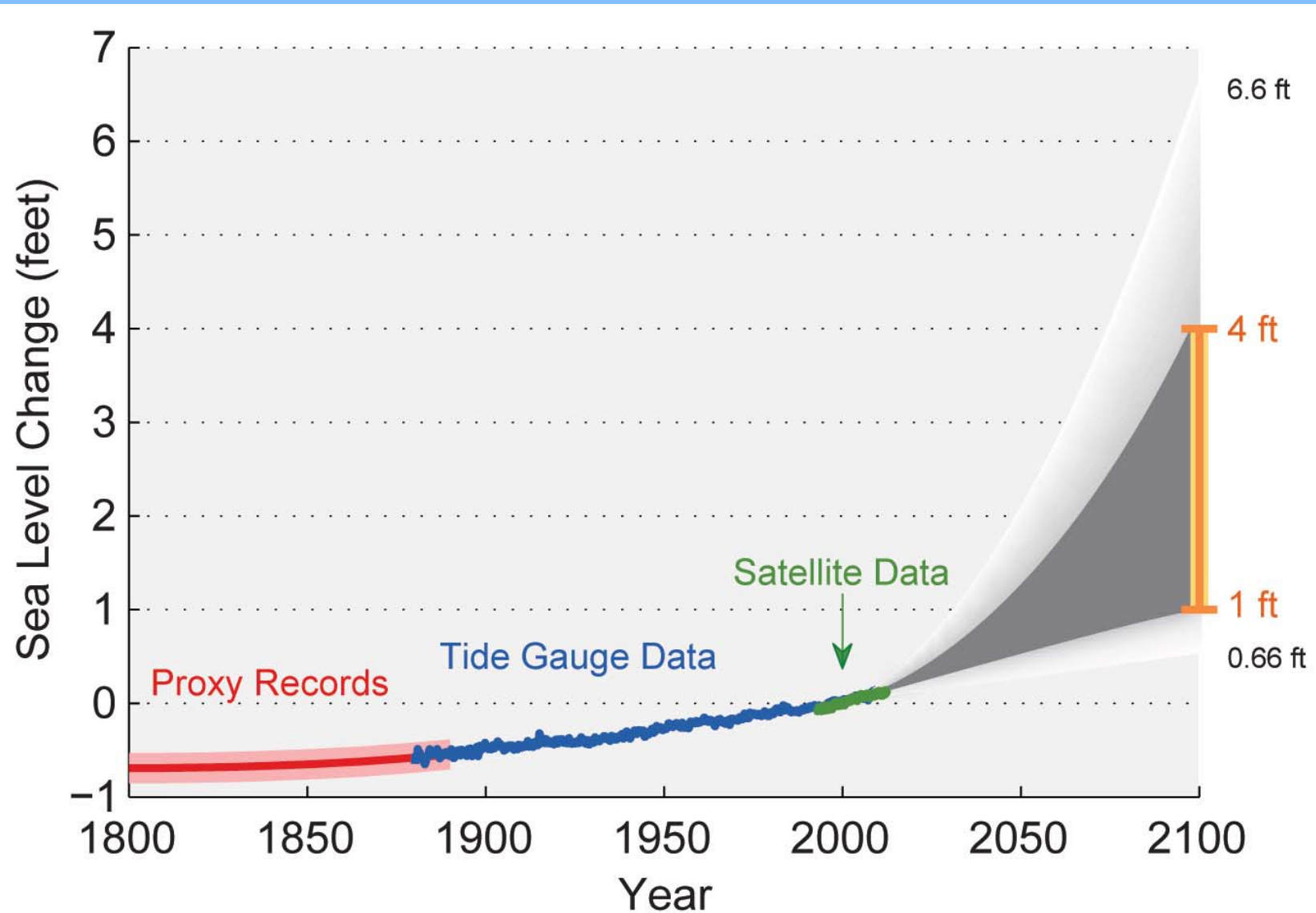


Oceans Absorb CO₂ & Become More Acidic

Ocean acidification reduces size of clams

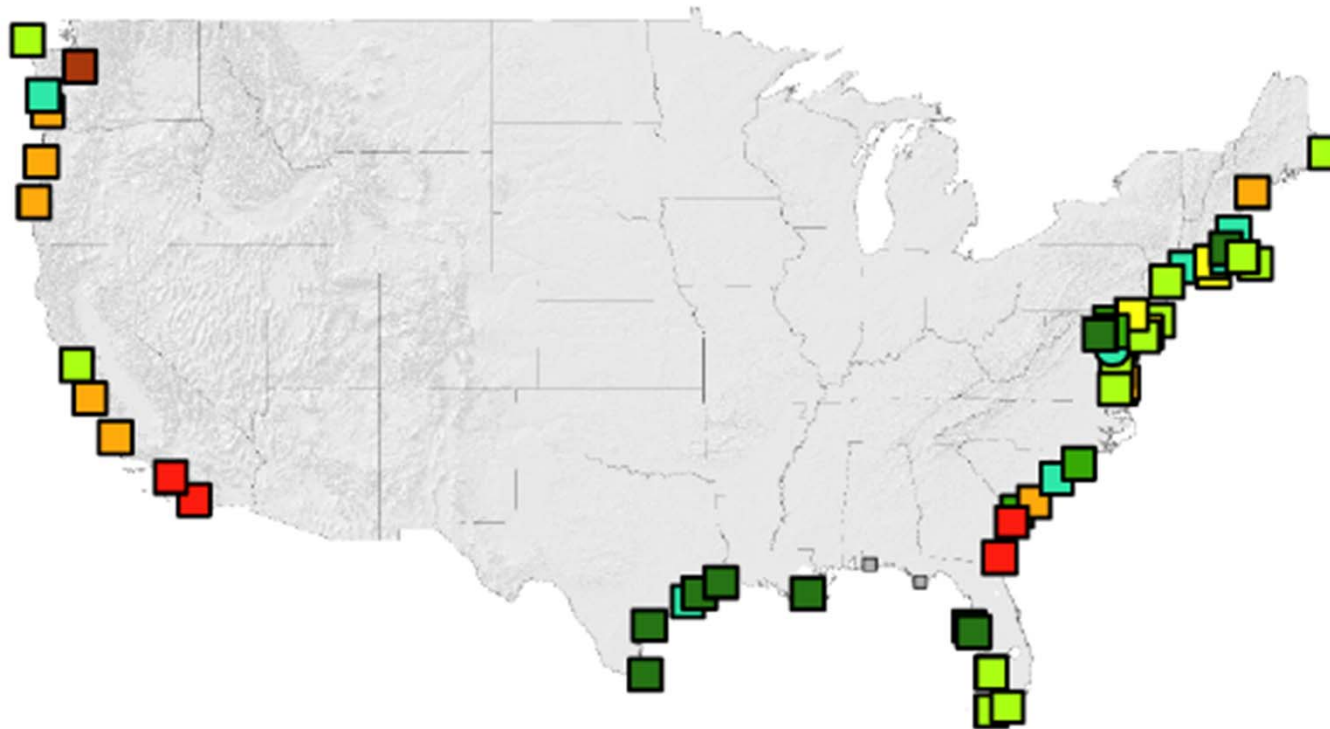


Past and Projected Changes in Global Sea Level



Revised Return Time for Current 100-Year Event

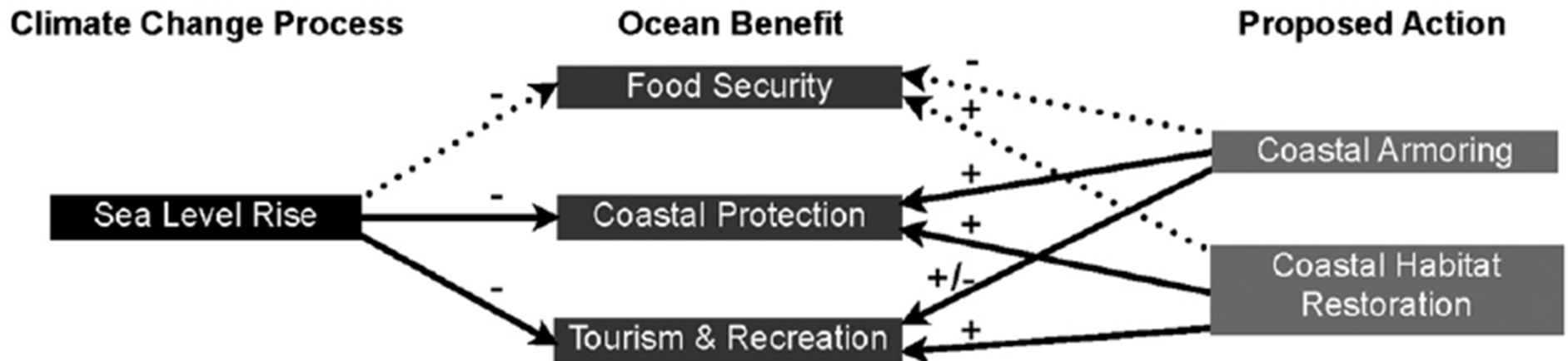
Sea-level Rise & Storm Surge



100-year event return time (years)

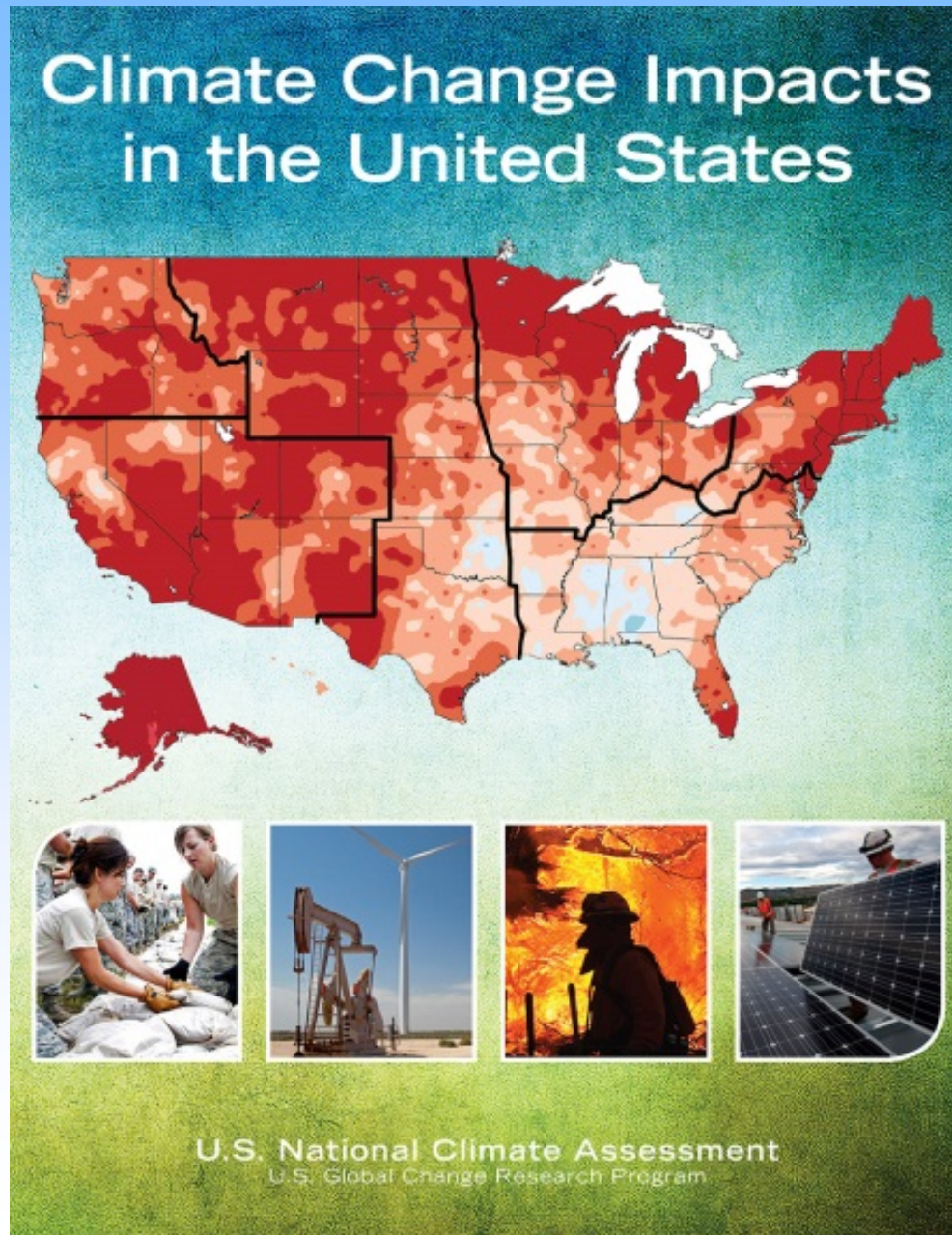


Ocean Benefits & Adaptation



Ruckleshaus, Doney et al.
Marine Policy 2013

Third National Climate Assessment



<http://nca2014.globalchange.gov>



GlobalChange.gov

U.S. Global Change Research Program

