COLLEGE of CHARLESTON

DEPARTMENT OF POLITICAL SCIENCE

Climate Change: Science, Policy, and Politics

Matthew C. Nowlin
Associate Professor
Dept. of Political Science
College of Charleston

October 2019

Overview

The Science

It's happening

It's us

It's a big risk

The Policy

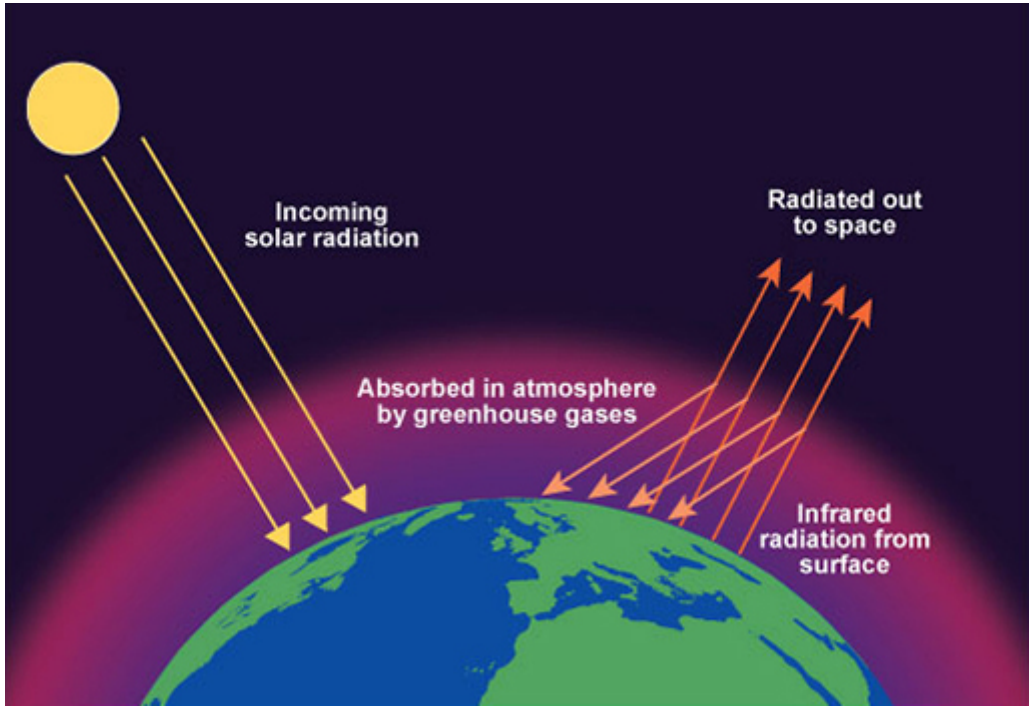
What can we do about it?

The Politics

Why aren't we doing it?

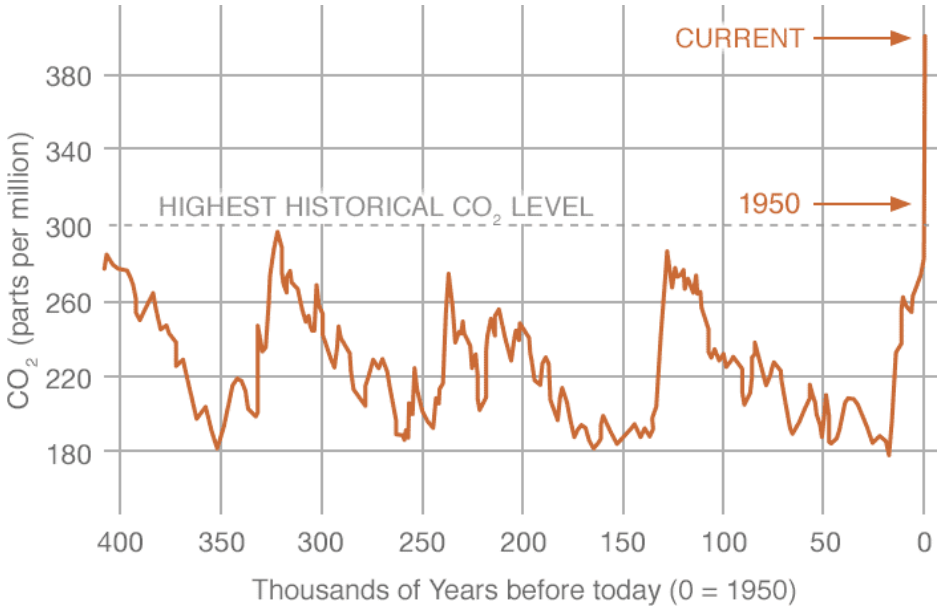
The Science

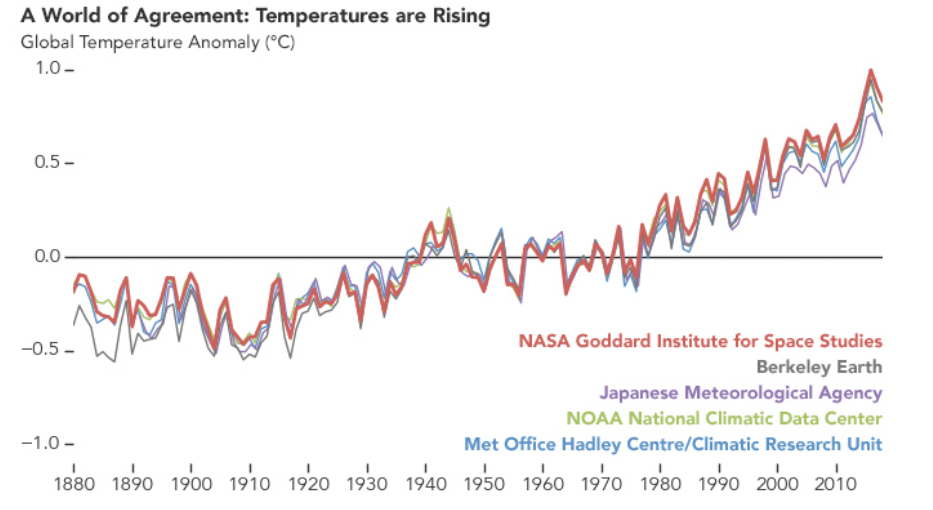
The Greenhouse Effect



Carbon Dioxide Levels and Global Temperature

It's happening and it's us





The Risks: Anticipated Effects of Climate Change

Increasing Temperatures

- 18 of the 19 warmest years have all occurred since 2001
- 2016 warmest year on record
- More heat waves

Precipitation Patterns

- Average US precipitation has increased since 1900
- A warmer atmosphere can hold more water vapor
- Increased drought

Hurricanes

- Stronger and more intense
- Hurricane Harvey (2017) and Hurricane Florence (2018) rainfall

Sea Level Rise

- Project to be 1 to 4 feet by 2100

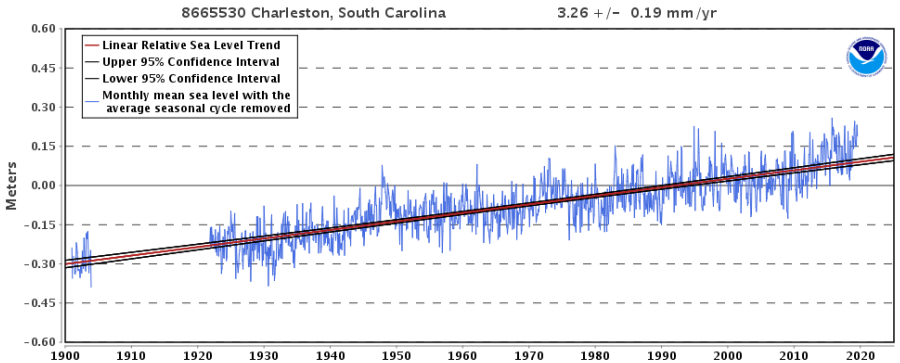
Sea Level Rise in Charleston

Sea level around Charleston is up about 10 inches since 1950

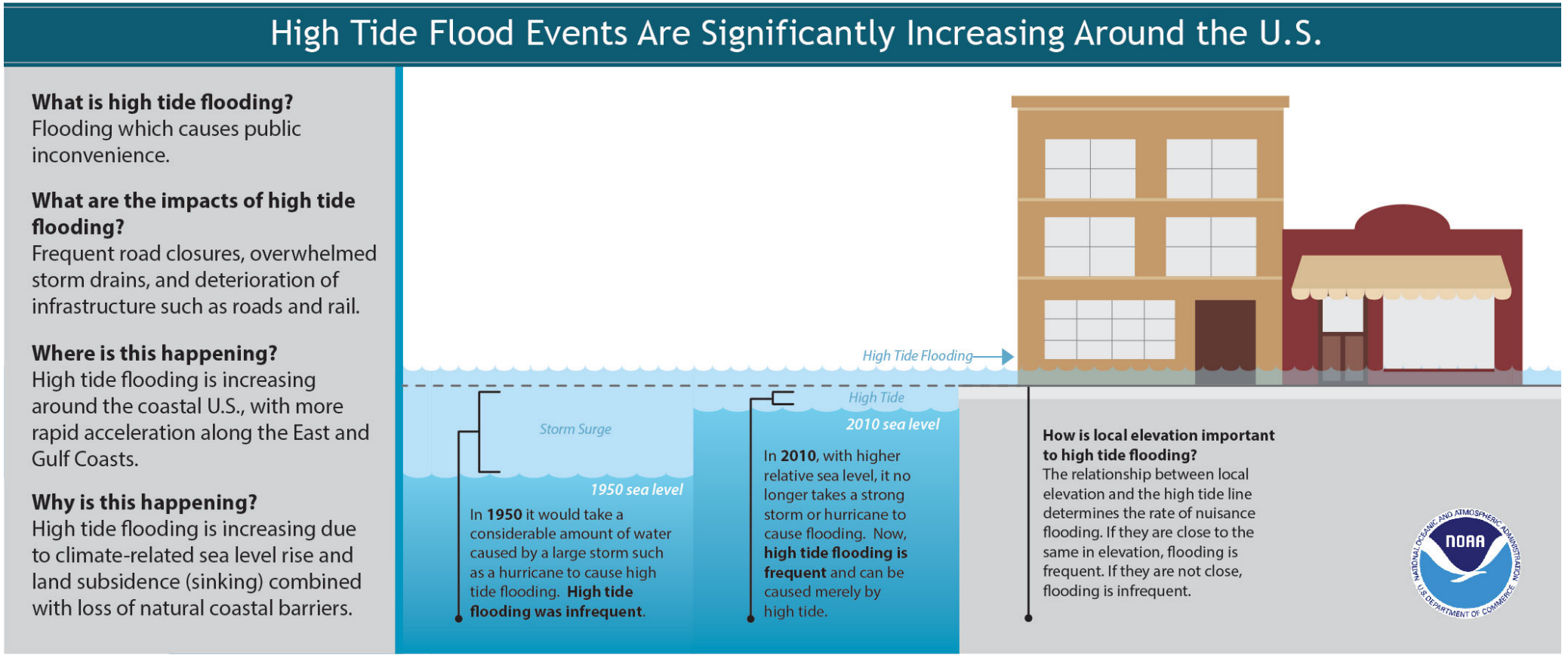
Speed is accelerating

Tidal flooding

- About 2 days a year in 2000, now about 5 days a year
- Record of 9 days in 2015
- Up to 10-20 days in 2030 and 35-90 days in 2050



High Tide Flooding



The Policy

Climate change is the ultimate collective-action problem

Collective-Action Problems

Individual choices impact shared outcomes

Prisoners Dilemma

- *Confess for reduced jail time*

Free-riding

- *Why should we reduce our emissions if China won't*?

Externalities

- *Impacts to outside parties*

Tragedy of the commons

- *Exploit a resources until it's gone*

Climate Policy

Mitigation

- Policies aimed at reducing greenhouse gas emissions

Adaptation

- Policies aimed at adapting to changes already taking place

Federal Law

- *Massachusetts v EPA* (2007)
- EPA Endangerment Finding (2009)
    - *Clean Power Plan* (Obama)
    - *Affordable Clean Energy* (Trump)

Policy Instruments to Address Climate Change

Regulations vs. Market-based approaches

Regulations

Technology-based

- *e.g., scrubbers*

Performance-based

- *e.g., Renewable Portfolio Standards, Clean Power Plan*

Market-based (carbon pricing)

Using markets

- *e.g., carbon tax*

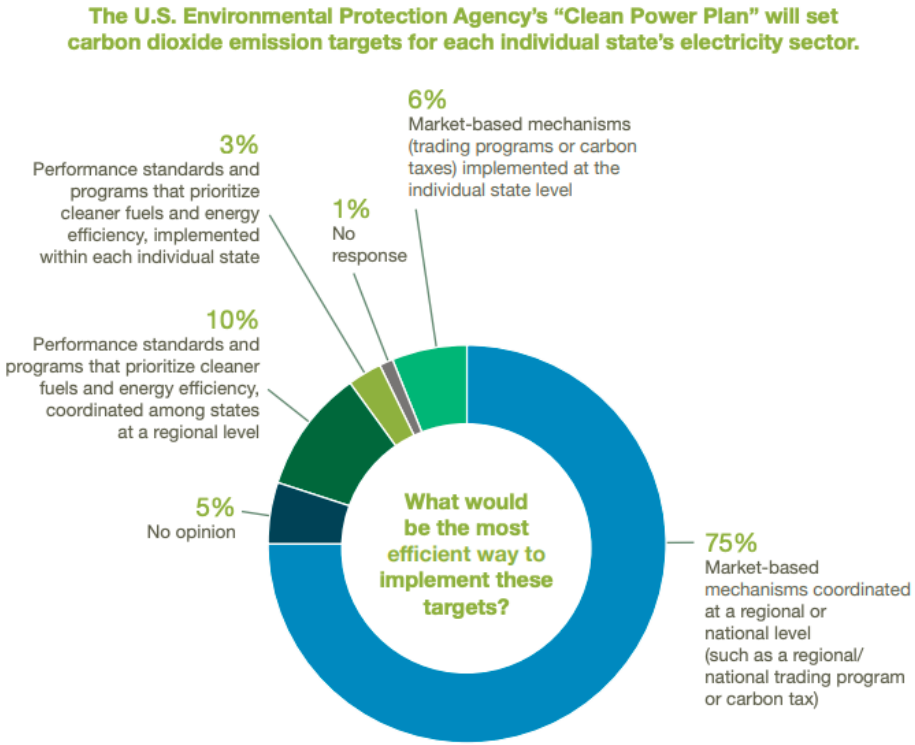
Creating markets

- *e.g., cap-and-trade*

Economists and Efficiency

What economists view as the "most efficient" instrument

- **75% national / regional carbon pricing**
- 10% regional performance standard
- 6% state-level carbon pricing
- 3% state-level performance standards



Policy Instruments to Address Climate Change

Other approaches

Polycentricity

- Federalism
  - *e.g., state policies*
- Action at all levels of government

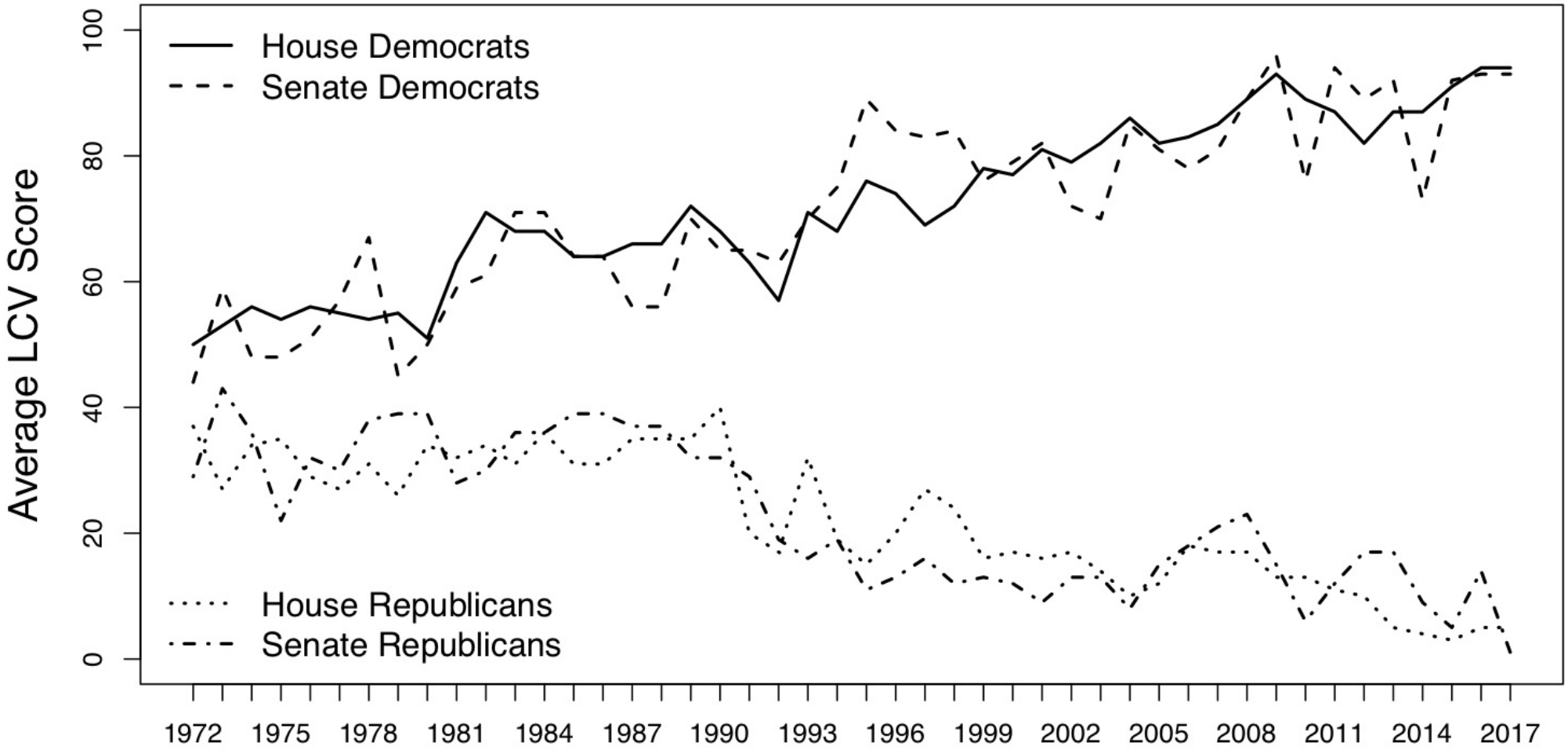
Green New Deal

- A set of goals
- **Mobilization vs. Persuasion**

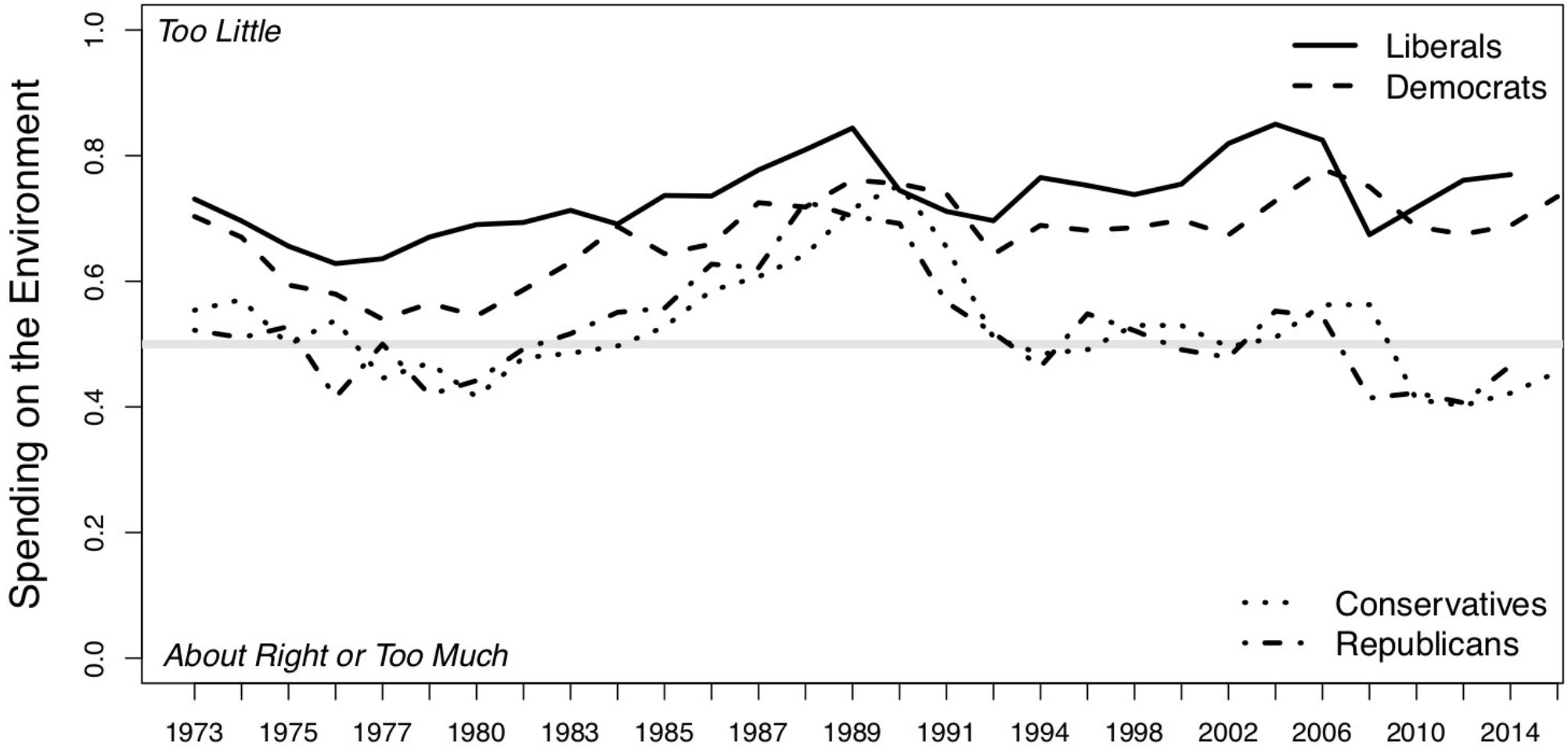
We need multiple approaches

The Politics

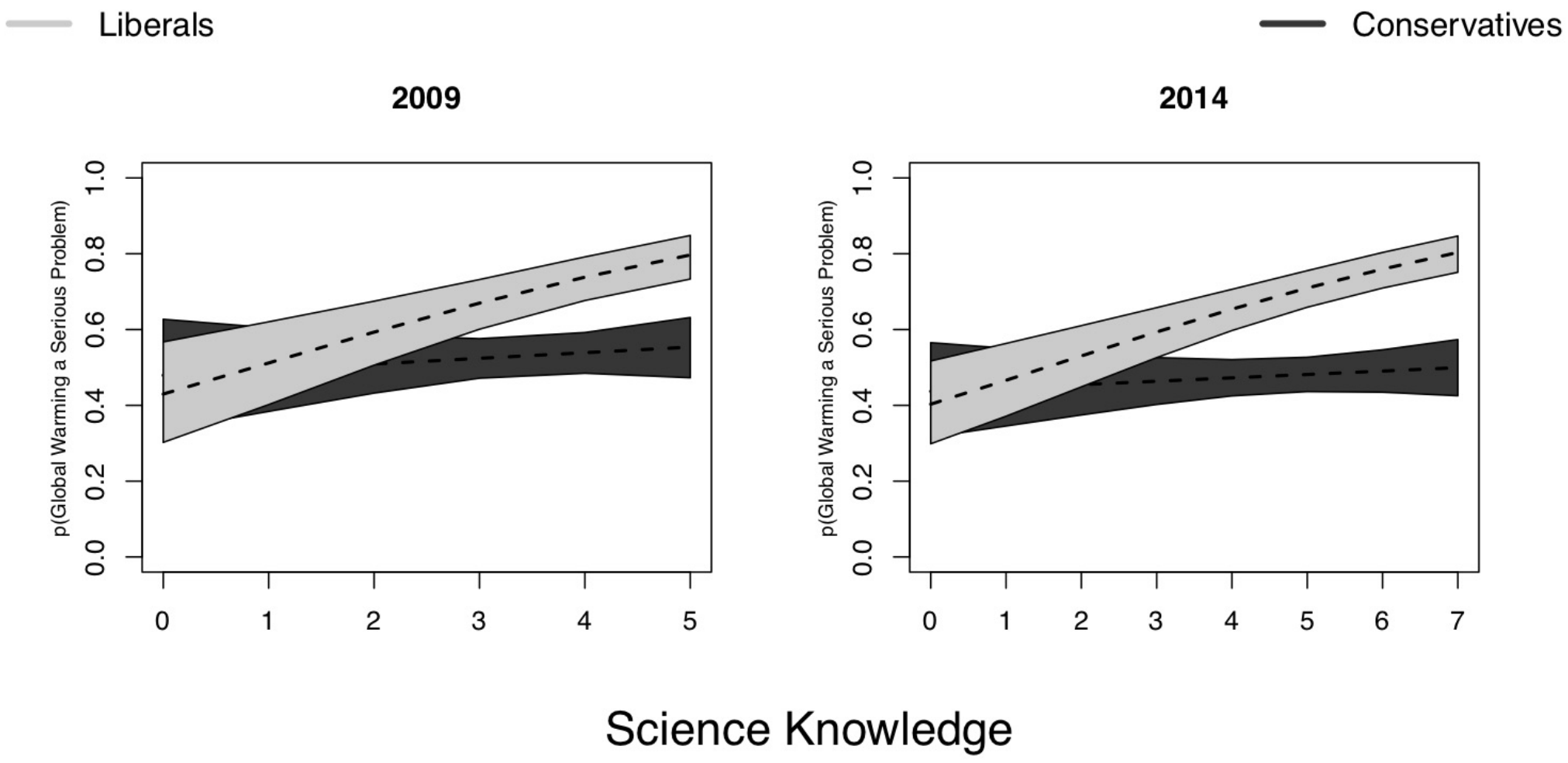
Polarization: Elite



Polarization: The Public



Polarization: The Public



Climate Beliefs of the Public

	Not Happening	Not Anthropogenic	No/Low Risk	Consensus
Is it happening?	No	Yes	Yes	Yes
Is it due to humans?		No	Yes	Yes
Is it a moderate to extreme risk?			No	Yes
Total %	**10%**	**21%**	**8%**	**58%**

National survey data from October 2017

Polarization

Elite driven

- Debate around Kyoto

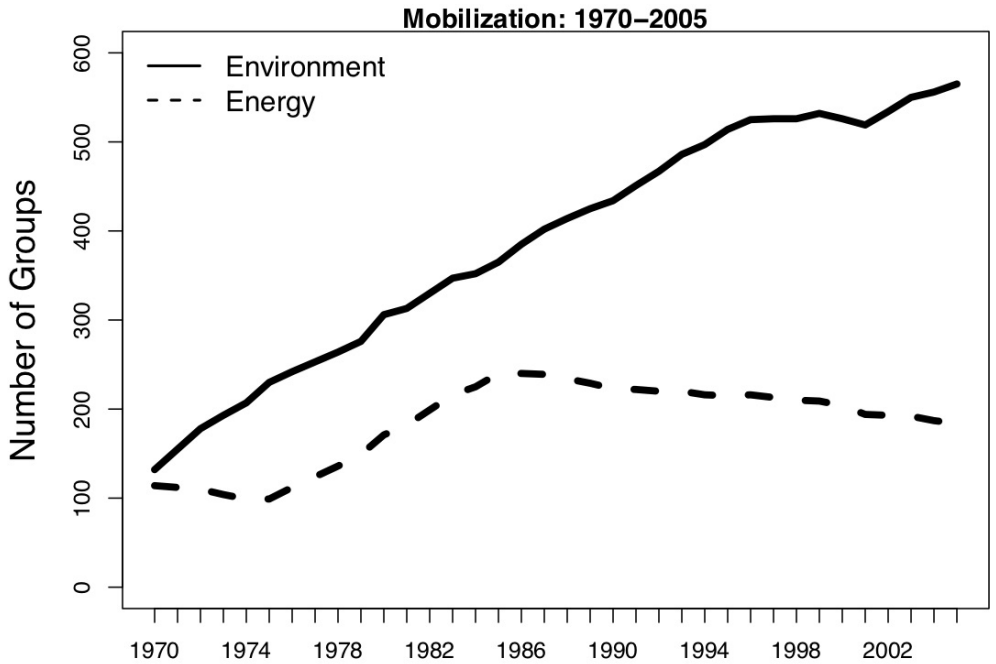
Solution aversion

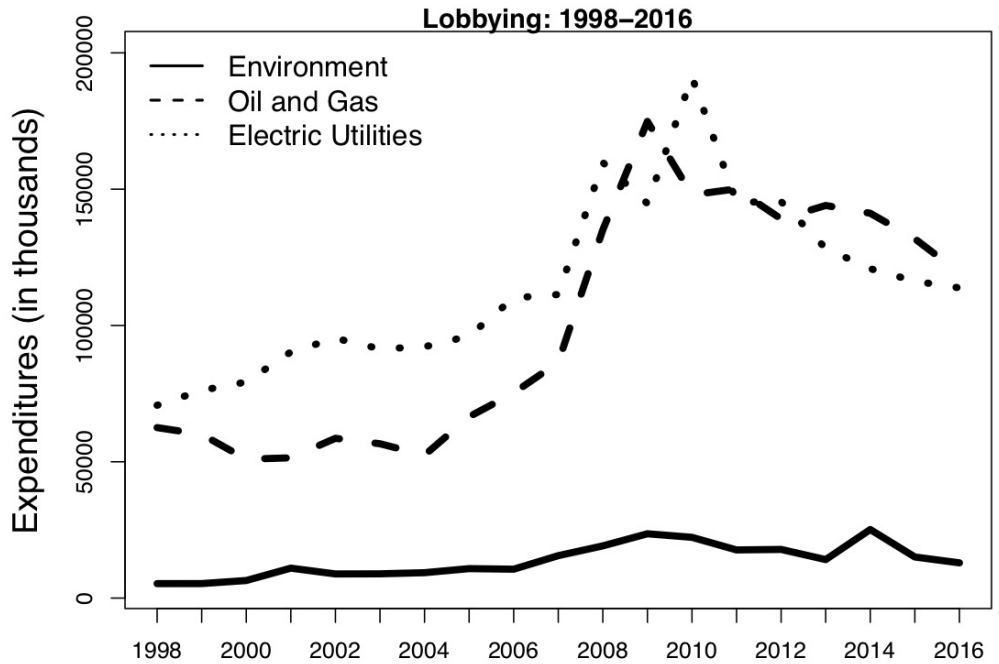
- Concerns about "big government"

Lobbying

- Climate change counter movement

Lobbying


Mobilization: 1970–2005
Environment
Energy
Number of Groups
0
100
200
300
400
500
600
1970
1974
1978
1982
1986
1990
1994
1998
2002


Lobbying: 1998–2016
Environment
Oil and Gas
Electric Utilities
Expenditures (in thousands)
0
50000
100000
150000
200000
1998
2000
2002
2004
2006
2008
2010
2012
2014
2016

Local Adaptation

Restrict development

Develop long-range planning

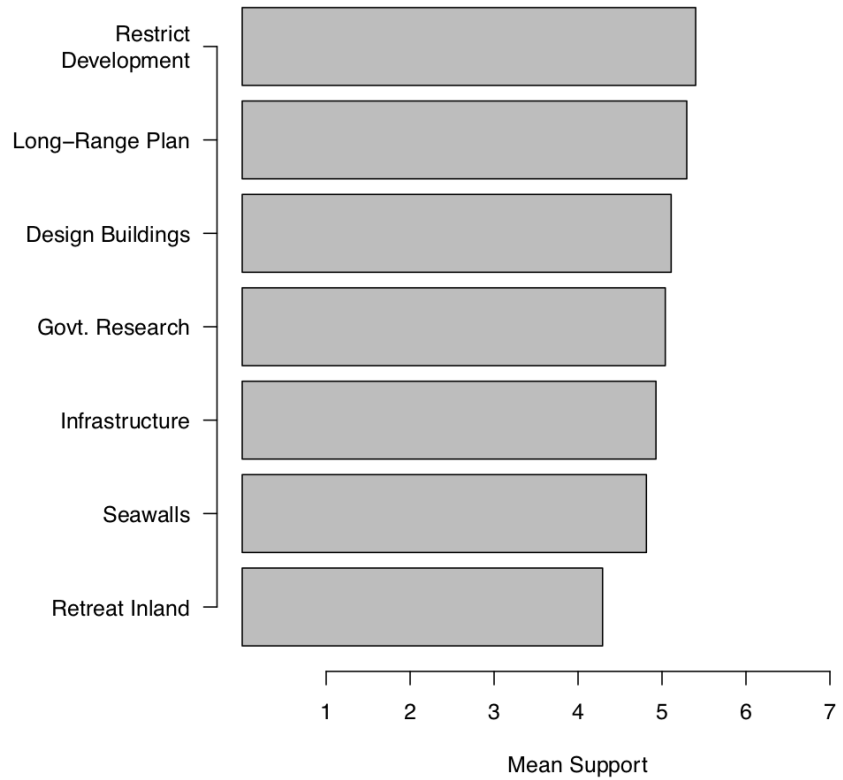
Design buildings to more resilient

Local government research

Infrastructure

- Gray and green

Inland retreat



Social Movement

COLLEGE of CHARLESTON

DEPARTMENT OF POLITICAL SCIENCE

Thanks!

Contact

Email: nowlinmc@cofc.edu

Website: matthewcnowlin.com