4C George Mason University
Center for Climate Change Communication

RISKY BUSINESS

Engaging the Public in Policy Discourse on Sea-Level Rise and Inundation

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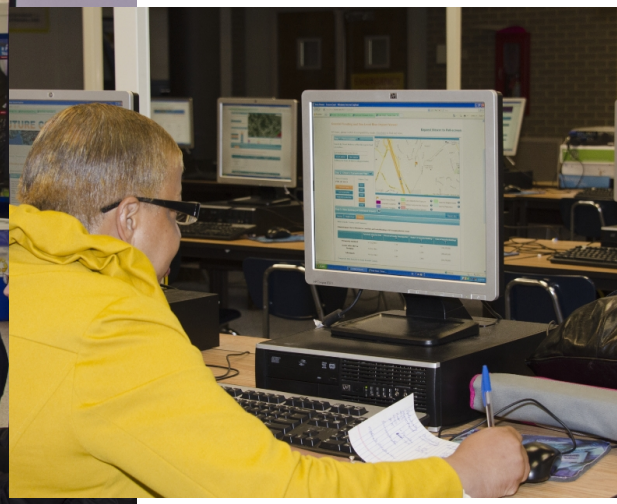
Center for Climate Change Communication, George Mason University

Hampton Roads Sea Level Rise/Flooding Adaptation Forum
Old Dominion University's Regional Higher Education Center
Virginia Beach, VA | July 10, 2013

FUTURE COAST
Anne Arundel

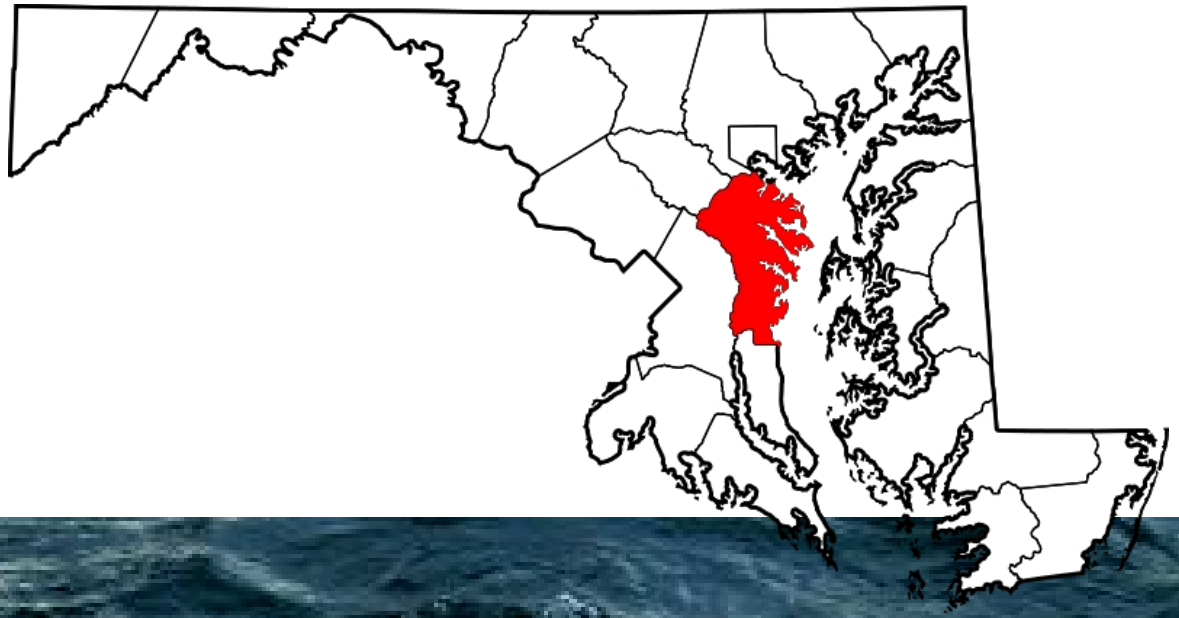


erative model for public engagement, including a viewer providing the public with household-level sea-level rise impacts data

2) Determine usefulness and replicability of engagement model for other communities, especially in ability to counteract cultural polarization

Project Goals

1) Deliberative community event in Anne Arundel County, Maryland in spring 2012
2) Surveys: pre- and post-event of county and event attendees
3) Creation of sea-level rise viewer with household-level risk information and website with community event materials



Approach

Project Team

Funder

Team and Funder

- Karen Akerlof, PhD, George Mason University
- Todd La Porte, PhD, George Mason University
- Katherine Rowan, PhD, George Mason University
- Brian K. Batten, PhD, Dewberry
- Mohan Rajasekar, MS, Dewberry
- Howard Ernst, PhD, U.S. Naval Academy
- Dan Nataf, Center for the Study of Local Issues, Anne Arundel Community College
- Dana Dolan, MS, George Mason University

Investigators

Difficulties for individuals in detecting –
and supporting policy action on – sea-level rise risks

1) Slowly “creeping” problem
2) Not always considered immediate concern
3) Risk information frequently not available at household level
4) Attitudes influenced by cultural perspectives

Search this site

FUTURE COAST

Visualize Sea-Level RIse Impacts

Hear from Experts

Read the Reports

Take the Surveys, Compare your Results to Others

Host a Discussion

Citizens' Discussion April 28th

www.FutureCoast.info

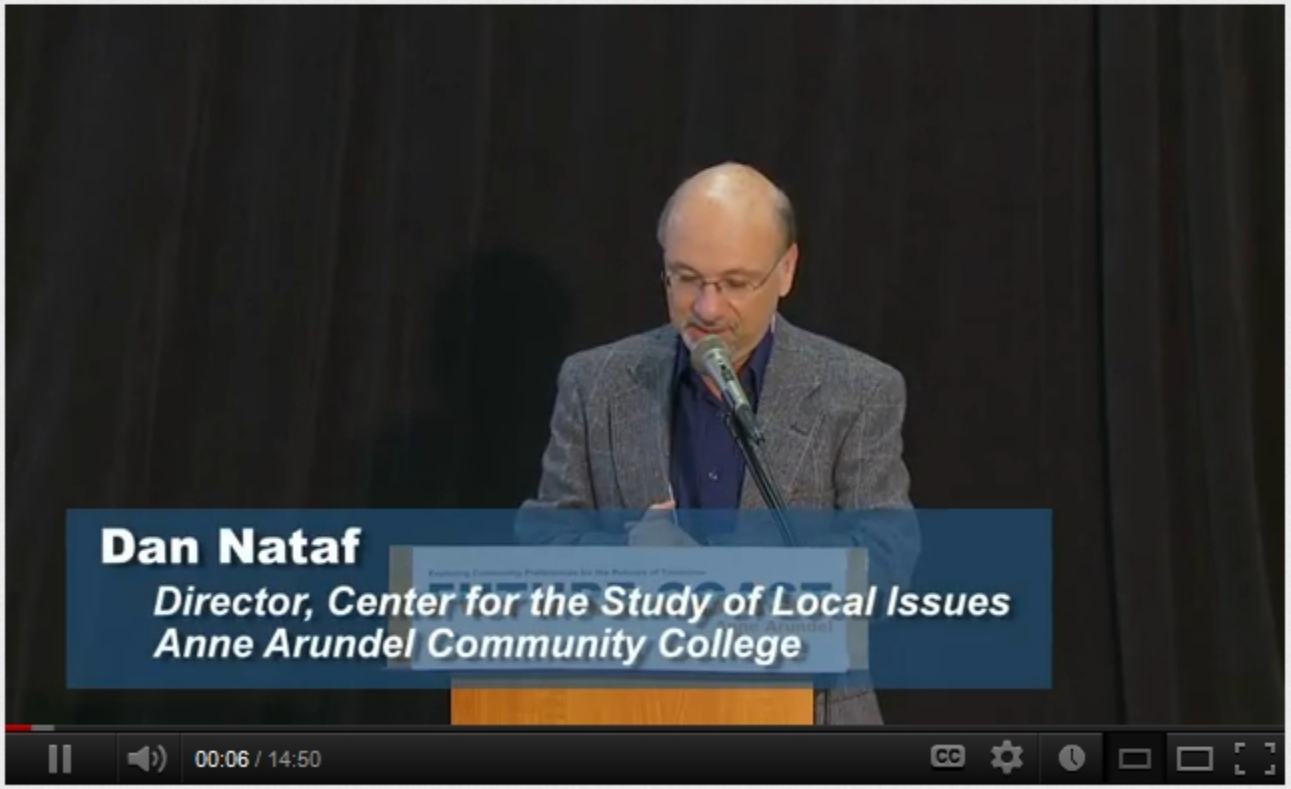
http://www.futurecoast.info/reports

Project reports ...

- **Survey report --** Public Opinion and Policy Preferences on Coastal Flooding and Sea-Level Rise, Anne Arundel County, MD August 2012
- **Issue book --** What Should Communities Do -- or Not Do -- about Coastal Flooding and Sea Level Rise?
- **Discussion guides --** A Roadmap to Small Group Discussions of Sea-Level Rise and Coastal Flooding
- **Replicabilty report --** Findings, Lessons Learned, and Replicability of a Model for Sea-Level Rise Public Engagement
- **Risk Analysis** (Dewberry)

Future Coast - Other Policies-YouTube.mov

FutureCoast | Subscribe | No videos



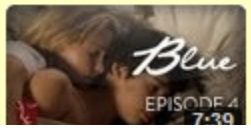
More uploaded videos

Future Coast -
Horizon-
by FutureCoast
3 views

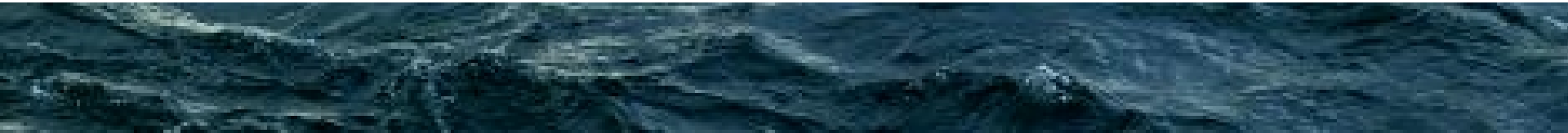
Future Coast -
Community Ac
by FutureCoast
9 views

Future Coast -
Policies-
by FutureCoast
8 views

Suggestions



Watch Blue Ep
by wigs
272,395 views



Search this site

FUTURE COAST

Step 1: Find a Location

Search by Street Address or Use the Map to Find a Location:

Search Address | Clear Address

Address for Point of Interest (Approximate):
1456 Cedarhurst Rd, Shady Side, MD 20764, USA

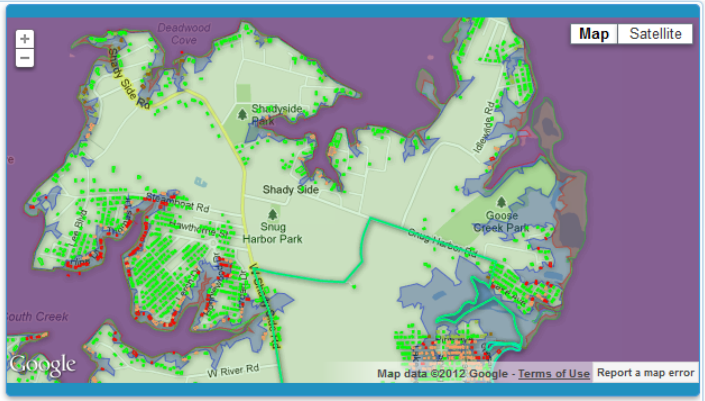
Step 2: Choose a Scenario and Year

Choose Scenario *(Find out more)*:

Historic Trend
Low Acceleration
Moderate Acceleration

Choose Year:

2012
2025
2050
2075
2100



Address Search Result
Permanent Inundation
1 % Chance Floodplain
Low Composite Risk Exposure
Medium Composite Risk Exposure
High Composite Risk Exposure
Impacted Neighborhoods
Selected Feature(s)

Step 3: View Summary of Estimated Impacts

Reset ALL

Building | Neighborhood | County

Neighborhood Level Summary

Visualize Sea-Level RIse Impacts

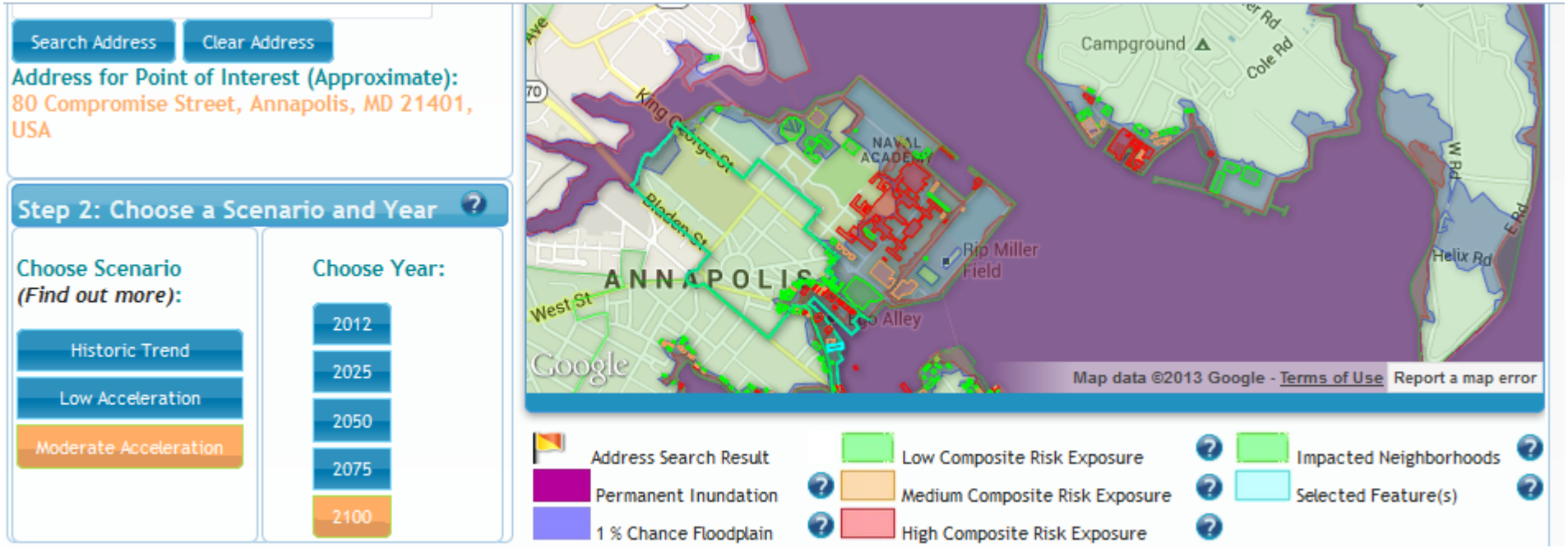
Take the Surveys, Compare your Results to Others

Host a Discussion

Citizens' Discussion April 28th

www.FutureCoast.info

inpoint a location on a map ….



… and get risk information for that building

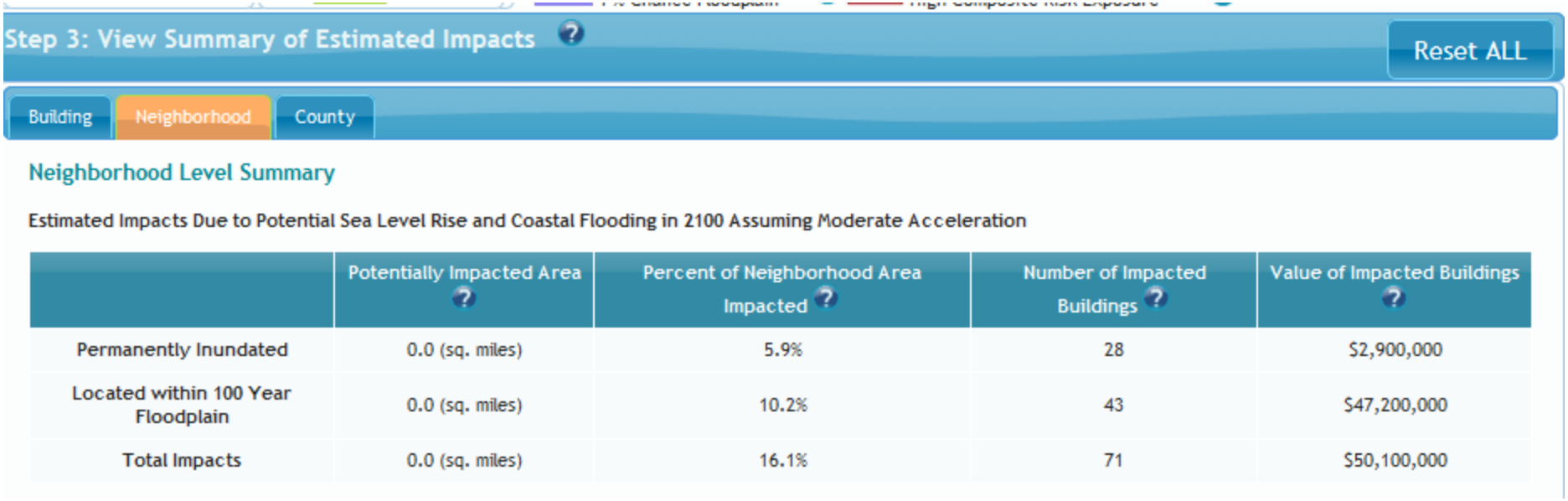
Building | Neighborhood | County

Building Summary

Composite Risk Analysis Category:
High

Year	Exposed to 1% Annual Chance Floodplain?	Expected Damage During 1% Annual Chance Flood	Percent Chance of Coastal Flooding in a 30-Year Period	Permanent Inundation at this Sea Level Rise Scenario?
2012	YES	Severe	96%	NO
2025	YES	Severe	96%	YES
2050	YES	Severe	96%	YES
2075	YES	Severe	96%	YES

… and the surrounding neighborhood

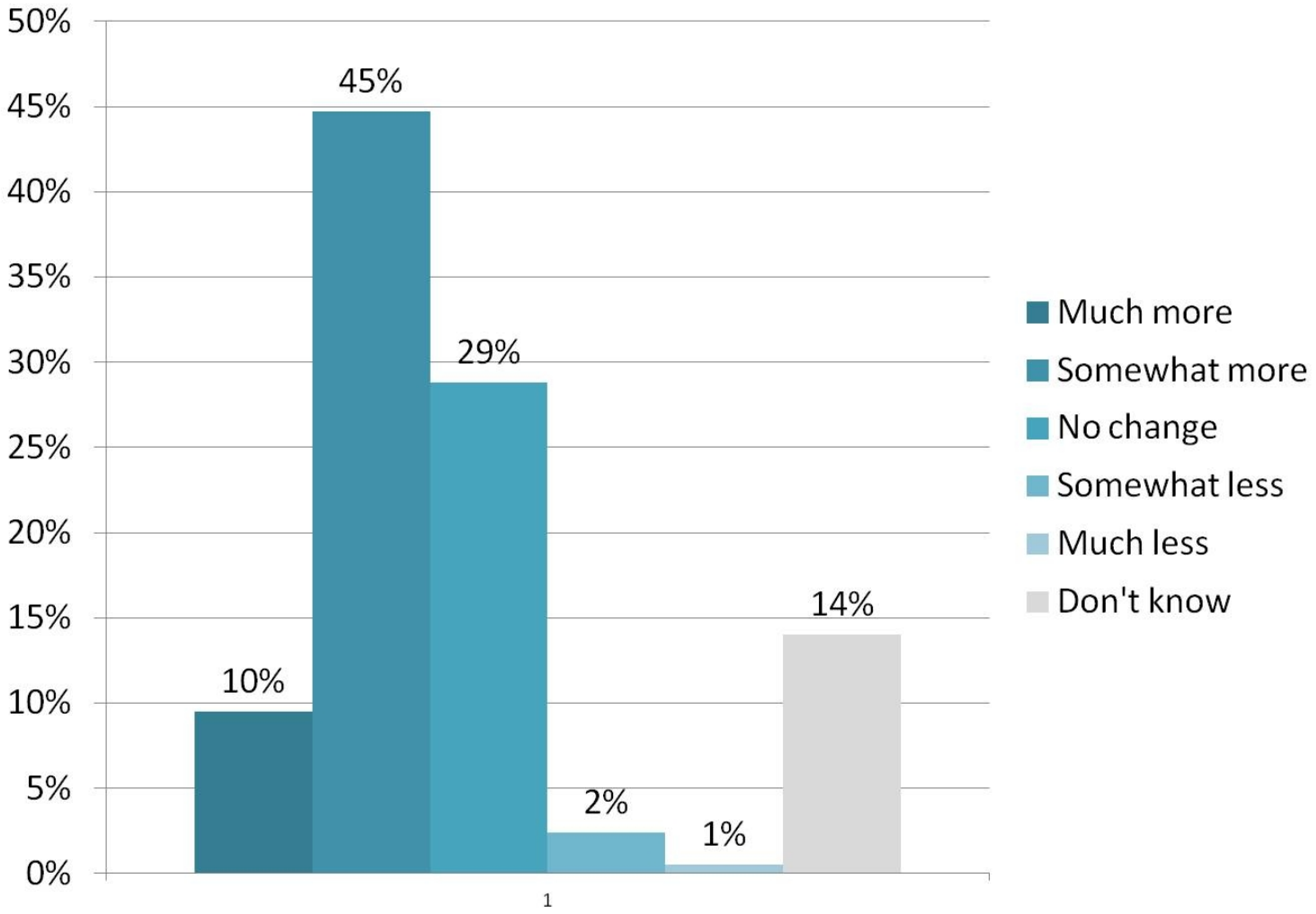


	Potentially Impacted Area	Percent of Neighborhood Area Impacted	Number of Impacted Buildings	Value of Impacted Buildings
Permanently Inundated	0.0 (sq. miles)	5.9%	28	$2,900,000
Located within 100 Year Floodplain	0.0 (sq. miles)	10.2%	43	$47,200,000
Total Impacts	0.0 (sq. miles)	16.1%	71	$50,100,000

including economic damage estimates

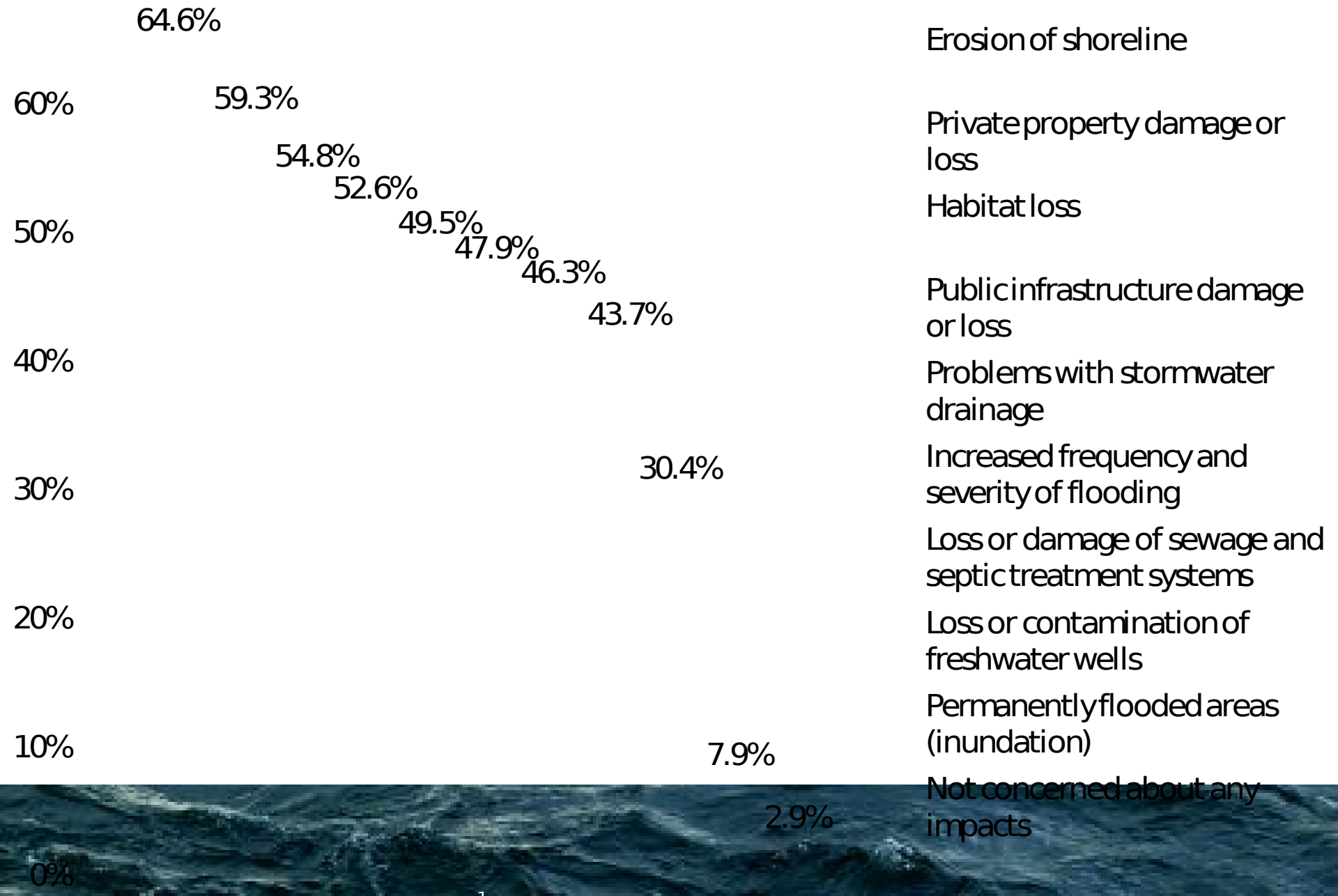
Good News

In your opinion, has coastal flooding become more or less of a problem in the county in recent years? *n=376*

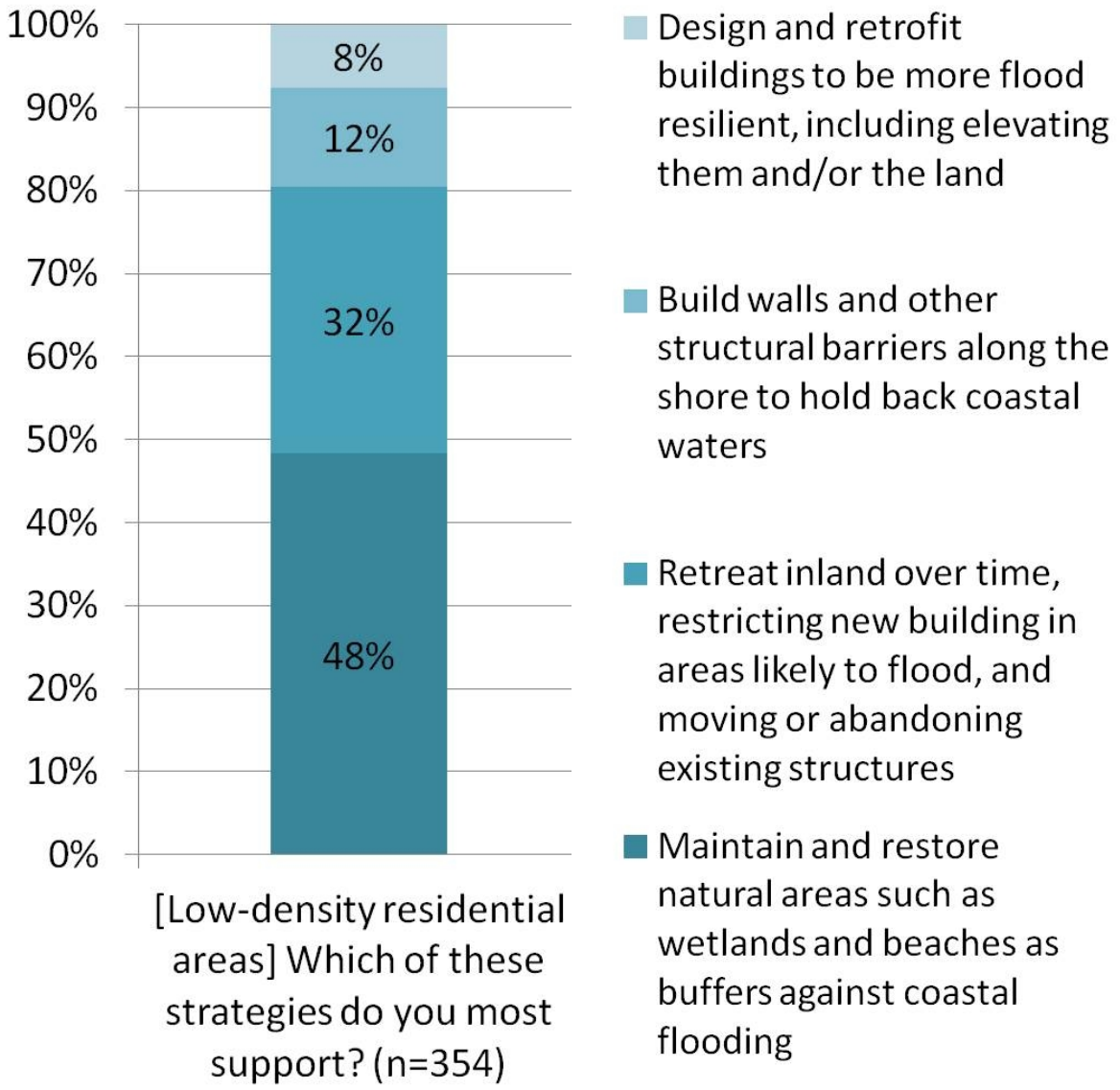


Problem recognition

Which impacts from sea-level rise, if any, are you most concerned about within the county? *n=378* *Multiple responses accepted*

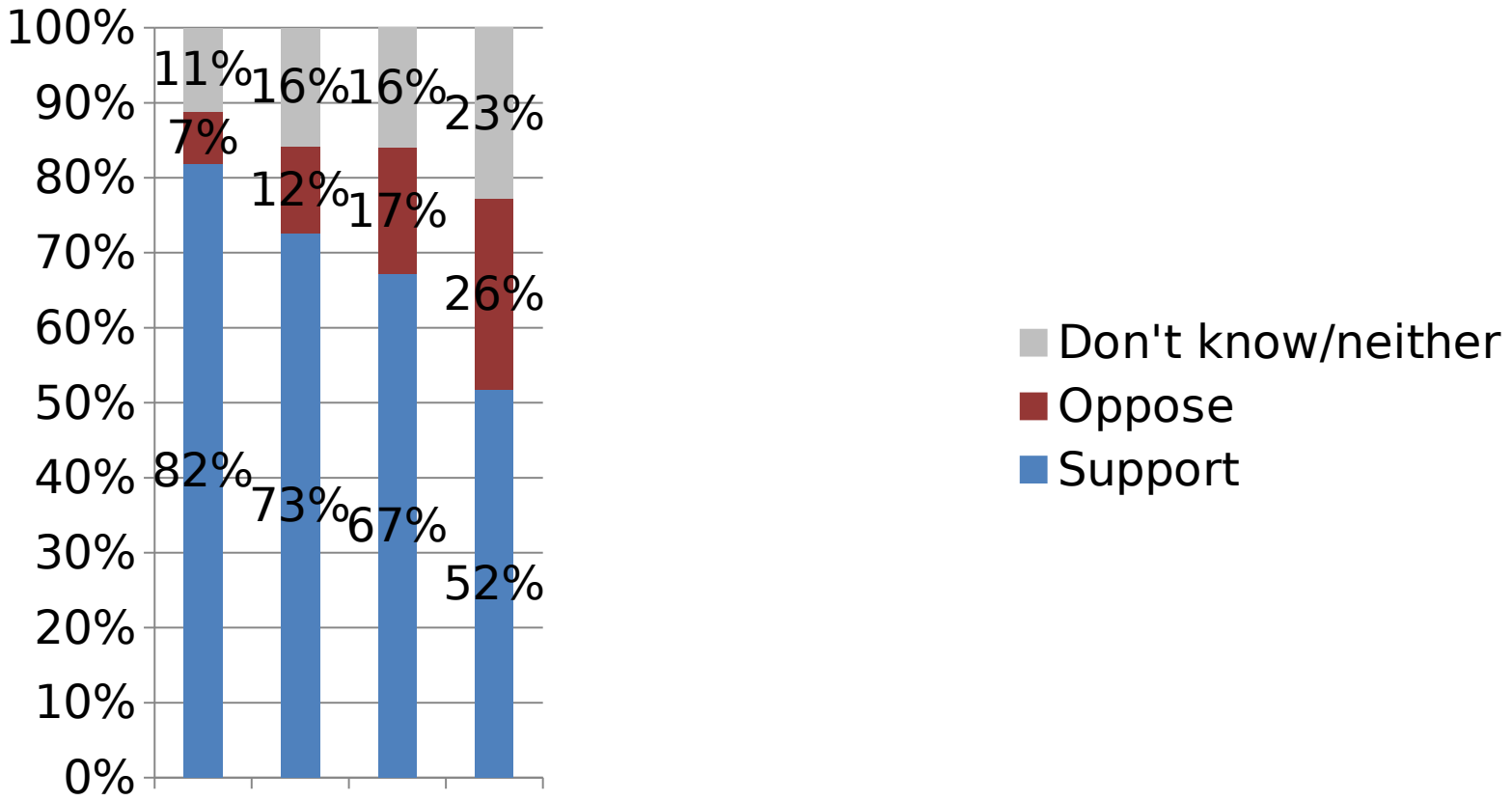


Policy preferences for built areas



Support for natural buffers over structural barriers

Local governments have different types of policy tools they can use. How much do you support or oppose their use of these types to limit the impacts of coastal flooding due to sea-level rise?

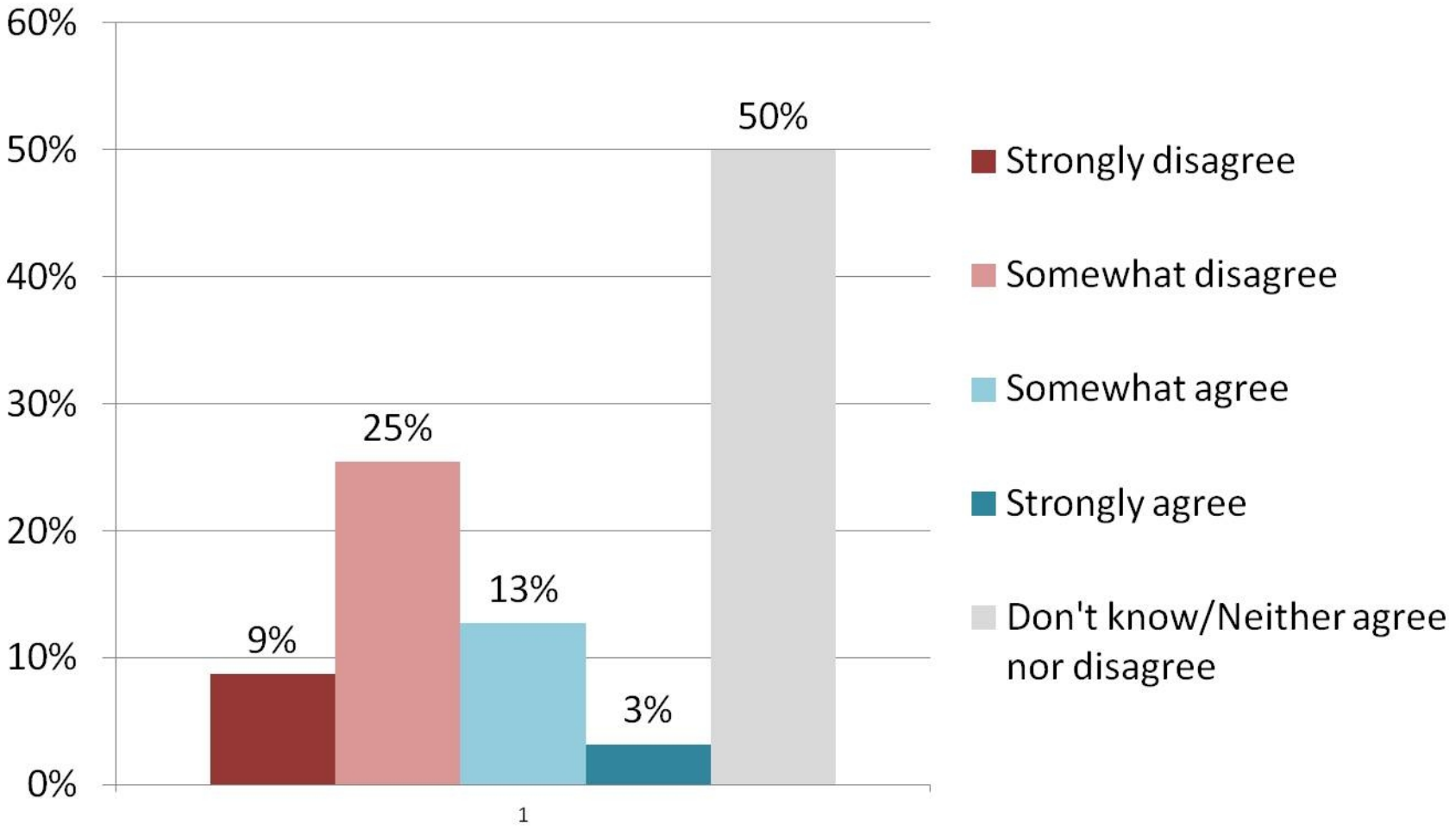


planning that takes sea-level rise into account (n=375)

Majority support for multiple types of policy mechanisms, including government spending

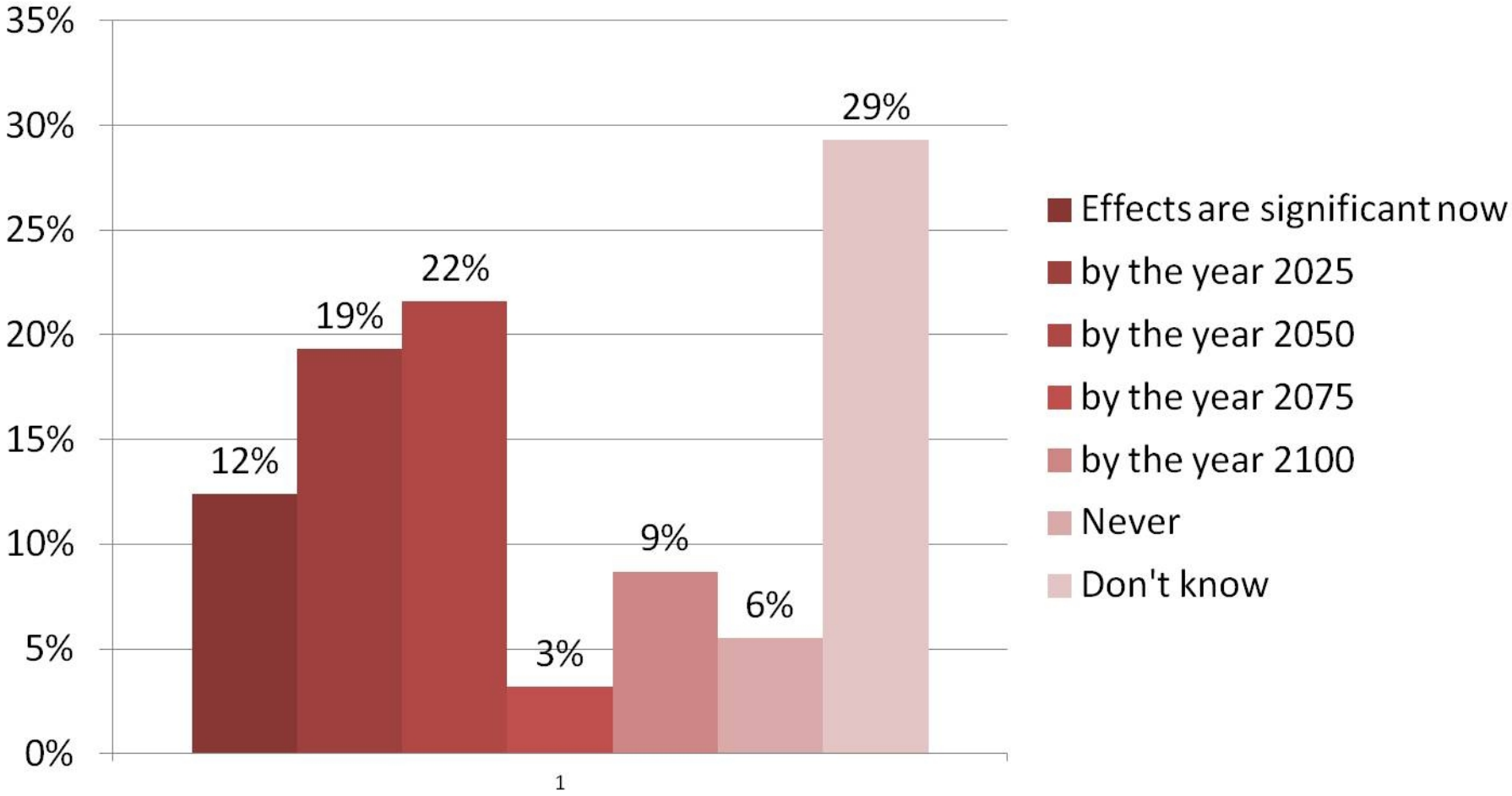

Bad News

Would you agree or disagree that your local government's policies are adequate for addressing coastal flooding over the long term (e.g., over a decade or more)? *n=376*



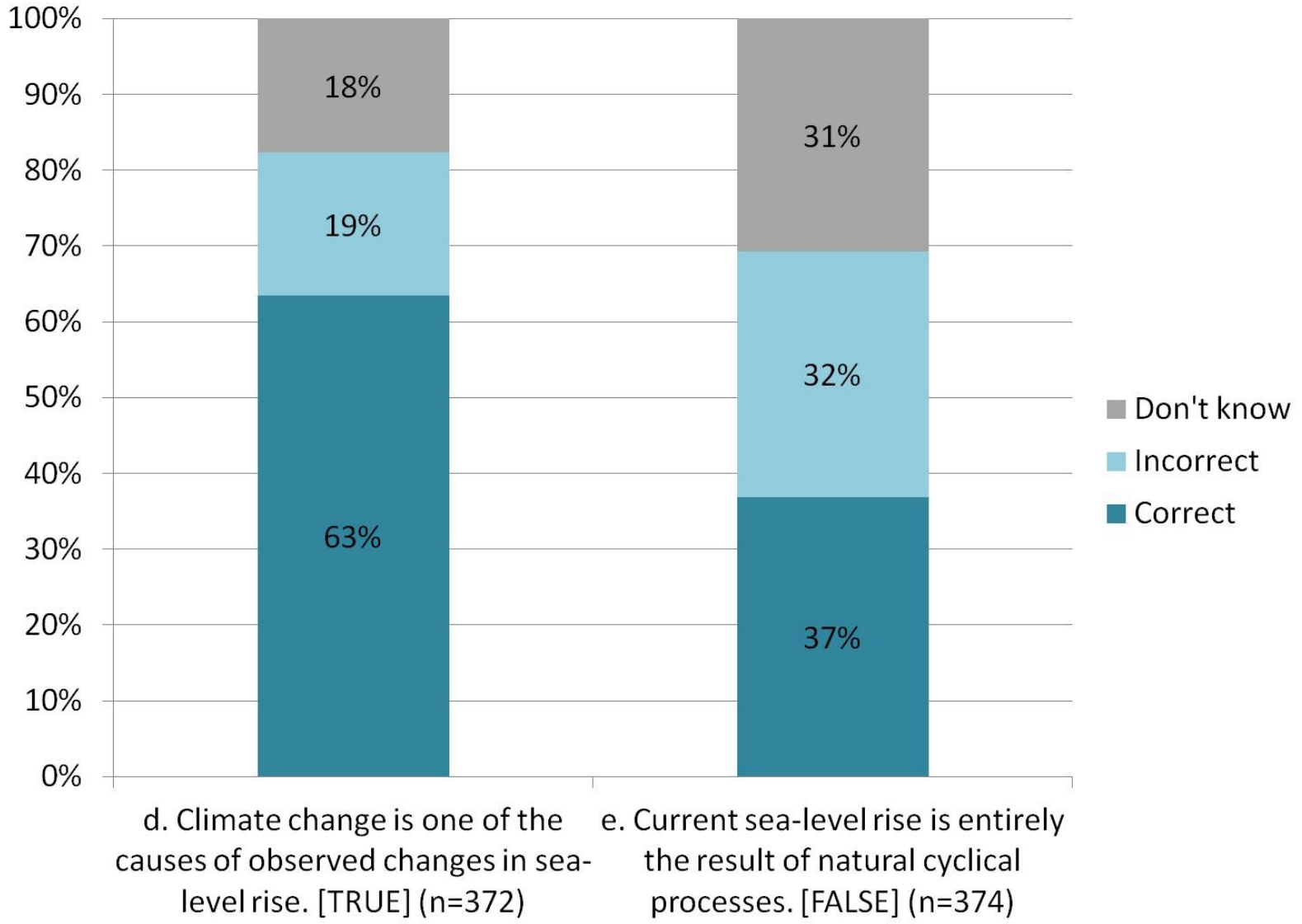
Uncertainty about whether policies are adequate

When do you believe the effects of sea-level rise will significantly impact the county, if ever? *n=377*



Uncertainty about timing of impacts

Knowledge about Sea-Level Rise



Majority think SLR caused by climate change, but almost half of those think it is also "natural"

The opposing tribes

GRID

Hierarchical individualists

- *Individuals should be free from societal constraints to pursue their own interests*
- *Some people in society should have more power than others due to status*

Hierarchist

Hierarchical Communitarianism

Egalitarian Individualism

Communitarian

Egalitarian

Egalitarian solidarists

- *People in society should work together collectively for the common good*
- *There should be little difference in the amou power of any person*

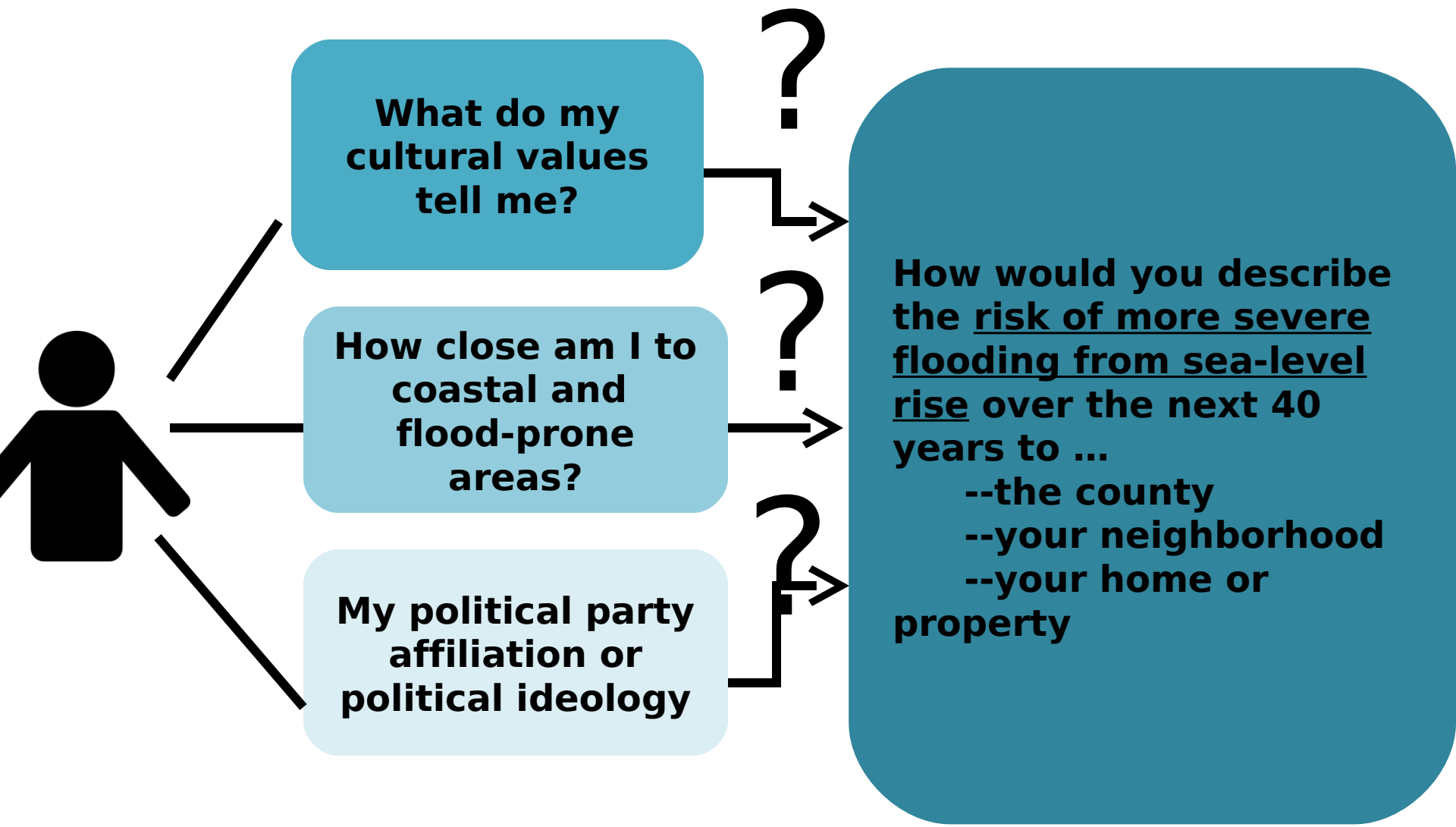
ltural Cognition Project
n Kahan, Yale Law School
ww.culturalcognition.net/

What influences public perceptions of SLR risk and policy support?

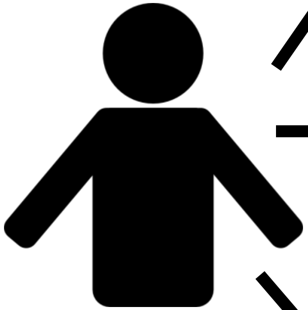
“Tribal” beliefs?

or proximity to risk?

Significant factors in relation to SLR risk perception …



Largest decision-making factors in assessing sea-level rise risks to my …

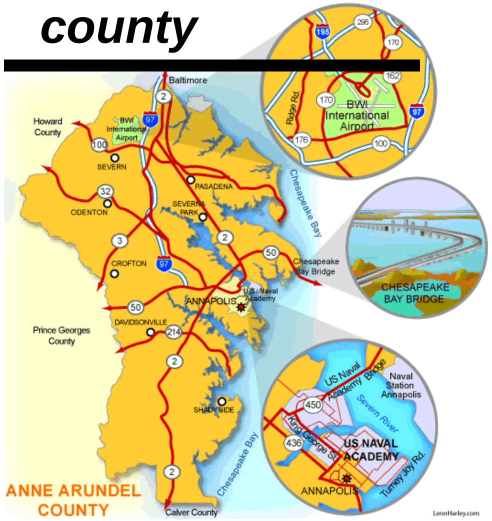


What do my political and cultural values tell me?

How close is my neighborhood to coastal and flood-prone areas?

How close is my house to coastal and flood-prone areas?

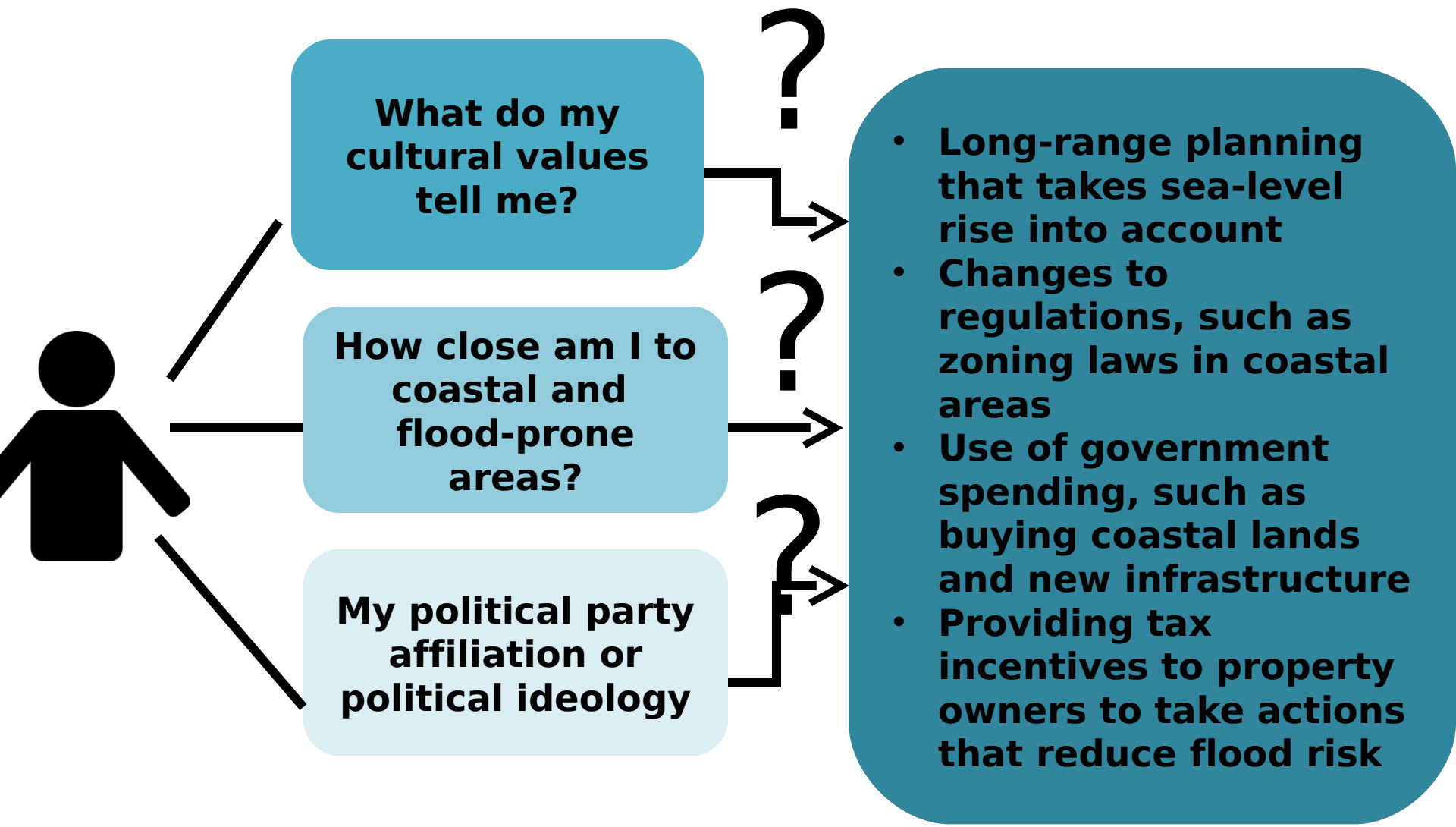
county



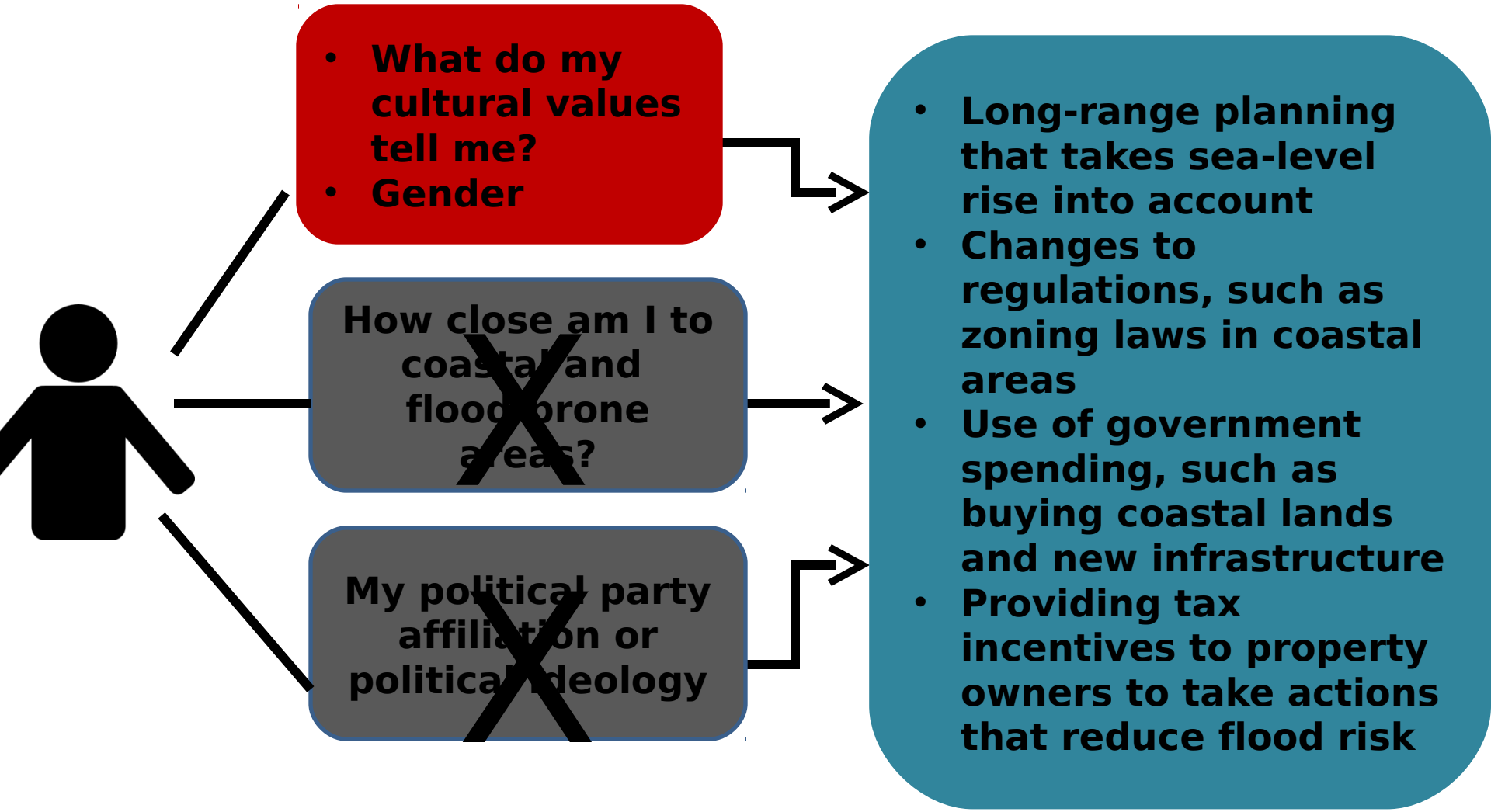
neighborhood

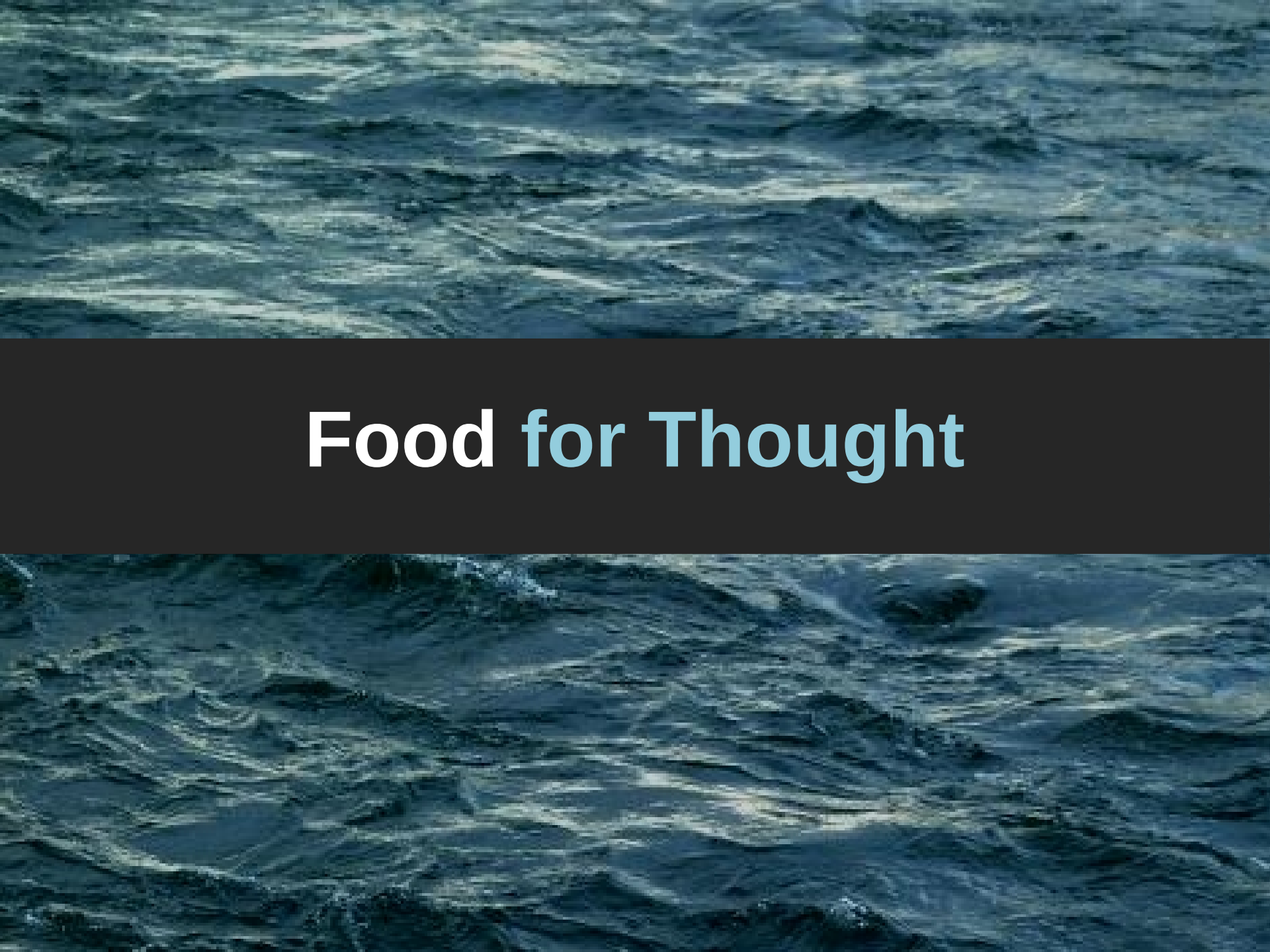
own home

Significant factors in relation to policy support …

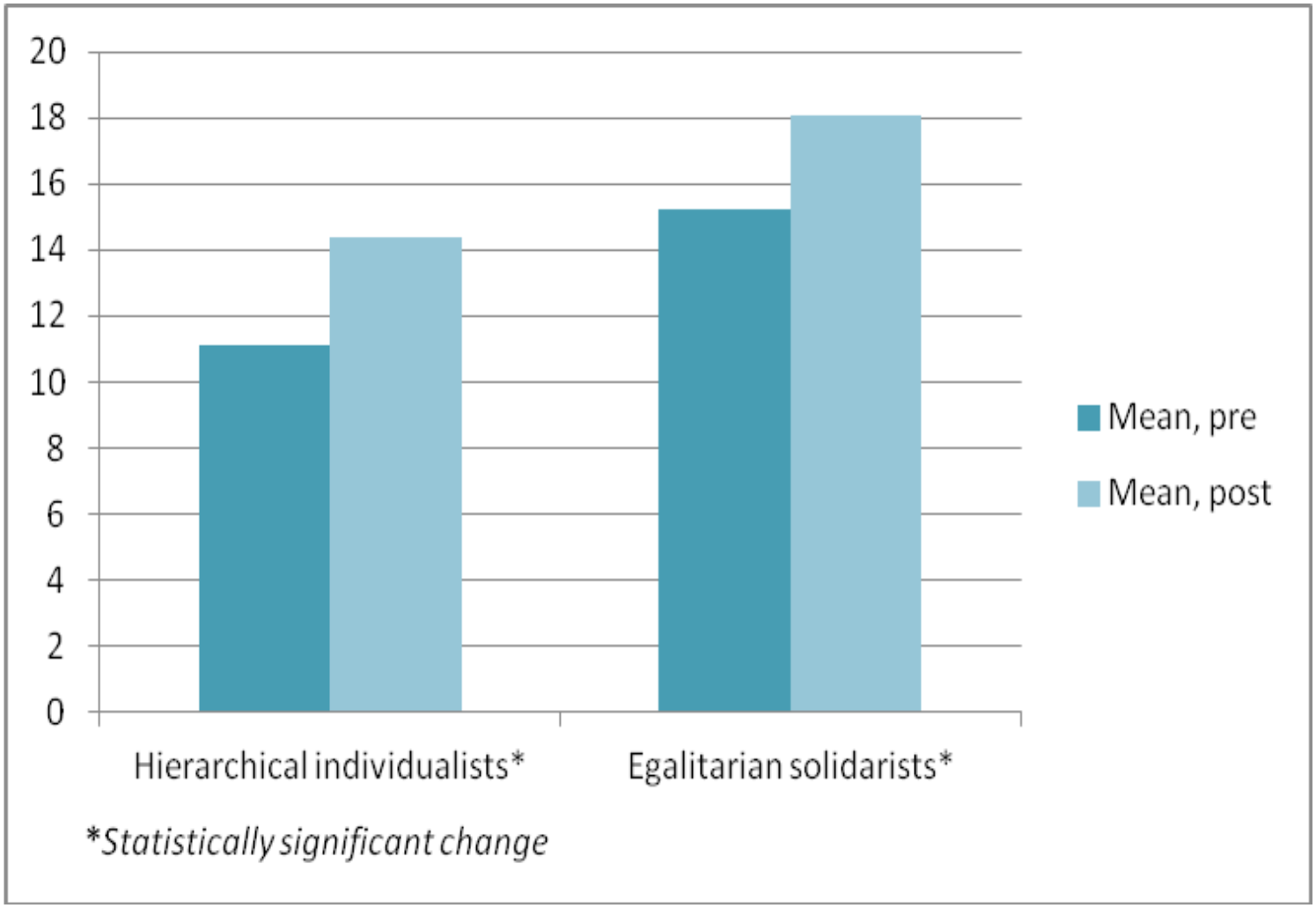


Significant factors in relation to policy support …

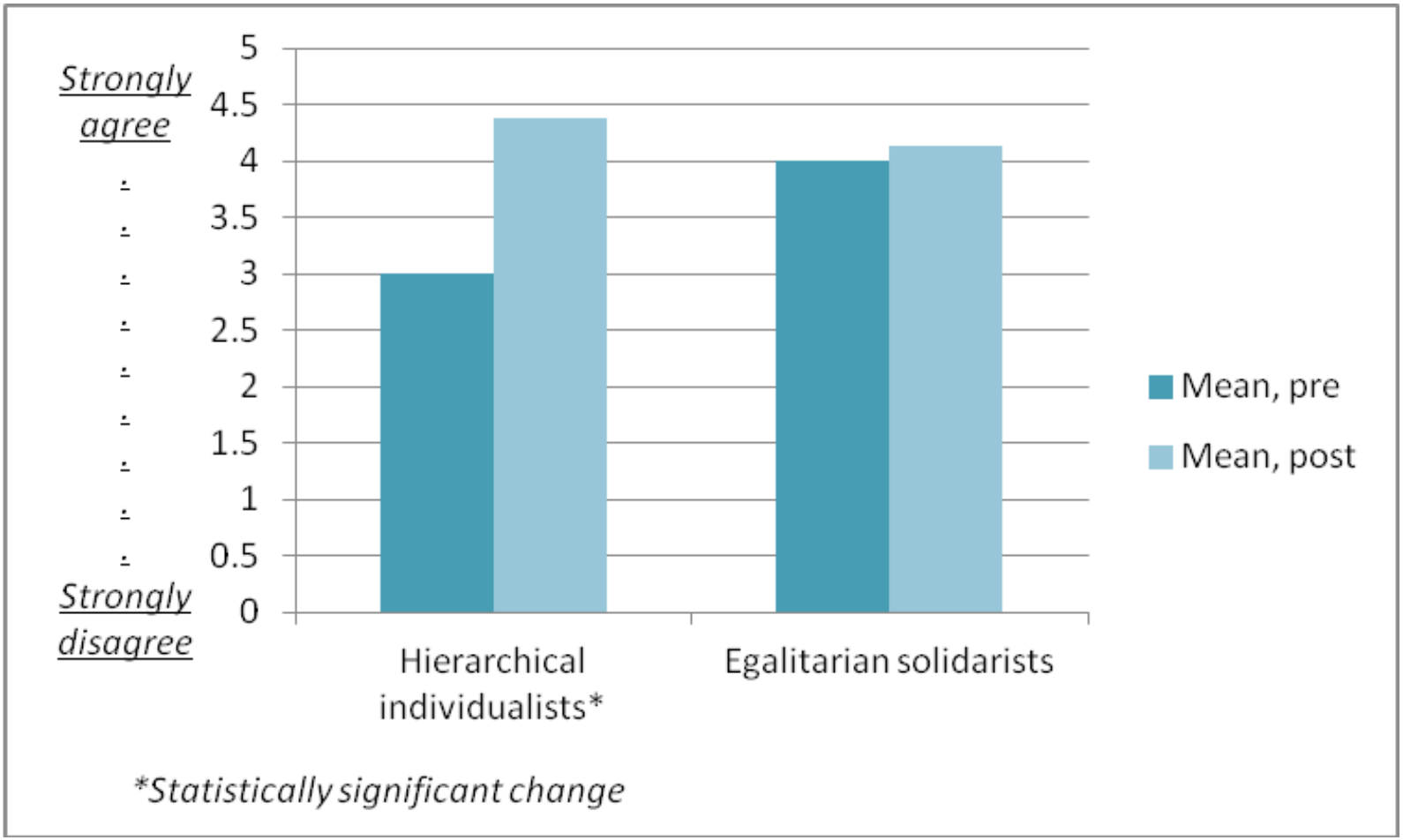



Food for Thought

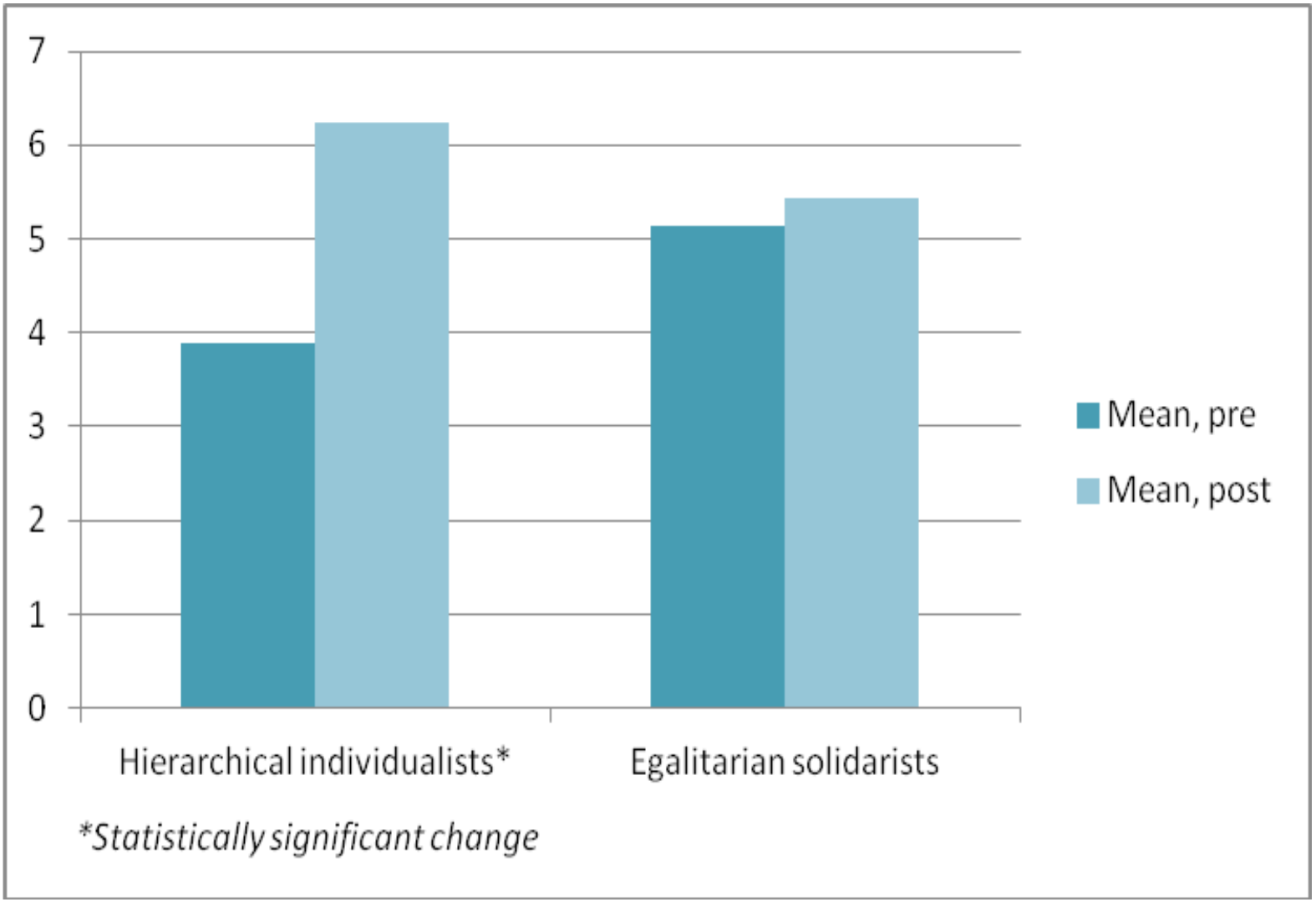
Change in means on knowledge scale. Derived from 5 measures, each with range 1 to 5, correct responses coded high. Hierarchical individualists (n=8); egalitarian solidarists (n=13).



Change in means on sea-level rise beliefs. “Sea-level rise is an issue some coastal communities have been discussing recently. Sea-level rise refers to increases in the average height of water relative to the land over the course of the year. What do you think? Do you agree or disagree that sea-level rise is occurring?” Hierarchical individualists (n=8); egalitarian solidarists (n=14).

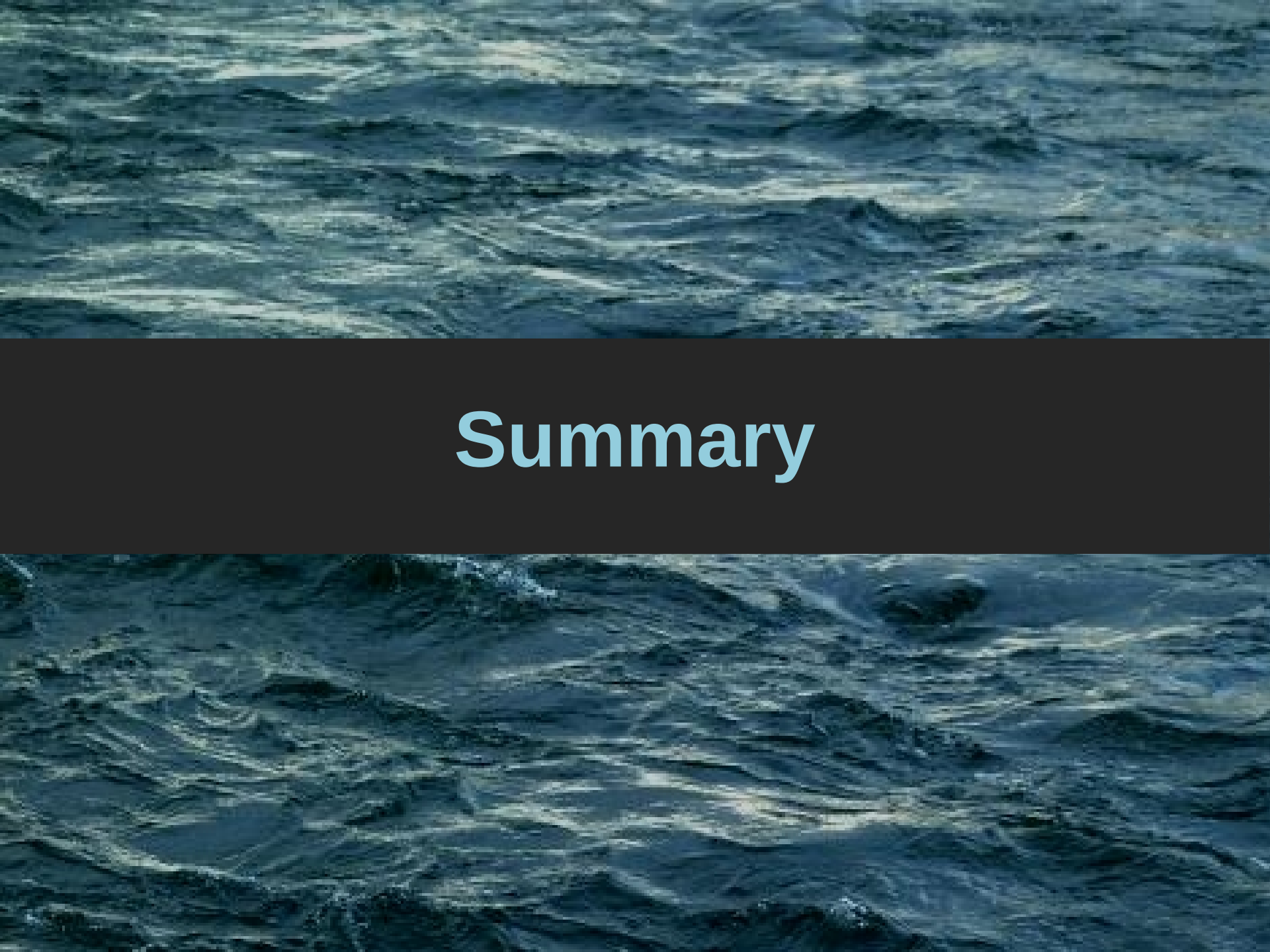


Change in means on impact concern scale. Derived from a total of 9 possible measures each coded (1,0). Hierarchical individualists (n=8); egalitarian solidarists (n=14).



Some of participants' preferences for response strategies did change ….

Participants became more opposed to building walls and other structural barriers to hold back waters in publicly owned natural areas (+14.1 pct pts), and more opposed to retreating inland from high-density commercial and residential areas (+17.4 pct pts).



Summary

1. **Good news:** Most people think that coastal flooding is a problem, are concerned about SLR, and support policies to address it
2. **Bad news:** People are uncertain about the timing of the risk, what is already being done to address it, and whether it is just natural; viewpoints toward local policies likely to be more driven by “tribes” than risk proximity
3. **Food for thought:** Preliminary evidence suggests when bring people together in deliberative events, emphasizing community decision-making, there are coherent changes in policy preferences, and declines in the effects of “tribalism”

Conclusions for Policy

Findings, Lessons Learned, and Replicability of a Model for Sea-Level Rise Public Engagement
January 2013

http://www.futurecoast.info/reports

or email kakerlof@gmu.edu

www.FutureCoast.info, coast@gmu.edu
Karen Akerlof, kakerlof@gmu.edu

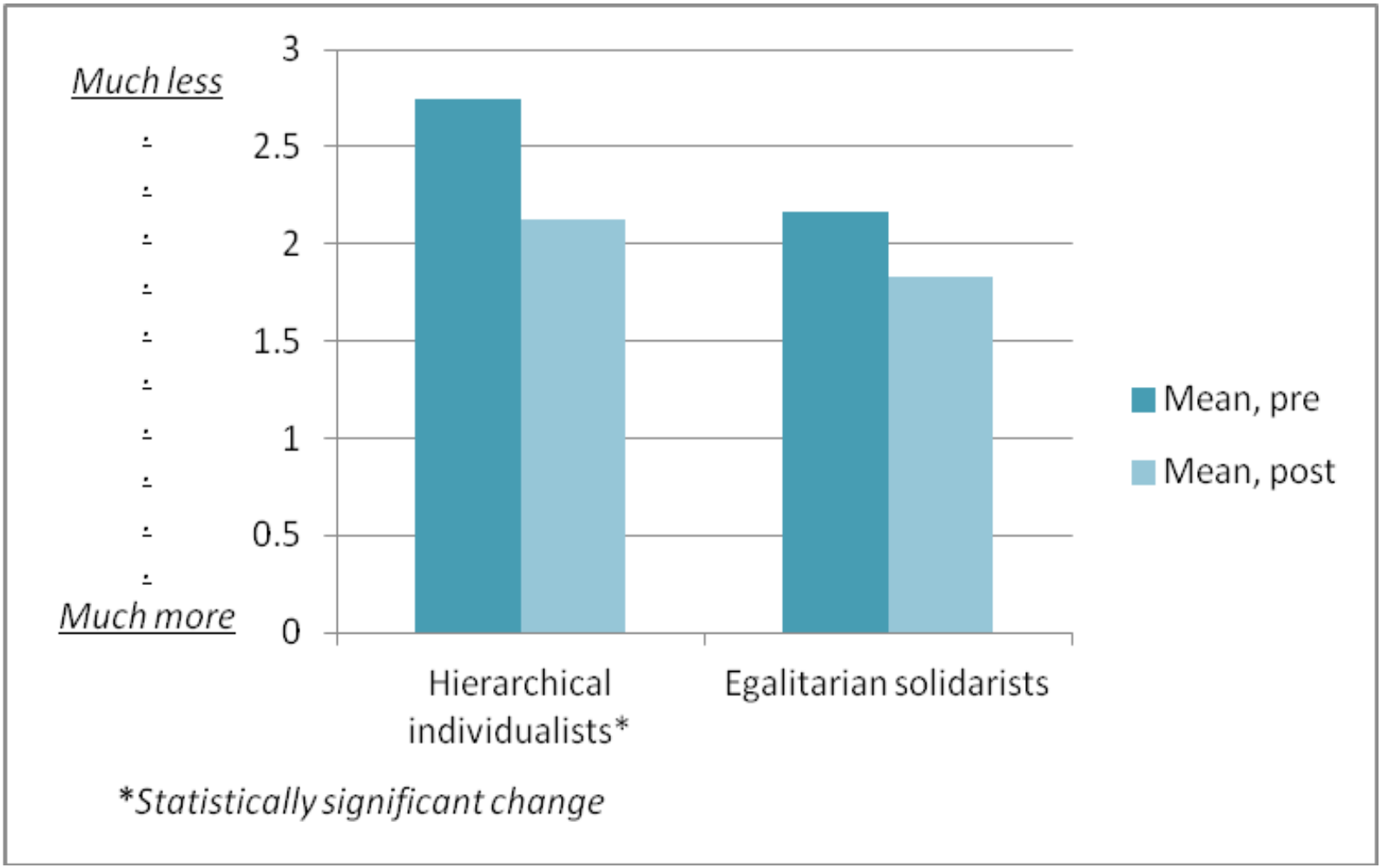
Prediction of Sea-Level Rise Risk Perceptions at Different Geographic Scales

DV=SLR Risks *Standardized coefficients*	**County**	**Neighborhood**	**Own Home or Property**
Gender	.075	.052	.082
Age	.033	-.090*	-.080
Education	-.020	.002	-.023
Income	.031	-.091	-.069
White (v. Black)	.020	-.004	-.083
Non-white (v. Black)	-.032	-.044	-.086
Risk Proximity	-.035	-.382***	-.319***
Democrat (v. Othr/ Indepen)	-.062	.033	.012
Republican (v. Othr/ Indepen)	-.007	.004	-.024
Political Ideology	-.049	.061	.071
Hierarchy Scale	-.272***	-.180**	-.155**
Individualism Scale	-.228***	-.227***	-.186***
Hierarchy x Individualism	-.045	-.025	-.046
Model explains X% of individuals' risk perceptions ….	29%	29%	23%

Grey shaded areas= statistically significant variable, p<.05

n=345, 351, 348

Change in means on problem identification. “In your opinion, has coastal flooding become more or less of a problem in the county in recent years?” Hierarchical individualists (n=8); egalitarian solidarists (n=12).



Change in means on local government policy adequacy.
"Would you agree or disagree that your local government's policies are adequate for addressing coastal flooding over the long term (e.g., over a decade or more)?" Hierarchical individualists (n=8); egalitarian solidarists (n=14), p=0.315.