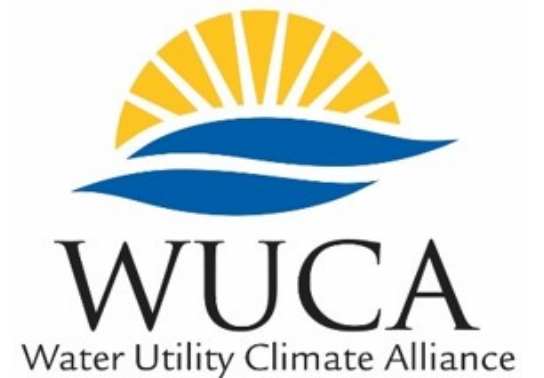


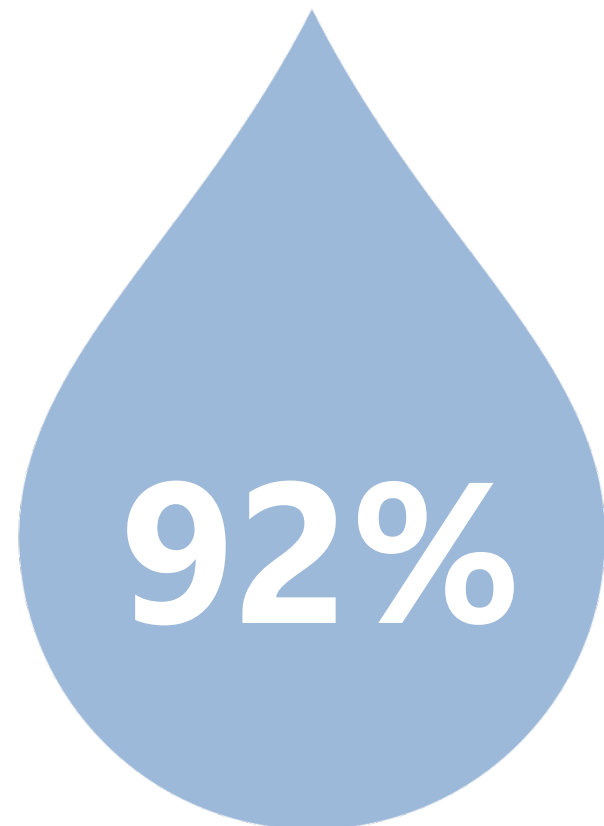
**Building Resilience to a Changing Climate:  
A Technical Training in Water Sector  
Utility Decision Support**



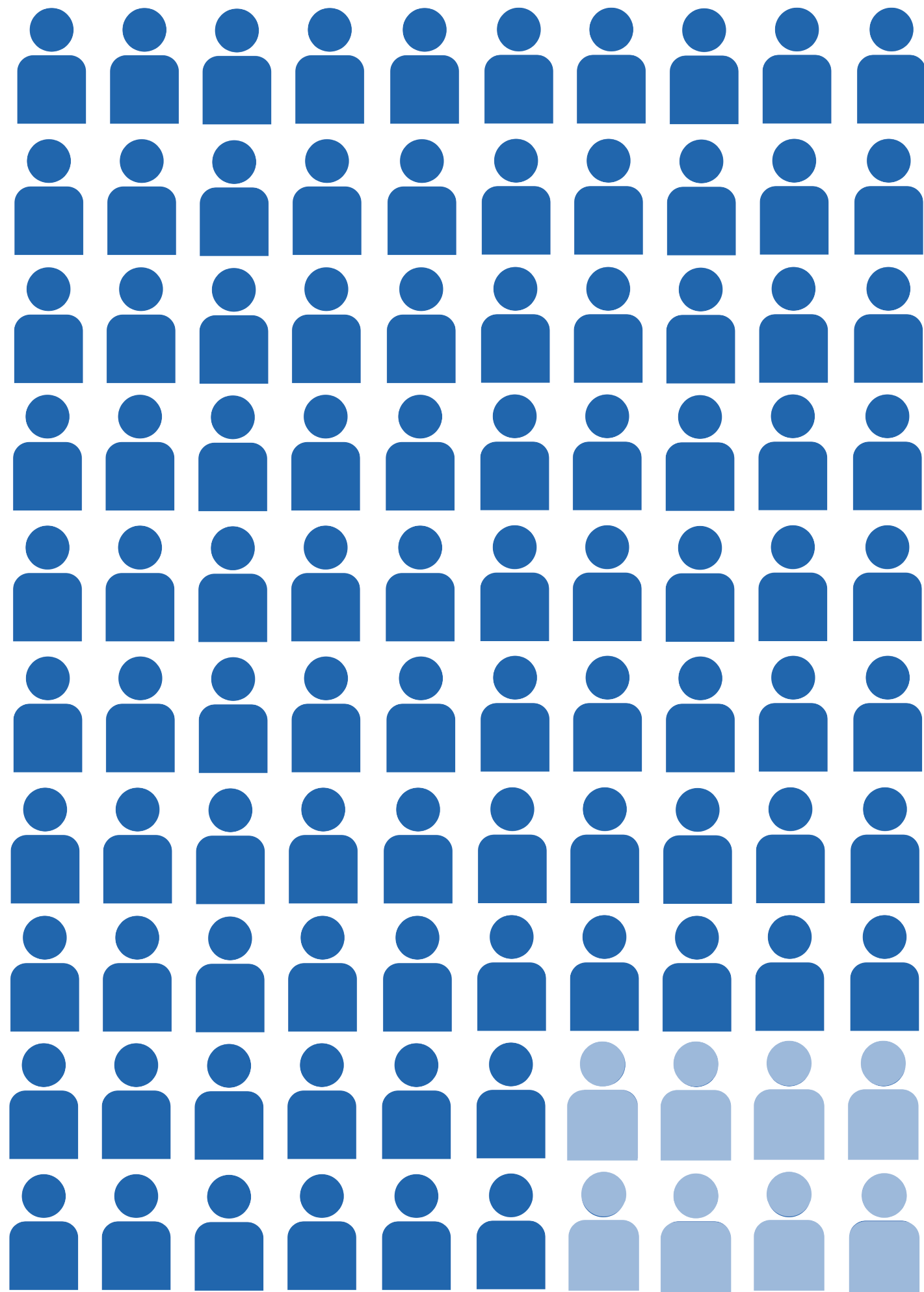
# **Using Communication Best Practices to Engage Audiences & Address Institutional Barriers**

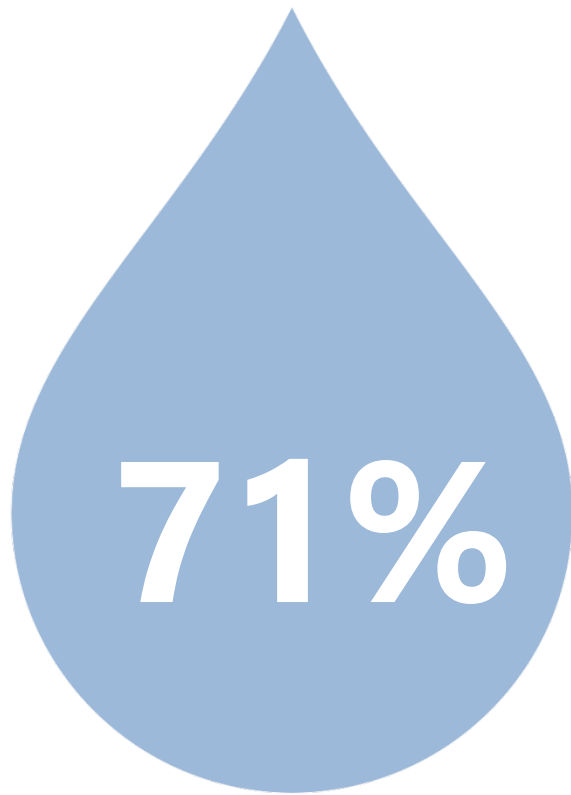
**Heidi A. Roop** - University of Washington Climate Impacts Group & School of Public Health

**Abby Sullivan** - Philadelphia Water Department / WUCA

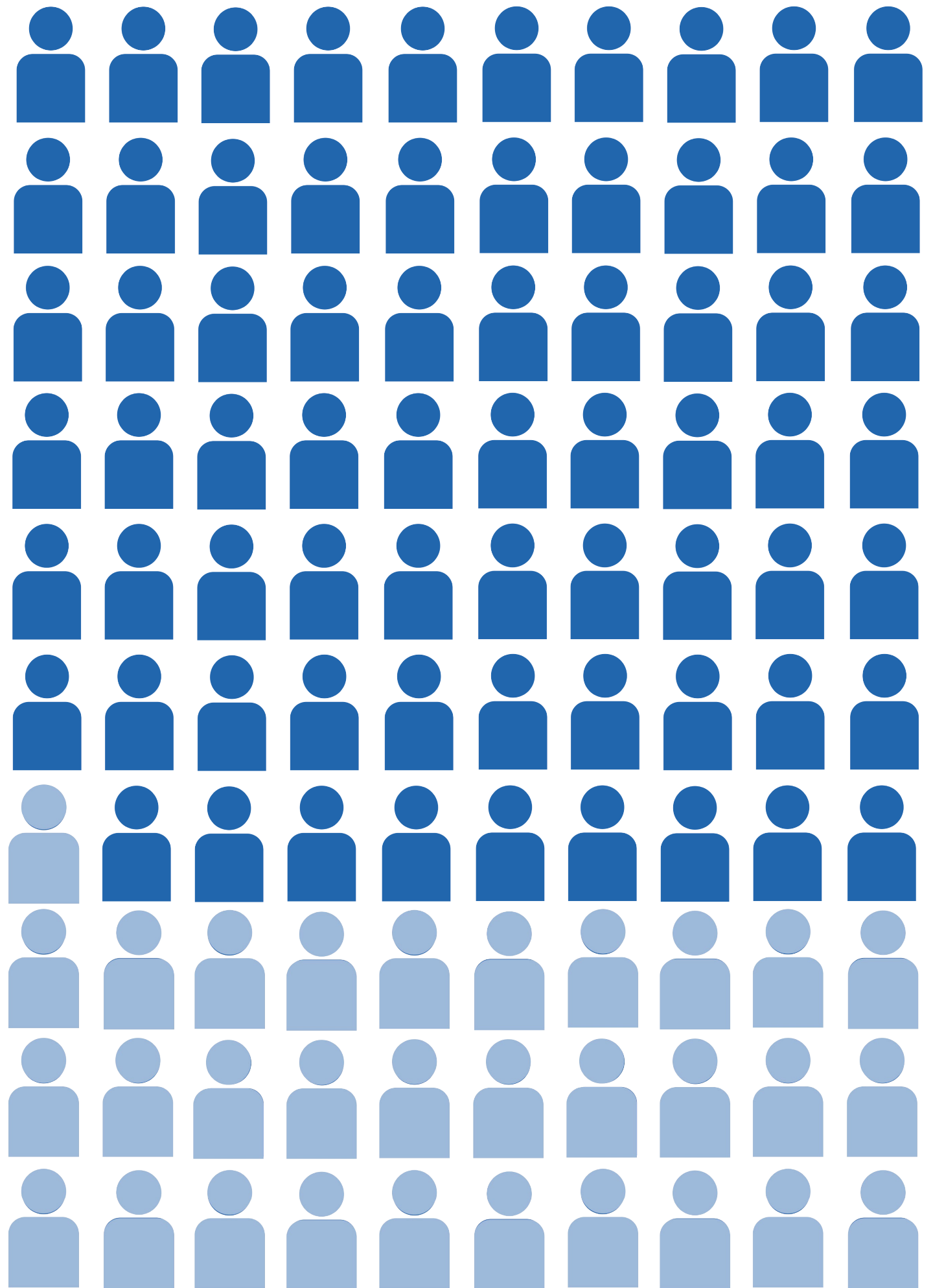


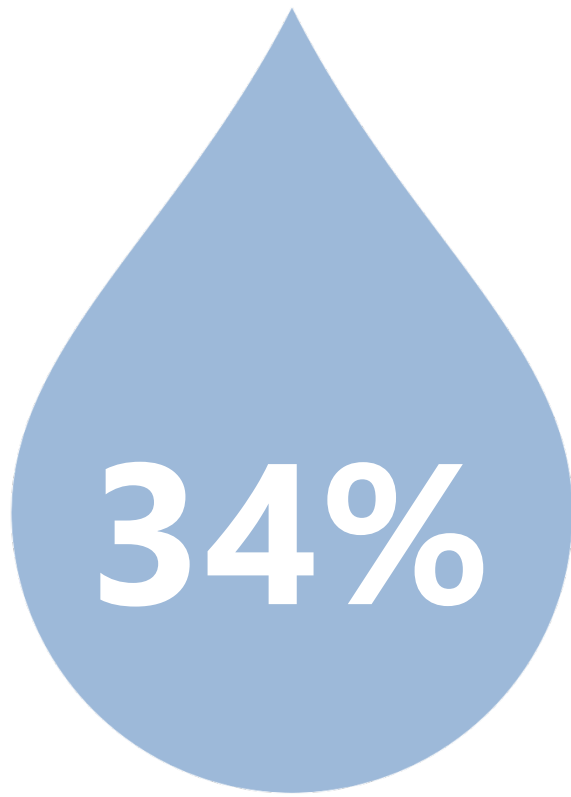
**of Americans want  
their water utility to  
be a leader in  
preparing for the  
local impacts of  
climate change.**



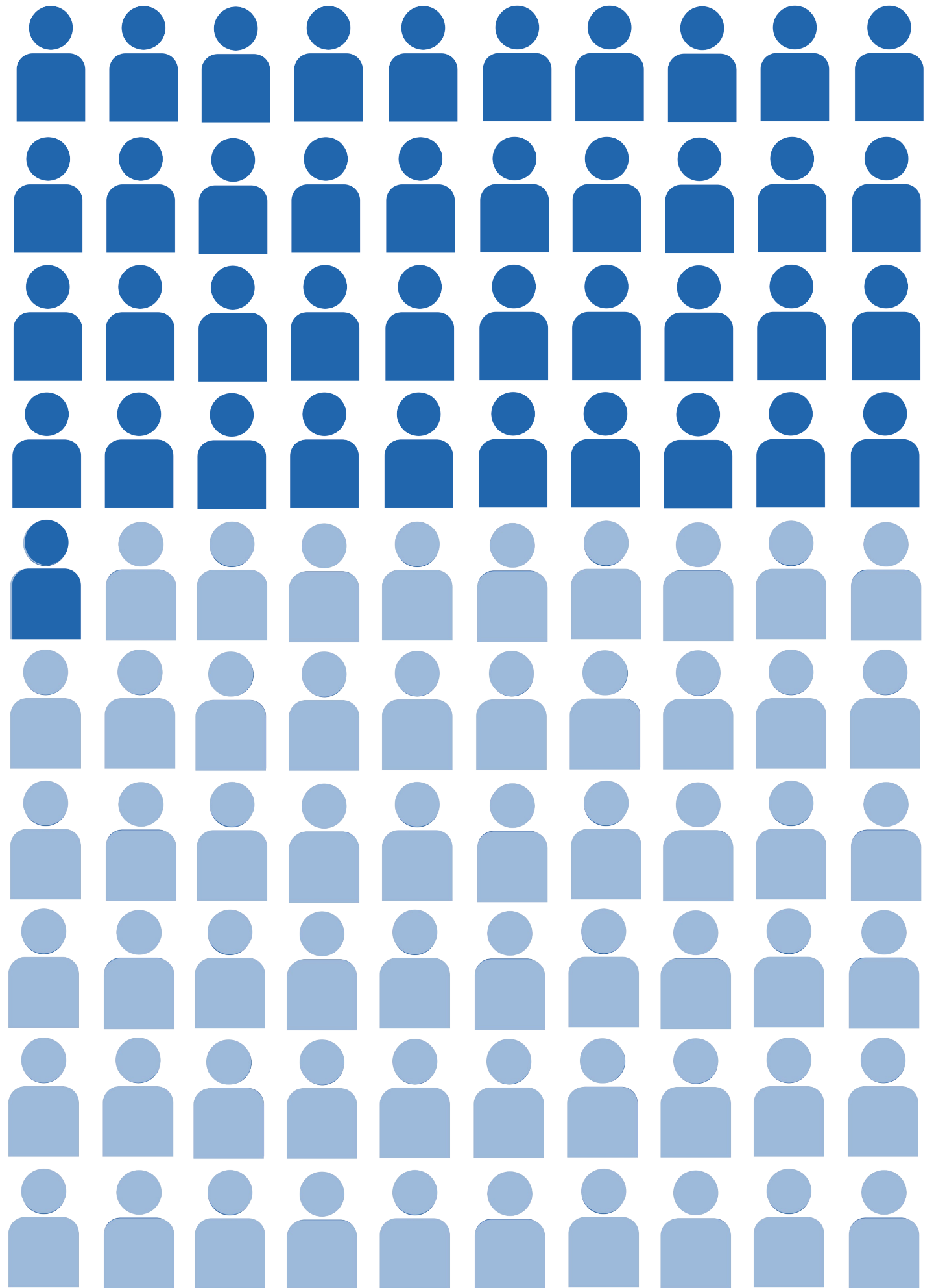


**of the American  
public views their  
water utility as a  
trusted source of  
information on the  
local impacts of  
climate change**





**adults in Florida  
discuss climate  
change at least  
occasionally**







How do we **engage, connect & establish common ground** to advance our climate adaptation efforts?

# OUTLINE

- 1. Communication** – *what do we mean?*
- 2. Putting it into practice** – *engaging EXTERNAL audiences*
- 3. Putting it into practice** – *useful steps & approaches for INTERNAL audiences*
- 4. Activity** – *identifying barriers, strategies & creating next steps to put this training into practice*

# Communication – *what do we mean?*

# communication

*noun* | com·mu·ni·ca·tion | \kə-,myü-nə-'kā-shən\

A **process** by which information is exchanged between individuals through a common system of symbols, signs, or behavior.

A **technique** for expressing ideas effectively.

# The Climate Change Communication Challenge

- Psychological & ideological barriers
- Climate risks can appear distant & exaggerated
- Scale of issue can be used to rationalize inaction
- Need to plan for & incorporate uncertainty
- Asking for use of new approaches & data
- Associated with political, social and financial costs



# Let's explore.

There is no *one-size-fits-all* approach to climate change communication.  
Luckily, there are a range of *tools, tips and resources* that can help.



*Sometimes you  
will feel like a  
slow moving  
glacier!*



**PUTTING IT INTO PRACTICE:**  
*Engaging EXTERNAL Audiences*  
*(note: concepts work for internal audiences, too!)*

## Key Points:

*Consider outcomes, deliverables & approaches*

**Audience:** who needs this information to make it 'actionable'? Who has authority to make change?

**Content:** What is the best way to deliver knowledge to relevant actors/audiences? (*e.g. level of detail, language, framing*)

**Delivery:** Who is best suited to 'broker' this knowledge?

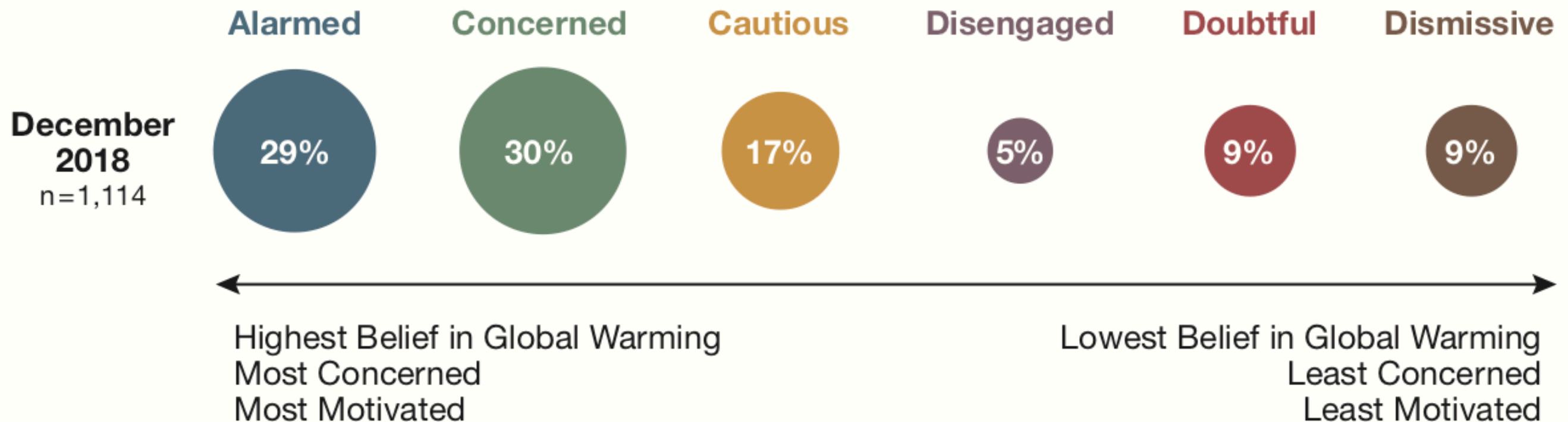
**Plan:** Do you have sufficient scope, time and budget to deliver information in desired formats?

**Success:** What defines 'success' for those involved?



# Know Your Audience:

## 'GLOBAL WARMING SIX AMERICAS'



YALE PROGRAM ON  
Climate Change  
Communication



GEORGE MASON UNIVERSITY  
CENTER for CLIMATE CHANGE  
COMMUNICATION



## **Actively listen & engage.**

*Through listening, you can **encourage participation, enhance trust and ensure common understanding.** You might be surprised by what you learn about how people are (or are not) thinking about the issue.*

## 3 ELEMENTS TO AN EFFECTIVE DEBUNKING

### FACT

Replace the myth with a more compelling and memorable fact



### MYTH/MISCONCEPTION

Warn people before mentioning the myth so they're cognitively on guard

### FALLACY

Explain the technique used by the myth to distort the fact.



## FACT

Our planet has continued to build up heat since 1998 - global warming is still happening.

Global warming is like rigging the weather dice, making it more likely to get hot days.

Overall, glaciers across the globe are shrinking at an accelerating rate, threatening water supplies for millions of people.

Study after study, using a wide range of independent methods, has found overwhelming agreement among climate scientists that humans are causing global warming.

## MYTH

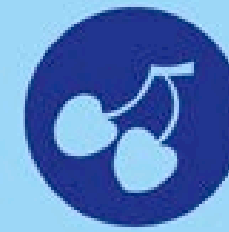
"Global warming stopped in 1998."

"It's cold outside, so global warming must have stopped."

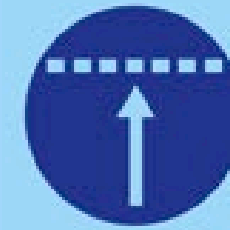
"Glaciers around the world are increasing, disproving global warming."

"Experts don't agree on human-caused climate change."

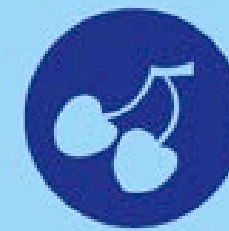
## FALLACY



**Cherry picking:** looking at one region or a short period ignores the full picture.



**Impossible Expectations:** global warming doesn't mean no more cold weather, just fewer cold days compared to hot days.



**Cherry picking:** picking a handful of growing glaciers ignores the vast majority of glaciers that are shrinking.



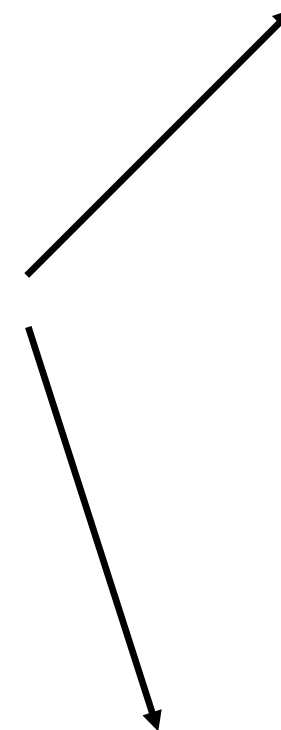
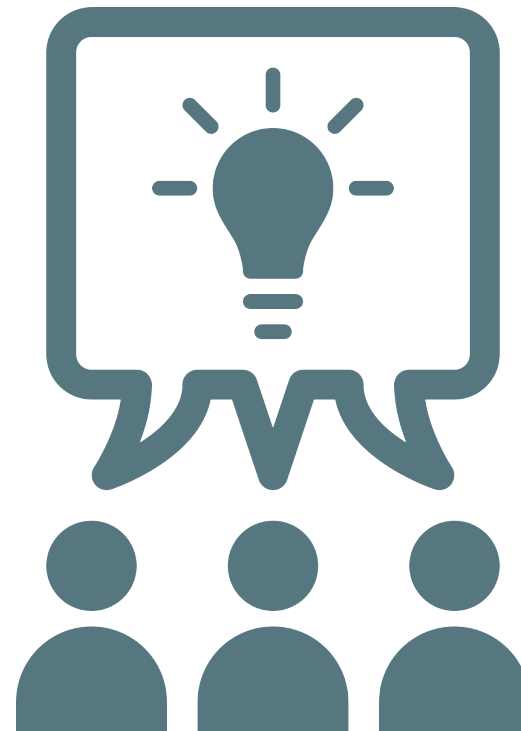
**Red Herrings/Logical Fallacies:** deliberate attempts to change the argument, or the use of an opposing argument where it is misrepresented to make it easier to refute.

# Develop common terms of reference.

*Talk about terms  
that might carry  
different meanings*



*Establish  
common meaning*



Uncertainty



Conservative



Vulnerability



## **5 evidence-based messages that work:**

- 1) It's real.
- 2) It's us.
- 3) Experts agree.
- 4) It's bad (for us).
- 5) There's hope.

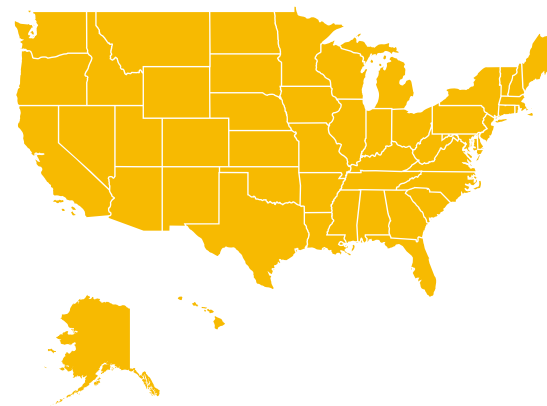
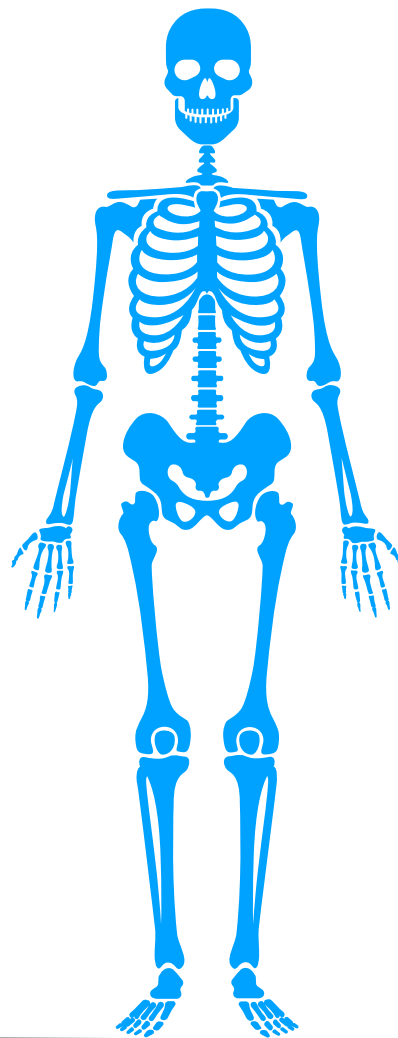
# ANATOMY OF A MESSAGE



Logical,  
relevant content



Emotional  
Appeal



Place & context  
specific

**BOND - CONNECT - INSPIRE**





## MESSAGES THAT CAN 'LAND'

- ✓ Our society & infrastructure are based on the premise of a stable climate.
- ✓ We make assumptions every day that include climate.
- ✓ We all want to thrive and have a safe future - *for ourselves and our families.*
- ✓ Climate change is not bringing anything new – it's taking events we have already experienced and making them more frequent and extreme.



# You don't have to start from scratch.



## Southeast

Sea level rise poses widespread and continuing threats to the region's economy and environment. Extreme heat will affect health, energy, agriculture, and more. Decreased water availability will have economic and environmental impacts.

**Look to existing resources** to find appropriate messages for your audience.

An aerial photograph of a powerful hurricane or storm system swirling over the ocean. The eye of the storm is visible in the center, surrounded by dense, dark clouds and churning water. The colors range from deep blues to lighter, foamy whites near the center.

## Key Message: Sea Level Rise Threats

Sea level rise poses widespread and continuing threats to both natural and built environments and to the regional economy.

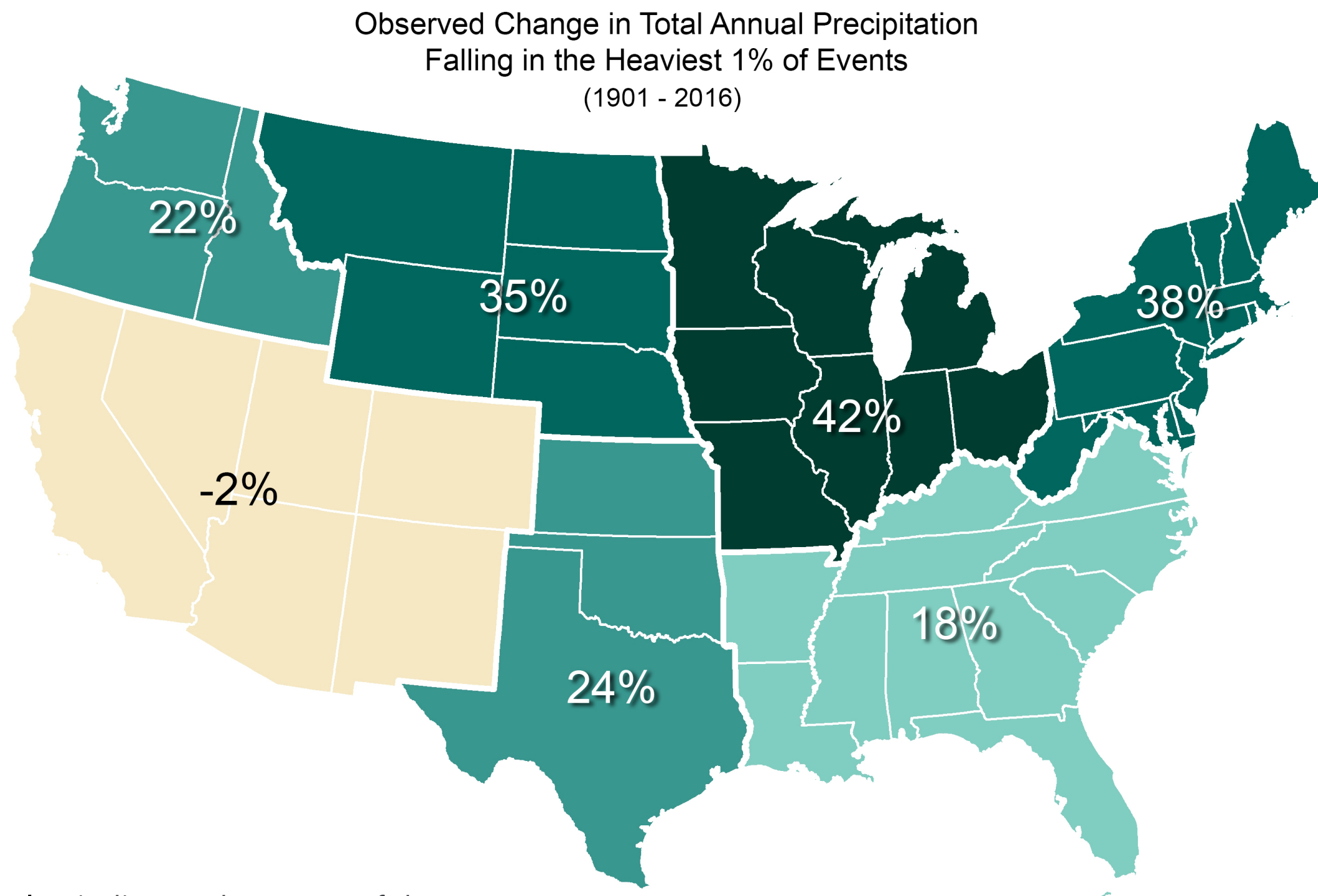


An aerial photograph of a city, likely San Francisco, showing a dense urban landscape with a river (the San Francisco River) winding through it. The image is dark and somewhat blurry, with a blue tint. The text is overlaid on the image.

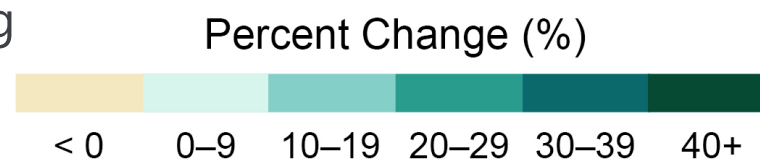
## Key Message: Increasing Temperatures

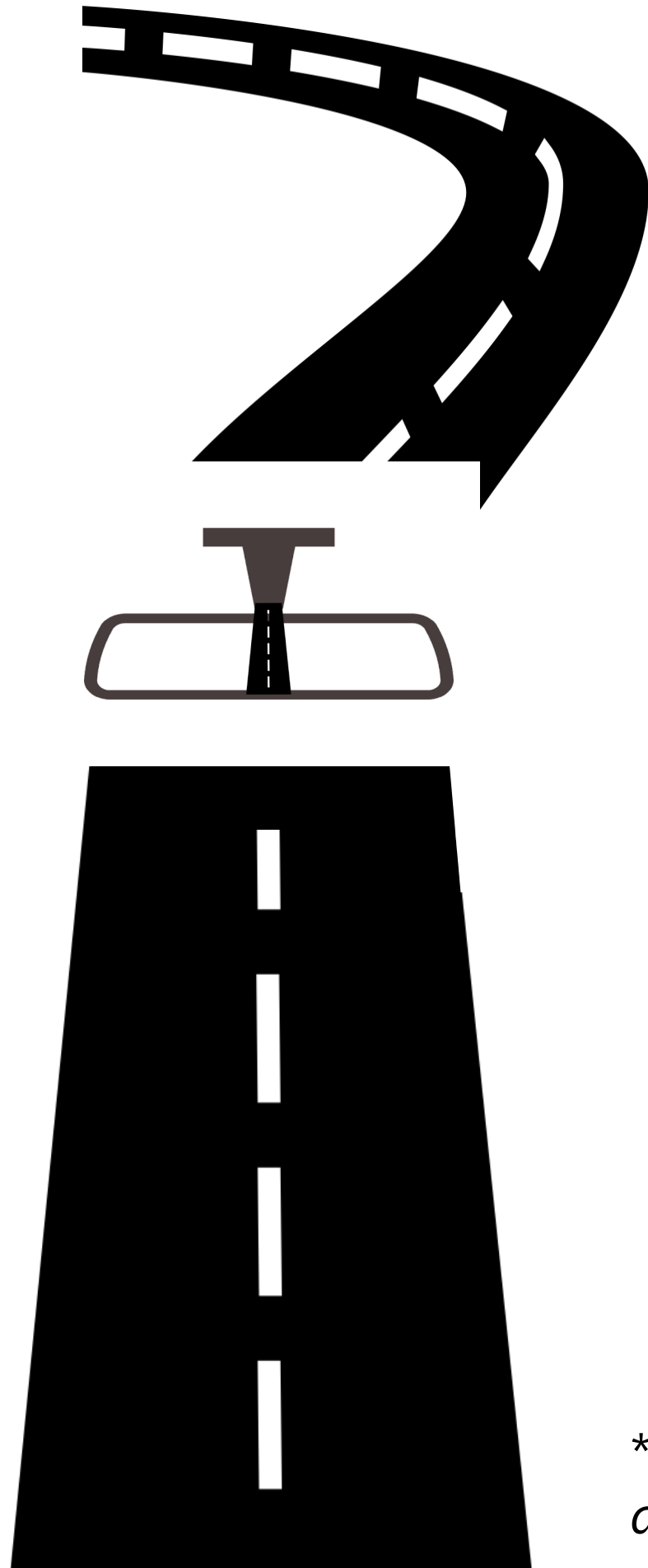
Increasing temperatures and the associated increase in frequency, intensity, and duration of extreme heat events will affect public health, natural and built environments, energy, agriculture, and forestry.

**"Heavy precipitation is becoming more intense and more frequent across most of the United States, particularly in the Northeast and Midwest."**



A positive value indicates that more of the precipitation that falls each year is falling as part of a heavy precipitation event.



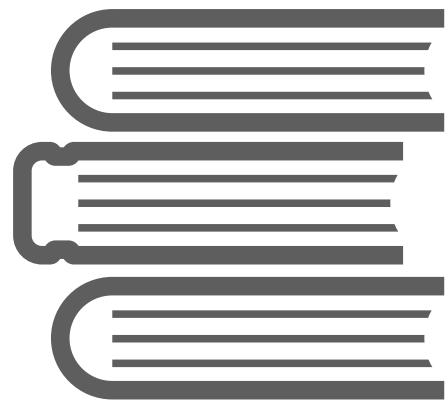


## Use analogies & metaphors

Navigating the straight road\*  
by looking in the review  
mirror...

\*even better if you can use a local road and landmark your  
*audience* knows.

## **Positive stories & routes to change *resonate*.**



Tell stories that show others doing or trying similar work - share *motivations, challenges and successes*.

**PUTTING IT INTO PRACTICE:**  
Approaching & addressing INTERNAL  
communications and INSTITUTIONAL  
barriers



# Buckets o' Barriers!



## **Organizational Structure**

*(e.g., silos, separations, general management, etc.)*



## **Communication**

*(e.g., political will, ideological barriers, lack of public support, communicating uncertainty, new and longer planning timeframes)*



## **Technical Challenges**

*(e.g., limitation of climate models, insufficient data)*



## **Resources & Capacity**

*(e.g., staff time, funding, staff understanding)*



## **Policies**

*(e.g., lack of regulation/mandate to considering sea level rise, few implemented examples, no specifics in engineering design manual)*



# Organizational Structure: *Silos*





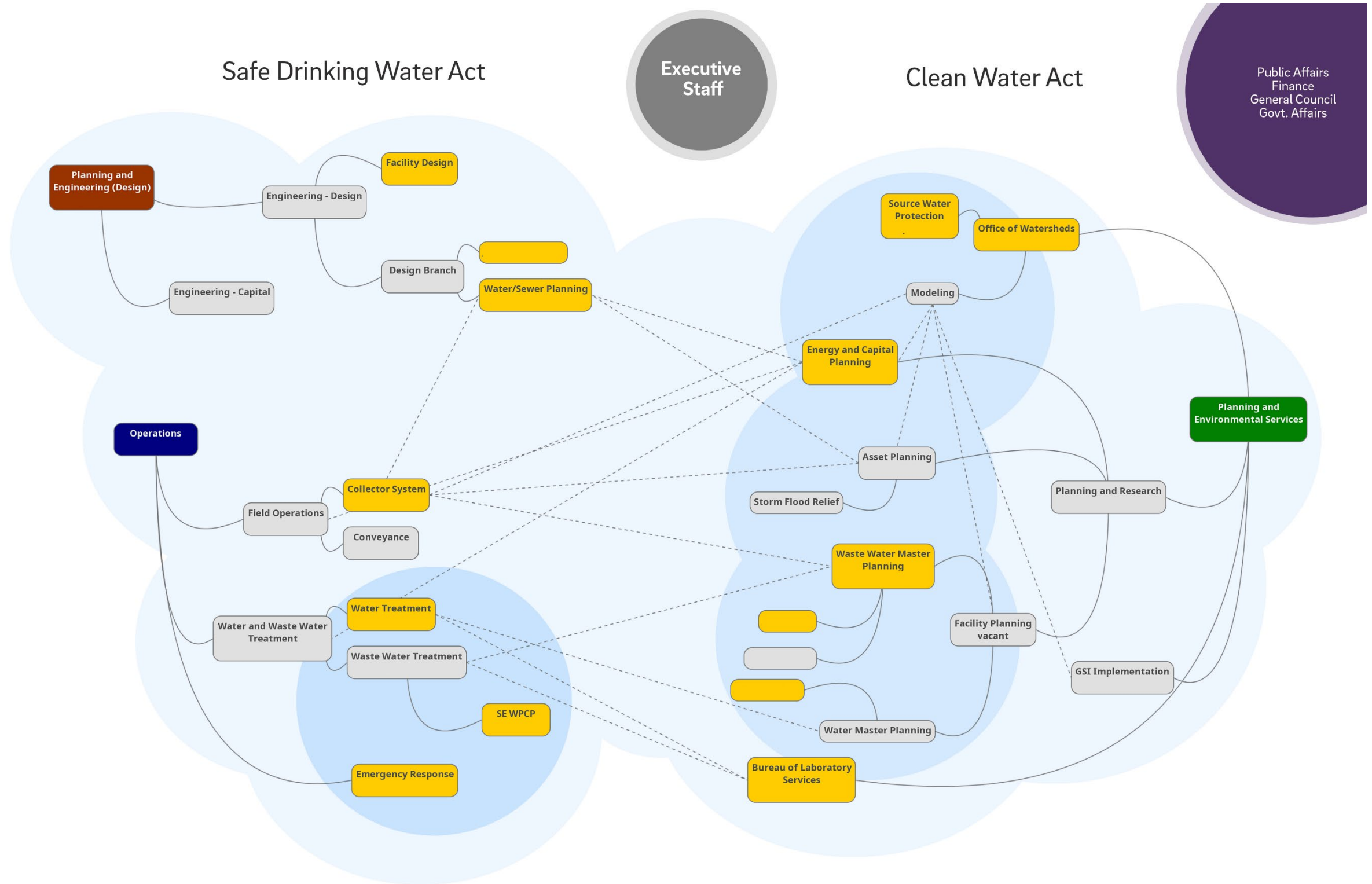
# Organizational Structure: *Silos*



Work to engage all levels of your organization



# Organizational Structure: *Silos*



Baseline understanding... know thy audience



# Organizational Structure: *Silos*

- Identify champions
- Form a working group

Find allies, build trust, open communication channels, share ownership and build buy-in to the process



**Identify champions**



# Organizational Structure: *Silos*

## Increasing Air Temperatures

### What is affected?

#### STRUCTURAL SYSTEMS

- ✓ Electrical Equipment (all facilities)

#### NON-STRUCTURAL SYSTEMS

- ✓ Source Water Quality
- ✓ Drinking Water Treatment Process

### Who is affected?

#### PWD UNITS

- ✓ Planning & Research
- ✓ Office of Watersheds
- ✓ Operations

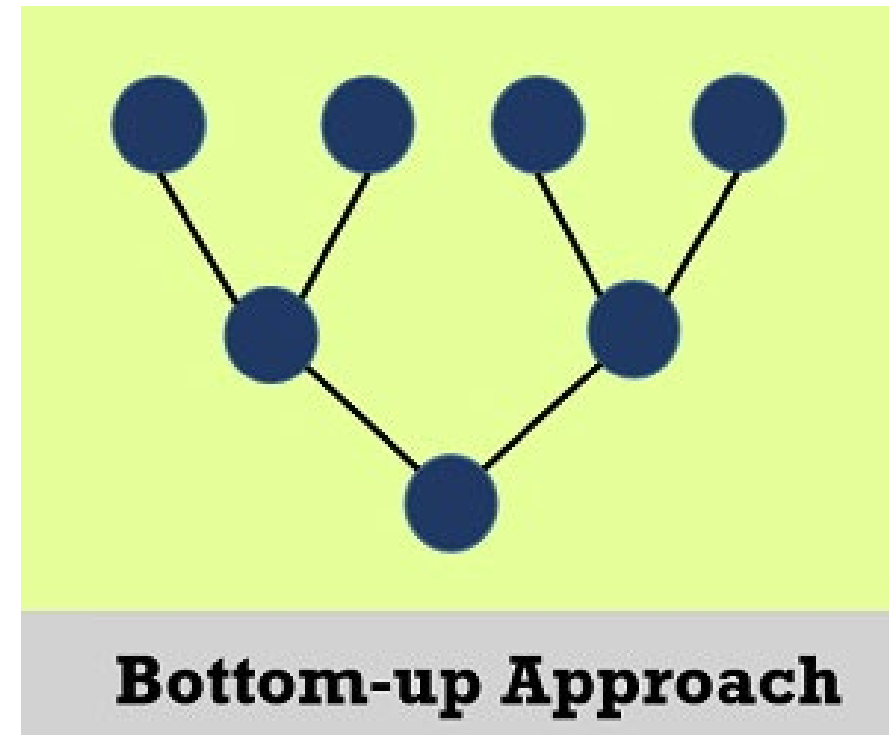
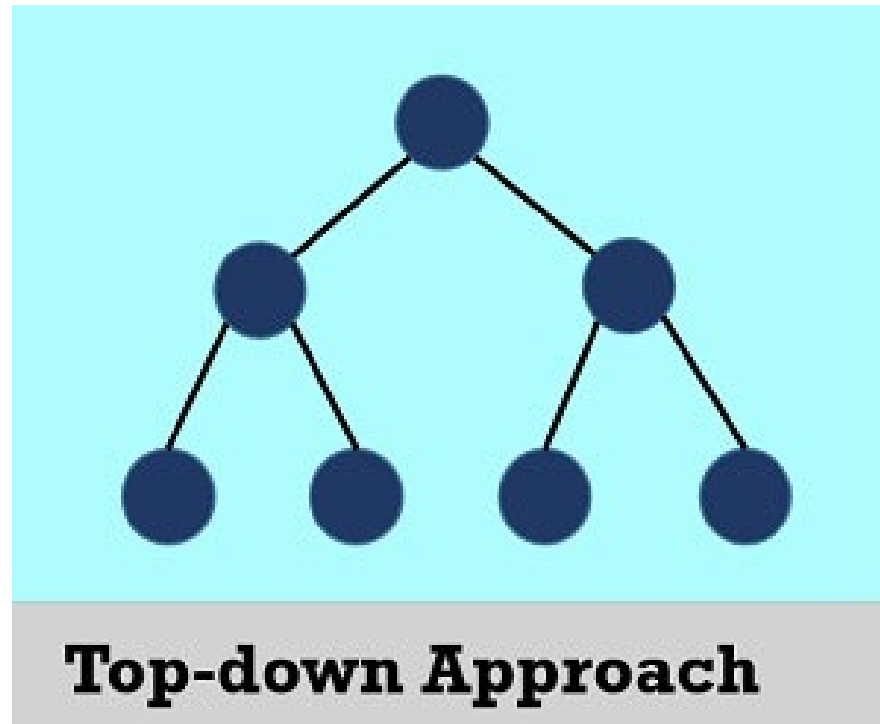
### Which processes & plans are affected?

#### PLANS & PROCESSES

- ✓ Wastewater Master Plan
- ✓ Water Master Plan
- ✓ Capital & Project Planning (heat resistant materials)
- ✓ Source Water Protection
- ✓ Operations (Treatment)

**Baseline Understanding...**  
**Know processes, plans, policies and regulatory drivers**

## Need for both top-down and bottom-up approaches



- Department-wide policy, mandate or Adaptation Plan
- Adoption of resiliency guidelines
- Include adaptation within strategic plan

- Include info in existing plans, programs and processes
- Build trust, open communication avenues to create strategies *with* staff

## Organization-wide Strategy

# Communication: *Resistance*





## Communication: *Resistance*







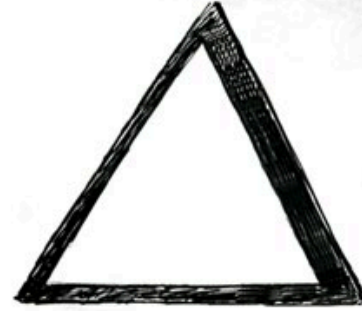
# Communication: *Resistance*



The  
Ostrich Effect



MATH SYMBOL  
FOR CHANGE:

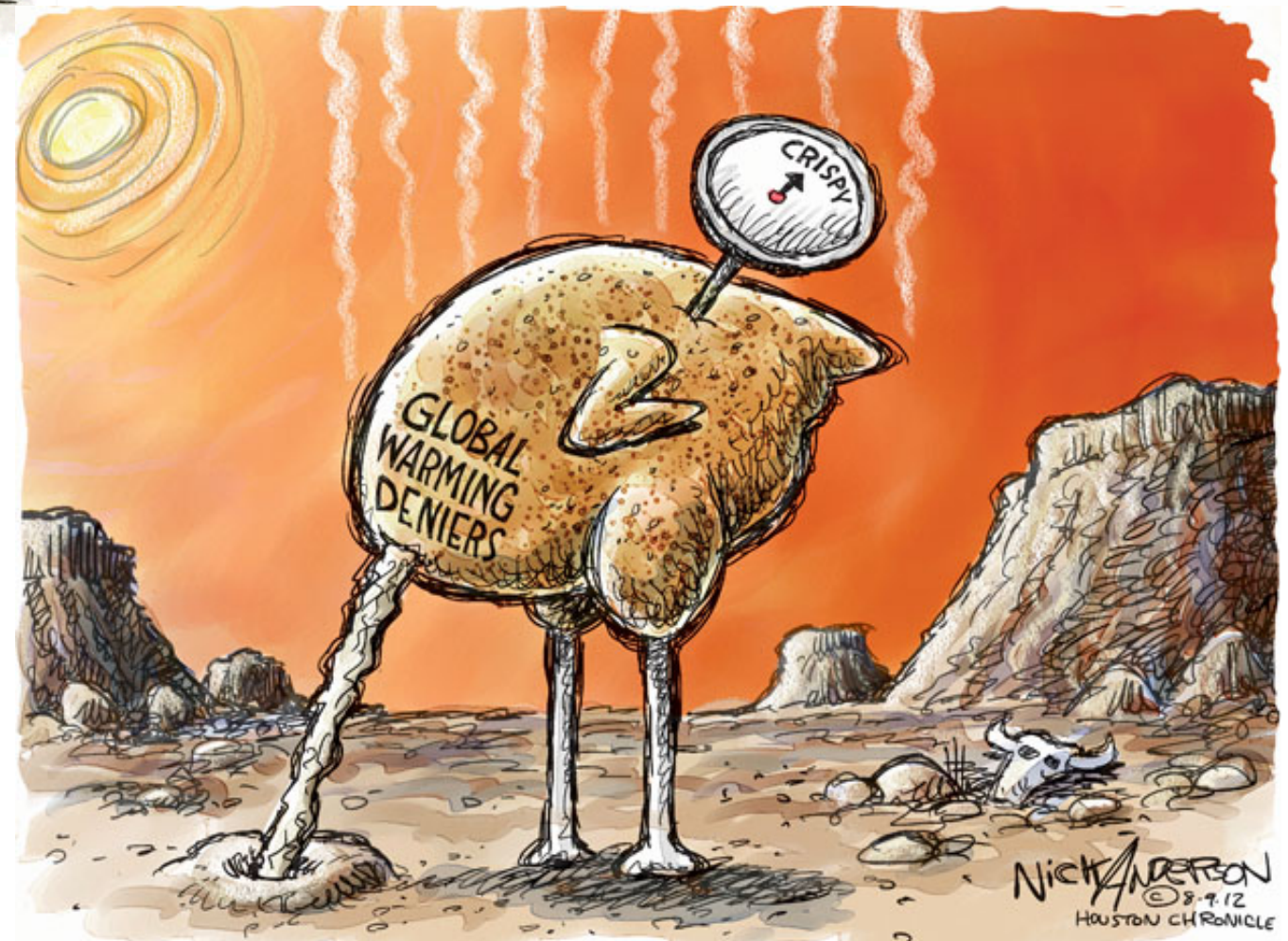


GOV'T SYMBOL  
FOR CLIMATE CHANGE:



BURYING MY HEAD IN THE SAND  
OVER CLIMATE CHANGE IS MUCH EASIER  
NOW THAT HALF THE WORLD'S  
TURNED TO DESERT!

IF THIS  
MESSAGE  
IS PRESENT  
THIS IMAGE IS  
BEING USED  
WITHOUT  
PERMISSION  
©



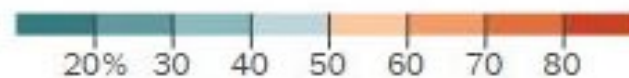




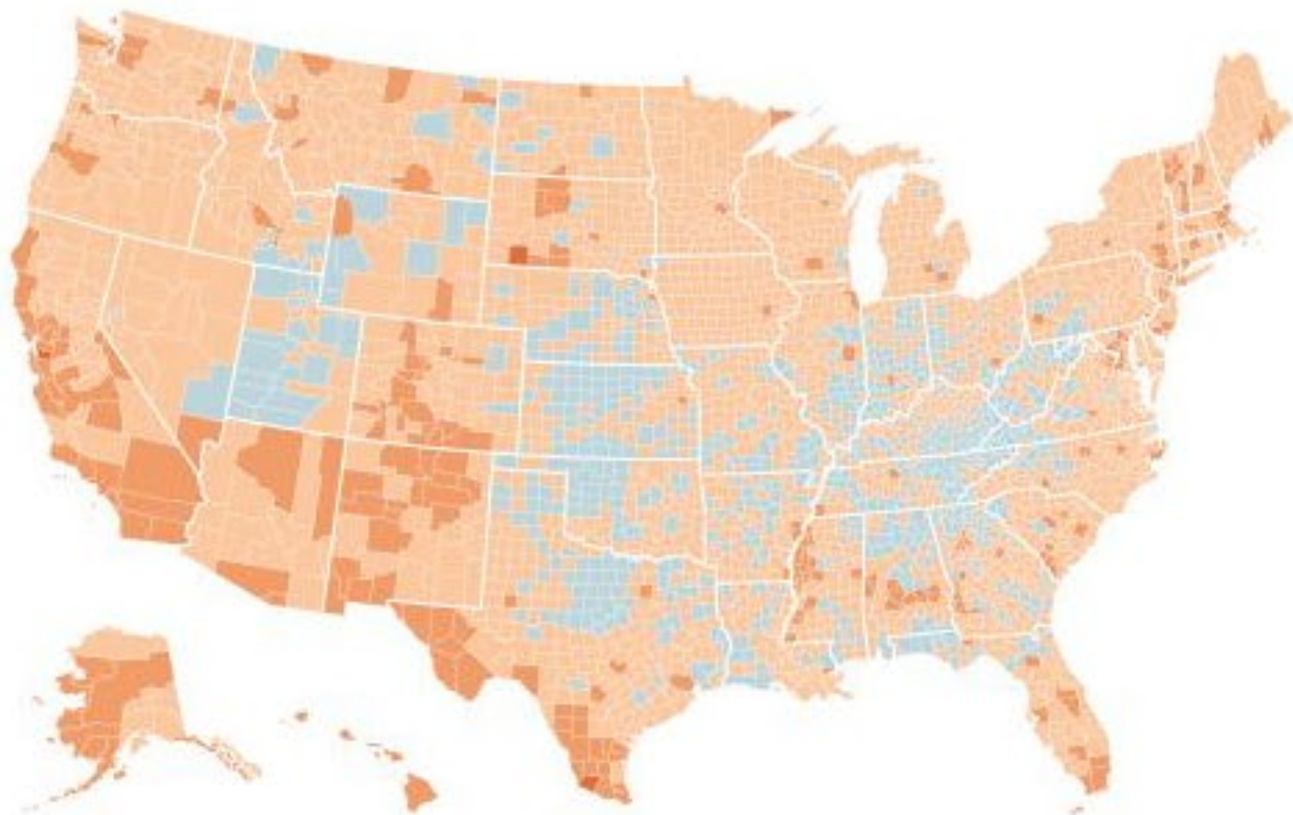
# Communication: *Resistance*

**Most people think that climate change will harm Americans, but they don't think it will happen to them.**

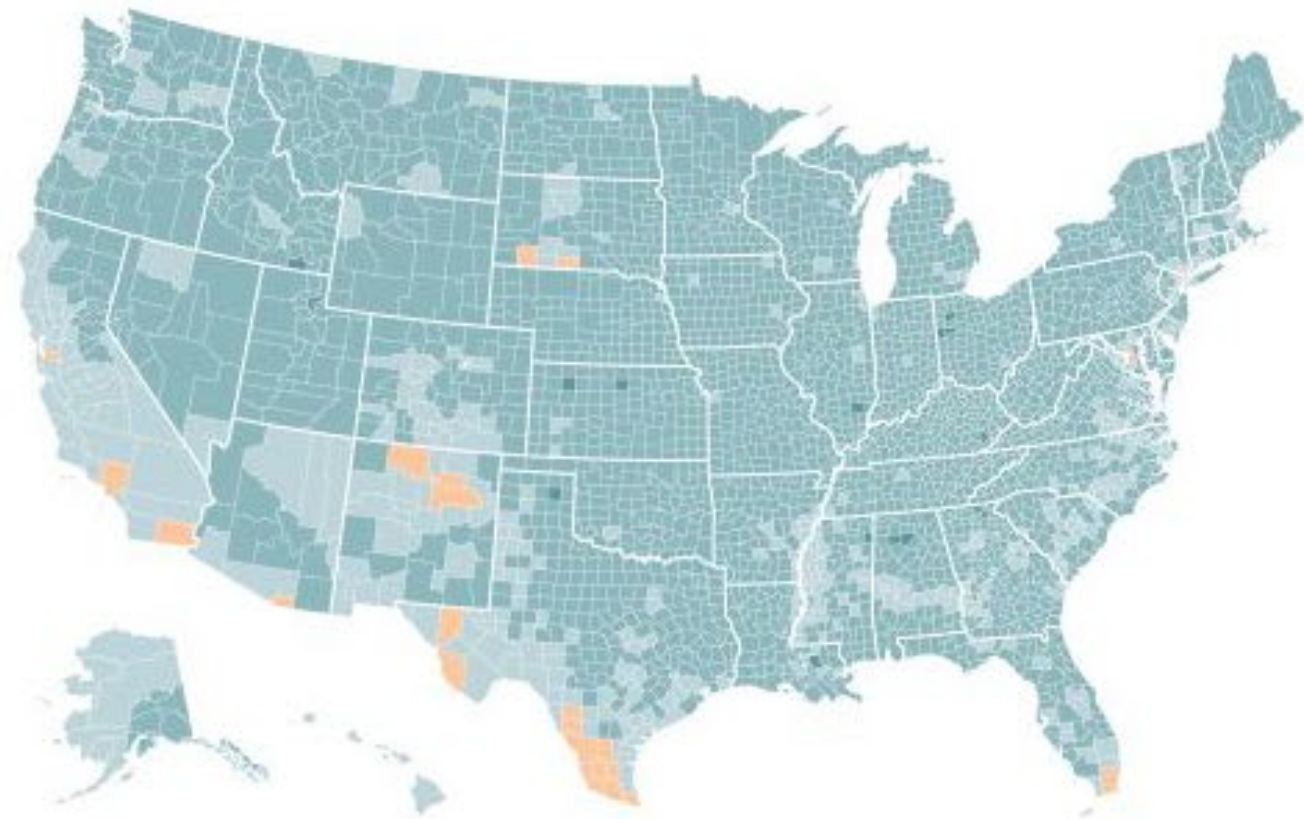
Percentage of adults per county who think ...



Global warming will harm people in the United States



Global warming will harm me, personally

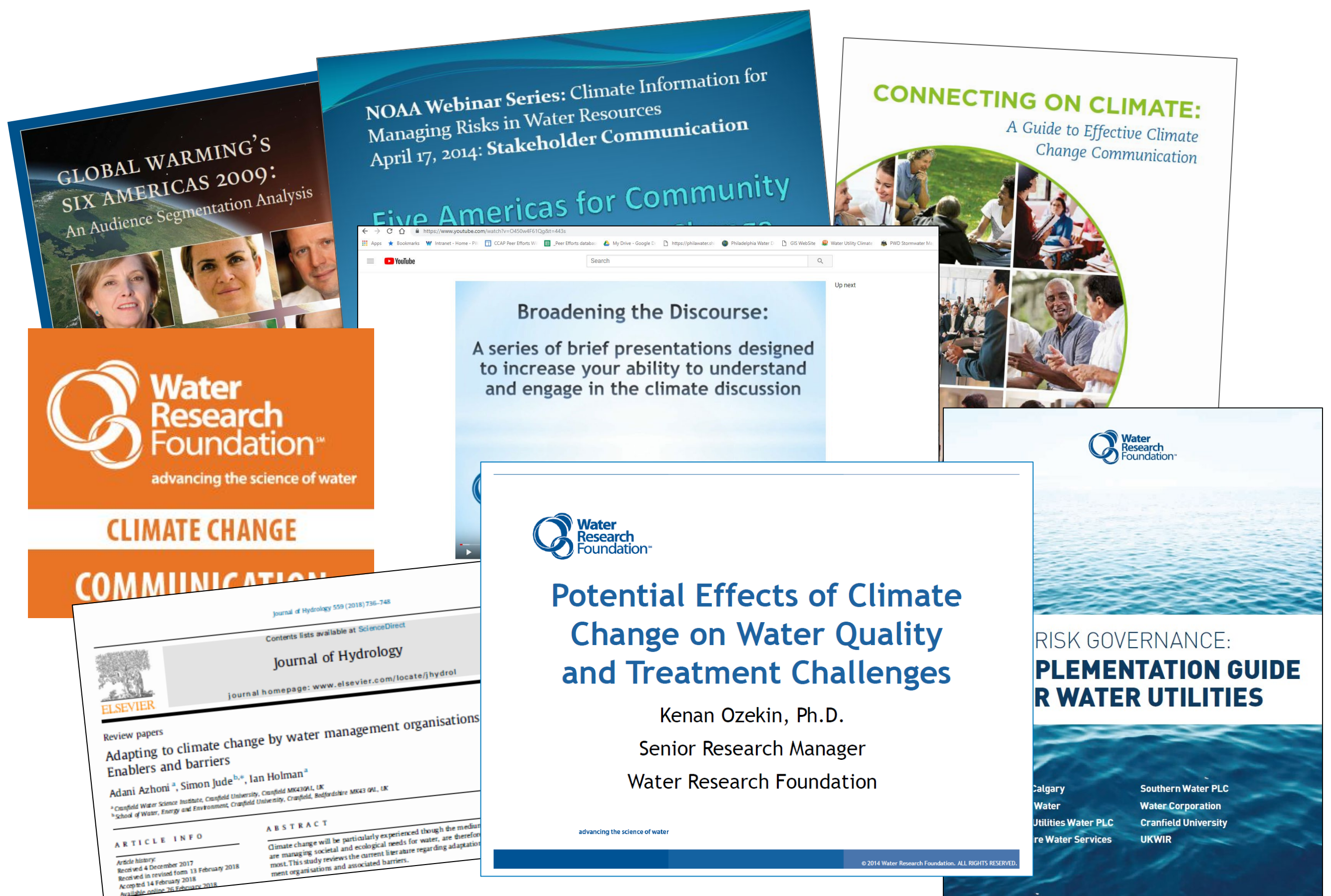




# Communication: *Resistance*



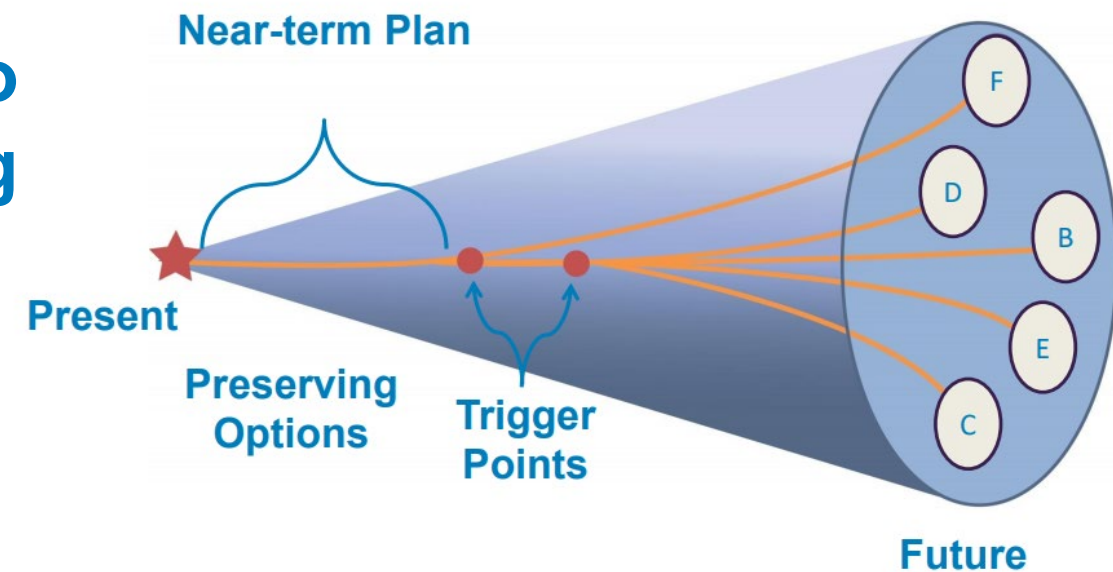




**Rely on existing resources and borrow ideas**

# Alternatives Analysis

## Scenario Planning



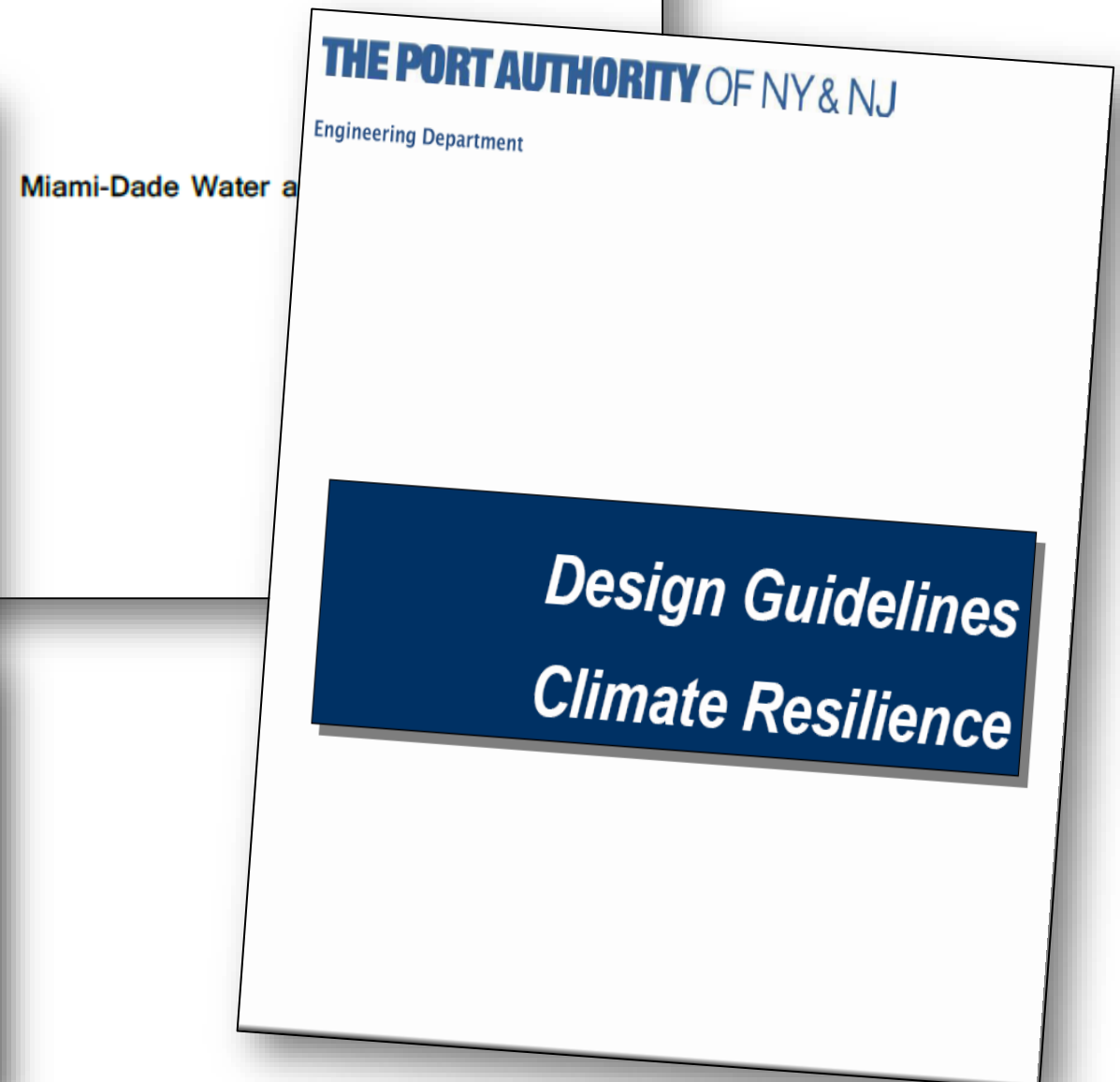
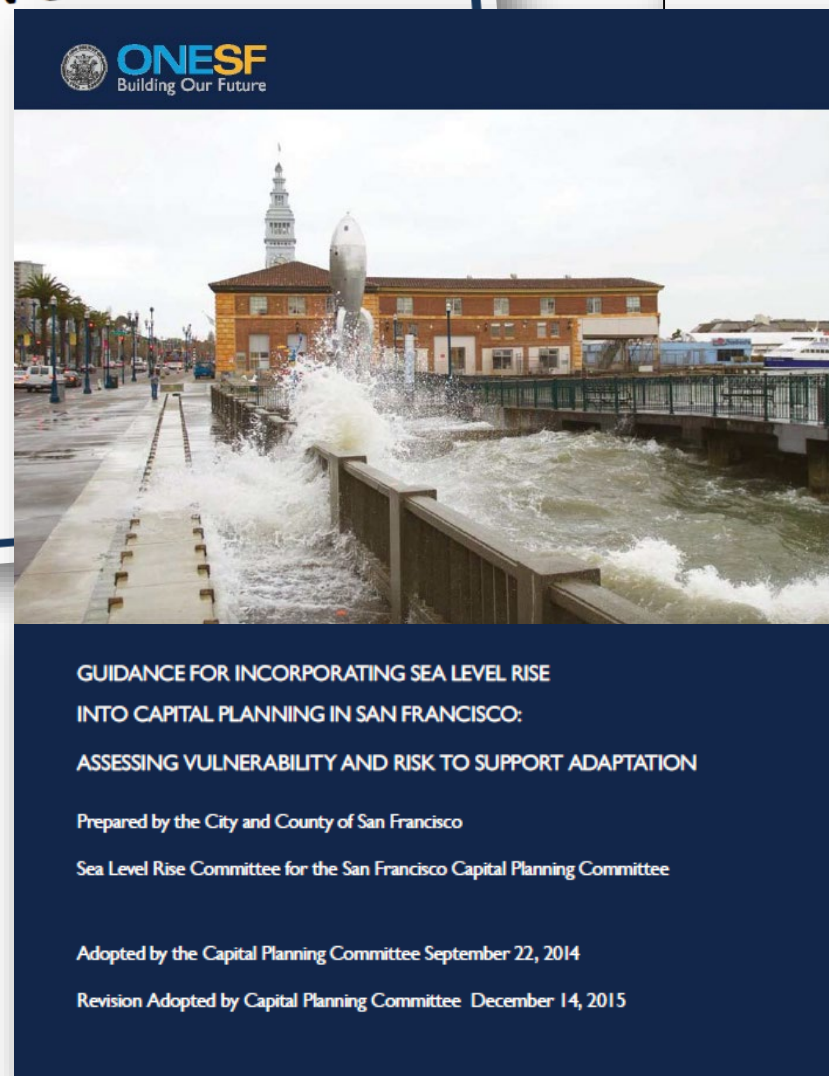
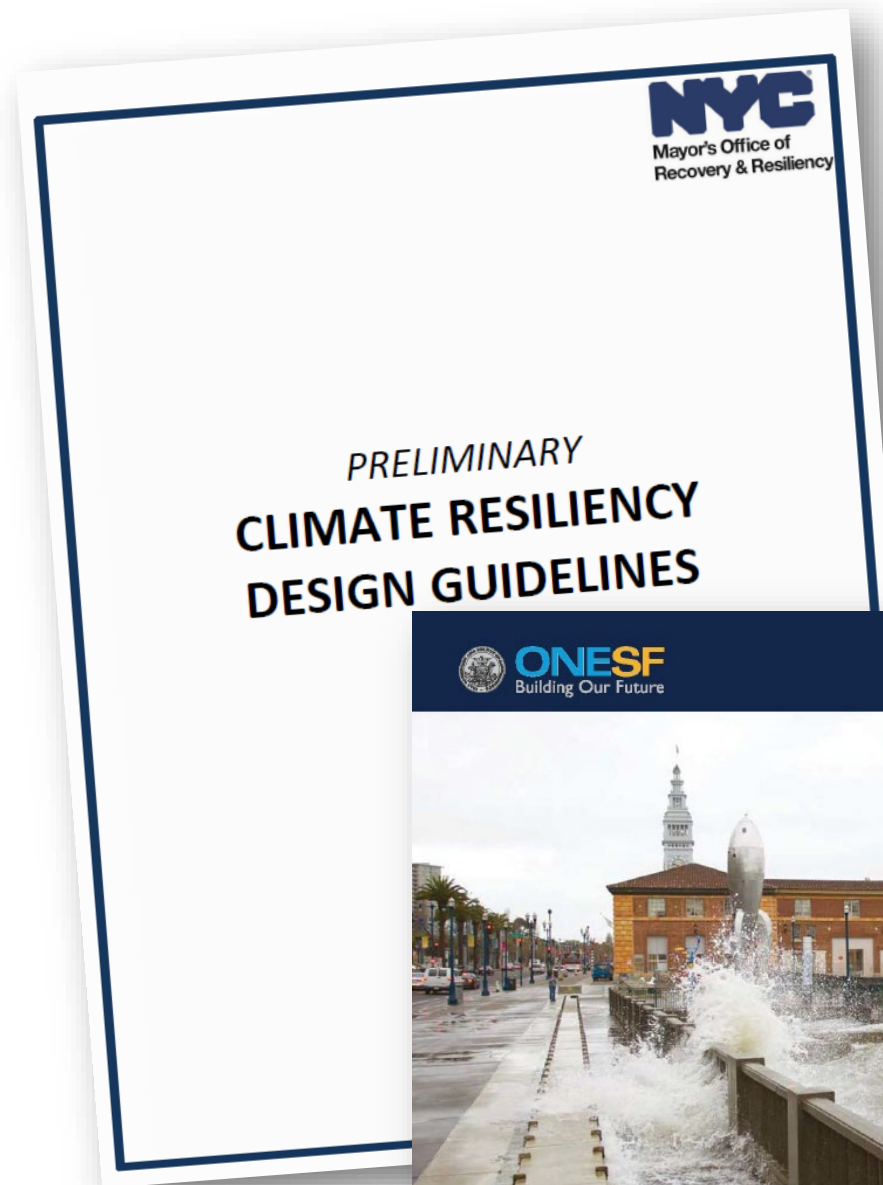
## Adaptive Management

## Risk Governance



**Introduce new strategies and support existing tools**





**Rely on existing resources and borrow ideas**





## Communication: *Resistance*



*People want to be heard, respected and given a chance to provide their perspective.*

**Listen and avoid criticizing or making demands**



# Communication: *Resistance*

- Frame your messages
- Be transparent about your limitations
- Be aware of staff sensitivities
- Anticipate conflicts and be prepared
- Liability – reach out to your legal team
- Think about roles (your role?)



**Tips and considerations...**

# Technical Challenge:

## *Insufficient data or models*





## Technical Challenge: *Insufficient data or models*

A lack of quantifiable information or data does not mean inaction. We can still provide general information and make smart decisions.

Low-regret, no-regret and precautionary steps can be advocated for before there is sufficient data or results from analyses.



**Use the precautionary principle based on best available knowledge**

# Resources & Capacity: *Staff Understanding*





## GLOBAL WARMING'S SIX AMERICAS 2009: An Audience Segmentation Analysis



## NOAA Webinar Series: Climate Information for Managing Risks in Water Resources April 17, 2014: Stakeholder Communication

### Five Americas for Community

https://www.youtube.com/watch?v=0450w4F61Qg&t=443s

Apps Bookmarks Intranet Home P... CCAP Peer Efforts W... Peer Efforts databa... My Drive Google D... https://philawater.s... Philadelphia Water D... GIS WebSite Water Utility Climate PWD Stormwater M...

YouTube Search

### Broadening the Discourse:

A series of brief presentations designed  
to increase your ability to understand  
and engage in the climate discussion

## CONNECTING ON CLIMATE:

A Guide to Effective Climate  
Change Communication

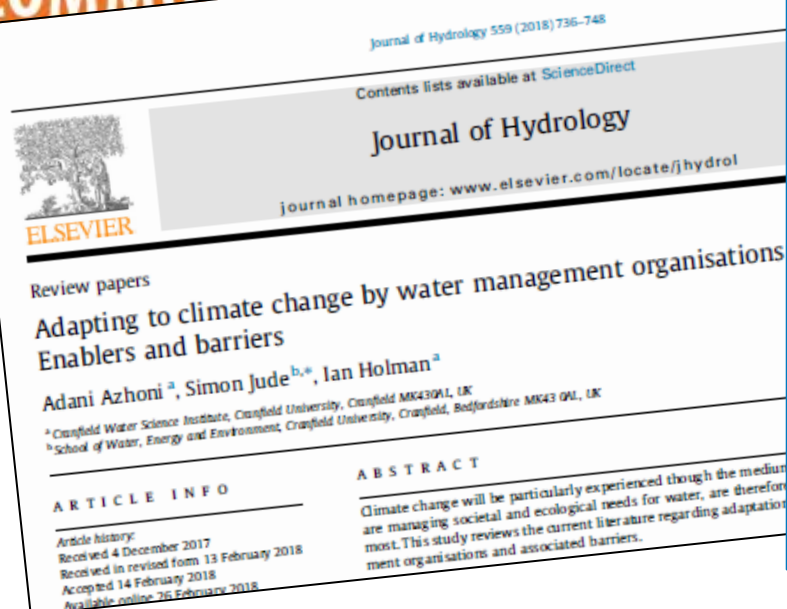


**Water  
Research  
Foundation™**

advancing the science of water

**CLIMATE CHANGE**

**COMMUNICATION**



## Potential Effects of Climate Change on Water Quality and Treatment Challenges

Kenan Ozekin, Ph.D.

Senior Research Manager

Water Research Foundation

advancing the science of water

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## RISK GOVERNANCE: IMPLEMENTATION GUIDE FOR WATER UTILITIES

Calgary  
Water  
Utilities Water PLC  
ire Water Services

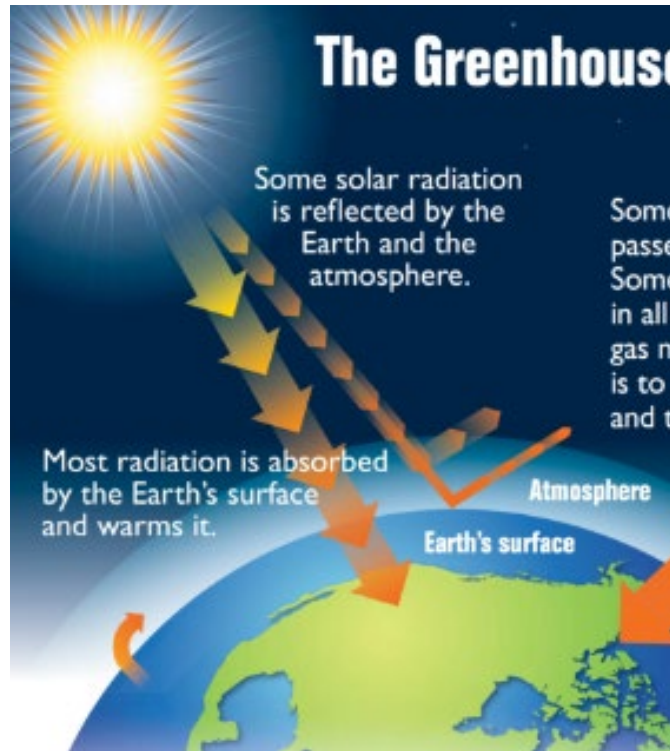
Southern Water PLC  
Water Corporation  
Cranfield University  
UKWIR

# Rely on existing resources and borrow ideas





Resource



Create oppo  
intera

Invest in b

\\pwwdoows\OOWS\Climate Change Adaptation\CCAP Communications\PowerPoints					
File Home Share View					
Pin to Quick access Copy Paste Copy path Move to Copy to Delete Rename New folder Easy access Properties Edit History Open Select all Select none Invert selection Select					
Network > pwwdoows > OOWS > Climate Change Adaptation > CCAP Communications > PowerPoints					
Name	Date modified	Type	Size		
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Nov2018_WRAConference_Final3.pptx	10/31/2018 5:13 PM	Microsoft Power...	30,378 KB		
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Hao_Tool.pptx	5/3/2018 2:04 PM	Microsoft Power...	3,844 KB		
WUCA_PWD CCAP_071917.pptx	4/24/2018 5:13 PM	Microsoft Power...	13,299 KB		
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CSO_GreenTools_AnimationSlide.pptx	11/1/2017 11:52 AM	Microsoft Power...	115,110 KB		
Eastwick Overview.pptx - Shortcut	9/28/2017 9:28 AM	Shortcut	2 KB		
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082217 CCAP_VU_Workshop_August2017.pptx	8/22/2017 8:13 AM	Microsoft Power...	7,351 KB		
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CCAP_EWRI_SacramentoCA_Extremal_SLR_analysis.pptx	5/18/2017 1:41 PM	Microsoft Power...	6,821 KB		
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CCAP_ShedTalkFWW_March2017.pptx	4/13/2017 12:17 PM	Microsoft Power...	1,434,320 KB		
CCAP_NE Hydraulics WG_April2017_Final.pptx	4/11/2017 6:05 PM	Microsoft Power...	6,951 KB		
Schuykill Watershed Congress II.pptx	4/10/2017 2:33 PM	Microsoft Power...	21,937 KB		
CCAP_ShedTalkFWW_March2017_Precip slides.pptx	4/10/2017 2:15 PM	Microsoft Power...	13,311 KB		
Inundation Project Slide for Phil_FRMTF.pptx	3/13/2017 4:29 PM	Microsoft Power...	270 KB		
CCAP_Update to Execs_Jan2017_Final.pptx	3/9/2017 11:39 AM	Microsoft Power...	13,020 KB		
Temp and Precip Slides 3.7.17_from OOS.pptx	3/7/2017 2:08 PM	Microsoft Power...	234 KB		
~SCCAP_Update to Execs_Jan2017V6.0.pptx	1/31/2017 12:10 PM	Microsoft Power...	0 KB		
Spiral_graphs_Still.pptx	1/30/2017 11:11 AM	Microsoft Power...	7,727 KB		
CCAP_ShedTalk_Nov2016.pptx	12/9/2016 10:22 AM	Microsoft Power...	1,428,634 KB		
PWD_CCAP_Program Overview.pptx	11/3/2016 3:07 PM	Microsoft Power...	26,825 KB		
PWD_CCAP_SAN_Annual Meeting 2016_updated.pptx	11/3/2016 3:07 PM	Microsoft Power...	26,825 KB		
CCAP_Delaware River Science Meeting_August2016_d2.pptx	8/15/2016 4:28 PM	Microsoft Power...	14,617 KB		
Climate Change Adaptation Program_WQ Committee_April2016FINAL....	8/4/2016 12:57 PM	Microsoft Power...	5,498 KB		
Climate Change Adaptation Program_WQ Committee_April2016FINAL....	4/28/2016 3:26 PM	Adobe Acrobat D...	1,355 KB		
Climate Change Adaptation Program_General_Oct2015_10.12.pptx	11/18/2015 3:49 PM	Microsoft Power...	10,172 KB		
Adaptation Planning Challenges slide.pptx	10/13/2015 1:00 PM	Microsoft Power...	69 KB		
DRAFT 2015-06 Climate Change - Crockett_JR.pptx	6/1/2015 1:39 PM	Microsoft Power...	6,042 KB		
2018 Roll-Out	10/31/2018 5:05 PM	File folder			
Archive	10/13/2018 2:16 PM	File folder			
PWD Regs Presentations from PA	10/10/2018 5:08 PM	File folder			
Reference PPs	10/5/2018 3:28 PM	File folder			

Understanding



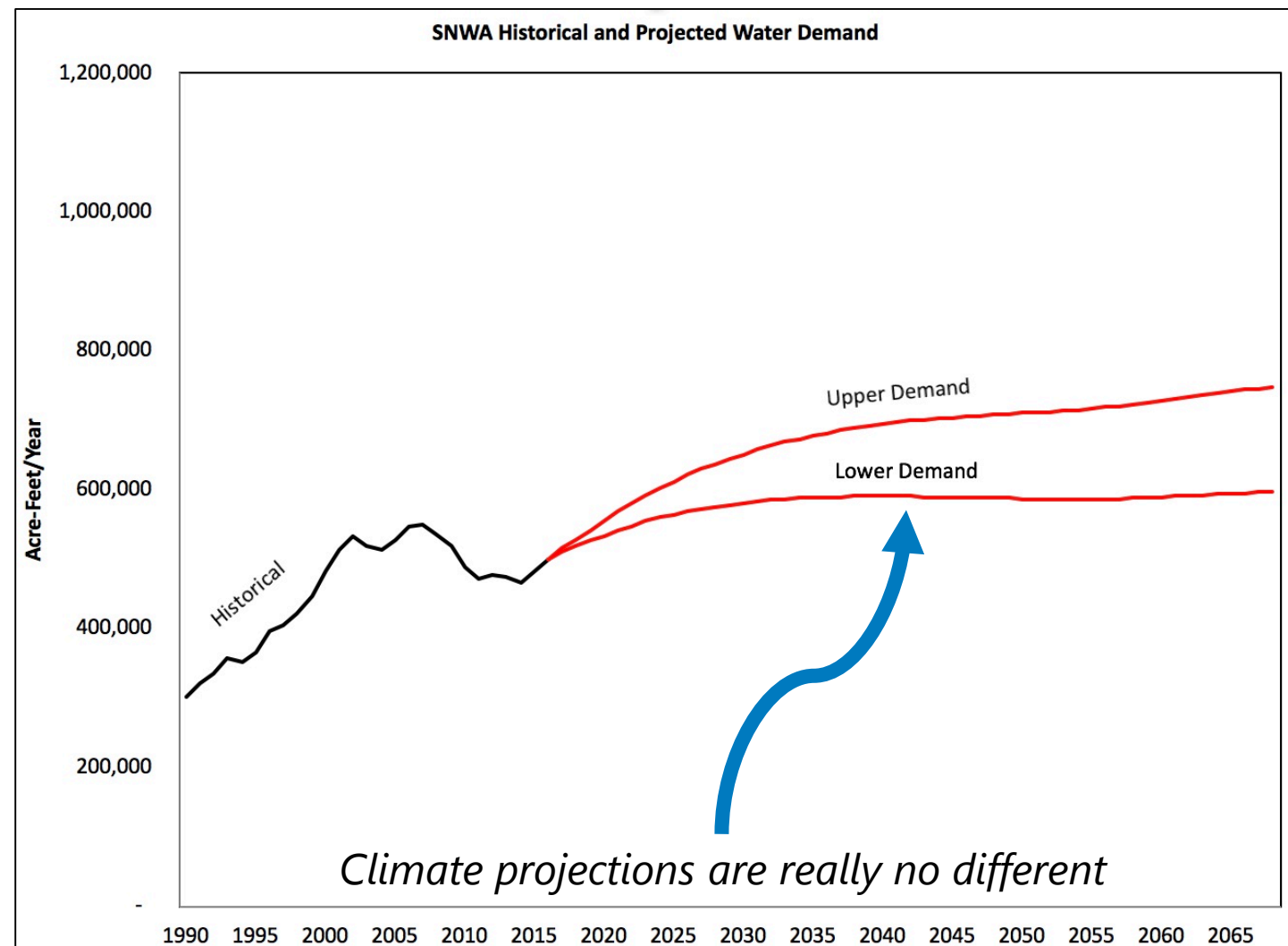
face-to-face  
ently.

rstanding



# Resources and Capacity – *Staff Understanding*

Water utilities are familiar with planning for risk and operating under uncertainty (e.g. economic & population growth, future water demand projections).



**Talk about uncertainty in context of what your audience already knows.**



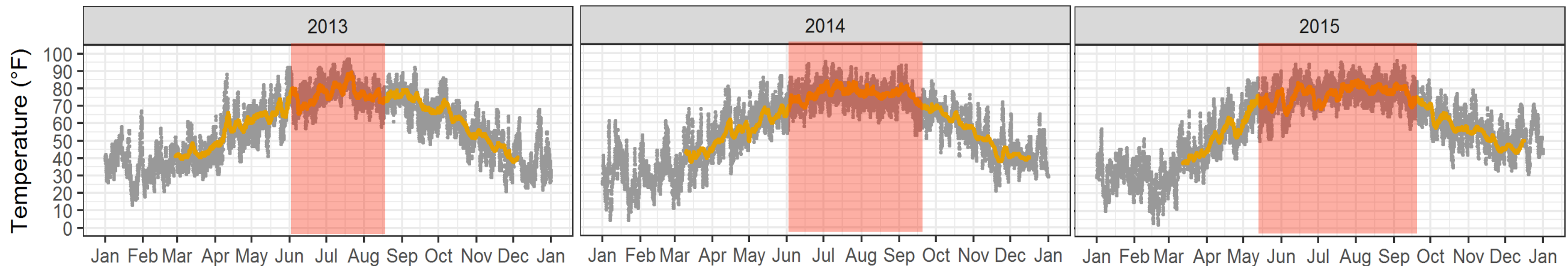
# Resources and Capacity – *Staff Understanding*

Climate change amplifies issues we already deal with.

Air and Schuylkill River Water Temperature

● PHL Airport Air Temperature

● Schuylkill R. @ Fairmount Dam



Summer months are the hardest time to meet some treatment regulations (i.e. Disinfection Byproducts, Chlorine residual).

**Talk about uncertainty in context of what your audience already knows.**





## Resources and Capacity – *Staff Understanding*

*You may feel like a broken record but context, experiences and mental models are always changing.*

*Time is required to make both individual and institutional change.*



**Repeat, revisit, repeat again. And have patience.**



# Resources and Capacity – *Staff Understanding*

- Bring in other experts
- Who are the influencers?
  - Share case studies
- Share from trusted sources (AMWA, WRF, WUCA, ASCE?)
- Guide to the same conclusion



Katherine Hayhoe  
climate scientist/communicator  
extraordinaire

**Messengers matter.** (And should not always be you)

# Policies: or lack thereof







## **Policies – *or a lack thereof***

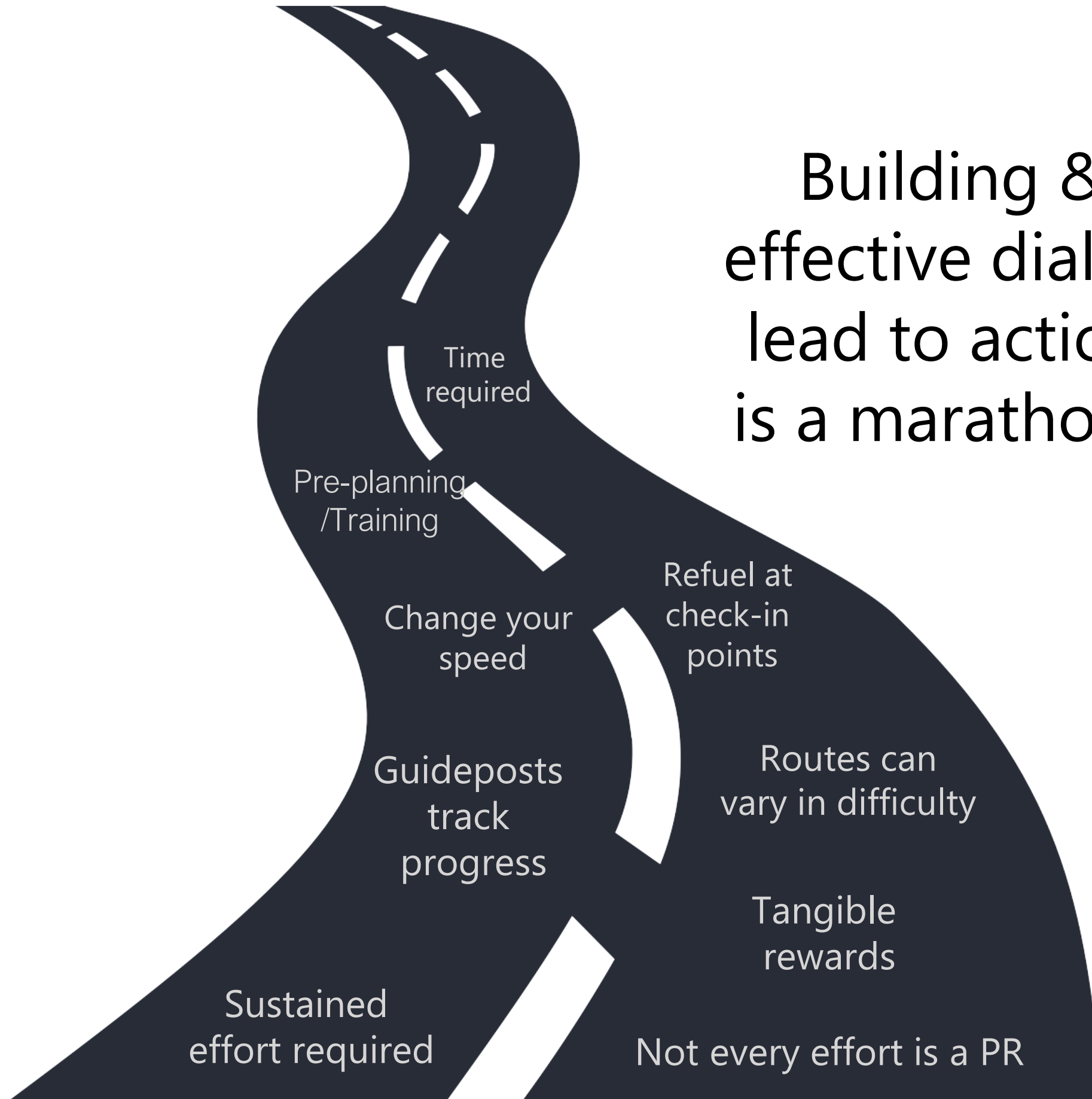
Work to get top-down support for internal policies you are shaping:

- Incorporate climate change into capital planning process
- Change planning and design processes
- Incorporate climate change into long term master plans
- Adopt resiliency design guidelines
- Adopt scenario planning
- Adopt higher standards and safety factors beyond what is required by local/state/federal ordinance

**Push for more progressive standards than required**

Building & sustaining effective dialogue that can lead to action or 'uptake' is a marathon, *not a sprint*.

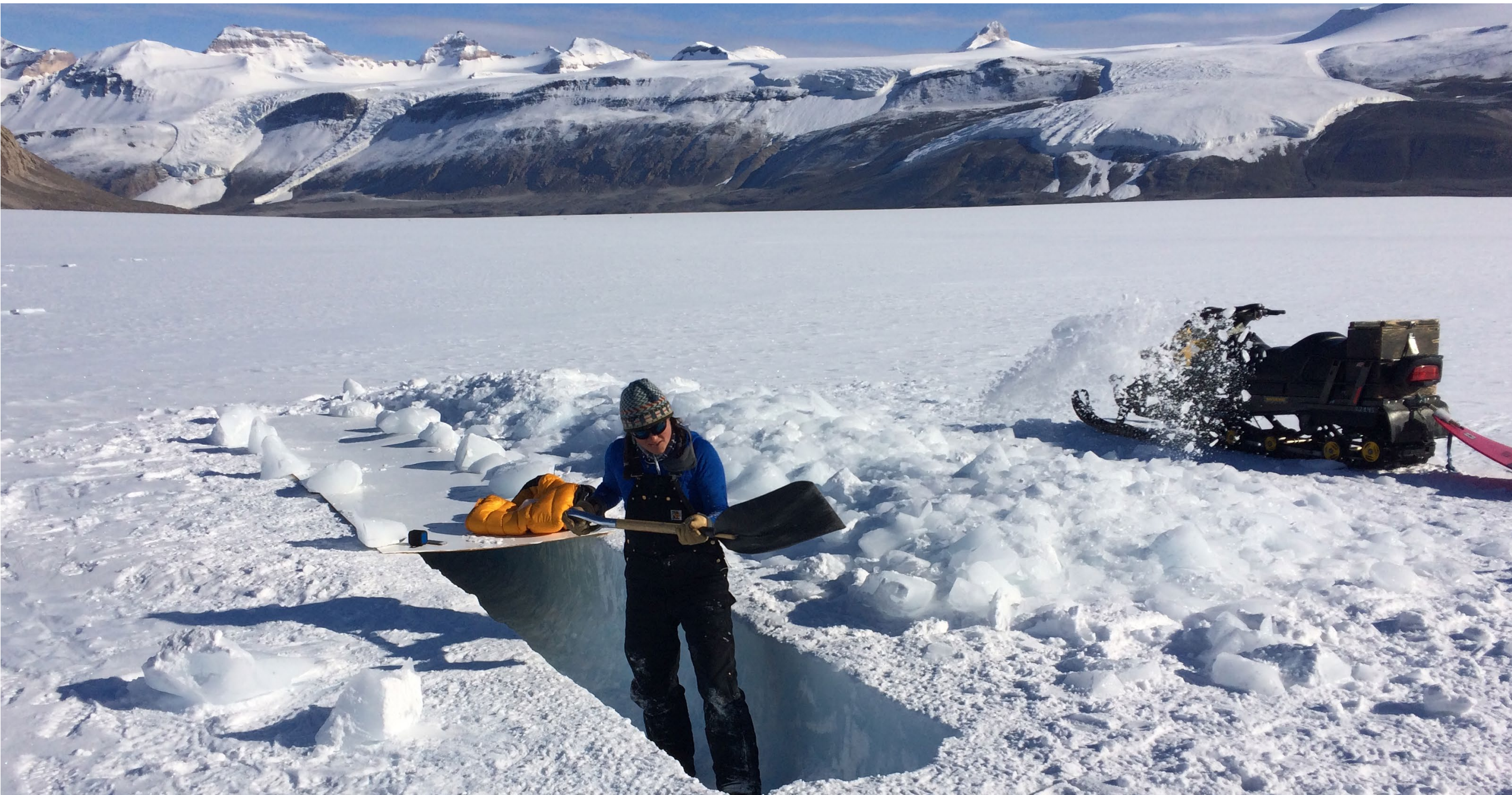
This is true for both internal and external audiences.



Salient, credible and legitimate knowledge ahead!



# Questions





**Bringing it All Together:**  
***Identifying Institutional Barriers and  
Mapping Out Strategies and Next Steps***

# Buckets o' Barriers Activity



## **Organizational Structure**

*(e.g., silos, board support, general management, etc.)*



## **Communication**

*(e.g., political will, ideological barriers, lack of public support, communicating uncertainty)*



## **Technical Challenges**

*(e.g., limitation of climate models, insufficient data)*



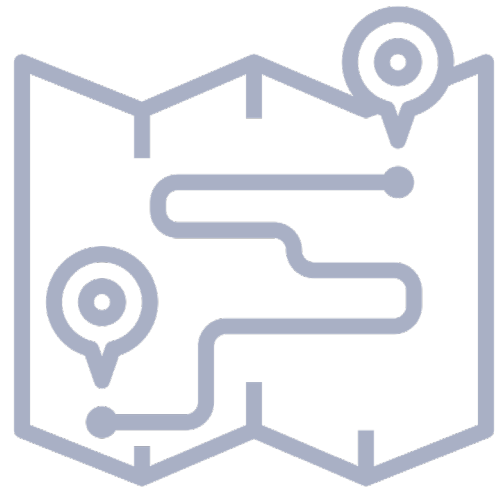
## **Resources & Capacity**

*(e.g., staff time, funding, staff understanding)*



## **Policies**

*(e.g., lack of regulation/mandate, few implemented examples, no specifics in engineering design manual)*



## STRATEGY SESSION

*What strategies & resources might you use or develop to address some of these barriers?*

*e.g., find champions, map out potential influencers, develop a communications plan, etc.*







# Next Steps

**YOURS?**

*Towards climate  
adaptation &  
resilience*

**ARE**

**Resources & Capacity**

**WHAT**

**Communication**

**Technical  
Challenges**

**Organizational  
Structure**

**Policies, regulation &  
mandates**



# Key Communications Takeaways

- **Many barriers exist.** A diversity of evidence-based *strategies* and solutions can help you work towards climate adaptation solutions.
- **Effective, place-based messages** delivered by **various voices** can help to catalyze conversations & create change.
- You have **new resources** and a new community of practice (everyone in this room!).
- **Concrete, small actions** are needed to address this complex issue. Practice, repetition, time and missteps are keys to success.
- Building dialogue is **time-intensive but essential** for usability & scalability. *Different messengers & champions are key. Think marathon, not sprint!*