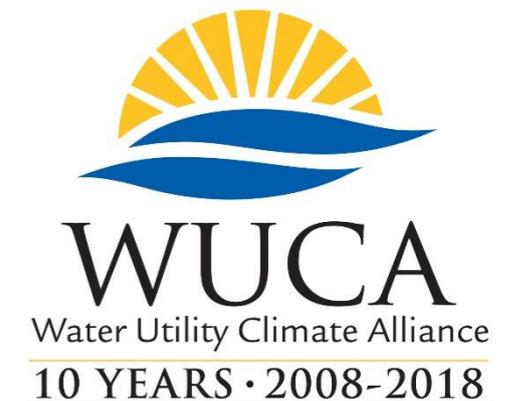


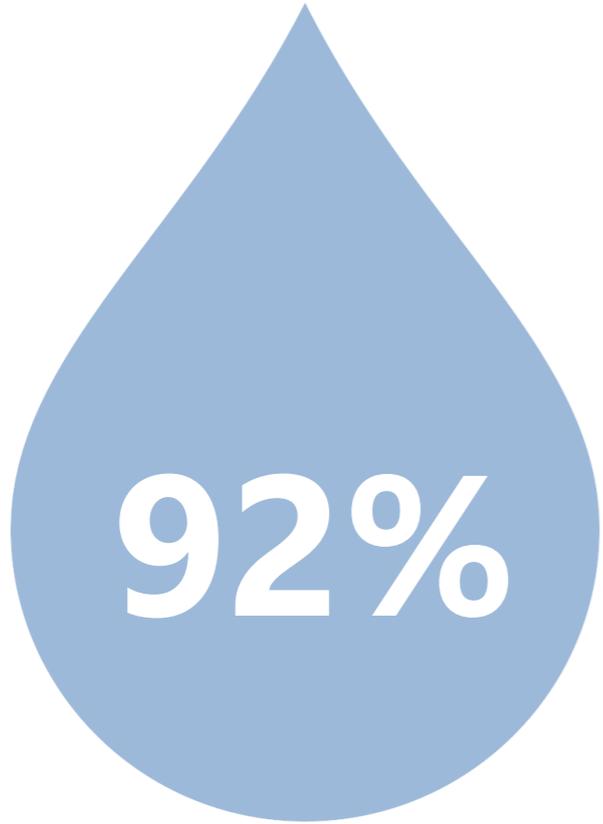
**Building Resilience to a Changing Climate:
A Technical Training in Water Sector
Utility Decision Support**



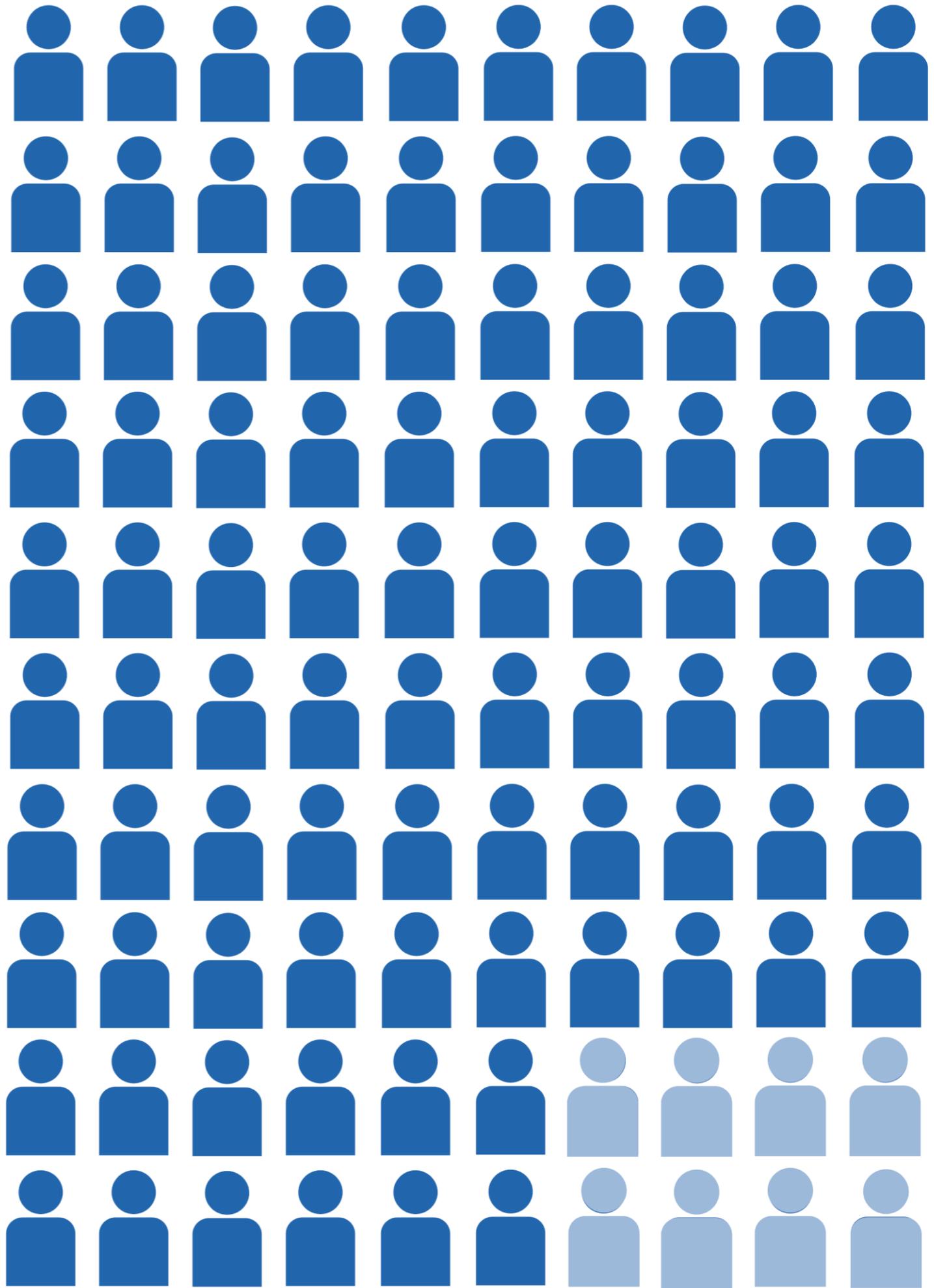
Using Communication Best Practices to Engage Audiences & Address Institutional Barriers

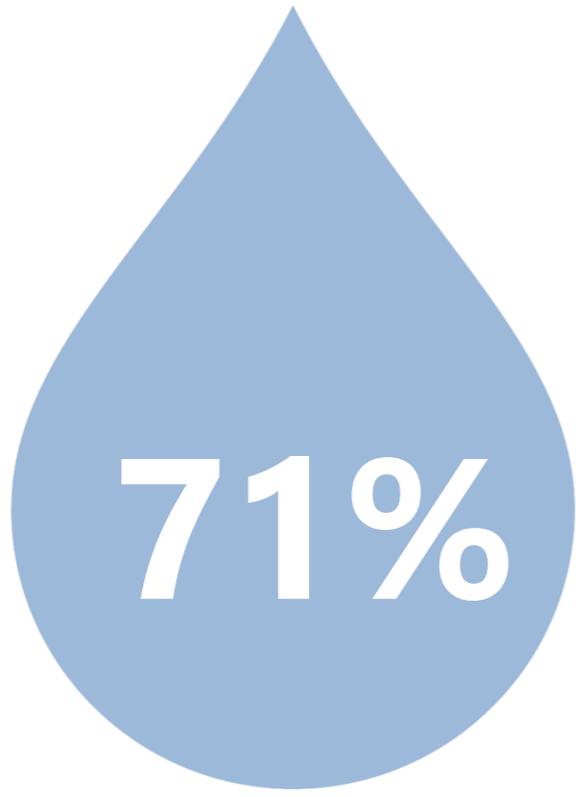
Heidi A. Roop - University of Washington Climate Impacts Group

Abby Sullivan - Philadelphia Water Department / WUCA

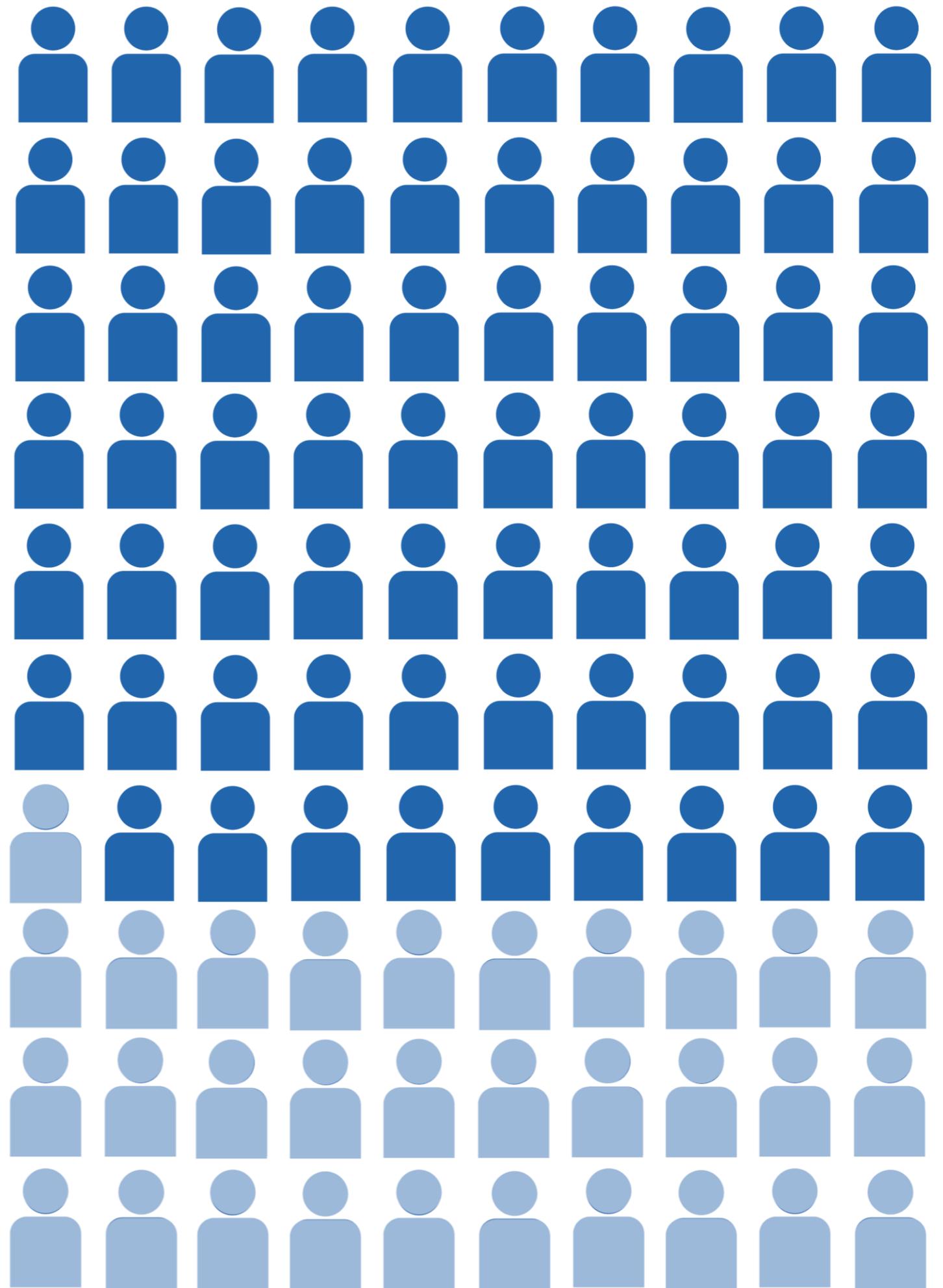


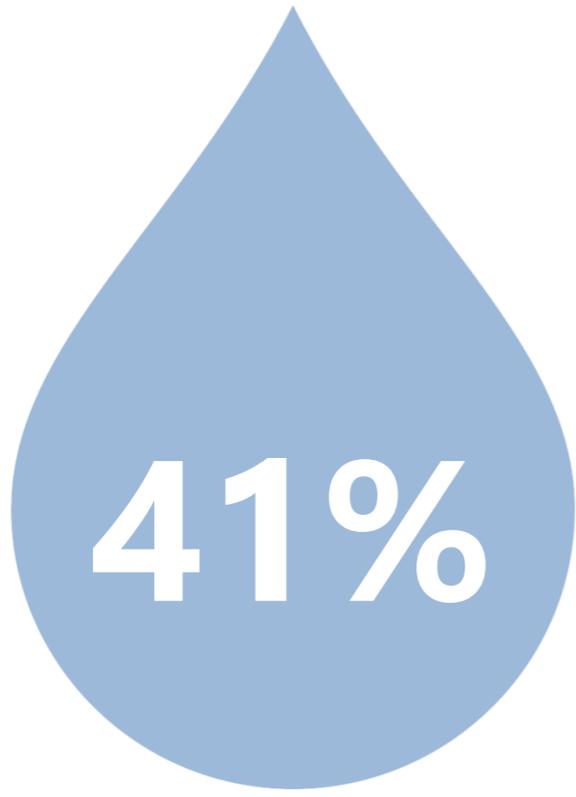
**of Americans want
their water utility to
be a leader in
preparing for the
local impacts of
climate change.**



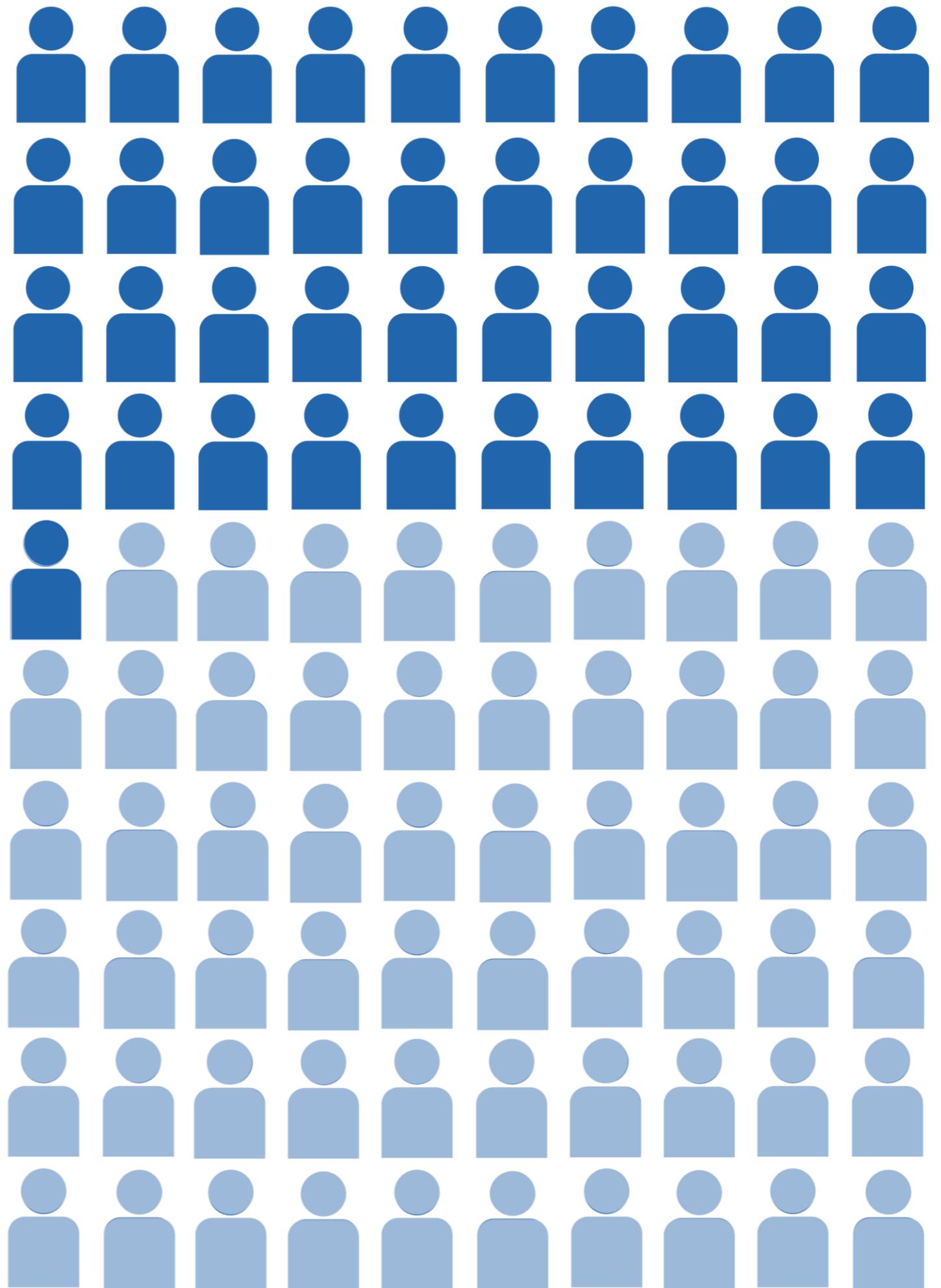


of the American public views their water utility as a trusted source of information on the local impacts of climate change





**adults in Oregon
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?

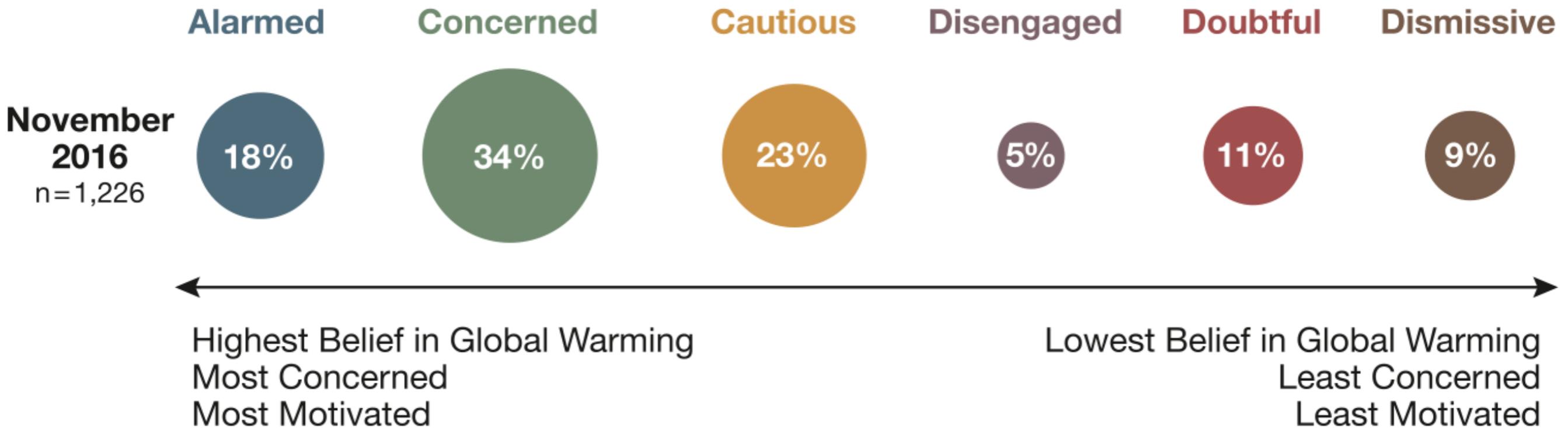
Content: What is the best way to deliver knowledge to relevant actors/audiences? (*e.g. level of detail, language, framing*)

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'





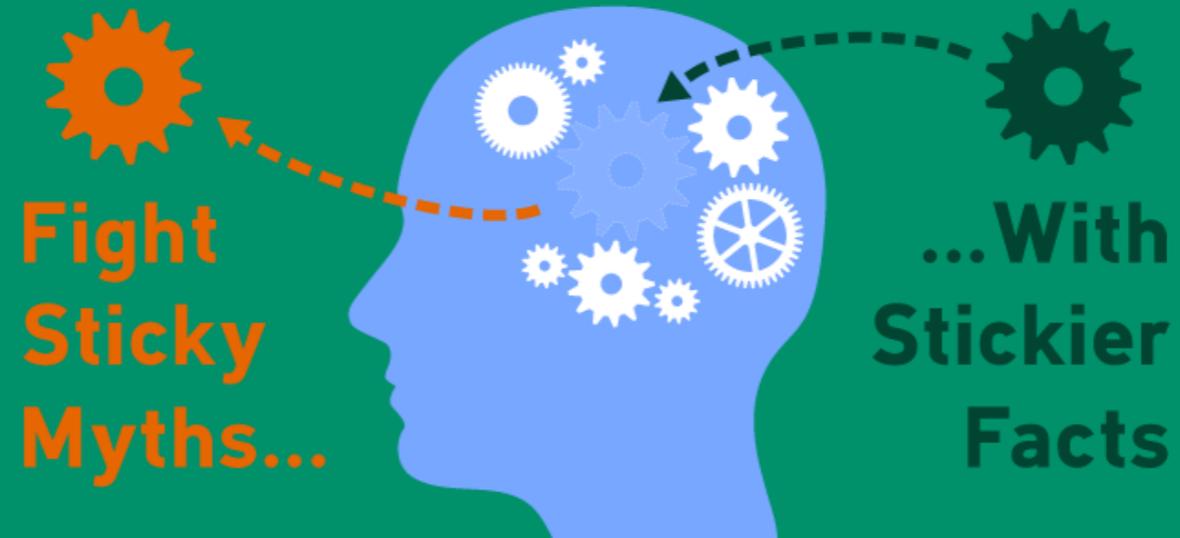
Actively listen & engage.

*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.



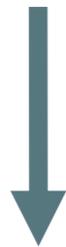
Cherry picking: picking a handful of growing glaciers ignores the vast majority of glaciers that are shrinking.



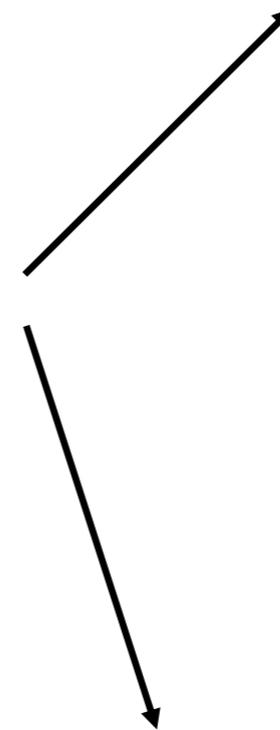
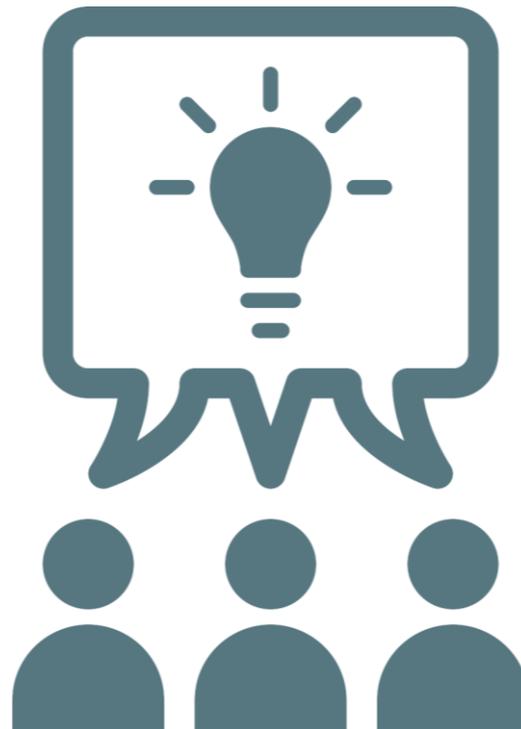
Red Herrings/Logical Fallacies: deliberate attempts to change the argument, or the use of an opposing argument where it is misrepresented to make it easier to refute.

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.

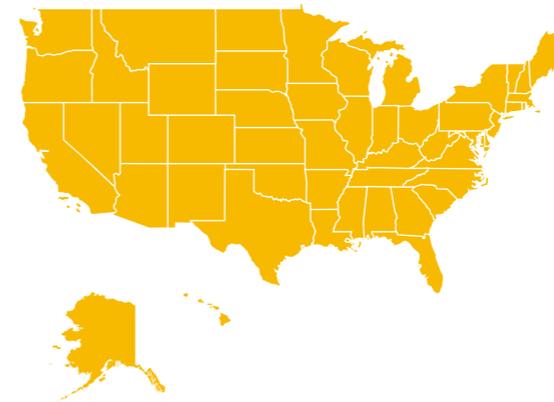
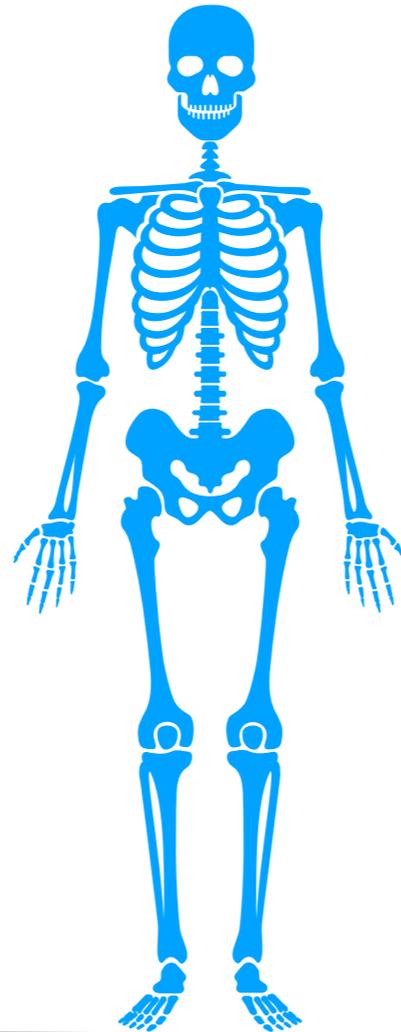
ANATOMY OF A MESSAGE



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.

Key Message 1: Water-related Challenges

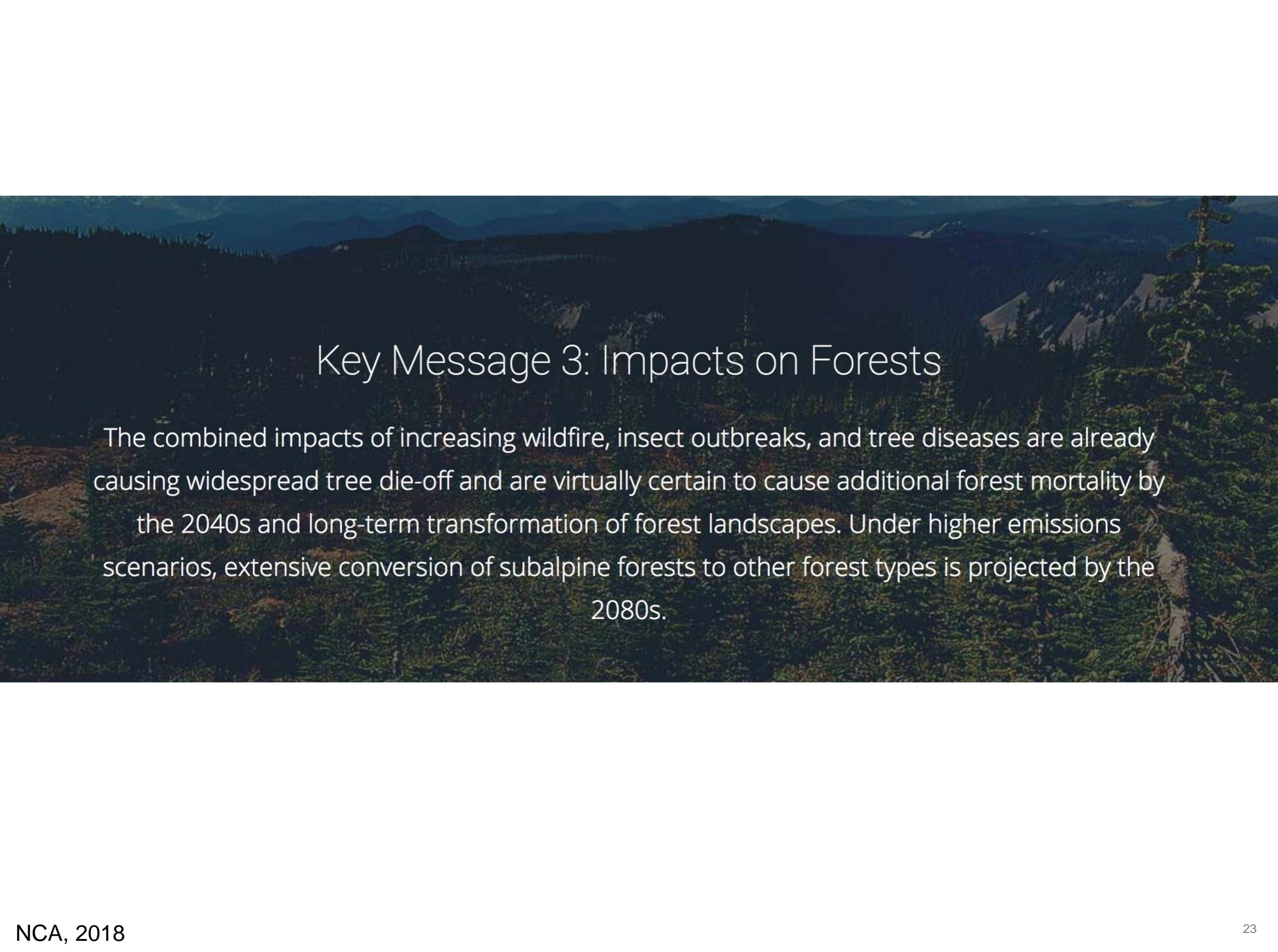
Changes in the timing of streamflow related to changing snowmelt have been observed and will continue, reducing the supply of water for many competing demands and causing far-reaching ecological and socioeconomic consequences.

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



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.

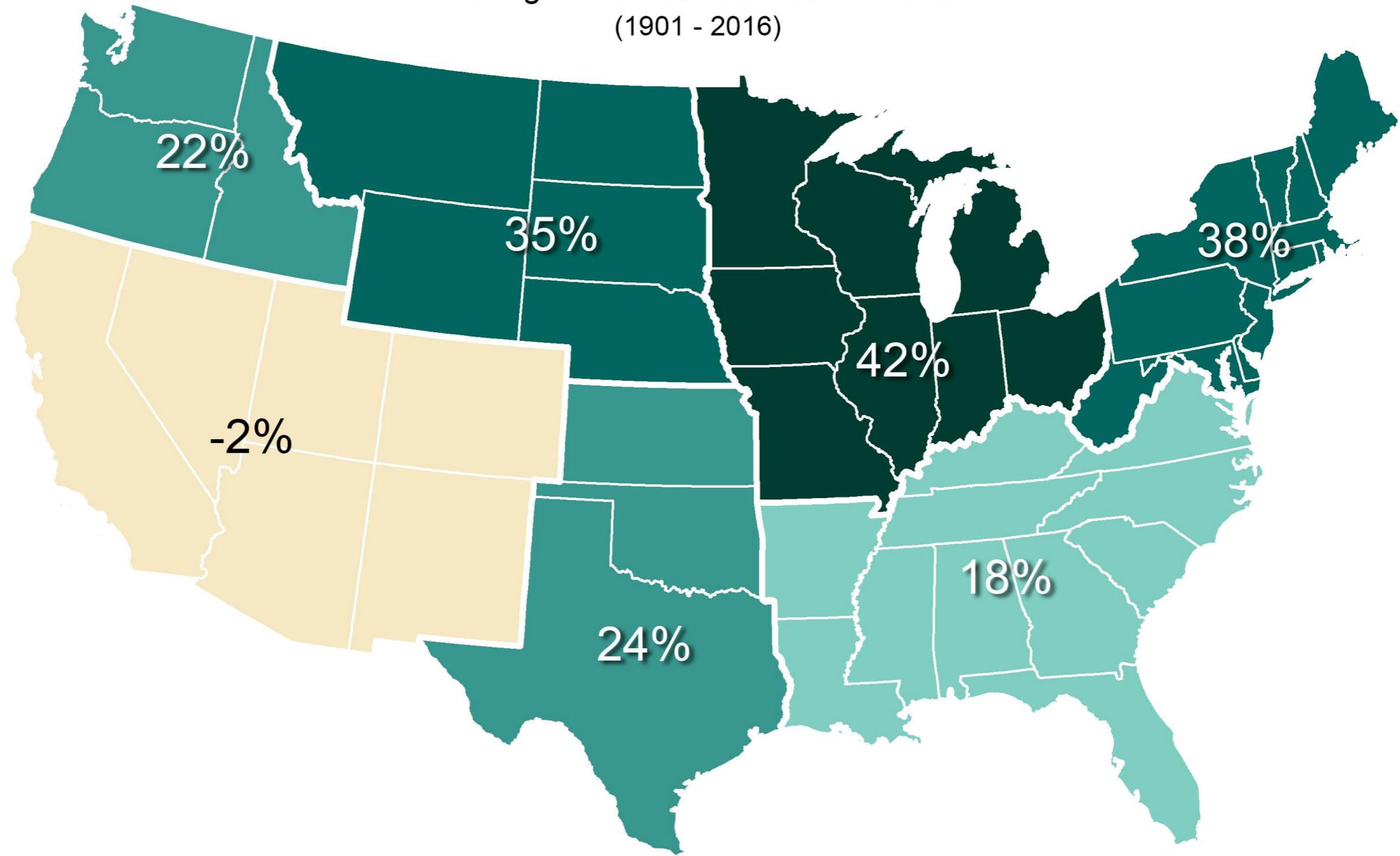


Key Message 3: Impacts on Forests

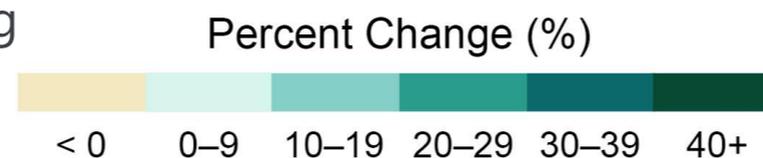
The combined impacts of increasing wildfire, insect outbreaks, and tree diseases are already causing widespread tree die-off and are virtually certain to cause additional forest mortality by the 2040s and long-term transformation of forest landscapes. Under higher emissions scenarios, extensive conversion of subalpine forests to other forest types is projected by the 2080s.

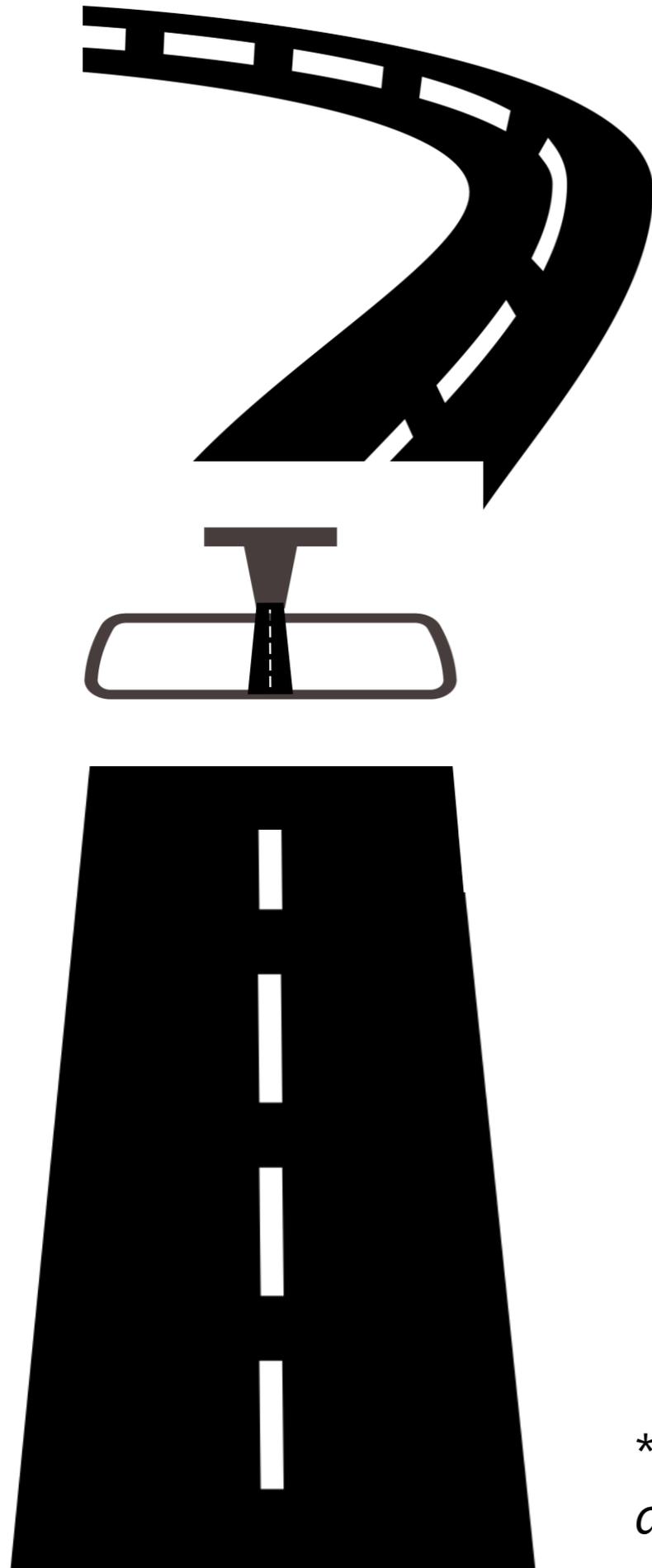
“Heavy precipitation is becoming more intense and more frequent across most of the United States, particularly in the Northeast and Midwest.”

Observed Change in Total Annual Precipitation
Falling in the Heaviest 1% of Events
(1901 - 2016)



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



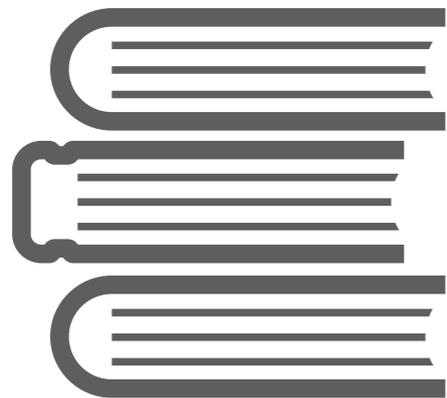


Use analogies & metaphors

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*

Management/leadership style

physical separations

ideological separations

political separations

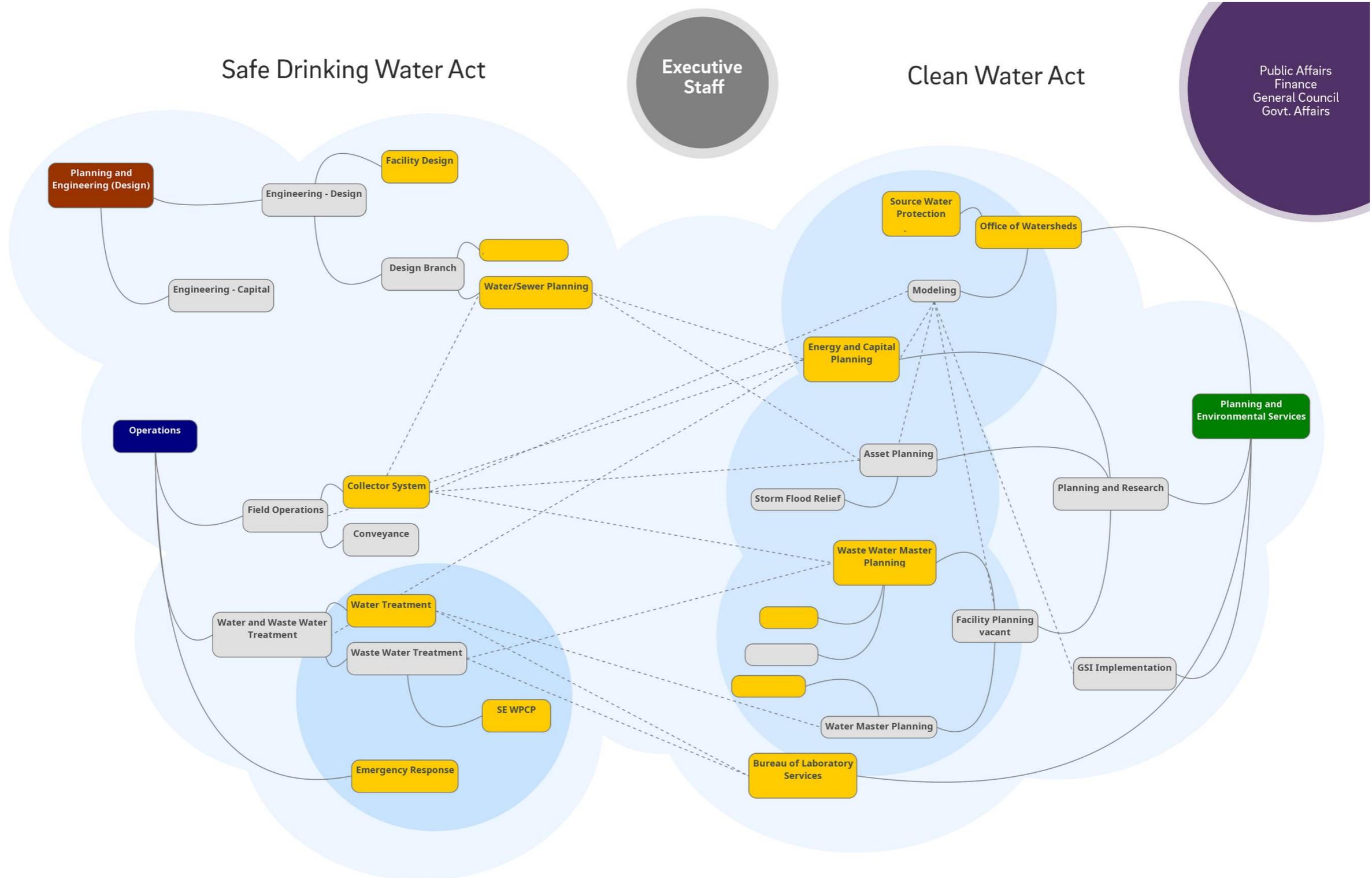
large staff



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?

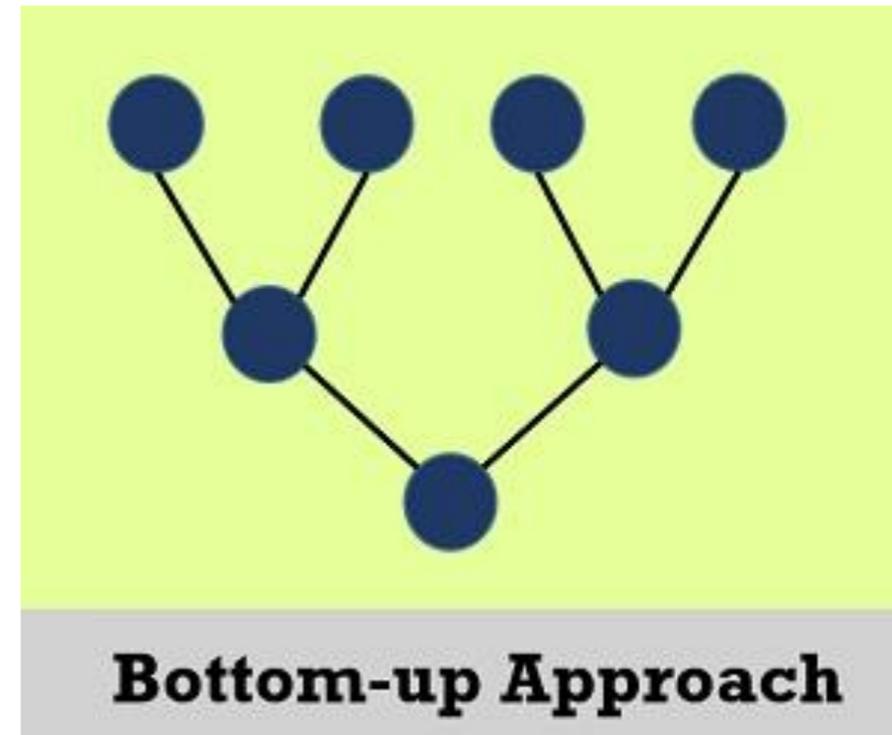
PLANS & PROCESSES
✓ Wastewater Master Plan
✓ Water Master Plan
✓ Capital & Project Planning (heat resistant materials)
✓ Source Water Protection
✓ Operations (Treatment)

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

ADAM THE BUFFALO NEWS
ZIBUS @2013
CARTOONS.COM

MATH SYMBOL
FOR CHANGE:



GOV'T SYMBOL
FOR CLIMATE CHANGE:



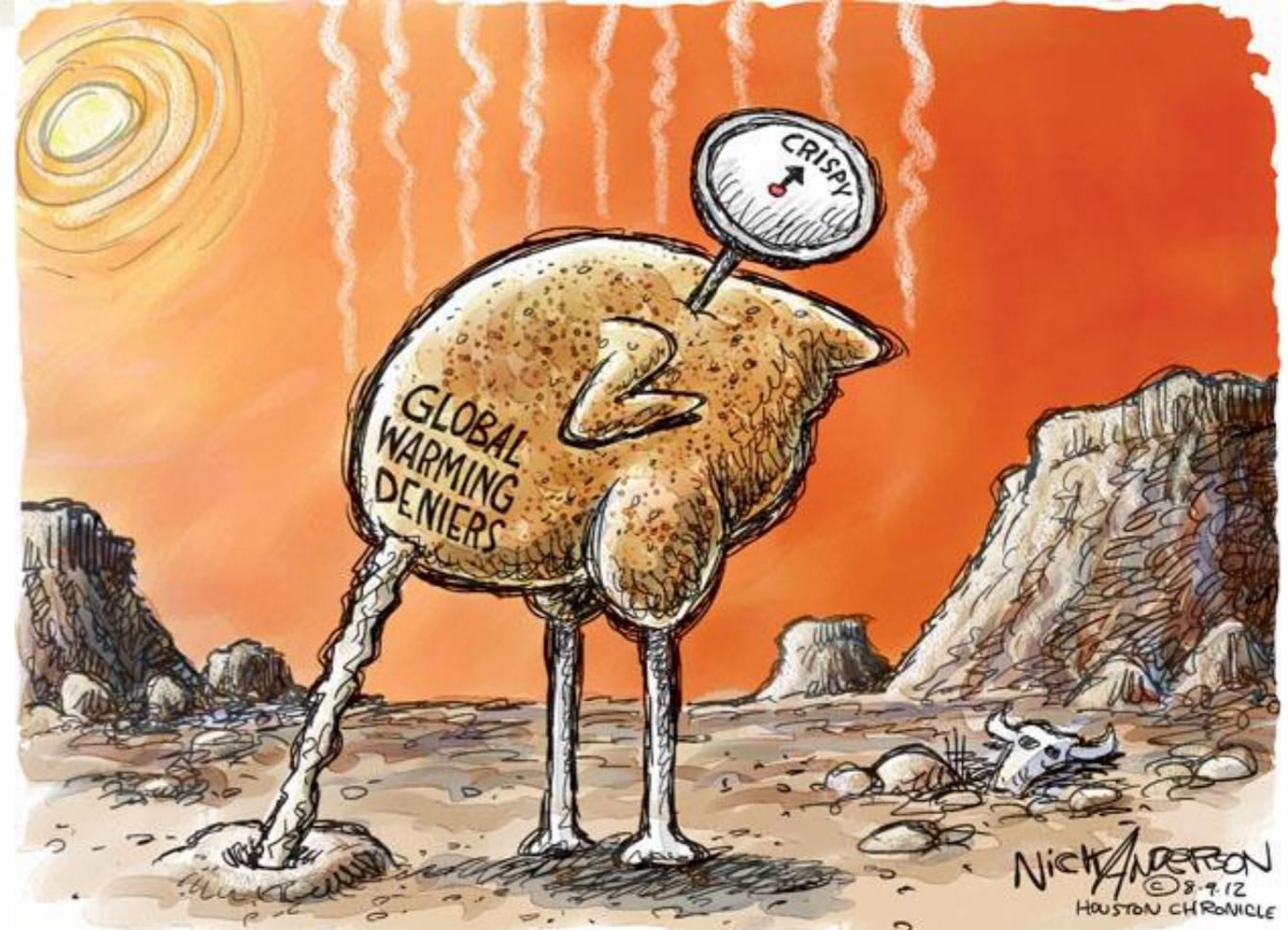
Bennett Chattanooga Times Free Press



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
©

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www.chrismadden.co.uk

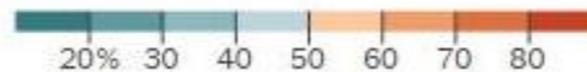




Communication: *Resistance*

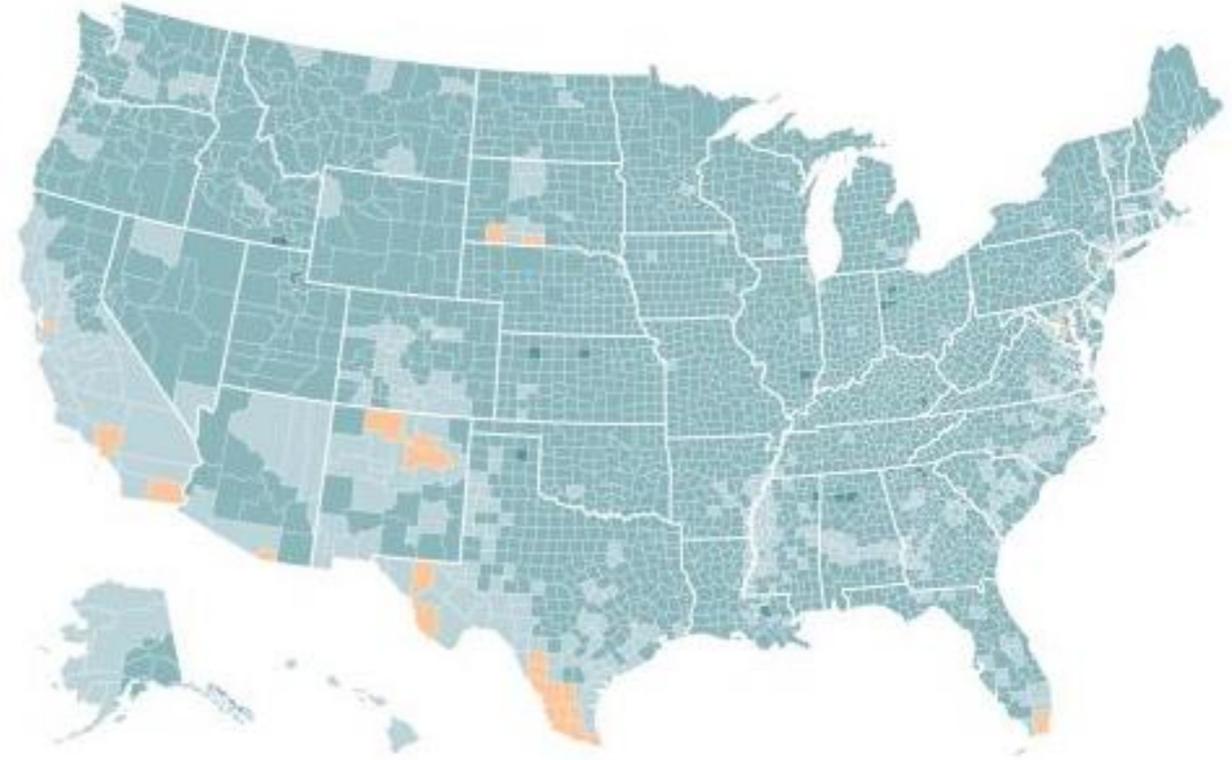
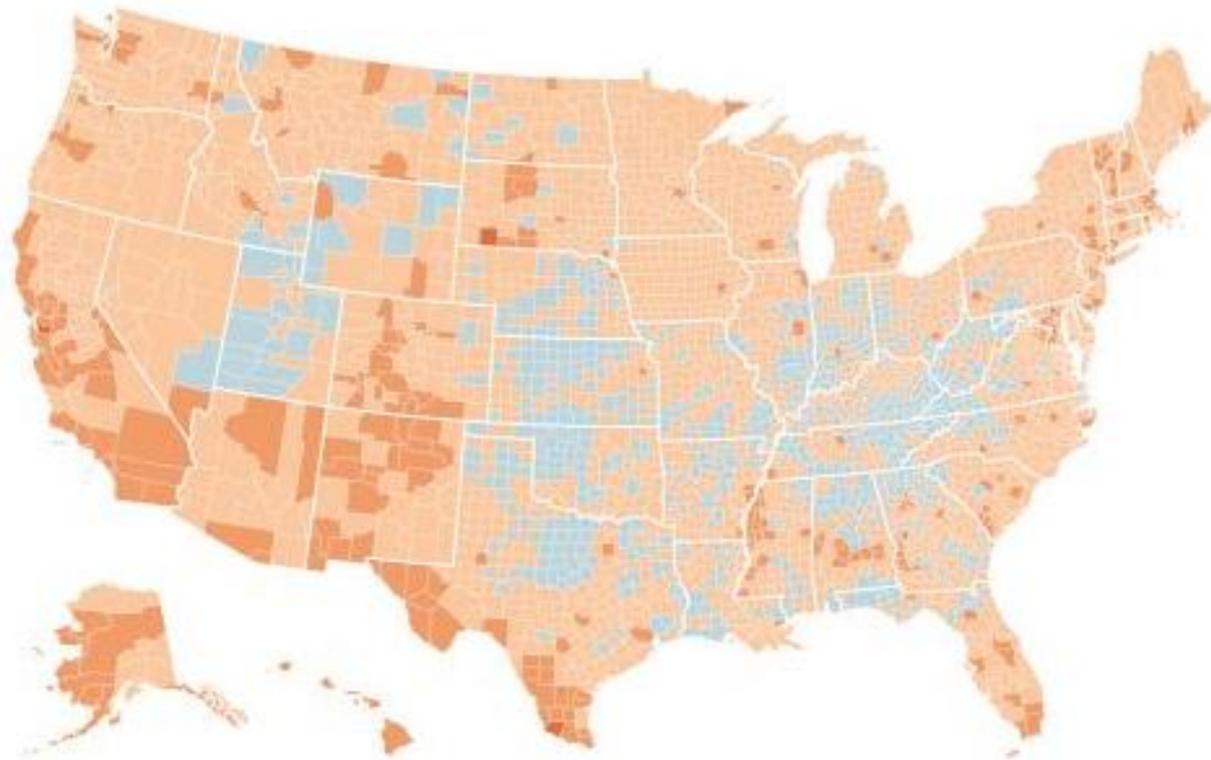
Most people think that climate change will harm Americans, but they don't think it will happen to them.

Percentage of adults per county who think ...



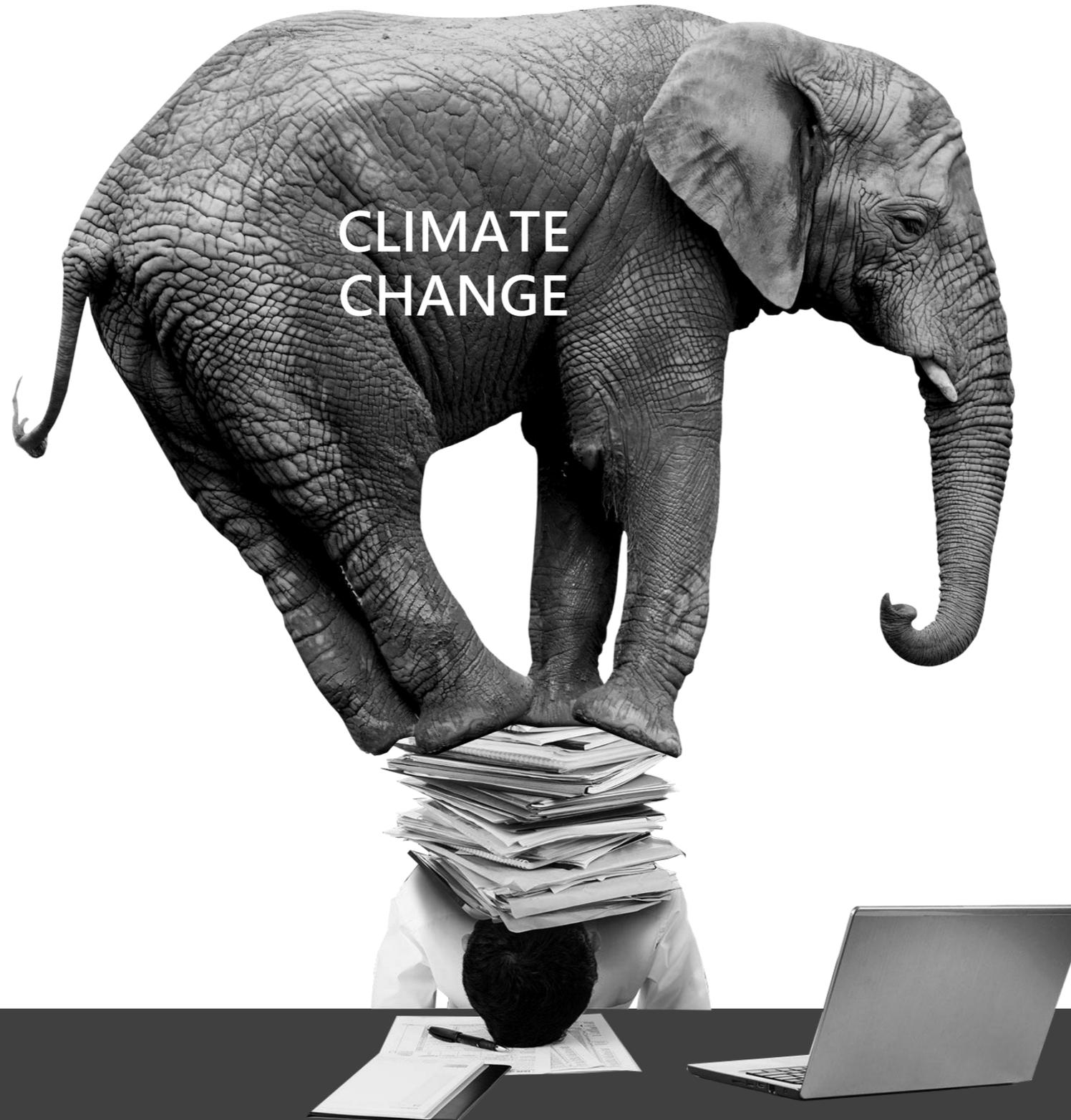
Global warming will harm people in the United States

Global warming will harm me, personally





Communication: *Resistance*



CLIMATE
CHANGE

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

CONNECTING ON CLIMATE: A Guide to Effective Climate Change Communication



CLIMATE CHANGE

COMMUNICATION

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

RISK GOVERNANCE: IMPLEMENTATION GUIDE FOR WATER UTILITIES

Calgary Water Utilities Water PLC
Southern Water PLC
Water Corporation
Cranfield University
UKWIR

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ELSEVIER

Review papers
Adapting to climate change by water management organisations: Enablers and barriers
Adani Azhoni^a, Simon Jude^{b,*}, Ian Holman^a

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^b School of Water, Energy and Environment, Cranfield University, Cranfield, Bedfordshire MK43 0AL, UK

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ABSTRACT

Climate change will be particularly experienced though the medium are managing societal and ecological needs for water, are therefore most. This study reviews the current literature regarding adaptation management organisations and associated barriers.

Potential Effects of Climate Change on Water Quality and Treatment Challenges

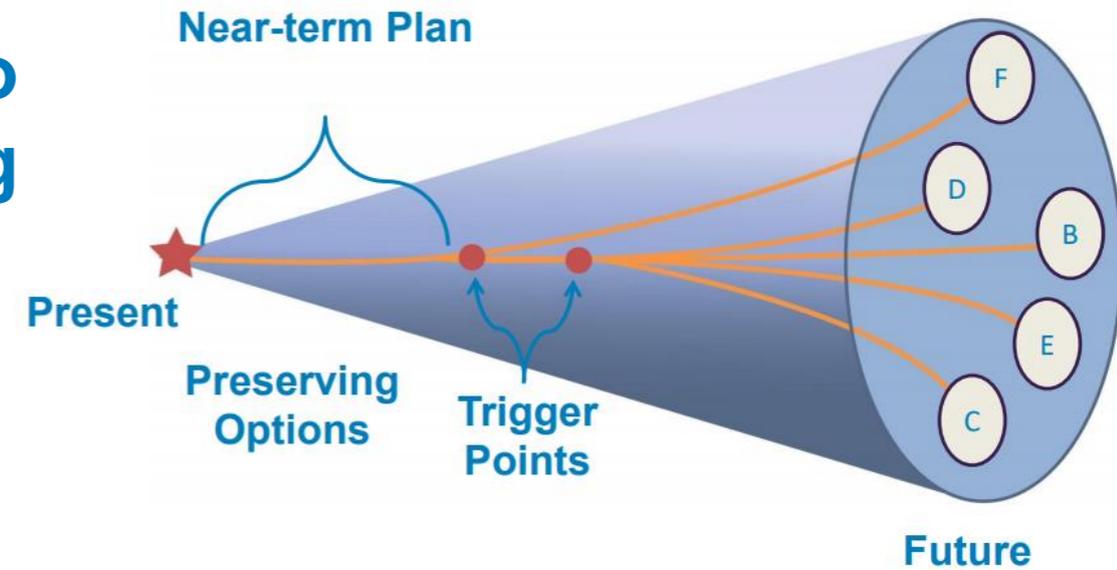
Kenan Ozekin, Ph.D.
Senior Research Manager
Water Research Foundation

advancing the science of water

Rely on existing resources and borrow ideas

Alternatives Analysis

Scenario Planning

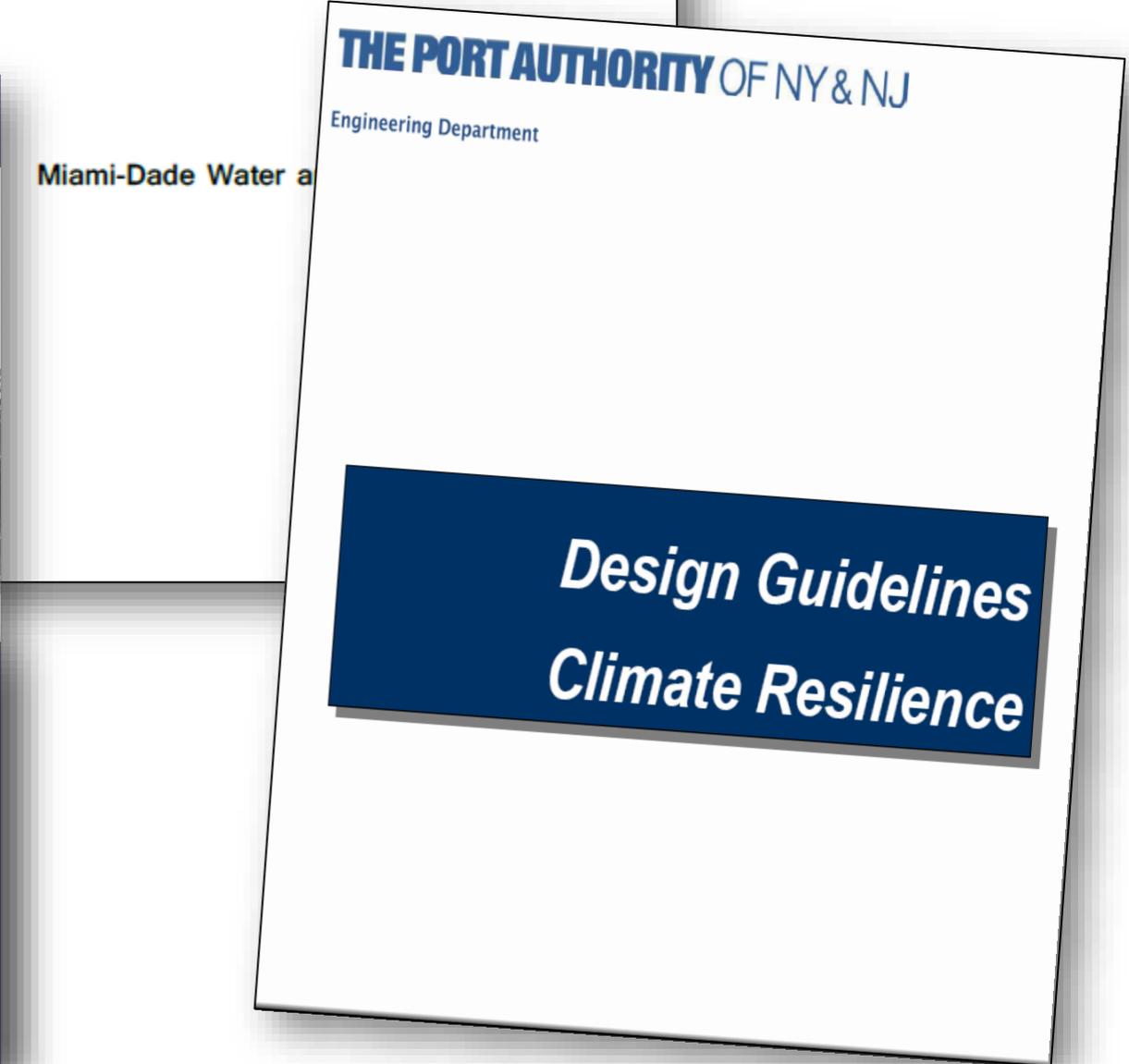
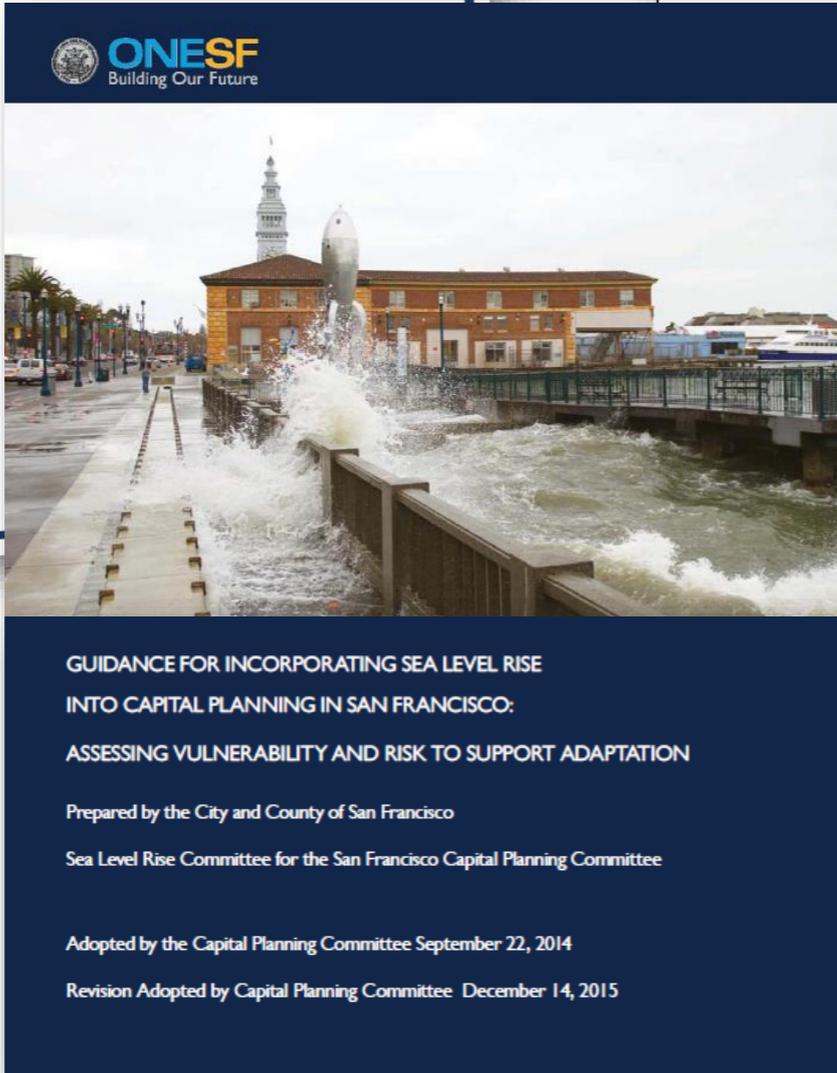
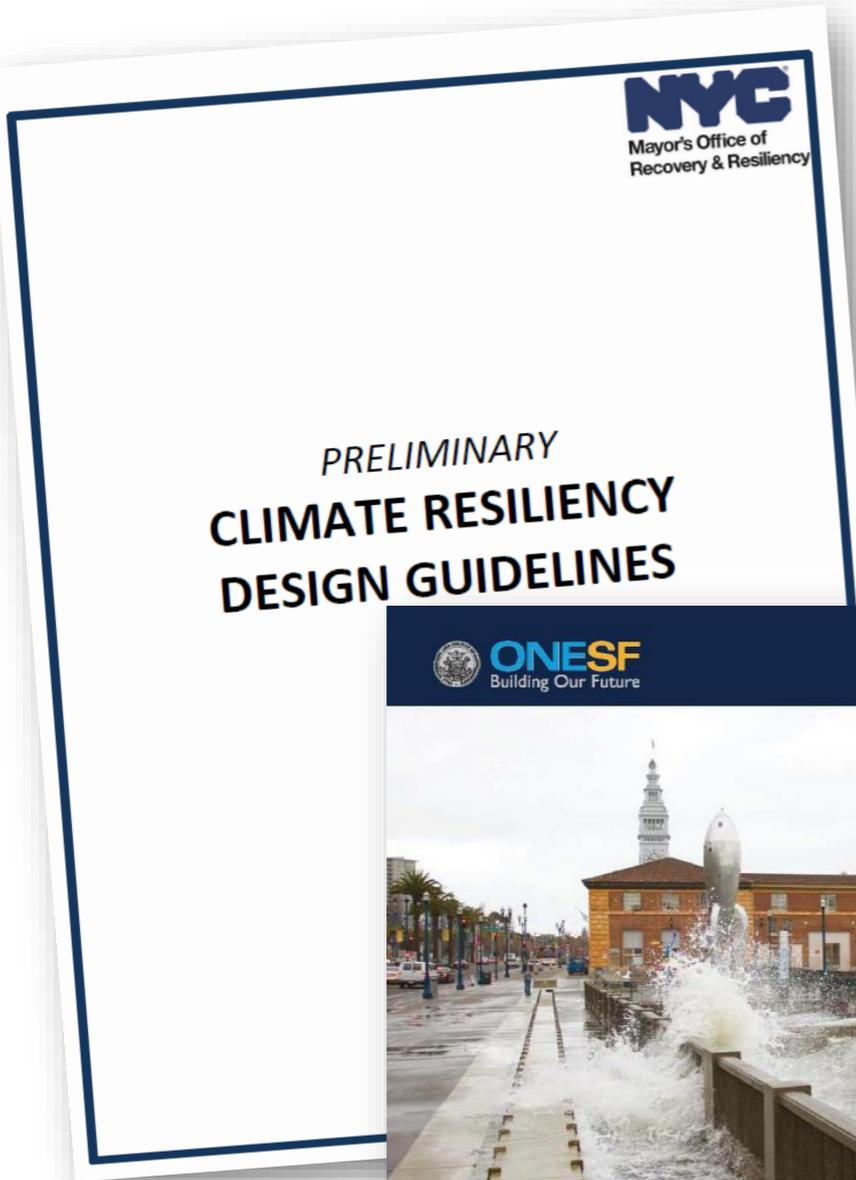


Adaptive Management

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



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Potential Effects of Climate Change on Water Quality and Treatment Challenges

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advancing the science of water

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RISK GOVERNANCE: IMPLEMENTATION GUIDE FOR WATER UTILITIES

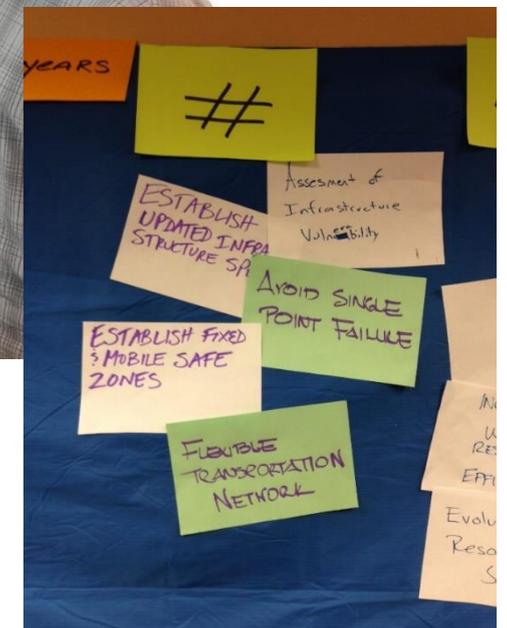
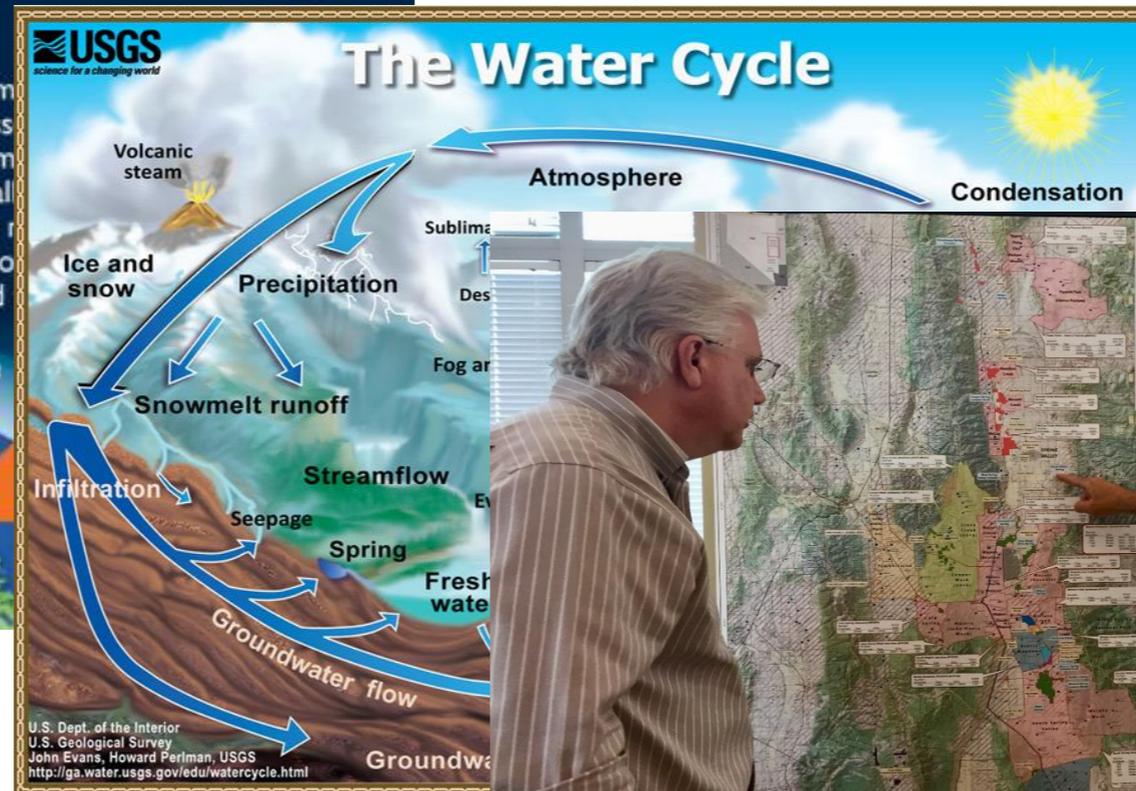
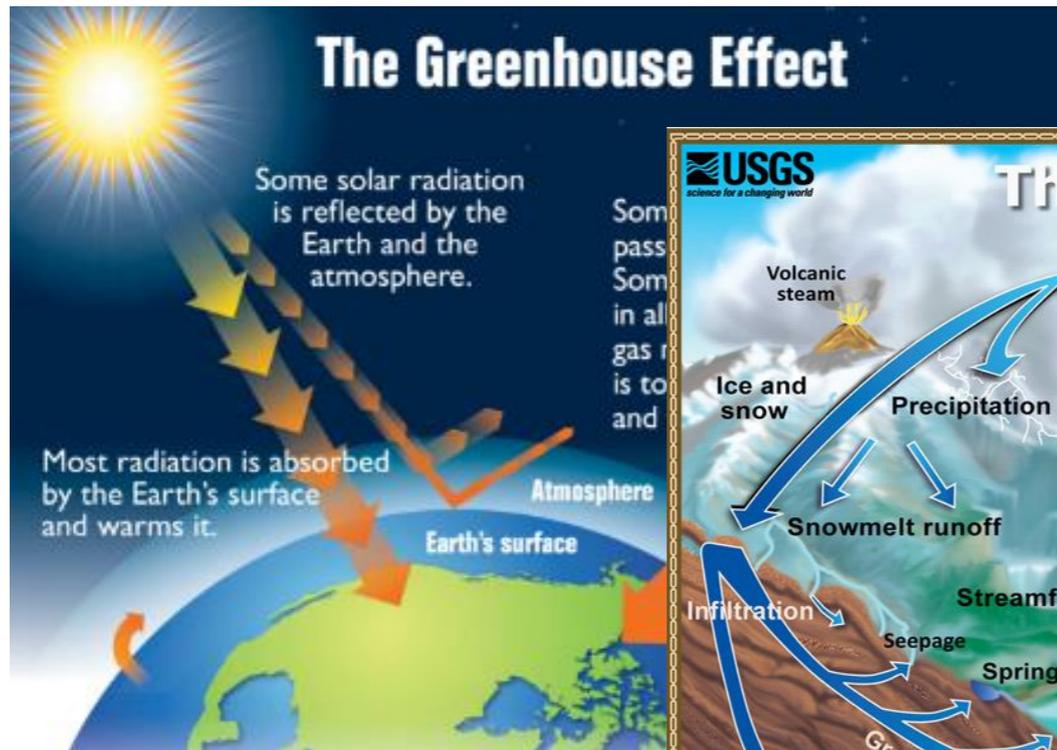
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Rely on existing resources and borrow ideas



Resources and Capacity – *Staff Understanding*



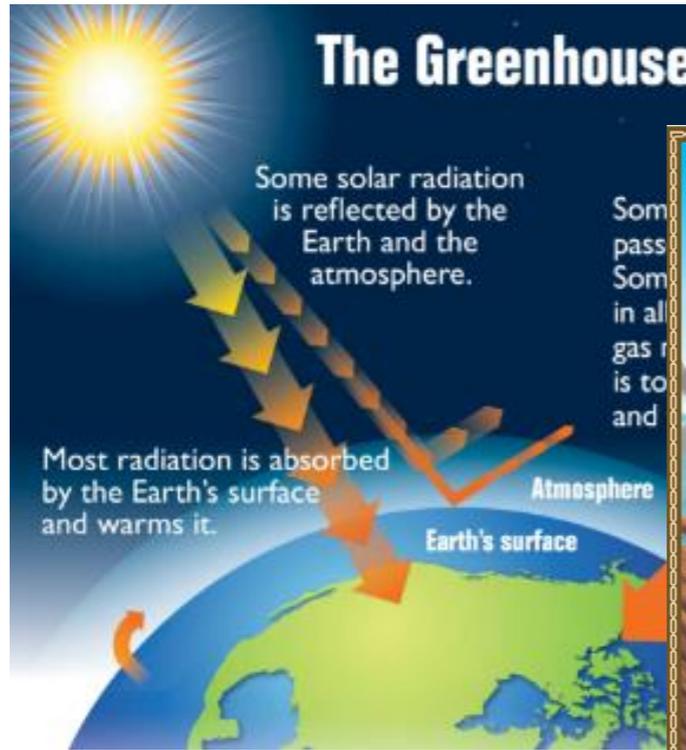
Create opportunities for education and face-to-face interactions. Communicate frequently.

Invest in building trust and understanding



Resource

Understanding



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Master Watershed Stewards Lesson on Climate Change II - Shortcut	7/6/2017 12:13 PM	Shortcut	3 KB
Master Naturalist_Urban Ecology.pptx	6/8/2017 3:41 PM	Microsoft PowerP...	208,466 KB
CCAP_EWRI_SacramentoCA_Extremal_SLR_analysis.pptx	5/18/2017 1:41 PM	Microsoft PowerP...	6,821 KB
CC_MM_EWRI_graphs.pptx	5/8/2017 3:55 PM	Microsoft PowerP...	2,655 KB
CCAP_EWRI_SacramentoCA_GCM_analysis_FINAL.pptx	5/5/2017 4:43 PM	Microsoft PowerP...	9,218 KB
CCAP_Penn Design Studio_May2017_Final.pptx	5/4/2017 4:52 PM	Microsoft PowerP...	5,769 KB
Public Affairs Communications Team Presentation_May2017.pptx	5/3/2017 3:46 PM	Microsoft PowerP...	24,327 KB
CC_MM_EWRI.pptx	4/26/2017 3:07 PM	Microsoft PowerP...	3,668 KB
PWD Presentation Template.pptx	4/17/2017 2:34 PM	Microsoft PowerP...	796 KB
CCAP_ShedTalkFWW_March2017.pptx	4/13/2017 12:17 PM	Microsoft PowerP...	1,434,320 KB
CCAP_NE Hydraulics WG_April2017_Final.pptx	4/11/2017 6:05 PM	Microsoft PowerP...	6,951 KB
Schuykill Watershed Congress II.pptx	4/10/2017 2:33 PM	Microsoft PowerP...	21,937 KB
CCAP_ShedTalkFWW_March2017_Precip slides.pptx	4/10/2017 2:15 PM	Microsoft PowerP...	13,311 KB
Inundation Project Slide for Phil_FRMTF.pptx	3/13/2017 4:29 PM	Microsoft PowerP...	270 KB
CCAP_Update to Execs_Jan2017_Final.pptx	3/9/2017 11:39 AM	Microsoft PowerP...	13,020 KB
Temp and Precip Slides 3.7.17 from OOS.pptx	3/7/2017 2:08 PM	Microsoft PowerP...	234 KB
~SCCAP_Update to Execs_Jan2017V6.0.pptx	1/31/2017 12:10 PM	Microsoft PowerP...	0 KB
Spiral_graphs_Still.pptx	1/30/2017 11:11 AM	Microsoft PowerP...	7,727 KB
CCAP_ShedTalk_Nov2016.pptx	12/9/2016 10:22 AM	Microsoft PowerP...	1,428,634 KB
PWD_CCAP_Program Overview.pptx	11/3/2016 3:07 PM	Microsoft PowerP...	26,825 KB
PWD_CCAP_SAN_Annual Meeting 2016_updated.pptx	11/3/2016 3:07 PM	Microsoft PowerP...	26,825 KB
CCAP_Delaware River Science Meeting_August2016_d2.pptx	8/15/2016 4:28 PM	Microsoft PowerP...	14,617 KB
Climate Change Adaptation Program_WQ Committee_April2016FINAL....	8/4/2016 12:57 PM	Microsoft PowerP...	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 PowerP...	10,172 KB
Adaptation Planning Challenges slide.pptx	10/13/2015 1:00 PM	Microsoft PowerP...	69 KB
DRAFT 2015-06 Climate Change - Crockett_JR.pptx	6/1/2015 1:39 PM	Microsoft PowerP...	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	



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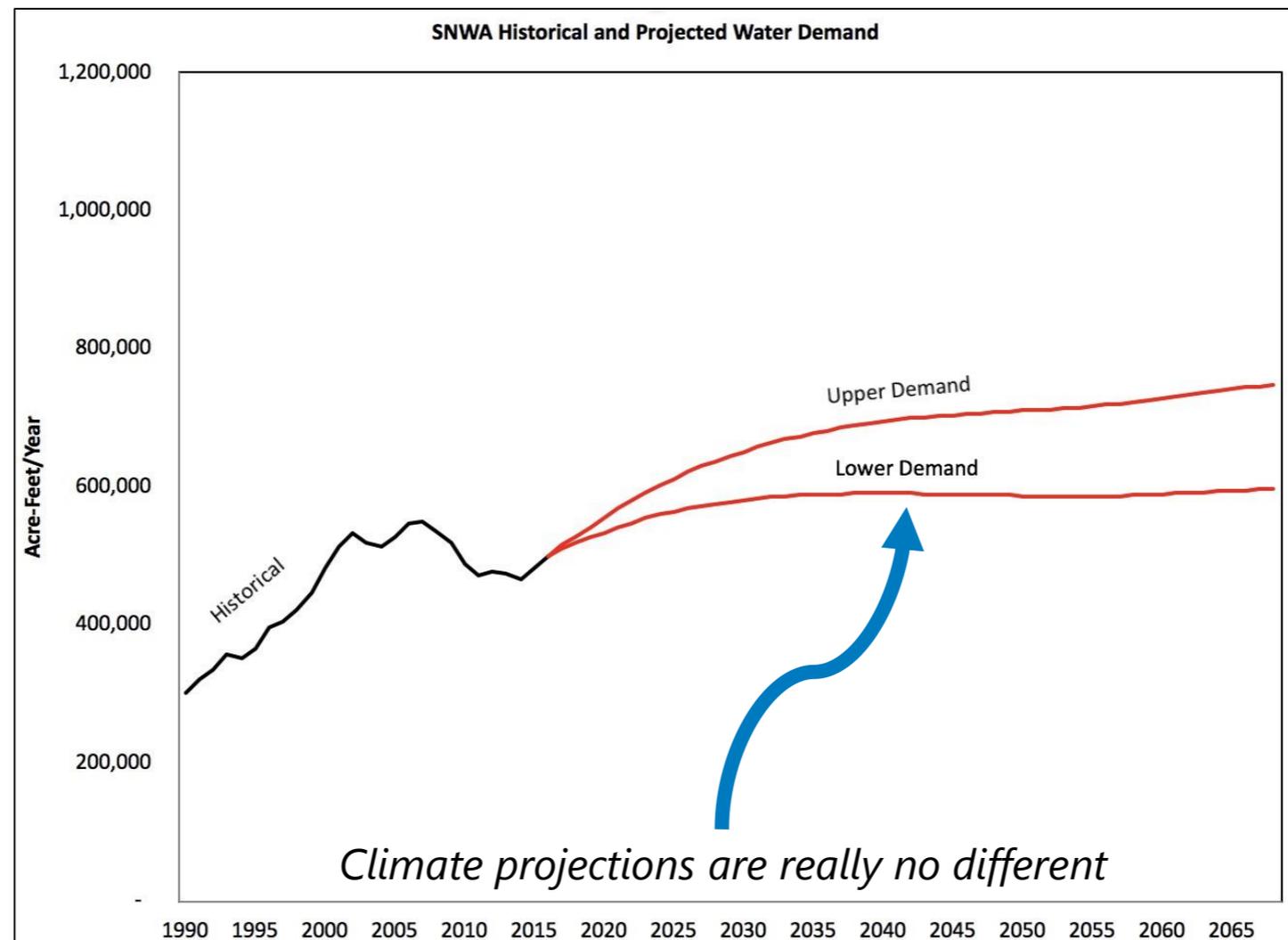
Invest in b

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.



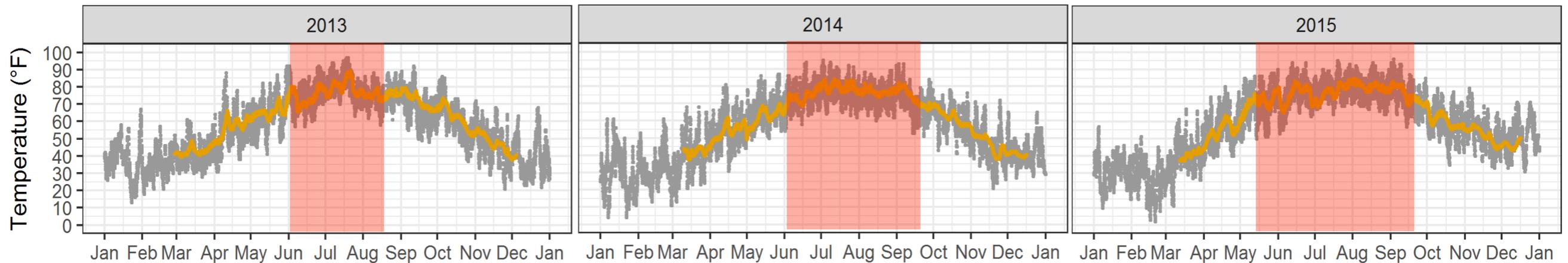
Resources and Capacity – *Staff Understanding*

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. DBPs, 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?)
- Guide to the same conclusion



Katherine Hayhoe
climate scientist/communicator
extraordinaire

Messengers matter. (And should not always be you)

Policies: or lack thereof





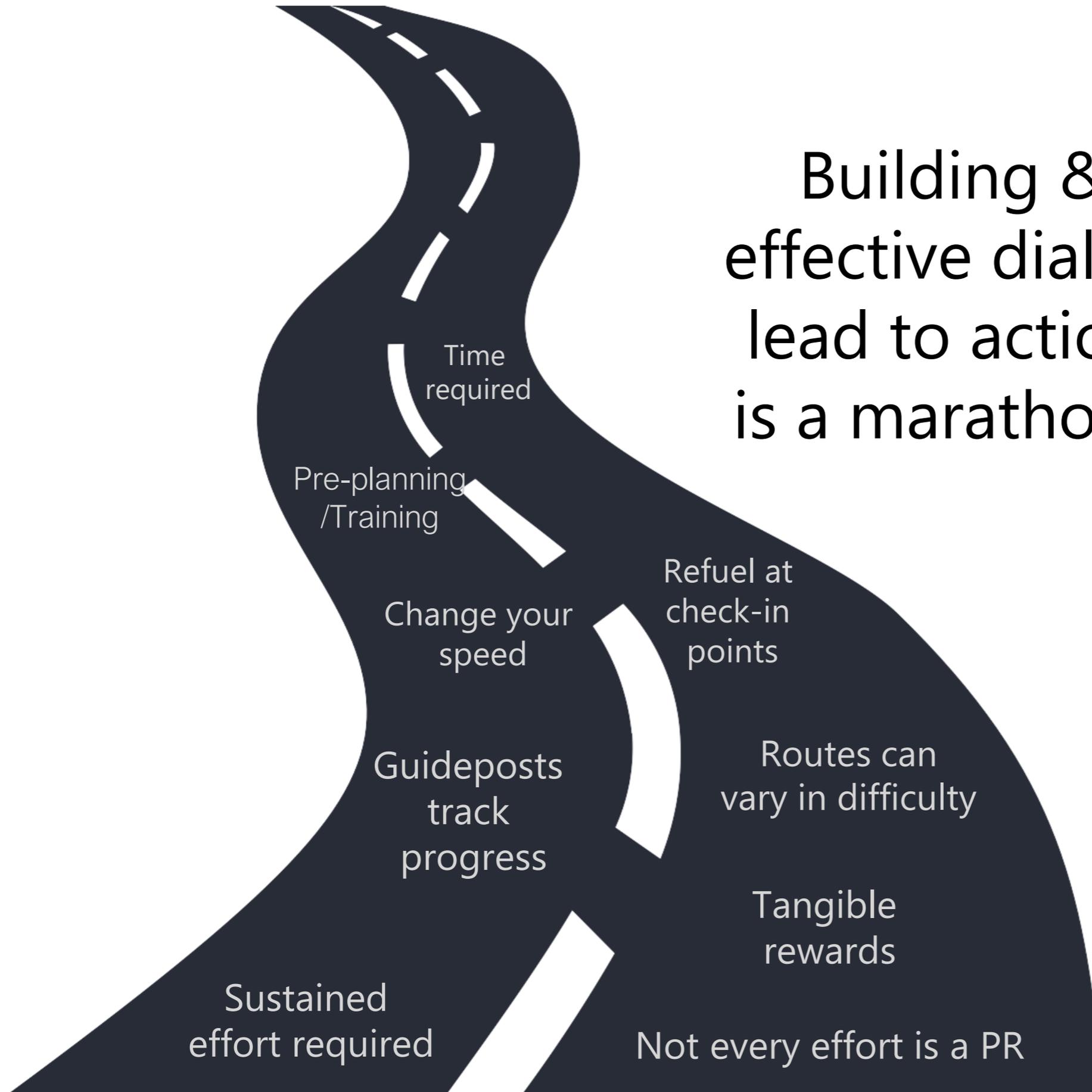
Policies – *or a lack thereof*

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

- Change planning/design process
- Incorporate climate change into 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 & Conversation



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)



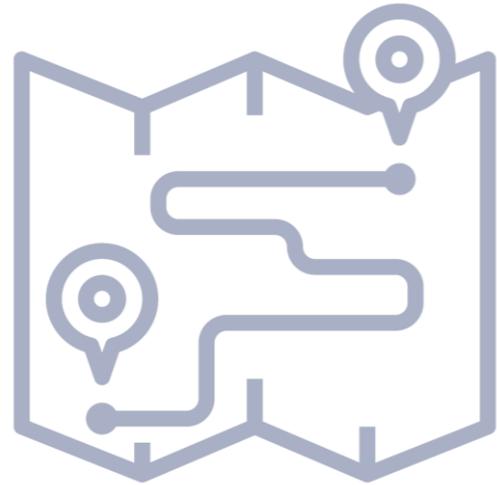
Resources & Capacity

(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!*