Texas Water Resources Network

August 18-19, 2016 Meeting Notes

Meeting goals:

- Explore organizational and scientific network best practices to address water resiliency challenges
- Establish and advance relationships between researchers
- Understand interactions of social and biophysical systems to better identify research that can inform decision-making

August 18, 2016

Welcome, meeting overview, introductions

Dean Sharon Mosher, Jackson School of Geosciences at UT Austin, welcomed participants and provided an overview of the Jackson School of Geosciences.

- Jay Banner, Director of Environmental Sciences Institute, Jackson School, provided an overview of the Texas Water Research Network: Who we are, where we've been, and where we're going

Research nodes: Building our networks

Jay Banner explained that nodes are groups of TWRN members with an interest in the general research theme, developed to align with NSF-sponsored 100th Meridian Project. The nodes are led by persons involved in the NSF research grant, and will be a main nexus for TWRN members to interact between formal network meetings. Dr. Banner encouraged participants to note their preferences about which node or nodes they would like to join.

The following co-leaders of the four nodes provided presentations about their nodes, and answered questions/engaged in discussions with participants.

- Climate projections: John Nielsen-Gammon (UT San Antonio)
- Water science: Venki Uddameri (Texas Tech), Michael Young (UT Austin)
- Scenarios: Lloyd Potter (UT San Antonio)
- Stakeholders & Resiliency: Suzanne Pierce (UT Austin)

Create an actors network map and a systems diagram

Towards the goal of research that can inform decision making, participants engaged in two exercises to specify assumptions within and across the TWRN Research Nodes.

1. **Create an actors network map.** Allan Shearer described how to create an actors network map, and then led participants in an exercise to begin the process of determining: (1) who are the agents—populations, institutions, agencies, etc.—that contribute to water demand, use, and consumption in Texas; (2) what actions they take; (3) by what means do they act; (4) where and when do they act; and (5) what motivates them to act. The summary of actors brainstormed by participants may be accessed on the TWRN web at a later time. Dr. Shearer will take the work generated at the meeting to make a document that may be modified online by the TWRN.
2. **Create a system diagram that shows causal and contingent relationships within and across social and biophysical systems.** Suzanne Pierce described how a system diagram could be used to identify gaps of understanding, determine where the TWRN can leverage its capabilities, and create new knowledge that can be used to make policy, ultimately leading to a better understanding of how components of water resource systems interconnect. She noted the value of maps to position the TWRN to communicate with different actors and customers, and to allow computational analysis. She then led the group in the start of creating such a map based on how to maximize water conservation. The group determined it needed provocative and challenging questions to create a series of system maps. Some participants expressed concern that the maps might help scientists, but might not help policy decisions. Some participants questions if a goal for the TWRN is to develop this model? It was suggested that nodes could develop models separately and then compare and combine. Dr. Pierce suggested time spent in framing the problem might allow a better meshing with the societal/policy need. Members expressed interest in working on a series of interactive calls to draw such diagrams, with the goal of merging them together. Dr. Pierce will look for a tool to allow this to be accomplished online.

Texas Analogs: Research and science-policy integration in water-stressed regions *(parts 1 & 2)*

- **Jay Famiglietti**, NASA Jet Propulsion Lab, https://jayfamiglietti.com/about-2/
  presented on *Connecting Research and Decision Making during the California Drought: Many Challenges, Some Successes*
- **Todd Halihan**, Oklahoma State University, http://geology.okstate.edu/2-uncategorised/119-thalihan-home
  presented on *The Future of Water: Will Our Data Beat Our Instincts?*

Participants then broke into groups by nodes to discuss the importance of the presentations relative to the TWRN. After convening back together, spokespersons for each group listed their node's top take-aways from the presentations. (Attachment A).

Integrating the analogs into our Texas focus: An interactive panel discussion with analog speakers

Following a brief overview of the work of the Decision Center for a Desert City by Kelli Larson, Jay Banner led the panel of Jay Famiglietti, Todd Halihan and Kelli Larson in discussing ways policy makers can better connect, boundary differences that may occur between research and policy, and where they think research in the various nodes might focus. They responded to questions from TWRN participants. Both presenters took questions from TWRN participants. Some key areas of discussion:

- On policy-maker/science engagement and communication:
  - Stakeholders must want to engage
  - Neutrality is important to bridge the gap
  - Scientists can't be arrogant. It's important to listen to policy-maker – to find out what's important to them
  - To convey vision rather than doom-and-gloom: Talk about objectives, where we want to be and not just the current status
  - Communicate simply, accurately and with precision. Don't worry about nuance. Think about the message first
  - Policy-makers will listen to those they trust
  - Make your reference lists available on YouTube because people learn from them
  - People trust those in their community – work with them
  - Scientists and science students need to be trained in communication
  - NSF has experts about how to talk to the media: how to get science out & understood
  - Think about your customers, clients
  - Identify stakeholders and bring them in now. Don't push them: let them identify what is important, who will benefit from our research. Let them react to our research and ideas.
  - Identify the key problems, what the network brings to them.
  - Concern: how to get stakeholder and policy makers to join without incentives

- Research collaboratives
  - Silos make it hard
  - Set objectives for the nodes
  - Listen to build trust
  - Cross-communicate between/among the nodes
  - NSF asked ASU Desert City project to mix things up, integrate
  - Cross-communication needs to come from leadership all the way down.
  - But people often want to stay closer to a subject rather than work in an interdisciplinary manner
  - TWRN will benefit if it creates new research markets from decision makers and agencies.
  - You can steer a moving boat: Start small, put out research

Participants adjourned to a social gathering.

August 19, 2016

Welcome by Jay Banner and Dan Stanzione, Executive Director, Texas Advanced Computing Center

Texas Analogs: Research and science-policy integration in three water-stressed regions *(part 3)*

- **Kelli Larson**, Arizona State University, https://sustainability.asu.edu/person/kelli-larson/ presented on *Collaborative Water Research in Phoenix, AZ: Insights from Science-Policy Interactions*, with a focus on the Decision Center for a Desert City at ASU, then took questions from TWRN participants.

Funding Context and Opportunities for the Texas Water Research Network

- **Marilu Hastings,** Vice President, Sustainability Programs, The Cynthia and George Mitchell Foundation, www.cgmf.org presented information on funding possibilities as well as hurdles – such as declining federal money for higher education research. She described the types of research that foundations look to fund, and which foundations align with different types of research. She noted the difficulty of attracting out-of-state funding to Texas. A question and answer session and discussion followed.

Who are TWRN's customers?

In response to discussions on the first day of the meeting, this topic replaced the originally scheduled "Intervention Discussion: Where can be best leverage our work." Participants broke into small groups, and brainstormed a list of entities who are TWRN customers, the involved office within the entity, and a contact person. Participants then presented a list of some of the customers they identified. The entire list of brainstormed entities is found in Attachment B.

Wrap-up and lunch

Tour of Texas Advanced Computing Center

ATTACHMENTS

- Attachment A: Lessons learned from Analog speakers
- Attachment B: TWRN customers

Node Breakout Groups Discussions about Analog Speakers Famiglietti and Halihan
Top Lessons Learned & Questions

Academic credibility
Skewed perceptions
Evaporation : surface v. groundwater, mitigation, CLI CH
Surface water vs. groundwater
Sources of ET for Texas that can be controlled?
Ag practices as societal issue – SWIFT as carrot? Crop type?
Conservation – need benefit?
Best ways of banking water?
Communication:

- Science into practice (to users/citizens, not necessarily to agencies).
- "Take it to the people," to journalists
- Teach scientists to talk to people (e.g. neighbors, mom) as part of curriculum
- Tell a story
- Touch on public's motivation, not ours
- Talk impact that is relevant to people, both positive and negative
- Find the scientists who are good at communication and like to talk to the public to take on the job
- Flip the narrative to be able to highlight things like surface water vs. groundwater storage. To communicate what might not be obvious, but is basic information.
- Importance of talking about interconnected water

Continuity of expertise: Network can help fill that

Top questions for speakers:

- Disconnect between agencies overseeing disparate, immediate climate impacts of flood and drought – how connected.
- Does instituting water conservation best come from top-down or grass roots?
- How do researchers best communicate their results – teaching, outreach, leg?
- How to assure science is integrated and done in a context important to management
- How to change communication to vision rather than doom and gloom
- How much should focus on data vs. narrative
- Can you give a narrative and be neutral
- Examples where narrative or data led to change in behavior
- How to address science-management disconnect
    - How much should science be involved in management, or does it threaten scientists neutrality
    - How to convey the right metrics

Attachment B

Texas Water Research Network Customers

Developed during small group brainstorming on August 19, 2016 at TWRN meeting

Name of governmental entity, NGO or water user group	Department or office	Person's name
State level (& federal)		
Senate Nat'l Resources Committee (3)[1]		
Senate Agriculture, Water & Rural Affairs Committee	Director	Jeremy Hagan
House Natural Resources Committee (2)		
Texas Water Development Board (12)	DEA Board member ? Flood plain management	Robert Mace (6) Bech Bruun, Kathleen Jackson, Peter Lake Larry French Jesse Libra
Texas Commission on Environmental Quality (6)	Surface water availability Water supply TMDL water monitoring Deputy EA for Water	Kim Wilson L'Oreal Stepney
Texas Parks and Wildlife Department (3)	Instream flows	Kevin Mayes 512-754-6844
Texas Department of Agriculture	Office of water and rural affairs	Did Miller/Dan Hunter
Texas State Soil and Water Conservation Bd.		
Texas Forest Service (TAMU) (2)		
ERCOT (2)	Planning	Doug Murray, Kevin Hanson
Texas Division of Emergency Management		
EPA		
USGS (2)	Texas Water Science Center Water Program	
NOAA		
FEMA		
USACE	Fort Worth District, district commander	Calvin Hudson
Texas Alliance of Groundwater Districts (4)		Joe Cooper (President) Sarah Schlesinger (Exec. Dir) iii Laura Roundtree Beth Hood
Texas Groundwater Association		
Texas Farm Bureau (3)	Legislative liaison	Billy Howe
Texas Water Conservation Association (2)	Director, deputy director, surface water committee	Stacy Steinbach. Deputy Director Dean Robbins, Director
Texas Municipal Utilities Association	Legislative committee	
Nature Conservancy (3)	Texas office	Laura Huffman, Chloe Lieberknecht
National Wildlife Federation		Susan Kaderka or Myron Hess
Environmental Defense Fund		Pamela Baker
Coastal Conservation Association		
Sierra Club (Lone Star Chapter) (2)		Ken Kramer
World Wildlife Fund	Initiative to look at Rio Grande Program officer – agriculture Water Stewardship	 Dan Brizuela Nicole Tanner
Texas Urban Forestry Council	chair	Robert Young
Texas Desalination Association	director	Kyle Frazier
Texas Organic Farmers and gardeners Assn		Office in Elgin TX

[1] Numbers in parenthesis indicate how many people submitted the entity or person's name, if greater than 1.

Public Citizen Texas		Tom “Smitty” Smith
Alliance of Environmental Engineers		
Ducks Unlimited		Kirby Brown
Regional level		
Edwards Aquifer Authority (4)		Marcus Gary, Roland Ruiz (GM), Geary Schindel
Barton Springs Edwards Aquifer CD (2)		John Dupnik, General Manager; Brian Hunt
South Plains UWCD		
High Plains UWCD #1	?/Director/Public affairs	Michelle Cooper/Justin Coleman/Carmen McCain
Jeff Davis UWCD		Janet Adams
Hudspeth County UWCD (water to El Paso)		Randy Barker (Mgr)
Tarrant Regional WD (2)	Water Resources office	Rachael Ickert
USDA Climate Hub, Region #7	Climate Hub	Clay Pope, outreach
Lower Colorado River Authority (4)	Water Resources Operations	Ryan Rowney
Nueces River Authority		Conn Mims, (General Manager)
Brazos River Authority (3)	Water supply planning	
SAWS (local?) (2)		Karen Guz
IBWC		
Playa Lakes Joint Venture	Communications director	Miruh Hamend
Plains Cotton Growers		806-792-4904
Blue Water Systems, LP (pipeline Burleson to SA)		Ross Cummings, CEO
Hill Country Alliance (2)	ED/ board member	?/ Charlie Flatten
Colorado River Alliance	Director	Brent Lyles
Regional water planning groups		
Local level		
West Travis County Public Utility Agency	N/A	Don Rauschuber, PE
City of Austin (6)	Watershed Protection Austin Water – planning Water treatment plant #4 Chief Sustainability officer	David Johns, Nico Havwort Joe Smith Olivia Lucia Athens ii
Homebuilders (also regional)		Hank Smith
Dallas Water Utility (also regional)		
City of Dallas	Chief Resiliency office	Theresa O’Donnel
Harlingen Irrigation District		
Santa Anna Irrigation District		Je Hinojosa
Clearwater UWCD	GM	Dirk Aaron
Waller Creek Conservancy		Peter Mullan
???		
Dow Chemical		
AMD		
IBM		
Public health re climate change		
Recreational use		
Consultants		
Thornhill Group (Round Rock)		Mike Thornhill
Poseidon ii	Former head of TWDB, TCEQ	Carlos Rubinstein
Kip Averitt	consultant	
Water attorney (3 from same person)		Ty Embry, Ed McCarthy, Greg Ellis
HDR		
Freese & Nichols ii		