Leveraging Partnerships to Close the Science-Usability Gap

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USGS, South Central Climate Adaptation Science Center

2023 Managing by Network Case Study

USGS
science for a changing world

The Climate Adaptation Science Centers

MISSION:
Delivering science to help fish, wildlife, water, land, and people **adapt to a changing climate.**

USGS
science for a changing world

Climate Adaptation Science Center (CASC) Regions

The CASCs collaborate across boundaries to address shared ecosystems, watersheds, and landscapes

ALASKA
- ★ University of Alaska Fairbanks
- University of Alaska Anchorage
- University of Alaska Southeast

NORTHWEST
- ★ University of Washington
- Boise State University
- Oregon State University
- University of Montana
- Washington State University
- Western Washington University

NORTH CENTRAL
- ★ University of Colorado at Boulder
- Conservation Science Partners
- Great Plains Tribal Water Alliance
- South Dakota State University
- University of Montana
- Wildlife Conservation Society

MIDWEST
- ★ University of Minnesota Twin Cities
- College of Menominee Nation
- Great Lakes Indian Fish and Wildlife Commission
- Indiana University
- Michigan State University
- The Nature Conservancy
- University of Illinois at Urbana-Champaign
- University of Minnesota Duluth
- University of Wisconsin-Madison

NORTHEAST
- ★ University of Massachusetts Amherst
- College of Menominee Nation
- Columbia University
- Cornell University
- Michigan State University
- Woodwell Climate Research Center
- University of Missouri
- University of Wisconsin
- University of Vermont
- USFS Northern Research Station

SOUTHWEST
- ★ University of Arizona
- Colorado State University
- Desert Research Institute (Nevada)
- Scripps Institution of Oceanography at UC San Diego
- University of California - Davis
- University of California - Los Angeles
- Utah State University

PACIFIC ISLANDS
- ★ University of Hawai'i at Mānoa
- University of Hawai'i at Hilo
- University of Guam

Commonwealth of the Northern Mariana Islands
Guam
Republic of Palau
Federated States of Micronesia
Republic of the Marshall Islands
Hawai'i (USA)
American Samoa
US-Affiliated Pacific Islands

SOUTH CENTRAL
- ★ University of Oklahoma
- Chickasaw Nation
- Choctaw Nation of Oklahoma
- Louisiana State University
- Oklahoma State University
- Texas Tech University
- University of New Mexico

SOUTHEAST
- ★ North Carolina State University
- Auburn University
- Duke University
- University of Florida
- University of South Carolina
- University of Tennessee

Puerto Rico
U.S. Virgin Islands

National Climate Adaptation Science Center

EXPLANATION
- ★ CASC Host Institution
- CASC Consortium Member

Question: Raise your hand if you have heard of the CASCs?

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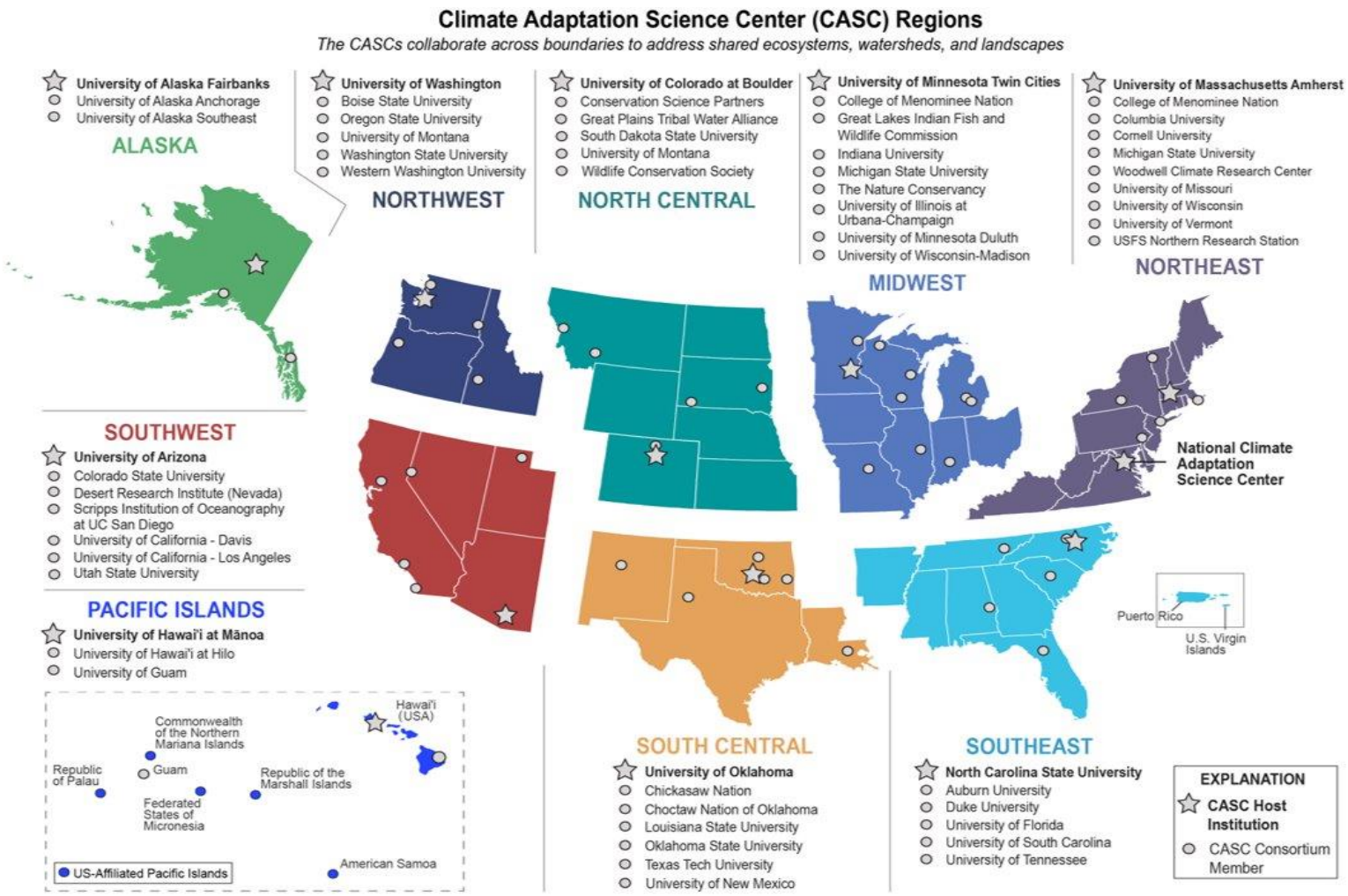
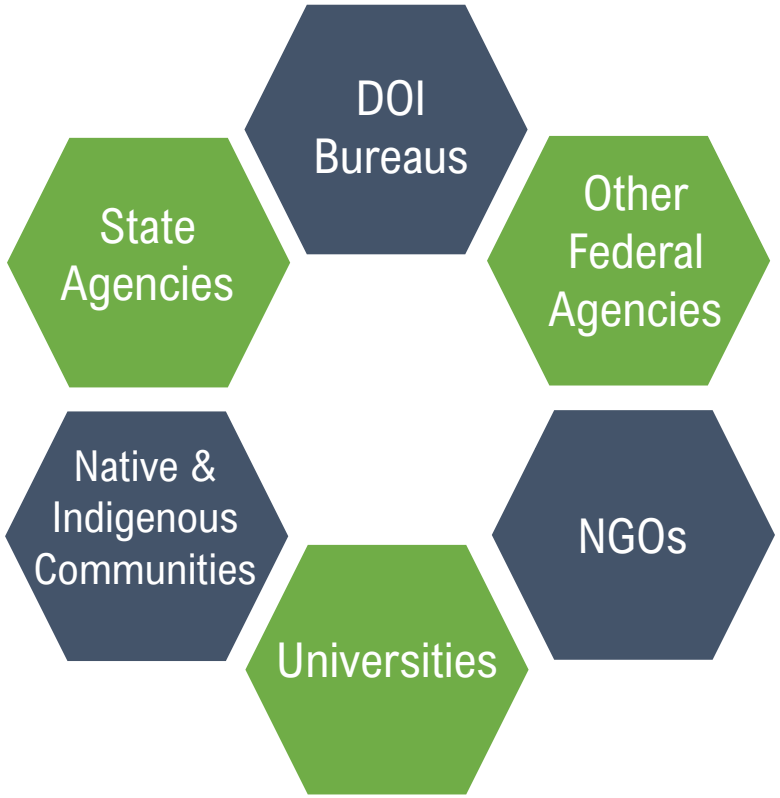
USGS science for a changing world



Our Partners



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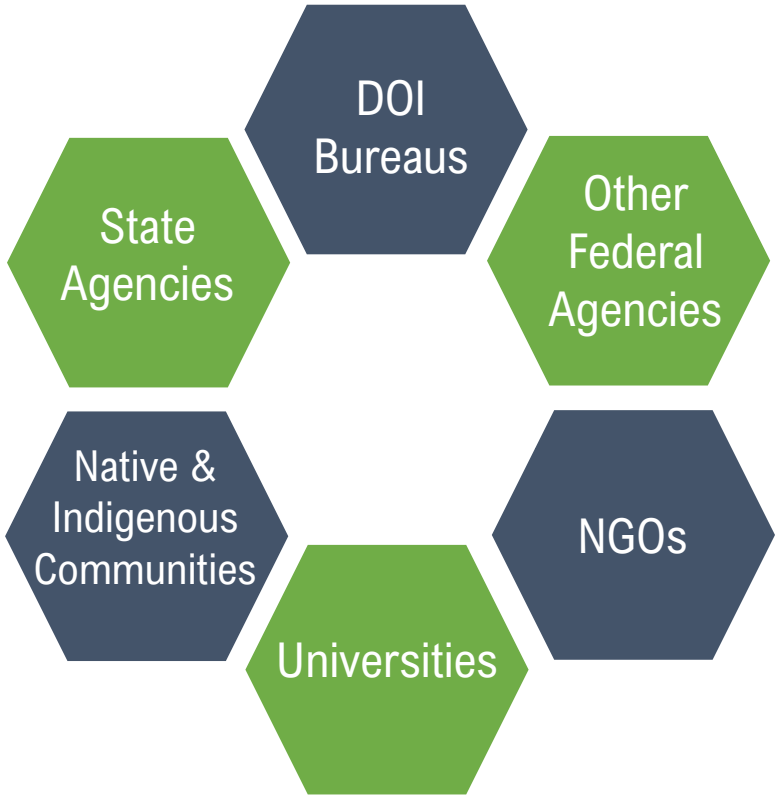


HIGHLIGHTS:

336
Unique partner agencies & institutions

306
Federal agency partnerships (DOI)

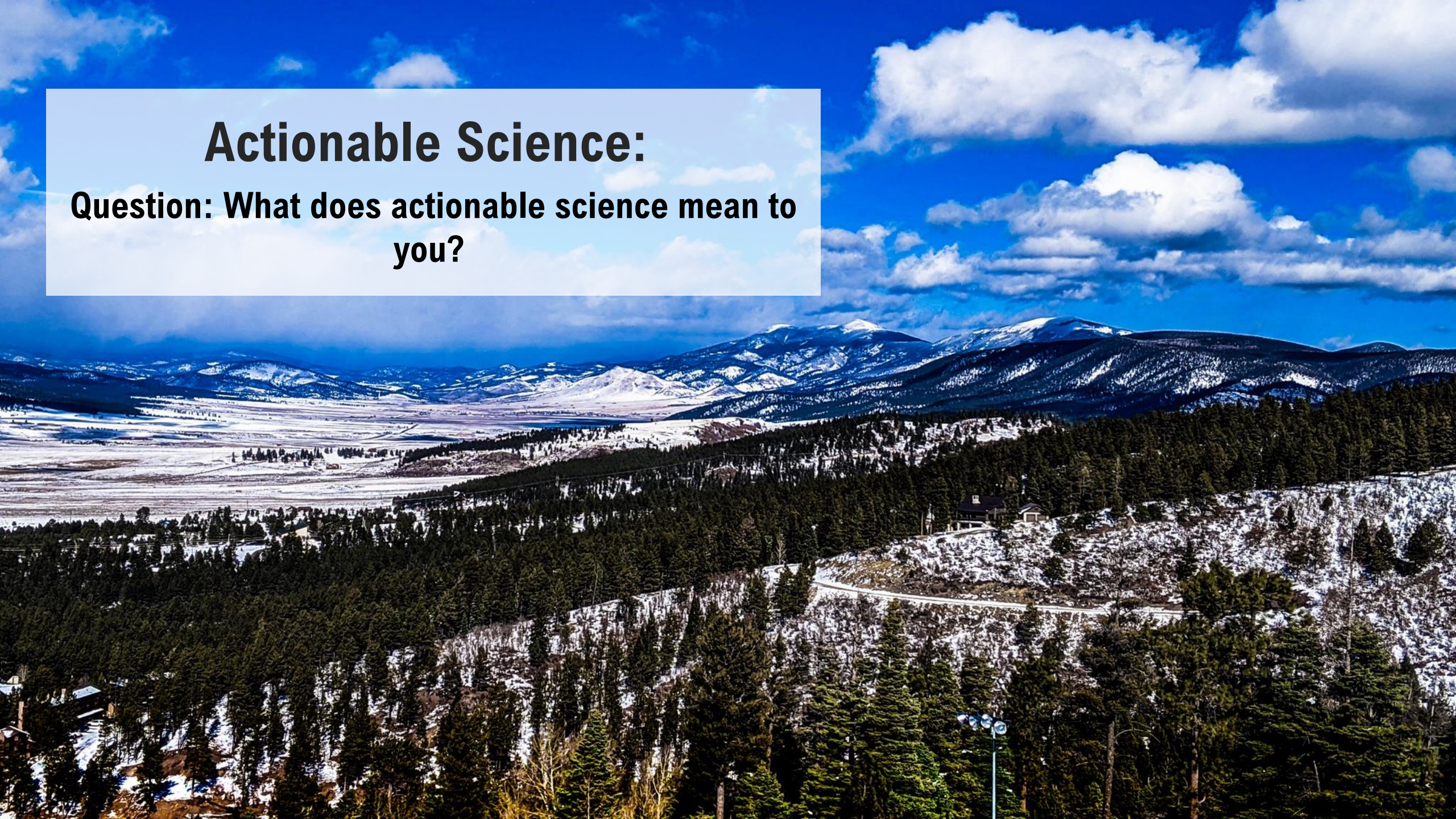
360
University employee partners

77
University students and post-docs

35
Projects with Tribal collaborations

12
BIA tribal resilience liaisons

Ongoing collaborations with federal partners:	
USFWS	62
NPS	36
BLM	10
BOR	3
USFS	74
NOAA	17



Actionable Science:

Question: What does actionable science mean to you?

Actionable Science:

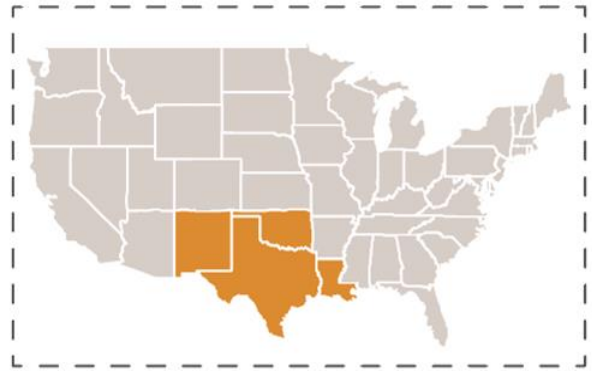
Science that is used to inform decision-making and help solve real-world problems.

Terminology

- **Stakeholder**: end-users of the outputs and findings of a scientific process
- **Actionable science**: scientific outputs or findings that are useful, usable, and used to support a management plan, decision, or action
- **Stakeholder engagement**: one process by which scientific outputs or findings can be made actionable
- **Co-production**: iterative, two-way engagement that grounds scientific objectives within the management context

SOUTH CENTRAL
CLIMATE ADAPTATION SCIENCE CENTER

SOUTH CENTRAL CLIMATE ADAPTATION SCIENCE CENTER & CONSORTIUM MEMBERS



South Central CASC's

Foundational Activities

SOUTH CENTRAL
CLIMATE ADAPTATION SCIENCE CENTER

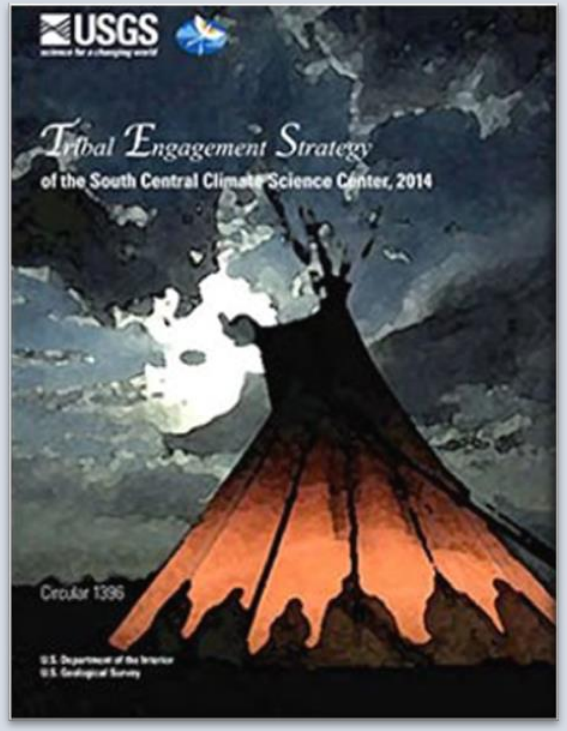
Funding Actionable Climate Science

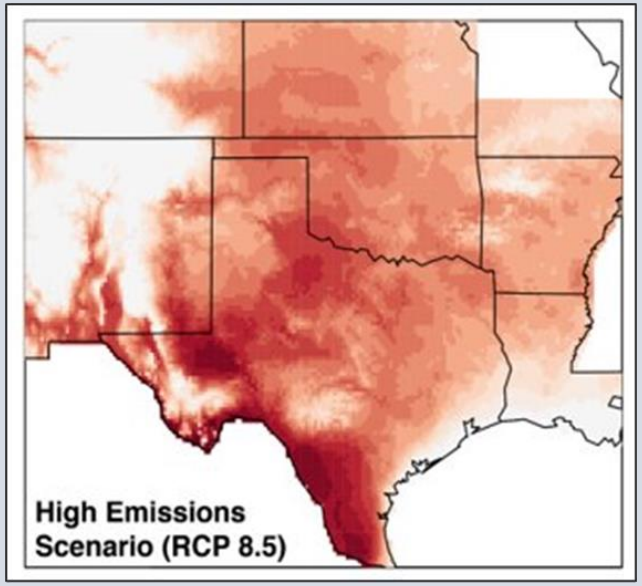
Tribal Engagement

Education & Training

Climate Projections & Downscaling

Technical Assistance





Research Funding Approach

Co-produce knowledge with end-users to protect public land and natural resources:

Federal, State, and Tribal agencies and non-profit organizations.

- Build **interdisciplinary and multi-disciplinary** teams to conduct cutting-edge research.
- Go beyond the “loading dock” science model and support adaptation planning decisions based in science.

Many Approaches to Identifying Climate Science Needs

Science Advisory Committee

State visits & listening sessions

End user involvement in research

Boundary-spanning staff & partners

Meetings with end users

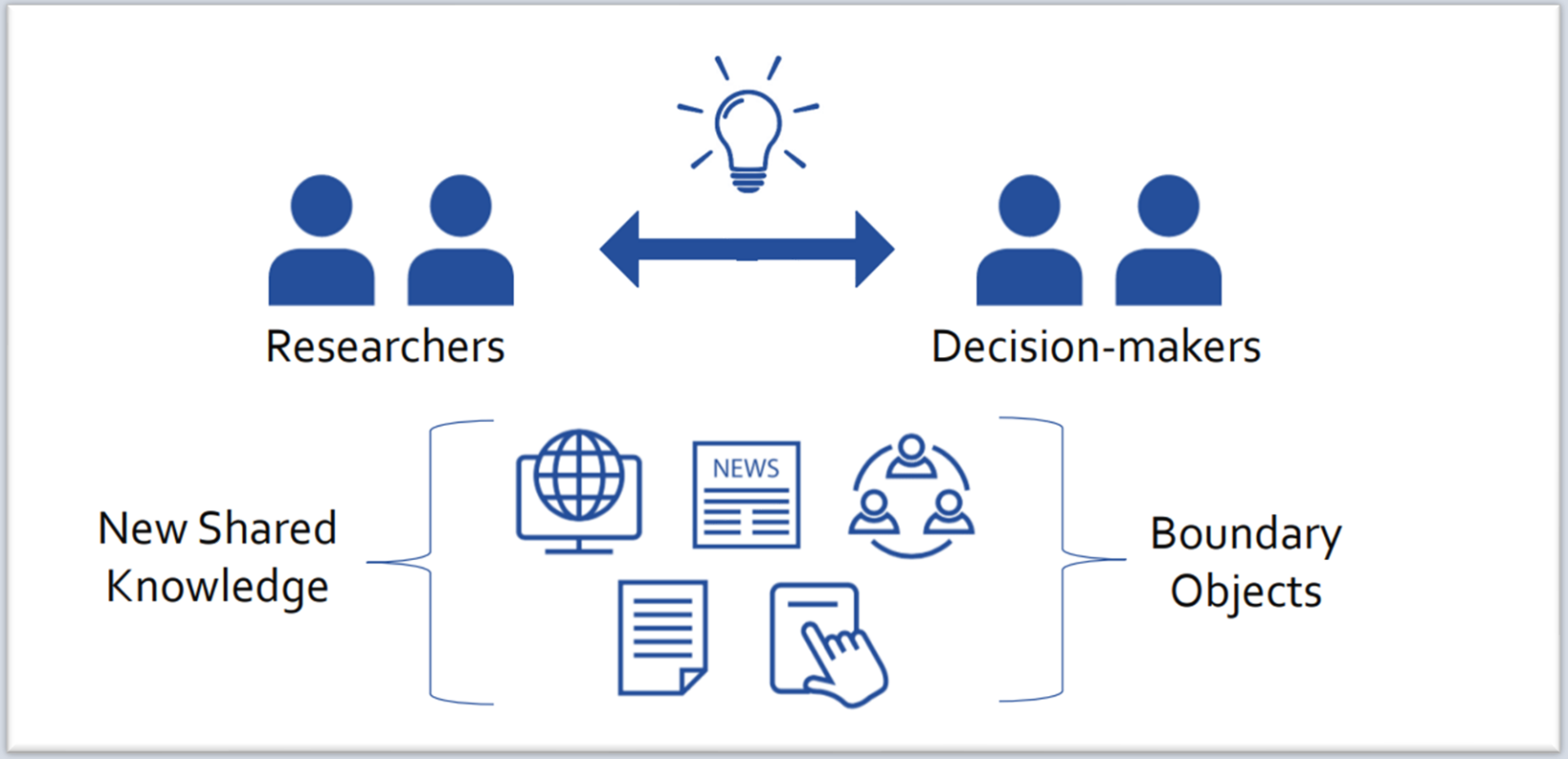
Document analysis & program evaluation

SCIENCE ADVISORY COMMITTEE

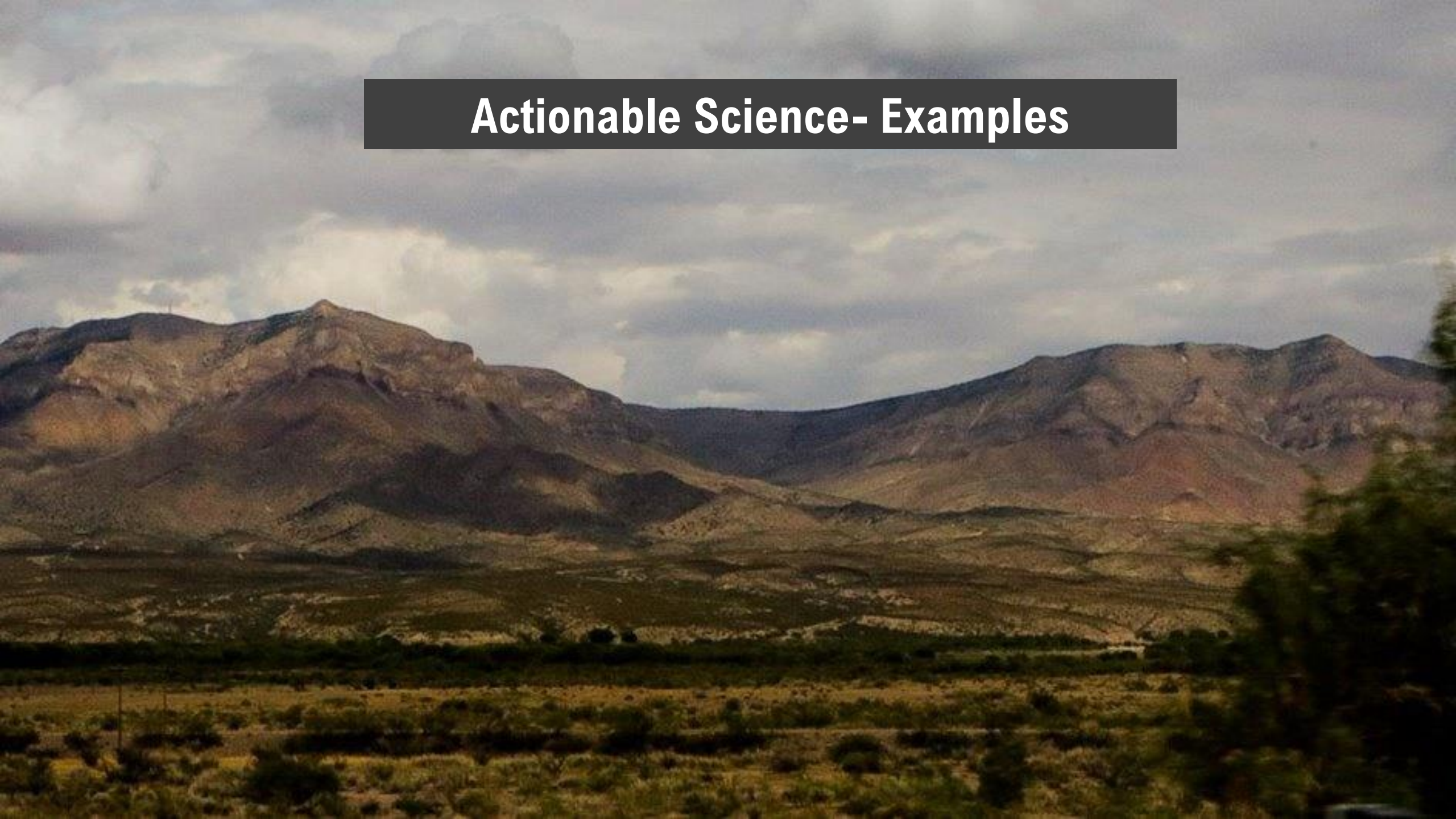
SAC

SOUTH CENTRAL CASC

Science Advisory Committee



Actionable Science- Examples



Managing the Impacts of Climate Change and Land Loss on Native American Archaeological Sites in Coastal Louisiana

PI: Kory Konsoer (LSU)

- Goal: produce scientific knowledge and strategic planning for **cultural resource management (CRM)** in response to rapidly changing anthropogenic environments of Louisiana's Gulf Coast
    - Chitimacha Tribe of Louisiana, archaeologists, climate scientists, geologists, and engineers from Louisiana State University, Tulane University, University of Louisiana at Lafayette, and the National Park Service

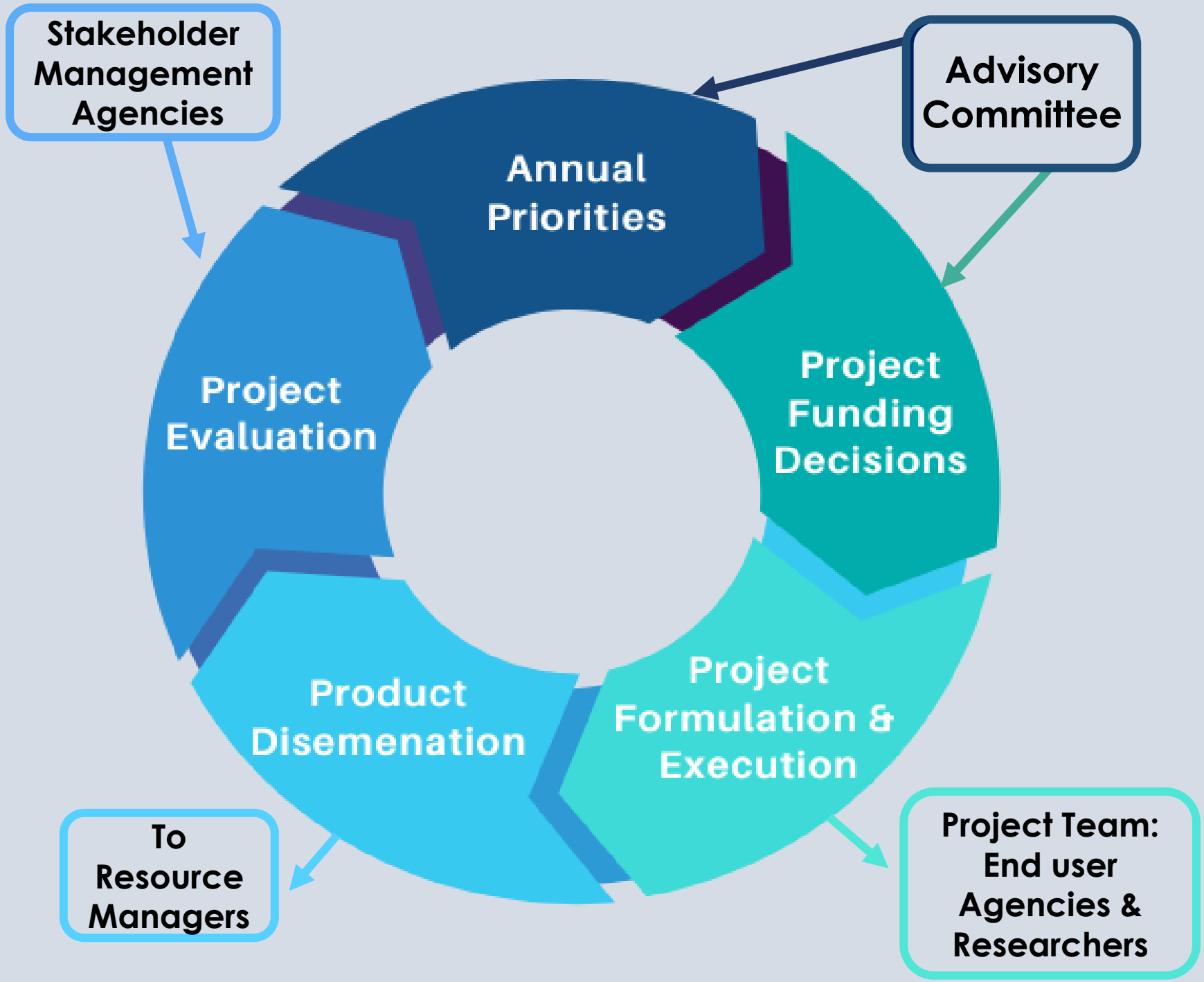
- Produce a **climate-informed CRM plan** for the future of Louisiana's **imperiled coast**

The Effects of Wildfire on Snow Water Resources under Multiple Climate Conditions

PI: David Moeser (USGS NM WSC)

- Snowmelt accounts for 70% of streamflow in the Colorado and Rio Grande Rivers.
- Wildfire disrupts the role of mountain forests in the hydrologic cycle.
- Model the effects of wildfire on snow-water resources, **canopy structure and snow storage** (Las Conchas Fire burn zone).
- Results improve **snow-water forecasting, and therefore water resource planning**.
  - Earlier peak flows in snow-dominated areas.

How we Involve End Users in the Production of Science?



Research Engagement Approaches

Inform	Consult	Participate	Empower
• One-way communication • Few engagements • Often at end of project	• Limited two-way communication • Several engagements	• Extensive iterative two-way communication • Ongoing engagement	• Co-equal working relationships • Long-term & ongoing engagement
Example: Inform stakeholders of project results by giving a webinar or making a fact sheet	*Example:* Consult with stakeholders regarding key species for which to run a model and later ask which are most useful variables from model outputs	*Example:* Stakeholders help refine research questions and provide input at regular points during research process	*Example:* Stakeholders are co-investigators on the science team and are entrusted to make project decisions

Adapted from Bamzai-Dodson et al. 2021

What is the goal?

***** Links to class: MBN Session 3 "Community Collaboration Toolbox"**

	INFORM	CONSULT	COOPERATE	COLLABORATE
GOAL	Provide information to improve understanding of issues, alternatives and decisions	Obtain feedback on issues, alternatives, analysis, or decisions.	Consistently include partner and stakeholder input to ensure that positions and concerns are understood and considered in decision making.	Work collaboratively with partners and stakeholders to identify strategies and desired outcomes, develop alternatives and identify solutions.

Question for group reflection & discussions:

(2-3 volunteers)

- What are some examples of how our agencies are involved in co-producing and co-developing science?

State Visits & Listening Sessions

- Build trust
- Listen to climate science needs of managers
- Share current activities & research
- Explore opportunities for collaboration

Boundary Spanning
Partners & Staff

"An intermediary with relevant science and management expertise that enable exchange between knowledge producers and users" (Cross et. al., 2022)

SCIPP
A NOAA RISA TEAM

SRCC

USDA Southwest Climate Hub
U.S. DEPARTMENT OF AGRICULTURE

USDA Southern Plains Climate Hub
U.S. DEPARTMENT OF AGRICULTURE

Climate Adaptation Specialist & Planner:

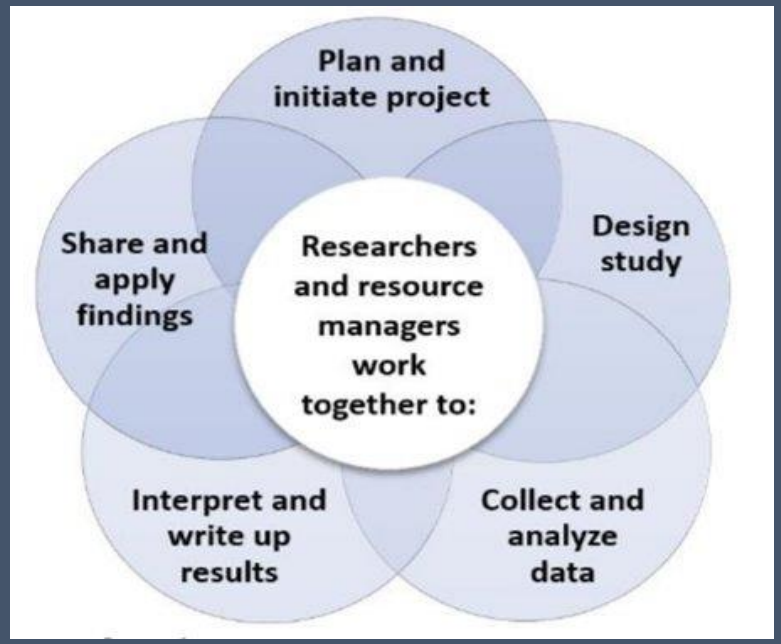
- Dr. Dolly Na-Yemeh
- Dr. Sharon Hausam

Tribal Liaisons:

- Amelia Cook
- Yvette Wiley

Considerations for co-producing science

1. **Co-production scoping and design**
   - Clarify agency management need
   - Clarify why the project is needed, who will use the products, and how they will be used



Source: a problem solving-checklist for co-production

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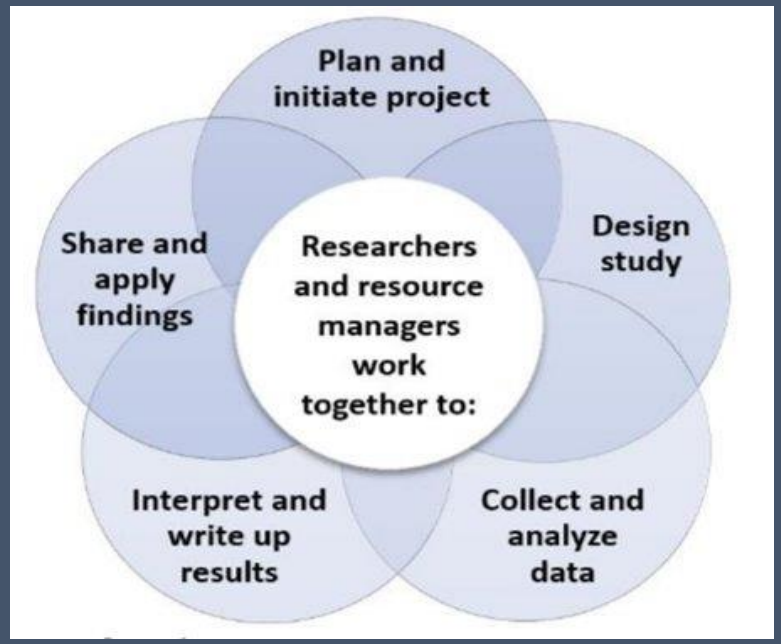

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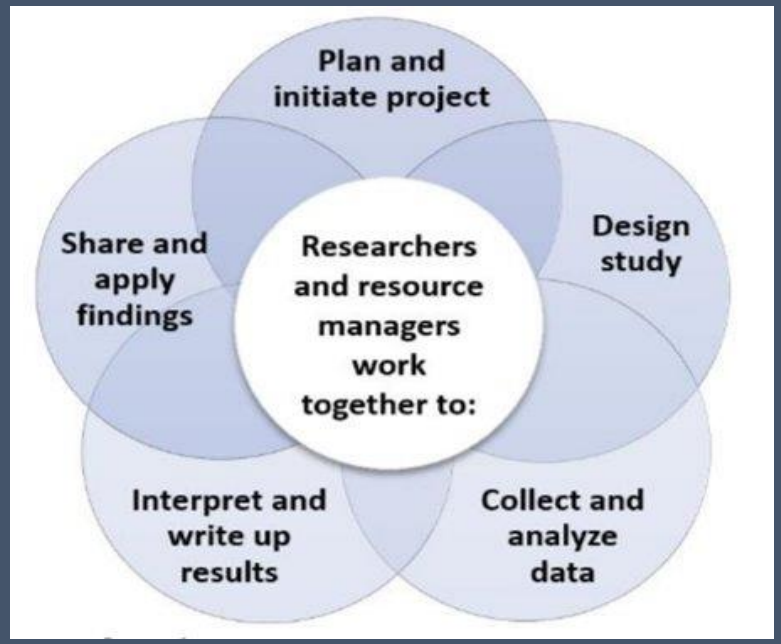
3. **Defining and conducting the project**
   - How will you gather end-user input?
   - Give equal space to management and research perspectives



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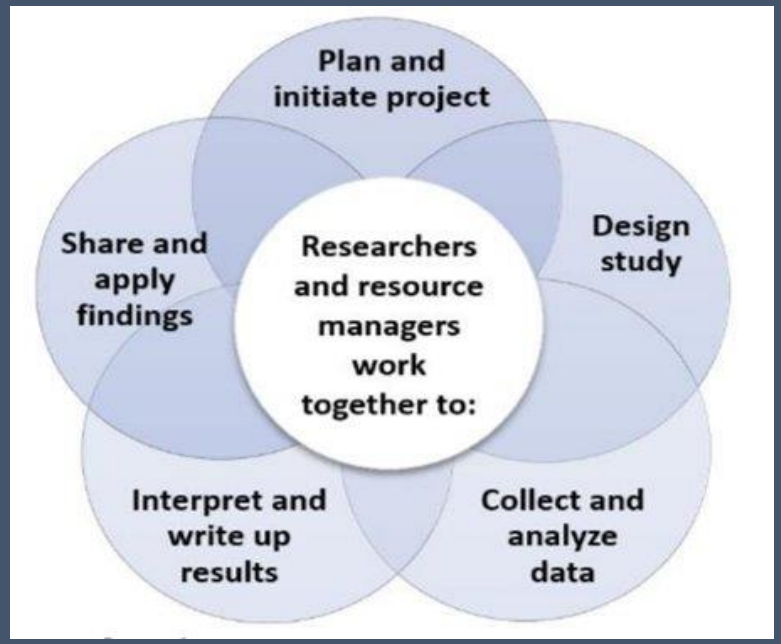

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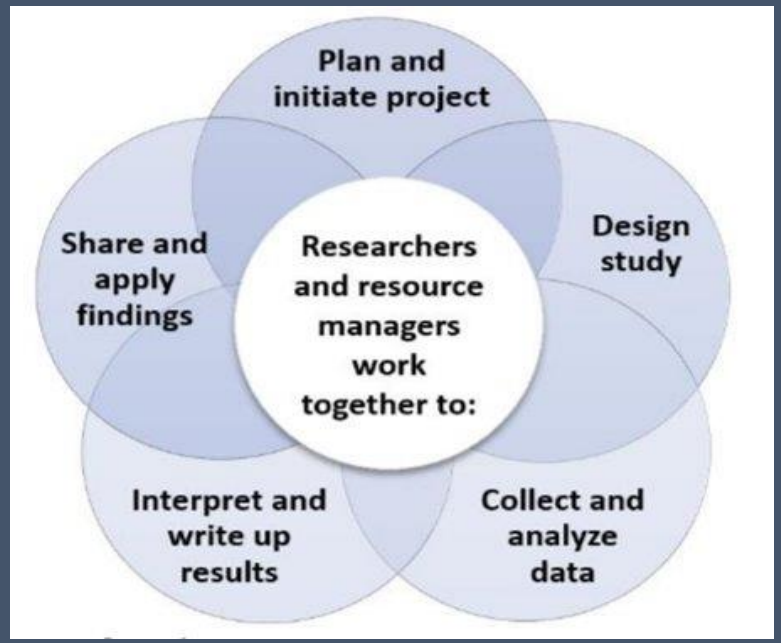
5. **Evaluating progress, outcomes, and assessing impact**
   - Who will evaluate the project, process, and products? What will be the criteria for success of each



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Concluding Reflections

- By working closely with end users, scientists can produce the kind of results that conservation organizations need to make informed decisions.

- Closing the science usability-gap requires **building and sustaining relationships** to effectively conduct actionable science.

- Not a one-size fits all approach:
  - **Place-based approaches** & shared commitment by researchers and resource managers to work together in partnership.

Concluding Reflections

- “Boundary spanners” can strengthen information usability and sustain meaningful partner engagement.

- Positions that focus on fostering and maintaining relationships are integral to supporting partnership-driven work that spans across organizations.

Thank you!

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