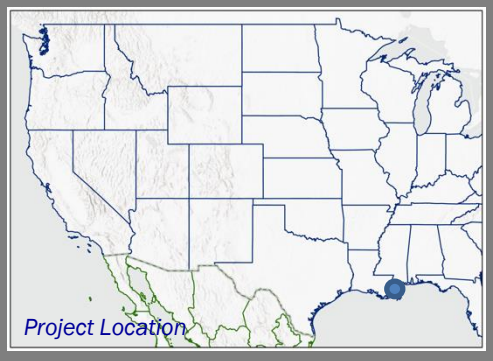
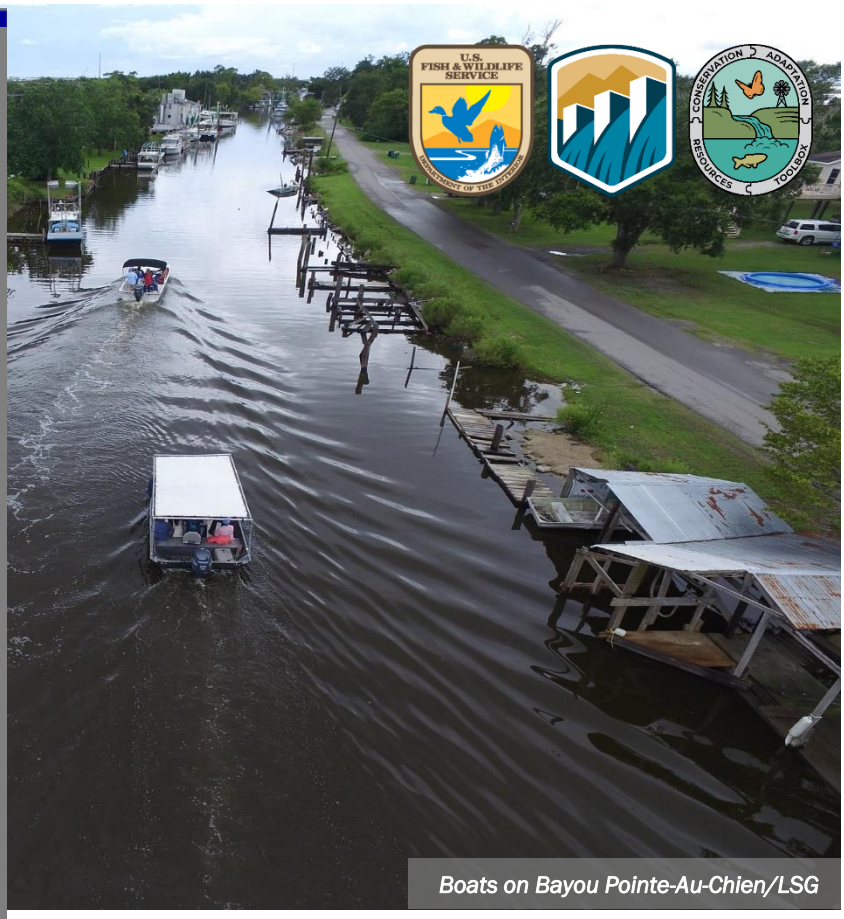
Community Engagement and Education

Mapping Climate Change Impacts and Traditional Ecological Knowledge for Potential Mitigation and Adaptation Strategies

The Pointe-au-Chien Indian Tribe (PACIT), a state-recognized Native American Tribe in Coastal Louisiana, is facing climate change-induced sea level rise. The PACIT uses their deep, place-based traditional ecological knowledge (TEK) as a guide to adaptation in their historic ecosystem, but climate change is occurring at rates faster than previous generations experienced. With Tribal input, Louisiana Sea Grant (LSG) and the University of New Orleans utilized GIS mapping to combine Western scientific data with TEK into a decision-support tool. This tool helps PACIT better understand vulnerabilities to prioritize responses, as well as communicate their needs to external organizations.





Boats on Bayou Pointe-Au-Chien/LSG

KEY ISSUES ADDRESSED

Coastal Louisiana experiences land subsidence, rising sea levels, and saltwater intrusion due to many natural and anthropogenic factors (e.g. climate change and oil and gas exploration). The PACIT lacks access to available tools to inform formal mitigation plans for such vulnerabilities due to capacity issues and a history of marginalization and exclusion from Western science-based mitigation processes. Furthermore, available climate change data and tools often operate at scales too broad for local application; however, they can be enriched with first-hand TEK from communities reliant on the ecosystem. Also, Western science can be complemented by TEK through mapping and planning to address quickened impacts of climate change.

PROJECT GOALS

- Develop knowledge convergence processes for quantitative Western climate change data with qualitative PACIT TEK data on areas of priority or concern
- Create a decision-support tool by mapping current and future climate change impacts with mitigation options
- Build meaningful relationships among researchers, partners, and the PACIT

TWO-SIDED IMPACT

While oil and gas extraction sites may negatively affect the environment, the industry also stimulates the local economy and supplies jobs for Tribal members.

Forested PACIT Land in the 1930s/Patty Ferguson-Bohnee/PACIT

PROJECT HIGHLIGHTS

Qualitative Data Collection: TEK collection included multiple levels to ensure accurate documentation. LSG and the University of New Orleans interviewed TEK experts in the field, learned about changes to traditional lands, and hosted focus groups to identify the Tribe's concerns. Then, maps created by LSG were shared to allow further input from PACIT members.

Organizing Data: Project scientists identified themes of risk from the data collected, and created codes based on emergent vulnerabilities and sustainability. Vulnerability was assessed by exposure to coastal hazards and driving factors. Sustainability codes were perceived hazard mitigation factors. The codes were then classified using geospatial and climate change data and PACIT priorities.

Generating Maps: The research team made maps visualizing the codes and risks, such as oil canal erosion, land loss density, and PACIT priorities. They also combined ranked sustainability and vulnerability codes to map them spatially.

Respectful Relationship Dynamics: Emphasis was placed on respecting the PACIT before the initiation of this project. Communication and trust were built from the first meeting, and each step of data collection focused on organic relationships between all parties.

Collaborators

- Louisiana Sea Grant
- Pointe-au-Chien Indian Tribe
- University of New Orleans' Center for Hazards, Assessment, Response, and Technology

LESSONS LEARNED

When working with Indigenous Tribes, special care must be given to communication. It is important to create processes that allow Tribes to participate in meaningful ways and provide informed feedback, so the project is fully aligned with their goals and reflective of their experiences. For example, consistent communication with all PACIT members interviewed during each step of the mapping exercise resulted in easily understood outcomes by those involved and representative of PACIT's needs and priorities. Further, the mutual benefits of the partnership must be explicitly stated to determine a reciprocal and generative relationship. It is recommended to engage with Tribes and establish mutual respect before partnering on a project. Additionally, addressing any administrative capacity issues or needs that a Tribe may have is important. Data sovereignty and research protocol agreements should occur early in research. Aspects of TEK can be culturally sensitive and may be proprietary, shared solely among knowledge holders. Clear establishment of data sharing protocols among all parties involved may avoid boundary crossing or publicly sharing confidential information.

NEXT STEPS

- Use maps created to visually identify critical climate change vulnerability factors and demonstrate needs for funding
- Inform the Tribe's mitigation plan based on the priorities identified
- Provide information relevant to the Tribe's efforts to be federally recognized

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*Recording Observations/*Corey Miller/University of New Orleans

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