Carrying Out Climate Scenario Planning for the Kenai Peninsula, Alaska

Project Location

- Kachemak Bay National Estuarine Research Reserve, Alaska
- Tijuana River National Estuarine Research Reserve, California

Project Duration

September 2015 to August 2017

Project Leads

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Products

- Community needs, local climate science, and project workshop summaries about climate adaptation on the Kenai Peninsula
- Scenario narratives for the Kenai Peninsula to support local decision making around climate risks and opportunities
- Online toolbox with facilitation techniques and job-aid worksheets
- Communication products that engage a wide range of stakeholders, including a case study and a featured story on the ADAPTAlaska website, a climate resilience art contest, and a new educational program with local third through sixth grade students

Project Partners

- Kachemak Bay National Estuarine Research Reserve
- Tijuana River National Estuarine Research Reserve

Project Overview

Climate change impacts are more pronounced in Alaska than in other regions of the United States. They are well documented in the Kenai Peninsula, where communities are coping with a variety of impacts related to a warming climate. These include reductions in wetland areas, glacial ice coverage, and freshwater availability, as well as increases in temperature, ocean acidification, and harmful algal blooms. Despite these documented impacts, there are several barriers hindering effective climate change planning on the peninsula, including uncertainty of future trajectories, the need for regional data synthesis, and limited capacity for interagency collaboration.

This project aimed to address these challenges by helping coastal communities on the Kenai Peninsula plan for a changing climate. Drawing on experience using scenario planning to help communities plan for climate change in Southern California's Tijuana River Valley, project staff from the Tijuana River Reserve and the Kenai Peninsula's Kachemak Bay Reserve used the best available science to facilitate local dialogue addressing how climate change may impact the Kenai Peninsula. The project built upon regional efforts and initiated adaptation planning with the goal of effectively preserving ecosystem services in the face of climate change by strengthening social, economic, and ecological resiliency to climate-related risks.

Project Benefits

The project engaged regional leaders and community stakeholders and encouraged them to collaboratively develop plausible future planning scenarios based on a wide range of possible environmental responses to climate change. Ultimately, this project demonstrated the applicability of climate scenario planning and resulted in a wide range of benefits, including multiple enhanced facilitation strategies and new decision-support tools.

- Trainings and workshops hosted by the project team strengthened the climate change and coastal resiliency stakeholder network in the Kenai Peninsula. These events also increased awareness and understanding of climate change science, vulnerabilities, and opportunities among local decision makers.

- The project team's engagement with municipal and borough planning commissions resulted in an expanded regional capacity to prepare for climate change, as well as regional progress made toward tangible adaptation actions.
- The project resulted in multiple unexpected opportunities to build new partnerships, including with Alaska Sea Grant, NOAA's Office for Coastal Management, and the National Estuarine Research Reserve System Science Collaborative's *Successful Adaptation Indicators and Metrics* project. These partnerships served to leverage the project well beyond its original scope.

Project Approach

Coastal managers from California and Alaska collaborated to apply the Tijuana River Reserve's expertise in community-based, collaborative climate scenario planning to prepare for future climate impacts on the Kenai Peninsula. An interdepartmental planning team from Tijuana River and Kachemak Bay Reserves, guided by a steering committee, conducted the following activities:

- **Synthesized Climate Change Science and Impacts** – The team reviewed System-Wide Monitoring Program data and compiled the best available science on climate change impacts projected for the Kenai Peninsula.
- **Identified Local Priorities** – The project team informally surveyed stakeholders to gain insight into local climate observations, risk perceptions, and regional perspectives on preparedness in order to assess community priorities and needs.
- **Conducted Scenario Development Workshops** – The team convened stakeholders for two two-day climate scenario development workshops that integrated the best available science on local climate change impacts and primary local vulnerabilities to climate change.
- **Documented and Applied Results** – The team documented the climate scenario planning process and distributed lessons learned throughout the entire reserve system. Kachemak Bay Reserve used the climate scenarios developed to inform future data collection priorities and advance local adaptation planning and actions.

What's Next

- Members of the team will transfer lessons learned from the climate change scenario planning process at Kachemak Bay to the Batiquitos Lagoon Ecological Reserve in Carlsbad, California for a new project led by the Tijuana River Reserve staff.
- The partnerships developed and enhanced by this collaboration will be continued as part of a new project funded by a Science Collaborative Catalyst grant, *Facilitation Tools, Techniques, and Tactics: Advancing Local Adaptation and Evaluation Dialogues throughout the NERRS*. As part of this new endeavor, several reserves, including Tijuana River and Kachemak Bay, will come together alongside the *Successful Adaptation Indicators and Metrics* (SAIM) project team to develop a decision-support toolbox that will make the facilitation tools used in this project available to the full research reserve system network, and key regional and national reserve system partners.

About the Science Collaborative

The National Estuarine Research Reserve System's Science Collaborative supports collaborative research that addresses coastal management problems important to the reserves. The Science Collaborative is managed by the University of Michigan's Water Center through a cooperative agreement with the National Oceanic and Atmospheric Administration (NOAA). Funding for the research reserves and this program comes from NOAA. Learn more at coast.noaa.gov/nerrs or graham.umich.edu/water/nerrs.