

Co-Creating Climate Adaptation Metrics that Matter: Learning from Indigenous and Local Knowledges

Project Summary

- Communities are increasingly facing adaptation decisions to reduce their exposure to climate change impacts.
- Proactive planning requires reliable and relevant data on which to base decisions.
- Data-driven tools and information that meet communities' priorities and needs and engage local input and knowledge can effectively inform local community adaptation decisions to increasing climate and weather threats.

Purpose

- Our team is collaborating to expand and enhance the effectiveness of climate data, tools, and science to support community adaptation and resilience planning.

- We ask:

  - What kinds of data and knowledge are needed to address the effects of climate change on complex land-coast-sea ecosystems;

  - What are effective ways to gather such information; and

  - How a diversity of data and knowledges can be brought together to solve climate-driven problems.

Participatory process

Focused on a watershed-level, community hub approach of connected coastal communities to the Pacific Ocean (California, Hawai‘i), Gulf of Mexico (Louisiana), and Caribbean Sea (Puerto Rico), all planning for the future impacts of flooding in the context of multiple stressors, including climate change.

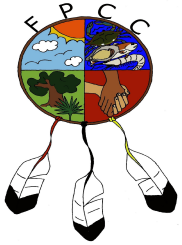
A collaborative knowledge creating and sharing process with seven community hubs collaborating in a participatory process to:

Develop and share climate-relevant indicators and measurements that communities use, and	Bring together National Oceanic and Atmospheric Administration (NOAA) climate data measurements and the communities' measurements to enhance the usefulness of climate data for informing community adaptation responses.

Project team

- Leading solution-builders from Native and allied non-profit and community-based organizations in California, Louisiana, Hawai‘i, & Borikén/Puerto Rico.
- Organizational collaborators include the Asian Pacific Environmental Network, El Puente Enlace Latino de Acción Climática (ELAC), First Peoples Conservation Council of Louisiana, Kīpuka Kuleana, Livelihoods Knowledge Exchange Network, Lowlander Center, Para la Naturaleza, Sogorea Te Land Trust, and The Sierra Fund.
- In collaboration with trusted partners at the Lawrence Berkeley Lab, Stanford University, University of California-Berkeley, and University of California-San Diego.
- Funding from the National Oceanic and Atmospheric Administration’s (NOAA) Climate Program Office, Adaptation Sciences (AdSci) Program, Award #NA21OAR4310280.

Project team



What are the Challenges in Responding to the Climate Crisis?

- Access to traditional lands, practices, resources, information, safety, and more
- Bureaucratic violence that delays recovery processes and disenfranchises communities
- Capitalist-driven development that impinges upon community-driven restoration efforts
- Getting funding into community hands
- Increased stress from unexpected and unpredictable weather patterns and events
- Disruption in passing down traditional knowledges
- Misalignment between dominant scientific approach and grounded reality
- Intersection of climate impacts with historical legacies and cascading disasters

What are the Challenges in Responding to the Climate Crisis? (continued)

- Lack of locally-meaningful downscaled information, timescales, and data
- Climate data not taking into account an intersectional lens
- Gap in the consideration of values and what the community determines is climate data
- Lack of interaction with on-the-ground practitioner observations and cross-generational ancestral timescales
- Isolating climate drivers as the totality of the definition of impact
- Difference in timelines of funders seeking to generate climate data and those that local communities are facing for identifying and experiencing climate impacts
- Dominant paradigm often takes a deficit approach; doesn’t account for community assets and intentional ways that Indigenous peoples have managed water, planted, and stewarded land
- Data often doesn't account for how systems regenerate and why

Community Actions in the Face of Crises and Extreme Environmental Changes

- Intergenerational sharing of place-based knowledges, traditions, and practices
- Creating space for community conversations
- Reframing from issues of climate and catastrophic lens to how we work with the elements
- Shifting away from the deficit model into a vision of a thriving community
- Land rematriation, including pathways to land back through community land trusts, Indigenous protected conservation areas, co-management agreements, and more
- Resilience hubs, as trusted community spaces to gather, organize, share information and mutual aid, find resources, and access social services and support systems
- Monitoring of environmental changes, historical records, and current observations
- Restoration activities, working intergenerationally with nature to heal the land
- Partnership and community agreements in place and moving at the speed of trust
- Food sovereignty and food security, including maintaining resources and habitat for growing food and Native plant gardens
- Cultural burning practices that bring fire back on the land
- Relentlessness; continuing to endure, inhabit in-place, & thrive in face of colonial violence

How is climate data used – or not – for climate actions

- Global data products not useful for local decision making; do not reflect data on social and biodiversity impacts and people often "disappear" from the data
- People less focused on having more information about what's to come vs. on funding and resources to get ready and adapt
- Climate impact data is much more useful than climate data, which is too abstract to be relevant in people's lives and requires a lot of translation
- Extremes are happening and dealing with them is more important than confirming relationships with climate change
- Capacity is needed to process communities' own data and observations, as a ground-up way of building climate data with community scientists
- Climate/environmental change indicators to guide local adaptation efforts are often through oral histories passed down by community elders, along with photographic and written records
- Climate-related values focused on relationships with the Land and People
- People don't typically think in terms of climate data, but in terms of relationship with the land: connection to place, ability to eat from place, and to care for place across generations

Indicators and Metrics that Matter

- How to access implementation funding for the long-term focus on locally-relevant adaptation to keep our children safe in place?
- Where will safe, fresh water supply come from?
- How will the future be different from what's been seen in the past?
- What are the seasonal shifts and changing weather patterns to be anticipated?
- What infrastructure and cultural and sacred sites would be impacted by which climate hazard and how to safeguard these?
- How do we shift our economy and jobs in light of the current and anticipated changes?
- Are our ancestors' burials in harms' way of hazards and if they need to be moved, who is trained to respond when they are disturbed?
- How can we expand local food systems so we can feed people?
- How can we build critical habitats in anticipation of future climate impacts?
- When I get the data, how do I use it?

Community well-being indicators & metrics for climate adaptation & health—land—water—livelihoods connections

- Subsistence livelihoods and food sovereignty; for example, health and quality of food, number of gardens in the community, percentage of locally sourced food
- Water, such as access to and availability of safe secure fresh drinking water, flow and health of water in streams
- Human health, such as heat advisory days, # of unhealthy air days, elders' health
- Ecosystem health, such as health and abundance of harvest, areas of green space, return times of migratory animals and seasonal cycles
- Relationships to land, waters, and place, such as return of land, number of children learning on the land, people eating from and caring for the land, feeling safe there
- Disaster preparedness, such as perceived disaster readiness, evacuation routes
- Community connections, e.g., how well people know their neighbors, are young people staying in the community, continuation of culturally-relevant activities
- Sustainability, e.g., jobs in community caring for environment, and building resilience

Actions to better understand what indicators and metrics are important

- Sharing photos and on the ground real time observations
- Planting gardens, community farms, growing local food systems
- Recovery of traditional ecological knowledge to understand climate change impacts through time, e.g., working with elders and long-time residents to document changes and memories; creating videos, story maps, and other resources to share
- Interactive mapping for assets, resilience, and gaps
- Developing principles of adaptation and tools that allow us to remain who we are
- Adding weather stations where communities want to measure soil moisture, rainfall, wind, atmospheric moisture, etc., correlated with local knowledge and observations
- Establishing a single place to look for information on evacuation, hazard status

Recommendations

- Center the rights of nature
- Increase investment in Indigenous-led stewardship projects & programs to restore health to ecosystems
- Address preceding conditions and atrocities, e.g., the context in which indicators function
- Include IKs of resilience, longevity, inhabitation chronicled over generations
- Support community actions and agency to protect homelands
- Develop vulnerability assessments with the community linked to land and local priorities and communities' inclusion in the decision-making process
- Meet people where they are – disaster recovery realities and enhanced understanding of the metrics that constitute disaster recovery
- Support community climate resilience hubs as gathering spaces
- Increase local and regional-specific climate information
- Ensure communities are informed, which supports empowering local action that gets to the root causes of climate change
- Look at climate stories, not just climate data. Make it personal to people. Art as a way to share, without giving away the power of, information

Recommendations (continued)

- Track successes or challenges with climate investments, such as unintended consequences of climate or clean energy programs (e.g., green gentrification)
- Invest in retrofitting houses and community centers
- Increase resources for community-led efforts; green infrastructure, small-scale, low-tech, locally engineered efforts are more feasible and effective than large infrastructure mitigation projects
- Establish training programs focused on data interpretation, use of GIS tools for mapping climate impacts, and workshops on integrating climate data into local planning, with considerations for age-appropriate teaching strategies
- Provide resource support for Indigenous communities to meet with their elders and knowledge-bearers to put data into their own decision support tools/database systems to protect data sovereignty and strengthen tribal decision making and self-governance
- Strengthen people's stewardship and connection to place. The ability to be in place, to be with family, to practice the lifeway – those are metrics that matter. Keeping local caretakers and knowledge holders rooted to their home places is essential to climate adaptation.
- Provide information on cascading impacts and climate change scenarios interacting with ongoing environmental injustices

Recommendations (continued)

- Train scientists with a whole living system approach. A reductionist science approach compartmentalizes observations and aspects of climate and impacts. Local observations are scientific and pertinent to the data stream. It's a living system, all life that makes our lives possible in the places where we live
- Support land rematriation and bringing the sacredness back to the land
- Ask questions & invite others to ask questions. E.g., what does rematriation look like? How can we create this together? What does it mean to be a good guest on this land?
- Support Indigenous-led community land trusts
- Support people to keep living in and advocating for a place, giving input to ongoing design of projects and care
- Instead of resilience or recovery, talk about endurance tied to ancestry, to the future
- Use of an Indigenous climate adaptation scorecard as an accountability tool for community-led health provisioning following climate disaster, with a story-map communication tool to share meaning and findings
- Focus more on what are we expecting and how ready are we for what we expect; that can help identify where the risks and gaps are and what can be done to mitigate
- Move from the technical to the heart and the story of hope

Thank you for listening!

Contact:

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