

## Pala Band of Mission Indians: Interactive Exposures, Impacts and Strategies Inventory Tool for Extreme Heat Project

### Award Amount

\$176,998

### Region

San Diego

### Tribal Designation

Federally recognized

### Focus Areas

Tool Development, Climate Assessment, Information Sharing

The Interactive Exposures, Impacts, and Strategies Inventory (EISI) Tool for Extreme Heat (EISI for EH) Project is a collaborative pilot initiative led by the Pala Band of Mission Indians (Pala), Prosper Sustainably, and the Public Health Alliance of Southern California. While tribes have a deep and long-standing understanding of how their climate and lands are changing, there are gaps in information that can make it difficult for Tribes to safeguard their communities from climate risks, and navigating the thousands of available Western science datasets can require more time and capacity than is available. This project represents a crucial step towards helping California Native American tribes more easily access and use available Western scientific information, alongside tribal ways of knowing, to assist their climate change resilience efforts. The project will focus on providing actionable climate, health, and community condition data to Pala as a pilot project that can then be leveraged and expanded to meet data gaps and needs of tribes in California to bolster resilience to the ongoing and increasing impacts of climate-driven extreme heat.

This pilot project centers around the modification and integration of the EISI tool, a well-established mechanism for assessing climate-related risks, into an interactive and easily accessible module on the existing, freely, and publicly available California Healthy Places Index: Extreme Heat Edition (HPI: EHE) map platform.

The EISI tool helps tribes braid both indigenous or local knowledge with credible, publicly-accessible, and “community-ready” Western science to identify and evaluate:

### Proposed Program Activities

1. Provide actionable data and user-friendly tools for tribes conducting climate change resilience planning for extreme heat
2. Adapt the proven Exposures, Impacts, and Strategies Inventory (EISI) tool into an interactive module on the California Healthy Places Index: Extreme Heat Edition (HPI: EHE) map platform
3. Tribes will be able to dynamically map critical heat impacts, sensitive populations, and adaptive capacities in their communities, and receive customized lists of relevant adaptation strategies
4. Offer comprehensive, free training to tribes to make best use out of the HPI: EHE and EISI tools

*This work is funded through the Tribal Research Grant Program led by*



- » Exposure (and secondary) to various climate conditions
- » Potential impacts these exposures have on health and social, natural, and built environments, including highly valued community assets
- » Community characteristics that influence a tribe's sensitivity or adaptive capacity.

The HPI: EHE empowers communities to build healthy, resilient neighborhoods and supports informed adaptation decision-making through a variety of methods, including the ability to:

- » Locate neighborhoods with high exposure to extreme heat
- » Identify vulnerable populations in those neighborhoods
- » Access resources to build resilience to extreme heat
- » Prioritize the delivery of resources and programs to neighborhoods that need it most

## Karuk Tribe: Karuk Traditional Food Restoration

---

### Award Amount

\$200,000

### Region

North Coast

### Tribal Designation

Federally recognized

### Focus Areas

Project Implementation, Information Sharing

The Karuk Tribe Department of Natural Resources started the Tishaniik Tribal Farm during the COVID-19 pandemic to support the needs of a very isolated community in Karuk Aboriginal Territory, the Orleans and Somes Bar region. This area does not have access to regular and affordable grocery options without driving over an hour. During the pandemic, this access was diminished even further so the Karuk Tribe took on the responsibility of providing free/affordable fresh, local produce to the community through weekly farm stands where all costs for produce are donation based. This program has run successfully for three seasons now and their Food Sovereignty team is ready to expand beyond conventional food production at the Farm and into more traditional food restoration.

The Karuk Tribe is working toward bringing regular prescribed and cultural burning back to the region, but it is a huge undertaking to be able to reach the entirety of Karuk Aboriginal Territory with good fire when the threat of disastrous and fatal fires exist each year as well. While these wildfires have been catastrophic, they have given the Karuk Tribe the opportunity to restore traditional gathering areas where they are accessible by Karuk people and where they can grow healthy, strong plants adapted to regular low intensity fire with the care of the Karuk people for generations to come.

### Proposed Program Activities

1. Document research from interviews of elders and cultural practitioners about the loss of traditional food sources and the impacts of these losses
2. Identify native food plants that are deemed a priority for restoration by the Tribe
3. Develop a native food plant nursery at the existing Tishaanik Tribal Farm that supports long term Tribal leadership in native foods restoration efforts
4. Share TEK gathered from Tribal elders and cultural practitioners and share results from implementing the native food plant nursery

# Northern Chumash Tribal Council: Including Indigenous Knowledge in Ocean and Coastal Evidence-Based Climate Decision Making

## Award Amount

\$199,070

## Region

Central Coast

## Tribal Designation

Non-federally recognized

## Focus Areas

Topic-Specific Research, Climate Assessment, Information Sharing, Tool Development

Tribal capacity and knowledge; share management and stewardship lessons with Indigenous people from other states and nations

Participatory conservation and collaborative management are based on inclusive and regular conversations and collaborations with those invested in, affected by, and traditionally having a historical connection to the place.

The approach is to promote relationship building and participatory collaborative management for the CHNMS and western science research efforts by cultivating opportunities for local communities' involvement in incorporating Indigenous and local community knowledge into marine management, western science research and program development from the ground up.

The methods to achieve participatory collaborative management and marine science research will be to create opportunities for relationship building, knowledge sharing, training, and community participation in the management, engagement, and research of our oceans. These opportunities are needed to further develop equitable inclusion of Indigenous leadership as well as traditional ecological knowledge (TEK) and local marginalized communities' knowledge. This will lead to the Northern Chumash Tribal Council (NCTC) helping facilitate the sharing of this knowledge by providing learning courses for the public to learn about how to equitably engage with and include Tribal people continuously and regularly. Listening and sharing is a skillset that takes a plan and training. We will show Indigenous community members how they can contribute while having fun and learning more about the world in which they live. Family-oriented ceremonies will pull people together to share time, stories, memories, and a mutual love of their land and waters.

Tasks & activities will focus on creating the opportunities for both knowledge sharing and knowledge learning between Indigenous community members as well as between Indigenous communities and researchers and Sanctuary managers. This means creating opportunities for sharing, documenting, analyzing and applying TEK so that it can be applied and integrated with Sanctuary management

## Proposed Program Activities

1. Creating/supporting convenings of Tribal partners to share information and approaches and strengthen collaborations
2. Successful exploration of human connections to land protections: Engage legal experts and Tribal representatives to enhance understanding of options for expanding Tribal engagement in stewardship of sanctuary and adjacent lands
3. Applications and collection of knowledge with the creation of publications and products to describe how the Chumash Heritage National Marine Sanctuary (CHNMS) can inform similar management needs in other U.S. states and internationally
4. Share lessons learned: Promote publications, webinars, conferences, and other methods of sharing CHNMS success and innovations in ocean management, including the role of Tribal leadership and more
5. Support Inter-Tribal engagement: As requested by Tribal partners, advance partnerships, data analysis, and inter-Tribal information transfer that highlight

and the western eDNA research project's development via training for non-Indigenous leadership. The collection of this data in general will be beneficial to NCTC recording of ancestral knowledge and will help inform the historical, cultural and ecological contexts that guide NCTC's work. Part of this process will include agreements with Indigenous knowledge sharers about what information stays with NCTC and what is able to be shared publicly.

For data collection and archiving, we will also assess database options for a wide range of documents and materials relating to historical resources and storytelling from elders, videos, images, student resources, books, songs, crafts, articles, and historical archives. This will include methods of data privacy to ensure that Indigenous proprietary knowledge is kept confidential.

## Mono Lake Kutzadika'a Tribe: Pinyon Pine Traditional Stewardship Study

### Award Amount

\$81,701

### Region

Sierra Nevada

### Tribal Designation

Non-federally recognized

### Focus Areas

Topic-Specific Research, Tool Development

### Proposed Program Activities

1. Document how traditional pine nut harvesting practices influenced ecological responses that benefitted the tree and the surrounding ecosystem, which in turn promoted optimal conditions for seed production for harvest by the Tribe. Goal 1 will help inform the Tribe on the particulars of traditional stewardship, enabling the Tribe to formulate strategies for data collection as outlined in Goals 2 and 3.
2. Use remote sensing and geographic information systems (GIS) to obtain baseline data that will be used to map pinyon pine forests, identify forest stand characteristics, document forest health, and locate geographic sites suitable for pinyon harvesting. Goal 2 will provide the Tribe with information on relic stands that contain attributes of a traditionally stewarded forest and will be useful as reference information from which forest management goals and benchmarks can be derived once traditional stewardship is brought back to the forests. It will also provide current forest conditions that will be used as baseline information that will be analyzed to determine the degree of departure of current pinyon pine forests from reference conditions and help in formulating future action plans

on how to treat these areas using a blend of traditional stewardship and western science approaches.

3. Document traditional lifeways within pinyon pine forests to understand the effects everyday life had on localized resource extraction and fuels reduction within the pinyon pine forest. Goal 3 will allow a quantification of wood usage by traditional lifeways that had a measurable influence on clearing the forest of dead and downed woody fuels and thus a means of fireproofing the pinyon forest floor. This information will be useful to the Tribe and agencies to plan for how to obtain the same fireproofing effect using crews to collect and remove woody fuels from the ground. This information will also serve as baseline data for future control plot studies to determine how long the fireproofing effect remains functional under different scenarios of no future wood collection versus various degrees of future wood collection and removal under tribal stewardship practices.

The Pinyon Pine Traditional Stewardship Study is a research project with a purpose to document how traditional indigenous stewardship practices within pinyon pine forests promote ecological health of pinyon pines by producing optimal environmental conditions that protected pinyon pine from catastrophic wildfire and infestations of viral and insect pests. Over generations of time, indigenous stewardship practices created distinct and identifiable stand characteristics, such as spaced old growth trees that allowed for a greater understory species diversity which created macro and micro habitats for a variety of wildlife needs. Indigenous lifeways within pinyon forests resulted in fuels reductions that further protected forests from an accumulation of woody fuels that lead to devastating fires that destroy trees. An ecologically healthy pinyon forest has the greatest chance of producing trees with viable seeds for harvesting by the Tribe, generation after generation. By documenting traditional stewardship practices, tribal members who

have varying degrees of separation from this indigenous knowledge will be able to bring back these practices to better steward pinyon forests for ecological health and pine nut harvests. Agencies will benefit by learning how to incorporate management that includes traditional stewardship techniques to improve forest health and wildlife habitat.

## Tamien Nation: Tamien Nation Climate Resilience Grant

---

**Award Amount**

\$200,000

**Region**

Central Coast

**Tribal Designation**

Non-federally recognized

**Proposed Program Activities**

The Tamien Nation Climate Resilience Project seeks to revitalize indigenous cultural stewardship practices to strengthen climate and wildfire resilience on ancestral lands. The project will provide professional hands-on training for the tribal cultural fire and land stewardship crew. The project will also concentrate on enhancing fire protection, long-term sustainability, and community education on climate change impacts.

**Focus Areas**

Traditional ecological knowledge and training, Traditional fire protection, Protection of cultural resources, Community outreach and education



## Dry Creek Rancheria Band of Pomo Indians: Dry Creek Rancheria Forest Health Climate Adaptation Project

---

### **Award Amount**

\$199,973

### **Region**

San Francisco Bay Area

### **Tribal Designation**

Federally recognized

### **Focus Areas**

Forest fuel reduction (wildfire resilience),  
Revegetation with native plants, Traditional  
ecological knowledge

The Dry Creek Rancheria Forest Health Climate Adaptation Project proposes to treat approximately 57 acres for pre- and post-fire fuel reduction, along with re-vegetation management using native plants and traditional ecological knowledge. The project will document traditional tribal management practices; forest health issues; the application of fire in modern and historic silviculture practice; and the comparison of traditional tribal practice to western forest management.

### **Proposed Program Activities**

1. Conduct pre-project vegetation monitoring and interview tribal elders
2. Selection of forest-thinning areas
3. Manual thinning of selected forest
4. Development of tribal outreach and education, to include site tours, pamphlets, and educational signs in project areas
5. Post-project vegetation monitoring
6. Reporting and Forest Management Plan

## Northern Chumash Tribal Council: Northern Chumash Inter-Tribal Knowledge and Resource Sharing

---

### **Award Amount**

\$399,994

### **Region**

Central Coast

### **Tribal Designation**

Non-federally recognized

### **Focus Areas**

Intertribal information- and fund-sharing, Documentation of collaborative methods, Sharing traditional ecological knowledge, Implementation of cultural projects and ceremony informed by traditional ecological knowledge

This project will create a collaboration led by the Northern Chumash Tribal Council where multiple Chumash Tribes and Tribal organizations come together to share resources and knowledge. The information gathered through this and related projects will be shared between the Northern Chumash Tribal Council, the Coastal Band of the Chumash Nation, the Brotherhood of the Tomol, the Chumash Artist Guild, and the Northern Chumash Bear Clan.

### **Proposed Program Activities:**

1. Develop and document methodology for collaborative information and fund sharing with multiple tribal partners
2. Create and lead a steering committee
3. Develop model for intertribal sharing of traditional ecological knowledge
4. Collaborative summit on traditional ecological knowledge and climate change
5. Implementation of cultural and ceremonial projects

## Resighini Rancheria: Revitalizing Indigenous Caretaking Practices using Tribal Intertidal Digital Ecological Surveys (TIDES) and Seaweed Harvest

### Award Amount

\$399,949

### Region

North Coast

### Tribal Designation

Federally recognized

### Focus Areas

Ecological survey, Seaweed harvest, Climate change assessment, Training for tribal capacity-building, Long-term resource stewardship

The goal of this project is to produce robust sea level rise vulnerability data that empowers local communities to possess and utilize the tools necessary to adaptively manage coastal impacts associated with climate change while restoring caretaking practices that will increase social and ecological wellbeing. This project is an interdisciplinary collaboration between coastal Indigenous nations, marine resource managers, and academics. These collaborative partnerships will combine Traditional Knowledge of historically observed patterns in intertidal communities and stewardship practices with advanced imaging, mapping and analytical techniques to better understand and manage sea level rise impacts on California's rocky intertidal ecosystems.

### Proposed Program Activities

1. Train community members of the Tribal Marine Stewards Network (TMSN) on large-area imaging protocols and high-resolution 3D habitat mapping techniques
2. Establish intertribal priorities for climate vulnerability assessments in the intertidal zone
3. Train community members of the TMSN on data extraction and analysis of high-resolution 3D habitat datasets
4. Repeated application of traditional and modified-traditional seaweed harvests
5. Hold information-sharing summits