



**TRIBAL CLIMATE  
HEALTH PROJECT**



# **Adaptation Plans: Part 2**

Tribal Climate and Health Adaptation Webinar #7

# Since Last Webinar

## Suggested Reading

- [Tribal Climate Adaptation Menu](#)

*"This document is intended to empower tribal governments, federal and state agencies, nongovernmental organizations (NGOs), individual landowners and others to incorporate Anishinaabeg perspectives, specifically from the Great Lakes region, into a climate adaptation framework. We recognize the shortcomings of this document in our attempt to incorporate indigenous concepts, language, and cultural practices; a single document written in English can't fully capture what we intend to express. We hope that the perspectives given here offer users an additional lens with which to view the environment and facilitate a more culturally appropriate approach to working with tribal nations."*

## Outline of the Menu's Strategies and Approaches

### Strategy 1: Consider cultural practices and seek spiritual guidance.

- 1.1. Consult cultural leaders, key community members, and elders.
- 1.2. Consider mindful practices of reciprocity.
- 1.3. Understand the human and landscape history of the community.
- 1.4. Hold respect for all of our relations, both tangible and intangible.
- 1.5. Maintain dynamic relationships in a changing landscape.

### Strategy 2: Learn through careful and respectful observation (gikinawaabi).

- 2.1. Learn from beings and natural communities as they respond to changing conditions over time.

### Strategy 3: Support tribal engagement in the environment.

- 3.1. Maintain and revitalize traditional relationships and uses.
- 3.2. Establish and support language revitalization programs.
- 3.3. Establish, maintain, and identify existing inventory and monitoring programs.
- 3.4. Establish and maintain cultural, environmental education, and youth programs.
- 3.5. Communicate opportunities for use of tribal and public lands.
- 3.6. Participate in local- and landscape-level management decisions with partner agencies.

### Strategy 4: Sustain fundamental ecological and cultural functions.

- 4.1. Maintain or restore hydrology and soils.
- 4.2. Maintain or restore riparian areas.
- 4.3. Maintain or restore nibi (water) quality.
- 4.4. Support specific plants or plant communities with essential requirements.
- 4.5. Revitalize and maintain Anishinaabe/cultural use of ishkode (fire) as a stewardship tool.
- 4.6. Maintain and revitalize cultural approaches to harvesting and caretaking.

### Strategy 5: Reduce the impact of biological and anthropogenic stressors.

- 5.1. Maintain or improve the ability of communities to balance the effects of manidoonsag (little spirits).
- 5.2. Maintain or improve the ability of communities to balance the effects of bakaan ingoji ga-ondaadag (non-local beings).
- 5.3. Manage herbivory to promote regeneration of impacted beings.
- 5.4. Reduce negative impacts from anthropogenic disturbances.
- 5.5. Monitor and reduce ambient air pollution.

### Strategy 6: Reduce the risk and long-term impacts of disturbances.

- 6.1. Alter community structure or composition to reduce risk or severity of major disturbances.
- 6.2. Promptly revegetate sites after natural disturbance.
- 6.3. Care for cultural sites after a severe disturbance.
- 6.4. Plan harvesting, gathering, and collecting opportunities to reduce the risk and impacts of disturbances.



## Chat Discussion:

Did you relate to this report? What strategies stood out?

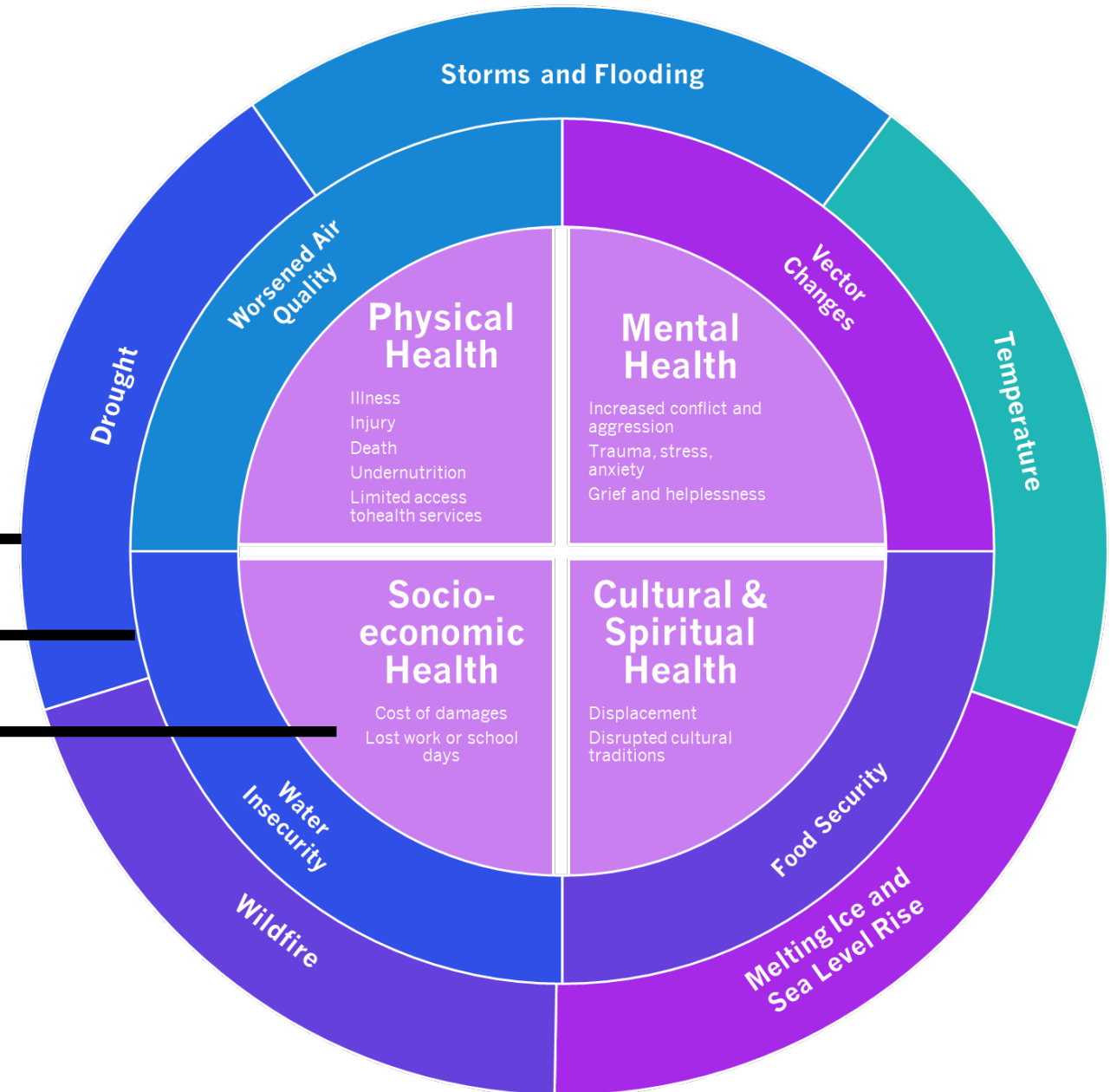
# Adaptation Planning

To recap, vulnerability assessments will help to identify and prioritize health and other adverse impacts of climate exposures

Exposures

Secondary Exposures

Health Impacts Summary



# Culturally Traditional Health and Healing Strategies

## Steps

1. Determine Objectives and Scope
2. **Compile “long list” of adaptation strategies**
3. Evaluate and Prioritize “Short List” of Adaptation Strategies
4. Organize Selected Strategies into an Action Plan
5. Synthesize and Present Results

Indigenous holistic health traditions embrace bio-psycho-social-spiritual nature of health:

- Native diets
- Talking circles
- Storytelling to teach positive behaviors
- Herbal remedies
- Ceremonies/prayer
- Practices that build harmonious relationship with natural environment
- Drumming
- Cultural arts
- Medicine wheel

## Example: San Diego American Indian Health Center – Elder Circles

The Elders Circle meets weekly and is open to individuals of all ages who desire an opportunity to meet together in a small group to hear from, and honor, our Elders. We begin by gathering in the kitchen for coffee and snacks while we prepare a potluck brunch. After a blessing, we enjoy a meal together then gather into a healing circle to share stories, offer encouragement, and learn from the teachings of our ancestors. Activities vary from talking circles, drumming, movie viewing and discussion, art projects, and more.



## Group Discussion:

How might you build upon your tribe’s traditions in your Adaptation Plans?

# Psycho-social-spiritual Resilience Strategies

## Steps

1. Determine Objectives and Scope
2. **Compile “long list” of adaptation strategies**
3. Evaluate and Prioritize “Short List” of Adaptation Strategies
4. Organize Selected Strategies into an Action Plan
5. Synthesize and Present Results

- Protecting and building mental, psychological, social and spiritual wellbeing as part of efforts to adapt to growing stressors and trauma associated with climate change
- Minimize need for formal mental health treatment
- “Most sure-fire way to reduce the human suffering that climate change will inevitably bring” - Bob Doppelt
- Promote sense of safety, calming, efficacy, hope, and connection
- Literature emerging from disaster response and recovery applied to climate change

**Pala’s CRT project develops a framework for tribal communities**

**Poll**

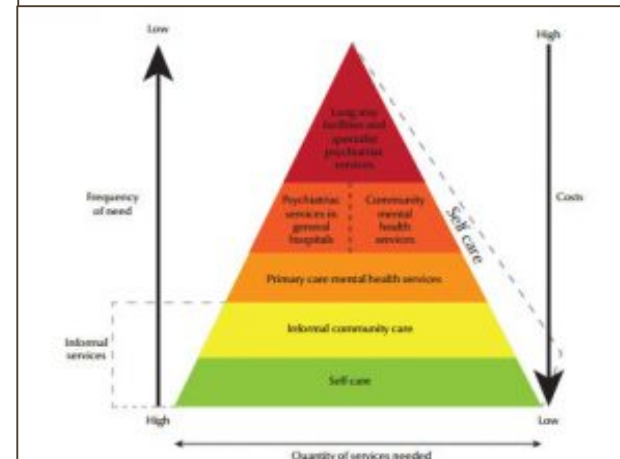
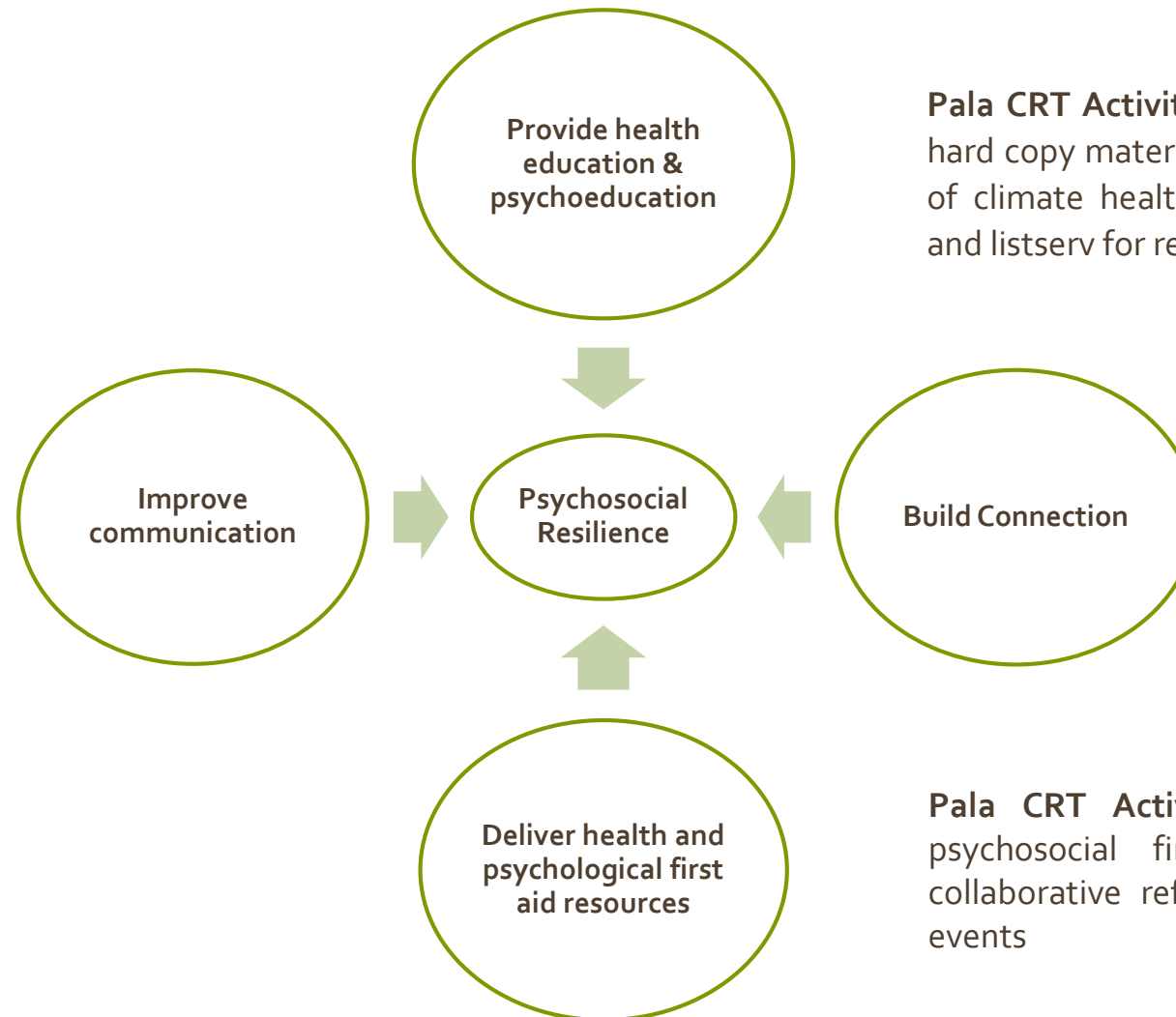


Figure 2 WHO Service Organization Pyramid for an Optimal Mix of Services for Mental Health (3)

# Psycho-social-spiritual Resilience Strategies

## Steps

1. Determine Objectives and Scope
2. Compile “long list” of adaptation strategies
3. Evaluate and Prioritize “Short List” of Adaptation Strategies
4. Organize Selected Strategies into an Action Plan
5. Synthesize and Present Results



**Pala CRT Activity:** Develop and distribute digital and hard copy materials to increase community awareness of climate health threats, including a new webpage and listserv for related notifications

**Pala CRT Activity:** Formalize adaptation committee to build community wellbeing by working together on ongoing climate initiatives, including adaptation implementation and evaluation

**Pala CRT Activity:** Evaluate existing health and psychosocial first aid services and develop a collaborative referral system to respond to climate events



# Health System Adaptation Strategies

## Steps

1. Determine Objectives and Scope
2. Compile “long list” of adaptation strategies
3. Evaluate and Prioritize “Short List” of Adaptation Strategies
4. Organize Selected Strategies into an Action Plan
5. Synthesize and Present Results

### Public health agencies

- Oregon: Conduct regular monitoring of climate and health indicators, and monitoring the progress made on resilience strategies

### Health care facilities

- [New Orleans \(LA\)](#) - Retrofit/strengthen critical facilities like hospitals and health care buildings
- Relocate emergency facilities
- Back up power systems
- Develop emergency surge procedure to ensure adequate capacity



# Prepare Pala Exercise



## Group brainstorm

1. Pick one health impact
2. Brainstorm health adaptation strategies into question section

## Medium & High Risk Human Health Impacts

- Heat-related stress, illness, and death
- Traumatic injury or death from wildfire and storms and flooding
- Mental health and psychosocial consequences associated with stress and trauma
- Inability to access emergency or health services due to infrastructure and public service disruptions or failures (e.g. power, roads, communications, water treatment)
- Respiratory illness due to higher levels of ozone, particulate matter (including smoke and dust), and indoor mold infestations
- Decrease in fitness activity levels due to heat or unsafe outdoor conditions
- Interruptions of drinking water supply
- Infections due to contact with or ingestion of contaminated water
- Infections due to tick or mosquito borne illness
- Reduced access to affordable and nutritious food due to global crop changes
- Carbon monoxide poisoning due to power outages and use of generators



# Adaptation Planning

## Steps

1. Determine Objectives and Scope
2. Compile “long list” of adaptation strategies
- 3. Evaluate and Prioritize “Short List” of Adaptation Strategies**
4. Organize Selected Strategies into an Action Plan
5. Synthesize and Present Results

## Step 3. Evaluate and prioritize “short list” of adaptation strategies

- Apply limited resources where most effective
- Rank by criteria: e.g. “Need” and “Feasibility”
  - TCHP’s Exposures, Impacts, and Strategies Inventory (EISI) tool can help (DEMO)
- Involve stakeholders to improve viability
- Double check “short list” to ensure key vulnerabilities and adaptation goals have been sufficiently addressed



# Adaptation Planning

## Steps

1. Determine Objectives and Scope
2. Compile “long list” of adaptation strategies
3. Evaluate and Prioritize “Short List” of Adaptation Strategies
- 4. Organize Selected Strategies into an Action Plan**
5. Synthesize and Present Results

## Step 4. Organize selected strategies into an Action Plan

- Outlines how your community will roll out its implementation of selected strategies
  - Responsible departments
  - Timeframe
  - Status
  - Partners/resources (including funding opportunities)
- TCHP’s Exposures, Impacts, and Strategies Inventory (EISI) tool can help
- Also outlines rules governing how the plan will be evaluated and updated

## What to Implement First?

- IPCC: basic health measures
- TCAG: Fewest barriers, highest chance of success and greatest resilience value
- Studies: Social capital and trauma coping skills

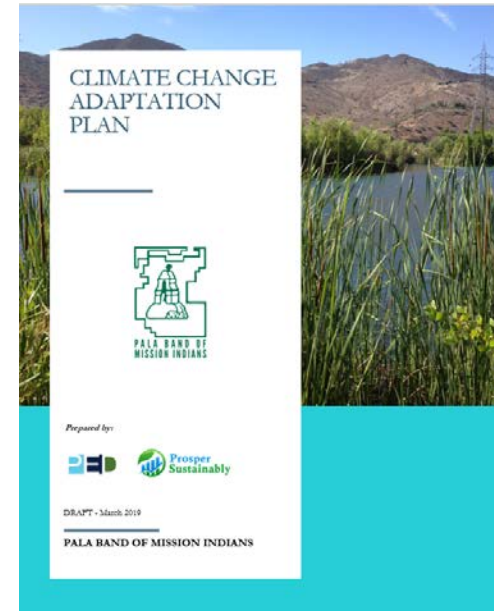
# Adaptation Planning

## Steps

1. Determine Objectives and Scope
2. Compile “long list” of adaptation strategies
3. Evaluate and Prioritize “Short List” of Adaptation Strategies
4. Organize Selected Strategies into an Action Plan
5. Synthesize and Present Results

## Step 5. Synthesize and present results in an Adaptation Plan

- Compile and organize results in a compelling way that addresses key adaptation goals
- Review draft with stakeholders
- Present to decision makers as full report, slides or video and seek direction and resources to implement plan and return with reports
- Seek direction and resources to pursue adaptation strategies and return with regular reports
- TCHP’s Adaptation Plan template can help (in progress)



Update Table...	
Contents	
Contents	2
Tribal Chairman's Message	3
Executive Summary	4
Purpose	5
Background	6
Building Upon the Vulnerability Assessment	6
Adaptation Plan Vision and Goals	6
Adaptation Plan Process	7
Method for Selecting Strategies	8
Community Engagement	9
Summary of Vulnerability Assessment Findings and Priorities	10
Adaptation Strategies	12
Policy, Planning, and Land Use (PPL)	14
Community Outreach and Education	20
Infrastructure Improvement Strategies	24
Data and Information Technology	28
Operations Management	30
Cross-Agency Collaborations	34
Implementing the Adaptation Plan	38
Monitoring, Evaluating and Updating the Adaptation Plan	46
Conclusion	47
Acknowledgements	47
Appendix A - Critical Facilities	48
Appendix B - Pala's Psychosocial Resilience Adaptation Strategies	50
Appendix C - Key Impact Indicators for Ongoing Evaluation of Adaptation Strategies	58

# Adaptation Planning

## Steps

1. Determine Objectives and Scope
2. Compile “long list” of adaptation strategies
3. Evaluate and Prioritize “Short List” of Adaptation Strategies
4. Organize Selected Strategies into an Action Plan
5. Synthesize and Present Results

## Step 5. Synthesize and present results in an Adaptation Plan

Example: Puyallup Tribe (WA)

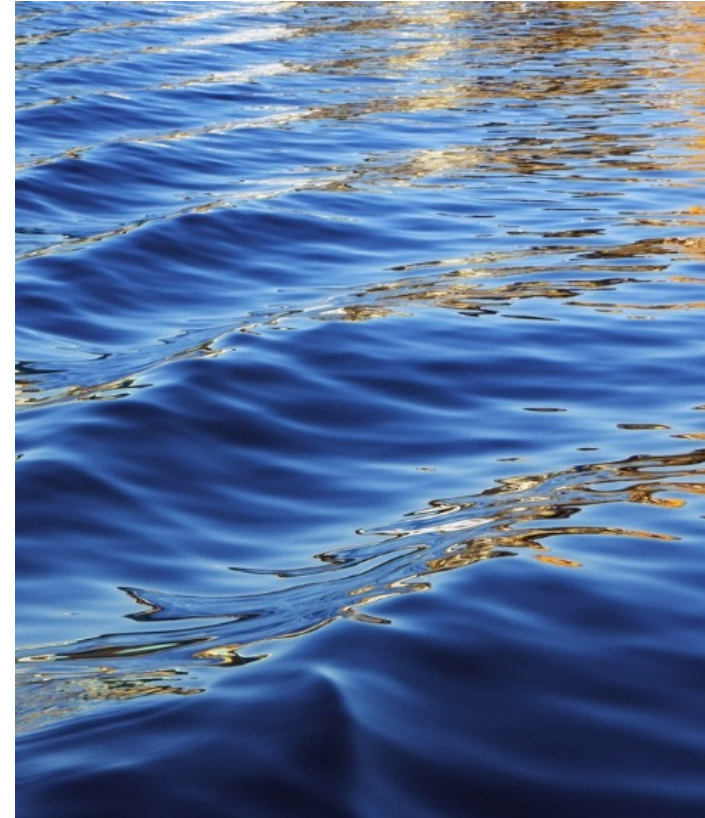






**TRIBAL CLIMATE  
HEALTH PROJECT**

**Guest Speaker:  
Jessica Cahail  
Azavea**







# TEMPERATE

your adaptation planning companion



# What is Temperate?

- A subscription-based climate change adaptation planning companion for communities
- Designed for small- to mid-sized communities with limited planning resources
- Kick-starter for anyone looking to create vulnerability assessments and adaptation plans



Explore potential risks



Create a comprehensive  
vulnerability assessment



Access strategies from other  
cities

# Communities need resources to adapt

## Temperate offers a low-cost solution, including:

- Immediate access to [location-specific temperature and precipitation indicators](#)
- High-quality data (LOCA- same dataset used by Cal-Adapt)
- Suggestions for potential top hazards that might warrant immediate attention
- [Step-by-step instructions](#) for completing vulnerability assessments and adaptation plans
- Access to a database of action strategies from other communities nationwide

# Location specific information

## Create adaptation plan

- 1 Geographic area
- 2 Expected finish date
- 3 Top hazards
- 4 Community systems at risk

### Geographic area

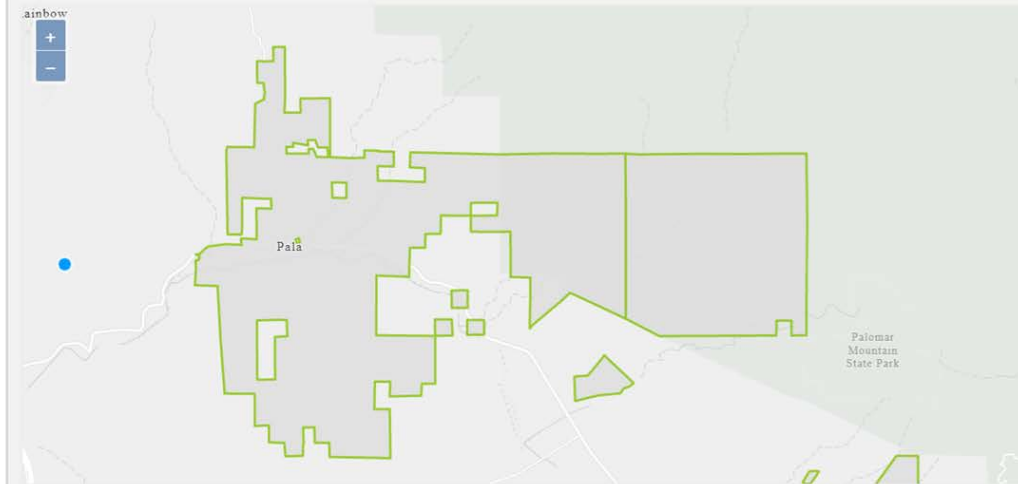
Create a plan for your organization's community or draw an area of interest. All of the climate change data in Temperate will be specific to the area you select.

🔍 Enter City

📐 Draw Area

Draw your plan's boundaries

Please create a region that is under 10,000 sq mi.



☒ Show tribal areas ☐ Show counties

# Contextualizing climate data in decision-making

2021 ADAPTIVE PLAN

## Dashboard

Overview Vulnerability assessment

☐ Air-borne disease • 1 risks

Vulnerability assessment Assess Action steps

☐ Extreme cold days • 2 risks

Vulnerability assessment Assess Action steps

☐ Groundwater flooding • 3 risks

Vulnerability assessment Assess Action steps

☐ Heat waves • 3 risks

Vulnerability assessment Assess Action steps Take action

☐ Rain storms • 3 risks


Vulnerability assessment Assess Action steps Take action

## Top hazards


Select hazards that you need to include in your assessment. You can always add more later.

Hazards below were pre-selected for your area.


Calculations use the average of the projections for the years 2025–2035. See the [Methodology](#) page for more information.




**Rain storms**  
0.37 more intense storms each year



**Heat waves**  
2.4 more heat waves each year



**Groundwater flooding**  
0.37 more intense storms each year



**Extreme cold days**  
-1.7 fewer extreme cold events each year

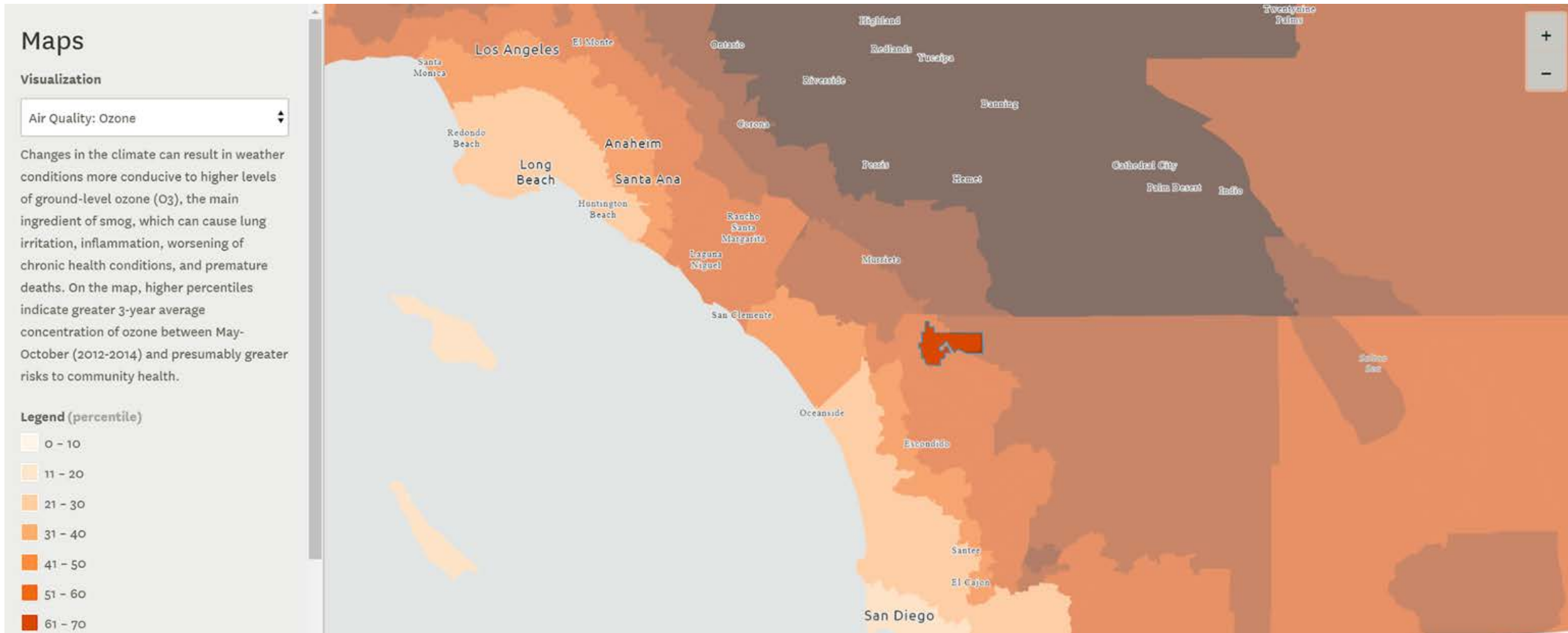
0/5 0%

Required Overall

Manage



# Recent addition of maps



## Recent addition of data sources

- Center for Disease Control and Prevention's [National Environmental Public Health Tracking](#)
- California Office of Environmental Health Hazard Assessment's [CalEnviroScreen](#)
- United States Environmental Protection Agency's [Climate Change and Risk Analysis \(2.0\)](#)
- United States Forest Service's [Wildfire Hazard Potential](#)

Take action to mitigate the potential impact of coastal flooding on each of the community systems below.

## Take action



RECOMMENDED

### Begin with suggested actions

We've gathered actions that some cities have undertaken over the years and will recommend some for you to start with.

Get started

[No thanks. I'll start from scratch.](#)

# Growing a database of strategies

- This has the potential to accelerate learning
- Ideally the user community will be adding strategies on an ongoing basis
- Ultimately this database should be open and available (if the funding were there to provide for that)


### Suggested actions

When faced with similar challenges, municipalities in your region have chosen to undertake the following actions.

Local governments should provide energy and conservation financing and incentives; establish cooling centers; and undertake public education and communication, including disease prevention education and early notification

[Show more](#)

Choose and customize

City: Fresno County, CA  
Date planned: March 1, 2011  
Categories: 

Source: Integrated Strategies for a Vibrant and Sustainable Fresno County

Qualitative ranking of potential new health stressors attributable to climate change

[Show more](#)

Choose and customize

City: Boulder County, CO  
Date planned: May 3, 2012

Source: Boulder County Climate Change Preparedness Plan



Demo

2019 ADAPTIVE PLAN

## Dashboard

Overview

Vulnerability assessment

Action steps

+ Add a hazard

■ Air-borne disease • 3 risks



Vulnerability assessment 100%

Assess

Action steps 100%

Take action

■ Changed seasonal patterns • 3 risks



Vulnerability assessment 66%

Assess

Action steps 66%

Take action

■ Coastal flooding • 3 risks



Vulnerability assessment 100%

Assess

Action steps 66%

Take action

■ Cold wave • 1 risks



Vulnerability assessment 100%

Assess

Action steps 100%

Take action



ORGANIZATION  
Azavea Inc

### City profile

Enter information about your location, including any long-term goals you hope to achieve.



Required

43%

Overall

Manage



## Gaps / Opportunities

- Additional data needed
- Implementation information, including:
  - Progress measures
  - Budget vs. actual cost
  - Strategy efficacy and unintended impacts
  - General retrospective on the implementation process
- Many communities don't have action plans yet, and those that do are large and (some are) without many peers in terms of budget size
- Many communities are reticent to share failures, especially when the project used public funds

**Questions / comments?**




An aerial photograph of a dense, lush green forest. The canopy is thick and textured, with varying shades of green. The text is centered in the lower half of the image.

# Thank you!

**Jessica Cahail**  
[jcahail@azavea.com](mailto:jcahail@azavea.com)



A scenic landscape featuring a range of mountains in the background under a bright blue sky filled with fluffy white clouds. The foreground shows some greenery and a hillside on the right.

**Individual Reflection:** Please take a few minutes to complete Section 4 of “Your Work, Your Community” Form

# Wrapping Up

Thank you for being part of our training community!

**Suggested reading** (complete before next webinar)

[Chemshúun Pe'ícháachugeli \(When our Hearts are Happy\): A Tribal Psychosocial Climate Resilience Framework \(Pala\)](#)

Next webinar:

**August 18, 2020 (10 AM PDT / 1 PM EDT)**

## Implementation/Evaluation, Closing (Module 5)

Questions?



# Adaptation Planning – Key Resources

## Guidance

- Oregon Climate Change Research Institute - [Tribal Climate Adaptation Guidebook](#) (Step 4 and 5)
- [US Climate Resiliency Toolkit](#) – Investigate Options
- [US Climate Resiliency Toolkit - Tribal National Disaster Risk Reduction](#)
- [BIA - U.S. Indigenous Peoples Resilience Actions](#)
- [IPCC – Chapter 11: Human Health: Impacts, Adaptation, and Co-benefits](#)
- State of [California - Adaptation Planning Guide](#)
- International Tribal Environmental Professionals - [Adaptation Planning Toolkit](#)
- EPA ARC-X - [Regional Guides for Adapting to Climate Change](#)
- EPA – [Community-Based Adaptation To A Changing Climate](#)
- University of Tulsa College of Law – [Climate Change and Tribal Water Rights: Removing Barriers to Adaptation Strategies](#)
- Journal of Nurse Practitioners – [Indigenous Native American Healing Traditions](#)
- The Resource Innovation Group - [Transformational Resilience](#)
- RAND- [Building Resilient Communities: An Online Training \(User's Guide and Audio Transcript\)](#)
- RAND- [Building Community Resilience to Disasters: A Way Forward to Enhance National Health Security](#)
- FEMA: Discussion Guide: [Social Capital in Disaster Mitigation and Recovery](#)

- WHO [XXX](#)

## Tools and Templates

- TCHP - [Exposures, Impacts, Strategies Inventory \(EISI\) tool – Beta Version](#)
- TCHP - Pala Adaptation Plan Template (pending)
- TCHP – [Resources Clearinghouse](#)
- International Tribal Environmental Professionals – [Resolution Template](#)

## Examples

### Tribal Adaptation Plans

- [Climate Change in Kiana, Alaska: Strategies for Community Health](#)
- Confederated Salish and Kootenai Tribes: [Climate Change: Strategic Plan](#)
- Navajo Nation: [Considerations for Climate Change and Variability Adaptation on the Navajo Nation](#)
- Nez Perce Tribe: [Clearwater River Subbasin Climate Change Adaptation Plan](#)
- Oglala Lakota Nation: [Oyate Omniciyé | Oglala Lakota Plan](#)
- Puyallup Tribe of Indians: [Climate Change Impact Assessment and Adaptation Options](#)
  - [Puyallup Tribe's video](#)
- Red Lake Band of Chippewa Indians: [A Climate Adaptation Plan for the Red Lake Band of Chippewa Indian](#)

- Shinnecock Indian Nation: *Climate Change Adaptation Plan*
- St. Regis Mohawk Tribe: [Climate Change Adaptation Plan for Akwesasne](#)
- Swinomish Tribe: [Swinomish Climate Change Initiative Climate Adaptation Action Plan](#)
- Village of Newtok: *Relocation Report: Newtok to Mertarvik*
- Yakama Nation: [Climate Adaptation Plan for the Territories of the Yakama Nation](#)
- Yurok Tribe: [Yurok Tribe and Climate Change: An Initial Prioritization Plan](#)
- [Pacific Northwest Tribal Climate Change Project's Climate Change Adaptation Strategies by Sector](#)
- [Climate Change Preparedness Plan for the North Olympic Peninsula](#)
- [Blackfeet Climate Change Adaptation Plan](#)
- [Shoshone-Bannock Tribes Climate Change Vulnerability Assessment and Adaptation Plan](#)