



## Southern California Listening Sessions: Summary Indicators of Climate Change in California March 9 and 10 & April 13 and 14, 2021

### Participating Tribes:

A list of all participants is included in Appendix A.

1. Barona Band of Mission Indians
2. Cabazon Band of Mission Indians
3. Campo Kumeyaay Nation
4. Coastal Band of the Chumash Nation
5. Fernandeño Tataviam Band of Mission Indians
6. Lipay Nation of Santa Ysabel
7. Jamul Indian Village
8. Los Coyotes Band of Cahuilla and Cupeño Indians of the Los Coyotes Reservation
9. Manzanita Band of the Kumeyaay Nation
10. Pala Band of Mission Indians
11. Ramona Band of Cahuilla
12. Rincon Band of Luiseño Indians
13. San Manuel Band of Mission Indians
14. Santa Ynez Band of Chumash Indians
15. Tejon Indian Tribe
16. Twenty-Nine Palms Band of Mission Indians

### Background

The Pala Band of Mission Indians, the Santa Ynez Band of Chumash Indians, and the CalEPA Office of Environmental Health Hazard Assessment (OEHHA) jointly convened a listening session with Southern California Tribes. The listening sessions had the following objectives:

1. Listen to perspectives from tribal communities in Southern California on climate change impacts they are experiencing and identify common themes.
2. Collect tribal input to help the OEHHA *Indicators of Climate Change in California* report raise awareness about tribal-specific climate change impacts and increase recognition of the value of tribal knowledge in reporting climate change impacts.

The listening sessions were held virtually (via zoom and conference line). Prior to the listening session, participants were invited to complete a survey to help OEHHA understand the issues the Southern California Tribes were facing. No responses were received prior to the workshop. The survey was available for 4 weeks after each listening session. General themes from the questionnaire are provided in Appendix B.

OEHHA respects the right of tribal nations to govern the collection, ownership, and application of their data. Participating tribes have reviewed and approved the information shared in this summary. Where permission was not granted, no information is shared.

### [Welcome, Introductions, and Indicators of Climate Change Report Presentation](#)

Shasta Gaughen from the Pala Band of Mission Indians and Teresa Romero from the Santa Ynez Band of Chumash Indians welcomed participants to the listening session. Vincent Cogliano, OEHHA Deputy Director, welcomed the Tribes who attended the March session and Lauren Zeise, Director of OEHHA welcomed the Tribes during the April session; and thanked the Santa Ynez and Pala Tribes for organizing the listening sessions. Malinda Dumisani, Special Assistant for Environmental Justice and Tribal Affairs and EJ Small Grants Program Manager for CalEPA, thanked the Tribes for participating in the listening sessions and expressed that she was looking forward to hearing from tribes. Carmen Milanés (OEHHA) expressed her gratitude for the Tribal Nations being willing to share information in order to improve our knowledge of the impacts of climate change. Bennett Lock and Laurie Monserrat (OEHHA) gave a brief overview of the Climate Change Indicators report and OEHHA's work to include tribal perspectives in the report.

### [Introductory Comments from Each Tribe: Background and Impacts](#)

All participating tribes were invited to share introductory comments, which served as the starting point for further discussions. The introductory comments included background information and descriptions of some important climate change impacts. These introductions are summarized below.

#### [Teresa Romero, Environmental Director, Santa Ynez Band of Chumash Indians](#)

From time immemorial the Chumash occupied a large territory expanding through five counties that are now known as Santa Barbara, Ventura, Kern, San Luis Obispo, and Los Angeles. In 1901 they were forced onto what is now the only Chumash reservation. The original reservation includes 144-acres with the Zanja de Cota Creek running through the middle of it. Historically, Chumash tribes would travel from inland to this coastal area where the Santa Ynez reservation currently exists, surrounded by the San Rafael Mountains part of Los Padres National Forest and the Santa Ynez Range. The reservation abuts the Los Padres National forest.

Currently the Santa Ynez Band of Chumash Indians occupy reservation consisting of 144 acres. An additional area of 1,400 acres (Camp 4) was put into trust last year. These trust lands are mostly undeveloped apart from vineyards.

The Santa Ynez Chumash have noticed impacts from climate change.

- Tribal water sources have been impacted. The Zanja de Cota Creek (a tributary of the Santa Ynez River) runs through the reservation and at one time was used as a source of drinking water. The creek no longer runs year-round and it is now contaminated with pesticides. The Tribe is working to determine exactly when the water became undrinkable.

- Their watershed was home to a steelhead salmon competition, but today there isn't enough water for the steelhead to run. Teresa's family used to fish steelhead in the river and Zanja de Cota Creek, but she has observed that the steelhead haven't been present for quite some time.
- Other observed impacts to fresh water include:
  - Creeks that run through the reservation are now dry for most of the year.
  - Groundwater levels are decreasing and have gone down 12 feet in the last 5 years.
  - Water quality decreasing
  - Lack of a rainy season
- Flooding
  - Torrential rain and then no rain for three months. Historically, the area had a rainy season and could expect rain through April. Now the rains tend to end in February.
  - Post-fire flooding/debris flows (both the Thomas and Tubbs Fires impacted Tribe)

The Santa Ynez Tribe has observed impacts from sea level rise, changing ocean temperatures and ocean acidification. Among the impacts on the Tribe's coastal resources are:

- Reduction of abalone; Chumash used to travel to the coast to fish for abalone, but today the reduction of abalone populations prevents that tradition from continuing in the same places.
- Fewer Pismo clams
- Less seaweed and sea grass (used for food and clothing)
- Decrease in Olivella shells (used for regalia and shell money)
- Coastal erosion, cliffs falling into ocean
- In order to obtain traditional foods and plants the Tribe must now utilize traditional lands outside the reservation for gathering.
- Warming air temperatures: The Tribe has seen local increase in air temperatures during the summer months. They have also observed that evenings are remaining warmer than they typically used to. For example, they have recently experienced nighttime temperatures in the 70s (°F) when temperatures typically drop closer to 60°F, indicating a 10°F increase in nighttime air temperatures.
  - Increased heatwaves and a reduction of air quality have impacted the health of the tribe and raised health concerns among the Santa Ynez Chumash. While other tribes and communities have designated cooling areas for tribal and community members to escape high heat days and nights, there is no space on the Santa Ynez reservation to build one and the casino would be the only option. This raises concerns for the health of tribal members, particularly in regards to elder health.
  - Cooling stations are now needed during periods of extreme heat. Wildfires reduce air quality as smoke gets trapped in the valley. The Tribe has seen an increase in asthma rates in children.
- Wildfire and air quality
  - Impacts both the lands and cultural resources, including plants and medicine used for food.
  - The Tribe is greatly concerned about the increasing magnitude of wildfires and their impacts. Smoke from surrounding wildfires gets trapped in the valley and lingers, reducing both outdoor and indoor air quality. Wildfire smoke leads to adverse health outcomes for tribal members.
- Impacts to plants include:
  - Plant migration further into the forest and to higher elevations (no longer accessible to Tribe)

- Plant species disappearing entirely
- Tribal members now must travel to Ventura County for basketry materials that used to grow on their lands.

Cultural resources of the Santa Ynez people are being impacted by coastal erosion, fire, drought, and sea level rise. The community is concerned. In a recent survey, 90% of the Tribal members surveyed believe that they will no longer have access to some cultural resources as a result of climate change. In order to obtain traditional foods and plants the Tribe must now utilize traditional lands outside the reservation for gathering. They have to travel further for basketry materials, plants, seeds for propagation purposes, and medicines.

The Tribe knows that addressing impacts will require collaboration and assistance, given that the reservation area is so small. Collaboration from state and federal partners for mitigation and resource protection measures are needed.

### Shasta Gaughen, Environmental Director and Tribal Historic Preservation Officer (THPO), Pala Band of Mission Indians

Shasta is not a Tribal citizen but has worked for Pala for 16 years. She currently works as Tribal Historic Preservation Officer (THPO) and the Director of the Pala Environmental Department.

The impacts the Tribe has seen are shared with neighbors, but are also very specific to Pala.

The Pala Band of Mission Indians' ~13,000 acre reservation located in northern San Diego County, on the ancestral homeland of the Luiseño, is home to a majority of the Tribe's 918 enrolled members. The San Luis Rey River divides the reservation. To the south is "Old Pala," where many farming allotments are. Most of the members live on the north side of the river in "new Pala". Majority of these residents are Cupeño descendants of the Cupa, who were forcibly removed from Warner Springs following a 1903 Supreme Court decision ruling that the land was rightfully owned by the descendants of John Downey.

The nature of colonial enterprise and capitalism is tied up in climate change. The social and political complexity of indigenous people in California go beyond anthropologists' definition of hunting/gathering. With the tremendous abundance of natural resources (fish, acorns, mesquite), the land produced all the food that tribes needed; there was no incentive to develop agriculture. (Why plant crops when two tons of food fall when you shake an oak tree?) Instead, they became stewards of the land, encouraging it to produce and developing complex socio-political relationships across tribal networks. These networks were disrupted by the arrival of the Spanish colonizers. In addition, they brought cattle carrying foreign seeds in their hooves that introduced grasses that out-competed native vegetation, clogging up wetlands which served as habitat for plants and wildlife.

Water is a very important part of the community (Pala means water), and it is critical to have water in an arid climate. The San Luis Rey River has always been an enormous resource to the Tribe and it is not typical that tribal lands have access to water. The Tribe used the river for drinking water, fishing, cultural uses and washing.

Sadly, use of the river is no longer possible. In 1922 the San Luis Rey was dammed to create Lake Henshaw. While the river reemerges around La Jolla and meets the ocean at Oceanside, that water is mainly agricultural runoff.

Even after the creation of the dam, the San Luis Rey used to have a reliable and year-round flow. Tribal members in their 50s and 60s remember swimming, washing clothes and fishing in the river. There is still a crossing called the Swinging Bridge that was created to cross the river during high water. Older Tribal members remember jumping from the bridge into the deep pools below and swimming.

The river no longer flows for more than a day or so after a heavy rain. In spite of this, the river remains culturally important to Pala. The San Luis Rey River that runs underneath the reservation is considered an “underground river,” an important designation for water rights.

The Pala community now relies on groundwater and they have observed that the groundwater is not recharging due to the changing climate. Instead of consistent rains, the Tribe is seeing more flooding events. Rain from these floods runs off rather than being absorbed. There is no recharge for the water that gives the community life. As temperatures rise (up to 100-115 degrees in summer,) the casino serves as a cooling center as most homes do not have air conditioning.

At Pala people are seeing decreases in vegetation which is impacting the tribe. Oaks, which are normally evergreen, are dying. As a result, it is difficult to harvest acorns to make “wiwish” (acorn mush). While no longer a food staple, “wiwish” is still an important cultural food and is typically shared at weddings, baby showers and other important times.

At Pala drought, flash flood type rainstorms, and wildfires have been the MOST impactful aspects of climate change.

#### [Art Bunce, Tribal Attorney, Barona Band of Mission Indians](#)

The Barona Band of Mission Indians is part of a traditional pre-contact tribe called (by colonizers) “The Capitan Grande Band.” This Tribe consisted of two villages on opposite sides of the free-flowing San Diego River. The people chose the area because there was a river: a year-round source of water for the Tribe. The Captain Grande Federal Indian Reservation held 22,000 acres of land on both sides of river. However, in 1919, the City of San Diego decided that best place for a dam to provide flood control for those downstream would be right at entrance of the reservation. The City had the congress condemn the bottom lands that were part of the reservation (now El Capitan Reservoir). This way they were able to force the Tribes to move to an area further east, without any surface water. This further spilt the Tribes. The Tribe to the west of the El Capitan reservoir is now the Viejas Band of Kumeyaay Indians and the Tribe to the east of the reservoir is the Barona Band of Mission Indians. Both are still without a free-flowing river and are forced to rely on ground water which is scarce in the area (due to a fractured granite system).

Most of the climate change problems the Tribe is seeing are a result of the lack of water. While last year the Tribe experienced an average rainfall year, the year before they had 2.5” total and this year is expected to be bad as well.

The US government caused a forced reliance on groundwater by moving the Tribes and that has exacerbated climate change problems.

One of the cultural impacts the Tribe has seen is that oak trees that typically live along the drainages on the reservation are dying. The trees are shriveling and are more susceptible to pests such as the Oak Borer.

### Jonathon Lopez, Air Pollution Specialist, Cabazon Band of Mission Indians

The Cabazon Band of Mission Indian reservation, located in Coachella, resides on 2100 acres of land in two locations: one in Mecca and one in Indio.

The greatest climate change impacts facing the Tribe are due to wildfires. The Tribe has not picked up pesticide readings or anything unusual from monitors monitoring wells along the reservation and a creek near a treatment plant. Heat is also a concern; since they are in a desert area, high temperatures are common and air conditioning is part of their life. As it has become hotter every year, everyone turns on their air conditioning, causing a risk of power outages. This is a concern for older tribal members. The past winter ended earlier the unusual and did not feel as cold.

They monitor ozone, and the neighboring Twenty-Nine Palms monitors PM 2.5 and PM10; together these data give them a good handle on air quality in the valley.

### Mia Lopez, Vice Chair, Coastal Band of the Chumash Nation

The Coastal Band of the Chumash Nation are a non-federally recognized Tribe whose traditional lands stretch from San Luis Obispo, down to Malibu and east to the Bakersfield area. They have observed climate change impacts to the ocean such as:

- Warming ocean waters and ocean acidification
- Seagrasses are not doing well
- Traditional money-making shells (Olivella) are less abundant
- Abalone, a **cultural keystone species**, are not doing well due to temperature and acidification – not making it past their youth, unable to build their shells
- Fish within the Marine Protection Area (MPA) are not as abundant, or are further from shore where the water is cooler
- Sea anemone are overtaken/eaten by other aggressive sea anemone who eat everything and nibble off the feet of abalone

The Coastal Chumash conduct river monitoring in collaboration with the Wishtoyo Foundation and they have observed a loss of steelhead in the rivers.

They noted once a species is gone, it impacts a whole chain of animals. Everything is connected. The steelhead cannot be reintroduced unless the rivers are flowing since they are born in the rivers, migrate to the oceans and return.

The Chumash have seen a diminishing water table and less runoff due to decreased rainfall.

Climate change has also made lands more barren. This makes them more available to development or agriculture, further degrading the land and cutting off the paths of waterways to the ocean.

There has been an increase in the number and the size of wildfires. Traditional burning could help manage wildfires.

The Coastal Chumash caution that restoration needs to be done mindfully. As the climate changes replanting the same native plants may no longer work. Planting has to be done with species that will survive 50 years from now with a changing climate.

After the meeting Mia Lopez shared a map, presented with permission in Appendix C, that illustrates the flexible borders respected by the Chumash.

### Jairo Avila, Tribal Historic and Cultural Preservation Officer, Fernandefio Tataviam Band of Mission Indians

The Fernandefio Tataviam Band of Mission Indians (FTBMI) is engaged in initiatives with numerous lead agencies and conservation groups operating within the Tribe's traditional and cultural territory to address climate change.

Places traditionally used for gathering culturally significant plants and harvesting acorns have been impacted directly and indirectly by climate change. In recent years these once reliable gathering locales have been producing fewer and more irregular resources due to man made changes to the environment. This has limited the opportunity for the Tribe to fulfill its traditional harvesting practices, most of which are typically held during the months of September and October, depending on the availability of the resource. In some occasions, the availability of resources has been far too limited to collect any materials without further impacting these already scarce locations.

Triggered by access difficulties and environmental impacts for several decades, tribal citizens have sought out alternative gathering locations outside the Tribe's jurisdiction. Unfortunately, as these gathering locations get farther away from the epicenter of Tataveaveat, the Tribal headquarters in San Fernando, so accessibility for tribal citizens and interested youth becomes increasingly difficult. Tribal culture is negatively impacted when young people interested in engaging or reengaging with traditional practices are unable to have these important experiences due to the impacts of climate change and local, state, and federal policies

Increased wildfires in Southern California, as a result of climate change and a disruption of the relationship between the local Tribes and nature by settling communities, have led to the burning of land with abundant trees, brush, and other local vegetation that developers previously found undesirable. With the destruction of trees and the clearing away of understory brush by fires, developers are more likely to develop in these previously untouched locations and are less likely to consider the impacts to Tribal Cultural Resources such as the plants that once grew there and were used by Native American people, cultural/archaeological sites, features, Native religious spaces. Development often results in the destruction of habitat, breaking the balance of the ecosystem and preventing the indigenous plants to regrow naturally as well as disrupts Traditional Ecological Knowledges passed from one generation to another. This not only takes a toll on the local ecosystem but occasionally destroys locations where traditional plant harvesting was known to occur.

At the heart of Fernandefio Tataviam harvesting hardships is loss of land and the traditional management of those lands. Tribal people traditionally practice a land-based belief system, in which natural features and places on the landscape are fundamental. Unfortunately, many sacred and culturally significant places are continuously destroyed by development and climate change. For those sites that still exist, holding ceremonies is often difficult because of competing interests for land use, permitting requirements, and the private status of many lands. Though the Tribe established the Tataviam Land Conservancy in 2018 to acquire and protect sacred and cultural sites throughout Los Angeles County so that these important locations will be accessible for Tribal people and Traditional Ecological Knowledge can be sustained.

### Melody Sees, Environmental Director, Lipay Nation of Santa Ysabel

Melody expressed that the Lipay Nation have many of the same concerns as other Tribes.

The Tribe has noticed impacts to their water such as:

- Less snow and as a result the aquifer they access is not getting recharged
- Lost drinking water wells in last five years
- Rain patterns have changed and instead of normal rain the Tribe is experiencing occasional heavy rainfalls and increased flooding.

Increased heat is impacting the Lipay Nation and temperatures are continuously rising. The rising temperatures are also impacting the plants on Tribal lands. They have observed that plants (including acorns) are maturing at different times. As a result, to gather important resources, the Tribe must check plants frequently rather than gather at traditional times.

They have seen tree loss (oaks and conifers) due to insect infestations, such as the Gold Spotted Oak Borer (GSOB). Trees are vulnerable due to the lack of water and would survive otherwise.

Wildfires have increased in number and size.

The Tribe would like to protect the reservation lands and people. Climatic changes have had a negative psychological impact on the Tribe.

### Trisha Frank, Environmental and Natural Resources Coordinator, Manzanita Band of the Kumeyaay Nation

- Changing wind patterns: kick up even more, leading to power outages, wind-blown dust, more asthma
- Trees give off water (evapotranspiration). With increasing heat, evapotranspiration increases, further stressing the trees
- Shared a link to their recently completed Tribal Resilience Report. Available at: <https://www.climate-science-alliance.org/manzanita-resilience-project>

### Michelle Gutierrez, Water Quality Specialist, Ramona Band of Cahuilla

The Ramona Band of Cahuilla are seeing the following impacts of climate change:

- Changes in climate (such as air temperature, precipitation, extreme heat, drought).
- Erosion
- Flooding (The Tribe is working on stabilization projects)
- Impacts on hydrology/water bodies (snowpack, streams, rivers, oceans)
- Impacts on vegetation (including forests, woodlands and grasslands, and agriculture and other managed systems)
- Impacts on wildlife
- Impacts on cultural resources or practices
- Impacts on human well-being and health
- Wildfires
- Windstorms
- “Wonky” weather and extreme temperature swings (snow then 80 degrees the next day)



- Water degradation
- Impaired wetlands areas

### Stephanie Rambo, Environmental Director, Tejon Indian Tribe

The Tejon Tribe includes several Tribes under the Tejon umbrella in the area currently known as Kern County. The Tribe is in the process of reclaiming lands. In September 2020, a 10-acre site was put into trust and the Tribe is working on another 306-acre trust site.

Tejon means badger. Historically there were many badgers in the area, and it was referred to as “badger lands,” yet Stephanie has not seen a badger since she moved to the area in 2010.

The Tejon Tribe has many of the same concerns as other tribes in Southern California. Some of the impacts they have noticed are:

#### Water

- Diminished snowpack
- Less water from the State Water Project
- Depleted groundwater levels due to agricultural use
- Negative impacts to both ground water and drinking water

#### Drought

- Depleted groundwater impacts everything – native species, drinking water, etc.
- Drought and lack of water impact native plant species (Tejon Tribe keeping them alive by hand watering)

#### Higher temperatures

- Impact how plants grow (growing seasons changing every year)
- Almond crops blooming earlier
- Infrastructure impacts
- Increased temperatures
- More summer heat waves
- Very high temp in Kern County (miserable)

#### Wildfire

- Not even within a season anymore, happening throughout the year
- Impacts on drinking water availability
- While the fires do not occur within Kern County, they are impacted by smoke, which settles in valley, particularly if there is no wind
- Air quality a HUGE concern as more wildfires are happening each season

### Kelsey Bosch, Cultural Resource Specialist, Twenty-Nine Palms Band of Mission Indians

The 29 Palms Band of Mission Indians has observed impacts to cultural resources as a result of climate change. The Tribe inhabited the desert area of the Oasis of Mara, an area abundant in native food, in the vicinity of today’s Joshua Tree National Park. There is still a Chemehuevi burial ground near the oasis. The tribe has limited access to some areas within the park due to nearby infrastructure. Joshua Tree

National Park and the Tribe have a great partnership and collaborate frequently, with open access to any area within park boundaries. Remote sites are more difficult to walk to. The oasis is still considered a sacred place by many area Tribes.

The Tribe is currently working on a climate change survey that lists:

- Desert region climate change impacts with both tangible and intangible effects
- Impacts to cultural resources, natural landscape, museum collection
- Increased wind, drought, pollution, development,
- Decrease in species
- Increased heat

This survey will be released to Tribal members first.

The 29 Palms Band of Mission Indians is hoping to take the results of a tribal survey and put them into GIS map heat plots.

From Kelsey's own experience working and traveling in the Mojave area she has seen:

- A reduction of wildflower blooms, for example this will be low growth year due to lack of rain.

Oasis of Mara suffering from water loss [Until the 1990s, surface water "bubbled up" in the section where the National Park is.]:

- Palm trees, which need to have their "feet" in water when young, are no longer growing on their own. Palm trees have important cultural uses and ecological functions.
- Mesquite trees require deep water sources (10 to 14 feet); they provide food, firewood and building materials, and serve as habitat for important resident and migratory birds, including pelican flocks.
- Increased impacts from tourism (this is not a concern at the Oasis since there is a concrete trail path around the Oasis)
- Cascading impacts due to climate change. Vegetation dying because of reduced water and increased heat. This reduces habitat for small mammals and reptiles. Without prey species larger mammals and birds such as shrikes, and raptors migrate or die. Other birds, such as pelicans, migrate or die due to reduced habitat and forage as a result of a lack of surface water.
- Storm events are becoming more severe due to climate change which is causing destructive flooding. When the vegetation is not able to grow due to lack of water, the ground becomes destabilized and washes away. Vegetation restoration is the solution to this issue, but water will need to be supplied mechanically until roots grow, which can take about 2 yrs. for desert plants.
- Photos over time – show a crazy amount of change. Anyone who cares about a specific area should visit during different seasons and stand in the exact spot every time to take a photo and capture the changes visually. Compare these photos to historical photos as well. If you can figure out which spot the historical photographer stood in, it's a dramatic comparison.

After the session Ms. Bosch shared a publication by Moret *et al.* (2016). Groundwater Level Declines at the Oasis of Mara, Joshua Tree National Park.

## Summary of Open Discussion and Dialogue on Climate Change Impacts

Following the introductory comments from the participating tribes, the participants discussed some of the themes that emerged and shared additional climate change impacts they have been experiencing. The impacts discussed are summarized below, organized into themes. In addition to impacts specifically tied to climate change, the participants described how climate change compounds the many other anthropogenic changes to ecology that challenge their traditional ways of life.

Participants shared:

“All of our data, all of our knowledge, all of our science is incorporated in story, the lives, the connection and the relationship. This is part of why knowledge isn’t held on to by people is because it is turned into data and information. Data and information doesn't move your heart.”

“When you protect the land that includes the people. You can't heal the land, without healing the people. You can't heal the people without healing the land because we are all connected.”

“You have to figure out how to make that connection to land and place meaningful to each individual; Ask them how do they feel it in their heart”, and explain that “this is how we feel about our land. You have to learn to love where you are. Sit with it, you know just like a child. You sit with a child to get to know that child and learn to love that child, we don't just automatically love something.”

### Changes in Climate

- Precipitation: sporadic – periods of heavy rain then long periods of drought
  - Atmospheric rivers becoming common
- More rain, less snow
  - Snow is now a rarity
- Drought
  - Cultural artifacts exposed
  - Creeks and wetlands are drying up
- Hotter and drier each year – climate changing rapidly
  - Highs around 120 degrees, already hit 100 this year (in April), usually does not get hot until May
- Extreme weather: flooding
- Changing wind patterns, wind storms – leading to more airborne dust; several employees of one tribe had Valley Fever
- Climate change is a threat multiplier

### Physical Systems

- Sea level rise
- Ocean acidification
- Streams and rivers dry or drying earlier
- Springs are dying (drying up)
- Groundwater not recharging
- Lowering groundwater table – less recharge and more runoff because of extreme fluctuations between very dry and very wet
- Lack of drinking water

- Flooding
- Decreasing water quality
  - Groundwater pollutants

## Vegetation

- Changes in forests (oaks, sycamore, mesquite)
- Changes in riparian systems (willow, cottonwood, palm)
- Change in timing of plant maturation, harvest season (almond, oak, mesquite)
- Decreases in Native food crop yields
- Wildfires: more intense and frequent
- Dying trees (oak, sycamore, cottonwood, palm)
  - Beetle infestation, reduction in groundwater, wildfire, drought
- Decrease in tree cover causes more drying and destruction of ground cover.
- Increase in invasives (*Arundo donax*, Tree of Heaven (*Ailanthus altissima*), Tamarisk)
- Increase in parasites such as mistletoe and dodder
- Reduction in ocean grasses and seaweed

## Wildlife

- Fewer abalone, Pismo clams
- Increase in invasive species (anemone)
- Fewer chuckwalla, badger, Monarchs, salamanders, weasels, ring tails, shrike, lizards, crayfish
- Extirpation of steelhead
- Decline in native species – due to changes in weather patterns, water, over-use of areas such as Oasis of Mara
- Invasive species: feral pigs, anemones

## Human Health and Wellbeing

- Air pollution
  - elevated levels of particulate matter during wildfires/fall wind events
  - Tribal members have gotten very sick from exposure to smoke from Thomas Fire
  - more dust from changing wind patterns
- Tribal communities need to prepare for emergency response to extreme events, including flood, debris flows
  - Some tribes only have one road in and out of the reservation
- Cultural Practices impacted:
  - Loss of gathering areas and ceremonial locations (due to increased heat)
  - Exposure and disturbance of cultural items
  - Loss of traditional medicines
  - Loss and reduction of traditional tribal materials (Olivella shells, important plants)
  - Loss of traditional foods, hunting, fishing, gathering
  - Trading relationships (mesquite beans for acorns, shell money, abalone shell)
- Cultural and emotional impact. Grief for the things that younger generations will never be able to experience due to changing climate and landscapes.
- Impacts to cultural stories. Once the species the story told about is gone, the story dies too.

- Impacts to cultural traditions such as dances and regalia making
- Tribes are looking into ways to produce their own electricity, especially to supply power during peak hours

### Challenges in managing resources

- Most tribes have limited staff and funding
  - Need more money to hire more people to do the things tribe wants to do
  - Certain grants are restrictive and inflexible
  - Certain criteria are not workable for tribes, in effect, disqualifying them from competing; for example, the CEQA requirement, sovereign immunity waiver, requirement to measure greenhouse gas emission reductions
  - State grants could follow the federal government model: they just provide milestones and track the project; Clinton Executive Order allows flexibility in administration of policies when working with tribes
  - Collaborative relationships, such as with the county, have been an effective way for a tribe to get funding
  - Funding sources identified by participants included: California Air Resources Board; Strategic Growth Council; CalTrans; CalEPA; Department of Water Resources
- Getting land back is critical
  - Cover story in Atlantic magazine: Return the National Parks to Tribes (<https://www.theatlantic.com/magazine/archive/2021/05/return-the-national-parks-to-the-tribes/618395/>)
  - USFS may not be happy with a Tribe managing forest areas
  - Need to partner with other federal land managers, work with more resourced entities
  - Tribal land needs to be seen as the land of that Tribe's people forever, not just trust land
- Another indicator is the overall lack of involvement with tribes by government, indicator that (somewhat) trending in positive direction, starting to get recognition
- No current reservation lands in city of San Diego but the City wants to talk to tribes because their policies have impact on Tribal ancestral lands, so they are working to develop relationships.
- Things of sacred nature, historical nature, landscapes, access – ALL important! Tribes shouldn't be treated as if don't exist from a policy standpoint.
- Hazard for one community does not mean the same thing to all. Tribe to environment, tribe to tribe, tribe to culture. The risk is of a different nature to Tribes
- Everything tied to cultural and spiritual health of tribe. This becomes clearer as you listen to what tribes are saying

### Next Steps and Closing

OEHHA discussed next steps in their work incorporating tribal perspectives into the climate change indicators report. OEHHA will continue working with tribes around the State to inform future reports. Participants were invited to remain in communication with OEHHA, sharing any additional thoughts as well as connecting OEHHA with others whose perspectives should be included.

## Appendix A. List of Attendees

<b>Name</b>	<b>Position</b>	<b>Tribe</b>
Art Bunce	Tribal Attorney	Barona Band of Mission Indians
Jonathon Lopez	Air Pollution Specialist	Cabazon Band of Mission Indians
Jennifer Smith Ruiz	Environmental Specialist	Cabazon Band of Mission Indians
Lisa Gover	Director of Campo Environmental Protection Agency	Campo Kumeyaay Nation
Mia Lopez	Vice Chair	Coastal Band of the Chumash Nation
Jairo Avila	Tribal Historic and Cultural Preservation Officer	Fernandeño Tataviam Band of Mission Indians
Melody Sees	Environmental Director	lipay Nation of Santa Ysabel
Syndi Smallwood	Environmental Director	Jamul Indian Village
Dorothy Willis	Environmental Department/Water Operator	Los Coyotes Band of Indians
Dorothy Willis	Environmental Department/Water Operator	Los Coyotes Band of Indians
Trisha Frank	Environmental and Natural Resources Coordinator	Manzanita Band of the Kumeyaay Nation
Shasta Gaughen	Environmental Director and Tribal Historic Preservation Officer	Pala Band of Mission Indians
Michelle Gutierrez	Water Quality Specialist	Ramona Band of Cahuilla
Brandy Perret	Environmental Coordinator	Rincon Band of Luiseño Indians
Denise Hernandez	Senior Environmental Technician	San Manuel Band of Mission Indians
Teresa Romero	Environmental Director	Santa Ynez Band of Chumash
Stephanie Rambo	Environmental Director	Tejon Indian Tribe
Kelsey Bosch	Cultural Resource Specialist	Twenty-Nine Palms Band of Mission Indians

<b>Non-Tribal Attendees</b>	<b>Position</b>	
Adriana Renteria	Director, Office of Public Participation/Tribal Liaison, SWRCB	
Alex Cole-Weiss	Lead Facilitator/Mediator, CSUS	
Bennett Lock	Environmental Scientist, OEHHA	
Carmen, Milanes	Section Chief, OEHHA	
Carolyn Yee	Regional Tribal Liaison/Brownfields Outreach Coordinator, DTSC	
Dorette English	Health Planning and Policy Specialist, California Department of Public Health	
Julia Van Horn	Associate Facilitator/Mediator, CSUS	
Lauren Zeise	Director, OEHHA	
Laurie Monserrat	Senior Environmental Scientist, OEHHA	
Malinda Dumisani	Special Assistant for Environmental Justice and Tribal Affairs and EJ Small Grants Program Manager, CalEPA	
Nicolette Zukowski	Graduate Student Assistant, OEHHA	
Patricia Moran	Tribal Liaison, DTSC	
Thomas Gates	Tribal Liaison, CEC	
Vincent Cogliano	Deputy Director, OEHHA	

## Appendix B. Themes from survey

- Changes in Climate
  - Increase in air temperature
  - Decreased precipitation
  - Extreme heat
  - Drought
    - Impacts productivity of lands
- Impacts on Physical Systems
  - Decreased snowpack and the effect on, streams and rivers
  - Increased flooding
  - Coastal erosion
- Impacts on Biological Systems
  - Impacts on vegetation including forests, woodlands and grasslands, agriculture and other managed systems
  - Impacts on wildlife
  - Impacts on human well-being and health
- Impacts on cultural resources or practices





Appendix D. Additional information shared

Manzanita Band of Diegeño Mission Indians of the Kumeyaay Nation (2020). Manzanita Tribal Resilience Project. <https://www.climate-science-alliance.org/manzanita-resilience-project>

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<https://www.theatlantic.com/magazine/archive/2021/05/return-the-national-parks-to-the-tribes/618395/>