

Climate Adaptation & California Native American Tribes



Contact Information

Please call or email us if you'd like us to walk through this information and if you have questions, comments, or concerns.

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California Climate Adaptation Policy

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graph TD; A[California Climate Adaptation Policy] --> B[Policy Guidance]; A --> C[Research]; A --> D[Tools for Local Action]; B --- B1[Safeguarding California Sea Level Rise Guidance Document]; C --- C1[4th Climate Change Assessment Cal-Adapt]; D --- D1[Integrated Climate Adaptation and Resiliency Program Adaptation Planning Guide];
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Policy Guidance

*Safeguarding California
Sea Level Rise Guidance
Document*

Research

4th Climate Change
Assessment
Cal-Adapt

Tools for Local Action

Integrated Climate Adaptation
and Resiliency Program
Adaptation Planning Guide

- California climate adaptation policy usually falls under these 3 categories of policy guidance, research, and tools for local action
- Two upcoming policy guidance documents are being developed by the California Natural Resources Agency and Ocean Protection Council: *Safeguarding California Climate Adaptation Plan* and the *Sea Level Rise Guidance Document*

Climate Change Policy

Adaptation

Adjustment in natural or human systems to a new or changing environment. Adaptation to climate change refers to adjustment in natural or human systems in response to actual or expected climatic stimuli or their effects, which moderates harm or exploits beneficial opportunities.

Mitigation

A human intervention to reduce the human impact on the climate system; it includes strategies to reduce greenhouse gas sources and emissions and enhancing greenhouse gas sinks.

Ongoing Impacts of Climate Change in California

PAST 3 YEARS

Have been the hottest ever

5 OF 10

Of the warmest years on record have occurred since 2003

4.6°F

Increase in average temperatures since 1975

7-8 INCHES

Rise in sea level already observed

50%

Below average snowpack in the Sierras in 3 of the past 4 years

80%

Increased in area burned from 2010-2015 over the prior decade due to increasing wildfire severity

California's Climate Future



Acceleration of
warming across the
state



Accelerating sea level
rise



More severe storms
and extreme weather
events



More intense and
frequent heat waves



More intense and
frequent drought



Shrinking snowpack
and less overall
precipitation



Greater inland flows



More severe and
frequent wildfires



Ocean acidification,
hypoxia, and warming

Tribal Climate Change Vulnerabilities + Impacts

“Key vulnerabilities include the loss of traditional knowledge in the face of rapidly changing ecological conditions, increased food insecurity due to reduced availability of traditional foods, changing water availability, Arctic sea ice loss, permafrost thaw, and relocation from historic homelands.”

- Although not all of these vulnerabilities apply to California, climate impacts like water security, increased wildfire, sea level rise, and food insecurity may disproportionately impact tribal communities in California
- Important to partner with tribes now so that future programs, policies, and grants take into account the distinct climate vulnerabilities that tribes face

Safeguarding California

California's Climate Adaptation
Strategy

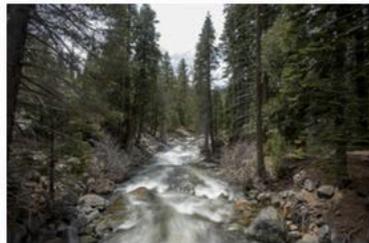
What is *Safeguarding California*?

DRAFT REPORT

Safeguarding California Plan:

2017 Update

California's Climate Adaptation Strategy



May 2017

- [*Safeguarding California*](#) is the State's plan for adapting to climate change
- It serves as a programmatic survey across state government of what California is doing to respond to climate change, what needs to be done, and how we will achieve those goals
- Hundreds of actions and recommendations listed in the plan were developed through the scientific and policy expertise of staff from 27 state agencies
- This roadmap for climate adaptation provides a transparent and accountable tool for the public to evaluate the State's progress towards adaptation

Draft document: <http://resources.ca.gov/wp-content/uploads/2017/05/DRAFT-Safeguarding-California-Plan-2017-Update.pdf>

Organization of *Safeguarding California*

Emergency Management	Agriculture
Energy	Biodiversity & Habitat
Land Use & Community Development	Forests
Public Health	Ocean & Coast
Transportation	Water

Each of these 10 chapters outlines:

High level recommendations:
5-10 goals to guide the chapter

Next steps:
Objectives and strategies needed to achieve each recommendation

Ongoing actions:
Summary of climate adaptation and programs already happening related to that recommendation

Safeguarding California Timeline



Public
comment
draft
released

Public and
tribal
workshops
throughout
state

Public
comment
closes

Final
adaptation
strategy
released

Recommendations Involving Tribes in *Safeguarding California*

4 of the 5 Natural and Managed
Resource Systems chapters mention
Tribes:

Biodiversity &
Habitat

Forests

Ocean & Coast

Water

Biodiversity and Habitat

Recommendations Involving Tribes in *Safeguarding California*

Recommendation B-1: Strengthen the climate adaptation component of conservation planning efforts at multiple scales.

B-1.3 Engage and support local and tribal communities in their planning processes where significant ecological resources are concerned.

Forests

Recommendations Involving Tribes in *Safeguarding California*

Recommendation F-1: Enhance forest health and resilience by improving forest management on private and public lands.

F-1.4. Partner with Native American tribes to benefit from traditional knowledge of prescribed fire and forest management.

Recommendation F-4: Promote rural and tribal economic development by expanding wood products markets, biomass utilization, and outdoor recreation.

F-4.2 Provide financial and technical assistance to rural communities and Native American Tribes near forested areas to increase capacity for biomass utilization.

F-4.6. Work with Native American tribes to protect tribal access to non-timber forest products and traditional activities such as cultural burns and activities related to subsistence in forests such as hunting, fishing, and trapping.

Recommendation F-6: Foster fire-adapted communities through local planning and fire preparedness.

F-6.7c. Develop county and regional fire readiness plans with community-based groups such as fire safe councils, fire and land management agencies; engage individual community and tribal members in these efforts.

Ocean and Coast

Recommendations Involving Tribes in *Safeguarding California*

Recommendation O-1: Leverage regulatory, permitting, and planning authority to preserve coastal communities and resources by adapting infrastructure and other development to be more resilient to sea level rise and extreme events.

O-1.5. Develop policies to protect public trust, cultural, and archaeological resources along the coast.

O1.5c Safeguard cultural and archeological resources threatened by sea level rise and ensure California Native American tribes and other affected groups are involved and supported in planning efforts to address these impacts.

Recommendation O-4: Assess community and ecosystem vulnerability through the use of decision-support tools and analyses.

O-4.2. Assess the vulnerability of archaeological sites and natural and cultural resources to sea level rise.

O-4.2a. Work with tribes on participatory mapping of coastal tribal resources and development of vulnerability assessments.

O-4.2b. Initiate vulnerability study of the Department of Parks and Recreation's natural and cultural resources' exposure to sea-level rise.

Water

Recommendations Involving Tribes in *Safeguarding California*

Recommendation W-6: Address water-related impacts of climate change on vulnerable and disadvantaged populations and cultural resources.

W-6.7. The Water Board will increase outreach to environmental justice and disadvantaged communities and Native American tribes in collaboration with non-governmental organizations.

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For more information on research and research tools, see:

<http://resources.ca.gov/climate/safeguarding/research/>

Cal-Adapt.Org & Beta.Cal-Adapt.Org

Find best available science, utilize visualization tools, access and download data, and access other resources

caladapt

[Tools](#) [Data](#) [Resources](#) [Blog](#) [About](#) [Help](#)

Climate Tools

Explore charts, maps and data of observed and projected climate variables for California. The tools show projections for two possible climate futures, one in which emissions peak around 2040 and then decline (RCP 4.5) and another in which emissions continue to rise throughout the 21st century (RCP 8.5). Both futures are considered possible depending on how much action we decide to take. Learn more about working with climate projections on our [Resources](#) page.

Annual Averages



Explore charts of projected annual averages of maximum temperature, minimum temperature and precipitation for your location.

[Explore](#)

Extreme Heat



Explore charts of projected frequency and duration of extreme heat events for your location.

[Explore](#)

Sea Level Rise - CalFloD-3D



Explore maps of inundation location and depths for San Francisco Bay Area, Sacramento - San Joaquin Delta and the California coast during near 100 year storm events coupled with projected Sea Level Rise scenarios.

[Explore](#)

Snowpack



View timelapse animation and monthly averages of projected Snow Water Equivalent, a common measurement for snowpack.

[Explore](#)

Wildfire



Annual summaries of area burned for combination of 4 GCMs, 2 RCPs and 3 population/demographic scenarios.

Coming soon

Long Drought Scenarios (LOCA)



Charts of temperature, precipitation plus a set of VIC variables from two 30 year drought periods.

Coming soon

California's Fourth Climate Change Research Assessment

- Over 50 research projects in 3 portfolios
- Foundational scenarios and projections
- Regional and Tribal Assessments

16

Natural Resources research projects

Wildfire & Forests, Habitat, Working Lands, Coast & Ocean, Water & Drought, Public Health

16

Energy Sector research projects

Scenario Development, Probabilistic Forecasting, Extreme Events, Vulnerability & Resilience

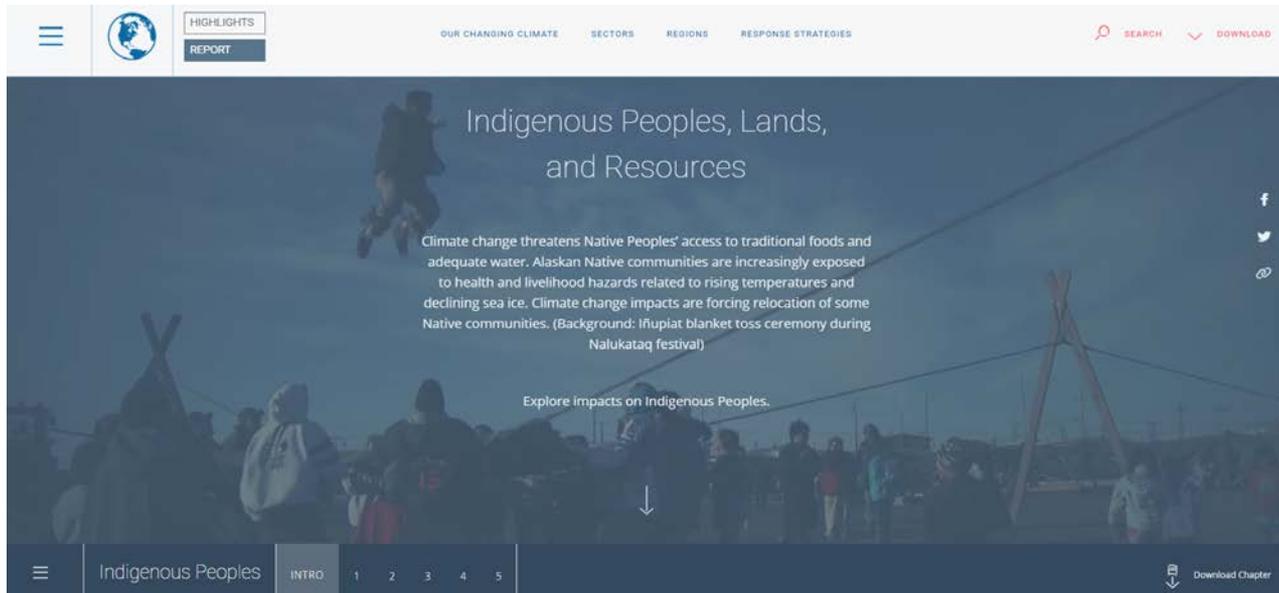
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External Collaborator research projects

Ecology & Ecosystems, Urban Heat Island, Disadvantaged Communities

Statewide, Regional, and Tribal Assessments

- Statewide, regional, and tribal assessments of climate impacts/ vulnerabilities will be drafted concurrently to individual project reports
- Tribal Assessment follows model of Indigenous Peoples, Land, and Resources Chapter of 2014 National Climate Assessment
- End goal to integrate tribal climate change issues in statewide and each of the regional reports



National Climate Change Assessment: Indigenous Peoples Chapter

<http://nca2014.globalchange.gov/report/sectors/indigenous-peoples>



A guidance document for incorporating sea-level rise projections into planning, permitting, investment, and other decisions for state, regional, tribal, and local users

Updating California's Sea-level Rise Guidance

State Sea-level Rise Guidance Document

- Incorporating sea-level rise projections into state and local decision-making.
- Updating guidance to reflect recent advances in ice loss science and projections of sea-level rise.
- Opportunities for engagement with state agencies, local governments, consultants, non-governmental organizations, **tribes**, vulnerable communities, and other constituents.



Photo: Erik Piro

Process + Opportunities for Engagement

December 2016 - April 2017: State agency, local government and constituent engagement: interviews and five listening sessions; CO-CAT meetings

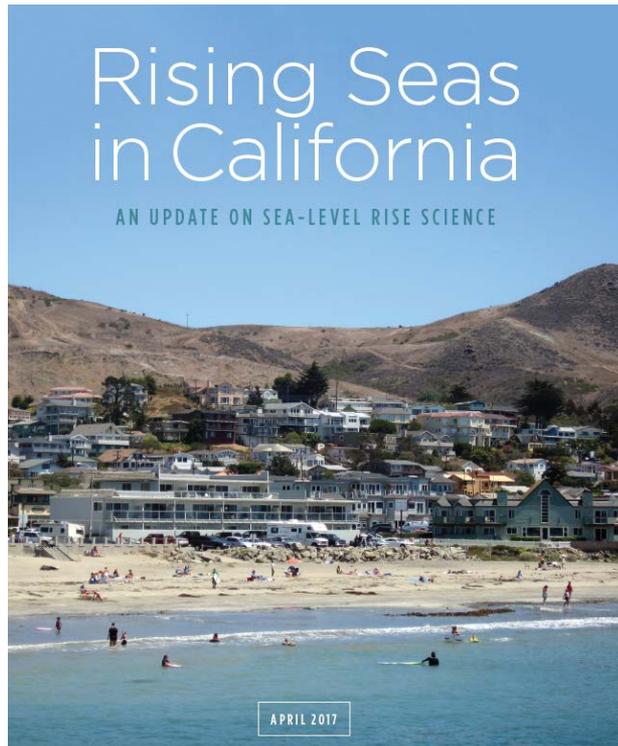
April 26 2017 OPC Meeting: Science summary presented to the OPC; OPC Resolution adopted

May - June 2017: Series of public workshops to solicit feedback on a draft framework for the *State Sea-level Rise Guidance Document*

October - November 2017: 30-day public comment period on a draft update to the *State Sea-level Rise Guidance Document*

January 2018 OPC Meeting: Potential approval by the OPC of the updated *State Sea-level Rise Guidance Document*

Recently released science report



- Prepared by a working group of the OPC Science Advisory Team
- Provides scientific basis for current update of the state's SLR guidance document
- Includes a synthesis on the current state of ice loss science
- Includes updated sea level rise projections and likelihood at 3 locations in CA (La Jolla, San Francisco, and Crescent City)
- Includes a scenario of extreme sea level rise possible from polar ice sheet loss. Though the likelihood of this scenario is uncertain, included because the impacts would be catastrophic

<http://www.opc.ca.gov/webmaster/ftp/pdf/docs/rising-seas-in-california-an-update-on-sea-level-rise-science.pdf>

Summary: Key Findings

1

Scientific understanding of sea-level rise is advancing at a rapid pace. Periodic updates of Sea-level Rise Guidance will be necessary.

2

The direction of sea level change is clear; sea-level is rising.

3

The rate of ice loss from the Greenland and Antarctic Ice Sheets is increasing.

4

New scientific evidence has highlighted the potential for extreme sea-level rise.

5

Probabilities of specific sea-level increases can inform decisions.

6

Current policy decisions are shaping our coastal future.

7

Waiting for scientific certainty is neither a safe nor prudent option.

Next Steps



- Complete regional workshops in June 2017
- Development of draft policy guidance
- Development of web resources supporting coastal adaptation
- Release for public review in Fall 2017
- Expected date of adoption of new SLR guidance in January 2018



For more information & updates, visit:

- Ocean Protection Council website:
<http://www.opc.ca.gov/climate-change/updating-californias-sea-level-rise-guidance/>
- Ocean Science Trust website:
<http://www.oceansciencetrust.org/projects/updating-californias-sea-level-rise-guidance>
- Contact us:
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California Ocean Protection Council