2020-2021 ICARP Impact Report

Integrated Climate Adaptation and Resiliency Program

Letter From the Director

Governor's Office of Planning and Research

The Governor's Office of Planning and Research (OPR) is pleased to release the 2020-2021 Integrated Climate Adaptation and Resiliency Program (ICARP) Impact Report.

As the recent Intergovernmental Panel on Climate Change (IPCC) reports have made clear, climate impacts have arrived earlier than expected and will only become more frequent and intense. The IPCC reports also emphasize that there is much work to do to adapt to a changing climate, especially for the most vulnerable among us. Making California's communities, ecosystems, and infrastructure resilient to climate change requires an all-hands-on-deck effort that ICARP continues to bolster.

I would like to thank all the members of the ICARP Technical Advisory Council (TAC) for the continued dedication and thought leadership they bring to the TAC to guide California's climate adaptation and resilience efforts. The partnerships built through ICARP truly demonstrate successful collaboration across all levels of government, sectors, ecosystems, and cross-cutting issues. As showcased in this report, such collaboration has generated integrated and impactful solutions that address climate threats in California's communities.

This Impact Report reflects the growth in ICARP's capacity and impact over the past two years, with several significant successes and aspirations for the years ahead. Through these efforts, ICARP remains steadfast in its commitment to center equity and advance a vision of a climate-resilient California for All.

Sam Assefa
Director
Governor's Office of Planning and Research

2022 Technical Advisory Council Members

Integrated Climate Adaptation and Resilience Program

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- Shereen D'Souza, California Environmental Protection Agency
- Lori Nezhura, California Governor's Office of Emergency Services
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- Darwin Moosavi, California State Transportation Agency
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- Jonathan Parfrey, Climate Resolve
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- Jason Greenspan, Southern California Association of Governments
- Andrea Ouse, City of West Sacramento
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- John Wentworth, Town of Mammoth Lakes
- David Loya, City of Arcata
- Grant Davis, Sonoma County Water Agency
- Jacob Alvarez, City of Coachella
- Sona Mohnot, Greenlining Institute
- Gloria Walton, The Solutions Project
- Michelle Passero, The Nature Conservancy
- Nathan Bengtsson, Pacific Gas & Electric
- Laura Engeman, Scripps Institute of Oceanography
- Veronica Beaty, California Coalition for Rural Housing

Introduction

ICARP 2020-2021 Impact Report

The Integrated Climate Adaptation and Resiliency Program (ICARP), established through Senate Bill 246 (Wieckowski, 2015), is a critical driver of California's strategy and leadership on climate adaptation and resilience. ICARP advances a cohesive and holistic response to the impacts of climate change by coordinating state and local adaptation efforts to support comprehensive planning and accelerate implementation. Through its enabling legislation, ICARP is centrally focused on efforts that advance climate equity and support integrated climate strategies, or those strategies that benefit both greenhouse gas reductions and adaptation. ICARP works to advance these priorities in planning and investment decisions through the development of decision-support tools, actionable climate science, guidance, technical assistance, and grant programs.

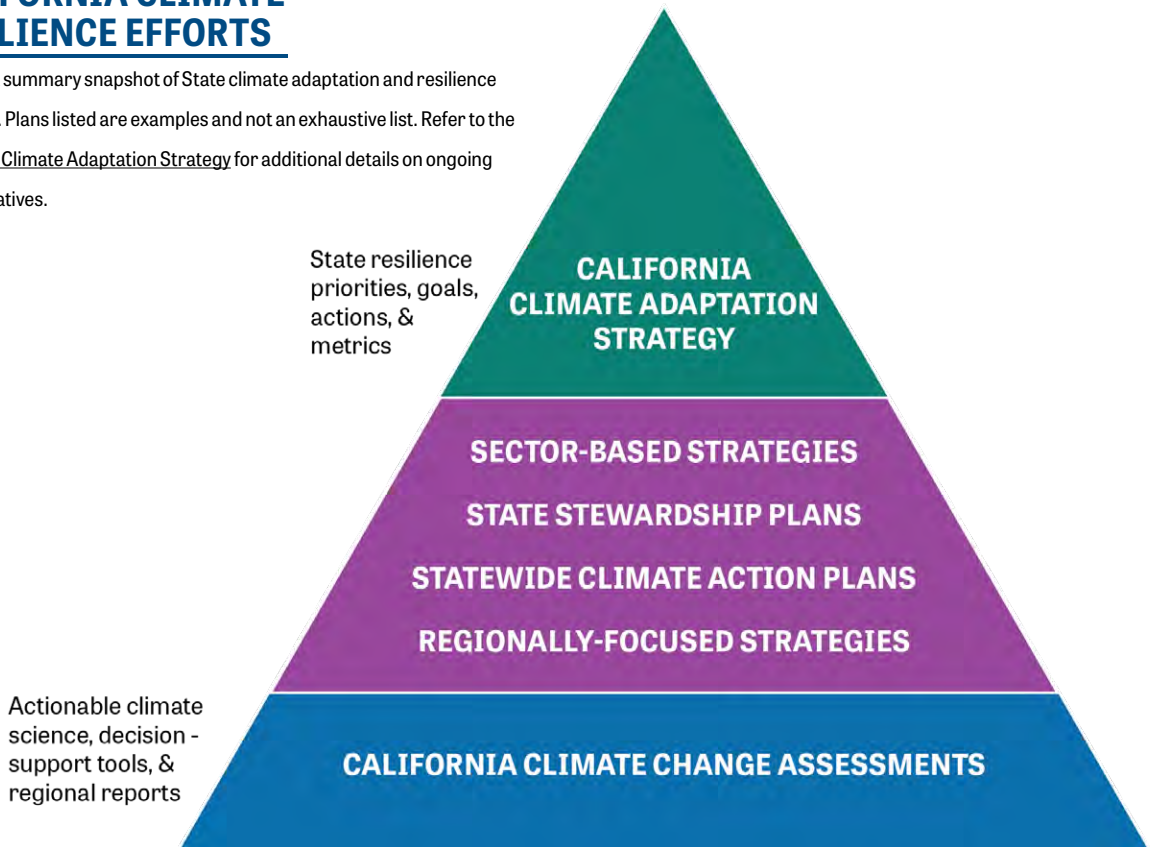
CLIMATE CHANGE IN CALIFORNIA

Scientists have warned for decades about the potential for increasing and accumulating greenhouse gas emissions to de-stabilize the Earth's climate, and in recent years, both acute and chronic climate impacts have become more apparent in California:

- In 2021, Death Valley recorded the world's hottest average temperature over a 24-hour period, 118°F, and also recorded a peak temperature of 130°F, which matched a 2020 high that together represent the highest reliably measured temperatures ever recorded on Earth.
- 2021 also saw intensifying drought conditions at a magnitude on par with the height of the 2011-2017 drought: at its peak in late August, 100% of the state was abnormally dry or experiencing moderate drought, and 49%

CALIFORNIA CLIMATE RESILIENCE EFFORTS

Figure 1: A summary snapshot of State climate adaptation and resilience initiatives. Plans listed are examples and not an exhaustive list. Refer to the California Climate Adaptation Strategy for additional details on ongoing State initiatives.



STATEWIDE CLIMATE ACTION PLANS

Climate Action Plan for Transportation Infrastructure
Putting California on the High Road: A Jobs & Climate Action Plan for 2030
State Agency Sea-Level Rise Action Plan for California
Natural and Working Lands Climate Smart Strategy
State Hazard Mitigation Plan

REGIONALLY-FOCUSED STRATEGIES

Central Valley Flood Protection Plan
Salton Sea Management Program
San Francisco Bay Conservation & Development Commission's Bay Adapt
Southern California Wetlands Recovery Project Regional Strategy
The Delta Plan
Lake Tahoe Climate Adaptation Action Portfolio

STATE STEWARDSHIP PLANS

State Parks Sea Level Rise Strategy
Department of General Services Sustainability Plan
CalPERS' Investment Strategy on Climate Change
California Water Plan
Climate Resilience & California's Marine Protected Areas
California Biodiversity Initiative: A Roadmap for Protecting the State's Natural Heritage

SECTOR-BASED STRATEGIES

Wildfire & Forest Resilience Action Plan
Water Resilience Portfolio
Integrated Energy Policy Report
California Department of Public Health's Strategic Plan
Ocean Protection Council's Strategic Plan
High-Speed Rail Authority Sustainability Policy

of the state was in a state of exceptional drought, the highest ranking on the U.S. Drought Monitor.

- The record-breaking 2020 wildfire season included the state's first "gigafire", the 1-million-acre August Complex, a major contributor to the staggering total of over 4.2 million acres burned that year. In 2021, the Dixie Fire, at over 960,000 acres, nearly eclipsed the August Complex as the state's largest wildfire.
- Over the past 20 years, California has repeatedly broken records for extreme heat and the size, destruction, and mortality of wildfires. During this period, the Colorado River, the primary source of drinking water for Southern California, has been in a state of persistent drought.

California's climate leadership includes ambitious commitment to emissions reductions and a transition to a carbon neutral economy. However, as made clear by the impacts already affecting California and the recent IPCC report, impacts of climate change are occurring sooner than expected and they disproportionately affect the most vulnerable among us. This urgency calls for transformational adaptation.

CLIMATE EQUITY

Californians do not and will not experience climate impacts equally. For example, factors associated with race, gender, age, income, health conditions, access and functional needs, occupation, and more can influence the impacts of a changing climate on individuals and communities. Climate equity in an adaptation and resiliency context recognizes and seeks to address the fact that climate change will disproportionately impact communities that already experience environmental and socio-economic burdens and have a lower capacity to withstand and recover from climate impacts. Developing impactful climate adaptation solutions requires targeted policy and investments that reduce vulnerability, and because existing socio-economic burdens underpin many dimensions of vulnerability, can also redress historic and systemic inequality.

Recognizing these challenges and opportunities, the Integrated Climate Adaptation and Resiliency Program advances climate equity throughout its efforts. As part of its foundational work, the ICARP Technical Advisory Council defined vulnerable communities in 2018. For details on ICARP's recent accomplishments and future initiatives related to climate equity, please refer to the Climate Equity and Vulnerable Communities Section.

WHAT IS A RESILIENT CALIFORNIA?

Climate resilience and adaptation are often discussed together, but it is helpful to distinguish between them. Generally, **adaptation** is an action or set of actions that reduce physical climate risk. **Resilience** describes a state of readiness to face climate risks. California is taking steps to prepare for the impacts of a changing climate at the state, regional, and local levels. Preparing for these changes is called adaptation. A series of adaptive steps contribute to resilience.

- *Built infrastructure systems can withstand changing conditions and shocks, including changes in climate conditions, while continuing to provide critical services;*
- *People and communities can respond to changing average conditions, shocks, and stresses in a manner that minimizes risks to public health, safety, and economic disruption; and maximizes equity and protection of the most vulnerable so that they do not simply survive climate-related events, but thrive despite and after these events; and*
- *Natural systems can adjust and maintain functioning ecosystems in the face of change.*

RECENT LEGISLATION

- **AB 1482 (2015)** – Requires the state to update its climate adaptation strategy every three years. This includes updates to considerations involving planning and investment decisions by state agencies.
- **SB 246 (2015)** – Established ICARP to coordinate regional and local efforts with the state-level climate adaptation strategies through a Technical Advisory Council and the Adaptation Clearinghouse. Also requires that the Adaptation Planning Guide be updated by various state agencies as well.
- **SB 379 (2015)** – Requires that city and county general plans include a safety element that addresses climate adaptation and resiliency strategies identified in the city or county's vulnerability assessment.
- **AB 2800 (2016)** – Requires the state to consider climate change impacts when planning, designing, and investing in infrastructure.
- **SB 1072 (2018)** – Establishes a program to build capacity in under-resourced communities to help those communities successfully compete for state climate mitigation and adaptation funding.
- **SB 30 (2018)** – Requires that the California Dept. of Insurance Commissioner create a work group to recommend risk transfer market mechanisms that promote investing in natural infrastructure to reduce risk of catastrophic events as well as other community-level risks. It also requires the working group to look at mitigation incentives for private investment in natural lands to lower public safety risks.
- **AB 65 (2019)** – Requires coastal protection projects involving natural infrastructure funded through the State Coastal Conservancy to be included in the Adaptation Clearinghouse.
- **SB 576 (2019)** – Requires the Ocean Protection Council to share information on its coastal climate adaptation, infrastructure, and readiness program with the Adaptation Clearinghouse.
- **AB 78 (2020)** – Establishes the Climate Catalyst Revolving Loan Fund within IBank to provide loans to projects that advance California's climate goals and reduce climate risk.
- **AB 2800 (2020)** – Indefinitely extends a requirement that state agencies consider climate impacts when planning, designing, building, maintaining, or investing in infrastructure.
- **SB 1320 (2020)** – Tasks OPR with leading the development of the California Climate Change Assessment every five years, in partnership with state agencies.
- **SB 1 (2021)** – Establishes a Sea Level Rise State and Regional Support Collaborative, composed of several state agencies to provide information and support for sea-level rise planning and projects. Requires assessment and mitigation of sea level rise risk by state and regional agencies and directs the Coastal Commission to develop guidelines for assessing and mitigating sea level rise in Local Coastal Plans.
- **SB 458 (2021)** – Requires the Wildfire and Forest Resilience Task Force to revise its Action Plan every five years and develop an implementation strategy to track progress.

CLIMATE ADAPTATION IN CALIFORNIA

The state is meeting the urgency of the moment on adaptation by implementing a comprehensive, coordinated, and science-based approach to climate adaptation. Since 2005, California has been the only state that develops its own Climate Change Assessment, which provides critical and cutting-edge data, research, and actionable tools that underpin state and local resilience actions. California also has a comprehensive framework to guide state action through the California Climate Adaptation Strategy. Local governments are also taking action by integrating climate into long-range planning (per SB 379 (Jackson, 2015)). To accelerate local implementation, the FY 2021-22 budget included an historic $15 billion climate package, the largest direct investment in climate action in the state's history.

INTEGRATED CLIMATE ADAPTATION AND RESILIENCY PROGRAM

By coordinating and aligning the components of California's adaptation efforts – actionable science, state and local action, and investments – ICARP plays a critical role in driving the state's strategic direction on adaptation and resiliency. ICARP organizes its initiatives around four major workstreams:

- **Policy and programmatic alignment:** ICARP provides the state's only public forum dedicated exclusively to climate adaptation and resiliency through the Technical Advisory Council (TAC). The TAC provides a venue for consideration and discussion of California's resilience policy with state agencies; local, regional, and tribal governments; nonprofits and boundary organizations; academia; and the private sector.
- **Actionable Climate Science:** To promote decision-making supported by actionable climate science, ICARP leads the development of California's Climate Assessment. The Assessment consists of a portfolio of critical and cutting-edge data, research, and actionable tools that underpin state and local resilience actions.

2021-2022 CLIMATE BUDGET

- **$1.5 Billion** - Wildfire and Forest Resilience
- **$5.2 Billion** - Water and Drought
- **$3.9 Billion** - Zero-Emissions Vehicles
- **$3.7 Billion** - Climate Resilience
- **$1.1 Billion** - Sustainable Agriculture
- **$270 Million** - Circular Economy

RECENT EXECUTIVE ORDERS

- **E.O. S-13-08** – Requires CA Natural Resources to develop a statewide Climate Adaptation Strategy. Orders Business, Transportation and Housing Agency (now BCSH) to assess vulnerabilities within the transportation system from sea level rise and orders OPR to give land-use planning guidance for climate impacts.
- **E.O. B-30-15 –** Established a GHG reduction target and ordered state agencies to take steps toward preparation of climate impacts. The order also requires that Safeguarding California be updated every three years, and that it identifies vulnerabilities by sector or region.
- **E.O. N-05-19** – Directs CAL FIRE to recommend administrative, regulatory, and policy changes that will help prevent and mitigate wildfires.
- **E.O. N-19-19** – Requires the state to continue to mitigate the impacts of climate change through investments, transportation operations, and reduction of the state's carbon footprints at state owned and leased facilities.

» **Climate Services:** ICARP promotes alignment of resilience priorities across state, regional, local, tribal, and non-governmental entities by providing guidance, tools, and technical assistance. An important resource to support these activities is the Adaptation Clearinghouse, established through SB 246 (Wieckowski, 2015) to serve as a central resource for curated case studies, reports, tools and data, and climate adaptation planning and project best practices.

» **Direct Investments:** Additionally, through the 2021 Climate Budget ICARP is developing three new grant programs to fund local, regional, and tribal adaptation efforts across the state. The ICARP Adaptation Planning grants program will provide support to local, regional, and tribal governments to support much needed adaptation planning efforts. The ICARP Regional Resilience Planning and Implementation grants program will support regions in advancing resilience through capacity-building, planning, and project implementation. The Community Resilience and Heat Grant Program will help communities prepare for the impacts of extreme heat.

Each of these programmatic workstreams advance the following priority areas established by the TAC:

» *Actionable Research and Resilience Metrics*

» *Decision Support Tools and Guidance*

» *Building Partnerships and Leveraging Resources*

» *Funding and Financing*

» *Climate Equity and Vulnerable Communities*

» *Additional Special Initiatives*

The following report highlights major programmatic accomplishments advancing these TAC priorities in 2020-2021 and outlines the program's workplan in 2022. For more a more detailed overview of ICARP's work planned for 2022, refer to **Appendix A.**

DEFINITIONS

» **Adaptation (climate change):** 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.

» **Equity:** Equity is just and fair inclusion into a society in which all can participate, prosper, and reach their full potential.

» **Equity (Climate):** The central equity challenges for climate change policy involve several core issues: addressing the impacts of climate change, which are felt unequally; identifying who is responsible for causing climate change and for actions to limit its effects; and understanding the ways in which climate policy intersects with other dimensions of human development, both globally and domestically.

» **Mitigation (climate change):** 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.

» **Resilience (climate):** Resilience is the capacity of any entity – an individual, a community, an organization, or a natural system – to prepare for disruptions, to recover from shocks and stresses, and to adapt and grow from a disruptive experience.

ICARP VISION

All Californians thrive in the face of a changing climate. Leading with innovation, California meets the challenge of climate change by taking bold actions to protect our economy, our quality of life, and all people. The state's most vulnerable communities are prioritized in these actions. Working across all levels of government, the state is prepared for both gradual changes and extreme events. Climate change adaptation and mitigation is standard practice in government and business throughout the state. California meets these goals with urgency, while achieving the following long-term outcomes:

- **All people and communities** respond to changing average conditions, shocks, and stresses in a manner that minimizes risks to public health, safety, and economic disruption and maximizes equity and protection of the most vulnerable.
- **Natural systems** adjust and maintain functioning ecosystems in the face of change.
- **Infrastructure and built systems** withstand changing conditions and shocks, including changes in climate, while continuing to provide essential services.

STATE VULNERABLE COMMUNITIES DEFINITION

Climate vulnerability describes the degree to which natural, built, and human systems are at risk of exposure to climate change impacts. Vulnerable communities experience heightened risk and increased sensitivity to climate change and have less capacity and fewer resources to cope with, adapt to, or recover from climate impacts. These disproportionate effects are caused by physical (built and environmental), social, political, and/or economic factor(s), which are exacerbated by climate impacts. These factors include, but are not limited to, race, class, sexual orientation and identification, national origin, and income inequality.

ICARP PRINCIPLES

- Prioritize **integrated** climate actions, those that both reduce greenhouse gas emissions and build resilience to climate impacts, as well as actions that provide **multiple benefits.**
- Prioritize actions that promote **equity**, foster community resilience, and protect the most vulnerable. Explicitly include communities that are disproportionately vulnerable to climate impacts.
- Prioritize **natural and green infrastructure** solutions to enhance and protect natural resources, as well as urban environments. Preserve and restore ecological systems (or engineered systems that use ecological processes) that enhance natural system functions, services, and quality and that reduce risk, including but not limited to actions that improve water and food security, habitat for fish and wildlife, coastal resources, human health, recreation, and jobs.
- Avoid **maladaptation** by making decisions that do not worsen the situation or transfer the challenge from one area, sector, or social group to another. Identify and take all opportunities to prepare for climate change in all planning and investment decisions.
- Base all planning, policy, and investment decisions on the **best-available science**, including **local and traditional knowledge**, including consideration of future climate conditions out to 2050 and 2100, and beyond.
- Employ **adaptive and flexible governance** approaches by utilizing **collaborative partnership** across scales and between sectors to accelerate effective problem solving. Promote mitigation and adaptation actions at the regional and landscape scales.
- Take **immediate actions** to reduce present and near future (within 20 years) climate change risks for all Californians; do so while also **thinking in the long term** and responding to continual changes in climate, ecology, and economics using adaptive management that incorporates regular monitoring.

Actionable Research and Resilience Metrics

ICARP Technical Advisory Council Priority Area

Actionable climate science is a cornerstone of California's leadership on climate change and supports science-informed policies and investments to respond to accelerating climate impacts. California provides resources to translate and apply climate science to empower communities, the private sector, and local, regional, and tribal governments to make informed decisions.

ICARP WORKSTREAMS

ICARP has two workstreams under this council priority: research to support a comprehensive set of Resilience Metrics, and implementation of California's Climate Change Assessments.

Since its inception, the ICARP Council has recognized that a suite of comprehensive resilience metrics is vital to help California understand where action is progressing and where further action is needed. The goal of the consolidated suite of resilience metrics is to build our collective capacity to track how we are reducing climate risk and increasing resilience across built, social-human and natural systems.

Recognizing this significant role, the CA Climate Change Assessments play in California's leadership on climate change, the Legislature passed, and Governor Newsom signed, SB 1320 (Stern, 2020), which codified the Assessment as a responsibility of OPR, through ICARP, in partnership with the California Natural Resources Agency, Energy Commission, and Strategic Growth Council. Building on this important step, in 2021, the Climate Budget included $22 million to conduct the Fifth Climate Assessment.

2020 AND 2021 ACCOMPLISHMENTS

In 2020, ICARP initiated a robust effort to develop resilience metrics, guided by the thought leadership of the ICARP Resilience Metrics Work Group. Discussions centered on the ICARP principles and addressed social, natural, and built system resilience. Through multiple engagement efforts, staff worked with the TAC, state agencies, and interested stakeholders to catalogue existing resilience metrics and identify gaps where new resilience metrics are needed. The work group developed a suite of indicators that provide insight on important resilience components to inform current and forthcoming ICARP programs.

The Resilience Metrics Work Group initiative also informed the 2021 update to the California Climate Adaptation Strategy (Strategy). ICARP staff conducted numerous individual conversations with state agencies to identify ways to measure the priorities, goals, and actions outlined in the Strategy. Many of the components from the ICARP indicators are reflected in the final Strategy metrics. As a result, the success metrics in the California Climate Adaptation Strategy provide a suite of resilience metrics that assess progress on the state's resiliency efforts.

2022 WORK PLAN

In 2022, ICARP will initiate the Fifth California Climate Change Assessment with funding from the 2021 Climate Budget. ICARP will oversee coordination of the assessment, which includes downscaled climate projections, core technical reports, topical and regional synthesis reports, and decision-support tools. The Fifth Assessment will also include a first-of-its-kind grant program for tribal research, recognizing the important contributions of first nations to our understanding of the changing environment.

ICARP's resilience metrics efforts will culminate in a white paper that details the progress made over year plus of work on this initiative. The white paper will summarize the collaborative efforts with the ICARP TAC and state agencies, provide a draft suite of comprehensive resilience metrics, propose a framework for measuring existing metrics, and outline research priorities. The resilience indicators developed through this process reflect the importance of resilience in social, built, and natural systems, and the need to integrate resilience into education and engagement, planning processes, and project deployment.

> ***"California cities and agencies now have the science-based tools and resources they need to manage the impacts of climate change – thanks to the work of the Integrated Climate Adaptation and Resiliency Program."***
>
> **Jonathan Parfrey, Climate Resolve**

In 2022, the state will use the resilience metrics developed through the 2021 update to the California Climate Adaptation Strategy to assess implementation in the first annual progress report. ICARP, in partnership with the California Natural Resources Agency, coordinate with state agencies to report on their implementation progress. Additionally, the implementation of the Strategy and its associated metrics presents an opportunity for ICARP to evaluate the application of this distinct set of state resiliency metrics to inform future needs and the direction of ICARP's broader resilience metrics effort.

2022 will also herald the establishment of a Science Advisory Group to support better alignment of state efforts to integrate climate science into resilience planning and policy. The Science Advisory Group will also support the Fifth California Climate Change Assessment by identifying opportunities for the Assessment to address critical research gaps. Strengthening partnerships with the academic community through the Science Advisory Group will significantly advance ICARP's goal of providing relevant, actionable data and research to support robust planning and policy for climate adaptation and resiliency.

Decision Support Tools and Guidance

ICARP Technical Advisory Council Priority Area

To support local governments with adaptation planning and implementation, the state supports grant programs, guidance, technical assistance, capacity-building, and collaborative partnerships. ICARP plays a central role in equipping local governments and stakeholders across the state with the tools and resources they need for climate adaptation planning and implementation.

ICARP WORKSTREAMS

In addition to developing guidance and resources, ICARP curates data, decision-support tools, guidance, and case studies from other entities on the Adaptation Clearinghouse. This publicly-accessible resource supports integrated, science-based climate resilience decisions, planning, and implementation at all levels of government. Additionally, ICARP provides direct technical support to municipalities and other stakeholders, building collaborative partnerships that further align state and local resilience efforts.

2020 AND 2021 ACCOMPLISHMENTS

In 2020, ICARP incorporated the California Office of Emergency Services' updated Adaptation Planning Guide into the Adaptation Clearinghouse. The integration prioritized translating the guidance into an accessible, interactive online format, with templates and linkages to other Adaptation Clearinghouse tools and resources to better facilitate application of the four-phased approach outlined in the Guide. To build awareness and familiarity with the new guidance and resources, ICARP conducted a webinar series in 2021 to share examples of how local governments are applying the adaptation

planning phases outlined in the Guide. The Adaptation Planning Guide is now the most-visited resource on the Adaptation Clearinghouse, demonstrating the value of this resource to ICARP's stakeholders.

ICARP also undertook several other noteworthy updates to the Adaptation Clearinghouse in 2020 and 2021, including updating the dedicated Climate Equity Topic Page. The updated topic page allows users to quickly access, understand, and apply climate equity-specific principles and best practices in the context of climate adaptation planning. During the Adaptation Planning Guide integration and stakeholder engagement process, users expressed interest in seeing the Guide's equitable adaptation planning and community engagement guidance and resources, which are integrated throughout the 200-page document, consolidated in one place. The page provides an introduction to climate vulnerability and vulnerable communities, state environmental justice policies, and best practices for equitable planning and community engagement within each planning phase.

The ResilientCA Adaptation Planning Map is another new resource launched in 2021 that inventories and visualizes the progress of city and county adaptation planning efforts. While the ongoing inventory is not an official indicator of a jurisdiction's compliance with SB 379 (Jackson, 2015), it provides easy online access to local jurisdictions' completed public plans, and a preliminary snapshot of local and regional progress toward meeting state adaptation goals. As of January 2022, the inventory indicates that at least two-thirds of California counties have either started or completed an adaptation planning process.

ICARP also improved the Adaptation Clearinghouse's site search interface and user experience through an update to the keyword search functionality, and the addition of two video tutorials. The updates improve the accuracy of user resource queries and facilitates more efficient and higher-quality resource and database updates. The tutorials introduce new users to the primary site features and show how users can maximize the functionality of the search tools.

ADAPTATION CLEARINGHOUSE USER INSIGHTS

- Over **36,000 people** have visited the Adaptation Clearinghouse since its launch in August 2018, with over 15,000 new visitors in 2021 alone.
- Over 4,700 people have visited the Online Adaptation Planning Guide since its integration into the Adaptation Clearinghouse in November 2020, **making the APG the most popular resource on the site.** The majority of APG visitors spend their time in the Introduction, Phase 1, and Phase 2 chapters.
- The ResilientCA Adaptation Planning Map (RAP-Map) is the second most visited resource on the Adaptation Clearinghouse, **averaging 30-50 visitors every week.**

Finally, ICARP successfully secured funding to create a suite of climate resilience plan alignment guides, including two new guides, a flood-after-fire guide and a wildfire guide, and an update to the 2018 Coastal Hazard Resilience Compass. These guides will be an important resource to municipalities that are responsible for implementing multiple different plans – from local hazard mitigation plans and climate adaptation plans to hazard-specific plans such as sea level rise strategies or community wildfire protection plans. These guides will support alignment of local planning efforts, allowing planners to achieve climate resilience goals, reduce duplication, and avoid policy conflicts. ICARP established a plan alignment advisory group in late 2021 to guide and inform this effort.

2022 WORK PLAN

In 2022, the Adaptation Clearinghouse will see continued updates and improvements. ICARP will use 2021 Climate Budget funding to issue a new solicitation to host and manage the Adaptation Clearinghouse. Funding from the Climate Budget will also support a solicitation to manage the user interface of Cal-Adapt.

ICARP will continue to assess user needs for the Adaptation Clearinghouse and pursue additional updates to ensure the responsiveness and relevance of this resource. In addition, ICARP will explore opportunities for updates that address gaps previously identified by stakeholders, such as Tribal resiliency, adaptation partnerships and collaboration, or housing and climate risk planning.

In 2022, ICARP will complete the climate resilience plan alignment guides and release them in print and in an interactive, online format on the Adaptation Clearinghouse. To maximize the value of these resources, ICARP will convene local government focus groups to beta-test the guides, identify user needs, and ensure they respond to those needs.

Finally, to support implementation of Executive Order N-19-19, ICARP will update the Planning and Investing for a Resilient CA Guidebook. The Guidebook, first published in 2018 at the direction of Executive Order B-30-15, provides recommendations from a Technical Advisory Group convened by the Governor's Office of Planning and Research on how state agencies can incorporate resiliency into planning and investment decisions. This year's update to the Guidebook will include new climate science and guidance on incorporating adaptation pathways into decision-making frameworks.

ADAPTATION CLEARINGHOUSE RESOURCES

- SB1 Case Study: Urban Cooling Strategies for Los Angeles Neighborhoods Serviced by the Orange Line | ResilientCA
- SB1 Case Study: A Climate Adaptation Strategy for the Lake Tahoe Basin | ResilientCA
- SB1 Case Study: Chumash Climate Change Transportation Vulnerability Assessment | ResilientCA
- SB 1 Case Study: Climate Resilient Battery Electric Fleet Feasibility Assessment for Humboldt County Public Transit | ResilientCA

Building Partnerships and Leveraging Resources

ICARP Technical Advisory Council Priority Area

ICARP supports local and regional adaptation and resiliency planning and disaster recovery efforts through facilitation, collaborative partnerships, funding alignment, and technical assistance.

ICARP WORKSTREAMS

To support local governments in building adaptive capacity through planning and implementation of long-term disaster resilience and recovery programs, OPR serves as the state lead, in partnership with the California Office of Emergency Services, on the Community Planning and Capacity Building Recovery Support Function (CPCB-RSF). ICARP guides the CPCB Program's focus on long-term recovery and steady-state planning to integrate climate resilience and equity objectives into planning guidance.

To expand CPCB's engagement with local governments, ICARP established a peer learning network for wildfire-impacted and -at-risk jurisdictions to share best practices. ICARP also coordinates CPCB's work with ongoing wildfire resilience efforts across state government, including the Wildfire and Forest Resilience Task Force, Utility Wildfire Mitigation Steering Committee, the Safer from Wildfires insurance partnership, and ad-hoc wildfire resilience technical assistance.

In addition to its partnerships with local and regional governments, ICARP has identified a unique opportunity to advance resiliency by collaborating with the insurance sector. ICARP and the California Department of Insurance established the Resilience Planning and Insurance Working Group to further the work of the SB 30 (Lara, 2018) insurance working group. The Resilience

Planning and Insurance Working Group will explore opportunities to improve community climate resilience by better reflecting landscape-scale adaptation strategies in insurance considerations.

Finally, ICARP plays a convening role in support of the Community Development Block Grant Mitigation (CDBG-MIT) Program by leveraging TAC meetings to convene a Citizen Advisory Committee. CDBG-MIT is a federal program that funds planning and infrastructure projects that reduce disaster risks and promote community resilience in disaster-impacted communities. The Citizen Advisory Committee presents an opportunity for dialogue with agencies, grantees, and stakeholders to inform and align implementation of the program.

"ICARP has proven to be an effective resource for amplifying community-level priorities and perspectives and these place-based values are critical if we are to effectively support our State in building resilience. ICARP plays a vital role of highlighting and building bridges across the interjurisdictional and interdependent aspects of building climate resilience in California including public health, environmental justice, finance, and natural resource management."

Laura Engeman, Scripps Institution of Oceanography

2020 AND 2021 ACCOMPLISHMENTS

ICARP's recent work through the Community Planning and Capacity Building Recovery Support Function (CPCB-RSF) included extensive stakeholder engagement. Two recovery roundtable events in Spring 2021 highlighted integrated resilience and recovery resources available through the recovery support function framework. ICARP also engaged stakeholders and local governments to understand planning and capacity needs for disaster resilience and wildfire recovery in scoping conversations that will inform the Peer Learning Network priorities. Additionally, ICARP leveraged an opportunity to communicate its goals and priorities, including incorporating equity considerations into disaster resilience, through participation in the Southern California Catastrophic Earthquake Workshop.

Responding to a need for technical assistance on SB 379 (Jackson, 2015) implementation, ICARP staff partnered with local governments to present on SB 379, climate resilience planning, plan alignment, and technical assistance. This engagement opportunity helped to build awareness of ICARP and the resources available through the Adaptation Clearinghouse. Additionally, ongoing conversations with municipalities also helped ICARP understand local planning support needs, which will inform the development of the plan alignment guides **(See Decision Support Tools and Guidance).**

In 2021, the Resilience Planning and Insurance Working Group developed two primers on planning and insurance. The Planning Primer and Insurance Primer were important to context-setting and developing a shared foundation of knowledge for participants with disparate expertise, which will allow greater depth in further conversations.

ICARP also executed a Memorandum of Understanding with the Department of Housing and Community Development for the Community Development Block Grant Mitigation Program (CDBG-MIT) Citizen Advisory

Committee. The Citizen Advisory Committee brings transparency to the CDBG-MIT program by providing an opportunity for public engagement and promoting alignment between CDBG-MIT and other hazard mitigation and resilience programs. To this end, ICARP held three public meetings in 2021, including an interagency hazard mitigation funding panel.

2022 WORK PLAN

Continued involvement with the Community Planning and Capacity Building Recovery Support Function (CP-CB-RSF) will present unique opportunities to promote ICARP's adaptation and resiliency goals. Through the CPCB program, the California Office of Emergency Services and ICARP will partner with FEMA and the Department of Housing and Community Development to develop a Disaster Recovery Planning Toolkit. The Toolkit will include disaster recovery planning guidance, best practices, case studies, and a disaster recovery funding guide. A variety of resources, including national recovery planning frameworks, stakeholder interviews, and CPCB workshops, will inform this Toolkit.

In 2022, ICARP established a Wildfire Recovery Peer Learning Network that convenes disaster-impacted and at-risk local and regional jurisdictions to share lessons learned, identify shared barriers, and co-develop solutions to complex wildfire recovery and resilience challenges. Lessons learned and solutions developed through the Peer Learning Network will be compiled in case studies shared on the Adaptation Clearinghouse.

The Resilience Planning and Insurance Working Group will continue its mission of identifying opportunities for ICARP to support integration of resilience priorities into insurance products. The collaborative research efforts of the Working Group are expected to culminate in a report or workshop that highlights case studies and best practices.

Finally, the Community Development and Capacity Building Mitigation Program (CDBG-MIT) Citizen Advisory Committee will hold 2-3 additional public meetings in conjunction with the TAC.

ICARP recognizes the practical value of strengthening regional partnerships and moving decisively towards a more resilient future through collaboration with metropolitan planning organizations like the Southern California Association of Governments (SCAG). Custom regional tools such as SCAG's SB379 Compliance Curriculum have been fortified by participation on the Technical Advisory Committee and will help cities and counties in Southern California prepare for our most acute climate threats such as extreme heat, wildfire, and rising sea levels.

Jason Greenspan, Southern California Association of Governments

Funding and Financing

ICARP Technical Advisory Council Priority Area

Adequately meeting the scope and scale of climate change requires direct investment in capacity-building, planning, and project deployment to advance adaptation and resiliency in California.

ICARP WORKSTREAMS

ICARP has been an active participant in FEMA's Cooperative Technical Partners (CTP) grant program, which seeks to strengthen the effectiveness of the National Flood Insurance Program and support FEMA's mitigation objectives. The CTP Program leverages partnerships to deliver high-quality hazard identification and risk assessment products, provide outreach support, and empower communities to take action to reduce

"ICARP is leading California's aggressive set of solutions, including the investment of billions of dollars to fight, adapt, and make California resilient to climate change - driving leadership for both California and the nation."

John Wentworth, Town of Mammoth Lakes

risk based on informed, multi hazard-based data and resources. Through this partnership grant, ICARP provides coordination support to align state resilience programs with federal Hazard Mitigation Assistance funding and identify a pipeline of risk reduction projects that strengthen California's portfolio of nature-based, social and environmental justice projects.

ICARP also provides coordination and technical assistance, in partnership with the California Office of Emergency Services, to identify projects eligible for FEMA's Hazard Mitigation Assistance grant programs.

In addition to its successful efforts in securing federal funding to advance resiliency in California, ICARP also plays a key role in state resiliency investments. The expertise of staff and the Technical Advisory Council provide important insights into stakeholders' funding needs, which were important to the development of the 2021 state budget's programs and priorities. ICARP manages a wildfire resiliency grant program funded through Proposition 84 and will launch three new grant programs to support local and regional planning and implementation.

2020 AND 2021 ACCOMPLISHMENTS

ICARP has applied its Cooperative Technical Partners (CTP) grant to provide technical assistance services and produce several work products in 2021. Technical assistance to state agencies included coordination support for application development and project scoping, convening state and local partners for workshops and increasing awareness of funding opportunities, and identifying state-funded planning grant programs that can be leveraged for future federal implementation funding. Agency partners included the California Department of Food and Agriculture, the Sierra Nevada Conservancy, CalTrans District offices and Headquarters, and the California Ocean Protection Council.

These collaborations revealed important insights that ICARP distilled into case studies that will be available on the Adaptation Clearinghouse in 2022. Finally, ICARP identified best practices of a pilot program, North Carolina's Coastal Resilience Communities Program, that provides technical assistance, planning, and capacity-building across four project phases (outreach, planning, technical or engineering, and implementation) that could support the development of a project pipeline.

In 2021, the Proposition 84 Wildfire Resilience and Recovery grants were awarded to four jurisdictions: Los Angeles County, Sonoma County, the City of Ventura, and the Town of Paradise. These grants support land use planning activities at the local and regional level to advance climate adaptation and resiliency efforts specific to wildfire risk reduction, enhance local understanding and consideration of vulnerable communities in an adaptation context, and support local or regional capacity-building to incorporate wildfire resilience into wildfire planning and recovery.

PROPOSITION 84 GRANTEE PROFILES

- **Los Angeles County:** Development of a holistic climate adaptation and planning strategy that includes an Integrated Wildfire Safety Program comprised of a Unified Vegetation Management Plan and Countywide Community Wildfire Protection Plan. These will be used to inform the update of the General Plan Safety Element.
- **Sonoma County:** Development of a comprehensive ordinance to manage forest resources, ensuring protection and stewardship of the beneficial uses of forest resources.
- **City of Ventura:** Develop a Climate Action and Resiliency Plan that serves both as a technical document guiding used day-to-day by city staff and a visionary document to help the community understand the city's long-term direction.
- **Town of Paradise:** Update of the Town's General Plan Housing Element and policies for the Landscaping Master Plan, as the community rebuilds for resilience following the catastrophic 2018 Camp Fire.

Finally, the unprecedented and comprehensive support for adaptation and resiliency efforts contained in the 2021 Climate Budget was supported by ICARP and its partners. In particular, the Council provided tremendous value in building understanding of local and regional adaptation and resiliency needs, which informed the state's funding portfolio (**See Table 1 for details**).

2022 WORK PLAN

ICARP's work through FEMA Cooperative Technical Partners (CTP) will enter a new phase in 2022. Additional case studies will capture the lessons learned from the initial implementation year and will also inform the efforts initiated under the new grant. ICARP will continue to use CTP funds to identify opportunities to align state programs to meet FEMA Hazard Mitigation Assistance funding eligibility requirements. In 2022, these efforts will have a specific focus on flooding and water projects and will also inform the development of ICARP's new grant programs. This second round of funding will also support development of the flood after fire plan alignment guide (**See Decision-Support Tools and Guidance)**.

In 2022, the Proposition 84 Wildfire Resilience Planning Grants will conclude. ICARP will convene the awardees in a roundtable on how grantees incorporated wildfire resilience into their long-term disaster resilience and recovery plans. This will provide the content for a case study, which will be hosted on the Adaptation Clearinghouse.

Finally, ICARP will establish the new grant programs authorized in the 2021 Climate Budget. The $250 million Regional Resilience Planning and Implementation grant program will offer competitive grants to scale regional resilience solutions. The Adaptation Planning grant program will offer $25 million in funding to local, regional, and tribal governments to update their planning documents to incorporate climate adaptation and resiliency. The Extreme Heat and Community Resilience grant program will support local and regional heat adaptation by investing $100 million in extreme heat and urban island mitigation activities.

TABLE 1: 2021-2022 CLIMATE RESILIENCE PACKAGE

Investment Category	Department	Program	2021-22	2022-23	2023-24	Total
Extreme Heat	California Natural Resources Agency	Urban Greening	$50	$100	$100	$250
	Department of Community Services and Development	Low Income Weatherization	$0	$25	$25	$50
	Office of Planning and Research	Extreme Heat and Community Resilience Program	$0	$25	$75	$100
	Strategic Growth Council	Community Resilience Centers	$0	$25	$75	$100
	Various	Extreme Heat Set Aside	$0	$150	$150	$300
Multi-Benefit and Nature Based Solutions	Department of Fish and Wildlife	Climate Change Impacts on Wildlife	$15	$35	$0	$50
	Department of Water Resources	Habitat Restoration	$0	$125	$75	$200
	Wildlife Conservation Board	Protect Fish and Wildlife from Changing Conditions	$31	$222	$100	$353
	Various	Multi-Benefit and Nature Based Solutions Set Aside	$0	$593	$175	$768
Building Ocean and Coastal Resilience	Ocean Protection Council	Ocean Protection	$0	$50	$50	$100
	State Coastal Conservancy	Coastal Protection and Adaptation	$0	$350	$150	$500
	Department of Parks and Recreation	State Parks Sea Level Rise Adaptation Strategy	$12	$0	$0	$12
Community Resilience	Strategic Growth Council	Transformative Climate Communities	$115	$165	$140	$420
		Regional Climate Collaboratives	$10	$10	$0	$20
	Office of Planning and Research	Climate Adaptation and Resilience Planning Grants	$10	$10	$5	$25
		Vulnerable Communities Platform and CalAdapt Mapping	$5	$0	$0	$5
		Regional Climate Resilience	$25	$125	$100	$250
	Various	Conservancy Funding	$60	$0	$0	$60
	Cal Volunteers	California Climate Action Corps	$5	$5	$5	$14
	California Environmental Protection Agency	Environmental Justice Initiative	$10	$10	$5	$25
Other	Department of Conservation	Biomass to Hydrogen/Biofuels Pilot	$0	$50	$0	$50
	Various	Fifth Climate Assessment	$22	$0	$0	$22
	Air Resources Board	Fluorinated Gas Reduction Incentive Program	$0	$15	$0	$15
		Total	**$369**	**$2,090**	**$1,230**	**$3,689**

Climate Equity and Vulnerable Communities

ICARP Technical Advisory Council Priority Area

Reducing risks from climate impacts requires strengthening protections and increasing the resilience of communities and people to respond, recover, and adjust to climate change driven impacts. Yet, some communities face compounding vulnerabilities and experience disproportionate impacts, particularly low-income and rural communities, communities of color, and tribal nations. A resilient California ensures all communities can weather and adjust to climate change, and that all communities can thrive. Ensuring a climate resilient "California for All" requires focused support for those communities most vulnerable to climate threats.

ICARP WORKSTREAMS

Climate equity and vulnerable communities are a core priority for ICARP, reflected in its authorizing statute (SB 246, Wieckowski, 2015) and defined in the program's vision and principles. ICARP's foundational work included developing a vulnerable communities definition and guidance on how local governments can use this definition to support their resilience and equity planning efforts through SB 379 (Jackson, 2015) and SB 1000 (Leyva, 2016). In addition to this foundational work, ICARP continues to fill critical gaps by developing resources and tools that support equitable adaptation action and build local resilience.

ICARP is developing an integrated platform with open, accessible, and community-grounded data that holistically identifies the communities most vulnerable to climate change. Through this effort, ICARP will make the vulnerable communities definition actionable for adaptation policy, planning, and investment decisions.

2020 AND 2021 ACCOMPLISHMENTS

In 2020, the Vulnerable Communities Definition that the TAC developed and adopted was enshrined in statute through SB 1320 (Stern, 2020), ensuring alignment between future legislative adaptation efforts and ICARP's work.

ICARP initiated work on the Vulnerable Communities Platform in 2021, beginning an inventory of related efforts across state, federal, regional, local, and partner entities, and coordinating with relevant interagency initiatives that might benefit from this tool. The Interagency Technical Working Group established by ICARP demonstrates a "whole of government" approach for this TAC priority. Finally, ICARP partnered with the Strategic Growth Council's Regional Climate Collaboratives program to co-host listening sessions with rural and tribal communities to gather on-the-ground perspectives to inform shared priorities, including the needs this tool can meet.

2022 WORK PLAN

Funding from the 2021 Climate Budget will allow ICARP to launch the Vulnerable Communities Platform. ICARP will offer a grant solicitation for pilot communities to co-develop the platform and convene community listening sessions and user focus groups to make sure the platform reflects conditions on the ground. This engagement will be crucial to the success of the platform.

ICARP provides me and my staff with insight on California priorities; which allows us to anticipate what to expect and what to plan for as a City. We utilize this knowledge by incorporating it into our State grant applications to bring much needed environmental dollars, environmental benefits, and quality of life to our residents. This is significant when our City is attempting to correct the issues that most disadvantage communities face after years of lack of investment and neglect.

Jacob Alvarez, City of Coachella

Additional Special Initiatives

ICARP Technical Advisory Council Priority Area

While many actions to promote adaptation and resiliency are inherently longer-range efforts, the pace and urgency of climate change also requires a rapid response to emerging challenges. ICARP responds proactively to new and emerging issues and opportunities as they align with the ICARP vision and principles. This includes building new partnerships and initiatives and providing guidance and support for partner efforts to respond in real time to local, regional, and state adaptation and resiliency needs.

ICARP WORKSTREAMS

The 2021 update to the California Climate Adaptation Strategy was an opportunity for ICARP to collaborate with the California Natural Resources Agency to set strategic direction for climate adaptation and resiliency efforts throughout the state. This update supports the

"With state, regional, tribal, and local representatives collaborating with nonprofits and private entities , ICARP has made great strides towards developing holistic strategies that work for everyone. ICARP's resources are incredibly important as we respond to climate impacts across the state."

Karalee Browne, Institute for Local Government

transformation required to prepare for climate change by 1) charting six outcome-based priorities to build resilience and increase accountability, 2) breaking down siloes and unifying collective climate adaptation efforts across all sectors and regions, and 3) making it easier for all Californians to understand and contribute to California's resilience agenda.

Updating the California Climate Adaptation Strategy identified gaps in the state's climate adaptation efforts, which included a lack of an updated, comprehensive interagency approach to extreme heat adaptation and response. Building on the 2013 report, Preparing California for Extreme Heat, ICARP and the Natural Resources Agency coordinated an Extreme Heat Action Plan concurrent with the State Climate Adaptation Strategy. The Extreme Heat Action Plan includes an inventory of both ongoing state actions and recommendations for new actions to address extreme heat.

2020 AND 2021 ACCOMPLISHMENTS

The update to the California Climate Adaptation Strategy in 2021 included extensive interagency collaboration and stakeholder outreach that consisted of: a kickoff webinar, 10 regional workshops, tribal consultation and listening sessions, and three public comment workshops following the release of the draft strategy at the end the year. These engagement opportunities informed the Extreme Heat Action Plan, which also benefitted from four extreme heat-specific public listening sessions.

2022 WORK PLAN

When released, the final California Climate Adaptation Strategy will reside on an interactive website that serves as a hub of the state's climate resilience actions. The online format will enable regular updates to reflect adjustments and implementation progress, and will be readily available to stakeholders. ICARP will assess opportunities to highlight this resource and integrate it into the Adaptation Clearinghouse. ICARP and the California Natural Resources Agency will finalize the Extreme Heat Action Plan and release it in a digital format accessible through the Adaptation Clearinghouse.

Appendix A: 2022 Work Plan

2020-2021 ICARP Impact Report

This 2022 Work Plan seeks to make meaningful advancement on California's integrated approach to climate change while maintaining a level of flexibility given the TAC's charge, as specified in Senate Bill 246, to be responsive to timely, urgent, and critical issues. The Work Plan is organized by the priority areas identified by the TAC, and staff reports to the TAC throughout the year will follow this structure. While the work plan provides a framework for the program's work in the year ahead, the scope and scale are subject to change.

ACTIONABLE RESEARCH AND RESILIENCE METRICS

QUARTER 1

Resilience Metrics report finalized and shared with TAC
Science Advisory Group vision presented to TAC

QUARTER 2

Draft California Climate Adaption Strategy reporting presented to TAC for feedback
Science Advisory Group established

QUARTER 3

Update on Fifth CA Climate Change Assessment

QUARTER 4

Update on Year 1 California Climate Adaption Strategy implementation report

DECISION SUPPORT TOOLS AND GUIDANCE

QUARTER 1

Web Contract Solicitations for Adaptation Clearinghouse and Cal-Adapt released

QUARTER 2

Expected release of EO N-19-19 Guidance
Draft Wildfire and Flood-After-Fire Hazards Plan Alignment Compasses brought to TAC
Web Contracts for Adaptation Clearinghouse and Cal-Adapt awarded

QUARTER 3

Expected release of Wildfire and Flood-After-Fire Hazards Plan Alignment Compasses
Adaptation Clearinghouse user needs assessment initiated and results presented to TAC

QUARTER 4

Expected release of updated Coastal Hazards Plan Alignment Compass
Adaptation Clearinghouse and Cal-Adapt tool updates presented to TAC

BUILDING PARTNERSHIPS AND LEVERAGING RESOURCES

QUARTER 1

Wildfire peer learning network established and workplan identified
Resilience Planning and Insurance Work Group workplan

QUARTER 2

CDBG-MIT Citizen Advisory Committee

QUARTER 3

Resilience Planning and Insurance Workgroup findings presented to TAC

QUARTER 4

Completion of peer learning network case studies
CDBG-MIT Citizen Advisory Committee

FUNDING AND FINANCING

QUARTER 1

OPR CTP FY20 grant close-out and case studies finalized

QUARTER 2

Stakeholder engagement for Regional Planning and Implementation Grants Program and Adaptation Planning Grants Program
Overview of 2022-23 Climate Budget
OPR CTP FY21 grant starts

QUARTER 3

Adaptation Planning Grants Program and Regional Planning and Implementation Grants Program Update
Launch Community Resilience and Extreme Heat Grant Program

QUARTER 4

Close out of Proposition 84 grants
Grant Program updates

CLIMATE EQUITY AND VULNERABLE COMMUNITIES

QUARTER 2

Release grant solicitation for Vulnerable Communities Platform pilot communities
Launch Vulnerable Communities Platform user focus groups
Work with selected Vulnerable Communities Platform pilot communities to build and test Vulnerable Communities Platform beta

QUARTER 4

Release Vulnerable Communities Platform 1.0 for public input
Vulnerable Communities Platform public input report out and next steps

ADDITIONAL SPECIAL INITIATIVES

QUARTER 1

California Climate Adaption Strategy finalized and published
Extreme Heat Action Plan finalized and published