



THE INTEGRATED CLIMATE ADAPTATION AND RESILIENCY PROGRAM

IMPACT REPORT AND 2020 PROGRAM RECOMMENDATIONS



LETTER FROM THE DIRECTOR

The Governor's Office of Planning and Research (OPR) is pleased to release the 2019 Integrated Climate Adaptation and Resiliency Program (ICARP) Impact Report and 2020 Program Recommendations. Now more than ever, we must learn to not only adapt our institutions to a changing climate, but to become stronger and more flexible under those conditions as well. These are challenges that will affect us all differently and disproportionately – but facing them is what it means to be truly resilient, not only in response to climate change, but as a society.

OPR would like to thank the members of the ICARP Technical Advisory Council for their time, devotion, and thoughtfulness to progressing the climate resilient ideals and objectives of California. Because of the wide array of expertise brought to the TAC by its members and the public, ICARP has been able to integrate adaptation strategies into complex policy issues including housing, planning, and community development while maintaining a focus on vulnerable communities. This report not only highlights the impressive accomplishments of ICARP over the past few years; it also provides a glimpse into the program's long-term aspirations as we continue to build a more sustainable, more inclusive, and more resilient California.

A handwritten signature in black ink that reads "Kate Gordon". The signature is fluid and cursive, with the first name "Kate" and the last name "Gordon" clearly legible.

Kate Gordon
Director
Governor's Office of Planning and Research

INTEGRATED CLIMATE ADAPTATION AND RESILIENCY PROGRAM

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INTRODUCTION

California has long been a leader in addressing and understanding climate change, from setting globally ambitious greenhouse gas reduction goals, to committed investments in actionable climate science, to investing in place-based, community-driven solutions. As one of the most climate stressed places in the world, California experiences profound and varied impacts across the state's vast expanse. As a result, it is paramount that policymakers address the state's vulnerability to climate change while also equitably transitioning to a carbon neutral economy.

The Integrated Climate Adaptation and Resiliency Program (ICARP), established through Senate Bill 246 (2016; Wieckowski), is a critical tool in California's strategy and leadership on climate adaptation and resilience. ICARP is charged with developing a cohesive and holistic response to the impacts of climate change by coordinating state and local adaptation efforts to expeditiously advance implementation. Through the 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.

Senate Bill 246 established two driving components of ICARP: the development of an Adaptation Clearinghouse (<http://resilientca.org>) and the formation of a Technical Advisory Council or TAC (<http://opr.ca.gov/planning/icarp/tac>). The Adaptation Clearinghouse is a centralized source of information and resources to assist decision makers at the state, regional, and local levels when planning for and implementing climate adaptation projects that promote resiliency across California. The TAC supports OPR in its goal of aligning state, regional, and local adaptation and resiliency efforts, with a focus on actions that improve the quality of life for present and future generations. The TAC derives its versatility through the expertise members bring from numerous sectors including local government, public health, natural resources and water, energy, environmental justice, tribal issues, and emergency services and public safety; all of which intersect with climate change. The TAC provides thought leadership to inform the state's resilience efforts and serves as a platform for state and local dialogue. Both components – the Adaptation Clearinghouse and TAC – have seen great evolution over the program's first three years and have advanced the state of practice to accelerate adaptation to climate change.

The following report highlights some of the accomplishments of ICARP since its launch in 2017, and outlines recommended programmatic next steps to advance California's leadership on adaptation, resilience, and integrated climate action. To do so, the report touches on ongoing and emerging opportunities, challenges, gaps, and risks, and explores the work ahead for ICARP to best respond to the unique realities present in California. The intent of this report – and the work of ICARP – is to motivate and inspire action under challenging and complex circumstances.

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 change¹

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.

Sources: http://opr.ca.gov/docs/20180313-Building_a_Resilient_CA.pdf; <http://resources.ca.gov/docs/climate/safeguarding/update2018/safeguarding-california-plan-2018-update.pdf>

¹ http://opr.ca.gov/docs/20180313-Building_a_Resilient_CA.pdf



CALIFORNIA'S CLIMATE CHALLENGE AND RESPONSE

Over the last several years Californians have experienced more frequent and severe extreme events. In parallel to California's growing leadership on adaptation and resilience, Californians have also lived through historic and prolonged drought estimated to cost over \$600 million and the loss of 5000 jobs in 2016, witnessed rising seas, coastal and riverine flooding, warmer temperatures, and experienced devastation from wildfire. In 2017 and 2018, California experienced the largest, most destructive and deadliest wildfires recorded in the state's history. In 2018 alone, California experienced both the biggest (the Mendocino Complex Fire which burned 459,123 acres) and the deadliest (the Camp Fire in Paradise which burned for nearly three weeks destroying more than 18,800 structures, and costing 86 Californians their life) wildfires in the state's history. These fires resulted in prolonged stretches of some of the worst air quality in the world as well as countless other public and mental health impacts, in addition to the vivid physical changes to our landscapes and communities.

Scientists have shown that climate change has contributed to the increasing size, intensity and resulting damage from wildfires in the western United States in recent years. California has experienced a

“Are California's cities preparing for the impacts of climate change? The answer is yes, thanks to the Governor's Office of Planning & Research program on climate adaptation and resilience. The Adaptation Clearinghouse provides state-of-the-art ideas for cities and the Technical Advisory Council, composed of state and local agencies, helps OPR develop approaches that cities can understand and implement.”

– Jonathan Parfrey, Climate Resolve

ICARP TAC Member

Recent Climate Adaptation 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.

fivefold increase in average annual burned area, with the largest increases in the North Coast and Sierra Nevada since 1972 . Another climate impact, sea-level rise, may threaten \$17.9 billion worth of residential and commercial buildings in California by 2050 (under a projected 50 cm of sea level rise). Continuing to grow vibrant, sustainable and resilient communities while tackling both immediate and slow-moving climate impacts is a challenge and trademark of the state's climate and environmental work.

Climate action – and swift response to the cause and effects a changing climate – is not new to California and Governor Newsom's leadership on resilience builds on important steps taken during prior administrations. In 2005, Executive Order S-03-05 was signed, calling for periodic scientific assessments on the impacts of climate change in California. In 2006, Governor Schwarzenegger passed landmark legislation called the Global Warming Solutions Act (AB32); not only was it the first of its kind legislation to create statewide limits on GHG emissions, but it also set the foundation for the state's focus on equity by mandating specific funding streams to disadvantaged communities. Then, in 2008, Governor Schwarzenegger issued the state's first executive order on climate change adaptation (E.O. S-13-08), which called for the State's first climate adaptation strategy. California developed the first ever state-level, multi-sector climate adaptation strategy in 2009. Since then, the State has continued to develop and update this strategy, which was renamed the Safeguarding California Plan (Safeguarding) in 2014. The latest update (2018) builds on nearly a decade of adaptation strategies to communicate current and needed actions across state government to build climate change resiliency; the 2018 plan was released in tandem with an update to the California Climate Change Assessment (Fourth Assessment) which is a cornerstone of California's strategy to act based on cutting-edge climate research.

These recent efforts also built upon work of a Technical Advisory Group (TAG) established by OPR to inform the directives of Executive Order B-30-15 (2015). In addition to calling for climate to be considered in all state investment and planning

decisions, E.O. B-30-15 mandates that because “climate change will disproportionately affect the state’s most vulnerable people”, planning and investments by the state must protect and prioritize the state’s most vulnerable populations.

Even with this long history of state leadership, a gap became apparent in recent years that such robust state initiatives needed to be better connected to and developed in coordination with local and regional partners. Meaningful climate adaptation requires deep understanding of regional impacts, vulnerabilities, and capacity to change. Entities such as OPR and programs like ICARP serve to bridge this gap by ensuring that climate research and adaptation efforts at the state level are designed to have the greatest impact for local, tribal, and regional governments – partners responsible for much of the day-to-day implementation of change in our communities and on our lands.

“The Greenlining Institute values ICARP’s commitment to prioritizing equity and the needs of frontline communities that are hit first and worst by climate threats.”

***– Sona Mohnot, The Greenlining Institute
ICARP TAC Member***

Adaptation Action Beyond California’s Borders

While California is leading the way on climate action, we are also faced with some of the most daunting and complex climate challenges in our growing state demanding a commensurate level of attention, support, and capacity. This work also demands that we look beyond state and other prescribed boundaries to inspire new ideas, share resources, and extend the reach of adaptation strategies and approaches whenever possible. There are a number of other state and local entities that have created task forces, commissions, committees, along with numerous documents dealing with climate adaptation. For example, similar to California, Pennsylvania’s Climate Change Act ordered a committee be created in order to advise the agencies on implementation of the Act. The committee is similar to the TAC but does have different concerns and lens through which it accomplishes its statutory requirements.

Groups like the Georgetown Climate Center and the United States Climate Alliance have created helpful tools, inventories, and platforms for dialogue to highlight how states and localities are tackling climate change across the United States. For example, the U.S. Climate Alliance has aggregated state fact sheets that highlight state actions and priorities by topic while the Georgetown Climate Center maintains an online resource called the State Progress Tracker that provides a summary of how states, like California, with an adaptation plan are implementing their plans. Coalitions that bring together states and regions working on climate resilience are critical to pushing the cutting edge of climate change science and the field of climate adaptation and resilience.

Sources: <http://www.usclimatealliance.org/state-climate-energy-policies>; <https://www.georgetownclimate.org/adaptation/plans.html>;

Recent Climate Adaptation Legislation

AB 1482 (2015) – Requires the state to update their climate adaptation strategy every three years. This includes updates to considerations involving planning and investment decisions by state agencies.

SB 246 (2015) – Established ICARP in order to coordinate regional and local efforts with the state level climate adaptation strategies. Also requires that the Adaptation Planning Guide be updated by various state agencies as well. Further, the legislation required that OPR create the Adaptation Clearinghouse.

SB 379 (2015) – Requires that city and county general plans include a safety element that addresses climate adaptation and resiliency strategies that are identified in the city or county 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 and support regional climate collaboratives in under-resourced communities in order to help those communities receive state funding for climate mitigation and adaptation projects.

SB 901 (2018) – Reduces forest fuel by funding prescribed burns and thinning around high fire risk communities. These measures support the state's adaptation and resiliency measures in the face of more frequent and extreme wildfires.

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 in order 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 via natural infrastructure projects to be included in the Adaptation Clearinghouse.

SB 576 (2019) – Requires entities to share information on the Adaptation Clearinghouse regarding coastal climate adaptation, infrastructure, and readiness programs.



ROLE OF ICARP IN STRENGTHENING CALIFORNIA'S RESPONSE

"As an elected official from a rural region, the ICARP TAC has served as an incredibly valuable forum to better understand the State of California's climate change program. The TAC and its members have provided numerous opportunities to better integrate the state's objectives into the daily lives of our community, and that's what really counts."

*- John Wentworth, Town of Mammoth Lakes
ICARP TAC Member*

OPR functions as the state's comprehensive state planning agency, serving the Governor and the Cabinet as staff for long-range planning and research especially around long-term growth, community development, and land use. OPR sits within the Governor's office and provides interagency support across the entire Cabinet; is inextricably linked to disciplines such as environmental justice, housing, transportation, climate change, and urban and rural growth; and seeks to provide solutions to the immediate challenges faced by Californians while prioritizing climate-informed and scientifically robust long-range planning. The office – with this interstitial and balancing role – is well-positioned to partner with regional and local entities across the state. In this capacity, OPR regularly functions as a coordinating body to help achieve state goals.

The Newsom Administration has prioritized moving from bold climate ambition to action. This focus on implementing on-the-ground tangible outcomes paves the way for programs like ICARP. The value of ICARP has been its ability to establish strong and meaningful partnerships and bring tools, resources, and perspectives together, making them readily accessible to different audiences to

ICARP Vision and Principles

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.

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.

effect widespread change. ICARP does not serve to answer or solve every problem but rather functions as a first or initial stop in exploring and collecting strategies to adapt to climate change and ultimately build resilience. Given its structure and function, there is also nimbleness to address urgent and emerging challenges and issues, especially complex cross-sectoral challenges that do not fall neatly within a specific entity or region's purview. This allows for the ability to think creatively about how to balance and align historically competing ideas, such as, preparedness and emergency response with long term resilience; climate adaptation and climate mitigation; the urban and rural divide; and so on. ICARP is built on the tenet that environmental protection, sustainability, and equitable communities will only be achieved through a multi-pronged approach of balanced decisions, goals, and priorities.

Technical Advisory Council

In its short tenure ICARP has undertaken several of these complex topics and provided guidance to state and local adaptation programs across California. With the launch of the program, the TAC recognized the importance of setting a clear vision and outlining core principles from which to operate and focus the program's work. This work has provided the state with a strong organizing framework on adaptation and resilience. After its initial convening in March 2017, the TAC developed a vision statement that expresses the characteristics of a resilient California and key principles to guide implementation of adaptation actions to achieve this vision. The resilience vision and principles were adopted by the TAC in September 2017 and have since been integrated into the 2018 Safeguarding California update, reflected in Southern California Association of Governments Regional Climate Adaptation Framework, and referenced in key documents such as the recently released "Mapping

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.

Resilience: A Blueprint for Thriving in Face of Climate Disasters"² and "Making Equity Real in Climate Adaptation and Community Resilience Policies and Programs: A Guidebook"³.

Keeping climate equity as a central objective of the program, following the TAC's work to develop the vision and principles, the Council adopted a definition for vulnerable communities in April 2018 and staff developed a resource guide to help local governments actuate this definition in the context of existing general plan requirements including climate adaptation (Senate Bill 379) and environmental justice (Senate Bill 1000).

With this foundational platform, the TAC has launched new initiatives, facilitated challenging dialogues, connected disparate partners, and most importantly provided strategic guidance. For example, following the TAC's direction at a March 2017 meeting, funding and financing for adaptation and resilience has become a major area of focus

² <https://apen4ej.org/mapping-resilience/>

³ <http://greenlining.org/publications/2019/making-equity-real-in-climate-adaption-and-community-resilience-policies-and-programs-a-guidebook/>

Partnership with the Federal Reserve Bank of San Francisco

ICARP staff and the Federal Reserve Bank of San Francisco co-hosted a series of regional workshops throughout the state in 2017-18 on climate adaptation funding and financing. The convenings brought together diverse stakeholders from local, state and federal government, private finance institutions, community-based organizations and non-profits to identify regional adaptation finance and funding needs. These convenings also provided an important capacity building and information sharing opportunity for practitioners working in finance and climate sectors. These convenings also catalyzed several local projects and initiatives – including efforts to support resilient housing investment in LA and sustainable recreation and forest management in the Eastern Sierra. These conversations have laid an important foundation to current adaptation funding and financing conversations across California. For example, they could provide important background to, and help guide, the implementation of specific aspects of Executive Order N-19-19, such as the directive to Department of Finance to create a climate investment framework, and have already helped to catalyze additional financing workshops being led by the Southern California Association of Governments.

for ICARP, resulting in the release of an adaptation finance guide for local governments: *Climate Adaptation Finance and Investment in California*⁴. The guide is first and foremost written for local governments, but it also serves as a roadmap for asset management and public finance processes, as well as an inventory of potential funding sources.

TAC Quarterly Meetings

The TAC meets quarterly at rotating locations around the state and hosts periodic workgroup meetings. All of these convenings of the TAC are open to the public and have been greatly strengthened by dialogue and exchange between the TAC, OPR staff, members of public, and invited speakers and partners. Meetings have covered an array of topics including, most recently, wildfire planning and preparedness for local governments, sea level rise science and novel approaches to coastal adaptation planning, and innovative models for funding and financing from the vulnerability assessment phase through implementation. In 2019, the TAC staff brought in partners from entities such as San Francisco Estuary Institute, Sonoma County Agricultural and Open Space District, City of Riverside, Coachella Valley Association of Governments, and the Sierra Institute. All meeting materials, past agendas and meeting notes can be accessed from the TAC meeting page: <http://opr.ca.gov/meetings/tac/>

4 http://opr.ca.gov/docs/20181106-Keenan_Climate_Adaptation_Finance_and_Investment_in_California_2018.pdf



ADAPTATION CLEARINGHOUSE

The other programmatic element of ICARP, the Adaptation Clearinghouse, has served to extend and implement the vision and philosophy of the TAC by providing a centralized and user-friendly source of information to assist decision makers across state, tribal, regional, and local governments when planning for and implementing climate adaptation efforts. Officially launched in August 2018, the clearinghouse is a single, searchable site that was developed through robust outreach and partnership.

ICARP staff worked closely with agencies such as the California Natural Resources Agency, the California Ocean Protection Council, and the California Department of Transportation (Caltrans) to aggregate relevant resources and curate the Clearinghouse webpages in a way that meets multiple state mandates and makes it apparent to end-users the critical importance of working across silos and sectors to achieve resilience outcomes. For example, Caltrans and OPR worked closely to integrate ICARP as a resource into the Caltrans SB1 Adaptation Planning Grant program (the state's first adaptation-specific planning grant), as well as highlighting case studies on each grant award. The partnership is a crucial

“We’ve been building affordable housing in the San Joaquin Valley for over 55 years, helping rural communities with clean water and infrastructure needs for 45 years, and since the recent drought, added emergency services and disaster preparedness to further promote community resiliency. We have come to recognize the deep connection in all of this work.”

– Tom Collishaw, Self-Help Enterprises

ICARP TAC Member



opportunity for state agencies to learn how future adaptation-specific grant programs can respond to local needs in a quickly evolving field of practice, and for others visiting the Clearinghouse to see on-the-ground examples from across the state. The call out box below highlights the diversity of projects that SB1 Adaptation Planning Grants have funded; these projects and others are hosted on the Adaptation Clearinghouse, providing a centralized location for entities to review and learn from projects in other jurisdictions⁵.

In addition to providing case studies and a comprehensive library of resources, the Clearinghouse team has worked to integrate existing data tools, such as Cal-Adapt⁶, and to develop new tools to assist and expedite action on the ground, an example of which is the Coastal Plan Alignment Compass (Compass)⁷. Led by the National Ocean and Atmospheric Administration (NOAA) and the United States Geological Survey (USGS), an interagency group developed the Compass, which provides local governments information on how to align various state and federal planning requirements. The Compass provides an overview of the required elements and best practices for local coastal programs, local hazard mitigation plans, general plans, and climate adaptation plans. Importantly, the Compass identifies crosswalk opportunities between these plans, including ways to leverage vulnerability assessments, to streamline and even expedite planning efforts so that jurisdictions can shift to implementation sooner. As a development partner on the Compass, ICARP worked with NOAA and USGS to build an interactive Compass on the Adaptation Clearinghouse, quickly becoming one of the most visited sections on the site. This compass tool is already being used and leaned on as a key resource as local governments like Hermosa Beach work to smartly align and streamline their local climate planning efforts (see case study).

5 <https://resilientca.org/case-studies/>

6 Cal-Adapt is an online decision support tool that provides access to the wealth of climate data and visualizations: <https://cal-adapt.org/>

7 <https://resilientca.org/topics/plan-alignment/>

SB1 Adaptation Planning Grant

County of San Mateo: With an SB1 Adaptation Planning Grant, the county created the Climate Vulnerability and Mainstreaming Resilience Planning Project. The project was implemented to assess countywide climate impacts, determine vulnerable transportation infrastructure, critical assets, and communities in order to develop adaptation strategies to prepare for those impacts.

Town of Mammoth Lakes: The town used moneys from an SB1 Adaptation Planning Grant to develop climate adaptation and resiliency strategies to inform the Town's General Plan update. The Town accomplished this by completing a vulnerability assessment and preparing adaptation strategies.

Working closely with California Natural Resources Agency, ICARP has also aligned the Adaptation Clearinghouse with the 2018 Safeguarding California Plan. The Clearinghouse includes a series of curated topic pages, allowing users to find resources specific to the topic areas of Safeguarding. These topic pages align directly with the sectors used in the 2018 update to Safeguarding including the newly added Climate Justice and Parks, Recreation, and Cultural Resources chapters. ICARP also worked with each of the sector leads for Safeguarding to help develop topic-specific content, as well as identify key state resources for the Adaptation Clearinghouse. This includes hosting over 40 case studies highlighting statewide adaptation programs or projects.

Coastal Hazard Resilience Planning in California



It Takes a Comprehensive Approach

Coastal Plan Alignment in the City of Hermosa Beach

The Coastal Plan Alignment Compass was designed to support California's coastal communities as they develop and coordinate local plans. The City of Hermosa Beach recognized the potential benefits of integration and alignment of different planning efforts and between 2013 and 2017 engaged in updates to the City's General Plan, Coastal Land Use Plan, and Local Hazard Mitigation Plan leveraging many of the principles identified in the Coastal Plan Alignment Compass. In July 2013, the City of Hermosa Beach initiated the process of updating and integrating the General Plan and Coastal Land Use Plan, collectively referred to as PLAN Hermosa. PLAN Hermosa includes revisions to all previous elements of the General Plan, except for the Housing Element, providing the City with the first comprehensive update to the General Plan in nearly forty years.

PLAN Hermosa implements much of the guidance provided in the California Governor's Office of Planning and Research General Plan Guidelines and the Coastal Plan Alignment Compass by connecting the dots between sustainability and the built environment regarding land use and mobility strategies to focus growth and reduce vehicle miles traveled, create healthy communities, reduce greenhouse gas emissions, and adapt to a changing climate. Both mitigation and adaptation to climate change were central components of PLAN Hermosa. The City has designed PLAN Hermosa to serve as the City's Qualified Greenhouse Gas Reduction Strategy, and through the general plan update process, the City evaluated a range of greenhouse gas reduction goals, including potential goals of accelerated carbon neutrality. With regards to adaptation to climate change, Hermosa Beach prepared technical studies to evaluate social and infrastructure vulnerabilities to sea level rise, while PLAN Hermosa incorporated analysis and policies to provide direction for future infrastructure and development projects to minimize future hazards that may become more frequent or more severe with climate change and sea level rise.

In 2017, while these planning efforts were underway, the City of Hermosa Beach also updated the Local Hazard Mitigation Plan in a manner that was informed by the studies and policies of PLAN Hermosa. This integration has helped to streamline implementation of both documents, increase public awareness, and reduce duplication of studies by leveraging resources and funding from state and federal agencies to incorporate resilience studies and policies. Through the City's work to update and integrate these plans within the same timeframe, Hermosa Beach has been able to build staff capacity, leverage technical studies, promote plan consistency, build community support, limit confusion, and speed implementation, among many other benefits.



CONCLUSION AND PROGRAM FOCUS FOR 2020

The work and task ahead are profound. In California, climate impacts are being felt every year across all regions of the state. These recent events confirm that climate change is not a stand-alone, isolated policy issue, but one that is tied into a host of other planning issues including housing, transportation, and public health – and like these, should be fundamental to all long-term planning and investment decisions. This has never been more illustrative than with the events of 2019, where over 2,000 fires were ignited in a matter of weeks while vast swaths of the state – and roughly 3 million people – experienced unprecedented and historic Public Safety Power Shutoffs.

This confluence of questions and challenges makes the work of a program like ICARP all the more critical and the task more demanding. ICARP is a platform for multi-sector conversations which can ensure a cohesive response to climate change, and enable the state to support and guide expedited local implementation. Programmatically, ICARP has made significant progress in just a couple of years despite its relatively small size; that progress needs to continue to keep pace with the growing challenges.

Over the course of 2019 the following challenges and barriers were identified as areas ICARP could focus on in 2020. These next steps serve as a guide and do not intend to be prescriptive, or to capture the full breadth or depth of ICARP’s work ahead.

“To avoid the hazards of the climate crisis, we must question everything we do – including emergency response – and select solutions that also reduce climate-forcing emissions. ICARP has that principle at its core: pairing mitigation with adaptation to achieve a zero-carbon, resilient, climate smart society, and provides the tools to get to work.”

– Jana Ganion, Blue Lake Rancheria

ICARP TAC Member

Resilience Metrics

Building adaptation and resilience to an equal footing with the state's ambitious climate mitigation efforts requires a clear set of measurable resilience goals. ICARP could serve as a venue to elevate current state resilience metrics and to identify critical gaps or areas of additional need/research. These metrics could serve as indicators of progress over the lifetime of the program.

Tools and Guidance

The TAC can continue to inform state-led programs through the development and sharing of tools and guidance to address the challenges faced by local and regional entities pursuing adaptation and resilience. One near-term effort could focus on the integration between the Adaptation Clearinghouse and Cal-Adapt to ensure that the strategy for delivering data and science becomes more of a climate services model, meaning one that is responsive to the biggest needs on the ground and paves the way for climate smart decisions. ICARP staff could also support the development of additional plan alignment compasses, similar to the coastal compass, that focus on other adaptation topics, such as fire.

Vulnerable Communities

ICARP could build upon the TAC's 2018 work to define vulnerable communities by exploring opportunities to support development of additional decision-support tools that ensure adaptation actions respond to and benefit vulnerable communities. Specifically, with the release of recent reports, such as "Mapping Resilience: A Blueprint for Thriving in Face of Climate Disasters" and "Making Equity Real in Climate Adaptation and Community Resilience Policies and Programs: A Guidebook", there is a growing body of work that ICARP can draw from to support the development of actionable and flexible decision-support tools.

Adaptation Clearinghouse

ICARP should focus on integrating the Adaptation Planning Guide and other new tools and resources into the Adaptation Clearinghouse in a dynamic and interactive way while continuing to integrate existing California-relevant resources into the Clearinghouse. With such improvements and enhancements, the development of a long-term maintenance and update plan of the site as well as an outreach and engagement plan to ensure it best supports decision-making could also be prioritized.

Funding and Financing

Adaptation funding and financing could continue to be a major body of work for ICARP, including: (1) Identifying opportunities to increase climate considerations in existing state funded programs, including opportunities to mobilize and leverage private capital and focus on supporting local government implementation, and (2) focusing on the role of the private insurance markets and identifying opportunities to align public and private activities that address climate impacts and support resilience.

Building Partnerships and Leveraging Resources

ICARP should continue its coordination role in order to: (1) improve partnerships between state, regional, and local entities and across sectors such as transportation, agricultural, and health systems, and across the rural-urban divide, and (2) ultimately strengthen adaptation programs. While ICARP is not staffed to provide a full statewide climate services program, ICARP could continue to explore opportunities to leverage the Adaptation Clearinghouse to support local implementation of adaptation and resilience efforts as well as identify state initiatives the TAC could inform and advise for greater uptake and impact locally.

Challenges Necessitating Attention

Given the program's ability and flexibility to tackle new and emerging challenges that do not neatly fall under one mandate or to the responsibility of a particular entity, ICARP could be leveraged to focus on developing issue areas such as natural climate solutions and the co-benefits and tradeoffs of integrated climate action.

Reporting and Tracking Progress

Going forward, the program's progress could be informally assessed at the last meeting of each calendar year to track and improve its effectiveness and reflect on gaps in capacity and expertise.

"ICARP has waded into the tough and abstract areas of climate resilience, such as adaptation financing, helping to give cities across California a schema for bringing climate change front and center and where it should be in our thought processes and planning."

– Brian Strong, City and County of San Francisco

ICARP TAC Member

An overarching challenge ahead for the TAC and ICARP, and adaptation practitioners at large, will be to balance immediate issues with long-term planning. While long-term climate resilience is understandably not at the forefront during disaster response and near-term recovery, ICARP and the TAC may explore and employ strategies to address barriers that lead to maladaptation and reduce the long-term health and wellbeing of people across the range of climate impacts. Never has this work been more meaningful and intertwined in all aspects of society, or has it been more apparent that California needs to lead the way on climate resilience in an integrated effort that inspires both public and private sector involvement. In fact, recognizing that the California Dream⁸ cannot be achieved without confronting climate change, the Governor, on the one-year anniversary of the Camp Fire, proclaimed November 8th as resilience day⁹. Now more than ever we know that reducing emissions is important for reducing the impacts of climate change but that implementing adaptation measures is just as pressing a task. ICARP's work to date and programmatic vision and work for 2020 is an important piece of the puzzle to building a resilient California.

8 The California Dream — the idea that every person can achieve a better life, regardless of where they start out — is central to who we are as Californians. Even in a time of economic growth and record employment, too many Californians are experiencing the squeeze of stagnant wages and the rising price of building-block necessities such as housing, health care, education, and childcare. We can and must reanimate the California Dream, building a California for All (source: <https://www.gov.ca.gov/>)

9 <https://www.gov.ca.gov/2019/11/08/governor-newsom-issues-proclamation-declaring-california-resilience-day/>



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