

Climate Resilience and Integrated Regional Water Management: Building Successful Partnerships



CONVENING REPORT

Virtual Conference

Nov. 15, 16, & 17, 2021

Sponsored By:



CALIFORNIA DEPARTMENT OF
WATER RESOURCES



Governor's Office of
Planning and Research



MAVEN'S NOTEBOOK
California water, verbatim.



**Local
Government
Commission**



**California Stormwater
Quality Association**



ACKNOWLEDGEMENTS

The Roundtable of Regions would like to thank all our partners who made this Summit so successful. We appreciate the support of our host, sponsors, and the hard work of the planning team.

Convener

IRWM Roundtable of Regions

Host

Maven's Notebook

Sponsors

Alliance of Regional Collaboratives for Climate Adaptation (ARCCA)

Association of California Water Agencies (ACWA)

California Association of Resource Conservation Districts (CARCD)

California Department of Water Resources (DWR)

California Stormwater Quality Association (CASQA)

Floodplain Management Association (FMA)

Governor's Office of Planning and Research (OPR)

Local Government Commission (LGC)

State Water Resources Control Board (SWRCB)

Planning Team

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Jennifer Morales | Department of Water Resources

Soren Nelson | Association of California Water Agencies

Mike Nowlan | Floodplain Management Association

Lynn Rodriguez | Watersheds Coalition of Ventura County/IRWM Roundtable of Regions

Mark Stadler | San Diego County Water Authority, Retired

Vanessa Velasco | Department of Water Resources

Jenna Voss | South OC IRWM/IRWM Roundtable of Regions

TABLE OF CONTENTS

ACKNOWLEDGEMENTS	i
Convener	i
Host.....	i
Sponsors	i
Planning Team	i
TABLE OF CONTENTS.....	ii
OVERVIEW.....	1
Purpose.....	1
Daily Themes	1
Desired Outcomes	1
Key Takeaways.....	2
Attendance	2
Summit Recordings, PowerPoints, and Resources	3
DAY 1 AGENDA.....	4
DAY 1 SUMMIT MATERIALS	5
Recording.....	5
PowerPoint Presentations	5
Q & A:	5
Comments Raised in Chat:.....	7
Resources:	8
DAY 2 AGENDA.....	11
DAY 2 SUMMIT MATERIALS	12
Recording.....	12
PowerPoint Presentations	12

Q & A:	12
Comments Raised in Chat:.....	15
Resources:	16
Day 2 Breakout Room Notes:	18
DAY 3 AGENDA.....	30
DAY 3 SUMMIT MATERIALS	31
Recording.....	31
Q & A:	31
Comments Raised in Chat:.....	36
Resources:	36
COMPENDIUM OF RESOURCES	38
SPEAKER BIOS	42

Click on any section to go to that page

OVERVIEW

The Integrated Regional Water Management (IRWM) Roundtable of Regions convened a 3 half-day virtual Summit, hosted by Maven's Notebook, on November 15, 16, and 17, 2021. The goal of the Summit, attended by over 200 people each day, was to leave attendees better equipped – and inspired – to build and maintain resilience through strengthened collaborative networks, new partnerships and relationships, rigorous planning, advocacy for sustainable funding and an ongoing commitment to the principles of integrated regional water management. IRWM groups offer an ideal platform to help meet these climate challenges; we are stronger together!

Purpose

The purpose of the 2021 Roundtable of Regions Summit is to create and deliver timely, practical, and adaptable information on climate change planning resources. This Summit will highlight working with partners to achieve water and climate resilience at both the regional and statewide scales. The strength and value of IRWM is that it is a well-established program that engages small and large water providers, Tribes, underserved communities, and other interested stakeholders.

Daily Themes

Day 1 (Nov. 15): Climate Science and Resilience: Programs, Plans and Partners

Day 2 (Nov. 16): How Regions are Building Climate Resilience; Tools and Resources

Day 3 (Nov. 17): Working Together for Regional Resilience

Desired Outcomes

- A greater understanding of all the climate resilience, adaption, and mitigation efforts and mandated Plans.
- A greater understanding among our partners about the value of climate resilience planning through IRWM and expand partnerships to address climate resilience and drought response.
- Alignment of water management goals, programs, and funding.
- Strengthened commitment to implementing Human Right to Water and other initiatives particularly to address the needs of Tribes and underserved communities.
- Practical tools and action steps to address climate resilience and drought response – and continue the conversation with the partners.

Key Takeaways

- IRWM is an appropriate platform to address climate resilience. IRWM plans provide a blueprint for long-term resiliency planning, considering anticipated impacts of climate change on watersheds at the local and regional level.
- IRWM has effectively enhanced water resource investments for previously underserved communities and Tribes. More investments in the social capital and infrastructure of regional water management are vital to address the anticipated impacts of climate change and to address historic water resource inequities.
- Many successful partnerships have been developed through IRWM at both the regional and statewide level. These partnerships leverage the work being done across many sectors, reduce duplication of effort and strengthen outcomes.
- The work conducted in IRWM Regions has effectively bridged gaps between state agency efforts and local programs and is a key to implementation of the Water Resilience Portfolio and the California Water Plan. There is a recognized lack of funding to support regional collaboration and project planning that supports local solutions to statewide issues.
- IRWM Regions need to become representative of the communities they serve – through more diverse staffing, more inclusive governance and more understanding of the challenges faced in underserved communities and Tribes. Representation is key in IRWM. It is imperative that there are people sitting at the table who reflect the diversity of the IRWM region.
- State agencies have an opportunity to sustain their role in – and support for – IRWM through ongoing, meaningful engagement and partnerships.
- IRWM supports a systems-thinking approach to responsible resource management that mirrors other state-wide efforts and considers land use, fire risk abatement, and habitat conservation. Engagement amongst the state agencies, IRWM, and other initiatives over the next 1-2 years is essential to better integrate these efforts at state, regional, and local scales.

Attendance

The Summit was attended by:

Date	Number of Unique Viewers
Monday, November 15	280 viewers
Tuesday, November 16	239 viewers

Wednesday, November 17	223 viewers
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Summit Recordings, PowerPoints, and Resources

The Summit recordings are available on Maven's YouTube channel at:

<https://www.youtube.com/channel/UCLuaSIcahtXwbOBMhU6HEmg>

The PowerPoint presentations and a list of the resources mentioned each day are available at:

<https://mavensnotebook.com/2021/11/18/webinar-climate-resilience-and-irwm-building-successful-partnerships-day-1/>

<https://mavensnotebook.com/2021/11/18/webinar-climate-resilience-and-irwm-building-successful-partnerships-day-2/>

<https://mavensnotebook.com/2021/11/18/webinar-climate-resilience-and-irwm-building-successful-partnerships-day-3/>

DAY 1 AGENDA

Climate Science and Resilience: Programs, Plans and Partners			
Item	Time	Agenda Item	Presenters
1.	8:30 a.m.	Welcome Logistics Webinar Format	Host: Chris Austin , Maven's Notebook Day 1 Moderator: Jenna Voss , South Orange County IRWM
2.	8:40	Land Acknowledgement	Sam Cohen , Chumash Tribe
3.	8:50	Keynote Speaker: DWR's Commitment to Climate Resilience and IRWM	John Andrew , Deputy Director, Climate Resilience, CA Department of Water Resources (DWR)
4.	9:05	What Climate Science Tells us about California's Water Future, and the Need for Resiliency Planning <ul style="list-style-type: none"> • Climate Resilience Overview <ul style="list-style-type: none"> ○ Adaptation ○ Resilience ○ Mitigation • California's Water Future • Regional Application of Climate Modeling for IRWM Planning 	Nuin-Tara Key , Deputy Director: Climate, Office of Planning and Research (OPR) Alex Hall , Director of the Center for Climate science, UCLA Lynn Rodriguez , Watersheds Coalition of Ventura County (WCVC)
5.	9:50	BREAK	
6.	9:55	What's Going On? A Tapestry of Who's Doing What on Climate Change at the State Level Q&A	Jennifer Morales , DWR
7.	10:15	Working in Partnership to Build Climate and Water Resilient Communities in California <ul style="list-style-type: none"> • Association of California Water Agencies (ACWA) • California Stormwater Quality Association (CASQA) • California Association of Resource Conservation Districts (CARCD) • Local Government Commission (LGC) • Floodplain Management Association (FMA) 	Moderator: Jenna Voss Panel: Soren Nelson , ACWA Karen Cowan , CASQA Karen Buhr , CARCD Danielle Dolan , LGC Mike Nowlan , FMA
8.	10:55	Day 1 Wrap-Up Preview Day 2	Jenna Voss

DAY 1 SUMMIT MATERIALS

Recording

<https://www.youtube.com/watch?v=W-YynGEivTo>

PowerPoint Presentations

Keynote Speaker

- John Andrew: DWR's Commitment to Climate Resilience and [IRWM Presentation slides](#)

Panel: What Climate Science Tells us about California's Water Future, and the Need for Resiliency Planning

- Nuin-Tara Key, Deputy Director: Climate, Office of Planning and Research (OPR) [Presentation slides](#)
- Alex Hall, Director of the Center for Climate science, UCLA [Presentation slides](#)
- Lynn Rodriguez, Watersheds Coalition of Ventura County (WCVC) [Presentation slides](#)

Presentation: What's Going On? A Tapestry of Who's Doing What on Climate Change at the State Level

- Jennifer Morales, DWR [Presentation slides](#)

Q & A:

Answers are summarized from the live recordings, chat, and Q&A log.

Speaker: Nuin-Tara Key - Climate Resilience Overview	
Question	Answer
How does the State Adaptation Strategy coordinate with the State Climate Assessment and Safeguarding California?	California's Climate Adaptation Strategy 2018 Update was named Safeguarding California. Required to be updated every 3 years, the 2021 Update is named the Climate Adaptation Strategy. The Update builds on the successes of previous updates, adds new information and fill in some of the gaps. The 2021 Update will articulate outcome-based priorities to guide and inform the state's climate resilience work. The Update also shows how other state agencies' climate planning documents nest under the Climate Adaptation Strategy. The

	Climate Assessment includes science-informed priorities that are incorporated into the Climate Adaptation Strategy.
Speaker: Alex Hall - California's Water Future	
Question	Answer
Given these projections, what is the State doing to facilitate large-scale water storage and flooding prevention projects?	<p>Locally, UCLA's Center for Climate Science is working with the LA County Flood Control District to update their flood event frequency assessments. This information will be used to retrofit their infiltration grounds and water storage facilities.</p> <p>Nuin-Tara: The State is looking at ways to scale solutions and improve water storage. In particular, the State is looking at how to use federal funding to fund solutions and take better advantage of hazard mitigation and recovery funding to implement nature-based solutions and large-scale water storage.</p>
Could you please comment on the latest thinking about how climate change is changing El Nino/La Nina occurrence?	There is a weak relationship between El Nino, La Nina and California's precipitation. The relationship is not perfect; counter to expectations, some years La Nina produces more precipitation, and El Nino produces little precipitation. Many global models show a tendency towards a transition to a permanent El Nino state. This would change storm dynamics that impact precipitation. This is an area of ongoing research.
Speaker: Jennifer Morales - What's Going On? A Tapestry of Who's Doing What on Climate Change at the State Level	
Question	Answer
Given these projections, what is the State doing to facilitate large-scale water storage and flooding prevention projects?	The future of flood control will very likely be natural flood control programs such as the Flood-MAR (Flood-Managed Aquifer Recharge) program. Romain Maendly, DWR, will share more information on this program tomorrow. Another program is WISP (Watershed Storage Investment Project). WSIP provides funding for investment in public benefits associated with new water storage projects. It's important to

	remember that public funds can only be used for the public good; private projects cannot be funded by the state.
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Comments Raised in Chat:

Tribal Involvement

- California tribes have been attempting to get to the tables of discussion bringing thousands of years of traditional ecological knowledge (TEK) and experience related to issues of water, forest, and land management. Please let's mention this as often as other agencies.

Engagement

- Our region has several Flood Mar/water storage projects planned and included in the GSPs for our region. Unfortunately, more members of the public are not in attendance of this webinar. This type of discussion helps to broaden the public perspective of SGMA.
- There is a Water Storage Investment Program (WSIP) project in our region that is projected to recharge our subbasin. The public should become more aware of this project and other recycled water projects —public engagement and outreach should become part of this discussion. Public buy in will strengthen these programs.

Translation Services

- It would be a great idea to involve more Spanish speaking people. This kind of information is so interesting for everybody and all kind of communities, independent of what kind of language do they speak.
- The Sac River Funding Area Prop 1 DACTI project has a fairly sizeable Spanish-language component - we'd really like to collaborate on this if others want to reach out (katie@burdico.net)
- The Central Valley deals with other languages including Chinese (simplified), Punjabi, Hmong, Cambodian, Lao, Thai. These are the languages used by both ag well and domestic well users.

Disaster Planning & Forecasting

- Perhaps we could have a disaster planning roundtable next?
- Forecast Informed Reservoir Operations (FIRO) SAVED the Russian River watershed this year. Lake Mendocino was the pilot project for FIRO, a reservoir on the Russian River.

Stormwater

- Napa County, in their watershed management plan of 1993-95 that brought all stakeholders together over a three-year process, included emphasis on stormwater as a resource, not a waste product. This became a national model. The County focuses on rainwater collection. The key component being collection of rainwater before it hits the ground to avoid flooding and the cost of filtering the water.
- The Monterey Region has implemented stormwater capture projects for water quality and potable water reuse for a community that has many disadvantaged communities. We are facing enormous obstacles to achieving success due to lack of funding for O&M and obstacles to receiving IRWM grants.

Fire

- The Madera IRWM is hosting a tour on December 4th in the North Fork area to view damage from the fire in both forests that include both managed areas and areas not managed. Contact jacob_roberson@outlook.com for more information.

Resources:

Includes all resources mentioned by speakers and shared by attendees

Participant Packet

- <https://www.roundtableofregions.org/summit-participant-packet>

Water news & resources

- [Mavensnotebook.com](https://www.mavensnotebook.com)
- [Cawaterlibrary.net](https://www.cawaterlibrary.net)
- [Groundwaterexchange.org](https://www.groundwaterexchange.org)

Bay Area Water Agency Coordination

- <https://www.bayareareliability.com/>

OPR Resources

- 2021 State Adaptation Strategy Update
 - <https://resources.ca.gov/Initiatives/Building-Climate-Resilience/2021-State-Adaptation-Strategy-Update>
- [Integrated Climate Adaptation and Resiliency Program](https://www.opr.ca.gov/Integrated-Climate-Adaptation-and-Resiliency-Program)

Water Resilience Portfolio

- <https://waterresilience.ca.gov/>

Watersheds Coalition Ventura County Climate Resilience Resources

- https://wcvc.ventura.org/documents/climate_change.htm

Sea Level Rise Guidance

- <https://www.coastal.ca.gov/climate/slrguidance.html>

Sustainable Groundwater Management Act

- <https://water.ca.gov/programs/groundwater-management/sgma-groundwater-management>

Draft Pathways to 30x30

- <https://www.californianature.ca.gov/>

CA Water Plan

- <https://water.ca.gov/Programs/California-Water-Plan/Update-2018>

Wildfire and Forest Resilience Action Plan

- <https://fmtf.fire.ca.gov/>

Progress Tracker

- <https://airtable.com/shr3GYW2AF4sf6Cgg/tbl2ikpAGWBEVULBj>

Urban Heat Island Report:

- <https://calepa.ca.gov/climate/urban-heat-island-index-for-california/urban-heat-island-report>

Climate Assessment:

- <https://nca2018.globalchange.gov/>

Alliance of Regional Climate collaboratives

- www.ARCCAcalfornia.org

California Landscape Stewardship Network

- <https://calandscapestewardshipnetwork.org/>

California Resilience Partnership

- <https://www.rcc.city/california>

Flood-MAR:

- <https://water.ca.gov/programs/all-programs/flood-mar>

Central Valley Flood Protection Plan

- <https://water.ca.gov/Programs/Flood-Management/Flood-Planning-and-Studies/Central-Valley-Flood-Protection-Plan>

Water Storage Investment Program

- <https://cwc.ca.gov/Water-Storage>

CASQA's Vision

- <https://www.casqa.org/about/strategic-plan-vision>

Karen Cowan Op-Ed on Stormwater as a Resource

- <https://www.sfexaminer.com/news/its-time-to-value-stormwater-as-a-resource/>

Ahwahnee Water Principles

- <https://www.lgc.org/resources/water/ahwahnee-water-principles/>

LGC's Water & Land-Use Integration Work

- <https://www.lgc.org/water-and-land-use>

Water - Land Use Integration - Growing Water Smart Program:

- <https://www.lgc.org/gws/>
- Post-fire resources from the Santa Cruz RCD in response to 2020 CZU wildfire
<http://www.rcdsantacruz.org/post-fire>

Fact Sheet on Drought/Fire/Flood Cycle as part of LGC's Covid Recovery Series: LGC's Pandemic Recovery Series (2 on water topics):

- https://www.lgc.org/pandemic_recovery/

FIRO (forecast informed reservoir operations) in the Russian River:

- [https://www.sonomawater.org/firo#:~:text=Forecast%20Informed%20Reservoir%20Operations%20\(FIRO\)%20is%20a%20flexible%20water%20management,resilience%20to%20droughts%20and%20floods.](https://www.sonomawater.org/firo#:~:text=Forecast%20Informed%20Reservoir%20Operations%20(FIRO)%20is%20a%20flexible%20water%20management,resilience%20to%20droughts%20and%20floods.)

Recent toolkit put out by the California Silver Jackets team:

- http://www.readyforwildfire.org/wp-content/uploads/Flood-After-Fire_California-Toolkit_September-2020-2.pdf

CA Water Policy Conference: CA Water in an Era of Increasing Climate Complexity

- <https://www.eventbrite.com/e/california-water-in-an-era-of-increasing-climate-complexity-tickets-203597203717>

LGC's Funding Navigation Platform:

- <http://www.fundingresource.org>

ARCCA Network: <https://arccacalifornia.org/>

- <https://www.epa.gov/pfas/pfas-explained>

Principles for State Investment in Climate Adaptation

- <https://cah2oresearch.com/2019/09/16/principles-for-state-investment-in-climate-adaptation/>

DAY 2 AGENDA

How Regions are Building Climate Resilience; Tools and Resources			
Item	Times	Agenda Item	Presenters
1.	8:30 a.m.	Welcome Logistics	Host: Chris Austin, Maven's Notebook Day 2 Moderator: Holly Alpert, Inyo-Mono IRWM
2.	8:40	Opening Speaker: Why IRWM is Key to Managing the State's Water Resources Under Climate Change	Dave Eggerton, Executive Director, ACWA
3.	8:55	Climate Change Analysis in IRWM Plans	Moderator: Holly Alpert Ted Daum, DWR Jennifer Morales, DWR Romain Maendly, DWR
4.	9:40	Break	
5.	9:45	How IRWM Regions Use Climate Change Analysis to Guide Adaptation Strategies Q&A	Moderator: Holly Alpert Karen Gaffney, North Coast Resource Partnership (NCRP) Melinda Barrett, Yosemite-Mariposa IRWM Ross Clark, Central Coast Wetlands Group Carlos Quiroz, Quiroz Communications Ian Achimore, Santa Ana Watershed Project Authority (SAWPA)
6.	10:50	Day 2 Wrap-Up Preview Day 3 Directions for Breakout Sessions	Holly Alpert
7.	11:00	OPTIONAL: Group Discussion Topic: Discuss adaptation practices with communities of interest	Transition to Zoom Meeting Breakout Rooms Room 1: Northern California Room 2: Central California Room 3: Southern California Room 4: Mountain Counties/Desert
8.	12:00 p.m.	Adjourn	

DAY 2 SUMMIT MATERIALS

Recording

<https://www.youtube.com/watch?v=fw8AOM4d-Y8>

PowerPoint Presentations

Panel: Climate Change Analysis in IRWM Plans

- Ted Daum, DWR [Presentation slides](#)
- Jennifer Morales, DWR [Presentation slides](#)
- Romain Maendly, DWR [Presentation slides](#)

Panel: How IRWM Regions Use Climate Change Analysis to Guide Adaptation Strategies

- Karen Gaffney, North Coast Resource Partnership (NCRP) [Presentation slides](#)
- Melinda Barrett, Yosemite-Mariposa IRWM [Presentation slides](#)
- Ross Clark, Central Coast Wetlands Group [Presentation slides](#)
- Carlos Quiroz, Quiroz Communications [Presentation slides](#)
- Ian Achimore, Santa Ana Watershed Project Authority (SAWPA) [Presentation slides](#)

Q & A:

Answers are summarized from the live recordings, chat, and Q&A log.

Speaker: Ted Daum – Climate Change Analysis in IRWM Plans	
Question	Answer
What is the website used in your presentation on funded water projects? The interactive map is very informative, would like to review it. Is it publicly assessable?	The presentation shown is a Tableau dashboard. Tableau is a data visualization software used internally by DWR. DWR is working on a website that will display a map with this information. It is currently in QA/QC and is expected to be posted on the IRWM web page. Stay tuned.

Speaker (Romain Maendley) Representative climate change IRWM projects and their benefits.

Question	Answer
There was unprecedented flooding in Europe in June, and there is currently unprecedented flooding in British Columbia. What does this indicate for California?	One of the good journal articles about this topic is from Sasha Gernshunov: https://www.semanticscholar.org/paper/Precipitation-regime-change-in-Western-North-The-of-Gershunov-Shulgina/f1d933caadcf51d13559b628778eab0998fce787
Where is financing on the timeline?	That's a good question. Financing is one of the first question that should be carry on throughout the process from planning to implementation of a project.
How is DWR preparing for unprecedented flooding?	Multiple programs in DWR are working on this topic: FIRO, Central Valley Flood Protection Plan, and the climate change program through the weather generator that I described.
How much can MAR reduce peak 3-day flood flows?	It really depends on the level of Flood-MAR implementation. Our Merced Study is looking into that and the early results are very promising, especially under climate change scenarios. Early next year we will publish a lot of information related to this study.
Roman, you have used tree-ring indices to generate weather, but not the serial correlation of large climate cycles embedded within these time series. These time series when transformed to cumulative departure show considerable serial correlation and large cycles related to known climate forcings such as PDO and AMO that are not necessarily stochastic in nature. How could you better improve your use of these data and the cycles embedded within them?	An excellent technical question. And I believe that you are alluding to the fact that we are currently in a "wetter" oscillation cycle. I have some ideas, but I will need to get back to you on this question. Romain will follow up with Randy Hanson individually

Panel: How IRWM Regions use Climate Change Analysis to Guide Adaptation Strategies

Question	Answer
For Karen Gaffney: Are you incorporating potential displacement of populations in high-risk areas in your planning? If so, how?	Yes, using a variety of ways - yet it is complicated by the fact that the majority of the North Coast Region is either severely economically disadvantaged or disadvantaged. We are evaluating at the regional scale via a variety of biophysical filters (SLR, smoke impacts, fire vulnerability, flood vulnerability, heat islands, water quality) as well as more detailed socio-economic filters. Would love to talk more!
Follow-up question: Is anyone working with tribes specific to climate change impacts?	<p>Melinda Barrett: The Yosemite-Mariposa (Y-M) IRWM is working with the Southern Sierra Miwuk Nation. They are struggling for federal recognition and have allocated lands. The DACI using DACI grant funds for tribal engagement. Y-M has allocated some of their DACI grant funds for tribal engagement focusing on fuels reduction and water storage. Y-M is also partnering with County Fire and Public Works to incorporate other programs and provide additional services.</p> <p>Ross Clark: In the Salinas Valley, many members of tribes have been displaced to the inland area in search of affordable housing. The tribes have ancestral lands. We are working with tribes to integrate members into restoration activities, particularly in the coastal areas.</p>
For Ross Clark: What have you found to be the biggest challenges to aligning the IRWMP and stormwater?	Big challenges are grant funding alignment with local priority projects, linking specific resource management needs of individual agencies with the multibenefit project concepts of these projects, and watershed management and enhancement is not the responsibility of any individual agency, rather aspects of good watershed management are the authority of many different agencies (supply, GSA, flood, water quality).
For Ross Clark: Can you share what type of criteria you were using to prioritize areas for Water Supply and Flood Protection potential project sites?	<p>Water supply included permeable soil maps near degraded streams with significant winter flows. We are now looking at site specific permeability evaluation to prioritize specific project areas within the zones identified as high priority.</p> <p>Flood retention we used historical wetland maps, FEMA flood zones, and areas that currently flood within the watershed during extreme rain events. we are now prioritizing those</p>

	based on landowner interest, adjacency to water reuse infrastructure and where multiple benefits can be achieved (parks for DAC, greatest flood reduction to urban areas downstream, projects that aid other needs like Ag order compliance or municipal storm water planning).
For Ross Clark: How did you collaborate with the USGS modeling and the USBR/USGS (Water Smart Project) in modeling these water resources of the Salinas Valley? Answered in Q&A	Our modeling predated the completion of the USGS model. We had many discussions with USGS to make sure our process aligned with their methodology.
For Ross Clark: How was the work you just presented funded (the assessment of stormwater projects and their benefits in relationship to the IRWM program)?	Our funding included Prop 84 planning funding and other DWR implementation grant funding, State water board funding to do the Stormwater plan. We are working with Wildlife Conservation and OPC on design, permitting and implementation.
For Carlos Quiroz: How do we get equal representation at the decision-making level?	<p>NCRP has co-equal leadership of Tribes and counties, and has a Director of Tribal engagement, and Tribal representatives on the Technical Peer Review Committee. Happy to share the process that resulted in this.</p> <p>Look outside of the typical leader identification/selection method, which mostly entails those already in position reaching out within their social/professional circles...which leads to more of the same. Definitely reach out to local CBOs working with those communities. Identify individuals who already have the trust and pulse of the community (this may not be your typical leaders). It's easier to give those individuals water expertise than it is to try to get a water expert the trust of the community.</p>

Comments Raised in Chat:

Engagement and Representation

- *"Solicitation without implementation is an exercise in futility"*

- *Displacement of Tribes has not only been physical. There are many other forms of displacement.*

Resources:

Includes all resources mentioned by speakers and shared by attendees

ACWA IRWM Policy Principles

- <https://www.acwa.com/resources/integrated-regional-water-management-policy-principles/>

After Wildfire

- http://www.readyforwildfire.org/wp-content/uploads/After-Wildfire-Guide-10JUNE2019_draft_final-ADA-compliant.pdf

Climate Change Handbook for Regional Water Planning

- <https://resilientca.org/projects/814adf60-17dd-4da8-aefa-94b9759a76af/>

Roundtable of Regions Climate Resilience

- <https://www.roundtableofregions.org/climate-resilience>

DWR Regional Climate Specialists

- <https://resilientca.org/projects/814adf60-17dd-4da8-aefa-94b9759a76af/>

Climate Registry

- <https://www.theclimateregistry.org/>

Hydrology Section at DWR have posted a few Tableau Dashboards using various hydrologic data on the CDEC website

- <https://cdec.water.ca.gov/snow/>

Climate Risk Informed Decision Analysis

- <https://en.unesco.org/crida>

Forecast Informed Reservoir Operations

- [https://www.drought.gov/news/forecast-informed-reservoir-operations-firo-overcoming-barriers-and-realizing-benefits#:~:text=Forecast%2Dinformed%20reservoir%20operations%20\(FIRO\)%20is%20a%20reservoir%2D,benefits%20and%20to%20enhance%20flood](https://www.drought.gov/news/forecast-informed-reservoir-operations-firo-overcoming-barriers-and-realizing-benefits#:~:text=Forecast%2Dinformed%20reservoir%20operations%20(FIRO)%20is%20a%20reservoir%2D,benefits%20and%20to%20enhance%20flood)

Tuolumne River Watershed Study:

- For info, please email Romain.Maendly@water.ca.gov

North Coast Resource Partnership:

- <https://northcoastresourcepartnership.org/>

Yosemite-Mariposa IRWM

- <http://www.sierrawaterworkgroup.org/yosemite-mariposa-irwm.html>

Monterey Sea Level Rise / Climate Variability

- <https://coastalresilience.org/project/monterey-bay/>

Central Coast Wetlands Group

- www.centralcoastwetlands.org

EPA: Climate change disproportionately affects marginalized communities

- <https://www.axios.com/epa-report-climate-change-marginalized-communities-391492c7-bedf-4d98-9208-58e84ed03f48.html>

Why Marginalized Groups are Disproportionately Affected by Climate Change

- <https://earth.org/marginalised-groups-are-disproportionately-affected-by-climate-change/>

Why Climate Change is an Environmental Justice Issue

- <https://news.climate.columbia.edu/2020/09/22/climate-change-environmental-justice/>

How Communities Of Color Are Hurt Most By Climate Change

- <https://www.forbes.com/advisor/personal-finance/communities-of-color-and-climate-change/>

On scientific confluence and the challenges of avoiding a ghastly future in California water

- <https://cah2oresearch.com/2021/09/20/on-scientific-confluence-and-the-challenges-of-avoiding-a-ghastly-future-in-california-water/>

Day 2 Breakout Room Notes:

Breakout Room 1: Northern California

1. **Introductions: Briefly share (in the chat or out loud) where you are joining from today, and what agency / organization / Tribe you represent.**

Facilitator: **Soua Lee**, King's Basin IRWM

Notetaker: **Oceana Haaland**, CivicSpark Fellow

Participants:

- **Katie Burdick** - Yuba IRWM
- **Gayleen Darting-Johnson** - Sacramento Regional County Water, Recycled Water
- **LaDonna Williams** - Small Community Environmental Justice (EJ) Group, All Positives Possible (SF Bay Area)
- **Lonnie M.** - Small Community EJ Group (Bay Area)
- **Lawrence Murray** - Community Member, coolingearth@yahoo.com
- **John Watson** - Metropolitan Water Resource District from Chicago
- **Lindsay Correa**, DWR
- **Kristyne Van Skike** - CVFPB
- **Zubair Dosu** - CVFPB

2. **What did you hear during today's panels that was particularly helpful or interesting?**

- Carlos' presentation was excellent; really liked Carlos' presentation about climate justice.
- Equitable outcomes is the overarching piece of climate change.
- Finding a nexus between vulnerable communities and decision makers is important for designing appropriate policies and decisions.
- IRWM is focusing on equitable outcomes, coming out with definitions of equitable outcomes, and focusing on specific actions for IRWMs to attain equitable outcomes.
- There was not a box for EJ group in opening poll, no box for community-based organization.
- Increasingly obvious that this process (Summit meetings) remains non-inclusive for African Americans.
- Minorities are lumped together as Disadvantaged Communities (DAC).
- Meetings become controversial when talking about equity.
- There's Tribal and Latino representation, but not Black people "until the third day."

3. What climate change adaptation practices is your region implementing that are working well?

- King's Basin is in charge of making sure flood levies are intact and safe.
- Used to do prescribed burns but have received a grant to create wood chips instead of doing prescribed burning to reduce pollution/smoke.

4. What are challenges to implementing climate change adaptation?

- Lack of education regarding climate change makes it difficult to communicate policies if people don't understand terms, etc.
- Funding is a challenge. There is funding for DACs, but there are layers of differences between DACs. African American groups deserve funding as well
 - Average funding for African American groups on the Bay Area coast was \$20,000, but Native American Tribes had \$800,000 available and Latino had \$200,000 available
 - Other groups have been better equipped with funding.
- Even when there's a crisis (blown up refinery in SF Bay Area), the white community was found and helped, but the African American community was forgotten. People don't want to talk about the African American community
- One organization's decision-making structure used to only look at cost of investment and did not incorporate EJ or social justice. They have made significant changes to incorporate these ideas in their structure.
- Certain policies aren't talked about, like biochar and using beavers to manage habitats.
 - Biochar can sequester carbon for thousands of years
- Trillion Trees was brought up at COP26, one tree per person per year.
- Rejuvenative agriculture could turn the tide of the carbon problem.
- In Chicago, rural areas don't believe climate change is happening which influences voting. Have to overcome disbelief.

5. What tools or resources does your region need to move forward on climate change adaptation practices?

- Need more climate change education.
- Need more funding.
- A lot of grants/NOIs don't list community-based organizations as eligible applicants.

- IRWM can't solve all problems, but can be more inclusive and provide more funding, which doesn't exist right now, .
- DACs have felt the brunt of EJ issues, such as Hunter's Point homeless shelter, which has 125 trailers surrounded by toxic/nuclear waste (waste plant) with high winds and is 5 blocks from the shipyard. There is a majority of Black individuals living there - environmental racism.
- African Americans need to be at the table. NGOs come in but have never lived there and don't buy there, but take the funding without making the community better
 - Need real leaders, not NGOs who intercept funding.
 - Need members of community to help, not outsiders who don't look like the community.
 - Focus should be on grass-root organizations who are working in communities to educate people.
- Need more grassroots funding and have grassroots talk at the table.
- Homeless population is overlooked and not at the table. Need extra engagement efforts and need to be a part of the solution.
- Community-based groups need the resources that the people who put on these summits have had easy access to.
- Need to hear African Americans AND implement their ideas, less tokenism.
- Poor water quality in Rodeo district because it's next to raw sewage plant and trains, there's vapor intrusion, plus wildfires.
- Summits like these are not an inviting space.
- This summit is a poster child for inequality, no Black people speaking at this summit so far.

6. What is your most effective/primary tool to combat climate change?

- Beavers for wetland preservation
- Tableau, tracking data
- Effective communication and listening

Breakout Room 2: Central California

1. Introductions: Everyone briefly share (in the chat or out loud) where you are joining from today, and what agency / organization / Tribe you represent.

Facilitator: Sam Cohen (Santa Ynez Chumash Tribe)

Notetaker: Pablo Ortiz (CivicSpark Fellow)

Participants:

- **Ross Clark** (Director of Central Coast Wetlands Group, Moss Landing Marine Labs, Monterey)
- **Caroline Webster** (CivicSpark Fellow, Central Coast Water Boards)
- **Thomas Niesar** (Water Resources Planning Manager at Alameda County Water District, calling from Incline Village)
- **Marliez Diaz** (Self Help Enterprises – drought relief + well education, calling from Fresno)
- **Alejandro Paolini** (Water Conservation Specialist, calling from Central Valley)
- **Justin Fredrickson** (California Farm Bureau)

2. What did you hear during today's panels that was particularly helpful or interesting?

- Was not aware of all the regional specialists.
- Appreciated equity and community engagement topics.
- Salinas stormwater presentation; related to Central Valley Flood-Mar work; retention and flood ponds to slow down water flow.
- Green infrastructure, which is applicable to NPDES permitting (wastewater discharge requirements); also, vulnerability analysis: not just indicators of risk, but goals for how to create sustainable plans with multiple beneficiaries.
- Reflected that different regions have different resource challenges, but we all benefit from IRWM, collaboration and representation; a multi-benefit focus is key.

3. What climate change adaptation practices is your region implementing that are working well?

- Wetland restoration – restoring wetland functions and habitats centers climate resiliency even before intentionally focusing on that issue; a focus on watershed and habitat has many unintended benefits; new environmental focuses enhance and verify natural processes.

- Chumash has water recycling of wastewater, used for irrigating foliage and water features (such as in their Tribal museum)
- There is wastewater recycling in the Central Coast, but unless we're in a critical drought, it's not often financially productive to produce and ship; could grants be a solution?
- There is potential for Solvang wastewater recycling, but the local golf courses are not interested.

4. What are challenges to implementing climate change adaptation?

- It's expensive and requires subsidization to incentivize.
- Romain's presentation was topical: making wise investments given climate uncertainty.
- Acknowledged California's strong support of climate science and resilience, in other states and areas that is not the case.
- There's a unanimous position on their board for climate resilience; funding is always helpful; emphasized "no regrets" investments, which are often multi-benefit
- Noticed a disparity between funding for planning and funding for action/implementation; many plans have not reached their execution stage. Asked about other attendees' progress.
- Their organization is not there yet for plan implementation.
- Acknowledged a "climate renaissance" with new federal administration, and the need for action when the opportunity is there [short windows for action]. Asked about groundwater sustainability.
- Discussed groundwater education and minimum thresholds and measurable objectives in well water usage.
- Discussed the process by which fracture reservoirs dry up, destabilize. There is a similar situation in Fresno.

5. What tools or resources does your region need to move forward on climate change adaptation practices?

- Asked how many have Climate Resilience Plan + Risk Assessment:
 - One is in the works for next year.
 - CCWB has a resolution for climate change measures in all its activities (more of a framework than plan); permitting requires wastewater facilities to prepare for climate change, including vulnerability assessments; precise data is important, especially for wastewater treatment plans affected by sea level rise

(downscale regional data?); emphasized need for funding at all points of projects; access to other regional agencies for collaboration is also important

- Discussed treatment processes, and potential applications on groundwater supply.
 - There is a hesitancy to use on consumed crops. S
 - Singapore uses treated wastewater for drinking water - [public hesitant to accept alternative drinking water sources].
 - Namibia also has a fully recycled drinking water supply
- Education is important, especially regarding treated wastewater and other potential water sources
- Organization is pursuing streamline regulation for indirect potable water use (in studies) and also direct potable use, but that process is taking longer; emphasized the need for climate-ready and drought-proof sources of water.
- Desalination
 - One agency has brackish water desalination; pumped and desalinated for potable supply; strong anti-desal contingency because unlimited drinking water supply could have growth implications [pushback from communities on solutions with other consequences].
 - Mentioned that floating desalination projects have been proposed.
 - Marin county is facing water shortage, and their reservoir could run dry; looking at off-shore desalination units.
 - There is a test run for that out of Vandenberg Airforce Base.
 - Brought up the implications of population growth and desalination especially when sea level rise could threaten to displace those coastal communities.
- Most tribes lived on coasts until forced resettlement; currently coastal residents are highly affluent and will try to delay the loss of property
- Asked about downscaling data models; mentioned the use of stormwater to recharge aquifers, and agency's involvement in advanced precipitation studies; there is a necessity to take large models and downscale to watershed level for regions – single set of data for analytic work in different organizations (same input data for alignment).

Breakout Room 3: Southern California

1. **Introductions: Everyone briefly share (in the chat or out loud) where you are joining from today, and what agency / organization / Tribe you represent.**

Facilitator: **Ian Achimore**

Notetaker: **Ana Quintos, SAWPA Intern**

Participants:

- **Emma Head** – Scripps Institution of Oceanography
- **Jenna Voss** – County of Orange
- **Lynn Rodriguez** – Watershed Coalitions of Ventura County
- **Amanda Guzman** – LA County
- **Jennifer Ares** – Yucaipa Valley WD
- **Lara Shellenbarger** – Ventura County PWA
- **Nicole Wynd** – Self-Help Enterprises
- **Melissa Moreno** - WRPI
- **Jimmy Smith** – San Diego Water Board
- **Jason Evans** – City of Carlsbad
- **Eric Tsai** – DWR

2. **What did you hear during today's panels that was particularly helpful or interesting?**

- From Central CA, work with low-income housing.
- Self-Help has educated the small communities (under 500,000) on natural disasters and preparation.
 - Also focused education on climate change.
- Appreciated Carlos's comment about generational educational inequities.
- As former community organizer and advocate in the LA County, appreciated Carlos's comments. The information provided by all the presenters was vast so I will definitely review the multiple resources provided. Identified with Carlos's part: not a lot of proactiveness.
 - Gives us hopes and dreams that there are other people/organizations that have the same vision and goals.
- Bringing back the wetlands – struck home, in area of Tulare basin – natural wetland.
 - Taking out the invasive species and replanting native plants.
 - Need to make sure our area is as prosperous as it once was.
- Wetlands are a multi-benefit project, so it is always a focus in IRWM
- It's good to learn from others.

- Interested in the incredible amount of collaboration.
- Water agencies are already engaging with water education outreach, so there may be some overlaps in the educational opportunities for older and younger generations.

3. What climate change adaptation practices is your region implementing that are working well?

- Recommends engaging with climate collaboratives in the area.
 - 7 climate collaboratives – LA has a successful one.
 - Check ARCCA website to find out if there is a climate collaborative in your region, a way to share resources.
 - Served as a good way to connect funding (can go as low as \$15-20,000 projects).
 - Water Foundation has list of projects they have funded – includes low capacity funding.
- Roundtable can put together resources to connect people/organizations to climate collaboratives and to funding.

4. What are challenges to implementing climate change adaptation?

- A lot of funding for implementation, but there is a funding gap in research and planning.
 - The gap can't be filled at the local level.
- Takeaway: we really need to have conversation to breakdown the silos for supporting the planning aspects for multi-benefit projects.
- From a regulator perspective:
 - We wish we could hear from our regulated community in order to help the challenges they're facing.
 - Is there anything we can do to become more flexible?
- There are many requirements working under federal regulations.
- Works with stormwater and IRWM in Ventura.
- From a regulatory perspective:
 - Regulatory requirements become so narrowly focused, which encumber opportunities for planning and implementing multi-benefit projects.
 - There is a big funding gap, it has become burdensome to focus on a numeric standard and not have the chance to look at larger scale project.
 - Hinders a lot of collaboration and coordination .
- Planning grants

- Demand is high across the state, not always a great fit for local agencies.
- South Orange County wants to see more support on out-of-the-box thinking
 - Compliance is one of our primary funding sources.
 - We have been working to include water agencies on innovation.
 - Working on compliance has hindered disadvantaged-community involvement.
- Look at how we can overlap social aspects that IRWM focuses on through a practical standpoint:
 - Example:
 - Distributive green infrastructure being implemented city wide but strong focus on smaller communities.
 - Long term conversation.
- How to integrate environmental justice?
 - Collaboration and integration needed.
 - Get together with multiple parties (not just the IRWM groups) maybe include EPA and disadvantaged-community groups.
- Topic of uncertainty/risk:
 - We all want certainty before we invest money.
 - Saw model predictions on increased flows.
 - How do we decide on the acceptable predicted climate change level?
 - We can go into planning, but implementation might not be until 5-10 years.
 - Need to identify and agree on targets to prevent lawsuits in the future for not being able to follow regulations due to climate change.
 - Potential resource to address implementation: <https://water.ca.gov/News/Blog/2020/Nov-2020/DWR-Moving-to-Action-Plan>
- Can never be truly certain, but definitely can go more into planning, circles back to gap in funding.
- 35 different entities in Aliso Creek:
 - We pair mitigation and stormwater compliance to have enough funding and planning resources.
 - There is a huge restoration project in the watershed.
- We have to agree this target is the best we have, but recognize that it will change .
- The concept for only looking at one climate change target.
 - The approach should be looking at multiple points and scenarios.
- Worked with Central Valley Flood Protection:

- So many different climate change projections, no one is looking at the same projection.
- We used to look at the variety of projections and look at the median case.
- Instead of trying to pick the right one, what if we looked at gradations of increase of temperature and rainfall.
 - Look at a wide range of potential conditions and determine the likelihood of the potential conditions.
 - Extremely labor-intensive and complex, have to scale the sophistication of analysis.
- If we have a multiple-benefit project, but each entity is working under a different climate change projection, is it necessary for those to align across multiple entities?
- Is this where Scripps or NOAA could help with that level of engagement?
- Heavy mention of stormwater in climate change discussion:
 - In climate change, we predict to have less water supply, so stormwater becomes more important.
 - Water agencies frequently use water supply as a metric.
- SAWPA Sustainability Assessment:
 - Curious with Ian's experience with SAWPA, do you see that it can be scaled up to other regions? How has the Assessment informed and adapted management?
 - SAWPA's Sustainability Assessment uses statewide metrics such as CalEnviroScreen.
 - Region should be comfortable with GIS.
 - All formulas and indicators were calculated on Excel, relatively simple.
 - Informed some behind the scenes work, but nothing watershed wide. Has started a partnership with the City of Riverside.
 - Idea: Using statewide metrics that can help compare regions and use region-specific methods that can take into account the uniqueness of the region.

5. What tools or resources does your region need to move forward on climate change adaptation practices?

- Time, money, and collaboration
- We need resources to support collaborative planning

Breakout Room 4: Mountain Counties/Desert

1. **Introductions: Everyone briefly share (in the chat or out loud) where you are joining from today, and what agency / organization / Tribe you represent.**

Facilitator: **Brad Arnold**, Calaveras County Water District

Notetaker: **Daniel Murphy**, LGC Intern

Participants:

- **Holly Alpert**, Inyo-Mono IRWM
- **Rick Kattelmann**, Inyo-Mono IRWM
- **Melinda Barrett**, Yosemite-Mariposa IRWM
- **Glen Nunneley**, Tuolumne Utilities District
- **Atley Keller**, LGC
- **Maria Lorenzo-Lee**, DWR

2. **What did you hear during today's panels that was particularly helpful or interesting?**

- Historical notes, reminder of how we all came to be. Interesting history, didn't hear much of what is helpful for moving forward.
- Not disappointed, but wanted to hear new ideas, rather hear innovative ideas that will help solve issues for the future.
- Risk analysis, makes more sense to put in a reactive mode, predicting which policies to put in place have huge costs (because there is honestly no good idea.)
- Impressive on the level of effort & technology the efforts have incorporated into these solutions. Mountain/Desert Counties challenges mainly stem from resources (funding) whereas more urban areas suffer more from logistical problems.
- Implementation of policy are reactive and not proactive, this could be okay, but it would be better to be more proactive.

3. **What climate change adaptation practices is your region implementing that are working well?**

- Number of forward-looking projects, wastewater treatment- very aged infrastructure.

4. **What are challenges to implementing climate change adaptation?**

- Hopes state doesn't restructure and "replace" IRWM; SGMA should've been more implemented into its usefulness to IRWM but overlooked.

- No capacity to have prediction models at scale needed in order to predict such events in order to have good policies in place.
- Lack of human and financial resources. Can reallocate from more urban areas to mountain/desert areas in order to alleviate this.
- Applied for hazard mitigation grant but has taken a long time (3 years between application and award), benefit-cost analysis.
- Breakdown of IRWM across regions due to lack of funding.
- IRWM 2.0- need to prove there is still a usefulness/benefit for the region
- Work for justification for regional projects, does x y z and helps the region?
- Resources are focused on trying to compete to get more dollars, lack of resources spent internally. With climate change, it can show regional benefit, which can reallocate resources.
- Currently regional mapping, it specifies very general information that may/may not be 100% correct.

5. What tools or resources does your region need to move forward on climate change adaptation practices?

- Would like to see how more advanced levels of effort & technology can aid Mountain/Desert regions, considering the options are limited within these regions. UC Merced engagement .
- Reach out to private parties instead of public/governmental agencies in order to get funding.
 - Can reach out to the University and State college systems that can help aid in staffing and funding problems that Mountain and Desert regions have.
- Work for justification for regional projects, how does x y z and helps the region?
- Use resources allocated downstream and relocate them upstream, this still benefits them both in the short-run and long-run.
- Large river basin studies Yuba county, watershed management research - see how scenarios would play out but was connected to LA County.
 - Solution- formalize the hydro connection between areas.
- Pump money into specific regional modeling.
- Get creative in the methods of implementing policies and proposals.
- CAL OES has opened grant applications, possible method to get funding
 - Hazard mitigation grant & Water Smart grants other ways to get more resources.
- Would love LA County to fund the Inyo-Mono IRWM, but as of recent the county has become disengaged.
- Need of regional climate modeling, many parts of the Sierra need it. Specific location modeling, as each region is different on what is occurring.

DAY 3 AGENDA

Working Together for Regional Resilience			
Item	Time	Agenda Item	Presenters
1.	8:30 a.m.	Welcome Logistics	Host: Chris Austin , Maven's Notebook Day 3 Moderator: Lynn Rodriguez , WCVV
2.	8:40	Panel: How Does California Sustain its 20-Year Investment in Regional Collaboration for Increasing Resilience? Q&A	Moderator: Lynn Rodriguez Panel: Joaquin Esquivel , Chair, California Water Boards Kris Tjernell , Deputy Director, Integrated Watershed Management, DWR Kip Lipper , Chief Policy Advisor on Energy and Environment, Senate pro Tem Nuin-Tara Key , OPR
4.	9:40	BREAK	
3.	9:45	Panel: How Does/Should the State Value Collaborative Regional Groups When Providing Technical and Financial Assistance for Resilience? Q&A	Moderator: Lynn Rodriguez Angelina Cook , Upper Sacramento-McCloud IRWM Carmel Brown , Financial Assistance Branch Manager, DWR Joe Karkoski , Deputy Director, Div. of Financial Assistance, State Water Resources Control Board (SWRCB)
6.	10:40	Bringing It All Together – Wrap Up <ul style="list-style-type: none"> • Call to Action • Action: Goal, Plans, Support 	Jenna Voss Holly Alpert Lynn Rodriguez
8.	11:00	Adjourn	

DAY 3 SUMMIT MATERIALS

Recording

<https://www.youtube.com/watch?v=qfmQ2dVdxok>

Q & A:

Answers are summarized from the live recordings, chat, and Q&A log.

Panel: How Does California Sustain its 20-Year Investment in Regional Collaboration for Increasing Resilience?	
Question	Answer
The drought and climate funds from this year are great, but with an expected surplus again next year, what is the possibility of getting IRWM specific funding in the 2022-23 budget?	<p>Kip: There will be additional federal money coming to California for investment in infrastructure and hopefully climate resilience, The State General Fund is doing well but these are one-time funds – not ongoing revenue sources. It's up to the Administration to propose funding in the budget. A suggestion: need to look at IRWM and envision IRWM as part of a bigger picture.</p> <p>Kris: It should go without saying that any project that is part of a larger plan at whatever scale that addresses water management, watershed management, or other related management programs (fire, flood, etc.) and if it provides multi-benefits, DWR should be looking at the project favorably. Those types of projects will continue to be prioritized.</p> <p>Nuin-Tara: There is funding in the last budget that address the goals of IRWM. Even if the funding is not specifically designated for the IRWM Program, regions can leverage that funding to continue their work. Two examples: 1) Funding for capacity building through the Regional Climate Collaboratives administered by the Strategic Growth Council. 2) OPR's Regional Resilience Planning and Implementation Program focused at the regional scale. OPR does not want to recreate the wheel and set up new parallel regional structures. IRWM will play a role in developing guidelines to deploy funding.</p> <p>Joaquin: State agencies are integrating more to fund projects. The goal of integration is to break down silos.</p>

	<p>Kip: When the funds were being appropriated, particularly the OPR monies, there was a robust discussion about not reinventing the wheel. The intent is to use and build on the success of regional planning collaboratives like IRWM, local coastal planning and other regional organizations.</p>
<p>Joaquin shared that IRWM is one way that the State can come together to bring information down to the community level, rather than requiring the community to reach out to the State for funding. At a recent SCALE meeting, Patrick Wright, the Wildfire Resilience Task Force, was talking with local organizations about how to do this same thing for funding for multi-benefit projects. How are State agencies working together to bring multi-benefit project funding to the community level?</p>	<p>Joaquin: The state is doing more integration between sister agencies. As an example, drought dollars are being coordinated between DWR and the Water Board. Both agencies are coordinating their funding processes to determine the best source of funding for specific projects. Communities are not required to select particular funds for projects – the agencies are coordinating to use the best funding program to address the need.</p> <p>Kris: 90% of water management happens at the local level; only 10% happens at the State level. DWR is always asking: how should they fill the narrow state role? In addition to facilitating more multi-benefit projects, the State can provide more climate change data at the watershed scale. Local communities may not have the capacity to develop climate data. Providing technical assistance can help local communities make better decisions regarding water supply, flood, water quality and ecosystems.</p> <p>Joaquin: The role of the State is to help local communities be the best decision-makers. We can develop decision support tools that translate technical data into a form that allow local communities to have discussions that inform planning.</p> <p>Nuin-Tara: An important role for the State is to develop the right tools to inform decision-making. The State also needs to provide technical assistance to help local agencies and communities use the data in their decision making. Collaborative decision-making is a priority of the State Adaptation Strategy update. A draft priority is the value of partnerships to leverage resources. State funding is shifting to include partnerships and collaboration in the development of projects.</p>
<p>A proposed ballot measure to reduce the 'red tape' around water infrastructure projects looks like it's gaining traction. Do you see this as</p>	<p>Maven's Notebook: As of today (11/17/21), the measure, known as the "Water Infrastructure Funding Act of 2022," needs 997,132 signatures of registered voters by April 29 to qualify for the November 2022 statewide ballot. If approved by a majority of voters, it would require that 2% of California's</p>

<p>helpful or hurtful to meeting long-term regional goals for water management?</p>	<p>General Fund – about \$4 billion a year – be set aside for projects to expand water supplies. Those could include new dams and reservoirs, desalination plants, recycled water plants, and other projects like upgrading canals and pipes.</p> <p>Kris: Not aware of the legislation. DWR is discussing how to reward projects that meet regional goals through financial incentives and streamlined permitting. Ideally permitting could be more regional such as the older Habitat Conservation Plan/Natural Communities Conservation Plan (HCP/NCCP) or the newer Regional Conservation Investment Strategy (RCIS.)</p>
<p>Can tribes be given funding directly? How do you bolster tribal capacity? Tribes should not have to compete for funding.</p>	<p>Joaquin: Federally recognized tribes are sovereign entities, and the relationship has been historically of great injustice. The Water Board not only engages in consultation but addresses meaningful issues – particularly drinking water. Waivers of limited sovereign immunity challenge the distribution of state funds. The Water Board is working with the Governor’s Office to figure out how to get dollars and capacity to tribes. DWR and the Water Board have been having conversations with tribes on how to deliver services.</p> <p>Nuin-Tara: The program and funding for the 5th Climate Change Assessment includes a tribal climate science research program.</p> <p>Kris: With General Fund monies, DWR has more flexibility. The Urban and Multi-benefit Drought Relief Program has dedicated \$50 million for tribal governments and historically underserved communities for direct investment in drought relief.</p>
<p>As additional state funding becomes available to IRWM planning regions, we need to figure out a better way to allocate the funding other than by relaying on population of the region. Some of the least populated regions provide significant natural resources to the state and have the most need for financial support.</p>	<p>Summit Planning Team: This is a valid point. Further discussion is warranted.</p>

<p>It looks like funding from federal & state sources are designated for Disadvantaged/Vulnerable/Underrepresented communities, but mainly for projects, as discussed. How can IRWM Regions or the Roundtable request that some of that funding go to organizing the collaborative forums and for the "human infrastructure" to develop plans & policies?</p>	<p>Summit Planning Team: The Roundtable of Regions is a strong advocate for ongoing collaboration and planning using the "social capital" we have built through 20 years of IRWM. We continue to explore options for funding participation by underserved communities and Tribes – as well as funding for ongoing planning and administration of IRWM regions. Both are important to continue the essential work of regional water management. This topic is frequently raised and discussed in the Disadvantaged Community and Tribal Involvement (DACTI) Program Workgroup (see response to the question below, and two questions on page 34).</p>
<p>How do smaller organizations and underserved communities get working capital?</p>	<p>Summit Planning Team: See the response above. In addition to general engagement and collaboration it is our priority to help underserved communities. This is an area of great need and has been recognized by state agencies through the current budget proposals focused on water and climate resilience for underserved communities. This is also a topic discussed in the Disadvantaged Community and Tribal Involvement (DACTI) Workgroup meetings.</p>
<p>I love helping nature heal and want to hear how governments are approaching this solution? Beavers are a prime example</p>	<p>Summit Planning Team: The Strategic Growth Council and the California Department of Conservation administers the SALC program which advances California's pursuit of nature-based solutions to climate. More information can be found at: Strategic Growth Council Awards \$52 Million to Conserve Agricultural Lands, Reduce Emissions (ca.gov). More funding is anticipated in the state's 2022-23 budget for nature-based solutions and other programs focused on restoration and protection of habitats and ecosystems.</p>
<p>Why are the IRWM projects so disconnected from any federal projects such as activities by the USGS and USBR? The Salinas Valley was a classic example of that where the IRWM group decided to not collaborate,</p>	<p>Summit Planning Team: Each IRWM is autonomous and chooses how to collaborate with state and federal entities or other partners in establishing and using tools, funding and models. . Concerns about disconnection of projects from other activities need to be addressed to the IRWM region in question directly - to better understand the factors involved in the decision not to collaborate. Many regions across the state do take advantage of shared funding, models, assessments and</p>

share funding, or use the tools being developed by the federal agencies that were already working with locals including models and data assessments for that region.	other tools and work well collaboratively to achieve mutual goals.
Panel: How Does/Should the State Value Collaborative Regional Groups When Providing Technical and Financial Assistance for Resilience?	
Question	Answer
IRWM has not been the success thru the lens of disadvantaged African Americans frontline communities. Question: How involved is IRWM in the Resolution to address Racism and inequities within their agencies depts and collaborative structures?	Summit Planning Team: The Roundtable of Regions has convened a Diversity, Equity, and Inclusion subcommittee to explore opportunities and funding to address racial inequities in water management. The Disadvantaged Community and Tribal Involvement (DACTI) Program, overseen by DWR and funded by Proposition 1 IRWM grants, has highlighted many inequities across the state. The Roundtable is working in partnership with DWR through the DACTI Workgroup to further discuss these issues. This workgroup is open to anyone who participates in the IRWM Program. Join us for discussions on successful strategies to engage all underserved communities and Tribes.
For the last 3 days I've heard a lot about Tribal Communities and the Southern California Communities and their problems. But have you considered DACs specifically in the African American Communities and the support that is needed there to support their communities?	Summit Planning Team: There is a great deal of need to engage all underserved communities, being mindful of the unique needs and characteristics of different racial groups in the state. Currently the Roundtable's Disadvantaged Community and Tribal Involvement (DACTI) Workgroup is open to anyone who participates in the IRWM Program. Please join us for discussions on successful strategies within the IRWM Program to better engage African American Communities across the state .
Can we get a list of resources/contacts that help underserved communities	Summit Planning Team: There are several great resources available to learn more about funding and technical assistance to underserved communities – to build capacity and help them access funding for water related projects. Two great sources

apply for IRWM funds?	of information are the State's grant portal found at www.grants.ca.gov which includes state and federal funding opportunities. You can sign up to receive regular announcements from the portal. Another great resource is the California Financing Coordinating Committee, a state consortium of funding entities which also includes federal grant programs. You can access their information at www.cfcc.ca.gov . The Roundtable of Regions also provides funding opportunities as they are announced by the many state agencies. Join the Roundtable of Regions listserv to be notified of funding opportunities. Email: administrator@roundtableofregions.org
I'd like to get more information about the renewable/solar programs Joe Karkoski mentioned.	Summit Planning Team: Please contact Joe Karkoski at Joe.Karkoski@waterboards.ca.gov for more information.

Comments Raised in Chat:

<ul style="list-style-type: none"> • <i>Tribes should not be competing with organizations for funding. Executive Order B-10-11. Meaningful engagement = direct funding allocations.</i> • <i>IRWM have failed the historically disadvantaged long term highest risk populations African Americans. Presenters' comments repeatedly mentioning Tribal and So CA and the panelists presenting these 3 days speaks volumes.</i> • <i>I'd recommend bouncing the idea of state-sponsored watershed-based climate change studies off of small systems who are short on staff time/resources</i> • <i>Without the technical assistance to interpret and use the data, small communities would not benefit as much as those with more capacity.</i> • <i>We appreciate the efforts of DWR execs like Carmel Brown who have made efforts to listen and take actions to address the issues of the most underserved!</i> • <i>IRWM has not been the success thru the lens of disadvantaged African Americans frontline communities, but we do give credit to Carmel Brown and her staff for meeting communities where they are, listening and taking action. Question how involved is IRWM in the Resolution to address Racism and inequities within their agencies depts and collaborative structures?</i> • <i>Drought funding will be simplified</i> • <i>New water plan update climate, watersheds, and equity</i>
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Resources:

Includes all resources mentioned by speakers and shared by attendees

Tribal Climate and Clean Energy Funding Information:

- <https://www.energy.ca.gov/news/2021-01/state-awards-2-million-10-california-native-american-tribes-climate-and-clean>

California drought: Proposed ballot measure would fast-track construction of dams, desalination plants and other water projects:

- <https://www.mercurynews.com/2021/11/16/proposed-california-ballot-measure-would-fast-track-construction-of-dams-desalination-plants-and-other-water-projects/>

Tribal Climate and Clean Energy Funding information:

- www.energy.ca.gov/news/2021-01/state-awards-2-million-10-california-native-american-tribes-climate-and-clean

McCloud Watershed Council

- <https://www.mccloudwatershedcouncil.org/>

Upper Sacramento Regional Water Action Group (RWAG):

- <https://www.uppersacirwm.org>

DWR Tribal Webinar Materials (May 2020)

- (Currently being updated for ADA compliance)

Temporary Power Generators Now Online to Support California's Electricity Grid:

- <https://water.ca.gov/News/News-Releases/2021/Sept-21/Temporary-Power-Generators>

Backup Generator Funding Program:

- https://www.waterboards.ca.gov/water_issues/programs/grants_loans/generator_funding/

IRWM and SGMA collaboration recordings:

- <https://groundwaterexchange.org/video-gallery/irwm/>

Solar project and other funding for drinking water systems:

- https://www.waterboards.ca.gov/drinking_water/services/funding/SRF.html

COMPENDIUM OF RESOURCES

Water News & Resources

- Mavensnotebook.com
- Cawaterlibrary.net
- Groundwaterexchange.org

DWR Resources

- CA Water Plan: <https://water.ca.gov/Programs/California-Water-Plan/Update-2018>
- DWR Regional Climate Specialists: <https://resilientca.org/projects/814adf60-17dd-4da8-aefa-94b9759a76af/>
- Hydrology Section at DWR have posted a few Tableau Dashboards using various hydrologic data on the CDEC website: <https://cdec.water.ca.gov/snow/>
- Central Valley Flood Protection Plan: <https://water.ca.gov/Programs/Flood-Management/Flood-Planning-and-Studies/Central-Valley-Flood-Protection-Plan>
- Hydrology Section at DWR have posted a few Tableau Dashboards using various hydrologic data on the CDEC website: <https://cdec.water.ca.gov/snow/>

Water Board Resources

- Solar project and other funding for drinking water systems: https://www.waterboards.ca.gov/drinking_water/services/funding/SRF.html

Water Resilience Portfolio

- <https://waterresilience.ca.gov/>

OPR Resources

- 2021 State Adaptation Strategy Update: <https://resources.ca.gov/Initiatives/Building-Climate-Resilience/2021-State-Adaptation-Strategy-Update>
- [Integrated Climate Adaptation and Resiliency Program](#)

CivicWell (Formerly Local Government Commission[LGC]) Resources

- Ahwahnee Water Principles: <https://civicwell.org/civic-resources/ahwahnee-water-principles/>
- Fact Sheet on Drought/Fire/Flood Cycle as part of LGC's Covid Recovery Series: LGC's Pandemic Recovery Series (2 on water topics): <https://civicwell.org/civic-resources/pandemic-recovery/>
- LGC's Funding Navigation Platform: <http://www.fundingresource.org>

Climate Change Resources

- Climate Assessment: <https://nca2018.globalchange.gov/>
- Climate Change Handbook for Regional Water Planning: <https://resilientca.org/projects/814adf60-17dd-4da8-aefa-94b9759a76af/>
- Climate Registry: <https://www.theclimateregistry.org/>

- Climate Risk Informed Decision Analysis: <https://en.unesco.org/crida>
- Urban Heat Island Report: <https://calepa.ca.gov/climate/urban-heat-island-index-for-california/urban-heat-island-report>
- Watersheds Coalition Ventura County Climate Resilience Resources: https://wcvc.ventura.org/documents/climate_change.htm
- Principles for State Investment in Climate Adaptation: <https://cah2oresearch.com/2019/09/16/principles-for-state-investment-in-climate-adaptation/>
- CA Water Policy Conference: CA Water in an Era of Increasing Climate Complexity: <https://www.eventbrite.com/e/california-water-in-an-era-of-increasing-climate-complexity-tickets-203597203717>
- Roundtable of Regions Climate Resilience Resources: <https://www.roundtableofregions.org/climate-resilience>
- On scientific confluence and the challenges of avoiding a ghastly future in California water: <https://cah2oresearch.com/2021/09/20/on-scientific-confluence-and-the-challenges-of-avoiding-a-ghastly-future-in-california-water/>

Climate Collaboratives

- Alliance of Regional Collaboratives for Climate Adaptation (ARCCA): www.ARCCAcalfornia.org
- California Resilience Partnership: <https://www.rcc.city/california>

Wildfire

- Wildfire and Forest Resilience Action Plan: <https://fmtf.fire.ca.gov/>
- Recent toolkit put out by the California Silver Jackets team: http://www.readyforwildfire.org/wp-content/uploads/Flood-After-Fire_California-Toolkit_September-2020-2.pdf
- After Wildfire: http://www.readyforwildfire.org/wp-content/uploads/After-Wildfire-Guide-10JUNE2019_draft_final-ADA-compliant.pdf
- Post-fire resources from the Santa Cruz RCD in response to 2020 CZU wildfire <http://www.rcdsantacruz.org/post-fire>

Sea Level Rise

- Sea Level Rise Guidance: <https://www.coastal.ca.gov/climate/slrguidance.html>
- Monterey Sea Level Rise / Climate Variability: <https://coastalresilience.org/project/monterey-bay/>
- Water Storage Investment Program: <https://cwc.ca.gov/Water-Storage>
- FIRO (forecast informed reservoir operations) in the Russian River: [https://www.sonomawater.org/firo#:~:text=Forecast%20Informed%20Reservoir%20Operations%20\(FIRO\)%20is%20a%20flexible%20water%20management,resilience%20to%20droughts%20and%20floods.](https://www.sonomawater.org/firo#:~:text=Forecast%20Informed%20Reservoir%20Operations%20(FIRO)%20is%20a%20flexible%20water%20management,resilience%20to%20droughts%20and%20floods.)
- Forecast Informed Reservoir Operations: [https://www.drought.gov/news/forecast-informed-reservoir-operations-firo-overcoming-barriers-and-realizing-benefits#:~:text=Forecast%2Dinformed%20reservoir%20operations%20\(FIRO\)%20is%20a%20reservoir%2D,benefits%20and%20to%20enhance%20flood](https://www.drought.gov/news/forecast-informed-reservoir-operations-firo-overcoming-barriers-and-realizing-benefits#:~:text=Forecast%2Dinformed%20reservoir%20operations%20(FIRO)%20is%20a%20reservoir%2D,benefits%20and%20to%20enhance%20flood)

Drought

- California drought: Proposed ballot measure would fast-track construction of dams, desalination plants and other water projects: <https://www.mercurynews.com/2021/11/16/proposed-california-ballot-measure-would-fast-track-construction-of-dams-desalination-plants-and-other-water-projects/>

Stormwater

- CASQA's Vision: <https://www.casqa.org/about/strategic-plan-vision>
- Karen Cowan Op-Ed on Stormwater as a Resource: <https://www.sfexaminer.com/news/its-time-to-value-stormwater-as-a-resource/>

Sustainable Groundwater Management Act (SGMA):

- SGMA: <https://water.ca.gov/programs/groundwater-management/sgma-groundwater-management>
- IRWM and SGMA collaboration recordings: <https://groundwaterexchange.org/video-gallery/irwm/>

Flood Managed Aquifer Recharge (Flood-MAR)

- Flood-MAR: <https://water.ca.gov/programs/all-programs/flood-mar>

Water and Land Use

- LGC's Water & Land-Use Integration Work: <https://www.lgc.org/water-and-land-use>
- Water - Land Use Integration - Growing Water Smart Program: <https://www.lgc.org/gws/>

Land Stewardship

- Draft Pathways to 30x30: <https://www.californianature.ca.gov/>
- California Landscape Stewardship Network: <https://calandscapestewardshipnetwork.org/>

Tribal Resources

- Tribal Climate and Clean Energy Funding Information: <https://www.energy.ca.gov/news/2021-01/state-awards-2-million-10-california-native-american-tribes-climate-and-clean>
- Tribal Webinar Materials (May 2020) (currently being updated for ADA compliance)

Environmental Justice

- EPA: Climate change disproportionately affects marginalized communities: <https://www.axios.com/epa-report-climate-change-marginalized-communities-391492c7-bedf-4d98-9208-58e84ed03f48.html>
- Why Marginalized Groups are Disproportionately Affected by Climate Change: <https://earth.org/marginalised-groups-are-disproportionately-affected-by-climate-change/>
- Why Climate Change is an Environmental Justice Issue: <https://news.climate.columbia.edu/2020/09/22/climate-change-environmental-justice/>
- How Communities Of Color Are Hurt Most By Climate Change: <https://www.forbes.com/advisor/personal-finance/communities-of-color-and-climate-change/>

Regional Partnerships

- Bay Area Water Agency Coordination: <https://www.bayareareliability.com/>
- North Coast Resource Partnership: <https://northcoastresourcepartnership.org/>
- Central Coast Wetlands Group: www.centralcoastwetlands.org

ACWA IRWM Policy Principles

- ACWA IRWM Policy Principles: <https://www.acwa.com/resources/integrated-regional-water-management-policy-principles/>

IRWM Regions

- Yosemite-Mariposa IRWM: <http://www.sierrawaterworkgroup.org/yosemite-mariposa-irwm.html>
- McCloud Watershed Council: <https://www.mccloudwatershedcouncil.org/>

Generators

- Temporary Power Generators Now Online to Support California's Electricity Grid: <https://water.ca.gov/News/News-Releases/2021/Sept-21/Temporary-Power-Generators>
- Backup Generator Funding Program: https://www.waterboards.ca.gov/water_issues/programs/grants_loans/generator_funding/

SPEAKER BIOS



Ian Achimore | Senior Watershed Manager | Santa Ana Watershed Project Authority

Ian manages projects related to integrated watershed planning, water use efficiency, native fish habitat and invasive species removal. Prior to his employment at SAWPA in Southern California, Ian lived in Washington, D.C. where he received his Master's in Public Policy from Georgetown University and worked in the U.S. Environmental Protection Agency's Office of Water.



Holly Alpert | Director of the Inyo-Mono IRWM Program in Eastern California and IRWMP Coordinator for the California Rural Water Association

Holly lives in Bishop, California, and works on California water issues in two capacities: Director of the Inyo-Mono IRWM Program in eastern California and IRWMP Coordinator for the California Rural Water Association. Within these two roles, Holly has been working with small, rural, and disadvantaged communities for the past 13 years with the goal of building capacity and increasing self-sufficiency with respect to water resources. Holly also works on the intersection of water resources and climate change and served on the California Department of Water Resources' Climate Change Technical Advisory Group. Holly holds a B.A. in Environmental Science and American Studies from Wellesley College and a Ph.D. in Environmental Studies from the University of California, Santa Cruz.



John Andrew | Deputy Director | California Department of Water Resources

John has overseen DWR's climate change activities since 2006. He represents the Department on the Governor's Climate Action Team, served on the editorial board of California's Fourth Climate Change Assessment, and is a member of the State's Climate-Safe Infrastructure Working Group. His other organizational affiliations include the Stege Sanitary District, CALFED Bay-Delta Program, California Department of Health Services, US Environmental Protection Agency, and Lawrence Berkeley National Laboratory. Mr. Andrew has over 30 years of experience in water resources and environmental engineering and holds degrees in civil engineering and public policy from the University of California at Berkeley.



Mike Antos | Watershed Social Scientist | Stantec

Mike is a social scientist who focuses on helping people and institutions navigate place, time, and culture to achieve equitable and sustainable outcomes. He currently serves as co-chair of the Steering Committee of the California Water Data Consortium and is an environmental fellow of the Robert & Patricia Switzer Foundation. Mike is an established thought leader on how water policy and planning can be opened to members of overburdened and marginalized communities yielding empowerment and justice. He supports clients with watershed governance and management, integrated water resources planning and project development, climate adaptation, facilitation, and policy development. Mike has a proven track record of coordinating complex multi-jurisdictional and publicly engaged water resources efforts.



Brad Arnold | Water Resources Program Manager | Calaveras County Water District

Brad leads district water supply planning, policy navigation, water rights, and watershed management. He is involved in IRWM as a representative of the Tuolumne-Stanislaus and participant in the Mokelumne-Amador-Calaveras groups, SGMA for the Eastern San Joaquin Valley, among other efforts. Brad has also participated in several local and statewide projects related to water supply issues, in the past as a consultant in Kern County and briefly with DWR's North Central Region Office. Brad holds two M.S. degrees in Agricultural Engineering and Water Resources Engineering, both from UC Davis, during the latter working with the UC Davis Center for Watershed Sciences.



Chris Austin | Founder and Publisher | Maven's Notebook

Chris is dedicated to providing unbiased information about California water issues, the water news source reaches thousands of regular readers and water leaders throughout the state. Ms. Austin aims to improve and streamline access to thousands of complex water reports and documents, and to aid in the public's understanding of these critical issues. Before diving into the world of water blogging, Austin was an audio engineer and studio manager in charge of operations for a busy audio post-production facility in North Hollywood.



Melinda Barrett | Executive Director | Mariposa County Resource Conservation District.

In her role as Executive Director of the Y-M RCD, Ms. Barrett leads the Yosemite-Mariposa Integrated Regional Water Management (IRWM) Program, a collaborative effort with more than 50 stakeholder groups that identifies, prioritizes and develops projects to address regional watershed issues. Ms. Barrett's responsibilities include managing and administering grants and programs with a total value of over \$20 million and overall coordination of activities that meet the goals of the Resource Conservation District. She is also the Yosemite-Mariposa representative on the Mountain Counties Disadvantaged Community Coordinating Committee and serves on the Mariposa County Fire Advisory Committee.



Carmel Brown | Financial Assistance Branch Manager, Division of Regional Assistance | California Department of Water Resources

Carmel Brown manages the Financial Assistance Branch in the Division of Regional Assistance at the CA Department of Water Resources. Her multi-disciplinary team administers and delivers millions of dollars in grants made possible by voter-approved bonds and the State Budget. The funds help local and regional communities, Tribes, and underserved communities throughout CA to manage water resources more sustainably and become more resilient to the impacts of climate change, including drought, floods, wildfires, groundwater depletion, sea level rise and ecosystem degradation. Over the last 20 years, regional water leaders in California have leveraged the State funding with local investments to plan and conduct multi-benefit projects through integrated, collaborative, watershed-based processes. Prior to joining the State in 2013, Carmel worked for nearly 30 years in the private environmental consulting world, where she provided watershed/stormwater and grant management services to municipalities and non-profit organizations. She received her bachelor's degree in Civil Engineering from Cal Poly San Luis Obispo and is a registered Civil Engineer.



Karen Buhr | Executive Director | California Association of Resource Conservation Districts

Karen Buhr has been leading CARCD since 2010 and has an excellent knowledge base of California, California's RCDs, and what it takes to get work done. She has facilitated countless projects throughout the state including leading a grassroots capacity building movement that facilitated over 100 RCD participants to create a vision and a set of standards for California RCDs. In the last few years, Ms. Buhr has specifically targeted coordinating RCDs and public and private partners around climate change adaptation and mitigation as well as sustainable agriculture and ranching. Ms. Buhr holds an M.S. in Natural Resource Science and Management from the University of Minnesota and a B.A. in Environmental Studies from Macalester College in St. Paul, MN.



Ross Clark | Director & Project Principal Investigator | Central Coast Wetlands Group

Ross Clark is an Environmental Program Coordinator and Coastal Scientist with 25 years of experience in environmental program development for coastal communities including: climate change impacts from sea level rise, coastal adaptation research and planning, wetlands restoration and sea level rise resiliency research, integration of environmental objectives into agricultural industry and municipal planning. He has led the drafting of 4 municipal coastal climate vulnerability and adaptation planning efforts and designed and implemented a coastal resiliency project in Monterey County. He has a strong background in program development, contract management and grant implementation focused on aiding municipalities to achieve their environmental objectives.



Sam Cohen | Government Affairs and Legal Officer | Santa Ynez Band of Chumash Indians

Since 2005, Sam Cohen has brought his legal talents to the Santa Ynez Band of Chumash Indians as the Government Affairs Officer and Legal Officer. During his tenure in this role, Cohen has led the tribe in their nine-year Fee to Trust application to successfully establish 6.9 acres of land in federal trust for a Chumash Museum and Cultural Center. Cohen also served as lead counsel for the tribe in the renegotiation of the Tribal State Compact in 2014 and 2015. He has been instrumental in the tribe's educational legislative efforts. Cohen earned his bachelor's degree from the University of Arizona and his Juris Doctorate from the University of Minnesota. He also studied law at University College London and has an LL.M. degree from the Tax Program at New York University.



Angelina Cook | Director | McCloud Watershed Council

Angelina Cook is a community organizer advancing environmental stewardship in Mount Shasta's strategic source watersheds. As Director of McCloud Watershed Council, Coordinator for the Upper Sacramento Regional Water Action Group, and 2020 Candidate for Siskiyou County Supervisor, Angelina builds capacity to employ resource conservation and ecosystem restoration for place-based climate responsiveness in California's retired timber towns and significant ecological areas.



Karen Cowan | Executive Director | California Stormwater Quality Association

Karen has over 20 years of experience as a leader in the field of collaborative stormwater management, serving with distinction in both the municipal government and consulting arenas. A hallmark of Karen's career has been developing and leading multi-sector stakeholder teams to address cutting-edge stormwater science and policy issues.



Ted Daum | Senior Environmental Scientist | Department of Water Resources

Ted has over 25 years of experience in a variety of both public and private settings related to water resource issues. His work at the Department of Water Resources over the last nine years included a primary role in developing the IRWM Plan Review Process for the Proposition 84 and Proposition 1 grant programs. Previously he worked in private consulting on numerous water quality and hydrology CEQA analyses and other permitting work. Prior to that, at the San Francisco Estuary Institute he was a project manager for the Regional Monitoring Program for Trace Substances, a San Francisco Bay-wide monitoring program and innovative partnership of regulators and the regulated community. He received his bachelor's degree in Wildlife Science from Oregon State University and master's degree in Environmental Management from University of San Francisco.



Danielle Dolan | Water Program Director | Local Government Commission

Danielle has been working in environmental education, engagement, and advocacy for the last 17 years, with the latter half in California water issues. Ms. Dolan was hired by the Local Government Commission in 2014 to lead LGC's water programs — engaging on statewide policy initiatives and implementing projects at the local level. LGC's water work emphasizes the connection between land use planning and sustainable water management, and includes cross-jurisdictional efforts to address watershed health and water security across the state. Ms. Dolan earned her B.A. in Environmental Studies from Hawai'i Pacific University, and her M.S. in Community Development from the University of California, Davis. Her master's thesis report, Tribal Collaboration in IRWM, is the first outside recommendations document to ever be included in the California Water Plan. Prior to joining the LGC team, Ms. Dolan served as a workshop coordinator for the Sacramento River Watershed Program, and a project coordinator for the UC Davis Center for Watershed Sciences. In her early career, Dolan was a certified school teacher, environmental education expert, and water conservation advocate in Florida.



Dave Eggerton | Executive Director | Association of California Water Agencies

Dave serves as Executive Director of ACWA, the largest water organization of its kind in the nation. ACWA is a statewide association whose 450 local public water agency members are responsible for about 90% of the water delivered in California. Prior to joining ACWA, Eggerton served as general manager of the Calaveras County Water District from 2014-2018. After beginning his career as a corporate lawyer in the Bay Area, he made the move to the Sacramento region, where he worked as deputy general counsel for the El Dorado Irrigation District from 2004-2010 and as general manager of the El Dorado County Water Agency from 2011-2014. Dave earned bachelor's degrees in English and political science from Texas A&M University in 1995 and proceeded to graduate first in his class at the University of California, Davis School of Law in 2000.



Joaquin Esquivel | Chair | State Water Resources Control Board

Mr. Esquivel was appointed to the State Water Resources Control Board by Governor Jerry Brown in March 2017 and designated by Governor Gavin Newsom as Chair in February 2019. Previously, he served as Assistant Secretary for federal water policy at the California Natural Resources Agency in the Governor's Washington, D.C. office, where he facilitated the development of policy priorities between the agency, the Governor's Office, the California Congressional delegation, and federal stakeholder agencies. For more than eight years prior to that, Joaquin worked for U.S. Senator Barbara Boxer of California, most recently as her legislative assistant covering the agriculture, native american, water, oceans, and nutrition portfolios, in addition to being the director of Information and Technology. He was born and raised in California's Coachella Valley. He holds a BA from the University of California, Santa Barbara in English.



Karen Gaffney | Co-founder and CEO | West Coast Watershed

Karen is the co-founder and CEO of West Coast Watershed, and Director of Strategic Planning & Communications for the North Coast Resource Partnership. She values working with a diverse array of North Coast Tribes, counties, agencies, RCDs and NGOs to support collaboration, economic vitality, healthy communities and watersheds. Karen is the past president of the California Society for Ecological Restoration, is a Switzer Environmental Leadership Fellow, and has served on the board of directors of the Society for Ecological Restoration California, Watershed Management Council and Conservation Corps North Bay. She has authored or contributed to a variety of peer reviewed publications on watershed assessment and restoration.



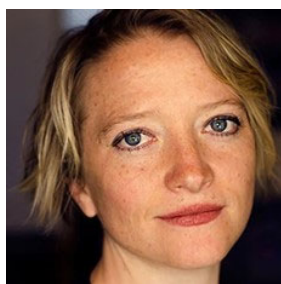
Alex Hall | Professor | UCLA

Alex Hall is a professor in the Department of Atmospheric and Oceanic Sciences and Director of the UCLA Center for Climate Science. His research is aimed at predicting and understanding climate change impacts at scales relevant to decision-makers, especially in the State of California. Alex and his team are currently studying the future of wildfire in California and are working with water management agencies in the Los Angeles region to ensure sustainability of water resources under climate change.



Joe Karkoski | Deputy Director, Division of Financial Assistance | State Water Resources Control Board

Joe Karkoski is the Deputy Director in the Division of Financial Assistance at the State Water Resources Control Board. The Division provides grants and loans for a wide variety of projects to help communities in California, including drinking water, wastewater, water recycling, groundwater cleanup and remediation, and stormwater. The Division also oversees the certification of drinking water and wastewater operators. Joe previously worked for the Central Valley Regional Water Quality Control Board and the United States Environmental Protection Agency. Joe has a degree in Chemical Engineering from Michigan State University, and a Master in Public Policy and Administration from CSU, Sacramento.



Nuin-Tara Key | Deputy Director for Climate Resilience | Office of Planning and Research

In addition to her duties at OPR, Nuin-Tara is also the Chair of the Technical Advisory Council for the Integrated Climate Adaptation and Resiliency Program. Prior to joining OPR, Nuin-Tara co-founded an international initiative on community-based climate action and has worked in the public, private, and non-profit sectors on sustainable urban and regional planning and policy, with a focus on social equity and climate change.



Soua Lee | Program and Regulatory Analyst | Kings River Conservation District

Soua where she manages the Kings Basin Water Authority IRWM group and is lead on the Kings River Fisheries Management Program. Soua has experience in securing and administering several multi-million-dollar IRWM grant projects and KRCD grant projects. She holds a BA from UC Santa Barbara in Environmental Studies. She enjoys hiking the outdoors and spending time with her family.



Kip Lipper | Chief Policy Advisor, Energy, Natural Resources and Environment | Office of the California Senate pro Tempore

Kip has worked in the California Legislature for over four decades. Major positions include: Chief Consultant/Staff Director for Assembly Natural Resources Committee from 1985-1995; Staff Director for Senate Environmental Quality Committee—1996-2004; Chief of Staff for Assembly member and Senator Byron Sher from 1980-2004; Chief Policy Advisor on energy and environment for Senate pro Tem (Perata, Steinberg)—2004- present. During his tenure, he staffed important legislation on a broad array of energy, climate, and environmental matters including the California Clean Air Act, the California Safe Drinking Water Act, the California Beverage Container Recycling Act, and the California Integrated Waste Management Act, to name a few. Kip was the lead staffer in drafting SB 100, California's 100% clean energy mandate legislation. Mot recently, he staffed SB 1100, Senator Atkins legislation to address sea level rise associated with climate change.



Romain Maendly | Senior Water Resources Engineer, Climate Change Program | California Department of Water Resources

Over the last twelve years at DWR, Romain has led, assisted, and collaborated on multiple plans and studies related to integrated water management. Romain helped to jump-start DWR's Flood-MAR initiative and was co-chairing the Flood-MAR Research Advisory Committee. Under the Climate Change Program, Romain is leading the Climate Action Plan Phase II, aiming to improve the consistency and scientific rigor of DWR's approaches for analyzing climate change's potential impacts while preserving both project management flexibility and efficiency. Romain originated from Switzerland, where he earned a technical certificate in Land Surveying. He completed a B.Sc. in Environmental Engineering Science from the University of California, Berkeley. He earned a M.Sc. in Civil and Environmental Engineering within the specialization of water resources and is pursuing his PhD at the University of California, Davis.



Jennifer Morales | Senior Environmental Scientist, Climate Change Program | Department of Water Resources

Jennifer specializes in regional climate change adaptation. She started with DWR in 2009, and engages on a variety of climate change efforts, including Integrated Regional Water Management, strategic planning, and the California Water Plan. Jennifer holds a bachelor's degree in Biology, has received multiple Unit Citation awards for her work on Climate Change, and is a WEF Water Leader and Stanford COS alumnus. She has worked as a liaison to CDFA on the Healthy Soils Initiative and the SWEEP Program. Jennifer lives in Fresno with her husband and three kids, and her 2020 quarantine skill was learning to make sourdough bread.



Soren Nelson | Regulatory Advocate | Association of California Water Agencies

Soren leads ACWA's advocacy on sustainable groundwater management, headwaters and forest resiliency, and Integrated Regional Water Management (IRWM), among other issues. Soren joined the ACWA team in 2018 as a Legislative Analyst. Prior to joining ACWA, Soren was a regional government affairs coordinator for the Congressional Sportsmen's Foundation (CSF), where he worked in tandem with legislative caucuses in Arizona, California, Hawaii, Nevada, and Utah to advance and protect access to fishing, hunting, and public land. Soren holds a Bachelor of Arts in Public Policy from Revelle College at the University of California, San Diego. A native of Redding, CA, he enjoys backpacking and skiing with his partner.



Mike Nowlan | Associate Engineer | Wood Rodgers Inc.

Mike Nowlan currently serves as the Chair of the Board of Directors for the Floodplain Management Association (FMA). He has been actively supporting the FMA mission for the last 18 years, participating annually in conferences and luncheons, and serving on the board in various capacities. Since 1997, he has been working in the field of flood hydrology and hydraulics for Borcalli & Associates and then Wood Rodgers Inc. in Sacramento, working on numerous public and private flood studies and drainage master planning efforts throughout California.



Carlos Quiroz | Quiroz Communications

Carlos Quiroz is the Principal of Quiroz Communications, a community outreach consultancy. For more than 20 years, Carlos has specialized in helping organizations develop meaningful engagement opportunities and build relationships with traditionally hard-to-reach communities. Rather than translating and adapting approaches developed for general audiences, Carlos prioritizes creating culturally and linguistically-resonating strategies and tactics that are built specifically for their intended target audience. His work spans the fields of health care, water and wastewater, transportation, land use, and non-profit organizations, to name a few.



Lynn Rodriguez | Program Manager | Watersheds Coalition of Ventura County

Lynn has been an enthusiastic water resource management professional since 1981. She currently manages the Watersheds Coalition of Ventura County (WCVC) IRWM Program. In collaboration with stakeholders in the region, she prepares and oversees IRWM plan development and implementation, and manages the ongoing stakeholder engagement process. She also serves as co-chair of the LA-Ventura Area Disadvantaged Community Involvement Task Force. She has served on numerous local, statewide, and national water management-related committees and is a graduate of UCSB. She is passionate about water issues and spending time in and around water and nature.



Kristopher A. Tjernell | Deputy Director, Integrated Watershed Management | California Department of Water Resources.

Kris is responsible for advancing policies and programs that integrate and provide multiple benefits including flood management, local water supply, and ecosystem restoration. From 2014 to 2018, Tjernell was appointed to the position of Special Assistant for Water Policy at the California Natural Resources Agency (CNRA) where he accelerated and coordinated implementation of Yolo Bypass flood and habitat restoration projects, California EcoRestore projects and related planning. Prior to his appointment with CNRA, Tjernell was a policy consultant for Conservation Strategy Group, LLC, where he specialized in integrated water management, Sacramento-San Joaquin Delta restoration and governance, ESA/CESA issues, land conservation, water supply, ecosystem conflict resolution, and public finance. Mr. Tjernell graduated from the University of California, Santa Cruz, with a Bachelor of Science degree in Ecology and Evolutionary Biology.



Jenna Voss | Watershed Manager | County of Orange

Jenna coordinates the South Orange County Watershed Management Area IRWM Group. Duties include implementing the IRWM Plan and OC Stormwater Resource Plan, facilitating development of regional projects, maintaining a cloud-based Data Management System for stakeholder collaboration, and applying for/managing grants. Jenna is also an active member in the California Stormwater Quality Association (CASQA), assisting with collaboration between the Roundtable of Regions and CASQA. Prior to working with the County, Ms. Voss specialized in fishery and benthic community research, holding positions with UC Davis and NOAA. Ms. Voss holds a Bachelor of Science from the University of Michigan in Ecology.