

2018

# SAN DIEGO CLIMATE SUMMIT: THE ECOLOGICAL IMPACTS OF CLIMATE CHANGE ON A BIODIVERSITY HOTSPOT

Tuesday, March 6, 2018 | Robert Paine Scripps Forum



# WELCOME

The idea for this summit began two years ago when a group of climatologists and ecologists came together through the Climate Science Alliance with a vision for a new approach to evaluating climate change impacts on our region's unique biodiversity. By pairing local ecosystem expertise with regional climate projections, this innovative approach provides an accessible summary about climate impacts in the San Diego region and opportunities for collaborative partnerships and solutions.

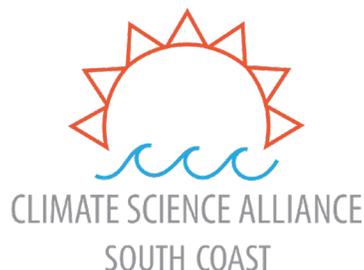
A big thank you to the participating researchers and contributors who came together with no funding or mandate, but solely out of a desire to articulate and advance our understanding of climate impacts on biodiversity to support decision making. The result, "San Diego County Ecosystems: The Ecological Impacts of Climate Change on a Biodiversity Hotspot" is to be released as part of California's 4th Climate Assessment later in 2018. In the interim, we have created a condensed version to help disseminate key findings and inspire conversations on solutions. Thanks to our summit co-hosts and sponsors, we are able to provide you with an opportunity to get an in-depth look at the assessment's findings, spend time with the researchers, and explore ways to integrate this information into conservation planning and community outreach.

Thank you again for attending the summit and bringing your expertise to our gathering. This summit represents the heart of what the Climate Science Alliance is all about and we hope you see value in participating in a forum that is bringing our community together to pursue science-based solutions for regional resilience. You are truly our greatest asset and we could not accomplish what we do without your support and leadership.

- Amber Pairis, Ph.D.

Climate Science Alliance Director

## Climate Summit Hosts



This summit is based on findings from "San Diego County Ecosystems: The Ecological Impacts of Climate Change on a Biodiversity Hotspot". More information on this project, publications, contributors, and future related activities can be found at: [climatesciencealliance.org/sdc-ecosystems-assessment](http://climatesciencealliance.org/sdc-ecosystems-assessment)

The full report will be available Summer 2018.

Design by Diane Terry and Laura Walsh - Climate Science Alliance

# SCHEDULE OF EVENTS

8:30 - 9:00

**Registration**

*Robert Paine Scripps Forum*

9:00 - 9:30

**Welcome**

*Samuel H. Scripps Auditorium*

9:30 - 11:00

**Plenary - San Diego County Ecosystems: The Ecological Impacts of Climate Change on a Biodiversity Hotspot**

*Samuel H. Scripps Auditorium*

11:00 - 11:15

**BREAK**

11:15 - 12:30

**Climatology Meets Ecology**

*Samuel H. Scripps Auditorium*

12:30 - 1:30

**Lunch & Keynote Speaker**

*Robert Paine Scripps Forum*

1:30 - 2:45

**Sustaining Biodiversity During Rapid Change**

*Samuel H. Scripps Auditorium*

2:45 - 3:00

**BREAK**

3:00 - 4:00

**Communicating About Climate**

**Session A: Class on the Grass**

*Robert Paine Scripps Forum*

- or -

**Session B: Let's Talk Climate**

*Samuel H. Scripps Auditorium*

4:00 - 6:00

**Sunset Reception - Climate Science Alliance Awards & Networking Event**

*Robert Paine Scripps Forum*

## WELCOME

Samuel H. Scripps Auditorium 9:00 - 9:30

Welcome and introductions by:

**Dr. Amber Pairis**, Climate Science Alliance

**Dr. Mark Merrifield**, Center for Climate Change Impacts and Adaptation, Scripps Institution of Oceanography

**Mike Schneider**, San Diego Gas & Electric

## PLENARY

Samuel H. Scripps Auditorium 9:30 - 11:00

Be among the first to hear the results of a new assessment by local climatologists and ecologists that will be released as part of California's Fourth Climate Change Assessment. The assessment features regionally relevant science that highlights the uniqueness of the region and can be used to inform strategies that promote regional resilience in our natural and built environments.

Introduction by: **Dr. Amber Pairis**, Climate Science Alliance

**Dr. Dan Cayan**, Scripps Institution of Oceanography

**Dr. Megan Jennings**, San Diego State University

**Dr. Julie Kalansky**, Scripps Institution of Oceanography

**Dr. Hiram Rivera-Huerta**, Universidad Autónoma de Baja California

**Dr. Dawn Lawson**, Space and Naval Warfare Systems Center

## CLIMATOLOGY MEETS ECOLOGY

Samuel H. Scripps Auditorium 11:15 - 12:30

Participate in an interactive experience with climate change experts to understand how climatic changes will interact with ecological processes. How will variability in temperature, precipitation, and fog play out across San Diego's unique landscape?

Author panels moderated by: **Dr. Shasta Gaughen**, Pala Band of Mission Indians

### "Temperature and Temperature Extremes in the San Diego Region"

**Dr. Megan Jennings**, San Diego State University

**Dr. Kristen Guirguis**, Scripps Institution of Oceanography

**Dr. Dawn Lawson**, Space and Naval Warfare Systems Center

**Dr. Sula E. Vanderplank**, Terra Peninsular A.C.

### "Precipitation and Drought in San Diego County"

**Dr. Julie Kalansky**, Scripps Institution of Oceanography

**Dr. Dan Cayan**, Scripps Institution of Oceanography

**Dr. Dawn Lawson**, Space and Naval Warfare Systems Center

**Dr. David Pierce**, Scripps Institution of Oceanography

### "Impacts and Influences of Coastal Low Clouds and Fog on Biodiversity in San Diego"

**Dr. Dawn Lawson**, Space and Naval Warfare Systems Center

**Dr. Rachel E.S. Clemesha**, Scripps Institution of Oceanography

**Dr. Sula E. Vanderplank**, Terra Peninsular A.C.

**Dr. Alexander (Sasha) Gershunov**, Scripps Institution of Oceanography

**Dr. Dan Cayan**, Scripps Institution of Oceanography

## LUNCH KEY NOTE

Robert Paine Scripps Forum 12:30 - 1:30

California's leadership in climate change policy is built on a strong foundation of research addressing the impacts of climate change on the state. Michael McCormick, Senior Planner for the Governor's Office of Planning and Research, will discuss how the Fourth Assessment continues the state's strong incorporation of climate research into policy.

**Michael McCormick**, CA Governor's Office of Planning and Research

# SUSTAINING BIODIVERSITY DURING RAPID CHANGE

Samuel H. Scripps Auditorium 1:30 - 2:45

Join us to learn more about the application of climate science to solve some of today's toughest conservation challenges. The session includes an interactive discussion on fire management and how to integrate climate science into management and decisionmaking.

Author panels moderated by: **Dr. Shasta Gaughen**, Pala Band of Mission Indians

## "San Diego Wildfires: Drivers of Change and Future Outlook"

**Dr. Alexander (Sasha) Gershunov**, Scripps Institution of Oceanography

**Dr. Dawn Lawson**, Space and Naval Warfare Systems Center

**Dr. Hiram Rivera-Huerta**, Universidad Autónoma de Baja California

**Janin Guzman-Morales**, Scripps Institution of Oceanography

**Dr. Megan Jennings**, San Diego State University

## "Conservation and Management for San Diego's Changing Climate"

**Dr. Megan Jennings**, San Diego State University

**Dr. Amber Pairis**, Climate Science Alliance

**Dr. John M. Randall**, The Nature Conservancy, California Chapter

**Dr. Dawn Lawson**, Space and Naval Warfare Systems Center

## "Conclusions and Future Directions"

**Dr. Amber Pairis**, Climate Science Alliance

**Dr. Julie Kalansky**, Scripps Institution of Oceanography

**Dr. Dan Cayan**, Scripps Institution of Oceanography

**Dr. Megan Jennings**, San Diego State University

# COMMUNICATING ABOUT CLIMATE

## Session A : Class on the Grass

Robert Paine Scripps Forum 3:00 - 4:00

Climate Kids in action! Attendees participate in a hands on workshop with demonstrations and interactive games to engage and educate youth and the public on climate science.

**Laura Hampton**, Climate Science Alliance

**Olivia Drummond**, San Diego Zoo

**Alexandria Warneke**, Cabrillo National Monument

## Session B : Let's Talk Climate

Samuel H. Scripps Auditorium 3:00 - 4:00

It's time to take action! Practice your skills at communicating about climate change to a variety of different audiences.

Moderator: **Lou Hexter**, MIG Consulting

**Lucia Stone**, San Diego Gas & Electric

**Danielle Boudreau**, Tijuana River National Estuarine Research Reserve

# SUNSET RECEPTION

Robert Paine Scripps Forum 4:00 - 6:00

Join us for a sunset reception with an epic view! Network with colleagues and leaders from across the region and don't miss out on the chance to cheer on the recipients of this years leadership awards.

**Dr. Amber Pairis**, Climate Science Alliance

# MEET THE SPEAKERS

AMBER



MARK



MIKE



DAN



MEGAN



JULIE



HIRAM



DAWN



SHASTA



KRISTEN



SULA



For full biographies visit [www.climatealliance.org/climatesummit](http://www.climatealliance.org/climatesummit)



DAVID



RACHEL



SASHA



MICHAEL



JANIN



JOHN



LAURA



OLIVIA



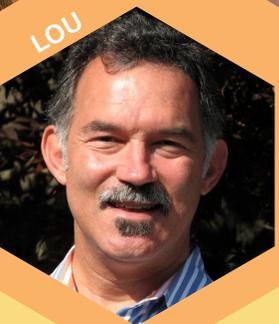
ALEXANDRIA



DANIELLE



LUCIA



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# Climate Adaptation Leaders

The Climate Science Alliance-South Coast is proud to announce the recipients of the 2018 Climate Adaptation Leadership Award. Recipients were selected for their commitment to working collaboratively and their inventive approaches to advancing climate resilient solutions.

*"Today we recognize individuals who are working collaboratively with the Climate Science Alliance to develop and use innovative methods to safeguard the region's natural resources. Their leadership is a source of inspiration and a reflection of the commitment of our community to building a resilient future."*

- Amber Pairis, Climate Science Alliance Director

## 2018 Awardees:

### Laura Engeman



Laura Engeman is the go-to person for information related to coastal resiliency and sea level rise planning. Her passion, creativity and positive attitude are providing local jurisdictions with real world solutions for complex and multifaceted challenges. Her reputation to lead and convene innovative partnerships has brought significant funding and support to our region including the creation of the Resilient Coastlines Project of Greater San Diego. This holistic approach to adaptation planning weaves together science, policy, and community engagement resulting in resources and relationships that will continue to advance the region's reputation as a leader in climate adaptation solutions.

### Martha "Aide" Escalante Garcia



Martha "Aide" Escalante Garcia single handedly created and continues to lead Climate Kids Mexico. Aide has put her entire heart into Climate Kids-Mexico and continually creates opportunities for personal and professional development for her students to become leaders on climate change solutions. It was Aide who developed the model for training high school students to become Climate Kid's Ambassadors who share their message by teaching young students about climate change through science, art, and storytelling. She encourages her students' creativity and self-confidence and is leading a new generation of leaders in Baja who tell the climate story in their community every day.

## Mike Grim



Mike Grim always finds a way to bring laughter and creativity into tough conversations about climate impacts in our community. Always the first to volunteer for weekend and evening events, Mike helped launch our community outreach activities and led the Green Team to fully embrace its role as the “fun team”. Mike is skilled at engaging city leaders and wildlife groups across various agencies and was willing to travel far and wide (including New Orleans!) to tell our story and share the Climate Science Alliance as a model for collaborative partnerships.

## Megan Jennings



Megan Jennings is committed to bridging research and management to advance applied science. Megan is one of a few gifted individuals who have proven time and again her skill and innovation in translating science into applied policies and actions for natural resource managers. When the Climate Science Alliance was created three years ago Megan stepped in to lead Science Focused Partnerships and has created numerous collaborative projects between researchers and managers that are helping to advance climate smart conservation across our region. Specifically, this summit was created to unveil the results of the San Diego County Ecosystems Assessment, a project that was created and completed under Megan’s leadership.

## Lucia Stone



Lucia Stone is truly one of our region’s environmental champions with a staunch commitment to community engagement and environmental stewardship. She is known for her ability to juggle complex relationships and topics and find common ground that advances actions for the betterment of the community. From the very beginning Lucia believed in the value of our organizational mission and worked tirelessly to help build foundational support and partnerships that would advance the Climate Science Alliance as an organization. She continues to play a strong role in connecting the Alliance to businesses and other non-traditional partners that help the partnership grow in innovative and diverse ways.

## Alexandria Warneke



Alexandria Warneke took the lead in developing and advancing the Climate Kids program in San Diego to move beyond the classroom and engage informal educators. Her initiative to develop an outdoor field trip component for Climate Kids laid the groundwork for a series of Climate Kids field trip locations that now occur across the county. Her creativity resulted in new curriculum and activities including the new traveling trunks that are helping bring climate science to life for thousands of students. In addition, her tireless work to advance innovative approaches to communicating about climate change has resulted in exemplary projects that bring art and science together in unique and creative ways including some of the pieces on display in the Alliance’s “Art of Change” climate themed art show.

# SUMMIT CO-HOST:



**A PREEMINENT AUTHORITY ON GLOBAL CLIMATE CHANGE  
AND THE CHALLENGES IT POSES IN SOUTHERN CALIFORNIA  
AND THROUGHOUT THE PACIFIC.**

**Our mission is to advance interdisciplinary science and  
applications that empower people and communities to  
better understand climate change impacts and implement  
adaptation strategies.**



## **DISCOVERY**

Advance understanding  
of climate change through  
innovative and applied  
research



## **SOLUTIONS-BASED**

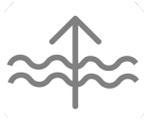
Identify and implement  
adaptation solutions that  
benefit people and the  
planet



## **OUTREACH**

Cultivate and train  
decision makers, scientists  
and next generation  
leaders

## PRIORITY AREAS



Sea  
Level Rise



Weather  
Variability



Increasing  
Temperatures



Community  
Resilience

## OUR APPROACH

01

Sector-specific, action-oriented research // Interdisciplinary research and modeling that advances science and solutions.

02

Collaborative partnerships // Engage in partnerships and projects at multiple scales to test and evaluate climate adaptation strategies.

03

Community engagement // Design and implement innovative strategies to educate and motivate action.

*“We owe it to future generations to better understand the impacts of climate change, as well as to develop and implement strategies for adaptation. Indeed, we believe this new Center will have a powerful impact locally, regionally, nationally, and globally.”*

- RICHARD AND CAROL DEAN HERTZBERG

# SUMMIT CO-HOST:



A  Sempra Energy utility<sup>®</sup>

*We improve lives and communities by building the cleanest, safest and most reliable energy company in America.*



**We are a leader in clean innovation.** SDG&E has received two EPA Climate Leadership Awards, including Organizational Leadership, over the past five years.



**We are collaborating on climate adaptation.** SDG&E is conducting comprehensive climate change vulnerability analysis of our electric and natural gas infrastructure, as part of the California Energy Commission's Fourth Climate Assessment.



**We are accelerating San Diego's clean transportation movement for cleaner air.** SDG&E is the first energy company in California approved to install, own and operate 3,500 electric vehicle charging stations.



**We preserve clean-water supplies and operate at the highest standards for sustainable water use.** We've converted SDG&E facilities and substations to drought-tolerant landscaping, resulting in a four-million-gallon annual savings at our headquarters.



**We are at the forefront of high-quality habitat protection in North America's most biologically rich region.** SDG&E has preserved more than 12,000 acres of high-quality habitat, the equivalent to ten Balboa Parks.



**We demonstrate environmental ethics through our business values and commitment to compliance.** SDG&E proudly maintain a 96 percent environmental compliance rate.

**We build green communities, sustainable facilities and better lives.** We promote clean energy solutions in our region, to help reduce local greenhouse gas emissions and plan for the future.



A  Sempra Energy utility®



SDG&E IS  
KEEPING IT  
CLEANER

SDG&E: 43% RENEWABLE ENERGY  
U.S. AVERAGE: 3% RENEWABLE ENERGY

U.S. average source: U.S. Energy Information Administration, 2016 data, includes wind, biomass, geothermal, and solar.

# THANK YOU TO OUR SPONSORS:

BEGINNING WITH OUR CLIMATE RESILIENCY **SUPERSTARS**



The **San Diego**  
**Foundation**

The San Diego Foundation believes that our region is a special place of natural beauty and ideal weather, and that future generations should enjoy the same quality of life, healthy environment and vibrant economy that we do today.

Through the support of our donors and other local, regional and national funding partners, the Climate Program works to:

-  **Catalyze greater regional action to reduce polluting emissions**
-  **Facilitate and strengthen collaborative efforts to prepare for climate change**
-  **Build public awareness and engage regional leaders around local solutions to climate change**

Since 2006, the San Diego Foundation had invested more than \$3.5 million in: the creation of cross-sector partnerships; assessment of regional vulnerabilities and priorities to address climate change, and increased public understanding of local impacts of climate change with policy makers, scientific experts, businesses and other community leaders.

Learn more at: [www.sdfoundation.org](http://www.sdfoundation.org)





# Southwest Climate Science Center

The Southwest Climate Science Center (SW CSC) was established in 2011 to provide objective scientific information, tools, and techniques that land, water, wildlife, and cultural resource managers and other interested parties can apply to anticipate, monitor, and adapt to climate change impacts in the southwestern United States.

SW CSC has initiated several efforts designed to improve opportunities for and enhance approaches for effectively delivering actionable climate science to stakeholders and decision-makers in the Southwest and beyond. Current initiatives include:

**Tribal  
Engagement**

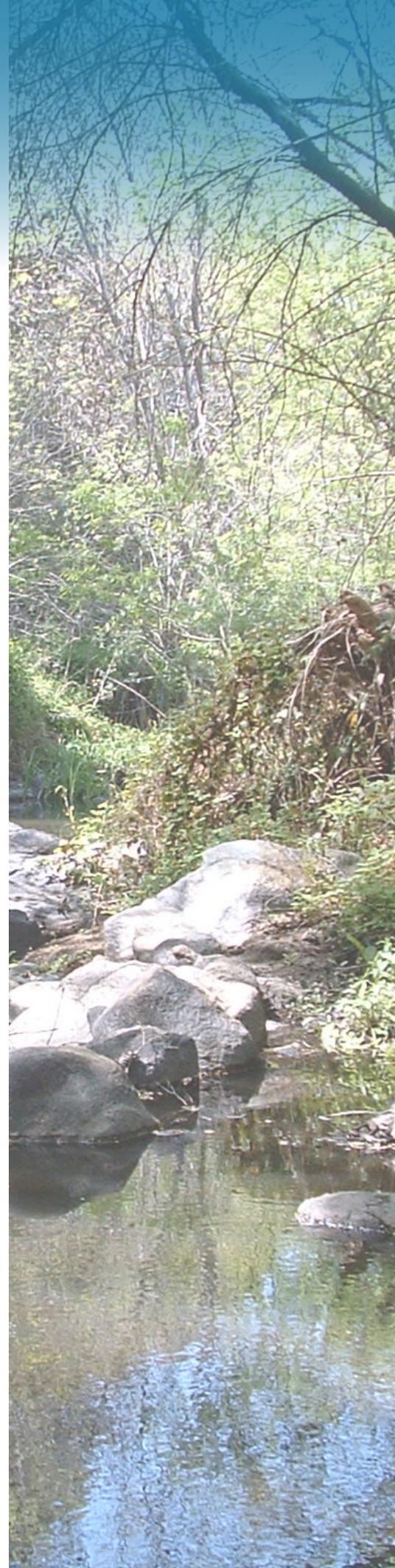
**Translational  
Ecology**

**Strategic &  
Scenario Planning**

**Stakeholder  
Engagement**

Learn more about current projects and initiatives of the SW CSC at:

[www.swcsc.arizona.edu](http://www.swcsc.arizona.edu)



## CLIMATE RESILIENCY CHAMPION



The Pala Tribe works diligently to anticipate and mitigate any environmental or cultural impacts to tribal lands. With this in mind, the Pala Environmental Department and Tribal Historic Preservation Office work to preserve the environment and protect the air, water, land, and culture of the Pala Reservation and its people.

Learn more at: [www.palatribe.com](http://www.palatribe.com)

## CLIMATE RESILIENCY ADVOCATES



## CLIMATE RESILIENCY SUPPORTER



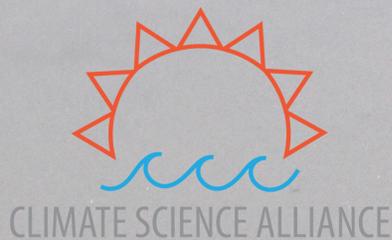
## Other contributing partners



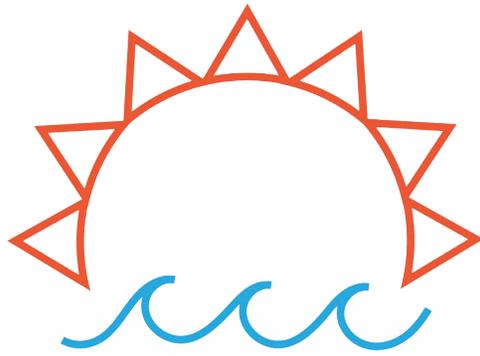
# ART OF CHANGE



CREATIVE CLIMATE-INSPIRED  
ARTWORK BY LOCAL CHILDREN,  
ARTISTS, AND COMMUNITY  
MEMBERS



# Notes



## CLIMATE SCIENCE ALLIANCE SOUTH COAST

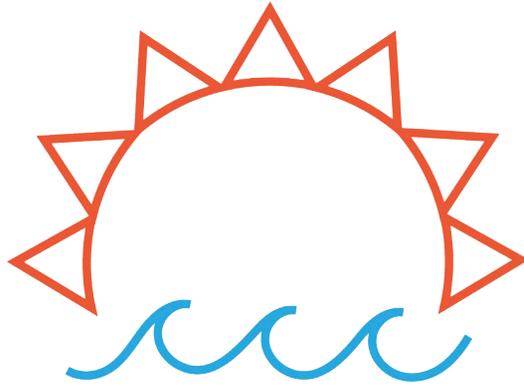


### **Supporting Climate Resilience in our Communities and Natural Areas**

*The mission of the Climate Science Alliance is to safeguard natural and human communities in the face of a changing climate.*

*We do this through leading activities and creating partnerships which promote increased awareness and action on climate change related issues.*

**[climatesciencealliance.org](http://climatesciencealliance.org)**



CLIMATE SCIENCE ALLIANCE  
SOUTH COAST

[www.climatesciencealliance.org](http://www.climatesciencealliance.org)