

SOUTHWEST CLIMATE ADAPTATION SCIENCE CENTER

HIGHLIGHTS & IMPACT

The Southwest Climate Adaptation Science Center (SW CASC)

provides 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.



- ◆ University of California, Davis
- ◆ University of California, Los Angeles
- ◆ Scripps Institution of Oceanography @ UC, San Diego
- ◆ Desert Research Institute, NV
- ◆ Utah State University
- ◆ Colorado State University
- ◆ University of Arizona
Host Institution

AZ University of Arizona climate and hydrological research, funded by SW CASC, has advanced the scientific methods for projecting future Colorado River Basin streamflow—an essential resource for Arizona. The project products expand on the Bureau of Reclamation’s current work by helping the agency stay abreast of scientific advancements to improve their water resources planning.



CA Previous SW CASC-funded research highlighted the risks of rising sea levels to salt marsh habitats in southern California. Now, thin-layer sediment addition to a salt marsh surface, a highly promising risk reduction strategy, is being piloted at the Seal Beach National Wildlife Refuge. Initial adaptation lessons from the pilot project have been communicated to coastal wetland management agencies, including US Fish and Wildlife Service, US Army Corps of Engineers, California Coastal Conservancy, and the California Department of Fish and Wildlife.



NV A SW CASC-funded study of extremes in snowpack, drought and floods, in Nevada’s Truckee-Carson river system, provided data and information to help natural resource managers adapt to a “new normal” of increased hydroclimate variability. Snow data and hydrologic information from the project has helped managers identify key questions to inform their strategies for addressing: water availability, recreation, forest and fire management, and harmful algal blooms.



UT Utah State University investigators, Nancy Huntly and Michelle Baker, are leading the SW CASC Natural Resources Workforce Development (NRWD) program. The program aims to improve the use of technical research results, thus, increasing the return on investment in science. An initial cohort of eight early career professionals are developing skills in multidisciplinary team science collaboration and, through interactions with natural resource managers, effective communication of research results.



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SOUTHWEST CLIMATE ADAPTATION SCIENCE CENTER

ONGOING SW CASC FUNDED RESEARCH

- » **Anticipating Future Impacts of Temperature on Streamflow in the Colorado River Basin**
Connie Woodhouse (University of Arizona), Greg Pederson (USGS Northern Rocky Mountain Science Center), Greg McCabe (USGS Water Resources Mission Area)
- » **Forecasting Resource Availability for Wildlife Populations in Desert Grasslands under Future Climate Extremes**
Erica Fleishman (Colorado State University)
- » **Learning from Recent Snow Droughts To Improve Forecasting of Water Availability for People and Forests**
Adrian Harpold (University of Nevada, Reno), Mike Dettlinger (USGS Branch of Western Regional Research)
- » **Building Knowledge Exchange Networks to Support Climate Adaptation in the Interior Southwest**
Katharine Jacobs (University of Arizona)
- » **Preventing Extreme Fire Events by Learning from History: The Effects of Wind, Temperature, and Drought Extremes on Fire Activity**
Jon Keeley (USGS Western Ecological Research Center), Dan Cayan (Scripps Institution of Oceanography at UC San Diego), Tim Brown and Tamara Wall (Desert Research Institute)
- » **Improving and Accelerating the Application of Research Findings to Key Natural-Resource Management Issues in California**
Mark Schwartz (UC Davis)
- » **Post-Fire Conifer Regeneration Under a Warming Climate: Will Severe Fire Be a Catalyst for Forest Loss?**
Philip van Mantgem (USGS Western Ecological Research Center)
- » **Improving the Success of Post-Fire Adaptive Management Strategies in Sagebrush Steppe**
Matthew Germino (USGS Forest and Rangeland Ecosystem Science Center), John Bradford (USGS Southwest Biological Science Center)
- » **Collaborating with Resource Managers to Identify and Address Phenological Information Needs**
Jake Weltzin (USGS)
- » **Understanding Fire-caused Vegetation Type Conversion in Southwestern Conifer Forests under Current and Future Climate Conditions**
Philip van Mantgem (USGS Western Ecological Research Center), Donald Falk (University of Arizona)



For a comprehensive summary of the Southwest CASC science projects: <https://cascprojects.org/#/casc/southwest>

Southwest Climate Adaptation Science Center Consortium Members

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