



Southwest

Climate Adaptation Science Center



UTAH

The **Southwest Climate Adaptation Science Center** (SW CASC) is a collaborative federal-university partnership between the U.S. Geological Survey (USGS) and seven academic institutions. Our mission is to develop actionable science and implementable climate adaptation solutions in partnership with natural and cultural resource managers, policy makers, Native Nations and researchers across the U.S. Southwest.

Key Science Themes



Water Availability and Long-Term Drought



Altered Fire Regimes



High-Impact Events



Changing Ecosystems



Changing Coastal Environments

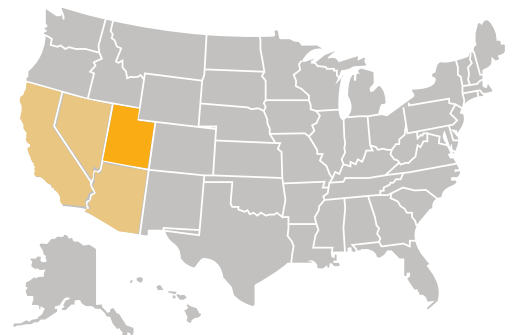


Adaptation Obstacles and Opportunities

Southwest CASC Consortium Institutions

Host: University of Arizona

- Northern Arizona University
- Scripps Institution of Oceanography at UC San Diego
- University of California, Davis
- University of California, Los Angeles
- University of Nevada, Las Vegas
- Utah State University





The Future of Fish in the Colorado River Basin

Drought has impacted the Colorado River basin for the past 20 years and is predicted to continue. Preparing for a dry future may require reconsideration of how much, where, and when the basin's water is stored and consumptively used. These changes in reservoir management could impact the river's native fish populations.

WHAT: The Southwest CASC examined how potential future water allocation decisions in the Colorado River basin, and resulting changes in water temperature and streamflow, could impact the river's fish populations.

RESULTS: Researchers found that projected changes in reservoir levels, and warmer river temperatures associated with low reservoir levels, could lead to significant changes in the river's fish communities. Conditions could become more suitable for warm-water non-native fish like smallmouth bass and worse for economically important trout fisheries.

IMPACT: Understanding how ecosystems respond to changes in consumptive water use and reservoir operations can help guide decisions about how the Colorado River can be managed under sustained drought, while serving ecosystems and human needs.



Reducing the Risk of Extreme Wildfire Events

Recent fire years are characterized not only by expanding area burned but also by explosive wildfire growth. In 2020, for example, multiple fires in the western U.S. grew by more than 100,000 acres within a 24-hour period. These extreme fires defy suppression and pose profound challenges to both human communities and ecosystems.

WHAT: The Southwest CASC is using new satellite-based maps to understand the environmental conditions that promote or inhibit extreme wildfire spread events in AZ, CO, UT, and NM. Once these environmental factors have been defined, scientists will work with BLM and USFS management partners in the region to better design prescribed fire treatments that can help reduce the risk of extreme fire spread.

IMPACT: The results of this project can be used to shape management interventions seeking to reduce fuels and landscape flammability, and mitigate extreme future burning conditions. Researchers are partnering with federal land managers and working with local stakeholders to incorporate results into Community Wildfire Protection Plans.

Who We Are



Learn More

Southwest CASC



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CASC Network



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