Commission’s Technical Advisory Group (CTAG)

December 2025 CTAG Meeting Summary

CTAG Summary

Admin | **Agenda** | **Contracts** | **Meeting Items** | **Future Items**

CTAG Executive Committee

Vice Chair	Chair	Past Chair
Grant Sharp	Lauren Briggs	Ryan Kempster

https://www.sccwrp.org/about/governance/ctag/

Agenda

1. Contracts
2. Fact Sheets
3. CTAG Projects
4. SCCWRP Projects
5. Potential Future Agenda Items

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One (1) Contract Requiring Commission Approval

1. **Contract Title:** California Intertidal Biodiversity DNA Barcode Library

   Funding Agency & Amount: Ocean Protection Council, $9M

   Relationship to CTAG-approved research plan: Bioassessment research theme

   Project Description: Develop the California Intertidal Biodiversity DNA Barcode Library

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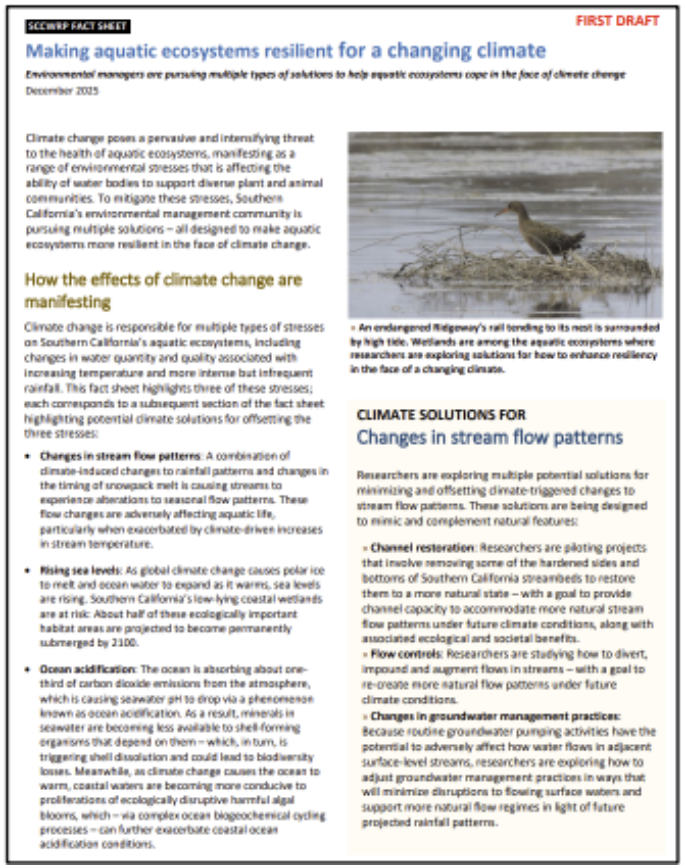
Fact Sheet Review

1. Climate Resiliency
2. Cell Bioassay

Climate Solutions will advance to Commission for approval



SCCWRP FACT SHEET

FIRST DRAFT

Making aquatic ecosystems resilient for a changing climate

Environmental managers are pursuing multiple types of solutions to help aquatic ecosystems cope in the face of climate change

December 2025

Climate change poses a pervasive and intensifying threat to the health of aquatic ecosystems, manifesting as a range of environmental stresses that is affecting the ability of water bodies to support diverse plant and animal communities. To mitigate these stresses, Southern California's environmental management community is pursuing multiple solutions – all designed to make aquatic ecosystems more resilient in the face of climate change.

How the effects of climate change are manifesting

Climate change is responsible for multiple types of stresses on Southern California's aquatic ecosystems, including changes in water quantity and quality associated with increasing temperature and more intense but infrequent rainfall. This fact sheet highlights three of these stresses; each corresponds to a subsequent section of the fact sheet highlighting potential climate solutions for offsetting the three stresses:

- **Changes in stream flow patterns**: A combination of climate-induced changes to rainfall patterns and changes in the timing of snowpack melt is causing streams to experience alterations to seasonal flow patterns. These flow changes are adversely affecting aquatic life, particularly when exacerbated by climate-driven increases in stream temperature.
- **Rising sea levels**: As global climate change causes polar ice to melt and ocean water to expand as it warms, sea levels are rising. Southern California's low-lying coastal wetlands are at risk: About half of these ecologically important habitat areas are projected to become permanently submerged by 2100.
- **Ocean acidification**: The ocean is absorbing about one-third of carbon dioxide emissions from the atmosphere, which is causing seawater pH to drop via a phenomenon known as ocean acidification. As a result, minerals in seawater are becoming less available to shell-forming organisms that depend on them – which, in turn, is triggering shell dissolution and could lead to biodiversity losses. Meanwhile, as climate change causes the ocean to warm, coastal waters are becoming more conducive to proliferations of ecologically disruptive harmful algal blooms, which – via complex ocean biogeochemical cycling processes – can further exacerbate coastal ocean acidification conditions.

» An endangered Ridgeway's rail tending to its nest is surrounded by high tide. Wetlands are among the aquatic ecosystems where researchers are exploring solutions for how to enhance resiliency in the face of a changing climate.

CLIMATE SOLUTIONS FOR

Changes in stream flow patterns

Researchers are exploring multiple potential solutions for minimizing and offsetting climate-triggered changes to stream flow patterns. These solutions are being designed to mimic and complement natural features:

» **Channel restoration**: Researchers are piloting projects that involve removing some of the hardened sides and bottoms of Southern California streambeds to restore them to a more natural state – with a goal to provide channel capacity to accommodate more natural stream flow patterns under future climate conditions, along with associated ecological and societal benefits.

» **Flow controls**: Researchers are studying how to divert, impound and augment flows in streams – with a goal to re-create more natural flow patterns under future climate conditions.

» **Changes in groundwater management practices**: Because routine groundwater pumping activities have the potential to adversely affect how water flows in adjacent surface-level streams, researchers are exploring how to adjust groundwater management practices in ways that will minimize disruptions to flowing surface waters and support more natural flow regimes in light of future projected rainfall patterns.

SCCWRP FACT SHEET

DRAFT

Detecting biological active chemical contaminants via cell bioassays

Cell bioassays have the potential to pick up where traditional contaminant detection methods leave off

March 2026

Protecting humans, wildlife and fish from chemical contamination in aquatic environments is a complex management challenge that requires a multi-pronged monitoring solution. First, aquatic managers rely on chemistry-based methods to directly monitor specific chemicals – an approach that focuses on chemicals that are acutely toxic and trigger severe biological consequences. Second, managers supplement chemical-by-chemical monitoring with toxicology testing, which measures how organisms in a laboratory are affected by cumulative exposure to aquatic contamination.

Although toxicology testing has provided foundational insights into the adverse biological consequences of contamination exposure, traditional toxicology methods are limited to detecting mortality and impaired growth and reproduction – relatively coarse insights. Traditional toxicology methods also are costly and time-intensive. These limitations have paved the way for the latest advance in toxicology testing: **cell bioassays**.

What are cell bioassays?

Cell bioassays are a toxicology testing method for rapidly detecting a wide range of contaminants that can trigger more subtle, nonlethal health effects, including carcinogens, immunosuppressants and endocrine disruptors. Because cell bioassays monitor for changes at the cellular level, they can detect biological effects that are less pronounced, with results available faster than traditional toxicology and at a lower cost.

» **Cell bioassays enable aquatic samples to be screened for hundreds and perhaps thousands of chemical contaminants that can adversely affect humans, fish and wildlife.**

Traditional toxicology vs. cell bioassays

Cell bioassays are a valuable complement to traditional toxicology methods, expanding the universe of chemicals that can be monitored.

Traditional toxicology	Cell bioassays
Detects contaminants that cause mortality, impaired growth and impaired reproduction	Detects broad classes of contaminants that cause cellular-level changes linked to cancer, immunosuppression and endocrine disruption
Not sensitive enough to detect low levels of contaminants	Can detect contaminants present at low levels
Uses whole, living organisms	Uses specially engineered, laboratory-grown cells
Typically thousands of dollars per test	Typically hundreds of dollars per test
Typically takes days to weeks to get results	Typically takes hours to get results

How cell bioassays fit into California's CEC management strategy

California needs a strategy for monitoring the tens of thousands of **contaminants of emerging concern (CECs)** commonly found in aquatic environments that are poorly understood and largely unregulated. Cell bioassays are envisioned as a cost-effective, scalable first line of defense for monitoring a wide range of CECs. Under this new management strategy, which California has begun piloting, aquatic samples are screened for chemical contaminants alongside existing, chemical-specific monitoring methods. Then, depending on findings, more labor-intensive testing methods – including traditional toxicology testing – may be conducted to validate and confirm the cell bioassay's findings.

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Fact Sheet Topics

Completed Fact Sheets	List of Topics
1. Environmental Flows 2. Climate ~~Resiliency~~ Solutions	1. Wastewater-based Disease Surveillance 2. Cell Bioassays **(in progress)** 3. Bioassessment Tools 4. Sediment Quality Assessment Tools 5. BMP Performance Optimization

Subcommittee on Scientific Readiness

- October 28th- CTAG/Commission meeting

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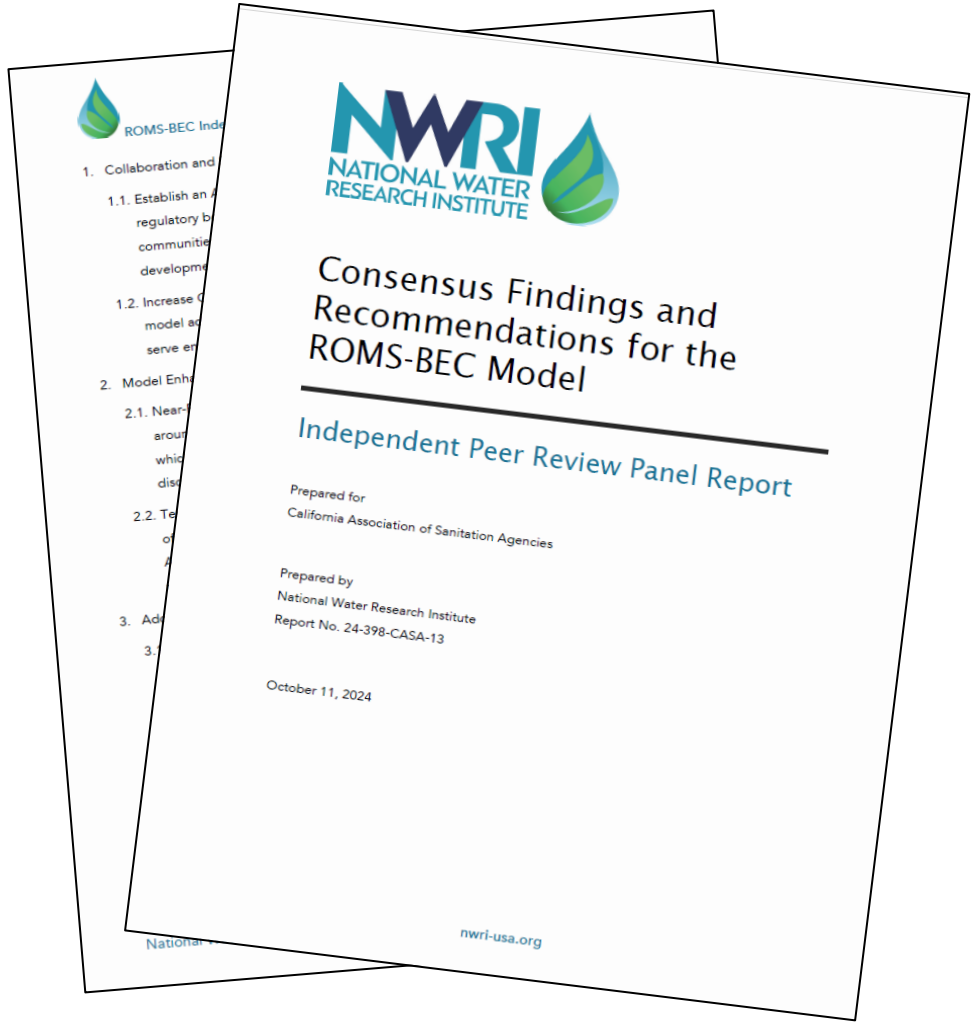
ROMS-BEC OAH Subcommittee Report Out

Accomplished:

- Feedback on SCCWRP's plan to address expert panel recommendations

Next steps:

- Subcommittee interaction with new Management Scenario Committee
- Review and provide feedback on Phase I-ROMS-BEC Model Confidence



CTAG/SCCWRP Collaborative Project

Emerging Contaminant Collaborative Project

- Work group developed
- Plan to develop consensus-based approach for prioritizing CECs
- Updates to CTAG planned for Spring and Fall 2026

Research Planning

Eutrophication Research Plan

- CTAG approved research plan this quarter

Stormwater BMPs Research Plan

- February 17, 2026

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SCCWRP Projects

1. HABS Modeling
2. Artificial Intelligence for Fish Identification

Future Agenda Items for Consideration

1. ROMS-BEC Subcommittee report out
2. Subcommittee on Scientific Readiness report out
3. DNA of intertidal species library
4. Cost of monitoring data dashboard
5. Sensor project