SCCWRP's fact sheet series

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Commission Meeting

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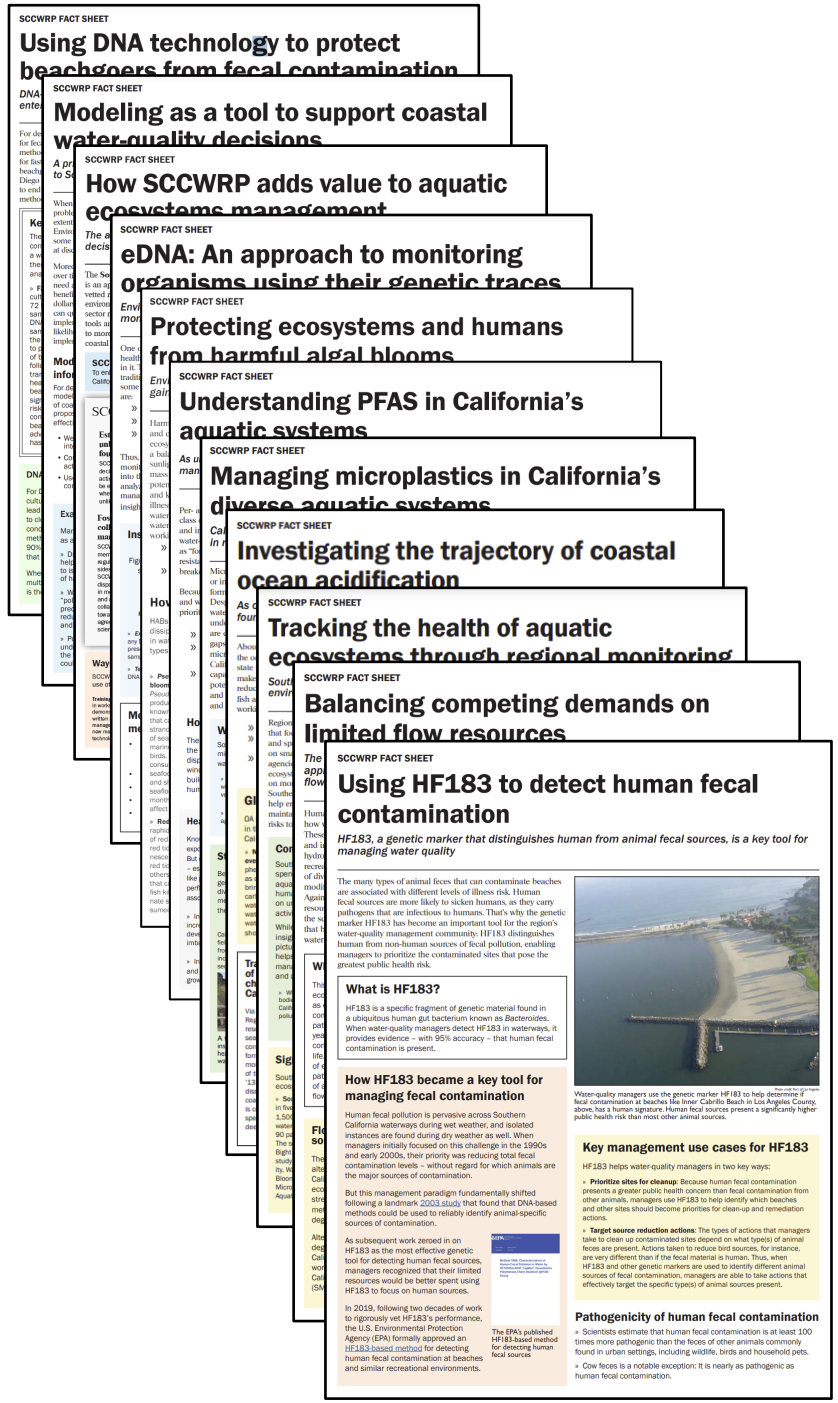
Background

- We have published 11 fact sheets so far
  - The newest one on Climate Solutions is ready for your review/approval today
- You agreed to make a decision today about if/how we continue producing fact sheets



11 published fact sheets

- Rapid beach testing methods
- Water-quality modeling
- SCCWRP's value
- eDNA
- Regional monitoring
- Harmful algal blooms
- PFAS
- Microplastics
- Ocean acidification
- Ecohydrology
- HF183

Climate Solutions fact sheet

- The topic of this fact sheet morphed slightly from its original focus
  - CTAG agreed that Climate Solutions provides a more tangible, engaging framing than Climate Resiliency

- Can we get approval today?
  - CTAG recommends approval

Climate Solutions fact sheet (draft)

SCCWRP FACT SHEET

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

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 intended to make aquatic ecosystems more resilient in the face of climate change – a concept known as **climate resiliency**.

How the effects of climate change are manifesting

Climate change is responsible for causing and exacerbating multiple types of stresses on Southern California's aquatic ecosystems, including changes in water quality, water quantity (e.g., drought), increasing temperatures, and rainfall patterns. 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 adversely affect aquatic life, particularly when exacerbated by climate-driven increases in stream temperature. The flow changes also are affecting human recreation activities.
- **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 that shell-forming organisms depend on are becoming less available – which, in turn, is triggering shell dissolution and could lead to biodiversity losses if vulnerable marine populations collapse. 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 conducting 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 increase 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 changes in projected rainfall patterns.

Future of fact sheets

- Today, you agreed to decide if/how we continue the fact sheet series
  - We currently start work on 1 per quarter
  - We typically have 2-3 fact sheets in production simultaneously
- CTAG recommends moving to on-demand production
  - Start work on a maximum of 2/year
  - Don't work on more than 1 at a given time

SCCWRP fact sheets
Commission-approved list of topics

1. Rapid beach testing methods ✓
2. Water-quality modeling ✓
3. SCCWRP's value ✓
4. eDNA ✓
5. Regional monitoring ✓
6. Harmful algal blooms ✓
7. PFAS ✓
8. Microplastics ✓
9. Ocean acidification ✓
10. Ecohydrology ✓
11. HF183 ✓

Today

12. Climate solutions

In progress

13. Cell bioassays

?

14. Wastewater-based epidemiology
15. Eutrophication
16. Bioassessment