

California Environmental Flows Workgroup

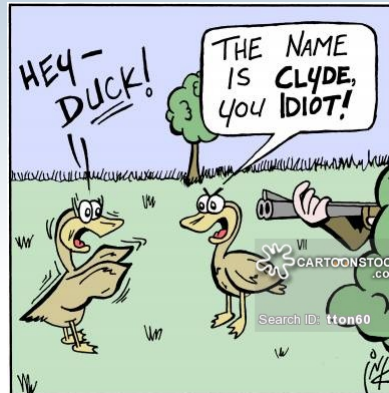


Agenda

1. Introductions and goals for today
 - a. Brief discussion of each agencies current environmental flow activities/programs
2. Background and workgroup objectives as stated by the Council
 - a. What the workgroup is and is NOT trying to accomplish
3. Overview of proposed statewide framework
 - a. Current efforts and overview of SWRCB workplan
4. Organization of the workgroup
 - a. Review of workgroup charter
 - b. Workgroup governance, membership leadership, and management
 - c. Meeting frequency and communication/coordination approach
5. Brainstorming of initial topics/issues the workgroup should cover
 - a. Develop preliminary list of topics for first year's meetings
6. Action items and agenda for next meeting

Introductions

- Who you are?
- What agency/program do you represent?
- Brief overview of your role/work on environmental flows



Goals for Today

- Agree on overall mission of the workgroup
- Discuss workgroup structure and operation
 - Membership, governance, meeting frequency
- Develop an initial list of activities & products



91%
daydream



29%
sleep



96%
miss the
meeting



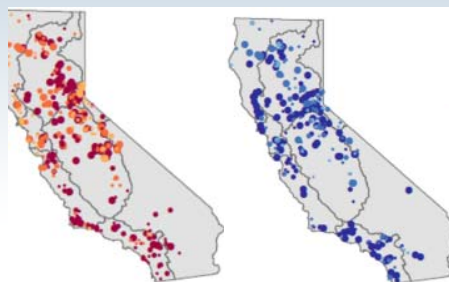
73%
do other
work during
meetings

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What Do We Know About the Status of Flows Statewide?

- First comprehensive study recently published
 - Statistical analysis of gauged locations
- 95% of gauged locations have at least some altered flows; 11% have pervasive alteration
 - Depletion of high flows
 - Augmentation of low flows
 - Reduction in seasonal variability
- **Results NOT related to any ecological endpoints**



Depletion of high flows Augmentation of low flows

Zimmerman et al. 2017

Need an approach to define "flow impairment"

Statewide Needs for Environmental Flows

- Set instream flow standards to protect biological communities
 - Process for selecting appropriate ecological endpoints
- Assess vulnerability of streams to future changes in flow conditions
 - Prioritize areas for restoration/management/protection
- Evaluate/inform management actions
 - e.g., reservoir operations, water withdrawals

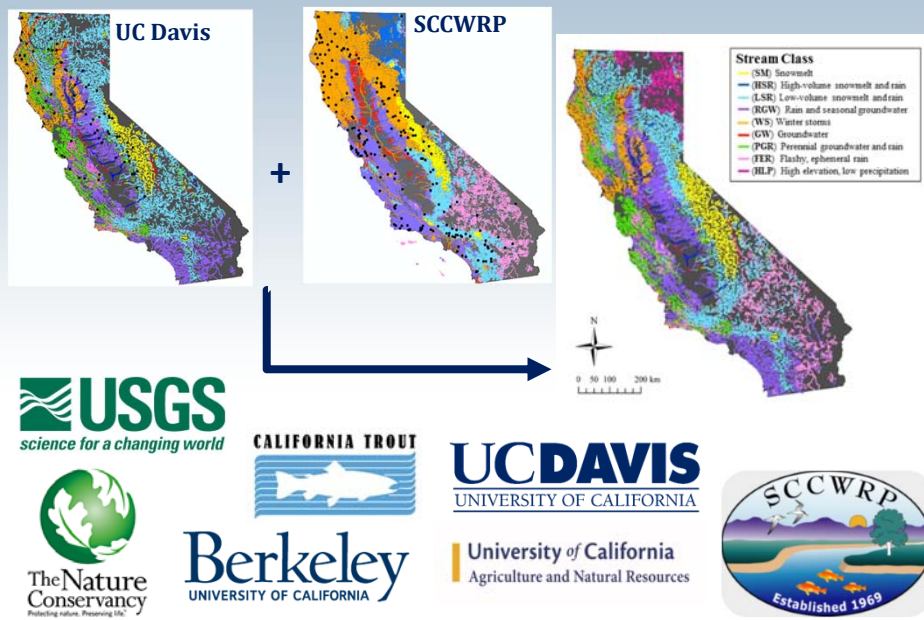
Agencies Whose Programs Involve Management of Environmental Flows

- Department of Fish and Wildlife
 - Instream flows program
- State Water Board – Division of Water Rights
 - California Water Action Plan (Action 4)
 - Cannabis Policy
 - Bay Delta Plan
 - Permitting
 - Water Quality Certifications for Hydropower
- State Water Board – Division of Water Quality
 - Biointegrity and Biostimulatory Substances Program
 - Integrated report – Section 305(b)/303(d)

Agencies Whose Programs Involve Management of Environmental Flows (cont.)

- Department of Water Resources
 - Water Action Plan Implementation
 - Sustainable Groundwater Management Program
- US Forest Service
 - FERC Licensing Mandatory Conditioning Authority
- US Fish & Wildlife Service
 - Responsible for ESA management
- NOAA – National Marine Fisheries Society
 - Responsible for ESA management

Coordination at the Technical Level



Need Improved Agency Coordination

The collage features several key elements:

- Trinity River Restoration Program:** A website screenshot showing a map of the Trinity River and text about water restoration.
- California Department of Fish and Wildlife:** A website screenshot with a navigation menu including Home, Fishing, Hunting, Licenses & Permits, Conservation, Learning, and Explore.
- Upper Santa Ana River Habitat Conservation Plan:** A document cover with a green and blue design and icons for various species.
- POLICY FOR MAINTAINING INSTREAM FLOWS IN NORTHERN CALIFORNIA COASTAL STREAMS:** A document cover with a blue and white design and icons for water and fish.
- Map of California:** A map showing the state's coastline and major rivers, with a legend for 'Priority Streams' and 'Instream Flow Unit California Water Action Plan'.

**Important to
Combine Technical
and Policy
Discussions in a
Single Workgroup**

How Did We Get Here?

- Proposal from technical team to create Environmental Flows workgroup presented to Council – May 2017
- Focused meetings with staff of relevant agencies
- Updated proposal presented to Council – August 2017
- Briefings with undersecretaries of Resources and CalEPA – November 2017
- Council approves formation of the environmental flows workgroup – November 2017

Mission

The mission of the California Environmental Flows Workgroup is to advance the science of environmental flows assessment and its application for supporting management decisions aimed at balancing natural resource needs with consumptive water uses.

Workgroup's Objectives

- Create forum to improve communication between science and policy development
 - Facilitate coordination between various agencies and programs involved with development and implementation of environmental flows efforts
- Develop a consistent and defensible statewide framework for assessing environmental flows
 - provide a common vision for use of tools and science-based information to support sound decision making
- Create a “clearinghouse” for tools, data, example applications
 - Connect to existing web-based sources of protocols, data, and resources
- Establish and maintain a “portal” to answer basic questions related to environmental flows

What We are NOT Doing

- Developing policy recommendations or
- Replacing individual agency roles or mandates
- Establishing prescriptive guidelines
- Establishing environmental flows
- Attempting to limit discussion or exclude specific groups

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Definitions; So..what are we talking about?

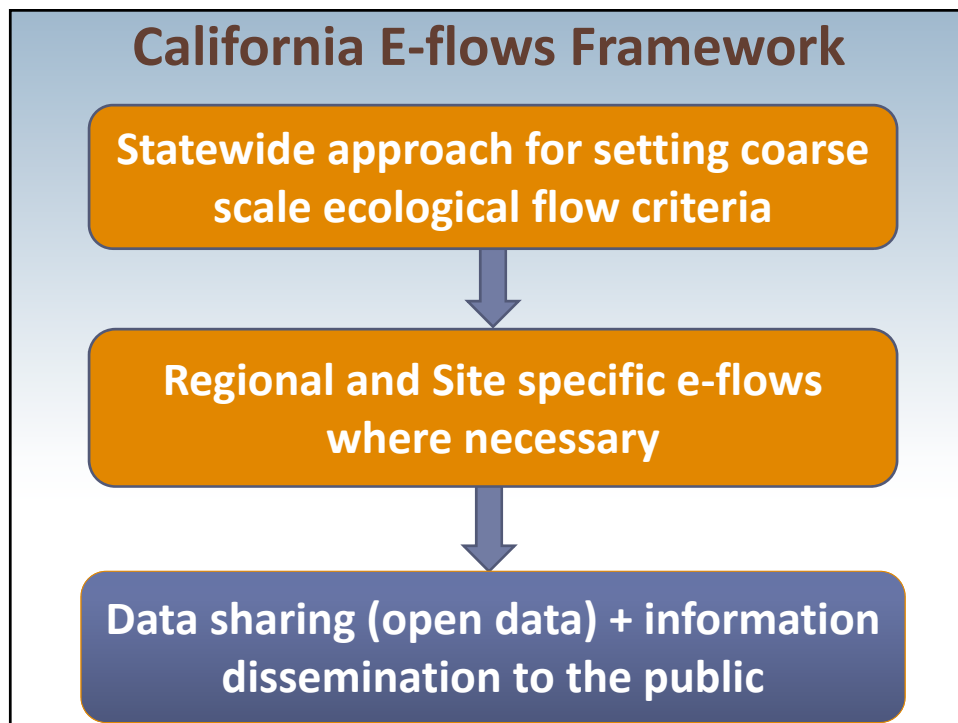
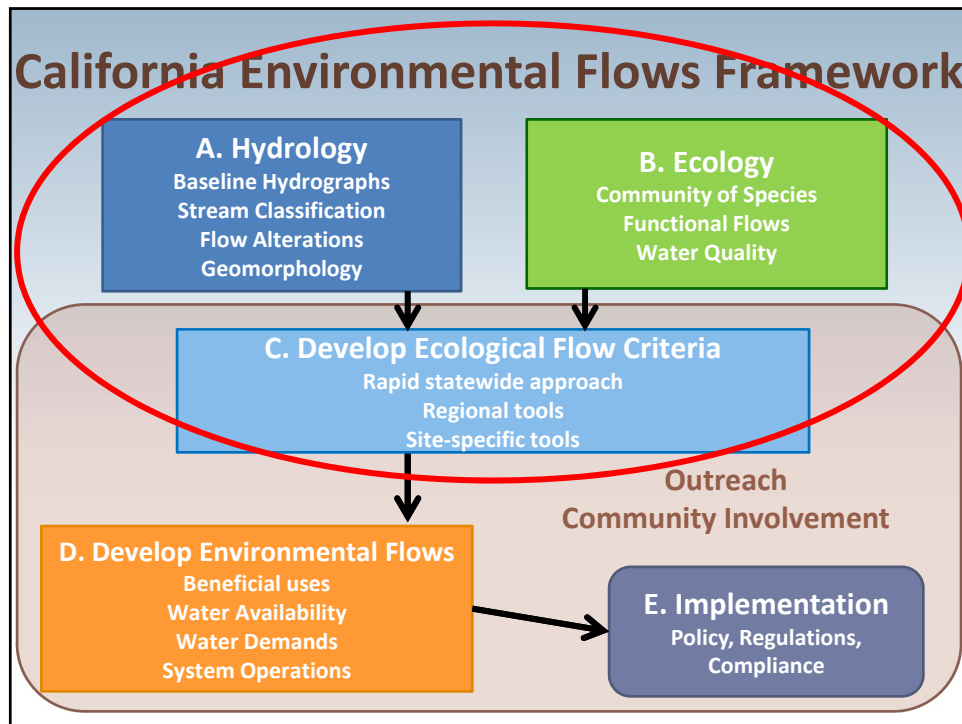
- **Instream flows** = the amount of water in a stream to adequately provide for instream uses within the stream channel (i.e., aquatic organisms and riverine processes):
 - **Ecological flows** = flows and water levels necessary to sustain the ecological function of the flora and fauna, and habitat
 - **Environmental flows**, include human uses

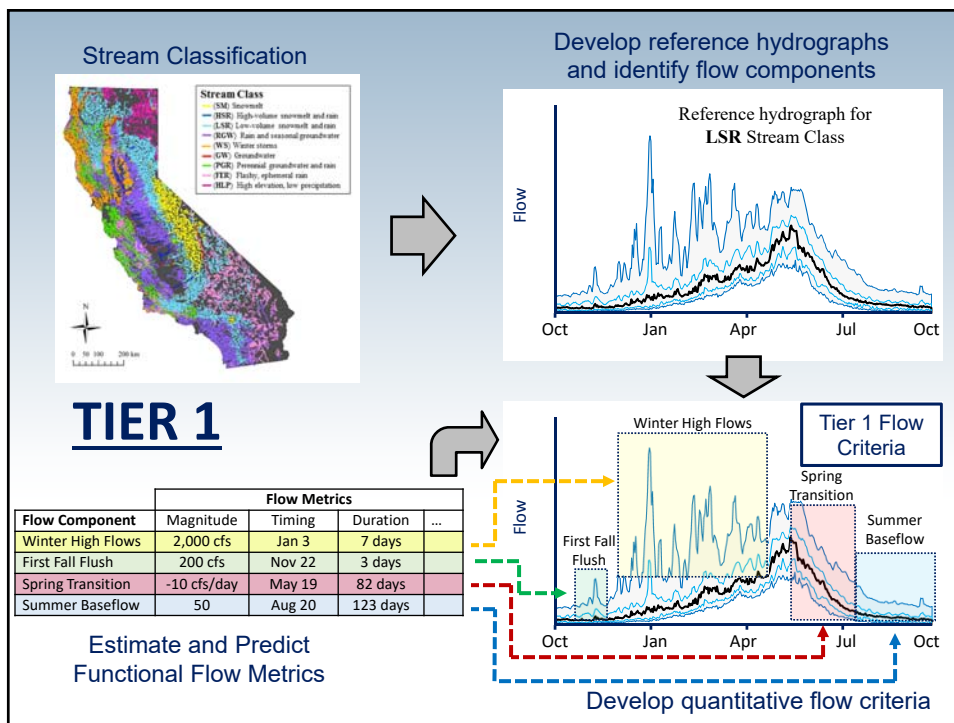
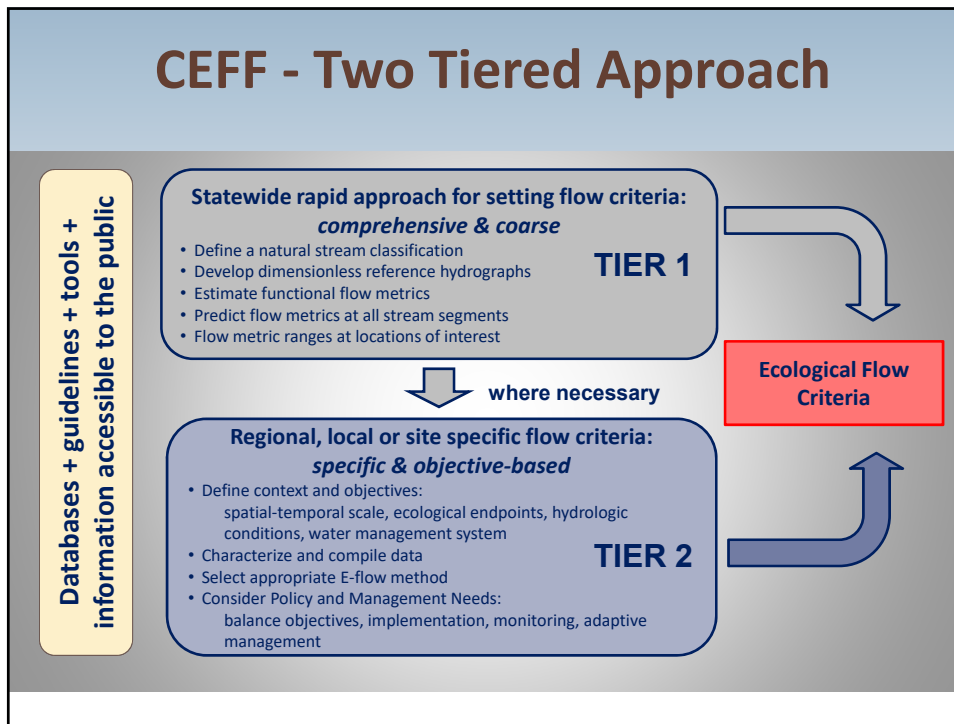


What are Ecological Flows?

The magnitude, timing, duration, rate of change, and frequency of flows and associated water levels necessary to sustain the biological composition, ecological function, and habitat processes within a water body and its margins

Environmental flows are not necessarily “natural flows”. They allow for some degree of hydrologic alteration due to other uses. However, environmental flows are intended to mimic the patterns and ecological outcomes of the natural flow regime, while still providing for other uses



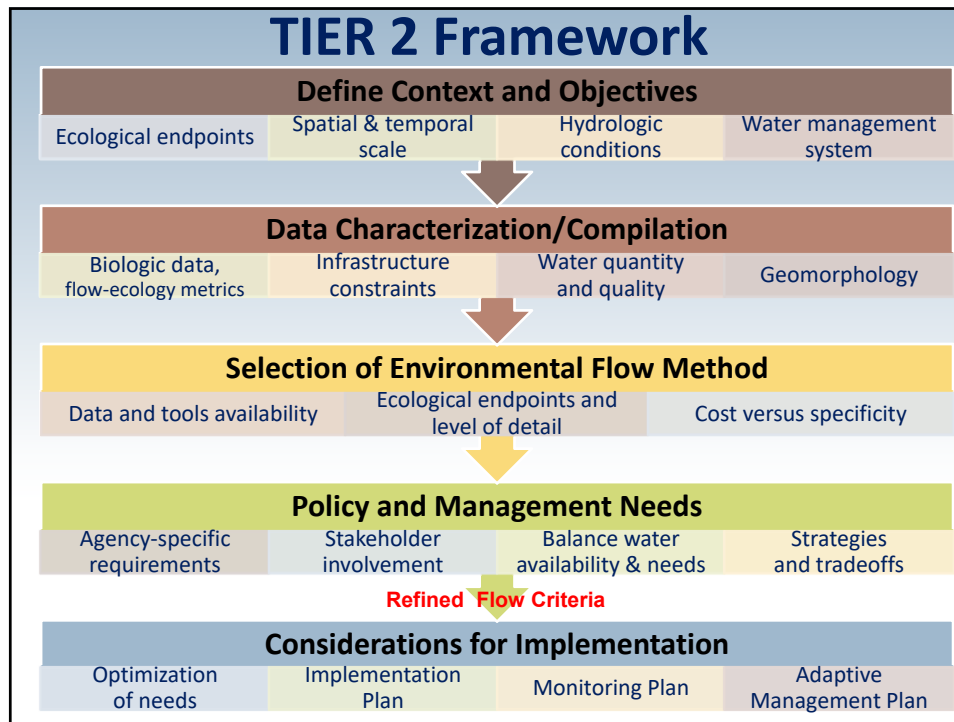


Tier 1 Products

- Stream classification
- Dimensionless reference hydrographs for each stream class
- Functional flow metrics for every reference gauge and streamflow class
- Predicted flow metrics for all NHD segments
- Tool to produce reference ranges of functional flow metrics for any stream of interest

Steps of Tier 2 Framework

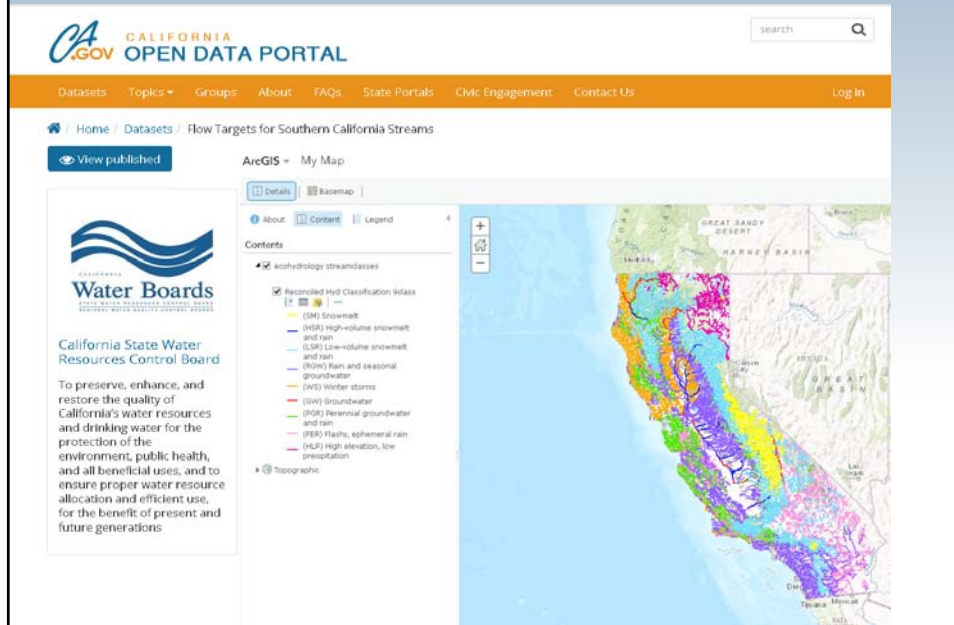
1. Define context and objectives
 - Define spatial and temporal scale – region, watershed, stream reach
 - Select ecological endpoints
 - Determine baseline hydrologic conditions and alteration
 - Characterize water management and allocation system and water use objectives
2. Data characterization and compilation
 - Water quantity and quality data
 - Water infrastructure, allocation and capacity data
 - Geomorphologic data (GIS-based, field-based)
 - Biologic data (surveys, local knowledge, different scales, historic vs current)
 - Ecology-hydrology metrics, flow-ecology and flow-habitat relationships
3. Method selection and guidance
4. Consideration of policy and management needs
5. Balance water availability with management objectives
6. Refine Flow Criteria
7. Implementation Plan: Monitoring, Adaptive Management



Tier 2 Products

- Baseline characterization of hydrologic alteration
- List of ecological endpoints for each stream class
- Flow-ecology relationships and suggested metrics
- Statewide and regional hydrogeomorphic classification
- ***Guidance document for how to produce regional or watershed scale flow criteria***
- Case study examples

Improve Information Dissemination



Relationship with Current SWRCB Project

	SWRCB	Other Funds
Statewide classification		
Develop functional flow metrics		
Predict flow metrics at all NHD segments		
Tool to calculate reference ranges of flow metrics		
Develop and populate web page/portal		
Identify ecological endpoints (multi-taxa, multi-objectives)		
Assess status and trends based on Env. Flow metrics		
Develop process for method selection		
Case studies		
Develop monitoring recommendations		
Produce statewide guidance document		

Tier 1

Tier 2

Funding Provided

Role of Workgroup in Refining CEFF

- Review current CEFF for its applicability to their agency programs/missions
- Identify additional technical elements/tools necessary to meet all environmental flow needs
 - Ecological endpoints
 - Models or assessments
- Update CEFF to incorporate additional tools/elements (as necessary)
- Support additional case studies
- Identify and support development of implementation tools
 - Calculators
 - Mapping tools

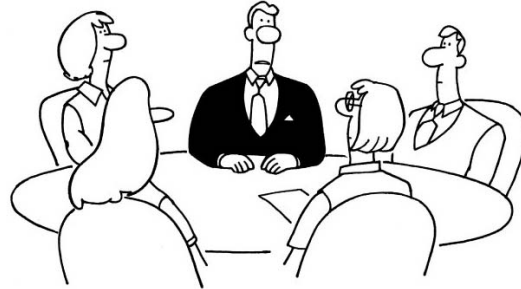


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Workgroup Charter & Organization

- Composition of workgroup(s)
- Membership
- Governance
- Meetings



*“Whew! That was close!
We almost decided something!”*

Two Groups

- **California Environmental Flows Workgroup**
 - Interagency coordination
 - Agencies, NGOs, tribes
 - Implementation issues
 - Subcommittee of the CWQMC
- **CEFF Technical Team**
 - Technical tool development
 - Researchers
 - Currently focused on CEFF workplan

California Env. Flows Workgroup

Products/Effort

- Guidance for environmental flow criteria
- Appropriate application of tools, databases and models
- Prioritize knowledge gaps that should be funded
- Communication, interpretation, and information on management approaches
- Ways to reconcile technical approaches used by different programs

Current Members

- State Water Board - Water Quality
- State Water Board - Water Rights
- Department of Water Resources
- California Department of Fish and Wildlife
- US Fish and Wildlife Service
- US Forest Service
- US Geological Survey
- Regional Water Quality Control Boards
- Bureau of Reclamation
- NOAA Fisheries

CEFF Technical Team

Products/Effort

- Analytical frameworks
- Classification systems
- Assessment tools
- Modeling approaches and models
- Databases
- Statistical analysis of patterns and relationships

May expand based on agency identified needs

Current Members

- University of California, Davis
- University of California, Berkeley
- University of California Agriculture and Natural Resources
- Utah State University
- Southern California Coastal Water Research Project
- The Nature Conservancy
- California Trout
- US Geological Survey
- California Department of Fish and Wildlife
- State Water Resources Control Board (*principal funding agency*)

CA Env. Flows Workgroup Membership

- Goal = open, transparent, collaborative, inclusive
- *Staff from public agencies, NGOs, research organizations, or tribes who are at a level where they are empowered to make decisions or recommendations regarding development of environmental flow policy or programs aimed at managing environmental flows*
- Subject to majority approval by existing workgroup members

Who else should be invited to join at this time?

CEFF Technical Team Membership

- *Researchers, scientists, and engineers from organizations and agencies conducting research on environmental flow sciences, including hydrology, geomorphology, ecology and engineering. Members should have active and ongoing research and projects related to environmental flows, preferably in an applied context (i.e. applied vs. theoretical science)*
- New members may join as needed subject to majority approval of the current CEFF Team membership

CA Env. Flows Workgroup: Governance and Meetings

- Meet quarterly (?)
- Annual reporting to CWQMC
- Facilitated by a chair and co-chair
 - Elected annually by majority vote
- Supported by CWQMC staff
 - Kris Jones
 - Nick Martorano



ELECTION OF CHAIR AND CO-CHAIR

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Future Tasks

- Review proposed tiered environmental flows framework
 - suggested additions
- Develop glossary of key terms
- Conduct data gaps analysis
 - inform future workgroup priorities
- Establish Environmental Flows portal
- Finalize Tier 1 + Tier 2 framework
 - Building on current SWRCB scope
 - Incorporate additional agency needs
- Conduct statewide environmental flows status and trends assessment
- ***Other ideas???***

Environmental Flows Portal

CA.GOV | California Water Quality Monitoring Council | My Water Quality
A COLLABORATION BETWEEN THE CALIFORNIA ENVIRONMENTAL PROTECTION AND NATURAL RESOURCES AGENCIES

Search

Home | Portals | About Us | Work Groups

These web portals, supported by a wide variety of public and private organizations, present California water quality and aquatic ecosystem monitoring data and assessment information that may be viewed across space and time.

- **How “healthy” is the hydrology of streams in my area?**
- **What would “natural flows” be in my stream?**
- **What are the main “stressors” affecting hydrologic condition?**
- **How has drought affected the flow conditions of streams?**
- **What are the risks to future hydrologic alteration?**
- **What organisms may be most affected by hydrologic alteration?**
- **Has there been any environmental flows work done in my area?**
- **What tools or approaches are available? Appropriate?**
 - How do I choose which tool to use?
 - What data is already available?

Next Steps Following Today's Meeting

- Update charter based on today's discussion
- Distribute detailed CEFF workplan for review and comment
- Solicit comments & revise fact sheet
- Establish dates for the next three quarterly meetings
- Refine list of future meeting topics
- Invite additional members to the workgroup
- Establish email list/list serv
- Work with CWQMC staff on plan for developing an e-flows portal

Recap & Ideas for Future Meetings



