



# Science News

News from the CALFED Science Program



Fall comes to the Delta

## Science Issues Related to Delta Conveyance: Through-Delta Options

The CALFED Science Program hosted a workshop September 11, 2007, focusing on science issues surrounding through-Delta options for moving Sacramento River water to export pumps. This workshop was the second of two workshops on Delta conveyance; the first focusing on science issues for using an isolated facility (see the September issue of Science News). The intent of the two companion workshops was to identify science issues and questions to help in evaluating an effective Delta-region conveyance approach for water project exports.

The six participants of the through-Delta conveyance workshop agreed that when we clearly state the objectives for through-Delta conveyance options, we can best ask and answer the technical questions. This is also true for resolving conflicting outcomes.

Assessment of the conveyance alternatives should include looking at different regional scales and cover many scientific disciplines. For example, Delta Cross Channel operations can have effects on both local fish losses to entrainment, and regional water quality.

See [Through-Delta Conveyance](#) page 4

## Lead Scientist Candidates Announced

### Public Brown Bag Seminars with Candidates Scheduled

The CALFED Bay-Delta Program is conducting a search for a lead scientist to replace Michael Healey when his term expires at the end of the 2007. The Independent Science Board (ISB) recruited four lead scientist candidates to be interviewed in October and November by a selection committee consisting of agency, stakeholder, and ISB representatives.

The candidates are Mark Bain, associate professor of Aquatic Systems Ecology with Cornell University; James (Tim) Hollibaugh, professor of marine sciences and director of the School of Marine Programs at the University of Georgia; Nicholas Clesceri, professor of environmental engineering, emeritus, with Rensselaer Polytechnic Institute; and Clifford Dahm, professor

See [Lead Scientist](#) next page

Science News  
October 2007

## Also In this Issue

- [Independent Science Board Meets on DRMS Report](#) (pg. 3)
- [Two Science Fellows Added to Class of 2007](#) (pg. 3)
- [Upcoming Events related to CALFED and Science](#) (pg. 4)

## CALFED Science Program

### Establishing a Body of Knowledge

*The CALFED Science Program's mission is to integrate peer reviewed science into every aspect of the CALFED Bay-Delta Program. The Science Program is establishing the best scientific information possible to guide decisions and evaluate actions critical to the CALFED Program's success.*

*The long-term goal of the Science Program is to establish an unbiased, relevant and authoritative body of knowledge integrated across program objectives and communicated to the scientific community, agency managers, stakeholders and the public.*

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## Lead Scientist: Continued from front page

of biology with the University of New Mexico. As part of the interview process, each candidate will give a public presentation. The first presentation was by Bain, "Environmental Restoration in a Crowd: A Pier and an Estuary in New York City" held October 1, in CALFED's Delta room, 650 Capitol Mall, 5th floor, Sacramento, CA. Future presentations are: Hollibaugh, October 9, "Yet Another Perspective on Carbon Export in the Delta;" Clesceri, October 22; and Dahm, tentatively scheduled for November 2.

**Mark Bain** is associate professor of Aquatic Systems Ecology with Cornell University's Department of Natural Resources. As an aquatic biologist and ecosystem scientist, he specializes in fish and benthic invertebrates found in lakes, streams, and estuaries. He has environmental policy experience in endangered species protection, energy versus environment conflicts, watershed management, and international conservation. He is currently conducting research in five projects which include; (1) the



**Mark Bain**

structure and development of bay and lagoon ecosystems around Lake Ontario; (2) the behavior and ecology of sturgeon; (3) watershed scale environmental planning; and (4) methods for assessing biotic status (or, the status of life) in aquatic and wetland habitats. Bain also serves as a special employee to the US Environmental Protection Agency. For the past 3 years, Bain served as director of the Center for the Environment at Cornell with the goal of advancing sustainable relationships between environmental and human systems.

Before joining the faculty of Cornell University, Bain served for 12 years as assistant lead with the New York Cooperative Fish and Wildlife Research Unit at Cornell. Bain has taught at Auburn University, Alabama, and Ball State University, Indiana.

**Education:** Bain received his undergraduate degree in wildlife resources from West Virginia University in 1977. He continued to his masters in Fisheries Science from Virginia Polytechnic institute and State University (1980) and his PhD in fisheries biology from the University of Massachusetts in 1985.

(James) **Tim Hollibaugh** is a professor of marine sciences and director of the School of Marine Programs at the University of Georgia. His current research is on the structure and function of microbial communities, the role of bacteria in biogeochemical processes, net ecosystem metabolism, estuaries, and the influences from humans on the coastal zone.



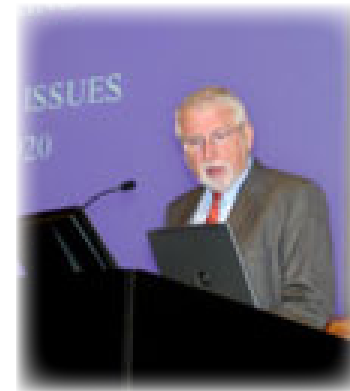
**Tim Hollibaugh** Before joining the University of Geor-

gia, Hollibaugh was research associate and adjunct faculty with the University of California, Santa Cruz where he conducted research on California's Mono Lake. Prior to that, Hollibaugh spent 14 years with San Francisco State University's Center for Environmental Studies as Research Scientist. His research focused on physiological ecology and the trophic role of bacteria and phytoplankton in coastal systems around San Francisco and Tomales bays.

Hollibaugh has received international recognition for development of an innovative approach for studying microbial diversity in aquatic ecosystems. His method uses a molecular technique known as denaturing gradient gel electrophoresis (DGGE) to end the need to culture bacteria. Prior approaches were ineffective in controlling bacteria cultures. Hollibaugh's technique is now the standard for studying marine microbes.

**Education:** Hollibaugh received his undergraduate degree in biochemistry from the University of California, Davis in 1971. He earned his PhD in Oceanography from Dalhousie University, Halifax, Nova Scotia in 1977.

**Nick Clesceri** is professor of environmental engineering,



**Nick Clesceri**

emeritus, with Rensselaer Polytechnic Institute, Troy, New York. Clesceri started at Rensselaer in 1969 as an associate professor. Between 1972 and 1979, he served as Director of Rensselaer's Fresh Water Institute at Lake George, becoming a full professor in 1975. He served as Rensselaer's co-chair to the Interschool Department of Environmental Engineering

and Science, and Director of the Program of Environmental Engineering. Clesceri took a leave of absence from Rensselaer between 2000-04 to serve as program director for environmental engineering for the National Science Foundation.

Clesceri has served on the board of directors of the Hudson River Environmental Society, and also as president and vice-president. His work has included serving on the Environmental Advisory Board for the US Army Corps of Engineers and as New York Governor George Pataki's appointee to the Technical Advisory Committee, Watershed Protection, and Partnership Council. Clesceri now serves as senior technical advisor and agency liaison to the WATERS Network Project Office.

During Clesceri's time with the National Science Foundation, he began a community of environmental engineering scholars to develop a deeper understanding of the interplay between

**See Candidates next page**

## Candidates: Continued from previous page

land, water, and air, and how controlling pollutants in one area influences environmental quality in others. Called CLEANER (Collaborative Large-Scale Engineering Analysis Network for Environmental Research), the program provides a central infrastructure for the formulation of engineering and policy choices to restore and protect environmental resources. A main component of CLEANER is a virtual repository of data and information technology that researchers can tap into and share for modeling and analysis.

**Education:** Clesceri earned his Civil Engineering degree from Marquette University, Wisconsin in 1958. In 1961 and 1963 he received his MA and PhD in sanitary engineering from the University of Wisconsin, Madison, and did postgraduate work through 1965 with the Swiss Federal Institute of Technology, Institute for Water Supply, Sewage Purification and Water Pollution Control.

**Clifford Dahm** has taught for the past 23 years as professor of biology with the University of New Mexico. He is the head of the Hydrogeoecology Research Group now researching aquatic ecology, the interactions between stream and ground water, ways nutrients cycle through the ecosystem, and microbial and chemical processes in volcanic environments. Dahm is also director of the Integrative Graduate Education Research and Training Program.



**Clifford Dahm**

Dahm serves as president of the North American Benthological Society that promotes a better understanding of the ecological and biotic communities of streams, rivers, and lakes. He also serves as a consultant to the Southwest Florida Water Management District recommending minimum flow levels for rivers and springs in the Tampa Bay area, and advising on river flow variability, and climate change.

Dahm's current research project investigates the impact elk and cattle have on streams in the Valle Grande of northern New Mexico.

**Education:** Dahm earned his undergraduate degree in chemistry in 1972 from Boise State University. He earned his master's degree in chemical oceanography at Oregon State University (1974) where he also earned his PhD in Oceanography and Aquatic studies in 1980.

The CALFED lead scientist provides the general science direction, priorities, and strategic direction to the CALFED Science Program. Complete candidate resumes are available on the Science Program web site, [http://calwater.ca.gov/science/science\\_index.html](http://calwater.ca.gov/science/science_index.html).

## Independent Science Board Meets on DRMS Report

The CALFED Independent Science Board (ISB) held a public teleconference meeting on September 25, 2007. The main purpose of the meeting was to discuss the response from the Department of Water Resources (DWR) to the ISB's letter regarding the independent technical review of the Delta Risk Management Strategy (DRMS) Draft Phase I Report.

The Independent Review Panel identified important technical problems with the Draft Phase 1 Report and recommended revision. DWR responded in writing to the ISB on September 18, 2007, and also discussed their plan of action during the teleconference meeting. DWR plans to address the Panel's comments, but will need several months for revision. DWR did not identify a specific timeline. The ISB and DWR also discussed the usefulness of the report to the Delta Vision process in its current form in the near-term and for longer-term strategic planning.

Jeffrey Mount, ISB chair, will prepare a memorandum describing the ISB position on technical adequacy and use of the Phase 1 Report.

## Two Science Fellows Added to Class of 2007

The CALFED Science Program is pleased to announce that two more graduate students were added to the CALFED Science Fellows class of 2007. **Heidi Weiskel**, University of California, Davis was added for her proposal, "Nutrients and Benthic Invasion Dynamics in San Francisco Bay."

**Lisa Schile**, University of California, Berkeley, was added for her proposal, "Tidal Wetland Vegetation Response to Climate in the San Francisco Bay-Delta."

The CALFED Science Fellows Program (<http://www.csgc.ucsd.edu/EDUCATION/CALFED/CALFEDIndx.html>) brings highly qualified scientific talent to help advance the state of scientific knowledge on ecosystems and river systems in the Sacramento and San Joaquin watersheds, Delta, and San Francisco Bay. The fellows program helps provide long-term support for the training and development of scientists able to work in multidisciplinary, field-oriented research.

## Through-Delta Conveyance: *Continued from front page*

Proper assessment will need multidisciplinary teams of scientists and engineers to better understand and learn from the effects of conveyance alternatives. Hydrodynamic modeling tools coupled with sophisticated data collection methods have provided much insight about what will happen to water and fish given various through-Delta configurations.

The workshop participants cautioned that visions are not the action plans for how we get there. To do that, the State will need carefully phased projects for crafting any future Delta conveyance infrastructure. Regardless of the conveyance system chosen, the group cautioned that we must constantly re-examine assumptions underlying engineered solutions to complex environmental challenges. History has shown us that human engineered solutions to complex environmental challenges often lead to unforeseen complications that can create challenges greater than the original challenges. If the State elects a different conveyance system than through-Delta, it will take decades to build; so there is a need

for through-Delta conveyance to work as effectively as possible for many years.

**Proper assessment of conveyance alternatives will also need multidisciplinary teams of scientists and engineers to get the best understanding.**

The panelists noted that ecosystems are remarkably resilient. The problem, they stated, is meeting large and growing human desires within a limited system that must also adapt to the future.

Workshop panel members were Ron Ott, CALFED Science Program, retired; Denise Reed, University of New Orleans; Pete Smith, US Geological Survey; Robin Stewart, US Geological Survey; Matt Nobriga, CALFED Science Program; and Bruce Herbold, US Environmental Protection Agency. CALFED Lead Scientist Michael Healey moderated the workshop.

The report is available on the CALFED Science Program website [http://science.calwater.ca.gov/pdf/workshops/workshop\\_tdf\\_summary\\_draft\\_090707.pdf](http://science.calwater.ca.gov/pdf/workshops/workshop_tdf_summary_draft_090707.pdf).

The webcast is available at <http://www.visualwebcaster.com/>

<http://www.visualwebcaster.com/event.asp?regd=y&id=41794>. The report from the first workshop, Science Related to an Isolated Facility, is available at [http://science.calwater.ca.gov/pdf/workshops/workshop\\_if\\_summary\\_draft\\_090707.pdf](http://science.calwater.ca.gov/pdf/workshops/workshop_if_summary_draft_090707.pdf). The webcast is available at <http://www.visualwebcaster.com/event.asp?regd=y&id=41793>

The Science Program will publish a synthesis document highlighting the scientific questions relating to Delta conveyance options. The report will be available in late October on the Science Program web site, [http://calwater.ca.gov/science/science\\_index.html](http://calwater.ca.gov/science/science_index.html).

## Ask a Scientist

**Do you have a science question about the Delta you would like answered?**

To have your question considered for Science News, email the Science News editor Robert Ullrey at [rullrey@calwater.ca.gov](mailto:rullrey@calwater.ca.gov). You must include your: real name, postal address, and daytime phone number. If your question is selected, you will receive a token memento from the CALFED Science Program.

## Upcoming Science Program Events

### *Brown Bag Seminars: Lead Scientist Candidates*

**October 9, 22, 2007 & November 2, 2007**  
CALFED, 650 Capitol Mall, 5th floor, Sacramento, CA.

For more information, visit: [http://calwater.ca.gov/science/science\\_index.html](http://calwater.ca.gov/science/science_index.html).

### *Delta Governance Workshop*

**October 12, 2007**  
CALFED, 650 Capitol Mall, 5th floor, Sacramento, CA.

For more information, visit: [http://calwater.ca.gov/science/science\\_index.html](http://calwater.ca.gov/science/science_index.html).

### *8th Biennial State of the Estuary Conference*

**October 16-18, 2007**  
Scottish Rite Center, 1547 Lakeside Drive, Oakland, CA.

For more information, visit: <http://sfep.abag.ca.gov/soe>.

### *Independent Science Board Public Meeting*

**October 24-25, 2007**  
CALFED, 650 Capitol Mall, 5th floor, Sacramento, CA.

For more information, visit: [http://science.calwater.ca.gov/sci\\_tools/isb.shtml](http://science.calwater.ca.gov/sci_tools/isb.shtml).

## Upcoming Events of interest

### *California Colloquium on Water*

**October 9, 2007, 5:30 - 7:00pm**  
University of California, Berkeley Wurster Hall, Room 112 Berkeley, CA.  
For more information: <http://www.lib.berkeley.edu/WRCA/ccow.html>.

### *Delta Vision Blue Ribbon Task Force*

**October 25-26, 2007**  
West Sacramento City Hall Galleria, 1110 West Capitol Ave, West Sacramento, CA  
For more information, visit: <http://www.deltavision.ca.gov>.