



Science News

News from the CALFED Science Program



Geese migrating through Suisun Marsh

Healey Stresses the Power of Close Relationships

Speaking at the 2007 Annual Interagency Ecological Program (IEP) Workshop in Pacific Grove, California, CALFED Lead Scientist Michael Healey stressed the importance of a close relationship with the IEP. Healey noted the importance of the IEP for the CALFED program in monitoring status and trends as well as doing studies for better understanding the Delta. A strong Science Program and IEP relationship can assure that projects pursued by both programs are relevant to CALFED program priorities, management needs, are technically valid, and focus on Delta-wide issues.

The IEP was established to better understand the effects of the state and federal water projects on the ecology of the San Francisco Bay, and Sacramento-San Joaquin Delta. It consists of ten federal and state member agencies and the San Francisco Estuary Institute, a non-governmental organization, and incorporates academic and private scientist involvement. The annual workshop serves as a focal point of IEP activities. This year's workshop focused on activities associated with the pelagic organism decline. Healey's comments were delivered during his CALFED Science Program update.

Looking to the future, Healey underscored the importance of a renewed emphasis in scientific studies by the IEP, in addition to long-term monitoring. He further highlighted the important contribution of IEP science in fulfilling the Science Program's vision of integrating science across agencies and mandates; assuring that science is credible; and taking a broad, synthetic view of the Delta and its needs.

Also introduced during Healey's presentation was the Science Program's new policy on accepting science expert contracting from other agencies. Healey remarked that the unique privilege the Science Program has to quickly write and execute contracts with identified science experts is deeply valued. To preserve the Science Program's access to this privilege, a new policy of review has been created to process requests from outside agencies.

Healey noted that the intent of this new process is not to stifle requests. Rather it is to ensure that those contracts the Science Program agrees to administer are both technically sound, and consistent with our priorities, thereby not jeopardizing the program's limited contract review exemption.

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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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Science News Announces a New Feature: Ask a Scientist

If you have a question regarding Delta science, you now have a direct way to ask one of our qualified scientists.



Maybe you have a question about how invasive species affect the Delta. Maybe you are curious to know the difference between a wetland, marsh, estuary, or swamp. If so, e-mail the Science News editor Robert Ullrey at rullrey@calwater.ca.gov.

A question chosen from those submitted will be answered in each issue by one of our Science Program scientists. If your question is selected, you will receive a token memento from the CALFED Science Program. To have your question considered for publication, you must include your:

- ♦ Real Name
- ♦ Postal Address
- ♦ Daytime Phone number

If your question is selected we will include only your first name and last initial, e.g., Mary S. In case of duplicate questions, the one with the earliest e-mail received time will be selected.

Upcoming Science Program Events

CALFED Independent Science Board

April 9, 2007, 1:00pm-4:00pm
 CALFED Bay-Delta Program
 650 Capitol Mall, 5th Floor:
 Delta Room
 Sacramento, CA, 95814

The Independent Science Board (ISB) will hold a public conference call meeting Monday, April 9th from 1-4 pm PDT. The Teleconference Meeting Call-in Number is: 1-866-707-0390, passcode: 1495305. For more information, visit http://science.calwater.ca.gov/sci_tools/isb.shtml.

State of the Estuary Conference

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

Call for posters and abstracts announced this month at the website. For more information, visit <http://sfep.abag.ca.gov/soe>

Upcoming Events of Interest

National Conference on Ecosystem Restoration

April 22-27, 2007
 Kansas City, MO
 For more information: <http://conference.ifas.ufl.edu/NCER2007>

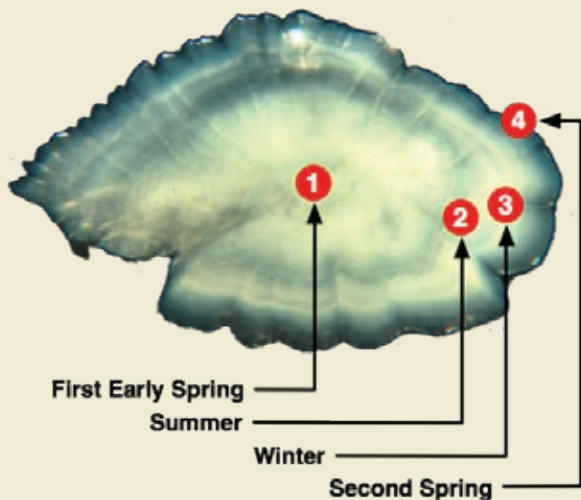
Delta Vision Blue Ribbon Task Force

April 27, 2007
 Sacramento Convention Center:
 Room 202
 Sacramento, CA
 For more information, visit: <http://deltavision.ca.gov>

Society of Environmental Toxicology & Chemistry

May 9-10, 2007
 Clark Kerr Campus,
 UC Berkeley
 Berkeley, CA
 17th annual meeting on issues related to the environmental sciences, with emphasis on toxicology and chemistry. For more information, visit <http://norcalsetac.org/>

How Do We Know How Old Fish Are?



Otolith from a mature Delta smelt. The inner core (1) is early spring when the fish was reared. The dark mid ring (2) is summer followed by a thin white ring (3) for winter. The otolith ends at the smelt's second spring (4) when it returns to spawn. Photo by James Hobbs.

There are many ways to determine the age of a fish: scales, bones, and fin rays have all been used. However, it is the otolith, the ear bone of fish, that offers the most accurate means of determining a fish's age. These ear bones frequently show daily, seasonal and annual rings or layers that can be counted much like the rings on a tree. However, the rings on ear bones are much less clear, and much, much smaller; especially if considering the tiny larvae of the delta smelt. High resolution

microscopes and specialized computer imaging helps, but accurate age determination of fish using otoliths still requires a lot of experience.

CALFED Science Fellow

Jeff Opperman:

An Investigation of Floodplain Habitat for California's Native Fish Species

Flooding can be very destructive, however under the right conditions, that energy can drive change and diversity. Floodplains act as nature's own disaster control system. As streams and rivers overflow their banks, floodplain wetlands store that excess water allowing it to slowly reenter the system. Not all environments can withstand such flooding, but periodic flooding is crucial to how a natural floodplain functions. In the process of storing floodwaters, floodplains filter sediment and excess nutrients, and have their landscapes significantly altered, creating many habitats. By filtering rich components from the floodwaters, floodplains become highly productive habitats for plants, wildlife, and fish.

Understanding the important role floodplains have for the Sacramento-San Joaquin Delta was the intent of research conducted by Jeff Opperman. 2003



Juvenile salmon that grow up in a floodplain (right) grow faster and larger than those from the main channel (left). Photo by Jeff Opperman

CALFED Science Fellow, Opperman looked at the importance of floodplains for salmon and other fish. Chinook salmon, for example, grow faster and larger in floodplains than in the nearby main channel likely because more food is available within the floodplain habitat.

How floods occur also determines the ecological benefits of flood-

plains. Longer spring floods provide both spawning habitat and an increase in phytoplankton. Phytoplankton are the base of the aquatic food chain, and their high production in floodplains adds to the Delta ecosystem. Shorter duration, higher magnitude floods cause extensive changes to the floodplain's landscape helping to diversify habitat characteristics.

Getting a sense of the historical significance of floodplains for the Sacramento-San Joaquin rivers was also important. Opperman found that most historical floodplains capable of providing benefits have been lost to channel modification, agriculture, and urbanization. The Yolo Bypass, an engineered floodplain along the Sacramento River, west of Sacramento, is the only remaining active floodplain to experience frequent prolonged flooding. Opperman developed a model to identify areas that could potentially benefit as floodplains. Resource managers can use this information to incorporate the benefits of natural long-duration flooding to their habitat restoration efforts.

Jeff Opperman's CALFED Science Fellowship ended in 2006. He now serves as a technical advisor to the Nature Conservancy in Cleveland, Ohio. He is currently developing a conceptual model of floodplains for the Delta Regional Ecosystem Restoration Implementation Plan.

2007 REQUESTS FOR APPLICATIONS SCIENCE FELLOWS PROGRAM

CALFED Science Program, California Sea Grant College Program "Fellowships for Predoctoral and Postdoctoral Researchers"

The Science Fellows Program brings together junior scientists, CALFED agency scientists and senior research mentors in collaborative data analysis and research projects relevant to ecosystem management and water supply reliability questions. The CALFED Science Program, in collaboration with California Sea Grant, is seeking applications from qualified individuals to compete for fellowship opportunities in 2007.

For 2007, the CALFED Science Fellows Program will be sponsoring at least seven Science Fellows (predoctoral and postdoctoral) in all disciplines of environmental science addressing the following 2007 priority topics:

- *Environmental Water*
- *Aquatic Invasive Species*
- *Population trends and Patterns of Key Species*
- *Habitat Availability and Response to Change, or*
- *CALFED Implementing Agency Science Needs.*

For further information about the 2007 Request for Applications – Science Fellows Program, please visit: http://www.csgc.ucsd.edu/EDUCATION/CALFED/CBDA_RFA2007.html

All applications are due May 25, 2007, 5:00 pm at the California Sea Grant College Program Office, *California Sea Grant Scripps Institution of Oceanography, 8602 La Jolla Shores Drive, Bldg., T-16 La Jolla, CA 92037*