



*Environmental Science Seminar Series*  
*Presents:*

***Irreconcilable Differences?***  
***The Increasing Divorce of Water from Fish***

***Dr. Christina Swanson***  
***The Bay Institute and***  
***University of California, Davis***

Date & Time: Tuesday, February 25, 5:00 pm  
Location: Smittcamp Alumni House

(Reception: 5:00 PM – Lecture: 5:15 PM)

This program is open to all members of the professional, educational, and research communities. It is sponsored by: the Department of Earth and Environmental Sciences, with a grant from the College of Science and Mathematics. For additional information, please contact the Earth & Environmental Sciences Department office at (559) 278-3086 or email [vengieb@csufresno.edu](mailto:vengieb@csufresno.edu).

*Parking restrictions will be relaxed in Lot V (at Shaw and Woodrow Avenues) between 4:30 and 7:00 PM for seminar participants. An online campus parking map is located at: <http://www.csufresno.edu/univrelations/map/Default.html>.*

## **Irreconcilable Differences? The Increasing Divorce of Water from Fish.**

Christina Swanson

The Bay Institute and University of California, Davis

### **ABSTRACT:**

Throughout the west, conflicts between water use and protection of fishes are escalating. Aquatic ecosystems and fisheries verge on collapse, unquestionably the result of decades of dams, diversions and channelization, while demands for the water upon which these valuable biological resources depend continue to increase. In California's highly altered and exploited Sacramento-San Joaquin watershed, the result has been multiple Endangered Species Act listings for resident and anadromous fishes, legal battles over river management, and controversial regulatory restrictions on water exports. Recovery and protection of fishes in this large and complex system whose water resources are already over-allocated for consumptive use presents an enormous challenge and will require multiple, long-term, integrated actions. Minimizing the direct impacts of water management operations on fishes, for example, reducing fish losses at water diversions by installation of fish screens, is certainly part of the solution. However, for many species that use this watershed, population levels are most strongly correlated with the amounts and timing of freshwater flows. Therefore, the key to species recovery will be understanding the mechanisms underlying these population-flow patterns and developing strategies to provide the flow-related environmental conditions critical for their needs. Recent experiences and experiments, including Delta water quality standards based on habitat and flow conditions rather than chemical constituents, an Environmental Water Account designed to provide real-time protection for fishes that stray too close to water export pumps, and an historic attempt to restore the San Joaquin River, dry for more than 50 years, illustrate some of the opportunities and pitfalls of trying to reconcile of these conflicts.