

AEG San Francisco Section/CCGO meeting and CCGO fundraiser

Scott's Seafood, Jack London Square, Oakland, CA
Tuesday, May 9, 2006

Saving Salmon in the San Joaquin River: Tracing the link between nitrate, algae, and oxygen depletion using isotope techniques

Presented by Carol Kendall, U. S. Geological Survey, Menlo Park, CA

(see abstract and speaker's biography below)

Abstract

The San Francisco Bay-Delta-San Joaquin River ecosystem is currently the focus of major restoration efforts aimed at reducing the adverse effects of over two centuries of agriculture, urban development, and mining activities in the basin. Major anthropogenic impacts include drastic changes in food web structure and ecosystem health, and threats to drinking water supplies from increased loads of nitrate and organics. One serious problem is hypoxia in the slow-flowing shipping channel near the city of Stockton, where low levels of dissolved oxygen during the summer, that are believed to be caused by the decay of organic matter, are adversely affecting salmon migration. While it is fairly obvious that the main cause of the low dissolved oxygen levels is excess nutrients, it is less obvious exactly what should be done to correct the problem. This is because there are many different land uses that contribute nitrate, ammonium, and organic matter to the river, and it is difficult to determine how much of the nutrients and organics in the river are derived from crop agriculture, dairies, feedlots, urban wastewater, etc. using standard chemical and hydrologic mass balance methods. In the last few decades, numerous studies have shown that stable isotopic techniques -- particularly multi-isotope and multi-tracer approaches -- are a powerful tool for determining sources of nutrients and organic matter because materials derived from different sources and land uses often have distinctively different isotope compositions. Hence, isotopes can be used to test competing theories about sources and alternative remediation strategies. This presentation will (1) review how isotopes can be used to determine sources of nutrients and organic matter, and (2) show what we have learned about the link between land use, nitrate, algae production, and the development of hypoxic conditions in the San Joaquin River.

Biography

Dr Carol Kendall is a research hydrologist with the USGS, and is head of the "Isotope Tracers of Biogeochemical and Hydrologic Processes" project in Menlo Park. The purpose of this project is to develop new methods and applications of environmental isotopes to solve problems of national importance. Her main research focus for the last decade has been watershed isotope hydro-biogeochemistry, at scales ranging from first-order streams to the Mississippi Basin. In particular, she is interested in tracing sources of nitrate and organic matter in hypoxic environments. She has been involved in hydrological studies in the Central Valley for ~ 10 years, regularly presents classes on isotope hydrology, and co-edited the textbook "Isotope Tracers in Catchment Hydrology" in 1998.

Meeting Details

Scott's Seafood, 2 Broadway, Jack London Square, Oakland, CA
(venue phone 510-444-3456)

Tuesday, May 9, 2006

6PM - Social hour and sign-in

7PM – Dinner and CCGO awards

8PM – Speaker

Cost* - \$40 (pre-registered members and non-members), \$45 (walk-ins), \$15 (students)

** Price reflects this once a year event*

To make a reservation, contact Sachiko Tanikawa (fax reservation form or e-mail your reservation and meal choice)

fax: 510-268-5099

e-mail: treasurer@aegsf.org

****** Please select a meal choice when making a reservation. The choices are chicken piccata, grilled salmon alla bella, or stuffed portabella ******

The deadline for reservations is NOON on FRIDAY, May 5th.

After this date, reservations cannot be guaranteed.

Please make your reservation as soon as possible.

For financial reasons, meeting no-shows and late cancellations will be charged.

Driving Directions:

From 80 East (Bay Bridge) or 880 South – From 80 East, merge onto 880 South, take the Broadway exit, turn right onto 5th Street (base of offramp) and stay in the right lane, turn right at Broadway, and go straight for four blocks to Jack London Square.

From 880 North (driving towards Sacramento) – Take the Broadway exit, turn left on Broadway, and go straight four blocks to Jack London Square.

From 24 or 580 – From 24 or 580, merge onto 980 South (downtown Oakland), take the 11th/12th Street exit, go straight on Brush, turn left on 5th, turn right on Broadway, and go straight four blocks to Jack London Square.

Parking:

Parking is available on the street, in the parking garage, or in the lot adjacent to the restaurant (the former Old Spaghetti Factory).

Reservation Form (for Sachiko Tanikawa)

Fax: (510) 268 - 5099

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Name _____

Student? _____

Circle one: **Chicken Piccata** **Salmon alla Bella** **Stuffed Portabella**

Email or Phone number _____

Name _____

Student? _____

Circle one: **Chicken Piccata** **Salmon alla Bella** **Stuffed Portabella**

Email or Phone number _____

Name _____

Student? _____

Circle one: **Chicken Piccata** **Salmon alla Bella** **Stuffed Portabella**

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