



SAN FRANCISCO SECTION NEWSLETTER



Meeting Details:

- **Tuesday, May 9th**
- Scott's Seafood, Oakland
- 6:00pm – Cocktail Hour
- 7:00pm – Dinner
- 8:00pm – Speaker
- \$40 pre-registered*, \$45 walk-ins, \$15 students

* This member and non-member price reflects this once a year event.

Reservations Due By NOON, FRIDAY, MAY 5TH!

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CCGO Liaison

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MAY 2006 PROGRAM – CCGO FUNDRAISER

Dr. Carol Kendall, U. S. Geological Survey, Menlo Park, CA

SAVING SALMON IN THE SAN JOAQUIN RIVER: TRACING THE LINK BETWEEN NITRATE, ALGAE, AND OXYGEN DEPLETION USING ISOTOPE TECHNIQUES

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.

Author 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.

Committee Chairs

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The AEG San Francisco Section Newsletter is a monthly publication of the San Francisco Section of the AEG.

For more information, visit www.aegsf.org.

Submittals:

Deadline is the 20th of each month for the following issue. Contact Janine Weber by email (secretary@aegsf.org) for submittal. All submittals are subject to editing for space considerations. Employment notices are free if brief.

Address changes:

Please submit to Section Secretary, Janine Weber (secretary@aegsf.org).

Advertisements:

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business card:	\$15 / month
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CHAIR'S MESSAGE

No Chair's message this month.

Wow – what a busy winter! Hurricanes, landslides, earthquakes, dam failures, plus so much more. This means that there should really be some interesting topics to discuss in future meetings. This month's newsletter was compiled by Janine Weber (Section Secretary) and Sachiko Tanikawa (Section Treasurer). If you would like to pitch in by volunteering as newsletter editor, or even as a newsletter assistant, please let us know. Hopefully, we can keep these newsletters alive – member participation will be a key for this section's success. Thanks!

AEG San Francisco Section

MAY SECTION MEETING DETAILS

The meeting will be held at Scott's Seafood, 2 Broadway, Jack London Square, Oakland (venue phone 510-444-3456).

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).

FAX or e-mail your reservation to Sachiko Tanikawa (treasurer@aegsf.org).

Reservation Form Located on the Last Page of the Newsletter.

No-shows and late cancellations will be charged.

SPONSORSHIP

Sponsor a Section Meeting or become a Section Corporate Sponsor! Donate to the Section and receive free advertisement each month, recognition at Section Meetings, and more! Contact Patrick Drumm at chair@aegsf.org for more information on sponsorship.

***Thank You to the Corporate Sponsors of
the AEG San Francisco Section!***

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APRIL SECTION MEETING NOTES

The evening of Tuesday April 11 was rainy and generally miserable, causing several of our members to miss the talk at Spenger's Fish Grotto. Fortunately our speaker, Tom Sawyer, successfully traveled to Berkeley from Reno to inform the assembled Section members of some of his findings in the Mt. Diablo and Livermore Valley area. Tom focused his talk on the structural architecture of the area based on field mapping and seismic reflection and refraction work. Much of the research was done under NEHERP grants while working with Lettis Associates.

For over a decade now, it's been largely known that major contractional structures underlie the Coast Ranges east of the Calaveras Fault, with the Mt Diablo Thrust and the Tassajara Anticline being two of the major features. The Livermore Valley is a contractional basin with thrust faults and folds marking its boundaries. Smaller structures within the Valley include the Livermore and Vallecitos anticlines.

Tom gave several examples of how his team used longitudinal profiles of streams and the adjoining terraces to identify where incision was least (in the synclines) and where it was at a maximum (over the anticlines). Calculations of the quantity of uplift yielded values ranging from 4.5 mm/y over the Tassajara Anticline, to 1 mm/y over the Vallecitos Hills fold zone. The development of the growing Livermore Anticline can be traced in displaced and variously incised channels of Arroyo Mocho. Tom showed how as the fold grew, channels migrated to the north.

Sawyer's conclusions showed that very young strata show contractional deformation and are fully involved in folding over propagating blind faults in Livermore Valley. Based on size and depth, the Mt Diablo Thrust is projected to generate a M 6 $\frac{3}{4}$ earthquake, and the Livermore Valley thrust a M 6 $\frac{1}{4}$ event. With a thick sequence of very young materials filling the Valley, ground motions may be significantly higher than for other alluvial valleys bounded by active faults.

Janine Weber
Secretary, AEG San Francisco Section

MEMBER UPDATES AND OTHER NEWS**AEG SF PUBLICATIONS CHAIR VACANCY HAS BEEN FILLED!**

We have a new Publications Chair – Jim Newman. Jim will be setting up a display of the current publications that are available at the next meeting. Also, the Engineering Geology Practice in Northern California book is now on sale through the AEG SF Section for \$45.

Thanks Jim!

AEG SF NEWSLETTER EDITOR VACANCY

As you may have noticed, we have not had a newsletter for a few months. We are still in need of a member to step forward to edit and publish the newsletter. The newsletter is an important conduit between members and section activities and news. Without it, everything seems to drift apart. We have so many interesting things going on in our Section and with our members, won't you consider taking on this vital role in our organization so that we can continue to provide the link. Please Contact Patrick Drumm at chair@aegsf.org immediately with your interest.

AEG SF MEMBERSHIP CHAIR

While Jim Springer is in Peru, Corinne Stewart is filling in as Membership Chair.

CCGO ANNOUNCEMENTS

CCGO Update from Paul Sweeney EO-BGG: SB1476 was amended on April 21st. The result is that the Board will continue to operate until 2010. Details are at the website: http://www.leginfo.ca.gov/pub/bill/sen/sb_1451-1500/sb_1476_bill_20060417_amended_sen.pdf

Also, SB 1849 (Figueroa) was amended on Monday, April 24th to strikeout the language regarding elimination of the CSE as a PG licensure requirement.

STATE MINING AND GEOLOGY BOARD APPOINTS STEVE TESTA

The State Mining and Geology Board has appointed Steve Testa as their new Executive Officer, to take the place of John Parrish (AEG-Southern California Section), who was recently appointed State Geologist for California. Steve Testa, PG, CEG, is the current national president of the American Geological Institute.

IN MEMORY OF LUNA B. LEOPOLD

Luna B. Leopold, hydrologist and river scientist, Penrose Medalist, and former President of the Geological Society of America (1972), passed away at the age of 90 at his home in Berkeley, California, on 23 February 2006. GSA will publish a memorial in his honor.

100TH ANNIVERSARY EARTHQUAKE CONFERENCE

April 18 was the 100th anniversary of the Great San Francisco Earthquake. To commemorate the event, a consortium of organizations held a 4-day-long joint meeting at "ground-zero" – the Moscone Center in San Francisco. Earthquake scientists, engineers and emergency managers came together to share and present earthquake-related information. AEG members were all over this meeting! Twenty two members presented posters, oral presentations, participated in panel discussions and/or led field trips. The meeting was a typical over-the-top affair at Moscone with too many interesting things going on simultaneously for any single human to take it all in. Below are section members who participated in the meeting (apologies to anyone that got missed in the count):

John Baldwin, Wm Lettis Assoc. (*San Andreas fault*)

Michael J. Bennett, USGS (*liquefaction*)

Glenn Borchardt, Soil Tectonics (*evidence for active faulting, field trip co-leader*)

Kevin Clahan, Calif. Geol. Survey (*mapping techniques*)

Lloyd Cluff, PG&E (*Sumatran earthquakes*)

William Cotton, Cotton, Shires & Assoc (*earthquake-triggered landslides*)

Todd Crampton, Geomatrix (*system reliability*)

Bill Godwin, Wm Lettis Assoc (*field trip to view seismic retrofit projects*)

Seena Hoose, retired (*Lawson report*)

Keith Kelson, Wm Lettis Assoc (*trenching, rates*)

Alan Kropp, Alan Kropp & Assoc (*tutorial – Earthquakes and the Media*)

William Lettis, Wm Lettis Assoc (*earthquake cycles*)

Tim Mote, Geomatrix (*graphic simulations of earthquake motion*)

James Nelson, Santa Clara Valley Water District (*dam susceptibility to earthquakes*)

William Page, PG&E (*submarine landslides and tsunami hazards*)

George Plafker, Plafker Geohazard Consultants (*Sumatran earthquake and Tsunami*)

Nick Sitar, UC Berkeley Civil Engineering (*dynamic engineering*)

Jennifer Thornburg, Calif Geol Survey (*tutorial – School safety*)

Janine Weber, EVI Consulting (*faulting in the Delta*)

Donald Wells, Geomatrix (*several topics*)

Chris Wills, Calif Geol Survey (*mapping & mapping techniques*)

Ivan Wong, URS (*several topics*)

**AEG San Francisco Section Thanks
our Academic Sponsor!**

San Jose State University

San Jose, California

FUN WITH GEOSCIENCE TRIVIA

(from GSA Connection)

1. What term is given for a stream that flows all year from its source to its mouth?
2. What name is given to the aphanitic equivalent of granite?
3. What name is given to the extremely fine ground up rock material found in glacial streams?

Answers on Page 5.

OTHER MEETING ANNOUNCEMENTS

AEG ANNUAL MEETING

The Annual AEG Meeting will be held in Boston from October 29 to November 4 this year. Now might be a good time to plan for this meeting.

The abstract deadline for AEG-2006 in Boston is May 1, which is fast approaching!

If you have not already done so, please send your abstract to aegjuliek@aol.com.

For more information on the annual meeting, visit www.aegweb.org.

CALIFORNIA BOARD FOR GEOLOGIST AND GEOPHYSICISTS

A Technical Advisory Committee meeting will take place on May 5, 9am in Sacramento. The meeting agenda is available at http://www.geology.ca.gov/meetings/agendas/20060505_tac.pdf

NORTHERN CALIFORNIA GEOLOGICAL SOCIETY

The NCGS typically meets the last Wednesday of each month in Orinda at the Masonic Center, 9 Altarinda Road. There is a social period at 6:30 pm, and at 7:00 pm a talk (no dinner). To reserve, leave your name and phone number at 925-424-3669 or danday94@pacbell.net. Cost is \$5 per regular member; \$1 per student member.

SHORT COURSES

For Short Course information and submittals, please contact:

Ernest Solomon

Short Course Chair, AEG San Francisco Section

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EMPLOYMENT OPPORTUNITIES

There were several employment opportunities that were announced by Pacific Geosciences, ENGEO and Shaw Environmental at the April 2006 meeting. To find out about current employment opportunities, please come to our meetings. Non-AEG members are welcome.

If you would like to list your employment opportunity in this newsletter, please submit a description to Craig Reid (webmaster@aegsf.org). He will post it on the website and it will get published in next month's newsletter.

FIELD TRIPS

PGS Guidebooks

The Peninsula Geological Society has posted guidebooks from their recent field trips, including Carrizo Plain (2005), Panoche and Tumey Hills (2004), White-Inyo Range (2002), Mount Shasta and the Klamath Mountains (2001), Big Sur (2000), and the Northern Sierra Nevada (1982). The guidebooks can be downloaded from www.diggles.com/pgs/.

There are no announcements for field trips this month.

For Field Trip information and submittals, please contact:

Phil Johnson

Field Trip Chair, AEG San Francisco Section

ANSWERS TO GEOSCIENCE TRIVIA

1. Perennial stream
2. Rhyolite
3. Rock flour

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This could be space for your advertisement (see page 2 for details).

Janine Weber
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AEG San Francisco Section – May Newsletter
Monthly Section Meeting & CCGO Fundraiser– Tuesday, May 9th
Scott's Seafood – Oakland

CHECK OUT THE AEG SF SECTION WEBSITE AT WWW.AEGSF.ORG!

RESERVATION FORM

AEG San Francisco Section Meeting • Tuesday, May 9th, 2006 • 6:00 pm • Scott's Seafood, Oakland

Reservation Deadline: 12:00 PM, FRIDAY, MAY 5TH

SEND RESERVATION FORM TO **SACHIKO TANIKAWA**
FAX: **510-268-5099** or E-MAIL: **TREASURER@AEGSF.ORG**

*Please include "AEG SF Reservation" in subject line • **Include entrée choice!***

Do not send payment – check or cash at the door – make checks payable to AEG SF SECTION

Dinner and Meeting Cost*: \$40 – pre-registered members and non-members, \$45 – walk-ins, \$15 – students

** Price reflects this once a year event.*

No shows and late cancellations will be charged!

NAME _____ COMPANY _____

TELEPHONE NO. _____ NO. OF PEOPLE _____

PLEASE CHOOSE ENTRÉE(S): Chicken Piccata Salmon alla Bella Stuffed Portabella

PERMANENT RESERVATION FORM

AEG San Francisco Section monthly dinner meetings are typically the 2nd Tuesday of each month.

I will attend and make payment for each meeting. If I am unable to attend, I agree to fax or mail a cancellation notice to Sachiko Tanikawa by NOON the Friday before the meeting or I will be charged for the meeting.

NAME _____ COMPANY _____

TELEPHONE NO. _____ NO. OF PEOPLE _____

BILLING ADDRESS _____

SIGNATURE _____ DATE _____ ENTRÉE(S) _____