

Silicon Valley Chemist

Santa Clara Valley Section

American Chemical Society

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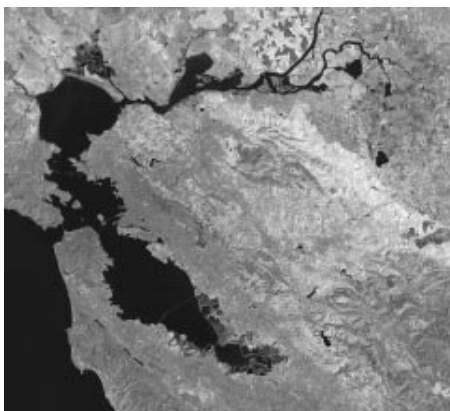
Implications for Restoration

Status and Trends of Chemical Contamination in the San Francisco Bay Estuary

Samuel N. Luoma, U.S. Geological Survey

Abstract

Chemical contamination in San Francisco Bay-Delta has improved since passage of the Clean Water Act in 1970. Some ecological recovery from the extreme contamination of 1950-1970 could be underway; but a range of indicators suggest contaminant stress continues. The status of chemical contamination in



the Bay-Delta is determined by modern inputs, historic activities and the influences of the physical, chemical and biological characteristics of the system. Studies of historic Pb contamination show that contaminants from a single point source can be spread throughout the interconnected reaches of the Bay-Delta because the system is shallow and well mixed by winds and tides. The same mixing processes may be one cause of continuing regional-scale PCB contamination in water, sediments and birds, despite the ban on use of this chemical. The food web of the Bay is also contaminated with methylmercury. Advisories exist prohibiting human consumption of some fish because of the contamination. Recent results show that mercury-contaminated debris from

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Chair's Message

Last night, I attended the Silicon Valley Intel-Carver Science Fair (see the accompanying article). What an event! Several hundred supporters of the Event including organizers, sponsors, volunteers, parents, and the Intel-Carver Scholars themselves participated in the science fair and awards ceremony. This event is a great example of corporate sponsors and volunteers working with the community to improve society. The Intel-Carver Scholarship Program gives young students the opportunity to actively participate in their own science education by working with mentors and creating science projects for presentation to the community. The Local Section actively supports such programs through the efforts of our members. On behalf of the Santa Clara Valley Section, Howard Peters has spent countless hours helping with this specific event as well as mentoring the Scholars. He deserves to be congratulated for his efforts. If you have an idea on how you

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FEBRUARY Dinner Meeting

Date: Thursday, February 17

Time: Social hour: 6:00 pm

Dinner: 7:00 pm

Presentation: 8:00 pm

Speaker: Dr. Samuel N. Luoma
U.S. Geological Survey

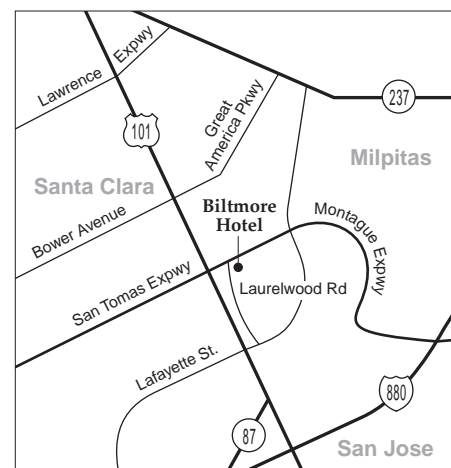
Location: Biltmore Hotel and Suites
2151 Laurelwood Road
Santa Clara, California
(408) 988-8411

North of 101 off the Montague Expressway

Reservations: Shirley Radding
(408) 246-2564
(408) 296-8625 FAX
sradding@att.net

Reservations should be made by February 14 stating name, company affiliation, number of people in party and meal preference. People can also register using our web site:
www.scvacs.org/Local_Folder/din_mtg.html

Cost: \$25.00 with choice of Grilled Salmon, Chicken Florentine, or Vegetarian Lasagna



hydraulic mining in the Sierra Nevada (1852-1884) was incorporated into Bay sediments and is now being re-exposed by erosion of San Pablo Bay sediments. This may be major source of today's fish contamination. Restoration of marshes or dam removals where sediments are rich in this debris could make the mercury problems of the region worse. Selenium threatens sturgeon and some migratory birds in the Bay. The processes that determined this historic problem are known. However the issues surrounding Se contamination are changing. New studies will be necessary to fully evaluate proposals to dispose, in the Bay, selenium from saline soils of the Western San Joaquin Valley soils, or to re-introduce San Joaquin River inflows to the Bay. Sporadic large inputs of modern pesticides from rivers and streams to the Bay are also known. Toxicity of pesticide-contaminated waters is apparently widespread in the Central Valley. But effects on resident species are not known.

Heavy metal contamination once had serious effects on animals in the Bay, but at least some of those effects have receded with improved waste treatment. Historically, Ag and Cu contamination at a hotspot in South Bay caused reproductive failure in local animals; reproductive success returned as waste treatment was upgraded and contamination subsided. Thus, investments in attacking contamination problems can reap benefits. Questions about ecological effects of Cu and Ni on phytoplankton in South Bay remain unanswered, however. New South Bay issues are also arising, such as airport runway modifications, potential restoration of large tracts of wetlands and changes in how USEPA enforces some pollutant standards. All appear to have implications for contaminant trends, but knowledge of the outcome depends upon sustaining

study and monitoring in the Bay-Delta ecosystem.

Biography

Samuel N. Luoma received a PhD in Zoology from the University of Hawaii in 1974 (MS from Montana State in 1970). He has worked for the U.S. Geological Survey as a project chief since 1975. Research interest include processes controlling adverse effects of pollutants, water quality issues in San Francisco Bay and effects of mine waste in rivers. Recent studies evaluate issues related to selenium, copper, mercury, lead and cadmium in the Bay-Delta and in the Clark Fork River, Montana. The project has published more than 135 papers in the peer reviewed scientific literature. Luoma is active in providing expertise about environmental issues for committees, workshops, thesis committees for students, and national/international advisory groups. Between 1985 and 1987 he was Chief of Branch of Western Region Research at USGS; in 1989 he received the Distinguished Service Award from the U.S. Department of Interior. In 1984 his textbook, Introduction to Issues was published. He is currently editor of the international scientific journal Marine Environmental Research, and an editorial advisor to the journal Marine Ecology Progress Series.

Chair's Message, continued from front page

and the Santa Clara Valley Section can get involved in a worthy project involving chemistry and science, let us know. You can also read at the accompanying announcement for volunteer opportunities. Then, volunteer!

With the exception of the Dinner Meeting, February is relatively uneventful for the local section. However, this is just the calm before the storm. We must prepare for many events in March. On the

Call for Nominations Shirley B. Radding Award

The Santa Clara Valley Section of the American Chemical Society (ACS) is pleased to announce the call for nominations for the 2000 Shirley B. Radding Award.

First awarded in 1994 to its namesake, the Shirley B. Radding Award annually honors someone who has been a member of the ACS for at least 20 years. Nominees must have demonstrated dedicated, unselfish leadership, service and significant contributions over a sustained period of time to industrial, applied, or academic chemistry and to the American Chemical Society through elected or appointed positions at local, regional and national levels.

The award consists of an honorarium of \$1,000 and a suitably inscribed memento. Nominations should consist of at least one letter of nomination stating how the nominee's work relates to all aspects of the award. It is recommended that seconding letters accompany the nomination. Nominations are due on or before April 1, 2000, and must be mailed to:

Radding Award Committee
Santa Clara Valley Section ACS
P. O. Box 395
Palo Alto, CA 94302

morning of March 25, the Section will host Kidvention, an opportunity for kids to learn about patents and inventing. On March 29, there will be a special Luncheon, with an afternoon of seminars, to commemorate the 20th year of the Mosher Award. Of course, the ACS Spring Meeting will be running for that whole week. I hope you can attend at least one of these events.

Ea Warren

CALL FOR VOLUNTEERS

National Historic Chemical Landmark

The SCV-ACS will establish a National Historic Chemical Landmark (NHCL) in October/November 2000 at Stanford University Medical Center and UCSF in San Francisco to commemorate the pioneering research of Dr. Stanley Cohen (SU) and Dr. Herbert Boyer (UCSF). It will be the first NHCL to honor an advance in biochemistry. Volunteers are need NOW to serve on the organizing committee, finalize the proposal, raise funds, and organize and run the Landmark Event.

Please contact ASAP for more information:

Dr. Howard Peters, Acting Chair
(650) 324-1677 Ext 20
e-mail: peters4pa@aol.com



Kidvention

The SCV-ACS Section will hold a KIDVENTION at the National ACS meeting.

This is a hands-on opportunity to learn about patents and inventing. The program will be for about 200 local 3rd and 4th graders at Moscone Center from 9-2:30 on Saturday, March 25. This is an urgent call for volunteers to participate in the planning, be coaches or mentors and volunteer for the fun on March 25. A great time will be had by all.

Please contact:

Dr. Hugh Dubb, Acting Chair
(650) 591-4243
e-mail: hdubb@earthling.net



Hospitality Suite for the ACS National Meeting

Do you have a secret desire to be a San Francisco Bay Area Travel Agent? Do you enjoy sharing your knowledge of the Bay Area with others? Do you like helping other chemists and their spouses find worthwhile things to do in the area? If you answered yes, you might be interested in volunteering at the Hospitality Suite for the ACS National Meeting, March 20 to 24.

Volunteers are needed to answer questions from fellow chemists attending the National Meeting about activities in the Bay Area. You don't need to be an expert, just informed. If you can volunteer for a couple of hours during these days, please contact:

Sally Peters
(650) 854-4614
e-mail: speters@parc.xerox.com

Chemistry Olympiad

Roy Rocklin, Chemistry Olympiad coordinator, is inviting chemists interested in the Olympiad to help out with this year's event. This will involve spending one Saturday in April helping with the National Examination, as well as an hour or two stuffing envelopes.

The Chemistry Olympiad begins with a local section test administered to high school students. The top performers are invited to take the National Examination. Winners of this exam are invited to an all-expenses-paid retreat at the Air Force Academy in June, where they continue studying chemistry.

Top students from this group are selected to be on the U.S. team that competes in the International Chemistry Olympiad. If you would like to help, contact:

Roy Rocklin
e-mail: Rocklin@aol.com



Students Needed-ACS National Meeting

San Francisco March 26-30, 2000

Operations Assistants: Assist in distribution of literature, run errands, and set-up poster sessions.

Registration Assistants: Distribute badge holders and programs, assist with credit card registration lines.

Students will be paid \$7/hour plus parking.

Please contact: *Dr. Jamil Talhouk*
Fax: (925) 449-1866
E-mail: esp@value.net



Public Understanding of Chemistry Day

Saturday, March 25, 2000

Any assistance you can provide in encouraging participation would be appreciated. Any suggestions of places to put announcements inviting the public to come see the demonstrations would also be appreciated. There might be a need for a few volunteer helpers.

For Chemagination competition, contact:

Kathleen Thompson
e-mail: kmt97@acs.org

For K-8 demonstrations, contact:

Michael Tinneland
e-mail: mjt97@acs.org

For 2-3 overall traffic monitors, contact:

Michele Gandy
e-mail: m_gandy@acs.org
Chris Pruitt
e-mail: cpr91@acs.org

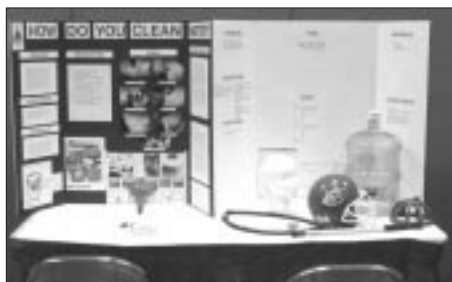
Dr. George Washington Carver State Day of Recognition Event

January 5, 2000 Silicon Valley

In 1993 ACS National first started work relating to Minority Affairs. While most ACS local sections have not yet created a formal Committee on Minority Affairs, the Santa Clara Valley Section has had a Committee since 1997. Dr. Howard Peters, a Palo Alto chemical patent attorney, has acted as the first chair. Initial



work by our committee resulted in a resolution in 1997 from the ACS Board and Council endorsing the creation of an official State Day of Recognition in all states to recognize the contributions of the renown agricultural chemist, Dr. George Washington Carver. Through cooperation and partnership with the local, African American-directed The Healing Institute, the ACS Santa Clara Valley Section provided documents that were helpful in having California become the tenth



state to create a State Day of Recognition to honor Dr. George Washington Carver. Halim Mustafa, the community entrepreneur and Founder and Director of The Healing Institute is a former policeman from East Palo Alto, CA.

After much planning and many volunteer hours, The Healing Institute, in partnership with Intel Corporation, the Alliance of Black School Educators, the American Chemical Society, and others, created the Carver Scholars with about 100 African American grade and high school students in Silicon Valley. This program won a special award in 1999 for The Healing Institute from the U.S. Congress for the best public-private program to



encourage minority students in science and engineering.

On January 5, 2000 The Healing Institute and its partners cooperated to hold the first ever Intel-Carver Science Fair for African-American students at the Santa Clara Convention Center in the Silicon Valley. About 60-70 students participated. About half of the science fair judges were local ACS volunteers. KRON-TV (Channel 4 of San Francisco) had a short segment focusing on the students and their projects on the 11 o'clock news. It is anticipated that many of these first time exhibitors will now exhibit their science project in the local mainstream science fairs.

The Carver Recognition Day

and Intel-Carver Science Fair Award dinner in the evening included a special videotaped address by President Bill Clinton. The President praised the many contributions of Dr. Carver often in the face of adversity and congratulated The Healing Institute and its partners in Santa Clara for their pioneering volunteer efforts in encourage minority students in science and engineering. Dr. T.O. Bartley (retired) of San Diego, a Tuskegee University graduate and former student of Dr. Carver, gave the keynote address.

Future cooperative projects for the partners include – having all 50 states declare a Carver Recognition Day each January 5, having many Carver recognition events each January 5 around the nation, expanding the Carver Scholars Program and Carver Science Fair Program throughout California and the nation, and encouraging the U.S. Treasury to recognize the contributions of African American chemist Dr. George Washington Carver by issuing a new U.S. coin or new U.S. currency for general circulation honoring Dr. Carver.



Editor's Corner

This newsletter was posted on our web site during the last week of January. If you would like to see the March edition early it will be posted during the last week of February.

www.scvacs.org/newsletter/index.html



SANTA CLARA VALLEY SECTION
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FEBRUARY 2000 NEWSLETTER TOPICS:

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CHEMPLOYMENT ABSTRACTS

Time Value!



<http://www.scvacs.org>

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2000-02	Lance Wong	650-829-1148

ACS Editor Steven Colby 650-938-4502

e-mail: colby@sisweb.com
Web Site: www.sisweb.com

FUTURE MEETINGS

Feb 17	SCV Dinner Meeting <i>Dr. Samuel N. Luoma</i>
Mar 25	Kidvention, San Francisco
Mar 26-31	National ACS Meeting San Francisco
Mar 29	Mosher Award Luncheon and Symposium San Francisco
Apr 26	SCV Dinner Meeting <i>Dr. Carl Djerassi</i>
May 20	Illustrating Nature Exhibit UCSC, Santa Cruz

For the latest information, please visit the
SCVACS Web Site: <http://www.scvacs.org>

CHEMPLOYMENT ABSTRACTS

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