

CREEK SEEKERS CONTEST:

DEADLINE: FEBRUARY 15, 2009

San Francisco Estuary Project & River of Words invite K-12 Students to submit poetry & art to *The Creek Seekers: Exploring East Bay Creeks*, a special prize category of the 14th Annual River of Words Environmental Poetry & Art Contest. One \$100 Prize, plus 10 Finalist Prizes.

This year the San Francisco Estuary Project and River of Words will award 11 Creek Seeker Prizes to students in: Oakland, Emeryville, Berkeley, Albany, El Cerrito, San Pablo, El Sobrante, Richmond, Hercules, Crockett, Port Costa, Pinole, Rodeo, or Martinez. Students from these cities who enter the 2009 River of Words Contest will automatically be entered in the Creek Seekers Contest as well. Some of the creeks that run through these communities include Rodeo, Refugio, Rheem, Garrity, San Pablo, Derby, Potter, San Antonio, Blackberry, Sausal, East, Harwood, Arroyo Viejo, Alhambra, Wildcat, Codornices, Schoolhouse, Strawberry, Temescal, Baxter, Marin, Cerrito, Lion, Peralta, Courtland, and Seminary. Which one runs closest to your school or home?

- Learn about your local creeks and how they connect to the largest estuary on the West Coast.
- Materials and instructional resources are available for teachers.
- Contact Louisa Michaels, louisa@riverofwords.org, 510-548-7636 for details.
- For entry forms, visit: <http://www.riverofwords.org>. Use the regular River of Words entry; you'll be automatically entered in both contests.



Pondering by the Pond
Category II (Grades 3-6)
2007 Grand Prize Winner
River of Words©
David Kwok, Age 8



BUDGET DEBACLE DERAILS PROJECTS

Conservation, restoration, and environmental research projects all over California are suffering major collateral damage from the Sacramento budget wars. On December 17, the state issued a stop-work order on all projects funded by bonds from such voter-approved measures as Propositions 13, 40, 50, and 84. State Treasurer Bill Lockyer says the freeze on bond-funded grants will remain in effect until the legislature resolves the budget deadlock.

The suspension not only postpones planned restoration work; it also means that some work already completed by grantees will not be paid for. The freeze, involving \$3.8 billion in grants and affecting over 5,600 projects, has local agencies and nonprofits in limbo. Some organizations have had to shut their doors.

The drastic step was taken by a previously obscure state commission called the Pooled Money Investment Board, which channels loans from the general fund to bond projects. It was prompted by California's inability to sell state bonds. According to a Sacramento source, bond investors are being deterred by the prohibitive cost of bond insurance.

As ESTUARY went to press, the board had voted to release \$648,000 to cover bond-funded administrative costs and unpaid bills for work already performed on state contracts for roads and water infrastructure. Over \$2 million in unpaid bills for water, restoration, and conservation grant projects will have to wait, possibly until summer.



An urban stream restoration project in Richmond.
Photo Urban Creeks Council

Around San Francisco Bay, impacted projects include the massive South Bay Salt Pond restoration effort. Project manager Steve Ritchie told the *San Jose Mercury News* that the U.S. Army Corps of Engineers has greenlighted the heavy construction phase

of the restoration: "It's ironic we are getting the permits just as the money is slipping away." Wetland restoration at Yosemite Slough, Hamilton Field, Bel Marin Keys, and Sears Point has also been halted.

The Invasive Spartina Project, aimed at ridding Bay wetlands of an exotic cordgrass, was shut down after losing a \$1.5 million grant. Director Peggy Olofson calls the situation "heart-breaking": "Stopping the project at this point, even for one or two seasons, will result in exponential re-expansion of the population, possibly precluding any chance of ever getting it under control again." Construction of a \$1.2 million EcoCenter at San Francisco's Heron's Head Park in Hunter's Point has also been halted.

Phil Stevens of the Berkeley-based Urban Creeks Council, says his group lost financial support for a key position in west Contra Costa County. Stevens is foregoing his own salary for three months. The San Pablo Watershed Neighbors Education and Restoration Society (SPAWNERS) saw all its funding disappear and is scrambling to find alternative sources.

In West Marin, the Point Reyes Seashore Association is not being reimbursed for \$600,000

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BUDGET DEBACLE CONTINUED

already spent on the Giacomini Wetlands restoration. The Salmon Protection and Watershed Network (SPAWN), a Marin advocacy group, may not be able to pay staff salaries. The axe has also fallen on Proposition 50 money for 16 Marin landowners working with SPAWN on erosion-control projects.

Water-quality and erosion-control projects in Santa Cruz County and trail construction in Napa, San Mateo, and Sonoma have been frozen. Conservation land acquisitions from the Mendocino coast to Big Sur are at risk, with local land trusts unable to close escrow on key properties. The Sierra Nevada Alliance, surveying 68 regional conservation groups, reported that 55% lost over half their annual budget, 64% laid off contractors, 26% eliminated staff, and 7% shut down as a result of the freeze. Southern California casualties include kelp restoration in Santa Monica Bay and stream daylighting in Watts.

Ripples from the state's decision are impacting local economies as well as environments, as contractors are left dangling. "The ones who are really getting nailed are the design-build shops," says Phil Stevens. "Bond-funded projects are not their bread and butter—they're the whole meal." The ISP's Peggy Olofson, herself out of work, had to lay off nine contract field biologists and an office manager.

Science has not been spared. The CALFED Bay-Delta Program suspended \$16 million in bond-funded research, including a study of the effects of pumping on captive-bred Delta smelt and a review of proposed federal rules to protect salmon from the effects of pumping. Field studies of sandhill cranes and giant garter snakes are also on hold. Eight PRBO Conservation Science projects have been defunded, and researchers may be put on unpaid leave.

Some state legislators, including Berkeley's Senator Loni Hancock, whose staff recently attended a meeting of the Bay Area Watershed Network to hear its concerns, are paying attention to the freeze. But overall, engaging them is an uphill battle. "Even the greenest legislators don't have a sense of how pervasive and disastrous the effects are," says the Sonoma Ecology Center's Caitlin Cornwall. "And they feel like there's not much they can do." Lobbyist John McCaull, who represents Sonoma County agencies and the Sierra Nevada Conservancy, thinks interest, even among Republicans, will grow as impacts begin to hit home. Case in point: the city of Alpaugh in conservative Kern County, where grant funding to address arsenic in drinking water has vanished.

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PLANNING

DELTA VISION SHOWS ITS HAND

The New Year brought forth some not-so-new plans for sustainable management of the Delta, as Governor Schwarzenegger's Delta Vision Committee released its final recommendations to the governor and the legislature. With one major exception, the committee—comprised of five cabinet secretaries—embraced the recommendations released last fall by Delta Vision's Blue Ribbon Task Force, an independent panel established by the governor in 2006. Delta Vision is the latest effort to corral the Delta's diverse stakeholders around efforts to "fix" it. Created with the co-equal goals of protecting and restoring the Delta's ravaged ecosystem and ensuring a reliable water supply for California, Delta Vision was designed to build upon the efforts of the CALFED Bay-Delta program, but expand it to "address the full array of natural resource, infrastructure, land use and governance issues necessary to achieve a sustainable Delta."

Among the dozens of actions endorsed by the committee were the completion of the Bay Delta Conservation Plan, a 20% reduction in statewide water use, levee repair, and the construction of new conveyance and storage facilities. However, the committee shied away from the task force recommendation that a new, independent governing body be established for the region.

"Overall it's a good document, pretty decisive," says CALFED's Leo Winternitz. Although the recommendations are enjoying similar support from a surprisingly broad range of interests, the committee did ruffle some feathers with its endorsement of the ever-contentious peripheral canal, the "third rail" of state water politics for decades: it recommends a "dual-conveyance" system for moving water from north to south, combining a new "isolated facility" (canal) to take water around the Delta, with improvements to the current "through-Delta" system. (See "Burning Issue," December 2008 ESTUARY). The agencies that use exported water have agreed to fund the new isolated facility as part of a dual-conveyance system.

"The best way for the Delta to heal is through greatly reduced exports to restore as much fresh water flow as possible," says Barbara Barrigan-Parrilla of Restore the Delta. The willingness of

the water users to fund the new conveyance indicates that such a facility will mean more, not less, water flowing out of the Delta to farms and cities, says Barrigan-Parrilla. Not necessarily so, says Byron Buck, a consultant to Metropolitan Water District. "We are looking to restore some water supply reliability. A canal with no water in it won't do anybody any good, but the question is, how can a facility be operated to balance ecosystem needs and water supply reliability?"

Buck adds that without such reliability, money for ecosystem restoration is unlikely to materialize. "The water users won't provide it, and likely neither will the legislature—it just won't be politically feasible."

The committee also raised eyebrows by contending that the Department of Water Resources can proceed with construction of the canal with neither voter nor legislative approval. California voters rejected a peripheral canal in 1982. "Whether they have the legal authority to go

ahead is subject to debate," says Dennis O'Connor of the Senate Natural Resources and Water Committee. "Do they have the public policy authority? Clearly not." O'Connor adds that he can't imagine DWR even wanting to go forward without the approval of the body politic. "They are doubtless going to get sued. Legislative approval would at least give them some political and legal cover."

At least one environmental group has come forward in support of the canal, dependent on certain conditions. "We've recently completed an evaluation of the Delta that has led us to the conclusion that a peripheral canal needs to be a component of Delta management," says the Nature Conservancy's Anthony Saracino. "We can't continue to move water the way we have been doing it, because it essentially turns the Delta into a freshwater lake. The science over the last decade has shown us that under natural conditions, the Delta's salinity fluctuates. If we are going to continue to move water from north to south, which we clearly are, then we need to do it in a way that allows for more natural fluctuations in salinity, which the peripheral canal will do." The key, says Saracino, is in the governance. "We have to have an entity that can manage the canal to make sure that environmental objectives are met."

That task may be complicated by the pending release of the National Marine Fisheries Service biological opinion. The report, due in March, is expected to conclude that Delta exports and up-

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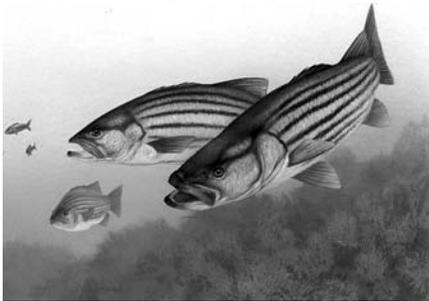
"Whether they have the legal authority to go ahead is subject to debate."

SCIENCE

BASS PASS ALONG CONTAMINANTS

Long before the Pelagic Organism Decline (POD), David Ostrach, a biologist at UC Davis's Center for Watershed Sciences, was concerned about the striped bass (*Morone saxatilis*). This introduced species, a popular sport fish, has been declining in numbers since the 1970s. As POD researchers began to look at its demographics, it became apparent that recruitment—the addition to a population through reproduction (or immigration)—was part of the problem. “The adult population is still high,” said Department of Water Resources biologist Ted Sommer at last October's CALFED Science Conference. “The juvenile population is going to hell.”

As with the other POD species, there's been no shortage of suspects: water diversions, introduced species, climate change, and contaminants, among others. Now Ostrach and several Davis colleagues, in an article recently published in the Proceedings of the National Academy of Sciences, have made a strong case for the role of contaminants. If they're correct, female striped bass are accumulating polychlorinated biphenyls (PCBs), (polybrominated diphenyl ethers (PBDEs), pesticides, and other chemical compounds and passing them along to their eggs, which hatch into nonviable larvae.



Painting by Timothy Knepp, USFWS

While studies of maternal transmission of contaminants in vertebrates (DDT in raptors, among others) are nothing new, Ostrach's group was one of the first to examine contaminant loads in adult fish and follow their eggs and larvae as they developed. Applying a stereological technique from tumor research, they tracked changes in the volume of striped bass larvae and their organs during their first five days after hatching. The larvae were also examined for lesions and other abnormalities. The offspring of females collected in the Sacramento River between Colusa and Knights Landing in 1999-2001 were compared with a control group of hatchery stock created from Estuary-caught bass.

The contrasts between the larvae of river-caught and hatchery bass were dramatic—and ominous. Ostrach describes striped bass hatchlings as “free-floating embryos.” Unable to feed themselves, they rely on their yolk sacs for nutrition while their organs develop. “In all progeny from river-collected females, growth either stopped or went into negative growth between days 3 and 5,” says Ostrach. By day 5, the river larvae had depleted their yolk sacs, brain development was retarded, and their shrunken livers were devoid of glycogen. Upwards of 90% of these larvae would never survive to first feeding. The hatchery controls, on the other hand, developed normally.

“We've increased types and kinds of stressors in the system, and we finally got to the point of no return.”

The study was repeated in 2006-07 as part of the POD research effort, using linear growth metrics instead of the volume analysis. The results, reported to the POD agencies but not yet published, were similar. Ostrach also found gross lesions consistent with contaminant causation in 93% of the river larvae in 2006, but none in the hatchery controls. Such lesions can become sites for bacterial and fungal infections. He says PBDEs were at higher levels than in the earlier study, as were pesticides like chlorpyrifos and dieldrin. There's no baseline for pyrethroids, not analyzed in the first study. “The underlying situation, if anything, has gotten worse,” Ostrach concludes.

Other unpublished POD research indicates that PBDEs behave differently than PCBs in maternal transmission. PCBs, typical fat-soluble compounds, are stored in a female bass's lipids but only until spawning. “She uses virtually every drop of lipids to produce her eggs, and starts out next year with a clean slate of PCBs and pesticides,” Ostrach explains. But females don't transfer their entire PBDE load to their eggs, so the contaminant continues to bioaccumulate, and adult levels increase from year to year.

Ostrach is quick to caution that chemical contaminants are “not the one smoking gun.” In his view, “we've increased types and kinds of stressors in the system, and we finally got to the point of no return.” For one thing, food sources for juvenile striped bass have changed over the past 10 years with the spread of invasive invertebrates. The bass have switched from pelagic mysid shrimp to amphipods and other benthic organisms—and “benthic sediments are where contaminants tend to migrate and be sequestered.” The fish may be picking up their contaminant loads between San Pablo Bay and the Sacramento-San Joaquin confluence.

He hopes for additional funding to continue this line of research. Why invest further in the study of a non-native fish? “Apex predators like the striped bass are good sentinels of Estuary health and important surrogate species for the endangered species where study is restricted,” he says. “Next to salmon and cod, we know a lot more about striped bass life history and behavior than any other fish. If we can understand what's happening with striped bass, it will help to better understand other pelagic fishes and the food web in general in the Estuary.”

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BUDGET DEBACLE CONTINUED

While the budget logjam continues, some state agencies are looking into bridge funding from federal, local, and foundation sources. “We're making it up as we go along,” says McCaull. There's talk of presenting a budget workaround—redefining some taxes as fees, or reallocating money from state lottery, tobacco, and mental health funds—to the voters in April. Until then, unless the bond market opens up or the legislature acts, it could be a long dry spring.

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CISTERN SOLUTIONS

RAIN GAINS

With the prospect of another dry year, is rain harvesting a technology whose time has come again? The process, as old as the Roman empire, involves collecting roof runoff in cisterns or tanks for irrigation or household use. Equipment ranges from a simple 50-gallon barrel to the Australian-designed Rainwater HOG tank, a slender rectangular model that fits against walls or under houses.

Rain-harvesting advocates claim benefits beyond lower utility bills. Catching and storing rainwater reduces runoff into sewer systems and urban streams. West Marin's Salmon Protection and Watershed Network (SPAWN) promotes rainwater capture in watersheds used by coho salmon. "Capturing stormwater and reducing peak runoff from impermeable surfaces such as roofs helps reduce downstream erosion of creek banks and sedimentation of salmon spawning beds," says SPAWN's Paula Bouley. She also notes that water stored on-site can help fight fires in the urban-wildland interface.

East Bay Municipal Utility District spokesman Brian McCrea says his agency is not developing a rain-harvesting program. "The rain-harvesting idea works wonderfully in climates that have year-round rain such as back East, but not so in our climate," he says. He figures that cost savings are so small that a \$60 barrel would take a hundred years to pay for itself: "It's just not cost-effective in our climate."

Tell that to EBMUD customer A. L. Riley, who has three salvaged 55-gallon drums and a \$20 hardware investment in her backyard. With those, she calculates she saved 613 gallons of irrigation water in 2008's winter and spring. The drums get filled via downspouts and used several times a season; the Bay Area typically has a few dry periods every winter. At \$.023/gallon (EBMUD's water rate) she saved \$14; at this rate her investment will pay for itself in 2009. As to the limitations of a climate in which a modest 20 inches of rain falls per year, says Riley, citing DWR Bulletin 213, one small 2,000 square foot roof can capture 24,000 gallons a year—enough to provide 2/3 to 100% of a household's annual water needs.

Across the Bay, San Francisco's Public Utilities Commission actively promotes

CONSERVATION

GRAY GOLD

Every day, each Bay Area resident uses about 30 gallons of fresh water—much of it sucked from sparkling Sierran rivers—simply to flush a toilet. But as water becomes ever scarcer in this parched, populated state, alternatives to using such a luxurious liquid for such mundane acts are under more serious consideration. The possibilities for and challenges in using graywater for everything from landscapes to toilet flushing was the hot topic at a workshop sponsored by the Bay Area Water Forum in December.

First, graywater was defined: it is not "black water"—the unappetizing concoction flushed down toilets, or the grease-laden water from kitchen sinks or dishwashers. Graywater—that can legally be re-used in California under the California Uniform Plumbing Code—can consist of wastewater from showers, bathroom sinks, and washing machines only. And that water, said moderator Gary Wolfe, then Vice Chair of the State Water Resources Control Board, should not be viewed as "undesirable stuff we want to get rid of but as a resource." But regulatory restrictions—especially on reusing graywater indoors—are still strict, and made it too daunting for Wolfe to install a graywater system in his own home.

The first panelist, Occidental Arts and Ecology Center biologist Brock Dolman, pointed out that "It's not clear that the system as set up is working anyway. We've got surface waters contaminated with estrogen and acetaminophen. In using graywater for landscaping, we're bringing life back into the system, we're letting the soil fungi, bacteria, and plant roots do the job—they're our living liver." And in regard to using graywater indoors, says Dolman, "It is a way to reduce the demand—and energy costs—of potable water. Think of the energy savings from not pumping all that water and wastewater." Another compelling reason? "In the absence of available, affordable, accessible graywater systems, people are going to do it anyway. We should frontload and do it right instead of having people wildcatting."

Dolman was followed by EcoHouse's Babak Jacinto Tondre, who

"We should frontload of having people

described EcoHouse's graywater system, which pipes graywater from the house through a constructed wetland and then on to irrigate several fruit trees in the backyard. A three-way diverter valve—which sends water to the sewer system when needed (i.e., if bleach has been used) and a backwater valve—which prevents graywater from backing up into appliances—were installed to pass code, a process that took 18 months, said Tondre. While EcoHouse was designed by the book, said Tondre, he says he "imagines that most people seek forgiveness, not permission" in installing graywater systems.

EBMUD's Dick Bennett said that in theory graywater is a great idea, but that in practice, there are "lots of tough realities," especially in retrofitting plumbing for indoor use. "It's very

Ecohouse's graywater garden, eight months after installation.



and do it right instead of wildcatting."

expensive to go in through drain lines [and retrofit buildings]," said Bennett. "The average cost is about \$5,400 to legally install a system, with a water savings of 20 gpd per person. The avoided water cost over 15 years is only about \$800." He says that indoor graywater plumbing systems can be too complicated for the average homeowner to use. But outdoor use is a different story, in his opinion. "Some of the best looking landscapes I've seen are irrigated with graywater," he said.

The "average homeowner" was also on the mind of the final panel speaker, Sonoma County's Chief Building Official, DeWayne Starnes. "We're concerned that in whatever we're permitting, the system is not only safe for current owners, but also future occupants."

ter installation. Photo Babak Jacinto Tondre



Starnes reminded the audience that existing plumbing codes were adopted to prevent disease transmission—and that they have been very successful at doing that. "We want to encourage new technologies as long as they follow the codes in effect," said Starnes. "Our concern is the health and safety of the occupant of the house. Under the Uniform Plumbing Code, there must be an adequate supply of potable water without the danger of backflow or cross-connection." Starnes says he is seeing a push to use graywater and rainwater (see "Rain Gains") back into the house, which means there is potential for backflow or cross-connection. "Any time you have a system where maintenance is required, it's difficult to depend on the property owner. If you can design a system that is foolproof, that can't be messed with, that is the best thing you can do." Backflow valves must be checked annually, said Starnes.

Starnes does encourage the use of graywater for irrigation. He also thinks there are other, more basic conservation measures people can take before installing graywater systems in their homes, comparing water conservation to energy conservation: "It's easier to first install energy-efficient windows before putting in a whole solar power system, for example. People get excited, but we need to look before leaping."

Looking before leaping is exactly what the Graywater Working Group is trying to do. The group is developing a white paper of recommendations for the Department of Housing and Community Development (HCD), which has been tasked—via Senate Bill 1258, signed into law last July—with adopting standards for construction, installation, or alteration of graywater systems for indoor and outdoor use. These standards will be for the next triennial rulemaking cycle, to be effective January 1, 2011, says HCD's James Rowland.

For his part, Tondre, who is part of a graywater alliance of groups from Santa Cruz, San Jose, and other East Bay cities, says his goal is to see cities and counties interpret the code more leniently. "It's too hard to change the code. We wanted a more relaxed interpretation of the code."

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CISTERN SOLUTIONS, CONTINUED



Photo Lisa Owens Viani

rainwater harvesting. "Any water you use for irrigation that's not Hetch Hetchy water is a really good thing," says watershed and stormwater planner

Rosey Jencks. "We see a triple benefit: you can avoid polluted runoff, reduce impacts to the sewer system, and reduce combined sewer overflow." Jencks says one San Francisco resident has linked 25 barrels together under her deck: "One barrel won't change the water regime much, but if everyone did that there would be a tremendous impact." As to cost-effectiveness, "if you compare today's prices of water versus future scarcity, you'll have a much different equation."

Last fall, the SFPUC launched a rain barrel subsidy program that has had 153 takers so far. San Francisco has also amended the plumbing code to promote the use of rainwater for flushing toilets without treating it to potable standards. "You use a simple mechanical device called a first flush diverter to get rid of dirty water during the first rain of the season," the SFPUC's Sarah Minick explains. "This allows the first flush to just go away from the rainwater harvesting container. Then the roof is clean and the water will be clean."

Jencks envisions neighbors collaborating on large-scale rainwater harvesting, using cisterns under schoolyards or sports fields. SFPUC is also working with five San Francisco elementary schools on rainwater harvesting projects, and with the California Pacific Medical Center on a five-campus renovation project that presents rainwater-storage opportunities.

As in other things water-related, Portland provides a model. "They have 60,000 people participating in a rainwater-harvesting program," says Jencks. "They are more organized than anyone else on a regional and state level."

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WILD LIFE

TO THE RESCUE

Conversations with Rebecca Dmytryk Titus often take an odd turn. "I'm in my car

headed to catch a turkey with an arrow through it," for one recent example (the turkey took days of strategy and stalking to capture, and was rehabilitated and released). Other adventures include a night-time rescue of a hawk trapped in a warehouse (Dmytryk Titus had to wait for dark to calm the hawk so that it would not injure itself on the windows, then disorient it in order to capture and free it), a rattlesnake stuck in plastic "erosion control" webbing, a beached sea lion with a shark hook in its mouth (the hook was attached to fishing line, which had become entangled on the beach, grounding the animal), and a pelican floating in the water, strangely immobile (the bird was tethered to the bottom of the sea floor by fishing line). Dmytryk Titus's co-rescuer, husband Duane, swam out and unsnarled the bird; it recovered from its injuries and was later released.

Dmytryk Titus, who has worked for International Bird Rescue Research Center since 1990, founded her own non profit organization, The California Wildlife Center, in 1996, and went on to organize WildRescue in 2000. She is trying to change what she says is a major gap in the field of wildlife rescue—including rescuing birds oiled in disasters like the Cosco Busan—by conducting workshops including one sponsored by the Estuary Project on Feb. 19 (see page 7).

"During the Cosco Busan catastrophe I saw that there weren't enough people out there with the skills to properly rescue thousands of injured animals. What was frustrating is that we had a lot of people out there wanting to help, but we didn't have enough people who knew how to find and catch wildlife. The animal control agencies were great, but they still didn't have the level of training I would have liked to have seen them have."

Dmytryk Titus's hope is to train a corps of volunteers who would be available to respond during the next disaster. "I want to go throughout the state and visit as many communities as possible that will have me help train animal control officers, park rangers, wardens, and the public. I want to just give them the basic skills so that when



Photo Patty Donald

REGULATION

CONSTRUCTION CLEANUP

A colorful crowd clad in business suits, plaid flannel shirts and jeans, baseball caps, and T-shirts with motorcycle logos or construction-worker words of wisdom ("Gravity Doesn't Take Breaks/Always Wear Your Fall Protection") sat in rapt attention at an erosion control workshop sponsored by the Estuary Project and the S.F. Bay Regional Water Quality Control Board in December.

Asked the first presenter, the Regional Board's Christine Boschen, "Why are we here? It's about clean water." Boschen warned attendees that the Board is stepping up inspections this winter—"we did seven curbside inspections yesterday, but we will also be doing full inspections, which start at the construction trailer and examine the project's mandatory Stormwater Pollution Prevention Plan" (SWPPP in acronymese). "The SWPPP should be a living document with a map that is updated as the project proceeds," said Boschen: SWPPPs apply to any construction sites that disturb one or more acres.

Boschen followed up with a list of "ways to get into big trouble" under the Clean Water Act and state Porter Cologne Act—allowing any "large, uncontrolled release of sediment or pollution into a water of the state;" failure to prepare, implement, and maintain an adequate living SWPPP, to monitor and maintain BMPs year-round, and to obtain the proper permits, or grading during wet weather without effective BMPs. Another problem Boschen ticked off was "ignoring citizen concerns."

Workshop leader Scott Taylor with RBF Consulting explained that any citizen of the United States has standing to sue if he or she sees a construction site with inadequate erosion control. "If you pollute the waters of the U.S., I am harmed as a citizen," said Taylor. Taylor then added to Boschen's list. A common violation he sees as a site inspector is a sloppy site entrance, with evidence of soil being tracked in and out. "It just announces a mess-up," said Taylor. "It's like the thread you're tugging for the sweater to unravel." The second is lack of erosion control around a site's perimeter. "Mere visual barriers do not count," said Taylor. Pumping water into storm drains, a lack of inspection records and sampling plans, and evidence of on-the-ground pollution on a site—most often hydraulic oil from equipment—were other common problems. "I see oil on the ground on almost every construction site," said Taylor. "You need to clean it up and have it hauled to a hazardous waste facility."

After the regulatory roundup, the focus of the workshop switched to a detailed discussion of methods and materials for stopping construction runoff. "If you spend your dollars on controlling sediment, that's where you'll get the bang for your buck," advised Taylor. "If you can see light beneath a silt fence, it's not worth anything." The idea behind silt fences, he explained, is to catch sheet flow from a site: the water bleeds through the fabric "fence," and sediment drops out behind it. The longer the water sits behind the fence, the better. Silt fences should not be used for concentrated flow, which will cause rilling, said Taylor.

For temporary erosion control, mulch is a "must." Recycled paper is not good because toxics from the ink can leach into the soil. Hydroseeding by itself is not adequate, but needs to be topped with jute mesh. Fiber rolls (straw wattles) should be located on level contours, starting at the top of a slope and spaced 20-30 feet apart on 2:1 slopes. They are also good for perimeter control, as are gravel bag berms. Gravel bag berms must be maintained, because they are often run over by cars and burst, Taylor pointed out.

For overall site stabilization, one of the best, but most expensive, materials is bonded fiber matrix ("BFM"). BFM eventually biodegrades, but can last for three or four years. Taylor recommends using BFM on sites that might sit for a long time before "vertical construction" begins—a problematic recent phenomenon in today's economic recession. A cheaper alternative that works just as well is straw mulch—but it must be crimped or glued into the soil, said Taylor. Flat sites need at least two tons of straw per acre, and slopes need four. But the "end game is vegetation," said Taylor. "Ultimately, vegetation is the best." Other temporary controls include biodegradable geotextile mats like coir (coconut fiber) and guar—a sticky bean substance. Plastic materials are problematic because they can snag snakes (see "To the Rescue") and trap other wildlife and don't biodegrade.

Toward the end of the workshop, the 60 participants were divided into groups, given large rough-grade-stage plans for a town-home development, and tasked with designing erosion control to "get the project through one rainy season."

Since attendance at the workshops is voluntary, what is the motivation for attending? Says the Estuary Project's Xavier Fernandez, "If they don't comply with the permits, they can get fined. But they're also there to learn about what erosion control methods are out there, what the Regional Board considers acceptable, and what is required in the permits."

Rudolph and Stetten's Brian Page, a large, gregarious general contractor, gave a different answer. "I go as often as they give these. I'm a fisherman. I like clean water." **LOV**

PLACES TO GO & THINGS TO DO



CONFERENCES, WORKSHOPS EXHIBITS, & TOURS

MAR
WEDS - FRI
4-6
WATER FACILITIES TOUR
TOPIC: Lower Colorado River Tour
LOCATION: Hoover Dam to Salton Sea
SPONSOR: Water Education Foundation
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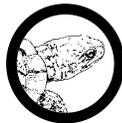
MAR
FRIDAY
6
SAN FRANCISCO BAY DECISION-MAKERS CONFERENCE
TOPIC: The Waterfront: Sustainable Solutions for a Changing Bay
LOCATION: Oakland Marriott City Center
SPONSOR: Bay Planning Coalition
www.bayplanningcoalition.org

MAR
TUESDAY
10
CALIFORNIA COLLOQUIUM ON WATER
TOPIC: Lecture by Tim Quinn, Executive Director, Association of California Water Agencies
LOCATION: Goldman School of Public Policy, UC Berkeley
SPONSOR: Water Resources Center Archives
www.lib.berkeley.edu/WRCA/ccow.html

MAR
THURS - FRI
12-13
WATER EDUCATION FOUNDATION EXECUTIVE BRIEFING
TOPIC: Water 2009: Building on Change
LOCATION: Doubletree Hotel, Sacramento
SPONSOR: Water Education Foundation
www.watereducation.org/conferences;
(916)444-6240

MAR
SATURDAY
14
BUYING GREEN...BUYING SMART CONFERENCE
TOPIC: Environmentally preferable purchasing for public agencies
LOCATION: Joseph P. Bort Metro-Center Auditorium, Oakland
SPONSOR: Association of Bay Area Governments
www.abag.ca.gov/events/epp;
(510)464-7900

APR
TUESDAY
14
CALIFORNIA COLLOQUIUM ON WATER
TOPIC: Lecture by Mitch Avalon, Deputy Public Works Director, Contra Costa County
LOCATION: Goldman School of Public Policy, UC Berkeley
SPONSOR: Water Resources Center Archives
www.lib.berkeley.edu/WRCA/ccow.html



HANDS ON

FEB
EVENINGS
THROUGH
FEBRUARY
NEWT RESCUE
TOPIC: Help volunteers carry California newts across Hillside Drive
LOCATION: El Sobrante
SPONSOR: SPAWNERS, The Watershed Project
Annabelle Travis,
Annabelle_3@yahoo.com;
www.spawners.net; (510)665-3538

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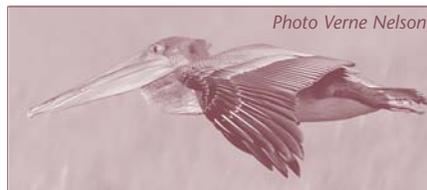


Photo Verne Nelson

**The San Francisco Estuary Project Sponsors
Wildlife Emergency Response I
Wednesday, February 18
8:00-5:00
101 Eighth St., Room 171
Oakland, California**

Fundamentals of wildlife rescue; capture techniques with equipment during hands-on exercises. While participants are provided direction on proper handling of wildlife, completion of the class will not exempt them from regulations that govern possession of oiled or non-oiled native wildlife.

Class Fee \$40.00
PRE-REGISTRATION
REQUIRED
Visit www.ibrrc.org or email
rebecca@ibrrc.org cell: 831-869-6241

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Pulse of the Estuary 2008.
http://www.sfei.org/rmp/pulse

Sustainable Green Streets and Parking Lots Design Guidebook by Nevee Ngan Associates and Sherwood Design Engineers. January 2009. San Mateo Countywide Water Pollution Prevention Program. www.flowstobay.org.

The World's Water 2008-2009: The Biennial Report on Freshwater Resources by Peter Gleick. Island Press, \$35. www.islandpress.org/bookstore/details.php?prod_id=1287



www.riverpartners.org

TO THE RESCUE CONTINUED

the time comes and they might be called upon to rescue a wild animal they'll have this knowledge."

Part of Dmytryk Titus's work is funded through a San Francisco Foundation Cosco Busan Oil Spill Fund grant to the International Bird Rescue Research Center (IBRRC), through which Dmytryk Titus is providing the workshops. "IBRRC sees it as means of giving back to the community but also they'll be adding 20 people to their rehab team and 10 to search and collection—those will be people they call on at the drop of a hat."

Other trained volunteers, says Dmytryk Titus, might also be called upon to work within the Incident Command System. Dmytryk Titus hopes her workshops will have even a broader impact, however. "We're giving people knowledge and skills—there are multiple ways they can use them, whether on their private time, for another other organization, or in a spill where at least they'll know where they fit in and what rules they have to follow."

Berkeley's Shorebird Park Nature Center's Patty Donald, who took one of the first workshops offered, says she only wishes she had taken one before the Cosco Busan spill. "They would have been really helpful along with the Hazmat training. [Dmytryk Titus and the other instructors] have such a wealth of information to offer." **LOV**

ESTUARY



FEBRUARY 2009 **VOLUME 18, NO. 1**

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ESTUARY is your news source on Bay-Delta water issues, estuarine restoration efforts, and the many programs, actions, voices, and viewpoints that contribute to implementation of the S.F. Estuary Project's Comprehensive Conservation and Management Plan (CCMP). Views expressed may not always reflect those of Estuary Project staff, advisors, or CCMP committee members. ESTUARY is published bimonthly.

ESTUARY is funded by the San Francisco Estuary Project.



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DELTA VISION CONTINUED

stream reservoir operations are driving federally protected winter- and spring-run salmon, Central Valley steelhead, and green sturgeon to extinction. Under the Endangered Species Act, the fisheries service could impose new restrictions on exports to protect the fish. "This creates a new regulatory baseline for operations that will have to be incorporated into any modeling for a new facility," says CALFED's Winternitz.

Virtually everyone agrees that how effectively the committee's recommendations are balanced, integrated, and implemented will depend entirely on the governance of the region. Dozens of different entities currently have jurisdiction over various aspects of the Delta; as the committee noted, "for two decades, a governance structure that allows for effective coordination and policy direction has proven elusive." Although the task force declared that

a new, independent governing body with reliable funding and the authority to determine priorities, spending, planning, and export levels is "essential" to the achievement of Delta Vision's co-equal goals of ecosystem restoration and water supply reliability, the committee rejected that idea. Rather, it called for the establishment of an Interim Delta Policy Group to develop a detailed long-term governance plan, including a public process to establish standards and criteria to ensure that decisions are consistent with the co-equal goals. The policy group would serve for 12 months and provide oversight of Delta actions until a new governance system is in place.

"It certainly appears that they punted," says Saracino, who supports the idea of an independent entity and believes that the governance issue should be settled before work begins on a new canal. "We need flow prescriptions and to

figure out how the canal will be managed before construction starts."

Others, particularly in the water user community, are less troubled by the delay. "Some who think that governance is a problem are really saying that they don't like the decisions that have been made under the current system," says Greg Zlotnick of the Santa Clara Valley Water District. Zlotnick thinks that the time may well be ripe for considering a single entity that can coordinate land use, flood control, habitat restoration, and economic development for the region, but questions whether water issues should be included in its purview. "It makes sense to hold off and let the agencies figure out what they need to do their jobs more effectively. It is appropriate to ask if the governance system is really broken, or is it just that the existing agencies are not focused on the right things, or are stretched too thin to address those issues."

Quibbles aside, Zlotnick and others believe the committee, and the task force before it, deserve a lot of credit for their work. "The debate has changed a lot as a result of this process," he says. The next steps are up to the governor and the legislature. "The ball is in their court," says Winternitz. CHT



Ideas, questions, feedback?
Send to lowensvi@sbcglobal.net