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ESTUARY

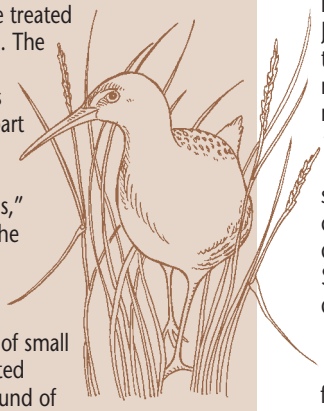
## JUNGLE BIRDS

Eradicating invasive spartina—eastern smooth cordgrass *(S. alterniflora)* and its hybrid offspring overgrowing the Bay's tidal wetlands—is a tough proposition. The Invasive Spartina Project has had mixed results with herbicides. "Mowing does nothing but irritate the plants and make them angry," says the Spartina Project's Erik Grijalva. As a further complication, those spartina jungles may be full of endangered California clapper rails.

According to Grijalva, at least three Bay sites share high rail densities and significant spartina infestations: Alameda's Elsie Roemer Sanctuary (12 rails), Oakland's Arrowhead Marsh (72), and Colma Creek south of S.F. International Airport (96). East Bay Regional Parks District biologist Steve Bobzien says high-tide surveys and call counts show a fourfold increase in rail numbers at Arrowhead since 1993, which appears strongly associated with an increase in vegetation cover provided by spartina. Trends at Hayward's Cogswell Marsh are similar. At Roemer and Cogswell, the rails nest in invasive spartina instead of native vegetation. The relationship is less clear elsewhere, and a recent Bay-wide rail survey—the first since 1992-93—by Leonard Liu and other PRBO Conservation Science biologists found no statistical association between rail densities and vegetation types.

What's the attraction of spartina? "Native or non-native, the birds could care less," Bobzien says. Invasive spartina provides thermal cover and protection from predators, and buffers habitat against extreme high tides and winter storm flows. In the long run, it may degrade the quality of the rails' habitat, choking off tidal channels where they forage. But Bobzien feels that's unproven, noting the presence of healthy clapper rail populations in East Coast spartina marshes.

For the Spartina Project, working around the rails demands a special approach: no removal during the February-August breeding season, a multiyear phased treatment, and revegetation with native species like gumplant to provide cover. Rail-free sites can be treated earlier in the season. The Parks District will monitor the process closely. "The hard part is isolating variables that may also influence rail populations," Bobzien cautions. The PRBO Conservation Science study, for example, detected a trend toward loss of small populations in isolated marshes. Its next round of surveys will attempt to establish total numbers. JE



*Lisa Krieshok*

# Carol of Alarm Bells

Amid the metaphorical popping of champagne corks at this year's "Celebrating Science and Stewardship" State of the Estuary Conference in Oakland's Henry J. Kaiser Convention Center, scientists and policymakers sounded a series of SOS calls to an audience of more than 700. The loudest cries were centered on the Delta and the ways it is changing physically, politically, and ecologically, and how the future of the Central Valley—as ag land or urban sprawl—will affect the Bay-Delta Estuary.

The S.F. Regional Board's Larry Kolb kicked things off by asking whether Californians are as "clueless" in managing our water systems—and the Delta—as those who channelized the Mississippi River, cutting it off from its floodplains and depriving the wetlands at its mouth of sediment, thereby contributing to the damage from Hurricane Katrina. In both places, said Kolb, we are mismanaging water and marshes, building on subsided marshy soils—on floodplains—and then, in a vicious cycle, building ever bigger levees and dams to protect the homes and infrastructure behind them.

Other speakers following Kolb the first morning sounded more alarms—and called for action. Jerry Schubel, from the Long Beach Aquarium of the Pacific, told the crowd that while we've made huge strides with science, we need to make sure stewardship keeps pace. "Both scientists and citizens need to be keepers of the Estuary," said Schubel. Everyone—"all sizes, shapes, races, NGOs, scientists, and politicians"—needs to get involved in making decisions about the Bay-Delta Estuary, said Schubel. "If you're not at the table," he quipped, "you're on the menu."

Lack of scientific understanding isn't the problem at this point, said Schubel, who called for a "compelling vision" and new approaches for managing Bay-Delta resources, including better communication with the public. "We spend $100 million per year explaining why agriculture is important," he added. "But we spend less than 10% of that telling people why oceans and estuaries are valuable." Schubel also advised the crowd that we need to be flexible in managing water resources. But the bottom line, he said, is that we must build better collaborations among researchers, decisionmakers, and stewards.

**"People could understand that if we filled the Bay, things would be greatly changed."**

Stewards were also on the mind of Joe Bodovitz, the former—and first—executive director of both BCDC and the Coastal Commission, who began his talk by chronicling the sometimes-volatile political process that led to the creation of CALFED. Under former governor Pat Brown's reign—which Bodovitz termed the "golden era of California"—the State Water Project and lots of other infrastructure we benefit from today got built. But things are changing, he warned, stressing that as the state's population burgeons, the Central Valley will need more water and will play a more prominent role in water plumbing and politics. The most critical issue facing the Bay-Delta, said Bodovitz, is how much water Central Valley agriculture will keep or sell to urban areas.

Echoing Schubel, Bodovitz said another critical issue is stewardship. To protect the Delta, he said, we need a new Sylvia McLaughlin, Kaye Kerr, and Esther Gulick, the three Berkeley women who kept the Bay from becoming a parking lot. Saving the Delta is a much trickier proposition, said Bodovitz. Recalling how the three women got people to send bags of sand to their legislators, he said, "People could understand that if we filled the Bay, things would be greatly changed. People got it—it was either going to be water or dry land." But the Delta,

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he said, is "light-years more complex" and gets approached as a plumbing problem instead of as a landscape.

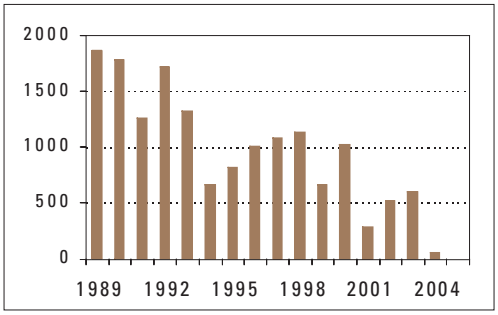
One of the morning's highlights—a preview of Ron Blatman's upcoming four-part television documentary "Saving the Bay"—showed exactly what stewardship can do. Through historical and current images of the Bay and interviews with then-legislators and key environmental activists, the film describes how by the 1960s, almost one-third of the Bay had been filled for development, with a 1959 Army Corps of Engineers report predicting that that figure would be closer to 70% by 2020. But then the three women who founded Save the Bay stepped in.

On the conference's second day, speakers focused on the disconnect between the Delta's geomorphology and the state's land use policies (or lack thereof): As the Delta continues to subside, we continue to build more houses and other structures behind levees, partly in response to the Bay Area's expensive housing stock. "The Delta is the number-one most-subsided landscape in the world relative to its size," announced U.C. Davis' Jeff Mount. Mount predicted that as urbanization continues to encroach upon the Delta—30,000 homes were just approved in flood-prone areas in Stockton and another 8,500 in Lathrop—some of the ecosystem services the Delta has provided in the past will have to give, particularly if we continue our practice of serial engineering and particularly if we continue sprawling. "Once you start putting homes in the Delta, all bets are off," declared Mount. Mount said we are mistakenly treating the Delta like a crime scene, where everything that is going to happen has already happened. "The pace of [physical] change is rapid, yet we've got four CALFED programs wrapped around a static Delta," said Mount. Today's engineering is based on 1980s hydrology, he warned, predicting that South Delta improvement projects will adapt poorly to changing conditions. The Delta is warming up, and its hydrology and ecosystems are changing, he said. "If you raise sea level by three feet, the Delta ecosystem is going to be more like a Chesapeake Bay. In 15 to 20 years, we'll have a whole different food web." Mount said we need to define future probable states and take the long view, recognizing that some ecosystem services cannot be sustained over the long term. In response to moderator Tim Ramirez asking which ecosystem service will "get voted off the island," Mount predicted that the loser will be farming.

The Department of Water Resource's Jerry Johns followed Mount, taking more of a crime-scene approach. We need to act now to protect the infrastructure—high-pressure gas lines, water lines, and roads, among others—that crisscrosses the Delta, said Johns. "We need to take a comprehensive view and make 'no-regrets' decisions that improve flexibility." But Johns also asked whether it is possible to "move forward" with pumping more water from the Delta when we don't understand the recent decline in pelagic organisms. "Do we put off decisions on [water project] operations until we have more data, a new ROD?"

Whatever we do, said the Central Delta Water Agency's Tom Zuckerman, the solution needs to be "Delta-centric" and come from the people who live in the Delta. Zuckerman added to Mount's concerns about the onslaught of urbanization. "We need to avoid making stupid, thoughtless decisions, such as putting people behind levees in tract houses," said Zuckerman. "But how do we get politicians—the state and federal government—to focus on the Delta? It really is entitled to priority. It's an environmental and recreational treasure."

**PSEUDODIAPTOMUS TRENDS**

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Former Rio Vista mayor Marci Coglianese reiterated Zuckerman's concerns and added to them. "The Delta is no longer a remotely populated area," she said. "It's no longer a backwater filled with fish and stubborn farmers." Since 1993, said Coglianese, more than 94,000 residential units have been built in the Delta's secondary zone. "Every day, the Delta is being influenced by a Tower of Babel of governmental agencies," said Coglianese. "But there is no shared vision or acknowledgment of impacts. The time is ripe for a broader examination of all state policies affecting the Delta; we need a serious discussion of how state and local growth policies are putting development behind levees and in floodplains."

Although the Delta Protection Commission has made a laudable attempt to protect the inner core, said Coglianese, the legislature has not given it any real authority, and new conflicts are cropping up even there. Coglianese thinks we have a "teachable moment" right now, after Katrina, in which we have the public's attention. Yet, she concluded, "The fundamental problem in the Delta is that the state government is not supplying the leadership needed to deal with hard problems. I urge the governor as he tries to refocus CALFED to bring together local governments, legislators, and interests who are talking to themselves right now." Solutions to the Delta's problems cannot be imposed on the Delta, said Coglianese. "But we need some unifying force to bring us together. Right now, we're a region without leadership. We need the state to help us out. Most of us don't even know where the floodplains are."

It takes scientists—not politicians—to delineate floodplains. Yet one conference speaker, MWD's Tim Quinn, said scientists should not be making policy. "Too often in California water, you have people sitting at the table crossing the line," said Quinn. "We also have scientists crossing the line. *The San Francisco Chronicle, Contra Costa Times,* and *Sacramento Bee* are not good places to publish your science." Quinn's comments aside, most conference speakers said there was an ever-increasing and more urgent need to communicate science to the public.

The science behind the recent decline in pelagic organisms in the Delta was a popular topic. Ted Sommer outlined the Interagency Ecological Program's efforts to identify all possible causes of the decline, from toxic algal blooms and new pesticides to the timing and amount of Delta pumping to impacts from exotic species. Posing another possible cause, Sommer cited problems with two species of zooplankton—*Pseudodiaptomus forbesi* and *Limnoithona tetraspina. Pseudodiaptomus,* which crashed in 2004, is a major food source for larval fish, said Sommer, while *Limnoithona,* which was relatively abundant in 2004, is a poor food source and possible predator of *Pseudodiaptomus.* The next day, S.F. State University's Wim Kimmerer explained that the *Pseudodiaptomus* population had a recruitment failure in recent years, which meant the loss of later life stages that would grow to adult organisms—and said there is no evidence that *Limnoithona* feeds on other copepods. He is trying to figure out why copepods crashed but not phytoplankton. Another culprit could be the invasive overbite clam, which may have decimated *Pseudodiaptomus* larval stages.

Some speakers suggested that poor water quality—particularly as a result of the huge increase in the use of pyrethroids by farmers—may have decimated pelagic organisms. If we are going to improve water quality in the Delta, many folks think we can't do it without addressing water quality in the San Joaquin River. "It's not if, but when we restore the San Joaquin," proclaimed the Bay Institute's Gary Bobker. When Friant Dam was put in, the river flatlined, said Bobker, and the main stem was cut off from the Delta. This has resulted in saltwater intrusion and poor water quality in the Delta, said Bobker.

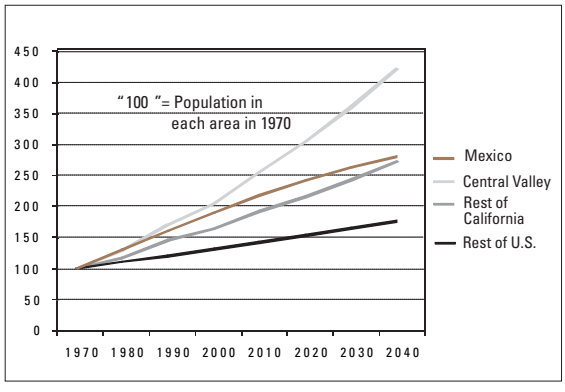
Low flows in the San Joaquin have contributed to the problem of low dissolved oxygen in the water, particularly in the Stockton Ship Channel, the topic of U.C. Davis' Alan Jassby,

who explained that other contributing factors include dredging of the channel, its geometry, and inputs of oxygen-devouring nutrients, such as nitrogen and phosphorus. Lawrence Berkeley Laboratory's Tryg Lundquist explained how real-time management of water quality in the San Joaquin could allow resource managers and farmers to take advantage of windows of opportunity for improving water quality by holding back polluted water and releasing it at times when there is less pollution in the river. USGS's Larry Brown described the river as the "most-invaded major river in the West," but said a surprising number of native fish species are surviving in it.

U.C. Berkeley's John Dracup warned that global climate change could affect the river—and Northern California rivers overall—by putting more water in them earlier in the spring (which might tempt water purveyors to build more dams), and less later in the year when we need it more. The Friant Water Authority's Ron Jacobsma said that this year, more water was released from dams on the San Joaquin than "would have occurred in nature." Scott McBain, of McBain and Trush, delved into restoration challenges, describing the river's variable underlying geology and geomorphology. The river's slope and gravel pits are constraints, although not insurmountable ones, said McBain. His firm has restored other rivers that had been gravel-mined, he said, adding that some solutions —such as removing dikes and berms and allowing the river to re-establish a channel and floodplain in certain areas—would be simple.

The river's valley was the topic of the Great Valley Center's Carol Whiteside, who painted a picture of a rapidly disappearing landscape. The Central Valley's population is growing faster than California, the United States overall, and even Mexico, said Whiteside: "As housing in the Bay Area and coastal regions gets less affordable, people continue to pour into the Central Valley." Plus, said Whiteside, there is a high rate of immigration from other countries—and a high fertility rate among Central Valley residents. Whiteside wondered why farmers and environmentalists are not partnering to save open space and ag land in the valley. But when a developer offers a farmer a million dollars for an acre, she lamented, ag land disappears. "I urge you to help us," she implored the crowd. "We have a chance right now to develop a strategic long-term view of the valley."

**CENTRAL VALLEY'S PROJECTED GROWTH RATES**




*Source: CA Dept. of Finance; Hans Johnson, Public Policy Institute of California, www.ppic.org.*

A panel discussion on CALFED and its role in the Delta wound up the talks on Day Two, with moderator Steve Ritchie questioning whether the state and federal agencies that make up CALFED are capable of resolving the thorny issues looming ahead. CALFED's new interim director, Joe Grindstaff, said he thinks people have forgotten how important it is to work together as an institution. "If we didn't have it, we'd have to invent it again," said Grindstaff. The other panelists—the Department of Water Resources' Les Harder, Gary Bobker, and the State Water Contractors' Laura King Moon—agreed, although Bobker suggested that maybe CALFED's structure needs to evolve. "Any program is about achieving your ends," said Bobker. "If we don't have clear and measurable goals, we don't know where we are." Bobker argued for a more independent science program than we've had in the past under CALFED, while King Moon said the program might need to become more strategic in its focus. Harder pointed out that under the current science program, our level of scientific understanding has increased exponentially.

And the science at the conference was extensive, both big picture and detail-oriented. The first day's speakers discussed how science will guide restoration around the Bay. U.C. Berkeley's Maggi Kelly told the crowd that by taking a landscape ecology approach—and applying a variety of spatial scales—we can decide which functions we are interested in maintaining in and restoring to Bay wetlands.

One of the largest such projects—the South Bay salt ponds—was the topic of San Jose State University's Lynne Trulio, who explained how science is helping define goals and pin down uncertainties. "How much tidal marsh should we restore?" asked Trulio. "Adaptive management will tell us how far we can go along the way. We will learn as we go—it's not trial and error, but it's based on an understanding of the system." Science will also guide how we monitor projects, said Trulio.

Stuart Siegel, next on stage, set forth several needs related to monitoring, which is often seen as not that important. In monitoring, said Siegel, we need to look for change, try to detect the outcomes of our actions by analyzing data, and convert that analysis to knowledge. We need to make information widely available, develop "lessons learned" and reference conditions, and solve problems related to wetland restoration—like mercury methylation, contaminants, and sediment supply, to name just a few, said Siegel. We also need to come up with science-based strategies for regional and sub-regional monitoring efforts, he suggested.

Thirty years of monitoring of 45 tidal marsh restoration projects (2,800 acres) implemented around the Bay since the 1970s gives us sufficient information to restore the 20,000 acres now in planning and design stages, said Phyllis Faber. The lessons learned on those projects helped form the basis of the *Design Guidelines for Tidal Wetland Restoration in San Francisco Bay*, published by Phil Williams and Associates and the Bay Institute with funding from the Coastal Conservancy. Faber said one thing we know for sure is that if we get the elevations right, "it is wasteful and costly to plant. Natural processes have fared better than highly engineered projects. We need to be more patient, to measure time for restoration in decades, not years."

PWA's Michelle Orr spoke of lessons learned in South Bay restoration projects. We now know that we *do* have enough sediment in the South Bay for tidal marsh restoration, said Orr, but we do not yet understand the sediment demand of mudflats.

The University of San Francisco's John Callaway talked marsh and mudflat too, examining whether elevation is a good predictor of tidal salt marsh plant distribution and concluding that while elevation is important, so are inundation by the tides and creeks and competition from other plants.

Another area we don't completely understand is the extent to which restoring tidal wetlands will benefit Bay food webs. The interactions between tidal wetlands and pelagic areas are not well understood, said the University of Washington's Si Simenstad. We do know that the Delta is the "detritus mill" for the Bay, said Simenstad, with 30% to 40% of the organic matter it exports out of the system going to downstream food webs. Simenstad said we also know, from studying Suisun Marsh, that tidal marshes are highly productive, are critical rearing areas for fish and invertebrates, and provide refuge for native species.

Tidal marsh restoration is also important for non-aquatic species. PRBO researchers are studying how birds like song sparrows and common yellowthroats are responding to marsh restoration—and how landscape-level factors, vegetation, and hydrological and geomorphic processes limit their numbers and reproductive success. We also know that riparian restoration is important for birds—songbirds in particular, said PRBO's Geoff Guepel. He showed a slide illustrating the immediate and steady upward

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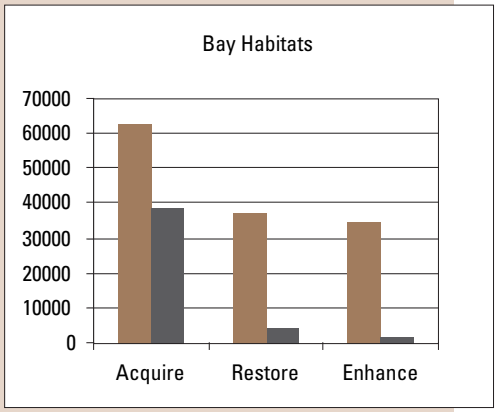
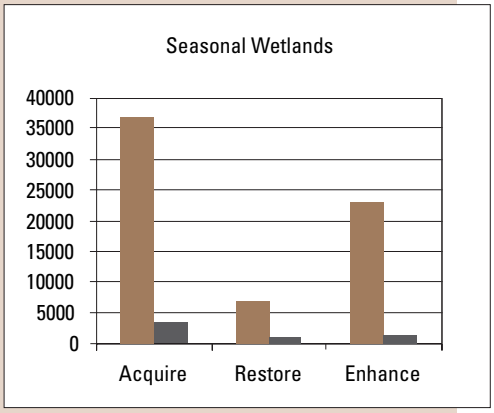
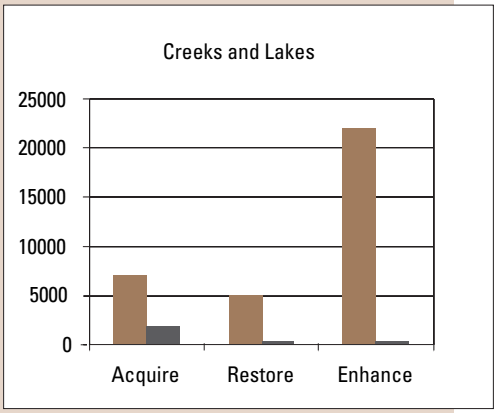
## RESOURCEREVIEW

### SFBJV ACREAGE GOALS AND ACCOMPLISHMENTS OCTOBER, 2005




climb of bird density on the Sacramento River after restoration, and described how this year, the endangered least Bell's vireo and the locally extirpated yellow warbler returned to a newly restored site on the San Joaquin River. "Revegetation is working," said Guepel, who added that planting a habitat mosaic and a diverse understory is critical to restoring bird diversity. But he cautioned that without restoring floodplain dynamics and taking other conservation actions, nest success—especially in remnant forests—may remain low.

For some species, like chinook salmon and steelhead in the Central Valley, restoration will need to be more drastic. NOAA's Steve Lindley described how his agency is developing viability goals for populations and evolutionarily significant units (ESUs) for each species. But he cautioned that without access to their prime spawning habitat—much of which is behind impassable dams—these fish will remain at risk of extinction.

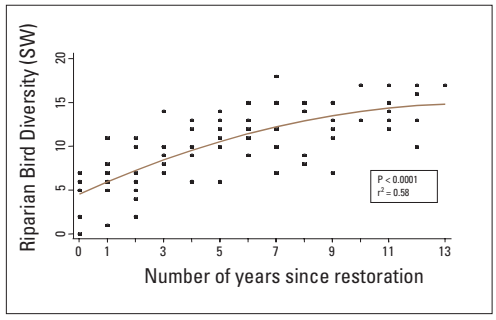
Restoring habitat by removing dams is politically tricky but straightforward from a fish's perspective—suddenly you have access to habitat that you didn't before. For other types of restoration projects, said PRBO's Nadav Nur, we need to develop success criteria that focus on evaluating young restoration sites so we can enhance the values of those sites for the critters we are targeting for recovery and take corrective steps if necessary. We do know that a site doesn't have to be mature to be valuable as habitat, said Nur. "The ecological value in intermediate-stage restoration sites is very high."

It is also important to evaluate restoration from the perspective of the most dominant species, cautioned the South Bay Salt Pond Restoration Project's Steve Ritchie. "We can't let endangered species run the show. We need to use every opportunity to educate folks and to monitor changes in community values and interests as well. We need to make sure restoration works for humans, as well as animals."

The S.F. Bay Joint Venture, by pulling in as many stakeholders as possible, is trying to make that happen. The Joint Venture's Beth Huning gave an overview of wetland and riparian acquisition, restoration, and enhancement projects around the Bay, describing how building partnerships among businesses, private individuals, and nonprofits has been critical to the projects that have taken place so far. Huning emphasized the importance of acquisition. "Before we can restore, we need to protect," she said.

And to acquire more land for restoration, we need to convince the public of the value of restoration. Science alone isn't enough, said the S.F. Regional Board's Bruce Wolfe, echoing earlier speakers. We must also be able to report on our actions to the public in ways they can understand, said Wolfe. "Decisionmakers and the public want to know how we're doing, they want to know what we've done, and they want to hear the message in easy-to-understand terms. 'Restoring creeks' resonates better than 'minimizing the hydrogeomorphic impacts to riverine functions,'" said Wolfe, who added that his agency is committed to working with Bay nonprofits and scientists to identify what enhancement and restoration the Estuary needs, the performance standards needed to do that, and how best to track our progress as we move forward.

### INCREASE IN BIRD SPECIES (SACRAMENTO RIVER)

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The Bay Institute's Anitra Pawley described her agency's attempts to track progress with its just-released second Ecological Scorecard. "Society is obsessed with performance measures," said Pawley. With a simple conceptual framework, the scorecard asks, in general, if we can fish from, swim in, and drink Bay-Delta water, explained Pawley. While there is an incremental upward trend in these criteria for the Central and South bays, said Pawley, the upper parts of the Bay—San Pablo and Suisun bays—are in serious trouble, with fish and other organisms declining and invasive species increasing. "We've done a lot of damage to the Bay, and it will take a while to reverse," she predicted.

What's really needed in monitoring the health of the Estuary is an approach linking ecology and toxicology, said Susan Anderson of U.C. Davis' Bodega Marine Laboratory. She described how she has measured the exposure of mudsuckers, a sediment-dwelling fish, to contaminated sediments in Stege Marsh. "They're not sexy, but they live in salt marsh mud and are directly exposed to the sediments being regulated. We can measure a lot of things in an efficient and humane way—we use every part of the fish." Just because we don't always measure the effects of contaminants on fish and invertebrates, that doesn't mean impacts aren't there, said Anderson. "Our contention is that it's not enough to go out and see marsh birds—we need to know their health."

The health of the food web also affects humans, of course, particularly those who eat fish from the Bay and Delta. Cal EPA-OEHHA's Bob Brodberg chronicled the history of fish consumption advisories for the Bay-Delta and said

that as new chemicals are found, they will be monitored extensively. Consumption advisories not only provide the public with information and choices, said Brodberg, but could also be used in setting cleanup and restoration goals. The current advisory, according to Brodberg, is that adults should eat no more than two meals per month of Bay sport fish, including sturgeon and striped bass caught in the Delta. Adults should not eat any striped bass over 36 inches, said Brodberg, and women who are pregnant, may become pregnant, or are nursing should not eat more than one meal of fish per month—nor should children under the age of six.

Another restoration and monitoring link we need to make is that of watersheds to wetlands, said SFEI's Josh Collins "We have to embrace the idea that the Baylands really are the edge of the Bay," he said, adding that those places where streams and rivers meet the Bay have become a sort of no-man's land, falling somewhere between watershed science and Bay science. "Our challenge is to put the Bay, Baylands, and watersheds back together again," said Collins. "We need to reconnect with our watersheds." Yet this year's conference had little focus on the streams that flow to the Bay or their watersheds. Collins' take-home point was that we need to set riparian habitat goals—"force ourselves to just do it!"—as we have done for wetlands.

The only other discussion of streams and watersheds occurred in a panel presentation about stewardship around the Bay—a first for the State of the Estuary Conference. Four people working and volunteering to improve habitat and water quality in and around the Bay described just how essential volunteers have become to maintaining and restoring wetlands, uplands, and streams. The Golden Gate National Parks Conservancy's Mike Lee calculated that more than 16,000 volunteers contribute 382,000 hours of support each year to his agency, dealing with visitors, working in native plant nurseries, maintaining trails, counting and banding birds, and handling other tasks. Mondy Lariz, with the Stevens and Permanente Creeks Watershed Council, said his organization has at least 80 full-time volunteers engaged in watershed stewardship, including monitoring water quality. And recently, 1,460 volunteers helped clean up 46 miles of creeks in Santa Clara County, said Lariz, removing 40,000 pounds of trash. U.S. Fish & Wildlife's Mendel Stewart said volunteers at the S.F. Bay National Wildlife Refuge complex are the equivalent of 19 full-time staff people, at a dollar value of $470,000. And Save the Bay's Marilyn Latta concluded that nearly 30,000 volunteers have contributed 150,000 hours to work on habitat restoration with her organization over the past five years. "Without public education and community support, we will never be able to truly save the Bay," she said. "Stewardship is one piece of the solution." Volunteers cannot replace large-scale construction efforts in restoration, she added, but they can supplement and enhance it.

**"Our challenge is to put the Bay, Baylands, and watersheds back together again. We need to reconnect with our watersheds."**

With help from volunteers—and from federal and state agencies, nonprofits, and local governments and businesses—we're making progress. The largest restoration projects ever undertaken on the Bay are underway. The Coastal Conservancy's Amy Hutzel gave an update on two large tidal marsh restoration projects in the North Bay—the Napa salt ponds, which began this fall, and the Hamilton Airfield, which is almost through the permitting process. Napa is less subsided than Hamilton, said Hutzel, and will be restored primarily by breaching and lowering existing levees. Hamilton, which has subsided by about 10 feet, presents more of a challenge and will need seven million cubic yards of dredge material deposited on it to achieve a restorable elevation.

The South Bay is also gearing up, said Cal Fish & Game's Carl Wilcox, with restoration projects at Bair Island (1,700 acres of diked Baylands to tidal marsh), Eden Landing (650 acres of former crystallizers and salt ponds to tidal marsh, plus enhancing another 200 acres of managed ponds and restoring some sloughs), and the former salt ponds (15,100 acres acquired from Cargill in 2003), which are being managed under an initial stewardship plan.

Progress is being made not only on the ground but also at the policy level. The Department of Water Resources' Kamyar Guivetchi unveiled the California Water Plan 2005, which, for the first time, includes an implementation plan for using water efficiently, protecting water quality, and supporting environmental stewardship. "We have to wring every drop of water out of our water supply system," said Guivetchi. "We have groundwater overdraft of one to two million acre-feet statewide. We cannot keep doing that kind of deficit spending."

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## NEXT GENERATION

### WATER WARRIOR

Stormwater pollution may not be a top concern of the average seventh-grader. David Marash-Whitman of Saratoga was an exception, though. "I was horrified to learn that everything that goes into the storm drain flows directly into the Bay without any treatment," he recalls. "If you're washing your car in the driveway, spraying for insects—all of that goes into the storm drain." After asking Cheri Donnelly of the West Valley Clean Water Program for a list of pollutants of concern, he designed an experiment to measure how these substances affect the watershed.

Marash-Whitman exposed lettuce seeds to nine household chemicals, ranging from herbicides and pesticides to pool and spa cleaners. "Lettuce seeds are sensitive to varying conditions, and it's easy to view the impact of pollutants," he explains. All nine substances were toxic enough to affect seed germination and viability. The worst culprit: a copper algaecide used as a pool cleaner, which did in 50% of the seeds at a concentration of 7 parts per million. An herbicide containing pyrethrin ranked second. He also found that seeds grown in stormwater fared worse than those grown in clean water.

Those lettuce seeds won him a category first prize and a bioscience grand prize at the Santa Clara County Science Fair. After developing his project into an educational program, he was recognized as one of "America's Top 40 Young Scientists" by the Discovery Channel and named an "International Eco-Hero" by San Francisco-based Action for Nature. He was also the youngest award winner at October's State of the Estuary conference.

Now a sophomore at Kehillah Jewish High School in San Jose, Marash-Whitman is focusing on diverting organic materials from landfills and bringing his message ("You are the solution to water pollution") to other students, science educators, and the public. Student audiences, he says, "are horrified that something we barely think about can have such an impact." He's also active in a NASA-Ames robot-design group and plays soccer and saxophone. Eventually, he sees himself at Stanford or Harvard majoring in "something in the sciences"—but he has a few years to decide.

Contact: David Marash-Whitman, david_mw@comcast.net; Cheri Donnelly, cheri.westvalley@comcast.net. JE

## POLITICS

### REC BOARD MAKEOVER

This fall, Jeff Mount, a U.C. Davis geologist and member of the state Reclamation Board, got an unexpected birthday present from Gov. Schwarzenegger. On Sept. 27, the governor removed all six members of the Board, the state agency charged with overseeing flood-control policy along the Sacramento and San Joaquin rivers in the Central Valley, and replaced them with new appointees.

The former Board had stepped up its efforts to scrutinize development projects in the Valley—such as requiring review of environmental documents, a power they had long held but seldom used—during the months preceding their removal, particularly during September in the immediate aftermath of Katrina's devastating impact on the Gulf Coast

"The change in the Rec Board was, pure and simple, a governor exerting his privilege, if not obligation, to put people on the Board that reflect his own administration's policies on flood control," writes Mount in an email.

"It was more the timing than anything else that looked bad," he writes, "since the Board I was on had obviously woken up to the looming issues of rapid development on the floodplains and its impacts on how we manage floods in the Central Valley. That, plus the Board's hard questions about urbanization of the Delta…"

"The public often forgets about the seriousness of flooding until there is a big flood," says Betsy Marchand, a former Board member also replaced in September. "It is important to try to get information out about floodplains and the potential for flooding in certain areas before the building occurs. One tool we had that we had not often used was to comment on the environmental documents proposed [for development projects] in floodplains. This caused quite an uproar, but this is existing law."

Gov. Schwarzenegger appointed seven members to the Board (one seat was vacant). Four of the new members represent the agriculture industry, two are engineers, and one is the former director of a local flood control agency. The previous Board, appointed by Gray Davis with one member held over from Pete Wilson's tenure, included four public officials, a retired dentist from Modesto, and a professor of geology (Mount). JG

Guivetchi proclaimed that in the future, we must forge a better link between land use planning and water management, and that planning should be more inclusive of tribal and disadvantaged communities. Another sea change for this plan, he told the crowd, is that key decisions about water are going to have to be made at the regional level—although not as islands unto themselves.

Amid the progress, new and old challenges lurk. Maurya Falkner with the State Lands Commission reported on the 2003 reauthorization of a statewide mandatory ballast water management law designed to reduce or prevent invasive aquatic species from entering the state's waters. Falkner said vessels have exceeded compliance requirements by 90%, but fouled ship hulls are still introducing invasives. SFEI's Andrew Cohen said that while the reports about compliance are reassuring, if you read the fine print, many ships are exempted and there is no good method of testing ships' ballast water at the end of a voyage. Cohen estimates that even when ballast water exchange does occur—more than 200 miles from shore as required—only 70% to 85% of the organisms are removed. Cohen agreed that fouled hulls are one of the biggest problems and added aquaculture to the list: "It's good at moving diseases and parasites and pests."

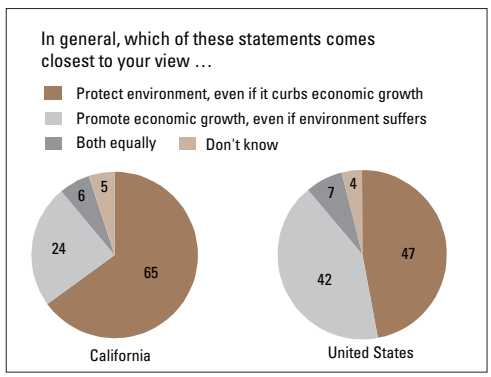
> **"There's a horse race between people acquiring land for preservation and people acquiring it for development."**

Another pest—of the vegetative kind—was the topic of the S.F. Estuary Invasive Spartina Project's Erik Grijalva, who reported on the most recent effort to control invasive spartina species. Between 2001 and 2003, said Grijalva, there was a 260% increase in non-native spartina hybrids with diverse genotypes that can start new colonies anywhere. "The greatest threats are to mudflats and restored tidal marshes," said Grijalva. "If we do something right now, we have a chance to control it." This year's treatment, after the marshes were surveyed for the presence of clapper rails (see "Jungle Birds," page 1), tackled 70% to 80% of the infestation, said Grijalva.

Yet some of the greatest threats to the Estuary—and for restoration projects—will be meeting the economic and environmental challenges of the state's increasing population, said the Public Policy Institute of California's Ellen Hanak. The state's reliance on bonds to pay for public investments in infrastructure, land acquisition, restoration—and a host of other public benefits—is not sustainable, said Hanak, since the ratio of general fund debt to revenue may limit the state's capacity to pass new bonds in the near future. That bodes ill for restoration—state bonds have been its main funding source for several years. Funding will also be an obstacle for nonpoint source pollution control efforts, said Hanak. Yet despite the state's penniless piggybank, most Californians are quite concerned about coastal pollution, toxics in soil and water, and polluted runoff in our rivers and lakes, according to an Institute survey. And most people surveyed agreed that even with the large state budget deficit, we should continue to fund environmental programs at the current level. Adding to the doom side, the Coastal Conservancy's Nadine Hitchcock warned that although the Conservancy and the Wildlife Conservation Board have acquired more than 100,000 acres around the Bay, there is almost no money left for new projects. Politicians frequently see funding for ecosystem restoration as competing with funding for traditional engineering projects, said Hitchcock. Despite these setbacks, Hitchcock said, we need to do more restoration projects in disadvantaged communities, like the Conservancy-funded restoration of Yosemite Slough in San Francisco's Hunter's Point. "We have many more competing needs with limited funds," concluded Hitchcock. "We need to develop a regional vision for the landscape and pursue local and regional funding. There's a horse race between people acquiring land for preservation and people acquiring it for development."

The Department of Water Resources and the Coastal Conservancy recently acquired the for-

### CALIFORNIANS SUPPORT ENVIRONMENTAL PROTECTION

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continues on page 8

# PLACES TO GO & THINGS TO DO

## WORKSHOPS & CONFERENCES

JAN 25-27 WEDS-FRI

**SALMON 2100 PROJECT**

TOPIC: Alternative futures for wild Pacific Salmon in western North America.
LOCATION: Portland, Ore.
SPONSORS: U.S. EPA & Oregon State University
http://outreach.forestry.oregonstate.edu/Salmon2100/conference.htm
Tyler G. Mintkeski, (541)754-4350
mintkeski.tyler@epa.gov

### FIRST ANNUAL JEAN AUER AWARD

The South Bay's Trish Mulvey received the first Jean Auer award for her activism working to enhance the S.F. Estuary.

# ACCOLADES!

## 2005 Awards for Outstanding CCMP Implementation Projects

### Wetlands Management

*Sears Point Restoration Project:* Sonoma Land Trust

### Wildlife

*The S.F. Bay Joint Venture Habitat Project* Tracking System: S.F. Bay Joint Venture & Ducks Unlimited

### Pollution Protection and Reduction

*East Bay Municipal Utility District's Mercury Reduction Program:* East Bay Municipal Utility District (EBMUD), U.C. Berkeley, California Dental Association & Save the Bay

*Keep the Delta Clean Program:* Contra Costa County Public Works Department, California Coastal Commission, California Department of Boating & Waterways, Discovery Bay Yacht Harbor, Lauritzen Yacht Harbor, Sugar Barge Marina, Lazy M Marina & Bethel Harbor

### Public Involvement and Education

*Ecotoxicology of Stormwater Pollution in Our Aquatic Communities—Building Understanding & Advocacy:* David Marash-Whitman, West Valley Clean Water Program

*Save the Bay's Watershed Education Programs:* Save the Bay

*Contra Costa County Watershed Atlas:* Contra Costa Watershed Forum & Contra Costa County

*South Bay Challenge—Reclaiming the Salt Ponds for People & Nature*—special magazine supplement: *Bay Nature*



# HURRICANE AIDE

### ESTUARY PROJECT AIDS IN HURRICANE RELIEF

National Estuary Projects (including the one that publishes this newsletter) are dedicated to protecting and improving the water quality and natural resources in estuaries around the country. But even with an estuarine system in distress due to Hurricanes Katrina and Rita, the Barataria-Terrebone National Estuary Project has set its sights beyond the mere boundaries of where rivers meet the Gulf of Mexico. The project is restoring schools.

In what it calls Operation ABC (All BTNEP's Children), the estuary project is working with school districts in the parishes that took the biggest hit from the hurricanes—Plaquemines and St. Bernard. Susan Testroet-Bergeron of the project writes that her organization's efforts have helped in the opening of one school in Plaquemines Parish.

Meanwhile, in St. Bernard Parish, a modular school will soon open on the grounds of one of the high schools. Faculty will live in housing trailers provided by the Federal Emergency Management Agency, and they plan to have the school open from 8 a.m. to 5 p.m. to give the children, many of whom have lost their homes, a place to go and a structure to their days.

The estuary project is asking that those who want to help give cash donations. The project is accepting these through its nonprofit foundation. School districts in Plaquemines Parish will use the money to buy supplies, including warm clothing, food, and even shelter, for the students. In St. Bernard Parish, where churches, playgrounds, and homes have been wiped out, officials plan to use the funds to run after-school programs for the children.

*Those interested in making donations should contact the Barataria-Terrebonne National Estuary Program at (800)259-0869 or by mail at: Barataria-Terrebonne National Estuary Program Office, Nicholls State University Campus, P.O. Box 2663, Thibodaux, LA 70310.* KC

# NOW IN PRINT & ON LINE

***Eelgrass Restoration Site Selection Model CD-ROM.*** 2005. Short, Fred & Dave Burdick. Jackson Estuarine Laboratory, University of New Hampshire. (508) 997-3826 or Steve.Bliven@comcast.net

mer Dutch Slough dairy farm in eastern Contra Costa County—at the center of the "horse race." That site will be restored to tidal marsh instead of being covered with 4,500 houses. "All of our restoration efforts will be relatively futile if we are unable to stem the tide of urbanization in the Delta," said the Natural Heritage Institute's John Cains, one of the project's managers, sounding again the warnings from earlier in the conference. The most important thing we can do now, said Cains, is to acquire land. "Restoration can wait, but the time for acquisition and preservation is now," said Cains.

There is a lot of work to be done, especially around land use issues—the ghost in the cellar we've never quite faced. Yet it is not too late for the Bay Area to lead the way to a more sustainable future, said Rainforest Action Network founder Randy Hayes, now with the City of Oakland. "San Francisco, Berkeley, and Oakland were named as among the top 10 'green cities' in the country," he told the audience. "But we're at best light green. We can work toward medium and deep green. We need to take an ecological U-turn, start a paradigm shift that sets the tone for the entire country."

There seemed to be a general consensus among conference speakers that we not only need better land use policies but also that we not rest on past accomplishments. We need to keep on saving the Bay, as Save the Bay founder Sylvia McLaughlin said in a recent interview in the *San Francisco Chronicle*. Dismayed at the lack of discussion of the environment and the Bay at a recent Bay Area Council dinner he attended, BCDC's Will Travis told the Estuary conference crowd, "We need to make the case for the Bay in the language most people understand—that of economics." If we sit around speaking science among ourselves, he warned, we will fail to play the role we need to play in political decisions about where the predicted one million new California residents will live and work, how to develop affordable housing for those residents, and how they can avoid spending most of their lives in traffic jams. "We need to better explain, in economic terms, why protecting the natural environment is important to solving these other problems," said Travis. Travis also described how McLaughlin told him that sometimes there can be too much science—that she saved the Bay because she had "never seen anything so beautiful." We also need to remember those reasons, said Travis, when communicating with the public.

According to the Joint Venture Silicon Valley's Russell Hancock, the Silicon Valley is beginning to recognize how the beauty and health of the Bay benefit its economy, which, he said, is slowly improving in a more sustainable way, without another flash-in-the-pan dot-com boom and bust. "The best way to compete [with other regions] is to provide a fabulous place to live," said Hancock.

Travis wrapped up the conference to wild applause when he told the crowd, "The Bay is the equivalent of a national park in our front yards, where we can swim, fish, sail, and enjoy wildlife. The decision to save the Bay in 1965 is responsible for our economic prosperity today. [The Bay] is probably the best fringe benefit any Bay Area employer can offer. We need to keep reminding them of how much it's worth." LOV

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**Editorial Office:** PO Box 791
Oakland, CA 94604
(510)622-2412
lowensvi@earthlink.net

**Estuary Web site at**
*www.estuarynewsletter.com*
**Subscription Q&A:** (510)622-2321

**STAFF**

**Managing Editor:** Lisa Owens Viani
**Associate Editor:** Kristi Coale
**Copy Editor:** Kathryn Ankrum
**Page Design:** Bobbi Sloan
**Contributing Writers:** Joe Eaton, John Gibler

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