

NUDGING NEWTS

"I'm a born rescuer type," says Annabelle Travis. "I've always had to rescue animals in need." She has been known to retrieve stray ducklings from Interstate 80 at rush hour. Ten winters ago, Travis, who lives near the San Pablo Reservoir, noticed that California newts attempting to cross her road on the way to their mating pond were being smashed by motor vehicles. Her immediate impulse was to pick the amphibians up and carry them across to Castro Creek. That first year she logged 137 newt assists, single-handed.

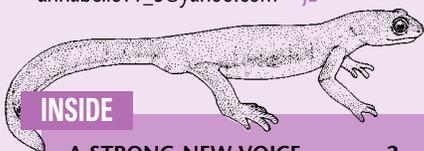
Eventually Travis connected with the San Pablo Watershed Neighbors Education and Restoration Society (SPAWNERS), and volunteers began to join her on the newt patrol. Neighbors got involved. This year she has a roster of 23 helpers. "We have a core of six to eight people who always participate, who've been doing it for years," she says. A lot of them bring children: "It's a good opportunity for kids to learn about the environment." One year the Waldorf School adopted the newts as a community project, and home-schooling families have been active participants.

Newt time begins a little before sunset and extends for an hour or two. Activity varies with rainfall ("The newts love the rain") and season, starting with a few migrants in late January, then building to a peak in March. The biggest year so far was 2006, when the last of 1,200 newts was assisted on Mother's Day. But the total fell to a mere 55 the following year. Travis reports a slow start to 2008, with only two live and seven road-killed newts as of press time.

Newts are calm animals, not prone to biting. "Their skin is highly toxic," says Travis. "Most people new to it will wear gloves, but I've never been a glove person." She says washing your hands after touching a newt should suffice.

New volunteers are always welcome. "On busy rainy nights we're literally running from one side of the street to the other picking up newts," Travis says. Newt rescue can occasionally get a little slow; Travis advises bringing warm drinks and food, hats, boots, umbrellas, gloves, buckets, patience, persistence, and high hopes.

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LEGISLATORS LEVERAGE LOCALS

Chris Boyer of the Contra Costa County Sheriff's Department has at his fingertips access to hundreds of local volunteers trained to respond to industrial accidents. His staff, which includes the county's hazardous materials team, is very experienced in dealing with fires, gas leaks, and oil spills that can result from activities carried out by the oil and chemical companies located within the county.

So Boyer was understandably frustrated when his offers to deploy his county's considerable resources in the first hours and days following the November 7 oil spill appeared to fall upon the deaf ears of those in charge of the cleanup. Boyer says he sent 15 to 20 messages to the Unified Command—U.S. Coast Guard, the California Department of Fish and Game's Office of Spill Prevention and Response (OSPR), and a firm hired by the ship's owner, the O'Brien Group—requesting information about the spill in the first hours.

"Physically, we were seated in a room next to the command post, and we got nothing back—not one single message came back letting us know what's going on," Boyer recalls.

More frustrating for Boyer was learning how some of the 58,000 gallons of oil spread to the eastern shoreline, hitting Hoffman Marsh, Meeker Slough, and Brooks Island while he sat. By the third day—with no response from Unified Command—Boyer says the county took matters into its own hands. He sent hazardous materials teams to clean county beaches and

got Chevron Corporation to boom off sensitive places like Meeker Slough.

Boyer's experiences reveal a gaping hole in the emergency response system. Current law requires that the federal government lead response to both oil spills and terrorist attacks in a top-down command system, with local agencies at the bottom. But in the event of any other disaster—fire, earthquake, flood—California has a standardized

emergency management system that puts local authorities at the top of the chain of command.

"San Diego was able to move a half a million people on their own authority during the fires last fall," notes Boyer. "This spill wasn't on the scale of the fires, but what's the difference? The requirement of Lempert-Keene-Seastrand that the feds respond first was put in place 10 years ago, but it feels like centuries ago in disaster management. If they could bring it up to current best management practices, that would be great."

Boyer is among several local officials sharing their wisdom and frustrations

with Sacramento lawmakers as they craft legislation designed to fix the problems—and head off other anticipated needs—that surfaced when the Cosco Busan crashed into the Bay Bridge.

So far, seven bills from five assembly members have been introduced, with Berkeley Assemblywoman Loni Hancock leading the way. "We need to make sure that should this happen again, we can respond more effectively and quickly," Hancock said when introducing her legislative package in December.

"The requirement that the feds respond first was put in place 10 years ago, but it feels like centuries ago in disaster management."

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BIRDWATCH



FLOODSONG

Nesting in the floodplain carries obvious risks for riparian songbirds. But flooding may have benefits for them as well as costs. Two presentations at December's Riparian Habitat Joint Venture conference explored relationships between flood events and the reproductive success and recruitment of two representative riparian birds, the song sparrow and black-headed grosbeak.

PRBO Conservation Science's Nadav Nur described his research at the Consumnes River Preserve, which has both mature and restored riparian sites and is subject to spring and winter flooding. He used point counts to measure song sparrow abundance and monitored sparrow nests to determine reproductive success.

Nur reported that the timing of floods makes a difference in song sparrow population trends. Spring floods were associated with lower recruitment in the following year. This makes sense for a low-nesting species for which flooding would cause direct mortality. Winter floods had the opposite effect: "The greater the winter flooding, the more recruitment in the year after the flood." In restored sites, the song sparrow population grew 6.8% between years for each additional 10 days of winter flooding. But there was no comparable increase for mature sites.

Another songbird species, the common yellowthroat, showed population increases the year after winter flooding in both restored and mature sites. A similar but weaker relationship was detected for spotted towhees. For tree swallows, adult abundance increased in the same year as winter floods, with a lag of a few months.

"Winter flooding improves conditions for birds," concluded Nur. The mechanism is uncertain: there may be effects on vegetation and insects, providing more cover and food for the birds. His data shows the effect varying with site and species: "There's no single prescription."

Black-headed grosbeaks, unlike song sparrows, are neotropical migrants nesting and foraging in the riparian canopy. Their nests would seem less likely to be impacted by flooding. However PRBO Conservation Science research associate Stacy Small discovered in her doctoral research at the University of Missouri-Columbia a link

PEOPLE

A STRONG NEW VOICE



The Estuary Project's new director, Judy Kelly, did not ask for a car or money when she graduated from U.C. Berkeley's College of Natural Resources in the late 1970s. "I

wanted the new *California Water Atlas*," she recalls with a chuckle. She still has the atlas, and has never lost her interest in water issues, particularly the unique, complicated California kind. "I was fascinated by the historical monopoly of the railroads and their relationship to water in the West. There was a lot of thievery and chicanery going on." Times have changed somewhat, she says, recalling as a watershed event the *San Francisco Chronicle's* publication of a series of investigative reports on the Central Valley's mega-farms. "That memorable piece of journalism said a lot in terms of the public's level of interest in water in this state, an interest that is still there."

The Estuary Project is not unfamiliar terrain to Kelly. In the fall of 1989, while working in Washington, D.C., on coastal programs at NOAA, but wanting to return to California, she applied for a job with the Estuary Project and began working on its first water quality monitoring program through an interagency "loan" through U.S. EPA. "We put on the very first monitoring conference. Monitoring was very scattered at that time, not organized in any kind of regional way. The conference resulted in a number of important dialogues and decisions; since then SFEI has taken on a much larger array of monitoring." In 1992 Kelly became acting deputy director of the Estuary Project and co-authored the original CCMP action plan. "It was an effort to get everybody on the same page," she says.

When her interagency loan expired, Kelly became deputy director of the CALFED Bay-Delta Program, followed by two years working for a private water-marketing firm, and then serving as director of field services for the gun violence reduction nonprofit, the Million Mom March. She also raised two sons, now teenagers. She describes them as "not outdoor enthusiasts but slightly environmental in their own way. They are always after me to turn off running water."

Kelly's history with the Estuary Project gives her both great appreciation for its past and an insider's insight into future challenges. "When the program started 15 to 20 years ago, there was no Joint Venture, no South Bay Salt Pond Project—not a load of programs up and running and vibrant. So it's a challenge to determine the optimal place for the Estuary Project because so many initiatives have either directly or indirectly evolved out of that beginning dialogue. I look at the Estuary Project as the forerunner of what CALFED did, of what Delta Vision is doing. The National Estuary Projects were the first ones out there actually forging consensus on ways of doing business with the larger community. In the past, the [various stakeholders] usually saw each other in courtrooms. That is the great legacy of the Estuary Project, bringing everyone together at the same table. The issue for me now is how does the Project add value over and above what's being done now by a myriad of other organizations and nonprofits?"

Kelly hopes the Estuary Project can find a role in tackling some of the most pressing environmental issues, including climate change. She agrees with the S.F. Bay Commission's Will Travis's thinking about the Estuary—that "we can't go back. We have to plan for what will be, to create space for essential habitats like wetlands and decide where to shore up functional hardscapes [e.g., airports] that we can't live without."

Travis, who has known and worked with Kelly for years, says that if anyone is up for taking on large-scale issues, it is Kelly. "She's extraordinarily bright, with great strategic vision, and knowledgeable about details. She has great leadership capability and can see way over the mountain range. She's a driving force—I wouldn't want to be on the other side of an issue from her—but she's also the sweetest serious person I've ever known." He thinks she will give the Estuary Project a strong new voice. "When you say 'San Francisco Estuary Project and CCMP' to some people, they say, 'What'? She will make it more meaningful."

Steve McAdam (just retired from the Bay Commission) is also impressed with Kelly. "She was a great commissioner, very thoughtful, never making knee-jerk decisions but always finding the facts first." The Coastal Conservancy's Steve Ritchie, who worked with Kelly both in her first stint with the Estuary Project and at CALFED, says she has "enormous energy, passion, and experience working with large, diverse groups."

McAdam thinks Kelly is the right person for leading the Estuary Project right now. "We need someone with the diplomacy and respect for the community that Marcia Brockbank instilled. I expect Judy to quickly assume that mantle and run with it." **LOV**

Hancock authored two bills that deal with funding and more prompt notification of local agencies. One bill would require the Office of Emergency Services to contact local emergency responders when a spill is reported, allow certified responders to train and certify cleanup volunteers, and require OSPR to pay through grants for certified responders to have supplies on hand, such as boom and other equipment needed for shoreline protection and cleanup. This is intended to remedy the situation that occurred during the Cosco Busan spill when many would-be volunteers could not receive proper training or, when they did, had no equipment to do the job.

A second Hancock bill would enhance the Lempert-Keene-Seastrand Oil Spill Prevention and Response Act of 1990, the legislation that created OSPR, by increasing funding from \$55 million to \$100 million—to keep pace with inflation. The increase would be funded by a temporary reinstatement of the 25-cent-per-barrel tariff on imported oil. At the same time, the Act—originally written in response to an oil tanker spill off the Southern California coast—is to be revamped to give non-tanker vessels like cargo ships a financial incentive to use double hulls.

Another issue arising from the Cosco Busan spill was that the equipment used to clean and contain the spill was not up-to-date and that OSPR and other command agencies wouldn't deploy newer technologies because they were not commonly in use. San Francisco Assemblyman Mark Leno's legislation is intended to provide funding—\$5 million annually—in grants to spur new cleanup technology. It also requires OSPR to continually evaluate and update cleanup technology and to deploy the best available technology, regardless of whether it is currently in use or not.

The Port of Oakland is the nation's fourth busiest shipping port, handling about five container ships a day. The cargo aboard these ships ranges from consumer goods to agricultural products to chemicals. And yet, only oil tankers are required to have a tugboat escort through the Bay and other harbors. Legislation proposed by Mountain View Assemblywoman Sally Lieber would expand the requirement for tugboat escorts to include ships carrying pesticides, solvents, explosives, and other hazardous materials as well as to include huge cargo ships like the Cosco Busan, which has a fuel capacity of 1.8 million gallons. The Port of Oakland began a dredging effort five years ago to deepen and

widen its shipping lanes, which will likely encourage bigger ships carrying more fuel.

In addition, bills from Marin Assemblyman Jared Huffman and Davis Assemblywoman Lois Wolk seek to establish emergency training protocols to enable volunteers to begin cleanup work after three hours or less of training, and to expand the capacity of the Oiled Wildlife Care Network to better prepare for wildlife rescue efforts—another gap exposed in the November spill. Huffman's bill also calls for additional response planning and protection for designated ecologically sensitive areas.

Finally, a second bill from Assemblywoman Wolk seeks to address another issue. The Sacramento-San Joaquin Delta is one of only a few inverted river deltas—in which the narrower end emerges at the sea and the wider end is located inland—in the world, and so inland

spills pose a particular danger to fish and wildlife and the state's water supply. Inland spills, such as have occurred on the San Joaquin River near the Port of Stockton, account for more than 75% of the oil spills in the state, yet OSPR responds in less than 20% of those cases. Wolk's bill would require OSPR to respond to inland spills and aids in

that effort by allowing the agency's funds to be used to prepare and respond.

Hans Hamen, an aid to Hancock, says these bills face a long process of hearings to hammer out the final details. Legislators like Hancock are communicating with federal lawmakers like Senator Barbara Boxer, who has introduced into the U.S. Senate a bill to grant the Coast Guard more authority on the nation's waterways to order ships to change course or speed. A second bill would raise the liability limits for cargo ships—capped presently at \$950 per gross ton—to \$1,900/gross ton for double-hulled tankers and \$3,000/gross ton for single-hulled tankers in the hopes of getting cargo shippers to use double-hulled ships.

Hamen says all of this legislation is just a beginning. Hancock and others will hold hearings to probe further ways to prepare the region for a spill and also to prevent it from spreading and happening.

"One could only imagine what could have been with all the tanker ships coming in not only to Oakland but also to Richmond, Martinez, and Stockton," says Hamen. "This was a warning that we need to do better."

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"This was a warning that we need to do better."

TECHNOFIX

FIGHTING FOG

San Francisco is about to become a lot less foggy—not the stuff that shrouds the city, inspiring poets and mystical visions, but the FOG (fats, oils, and grease) that clogs the city's wastewater system—as part of a program that will re-use "FOG" to fuel some of the city's public utility vehicles.

"We're calling it 'SFGreasecycle,'" says the SFPUC's Lewis Harrison. "We had a long history of grease problems in the combined sewer system and were hiring people to clean it up. Now we're focusing on pre-treatment." At first the city pressured the restaurant industry to engage in best management practices, to divert their cooking grease. But that cost restaurants money, which was a disincentive, says Harrison. "We started exploring what possible re-uses could be, and of course biodiesel came to mind. We decided to connect the dots and create this waste vegetable oil program for free to restaurants." Harrison says the best part of the program is that it takes a problem and converts it into a solution. "Biodiesel burns cleaner than regular diesel, so there are less particulates settling back down on the streets and into the sewer system, which means we're improving both air and water quality." The program was funded by a California Energy Commission grant and \$1.3 million approved by the S.F. Board of Supervisors.

So far, 2,600 restaurants are targeted to take part in the program; the city will build a transfer station where all of the trucks will bring the waste vegetable oil for basic filtering. From there it will be sold to biodiesel manufacturers for converting to biodiesel; the city will then buy the biodiesel back for powering its municipal fleet. Eventually animal fats will be recycled too. The city also hopes to institute a residential grease collection program. "Most people have found that pouring grease down the drain means Rotor Rooter on a regular basis. With this program, everyone participates; everyone benefits." www.SFGreasecycle.org

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SOE POSTER CLIP

TENTACLED TROUBLE



More than a decade ago, three exotic jellyfish—technically, medusa-forming hydrozoans—were detected in brackish stretches of the Estuary. *Maotias marginata*, *Moerisia* sp., and *Blackfordia virginica* all originated in the Ponto-Caspian region of Asia, probably reaching California in ships' ballast water. All three are now established in the upper Estuary.

As small as they are, the invasive hydrozoans could potentially disrupt estuarine food webs. They use their tentacles, studded with stinging nematocysts, to capture copepods and other zooplanktonic organisms, an important part of the prey base for young fish that rear in estuaries. In the Sea of Azov, an arm of the Black Sea, exotic medusae destroyed two commercial fisheries.

To get a sense of their local impact, UC Davis graduate student Robert E. Schroeter sampled the three species in Suisun Marsh over a two-year period (2004-2006). He used previous measures of prey consumption by each species to estimate how much of a dent the hydrozoans would make in the copepod population.

For all three hydrozoans, catches were highest in September and in the middle reaches of the marsh. *M. marginata* was caught from June to December; *Moerisia* and *B. virginica* had shorter seasons. *B. virginica* was found in sites with highest salinity. All three were less abundant in 2005, a low-salinity year. *Moerisia* sp. was by far the most abundant of the three in both years of the study.

Estimated predation on copepods averaged 4% across sites, up to 18.5% at Cutoff Slough. *Moerisia* sp. had the largest predatory effect. Schroeter reports minimal impact on copepods by the less common *M. marginata* and *B. virginica*. All three were scarce in Suisun Bay, Grizzly Bay, and the Sacramento-San Joaquin confluence, known pelagic organism decline (POD) locales, so it appears unlikely that the hydrozoans are contributing to the POD.

But there's still reason for concern. With no predators, the three exotics contribute nothing to the food web until their winter dieoff. Swarms of medusae may deter fish and other predators from exploiting local prey resources. And the three are likely to flourish in a future Delta with stable but low salinity.

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Jellyfish illustration courtesy of Florida Educational Technology Clearinghouse

PLANNING

DELTA VISION: TO THE RESCUE OR THE SHELF?

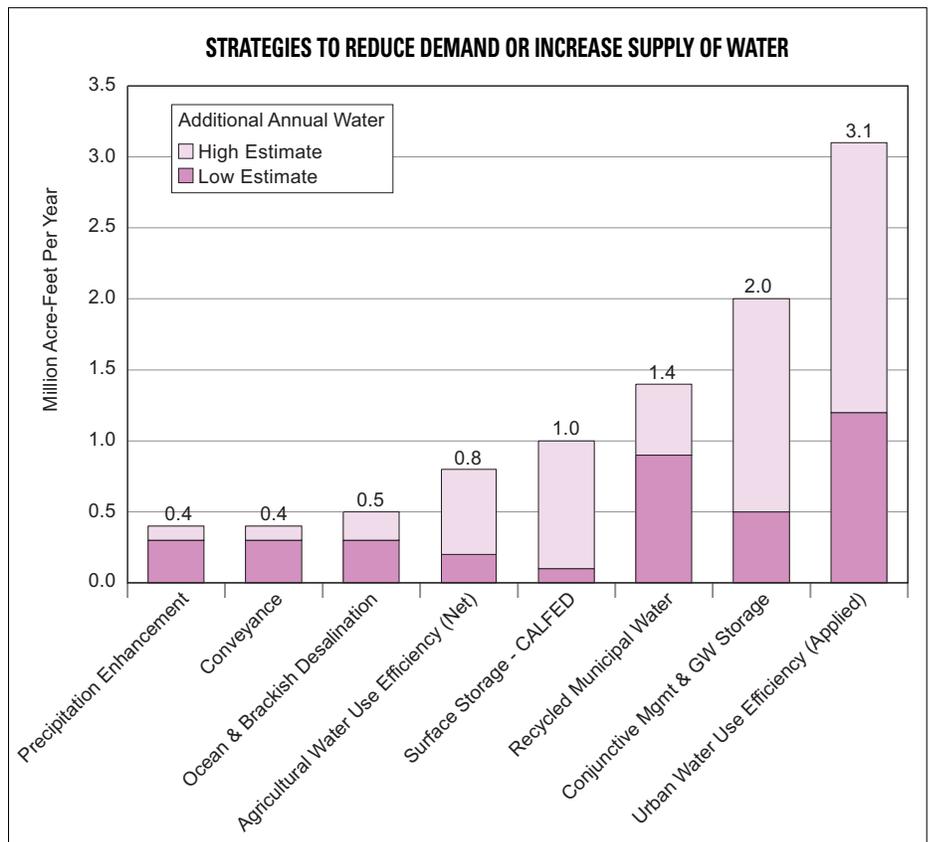
If a plan can save the Delta, the Delta Vision will be the one to do it, say enviros, business leaders, and water districts—with a few dissenters. Hot off the presses in December, the plan, written by the Delta Vision Blue Ribbon Task Force established by Gov. Schwarzenegger's Executive Order S-17-06, recommends 12 policies for rehabbing the beleaguered nexus of the state's water supply to be implemented over time, and seven actions to get underway in the "very near future." Its first policy recommendation is that water supply and a healthy Delta ecosystem be treated as co-equal goals. "That's a pretty important step in thinking about the Delta," says the Public Policy Institute's Ellen Hanak, one of the authors of "Envisioning Futures for the Sacramento-San Joaquin Delta," published last spring. "It's still a broad brush approach at this point, but at least they've said, 'OK, here are the main two things we have to deal with.'"

Other key recommendations include managing the state's water supply more efficiently to

support a growing population and economy, and reducing diversions—or changing patterns and timing of diversions upstream, within the Delta, and exported from the Delta—in order to revitalize the ecosystem. Other strategies include building new conveyance and storage facilities and better linking the two, strengthening selected levees, and improving floodplain management and water circulation and quality.

The "near-term actions" recommend that the state begin acquiring title or easements to floodplains and establish flood bypasses, that the governor "immediately issue" an executive order to provide guidance on appropriate land development in the Delta, and that the state set appropriate standards for levees, use available bond funds to address strategic levee and floodplain improvements, and start acting now to prepare for sea level rise and other disasters. Another key recommendation is to establish an "independent body" to approve Delta-related spending, planning, and water export levels.

Skeptics could think they're experiencing a bit of déjà vu—we've had CALFED, X-2, peripheral canals, and endless other proposals and plan-



This graph shows the potential range of more water demand reduction and supply augmentation each year for eight resource management strategies. Low estimates are shown in the lower (dark) section of each bar. The water supply benefits of the resource management strategies are not additive. As presented here, urban water use efficiency includes reduction in both consumptive and nonconsumptive uses (or applied water), whereas agricultural water use efficiency only includes reduction in consumptive uses (or net water). (From DeltaVision)



BLUEGREEN BLUES

Not all the troublemakers in the Estuary are newcomers. Case in point: the toxic cyanobacterium *Microcystis aeruginosa* (cyanobacteria are a group of microorganisms formerly known as bluegreen algae.) Common in freshwater and brackish ecosystems, *Microcystis* has been historically present in the Delta. But only since 1999 has it produced seasonal blooms, with single bacteria grouping into colonies that can look like coats of green paint on the water's surface. The blooms, first observed in the south Delta and the lower San Joaquin River, can reduce dissolved oxygen concentrations and taint drinking water.

Of greater concern, some strains of *Microcystis* produce a toxin, microcystin, that is released into the water when cells die. Symptoms of microcystin toxicity in humans include nausea, vomiting, and cramps; long-term exposure can cause liver damage, including cancer. In 2003, a survey in the upper Estuary led by P. W. Lehman of the California Department of Water Resources found hepatotoxic microcystins at every station sampled. The toxin has the potential to enter the food web.

To identify patterns of seasonal variation in toxicity, Lehman and associates conducted further sampling in the summer and fall of 2004 and 2005. They also analyzed potential *Microcystis* consumers for traces of the toxin. In the first year, microcystin levels peaked in August and September when streamflow was low, water was warm, and total phytoplankton biomass was high.

In earlier laboratory tests the copepod *Eurytemora affinis*, a major food source for estuarine fish, did not feed on *Microcystis*. But the 2004-05 study found toxic microcystin throughout the Delta's food web: in zooplankton, amphipods, clams, worms, and juvenile fish. The highest levels were observed in August 2004 during the peak of the bloom.

Although there's been speculation that the *Microcystis* blooms might be associated with the recent Pelagic Organism Decline (POD), hard evidence appears to be lacking. Even so, the prevalence of toxic *microcystin* in the tissues of estuarine organisms sounds another alarm for the health of the Delta, including its recreational users.

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ning processes in an effort to stave off species extinctions and keep the state's lifeblood flowing. How is this one different?

The hopeful thing about Delta Vision, says The Bay Institute's Gary Bobker, is that the people who worked on the Task Force "didn't really have a dog in the fight. They're the 'gray heads' of the policy world, so I think they were able to strike a balance between the honest clear vision that is needed to create new policy on formerly intractable issues, but they also have the experience of accomplishing things in the real world. I know there are going to be some very, very big battles ahead, but these are people with a track record of getting things done, and I have great hope that they won't just turn out a report and walk away, that they'll do what the 9/11 Commission did—work closely with the people who will be implementing their recommendations, but also use the bully pulpit to make sure there is follow-up."

Jim Levine, the Bay Area Council's representative in the stakeholder group that advised the Task Force, says the Delta Vision process was different because "there was an almost unanimous belief that the current system was not workable, the recognition that if we just keep going the way we've been going for another five years, who knows what will be left, which fish, if any, in the Delta." This time the process was not agency dominated, says Levine. "It was stakeholder grassroots in some ways—people who have been working in this area for a long time getting together to find a way to improve the situation. CALFED came up with ideas, but never really tackled the hard questions. We have a different kind of governor now; just sitting and doing nothing is not an option."

Bobker says the main virtue of Delta Vision is its recognition that the Delta's problems cannot be solved just by building new infrastructure, but that root causes need to be addressed. "It recognizes that we can't solve all of the problems of Southern California or the Bay Area on the back of the Delta, so if you proceed with a comprehensive approach that looks at the whole panoply of resource management tools—like conservation and markets and new infrastructure—that can send you in a direction where decisions about new conveyance can be made, but it's the last piece of the puzzle rather than the first."

Westlands Water District's Tom Birmingham says he thinks the people who developed the vision "worked hard to identify all of the issues" and that there was definitely a recognition that the Delta in its current state is not sustainable and action needs to be taken to fix it. Yet he questions the Delta Vision's conclusion that reliance on water from the Delta may need to be reduced. "First, I don't have any idea what

that means," says Birmingham. "Reduced reliance compared to what? In addition, what do we hope to accomplish through reduced reliance on water from the Delta, and what is the basis for concluding that we need to reduce our reliance on water from the Delta? Neither the objective to be achieved nor the basis for that conclusion is stated anywhere in the vision. The reality is that the demand for water in this state is going to grow, and we need to employ every tool available to meet that demand, including continued reliance on the consumptive use of water tributary to the Delta." Westlands also takes exception to the idea of a new governing body for the Delta. "We don't know what this new super bureaucracy is going to look like. We don't know where this type of governmental mechanism has served competing interests well. There's a lot of ambiguity about this new authority."

Levine says what needs to happen now is for "lofty plans to become specific projects. I think the biggest problem is that there are a whole variety of studies and entities doing different parts of studies, but there doesn't seem to be a mechanism for all the interest groups to get involved in the studies, review them, or have third-party technical assistance to help review them. Without that and perhaps even before the studies are done, there's an impatience by everyone involved to propose solutions before the data are really out there. In the business community, we're used to making decisions with the facts and the technical and economic data and some peer review and third-party objectivity. If that is done with Delta Vision, we're hopeful the process the governor initiated will lead to something remarkable decided by the parties, not a judge, and that it will make it through the legislature and get built."

While enviros seem generally pleased with Delta Vision, they are hardly complacent. Says Bobker, "The big worry is that here we have the first real attempt at an enlightened policy for the Delta, and yet we could have the rug swept out from underneath us because of a bond that dictates spending money on solutions that have been chosen because of a particular constituency."

Says Phil Isenberg, who chaired the Task Force, "All the governor asked us to do is give our best recommendations. I don't have any idea whether Delta Vision will be adopted. Everybody wants to see their own preferred version of the vision, but everyone's uncomfortable with the status quo. No one wants to see any reduction of water supply for themselves, but a lot are in favor of reducing someone else's. We have said: People have to rely on the Delta less. The details will be worked out in the strategic plan, we hope." **LOV**

See: www.deltavision.ca.gov



SOE POSTER CLIP

PEAT SPEAKS

Unlike the peat bogs of Northern Europe, the peatlands of the Sacramento-San Joaquin Delta have not yielded archaeological treasures or the bodies of sacrificial victims. But California's peat has its own story to tell. Pollen grains preserved in peat are helping researchers reconstruct the Delta's prehistoric ecosystems and climate.

Judith Drexler and her US Geological Service colleagues have teamed with scientists at UC Davis in the Rates and Evolution of Peat Accretion through Time (REPEAT) project, examining the peat archive to help guide future restoration efforts. Cores were taken from four pairs of Delta islands, each composed of a farmed island and a less disturbed marsh island. They used radiocarbon analysis to date the oldest deposits, on the Webb Tract and Venice Island, to 7,000 years before present. Peat deposits on the farmed islands were older than those on the marsh islands. Both accretion rates and organic matter measurements showed high variability through that slice of time.

The pollen content of the cores indicates shifts between meadow and freshwater marsh habitats, with some episodes of forested wetlands. A peat core from the Webb Tract revealed two points at which Delta plant communities underwent dramatic change. Around 5,000 years ago, the proportion of pollen from open-land plant communities dropped sharply, and pollen from forest and wetland communities spiked. At the same time, pollen productivity fell to its lowest level in the core. A similar event occurred at about 4,200 years ago, although with a weaker signal. Both events were associated with drought conditions in the Pyramid Lake basin.

This valuable record of prehistoric changes is at risk: Delta agriculture has disturbed much of the peat column, not just the surface layers. On some islands, as little as 20% of the original peat deposit remains. The REPEAT researchers say losses, mainly through oxidation, will continue as long as present farming practices are maintained.

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HOW I SEE IT

ANOTHER LEVEE CYCLE

I've been following with some amusement and trepidation the recent controversy about vegetation on the U.S. Army Corps' Sacramento River Bank Protection Project ("Debunking Levee Lore," ESTUARY, October 2007).

I worked for Cal Fish & Game on this problem in the 1970s. I recognize the contributions of others to this issue, including Felix Smith ("Toxic Trespass," ESTUARY, October 2007) and A.L. Riley, then of the Department of Water Resources. Interestingly, at that time, conservation groups were mostly not involved. From time to time, I suggested that the Corps' maintenance manual be changed to formalize, and institutionalize, the somewhat permissive attitude about vegetation the State Reclamation Board was adopting. I knew at that time that without formal changes, we could lose this vegetation. So now what's happened? Back to the old manual rules, still in existence.

Something that's been missing in the current discussion is the Endangered Species Act. I believe the act was the trigger for the relaxed standards. The act will come into play again, and may be a driving force in the current discussion. Bank swallows need dirt banks, and salmon need irregular banks and snags in the water. Elderberry beetles need a riparian ecosystem. This ecosystem approach is what we biologists argued for to mostly deaf ears in the 1970s. Are we going to strip the levees again in the name of public safety?

What we needed then, and still need, is to restore the river's edge. Most of us know that the river was intentionally made narrow to scour out mining tailings from the Sierra. We advocated setback levees and "attached berms" to provide the space the vegetation needs along the river, but outside the levee cross-section. The engineers wouldn't care if we plant trees outside the levee section. But that costs a lot of money, and land. The money was always just enough for emergencies, and adjacent landowners were seldom interested in selling any more land. And even in the environmental days of Gov. Jerry Brown, with a mostly environmentally friendly Reclamation Board, the Board would not condemn "environmental easements" for mitigation purposes. Without those, and a lot of money, we could not protect the old land surfaces, the "berms" along the river, a vegetated surface outside the levee section that no engineer would be worried about. Setback levees, except on the un-leveed Chico Landing to Red Bluff section of the river, were so radical that we could barely propose them.

Contrast the Sacramento-San Joaquin Delta levees. I was the first full-time project manager for the Fish & Game side of the Delta Levees



Program in 1991. After the 1986 Delta levee breaks, the Federal Emergency Management Agency wouldn't give the private levee districts money to repair their levees.

FEMA said the levees had been substandard, and uninsurable. The State of California felt it was important to restore and improve the Delta's levees, and stepped in with the subventions and special projects funding programs authorized by SB 34, SB 1065, and AB 360.

This legislation was passed with provisions that levee work would not result in habitat degradation—and that mitigation is a project purpose and to be funded as part of levee rehabilitation. Fish & Game was given oversight on the disbursement of all funds, not merely a token review provision, which is all Fish & Game and U.S. Fish & Wildlife had on the Corps' Sacramento River bank projects between Chico Landing and Red Bluff. Under AB 360, the standard was actually made stronger, to provide net habitat improvements concurrent with levee improvements.

I thank all who negotiated these provisions. And because of these provisions, we have seen net habitat improvement in the Delta. The Delta Levees Program has been brought into CALFED, and is one of the successful programs within the bigger picture of Delta fish and wildlife improvement. We now have attached berms, setback levees, and many habitat improvements. Thanks go to Department of Water Resources engineers and biologists who have been thinking broadly, and have embraced, proposed, and built habitat improvement projects. We have been sensitive to the concerns of the engineers, and with their help and lots of money and authority, we have not had the problems the managers of the Sacramento River and other rivers have had maintaining riparian ecosystems.

I'm suggesting that a similar program be developed upstream in the Sacramento River and its tributaries. Funding for mitigation has to be concurrent with levee engineering, and money provided for ongoing maintenance of habitat associated with levees. Perhaps the levee districts could find a source of money for habitat maintenance, along with levee maintenance. Apparently mitigation is not included as a project purpose on the Sacramento River, as the Sacramento River Bank Protection Project was authorized before current environmental laws went into effect. When the project was authorized, some money was set aside for "environmental features," but it wasn't well spent. Aesthetics also was not on the table at that time.

I wish every success to my successors who have taken on these battles. But history repeats itself.

—Ed Littrell is retired from Cal Fish & Game.

Delta habitat sites can be seen at
<http://www.dfm.water.ca.gov/dsmo/levees/projects.html>

PLACES TO GO & THINGS TO DO



CONFERENCES & WORKSHOPS

MAR
THURS-FRI
13-14

ARUNDO/PHRAGMITES SYMPOSIUM

TOPIC: Current knowledge on the biology, ecology, impacts, and management of both species

LOCATION: Hyatt Regency Orange County, Anaheim, CA

SPONSOR: Western Society of Weed Science
<http://www.wsweedscience.org>

MAR
TUESDAY
25

DELTA NUTRIENT WATER QUALITY PROBLEMS

TOPIC: Nutrient loading & water quality impact modeling

LOCATION: Sacramento

SPONSOR: California Water & Environmental Modeling Forum
<http://cwemf.org/>

To register:
technicalworkshop@cwemf.org

APRIL
FRIDAY
18

BAY PLANNING COALITION 25th ANNIVERSARY

TOPIC: S.F. Bay Decisionmakers Conference

LOCATION: Oakland Marriott
SPONSOR: Bay Planning Coalition
ellen@bayplanningcoalition.org

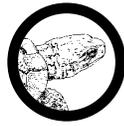
MAY
TUES-THURS
13-15

RESTORING GREENSPACE

TOPIC: Ecological Reuse of Contaminated Properties in EPA Region 9

LOCATION: Concord Hilton
SPONSOR: The Wildlife Habitat Council
www.wildlifehc.org/events/

EDITOR'S NOTE: In our December Conference Wrapup story, Oakland City Councilmember Jean Quan was mistakenly referred to as Jean Fong. Ariel Rubissow-Okamoto was inadvertently omitted as a contributing writer on the back page.



HANDS ON

FEB
EVENINGS
THROUGH
FEBRUARY

HELP NEWTS CROSS THE ROAD

TOPIC: Help volunteers carry California newts across Hillside Drive.

LOCATION: El Sobrante
SPONSOR: SPAWNERS, The Watershed Project

(510) 665-3538

MAR
SATURDAY
8

STEWARDSHIP WORK DAY

TOPIC: Help plant, mulch, and weed demonstration native plant gardens.

LOCATION: El Sobrante
SPONSOR: The Watershed Project
(510) 665-3538

JOBS!

SENIOR WATER RESOURCES EXPERT

The Natural Heritage Institute seeks to hire a full-time senior water resources specialist to assume major responsibilities for existing projects and help build new projects. The initial projects involve physical ecosystem restoration projects in California, developing management plans for California watersheds, and may include substantial responsibility for development and propagation of a toolkit of water management innovations in the transboundary and global context. This position could be in either NHI's headquarters office in San Francisco or in a reopened office in Sacramento. Serious candidates should respond with a letter of interest and qualifications, C.V., and a representative writing sample to:

Ms. Jessica Peyla Nagtalon
Natural Heritage Institute
jobs@n-h-i.org

Please indicate "Applicant" in the subject line. We would prefer to hear from you initially in writing rather than by phone.

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NOW PRINT & ON LINE

Bottled Water and Energy: Getting to 17 Million Barrels. December 2007. Pacific Institute.
<http://www.pacinst.org/>

Breeding Bird Atlas of Santa Clara County, California. December 2007. Santa Clara Valley Audubon Society. <http://www.scvas.org>

FLOODSONG CONTINUED

between spring flooding and grosbeak nest survival along the Sacramento River.

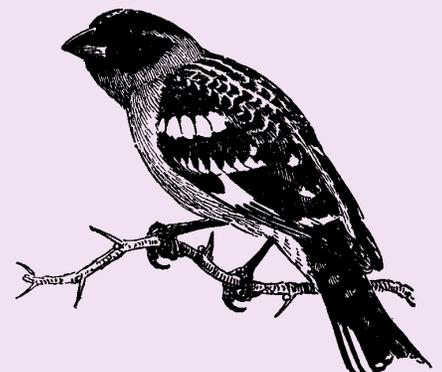
Small found nest predation to be the most important factor in nest failure, far outweighing weather or human disturbance. Although the specific culprits were not identified, spotted towhees in riparian habitats lose eggs and nestlings to western scrub jays, red-shouldered hawks, brown-headed cowbirds, raccoons, brown and black rats, and western yellow-bellied racers.

She looked at several variables that could explain predation rates, including proximity to farmland that might host cowbirds and rats.

"Flood timing was the only variable that showed any effect on nest survival and predation," she reported. "Floods close to the breeding season may depress nest predator populations, particularly rodents, resulting in higher nest survival for this canopy-nesting species." Even arboreal black rats may be driven to upland sites by flooding, giving nesting grosbeaks a break.

Small found similar nest survival rates and flood effects in both mature and restored riparian habitats. She cautions that her findings are specific to one bird species and one river, and shouldn't be extrapolated too far.

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ESTUARY

FEBRUARY 2008 VOLUME 17, NO. 1

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www.estuarynewsletter.com

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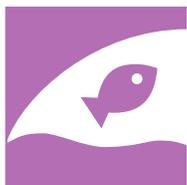
ESTUARY is your news source on Bay-Delta water issues, estuarine restoration efforts, and the many programs, actions, voices, and viewpoints that contribute to implementation of the S.F. Estuary Project's Comprehensive Conservation and Management Plan (CCMP). Views expressed may not always reflect those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