

MAKING CONNECTIONS

In late February, I attended a meeting of directors and staff from all of the 28 National Estuary Programs, hosted by the Environmental Protection Agency in Washington D.C. The Programs discussed the many issues and opportunities we have in common, despite the differences in the size of our estuaries. We are all dealing with budget issues, work plans, and challenges like habitat protection and enhancement and climate change. Two of the main topics were climate change and how to make our local estuaries “climate ready” by anticipating local and regional impacts of sea level rise; and ways to better include smart growth policies and actions into our CCMPs and local actions.

I took the opportunity of being in D.C. to meet with many of our federal representatives and staffs to thank them for their continuing support of the National Estuary Program, and to tell them about our priorities for the upcoming year.

And earlier this year, I met with ESTUARY’s editorial board and brainstormed with them about how to better highlight the connections between the CCMP—the Comprehensive Conservation and Management Plan for the Estuary that drives all of our work—and ESTUARY. As I read over past issues, I realized that all of the stories reflected one or more CCMP Program Areas and could be used, in some cases, to gauge how well we are doing in achieving our goals. In this issue, for example, ESTUARY reports on challenges facing the South Bay salt pond restoration project—restoring tidal wetlands has been a key CCMP goal since the program began in 1987.

“Coho Consciousness” describes the efforts of one of our partners to raise awareness of and protect riparian areas, a CCMP goal that was given new emphasis in the 2007 update.

Other CCMP goals and actions are reflected in “Dainty Monster” (page 4), which describes efforts to control an invasive species, while “Return of the Ibis” (page 5) shows how sustainable agriculture can help improve water and air quality to create and restore habitat for species of concern. Finally, on page 6, ESTUARY highlights some of the direct accomplishments of the Estuary Project during 2007, and lists the small grants we awarded in 2006-2007 to some of our many partners around the Estuary.

—Judy Kelly, SFEP Director

INSIDE

- ZERO TOLERANCE 2
- SALT POND STRUGGLES 3
- BALANCE TO BOLD 4
- FISH IN A FLUME 5



MOTH MESS

When the California Department of Food and Agriculture announced last year that several communities in coastal northern and central California had reported infestations of the light brown apple moth, it announced its intentions to eradicate the invasive pest. That eradication plan included the aerial spraying of a pheromone that would disrupt the mating habits of the moth.

Several state departments and university researchers examined the effectiveness of this plan as well as its potential environmental impacts. Groups like the Natural Resources Defense Council weighed in and stated their support on the grounds that using a pheromone—which is not toxic to living things—is part of a good integrated pest management plan. The NRDC also expressed concern that if the moth were to spread to other parts of the state, the use of other pesticides could increase, which the group does not endorse.

The plan even had the endorsement of the California Certified Organic Farmers last fall.

But then, as spraying took place last November and the plans for the aerial spraying became more widely known, things changed.

First, the November spraying. While most eyes and ears were focused on San Francisco Bay and the Cosco Busan oil spill, a smaller “mystery spill” emerged on Monterey Bay a few days later. Spraying over Monterey and Santa Cruz took place on November 8th and 9th. On the 10th, it rained. And then what several observers described as a “puke-colored foam” appeared on the bay. This foamy substance appeared at the same time that the bay was experiencing red tide—and a very unusual one at that, says Mark Russell of the International Bird Recovery and Rescue Center, whose organization was called in when hundreds of sea birds washed up on to the shores with an oily substance in their feathers. More than 200 birds died—from drowning.

“It wasn’t anything like we’d seen before in an actual red tide event...a fatty biological oil

that you don’t see from algal blooms ...this was a shock to us,” Russell recalls. “The birds didn’t show the symptoms we see with red tides—no internal neurological damage,” explains Russell.

Instead, the feathers on the dead birds had lost the ability to create the water barrier that allows them to float. Meanwhile, between 300 and 400 other birds that had been stranded alive were coated in the fatty substance but were healthy otherwise. These birds were cleaned and released, says Russell.

A March report by the California Department of Fish and Game found that the substance on the birds was not the pheromone spray Checkmate. Cal Fish & Game and its Water Pollution Control Laboratory ran tests on water samples from the vicinity of the bird strandings as well as tests on the feathers. The report concluded:

“It was not possible to determine with certainty the cause of the bird strandings in the Monterey Bay area in November 2007. However, analytical results indicate that the cause was not the application of the Checkmate-F for light brown apple moth control, nor hydrocarbons, nor a cyanobacteria. Analytical results are consistent with an algal bloom as being a potential cause of the incidents.”

Also in March, Daniel Harder of U.C. Santa Cruz, working with an area farmer, published a report based on his research on the integrated pest management strategies used in New Zealand, where the moth has existed for decades. The Harder paper called the moth a “relatively minor pest” in New Zealand that “does not do economically significant crop damage or detrimentally affect flora.”



Courtesy NSW Agriculture

continued page 8

NEWSPECIES

FISH FOOD

New species tend to come from remote places: the mountains of New Guinea, the depths of the sea. The Yolo Bypass seems an unlikely home for an undescribed life form. But that's where California Department of Water Resources' Gina Benigno found *Hydrobaenus saetheri*, a previously unclassified species of chironomid midge. Although drivers on Interstate 80 had complained about the winter swarms of these tiny flies for years, no scientist had ever identified the insects to species.

When DWR's Ted Sommer examined the stomach contents of juvenile salmon in the Yolo Bypass, he found mostly midges. Sommer worked with Benigno to locate their source, which involved sampling ponds, rice fields, agricultural ditches, tributary waters, and floodplain mud. Recalls Benigno, "We took dried sediment, put it in big plastic bins, and filled them with water to see what came out." The Bypass flooded shortly afterward, and Benigno also sampled the floodwater.

In her floodplain sediment samples, she found a plenitude of midge larvae: "They emerge as soon as they're inundated." Second-stage larvae were observed four days after water was added to the bins. In another week to 10 days they were ready for their brief pupal stage. More larvae emerged from sediment collected near channels than from samples near floodplain ponds.

Benigno took the larvae to Peter Cranston at U.C. Davis for identification: "He knew within five minutes that this was not a previously described species." Like *H. saetheri*, other *Hydrobaenus* species are floodplain specialists with life cycles involving summer dormancy and winter swarming. Early-stage larvae appear to wait out the dry months in desiccation-resistant cocoons. With the first flood, larvae develop rapidly and emerge as adults, joining the mating swarms.

The new species proved to be rare in pond water samples, but made up 99% of the midges collected in floodplain drift.

Benigno and Sommer concluded: "The immediate presence, rapid growth, and high abundance observed after floodplain inundation indicate that these larvae are a readily available food source for fish and wildlife utilizing floodwater habitat." Their presence may be one reason why young salmon grow better in the Yolo Bypass than in the mainstem Sacramento.

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HOW I SEE IT

ZERO TOLERANCE

Federal prosecutors recently charged Captain John Cota with harming migratory birds and violating the Clean Water Act. Cota is the San Francisco Bay harbor pilot who was at the helm of the Cosco Busan when it collided with the Bay Bridge, spilling 58,000 gallons of bunker oil into the Bay. Coast Guard Captain William Uberti, commander in charge of the initial spill response, was replaced and later retired in the midst of criticism about his performance.

Captains Cota and Uberti may indeed be culpable for actions that led to the unnecessary deaths of hundreds of seabirds, as well as for yet unquantified damage to the San Francisco estuary ecosystem. I am troubled, however, that in the rush to point fingers at these line-level actors in the Cosco Busan tragedy there has been little attention focused on government's failure to prepare for this very foreseeable incident.

We've been here before. Chemical spills occur with regularity in and around San Francisco Bay. Recent significant spills occurred in 1971, 1986, 1988, and 1996. Collisions occur with even greater frequency. Spills have not resulted from all collisions only because of the lucky coincidence that cargo holds were empty.

After Shell Oil Company spilled 400,000 gallons of oil into Shell Marsh and Suisun Bay near Martinez in 1988, the State Lands Commission conducted an investigation that concluded that cleanup technology was largely ineffectual. It was unlikely, the agency declared, that much more than 20% of spilled oil could be recovered. Using [then] current technologies, higher levels of recovery could only be hoped for under ideal weather and water conditions. Significant chop from winds renders cleanup technologies almost totally ineffective.

Those 1988 technologies were the same tools that were used to respond to the Cosco Busan spill. Speaking at a press conference after the spill, Congressman George Miller observed that the cleanup strategy appeared to be to "...throw diapers on the Bay." He recognized that the cleanup technology used was antiquated. Relying on it is like organizing a bucket brigade to extinguish a blazing TransAmerica Pyramid—it is as inexcusable as it is futile.

Recovery levels from the Cosco Busan spill rose to an exceptionally successful 30% level primarily because "ideal" conditions existed. Flat seas and light winds prevailed. Although earlier notification and participation by an expanded



U.S. Coast Guard

volunteer force may have increased recovery somewhat in this instance, it would have little impact on recovery efforts associated with spills in moderate to heavy seas; that is, those conditions most common on San Francisco Bay.

As things now stand, industries that use San Francisco Bay for commercial purposes have little incentive to reduce the incidence of spills or to improve recovery effectiveness. Penalties for spills are relatively low, settlements are reached with individual shippers and paid for by insurance policies, and if a particular shipper is unable to survive, others are there to capture the business.

The logical course of action for government to have taken in 1988 should have been to require shipping companies, oil refineries, and other industries posing the risk of spills to establish a research and development program that would result in vastly improved spill prevention and remediation. Government should have established a numerical standard for prevention and remediation, and then set a schedule by which industry would be required to meet it. For instance, a standard of 80% recovery of spilled oil could have been set, with prorated financial penalties for failure to reach the goal. Financial penalties should have been set high enough to provide the industry with meaningful incentive to invest in prevention.

Twenty years later, no such regulatory requirements exist.

In 2006 the state of California adopted just such standards to reduce the introduction of invasive species contained in ship ballast water. The Legislature adopted the strongest numeric standards in the world for levels of invasive organisms in ballast water discharged into state waters: zero detectable viable organisms. It enacted this stringent legislation because it recognized the enormous damage that invasive species can inflict upon both California's aquatic ecosystem and its economy. It placed the responsibility squarely on the shipping industry to develop suitable technologies, and established a schedule for compliance.

Exactly the same approach should be taken regarding chemical spills. The state should set numerical standards for spills—I suggest "Zero Tolerance"—and cleanup (100% recovery and

RESTORATION

SALT POND STRUGGLES

At last October's State of the Estuary Conference, Clyde Morris, Manager of the Don Edwards San Francisco Bay National Wildlife Refuge, reflected on salt pond restoration as a learning process: "Dissolved oxygen? You don't always know what you don't know. That's turned out to be the biggest challenge for us to manage."

He was talking about the need to balance water quality in the Bay and the ecological health of the South Bay salt ponds, where the buildup and decay of algae has sometimes lowered dissolved oxygen content to dangerous levels.

ESTUARY reported last year on an incident in 2005 when oxygen-stressed fish in the refuge's Pond A16 attracted scavenging California gulls. On September 4 last year a similar scenario played out in Ponds A1, A5, and A7. The weather had been warm and windless for several days, with high winds that morning. A U.S. Fish and Wildlife Service maintenance crew and a USGS biologist monitoring water birds noticed dead fish floating in the ponds, a milky coloration to the water, and a foul smell. Fish & Wildlife tallied 5 dead striped bass in A1, and 15 more dead bass, 20 bat-rays, 25 to 30 leopard sharks, and several thousand topsmelt in A5 and A7. Dissolved oxygen levels were near zero in portions of the three ponds, depleted by dying algae. A2W and A3W had milky water, but no fish kills.

On that same day, at Pond A18 on the east side of the complex, 3,000 gulls were observed feeding on oxygen-stressed topsmelt.

The pond, owned and managed by the city of San Jose, is across Artesian Slough from the previous problem Pond A16, where nothing unusual occurred. Decaying algae were also implicated at A18.

Remedial measures are still under discussion between Fish & Wildlife and the Regional Water Quality Control Board. "We want Fish & Wildlife to look in detail at the internal configuration of the ponds," says the Water Board's Robert Schlipf. Fish & Wildlife's Eric Mruz says the agency may increase its monitoring for sediment oxygen demand, biochemical oxygen demand, and chlorophyll levels. Operational changes may be in the works as well. Fish & Wildlife has been trying to protect receiving waters from low-oxygen output from the discharge ponds. But a USGS study last year found that pond discharge actually increased oxygen levels in receiving waters. Based on that, says Mruz, Fish & Wildlife is "considering

a proposal to run the ponds as continuous flow rather than muted tidal, to reduce residence time in the back portion of the ponds and reduce fish kills."

Part of the problem may involve the borrow ditches within the ponds, where stagnant water allows algal buildup. "Fish & Wildlife does talk about filling in the borrow ditches," says Schlipf. "It's a much bigger step than just tweaking operations." Mruz says that would be an expensive step, but may be addressed in Phase 1 of the restoration project beginning this year.

As civil engineer and Water Board member Steve Moore, who helped design the salt pond discharge permit, sees it, "the more costly adaptive management tools in the tool box are coming to light now." At some point, Moore believes, the managers of the restoration project will need to tackle issues of pond geometry, shape, and circulation. "The more you can use the tide to do the work for you," he says, "the more sustainable the plan."

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GRASSROOTS

COHO CONSCIOUSNESS

Tucked into Marin County's Lagunitas Creek watershed, the relatively tiny 9 square-mile headwaters in the San Geronimo Valley is home to possibly 5-10% of the state's wild coho salmon, and SPAWN—the Salmon Protection and Watershed Network—wants to make sure "no coho is left behind," says SPAWN's Paola Bouley. SPAWN has a "toolkit" of efforts that it uses to raise "coho consciousness." With a Prop 50 grant written by the Estuary Project, SPAWN is conducting outreach to private property owners to encourage them to reduce sediment inputs into the stream. "The State Board hasn't yet put together a TMDL for sediment, but the watershed is listed as impaired for sediment," says Bouley. With the grant, SPAWN will use soil bioengineering-revegetation techniques to repair eroding stream banks; they will also work with the county to repair non-county maintained, unpaved roads. "We want to do model demo projects to show people that you don't just have to dump rock down the banks," says Bouley.

Other tools in SPAWN's kit include eye-catching billboards, grassroots advocacy, educational efforts like taking people on fieldtrips to see salmon in the creek, working with schools to do demonstration rainwater gardens, and, recently, publishing an open letter to the Marin County Board of Supervisors signed by over 100 scientists asking the county to increase protections for salmon. SPAWN also does spawning and outmigration surveys of coho and steelhead in the stream. "We're trying to understand the dynamics of the population in San Geronimo Valley," explains Bouley. "The agencies historically tended to ignore the tributaries we monitor. In a good year, we put 25% of the population on the map by monitoring." If and when necessary the group will file a lawsuit, as it did earlier this decade to try to get the county to enforce its stream conservation area prohibiting a new development within 20 feet of the stream. Bouley stresses that litigation is a last resort. But all of the tools in its kit seem desperately needed at the moment; 2007's spawning season was the worst recorded in 12 years, and SPAWN fears that an increase in severe storms and/or drought from climate change could harm existing habitat.

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INVASIVE SPECIES

DAINTY MONSTER

One nursery's web site calls it a "sweet, dainty" plant, ideal for containers or rock gardens. But in California salt marshes it becomes a monster. "It grows like a ground cover," says Mark Page of UC Santa Barbara, "getting very dense and growing over low-lying native species." Meet a new invasive exotic: Algerian sea lavender, *Limonium ramosissimum*.

L. ramosissimum, from the western Mediterranean, differs from native *L. californicum* in its smaller leaves and colonial growth habit. It has been in southern California for at least 15 years; first detected in the Carpinteria Salt Marsh near Santa Barbara, it's also established in San Diego County. It was recently discovered in Strawberry Cove Marsh in Marin County during an invasive species class field trip led by Katharyn Boyer of San Francisco State University's Romberg Tiburon Center. Other local beachheads are in San Mateo County: Burlingame, San Mateo, Foster City. Plants from San Mateo were mistakenly transplanted to San Francisco's Pier 94 in a restoration project, but have been removed.

SFSU graduate student Gavin Archbald is mapping occurrences and looking for factors that control its distribution. "The more we've looked for it, the more we've found," he says. Algerian sea lavender covers 30% of Sanchez Marsh in Burlingame. Archbald is finding it in varied habitats, including beaches and dunes, but mainly in middle marsh elevations, from the lower edge of the pickleweed zone up to where gumplant grows.

L. ramosissimum has the traits of a successful invader: it does well in disturbed areas and has a prolific supply of lightweight seeds that can be dispersed by wind and water. "There's not a good method in place for removing it," says Page. Flaming and herbicides have been used on the Santa Barbara and San Diego infestations, with limited success: "You can kill off plants at the surface but next year you get resprouting from the seed bank."

Invasives-watchers hope the San Francisco Bay outbreak has been caught in time. "We need to get the ball rolling on dealing with this invasion," Archbald says. "We have a chance to get it under control before it spreads to the South Bay Salt Pond Restoration area."

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PLANNING

FROM BALANCE TO BOLD

Ellen Johnck wants people to know what the Bay Planning Coalition is all about—in particular, the new, greener Bay Planning Coalition. The Coalition celebrates its twenty-fifth anniversary this month. "We're moving from balance to bold," says Johnck, its Executive Director. "It's a very environmentally minded business group. I don't think that story's told often enough." The "balance" Johnck speaks of is keeping thriving ports in business and the regional economy strong while operating under strict environmental regulations. "There is development that is needed, and there is quite a demand to expand port and terminal capacity for cargo—from containers to bulk aggregate products and fuel to serve the local population," says Johnck. But under her direction, the Coalition has "tweaked and changed and launched a new mission that includes doing as much as economically feasible to advance environmental projects. We want to build a strong environmental component into all shoreline improvement projects up front."

One of its more ambitious efforts is to reduce particulate emissions at the ports. "This is where I say businesses need to be bolder. We need environmental solutions that make business sense." To begin tackling particulates, the Coalition has just signed a memorandum of agreement with the Bay Area Air Quality Management District to compile a "Bay Area Seaports Air Emissions Inventory." "We are pledging to meet reduction goals and developing an action plan supporting new engines, alternative fuels, and other solutions," says Johnck. The new, "bolder" Coalition also advocates in Congress for money for environmental studies: one is a salmon-tagging project to find out how and in which areas salmon use the Bay. Johnck says her agency also advocates for funds for enhancing Bay navigation safety, such as the PORTS real time navigation system, which will advance NOAA's and the Coast Guard's ability to provide essential information during a crisis event, such as an oil spill.

The Coalition has 150 dues-paying members, including the five ports, labor unions, and local governments—the cities that touch the Bay—with 25 organizations that offer in-kind help and support events. The common denominator, says Johnck, is that each member owns land along the Bay shoreline and is bringing products in



and out of the Bay. The organization got its start 25 years ago when Johnck was asked to help the local maritime industry put together a coalition to promote its interests as related to the Bay. She was surprised to pick up a local newspaper only to read that she had been hired to pave the Bay. "One friend in the Sierra Club told me I had sold out," she recalls. Johnck, who had been working for the Coastal Commission, had just completed a master

plan for San Francisco, Marin, and Sonoma counties, and held a press conference citing its accomplishments. "The very next day I got a call from the executive director of the Port of Oakland, who asked me to come to a meeting to figure out what businesses around the Bay could do to establish more harmonious relationships with state and federal agencies." At that meeting, says Johnck, the port directors and representatives from Cargill Salt, refineries, and other businesses told her that while they thought they had been doing a "pretty good job at keeping the Bay intact," they felt stymied at every turn by the regulatory agencies. Johnck's goal was to form an agency that could sit at the table with regulators and envoys and try to come to consensus decisions about contentious issues, including that of dredging.

To that end, the Coalition's biggest accomplishment, says Johnck, is helping develop the Long Term Management Strategy for Dredged Material Disposal (LTMS), which has reduced the volume of dredged materials disposed of in the Bay—a goal of the CCMP—by four and a half million cubic yards, and reused the mud in restoration projects like Hamilton wetlands, the Oakland Middle Harbor Enhancement Project, Sonoma Baylands, Montezuma wetlands restoration, and a demonstration beach nourishment project at Ocean Beach.

"We have to keep the channels at a safe and reliable depth to support all kinds of harbor crafts, tankers, etc. But Bay planning isn't just about making sure the ships come in; we've also got to move the mud. The mud goes to the wetlands; the wetlands help endangered species. We help get the trails on the levees, so people can have recreation. So we're connected every step of the way." **LOV**

The Bay Planning Coalition celebrates its 25th anniversary on Friday, April 18, at the S.F. Bay Annual Decisionmakers Conference, "Champions of Yes: 1983-2008 and Beyond." at the Marriott Oakland. www.BayPlanningCoalition.org.

SCIENCE

FISH IN A FLUME

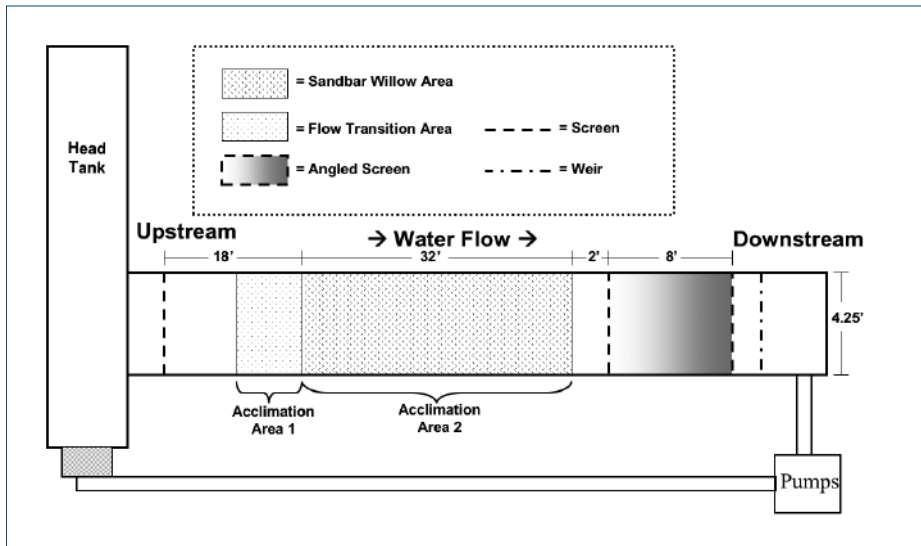
After the recent uproar over proposed Army Corps regs that could have mandated clear cutting California's levees (see Debunking Levee Lore, ESTUARY October 2007), a group of U.C. Davis researchers studied the performance of sandbar willows in a flume. They found that instead of impeding flows (as many flood control engineers contend), willows bend with the flow, slowing velocity at the bottom of the flume and increasing it at the top. They also found that the willows decreased erosion on the bottom.

On the heels of that work, the Department of Water Resources' Stefan Lorenzato wanted to

The result? Says Cech, "They much prefer to be down amongst the stems; it may be that they can hold their station there, stay at approximately the same place within the flume without using much energy. That may give them more energy for growth or moving or, later on in life, reproduction." And the willows may help in other ways. Says Cech, in floodplain simulations in the flume with just a dirt bottom without plants, much more sediment was transported downstream, eroding the floodplain in the process.

The study could have implications for resource managers trying to stop the decline of fish in the Delta. "Anything we can do to help stem that tide of downward spiral, including possibly revegetating the floodplains, would be

OVERHEAD VIEW OF FLUME



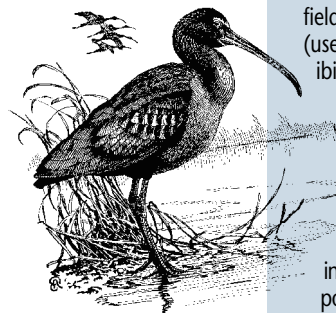
Joseph Cech

see how young fish reacted with the willows in the flume. "Ted Sommer's team has done work showing that other anadromous fish grow bigger in the floodplain; why is that? It's probably not just food availability but a combination of things, including hydraulic impacts in floodways that are important," says Lorenzato. Working with U.C. Davis' M.L. Kavvas, Joseph Cech, and Dennis Cocherell, and River Partners, Lorenzato studied the energetics of juvenile Chinook salmon added to the flume with the willows, calibrating their tail beats with water velocity and oxygen consumption.

Says Lorenzato, "We wanted to find out if we provide fish with a range of habitats or flow regimes, do they have ability to pick and choose where they go? Or do we define their fate by how much water we throw through the system?"

a good thing," says Lorenzato. "If we take all the vegetation out, we really have to worry about impacts on listed species. Ultimately if we can get to the point where we develop a management structure that allows for vegetation, it gives a lot more flexibility and ecological benefit. If we can't get there, we're going to have more problems to deal with."

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BIRDWATCH

RETURN OF THE IBIS

It's an unheralded wildlife success story. In 1978, when it was designated a California species of special concern, the white-faced ibis (*Plegadis chihi*) was largely extirpated from California's wetlands. Today, according to U.S. Fish & Wildlife Service sources, there are 50,000 to 100,000 in the Central Valley alone. Other populations inhabit the Imperial Valley and Salton Sea areas.

A curve-billed wading bird whose maroon plumage has a metallic bronze-green gloss, the ibis lost nesting habitat when permanent wetlands were drained for agriculture. In the 1940s, Joseph Grinnell and Alden Miller noted "a rapid depletion of numbers." The birds were also vulnerable to eggshell thinning resulting from DDE contamination, and may have been affected by selenium residues. Into the mid-1980s, numbers declined throughout the species' Great Basin range.

White-faced ibises are opportunistic nesters. Whole colonies will relocate if their breeding grounds are flooded or dry out. Severe flooding at colony sites in Utah from 1984-87, followed by a drought cycle through 1992, prompted the nomadic birds to wander westward. Some returned to California, colonizing the Colusa National Wildlife Refuge and the Mendota Wildlife Management Area.

The Klamath Basin, where nest success has been high, may serve as a reservoir for these valley populations. Preferred nesting habitat includes emergent shallow water vegetation. Nests are constructed from interwoven plant stalks and sometimes decorated with empty shotgun shells.

Winter abundance has also increased, particularly in the San Joaquin Valley's Grasslands Ecological Area. The Sacramento Valley also hosts substantial numbers in winter. Ibises are attracted to irrigated agricultural land, where they forage for earthworms and insect grubs. A 1996 study found that private lands provide the majority of winter habitat. The winter flooding of Sacramento Valley rice fields as an air pollution-control measure (used instead of burning) also benefited the ibis, as it did migratory ducks and geese.

Nomadic wetlands birds, like the white-faced ibis and tricolored blackbird, present special conservation challenges. A report by the USGS and Fish & Wildlife biologists concluded that these birds need "a mosaic of wetlands, at a scale that ensures independence of water fluctuations" to support stable populations. JE

HANDSON

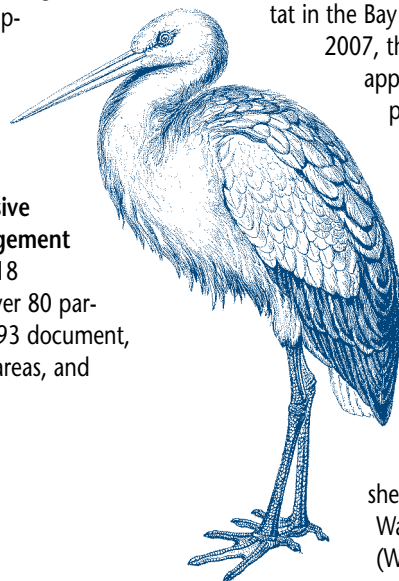
SMALL GRANTS AWARDS

SFEP selected (through a competitive process), funded, and managed small grants to projects throughout the Bay. Total funding—\$90,000—went to:

- Alameda Creek Alliance and partners for public outreach and invasives control
- Audubon California to develop an eelgrass research lab
- The Bay Institute for mapping work at Sonoma Baylands
- CalFlora for expanding a watersheds database
- Golden Gate Audubon for Environmental Ed. at Martin Luther King, Jr. Marsh
- Hayward Area Recreation and Park District for Estuary education on the Hayward shoreline
- Kids for the Bay and partners for environmental education
- Mill Valley StreamKeepers for investigating sources of bacteria in Corte Madera Creek
- Mission Creek Conservancy for habitat enhancement
- Natural Heritage Institute for youth docent training on the North Richmond shoreline
- PRBO Conservation Science for developing a pocket guide to birds of the Bay
- S.F. Bay Observatory for volunteer monitoring of shorebirds in the South Bay
- Urban Creeks Council for a fisheries survey on Alhambra Creek

SFEP IMPLEMENTS THE CCMP: Highlights from 2007

- **Sponsored 8th biennial State of the Estuary conference.** 800+ attendees discussed the latest science about the health of the Bay-Delta and its wildlife, continuing challenges, and restoration.
- **Drafted California Aquatic Invasive Species Management Plan.** Staff completed a state-wide framework for responding to aquatic invasive species in California and for protecting native plants and animals.
- **Trained:**
 - o 250 contractors, local government inspectors, and builders on ways to reduce runoff from construction sites.
 - o 110 agency staff on best management practices for road maintenance to prevent fine sediment from reaching creeks, in order to preserve salmon habitat.
 - o Local government managers, staff, and elected officials on “Best Practices” related to housing, transit-oriented development, green infill, and community engagement (planning issues).
- **Revised the Comprehensive Conservation and Management Plan.** The culmination of 18 months of work, where over 80 participants redefined the 1993 document, updating seven program areas, and adding 66 new actions.
- **Assisted in drafting a Stream and Wetland System Protection Policy** working with the State Water Board. Public outreach is underway.
- **Managed the Urban Pesticide Pollution Prevention Project** that fosters effective education and outreach and provides technical assistance with the goal of preventing pesticide pollution to San Francisco Bay Area urban creeks.
- **Completed the Aquatic Invasive Species Early Detection Program** to assist watershed volunteer groups and others working in and around creeks to identify new invasions of aquatic species.
- **Continued boater education.** Distributed thousands of San Francisco Bay and San Joaquin and Sacramento River Delta Sewage Pumpout Maps and Guides to recreational boaters.
- **Supported the development of “total maximum daily loads” (TMDLs),** key regulatory tools designed to resolve pollution problems and restore and protect habitat in the Bay Area’s watersheds. In 2007, the State Water Board approved TMDLs for pathogens in the Napa River, Sonoma Creek and Tomales Bay watersheds and mercury in San Francisco Bay. The Regional Water Board adopted two more TMDLs that will be considered by the State Board in 2008: sediment in the Napa River watershed and mercury in the Walker Creek watershed (Western Marin County).



PLACES TO GO & THINGS TO DO



CONFERENCES & WORKSHOPS

APRIL
FRIDAY
11

MT. TAMALPAIS WATERSHED SYMPOSIUM

TOPIC: Preservation, Extinction, and Change on a Local Scale
LOCATION: Mill Valley Community Center
SPONSOR: Marin Municipal Water District and Friends of the Watershed
klein@marinwater.org

APRIL
14-

AERIAL PHOTOGRAPHY EXHIBIT

TOPIC: Aerial Aesthetics I Herb Lingl
LOCATION: Louis A Turpin Aviation Museum, San Francisco International Airport, International Terminal, Level 3
SPONSOR: San Francisco Airport Museums
herb@aerialarchives.com

APRIL
WEDS-FRI
16-18

CENTRAL VALLEY WATER TOUR

TOPIC: San Joaquin Valley water issues
LOCATION: Doubletree Hotel, Bakersfield
SPONSOR: Water Education Foundation
www.watereducation.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
FRI-SUN
2-4

CALIFORNIA GEOGRAPHICAL SOCIETY CONFERENCE

TOPIC: 62nd annual conference: speakers, workshops, tours
LOCATION: California State University, Chico
SPONSOR: California Geographical Society
www.csun.edu/~calgeosoc/meetings/chico/chico.html

MAY
TUESDAY
13

DMMO ANNUAL MEETING AND LTMS SCIENCE SYMPOSIUM

TOPIC: Review of the 2007 dredging season
LOCATION: Port of Oakland
SPONSORS: Long Term Management Strategy (LTMS) for the Placement of Dredged Material in the San Francisco Bay Region and Dredged Material Management Office (DMMO) agencies and stakeholders.
www.spn.usace.army.mil/ltms/
www.spn.usace.army.mil/conops/dmmo.htm

MAY
FRI-SAT
23-24

URBAN STREAM ECOLOGY

TOPIC: Second symposium on urbanization and stream ecology
LOCATION: Salt Lake Plaza Hotel, Salt Lake City, UT
SPONSOR: www.rivercenter.uga.edu/research/urban



HANDS ON

APRIL
SATURDAY
19

WCCC EARTH DAY CREEKS CHALLENGE

TOPIC: Help clean up west Contra Costa County creeks
LOCATION: Wildcat, San Pablo, Baxter, and Rheem creeks
SPONSOR: The Watershed Project (510)665-3508;
doria@thewatershedproject.org

CRISSY FIELD CENTER EARTH STROLL

TOPIC: Earth Day activities
LOCATION: Crissy Field Center, SF
SPONSOR: www.crisseyfield.org

EARTH DAY ON THE BAY

TOPIC: Earth Day activities, Bay trips on research vessel, education programs, entertainment
LOCATION: Redwood City
SPONSOR: Marine Science Institute
aaron@sfbaymsi.org

OAKLAND EARTH DAY

TOPIC: Earth Day activities
LOCATION: Sites throughout Oakland
www.oaklandearthday.com

EARTH DAY

NOW IN PRINT & ONLINE

Boat Green: 50 Steps Boaters Can Take to Save Our Waters. Clyde W. Ford. New Society Publishers, 2008. www.newsociety.com/bookid/3968

Free publications from Water Resources Center Archive, UC Berkeley:
www.lib.berkeley.edu/WRCA/freepubs.html

Hidden Oasis: Water Conservation and Efficiency in Las Vegas. November 2007. Pacific Institute.
www.pacinst.org/reports/las_vegas

Pelagic Organism Decline Progress Report: 2007 Synthesis of Results. January 2008. Interagency Ecological Program POD work team.
www.waterrights.ca.gov/baydelta/docs/pelagicorganism/pod_ieppodmt_2007synthesis_011508.pdf

Reusing the Resource: Adventures in Ecological Wastewater Recycling. Carol Steinfeld and David Del Porto. Ecovita, 2007.
www.ecowaters.org/rtr.html

The State of Bay-Delta Science 2008: Summary for Policymakers and the Public. November 2007. CALFED Science Program.
<http://science.calwater.ca.gov/publications/sbds>

CALL FOR ABSTRACTS: DEADLINE JUNE 6, 2008

5th Biennial CALFED Science Conference

GLOBAL PERSPECTIVES AND REGIONAL RESULTS:
Science and Management in the Bay-Delta System

OCTOBER 22-24, 2008

Sacramento Convention Center
Denton.debra@epa.gov;
tsommer@water.ca.gov

ZERO TOLERANCE CONTINUED

remediation) and then adopt a schedule for industry compliance. The standards should apply not merely to the oil tanker industry, but to all industries that conduct commerce upon San Francisco Bay that pose a risk of spill. That would include, at a minimum, the entire shipping industry, regardless of cargo, the oil industry, and other relevant chemical industries.

It is time for state and federal legislators to refocus their attention away from the captain of the ship and in the direction of the owners of the fleet. Until then, we can expect regular spills, little recovery, and continued deterioration of the Estuary ecosystem.

—Marc Holmes is the Bay Restoration Program Director with The Bay Institute.



APRIL 2008 VOLUME 17, NO. 2

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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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MOTH MESS CONTINUED

The U.S. Department of Agriculture and the CDFA have said that they need to act now before significant damage happens to crops. Researchers say these "leaf rollers" deprive plants of their ability to photosynthesize, robbing plants of their nutrient sources.

Harder believes the light brown apple moth has been established in California for decades. He says it needs to be reclassified and that eradication is not possible. "None of the tools they're using should be toward eradication," says Harder.

But just as spring began, the CDFA and the New Zealand researchers who worked with Harder issued a stinging rebuke to his paper's conclusion. HortResearch's Max Suckling, who reviewed Harding's paper and who has worked with state officials to develop their program for the moth, says the report overreached—and overplayed the level to which New Zealand has "controlled" the moth. Suckling took issue with Harder's characterization of the integrated pest

management system in New Zealand, stating that he had oversimplified things and had not incorporated changes and issues that Suckling had raised upon reviewing the report.

The CDFA does report that it has, in fact, successfully eradicated the moth in some areas. In infestations last year in Los Angeles and Napa, it used pheromone twist ties and ground spraying of the organic insecticide *Bacillus thuringiensis* to get rid of the pest. What made the program successful? CDFA's Steve Lyle says, "We had small areas with small infestations—and that's what we're trying to do here to keep it from spreading."

Meanwhile, one group that had supported the use of pheromones is no longer doing so. Peggy Miars of the California Certified Organic Farmers believes there's just been too much conflicting information to make a reasonable decision.

Miars, who was on the CDFA's environmental working group on the eradication program, says

her organization's change of heart did not happen over night.

"This has been a long time in the making," says Miars. "We've seen groups of reputable scientists and entomologists say eradication is possible and then another group of reputable scientists and entomologists who say it is not possible."

"There is just too much contradictory information to nail it all down to come to an agreement on what is possible," she says.

Spraying is set to begin this summer in Monterey, Santa Cruz, San Mateo, San Francisco, and other parts of the Bay Area. As ESTUARY went to press, the cities of Emeryville, Berkeley, Albany, El Cerrito, and Oakland were oppose spraying in their areas and investigating legal recourse to stop it.

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Daniel Harder (831)427-2998 **KC**



Ideas, questions, feedback?
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