

# ESTUARY

YOUR BAY-DELTA NEWS CLEARINGHOUSE

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## IF YOU'RE A PROFESSIONAL ENVIRONMENTAL WRITER, GET IN TOUCH!

ESTUARY would like to increase its bank of paid professional writers. If you know water issues or have a technical, environmental or biological sciences expertise, please send us your resume and some clips (address on back page). Knowledge of the material and lively writing skills a must!

## Wetlands in the Works

Scientists like to argue that wetland creation and restoration isn't playing God, it's playing doctor — a pretty humble viewpoint for a species that has rearranged nature to meet its own needs for centuries. Perhaps it's because they've watched many would-be wetland makers and remakers fail over the decades. Perhaps it's because they're only just beginning to glean a comprehensive scientific understanding of the wetland world. Or maybe everyone's just a little too impatient for results that can take nature centuries to produce.

Down in San Diego, no humanly-constructed wetland has yet attained more than 60 percent of the functional equivalency of a natural one, according to research done by Dr. Joy Zedler. The mere presence of pickleweed or cordgrass doesn't mean you've got a wetland, says ENTRIX biologist Ted Winfield. In most cases, he says, "When you really put your nose to the ground, you realize you haven't got the same thing at all."

And then there's the size issue. An acre here and an acre there of restoration — typical of wetland mitigation projects over the past decade — isn't optimal. "These may be too small to sustain themselves," says Dr. Josh Collins of U.C. Berkeley. Key to that sustainability, says Collins, is the distance the tide travels between uplands and mudflats and the morphology (shape and depth) of the sloughs. The flow of water in and out of the wetland and through the sloughs has to occur over enough distance and at the right depths to balance the constructive and erosive processes at work in the marsh. Nature often achieves this over a short distance via the meander.

Establishing desired elevations in relation to low and high tides is central to the success

of every wetland restoration or creation project. This step is not, however, a delicate process requiring a few shovels. Bulldozers and back hoes must rumble in to rearrange the turf, build berms, carve channels, scoop dirt out of one place and dump it in another. "If you get it right, you may have accelerated evolution of the marsh," says hydrologist Phil Williams. "If you get it wrong, you may have slowed things down."

Two North Bay projects now jumping through various design, planning and permitting hoops promise to premiere some innovative approaches to wetland restoration in the region. The privately developed Montezuma slough project near the mouth of the Sacramento River will restore 1800 acres. Sonoma Baylands, on the rim of San Pablo Bay, is a 322 acre site slated for public funding. Both projects are "ecologically large," according to Collins. Both encompass shoreline pasturelands — former wetlands diked long ago and now significantly subsided below sea level. And both will add dredged sediments to accelerate marsh development.

At Sonoma, engineers will build a group of branching peninsulas (to reduce wave action and encourage sedimentation), pump slurried dredged material onto the site, breach the levees, then walk away. The plan is to let time, nature and shoreline accretion import enough sediment and plant material to make a marsh and evolve sloughs. For the first time it's not "maximize dredge disposal capacity and let the ecosystem bear the consequences," says Williams. He predicts mudflats and low marsh will develop quickly but high marsh will take longer. Restoration goals won't be reached for up to 30 years.

Montezuma must move faster to create both high and low marsh as mitigation for the salt marsh harvest mouse habitat already on site, according to project designer Collins. This project will begin by adding a series of

- continued on back page

## TECHNO-FIXES

### PUNCH INTO A BBS

Next time you need instant info on that pending permit, don't touch that (telephone) dial — unless you've got a modem. Computer enthusiasts can now peruse Basin Plan updates, meeting schedules and data on dischargers with the touch of a few keys on a PC. The S.F. Regional Board joins the EPA in the current craze of computer bulletin boards (commonly abbreviated *BBS*) — EPA just launched a BBS dedicated solely to nonpoint source issues. Once on-line, users of the Board's BBS consult a main menu and can scan files, send messages or dabble in databases. A *conference* command enables you to communicate with others on screen while using the system. And those who want to take something home can download files. (Both BBSs feature the EPA's recently published, and massive, manual on nonpoint control measures for coastal waters.)

□ Regional Board BBS: (510)286-0404 on-line 24 hours except 8–9 a.m.

□ EPA nonpoint BBS: (301)589-0205

DH

### SALMON SONAR

Newly-submerged sonar speakers are broadcasting a "wall of sound" to help guide fall-run salmon smolts away from the Delta's most dangerous pumps and confusing waterways. Department of Water Resources officials hope the 10 speakers, which average 6" by 12" and transmit high-pitched sounds, will steer the fish toward the Pacific. The \$440,000 experiment also included the May 1 release of ten million two year-old salmon from the Coleman National Hatchery near Redding. Fisheries biologists are now avidly catching and releasing the salmon in various locations 24 hours-a-day to gauge the project's success. A final report is expected in October.

Contact: Dan Nelson (209) 826-9696

DH

## NEWS ROUND-UP

### DISCHARGERS SUBSTITUTE TOXIC ACT

A watershed approach to the state's Bay Protection and Toxic Clean Up Act would be swapped for current hot spot safeguards if alternative legislation by the California Association of Sewage Authorities and the Bay Area Dischargers Association is adopted. The proposed legislation would take economic burdens off the shoulders of dischargers and spread it to other entities, including agricultural concerns, according to Don Birrer of the dischargers association. The proposed bill delays enforcement action while watershed studies are undertaken. If nothing is done to rework the bill, the fees involved in the current legislation will expire at the end of the year. "And without fees, the program doesn't exist," says Gordon Hart, a consultant to the legislature's toxics committee. Proposed legislation carried by Senator Charles Calderon (D-Whittier) would extend the current act by five years. Contact: Michael Burns (916)327-8315 JS

### ENDANGERED THISTLE CROPS UP

Scientists scouring the 80,000-acre Suisun Marsh during a special status species study stumbled upon a plant thought to be extinct by the California Native Plants Society: the prickly Suisun Slough thistle. Department of Water Resources' Brenda Grewell was excited to sight the species in both the Peyton Slough Ecological Reserve and the privately-owned Rush Ranch. The findings came while biologists were studying the effects of possible salinity standards under the State Board's Water Control Plan. Data collected from the surveys is being used to develop a *Plan of Protection* for the marsh. Contact: Brenda Grewell (916)324-6300 DH



### FARMS MUST CONSERVE WATER

Following up on the Miller-Bradley bill, the Bureau of Reclamation handed down a spate of new rules this May which require, for the first time ever, that Central Valley farmers conserve water. Local water agencies using federal water must now produce and implement detailed conservation plans that not only better gauge water deliveries but also include pricing mechanisms to promote conservation. Growers are most concerned about requirements for groundwater management (to date, underground supplies have been considered private resources) and for retiring farmland that produces toxic runoff. Contact: Roger Patterson (916)978-4919 DH

### BAY-DELTA LIMBO

Now that Governor Wilson has handed the Delta's future over to the feds, the spotlight is on the EPA. Everyone's waiting to see what the federal agency will propose to protect the Delta environment, and in the meantime environmental groups have sued the agency to force the issue. EPA's Patrick Wright says their plan won't be out for months, but will likely be consistent with the agency's previous recommendations, i.e. a two part per thousand salinity standard protective of Suisun Bay nursery habitat, a salmon-smolt survival index for the Sacramento-San Joaquin Bay-Delta, and salinity criteria to protect striped bass spawning habitat in the lower San Joaquin. Once things get specific, there's sure to be debate over whether the new standards remain within the EPA's water quality purview without intruding on the state turf of water rights and allocation. Contact: Patrick Wright (415)744-1993 AR

### PROJECT SLATED TO MOVE

The Estuary Project's Public Involvement and Education Program will be moving its office to the S.F. Regional Water Quality Control Board soon. The move is tentatively scheduled for September 1st. The new address will be Estuary Project, 2101 Webster, Suite 500, Oakland, CA 94612. New phone: (510) 286-0460

## INSIDE THE AGENCIES

### MILLER BRADLEY KICKS IN

While relations between U.S. Fish & Wildlife and BurRec aren't as congenial as the Brady Bunch, the two agencies have negotiated enough to begin sending some of the 800,000 acre-feet allocation prescribed by the Miller-Bradley Bill downstream to aid Chinook salmon and Delta smelt. Turf battles continue, but agencies have agreed that this year the entire water allocation will benefit anadromous fish and endangered species and that wildlife refuges will also get their 620,000 acre-feet.

The two agencies are taking different approaches to implementation. Fish & Wildlife is putting together a team of six to work full-time on the bill's requirements (only one member has been hired so far). BurRec is assigning ancillary Miller-Bradley duty to several existing departments. Perhaps the biggest short-term obstacle for both is the budget, or lack thereof — the bill passed after this year's budget had already been assigned. Fish & Wildlife's Jim McKeivitt says his agency is in "deep financial trouble." BurRec is in a better position, both because its budget is bigger and because some of what Miller-Bradley requires—such as the Shasta temperature control facility—was already underway before the bill became law.

Environmentalists worry that Miller-Bradley funds will drift into expanding current bureaucracy. "We're pushing for more direct rehabilitation," says David Yargas of the Environmental Defense Fund.

At press time, the two agencies were debating the meaning of bill language that says the 800,000 acre-feet are to come from "yield." Both agree that if water is re-used—say taken out for irrigation but put back in downstream which then benefits

Delta smelt—then that water should be treated differently from water used only for the smelt. "It's like you and your spouse trying to figure out who took what out of ATMs. There's no question the money is gone, but how do you account for it?" says BurRec's Frank Dimick. Negotiations continue. Contact: Jim McKeivitt (916)978-4613 JS

### BASE CLOSURE CLEAN UP

Cleaning up the military bases slated for closure around the Estuary promises to free up some prime shoreline real estate and improve wildlife habitat, as long as everyone can agree on how clean the bases have to be before the military walks away.

While the military pushes to expedite the process, regulators such as the EPA are trying to decide what's "feasible," according to EPA's Jane Diamond, and what's worthy of Superfund listing (only Hunter's Point and Moffett Field so far).

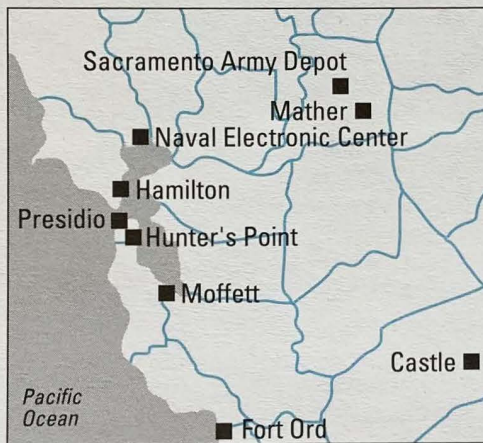
Meanwhile the state's Regional Boards are scrambling to make sure baselands along the Estuary margins don't fall through the clean up cracks.

Most of the clean up focus has been on soil and groundwater in upland areas, says

the S.F. Board's Shin-Roei Lee. "They were not giving enough attention to mudflats and offshore zones because real estatewise they were the least usable," she says. "But for us these are the most important. They have the most interaction with the Bay."

The 8-24 (includes those proposed in 1993) regional bases and facilities — for decades outside the reach of environmental regulation — are of major concern to water quality officials. At Hunter's Point, one parcel is so contaminated with oils, lubricants, solvents, PCBs and radioactivity that clean up is near impossible. Alameda's rip rap shores harbor jet fuels while the sediments under its piers bear flakes of tributyltin (TBT) paint. (One ounce of TBT, used to keep barnacles off ship bottoms, can kill most organisms in 250 million gallons

ESTUARY MILITARY BASE CLOSURES



## HOW I SEE IT



**FRANK DIMICK**  
ASSISTANT REGIONAL DIRECTOR  
BUREAU OF RECLAMATION

### NEW CUSTOMERS

"The bureau recognized, in the 1980s, that it must make some significant changes to meet the needs of a generation that has different ideals than we did back in the 1930s and 1940s. We recognized we had several other customers we had to serve, for instance, the environment. It's not that we were getting rid of our old customers, we were just adding some new ones. As a result, in the first few months of 1993, we've been developing a program whereby we can service these new customers. Our new direction will probably take 10 years to implement. We will still be doing some development of resources, it just isn't our top priority. And yes, some of us are still dyed-in-the-wool engineers.

"[Miller-Bradley] came along and because we had changed roles, some of the authorities we had in the past didn't exactly fit the new activities. We had some round pegs to fit in square holes. But the bill fits right into the direction which we wanted to head. In implementing [Miller-Bradley], we are developing a very strong working relationship with Fish & Wildlife. The decision was made jointly that the BurRec would obtain the total funding, primarily so all the funds were together in one kitty and would be easier to account for. We have agreed that if there's a budget shortage, we will share that shortage. BurRec will not have the last say on dividing up the funds." JS

of water.) Mare Island sports a beach made of spent sandblast materials that is actually green with heavy metals and other contaminants. In some cases, like contaminated sediments, there is no practical method of clean up. Clean up standards will largely be site-specific, says Lee.

Contact: Jane Diamond (415)744-2384 or Shin-Roei Lee (510)286-0699 AR & JS

## DREDGE SCOOP

### REUSE STUDY OUT

Using Skaggs Island as an upland disposal site for material dredged from Bay harbors could cost \$10-\$13 per cubic yard, according to a new study (see *Now in Print*). The study, conducted by Moffat & Nichol, evaluated which of 80 candidate upland sites could best use dredged material for landfill cover, levee restoration or habitat development, which would make good sites for confined disposal or material reprocessing, and how much the most feasible sites would cost to put in action.

The study was commissioned as part of a five-year, multi-agency, multi-interest effort to break the regional dredging mudlock. One major focus of this effort, known by the acronym LTMS, is to develop disposal options that are not in Bay waters. "Alcatraz should be a consciously selected disposal alternative, not a convenient default," says the S.F. Regional Board's Steve Ritchie.

Out of the 80 sites, Moffat & Nichol gave 12 a high feasibility rating (nine in San Pablo Bay and three in Suisun). Sites further upstream were put on the back burner due to uncertainty over the compatibility of Delta background sediments with Bay sediments, whose salt and contaminant concentrations differ. Altogether, the 12 sites could absorb 83-133 million cubic yards (mcy) of sediment, according to the study.

The study includes a detailed breakdown of the constraints and costs of actually implementing a specific land disposal option at three of the most feasible sites: habitat development at a 4310-acre site at Skaggs Island and on 8500 acres of Cargill salt ponds west of the Napa River; and confined disposal at some of Cargill's old ponds east of the river. If fully implemented, Skaggs would have a maximum capacity of 16.1 mcy, Cargill west 11.4, and Cargill east nine. Estimates for implementation costs including site development, material transportation, pumpout, environmental monitoring and mitigation were Skaggs \$10-\$13 per cubic yard, Cargill west

\$11-16, and Cargill east \$8-25. At present, costs for in-Bay disposal off Alcatraz are lower, but once environmental costs and benefits are factored in, upland disposal may become more attractive. Contact: Richard Stradford (415)744-3345 AR

### PORT EYES SUPPLY CENTER

The Port of Oakland has its eye on a neighboring Naval Supply Center slated for closure that could solve the landlocked port's expansion problems. While Congress deliberates the fate of the

property, the port is preparing for expansion either by lease or property transfer. In fact, the port's been negotiating with the Navy to lease 195 acres of the center for several years, and 392 acres – purchased from the port during World War II for a nominal sum – could revert back to the port anyway if the base closes. "By reconfiguring these properties we can be a major employment asset," says the port's Tom Gwyn, "but whether we can replace all the lost jobs isn't clear." Contact: Tom Gwyn (510)272-1202 AR

## BURNING ISSUE

### LOCAL COSTSHARING: WHOSE DIMES, WHOSE DOLLARS?

An Army Corps policy requiring local interests to pick up 25 percent of the costs of developing Sonoma Baylands as a dredge disposal site and wetland restoration project has got local shipping interests and state agencies worried. "It works against innovation," says the Coastal Conservancy's Laurel Marcus, "even when it benefits the public."

Marcus's main gripe with the policy is that it's geared to traditional engineering and disposal projects and doesn't account, dollar-wise, for environmental benefit. The project will develop over 300 acres of wetland habitat for the Estuary's aquatic life, and people like Jim McGrath of the Port of Oakland think these kinds of benefits should come out of the public's pocket. "You're getting wetlands for dimes on the dollar," says McGrath. But if the Corps sticks to its guns, and Secretary of the Army staffer Morgan Reese came out to California this April to say that it will, a quarter of those dimes will be coming out of state, local and private pockets. Which pockets is the question now.

In mid-May, the state's Coastal Conservancy took on major responsibility by sending the Corps a letter of intent to act as the local sponsor. The Conservancy

is now negotiating with local ports and other interests concerning funds. Other funding could be provided through the proposed California Parks & Wildlife Bond Initiative.

In the meantime, local interests and elected officials have been flexing some sizable political muscle (there's support for the project all the way up to the Vice President). "The political system is twisting the port's arm," says McGrath, "and we may or may not be amenable, depending on costs and permit delays. We may not be able to hang in there forever."

Marcus says no one's really against costsharing, as long as they know what they're writing a check for. But right now it's unclear which disposal alternative will turn out to match the Corps' "least cost, environmentally acceptable" policy. If Sonoma ends up costing more than ocean or in-Bay alternatives, the 25 percent local share could spiral. Local interests would then have to ante up 100 percent of the difference between the least cost and the chosen alternative.

"We want to see this project done with a minimum of bureaucratic nonsense," says Lee Holterman of Representative Ron Dellums office. "It may be time to look at whether the system itself is counter-productive." Contact: Laurel Marcus (510)286-4164 AR

## HARD SCIENCE

### PESTICIDE PULSES

Every time it rained this February, a pulse of pesticide-laced water traveled down the Sacramento and San Joaquin Rivers into the Estuary. New research traces this toxicity to the Central Valley's stone fruit orchards, tracks the flow of these toxic pulses downstream, documents pest spray levels in water samples at concentrations that could be toxic to organisms providing food for juvenile fish, and raises questions about how these pesticides move from land to water.

In a multi-rivershed study conducted during the 1992 rainy season and published this May by the Central Valley Regional Water Quality Board (see *Now in Print*), thirty percent of all the water samples turned up toxic. Samples from all locations tested toxic at least once during a storm. The pesticide diazinon appeared in 90 percent of all toxic samples.

Diazinon is one of several sprays farmers apply early every year to combat twig borers, scale insects and other orchard pests. In 1991, farmers sprayed just over a million pounds of these chemicals — many using air blast tractor-towed equipment that produces a fine mist of pesticide — on to California's 900,000 acres of deciduous orchards.

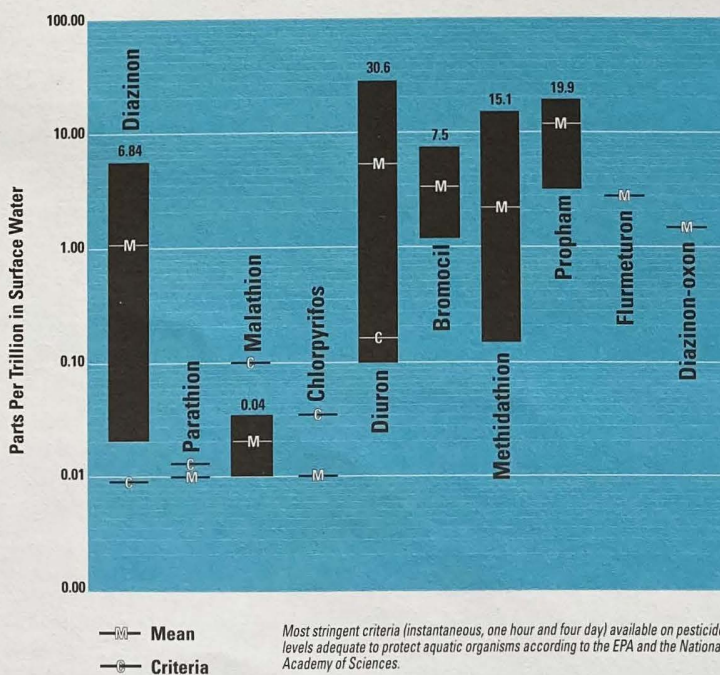
The 1992 study set out to pinpoint where and when orchard spray runoff occurred — with a particular goal of evaluating the role of rain. Researchers monitored eleven sites in January and February (most of the rain fell in February).

Six sampling sites were located on water courses draining small watersheds (10,000-130,00 acres) with more than 10 percent of their acreage in orchards. Other samples were taken further downstream along the Sacramento, Feather and Mokelumne rivers, and in the Delta, but researchers found much less toxicity here than farther upstream.

A combination of data collected with other agencies suggested that the San Joaquin River transported acutely toxic water (causing invertebrate mortality) into the Estuary for at least an eight day period during the February 1992 rains. A follow-up study in 1993 — a much wetter year — discovered a longer period of toxicity. In seven-day *ceriodaphnia* bioassays, acute toxicity occurred in the San Joaquin samples for 12 days in February.

The 1992 and 1993 studies also tracked how far the toxic pulses traveled in the Estuary. In 1992, for example, San Joaquin River toxicity may have reached as far north in the Delta as Empire Tract and Venice Island before being diluted by Mokelumne and Sacramento river waters. In 1993, Foe and U.S. Geological Survey chemist Kathy Kuivila detected three distinct peaks in diazinon in both the Sacramento and San Joaquin Rivers after three big rainstorms. They tracked the

**SUMMARY OF PESTICIDE DETECTIONS FROM JAN 1 TO APRIL 27, 1992**



## THE MONITOR

### CITIZENS SAMPLE CREEKS

Citizens concerned with the environmental health of their neighborhood creeks compared notes at an EPA-sponsored conference on waterway monitoring held in Walnut Creek this May. In the close quarters of the agency's mobile lab, participants handled peristaltic pumps and autoclaves while learning how to test for fecal coliform contamination and total suspended solids. Samples taken from streams can be good indicators of whether a stream meets EPA criteria for swimmability and fishability, and volunteers can help supply regulatory agencies with samples from unmonitored areas.

At the conference, volunteers from the Surfrider Foundation, the Muir Beach Environmental Group and the Coyote Creek Riparian Station also participated in a streamwalk, a new EPA program that encourages people to fill out a simple inventory sheet while visiting their local streams. A follow-up conference is scheduled for next year. Contact: Clarice Olson (415)744-1489 DH

first Sacramento River diazinon peak all the way from Rio Vista through the Delta and Suisun Bay to Martinez. They followed elevated levels in the San Joaquin River from Vernalis to the Tracy pumps. All 1993 samples contained concentrations above National Academy of Sciences guidelines for the protection of aquatic life (9 parts per trillion).

The studies not only document pesticide pulses through the Estuary but also raise questions about how these chemicals are transported into waterways via rain, wind drift, runoff, erosion and atmospheric condensation. More research on the relative importance of these transport mechanisms is needed before regulators can suggest best-management practices for farmers to combat Estuary contamination. Contact: Chris Foe (916)255-3113 and Kathy Kuivila (916)978-4648 AR

## CCMP BRIEF

### ACTION TACTICS REVIEWED

EPA administrator John Wise urged all stakeholders to get to work on implementing the "common vision" of the CCMP at a State of the Estuary conference held January 5. Hundreds attended the conference and heard 23 experts speak on the latest science, policy and action issues influencing implementation of the Estuary Project's *Comprehensive Conservation and Management Plan (CCMP)* for the Bay and Delta.

Dr. Jerry Schubel kicked off the first panel on science by saying he knew of no other estuary nationwide with such a complex system used in so many ways and currently in such a state of transition. Schubel outlined the results of a recent series of Estuary Project workshops involving 20 top scientists in the development of a sound estuarine standard. Schubel said the workshops provided "a powerful paradigm for getting scientific consensus."

Dr. Sam Luoma followed up with a review of recent local research advances and Dr. Josh Collins ended with a look at wetlands. Asked what key actions they'd take to save the estuary ecosystem, the three scientists said more water, more money, explicit ecological and human use goals, better tracking of whether goals are achieved, and integrated coastal watershed management. Many of these actions are already in the CCMP.

In a second panel on policy, the Army Corps' Tom Wakeman commended the change he'd seen during CCMP's development "from dickered special interest groups to a community with a common spirit." Wakeman listed several first time accomplishments of the CCMP effort including bringing a long-separated Bay and Delta together into a single system, producing a repository of estuary-specific literature where there had been a dearth, getting local universities involved and "out on the water," and spawning numerous policy initiatives and opportunities for the public to "link up with the Bay." Wakeman said it was now time to "go beyond a vision and a piece of paper to political will."

Other policy speakers included the State Board's Marc Del Piero, who said difficulties in the state economy would drive priorities for CCMP implementation, and a Resources Agency representative, who described the cornerstones of current state wetlands policy as a "streamlined but strong" regulatory system, incentives for preservation and restoration, and new partnerships between diverse interests.

After lunch, Congresswoman Nancy Pelosi encouraged letterwriting (see *Now in Print*) in support of her newly introduced bill HR2320, which would fund CCMP implementation. Then the Estuary Project showcased some of its hands-on education efforts: grade school teachers and students described a trip to build least tern habitat, creek restorers outlined success stories in poor communities, and an eagle scout candidate explained how he led 15 boy scouts in painting 70 Kentfield storm drains. Asked how white environmentalists could better reach communities of color,

teacher Marilyn Little suggested more work with poor schoolkids: "The kids get excited and motivated, and a lot of that goes home."

As the afternoon progressed, the *Chronicle's* Elliot Diringler talked about water being a "high investment, low-yield beat" for a journalist because issues and terminology were so complex. EPA's Sam Ziegler showed how "land use is the single management issue that affects all others" and coworker Tim Vendlinski outlined CCMP demonstration projects now under way including an estuarywide stream inventory. A final panel announced that EPA's EMAP — a sophisticated environmental monitoring and assessment program would soon debut in California. Dr. Josh Collins said EMAP may help scientists develop local protocols on "what ecological health means" and suggested the need to mobilize a citizen work force to monitor these "health" indicators. AR

## TOUGH CHOICES

### LOCKHEED PRE-EMPTS RUNOFF

With 554 acres of pavement and numerous hazardous chemicals lying around, the Lockheed Missile and Space Company in heavily urbanized Sunnyvale could have a mammoth runoff problem. But the facility appears to have pulled off a pre-emptive strike against runoff and regulatory penalties. Since 1989, Lockheed has spent \$1 million collecting and treating wastewater, planting vegetation in drainage canals, installing storm drain slide-gates for spill prevention and sending security staff on parking lot patrols. The owner of any vehicle found dripping oil or antifreeze faces a stiff fine.

Lockheed's programs respond to 1987 Clean Water Act amendments mandating permits for stormwater discharge. Company officials initially viewed the new regs with skepticism, deeming some changes they'd have to make "impossible." But engineers mapped out a strategy. "We were trying to get a proactive process going," says Lockheed's Blair Michael. Officials agree. "Without being told how, they started recognizing their problems and solving them," says the S.F. Regional Board's Tom Mumley. "[It was] better than waiting for us to prescribe solutions."

Lockheed now digs extra trenches around chemical tanks to contain rainwater spilling over from "front line" trenches where toxic residues reside. If it's clean enough, that water is used on the facility's grass and grounds. But perhaps the company's most extensive effort involves recycling washwater generated by hosing down its 1,274 vehicles. Detoured around storm drains, some of the water is sent to the sanitary sewer to be treated before entering the Bay. The rest is recycled by a newly built centralized treatment facility.

The EPA recently nominated Lockheed's program for a national excellence award. The company's efforts, and those of other giants like IBM, are documented in "White Papers" by the Global Cities Project under a \$20,000 grant from the Estuary Project. Collectively, the reports will stand as successful environmental blueprints for Bay Area businesses, says Global Cities' Megan Smith. But regulatory officials say a larger question remains. "Now we need to find out if this is something only a big company can do, or if a smaller company can afford it," says Mumley. Contact: Blair Michael (408)742-0257 DH

Illustration: Ian Munde

## PLACES TO GO & THINGS TO DO



### WORKSHOPS & SEMINARS

#### Characterizing & Remediating Dense Non-aqueous Phase Liquids at Hazardous Sites

WED • 6/16 • 7 AM - 4 PM  
Holiday Inn, 1500 Van Ness Avenue, S.F.  
(617)674-7374

#### State Water Resources Control Board Workshops

WED-THUR • 7/7-8 & 8/4-5 • 9 AM  
901 P Street, Sacramento (916)657-2390

#### Western Association of Fish & Wildlife Agencies 1993 Conference

SAT-THUR • 7/24-29 • 8 AM - 5 PM  
Topics: Changing face of conservation; ecosystem management; stream habitat evaluation; sensitive/endangered aquatic species; aquatic biodiversity; estuarine ecology and more.

Red Lion Inn, Sacramento  
Cost: \$140 (916)227-2224

#### Muddled Early Migrant Meander

SAT • 8/28 • 12 - 3 PM  
Activity: Learn about early migrants on a four-mile hike. Shoreline Interpretive Center, Hayward (510)881-6751



### HANDS ON

#### Watershed Watchers

SAT • 6/19 & 7/17 • 1 PM  
Activity: Join a creek monitoring project.  
Sponsor: Lindsay Museum, Civic Park, Walnut Creek (510)938-3134

#### Urban Stream Restoration Training Workshop

FRI • 7/9 • 10 AM - 6 PM  
Activity: Technical field tour of seven East Bay restoration projects to see innovative flood control designs, soil bioengineering, wetland restoration, unusual gabion bank stabilization, cribball designs, riparian vegetation options, and stream channel recreation.

Sponsors: Golden State Wildlife Federation & Urban Creeks Council  
Cost: \$110 (510)848-2211



### MEETINGS & HEARINGS

#### S.F. Regional Board Meeting

WED • 6/16 • 9:30 AM  
Topics: Adoption of Sonoma Baylands dredged material reuse requirements; final copper wasteload allocation vote.  
111 Grand, Oakland (510)286-1255

#### Fish & Game Commission

THU-FRI • 6/17 • 10 AM & 6/18 • 8:30 AM  
Topic: Details on listing of Delta smelt.  
Memorial Hall, Bridgeport (916)653-4899

#### Solution Symposium

SUN-MON • 6/18-19 • 9 AM  
Topic: Restoration partnerships under new water laws.  
Sponsor: Public Officials for Water & Environmental Reform (POWER) Waterfront Plaza Hotel, Oakland (916)448-1198

#### ABAG Hazardous Waste Management Training

MON • 6/21 • 8:30 AM  
Topic: A half-day training course for Title 22 certification.  
Cost: \$80-108  
MetroCenter, Oakland (510)464-7964

#### SFEP Sponsoring Agency Executive Committee

SUN - WED • 6/25-28 • TBA  
Topic: Forwarding the CCMP to Gov. Wilson.  
(510)464-7996

#### LTMS In-Bay/Upland Work Group

THU • 7/8 • 9:30 AM  
2101 Webster #500, Oakland (510)286-0841

#### California Waterfowl Association Fundraising Dinner

WED • 7/8 • 6 PM  
Napredak Hall, San Jose  
Cost: \$65/person (408)274-0328

#### Save San Pablo Baylands

SAT • 7/10 • 9:30 AM  
205 First Street West, Sonoma Ecology Center  
(707)557-9816

#### LTMS Policy Review Committee

FRI • 8/6 • 1:30 PM  
Topic: Progress reports on regional dredging and disposal options and LTMS transition from technical to policy, and implementation work.  
Nimitz Conference Center, Treasure Island  
(415)744-3276

## NOW IN PRINT

*Layperson's Guide to San Francisco Bay Water Education Foundation*  
Copies from (916)444-6240

*Pesticides in Surface Water from Applications on Orchards and Alfalfa During the Winter and Spring of 1991-1992*  
Foe & Shepline; Central Valley Regional Water Quality Control Board  
Copies from (916)255-3000

*Comprehensive Conservation and Management Plan (CCMP) for the Bay & Delta: June 1993*  
(Includes all final revisions and minority reports!)  
SFEP; Copies from (510)464-7996

*Beneficial Reuse and/or Nonaquatic Disposal for Material Dredged from San Francisco Bay; Stage III Final Draft Report*  
Moffat & Nichol; LTMS  
Copies from: (415)744-3345

*Wetland Creation and Restoration; The Status of the Science*  
Edited by Kusler & Kentula; Island Press, Covelo  
Copies from (800)828-1302

*Rice Culture Stubble Decomposition, Seasonal Wetlands and Water Storage*  
Smith; California Sportfishing Protection Alliance  
Copies from P.O. Box 357, Quincy, CA 95971

## ACTION POINT

Congresswoman Nancy Pelosi recently introduced the San Francisco Bay-Delta Restoration Act (HR2320), which would fund implementation of the CCMP. To express your views about the bill, write your elected representatives and:

**Honorable Gerry Studds**  
Merchant Marine and Fisheries Chair  
H2-545 Ford Bldg., Washington DC 20515

**Honorable Norman Mineta**  
Public Works and Transportation Chair  
2165 Rayburn Bldg., Washington DC 20515

**Honorable Douglas Applegate**  
Water Resources and Environment Chair  
B-370A Rayburn Bldg., Washington DC 20515

## FROM PAGE ONE

thin, sediment lifts, each of which will be dewatered, then monitored, until the marsh achieves just the right elevations (subdrains will speed up soil compaction and new levees will contain sediments). Larger sloughs will be defined by levees, and smaller sloughs carved into the new marsh surface. And before tides are let in, sprinklers will irrigate the high marsh with tidewater to coax along plant growth. Collins thinks both low and high marsh will develop in less than five years. "We'll create the physical template," he says, "then let nature happen on it."

For both projects, the use of sediments dredged from shipping channels and harbor bottoms — not the cleanest places in Bay — could be a red flag. "Once our society fixes the name *contaminants* on something, it's an adverse situation," says Cal Fish & Game's Carl Wilcox. "But there are all kinds of contaminants in sediments that if handled properly won't do any harm." The S.F. Regional Board recently set some sediment-screening guidelines for wetland reuse projects that assume certain contaminants buried three feet or more below the surface won't move.

For this reason, Montezuma — which in some places needs up to ten feet of new sediment — may be more suitable for burial of material containing a few trace metals and chemicals than Sonoma — which only requires half the lift. Substances in any material accepted at the former would have to be at concentrations well below hazardous levels. Montezuma's size and configuration should also reduce the threat of contaminant migration, according to Collins. "You've heard of double-hulled tankers," he says. "This is a triple-hulled marsh." But EPA and Corps officials reviewing the project aren't yet convinced on the containment issue.

The Regional Board plans to regulate both projects very "conscientiously," says Steve Ritchie. People like Collins hope that attitude will include building more feedback and flexibility into wetland restoration permitting and regulation. "Management has to be adaptive, lenient enough to deal with nature's uncertainties," he says.

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# ESTUARY



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