

THE SACRAMENTO SPLITTAIL got formally listed as threatened under the federal Endangered Species Act in early February, after years of delays. Populations of the silvery-gold minnow, which is found only in Central Valley rivers and the Delta, have declined 62% in the past 15 years as a result of dams, diversions and lost spawning ground. According to U.S. Fish & Wildlife's Mike Thabault the splittail listing is unlikely to result in major changes to state or federal water project operations due to provisions of the 1994 Bay-Delta Accord requiring that any new listings not reduce water deliveries.

DISCHARGERS CAN NOW REPORT ELECTRONICALLY to the S.F. Bay Regional Board on their monthly compliance with wastewater and pollution discharge (NPDES) permits. Friends of the Estuary developed the software and programming for the new reporting system with \$50,000 in pollution fines (ACLs). The new system is now up and running and being truth-tested, but not all dischargers have begun using it.

AN AMERICAN RIVER ACTION PLAN and draft EIR was released by the stakeholder-based Sacramento Area Water Forum this January, detailing steps to provide reliable and safe water supplies and to preserve fishery, wildlife, recreational and aesthetic values in the lower watershed. The plan, released in draft form in 1997 and since revised, is the product of five-years of cooperative research and negotiation on the part of business, environmental, agricultural, public, government and water interests in the Sacramento area. Comments on the EIR are due by March 22. To view see www.waterforum.org or call (916)433-6287.

NEW PRIORITIES FOR BAY-DELTA MANAGEMENT came out of a February 5 workshop on implementation of the 145-action S.F. Estuary Project *Comprehensive Conservation and Management Plan*. At the workshop, 60 diverse stakeholders updated 1996 priorities and added one new one. Updated priorities are to expand, restore and protect Bay-Delta wetlands; to prevent the introduction of exotic organisms, plants and animals into the Estuary from all sources, and control their spread; to promote watershed management; to create incentives that encourage local government, landowners and communities to protect and restore the Estuary; to reduce pollution from urban and agricultural runoff and other non-point sources; to strengthen public awareness about the Estuary's natural resources; and to expand the regional monitoring program and then integrate the results into management and regulatory actions. The new priority is to promulgate baseline inflow standards for San Francisco, San Pablo and Suisun bays. Further clarification of the priorities, and the specific CCMP actions they encompass, can be found in the March 1999 *CCMP Workbook* (see *Now in Print*).



Seeking Cleaner Sips from Delta

While policy debate focuses on how much water California's booming population takes out of the Delta, the state's urban water suppliers are increasingly worried about what Central Valley sprawl puts back in. An association of urban water agencies (CUWA) is asking the Central Valley Regional Board to develop a drinking water protection policy that could impose stringent new requirements on sewage and other dischargers and lead the Board into new regulatory territory. What's more, CUWA is willing to help foot the bill to develop such a policy.

"We don't feel that the current basin plan adequately protects drinking water beneficial uses," says CUWA consultant Peter MacLaggan. CUWA is asking the Board to incorporate water quality objectives for three major types of contaminants into its Basin Plan for the Sacramento and San Joaquin Rivers as part of the triennial review process now underway. All three types — total organic carbon (TOC), pathogens (such as *giardia* and *cryptosporidium*) and salt — flow into Central Valley waterways and the Delta from wastewater discharge plants, urban and agricultural runoff and other sources.

The basic problem is a disconnect between laws regulating discharge and those regulating drinking water. "The federal drinking water regulations have gotten way out in front of the state and federal water quality laws that the Board enforces," says MacLaggan. "They need better coordination."

"The TOC problem is our clearest concern in that there is a direct link to serious public health issues," says MacLaggan. TOC, a naturally occurring element found in all organic matter,

is a precursor to carcinogenic by-products of the drinking water treatment and disinfection process, such as trihalomethanes (THMs). New rules promulgated last year under the 1996 reauthorization of the Safe Drinking Water Act trigger additional treatment requirements when TOC in source water exceeds 4.0 milligrams per liter (mg/L) and set a THM standard of 80 micrograms per liter (ug/L) in treated water. The next round of rulemaking, due in 2002, may cut the THM standard to 40 ug/L.

Municipal, industrial, agricultural and non-point discharges all add TOC to the Delta.

"The more TOC in source water, the more THMs in treated water, the more difficulty with compliance and the greater the health risk to the public," says MacLaggan. At present the Board does not regulate TOC and pathogens — historically the purview of the Health Department — in drinking water.

Delta TOC levels currently average 3.7 mg/L, but vary widely, sometimes exceeding 6.0 mg/L, "and things are only going to get worse with higher density population in the watershed," adds MacLaggan, since more people mean more discharges and runoff. In the meantime, CALFED — the joint state and federal effort to improve Delta water supplies and quality — seems to be backing up the utilities: the Phase II report (see *Now in Print*) identifies a long-term goal for the Delta of 3.0 mg/L average TOC.

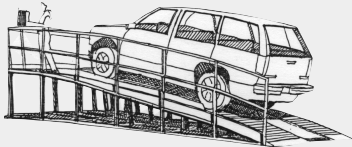
Despite the concerns surrounding TOCs, MacLaggan and others say salt may be the biggest unaddressed water quality problem in the state, in part because of its potential to limit the feasibility of water recycling. Industrial and municipal discharges add salts to the already salty Delta water; the salts remain even after the water is treated for

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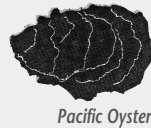
BULLETIN BOARD

FOUR DRIVE-UP RAMPS FOR DO-IT-YOURSELF OIL CHANGE have recently been installed in rural California counties lacking fast oil change service centers. The ramp, called the "Lube Rack" and developed by a South Carolina-based recycling equipment company, not only makes it easier for self-appointed mechanics to get under their cars, but also reduces runoff pollution from improper used-oil disposal. It features a built-in used-oil tank in which to drain the oil directly from the crank case (the used oil is then disposed of by professionals). An estimated 53% of the U.S. population changes their own oil, but much fewer take the used oil to hazardous waste collection centers, as required by law. "A lot of people just change oil in the street and let it run into the gutter," says Ken Hornick of the San Joaquin County Housing Authority, which installed a Lube Rack at its 400-unit Sierra Vista public housing complex in Stockton last year. Hornick's agency is now distributing informational flyers and conducting resident training in use of the Lube Rack. Contact: (843)308-0507



LEG-HOLD TRAPS CAN STILL BE USED by federal employees to protect clapper rails and endangered birds from foxes and other predators, according to a preliminary injunction issued in February. The judge's order in the suit brought by the Marin, Golden Gate and National Audubon Societies, the California Waterfowl Association and Muir Beach Enviro, came after the defendants — the Governor and the state Department of Fish & Game — conceded that Proposition 4, the leg-hold trap ban approved by voters last fall, does not cover trapping under the federal Endangered Species Act. According to Marin Audubon's Barbara Salzman the ruling is important because "the traps are the only thing that works against red foxes." Fans of furry, fanged critters can take comfort in the fact the ruling does not affect the ban on trapping to prevent depredations on private property. The ruling also left several questions unresolved, including whether or not the ban covers trapping by Cal Fish & Game under state endangered species laws.

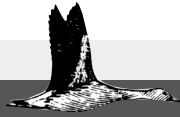
MUCH ADO ABOUT NOTHING should have been the title of the recent *San Francisco Chronicle* story heralding the return of a long-vanished native oyster to the Bay, say some scientists. The article described fishery biologists as "thrilled" and "incredibly excited" to find a small colony of bivalves called Olympia oysters, or *Ostreola conchaphila*, near Redwood City — a colony so rare that its location had to remain a secret. While it's true that silt and pollution have greatly reduced the native oyster population since the early 1900s, it's not as if the Olympia is such a rarity, says invertebrate scientist Andy Cohen. On a 1996 survey of organisms attached to docks around the Bay, Cohen found Olympia at almost every station with a salinity above 15 parts per thousand. Cohen says the oyster used to go under the Latin name of *Ostreolo lurida*, and that it's been "pretty common as long as I've been here."



MARCHING ORDERS ON EXOTICS grew early this year as environmental groups, scientists, senators and the U.S. President all hopped on the bandwagon. Increasing rumblings from the Bay Area, home of the most invaded Estuary in the world, have finally been felt on the other side of the continent. On February 3, President Clinton issued an executive order directing all federal agencies to work harder to control invasive species and prevent their introduction, and setting up a new multi-agency committee charged with coming up with an invasive species management plan in 18 months. Local expert Andy Cohen points out that President Carter gave the same order in 1977 with little effect but that the political and scientific climate, and public awareness on the issue, is different now. "The executive order provides a new rationale to get EPA moving," he says. In January, environmental groups and scientists petitioned U.S. EPA to use its Clean Water Act authorities to regulate exotic species commonly found in ship's ballast water as pollutants. And on February 11, EPA Administrator Carol Browner got a letter from Congressman George Miller and 17 other legislators urging her to roll back the Clean Water Act exemptions for discharges normal to the operation of a vessel, noting that the exemption dates back to a time when exotic species impacts and vectors were "poorly understood."

POLYMERS GREATLY REDUCE STORMWATER TURBIDITY and associated pollutants, according to recent research completed by Gary Minton of Seattle's Resource Planning Associates. The study (see *Now in Print*) monitored six construction sites in Redmond, Washington — where contractors collected stormwater, dosed it with polymers, then removed the sediments. "The fine, silty material normally takes forever to settle out," says Minton. "Polymers, these large complex molecules, make the little clay particles mesh together into big enough particles to settle right to the bottom." According to the study results, the process routinely reduced the initial turbidity (cloudiness resulting from sediment in the water) of site discharges from between several hundred and several thousand NTU (nephelometer turbidity units — a measure of light penetration) down to 5-10 NTU. It also reduced phosphorus pollution by 95-99%. Minton says that such an aggressive approach to sediment control has been necessitated by the need to protect salmon streams and meet water quality standards, and that these standards are frequently not met at construction sites using only standard BMPs. Does the polymer add toxics to the water? Minton says the dosage required to cause toxicity is considerably greater than that necessary to reduce turbidity. Contact: (206)282-1681

THREE ISLAND FRAGMENTS are soon to become demonstration projects for how to restore the Delta's 800 or more in-channel islands. The islands — the fast-eroding homes of fish, wetlands and riparian plants have been the focus of a workgroup organized by the S.F. Estuary Project and now coordinating with CALFED. Their small size and highly exposed conditions present special restoration challenges. "They're constantly bombarded by boat wakes and tides," says the Project's Marcia Brockbank. "We're trying to get away from protecting them with concrete rip rap and experimenting with biotechnical approaches such as special plantings and coconut mats." Initial permitting and planning for the three demo projects — located on Little Tinsley Island and off Webb Tract — is well underway. The workgroup is now applying for construction funds. (510)622-2325

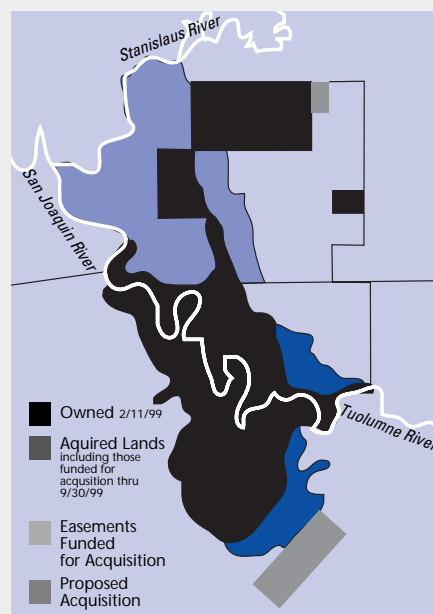


FISH WATER CAN GO BACK TO AG, according to a controversial brief filed by California's new governor this February. According to the brief, filed as part of a federal lawsuit over the 1992 Central Valley Project Improvement Act, the 800,000 acre feet of fresh water releases the act mandates to aid fish passage through the Delta can be reclaimed at downstream pumps for reuse by farms and cities. Environmentalists are outraged, saying that this hard-won environmental water must pass all the way through the estuarine ecosystem to be of any use to fish. They were also smarting because Governor Davis' action slapped the hand of his new Secretary of Resources Mary Nichols, who only a week earlier had killed a similar brief left in place by Governor Wilson (Nichols had to then withdraw her order). "A guy with a strong environmental track record as a legislator should be at least neutral on the issue," says The Bay Institute's Gary Bobker. "Taking sides with a few farmers over the broader interests of the state, and continuing to frustrate federal efforts to implement the law (CVPIA), only encourages people to fight and increases the likelihood that consensus efforts like CALFED will fail."

MITTEN CRABS GUZZLE OXYGEN say Cal Fish & Game biologists exploring reasons why fish stuck in loading buckets and hauling trucks with the Chinese invader died last fall. Up to 20,000 crabs a day clogged fish salvage operations at the Skinner Fish Facility in September and October 1998, sending workers scrambling to separate the crabs from the fish and minimize impacts. But it may not be just the clawing and crowding that stressed out and killed so many fish, it may also be oxygen deprivation. Biologists conducted some preliminary tests in which various numbers of crabs were held for 90 minutes in a 439 liter tank of ambient water while a control tank with no crabs was tested simultaneously. Dissolved oxygen levels dropped markedly in the tank containing the crabs, especially when the tank contained more than 70. These initial tests suggest that as few as 1,600 crabs in a 2,500-gallon fish hauling truck could reduce dissolved oxygen to lethal levels for salvaged fish.

RIVER REFUGE GROWS — December and January brought a Christmas gift of sorts to the geese, cranes, herons and other birds who nest in the San Joaquin River National Wildlife Refuge. During those months the refuge nearly doubled its size, adding more than 2,700 acres to its oak-cottonwood-willow riparian forests, wetlands and pastures. Located within the historic floodplain of the confluences of the San Joaquin, Stanislaus and Tuolumne Rivers, the refuge is the primary wintering site of the threatened Aleutian Canada goose and a critical part of U.S. Fish & Wildlife's recovery plan for the goose. According to Fish & Wildlife's John Fulton, part of the newly acquired property will be used for non-structural flood control: existing levees will be breached and the river channel permitted to return to its naturally meandering ways. The refuge expects to acquire an additional 518 acres by the end of February, and will eventually encompass 12,877 acres. A public meeting focusing on the future of the refuge is planned for March 17 (see Calendar). Contact John Fulton (209)826 3508.

SAN JOAQUIN RIVER NATIONAL WILDLIFE REFUGE



BAY CITIES ARE TAKING POLICY SHOTS AT DIOXIN this winter, with Oakland and San Francisco both exploring resolutions to reduce current impacts and future environmental contamination from this carcinogen. Local regulators and watchdogs have found dioxin — a byproduct of burning plastics, refining oil, bleaching paper and driving diesel cars and trucks that persists in the ecosystem for decades — in Bay fish, waters and air. Dioxin plays a role in numerous health problems, according to U.S. EPA. The two cities final and draft resolutions (Oakland's resolution passed on February 3 and San Francisco's is scheduled for a vote on March 11) vow to establish a regional task force to tackle the problem, as well as new policies on dioxin, public health and the environment. Contact: (510)238-3266.

EXPERTS BREACHED THE TOLAY CREEK DIKE on December 1, letting the tides in through three miles of newly-dredged creek and into a 50-acre former farm field and future wetland. This is just one step in a 435-acre Sonoma County floodplain restoration and enhancement project undertaken by Ducks Unlimited, U.S. Fish & Wildlife and local agencies. Soon after the breach, watchdogs reported waterlogging at the site. But Fish & Wildlife's Louise Vincencio says that crews have already been sent out to combat the drainage problem, conducting more dredging to facilitate low tide outflows from a large lagoon within the floodplain. At press time, bad weather was still preventing crews from finishing the job. Similar observations about drainage problems at Sonoma Baylands, a nearby 300-acre restoration project built in 1995, led to stepped up monitoring of the evolution of the tidal channel feeding part of the site. Two years of monitoring showed desired channel erosion occurring on all but a 20-foot section, where time eventually exposed a plug of buried construction debris impeding the tides. The debris — including branches, pieces of metal, and a sizable amount of chain link fence — was recently removed by the California Conservation Corps. "All these problems aren't serious, they just show that we have to keep going back to tweak things," says environmentalist Marc Holmes. "Each project gives us valuable new information about what size the tidal channel has to be in relation to the area

CORRECTION: ESTUARY mislabeled the pie chart on page 6 of its December 1998 issue as acres when it should have read square miles. Apologies to the Bay Institute for this misrepresentation of their data.

YOUR LETTERS

GRAZING GRUMBLES

Dear ESTUARY,

I was disappointed to see a blurb in your December newsletter claiming that cattle grazing doesn't impact streams. Research being done by U.C. Berkeley's Barbara Allen Diaz was cited in the article, which claimed no significant differences in vegetation cover, creek channel morphology or water quality under three supposedly different grazing regimes. This unsubstantiated assertion flies in the face of scientific data, observable effects on the ground, and reason.

Cattle destroy stream banks, strip ground cover and compact soil. Cattle eliminate riparian vegetation — destroying aquatic and wetlands habitat and raising stream temperatures. Cattle destroy native plants and degrade range conditions so that they favor the spread of non-native invasives. Cattle defecate and urinate in our streams, lowering water quality and contributing to nutrient overload. Cattle attract cowbirds, which are parasitic upon and a direct threat to many declining native songbirds. Cattle ranchers kill numerous predators — mountain lions, coyotes, bobcats which are deemed a threat to their profits. Cattle directly kill by trampling eggs or young, or indirectly kill by habitat destruction or modification, several local endangered species, including steelhead trout, salmon, California red-legged frog and Alameda whipsnake, this according to the federal Fish and Wildlife Service and National Marine Fisheries Service.

I've seen other examples of Allen-Diaz's "research," and to be generous, they are completely unscientific at best. She seems to specialize in drawing conclusions about grazing not verifiable because of the short duration of her studies. How many years was this study done for? What was the historic condition of the study plots before the study was done? Was the area so heavily grazed in previous years it had no time to recover? Who gathered the data, and are they competent? What is meant by "light" and "moderate" grazing?

There is plentiful scientifically valid research (Mechan and Platts 1978, Smith 1988, Schulz and Leninger 1989, Platts 1991, Fleischner 1994, Trimble and Mendel 1995, Knapp and Matthews 1996, etc.) demonstrating exactly the opposite of Allen-Diaz's dubious results. The grazing papers produced by Allen-Diaz and publicized by the Alameda Resource Conservation District are funded by "wise-use" ranchers, who have a vested interest in promoting the myth that grazing increases biodiversity, controls erosion, cures the common cold! The benefits of these myths being believed is continued welfare ranching on public lands, subsidized by taxpayers. Our public lands, water quality and endangered species end up paying the price.

JEFF MILLER

ALAMEDA CREEK ALLIANCE

EDITORS NOTE: According to Dr. Allen-Diaz, the study has been underway for seven years. The area has been grazed for over 100 years, but with periods of rotation and no grazing since the 1950s. Dr. Allen-Diaz and graduate students collected the data. She defined "light" grazing as leaving 1,500 pounds of dry grass and mulch behind, and "moderate" as 1,000 pounds — local standards recommend at least 700 pounds be left for soil protection. Allen-Diaz says she's surprised at her results of little impact on streams, and is now looking deeper than surface impacts into "carbon turnover rates and flow of nitrogen," to see if she can find more subtle ecosystem effects.

RESEARCH

INSTITUTE CRUNCHES NUMBERS

When Oakland's Pacific Institute released *California Water 2020* in 1995, it argued that the state was not using its water resources intelligently, and suggested simple technologies to conserve water in all sectors and avoid costly new infrastructure. The Institute has now presented critics of the 1995 report, who labeled it "overly idealistic" and "too general," with the practical nitty gritty on 40 on-the-ground projects that show just how easily individuals, agencies, and businesses are conserving water, using it to restore the environment, and involving the public in decisions about water use.

The Institute published its new 400-page *Sustainable Use of Water: California Success Stories* in January 1999 (see *Now in Print*). According to Project Manager Arlene Wong, the Institute winnowed a candidate project list of 100 down to 40 based on whether projects were socially, environmentally and economically affordable; acceptable to multiple stakeholders; resulted in more efficient water use or a better match between water quality and end use; promoted flexibility in decision-making and management; and had been on the ground long enough to be evaluated, among other criteria.

The chosen few range from various types of environmental restoration to resource management plans, rate structures, water-conserving techno-fixes in diverse settings, wastewater recycling, water quality improvements, watershed and groundwater management programs, and even legal protection for rivers.

Some of the success stories focus on the water savings achieved, like the one on the San Diego Naval Aviation Depot, which cut its water use by over 90% between 1987 and 1997, from 305 million gallons per year to under 27 million gallons, by making low-tech changes in daily operations. "It just made sense," says the Depot's Jose Jiminez. "Reducing our water use also reduced our waste generation. We are more efficient and we've avoided costs related to additional water purchases and wastewater treatment adding up to over \$2 million a year."

Similarly, U.C. Santa Barbara installed water-efficient shower heads and dish-

washers, low-flush toilets, horizontal-axis washing machines, drip irrigation systems, and other simple technologies, reducing per person campus water use by almost half — from more than 16,000 gallons per person in 1974 to less than 8,000 gallons in 1994.

Another success story describes an integrated resources management plan implemented by the Marin Municipal Water District which makes developing new water supply an option only after all conservation efforts have been exhausted. The plan has reduced demand in that district by 15% (back to 1980 levels), despite a 7.5% population increase. According to the district's Ron Theisen, the agency's motivation was obvious: "We know that water resources in California are finite. The drought of the 1970s was our call to look more closely at how we were using water and how we might use it more efficiently. In some ways, our efforts here have been a microcosm of the issues we're seeing statewide."

Other stories explore the multiple benefits of involving the community in water

conservation and policy — unemployed residents of disenfranchised neighborhoods in southern California gaining jobs and skills by working with water agencies to market ultra-low-flush-toilets (and saving an estimated 12,911 acre-feet of water each year), or citizens getting active in the Los Angeles Department of Water and Power's rate setting process and helping resolve issues of fairness.

Yet another success story details the benefits — environmentally friendly flood-control, jobs for youth, and even revitalization of a downtown — that resulted when citizens of three very different cities (Richmond, Berkeley, and San Luis Obispo) got involved in restoring their waterways.

Many of the success stories involve partnerships among farmers, environmental groups, and municipalities. Santa Rosa is using tertiary-treated water to supply a marsh and an organic vegetable farm, while Visalia works with a walnut grower to irrigate an orchard with wastewater that has undergone secondary-treatment. Recycling wastewater has limited Santa Rosa's discharges into the Russian River to peak wet weather events. "Water is too valuable a resource to waste," says Dan Carlson, the city's Capital Projects Coordinator. "Tertiary treatment means our water can be reused not only for irrigation of fodder crops, but also vineyards, organic vegetables and urban landscapes."

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"These successes show that we can certainly postpone, and perhaps avoid completely, the construction of expensive new dams and storage facilities."

RESTORATION

NEW SOURCE OF DILUTION WATERS?

When Cargill's former North Bay salt ponds became part of the Napa-Sonoma Marshes Wildlife Area, state wildlife managers and environmentalists were thrilled: this would be the largest wetlands restoration project in the state. But Cal Fish & Game, low on funds to restore the ponds, is in a dilemma over how to dilute the saltiest 700 acres — especially 300 acres of bittern — without negatively impacting the Napa River or the Bay.

The Sonoma County Water Agency thinks it has an answer, one that could also help it meet its goal of zero summer discharge into the Bay and offer agricultural users a more environmentally responsible water supply than their current instream diversions. The water agency has proposed building a pipeline to link its treatment plant with at least one other North Bay water agency (Petaluma or Napa) — and preferably both — to deliver reclaimed water to the wildlife area, which is less than a mile from its own facilities.

The maximum amount of water that two agencies could deliver would be around 6,700 acre-feet per year, says Sonoma's Sean White. With that amount of water, restoration, and dilution of the bittern, could take between 10 and 13 years, since the diluted water would have to be released into the Napa River gradually to match the river's background salinity levels and avoid harming aquatic species. "You've got to remember that these bittern ponds are the industrial by-products of 50 years of salt harvesting," says White. "They're the most concentrated of the salt concentrate." By adding reclaimed water from a third water agency, the process could be shortened by at least a few years, says White.

When and how to discharge the diluted pond water are also questions. Under current regulations, summertime discharges are not allowed, but it would be easier to match background salinities then, when the river is saltier. Assuming that regulatory hurdles could be overcome, the diluted bittern would not simply be discharged all at once, says White, but probably through some type of continuous process incorporating a pipeline feeding reclaimed water to the site, a blending mechanism, and a real-time monitoring device to ensure a match with background salinities. The last hurdle would be cost. To build the infrastructure needed to deliver the water and link the three plants would require close to \$20 million, says

White. The agency is investigating possible sources of funding, including CALFED.

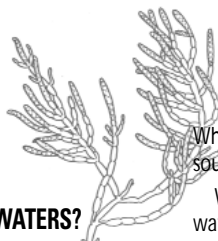
While enthusiastic about using reclaimed water, Fish & Game's Jim Swanson says there are many possible mechanisms for restoring the ponds, including first mixing the bittern with the "pickle" (slightly less salty) ponds and then adding that water to progressively less salty ponds. Even using reclaimed water, they will probably still need to use some river water too, he says. Swanson is concerned about nutrient loads in Sonoma's secondary-treated water, since nutrient loads in some of the ponds are already high. Upgrading the water agency's facilities to tertiary treatment would add to the overall cost but might be necessary, he says.

Swanson was also concerned at first that Fish & Game would be required to accept deliveries of reclaimed water for longer than needed. But he says the water agency's idea of delivering large volumes of reclaimed water for the first few years and then tapering off and selling more water to ag users makes sense.

Meanwhile, the Army Corps is studying the Sonoma water agency's reclaimed water proposal as one alternative for overall ecosystem restoration of the wildlife area's 7,000 acres of ponds. Swanson is hopeful that restoration, and neutralization of the bittern, can begin within the next few years, despite the Army Corps' notorious lack of speed. The ponds were acquired six years ago but only one has since been restored.

Restoration will most likely begin on ponds other than the bittern. Swanson hopes the refuge will benefit from more input from the various agencies examining the issues. "It'll probably take a little longer this way, but we'll end up with a better project than we could do on our own."

Contacts: Sean White (707)547-1908; Jim Swanson (707)944-5528 LOV

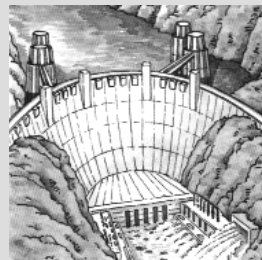


RIVERWISE

DAM-BUSTING CHECKLIST

The pictures were everywhere last year: Interior Secretary Bruce Babbitt, shirtsleeves rolled up, sledgehammer in hand, standing before a dam, heralding a new era for the nation's rivers. Yet even as the federal government gives its very public blessing to dam removal as a strategy for habitat restoration, a San Francisco State University scientist cautions that it is not always the best approach.

"Community watershed groups need to make sure that they are spending their resources in the best possible way," says Michael McGowan of the University's Romberg Tiburon Center. Working with hydrologist Barry Hecht, economist Bruce Lord and fellow biologist Bud Abbott, McGowan is developing guidelines to help groups assess the relative costs and benefits of dam removal. The guide will include checklists that will help groups weigh the existing beneficial uses of dams — including water supply, flood control, irrigation and hydroelectric power — against the endangered fish habitat improvements created by dam removal. The guidebook will also address related issues such as



seismic safety and sedimentation. "We see a strong need out there for technical information, and we don't think groups should have to keep having to reinvent the wheel."

Although dams harm steelhead and salmon populations by interfering with migration and destroying habitat, McGowan says removing them is not always in the best interests of fish. "If you have a dam located far upstream, with little habitat above it, it may be better to leave it in place and use releases to regulate downstream water temperature," he says.

McGowan and his colleagues expect the guidebook project, which is being funded by the National Fish and Wildlife Foundation and the Marin Municipal Water District, among others, to be completed in 1999. In the meantime, later this spring they will hold three workshops with watershed groups and other interested parties.

"We are not advocates for or against dam removal," says McGowan. "We are just trying to present facts so that the best decisions can be made to improve things for the fish." Contact: Michael McGowan (415)338-3514 CH

SPOTLIGHT

LEARN THE LATEST ON REHAB AT THE STATE OF THE ESTUARY CONFERENCE

Restoring the ecological health of the Estuary and its watershed is the compelling theme of the Fourth Biennial State of the Estuary Conference this March.

Join more than five hundred scientists, regulators, engineers, political, community and environmental leaders in exploring the most significant issues facing the Bay and Delta today, and the effectiveness of rehabilitation efforts.

CONFERENCE THEMES

The Changing Watershed

Major Stressors

Recovery of Species and their Habitats

Challenges, Hurdles and Opportunities

Estuary Restoration

The Political Agenda



SPEAKERS

Mary Nichols, Secretary
Resources Agency

Lester Snow
CALFED Bay-Delta Program

**Luna Leopold &
Matt Kondolf**

UC Berkeley

Fred Nichols
US Geological Survey

Steve Monosmith
Stanford

**Peter Moyle &
Jeff Mount**

UC Davis

**State Senator
Jim Costa**

Tom Harvey
US Fish & Wildlife Service

AND MORE

See opposite for details.

MITIGATION

TWO-WAY TICKET TO HEALTH AND SAFETY

An eye for an eye is the stuff of conventional mitigation practice — you destroy one thing and recreate it with trimmings next door. But if San Francisco airport's new runway scheme gets permitted, the Bay may get an ear, an arm or some new organs instead.

Looking around for "compensatory mitigation" for any unavoidable environmental impacts of the airport's potential fill of 1,000-odd acres of open water, an eye for an eye would involve removing one or more of the region's man-made islands and letting the Bay water rush back in. Along these lines, someone has suggested a major surgery in which the mass of Treasure Island is transplanted to the West Bay runway site — a "nonsense" idea according to environmentalist Marc Holmes.

"Open water is not a habitat which has been significantly depleted," he says. "If you're going to do massive ecological damage then you should create comparable ecological benefits." The biggest depletions have been wetlands, says Holmes, who supports another environmentalists proposal to have the airport buy and restore Cargill Inc.'s 14,000 acres of South Bay salt ponds. The proposal has one big disadvantage — Cargill wants to stay in business and isn't in the mood to offer itself up body and soul — and one big advantage — if Cargill could be convinced to give up an arm and a leg, the airport might only have to deal with one landowner. Holmes says only a huge, new, progressive mitigation purchase like the Cargill properties can make the airport project environmentally palatable.

The airport's plan, formally released in a feasibility study on January 29, entails building two new runways and extending one current runway on 900 to 1,400 acres of open bay water. Airport spokesman Ron Wilson says that two-hour delays would drop to a few minutes because the airport could operate at full capacity in bad weather. The airport's study outlined four options for the new facilities, ranging from construction of a pile-supported structure all the way to filling in the entire runway area, the option preferred by the airport's consultants.

Appended to the airport's feasibility study is a list of 50 potential mitigation projects, most of them wetlands. The list details everything from transforming



Sonoma's diked marshes into tidal wetlands at places like Cullinan Ranch or

Skaggs Island to creating burrowing owl habitat in San Leandro, enhancing vernal pools on a private ranch in Marin and purchasing a San Francisco spit whose shell-laden substrate is favored by locally extinct plants.

With a new deep pocket for wetland acquisition and restoration flapping around, everyone has their own ideas about which body parts the Bay's most in need of. Nadine Hitchcock of the S.F. Bay Area Conservancy Program, a new state program aimed at obtaining and directing funds to open space and restoration projects throughout the region, says that outside the South Bay, Marin's Black Point, Bel Marin and Bahia bayshore properties are the nearest to the airport, the most threatened by development, and the least protected. Hitchcock would also like to see some mitigation dollars go to getting creeks out from under the concrete and lined with native vegetation. "Creek restoration not only benefits life in the creeks but also water quality in marshes and the Bay, which will be impacted by any major fill," she says.

There's also talk of a big endowment to properly finish, monitor and maintain all the restoration projects already underway — many of which belong to strapped state and federal agencies with no health insurance to ante up for maintenance of bodily functions. But Holmes thinks frittering away the money on piecemeal projects already on the books is crazy. Who in Congress will give us money when we have a big balance in our own bank? he asks.

The agencies in charge of permitting the airport project aren't officially even talking mitigation until the project gets approved. But U.S. EPA sent a comment letter to the airport on the project's feasibility study this February strongly recommending an immediate pow-wow to create criteria and guidelines for developing any mitigation proposal. The letter foresees conflicts between potential mitigation measures and agency policies and practices, suggesting that all interested parties should put their heads together sooner rather than later. In addition, "the greater the lag time (or uncertainty) between impact and compensation, the greater the mitigation ratio is likely to become," EPA wrote. With a conventional mitigation ratios of 4-10 acres for every acre lost, we might just get a bionic Bay yet. ARO

PLACES TO GO
& THINGS TO DO

WORKSHOPS & SEMINARS

MAR
17
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THRU
FRI
194TH BIENNIAL
STATE OF THE ESTUARY CONFERENCE

Topic: The Rehabilitation of the Estuary and its Watersheds (See p. 6 for details)
Sponsors: SF Estuary Project, SF Estuary Institute, SF Bay Regional Board, Friends of the SF Estuary, U.S. Geological Survey
Cost: \$40-\$175
Location: Palace of Fine Arts, SF
(510)622-2465

MAR
MON
29

CALIFORNIA WATERSHEDS

Topic: Update on policy and regulatory developments in watershed management.
8:30 AM — 4:30 PM
Sponsor: University Ext., U.C. Davis
Cost: \$165
Location: Sacramento
(800)752-0881

APR
WED
14

ENDANGERED SPECIES

Topic: Current state and federal laws, regulations, policies and practices concerning threatened and endangered wildlife and plants. Program incorporates the latest case law regulatory changes and illustrates the impact analysis and mitigation through case studies.
8:30 AM — 4:00 PM
Sponsor: University Ext., U.C. Davis
Cost: \$215
Location: U. C. Davis
(800)752-0881

APR
WED
THRU
SAT
14
17THIRD ANNUAL
AMERICAN WETLANDS CONFERENCE

Topic: Communities Working for Wetlands. Field trips, workshops and panel discussions.
Sponsor: Terrene Institute
Location: San Francisco
(800)726-4853 or www.terrene.org

APR
THUR
15APPLYING THE BASICS
OF CALIFORNIA HYDROLOGY

Topic: Examines the seven basic elements of California's hydrologic cycle: rainfall/snowfall, runoff, surface and ground-water, river transport, water quality and frequency analysis.
8:30 AM — 5:00 PM
Sponsor: U.C. Berkeley Extension
Cost: \$295
Location: San Francisco
(510)642-0374



MEETINGS & HEARINGS

MAR
FRI
12CENTRAL VALLEY
REGIONAL BOARD MEETING

Topic: Regional Toxic Hot Spot Cleanup Plan for the Bay Protection and Toxic Cleanup Program
Location: Sacramento
(916)255-3113

MAR
WED
17

FRIENDS OF SAUSAL CREEK MEETING

Topic: Earth Day cleanups, trail improvements, and resource surveying.
7:00 PM — 9:00 PM
Location: Dimond Library, Oakland
(510)231-9566

MAR
WED
17SAN JOAQUIN RIVER NATIONAL
WILDLIFE REFUGE PUBLIC MEETING

Topic: The Future of the Refuge
6:30 PM — 8:30 PM
Sponsor: U.S. Fish & Wildlife Service
Location: Modesto
(916)979-2085

APR
TUE
THRU
THUR
6
8ENVIRONMENTAL MONITORING
AND ASSESSMENT SYMPOSIUM

Topic: Results to date in the western U.S., including: research on ecological indicators and monitoring designs; ecological processes relevant to monitoring and assessment; and information gaps.
Sponsor: EPA
Location: San Francisco
(781)544-3063
or symposium@tpmc.com
www.epa.gov/emap/html/news.html



HANDS ON

FEB
SAT & SUN
20
THRU
SEPT
12CALIFORNIA
ENVIRONMENTAL HISTORY

Topic: Exhibit examines changes in California's environment over the past 150 years and the way these changes relate to the state's social history.
Sponsor: Oakland Museum
Location: Oakland
(888)625-6873 or www.museumca.org

MAR
SAT & SUN
13
&
14

WILD ON WETLANDS WEEKEND

Topic: Guided tours of Grasslands State Park and San Luis Wildlife Refuge, speakers and workshops, demonstrations including Duck calling and decoy carving, wildlife rehabilitation, fly fishing, wild game cooking.
Location: Los Banos Campus, Merced College
(209)826-5188

NOW IN PRINT
& ONLINECache Creek Watershed Preliminary Mercury
Assessment, Using Benthic Macro-Invertebrates

Slotton et al., U.C. Davis
Copies from (916)255-3113

CALFED Revised Phase II Report

Copies from (800)700-5752 or <http://calfed.ca.gov>

CCMP Workbook: Comprehensive Conservation
and Management Plan for the Bay Delta
Implementation Progress 1996-1998

San Francisco Estuary Project (available March 15)
Copies from (510)622-2321

Draft final "Regional Toxic Hot Spot Cleanup Plan"
for the Bay Protection and Toxic Cleanup Program

Central Valley Regional Board
www.swrcb.ca.gov

Keep It Clean--Preventing Pollution from
Construction Sites (video)

CPS Associates
Copies from (510)622-2325

Mercury Concentrations and Loads from the
Sacramento River and Cache Creek to the
Sacramento-San Joaquin Delta Estuary

Foe and Croyle, Central Valley Regional Water
Quality Control Board, June 1998
Copies from (916)255-3113

Polymer-Assisted Clarification of Stormwater from
Construction Sites

Milton and Benedict, Resource Planning Associates
Copies from (206)282-1681 or
themintons@compuserve.com

Sustainable Use of Water: California Success
Stories (executive summary or full report)

Pacific Institute for Studies in Development,
Environment and Security, January 1999
Copies from (510)251-1600

MAR
SAT & SUN
13
&
14

FREE THE WATER RELAY

Topic: Water from the Nimbus Dam will be carried in jugs down the American and Sacramento Rivers and through the Delta (by kayak, bike and fishing boat), then deposited in SF Bay to symbolize the need for more freshwater flows in California rivers.

Sponsors: International Rivers Network, Friends of the River, Sierra Club and other fishing and conservation groups.
Location: Start Nimbus Dam; to Pier 45, SF
(916)442-3155 ext. 222 or
(415)977-5727

MAR
SAT
20

FRIENDS OF SAUSAL CREEK WORKDAY

Topic: Planting and maintenance continue at the Sausal Creek restoration site in Dimond Park and Dimond Canyon.
9:00 AM — 12:00 PM
Location: Dimond Park Recreation Center, Oakland
(510)231-9566

SIPS CONTINUED

recycling. "We want to recycle water so we can take less overall from the Delta, but we're finding that it's too salty to be used for landscaping and agriculture," says CUWA's Byron Buck. "We need a higher quality supply, but 5-7 million more people in the Central Valley is just going to add more salt to the system."

Buck and MacLaggan say the solution to the salt problem lies largely with the use of best management practices by industries and individuals, but as with TOCs, the Regional Board's role as a discharge regulator is also important. "We feel very strongly that as treatment plants and storm drains continue to produce greater loads of wastewater and urban runoff, the utilities that are responsible for those discharges need to mitigate the impacts on the Delta," says MacLaggan.

Although generally supportive of CUWA's proposal, some environmentalists are wary with regard to TOCs. "Carbon is crucial to primary production," says Deltakeeper Bill Jennings. "You don't want to remove too much of it, and some people feel the water treatment operators want to place the bar

too high." For their part, dischargers are non-committal. "Whatever comes out of the Basin Plan review process is what we will implement," says Mary James of the Sacramento Regional County Sanitation District.

According to the Regional Board's Jerry Bruns, a staff report on Basin Plan stakeholder priority issues is being prepared for an upcoming Board meeting, (the Board is currently without a quorum, pending Governor Davis' appointment of new members). He cautions, however, that even if the Board agrees that a drinking water policy is a priority, developing such a policy may take several years, in part because of staffing limitations. To help move the process along, MacLaggan says CUWA is offering to provide \$80,000 for staffing and consulting. "We hope that other agencies will be equally invested in helping the Regional Board," he says.

In the meantime, CUWA is commenting on individual discharge permit applications submitted to the Board in an effort to ensure consideration of drinking water impacts. To some extent the Board seems to be listening, for example requiring a higher level of treatment for discharge from a new development near Tracy. But MacLaggan says a case-

by-case approach is not really adequate. "We need to adopt a fundamental policy so that the rules of the road are clear to all participants," he says. Contact: Peter MacLaggan (619)523-4661 CH

WATER CONSERVATION CONTINUED FROM P. 4

The Institute hopes its success stories will generate more serious interest in, and statewide discussion, of water conservation — and maybe even inspire similar projects. "Clearly, the old ways of doing business are being replaced by new approaches that are restoring our environment, making more efficient use of our water, and saving governments, corporations, farmers and the public money," says Institute President Peter Gleick. "These successes show that we can certainly postpone, and perhaps avoid completely, the construction of expensive new dams and storage facilities." Contact: Wil Burns (510)251-1600 LOV

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