

They have an enviable view, across the tarmac of the former Alameda Naval Air Station to the Bay and towers of San Francisco. But that is not the main attraction for the California least terns that return to nest there every spring. The site's proximity to one of the Estuary's richest fishing grounds, teeming with topsmelt and jacksmelt, and its safety from four-footed predators have made the Alameda colony a major population center for the endangered seabirds.

Chris Bandy, who manages the site under a cooperative agreement between U.S. Fish & Wildlife and the Navy, says 2002 was a good year for the terns: 287 pairs produced an estimated 238 chicks. Numbers have gradually increased, despite losses to raccoons, skunks, and hawks (including the Bay Bridge pair of peregrine falcons). Bandy, authorized to arrest trespassers and vandals, says human disturbance has been minimal.

But the terns' site remains in administrative limbo. Eight years after the base closure, there is still no Alameda National Wildlife Refuge. Fish & Wildlife claimed the 565-acre parcel, including the nest site, but has been waiting for the Navy to clean up the accumulation of toxic wastes—radium, dioxin, PCBs, and PAHs—on the Superfund site at the parcel's western end. The Navy's first study of the parcel somehow missed the contaminated soil layer and was retracted; the next is not scheduled until 2005. And now the possible entry of a third party may jeopardize the birds' future.

Golden Gate Audubon's Arthur Feinstein charges that the Navy wants to hand over the refuge parcel to a nonprofit, the Realty Restoration Gift Fund (RRGF), and that RRGF has asked Fish & Wildlife to withdraw its claim. (A Navy spokesperson denies that such a request was made). The transfer would be legal under a little-noticed rider to last year's Defense appropriation bill, H.R. 4546, which authorizes the conveyance of "surplus" military property to state governments or qualifying nonprofits. Although the amendment's language stipulates that the new owner must maintain the property "for the conservation of natural resources," it says nothing about the status of endangered species. The act also allows the owner to use the property as a revenue source.

If the deal goes through, the Navy would pay RRGF to clean up the Superfund site. The nonprofit's insurers would indemnify the Navy for any financial consequences from the contamination. RRGF could then buy the land at market rate and potentially develop and re-sell it.

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Scramble at the Water Supply Table

California has said for many years that it could give up its use of excess Colorado River water at any time. But when faced with a federal deadline of January 1, 2003 for a plan for four Southern California water districts to wean themselves off river surplus, the Golden State couldn't kick its addiction. So the U.S. Department of the Interior took the tough-love approach of cutting 13% of California's annual share of the river water—enough to supply about one million households for a year.

The dispute is likely to touch off water wars pitting California against other western states and Northern California against its southern neighbors. Northerners fear more pressure for further Sacramento-San Joaquin Delta diversions, which could spell trouble for the state's salmon and for inflows to the San Francisco Bay-Delta Estuary.

"The whole Colorado River fracas increases the pressure on the State Water Project to pump water at higher rates, and that will increase impacts by further reducing freshwater inflows into the Bay," says the Bay Institute's Tina Swanson.

The federal government has long permitted California to take more than its legal share of the Colorado River. A 1963 Supreme Court ruling tried capping California's take at 4.4 million acre-feet per year, though it still allowed the state to take half of any surplus. Population surges among California's river partners—Wyoming, Colorado, New Mexico, Nevada, Utah, and Arizona—in the 1990s and recent western droughts shrank the surplus, but California continued dipping into

the Colorado beyond its legal limits. Finally, states like Arizona, fearful they would never get their legal allotments, pressed former Interior Secretary Bruce Babbitt to enforce the 1963 decree. Babbitt allowed California to continue taking the surplus water for 15 years as long as it adopted a plan by January 1 to gradually reduce its use of the Colorado River.

The brunt of this reduction plan fell to the Imperial County Irrigation District, owner of some of the oldest and largest water rights in the Colorado River Basin. The District—whose nearly 500,000 acres of arid soil produce \$1 billion worth of vegetables each year and whose runoff supplies up to

90% of the water in the Salton Sea—uses about 3 million of California's annual 4.4 million acre-feet from the Colorado.

Under a proposed plan worked out last October among the Metropolitan Water District (MWD), San Diego County Water Authority, Coachella Valley Water District, and Imperial County, Imperial was to sell to San Diego 200,000 acre-feet of water per year. Imperial ultimately balked at this proposal, citing several concerns, including a requirement that farmers permanently fallow as much as 25% of their land and accept liability for environmental damage to the Salton Sea as a result of reduced runoff.

By press time, the parties had returned to the negotiating table. While the prospects for an agreement are uncertain, one thing for sure is that California is facing the cold reality that water is a finite resource, a fact that makes some environmentalists glad the Colorado River surplus is gone. "You can debate the way [Gale Norton] divided the water, but on the fundamental act of cutting California to 4.4 million acre-feet, she's right," says Tom Graff of Environmental Defense.

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"The... Colorado River fracas ... will increase impacts by further reducing freshwater inflows into the Bay..."

BULLETIN BOARD

HIS PLAN TO SHIP WATER SOUTH from two north coast rivers (the Gualala and New Albion) in giant plastic bags failed as a result of public and political protest, but Alaskan businessman Ric Davidge has his eye on a new source—the Mad River. This time, the water may be "in the bag."

Rather than having to conduct expensive environmental studies—as he would have on the other rivers—Davidge is proposing to use water that has already been allocated to a mill and a former mill. His company—The Aqueous Corp.—would tap into water pumped from a surface well on the Mad to the mills' connections on the Samoa Peninsula. From there, up to 20,000 acre-feet each year would be

shipped to water-needy places like Monterey. The entrepreneur claims the project would bring 185 to 200 jobs per year to the Humboldt Bay area, in part from manufacturing the giant water-toting plastic bags.

COMMUTERS GOT A REPRIEVE when state and environmental officials struck a deal allowing Caltrans to continue pile driving for its new Benecia Bridge span crossing the Carquinez Strait. But the jury is still out on whether the state's salmon, steelhead, and other fish will be protected from the pile driving by experimental technology proposed by Caltrans. The agency had been prevented from the noisy activity while officials tried to figure out how to keep fish from dying from the sound waves—up to 250 decibels—that can travel 700 meters and bloat fish air bladders. Caltrans engineers had designed a plastic-coated steel sheath that can be placed around bridge pilings. Air is pumped into the sheath, creating a curtain of bubbles that deflects sound waves from the pile driving. But the agency now claims the method is too expensive and will be allowed to test the use of bubble curtains without using the sheaths.

LAKE DAVIS PIKE PERSIST DESPITE POISON, explosives, electric shocks, and nets. After Cal Fish & Game poisoned the lake with chemicals in 1997 to rid it of the alligator-toothed fish, the community of Portola lost its water supply due to the impact on water quality. But with last year's pike count at over 17,000, some residents and business owners on the lake are calling for a renewed assault. Although Fish & Game officials are worried that the pike population will continue to grow—and even escape into the Bay-Delta—if drastic measures aren't taken soon, the Lake Davis Steering Committee says the lake's trout population is doing well and hasn't been decimated by the pike.

HOT OFF THE PRESSES FROM THE S.F. ESTUARY PROJECT: *Science & Strategies for Restoration, State of the Estuary 2002* details the current state of Bay-Delta waters, wetlands, wildlife, watersheds, and aquatic ecosystems. The 80-page report highlights new restoration research, explores pressing science questions, and offers useful information for anyone working to protect California's water supplies and endangered species. To order a copy, send \$5 to the S.F. Estuary Project; Attn: State of the Estuary 2002, 1515 Clay Street, #1400, Oakland, CA 94612. Fma@rb2.swrcb.ca.gov

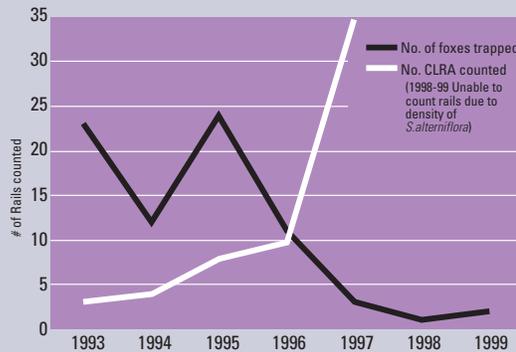
SPECIES SPOT

RAILS RISING

Clapper rails are on the rise at Arrowhead Marsh, according to recent counts of the endangered bird by East Bay Regional Parks District biologists—up from 0 birds counted in 1991-1992 to 66 in 2002. The rails may be benefiting from the invasive cordgrass *Spartina alterniflora*, which has taken over the marsh and provides denser cover than the native *S. foliosa*, according to biologist Joe DiDonato. Rail numbers are up, and their nesting territories have increased in density with this increase in habitat, says DiDonato. Rail expert Jules Evens says that what is happening at Arrowhead reflects a pattern he is seeing around the Bay—rails are increasing in areas that have been invaded by *S. alterniflora* and decreasing in some areas where they've historically been abundant, like San Pablo Bay, the Napa River marshes, and Sonoma Creek.

"Are these independent events or related?" asks Evens. He hopes to answer that question in CALFED-sponsored surveys he and colleagues from the Point Reyes Bird Observatory will conduct in 2004. Another possible cause of the increase, according to DiDonato, may be the regionwide predator-control efforts taking place—because red foxes have been controlled on South Bay refuges, rail numbers have

COGSWELL MARSH, CLAPPER RAILS IN WINTER SURVEYS



increased. (The North Bay does not have an active fox control program.) But Golden Gate Audubon's Arthur Feinstein offers yet another possible explanation for the increase at Arrowhead. He believes the rails may have come from the Emeryville Crescent, driven away by Bay Bridge construction activities.

One thing everyone seems to agree on is that the boost in rail numbers may be a temporary boon.

"In the long term, *S. alterniflora* may constrict and cause the loss of the dendritic channels the rails need," says DiDonato. And coastal plant ecologist Peter Baye adds that while it is exciting to see numbers of an endangered species begin to climb, he doesn't think salt marshes should be managed for a single species.

"The issue we really have is that the invasion isn't going to stop," says Baye. "The other species at risk of extinction is the native cordgrass, *S. foliosa*."

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ARROWHEAD MARSH, MLK, CLAPPER RAIL NUMBERS



REGULATION

AG ON THE HOT SEAT

Environmentalists sued the Central Valley Regional Water Quality Control Board in January in an effort to make agriculture subject to the same regulations that govern other California industries.

"Ag is kicking and screaming, but it's only fair for them to come under the same regulatory umbrella as everyone else," says Bill Jennings with DeltaKeeper.

For decades, Central Valley farmers have released untreated irrigation water into rivers and waterways under a special waiver that exempts them from environmental regulations and permits.

One lawsuit charges that the water board is in violation of the California Environmental Quality Act for failing to conduct a review of the effects of discharging irrigation water into public waterways. The second suit specifically challenges waivers for dairies, feedlots, poultry farms, and other confined animal facilities—all of which have been implicated in serious pollution problems in other parts of the country.

An amendment to the state's Porter-Cologne Water Quality Act in the early 1980s allowed water boards to waive a permit when such an action was deemed to be "in the public interest." Agriculture, timber, and dairy industries all received waivers.

Prior to that, Congress passed an amendment to the federal Clean Water Act in 1978 allowing farmers to discharge agricultural irrigation water, usually called "return flows," directly into waterways.

Since then, mounting evidence implicates agricultural discharge in pollution problems plaguing the Central Valley and Delta water supplies. Certain places along the San Joaquin River have some of the highest levels of pesticides in the nation, including "legacy" toxics, such as DDT, according to a 1998 report by the U.S. Geological Survey. Meanwhile, levels of zooplankton and phytoplankton, crucial food for fish, have dropped dramatically since the 1980s, a trend linked to high levels of nitrogen from fertilizers.

In 1999, the state legislature gave regional water boards three years to come up with a plan for dealing with agricultural discharges. On Dec. 5, 2002, as that deadline



loomed, the Central Valley Regional Board adopted a plan that would create watershed groups to monitor water released from the region's farms—a first step toward controlling pollution. Environmentalists attacked the plan, which they said lacked specifics, including targets, deadlines, and vehicles for public involvement.

"They are essentially using the same vague waiver they've had since '82, which relies on the good graces of agriculture," says Mike Lozeau, an attorney with the

Earthjustice Legal Defense Fund, who is representing a coalition of environmental groups.

Urban water users are concerned too—about byproducts created when chemical-laced water is combined with disinfecting agents to supply drinking water. Some of those byproducts have been linked to cancer, according to Richard Denton of the Contra Costa County Water District.

Rudy Schnagl, head of the board's agriculture unit, defended the plan. The plan reflects fiscal realities in the Central Valley and California, says Schnagl. "Part of it is we just don't have the staff. Picture the challenge of working with 25,000 people and no staff."

The challenge will be greater if the recent budget proposal by Gov. Gray Davis is adopted. The state's already small budget for monitoring has been cut entirely from the governor's proposed budget, according to Lozeau. Without funding, it may be business as usual in the Valley unless environmentalists take a hard line in the courts.

Despite the confusion caused by the governor's budget proposal, the Central Valley Regional Board has tacitly recognized that history—and the courts—may not turn out to be on its side. Members voted to revisit the waiver issue when they meet again in March.

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RIVERWISE

NEW TOOLS FOR THE SAN JOAQUIN

Like many San Joaquin Valley farmers, California congressman Devin Nunes (Republican, Tulare) envisions a new dam on the San Joaquin River above Millerton Lake. Nunes recently introduced legislation enabling a feasibility study for a dam at Temperance Flat, claiming that the state's economy cannot continue to grow without new water. But other stakeholders have been busy exploring less traditional and less expensive ways to re-water and restore the river while ensuring that ag users still get their fair share.

An environmental coalition led by the Natural Resources Defense Council and the Bay Institute has been working with the Friant Water Users Authority to explore new water supply alternatives for the river. An independent consulting firm, URS Corporation, recently completed a two-year study for the coalition and Friant that screened a multitude of alternatives for cost, yield, and implementability, according to NRDC's Jared Huffman.

"The study presents six different 'bundles' of alternatives, any of which would provide adequate replacement water to Friant to enable restoration of the San Joaquin River," says Huffman. "It looks at everything from water acquisitions to expanded groundwater storage to reoperation and recirculation." Huffman says there are lots of ways to generate restoration water supplies without building a big dam. The big question, he says, is who's going to pay for a new dam at Temperance Flat. "It's been looked at a number of times. In addition to being environmentally destructive, it would be extremely expensive—several times more than what San Joaquin Valley farmers are willing to pay for water."

Huffman says that while some people have recommended building Temperance Flat and taking out Friant, a restoration program should not be built around that idea. "Friant Dam is unlikely to ever be removed. We would just end up with two dams—double trouble," says Huffman. The report—"Water Supply Study/ Development of Water Supply Alternatives for Use in Habitat Restoration for the San Joaquin River"—is intended to be a toolbox of ideas and includes the possibility of raising Friant Dam and restoring a portion of Tulare Lake.

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HOW SEE IT

WESTLANDS ESCAPADES
LLOYD CARTER

Since the 1960s, the big growers in the San Joaquin Valley's infamous Westlands Water District have been the bad boys of California agribusiness. Over the years, they have managed to not only antagonize the environmental community, the Bay Area, and Northern California, but also fellow growers.

Their latest scheme—which some call a "secret sweetheart settlement"—managed to irritate all 53 members of Congress in the California delegation and Senators Dianne Feinstein and Barbara Boxer, each of whom signed a letter to the Departments of Justice and the Interior demanding the details of the settlement. The proposed agreement would reward just 19 farming families with a whopping \$140 million, \$107 million of it in tax-free damages, with funding raided from other water programs in California and Pennsylvania.

Westlands' ability to aggravate goes way back. In the 1960s, the ambitious growers in the nation's largest federal irrigation district expanded the district by more than 200,000 acres to 604,000 acres, an act a 1978 Congressional Task Force later concluded was unauthorized by Congress.

In the 1980s, Westlands gave us the environmental disaster at the Kesterson National Wildlife Refuge, a dumping ground for agricultural drainage water containing toxic amounts of selenium—which occurs naturally in Westlands soils—as well as salts, heavy metals, and pesticides and herbicides. These chemicals poisoned the food chain and caused deformities in migratory birds. But continuing the drain to the Bay (Kesterson was the halfway point for a drainage canal the U.S. Bureau of Reclamation wanted to extend to the Bay) triggered an outcry from Bay Area politicians and environmentalists.

Kesterson was closed in 1986, leaving Westlands without a drainage disposal option. Without it, the land began salting up. Westlands drains west to east from the Coast Range Mountains to the central trough of the San Joaquin Valley where the San Joaquin River runs north to the Delta. Growers at the bottom of the slope sued Westlands Water District, BurRec, and the Department of the Interior. The suit dragged on for years as BurRec officials scrambled to find a solution to the problem, spending more than \$100 million on studies. Meanwhile, BurRec continued to deliver water and growers to apply it to their land.

Several months ago, the new Assistant Secretary of the Interior, Bennett Raley, announced that he would offer a staggering \$107 million in a tax-free settlement to the 19 Westlands families controlling the 32,400 acres suffering the most salt buildup. Westlands Water District offered an additional \$33 million, as long as the district got to keep the water rights—more valuable than the land. Just four families—the Pecks, Wolfsens, O'Neills, and former California Secretary of State Bill Jones and his family—would receive nearly \$90 million.

Ordinarily, settlements against the federal government come from the Justice Dept's Judgment Fund, but Attorney General John Ashcroft apparently balked, and Raley turned to other potential sources of funding, including the Central Valley Project Improvement Act restoration fund, created by Congress in 1992 to make amends for the environmental damage federal water projects have done to the Bay-Delta Estuary and California's rivers. But Valley growers grew hopping mad when they found out that this fund, financed by a surcharge on their water bills, would be used to buy out Westlands.

Raley turned to other Central Valley Project programs to get cash, including pumps on the American River, recycling programs in Southern California, and an Army Corps dredging project in Philadelphia, prompting new California Congressman Dennis Cardoza to ask for a meeting with Defense Secretary Donald Rumsfeld.

At a January hearing in Fresno, U.S. District Court Judge Oliver Wanger indicated that he would probably approve the settlement but suggested that if the CVPIA restoration fund was used, environmental intervenors would be free to challenge the legality. Interior officials then said that the first \$5 million would come from a BurRec trust fund and that they would ask Congress for a special \$28 million appropriation to avoid tapping into other BurRec programs.

Not only does Raley now have to find a new sugar daddy for the Westlands buyout, but he may also have to answer questions from the General Accounting Office about why he negotiated such a favorable deal with Westlands. Representatives George Miller and Henry Waxman have asked the GAO to investigate whether the American taxpayers are getting their money's worth in Westlands. For 40 years, the answer has been "no."

Lloyd G. Carter is a professor of water law at San Joaquin College of Law and covered California water issues as a reporter for United Press International and the Fresno Bee.

WORSE TERN - CONTINUED

RRGF's web site touts its "strategic partnership" with The Conservation Fund and the Trust for Public Land. But Feinstein says the nonprofit, headed by Santa Fe realtor Jay Grab, has no track record in dealing with sensitive species and no experience in managing land. Feinstein says what's needed is long-term sustained expert management of the site, to protect not just terns, but the brown pelicans, harbor seals, and other species that feed or roost there.

"We've invested a lot of care in that site," says long-time environmental activist Leora Feeney, who chairs Friends of the Alameda Wildlife Refuge and has organized volunteer weeders to maintain the tarmac as good nesting habitat. "When a change in site ownership is proposed, it makes us very nervous."

"We're determined not to let that property go to development," adds Janice Delfino of Citizens to Complete the Refuge.

There has been little media coverage of the terns' prospective new landlord. "We're not developers," Grab recently told an *Alameda Journal* reporter. "My goal is in 10 years to have the Trust for Public Land or The Nature Conservancy take these lands." But RRGF's leadership is composed largely of realtors, and attorney Thomas Hnasko, on its board of directors, represents mining companies, oil and gas producers, and real estate developers.

Even if the property changes hands, says Feinstein, it need not be a package deal. The area where the terns nest is relatively clean, and the transfer could be limited to the heavily contaminated 120 acres at the west end. Meanwhile, Bandy and Feeney keep a watchful eye on the birds. Though the terns have scouted the Albany Crescent in recent years, and the East Bay Regional Park District is leading a volunteer habitat restoration effort at Hayward Regional Shoreline, Alameda is their only viable Bay colony.

The survival of California least terns may hinge on the colony's success. Bandy explains that last year was a disaster for least terns in Southern California, possibly due to food shortages linked to changes in ocean temperatures, and predation. Some colonies were occupied by only a few pairs. As a result, the Alameda birds, which normally produce about 20% of all California least tern fledglings each year, accounted for a third to a half of the class of 2002.

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CONSERVATION

PURPLE PIPES GREEN VALLEYS

Purple pipes designating recycled water will keep San Ramon Valley's greenbelts green thanks to the new San Ramon Valley Recycled Water Program led by the Dublin San Ramon Services District-East Bay Municipal Utility District Recycled Water Authority (DERWA), in a landmark partnership with the Army Corps' San Francisco District. With seven pump stations, five storage tanks, and 75 miles of pipeline, the project will irrigate golf courses, parks, roadway medians, schoolyards, and office landscapes in Blackhawk, Danville, Dublin, and San Ramon. Depending on supply, new commercial buildings may also tap into the system and use recycled water to flush toilets.

Says the Corps' Yvonne LeTellier, "It's a valuable project that will save drinking water by using recycled water for landscaping." Although the project is a first for the San Francisco District, the Corps has about 60 such water-related projects underway nationwide, thanks to federal passage of the Water Development Resources Act (WRDA) of 1992. The act authorized the Corps to design water-related environmental infrastructure and resource protection and development projects. The WRDA of 1999 authorized additional dollars, including up to \$15 million for the San Ramon project.

The \$150 million project will be built in three phases, with completion slated for 2010. Phases 1 and 2 will create the "backbone," at a cost of \$62.2 million, according to DERWA's Robert Baker. Stemming from the backbone, the "rib" pipes will then deliver recycled water to 125 large irrigation customers. The pot of gold at the end is an expected supply of 5.7 million gallons a day, or 6,400 acre-feet per year (af/yr) of recycled water, saving enough freshwater from the Sierra Nevada each year to provide drinking water for 12,000 families. Phase 3 build-out could yield as much as 8,200 af/yr, saving enough water annually to meet the needs of 15,000 families.

DERWA's new tertiary treatment facilities will filter and disinfect the wastewater at a level that meets the stringent requirements for unrestricted use in California Department of Health Services' Title 22. First recycled water deliveries are projected for spring 2005.

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TECHNOFIX

DESALTING THE BAY

California's water situation is so grim that one of its wettest counties may tap the Bay's semi-salty waters to shore up water supplies in drought years. The Marin Municipal Water District is considering building a desalination plant on the north side of the San Quentin Peninsula that would process water from San Pablo Bay to add between 5 million and 10 million gallons of water a day to Marin's supply.

The move by Marin reflects lessons learned during the dry years in the 1970s and early 1990s. Though the county has more than double the amount of rainfall San Francisco has in an average year—and a population that has squeezed all it can from conservation efforts—Marin comes up short on water in dry years, says the District's Jared Huffman.

One option for Marin—supplementing its reservoir supply by dipping deeper into an overtaxed Russian River—is vehemently opposed by environmental groups. The District, under its contract with the Sonoma County Water Agency, must pump Russian River water during the winter when it is not able to make reasonable projections of its summer water needs. It must estimate its needs, and in wet years, sometimes winds up with excess water that could, instead, be benefiting fish and wildlife. "Our conventional sources of water have taken a huge toll on the environment," explains Huffman.

Many water districts in Southern California, where the federal government recently turned off the tap for 800,000 acre-feet per year of surplus Colorado River water, are investigating, planning, or testing desalination plants. In Los Angeles, the Metropolitan Water District dangled a subsidy of \$250 per acre-foot as a carrot to get agencies to substitute desalinated water for imported water. Last November, state voters approved a bond measure that included \$50 million to pay for desalination plants. Meanwhile, technology improvements have made desalinating a cheaper



proposition. What used to cost between \$2,000 and \$3,000 per acre-foot to desalinate can now cost less than \$1,000 per acre-foot. "The costs are coming down to something that makes [desalination] reasonable to evaluate," says Jeff Becerra with the East Bay Municipal Utility District. That agency will soon begin a desalination feasibility study with the San Francisco Public Utilities Commission and the Santa Clara Valley Water District.

One major cost municipalities must consider is the energy needed to purify the water—power can account for 20 to 50% of the total operating cost of a desalination system. To defray that cost, counties like San Diego are attempting to locate desalination plants next to electric power plants. The desal operation borrows energy from the power plant and then donates wastewater to the power plant to produce steam for energy. EBMUD would have this option; in Marin, there is no power plant available. But because the Bay's water contains less salt and is warmer than ocean water, less energy will be needed to desalinate it, according to Huffman.

Environmentalists worry that discharge from a Marin desalination facility could raise the salinity of the Bay and endanger wildlife. Huffman sees an opportunity in their concern. He hopes to partner with the Central Marin Sanitation District to allow the desalination operation to work within the footprint of existing wastewater treatment works. The byproduct of traditional wastewater treatment sometimes has lower salinity than the wetlands and saltwater into which it is discharged. Says Huffman, "By blending brine from the desalination plant [with treated wastewater], you can equal the salinity that's supposed to be in the Bay or the salt marsh."

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WATER SUPPLY CONTINUED

Now California must figure out how it will live within its water limits. MWD and state water authorities have said the immediate future—the next two years—is covered, thanks to a wet year up north, a good Sierra snow pack, and stored water. But the distant future and the droughts it could bring are causing consternation in the north.

"There's no question that much of the shortfall from the Colorado River will be made up through north-south transfers," says Brent Haddad, environmental studies professor with the University of California, Santa Cruz.

Months before the January 1 deadline, MWD brokered water transfer deals with 14 Sacramento Valley irrigation districts. If approved, the one-year deals will bring 205,000 acre-feet of water security to MWD, achieved by valley rice farmers following about 40,000 acres. MWD will pay farmers \$2 million, and an additional \$18 million if the district asks for the water this year, payments far greater than what the growers would make selling rice. Districts like Glenn-Colusa sold water last year to urban water districts and have indicated to MWD that they would gladly sign on to a multi-year deal in the future.

No matter how much water MWD sews up in transfer agreements, it is limited in how much it collects by the capacity of the pumps on the Sacramento-San Joaquin Delta, notes Swanson. The Army Corps currently prohibits the State Water Project from pumping at top capacity because those flows would endanger levees. Swanson says this will change once the South Delta Improvement Project is completed. Overseen by CALFED, the project will enlarge Delta channels to allow the state to pump at higher levels.

More water headed south through the Delta means reduced flows in rivers and waterways connected to the Delta, and in freshwater inflow to the Estuary. "San Francisco Bay already sees less than half of its freshwater inflows," explains Swanson. Reduced flows could also threaten biodiversity, as Delta inflows are the engine for the Bay's biological productivity, spurring phytoplankton and zooplankton growth. Bay fish and invertebrates depend on freshwater inflows too, particularly in the spring, says Swanson.

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RESTORATION**SLEIGHT OF HAND ON SOUTH SLOUGH**

Restoring salt ponds to tidal marsh can take years of careful planning and tedious permitting. But Napa's Pond 3—at 1,320 acres the largest on the Estuary—recently got an unexpected jump-start on the process. Cal Fish & Game's Tom Huffman was making his rounds one morning last August when he did a double take. A brand new breach had appeared overnight in a levee on the pond's north side along South Slough, courtesy of some midnight ditch diggers. Renegade restorationists had dug an 11-1/2-foot-deep, 1-1/2-foot-wide, 40-foot-long channel through the deepest core of the levee, says Huffman, allowing low-salinity slough water to enter and start freshening the salty pond.

"We don't know how they were able to do it," says Huffman. "There must have been a crew because it's dangerous work, and they did a very good job." Huffman says that while Fish & Game has no idea who made the breach, it suspects that perhaps some frustrated hunters—disgruntled over the department's management of the refuge's ponds and the amount of time it is taking to restore them (even though Pond 3 was next in line for restoration)—may have taken matters into their own hands. Fish & Game has had budgetary and logistical problems over the last several years in attempting to move fresher water from the Bay through a series of siphons and pipes to the hyper-saline ponds in the middle of the refuge. The pipes often become clogged with saline plugs that are difficult to remove, says Huffman.

But the midnight breach made moving water a little easier, at least into Pond 3 (aka Knight Island), which is now on its way to becoming a tidal marsh. Huffman has been testing the pond's salinity regularly and has seen it drop from 58 ppt to 12 ppt. During the recent holiday-season storms, heavy rains and 7-foot-high tides widened the breach to over 40 feet, and the pond is receiving lots of tidal action. At low tides, more of the substrate is exposed, says Huffman, including some higher areas made of old spoils leftover from when the pond was farmed and drainage ditches

were carved into its bottom.

The mystery crew did not cut the channel exactly where Fish & Game would have, according to Huffman, who says his department would have studied aerial photos and map overlays of remnant historic slough channels within the pond and then placed levee breaches at those points. Still, the homemade breach seems to be working well so far. Huffman adds that while regulators could have ordered Fish & Game to stop the evolution of the breach, it would have cost them money they don't have.



While he can't support anarchist restoration—"if we catch anyone doing it, it'll be treated as destruction of state property, and people will be cited"—he is nevertheless eager to see which plants, fish, crustaceans, and exotics begin using the changing habitat. The only fish that could tolerate the pond's former high salinity were long-jawed mudsuckers. Meanwhile, one of the largest colonies of Caspian terns in the North Bay, along with the Forster's terns and double-crested cormorants accustomed to using the pond, may see their former habitat transformed—but could benefit from the change as more ground becomes exposed for nesting. The water surface elevation has already dropped from 3 feet (the level at which it was previously managed by Cargill) to 2.1 feet at low tide, and Huffman has spotted more shorebirds using the area, as well as ducks, attracted by the freshwater. Says Huffman, "It's a brand new slate out there."

Contact: Tom Huffman (707)226-3641
LOV



PLACES TO GO & THINGS TO DO



WORKSHOPS & SEMINARS

FEB
TUESDAYS
4
THRU
MAR
18

INTRODUCTION TO WATERSHED ASSESSMENT

TOPIC: Functions and processes in watersheds or the drainage basin of a creek or river. Includes Saturday and Sunday field trips to three watersheds.

SPONSORS: Watershed Assessment Resource Center, The East Bay Watershed Center, and Merritt College.

LOCATION: Merritt College
www.peralta.cc.ca.us
Laurel Marcus (510) 832-3101 or
Laurelm@ix.netcom.com

FEB
SAT
22

WORKSHOPS FOR K-12 TEACHERS PROJECT WET

TOPIC: Integrate math, science, language arts, social studies, and environmental studies with fun activities promoting knowledge and stewardship of water resources.

SPONSOR: SF Bay Model Visitor Center
LOCATION: SF Bay Model Visitor Center
Bob Stevenson (415) 332-3871 or
Robert.R.Stevenson@spd02.usace.army.mil

FEB
SATURDAYS
22
AND
MAR
1

KIDS IN GARDENS (Grades K-12)

TOPIC: Learn to design and manage a successful school or classroom garden and how to attract beneficial insects and birds and make worm bins.

SPONSOR: Aquatic Outreach Institute
LOCATION: Bay Point and Highlands Elementary, Pittsburg
www.aoinstitute.org or
Mary Malko (510) 231-9430 or
mary@aoainstitute.org

FEB
MON - FRI
24
THRU
28

4th ANNUAL NATIONAL INVASIVE WEEDS AWARENESS WEEK

TOPICS: Briefings on critical invasive plant issues. Presentations and position papers on significant weed management and ecosystem restoration issues.

SPONSOR: The Invasive Weeds Awareness Coalition (IWAC)
LOCATION: Washington, D.C.
www.nawma.org

FEB
THURS - SAT
27
THRU
MAR
1

WILDLIFE SOCIETY WESTERN SECTION 2003 ANNUAL CONFERENCE

TOPIC: Sessions on wildlife management on military lands, ecology and management of endangered species, amphibians, reptiles, and small animals.

SPONSOR: The Wildlife Society
LOCATION: Irvine, California
www.tws-west.org

MAR
SATURDAYS
1
15
29

GARDENING FOR WILDLIFE

TOPIC: Learn to diversify gardens by landscaping with California native plants and how it attracts local native wildlife.

SPONSORS: Aquatic Outreach Institute in partnership with CALFED Bay-Delta Program
LOCATION: Various locations in Contra Costa County

www.aoinstitute.org
or Lisa Lacabanne (510) 231-5783 or
lisa@aoinstitute.org

MAR
SUN - SUN
16
THRU
23

THIRD ANNUAL WORLD WATER FORUM

TOPIC: Discuss worldwide political and community action and how to encourage better understanding of the need for more responsible water use and conservation. Launch of World Water Development Report.

SPONSOR: UN Environment Program
LOCATION: Kyoto, Shinga, & Osaka, Japan
www.worldwaterforum.org

MAR
WED - SAT
19
THRU
22

SNVB AND TWS JOINT ANNUAL MEETING

TOPIC: Biotic and Abiotic Processes in Headwaters Streams

SPONSORS: Society for Northwestern Vertebrate Biology and The Wildlife Society, California Northcoast Chapter
LOCATION: Humboldt State University
www.SNWVB.org

MAR
WED - SAT
26
THRU
29

21st SALMONID RESTORATION AND URBAN STREAMS CONFERENCE

TOPIC: Survey and assessment techniques, urban streams, agriculture and salmonid streams, and restoration monitoring.

SPONSOR: Salmonid Restoration Federation
LOCATION: San Luis Obispo
www.northcoastweb.com/srf/conference.html
Dana Stolzman (707) 923-2795 or
dana@wildcalifornia.org

APR
WED - THUR
2
THRU
3

ENDANGERED SPECIES RECOVERY AND HABITAT RESTORATION CONFERENCE

TOPICS: Report on Central Valley Project Improvement Act Habitat Restoration Program, sessions on land acquisitions and conservation easements for species recovery and habitat protection.

SPONSORS: Western Section of the Wildlife Society (TWS-WS), U.S. Department of the Interior, Bureau of Reclamation, and U.S. Fish and Wildlife Service

LOCATION: Sacramento Radisson Hotel
www.tws-west.org

APR
SUN - WED
13
THRU
16

1st NATIONAL CONFERENCE ON COASTAL AND ESTUARINE HABITAT RESTORATION

TOPIC: A comprehensive approach to habitat restoration, featuring experts representing all coastal areas of the U.S., including the Great Lakes.

LOCATION: Baltimore, Maryland
SPONSOR: Restore America's Estuaries (RAE), a national alliance of Save The Bay and 10 other estuary organizations
www.estuaries.org/nationalconference.php

NOW IN PRINT & ONLINE

Road Ecology: Science and Solutions
December 2002. Island Press. www.islandpress.org

California Coastline Aerial Photo Project
October 2002. California Coastal Records Project.
http://www.californiacoastline.org

A Primer on Stream and River Protection for the Regulator and Program Manager

October 2002. San Francisco Regional Quality Control Board
(510) 622-2300

GRANT OPPORTUNITY

DUE FRIDAY, MARCH 14, 2003

Grant funding available for environmental education projects that emphasize hands-on restoration experiences for K - 12 kids.

California State Coastal Conservancy
Brenda Buxton (510) 286-0753 or
bbuxton@scc.ca.gov

JUNE
THUR - FRI
5
6

LOWER AMERICAN RIVER SCIENCE CONFERENCE

TOPICS: Sessions on fish habitat, in-stream flow, and effects of dams; groundwater versus surface water basins and conjunctive use.

SPONSOR: Cal State University, Sacramento College of Natural Sciences and Mathematics
LOCATION: Cal State Univ., Sacramento
www.cce.csus.edu/conferences
(800) 858-7743



HANDS ON

MAR
FRI
14

REFUGE SYSTEM CENTENNIAL

TOPIC: Celebrate 100 years of the National Wildlife Refuge System and watch a re-enactment of a 1903 meeting between President Theodore Roosevelt and John Muir.

SPONSOR: San Francisco Bay National Wildlife Refuge
LOCATION: Gary Soren Smith Center at Ohlone College in Fremont
(510) 792-0222

WATER SUPPLY CONTINUED

The flows issue is being addressed by state and federal water officials who, through CALFED, are using a pilot program of environmental water accounts to ease the impacts of demand, drought, and other strains on water supply. The water accounts allow fisheries agencies to call for reductions in pumping on the State Water Project and the Central Valley Project at times when fish are in danger, explains the Department of Water Resources' Jerry Johns.

In return for reductions in pumping, the water account buys water from willing sellers or diverts surplus water when safe for fish to store, transfer, or release it to compensate cities and farms. Johns says that during its first two years, the program has worked well, having purchased 550,000 acre-feet of water for fisheries for \$90 million. The program improves what Johns describes as an untenable situation in the drought years of the early 1990s. "You had lots of endangered fish and nowhere near the cooperation, and now

with the flexibility [from the water accounts], agencies are getting along better than I've seen in 20 years."

Agencies may be gathering together to sing "Kumbaya," but the water accounts do not produce more water. This is why Swanson sees the accounts as "salve on a wound that will only fester" as environmentalists continue to vie for water with agriculture and cities. "The amount of water varies from year to year, but you're still taking needed water," says Swanson.

The battle between the environment, agriculture, and cities is only beginning. Haddad sees a bigger fight brewing as those with water rights—agricultural districts with long-held claims and urban areas with money to buy rights—will crowd out those without rights, namely wetlands and wildlife. "What I worry about is that those areas not in a position to compete with cities could lose drought-year water rights and there would be environmental impact," explains Haddad.

The Salton Sea, the lone entity that has not been party to the Colorado River

negotiations, is symbolic of the tenuous situation for wetlands and wildlife in a new era of living within a limited water supply. For the Imperial County Irrigation District to fallow some of its land, it will necessarily send less water to Salton Sea. Without Imperial water, the sea will lose elevation, become saltier and more toxic, and endanger many of the fish and wildlife that depend on its ecosystem. The Colorado River scramble has prompted calls for scrapping an antiquated system of water rights and starting anew with cities, agriculture, and the environment all at the table.

Contact: Tina Swanson (530)756-9021; Jerry Johns (916)651-7051 **KC**

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