

PESKY PESTICIDES

Bay Area folk spray 85 tons of diazinon on their gardens and grounds each year, and lately, enough of it has been running off into local creeks to kill critters at the bottom of the aquatic food web, stirring regulators to call for cuts in inputs from all sources. A report presented to the S.F. Bay Regional Water Quality Control Board in late September recommends that a multitude of stakeholders help solve the problem through a TMDL, a Clean Water Act tool that facilitates agreement among pollutant sources in a watershed over the "total maximum daily load" of a contaminant that can be discharged into a water body—and on how to reduce that load.

The ubiquitous diazinon—also toxic to birds and mammals—is the primary culprit identified in the TMDL as "impairing" 35 urban creeks relative to federal water quality standards. Stormwater runoff—which carries the pesticide—comes from the entire urban landscape. "Who's responsible for that source is a complicated thing," says the Regional Board's Bill Johnson. "You can track diazinon all the way back to the manufacturers, to the formulators who put it in their products, to the distributors who sell it to retailers, and to the retailers who put it on their shelves. Then there's the consumers, whose choices determine whether this stuff gets applied or not."

"It ends up in a lot of people's hands before it ever ends up in the creek," says Geoff Brosseau of the Bay Area Stormwater Management Agencies Association. "Many of those people probably have a role to play in solving this."

The preliminary TMDL report points the finger at municipal stormwater managers as those who should bear much of the responsibility for consumer re-education and pollution prevention outreach. "Most of it is going to fall on us, because we're the last ones holding the hot potato," says Brosseau, who is skeptical whether stormwater agencies can solve the problem. "Technically speaking, I don't see how we can deal with it at the end of the pipe. This issue cuts across so many kinds of agencies, departments, and scales of geography. We need to be smart about this, and work together to address every option, not just clean up our act at the bottom of the watershed."

Success in getting consumers to make alternative pest-control choices may depend on the outreach efforts set forth in the TMDL report. "We're a bit worried about what people are going to turn to," says Johnson. "The chemical market is flooding us with new chemical alternatives, a lot of them pyrethroids, which may pose an equal or even greater risk." The TMDL

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YOUR INDEPENDENT SOURCE FOR BAY-DELTA NEWS & VIEWS



Will Tracy's Boom Bust the Delta?

Skyrocketing Bay Area housing prices aren't just driving would-be homeowners to distraction; they're also driving a Delta-area growth explosion that's turning once-sleepy farm towns into bedroom communities. The transformation of corn and tomato fields into cul-de-sacs is creating expensive challenges for area cities such as Tracy and raising serious questions about the cumulative impact on Delta water quality, as well as supply. Some think the burden on the state's water will be unsustainable in the long term.

"The issues are more noticeable in Tracy because of the speed of growth, but they're a harbinger of the difficulties that mid-size cities throughout the region face," says the Sierra Club's Eric Parfrey. Following a population increase of about 70% in the 1990s, the city has grown 6% to 8% in each of the past three years, and now stands at about 65,000. In comparison, the state as a whole grows at approximately 1.5% per year, says Parfrey. And there's little question where all the new residents are coming from: nearly 70% of the families buying homes in Tracy's new communities rely on at least one Bay Area paycheck.

Although Tracy's growth is among the fastest, it is far from unique in the Delta region. According to statistics compiled by the Great Valley Center, Sacramento County's population jumped from 788,000 in 1980 to 1,212,000 in 2000, while San Joaquin County grew from 350,000 to approximately 580,00 and Yolo from 113,800 to 164,000 in the same period.

Of course, all those new people need water, and it's by no means news that meeting those needs in a state where conflicting demands for water are a way of life presents a challenge. Tracy's water demand currently grows by 600 acre feet per year (af/yr), although that rate is expected to slack off as a slow growth measure passed by voters in

2000 goes into effect over the next few years, according to the city's Nick Pinhey. Nevertheless, says Parfrey, barring a couple of wet years, the city will be facing a water deficit by 2004. The city plans to fill the gap through a combination of water purchases and groundwater pumping, says Pinhey. However, that may be wishful thinking: a 40,000 af/yr water transfer from the South San Joaquin Irrigation District to Tracy, Lathrop, Manteca and Escalon is headed for an appellate court later this fall, and two water contract "reassignments" of 5,000 af each from the Westside Irrigation District and Banta Carbona Irrigation District also face likely legal challenges.

An even more difficult task than supplying freshwater to thousands of new residents may be disposing of their wastewater. This summer, environmental groups, the Central Valley Regional Water Quality Control Board, and several water agencies challenged a Draft Environmental Impact Report on the planned expansion and upgrade of Tracy's wastewater treatment plant, which discharges into Old River not far from intake pumps for the Delta Mendota Canal and the California Aqueduct. Although the improvement plans — which will boost the plant's capacity to 16 million gallons per day (mgd) and are projected to cost \$14.4 million over the next ten years — call for tertiary-level wastewater treatment, critics say that as outlined in the DEIR, the plant expansion would degrade the already-impaired receiving waters.

"There is just no capacity in Old River for some of the constituents they want to discharge," says DeltaKeeper Bill Jennings. "Nutrients are very high, and salt levels are critical." Indeed, adds Parfrey, "If the water that farmers are pumping out of the river gets much saltier, they will start to be limited in the types of crops they can grow."

Due to the hydrodynamics of Old River, which are heavily influenced by the pumps and barriers that send Delta water south, the Regional Board found that Tracy's plan had "potential for very little dilution and multiple

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ESTUARY

PEOPLE

HOPE ACCORDING TO HOUSE



Freeman House wasn't clad in a tuxedo cozily sipping champagne when midnight struck on New Year's Eve 1982; he was up to his elbows in the chilly Mattole River wrestling a female chinook salmon.

House was one of a handful of activists working round the clock to keep the river's remaining salmon runs from disappearing forever. After timber companies stripped the old growth forests from the hillsides in the 1950s and 1960s, sediment and debris washed into the river, clogging the deep, clear pools favored by spawning salmon, and exacerbating floods, which washed away much of the riparian vegetation that shaded and cooled the river.

Cal Fish & Game had given up on the river's salmon, writes House in his 1999 book about the Mattole, *Totem Salmon*, but the wiry, sandy-haired activist and friends persevered, convincing the agency to let them remove up

to 80,000 eggs per year from wild fish in order to raise them to fingerling stage for later release. The group has since released a half million young fish (the survival rate of the eggs to fry is eight times greater than what could be expected in a degraded river), and the fish are starting to come back. While the group started with a focus on salmon in the late 1970s, more recently it has expanded to include a politically savvy watershed council that is changing land management practices throughout the watershed. Although 200 miles from San Francisco Bay and the Delta, House shared some of the watershed restoration lessons he learned on the Mattole in a recent interview with ESTUARY.

The first was to find a common goal. Winding its way westerly and draining 300 square miles of the elusive Lost Coast, the Mattole (which means clear water to Native Americans) has always been home to diverse interests—ranchers, timber folks, fishers, and residents—who didn't often have much incentive to work together. The focus on saving fish allowed a discussion to begin, says House. But even if a river or stream no longer has fish runs,

the same kind of effort can be generated around a frog or a songbird, he adds. And the watershed doesn't have to be huge to build a successful group. "The right scale is whatever works," says House.

Another lesson he learned is that restoration means more than repairing a damaged ecosystem. It means reconnecting people with the land, instilling in them a sense of place so strong they will fight to protect it — or to bring back a semblance of the richness of the past. On the Mattole, that meant not only helping salmon but also starting to heal a battle-worn landscape — by preserving the remaining ancient forests, restoring riparian vegetation, and changing damaging land-use practices.

But how can we reconnect people with a transformed landscape? House cites his younger self as a perfect example of our cultural disconnection from local nature, which he sees as the root of so many environmental problems. He graduated from high school in Walnut Creek without knowing anything about the three species of salmon that swam up the creek behind the school. House hopes to see the day when every California high school student graduates able to identify 100 native plants and animals. The *Species and Community Profiles* published by the S.F. Bay Joint Venture could be adapted for every grade level and taught in Bay Area public schools, he suggests. "The status of the salt marsh harvest mouse and Pacific halibut need to become as much a part of our everyday vocabulary as the batting averages of the Oakland A's." Grassroots efforts in hands-on restoration projects, water quality monitoring, or planning can also help bridge this lack of connection with place, says House, especially since U.S. EPA and Fish & Game monitoring protocols are increasingly available to non-profits and volunteers.

Perhaps the most surprising lesson learned, reflects House, is to cultivate patience — for the time restoration can take and to see results, and for the amount of time it can take communities to change. It has been 20 years since that cold New Year's Eve when he wrestled the salmon to capture her eggs. During the first ten years he worked on the Mattole, as the number of fish in the river kept dropping, House wondered — not infrequently — whether he'd lost his mind. Today, fish numbers are back up and the river runs clear, and while no one can precisely attribute these changes to the midnight volunteers, House is convinced that without their intervention, the Mattole salmon would be extinct. What keeps him scratching his head is the amount of blind faith that sustained the group.

"I don't remember a single instance of anyone saying we should quit," recalls House. "Not one person said 'why should we do it?'" **LOV**

BULLETIN BOARD

CALFED OFFICIAL In late September, the state of California made it official. The CALFED program, an \$8.7 billion, multi-year plan to reform California's water use, now has its own agency. The California Bay-Delta Authority will operate under the California Resources Agency, with status equal to the state Dept. of Fish and Game and the Department of Conservation. A 20-member governing board will include 12 federal and state officials, seven members of the public, and one representative from the Bay-Delta Public Advisory Committee. The state legislature also allocated \$476.7 million for CALFED's third year of operation. The program's costs are supposed to be split equally among federal, state, and local entities. But the feds have been slow to pick up their share. CALFED boosters like Sen. Dianne Feinstein (D-CA) still hope to pass a CALFED authorization bill before Congress adjourns at the end of the year, but the Bush administration has included only \$15 million for all Bay Delta environmental programs, including CALFED, in its budget proposal.

THE GOLDEN STATE'S GOLDEN TROUT — the official "state fish"—may soon received federal protection if a petition to list it by Trout Unlimited is granted. The trout has declined as a result of hybridization with introduced rainbow trout and competition from introduced brown trout as well as damage to its habitat from cattle grazing. After determining that the petition had merit, U.S. Fish & Wildlife

now has 12 months to determine whether the fish should be listed as threatened or endangered or to decide that listing is not warranted.

A BELEAGUERED FOOT-LONG BUNNY — the riparian brush rabbit — got a boost recently when eight captive-bred rabbits were released along the San Joaquin River near Modesto. The rabbit is the first federally protected animal native to California to be bred in captivity: to date, 44 rabbits have been bred in a facility near Sacramento; all will eventually be released. The rabbit's population was almost decimated in the winters of 1997 and 1998, when its habitat was flooded for long periods, and numbers dropped to a few dozen.

PCBS IN THE TISSUES OF LARGEMOUTH BASS and white catfish caught in Stockton's Yosemite Lake and Smith Canal are five times higher than the federal government's cancer-risk limit, according to a new study sponsored by DeltaKeeper. Although PCBs were no longer manufactured after 1977, the chemical — used in coolants and lubricants in electrical equipment — doesn't break down quickly and can remain in sediments for decades. The report concludes that the compound accumulated in worms at the bottom of the food chain and worked its way up to the fish. Fishing health advisories are posted along the Stockton Deep Water Channel near Smith Canal.

MANAGEMENT

TWEAKING FOLSOM FOR FISH

They meander upstream, defy waterfalls, and negotiate white water on their anadromous journeys to the cold freshwater of their natal streams. But the lower American River is blocked by dams and diversions, the water is too warm, the flows are in flux, and fish are floating to the surface instead of spawning below. As dozens of Bay-Delta agencies and groups struggle to balance the needs of fish with the demands of people—and the needs of one species of fish with another—two species are vying for diminished supplies of cold water.



On the lower American, a 23-mile wild and scenic stretch of river between Folsom Dam and the Sacramento River confluence, only 20% of an estimated 168,000 fall-run chinook salmon spawned in 2001 due to water temperatures above 65°F, according to National Marine Fisheries Service's Bruce Oppenheim. The dam's deeper, colder water is released in August-September to help threatened populations of steelhead when their migration. Thus the cold water pool behind the dam is almost depleted by the end of the water year (Sept. 30), which happens to be the start of spawning season for fall-run chinook salmon. Because steelhead are listed under the federal Endangered Species Act, their needs take precedence over those of chinook, which aren't ESA-listed but account for about 25% of the Central Valley salmon population.

"Fall-run chinook are in danger because there's no cold water left," says Oppenheim. "We usually run out by Oct. 15 every year. There's just not enough cold water in Folsom reservoir for both species."

The conflict is further compounded by the demand for hydropower, which runs more efficiently on cold water, and a flood control regime that keeps Folsom Dam up to 67% empty during the rainy season, both of which ultimately affect long-term cold water supply. BurRec, which operates the dam, tries to juggle these needs against those of recreation, agriculture, and local use, all while trying to meet Delta water quality standards and 1958 flow requirements for protecting fish. But those flow requirements are insufficient.

"The flow standard is outdated," says Leo Winternitz of the Water Forum. To protect fish, Winternitz says, a new flow standard

should incorporate temperature requirements for specific locations in the river. In 1990, the State Water Resources Control Board agreed to adopt a better standard but has yet to do so.

"The river is over-allocated," admits the Bureau's Robert Schroeder. "There's been a dramatic impact on temperature and water supplies over the last 60 years."

Sacramento Area Flood Control Agency's Tim Washburn sees some solutions looming. The U.S. Army Corps of Engineers and the Bureau plan to improve Folsom Dam to better manage flood control and the cold water pool. Structural improvements include making the dam's low-level outlets bigger so that operators can fully utilize the channel's carrying capacity during the early stages of a flood. Operational improvements include relying more on weather forecasts to regulate reservoir storage. These changes may pave the way for agreements on conditional storage in the designated flood space during the spring and late fall, potentially enlarging the volume of cold water for fish. Other solutions include developing conjunctive use with underground reservoirs, and cooperating with up-river, non-federal facilities.

A more controversial proposal would enlarge Folsom Dam and increase its flood storage capacity, which proponents claim would have the added benefit of providing more cold water behind the dam and in the river. But critics question the cost (\$219 million) and safety involved in adding lots of concrete to the top of the dam, especially since the dam's low-level outlets are being hollowed out. A simpler, shorter-term solution is an automated temperature control device being installed on the dam's municipal water supply intake that will allow the Bureau to selectively withdraw water from the top of the lake while conserving the coldest water in the reservoir.

"We're really mining in the margins here figuring out how we can re-operate, rehabilitate, and re-think how we use existing facilities," says Washburn.

For now, says Felix Smith of Save the American River Association, the Bureau must decide how much water it can allow to bypass Folsom Dam's hydropower valves in order to send the reservoir's coldest water downstream to meet the needs of the fish. Adds Smith, "Pray for rain and cool temperatures."

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SPECIES SPOT

ANCIENT SURVIVORS

Sieving through bucket-loads of Bay-floor muck is not everyone's idea of glamorous research. For California Academy of Sciences marine biologist Rich Mooi, though, it's a quest for a lost species. His quarry: a tiny transparent "living fossil," *Lightiella serendipita*. Discovered unexpectedly off Point Richmond 49 years ago, the creature hasn't been seen since the 1950s, but Mooi and his team are determined to find it again.



Lightiella (named for U.C. Berkeley zoologist Sol Light) and its handful of relatives resemble some of the odd sea creatures of the 500 million-year-old Burgess Shale formation. Their group, the *Cephalocarida*, left no fossil record. But anatomical and genetic distinctions may make them the closest living kin to the common ancestor of shrimp, crabs, lobsters, barnacles, and all other crustaceans. "[*Lightiella*] fits so well what the reconstruction models suggest an early crustacean should look like that it remains an icon of living fossilism," says Mooi. *Lightiella* was only the second species of *cephalocarid* ever found.

Most crustaceans have a toolkit of limbs modified for feeding, locomotion, and defense. *Lightiella*, however, has generalized leaf-shaped limbs that propel water loaded with food particles into its mouth. It subsists on organic detritus that accumulates in oxygen-poor sediments of harbors and bays. These 3-millimeter-long ooze-dwellers are sightless, but their neuroanatomy indicates an acute sense of smell. Unusually for crustaceans, each individual has both male and female sex organs and may be capable of self-fertilization. They're not prolific: specimens at Woods Hole produced only six young each year.

Mooi's search for *Lightiella*, part of the Academy's Bay 2K inventory of Bay invertebrates, has been unsuccessful so far. The neighborhood has changed; the Bay is full of non-native crustaceans and clams, and the pollutant load is heavier. But Mooi doesn't count these ancient survivors out: "They are probably still there, and given half a chance will be there for a long time, whether we can find them or not. Perhaps that's a secret to lasting this long. Stay out of the way of us 'flash in the pans,' and you can persist while we do ourselves in."

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PORTSIDE

DREDGE BIT SLIP

When BCDC's Allen Brooks inspected Port Sonoma in late August 2001, he found some pieces of cordgrass dangling from a dredging bit. Although the Port's permit allows for yearly dredging within the marina to keep it navigable by small craft, Shellmaker Channel, a marshy area at the mouth of the Petaluma River adjacent to the marina, is not included in the permit and had lain undisturbed for many years. It had filled in with silt and cordgrass, creating a potentially ideal spot for the endangered clapper rail, and raising red flags with the wildlife agents who first spotted the unauthorized activity.

Over the last year, Port Sonoma officials have either maintained they had permission to dredge at Shellmaker or denied that any dredging took place. John Zentner, an environmental consultant representing the Port, wrote in an October 25, 2001 letter to Brooks that the Port had authorization from other regulatory agencies, including the S.F. Regional Water Quality Control Board. Zentner, who minimized the damage done to the cordgrass, says he didn't know anything about the dredging until U.S. Fish & Wildlife and the Army Corps informed him of the activities. He attributes the fact that the Port did not get BCDC's permission to an administrative oversight. In its notification to the Regional Board, the Port sent a map of the marina's authorized dredging area that included Shellmaker Channel. A similar map sent to BCDC did not include the channel.

"The only thing I can figure out was the original permitting consultant for some reason included the wrong map in materials to the Regional Board," explains Zentner.

What's stirring the silt in Port Sonoma is the prospect of the sleepy marina becoming a bustling North Bay transit hub. Marina operators involved in the dredging told Fish & Wildlife officials they were clearing the way for a ferry terminal, an announcement that was news to Brooks and others who oversee the Port's dredging activities. According to Brooks, "The [Port] permit does not discuss any future ferry terminal."

Harbormaster Brian Swedberg agrees with Zentner that the fiasco was due to an administrative oversight. He says the Port was merely concerned that Shellmaker Channel did not completely fill in with cordgrass.

"Right now, we're just trying to keep our options open," says Swedberg. "In the next 20 years, if the Water Transit Authority looks at Port Sonoma as a ferry terminal, that would be great. But we're not relying on that."

In the meantime, Port Sonoma remains on the list of sites for further examination under a \$12 million state-funded study of ferry service expansion on the Bay. Environmentalists say wetlands and wildlife concerns are reason enough for the Water Transit Authority to nix Port Sonoma from consideration. The Port remains in the running, though, thanks largely to the efforts of local politicians and the business community, says Teri Shore of the Blue Water Network. "They're pushing it even though it has huge environmental flaws," says Shore.

To help settle its permit violations with BCDC, the Port, sandwiched between Carl's Marsh and Sonoma Baylands (a 320-acre marsh restoration site), has agreed to grant an easement to the Sonoma Land Trust for access to Sonoma Baylands. It has also promised to remain within the bounds of the current dredging permit for five years.

Public access is murky territory too, though. At issue is whether a path from a parking and picnic area on Port property can legitimately be part of the mitigation.

Stuart Siegel, wetlands consultant for the Sonoma Land Trust, believes the path is part of the public access the Port was required to provide as part of its original permit for the marina. Brooks says that only if the Port had developed a third marina (which it didn't) would it have had to make *half* of the path accessible. Brooks says that under the new agreement, the whole path will be included.

"The benefits of the agreement clearly outweigh the damage caused by the alleged violation," says Brooks. Other observers are skeptical that another public access issue—access to Carl's Marsh through a locked gate—has been resolved by the Port agreeing to unlock the gate as long as visitors give 48 hours' advance notice and carry insurance covering the Port.

In the meantime, the Port awaits the findings of the WTA ferry study. In the recently released draft EIR, it has been bumped down on the priority list of potential ferry sites; one rub is that ferry service would certainly spur development in a largely undeveloped area. Ferry proponent and former Sonoma County Board of Supervisors member Jim Harberson sees the potential development as a plus. "It's the only logical place for a ferry," explains Harberson, who is also a consultant to the Port. "There is development there already.

LEGAL BRIEF



SUIT TOSSED

Port of Oakland officials are jubilant that a lawsuit that could have delayed their 50-foot dredging and expansion projects has been thrown out of court. The suit, filed in 1999 by WaterKeepers Northern California and the Center for Marine Conservation, alleged that the projects' environmental documents didn't adequately examine the threat posed to the Bay from invasive species introduced by ships using the Port.

Environmentalists charged the projects would increase the risks because a greater number of larger ships would be able to use the Port. They also said that more ships would use Oakland as a first port of call—arriving here directly from foreign countries—so they would be more likely to discharge invasive species-laden ballast water into the Bay. The Port contends that the risks are actually decreased because newer ships discharge less ballast water than older ones do. The suit was filed against the Army Corps, U.S. Fish & Wildlife, and the National Marine Fisheries Service, the agencies responsible for approving the projects.

U.S. District Judge Claudia Wilkins dismissed the suit "on its merits," essentially rejecting all of the environmentalists' arguments. Port officials say that the ruling confirms their contention that the documents complied with both NEPA and the Endangered Species Act. The Port's Marilyn Sandifur says that if the lawsuit had moved ahead, both the dredging and the much-anticipated expansion of Berths 55-59 could have been delayed. "The judge's ruling means we can move ahead with these important projects that benefit the public both environmentally and economically," says Sandifur.

"We're considering our options for an appeal," says WaterKeeper's Leo O'Brien. "We're very disappointed with the judge's ruling, and believe that our claims were valid." **O'B**

If there were nothing there but wetlands, then I wouldn't support it."

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RESTORATION

SALT POND SHAKEDOWN

As state and federal dealmakers prepare to plunk 100 million greenbacks down on the Cargill table for close to 16,500 acres of saltscape, resource managers, enviros, and taxpayers are scrutinizing the steps that need to be taken to put the old salt production workhorses out to pickleweed pasture. Last fall, Cargill offered to sell 58 South Bay salt ponds and 1,400 acres of North Bay crystallizer ponds (in salt production mode since at least the 1930s) to the public to be restored as tidal wetlands. Most agree that the deal is an unprecedented opportunity—but not one without some interesting hurdles.

"This is without a doubt one of the best things that's happened to the Bay in a long, long time," says Marc Holmes with the Bay Institute. "A restoration of this magnitude presents enormous challenges, but I don't think they are insurmountable." The big concern, says Holmes, who is echoed by many others, is how to bankroll the cool billion — ten times the sale price — necessary to transform saltscape to tidescap.

"If this project is going to succeed, there has to be a commitment from both the state and federal governments to fund it at a reasonable level," says Holmes. "Even at a high estimate of \$1 billion for restoration over 100 years, we're still not talking about very much money per year compared to what's been allocated to the Everglades. Someone needs to decide that the Bay is worth that kind of money." Holmes says that one big potential pot of funding—a \$40 million restoration authority requested by the Army Corps—was axed recently by the Bush Administration.

Dollars aside, there are plenty of other burning issues. The steps that must be taken before the ponds can be returned to marsh, it turns out, are not simple, and there is no one-size-fits-all solution for all of the ponds.

"Every pond tells a unique story depending on salinity, elevation, water depth, and distance from Bay," says the S.F. Regional Water Quality Control Board's Steve Moore. The story line for most ponds: How concentrated are the brines; how long will it take for Bay water to dilute them; and how far below sea level have the ponds, long-separated from Bay sediment inputs by levees, sunk?

A starting place for the South Bay ponds, say resource experts and regulators, is to build on our experiences

elsewhere. In the North Bay, at the imaginatively named "Pond 2A" for example, it took only a few sticks of dynamite to launch a thriving wetland while the South Bay's Cooley Landing required some clever ditch digging (see *The Monitor*). But other ponds, like Cargill's 10,000-acre North Bay foothold, acquired by the state in 1994, have presented resource managers with huge maintenance challenges.

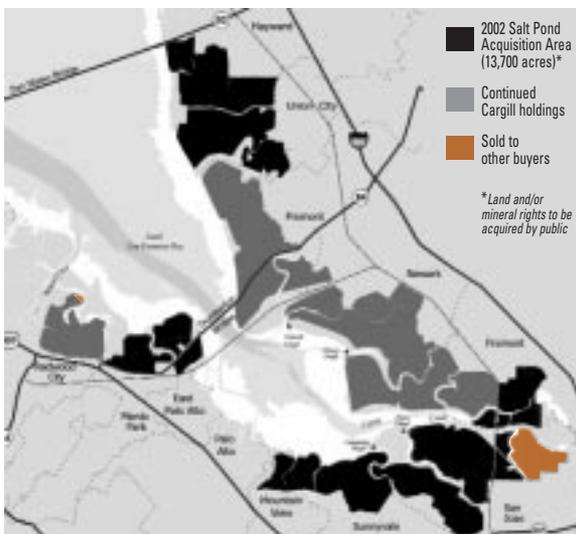
"The most important lesson learned there is that we should have had an interim management plan," says Marge Kolar with U.S. Fish & Wildlife. The Regional Board, Cal Fish & Game, Fish & Wildlife, and others are now crafting such a plan for the South Bay ponds.

"The goal is to keep things in a steady state while planning takes place," explains Moore. "In order to move water, quit making salt, and not threaten water quality, the ponds have to be re-designed and some water structures put in to facilitate flows. We want more of an equality in water quality between the ponds and the Bay." Moore thinks achieving this equality, with all the funding uncertainties and lessons learned about maintaining the North Bay ponds on a shoestring budget, should be accomplished with the most passive system possible and mimic what "nature would select." He says, "We want to minimize costs by designing a system where we maximize gravity flow and minimize the number of water control structures."

But some artificial structures are likely, given what seems to be a general consensus that a certain number of salt ponds must be preserved in perpetuity. Scientists worry that turning too many into marsh will harm the western sandpipers, snowy plovers, diving ducks, and other birds that currently use the ponds.

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PROPOSED SALT POND ACQUISITION



THE MONITOR

COOL STUFF AT COOLEY; WARM SPRINGS SETTLES IN

Two South Bay projects could act as prototypes for restoring some of the Cargill ponds (see opposite). At the 115-acre Cooley Landing site, south of the western end of the Dumbarton Bridge, a not-very-subsided salt pond was restored to tidal salt marsh in December 2000. As with most salt ponds, when Cooley Landing was created, sediment was dug up from the Bay bottom and used to build levees around the pond. Because these "borrow ditches" tend to capture tidal flows when the levees are breached, Philip Williams & Associates designed "cut-off" and "training" berms to prevent capture and direct tidal flows into the silted-in—but still visible—original channels. Those channels then re-established themselves quickly, says PWA's Michelle Orr. PWA also decided not to excavate inlet channels through the mudflat, as has been done in past projects. Instead, those channels scoured out on their own within a few months. Nor was dredged material necessary because the site hadn't sunk too low, explains Orr.

"Cooley indicates that we can restore shallowly subsided ponds cheaply and efficiently provided we understand where to put the breaches," explains Williams. Sizing the breaches to match the predicted long-term channel depth and width was another critical factor. Within eight months, the site had good tidal exchange, and monitoring data indicates that sedimentation is occurring rapidly.

At the other end of the spectrum, Warm Springs, a 200-acre site on Coyote Slough, had sunk almost 15' below sea level after it was excavated as a borrow pit for a nearby development. Warm Springs was opened up to tidal flows in 1986 and has filled in fairly rapidly with sediment, partly because suspended sediment concentrations in the Bay nearby are very high. "We don't expect those same rates of sedimentation for the Cargill ponds, but we are getting better at predicting suspended sediment concentrations," says Williams. "One of the issues we have to come to grips with quickly on such a large-scale restoration is how it will affect the sediment dynamics of the entire South Bay." Contact: Phil Williams (415)262-2300 **LOV**

SALT PONDS - CONTINUED

"We've lost 80% of our tidal marsh, but we've also lost about 40% of our mudflats, too," says the Point Reyes Bird Observatory's Nils Warnock, who explains that some birds are using the food-rich ponds to compensate for the lost mudflats. But Warnock and Kolar both worry about long term upkeep. "Ponds are expensive to maintain and hard to manage," says Kolar. "Marshes are much easier."

Stuart Siegel, who has analyzed the South Bay ponds in detail (see *Now in Print*), concluded (as did the *Habitat Goals* report), that to provide diverse habitat for many species of birds, about one-third (4,700 acres) of the 13,700 acres of salt ponds should be maintained as managed, shallow open water, and two-thirds (9,000 acres) restored to tidal salt marsh. Deciding exactly what this habitat quilt should look like may be dictated to some degree by exactly which ponds are included in the acquisition. Those easiest to restore—Mowry 1, 2, and 3—were not included. Closer to the Bay and less subsidized, they could have been restored quickly at relatively low cost. In contrast, some of the ponds that are part of the deal are deeply subsidized and located farther from the Bay. As one way to speed restoration of the Alviso ponds, Siegel says, dredged sediments could be used to rebuild elevations and compensate for the South Bay's wetland-building sediment shortage.

But some environmental groups worry that raising the specter of dredge spoils at this point is a red herring that could deter restoration. Says Save the Bay's David Lewis, "The issue is not whether we support or oppose the use of dredged material. The question is whether to raise that large scale issue right now." That said, Lewis is concerned about the cost of getting dredged materials to the subsidized areas and about where the material would come from. "The only project that could produce that much material is the airport."

Siegel argues that sediment and subsidence need to be looked at now. "We know we have a sediment deficit. We know we want to spread restored tidal marshes geographically around the South Bay. We know the major subsidence is from Mountain View to San Jose. Consequently, solutions for the subsidized Alviso ponds need to be found." If the sediment deficit is not resolved and ponds are opened to the tides too quickly, says Siegel, valuable



South Bay mudflats could be scoured: the sediment has to come from somewhere. And using material from routine dredging projects alone (*i.e.*, without SFO dredging) could shave the time it will take to restore the acquired ponds by as much as 50-60 years. "You have three options," says Siegel. "Use dredged material in some Alviso ponds, do long-term phased natural sedimentation (open up the ponds slowly over decades), or have some kind of muted tidal regime with complex water control structures. That's the trickiest because it's the least certain ecologically and requires more management and maintenance."

Once the interim operating phase begins, resource managers can begin talking about long-term management and the nuts and bolts of actual restoration. The Coastal Conservancy will lead the restoration planning effort and is beginning to organize all of the players and the endless list of issues, which include a more detailed look at flood management, public access, and invasives control (among many others). Long-term planning and fundraising will occur during the interim phase, says the Conservancy's Amy Hutzel, which could take up to five years and cost up to \$10 million.

One thing that is becoming crystal clear as the salt begins to evaporate is that opinions about exactly what can and should be done in the South Bay are as diverse as the birds using the ponds.

"If we proceed towards 'instant gratification' of salt pond restoration to tidal marsh, we will be irreversibly committing all future tidal marsh in the Bay to Atlantic-type salt marsh composition and structure," says wetland expert Peter Baye. "It's happening now at a small scale—all East Bay tidal marsh mitigation sites are overrun with the hybrid *Spartina alterniflora* — and it's a poison pill for those who worked for decades to restore salt ponds to tidal marsh."

In the meantime, plans for the "mothball" phase roll along. "Even in the interim, we can improve habitat values without disturbing species like the snowy plovers — why would we mess with that?" says Moore. "I think we'll see some strides toward restoration. There'll be some neat stories along the way. We won't just be freshening ponds."

Contact: Marc Holmes (916)648-1161; Steve Moore (510)622-2439; Stuart Siegel (415)457-6746; Amy Hutzel (510)286-4180 **LOV**

TRACY - CONTINUED

dosing of effluent," says the Board's Pat Leary. The Board has asked the city to provide additional information on dilution in the vicinity of the plant's outfall, and has requested that the city include a real-time monitoring device near the outfall as part of the plant upgrade, steps that the cities of Manteca and Stockton have already agreed to take. Issues of this kind are not uncommon in the region, says Leary. "Determinations of available dilution are becoming increasingly difficult and contentious," she says, as restrictions on allowable discharges to already polluted waters get tighter.

Because of these restrictions, Tracy, along with several other Delta cities, is also looking toward so-called land disposal, whereby treated wastewater is used to irrigate landscaping and low-value crops such as alfalfa. According to Pinhey, the city has an opportunity to purchase 1,250 acres immediately adjacent to the wastewater treatment plant and is investigating the feasibility of using the property for land disposal. Among the issues being explored are whether there are farmers willing to lease the land and what types of irrigation systems would be required.

Although the *Basin Plan* directs the Regional Board to encourage land disposal, such alternatives are not without significant costs and difficulties. Large amounts of land are required — Pinhey says 1,250 acres is enough to dispose of 2 mgd of wastewater — and only low-value crops that will not be consumed by humans can be grown on it. Furthermore, says the Regional Board's Wendy Wiles, the wastewater can't spill over into surface waters and can't be applied before, during, or after rainstorms, so any land disposal system must include enough storage to contain a 100-year storm event.

Tracy's growth, together with recent changes in the law, also means that for the first time the city must apply for a federal NPDES permit to discharge stormwater, which is now required for all cities of 50,000 people or more. Tracy's city council recently allocated \$13 million for the first phase of a storm drain system that will carry stormwater from the city's fast-growing west side—where the only existing regional detention basin doubles as a series of soccer fields—to a new 60-acre detention basin. The city will obtain an NPDES permit in 2003, and expects to be required to implement a pollution prevention program.

Clearly Tracy's stormwater and wastewater systems are already facing functional challenges due to the area's rapid growth; nevertheless, the growth is expected to continue apace. In Tracy

continued - back page

PLACES TO GO & THINGS TO DO



WORKSHOPS & SEMINARS

OCT 24 THRU 27

THURS — SUN

SERCAL's 9th ANNUAL CONFERENCE

Topic: Restoration with a View: Sustaining Fragile Habitats
Sponsor: California Society for Ecological Restoration
Location: North Lake Tahoe
www.sercal.org/2002_conference.htm or www.ser.org

OCT 27 THRU 30

SUN — WEDS

CAL. & THE WORLD OCEAN '02

Topic: Revisiting and Revising California's Ocean Agenda
Sponsors: California Resources Agency, Cal/EPA, and Coastal Zone Foundation
Location: Santa Barbara
Melissa Miller-Henson (916)653-5656

NOV 2

SAT

WETLANDS, WASTEWATER & WATERSHEDS

Topic: Explore a biologically rich wetland area and unique wastewater treatment plant. Learn about sewer and stormwater systems and the water cycle. Hands-on activities for teachers.
Sponsor: Aquatic Outreach Institute
Location: Martinez
martha@aoinstitute.org or (510)231-9566

NOV 2 9

SATURDAYS

WORKSHOPS FOR TEACHERS

Topic: Kids in Gardens (Grades K-12)
Learn to conduct organic gardening projects, increase water-conserving gardening practices, reduce pesticide use, and reduce solid waste through composting for home and school gardens.
Sponsor: Aquatic Outreach Institute
Location: Sunshine Enrichment Center Preschool, Pleasanton
Murray Elementary, Dublin
www.aoinstitute.org or Tamara Shulman (510)231-9493

NOV 3 THRU 6

SUN — WEDS

WATERSHEDS ACROSS BOUNDARIES

Sponsor: Watershed Management Council
Location: Skamania Lodge, Stevenson Washington and Columbia River Gorge National Scenic Area
www.watershed.org or koreilly@wrcr-ncasi.org

NOV 6, 7 AND 12

WEDS, THURS & TUES

SPARTINA ERADICATION EIS/R

Topic: Public workshops (evenings) on draft EIS/R for regional invasive cord-grass eradication program.
Sponsor: Invasive Spartina Project
Locations: Oakland, Marin & Don Edwards Refuge
(510)681-5371 or spartina@scc.ca.gov

NOV 12

TUES

DAMS AND DISASTERS

Topic: An overview of dam building in California
Location: U.C. Berkeley
Sponsor: Water Resources Ctr. Archives
lvida@library.berkeley.edu or (510)642-2666

NOV 12 13

TUES & WEDS

NITRATES IN GROUNDWATER

Topic: Sources, impacts, and solutions for groundwater contamination
Sponsor: Groundwater Resources Association of America
Location: Fresno, CA
www.grac.org/nitratesymposium.html

NOV 13 THRU 15

WEDS — FRI

EFFECTIVE ENVIRONMENTAL AGREEMENTS

Topic: Learn a process for building agreements on environmental policy
Sponsor: Concur, Inc.
Location: Clark Kerr Campus, U.C. Berkeley
www.concurinc.com or (510)649-8008



MEETINGS & HEARINGS

NOV 1

FRI

CCMP IMPLEMENTATION COMMITTEE MEETING

Topic: Comprehensive Conservation and Management Plan
Sponsor: S.F. Estuary Project
Location: Oakland (510)622-2321

NOV 18 19

MON — TUES

CALIFORNIA BIODIVERSITY COUNCIL

Topic: Joint meeting with CA State Association of Counties
Sponsor: California Biodiversity Council
Location: Pasadena
erin.klaesius@fire.ca.gov or (916)227-2661



HANDS ON

NOV 16

SAT

CANOE IN SLOUGHS

Topic: Join with Save the Bay to explore Arrowhead Marsh. Learn about saltwater marsh habitat, the San Francisco Bay watershed, and issues facing the Bay.
Sponsor: Aquatic Outreach Institute
Location: Arrowhead Marsh, Oakland
martha@aoinstitute.org or (510)231-9566

NOV 16

SAT

FOUR CREEKS IN THREE MILES

Topic: Explore four creeks on this hike. Learn to identify the vegetation components of a healthy riparian system, and discover reference sites for restoration efforts.
Sponsor: Aquatic Outreach Institute
Location: Orinda
martha@aoinstitute.org or (510)231-9566

ESTUARY

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NOW IN PRINT & ON LINE

Addressing the Need to Protect California's Watersheds: Working with Local Partnerships. California Resources Agency. State Water Resources Control Board. April 2002. www.swrcb.ca.gov or (916)341-5254

California soil survey reports
The Cal. Assoc. of Resource Conservation Districts. (916)457-7904

Cases in Water Conservation: How Efficiency Programs Help Water Utilities Save Water and Avoid Costs. Publication number: EPA832-B-02-003
www.epa.gov/owm/water-efficiency/index.htm or (513)489-8190

Draft Programmatic EIR/IOP: Expansion of Ferry Transit Service in the SF Bay Area, August 2002. URS Corporation for the Water Transit Authority. www.watertransit.org or (415)291-3377

Ecological Footprint Quiz
Earth Day Network.
www.earthday.net/footprint/index.asp

Environmental Water Acquisition: A Briefing, from October 2001 roundtable.
Trust for Public Land and the Water Education Foundation.
www.watereducation.org or (916)444-6240

Final Recovery Plan for the California Red-Legged Frog, 2002.
U.S. Fish & Wildlife, Sacramento.
<http://sacramento.fws.gov> or Viola Taylor at (916)414-6567

Hatcheries and the Protection of Wild Salmon, workshop proceedings June 6-7, 2001.
Simon Fraser University (604)291-4893

Health of the Oceans, 2002 Report.
The Ocean Conservancy.
www.oceanconservancy.org or (202)429-5609

Saving Open Space: The politics of local preservation in California, December, 2002.
www.ucpress.edu/books/pages/9620.html

The Society for Ecological Restoration Primer on Ecological Restoration. Science & Policy Working Group, 2002.
www.ser.org.

South Bay Salt Pond Restoration Feasibility Analysis.
Wetlands and Water Resources. San Rafael.
www.swampting.org or (415)457-6746

Space Invaders and Unwanted Visitors, two new posters on non-native invasive species.
www.watereducation.org

The 2001 Transactions of the Western Section of The Wildlife Society
www.tws-west.org

Vegetated Stream Riparian Zones: Their Effects on Stream Nutrients, Sediments, and Toxic Substances. Smithsonian Environmental Research Center, April, 1999.
www.serc.si.edu/SERC_web_html/pub_ripzone.htm

COVER CONTINUED

alone, the General Plan calls for up to 25,000 new homes in the coming years. Region-wide, state Department of Finance projections say, the populations of San Joaquin and Stanislaus counties will roughly double by 2040, to approximately 1,250,000 and 999,000, respectively. Sacramento County will jump from 1,212,527 in 2000 to 2,122,769 in 2040, and Yolo County from 164,010 to 298,350 during the same period.

No one seems to know just what the impact of all these new people will be, particularly on water quality, and no mechanisms are in place to weigh new development in a larger context. In comments on Tracy's wastewater plant DEIR, the Regional Board faults the proposal for failing to address the cumulative effects of increasing pollutant loads by several dischargers, noting that "this effect will be negative with no changes in Delta management." However, everyone seems to acknowledge that with its legally required focus on developing NPDES permits and meeting daily local pollutant load (TMDL) standards,

the Board has neither money nor manpower to evaluate cumulative effects itself. Nevertheless, says the Board's Leary, "We do try to evaluate each project as it might affect another project nearby."

Walt Pettit of California Urban Water Agencies, which has been pressing the Regional Board for years to develop drinking water standards for the Delta — and has even set aside money in its budget to help — says the TMDLs may help, although he believes they are too narrowly focused. "There needs to be some integration to look at this on a watershed-wide basis," he says, adding that he hopes CALFED will direct some money to the issue. But the problem may be even more fundamental.

Says Parfrey, "At some point we've got to ask if it is technologically possible to serve another half a million people within a stone's throw of the Delta without a huge impact on water quality and soil salinity." Contact: Eric Parfrey (510)420-8686; Nick Pinhey (209)831 4431; Pat Leary (916)255-3000 **CH**

PESTICIDES CONTINUED

advocates pollution prevention and integrated pest management (IPM), which involves using pest-resistant plants and beneficial insects, tolerating minor pest problems, and applying chemicals as a last resort.

Stormwater agencies will get help implementing the TMDL from the Regional Board, the U.S. EPA, and the California Department of Pesticide Regulation. Although stormwater agencies are held accountable for urban runoff, Johnson points out, state and federal agencies, not municipalities, are responsible for regulating pesticide use. "That's why inter-agency cooperation is going to be a critical part of implementation," says Johnson. The final TMDL report is due out by early 2003. Contact: Bill Johnson (510)622-2354 **PC**

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