ESTUARY

YOUR BAY-DELTA NEWS CLEARINGHOUSE

TOP TEN PRIORITIES FOR ESTUARY ACTION

Regional interests chose ten top priorities for Bay-Delta action over the next five years this August, priorities aimed at focusing dollars and energy on activities they considered most important to the Estuary's health. To set the priorities, they reviewed a workbook documenting progress made to date on all 177 actions in the Estuary Project's 1993 *Comprehensive Conservation and Management Plan* and participated in a facilitated workshop on August 2. Participants included 75 representatives from leading federal, state, regional and local government agencies, as well as business and environmental groups. The priorities will likely soon be adopted by the CCMP Implementation Committee. Bolded text reflects top priorities, while subtext both expands on priorities and adds related actions identified as desirable at the workshop.

1. Expand, restore and protect Bay-Delta wetlands. Acquire more wetlands through public-private partnerships and expanded private, state and federal financial assistance to individual landowners; restore non-wetland areas to wetlands (including seasonal) or riparian (including shaded riverine) habitat; complete a comprehensive regional wetlands management plan (which including public acquisition priorities, public-private restoration efforts, and improved mitigation); and enhance the biodiversity within wetlands. (WT 1.1, 3.1, 3.2; WL 1.5, 2.2)*

2. Integrate and improve regulatory and scientific monitoring programs. Promote multi-agency development and adoption of regulatory requirements and monitoring protocols to expedite implementation of ecosystem planning; address multi-media (water/land/air) and local/regional relationships; reduce analysis paralysis; and secure additional funding. (AR 1.1, DW 2.2 & 4.3, RM 1.1 & 2.1)

3. Create economic incentives that encourage local government to take action to implement measures to protect and enhance the Estuary. Make federal and state funds available for local watershed planning and other programs, as well as for capital improvements and maintenance projects protective of the Estuary. In tandem, identify financial barriers to and propose alternative funding arrangements for environmentally-sensitive land use. (LU5.1 & 5.4)

continued on page 4

Anatomy of a Base Closure

When Mare Island Naval Shipyard was put on the base closure list in October 1993, the city of Vallejo braced itself for a hard hit. Its relationship with the Navy — at the center of the city's identity and pride for more than 140 years — was now ending. What would remain was a 5,500-acre island that was both National Historic Landmark — the base's 900-plus buildings represent every historical era of the West Coast's oldest shipyard — and home to 3,200 acres of wetlands which host the S.F. Bay's largest population of the endangered salt marsh harvest mouse.

Mare Island is one of ten major Bay Area bases — encompassing approximately 10,000 acres of dry land and over 5,000 acres of wetlands — slated for decommissioning between 1990 and 1995 as part of the federally-mandated base closure process (BRAC). Many of these bases feature both wetlands and endangered species habitat long beyond the reach of disruptive visitors and developers and, simultaneously, some of the most toxic pockets of Bay waterfront. According to the S.F. Regional Board's Shin-Roei Lee, the most seriously contaminated bases are the region's most challenging clean-up projects "in terms of size, complexity, and threat."

But when Mare Island was handed over, job loss not toxics concerned the city most — over 8,500 residents of Vallejo and neighboring communities were employed at the shipyard and many more made an indirect livelihood from it. The closure also presented obstacles which by now are well-known in base closure circles: fierce conflicts over the highest and best future uses; a morass of oft-conflicting regulations; and a daunting toxic clean-up bill exacerbated by federal reluctance to pay up.

Elise Hillend

With less than three years to prepare for the actual closure on April 1, 1996, Mare Island's reuse commission, which became known as the "Futures Project," didn't waste any time getting started.

By bringing together a wide array of people from the city of Vallejo and neighboring communities and involving the public early on they hoped to avoid the mistakes which have paralyzed reuse of bases like Marin's Hamilton for decades. According to Napa Supervisor and Future's Project participant Mike Rippey, "This advance planning allowed us to come up with a plan without a lot of contentiousness and put the Mare Island reuse process ahead of other communities' closure programs."

The Futures Project's first priorities were job creation and economic stimulation. Reuse officials were all too aware that hesitation could lead to the flight of skilled workers and the deterioration of the local economy. Efforts to address such concerns, however, hinged on environmental clean-up. Under federal law, the Navy could lease but not transfer the site until its extensive toxic contamination was addressed. At the time of the closure announcement, contaminants on the base included radioactive materials such as strontium and radium (painted on ship dials to make them glow in the dark), as well as unexploded ordnance, PCBs, heavy metals and petroleum products. Since then, the Navy has spent $120 million surveying the base for radioactivity and removing radioactive and other materials, largely from an old scrapyard.

continued on page 4

BULLETIN BOARD

SURFACE CLEANERS ARE THE TARGET OF A NEW RUNOFF POLLUTION REDUCTION INITIATIVE launched by the Bay Area Stormwater Management Agencies Association (BASMAA). According to BASMAA, there are over 150 of these cleaners of sidewalks, plazas, parking areas, driveways, drive-throughs and building surfaces in the Bay Area. Almost a hundred of them turned up at a Hayward workshop this August to hear how they could reduce pollution from their activities and to get a training certificate signed by BASMAA and the S.F. Regional Board. Much of the focus was on how to minimize washwater pollution via screening, collection or containment, and by avoiding soaps and solvents and letting pressurized hot water do the job. BASMAA plans two more training workshops this fall as a pilot for a larger program aimed at all 4000 of the region's mobile cleaners. (510)286-0615

LEFTOVER GREENBACKS IN THE STATE'S BUDGET FOR SONOMA BAYLANDS (see page 6) got divvied up this summer by the Coastal Conservancy. Most of the remaining money — designated for demonstrating ways to reuse dredged material to the benefit of economy and environment — went to the Port of Oakland. The port plans to spend their $550,000 working with other dredging interests to take the most viable proposed reuse sites in the region through feasibility studies and to the point of permitting. According to the port's Jim McGrath, leading candidate sites include Port Sonoma, some former North Bay salt ponds, and Mare Island. The port's effort will be backed up with public outreach help from the California Environmental Trust ($145,000) and technical assistance from the S.F. Bay Commission ($75,000). Other dollars went to the City of Novato ($200,000) to study wetland restoration at the Hamilton Army Airfield. (510)286-4170

LEGISLATION (AB3616) TO CREATE A LIST OF EFFICIENT AGRICULTURAL WATER MANAGEMENT PRACTICES has spawned a follow-up MOU five years later. This draft memoranda of understanding among water districts and other interests includes two lists of efficiency measures — required practices and conditionally applicable practices — as well as a new net-benefit analysis methodology. The methodology — tested in eight pilot projects organized by the Dept. of Water Resources — helps water districts determine which practices they will implement in a form that best suits their conditions. BurRec's Tracy Slavin says the "jury's still out" on the future impact of the MOU — many water districts are already meeting new federal water conservation planning criteria established under CVPIA (see page 5). But Slavin says the MOU offers "a more rigorous evaluation process and allows the ag community to better document for the public what they're doing." Officials trotted the MOU through workshops this summer to gain final input from districts and environmental groups, and hope to have them sign on the dotted line this September.

WATERSHED MANAGEMENT IS BREWING IN THE EXTREME SOUTH BAY as the S.F. Regional Board and local municipalities firm up a planning partnership. Since April 1996, the board has held several focus group meetings with municipalities, treatment plants, environmentalists, industries, water districts and the public to figure out how best deal with the South Bay's remaining water quality problems. Conventional regulatory approaches have led to contentious appeals or litigation, according to the Board's Tom Mumley. "There's too many layers and too many players. We're trying to find a way to set common goals and integrate land use and water quality management for the good of the whole," he says. (408)945-3070

THE MONITOR

INSECT INDICATORS

Lift a creekbed rock and you may find a "shredder," or "collector." These important sounding job titles refer to the kind of work two types of aquatic insects perform in the riparian food web. Stonefly nymphs and some caddisflies are "shredders," biting and cutting up plant material into tiny pieces of detritus. The "collectors," usually caddisfly larvae, then gather up the detritus, acting as a living water filtration system.

The presence of such insects can also help citizens and scientists working to assess the health of our creeks do their job. If you look carefully and don't find these insects, the creek could be polluted. Indeed recent U.C. Berkeley studies conducted on two forks of Strawberry Creek indicated that the north fork, which flows through an urbanized landscape, supports less insects that are pollution sensitive than the south fork, which was recently restored and drains a less developed area.

U.C. biologist Scott Fetherston offers several tips on how to use aquatic insects to assess water and habitat quality. "Don't look for the more pollution tolerant taxa because they can be found in both clean or impacted habitats," he says. "Look for pollution sensitive taxa like certain stoneflies, mayflies and caddisflies that can't survive in polluted streams."

Stonefly nymphs — often brilliantly patterned critters that measure less than an inch big in size — can be found clinging to the undersides of stones, where the current is weaker. Their bodies are flattened to allow the current to flow smoothly over them. Caddisfly larvae — wormlike critters even smaller than the stonefly nymph — can often be found inside protective cases they make from sand and pebbles and attach to rocks with an adhesive secretion.

Fetherston says aquatic insect surveys have become a popular method for evaluating water and habitat quality in streams, especially for citizen monitoring groups, because they require less technical expertise and fewer dollars to conduct than chemical tests. There's one other major plus. "People really like to work with insects," he says. *LOV*

INSIDE THE AGENCIES

FALL FIX FOR SPRING SHUT-DOWN

Federal pump managers hope to make up a little water this October, water they lost last spring when they stopped the pumps to protect San Joaquin fall-run salmon. Such halts are called for under the December 1994 Bay-Delta Accord, which also says the federal and state water projects can make up for such losses later in the year. Indeed this fall, BurRec would like to do just that but it needs to use the state pumps due to Delta plumbing constraints. To get State Board approval for this change in diversion points — not covered under its permit — BurRec had to demonstrate there'd be no environmental downside. So a small group of agency salmon scientists convened by U.S. EPA's Bruce Herbold came to agreement on the best time for the feds to pump — namely October before spring-run salmon are thought to leave their natal streams and enter the Estuary. The timing is just part of a series of recommendations for minimizing impacts from fall pumping made by Herbold's group in a memo to BurRec. State water project managers, concerned that the recommendations have implications for all future fall pumping, recently asked Herbold to convene a larger, more formal process for making such decisions. Key to any new criteria for fall pumping will be better monitoring of when spring runsalmon descend the rivers and how fast they swim through the Delta, says Herbold. To see the BurRec memo on-line, visit *www.iep.water.ca.gov* and look for the "spring5.mem." *ARO*

PROTECTING MICE AND MEN

How to best protect Redwood Shores residents—humans from floods and marsh mice and birds from humans — was the central issue in a five-year long dispute now nearing resolution. This July, the S.F. Bay Commission issued a decision that, if approved in final by U.S. Fish & Wildlife and the Army Corps, will allow the city to upgrade the levee surrounding this South Bay housing and office development while protecting endangered species.

The levee protects 5,200 homes and 4.5 million square feet of offices, as well as the South Bayside System Authority, which treats wastewater from five cities. As Redwood City manager Ed Everett puts it, "You can imagine the disaster if the SBSA flooded." But since the last levee upgrade in the 1960s, not only has Redwood Shores sunk, but also the Endangered Species Act has been passed. And Fish & Wildlife, charged with protecting the endangered California clapper rails and salt marsh harvest mice that live in the wetlands beside the levee, fears an upgrade might do more than temporarily disturb species. "Flood protection is necessary but allows for more development," says the Service's Jim Browning. "We wanted to analyze the impacts of the levee upgrade in terms of the increased number of people, pets, and predators that could go along with future development—the bigger picture beyond the 'footprint' of the levee itself."

The Bay Commission's July permit decision allows for levee sections near residential and commercial developments to be raised and widened, while sections around wetlands remain unimproved. Public access, which has existed on the top of the levee for decades, will be prohibited in some areas and redirected onto an improved inland trail. A 100-foot buffer zone, including a 50-foot channel, will separate new development from the levee and rail and mouse habitat.

"We have the most urbanized estuary in the country and that means increased tensions between humans and wildlife," says the Bay Commission's Will Travis. "We're starting to hear from environmental groups that the public may have enough shoreline access." Contact: Will Travis (415)557-8775 & Jim Browning (916)979-2710 *LOV*

HOW I SEE IT

FROM SMOKESTACKS TO JOGGING TRAILS

WILL TRAVIS
EXECUTIVE DIRECTOR
S.F. BAY CONSERVATION AND DEVELOPMENT COMMISSION

"Demand for and use of shoreline property has changed a lot since the 1960s when BCDC was formed.

"Back then, we still had a lot of heavy industry in the Bay Area and our main work involved reviewing bay fill applications from industries that either needed a waterfront location to move cargo or wanted easy access to large amounts of water for cooling and other purposes.

"But in the 1990s, the new industries knocking on our door for shoreline permits aren't heavy but light, and they have very different needs. Hotels want to provide their guests with a pleasant outdoor place to walk or hold a private conversation. Restaurants have found that locating along existing shoreline trails gives them a second entrance to serve more customers. Real estate developers say trail access is now an important feature to new home buyers. And high-tech businesses use beautiful offices in parklike shoreline settings to attract the best and brightest employees. Despite the Bay Area's high housing costs, crime problems and terrible traffic, people are still drawn here by the fantastic environment. Employers capitalize on this by locating on the shoreline where they can link the pathways in their office parks with our extensive system of trails and give their employees maximum use of the natural resources at their front door.

"So now we're seeing businesses that have taken a regulatory requirement — for public access — and changed it into a marketing feature. We usually require that any bayfront development reserve the shoreline of the property for public use, improve the area with trails and landscaping, and accept responsibility for maintaining it.

"When we got started the whole notion of requiring public access was pretty novel and our requirements were thought to be extreme. But now it's generally accepted. As a result, our relationship with permit applicants is far less adversarial than it was in the past. These days, it's more of a negotiation and partnership process which is allowing us to focus on providing customer service to permit applicants.

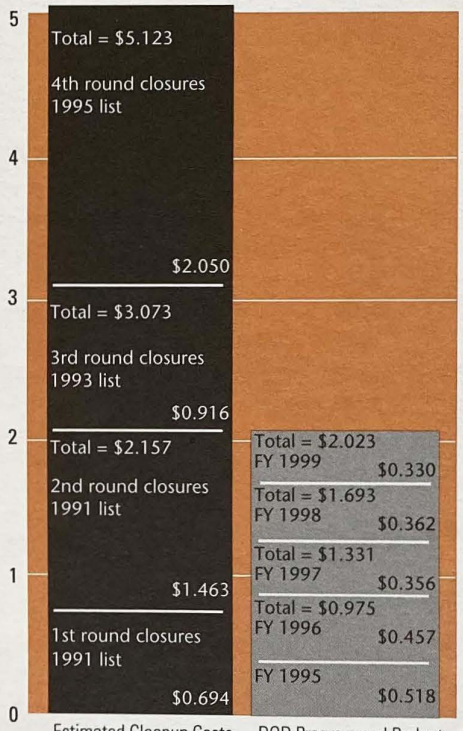
"Our principal objective is still protecting San Francisco Bay. But now we hear more concerns from environmentalists about the impact of joggers, cyclists and dogs on wildlife than we hear from permit applicants not wanting to provide public access to the Bay." *O'B*

MARE ISLAND CONT'D

Without this clean-up push, Vallejo would not have succeeded in leasing out significant commercial space on the island and replacing more than 950 lost jobs within six months of actual closure — the most of any Bay Area BRAC base closure. Three major Hollywood films, attracted by the island's scenery and historic character — which includes the most tiffany glass in the Western U.S. — have already been shot on site and firms ranging from XKT Engineering to California Northern Railroad are leasing space on the island.

According to ARC Ecology's Karen Hack, however, serious contamination remains on site. Hack worries that some of the island's polluted sites are dangerously close to Mare Island Strait which leads directly into the Estuary. In particular, an old fuel depot near the causeway continues to leak pollutants into the water while the Navy stalls on a proposed removal action to put in a trench to catch petroleum products that, according to Hack, have been "moving into the strait for who knows how long." Hack thinks other problems may exist that are not even known due to the Navy's slow rate of investigation.

NATIONAL CUMULATIVE BRAC CLEANUP COSTS COMPARED TO FUNDING (IN BILLIONS OF $)



Source: Dept. of Defense, Defense Environmental Restoration Program

Cost estimates for remaining clean up range from the Navy's $159 million to triple that amount, which would make Mare Island the second most expensive base clean up in California. However high the bill, the federal government remains reluctant to pass out clean-up dollars during a time of such fiscal constraint. Indeed in 1996, the regional division of the Navy only received $9.5 million out of a requested $25 million for Mare Island de-tox (see chart for bay-wide numbers).

Despite these uncertainties, Rippey remains optimistic that Vallejo's doing its best to see the closure process to a safe and successful outcome. Meanwhile, the island's large and diverse terrain has provoked many mini-battles over future development. Real estate interests, a powerful force in Vallejo, saw the base as a prime development opportunity and argued that construction would produce those much needed jobs. Environmentalists argued that the largely undeveloped piece of property should stay that way, both for its economic and aesthetic values as recreational space. One key battle was waged over a 200-acre hill in the middle of the island. While developers suggested building expensive view-homes, environmentalists led a coalition to preserve the hill as open space and prevailed.

Save the Bay's Myrna Hayes — a Vallejo resident — is disappointed, however, with what she calls "a plan without vision" in which reuse issues not seen as directly connected to job creation are given low priority. In particular, she fears that the Navy will attempt to transfer Mare Island to Vallejo before the property is squeaky clean and that the city — worried about its economic future — will acquiesce. While this would be illegal under current federal law, the Department of Defense is pushing a bill through Congress, nicknamed the "dirty transfer amendment," which would enable transfer before completion of clean-up, with money left in a public trust to finish the job.

"Voices of caution are dim thoughts compared to the energy of the city teamed up with the Navy," says Hayes. "If we don't get our act together we will have lost not only the economic benefit of conversion but we'll be left with a legacy of environmental hazards and reuse plans that pave over the small jewels left by the military around the Bay."

continued page 6

TOP TEN CONT'D

4. Improve the management and control of urban runoff. Increase long-term education programs on pollution prevention and extend stormwater programs to fast-growing Delta towns. In tandem, develop mass-emissions strategies to reduce both point and nonpoint source pollution; and control measures to reduce pollutant loadings from transportation. (PO 2.4, 2.5 & 2.1, PI 2.5)

5. Prepare and implement watershed management plans throughout the Estuary. In addition, include watershed management in local general plans; develop a manual on how to integrate local storm-water, watershed, wetland protection and other CCMP consistent planning initiatives; and educate the public about the connections between land use, transportation and water quality. (LU 3.1, 1.1 & 4.1)

6. Reduce and control exotic species introductions and spread in the Estuary via ship ballast and other means. In addition, educate the public about exotic species impacts on the Estuary. (AR 2.1, 2.2, 2.3, 2.4)

7. Build awareness about CCMP implementation. (PI 1.1, 1.2, 1.3 & 1.5)

8. Increase public awareness about the Estuary's natural resources and the need to protect them. In particular, develop grassroots outreach and school-based education programs. (PI 2.2)

9. Implement the Regional Monitoring Program. Build on the 1993 regional monitoring strategy and expand program to address all five key CCMP issues (dredging, pollution, biological resources, land use and freshwater diversion); update monitoring strategy for urban runoff (including air deposition); develop study sites where hydrology, contaminants and biological components are all monitored; integrate with Priority 2 above. (RM 2.1)

10. Work with CALFED and others (such as CVPIA) to address S.F. Bay and CCMP considerations in planning efforts and restoration funding decisionmaking. If you participated in the August workshop and have any comments to this summary list, please contact: Marcia Brockbank (510)286-0780

* *Numbers in parentheses correspond to relevant CCMP action items.*

Taking THE Pulse

of the San Francisco Bay - Sacramento/San Joaquin River Delta Estuary

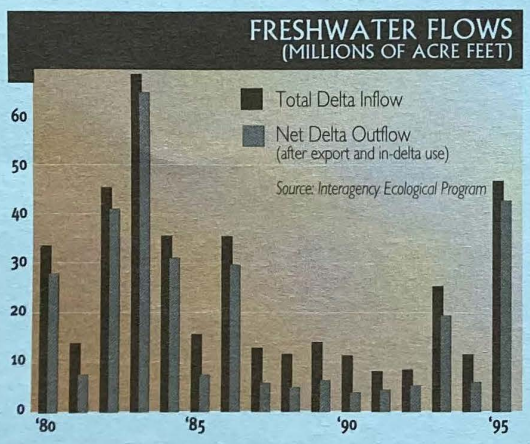
NEW SCIENCE
NEW MANAGEMENT
NEW PRIORITIES

The past three years have been marked by new leaps in scientific understanding of the 1600 square-mile S.F. Bay-Delta Estuary ecosystem, major changes in how Estuary waters are managed for both human use and environmental health, and concerted attempts to better link science to water management through stepped-up monitoring of estuarine conditions.

This fact sheet highlights these discoveries and changes as a first step in determining the current state of the Estuary, which drains 40% of California. It follows up on several prior looks at this "state" undertaken by the S.F. Estuary Project — a U.S. EPA/state cooperative effort to promote environmentally-sound management of the Bay and Delta. The project held State of the Estuary conferences in 1991 and 1993, and will hold another in October 1996. In addition, it published a *State of the Estuary* report on conditions and problems in the Bay-Delta in 1992, which it will update in late 1996.

Many of the scientific findings in this fact sheet are drawn from two research programs charged with checking the Estuary's vital signs and reporting back to regulators on the status of its health — the Interagency Ecological Program (flows and fish) and the S.F. Estuary Institute (pollutants). Other findings came from 1996 conference presenters.

In terms of Estuary management, much of the information comes from recent S.F. Estuary Project research into progress made in implementing its 177-action *Comprehensive Conservation and Management Plan* for the Bay and Delta (CCMP). This plan was developed through a five-year, consensus-building process among over 100 public and private interests. The CCMP remains the only approved, ecosystemwide plan for balancing environmental protection and beneficial use of the Estuary's resources and waterways, and was signed by Governor Pete Wilson and U.S. EPA Administrator Carol Browner in 1993.



WATER RESOURCES & USE

RAW DATA

(MAF = million acre feet)

Total inflows into Estuary:	47 MAF in 1995 11 MAF in 1994 25 MAF in 1993. (Le, IEP)
Total exported from Estuary to cities, farms and other uses:	5.0 MAF in 1995; 4.0 MAF in 1994; 4.6 MAF in 1993. (Le, IEP)
Mean percent of total Delta flows diverted:	11% in 1995 36% in 1994 19% in 1993. (Le, IEP)
California farmland irrigated with Estuary water:	4.5 million acres
Population provided drinking water from the Estuary watershed:	20 million people
Water year types: (Year type has an enormous influence on water supply and estuarine conditions)	1990-1992 critical (the tail end of a 6-year drought) 1993 above normal 1994 critical 1995-1996 wet
Total amount water recycled in Bay Area:	30,400 acre feet in 1995 31,000 in 1992
Total amount water recycled in Sacramento region:	20,980 acre feet in 1995 (DWR/WateReuse)
Current top Bay-Delta water recyclers:	East Bay MUD; S.F. Public Works; Lodi, Manteca and Nevada Irrigation District.

NEW FINDINGS

★ About 10,000 acre foot per year less water is being recycled statewide than in 1992 — the end of the drought decreased pressure to recycle.

★ Over 650,000 acre feet of Bay Area wastewater could be recycled on a regional basis by the year 2020 under four options proposed by the Central California Water Recycling Project.

TRENDS

★ Promoting free water markets, transfers and pricing incentives to encourage water conservation and efficiency. A model computerized water market — through which farmers can buy and sell water — went on line within Westlands Water District in 1996.

MANAGEMENT CHANGES 1993-1996

★ Recent amendments to the California water code prohibiting the use of drinking water for watering parks, cemeteries, golf courses and highways. In addition, any public agency may now require the use of reclaimed water for residential landscape use. (DWR)

★ Tougher criteria for the water efficiency and management plans required of the 100 districts using Central Valley Project water completed in 1993. Of these, 49 had plans meeting the new criteria as of 1996. (BurRec)

★ Recent consensus on a list of efficient agricultural water management practices to be adopted by numerous agricultural water districts via a memorandum of understanding. MOU scheduled for signing in fall 1996. (BurRec)

★ More proactive interest in land use management issues on the part of water districts concerned about the quality and quantity of their supplies. East Bay MUD, Santa Clara, and other districts are actively pursuing "watershed management" planning to reduce impacts on their reservoirs and supplies from new development, urban runoff, grazing and other factors.

STATE OF THE ESTUARY 1996

FOOD CHAIN & FISH

RAW DATA

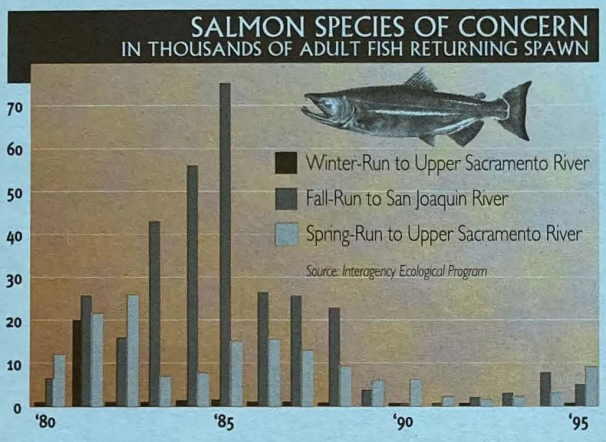
★ Estimated population of endangered winter-run Chinook salmon in Sacramento River: 1,361 in 1995 — 189 in 1994 — 341 in 1993 — 23,430 in 1975. (Mckee, CDFG)

★ Threatened Delta smelt abundance index: 898.7 in 1995 — 101.2 in 1994 — 1078.4 in 1993 — 697.9 in 1975. (Sweetnam, CDFG)

★ Recreational salmon catch averaged 25% of the Sacramento River fall-run between 1990-1994. (PFMC)

★ Take levels of winter-run salmon at the water project pumps were exceeded in 1994 and 1995 but not in 1992 and 1993. The National Marine Fisheries Service, which sets the levels to minimize fish losses, decided the exceedances did not constitute a jeopardy to the winter-run, largely due to ambiguity in the length criteria.

★ Take levels of Delta smelt, set by U.S. Fish & Wildlife, have only been exceeded in 6% of the months since the December 1994 Bay-Delta Accord. (Sommer, DWR)



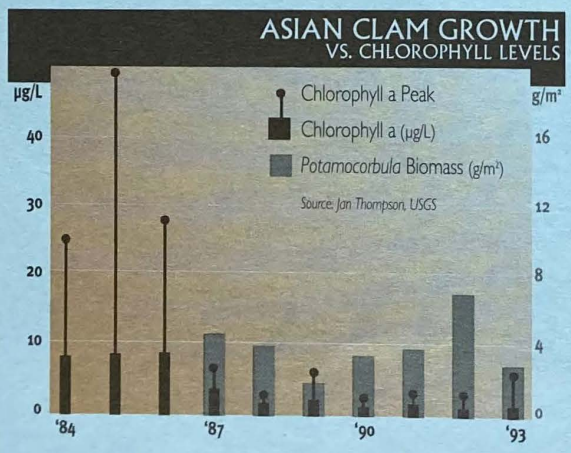
NEW FINDINGS

★ The abundance of a majority of estuarine dependent species is clearly related to freshwater flow levels. (Jassby)

★ An average of four new exotic aquatic species from foreign ports are introduced to the Estuary every year. Between 1850-1970, the invasion and establishment rate was one every 46 weeks. Between 1970 and 1995, the rate tripled to one every 15 weeks. (Cohen)

★ Over 230 invasive exotic organisms have been identified in Bay and Delta as of 1996. (Cohen)

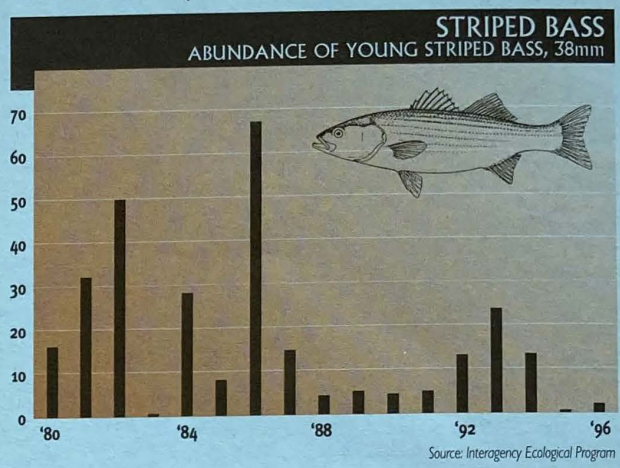
★ The Asian clam *potamocorbula amurensis is* consuming large portions of the planktonic food supply, particularly in the summer (see *graph*). Chlorophyll peaks associated with summer blooms in the North Bay haven't occurred since the clam population burgeoned in 1987. But clam grazing doesn't seem to have affected most fish, as many grow and feed in the spring before the clams chow down. (Kimmerer)



TRENDS

★ Two wet seasons in a row (1995-1996) greatly benefited longfin smelt, Sacramento splittail and Delta smelt. High river outflows pushed Delta smelt further downstream into their historic North Bay, Suisun Bay and Napa River habitat. Smelt haven't been in this river — recently identified as one of the Estuary's most polluted spots (see opposite) — since the mid-1970s. (Sweetnam, CDFG)

★ Winter-run chinook salmon populations continued record lows until 1995, when the population may have stabilized. Spring-run chinook also continue to decline, with the exception of dramatic 1995 increase in spawner returns to Butte Creek. (McKee, CDFG)



★ Striped bass, a species important to recreational fishing, continues major decline dating back to 1977. (Miller, CDFG)

★ The Pacific herring fishery is rebounding from low levels during the recent drought. (Spawning biomass in the Bay in 1995-96 was the second highest on record – 99,000 tons.) (Hieb, CDFG)

MANAGEMENT CHANGES 1993-1996

★ Shift from single to multi-species recovery planning for endangered species protection. For example, a *Delta Native Fishes Recovery Plan* was completed in summer 1996 for seven species including the endangered Delta smelt, the Sacramento splittail and two runs of chinook salmon.

★ Decision by fish and wildlife agencies not to list Sacramento spring-run chinook salmon and longfin smelt under the endangered species acts.

★ Shift from flow- to salinity-based standards to protect the Delta environment as a result of the 1994 truce in the water wars called the Bay-Delta Accord and the resulting state water quality plan. The current salinity standard limits the upstream movement of the 2 ppt isohaline (parts per thousand of salt in the water). Adequate flows must be released to keep the isohaline within a certain range of positions in the Estuary near the Carquinez Strait which are associated with abundance in fish and biota.

★ Establishment of a federal-state "operations group" of export pump managers and scientists to make day-to-day decisions about pumping to minimize loss of endangered species and negative environmental impacts in 1995. Major expansion of "real-time" (in-the-water) monitoring of fish movements and conditions in the Estuary to aid with daily water management.

★ Creation of the cooperative federal-state CALFED Bay-Delta Program in 1995 to develop a long-term solution for balancing all beneficial uses of Estuary waters by fish and humans alike.

★ Follow-up on 1992 Central Valley Project Improvement Act (CVPIA) mandates to double anadromous fish (such as salmon and trout) populations, including the recent completion of a 176-action *Anadromous Fish Restoration Plan*; improved flows for fish on Sacramento, American and Stanislaus rivers; and planning for use of 800,000 acre feet per year dedicated to fish under act; and funding screens at water diversions associated with fish mortality.

POLLUTION

RAW DATA

★ Of all water measurements taken by the Regional Monitoring Program (RMP) for Trace Substances 12% exceeded EPA water quality criteria or state objectives in 1994, with similar results in 1995. (SFEI)

★ PCB levels exceeded EPA criteria for human health at almost all RMP sampling stations in 1993, 1994 and 1995. (SFEI)

★ Copper, mercury and nickel levels exceeded standards and guidelines in more than half the 1994 and 1995 RMP samples, silver, zinc and cadmium in less than 10% . (SFEI)

★ Surveys of bottom-dwellings organisms living near three major sewage outfalls (EBMUD, Contra Costa and San Francisco), showed no apparent negative impacts in 1994. (SFEI)

★ Levels of the pesticides diazinon and chlorpyrifos exceeded Cal Fish & Game's recommended water quality criterion in 80% or more of samples recently collected in urban streams in Sacramento and Stockton in 1994-1995. In Bay Area streams, 50% exceeded the diazinon criterion and 75% exceeded the chlorpyrifos criterion. Orchard pesticides including diazinon, chlorpyrifos and methidation have been found in the Sacramento River watershed at levels toxic to test organisms. (Connor, CVRWQCB)

★ Diazinon levels in Castro Valley street gutters were over 50,000 parts per trillion in 1996 — 400 ppt can be toxic to aquatic organisms such as water fleas. Creeks measured in the same area ranged from 100-1,500 ppt. (Scanlin)

NEW FINDINGS

★ All estuary fish tissues sampled in 1994 exceeded screening values for human consumption for PCBs. Many samples exceeded values for mercury, dieldrin, chlordanes, DDTs and dioxin. (SFRWQCB)

★ The average concentration of PCBs found in S.F. Bay harbor seals exceeded levels associated with reduced reproduction and immune suppression in a Netherlands study of captive seals. Selenium levels, meanwhile, were significantly higher than those in seals in South Puget Sound. (Kopek)

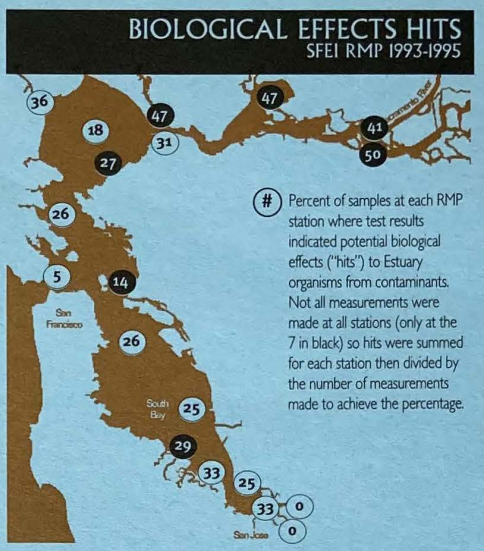
★ The Sacramento River supplies 80% of the Estuary's freshwater flow but violates water quality criteria for copper, mercury, pesticides and toxicity. (Connor, CVRWQCB)

★ Household pesticides have now been clearly linked to the widespread toxicity of runoff from Estuary cities to test organisms. (Connor)

★ Automobile brake pads may be a major source of copper in urban stormwater runoff. (Santa Clara)

MANAGEMENT CHANGES 1993-1996

★ Enhancement and establishment of strong stormwater pollution prevention programs in all the Estuary's major urban watersheds. As of spring 1996, municipalities with such programs were the cities within and counties of San Mateo, Santa Clara, Alameda and Contra Costa (except Brentwood); and the urban regions associated with Sacramento, Stockton, Vallejo and Fairfield-Suisun City.



★ Creation of a new interagency, public-private coordinating committee in 1995 to attack pesticide toxicity problems in urban runoff.

★ Adoption of new water quality objectives for five rice pesticides in the Sacramento River slated for late 1996 by Central Valley Regional Board.

★ Establishment of California's first ever waste discharge requirement with numerical effluent limits on irrigated agriculture — to meet a 5 ppb selenium objective for the San Joaquin River approved by the Central Valley Regional Board in May 1996.

★ Development of new methods for reducing selenium discharges by Bay oil industry in order to meet 50% reduction requirement set by S.F. Bay Regional Board with a deadline of 1998.

★ Creation of a new national public-private partnership through Common Ground for the Environment aimed at preventing pollution from vehicle brake pad wear and tear.

★ Increased emphasis on "watershed management" approach to pollution prevention on the part of state water quality agencies and the U.S. EPA. In early 1996, state agencies targeted the following watersheds for action: the Sacramento, San Joaquin and Napa rivers, the Delta, and the extreme South Bay.

★ Immense growth in public education programs about pollution prevention at home, workplace and stormdrain since 1993.

DREDGED MATERIAL DISPOSAL

RAW DATA

★ Number of aquatic multi-user dredged material disposal sites in the Bay coastal region: 3 in 1993 — 4 in 1996.

★ Number of active upland disposal projects in the Bay region: 7 in 1993 — 10 in 1996. (BCDC)

★ Annual cost of current Bay region disposal practices: $24-46 million. (LTMS)

NEW FINDINGS

★ In the Bay Area, a projected 300 million cubic yards (mcy) of dredged material (high-end estimate) will need to be disposed of at Bay, ocean or upland sites over the next 50 years (6 mcy per year average) — down 25% from early 1990s estimates of 400 mcy over 50 years. (LTMS)

★ Approximately 80-90% of the material that needs to be dredged is clean enough to be suitable for unconfined aquatic disposal in the Bay or ocean, leaving 10-20 % needing alternative management. Less than 1% of the material is "hazardous." (LTMS)

TRENDS

★ Move away from current reliance on in-Bay disposal sites (namely Alcatraz) for 90% of dredged material toward a more balanced mix of ocean, Bay and upland sites — minimizing environmental risks to any one disposal environment. A draft EIS/EIR on a long term management strategy (LTMS) for Bay dredging and disposal suggests the region could transition over time to disposing of 20% of dredged material to in-Bay sites, 40% to the ocean and 40% to upland/wetland reuse sites. Such a transition would increase disposal costs from the current 0.3-0.6% of the total maritime economy to 0.5-0.9%. (LTMS)

MANAGEMENT CHANGES 1993-1996

★ New Bay region deepwater ocean disposal site was approved in 1994 — the first offshore site open for business in over 14 years.

★ Regional policy shifts favoring beneficial reuse of dredged material (for wetland restoration, landfill cover, construction fill, etc.). LTMS studies have identified 22 highly feasible potential reuse sites in the Bay region. Several projects now in the works, including a 300-acre wetland restoration at Sonoma Baylands and levee improvements on Jersey Island.

★ Increased clarification of sediment quality assessment protocols and guidelines for suitability for different disposal environments by lead agencies.

STATE OF THE ESTUARY 1996

WETLANDS

RAW DATA

★ **Total wetlands S.F. Bay-Delta in 1987:**	628,549 acres (NWI, Meioren) (S.F. Bay 170,661; Suisun Bay 76,652; Delta 385,236 acres — Bay-Delta total includes 385,755 acres of farmed wetlands)
★ **Tidal wetlands in the Bay-Delta:**	44,371 acres in 1987 545,375 in 1850
★ **Bay-Delta wetlands acquired for public trust since 1993:**	17,170 acres (SFEP)
★ **Bay-Delta region national wildlife refuge growth since 1993 (included in above acreage):**	4,458 acres (SFEP)
★ **Bay-Delta wetland restoration or enhancement completed or underway since 1993:**	19,754 acres (does not include any mitigation projects) (SFEP)
★ **Acres of wetlands subject to development pressure as of 1991:**	12,000 Bay; 78,000 Delta (SFEP)
★ **Total permits for wetland fill issued in Bay Area by Army Corps since 1993:**	162
★ **Endangered California clapper rail population in the Bay (approx.):**	500 in 1991 900-1200 in 1995 (Browning)

NEW FINDINGS

★ Wetland restoration costs an average of $20,000-$30,000 per acre, with big ticket items reaching $80,000 per acre.

★ Though compensatory restoration as mitigation for wetlands filled continues to increase, its success remains in serious doubt. Studies show there is little or no follow-up on mitigation projects once approved. Baseline wetland acreage continues to erode in the face of faulty mitigation policies and poor implementation. (Race)

TRENDS:

★ Restoration of tidal action to former wetlands, particularly diked farmed baylands and salt ponds, now popular. Concerns remain over loss of seasonal or marginal wetlands in rush to create tidal wetlands, and over the equivalence of "restored" wetlands to natural wetlands.

★ Creation of large, multi-project mitigation banks to replace current individual, piecemeal, small-scale mitigation projects (concerns remain about comparative biological and regulatory benefits of this new approach).

SHOREBIRDS IN SAN FRANCISCO BAY

	SPRING	WINTER
1988	838,470	
1989	931,561	225,427
1990	663,790	357,754
1991	588,964	342,504
1992	692,959	325,449
1993	627,093	

Source: PRBO

MANAGEMENT CHANGES 1993-1996:

★ Adoption of no net loss policies by state since 1993 which emphasize avoidance of destruction or degradation of wetlands.

★ Increased efforts to develop mitigation banking guidelines — the U.S. Army Corps produced the first substantive mitigation guidelines in 1993 and the State Resources Agency released conservation mitigation bank guidelines in 1995.

★ Drafting of an S.F. Bay *Salt Marsh Ecosystem Recovery Plan* underway by U.S. Fish & Wildlife. Plan updates and integrates recovery actions for the California clapper rail and salt marsh harvest mouse, as well as other endangered birds, mammals and aquatic plant species (completion in 1997).

★ Stepped-up South Bay predator control programs in wetlands to remove foxes and feral cats preying on endangered clapper rails and least terns.

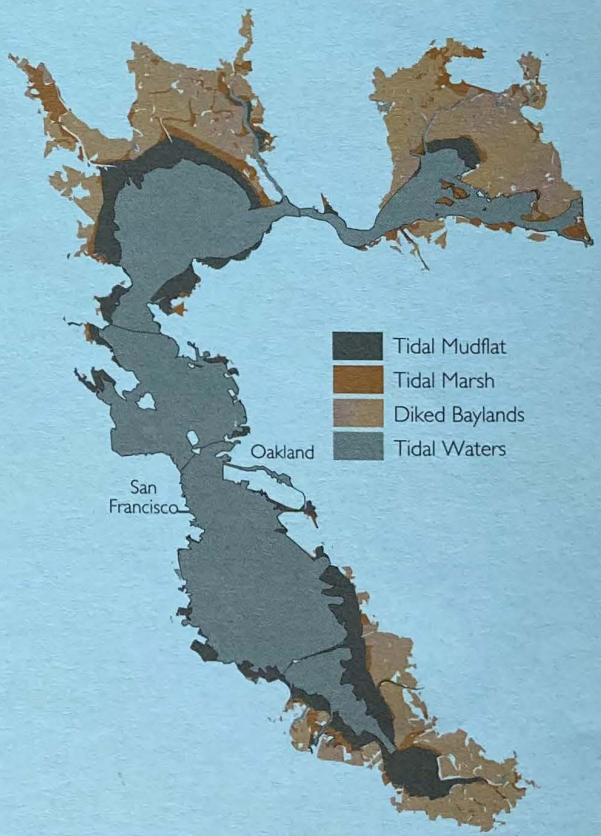
★ Creation of the S.F. Bay Joint Venture in 1995, a wetland acquisition-oriented partnership among 28 government and private interests.

★ Identification of 40,000 acres on the North Bay rim as the region's most promising opportunity for large-scale wetland restoration. As a result, three North Bay cooperative planning efforts now underway spearheaded by Save the Bay, the S.F. Bay Commission and U.S. EPA.

★ Launching of science-based effort to identify the types, amounts and distribution of wetlands needed to sustain a diverse and healthy estuarine ecosystem in 1994. This "habitat/ecosystem goals process" will help provide biological foundation for a regional wetland protection plan.

BAY AREA WETLANDS

DRAFT ADAPTED FROM SF ESTUARY INSTITUTE WETLANDS ATLAS*



Eratum: Estuary printed this same map in its last issue with an error — salt ponds were shown as mudflats — due to a computer translation glitch. Apologies!

FOR FURTHER INFORMATION

To find out more about any of the information in this fact sheet, contact: Marcia Brockbank, S.F. Estuary Project: (510)286-0780

Published by the S.F. Estuary Project, August 1996

ENVIRO-CLIP

AN 800,000 ACRE-FOOT BLUR

Stuffing the mailboxes at BurRec this August were letters of concern about how a big block of water dedicated by the Central Valley Water Project Improvement Act (CVPIA) to help fish and wildlife is to be managed and accounted for. The current answer to this question appears in a draft administrative proposal and semi-final guidelines released by BurRec and U.S. Fish & Wildlife in July with a call for comments.

The CVPIA calls for both "reoperation" of the federal project to move water around in a more fish-friendly way — without reducing deliveries — and for dedication of 800,000 acre feet out of the total yield to help double anadromous fish populations. The most contentious issue in the recently released proposal and guidelines — which flesh out the in-the-water details of the CVPIA mandates — is whether the 800,000 acre feet can be recaptured. According to the guidelines, if any of it can be "...recaptured or pumped for any authorized project purpose, after it has first served the identified fish and wildlife purpose, Reclamation [BurRec] may do so. Recaptured water may reduce the impact on project yield but shall not be considered to be reoperation of the project."

Environmentalists think the guidelines blur the line between reoperation and recapture. "It's fine to pump water that has benefited fish to Westlands as reoperation, which we fully support," says Wendy Pulling of the Natural Resources Defense Council. "But dedicated yield is something else altogether. If the 800,000 isn't water that impacts CVP deliveries, it would be business as usual with fish getting the short end of the stick."

But CVP water users think this approach is too simplistic. "You can't look at project operation for the environment in isolation from its other uses, " says Jason Peltier of the Central Valley Project Water Association. Water contractors, who've been pushing the recapture idea, believe that once the fish water's served its primary environmental purpose upstream it should be made available for other purposes, especially if the 1995 Bay-Delta accord standards are being met downstream. "If you're meeting the standards, that should be a cap on our obligation," says Peltier.

But Pulling disagrees, saying the Delta standards aren't "the ceiling for ecosystem health" and leave some important anadromous fish needs unmet. That's why she's also concerned about language in the new guidelines which would permanently credit the 800,000 acre feet towards the feds 50% share of the water needed to meet the Delta standards (the other half of the roughly 400,000-1.1 million acre feet necessary to meet the standards comes from the state water project). While environmentalists agreed to the crediting arrangement for the duration of the accord, which ends in December 1997, Pulling feels its too early to decide whether a permanent credit is appropriate — especially since recent analysis by the Environmental Defense Fund indicates that because of the plumbing and geography of the Delta, the feds share, like or not, may actually be much higher.

"If the feds are signing up for a permanent 67% for the Delta, that punchs a big hole in our ability to use the 800,000 for fish upstream," says Pulling.

What the final language will be on the permanent credit, and on how reuse opportunities will be counted, is still being evaluated by the agencies, along with comments on the proposal and guidelines. The current guidelines will be used to manage this year's fish water, however.

Contact: Wendy Pulling (415)777-0220; Jason Peltier (916)448-1638; Laura King, BurRec (916)979-2209 *ARO*

SPECIES SPOT

BYPASS BENEFITS

When winter rains swell the Sacramento River enough that it spills into the Yolo Bypass, the fish brought in with the overflows discover a new habitat—only to be stranded in the seasonal or perennial ponds left behind when the flows cease. The numbers of fish have been great enough to lure biologist Warren Shaul into monitoring their presence in the bypass on his own time for over four years, and to prompt the Department of Water Resources to propose a new study.

"You can look at the bypass in two ways," says Shaul, "as a golden resource for fish or a deathtrap."

In drier years, the Sacramento River can handle its flow without flooding. In wet years, however, the river overflows into two bypasses — floodplain channels 2-3 miles wide, and largely composed of agricultural fields, that parallel the river. In wet years, the flow through the 60,000-acre Yolo Bypass near Knights Landing frequently exceeds that in the river, and so can the fish. "We pulled a net across a cornfield and got 40 juvenile Chinook—a huge density. In the river, we're sometimes lucky if we net any," says Shaul of Jones & Stokes. Fish like the native splittail minow (proposed for listing as threatened) and the endangered winter-run Chinook salmon can thrive in the warm, food-rich shallows of the flooded bypass.

When the river drops below flood level, intake weirs abruptly stop flows into the bypass, disconnecting many ponds and agricultural ditches from flows left in the bypass' main drainage channel. Shaul thinks the weirs could be modified, possibly using radial gates, to allow more frequent spillovers at lower flows (more like a natural system). Shaul has found that even very small channels a few inches deep can help fish travel from the ponds to the main flow, and that creating more such small tributary channels would allow more fish to escape.

"Any changes to benefit fisheries must be compatible with flood management and not adversely affect marshlands and wildlife habitat," says Ted Sommer of the Department of Water Resources, pointing out that the Yolo Bypass is part the largest wetland restoration project west of the Mississippi. Such potential debates may be better informed if a proposed Water Resources study gets approved by the Interagency Ecological Program. The study would count fish, compare bypass habitat to the river, explore reasons why fish come and go, inventory the salmon races using the bypass, and closely examine where ponds and drainage networks are located and how they change with different phases of the flow.

Contact: Ted Sommer (916)227-7537 & Warren Shaul (916)737-3000 *LOV*

NATURAL VENTURES

RESTORATION VITAL SIGNS

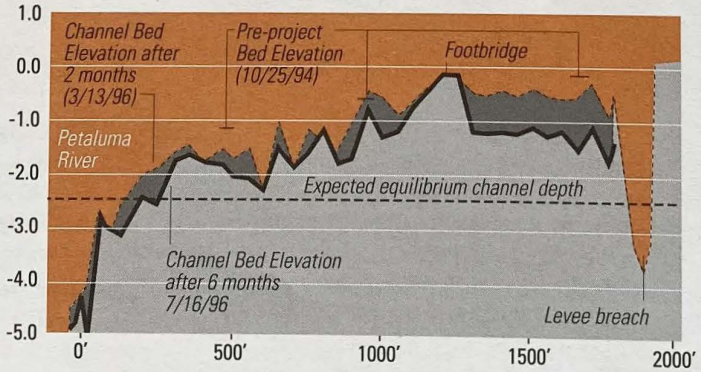
Two wetland re-habs got a follow-up check up this July. Both seem on the road to recovery according to scientists conducting preliminary tests of their vital signs, even though each got a different treatment.

Restoration of Pond 2A — a 550 acre former salt pond near the mouth of the Napa River — was of the quick and cheap variety — a few guys, a few well-placed sticks of dynamite and a resulting hole in the dike to let the tides in and prevent looming levee failure elsewhere. Restoration for Sonoma Baylands — a 300 acre hayfield near the mouth of the Petaluma River — was of the more high-design, big bucks and heavy equipment variety. Because the site had subsided about six feet, it was reshaped and raised up — with the help of two million cubic yards of mud imported from the Oakland harbor bottom and San Pablo Bay — to create what designer Phil Williams thought a sound template for the natural evolution of wetlands. "These two sites show us the full spectrum of North Bay restoration possibilities and how critical a parameter ground elevation can be," says Williams. "Pond 2A wasn't very subsided so it was easy."

This July, Williams' field hands braved waste-deep muck to measure the depths of the channel serving Sonoma Baylands' 29-acre pilot unit. The levee preventing tides from entering the site was breached in January (a similar breach is planned for the 260-acre main unit this September). Measurements indicate that the channel has deepened and broadened over the past six months (see graph). Other signs of increasing tidal exchange — which outside observers have been concerned was not occurring — include more blocks falling into the channel from the bank and spreading stands of pickleweed and cordgrass around the inside edge of the site, according to Williams. His research, carried out for the Coastal Conservancy, as well as bird, fish, water quality and elevation surveys overseen by the Army Corps, were released this August in the first annual monitoring report for Sonoma Baylands.

At Pond 2A, the most visible sign of marsh development is vegetation. Botanist Phyllis Faber found vegetative cover had increased from 10% in January 1995 when the levee was breached to 25-30% this July. "We've got a plant war going on over all this virgin territory," says Faber, who found a "striking diversity" of flora on site. Faber and Williams' field hands laid out transects to recheck vegetation later this year, put in "sediment plates" to measure deposits made on the original surface by tides — these are no high-tech gizmos, just light switch covers nailed to the ground — and set up markers and equipment for monitoring tidal exchange and slough channel development. Meanwhile, fish sampling shows that many less salt-tolerant species are beginning to use the former Cargill salt pond. According to fisheries consultant Bill Kier, these include striped bass, splittail minnows, inland silversides, anchovies and herring.

TIDAL CHANNEL DOWNCUTTING 6 MONTHS AFTER BREACH (ELEVATION IN FT. NGVD)



Source: Philip Williams & Associates

Trust monies from the 1988 Shell oil spill are paying to set up the Pond 2A monitoring program, which pond owner Cal Fish & Game will continue after the first year. Sonoma Baylands monitoring is coming out of several pockets — Army Corps, Coastal Conservancy, and U.S. EPA. But funding for such monitoring is the exception, not the norm, for the dozens of

continued on back page

MARE ISLAND CONT'D

Hayes and other enviros argue that tourism, recreation, and wildlife preservation can create their own jobs and profits. "Wildlife brings in dollars," says the Audobon Society's Arthur Feinstein, citing two recent studies — one showing $15 million in increased revenues to the Bay Area from a proposed wildlife refuge at the closing Alameda base (Hrubes) and another documenting the enormous economic value of coastal open space (Coast Year 2010, Resources Agency). Indeed, environmentalists hope to expand the adjacent San Pablo Bay Wildlife Refuge to include 670 acres of Mare Island and a site for a new visitor center for all area refuges.

Proposals abound for other environmentally-friendly base uses. The Bay Area Defense Conversion Action Team would like to sponsor a Mare Island demonstration project to pioneer new and faster on-site contamination assessment and treatment techniques. U.C. Davis has proposed a research station on Mare Island to study the effects of a polluted site on adjacent waters and wetlands. And some Mare Island ponds are among 22 of the most highly feasible sites baywide for either confined placement or rehandling of dredged material for future beneficial reuse (see page 2).

Whether any of these proposals will come to fruition remains uncertain. At the very least, most base closures, including Mare's, represent an opportunity to remedy persistent environmental thorns — toxic contaminants may finally be contained and long-degraded wetlands restored. It's too soon to tell if the Mare Island reuse team will achieve its goal of becoming a national model for successful base conversion. From Haye's perspective, future generations will judge the reuse process not just on jobs lost and gained but also on the environmental and historical legacy preserved on the island. Contact: Futures Project (707)649-5452 *MB*

An excellent new resource is ***Defense Conversion: A Roadmap for Communities,*** *published by the East Bay Conversion and Reinvestment Commission. The roadmap includes 75 practical strategies for both mitigating the effects of base closure and maximizing reuse potential. (510)834-6928*

PLACES TO GO & THINGS TO DO

WORKSHOPS & SEMINARS

Successful Pollution Prevention for Metal Finishing & Printed Circuit Board Industries

TUES•9/17•1-4:30 PM
Topics: Successful pollution prevention projects at Technitron and Davila International Circuits, with a focus on static rinsing, electrowinning, and direct metallization. See Reasonable Control Measures Video. Hear Watkins-Johnson, Specific Plating and Acteron discussion exchange, vacuum distillation, and building in P2.
Sponsor: Palo Alto Regional Water Quality Control Plant
Palo Alto Cultural Center Auditorium
1313 Newell Road
(415) 329-2514

Seminars on the S.F. Estuary

FOURTH FRIDAY EACH MONTH
Topics: Scientific understanding necessary for managing a complex estuarine ecosystem.
Sponsor: S.F. Estuary Institute
Large Training Room, 2nd floor, EBMUD Administration Building, 375 11th Street
Oakland
(510) 231-9539 ext. 625

Does Your Vote Make a Difference?

THURS•10/10•7-9 PM
Topics: Panel discussion followed by social hour with the environmental candidates endorsed by the California League of Conservation Voters.
Sponsor: Bay Area Environmental Forum
Mountain View City Council Chambers
500 Castro Street
(408) 491-9374

Environment on the Internet

TUES•10/15•9AM- 5PM
Topic: A course in how to use the Internet as an environmental information resource.
Sponsor: UC Extension
UC Extension Downtown, Room 7
150 Fourth Street, San Francisco
(408) 491-9374

Facilitating and Mediating Effective Environmental Agreements

WED-FRI•11/6-8•9AM- 5PM
Topic: Professional negotiation skills for complex environmental policy issues.
Sponsor: Concur
U.C. Berkeley, Clark Kerr Campus
2601 Warring Street
(408) 491-9374

California Water Policy VI: Beyond the Limits

THURS-FRI•11/14-15
Topic: Developing water policy options and alternatives to meet California's growing water needs.
Sponsor: Public Officials for Water and Environmental Reform (POWER)
Biltmore Hotel, Los Angeles, California
(619) 231-6500

MEETINGS & HEARINGS

The San Francisco Bay Joint Venture

WED•9/25•10:00AM
Topics: Inaugural Celebration for the San Francisco Bay Joint Venture, and ground-breaking ceremony for the Oro Loma Marsh Enhancement.
Hayward
(510) 286-6767

HANDS ON

12th Annual Coast Cleanup Day

SAT•9/21•8:30AM-12:00 noon
Topic: Picking up trash along S.F. Bay's shores and nearby areas.
Sponsor: Coastal Commission
Call S.F Bay National Wildlife Refuge at (510) 792-4275 for exact locations

No. California Water Facilities & Fisheries

WED-FRI•9/25-27
Topic: A tour of the Oroville and Shasta Dams, Feather River Fish Hatchery, Gray Lodge Wildlife Refuge, and Spring Creek Debris Dam, plus a salmon barbecue and housebout cruise on Shasta Reservoir.
Sponsor: Water Education Foundation Water Tours
(916) 444-6240

Birding at Coyote Creek Lagoon

SAT•10/19•9-11AM
Topic: A birdwalk that takes place along the levees of the lagoon, where migrating waterfowl can be seen.
Coyote Creek Lagoon
(510) 792-0222

STATE OF THE ESTUARY

OCTOBER CONFERENCE COMING UP

- → **OVER 30 PRESENTATIONS** by leading scientists on the latest Estuary research and trends.
- → **PANEL DISCUSSIONS** with top Bay-Delta environmental policymakers and water managers.
- → **KEYNOTE SPEECH ON CREATING SUSTAINABLE COMMUNITIES** by Theodore Strong, director of the Columbia River Intertribal Fish Commission and member of the President's Council on Sustainability.
- → **OVER 50 POSTERS** on new science, new government programs, new business initiatives and new environmental frontiers.
- → **OVERVIEWS AND AWARDS** for outstanding and innovative efforts to protect and restore the Estuary, and to implement the S.F. Estuary Project's *Comprehensive Conservation and Management Plan* for the Bay and Delta.
- → **RECEPTION** honoring the Bancroft Library's new oral history of well-known marine biologist Dr. Joel Hedgpeth.
- → **ASK DOCTOR SCIENCE BOOTH.**

SAMPLE CONFERENCE TOPICS

Thursday October 10
- Exotic species invasions and impacts
- Food chain dynamics
- Sensitive fish species
- Entrapment zone
- Metal, pesticide and PAH contamination

Friday October 11
- Wetland restoration
- Sea level rise and sediment supply effects on wetlands
- Watershed restoration priorities model
- New directions in Estuary management (CCMP, CALFED, LTMS, CVPIA)

Saturday October 12
- State of the Estuary overviews and perspectives (including George Miller).
- Creating sustainable communities
- CCMP Implementation Progress

Location: Officer's Club in Presidio, San Francisco
Cost: $40-175 (1-3 days)

(510) 286-0460
info & registration

Awards Nominations Wanted
Friends of the Estuary will be giving awards at the conference in recognition of outstanding CCMP implementation efforts. To nominate a project, e-mail us a few lines on the project, complete with a contact name and number, to sfep.soe.abag.ca.gov or fax to (510)286-0928 no later than September 10.

NATURAL VENTURES CONT'D

restoration projects in the Estuary, according to Williams. With continuing calls for restoration standards from environmentalists and resource agencies concerned about the conversion of seasonal wetlands to create tidal wetlands, and with the use of dredged material to enhance wetland development, more and better post "restoration" monitoring seems here to stay.

What such monitoring should include, and how it can be set up so that the success of different restoration approaches on different types of sites can be compared, is now the subject of much discussion. Sonoma Baylands is serving as a kind of guinea pig. The project's still not finalized monitoring plan sets out criteria for measuring the physical success of restoration elements such as the degree of erosion in the tidal channels serving the units, the concentrations of chemical constituents in the surface dredged material, and the tidal range achieved within five years.

"Monitoring should be oriented toward measuring the system's evolution," says Williams. "In a dynamic and evolving wetland, you've got to balance the need for milestones with letting nature do its work."

With so many restoration projects on line, however, U.S. Fish & Wildlife is now calling for site-specific performance criteria. In a July comment letter on the draft LTMS EIS/EIR (see insert), for example, the Service stated the need for quantitative success criteria for restoration of endangered species habitat, and for studying the fate of sediment-borne contaminants. "It's time we developed a way to look objectively at the scientific merit of all these restoration projects, " says the Service's Meri Moore. "As regulators, we need something to use as a yardstick."

The first few inches of this yardstick may be found in the ongoing evaluation of Sonoma Baylands and Pond 2A, and in the now evolving monitoring plan for a large Delta restoration using dredged material called Montezuma Wetlands, says Moore. Contacts: Scott Miner (Sonoma Baylands monitoring report copies) (415)977-8537; Meri Moore (916)979-2116; Phil Williams (415)981-8363 *ARO*

ESTUARY

YOUR BAY-DELTA NEWS CLEARINGHOUSE

AUGUST 1996 VOLUME 5, NO. 4

Editorial Office:
PO Box 791
Oakland, CA 94604-0791
(510) 286-4392
(510) 286-0928 fax

Managing Editor
Ariel Rubissow Okamoto

Graphic Design
Darren Campeau

Contributing Writers
Mark Barnett
Bill O'Brien
Lisa Owens-Viani

ESTUARY Web site at *http://www.abag.ca.gov/bayarea/sfep/index.html*
S.F. Estuary Project (510)286-0460

ESTUARY is a bimonthly publication dedicated to providing an independent news source on Bay-Delta water issues, estuarine restoration efforts and implementation of the S.F. Estuary Project's Comprehensive Conservation and Management Plan (CCMP). *It seeks to represent the many voices and viewpoints that contributed to the* CCMP*'s development. ESTUARY is funded by individual and organizational subscriptions and by grants from diverse state and federal government agencies and local interest groups. Administrative services are provided by the S.F. Estuary Project and Friends of the S.F. Estuary, a nonprofit corporation.* ***For a free trial subscription*** *(three issues), mail your name and address to Liz Blair of ESTUARY at the address above. Views expressed may not necessarily reflect those of staff, advisors or committee members. Printed on recycled paper with soy-based inks by Alonzo Printing Co.*

ESTUARY

San Francisco Estuary Project
PO Box 791
Oakland, CA 94604-0791

ADDRESS CORRECTION REQUESTED