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ESTUARY

RETURN TO THE RIVER

After a failed $3 billion, 17-year, multi-party effort to recover endangered salmon in the Pacific Northwest, an independent scientific group made up of fisheries biologists, statisticians, ecologists and geneticists commissioned by the Northwest Power Planning Council is saying that it's time to look to nature, not technology, to restore the country's greatest salmon run.

The panel's recently released report, *Return to the River*, provides scientific evidence that the decades-long effort to restore Columbia Basin salmon through such technological fixes as fish ladders and barging juveniles downriver past dams may help certain populations, but is not enough to recover salmon. Instead it stresses the importance of restoring habitat throughout the Columbia's 259,000-square-mile watershed in a multi-faceted effort not unlike the one now going on in California. The science panel even raised the prospect of breaching or drawing down dams — a suggestion tantamount to sacrilege in a region whose economy was built on the massive industrial development of this once-wild river.

With the Army Corps facing a 1999 deadline for deciding how dams will be operated to avoid further jeopardy for endangered Snake River salmon, the Columbia Basin may be reaching the same point that the Bay-Delta hit four years ago. Back then, an endangered species stalemate in California's water wars spawned the ambitious effort to balance water supply, demand and environmental restoration underway today.

Tom Jensen, an attorney who handled the Columbia issue for the President's Council on Environmental Quality until leaving for private practice, expects the Clinton administration to launch an eco-system-wide planning process in the Pacific Northwest similar to California's Bay-Delta effort. "My impression is that in the next short while you're going to see changes announced," says Jensen. "The approach the government is taking in the Columbia Basin is going to break away from the animal to the region. There's nowhere else to go."

The region has been avoiding the hard questions since 1981, when federal legislation created the Northwest Power Planning Council to put salmon recovery on a par with the region's hydroelectric use. Without enough authority to make major changes in the system, the Council improved the quality and professionalism of existing recovery efforts, but was unable to bring survival rates up significantly. Hatchery fish now outnumber wild fish 10-1, and salmon numbers are down to less than one-third of the 16 million that greeted Lewis and Clark in 1805.

The population of wild fish has been dropping for at least a century, keeping pace

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Farmland for Habitat?

An Environmental Trade-Off?

If there's any fist-shaking to be done over the loss of choice California farmland, it's usually aimed at urban creep. But while strip malls and subdivisions have clearly paved over thousands of acres of orchards, vineyards and croplands, the biggest consumer of farmland in recent years has been environmental restoration. Indeed a 1997 UC Davis study finds that between 1984 and 1994, the Central Valley lost more farmland to restoration than to urban development. As the CALFED effort to solve the Bay-Delta's long-term water conflicts gears up to restore 250,000 acres of Central Valley wetlands and shallows, and as specific on-the-ground environmental upgrades such as the Delta's Prospect Island project roll, state farming interests are nervous about losing too much ground.

"Just because you want to create a wetland doesn't mean you can look at the existing environment as a blank canvas."

"Just because you want to create a wetland doesn't mean you can look at the existing environment as a blank canvas," says the State Department of Food and Agriculture's Robin Reynolds. "Prime ag land is also an environmental resource. We shouldn't be improving one resource at the expense of another."

"If it turns out that we somehow have to compensate agriculture, it will have a substantial chilling effect on environmental restoration," says CALFED's Dick Daniel.

The issue is now being played out on three levels, on a project-specific level with Prospect Island, on a planning level with CALFED, and on a policy level with the state, where resource managers must decide how these two public goods will square off in the future.

Prospect island is a three-year-old project involving restoration of 1,300 acres of shallow-water fish and wetland habitat on an oft-flooded Delta isle with levees along a major shipping channel. Public interests bought Prospect from a willing seller in 1995 and the Army Corps and the state Department of Water Resources are restoring it with the help of Category III dollars — saying it will benefit waterfowl and the aquatic environment while solving expensive levee maintenance problems. Despite these benefits, Food and Ag is requesting CEQA compliance — to consider significant impacts on environmental resources related to agriculture — instead of the current initial study and "negative declaration," which asserts that farmland conversion is not a significant impact on the existing environment

Just because Prospect is "drainage-challenged" and has flooded every three years since the 1970s doesn't mean it's not prime ag land, says Reynolds. The island sports rich soils, as well as proximity to markets and its own riparian water rights. It's also within a core zone of the Delta identified by the 1992 Delta Protection Act as prime ag land worthy of protection. Indeed of CALFED's proposed 250,000 acres of habitat development, 90,000-115,000 are in the Delta, which amounts to 20-25% of the Delta's remaining farmland.

Environmentalists point out that large scale conversion of habitat and marshes to agriculture at the turn of the century caused much of the environmental damage agencies such as Water Resources and CALFED are now being asked to undo.

But Reynolds says some of the healthiest populations of now-endangered fish occurred in the 1960s long after agriculture took root. He says the habitat level hasn't changed since then, and that the real changes have been increased diversions and more introduced species. "As someone in ag, it looks like they've allowed weedy species to come in willy nilly while they've been chasing the pumps. Creating new habitat as an effective means of reversing species declines is speculation," he says.

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FARMLAND CONTINUED

Scientist Wim Kimmerer agrees that there isn't enough data yet to know whether creating habitat will help, and says new habitat might just as likely be colonized by introduced fish as endangered ones, or simply displace fish from one location to another. As the Prospect project includes extensive scientific monitoring plans, it offers one of the first large-scale controlled experiments where such questions may be answered.

Whatever the biological questions, habitat restoration seems to be the one thing warring water interests agree on. "If we don't restore habitat, we're back to no water and an unhealthy ecosystem, ESA problems and landowners unable to use land because of it. We're back in a box," says Daniel.

Overshadowing the biological questions are the political and legal ones. Food and Ag's concerns have lawyers throughout the state system busy debating the legal definitions of farmland, and how to interpret CEQA language in a certain "Appendix G" that lists loss of prime ag land as "normally" an impact on the environment. "With an intensive development, it's pretty clear you're going to lose something of the environment, but when you go from one open space to another, the question becomes does the fact that it's ag land deserve more protection under CEQA?" says Water Resources' lawyer Cathy Crothers.

"At this level, wildlife managers are becoming project developers, they're proposing massive construction projects that need public disclosure," adds Reynolds. "If they can't afford mitigation, they can't afford the project." Reynolds agency is requesting 3:1 mitigation (three acres of ag land elsewhere for every one acre lost to restoration) for the Prospect project.

Prospect planners are now looking to the state Resources Agency for guidance. Though discussions are underway, no statewide policy will emerge until at least late February according to the agency's Marc Luesebrink. He says the specifics of Prospect Island have "illuminated" many of the potential issues that may be encountered in other restoration projects coming down the pike, including CALFED's.

CALFED, meanwhile, is trying to temper everyone's visions of vast tracts of farmland suddenly awash in water and fish with strong reminders that its overall program will provide agriculture with a better and more reliable water supply. In terms of its ambitious habitat restoration program (not to mention its possible 500,000-acre ag land retirement program to reduce water demand), CALFED isn't planning a government land grab and has a strict policy of only working with willing sellers, according to Daniel. But if it comes to mitigation, even a one-to-one ratio could

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BULLETINBOARD

WATER RIGHTS HEARINGS

Who will get and who will give up the water necessary to meet the objectives in the state's 1995 water quality plan for the Delta will be the subject of water rights hearings to be held this spring. The state board recently completed an environmental impact analysis on implementation of the plan and must now assign responsibility for meeting the plan's flow-dependent objectives. While most recognize the need to sustain the Estuary's endangered fish and environment, few individual water right holders or districts are ecstatic about giving up the precious water necessary to do so. "This is the OJ Simpson trial of the water wars," says the Bay Institute's Gary Bobker. "Every water district is trying to say the glove is in the next guy's backyard." To give affected parties more time to negotiate agreements before coming to the table, the Board recently decided to postpone its March water rights hearings and hold a planning workshop for the hearings this April (see calendar). It also extended the due date for comments on its draft EIR to April 1. Contact: Victoria Whitney (916)653-2516 ARO

CARGILL'S BAD DAY IN COURT

The plaintiffs in a year-and-a half-old lawsuit are celebrating the January 26 decision by a federal judge holding that Cargill Salt violated the Clean Water Act by dumping waste mud from its Newark refining plant into the waters of Don Edwards National Wildlife Refuge. "This decision is very important to the South Bay," says Florence LaRiviere of the Citizens Committee to Complete the Refuge, which filed the suit along with S.F.BayKeeper. Cargill's Jill Singleton says the company is "surprised and puzzled" by the judge's decision. Cargill, which has used the waste site for 50 years, maintains that the waste mud from its salt refining process is contained behind levees, and that there is no discharge into the marsh adjacent to Mowry Slough. The judge has not yet made a ruling on penalties and remediation requirements. Singleton says Cargill will appeal. CH

SONAR SECRETS

Beams of sound bouncing off the Bay bottom recently yielded the most detailed maps yet of the dunes, rocks, ridges and canyons under the water. The U.S. Geological Survey is employing this sonar technology — known as swath-mapping — to map Bay contours more accurately for both navigational purposes and for research on how sediments and pollutants move around underwater and habitats for Bay crabs and other bottom-dwellers change. Swath-mapping, done from a ship, can produce both flat and 3-D maps of areas 800 feet wide in a single pass. It can also pick out objects as small as a 12-pack of soda — far more precision than the 25-foot-sunken sailboats picked out via earlier mapping methods. The Survey's David Cacchione says the new mapping can tell us a lot about how material transports along the Bay bottom, whereas before "it's only been guesses and models about how that works," according to a recent *San Jose Mercury News* article. Scientists have discovered, for example, that an area of sand dunes north of Fort Mason has eroded by as much as 30-feet since 1951. Cacchione says the dunes are apparently being smoothed away by strong tidal currents diverted around the big pile of dredged material dumped off Alcatraz. Scientists say the disposal site started as a 165-foot-deep hole and grew into a 50-foot-high hill. The new mapping has also revealed the extent of three rocks slated for topping because of their hazard to passing ships, and a field of boulders off Angel Island. Follow-up studies will look into some of the discoveries in more detail. Contact: David Cacchione (650)329-5481 SJMN

STATE RUNOFF POLICY

The feds gave conditional approval to the state's proposed program for controlling runoff and stormwater pollution from cities, farms and forests along the California coast this January, but found the program lacking in several ways. The California Coastal Commission and the State Water Resources Control Board submitted this coastal nonpoint source pollution control program to U.S. EPA and the National Oceanic and Atmospheric Administration in September 1995 to comply with Coastal Zone Act Reauthorization Amendments. The proposed program updates the existing statewide Nonpoint Source Program, rather than creating a separate program dealing exclusively with coastal waters. In findings released January 8 (see *Now in Print*), the feds say the submittal does not adequately describe how pollution control measures will be implemented and incorporated in the state's programs and what will happen if voluntary control efforts fail. In particular, the feds are asking the state to identify their implementation activities more fully, including providing for evaluation, feedback, public review and program adjustments. Conditional approval will allow the state to continue to receive federal funding for the program while they work on improvements.

Contact: Sam Ziegler (415)744-1990

HARBOR SEALS ON THE ROCKS

Though environmentalists feared a retrofit of the Richmond-San Rafael Bridge might disturb sensitive seals on Castro Rocks below, Caltrans has now addressed most of their concerns. The $375 million retrofit will include extensive work on bridge piers that are just 60 yards from the rocks — one of the few large seal haul-out sites left in the Bay. Up to a quarter of the Bay's population of harbor seals (estimated at about 400) use the sunny rocks to nurse their pups and escape the chilly water as their coats regrow after molting. Environmentalists worried that the loud construction noises might cause the notoriously timid seals to bolt or abandon pups, and interfere with the critical molting process. Caltrans received an incidental harassment permit from the National Marine Fisheries Service, agreeing to suspend work

between February 1 and June 1 to avoid the pupping season. Not good enough, said the environmentalists, because the seals' molting period can continue into August. A coalition of groups, spearheaded by the Earth Island Institute, threatened to sue. The feds issued a revised permit last month, extending the "no work" period through August 1. Earth Island's Mark Berman emphasizes the coalition doesn't want to delay the retrofit work, but says the two sides still haven't resolved several issues, including a monitoring program. Contact: Earth Island Institute (415)788-3666 OB

NEW HOMES FOR DIRTY MUD

An effort to pin down some solid homes for dredged material that's "a little too dirty to put back in the aquatic environment" is finally gathering momentum, according to the state Coastal Conservancy's Neal Fishman. Though a grant to identify and develop sites for rehandling or confining both semi-clean and "chemically challenged" material was awarded to the Port of Oakland two years ago, regional interests working with the port have only recently whittled down the potential site list. Dirty mud hosts still on the table are sites at the Ports of Richmond and San Francisco, at the West Contra Costa Landfill, and on the former Alameda military base. Sites aside, regional interests are still trying to decide how to spend the rest of the largely-unspent grant money. "We're talking about how much to emphasize coming up with innovative new markets, such as industrial and roadbed uses, for the mud — i.e. really trying to make it into a product — versus more traditional uses such as landfill cover," says Fishman. "I think we'll end up with a phased approach, so we don't go too far down blind alleys." Fishman added that January's CALFED grant to the Conservancy of $1 million to explore wetland restoration and possible beneficial reuse of dredged material at Marin's Hamilton base will also help spur the search for disposal sites. Contact: Neal Fishman (510)286-4181 ARO

EIR OVERLOAD

Reading and responding to the slew of EIR/EIS pages on the table for this spring promises to keep many Bay-Delta bureaucrats and stakeholders at the espresso counter. Already overtopping the in-box is the Draft Programmatic Environmental Impact Statement on implementation of the 1992 Central Valley Project Improvement Act (released in November 1997 with comments due April 17, 1998). Issues addressed include Central Valley fish protection and restoration, federal water project operations, water conservation and transfers, and resolving competing demands on CVP water.

Poised to land on top of these tomes are two others. The first is a final EIS/EIR and draft management plan for the long- term management strategy (LTMS) for Bay dredging (currently scheduled to be released this March, with public meetings on the plan due soon — see calendar). At issue here are where and how to dredge and dispose of the 300 million cubic yards of sediment slated for removal from the Bay floor over the next 50 years (the preferred alternative recommends 40% goes to the ocean disposal site, 40% to upland areas, and 20% to the Bay — a big change from the 80% dumped off Alcatraz in recent decades).

Last but not least is the much awaited EIR/EIS on three alternatives developed by CALFED for better managing Delta waters, improving water supply reliability, ensuring levee system integrity and restoring the environment (look for this bible mid-March). CALFED is releasing the report without a preferred alternative, pleading the need for more research. Contact: CALFED (916)657-2666; BUREC (CVPIA) (916) 978-5105; U.S.EPA (LTMS) (415)744-1984

POLLUTION

ALMONDS IN THE ROUGH

When R.L. Poythress settled on 1,500 acres of flat-as-a-pancake Madera County farmland on the east side of the San Joaquin Valley in 1929, the Fresno River slicing through it was yet to be dammed, pest-killing chemicals were yet to be discovered, and big equipment wasn't yet on the drawing boards. In the years since, as his descendants worked the land, all these "innovations" have come to pass, some with tremendous benefits. But 68 years later, his grandson Roger Poythress is trying to wean himself off farm chemicals and pay more attention to how insects, water and cover crops can help him keep 40 acres of almond trees productive.

"I do all the spraying myself, and it's both time consuming and not all that healthy to be sitting in a pesticide mist," says Poythress. "We live on our farm, so the less my wife and kids are exposed, the better."

Though Poythress had already been cutting back on chemicals on his own, he didn't achieve major reductions until he put his almonds in the "BIOS" program. BIOS (which stands for "biologically integrated orchard systems") is a five-year-old Community Alliance with Family Farmers program that helps almond and walnut growers reduce their reliance on agricultural chemicals and manage pests and fertility through naturally occurring biological processes. Since 1993, 72 growers have enrolled in the program, which is largely funded by the U.S. EPA. Together they farm more than 10,000 acres in seven counties using BIOS techniques. To date, 90% of BIOS almond growers have eliminated the use of insecticide dormant sprays such as diazinon, which is becoming a pervasive pollutant throughout the Estuary watershed.

With management advice from the BIOS team, Poythress now sprays 50% less pesticide — largely as a result of planting a cover crop and releasing "good mites to eat the bad mites," as well as other beneficial insects. The cover crop mix of clovers, brome and vetch provided good habitat for beneficial insects and helped open up the ground (via root channels) so the soil could absorb more water instead of "sealing up," he says. The cover crop also curbed runoff and related pollution problems.

"The trees are healthier now, they can take up more water. It's fascinating the way God has put everything together. If you have a healthy plant, it's going to have natural resistance to damaging insects," he says.

Poythress has also had to unlearn one of the axioms of chemical boom times when it was standard practice to eliminate all damaging insects. Even before BIOS, Poythress let his trees go as long as possible before spraying, and often found that the majority wouldn't get any worse. "If you're willing to put up with a little bit of damage, you can save time, money and effort," he says. "Even the pesticide people are now realizing that if you keep spraying at the full-rate you'll be reducing the effectiveness of their products, and putting them out of a job."

Poythress is quick to point out that he isn't always successful with alternatives. In his walnut groves, for example, he recently tried releasing trichogramma wasps to control codling moths, but to no avail (he had to spray three times). But he's still very enthusiastic about the program, and plans to try BIOS-style farming on 160 acres of new orchards now under development. Contact: Community Alliance with Family Farmers (916)756-8518 ARO

SPECIESSPOT CONTINUED

FAMILIAR STRANGERS

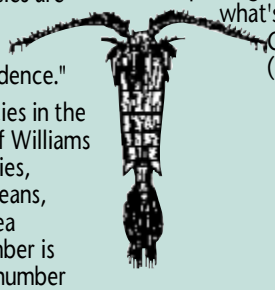
When restoration managers in the 1970s imported cordgrass from Oregon's Humboldt Bay to Corte Madera Marsh, all cordgrass on the West Coast was believed to be of the same, native, species. The import spread rapidly, choking out native vegatation. Only much later was the grass found to be a Chilean species introduced into Humboldt Bay in the mid nineteenth century. Today it's found in three other Marin marshes and creekzones and even across the Bay in Point Pinole, where park managers have been forced to remove it with shovels and chemcals.

This incident illustrates the restoration pitfalls associated with so-called "cryptogenic" species, those whose status as native or introduced is unknown. Until recently, species were assumed to be native unless proven otherwise, according to the S.F. Estuary Institute's Andy Cohen, who says the Bay is filled with such species. Species distribution patterns led scientists to question this assumption. "Some distribution patterns make no sense whatsoever unless the species are exotic," he says, "We should not assume that a species is either native or introduced without evidence."

In a 1995 report on exotic species in the Bay, Cohen and James Carleton of Williams College list 123 cryptogenic species, including phytoplankton, crustaceans, insects, worms, sea squirts and sea anemones, but note that the number is actually much higher. "The large number of cryptogenic species suggests that there may be a much larger number of introduced species in the Bay than previously thought," says Cohen. He adds that there are some organisms, such as the common bay worm commonly identified as *Capitella capitata*, that appear to be a single species but may in fact be comprised of several, one or more of which may be introduced.

Cryptogenic species and the related "taxonomic complexity" pose big issues for Bay restoration, says Cohen. "We need to be honest about what we know and cautious about claiming benefits by creating habitats that will be occupied by cryptogenic species, as well as about creating habitats that encourage cryptogenic species." If the cryptogenic category had existed in the 1970s, the Corte Madera Marsh cordgrass incident would probably not have occurred.

Most of all, the uncertainty associated with these species argues for additional investigation of their origins, including the possible use of molecular genetics. "If restoring native species is part of the restoration agenda, then it's worth putting some effort into figuring out what's native and what's not," says Cohen. Contact: Andy Cohen (510)231-9423 CH



Copepod Eurytemora Affinis, long thought a native, but now a suspected early introduction

SCIENCE

RISING TIDE OF SPECULATION

Last December's Kyoto pow-wow on global warming focused attention on long-term effects of rising atmospheric levels of CO_2 as never before, with predictions of melting polar ice caps and altered climate patterns that may bring both flooding and drought around the world. What will all this mean for the Bay and Delta? The answer, it seems, is anything but cut-and-dried.

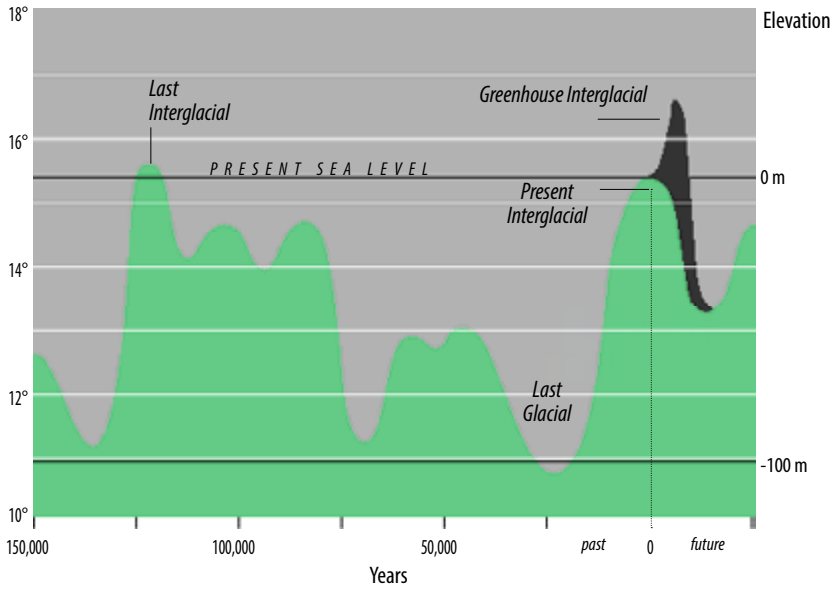
Most scientific estimates indicate that if fossil fuel consumption continues at the current rate, the global temperature will rise by 2-6 degrees by the end of the 21st century, leading to a sea level rise of up to three feet. Under a worst-case scenario, such a rise could turn the Delta region into an inland sea reaching all the way to Sacramento. Warmer temperatures could also bring more rain and less snow—and thus a smaller snowpack and less spring runoff—complicating efforts to meet the competing water needs of cities, agriculture and the environment. Maurice Roos, chief hydrologist with the state Department of Water Resources, says that a rise of 4 degrees could mean a loss of roughly 1 million acre-feet per year of usable water. Furthermore, the rising sea level could push salt water further into the Delta, compromising water quality, according to David Petersen, one of several scientists studying the phenomenon at the U.S. Geological Survey.

The expected sea level rise, even if smaller than predicted, could have devastating effects on wetlands. "It would essentially shift marshes landward, except that because of development, there's no where for them to go," says the Survey's Bruce Jaffe. Some projections indicate that winter rainstorms would become more frequent and intense, creating additional problems for flood control. In a natural system, increased storminess and flooding would bring more sediment into the Bay, countering the effects of erosion, says Jaffe. In the modern Estuary however, dams and flood control projects would trap much of the sediment upstream, reducing the benefits to marshes.

The Survey's Ken LaJoie points out that global temperature and sea level are influenced by many other factors besides CO_2 levels, including sunspot activity and the earth's orbital parameters such as precession (a gyration of the Earth's axis that occurs on a 20,000 year cycle) that cause natural climactic fluctuations. In fact, 10,000 years ago, sea levels were much lower and there was no Bay at all, just an inland valley with a river running through the Carquinez Straight and Golden Gate out to the beach, then located at today's Farrallon Islands. The Bay has only been it's present size for about 4,000 years, and can be expected to start retreating again within the next millennium, according to LaJoie. "The current rise in global temperature is still well within the limits of natural climatic fluctuations," he says. "The question is, will global warming kick us out of the natural pattern?"

Whatever the long-term effects of global warming on the Bay and Delta, some say that they will occur so gradually that there will be plenty of time to respond, for instance by shoring up levees or even building new ones around marshes. "A sea level rise would not necessarily be catastrophic," says LaJoie, "but it would be very expensive." Contact: Bruce Jaffe or Ken LaJoie (650) 853-8300 CH

SEA-LEVEL AND MEAN ANNUAL TEMPERATURE (°C)



Source: Modified from Imbrie & Imbrie (1986) by Ken LaJoie

PENNYWISE

ROLLING IN RESTORATION DOUGH

Bay Area environmentalists, disappointed by the Category III grants announced by CALFED in December and early January, were somewhat mollified by the late January approval of an additional $2.6 million for five North Bay restoration projects. The previous grants had allocated nearly $80 million to more than 70 restoration projects, with less than $1.1 million going to projects in the North Bay and Suisun Bay.

"We never expected to get a lot of money for the North Bay in the earlier rounds, but we didn't anticipate that so much would go to the Central Valley," says the S.F. Bay Joint Venture's Nancy Schaefer, citing the North Bay's ecological importance. The Tuolumne River Trust's Tim Ramirez, who served on the panel that recommended projects for funding, says projects were selected on the basis of carefully developed technical criteria that took into account benefits to priority species, habitat types and ecosystem stressors. "Although we thought the North Bay projects had merit, we couldn't just discard the criteria and fund projects on the basis of geography," he says.

The bulk of the 1997 grants went to projects that benefit endangered species immediately, such as fish screens—an approach Schaefer acknowledges is "hard to fault." Other projects include watershed planning and restoration on the Upper Sacramento River, Big Chico Creek, Deer Creek, Auburn Ravine and Coon Creek; land acquisitions, including Liberty Island in the Delta; channel and floodplain restoration on the Cosumnes, Tuolumne and Stanislaus Rivers; and the S.F. Estuary Project's Delta In-Channel Island demonstration project, among others. In Suisun Marsh, the East Bay Regional Park District received $485,000 for shoreline restoration, while in the North Bay Ducks Unlimited got $368,500 for wetland restoration at Cullinan Ranch and the U.C. Sea Grant Extension Program received $222,830 to prevent exotic species introduction. Newly funded North Bay projects include the Regional Wetlands Goals Project, wetlands restoration at Hamilton Air Force Base, Napa River watershed stewardship, Sonoma Creek Watershed restoration and Napa River wetland acquisitions.

According to CALFED's Wendy Wyels, the agency plans to issue another call for proposals in March. Contact: CALFED (916) 657-2666 or Nancy Schaefer (510) 286-6767 CH

HANDSON

UNGRATEFULL CREEK

Volunteers and workers rolled up their sleeves and climbed into Wildcat Creek on January 8 to help the steelhead trout living in the creek's lower reaches in Richmond move upstream. In an unusual coalition, the East Bay Conservation Corps (who volunteered their time), the East Bay Regional Parks District, the non-profit Waterways Restoration Institute, the Contra Costa County Flood Control District and the county fire department began removing debris and 200 huge grates covering a fish ladder that spans an 800 foot-long section of the creek.

WILDCAT CONSENSUS DESIGN

The grates had become clogged with debris, filling the ladder with sediment and preventing the steelhead (listed last fall as a threatened species) from swimming upstream to potential spawning sites within Wildcat Canyon and Tilden Park. According to the Park District's Pete Alexander, similar, uncovered fish ladders on Alameda County creeks are successfully navigated by fish.

The Wildcat fish ladder is part of a flood control channel built by the Army Corps in the late 1980s under a "consensus plan" for a stretch of Wildcat Creek that flooded North Richmond every winter. The plan, which incorporated designs from the community and used local creek restoration groups for non-structural flood control, has since become a national model and was the start of a "new design philosophy" on the part of the Army Corps and the local flood control district toward flood control projects, says the Waterways Restoration Institute's Ann Riley. The Corps is better known for bulldozing banks and channelizing creeks.

Under a Section 1135 planning grant that enables the Corps to perform environmental restoration on flood control and navigation projects, the Corps will work with the citizen/government team to improve the creek's bankfull channel, floodplain and accessibility for fish, all of which exemplify the Corps' shift in attitude, according to Riley. "They're now considering ecosystem values too." Contact: Ann Riley (510)848-2211

LOV

RIVER CONTINUED

with the industrialization of the massive river system. Historian Donald Worster called the Columbia a river that died and was reborn as money. The 400 dams constructed in the Columbia watershed built an industrial frontier in the eastern deserts of Pacific Northwest, making possible subsidized electricity, irrigation, and even a barging industry that allowed Lewiston, Idaho to become a major international port, although it lies 1,000 miles inland.

One official counted at least 15 government entities with a stake in the river — from the Bonneville Power Administration to the Nez Perce tribe — and that's not counting barge operators, aluminum producers and drylands farmers. It's a more varied and less urban group than the Bay-Delta players and nobody thinks it will be easy to pull together. But many observers agree that the *Return to the River* report, which signals a new level of agreement among scientists, may be the first step toward resolving this highly charged conflict between the West's traditional resource-dependent economy and a new sensibility that places a higher value on conservation and recreation.

Crisis is certainly in the air. Despite billions spent on recovery, fish in the Columbia and the rivers that feed it are in worse shape than ever. Every anadromous fish in Idaho, including Snake River sockeye and spring, summer, and fall chinook, which migrate to the sea through the Columbia, is listed as endangered. Upper Columbia steelhead are on the threatened list. Several populations of inland bull trout were recently added to the endangered list and redband trout are proposed for listing. Of more than 400 genetically distinct salmon populations once found in the watershed, only about 200 remain.

Since the 1970s, the Army Corps has been netting hundreds of thousands of juvenile smolts each year and trucking or barging them downriver past dam turbines. Yet the number of salmon returning to spawn is still in the 0.2% range, according to biologist David Cannemula of Idaho's Fish and Game Department. To recover fish, 2-6% of them must return.

"The debates are focusing on real specific, real technical issues," Rick Williams, a population and evolutionary geneticist in Idaho who chaired the independent science panel. "But the bigger questions the region really needs to grapple with still remain. Those are the political questions."

One of the keys to resolving the scientific questions, if not the political ones, may be found in the last healthy fall chinook salmon population on the Upper Columbia River, which spawns in a 51-mile stretch bordering the Hanford Nuclear Reservation in eastern Washington. With the federal government spending more than $1 billion annually since 1989 to clean up the highly-polluted reservation, Hanford Reach, as this undammed section is known, has become an ironic icon, an obscure object of desire, a vision of a lost continent where rivers ran free and salmon outnumbered people. U.S. Senator Patty Murray (D-WA) has made designation of the Hanford Reach as a wild and scenic river her top environmental priority.

Upstream of the Hanford Reach lies the John Day Dam, which the science panel suggested drawing down. By uncovering at least half of the dam's 77-mile reservoir, biologists could build on the Columbia's healthiest population of salmon. But the John Day plays an important role in supplying energy to California from the Northwest, so there are political and economic problems with this option (Congress recently funded a $250,000 scoping study). Others in the region favor breaching four earthen dams on the Snake River, an option with less complex tradeoffs. Each option is biologically defensible; neither will solve the region's problems alone.

Whatever its future, Hanford, one of the few places on the river that was immune to the good intentions of the Army Corps during the agency's dam-building heydey, may indeed be the region's best model for the "normative river" recommended by the panel in the *Return to the River* report. Like efforts in California's Central Valley and Delta, restoring the Columbia would entail a combination of enhanced flow regimes and habitat restoration. Like anyone else working on large-scale ecosytem restoration, the independent science panel knows it is unrealistic to aim for a return to the wilderness whitewater faced by Lewis and Clark, when the river's 16 million salmon outnumbered the population of the United States. Officials at the Northwest Power Planning Council say their long-term goal is a river with a healthy population of five million wild fish, twice the current population. SZ

For a copy of the draft version of Return to the River *report, contact the Northwest Power Planning Council at (800)222-3355 or on the web at www.nwppc.org*

PLACES TO GO & THINGS TO DO

MEETINGS & HEARINGS

MAR ? (CALL)
SCOPING MEETING FOR LTMS MANAGEMENT PLAN
Topic: Public review of plans for long-term disposal of dredged material the Bay (see "EIR Overload," p.2)
Sponsor: LTMS agencies
Call for dates, location (415) 557-3686 (Steve Goldbeck)

APR 1 THRU 9 (TUE-WED-THUR)
PUBLIC HEARINGS ON CVPIA PEIS
Topic: Hearings on various approaches to meeting the water needs of California farms, cities and environment through the CVPIA (see "EIR Overload," p.2).
Sponsor: BurRec
Locations: Red Bluff, Ft. Bragg, Fresno, Oakland, Sacramento
(916)978-5105

HANDS ON

MAR 7 (SAT)
KIDS IN CREEKS
Topic: Educators workshop focusing on activities to teach about aquatic insects, pollution prevention, animal tracking, storm drain stenciling and more.
Sponsor: Aquatic Outreach Institute
Location: East Bay locations
(510) 231-5783

APR 4 AND 25 (SAT AND SAT)

MAR 11 THRU 15 (WEDS THRU SUN)
SACRAMENTO BOAT SHOW
Sponsor: Sacramento Valley Marine Assoc.
Location: Cal Expo, Sacramento
(510)834-1000

MAY 10 (SUN)
43RD ANNUAL MOTHER'S DAY BARBEQUE AND SILENT AUCTION
Topic: Benefit party for Marin Audubon Society and Audubon Canyon Ranch.
Sponsor: Marin Audubon Society
Location: Volunteer Canyon, Bolinas Lagoon
(415) 453-4715

WORKSHOPS & SEMINARS

FEB 24 25 (TUES-WED)
BAY-DELTA MODELING FORUM SPRING MEETING
Location: Asilomar Conference Center, Pacific Grove
(530) 753-7081

FEB 25 THRU 27 (WED-THUR-FRI)
INTERAGENCY ECOLOGICAL PROGRAM ANNUAL WORKSHOP
Topic: Recent scientific research on fish and the estuarine environment.
Location: Asilomar Conference Center, Pacific Grove
(209) 948-7800

MAR 5 6 (THUR-FRI)
AQUATIC POLLUTION: THE CASE IN SAN FRANCISCO BAY
Topic: Using the Bay as a case study, this course examines such issues as bioavailability, bioaccumulation, biotransformation and the fate of contaminants in an estuarine environment.
Sponsor: UC Extension
Location: San Francisco
(510) 643-7143

APR 6 7 (MON-TUES)
FIRST NATIONAL MITIGATION BANKING CONFERENCE
Topic: Learn from others' successes and mistakes at the nation's first "how-to" conference on mitigation banking.
Sponsor: Terrene Institute
Location: Washington, DC
(703) 548-5473

APR 17 (FRI)
TMDL: THE TOTAL MAXIMUM DAILY LOAD PROGRAM IN CALIFORNIA'S RIVERS
Topic: This course covers the major technical, legal and practical issues involved in the Clean Water Act's TMDL program (pollution loading).
Sponsor: UC Extension
Location: San Francisco
(510) 643-7143

APR 21 (TUES)
BAY-DELTA WATER RIGHTS WORKSHOP
Topic: Review of negotiated agreements between water rights holders to help meet the flow-dependent objectives in the Water Quality Control Plan for the Bay and Delta.
Sponsor: State Water Resources Control Board
Location: TBA
(916) 653-2516

NOW IN PRINT

California Agricultural Resource Directory
Calif. Department of Food and Agriculture
(916)498-5161 or http://www.cdfa.ca.gov

California Water Plan Update, Draft Bulletin 160-98
California Department of Water Resources
(916)653-1097 (comments due March 31)

Catalog of Federal Funding Sources for Watershed Protection (info on 52 federal programs)
U.S. Environmental Protection Agency
(800)490-9198 or http://www.epa.gov/owow/watershed/wacademy/fund.html

Learning from the BIOS Approach: A Guide for Community-Based Biological Farming Programs
Community Alliance with Family Farmers and World Resources Institute
Copies from (530) 756-8518 ext. 15

1996 Annual Report for the S.F. Bay Regional Monitoring Program for Trace Substances
S.F. Estuary Institute
Copies from (510)231-5713
http://www.sfei.org/rmp/96execsum.htm

Proposed Findings Document, Environmental Assessment and Finding of No Significant Impact for Coastal Nonpoint Pollution Control Programs for California
NOAA, U.S. EPA
Copies from (301) 713-3121 ext. 201
http://www.epa.gov/region09

Pollution Prevention Slide Guides: You Auto Not Pollute; Clean Water Farming Guide; How to Dry Clean Our Waters
Water Education Foundation
Copies from (916) 444-6240

NOW ONLINE

Dam Safety Information for California
http://damsafety.water.ca.gov

Restoration Website
Visit river corridor and wetland restoration projects around the country.
U.S. EPA Office of Wetlands, Oceans and Watersheds
http://www.epa.gov/owow/wetlands/restore

APR-MAY 30 AND 1 (THURS & FRI)
NEGOTIATING EFFECTIVE ENVIRONMENTAL AGREEMENTS
Professional development course in face-to-face negotiating.
Sponsor: CONCUR
Location: Clark Kerr Campus, UC Berkeley
(510)649-8008

HABITAT VS. FARMLAND CONTINUED

result in astronomical costs, he says.

"What are you going to do — go buy a parking lot or a strip mall and plow it?" says Water Resources' Leo Winternitz.

Probably not. But mitigation could take the form of buying agricultural easements or development rights from farmers (the difference between development and habitat value), trading water for land, exchanging drainage for land (to help farmers combat salinity problems), rotating crops with fallow flooded periods and/or providing financial support for more wildlife-friendly but often risky farming practices (such as not disking corn so that ducks can feed on the waste grain).

Underneath the talk of mitigation lies the thornier issue of statewide land use planning. To really protect ag land, restore the estuarine ecosystem and provide water for all, someone has to decide where the best places are for cities to grow, farmland to flourish, wetlands to sprout and shallows to spread. Someone also has to decide how to balance the current and future localized impacts of the restoration push with the more widespread and cumulative impacts of agricultural and urban development in the past.

Biologically-speaking, the Bay Institute's Gary Bobker thinks two zones are the most appropriate places to focus restoration: the west side of the San Joaquin Valley, which is plagued by selenium-rich soils and the accompanying drainage problems; and the once ecologically rich Delta, where farms and towns are now totally dependent on expensive and unnatural levees, and where the most habitat has been lost over time.

"We need a sensible policy on ag land conversion that doesn't make it impossible to do restoration," says Daniel. "There's as much politics in this as there is biology."

Contact: Robin Reynolds (916)323-7280; Dick Daniel (916)657-2666; Leo Winternitz (916)227-7548 ARO

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