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ESTUARY

WATERWOMAN

Jean Auer, a long-time consultant with the Estuary Project, passed away in January. This profile (slightly modified) first appeared in the June 1999 ESTUARY.

As the first woman appointed to the State Water Resources Control Board and the first woman mayor of Hillsborough, Jean Auer blazed a lot of trails. She also worked to help more women and minorities leave their own marks on California water policy.

"Women have made enormous strides in areas such as law, medicine and science, but at the policy level they haven't come quite as far, although that is changing," said Auer, pointing to then Resources Secretary Mary Nichols as an example of the shift.

Auer established and supervised the Water Education Foundation's Water Leaders Class, which focused on teaching a new generation of diverse leaders about California water issues and preparing them to serve on water policy bodies. "As California's demographics change, it's important to make sure that the people who represent the state be ready to serve on these boards and commissions," said Auer. Auer herself put in plenty of time on such bodies over the past 30 years, beginning when she chaired a study of national and local water issues for the League of Women Voters in Santa Barbara County, where she then lived. That led to an appointment to the Central Coast RegionalWater Quality Control Board, and following a move to the Bay Area, a transfer to the S.F. Regional Board, where she served for a year.

Auer's interest in water stemmed from childhood summers spent on Lake Erie. "The deteriorating quality of the Great Lakes was the impetus for a lot of the changes in the way we manage water resources," she said. "When I got the chance to work on water issues I jumped at it."

In 1972, the governor's office called to offer Auer a State Board appointment. Although she was the only woman on the Board, Auer says her colleagues never treated her any differently. "There was one witness who addressed us as 'members of the Board and Mrs. Auer,' though," she laughed.

Five years later Auer left the Board when she and her husband decided to take their sons out of school and travel around the world for a year. On her return, Auer re-entered the water world, serving on a variety of committees and panels. Among her positions were chair of the Bay Area Water Reuse Study, and vice-chair of the San Joaquin Valley Drainage Program. Of the latter she said, "We made great steps forward

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Fish Up a Creek

California salmon and steelhead received a lump of coal in their stockings at year's end in a series of decisions and policy proposals by the Bush Administration that reverse critical habitat designations, consider hatchery fish as part of wild stocks, and pay private landowners for water needed for fish under the Endangered Species Act.

Four days before Christmas, the Bush Administration agreed to pay $16.7 million to four water districts for water the U.S. Bureau of Reclamation diverted from farmers in the mid-1990s to comply with the Endangered Species Act. The settlement came three years after a federal judge ruled that BurRec's diversions to comply with the Endangered Species Act amounted to a taking of the private property of farmers in five San Joaquin Valley water districts.

The Bush Administration never appealed the court ruling—despite many pleas from California officials—and its settlement with the farmers has sent chills through Sacramento and offices of fisheries and environmental groups. These parties say the settlement could encourage similar suits and throw a wrench into CALFED, a state and federal partnership that works to balance water use between agricultural, urban, and environmental interests, and to restore the Bay-Delta. In addition, the settlement puts the current negotiations over Central Valley Project water contracts into a different light if, as the judge ruled in this case, a water contract amounts to a deed to private property.

"The interpretation of California law in the opinion published by the [Court] could fundamentally change the way water resources are managed in California, to the serious detriment of California taxpayers and resource users," wrote Arthur Baggett of the State Water Resources Control Board in a December 1 letter to the Bush Administration. (Baggett declined to comment to ESTUARY because the state is appealing the federal judge's ruling.)

At the federal level, the judge's decision could make it costly for officials to enforce the Endangered Species Act. Zeke Grader of the Pacific Coast Federation of Fishermen's Associations sees nefarious purposes at work in the settlement that will prompt other private property takings cases that will achieve similar results. "This has set us up for the Administration to say we don't have the money to enforce the Endangered Species Act," he explains.

Another lawsuit—by farmers, timber companies, and developers—prompted the Bush Administration in 2002 to withdraw for re-evaluation extensive critical habitat designations in California, Oregon, and Washington made by the Clinton Administration in 2000, to help protect and restore salmon and steelhead populations listed under the Endangered Species Act. Developers feared the large protected areas would delay, change, or cancel streamside projects, while timber companies were concerned a similar fate would befall plans for logging roads and practices.

These concerns were clearly taken into account when NOAA Fisheries reissued the critical habitat designations on November 30—reduced by 80% from what the Clinton Administration had set aside in 2000. The new designations not only open up more land to timber, ag, and development, but also emphasize the economic impacts on those interests from critical habitat protection. The Bush Administration says that although it has reduced critical areas affecting 19 types of West Coast salmon and steelhead, rare and endangered fish are being protected in other ways—that more accurate data and improved mapping technology will give fisheries agencies the ability to pinpoint more precisely which streams and tributaries are used by fish.

But one economic impact that is not being analyzed thoroughly enough, says Grader, is the affect the cuts in critical habitat will have on fisheries. Protections for listed species help not only to increase their numbers, but also to benefit other species. For example, critical habitat designations for the listed coho salmon on the Klamath also benefit the more abundant fall-run Chinook, the mainstay of Yurok tribal fisheries. "When you're cutting back on critical habitats,

Illustration by Matt Day

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WATERWOMAN CONTINUED

towards identifying solutions, although there have been some efforts to undo our recommendations." Auer acknowledged that "nothing much has come of it," largely because the program didn't form a governance organization and relied on a very loose memorandum of understanding for implementation. "I'm afraid the same thing might happen to CALFED," she added.

Auer's colleagues say that her deep understanding of California water issues and warm personal style made her an extremely valuable participant in consensus-based processes. "She was independent and had credibility with a very diverse group of people, plus she had a wonderful sense of humor," says Marcia Brockbank of the S.F. Estuary Project, in which Auer participated since its founding. "Her valuable counsel and ability to build agreements will be greatly missed. In the world of water, she was one of very few people who had vision and could see the 'whole forest' without losing sight of important individual trees."

Auer believed that educating political leaders about water issues is crucial. "In the past, a lot of consensus efforts ignored the legislature, which is a mistake because a lot of the solutions will have to come from there," she said. "Water is a very complex subject and I think that it is incumbent upon everyone to educate the legislature, particularly now that we have term limits and people are there for a briefer period of time." The water leaders program was one way Auer hoped to achieve this. "The program would not exist if it were not for Jean," says the Water Education Foundation's Rita Sudman. "It took a lot of hand-holding and patience to bring it all together, and she did it all." Auer was particularly thrilled that a member of the first class went on to serve in the legislature.

Auer said she herself learned a lot from her experiences with consensus-based processes. "You have to keep at it and you have to be forthright and honest," she said. "You get as much consensus as you can, avoid the toughest issues until they're inevitable, and then hope that you have accumulated enough good will among stakeholders that you'll be able to overcome what might have seemed to be an insurmountable difference. It doesn't always happen, but that's the approach you have to take." CH/LOV

PEOPLE

THE FRONTIER STOPS HERE

Many popular politicians—and too often city planners—seem to think that the only way to realize the American Dream and "grow" the economy is to continue paving over and building on top of greenfields and open space—what Storm Cunningham calls "frontier mentality." Cunningham, a "visionary in restoring communities and natural resources," according to the Bay Institute's Grant Davis, wants to change that mindset—and he has the facts and figures to back up his ideas. After various incarnations—as a Green Beret scuba medic, software executive, founder of an endangered species captive breeding organization, and owner of an ecological water technologies firm—Cunningham founded the non-profit Revitalization Institute and wrote a book to promote and explain his vision for the economy of the future.

The Restoration Economy describes how "restorative development"—which he tallies as worth $1-2 trillion per year—is replacing the frontier mindset upon which our current financial system is based. Cunningham began to formulate his ideas for a book while working as the Director of Strategic Initiatives for the Construction Specifications Institute. There, he says, he learned everything he could about all different aspects of "building, restoring, and maintaining the built environment." As he traveled and looked at projects, he realized there wasn't much new to say about sustainable development. But he kept "stumbling across instances where cities, towns, reefs, and wetlands were actually in better shape than when I had seen them years ago"—stumbling that grew into a whole book on restorative development.

Once he began speaking on the topic, Cunningham found that people were constantly asking him where they could go to follow up on the ideas and projects he had spoken about. Cashing in his life savings and finding a few willing donors, he created the institute as a forum for bringing multiple disciplines together to do what Cunningham calls "integrated restoration," a concept based on his observations that the best projects brought back both the natural and built environments—i.e., restoring a river, the stormwater infrastructure, and the historic buildings along it.

Revitalization Institute promotes what Cunningham calls "tri-modal planning," which simply recognizes that everything on earth, whether an ant colony or a human city, has three modes: initial creation or frontier mode; maintenance/conservation mode; and then restoration/replacement mode. Too often, planning and budgeting only incorporate the first two modes, says Cunningham, forgetting the end of the life cycle. So his organization tries to help people already involved in restoration better coordinate with other disciplines and to advance the quality and quantity of their work.

The benefit of tri-modal planning, says Cunningham, is that in addition to putting hard numbers on the restoration side, it also puts hard numbers on the depletion and damage done by new development: "Knowing the exact cost of restoring the damage helps stop the subsidization of new sprawl."

An example, says Cunningham, is what NOAA Fisheries is doing in Florida to try to prevent commercial boats and ships from grounding in—and destroying—sea grass beds. After doing lots of restoration of these beds, says Cunningham, NOAA came up with numbers for how long it takes and how much it costs to restore them, plus a related three-tier fine system to impose on those inflicting the damage: first, a punitive fine (according to how willful the damage was); the second, a restoration fine, and the third, a lost ecosystem services fine. "It's a wonderful model for the restoration economy across the board."

Talking to Cunningham, you realize he has one of those brains that never shuts down—he's always looking for new examples to prove his points, new projects to inspire more people. " I'm basically a cheerleader who runs around trying to get people out of frontier mode and into restorative mode—bringing together city planners, government, business, engineers, ecosystem scientists, etc. To work with these disparate groups, I have to be a chameleon. Biologists don't always have a lot of respect for civil engineers and vice versa; they're not trained to effectively interact with other disciplines. I bring them together around the theme of restoration, and it's a role I love."

To that end he has founded a for-profit firm, Revitalization Strategies, Inc., and is consulting with several cities now on waterfront and other rehabilitation projects. He tries to get them to see the bigger picture. "You can't restore the waterfront without restoring the river, you can't restore the river without restoring the watershed; you can't restore the watershed without restoring the agricultural lands, and so on," he says, referring to the Anacostia River/waterfront in Washington, D.C. While there is a huge amount of restorative activity going on already both in the U.S. and worldwide, says Cunningham, it often happens in spite of planners and

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SCIENCE

DE-SINKING THE DELTA

The long-term future of the Delta is the hot topic these days, from concerns about subsidence and impacts from climate change to the possible re-emergence of the dreaded Peripheral Canal, and even to large-scale land-use changes in the Delta—including the specter of more open-water habitat (flooded islands) if the canal were to be built. Yet whether or not some of the Delta reverts to open water, and whether or not the canal is ever built, some islands must be saved, say people like DWR's Curt Schmutte. The eight westernmost islands—including Sherman and Twitchell, which are owned by the state—are critical to the Delta's role in water supply and in maintaining the quality of that water. Sherman Island in particular allows the Sacramento and San Joaquin Rivers to flow to Suisun Bay while keeping saltwater from the Bay from sneaking into the Delta.

The $44 million-plus (cost of salvaging Jones Tract this past summer) question is how to save those islands, short of having to strengthen levees in perpetuity, a process many scientists argue only increases subsidence. To investigate other possible options, DWR, in cooperation with the U.S. Geological Survey and Hydrofocus, Inc., has been conducting experiments on Twitchell Island since the early 1990s.

The experiments use the means by which the Delta was created to try to stabilize it. "The peat soils of the Delta islands were formed—over 6,000-7,000 years—by the decaying of wetland plants," explains Steve Deverel with Hydrofocus. "As sea level rose during that period, the land surface elevation rose with it, some by new sediment deposition but mainly by the accumulation of decaying wetland plants." It was a fairly slow process, says Deverel, but so was sea level rise—1-2 millimeters per year. The amount of decomposition was less than net carbon accumulation, so the islands were able to maintain their elevations and stay above water.

But once we started farming and draining the islands, we dewatered the peat, says Deverel, which meant that carbon was lost faster than it was gained as the peat soils were exposed to oxygen.

In the early 1990s, Deverel helped set up three experimental plots on Twitchell to look at how managed wetlands could affect subsidence. "Since sea level rise was pretty slow, we wondered whether if we could maintain saturated conditions—even a foot of surface water—we could accelerate the accretion process and build up the land surface elevation at a faster rate than it did during the previous 7,000 years. We found that if we created a permanently flooded environment and allowed cattails to grow, we got an accumulation of material."

Deverel and his colleagues at USGS experimented with several 10x10-yard plots and found that they could get a positive carbon budget growing cattails and tules. In 1997, they expanded their experiments to a 15-acre managed wetland. There they have seen about an inch of soil accumulate per year. Although they were impressed with the results, that level of accumulation is still too slow for most people, says Deverel. "It would take a long time to accrete the 14+ feet of material needed to bring Twitchell back to tidal elevation. It's still much faster than geologic time, but without bringing in additional material, it would be long beyond most planning agencies' time frames."

One idea is to add sediment—dredge material for example—to the mix. Wetlands can tolerate thin layers of sediment sprayed over them, says Deverel. If you spray when the plants are dormant, you can still have a good substrate for the plants to grow in and the land surface will accrete at a much faster rate, according to HydroFocus modeling results.

Although funding for continuing the experiments is stalled, Deverel is eager to try adding sediment. "We feel that if we did that, we could accrete land surface to tidal range within 100 years instead of 700." A place like Sherman Island, which has sunk to as low as 30 feet below sea level, according to Deverel, would need a lot of material. Of course, there are many questions that need to be answered, says Deverel. One is whether the wetlands will be as productive (with the sprayed sediment) as they are on peat soils. Another is what the unforeseen impacts of applying dredge sediments—which are more dense than the light organic peat materials—might be. (Other ideas being tossed around include using rice straw and green waste from Bay Area cities to build things up.) Yet a third concern is water quality. As you flood peat soils, says Deverel, dissolved organic carbon concentrations increase in drainage waters, which can react with chlorine or ozone in treatment plants to create disinfection byproducts like THMs. Another concern about creating more wetlands is mercury methylation—there is a fair amount of mercury in Delta soils.

Unanswered questions aside, Schmutte is excited about the potential implications of the Twitchell Island experiments. "The Delta in its current state is not sustainable; ongoing subsidence is putting it at greater risk every day. But the beauty of it is we can make the Delta more sustainable; that one of the actions you can do to make it more sustainable is stop and reverse subsidence; those same acts can have significant environmental benefits. You can have large tracts of lands that can be seasonal and eventually tidal marsh areas so there's a potential big win-win here."

For his part, Deverel isn't sure what the remedy is—yet. He says another possible and more immediate solution to Delta subsidence might be to grow rice, which uses flood irrigation; previous research indicates that rice fields accumulate carbon. "There are good indications that [growing rice] could stop subsidence." Like many others, Deverel worries about a new peripheral canal. "Do you just write off the Delta? And does that mean that water supply to Southern California is an unlimited deal?" One way or another, he says, something needs to be done, and time is of the essence.

"Every day that goes by—we're losing over 2,500 dump truck loads of soil from the Delta. If you can find and implement a land use like rice or wetlands right now that stops this loss, that at least stops the bleeding on many of the islands, then you can look at longer-term solutions for building up island surfaces."

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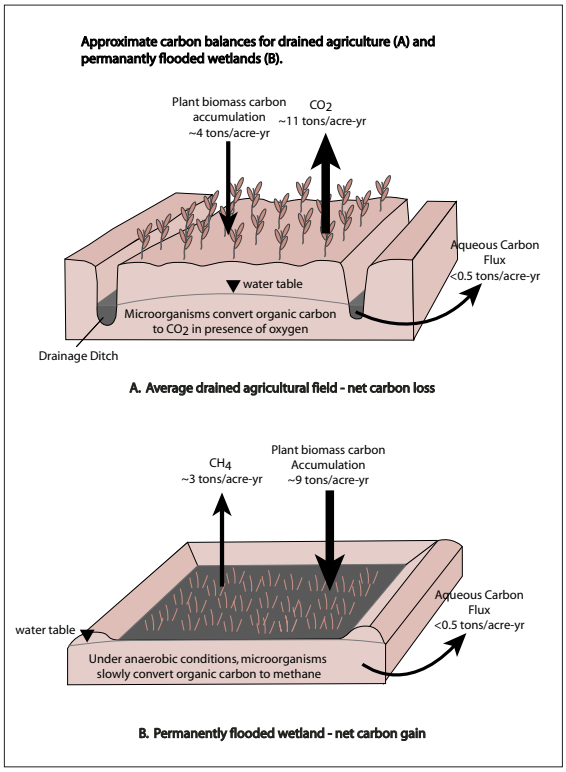

Illustration courtesy of Hydrofocus

OUTREACH

COUNSEL ON COUNCILS

"I can't believe there are 25 people here on a sunny Sunday," said Sari Sommarstrom, about the turnout for "Shaping an Effective Watershed Council," part of the Conversations about Watersheds Conference hosted by the East Bay Watershed Center and Merritt College in January. Many of those who turned out were from local creek groups, which abound around the Bay. The difference between "friends of creek(s)" groups and watershed councils, explains Sommarstrom, a watershed planning specialist for 30 years, is primarily that creek groups typically focus on the creek, advocating for restoration and preservation, while members of watershed councils often have differing and sometimes conflicting interests, and encompass issues concerning the entire watershed.

Creating a forum to discuss watershed issues may sound like just another opportunity for conflict, or just another bureaucratic group, but Sommarstrom, who has worked with watershed councils since 1990, believes it's a place where people representing unlike interests can come together and reach consensus. "Litigation has its place, but it's very draining," she says. Because councils reach decisions through consensus, their decisions are often respected. But to be successful, she says, councils need certain characteristics.

Watershed councils can have many different goals and forms, but it's important to clarify expectations early on, and for the council to define itself in terms of independence, life span, organization, and philosophy. Councils are usually based on a plan, and the better the plan, the more successful the council. Based on that plan, one subgroup may focus on educating people about watershed issues, while another on improving habitat for fish, but it's important that all members know what to expect.

Who should make up the council? "Start small; it's always easy to expand," says Sommarstrom, who thinks a council should be no larger than 12 people. And make sure you have only the people on the council you need. Don't have someone from the Department of Fish and Game if there are no fisheries issues.

It's important to balance the members so that the council isn't seen as a "stacked deck." Meet at a neutral location, she says.

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INVASIONS

MONSTER FLORA

Fresh green meadows beside the Bay—so beautiful against the wide blue sky—are actually destroying marsh ecosystems, biologists have discovered. Many of the meadows are composed of hybrid plants that came to life when the non-native *Spartina alterniflora,* brought in from the East Coast in the 1970s to control erosion, hybridized with the native cordgrass, *Spartina foliosa.* Now hybrid cordgrass or *Spartina,* as it is usually called, is spreading rapidly around the south and central Bay, driving out the native and threatening to take over tidal marsh restoration sites. Its dense growth chokes channels and traps sediment, transforming mudflats into meadows and stealing habitat from migratory shorebirds, fish, and invertebrates. At a conference in November sponsored by the California Coastal Conservancy, S.F. Bay Delta Science Consortium and U.C. Davis, the experts agreed: the rampage must be stopped.

"Hybrid *Spartina* is the most effective ecoengineer in the Bay today. It's a monster," says the San Francisco Estuary Institute's Josh Collins, who spoke at the conference. He's alarmed by the "super-exponential" rate at which it has spread. Surveyors found 400 acres of hybrid cordgrass around the Bay in 2000, then discovered close to 2,000 acres in 2003. Left unchecked, the plant will be a huge menace in just a few years.

"We're watching evolution in action," says U.C. Davis's Debra Ayres. "The hybridization created a lot of genetic variation and produced individual plants that differ from each other in traits needed for survival in different parts of the marsh ecosystem. Some plants are taller, some produce more seeds, some have higher growth rates, and some tolerate high salinity."

This diversity only strengthens the hybrid's advantage, says the Coastal Conservancy's consultant Peggy Olofson. "The suite of hybrids scout out any and all open niches in the marsh. One hybrid will fit into the higher elevations while another can go into the mudflats; plus people have continued to open up new restoration sites, creating more habitats for these aggressive plants to go into."

Now scientists planning marsh restoration projects are thinking twice and assessing the hybrid *Spartina* invasion potential at the outset. Fish and Game's Carl Wilcox says, "At Hayward's Eden Landing, we'll work with the Coastal Conservancy and local agencies to minimize the *Spartina* threat before opening up channels that connect the infested area to the salt pond restoration site next door." In 2001, the Coastal Conservancy began to enlist local agencies in a coordinated region-wide counterattack designed to wipe out invasive hybrid cordgrass by 2010. To date, treatment has consisted mainly of spraying glyphosate, with mechanical removal used at a handful of sites where the endangered clapper rail is not present. The going has been slow.

"Spraying has been difficult, dirty work with a great potential for injury," says East Bay Regional Parks District's Mark Taylor. "We spray from 40-pound backpacks, and walking through mud, around marsh plants and debris, it's easy to sprain an ankle or worse. We also use amphibious vehicles that get stuck in the mud a lot."

Another constraint is that working around the clapper rail breeding season leaves only two months, September and October, for treatment. Plus, spraying is limited to periods of low wind when the tide is on the way out, so that the herbicide doesn't blow away and can sink into the plants before high tide washes in. These conditions may occur only six days out of the two-month window.

Taylor says 2005 should be a good year, however, because the state will likely approve a more effective herbicide. Imazapyr can be sprayed from helicopters and airboats and could make short work of the entire infestation. But, he says crews will phase work over a few years to avoid wiping out wildlife habitat too quickly and to give native vegetation time to backfill the cleared out areas.

Olofson is optimistic eradication will succeed. "*Spartina* is very killable: when you spray it, it dies," she says, and adds—hopefully—that soon they'll just have to monitor and remove any small clumps that spring up.

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Illustration by Lisa Krieshok

WATERWARS

CVP COOK(ED?) BOOKS

When the federal government turned on the tap for the $3.6 billion Central Valley Project in 1940, water flowed to arid lands at bargain prices, enabling central California to become an agricultural gold mine. Much has changed in 60 years—the state's population has exploded, and new science has demonstrated the need to include fish and wildlife in the water allocation equation. But some members of Congress and enviros have become concerned that these changes are not being reflected in the new CVP contracts currently under negotiation between agricultural interests and the U.S. Bureau of Reclamation.

Groups like the Natural Resources Defense Council—and California Congressman George Miller—are asking BurRec whether it is taking the public interest into account or if it is simply catering to the interests of the irrigation districts up and down the Central Valley. The original deal cut for CVP water granted farmers water at subsidized prices. In return, farmers were to repay their share of the taxpayer investment in the CVP over time—interest free. Yet to date, they have only retired roughly 10% of the debt through the first 60 years, leaving about $1.1 billion unpaid.

The contracts under negotiation are setting the terms for CVP water—between 7 and 8 million acre—feet stored and delivered each year, 90% of which goes to agriculture—for the next 25 years. Out of these negotiations should come a plan for repaying the remaining 90% of the investment, says Miller—but he doubts this will happen.

BurRec's Jeff McCracken says the contracts will include provisions for a steady repayment of the debt. "The debt will be paid off by 2030." Miller foresees little of the debt collected over the next decade or so and anticipates a large balloon payment at the end of the contract period, a schedule that will likely let agriculture off the hook again. "My experience is that when faced with these large payments, parties usually come to Congress to be relieved of them," he says.

At the heart of the debt repayment issue is the way BurRec accounts for water deliveries. Irrigation districts repay their CVP debt on a per acre-foot cost based on projected delivery levels. The higher the projected deliveries of contract water, the lower the price the districts pay per acre-foot—and the longer it takes to pay off the debt. For example, if BurRec projected total delivery of 1 billion acre-feet, the cost of that water would be only $1 per acre-foot. But if projected deliveries were .5 billion acre-feet, contractors would have to pay $2 per acre-foot. In its 2004 projections, BurRec paints a rosy picture: deliveries to irrigation and water districts for their contract amounts will be steadily ramped up, with contractors to receive 90% of their water by 2021 and 100% by 2026.

Contractors want BurRec to highball delivery projections for many reasons, says Barry Nelson of NRDC. "Contractors can exert political pressure on the Bureau to get the deliveries; that puts pressure on the Bureau to relax environmental standards and build more dams. If the Bureau were more honest about what it can really deliver, then there would be no pressure."

Meanwhile, in a document BurRec submitted to fisheries agencies to determine the impact of CVP contracts on wildlife, estimated water deliveries are conservative. In the June Biological Assessment for the CVP and State Water Project's Operating and Criteria Plan, BurRec estimated current and future deliveries for south of the Delta contractors at levels that hovered between 58% and 61% of the water it promised to contractors in its 2004 projections.

The different sets of water delivery projections give Miller an unflattering view of BurRec. "It leads you to the conclusion that one part of the Bureau isn't talking to the other part, or that it's using two sets of books, or it's misleading the public in these sets of documents," he explains. "I'm not sure you can have it both ways [giving fisheries one set of figures and contractors another]."

BurRec's McCracken acknowledges the discrepancy, but says the agency is working to change it. Although the contracts are yet to be finalized, McCracken says the more conservative figures in the biological assessment will now be used as the basis for determining the cost of water as it applies to repayment of the debt. That means that farmers once used to paying $14 per acre-foot for repayment purposes will eventually pay $30 to $44 per acre-foot, says McCracken.

While some are skeptical that that will ever happen, the optimistic delivery schedule—in which irrigation districts eventually receive 100 percent of their contracted water—will stand. How BurRec will get the water to make up the 800,000 acre-feet of water that, under the Central Valley Project Improvement Act, must go to rivers for fish is a mystery. "We're studying ways to get that water," says McCracken.

Miller, who co-authored the CVPIA, has worked doggedly to shine a light on the contract renewal process but feels a certain sense of resignation that not much will change in the new contracts. "[BurRec's] goal historically has always been—and many in Congress have been helping—to deliver to farmers just what they want."

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COUNSEL CONTINUED

The success of the council will depend on how well it represents the diverse interests of the local watershed community and how well private and public sectors collaborate.

Because a large part of what the council does is resolve conflicts, trust between members is important. One way to build trust is to provide for joint fact-finding trips. If people can see how data is collected in the field, they are more likely to buy into the science.

Other tips are more basic. Sharing meals can break the ice. On one watershed council, a logger and an environmentalist discovered that they were both 49'ers fans, had a child in kindergarten, and were vegetarians.

Watershed councils use some form of consensus as a basis for decision-making. Studies have shown that a consensus does not have to represent the least common denominator, says Sommarstrom. The consensus can be complicated, because there can be different gradients of agreement.

There can be an endorsement, a veto, and shades in between. People can agree, with reservations, or formally disagree but be willing to go along with the majority, or agree to stand aside. Councils can require that vetoes be paired with a constructive alternative, or if a consensus can't be reached, they can allow for a supermajority vote.

Ground rules are important. They can be as general as "tell the truth" or "stay at the table." Or they can be specific, such as "check rumors with facilitation team prior to acting," or "all communications with news media must be agreed upon by all the group." It's better to say you have a "concern" or a "problem" with a proposal than a "position," advises Sommarstrom. Of course, people want to feel listened to, so someone should take notes.

Sommarstrom also addressed how to work with difficult people. She recommends acknowledging their concerns and allowing them to "save face." If appropriate, set a date later to talk about the issue. But she also recommends having a mechanism for removing difficult people from the council or the meeting room.

Even after years of working with watershed councils, Sommarstrom is still idealistic about what she does. "The wonderful thing about these watershed groups is that they're bipartisan. I'm a big believer in consensus."

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RESOURCEREVIEW

PRECIOUS PUDDLES

California's vernal pools—formed when winter rains fill depressions in poorly drained soil—are about to begin their annual show. Concentric circles of goldfields, white meadowfoam, and blue downingia will bloom as the pools shrink; native bees, some specialists in a single wildflower, follow the blossoms. These ecological "islands on the land" are home to many endemic plants and animals, including freshwater crustaceans like fairy shrimp and tadpole shrimp, and amphibians like the spadefoot toad. They're also important for migratory waterbirds.

Up to 90% of the state's vernal pool habitat has succumbed to urban or agricultural development; what's left is under intense pressure. To protect the remnants, the U.S. Fish & Wildlife Service has issued a draft recovery plan for 20 federally listed species and 13 other species of concern in California and Oregon, at a cost of $2.1 billion ($772 million for highest-priority areas). The agency has mapped core regions based on occurrence patterns, identified research and outreach needs, and proposed seed banking and captive breeding for some species. Comments on the plan are due by March 28.

With 94% of remaining habitat in the Central Valley on private land, the recovery plan stresses voluntary cooperation. "We can't save these species without working with a wide variety of folks," says Fish & Wildlife's Jim Nickles. According to California Native Plant Society's Carol Witham, having a plan will free up federal money to buy conservation easements, which can reduce property and estate taxes. "Grazing is a very compatible land use," Witham adds, preventing exotic plants from encroaching on vernal pools. "Components of the plan are good," says Butte Environmental Council's Barbara Vlamis. But the voluntary aspect concerns her.

Meanwhile, the critical habitat designation issue is back, thanks to litigation by Vlamis' group. Fish & Wildlife must revisit the exclusion of 136,358 acres of state, federal, and tribal lands. Then it needs to address five counties pulled from the plan just before the final rule—based on a flawed analysis of economic impact—was issued in 2003. That decision left vulnerable species like the Butte County meadowfoam without protection.

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Fairy shrimp by J. Eaton

CREEK CONTINUED

you're not only affecting our ability to protect and recover a species in peril, but you're also affecting the healthy species that are supporting the fishery," notes Grader.

Grader says the critical habitat proposal falls in line with other recent Administration decisions such as its judgment that dams on the lower reaches of the Snake and Columbia Rivers do not jeopardize salmon by blocking their migration to and from the ocean and, therefore, do not need to be taken down. As with the critical habitat issue, the dam decision is a reversal of Clinton Administration plans that looked upon dam removal as a means to protect salmon in the event other options failed.

Under the new draft Federal Salmon Plan, federal officials are proposing to protect endangered fish by constructing what Grader refers to as a "Rube Goldberg" contraption, in which trucks would chauffeur fish around dams, and fish ladders (instead of dam removal) would help juvenile salmon avoid obstacles on their journey to the ocean. The plan, estimated to cost about $600 million a year, must be approved by a federal judge.

And in yet another controversial decision, the Bush Administration late last year proposed counting millions of hatchery-raised fish as part of wild stocks, which will likely undercut the need to list fish born in the wild under the Endangered Species Act, say enviros. Federal officials are now reviewing the status of 26 species of wild salmon—supplemented with hatchery fish—to determine if they should remain protected.

One of the first uses of this interpretation of fish populations came from a federal judge in Oregon on January 11, who referred to the Bush proposal when ruling that coho salmon in the Klamath River should not have been listed as a threatened species. Judge Michael Hogan said hatchery fish should have been counted along with wild stocks when officials considered the coho for listing. Nonetheless, Hogan let the Endangered Species Act listing stand pending federal review of the 26 salmon species. Federal fisheries officials have said they expect the coho to remain listed even after hatchery fish are counted.

> **"… but this… is an out-and-out assault on our oceans and fisheries."**

And 2004 brought yet one more potential policy decision that could affect fish, one on which the jury is still out. In September, the Department of Interior proposed that owners of hydropower dams would be granted a special appeals process as they renew their licenses. The proposal has the potential to shape how and whether fish in many of California's rivers will be protected as roughly 50 hydroelectric projects throughout the state are slated for renewal over the next 20 years.

Hydropower licenses were first issued in the 1920s and 1930s, to last for 30 to 50 years. But since that time, resource managers have learned that some facilities drain as much as 90% of a river's natural flow to make power, creating dramatic fluctuations in flow and temperature, and affecting spawning areas. As a result, hydroelectric power companies must now go through a multi-step process to renew their licenses. Along the way, several agencies, including the U.S. Fish and Wildlife Service and NOAA Fisheries, can ask the hydropower company to take steps to protect wildlife. Hydropower interests have long complained that these requirements are expensive and have lobbied Congress over their inability to challenge these requirements. Their efforts appeared to pay off when Congressional Republicans included language in the draft Energy Bill creating a private appeals process in which hydropower companies could meet with agency officials and challenge the environmental requirements. No other groups were to be allowed access to these appeal hearings.

That energy bill went nowhere. Yet Laura Norlander of the Hydropower Reform Coalition says the companies used their lobbying muscle to get the Bush Administration to make a very similar proposal that would still favor hydropower companies by granting the private appeals process and allowing other parties to comment after the fact in writing. Still, Norlander thinks this recent proposal will not likely go anywhere either. "It's kind of in a black box right now," she says. She is not declaring victory, however. "It could come up again in the new Republican Congress," she says.

After the dust has settled from all of the recent proposals, plans, and revisions, says Grader, the future for West Coast fish doesn't look too bright. "In past administrations, we've had problems of neglect. But in this instance, it's an out and out assault on our oceans and fisheries."

Contact: Zeke Grader (415)561-5080; Laura Norlander (510)644-2900, ext. 119 KC

PLACES TO GO & THINGS TO DO

WORKSHOPS & CONFERENCES

FEB 1 THRU MAY 3 — TUESDAYS

ENVIRONMENTAL URBAN & REGIONAL LAND USE PLANNING

TOPIC: An introduction to the tools of planning that will apply collaborating planning concepts to contribute to East Bay case studies on the Richmond Shoreline and the University of California's and Peralta College's expansion plans.
LOCATION: Oakland
SPONSOR: Merritt College Environmental Center
(510)434-3840
ecomerritt@sbcglobal.net
www.merritt.edu/~envst

FEB 5, 12 — MAR 12, 19 — SATURDAYS

KIDS IN GARDENS

TOPIC: A guide for building and integrating a garden in your local school, including plant propagation, pesticide-free pest management, and creating wildlife habitats.
SPONSOR: The Watershed Project
LOCATIONS: Lafayette and Moraga (February) and San Mateo and Atherton (March)

MAR 2 — APR 5 — TUESDAY

GROCERIES FROM THE GARDEN

TOPIC: A guide to kid-friendly recipes that use the food from your garden. Activities illustrate sustainable agriculture practices and advantages of locally grown food.
SPONSOR: The Watershed Project
LOCATIONS: San Francisco (March) and Walnut Creek (April)
www.thewatershedproject.org/upcoming.html

MARCH 9 — WEDNESDAY

WATCHING FOR WILDLIFE

TOPIC: A guide to appreciating the habitat around creeks including identifying tracks and signs of animals in the creekside habitat.
SPONSOR: The Watershed Project
LOCATION: San Ramon
www.thewatershedproject.org/upcoming.html

APR 15 — FRIDAY

NATURAL RESOURCES REGULATIONS CLASS

TOPIC: An overview of the major natural resource regulations and strategies for complying with them. Includes recent developments on wetland regulations and resources for complying with the Endangered Species Act.
SPONSOR: Tetra Tech
LOCATION: Hawaii
(877)468-3872; spring2005@ttsfo.com
www.ttsfo.com/services/nepa/news.htm

FEB 8 — MAR 8 — TUESDAY

CALIFORNIA COLLIOQUIUM ON WATER

TOPICS: Nature of Indian Water Rights (February); The Gravel Pirates: Strip-Mining the Russian River Water Supply (March)
SPONSOR: Water Resources Center Archives, U.C. Berkeley
LOCATION: Berkeley
(510)642-2666
waterarc@library.berkeley.edu
www.lib.berkeley.edu/WRCA/ccow.html

HANDS ON

FEB 12, 13, 26 — SUN MON SAT

DISCOVER THE BAY TRIPS

TOPICS: Restoration paddle at Bair Island (February 12); Valentine's Day Schooner Sail (February 13); Brooks Island Kayak (February 26)
LOCATIONS: Redwood City, San Francisco, Richmond
SPONSOR: Save SF Bay
Karolo Aparicio (510)452-9261, kaparicio@saveSFbay.org
www.savesfbay.org/calendar/dtboutings.cfm

APR 17 — MAY 1 — SUNDAY

BRINGING BACK THE NATIVES GARDEN TOUR

TOPICS: Features more than 50 pesticide-free, water-conserving gardens that provide habitat for wildlife and contain 30% or more native plants. April's tour is of South Bay gardens; in May, East Bay gardens are featured.
LOCATIONS: South Bay in April; East Bay in May
SPONSORS: Kathy Kramer Consulting and the Urban Creeks Council
Kathy Kramer, (510)236-9558; Kathy@KathyKramerConsulting.net
www.urbancreeeks.org

NOW IN PRINT & ON LINE

Integrated Regional Wetlands Monitoring Program: Posters from the Third Biennial CALFED Science Conference. October 2004. California Bay Delta Authority Science Program. www.irwm.org

California Colloquium on Water streaming video lectures. Water Resources Center Archives, U.C. Berkeley. 2004. Lib.berkeley.edu/WRCA/ccow.html.

Eco-Tools: Online Calculations for Ecology and Conservation Biology. June 2004. Gareth Russell, Columbia University. www.eco-tools.net.

GRANT OPPORTUNITY

DEADLINE: WEDNESDAY, FEBRUARY 16, 2005
The U.S. Enviromental Protection Agency is currently accepting project proposals for funding under its Assessment and Watershed Protection Program. Proposals should address approaches to improve water quality, including restoring and maintaining watersheds and their aquatic ecosystems and oceans to protect human health, supporting economic and recreational activities, and providing healthy habitats for fish, plants, and wildlife. Eligible applicants include state and local governments, federally recognized Indian Tribes, and non-governmental institutions.
www.epa.gov/owow/funding.html

CALL FOR ABSTRACTS

DEADLINE: MONDAY, FEBRUARY 28, 2005
The Strategic Environmental Research and Development Program is requesting abstracts for presentations at the upcoming Research Symposium & Workshop on Threatened, Endangered, and At-Risk Species in Baltimore, Maryland in June. Topics may include species and habitat management, population recovery and viability, and TER-S stressors, with special emphasis on stressors unique to the military. All abstracts must state a project's relevance to the military, scope of issue/problem, hypothesis, methods, and results to date but must not exceed 250 words.
John Thigpen, (703)326-7822
www.serdp.org/tesworkshop/abstracts.cfm

NOMINATIONS

DEADLINE: TUESDAY, MARCH 15, 2005
The CALFED Watershed Program is now accepting nominations to attend the third Watershed Partnerships Seminar in California. The Seminar will be held June 13 - 24, 2005, in the Metropolitan Sacramento Area. Self-nominations are welcome.
(916)445-5459
www.baydeltawatershed.org

PEOPLE CONTINUED

government officials—which is what he hopes to change. "We've got a $1 million to $2 trillion restoration economy, but all of our government systems are still based on reports like 'new housing starts.' In fact, restoration projects in all sectors tend to generate more profits and jobs per dollar than new development projects."

Cunningham thinks "the three C's"—constraints, contamination, and corrosion (of infrastructure)—are what are fueling the restoration economy.

"We've reached the point that every time we want to sprawl we have to do it on land that's already providing some ecosystem service or cultural value—a family farm or a wetland" (a constraint). "So new development is one step forward and many steps back, because what's being destroyed is often of far more lasting value than what's being built."

Contamination comes in when too many people are pushed together in an area, he says, and then ultimately corrosion of infrastructure follows. The "three C's" are nothing new, having afflicted cities and countries for millennia, says Cunningham. "What's new is that we now have all of them at crisis levels on a global basis."

When you ask him for examples of integrated restoration, he points to Chicago. That city, says Cunningham, is restoring heritage buildings, installing green roofs (which helps restore watersheds), restoring forests, prairies, wetlands, and rivers, and is leading in both brownfields and infrastructure restoration.

If we emulate the windy city and continue to grow business and career opportunities through restorative development, Cunningham says, the world inherited by our children will be healthier and wealthier. "I see the restoration economy as a replacement (to a large extent) for the frontier economy. If people can't make money doing it, it won't be much of an economy, will it? Trying to offset the environmental damage done by trillions of dollars a year of new development and manufacturing with activities funded by nothing more than charity and tax dollars is a fool's errand. Our businesses have to be restorative, too, not just our NGOs and government agencies."

Cunningham recently visited San Francisco to speak at the Commonwealth Club about restoration in conjunction with the Bay Institute. His impressions of local restoration efforts? After applauding salt pond restoration in the South Bay, he takes his usual "integrative" look at San Francisco.

"It's not too surprising that the city, located where it is, is basically all about restorative development—from Fort Mason to the Presidio to Crissy Field to the Embarcadero to Hunter's Point.

Restorative development tends to sell, even in climates that block smart growth and sustainable development," says Cunningham. "Restoration is different," he adds, "because people of all stripes love bringing things back to life and value, even people who normally hate the idea of setting aside things for nature." LOV

YOUR INDEPENDENT SOURCE FOR BAY-DELTA NEWS & VIEWS

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