



FISH MAY SOON FIND the San Joaquin River below Friant Dam a better place to swim and spawn as a result of the settlement of an 18-year old lawsuit by enviros seeking better flows. In August 2004, federal judge Lawrence Karlton had ruled that BurRec's operation of Friant Dam violated state and federal laws protecting fisheries—more than 95 percent of the river's flow is diverted for irrigation in the San Joaquin Valley. In September, after some water users complained they had been left out of the settlement—and threatened to derail it—Sen. Dianne Feinstein (D-Calif.) reconvened negotiations in Washington, D.C., and managed to reach a bipartisan agreement. Before restoration can begin, Congress will be asked to sign legislation authorizing the work, at a cost estimated between \$600 million to \$700 million. Says NRDC's Barry Nelson, "There is strong bipartisan support for the legislation. What's not clear is whether legislation will move this year." But Nelson is optimistic. "I can't think of a single piece of major water legislation that has had such broad support. Just a few years ago a lot of people were rabidly opposed to restoring the San Joaquin River, didn't think it was realistic. It's quite remarkable. At this point there's virtual unanimity in the valley to restore the river."

CALIFORNIA SEA-BLITE

(*Suaeda californica*), a marsh plant on the federal endangered federal list (no state listing), continues its comeback in San Francisco at Pier 94, where the Port of San Francisco enhanced the marsh. Golden Gate Audubon reintroduced the plant, and the site now supports a founder population of 26 plants, descendants of Morro Bay plants propagated for reintroduction at Crissy Field. The Pier 94 plants add to the reintroduced population on the south shore of Pier 98 at Heron's Head Marsh. The U.S. Fish & Wildlife Service plans additional reintroductions in the East Bay and San Francisco peninsula.



Margo Bors, 2003

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RETIREMENT BENEFITS

The "preferred alternative" in the much anticipated epic San Luis Drain Feature Reevaluation Final Environmental Impact Statement issued last June suggested that 308,000 acres of selenium-laden land (mostly within the Westlands Water District service area) be retired. Scientists and environmental activists, many of whom cut their teeth 20 years ago at Kesterson—where high concentrations of selenium biomagnifying in the food web caused bird deformities—see the document as quite possibly irrelevant given the U.S. Bureau of Reclamation's August announcement postponing the Record of Decision for the final EIS "in the interest of promoting further progress regarding anticipated settlement discussions." The settlement discussions relate to *Firebaugh Canal Company v. USA*, the lawsuit filed in 1988 by drainage and water districts to force BurRec to provide new drainage options for 379,000 acres of selenium-riddled land.

BurRec's statement about settlement discussions led many environmental groups to believe that negotiations were, in fact, taking place. The Natural Resources Defense Council—fresh from its victorious settlement of the San Joaquin River lawsuit—is an intervening party in one of the many cases related to San Luis drainage issues. Yet the group has not been apprised of any negotiations. "I suspect that the decision about drainage, rather than being made in the normal public process, is being made behind closed doors," says NRDC's Barry Nelson. "That makes us wonder what's going on."

Jeff McCracken of BurRec disputes Nelson's notion. "There are no talks going on. We're waiting for direction from the Justice Department in D.C.," he says.

The draft EIS issued in 2005 included seven alternatives for drainage and disposing of wastewater. What stuck in the craw of many familiar

with Kesterson was the fact that no preferred alternative was chosen, yet the economic analysis showed that the best solution was the highest land retirement possible—308,000 acres.

But in the final EIS, BurRec selected retirement as the preferred alternative, to be coupled with a treatment regimen that would have reuse areas where farmers might grow salt tolerant crops to reduce the volume of water to be disposed. Selenium-laden water that would need to be disposed of would go through reverse osmosis with the reject stream going to biological treatment processes to remove the toxins. What would be left over, says BurRec's Mike Delamore, is salty water—water he is confident would have selenium at a concentration of 10 ppb or below—that would be sent to evaporation ponds.

"A drain would not factor into these alternatives; we would no longer need it," says Delamore.

Westlands is not happy with the preferred alternative. In its board report dated June 19, 2006, General

Manager Tom Birmingham is reported to have had his staff meet with members of Congress "to discuss the District's opposition to this preferred alternative and [Birmingham] anticipates that Reclamation will be encouraged by these members to find some other means of addressing its obligation in the San Luis Unit."

That "some other means" is spelled out by Westlands in a public document entitled, "Why Land Retirement Makes Sense for Westlands Water District." Here, Westlands sets forth its proposal for land retirement, which it will likely bring to the negotiating table with BurRec:

- The federal government would purchase up to 200,000 acres of drainage-impaired lands, permanently removing them from irrigated agricultural production. Although the government would pay Westlands not to irrigate these lands, Westlands would retain ownership of the land, which it maintains will be turned into "wildlife habitat or other beneficial uses."

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OUTREACH

CCMP FACELIFT

It's not a very sexy name for a very important process, but the Comprehensive Conservation and Management Plan (CCMP) for the Estuary is being updated—and you are invited to participate. Says the Estuary Project's Marcia Brockbank, "The update will be an addendum to the original CCMP. It will include new or revised objectives and actions that reflect changes to implementation priorities in seven program areas: Aquatic Resources Management, Wildlife, Wetlands Management, Water Use, Pollution Prevention and Reduction, Dredging and Waterway Modification, and Land Use Management." Invitations went out in February to over 500 local, state, and federal agencies, environmental and business groups, academics, scientists, and the public. Work groups formed and are meeting regularly, but it is not too late to get involved, says Brockbank.

In the late 1980s, over 100 representatives from government agencies, and private and community groups, came together in a consensus-based process over a five-year period to develop the CCMP. The Governor and U.S. EPA Administrator approved the Plan in 1993, and for the last 13 years, the Estuary Project and its partners have been working to implement it.

The process for adopting the updated sections involves each work group making two presentations to the Implementation Committee—the first to describe revisions and request public comment; the second to incorporate and adopt changes (by vote). The Implementation Committee—made up of 35 members representing all levels of government, environmental organizations, business and industry, farming, and fishery interests—is the main decision-making body for the Estuary Project. It sets priorities for the Estuary Project and coordinates with its partners in implementing the actions identified in the CCMP.

On November 3, 2006, the Water Use work group will present its recommendations, to be followed by the other work groups in 2007—a schedule will be available in November; the update will be completed in time for the August 2007 CCMP Workshop and October 2007 State of the Estuary Conference, says Brockbank. Meetings are open to the public and are held at the Regional Water Quality Control Board offices, 1515 Clay Street, 2nd Floor, Room 4, in Oakland.

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PEOPLE

REMEMBERING RANDY BROWN

He hated wearing ties, had a passion for salmon and poker, disliked meetings, and preferred to talk about science over a beer or two, according to his colleagues, who describe him as determined, humble, straightforward, honest, quiet, strong, a family man, and a leader. Randy Brown, who passed away on August 26, 2006, was also the behind-the-scenes point man for cutting-edge science about the Estuary.

Brown hailed from Missouri and never lost his Midwestern "show-me" attitude, according to friend and colleague Wim Kimmerer. He grew up in a family of farm workers but left home to attend Oregon State University, earning a bachelor's degree in fisheries with a minor in oceanography. After a field season in Alaska, he returned for a master's degree in fisheries and oceanography.

Apart from a year at the Washington Department of Fisheries and several summers in Alaska, Brown spent his entire career at the Department of Water Resources, beginning in 1966 as a junior aquatic biologist with the San Joaquin District in Fresno. Initially, he studied ways to remove nitrogen from subsurface agricultural drainage. In 1970, he moved to the Division of Planning in Sacramento.

In 1974, he married Marilyn Lee Randall. While working full time and helping raise the couple's two daughters, Brown returned to U.C. Davis to obtain his Ph.D. He rose through the ranks at DWR to become the first chief of the Environmental Services Office in 1992. Brown strove to develop a scientific basis for management of water projects in the Delta and was widely respected for his willingness to make tough decisions without making enemies. Even within the water-engineering culture of DWR, Brown had the respect and ear of senior managers, say colleagues. Brown received numerous awards and accolades for his performance in this position, most notably the U.C. Davis College of Agriculture's 1998 Award of Distinction.

Perhaps his most significant contribution at DWR was changing how science was applied to management. He saw the value of research as a complement to the monitoring that the Interagency Ecological Program was doing throughout the Estuary. Brown applied IEP funds, formerly used only for monitoring, to research key issues in the Estuary—including selenium sources and effects, the dynamics of the estuarine entrapment zone, the genetic makeup of Central Valley salmonids, movements and losses of salmon in the Delta, the impact and operations of the Feather River Hatchery, the fishes of Suisun Marsh, the value of the Yolo Bypass and other floodplain habitat, and the

decline of striped bass. He was determined to engage the regional academic community in scientific questions about the Estuary, and did so through contracts, conferences, and graduate student support.

While at DWR, Brown organized numerous symposia and workshops, including a 1997 workshop on the biology of Central Valley salmonids that resulted in the 2001 publication of the two-volume "Contributions to the Biology of Central Valley Salmonids," Fish Bulletin 179, which he edited. He was also co-editor of the 2004 American Fisheries Society volume "Early Life History of Fishes in the San Francisco Estuary and Watershed." Brown also started the quarterly IEP Newsletter.

Brown retired from DWR in 2000, but continued to work on issues that had always interested him. In early 2001, he was asked to be one of two advisers to the CALFED Science Program for the new Environmental Water Account. He brought to this effort extensive knowledge of all aspects of the ecosystem, the state of the science, and the managing agencies, as well as his ability to pull together diverse scientists to participate in workshops and his acumen in preparing written summaries of these workshops. He organized annual workshops on Delta smelt and salmon, and on topics including predation at fish facilities, salmon survival in the Delta, hatchery operations, and the Battle Creek restoration.

Brown's greatest legacies in his later years lay in the institutions he started. He was one of the charter editors and the driving force behind the CALFED Science Program's electronic journal *San Francisco Estuary and Watershed Science*. He also took the lead in initiating and organizing, with Fred Nichols, the biennial CALFED Science Conference. Brown worked with Kimmerer and Nichols to found the California Estuarine Research Society, an affiliate of the Estuarine Research Federation.

Despite his deceptively quiet, low-key demeanor and retirement status, says Nichols, Brown had a huge impact on the management of water and living resources of the Bay-Delta watershed—and he will be greatly missed. *LOV, with thanks to Wim Kimmerer, Samuel Luoma, Fred Nichols, Jim Arthur, Leo Wintemitz, Larry Smith, and Lauren Buffaloe.*



PLANNING

BACK TO THE FUTURE

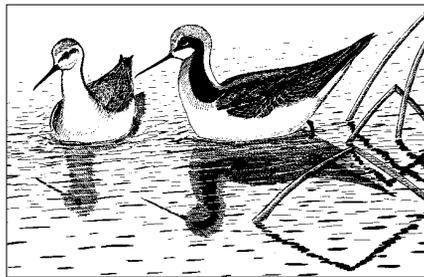
Last March, for the first time in about 100 years, three salt ponds in south Fremont were opened to the Bay's daily tides. What happened next was "remarkable," says U.S. Fish and Wildlife's Clyde Morris. "Within a week, we saw egrets, herons and cormorants, obviously catching fish—this in an area that for decades had been devoid of fish and attracted only gulls."

By July, thousands of shorebirds and fish-eating birds had flocked there, and a noticeable amount of Bay sediment had washed in, beginning the long process of filling in the ponds, which have subsided by about 1 to 1.5 feet. Morris predicts that in 10 to 15 years the Bay's tides will deposit enough sediment to create a marsh and support vegetation. "This is good news," he says, an early sign of the project's long-term potential to transform 15,100 acres of salt ponds into a combination of tidal marsh and managed ponds.

The planned marshes are expected to harbor a huge diversity of birds, including the endangered clapper rail, while the managed ponds will provide a range of salinities to support the phalaropes, avocets, and other species that have long thrived in the salt ponds. The amount of land to be devoted to tidal marsh versus managed ponds is the subject of the Draft Environmental Impact Study/Report (EIS/EIR) due out in January 2007. One alternative envisions a 50-50 balance; another a mix of 90% tidal marsh and 10% managed ponds. Says project manager Steve Ritchie, "Our most realistic expectation is that we'll ultimately have between 50% and 90% tidal marsh. We're not smart enough to know exactly where we'll land—it could be at either end of that range. Getting to 50% will take 10 to 20 years and beyond that we're talking many decades."

"There's a lot we don't know about the Bay," explains Lynne Trulio, the project's lead scientist. "So we'll want to move slowly and operate according to the concept of adaptive management." Project phases will be studied and monitored thoroughly from the start, and lessons learned will guide later phases.

To set up future studies, the project team has amassed bathymetric data on the underwater topography of the South Bay, as well as data on bird and fish use and water quality. Last summer, the project's science team hosted a symposium at San Jose State University to highlight research underway nationwide with bearing on the restoration project. To fill in the gaps, it has designed applied studies, which began during the planning phase and will continue during implementation, to answer a host of critical questions. How does sediment move around the Bay? How will hikers and kayakers



affect waterfowl and other wildlife? How can we manage pond water levels to attract snowy plovers and other listed species?

Much of the research is focusing on the effects of mercury contamination, says Morris. "The Guadalupe watershed, contaminated years ago by the New Almaden mercury mine, flows into Alviso Slough, which runs beside seven salt ponds—so high mercury concentrations are likely to be found in the sediment there." The San Francisco Estuary Institute, USGS, and Santa Clara Valley Water District are studying one of the ponds (A8) and Alviso Slough for mercury processes and effects both before and after the pond is opened to tidal action. They also hope to identify spots around the project area where mercury is a problem or may become a problem and study how mercury processes differ between problem and non-problem areas.

Flood control is another key aspect of the project, and the Santa Clara Valley Water District and Coastal Conservancy are working with the Army Corps of Engineers on a detailed flood management feasibility study. Now underway, the study may ultimately recommend a levee around the project perimeter to protect the urban area as tidal marsh restoration proceeds.

While the restoration work will span decades, a lot will happen on the ground during Phase I, which starts in 2008, says the Conservancy's Amy Hutzal. More ponds will be opened to tidal action. Crews will build enhancements at managed ponds in both Eden Landing and Alviso in the extreme South Bay, such as islands for birds and water management devices to control water levels and divide the ponds into cells, each attractive to a different mix of birds. "We want to increase the carrying capacity for birds at the managed ponds because we'll be relying on fewer ponds to provide salt pond habitat."

Public recreational facilities will also be built as part of Phase I. At the north end of the Eden Landing ponds, a kayak launching dock and a trail out to the historic salt works are planned. A viewing platform will go in at the pond beside the Don Edwards National Wildlife Refuge Education Center; a viewing platform and interpretive signs are planned for Menlo Park's Bay Front Park where visitors will see the lush Greco Marsh, marshes under restoration, and some managed ponds all side by side.

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NEXT GENERATION

FRIEND TO FAUNA AND FLORA



Jess prepares a songbird smorgasbord.

While other 14-year-olds spent last summer hanging out at the mall, Jess Bailey worked with sick, injured, and orphaned wildlife, learning to read X-rays, calculate doses of medication, and analyze blood samples. After a year's stint as a volunteer,

Jess had met rigorous requirements to become a student intern at WildCare, a nonprofit nature education and wildlife rehabilitation center in San Rafael, spending 10 hours a week at their hospital.

"The internship was amazing," she recalls. "The people there were so knowledgeable, and it was a great opportunity to learn about wildlife." Her patients included ducks, gulls, cormorants, and pelicans, as well as songbirds, fawns, squirrels, and opossums. (Raccoons were off-limits, because of the rabies risk.) A favorite assignment was providing environmental enrichment to WildCare's resident ravens: "I devised new toys to keep them active and interested. I saved old food containers, hid food in their cage, and made them work for it."

WildCare wasn't her first volunteer effort: last fall, Jess and a group of friends founded Protection of the Environment, Animals, and Conservation of the Earth (PEACE). PEACE members ranging in age from 9 to 16 have taken part in shoreline cleanups at the Berkeley Marina and planted marsh vegetation at Martin Luther King Jr. Shoreline in Oakland, under the auspices of Save the Bay. "There's a natural connection between helping wildlife at WildCare and providing habitat for them by recreating marshland," Jess says. PEACE has also launched a recycling program for ink and toner cartridges, with the proceeds going to WildCare.

The homeschooled teenager, who is also involved in a youth-run Shakespeare company and has worked on an archeological dig in Arizona, says she has always been animal-oriented: "They're beautiful creatures, and we should protect and create more habitat for them." Although college is a ways off, Jess says she'd like to attend a school with an on-site wildlife clinic. JE

INVASIVE SPECIES

SHELL HELL



After the Gold Rush flooded the Estuary with persistent pollutants like mercury, the boom of the oyster industry left a legacy of a different kind: invasive marine organisms. Beginning in the 1860s, Atlantic oysters were introduced to replace the dwindling native species. The oyster beds Jack London first raided, then defended, were stocked with eastern shellfish. They're gone too, but three fellow travelers are still with us—eastern mollusks that hitchhiked west with the oyster shipments over the years. One went through its own cycle of commercial boom-and-bust; the other two, both predatory snails, successfully shifted to new prey.

The edible soft-shell clam (*Mya arenaria*)—also known as longneck or steamer—was first detected in the Bay in 1874. Fossil specimens have been found on the Pacific Coast, but the species was locally extinct by the Pleistocene Epoch, 1.8 million years ago. After its accidental reintroduction, it displaced the native bent-nosed clam (*Macoma nasuta*), covering the Bay floor at densities of up to 1,000 per square meter. Clam beds were fenced against predatory flounder and bat rays, and harvests peaked at 900 tons a year. But by the 1940s, overharvesting, pollution, and habitat loss had destroyed the fishery. A few are still taken for food and bait.

The Atlantic oyster drill (*Urosalpinx cinerea*)—a small but aggressive seasnail—bores into an oyster's shell with its file-like radula, then feeds on the victim's soft tissues. It is also an old-timer, present since 1890. This versatile predator outlasted the oyster beds and now feeds on a fellow exotic, the Amur clam (*Corbula amurensis*), as well as native acorn barnacles.

The oyster drill is dwarfed by the channeled whelk (*Busycotypus canaliculatus*), which, at a maximum length of seven inches, is the Bay's largest snail. A hunting whelk grasps an oyster with its foot and bashes the victim with the edge of its shell until it opens a crack wide enough for its proboscis. The whelk wasn't recorded here until either 1938 or 1948 (records are unclear) and may have arrived with some of the last oyster shipments. It is also possible that the founders escaped from a consignment destined for a Chinese or Italian grocery. In the absence of oysters, channeled whelks prey on clams and mussels.

For more information:
<http://www.exoticguide.org>.

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RESTORATION

BULLDOZERS, BERRIES, AND BEETLES GET ALONG

A few years back, when a farmer and member of the local levee district in Sutter County approached River Partners with the idea of restoring a 230-acre site known as O'Connor Lakes (for the way it historically flooded in the winter) along the Feather River, River Partners jumped at the chance. The site, owned by Fish and Game, had been invaded by *arundo donax* and star thistle, which River Partners hoped to eradicate and replace with native riparian vegetation. They got the o.k. from Fish and Game and \$1.2 million from the Wildlife Conservation Board, came up with a planting plan, and then ran into trouble. "No elderberries," said the State Reclamation Board, which has jurisdiction over the floodway here. Elderberry bushes are the only host plant for the endangered valley elderberry longhorn beetle, which lives in the bush, bores into its stems, and comes out just for a few weeks each year. Neither the RecBoard nor DWR, which is responsible for maintaining flood capacity through the property, wanted to be held liable for removing an endangered species' habitat when it came time for maintenance work.

To move forward with their restoration plan, River Partners decided to try to put a series of "safe harbor-like agreements" in place among the various agencies involved, including the U.S. Fish & Wildlife Service, which has responsibility for the beleaguered beetle. "The RecBoard wanted an iron-clad guarantee before elderberries could be planted that they and DWR wouldn't be responsible for mitigation if any elderberries were taken out," says River Partners' John Carlon. In the past, bulldozers would show up and clear a 100-foot strip of land for floodwaters, but there was no hydraulic justification to it, says Carlon. River Partners had to come up with a design that would allow them to restore riparian habitat (including elderberries), have room for floods, and set agency legal minds at ease about liability if elderberry bushes did have to be removed.

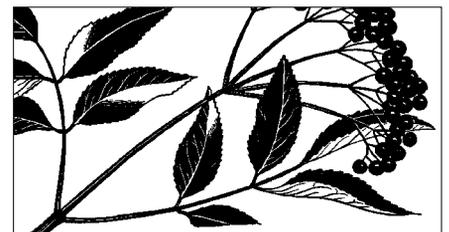
Using MBK Engineering to conduct hydraulic modeling, River Partners came up with a restoration plan that directed flood flows into the center of the property and away from project levees; it also increased the strip of cleared land from 100 to 400 feet. "It's always a challenge to do restoration work within a levee system," says Carlon. "But we kept manipulating the design. The modeling showed that there would be no impact on flow conveyance and that scour and high velocities would help keep that center area clear." The new design allowed them to plant

225 acres with willow, elderberry, and other understory plants important for wildlife.

Before their design could be put in place, five separate agreements had to be signed by the agencies involved, and the Fish & Wildlife Service had to issue a biological opinion—Herculean feats in an atmosphere of mistrust and worry. Says Fish and Game's Armand Gonzales, "We developed an agreement where restoration could occur by planting elderberry bushes in numbers significantly above the pre-project baseline. Then, depending on the circumstance, whether fighting floods or maintenance, elderberry plants above the baseline number can be removed without triggering the ESA." Gonzales says the project may serve as a model that can be used elsewhere, particularly along the Sacramento and San Joaquin rivers where there are similar situations. "It's definitely a win-win, especially for the beetle," he adds. "The species has declined along with its host habitat. Private landowners are reluctant to allow any elderberry plantings or plants to grow beyond a one-inch diameter, the threshold between suitable and unsuitable habitat, because they don't want to be susceptible to ESA issues. This shows them that there can be some co-existence, some management strategies that can protect the species and property owners."

Although between 7 and 8 acres of existing understory were lost in the new configuration, says Carlon, the big trees were kept, and 225 lush new riparian acres—including 1,300 elderberry plants—gained. "There's a huge benefit for wildlife, the new maintenance regime will cost DWR less money than before, and it doesn't have any liability if it has to take out some elderberries," sums up Carlon, who estimates that only 5 or 6 elderberry bushes will be lost to the bulldozers during maintenance. This past winter, floodwaters "ripped through the site," and everything performed just as designed. The lesson learned, adds Carlon, is that riparian restoration can be an effective flood-control tool. "You can replace weeds with native vegetation and improve habitat for endangered species without diminishing flood capacity. If you have good planning and implementation of riparian habitat, you can lower floodway maintenance costs and maintain floodwater conveyance."

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LEGAL

RECKONING WITH RISING WATERS

In June 2005, before Governor Arnold Schwarzenegger and Assembly Speaker Fabian Nunez put their heads together to come up with legislation to cap greenhouse gas emissions, the Governor was at work setting emissions targets and directing state officials to study and monitor the effects of climate change in managing resources and planning. Yet the state Reclamation Board didn't get the message, according to a number of environmental groups, who, led by the Natural Resources Defense Council, filed suit in August against the RecBoard. The charge? The RecBoard issued a permit in June allowing 224 luxury homes to be built on top of a 300-foot-wide "super levee" on a Delta island in the San Joaquin County city of Lathrop without looking at the effects global warming and sea level rise will have on the ability of the earthen barriers to protect future residents. The groups say that the failure to look into this scenario violates the California Environmental Quality Act.

"We hope to get the Reclamation Board to address these issues in a rational and considered way, and to draw the public's attention to the failure of the board to do its flood protection job," says NRDC's Kate Poole. The RecBoard's Scott Morgan responds, "When the River Islands developers came before the board, the board's engineers evaluated whether the project would have an adverse impact on the plans for flood control." This is the same process for all projects that come before the board, says Morgan. "The engineers ask the same question, which is 'will this project affect the levees in any way?'"

In the meantime, the Department of Water Resources is taking a bigger picture approach, looking at how the Delta and other parts of the state will fare as temperatures rise. They've generated computer models and sent scientists to study the snow pack and river flows. What they're finding is not encouraging.

"What really got my attention was looking backwards," says DWR's Jerry Johns. "We can find in the historical record that we're seeing less April-July runoff—and that's because there's a trend line of less snow pack."

Less snow pack means less runoff in late summer and early fall—when rivers naturally run low. And that sets off a whole cycle of events, notes Johns. One-third of the state's water storage in the Central Valley is snow pack. Losing that "stored" water means deliveries from the State Water Project will take a big hit. Johns says that DWR's climate change team has found that a three-degree rise in temperature would cause the snow pack—which holds 14 million acre-feet in storage—to lose 4 to 5 million acre-feet of stored water.

According to the state's projections, total precipitation may stay about the same in the future, says Johns. "If there is less snow, there will likely be more rainfall. This has consequences for flood control. That will be a challenge."

Poole notes that the flood threat to the Delta arising from global warming is "on a scale of Hurricane Katrina."

Climate experts have generated computer models demonstrating that higher temperatures could raise California sea levels by more than two feet by the end of this century. This will affect

not just coast dwellers but also residents in and around the Delta, and its 1,100 miles of levees.

A new report by DWR estimates that as little as a one-foot rise in sea level would likely flood the three westernmost Delta islands—Jersey, Twitchell, and Sherman.

To guard against flooding, levees will have to be built higher—something the RecBoard did not take into account when it approved the plans for River Islands, says Poole. Plans call for as many as 11,000 homes to eventually be built on the Delta island.

While this suit may be the first of its kind, Poole hopes it will start a new trend of state flood control officials taking the effects of global warming into account when growing cities do not.

"The division of authorities [between cities and the state] doesn't relieve the board from its duties to address flood protection of the projects that come before it, no matter where that project may lie in the planning process," says Poole.

SEE:

www.climatechange.ca.gov/documents/index.html

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ENVIROCLIP

PORT OR PARK?

Will Wildcat Marsh—home to the endangered clapper rail, salt marsh harvest mouse, and birds like the long-billed curlew—and adjacent eelgrass beds become a container port? A proposal by the city of Richmond and its port director in conjunction with a Long Beach port design firm to study the feasibility of a port in such a sensitive area (when Richmond already has a port on its south shoreline) has enviros calling foul and regulatory agencies seeing red.

According to a letter from the Wildcat-San Pablo Creeks Council, close to \$21 million of public funds has gone into restoration, preservation, and multi-purpose flood control projects related to Wildcat Marsh and its watershed over the past 20 years. Other environmental groups, including Golden Gate Audubon, the Sierra Club, and Save the Bay have also weighed in, expressing their opposition to the port; the San Francisco Bay Joint Venture offered to help the city work to preserve its shoreline in way that would benefit the city both ecologically and economically. BCDC's Will Travis expressed his concern that "[the project could involve] dredging two ship channels, two turning basins, two berthing areas, and building two connections to the rail and road system." The cost of such an undertaking, says Travis, would be prohibitive, not to mention the issue of what to do with dredge spoils—sediments in the marsh and surrounding areas have been contaminated from years of nearby industry.

"It's a terrible idea," says Whitney Dotson of the North Richmond Open Space Shoreline Alliance, who led a recent effort to save nearby Breuner Marsh, also on the north shoreline, from a housing development. Dotson's group urged the East Bay Regional Park District to acquire that property through eminent domain, which it did this summer.

"Richmond needs access to jobs, affordable housing, health care, and a beautiful shoreline," says Dotson. "We see large-scale single owner developments spreading everywhere at the same time we see an increase in violence, health problems, degradation and displacement of historic communities, and loss of open space and community aesthetics. Overscaled developments are a cause of these problems, not a solution." The shoreline alliance, says Dotson, is looking into a feasibility study of its own: the possibility of a state park that would stretch along the entire 32-mile shoreline. Richmond's port director could not be reached for comment. **LOV**

BIRDWATCH

KING OF THE CREEKS

Not so long ago, the belted kingfisher was a bird with a price on its head: accused of preying on trout, it was killed with the encouragement of wildlife management agencies. But studies of its diet showed it was more likely to eat sculpins and other predators of trout eggs and fry, and the bounty on the bird was lifted. With its persecution ended, California kingfishers rebounded, and their rattling calls are now familiar sounds along both rural and urban creeks.

Their big heads, shaggy crests, and long stout bills give kingfishers an awkward, top-heavy look. Watching them hover above the water, then plunge after a fish dispels that impression. Their eyes are specially adapted for targeting underwater prey. The human eye has only one fovea, responsible for sharp central vision; a kingfisher's has two. The higher concentration of nerve cells at the nasal fovea help the bird sight down its beak, while the lateral fovea detects a fish's movement and allows for course corrections. Red oil droplets in the retina enhance color vision and reduce glare.

After making its catch, a kingfisher bashes the fish against its perch to kill or subdue it, then swallows it headfirst. Fish are preferred, although kingfishers have been known to eat crayfish, mollusks, terrestrial arthropods, small vertebrates (including young quail), even berries.

Solitary except during the breeding season, belted kingfishers pair up in early spring. The male chooses the nest site, usually in a steep dirt bank with sandy soil, or occasionally in a tree cavity. Both partners excavate a three- to six-foot-long sloping tunnel, shoveling with their beaks and feet, and create a dome-shaped egg chamber at its end. The egg chamber is unlined but accumulates a cushion of disgorged bones and scales.

The female kingfisher lays six or seven white eggs around mid-April. The naked and blind hatchlings were described by 19th-century naturalist Charles Bendire as "very unprepossessing." After the chicks fledge, the female teaches her brood to fish by dropping stunned prey below their perch. When they can fend for themselves, the family disperses. JE



- Westlands receives "a new, more-reliable water supply contract for 805,000 acre feet of water per year instead" of its current contracted amount.
- The federal government is relieved of its obligation to provide drainage services to Westlands.

This proposal raises a lot of questions for the Bay Institute's Gary Bobker, who has also been an intermediary in past negotiations over the San Luis Drain. "So the U.S. won't have to build the drain; what will be the framework for handling significant drainage volume?"

One scenario could be that the State Water Resources Control Board would by default deal with it. "And that could be a good thing," explains Bobker, noting California's tough water quality standards and the affirmation of states' roles in enforcing water quality laws in last spring's Supreme Court decision in the Warren case involving a Maine hydropower dam. "You could also imagine a timed release of the wastewater with high flows in the San Joaquin," Bobker muses. "But we're talking about selenium, and that accumulates."

Awkwardly hovering over any discussion of drainage or land retirement is the topic of Central Valley Project contract renewals for the San Luis Unit, which includes Westlands. These contracts were on track for approval last spring, and Westlands was scheduled to receive as much as 1.2 million acre feet per year, depending on whether a year was wet or dry. That process was put on hold in June when the National Oceanic and Atmospheric Administration asked for further environmental impact studies of the CVP contracts due to the recent listing of the green sturgeon as endangered.

Further studies aside, environmental attorney Lloyd Carter thinks Westlands will get a sweet deal on all counts. "This contract could bring a district of 400 growers as much as one million acre-feet of water a year for the next 50 years, a 25-year water delivery contract with a virtually automatic renewal for another 25 years." Carter points out that the water is worth up to \$500 an acre-foot to urban developers in Central and Southern California. "It's expensive water bought cheap and used in some cases to grow subsidized crops like cotton," says Carter. "And under current law Westlands is free to sell any excess water to the highest urban bidder. Metropolitan Water District of Southern California is definitely interested." Carter says if

you read the fine print, the preferred alternative merely calls for the Department of Interior to buy the federal irrigation rights to the contaminated land. "In other words," says Carter, "Westlands

growers will get to keep their high selenium lands and will be given well over three-quarters of a billion dollars to simply stop irrigating with federal water. However, they will still be able to use that land for other purposes, including irrigating with non-federal water."

That worries former U.S. Fish and Wildlife scientist Felix Smith, who investigated the Kesterson disaster. Smith is concerned about farmers downslope of any selenium-laced lands that will still be irrigated. "You can come up with work-arounds like salt-tolerant crops and water rotation," says Smith. "But from an agricultural sustainability, economic sustainability, and ecological sustainability

issue, you can't keep sending water over poisoned lands—it's just not going to pass the smell test for the long term."

While no one is completely happy with the preferred alternative, Bobker gives BurRec credit for at least coming up with and analyzing several alternatives, something that's not being done for another project on the table in the Tulare Lake Drainage District. The comment period closed in late September for an Initial Study and Mitigated Negative Declaration for a proposed 1,800 acre increase in evaporation ponds in the Tulare basin.

No new evaporation ponds have been built in the San Joaquin Valley since the early 1990s. Bobker says evaporation ponds today are not as damaging, but he still wonders about issues such as the toxicity of the inflow of these ponds, which was not addressed in the study. The mitigation offered by the drainage district is 12.8 acres of habitat for breeding birds.

Says Bobker, "The San Luis preferred alternative and Tulare are both proposing evaporation ponds, and this is really not a direction we should be going."

Ed Imhoff, a retired Department of Interior official who headed a five-year, \$50 million study of the western San Joaquin Valley drainage problem in the late 1980s, put it more strongly in a recent interview with the *Los Angeles Times*. "Why would we be replicating something that caused all the deaths and deformities at Kesterson? Why would we do that?"

CONTACT: Jeff McCracken (916)978-5100; Mike Delamore(559)487-5039; Gary Bobker (415)506-0150 KC

"Why would we be replicating something that caused all the deaths and deformities at Kesterson? Why would we do that?"

PLACES TO GO & THINGS TO DO



WORKSHOPS & CONFERENCES

OCT
10
TUES -
NOV
14
DAYS

CALIFORNIA COLLOQUIUM ON WATER

TOPICS: The Role of Climate on Water Institutions in the Western Americas (October); Saving California's Largest River – The Mighty Sacramento (November)
LOCATION: U.C. Berkeley
SPONSOR: Water Resources Center Archives
(510) 642-2666
waterarc@library.berkeley.edu
<http://lib.berkeley.edu/WRCA/ccow.html>

OCT
23-
25
MON - WEDS

CALFED 4th BIENNIAL SCIENCE CONFERENCE

TOPICS: Science for a changing environment
LOCATION: Sacramento
SPONSOR: CALFED Bay-Delta Authority
http://science.calwater.ca.gov/conferences/sciconf_index.shtml



HANDS ON

OCT
25
WEDNESDAY

CLEAN THE KLAMATH DAY

TOPIC: Rally and testimony to ask State Water Resources Control Board to clean the river and save its salmon.

LOCATION: Sacramento
SPONSOR: Klamath River Keeper, Klamath Restoration Council
(530) 627-3446 ext. 3020
klamath@riseup.net
www.klamathrestoration.org

NOV
18
SATURDAY

CALIFORNIA QUAIL RESTORE-A-THON

TOPIC: Golden Gate Audubon holds its annual California Quail Restore-A-Thon. Join a group of committed habitat restoration volunteers, or enlist as a sponsor!

LOCATION: San Francisco—the Presidio and Harding Park
SPONSOR: Golden Gate Audubon
<http://www.goldengateaudubon.org>

CALL FOR APPLICATIONS

DEADLINE: WEDNESDAY, NOVEMBER 15, 2006

The Society of Wetland Scientists (SWS) announces the availability of undergraduate student fellowships for travel to attend the annual SWS meeting June 10-15, 2007 in Sacramento, California. Preference will be given to applicants interested in a career in any aspect of wetland science or policy and willing to present results of undergraduate research at the poster session of the Annual Meeting.

Application materials and additional information are available from Dr. Frank P. Day, Old Dominion University (fdlay@odu.edu).

DEADLINE: MONDAY, NOVEMBER 20, 2006

The Water Education Foundation is accepting applications for its eighth Water Leaders Class, which will begin January 2007. The class is a one-year program that identifies young community leaders from diverse backgrounds and educates them about California's water issues. (916) 444-6240; www.watereducation.org.

CALL FOR NOMINATIONS

DEADLINE: DECEMBER 15, 2006

2007 National Wetlands Awards
www.nationalwetlandsawards.org
(202) 939-3247



State of the San Francisco Bay-Delta Estuary 2006.

Science & Stewardship

October 2005 State of the Estuary Proceedings

To order a copy, contact Paula Trigueros
(510) 622-2499 or PTrigueros@waterboards.ca.gov.

Editor's note: The image of Hotchkiss Tract on the cover of the August ESTUARY should have been credited as follows: Bob Twiss of the CALFED Delta Science Panel, from a report funded by the CALFED Science Program.

NOW & ONLINE

Clearinghouse for Dam Removal Information. Berkeley Water Resources Center Archives
<http://www.lib.berkeley.edu/WRCA/damremoval/>

Creek and Watershed Maps. Richmond & Vicinity. South San Jose. Oakland Museum.
www.museumca.org/creeks. (510) 238-3297

Draft Environmental Impact Statement for Relicensing of the Klamath Hydroelectric Project. September 2006. Federal Energy Regulatory Commission.
<http://www.ferc.gov/industries/hydropower/enviro/eis/09-25-06.asp>

EPA Needs to Conduct Environmental Justice Reviews of its Programs, Policies, and Activities. U.S. Office of the Inspector General. September 2006.
http://www.house.gov/apps/list/speech/ca32_solis/e-j-epa_report.pdf

The Islands of San Francisco Bay. James A. Martin and Michael Lee. August 2006. Down Window Press, San Rafael. www.islandsofsfbay.com



Progress on Incorporating Climate Change into Management of California's Water Resources. July 2006. California Department of Water Resources.
<http://baydeltaoffice.water.ca.gov/climatechange/DWRClimateChangeJuly06.pdf>

San Francisco Estuary and Watershed Science Volume 4, Issue 2
<http://www.estuaryandwatershedscience.org>

CONTINUED FROM PAGE 1

CALIFORNIA RED-LEGGED FROGS are alive and well according to recent surveys at Sears Point, on the land formerly proposed for a casino but acquired by the Sonoma Land Trust. The site is one of the few remaining places in the North Bay where the frog still occurs adjacent to tidal wetlands, says ecologist Peter Baye, and has the potential to return to fresh-brackish transitional marshes as it has at Point Reyes, where it occupies lagoons and ponds near the heads of tidal marshes or behind small marshy barrier beaches.



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