

NORTH BAY "WRDS" UP

While the buzz has been all about the South Bay salt ponds, the North Bay is about to take its turn in the spotlight. Over a decade since 4,600 acres of salt ponds in Napa and Sonoma counties were purchased from Cargill, restoration will soon begin. "We wanted to make sure we did it right," says Cal Fish & Game's Larry Wyckoff. "We came out with a great mix of habitat elements, and the stakeholders are happy." With \$12 million in Prop. 50 funding and \$3 million from CALFED, three salt ponds will soon be reopened to tidal action. Levee repairs and new water control structures for three others will enhance habitat for waterfowl and shorebirds.

Ducks Unlimited, with experience in salt pond reclamation in San Diego and Moss Landing, will implement and manage the restoration. "We'll have a diversity of topography and water depth," DU's Greg Green explains; he hopes to attract both dabbling ducks (mallard, shoveler, teal) and divers (canvasback, scaup). Tidal gates will allow Ponds 1 and 1A to be drawn down in summer and fall for migrant shorebirds, while Pond 2 will be managed as a deep-water pond for diving ducks. Ditching and contouring within Ponds 3, 4, and 5 will foster development of habitat for the endangered California clapper rail, black rail, and salt marsh harvest mouse.

That's just the beginning. If Congress approves the pending Water Resources Development Act (WRDA) and appropriates funding, the Army Corps will tackle another 5,000 acres. The California Coastal Conservancy's Amy Hutzel says Sen. Barbara Boxer (D-CA) and Rep. Mike Thompson (D-St. Helena) have been strong advocates for including Napa-Sonoma marsh restoration in the WRDA package.

The North Bay salt ponds pose challenges not encountered in the South Bay. They're more saline, and one, Pond 7, contains bittern, a toxic residue of salt processing. Over time—Wyckoff estimates 12 to 50 years—the bittern will be diluted and flushed out; other options are prohibitively expensive. This timeframe could be shortened if WRDA authorizes a recycled water pipeline to Pond 7, with costs shared between the Corps and North Bay water agencies. "It's all contingent on WRDA language and federal funding," Wyckoff says.

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YOUR INDEPENDENT SOURCE FOR BAY-DELTA NEWS & VIEWS

ESTUARY

Delta Down and Out?

After 10 years of the CALFED program and 15 years of the Central Valley Project Improvement Act, one would think the ecology of the West Coast's largest estuary would be in good shape. But that's not what Bruce Herbold realized this past winter when looking at populations of the listed Delta smelt.

Herbold, of the U.S. Environmental Protection Agency, found in his usual fall and winter surveys of the Delta that smelt were at their lowest level since these studies began in 1967. If this were the only problem, Herbold could chalk it up to the fact that Delta smelt are a sensitive species and that the wet seasons from 2001/2002 to 2003/2004 were merely average or just below.

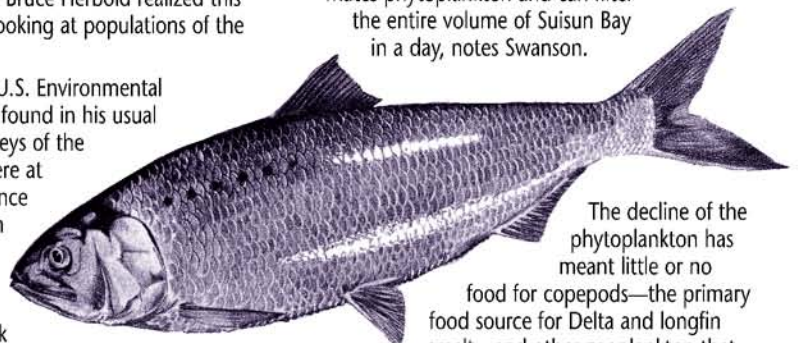
But what really shook him up was what he saw in heartier species like striped bass and threadfin shad, a common baitfish. Shad in particular have experienced roughly a 10% drop in their abundance levels from 2001 to the present. "The fact that the Delta can't keep threadfin shad alive really alarms me—something is really, really wrong," he says.

Just what is wrong appears to run up and down the food web of the Delta. Smelt, shad, and bass all feed on zooplankton (several species of copepods) which, in turn, feed upon phytoplankton (floating plants). Surveys also show a steady decline in zooplankton and phytoplankton, with 2004 yielding the lowest numbers of these species ever. "This is potential evidence of a broad collapse of the ecological system in the Delta," says the Bay Institute's Tina Swanson.

These signals were enough to pull together a cooperative effort of agencies, including the Department of Water Resources, CALFED, and Cal Fish & Game, to spend this summer and fall trying to find out just what is causing these precipitous drops in the Delta food web. Possible culprits include toxins both from agriculture and

from herbicides applied directly in the Delta to combat invasive weeds that clog the fish screens, as well as invasive species.

The source of the invasive species could stem back to the mid-1980s when the Asian clam was introduced in the Delta. This invertebrate decimates phytoplankton and can filter the entire volume of Suisun Bay in a day, notes Swanson.



The decline of the phytoplankton has meant little or no food for copepods—the primary food source for Delta and longfin smelt—and other zooplankton that bass and shad feed upon.

Another problem with invasive species has been the introduction of weeds from, among other sources, dumped aquariums. Over time, these weeds have established themselves on the banks and in the Delta, changing the overall habitat from open water to highly vegetative. Bass, smelt, and shad are all open water fish, and this means it's harder for them to find food, says Swanson.

A third possible cause of the overall decline is the increased exports of water south of the Delta. Not any one suspect is more at fault than another, says Swanson. "The sum of all of these is greater than any of the parts, and I think each one of these factors exacerbates the adverse impacts of the others," she explains.

One question that has come up among members of Congress is what could have been done by CALFED, a state and federal partnership that was designed to stave off crises just like this one. The bill re-authorizing the Bay-Delta Authority became law only last November—just when Herbold was seeing the dismal data. Now members of Congress led by Rep. George Miller are asking what authorities like Interior Secretary Gale Norton and California Secretary for Resources Mike Chrisman knew about the fish

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HOW I SEE IT

WE NEED TO TACKLE STORMWATER

Sejal Choksi



Every time it rains, stormwater carries harmful pesticides, heavy metals, and sewage over paved surfaces and deposits them into our waters. This pollution turns creeks toxic, harms aquatic life, and makes it unsafe to recreate in the Bay after storms. For too long, Bay waters have been the victim of weak regulations and timid municipalities trying to accommodate big developers rather than manage the problems that cause polluted stormwater. Other cities around the country are tackling stormwater in a much more aggressive and more economically and structurally sound manner. There is no excuse for the Bay Area to be behind the curve in controlling one of the biggest sources of pollution to our waters.

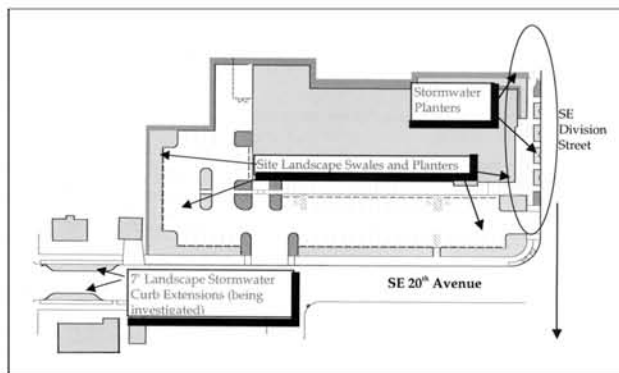
Existing permits are weak and difficult to enforce because they contain vague language, which some cities exploit to their advantage. The S.F. Regional Board is proposing creation of a regional stormwater permit that would do away with separate permits in order to have consistency among the various counties and to produce more useful monitoring data. The permit is known as the "Grand Unified Management Plan" ("GUMP"). It is absolutely critical that this permit have clear, measurable, and enforceable standards of accountability (such as numeric effluent limits), and that it be enforced against the worst performers. If we are to improve the Bay Area's stormwater problem, the Regional Board has to set the bar higher.

It's important to acknowledge that cities face financial constraints, but that's not the main obstacle here. Federal and local grants are untapped sources of funding for Bay Area cities that want to aggressively address polluted stormwater. Additionally, the passage of bonds, such as the \$500 million Measure O in Los Angeles last year, demonstrates that there is overwhelming public support in California to fund clean water. Support has also been shown with the introduction of Assembly Constitutional Amendment 13 (Harman) into this year's legislative session. If passed, it would put stormwater agencies on equal footing with other public pollution control agencies, like sewage treatment facilities. Our cities' biggest hurdle will be overcoming an unwillingness to prioritize creative stormwater solutions. — Sejal Choksi is the SF Bay Keeper

(NON)TECHNOFIX

THINKING OUTSIDE THE PIPE

Urban runoff is usually out of sight, out of mind, shunted as quickly as possible into the nearest river or other receiving water body. But some of our neighbors to the north are taking the opposite approach, trying to slow it down and make it more visible and attractive. Both Seattle and Portland are implementing a dazzling array of stormwater treatment systems, including stormwater planters, rain gardens, curb extensions, "green streets," swales in parking lots and public rights-of-way, downspout disconnect programs, and eco- or green roofs. In contrast to the Bay Area, where the focus of stormwater management is primarily on new development—including lots of suburban sprawl—these northern cities are retrofitting existing urban and residential areas.



Plan view of a Portland "green street." Courtesy City of Portland.

Both cities are trying to meet the same NPDES requirements as the Bay Area, and both cities—like the S.F. Bay-Delta watershed—have several endangered species of fish in their waterways. Sewer/stormwater system overflows and creekbank erosion caused by increased runoff are also concerns. "There's only one way to solve the flow problem," says Seattle Public Utilities' Denise Andrews. "You have to reduce the volume of stormwater going downstream. You need bioinfiltration on a mass scale."

Since Seattle completed its first pilot "Natural Drainage System" project in 2000, it has installed several more projects. In one, streets were redesigned, narrowed, retrofitted with drainage swales, and planted with more than 20,000 trees, shrubs, perennials, and wetland vegetation. The goal was to reduce the two-year, 24-hour storm event (of 1.68") to pre-development pasture conditions. Four years of monitoring showed that the project prevented any discharge of flows from the site's 2.3 acres in the dry season and 99% of flows in the

wet season. The city estimates that a conventional pipe in the same location would have discharged almost 100 times as much runoff to nearby Piper's Creek.

The 110th Cascade project features a vegetated creek-like cascade system along four city blocks that intercepts and allows stormwater from 26 acres to infiltrate approximately 40% of its total volume while providing a very high level of water quality treatment. A subsequent project extended 110th Cascade by 15 blocks. And yet another—in progress—will integrate 22,000 linear feet of vegetated and grassy swales throughout a 129-acre mixed-income housing redevelopment project in West Seattle. Two more green drainage projects, at approximately \$4 million apiece, are in the design phase. For its efforts, the city won an Innovations in American Government Award.

Unlike pipes, which begin to deteriorate as soon as they are put in the ground, says

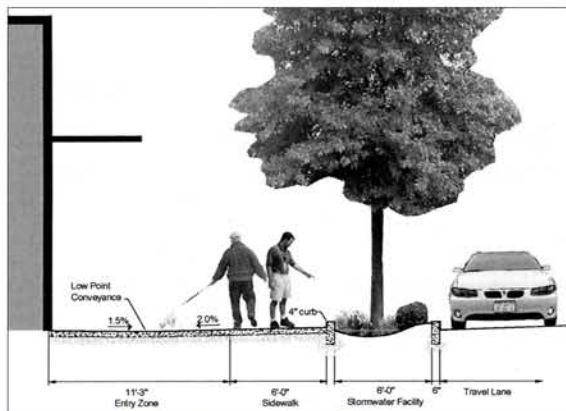
Andrews, natural drainage systems only increase in value over time. Her agency estimates that natural drainage systems cost 25% less than traditional pipe infrastructure—not including the added value of cleaner waterways, replenished groundwater, and increased carbon sequestration by the trees. Plus, Andrews points out, "There is not enough money in the world for end-of-pipe treatment." She says another benefit of natural drainage systems is that they appeal to people who wouldn't ordinarily care about stormwater.

Portland's stormwater innovations are no less impressive than Seattle's. The city's Bureau of Environmental Services now employs a six-person Sustainable Stormwater Team, whose job, according to the city's Tom Liptan, is to "find opportunities around the city to treat stormwater where they don't already exist." Much of Portland's work is the brainchild of Liptan, who is constantly coming up with new ideas for treating stormwater. On heavily traveled Division Street, for instance, a series of interconnected stormwater planters installed between the street and the sidewalk receive and filter urban runoff. Downtown, there are several more existing—and planned—"green streets," and a patchwork of at least 30 green (vegetated) roofs tops area buildings.

One key to Portland's success seems to be its "let's just try it" philosophy. Says Liptan, "If something doesn't work, we don't have to try it again or we change what's not working." But mostly, it seems to be working. Stormwater

planters, which look like formal courtyard planters but are set farther down into the ground, have been successfully used to intercept runoff on the site of a redeveloped apartment building complex; the green streets with their vegetated curb extensions are so popular there is a waiting list; and Portland's latest invention—still in the works—is a “stormwater wall” on the side of a Pontiac dealership.

So how does the Bay-Delta watershed compare? Says the S.F. Regional Board's Larry Kolb, “It's fair to say that the state's program is intended to produce slow progress for limited investments. The two main elements are a ‘find it and fix it’ program for the dirtiest areas in the watershed; the other part of the program is focused on new development—trying to do better in the future things we've done badly in the past.” Fixing the dirtiest areas in the watershed, says Kolb, means things like getting auto-wrecking yards or loading docks (where chemicals are routinely spilled) under a roof, so the chemicals are not washed off in the rain. But the biggest challenge, says Kolb, has been getting developers to treat stormwater on all newly built sites that create one acre or more of impervious surface. Developers fought the original regulations that would have mandated stormwater treatment on sites of 10,000 square feet, and pressured the Board to increase the size requirement to one acre (although it will revert to 10,000 square feet in 2006). By comparison, Seattle's onsite detention requirement is triggered by 2,000 square feet of new and replaced



Stormwater “planter” between street and sidewalk. Courtesy City of Portland.

impervious surface, and its more stringent water quality requirement by 5,000 square feet (this depends on whether the runoff flows into its CSO system or a local waterway).

Getting cities to make sure developers comply with the new regulations is also an issue. “What we're asking from the cities is only that they regulate their developers,” says Kolb. “But many officials don't see the point. They don't under-

stand that the farther up the watershed you develop, the more flooding downstream.”

The Regional Board's Jan O'Hara and Kolb both agree that polluted urban runoff is the biggest threat to the Bay, yet, says O'Hara, the regulatory drivers “just aren't there” right now. She says she would love to see more stormwater retrofit projects and that TMDLs, mitigation or mitigation trading, or stricter regulation might be future solutions. At a recent meeting of the American Public Works Association, Kolb suggested that establishing numeric effluent limits for stormwater may be the only effective way to deal with urban runoff.

Many folks agree that the time to do more is now, especially since the Bay and many of its tributaries are habitat for several endangered and threatened salmonids as well as the proposed-to-be-listed green sturgeon. Says the Bay Institute's Tina Swanson, “With the Clean Water Act, we addressed and greatly reduced most of the point-source pollution into the Bay. But stormwater/urban runoff is the biggest contributor into the Bay of a number of toxics that exceed water quality parameters, and I don't think we are adequately addressing nonpoint source pollution in the form of stormwater/urban runoff. Compared to Portland—and a number of other cities—we are still behind the curve.” BayKeeper's Sejal Choksi concurs, and says even the current, very liberal stormwater requirements aren't working (see sidebar p.2).

Kolb points out that one reason cities are not more enthusiastic about dealing with stormwater is that they are broke. Cities were able to use federal and state grants to cover as much as 80% of the cost of building better sewage treatment plants, says Kolb, but there are no equivalent programs for stormwater. Yet over the past several years, Portland has actively sought—and received—several million dollars from U.S. EPA for innovative stormwater projects. Seattle spends \$20 million per year on capital projects funded by drainage fees, including new softer, greener replacement infrastructure. The Bay Area may not be able to use cost as an excuse much longer: \$14.25 million will soon be made available under Prop. 40 for stormwater projects, according to the

Board's Carrie Austin, with concept proposals to be submitted September through November 2005, and grants awarded in June 2006. The S.F. Estuary Project's small grants program can also offer funding for innovative stormwater projects.

But beyond cost lies another challenge. Tom Richman with consulting firm Catalyst and author of *Start at the Source*, BASMAA's storm-

CITYBEAT

PERMEATING SAN FRANCISCO



Jane Martin

When San Francisco resident Jane Martin took a jackhammer to the concrete in front of her Mission District home, she did it for two compelling reasons. “I'm from Iowa,” says Martin, “and I'm not used to so much concrete and so little room for plants.” The second reason was that Martin was tired of the sewer backups that plagued her low-lying neighborhood—and realized that by creating more permeable surface she might be able to help the situation just a bit.

What she didn't foresee was that before the concrete could start flying, she would have to jump through endless bureaucratic hoops. To take away six feet of sidewalk—which left eight feet for walking—Martin had to get a permit and a variance (because she wanted to take out more than 10% of the existing sidewalk), provide a design plan, and give 30-days notice to the neighbors, none of whom objected. Martin says the permitting process was intimidating and difficult; it also cost her \$250, a fee that was recently increased to \$780.

Martin persevered, and in 2004, founded Plant*SF (Permeable Landscape as Neighborhood Treasure), an advocacy organization working to get San Francisco to streamline the process of creating more permeable landscape and to educate the public about its benefits.

Her efforts are starting to pay off. This spring, the S.F. Department of Public Works helped Martin expand her project to most of Shotwell between 17th and 18th Streets, says the S.F. Bureau of Urban Forestry's Paul Sacamano. The Department surveyed all the block residents and found that at least 80% percent agreed to have the concrete in the public right-of-way removed. The Bureau hired a landscape architect, removed the concrete, and is now putting the finishing touches on the landscaping, which property owners will maintain and water.

Says Sacamano, “It's the beginning of something that could reduce flooding if it's implemented on a wider scale. It's important because it's the first of its kind; there may be others like it in the future.”

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CCMP AWARDS

CALL FOR NOMINATIONS
for Outstanding CCMP
Implementation Projects

Outstanding environmental projects that help implement the CCMP will be honored at the State of the Estuary Conference in October. The CCMP is a blueprint for restoring and maintaining the chemical, physical, and biological integrity of the Bay and Delta through 145 recommended actions dealing with aquatic resources, wildlife, wetlands, water use, pollution prevention and reduction, land use, public involvement and education, and research and monitoring. Nominated projects must:

1. Implement an action in the CCMP.
2. Be completed or show measurable results.
3. Avoid controversy if possible.
4. Not have been mandated.
5. Be a significant accomplishment.

Awards will be given with consideration to different geographical locations around the Estuary, different CCMP program areas, and in both the private and public sectors.

DEADLINE FOR ENTRY SUBMITTAL:

JULY 29, 2005. Submit nominations to Friends of the Estuary, P.O. Box 791, Oakland, CA 94604-0791, (510)622-2337 or kmcdowell@waterboards.ca.gov



FARMING

PEST CONTROL IN A NUTSHELL

In Scott Hunter's almond orchards in Merced County, long patches of grass separate the rows of trees. But they aren't there to entice picnickers. By providing a home for beneficial insects—bugs that eat almond crop-destroying insects like mites, ants, and aphids—the grass is part of Hunter's environmentally friendly pest management strategy.

Like Hunter, most California almond growers use a gentle pest control approach that nurtures beneficial insects, plants, and animals while putting the kibosh on pests. Called integrated pest management (IPM), this method emphasizes surface and groundwater protection. It recommends using only the least-toxic pesticides and only as a last resort.

"The almond industry is a poster child when it comes to environmentally responsible pest control," says the California Almond Board's Chris Heintz, who directs pesticide research. "It's way ahead of other fruit and nut industries."

Almond growing practices haven't always been so kind to the environment. Twenty years ago, diazinon, an organophosphate that kills insects by attacking their nervous systems and also harms fish, birds, and mammals, was applied annually in almond orchards throughout the state. Known as a "dormant" spray because it was used during the winter when trees "sleep," diazinon warded off a broad spectrum of pests before they ever got a foothold. It also ran off into gullies, sloughs, and creeks, and found its way into rivers. According to a 2004 California Department of Pesticide Regulation (CDPR) report, diazinon has turned up in the San Joaquin and Sacramento rivers at levels high enough to kill aquatic life.

Fortunately, almond growers have found that they can usually get along fine without it. Their diazinon use fell from 115,000 pounds in 1997 to 63,000 pounds in 2001, a 45% drop. Credit for this drop goes largely to research and educational efforts by the University of California Cooperative Extension, often funded by the Almond Board.

Now IPM has reached a new level as a result of a five-year study funded by a \$500,000 pest management grant from CDPR. Completed in 2004, the study was undertaken by the public-private Pest Management Alliance, composed of the Almond Board, U.C. Cooperative Extension farm advisers, state IPM advisers, and the Almond Hullers and Processors Association. The Alliance conducted demonstration projects in Kern, Stanislaus, and Butte counties. Based on the study's findings, it published *The Seasonal*

Guide to Environmentally Responsible Pest Management in January. "The guide connects the research into an [ecosystems] approach and recommends different pest control activities for each season," says the U.C. Cooperative Extension's Roger Duncan. "It considers the tradeoffs: When you kill damaging insects, you might knock off the beneficial ones too."

"The guide emphasizes that constant orchard monitoring is the key to controlling pests and to being a good orchard steward," says Heintz. In a nutshell, monitoring means trapping insects early in the year to see what insects are there and how many, says Duncan. "If the insect level is low, below the economic damage threshold, nothing needs to be done. The study compared orchards that weren't sprayed with orchards that were. It looked at yields, damage, the environment, and beneficial insects, and the findings for not spraying were encouraging," says Duncan. "They should help get more growers to choose not to spray."

But if traps show that the insect level is high, the grower should use a targeted pesticide, one that wipes out only the peach twig borer or the navel orangeworm, says Duncan. With the help of computer models and detailed temperature data, the grower can pinpoint the two- or three-day period when spraying will work best, so long-lasting sprays aren't necessary.

If spraying is necessary, growers can minimize the amount of pesticide spray used in a host of ways. They can avoid spraying when rain is forecast or when the wind kicks up. Hunter says he uses a machine with a sensor that turns the spray off between tree canopies and at the end of rows. To reduce the amount of pesticides draining into the river, he plants cover crops that absorb the pesticide-laden water.

To prevent insects from over-wintering in the trees, the guide suggests shaking off the "mummy" nuts still clinging stubbornly to the branches after the harvesters have been put away, and then chopping them up, says Blue Diamond Growers' Dave Baker. No more than two nuts should remain on each tree. In the rare cases where a grower needs a preventive dormant spray, the guide recommends an oil spray.

The almond growers are using environmentally safe practices voluntarily, and staying ahead of the regulators in part because of the Almond Board's research and outreach efforts, notes Baker. The research should also help the regulators—as they develop the total maximum daily loads (TMDLs) for pesticides for the state's rivers, they'll have a lot of good science to base them on.

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NEXT GENERATION

OPM (OWL PEST MANAGEMENT)



"I don't want her to hear this part," says Dennis Christiansen, a seventh-grade science teacher at Fresno's Tenaya Middle School, putting his hands over Rosie's ears, and then whispering, "They're not that wise. But they're the best at what they do."

Rosie is a barn owl, too badly injured to return to the wild. And what barn owls do so superlatively well is kill pocket gophers and other rodent pests. A growing owlet can eat its own weight in rodents nightly. For the past 13 years, Christiansen and other Fresno and Clovis teachers have partnered with licensed wildlife rehabilitator Cathy Garner to enlist these ghost-faced predators in helping farmers and growers cut back on their rodenticide use.

Garner founded the Fresno Wildlife Rehabilitation Center 31 years ago. She provides schools—four this year—with orphaned barn owls that students help raise for release. "Gayle Peck at Red Bank Elementary School in Clovis wrote an entire curriculum around the owls," Garner remembers. "It covered science, language, music, everything, and won a national award."

About 50 orphans each year come in from all over the San Joaquin valley. With fewer barns and hollow trees, many barn owls now nest in palm trees, and they're often blown out. "Once the Highway Patrol brought some in," says Garner. "Someone hit a palm tree and knocked a whole nest of barn owls out." Others are picked up by wildlife agencies or private citizens.

"We get them before they can fly," Christiansen explains. "The owls we have now, in mid-April, look like little fat old men—too fat to get up and walk around." Eating flash-frozen mice and surplus chicks donated by poultry growers, they bulk up, then drop to their one-pound flying weight.

"For the kids, it's love at first sight," he adds. "The teachers become celebrities: 'You're the guys with the owls.'" Some students initially balk at preparing the owlets' meals, but "we'll have a few kids volunteer, and within half an hour the girls are battling the boys to do it." The students also tease apart owl pellets to learn about the birds' diet, and sharpen their math skills by charting the owls' growth. Physical contact with the birds is kept to a minimum, except when weighing and measuring them. "We keep them in groups so they'll stay wild and not bond with their caretakers," Christiansen says.

Students are transformed by caring for the owls. Garner remembers Angel De La Cruz, who was involved in gang activity and already expelled from one school: "He had a crusty exterior but a soft center, and a real affinity for birds of prey." When told he could continue working with the birds only if he broke with the gang, his family refinanced their home to have the gang tattoos surgically removed from his knuckles. De La Cruz became the first male in his family to graduate from high school, and went on to a good job and a family of his own. Another student returned from living on the streets of San Jose to work with Garner's program, and stayed clean and sober for the owls. "We've also had straight-A students, one of whom is now in U.C. Davis' veterinary program," Garner says.

After their stint in school, the owls are moved to a mew—a flight cage. "Then we release them in outlying areas where gopher damage to vines and orchards is heavy," Garner explains. "One pistachio grower was spending \$45,000 a year on gopher control and not even making a dent. He wanted to start with 200 nest boxes for barn owls. Several farmers and ranchers in the San Joaquin Valley have been able to reduce rodenticide costs by tremendous amounts by using owls." The owls won't always stay where they're released—banded Fresno graduates have been found as far away as British Columbia—but others settle just a few miles from their release site.

"The U.S. Fish & Wildlife Service told us ours was the first program they'd encountered where everybody wins," says Garner. "The students have a tremendous learning experience—and parents tell us it's amazing how kids suddenly begin to do their homework. Classroom discipline improves. The owls get incredible care. The farmers and ranchers benefit, and find common ground with environmentalists." And fewer pesticides enter the San Joaquin watershed, and ultimately the Estuary, as farmers trade chemical warfare for the services of nature's stealth bombers.

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SPECIES SPOT

TURTLE TRANSPLANT

It may be a Superfund site, but the Northern Channel at Moffett Field is home to a thriving population of western pond turtles—maybe 30, according to NASA wildlife biologist Chris Alderete. The weedy ditch is one of the few South Bay locales where exotic red-eared slider turtles haven't displaced native pond turtles. Although not federally protected, western pond turtles have been hard hit by habitat loss and are a California Species of Special Concern.

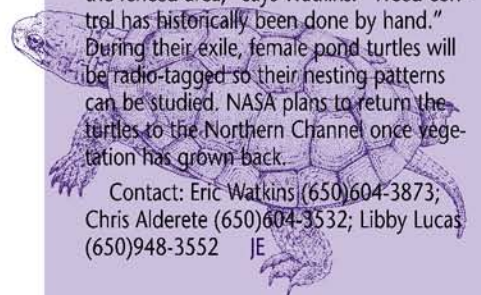
NASA has operated the base since the Navy pulled out in 1994. But the Navy remains responsible for environmental cleanup and plans to attack the Northern Channel's residue of PCBs, DDT, and heavy metals by draining the channel and removing sediment. "During remediation, the area will be totally denuded," says NASA spokesman Eric Watkins. "There'll be no habitat, food, or cover for the turtles." The agency plans to move the reptiles to temporary quarters in a pond on Moffett Field's golf course.

The turtle roundup will likely take place this summer, while they're active; they'll be captured in traps and nets, or by divers. Watkins says the golf course pond, already home to three turtles, will be fenced off, and shoreline habitat will be enhanced for basking and possible nesting.

Libby Lucas, who monitors NASA activities as a member of Citizens Committee to Complete the Refuge, is unhappy with the proposed relocation. "They have to clean up a whole length of channel because the contaminants have migrated," she says. "They could do half of it at a time and move the turtles to the other half." She's also concerned about the risk of predation at the pond, and the effect of chemical runoff from the golf course.

But Watkins and Alderete insist the pond is free of bullfrogs and bass that are known to eat hatchling turtles, and Alderete says raccoons are "few and far between." "We don't plan any herbicide treatment within the fenced area," says Watkins. "Weed control has historically been done by hand." During their exile, female pond turtles will be radio-tagged so their nesting patterns can be studied. NASA plans to return the turtles to the Northern Channel once vegetation has grown back.

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OUTREACH

THE DELTA CONNECTION

"Keep the Delta Clean. You Play In It. You Drink It Too!" is the no-nonsense slogan of a new program to preserve and protect recreation, drinking water quality, and environmental health in the Delta through education, pollution prevention, and water quality monitoring. The program is a joint effort of the Contra Costa County Public Works Department, the California Coastal Commission, and the Department of Boating and Waterways.

To help boaters stay green, Dockwalkers (volunteers who train boaters and other outdoor enthusiasts about environmentally sound boating) will give away 10,000 boater education kits at various Delta marinas, recreational club meetings, boat launch ramps, and boat shows during the 2005-2006 boating seasons. The kits include the "ABC's of California Boating Law," oil-absorbent pads, information on invasive Delta species, and a comprehensive Delta Recreational Boating and Environmental Services Map that features clean boating tips and shows the location of 43 certified used-oil collection centers.

The program is also working to establish pollution prevention policies and infrastructure—sewage pumpouts, hazardous waste drop-off collection centers, pet-waste collection points, and refuse/recycling containers—at five pilot marinas. The drop-off centers will accept used motor oil and filters, oil/fuel-absorbent bilge pillows and pads, marine batteries, and empty oil bottles.

Finally, the Contra Costa Public Works Department is conducting water quality monitoring to gather baseline data on hydrocarbons and pathogens. The sampling is performed prior to, during, and following major boating holidays.

David Johnson of California Boating and Waterways says, "We want to enable boaters and marina operators to work with us in a positive way. Too often in the past, there was an emphasis on the negative side of boating which I believe was counter-productive. Right now we are very happy with the direction of the program."

The Coastal Commission's Vivian Matuk concurs. "Boaters want to do the right thing, and our goal has always been to help them find out exactly how. It's difficult to measure education; it takes time. But we've had very positive input so far."

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DELTA CONTINUED

crisis in the Delta and when they knew it. In a May 12 letter to secretaries Norton and Chrisman, Miller and 15 other members of Congress wrote, "Any number of actions affecting the Bay and Delta has been allowed to go forward with the assumption that those actions could coexist with a recovering ecosystem and improved fish populations. If such assumptions are no longer operational, we may need to rethink those actions."

The reports of the demise of the Delta food chain come at an inauspicious time for both the State Water Project and the Central Valley Project. BurRec is currently approving new contracts for the CVP that will store and deliver between seven and eight million acre-feet of water—90% of which goes to agriculture—for the next 25 years. Spokesman Jeff McCracken says BurRec is moving ahead with the contracts.

"We have no intention of holding off on what is a separate issue because the contracts don't call for any higher exports or changes in water to districts," he says.

At the same time, the SWP has tried to move forward on the CALFED Record of Decision, which includes plans to increase pumping rates in the Delta to 8,500 cfs.

But, says the Department of Water Resources' Jerry Johns, "We're in a different environment than we expected to be in when the ROD first passed. We need to take the fish decline into consideration."

This makes it clear that the agencies are taking what's happening in the Delta very seriously—even if they can't yet put their fingers on just what's gone wrong. Together, state and federal agencies have an annual budget for scientific and ecological studies under CALFED. What's left of that budget amounts to \$14 million, and most of this is being redirected to the Delta—either to new studies to be conducted this summer and fall or to mine existing data to

perform what Johns calls a type of "triage," to better understand what has happened to the food web. At the same time, an additional \$1.5 million will be spent looking into the Delta fish depletion. "This is a very serious thing," Johns says. "You don't see these kinds of ecological shifts this often."

Money for studying the Delta is music to Herbold's ears. He says the two water projects have been required to show that their projects' operations don't adversely affect the environment but they've not had to show what the effects are once, say, agriculture users finish with their water and send it back to the system. "This year, agriculture in the Central Valley is going to have to answer the question, 'is the water toxic?' We don't know that and we should," says Herbold.

Among the things scientists will do is collect water samples in much the same way that they've assessed the levels of smelt, shad, and bass in the Delta. They'll collect the samples at more than 100 stations up and down the Delta to see what's in the water in each spot. From these samples, they can calculate a toxin index to give them an idea of which toxins are in the water—and sediment—and in what quantities. The study design has been peer reviewed by the CALFED science program, and there will be workshops in the fall to check in on what researchers are finding and assess where the studies need to go next.

Perhaps a part of any study should include some old-fashioned shoe leather sleuthing to talk to folks like Craig Tofanelli of Larry's Bait and Tackle Shop in Stockton, which catches and distributes shad to Stockton, Rio Vista, and Lodi. Tofanelli believes the problem with the disappearing shad is two-fold. One is illegal shadding that is not being policed by Cal Fish & Game. The other is toxins—but from a source other than agriculture and herbicides. The nearby Manteca Water Slides closed down recently and drained its pools into the San Joaquin River, creating a large chlorine spill. At the same time, Stockton's aging sewer system is spewing raw sewage. "This creates a Delta fungus that you can notice," Tofanelli explains. "One out of every 20 shad is full of red spots from corrosion and is bleeding."

Despite the seemingly dire situation, Herbold is hoping for the best. "We're going to find things that haven't been studied before and that's the silver lining."

Contact: Bruce Herbold (415)972-3460; Jerry Johns (916)653-8045 KC



PLACES TO GO & THINGS TO DO



WORKSHOPS & CONFERENCES

JUNE
28
TUESDAY

COLLABORATING ON A FOOD AND FARM BILL

TOPIC: How the 2007 Farm Bill can support alternative agriculture research, create opportunities to improve nutrition, and provide access to healthy food; incentives to farmers for conservation; and solutions to inequities in current farm policy.
LOCATION: Sacramento
SPONSOR: California Coalition for Food and Farming
<http://www.calfoodandfarming.org> or (916)447-1711

JULY
21-22
THURS-FRI

2005 WATER LAW & POLICY BRIEFING

TOPIC: Colorado River issues, the latest on CALFED, and urban water management.
LOCATION: San Diego
SPONSOR: Water Education Foundation
<http://www.watereducation.org/eventsdetails.asp?id=25>

SEPT
7-9
WEDS-FRI

PLASTIC DEBRIS, RIVERS TO SEA 2005 CONFERENCE

TOPIC: Plastics in the marine environment, with the goal of fostering action to stem the flow of plastics from urban areas to the marine environment.
LOCATION: Redondo Beach
SPONSORS: Algalita Marine Research Institute, California Coastal Commission & others
Miriam Gordon (415)904-5214 or mgordon@coastal.ca.gov
http://www.algalita.org/rivers_to_sea_conference.html



HANDS ON

SEPT
17
SATURDAY

CALIFORNIA COASTAL CLEANUP DAY

TOPIC: Help other volunteers clear beaches of trash.
LOCATION: Various California beaches
SPONSOR: California Coastal Commission
www.coastforyou.org;
(800)COAST-4U

Save the Date!

COMPREHENSIVE CONSERVATION & MANAGEMENT PLAN WORKSHOP

FRIDAY, AUGUST 5, 2005

1515 Clay Street, 2nd Floor, Room 2
Oakland, California

Help re-evaluate CCMP priorities—are there new issues that need attention? How is the institutional structure for implementing the CCMP working? Help “truth test” the draft CCMP Report Card being prepared for this October’s State of the Estuary Conference.

Contact: Marcia Brockbank (510)622-2325 or Mbrockbank@waterboards.ca.gov

NOW IN PRINT & ONLINE

The Behavior and Ecology of Pacific Salmon and Trout. Thomas Quinn, University of Washington Press. February 2005.

Calendar of Events. Water Education Foundation. 2005.
<http://www.watereducation.org/events.asp>

California Agency Watershed Management Strategic Plan: Draft 18-Month Action Plan. California Resources Agency & California Environmental Protection Agency. March 2005.
<http://cwp.resources.ca.gov/uploads/images/40/WatershedStrategicPlan.pdf>

California Water Plan Update 2005. California Department of Water Resources.
www.waterplan.water.ca.gov

Design Guidelines for Tidal Wetland Restoration in San Francisco Bay. Philip Williams & Associates & Phyllis M. Faber.
[Abuell@scc.ca.gov](http://www.abuell@scc.ca.gov)

South Bay Salt Pond Restoration: Interactive Map. California Department of Fish & Game, California Coastal Conservancy & U.S. Fish & Wildlife Service. 2005.
<http://www.southbayrestoration.org/interactivemap>

Vision for Restoration of South Bay Salt Ponds: Dream or Fugue? Citizens Committee to Complete the Refuge. Winter 2004-2005.
florence@refuge.org

Walking the Flatlands: The Rural Landscape of the Lower Sacramento Valley. Mike Maddison.
www.heydaybooks.com

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Save the Date!

SEVENTH ANNUAL STATE OF THE ESTUARY CONFERENCE: CELEBRATING SCIENCE & STEWARDSHIP

OCTOBER 4-6, 2005

Henry J. Kaiser Convention Center • www.abag.ca.gov/events/estuary
Topics include—but are not limited to—habitat restoration, estuarine water supplies, and estuarine water quality.

CALL FOR POSTERS: Submit abstracts (no longer than one page, single spaced, 12-point type) by July 15, 2005, to clbrown@usgs.gov; or call (650)329-4477.

CALL FOR NOMINATIONS: See sidebar on page 4.



OUTSIDE THE PIPE CONTINUED

water "bible," says that while there are some innovative examples of onsite stormwater management around the Bay, "the Bay Area is so splintered that it's hard to make a change. Portland has Metro and other governmental bodies that are more focused on these things."

Meanwhile, opportunities for stormwater retrofits are everywhere around the Bay. Some of them, like the new traffic-calming islands just installed in Berkeley—are being missed. While the islands do create more permeable surface, grading the streets to drain into the islands via curb cuts would have allowed stormwater to be filtered by the vegetation—instead, stormwater still flows straight into the storm drain inlets. Palo Alto may soon have a chance to treat stormwater more intelligently. That city recently raised its stormwater fees from \$4.25 to \$10 per month per customer, with the aim of alleviating localized flooding, according to the

city's Phil Bobel. He says that most of the money will be spent on "capital projects that increase the capacity of the storm drain system," but adds that there is no reason innovative stormwater projects couldn't be part of the solution. "Now that the money is there, we will want to explore all of our options," says Bobel. Meanwhile, the San Francisco Watershed Council is planning two demonstration retrofit projects: one of a parking lot and another of a residence, according to the Council's Katie Pilat.

The Bay-Delta watershed has a long ways to go, says Kolb. "We should be doing more, but requiring retrofits is politically a real challenge. In some ways, it's more attractive to attempt new designs on new development where you have a clean sheet of paper." That sentiment is echoed by Eric Anderson with the city of Mountain View. "Change is hard and slow," he says, "and people are concerned about making sure swales and other more natural drainage systems can handle the flows and not flood out the streets." Andrews says Seattle started off with

projects that were "small enough not to be too threatening." And, she says, monitoring has proven that the projects can, in fact, handle the level of storm for which they are designed.

Kolb says he is pondering the idea of having developers measure rainfall and runoff to determine whether that relationship—the hydrograph—has been changed or successfully mitigated. Restoring a more natural hydrograph—by mimicking nature—is exactly what Seattle is attempting to do, according to Andrews. "We took the water, put it in pipes, and now we have to put it back into the landscape again." In other words, we may have a chance to turn runoff into an asset. Says Andrews, "Why put it back the way you did it wrong in the first place?"

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