W E T L A N D S / S P E C I E S

Mitigation

The Ecosystem Marketplace's Daily Coverage of the 2006 Mitigation/Conservation Banking Conference

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Banking Tests New Waters

By Eileen Campbell

While most conservation banks focus on terrestrial species, fish banking is suddenly a hot topic. The Ecosystem Marketplace finds out who is talking and reports on what they are saying.

Nestled in California's Central Valley between Sacramento and Stockton, California's Delta gathers up five rivers, forming a network of approximately 1,000 miles of waterways flowing into the Pacific Ocean. The Delta's rivers, streams and marshes host diverse fish species, from the three-inch-long delta smelt to the green sturgeon, which can span more than seven feet.

Spanish explorers who spotted the Delta in 1772 described it as "a labyrinth of lakes." These days, deep-water shipping channels run to the inland ports of Sacramento and Stockton, and recreational users drop fishing lines off docks or navigate the waters in everything from powerboats to inner tubes. Pollution enters the river from urban and agricultural areas; water pumps from the Delta to Central Valley crops and Southern California's suburbs. An extensive levee system protects valuable farmlands, neighborhoods, and even downtown Sacramento from flooding.

The tiny delta smelt, with its steely blue sheen and surprising cucumber smell, was once one of the Delta's most abundant pelagic fishes.

(photo courtesy of USFWS)

While much of this transformation has helped California's economy become the seventh largest in the world, the changes have not helped the Delta's resident fish. The nonprofit Center for Biological Diversity reports that 12 of the 29 original indigenous fish species in the Delta have vanished or are threatened with extinction.

The tiny delta smelt, with its steely blue sheen and surprising cucumber smell, was once one of the Delta's most abundant pelagic fishes. But populations have plummeted; in 2005, the delta smelt's abundance was less than three percent of what it was in 1993.

The Next Frontier

You hear it in the elevators shuttling people back and forth between the lobby and the conference rooms. You hear it in the plenary speeches and in the questions from the audience. You hear it as a sub-text in the workshops and focus sessions. And the true test: You hear as people push open the glass doors of the Portland Hilton and walk back into the wider world to hash out ideas for their next project.

What is "it"? At this year's National Mitigation and Conservation Banking Conference, the stacking of credits is the "it" topic on everyone's agenda. The proposed regulations' shift toward a watershed-based approach and their new focus on ecological uplift could pave the way for banks to sell credits for multiple kinds of conservation benefits – wetlands restoration, water-quality improvements, carbon sequestration, land preservation and the list goes on.

Since the Ecosystem Marketplace covers a wide range of market-based conservation strategies, we have been thinking about the issue of stacking credits for a while now. How do the puzzle pieces fit together? How do you maximize the environmental value of a piece of land while making sure that you are not "double-dipping" by selling the same unit of ecological uplift twice?

As we have traversed the hallways, lurked in the back of plenary sessions and scribbled notes during conference sessions in the process of covering this week's events, we've been listening carefully to people's answers to these questions. In today's newsletter, we wanted to share with you some of what we've heard and draw your attention to some of our coverage of the IT topic at this year's conference.

In the pages of this edition, you'll find a feature article about integrating conservation credits for endangered fish species into wetlands restoration in the California Delta, a special guest-editorial on the subject from one of the industry's legal eagles, a look at new tools to help measure ecological uplift and avoid double-dipping, the recorded thoughts of many of you about the promises and challenges of stacking, and a quick policy spotlight on the synergies between water-quality trading and mitigation banking.

We'll hope you'll enjoy our special look at the next frontier and then come back for more at the Ecosystem Marketplace where we cover markets for everything from carbon to salamanders

The Ecosystem Marketplace Team

Fish Banking

(continued from page 1)

To help bring back the delta smelt (and turn a profit), Wildlands, Inc. developed the country's first fish conservation bank in 1997. Conservation banks, which first emerged in California in 1995, are organizations that restore habitat for threatened and endangered species in exchange for government-approved credits to sell to projects impacting habitat elsewhere.

While most conservation banks focus on terrestrial species, fish banking is now garnering attention at the federal level: agencies such as NOAA's National Marine Fisheries Service and the U.S. Army Corps of Engineers are currently considering fish-specific banks for protecting threatened and endangered species.

In particular, NOAA Fisheries has been exploring conservation banking to protect several of the Delta's species – including the threatened Central Valley steelhead and Central Valley spring-run Chinook salmon, and the endangered Sacramento River winter-run Chinook salmon. Using a species-specific bank could create, preserve, and restore habitat for these species, says Howard Brown, a Sacramento-based NOAA Fisheries biologist.

Wildlands' delta smelt project may be the first in a string of efforts to push the boundaries of conservation banking into watery terrain.

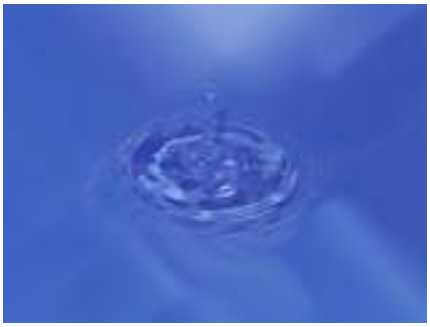
Opportunity Knocks

Salt is an important factor in smelt survival. Many fish can pump water in and out of their bodies to balance their salinity levels. Smelt don't have this natural balancing system, so they have to swim in water with the right salinity.

On the shores of Kimball Island, which sits in the heart of the Delta, brackish water rises from Suisun Bay; an inland tidal marsh ebbs and flows with saltwater. While studying the island in the early 1990s, Wildlands' workers realized this salt influx could provide prime habitat for delta smelt. Not long after, the bank began selling credits for delta smelt, planting thousands of cottonwoods, willows, and brush to restore shoreline habitat. The bank quickly ran through two miles of shoreline credits, and then opened up 100 acres of tidal marsh for delta smelt credits as well.

Tidal and freshwater marshes can also host juvenile salmon, which linger there for two weeks to two months before heading out to sea. Accordingly, Wildlands is working with NOAA Fisheries to create banks for ocean-bound fish. NOAA Fisheries' interest in conservation banking originally emerged through the agency's work with the U.S. Army Corps' Sacramento River Bank Protection Project, a long-term program to protect the Sacramento River's levees.

Natural river functions – including processes that create and maintain habitat for migratory fish – can be hit hard by bank protection and levee construction, Brown says. In working with Wildlands, Brown and others realized that fish conservation banking could help mitigate other projects impacting Delta habitat as well.



Tom Cannon, an ecologist who manages Wildlands' aquatic programs, says they're investigating 30 potential banking sites within the Delta. "Anybody that's going to impact an endangered fish species could compensate for their takes by buying into the conservation bank," he says. Likely candidates could be anyone from the state highway agency, CalTrans, to a Delta fisherman constructing a dock for a new boat.

Fish conservation isn't limited to the Delta. "In any place that you have growth nearby, you have opportunities for fish banking," says Craig Denisoff, president of the National Mitigation Banking Association.

For fish conservation banks to capitalize on these opportunities, regulatory agencies must first require mitigation for impacts on threatened and endangered species. The U.S. Fish and Wildlife Service, along with state agencies, regulates inland species like the threatened delta smelt. NOAA Fisheries is

the federal agency governing salmon species, steelhead, and the newly-listed green sturgeon, all species that migrate from fresh-water breeding grounds to the ocean.

An Umbrella Bank

One of the likely candidates for the first salmon and steelhead bank may be Fremont Landing, an old floodplain terrace at the confluence of the Feather River, Butte Creek, and the Sacramento River. Once a forested floodplain, the area spent nearly a century as farmland. Now when it floods, fish swim over what looks like a dirt field, Brown says.

A conservation bank could change that. Replanting riparian areas could provide shoreline habitat for fish from all three flows. And strategically placing downed trees and other woody material toward the center of the flow could also boost protected spots, as fish can move up and down in the water column, ducking behind logs and other debris to hide from predators.

Despite enthusiasm for fish banking, some basic ecological hurdles remain before the strategy can, or should, be deployed on a widespread scale.

Habitat repair in this biologically-significant spot could help fish from multiple rivers, Brown says.

NOAA Fisheries wants to create an umbrella bank for its species-banking program; individual sites, like the one proposed at Fremont Landing, would function under the larger banking system, with each site tailoring restoration to the intended species.

Brown anticipates that fish conservation banks would mitigate smaller projects, such as docks or boat ramps. In many cases, NOAA Fisheries instructs people to avoid in-river construction during the summer, when fish are most likely to be affected, and to replace vegetation. Conservation banks would increase mitigation options. "In a lot of places, where we wouldn't recommend much else, we could have something for them to do," Brown says.

The Corps, too, has its eye on fish conservation banking. The Delta's complex flooding system requires constant maintenance. Ideally, according to the Corps' Mike Dietl, there would be multiple banks up and down the river. This combination of private and public agencies, partnerships, and mitigation options would possibly reduce regulatory hurdles for projects that require mitigation.

"There's a definite market need out there," he says. How much demand, and how soon, will be determined by how much repair the levees need, and how much the Corps receives in federal funding for those repairs. If the money comes through, the Corps intends to develop on- or off-site mitigation responses, which could take the form of a mitigation bank.

With a bank up and running, the Corps could start purchasing credits as early as this year. "If we knew where we were going to do the mitigation up front, it would be a lot easier to attain regulatory approval," Dietl says.

No Field of Dreams

Despite enthusiasm for fish banking, some basic ecological hurdles remain before the strategy can, or should, be deployed on a widespread scale.

More specifically, the problem with fish conservation banks is that no one has direct evidence for the *Field of Dreams*-style promise: if they build it, fish will come. Fish suffer from a range of impacts – from dams blocking migratory paths to stream-clogging erosion – and it's not clear that improving habitat can tip the balance in favor of fish.

When fish populations are already low, even less is known about their needs. "There has never been a delta smelt egg found live in the wild," Cannon says. "There's not a lot known about these species because they're so rare." The smelt have never been spotted in the inland tidal marsh areas that Wildlands sells for delta smelt impacts, even though the habitat is thought to be suited for the species.

Salmon, both in California and up north, present similar challenges. "Salmon are just so difficult," says Ecotrust's Bettina von Hagen, who has conducted studies on the feasibility of salmon banking in the Columbia River system. There's very little scientific evidence that shows the relationship between habitat quality and salmon abundance, she says.

Clearly, the information gap concerning habitat quality and the population dynamics of different fish needs to be filled before fish banking becomes a 'go-to' strategy for every situation. Toward this end, however, von Hagen observes that conservation banks create incentives to jumpstart more extensive monitoring.

Poised for Growth

In fact, conservation bankers are considering focusing on fish in the Pacific Northwest. In Puget Sound, says Sky Miller, Wildlands' Pacific Northwest regional manager, "we've got properties that we're developing under the wetlands model that would be perfect for threatened Chinook salmon."

Based on Wildlands' work in wetland mitigation, it could take several years before a salmon bank was up and running, Miller says. But setting up a conservation bank could be quicker than putting wetland mitigation banks in place, he says, with fewer agencies supervising the review team for individual species compared to those on a wetland bank review.

NOAA Fisheries has been looking at the draft plan for salmon and steelhead banking since October, and the U.S. Fish and Wildlife Service is reviewing Wildlands' plans for more delta smelt banks. It's possible that a delta smelt bank could be approved in the next yaear, Cannon says.

Until then, Kimball Island keeps plugging along. Wildlands has sold 80 percent of the bank's credits for delta smelt. "As soon as it sells out," Cannon says, "we'll hopefully have another bank ready."

Cameron Walker is a regular contributor to the Ecosystem Marketplace. She may be reached at cwalker@naxw.org

Sessions I and II

Ecosystem Banking and Tools

I. The Big Picture

Wednesday's concurrent sessions kicked off with an exploration of the big picture. Peering a bit beyond the silos of wetland, stream, or species banking, panel members discussed their efforts to create holistic ecosystem mitigation.

William Warncke, statewide mitigation coordinator at the Oregon Department of Transportation (ODOT), presented his agency's innovative statewide mitigation banking strategy. Warncke highlighted three key aspects of the strategy: collaboration, ecosystem focus, and a new assessment methodology.

Collaboration: From the outset, ODOT drafted the statewide agreement and operating manual in close partnership with an alphabet soup of state and federal regulatory agencies.

Ecosystem Focus: A set of 12 Eco-provinces with defined priorities furthers ODOT's ability to provide regionally significant mitigation that contributes to the recovery of habitat function.

Assessment Methodology: Unlike traditional mitigation banks trading credits for restored acres in a specific service area, ODOT's Habitat Assessment Method creates a common currency based on the assessed ecological value of any given parcel of land in Oregon. "Habitat value is a statewide currency," said Warncke. To bring this system into a regulatory driven environment, the banking strategy relies on "backstops" that correlate with federal mitigation requirements. .

In the second panel presentation, Sara Vickerman, senior director of Defenders of Wildlife's Biodiversity Partnership, summarized the current status of the Willamette Partnership's Willamette Ecosystem Marketplace - an effort to create offset payments for multiple ecosystem service impacts in Oregon's Willamette Valley. The Willamette Valley has over a decade of biodiversity planning and over 10 conservation strategies and priority plans. Vickerman wishes to synthesize these in order to start implementing market-based approaches to conserving and restoring the region's ecosystem services.

The Partnership plans to harness people's willingness to pay for sustainable development toward the creation of a market in impact offsets. Under the scheme, private developers, public developers and other businesses will pay for ecosystem service offsets that demonstrate their sustainability.

Recently, the Partnership received an EPA Targeted Watershed Grant to help them realized this goal. The grant provides funding to focus on setting up a trading platform for water quality transactions. The plan will require point source polluters to offset their emissions through restoration projects that improve water quality. Looking beyond this isolated project, Vickerman explained, "We desperately want to get beyond the water quality trading silo."

Finally, Mark Sudol delivered a presentation for Jennifer Moyer, regulatory program manager for the U.S. Army Corps of Engineers. He talked about the Corps' book: Eco-Logical. The book is a guide to making infrastructure development more sensitive to wildlife and ecosystems through greater interagency cooperative conservation. More specifically, Eco-Logical outlines a cycle in which integrated planning leads to ecosystem-based mitigation. Mitigation projects then provide performance measures that, in turn, feed back into integrated planning. To help coordinate this process, the Corps has created a Regional Ecosystem Framework (REF) that essentially maps where mitigation can and can't happen, directing conservation toward high priority ecosystems.

II. Tools of the Trade

Susan-Marie Stedman, wetland team leader at the National Oceanic and Atmospheric Administration, moderated the morning Tools and Technology session on Wednesday. First up among the speakers was Thomas O'Neil, Director of Northwest Habitat Institute.

O'Neil described a new accounting and tracking mechanism that he thinks represents a paradigm shift in environmental banking – or "E-banking," as he calls it. Habitat Value (HV) implements a new currency for habitat assessment and offers an accounting process that can be consistently used across resource types. In contrast to acre-by-acre assessments, he maintained, HV methodology uses a triad approach for a site area, focusing on functions, habitat, and species. This allows separation of wetland values from species values, and prevents double counting. O'Neil led his audience through a condensed HV calculation for one of Oregon Department of Transportation's mitigation sites, Mirror Lake, illustrating how a Baseline HV (impacted area) and a Future HV (post-mitigation) determine the ecological uplift value. "We're trying to balance environmental complexity with simplicity of use," O'Neil explained. In recapping, O'Neil listed how the HV method can be applied to debit/credit determination for banking, species-specific accounting, and the calculation of cumulative HV over time.

The subject of the session next turned to bottomland hardwoods with a presentation by Ken Dalrymple, a wildlife biologist with U.S. Fish and Wildlife Service. After a quick introduction, Dalrymple jumped into his explanation of "The Walk-Away" system, which combines physical and environmental criteria to increase survivability of planted tree species. The planting method utilizes competition through cover crops to reduce competition; a 5-foot tree height to prevent extended inundation from flooding and to reduce wildlife forage; and a high quality planting stock (RPM tree types). The Walk-Away system has been used for hard mast trees, and Dalrymple emphasized this point throughout: "Again, I'm talking about oak trees – I'm not talking about cotton trees, ash trees, maple trees." He presented a series of slides to illustrate implementation of the Walk-Away system by multiple agencies, and its success in ensuring survivability and meeting criteria outlined in a mitigation banking instrument. "We wanted to plant it, and never come back. And that's exactly what we did."

Cynthia Robinson, president of Robinsong Ecological Services, rounded out the session with a discussion of calculating credits for stream mitigation banking. "This is one of the more convoluted, difficult issues to talk about in stream restoration," she began. Raising an emphatic point about the need to "[keep] the resources localized," Robinson encouraged the room to understand the unique opportunity for stream restoration. "If we can create appropriate models," she said, "then we won't have hotspots…in rural areas. We need to keep it green in urban communities." Robinson addressed some of the principal challenges in credit calculation formulas and assessment methodologies, focusing on the length of a typical monitoring period. Describing how ecological time frames differ from the much shorter business horizon, she stressed the importance of balancing ecological and business life cycles: "What works for the business model? What works for the environment? What works for permittees? – We need to figure this out."

Sessions III and IV

Uncharted Waters & Business of Banking

Iii. Uncharted Waters

Drawing entirely from accounts in the Pacific Northwest, session three's "Banking In Uncharted Waters" explored the experiences of banking programs and bankers in Washington and Alaska.

Lauren Driscoll, wetland manager for Washington State's Department of Ecology set the scene by asking whether "uncharted waters" evoked images of sailing off into an exotic sunset on gentle waves or straddling the helm with white knuckles, scraping up against a sharp reef. As you may have guessed, the latter proved more accurate.

Gail Terzi, an environmental analyst with the Army Corps in Washington, began the presentations with a summary of her agency's recent efforts to enable mitigation banking in Washington. In 2004, they launched a pilot project involving 6 proposed mitigation banks. Since then the state has approved one entrepreneurial bank and one WSDOT bank. Four others have been put out for public notice.

"We're in our terrible twos," explained Terzi, referring to the project's age and the difficulty of getting banks approved. So far the WA Army Corps has been mired in complex service area delineation, ad hoc procedures, credit determination, lack of human resources, and the inability to move from a reactive to proactive posture; all leading to a slow bank approval process of about 2 years. While not optimal, this is the national average.

The second panel presentation mirrored the similar frustrations from the private banker's perspective. Jennifer Thomas, senior scientist with Habitat Bank in Washington, detailed the experiences of Snohomish Basin Mitigation Bank. The bank was first proposed in 2002 and has just this January had its first 0.6 credits released for sale. The 225-acre bank eventually hopes to produce 167 credits, but the approval process has been excruciatingly slow. In addition to tactical frustration and risk, Habitat Bank has sunk considerable resources into a bank that has yet to generate a single credit sale in return.

"We want a faster process," explained Thomas, listing the myriad stumbling blocks posed by local regulations.. Despite these hardships, Thomas gratefully acknowledges the political support and regulatory leadership provided.

Teri Camery, a city planner for Juneau in Alaska, gave the final presentation. Camery told the story of the city's first and only mitigation bank. Expanding tourism and mining is increasing pressure on the area's wetlands, she explained, and so the city has established the Duck Creek Mitigation Bank to help mitigate for the impacts. First proposed in 1992, the bank took over a decade to establish. But, with foresight, the bank is designed as an "umbrella agreement" to allow for easy expansion to other sites if the initial tract proves successful.

The take-home message of the "Uncharted Waters" session is that the Pacific Northwest region is relatively new to mitigation banking and feeling some growing pains. But, while they may sink a few ships, they are, as the session title implies, charting the waters for smoother navigation in the coming years.

IV. Business of Banking

Questions raised by conference participants during a session on "the business of banking" revealed the strength of their interest in understanding successful business strategies for mitigation banking.

Moderated by George Platt, President and General Counsel of The Wetlandsbank™ Group, the session provided perspectives from the business side. It's aim, as Platt articulated in introducing his panel, was to provide "lessons learned over the years from people who have been in and around the mitigation banking industry." Indeed, the expertise up front was laudable: David John, CEO and Chairman of Miller Legg & Associates, Inc. and Chairman and Co-founder of the The Wetlandsbank™ Group; Jeff Kauttu, President of Kauttu Valuation, a real estate economics and valuation firm in St. Augustine, Florida; and Sheri Ford Lewin, Vice President of Mitigation Marketing, LLC and recently-elected Treasurer of NMBA.

Titling his presentation "Challenges for a successful mitigation banking business," John emphasized the need for an experienced team to make sound decisions about profitable mitigation options, a lesson he learned early on as an engineer, an ecologist, an entrepreneur, and an investor. John's main strategy is the use of a tool called the Mitigation Bank Matrix©. Referencing eleven criteria projected on a PowerPoint grid, John explained the tool's categories for project evaluation and its scoring method, running through a few examples to illustrate the process. "One of the toughest things in mitigation banking is trying to figure out what your market is…it's not just a question about profitability - it's about funding," he said. "The next step is to weigh impacts and attitudes of the various regulatory agencies." Often evaluating five or six potential mitigation banks at a time, the matrix helps determine which site will be most successful and profitable. "The idea behind this process is to bring business discipline to biologists, and economic discipline to engineers," he reiterated during the Q&A.

Kauttu switched gears and spoke to the group about the art of appraisal. "When I tell people I appraise endangered species habitat and wetlands," he quipped, "I just get blank stares – I'm used to it."Kauttu shared his tips on getting the maximum use out of an appraisal, from defining the appraisal problem to how - and when - to select an appropriate appraiser.

Lewin offered an equally valuable set of recommendations from the marketing angle, echoing John's emphasis on understanding the market. "I urge you to look closely at the marketplace before you get started." Lewin described successful marketing and sales strategies, significant spheres of influence, and how to build awareness and establish credibility. She ended with her company's standing mantra: "Long-term success…requires daily attention."

Sessions V and VI

New Opportunities & Sustainability

V. Blazing New Trails

Bob Kessler, director of mitigation banking for LG2 Environmental Solutions, moderated Wednesday's afternoon session entitled "New Opportunities in Banking."

West Virginia was the first stop as Rich Mogensen, director of EarthMark Companies Mid Atlantic Mitigation Division, took a hard look at what it took to establish the state's very first mitigation bank. "The primary reason we went into West Virginia was the coal industry," explained Mogensen.

West Virginia was, and still is, experiencing significant growth in coal mining due to increased consumption domestically and internationally. This has led to increased environmental degradation around the state, making West Virginia an attractive area for mitigation banking.

Mogensen explained the process of meeting with regulators to gauge support for mitigation banking in specific districts. Once he determined there were opportunities to be had, EarthMark was careful to prepare a team with local "home grown" ties. They formed a limited liability corporation and formally established the West Virginia Mitigation Bank.

EarthMark chose stream mitigation as their primary focus because of the coal mining industry's impact on the state's streams. As with any new business venture there were growing pains and lessons learned. "There were risks involved," explained Mogensen. "Upfront capital expenditures, delayed ROI, regulatory agencies to bring on board, substandard mitigation requirements, a new product to sell and paranoia of the unknown."

When asked about breaking into uncharted territory and dealing with new regulations and new business practices, Mogensen was optimistic as he closed, "It's complicated, but it's not so complicated that it can't be done."

Ricardo Bayon, managing director of the Ecosystem Marketplace, was the second panelist to present. Bayon shifted gears to focus on the market values of ecosystem services.

"I think we've taken nature's services for granted," said Bayon. "I think there's a better way [of valuing ecosystem services], and I think the market is the better way. The infrastructure is being overused, it's not being paid for and it's not being restored."

He went on to say there are many markets for carbon, water and biodiversity. Bayon noted there has been $11.3 billion worth of trading on the carbon markets. He went on to explain that biodiversity is NOT a commodity like carbon, but that there are organizations like Forest Trends out of Washington, DC who are developing voluntary biodiversity offset programs that make good business sense.

In summarizing the key points of a market-based approach to ecosystem services, Bayon closed by saying, "What is fundamental about the functioning of this market is information. It allows buyers and sellers to find each other."

The session closed with a presentation by Royal Gardner, professor of law and director of the Institute for Biodiversity Law and Policy at Stetson University. Gardner filled in for Jessica Fox who was unable to attend the conference. Gardner's presentation was very much in the style of a graduate school Socratic dialogue, engaging the audience with open-ended questions dealing with the stacking and "bundling" of mitigation banking credits. This allowed the audience to debate the issue and explore some of the opinions of attendees and participants.

VI. Holding Up

James Barlow of the U.S. Army Corps of Engineers, Brian Noyes of the USDA Quinton Service Center and Mark Tucker of Tucker and Associates drew the short straw: the late afternoon session standing between a tired audience and their cocktail hour. Fortunately, much like the restoration projects under discussion in Session 6 on "Sustainability: Surviving Disaster," the presenters held up admirably under tough conditions.

Barlow, the leadoff hitter, took the crowd through several photos of mitigation banks in his New Orleans Corps' jurisdiction, where Hurricane Katrina made her infamous appearance last year. How did the banks fare under the high winds and floodwaters of the storm? Not too badly, said Barlow.

Noyes stood up next to deliver an energetic talk about his work with the Innovative Cropping Systems Incentive Program (ICS) at the Colonial Soil and Water Conservation District in Virginia. Correcting the carbon cycle on agricultural lands through innovative no-till farming practices is the core goal of ICS.

Noyes said the power of the ICS method was demonstrated when Hurricane Floyd battered the area in 1999. "Long-term ICS fields," Noyes said, "showed no evidence of concentrated flow even under the steepest, most erosive field conditions."

In addition to reducing soil erosion and improving soil quality on-site, Noyes went on to say he hoped the program would help generate carbon credits for its participants, and help the District solve water-quality problems in the watershed at least cost.

The shortest of the short straws went to Tucker, who closed the session with volumes of data from Wildlands' Rancho Jamul bank in San Diego. "Each year," Tucker quipped, "somewhere in the state of California, something is either underwater, on fire or dry."

Rancho Jamul has survived the floods, the fire and the drought. Banks are not immune from stochastic weather events, stressed Tucker, but unfortunate events need not derail a project. Rancho Jamul, he said, has remained a success despite the trials of flood and fire; the bank plans to release the final twenty percent of its credits next year.

In the meantime, Tucker said the bank has learned some valuable lessons. Namely, the value of staying on top of a situation through adaptive management, and the importance of a good site design with elevation grades that allow natural systems to 'self-design.'

"I believe that resiliency comes from good design and from nailing the grade," Tucker concluded before sending people off for a cold drink.

Guest Editorial: Carrots and Sticks

By Bradley I. Raffle

In a guest editorial, Bradley I. Raffle of the Texas-based law firm, Baker Botts LLP, argues that if we are to save much of the U.S.'s suburban and peri-urban land, then we need to look at ways that mitigation and conservation banking approaches can be refined and perfected in such a way to provide meaningful incentives for conservation on private land. [This is a shortened version of a longer editorial, for the full editorial, visit www.ecosystemmarketplace.com]

As I recently navigated the freeways that now criss-cross the hills and woodlands surrounding our Nation's Capital's –in the Virginia suburbs—I was struck by the essential irony of the "smart growth" article I had read that morning on the plane ride up from Houston. Although what I was seeing in Virginia probably wouldn't be considered "Smart Growth", the people that designed these roads and constructed these malls, office buildings, and golf courses were certainly not dumb. The economic health of the region is just fine, thank you.

On the other hand, there is evidence that many Americans –perhaps even most—see the escalating fragmentation of functioning ecosystems associated with this kind of suburban sprawl (the kind that is wiping out forests, wetlands, wooded river systems and open prairies) as inexorably destroying American's sense of place and undermining a vital part of its quality of life. If a large oil spill were to cause half the ecological havoc that we tolerate each month from suburban sprawl, the public outcry would be deafening.

So what is going on here? The obvious answer is that the ecological impact of suburban sprawl (2 million acres of rural land each year, consuming an area the size of Pennsylvania since 1990) is the result of thousands of small decisions, albeit very "smart" ones when considered individually. The decision of a housing developer to clear-cut a 500-acre bottomland hardwood forest is usually a "smart growth" decision for that developer. Is it reasonable to expect (let alone require) the owner of the land to leave the trees alone and forego the profit potential of a first-class housing development on the site? Many preservationists would say "yes, stop the housing project in its tracks." No "taking" there . . . provided, of course, that it is not their land.

But such an approach will not fly –indeed, is not flying. The conservation community must recognize that the kinds of land we are talking about cannot realistically --or fairly-- be preserved by attempting to prevent the landowner from securing a profit from the land or simply demanding that privately owned property remain as public open space. Our constitution and our free market economy do not accommodate this approach and it is short-sighted and naïve to believe otherwise. If land conservation is a worthy goal, then we should be willing to use the power of our market economy to incentivize it.

Luckily, there is a smarter and less contentious way of addressing this growing challenge, one that recognizes and takes advantage of the economic self-interest of the private owners of ecologically valuable land.

The answer lies in designing a regulatory program expressly designed to economically incentivize the owners of environmentally valuable property to actively conserve their land's most important environmental attributes – while simultaneously regulating (i.e., limiting) the right of the landowner to completely destroy these same attributes. In other circles it is known as "carrots and sticks" and might look something like this: (1) leave half of our developer's 500-acre forest as a contiguous fully protected natural habitat, (2) allow the landowner to be fully compensated for this 50% open space commitment through a combination of mitigation and ecological service payments, discussed below, and (3) enable the developer to make an even greater profit through the property value elevation that will often occur on the developed half of such a site by virtue of its location adjacent to an intact forest. Under such a regulatory system, the owners of environmentally valuable land would earn more, not less, because of the land's environmental attributes.

But what might such a policy look like in practice? And, more importantly, how do we get there from here?

First, I would argue that we need to look at what we have –in particular approaches such as mitigation and conservation banking—and build from there. Already, on March 28, 2006, the U.S. Army Corps of Engineers (Corps) and the Environmental Protection Agency (EPA) proposed joint rules to streamline and broaden the scope of its wetland mitigation banking policy (Section 404 of the Clean Water Act). It has many good points, which I won't cover here. Suffice it to say that thoughtful conservationists should support this new approach as well as other complemen-

tary policies that actively encourage large-scale offsite mitigation banking, moving away from the kind of localized postage-stamp mitigation that often achieves so little real ecological benefit.

Some further suggestions include:

1. Reconsider the Avoidance, Minimization, Mitigation Policy

Longstanding Corps rules and policy require prospective wetland permittees to first avoid jurisdictional wetlands (wetlands considered of national importance) and, if avoidance is not practical, to minimize the project's disturbance of these wetlands. Unavoidable dredge and fill activity can then be authorized, but the impacts must be mitigated, preferably onsite or close to the impacted wetlands.

Too often, the avoidance/minimization policy leads developers to locate structures near (but not in) the site's wetlands. Where on-site mitigation is provided, the quality of the work, if it is performed at all, is often shoddy and of questionable ecological value. Even if wetland impacts are technically "avoided," without the benefit of the adjacent upland buffers that are often crucial for wetland health, the avoidance/minimization policy has the effect of allowing "protected" wetlands to rapidly degrade. I visited one such "avoided" wetland not long ago. It was a small marshy area within 100 feet of several hydrocarbon storage tanks that were sited to avoid the wetlands. The "protected" wetland –which wasn't much to write home about before the tank project—was now withering and for all practical purposes, lifeless. What a waste.

A strong argument can be made that the Corps and EPA rules should be amended to expressly authorize projects that entail the disturbance or elimination of low-quality wetlands if the permittee agrees to provide meaningful financial support for prioritized wetland mitigation projects within the same watershed or an immediately adjacent watershed.

2. The Need for Greater Recognition of the Value of Preserving Existing Wetlands

Likewise, Corps and EPA policies have given low priority to preservation-based mitigation. The argument is that since these wetlands are already "protected" by the Clean Water Act, mitigation credits should not be awarded for simply agreeing to preserve such areas. The reality is that many of the nation's most valuable (and most endangered) wetland ecosystems are threatened primarily by non-regulated activities in and around those ecosystems, including drainage, logging, urban runoff pollution, fragmentation of adjacent uplands, and invasive species. Without the kind of economic incentives for preservation and enhancement that mitigation credits can provide, these wetlands and their vital functions will inexorably degrade, irrespective of the Clean Water Act. The preservation (and enhancement) of such threatened wetland systems (including adjacent uplands) should receive mitigation credit on an equal footing with mitigation projects that restore or create wetland acreage.

3. The Need for a Level Playing Field for Private Entrepreneurs

As public park and recreation budgets come under ever greater pressure and as non-profit organizations seek to expand their revenue bases, wetland mitigation has become an attractive source of funding for public agencies and non-profit conservation groups. While both types of entities play a vital role in conservation, this kind of public sector competition could pose a serious threat to the viability of entrepreneurial mitigation banking. Is it realistic to expect a private investor to enter a market where it will be competing with a government agency that not only pays no taxes, but actually derives its entire financial base from taxes?, The same concern applies where the competitor is a tax exempt non-profit with a financial base grounded upon donations that reduce the donor's tax obligations. Besides, allowing public park agencies to gain credit for protecting public land does not add new wetland functions.

4. Use Government Mitigation Policies to Support Emerging Markets For Ecosystem Services

There is a potentially vibrant market for certain goods and services provided by intact ecosystems. These markets are evolving around economically valuable services that ecosystems provide to identifiable potential buyers; services such as storm water detention (flood control districts), water quality enhancement (water utilities), carbon sequestration (electric utilities), and erosion controlsediment capture that reduces dredging expenses (port authorities). This market is further driven by suburban communities concerned with protecting their property values and quality of life; hunting and fishing groups concerned about disappearing habitat; agencies concerned about the loss of natural hurricane buffering capacity provided by coastal wetlands. There are many other interests that are beginning to see the economic value of intact ecosystems; values that have too-often been taken for granted. While these emerging markets face many challenges, they need further encouragement.

Already, there are several federal and state laws and policies that provide a market for environmental mitigation, including but not limited to NEPA, the Endangered Species Act, the Coastal Zone Management Act and the Supplemental Environmental Project (SEP) policies of EPA and most states. By combining revenue streams from these various emerging environmental markets, landowners may finally be able to generate sufficient income from their land to encourage conservation. For this reason, there is a vital need for mitigation policies that allow this kind of supplemental value stacking.

5. You Need Sticks - Not Just Carrots

As noted above, wetland mitigation has had a very spotty track record in the United States in terms of ecological uplift performance. Mitigation commitments are often performed badly or ignored altogether. Any market-based program of the type described above must reverse this poor performance record. At least three policy changes are essential to ensure that mitigation success is better assured:

First, mitigation (or ecological service) buyers and sellers must face joint and several liability for meaningful sanctions if mitigation commitments are breached. Financial assurance mechanisms, including the creative use of performance bonds, could go a long way to address this fundamental requirement. I would argue that the financial assurance provisions of EPA's hazardous waste management rules provide an appropriate model for the new Corps / EPA mitigation program.

Second, ecological uplift standards for offsite mitigation must be flexible but demanding. The March 28 Corps/EPA proposal offers several positive ideas in this regard that should be supported by the conservation community.

Finally, there is a need for greater simplicity in a market that addresses a subject as inherently complex as ecosystem conservation. Governmental mitigation policies can further this goal by reducing as much red tape as possible and by accommodating the reasonable need of mitigation bankers for economic certainty, e.g., assurances that the government will not become a direct competitor by setting up a competing mitigation bank within the same service area.

The Bottom Line

U.S. conservation policy today relies primarily upon the ability of shrinking government funding and private philanthropy to purchase threatened lands. These sources of funding cannot come close to meeting the challenge. Over 2 million acres of rural open space are converted to urban sprawl each year. If present trends continue, most intact ecosystems surrounding the nation's 280 metropolitan areas will be completely fragmented within a generation, two at most. Even if every state in the continental U.S. were to purchase, for long-term conservation, 1% of their privately-owned suburban/ex-urban land base each year (a land base of approximately 200 million acres), at an average price of $6,000 per acre, the cost over ten years would be $120 billion. This sum vastly exceeds government/foundation budgets for conservation, which total about $2.5 billion per year. Market mechanisms are clearly needed to supplement philanthropic and governmental conservation funding. The benefit for future generations would be enormous.

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Keynotes: Industry at Historic Moment



Grumbles challenged bankers in the audience to demonstrate through their actions and business endeavors that banks provide the highest quality mitigation possible

The 9th National Mitigation and Conservation Banking Conference got off to a roaring start yesterday with presentations from Mike Chrisman, secretary of resources for the State of California, Benjamin Grumbles, assistant secretary of the Office of Water at the U.S. Environmental Protection Agency (EPA), and George Dunlop, deputy assistant secretary of the Army for Civil Works.

All three men spoke of the sense that this conference comes at a historic turning point for the industry, and a historic turning point for the way environmental issues are handled in the U.S. "I'm looking out and I see the face and future of wetlands conservation," said Grumbles as he opened his speech. "It is very rare that you see the convergence of so many things and people around a common aim."

That aim, argued each of the speakers, was a new approach to natural resource conservation. The speakers also seemed to agree that two qualities, in particular, marked the new approach: cooperation and innovation. And both, they noted, were fueled by the increased involvement of the private sector in decisions about natural resource management around the country.

The days when conservation is solely a government or non-profit affair, said Dunlop, are over. Speaking about California's work in the California Delta, Chrisman commented, "We are starting to see non-traditional groups of people coming together."

The public-private partnerships emerging from both large and small-scale mitigation projects, according to the speakers, have led to environmental and economic innovation. Chrisman, for instance, talked about California's expansion into habitat banking for endangered species. Questions from the audience, meanwhile, probed the potential for stacking credits from carbon sequestration and water-quality schemes (see box).

The speakers stressed that the new draft regulations were designed to encourage increased cooperation and innovation, but noted that, in order for market-based strategies to work, clear regulatory safeguards were necessary.

"There are endless opportunities to better integrate market-based mechanisms and leverage opportunities," said Grumbles. He noted, however, that, ""In order for market-based strategies to work, you need to keep in place the regulatory safeguards of the Clean Water Act." Before closing, Grumbles challenged bankers in the audience to demonstrate through their actions and business endeavors that banks provide the highest quality mitigation possible and said, "I think you have a lot on your plate…and we are very excited for the opportunity to work with you."

Spotlight on Stacking

In a quick conversation following the session, Benjamin Grumbles, assistant secretary of the Office of Water at the U.S. Environmental Protection Agency (EPA) said that water-quality trading and wetlands mitigation banking were two of his top priorities at the EPA, and that he saw considerable synergies between them. Both wetland mitigation banking and water quality trading produce credits that may be used to offset impacts by a regulated activity. Wetland banks develop credits as a functional equivalent to acres of wetlands. In the case of water quality trading, these credits come in the form of pounds of pollutants not discharged to a stream or lake.

While Grumble expressed enthusiasm for the idea of stacking wetlands and nutrient credits, he also allowed that considerable challenges to such integration remained. "We held a conference last year to look at the synergies between mitigation banking a water-quality trading," said Grumbles. In July 2005, the Ecosystem Marketplace reported that this conference - the National Forum on Synergies Between Water Quality Trading and Wetland Mitigation Banking – shed light on some of the differences between wetland mitigation banking and water quality trading.

Wetland mitigation banks offset impacts from several locations on the landscape and aggregate them at one location. By contrast, water quality trading does the opposite, creating nutrient offsets on farms and degraded streams across a watershed to offset nutrients being discharged at a single point. Thus, whereas mitigation banks can make the task of monitoring environmental results easier for regulatory agencies, water quality trading threatens to make it more difficult.

Recent developments in Pennsylvania, however, suggest a new strategy for overcoming this obstacle to water quality trading. The Lancaster New Era reported earlier this week that an ag-consulting group, Red Barn Consulting, recently formed a new arm, Red Barn Trading, to try to broker partnerships between regulated point-source polluters and farmers.

"'We can go to farms and investigate what kinds of practices could be traded,'" Peter Hughes, who owns the business, explained to the New Era. "'Then we would take those credits to the state Department of Environmental Protection for certification. Then, we would take them to the open market. It's not high risk for the farmer.'"

Like a wetlands mitigation bank in the mitigation market, Red Barn could act as a kind of credit aggregator in Pennsylvania's new water-quality trading scheme. And here, it seems, is where mitigation banks might find a new role to play in advancing watershed health.

Luncheon Plenary:

Can Bankers and Regulators Re-find "That Loving Feeling"?

As expected, many of the discussions at the 9th National Mitigation and Conservation Banking conference in Portland focused on the new draft regulations for wetlands mitigation recently released by the U.S. Army Corps of Engineers (Corps) and the U.S. EPA (EPA). At the Luncheon session, however, both the Corps and the EPA got an official chance to present their take on the regulations. From EPA's side we heard from environmental scientist Palmer Hough; Mark Sudol, chief of the regulatory program, spoke for the Corps. These two presentations were followed up by comments from Craig Denisoff, president of the National Mitigation Banking Association (NMBA), and by a spirited question and answer session.

Hough's comments focused on the detailed provisions of the draft regulations, noting in particular the new emphasis on the watershed scale approach, the phasing out of in-lieu fee approaches to mitigation, and the new timelines that have been established for the processing of permitting applications.

Hough was then followed by Sudol, who jokingly commented that he was only there for "comedic relief." He then went on to talk about the provisions he thought would likely impact mitigation bankers the most. These, he said, fall into three categories: Timelines, Performance Standards, and the Watershed Approach.

On timelines, he noted that, while the bankers would no doubt be happy to hear there was a proposal for strict deadlines for government agencies to issue permits, he pointed out that this particular sword has two edges. He observed that bankers, too, would now be expected to do a better job of submitting and following through on their prospectuses and applications in a timely manner.

He did add, however, that the Corps would take very seriously the provision to keep within specified deadlines when processing applications. He mentioned that the Corps intended to set up internal performance standards that would be based on the meeting of these deadlines. He went on to say that one key issue would be linking these performance standards to budgets. Sudol pointed out that the higher standards would likely mean "higher costs per mitigation per acre."

Finally, Sudol spoke briefly on how the regulations were pushing towards a watershed approach to wetland mitigation. From the point of view of bankers, he said, this meant that site selection would be key, and that bankers would be well-advised to "look outside the box" at hydrologic functions, options for water quality trading, etc. Here he explained that the Corps would be willing to work with bankers on site selection.

Following Sudol's presentation, Denisoff provided comments on the proposed regulations from the perspective of the NMBA. Denisoff began by once again noting that these proposed regulations were, without a doubt, one of the "most monumental events in the history of industry." He said the regulations would have a huge impact on mitigation overall, and that the draft regulations incorporate many of the changes for which the NMBA has been advocating for years.

He then went on to provide a "pros and cons" assessment of the regulations, first detailing its many benefits, and then pointing out some remaining concerns. On the benefits side of the ledger, Denisoff highlighted the way the draft regulations:

- Called for a watershed approach to mitigation over strict adherence to on-site mitigation;
- Sought to "level the playing field" with other forms of mitigation;
- Set timelines for bank review, a provision he said was "key to the industry"; and, finally,
- Sought to reign in in-lieu fee approaches to mitigation and hold them to the same standards as banks.

No surprises there…

Denisoff then went on to highlight some of the industry's concerns surrounding the new regulations. These included:

- The way the proposed regulations failed to require equivalence with permittee-responsible mitigation;
- The way the regulations failed to address the need for a more streamlined release of credits produced by the banks. On this he said the language on credit release was unclear and could prove to be a "substantial hold-back" for the industry;
- The fact that, while the proposed regulations did call for a stronger "watershed approach" to mitigation, there was still language in the draft pointing people towards "on-site" mitigation first, something that he said was a bit of inconsistent.

On balance, however, Denisoff ended on a positive note, saying that he saw in the regulations an opportunity to bring back the collaborative and cooperative spirit between the private and public sectors; a spirit, he said, on which the industry was based. Citing a well-known song, he said the industry and the regulators had "lost that loving feeling," and that, for its part, the NMBA was ready to work with the regulators to help bring it back.

The session ended with a series of tough questions from the floor covering a range of issues ranging from the lack of equivalence with permittee-responsible mitigation, to opportunities for stacking or "bundling" the sale of a variety of ecosystem services, all the way to questions on how regulators planned to phase out in-lieu fee programs.

Following a particularly pointed question, Hough exclaimed, "So we clearly get no honeymoon, huh?"

Carl Lucero (center) chats with his two NRCS colleagues, Gregory Johnson and Peter Fullerton

Jeremy Sokulsky and Mark Keiser discuss water quality... or is it the quality of beer?

A Fearsome Foursome line-up for a quick mug shot: Rich Mogensen, Bob Kessler, Ricardo Bayon, and Royal Gardner

Sheri Lewin and Victoria Kerensky talk shop

Harry Mossman, Ken Sanchez and Dwight Harvey smile for the camera

Agenda for Today (Thursday, April 27, 2006)

8:00 AM - 8:20 AM
Continental Breakfast in Exhibit Area

8:30 AM - 10:00 AM
CONCURRENT SESSIONS

SESSION 7: Long-Term Management & Perpetual Care . *(G. Ballroom II)*
CHAIR: Palmer Hough, U.S. EPA
What Happens When a Wetland Mitigation (or Conservation) Bank Goes Bankrupt: Royal Gardner, Institute for Biodiversity Law and Policy.
Mitigation Endowments — How to Make Them Really Work: Stuart A. Haney, Virginia Sageworth,
Working With Land Trusts: Greg DeYoung, Environmental Business Partners

SESSION 8: Unique Opportunities & Challenges for Banking (*Galleria)*
CHAIR: Robert W. Brumbaugh, U.S. Army Corps of Engineers
O'Hare Mitigation Project:. David Urban, Land and Water Resources, Inc.
A Road Map to Opportunities for Banking in Agriculture: Gregory Johnson, Natural Resources Conservation Service, USDA
Mitigation Banking Without the Bank: Robert Cleaves, Maine Wetlands Bank, LLC

10:00 AM - 10:30 AM
BREAK in Exhibit Area

10:30 AM. -Noon
CONCURRENT SESSIONS

SESSION 9: Tracking Progress (*G. Ballroom II)*
CHAIR: Richard K. Mogensen, EarthMark Companies' Mid-Atlantic Mitigation, LLC
Wetland Mitigation Banking in Florida: Ecological Status and Effectiveness: Victoria K. Tauxe, Florida Department of Environmental Protection
Market Data and Trends in Entrepreneurial Wetland Banking, 1994–2002: Morgan M. Robertson, US EPA
Kiss the Frog! Taking RIBITS to the Nation: Kelly Burks-Copes, U.S. Army Corps of Engineers,

SESSION 10: Banking in the West *(Galleria)*
CHAIR: Ken Sanchez, U.S. Fish and Wildlife Service,
A NOAA Fish Bank: An Umbrella Approach to Protecting River Systems: Howard Brown, National Oceanic and Atmospheric Administration
Lessons Learned from the Washington State Department of Transportation's Urban Corridors Office: George Ritchotte, Washington State DOT
Frazier Creek Wetland Mitigation Bank: Restoring Wet Prairie Habitat: Jay R. Lorenz, Ph.D., CH2M HILL

Noon - 1:45 PM
LUNCHEON PLENARY
Special Address
The Honorable Bruce Knight, Chief, Natural Resources Conservation Service, USDA

The "McGeorge Group" — Banking: Where to Next?
Fast moving Q&A with direct answers and comment

McGeorge: George Howard, Restoration Systems, LLC

GUEST PANEL:
Ron Abrant, U.S. Army Corps of Engineers
George Platt, The Wetlandsbank™ Group
Sarah Vickerman, Biodiversity Partnership
Leonard Shabman, Resources for the Future

2 PM
Conference Adjourns

About the Ecosystem Marketplace

The Ecosystem Marketplace seeks to become the world's leading source of information on markets and payment schemes for ecosystem services; services such as water quality, carbon sequestration and biodiversity. We believe that by providing solid and trustworthy information on prices, regulation, science, and other market-relevant issues, markets for ecosystem services will one day become a fundamental part of our economic and environmental system, helping give value to environmental services and thereby helping conserve them.

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FOREST TRENDS

There will be no printed issue of "Mitigation News" tomorrow (Friday), but sign up for Mitigation Mail at www.ecosystemmarketplace.com or visit our booth today and we will send you an e-mail copy