Bi-weekly Wetland and Stream Corridor Restoration Update
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Welcome to the Bi-weekly Wetland and Stream Corridor Restoration Update. This web site

- Provides current information on wetland and river corridor restoration projects
- Recognizes outstanding restoration projects
- Offers a forum for information sharing

We welcome the submission of articles and announcements related to your restoration project. Just send your write-up to EPA's contractor at restorationupdate@tetratech-ffx.com or mail it to Rebecca Schmidt, Bi-weekly Restoration Update Coordinator, Tetra Tech, Inc., 10306 Eaton Place, Suite 340, Fairfax, VA 22030. We will carefully consider your submission for inclusion in a future update. If your submission is selected, please note that it might be edited for length or style before being posted. Because this web site is meant to be a public forum on restoration information, we cannot post any information that is copyrighted or information that advocates or lobbies for any political, business, or commercial purposes or has the appearance of doing so.

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Restoration-Related Web Sites (Page 15) - Use these links to check out other groups that are helping in the effort to restore wetlands and river corridors.

Information Resources (Page 17) - Books, journals, fact sheets, videos, and other information resources to aid you in your restoration project are provided here.

Feature Article

Bringing a Community Together to Restore a Local Creek

A restoration project on Park Creek, a tributary of Pennsylvania's Little Neshaminy River, is receiving recognition far and wide. Horsham Township, with support from a coalition of partners—including Horsham's Environmental Advisory Board, Heritage Conservancy, local conservation agencies, businesses, senior groups, youth organizations, students, and residents—decided to restore the portion of Park Creek that flows though Kohler Park. They formed the Kohler Park Streambank Stabilization and Riparian Buffer Restoration Project, dedicated to protecting Kohler Park and the entire Neshaminy Creek watershed.

The Township chose to pursue the project because they had found that Park Creek's water quality and habitat value were becoming increasingly more degraded. Economic vitality in Horsham Township had led to unprecedented residential and commercial growth over the past 30 years. While providing many economic opportunities, this growth had also put a strain on the natural environment. The increased amount of impervious surface had led to excess amounts of runoff water and flooding, which in turn had led to erosion of streambanks. All of these factors had adversely affected water quality, vegetation, and wildlife.

In response, the entire community mobilized to support the Kohler Park project. Residents and volunteers contributed more than 950 hours and donated more than $12,000 toward the restoration. Pennsylvania Department of Environmental Protection (DEP) Growing Greener grants helped cover the cost of restoring streambanks, training Township staff to maintain the restored areas, holding a community education workshop, and creating an educational sign on-site.

The Township and its volunteers were successful in revegetating riparain areas, removing invasive species, planting trees and shrubs, building riparian buffers, and re-grading creek banks. Local middle school and high school students assisted with planting and reestablishing native vegetation. Even local businesses and restaurants contributed by donating food and supplies for volunteers. Local newspapers covered the story, and park visitors called the Township to express their awe at the beautiful results of the restoration.

Horsham Township's efforts have not gone unnoticed at the state level, either. On April 16, 2002, Governor Mark Schweiker and DEP Secretary David Hess recognized Horsham Township for its commitment to watershed restoration and environmental protection. The Township was one of 24 organizations from across Pennsylvania selected to receive a 2002 Governor's Award for Watershed Stewardship from the Governor and DEP.

"Horsham Township is dedicated to protecting and restoring the Park Creek and all the watersheds, and we're proud that Governor Schweiker and DEP Secretary Hess have recognized us for our efforts," said Mike McGee, Township Manager. "The energy and enthusiasm of our volunteers, Horsham's Environmental Advisory Board, Township staff, and the community have been key to our success in bringing renewed life to our streams and water resources, and ensuring the health and quality of Pennsylvania's waterways and native wildlife for the enjoyment of present and future generations."

For more information, see www.horsham.org/tinfo/waterresources.asp.

If you'd like your project to appear as our next featured article, e-mail a short description to restorationupdate@tetratech-ffx.com.

Five-Star Restoration Projects Update

The goal of EPA's Five-Star Restoration Program is to bring together citizen groups, corporations, the Youth Conservation Corps, students, landowners, and government agencies to undertake projects that restore streambanks and wetlands. The program provides challenge grants, technical support, and peer information exchange to enable community-based restoration projects. A few Five-Star restoration projects are being revisited to see if the modest amount of funding (between $5,000 and $20,000) has helped the local restoration partners achieve their goals.

Project Title:	**Wabash River Corridor Riparian Restoration**
Five-Star Grant:	**$10,000**
Grant to:	**Eli Lilly and Company**
Location:	**Lafayette, Indiana**
Grant Year:	**2000**

Original Project Description:
Eli Lilly and Company will work with Purdue University, the Tippecanoe County Historical Society, and others to restore riparian vegetation along a 1.75-mile stretch of the Wabash River located on Eli Lilly's wildlife habitat acreage. The goal of the project is to reestablish permanent riparian vegetation that will help protect the riverbank, slow the natural erosion process, reestablish Indiana native wildflower and prairie species, and provide an attractive natural area for future recreational use. The project will complement upstream restoration efforts that have been enrolled in the U.S. Department of Agriculture's Buffer Strip Program and will be integrated into local school environmental education curricula.

Project Update:
Eli Lilly and Company worked with project partners and completed preliminary planning for the project, including selecting tree and shrub species, organizing a volunteer workforce, and ordering necessary trees and shrubs. A delay in the tree order has pushed back restoration plans, and the project has been granted an extension through April 2002.

Once the necessary supplies are received, the project team will restore a 180-foot by 2.1-mile riparian buffer registered in the Conservation Reserve Program. This area will be planted with trees and shrubs intended for erosion control. An additional 120-foot riparian buffer will be added next to the 180-foot buffer through funds provided by the Five-Star Program. The project team designed this area to serve as diverse wildlife habitat. They will plant it with various species of native grasses, berry-producing bushes, and other shrubs and trees. **[Updated February 2002.]**

Project Title: **Mile Branch Stream Restoration**
Five-Star Grant: **$10,000**
Grant to: **Lake Pontchartrain Basin Foundation**
Location: **Covington, Louisiana**
Grant Year: **1999**

Original Project Description:
Working together to address problems of erosion, water quality, and nonnative vegetation, a partnership among the City of Covington, Covington High School, a local landscaping firm, and the Lake Pontchartrain Basin Foundation will conduct a wetlands and riparian restoration project along the Mile Branch Stream in Covington, Louisiana. The project will involve 10 high school seniors who will be trained as stream restoration interns. The interns will be responsible for involving other high school students in all aspects of the project, including drafting plans, surveying streambanks, planting native vegetation, creating a community garden, and involving middle school and younger students at the site. In all, the project will restore more than 1,000 linear feet of streambank and create a wetlands area in the floodplain.

Project Update:
David Billesbach of Covington High School and Stephanie Cirillo of the Lake Pontchartrain Basin Foundation selected 10 interns from Covington High School to participate in the Mile Branch Stream Restoration Project. The Lake Pontchartrain Basin Foundation also hired Dennis O'Connor, a stream restoration expert from Portland, Oregon, to train the interns on the basics of restoration, including drafting plans, coordinating with local governments, and stabilizing streambanks.

Once the interns had completed their training, they began the in-the-field portion of their internship. For 4 hours every Tuesday and Thursday, the students worked on surveying the stream along the preselected 1,000-foot section. The interns also worked with fifth grade students at Pine View Middle School to complete macroinvertebrate sampling, a community cleanup day, and stream related poetry and artwork.

After the interns finished surveying, each student submitted a stream restoration plan. Each plan was reviewed and critiqued, and all 10 plans were combined to form a master plan for the restoration project. The master plan was sent to the landscape architect and the head of engineering for the City of Covington. After the plan was approved, the students began the most labor-intensive portion of their internship. Following the master plan, the students installed various restoration techniques on portions of the stream. The techniques used included log toes, fascine bundles, brush layering, container plantings, brush piles, and transplanting of native plants. Current monitoring efforts will provide information on the success of the techniques. Future interns will use the information in completing future restoration projects.

Plans to build a storm water retention pond near the restored section of stream on the grounds of Pine View Middle School provided the interns with another valuable restoration opportunity. The pond had originally been designed to hold water only during periods of heavy rainfall. The interns recognized an opportunity and secured permission from the School Board to turn the pond into a year-round wetland habitat. The interns drew up restoration plans for a pond that would hold water throughout the year. They also secured donations of native wetland plants from the Windmill Nursery in Covington. Students from the talented arts class at Covington High School contributed to the project by creating a 2-ton turtle that now permanently resides in the new wetland area.

Louisiana Public Broadcasting provided a unique opportunity to publicize the students' project by featuring the project in two documentary films. The interns shared their experience with the employees of the City of Covington through a wetlands and stream restoration workshop.

The success of this first project has secured the future of the internship program. Covington High School will continue to provide the internship program, and in the future students will continue work to maintain the stream, remove trans- and nonnative vegetation, test for water quality, and sample invertebrates. The mentoring program with students from Pine View Middle School will also continue to be a valuable part of the internship experience**. [Updated March 2002.]**

Project Title: **Ladd Marsh Wetland and Riparian Restoration**
Five-Star Grant: **$10,000**
Grant to: **Training and Employment Consortium**
Location: **La Grande, Oregon**
Grant Year: **2000**

Original Project Description:
The Training and Employment Consortium is working with Union County, Ducks Unlimited, the Grande Ronde Bird Club, state partners, and others to restore 3 miles of riparian habitat, 500 acres of wetland habitat, and 154 acres of upland habitat in the Ladd Marsh Wildlife Area. The Ladd Marsh Wildlife Area, which originally consisted of 240 acres of the last remaining wetlands in the area, now covers more than 3,300 acres of wetlands, stream habitat, and forests and supports a variety of wildlife species. Restoration work will be completed by a paid youth crew, which will receive restoration and general job skills training. In addition, the project will involve a Community Day at Ladd Marsh to raise awareness and educate local citizens about the importance of wetland protection.

Project Update:
The Ladd Marsh Restoration Project was more than a summer job for the eight participating youth from area high schools. The Oregon Youth Conservation Corps carefully designed the program to empower youth with the skills and confidence to make career choices. Through the program, youth participated in vocational assessments and career exploration activities. The Training and Employment Consortium and Oregon Department of Fish and Wildlife (ODFW) trained the youth in workplace safety, effective communication, and problem-solving skills. The crew also learned about the history of Ladd Marsh and participated in numerous restoration activities. In addition, area high schools have agreed to provide academic credit to each student who participated in the program.

The youth assisted ODFW staff in an ambitious bird banding program. Over the summer, participants banded more than 650 waterfowl. Youth helped with catching, banding, and recording basic information about each bird. This banding effort will greatly help ODFW staff track waterfowl along the Pacific flyway.

The energy of the eager crew also helped them complete more labor-intensive tasks. The eight youth worked together to gather more than 600 pounds of native plant seeds to be used in future restoration projects. The youth hand-gathered tufted hair grass, basin wild rye, camax, and common three-square seeds. The native seeds are important for future restoration efforts because they are uniquely adapted to the Ladd Marsh area and will save future projects the hundreds of dollars it would take to buy native seeds. The youth also worked to plant trees around a Ladd Marsh pond, remove close to a mile of barbed wire fence at a future restoration site, build and install bird houses and bat boxes, and irrigate crops used for wildlife feed.

Near the end of the summer, a community day was planned to celebrate the completion of the project. Team leaders introduced the crew members and talked about the summer project to the press and more than 55 community members in attendance. The community day also offered a chance to present information on the value of wetlands and wildlife, the benefits of the partnerships formed through the program, and the contributions participating youth had made to the community. The project was further publicized through articles in area newspapers, including the LaGrande, Oregon, *Observer*. **[Updated February 2002.]**

Community-Based Restoration Partnerships

Orlando Coastal Conservancy Restores Mangroves and Salt Marshes

A band of volunteers from the Coastal Conservancy Association Florida, the Back Country Fly Fishing Association, and Rockledge High School science students are working together to reestablish red mangrove ecosystems in the Indian River Lagoon. Red mangroves are essential to the Indian River Lagoon ecosystem because their roots provide shelter for large and small organisms and their branches provide roosting and nesting sites for countless year-round and migratory birds. In 2000 and 2001 the volunteer team planted more than 5,000 red mangrove propagules (seedlings). This year Coastal Conservation Association has set a goal to plant more than 20,000 red mangrove propagules.

The volunteers took the first step toward their “20,000 in 2002" goal on a planting day in April. Volunteers worked as part of the Canaveral Port Authority restoration project, planting more than 6,900 red mangroves. The planting day was part of an ongoing restoration project along Cape Canaveral. Prior to the volunteer planting day, the Canaveral Port Authority cleared invasive species from the restoration area along the 528 causeway in Cape Canaveral and planted black and white mangroves. The combination of red, white, and black mangrove trees will provide habitat for many fish in the Banana River.

The Coastal Conservancy Association will continue to work toward its planting goal on three additional planting dates—July 27, September 28, and November 16. Volunteers will gather each day to plant propagules along Coco Beach.

High schools throughout the Brevard County area have also played a large role in the success of the planting days through their participation in the Propagule Collection Contest. Schools compete against each other to see which class can collect the largest number of red mangrove propagules from area beaches. (Propagules in river areas are protected under Florida law.) The winning class receives a pizza party provided by Indian River Adventures and a cash prize raised through the Coastal Conservancy Association's Redfish/Trout Fishing Tournament.

The red mangrove restoration project is expected to significantly improve fish habitat in the Indian River Lagoon. "Marine biologists have estimated that a single red mangrove will be the home to more than 10,000 fish during its lifetime and a mangrove may live to be over 20 years old," reports Doug Blanton, conservation chair of the Orlando Coastal Conservation Association. "When you multiply that times the thousands of trees we're planting, it's easy to see the positive impact our efforts can have on the entire lagoon."

More information on the benefits of red mangroves and information on the Coastal Conservancy Association's plans to restore them can be found at www.indianriver.cc/mangrove.htm.

Upper Black River Finally Receives Attention It Needs

The Upper Black River in Michigan's Montmorency and Cheboygan Counties has long been considered one of the Lower Peninsula's finest brook trout streams. It runs through the Pigeon River Country State Forest as well as private lands and has always held naturally reproducing brook trout. The isolated brook trout fishery is maintained by two dams downstream that prevent fish from moving upstream. "Restoring habitat in the Upper Black River is a worthy project," comments Foundation president Keith Groty. "It is a unique stream habitat because it contains native brook trout and cannot be reached by anadromous fish."

Although the river still supports a native brook trout population, it has faced many challenges over the years. The river might have been first altered by logging efforts in the late 1800s and early 1900s. During huge spring log drives, workers floated thousands of logs to sawmills in Cheboygan. These logs damaged the natural streambed and banks and created excessive sand deposits in the channel. Following the loggers, beavers moved in to further degrade the river. The beaver dams and the resultant ponds make the water too warm for the temperature-sensitive brook trout. Over the past 20 years, anglers have observed reductions in the number of brook trout.

Restoration work along the Black River began in the 1980s when conservation organizations worked together to remove between 20 and 30 beaver dams from the upper stretches of the river. The Montmorency County Road Commission and Montmorency County Soil and Water Conservation District also joined forces to reduce erosion at road stream crossings. Sediment in the stream was further reduced by local conservation groups and the Michigan Department of Natural Resources, which worked together to install and maintain sand traps along the river.

The most recent restoration project began in July 2002 and was organized by the Michigan Wildlife Habitat Foundation with the help of the Huron Pines Area Resource Conservation and Development Council, the Montmorency County Conservation Club, and the U.S. Fish and Wildlife Service. The Michigan Wildlife Habitat Foundation organized a work crew to install whole tree revetments to deflect and speed up the river current. The increased current sweeps sediment from stretches of sediment clogged stream bottom. This innovative restoration method uses the natural force of the water to create current-swept gravel and rock beds for trout spawning and aquatic insect habitat. The project uses techniques learned in similar restoration projects successfully undertaken by the Michigan Wildlife Habitat Foundation on Martin and Bigelow Creeks in West Michigan. The restoration team also added trout cover along the stream to further enhance in-stream habitat.

The Upper Black River Watershed Restoration Committee, formed in 1992, has long-range plans to continue restoring the river. Future plans include further reducing sediment in the stream by promoting sound land use and forestry management as well as installing additional erosion-preventing structures and planting native vegetation in riparian areas.

For more information, visit www.mwhf.org/projects.html or contact the Michigan Wildlife Habitat Foundation, 6380 Drumheller Road, PO Box 393, Bath, MI 48808.

If you are part of an innovative community-based partnership that is working to restore river corridors or wetlands, we'd like to hear from you. Please send a short description of your partnership to restorationupdate@tetratech-ffx.com.

Achieving Restoration Results

Pitching In to Restore Minnie Ditch

A small creek in the Pennsylvania Borough of Hollidaysburg is flowing much cleaner, thanks to a joint streambank restoration project undertaken by local, state, and federal partners. The partners, including the Pennsylvania Department of Environmental Protection, Natural Resources Conservation Service, Blair County Conservation District, and Borough of Hollidaysburg, chose to restore the creek as a demonstration project. The project was designed to reduce streambank erosion and sedimentation of the creek, known locally as the Minnie Ditch, and to reduce pollution of the Beaverdam Branch of the Juniata River. A secondary goal of the project was to improve the conveyance capacity of the Minnie Ditch. Both goals were intended to reduce property damage and loss by reducing erosion and flooding.

The partners incorporated both structural and biological stabilization methods into the project. Construction consisted of placing of rock block walls, riprap, biotextile erosion control fabric, and live stakes, as well as repairing railroad tie walls at four sites along a 450-foot stretch of the Minnie Ditch. The partners also placed rock blocks in areas where the railroad tie walls had failed, installed riprap and rock toe strips, removed silt deposits, and installed biotextile and live stakes to stabilize steeper portions of the bank. Finally, they smoothed out and opened up a narrow portion of the Minnie Ditch that had been restricting stream flow.

Completed in January 2002, the project was funded by a $30,000 Growing Greener grant provided by the Pennsylvania Department of Environmental Protection, a grant of $8,310 from the Blair County Conservation District, and Hollidaysburg Borough General Funds. The Natural Resources Conservation Service and the Blair County Conservation District also donated considerable staff time and professional services for the planning and design of the project. For more information, see www.hollidaysburgpa.org/updates/news/minnieditch.htm or contact the Borough of Hollidaysburg at 401 Blair Street, Hollidaysburg, PA 16648 or phone: 814-695-7543.

Urban Stream Is Showing New Life

Two and a half years after its restoration, a stream flowing through Kingstowne in the Alexandria portion of Virginia's Fairfax County continues to show improvement. This small stream, a tributary of the Potomac River, had become degraded from the effects of upstream development. Natural vegetation had been replaced with impervious surfaces, such as roofs, roads, and parking lots. Fewer plants, shrubs, and trees were available to slow down and absorb the stream flow and to allow infiltration of storm water into the soil. More and faster water flowing into the stream led to erosion of the material from the bottom and sides of the channel. On its own, the stream would have reshaped itself over time to accommodate the larger volume of runoff, but not before tons of sediment and attached nutrients were carried downstream to the wetlands of Huntley Meadows, the Potomac River, and the Chesapeake Bay.

To address the problem, in 1998 the Northern Virginia Soil and Water Conservation District (NVSWCD) joined forces with Fairfax County, state and federal agencies, and two citizens groups to implement a demonstration project. This project was designed to serve as a model for a "softer," more environmentally friendly approach to solving erosion problems. The site analysis and project design took nearly a year to complete. Construction began in October 1999 and was finished within 2 months. Through cutting and filling of soil material, this project restored gentle meanders to the stream and raised the level of the channel to reach the floodplain. The project used live plant materials native to the area to stabilize the streambanks.

Today grass is growing on the floodplain, live stakes are in bloom on the banks, and tree and shrub seedlings are maturing. NVSWCD continues to monitor the Kingstowne stream and to participate in similar restoration or stabilization projects. For more information, see www.co.fairfax.va.us/nvswcd/kingstowne.htm.

If you are part of an innovative restoration project that has had positive results, we'd like to hear from you. Please send a short description of your project to restorationupdate@tetratech-ffx.com.

Funding for Restoration Projects

Community Salmon Fund
The National Fish and Wildlife Foundation and King County WaterWorks grant program have recently established the Community Salmon Fund to stimulate small-scale, voluntary action by landowners,

community groups, and businesses to support salmon recovery in the central Puget Sound region. Grants will be jointly selected by King County and the Foundation and administered by the Foundation's Pacific Northwest office. The goals of the Community Salmon Fund are to fund habitat protection and restoration projects that have a substantial benefit to watershed health; engage landowners, business people, and other community groups to carry out these projects and care for them in the long run; stimulate creativity and leadership among community groups to address conservation needs; and target groups that can be particularly helpful in salmon recovery, especially farmers, rural forest owners, suburban homeowners, and owners of businesses and industries. The Community Salmon Fund will award grants of up to $50,000. Pre-Proposals are due August 15, 2002. For more information, visit www.nfwf.org/programs/csf_rfp.htm.

National Wildlife Refuge Support Group Grant Program

The National Fish and Wildlife Foundation (NFWF) recognizes the important role of "Refuge Support Groups" in building critical community support for the National Wildlife Refuge System. In an effort to encourage the work of such organizations, NFWF is requesting proposals for competitive seed grants ($1,500–$5,000) for organizations interested in supporting the conservation work of the refuge system.

Eligible applicants are nonprofit organizations including "Friends" groups, cooperative and interpretive associations, Audubon chapters, and other citizen support organizations interested in assisting a refuge or group of refuges and the refuge system as a whole. Grants will be provided to support proposals that fall within the following areas of emphasis:

- Project-Specific Grants - Funds will be provided to non-profit organizations seeking support for a specific project. For example, funds may be requested for developing conservation education programs for local schools, outreach programs for private landowners, habitat restoration projects, providing interpretive signage, or watchable wildlife programs.

- Start-up Grants - Funds will be provided to assist starting refuge support groups. For example, funds may be requested for such things as membership drives, training (tuition), postage, brochure writing and layout, logo design, or consultant fees for planning a mission and strategic plan.

- Capacity-Building Grants - Funds will be provided to strengthen existing refuge support groups' capacity to be more effective. For example, activities may include outreach efforts, strategic planning, membership development, board or leadership development, design of exhibits for community outreach, and training.

Proposals are due September 2, 2002, for final funding decisions to be made by September 30, 2002. For more information, visit www.nfwf.org/programs/nwrgp.htm.

Please send any news you have on funding mechanisms available to local community organizations to restorationupdate@tetratech-ffx.com.

News and Announcements

New Projects Will Restore Streambanks and Wetlands in Great Lakes Watersheds

On May 2, 2002, New York Governor George E. Pataki announced almost $990,000 in matching grants for seven projects to improve water quality and habitat protection in Erie, Niagara, Cattaraugus, and Genesee Counties. The grants are part of almost $4.5 million in funding that will be awarded through the state's Great Lakes Coastal Watershed Protection Restoration Program.

"The Great Lakes are economically and environmentally vital to the people of New York State," Governor Pataki said. "We are committed to protecting and improving the quality of these majestic waterways for the benefit of future generations, and this additional funding for watershed restoration will help us to achieve that objective."

In 1996 New York voters passed the Clean Water/Clean Air Bond Act to improve water and air quality, restore aquatic habitats, and preserve open space. The Bond Act earmarked $25 million in state financial assistance for the Great Lakes region, which has been used for significant water quality improvement and habitat restoration projects. Additional projects of this type can now be assisted with federal dollars. The $4.5 million in federal funds are New York State's share of $30 million appropriated by Congress for Great Lakes Coastal Restoration.

The Department of State's Division of Coastal Resources worked closely with the Department of Environmental Conservation to integrate the new grant application procedures with those already established for other state grants such as the Clean Water-Clean Air Bond Act and the Environmental Protection Fund.

Eligible projects include project planning, design, and construction of retrofits or other storm water controls; project planning, design, and construction to restore wetlands and habitats; and acquisition projects that protect wetlands and other coastal habitats. Applications were solicited in November 2001 along with Clean Water-Clean Air Bond Act grant applications. The applications were screened for eligibility and evaluated under a competitive process in cooperation with the Department of Environmental Conservation. The following list identifies by county the Great Lakes Coastal Watershed Restoration Grant projects:

- Erie County: Seneca Bluffs wetland and river corridor habitat restoration. Erie County and the city of Buffalo will restore 15 acres of mixed floodplain habitat on the Buffalo River, reduce erosion of bluffs, and treat storm water runoff. $100,000

- Buffalo River watershed restoration project. The Erie County Soil and Water Conservation District will implement streambank stabilization and bioengineering measures along the river to reduce sedimentation and thermal fluctuations. $18,308

- Scajaquada Creek streambank stabilization and erosion control. The Erie County Soil and Water Conservation District will institute streambank stabilization practices, including bioengineering

measures, revegetation, and rock riprap. Streambank protection and maintenance information will be provided to riparian property owners in the area. $15,930

- Beaver Island State Park wetlands protection and enhancement. The New York State Office of Parks, Recreation, and Historic Preservation will protect and restore an existing 15-acre wetland along the Niagara River that has been degraded by boat wake erosion, fluctuating water levels, and invasive plants. The project will also protect and enhance 2.5 acres of overwintering fish habitat. $400,000

- Cattaraugus and Erie Counties: Cattaraugus Creek streambank restoration project. The Erie County Soil and Water Conservation District will identify areas of high silt and sedimentation loading and high thermal stress as a result of streambank erosion and lack of riverine vegetation along the upper creek corridor. The District will do remediation at two priority sites. $20,025

- Niagara County: Eighteenmile Creek habitat restoration project. Niagara County will conduct a biological inventory and restore a 1-mile stretch of the creek by removing debris, stabilizing streambanks, and installing native vegetation. $392,000

- Genesee County: Oatka Creek stream restoration. The Village of Leroy will address aquatic and shoreline habitat loss and degradation through construction of erosion control improvements, installation of sedimentation basins, and stream corridor revegetation. The project will reduce sedimentation, temperature fluctuations, hypoxia, and eutrophication. $43,560

To post your restoration news and announcements, please send information to restorationupdate@tetratech-ffx.com.

Upcoming Conferences and Events

New Listings

Stream, Floodplain, and Wetland Restoration Workshop: Stream Stability and Natural Channel Design Concepts in Watershed and Source Water Management

November 12–14, 2002
Bear Mountain, New York

This workshop is designed to promote and build the capabilities of local governments, states, federal agencies, nonprofits, and others in the Mid-Atlantic and Northeast to use stream stability and natural channel design concepts in the management and restoration of streams, riverine wetlands, floodplains, and watersheds. Specific workshop goals include the following:

- Helping attendees understand river stability and natural channel design concepts and how these concepts can be integrated into stream, wetland, floodplain, source water, and watershed

protection and restoration projects. Providing guidance on fluvial geomorphological concepts and natural channel design in the context of watershed problem prevention and problem solving.
- Helping attendees understand how to initiate, plan, fund, and implement a stream, floodplain, or riverine wetland restoration project.
- Developing a Mid-Atlantic/Northeastern network of federal, state, and local agency staff, nonprofit groups, academics, consultants, and others interested in stream stability and natural channel design.

Workshop sponsors include EPA, USDA Natural Resources Conservation Service, and U.S. Fish and Wildlife Service. For more information, visit www.aswm.org/calendar/midatlantic02/index.htm.

The Natural Areas Association 29th Annual Conference:
The Power of Nature and the Empowerment of Natural Areas
October 2–5, 2002
Asheville, North Carolina

Through this conference, the Natural Areas Association hopes to challenge each participant with new information and ideas about the conservation and management of natural areas. Adaptive ecosystem management will receive special attention; other sessions are scheduled to address invasive species, hydrologic alteration, capacity building, developing a sense of place, and site conservation planning. For more information, visit http://216.156.79.173/na/CallforPapers2002.pdf.

Hydrologic Extremes: Challenges for Science and Management
October 13–17, 2002
Portland, Oregon

The intent of the conference is to convene scientists, government officials, and business personnel to share scientific and technical information on activities and developments within the fields of environmental hydrology and hydrogeology. The technical program for the 2002 meeting will address riparian processes, climate change, droughts and floods, stream temperature standards and modeling, endangered species, forest and watershed conditions, channel and watershed morphology, and modeling and mitigation of extremes. For more information, visit www.aihydro.org/call_2002.htm.

To post information about upcoming conferences and events, please e-mail restorationupdate@tetratech-ffx.com.

Restoration-Related Web Sites

www.co.fairfax.va.us/nvswcd/cinnamoncreek.htm
The Cinnamon Creek Streambank Stabilization Project. This site explains a streambank stabilization project recently implemented along Cinnamon Creek in Fairfax, Virginia. The site offers descriptions and photographs of each component of the project. *This site would be useful for anyone seeking a pictorial tour of a streambank stabilization project from beginning to end.*

www.greatswamp.org
Great Swamp Watershed Association. The Great Swamp Watershed Association was created in 1981 to protect the Great Swamp watershed basin in northern New Jersey. Their web site provides detailed background information about the Great Swamp and offers an extensive virtual tour of the area. The site also supports a photo essay of the Great Swamp featuring beautiful wildlife and landscape photographs taken in and around the wetland areas. On-line educational resources are posted for teachers, students, local government, businesses, and the public. *This site offers a comprehensive look at a locally significant wetland and is a great example of a community-based effort to protect it.*

www.fxbrowne.com/html/case.html
Stream Restoration Case Studies. This site, developed and maintained by F.X. Brown, Inc., offers detailed design and implementation information on several stream restoration projects in the Northeast. The progress of each case study is thoroughly documented with descriptions and pictures. *This site would be useful for anyone looking for examples and pictures of completed stream restoration projects.*

www.wetland.org
Wetland Kids. Developed by Environmental Concern, Inc., a non profit organization dedicated to wetland restoration, research, and education, this site is designed to teach children about wetlands. It explains what wetlands are, how they help people, and how people can help protect wetlands. It also provides a "Wetland Words" page that contains an illustrated list of wetland-related terms. *This site would be useful for anyone seeking educational resource information targeted at children.*

www.usda.gov/stream_restoration/newgra.html
Stream Corridor Restoration: Principles, Processes, and Practices Web Site. This site, maintained by the USDA, offers up-to-date information about the *Stream Corridor Restoration: Principles, Processes, and Practices* document developed by the Federal Interagency Stream Restoration Working Group. The site offers information about the document (including how to order a copy), provides the latest document edits (through August 2001), offers an on-line slide show, provides information about several case studies featured in the document, and maintains a page of restoration-related links. *This site would be useful for anyone who wants updated information about the* Stream Corridor Restoration: Principles, Processes, and Practices *document.*

www.glc.org/monitoring/wetlands
Great Lakes Commission. This project recognizes the need to assess the health of Great Lakes coastal wetlands and is working to collect basinwide data on coastal wetlands. *This web site would be useful for anyone looking for current monitoring data on Great Lakes wetlands or anyone looking for wetlands classification of mapping resources.*

www.massaudubon.org/GreatMarsh/TMP999281671.htm
The Great Marsh. In Massachusetts, the North Shore's Great Marsh is the largest continuous stretch of Salt Marsh in New England. This web site is intended to provide a jumping-off point for those interested in finding out more about the Great Marsh. Links to environmental, economic, recreation, historical and cultural, and news information are provided. *This site would be useful for anyone seeking to learn more about the coastal grasslands and tidal creeks found in New England's marshes.*

www.iep.water.ca.gov/suisun
Suisun Marsh Program. Suisun Marsh is the largest contiguous brackish water marsh remaining on the west coast of North America. This web site describes the management activities conducted by the California State Water Resources Control Board, the restoration activities currently being conducted in the marsh, and the ecological importance of the marsh. *This site would be useful for anyone looking for management and restoration activities undertaken by a state agency as it manages a large wetland area.*

www.phil.unt.edu/ser/notes/trn1-1.htm
Texas Restoration Notes. *Texas Restoration Notes* is a biannual publication on regional ecological restoration, designed to increase information exchange among organizations working to restore Texas ecosystems. The magazine is essentially nontechnical in nature, but it provides technical information where warranted. *This on-line journal provides useful information on restoration techniques that have been successful throughout Texas.*

http://chl.wes.army.mil/research/hydstruc/bankprotect/bendweir
The Bendway Weir. This web site describes the Bendway Weir structure, its benefits to stream habitat, design considerations, and real world examples. *This site would be useful for anyone seeking information on in-stream habitat structures, specifically the use and construction of this type of weir.*

Let us know about your restoration-related web site. Please send relevant URLs to restorationupdate@tetratech-ffx.com.

Information Resources

STREAMBANK
by U.S. Army Engineer Waterways Experiment Station

STREAMBANK was prepared by U.S. Army Engineer Waterways Experiment Station practitioners and researchers, along with consultants and academicians. This electronic document, available on CD, is a compendium of basic geomorphology, geology, hydrology/hydrodynamics, and geotechnical engineering. It includes the latest research and techniques for streambank stabilization and erosion control applications in planning, engineering, contracting, construction, and maintenance. It includes step-by-step descriptions of analysis methods to help readers understand and apply techniques. It discusses the advantages and disadvantages, along with information from the authors' extensive professional experience. An exhaustive compilation of literature and unpublished research, as well as a large number of tables, figures, and color photographs, is included. The document also provides information about the

success and failure of actual projects, along with color photographs of existing projects and field situations. Finally, it presents project planning concepts and activities, along with technical design guidance and procedures. For more information or to download the *STREAMBANK* Demo, see www.veritechinc.com/products/STREAMBANK.htm.

Riparian Restoration/Protection Documents
by The Damariscotta Lake Watershed Association, March 2002

Located in Maine, the Damariscotta Lake Watershed Association has recently published a series of water quality and riparian restoration and protection documents. Available on-line at www.dlwa.org/protection.asp, the titles include:

- Erosion on Shorefront Property
- Erosion Control for Homeowners
- Vegetative Streambank Stabilization
- Vegetated Phosphorus Buffer Strips, Trees, Shrubs, Vines and Groundcovers
- Riprap for Shoreline Protection
- Riprap for Streambank Protection
- Silt Fencing and Hay Bale Barriers

The fact sheets are targeted at landowners along Damariscotta Lake, but they contain information and suggestions that pertain to all riparian landowners.

Tidal Crossing Handbook: A Volunteer Guide to Assessing Tidal Restrictions
by Timothy A. Purinton and David C. Mountain, Ph.D.

Available on-line at www.parker-river.org/tides/Handbook this handbook explains how to assess tidal restrictions (altered tidal flow) in marsh habitats and provides general information on the value of the salt marsh.

An Introduction and User's Guide to Wetland Restoration, Creation, and Enhancement **(Pre-Print version)**
by the Interagency Workgroup on Wetland Restoration

The preprint version of *An Introduction and User's Guide to Wetland Restoration, Creation, and Enhancement* is now available online at www.nmfs.noaa.gov/habitat/habitatconservation/publications/index.htm. The Interagency Workgroup designed the document to achieve two goals: (1) introduce nontechnical readers to the basics of wetland projects, including planning, implementing, and monitoring, and (2) direct interested persons to documents and resources specific to a particular region or wetland type. In support of these goals, the document provides information on wetlands; background on the practice of restoration, creation, and enhancement; and information on the process involved in undertaking a wetland project. The appendices

provide documents, web sites, agencies, and other resources for finding additional information and advice on restoration, creation, and enhancement projects.

If you'd like to publicize the availability of relevant information resources, please send information to restorationupdate@tetratech-ffx.com.