Welcome to the Biweekly Restoration Information Update Page. This web site

- Provides current information on wetland and river corridor restoration projects
- Recognizes outstanding restoration projects
- Provides 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 Kathryn Phillips, Biweekly 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 serves or has the appearance to serve as advocating or lobbying for any political, business, or commercial purposes.

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Feature Article

Wetland Rediscovered at Sugarloaf Cove

Wetlands have always been present along the North Shore of Lake Superior but rare because of bedrock topography, thin soil, and the scouring effect of storm waves. One of these uncommon wetlands has been rediscovered, thanks to the efforts of the Minnesota Department of Natural Resources (DNR) and the Sugarloaf Interpretive Center Association (SICA). Sugarloaf Cove is a 35-acre site along the shore of Lake Superior in northern Minnesota. Consolidated Papers, Inc., used the site from the 1940s through the 1970s as a pulpwood landing—a place to collect logs before rafting them across Lake Superior to Ashland, Wisconsin. To do this, the paper company made many changes at the site, including filling in low spots and cutting down trees.

One of the places Consolidated Papers changed was a tombolo—the low, wet area at the base of the hill near the pulpwood landing. The paper company added gravel fill to the tombolo to make it a level, dry area suitable for trucks and buildings. Even after the pulpwood landing shut down in

the 1970s, few wetland plants were able to grow on the tombolo because the ground was covered by tightly packed gravel.

In the 1990s Sugarloaf Cove came under the protection of the DNR and SICA. Because wetlands are naturally uncommon on the North Shore and because many wetlands have already been lost to development, staff from the DNR felt it was important to try to restore the wetland community that had previously existed at Sugarloaf Cove. In 1998 the DNR received a grant from EPA's Great Lakes National Program Office to carry out the wetland restoration project.

Tracing History

As a first step, project staff had to verify that a wetland had indeed existed on the tombolo. In February 1998 the DNR examined soil borings from across the area and discovered layers of peat in six of them (ranging in thickness from less than 1 foot to a maximum of 2 feet). Groundwater was encountered in four borings; depth to groundwater varied from 3.8 feet to 6.5 feet below the ground surface. Fill thickness also varied across the site, with a maximum of 5 feet. Based on the information collected during the drilling project, the DNR concluded that the buried peat layers were thin and discontinuous but did indicate that a wetland had probably existed at the site in the past.

Once the DNR determined that a wetland had existed at the site, the next step was to identify the types of plants that once grew there. As part of the soil boring investigation, project staff extracted pollen, seeds, and other plant materials from the peat layer for identification by specialists at Northern Botanical Services and the University of Minnesota's Archaeometry Lab. The specialists identified pollen and seed from a number of wetland plants, but because the evidence of wetland plants was mixed with evidence of upland plants, they concluded that the wetlands might have been small, discontinuous features interspersed throughout the upland areas.

Based on all the information collected from the soil boring investigation, the DNR concluded that the most protected portion of the interior of the tombolo complex had probably been occupied by a sedge-mat or shrub-carr wetland, surrounded by a dynamic forested upland. The forest community apparently included mostly conifers such as black spruce and balsam fir, with some white cedar and white pine, alder, and a few birch.

Excavation and Planting

In September 1999 consultants excavated a half-acre portion of the tombolo down to the first layer of peat. Because the peat layers varied in thickness, the excavation resulted in an uneven ground surface with low spots where water could collect. Once the project team had restored the topography of the wetland and surrounding upland areas, they began introducing native plants to stabilize the exposed soil. To ensure the plants were well adapted to local conditions, a native plant landscaper collected seeds from local native flowers and grasses from an area within 25 miles of Sugarloaf Cove. Some of the seeds were spread on the site immediately, and others were taken to a nursery to be sprouted during the winter for planting in the spring.

In May 2000 volunteers from across the state traveled to Sugarloaf Cove to help plant thousands of seedlings in the restored wetland. The volunteers came from SICA, Cook County schools, Full Circle (a nonprofit organization that teaches sustainability by using the environment as a classroom), the Great Lakes Aquarium in Duluth, and the Minnesota Chapter of The Nature Conservancy. Additional mature plants were transplanted from nearby sites where landowners had given permission. When planting, the seedlings were carefully placed in their preferred soil conditions—wet, transitional, or dry. To give the new plants the best possible start, volunteers planted them close together to make it more difficult for weeds to grow. In addition, they used native species that do well in disturbed areas and erected fences in some areas to keep deer and rabbits from eating the new plants. During the summers of 2000 and 2001, volunteers continued to work to remove and control upland exotic (nonnative) plants. Additional site maintenance work is planned for this summer.

Preparing the Wetland for the Public

Now that the restoration project is complete, the public is invited to visit and learn about the ecosystem. SICA staff and volunteers have presented several guided hikes and other programs focused on the restored area. They constructed a trail leading into the wetland during summer 2001 and are developing interpretive signs to explain to the visitor the three main areas in the wetland—upland, transitional, and wet. In addition, SICA plans to build an elevated walkway on a very small portion of the wetland with a bench at the end so that the visitor can get a real feel for what a wetland is like. For more information about the Sugarloaf Cove restoration, see http://www.d.umn.edu/~pcollins/sugarloaf/wetland.html or contact Terri Port Wright, Executive Director, Sugarloaf Interpretive Center Association, 244 Marks Road, Esko, MN 55733. Phone: (218) 879-4334; e-mail: SUGARLOAFINT@msn.com.

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

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Five-Star Restoration Projects Update

The goal of EPA's Five-Star Restoration Program is to bring together citizen groups, corporations, 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: Pepper Cove Impoundment Marsh Restoration
Five-Star Grant: $12,816
Grant to: Brevard County Environmentally Endangered Land
Project Location: Melbourne Beach, Florida
Grant Year: 2000
Original Project Description:

Brevard County Environmentally Endangered Lands, along with the Florida Institute of Technology, the Marine Resources Council, and others, will enhance wildlife habitat on the Pepper Cove impoundment located on the barrier island of Brevard County. The project partners will reconnect this historic salt marsh to the Indian River Lagoon in an effort to increase the area's biodiversity and improve its water quality. Local community volunteers will help in the on-the-ground restoration work, and graduate students from Florida Tech will assist with the collection of data critical for developing and implementing the restoration plan. Partial funding for this grant is being provided by the National Marine Fisheries Service's Community-based Restoration Program.

Update:

The Pepper Cove Impoundment Marsh Restoration project has been a huge success. Working together with the Brevard County Mosquito Control District, the St. John's River Water Management District, the Marine Resources Council, and Florida Institute of Technology students, Brevard County Environmentally Endangered Lands (EEL) has reconnected an isolated salt marsh, removed exotic plants, developed a revegetation plan, and created educational materials and displays.

The project site is a 10-acre impoundment called Pepper Cove. It is part of a 30-acre parcel of land donated to EEL by the Richard King Mellon Foundation. The Barrier Island Ecosystem Center adjacent to the restoration site will use the restored salt marsh to provide public education on wetlands. The Center is currently under development.

Pepper Cove was impounded (surrounded by earthen dikes) in the late 1950s to discourage the growth of mosquito populations. Impoundments, common in the 1950s, limited fish and invertebrate access to the marsh areas and drastically altered herbaceous salt marsh habitat. Without access to the salt marshes, fish and invertebrates lost valuable nursery habitat and biological diversity decreased.

The first step in restoring the marsh was removing invasive species. EEL and its partners removed 12 acres of Brazilian pepper from the project site, and Marine Resources Council staff removed approximately 125 Australian pine trees. Removing invasive species allowed project team members to access the dike, survey elevations, and prepare the site plan necessary to obtain the permits required for culvert installation. The permit application was submitted to the St. John's River Water Management District and the Army Corps of Engineers and was approved in September 2001.

Once the installation permits were obtained, the Brevard County Mosquito Control District installed three culverts to reconnect Pepper Cove Marsh to the Indian River Lagoon. While the District was installing culverts, EEL developed a plan to prevent invasive species from reinfesting the site. In the northern part of the marsh, project partners monitored vegetation and removed exotics while encouraging native plant growth. In an area disturbed by the construction of an adjacent canal, invasive species were cut and piled on-site, and a prescribed burn is planned to return nutrients to the marsh. The remaining areas consisted of the land disturbed by culvert installation. EEL decided that a native planting would be the most effective way to stabilize the soil and prevent the spread of invasive species in these areas. On December 1, 2001, a group of 24 volunteers planted 4,000 native salt marsh plants. To date the efforts to encourage native species and prevent reinfestation by invasive species have been successful.

In addition to completing the restoration work, EEL developed a public education and monitoring plan to ensure the long-term survival of the salt marshes. To document marsh conditions prior to the restoration project, EEL worked with Florida Tech graduate students to gather data on soil and water quality, elevation, and plants and animals inhabiting the marsh. This information was useful as EEL wrote permit applications throughout the restoration project. EEL also incorporated the information into an educational kiosk, funded by the St. John's River Water Management District and located at the site of the southern culvert. **[Updated March 2001.]**

Project Title: BP Amoco Wetlands Project
Five-Star Grant: $10,000
Grant to: BP Amoco Chemical Company
Project Location: Decatur, Alabama
Grant Year: 1999
Original Project Description:

BP Amoco will create wetlands on its property to enhance wildlife habitat, address a storm water runoff problem, and provide environmental education opportunities for local schools. Local experts from the Tennessee Valley Authority and Soil and Water Conservation District will assist in designing and implementing the project. Youth from the City of Decatur Youth Services Corps, inmates from the Alabama Department of Corrections, and students from the Julian Harris Elementary School also will participate in the construction. The finished wetland will be integrated into the facility's award-winning environmental education program.

Update:

Project partners enlarged one of the wetland areas by 10 acres, incorporating it into an existing nature trail. The Flint Creek Watershed Project, Morgan County Soil and Water Conservation District, Tennessee Valley Authority, and USDA Natural Resources Conservation Service provided technical assistance with the wetland and habitat development. Other participants provided in-kind support, including manual labor by inmates from the Alabama Department of Corrections and time and equipment from a local contractor. Various student groups, including the City of Decatur Youth Services Corps, a local Boy Scout troop, and a local elementary school planted native species, built brush piles, and cleared debris.

Employees, citizens, and local school groups now visit the open-access nature trail to observe bottomland and wetland flora and fauna up close. Visitors view waterfowl, birds of prey, and nesting birds. The enhanced wetland provides an abundance of food and shelter, as well as breeding areas for deer, bobcats, foxes, raccoons, coyotes, and groundhogs.
Throughout the project, BP employees forged strong partnerships within the community and with local government agencies and businesses.
The project's success led to additional BP funding of the Wildlife Habitat and Environmental Learning Center adjacent to the Decatur wetland. The Decatur School Board will supply educational materials, and local science teachers will donate their time for instructing adults and children. **[Updated February 2002.]**

Project Title: Dover Greenway
Five-Star Grant: $13,500
Grant to: Urban Conservation Action Partners, Inc.
Project Location: Dover, New Jersey
Grant Year: 1999
Original Project Description:
In Dover, New Jersey, the Urban Conservation Action Partners, Inc., has brought together a group of diverse partners, including two Boy Scout troops, the U.S. Fish and Wildlife Service, the U.S. Department of Agriculture's Natural Resources Conservation Service, Friends of the Rockaway River, employees of Home Depot, and the Concerned Hispanic Political Action Committee, to restore a 1,200-foot riparian buffer along the Rockaway River. The 40-mile-long river supplies the drinking water for more than 1 million people. The project will involve volunteers from many of the partner organizations in the hands-on restoration, as well as the long-term stewardship and educational activities that will accompany the restoration project.
Update:
The project continues to receive local support from special interest groups. The work accomplished by the partnership to date includes clearing an area to expand the length of an existing trail; removing invasive plants and planting native perennials along the riverbank; planting native trees and shrubs along the trail; and preparing and installing picnic benches and tables, trash receptacles, and fencing to delineate the site.
In 2000 Dover Greenway volunteers and supporters donated more than 60 volunteer days to the project; removed tons of debris, trash, railroad ties, downed trees, and exotic and invasive plants on more than 1,000 linear feet along the river; completed 1,000 linear feet of a wood chip trail, including an edging built with stones found on the site; planted more than 550 seedlings and shrubs and some 900 containerized native perennials; and created fishing access in several additional locations along the riverbank. The partners also constructed a playground next to the Greenway that serves a neighborhood whose children previously had to cross a state highway to reach the nearest playground. **[Updated March 2002.]**
For more information on EPA's Five-Star grant program, visit http://www.epa.gov/owow/wetlands/restore/5star/.

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Community-Based Restoration Partnerships

Interdunal Wetland in Washington Restored
The Trumpeter Swan Society (TTSS) is working with the Friends of Hines Marsh (FHM) to protect the largest interdunal wetland complexes on the Pacific Coast. Hines Marsh is in the southwest corner of Washington State at the north end of the Long Beach peninsula. The Long Beach peninsula is bordered on the west by the Pacific Ocean and on the east by Willapa Bay. Hines Marsh is an extensive freshwater wetland system approximately 3.5 miles long, north to south, encompassing public and private lands. The wetland system covers about 900 acres, incorporating an intertidal estuary and two interdunal wetlands—large Palustrine wetlands, hydraulically connected but separated east and west by a dune. "Hines Marsh is one of the largest forested interdunal wetlands remaining in the entire United States. Because of its size and

relative undeveloped state, it is of national importance," says Sarah Cooke, a wetland scientist familiar with the marsh.

This entire wetland system was ditched and drained in 1963 in preparation for development. The developer first installed north-south canals along both arms of Hines Marsh and dug a west-to-east ditch to prematurely drain the marsh into Willapa Bay. The west-east ditch was designed as a temporary structure until a canal system was completed. However, the developer went bankrupt before completing the project and the ditch remained as a continuing drain from the wetland system. The marsh remained in this artificially low water condition until 1986, when TTSS took ownership of the site and restored the breached dunes at two sites along the west-to-east ditch with the help of local citizens and governments. In addition, using grant money from the North American Wetlands Conservation Act, TTSS installed a water control structure and fish ladder at the marsh outlet to restore water levels and help the marsh recover.

FHM has plans to continue restoration and monitoring of the marsh. They are seeking to understand how to conserve the marsh, its wildlife habitat, and its critical function of protecting water quality in Willapa Bay, while at the same time balancing the needs and concerns of property owners in the area. Project partners include TTSS, local private citizens, Washington State Parks and Recreation Commission, Ducks Unlimited, US Fish and Wildlife Service, Washington Department of Fish and Wildlife, Columbia Land Trust, Willapa Hills Audubon Society, Grays Harbor Audubon Society, and Washington State Department of Ecology. For more information see http://www.swansociety.org/issues/hinesmarsh/0008hines.html or contact the Friends of Hines Marsh at 914 - 164th Street, SE, MBO 272, Mill Creek, WA 98012 or at swaninfo@swansociety.org.

The Watts Branch Initiative: Community Involvement Key to Success

Watts Branch is the largest and one of the most polluted tributaries of the Anacostia River. It flows from Maryland into the District of Columbia for 4 miles. About 80 percent of the stream's watershed is urban residential and commercial property; less than 15 percent is forested. Because of the stream corridor's location, it is affected by runoff from a primarily impervious area. It is plagued by trash and debris dumped into the stream by local and upstream residents and businesses. The tributary is also a source of excessive fecal coliform bacteria loadings attributed to overflows from faulty sewers.

The Environmental Health Administration of the District's Department of Health established the Watts Branch Task Force to coordinate restoration of the Watts Branch watershed. The Task Force created the multiphased Watts Branch Watershed Initiative, which includes streambank stabilization and restoration, education and community outreach, and a strategy to prevent illegal dumping.

Public-Private Partnerships

The success of the Watts Branch Task Force has primarily been the result of its ability to effectively create partnerships between the public and private sectors and promote a high level of community involvement. Some 1,600 native trees, shrubs, and plants have been established to create and extend the Watts Branch riparian buffer. The Task Force and the Anacostial River Business Coalition have worked together to plan volunteer events and to obtain section 319 funding for the Watts Branch buffer project. Section 319 funding also supported streambank stabilization efforts in spring 2001, in partnership with the U.S. Department of Agriculture's Natural Resources Conservation Service.

Money from Washington, DC's Summit Fund supported the purchase of three surveillance cameras that are now being used by the Environmental Crimes Unit of the Metropolitan Police Department to monitor illegal dumping in and around Watts Branch. A grant from the Summit Fund also supported a community education day in the park, which helped to spread the word about illegal dumping, nonpoint source pollution, and the importance of riparian buffer plantings to the stream.

Plans for the Future

Future work will address riparian and aquatic habitat concerns, as well as water quality impacts from sediment and nutrients. The U.S. Fish and Wildlife Service will provide monitoring assistance and will use the information it gathers to develop designs for areas still in need of stream restoration. The projected completion date for the stream restoration work is October 2004. The District of Columbia anticipates that continued stream restoration work will be funded

through the District's 319 nonpoint source program. For more information on the Watts Branch Initiative, contact Dr. Hamid Karimi, D.C. Department of Health, 51 N Street, NE, 5th Floor, Washington, DC 20002. Phone: (202) 535-2240. To read more success stories made possible by the 319 Funding Program, visit http://www.epa.gov/owow/nps/Section319III/.
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.

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Achieving Restoration Results

Major Wetland Projects Benefit Louisiana
The end of 2001 marked the completion of eight major wetland restoration projects in coastal Louisiana. According to a December 2001 press release by LACoast (http://www.lacoast.gov/press/2001-12-13.htm), these projects will provide Louisiana with a net benefit of more than 7,450 acres created, restored, or protected since 1990. The Louisiana Department of Natural Resources sponsored the restoration projects, which cost a total of $27.2 million. The eight projects are the following:

- The Highway 384 Hydrologic Restoration project consisted of installation of a rock plug and two water control structures and rehabilitation of perimeter embankments. Together, these structures and reinforcements have helped to restore the historical hydrology in the project area.
- The Perry Ridge Shore Protection project was designed to address the severe erosion rate of the spoil banks along the Gulf Intracoastal Waterway (GIWW). To address this rate of loss and impending breaches, limestone riprap was used to form a dike along a 4.3-mile reach of the GIWW's north bank.
- The GIWW-Perry Ridge West Bank Stabilization project called for 9,500 feet of rock riprap to be installed along the breach-prone northern bank of the GIWW and some 2,200 feet to be placed northward along the Sabine River. In conjunction with the nearly 30,000 feet of wave damping terraces to be installed in open water areas, the project is intended to lessen the loss of interior marshes in the project area.
- The Plowed Terraces Demonstration project studied the efficiency and success rates of different terrace building methods. Both pulled plows and traditional bucket draglines were used to form low-level terraces, and the bucket method proved to be the most successful approach.
- The Sweet Lake/Willow Lake Hydrologic Restoration project is reestablishing a barrier between the eroded northern shore of the GIWW and the project's two lakes. The construction of nearly 20,000 feet of riprap embankments, along with 28,000 linear feet of vegetative plantings, will help decrease the wind- and wave-induced erosion of the marshes in the project area.
- The Replace Sabine Refuge Water Control Structures project was authorized to replace the inadequate flow control gates on the three major waterways that funnel water between Calcasieu Lake and the interior marshes west of Highway 27. The new structures are helping to curtail saltwater intrusion into the interior marshes in the project area and helping to maintain intermediate and brackish vegetative communities.
- The Sabine Refuge Marsh Creation Increment 1 project is constructing earthen containment dikes in the Sabine Refuge. The containments will then be filled with dredged slurry and the dikes themselves planted with vegetative cover to create protected, open water marshes in the project area.
- The Black Bayou Hydrologic Restoration project chiefly consists of a 22,600-foot rock dike constructed on the southern spoil bank of the GIWW. In addition, barge and boat weirs were constructed, and the spoil material from these was deposited in surrounding

open waters. The efforts are intended to restore coastal wetlands and slow the rate at which wetlands in the project area are converting into shallow, open water.

For more information contact Gabrielle Boudreaux Bodin at (337) 266-8623 or Gabrielle_Bodin@usgs.gov.

Restored Wetland Fulfills a Dream

In 1989 when Yolo County, California, realtor Jeff Dyer purchased 98 acres of farmland near Zamor, California, he had plans other than farming. Former landowners had grown rice, tomatoes, and other crops, but the heavy alkaline clay soil was not ideal for farming. In 1999 the U.S. Department of Agriculture's Wetlands Reserve Program helped Dyer fulfill his dream of converting the land into a seasonal marsh. The 34 acres of restored wetland, protected by a 30-year easement, became a special place where wildlife could thrive and be viewed in a natural setting.

The Natural Resources Conservation Service assisted Dyer with the excavation work and installation of a water supply system that includes underground pipelines, restored channels, and water control structures. Excavation spoil was used to enhance levees and create islands in some of the newly created ponds. Dyer established and maintains a variety of wetland plants and perennial vegetation that reduces soil erosion and sedimentation, improves water quality, and provides habitat for wildlife. He also installed a pump to control the water level for brood pond areas and resident waterfowl.

Dyer's efforts to create a rich and diverse environment for wildlife have paid off. The ponds are commonly filled with ducks, geese, egrets, and other waterfowl. The fields are alive with many varieties of game birds. Deer, coyotes, rabbits, muskrats, raccoons, and many other animals are frequent visitors to the ponds. "There are usually hundreds of ducks in the ponds—even during hunting season," says Dyer.

To attract diverse wildlife, Dyer often experiments with the plants grown on his land, and some of his best discoveries have come by accident. "After burning one of my fields to eliminate weeds, I discovered that the field border had burned as well," commented Dyer. "When the border grew back it was mostly in gumplant, and the next time I came out that strip was thick with doves. I did not realize it before, but doves just love gumplant." In the future, Dyer plans to put in some hedgerows around the sediment basin and maybe some trees that will attract even more birds.

For more information about Dyer's wetland restoration and other accomplishments made possible by the U.S. Department of Agriculture, contact U.S. Department of Agriculture, Natural Resources Conservation Service, 430 G Street, Davis, CA 95616. Phone: (530) 792-5600.

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.

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Funding for Restoration Projects

Oregon Watershed Enhancement Funding Directory

Oregon Watershed Enhancement Board recently released the *Oregon Watershed Enhancement Funding Directory*. The purpose of the directory is to help the people of Oregon, from watershed councils to private landowners, find money to support their conservation efforts; however, the directory also provides information on numerous federal programs available to people outside Oregon. The directory profiles 80 different federal and state funding sources for activities designed to protect or restore watershed health. The directory also contains an on-line guide to other funding resources that provides links to numerous additional funding resources. The directory is organized with several quick-search indices based on keywords like project type, eligibility, type of assistance, and sponsor. The funding directory is available at http://www.oweb.state.or.us/directory/fundingintro.html.

Doris Duke Charitable Foundation Land Conservation Grants

The Land Conservation Program of the Doris Duke Charitable Foundation seeks to conserve the habitat on which flora and fauna depend in ways that balance both human and ecological needs. The program has awarded grants ranging from $500,000 to $6 million to support land acquisition

and easements that protect large areas of ecologically significant habitat. Priority is given to projects that protect land from development, have the potential for tangible impact, and leverage public and private funds for conservation. More information on grants provided by the Doris Duke Foundation can be found at http://www.fdncenter.org/grantmaker/dorisduke/process.html.
Please send any news you have on funding mechanisms available to local community organizations to restorationupdate@tetratech-ffx.com.

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News and Announcements

Migratory Bird Conservation Commission Approves Wetland Acquisitions
The Migratory Bird Conservation Commission has approved the acquisition of more than 1,735 acres of important migratory bird habitat. The acquired waterfowl habitat areas in Maryland, Arkansas, Washington, Tennessee, California, Texas, New Jersey, Wyoming, and South Carolina will be added to the National Wildlife Refuge System. The new land will help ensure that the National Wildlife Refuge System remains the world's premier network of public lands dedicated to wildlife conservation.
At its March meeting, the Commission also approved 30 grants that will foster wetland restoration, protection, and enhancement projects in Mexico and the United States. The grants are funded under the North American Wetlands Conservation Act and will combine $21 million of Wetlands Conservation Grant funds with $128 million in partnership money. More information about the events of the March meeting is available at http://news.fws.gov/NewsReleases/R9/D5AB5A7B-44D4-416A-A8F906E8F773A013.html.

New York Protects Birds Along Lake Champlain Shore
New York State has designated the new Champlain Marshes Bird Conservation Area to protect 2,800 acres of waterfowl and migratory bird habitat. The area contains a variety of large marshes, forested swamps, and shrub swamps, as well as upland forests, grasslands, and shrublands. The Champlain Marshes Bird Conservation Area is located along a 90-mile stretch of the western shore of Lake Champlain, starting near the Canadian border and continuing to the southern tip of the lake. These habitats were selected for protection because they serve as important breeding and stopover grounds for a variety of upland birds and many wetland-dependent species. Species expected to benefit from the conservation effort include least bittern, American bittern, osprey, upland sandpiper, black tern, northern harrier, pied-billed grebe, short-eared owl, vesper sparrow, and grasshopper sparrow.

Tillamook Bay National Estuary Project Acquires Land and Future Wetlands
In November 2001 the Tillamook County Commissioners voted unanimously to approve the purchase of 154 acres of river delta land to create the Tillamook Bay National Estuary Project. The National Estuary Program was established in 1987 by amendments to the Clean Water Act to identify, restore, and protect nationally significant estuaries of the United States. Local estuary projects that develop partnerships between local conservation groups and government agencies are created to restore and protect the estuaries. The Tillamook County Performance Partnership, in charge of implementing the conservation plan for Tillamook Bay National Estuary Project, also gained permission from the county commissioners to move ahead with the purchase of an additional 200 acres of conservation easements in the Tillamook Bay area.
The Partnership plans to breach levees on the river delta land where the Trask and Wilson Rivers enter Tillamook Bay in Oregon. Breaching the levees will return the area to tidal wetlands, and a new levee will be constructed to protect upstream lands from tidal flooding. The tidal wetlands will provide important habitat for juvenile salmon and support a variety of other wildlife, including wintering waterfowl, shorebirds, and bald eagles.
A $750,000 grant from the U.S. Fish and Wildlife Service, along with $280,000 from the Oregon Watershed Enhancement Board, has made this project possible. Under the plan for the Tillamook Bay National Estuary Project, the lands and easements purchased through the grant will be held by Tillamook County, the wetlands will be managed by the Oregon Department of Fish and Wildlife, and the Tillamook Soil and Water Conservation District will manage the remaining upland pasture. For more information about the Tillamook Bay National Estuary Project, visit

http://www.co.tillamook.or.us/gov/estuary/tbnep/nephome.html or contact Rich Felley, Tillamook Performance Partnership, Box 493, Garibaldi, OR 97118. Phone: (503) 322-2222; e-mail: rfelley@co.tillamook.or.us.

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Upcoming Conferences and Events:
NEW LISTINGS:

Inaugural National Conference on Coastal and Estuarine Habitat Restoration
April 13–16, 2003
Baltimore, Maryland

Scheduled to take place a year from now, this conference will be the first-ever national conference to focus solely on coastal and estuarine habitat restoration. The purpose of the conference is to mobilize the coastal and estuarine habitat restoration community—including participants from the government, corporate, nonprofit, and education sectors—to advance the knowledge, practice, pace, and success in habitat restoration. Through wide-ranging national participation, conference organizers anticipate bringing together diverse perspectives and experiences to focus on setting priorities for, planning and executing, and monitoring the progress of coastal and estuarine habitat restoration. Program topics will include best practices and models for successful restoration, monitoring and adaptive management, regional and local planning and priority-setting strategies, outreach and education, partnerships and funding opportunities, and national and state policy initiatives. For more information, visit http://www.estuaries.org/ or contact Heather Bradley, Conference Coordinator, at Restore America's Estuaries, at (703) 524-0248 or hbradley@estuaries.org.

Riparian and Aquatic Ecosystem Monitoring
Two sessions: July 29–August 2, 2002 and August 5–9, 2002
Forest Grove, Oregon

This 5-day intensive technical training workshop, includes both lab and field components. Participants work with scientists and Student Watershed Research Project (SWRP) staff to learn programmatic and technical methodologies for teaching and conducting stream and watershed monitoring. The workshop is designed for anyone with a reasonable science background interested in technical aquatic and riparian ecosystem monitoring programs, including educators, agency resource professionals, volunteer monitoring coordinators, watershed council representatives, and representatives from environmental organizations. For more information see http://www.swrp.org/ or contact SWRP at (503) 748-1363 or renfro@pdx.edu.

Coastal Water Resources
May 13–15, 2002
New Orleans, Louisiana

America Water Resource Association's Annual Spring Conference will explore a wide range of interdisciplinary concerns about coastal, estuarine, and inland systems. This AWRA Specialty Conference is unique in that it plans to merge the latest technology and management styles to assess the coastal and inland water resources as a balanced comprehensive system at the shoreline and in the estuary. For more information see http://www.awra.org/meetings/Louisiana2002/ [Link no longer available, October 2003].

Living on the Edge: Grassroots Watershed Planning in the Pacific Northwest
May 31, 2002
Pacific Northwest

The Extension Services of the Pacific Northwest (Washington, Oregon, Idaho, and Arkansas), in partnership with Capital Press and state environmental agencies, propose to offer educational assistance to these watershed groups through an afternoon-long facilitated program at local extension offices. The televised portion will feature a video on watershed councils produced by WSU's College of Agriculture and Home Economics Information Department. It portrays organizational processes, environmental concerns, and lessons learned by three watershed groups in Washington, Oregon, and Idaho. The satellite conference also includes a features real-time and interactive televised panel discussion featuring people in the video. The panel discussion is open to phone or fax questions from local audiences. Finally, each extension office location will offer a locally facilitated discussion focusing on processes and concerns of the attendees from the local area. For more information contact Jan Seago, WSU Cooperative

Extension, 720 Sleater Kinney Road, SE, Suite Y, Lacey, WA 98503. Phone: (360) 786-5445; e-mail: seagoj@wsu.edu; Internet: http://wawater.wsu.edu/.

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PREVIOUS LISTINGS

EMAP Symposium 2002:
The Condition of Our Nation's Streams and Rivers from the Mountains to the Coasts
May 7–9, 2002
Kansas City, Missouri

EMAP Symposium 2002 will be a 3-day symposium jointly sponsored by the U.S. Environmental Protection Agency's Office of Research and Development and the Council of State Governments. The symposium will address the Environmental Monitoring and Assessment Program's scientific programs and how they are targeted to meet state and tribal needs. The symposium will provide examples of research and technology transfer that have led to more efficient, less expensive, and more scientifically rigorous monitoring and a better understanding of the roles of monitoring, assessment, and research in identifying, diagnosing, and solving stream problems. For more information, visit the symposium's web site at http://www.csg.org/emap_symposium_2002.htm.

Water Quality Monitoring in 2002: Building a Framework for the Future. The Third National Water Monitoring Conference
May 20–23, 2002
Madison, Wisconsin

This conference is designed to foster interaction, information sharing, and innovation among colleagues involved in all aspects of water monitoring. The conference is sponsored by the National Water Quality Monitoring Council, in conjunction with many of its member organizations. For more information, visit http://www.nwqmc.org/ or e-mail dan@nwqmc.org.

Converging Currents: Science, Policy, and Culture at the Coast
May 19–22, 2002
Galveston, Texas

The Coastal Society's 18th International Conference will explore interrelationships among the physical, ecological, cultural, and political currents that converge at our nation's coast. To examine these interrelationships, the conference will have three subthemes: Coastal Watersheds and Estuaries—Exploring the Vital Link Between Land and Water; Ecosystem Perspectives at the Regional Scale—the Gulf of Mexico Case Study; and National Treasures and the International Commons—Ocean Resources in the 21st Century. For more information visit http://www.thecoastalsociety.org/tcs18/ or e-mail coastalsoc@aol.com.

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

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Restoration-Related Web Sites

http://www.urbanrivers.org/ura.html

> **Urban Rivers Awareness**. This web site, maintained by the Academy of Natural Sciences, educates people about the ways people affect fresh water. The site provides a link to the Academy's interactive water exhibit along with information on watersheds, a listing of educational programs, and a description of current watershed research provided by the Academy. *This site would be useful to anyone seeking information on human effects on watersheds and what they can do to help.*

http://www.chesapeakebay.net/b4bay.htm

> **Businesses for the Bay.** This web site, maintained by the Chesapeake Bay Program, outlines the Businesses for the Bay program. The program encourages

local businesses to join together to contribute to the long-term improvement of the quality of the Bay and its rivers through widespread, voluntary implementation of pollution prevention practices throughout the Chesapeake Bay watershed. This program benefits both the Bay and the businesses involved. *This site provides a good example of how businesses can work together with other watershed stakeholders to prevent pollution in their watershed.*

http://www.dfg.ca.gov/wcb/california_riparian_habitat_conservation_program.htm

California Riparian Habitat Conservation Program. The Program develops coordinated conservation efforts aimed at protecting and restoring the state's riparian ecosystems. The Program's homepage describes the organization's objectives and its riparian conservation grants program and offers links to other organizations that work with riparian issues. *The site would be useful for someone interested in examples of collaboration for riparian protection.*

http://www.oweb.state.or.us/index.shtml

Oregon Watershed Enhancement Board. The Board's mission is to promote and implement programs to restore, maintain, and enhance watersheds in Oregon to protect the economic and social well-being of the state and its citizens. The Board offers grants for watershed restoration projects, maintains a list of watershed councils in Oregon, and writes and distributes watershed restoration-related publications. *This site is a good place to find information on the tools and resources necessary for watershed protection.*

http://cwest.orst.edu/

Center for Water and Environmental Stability. The Center's primary goals are to promote research and watershed education programs and to facilitate information transfer and dissemination concerning water resources and sustainability. The web site contains a list of publications relating to a variety of restoration-related topics, including aquatic species, water quality, watershed management, and wetland and riparian areas. *This site would be useful for anyone looking for publications on restoration-related topics.*

http://www.uwex.edu/erc/gwah/

Give Water a Hand. Give Water a Hand is a national watershed education program designed to involve young people in local environmental service projects. Two publications, the youth *Action Guide* and the *Leader Guidebook* are available for download. These books provide easy-to-follow, step-by-step instructions on how to organize and carry out effective action-oriented watershed projects. *This site provides useful information to anyone seeking to organize a community-based, hands-on watershed or wetland cleanup project.*

http://www.swrcb.ca.gov/
http://www.epa.gov/owow/estuaries/

National Estuary Program. The National Estuary Program (NEP) was designed to protect nationally significant estuaries in the United States. This web site provides information about estuaries, describes the NEP, contains links to *Coastlines* (the NEP's newsletter), and provides a brief summary of each of the estuaries in the program. *This web site would be useful for anyone seeking*

general information on estuaries or the steps being taken to preserve and restore wetlands in estuaries in the NEP.

http://www.wa.gov/wdfw/habitat.htm

Washington Department of Fish and Wildlife Habitat Page. This site provides information on the condition of varying habitat areas across Washington State. It also provides links to habitat restoration and protection information, including funding opportunities, technical assistance, and opportunities for action. *This site would be useful for anyone looking for information on habitat restoration and protection or funding opportunities.*

http://endeavor.des.ucdavis.edu/nrpi/

Natural Resources Project Inventory is a comprehensive searchable online database. It is an expansion of previous inventories, including the Watershed Projects Inventory, the California Ecological Restoration Projects Inventory, and the California Noxious Weed Control Projects Inventory. This database provides abstracts and contact information for numerous wetland- and restoration-related research projects. *This site would be useful for anyone looking for wetland project examples and information.*

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

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Information Resources

Wetlands Fact Sheets Now Available
EPA's Office of Wetlands, Oceans, and Watersheds, 2002
In an ongoing commitment to communicate with the general public, EPA's Wetlands Division in the Office of Wetlands, Oceans, and Watershed recently released a series of fact sheets on a host of wetland related topics. The fact sheets provide information about programs and services in the Wetlands Division as well as information on wetland restoration, protection, management, science, education, and regulatory issues. For more information, visit http://www.epa.gov/owow/wetlands/facts/contents.html, call the Wetlands hotline at (800) 832-7828, or send and e-mail to wetlands.helpline@epa.gov.

Louisiana Coastal Wetland Public Service Announcements
Louisiana Department of Natural Resources, 1999
In 1999 the Louisiana Department of Natural Resources developed a series of public service announcements (PSAs) to broaden public awareness of Louisiana's devastating coastal wetlands loss. Performers Harry Connick, Jr., Aaron Neville, Chef Paul Prudhomme, and Kermit the Frog all donated their time to send the message that Louisiana's coast is a national treasure of tremendous value to the rest of the country and must be saved. The PSAs are now available on-line at http://www.savelawetlands.org/site/psa.html.

Wetlands: A Key Link in Watershed Management. A Guide for Watershed Partnerships
by Conservation Technology Information Center (CTIC)
This brochure, available on-line at http://www.ctic.purdue.edu/KYW/Brochures/Wetlands.html, is part of CTIC's *Know Your Watershed* campaign. The brochure describes how wetlands can benefit watershed health, how wetlands form on the landscape, types of wetlands, threats to wetlands, and the process of wetland restoration.

Wetland Model and Riparian Kits
EnviroScape, Inc.

EnviroScape, Inc., offers a series of three-dimensional watershed models (approx. 25 inches by 30 inches by 5 inches) to teach people about how activities on the land can affect water quality. The models show how chemicals (drink mix) and soil (cocoa) can wash off residential, recreational, agricultural, industrial, and transportation areas and pollute nearby waterbodies. Sponges are used to emphasize the water absorption and water holding capacity of wetlands. EnviroScape, Inc. offers watershed models focusing on nonpoint source pollution, wetlands, hazardous materials, landfills, and coastal areas. These models emphasize pollution prevention through a follow-up activity that shows how to prevent such pollution through the use of best management practices.

The EnviroScape Wetlands model demonstrates the basic functions and values of inland and coastal wetland areas, how human factors affect wetlands, and how constructed wetlands can help prevent pollution. The model emphasizes the usefulness of wetlands around construction, residential, forest, agriculture, transportation, and industrial areas. Use of the model can also help students recognize different types of wetlands and become aware of activities that can help to conserve wetlands.

The EnviroScape Riparian Kit can be used to supplement any of the landscape models. It contains components for a complete demonstration of how riparian buffers affect water quality, quantity, and flow.

For more information, contact EnviroScape, 14524-F Lee Road, Chantilly, VA 20151. Phone: (703) 631-8810; e-mail: info@enviroscapes.com; Internet: http://www.enviroscapes.com/.

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