Nonpoint Source
# News-Notes

**January 2013, #93**

*The Condition of the Water-Related Environment*
*The Control of Nonpoint Sources of Water Pollution*
*The Ecological Management & Restoration of Watersheds*

United States Environmental Protection Agency

## Special Focus Issue: Leveraging Clean Water State Revolving Funds for Nonpoint Source Pollution Control

### *Introduction: Nonpoint Source Control and the Clean Water State Revolving Fund*

This issue of *Nonpoint Source News-Notes* focuses on states' use of Clean Water State Revolving Funds (CWSRF) to support nonpoint source pollution management projects. The CWSRF was established in 1987 to fund the construction of publicly owned treatment works (POTWs), nonpoint source pollution management and estuary protection projects. Historically, the majority of CWSRF funding has been directed toward POTWs, with 4.2 percent of cumulative funding provided to nonpoint source projects. Even at 4.2 percent, given that total cumulative CWSRF funding to date is currently $95.4 billion, the amount loaned for nonpoint source projects over the years is about $4 billion. Importantly, more states are discovering creative ways to leverage CWSRF to support both POTWs and nonpoint source projects.

**Pennsylvania uses CWSRF to support agricultural nonpoint source projects such as this manure storage facility. See page 11.**

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Note: Issue #92 (October 2012) was the final printed issue of *Nonpoint Source News-Notes*. Beginning with Issue #93, all issues will be available on EPA's *Nonpoint Source News-Notes* website for viewing and download. If you have not already done so, please subscribe to the News-Notes notification service (instructions available at www.epa.gov/newsnotes) and we will notify you by email when each new issue becomes available.

*Introduction: Nonpoint Source Control and the Clean Water State Revolving Fund (continued)*

Funding nonpoint source projects poses a number of unique challenges for CWSRF programs to overcome. Nonpoint source projects are often smaller than traditional wastewater infrastructure projects, but require the same amount of work to manage the funding process. Therefore, funding a large number of small, nonpoint source projects can present an administrative burden for CWSRF programs. In addition, many nonpoint source borrowers have difficulty identifying a source of loan repayment since, unlike POTWs, these projects do not generate revenue from user fees. These challenges serve as barriers to nonpoint source program managers interested in leveraging CWSRF dollars for implementation of the state nonpoint source management program. The articles presented in this special focus issue discuss examples of successful programs that states have developed to facilitate the use of CWSRF in nonpoint source management.

## *Using Clean Water State Revolving Funds for Nonpoint Source Projects: An Overview*

Congress authorized the Clean Water State Revolving Fund (CWSRF) in 1987 to help states construct publicly owned treatment works (under sections 212 and 216 of the Clean Water Act (CWA)) and implement nonpoint source pollution management (under CWA section 319) and estuary protection projects (under CWA section 320). Each year since then, the federal government has appropriated funds to the U.S. Environmental Protection Agency (EPA) for the CWSRF program, and these funds are distributed by EPA to every state according to a statutory formula. The CWSRF program provides very attractive low-interest loans that spread project costs over a repayment period of up to twenty years. Repayments are cycled back into the fund and used to pay for additional clean water projects. States have flexibility in how to operate the CWSRF program with respect to priorities for funding, loan terms (i.e., interest rate and repayment period), and mechanisms for administering the loans.

### *Eligible Nonpoint Source Project Types*

CWSRF may be used to implement a nonpoint source pollution control management program under CWA section 319. The nonpoint source projects eligible for CWSRF funding include categories such as agricultural cropland, agricultural animals, silviculture, urban, ground water (unknown source), marinas, resource extraction, brownfields remediation, containment of storage tank (including salt sheds and underground storage tanks), sanitary landfill remediation and closure, hydromodification and individual/decentralized sewage treatment. Projects in the categories of agriculture, silviculture, hydromodification and urban sources address the nonpoint sources of pollution that dominate state CWA section 305(b) reports and 303(d) lists, which indicate EPA and state priorities for the nonpoint source program. Approximately half of the nonpoint source project funding (roughly $2 billion) fits in these priority categories. Therefore, the articles presented in this special focus section primarily address CWSRF funding for projects in these priority categories.

### *CWSRF Funding for Nonpoint Source Projects*

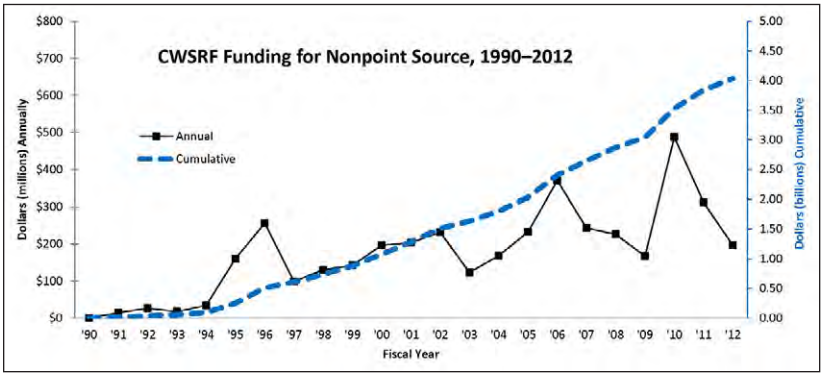


**Figure 1. CWSRF funding for nonpoint source pollution projects between 1990 and 2010. About half of this funding is for projects in nonpoint source categories that are priorities for state nonpoint source management programs. *(Source: EPA Office of Wastewater Management)***

Over the life of the program, approximately $4 billion of CWSRF funds were allocated to nonpoint source projects, accounting for 4.2 percent of cumulative CWSRF assistance provided (Figure 1). Of this, roughly half (approximately 2 percent of all CWSRF lending) has been committed to addressing the nonpoint sources of pollution that dominate state CWA section 305(b) reports and 303(d) lists. In 2012, the CWSRF provided $196.5 million in assistance to address nonpoint source management needs. Of this amount, $58.6 million was directed to agricultural and animal best management practices (BMPs), while an additional $9.5 million went to address urban stormwater.

### CWSRF Funds Support Nonpoint Source Project in Lenexa, Kansas

The City of Lenexa received $1.1 million in CWSRF ARRA funds for its Central Green Streamway Project, part of the city's Vision 2020 planning strategy that emphasizes sustainable, livable communities. The project included green stormwater management elements that capture and filter polluted stormwater runoff using a bioengineered step-pool streamway, a constructed wetland, native vegetation plantings and a water-reuse irrigation system. EPA developed a short video that highlights the project: http://water.epa.gov/grants_funding/cwsrf/Green-Project-Reserve.cfm.

In 2009, federal funds distributed to states under the American Recovery and Reinvestment Act (ARRA) provided approximately $4 billion in extra funds that went above and beyond the annual allocation for CWSRF. ARRA established a new CWSRF Green Project Reserve (GPR) requirement, directing states to set aside at least 20 percent of their annual CWSRF allotment for projects with energy efficiency, water efficiency, green infrastructure or other environmentally innovative project components—many of which would fall under the nonpoint source pollution control umbrella. Overall for 2009, approximately 30 percent of total ARRA funding for CWSRF projects went to GPR projects (approximately $1.1 billion). (See box for an example of a CWSRF-funded green project in Lenexa, Kansas.)

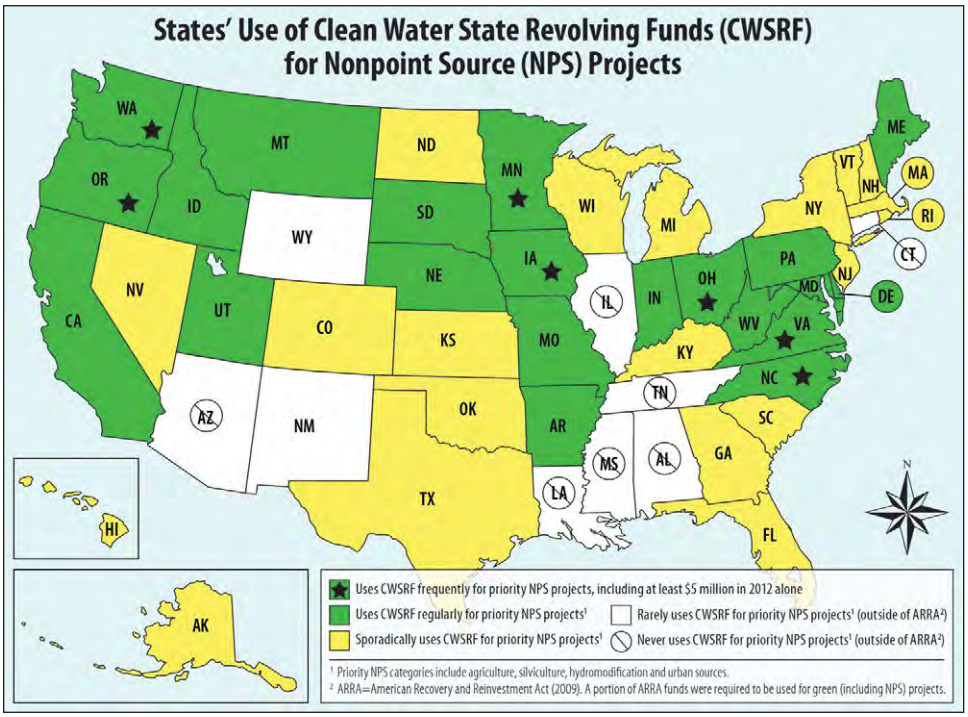


**Figure 2. Overview of states' use of CWSRF for nonpoint source pollution control projects.**

Before ARRA, at least seven states had never used CWSRF funds for nonpoint source projects—even though these projects have always been eligible for CWSRF. As a result of the ARRA requirements, several of these states have made progress expanding CWSRF-eligible projects to include nonpoint source categories. Figure 2 provides an overview of states' use of CWSRF for nonpoint source protection projects through 2012. State summary CWSRF data can be found in the CWSRF National Information Management System at http://water.epa.gov/grants_funding/cwsrf/cwnims_index.cfm.

With the success of the GPR implemented under ARRA, the GPR requirement was included in the fiscal year (FY) 2010, FY 2011 and FY 2012 CWSRF appropriations. For FY 2010 and FY 2011, each state was directed to continue allocating at least 20 percent of its CWSRF capitalization grant to eligible GPR projects. For FY 2012, the required GPR allocation was reduced to a minimum of 10 percent of a state's CWSRF capitalization grant (although states could allocate more).

## *CWSRF Provides Flexible Funding Options for Nonpoint Source Projects*

States have flexibility in how to operate the CWSRF program with respect to priorities for funding, loan terms (i.e., interest rate and repayment period), and mechanisms for administering the loans. States use a variety of lending methods to reach different potential borrowers with CWSRF.

*Using Clean Water State Revolving Funds for Nonpoint Source Projects: An Overview (continued)*

Direct lending is just one of the options. Many states use conduit lending (loans passed through state agencies, municipalities or local banks) to reach more borrowers. These lending methods are often called pass-through or linked-deposit lending.

In a pass-through loan, a state CWSRF program makes a loan to a state agency or a locality that then passes the money to private borrowers as loans for nonpoint source pollution projects. The town, county or state agency reviews the project and the financial health of each borrower. In a linked-deposit loan approach, a state works with local private lending institutions to fund nonpoint source pollution control. The state agrees to accept a reduced rate of return on an investment (e.g., a certificate of deposit) and the lending institution agrees to provide a loan to a borrower at a similarly reduced interest rate. Some states add incentives for CWSRF-funded nonpoint source projects. For example, states might offer reduced CWSRF interest rates for nonpoint source projects. In addition, some states offer programs that provide reduced interest rates for POTWs that set-aside funds to sponsor a nonpoint source project elsewhere. Examples of pass-through loans, linked-deposit loans and other incentive-based approaches to CWSRF financial assistance are explored further in other articles in this special focus issue.

**EPA Webcast Highlights Use of Clean Water State Revolving Funds for Nonpoint Source Projects**

In April 2012, the EPA Watershed Academy sponsored a two-hour webcast explaining how states across the United States are using the CWSRF for nonpoint source and National Estuary Program projects. This webcast introduced the CWSRF program, highlighted creative ways that states can use the funds for nonpoint source and estuary projects, and offered detailed case studies from Maine and Washington. For more information, see http://water.epa.gov/learn/training/wacademy/archives.cfm#funding.

## States Partner with Public Entities to Distribute CWSRF

In a number of states, the state nonpoint source program works closely with the Clean Water State Revolving Fund (CWSRF) program to prioritize nonpoint source project proposals for CWSRF. In some cases, this means collaborating across state agencies and, in most cases, across offices and divisions within the same agency. In general, the extent to which a state administers CWSRF loans to nonpoint source projects often depends on partnerships between CWSRF program and other entities.

Some states pursue partnerships with other public entities to offer CWSRF loans for nonpoint source control and management projects. For example, a state can make a CWSRF "pass-through loan" to a municipality or conservation district, which then passes the money on to private borrowers as loans for nonpoint source pollution projects. These loans are usually made at substantially below-market rates. The town, county or state agency is responsible for reviewing the project and the financial health of each borrower. Examples of state CWSRF programs that are partnering with various other public entities to support nonpoint source projects are discussed below.

### Partnerships Between CWSRF Programs and Other Public and Private Entities

**Minnesota's** CWSRF program is highly integrated with its nonpoint source program, providing almost $15 million in nonpoint source loans in fiscal year (FY) 2010. The majority of this was loaned to implement agricultural best management practices (BMPs) through the state's Clean Water Partnership between the Minnesota Pollution Control Agency and the Minnesota Department of Agriculture (MDA). In FY2010, $5.4 million was provided to control nonpoint source impacts from cropland and $3.4 million was provided to control nonpoint source impacts from non-confined animal feeding operations. Another $6.0 million was loaned to upgrade failing or underperforming septic systems. Minnesota's Agricultural BMP loan program, managed by MDA, is unique among CWSRF programs because of the many partners involved in its operation (see www.mda.state.mn.us/grants/loans/agbmploan.aspx for more information). Counties receive loans from the CWSRF, and the counties manage agricultural BMP loan programs at a local level. Soil and water conservation districts assist farmers with needs assessment and with project planning and design. Between 2006 and 2011, the BMP loan program provided an average of $13.4 million in loans to farmers each year, supporting an average of 685 BMP implementation projects annually. Since the program began in 1995, the BMP loan program has provided more than $160 million in loans, helping to implement almost 11,000 agricultural BMP projects (through June 30, 2011).

**Delaware** has developed an Agricultural Non-Point Source Loan Program as part of its CWSRF. Local conservation district planners and NRCS assist agricultural producers with needs assessments and with project planning and design. This program targets poultry and dairy producers by underwriting up to 90 percent of the producer's share of the cost of building manure storage and composting structures (Figure 1). Borrowers guarantee repayment of the loans with revenue streams from poultry integrators (large poultry companies that supply chicks and food to farmers, who are under contract to raise the poultry until market-ready) and dairy cooperatives. Poultry and dairy producers must have approved waste management plans to be eligible to receive funding for approved practices. By 2011, Delaware had funded more than 720 agricultural projects for $7.35 million. (In a separate program, Delaware has also applied $6.2 million from the CWSRF over the years to repair or upgrade failing septic systems.) For more information, see www.dnrec.delaware.gov/swc/services/Pages/LoansGrantsCostShare.aspx.

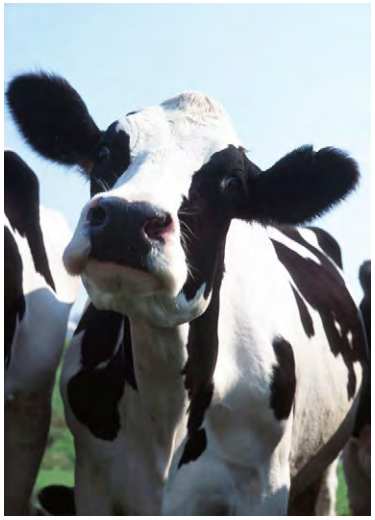

**Figure 1. Delaware's Agricultural Non-Point Source Loan Program uses funds from CWSRF to support dairy BMPs. (*Photo by Bob Nichols, NRCS)***

The **Maine** Forest Service's Division of Forest Policy and Management, the Maine Department of Environmental Protection, and the Maine Municipal Bond Bank have teamed up on the Forestry Direct Link Loan Program, which provides incentive financing to loggers that reduce nonpoint source pollution risk on timber harvests in Maine. This program lends between $3 million and $4 million annually. For more information, see www.maine.gov/doc/mfs/fpm/water/direct_link_loan/index.html.

### *Pass-Through Loans*

The **Washington** Department of Ecology (CWSRF agency) lends to conservation districts, which in turn provide low interest loans to farmers for nonpoint source projects (Figure 2). The conservation districts guarantee repayment to CWSRF by incorporating the cost into the county tax assessments. As the farmers incur costs, they provide invoices to the conservation districts, which send them to the CWSRF program for reimbursement. Many counties in the state have used the Washington State Water Pollution Control Revolving Fund low-interest loan program to create local loan programs to help residents and small businesses pay for needed repairs and upgrades of faulty on-site sewage systems (see https://fortress.wa.gov/ecy/publications/publications/0110024.pdf for details). Since 2007, Washington has also awarded grants from its Centennial Clean Water Fund (Centennial) for administrative costs of those programs and for grants to residents who cannot qualify for low-interest loans. Most of these loan and grant programs are administered by local health jurisdictions that apply for loan and grant funding through the Department of Ecology's Water Quality Financial Assistance Program (which includes CWSRF and Centennial funds). The CWSRF and Centennial programs have provided more than $18 million for this purpose between 2002 and 2011, repairing or replacing more than 600 failing on-site sewage systems. For more information, see www.ecy.wa.gov/programs/wq/funding/FundingPrograms/CWSRF/cwsrf.html.

**Figure 2. A farmer uses a no-till planter on a steep slope in southeastern Washington to prevent soil erosion. *(Photo byTim McCabe, NRCS)***

The **Rhode Island** Department of Environmental Management (RIDEM) coordinates with the Rhode Island Clean Water Finance Agency on the state's Community Septic System Loan Program (CSSLP), which was established in 1999. Under the CSSLP, municipalities with a RIDEM-approved onsite wastewater management plan can apply for a low-interest loan for a term of 10 years. A

*States Partner with Public Entities to Distribute CWSRF (continued)*

municipality receiving a CSSLP loan will distribute the funds to homeowners in accordance with the onsite wastewater management plan. For more information, see www.ricwfa.com/CommunitySepticSystemLoanProgram.html.

### *Partnerships Between CWSRF and other Federal Assistance Programs*

The **West Virginia** CWSRF, in partnership with state and federal agencies and banks, provides cost share for the Environmental Quality Incentives Program (EQIP). CWSRF funds are available for installing agricultural BMP projects, remediating failing septic systems and removing straight pipes. Since 1998, more than $6 million has been loaned to fund agricultural BMPs. West Virginia also uses CWSRF loans for remediating failing septic systems and removing straightpipes carrying raw sewage (more than $4 million since 1998). For more information, see www.dep.wv.gov/WWE/Programs/SRF/Pages/default.aspx.

In **Oklahoma**, the City of Tulsa borrowed $1.25 million of CWSRF funds from the Oklahoma Water Resources Board to invest in permanent riparian easements to protect its water supply reservoir in 2008. These funds were used as match for the USDA Conservation Reserve Enhancement Program projects in that watershed. For information on Oklahoma's CWSRF program, see www.owrb.ok.gov/financing/loan/cwsrfloans.php.

The **North Dakota** nonpoint source program coordinates with the CWSRF program on a Livestock Waste Management System SRF program, which has annual funding commitments of at least $500,000. This program helps producers meet match requirements for CWA section 319 and cost-share requirements for USDA Farm Bill EQIP-funded manure management systems. For more information on North Dakota's CWSRF program, see www.ndhealth.gov/WQ/sw/Z1_NPS/E_Livestock_SRF_Program.htm.

## *Innovative Techniques Encourage Use of CWSRF for Nonpoint Source Pollution*

Because the Clean Water State Revolving Fund (CWSRF) program is very flexible, some states have developed innovative methods of capitalizing on the availability of this funding source and encouraging nonpoint source project implementation. Examples include: using repaid loan money as non-federal match funds for Clean Water Act (CWA) section 319 or other grants (these are often referred to as "recycled funds"); offering lower interest rates for nonpoint source projects or traditional projects that include a nonpoint source component; and offering lower interest rates to publicly owned treatment works (POTW) that offer to use the savings to sponsor nonpoint source projects elsewhere in the project watershed.

### *Using Recycled CWSRF Funds as Match for CWA Section 319 Grants*

In a few states, the state nonpoint source and CWSRF programs use "recycled" CWSRF funds to match CWA section 319 grant awards. Recycled CWSRF funds come from loans that have been paid back to a state, and thus are "recycled" back into the state's CWSRF program. Once the funds return to the state, they lose their identity as federal funds and are no longer treated as such. They can therefore be used to provide all or part of the required 40 percent non-federal match for CWA section 319 grants. For example, **California** uses recycled CWSRF investments in nonpoint source projects toward its required match contribution to its CWA section 319 grant from EPA. Because California uses this mechanism to provide the required 40 percent match up-front, the state can be flexible in its match requirements for target groups such as disadvantaged communities. Similarly, **Indiana** relies on recycled SRF funds to meet its federal CWA section 319 grant match obligations. Since 2004, Indiana Finance Authority has had a Nonpoint Source Incentive Fund (www.in.gov/ifa/srf/2385.htm) that focuses on extending sewers to areas with failing septic systems. Between 2004 and 2010, $147 million of CWSRF funds were loaned to remove more than 7,400 failing and underperforming septic systems. Programs in Montana and Utah also use recycled funds to support their nonpoint source programs.

*Innovative Techniques Encourage Use of CWSRF for Nonpoint Source Pollution (continued)*

### *Offering Favorable CWSRF Interest Rates for Nonpoint Source Projects*

Since 2004, **South Dakota's** Department of Environment and Natural Resources' nonpoint source program has worked with the state's Board of Water and Natural Resources to develop an incentive rate to promote the use of CWSRF funds for nonpoint source projects. To be eligible for the special nonpoint source incentive rate, a project must be part of an approved CWA section 319 grant project implementation plan. Between 2004 and 2010, more than $8 million has been provided for nonpoint source activities as a result of the incentive rate program.

Traditional wastewater or stormwater projects that include a nonpoint source component may also qualify for the special nonpoint source incentive rate. The annual principal and interest payments are calculated for a loan at the higher base interest rate. Using the lower interest incentive rate, a loan is sized using the annual payment previously calculated. The difference in the two loan amounts is the amount of funding available for the nonpoint source component of the project. For additional information, see http://denr.sd.gov/dfta/wwf/cwsrf/11cwsrfiup.pdf.

### *CWSRF Sponsorship Programs Provide Funds for Nonpoint Source Projects*

Some states seek "sponsorships," whereby a POTW agrees to add the cost of a nonpoint source project to its loan in return for a reduced CWSRF interest rate. In this case, the loan is repaid in full with POTW user fees. Because of the reduced interest rate, the nonpoint source project combination costs the POTW the same or slightly less than the traditional project would have cost at the normal CWSRF interest rates. Plus, the organizers of the nonpoint source project have no repayment responsibility. This type of innovative approach is a useful tool for nonpoint source projects in a state's priority watersheds, where no revenue stream is available to repay a loan. Ohio, Idaho and Oregon use loan sponsorships to help direct CWSRF funds to nonpoint source projects.

**Ohio's** Water Resource Restoration Sponsor Program (WRRSP) provides communities with the opportunity to sponsor nonpoint source projects using the interest savings generated through a below-market-rate POTW project loan. Funds for the WRRSP nonpoint source project are made available by advancing a portion of the estimated amount of interest to be repaid by the sponsor over the life of the loan. The loan is repaid over time with user fees. For more information, see "Ohio Funds Nonpoint Source Projects Using Linked-Deposits and Sponsorships" on page 8 of this newsletter.

**Idaho** Department of Environmental Quality's (DEQ) CWSRF "sponsorship agreements," patterned after Ohio's WRRSP, provide funding to nonpoint source projects that have a nexus with the point source community by adjusting either the interest rate charged on wastewater treatment/collection facility loans or extended term financing that lowers the annual debt service. The nonpoint source project costs are generally funded by interest rate reductions, so that point source rate payers do not experience an increase in their rate burden. The nonpoint source projects are administered by the CWA section 319 grant staff within DEQ and have the same administrative conditions as any section 319 grant. Because the program is still new, DEQ is helping to facilitate the sponsorship of nonpoint source projects by connecting a potential sponsor with a project that is in the same watershed and has an accurate CWA section 319 grant application on file. In fiscal year 2012, DEQ helped to facilitate three nonpoint source sponsorship projects worth almost $350,000, including $150,000 for the Friends of the Teton River's channelization repair project on Teton Creek (sponsor: City of Driggs); $84,375 for the Bear Lake Soil and Water Conservation District's Ovid Creek livestock exclusion project (sponsor: City of Georgetown); and $113,700 for the Franklin Soil and Water Conservation District's streambank stabilization project (sponsor: City of Franklin).

**Oregon** DEQ's "sponsorship option" financing, available for public agencies, allows a watershed restoration project to be funded in conjunction with a community's traditional wastewater project. Examples of nonpoint source projects in Oregon funded through this sponsorship option include: (1) a project in Portland in September 2003 that provided $2.3 million for streambank restoration

*Innovative Techniques Encourage Use of CWSRF for Nonpoint Source Pollution (continued)*

along the Willamette River and its tributaries, and (2) a project with the City of Woodburn in February 2010 that received $411,000 for riparian area enhancements (restoring native vegetation, wildlife habitat, and providing additional shading) within the Pudding River watershed. The Pudding River watershed project was implemented in conjunction with upgrades to the city wastewater collection and treatment facilities and was paid by sewer rates. For more information on Oregon's sponsorship option, see www.deq.state.or.us/wq/pubs/factsheets/loans/11WQ009CWSRFLoanSponsorOption.pdf.

## Ohio Funds Nonpoint Source Projects Using Linked-Deposit Loans and Sponsorships

In Ohio, the federal Clean Water State Revolving Fund (CWSRF) is administered through Ohio's Water Pollution Control Loan Fund (WPCLF). The WPCLF provides financial and technical assistance to public or private applicants for the planning, design and construction of a wide variety of projects to protect or improve the quality of Ohio's rivers, streams, lakes and other water resources. Ohio was one of the first states to actively use CWSRF/WPCLF funds to support nonpoint source projects. Although Clean Water Act section 319 funds remain the state's primary funding mechanism to support nonpoint source restoration and protection projects, "the use of the WPCLF for nonpoint source projects is an important tool in Ohio's nonpoint source toolbox," explains Russ Gibson, Nonpoint Source Program manager in the Ohio Environmental Protection Agency (Ohio EPA).

WPCLF projects intended to reduce nonpoint source pollution are typically funded in one of two ways in Ohio: (1) through the WPCLF's linked-deposit loan program or (2) the WPCLF's Water Resource Restoration Sponsor Program (WRRSP):

### Ohio EPA's Linked-Deposit Loan Program

Ohio created the innovative practice of the linked-deposit loan program under the WPCLF and has relied on it since 1993 to fund projects that support county watershed management plans. In a linked-deposit loan program, the state works with local private lending institutions to fund nonpoint source pollution control. The state agrees to accept a reduced rate of return on an investment (e.g., a certificate of deposit, or CD) and the lending institution agrees to provide a loan to a borrower at a similarly reduced interest rate (Figure 1). In this program, the CWSRF investment (deposit) is linked to a low-interest loan, thereby earning the description "linked-deposit loan."

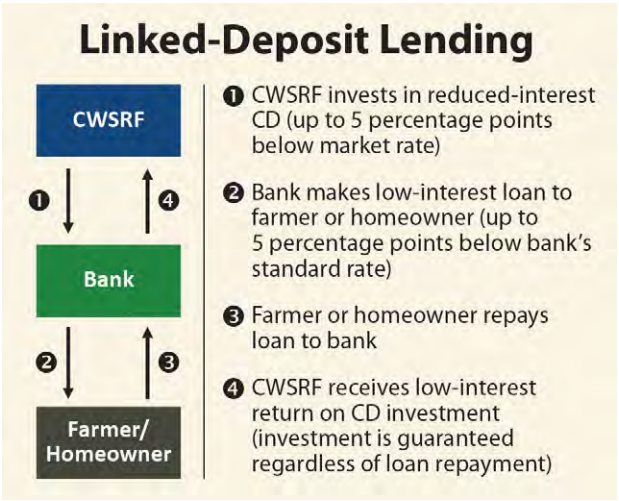


**Figure 1. In a linked-deposit loan program, the state CWSRF program invests in banks' low-interest CDs, allowing the banks to use the capital to lend to local borrowers (e.g., farmers or homeowners) at a reduced interest rate.**

In Ohio, as in other states, linked-deposit loan programs provide benefits for CWSRF programs, local financial institutions and borrowers. CWSRF programs can support high priority nonpoint source projects and place risk and management responsibilities with local lenders. Financial institutions earn normal profits from the linked-deposit agreements and offer an additional service for their customers. Borrowers save money with low-interest loans and can comfortably work with their local bank or credit union.

Ohio's linked-deposit loan program is administered at the county level. Each county's program is developed with two concurrent steps: (1) the county soil and water conservation district (SWCD) develops a watershed management plan and (2) the WPCLF and local financial institutions enter into agreements describing requirements and procedures for linked-deposit loans. Watershed management plans identify and prioritize pollution sources, suggest mitigation actions, identify funding sources, and establish an implementation schedule for water quality improvements. The WPCLF and the SWCD then sign a memorandum of understanding that describes how these two entities will coordinate their implementation of the management plan.

*Ohio Funds Nonpoint Source Projects Using Linked-Deposit Loans and Sponsorships (continued)*

As development and review of a watershed management plan proceeds, SWCDs identify local banks that would like to participate in a linked-deposit program. The SWCDs assist farmers with needs assessment, planning and design, and cost estimates. Any borrower with a project that helps to implement the watershed management plan may apply for a linked-deposit loan. Eligible agricultural best management practices (BMPs) include drainage control structures, longer crop rotation cycles, field runoff and drainage filtration/detention, precision fertilizer application equipment purchases, soil testing, and improved manure storage and handling. The program can also provide loan assistance for needs ranging from home sewage treatment system repair/replacement to BMPs to prevent runoff from salt piles.

Once a borrower applies for a loan, participating banks review the borrower's credit using their own credit standards. If a bank approves a linked-deposit loan, the WPCLF purchases a CD of equal value from the bank. The WPCLF accepts a CD interest rate that is up to five percent lower than the rate of a U.S. Treasury Note or Bond with the same term. The bank reduces the borrower's loan interest rate by the same amount as the reduction of the CD's interest (up to five percent). The bank makes semiannual payments of principal and interest to repay the CWSRF for its investment in the CD, even if the borrower defaults on the linked-deposit loan.

Since its inception, Ohio EPA has made in excess of $74.7 million available for nonpoint source projects; of that, stakeholders have borrowed $69.6 million for agricultural BMPs, $978,538 for septic system repair/replacement and $4.2 million for silviculture BMPs. In 2013, Ohio EPA will make an additional $30 million dollars available statewide for linked-deposit loans with a special emphasis on nutrient reduction in the Western Lake Erie Basin. However, because of the current economic climate, Ohio EPA does not expect to disperse all available funds in 2013. "Interest rates have remained extremely low in recent years, prompting many individuals to seek financing on their own—through home equity loans, for example," explains Kevin Spurbeck with the Ohio EPA's Division of Environmental and Financial Assistance. "As a result, not many people have been taking advantage of the state's linked-deposit loan program." Approximately 260 of people used the linked deposit program in 2009-2011, compared to 576 in 2000-2002. "When interest rates go up in the future, we expect to see more people use the program again," adds Spurbeck.

### Linked-Deposit Programs in Other States

Other states, including Maryland, Arkansas and Iowa, have followed Ohio's lead and are also implementing linked-deposit lending to help fund nonpoint source projects:

Maryland relies on a linked-deposit mechanism (in addition to direct CWSRF loans) to provide a source of low interest financing to implement nonpoint source capital improvements that will provide safe drinking water and reduce the delivery of nutrients to the Chesapeake Bay and its tributaries. Eligible projects include agricultural BMPs, septic, stormwater and shoreline erosion control projects. For more information, see www.mde.state.md.us/programs/Water/QualityFinancing/LinkedDeposit/.

The Arkansas Natural Resources Commission (ANRC) provides CWSRF funds to support nonpoint source projects such as building stacking and compost sheds, installing livestock exclusion fences, practices to recover irrigation tail water, and purchasing no-till farming drills. Local conservation districts partner with ANRC to approve project plans and approve the completed projects. The CWSRF purchases CDs at 49 banks, which in turn make reduced interest rate (3 percent) loans to local farmers to implement agricultural BMPs. More than $50 million had been loaned for agricultural nonpoint source projects in 35 counties through 2011. For more information, see www.anrc.arkansas.gov/water%20resources%20management/water_and_wastewater_funding.html.

Iowa's nonpoint source program staff members in the Department of Natural Resources coordinate with the Iowa CWSRF program and Iowa Department of Agriculture, Land and Stewardship (IDALS) to administer the CWSRF program. Total FY10 SRF funding for priority nonpoint source projects was $18 million. The nonpoint source program coordinator directly participates in the onsite systems component of the SRF program and works with IDALs to support the Local Water Protection Program (LWPP) and the Livestock Water Quality Program (LWQP), both agriculture-focused components of the Iowa CWSRF program. The LWPP and the LWQP, working through participating lenders and the local soil and water conservation districts, offer low-interest loans to Iowa landowners and livestock producers for projects to implement best management practices to prevent sediment, nutrients, pesticides or other nonpoint source pollutants from entering Iowa waters in runoff. For more information, see www.iowasrf.com/program/other_water_quality_programs.

*Ohio Funds Nonpoint Source Projects Using Linked-Deposit Loans and Sponsorships (continued)*

## *Ohio EPA's Sponsorship Loan Program*

A second option for funding nonpoint source project is Ohio's Water Resource Restoration Sponsor Program (WRRSP). Typically, Ohio communities with publicly owned treatment works (POTWs) apply for loans to improve their treatment systems using the WPCLF. The community pays back the loan with POTW system user fees. To reduce the interest rates on their loan—and improve local water resources at the same time—these communities can apply for the WRRSP. The objective of the WRRSP is to permanently protect or restore the aquatic life uses of the waterbody. The WRRSP allows communities to sponsor nonpoint source projects using the interest savings generated when the WPCLF offers loans for the POTWs at below-market rates. Funds for WRRSP projects are made available by advancing a portion of the estimated amount of interest to be repaid by the sponsor over the life of the loan. The amount of available funding is based upon the initial principal amount, the term of the loan and the interest rate.

Sponsors benefit because they receive up to an extra 0.1 percent interest rate discount on the POTW financing, which will reduce the total loan repayments. A community sponsor that participates in the WRRSP does not typically implement a restoration project. Rather, the community often enters into a sponsorship agreement with an implementing partner, such as a land trust or a park district, which develops and implements a habitat protection and restoration plan. The sponsorship agreement requires that the implementing partner develop and implement this plan to permanently and fully restore watershed resources, but it does not require the implementing partner to make any repayments on the CWSRF loan. The sponsoring community makes all repayments to the WPCLF.

**Figure 2. A lock on the right side of the stream channel created a pool behind the dam. The dammed water often became stagnant and contributed to poor water quality and aquatic habitat upstream.**

**Figure 3. Project partners removed the lock and restored the river channel.**

In recent years Ohio has set aside $15 million annually through WRRSP to support priority nonpoint source restoration projects and priority watershed protection projects—$7.5 million for each type. During some years, not all of the available funding was used. Over the 12 years since the WRRSP program started, approximately $145 million has been obligated. Previous WRRSP projects have included stream restoration, wetland acquisition and restoration, riparian area improvements and preservation, and in-stream habitat enhancements and dam removals. WRRSP projects are often linked to specific action items and/or recommendations within state total maximum daily load (TMDL) studies and locally prepared watershed management action plans.

For example, a TMDL developed in 1999 on the Middle Cuyahoga River identified a series of dams, including Kent Dam in the City of Kent, as partially responsible for water quality problems. Because the TMDL identified the dams as a priority, the City of Kent was able to work with two local sponsors to secure WRRSP funds to modify one of the dams. The $5 million project received about half of its funding through WRRSP, including $1.24 million from the City of Massillon in 2001 and $1.2 million from the City of Ravenna in 2003. The project involved removing an old canal lock east of the historically significant Kent Dam to provide for a free-flowing river channel, while at the same time preserving and restoring the dam's famous arch structure (Figures 2 and 3). The former dam pool area was converted into a park and a waterfall was built to mimic the historical look of the area (Figure 4). To further restore water quality and aquatic habitat, the project incorporated extensive natural stream channel and streambank restoration above the dam. The dam modification project helped to restore the aquatic life designated use in an 8-mile segment of the Cuyahoga

*Ohio Funds Nonpoint Source Projects Using Linked-Deposit Loans and Sponsorships (continued)*

above Kent Dam. For more information, see Ohio's Middle Cuyahoga Nonpoint Source Success Story at http://water.epa.gov/polwaste/nps/success319/oh_cuy.cfm.

More details on Ohio's WPCLF/CWSRF-related nonpoint source funding programs are available at Ohio EPA's Division of Environmental and Financial Assistance website (www.epa.ohio.gov/defa).

*[For more information, contact Kevin Spurbeck, Ohio Environmental Protection Agency, Division of Environmental and Financial Assistance, P.O. Box 1049, Columbus, Ohio 43216-1049. Phone: 614-644-3645; Email: kevin.spurbeck@epa.state.oh.us]*

**Figure 4. Partners replaced the old dam pool with a park. To preserve the look of the historically important dam structure and waterfall, project partners installed a pump to deliver water into a channel behind the dam that allows water to spill over into the river below.**

## New CWSRF Subfund Supports Nonpoint Source Projects in Pennsylvania

In 2010, the Pennsylvania Infrastructure Investment Authority (PENNVEST), which manages the state's Clean Water State Revolving Fund (CWSRF) assets, expanded to include support of nonpoint source pollution control projects. Pennsylvania used a portion of its Clean Water Act section 319 base funds in 2010 to hire a dedicated full-time employee to work with the PENNVEST authority and county conservation districts (CCDs) to improve the quantity and quality of funded nonpoint source projects. As a result of this use of base funds, PENNVEST is now well-integrated into the state's nonpoint source program.

In 2010, the influx of American Recovery and Reinvestment Act (ARRA) funds into the CWSRF allowed more than $14 million to support agricultural best management practices (BMPs) for manure management. Pennsylvania has maintained its commitment to continue funding nonpoint source projects after the ARRA funds expired. In fiscal year 2013, PENNVEST has committed $10 million to fund nonpoint source projects through CWSRF, including $5 million in loans and $5 million in grants.

### Program Emphasizes Priority Nonpoint Source Projects

**Figure 1. In the winter of 2011-2012, PENNVEST funds supported installation of this new concrete manure storage area and stabilized animal walkway at the Zook Farm in Lancaster County. For more project information see http://pacd.org/webfresh/wp-content/uploads/2012/05/Zook.pdf.**

In each quarterly funding cycle, PENNVEST and the Pennsylvania Department of Environmental Protection develop a list of priority nonpoint source projects that will be considered for CWSRF funding (Figure 1). Projects are chosen based on numerous factors, including pollution reduction potential and project location. In July 2012, 10 of the top 11 priority projects focused on implementing agricultural BMPs to control nutrient and sediment in runoff.

Existing PENNVEST statute and regulations limit nonpoint source funding to governmental entities such as municipalities, municipal authorities and CCDs. In agricultural areas, CCDs typically apply for and manage the CWSRF nonpoint source funds. Farmers who want to participate in the CWSRF nonpoint program submit financial information to PENNVEST for review and approval. Depending on their financial situation, eligible farmers can receive approval for grants, loans, or a combination of both. A CCD signs a non-recourse form with PENNVEST, so if a farmer is unable to repay the entire loan amount, the CCD is not liable for the funds.

*New CWSRF Subfund Supports Nonpoint Source Projects in Pennsylvania (continued)*

## *Program Supports Nutrient Credit Trading*

One of Pennsylvania's primary drivers for creating this CWSRF nonpoint source subfund is to facilitate nutrient trading between point and nonpoint sources, and in particular to encourage trades with agricultural operators. Pennsylvania sees point-nonpoint nutrient trading as a central strategy for implementing the recently developed Chesapeake Bay Total Maximum Daily Load (TMDL) and for creating options for nutrient reductions during renewals of wastewater treatment plant discharge permits.


**Figure 2. Operators in the Susquehanna and Potomac River watersheds in Pennsylvania are eligible to participate in the state's nutrient credit trading program. Major river basins are labeled by river name.**

PENNVEST, working in conjunction with the Pennsylvania Department of Environmental Protection (DEP), hosts auctions for the sale and purchase of nutrient credits in the Chesapeake Bay watershed, which includes Pennsylvania's portion of the Susquehanna and Potomac river basins (Figure 2). PENNVEST's Nutrient Credit Trading program provides a cost-effective means for regulated public and private wastewater treatment plants and other parties to purchase credits to meet their nitrogen and (see box).

PENNVEST has conducted eight nutrient credit auctions to date. The first auction, held in October 2010, yielded an annual removal of 21,000 pounds of nitrogen from the Susquehanna River watershed through 2013 at a price of $3.04 per nitrogen credit. PennVEST conducted its second auction in November 2010, which resulted in the annual removal of 41,000 pounds of nitrogen from the Susquehanna River watershed at a price of $2.75 per nitrogen credit. A recent auction held in September 2012 resulted in removal of 16,650 pounds of nitrogen (at $3.17 per credit) and 200 pounds of phosphorus (at $2.60 per credit) from the Susquehanna River watershed through the end of 2012. Other credits were sold for compliance years 2013 through 2015 (see www.markit.com/en/products/environmental/auctions/pennvest.page for full results).

## *Nutrient Credits from BMPs Can Repay Loans*

Ultimately, PENNVEST intends for the CWSRF nonpoint source program to be mostly distributed as low-interest loans—and for the nutrient credit trading market to be one possible key to repayment. Farmers will use the loan funds to pay for nutrient-reducing BMPs, which will

### Pennsylvania's Nutrient Credit Trading Program and Clearinghouse

Nutrient trading is a market-based program that provides financial incentives for entities to create nutrient reduction credits. The credits can be traded to help others more cost-effectively meet their nutrient reduction obligations or goals. For example, a nonpoint source may implement a BMP such as a cover crop, which can generate reduction credits, and those reduction credits can then be sold to a wastewater treatment facility to be used towards National Pollutant Discharge Elimination System (NPDES) compliance for nitrogen and/or phosphorous limits. In addition, a point source may generate and sell credits to another point source if the nutrient levels in that generating facility's discharge are below the established NPDES nitrogen and/or phosphorous cap load limits.

In Pennsylvania, PENNVEST serves as a clearinghouse (see www.dep.state.pa.us/river/nutrienttrading/clearinghouse) in which credit buyers and sellers contract with PENNVEST rather than directly with each other. In this way, PENNVEST reduces the market risk otherwise facing buyers and sellers, which in turn creates a more viable and robust nutrient credit trading market in Pennsylvania.

The program is a collaborative effort between PENNVEST and the Pennsylvania DEP, the environmental regulatory agency. DEP certifies, registers and verifies nutrient credits and PENNVEST purchases those credits from suppliers. In turn, PENNVEST sells the credits to regulated point sources, which can use the credits to comply with NPDES permitting requirements. Pennsylvania's eligible regulated public and private wastewater treatment plants, as well as developers and others, may purchase nutrient credits from PENNVEST, who in turn will purchase credits from credit generators and aggregators. These transactions occur through periodic credit auctions as well as through bilateral agreements. More information about the nutrient credit trading program is available at www.dep.state.pa.us/river/Nutrient%20Trading.htm and www.pennvest.state.pa.us/portal/server.pt/community/nutrient_credit_trading/19518.

*New CWSRF Subfund Supports Nonpoint Source Projects in Pennsylvania (continued)*

generate nutrient credits. The farmer can then sell those credits and use the money to pay off the loan, thereby recycling the funds back into the CWSRF system and making those funds available for additional BMPs. "We haven't gotten to that point yet. Many of our farmers are still working toward meeting the baseline threshold necessary to have their nutrient credits certified," notes Terry Fisher, the Pennsylvania Association of Conservation District's PENNVEST Nonpoint Source Coordinator. "This new program is still growing and evolving."

In the meantime, some companies are working as nutrient credit aggregators—they collect small numbers of credits from multiple farmers and combine them into one marketable amount. Some aggregators generate nonpoint source-based nutrient credits for farmers by transporting their excess manure to other farms to be used as fertilizer. PENNVEST plans to continue to hold auctions on a regular basis and expects the agricultural nonpoint source nutrient credit market to grow once efforts to implement the Chesapeake Bay TMDL increase.

More details about PENNVEST's Nonpoint Source Pollution Program are available at http://pacd.org/pennvest-application-assistance.

*[For more information, contact Terry Fisher, Pennsylvania Association of Conservation Districts, 25 North Front St., Harrisburg, PA 17101. Phone: 717-238-7223 x11; Email: terry-fisher@pacd.org]*

## Designating CWSRF Loan Interest Fund for Nonpoint Source Projects in Utah

Recent legislative changes in Utah have increased Clean Water State Revolving Fund (CWSRF) support for the state's nonpoint source program. A 2007 law revised the existing state revolving fund statute to authorize the Utah Water Quality Board, which administers the CWSRF program, to fund eligible nonpoint source projects through loans from either the Utah Wastewater Loan program subaccount or grants from the Hardship Grant Program, which are financed principally through fees (assessments) and interest charged on state revolving fund loans. The nonpoint source reserve is a minimum of $1 million annually for loans (as low as zero percent interest for up to 20 years repayment) and Hardship Grants. Between 2007 and 2011, the program has provided $7.4 million in direct grants for 97 nonpoint source projects.

In 2009, Utah provided almost $900,000 in direct grants to support nonpoint source projects. Examples include funding for projects that reduced pollution from agricultural areas, such as $11,000 to install pivot sprinklers to replace flood irrigation along the Beaver River and $33,000 to partially fund a manure storage facility along the Cub River. The grant program also provided $50,000 to support a streambank restoration effort along the San Pitch River and $10,000 for stream restoration and fencing along the Sevier River (Figure 1). Additional funding (approximately $350,000) supported efforts to develop and implement a statewide animal feeding operation management strategy. Grants helped to support many other important agricultural, educational and assessment projects. In 2009, the CWSRF also provided almost $115,000 in loans to support animal waste improvements on a farm along the Weber River. (The Weber River projects were also supported by $77,780 from the Natural Resources Conservation Service and $33,800 from the Clean Water Act section 319 program.)

**Figure 1. The Sevier River is in south central Utah.**

The Utah Water Quality Board also funds other nonpoint source projects through the CWRF, beyond the $1 million reserve. In 2009, three municipal wastewater treatment projects that were funded with CWSRF point source loans set aside funding for nonpoint source projects. South Valley Water Reclamation Facility provided $2,000,000 for NPS projects within the Jordan River Watershed. The South Utah Valley Municipal Water Association set aside $225,000, a portion of which will be

*Designating CWSRF Loan Interest Fund for Nonpoint Source Projects in Utah (continued)*

used for studies on Utah Lake to augment a total maximum daily load. The Central Weber Sewer Improvement District (CWSID), which set aside $1 million for nonpoint source projects within its watershed, purchased a conservation easement along the upper Weber River and funded a portion of the Ogden River Restoration effort.

### *Multiple Organizations are Spreading the Word*

Utah Division of Water Quality (DWQ) nonpoint source program staff members have engaged with the Utah Association of Conservation Districts, watershed coordinators, and the Utah Division of Wildlife Resources to successfully spread the word about the availability of Hardship Grants and CWSRF loans for nonpoint source projects. These groups have provided on-the-ground assistance for landowners and individuals and assisted nonpoint source program staff with identifying potential loan/grant recipients and help evaluate project eligibility and progress. For more information on Utah's nonpoint source funding programs, see www.waterquality.utahg.gov/FinAst/NPSFinAid.htm.

## *CWSRF Funds Contributed to Missouri Nonpoint Source Success Story*


**Figure 1. Dardenne Creek Watershed lies near the eastern border of Missouri.**

Support from Missouri's Clean Water State Revolving Fund (CWSRF) played a part in a recent nonpoint source success story in the Dardenne Creek watershed. CWSRF monies supported streambank restoration and improvements in storm-water infrastructure, which helped to improve water quality.

Dardenne Creek drains a 165-square-mile watershed in St. Charles County, Missouri, and flows northeast to the Mississippi River (Figure 1). Land use in the watershed consists of some agriculture mixed with rapidly developing suburban outgrowth from St. Louis. The large creek is a popular site for water-based recreation activities (Figure 2).

**Figure 2. Dardenne Creek serves as a recreational resource for watershed residents.**

Studies conducted between 1998 and 2002 indicated poor water quality and poor aquatic habitat conditions in Dardenne Creek. A 2000 study by the Greenway Network, Inc. (a regionally based grassroots, volunteer-based natural resources organization) and the Center for Agricultural, Resource and Environmental Systems estimated that 62,509 tons of soil were eroding into Dardenne Creek annually. Subsequently (in 2002), the Missouri Department of Natural Resources (MDNR) conducted sediment studies at six sites along the creek. Across the study sites, the average percent fine sediment deposition (proportion of particles less than 2 millimeters in size) was 65 percent, 25 percent greater than the percent fine sediment deposition for control streams. Much of this erosion was attributed to hydrologic alterations caused by channel modification and watershed urbanization.

While the state does not have a sediment deposition water quality standard, Missouri's Clean Water Act (CWA) section 303(d) listing methodology document's (LMD) target value for median percent fine sediment deposition is no more than 20 percent greater than the median sediment deposition for control streams. As a result, MDNR added Dardenne Creek to the state's 2004/2006 CWA section 303(d) list of impaired waters for inorganic sediment.

### *Project Highlights*

Projects to actively address sediment problems in the Dardenne Creek watershed have been underway since at least 1997. The Dardenne Creek Wetlands and Watershed Protection and Restoration Plan, developed in 2002, outlined recommendations for protection and restoration on a watershed scale. Since 2003, soil and water conservation districts in the watershed used $21,390 in state

*CWSRF Funds Contributed to Missouri Nonpoint Source Success Story (continued)*

cost-share funds to help landowners implement 21 agricultural best management practices (BMPs), including tillage management, terraces, sod waterways and a reservoir to help stabilize stream erosion. Landowners participating in cost-share provided 25 percent or more of the project costs, totaling more than $5,348. The practices have prevented an estimated 2,786 tons of soil from entering Dardenne Creek.

St. Charles County used its Unified Development Ordinance to develop and modify ordinances that promote the protection of natural watercourses and riparian buffers, tree preservation, BMP inspection and wastewater disposal regulations. Using $106,561 in CWSRF funds, the county also stabilized stream banks and improved stormwater/sewer infrastructure. CWSRF grants also funded stormwater projects conducted by the cities of St. Charles ($51,021) and St. Peters ($43,460).

### *Results*

Sediment deposition in Dardenne Creek declined as a result of practices implemented throughout the watershed. A 2008 MDNR study found that median fine sediment deposition in the creek decreased from 25 percent above the median sediment deposition in a control stream in 2002 to 12.5 percent above the median sediment deposition (which meets the state's CWA section 303(d) LMD sediment target value). As a result, MDNR removed a six-mile-long segment of Dardenne Creek from the state's CWA section 303(d) list in 2010 for its inorganic sediment impairment.

For more information, see "Watershed Planning and On-the-Ground Implementation Improve Water Quality in Dardenne Creek," found on EPA's Nonpoint Source Success Stories website (http://water.epa.gov/polwaste/nps/success319/mo_dardenne.cfm).

# Reviews and Announcements

## *AQUATOX Updated*

EPA has released an enhanced version (Release 3.1) of AQUATOX, which predicts the fate of nutrients and toxic organic chemicals in water bodies, as well as their direct and indirect effects on fish, invertebrates, and aquatic plants. This model is a valuable tool for ecologists, biologists, water quality modelers, and others involved in performing ecological risk assessments for aquatic ecosystems. For more information, see http://water.epa.gov/scitech/datait/models/aquatox/index.cfm.

## *BASINS and WEPP Climate Assessment Tools: Case Study Guide Released*

U.S. EPA and partners have developed the Better Assessment Science Integrating point and Nonpoint Sources (BASINS) and the Water Erosion Prediction Project (WEPP) Climate Assessment Tool, which facilitate application of existing simulation models for conducting scenario-based assessments of potential climate change effects on streamflow and water quality. EPA just released a report presenting a series of short case studies using the BASINS and WEPP climate assessment tools. The case studies are designed to illustrate the capabilities of these tools for conducting scenario-based assessments of the potential effects of climate, land use, and management change on water resources. Climate change scenarios are created based on model projections as well as historical data and past events. Land use change and management scenarios are also included to address questions related to the relative effects of land use versus climate change, and the effectiveness of management practices for reducing impacts. This report is of interest to modeling professionals including water and watershed managers, urban or regional planners, government officials, and scientists and engineers interested in using the BASINS or WEPP water models to assess the potential implications of climate change on water resources. See http://cfpub.epa.gov/ncea/global/recordisplay.cfm?deid=242952 for more information.

## *Climate Assessment Coastal Report Available*

A new report, "Coastal Impacts, Adaptation, and Vulnerabilities: 2012 Technical Input Report to the 2013 National Climate Assessment," indicates that coping with sea level rise and coastal disruption will be a challenge for coastal economies (see www.coastalstates.org/wp-content/uploads/2011/03/Coastal-Impacts-Adaptation-Vulnerabilities-Oct-2012.pdf). It also states that impacts on coastal systems are among the most costly and most certain consequences of a warming climate, and as average sea level rises, coastal and low-lying areas will be inundated more frequently, if not permanently, by the advancing sea. Led by the U.S. Geological Survey and the National Oceanic and Atmospheric Administration, with input from several federal agencies including EPA, the report was submitted to the U.S. Global Change Research Program, an interagency initiative that coordinates research on climate change in the federal government. This report is part of a large body of information that is being distilled into a single assessment report that will be submitted by the U.S. Global Climate Research Program to Congress and the President in late 2013. A draft of the full National Climate Assessment will be released for public comment in early 2013.

## *Cyanobacteria National Study Released by USGS*

In September 2012, the U.S. Geological Survey (USGS) released its "Summary of Cyanobacteria Monitoring and Assessments in USGS Water Science Centers" (http://water.usgs.gov/coop/products/qw/cyanobacteria.studies.WSCs.09122012.for.web.pdf). This document examines why cyanobacteria in the nation's waters—and the resulting cyanotoxins and taste-and-odor compounds—represent economic and public-health concerns for resource managers, drinking water treatment plant operators, lake associations, and local officials. The report reviews a number of USGS cyanobacteria studies underway across the country

## *EPA Issues Video on Nutrient Pollution*

EPA's Office of Water recently posted a short video, available on EPA's YouTube channel at www.youtube.com/watch?v=WaIrLFq3DGI, that highlights how an algal bloom can impact the public's recreational use of a water body. A second video, at www.youtube.com/watch?v=vCicSNnKUvM, provides a general overview of nutrient pollution and its many sources.

## *EPA Launches Information about Harmful Algal Blooms*

EPA has developed a new webpage focused on harmful algal blooms to help inform states, tribal and local governments, other federal agencies, and the public about key issues regarding cyanobacteriablooms, also called blue-green algae blooms, in recreational waters and drinking water. Harmful algal blooms cause fouling of beaches and shorelines, economic and aesthetic losses, taste and odor problems in drinking water, and direct risks to human, fish and animal health. The webpage includes information on the causes of bloom occurrence, prevention and mitigation measures, adverse human health effects from exposure to cyanotoxins (toxins from blue-green algae), ecological effects, sampling and detection methods, policies and guidelines, past and ongoing research, and links to other sites with information on algal toxins in freshwater. For information, see http://water.epa.gov/scitech/swguidance/standards/criteria/nutrients/cyanohabs.cfm.

## *EPA Posts Green Infrastructure Video*

A new video, "EPA Scientists at Work: Managing Sewer Overflows with Green Infrastructure," explores the findings of ongoing EPA research into the most effective and efficient practices for water treatment, management and transport. Water infrastructure may be considered "gray" or "green." Gray infrastructure refers to traditional practices for stormwater management and wastewater treatment. Green infrastructure refers to sustainable pollution-reducing practices that also provide other ecosystem services such as reduced greenhouse gas emissions, wildlife habitat, or increased flood control. Examples of green infrastructure include natural vegetation and forest

buffers, use of porous materials for paving, as well as small-scale practices like rain gardens and rain barrels. To watch this video and read more about the methods EPA are exploring to improve stormwater management, see http://epa.gov/sciencematters/sept2012/whygreen.htm.

## *EPA Provides Clean Water State Revolving Fund Green Project Reserve Information*

EPA recently released a suite of materials highlighting the innovative approaches states have used to successfully implement projects that address green infrastructure, water or energy efficiency, or other environmentally-innovative activities using the Clean Water State Revolving Fund's (CWSRF) Green Project Reserve (GPR). The CWSRF program, through the GPR, is helping achieve innovative solutions to wastewater infrastructure needs, achieving economic and environmental benefits that will continue to accrue for years to come (see http://water.epa.gov/grants_funding/cwsrf/Green-Project-Reserve.cfm).

## *EPA Provides New SepticSmart Program*

EPA's new SepticSmart program (www.epa.gov/septicsmart) promotes proper septic system care and maintenance. According to the U.S. Census Bureau, nearly 25 percent of U.S. households—more than 26 million homes—and almost one-third of new developments are serviced by septic systems. EPA launched SepticSmart to educate homeowners about proper daily system use and the need for periodic septic system maintenance. SepticSmart also provides industry practitioners, local governments and community organizations with tools and materials that will help them educate their clients and residents.

## *EPA Releases Draft Clean Water Act Section 319 Guidelines*

On November 8, 2012 EPA released draft "Nonpoint Source Program and Grants Guidelines for States and Territories" for review and comment by states, territories and interested stakeholders. When final, these guidelines will replace grant guidelines that have been in effect since 2004. These revised guidelines provide states and territories with a framework to use Clean Water Act section 319 grant funds to more effectively implement their state nonpoint source management programs. The revised draft guidelines were developed over the past year, and were informed by an extensive state/EPA work group process. The revised guidelines provide updated program direction, an increased emphasis on watershed project implementation in watersheds with impaired waters, and increased accountability measures. The draft guidelines are posted at www.epa.gov/nps/319.

## *Free Science Journals Available for Students*

USDA Forest Service and the Cradle of Forestry Interpretive Association have teamed up to create a series of free science journals for upper elementary and middle school students (see the *Investi-gator* at www.scienceinvestigator.org and the *Natural Inquirer* at www.naturalinquirer.org, respectively). The journals focus on recent Forest Service research and are written in the format of scientific articles.

## *Intelligent Robotic Fish Detect Pollution*

SHOAL, a consortium of six European organizations, has developed intelligent robotic fish capable of working together to detect and identify pollution in ports and other aquatic areas (see www.roboshoal.com). Artificial Intelligence enables the artificial fish to manage multiple problems, including avoiding obstacles, knowing where to monitor pollution, identifying sources of pollution, maintaining communication distance from the other robotic fish and returning to be recharged. Each individual robotic fish has an array of sensors and external information that allows it to navigate the environment. Each fish can map where it is and where it needs to go; identify where it has taken samples and what the chemical composition of the samples are; and communicate the information back through shallow water to a base station, the other robotic fish and the user interface.

## *Nabbing Nitrates Video Series Available*

The Soil and Water Conservation Society (SWCS) and the Iowa Chapter of SWCS are among 14 co-sponsors of a new, online educational video series that shows how conservation practices remove nitrates from water (see www.mmdividercd.org/projects.asp). The Missouri & Mississippi Divide Resource Conservation & Development, Inc., based in west central Iowa, produced the four new water conservation videos in a series titled "Nabbing Nitrates–Before Water Leaves the Farm." Offered in both English and Spanish, the short videos in the series include animations showing how wetlands and conservation practices remove nitrates from surface and groundwater: "Water Conservation Drainage," "Riparian Forest Buffers," "Working Wetlands" and "Bioreactors." The series was produced with a Conservation Innovation Grant awarded by the USDA Natural Resources Conservation Services.

## *National Estuary Program Offers New Interactive Web Tool*

EPA's Office of Wetlands, Oceans and Watersheds recently released NEPmap, an interactive web application that allows viewers to access information about the context and geographic scope of habitat protection and restoration as conducted by the EPA's National Estuary Program (NEP). Habitat projects are depicted for each of the 28 NEPs within the context of their watersheds and surrounding landscapes. The tool includes information about assessed and impaired waters, wetlands, watersheds, impervious surface, presences of no discharge zones, population, and socioeconomic information, among others. To access NEPmap, see http://gispub2.epa.gov/NEPMap/.

## *New App Lets Users Check Health of Waterways Anywhere in the U.S.*

In October 2012, EPA launched a new app and website to help people find information on the condition of thousands of lakes, rivers and streams across the United States from their smart phone, tablet or desktop computer. Available at www.epa.gov/mywaterway, the *How's My Waterway* app and website use GPS technology or a user-entered zip code or city name to provide information about the quality of local water bodies. The release of the app and website helps mark the 40th anniversary of the Clean Water Act, which Congress enacted on October 18, 1972, giving citizens a special role in caring for the nation's water resources. Technology and monitoring have advanced to the point that EPA is now able to provide citizens with a technology-based tool to expand that stewardship. For more information about the app, see the November 28, 2012 Watershed Academy webinar on the topic (see www.epa.gov/watershedwebcasts).

## *Report Explores Integrated Water Resources Management*

In November 2012, the American Water Resources Association Policy Committee released "Case Studies in Integrated Water Resources Management: From Local Stewardship to National Vision" (http://awra.org/committees/AWRA-Case-Studies-IWRM.pdf). The report introduces the concepts and principles of integrated water resources management. Next, it highlights seven case studies to show how the concepts translate into on the ground implementation and identifies themes and lessons learned from the case studies.

## *Stormwater BMP Maintenance Video Available*

The Chesapeake Stormwater Network recently released its first video in a three-part instructional series on Low Impact Development construction, installation and maintenance. The video was produced by the Center for Watershed Protection under contract with the Chesapeake Stormwater Network with funding from the National Fish and Wildlife Foundation, Walmart and the Keith Campbell Foundation. The video, "A Guide to Proper Construction Techniques for Contractors, Local Governments and Involved Homeowners," covers sound construction practices and the importance of following the construction sequence to ensure that the LID practice functions as designed. The 15-minute video may be viewed online at http://chesapeakestormwater.net/training-library/design-adaptations/stormwater-bmp-maintenance.

### *Urban Waters Outreach Toolkit Released*

EPA, through the Anacostia Watershed Outreach and Education Project, has released a comprehensive toolkit that EPA regional offices, watershed organizations and others who promote green business can use to encourage homeowners to install rain barrels to prevent contamination in their local rivers. The toolkit includes details on the development of social marketing outreach to local residents, lessons learned and a summary of project accomplishments. Appendices include communication scripts for weathercasters, a detailed list of project partners, partnerships, and photos and screenshots of the messages used. For more information, see http://water.epa.gov/scitech/swguidance/standards/training.cfm.

### *USDA Releases Agroforestry Guide for Farmers, Woodland Owners*

In 2012 the U.S. Department of Agriculture released a first-of-its-kind practical agroforestry handbook that contains information to help establish, manage and market agroforestry projects that are profitable and sustainable over time. The handbook, *Profitable Farms and Woodlands*, is written for underserved and limited resource farmers and woodland owners living in the southeastern United States and includes five main agroforestry practices: alley cropping, forest farming, riparian buffer strips, silvopasture and windbreaks. For more information, see http://nac.unl.edu/profitable_farms.htm.

### *USDA Shares Editable Citizen-Based Watershed Planning Slide Show*

Partners involved in USDA's National Conservation Effects Assessment Project (CEAP) have developed an annotated, editable slide show available for download. Titled "Locally Led Efforts to Protect Water Quality in Agricultural Watersheds," the slide show explores the key steps needed to conduct citizen-based watershed planning in agricultural areas. The slide show was developed as an outreach tool. It incorporates findings from a CEAP study of watershed-scale agricultural projects that focused on relating water quality change to the implementation of conservation practices on cropland and pastureland. To download the slide show, and to learn more about the CEAP study, see www.nrcs.usda.gov/wps/portal/nrcs/detail/national/technical/nra/ceap/?&cid=stelprdb1047821.

### *Water Quality Portal Available*

EPA, the U.S. Geological Survey (USGS), and the National Water Quality Monitoring Council (NWQMC) have teamed up to create a Water Quality Portal (www.waterqualitydata.us), which brings together chemical, physical and microbiological data from EPA's Storage and Retrieval Data Warehouse (STORET) and USGS's National Water Information System (NWIS) and provides it to scientists, policy-makers, and the public in a single, user-friendly web interface. The Portal reduces the burden to data users of searching, compiling, and formatting water monitoring data for analysis. EPA offered an October 23, 2012 Webinar introducing the Portal to users. An archive version is available at www.epa.gov/watershedwebcasts under the "Tools and Data" section. This Webinar also highlighted EPA's Water Quality Exchange (WQX-Web) which is a web-based data entry tool that enables data owners to upload their data into the Water Quality Portal so the public can access the data.

## ***Recent and Relevant Periodical Articles***

### *Eagle River Stamp Sand Remediation*

By Joe Rathbun, NWQEP NOTES #137, October 2012
(www.bae.ncsu.edu/programs/extension/wqg/issues/notes137_eagle_ceap.pdf)

The North Carolina State University Water Quality Group's quarterly newsletter, NWQEP NOTES, features an article developed by Joe Rathbun of the Michigan Department of

Environmental Quality. The article discusses recent water quality findings from the Eagle River Stamp Sands project in the Michigan Upper Peninsula. "Stamp sands" are sandy-textured copper mine spoils produced by stamp mills; these mills used a pounding action (rather than grinding) to extract metallic ores from rock. The project's monitoring efforts revealed that contaminated local groundwater was a major contributor to stream copper contamination; therefore, stabilization alone is not as effective as moving the stream away from the stamp sands and/or moving the stamp sands away from the stream.

### *Kansas City's Green Solution Pilot Project*

By David Dodds and Jessie Veach, Stormwater Magazine, October 2012. (http://digital.stormh20.com/publication/?i=126323)

This article discusses the Kansas City, Missouri, Water Services Department's Middle Blue River Basin Green Solutions Pilot Project, which includes a large-scale test of green infrastructure solutions to reducing combined sewer overflows and protecting water quality.

### *The Phosphorus Index: Changes Afoot*

By Science Daily, November 6, 2012. (www.sciencedaily.com/releases/2012/11/121106085255.htm#.UJpuUL1Zsb0.email)

This article discusses potential changes for the existing phosphorus index (established in 1992), which helps to identify agricultural fields that have a high risk for phosphorus loss. Recent studies are helping to refine the index for different areas of the United States.

## ***Websites Worth A Bookmark***

### *Chesapeake Stormwater Network (http://chesapeakestormwater.net)*

The Chesapeake Stormwater Network is a nonprofit organization seeking to improve implementation of more sustainable stormwater management and environmental site design practices in each of 1,300 communities and seven states in the Chesapeake Bay Watershed. The network's website offers background information about stormwater and its potential impacts on water quality, online publications about LID practices, and a training library.

### *Low Impact Development and Green Infrastructure in the Semi-Arid West (www.epa.gov/region8/greeninfrastructure.html)*

EPA Region 8 developed this web page to support LID planning and implementation in semi-arid areas. Incorporating LID in these areas—which are characterized by rapid freeze/thaw cycles, hot and dry conditions, and unpredictable rainfall—often requires special consideration in the planning stages. The website offers many pictures and examples of LID practices in Colorado, Montana, North Dakota, South Dakota, Utah and Wyoming.

### *Urban Waters (www.epa.gov/urbanwaters)*

EPA created this website as a hub for communities and organizations working to gather and share information about urban water protection and restoration. The site offers links to numerous tools and resources.

### *Wetland Breaking News (http://aswm.org/news/wetland-breaking-news)*

The Association of State Wetlands Managers offers this monthly online newsletter that compiles wetland-related stories and announcements. The newsletter features legislative, national and states' news relevant to wetland science and policy, wetland regulations and legal analyses. It also links to new publications and resources.

# Calendar

**For an updated events calendar, see http://water.epa.gov/polwaste/nps/outreach/calendar.cfm.**

## January 2013

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| 15–17 | *National Council for Science and the Environment's 13th Annual Conference—Environmental Disasters: Science, Preparedness and Resilience*, Washington, DC (www.environmentaldisasters.net) |
| 18–19 | *Science, Practice and Art of Restoring Native Ecosystems Conference*, East Lansing, MI (www.stewardshipnetworkconference.org/site/c.7oIDJSPuGcIWF/b.8055239/k.3F32/2013_Overview.htm) |
| 23 | *Beyond the Water Wars: Cooperative Management Solutions for a Shared Resource*, Davis, CA (www.waterlawsymposium.com) |
| 27–30 | *New England Water Environment Association (NEWEA) Water Quality Technical Conference and Exhibition*, Boston, MA (www.newea.org/Events/AnnualConference/tabid/178/Default.aspx) |

## February 2013

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| 5–7 | *12th Annual River Restoration Northwest Stream Restoration Symposium*, Stevenson, WA (www.rrnw.org/pageview.aspx?id=32242) |
| 10–13 | *International Erosion Control Association's Annual Conference*, San Diego, CA (www.ieca.org/conference/annual/ec.asp) |
| 11–14 | *National Rural Water Association's Rural Water Rally,* Washington, DC (www.nrwa.org) |
| 21–22 | *Conference on Stormwater and Urban Water Systems Modeling*, Toronto, Canada (www.chiwater.com/Training/Conferences/conferencetoronto.asp) |
| 24–27 | *2013 Upper Midwest Stream Restoration Symposium*, La Crosse, WI (www.prrsum.org/content/2013-umsrs) |

## March 2013

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| 4 | *Environmental Council of the States: Spring Meeting*, Scottsdale, AZ (www.ecos.org/section/events/?id=4839) |
| 5 | *Water Security from the Ground Up: 2013 Annual Conference*, Tucson, AZ (https://wrrc.arizona.edu/conferences) |
| 6–8 | *2013 Annual Land Use Conference - Land Use for a Lifetime: Changing Demographics and Shifting Priorities*, Denver, CO (www.law.du.edu/index.php/rmlui/rmlui-practice/rmlui-annual-conference) |
| 11–13 | *Conference on U.S. Recreational Water Quality Criteria: A Vision for the Future*, Honolulu, HI (www.wrrc.hawaii.edu/rwqc2013) |
| 11–14 | *Analyzing Risk: Principles, Concepts, and Applications*, Boston, MA (https://ccpe.sph.harvard.edu/programs.cfm?CSID=RISK0313&pg=cluster&CLID=1) |
| 13–14 | *Greenprints 2013*, Atlanta, GA (www.greenprints.org) |
| 25–27 | *2013 AWRA Spring Specialty Conference on Agricultural Hydrology and Water Quality*, St. Louis, MO (www.awra.org/meetings/Spring2013) |
| 25–28 | *National Working Waterfronts and Waterways Symposium*, Tacoma, WA (http://depts.washington.edu/uwconf/workingwaterfronts) |

## April 2013

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| 7–10 | *American Water Works Association's Sustainable Water Management Conference,* Nashville, TN (www.awwa.org) |
| 14–18 | *International Association for Landscape Ecology, Landscape Dynamics along Climatic Gradients: Models for a Changing World*, Austin, TX (http://usiale.org/?id=annualMeetings) |
| 16–19 | *7th International Conference on Irrigation and Drainage*, Phoenix, AZ (ww.uscid.org/13azconf.html) |
| 20 | *American Association of Irrigation Consultants National Conference*, Scotttsdale, AZ (www.asic.org) |

### Contribute to *Nonpoint Source News-Notes*

Do you have an article or idea to share? Want to ask a question or need more information? Please contact *NPS News-Notes*, c/o Don Waye, by mail at U.S. EPA, Mail Code 4503-T, 1200 Pennsylvania Ave., NW, Washington, DC 20460, or by email at waye.don@epa.gov.

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