

ECOSYSTEM ENHANCEMENT PROGRAM²⁰⁰⁹ **ANNUAL REPORT**

ECOSYSTEM ENHANCEMENT PROGRAM 2009 ANNUAL REPORT

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North Carolina Department of Environment and Natural Resources

Dee Freeman, Secretary | Bev Perdue, Governor | Bill Gilmore, Director

This Annual Report is designed as primarily an electronic document and features interactive applications using Web technologies that will invite reader participation in EEP's work. While it is possible to print the document, EEP will produce a minimum number of hard copies to meet legislative requirements and to display in EEP offices.

I: Executive Summary

During its sixth full year of operations in fiscal year 2008-09, the N.C. Ecosystem Enhancement Program (EEP) continued to register successes in meeting its goals of improving North Carolina's environment while facilitating responsible economic growth for the state and its residents. EEP continued to collaborate with federal, state and local governments, contractors and willing landowners to provide high-quality compensatory mitigation, basing its work on a solid foundation of watershed planning that goes beyond mere environmental permitting and compliance.

EEP continues to comply with new federal and state mandates. Recent federal rules gave recognition to EEP's unique national status and maintained In-Lieu Fee (ILF) programs as a viable option for the provision of mitigation crucial for environmental compliance. EEP this year extended its record of carrying out its mission without a single transportation project delay due to the lack of mitigation, helping to move forward more than \$5.4 billion in transportation-infrastructure improvements since becoming operational in 2003. This year that record includes mitigation support for road projects accelerated by the federal economic stimulus package. The NCDOT stream and wetland program continues to achieve very high compliance rates. Compliance (the percentage of regulated mitigation requirements being met successfully at a given point in time) for the mitigation program by type is:

- » 98.65 percent for streams.
- » 99.76 percent for riparian wetlands.
- » 98.64 percent for nonriparian wetlands; and
- » 100 percent for coastal marsh.

EEP's statewide ILF programs serve the needs of both developers and the general public. These programs also continue to achieve high compliance rates, with 95.5 percent of all requirements fully met. An EEP Customer Satisfaction Survey of agents associated with ILF payments made to EEP during the 2008-09 fiscal year showed that 96.3 percent of respondents had a favorable opinion of EEP, and 100 percent would recommend that clients use EEP's ILF program in the future. A detailed summary of the survey results is provided in [Appendix G](#) of this report.

This year's annual report is focused on providing greater clarity about the Ecosystem Enhancement Program for the residents of North Carolina, and is intended to satisfy all reporting requirements as defined in G.S. 143-214.13 and agreements with the U.S. Army Corps of Engineers and the N.C. Department of Transportation. Because of the complexity of EEP's procedures and processes, readers may wish to consult the program's online [Resources Web page](#) for further information on a given topic. EEP also has enhanced this year's annual report by embedding interactive media files and a reader-response survey, as well as providing additional links to help the reader understand the program's work.

EEP anticipates continuing progress in the year ahead on providing a more holistic approach to mitigation, facilitating the delivery of projects that help drive the state's economy, and restoring, enhancing and protecting the state's wetlands, waterways and natural areas for future generations.

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II: Key Developments in FY 2008-09

Reframing Protocols to Satisfy New Federal Rule. In June 2008, the U.S. Army Corps of Engineers (USACE) and the Environmental Protection Agency established [new regulations governing compensatory mitigation](#). The new rules gave recognition to EEP's unique national status and maintained ILF programs as a viable option for providing mitigation to public – and private-sector developers. These rules prescribe specific standards for mitigation banks, ILF programs and permittees wishing to provide their own mitigation. EEP operates two ILF programs that are subject to the new rule, and is actively working with the U.S. Army Corps of Engineers and the EPA to define appropriate program adjustments. EEP anticipates full compliance with the rule by the mandated June 2010 deadline.

EEP's revised operating agreements will include or address three key issues:

- » A *Compensation Planning Framework* that describes how EEP projects are procured based on watershed planning. Since EEP already uses watershed planning for project delivery, this exercise will largely include capturing existing processes in a format that attends to planning elements described in the rule.
- » A *project review process* will be developed and formalized. All new EEP projects will be circulated to an interagency work group for review.
- » *Additional accounting requirements* will be instituted to address rule requirements associated with project credit releases.

Implementation of Session Law 2008-152 and 2009-337, acts to promote compensatory mitigation by private mitigation banks passed by the General Assembly in July 2008 and July 2009, respectively. Taken together, the laws require nongovernmental entities that choose to satisfy their mitigation requirements through a third party to purchase credits from a mitigation bank, if it exists in the watershed and has credits available for sale. EEP and the N.C. Division of Water Quality developed [policy changes](#) that describe how the N.C. Department of Environment and Natural Resources will implement the laws. EEP and the Division of Water Quality will monitor the effects of the laws as a part of EEP's regular reporting requirements to USACE and the General

Assembly. The most recent session law also stipulates that the NCDENR will study whether the preference for compensatory wetland and stream mitigation banks, riparian-buffer mitigation banks and nutrient-offset banks “create a likelihood that EEP will be unable to recoup investments made in advanced riparian buffer mitigation and nutrient offset projects.” The report is due to the state Environmental Review Commission no later than Feb. 1, 2010.

Implementation of Session Law 2007-438, an act to establish transitional nutrient offset payments and to direct the N.C. Department of Environment and Natural Resources to develop and implement a plan to transition the N.C. Ecosystem Enhancement Program nutrient offset program from a fee-based program to a program based on the actual costs of providing nutrient credits. In September 2007, the General Assembly established a fee schedule for the Nutrient Offset Program and required that EEP begin the process of converting from a fee-schedule system to an actual-cost system. The law required EEP to provide progress reports to the Environmental Review Commission in September 2008 and March 2009. Senate Bill 838 passed this year extended the deadline for implementing the plan to September 2010. Staff of EEP and DWQ has worked with stakeholders to determine the best approach for establishing and assessing actual cost for the nutrient program. The Actual Cost Method will be set forth in rules which will go through public notification and comment procedures.

Improving communication with private-sector partners. EEP values its relationships with private-sector biological, engineering and management firms. Since the program’s founding in 2003, private-sector partners have played a key role in the development and evolution of EEP’s business policies and procedures.

In August 2008, EEP sponsored a facilitated workshop with contractors and consultants at the request of the N.C. Board of Transportation, addressing topics including invoicing, procedures, scoping, contract negotiation and construction management. All issues are in queue to be processed over the coming months, and new items mutually agreed to be discussed will be similarly addressed. Also, new executive-committee meetings between American Council of Engineering Companies and the NCDENR secretary’s office are in place to keep communication lines open.

EEP also has established new monthly executive-level discussions with the N.C. Environmental Restoration Association that are intended to address policy and procedure improvements, including modifications to the payment-release schedule for full-delivery projects. NCDENR Assistant Secretary for Natural Resources David Knight and EEP Director Bill Gilmore have met with NCERA board members and providers on a monthly basis to improve communication channels.

Working in partnership to reduce surplus mitigation assets. As reported last year, an interagency task force came together in August 2007 to begin addressing the issue of historical surplus mitigation. Since that time, the task force agreed on provisions to allow NCDOT some latitude for the application of surplus mitigation on specific highway projects. This group generated strategies that are expected to eventually reduce an initial surplus of \$197 million to approximately \$40 million. NCDOT, NCDENR and USACE continue work to develop and implement ways to further reduce the remaining surplus inventory.

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New Web map application. EEP launched its latest major improvement in the online publication of project information in May 2009 with the rollout of an interactive map that takes visitors to more than 500 stream – and wetland-restoration and enhancement projects across North Carolina. The [Web map](#) is one of three major improvements made to the EEP Web site in the past year to improve access to important data and make the program more transparent.

» [Click here if you have trouble viewing video](#)

Earlier in 2009, EEP posted a spreadsheet of [tables with links](#) to EEP project documents. The links detail the progress of hundreds of projects statewide. Hyperlinks from the project documents eventually will be included in the mapping system for cross-referencing purposes. In 2008, EEP launched an updated listing of its [Local Watershed Planning initiatives](#) in North Carolina that is searchable by county or river basin.



» [Click here if you have trouble viewing video](#)

Aqua Kids, EEP in return engagement. For the second consecutive year, EEP hosted the internationally syndicated environmental TV show [Aqua Kids](#) to film an episode of the award-winning series onsite at an EEP project. The Baltimore-based production company, which produces the educational program for young teenagers, traveled to North Carolina in June 2009 to shoot the latest episode, focusing on EEP's collaboration with the N.C. Division of Parks and Recreation on a stream-restoration project on the Roaring River in Stone Mountain State Park in Alleghany County. The segment examined the health of the restoration project, and the geology and hydrology of a mountain stream. The show is expected to air on local cable systems in late fall 2009. [Aqua Kids](#) also taped an episode at Sparta Bog, an N.C. Department of Transportation mitigation site, featuring staffers from the N.C. Museum of Natural History and the state Natural Heritage Program examining mountain-bog ecosystems and the endangered bog turtle. In 2008, the show filmed [an examination of stream-restoration work](#) carried out by EEP at locations in Person, Franklin and Cumberland counties.

III: EEP Programs

EEP is an initiative within the NCDENR that improves our environment while facilitating economic development. EEP restores streams, wetlands and riparian buffers where the need is greatest by working with local and state partners, including willing landowners. The NCDOT and other developers voluntarily use EEP to move their projects forward in a timely and affordable manner.

EEP provides mitigation services through four different ILF programs:

- 1) NCDOT Stream and Wetland;
- 2) Statewide Stream and Wetland;
- 3) Riparian Buffer Mitigation; and
- 4) Nutrient Offset

Eligibility to participate in an EEP program is a joint decision made by the developer, EEP and the regulatory agencies. Mandates from the N.C. General Assembly recently affected eligibility for participation in any of EEP's ILF programs (see Key Developments). Each of the mitigation programs operate as an ILF program in which applicants make payments to EEP in lieu of providing mitigation themselves, or by other means. Upon payment, EEP assumes the full legal responsibility for planning, developing and implementing the required types and amounts of mitigation. After successful payment, applicants are no longer liable for the mitigation requirement. Additional details on these programs are included within this report.

1) *NCDOT Stream and Wetland Program:*

A 2003 Memorandum of Agreement (MOA) among NCDENR, NCDOT and the USACE outlines procedures for how NCDOT utilizes EEP as an ILF program for NCDOT's offsite stream and wetland mitigation needs, and specifies performance metrics for the delivery of that mitigation. In February of each year, NCDOT provides EEP with its mitigation request in the form of a forecast of future impacts to aquatic resources for the seven-year Transportation Improvement Program (TIP) list. EEP secures the mitigation needed by NCDOT following protocols outlined in the Tri-Party MOA. EEP uses Fund 2984 to track payments and expenditures for this program.

In fiscal 2008-09, the NCDOT received 44 permits that required stream and/or wetland mitigation from EEP to offset impacts associated with TIP and NCDOT Division level projects across the state. Since the Tri-Party MOA mandates advance programmatic mitigation for NCDOT needs, payment for mitigation does not occur in the same manner as in the Statewide Stream and Wetland Program. The NCDOT makes quarterly invoice payments to the EEP based on the actual mitigation projects in development throughout the state to meet all of the NCDOT's present and future anticipated needs. Of the 44 permits that were received during this fiscal year, 13 permits had mitigation requirements from both USACE (Section 404) and the Division of Water Quality (Section 401) and 31 permits had mitigation requirements only from the USACE. Four of the 44 permits issued had mitigation requirements from the N.C. Division of Coastal Management. For the 44 permits, EEP provided 15,094 stream mitigation credits and 79.15 wetland mitigation credits.

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2) Statewide Stream and Wetland Program:

The Statewide Stream and Wetland Program provides applicants of Section 404 Permits, Section 401 Water Quality Certifications, and/or Coastal Area Management Act permits the option to satisfy compensatory-mitigation requirements for wetland and stream impacts in all 17 North Carolina river basins through payment into EEP's ILF program. Protocols for mitigation delivery under this program are specified in a Memorandum of Understanding (MOU) between NCDENR and USACE. Payments made into the Stream and Wetland ILF Program are deposited into Fund 2981.

In fiscal 2008-09, 131 payments were made into the Statewide Stream and Wetland Program. Stream and Wetland ILF payments totaled \$7,916,049.50. Of this amount, a total of 33 payments resulted from requirements from both USACE (404) and DWQ (401), 97 projects had requirements from USACE, and one had requirements from DWQ.

3) Riparian Buffer Mitigation Program:

The Riparian Buffer Mitigation Program is an option to meet compensatory-mitigation requirements associated with riparian-buffer impacts in the Neuse, Tar-Pamlico and Catawba River basins, and the Randleman Reservoir watershed in the upper Cape Fear River basin. Payments are made to the Riparian Buffer Restoration Fund (Fund 2982) according to the regulatory schedule of fees for buffers.

In Fiscal Year 2008-09, EEP received payments for 7,472,846.4 square feet (171 acres) of buffer mitigation. At the close of the fiscal year, EEP had accepted responsibility for 668 acres of buffer-mitigation requirements cumulatively since the program's inception in the Cape Fear, Catawba, Neuse and Tar-Pamlico River basins.

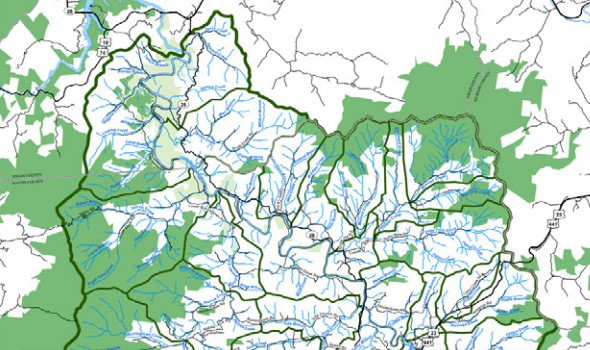
4) Nutrient Offset Program:

The Nutrient Offset Program is an option to meet compensatory-mitigation requirements associated with nutrient-offset requirements in the Neuse and Tar-Pamlico River basins. EEP uses Fund 2982-9829 to track payments and expenditures for this program.

During fiscal 2008-09, nutrient-offset payments were made to offset nutrient loading from 134 development projects authorized by the following local governments: Edgecombe, Franklin, Johnston, Orange, Pitt, and Wake counties, and the municipalities of Cary, Durham, Garner, Goldsboro, Greenville, Havelock, New Bern, Oxford, Raleigh, Rocky Mount, Tarboro, Washington and Wilson. These payments were for 47,031 pounds of nitrogen reduction in the Neuse River basin and 5,396 pounds of nitrogen reduction and 843 pounds of phosphorus reduction in the Tar-Pamlico River basin.

Figure 1. Map of NC River Basins





Franklin to Fontana
Local Watershed Plan Map



Electro-fishing in Cat Creek
Franklin to Fontana LWP



Goose & Crooked LWP
Watershed Technical Team



Watershed Technical
Team Workshop

IV: Watershed Planning and Project Implementation

EEP's enabling legislation (NC 143-218.8), its tri-party memorandum of agreement, and the new federal compensatory mitigation rules require EEP to implement mitigation projects based on watershed planning. These requirements are driven on the widely held conviction of water-resource professionals that projects based on watershed planning will give the best environmental return on investment. Therefore, an important focus of EEP continues to be implementation of watershed restoration and preservation projects based on environmental needs identified through watershed planning. EEP accomplishes this through broad-scale and detailed planning initiatives and the coordination of project implementation in accordance with planning outcomes. EEP conducts two main types of watershed planning:

- » River Basin Restoration Priority planning (RBRP):
High-level river basin/eight-digit CU scale.
- » Local Watershed planning (LWP): Detailed level, small watershed scale.

This section provides an update on EEP's watershed-planning and project-implementation work and highlights key partnerships with other state and local entities which are vital to the watershed-planning approach of EEP. EEP strives to have local watershed plans and associated recommendations fully implemented. Therefore, EEP continues to work with local stakeholders and funding programs to ensure that watershed plans not only identify mitigation needs, but also serve as a resource for communities working to implement watershed improvements. This approach maximizes resources, minimizes cost, and promotes buy-in from local stakeholders.

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1) *Watershed Planning*

The purpose of watershed planning is to determine the best locations for watershed restoration projects based on an analysis of watershed needs for restoration and protection. EEP does this by conducting the two types of planning mentioned. For more information about EEP's watershed planning, including watershed-plan products searchable by county or river basin, go to [EEP Planning Documents](#).

River Basin Restoration Priority Plans (RBRPs)

RBRPs identify Targeted Local Watersheds (TLWs) that have a balance of problems, assets and opportunities. RBRPs outline where watershed restoration or protection is most needed and serve as a resource for EEP, as well as other resource agencies and non-governmental organizations throughout the state, by identifying priority watersheds for conservation through both restoration and preservation of natural resources. This year, EEP staff updated RBRP documents for the following river basins: Broad, Cape Fear, Catawba, French Broad, Hiwassee, Lumber, New, Savannah, Watauga and Yadkin Basins. RBRP documents for the Chowan, Neuse, Pasquotank, Roanoke, Tar Pamlico, and White Oak basins will be updated by December 2009. All RBRP documents are posted on the EEP Web site, searchable by river basin or county at [EEP Planning Documents](#).

Local Watershed Plans (LWPS)

Local watershed planning merges identified TLWs with anticipated impacts from development projects (primarily, NCDOT road projects) to determine where future mitigation investments can provide the greatest benefit for North Carolina. The development of LWPs is typically a four-phase process:

- » Phase I – Preliminary Watershed Characterization
- » Phase II – Detailed Assessment
- » Phase III – Development of a Watershed Management Plan and Project Atlas
- » Phase IV – Implementation of the Plan

However, rapid or abbreviated plans are also used when the mitigation compliance timeline is compressed, anticipated mitigation needs for the catalog unit are not substantial and do not justify an extensive planning investment, or detailed analyses are not necessary to identify the most ecologically beneficial projects.

In an effort to build upon existing conservation efforts, EEP works with local planning professionals to implement projects that address identified watershed needs when technically sound watershed plans already exist. In the Catawba River basin, EEP is building upon three existing watershed plans: the Hunting Creek LWP, an EPA Section 319 grant-funded plan developed by Carolina Land and Lakes RC&D; the Muddy Creek LWP, developed by Muddy Creek Restoration Partnership; and EEP's Lower Creek LWP, in an effort to meet increasing mitigation needs with existing watershed-planning resources. In the Neuse River basin, EEP is working on the development of a Project Atlas and Phase IV landowner outreach for five existing LWPs in the Upper Neuse Basin: Lick Creek LWP, developed by Upper Neuse River Basin Association (UNRBA); Ellerbe Creek LWP and Lake Rogers LWP, both developed by UNRBA and EEP through an EPA Wetlands Program Development Grant; and Little Lick Creek LWP and Upper Swift Creek LWP, developed by EEP.

This year, EEP completed the Travis, Tickle and Little Alamance LWP. LWPs are defined as completed by EEP at the end of Phase III with the production of a Watershed Management Plan and Project Atlas (listing of identified restoration opportunities). To date, EEP has completed 27 watershed plans through Phase III. Phase IV focuses on outreach and implementation of projects derived from the LWP process. LWPs are designed so they result in a suite of watershed-restoration recommendations, including but not limited to mitigation opportunities, that can be implemented by a myriad public and private entities over an extended period of time. In 2008-09, EEP developed a Findings and Recommendations Summary

for each completed LWP to ensure that watershed goals and objectives are easily accessible to project consultants as well as local stakeholders. Links to LWP Findings and Recommendations Summaries are available on individual LWP fact sheets as well as EEP's Web site: <http://www.nceep.net/pages/lwplanning.htm>. A summary of all LWPs completed to date and the status of Phase IV efforts is included as [Appendix A](#).

EEP staff continues to work on LWPs across the state. Currently, seven plans are in progress and in various stages of development. Five plans remain on hold pending further mitigation needs. [Appendix A](#) presents a summary of ongoing Local Watershed Plans; these are efforts that have yet to result in a final Watershed Management Plan or Project Atlas. Fact sheets summarizing EEP's Local Watershed planning efforts and links to associated timelines and reports are available on EEP's Web site: <http://www.nceep.net/pages/lwplanning.htm>.

This year, EEP initiated work on two new Local Watershed planning initiatives, Great Coharie Creek LWP and Wake County LWP. Great Coharie Creek LWP, initiated in January 2009, is located in the Cape Fear basin in Sampson and Johnston counties. Wake County LWP, initiated in May 2009, is a collaborative watershed-planning effort with Wake County located in the Upper Neuse basin. Fact sheets summarizing current planning activities for each of these plans are available on EEP's Web site (<http://www.nceep.net/pages/lwplanning.htm>).

2) *Project Implementation*

The primary purpose of EEP is to produce watershed-restoration and preservation projects (stream, wetland, buffer and Best Management Practices that reduce nutrient loadings) that meet regulatory mitigation requirements with respect to type, quality and compliance schedule in the most cost-effective way, while maximizing environmental returns for North Carolina. The maximization of environmental returns from implemented projects is achieved through the watershed-planning-based approach.

In an effort to more clearly communicate the link between watershed plans and compensatory mitigation projects, EEP provided an outline for project managers and project consultants to follow to ensure that mitigation projects are linking project objectives and goals to the goals and recommendations provided in the associated watershed plan. This outline is incorporated into the Restoration Plan Guidance that is included as part of EEP's updated [Project Implementation Manual](#) in April 2009.

EEP uses Design-Bid-Build (DBB) and Full Delivery (FD) methods to implement projects. Both of these project-delivery methods continue to be critical to EEP's success in meeting mitigation needs throughout the state. EEP has 550 projects in design, construction, monitoring or long-term management. Of these projects, 106 are currently in design, 37 are in construction and the remaining 407 have construction completed. EEP continues to target project implementation in watershed-planning areas through the DBB and FD procurement methods.

EEP is also working closely with USACE, EPA and other agencies to ensure that it complies with new federal regulations for compensatory mitigation, which require that mitigation be implemented using a watershed approach. In accordance with the new regulations, all EEP projects will be implemented using a watershed-planning approach.

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3) Partnerships, Coordination and Collaboration

EEP relies heavily on coordination and collaboration with local, state and federal entities to fulfill its mission of producing high-quality, cost-effective, watershed-planning-based restoration and preservation. EEP strives to have LWPs and associated recommendations fully implemented. Toward that end, EEP continues to work with local stakeholders and funding programs to ensure that the plans not only generate projects to satisfy mitigation needs, but also serve as a resource for communities working to implement watershed improvements. In 2008-09, LWP stakeholders, including regional councils of government, counties, municipalities, universities and non-profit organizations reported more than \$7.6 million in leveraged funds for projects located in EEP local watershed planning areas. A list of grant applicants, funding sources and total funding received is included as [Appendix A](#).

State-agency partnerships provide resources, technical and local knowledge, landowner contacts, shared data, watershed restoration and preservation partnerships and contracting capabilities. This section highlights a few of those collaborative partnerships. EEP continues to partner with NCDENR divisions on a daily basis, through watershed-planning and project-implementation efforts. Through collaboration with the state Division of Water Quality, the N.C. Division of Soil and Water Conservation, N.C. Clean Water Management Trust Fund, N.C. Division of Parks and Recreation and N.C. Wildlife Resource Commission, EEP is able to incorporate the skills and expertise of NCDENR partners and maximize the project benefit by addressing natural resource goals of multiple divisions. Examples include:

- » EEP is partnering with the state Division of Soil and Water Conservation to install agricultural best management practices (BMPs) in association with stream- and wetland- restoration projects. By partnering with DSWC, EEP is able to work with local soil and water conservation districts that provide an important knowledge of farm management strategies and agricultural BMPs as well as relationships with landowners in the watershed. In 2008-09, EEP contracted more than \$300,000 of work with DSWC to implement agricultural BMPs, which include cattle-exclusion fencing, wells and watering troughs in association with stream-restoration projects. Through this partnership, EEP is able not only to restore degraded systems, but also to directly address sources of pollution and help ensure long-term project success, all while furthering the water-quality improvement goals of both EEP and DSWC.
- » In conjunction with EEP's Indian and Howards Creek LWP, NCDENR's source water protection program within the state Division of Environmental Health is developing a plan for the town of Cherryville's water intake on Indian Creek. The plan covers adequate supply, water quality, potential contaminant sources and protection of drinking water resources, among other topics. These resources will be used to develop the final LWP Management Report, help inform the selection and prioritization of Project Atlas sites and help with project implementation.
- » The Unnamed Tributary (UT) to Jumping Run project is a collaborative effort with The Nature Conservancy (TNC) and DPR to restore up to two miles of stream channels and almost 100 acres of wetlands in the Sandhills region of the Cape Fear basin. TNC sold a conservation easement to EEP at the Long Valley Farm property, soon to be a part of Carver's Creek State Park. EEP has worked closely with TNC and DPR to design a stream and wetland restoration project that fits in with longleaf pine-restoration efforts, as well as the new park's design.

Local governments provide invaluable input in the watershed planning and implementation process with respect to technical and local knowledge, landowner contacts, donation of easements, and implementation of non EEP funded projects. EEP staff collaborates with local government entities on a daily basis. This communication has resulted in valuable partnerships that benefit both EEP and local stakeholders with respect to technical capabilities, shared data, policy and technical guidance and project implementation.

The most degraded watersheds often exist in urbanized or urbanizing areas where land costs are high and project delivery is complicated. Collaborative efforts allow local partners to address watershed-impairment challenges in their area and provide EEP with the tools needed to implement cost-effective projects where they are most needed. Examples include:

- » EEP is working with the Upper Neuse River Basin Association and PBS&J on the Upper Neuse LWP Phase IV effort, which encompasses the following LWPs: Ellerbe Creek, Lake Rogers, Lick Creek, Little Lick Creek and Upper Swift Creek. To date, the city of Raleigh, towns of Garner, Apex and Cary, and Wake County have signed letters of intent with EEP to focus on project implementation. In Lake Rogers (Ledge Creek watershed), the Tar River Land Conservancy, the town of Creedmoor and Granville County are working on an outreach and implementation strategy.
- » The Little Alamance Creek project is being designed in collaboration with the city of Burlington. The project is located in Burlington City Park and will provide 2,850 feet of stream enhancement in the Cape Fear 03030002 CU. This project was identified through the recently completed Little Alamance, Travis and Tickle Creek LWP process and is a highly visible opportunity for public environmental education.
- » The Adkin Branch project is a collaborative effort with the city of Kinston to restore approximately 10,000 feet of stream in the Neuse River basin (CU 03020202). EEP worked closely with Kinston to reach out to the community and acquire a large number of properties and conservation easements, some of which are located in a FEMA buyout area. EEP and Kinston continue to work together to complete construction of this project.
- » EEP is collaborating with the city of Goldsboro on the UT to Neuse (Big Ditch) stream- and buffer-restoration project. The city donated a conservation easement to restore 2,400 linear feet of incised, unbuffered stream channel. This project will include the restoration of eight acres of stream-side buffer that will fulfill mitigation needs in the state's riparian buffer and nutrient offset programs.

Through collaborative efforts such as those above, EEP is able to provide cost-effective mitigation that maximizes the functional improvement provided by watershed-restoration projects.

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V: Program Financial Information

1) Financial Status of Program Funds

EEP has four ILF programs under which revenues are collected, from which expenditures are made, and in which funds are encumbered for future mitigation contracts and projects:

- 1) NCDOT Stream and Wetland;
- 2) Statewide Stream and Wetland;
- 3) Riparian Buffer Mitigation; and
- 4) Nutrient Offset

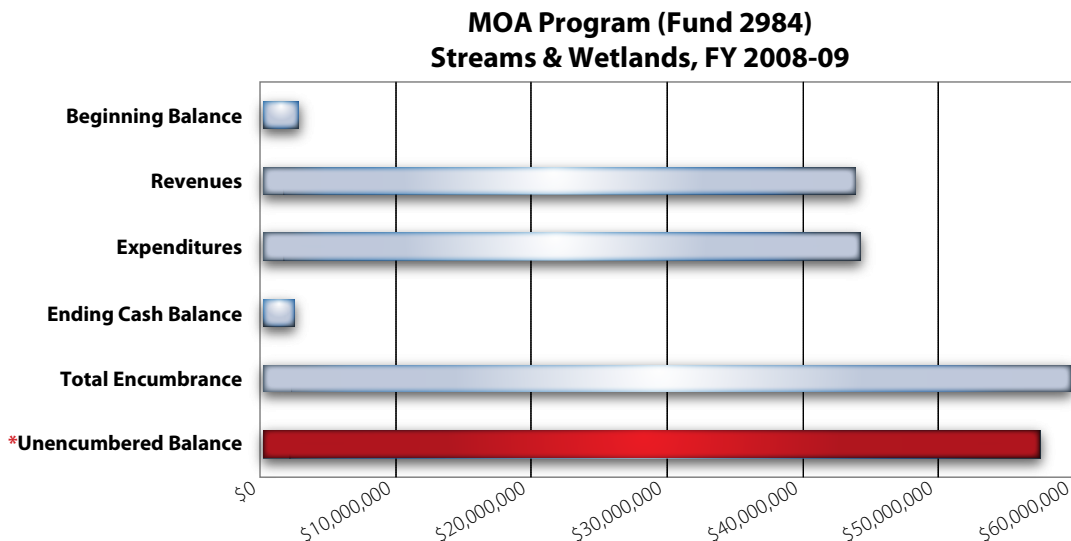
A fifth program, the Wetland Restoration Program Trust Fund received an initial state appropriation in 1997, but all expenditures have been made and the fund was closed out during fiscal 2008-09.

Revenues collected by EEP through its four mitigation programs are used to implement mitigation projects that will provide maximum environmental benefits to the state's natural resources. A small part of EEP's revenues are used to administer the program. EEP depends solely on revenues collected; it receives no state appropriations. The figure provided below each program illustrates the fund status for fiscal 2008-09. The unencumbered balance is obligated to meet future mitigation requirements.

NCDOT Stream and Wetland Program (Fund – 2984)

This program applies only to stream and wetland mitigation supplied to the N.C. Department of Transportation. At the request of NCDOT, mitigation production and payments are programmed on a cash-flow basis. As a result, EEP invoices NCDOT for the actual cost for the work being processed to include administration, payments made to engineers, contractors and full delivery providers. EEP invoices NCDOT on a quarterly basis and secures only those funds required to cover anticipated operating costs for the upcoming quarter. Future year obligations are guaranteed to be paid in accordance with an MOA between NCDOT and NCDENR; for this reason the "Unencumbered Balance" below is negative. This information is reported quarterly during routine invoicing processes. Also, EEP is audited quarterly by the NCDOT Inspector General's office and has been audited by the Federal Highway Administration*.

Figure 2: NCDOT Stream and Wetland Program Fund Status FY 2008-09



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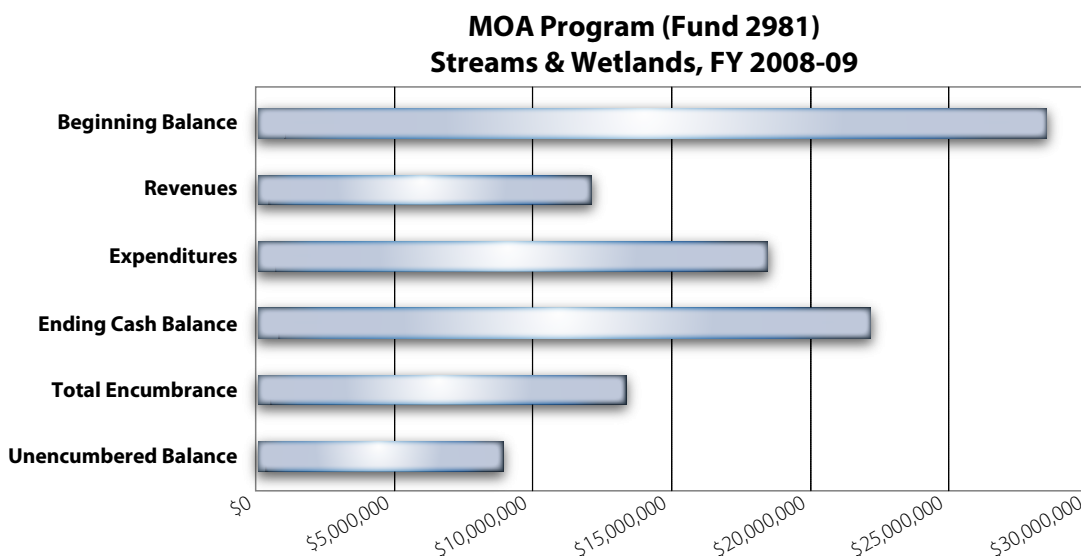
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Statewide Stream and Wetland Program (Fund – 2981)

This program collects payments and makes expenditures from the Statewide Stream and Wetland Fund, and is a voluntary, receipt-based ILF program available to the public. Land-disturbing activities that require Section 404 or Section 401 permits often require compensatory mitigation as specified by USACE or DWQ. The public, commercial and residential developers, as well as governmental agencies including municipalities and military installations, may produce the mitigation themselves, purchase credits from a mitigation bank or request mitigation from EEP. Upon acceptance and payment, EEP provides the off-site compensatory mitigation to satisfy regulatory requirements. The work may consist of re-establishment of wetlands and reconstruction or enhancement of degraded streams. The availability of this program helps the general public by providing a service that is cost-effective and simplifies the permitting processes. [EEP's fees for the program](#) are listed on the EEP Web site. The unencumbered balance is obligated to meet future mitigation requirements.

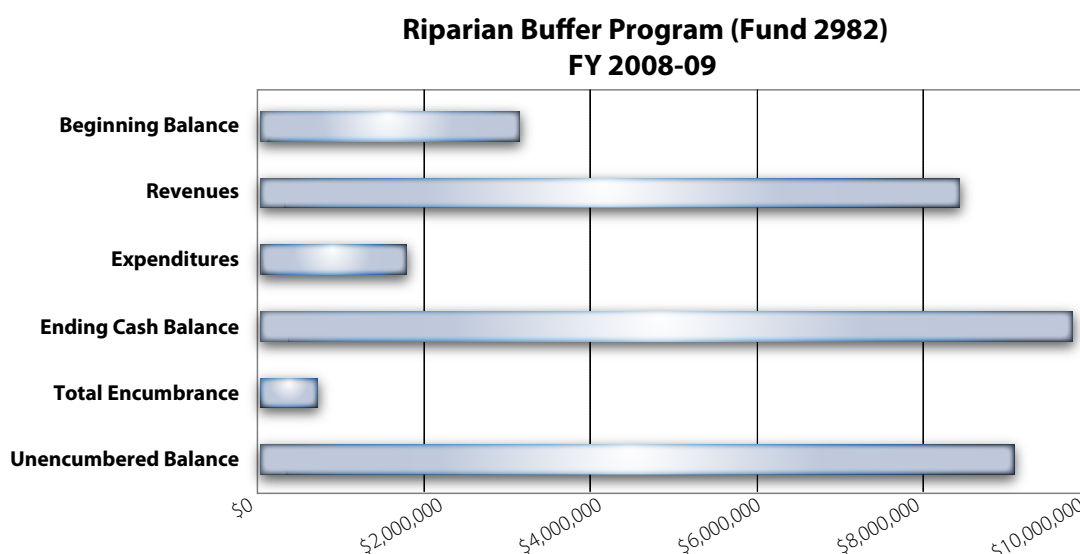
Figure 3: Statewide Stream and Wetland Program Fund Status FY 2008-09



Riparian Buffer Mitigation Program (Fund – 2982)

This program collects payments and makes expenditures from the state's Riparian Buffer Fund for the Neuse, Tar-Pamlico and parts of the Catawba and Cape Fear River basins. Applicants seeking permits for unavoidable impacts to protected buffers along stream systems may elect to produce the mitigation themselves, purchase credits from a mitigation bank or pay EEP to produce the mitigation and satisfy permit requirements. Expenditures are for contract engineering, construction, land acquisition and long-term protection of mitigation sites. The types of projects produced consist of re-establishment and protection of buffers (primarily involving the planting of vegetation) along degraded streams and river banks in the protected basin. The availability of this program helps the general public by providing a service that is cost-effective and simplifies the permitting processes. The fee for a square foot of buffer mitigation was set at \$0.96 when the program started and has remained unchanged. The unencumbered balance is obligated to meet future mitigation requirements.

Figure 4: Riparian Buffer Program Fund Status FY 2008-09



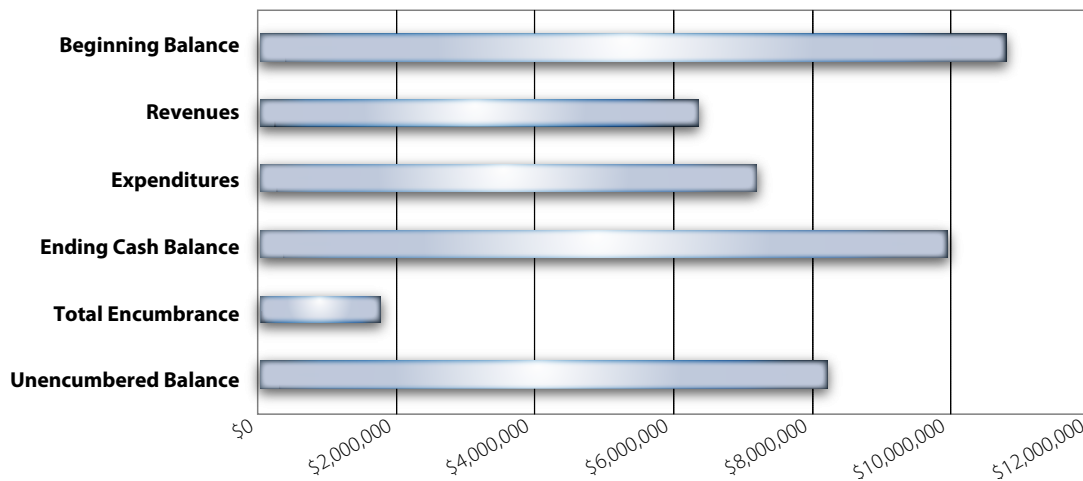
Nutrient Offset Program (Fund – 2982 Account – 9829)

The Nutrient Offset Program collects payments and makes expenditures from the state's Nutrient Offset Account within the Riparian Buffer Fund. It has been in existence for the Neuse River basin since 1998, but in March 2006 the Tar-Pamlico River basin was added. Applicants seeking permits for construction-related impacts to uplands may elect to undertake additional on-site nutrient reduction measures to meet nutrient reduction requirements, purchase nutrient reductions from a private mitigation bank or pay a fee to EEP to produce the mitigation. The types of projects produced by EEP may consist of BMPs (stormwater-retention structures) or vegetated buffers that will reduce nitrogen and phosphorous loading into the river basins and estuaries. Expenditures are for contract engineering, construction, land acquisition and secure long-term protection of mitigation sites. The unencumbered balance is obligated to meet future mitigation requirements.

The availability of this program helps the public by providing a service that is cost-effective and simplifies the permitting processes. The current fees for the Nutrient Offset Program may be viewed at <http://www.nceep.net/pages/fee.htm>.

Figure 5: Nutrient Offset Program Fund Status FY 2008-09

Nutrient Offset Program (Fund 2982-9829) FY 2008-09

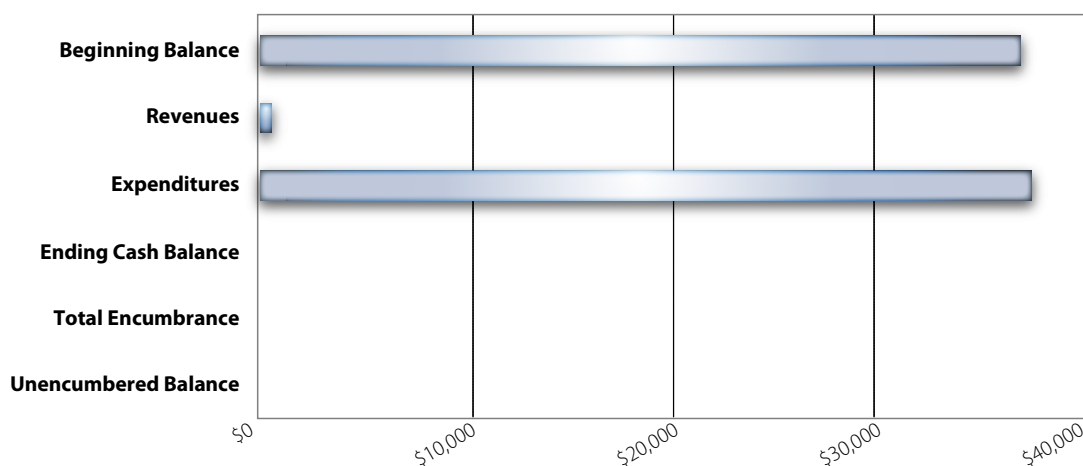


Wetlands Restoration Program Trust (Fund – 2980)

This fund is the repository for appropriated dollars and was established by the General Assembly. In 1997, the General Assembly provided a one-time initial appropriation of funds for the former Wetlands Restoration Program. The unencumbered balance for this fund was \$14,683.61 at the end of FY 2007-08. This balance was spent down during FY 2008-09 and the fund has now been closed out.

Figure 6: Wetlands Restoration Program Fund Status FY 2008-09

WRP Trust Fund (Fund 2980) FY 2008-09



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2) *Project Costs*

The total cost of a mitigation project is the sum of the costs of individual development phases, and may not be known precisely until the seven – to 10-year project has been completed. Individual development phases include: land acquisition, project design, project construction, maintenance, monitoring for project success and long-term stewardship of the perpetually protected property. In addition, a small amount of program funds are associated with EEP staff time to oversee contracting, project delivery, quality control and administration.

EEP employs two primary outsourcing methods to deliver mitigation:

- » **Full Delivery (FD)** – The FD Program procures compensatory mitigation by issuing Requests for Proposals (RFPs) through the state Department of Administration. Each RFP specifies the river basin and CU within which mitigation is being sought, and the amount and type of mitigation needed (i.e., buffer, stream and/or wetland). Offerors are required to submit both a Technical Proposal and a Cost Proposal for each prospective submittal. The Technical Proposal details: 1) the experience, qualifications and financial stability of the firm submitting the proposal; 2) the geomorphologic features of the site that make it suitable for restoration; and 3) the conceptual plan for restoring the site to a more natural, stable condition, both physically and biologically. The Cost Proposal provides a unit cost per mitigation credit for the submittal. Qualifying proposals are evaluated based on the technical merits of the proposed restoration and the overall per-unit cost. Firms associated with selected proposals enter into a contract with EEP to convey a conservation easement on the project area to the state, develop and implement a restoration plan, and monitor the project for a minimum of five years to verify that the restoration meets established success criteria.
- » **Design-Bid-Build (DBB)** – EEP utilizes on-call design and consulting services authorizations to contract with private design and consulting firms for professional services for all stages of project development including watershed planning, environmental resource investigations, restoration-site design and construction management and post-construction monitoring. All construction contracts are awarded through a qualified competitive bidding process.

EEP Project Costs for FY 2008-09

Average per-unit costs of project implementation for the last fiscal year have been determined by examining both FD and DBB contracts. Project costs this year have been below those of previous years, in large part because the economic landscape has driven construction costs below anticipated expenses for this project component. Overall, project costs for the entire program are significantly higher than what costs for this year reflect, and are in line with current fees for streams and wetlands.

In fiscal 2008-09, EEP procured the following types and amounts of mitigation for which average forecasted costs are presented:

- » 33,702 stream mitigation credits (\$241 per credit);
- » 18.10 riparian wetland mitigation credits (\$17,318 per credit);
- » 25.11 nonriparian wetland mitigation credits (\$15,000 per credit); and
- » 348,480 buffer acre credits (\$0.80 per credit)

** Forecasted costs reflect the current economic environment resulting in construction costs showing more than 50 percent below normal year averages.*

EEP continues to take measures to produce cost-effective mitigation through actions such as training contractors on wetland- and stream-construction techniques. A course taught in collaboration with N.C. State University has been offered several times in recent years and was scheduled to be offered in October 2009: (http://www.bae.ncsu.edu/programs/extension/wgg/srp/construction_training.html). As understanding improves, cost efficiencies are provided through increased competition and improved quality in project implementation is promoted.

Cost Analysis of Private Mitigation Banks

Reporting requirements of G.S. 143 214.13 require EEP to compare the cost of mitigation of EEP projects and private mitigation banks. To obtain the data necessary to accomplish this task, EEP sent a Web-based survey requesting restoration cost information to the sponsor of each approved bank in North Carolina. [Appendix G](#) includes a listing of banks that were requested to respond and a copy of the survey distributed.

Of the 16 banking entities contacted, three responded during fiscal 2008-09. A summary of the results is found in the table below (*Note: Data as submitted to EEP*).

Table 1: Private Mitigation Bank Survey Results – FY 2008–09

Bank Name	CU	Credit Types	Total Credits	Sold	Remaining	Cost Per Credit
Hofmann Forest	03030001 03020106	Non-riparian	388	50.65	~200	\$45,752.00
Forrest Creek	03020201	Stream	7,673	1,930	5,743	\$343.00
		Buffer	658,000	117,689	540,311	\$0.90
Charlotte Umbrella Bank	03050103 03050101 03040105	Stream	25,298 5,547 (released)	5,240	307 (released) 19,751 (pending)	\$450/lf
		Wetland	2.9	0	2.9	n/a

3) Contract Data

As noted earlier, EEP utilizes multiple contracting methods to address the myriad of tasks necessary to plan, implement and monitor natural-systems restoration projects. This section provides information regarding the number and types of contracts currently active and awarded during this past fiscal year for the FD and DBB programs. In addition, data on payments made to vendors in these different programs is provided.

Full Delivery Contracts

There are 18 firms under active FD contracts with EEP. During this fiscal year, no FD projects were closed out, and no new FD contracts were executed in fiscal 2008-09, although EEP issued two solicitations for stream, wetland and riparian buffer credits. Contract awards associated with the RFPs issued were recently consummated and will be described in next year's annual report.

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Design-Bid-Build Contracts

The use of on-call consultants is authorized by the State Building Commission as described in the N.C. Administrative Code (see 01 NCAC 30D). Since 2002, the State Building Commission has approved five on-call authorizations to EEP. The following table summarizes each on-call authorization made by the State Building Commission for EEP's use.

Table 2. NC Ecosystem Enhancement Program On-Call Authorizations

Oncall Authorization	Date Effective	# of Firms Authorized	Total Authorization
2002	04/18/2002 – 04/17/2004	15	\$10,500,000
2004	04/01/2004 – 03/31/2006	22	\$15,400,000
2005	08/23/2005 – 08/22/2007	21	\$14,700,000
2006	12/12/2006 – 12/11/2008	31	\$21,700,000
2009	01/13/2009 – 01/12/2011	18	\$12,600,000

EEP also utilizes NCDENR and federal agencies to provide planning, design, construction and monitoring services. This approach constitutes approximately five percent of the DBB process, and is authorized by NCDENR as described in the N.C. Administrative Code (see [N.C. General Statute 143-59](#)).

Total Contracted Services

In fiscal 2008-09, the state awarded 36 new contracts to support EEP watershed planning, project implementation, monitoring and maintenance. The total value of these new contracts was \$6,572,656. The following table describes the contract amounts by activity. Construction, monitoring and design activities account for the majority of the work engaged.

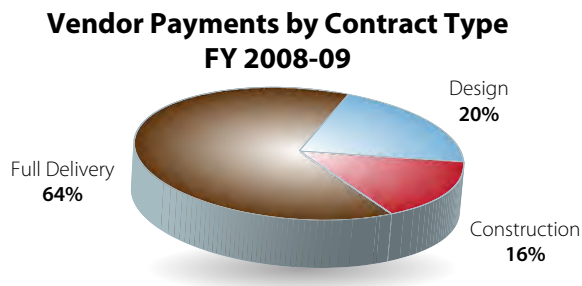
Table 3. Total Contracted Services Fiscal Year 2008-09

Contract Service	Amount
Total Watershed and Project Planning Services (6)	\$173,569.00
Total Design Services (11)	\$1,412,654.00
Total Construction Services (11)	\$4,531,680.00
Total Maintenance and Repair Services (2)	\$80,967.00
Total Monitoring Services (6)	\$373,786.00
Total (36)	\$6,572,656.00

Fiscal Year 2008-09 Payments to Vendors

EEP continues to contract with many vendors to support the implementation of the hundreds of projects within the program. This fiscal year, payments to vendors totaled \$ 35,562,920.65. Figure 7 illustrates payments by broad contract type: Full Delivery, Design and Construction. [Appendix D](#) provides a listing of payments made by EEP categorized by contract type and vendor.

Figure 7: Fiscal Year 2008-09 –Vendor Payments by Contract Type



4) *Property Acquisition Information*

During this fiscal year, the State Property Office closed on 50 parcels associated with preservation and restoration projects, totaling 540.5 acres. Acquisitions of conservation

easements comprised 47 of the closed sites, two were construction easements and one was an allocation of a conservation easement from another state agency. All properties that closed between July 1, 2008 and June 30, 2009 are shown in [Properties Closed](#) table in [Appendix E](#). Acreages are included for sites that have been surveyed to date. Landowners have formally agreed to give EEP the right to acquire an easement or property for 38 properties, listed in the [Properties Optioned](#) table in [Appendix E](#). Cumulative Properties is an inventory of all properties acquired since the inception of the Wetlands Restoration Program in 1997. More than 47,300 acres have been purchased or donated. The full inventory of these acquisitions is also presented in the [Cumulative Properties](#) table in [Appendix E](#).



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VI: Program Inventory and Compliance

This section provides detailed tables and charts regarding mitigation assets, permit requirements and permit compliance. USACE and/or DWQ mitigation requirements consist of providing a specified amount and type of mitigation in a specific location and timeframe, in accordance with EEP regulatory agreements. EEP tracks and is accountable for mitigation production in 17 river basins and 54 watersheds under 15 mitigation categories. EEP is required to track and apply credit assets to permit requirements by (1) program, (2) mitigation type, and (3) mitigation location. For simplicity and ease of understanding, all assets summarized below have been converted from feet or acres into mitigation credits.

The inventory includes a summary total amount of mitigation credits produced in the program to date (Gross Assets), as well as the amount of unused advanced mitigation credits currently available in the programs (Net Assets). Unused credits are advance mitigation in that they have been developed in advance of environmental impacts.

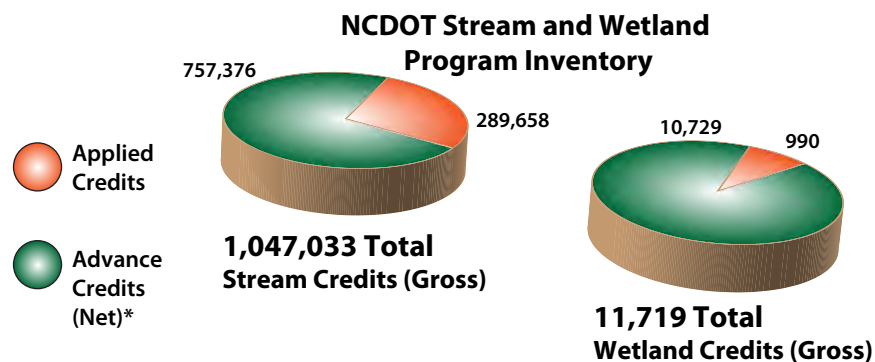
Program inventory is broken into the four programs described earlier in this report:

- 1) NCDOT Stream and Wetland
- 2) Statewide Stream and Wetland
- 3) Riparian Buffer Mitigation; and
- 4) Nutrient Offset

1) NCDOT Stream and Wetland Program

NCDOT Stream and Wetland Program Inventory

The NCDOT Stream and Wetland Program under EEP established a model for ILF programs nationwide, and is a national leader in producing mitigation in advance of impacts. The advancement of mitigation ahead of permitted impacts is environmentally preferable and an important tenet of the agreement among NCDOT, NCDENR and USACE, which has allowed NCDOT to move forward with approximately \$5.4 billion in road-development projects without delays associated with compensatory mitigation since 2003. The charts below represent the program's inventory status at the end of FY 2008–09. The NCDOT Stream and Wetland Program's gross inventory totaled 1,047,033 stream credits and 11,719 wetland credits. The vast majority of these credits are unapplied and are ready to be applied to future permit requirements.



**Goal of NCDOT program is to have advance credits at least seven years ahead of NCDOT impacts.*

A complete listing of asset and credit tables by river basin and CU can be found in the EEP's 4th Quarterly Report, FY 2008-09 at: <http://www.nceep.net/news/eeppublications.htm>.

NCDOT Stream and Wetland Requirements and Compliance

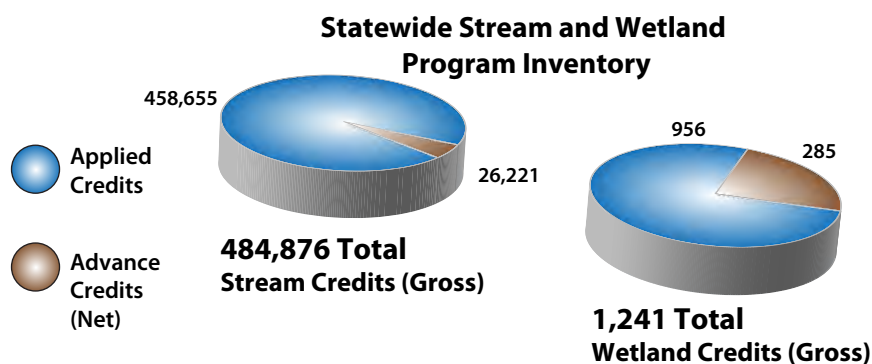
The NCDOT Stream and Wetland Program continued to achieve excellent compliance at meeting its permit requirements during the FY 2008-09. The table below summarizes these results.

Table 4: NCDOT Stream and Wetland Requirements – FY 2008–09

DOT Program Type	Requirements Due (Credits)	Requirements Met (Credits)	Requirements Unmet (Credits)	Compliance (Credits)
Stream	228,187	225,109	3,079	98.65%
Wetland	606	600	6	98.96%

2) *Statewide Stream and Wetland Program*

The Statewide Stream and Wetland Program began under legislation passed in 1996 and is the oldest ILF program in North Carolina. In some cases, pursuant to Session Law 2009-337, this voluntary program is available to developers who do not wish to do it themselves or cannot access a mitigation bank. The program does not receive any appropriations and operates on customer receipts. [Appendix C](#) details the program's receipts and requirements. At the end of FY 2008–09 the Statewide Stream and Wetland Program's gross inventory totaled 484,876 stream credits and 1,241 wetland credits. The charts below represent the program's inventory status of applied and unused advance mitigation at the end of FY 2008–09.



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Statewide Stream and Wetland Requirements & Compliance

The Statewide Stream and Wetland Program continued to achieve excellent compliance at meeting its permit requirements during the fiscal 2008-09. The table below summarizes these results.

Table 5: Statewide Stream and Wetland Requirements – FY 2008–09

Statewide Program Type	Requirements Due (Credits)	Requirements Met (Credits)	Requirements Unmet (Credits)	Compliance
Stream	459,864	437,274	22,590	95.09%
Wetland	706	680	26	96.34%

The Statewide Stream and Wetland Program also measures compliance by percentage of permits satisfied; for fiscal 2008-09, compliance stands at 95.47 percent. EEP continues to implement projects to address all of EEP's permit requirements. A more detailed explanation of the Statewide Stream and Wetland Program compliance and the action strategies in place to meet any currently unsatisfied permit requirements can be found in the EEP 4th Quarterly Report FY 2008-09 at: <http://www.nceep.net/news/eeppublications.htm>

3) *Riparian Buffer Mitigation Program*

EEP began the Riparian Buffer Mitigation Program in 1999 in the Neuse River basin. The program has expanded to include the Tar-Pamlico and Catawba River basins and a portion of the Cape Fear basin (Randleman Watershed). EEP plans to make the program available to developers who are required to comply with 2009 legislation that will require riparian-buffer mitigation in the Cape Fear (Jordan Lake watershed) and the Neuse (Falls Lake watershed).

Inventory of Gross Asset Status (Credits)

The table below summarizes the Riparian Buffer Mitigation Program's inventory, permit requirements, compliance and available (unused) advance mitigation at the end of fiscal 2008–09. Overall, compliance remained high throughout the fiscal year and finished at 91.50 percent overall, with 100 percent compliance in the Cape Fear and Catawba basins. Several new riparian-buffer restoration projects are expected to be acquired during the first quarter of fiscal 2009-10, which should bring compliance even higher. Furthermore, advance mitigation exists in the Cape Fear and Catawba basins and portions of the Tar-Pamlico basin, which should allow program compliance to remain high well into the future.

Table. 6 Riparian Buffer Mitigation Program Summary

	Total Program Assets	Current Requirements	Requirements Not Met	Program Compliance	Advanced Unused Assets
Cape Fear	94.71	62.58	0.00	100.00%	32.14
Catawba	24.50	0.84	0.00	100.00%	23.66
Neuse	371.09	398.29	27.20	93.17%	0.00
Tar-Pamlico	33.35	46.69	16.00	65.73%	2.76
Overall	523.65	508.39	43.20	91.50%	58.56



photo: Tar River Land Conservancy

4) *Nutrient Offset Mitigation Program*

EEP's Nutrient Offset Program assists developers and others who must comply with Neuse and Tar-Pamlico nutrient-management strategies and are unable to meet their reduction requirements onsite. The voluntary program allows developers to choose to make a payment to EEP rather than construct the mitigation onsite. EEP then becomes responsible for the nutrient reduction and implements projects to meet the nutrient-reduction needs. EEP accepts payments for nitrogen reduction in the Neuse basin and nitrogen and phosphorus in the Tar-Pamlico basin. EEP also will make the program available to developers who are required to comply with 2009 legislation that will require nutrient – reduction mitigation in the Cape Fear (Jordan Lake watershed) and the Neuse (Falls Lake watershed).

The status of the Nutrient Offset Program is shown in Table 7 below. EEP met nutrient reductions completely in the Tar-Pamlico basin, but not in the Neuse basin.

(NOTE: In March 2006, the state Environmental Management Commission authorized a revised fee schedule for the Nutrient Offset Program, which had been 100-percent compliant with its nutrient-reduction requirements. The General Assembly subsequently enacted Session Law 2006-215 to suspend the new fees, reinstate the \$11.00 per pound fee in the Neuse, set the Tar-Pamlico fee at \$11.00 per pound of nitrogen and \$11.00 per tenth-pound of phosphorus, and require EEP to refund the difference between any fees paid at the rescinded rate and the legislated fees. The legislation also called for a study to determine at what level fees should be set.

NCDENR then decided to suspend the procurement of new nutrient-offset mitigation sites if project costs exceeded the legislated fees until further action was taken by the General Assembly. No new projects were initiated during this time, as the cost of every identified project exceeded the legislated fees. NCDENR recognized that implementing projects during this period could have resulted in the depletion of funds within the program without satisfying the required reduction in nutrients.

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During the legislated below-cost fee period of 2006 and 2007, EEP experienced all-time highs in the number of payments received (nearly 43 percent of the program's total historical requirements were paid during FY 2006-07). EEP believes this was primarily because developers moved to pay in advance of the fee increase. EEP compliance with its mitigation obligations subsequently dropped from 100 percent to roughly 50-57 percent during the suspended procurement period.

In 2007 the legislature set revised fees that, while lower than previously authorized by the EMC, have been sufficient to implement new nutrient-reduction projects. Therefore, EEP resumed procurement of projects with an expectation to meet all requirements within the coming year.)

Table 7: Nutrient Offset Program Summary

	Total Program Reductions (pounds)	Nutrient Reduction Requirements (pounds)	Requirements Not Met (pounds)	Compliance	Advanced Unused Nutrient Reductions (pounds)
Neuse Nitrogen	898,072	1,299,201	-401,129	69.12%	0
Tar-Pamlico Nitrogen	162,664	25,431	0	100.00%	137,233
Tar-Pamlico Phosphorus	10,512	2,068	0	100.00%	8,444
Overall	1,071,247	1,326,700	-401,129	69.76%	145,677

VII: Monitoring and Research

1) Monitoring

The EEP Monitoring Section is focused on four primary areas:

- » Oversight of annual monitoring for all restoration projects;
- » Support to the Design/Construction Section concerning maintenance/repair for all restoration projects;
- » Data management and analysis; and
- » Project and program improvement.

In fiscal 2008-09, EEP had 203 projects (both DBB and FD) in some phase of monitoring, closeout or long-term management. Most projects were in monitoring years one through five. These projects totaled 761,925 linear feet of stream, and 16,759 acres of wetland restoration, enhancement and preservation. In addition, through 134 High Quality Preservation projects, EEP has preserved 1,242,025 linear feet of stream and 8,558 acres of wetlands.

Monitoring reports for all DBB projects are currently published on the EEP Web site at: http://www.nceep.net/eeep_projects/eeep_projects.html. Monitoring reports for FD projects are anticipated to be posted online before the end of 2009.

Monitoring Results and Trends

When reviewing stream-restoration projects, staff examines four types of geomorphic data: channel dimension (cross sections), profile (thalweg surveys), substrate (particle size distributions), and engineered structure stability. The assessment of overall channel success is based on the consideration of these four metrics, keeping in mind that stream systems are dynamic and are subject to perturbations of the contributing watershed and extreme weather conditions.

Vegetative success defined by the regulatory community requires standards of stem counts from year one through year five of monitoring, with a minimum of 260 stems per acre surviving at year five. Hydrologic success criteria for wetlands is tied to a continuous saturation or inundation period during the growing season compared to the success criteria and/or compared to the reference wetland.

Projects in an active monitoring stage showed a greater than 90-percent success rate for stream geomorphic criteria, vegetative success criteria and wetland hydrologic success.

Monitoring Activities

During the past year, EEP staff has been involved in a number of other activities related to improving the consistency and effectiveness of restoration and enhancement projects, including staff training in maintenance and repair, and improving methods of project documentation through utilization of a geodatabase. Staff also revised the Restoration Plan and Monitoring Plan templates and stream guidelines documents and coordinated the posting of all EEP project documents on the EEP Web site.

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2) *Monitoring Research*

Despite budget cutbacks and governmental/private-sector downsizing, EEP remains committed to project-improvement initiatives. EEP initiated a research program in 2003 with the purpose of improving program effectiveness, by helping to increase project success and by reducing costs. To accomplish these activities, EEP's research model utilizes university researchers, consultants and cooperative agreements with other state and federal agencies.

Program effectiveness was targeted to three primary focus areas: functional assessment, catchment studies, and restoration methods.

Functional Assessment

The Monitoring/Research section of the EEP concentrates, in part, on developing functional measures for restoration projects and watersheds. Among examples of functional measures are: floodwater storage; nitrogen and phosphorous removal; number and species of fish, vegetation and other organisms; and physical parameters such as dissolved oxygen content and water temperature.

The EEP has been involved with several initiatives regarding the development of functional-assessment measures, a programmatic change from quantifying mitigation in terms of feet of stream and acres of wetland to quantifying functional losses and gains through ecological performance standards.

EEP has participated in and assisted with interagency efforts supporting the development of watershed-needs assessment and wetland and stream functional assessment. EEP also has funded studies dealing with the assessment of riparian systems in coastal-plain headwaters, ecological performance standards for vegetation assessment, biogeochemistry studies and habitat-related studies. [More information](#) on many of these studies may be found on the EEP Web site.

Catchment Studies

Catchments are small scale watersheds (one to three square-mile drainage area). EEP is currently involved in studies to show the effect of restoration/enhancement projects in catchment-sized watersheds. The goal of these studies is to document water quality/habitat benefits provided by restoration projects at the catchment scale (as opposed to the typical approach of capturing restoration project benefits at the project site scale). Studies have been initiated in several Piedmont catchments. These catchments are listed below:

- » Big Harris Creek, Cleveland County
- » Heath Dairy, Randolph County
- » Dye Branch BMP and stream restoration study, Mooresville, Iredell County

Restoration Methods

The purpose of analyzing restoration methods is to improve understanding of circumstances under which one design option is preferable to another (more successful, more cost-effective, etc.). This can determine factors affecting success and effectiveness of various restoration methods under different circumstances to aid in selection of the best design option. EEP has examined and continues to evaluate different restoration methods in both wetland and stream projects. Lessons learned are used to improve the success rate and effectiveness of future projects.

VIII: Annual Report Feedback

The Ecosystem Enhancement Program strives to provide quality reporting. EEP this year has redoubled its efforts in reporting (based on feedback from stakeholders) with the goal of providing a report that is both more informative and reader-friendly.

The following questionnaire gives you the opportunity to help EEP continue to improve the clarity and usefulness of its reports. Thank you for reading the annual report, and for taking an interest in the program.

1. Select the affiliation with which you most identify:

- a. Environmental organization
- b. Engineering/Construction
- c. Mitigation Bank
- d. Regulatory community
- e. ILF customer
- f. Landowner doing business with EEP
- g. NCDOT board member
- h. NCDOT employee
- i. NCDENR employee
- j. Other

2. Do you desire more or fewer hyperlinks in EEP reports?

- a. More
- b. Fewer

3. I feel the [EEP Map Training video](#) was:

- a. Helpful
- b. Not Helpful

4. Is there a specific section that you thought suited your needs best?

5. Is there a particular topic or section you wished contained more information?

6. Is there a topic that was not covered that you would like to see included in future reports?

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IX: Appendices *click each to download or [Download Full Appendix File](#)*

- A. Local Watershed Planning
 - i. Local Watershed Plans – Completed through Phase III
 - ii. Local Watershed Plan Initiatives in Progress
 - iii. Summary of Funding Leveraged in EEP Local Watershed Planning Areas
- B. Program Credit Assets
 - i. Gross Assets
 - ii. Gross Assets Summary
- C. Statewide Program Receipts, Requirements and Ledgers
 - i. Buffer Program Receipts and Requirements
 - ii. Nutrient Offset Program Receipts and Requirements
 - iii. Statewide Stream & Wetland Program Receipts and Requirements
 - iv. NCDOT Stream and Wetland Mitigation Ledger
 - v. Statewide Stream and Wetland Mitigation Ledger
- D. Contracts and Payments
 - i. Contracts Awarded by Contract Type
 - ii. Full Delivery Contracts
 - iii. Vendor Payments
- E. Property Information
 - i. Properties Closed
 - ii. Properties Optioned
 - iii. Cumulative Properties
- F. Monitoring and Closeout
 - i. Projects in Monitoring
 - ii. Projects in Closeout
- G. EEP Surveys
 - i. Customer Satisfaction Survey
 - ii. Mitigation Banking Survey

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