

2004 Annual Report

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State of North Carolina
Michael F. Easley, Governor

**Department of Environment
and Natural Resources**
William G. Ross, Jr., Secretary

Ecosystem Enhancement Program
William Gilmore, Director

*This report is for program activities from
July 1, 2003 to June 30, 2004*

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The North Carolina Ecosystem Enhancement Program

In July 2003, North Carolina committed its resources to an innovative program to restore, enhance and protect its wetlands and waterways.

The N.C. Ecosystem Enhancement Program (EEP) combines the N.C. Wetlands Restoration Program (WRP), an existing wetlands-restoration initiative by the N.C. Department of Environment and Natural Resources (NCDENR), with ongoing efforts by the N.C. Department of Transportation (NCDOT) to offset unavoidable environmental impacts from transportation-infrastructure improvements. The U.S. Army Corps of Engineers (USACE) joined as a sponsor in the historic agreement.

This annual report provides progress for those programs and funds as specified under NCGS 143-214.13. The Wetlands Trust Fund is managed under three accounts: fund 2980 to address cumulative losses not normally requiring compensatory mitigation; fund 2981 to address compensatory mitigation required by Section

404 permits and/or Section 401 water quality certifications; and fund 2982 to address riparian buffer mitigation for particular river basins. During the next annual reporting cycle, this report will present data and information on the EEP in its entirety.

Clean water, clean air and thriving natural habitats are fundamental indicators of a healthy environment. Protecting North Carolina's ecosystems is critical to maintaining the state's quality of life, continuing its economic growth and ensuring the health and well-being of its citizens. According to the three-party Memorandum of Agreement that established the initiative's procedures in July 2003, the mission of the Ecosystem Enhancement Program is to "restore, enhance, preserve and protect the functions associated with wetlands, streams and riparian areas, including but not limited to those necessary for the restoration, maintenance and protection of water quality and riparian habitats throughout North Carolina."

EEP will provide to the general public and NCDOT:

- High-quality, cost-effective projects for watershed improvement and protection;
- Compensation for unavoidable environmental impacts associated with transportation-infrastructure and economic development; and
- Detailed watershed-planning and project-implementation efforts within North Carolina's threatened or degraded watersheds.

This document has been approved by:

Suzanne Klimek, Director of Operations
N.C. Ecosystem Enhancement Program

Date: _____

This document has been prepared to fulfill the annual reporting requirements of the N.C. Wetlands Restoration Program as described in NCGS 143-214.13.

EEP Website -- www.nceep.net

Basinwide Water Quality Plans -- <http://h2o.enr.state.nc.us/basinwide/>

Local Watershed Plans -- www.nceep.net/service/lwps/localplans.htm

Section One – Accomplishments

The last fiscal year (FY) brought significant activity for the program. Planning activities, particularly related to Local Watershed Planning, have been accelerated, and the program has more projects underway than ever before.

On July 23, 2003, a historic agreement was signed creating the Ecosystem Enhancement Program (EEP). The agreement allows EEP to provide comprehensive mitigation under specific funds that are targeted at meeting a variety of needs. The success of the program's basic premise, which is to improve the ecological effectiveness of compensatory mitigation projects {NCGS 143-214.9 (4)}, is highlighted throughout this report.

Planning Initiatives

Watershed Restoration Plans

The 1996 legislation creating the Wetlands Restoration Program (WRP) requires development of "basinwide plans for wetlands and riparian area restoration" for each of the state's 17 river basins in accordance with the basinwide schedule established by the North Carolina Department of Environment and Natural Resources, Division of Water Quality (DWQ). The EEP has assumed the responsibility for preparing and updating these plans, of which the primary goals include water quality improvement and protection, flood prevention and restoration/protection of fisheries and wildlife habitat. The centerpiece of each plan

is the identification of high-priority Targeted Local Watersheds (TLWs) where there are documented needs and opportunities for stream, wetlands and riparian buffer restoration, enhancement and preservation. TLWs are 14-digit hydrologic units, which typically range from about 20 to 100 square miles in total drainage area.

The EEP Planning Section is preparing to modify its methodology for the targeting of local watersheds and/or sub-watersheds, where such

targeted hydrologic units would be given top consideration for the siting, design and construction of EEP-funded compensatory-mitigation projects. Rather than a strictly basinwide approach for this targeting methodology, EEP planners are likely to use an approach that is tailored to the specific mitigation needs and watershed restoration goals for individual 8-digit Cataloging Units (CUs). The CUs can be thought of as sub-basins to the 17 river basins, and they

Watershed Restoration Plans – Fiscal Year 2004 Activities

During fiscal year 2004, from July 2003 through June 2004, Watershed Restoration Plans for the following basins were produced by the EEP (in chronological order): Lumber; Tar-Pamlico; and Catawba. The development of these plans included a standard sequence of steps conducted by EEP in soliciting input from interested citizens, environmental groups, other NCDENR agencies, and resource professionals living and working in the river basins. This sequence begins with EEP planners making presentations at DWQ basinwide water quality planning workshops, at strategically located venues in the basins, and includes the active solicitation of review comments by local resource agency professionals on draft Targeted Local Watersheds.

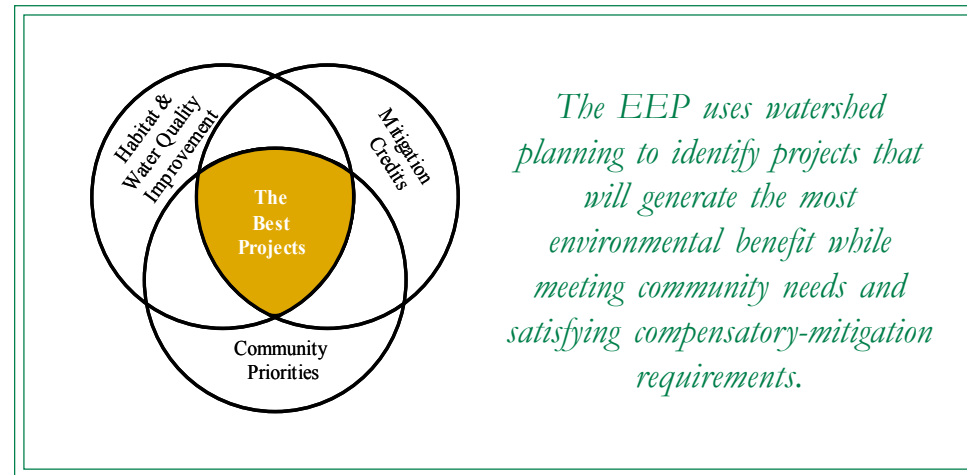
In addition to the completion of the three Watershed Restoration Plans noted above, EEP Planners participated in DWQ's initial planning workshops for the French Broad, the New and the Cape Fear River basins during FY 03-04, marking the beginning of the Plan preparation/update cycle for these three basins.

generally range in area from approximately 500 to 1,000 square miles; there are 54 CUs statewide. Specific restoration plans for individual CUs can then be grouped together by river basin to form an integrated basinwide strategy for watershed restoration, enhancement and protection across the state. A description of the refined targeting methodology will be posted to the EEP website [www.nceep.net] once it is finalized by the EEP Planning Section.

The Planning Branch of WRP (now the EEP Planning Section) has been preparing and updating these plans since 1997, working closely with DWQ’s Basinwide Planning staff in the context of its five-year planning cycle (a staggered timeline for producing *Water Quality Plans* for the 17 river basins in North Carolina). Originally called *Basinwide Wetlands and Riparian Restoration Plans*, these plan updates are now titled *Watershed Restoration Plans*, reflecting EEP’s evolution towards a comprehensive watershed-scale approach to improve the ecological effectiveness of compensatory-mitigation efforts.

Beginning with preparation of the Neuse River basin plan update (final DWQ *Water Quality Plan* completed July 2002), EEP began integrating the *Watershed Restoration Plan* materials and information (e.g., maps and tables summarizing Targeted Local Watersheds, rationale for selection of specific

Figure 1-1: EEP Identification of High Quality Projects



The EEP uses watershed planning to identify projects that will generate the most environmental benefit while meeting community needs and satisfying compensatory-mitigation requirements.

TLWs and summaries of EEP restoration projects) directly into DWQ basinwide water quality plans, which are online: <http://h2o.enr.state.nc.us/basinwide/index.htm>. Summaries of the *Watershed Restoration Plans* for each river basin are also available online at www.nceep.net/pages/watershedplans.html.

Local Watershed Plans

EEP continues the development and implementation of Local Watershed Plans throughout North Carolina. The primary purpose of Local Watershed Plans is to identify the causes of watershed degradation and to develop strategies

for addressing these problems that are consistent with the objectives of the local communities. This process ensures that compensatory-mitigation projects are designed and located to replace those functions within each watershed that provide the maximum benefits in restoring and protecting our natural resources. The 2000 Annual Report for WRP contains a detailed explanation of the Local Watershed Planning process. During FY 03-04, work continued on plans initiated in FY 02-03 and new plans commenced. A summary of both completed and ongoing Local Watershed Plans is provided in Tables 1-1 and 1-2.

Table 1-1: Summary of Completed Local Watershed Planning Initiatives for 2002 - 2004

River Basin [EEP region]	8-digit CU	14-digit HU(s)	Local Watershed Name [approx. area in sq. miles]	Initiation Date	Status/Comments	Completion Date [Consultant]
Lower Cape Fear [East]	03030007	03030007 140010	Northeast Cape Fear River tributaries [80 sq. miles]	Sept. 2000	* 100 % complete * Many projects identified, including stormwater best management practices (BMPs); several funded (and/or funding being sought)	Dec. 2002 [KCI]
Upper Neuse [East]	03020201	03020201 060010	Lake Rogers sub-watershed [17 sq. miles]	Jan. 2002	* 100% complete * Limited opportunities for stream restoration; Land Conservancy & Creedmoor to acquire critical wetlands parcels	Dec. 2003 [No assessment consultant, but used TetraTech data]
Upper Neuse [East]	03020201	03020201 050010	Ellerbe Creek [37 sq. miles]	Jan. 2002	* 100% complete * Greatest nutrient load to Falls Lake * Several restoration projects identified; one initiated (Hillandale Golf Course)	Jan. 2004 [used UNRBA data for NEU01]
Lower Catawba [West]	03050101 and 03050103	03050101-170010 and 170020; 03050103- 020020 to 020050	Charlotte-area Local Watersheds [6 HUs totaling 257 sq. miles]	Feb. 2002	* 100% complete * 4 EEP projects underway * Identified many stormwater BMPs/retrofits and ~ 50,000' stream restoration in 6 focus areas	Jul-03 [CH2M-Hill]
Lower Yadkin [West]	03040105	03040105-010010 and 010020	Upper Rocky River-Dye Branch and Clarke Creek [77 sq. miles]	Dec. 2001	* 100% complete * Many potential projects and BMPs identified including ~ 80,000' stream restoration * One EEP project underway; one on Dye Branch in Mooresville promising -- 319 grant being sought	Feb. 2004 [CDM]
French Broad [West]	06010105	06010105-030020 to 030040	Mud Creek [3 HUs totaling 113 sq. miles]	Sept. 2000	* 100% complete * Documented many non-point sources of impairment, degradation * 2 EEP projects underway * 319 grant submitted for Ag BMPs * Received EPA funding for local Watershed Coordinator to implement Plan	Jan. 2003 [No assessment consultant; relied in part on TVA IPSI work]

Table 1-2: Summary of On-going Local Watershed Planning Initiatives

River Basin [EEP region]	8-digit CU	14-digit HU(s)	Local Watershed Name [approx. total area in square miles]	Initiation Date	Status/Comments	Completion Date [Consultant]
Pasquotank [East]	03010205	03010205- 050010, 010020 and 040010	Pasquotank River [3 HUs; 370 sq. miles]	Dec-01	* Final Plan development 100% complete * Many potential restoration, enhancement and preservation sites identified; also, BMP opportunities	Feb-04 [Ds PRO]
Middle Neuse [East]	03020203	03020203 020040	EPA Contentnea Grant – Hominy Swamp Creek [16 sq. miles]	1999	* Final Plan development complete * Several potential preservation and enhancement sites and BMP opportunities identified	Sept-04 [No assessment consultant; support from NCSU & ECU]
Middle Cape Fear [East]	03030004	03030004-020010, 030010 and 040010	Harris Lake tributaries; Kenneth and Parker's creeks [180 sq. miles]	Spring 03	* Preliminary characterization complete * Detailed assessment 100% complete * Targeted Management Strategies identified * Final plan development 95% complete	Sept-04 [Buck Engineering]
Middle Cape Fear [East]	03030004	03030004-070010 & 70020	Crane's Creek [2 HUs; 101 sq. miles]	Dec-01	* Assessment tasks completed May 2003 [Blue] * Many potential projects identified; several conveyed to EEP Implementation for consideration * Final stakeholder summary and plan development underway	Final plan development pending new EEP staff; goal is Spring 2005
Upper Cape Fear [West]	03030002	03030002-060100, 060070, 060080	Morgan Creek [3 HUs; 75 sq. miles]	Nov-02	* Preliminary characterization complete * Detailed assessment and final plan * Project identification nearly complete	Dec-04 [TetraTech]
Upper Cape Fear [West]	03030002	03030002-010010 and 010030	Troublesome & Little Troublesome Creeks [69 sq. miles]	Nov-01	* Preliminary characterization and detailed assessment phases complete * Final Plan documents being developed; 95% complete * Many potential preservation, restoration and BMP sites identified; major EEP wetlands preservation parcel in process	Feb-04 [TetraTech]

Table 1-2 Continued next page

(Continued from previous page) Table 1-2: Summary of Ongoing Local Watershed Planning Initiatives

River Basin [EEP region]	8-digit CU	14-digit HU(s)	Local Watershed Name [approx. total area in square miles]	Initiation Date	Status/Comments	Completion Date [Consultant]
Lower Yadkin [West]	03040105	03040105- 010030 to 010050 and 20010	Upper Rocky River, Phase 2 [4 HUs; 200 sq. miles]	Dec-02	* Preliminary characterization 100% complete * Detailed Assessment ~ 50% complete, including preliminary identification of potential project sites * Final Plan development to begin June '04	Oct-04 [Mactec]
Upper Yadkin [West]	03040101	03040101-010080 to 010110 and 020010	K. Scott Lake – Lewis Fork and Warrior Creek [5 HUs; 137 sq. miles]	Nov-01	* Complete except for final Restoration Plan development * ~ 60,000' of stream restoration id'd; negligible wetland opportunities; 2 EEP projects underway * Ag BMPs targeted for CWMTF grant	June 04 [TetraTech]
Broad [West]	03050105	03050105-070020	Cathey's Creek	Jun-03	* Phase 1 (preliminary characterization) 90% complete * Spring '04 field work (detailed assessment) and monitoring imminent	Dec 04 [Earth Tech]
Middle Tar-Pamlico [East]	03020103	15 sq. mi. Subwatersheds within HUs 03020103010020, -060020, -050030, -080010	Conetoe to Chicod Creek and Tar River	Fall 2003	* Phase I (preliminary characterization) 100% complete [Blue] * Phase II: Detailed Assessment currently underway	Fall 2005
Middle to Lower Neuse [East]	03020202	03020202-010010 and 010020 to 22	<i>Initial:</i> Core Creek <i>Now:</i> Stoney Creek [4 HUs]	Fall 2003	* Phase I on Core Creek 100% complete [KCI] * Decision made to move LWP to Stoney Creek HUs beginning 2004 * Stoney Creek Phase I -- 100% Complete * Stoney Creek Phase II – Detailed Assessment currently underway	No later than Dec. 2005

Table 1-2 Continued next page

(Continued from previous page) Table 1-2: Summary of On-going Local Watershed Planning Initiatives

River Basin [EEP region]	8-digit CU	14-digit HU(s)	Local Watershed Name [approx. total area in square miles]	Initiation Date	Status/Comments	Completion Date [Consultant]
Lumber [East]	03040203	03040203-030010 and 050010	Bear Swamp and Lumber River [52 sq. miles]	Fall 2003	* Phase I: 100% complete * Phase II: Detailed Assessment currently underway	No later than Dec. 2005
Upper Neuse [East]	03020201	03020201-110010 and 110020	Upper Swift Creek [66 sq. miles]	Fall 2003	* Phase I and Preliminary Findings & Recommendations (PFR) to be complete by March 2004 [Amec]	Spring 2005
Upper Neuse [East]	03020201	03020201050020	Little Lick Creek	Fall 2004	* Phase I will begin Nov. 2004	December 2005 [Upper Neuse River Basin]
Upper Cape Fear [West]	03030003	03030003-070010, 070020 and 070050	<i>Initial:</i> Hasketts Creek <i>Now:</i> Upper Rocky River and tributaries [3 HUs; 177 sq. miles]	Fall 2003	* Phase I 100% complete for Hasketts Creek * Moved LWP from Hasketts Creek (Asheboro area) to upper Rock River (3 HUs) in Siler City area where there are greater restoration opportunities and more favorable stakeholders * Phase I report (PFR) due March 2004	Fall 2005
Lower Yadkin [West]	03040104	03040104-010010 and 010020	Mountain and Jacob Creeks [68 sq. miles]	Fall 2003	* Phase I tasks 100% complete; final PFR report from HDR delivered spring 2004	On hold – per latest projections of CU mitigation needs
Upper Catawba [West]	03050101	03050101-080010 and 080020	Lower Creek [98 sq. miles]	Fall 2003	* Phase I and final PFR complete [Mactec] * DWQ assisting with monitoring and assessment tasks * WPCOG to assist with stakeholder involvement and landowner recruitment	Fall 2005
New [West]	05050001	05050001 030020	Little River [77 sq. miles]	Fall 2003	* Phase I tasks and PFR report complete [WK Dickson]	On hold – per latest projections of CU mitigation needs
French Broad [West]	06010108	06010108 080020	Bald Creek [18 sq. miles]	Fall 2003	* Phase I and PFR complete * Habitat degradation and straight-piping issues	Fall 2005
French Broad [West]	06010105	06010105 060020	South Hominy Creek [35 sq. miles]	Fall 2003	* Phase I and PFR report complete * PFR delivered Feb 04 [Buck]	Fall 2005

EEP Operational Strategic Plan

Each year as new mitigation need projections are revised and compiled by the NCDOT and presented to EEP in January, a new strategic planning cycle begins. The Strategic Planning Process accounts for NCDOT needs as well as In-Lieu Fee Program mitigation, nutrient offset and buffer needs. This process involves evaluating these defined needs on a CU basis. A specific strategy for addressing projected needs is then developed for each CU and can include action items for developing a Local Watershed Plan or EEP design bid build project implementation; purchasing credits from an existing mitigation bank or publishing a full delivery Request for Proposal (RFP). Combined, these individual strategies compose the EEP Operational Strategic Plan.

This process and plan directs which CUs will be screened using the *Report from the Watershed Needs Assessment Team to the Mitigation Coordination Group* to select the best watersheds for Local Watershed Plan development. Once these determinations are made, the Local Watershed Planning processes begin. The report, developed in October 2003, is available online at www.nceep.net/services/guidancedoc.htm.

*Table 1-3: ILF Gross Assets
(Snapshot taken on September 30, 2004)*

River Basin	Stream Restoration Credits	Wetlands Restoration Credits
Broad	5,000	0.00
Cape Fear	70,266	230.10
Catawba	95,257	25.92
Chowan	0	0.00
French Broad	7,300	20.00
Hiwassee	3,900	0.00
Little Tennessee	0	0.00
Lumber	2,800	6.00
Neuse	51,483	67.77
New	3,590	0.00
Pasquotank	1,000	53.20
Roanoke	3,000	0.00
Savannah	0	0.00
Tar-Pamlico	11,900	30.00
Watauga	0	0.00
White Oak	3,000	260.40
Yadkin	71,778	10.73
Grand Total	330,274	704.12

Implementation of Restoration Projects

EEP has continued to develop stream, wetlands and buffer projects to offset impacts accepted into the in-lieu fee program. During the last fiscal year, significant efforts to validate and compile data in the project database have been made. These efforts were associated with the development of a consolidated EEP asset and project tracking ledger. The comprehensive EEP database includes projects developed for in-lieu fee needs under the Wetlands Restoration Program, projects developed by NCDOT for compensatory mitigation prior to the establishment of EEP and projects developed by EEP since its inception. Individual projects and their assets are tracked according to the fund source used for project development to ensure that assets are applied to the appropriate programs.

In the fall of 2004, EEP used the updated database to summarize in-lieu fee program assets for the USACE. The assets under the in-lieu fee program for stream and wetlands restoration as of September 30, 2004, are summarized in Table 1-3. These figures represent mitigation credits which have been converted from restoration units using standard regulatory ratios.

Phases of Implementation

1. Site Identification

The on-the-ground assessment by EEP personnel and private consultants of potential project sites identified through the basinwide and local watershed planning processes.

2. Site Acquisition

The process by which landowners participate in the process by agreeing to the protection of viable project sites through donation or purchase of conservation easements, or through fee simple purchase.

3. Site Assessment/Initial Design

The preliminary step of project design that involves measurement and documentation of existing conditions and functions of viable project sites and the surrounding watershed. Project goals, targeted functions and a conceptual design are established at this stage.

4. Project Design

The production of a final design that provides specifications and drawings to be used for necessary permits, and to guide the construction of the restoration project.

5. Site Restoration

The construction phase of a project in which the physical structure of a site is modified to change the hydrological, geomorphological and biological components of a restoration site.

6. Post-Monitoring

The collection, evaluation and reporting of data following construction to determine if restored sites are meeting project goals. Post-monitoring can extend to five years after restoration activities and will involve the remediation of sites that are not meeting success criteria.

7. Long-Term Maintenance and Management

The periodic inspection of sites after the post-monitoring phase to ensure the protection of sites against unauthorized activities and to identify and implement maintenance.

Section 2 – Compensatory Mitigation Requirements

One of the functions of EEP is to provide a compensatory mitigation option that is available to permit applicants throughout North Carolina (NCGS 143-214.9). The option to pay a fee to EEP to satisfy compensatory-mitigation requirements of Section 404 permits and 401 Water Quality Certifications has been available since November 1998. EEP also accepts payments for riparian-buffer mitigation requirements in the Neuse, Tar-Pamlico, and Catawba River basins and the Randleman Water Supply Watershed, and nitrogen offset payments in the Neuse River basin. This section summarizes the accepted payments and the progress made in implementing projects to meet compensatory requirements (refer to Appendix A of this report and the 1999 WRP Annual Report for additional information concerning the Memorandum of Agreement between the U.S. Army Corps of Engineers and the Wetlands Restoration Program).

Section 404/401 Water Quality Certification Mitigation Requirements

The compensatory-mitigation requirements for 115 stream and wetlands impacts permitted by Section 404 or 401 certifications were accepted and paid during FY 03-04. The mitigation requirements for these permits will be due during the next fiscal year, precisely one year from the applicant's payment date. The permit/certification mitigation amounts for the FY 03-04 payments totaled 91,816 linear feet of streams and 64.579 acres of wetlands (see Table 2.1 on page 16).

The 91,816 linear feet of stream mitigation payments in 2003-2004 represents a 496 percent increase (73,312 linear feet increase) in the amount of mitigation paid into the program from the previous fiscal year when only 18,504 stream linear feet of mitigation was accepted and paid into the program. Similarly, the wetlands mitigation payments accepted in 2003-2004 increased 40 percent from 46.27 wetlands acres to 64.579 wetlands acres.

Since 1998, 409 stream and wetlands Section 404 and/or 401 Water Quality for mitigation



*Wilson Park, Hoving Swamp
Neuse River Basin*

requirements have been accepted and paid into the In Lieu Fee (ILF) Memorandum of Understanding (MOU) program. The cumulative mitigation requirements paid into the program total 319,650 linear feet of streams and 366.958 acres of wetlands in 13 river basins. The Chowan, Hiwassee, Savannah and Watagua River Basins have not had any payments made into the ILF Program for either streams or wetlands. The Little Tennessee River basin had its first payment into the ILF Program during the 2003-2004 Fiscal Year.

Table 2-1: Compensatory Mitigation Requirements Accepted and Paid into the ILF MOU Program in Fiscal Year 2003-2004 and Cumulatively since 1998

River Basin	Mitigation Requirements Accepted Fiscal Year 2003 - 2004		Cumulative mitigation requirements accepted since November 1998	
	Stream mitigation (feet)	Wetlands Mitigation (acres)	Stream mitigation (feet)	Wetlands Mitigation (acres)
Broad	822	0	1622	0
Cape Fear	41,314	34.14	105,081	155.72
Catawba	30,229	19.26	91,386	41.11
Chowan	0	0	0	0
French Broad	1,367	0.4	10,673	2.79
Hiwassee	0	0	0	0
Little Tennessee	288	0	288	0
Lumber	0	0	0	7.098
Neuse	9,227	2.589	50,434	63.841
New	0	0	1,780	1.68
Pasquotank	0	2.1	1,047	11.42
Roanoke	0	0.354	3,676	9.874
Savannah	0	0	0	0
Tar-Pamlico	576	1.67	2,384	36.080
Watauga	0	0	0	0
White Oak	3,989	0.994	3,989	21.804
Yadkin	4,004	3.072	47,290	15.542
Totals	91,816	64.579	319,650	366.958

Riparian Buffer Mitigation

Twenty-six separate Certificates of Authorization for riparian buffer impacts were accepted and paid into the EEP Riparian Buffer ILF MOU Program during FY 03-04. These payments require the restoration of 125.21 acres of buffer in the Neuse and Tar-Pamlico River basins, and the Randleman Water Supply Watershed. The 2003-2004 payments represent a 21-percent increase in mitigation payments from the previous year.

Since 1999, the buffer-mitigation requirements of 97 projects have been accepted. Of these payments, 79.66 percent are for impacts within the Neuse River basin; 0.56 percent are within the Tar-Pamlico River basin and 19.78 percent are within the Randleman Water Supply Watershed. No payments have been received for buffer impacts in the Catawba River basin. Cumulative riparian-buffer mitigation requirements in the Neuse and Tar-Pamlico River basins and the Randleman Water Supply Watershed are shown in Table 2-2.

Nitrogen Offset Payments in the Neuse River Basin

As required by the *Neuse River Basin, Nutrient Sensitive Waters Management Strategy: Basinwide Stormwater Requirements* (15A NCAC 2B .0235), designated local governments within the Neuse

River basin are required to implement strategies to ensure that development activities within the jurisdiction of these local governments do not result in an increase in the amount of nitrogen loading to the Neuse River basin. One option available to help in achieving this goal is the payment of a nitrogen-offset fee to EEP (15A NCAC 2B .0240). Developers who have nutrient impacts within these jurisdictions have the option of partially offsetting their nitrogen loads through payments to EEP in lieu of performing the mitigation themselves.

A total of 240 nitrogen-offset payments were received during FY 03-04 (Appendix C, C-2). These payments will require the implementation of projects that provide 6,478.706 pounds of nitrogen reduction over 30 years within the Neuse River basin. Cumulatively, payments have been received since FY 00-01 to fund the



*Little Contentnea Creek, Farmville
Neuse River Basin*

implementation of projects that will provide 11,968.73 pounds of nitrogen reduction over 30 years. EEP is working with the local governments affected by the *Neuse River Basin, Nutrient Sensitive Waters Management Strategy: Basinwide Stormwater Requirements* (15A NCAC 2B .0235) to identify and implement projects that will achieve the required nitrogen reduction.

Progress in Meeting Compensatory Mitigation Requirements For Fiscal Year 2003-04

Since 1998, 425 separate stream or wetlands mitigation requirements associated with either Section 404 permits or 401 Water Quality classifications have been accepted. The mitigation that became due in FY 03-04 and the total cumulative mitigation requirements due since the inception of the ILF program are listed in Table 2-3.

Table 2-2: Riparian Buffer Compensatory Mitigation Accepted and Paid into the EEP Riparian Buffer ILF Program

River Basin/ Watershed	Mitigation requirements accepted Fiscal Year 2003 - 2004 (acres)	Cumulative mitigation requirements accepted since June 1999 (acres)
Neuse	64.88	307.6
Tar-Pamlico	0.068	1.78
Catawba	0	0
Randleman Water Supply Watershed	60.26	60.26
Total	125.208	369.64

The requirements listed in Table 2-3 stem from 311 stream and/or wetlands requirements generated from DWQ Certifications, USACE Action IDs or both. Compliance with these requirements as of June 30, 2004 is shown in Table 2-4. These numbers do not take into account the 2004 EEP full delivery RFP restoration assets that had contracts pending during FY 04-05. The 2004 EEP full delivery RFP restoration assets comprise over 118,000 feet of stream restoration, 309 acres of riverine wetlands restoration and 306 acres of nonriverine wetlands restoration. The full delivery RFP contracts were ready to close during the fiscal year but were placed on administrative hold while EEP worked with NCDOT on securing its first Biennial Budget Funding request under the TriParty Memorandum of Agreement.

The full delivery RFP restoration assets were designed to offset both TriParty MOA program requirements and ILF MOU program requirements. In regards to the ILF MOU requirements, the assets were to cover over 22 percent of the current stream requirements and 14 percent of the outstanding wetlands requirements. As of June 30, 2004, funding had not been secured for the TriParty MOA program, thus the contracts were maintained as pending. After the Biennial Budget process was delayed, EEP decided to proceed with several of the full delivery RFP contracts intended to cover primarily ILF MOU requirements and to fund them entirely with ILF MOU funds. The contracts closed on July 22, 2004 and officially became ILF assets. The

Table 2-3: ILF Stream and Wetlands Compensatory Mitigation Requirements Due as of June 30, 2004

River Basin	Mitigation Requirements Due Fiscal Year 2003 - 2004		Cumulative Mitigation Requirements Due since 1998	
	Stream Mitigation (feet)	Wetlands Mitigation (acres)	Stream Mitigation (feet)	Wetlands Mitigation (acres)
Broad	0	0	800	0
Cape Fear	2,223	14.28	63,767	124.19
Catawba	1,919	1.14	61,157	21.85
Chowan	0	0	0	0
French Broad	2,808	2.25	9,306	2.39
Hiwassee	0	0	0	0
Little Tennessee	0	0	0	0
Lumber	0	2.66	0	7.1
Neuse	10,978	7.17	41,207	61.25
New	0	0.48	1,780	1.68
Pasquotank	0	0	1,047	9.32
Roanoke	0	0.8	3,676	9.52
Savannah	0	0	0	0
Tar-Pamlico	0	0.62	1,808	34.41
Watauga	0	0	0	0
White Oak	0	15.8	0	20.81
Yadkin	920	1.72	43,286	12.47
Totals	18,848	46.92	227,834	304.99

Table 2-4: Overall MDU ILF Program Stream and Wetlands Compliance

River Basin	Cumulative Mitigation Requirements Due since 1998		June 30, 2004 Mitigation Overdue		June 30, 2004 Compliance Percentage		July 22, 2004 Mitigation Overdue		July 22, 2004 Compliance Percentage	
	Stream Mitigation (feet)	Wetlands Mitigation (acres)	Stream Mitigation (feet)	Wetlands Mitigation (acres)	Stream Percent Compliant	Wetland Percent Compliant	Stream Mitigation (feet)	Wetlands Mitigation (acres)	Stream Percent Compliant	Wetland Percent Compliant
Broad	800	0	800	0	0%	100%	800	0	0%	100%
Cape Fear	63,767	124.19	10,004	41.64	84%	66%	109	7.37	100%	94%
Catawba	61,157	21.85	28,861	15.43	53%	29%	0	4.62	100%	79%
Chowan	0	0	0	0	100%	100%	0	0	100%	100%
French Broad	9,306	2.39	2,206	0	76%	100%	2,206	0	76%	100%
Hiwassee	0	0	0	0	100%	100%	0	0	100%	100%
Little Tennessee	0	0	0	0	100%	100%	0	0	100%	100%
Lumber	0	7.1	0	1.01	100%	86%	0	1.01	100%	86%
Neuse	41,207	61.25	4,693	0.51	89%	99%	0	0	100%	100%
New	1,780	1.68	0	1.68	100%	0%	0	1.68	100%	0%
Pasquotank	1,047	9.32	47	0	96%	100%	47	0	96%	100%
Roanoke	3,676	9.52	770	9.52	79%	0%	770	9.52	79%	0%
Savannah	0	0	0	0	100%	100%	0	0	100%	100%
Tar-Pamlico	1,808	34.41	0	6.08	100%	82%	0	6.08	100%	82%
Watauga	0	0	0	0	100%	100%	0	0	100%	100%
White Oak	0	20.81	0	16.41	100%	21%	0	16.41	100%	21%
Yadkin	43,286	12.47	0	1.73	100%	86%	0	1.73	100%	86%
Totals	227,834	304.99	47,381	94.02	79%	69%	3,932	48.42	98%	84%

program's compliance after including the full delivery RFP restoration assets on July 22, 2004, is shown in Table 2-4. There is a remarkable improvement in the program status between June 30 and July 22. As of July 22, 2004, the MOU program had met 98 percent of stream-footage requirements and 84 percent of wetlands-acreage requirements. The stream-footage compliance rate improved approximately 10 percent over the last fiscal year. The wetlands-acreage compliance remained about the same as last fiscal year.

Of the 311 DWQ and USACE permit requirements, 91.96 percent of all permit requirements are fully met. An additional 2.57 percent of permit requirements are partially met. Therefore, 94.53 percent of all permit requirements had restoration assets assigned to the permit. Of all the DWQ permit requirements, 92.43 percent had been fully met and 88.69 percent of all USACE permit requirements had been fully met. Overall permit requirement compliance improved 5.43 percent for DWQ requirements and 1.69 percent for USACE requirements since the last fiscal year.

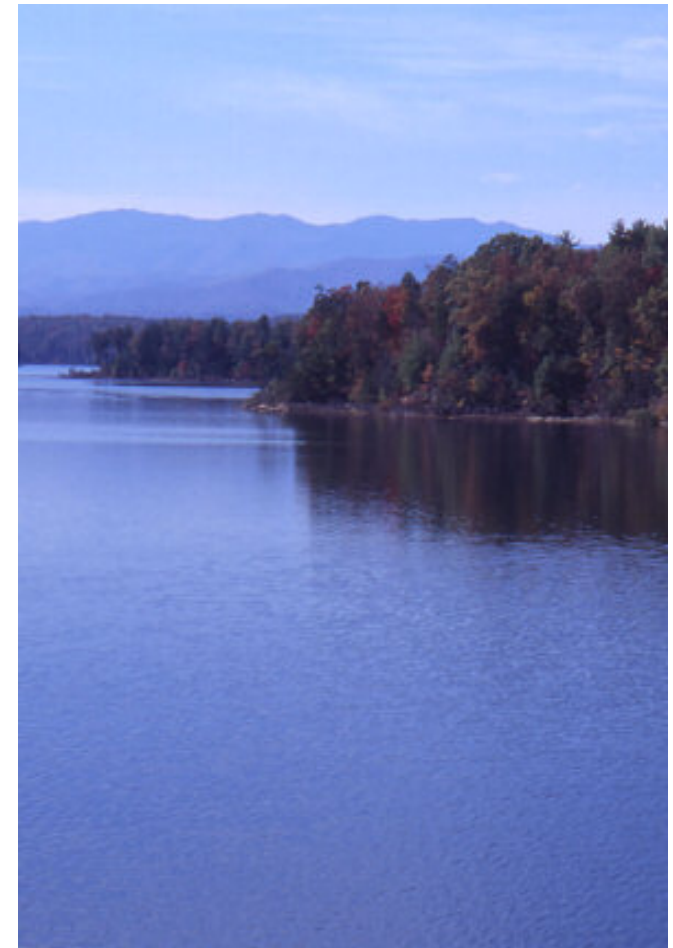
These improvements reflect a substantial increase in the number of assets acquired by EEP. The improvements have occurred despite a steady increase in the demand for mitigation. The outlook for the MOU program is similarly improving. The number of new projects is

expected to increase, and after next year's spike in mitigation needs, the long-range expectation is that the amount of mitigation demanded in the MOU program will decrease substantially. This is primarily a result of NCDOT exiting the ILF MOU program as a means of satisfying compensatory mitigation needs. Historically, NCDOT requested approximately 60 to 70 percent of the total footage and acreage of stream and wetlands requests. In the future, all NCDOT mitigation requests will be handled under the TriParty Memorandum of Agreement between NCDOT, USACE and EEP. Nevertheless, the increase in private mitigation demand is expected to continue. Also, demand in river basins that have not previously had ILF acceptances is expected to grow.

Riparian Buffer Mitigation Requirements

EEP has accepted payments for 242.72 acres of buffer restoration in the Neuse River basin from June 1999 through June 2004. During the fiscal year, four EEP projects (Moye Farm, Hargette Tucker Farm, McCotter/Raines Farm and Casey Dairy) were secured to restore 166 acres of riparian buffer in the Neuse River basin. EEP had previously restored 26.7 acres of riparian buffer in the Neuse River basin.

In March 2004, EEP issued Requests for Proposals for 75 additional acres of buffer. One site for 25 acres is under contract and another site for 50 acres was pending at the close of the fiscal year. (The pending contract was finalized in November 2004). EEP accepted payments for 60.26 acres



*Lake James State Park
Catawba River Basin*

of riparian buffer restoration in the Randleman Water Supply Watershed in FY 03 – 04. No payments for buffer restoration were accepted in the Catawba River basin.

Section 3 – Trust Funds

Wetlands Trust Fund

The Wetlands Trust Fund was established by the N.C. General Assembly as a repository for funds to restore, create, enhance and preserve wetlands and riparian areas throughout the state. Three accounts have been established within the Wetlands Trust Fund: Account 2980 – Wetland Restoration; Account 2981 – Compensatory Mitigation; and Account 2982 – Riparian Buffer.

Account 2980 is the repository for appropriations received from the General Assembly. This account is used to implement restoration projects to compensate for cumulative losses of wetlands and riparian areas associated with projects that are below the threshold that triggers the compensatory-mitigation requirement.

Account 2981 is the repository for payments made to EEP to satisfy the compensatory-mitigation requirements of Section 404 permits, 401 Water Quality Certifications and nitrogen-offset payments. Payments to this account and the interest earned are used to implement projects designed to meet the compensatory-mitigation requirements of projects accepted by EEP and to implement projects to reduce nitrogen loading within the Neuse River basin.

Account 2982 is the repository for payments to satisfy the buffer-mitigation requirements for permitted impacts to riparian buffers in the Neuse, Tar-Pamlico and Catawba River basins. Payments to this account and the interest earned are used to implement riparian-buffer restoration projects within these river basins.

During FY 03-04, EEP received 374 payments for compensatory mitigation associated with Section 404/401 permits, permitted riparian-buffer impacts and nitrogen-offset payments. Of the payments, 325 (85.3 percent) were received from the private sector; 36 payments (9.45 percent) were received from NCDOT; and 20 payments (5.25 percent) were received from other state, federal and local government agencies.

Income/Expenditures

Account 2980 – Wetlands Restoration Fund

The beginning balance of Account 2980 in FY 03-04 was \$1,978,457. Income received during the fiscal year

was derived from \$61,011 in interest earned on this account. The General Assembly appropriated no funds in FY 03-04. Total expenditures for FY 03-04 were \$148,434. These funds were expended for activities associated with the restoration, enhancement or preservation of wetland, streams and riparian areas. Of the remaining balance, \$1,815,719 is encumbered for activities associated with the restoration and enhancement of wetlands, streams and riparian areas. At the end of FY 03-04, the unencumbered balance of Account 2980 was \$75,315 (Table 3-1).

Table 3-1: Wetlands Trust Fund - Wetlands Restoration Account 2980

Balance 7/1/03		\$1,978,457
Revenue (FY03-04)		\$61,011
Receipts	0	
Interest	\$61,011	
Expenditures		\$148,434
Site Identification	0	
Site Acquisition	0	
Design/Construction Management	\$148,434	
Construction	0	
Monitoring	0	
Maintenance/Management	0	
Balance 6/30/04		\$1,891,034
Current Contractual Encumbrances		\$1,815,719
Balance of Unencumbered Funds		\$75,315

Table 3-2: Wetlands Trust Fund - Compensatory Mitigation Account 2981

Balance on 7/1/03		\$40,452,387
Revenue		\$20,541,392
Compensatory Mitigation Payments	\$17,342,162	
Nutrient Offset Payments	\$1,685,752	
DOT/MOU	0	
Interest	\$1,513,478	
Expenditures (FY03-04)		\$14,150,989
Site ID (including LWP)	\$2,055,591	
Site Acquisition	\$788,625	
Design/Construction Management	\$3,518,446	
Full Delivery Contracts	\$614,980	
Construction	\$6,425,868	
Monitoring/Maintenance Management	\$315,888	
Administration	\$409,256	
Refunds	\$22,335	
Balance on 6/30/04		\$46,842,790
Current Contractual Encumbrances		\$17,648,302
Balance of Unencumbered Funds		\$29,194,488

Table 3-3 Wetlands Trust Fund - Riparian Buffer Restoration Account 2982

Balance 7/1/03		\$5,513,590
Revenue		\$5,494,285
Compensatory Mitigation Payments	\$5,235,823	
Interest	\$258,462	
Expenditures		\$325,017
Balances 6/30/04		\$10,682,858
Current Contractual Encumbrances		\$678,282
Balance of Unencumbered Funds		\$10,004,576

Account 2981 – Compensatory Mitigation Fund

The beginning balance of Account 2981 in FY 03-04 was \$40,452,387. A total of \$20,541,392 was deposited into this account during the fiscal year. Income received during the fiscal year was derived from payments to satisfy the compensatory-mitigation requirements of Section 404 permits and 401 Water Quality Certifications, nitrogen-offset payments as required by 15A NCAC 2B.0242 and the interest earned on the funds within this account. Total expenditures for FY 03-04 were \$14,150,989. These funds were expended for activities associated with the restoration, enhancement or preservation of wetlands, streams and riparian areas. Of the remaining balance, \$17,648,302 is encumbered. At the end of FY 03-04, the unencumbered balance of Account 2981 was \$29,194,488 (Table 3-2).

The unencumbered balance is reserved for the implementation of projects to meet the compensatory-mitigation requirements of Section 404 permits and 401 Water Quality Certifications accepted by EEP, watershed assessments and nitrogen-reduction projects.

Account 2982– Riparian Buffer Fund

The beginning balance of Account 2982 in FY 03-04 was \$5,513,590. During the fiscal year, \$5,494,285 was deposited into this account from payments for the compensatory-mitigation requirements associated with permitted impacts to buffers and the interest earned on the account. Four new contracts were encumbered, totaling \$678,282. During FY 03-04, \$325,017 was expended from this account. At the end of FY 03-04, the unencumbered balance of Account 2982 was \$10,004,576. These funds are reserved for buffer restoration in the Neuse and Tar-Pamlico River basins (Table 3-3).

Table 3-4 Contractual Encumbrances for the Wetlands Trust Fund Accounts 2980, 2981 and 2982

Fund	Vendor	Remaining Encumbrance
2980	NCDENR - Div. of Soil & Water	\$1,155,000
2980	Blue Land Water Infrastructure	\$107,236
2980	Natural Areas Ecosystem Management	\$54,217
2980	Soil & Env. Consultants	\$232,415
2980	Arcadis Geraghty & Miller	\$74,154
2980	Earth Tech	\$5,930
2980	HDR Engineering	\$50,765
2980	EcoScience	\$125,803
2980	Kimley Horne	\$10,199
Fund 2980 Total: \$ 1,815,719		
2981	Ecologic Associates	\$223,535
2981	Earth Tech	\$745,906
2981	Buck Engineering	\$504,157
2981	Kimley Horne	\$117,911
2981	Becky L. Ward Consulting	\$1,838.74
2981	Camp Dresser McKee	\$28,191
2981	KCI Associates	\$761,748
2981	CH2MHILL	\$126,979
2981	Arcadis Geraghty & Miller	\$135,632
2981	EcoScience	\$318,167
2981	West Contracting, Inc.	\$7,688.62
2981	North State Environmental	\$117,676
2981	HDR Engineering	\$186,343
2981	URS Corporation	\$654,740
2981	Soil & Environmental Consultants	\$376,809
2981	SEI	\$598,782
2981	Shamrock Environmental	\$1,704,737
2981	Blue Land Water Infrastructure	\$311,468
2981	Dewberry & Davis	\$329,802
2981	Stantec Consulting	\$170,852

Fund	Vendor	Remaining Encumbrance
2981	TetraTech, Inc.	\$293,606
2981	Law Engineering	\$126,741
2981	Dixie Grading	\$11,410
2981	LJ, Inc.	\$109,644
2981	Barry Rosch	\$64.00
2981	Norris Spaulding	\$1,065,140
2981	Mollie Doll	\$1,353
2981	Hunter Construction	\$10,282
2981	Restoration Systems	\$1,959,500
2981	Sungate Design Group	\$125,500
2981	A&D Environmental	\$164,289
2981	Republic Bldg. Svcs.	\$2,554
2981	Phillips Jordan	\$46,555
2981	Contaminant Control	\$316,402
2981	McQueen Construction	\$584,052
2981	Osborne Company	\$541,393
2981	Carolina Silvics	\$13,250
2981	Seal Brothers	\$178,863
2981	Vaughan Contracting	\$786,866
2981	Cape Fear River Assembly	\$44,951
2981	Tennessee Valley Authority	\$4,000
2981	Biohabitats, Inc.	\$1,690
2981	City of Jacksonville	\$192,072
2981	NCSU	\$961,183
2981	USDA - NRCS	\$372,592
Fund 2981 Total: \$ 17,648,302		
2982	EBX Neuse-I, LLC	\$82,687
2982	Restoration Systems	\$338,184
2982	Land Management	\$78,812
2982	Greene Environmental	\$178,599
Fund 2982 Total: \$ 678,282		

Section 4 – Analysis of Restoration Costs

The Ecosystem Enhancement Program evaluates the cost of restoration projects on an annual basis and compares this cost to the Schedule of Fees and the cost of restoration projects implemented by the private mitigation banking industry. Please refer to Section 5 of the 2001 Wetlands Restoration Program Annual Report for information on the methods used in this analysis.

Stream Restoration Projects

The construction of 27 stream restoration projects was completed by the end of FY 03-04. Fourteen of these projects are in urban areas and thirteen projects are located in rural areas. These projects restored 115,312 linear feet of stream at an overall average cost per linear-foot of \$139.28. As shown on Tables 4.1 and 4.2, there is a significant difference in the costs of urban and rural projects. The average cost per linear-foot of urban projects is \$182.47 while the average cost per linear-foot of rural projects is \$112.62.

Table 4-1: Stream Restoration Costs for Urban Projects

Urban Project	Hominy Swamp	Price Park	Smith/Austin	Kentwood Park	Chavis Park	Richland Creek	Clear Creek
Site identification	\$2,450	\$1,690	\$4,750	\$1,800	\$2,250	\$0	\$1,080
Site acquisition	\$2,500	\$62,526	\$300,368	\$12,711	\$0	\$0	\$3,935
Project design	\$123,903	\$86,380	\$240,717	\$93,559	\$72,461	\$17,533	\$64,320
Construction management	\$12,600	\$21,666	\$136,323	\$38,334	\$30,329	\$35,302	\$44,978
Site restoration	\$322,618	\$154,789	\$446,602	\$94,862	\$281,703	\$57,942	\$199,436
Monitoring*	\$51,000	\$74,035	\$112,380	\$61,604	\$57,060	\$7,500	\$49,320
Long-term management	\$3,000	\$3,000	\$3,000	\$3,000	\$3,000	\$1,000	\$3,000
Length (ft)	2,232	1,710	9,500	1,800	2,500	850	1,300
Total cost	\$518,071	\$403,786	\$1,244,141	\$305,870	\$446,723	\$119,277	\$366,069
Cost/linear foot	\$232	\$227	\$131	\$170	\$179	\$140	\$282
Project status	Monitoring	Monitoring	Monitoring	Monitoring	Monitoring	Monitoring	Monitoring

Urban Project	Sandy Creek	Hillsdale Park	Gillespie Park	Cato Farms	Silas Creek	Freedom Park	Hatchett's Grove
Site identification	\$1,000	\$3,418	\$3,418	\$1,375	\$4,400	\$4,800	\$2,720
Site acquisition	\$66,718	\$13,504	\$13,504	\$0	\$6,900	\$0	\$0
Project design	\$26,194	\$109,340	\$114,640	\$71,041	\$123,836	\$216,600	\$118,125
Construction management	\$10,000	\$75,860	\$62,980	\$38,190	\$59,251	\$79,930	\$38,440
Site restoration	\$100,517	\$319,680	\$211,728	\$334,552	\$761,810	\$831,940	\$427,479
Monitoring*	\$1,040	\$43,180	\$43,180	\$48,121	\$83,631	\$80,700	\$50,510
Long-term management	\$1,000	\$3,000	\$3,000	\$5,250	\$3,000	\$3,000	\$3,000
Length (ft)	1,500	5,434	2,877	2,200	4,500	4,200	3,400
Total cost	\$206,469	\$567,982	\$452,450	\$498,529	\$1,042,828	\$1,216,970	\$640,274
Cost/linear foot	\$138	\$105	\$157	\$227	\$232	\$290	\$188
Project status	Monitoring	Monitoring	Monitoring	Monitoring	Monitoring	Monitoring	Monitoring

* Projected Cost for five-year period

Table 4-2: Stream Restoration Costs for Rural Projects

Rural Project	Payne Dairy	Stone Mountain	Brush Creek	County Line Creek	Lyle Creek	Brown Branch
Site identification	\$3,700	\$5,200	\$2,200	\$1,750	\$1,150	\$3,500
Site acquisition	\$86,965	\$0	\$864	\$30,414	\$35,166	\$0
Project design	\$178,357	\$242,78	\$109,690	\$97,663	\$72,522	\$104,164
Construction management	\$64,234	\$76,708	\$58,020	\$41,354	\$36,679	\$67,052
Site restoration	\$413,221	\$656,230	\$228,280	\$196,098	\$88,045	\$261,521
Monitoring*	\$73,732	\$73,000	\$43,900	\$56,025	\$52,758	\$64,033
Long-term management	\$9,500	\$9,500	\$5,250	\$5,250	\$5,250	\$9,500
Length (ft)	6,997	10,622	3,590	3,500	2,300	5,400
Total cost	\$829,709	\$1,063,419	\$448,204	\$428,554	\$291,571	\$509,770
Cost/linear foot	\$119	\$111	\$125	\$122	\$127	\$94
Project status	Monitoring	Monitoring	Monitoring	Monitoring	Monitoring	Monitoring

The increased costs of urban projects are due to a number of factors. In most urban stream settings, there are numerous constraints that must be addressed during the design and construction of projects. Constraints include roads, sewer lines, water lines, power lines, fiber-optic cables and gas lines. These must be avoided or relocated during a stream-restoration project. These constraints also influence the design and maintenance of the restoration project, which further increases project cost. Other common constraints in urban situations include numerous road crossings, protecting city park equipment and ensuring the compatibility of the project with surrounding buildings and structures.

Rural Project	Beaver Creek	Bear Swamp	Suck Creek	Little Bugaboo	Purlear Creek	Wells Creek	South Fork Tributary
Site identification	\$2,200	\$750	\$1,825	\$4,125	\$6,875	\$1,750	\$1,750
Site acquisition	\$2,300	\$6,902	\$2,738	\$0	\$12,980	\$88,375	\$128,503
Project design	\$90,858	\$44,300	\$80,688	\$103,889	\$202,749	\$111,942	\$99,092
Construction management	\$50,447	\$17,440	\$28,247	\$83,310	\$80,485	\$44,622	\$34,744
Site restoration	\$265,038	\$87,537	\$244,805	\$399,400	\$597,958	\$444,705	\$514,942
Monitoring*	\$59,137	\$58,098	\$43,827	\$56,780	\$88,798	\$105,208	\$99,311
Long-term management	\$9,500	\$5,250	\$5,250	\$9,500	\$9,500	\$5,250	\$5,250
Length (ft)	4,300	1,500	3,000	6,600	11,500	6,000	6,000
Total cost	\$479,481	\$220,277	\$407,380	\$657,004	\$999,345	\$801,852	\$883,592
Cost/linear foot	\$111	\$147	\$136	\$100	\$87	\$134	\$147
Project status	Monitoring	Monitoring	Monitoring	Monitoring	Monitoring	Monitoring	Monitoring

The cost of restoration in urban areas is also increased significantly because suitable stream reaches available for restoration tend to be shorter than those in rural areas due to a higher density of land ownership and smaller parcel size. Shorter restoration projects decrease the economies of scale for urban projects since the initial mobilization of equipment is one of the larger costs in constructing stream-restoration projects. The one-time cost of construction staging and delivering equipment becomes more economical as project length increases.

* Projected Cost for five-year period

Wetlands Restoration Projects

During FY 03-04, construction was not completed on any wetlands-restoration projects. Seven wetlands restoration projects had been constructed by the end of FY 02-03. Three involved the restoration of coastal wetlands; three involved the restoration/enhancement of riparian wetlands; and one project restored non-riparian wetlands. Six of these projects were located in the coastal plain region of the state and one in the Piedmont region. They resulted in the restoration and enhancement of 3,646 acres of wetlands.

Riparian Wetlands

The construction of three riparian wetlands restoration projects had been completed by the end of FY 02-03, resulting in the restoration and enhancement of 107.6 acres of wetlands (Table 4-3). The Jumping Run Creek project is located in an urban setting and had an average cost per acre of \$25,085. The Howell Woods project is located in a rural area and involves the restoration/enhancement of 100 acres of riparian wetlands in the floodplain of the Neuse River. Wetlands hydrology and vegetation was restored and enhanced at an average cost per acre of \$13,188. The Howell Woods project resulted in the preservation of 39 acres of forested buffer. The differences in the per-acre costs of these two projects demonstrates the savings associated with economies of scale. Due to the fixed mobilization

Table 4-3: Costs of Riparian Wetland Restoration

Project	Jumping Run Creek	Howell Woods	Sandy Creek
Site identification	\$4,050	\$5,695	\$500
Site acquisition	\$0.00	\$252,157	\$17,282
Project design	\$16,125	\$66,916	\$20,000
Construction management	\$12,500	\$48,734	\$8,425
Site Restoration	\$66,000	\$183,577	\$59,000
Post monitoring*	\$8,250	\$56,064	\$25,000
Long-term management*	\$3,450	\$6,700	\$500
Restoration acres **	4.4	47	3
Wetland type	Riparian (urban)	Riparian (rural)	Riparian (urban)
Total cost	\$110,375	\$619,843	\$130,707
Cost/acre	\$25,085	\$13,188	\$43,569
Project status	Monitoring	Monitoring	Monitoring

* Estimated costs

** Represents the restoration component of larger projects that include enhancement and preservation too.

costs that are similar regardless of project size, large projects will generally provide a lower per-acre cost than small projects.

Coastal Wetlands

The construction of three coastal wetlands restoration projects had been completed by the end of FY 01-02, resulting in the restoration and enhancement of 4.11 acres of wetlands at an average cost of \$101,148 per acre. Please refer to

Section 5 of the 2001 WRP Annual Report for additional information on these projects.

Non-riparian wetlands

EEP completed the first phase of the North River wetlands restoration project located in Carteret County. Phase I is 250 acres of non-riparian wetlands restoration; Phase II will encompass another 165 acres of restoration. Total cost for the project was \$1,187,253, resulting in a \$4,749 per acre cost.

Cost Analysis of Private Mitigation Bank Restoration Projects

The enabling legislation for the WRP requires an annual cost comparison on a per-acre basis between the restoration costs of the state and private mitigation banks. To obtain the data necessary to accomplish this task, a survey requesting restoration-cost information is annually sent to the sponsor of each approved bank. Approved banks in North Carolina are listed at the website for the USACE Wilmington District (www.saw.usace.army.mil). There were no responses from mitigation banks this fiscal year. During FY 99 - 00, responses were received from two sponsors, Triangle Group and EcoBank, representing four separate mitigation banks. The average per acre cost for non-riparian wetlands for these four banks was \$9,665 (page 41, 2000 WRP Annual Report). During FY 01-02, only EcoBank responded with a cost of \$8,675 per acre of non-riparian wetland restoration (page 4-3, 2002 WRP Annual Report).

Comparison of Restoration Costs with Schedule of Fees

EEP conducts an annual comparison of actual restoration costs it incurs in the Schedule of Fees (found at 15A NCAC 2R .0402) to ensure that the latter reflects the actual cost of restoration activities.



*Goose Creek, Urban Restoration Project
Durham County*



*Little Bugaboo, Rural Restoration Project
Wilkes County*

Based on the results of the analysis of restoration costs conducted two years ago, rulemaking was initiated during FY 01-02 to increase the fee for stream restoration to \$200 per linear foot. This rule was approved and became effective April 1, 2003. On July 1, 2004, fees were increased to include the cost of inflation. The new fee schedule is: \$205 per foot for stream restoration, \$12,276 per acre for non-riparian-wetlands restoration, \$24,552 per acre for riparian-wetlands restoration and \$122,760 per acre for saltwater wetlands restoration.

Based on the comparison of actual costs for streams, riparian wetlands, non-riparian wetlands and coastal wetlands with the Schedule of Fees, no adjustment to the Schedule of Fees for these categories is recommended at this time.

Although reported stream-restoration costs differ from the fee schedule, staff believe that the current fee is appropriate since EEP will continue to implement projects in the urban environment where most impacts are experienced. Data coming to the program through the full-delivery process on the costs of riparian-wetlands restoration indicate that the current fee for this activity may be too low. Over the next fiscal year, EEP will collect and analyze data on the cost of riparian-wetlands restoration to determine if any adjustment to the fee schedule is necessary.

Section 5 – Statewide Wetland and Stream Losses and Gains

NCDENR is one of the agencies responsible for protecting and restoring the functions and values of wetlands and streams across the state. The N.C. Wildlife Resources Commission, Environmental Protection Agency, USACE, U.S. Fish and Wildlife Service, National Marine Fisheries Service, local governments and countless non-profit organizations are working to maintain and add to North Carolina's remaining inventory of wetlands and streams. Despite the collaborative efforts of these groups, there is still an annual net loss of streams in North Carolina and a net loss of wetlands in some river basins.

USACE, DWQ and the Division of Land Resources within NCDENR regulate construction activities near streams and wetlands. The intent of these regulatory programs is to minimize the impact of construction projects to these valuable resources and to ensure that unavoidable impacts are addressed through mitigation projects. NCDENR also funds restoration projects to help offset stream and wetland impacts through EEP, DWQ's 319 Program, the Clean Water Management Trust Fund and the Division of Water Resources Grant Program.

This section presents a summary of information gathered by the EEP concerning statewide wetlands and stream losses and gains that occurred

in the state during FY 03-04. This information represents the activities of DWQ as well as other agencies and programs working to protect and restore wetlands and streams across the state. Wetlands, stream and buffer losses and gains are tracked through the Wetlands/401 Unit of the DWQ and are presented below under the heading Regulatory Losses and Gains. Information about other programs is presented later in this section under the heading Non-Regulatory Gains.

Regulatory Losses and Gains

The information in this section is based on the 401 Water Quality Certification database maintained by DWQ's Wetland/401 Unit. This database tracks wetlands and stream losses authorized through the issuance of a 401 Water Quality Certification. The issuance of a 401 Water Quality Certification by DWQ is required before USACE can issue a Section 404 Permit authorizing the fill or alteration of wetlands and/or streams. Although in the majority of cases the impacts authorized by the 401 Water Quality Certification are consistent with the impacts authorized by the Section 404 Permit, it should be noted that the amount of impact authorized by the Section 404 Permit may be less than that authorized by the 401 Water Quality Certification and, in some cases, a Section 404 Permit may never be issued. In



*Potential Best Management Practice
Pine Hollow Golf Course,
Neuse River Basin*

addition, the authorized impacts may not occur during the same fiscal year and in some cases may never occur. Furthermore, the amount of required mitigation by DWQ may differ from what is required by USACE, even when both programs have authorized the same amount of impact. DWQ is increasing its efforts to monitor and track the impacts that actually occur during each fiscal year. Questions regarding regulatory wetlands losses and gains should be directed to Ms. Cyndi

Karoly with DWQ's Oversight/Express permitting group at (919) 733-9721.

In addition to the wetlands and stream impacts tracked in the database, an unknown amount of permanent wetlands and stream losses occurs. First, projects that affect less than one-third of an acre of wetlands or less than 150 linear feet of stream are not required to receive written confirmation from DWQ and, therefore, might not be reported. Second, the magnitude of unauthorized impacts to wetlands and streams is still being assessed. DWQ is working to resolve this issue.

Permitted Wetlands Impacts

During FY 03-04, DWQ issued Water Quality Certifications authorizing 119.49 acres of wetlands impact. Table 5-1 summarizes the permitted wetlands impacts that occurred throughout the state by river basin. The majority of these impacts occur in river basins that flow through the coastal plain.

Permitted Stream Impacts

During the FY 03-04, Water Quality Certifications were issued authorizing 168,383 linear feet of permanent stream impact (Table 5-2). The majority of these impacts occur in the Piedmont and mountain regions of the state and in urban areas. DWQ does not require mitigation for impacts to

intermittent streams, but impacts to these streams are reported.

Permitted Riparian Buffer Impacts in the Catamba, Neuse and Tar-Pamlico River Basins and the Watershed of the Randleman Reservoir in the Cape Fear River Basin

The Riparian Buffer Rules are currently in effect for the Catawba, Neuse and Tar-Pamlico River basins in addition to the Randleman Reservoir watershed in the Cape Fear River basin. These

rules apply to 50-foot wide riparian buffers directly adjacent to surface waters including intermittent and perennial streams, lakes, ponds and estuaries. Activities within riparian buffers are categorized as exempt, allowable, allowable with mitigation or prohibited. The Wetlands/401 Unit regulates activities in riparian buffers and maintains the database of riparian buffer losses that are permitted through the issuance of an Authorization Certificate. During FY 03-04, 32.18 acres of buffer impact in the Neuse River basin and 9.55

Table 5-1: Losses and Gains for North Carolina Wetlands During Fiscal Year 2003 - 2004

Wetlands					
Basin	Impacts <1 acre	Impacts >1 acre	Total Impacts	Mitigation	Gain or loss
Broad	0.18	0	0.18	0	-0.18
Cape Fear	17.94	16.74	34.68	46.92	12.24 (+)
Catawba	7.80	0.00	7.80	0.75	-7.05
Chowan	0.15	0.00	0.15	0.00	-0.15
French Broad	1.93	0.00	1.93	1.04	-0.89
Hiwassee	0.03	0.00	0.03	0.00	-0.03
Little Tennessee	0.06	0.00	0.06	0.01	-0.05
Lumber	2.97	4.20	7.17	0.49	-6.68
Neuse	11.13	5.29	16.42	42.03	25.61 (+)
New	0.21	0.00	0.21	0.00	-0.21
Pasquotank	10.54	5.52	16.06	1.31	-14.75
Roanoke	1.39	0	1.39	0.46	-0.93
Savannah	0	0	0	0	0
Tar-Pamlico	3.58	9.36	12.94	2.14	-10.80
Watauga	0.59	0.00	0.59	0.00	-0.59
White Oak	4.45	3.25	7.70	4.33	-3.37
Yadkin-PeeDee	7.29	4.89	12.18	4.96	-7.22
TOTALS:	70.24	49.25	119.49	104.44	-15.05

Table 5-2: Losses and Gains for North Carolina Streams During Fiscal Year 2003 - 2004

Streams					
Basin	Impacts <150 feet	Impacts >150 feet	Total Impacts	DWQ Mitigation	Gain or loss
Broad	1,122	1,277	2,399	822	-1,577
Cape Fear	5,276	35,943	41,219	27,028	-14,191
Catawba	3,484	22,380	25,864	24,402	-1,462
Chowan	76	0	76	0	-76
French Broad	2,994	2,608	5,602	4,557	-1,045
Hiwassee	736	2,225	2,961	5,667	2,706 (+)
Little Tennessee	1,349	3,816	5,165	2,303	-2,862
Lumber	476	150	626	300	-326
Neuse	9,558	26,837	36,395	25,717	-10,678
New	1,826	750	2,576	0	-2,576
Pasquotank	0	0	0	0	0
Roanoke	1,745	3,548	5,293	1,129	-4,164
Savannah	20	0	20	0	-20
Tar-Pamlico	1,728	4,322	6,050	6,384	334 (+)
Watauga	1,146	1,042	2,188	167	-2,021
White Oak	685	831	1,516	336	-1,180
Yadkin-PeeDee	7,383	23,050	30,433	21,518	-8,915
TOTALS:	39,604	128,779	168,383	120,330	-48,053

Table 5-3: Losses and Gains for North Carolina Buffers During Fiscal Year 2003 - 2004

Buffer					
Basin	Impacts <1 acre	Impacts >1 acre	Total Impacts	DWQ Mitigation	Gain or loss
Catawba	0.29	1.39	1.68	1.25	-0.43
Neuse	16.59	15.59	32.18	46.94	14.76 (+)
Randleman (CF*)	1.03	39.65	40.68	78.83	38.15 (+)
Tar-Pamlico	2.83	6.72	9.55	13.48	3.93 (+)
TOTALS:	20.74	63.35	84.09	140.5	56.41 (+)

* Cape Fear

acres in the Tar Pamlico River basin were authorized by DWQ. There were 1.68 acres of riparian buffer impact in the Catawba River basin and 40.68 acres of impact in the Randleman Reservoir watershed during the FY 03-04 (Table 5-3).

Compensatory Mitigation

The purpose of compensatory mitigation is to replace wetlands and stream functions that are lost through permitted impacts to stream and wetlands.

Wetlands

During FY 03-04, 104.44 acres of wetlands restoration and creation was required as compensatory mitigation through the issuance of 401 Water Quality Certifications (Table 5-1). The statewide compensatory mitigation requirements for wetlands were less than authorized impacts by 15.05 acres. Fifty-nine percent (70.2 acres) of this total wetlands impact is attributed to projects that impact less than one acre of wetlands and, therefore, do not require compensatory mitigation as a condition of the 401 Water Quality Certification.

Streams

The compensatory mitigation requirements of the 401 Water Quality Certifications issued during FY 03-04 totaled 120,330 linear feet of stream (Table 5-2). The DWQ authorized impacts statewide were less than the DWQ compensatory mitigation requirements by 48,053 linear feet. This substantial difference between permitted stream impacts and compensatory mitigation requirements is attributable to two factors. First, stream impacts must exceed the minimum threshold of 150

linear feet before compensatory mitigation is required. Second, mitigation is only required for impacts to perennial streams. No mitigation was required for the loss of intermittent streams which are included in the total impacts.

Non-Regulatory Gains

In addition to restoration projects associated with compensatory mitigation requirements, numerous state, federal and local government agencies as well as non-profit organizations are involved in restoration activities. In order to determine the magnitude of these efforts and to provide a mechanism to share information on restoration efforts, EEP conducted a survey to collect information concerning the amount of wetlands and streams that were restored, created, enhanced and preserved during the FY 03-04 (Appendix B, Table B-1). Based on the results of this survey, 3,605 acres of wetlands restoration and 26,594 linear feet of stream restoration were completed during the FY 03-04. A listing of these projects, the organizations that received the survey and a copy of the survey are provided in Appendix B.

The EEP is committed to tracking stream and wetlands restoration efforts that are

conducted outside of regulatory requirements. The data for wetlands and stream restoration presented in this section should be evaluated with the following caveat: the distinction between restoration and enhancement is difficult to discern. Projects that are categorized by survey respondents as restoration projects may actually be enhancement projects.

EEP makes every effort to notify appropriate organizations about the restoration project survey; however, it is likely that some restoration projects completed during FY 03-04 are not recorded in the EEP database. EEP is continuing to improve methods of data collection to increase the accuracy of this information.

Net Gains/Losses of Wetlands and Streams Including Regulatory and Non-Regulatory Gains in Wetlands and Streams

As depicted in Tables 5-4 through 5-6, when regulatory losses, compensatory-mitigation requirements and non-mitigation projects are combined, there is a net gain of 3589.95 acres of wetlands and a net loss of 21,459 linear feet of streams for the state during FY 03-04. Additional wetlands, riparian and buffer preservation efforts were also reported (Appendix B, Table B-1).

Table 5-4: Overall Net Gains/Losses of Acres of Wetlands by River Basin, Fiscal Year 2003-2004

River Basin	DWQ Gain or Loss	Non-Regulatory Restoration, Creation or Enhancement	Net Gain or Loss
Broad	-0.18		-0.18
Cape Fear	12.24		12.24
Catawba	-7.05		-7.05
Chowan	-0.15	0.50	0.35
French Broad	-0.89		-0.89
Hiwassee	-0.03		-0.03
Little Tennessee	-0.05		-0.05
Lumber	-6.68		-6.68
Neuse	25.61	89.00	114.61
New	-0.21		-0.21
Pasquotank	-14.75		-14.75
Roanoke	-0.93		-0.93
Savannah	0.00		0.00
Tar-Pamlico	-10.80		-10.80
Watauga	-0.59	3.00	2.41
White Oak	-3.37	3,598.00	3,594.63
Yadkin-PeeDee	-7.22	4.00	-3.22
TOTALS:	-15.05	3,605.00	3,589.95

Table 5-5: Overall Net Gains/Losses of Feet of Streams by River Basin, Fiscal Year 2003-2004

River Basin	DWQ Gain or Loss	Non-Regulatory Restoration, Creation or Enhancement	Overall Net Gain or Loss
Broad	-1,577		-1,577
Cape Fear	-14,191		-14,191
Catawba	-1,462	4,400	2,938
Chowan	-76		-76
French Broad	-1,045		-1,045
Hiwassee	2,706		2,706
Little Tennessee	-2,862		-2,862
Lumber	-326		-326
Neuse	-10,678		-10,678
New	-2,576		-2,576
Pasquotank	0		0
Roanoke	-4,164		-4,164
Savannah	-20		-20
Tar-Pamlico	334		334
Watauga	-2,021		-2,021
White Oak	-1,180		-1,180
Yadkin-PeeDee	-8,915	22,194	13,279
TOTALS:	-48,053.00	26,594.00	-21,459.00

Table 5-6: Net Gains/Losses of Acres of Riparian Buffer by River Basin, Fiscal Year 2003-2004

River Basin	DWQ Gain or Loss	Non-Regulatory Restoration, Creation or Enhancement	Overall Net Gain or Loss
Catawba	-0.43		-0.43
Neuse	14.76		14.76
Randleman (CF)	38.15		38.15
Tar-Pamlico	3.93		3.93
TOTALS:	56.41		56.41

