



ANNUAL REPORT 2005-2006



- Durham County
- Franklin County
- Granville County
- Orange County
- Person County
- Wake County
- Town of Butner
- City of Creedmoor
- City of Durham
- Town of Hillsborough
- City of Raleigh
- Town of Stem
- Town of Wake Forest
- Soil and Water Conservation Districts

UPPER NEUSE RIVER BASIN ASSOCIATION

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***Fiscal Year 2005-2006
Annual Report***

August 2006

Cover photo credits (clockwise, from top left):

Flat River gaging station—Chris Dreps; kids learning about watersheds at the Eno River Festival—Laura Webb Smith; the Little River Gorge—Chris Dreps; River Cooters—NC Natural Heritage Program; and assessing Little Lick Creek—Sally Hoyt.

A message from the UNRBA Chairperson

A person can live without electricity, heat, or air conditioning, but a person cannot survive for even a short time without clean water. The Upper Neuse River Basin Association's mission begins, "To preserve and protect the water quality in the Upper Neuse River Basin." The goal of the UNRBA is to protect water quality through smart management of the watershed.

Fiscal year 2005-2006 was a successful and busy one for the UNRBA as we worked to protect water quality. The UNRBA's *Upper Neuse Watershed Management Plan*, the result of many years of hard work by the Association and partners, provides a road map to preserve and protect the basin. The UNRBA took several important steps this year toward more effective management of the watershed. Just take a look at the results:

The Upper Neuse Site Evaluation Tool (described on page 9);
The Little River Riparian Corridor Conservation Plan (page 13);
The Upper Neuse Watershed Evaluation Tool (page 14); and
The Upper Neuse Clean Water Initiative (page 14).

We are excited that, in the near future, we will make the Upper Neuse Plan a reality. We will continue to take a leadership role in watershed restoration, critical lands protection, and innovative stormwater management to protect our region's water quality. I am proud to be a part of this effort.

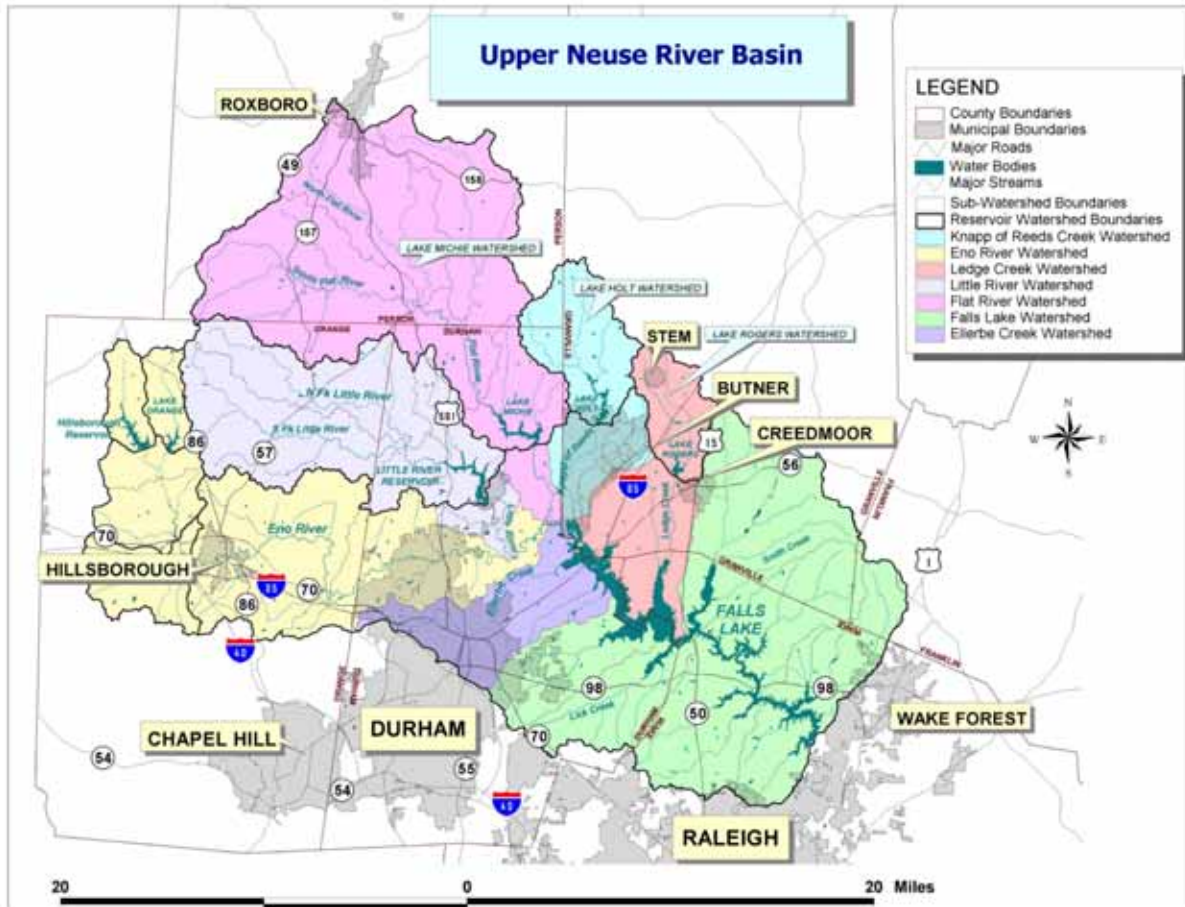
Becky Heron, UNRBA Chair
Durham County Commissioner

TABLE OF CONTENTS

TABLE OF CONTENTS	1
BACKGROUND	1
PEOPLE	2
UNRBA Board of Directors	2
UNRBA Technical Advisory Committee	3
UNRBA Partners Network	4
UNRBA Staff	5
PROJECTS	6
Upper Neuse Watershed Management Implementation Plan	6
Nitrogen and phosphorous performance standards	7
Critical land protection efforts	8
Basin-wide water quality monitoring network	8
Technical Assistance to Local Governments	9
Education and community outreach	9
BUDGET	12
Expenses	12
Revenues	14
THE FUTURE	15

BACKGROUND

On March 22, 1996, the 13 local governments with local planning and zoning control and the Soil and Water Conservation Districts in the 771-square mile basin above Falls of the Neuse Dam established the Upper Neuse River Basin Association (UNRBA). The UNRBA gained non-profit status and hired its first director in 1999.



The map shows the Upper Neuse River (Falls Lake) Basin's subwatersheds. The UNRBA members during the 2005-2006 fiscal year were:

Counties

Durham County
Franklin County
Granville County
Orange County
Person County
Wake County

Municipalities

Town of Butner
City of Creedmoor
City of Durham
Town of Hillsborough
City of Raleigh
Town of Stem
Town of Wake Forest

Each of the UNRBA member governments holds a seat on the Association's Board of Directors. The six Soil and Water Conservation Districts also share one membership in the UNRBA.

PEOPLE

UNRBA Board of Directors

The UNRBA Board of Directors is comprised of one Director and one Alternate Director from each of the thirteen jurisdictions in the watershed. Additionally, the County Soil and Water Conservation Districts elect one Director and Alternate Director to the UNRBA Board. The 2005-2006 Directors and Alternates are listed below.

Jurisdiction	Director	Alternate Director
Town of Butner	Tom McGee, Town Manager	(no alternate)
City of Creedmoor	Kent Ray, Commissioner	Bob Schaumleffel, City Manager
City of Durham	William Bell, Mayor	Cora Cole-McFadden, Councilor
Durham County	Becky Heron, Commissioner, UNRBA Chair	Ellen Reckhow, Commissioner
Franklin County	Lyn Buffaloe, Commissioner	Pat Young, Planning Director
Granville County	Ron Alligood, Commissioner, UNRBA Vice Chair	Dudley Watts, County Manager
Town of Hillsborough	Tom Stevens, Mayor	Margaret Hauth, Planning Director
Orange County	Moses Carey, Commissioner	Tom Altieri, Comprehensive Planning Supervisor
Person County	Jimmy Clayton, Commissioner	Steve Carpenter, County Manager
City of Raleigh	Tommy Craven, Councilor	Dale Crisp, Public Utilities Director
Town of Stem	Jack Day, Mayor	(no alternate)
Wake County	Kenn Gardner, Commissioner, UNRBA Secretary/Treasurer	Herb Council
Town of Wake Forest	Vivian Jones, Mayor	Mark Williams, Town Manager
Soil and Water Conservation Districts	Robert Rosenthal (Durham County)	Donnie Woodlief (Wake County)

Bold type denotes Executive Officer

UNRBA Technical Advisory Committee

The UNRBA Technical Advisory Committee (TAC) is responsible for program planning and coordination and for making recommendations to the Board of Directors. The TAC guided the development of the Watershed Management Plan in the past and guided the beginning of the Implementation Planning process during fiscal year 2005-2006.

Each UNRBA member government assigns staff to the TAC. The inset box lists FY 2005-2006 UNRBA TAC members.

FY2005-2006 UNRBA Technical Advisory Committee

Amy Hathaway, City of Raleigh Stormwater Utility
Barry Baker, Granville County Planning
Bob Schaumleffel, City of Creedmoor
Bobby Louque, City of Durham Stormwater Services
Cherri Smith, City of Durham Parks and Recreation
Chris Outlaw, City of Durham Stormwater Services
Dale Crisp, City of Raleigh Public Utilities
Dave Stancil, Orange Co. Env. & Res. Conservation
Dave Roessler, City of Creedmoor Planning
David Brown, Durham City Stormwater Services
Eddie Culberson, Durham Soil and Water Conservation
Everette Lynn, Durham Soil and Water Conservation
George Rogers, TAC Chair, Raleigh Public Utilities
Glen Bowles, Orange County Planning
Joe Albiston, Durham County Engineering
Joe Pearce, Durham County Engineering
John Cox, City of Durham Stormwater Services
Kathleen Snyder, Durham City/County Planning
Katie Ertmer, Franklin County Planning
Keith Luck, Durham City/County Planning
Kenny Keel, Town of Hillsborough Engineering
Kevin Lindley, Orange County Engineering
Laura Webb Smith, Durham City Stormwater Services
Margaret A. Hauth, Town of Hillsborough Planning
Mark Bailey, Wake County Environmental Services
Mark Senior, City of Raleigh Stormwater Program
Marti Gibson, City of Raleigh Public Utilities
Martin Stankus, City of Raleigh Planning
Melinda Clark, Wake County Environmental Services
Michele Hane, City of Raleigh Planning
Mitch Pergerson, Person County Parks and Recreation
Nancy Newell, City of Durham Water Management
Patrick Young, Franklin County Planning
Paul Wiebke, City of Durham Stormwater Services
Paula Murphy, Person County Planning
Rich Shaw, Orange Co. Env. & Resource Conservation
Scott Miles, Town of Wake Forest Engineering
Sheila Jones, Wake County Environmental Services
Terry Hackett, Orange County Erosion Control Division
Tom Hill, Wake County Environmental Services
Tom Konsler, Orange County Health Department
Vicki Westbrook, City of Durham Water Management
Will Autry, Orange County Erosion Control Division

UNRBA Partners Network

The UNRBA Partners Network includes representatives from public, private, and nonprofit organizations that represent their respective constituency groups at UNRBA TAC meetings, on special issue task groups, or as part of technical teams guiding other UNRBA projects. In addition, the UNRBA is involved in various partnerships headed by other organizations when such partnerships help protect water quality in the basin.

During the 2005-2006 fiscal year, UNRBA Partners played a stronger guidance role than ever before. UNRBA partners (listed in the accompanying box) worked on the Little Lick Creek Local Watershed Plan, the Little River Riparian Corridor Conservation Plan, the Upper Neuse Site Evaluation Tool, and the Upper Neuse Watershed Evaluation Tool. The UNRBA was also involved in the Upper Neuse Clean Water Initiative (managed by the Conservation Trust for NC) and the NC Low Impact Development Manual (managed by NC Cooperative Extension).

UNRBA Partners Network

Conservation Trust for NC
Ellerbe Creek Watershed Association
Eno River Association
Neuse River Foundation
NC Department of Transportation
NC Dept. of Env. & Natural Resources
Albemarle-Pamlico Nat. Estuary Program
Division of Forest Resources
Division of Water Quality
Ecosystem Enhancement Program
Natural Heritage Program
Wildlife Resources Commission
NC Farm Bureau
NC Forestry Association
NCSU Cooperative Extension
Raleigh/Wake Co. Homebuilders
Rollingview Marina
Tar River Land Conservancy
Tetra Tech, Inc.
The Crossings Golf Club
Town of Cary Stormwater
Triangle Greenways Council
Triangle J Council of Governments
Triangle Land Conservancy
US Army Corps of Engineers
US Geological Survey

UNRBA Staff

Chris Dreps, Coordinator

Chris Dreps began working as the UNRBA Coordinator in 2001. His major responsibilities include serving as the primary staff to the UNRBA and assisting the UNRBA Board of Directors, Technical Advisory Committee (TAC), and various partners in all aspects of the Association's watershed management efforts.

Chris has over ten years of experience working on environmental, planning and public health issues of rural and developing communities in North Carolina, Texas, Washington, Mexico, Central African Republic, and Honduras. Chris holds a BA (UNC-Chapel Hill) and a Masters degree in Urban Planning (University of Arizona).



Sarah Bruce

Sarah Bruce first worked for the UNRBA as an intern in the summer of 2004. She finished her graduate degree in regional planning at UNC-Chapel Hill and returned to the UNRBA and TJCOG at the end of 2004 as staff. Sarah works primarily on implementation of the Upper Neuse Watershed Management Plan and provides general support on other UNRBA projects.

Sarah has a BA in Interdisciplinary Studies and a Masters degree in Regional Planning, both from UNC-Chapel Hill. Before she joined the UNRBA and TJCOG, she worked for the National Institute of Environmental Health Sciences and for the NC Division of Emergency Management in the Hazard Mitigation section.



Shelby Powell

Shelby Powell joined the Kerr-Tar Council of Governments staff in March 2004. She works on a contract basis with the UNRBA, assisting with implementation of the Upper Neuse Watershed Management Plan in the Franklin, Granville, and Person County areas of the basin.

Shelby has a BS in Urban and Regional Planning with a concentration in Environmental Planning and a MBA from East Carolina University. In addition to her current work with the UNRBA, Shelby has performed TMDL implementation planning activities and prepared environmental protection ordinances for various local governments in the Augusta, Georgia region.



PROJECTS

Upper Neuse Watershed Management Implementation Plan

The Watershed Management Plan recommends a detailed plan to guide the Association in the implementation of its watershed management strategies. When completed, the Upper Neuse Watershed Management Implementation Plan will provide specific implementation steps, applicability, milestones, benefits, and costs of implementing each of the 19 management strategies recommended in the Plan.

During FY 2005-06, the UNRBA's staff, Technical Advisory Committee, and Board of Directors worked closely with a host of partners in creating the detailed plan. The following table shows the progress made during the fiscal year.

As the table illustrates, the UNRBA completed detailed recommendation sheets for five of the nineteen recommendations of the plan. Seven detailed recommendation sheets remained under review either by task groups or the UNRBA TAC at the end of the fiscal year. The UNRBA will develop the final seven detailed recommendations during fiscal year 2006-2007. To view any of the recommendations, go to www.unrba.org/mgmtplan.htm

Rec. Number	Watershed Management Recommendation	Recommendation Sheet Status
<i>New Development Site Management</i>		
1	Nutrient reduction	Under review by task group
2	Riparian buffers	Under review by task group
3	Enhanced peak flow control	Coming soon
<i>Monitoring and Enforcement</i>		
4	Stormwater control inspections	COMPLETE
5	Long-term water quality monitoring program	Under review by TAC
6	Enhanced septic system maintenance and inspections program	Under review by TAC
7	Enhanced construction, site inspection, and enforcement action	COMPLETE
8	Sanitary sewer overflow inspections	Coming soon
9	Sewer pipes inspections & maintenance and illegal connection enforcement	Coming soon
10	Enhanced animal operations inspections	Under review by task group
<i>Citizen Education and Environmental Stewardship</i>		
11	Low-impact development education	COMPLETE
12	Targeted lands acquisition and conservation easements	COMPLETE
13	Adopt-A-Stream and other watershed education programs	COMPLETE
14	Best management practices for forestry	Under review by TAC
15	Best management practices for agriculture	Under review by task group
<i>Restoration</i>		
16	Stream and wetland restoration	Coming soon
17	Stormwater BMP retrofits	Coming soon
<i>Point Source Control</i>		
18	NPDES point source requirements	Coming soon
19	DENR regional WWTP advanced tertiary treatment	Coming soon

Nitrogen and phosphorous performance standards

The Plan recommends innovative performance standards to reduce nitrogen and phosphorous from all new development in the Upper Neuse (Management Plan Recommendation #1). Because smaller water supply reservoirs in the Basin (Hillsborough Reservoir, Lake Orange, Corporation Lake, Little River Reservoir, Lake Michie, Lake Holt, and Lake Rogers) are especially susceptible to nutrient contamination and growth of harmful algae (eutrophication), the Plan recommends that all new land development in these water supply watersheds should meet higher standards. To achieve this, communities and local governments need an understanding of performance standards and the tools to support their implementation. Toward this end, the UNRBA and partners created the Upper Neuse Site Evaluation Tool (SET). The Upper Neuse SET is a simple spreadsheet-based tool that will help developers and local government planners predict the water quality impacts of a proposed development during the preliminary site planning stage, before heavy investment has been made in a project. To learn more about the SET, see www.unrba.org/set.

Upper Neuse SET Project Partners

Upper Neuse River Basin Association
NC Division of Water Quality
NCSU Cooperative Extension
Triangle J Council of Governments
City of Durham Stormwater Services
Wake County Environmental Services
City of Raleigh Stormwater Services
Orange County Planning
Town of Cary Stormwater
Raleigh/Wake Co. Homebuilders
Tetra Tech, Inc.

Watershed zoning

As an alternative to performance standards, the Plan recommends development densities that should meet the nutrient performance and aquatic habitat protection objectives of the plan. This year, Durham County adopted new watershed-based zoning standards in the Lake Michie and Little River Reservoir watersheds. Although the new Durham County standards do not fully meet the recommendations of the Upper Neuse Plan, they are likely to better protect the watershed by reducing overall densities. Orange County has also incorporated the development density recommendations directly into the county's draft comprehensive plan, and work on that plan continues.

Critical land protection efforts

The Plan recommends protecting lands critical to water quality and aquatic habitat (Management Plan Recommendation #12). The UNRBA completed the Little River Riparian Corridor Conservation Plan to identify areas that are critical for protecting aquatic habitat and water quality in the Little River, one of Durham's two water supply watersheds. The Little River Riparian Corridor Conservation Plan is available at www.unrba.org/littleriv.



In addition, the UNRBA is a key partner in the Upper Neuse Clean Water Initiative, a new basin-wide effort to prioritize and protect those lands most critical for the long-term safety and health of all drinking water supplies in the basin. Other partners include the state of North Carolina's Department of Environment and Natural Resources, land trusts in the basin, the Conservation Trust for North Carolina, the Trust for Public Land, and the Neuse River Foundation. This project has the potential to guide future local government land protection efforts. For more information, see <http://www.ctnc.org/7fallslake.htm>.

Basin-wide water quality monitoring network

The Upper Neuse Watershed Management Plan (p. 46) recommends that all jurisdictions “implement [a] monitoring program to support water quality condition assessment and trends analysis, evaluation of best management practices, and the reporting of water quality indicators (UNWMP Recommendation #5). A UNRBA task group worked with the US Geological Survey and NC DENR to identify monitoring strategies to meet this goal. The task group recommended three strategies for watershed monitoring that together would help protect water supply reservoirs and enable us to analyze the effects of land use change on water quality. The (1) water supply strategy would help monitor water supply quantities, responses of reservoirs to pollutants/stressors, and effectiveness of management practices. The (2) ecological integrity

strategy and the (3) representative streams strategy would establish baseline/reference conditions for healthy streams, to better understand how streams respond to stress, and to assess the effectiveness of management practices. Establishing a basin-wide water quality monitoring network will be a high priority for the UNRBA during the coming years.

Technical Assistance to Local Governments

The UNRBA provided technical assistance to help local governments improve their watershed management capabilities. During the 2005-2006 fiscal year, the Association focused on technology development and dissemination.

- The UNRBA and US Geological Survey trained local and state government staff in the use of the Upper Neuse Watershed Evaluation Tool (WET). The WET offers local governments the latest and best GIS tool for quickly assessing watershed conditions within the Upper Neuse.
- The UNRBA and Tetra Tech, Inc. conducted two trainings for local and state government staff on the use of the new Upper Neuse Site Evaluation Tool (SET). The SET provides local governments, the local development industry, and the environmental community a tool for assessing pre and post-development site impacts on water resources. The SET was specifically designed for the Piedmont Region, and the UNRBA will continue to encourage the use of this tool as part of innovative stormwater management in the basin. For more information, see www.unrba.org/set.

Education and community outreach

Piedmont Low-impact Development Manual

The Upper Neuse Watershed Management Plan recommends educating local communities about the advantages of innovative “Low-impact development” (LID) strategies for managing stormwater (UNWMP Recommendation #11). The UNRBA is a partner in the development of the North Carolina LID Manual, which began during the 2005-2006 fiscal year. The manual will provide guidance to local governments and others incorporating LID strategies. NC Cooperative

Extension is managing the project. Project partners include the City of Raleigh Public Works, the Land of Sky Council of Governments, Tetra Tech, Inc., Mecklenburg County Water Quality Programs, NCSU Department of Biological & Agricultural Engineering, NCSU Department of Agriculture and Resource Economics, and the UNC Coastal Studies Institute.

UNRBA Website and Documents

The UNRBA continued to update its website. We hoped to make it a user-friendly way for folks to learn about what we do and a useful tool for technical staff from local and state government who are working on UNRBA projects.

The UNRBA continues creating short informational handouts for each of the major projects it undertakes. These are targeted toward non-technical audiences such as local decision-making bodies and the general public.

2005 Eno River Festival



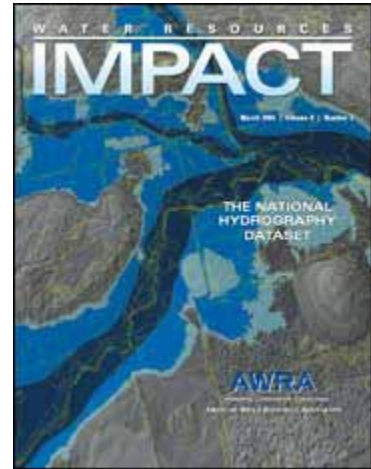
governments and the Kerr-Tar COG staffed the booth. People read the improved "Know your watershed" map and took brochures. The local government booth's interactive watershed, Enviroscope, again attracted the great majority of visitors to the booths.

An estimated 700 people visited the UNRBA and local government booths, receiving information about local government efforts to protect the watershed. Fourteen Volunteers from two local



USGS *Impact* Journal Publication

Mary Giorgino (USGS), Silvia Terziotti (USGS), and Chris Dreps (UNRBA) published an article in the US Geological Survey's journal, *Water Resources Impact*. The March 2006 article describes the Upper Neuse Watershed Evaluation Tool (WET). The WET is a national pilot project of the USGS's National Hydrography Dataset. The article is available at http://nc.water.usgs.gov/reports/abstracts/Ter06Upp_full.html .



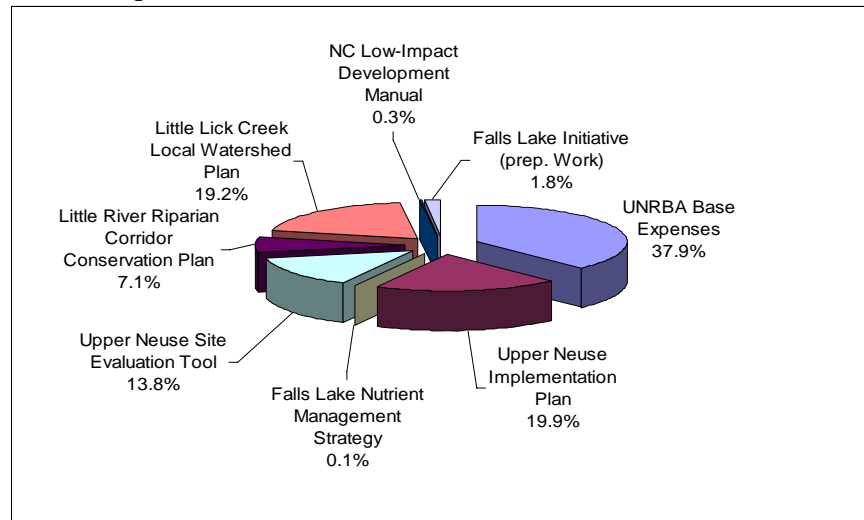
BUDGET

The UNRBA's total expenses during FY 2005-2006 were \$146,610, while total revenue totaled just over \$190,175. The balance, about \$43,565, will be carried over into the next fiscal year. The UNRBA Board of Directors agreed to raise dues by 20 percent (from \$86,242 to \$103,529) for the next fiscal year (FY 2006-2007) in order to begin preserving the contingency balance. The following sections detail UNRBA expenses and revenues.

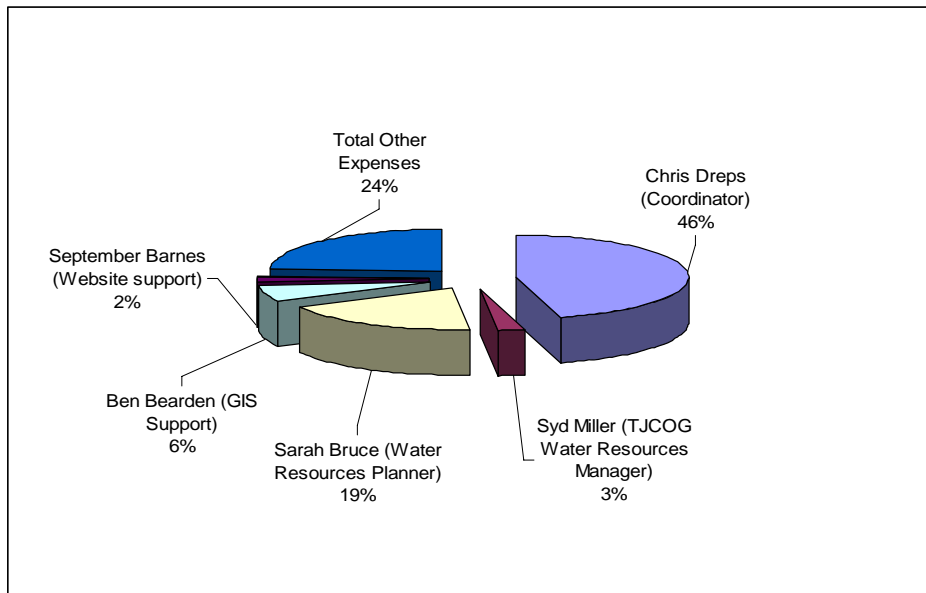
Expenses

Total UNRBA and Project Expenses	
UNRBA Base and Non-contract	Total
UNRBA Base Expenses	55,566.12
Upper Neuse Implementation Plan	29,188.06
Falls Lake Nutrient Management Strategy	107.55
Total Base Expenses	84,861.72
Contract Work	
Upper Neuse Site Evaluation Tool	20,245.37
Little River Riparian Corridor Conservation Plan	10,365.40
Little Lick Creek Local Watershed Plan	28,172.69
NC Low-Impact Development Manual	370.45
Falls Lake Initiative (prep. Work)	2,594.55
Total Contract Work	61,748.46
Grand Total Base and Contract Expenses	146,610.18

Of the UNRBA's total \$146,610 in expenses, 42 percent (\$61,748) were contract-related expenses; and fifty-eight percent were for base expenses such as general operations and the Upper Neuse Watershed Management Implementation Plan. The pie chart below further breaks down the project-related expenses. The Little Lick Creek project occupied the greatest amount of contractual effort (19 percent).



The pie chart below details labor expenses. Of the total expenses, 46 percent supported the UNRBA Coordinator. Twenty-two (22) percent of the total labor budget was spent on additional planning support from the Triangle J Council of Governments. Finally, \$12,500 of the total other expenses, or about 9 percent of the total expenses, was for a contract for staff support from the Kerr-Tar Council of Governments. Eight percent of the total budget was for Geographic Information Systems (GIS) and website support. In summary, almost 85% of the total UNRBA expenses were for staff support, while about 15 percent were for other project-related expenses such as subcontracts, travel, and meeting materials.

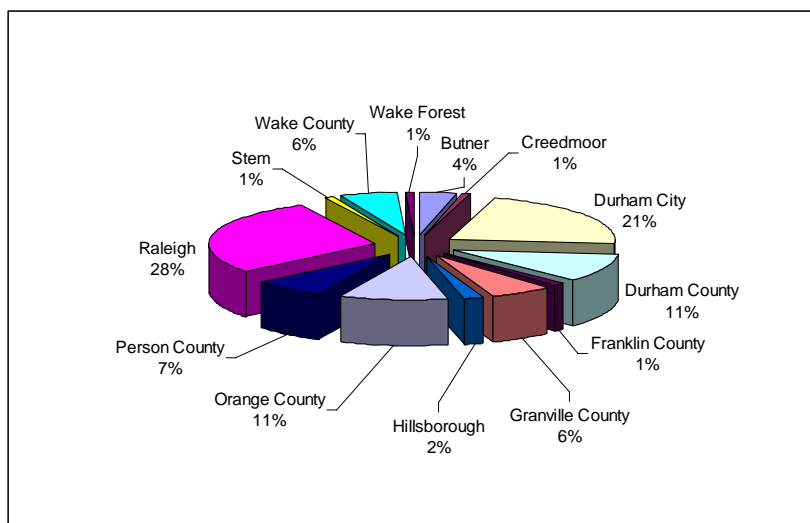


Revenues

The UNRBA's total revenue for FY 2005-2006 equaled \$190,175. Forty-five (45) percent of the total revenue came from member government dues. Twenty-five (25) percent was from contractual work. The remaining 30 percent of UNRBA revenue was from carry-over and interest. See the accompanying table for more details.

The following pie chart shows the division of UNRBA member dues. Counties paid 42 percent of the total UNRBA dues. Municipalities paid 58 percent. Durham City and Raleigh together paid 49 percent of the total UNRBA dues.

UNRBA REVENUE	
UNRBA Base and Non-Contract	Total
UNRBA Dues	
Butner	\$3,027
Creedmoor	\$915
Durham City	\$18,729
Durham County	\$9,483
Franklin County	\$1,020
Granville County	\$5,259
Hillsborough	\$1,475
Orange County	\$9,105
Person County	\$6,235
Raleigh	\$24,676
Stem	\$698
Wake County	\$4,955
Wake Forest	\$665
Total Member Dues	\$86,242
Interest	\$5,714
Carry-over from 2004-2005	\$49,871
Total Base Revenue	\$141,827
Contract-related Revenue	Total
SET 319 Grant	20,619.06
SET 205j grant	860.00
Little River RCCP (Eno River Assoc.)	13,838.40
Little Lick Creek LWP (NCEEP)	12,180.85
NC LID Manual (NCSU 319 grant)	0.00
Falls Lake Initiative (CTNC \$ from Raleigh)	850.00
Total Contract-related revenue	48,348.31
	Total
Total UNRBA Revenue	190,175.70



THE FUTURE

The major goal of the UNRBA is to **assist local governments in implementation of Upper Neuse Plan recommended strategies**. The plan is a roadmap for protecting and restoring water quality throughout the basin. In order to meet this goal, the UNRBA will focus on the following objectives during FY 2006-2007.

1. **Complete the Upper Neuse Watershed Management Implementation Planning Process.**
2. **Bring the recommendations of the UNWM Implementation Plan before member local governments and provide technical assistance.**
3. **Use partnerships to implement key management strategies.**
 - Recommendations #1-3, New Development Site Management
 - Continue encouraging use of the Upper Neuse Site Evaluation Tool
 - Start a Falls Lake Nutrient Management Strategy Stakeholder Group
 - Recommendations #4-10, Monitoring and Enforcement
 - Prioritize the implementation of a monitoring program to support watershed management strategies in the Upper Neuse River Basin (Rec. #5)
 - Recommendations #11-15, Citizen Education and Environmental Stewardship
 - Continue to participate in the development of the NC LID Manual (Rec. #11)
 - Use the Upper Neuse Clean Water Initiative results in the Lick Creek Restoration Plan and track the progress of the Little River Riparian Corridor Conservation Plan (Rec. #12)
 - Recommendations #16 and 17, Watershed Restoration
 - Finalize the Little Lick Creek Local Watershed Plan
 - Begin the Lick Creek Watershed Restoration Plan
 - Seek opportunities to create restoration plans for the Knap of Reeds and Ellerbe Creek Watersheds.
4. **Improve Organizational Effectiveness**
 - Increase participation by bringing nonmember local governments and watershed authorities in the Upper Neuse Basin into the UNRBA
 - Continue to use task groups for important decisions or project guidance
 - Revise the UNRBA website