

Morgan and Little Creeks Local Watershed Planning Initiative



Meeting Announcement & Summary

Thursday, February 20, 2003 meeting held at the Totten Center

Next meetings:

April 3, 2003

May 8, 2003

2:00-4:00 pm

Totten Center, NC Botanical Gardens

Directions to the Totten Center:

From I-40: Take exit 273 from the West, 273-B from the East. Turn right onto Highway 54 W, go 2.4 miles; turn left at the traffic light onto Finley Golf Course Road. Go 0.6 mile and curve right onto Old Mason Farm Road. Go 0.7 mile, see North Carolina Botanical Garden sign on left; turn left into parking lot.

From the 15-501 and 54 Bypass (Fordham Blvd.): Look for the brown landscaped wall on the south side of Fordham Blvd., 0.6 mile west of the Hwy 54 overpass. Turn onto Old Mason Farm Road at the east end of the wall. See North Carolina Botanical Garden wooden sign on immediate right and turn right into parking lot.

Maps can be found at the following URL:
<http://www.unc.edu/depts/ncbg/info.htm#Directions>

April Meeting Agenda

- ▶ Welcome and introductions
- ▶ Review and approval of February minutes
- ▶ Presentation of Little Creek Monitoring Study findings by NCWARP
- ▶ Department of Transportation Plans
- ▶ Plans for next meeting



Team members present at 2/20/03 meeting:

Shari Bryant, N.C. Wildlife Resources Commission
Ren Ivins, Orange County Erosion Control
Rich Miller, UNC-Chapel Hill
Syd Miller, Triangle J Council of Governments
Jonathan Parkinson, Friends of Bolin Creek
Philip Prete, Town of Carrboro
Johnny Randall, N.C. Botanical Gardens/Morgan Creek Valley Alliance
Jim Ward, Chapel Hill Town Council representative

Team Members Not Present:

Brent Bogue, Natural Resources Conservation Service
Dave Cook, Piedmont Bioregional Institute
Ed Holland, Orange Water and Sewer Authority
Karen McAdams, N.C. Cooperative Extension Service
Tina Moon, Orange County Environment & Resource Conservation Dept.
Doug Nicholas, Triangle Land Conservancy
Fred Royal, Town of Chapel Hill
John-Ann Shearer, U.S. Fish and Wildlife Service
Richard Whisnant, UNC-Chapel Hill School of Government

Guests Present:

Misty Franklin, NC Botanical Gardens, Morgan Creek Valley Alliance
Brian McRae, NC Wildlife Resources Commission
Kat Oury, NC Cooperative Extension Service
Hollie Rennell, Orange County Erosion Control

Support Staff Present:

Deborah Amaral, Cape Fear River Assembly
Jim Blose, NC Division of Water Quality
Sarah Bruce, Cape Fear River Assembly
Jon Butcher, Tetra Tech, Inc.
Trevor Clements, Tetra Tech, Inc.
Jason Doll, Tetra Tech, Inc.
Heather Fisher, Tetra Tech, Inc.
Bonnie Duncan, N.C. Wetlands Restoration Program

Summary of the 2/20/03 Meeting

Meeting Agenda / Stakeholder Introductions

Deborah Amaral of the Cape Fear River Assembly opened the meeting, reviewed the agenda items, and led introductions. She asked if anyone had any revisions or additions to the minutes. No one did; however, there were a number of members missing from this meeting, so she said that comments via email about the minutes were welcome. Deborah also asked the group if the format of the newsletter met their needs, and to please let her or another support person know if changes would be helpful.

Local Watershed Plan Preliminary Findings

Jason Doll of Tetra Tech, Inc. presented the preliminary findings of the analyses of the Morgan, Bolin, and Little Creek watershed areas. The Preliminary Summary of Findings Report will be a collection of available information and data along with stakeholder input documentation. This information will be used as a springboard for Tetra Tech, the NC Wetlands Restoration Program and stakeholders to begin a more detailed analysis of the watershed, focusing more on watershed indicator results. Jason's presentation did not cover all of the details being examined for the Preliminary Findings report due to time constraints. The report will be made available online for stakeholder comment once it is published.

Subwatershed delineation.

Initially, 40 subwatersheds were defined for the study area. However, this would give too much detail and would be cumbersome to analyze, so they were aggregated by proximity, soil type, and land use cover into 27 subwatersheds, each between 1 and 4 square miles in size.

Spatial data assessment.

A great deal of the data and information used was contributed by stakeholders.

- Soils and geology: can affect whether streams hold their grades or have stable banks.
- Existing land cover in 1999: wetland, forest, field, suburban, urban, roads, etc.
- Forest cover disturbance: degree of loss of natural forest cover due to agriculture and development
- Riparian buffer disturbance: disturbed areas very similar to disturbed forest areas, except along riparian corridors.
- Imperviousness: degradation can occur at 10% imperviousness, according to the Center for Watershed Protection.

- Floodplain encroachment: affects floodwater attenuation capacity. Encroachment often pushes floodwaters and expands floodplains downstream (University Mall an example).

Morphological/habitat assessment.

- Stream visual assessment: Stream Visual Assessment Protocol (SVAP) from the Natural Resources Conservation Service was used. SVAP rates physical conditions in the assessment area (see <http://www.wcc.nrcs.usda.gov/water/quality/common/svapfnl.pdf> for more info).
- Stakeholder ratings: Morgan Creek itself rated better than its tributaries.

Biological monitoring assessment.

Data contributed by NCDWQ, WARP, the Town of Carrboro, and UNC-Chapel Hill.

- EPT taxa: an indicator of water quality based on the number of insect groups that are generally intolerant of many kinds of pollution, according to NCDWQ. Higher EPT taxa richness values usually indicate better water quality. This indicator shows Booker Creek as poor throughout. In Bolin and Little Creeks EPT taxa richness declines as you move down the watershed.

Water quality data assessment.

Data contributed by NCDWQ, WARP, USGS, the Town of Chapel Hill, and UNC-Chapel Hill.

- Scoping criteria based on NC water quality criteria: fecal coliform, metals, nutrients, dissolved oxygen, and turbidity.
- Scoping criteria based on percent of time exceeding criteria: points assigned.



Scoping-level nutrient assessment.

Data contributed by NCDWQ and USGS.

- Nutrient sources to Jordan Lake: Mason Farm wastewater treatment plant is significant point source for the Morgan Creek arm.
- Recent OWASA analysis indicates that eutrophication from excess phosphorous could occur in University Lake, despite the watershed protection overlay district.

Preliminary conclusions.

- Biological impairment in Bolin and Little Creeks is likely to be a function of habitat degradation.
- Low dissolved oxygen levels and chronic toxicity are parameters of concern in Booker Creek.
- Nonpoint source loading from the study area is only a small part of the total nutrient loading to the New Hope Arm of Jordan Lake.
- Excess phosphorous is likely to be a concern for University Lake.
- Patterns of development will continue to be important to degradation, especially in areas targeted for future growth.

Team members pointed out that it is important to bear in mind the unusual precipitation patterns of the last few years when looking at time trends for indicators. Dissolved oxygen, for example, has been low even at sites with historically good water quality. Droughts have been persistent over the last few years, but were particularly bad last summer. Lastly, Jason requested input on additional questions that may be relevant for the assessment process.



Goals and Objectives

Bonnie Duncan presented the Goals and Objectives agenda item. To begin, an important point from the Charter was reiterated: “The primary purpose of the Local Watershed Planning Group is to develop watershed improvement and protection recommendations for the watershed area based on a functional assessment.” The functional assessment is to be provided by Tetra Tech, Inc.

Watershed functions are the things we want our watersheds to have or provide, such as water quality, baseflow, and habitat.

Goals express our desires for the watershed, such as improvement and protection of habitat, water quality, and flood attenuation capacity.

Objectives are more specific statements of our preferences, such as “maximize habitat protection” or “minimize toxicity.”

Indicators are quantifiable parameters that can be used to measure progress toward our objectives.

Targets are numeric values or quantities for the indicators that reflect desirable or acceptable conditions for watershed functions.

Each *objective* can be represented by one or more *indicators*, which can have a management *target*. *Targets* are tracked by measurements or predicted by modeling *tools*. Potential *actions* in the local watershed plan can be evaluated using these *tools*.

Bonnie Duncan presented “issue categories” based on preliminary findings and stakeholder input defining the broad watershed goal of “protecting intact watershed functions or preventing functional losses due to: eutrophication in University Lake, in-stream water quality conditions/toxicity, modification of floodplain hydrology, headwater stream stability and associated sediment loading, terrestrial wildlife habitat and riparian wetlands.”

Based on the “issue categories and broad watershed goal presented” the following watershed functions were identified for focus: drinking water, aquatic habitat, terrestrial habitat, base flow and flood attenuation. Some of the stressors identified affecting these functions include: phosphorus load, nitrogen load, poor in-stream habitat, low dissolved oxygen, pathogen load, poor/loss of wildlife habitat, flooding potential, and wetland loss.

Jonathan Butcher of TetraTech elaborated on these themes, providing specific examples of objectives, and then indicators, targets, tools and actions which directly related to each objective. Refer to the slide presentation hand out for more specific information.

Objectives that have been identified so far include:

- address and prevent eutrophication
- address and prevent stream erosion/instability
- improve and protect instream water quality
- improve and protect terrestrial wildlife habitat
- restore and protect floodplain hydrology
- restore and protect riparian wetlands

Goals and Objectives, continued

Assessment and evaluation activities will be conducted to identify opportunities and priorities for restoration and protection. For example, using simple loading factors, or a watershed model, TetraTech will identify the sub-watersheds with greatest potential (under existing and future conditions) to deliver nutrients, and develop and evaluate management strategies to reduce or prevent such nutrient loading. In a similar manner, we will seek to identify portions of the watershed with the highest potential for each of the functions and goals, and then identify actions in response to that potential to achieve the targets identified for the different objectives.

Team members then discussed other potential functions or stressors. Aquifer protection was raised as a potential addition to our list of objectives, however, staff said that there are few recharge areas in the Piedmont due to bedrock. Another concern was the potential for streams to introduce toxic compounds into groundwater, particularly via first-flushes and spills.

A team member also requested that the NC WRP review the Town of Chapel Hill's Land Use Management Ordinance, with its buffer requirements, and provide them to TetraTech for use in the local watershed modeling activities. Participants felt that including the Town's requirements in the modeling work for this plan would be useful for Chapel Hill, as well.

**Cape Fear River Assembly
30th Annual Meeting
Greensboro, NC
April 24 & 25, 2003
www.cfra-nc.org**

For more information about the Morgan and Little Creeks
Local Watershed Planning Initiative contact:

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Announcements from the Town of Chapel Hill

The Town of Chapel Hill's Land Use Management Ordinance (LUMO) requires that intermittent streams (usually first order) be identified and protected with a 50' each bank buffer for new development applications. This process is underway and UNC-CH is providing a DEM generated vector stream coverage and possible GIS model to predict where intermittent origins are located. This model will be calibrated to match the Town's field verified E/I origins.

2. The Town is moving forward with a stormwater utility development this FY with anticipated implementation in January 2004. Programs, funding and new policies are expected. A citizen's policy advisory committee will be approved by Council on March 24, 2003.

3. NCDWQ's Biological Assessment Report is under review and will be available to the public for review in the May/June time-frame. Jim Blose is heading up this report project.

4. The LUMO has new stormwater management provisions for peak discharge (1-, 2- & 25-yr. frequency), volume control for the equivalent "initially abstracted volume" from pre-development conditions, and 85% TSS removal. A new design manual is under way where Low Impact Design and a menu of BMP's will be incorporated. Source control and better sitedesign is stressed in these new stormwater management provisions.

5. The Town's NPDES Phase II permit application has been accepted by NCDWQ as "initially complete". It includes the 6 minimum measures with implementation schedules. It is anticipated that the most costly and otherwise resource intensive element will be the illicit discharge elimination program. We expect that additional staff will be required as well as new ordinance language. We anticipate implementing this BMP by Year 3 or 2005.

6. The State DEM Upper Cape Fear FIS Flood Study is underway with surveying and partial H&H work conducted by the US Army Corps (Wilmington District) performing preliminary modeling for Bolin and Booker Creeks and several tributaries. The State will model Morgan Creek and re-map the high priority stream reaches of the county with detailed BFE's. Not certain what the schedule is for preliminary modeling and maps.

7. TOCH is developing a Stormwater Web-page where a water quality map with data links, stream coverage and Resource Conservation District areas will be indicated. It will also be developed to serve as one educational component for the NPDES permit BMP.