



Stoney Creek Local Watershed Planning News

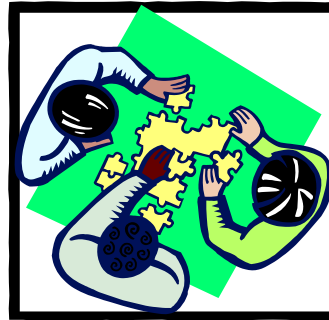
Watershed Education for Communities and Local Officials ~NC Cooperative Extension~

Issue 3

Project Overview and Funding Sources

March 9, 2005
Meeting Summary

Rob Breeding, project manager for the Ecosystem Enhancement Program, presented a brief overview of the planning project and some sources of possible funding. Rob's complete presentation can be found on the WECO website at: <http://www.ces.ncsu.edu/WECO/stoney/>



Local Watershed Planning - Process and Goals:

It is important to EEP to incorporate local interests into the decision making process. EEP will working in this area for a limited time period, but would like to end up with a plan that local stakeholders can implement now and in the future, to improve stream and wetland conditions. EEP has 3 overarching project goals:

- To Improve Water Quality
- To Restore or Enhance Aquatic and Terrestrial Habitat
- To Improve or Restore Hydrologic Balance

These 3 goals, along with local input and potential DOT impacts are used to determine the best possible projects for an area.

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Water Quality Monitoring Results

Kathy Paull, of the NC Division of Water Quality's Watershed Assessment Team presented an update on the water quality monitoring results in Stoney Creek. Kathy's PowerPoint presentation can be found on the WECO website at: <http://www.ces.ncsu.edu/WECO/stoney/> The following is a summary of the presentation.

Sampling Methods Used

Field measurements were taken of: Dissolved oxygen, specific conductance, pH, and temperature. Water samples obtained in the field were analyzed in the laboratory for nutrients and metals.

All samples were obtained during baseflow (no precipitation for the prior 48 hours). Samples were obtained from July 2004 to December 2004 (field measurements July

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May 17th Meeting
10am - 1 pm
EEP will provide lunch

Goldsboro
City Hall
214 North Center St
2nd floor-ante room

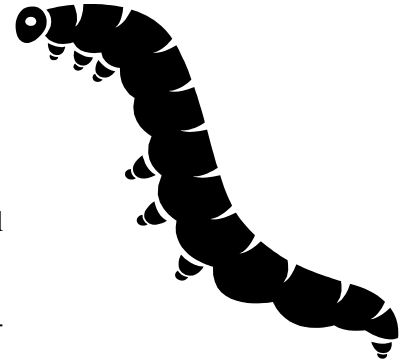
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Conservation Reserve Enhancement Program ~ CREP

Charles Bowden, of the Division of Soil and Water Conservation gave a presentation of the Conservation Reserve Enhancement Program (CREP). The full PowerPoint presentation can be found on the WECO Website, and more detailed information can be found at the CREP website: <http://www.enr.state.nc.us/DSWC/pages/crep.html>

CREP is a voluntary program that seeks to protect land along watercourses that is currently in agricultural production. The objectives of the program include: installing 100,000 acres of forested riparian buffers, grassed filter strips and wetlands; reducing the impacts of sediment and nutrients within the targeted area; and providing substantial ecological benefits for many wildlife species that are declining in part as a result of habitat loss. Program funding combines the Federal Conservation Reserve Program (CRP) funding with State funding from the Clean Water Management Trust Fund, Agriculture Cost Share Program, and Ecosystem Enhancement Program.



www.enr.state.nc.us/DSWC/pages/crep.html

Landowners of existing agricultural land within the Neuse, Tar-Pamlico and Chowan river basins

and the Jordan Lake watershed are eligible to participate in CREP. Under CREP, landowners can voluntarily enroll eligible land in 10-year, 15-year, 30-year, and permanent contracts. The state will pay additional bonuses to landowners that enroll land in 30-year and permanent agreements. Cost sharing will be available for installation of forested riparian buffers, grassed filter strips, wetlands restoration practices, water control structures, livestock exclusion, and remote livestock watering in order to increase the efficiency of enrolled practices. Interested landowners should contact their local Soil and Water Conservation District or Farm Service Agency office.

Eligibility for enrolling land in the CREP program is determined by the local Soil and Water Conservation District, Natural Resource Conservation Service and Farm Service Agency, as well as by the NC Department of Environment and Natural Resources.

- A conservation plan is required on the enrolled land and these agencies can help prepare that plan.
- It is important to note that each CREP agreement is specific.
- Tax incentives may differ from county to county and is strongly advised to seek tax advice.

Questions concerning CREP can be directed to the CREP Manager, Tom Potter, at 919-715-6107

Meeting Roster

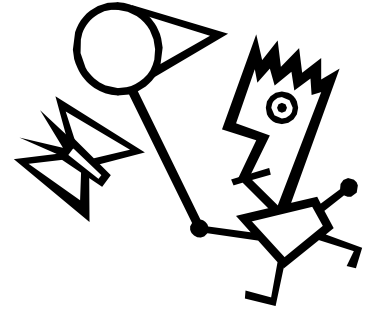
Johanna Arnold—Seymour Johnson AFB
 Rob Breeding - EEP
 Patrick Beggs - WECO
 Charles Bowden - NCDENR
 Rama Chittilla - City of Goldsboro
 Chip Crumpler - Wayne County
 Patty Gabriel - NRCS - Wayne County
 Carol Mayes - Mayes Consulting
 Andy Miller - SWCD - Wayne County

Kathy Paul - NC Division of Water Quality
 Christy Perrin - WECO
 Tom Potter - NCDENR
 James Rowe - City of Goldsboro
 Mike Schlegel - KCI
 Ronnie Wilson—Seymour Johnson AFB

Water Quality Monitoring Results

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2004 through January 2005). Metals concentrations were compared with EPA's National Ambient Water Quality Criteria concentrations and the Tier II criteria. Nutrient concentrations were compared with reference values from EPA's Level 3 Ecoregion 65 (inner coastal plain). Sites were selected based upon areas of concern or area with data missing. Seven (7) sites were sampled

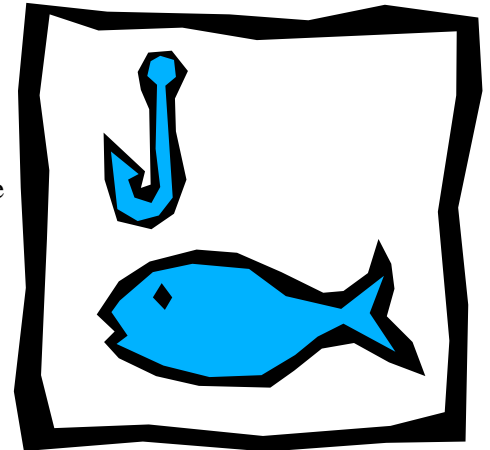


Results:

- Temp ranged from 11.6o C to 25.9o C, as expected.
- pH was neutral, ranging from 5.9 to 6.8
- Specific conductance ranged from 54 uS/cm in Billy Branch to 141 uS/cm in Reedy Branch and an un-named tributary. High specific conductance indicates high concentrations of dissolved solids.
- Dissolved Oxygen (DO). Three sample sites measured DO below the state standard. Two of these sites are downstream of swampwaters, so it is not surprising to find low DO. Low flow of water causes a decrease in DO. When temperatures increase DO usually decreases.

Nutrients:

- Ammonia, which can be toxic at high concentrations, is commonly a result of fertilizer or waste. Concentrations greater than 0.1 mg/L are cause for concern. Average concentrations did not exceed this level.
- Nitrogen is a result of ammonia breakdown. Ammonia first becomes nitrate, then nitrite. Nitrate can also come from lightening strikes, meteors, or more commonly pesticides, fertilizers, explosives, or breakdown of wastes. Nitrite + nitrate concentrations are very high in the un-named urban tributary. Concentrations of both exceed the EPA reference values, in Reedy Branch and all of the lower tributaries and lower Stoney Creek. Concentrations of Total Kjeldahl Nitrogen (TKN), which is the sum of free ammonia and organic nitrogen based compounds, exceeds the EPA reference values in the upper tributaries and in upper Stoney Creek. Total Nitrogen is the sum of TKN and nitrate and nitrite. Total nitrogen concentration exceeded the EPA values for reference streams in the un-named tributary and Reedy Branch. This is primarily due to high concentrations of nitrite + nitrate. Inorganic nitrogen is the nitrogen not bound to organic material such as algae or detritus. It can indicate fertilizer inputs into the stream. The upper portions of the Stoney Creek watershed are relatively low in inorganic nitrogen. However, they do have large populations of algae and aquatic weeds. The lower tributaries have the highest percentage of inorganic nitrogen.
- Phosphorus is usually the limiting nutrient for algae and aquatic plants in freshwater. It is bound tightly to soil particles and usually enters the water from erosion. Phosphorus is used in fertilizers and is also found in urban runoff and sewage. All sites exceed EPA reference values for total phosphorus. The upper tributaries, upper Stoney Creek, and Billy Branch all have exceptionally high phosphorus concentrations (up to 10X the reference value).



Metals:

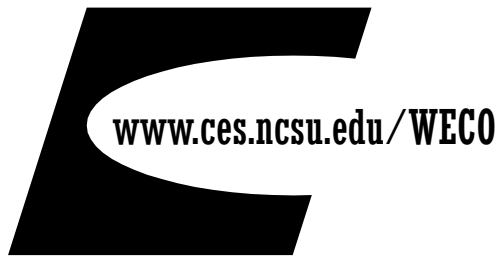
- Copper was only detected at one site on one date and it exceeded the benchmark.
- Manganese exceeded the Tier II benchmark in 2 out of 3 samples.
- Zinc exceeded its benchmark once.
- Aluminum and iron were found in high concentrations throughout the Stoney Creek watershed, which is typical of coastal plains streams.

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**Watershed Education for
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EEP defines projects as either traditional or alternative. Traditional projects include Wetland Restoration or Enhancement, Stream Restoration, and Buffer Creation or Reestablishment. All other projects, such as stormwater wetlands or best management practices for stormwater or agriculture are considered alternative projects. These alternative projects have the capacity to greatly enhance watershed function.

Project Funding:

Traditional projects can be funded by EEP mitigation money from the DOT and also from the in-lieu-fee/nutrient offset programs. Alternative projects are currently not funded with mitigation money, but from the Neuse Buffer program, other EEP monies, cost share partnerships with local governments, federal and state grant programs, and other sources.

Some other complimentary programs, like CREP, share similar environmental goals (reducing negative impacts for example) and should be able to fund respective parts of the same larger project.



Water Quality Monitoring Results

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Conclusions:

- Low dissolved oxygen concentrations occurred occasionally in areas with impoundments or immediately downstream of a wetland.
- Initial findings of high specific conductance in the Un-named Tributary and Reedy Branch indicate the possibility of more pollutants in these streams than in the others sampled.
- Excessive concentrations of nutrients, both nitrogen and phosphorus, are common through out the Stoney Creek watershed.
- Total nitrogen exceeded the reference values in the Un-named Tributary and Reedy Branch.
- The upper sites (Howell Creek, Reedy Branch, and Stoney Creek) all exceeded the reference values for TKN.
- The lower sites (Un-named Tributary, Billy Branch, and Stoney Creek) and Reedy Branch exceeded the reference values for nitrite + nitrate.
- The upper sites receive water from wetlands or impoundments and have a low percentage of inorganic nitrogen.
- The lower sites are partially urbanized with some agricultural areas and have a high percentage of inorganic nitrogen.
- Copper and zinc exceeded the EPA benchmark (NAWQC) in Billy Branch.
- Manganese exceeded Tier II criteria in Stoney Creek at Wayne Memorial Drive.
- Due to urbanization in the lower half of the watershed, metals may exceed their criteria more frequently during storms.
- Sediment toxicity results still to come.

