

Summary of Findings and Recommendations for the Kenneth and Parker Local Watershed Plan

The three HUs that make up this planning area are parallel drainages to the Cape Fear River (HU 03030004040010, 03030004030010, and 03030004020010) and are located within portions of Chatham, Wake, and Harnett Counties. The total land area for the HUs is approximately 180 square miles. The watersheds include parts of the towns of Apex, Holly Springs, and Fuquay-Varina and the portion of Raven Rock State Park north and east of the Cape Fear River. Major streams in the HUs include: tributaries to Harris Lake (White Oak Creek, Little White Oak Creek, Buckhorn Creek, Utley Creek, and Cary Branch), Parkers Creek, Mill Creek, Avents Creek, Hector Creek, Kenneth Creek, Neills Creek, and Dry Creek. The study area lies within a rapidly growing region of the North Carolina Piedmont. While land use is still primarily forested, open space is rapidly being converted to residential and commercial uses. Growth is particularly significant in the headwaters of the three HUs. Agricultural land use has decreased significantly as urban and suburban areas have been established, a trend seen throughout much of North Carolina. However, much of the loss of agricultural land in the watershed during the past fifty years was the result of the construction of Harris Lake.

Three streams have a High Quality Waters (HQW) designation according to the North Carolina Division of Water Quality (DWQ). These are Parkers Creek, Avents Creek, and Hector Creek. HQW is a supplemental classification intended to protect waters with quality higher than state water quality standards. A portion of Kenneth Creek was listed with a high priority on North Carolina's 2000 Clean Water Act Section 303(d) list of impaired waters and is within a water supply watershed. Other creeks in the watershed are potentially degraded and/or threatened by development and existing uses, including agriculture and silviculture. This planning area lies predominantly in the Triassic Basins, Rolling Coastal Plain, and Northern Outer Piedmont ecoregions. Small areas within the watersheds are also classified as lying in the Sand Hills and Southeast Floodplains and Low Terraces ecoregions. These watersheds include unique habitat areas as well as 22 threatened and endangered species and six natural communities.

There are six permitted individual NPDES dischargers in the study watersheds. Three are municipal wastewater treatment plants (Apex, Holly Springs, and Fuquay-Varina), one is the cooling water from the Shearon Harris Nuclear Plant, and the remaining two are small residential discharges. Through data collection, field assessments, GIS evaluation and modeling efforts there are indications that sedimentation, nutrients (nitrogen and phosphorus), non-point source input such as agricultural runoff, and development impacts are contributing to impacts to habitat, hydrology, and water quality functions within these watersheds.

Stakeholders that participated in this planning process include: Fayetteville State University, NC Wildlife Resources Commission, Progress Energy, Harnett County Planning and Inspections, Town of Holly-Springs, Fuquay-Varina Planning Department, Fuquay-Varina Parks and Recreation, Natural Resources Conservation Service, Chatham County, Fayetteville Public Works Commission, Wake County Soil and Water Conservation, Elon University Center for Environmental Studies, U.S. Fish and Wildlife Service, Wake County Parks and Recreation Department, N.C. Natural Heritage Program, Harnett County Public Utilities Department, U.S. Army Corps of Engineers, Harnett County Cooperative Extension Service, Weyerhaeuser Timber Company, Cape Fear River Assembly, and Buck Engineering, Inc.

Based on analyses performed for this plan, the three HUs were further divided into 12 functional assessment units (FAUs) with generally similar land use, landform, and riparian condition. The Parkers, Avents, and Hector Creek sub-watersheds represent the largest FAUs. Initially, it was thought that it would be necessary to split the upper and lower portions of these sub-watersheds into unique FAUs. However, land use in these sub-watersheds is homogeneous and stream types are consistent in both the headwater and downstream sections. The Harris Lake and Dry Creek sub-watersheds, as well as small drainages which flow directly into the Cape Fear River, were excluded from the functional assessment process. There were 12 assessment units evaluated in terms of three major functions: habitat, hydrology, and water quality. These include: habitat fragmentation, field assessment of select habitat sites, presence of invasive species, NCDWQ benthic surveys, substrate, headwater/riparian assessments, bank height ratio, percent imperviousness, infrastructure, BEHI, watershed modeling and projected changes within these watersheds.

Major functional stressors affecting the Middle Cape Fear planning area – and the watershed management strategies/practices recommended to address these stressors and their sources – are summarized in Table 1.

Table 1. Key Watershed Stressors and Management Strategies for the Middle Cape Fear Watershed

Stressor	Management Strategy
Sedimentation	Stream and riparian buffer restoration and preservation, agricultural and stormwater BMPs including but not limited to riparian management zones, contour tillage, stormwater wetlands and bioretention areas
Stream bank and upland erosion	Stream and riparian buffer restoration and preservation, agricultural and stormwater BMPs including but not limited to riparian management zones, contour tillage, stormwater wetlands and bioretention areas
Lack of adequate forested buffer	Riparian buffer restoration and preservation, implement land preservation techniques
Nutrients	Stream and riparian restoration and preservation, agricultural and stormwater BMPs including but not limited to riparian management zones, fertilizer application education, filter strips, stormwater wetlands and bioretention areas, evaluate non-stormwater discharger management
Land Use Impacts (most relevant to agriculture, siculture, imperviousness)	Agricultural and stormwater BMPs including but not limited to riparian management zones, fertilizer application education, filter strips, stormwater wetlands and bioretention areas, riparian buffer restoration and preservation, LID practices, consideration of stormwater ordinances

For more information on the NC EEP's LWP initiative this planning area, see <http://portal.ncdenr.org/web/eep/rbrps/cape-fear>.