Summary of Findings and Recommendations for the Lockwoods Folly Local Watershed Plan

The Lockwoods Folly Local Watershed Plan (LWP) area is 153 square miles and is located in Brunswick County. Lockwoods Folly River originates near the town of Bolivia and empties to the Atlantic through the Lockwoods Folly Inlet. The barrier islands of Oak Island and Holden Beach protect the river inlet. The Intracoastal Waterway is located landward of the barrier islands, connecting to a small estuary formed by the river near the Town of Varnamtown. Forest and wetland cover represent 75% of land use, with 17% developed and 6% agriculture. Streams in the upper portion of the watershed are classified as C-Sw waters. Near the crossing of Hwy 211, the Lockwoods Folly River is classified as SC while the rest of the tributaries remain C-Sw. High Quality Waters (HQW) is also applied to the Lockwoods Folly River and its tributaries in this location. The estuary of Lockwoods Folly, the Intracoastal Waterway, Spring Creek, Mullet Creek and portions of Mill Creek are classified SA, shellfishing waters. The Lockwoods Folly River is listed on the 303(d) list of impaired waters for shellfish closures due to fecal coliform bacteria. While it does not drain to the Lumber River, the Lockwoods Folly River is considered to be in the Lumber River Basin. The study area encompasses five 14-digit hydrologic units: 03040207020010, 03040207020020, 03040207020030, 03040207020040 and 03040207020050.

The local watershed planning effort began in 2005 and was completed in 2007. It was a three-phased effort, including a preliminary watershed characterization, detailed watershed assessment, and development of plan recommendations. Its objectives were to identify subwatersheds having greatest functional loss and greatest risk of future degradation and to identify stream, wetland and BMP retrofit opportunities and other management efforts to restore watershed function. EEP teamed up with the Lockwoods Folly Roundtable, an effort spear-headed by Brunswick County and the NC Coastal Federation and funded by an EPA grant. The Roundtable was composed of a diverse group of citizens, consisting of town officials, developers, fishermen and engineers who were selected by the Brunswick County Commissioners to develop recommendation to address water quality. Besides EEP's work, additional studies were conducted by Shellfish Sanitation and North Carolina State University.

The watershed plan identified fecal coliform and nutrients as the primary water quality pollutants. The Lockwoods Folly Roundtable recommended Low Impact Development as one of its 9 management strategies. The Plan modeled five different build-out scenarios to reveal the impact of future development on nutrient, fecal coliform and suspended solids loading. This data supports the use of Low Impact Development to reduce pollutant load. Through GIS analysis, 85 potentially impacted stream and wetland sites were identified and field verified. 140 additional sites were selected randomly and assessed in the field to determine watershed health. Ten stream, twelve wetland and 23 BMP sites were identified for restoration/retrofit.

Key stressors in Lockwoods Folly watershed and management strategies to address them are listed in the Table 1. Key issues stemmed from older silviculture practices of draining wetlands and channelizing streams. Though these streams were in relatively good condition at the time of the study, the concern now is the transition of land use to residential development and its impact on these streams. Fecal Coliform is a stressor that is now being addressed through the development of a TMDL. Continued development on the barrier islands and along Lockwoods Folly River is expected to increase pathogens, nutrients and sediment.

Table 1. Key watershed stressors and management strategies for the Lockwoods Folly watershed

Stressors and Issues	Management Strategies
Channelized streams on agriculture/silviculture lands	Stabilize streams, protect and improve existing buffer, stream restoration where pine plantations are transitioning to residential developments
Cleared and drained wet flats	Wetland restoration
Land use change/Development	Low Impact Development Ordinance, coordinate regulatory agencies for better enforcement of stormwater regulations, preserve strategic sites to protect WQ, Public Education Program
Impervious surfaces on Oak Island, Varnamtown and St. James exceeding 10%	Stormwater BMPs, preservation, LID
Poor riparian habitat	Improve riparian buffer in old pine plantations/new development, conduct stream restoration and enhancement
Sediment load	Protect riparian buffers, restore buffers, LID, Stormwater BMPs, stream and wetland restoration
Nutrients/ eutorophication	Septic repair education program, Low Impact Development, Preserve Buffers, sewer extension policy
Fecal coliform bacteria	Sewer extension policy, septic repair education, coastal marsh restoration, stormwater BMP retrofit and LID