

**WATERSHED MANAGEMENT AREA 9**  
**Scope of Work**  
**Stream Priority Segment Project**

**Manalapan Lake Watershed Restoration/Implementation Plan**

Manalapan Lake in the Lower Raritan Watershed Management Area is a 48 acre lake at the downstream end of a once-rural watershed which drains 17,254 acres that is developing rapidly but still includes significant agricultural areas. The lake itself is owned by Middlesex County. Manalapan Brook is a typical NJ coastal plain subwatershed. The watershed is impaired for fecal coliform and phosphorus. For example, an 86% reduction in phosphorus loading will be required for the lake through the TMDL in order to achieve the water quality goal. However, insufficient detailed data on land uses and current phosphorus inputs will likely slow TMDL implementation. There are no NJPDES-permitted wastewater management facilities within the Manalapan Lake watershed. Therefore, the TMDL Implementation Plan will need to focus on nonpoint source pollution control from current developed and agricultural land uses, as well as new development. The purpose of this task is to assess a small watershed and implement watershed strategies to protect and restore the watershed in a resource focused manner. Public participation and municipal buy-in will be necessary and crucial to successful long term implementation.

Although the development of a TMDL implementation plan is a NJDEP responsibility, the Division of Watershed Management has been seeking local knowledge and assistance to identify existing and potential sources. The existing Raritan Plan includes a wide variety of effective strategies, which can be used to control NPS loadings of phosphorus and fecal coliform. These strategies combined with implementation of best management practices will provide restoration to the watershed. Local partners (specifically including the Lower Raritan/Middlesex County Water Resources Association and the Lower Raritan WMA Committee) will provide to NJDEP detailed field information on land uses (updated from 1995/97), a local assessment of actual loading rates from various land uses and wildlife populations, and implementation methods drawn from the Raritan Plan and other authoritative documents. Through the allocation of these funds to work in the Manalapan Lake Watershed, these implementation methods will be focused in one region to demonstrate a focused approach to restore a coastal plain watershed. The lead agency will develop a technical support document of measures used for the restoration using material from this project that will be transferable to other lakes watersheds.

The end result of this project will be a lake restoration plan for Manalapan Lake, including an assessment of pollutant loadings in the lake's watershed that contribute to instream and lake water quality violations (primarily oriented to nutrients and sediment) and recommendations for pollutant reduction measures that are viable and effective in restoring the lake to a "clear water" condition at a minimum.

## **Deliverables:**

1. Detailed assessment and characterization of phosphorus and sediment sources within the Manalapan Lake Watershed. This assessment should include water quality, sediment and biological assessments of the lake using NJDEP's draft or final protocol for baseline lake monitoring, within the budgetary limits of the project. Assessments developed by the Lower Raritan WMA Watershed Ambassador shall be incorporated into the assessment;
2. Simplified build-out scenario (using GIS coverages of generalized zoning and existing land uses) of the watershed and the phosphorus loading implications of that build-out scenario, with emphasis on potential conversion of forested lands to non-forested land uses. The analysis should identify whether septic systems are likely to be a significant source of pollutant loadings, based in part on the age of housing stock and location relative to streams;
3. Utilization and mapped outputs on municipal scale of critical open space based on the Raritan Plan method;
4. Identification of phosphorus loading and concentration targets for Manalapan Lake that will achieve at least a "clear water" condition;
5. Identification and assessment of priority Raritan Basin implementation strategies most critical and appropriate to Manalapan Watershed, including EQIP and Conservation Cost-share Program for agriculture, land development codes for new development, and remedial activities;
6. Prioritization of implementation strategies;
7. Prioritization and assessment of funding sources for implementation;
8. Detailed implementation steps that result in workplan definition based on strategy implementation.
9. Presentation of the results of this project in a "Manalapan Lake and Watershed Restoration and Management Plan."