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## **Introduction**

### *The Martins Pond Assessment and Remediation Project*

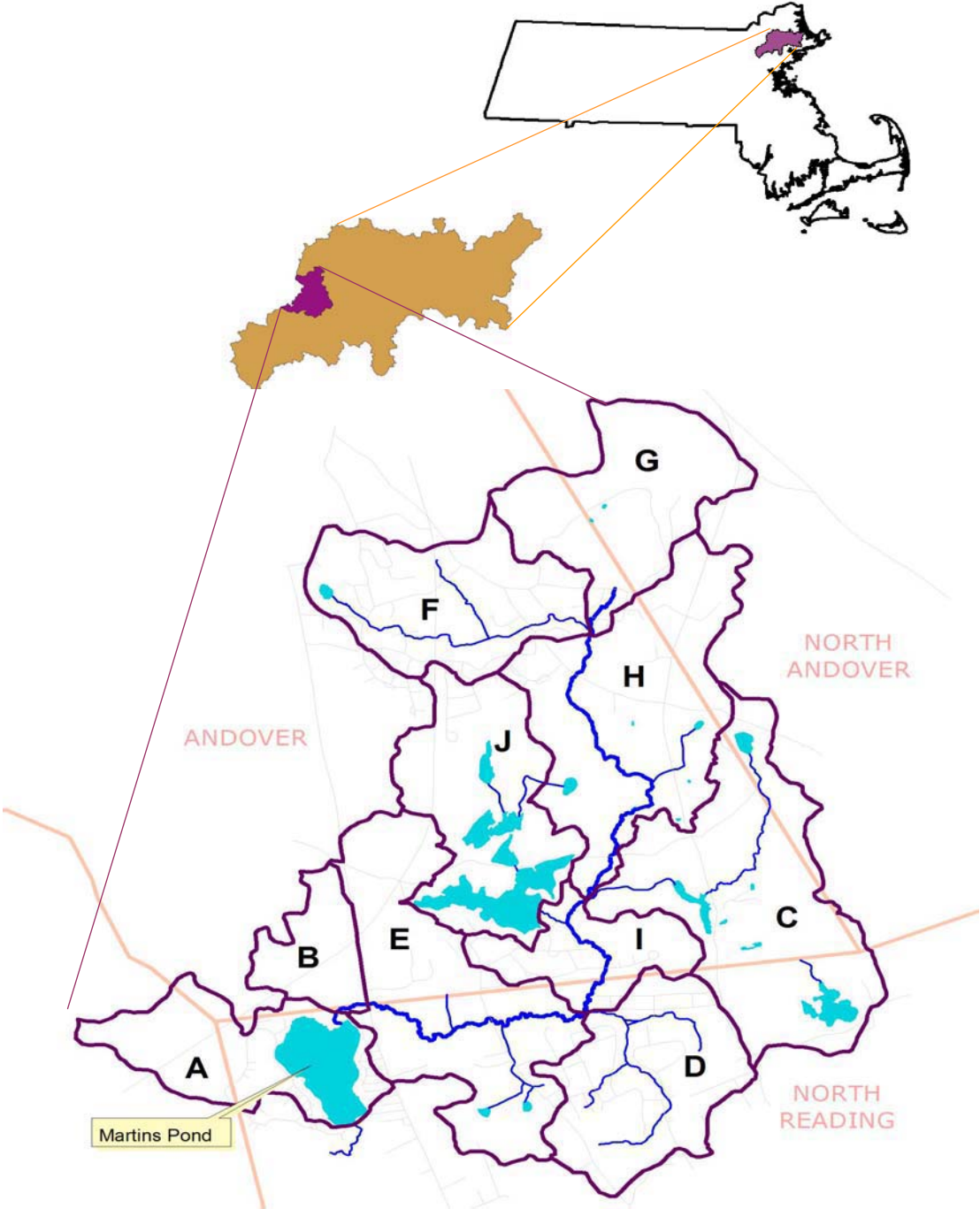
Martins Pond (segment MA92038-2004) is a Great Pond in the Commonwealth of Massachusetts and covers some 92 acres. It is a Class B water body meaning that it is designated for supporting aquatic life and recreational uses. Martins Pond is listed under the Massachusetts Year 2004 Integrated List of Waters (303d list) as an impaired water body due to **turbidity, noxious aquatic plants, exotic species and metals**. Turbidity levels are such that the Pond does not meet minimum clarity for swimming, and a local beach that offered swimming at one time, has been closed since 1988. Being on the 303d list, Martins Pond is classified as a *Category 5 Water*, which means it requires a TMDL.

In late 2004, the General Court of the Commonwealth directed the Department of Environmental Protection (DEP) through Chapter 352 of the Acts and Resolves of 2004, Section 78, to expend \$300,000 toward the assessment and remediation of Martins Pond. The Town of North Reading agreed to use the funds received from DEP specifically for the purpose of water quality problem identification and mitigation. The Town was given the charge of continuing water quality assessment work conducted on Martins Pond towards the goal of completing a new Diagnostic/Feasibility Study for Martins Pond and an assessment of potential non-point source pollution in the Martins Pond Watershed.

The primary work outlined in the *Scope of Services* (Appendix A) has been completed. This report describes the over year-long study results of the project and represents the Final Diagnostic/Feasibility Study Report for the project. The recommendations in this study offer suggestions as to how the Town of North Reading, the Martins Pond Association and other stakeholders might build on the work presented in this study and improve the water quality, the ecological integrity and the recreation potential of Martins Pond and the entire Martins Pond watershed. Throughout the report, many section headings are followed by an italicized, parenthetical *Scope of Services* code. This code refers to the specific work called for under the approved Scope of Services (Appendix A).

# **PART I. DIAGNOSTIC STUDY**

Section 1.0 The Martins Pond Watershed



**Figure 1.** A map showing both the location and area of the Martins Pond watershed relative to the Ipswich River Watershed and the Commonwealth of Massachusetts. Major subwatershed boundaries are also shown (labeled as A through J). The watershed (4927 acres) includes lands in both Essex and Middlesex Counties and is located in EPA Region I.

Figure 1 shows the geographical location and size of Martins Pond and the Martins Pond watershed. Both are located within the 155 mi<sup>2</sup> Ipswich River watershed (MA01102000). The northern portion of the watershed is in Essex County and the southern portion in Middlesex County. The total watershed area calculated for this study, 4927 acres (1994 ha), is slightly higher than previous calculations of 4673 acres (IEP 1977) and slightly less than the 5057 acres presented by Anderson-Nichols and Lycott (1985). However, given the GIS technology available to calculate land areas, it is not surprising that there has been some variance in the determination of area in different decades. More importantly, these differences have no real impact on the interpretation of the study results in the current report. Thus, the 4927 acre figure will be used throughout this report and all watershed-based calculations are based on this value.

The revision of watershed boundaries in the present study reflect more detailed mapping and coincide with the data provided by MassGIS ([www.mass.gov/mgis/](http://www.mass.gov/mgis/)) and the USGS National Hydrology Dataset (NHD) ([nhd.usgs.gov/](http://nhd.usgs.gov/)). The watershed and subwatershed boundaries shown in Figure 1 were revised in 2005 as part of the current study. The watershed includes part of four Towns as noted below:

<b>Town</b>	<b>Acres</b>	<b>% of Total Watershed</b>
Andover	2865.5	58.2 %
North Andover	577.0	11.7 %
North Reading	1336.5	27.1 %
Wilmington	148.0	3.0 %
<i>Totals</i>	<i>4927</i>	<i>100 %</i>