

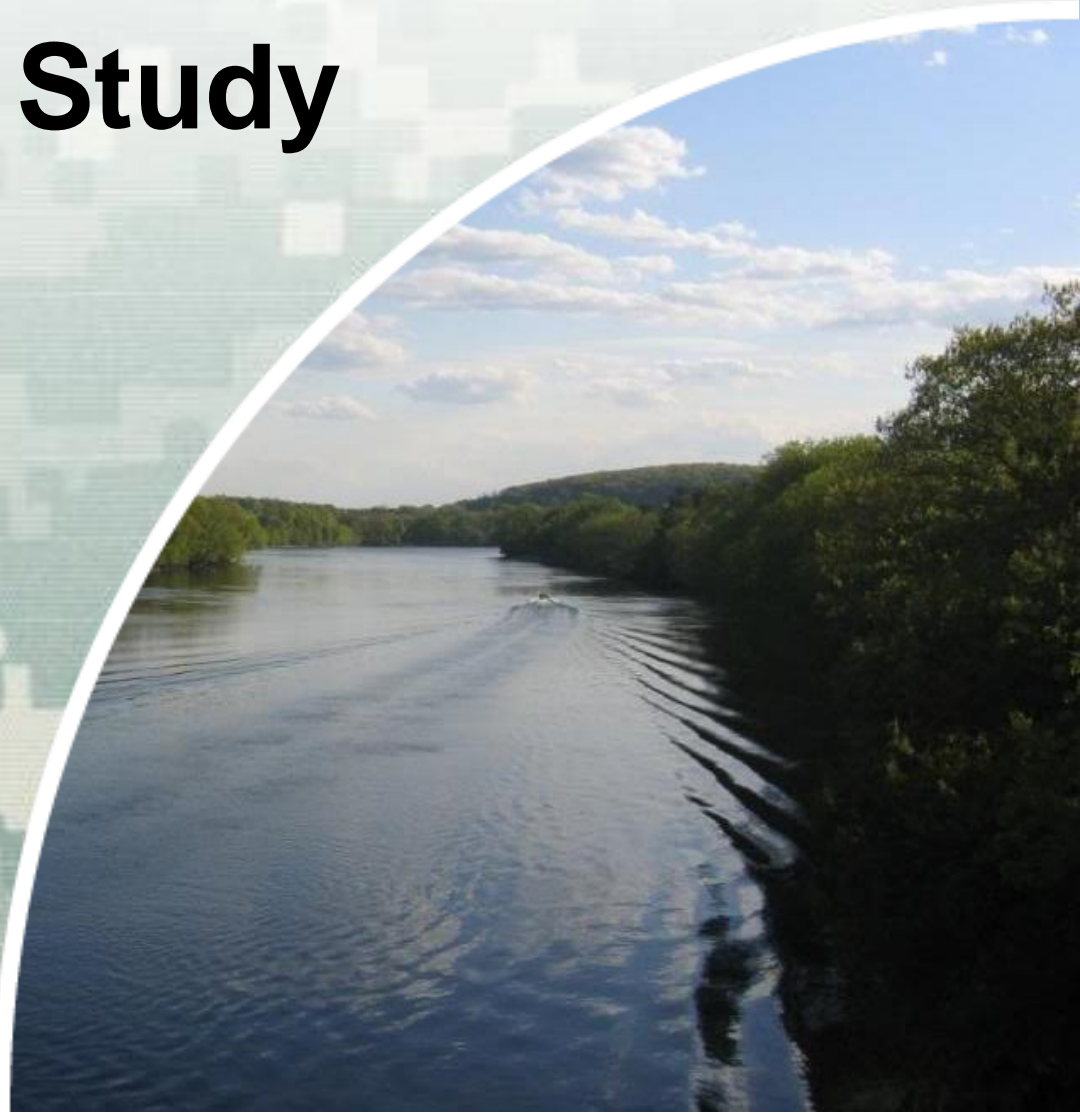
Merrimack River Watershed Assessment Study

May 20, 2016



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US Army Corps of Engineers
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Study Information

Authority: Section 729, WRDA 1986, as amended and Section 437 of WRDA 2000

Study Cost-Share Sponsors:

United States Army Corps of Engineers

Local communities in Massachusetts and New Hampshire including Lowell, Haverhill, Manchester, and Nashua

New Hampshire Department of Environmental Services

Southern NH Planning Commission United States

Study Contractor: CDMSMITH and subcontractors



Study Area

Phase I: Lower Merrimack River and Tributaries

Phase II: Upper Merrimack and Pemigewasset Rivers and Tributaries

Phase III: Lower Merrimack River and Tributaries



Watershed Assessment

Focus on Mainstem River Water Quality and influence of Point and Nonpoint Sources

- Existing Conditions (data collection)
- Future Conditions (scenario modeling)



Pemigewasset River in Woodstock, NH



Merrimack River in Lowell, MA



Watershed Study Phase I

Major cities

- Concord, Manchester, and Nashua, NH
- Lowell, Lawrence, and Haverhill, MA

Scope

- Collect water quality and streamflow data
- Use data to develop & calibrate river models
- Initial focus on bacteria in mainstem
- Conduct scenario modeling



Watershed Study Phase I

Focus Areas: >60 sampling locations

- Major cities
- Dams
- WWTPs (downstream of effluent)
- CSO Outfalls
- Stormwater Outfalls
- Major tributaries



Merrimack River in Lowell, MA

Phase 1 completed in 2003-2006

Reports:

<http://www.nae.usace.army.mil/Missions/ProjectsTopics/LowerMerrimack.aspx>



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Watershed Study Phase I

Phase I Results (2006)

Focused on impacts of CSOs and nonpoint sources on in-stream bacterial quality:

- Dry weather bacteria exceedances in tributaries
- Balanced approach of CSO abatement + nonpoint source controls would yield the most benefit based on compliance with standards

Provided water quality assessment with respect to dissolved oxygen and nutrient concentrations



Watershed Study Phase II

Major cities

- Lincoln, Woodstock, Plymouth, Bristol, Franklin, Concord, Manchester, and Nashua NH

Scope

- Collect additional water quality and streamflow data
- Focus on nutrients and DO
- Assess water quality/quantity impacts of potential future increases in water withdrawals from mainstem south of Concord
- Scenario projections of future water quality



Watershed Study Phase II

Focus Areas: >70 sampling locations

- Major cities
- Dams
- WWTPs (effluent, upstream, and downstream)
- Major tributaries

Studies completed

- 5 Summer Impoundment studies - 2009
- Sediment oxygen demand - 2009
- Continuous DO metering - 2009
- 2 Summer Low Flow Events - 2010
- 1 Spring High Flow Event - 2012



Watershed Study Phase II

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Reports include:

- Water Supply Evaluation 2008
- Monitoring Data Report, 2009-2012 (December 2012)
- Modeling to be completed in 2016
- Phase II Report in 2016

Reports:

<http://www.nae.usace.army.mil/Missions/ProjectsTopics/UpperMerrimack.aspx>



Watershed Study Phase III

Scope:

- Better understand NPS contribution
- Collect additional data on the River and Tributaries in 2014, 2014, and 2016
- Refine watershed model on tributaries
- Use watershed model for additional scenarios
- Public and Agency engagement
- Draft and Final Report



Spicket River
<http://methuenrailtrail.org/spicket-river/>



Questions?

