

# NEW HAMPSHIRE WATER RESOURCES PRIMER

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# LIST OF ACRONYMS

<b>BMP</b>	Best management practices
<b>CSO</b>	Combined sewer overflow
<b>CWA</b>	Clean Water Act (federal)
<b>CWS</b>	Community water systems
<b>DES</b>	New Hampshire Department of Environmental Services
<b>DPW</b>	Department of Public Works
<b>EPA</b>	U.S. Environmental Protection Agency
<b>FEMA</b>	Federal Emergency Management Agency
<b>HB</b>	New Hampshire House Bill
<b>LAC</b>	Local advisory committee
<b>LID</b>	Low impact development
<b>MCL</b>	Maximum contaminant level
<b>MTBE</b>	Methyl tertiary-Butyl Ether
<b>NFIP</b>	National Flood Insurance Program
<b>NHDES</b>	New Hampshire Department of Environmental Services
<b>NHF&amp;G</b>	New Hampshire Fish and Game Department
<b>NHGS</b>	New Hampshire Geological Survey
<b>NHOEP</b>	New Hampshire Office of Energy and Planning
<b>NOAA</b>	National Oceanic and Atmospheric Administration
<b>NPDES</b>	National Pollutant Discharge Elimination System
<b>OEP</b>	New Hampshire Office of Energy and Planning
<b>POTW</b>	Publicly owned treatment works
<b>RSA</b>	Revised Statute Annotated
<b>SB</b>	New Hampshire Senate Bill
<b>SDWA</b>	Safe Drinking Water Act
<b>SRF</b>	State revolving fund
<b>TMDL</b>	Total maximum daily load
<b>UNH</b>	University of New Hampshire
<b>USEPA</b>	U.S. Environmental Protection Agency
<b>USFWS</b>	U.S. Fish and Wildlife Service
<b>USGS</b>	U.S. Geological Survey
<b>WWTF</b>	Wastewater treatment facility

# EXECUTIVE SUMMARY

The water running through, over and by New Hampshire has shaped the state's history and will influence its future. Over the last decade New Hampshire has been the fastest growing New England state, and there are another 260,000 new residents anticipated between 2005 and 2030. Hundreds of thousands of visitors come to New Hampshire each year to enjoy the state's beautiful lakes, rivers and coast in the summer and its ski areas, snowmobile trails and ice-fishing spots in the winter. Whether it is needed for drinking, manufacturing, recreating, waste assimilation or ecosystem health, water is a cornerstone of New Hampshire's beauty and prosperity, and wise management and protection of water resources is critical to New Hampshire's economy, public health and environment.

The Water Resources Primer was developed to inform policy makers and citizens about the state's water resources and the challenges faced in sustainably managing them. It was developed as part of an initiative to develop a statewide, comprehensive water plan, spearheaded by the Legislature's Statutory Water Resources Committee. The New Hampshire Department of Environmental Services is the lead author, although the document was significantly influenced and improved by the contributions of many volunteer stakeholders and experts.

This is the first document that contains all of the water related topics of importance to New Hampshire policy makers. It is meant to provide the reader with an understanding of the complex and interrelated nature of water resources and water resource issues. It is also formatted to provide topic specific chapters that can be used to understand particular subjects.

The first chapter of the primer describes four underlying challenges that are critical to understanding and effectively managing water resources. First, land development activities driven by economic and population growth can have profound impacts on water quality, water availability, and water-based recreational opportunities. Second, climate change, which is already bringing increasingly frequent extreme weather events to New Hampshire, is expected to exacerbate water quality, affect water availability, test our readiness to deal with droughts and flooding, and to overwhelm the existing stormwater infrastructure in many places. Third, as is the case nationwide, New Hampshire's infrastructure for water supply, wastewater treatment, stormwater, and water storage (dams) is sorely in need of maintenance, upgrade, or replacement, but no funding mechanism is in place to provide all of the needed money. Fourth, in order to inform the effective management of our water resources, we need to address critical data needs including expanding our efforts to gauge stream flows, monitor groundwater levels, gather water quality data, monitor the occurrence and spread of invasive species, and map flood-prone areas.

The first chapter also provides, in the section called "New Hampshire Water at a Glance," pertinent facts and statistics about the state's water resources, water use, water infrastructure and water law. The remaining chapters are topic specific and include: Rivers; Lakes and Ponds;

Groundwater; Wetlands; Coastal and Estuarine Waters; Water Use and Conservation; Drinking Water; Wastewater; Stormwater; Dams; and Floods and Droughts. Each of these chapters provides information about the topic, related issues and current management efforts. Each of these chapters also provides a few key stakeholder recommendations. Most, but not all, of those recommendations can be grouped into the following areas:

- Improve knowledge – data characterization and evaluation
- Increase water use efficiency
- Improve land use patterns – directing development
- Improve stormwater management
- Adapt to climate change
- Address infrastructure needs
- Improve integration of protection programs
- Shift towards watershed/regional vs. municipal planning and regulation
- Increase emergency preparedness

New Hampshire is fortunate to have an abundance of high quality water resources. With nearly 17,000 miles of rivers and streams, 1,000 lakes and large ponds, 238 miles of ocean and estuarine coastline, and potable groundwater throughout the state, New Hampshire is relatively water rich. The foldout graphic in Chapter 1 depicts the connectivity between New Hampshire's waters and how both water quality and quantity are influenced by what occurs on the landscape.

Making sound policy decisions regarding water resources and ensuring that there is enough good quality water for the many users that depend on this resource are not small tasks. They are, however, essential to sustaining New Hampshire's special quality of life. The Water Resources Primer has been developed and is intended to support this worthy goal.

### **Note Regarding Citation of Sources**

The primer uses a format for citation of information sources that is commonly used in technical literature. Citations take the form of "(Author(s), year)." For the complete citation, please refer to the list of references at the end of the chapter. When a chapter cites more than one source published in the same year by a given author or team of authors, the year is followed by a letter, e.g., "(Author, 2008a)," to enable the reader to distinguish among sources. The editors of the primer have decided to err on the side of providing more citations rather than too few, in order to address potential questions about the authoritativeness of the information.

