

CONTENTS

- Abstract 1
- Introduction 1
 - Purpose and Scope 2
 - Acknowledgments 2
- Environmental Setting 2
 - Physiography 2
 - Climate 4
 - Geology 7
 - Bedrock 7
 - Surficial Deposits 9
 - Soils 12
 - Hydrography 12
 - Surface Water 12
 - Streamflow Characteristics 15
 - Floods and Droughts 22
 - Lakes, Reservoirs, and Wetlands 22
 - Ground Water 23
 - Aquifers 23
 - Recharge, Discharge, and Ground-Water Levels 26
- Ecological Regions and Fisheries 28
 - Ecoregions 28
 - Fisheries 28
- Population 32
- Land Use and Land Cover 32
 - Forests 34
 - Agriculture 36
 - Urban and Industrial Activities 37
- Use of Water 39
- Implications of Environmental Settings for Water Quality and Aquatic Biota 44
 - Surface Water 44
 - Ground Water 49
 - Aquatic Biota 51
- Summary and Conclusions 52
- Selected References 55

FIGURES

1-8. Maps showing:	
1. Location of the New England Coastal Basins study area in Maine, Massachusetts, New Hampshire, and Rhode Island	3
2. Physiographic regions of the New England Coastal Basins study area.....	5
3. Mean monthly precipitation and air temperature at selected stations, annual precipitation, and climatic divisions in the New England Coastal Basins study area, 1961-1990.....	6
4. Generalized bedrock geology of the New England Coastal Basins study area	8
5. (A) Maximum extent of glacial lakes and the marine limit and (B) the generalized extent of stratified-drift deposits	11
6. Generalized soil hydrologic groups	13
7. Generalized hydrography.....	14
8. Mean annual discharge, mean annual runoff, and location of selected streamflow-gaging stations.....	16
9. Distribution of monthly streamflows for selected gaging stations, water years 1973-93 unless otherwise noted.....	18
10. Maps showing location of dams used for recreation, water supply, and hydroelectric power generation in the study area.....	20
11. Hydrograph showing selected storm hydrographs from unregulated and regulated streams and lakes for a large runoff event (March-April 1987)	21
12. Hydrograph showing daily streamflow regulation on the Kennebec River at Bingham, Maine, June 18-21, 1995.....	21
13. Diagram showing idealized geohydrologic section in the glaciated Northeast.....	27
14. Graphs showing a comparison of monthly median and ranges of water levels in selected observation wells during the 1994 water year.....	29
15-23. Maps of the New England Coastal Basins showing:	
15. Ecoregions and fish communities	30
16. (A) Population distributions and metropolitan statistical areas, and (B) changes in population density from 1970 to 1990, by subbasin	33
17. Generalized land use and land cover	35
18. Nitrogen (A) and phosphate (B) fertilizer use in 1991, by county	38
19. Location of selected industrial and municipal waste-water treatment plants	40
20. Location of toxic-release-inventory (TRI) sites.....	41
21. Location of hazardous-waste sites	42
22. Total alkalinity of streams and rivers.....	45
23. Mean daily total phosphorus and total nitrite plus nitrate, as N, loading at selected NASQAN sites.....	48

TABLES

1. Streamflow characteristics for selected gaging stations in the New England Coastal Basins study area, in Maine, Massachusetts, New Hampshire, and Rhode Island	17
2. Summary of dams, by major river basin, in 1995-96.....	19
3. Numbers and total areas of lakes and wetlands greater than 0.1 square miles in the major river basins	22
4. Geologic units, hydraulic properties, and general water-bearing characteristics.....	24
5. Descriptions of ecoregions.....	31
6. Population of the major metropolitan areas	32
7. Land use and land cover, by major river basin, in 1990	36
8. Estimated agricultural production, by major river basin, in 1994	37
9. Summary of total fresh-water withdrawals in 1995, by major basin and source.....	43
10. Summary of public-supply and self-supply withdrawals for domestic use in 1995, by major basin and source	44

CONVERSION FACTORS, VERTICAL DATUM, AND ABBREVIATIONS

Multiply metric unit	By	To obtain inch-pound unit
Length		
inch (in.)	25.4	millimeter
foot (ft)	0.3048	meter
mile (mi)	1.609	kilometer
Area		
acre	0.4047	hectare (ha)
square mile (mi ²)	2.590	square kilometer
Velocity and Flow		
foot per second (ft/s)	0.3048	meter per second
cubic foot per second (ft ³ /s)	0.02832	cubic meter per second
gallon per minute (gal/min)	0.06309	liter per second
million gallons per day (Mgal/d)	0.04381	cubic meter per second
Temperature		
degree Fahrenheit (°F)	°C = 5/9 x (°F-32)	degree Celsius °C
Hydraulic Conductivity		
foot per day (ft/d)	0.3048	meter per day
Transmissivity		
foot squared per day (ft ² /d)	0.09290	meter squared per day

In this report, chemical concentration in water is expressed as International Systems Units, in milligrams per liter (mg/L) or micrograms per liter (µg/L). Milligrams per liter is a unit expressing the concentration of chemical constituents in solution as weight (milligrams) of solute per unit volume (liter) of water; 1,000 µg/L is equivalent to 1 mg/L.

Vertical Datum: In this report “sea level” refers to the National Geodetic Vertical Datum of 1929 (NGVD of 1929)—a geodetic datum derived from a general adjustment of the first-order level nets of both the United States and Canada, formerly called Sea Level Datum of 1929.

Abbreviations: Abbreviated units used in this report that are not identified in the conversion table include:

lbs/ac	pounds per acre
µeq/L	microequivalents per liter
ft/mi	foot per mile
ft ³ /s	cubic foot per second
in/yr	inches per year
km	kilometer
in/mo	inches per month
lbs	pounds
µS/cm	microsiemens per centimeter
kg	kilograms
lb/d/mi ²	pounds per day per square mile
µg/g	micrograms per gram