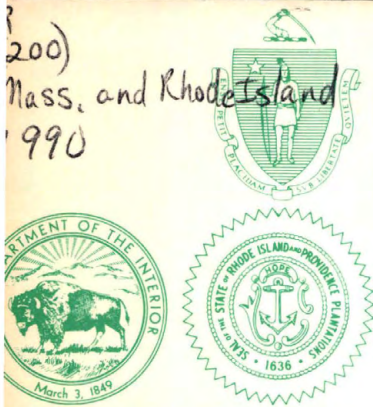
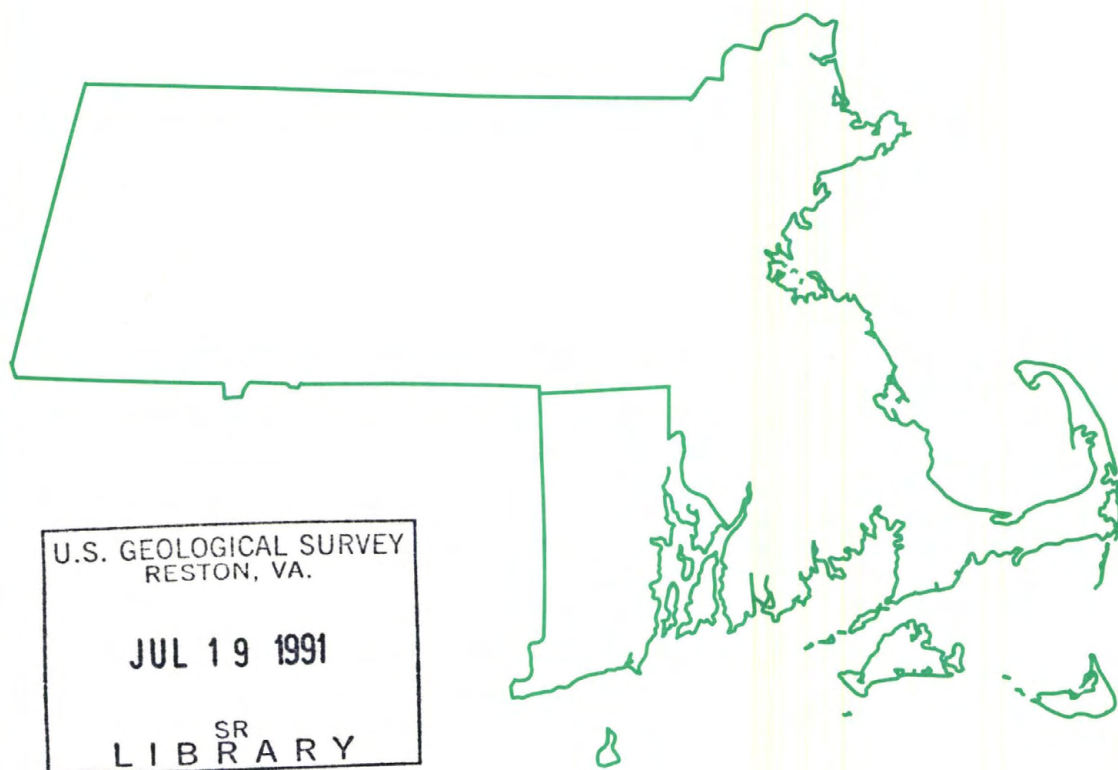




Water Resources Data Massachusetts and Rhode Island Water Year 1990



U.S. GEOLOGICAL SURVEY WATER-DATA REPORT MA-RI-90-1
Prepared in cooperation with the States of Massachusetts
and Rhode Island and with other agencies

CALENDAR FOR WATER YEAR 1990

1989

OCTOBER

S	M	T	W	T	F	S
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30	31				

NOVEMBER

S	M	T	W	T	F	S
			1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30		

DECEMBER

S	M	T	W	T	F	S
					1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30
31						

1990

JANUARY

S	M	T	W	T	F	S
	1	2	3	4	5	6
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29	30	31			

FEBRUARY

S	M	T	W	T	F	S
				1	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28			

MARCH

S	M	T	W	T	F	S
					1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30
31						

APRIL

S	M	T	W	T	F	S
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30					

MAY

S	M	T	W	T	F	S
		1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30	31		

JUNE

S	M	T	W	T	F	S
					1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30

JULY

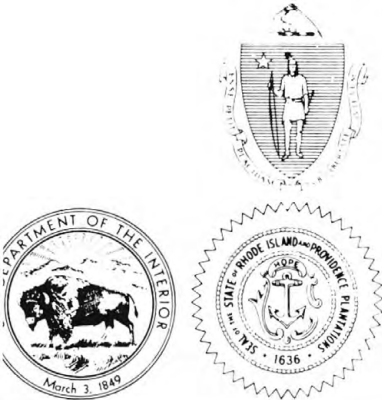
S	M	T	W	T	F	S
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30	31				

AUGUST

S	M	T	W	T	F	S
			1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30	31	

SEPTEMBER

S	M	T	W	T	F	S
						1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	25	26	27	28	29
30						



Water Resources Data Massachusetts and Rhode Island Water Year 1990

by R.S. Socolow, R.A. Gadoury, L.R. Ramsbey, and R.W. Bell



U.S. GEOLOGICAL SURVEY WATER-DATA REPORT MA-RI-90-1
Prepared in cooperation with the States of Massachusetts
and Rhode Island and with other agencies

U.S. DEPARTMENT OF THE INTERIOR

MANUEL LUJAN, JR., *Secretary*

U.S. GEOLOGICAL SURVEY

Dallas L. Peck, *Director*

For additional information, write to:

U.S. Geological Survey
Water Resources Division
10 Causeway Street, Suite 926
Boston, MA 02222-1040

PREFACE

This volume of the annual hydrologic data report of Massachusetts and Rhode Island is one of a series of annual reports that document hydrologic data gathered from the U.S. Geological Survey's surface- and ground-water data-collection networks in each State, Puerto Rico, and the Trust Territories. These records of streamflow, ground-water levels, and quality of water provide the hydrologic information needed by State, local, and Federal agencies, and the private sector for developing and managing our Nation's land and water resources. Hydrologic data for Massachusetts and Rhode Island are contained in one volume.

This report is the culmination of a concerted effort by dedicated personnel of the U.S. Geological Survey who collected, compiled, analyzed, verified, and organized the data, and who typed, edited, and assembled the report. In addition to the authors, who had primary responsibility for assuring that the information contained herein is accurate, complete, and adheres to Geological Survey policy and established guidelines, the following individuals contributed significantly to the collection, processing, and tabulation of the data: L. Y. Comeau, S. P. Coppola, L. J. Ostiguy, P. L. Provencher, D. J. Searles, C. Shivers, Jr., and J. L. Zanca.

Diane M Barrett was responsible for the word processing and publishing phases of the report.

This report was prepared in cooperation with the States of Massachusetts and Rhode Island and with other agencies under the general supervision of I. C. James, II, Chief, New England District, M. H. Frimpter, Chief, Massachusetts Office, and H. E. Johnston, Chief, Rhode Island Office.

REPORT DOCUMENTATION PAGE	1. REPORT NO. USGS/WRD/HD-91/265	2.	3. Recipient's Accession No.
4. Title and Subtitle Water Resources Data for Massachusetts and Rhode Island, Water Year 1990		5. Report Date Published March 1991	
7. Author(s) R. S. Socolow, R. A. Gadoury, L. R. Ramsbey, and R. W. Bell		8. Performing Organization Rept. No. USGS-WDR-MA-RI-90-1	
9. Performing Organization Name and Address U.S. Geological Survey Water Resources Division 10 Causeway Street Suite 926 Boston, MA 02222-1040		10. Project/Task/Work Unit No.	
		11. Contract(C) or Grant(G) No. (C) (G)	
12. Sponsoring Organization Name and Address U.S. Geological Survey Water Resources Division 10 Causeway Street Suite 926 Boston, MA 02222-1040		13. Type of Report & Period Covered Annual 10-01-89 to 09-30-90	
		14.	
15. Supplementary Notes This report was prepared in cooperation with the States of Massachusetts and Rhode Island and with other agencies.			
16. Abstract (Limit: 200 words) Water-resources data for the 1990 water year for Massachusetts and Rhode Island consists of stage, discharge, and water quality of streams; contents of lakes and reservoirs; and ground-water levels. This report contains discharge records for 89 gaging stations, monthend contents for 20 lakes and reservoirs, water quality for nine gaging stations, and water levels for 117 observation wells. Also included are data for one crest-stage and 61 low-flow partial-record stations. Additional water data were collected at various sites, not part of the systematic data-collection program, and are published as miscellaneous measurements. A few pertinent stations in bordering states are also included in this report. These data represent that portion of the National Water Data System operated by the U.S. Geological Survey and cooperating State and Federal agencies in Massachusetts and Rhode Island.			
17. Document Analysis a. Descriptors *Massachusetts, *Rhode Island, *Hydrologic data, *Surface water, *Ground water, *Water quality, Flow rate, Gaging stations, Lakes, Reservoirs, Chemical analyses, Sediments, Water temperatures, Sampling sites, Water levels and analyses. b. Identifiers/Open-Ended Terms c. COSATI Field/Group			
18. Availability Statement: No restriction on distribution. This report may be purchased from: Technical Information Service Springfield, VA 22161		19. Security Class (This Report) UNCLASSIFIED	21. No. of Pages 260
		20. Security Class (This Page) UNCLASSIFIED	22. Price

CONTENTS

	Page
Preface.....	iv
List of stations, in downstream order, for which records are published.....	vii
List of ground-water wells, by county, for which records are published.....	x
Introduction	1
Cooperation.....	5
Summary of hydrologic conditions.....	5
Special networks and programs	6
Explanation of the records.....	9
Station-identification numbers.....	9
Downstream order system	9
Latitude-longitude system	10
Records of stage and water discharge.....	10
Data collection and computation.....	11
Data presentation	12
Identifying estimated daily discharge	14
Accuracy of the records.....	14
Other records available	14
Records of surface-water quality	14
Classification of records	14
Arrangement of records	15
On-site measurements and sample collection	15
Water temperature	16
Sediment	16
Laboratory measurements	16
Data presentation	16
Remark codes	17
Records of ground-water levels.....	17
Data collection and computation.....	17
Data presentation	18
Access to WATSTORE data	19
Definition of terms	19
Publications on Techniques of Water-Resources Investigations	26
Station records, surface water	31
Discharge at partial-record stations and miscellaneous sites.....	171
Crest-stage partial-record stations.....	171
Low-flow partial-record stations.....	172
Miscellaneous sites.....	178
Supplemental water-quality data for gaging stations	183
Station records, ground water.....	192
Ground-water levels in Massachusetts	192
Ground-water levels in Rhode Island	244
Index	255

ILLUSTRATIONS

		Page
Figure	1. Map showing location of gaging stations.....	2
	2. Map showing location of partial-record stations	3
	3. Map showing location of observation wells	4
	4. Comparison of discharge at three long-term index stations during 1990 water year with median discharge for period 1951-80.....	7
	5. Comparison of monthly water levels in selected observation wells during 1990 water year with average, maximum, and minimum levels for periods of record	8
	6. System for numbering wells and miscellaneous sites	10

TABLES

Table	1. Number of observation wells, by month, in which new high or low water levels were set during the 1990 water year	9
-------	--	---

**SURFACE-WATER AND WATER-QUALITY STATIONS, IN DOWNSTREAM ORDER,
FOR WHICH RECORDS ARE PUBLISHED**

vii

(Letters after station name designate type of data: (d) discharge; (l) lake; (c) chemical; (b) biological;
(m) microbiological; (s) sediment; (t) water temperature)

NORTH ATLANTIC SLOPE BASINS

MERRIMACK RIVER BASIN

Merrimack River:	Page
North Nashua River (head of Nashua River) at Fitchburg, Mass. (d)	31
North Nashua River near Leominster, Mass. (d)	32
Nashua River at Clinton, Mass. (d)	33
Squannacook River near West Groton, Mass. (d)	34
Nashua River at East Pepperell, Mass. (d)	35
Merrimack River above Lowell, Mass. (c, m)	36
Assabet River (head of Concord River) at Maynard, Mass. (d)	38
Fort Pond Brook:	
Nashoba Brook near Acton, Mass. (d)	39
Sudbury River at Saxonville, Mass. (d)	40
Concord River below River Meadow Brook, at Lowell, Mass. (d)	41
Merrimack River below Concord River, at Lowell, Mass. (d)	42
Shawsheen River near Wilmington, Mass. (d)	43

PARKER RIVER BASIN

Parker River at Byfield, Mass. (d)	44
--	----

IPSWICH RIVER BASIN

Ipswich River at South Middleton, Mass. (d)	45
Ipswich River near Ipswich, Mass. (d)	46

MYSTIC RIVER BASIN

Aberjona River (head of Mystic River) at Winchester, Mass. (d)	47
--	----

CHARLES RIVER BASIN

Charles River at Dover, Mass. (d, c, m)	48
Mother Brook at Dedham, Mass. (d)	51
Charles River at Wellesley, Mass. (d)	52
Charles River at Waltham, Mass. (d)	53

NEPONSET RIVER BASIN

Neponset River at Norwood, Mass. (d)	54
East Branch Neponset River at Canton, Mass. (d)	55

WEYMOUTH BACK RIVER BASIN

Whitmans Pond (head of Weymouth Back River):	
Old Swamp River near South Weymouth, Mass. (d)	56

NORTH RIVER BASIN

Indian Head River (head of North River) at Hanover, Mass. (d)	57
---	----

JONES RIVER BASIN

Jones River at Kingston, Mass. (d)	58
--	----

QUASHNET RIVER BASIN

Quashnet River at Waquoit Village, Mass. (d)	59
--	----

TAUNTON RIVER BASIN

Taunton River:	
Wading River (head of Threemile River) near Norton, Mass (d)	60
Threemile River at North Dighton, Mass. (d)	61
Segreganset River near Dighton, Mass. (d)	62

TEN MILE RIVER BASIN

Ten Mile River at Pawtucket Avenue, at East Providence, R.I. (d)	63
--	----

NORTH ATLANTIC SLOPE BASINS--Continued

BLACKSTONE RIVER BASIN

Kettle Brook (head of Blackstone River):	Page
Quinsigamond River at North Grafton, Mass. (d).....	64
West River below West Hill Dam, near Uxbridge, Mass. (d, l)	65
Blackstone River at Millville, Mass. (c, m).....	66
Clear River (head of Branch River):	
Nipmuc River near Harrisville, R. I. (d)	72
Branch River at Forestdale, R.I. (d, c, m)	73
Blackstone River at Woonsocket, R.I. (d).....	78
Blackstone River at Manville, R.I. (c, m).....	79

MOSHASSUCK RIVER BASIN

Moshassuck River at Providence, R.I. (d)	83
--	----

WOONASQUATUCKET RIVER BASIN

Woonasquatucket River at Centerdale, R.I. (d)	84
---	----

PAWTUXET RIVER BASIN

Pawtuxet River:	
South Branch Pawtuxet River at Washington, R.I. (d, l)	85
Pawtuxet River at Cranston, R.I. (d, l, c, m)	86
Pawtuxet River at Pawtuxet, R.I. (c, m)	91

POTOWOMUT RIVER BASIN

Hunt River near East Greenwich, R.I. (d)	95
--	----

PAWCATUCK RIVER BASIN

Chipuxet River (head of Pawcatuck River) at West Kingston, R.I. (d)	96
Usquepaug River near Usquepaug, R.I. (d).....	97
Beaver River near Usquepaug, R.I. (d).....	98
Pawcatuck River at Wood River Junction, R.I. (d)	99
Wood River near Arcadia, R.I. (d).....	100
Wood River at Hope Valley, R.I. (d, c, t).....	101
Pawcatuck River at Westerly, R.I. (d, c, m, t, s).....	106

THAMES RIVER BASIN

Shetucket River (head of Thames River):	
Quinebaug River below East Brimfield Dam, at Fiskdale, Mass. (d).....	115
Quinebaug River below Westville Dam, near Southbridge, Mass. (d).....	116
Quinebaug River at Quinebaug, Conn. (d, c, m)	117
French River below Hodges Village Dam, at Hodges Village, Mass. (d).....	120
Little River near Oxford, Mass. (d).....	121
Reservoirs in Thames River basin (l).....	122

CONNECTICUT RIVER BASIN

Connecticut River:	
Millers River near Winchendon, Mass. (d)	123
Priest Brook near Winchendon, Mass. (d).....	124
Otter River at Otter River, Mass. (d).....	125
Millers River at South Royalston, Mass. (d).....	126
East Branch Tully River near Athol, Mass. (d).....	127
Whetstone Brook at Depot Road at Wendell Depot, Mass. (d).....	128
Millers River at Erving, Mass. (d)	129
Deerfield River near Rowe, Mass. (d).....	130
Deerfield River at Charlemont, Mass. (d).....	131
North River at Shattuckville, Mass. (d).....	132
South River near Conway, Mass. (d).....	133
Deerfield River near West Deerfield, Mass. (d)	134
Green River near Colrain, Mass. (d).....	135

**SURFACE-WATER AND WATER-QUALITY STATIONS, IN DOWNSTREAM ORDER,
FOR WHICH RECORDS ARE PUBLISHED**

ix

NORTH ATLANTIC SLOPE BASINS--Continued

CONNECTICUT RIVER BASIN--Continued

	Page
Connecticut River:--Continued	
Connecticut River at Montague City, Mass. (d).....	136
Fort River near Amherst, Mass. (d).....	137
Mill River at Northampton, Mass. (d).....	138
Connecticut River below Holyoke Dam at Holyoke, Mass. (d).....	139
Ware River (head of Chicopee River) near Barre, Mass. (d).....	140
Ware River at intake works, near Barre, Mass. (d).....	141
Ware River at Gibbs Crossing, Mass. (d).....	142
Quabbin Reservoir (head of Swift River):	
East Branch Swift River near Hardwick, Mass. (d)	143
Cadwell Creek near Pelham, Mass. (d).....	144
Cadwell Creek near Belchertown, Mass. (d).....	145
Swift River at West Ware, Mass. (d).....	146
Sevenmile River (head of Quaboag River) near Spencer, Mass. (d).....	147
Quaboag River at West Brimfield, Mass. (d).....	148
Chicopee River at Indian Orchard, Mass. (d).....	149
Westfield River at Knightville, Mass. (d)	150
Middle Branch Westfield River at Goss Heights, Mass. (d)	151
West Branch Westfield River at Huntington, Mass. (d)	152
Little River at outlet of Cobble Mountain Reservoir, near Westfield, Mass. (d).....	153
Westfield River near Westfield, Mass. (d)	154
Connecticut River at Thompsonville, Conn. (d, c, m, t, s).....	155
West Branch Farmington River near New Boston, Mass. (d)	163
Reservoirs in Connecticut River basin (l)	164
HOUSATONIC RIVER BASIN	
East Branch Housatonic River at Coltsville, Mass. (d).....	165
Housatonic River near Great Barrington, Mass. (d).....	166
HUDSON RIVER BASIN	
Hudson River:	
Hoosic River at Adams, Mass. (d).....	167
North Branch Hoosic River at North Adams, Mass. (d).....	168
Hoosic River near Williamstown, Mass. (d).....	169
Green River at Williamstown, Mass. (d).....	170

MASSACHUSETTS	Page	MASSACHUSETTS--Continued	Page
BARNSTABLE COUNTY		HAMPDEN COUNTY	
Barnstable well AIW 230.....	192	Granville well GLW 5.....	214
Barnstable well AIW 247.....	192	Granville well GLW 6.....	215
Bourne well BHW 198.....	193	Montgomery well M7W 19.....	215
Brewster well BMW 21.....	193	Southwick well SVW 95.....	216
Brewster well BMW 22.....	194	Westfield well VVW 62.....	216
Chatham well CGW 138.....	194	Westfield well VVW 152.....	217
Mashpee well MIW 29.....	195	Wilbraham well XJW 55.....	217
Sandwich well SDW 252.....	195		
Sandwich well SDW 253.....	196	HAMPSHIRE COUNTY	
Truro well TSW 1.....	196	Cummington well CYW 13.....	218
Truro well TSW 89.....	197	Granby well GKW 68.....	218
Wellfleet well WNW 17.....	197	Pelham well PDW 23 (recorder).....	219
		Pelham well PDW 24.....	220
BERKSHIRE COUNTY		Ware well WEW 43.....	220
Becket well A3W 12.....	198	Westhampton well WXW 20.....	221
Cheshire well CJW 2.....	198		
Great Barrington well GMW 2.....	199	MIDDLESEX COUNTY	
Otis well OTW 7.....	199	Acton well ACW 158.....	221
Pittsfield well PTW 51 (recorder).....	200	Billerica well BCW 363.....	222
Sheffield well SJW 58.....	201	Chelmsford well CHW 68.....	222
		Chelmsford well CHW 385.....	223
BRISTOL COUNTY		Concord well CTW 165.....	223
Attleboro well ATW 83.....	201	Concord well CTW 167.....	224
Freetown well F3W 23.....	202	Lexington well LTW 104.....	224
New Bedford well NGW 116.....	202	Townsend well TRW 13.....	225
Norton well N4W 37.....	203	Wakefield well WAW 38.....	225
Seekonk well SHW 275.....	203	Wayland well WKW 2.....	226
Taunton well TAW 337.....	204	Wilmington well XMW 78 (recorder).....	227
		Winchester well XOW 14.....	228
DUKES COUNTY		NANTUCKET COUNTY	
Edgartown well ENW 52.....	204	Nantucket well NBW 228.....	228
ESSEX COUNTY		NORFOLK COUNTY	
Andover well AJW 26.....	205	Dedham well DDW 231.....	229
Andover well AJW 462.....	205	Dover well DVW 10.....	229
Georgetown well GCW 168.....	206	Foxborough well FXW 3.....	230
Haverhill well HLW 23 (recorder).....	207	Norfolk well NNW 27.....	230
Newbury well NIW 27 (recorder).....	208	Weymouth well XGW 2.....	231
Topsfield well TQW 1.....	209	Weymouth well XGW 3.....	231
Wenham well WPW 76.....	209	Weymouth well XGW 4.....	232
FRANKLIN COUNTY		PLYMOUTH COUNTY	
Colrain well CSW 8.....	210	Duxbury well D4W 79.....	232
Deerfield well DFW 44.....	210	Duxbury well D4W 80.....	233
Hawley well HMW 8.....	211	East Bridgewater well EBW 30.....	233
Montague well M5W 5.....	211	Halifax well HBW 97.....	234
Orange well ORW 63.....	212	Hanson well HGW 76.....	234
Sunderland well S6W 7.....	212	Lakeville well LKW 14 (recorder).....	235
Sunderland well S6W 68.....	213	Middleborough well MTW 82.....	236
		Plymouth well PWW 22.....	236
HAMPDEN COUNTY		Plymouth well PWW 494.....	237
Blandford well BEW 9.....	213	Wareham well WFW 51.....	237
Chicopee well CMW 95.....	214		

MASSACHUSETTS--Continued	Page
SUFFOLK COUNTY	
Boston well BGW 925.....	238

WORCESTER COUNTY	
Hardwick well HHW 1.....	238
Hardwick well HHW 31.....	239
Northbridge well NXW 54	239
Petersham well PHW 16.....	240
Sterling well SYW 1.....	240
Templeton well TMW 3	241
Webster well WLW 1.....	241
West Brookfield well WUW 2.....	242
West Brookfield well WUW 10.....	242
Winchendon well XNW 13	243
Worcester well XSW 274.....	243

RHODE ISLAND	Page
KENT COUNTY	
Coventry well COW 411.....	244
West Greenwich well GWG 181.....	244

RHODE ISLAND--Continued	Page
PROVIDENCE COUNTY	
Burrillville well BUW 187.....	245
Cumberland well CUW 265.....	245
Lincoln well LIW 84.....	246
North Smithfield well NSW 21.....	246
Pawtucket well PAW 136.....	247
Providence well PRW 48	247
Providence well PRW 1051	248
WASHINGTON COUNTY	
Charlestown well CHW 18	248
Exeter well EXW 6.....	249
Exeter well EXW 16	249
Exeter well EXW 475 (recorder).....	250
North Kingstown well NKW 255.....	250
North Kingstown well NKW 450.....	251
Richmond well RIW 231.....	251
Richmond well RIW 417 (recorder)	252
Richmond well RIW 600 (recorder)	252
South Kingstown well SNW 6 (recorder)...	253
South Kingstown well SNW 515	253
Westerly well WEW 522.....	254

Water Resources Data for Massachusetts and Rhode Island, 1990

By R.S. Socolow, R.A. Gadoury, L.R. Ramsbey, and R.W. Bell

INTRODUCTION

The Water Resources Division of the U.S. Geological Survey, in cooperation with State agencies, obtains a large amount of data pertaining to the water resources of Massachusetts and Rhode Island each water year. These data, accumulated during many water years, constitute a valuable data base for developing an improved understanding of the water resources of the States. To make these data readily available to interested parties outside the Geological Survey, the data are published annually in this report series entitled "Water Resources Data, Massachusetts and Rhode Island."

This report series includes records of stage, discharge, and water quality of streams; stage, contents, and water quality of lakes and reservoirs; and water levels and water quality of ground-water wells. This volume contains records for water discharge at 89 gaging stations; monthend contents at 20 lakes and reservoirs; water quality at nine gaging stations; and water levels at 117 observation wells. Also included are data for one crest-stage and 61 low-flow partial record stations. Locations of these sites are shown in figures 1, 2, and 3. Additional water data were collected at various sites, not involved in the systematic data-collection program, and are published as miscellaneous discharge measurements. A few pertinent stations (not included above) in bordering States are also included in this report. The data in this report represent that part of the National Water Data System collected by the U.S.

Geological Survey and cooperating State and Federal agencies in Massachusetts and Rhode Island. This series of annual reports for Massachusetts and Rhode Island began with the 1961 water year with a report that contained only data relating to the quantities of surface water. For the 1964 water year, a similar report was introduced that contained only data relating to water quality. Beginning with the 1975 water year, the report format was changed to present, in one volume, data on quantities of surface water, quality of surface and ground water, and ground-water levels.

Prior to introduction of this series and for several water years concurrent with it, water-resources data for Massachusetts and Rhode Island were published in U.S. Geological Survey Water-Supply Papers. Data on stream discharge and stage and on lake or reservoir contents and stage, through September 1960, were published annually under the title "Surface-Water Supply of the United States, Parts 1A and 1B." For the 1961 through 1970 water years, the data were published in two 5-year reports. Data on chemical quality, temperature, and suspended sediment for the 1941 through 1970 water years were published annually under the title "Quality of Surface Waters of the United States," and water levels for the 1939 through 1974 water years were published under the title "Ground-Water Levels in the United States." The above mentioned Water-Supply Papers may be consulted in the libraries of the principal cities of the United States and may be purchased from U.S. Geological Survey, Books and Open-File Reports, Federal Center, Bldg. 41, Box 25425, Denver, CO 80225.

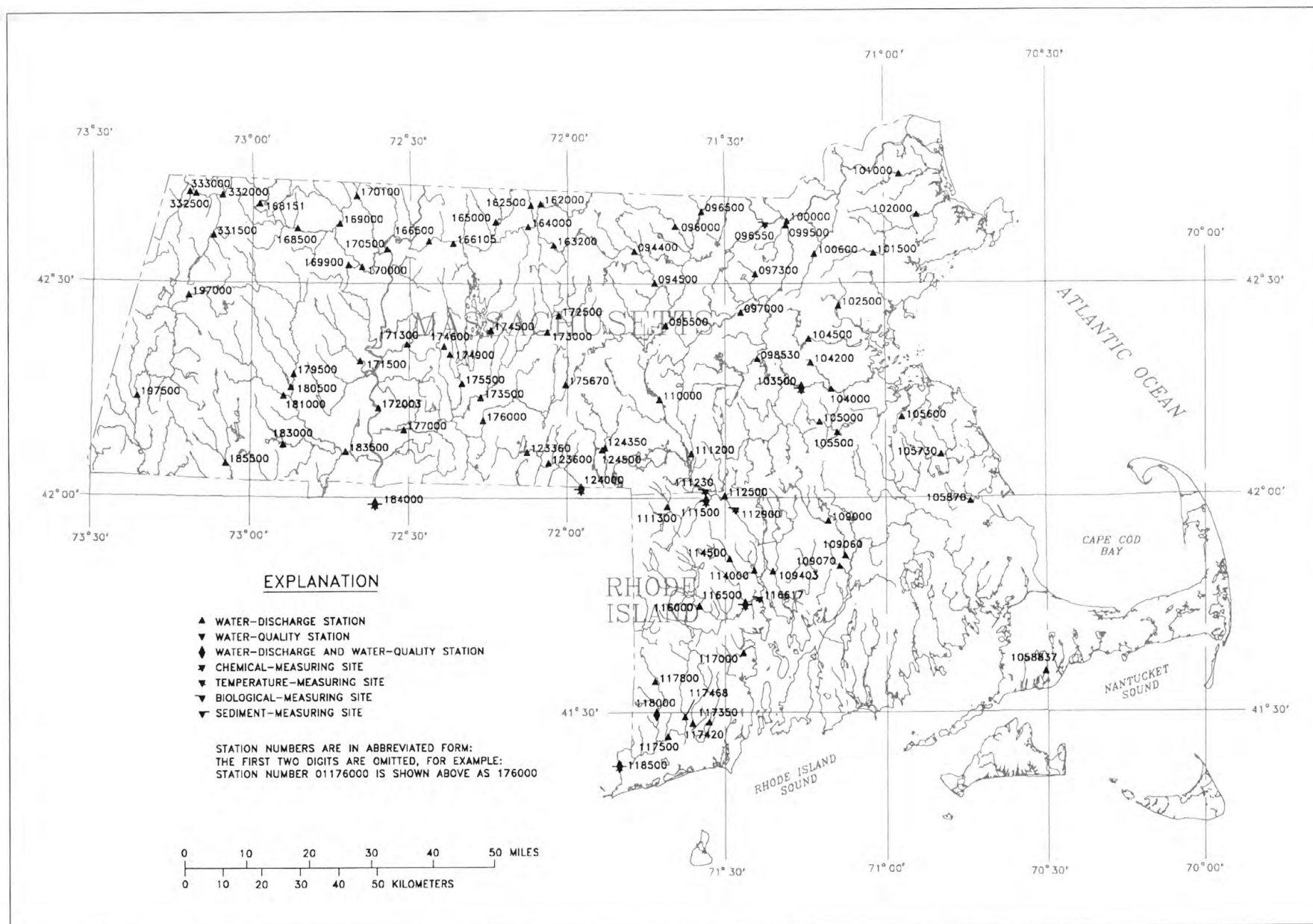


Figure 1.--Location of gaging-stations

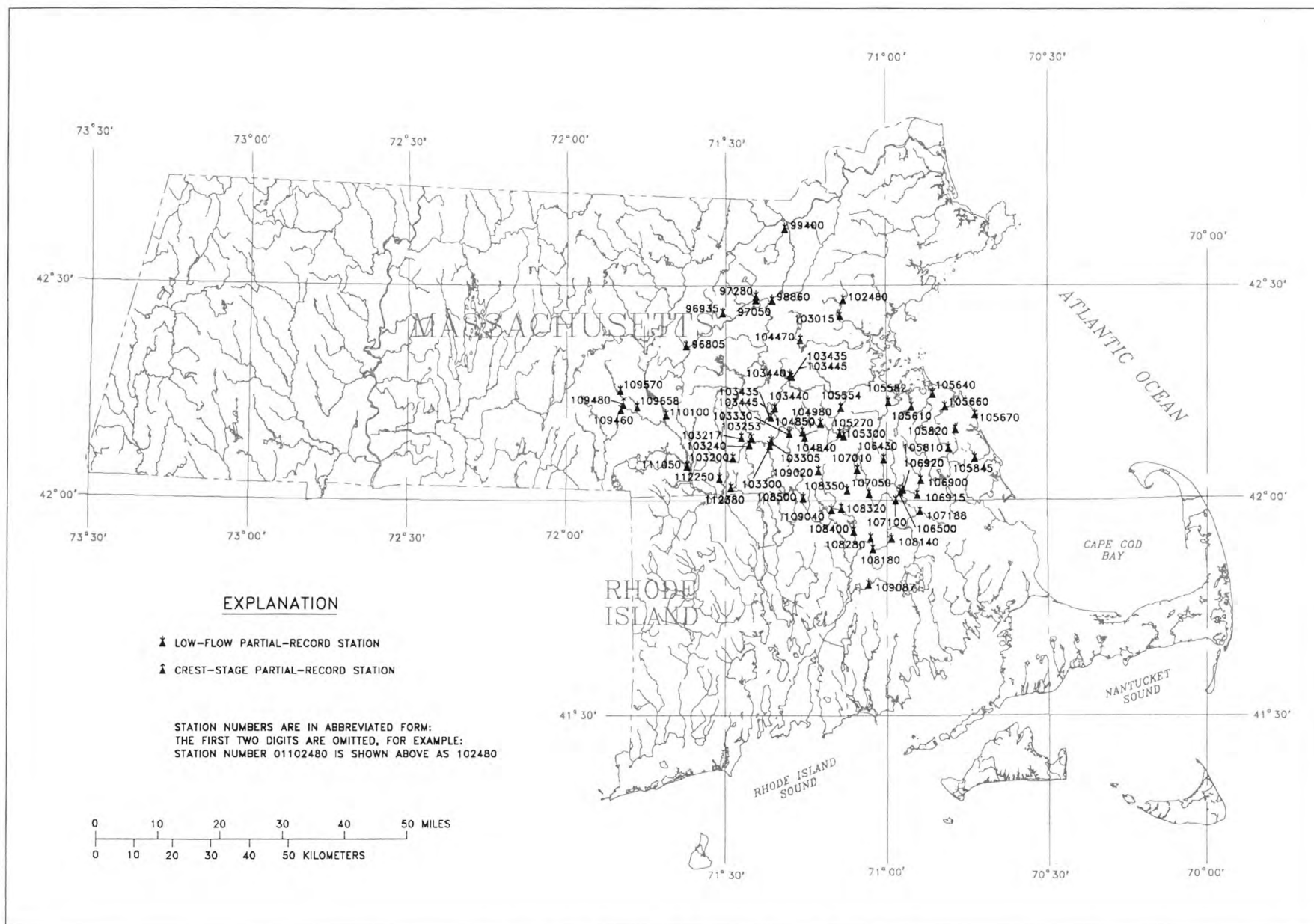
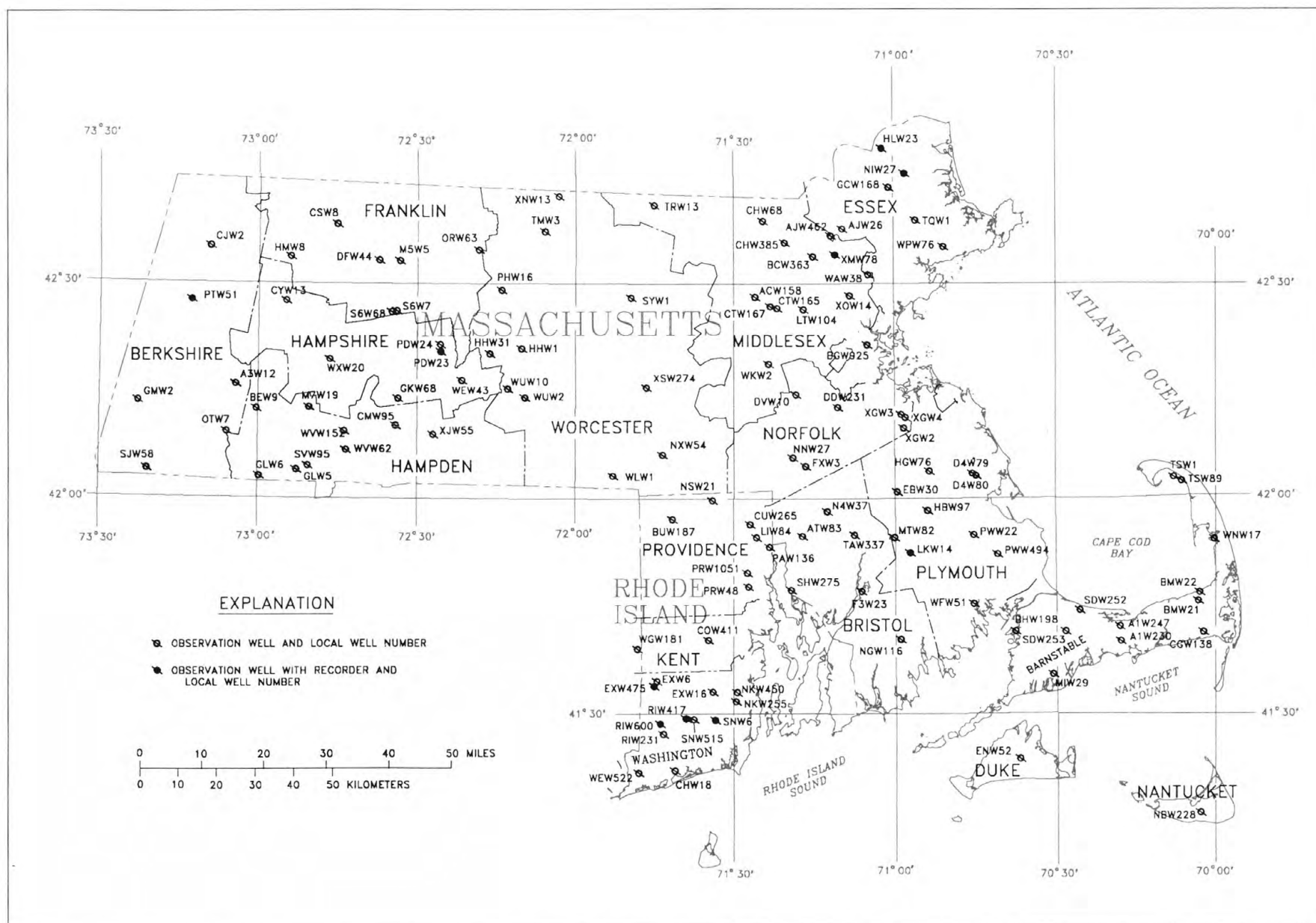


Figure 2.--Location of partial-record stations



Publications similar to this report are published annually by the Geological Survey for all States. These official Survey reports have an identification number consisting of the two-letter State abbreviation, the last two digits of the water year, and the volume number. For example, this volume is identified as "U.S. Geological Survey Water-Data Report MA-RI-90-1." For archiving and general distribution, the reports for 1971-74 water years also are identified as water-data reports. These water-data reports are for sale in paper copy or in microfiche by the National Technical Information Service, U.S. Department of Commerce, Springfield, VA 22161. Additional information, including current prices, for ordering specific reports may be obtained from the Office Chief at the address given on the back of the title page or by telephone (617) 565-6860.

COOPERATION

The U.S. Geological Survey and agencies of the States of Massachusetts and Rhode Island have had cooperative agreements for the collection of streamflow records since 1909 and 1941, respectively, and for water-quality records since 1954. Organizations that assisted in collecting the data in this report through cooperative agreement with the Survey are:

Massachusetts: Department of Environmental Management, Peter Webber, Commissioner, Division of Resource Conservation, Richard H. Thibedeau, Director; Department of Environmental Protection, Daniel Greenbaum, Commissioner, Division of Water Pollution Control, Brian M. Donahoe, Director; Metropolitan District Commission, M. I. Bhatti, Commissioner, Division of Watershed Management, Joseph M. McGinn, Director, Parks Engineering and Construction Division, Fran D. Faucher, Director; Department of Fisheries, Wildlife and Environmental Law Enforcement, John C. Phillips, Commissioner, Division of Fisheries and Wildlife, Wayne F. MacCallum, Director.

Rhode Island: State Water Resources Board, S. M. Wick, Chairman, Thomas Walker, Acting General Manager; Department of Environmental Management, Louise Durfee, Director, Division of Water Resources, E. S. Szysmanski, Chief; Narragansett Bay Water Quality Commission, E. R. Jankel, Executive Director.

Assistance in the form of funds or services was given by the Corps of Engineers, U.S. Army, in

collecting records for 14 gaging stations published in this report.

Organizations supplying data are acknowledged in the station descriptions.

SUMMARY OF HYDROLOGIC CONDITIONS

Runoff for the 1990 water year ranged from 25 to 37 inches at index streamflow-gaging stations in Massachusetts and Rhode Island and was generally in the above-normal range (upper quartile of record). However, runoff differed considerably from month to month during the year. In October and November, runoff was above normal throughout Massachusetts and Rhode Island. December runoff was in the below-normal range (lower quartile of record) in Massachusetts and was normal in Rhode Island. January runoff was normal in both States. Increased precipitation in February produced above-normal runoff. In March, runoff continued above normal in western Massachusetts, was in the normal range in central Massachusetts and northern Rhode Island, and was below normal in eastern Massachusetts and southern Rhode Island. Runoff for the period October through March was above normal in Rhode Island and western Massachusetts, and was normal elsewhere.

Runoff for April was generally below normal except in Rhode Island and eastern Massachusetts, where it was normal. In May runoff was above normal throughout both States except in southern Rhode Island, where it was normal. Runoff for June continued above normal in northeastern and southwestern Massachusetts, and northern Rhode Island, and was in the normal range elsewhere. In July, runoff was normal except in southeastern Massachusetts and southern Rhode Island, where it was above normal. Runoff for August was above normal in Massachusetts and northern Rhode Island and was normal in southern Rhode Island. September runoff was normal throughout both States. Runoff for the period April through September was above normal in northern Rhode Island, southwestern and southeastern Massachusetts, and was normal elsewhere. Monthly and yearly discharges for three index gaging stations and median monthly and yearly discharges for reference period 1951-80 are compared in figure 4.

Peak discharges at most stations occurred about October 21, March 18, April 4, or August 11. Recurrence intervals ranged from 1 to 6 years. In

October, two gaging stations on Cadwell Creek in the Swift River basin recorded new maximums for periods of record.

Storage in Quabbin Reservoir in central Massachusetts ranged from 81 percent full at the end of October to 98 percent full at the end of May, and was 91 percent full at the end of the water year. The combined storage of Borden Brook and Cobble Mountain Reservoirs in the Westfield River basin ranged from 96 percent full at the end of October and May to 83 percent full at the end of the year. Storage in Scituate Reservoir in Rhode Island ranged from 96 percent full at the end of August to 107 percent full at the end of June, and was 101 percent full at the end of the year.

Water-quality measurements of dissolved-oxygen concentrations, pH, specific conductance, and water temperature collected at three sites in Massachusetts and two sites in Rhode Island indicated that values were within the previously measured period-of-record extremes.

Above-normal ground-water levels from the last 4 months of the 1989 water year continued into October. Ground-water levels during October and November remained above normal for Rhode Island and most of Massachusetts. Levels on Cape Cod, however, remained in the normal range during both months. Water-level trends in December and January were mixed, but were generally in the normal range. Levels increased in February and produced above-normal levels in Rhode Island, eastern Massachusetts, and the Connecticut River valley, but levels remained normal in western, central, and southeastern Massachusetts, including Cape Cod. March ground-water levels were above normal west of the Quabbin Reservoir in Massachusetts. Levels in the rest of Massachusetts and in all of Rhode Island were in the normal range. Water-level trends in April were again mixed in Massachusetts and Rhode Island. Above-normal levels were measured in the Connecticut River valley and east-central Massachusetts. Normal levels characterized the remainder of Massachusetts and Rhode Island, except for three small areas of below-normal levels in south-central Massachusetts, south-central and northern Cape Cod. Water levels increased seasonally during May and resulted in above-normal levels, except for southeastern Massachusetts, Cape Cod, and southern Rhode Island, where they were normal. June levels were normal throughout Massachusetts and Rhode Island, except for an area of above-normal levels in northeastern Rhode Island and east-central Massachusetts. During July, levels in

Rhode Island were above normal. Levels in Massachusetts were in the normal range, except for a small area of below-normal levels in the northeastern part of the State. In August, precipitation combined with saturated soil conditions resulted in above-normal ground-water levels in central and western Massachusetts and northern Rhode Island; exceptions were the areas in southern Rhode Island, and northeastern and southeastern Massachusetts including Cape Cod, which were normal. In September, levels remained above normal in eastern Massachusetts and northern Rhode Island. Levels were normal on Cape Cod, western Massachusetts, and southern Rhode Island.

Sixty-one monthly high water levels were recorded in October and November. During October through March, 74 new monthly high water levels and only three new monthly low water levels were recorded. For the period April through September, 45 new monthly high water levels and only three new monthly low water levels were recorded. During the 1990 water year, five new high levels for periods of records were set--three in October and two in May. No new low levels for the periods of record were set at observation wells during the year. The number of observation wells where monthly and period-of-record extremes were set are shown in table 1. Monthly water levels and median, maximum, and minimum monthly levels for the periods of record for three observation wells in western and eastern Massachusetts and northern Rhode Island are shown in figure 5. Beginning with the 1990 edition of "Water Resources Data, Massachusetts and Rhode Island," observation-well data will be followed by water-level hydrographs of the current and previous 4 water years. Presentation of water levels in this form will allow users to visualize water-level fluctuations and trends.

SPECIAL NETWORKS AND PROGRAMS

National Stream Quality Accounting Network (NASQAN) is a nationwide data-collection network designed by the U.S. Geological Survey to meet many of the information needs of government agencies and other groups involved in natural or regional water-quality planning and management.

The 500 or so sites in NASQAN are generally located at the downstream ends of hydrologic

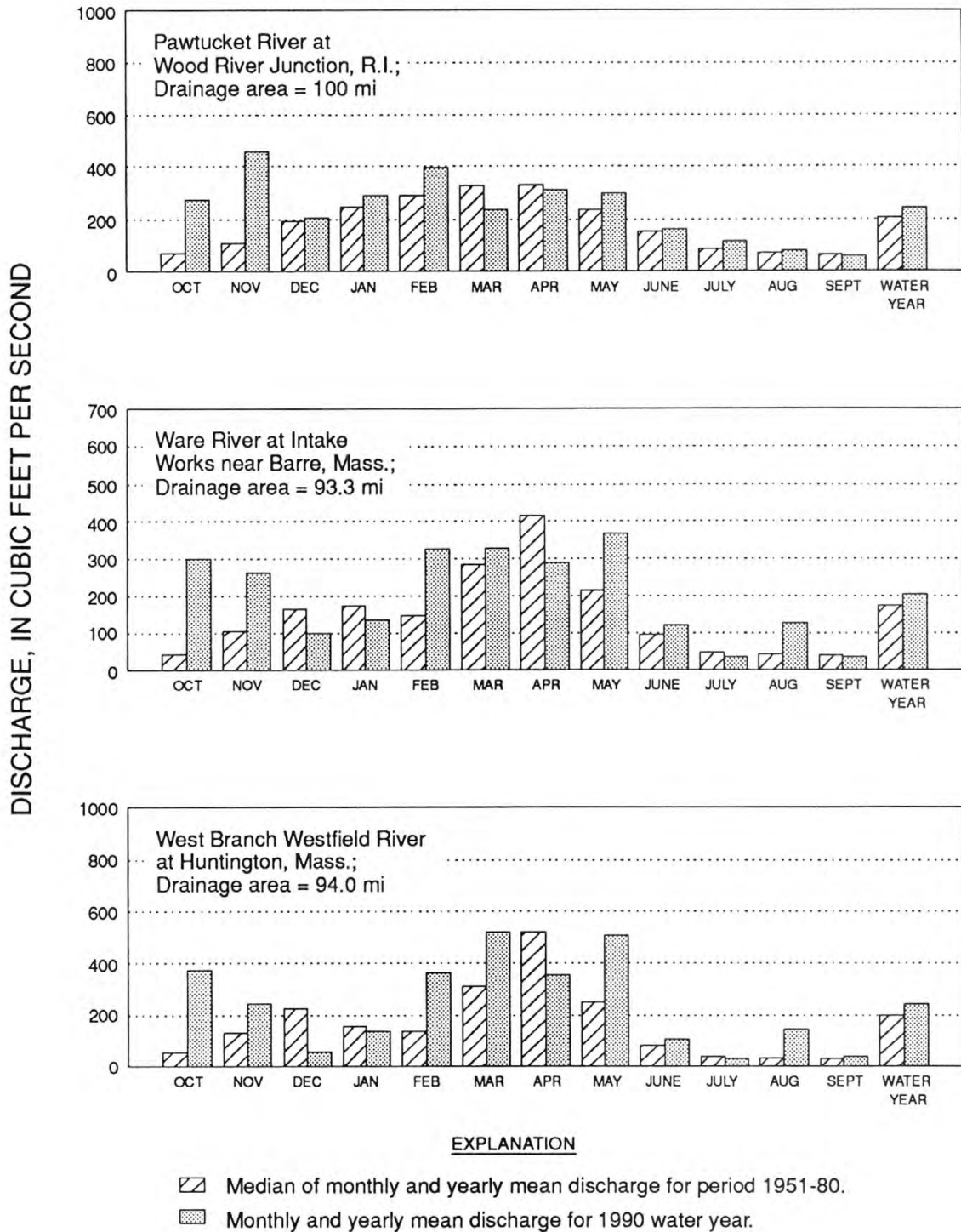


Figure 4.--Comparison of discharge at three long-term index gaging stations during 1990 water year with median discharge for period 1951-80.

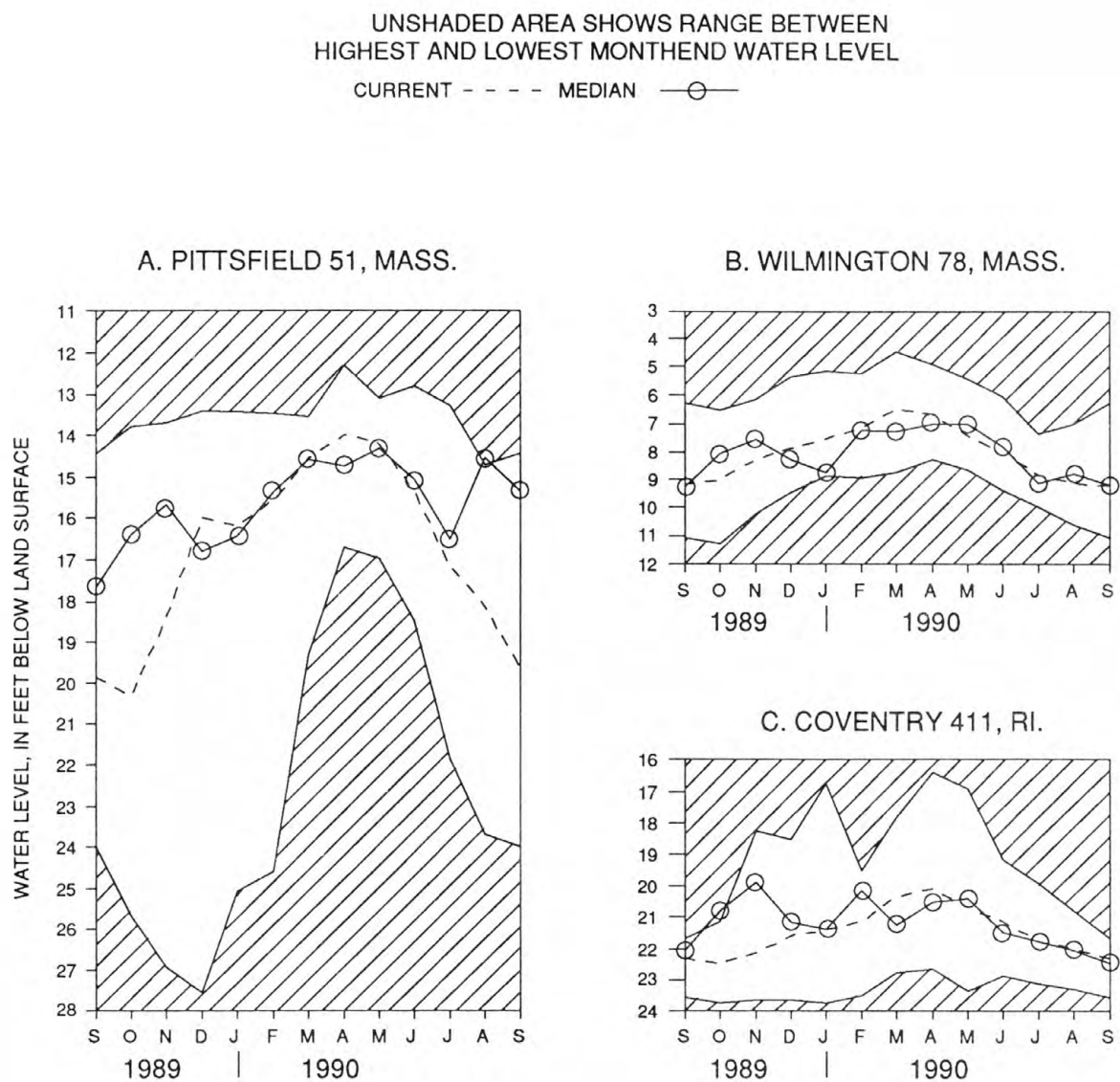


Figure 5.--Comparison of monthly water levels in selected observation wells during 1990 water year with median, maximum, and minimum levels for period of record.

Table 1.--Number of observation wells, by month, in which new high or low water levels were set during the 1990 water year

[Based on a network of 86 Massachusetts wells and 21 Rhode Island wells having 5 or more years of record.]

	MONTH											
	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEPT
NEW HIGH FOR MONTH	38	23	3	2	4	4	4	10	3	3	12	13
NEW HIGH FOR PERIOD OF RECORD	3	--	--	--	--	--	--	2	--	--	--	--
NEW LOW FOR MONTH	--	--	1	1	--	1	--	--	1	2	--	--
NEW LOW FOR PERIOD OF RECORD	--	--	--	--	--	--	--	--	--	--	--	--

accounting units designated by the U.S. Geological Survey Office of Water Data Coordination in consultation with the Water Resources Council. The objectives of NASQAN are (1) to obtain information on the quality and quantity of water moving within and from the United States through a systematic and uniform process of data collection, summarization, analysis, and reporting such that the data may be used for, (2) description of the areal variability of water quality in the Nation's rivers through analysis of data from this and other programs, (3) detection of changes or trends with time in the pattern of occurrence of water-quality characteristics, and (4) providing a nationally consistent data base useful for water-quality assessment and hydrologic research.

EXPLANATION OF THE RECORDS

The surface-water and ground-water records published in this report are for the 1990 water year that began October 1, 1989, and ended September 30, 1990. A calendar of the water year is provided on the inside of the front cover. The records contain streamflow data, stage and content data for lakes and reservoirs, water-quality data for surface water, and ground-water-level data.

The locations of the stations and wells where the data were collected are shown in figures 1, 2 and 3. The following sections of the introductory

text are presented to provide users with a more detailed explanation of how the hydrologic data published in this report were collected, analyzed, computed, and arranged for presentation.

Station-Identification Numbers

Each data station, whether streamsite or well, in this report is assigned a unique identification number. This number is unique in that it applies specifically to a given station and to no other. The number usually is assigned when a station is first established and is retained for that station indefinitely. The systems used by the U.S. Geological Survey to assign identification numbers for surface-water stations and for ground-water well sites differ, but both are based on geographic location. The "downstream order" system is used for surface-water stations and the "latitude-longitude" system is used for wells.

Downstream Order System

Since October 1, 1950, the order of listing hydrologic-station records in Survey reports is in a downstream direction along the main stream. All stations on a tributary entering upstream from a mainstream station are listed before that station. A station on a tributary that enters between two mainstream stations is listed between them. A similar order is followed in listing stations on first rank, second rank, and

other ranks of tributaries. The rank of any tributary with respect to the stream to which it is immediately tributary is indicated by an indentation in the "List of Stations" in the front of this report. Each indentation represents one rank. This downstream order and system of identification shows which stations are on tributaries between any two stations and the rank of the tributary on which each station is situated.

The station-identification number is assigned according to downstream order. In assigning station numbers, no distinction is made between continuous-record stations and other types of stations; therefore, the station number for a continuous-record station indicates downstream-order position in a list made up of all types of stations. Gaps are left in the series of numbers to allow for new stations that may be established; hence, the numbers are not consecutive. The complete station number (usually eight digits, but sometimes nine or more if needed) appears just to the left of the station name. The first two digits indicate the Part number (formerly used in Water-Supply Papers to designate major river systems) and the last six or more digits indicate the downstream order within the Part. For example, in the station number 01094400, "01" is the Part number for "North Atlantic Slope Basins" and "094400" is the downstream order number.

Latitude-Longitude System

The identification numbers for wells are assigned according to the grid system of latitude and longitude. The number consists of 15 digits. The first six digits denote the degrees, minutes, and seconds of latitude, the next seven digits denote degrees, minutes, and seconds of longitude, and the last two digits (assigned sequentially) identify the wells or other sites within a 1-second grid. This site-identification number, once assigned, is a pure number and has no locational significance. In the rare instance where the initial determination of latitude and longitude is found to be in error, the station will retain its initial identification number; however, its true latitude and longitude will be listed in the LOCATION paragraph of the station description. (See figure 6.)

A local well-numbering system is also used in this report. The local well number consists of a 2-letter code for the town in which the well is located followed by a "W" signifying that it is a

well, and a sequential number. The local number is used to identify the location of observation wells on figure 2.

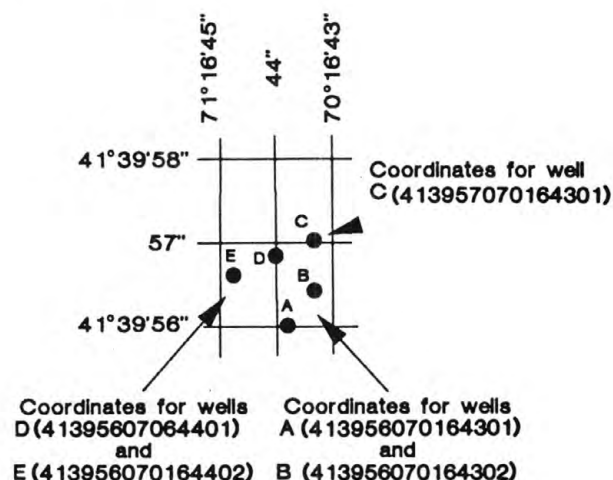


Figure 6.--System for numbering wells (latitude and longitude)

Records of Stage and Water Discharge

Records of stage and water discharge may be complete or partial. Complete records of discharge are those obtained using a continuous stage-recording device through which either instantaneous or mean daily discharges may be computed for any time, or any period of time, during the period of record. Complete records of lake or reservoir content, similarly, are those for which stage or content may be computed or estimated with reasonable accuracy for any time, or period of time. They may be obtained using a continuous stage-recording device, but need not be. Because daily mean discharges and end-of-day contents commonly are published for such stations, they are referred to as "daily stations."

By contrast, partial records are obtained through discrete measurements without using a continuous stage-recording device and pertain only to a few flow characteristics, or perhaps only one. The nature of the partial record is indicated by table titles such as "Crest-stage partial records," or "Low-flow partial records." Records of miscellaneous discharge measurements or measurements from special studies, such as low-flow seepage studies, may be considered as partial

records, but they are presented separately in this report. There were no low-flow stations this year. Location of all complete-record stations for which data are given in this report are shown in figure 1.

Data Collection and Computation

The data obtained at a complete-record gaging station on a stream or canal consist of a continuous record of stage, individual measurements of discharge throughout a range of stages, and notations regarding factors that may affect the relationships between stage and discharge. These data, together with supplemental information, such as weather records, are used to compute daily discharges. The data obtained at a complete-record gaging station on a lake or reservoir consist of a record of stage and of notations regarding factors that may affect the relationship between stage and lake content. These data are used with stage-area and stage-capacity curves or tables to compute water-surface areas and lake storage.

Continuous records of stage are obtained with analog recorders that trace continuous graphs of stage or with digital recorders that punch stage values on paper tapes at selected time intervals. Measurements of discharge are made with current meters using methods adopted by the Geological Survey as a result of experience accumulated since 1880. These methods are described in standard textbooks; in U.S. Geological Survey Techniques of Water-Resources Investigations, Book 3, Chapter A6; and in U.S. Geological Survey Water-Supply Paper 2175, "Measurement and Computation of Stream-flow: Volume 1--Measurement of Stage and Discharge (p. 1-284); Volume 2--Computation of Discharge (p. 285-631)" by S. E. Rantz and others (1982).

In computing discharge records, results of individual measurements are plotted against the corresponding stages, and stage-discharge relation curves are then constructed. From these curves, rating tables indicating the approximate discharge for any stage within the range of the measurements are prepared. If it is necessary to define extremes of discharge outside the range of the current-meter measurements, the curves are extended using: (1) logarithmic plotting; (2) velocity-area studies; (3) results of indirect measurements of peak discharge, such as slope-area or contracted-opening measurements, and

computations of flow over dams or weirs; or (4) step-backwater techniques.

Daily mean discharge is computed by applying the daily mean stage (gage height) to the stage-discharge rating table or by applying each recorded stage in the day to the rating table and computing the mean from the sum of the individual discharges. If the stage-discharge relation is subject to change because of frequent or continual change in the physical features that form the control, the daily mean discharge is determined by the shifting-control method, in which correction factors based on the individual discharge measurements and notes of the personnel making the measurements are applied to the gage heights before the discharges are determined from the curves or tables. This shifting-control method also is used if the stage-discharge relation is changed temporarily because of aquatic growth or debris on the control. For some stations, formation of ice in the winter may so obscure the stage-discharge relations that daily mean discharges must be estimated from other information such as temperature and precipitation records, notes of observations, and records for other stations in the same or nearby basins for comparable periods.

At some stream-gaging stations, the stage-discharge relation is affected by the backwater from reservoirs, tributary streams, or other sources. This necessitates the use of the slope method in which the slope or fall in a reach of the stream is a factor in computing discharge. The slope or fall is obtained by means of an auxiliary gage set at some distance from the base gage. At some stations the stage-discharge relation is affected by changing stage; at these stations the rate of change in stage is used as a factor in computing discharge.

In computing records of lake or reservoir contents, it is necessary to have available from surveys, curves or tables defining the relationship of stage and content. The application of stage to the stage-content curves or tables gives the contents from which daily, monthly, or yearly changes then are determined. If the stage-content relationship changes because of deposition of sediment in a lake or reservoir, periodic resurveys may be necessary to redefine the relationship. Even when this is done, the contents computed may become increasingly in error as the lapsed time since the last survey increases. Discharges over lake or reservoir spillways are computed

from ships much as other stream discharges are computed.

For some gaging stations, there are periods when no gage-height record is obtained, or the recorded gage height is so faulty that it cannot be used to compute daily discharge or contents.

This happens when the recorder stops or otherwise fails to operate properly, intakes are plugged, the float is frozen in the well, or for various other reasons. For such periods, the daily discharges are estimated from the recorded range in stage, previous or following record, discharge measurements, weather records, and comparison with other station records from the same or nearby basins. Likewise, daily contents may be estimated from operator's logs, previous or following record, inflow-outflow studies, and other information. Information explaining how estimated daily-discharge values are identified in station records is included in the next two sections, "Data Presentation" (REMARKS paragraph) and "Identifying Estimated Daily Discharge."

Data Presentation

The records published for each gaging station consist of two parts, the manuscript or station description and the data table for the current water year. The manuscript provides, under various headings, descriptive information, such as station location; period of record; average discharge; historical extremes; record accuracy; and other remarks pertinent to station operation and regulation. The following information, as appropriate, is provided with each continuous record of discharge or lake content. Comments to follow clarify information presented under the various headings of the station description.

LOCATION.--Information on locations is obtained from the most accurate maps available. The location of the gage with respect to the cultural and physical features in the vicinity and with respect to the reference place mentioned in the station name is given. River mileages, given for only a few stations, were determined by methods given in "River Mileage Measurement," Bulletin 14, Revision of October 1968, prepared by the Water Resources Council or were provided by the U.S. Army Corps of Engineers.

DRAINAGE AREA.--Drainage areas are measured using the most accurate maps available. Because the type of maps available

varies from one drainage basin to another, the accuracy of drainage areas likewise varies. Drainage areas are updated as better maps become available.

PERIOD OF RECORD.--This indicates the period for which there are published records for the station or for an equivalent station. An equivalent station is one that was in operation at a time that the present station was not and whose location was such that records from it can reasonably be considered equivalent with records from the present station.

REVISED RECORDS.--Published records, because of new information, occasionally are found to be incorrect, and revisions are printed in later reports. Listed under this heading are all the reports in which revisions have been published for the station and the water years to which the revisions apply. If a revision did not include daily, monthly, or annual figures of discharge, that fact is noted after the year dates as follows: "(M)" means that only the instantaneous maximum discharge was revised; "(m)" that only the instantaneous minimum was revised; and "(P)" that only peak discharges were revised. If the drainage area has been revised, the report in which the most recently revised figure was first published is given.

GAGE.--The type of gage in current use, the datum of the current gage referred to National Geodetic Vertical Datum of 1929 (see glossary), and a condensed history of the types, locations, and datums of previous gages are given under this heading.

REMARKS.--All periods of estimated daily-discharge record will either be identified by date in this paragraph of the station description for water-discharge stations or flagged in the daily-discharge table. (See next section, "Identifying Estimated Daily Discharge.") If a remarks statement is used to identify estimated record, the paragraph will begin with this information presented as the first entry. The paragraph is also used to present information relative to the accuracy of the records, to special methods of computation, to conditions that affect natural flow at the station and, possibly, to other pertinent items. For reservoir stations, information is given on the dam forming the reservoir, the capacity, outlet works and spillway, and purpose and use of the reservoir.

COOPERATION.--Records provided by a cooperating organization or obtained for the

Geological Survey by a cooperating organization are identified here.

AVERAGE DISCHARGE.--The discharge value given is the arithmetic mean of the water-year mean discharges. It is computed only for stations having at least 5 water years of complete record, and only water years of complete record are included in the computation. It is not computed for stations where diversions, storage, or other water-use practices cause the value to be meaningless. If water developments significantly altering flow at a station are put into use after the station has been in operation for a period of years, a new average is computed as soon as 5 water years of record have accumulated following the development. The median of yearly mean discharges also is given under this heading for stations having 10 or more water years of record, if the median differs from the average given by more than 10 percent.

EXTREMES FOR PERIOD OF RECORD.--Extremes may include maximum and minimum stages and maximum and minimum discharges or content. Unless otherwise qualified, the maximum discharge or content is the instantaneous maximum corresponding to the highest stage that occurred. The highest stage may have been obtained from a graphic or digital recorder, a crest-stage gage, or by direct observation of a nonrecording gage. If the maximum stage did not occur on the same day as the maximum discharge or content, it is given separately. Similarly, the minimum is the instantaneous minimum discharge, unless otherwise qualified, and was determined and is reported in the same manner as the maximum.

EXTREMES OUTSIDE PERIOD OF RECORD.--Included here is information concerning major floods or unusually low flows that occurred outside the stated period of record. The information may or may not have been obtained by the U.S. Geological Survey.

EXTREMES FOR CURRENT YEAR.--Extremes given here are similar to those for the period of record, except the peak discharge listing may include secondary peaks. For stations meeting certain criteria, all peak discharges and stages occurring during the and greater than a selected base discharge are presented under this heading. The peaks greater than the base discharge, excluding the highest one, are referred to as secondary peaks. Secondary discharges are not published for canals, ditches, drains, or streams for which the peaks are subject to substantial

control by man. The time of occurrence for peaks is expressed in 24-hour local standard time. For example, 12:30 a.m. is 0030, and 1:30 p.m. is 1330. The minimum for the current water year appears below the table of peak data.

REVISIONS.--If a critical error in published records is discovered, a revision is included in the first report published following discovery of the error. Although rare, occasionally the records of a discontinued gaging station may need revision. Because, for these stations, there would be no current or, possibly, future station manuscript published to document the revision in a "Revised Records" entry, users of data for these stations who obtained the record from previously published data reports may wish to contact the offices whose addresses are given on the back of the title page of this report to determine if the published records were ever revised after the station was discontinued. Of course, if the data were obtained by computer retrieval, the data would be current and there would be no need to check because any published revision of data is always accompanied by revision of the corresponding data in computer storage.

Manuscript information for lake or reservoir stations differs from that for stream stations in the nature of the "Remarks" and in the inclusion of a skeleton stage-capacity table when daily contents are given.

The daily table for stream-gaging stations gives mean discharge for each day and is followed by monthly and yearly summaries. In the monthly summary below the daily table, the line headed "TOTAL" gives the sum of the daily figures. The line headed "MEAN" gives the average flow in cubic feet per second during the month. The lines headed "MAX" and "MIN" give the maximum and minimum daily discharges, respectively, for the month. Discharge for the month also is usually expressed in cubic feet per second per square mile (line headed "CFSM"), or in inches (line headed "IN."), or in acre-feet (line headed "AC-FT"). Figures for cubic feet per second per square mile and runoff in inches are omitted if there is extensive regulation or diversion or if the drainage area includes large noncontributing areas. In the yearly summary below the monthly summary, the figures shown are the appropriate discharges for the calendar and water years. At some stations monthly and (or) yearly observed discharges are adjusted for reservoir storage or diversion, or diversions or

reservoir contents are given. These figures are identified by a symbol and corresponding footnote.

Data collected at partial-record stations follow the information for continuous-record sites. Data for partial-record discharge stations, if any, are presented in two tables. The first is a table of annual maximum stage and discharge at crest-stage stations, and the second is a table of discharge measurements at low-flow partial-record stations. The tables of partial-record stations are followed by a listing of discharge measurements made at sites other than continuous-record or partial-record stations. These measurements are generally made in times of drought or flood to give better areal coverage to those events. Those measurements and others collected for some special reason are called measurements at miscellaneous sites.

Identifying Estimated Daily Discharge

Estimated daily-discharge values published in the water-discharge tables of annual State data reports are identified either by flagging individual daily values with the letter symbol "e" and printing a table footnote, "e Estimated," or by listing the dates of the estimated record in the REMARKS paragraph of the station description.

Accuracy of the Records

The accuracy of streamflow records depends primarily on: (1) The stability of the stage-discharge relation or, if the control is unstable, the frequency of discharge measurements; and (2) the accuracy of measurements of stage, measurements of discharge, and interpretation of records.

The accuracy attributed to the records is indicated under "REMARKS." "Excellent" means that about 95 percent of the daily discharges are within 5 percent of their true values; "good," within 10 percent; and "fair," within 15 percent. Records that do not meet the criteria mentioned are rated "poor." Different accuracies may be attributed to different parts of a given record.

Daily mean discharges in this report are given to the nearest hundredth of a cubic foot per second for values less than 1 ft³/s; to the nearest tenth between 1.0 and 10 ft³/s; to whole numbers between 10 and 1,000 ft³/s; and to 3 significant figures for more than 1,000 ft³/s. The number of

significant figures used is based solely on the magnitude of the discharge value. The same rounding rules apply to discharges listed for partial-record stations and miscellaneous sites.

Discharge at many stations, as indicated by the monthly mean, may not reflect natural runoff due to the effects of diversion, consumption, regulation by storage, increase or decrease in evaporation due to artificial causes, or to other factors. For such stations, figures of cubic feet per second per square mile and of runoff, in inches, are not published unless satisfactory adjustments can be made for diversions, for changes in contents of reservoirs, or for other changes incident to use and control. Evaporation from a reservoir is not included in the adjustments for changes in reservoir contents, unless it is so stated. Even at those stations where adjustments are made, large errors in computed runoff may occur if adjustments or losses are large in comparison with the observed discharge.

Other Records Available

Information used in the preparation of the records in this publication, such as discharge-measurement notes, gage-height records, temperature measurements, and rating tables is on file in the Massachusetts or Rhode Island offices of the New England District. Also, most of the daily mean discharges are in computer-readable form and have been analyzed statistically. Information on the availability of the unpublished information or on the results of statistical analyses of the published records may be obtained from the office whose address is given on the back of the title page of this report.

Records of Surface-Water Quality

Records of surface-water quality ordinarily are obtained at or near stream-gaging stations because interpretation of records of surface-water quality nearly always requires corresponding discharge data. Records of surface-water quality in this report may involve a variety of types of data and measurement frequencies.

Classification of records

Water-quality data for surface-water sites are grouped into one of three classifications. A

continuing-record station is a site where data are collected on a regularly scheduled basis. Frequency may be once or more times daily, weekly, monthly, or quarterly. A partial-record station is a site where limited water-quality data are collected systematically over a period of years. Frequency of sampling is usually less than quarterly. A miscellaneous sampling site is a location other than a continuing or partial-record station where random samples are collected to give better areal coverage to define water-quality conditions in the river basin.

A careful distinction needs to be made between "continuing records", as used in this report, and "continuous recordings," which refers to a continuous graph or a series of discrete values punched at short intervals on a paper tape. Some records of water quality, such as temperature and specific conductance, may be obtained through continuous recordings; however, because of costs, most data are obtained only monthly or less frequently. Locations of stations for which records on the quality of surface water appear in this report are shown in figure 1.

Arrangement of Records

Water-quality records collected at a surface-water daily record station are published immediately following that record, regardless of the frequency of sample collection. Station number and name are the same for both records. Where a surface-water daily record station is not available or where the water quality differs significantly from that at the nearby surface-water station, the continuing water-quality record is published with its own station number and name in the regular downstream-order sequence. Water-quality data for partial-record stations and for miscellaneous sampling sites appear in separate tables following the table of discharge measurements at miscellaneous sites.

On-site Measurements and Sample Collection

In obtaining water-quality data, a major concern needs to be assuring that the data obtained represent the in situ quality of the water. To assure this, certain measurements, such as water temperature, pH, and dissolved oxygen, need to be

made onsite when the samples are taken. To assure that measurements made in the laboratory also represent the in situ water, carefully prescribed procedures need to be followed in collecting the samples, in treating the samples to prevent changes in quality pending analysis, and in shipping the samples to the laboratory.

Procedures for onsite measurements and for collecting, treating, and shipping samples are given in publications on "Techniques of Water-Resources Investigations," Book 1, Chap. D2; Book 3, Chap. C2; Book 5, Chap. A1, A3, and A4. All of these references are listed under "Publication on Techniques of Water-Resources Investigations" which appears at the end of the introductory text.

Detailed information on collecting, treating, and shipping samples may be obtained from the New England District Office whose address is given on the back of the title page of this report.

One sample can define adequately the water quality at a given time if the mixture of solutes throughout the stream cross section is homogeneous. However, the concentration of solutes at different locations in the cross section may vary widely with different rates of water discharge, depending on the source of material and the turbulence and mixing of the stream. Some streams must be sampled through several vertical sections to obtain a representative sample needed for an accurate mean concentration and for use in calculating load. All samples obtained for the National Stream Quality Accounting Network (see definitions) are obtained from at least several verticals. Whether samples are obtained from the centroid of flow or from several verticals depends on flow conditions and other factors which must be evaluated by the collector.

Chemical-quality data published in this report are considered to be the most representative values available for the stations listed. The values reported represent water-quality conditions at the time of sampling as much as possible, consistent with available sampling techniques and methods of analysis. In the rare case where an apparent inconsistency exists between a reported pH value and the relative abundance of carbon dioxide species (carbonate and bicarbonate), the inconsistency is the result of a slight uptake of carbon dioxide from the air by the sample between measurement of pH in the field and determination of carbonate and bicarbonate in the laboratory.

Water temperature

Water temperatures are measured at most of the water-quality stations. In addition, water temperatures are taken at time of discharge measurements for water-discharge stations. For stations where water temperatures are taken manually once or twice daily, the water temperatures are taken at about the same time each day. Large streams have a small diurnal temperature change; shallow streams may have a daily range of several degrees and may follow closely the changes in air temperature. Some streams may be affected by waste-heat discharges.

At stations where recording instruments are used, either mean temperatures or maximum and minimum temperatures for each day are published.

Sediment

Suspended-sediment concentrations are determined from samples collected by using depth-integrating samplers. Samples usually are obtained at several verticals in the cross section, or a single sample may be obtained at a fixed point and a coefficient applied to determine the mean concentration in the cross sections.

During periods of rapidly changing flow or rapidly changing concentration, samples may have been collected more frequently (twice daily or, in some instances, hourly). The published sediment discharges for days of rapidly changing flow or concentration were computed by the subdivided-day method (time-discharge weighted average). Therefore, for those days when the published sediment discharge value differs from the value computed as the product of discharge times mean concentration times 0.0027, the reader can assume that the sediment discharge for that day was computed by the subdivided-day method. For periods when no samples were collected, daily discharges of suspended sediment were estimated on the basis of water discharge, sediment concentrations observed immediately before and after the periods, and suspended-sediment loads for other periods of similar discharge.

At other stations, suspended-sediment samples were collected periodically at many verticals in the stream cross section. Although data collected periodically may represent conditions only at the time of observations, such data are

useful in establishing seasonal relations between quality and streamflow and in predicting long-term sediment-discharge characteristics of the stream.

In addition to the records of suspended-sediment discharge, records of the periodic measurements of the particle-size distribution of the suspended sediment and bed material are included for some stations.

Laboratory Measurements

Sediment samples, samples for biochemical oxygen demand (BOD), samples for indicator bacteria, and daily samples for specific conductance are analyzed locally. All other samples are analyzed in the Geological Survey laboratories in Arvada, Colorado and Doraville, Georgia. Methods used in analyzing sediment samples and computing sediment records are given in TWRI, Book 5, Chap. C1.

Methods used by the Geological Survey laboratory are given in TWRI, Book 1, Chap. D2; Book 3, Chap. C2; Book 5, Chap. A1, A3, and A4.

Data Presentation

For continuing-record stations, information pertinent to the history of station operation is provided in descriptive headings preceding the tabular data. These descriptive headings give details regarding location, drainage area, period of record, type of data available, instrumentation, general remarks, cooperation, and extremes for parameters currently measured daily. Tables of chemical, physical, biological, radiochemical data, and so forth, obtained at a frequency less than daily are presented first. Tables of "daily values" of specific conductance, pH, water temperature, dissolved oxygen, and suspended sediment then follow in sequence.

In the descriptive headings, if the location is identical to that of the discharge, neither the LOCATION nor the DRAINAGE AREA statements are repeated. The following information, as appropriate, is provided with each continuous-record station. Comments that follow clarify information presented under the various headings of the station description.

LOCATION.--See Data Presentation under "Records of Stage and Water Discharge;" same comments apply.

DRAINAGE AREA.--See Data Presentation under "Records of Stage and Water Discharge;" same comments apply.

PERIOD OF RECORD.--This indicates the periods for which there are published water-quality records for the station. The periods are shown separately for records of parameters measured daily or continuously and those measured less than daily. For those measured daily or continuously, periods of record are given for the parameters individually.

INSTRUMENTATION.--Information on instrumentation is given only if a water-quality monitor temperature record, sediment pumping sampler, or other sampling device is in operation at a station.

REMARKS.--Remarks provide added information pertinent to the collection, analysis, or computation of the records.

COOPERATION.--Records provided by a cooperating organization or obtained for the Geological Survey by a cooperating organization are identified here.

EXTREMES.--Maximums and minimums are given only for parameters measured daily or more frequently. None are given for parameters measured weekly or less frequently, because the true maximums or minimums may not have been sampled. Extremes, when given, are provided for both the period of record and for the current water year.

REVISIONS.--If errors in published water-quality records are discovered after publication, appropriate updates are made to the Water-Quality File in the U.S. Geological Survey's computerized data system, WATSTORE, and subsequently by monthly transfer of update transactions to the U.S. Environmental Protection Agency's STORET system. Because the usual volume of updates makes it impractical to document individual changes in the State data-report series or elsewhere, potential users of U.S. Geological Survey water-quality data are encouraged to obtain all required data from the appropriate computer file to insure the most recent updates.

The surface-water-quality records for partial-record stations and miscellaneous sampling sites are published in separate tables following the table of discharge measurements at miscellaneous sites. No descriptive statements are given for these records. Each station is published with its own station number and name in the regular downstream-order sequence.

Remark Codes

The following remark codes may appear with the water-quality data in this report:

Printed Output	Remark
E	Estimated value
>	Actual value is known to be greater than the value shown
<	Actual value is known to be less than the value shown
K	Results based on colony count outside the acceptance range (non-ideal colony count)
L	Biological organism count less than 0.5 percent (organism may be observed rather than counted)
D	Biological organism count equal to or greater than 15 percent (dominant)
&	Biological organism estimated as dominant

Records of Ground-Water Levels

Only water-level data from a national network of observation wells are given in this report. These data are intended to provide a sampling and historical record of water-level changes in the Nation's most important aquifers. Locations of the observation wells in this network in Massachusetts and Rhode Island are shown in figure 2.

Data Collection and Computation

Measurements of water levels are made in many types of wells under varying conditions, but the methods of measurement are standardized to the extent possible. The equipment and measuring techniques used at each observation well ensure that measurements at each well are of consistent accuracy and reliability.

Tables of water-level data are presented by counties arranged in alphabetical order. The prime identification number for a given well is the 15-digit number that appears in the upper left corner of the table. The secondary identification number is the local well number, an alphanumeric

number, derived from the township-range location of the well.

Water-level records are obtained from direct measurements with a steel tape or from the graph or punched tape of a water-stage recorder. The water-level measurements in this report are given in feet with reference to land-surface datum (lsd). Land-surface datum is a datum plane that is approximately at land surface at each well. If known, the elevation of the land-surface datum is given in the well description. The height of the measuring point (MP) above or below land-surface datum is given in each well description. Water levels in wells equipped with recording gages are reported daily or for every fifth day and the end of each month (eom).

Water levels are reported to as many significant figures as can be justified by the local conditions. For example, in a measurement of a depth to water of several hundred feet, the error of determining the absolute value of the total depth to water may be a few tenths of a foot, whereas the error in determining the net change of water level between successive measurements may be only a hundredth or a few hundredths of a foot. For lesser depths to water, the accuracy is greater. Accordingly, most measurements are reported to a hundredth of a foot, but some are given to a tenth of a foot or a larger unit.

Data Presentation

Each well record consists of three parts, the station description, the data table of water levels observed during the water year, and the hydrograph showing water level fluctuations during the most recent five-year period. The description of the well is presented first through use of descriptive headings preceding the tabular data. The comments to follow clarify information presented under the various headings.

LOCATION.--This paragraph follows the well-identification number and reports the latitude and longitude (given in degrees, minutes, and seconds); a landline location designation; the hydrologic-unit number; the distance and direction from a geographic point of reference; and the owner's name.

AQUIFER.--This entry designates by name (if a name exists) and geologic age the aquifer(s) open to the well.

WELL CHARACTERISTICS.--This entry describes the well in terms of depth, diameter,

casing depth and/or screened interval, method of construction, use, and additional information such as casing breaks, collapsed screen, and other changes since construction.

INSTRUMENTATION.--This paragraph provides information on both the frequency of measurement and the collection method used, allowing the user to better evaluate the reported water-level extremes by knowing whether they are based on weekly, monthly, or some other frequency of measurement.

DATUM.--This entry describes both the measuring point and the land-surface elevation at the well. The measuring point is described physically (such as top of collar, notch in top of casing, plug in pump base, and so on), and in relation to land surface (such as 1.3 ft above land-surface datum). The elevation of the land-surface datum is described in feet above (or below) National Geodetic Vertical Datum of 1929 (NGVD of 1929); it is reported with a precision depending on the method of determination.

REMARKS.--This entry describes factors that may influence the water level in a well or the measurement of the water level. It should identify wells that also are water-quality observation wells, and may be used to acknowledge the assistance of local (non-Survey) observers.

PERIOD OF RECORD.--This entry indicates the period for which there are published records for the well. It reports the month and year of the start of publication of water-level records by the U.S. Geological Survey and the words "to current year" if the records are to be continued into the following year. Periods for which water-level records are available, but are not published by the Geological Survey, may be noted.

EXTREMES FOR PERIOD OF RECORD.--This entry contains the highest and lowest water levels of the period of published record, with respect to land-surface datum, and the dates of their occurrence.

A table of water levels follows the station description for each well. Water levels are reported in feet below land-surface datum. For most wells all taped measurements of water level are published. For wells equipped with digital recorders, tables of daily mean water levels and the means, highs, and lows for each month are published. Abbreviated tables are published for wells equipped with analog recorders; water level highs are shown for every fifth day and the end of each month (eom). The highest and lowest water

levels of the water year and their dates of occurrence are shown on a line below the daily or abbreviated table. Because all values are not published for wells with recorders, the extremes may be values that are not listed in the table.

Missing records are indicated by dashes in place of the water level.

ACCESS TO WATSTORE DATA

The National **WATER** Data **STORage** and **REtrieval** System (WATSTORE) was established for handling water data collected through the activities of the U.S. Geological Survey and to provide for more effective and efficient means of releasing the data to the public. The system is operated and maintained on the central computer facilities of the Survey at its National Center in Reston, Virginia.

WATSTORE can provide a variety of useful products ranging from simple data tables to complex statistical analyses. A minimal fee, plus the actual computer cost incurred in producing a desired product, is charged to the requester. Information about the availability of specific types of data, the acquisition of data or products, and user charges can be obtained locally from the office whose address is given on the back of the title page.

General inquiries about WATSTORE may be directed to:

**Chief Hydrologist
U.S. Geological Survey
437 National Center
Reston, VA 22092**

DEFINITION OF TERMS

Terms related to streamflow, water-quality, and other hydrologic data, as used in this report, are defined below. See also table for converting English units to International System (SI) Units on the inside of the back cover.

Acre-foot (AC-FT, acre-ft) is the quantity of water required to cover 1 acre to a depth of 1 foot and is equivalent to 43,560 ft³ or about 326,000 gallons or 1,233 m³.

Adenosine triphosphate (ATP) is an organic, phosphate-rich, compound important in the transfer of energy in organisms. Its central role in living cells makes it an excellent indicator of

the presence of living material in water. A measure of ATP therefore provides a sensitive and rapid estimate of biomass. ATP is reported in micrograms per liter of the original water sample.

Algae are mostly aquatic single-celled, colonial, or multicelled plants, containing chlorophyll and lacking roots, stems, and leaves.

Algal growth potential (AGP) is the maximum algal dry weight biomass that can be produced in a natural water sample under standardized laboratory conditions. The growth potential is the algal biomass present at stationary phase and is expressed as milligrams dry weight of algae produced per liter of sample.

Aquifer is a geologic formation, group of formations, or part of a formation that contains sufficient saturated permeable material to yield significant quantities of water to wells and springs.

Artesian means confined and is used to describe a well in which the water level stands above the top of the aquifer tapped by the well. A flowing artesian well is one in which the water level is above the land surface.

Bacteria are microscopic unicellular organisms, typically spherical, rodlike, or spiral and threadlike in shape, often clumped into colonies. Some bacteria cause disease, while others perform an essential role in nature in the recycling of materials; for example, by decomposing organic matter into a form available for reuse by plants.

Total coliform bacteria are a particular group of bacteria that are used as indicators of possible sewage pollution. They are characterized as aerobic or facultative anaerobic, gram-negative, nonspore-forming, rod-shaped bacteria which ferment lactose with gas formation within 48 hours at 35°. In the laboratory these bacteria are defined as all the organisms that produce colonies with a golden-green metallic sheen within 24 hours when incubated at 35° plus or minus 1.0° on M-Endo medium (nutrient medium for bacterial growth). Their concentrations are expressed as number of colonies per 100 mL of sample.

Fecal coliform bacteria are bacteria that are present in the intestine or feces of warm-blooded animals. They are often used as indicators of the sanitary quality of the water. In the laboratory they are defined as all organisms that produce blue colonies within 24 hours when

incubated at 44.5° plus or minus 0.2° on M-F° medium (nutrient medium for bacterial growth). Their concentrations are expressed as number of colonies per 100 mL of sample.

Fecal streptococcal bacteria are bacteria found also in the intestine of warm-blooded animals. Their presence in water is considered to verify fecal pollution. They are characterized as gram-positive, cocci bacteria which are capable of growth in brain-heart infusion broth. In the laboratory they are defined as all the organisms which produce red or pink colonies within 48 hours at 35° plus or minus 1.0° on KF-streptococcus medium (nutrient medium for bacterial growth). Their concentrations are expressed as number of colonies per 100 mL of sample.

Bed material is the sediment mixture of which a streambed, lake, pond, reservoir, or estuary bottom is composed.

Biochemical oxygen demand (BOD) is a measure of the quantity of dissolved oxygen, in milligrams per liter, necessary for the decomposition of organic matter by micro-organisms, such as bacteria.

Biomass is the amount of living matter present at any given time, expressed as the mass per unit area or volume of habitat.

Ash mass is the mass or amount of residue present after the residue from the dry mass determination has been ashed in a muffle furnace at a temperature of 500° for 1 hour. The ash mass values of zooplankton and phytoplankton are expressed in grams per cubic meter, and periphyton and benthic organisms in grams per square mile.

Dry mass of refers to the mass of residue present after drying in an oven at 105° for zooplankton and periphyton, until the mass remains unchanged. This mass represents the total organic matter, ash and sediment, in the sample. Dry-mass values are expressed in the same units as ash mass.

Organic mass or volatile mass of the living substance is the difference between the dry mass and ash mass and represents the actual mass of the living matter. The organic mass is expressed in the same units as for ash mass and dry mass.

Wet mass is the mass of living matter plus contained water.

Bottom material: See "Bed material."

Cells/volume refers to the number of cells of any organism which is counted by using a microscope and grid or counting cell. Many planktonic organisms are multicelled and are counted according to the number of contained cells per sample, usually milliliters or liters.

Chemical oxygen demand (COD) is a measure of the chemically oxidizable material in the water and furnishes an approximation of the amount of organic and reducing material present. The determined value may correlate with natural water color or with carbonaceous organic pollution from sewage or industrial wastes.

Chlorophyll refers to the green pigments of plants. Chlorophyll a and b are the two most common green pigments in plants.

Color unit is produced by 1 milligram per liter of platinum in the form of the chloroplatinate ion. Color is expressed in units of the platinum-cobalt scale.

Contents is the volume of water in a reservoir or lake. Unless otherwise indicated, volume is computed on the basis of a level pool and does not include bank storage.

Control designates a feature downstream from the gage that determines the stage-discharge relation at the gage. This feature may be a natural constriction of the channel, an artificial structure, or a uniform cross section over a long reach of the channel.

Control structure as used in this report is a structure on a stream or canal that is used to regulate the flow or stage of the stream or to prevent the intrusion of salt water.

Cubic foot per second (ft³/s) is the rate of discharge representing a volume of 1 ft³ passing a given point during 1 second and is equivalent to 7.48 gal/s or 448.8 gal/min or 0.02832 m³/s.

Cubic feet per second per square mile [(ft³/s)/mi²] is the average number of cubic feet of water flowing per second from each square mile of area drained, assuming that the runoff is distributed uniformly in time and area.

Discharge is the volume of water (or more broadly, volume of fluid plus suspended sediment) that passes a given point within a given period of time.

Mean discharge (MEAN) is the arithmetic mean of individual daily mean discharges during a specific period.

Instantaneous discharge is the discharge at a particular instant of time.

Dissolved refers to that material in a representative water sample which passes through a 0.45-mm membrane filter. This is a convenient operational definition used by Federal agencies that collect water data. Determinations of "dissolved" constituents are made on subsamples of the filtrate.

Dissolved-solids concentration of water is determined either analytically by the "residue-on-evaporation" method, or mathematically by totaling the concentrations of individual constituents reported in a comprehensive chemical analysis. During the analytical determination of dissolved solids, the bicarbonate (generally a major dissolved component of water) is converted to carbonate. Therefore, in the mathematical calculation of dissolved-solids concentration, the bicarbonate value, in milligrams per liter, is multiplied by 0.492 to reflect the change.

Drainage area of a stream at a specified location is that area, measured in a horizontal plane, enclosed by a topographic divide from which direct surface runoff from precipitation normally drains by gravity into the stream above the specified point. Figures of drainage area given herein include all closed basins, or noncontributing areas, within the area unless otherwise specified.

Drainage basin is a part of the surface of the earth that is occupied by a drainage system, which consists of a surface stream or a body of impounded surface water together with all tributary surface streams and bodies of impounded surface water.

Gage height (G.H.) is the water-surface elevation referred to some arbitrary gage datum. Gage height is often used interchangeably with the more general term "stage," although gage height is more appropriate when used with a reading on a gage.

Gaging station is a particular site on a stream, canal, lake, or reservoir where systematic observations of hydrologic data are obtained.

Hardness of water is a physical-chemical characteristic that is commonly recognized by the increased quantity of soap required to produce lather. It is computed as the sum of equivalents of polyvalent cations and is expressed as the

equivalent concentration of calcium carbonate (CaCO_3).

Hydrologic Bench-Mark Network is a network of 57 sites in small drainage basins around the country whose purpose is to provide consistent data on the hydrology, including water quality, and related factors in representative undeveloped watersheds nationwide, and to provide analyses on a continuing basis to compare and contrast conditions observed in basins more obviously affected by the activities of man.

Hydrologic unit is a geographic area representing part or all of a surface drainage basin or distinct hydrologic feature as delineated by the Office of Water Data Coordination on the State Hydrologic Unit Maps; each hydrologic unit is identified by an eight-digit number.

Land-surface datum (lsd) is a datum plane that is approximately at land surface at each ground-water observation well.

Measuring point (MP) is an arbitrary permanent reference point from which the distance to the water surface in a well is measured to obtain the water level.

Metamorphic stage refers to the stage of development that an organism exhibits during its transformation from an immature form to an adult form. This developmental process exists for most insects, and the degree of difference from the immature stage to the adult form varies from relatively slight to pronounced, with many intermediates. Examples of metamorphic stages of insects are egg-larva-adult or egg-nymph-adult.

Methylene blue active substances (MBAS) are apparent detergents. The determination depends on the formation of a blue color when methylene blue dye reacts with synthetic anionic detergent compounds.

Micrograms per gram ($\mu\text{G/G}$, $\mu\text{g/g}$) is a unit expressing the concentration of a chemical constituent as the mass (micrograms) of the element per unit mass (gram) of material analyzed.

Micrograms per liter ($\mu\text{G/L}$, $\mu\text{g/L}$) is a unit expressing the concentration of chemical constituents in solution as mass (micrograms) of solute per unit volume (liter) of water. One thousand micrograms per liter is equivalent to one milligram per liter.

Milligrams per liter (MG/L, mg/L) is a unit for expressing the concentration of chemical

constituents in solution. Milligrams per liter represents the mass of solute per unit volume (liter) of water. Concentration of suspended sediment also is expressed in milligrams per liter and is based on the mass of dry sediment per liter of water-sediment mixture.

National Geodetic Vertical Datum of 1929 (NGVD of 1929) is a geodetic datum derived from a general adjustment of the first order level nets of both the United States and Canada. It was formerly called "Sea Level Datum of 1929" or "mean sea level" in this series of reports. Although the datum was derived from the average sea level over a period of many years at 26 tide stations along the Atlantic, Gulf of Mexico, and Pacific Coasts, it does not necessarily represent local mean sea level at any particular place.

National Stream Quality Accounting Network (NASQAN) is a nationwide data-collection network designed by the U.S. Geological Survey to meet many of the information needs of government agencies and other groups involved in natural or regional water-quality planning and management. The 500 or so sites in NASQAN are generally located at the downstream ends of hydrologic accounting units designated by the U.S. Geological Survey Office of Water Data Coordination in consultation with the Water Resources Council. The objectives of NASQAN are (1) to obtain information on the quality and quantity of water moving within and from the United States through a systematic and uniform process of data collection, summarization, analysis, and reporting such that the data may be used for, (2) description of the areal variability of water quality in the Nation's rivers through analysis of data from this and other programs, (3) detection of changes or trends with time in the pattern of occurrence of water-quality characteristics, and (4) providing a nationally consistent data base useful for water-quality assessment and hydrologic research.

The National Trends Network (NTN) is a 150-station network for sampling atmospheric deposition in the United States. The purpose of the network is to determine the variability, both in location and in time, of the composition of atmospheric deposition, which includes snow, rain, dust-particles, aerosols, and gases. The core from which the NTN was built was the already-existing deposition-monitoring network of the National Atmospheric Deposition Program.

Organism count/volume refers to the number of organisms collected and enumerated in a sample and adjusted to the number per sample volume, usually milliliter or liter. Numbers of planktonic organisms can be expressed in these terms.

Total organism count is the total number of organisms collected and enumerated in any particular sample.

Parameter Code is a 5-digit number used in the Survey's computerized data system, WATSTORE, to uniquely identify a specific constituent. The codes used in WATSTORE are the same as those used in the U.S. Environmental Protection Agency data system, STORET. The Environmental Protection Agency assigns and approves all requests for new codes.

Partial-record station is a particular site where limited streamflow and (or) water-quality data are collected systematically over a period of years for use in hydrologic analyses.

Particle size is the diameter, in millimeters, of a particle determined by either sieve or sedimentation methods. Sedimentation methods (pipet, bottom-withdrawal tube, visual-accumulation tube) determine fall diameter of particles in either distilled water (chemically dispersed) or in native water (the river water at the time and point of sampling).

Particle-size classification used in this report agrees with the recommendations made by the American Geophysical Union Subcommittee on Sediment Terminology. The classification is as follows:

Classifi- cation	Size (mm)	Method of analysis
Clay.....	0.00024 - 0.004.....	Sedimentation
Silt.....	0.004 - 0.062.....	Sedimentation
Sand.....	0.062 - 2.0.....	Sedimentation or sieve
Gravel.....	2.0 - 64.0.....	Sieve

The particle-size distributions given in this report are not necessarily representative of all particles in transport in the stream. Most of the organic matter is removed, and the sample is subjected to mechanical and chemical dispersion before analysis in distilled water. Chemical dispersion is not used for native-water analysis.

Percent composition is a unit for expressing the ratio of a particular part of a sample or population to the total sample or

population, in terms of types, numbers, mass, or volume.

Periphyton is the assemblage of microorganisms attached to and living upon submerged solid surfaces. While primarily consisting of algae, they also include bacteria, fungi, protozoa, rotifers, and other small organisms.

Pesticides are chemical compounds used to control undesirable organisms. Major categories of pesticides include insecticides, miticides, fungicides, herbicides, and rodenticides.

Picocurie (PC, pCi) is one trillionth (1×10^{-12}) of the amount of radioactivity represented by a curie (Ci). A curie is the amount of radioactivity that yields 3.7×10^{10} radioactive disintegrations per second. A picocurie yields 2.22 dpm (disintegrations per minute).

Plankton is the community of suspended, floating, or weakly swimming organisms that live in the open water of lakes and rivers.

Phytoplankton is the plant part of the plankton. They are usually microscopic and their movement is subject to the water currents. Phytoplankton growth is dependent upon solar radiation and nutrient substances. Because they are able to incorporate as well as release materials to the surrounding water, the phytoplankton have a profound effect upon the quality of the water. They are the primary food producers in the aquatic environment and are commonly known as algae.

Blue-green algae are a group of phytoplankton organisms having a blue pigment, in addition to the green pigment called chlorophyll. Blue-green algae often cause nuisance conditions in water.

Diatoms are the unicellular or colonial algae having a siliceous shell. Their concentrations are expressed as number of cells per milliliter of sample.

Green algae have chlorophyll pigments similar in color to those of higher green plants. Some forms produce algae mats or floating "moss" in lakes. Their concentrations are expressed as number of cells per milliliter of sample.

Zooplankton is the animal part of the plankton. Zooplankton are capable of extensive movements within the water column and are often large enough to be seen with the unaided eye.

Zooplankton are secondary consumers feeding upon bacteria, phytoplankton, and detritus. Because they are the grazers in the aquatic environment, the zooplankton are a vital part of the aquatic food web. The zooplankton community is dominated by small crustaceans and rotifers.

Primary productivity is a measure of the rate at which new organic matter is formed and accumulated through photosynthetic and chemosynthetic activity of producer organisms (chiefly, green plants). The rate of primary production is estimated by measuring the amount of oxygen released (oxygen method) or the amount of carbon assimilated by the plants (carbon method).

Milligrams of carbon per area or volume per unit time [$\text{mg C}/(\text{m}^2 \cdot \text{time})$] for periphyton and macrophytes and [$\text{mg C}/(\text{m}^3 \cdot \text{time})$] for phytoplankton are units for expressing primary productivity. They define the amount of carbon dioxide consumed as measured by radioactive carbon (carbon 14). The carbon 14 method is of greater sensitivity than the oxygen light and dark bottle method and is preferred for use in unenriched waters. Unit time may be either the hour or day, depending on the incubation period.

Milligrams of oxygen per area or volume per unit time [$\text{mg O}_2/(\text{m}^2 \cdot \text{time})$] for periphyton and macrophytes and [$\text{mg O}_2/(\text{m}^3 \cdot \text{time})$] for phytoplankton are the units for expressing primary productivity. They define production and respiration rates as estimated from changes in the measured dissolved-oxygen concentration. The oxygen light and dark bottle method is preferred if the rate of primary production is sufficient for accurate measurements to be made within 24 hours. Unit time may be either the hour or day, depending on the incubation period.

Radiochemical program is a network of regularly sampled water-quality stations where samples are collected to be analyzed for radioisotopes. The streams that are sampled represent major drainage basins in the conterminous United States.

Recoverable from bottom material is the amount of a given constituent that is in solution after a representative sample of bottom material has been digested by a method (usually using an acid or mixture of acids) that results in dissolution of readily soluble substances. Complete dissolution of all bottom material is not

achieved by the digestion treatment and thus the determination represents less than the total amount (that is, less than 95 percent) of the constituent in the sample. To achieve comparability of analytical data, equivalent digestion procedures would be required of all laboratories performing such analyses because different digestion procedures are likely to produce different analytical results.

Return period is the average time interval between occurrences of a hydrological event of a given or greater magnitude, usually expressed in years. May also be called recurrence interval.

Runoff in inches (IN., in.) shows the depth to which the drainage area would be covered if all the runoff for a given time period were uniformly distributed on it.

Sediment is solid material that originates mostly from disintegrated rocks and is transported by, suspended in, or deposited from water; it includes chemical and biochemical precipitates and decomposed organic material, such as humus. The quantity, characteristics, and cause of the occurrence of sediment in streams are influenced by environmental factors. Some major factors are degree of slope, length of slope, soil characteristics, land usage, and quantity and intensity of precipitation.

Bed load is the sediment that is transported in a stream by rolling, sliding, or skipping along the bed and very close to it. In this report, bed load is considered to consist of particles in transit within 0.25 ft of the streambed.

Bed load discharge (tons per day) is the quantity of bed load measured by dry weight that moves past a section as bed load in a given time.

Suspended sediment is the sediment that at any given time is maintained in suspension by the upward components of turbulent currents or that exists in suspension as a colloid.

Mean concentration is the time-weighted concentration of suspended sediment passing a stream section during a 24-hour day.

Suspended-sediment load is a general term that refers to material in suspension. It is not synonymous with either discharge or concentration.

Total sediment discharge (tons/day) is the sum of the suspended-sediment discharge and

the bed-load discharge. It is the total quantity of sediment, as measured by dry mass or volume, that passes a section during a given time.

Total-sediment load or total load is a term which refers to the total sediment (bed load plus suspended-sediment load) that is in transport. It is not synonymous with total-sediment discharge.

7-day 10-year low flow ($7Q_{10}$) is the discharge at the 10-year recurrence interval taken from a frequency curve of annual values of the lowest mean discharge for 7 consecutive days (the 7-day low flow).

Sodium-adsorption-ratio (SAR) is the expression of relative activity of sodium ions in exchange reactions within soil and is an index of sodium or alkali hazard to the soil. Waters range in respect to sodium hazard from those which can be used for irrigation on almost all soils to those which are generally unsatisfactory for irrigation.

Solute is any substance that is dissolved in water.

Specific conductance is a measure of the ability of a water to conduct an electrical current. It is expressed in microsiemens per centimeter at 25°. Specific conductance is related to the type and concentration of ions in solution and can be used for approximating the dissolved-solids content of the water. Commonly, the concentration of dissolved solids (in milligrams per liter) is about 65 percent of the specific conductance (in microsiemens). This relation is not constant from stream to stream, and it may vary in the same source with changes in the composition of the water.

Stage-discharge relation is the relation between gage height (stage) and volume of water, per unit of time, flowing in a channel.

Streamflow is the discharge that occurs in a natural channel. Although the term "discharge" can be applied to the flow of a canal, the word "streamflow" uniquely describes the discharge in a surface stream course. The term "streamflow" is more general than "runoff" as streamflow may be applied to discharge whether or not it is affected by diversion or regulation.

Substrate is the physical surface upon which an organism lives.

Natural substrate refers to any naturally occurring immersed or submersed solid

surface, such as a rock or tree, upon which an organism lives.

Artificial substrate is a device which is purposely placed in a stream or lake for colonization of organisms. The artificial substrate simplifies the community structure by standardizing the substrate from which each sample is taken. Examples of artificial substrates are basket samplers (made of wire cages filled with clean streamside rocks) and multiplate samplers (made of hardboard) for benthic organism collection, and plexiglass strips for periphyton collection.

Surface area of a lake is that area outlined on the latest Survey topographic map as the boundary of the lake and measured by a planimeter in acres. In localities not covered by topographic maps, the areas are computed from the best maps available at the time planimetered. All areas shown are those for the stage when the planimetered map was made.

Surficial bed material is the part (0.1 to 0.2 ft) of the bed material that is sampled using U.S. Series Bed-Material Samplers.

Suspended (as used in tables of chemical analyses) refers to the amount (concentration) of undissolved material in a water-sediment mixture. It is associated with the material retained on a 0.45-micrometer filter.

Suspended, recoverable is the amount of a given constituent that is in solution after the part of a representative water-suspended sediment sample that is retained on a 0.45- μ m membrane filter has been digested by a method (usually using a dilute acid solution) that results in dissolution of only readily soluble substances. Complete dissolution of all the particulate matter is not achieved by the digestion treatment and thus the determination represents something less than the "total" amount (that is, less than 95 percent) of the constituent present in the sample. To achieve comparability of analytical data, equivalent digestion procedures are required of all laboratories performing such analyses because different digestion procedures are likely to produce different analytical results.

Determinations of "suspended, recoverable" constituents are made either by analyzing portions of the material collected on the filter or, more commonly, by difference, based on determinations of (1) dissolved and (2) total recoverable concentrations of the constituent.

Suspended, total is the total amount of a given constituent in the part of a representative water-suspended sediment sample that is retained on a 0.45- μ m membrane filter. This term is used only when the analytical procedure assures measurement of at least 95 percent of the constituent determined. A knowledge of the expected form of the constituent in the sample, as well as the analytical methodology used, is required to determine when the results should be reported as "suspended, total."

Determinations of "suspended, total" constituents are made either by analyzing portions of the material collected on the filter or, more commonly, by difference, based on determinations of (1) dissolved and (2) total concentrations of the constituent.

Taxonomy is the division of biology concerned with the classification and naming of organisms. The classification of organisms is based upon a hierarchical scheme beginning with Kingdom and ending with Species at the base. The higher the classification level, the fewer features the organisms have in common. For example, the taxonomy of a particular mayfly, *Hexagenia limbata*, is the following:

Kingdom	Animal
Phylum	Arthropoda
Class	Insecta
Order	Ephemeroptera
Family	Ephemeridae
Genus	Hexagenia
Species	Hexagenia limbata

Thermograph is an instrument that continuously records variations of temperature on a chart. The more general term "temperature recorder" is used in the table headings and refers to any instrument that records temperature whether on a chart, a tape, or any other medium.

Time-weighted average is computed by multiplying the number of days in the sampling period by the concentrations of individual constituents for the corresponding period and dividing the sum of the products by the total number of days. A time-weighted average represents the composition of water that would be contained in a vessel or reservoir that had received equal quantities of water from the stream each day for the year.

Tons per acre-foot indicates the dry mass of dissolved solids in 1 acre-ft of water. It is com-

puted by multiplying the concentration of the constituent, in milligrams per liter, by 0.00136.

Tons per day (T/DAY) is the quantity of a substance in solution or suspension that passes a stream section during a 24-hour period.

Total is the total amount of a given constituent in a representative water-suspended sediment sample, regardless of the constituent's physical or chemical form. This term is used only when the analytical procedure assures measurement of at least 95 percent of the constituent present in both the dissolved and suspended phases of the sample. A knowledge of the expected form of the constituent in the sample, as well as the analytical methodology used, is required to judge when the results should be reported as "total." (Note that the word "total" does double duty here, indicating both that the sample consists of a water-suspended sediment mixture and that the analytical method determined all of the constituent in the sample.)

Total discharge is the total quantity of any individual constituent, as measured by dry mass or volume, that passes through a stream cross-section per unit of time. This term needs to be qualified, such as "total sediment discharge," "total chloride discharge," and so on.

Total, recoverable is the amount of a given constituent that is in solution after a representative water-suspended sediment sample has been digested by a method (usually using a dilute acid solution) that results in dissolution of only readily soluble substances. Complete dissolution of all particulate matter is not achieved by the digestion treatment, thus the determination represents something less than the "total" amount (that is, less than 95 percent) of the constituent present in the dissolved and suspended phases of the sample. To achieve comparability of analytical data, equivalent digestion procedures are required of all laboratories performing such analyses because different digestion procedures are likely to produce different analytical results.

Tritium Network is a network of stations which has been established to provide baseline information on the occurrence of tritium in the Nation's surface waters. In addition to the surface water stations in the network, tritium data are also obtained at a number of precipitation stations. The purpose of the precipitation stations is to provide an estimate

sufficient for hydrologic studies of the tritium input to the United States.

Water year in Geological Survey reports dealing with surface-water supply is the 12-month period October 1 through September 30. The water year is designated by the calendar year in which it ends and which includes 9 of the 12 months. Thus, the year ending September 30, 1989, is called the "1989 water year."

WDR is used as an abbreviation for "Water-Data Report" in the REVISED RECORDS paragraph to refer to State annual hydrologic-data reports (WRD was used as an abbreviation for "Water-Resources Data" in reports published prior to 1976).

Weighted average is used in this report to indicate discharge-weighted average. It is computed by multiplying the discharge for a sampling period by the concentrations of individual constituents for the corresponding period and dividing the sum of the products by the sum of the discharges. A discharge-weighted average approximates the composition of water that would be found in a reservoir containing all the water passing a given location during the water year after thorough mixing in the reservoir.

WSP is used as an abbreviation for "Water-Supply Paper" in reference to previously published reports.

PUBLICATIONS OF TECHNIQUES OF WATER-RESOURCES INVESTIGATIONS

The U.S. Geological Survey publishes a series of manuals describing procedures for planning and executing specialized work in water-resources investigations. The material is grouped under major subject headings called books and further divided into sections and chapters. For example, Section A of Book 3 (Applications of Hydraulics) pertains to surface water. The chapter, the unit of publication, is limited to a narrow field of subject matter. This format permits flexibility in revision and publication as the need arises.

The reports listed below are sold by the U.S. Geological Survey, Books and Open-File Reports Section, U.S. Geological Survey, Box 25425, Denver, CO 80225 (authorized agent of the Superintendent of Documents, Government Printing Office). Prepayment is required.

Remittance should be sent by check or money order to the U.S. Geological Survey. Prices are not included because they are subject to change. Current prices can be obtained by writing to the above address. When ordering or inquiring about prices for any of these publications, please give the title, book number, chapter number, and U.S. Geological Survey Techniques of Water-Resources Investigations."

- 1-D1 *Water temperature--influential factors, field measurement, and data presentation*, by H. H. Stevens, Jr., J. F. Ficke, and G. F. Smoot: USGS--TWRI Book 1, Chap. D1. 1975. 65 p.
- 1-D2 *Guidelines for collection and field analysis of ground-water samples for selected unstable constituents*, by W. W. Wood: USGS--TWRI Book 1, Chap. D2. 1976. 24 p.
- 2-D1 *Application of surface geophysics to ground-water investigations*, by A. A. R. Zohdy, G. P. Eaton, and D. R. Mabey: USGS--TWRI Book 2, Chap. D1. 1974. 116 p.
- 2-D2 *Application of seismic-refraction techniques to hydrologic studies*, by F. P. Haeni: USGS--TWRI Book 2, Chapter D2. 1988. 86 p.
- 2-E1 *Application of borehole geophysics to water-resources investigations*, by W. S. Keys and L. M. MacCary: USGS--TWRI Book 2, Chap. E1. 1971. 126 p.
- 2-F1 *Application of drilling, coring, and sampling techniques to test holes and wells*, by Eugene Shuter and Warren E. Teasdale: USGS--TWRI Book 2, Chapter F1. 1989. 97 p.
- 3-A1 *General field and office procedures for indirect discharge measurements*, by M. A. Benson and Tate Dalrymple: USGS--TWRI Book 3, Chap. A1. 1967. 30 p.
- 3-A2 *Measurement of peak discharge by the slope-area method*, by Tate Dalrymple and M. A. Benson: USGS--TWRI Book 3, Chap. A2. 1967. 12 p.
- 3-A3 *Measurement of peak discharge at culverts by indirect methods*, by G. L. Bodhaine: USGS--TWRI Book 3, Chap. A3. 1968. 60 p.
- 3-A4 *Measurement of peak discharge at width contractions by indirect methods*, by H. F. Matthai: USGS--TWRI Book 3, Chap. A4. 1967. 44 p.
- 3-A5 *Measurement of peak discharge at dams by indirect methods*, by Harry Hulsing: USGS--TWRI Book 3, Chap. A5. 1967. 29 p.
- 3-A6 *General procedure for gaging streams*, by R. W. Carter and Jacob Davidian: USGS--TWRI Book 3, Chap. A6. 1968. 13 p.
- 3-A7 *Stage measurements at gaging stations*, by T. J. Buchanan and W. P. Somers: USGS--TWRI Book 3, Chap. A7. 1968. 28 p.
- 3-A8 *Discharge measurements at gaging stations*, by T. J. Buchanan and W. P. Somers: USGS--TWRI Book 3, Chap. A8. 1969. 65 p.
- 3-A9 *Measurement of time-of-travel and dispersion in streams by dye tracing*, by E. F. Hubbard, F. A. Kilpatrick, L. A. Martens, and J. F. Wilson, Jr.: USGS--TWRI Book 3, Chap. A9. 1982. 44 p.
- 3-A10 *Discharge ratings at gaging stations*, by E. J. Kennedy: USGS--TWRI Book 3, Chap. A10. 1985. 59 p.
- 3-A11 *Measurement of discharge by moving-boat method*, by G. F. Smoot and C. E. Novak: USGS--TWRI Book 3, Chap. A11. 1969. 22 p.
- 3-A12 *Fluorometric procedures for dye tracing*, by J. F. Wilson, Jr., E. B. Cobb, and F. A. Kilpatrick: USGS--TWRI Book 3, Chap. A12. Rev. 1986. 34 p.
- 3-A13 *Computation of continuous records of streamflow*, by E. J. Kennedy: USGS--TWRI Book 3, Chap. A13. 1983.
- 3-A14 *The use of flumes in measuring discharge*, by F. A. Kilpatrick and V. R. Schneider: USGS--TWRI Book 3, Chap. A14. 1983. 46 p.
- 3-A15 *Computation of water-surface profiles in open channels*, by Jacob Davidian: USGS--TWRI Book 3, Chap. A15. 1984. 48 p.
- 3-A16 *Measurements of discharge using tracers*, by F. A. Kilpatrick and E. D. Cobb: USGS--TWRI Book 3, Chap. A16. 1986. 52 p.
- 3-A17 *Acoustic velocity meter systems*, by Antonius Laenen: USGS--TWRI Book 3, Chap. A17. 1985. 38 p.
- 3-A18 *Determination of stream reation coefficients by use of tracers*, by F. A. Kilpatrick, R. E. Rathbun, N. Yotsukura, G. W. Parker, and L. L. DeLong: USGS--TWRI Book 3, Chapter A18. 1989. 52p.
- 3-A19 *Levels of streamflow gaging stations*, by E. J. Kennedy: USGS--TWRI Book 3, Chapter A19. 1990. 27 pages.
- 3-B1 *Aquifer-test design, observation, and data analysis*, by R.W. Stallman: USGS--TWRI Book 3, Chap. B1. 1971. 26 p.
- 3-B2 *Introduction to ground-water hydraulics, a programmed text for self-instruction*, by G. D. Bennett: USGS--TWRI Book 3, Chap. B2. 1976. 172 p.
- 3-B3 *Type curves for selected problems of flow to wells in confined aquifers*, by J. E. Reed: USGS--TWRI Book 3, Chap. B3. 1980. 106 p.

- 3-B4 *Regression modeling of ground-water flow*, by Richard L. Cooley and Richard L. Naff: USGS-TWRI Book 3, Chapter B4. 1990. 232 p.
- 3-B5 *Definition of Boundary and Initial Conditions in the Analysis of Saturated Ground-Water Flow Systems-An Introduction*, by O. L. Franke, T. E. Reilly, and G. D. Bennett: USGS-TWRI Book 3, Chap. B5. 1987. 15 p.
- 3-B6 *The Principle of Superposition and its Application in Ground-Water Hydraulics*, by T. E. Reilly, O. L. Franke, and G. D. Bennett: USGS-TWRI Book 3, Chap. B6. 1987. 28 p.
- 3-C1 *Fluvial sediment concepts*, by H. P. Guy: USGS-TWRI Book 3, Chap. C1. 1970. 55 p.
- 3-C2 *Field methods for measurement of fluvial sediment*, by H. P. Guy and V. W. Norman: USGS-TWRI Book 3, Chap. C2. 1970. 59 p.
- 3-C3 *Computation of fluvial-sediment discharge*, by George Porterfield: USGS-TWRI Book 3, Chap. C3. 1972. 66 p.
- 4-A1 *Some statistical tools in hydrology*, by H. C. Riggs: USGS-TWRI Book 4, Chap. A1. 1968. 39 p.
- 4-A2 *Frequency curves*, by H. C. Riggs: USGS-TWRI Book 4, Chap. A2. 1968. 15 p.
- 4-B1 *Low-flow investigations*, by H. C. Riggs: USGS-TWRI Book 4, Chap. B1. 1972. 18 p.
- 4-B2 *Storage analyses for water supply*, by H. C. Riggs and C. H. Hardison: USGS-TWRI Book 4, Chap. B2. 1973. 20 p.
- 4-B3 *Regional analyses of streamflow characteristics*, by H. C. Riggs: USGS-TWRI Book 4, Chap. B3. 1973. 15 p.
- 4-D1 *Computation of rate and volume of stream depletion by wells*, by C. T. Jenkins: USGS-TWRI Book 4, Chap. D1. 1970. 17 p.
- 5-A1 *Methods for determination of inorganic substances in water and fluvial sediments*, by M. W. Skougstad, M. J. Fishman, L. C. Friedman, D. E. Erdmann, and S. S. Duncan, editors: USGS-TWRI Book 5, Chap. A1. 1979. 626 p.
- 5-A2 *Determination of minor elements in water by emission spectroscopy*, by P. R. Barnett and E. C. Mallory, Jr.: USGS-TWRI Book 5, Chap. A2. 1971. 31 p.
- 5-A3 *Methods for analysis of organic substances in water*, by D. F. Goerlitz and Eugene Brown: USGS-TWRI Book 5, Chap. A3. 1972. 40 p.
- 5-A4 *Methods for collection and analysis of aquatic biological and microbiological samples*, edited by P. E. Greeson, T. A. Ehlke, G. A. Irwin, B. W. Liem, and K. V. Slack: USGS-TWRI Book 5, Chap. A4. 1977. 332 p.
- 5-A5 *Methods for determination of radioactive substances in water and fluvial sediments*, by L. L. Thatcher, V. J. Janzer, and K. W. Edwards: USGS-TWRI Book 5, Chap. A5. 1977. 95 p.
- 5-A6 *Quality assurance practices for the chemical and biological analyses of water and fluvial sediments*, by L. C. Friedman and D. E. Erdmann: USGS-TWRI Book 5, Chap. A6. 1982. 181 p.
- 5-C1 *Laboratory theory and methods for sediment analysis*, by H. P. Guy: USGS-TWRI Book 5, Chap. C1. 1969. 58 p.
- 6-A1 *A modular three-dimensional finite-difference ground-water flow model*, by M. G. McDonald and A. W. Harbaugh: USGS-TWRI Book 6, Chapter A1, 1988. 586 p.
- 7-C1 *Finite difference model for aquifer simulation in two dimensions with results of numerical experiments*, by P. C. Trescott, G. F. Pinder, and S. P. Larson: USGS-TWRI Book 7, Chap. C1. 1976. 116 p.
- 7-C2 *Computer model of two-dimensional solute transport and dispersion in ground water*, by L. F. Konikow and J. D. Bredehoeft: USGS-TWRI Book 7, Chap. C2. 1978. 90 p.
- 7-C3 *A model for simulation of flow in singular and interconnected channels*, by R. W. Schaffranek, R. A. Baltzer, and D. E. Goldberg: USGS-TWRI Book 7, Chap. C3. 1981. 110 p.
- 8-A1 *Methods of measuring water levels in deep wells*, by M. S. Garber and F. C. Koopman: USGS-TWRI Book 8, Chap. A1. 1968. 23 p.
- 8-A2 *Installation and service manual for U.S. Geological Survey manometers*, by J. D. Craig: USGS-TWRI Book 8, Chap. A2. 1983. 57 p.
- 8-B2 *Calibration and maintenance of vertical-axis type current meters*, by G. F. Smoot and C. E. Novak: USGS-TWRI Book 8, Chap. B2. 1968. 15 p.

The following remark codes may appear with the water-quality data in this report:

Printed Output	Remark
E	Estimated value
>	Actual value is known to be greater than the value shown
<	Actual value is known to be less than the value shown
K	Results based on colony count outside the acceptance range (non-ideal colony count)
L	Biological organism count less than 0.5 percent (organism may be observed rather than counted)
D	Biological organism count equal to or greater than 15 percent (dominant)
&	Biological organism estimated as dominant

MERRIMACK RIVER BASIN

31

01094400 NORTH NASHUA RIVER AT FITCHBURG, MA

LOCATION.--Lat 42°34'34", long 71°47'19", Worcester County, Hydrologic Unit 01070004, on right bank 400 ft upstream from Fifth Street Bridge at Fitchburg and 1.8 mi upstream from Baker Brook.

DRAINAGE AREA.--63.4 mi².

PERIOD OF RECORD.--October 1972 to current year.

REVISED RECORDS.--WDR MA-RI-84-1: Drainage area.

GAGE.--Water-stage recorder. Elevation of gage is 400 ft above National Geodetic Vertical Datum of 1929, from topographic map.

REMARKS.--Records good except those above 400 ft³/s and those for estimated daily discharges, which are fair. Flow regulated by mills and reservoirs upstream. Flow affected by diversions for municipal use.

AVERAGE DISCHARGE.--18 years, 123 ft³/s.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 3,510 ft³/s, Apr. 5, 1987, gage height, 7.78 ft; maximum gage height, 9.25 ft, Apr. 5, 1987, backwater from landslide; minimum discharge, 5.0 ft³/s, Aug. 22, 1987; minimum daily, 7.9 ft³/s, Aug. 22, 1987.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 700 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
Oct. 20	2300	*1,550	*6.91	Apr. 4	1615	777	5.46
Feb. 24	0200	941	5.78				

Minimum discharge, 4.5 ft³/s, Sept. 30; minimum daily, 11 ft³/s, Aug. 5.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990 MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	69	204	114	e110	129	160	142	156	172	53	15	29
2	110	156	99	e87	216	154	160	133	133	53	14	26
3	187	188	98	e72	209	152	237	111	111	43	13	24
4	133	207	85	e60	172	148	589	104	114	37	13	21
5	106	163	e84	e70	147	132	416	189	107	36	11	19
6	96	143	77	68	125	115	348	174	91	31	19	18
7	89	124	83	62	113	106	299	156	82	28	67	19
8	77	125	e72	57	108	103	261	153	72	27	90	16
9	74	247	e66	56	154	101	193	159	70	27	43	14
10	71	264	e60	56	348	111	115	213	75	26	39	15
11	91	192	60	57	301	170	193	388	85	24	346	15
12	67	163	57	58	218	265	166	248	77	29	226	19
13	57	136	55	54	170	317	172	297	63	33	109	15
14	53	128	e51	e46	174	349	161	294	54	28	75	15
15	129	126	e49	e46	174	312	239	196	47	27	50	43
16	110	251	65	47	173	341	260	153	40	24	38	31
17	122	338	55	49	149	359	231	329	37	25	32	22
18	159	235	56	76	127	428	224	366	35	25	28	18
19	134	183	e54	72	118	338	213	266	32	23	46	16
20	525	173	e52	60	105	342	198	225	31	24	42	19
21	1050	172	e50	67	96	361	218	360	31	24	33	17
22	464	135	e48	74	152	283	214	312	34	28	30	39
23	296	133	e45	60	607	237	190	251	110	35	27	31
24	227	120	e44	58	732	203	143	223	159	34	46	25
25	208	111	e42	84	301	179	97	163	81	30	136	21
26	192	119	e44	243	198	166	94	119	56	24	88	18
27	153	120	e44	219	188	146	90	133	47	22	64	18
28	134	159	e43	168	188	145	83	118	44	20	60	17
29	124	176	e43	136	---	179	88	122	39	20	46	24
30	120	137	e43	229	---	169	121	310	46	21	34	13
31	135	---	e68	159	---	177	---	237	---	17	30	---
TOTAL	5562	5128	1906	2760	5892	6748	6155	6658	2175	898	1910	637
MEAN	179	171	61.5	89.0	210	218	205	215	72.5	29.0	61.6	21.2
MAX	1050	338	114	243	732	428	589	388	172	53	346	43
MIN	53	111	42	46	96	101	83	104	31	17	11	13

CAL YR 1989 TOTAL 42681 MEAN 117 MAX 1050 MIN 18
WTR YR 1990 TOTAL 46429 MEAN 127 MAX 1050 MIN 11

e Estimated

MERRIMACK RIVER BASIN

01094500 NORTH NASHUA RIVER NEAR LEOMINSTER, MA

LOCATION.--Lat 42°30'06", long 71°43'23", Worcester County, Hydrologic Unit 01070004, on right bank 1.3 mi upstream from Wekepeke Brook, 2.5 mi southeast of Leominster, and 6.1 mi upstream from confluence with Nashua River.

DRAINAGE AREA.--110 mi², includes 2.1 mi² above outlet of Ashby (Fitchburg) Reservoir.

PERIOD OF RECORD.--Discharge: September 1935 to current year.
Water-quality records: Water years 1955, 1958.

REVISED RECORDS.--WDR MA-NH-RI-VT-73-1: Drainage area. WDR MA-RI-82-1: 1981.

GAGE.--Water-stage recorder. Datum of gage is 270.04 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Records good except those for estimated daily discharges, which are fair. Regulation at low flow by mills upstream. Flow includes diversion to basin for municipal supplies: for Fitchburg, from Mare Meadow Reservoir since 1955; for Leominster, from Wachusett Reservoir since 1966 and from the Southeast Well Field since 1958.

AVERAGE DISCHARGE.--55 years, 197 ft³/s.

EXTREMES FOR PERIOD OF RECORD--Maximum discharge, 16,300 ft³/s, Mar. 18, 1936, gage height, 20.53 ft, from floodmarks, by computation of peak flow over dam; minimum, 11 ft³/s, Aug. 29, 1948; minimum daily, 22 ft³/s, Sept. 27, 1936, Sept. 2, 1957.

Maximum discharge since at least 1850, that of Mar. 18, 1936.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 1,100 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
Oct. 21	0130	*2,770	*5.79	Apr. 4	0900	1,530	4.28
Feb. 24	0330	1,740	4.55	Aug. 11	1215	1,280	3.93

Minimum discharge, 31 ft³/s, Aug. 5, 6; minimum daily, 36 ft³/s, Aug. 5.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	113	324	196	214	255	280	241	258	311	102	45	60
2	216	219	164	152	411	275	248	209	243	107	42	57
3	307	272	174	123	406	278	387	171	205	86	40	53
4	201	304	150	120	315	273	1270	157	195	75	38	51
5	158	234	150	139	271	235	769	326	187	74	36	49
6	147	206	150	123	236	212	573	280	163	68	62	47
7	136	192	164	111	217	189	472	225	151	62	181	46
8	119	187	136	105	209	181	406	214	136	59	230	47
9	115	378	129	101	276	182	330	207	132	59	98	47
10	110	403	123	102	613	194	228	277	137	59	78	46
11	145	298	124	105	557	270	369	733	156	56	591	49
12	116	248	122	105	395	442	300	421	148	68	404	72
13	99	206	116	101	306	509	281	537	125	72	198	54
14	92	196	107	89	306	584	257	549	109	63	149	46
15	247	204	102	87	314	490	417	386	98	58	105	116
16	172	414	110	90	303	538	451	312	87	55	85	79
17	218	539	105	89	270	548	378	657	82	52	73	58
18	265	362	108	122	224	652	357	729	80	53	66	49
19	223	291	98	131	221	537	324	512	77	49	115	48
20	792	282	94	107	195	563	297	406	73	50	96	56
21	1980	282	90	109	171	603	336	701	75	56	76	52
22	775	230	81	111	267	462	351	599	80	50	71	61
23	503	220	77	106	1070	385	300	457	164	90	65	61
24	381	200	77	102	1390	323	246	387	266	93	69	54
25	322	197	73	157	722	282	190	310	146	94	296	49
26	300	212	82	435	e450	259	179	231	108	59	164	46
27	246	210	75	372	e360	233	166	236	91	54	123	45
28	213	248	76	273	336	217	149	208	83	50	107	43
29	193	281	75	228	---	253	145	217	76	48	89	50
30	184	224	79	537	---	248	202	619	94	47	72	39
31	196	---	88	324	---	291	---	438	---	50	64	---
TOTAL	9284	8063	3495	5070	11066	10988	10619	11969	4078	2018	3928	1630
MEAN	299	269	113	164	395	354	354	386	136	65.1	127	54.3
MAX	1980	539	196	537	1390	652	1270	733	311	107	591	116
MIN	92	187	73	87	171	181	145	157	73	47	36	39

CAL YR 1989 TOTAL 78629 MEAN 215 MAX 1980 MIN 45
WTR YR 1990 TOTAL 82208 MEAN 225 MAX 1980 MIN 36

e Estimated

MERRIMACK RIVER BASIN

33

01095500 NASHUA RIVER AT CLINTON, MA

LOCATION.--Lat 42°24'12", long 71°41'19", Worcester County, Hydrologic Unit 01070004, at Wachusett Dam 1 mi south of Clinton.

DRAINAGE AREA.--107.69 mi², since July 1937.

PERIOD OF RECORD.--Discharge: July 1896 to current year. Prior to October 1978, published as South Branch Nashua River.
Water-quality records: Water year 1957.

REVISED RECORDS.--WSP 1051: 1928. WDR MA-RI-78-1: 1977.

REMARKS.--Flow regulated by Wachusett Reservoir and several ponds. Records adjusted for change in contents in Wachusett Reservoir and diversions from Ware River and Quabbin Reservoir on Swift River. Entire flow, except required releases to the Nashua River, diverted for use of Boston metropolitan district and other municipalities.

COOPERATION.--Records provided by Water Division of Metropolitan District Commission.

AVERAGE DISCHARGE.--94 years, 190 ft³/s, 23.96 in/yr, adjusted to present drainage area.

MONTHLY DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

Date	Mean	Per square mile	Runoff, in inches
October.....	353	3.28	3.78
November.....	305	2.83	3.16
December.....	111	1.03	1.19
Calendar year 1989.....	224	2.08	28.28
January.....	215	2.00	2.30
February.....	438	4.07	4.24
March.....	293	2.72	3.13
April.....	357	3.32	3.70
May.....	389	3.61	4.17
June.....	107	.99	1.11
July.....	66.8	.62	.71
August.....	117	1.09	1.26
September.....	34.3	.32	.36
Water year 1990.....	231	2.15	29.09

MERRIMACK RIVER BASIN

01096000 SQUANNACOOK RIVER NEAR WEST GROTON, MA

LOCATION.--Lat 42°38'03", long 71°39'30", Middlesex County, Hydrologic Unit 01070004, on left bank 0.7 mi downstream from Trout Brook and 2.7 mi northwest of West Groton.

DRAINAGE AREA.--63.7 mi², excludes 2.16 mi², above outlet of Ashby Reservoir.

PERIOD OF RECORD.--Discharge: October 1949 to current year.
Water-quality records: Water year 1957.

REVISED RECORDS.--WDR MA-RI-84-1: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 244.27 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Records good except those for estimated daily discharges, which are fair. Occasional regulation at low flow by mill upstream; regulation greater prior to 1961. Entire flow from 2.16 mi² upstream from outlet of Ashby Reservoir diverted for municipal supply of Fitchburg except for occasional periods of spill.

AVERAGE DISCHARGE.--41 years, 111 ft³/s, 23.66 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 4,220 ft³/s, Apr. 6, 1987, gage height, 8.16 ft; minimum daily, 2.0 ft³/s, Sept. 7, 1965.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 700 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
Oct. 21	1900	*1,330	*5.86	Apr. 4	2200	1,080	5.53
Feb. 24	1700	750	4.98				

Minimum discharge, 14 ft³/s, Aug. 5, 6, Sept. 29, 30; minimum daily, 14 ft³/s, Sept. 29.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	44	121	121	57	124	e165	157	189	208	49	20	22
2	42	144	94	72	139	158	153	189	156	45	16	20
3	89	133	92	68	179	163	166	148	132	40	22	19
4	96	183	e87	62	149	165	668	126	127	35	22	17
5	67	176	75	69	e125	143	735	151	136	32	16	16
6	55	144	75	72	e120	131	390	220	115	30	15	16
7	47	126	83	64	115	e115	284	181	103	27	27	16
8	42	118	76	60	108	e110	244	149	94	24	103	15
9	38	151	68	58	114	116	215	132	85	23	89	15
10	35	270	62	58	195	123	199	123	85	21	51	15
11	37	225	59	60	265	161	245	317	89	20	84	15
12	47	172	63	60	205	270	272	360	95	24	260	18
13	47	141	61	57	163	318	215	257	85	24	138	17
14	41	125	54	48	151	415	186	349	74	24	84	16
15	49	122	50	47	162	330	203	278	65	22	60	19
16	61	134	52	45	142	351	322	211	57	19	45	29
17	64	283	54	46	142	342	259	287	53	18	35	31
18	105	248	57	59	e130	384	218	453	50	18	30	22
19	115	181	56	85	119	319	190	373	44	16	34	17
20	152	156	56	68	e105	274	174	265	41	16	43	17
21	869	154	54	61	e100	337	181	314	43	15	41	16
22	687	143	51	63	111	281	207	385	45	36	35	20
23	311	131	48	57	330	220	183	286	59	45	30	20
24	213	119	45	56	712	190	157	229	177	49	29	16
25	173	116	44	58	463	169	145	197	115	37	56	16
26	151	115	45	108	e300	158	144	174	75	28	81	16
27	134	122	45	182	e230	145	140	171	58	23	65	16
28	120	125	44	161	e190	135	132	153	46	23	52	15
29	111	143	43	134	---	129	118	139	41	22	38	14
30	110	136	43	144	---	125	124	253	44	22	29	15
31	99	---	45	145	---	139	---	322	---	23	25	---
TOTAL	4251	4657	1902	2384	5388	6581	7026	7381	2597	850	1675	536
MEAN	137	155	61.4	76.9	192	212	234	238	86.6	27.4	54.0	17.9
MAX	869	283	121	182	712	415	735	453	208	49	260	31
MIN	35	115	43	45	100	110	118	123	41	15	15	14
CFSM	2.15	2.44	.96	1.21	3.02	3.33	3.68	3.74	1.36	.43	.85	.28
IN.	2.48	2.72	1.11	1.39	3.15	3.84	4.10	4.31	1.52	.50	.98	.31

CAL YR 1989 TOTAL 39649 MEAN 109 MAX 869 MIN 15 CFMS 1.71 IN. 23.15
WTR YR 1990 TOTAL 45228 MEAN 124 MAX 869 MIN 14 CFMS 1.95 IN. 26.41

e Estimated

MERRIMACK RIVER BASIN

35

01096500 NASHUA RIVER AT EAST PEPPERELL, MA

LOCATION.--Lat 42°40'03", long 71°34'32", Middlesex County, Hydrologic Unit 01070004, on right bank 200 ft downstream from powerplant of James River-Pepperell Co. at East Pepperell and 0.8 mi upstream from Nissitissit River.

DRAINAGE AREA.--Total above gage, 435 mi², net above gage, 316 mi², flow diverted from 119 mi², for use of Boston metropolitan district and city of Worcester.

PERIOD OF RECORD.--Discharge: October 1935 to current year.
Water-quality records: Water years 1952-53, 1973-74.

REVISED RECORDS.--WDR MA-RI-84-1: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 169.04 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Records good. Extremes and daily discharge include water released while diverting flow of Nashua River for use of Boston metropolitan district and water diverted into basin from Ware River basin since 1955 for municipal use of Fitchburg. Prior to October 1981, water diverted around station through plant of James River-Pepperell Co. was added to daily figures. Flow regulated by powerplant immediately upstream.

AVERAGE DISCHARGE.--55 years, 574 ft³/s.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 20,900 ft³/s, Mar. 20, 1936, gage height, 19.1 ft, from floodmarks, from rating curve extended above 12,000 ft³/s on basis of velocity-area studies; minimum daily, 1.1 ft³/s, Aug. 13, 1939.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 3,260 ft³/s, Oct. 22, gage height, 6.55 ft; minimum daily, 74 ft³/s, Sept. 29.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990 MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	367	759	663	291	1090	1060	833	637	1270	192	75	189
2	346	832	566	347	1010	970	803	788	973	186	108	157
3	549	755	538	353	1270	966	822	751	815	189	170	106
4	691	943	532	341	1150	975	1680	497	759	199	112	80
5	559	924	527	353	968	913	2800	528	740	176	75	81
6	480	818	469	370	874	831	2280	958	681	144	78	122
7	443	749	447	355	802	766	1620	863	466	144	79	199
8	400	815	448	335	691	683	1300	756	531	144	438	122
9	368	819	446	327	747	651	1130	518	569	141	487	81
10	318	1120	404	325	1030	655	999	696	208	140	405	82
11	352	1210	334	322	1540	762	963	991	106	145	430	83
12	361	1000	320	324	1390	1000	1100	1460	366	147	802	81
13	337	859	320	283	1100	1320	998	1290	379	145	725	172
14	369	790	320	266	954	1480	904	1450	335	145	561	214
15	362	745	320	260	989	1510	896	1430	301	144	393	205
16	515	709	321	274	977	1410	1240	1130	270	144	325	198
17	509	1100	320	282	911	1430	1240	1240	247	143	287	197
18	673	1290	320	282	820	1490	1080	1720	230	141	253	113
19	727	1060	319	285	691	1560	975	1810	335	141	204	83
20	859	929	316	289	718	1430	888	1470	305	98	138	173
21	1790	761	316	308	642	1490	861	1400	285	75	238	197
22	3120	764	260	304	624	1450	953	1680	217	123	308	106
23	2770	723	237	303	1240	1220	937	1560	301	150	251	79
24	1690	679	237	304	2440	1060	839	1280	298	167	126	88
25	1170	641	239	323	2750	944	757	1110	587	251	219	88
26	965	649	241	615	1970	867	650	961	396	251	453	195
27	877	681	206	1000	1530	806	611	855	297	223	396	242
28	771	793	200	952	1210	686	607	804	344	191	355	136
29	699	847	204	816	---	693	497	766	311	147	321	74
30	656	814	210	1080	---	698	443	1000	252	146	262	77
31	628	---	212	1420	---	777	---	1520	---	122	227	---
TOTAL	24721	25578	10812	13689	32128	32553	31706	33919	13174	4894	9301	4020
MEAN	797	853	349	442	1147	1050	1057	1094	439	158	300	134
MAX	3120	1290	663	1420	2750	1560	2800	1810	1270	251	802	242
MIN	318	641	200	260	624	651	443	497	106	75	75	74

CAL YR 1989 TOTAL 214497 MEAN 588 MAX 3120 MIN 128
WTR YR 1990 TOTAL 236495 MEAN 648 MAX 3120 MIN 74

MERRIMACK RIVER BASIN

01096550 MERRIMACK RIVER ABOVE LOWELL, MA
(National stream-quality accounting network station)

LOCATION.--Lat 42°38'20", long 71°22'17", Middlesex County, Hydrologic Unit 01070002, on downstream side of Tyngsboro bridge on State Highway 113, 6.2 mi upstream from Pawtucket Dam, and 2 mi downstream from Massachusetts-New Hampshire State line.

DRAINAGE AREA.--3,900 mi².

PERIOD OF RECORD.--Water years 1969 to current year.

PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: January to September 1973.

WATER TEMPERATURE: January to September 1973.

REMARKS.--Discharge computed on basis of records for gaging station below Concord River (station 01100000) and gaging station on Concord River (station 01099500).

WATER QUALITY DATA, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	SPE- CIFIC CON- DUCT- ANCE (µS/CM) (00095)	PH (STAND- ARD UNITS) (00400)	TEMPER- ATURE AIR (DEG C) (00020)	TEMPER- ATURE WATER (DEG C) (00010)	TUR- BID- ITY (NTU) (00076)	BARO- METRIC PRES- SURE (MM OF HG) (00025)	OXYGEN, DIS- SOLVED (MG/L) (00300)	OXYGEN, DIS- SOLVED SATUR- ATION (00301)	COLI- FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML) (31625)
OCT 17...	1000	2100	118	--	16.5	15.5	0.70	763	8.9	89	1100
JAN 10...	1145	5120	122	6.7	5.0	0.5	2.5	745	13.5	96	190
MAR 21...	1230	34700	58	6.1	8.0	2.5	9.0	754	12.5	93	58
MAY 22...	1100	E1370	76	6.4	12.0	10.0	2.1	760	10.5	94	470
JUL 24...	1122	3250	152	6.5	24.0	25.5	1.5	762	7.8	96	140
AUG 21...	1130	7490	76	--	20.5	21.0	2.0	769	9.3	103	1300

DATE	STREP- TOCOC- FECAL, KF AGAR (COLS. PER 100 ML) (31673)	HARD- NESS TOTAL (MG/L AS CACO3) (00900)	CALCIUM DIS- SOLVED (MG/L AS CA) (00915)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG) (00925)	SODIUM, DIS- SOLVED (MG/L AS NA) (00930)	SODIUM PERCENT (00932)	SODIUM AD- SORP- TION RATIO (00931)	POTAS- SIUM, DIS- SOLVED (MG/L AS K) (00935)	CAR- BONATE WATER DIS IT FIELD MG/L AS CO3 (00452)	BICAR- BONATE WATER DIS IT FIELD MG/L AS HCO3 (00453)	ALKA- LINITY WAT WH TOT FET FIELD MG/L AS CACO3 (00410)
OCT 17...	K120	21	6.2	1.2	13	56	1	1.5	0	15	16
JAN 10...	28	18	5.7	0.99	15	62	2	1.1	0	24	20
MAR 21...	41	9	2.8	0.48	6.0	57	0.9	0.60	0	7	6
MAY 22...	84	14	4.0	0.87	9.2	58	1	0.70	0	14	12
JUL 24...	23	27	8.5	1.3	19	59	2	1.4	0	26	20
AUG 21...	42	13	4.0	0.76	8.2	56	1	0.90	0	12	10

DATE	SULFATE DIS- SOLVED (MG/L AS SO4) (00945)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL) (00940)	FLUO- RIDE, DIS- SOLVED (MG/L AS F) (00950)	SILICA, DIS- SOLVED (MG/L AS SiO2) (00955)	SOLIDS, RESIDUE AT 180 DEG. C DIS- SOLVED (MG/L) (70300)	SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L) (70301)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N) (00631)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N) (00608)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	PHOS- PHORUS TOTAL (MG/L AS P) (00665)	PHOS- PHORUS DIS- SOLVED (MG/L AS P) (00666)
OCT 17...	10	18	0.10	5.8	70	66	0.400	0.190	0.60	0.130	0.100
JAN 10...	9.0	21	0.10	7.2	79	74	0.320	0.290	1.0	0.130	0.070
MAR 21...	5.2	8.8	<0.10	5.0	43	34	0.400	0.060	0.60	0.070	0.010
MAY 22...	6.0	13	<0.10	4.8	49	47	0.200	0.040	1.0	0.060	0.030
JUL 24...	10	29	<0.10	4.2	83	89	0.600	0.080	0.70	0.090	0.060
AUG 21...	7.3	15	<0.10	5.5	52	49	0.200	0.090	0.50	0.060	0.030

37

WATER QUALITY DATA, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

[illegible]

MERRIMACK RIVER BASIN

01097000 ASSABET RIVER AT MAYNARD, MA

LOCATION.--Lat 42°25'55", long 71°27'01", Middlesex County, Hydrologic Unit 01070005, on right bank at Maynard, 150 ft upstream from bridge on State Highway 27, 1.7 mi downstream from Assabet Brook, and 7.1 mi upstream from confluence with Sudbury River.

DRAINAGE AREA.--116 mi².

PERIOD OF RECORD.--Discharge: July 1941 to current year.
Water-quality records: Water years 1954, 1967-74.

REVISED RECORDS.--WSP 1231: 1945-46.

GAGE.--Water-stage recorder. Datum of gage is 142.12 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Records good except those for estimated daily discharges, which are fair. Occasional diurnal fluctuation at low flow by mills upstream; greater regulation prior to 1969. Since 1962, high flow affected by retarding reservoirs and, since 1970, occasional release at low flow by these reservoirs.

AVERAGE DISCHARGE.--49 years, 187 ft³/s.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 4,250 ft³/s, Aug. 20, 1955, gage height, 8.94 ft; maximum gage height, 8.96 ft, Aug. 20, 1955 (backwater from debris); minimum daily discharge, 0.20 ft³/s, Feb. 7, 1965.
Maximum discharge since at least 1886, that of Aug. 20, 1955.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 775 ft³/s, Apr. 5, gage height, 4.33 ft; minimum daily, 21 ft³/s, Aug. 4.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	96	247	220	e105	686	322	237	237	538	105	50	62
2	87	278	193	133	603	304	237	251	416	111	39	51
3	144	299	180	130	600	305	249	224	324	95	29	46
4	156	320	158	122	546	315	525	194	269	82	21	47
5	153	333	158	134	474	300	737	222	242	69	25	46
6	148	317	153	140	422	273	660	275	211	60	39	44
7	128	284	150	129	357	245	525	273	197	58	53	42
8	111	257	148	119	321	225	431	231	180	56	87	41
9	97	256	134	112	316	222	362	203	171	51	116	42
10	77	321	125	110	393	231	322	191	165	38	153	41
11	109	334	115	115	507	236	313	287	163	23	165	39
12	87	315	118	116	505	278	324	380	165	44	175	41
13	95	289	114	113	427	322	311	381	157	70	173	37
14	90	274	97	102	363	340	261	391	133	73	161	38
15	134	248	119	94	346	327	283	414	118	75	124	44
16	188	280	107	91	347	299	365	377	109	69	88	54
17	211	350	104	92	334	296	406	427	103	57	74	46
18	219	374	103	109	320	310	370	525	92	48	67	37
19	243	345	106	129	302	319	325	544	85	44	67	36
20	285	293	e98	118	276	328	292	485	84	40	72	39
21	485	266	e94	115	249	355	277	461	84	44	69	41
22	575	248	e88	112	247	352	289	476	85	50	61	46
23	564	235	e83	112	381	310	295	474	88	55	59	44
24	468	211	e78	110	603	263	266	422	85	56	61	40
25	355	197	e74	118	644	243	241	365	72	82	142	37
26	322	197	e70	210	508	229	228	318	64	118	156	32
27	292	196	e66	312	434	215	214	287	77	119	156	30
28	260	205	e63	339	366	200	198	281	84	107	143	35
29	211	247	e61	311	---	189	192	266	81	83	104	36
30	207	242	e60	524	---	185	201	417	97	64	82	35
31	206	---	e65	721	---	212	---	559	---	54	71	---
TOTAL	6803	8258	3502	5297	11877	8550	9936	10838	4739	2100	2882	1249
MEAN	219	275	113	171	424	276	331	350	158	67.7	93.0	41.6
MAX	575	374	220	721	686	355	737	559	538	119	175	62
MIN	77	196	60	91	247	185	192	191	64	23	21	30

CAL YR 1989 TOTAL 68068 MEAN 186 MAX 729 MIN 31
WTR YR 1990 TOTAL 76031 MEAN 208 MAX 737 MIN 21

e Estimated

MERRIMACK RIVER BASIN

39

01097300 NASHOBA BROOK NEAR ACTON, MA

LOCATION.--Lat 42°30'39", long 71°24'25", Middlesex County, Hydrologic Unit 01070005, on right bank 1,500 ft downstream from dam at North Acton, 2.2 mi northeast of Acton, and 5 mi upstream from mouth.

DRAINAGE AREA.--12.8 mi².

PERIOD OF RECORD.--Discharge: Occasional low-flow measurements, water years 1962-63. July 1963 to current year. Water quality records: Water years 1972-74, 1976-78.

REVISED RECORDS.--WDR MA-RI-84-1: Drainage area.

GAGE.--Water-stage recorder. Elevation of gage is 155 ft above National Geodetic Vertical Datum of 1929, from topographic map.

REMARKS.--Records good except those for estimated daily discharges, which are poor. Occasional regulation since 1967 by pond upstream.

AVERAGE DISCHARGE.--27 years, 20.7 ft³/s.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 679 ft³/s, Jan. 26, 1979, gage height, 5.57 ft; maximum gage height, 5.73 ft, Jan. 26, 1979 (ice jam); minimum discharge, 0.02 ft³/s, Sept. 6, 1968.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 141 ft³/s, Apr. 5, gage height, 4.05 ft; minimum, 1.0 ft³/s, Aug. 5, 6.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990 MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	5.5	35	20	e10	77	35	33	27	46	7.4	2.2	3.3
2	6.1	46	15	e15	66	32	31	27	30	27	1.9	2.9
3	20	39	13	e14	78	37	31	20	22	18	1.5	2.6
4	25	48	13	e13	66	42	101	17	19	8.9	1.4	2.3
5	12	45	11	e14	54	e37	118	25	17	6.7	1.0	2.2
6	8.5	32	9.7	14	47	e30	74	38	14	5.7	1.0	2.1
7	7.3	27	11	12	38	e25	56	28	14	4.6	1.6	2.1
8	6.3	23	10	10	33	e23	46	22	13	4.1	5.3	1.8
9	5.6	32	8.5	9.7	34	e23	40	19	11	3.8	5.3	1.5
10	5.1	52	7.6	9.5	60	24	35	17	12	3.7	3.5	1.5
11	6.0	50	7.7	10	83	29	37	41	16	3.0	10	1.5
12	8.5	36	7.8	10	66	43	40	49	19	3.1	27	2.0
13	7.5	27	7.5	9.9	50	51	32	36	14	4.3	12	3.1
14	6.2	23	6.6	e8.7	40	51	28	51	11	3.9	6.8	2.6
15	11	22	5.8	6.8	43	46	31	47	9.7	3.2	5.2	2.6
16	20	31	6.0	6.5	39	43	55	33	8.8	2.7	4.1	3.9
17	17	56	6.5	6.6	37	41	49	44	8.0	2.4	3.5	2.7
18	29	55	6.8	10	e33	46	40	62	6.9	2.1	3.0	2.2
19	35	40	e6.6	14	27	48	33	55	6.7	1.9	4.2	2.0
20	37	32	e6.3	e10	e26	44	27	41	6.7	1.7	6.9	2.1
21	71	29	e6.0	8.2	e21	54	28	44	6.7	1.7	4.6	2.2
22	81	25	e5.7	9.1	23	51	38	54	6.7	1.8	3.6	1.9
23	55	21	e5.4	9.1	70	40	34	45	6.0	2.2	3.0	1.9
24	37	20	e5.2	8.7	102	33	27	35	12	2.5	3.0	2.0
25	27	20	e5.0	9.4	86	28	24	29	9.4	5.6	26	1.7
26	22	22	e4.8	24	64	25	23	25	6.6	8.8	42	1.5
27	19	26	e4.6	49	46	23	22	23	5.6	4.9	20	1.4
28	16	27	e4.5	48	38	21	19	20	4.9	3.7	8.3	1.4
29	15	31	e4.4	37	---	20	17	19	4.1	3.2	5.9	1.4
30	14	26	e4.4	76	---	19	19	54	5.1	2.8	4.4	1.3
31	14	---	e4.7	112	---	25	---	74	---	2.5	3.7	---
TOTAL	649.6	998	241.1	604.2	1447	1089	1188	1121	371.9	157.9	231.9	63.7
MEAN	21.0	33.3	7.78	19.5	51.7	35.1	39.6	36.2	12.4	5.09	7.48	2.12
MAX	81	56	20	112	102	54	118	74	46	27	42	3.9
MIN	5.1	20	4.4	6.5	21	19	17	17	4.1	1.7	1.0	1.3

CAL YR 1989 TOTAL 6158.4 MEAN 16.9 MAX 86 MIN 1.4
WTR YR 1990 TOTAL 8163.3 MEAN 22.4 MAX 118 MIN 1.0

e Estimated

MERRIMACK RIVER BASIN

01098530 SUDBURY RIVER AT SAXONVILLE, MA

LOCATION.--Lat 42°19'31", long 71°23'53", Middlesex County, Hydrologic Unit 01070005, on left bank at downstream side of new Danforth Street Bridge, at Saxonville, 600 ft east of Elm Street, 700 ft downstream from confluence with Lake Cochituate Outlet, and 0.7 mi downstream from Saxonville Dam.

DRAINAGE AREA.--106 mi².

PERIOD OF RECORD.--November 1979 to current year.

GAGE.--Water-stage recorder. Datum of gage is 110.55 ft above National Geodetic Vertical Datum of 1929 (Massachusetts Department of Public Works benchmark).

REMARKS.--Records fair except those for estimated daily discharges, which are poor. Flow regulated by reservoirs upstream and affected by diversions and spill. Flow diverted as needed for use of Boston metropolitan district. Part of flow from Wachusett Reservoir on Nashua River is diverted into Sudbury Reservoir en route to Boston metropolitan district.

AVERAGE DISCHARGE.--10 years (water years 1981-90), 191 ft³/s.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 2,420 ft³/s, June 7, 1982, gage height, 13.30 ft; maximum gage height, 13.47 ft, Apr. 8, 1987; minimum daily discharge, 9.5 ft³/s, Aug. 25, 1983.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 872 ft³/s, Oct. 21, gage height, 9.71 ft; minimum daily, 37 ft³/s, Sept. 30.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	112	462	279	e137	540	399	187	265	e450	118	62	99
2	135	419	262	e114	531	284	189	258	e320	122	78	95
3	182	444	259	e98	538	277	291	244	e270	84	81	91
4	144	482	246	91	533	278	599	233	e235	72	79	87
5	130	448	235	102	502	263	572	311	e205	65	75	86
6	124	422	227	102	445	251	630	296	e180	59	71	86
7	117	398	229	97	405	226	583	280	e170	54	87	86
8	106	370	221	108	406	222	540	250	e155	49	276	83
9	101	385	214	143	425	220	494	196	e150	46	148	81
10	95	417	207	146	454	217	427	197	e150	45	164	91
11	108	409	203	147	512	217	434	386	e148	40	427	86
12	101	380	202	145	509	236	418	323	e145	72	532	65
13	93	330	198	139	481	274	387	347	e140	91	407	62
14	88	300	193	133	451	267	358	404	e125	71	338	60
15	216	300	188	133	429	261	439	e380	e110	63	260	91
16	179	380	189	132	463	261	482	e365	e100	58	241	83
17	259	505	188	133	480	249	465	e350	e86	51	204	71
18	395	507	185	147	471	261	447	e410	e76	45	173	65
19	482	484	168	146	473	242	392	e480	e74	41	172	63
20	611	444	129	148	461	270	274	e460	e73	40	160	71
21	857	430	118	155	432	282	266	e440	e72	54	136	71
22	840	382	e100	147	444	300	270	e435	e71	51	122	69
23	800	359	101	148	498	324	242	e430	e70	42	123	75
24	737	339	100	179	561	286	226	e400	e70	53	121	73
25	676	319	98	304	562	263	202	e360	e66	285	259	67
26	620	314	94	360	511	242	195	e330	59	211	188	52
27	565	293	e94	325	477	177	194	e305	65	149	177	45
28	541	278	e94	340	451	169	186	e265	92	126	164	43
29	512	287	e94	693	---	165	177	e270	79	104	148	39
30	460	272	e93	589	---	163	202	e360	89	88	129	37
31	325	---	e94	533	---	194	---	e500	---	73	106	---
TOTAL	10711	11559	5302	6314	13445	7740	10768	10530	4095	2522	5708	2173
MEAN	346	385	171	204	480	250	359	340	136	81.4	184	72.4
MAX	857	507	279	693	562	399	630	500	450	285	532	99
MIN	88	272	93	91	405	163	177	196	59	40	62	37

CAL YR 1989 TOTAL 77763 MEAN 213 MAX 857 MIN 37
WTR YR 1990 TOTAL 90867 MEAN 249 MAX 857 MIN 37

e Estimated

MERRIMACK RIVER BASIN

41

01099500 CONCORD RIVER BELOW RIVER MEADOW BROOK AT LOWELL, MA

LOCATION.--Lat 42°38'12", long 71°18'09", Middlesex County, Hydrologic Unit 01070005, on right bank 300 ft downstream from Rogers Street Bridge at Lowell, 0.3 mi downstream from River Meadow Brook, and 0.8 mi upstream from mouth.

DRAINAGE AREA.--Total above gage, 400 mi²; net above gage, 307 mi² - diversion as needed from 92.6 mi² for use of Boston metropolitan district.

PERIOD OF RECORD.--Discharge: October 1936 to current year. October, November 1936 monthly discharge only, published in WSP 1301.

Water-quality records: Water years 1953, 1967-74.

REVISED RECORDS.--WDR MA-RI-84-1: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 67.41 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Records good except those for estimated daily discharges, which are fair. Low flow regulated by mills upstream. Daily discharge includes undiverted water from 92.6 mi² in basins of Sudbury River and Lake Cochituate. Prior to December 1961, diversion upstream for use of city of Lowell.

AVERAGE DISCHARGE.--54 years, 638 ft³/s.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 5,410 ft³/s, Jan. 28, 1979, gage height, 9.60 ft; maximum gage height of 9.60 ft also occurred Apr. 10, 1987; minimum daily discharge, 4.0 ft³/s, Sept. 29, 1957.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,740 ft³/s, Feb. 2, gage height, 6.79 ft; minimum daily, 84 ft³/s, July 22.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990 MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	515	1300	886	284	1540	1350	714	805	e1180	298	272	400
2	492	1240	836	315	1670	1310	737	798	e1200	334	232	372
3	548	1250	806	340	1730	1250	755	799	e1200	353	207	317
4	531	1300	e750	347	1650	1200	1130	787	e1200	332	158	271
5	529	1280	e700	362	1470	1140	1280	813	e1180	305	188	283
6	512	1260	679	379	1560	1090	1420	829	e1150	279	161	247
7	494	1230	664	388	1550	1030	1510	851	e1100	249	165	224
8	460	1180	635	387	1450	971	1550	e900	e1000	229	268	221
9	427	1210	e600	380	1410	925	1520	e890	e840	212	264	208
10	391	1240	574	387	1460	896	1460	e880	e780	192	320	198
11	377	1230	548	401	1490	874	1420	e860	e740	177	509	191
12	371	1220	524	413	1480	890	1350	e880	e700	119	701	195
13	358	1190	506	417	1470	928	1290	e920	e650	171	702	190
14	339	1150	e470	406	1440	945	1240	e970	e600	202	771	185
15	370	1110	453	380	1380	952	1240	e1050	e560	185	743	195
16	420	1130	e430	361	1350	964	1260	e1100	e540	190	722	196
17	487	1160	e410	350	1320	985	1270	e1180	e500	189	675	175
18	589	1160	411	382	1270	1000	1300	e1220	e480	115	622	190
19	655	1180	e390	419	1240	966	1270	e1280	e440	184	600	175
20	829	1200	e400	427	1190	993	1240	e1300	399	116	553	193
21	1110	1170	e390	412	1140	1020	1220	e1350	363	157	498	166
22	1250	1120	e360	e390	1140	1060	1200	e1370	346	84	456	175
23	1420	1080	e340	417	1270	1030	1140	e1350	326	148	429	172
24	1550	1050	e320	415	1420	996	1090	e1300	343	155	387	179
25	1570	1010	e300	427	1460	954	1050	e1280	297	187	538	165
26	1550	985	e280	561	1500	923	994	e1200	286	274	541	163
27	1480	959	e265	735	1490	865	916	e1170	273	306	571	155
28	1430	955	257	804	1420	834	890	e1120	262	337	600	136
29	1340	944	e245	882	---	782	814	e1100	260	342	564	142
30	1270	929	240	1240	---	733	804	e1120	260	323	503	133
31	1210	---	242	1410	---	730	---	e1150	---	276	455	---
TOTAL	24874	34422	14911	15218	39960	30586	35074	32622	19455	7020	14375	6212
MEAN	802	1147	481	491	1427	987	1169	1052	648	226	464	207
MAX	1570	1300	886	1410	1730	1350	1550	1370	1200	353	771	400
MIN	339	929	240	284	1140	730	714	787	260	84	158	133

CAL YR 1989 TOTAL 235331 MEAN 645 MAX 1590 MIN 155

WTR YR 1990 TOTAL 274729 MEAN 753 MAX 1730 MIN 84

e Estimated

MERRIMACK RIVER BASIN

01100000 MERRIMACK RIVER BELOW CONCORD RIVER, AT LOWELL, MA

LOCATION.--Lat 42°38'45", long 71°17'56", Middlesex County, Hydrologic Unit 01070002, on right bank at Lowell, 1,100 ft downstream from Concord River.

DRAINAGE AREA.--Total above gage, 4,635 mi²; net above gage, 4,425 mi² - diversions as needed from 210 mi² for use of Boston metropolitan district and city of Worcester.

PERIOD OF RECORD.--Discharge: June 1923 to current year.
Water-quality records: Water years 1954, 1966-74.

GAGE.--Water-stage recorder. Datum of gage is 5.18 ft above National Geodetic Vertical Datum of 1929. Prior to Mar. 7, 1934, at Boott Mills, 1,800 ft upstream and 700 ft above mouth of Concord River, in same gage pool and at same datum; gage-height record (provided by Proprietors of the Locks and Canals on Merrimack River) was indicative of flow including that of Concord River.

REMARKS.--Records good except those for estimated daily discharges, which are fair. Daily discharge includes water released from 210 mi² in basins of Sudbury and Nashua Rivers and Lake Cochituate. Flow regulated by powerplants, by Franklin Falls Reservoir since 1942, and by Squam, Newfound, Winnepesaukee, Winnisquam, and other lakes and reservoirs upstream.

AVERAGE DISCHARGE.--67 years, 7,616 ft³/s.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 173,000 ft³/s, Mar. 20, 1936, gage height, 68.4 ft, from floodmarks; minimum daily, 199 ft³/s, Sept. 23, 1923.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum discharge since 1735, that of Mar. 20, 1936.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 37,700 ft³/s, Mar. 19, gage height, 50.26 ft; minimum daily, 1,390 ft³/s, July 22.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	e3500	8500	8730	4210	11000	13500	12000	10800	13400	5700	1730	4900
2	e3600	9140	6200	4810	11100	12600	11900	10200	11700	6760	2260	3940
3	e3800	9500	7830	4630	11500	12400	12100	9300	9720	5950	1650	3660
4	6220	10200	8620	4720	11100	11600	17100	9010	9150	5040	1450	3540
5	5940	11900	7490	4910	9130	10600	28900	7230	7730	4330	1410	3690
6	5510	11800	7350	4630	9460	9960	31100	10100	7880	4370	1500	2650
7	4250	10900	6920	4910	7780	9050	27900	10300	7780	5540	2020	2540
8	4480	10900	7220	4940	8400	8460	22000	9770	7080	3840	6800	3400
9	4130	11600	6610	4810	8400	8400	18900	9230	5190	3630	18300	2220
10	3460	14000	6770	5420	9810	8520	16900	8370	5800	2990	21700	2500
11	3670	17900	5820	2760	10600	8650	16000	10400	6440	2510	19200	2390
12	3520	17100	4790	2690	12200	9040	20300	15400	8630	3090	25700	2700
13	3840	14300	5310	4400	12200	12800	22900	18500	9870	2200	28100	3010
14	3750	12600	4610	3980	11800	16400	19900	18100	8530	2180	26300	3340
15	4250	11900	5400	3800	11200	19200	17600	23300	6830	2330	25300	2750
16	4030	11900	4900	4270	10400	21800	18100	24600	5730	2240	25200	3000
17	4430	13200	6170	3920	9930	24800	18600	20800	5650	2180	20000	3300
18	6740	19700	4840	4080	9000	31900	17600	22000	5300	1770	14300	3720
19	8360	19000	e4900	4240	8920	36900	16200	23200	4290	1830	10000	2600
20	9310	15700	e4600	4550	8610	35900	15200	20600	4970	1600	9740	3180
21	16100	13600	e4900	4680	7530	35800	14100	19400	5290	1500	8230	1930
22	27400	12600	e4700	4890	8220	34500	13700	20000	5450	1390	5150	2590
23	28100	12300	e5000	3840	10700	31300	14000	20100	5920	1660	5690	3000
24	24400	11300	e4300	4470	16700	27800	13200	17700	6870	3200	4550	3120
25	19400	9760	e3500	4940	19800	24500	12500	15700	8750	3930	5300	2930
26	16900	9240	e3700	6470	18400	21000	11400	15300	8410	3830	11700	2760
27	14300	9120	e4700	8330	16100	18500	10800	13400	6750	3270	11700	2430
28	12500	9150	e3800	10300	14400	16000	10200	12000	5110	3210	9550	2590
29	10500	9440	e3800	12600	---	14000	10600	10100	4780	2760	8340	2370
30	9710	9360	e3700	13200	---	12800	10700	11600	4840	2110	6540	2360
31	8940	---	e3500	11500	---	12100	---	13500	---	1860	5130	---
TOTAL	285040	367610	170680	171900	314390	570780	502400	460010	213840	98800	344540	89110
MEAN	9195	12250	5506	5545	11230	18410	16750	14840	7128	3187	11110	2970
MAX	28100	19700	8730	13200	19800	36900	31100	24600	13400	6760	28100	4900
MIN	3460	8500	3500	2690	7530	8400	10200	7230	4290	1390	1410	1930

CAL YR 1989 TOTAL 2938620 MEAN 8051 MAX 34700 MIN 1300
WTR YR 1990 TOTAL 3589100 MEAN 9833 MAX 36900 MIN 1390

e Estimated

MERRIMACK RIVER BASIN

43

01100600 SHAWSHEEN RIVER NEAR WILMINGTON, MA

LOCATION.--Lat 42°34'05", long 71°12'55", Middlesex County, Hydrologic Unit 01070002, on right bank at downstream side of bridge on State Highway 129, 1 mi upstream from Content Brook, and 2.5 mi northwest of Wilmington.

DRAINAGE AREA.--36.5 mi².

PERIOD OF RECORD.--Discharge: November 1963 to current year.
Water-quality records: Water year 1973.

REVISED RECORDS.--WDR MA-NH-RI-VT-74-1: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 80.44 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Records fair except those for estimated daily discharges, which are poor. Diversion upstream at times each year since 1973 for municipal supply of Burlington; see table below for figures of diversion.

AVERAGE DISCHARGE.--26 years (water years 1965-90), 59.7 ft³/s.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 1,660 ft³/s, Jan. 26, 1979, gage height, 9.85 ft, mean of recorded surge; 10.00 ft, maximum recorded surge; and about 10.4 ft in river, based on outside gage readings at slightly lower stages. Minimum discharge, 0.70 ft³/s, Aug. 19, 1983.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 300 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
Jan. 31	1245	*439	*6.05	Apr. 5	0415	378	5.69

Minimum discharge, 2.3 ft³/s, Sept. 27, 28.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990 MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	15	55	e59	42	282	e79	54	53	191	21	19	e24
2	16	86	e54	56	185	e73	57	61	114	27	15	e21
3	50	99	46	58	184	72	60	57	75	34	11	e19
4	64	106	e46	46	176	77	201	48	59	28	9.3	e17
5	61	116	41	40	133	e77	352	53	51	22	8.3	e15
6	42	94	36	35	e142	e71	236	69	45	19	7.9	e14
7	26	72	38	33	112	e66	148	73	42	17	9.8	e13
8	21	60	34	28	89	e61	104	57	41	15	22	e12
9	18	60	e32	24	83	56	83	49	38	14	34	e12
10	15	82	32	25	112	55	72	45	39	13	35	e13
11	22	109	28	27	180	57	66	65	39	12	42	e14
12	37	91	22	26	170	61	67	102	44	e12	159	e14
13	33	71	21	31	126	68	66	95	43	e13	226	e13
14	24	59	e27	32	100	72	61	93	37	e15	e130	13
15	36	53	e26	29	88	71	62	103	33	e14	e62	17
16	50	55	26	24	82	66	97	84	30	e13	e38	29
17	55	74	28	19	80	63	131	78	29	e11	e33	26
18	62	105	24	26	e79	64	101	124	25	e10	e31	19
19	78	91	20	33	77	68	e79	143	17	e9.6	e29	16
20	96	75	20	29	e74	67	64	105	19	e11	e33	20
21	168	66	20	24	e71	71	60	88	23	e13	e31	21
22	213	62	e19	32	67	77	68	96	20	e11	e28	17
23	156	57	e17	30	97	68	75	91	17	e10	e24	21
24	94	e56	e15	31	205	56	67	80	15	e11	28	23
25	65	50	e14	35	e220	47	57	66	12	e30	57	15
26	51	51	15	62	e160	42	52	56	9.0	e58	e100	4.0
27	43	55	e16	144	e120	e39	48	58	7.7	e110	e80	2.7
28	38	58	15	196	e85	e36	41	67	15	e78	e60	3.4
29	37	62	e14	130	---	e35	38	59	29	e55	e45	3.0
30	35	63	14	221	---	34	41	106	26	e34	e34	3.1
31	34	---	16	405	---	45	---	249	---	e23	e28	---
TOTAL	1755	2193	835	1973	3579	1894	2708	2573	1184.7	763.6	1469.3	454.2
MEAN	56.6	73.1	26.9	63.6	128	61.1	90.3	83.0	39.5	24.6	47.4	15.1
MAX	213	116	59	405	282	79	352	249	191	110	226	29
MIN	15	50	14	19	67	34	38	45	7.7	9.6	7.9	2.7
(†)	10.6	0	1.82	4.79	0	4.17	0	4.78	4.42	0	0	1.44

CAL YR 1989 TOTAL 16205.2 MEAN 44.4 MAX 234 MIN 4.3
WTR YR 1990 TOTAL 21381.8 MEAN 58.6 MAX 405 MIN 2.7

e Estimated

† Diversion, in cubic feet per second, for municipal supply of Burlington; records furnished by town of Burlington.

PARKER RIVER BASIN

01101000 PARKER RIVER AT BYFIELD, MA

LOCATION.--Lat 42°45'10", long 70°56'46", Essex County, Hydrologic Unit 01090001, on left bank 1,400 ft downstream from dam, 0.5 mi south of Byfield, 0.7 mi upstream from Wheeler Brook, and 5.5 mi southwest of Newburyport.

DRAINAGE AREA.--21.3 mi².

PERIOD OF RECORD.--October 1945 to current year.

REVISED RECORDS.--WDR MA-RI-84-1: Drainage area.

GAGE.--Water-stage recorder and concrete control. Datum of gage is 23.46 ft above National Geodetic Vertical Datum of 1929 (levels by Massachusetts Department of Public Works).

REMARKS.--Records good except those for estimated daily discharges, which are poor. Occasional regulation by mill and ponds upstream.

AVERAGE DISCHARGE.--45 years, 37.0 ft³/s, 23.59 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 790 ft³/s, Apr. 7, 1987, gage height, 7.35 ft; minimum daily, 0.09 ft³/s, Sept. 25-30, Oct. 3-6, 1957.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 156 ft³/s, Apr. 6, gage height, 3.34 ft; minimum daily, 1.1 ft³/s, July 24.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

1	14	41	e39	e14	103	e71	43	48	77	8.0	1.6	21
2	14	44	e35	e16	113	67	45	49	74	7.3	1.5	17
3	18	60	e32	e17	112	66	51	48	68	7.0	1.3	13
4	18	71	e30	e19	101	65	102	46	61	6.3	1.3	11
5	17	79	e29	e20	94	62	141	49	54	5.8	1.3	8.3
6	16	82	e28	e21	94	57	152	51	48	4.7	1.2	6.6
7	15	77	e26	e20	85	e52	144	52	42	4.0	1.2	6.2
8	14	71	e25	e19	78	e48	134	50	37	3.9	1.3	5.6
9	12	72	e24	e19	76	46	121	48	33	3.4	1.3	4.6
10	11	73	e23	20	82	45	109	46	31	2.9	1.2	4.2
11	12	75	e22	20	92	47	101	53	29	2.5	3.7	3.8
12	12	74	e20	21	e97	52	92	56	29	2.3	10	3.9
13	11	69	e19	20	e93	59	84	64	28	2.6	11	4.8
14	11	e64	e18	18	87	64	77	70	27	2.3	8.5	3.9
15	12	e60	e16	17	80	68	77	73	25	2.1	6.8	4.4
16	13	e64	e15	16	73	69	79	73	24	2.0	5.6	4.6
17	15	e66	e14	16	72	69	82	78	22	1.8	4.7	3.6
18	19	e62	e13	19	e70	72	83	86	20	1.7	4.5	3.0
19	22	e58	e13	21	61	71	79	92	17	1.6	5.1	2.6
20	37	e54	e12	19	e58	72	75	93	16	1.5	5.2	3.9
21	55	e52	e12	19	e51	72	73	92	14	1.4	4.3	3.7
22	65	e54	e12	20	49	70	71	89	14	1.2	3.8	3.4
23	70	e50	e11	20	65	68	69	85	13	1.2	3.5	6.3
24	69	e48	e11	20	92	63	65	81	13	1.1	2.9	5.6
25	64	e43	e10	22	97	58	61	75	12	1.6	29	4.3
26	58	e40	e10	31	96	54	57	70	11	2.8	45	3.5
27	52	e40	e9.6	37	e90	49	54	65	9.7	2.2	50	3.4
28	46	e41	e9.2	44	78	44	51	59	8.3	2.5	46	3.6
29	40	e43	e9.0	55	---	41	47	56	7.5	2.4	39	3.1
30	35	e41	e9.0	74	---	39	47	68	8.5	2.3	31	2.8
31	32	---	e10	88	---	42	---	73	---	1.9	26	---
TOTAL	899	1768	565.8	802	2339	1822	2466	2038	873.0	94.3	358.8	175.7
MEAN	29.0	58.9	18.3	25.9	83.5	58.8	82.2	65.7	29.1	3.04	11.6	5.86
MAX	70	82	39	88	113	72	152	93	77	8.0	50	21
MIN	11	40	9.0	14	49	39	43	46	7.5	1.1	1.2	2.6
CFSM	1.36	2.77	.86	1.21	3.92	2.76	3.86	3.09	1.37	.14	.54	.27
IN.	1.57	3.09	.99	1.40	4.09	3.18	4.31	3.56	1.52	.16	.63	.31

CAL YR 1989 TOTAL 11085.9 MEAN 30.4 MAX 112 MIN 1.5 CFSM 1.43 IN. 19.36
WTR YR 1990 TOTAL 14201.6 MEAN 38.9 MAX 152 MIN 1.1 CFSM 1.83 IN. 24.80

e Estimated

IPSWICH RIVER BASIN

45

01101500 IPSWICH RIVER AT SOUTH MIDDLETON, MA

LOCATION.--Lat 42°34'10", long 71°01'39", Essex County, Hydrologic Unit 01090001, on right bank in Peabody, 700 ft downstream from Boston Street Bridge at South Middleton, 1.3 mi downstream from Wills Brook, and 2 mi south of Middleton.

DRAINAGE AREA.--44.5 mi².

PERIOD OF RECORD.--Discharge: June 1938 to current year.
Water-quality records: Water years 1957, 1959.

REVISED RECORDS.--WSP 1301: 1942(M). WSP 1621: 1938-58 (monthly runoff). WDR MA-RI-84-1: Drainage area.

GAGE.--Water-stage recorder and concrete control. Datum of gage is 44.97 ft above National Geodetic Vertical Datum of 1929 (Massachusetts Geodetic Survey benchmark.)

REMARKS.--Records good except those for estimated daily discharges, which are fair. Diversions upstream for municipal supply of Reading, Lynn, and Peabody. Occasional regulation by mill upstream.

AVERAGE DISCHARGE.--52 years, 62.6 ft³/s.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 1,010 ft³/s, Apr. 7, 1987, gage height, 7.51 ft; minimum, 0.1 ft³/s, Sept. 24, Oct. 1, 1957.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 321 ft³/s, Apr. 4, gage height, 4.42 ft; minimum, 1.1 ft³/s, July 21-23.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990 MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	13	97	79	31	254	e120	69	95	137	10	15	45
2	15	99	e70	28	284	e115	65	96	132	11	12	37
3	30	107	e62	27	281	116	77	88	123	9.8	9.6	31
4	27	139	e60	26	239	114	281	83	110	7.2	7.5	25
5	24	130	e56	29	e190	105	293	93	96	7.2	5.9	21
6	23	120	e53	31	e180	98	264	100	84	6.1	5.1	18
7	21	113	e51	30	163	e91	251	93	76	5.4	5.3	15
8	19	108	e48	30	144	e87	225	89	69	4.5	11	13
9	17	121	e44	31	142	83	190	85	62	4.2	14	12
10	16	138	e39	33	177	79	165	83	58	3.8	11	11
11	19	131	e36	35	184	81	154	115	56	3.1	51	10
12	22	118	32	36	167	89	140	115	57	2.9	157	9.6
13	20	109	29	35	154	97	124	116	51	3.3	118	9.2
14	19	102	e26	32	155	100	111	138	46	3.5	88	7.8
15	28	98	e25	28	142	99	123	135	41	3.0	79	11
16	32	101	e24	26	126	99	153	125	38	2.3	67	13
17	36	119	e23	26	123	98	137	141	34	1.8	56	11
18	56	114	e23	33	114	106	129	156	29	1.6	47	9.0
19	58	105	e22	40	109	106	120	151	26	1.5	45	8.0
20	81	102	e22	36	98	107	113	139	24	1.3	47	9.5
21	122	105	e21	34	88	114	117	148	23	1.1	36	9.4
22	127	97	e21	33	93	109	125	152	22	1.1	29	8.7
23	121	90	e20	33	136	103	113	141	20	1.2	29	14
24	118	82	e19	33	178	96	103	130	18	1.4	30	14
25	111	79	e18	38	169	88	96	119	16	37	82	12
26	101	79	e17	66	e150	82	91	108	15	68	92	10
27	91	80	e17	90	e135	74	86	98	13	45	82	9.6
28	81	81	e16	88	e125	68	81	89	12	35	81	9.1
29	72	87	e16	94	---	62	75	84	11	30	75	8.1
30	65	83	e16	212	---	58	77	145	11	24	65	7.7
31	62	---	e18	257	---	65	---	157	---	18	54	---
TOTAL	1647	3134	1023	1601	4500	2909	4148	3607	1510	355.3	1506.4	428.7
MEAN	53.1	104	33.0	51.6	161	93.8	138	116	50.3	11.5	48.6	14.3
MAX	127	139	79	257	284	120	293	157	137	68	157	45
MIN	13	79	16	26	88	58	65	83	11	1.1	5.1	7.7

CAL YR 1989 TOTAL 16988.9 MEAN 46.5 MAX 191 MIN 1.4
WTR YR 1990 TOTAL 26369.4 MEAN 72.2 MAX 293 MIN 1.1

e Estimated

IPSWICH RIVER BASIN

01102000 IPSWICH RIVER NEAR IPSWICH, MA

LOCATION.--Lat 42°39'35", long 70°53'39", Essex County, Hydrologic Unit 01090001, on left bank 200 ft downstream from Willowdale Dam, 1.5 mi downstream from Howlett Brook, and 4 mi upstream from Ipswich.

DRAINAGE AREA.--125 mi².

PERIOD OF RECORD.--Discharge: June 1930 to current year.
Water-quality records: Water years 1954, 1976-79.

REVISED RECORDS.--WSP 1621: 1930-58 (monthly runoff). WDR MA-RI-84-1: Drainage area.

GAGE.--Water-stage recorder and concrete control. Datum of gage is 20.63 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Records excellent. Diversions upstream for municipal supply of Reading, Lynn, Peabody, Danvers, Salem, and Beverly. Some regulation by reservoirs upstream.

AVERAGE DISCHARGE.--60 years, 187 ft³/s.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 3,550 ft³/s, Apr. 8, 1987, gage height, 9.43 ft; minimum, 0.34 ft³/s, Sept. 20, 1978.
Maximum discharge since 1886, that of Apr. 8, 1987.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 821 ft³/s, Apr. 6, gage height, 5.00 ft; minimum, 4.9 ft³/s, July 1; minimum daily, 9.3 ft³/s, July 22.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	53	165	169	58	497	386	193	236	341	21	88	161
2	51	168	154	65	581	354	195	238	354	30	67	141
3	66	212	151	74	590	338	213	241	342	33	46	124
4	76	280	131	82	541	329	380	239	317	33	31	108
5	82	319	128	88	474	319	614	244	289	32	23	92
6	85	336	125	90	487	296	798	245	266	28	20	76
7	82	333	128	90	477	281	810	249	247	25	18	60
8	75	311	119	89	450	265	743	246	228	22	21	49
9	65	299	113	88	428	248	659	241	209	21	27	36
10	55	290	107	88	451	239	586	233	193	20	33	35
11	51	282	102	88	472	235	526	242	181	18	51	33
12	52	278	97	90	486	241	470	246	172	17	97	32
13	53	273	91	90	472	251	425	267	163	17	129	30
14	54	260	81	88	459	266	387	297	154	17	155	29
15	58	247	73	83	411	278	378	315	145	17	177	30
16	63	236	66	77	372	284	388	323	135	16	178	33
17	71	234	63	73	372	285	394	347	124	15	165	35
18	87	229	62	78	365	292	399	370	112	13	148	33
19	102	225	61	88	347	292	388	385	101	12	131	30
20	135	226	60	92	336	300	364	395	89	10	116	30
21	192	224	58	87	296	312	351	404	79	9.6	104	30
22	230	217	56	81	280	312	343	403	73	9.3	93	32
23	262	208	55	84	318	303	336	396	67	10	83	35
24	277	195	52	87	366	290	326	384	62	10	74	38
25	273	186	48	93	398	276	313	368	56	37	120	39
26	248	182	46	113	410	259	297	346	51	96	173	36
27	225	177	44	135	432	241	280	320	45	125	231	31
28	202	176	45	169	407	226	263	294	41	142	253	28
29	185	176	43	227	---	211	246	273	36	143	242	26
30	168	173	43	319	---	199	236	298	35	127	214	24
31	155	---	45	416	---	195	---	318	---	108	185	---
TOTAL	3833	7117	2616	3470	11975	8603	12301	9403	4707	1233.9	3493	1516
MEAN	124	237	84.4	112	428	278	410	303	157	39.8	113	50.5
MAX	277	336	169	416	590	386	810	404	354	143	253	161
MIN	51	165	43	58	280	195	193	233	35	9.3	18	24

CAL YR 1989 TOTAL 46151.9 MEAN 126 MAX 542 MIN 8.6
WTR YR 1990 TOTAL 70267.9 MEAN 193 MAX 810 MIN 9.3

MYSTIC RIVER BASIN

47

01102500 ABERJONA RIVER AT WINCHESTER, MA

LOCATION.--Lat 42°26'50", long 71°08'22", Middlesex County, Hydrologic Unit 01090001, on left bank at Winchester, 0.5 mi upstream from head of Mystic Lakes.

DRAINAGE AREA.--24.1 mi², excludes 0.6 mi² drained by Winchester North Reservoir.

PERIOD OF RECORD.--Discharge: April 1939 to current year.
Water-quality records: Water year 1958-59, 1973.

REVISED RECORDS.--WDR MA-RI-79-1: 1955. WDR MA-RI-84-1: Drainage area.

GAGE.--Water-stage recorder and concrete control. Datum of gage is National Geodetic Vertical Datum of 1929.

REMARKS.--No estimated daily discharges. Records good. Flow affected by diversions for industrial use and for municipal supply of Woburn and Winchester, and by wastage and leakage from Winchester North Reservoir. Some regulation by Winchester at dam 1,800 ft upstream.

AVERAGE DISCHARGE.--51 years, 28.7 ft³/s.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 1,330 ft³/s, Jan. 25, 1979, gage height, 15.46 ft, from rating curve extended above 400 ft³/s on basis of slope-area measurement of peak flow; no flow for part of Oct. 10, 12, 1950, caused by pumpage from gage pool; minimum daily discharge, 0.25 ft³/s, Oct. 10, 1950.
Maximum discharge since 1886, that of Jan. 25, 1979.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 709 ft³/s, Aug. 11, gage height, 13.71 ft; minimum, 0.94 ft³/s, July 30; minimum daily, 4.0 ft³/s, July 19.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990 MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	5.6	88	25	51	80	39	31	54	62	10	11	16
2	29	43	21	26	82	38	27	39	42	13	8.9	15
3	51	61	21	20	86	40	59	30	36	9.1	7.9	13
4	22	66	19	16	68	39	249	26	35	7.8	7.1	11
5	13	45	16	15	56	35	151	58	29	7.1	6.4	11
6	11	34	16	14	50	33	95	46	22	6.1	6.7	10
7	9.5	29	21	13	46	31	74	36	22	5.6	12	10
8	7.4	27	16	12	44	29	63	30	20	5.2	46	9.2
9	6.5	61	14	11	50	29	55	27	19	5.1	22	8.5
10	5.9	61	14	11	64	28	49	29	19	5.2	14	12
11	20	45	13	11	66	28	59	92	22	4.9	319	9.5
12	14	35	13	11	54	33	52	52	24	7.9	339	8.6
13	9.5	29	12	9.8	47	35	43	58	19	10	125	8.1
14	12	26	11	8.5	43	32	39	68	17	6.7	49	7.6
15	43	30	10	8.3	41	30	87	49	15	5.5	33	22
16	21	51	11	8.2	51	29	85	45	14	4.9	26	16
17	37	67	10	7.9	51	29	62	88	13	4.5	21	11
18	51	48	10	9.2	46	42	52	90	13	4.3	19	8.2
19	36	38	9.7	9.8	42	37	45	70	12	4.0	29	7.4
20	71	36	9.7	9.1	39	51	40	53	13	6.6	27	14
21	91	38	9.1	9.7	34	49	55	71	12	12	19	9.5
22	48	32	8.2	9.9	38	40	54	61	11	6.1	16	8.2
23	30	34	7.5	10	54	36	44	49	10	5.0	26	23
24	22	30	7.1	12	79	31	33	43	9.2	6.2	22	11
25	19	27	6.8	32	65	29	23	38	8.4	214	174	8.2
26	17	28	7.1	98	50	28	22	34	7.9	158	109	7.1
27	15	28	6.9	89	44	26	22	31	19	56	58	6.5
28	14	31	6.8	54	41	24	21	28	24	28	39	6.1
29	13	32	6.5	52	---	22	20	39	11	24	29	5.7
30	13	28	6.7	219	---	24	44	167	10	8.8	23	5.8
31	19	---	13	134	---	36	---	109	---	12	19	---
TOTAL	776.4	1228	378.1	1001.4	1511	1032	1755	1710	590.5	663.6	1663.0	319.2
MEAN	25.0	40.9	12.2	32.3	54.0	33.3	58.5	55.2	19.7	21.4	53.6	10.6
MAX	91	88	25	219	86	51	249	167	62	214	339	23
MIN	5.6	26	6.5	7.9	34	22	20	26	7.9	4.0	6.4	5.7

CAL YR 1989 TOTAL 8670.9 MEAN 23.8 MAX 157 MIN 3.2
WTR YR 1990 TOTAL 12628.2 MEAN 34.6 MAX 339 MIN 4.0

CHARLES RIVER BASIN

01103500 CHARLES RIVER AT DOVER, MA
(National stream-quality accounting network station)

LOCATION.--Lat 42°15'22", long 71°15'38", Norfolk County, Hydrologic Unit 01090001, on right bank 0.3 mi downstream from highway bridge, 0.8 mi downstream from Noanet Brook, and 1.3 mi northeast of intersection of Centre and Walpole Streets in Dover.

DRAINAGE AREA.--183 mi².

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1937 to current year. Prior to October 1977, published as "at Charles River Village."

REVISED RECORDS.--WDR MA-RI-84-1: Drainage area.

GAGE.--Water-stage recorder and concrete control. Datum of gage is 89.76 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Records good except those for estimated daily discharges, which are fair. Flow affected by diversions to and from basin for municipal supplies.

AVERAGE DISCHARGE.--53 years, 304 ft³/s.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 3,220 ft³/s, Aug. 23, 1955, gage height, 9.24 ft and Mar. 22, 1968, gage height, 8.72 ft; minimum, 0.5 ft³/s, Oct. 24, 1952 (caused by unusual regulation); minimum daily, 0.9 ft³/s, Oct. 24, 1952.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum discharge since flood in 1886, that of August 1955 and March 1968. Flood in March 1936 reached a discharge of 3,170 ft³/s, by computation of flow over dam at site 0.2 mi upstream.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,300 ft³/s, Aug. 15; minimum, 72 ft³/s, July 23, 24.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	259	615	504	204	966	508	328	384	619	153	230	180
2	245	572	452	228	1010	487	342	381	626	191	173	157
3	273	602	447	246	1020	476	379	375	603	187	134	139
4	274	626	e416	259	961	470	634	361	561	174	109	126
5	274	631	e375	276	876	461	681	389	499	152	93	118
6	269	639	e351	277	853	449	747	396	441	132	85	114
7	254	633	321	269	746	424	784	409	393	117	86	112
8	233	616	e288	255	681	400	777	410	341	105	124	105
9	210	652	266	239	645	382	731	398	301	98	154	100
10	187	654	257	231	665	373	674	375	277	91	216	94
11	175	649	243	232	680	374	636	443	279	82	547	88
12	164	652	238	235	688	394	583	440	300	e95	933	89
13	157	641	238	234	686	420	543	481	306	e120	1040	88
14	157	625	e225	217	665	439	509	533	290	138	e1200	85
15	244	615	e210	202	639	452	552	544	256	149	e1250	98
16	292	635	e205	187	658	453	591	555	232	146	e1100	105
17	353	671	e200	183	646	446	620	654	208	135	e990	112
18	447	682	e195	204	642	451	658	697	183	119	e850	113
19	482	709	e200	237	638	435	657	747	167	104	e740	109
20	602	729	e185	239	612	444	635	757	152	93	e630	111
21	766	723	e180	224	582	465	614	775	146	85	537	110
22	821	686	e175	177	559	471	592	759	142	79	452	110
23	911	662	e175	216	567	477	570	719	138	75	377	121
24	980	623	e170	226	590	468	561	686	134	78	304	119
25	977	584	e160	227	597	445	545	653	125	272	353	114
26	925	557	e150	358	590	414	515	618	118	420	335	108
27	850	533	e145	499	570	376	481	588	111	414	332	104
28	785	533	e140	567	542	348	443	522	112	394	316	104
29	719	525	e140	620	---	318	407	482	128	382	285	102
30	656	518	e150	890	---	301	389	597	139	344	243	94
31	605	---	e150	907	---	313	---	596	---	288	208	---
TOTAL	14546	18792	7551	9565	19574	13134	17178	16724	8327	5412	14426	3329
MEAN	469	626	244	309	699	424	573	539	278	175	465	111
MAX	980	729	504	907	1020	508	784	775	626	420	1250	180
MIN	157	518	140	177	542	301	328	361	111	75	85	85

CAL YR 1989 TOTAL 122456 MEAN 335 MAX 980 MIN 87
WTR YR 1990 TOTAL 148558 MEAN 407 MAX 1250 MIN 75

e Estimated

CHARLES RIVER BASIN

49

01103500 CHARLES RIVER AT DOVER, MA--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1975 to current year.

PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: October 1974 to September 1981.

WATER TEMPERATURES: November 1974 to September 1981.

WATER QUALITY DATA, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	SPE- CIFIC CON- DUCT- ANCE (µS/CM) (00095)	PH (STAND- ARD UNITS) (00400)	TEMPER- ATURE AIR (DEG C) (00020)	TEMPER- ATURE WATER (DEG C) (00010)	TUR- BID- ITY (NTU) (00076)	BARO- METRIC PRES- SURE (MM OF HG) (00025)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION) (00300) (00301)	COLI- FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML) (31625)	
OCT 17...	1500	351	183	6.8	12.5	17.0	1.4	759	10.0	104	100
JAN 10...	1450	225	252	6.7	7.0	0.5	2.0	750	13.0	92	51
MAR 05...	1300	458	214	--	--	3.0	--	--	--	--	--
APR 16...	1245	544	173	--	--	--	--	--	--	--	--
MAY 22...	1500	753	146	6.3	12.0	11.0	1.5	760	9.4	85	540
AUG 21...	1513	584	137	--	19.5	19.5	2.7	768	7.2	78	88

DATE	STREP- TOCOCCHI FECAL, KF AGAR (COLS. PER 100 ML) (31673)	HARD- NESS TOTAL (MG/L AS CACO3) (00900)	CALCIUM DIS- SOLVED (MG/L AS CA) (00915)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG) (00925)	SODIUM, DIS- SOLVED (MG/L AS NA) (00930)	SODIUM AD- SORP- TION RATIO (00931)	POTAS- SIUM, DIS- SOLVED (MG/L AS K) (00935)	CAR- BONATE WATER DIS IT FIELD MG/L AS CO3 (00452)	BICAR- BONATE WATER DIS IT FIELD MG/L AS HCO3 (00453)	ALKA- LINITY WAT WH TOT FET FIELD MG/L AS CACO3 (00410)	
OCT 17...	K270	38	11	2.6	20	52	1	2.2	0	29	25
JAN 10...	43	39	11	2.7	31	62	2	2.4	0	23	20
MAR 05...	--	--	--	--	--	--	--	--	--	--	--
APR 16...	--	--	--	--	--	--	--	--	--	--	--
MAY 22...	730	28	8.2	1.9	17	55	1	1.1	0	18	16
AUG 21...	K48	32	9.5	2.0	14	47	1	2.1	0	19	14

DATE	SULFATE DIS- SOLVED (MG/L AS SO4) (00945)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL) (00940)	FLUO- RIDE, DIS- SOLVED (MG/L AS F) (00950)	SILICA, DIS- SOLVED (MG/L AS SIO2) (00955)	SOLIDS, RESIDUE AT 180 DEG. C DIS- SOLVED (MG/L) (70300)	SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L) (70301)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N) (00631)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N) (00608)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	PHOS- PHORUS TOTAL (MG/L AS P) (00665)	PHOS- PHORUS DIS- SOLVED (MG/L AS P) (00666)
OCT 17...	13	30	0.10	8.5	111	104	0.400	0.030	0.60	0.070	0.030
JAN 10...	13	51	0.10	10	155	137	0.820	0.380	0.70	0.060	0.030
MAR 05...	--	--	--	--	--	--	--	--	--	--	--
APR 16...	--	--	--	--	--	--	--	--	--	--	--
MAY 22...	8.6	29	<0.10	4.7	94	81	0.200	0.050	1.0	0.030	0.010
AUG 21...	6.9	28	<0.10	9.3	110	82	<0.100	0.080	1.2	0.180	0.090

CHARLES RIVER BASIN

01103500 CHARLES RIVER AT DOVER, MA--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DATE	PHOS- PHORUS ORTHO, DIS- SOLVED (MG/L AS P) (00671)	ALUM- INUM, DIS- SOLVED (MG/L AS AL) (01106)	ARSENIC DIS- SOLVED (MG/L AS AS) (01000)	BARIUM, DIS- SOLVED (MG/L AS BA) (01005)	BERYL- LIUM, DIS- SOLVED (MG/L AS BE) (01010)	CADMIUM DIS- SOLVED (MG/L AS CD) (01025)	CHRO- MIUM, DIS- SOLVED (MG/L AS CR) (01030)	COBALT, DIS- SOLVED (MG/L AS CO) (01035)	COPPER, DIS- SOLVED (MG/L AS CU) (01040)	IRON, DIS- SOLVED (MG/L AS FE) (01046)	LEAD, DIS- SOLVED (MG/L AS PB) (01049)
OCT 17...	0.020	50	<1	62	<0.5	<1.0	<1	<3	3	220	2
JAN 10...	0.030	30	<1	24	<0.5	<1.0	<1	<3	<10	170	<10
MAR 05...	--	--	--	--	--	--	--	--	--	--	--
APR 16...	--	--	--	--	--	--	--	--	--	--	--
MAY 22...	0.010	50	<1	18	<0.5	<1.0	1	<3	4	300	3
AUG 21...	0.050	70	<1	26	<0.5	<1.0	1	<3	4	590	2

DATE	LITHIUM DIS- SOLVED (MG/L AS LI) (01130)	MANGA- NESE, DIS- SOLVED (MG/L AS MN) (01056)	MERCURY DIS- SOLVED (MG/L AS HG) (71890)	MOLYB- DENUM, DIS- SOLVED (MG/L AS MO) (01060)	NICKEL, DIS- SOLVED (MG/L AS NI) (01065)	SELE- NIUM, DIS- SOLVED (MG/L AS SE) (01145)	SILVER, DIS- SOLVED (MG/L AS AG) (01075)	VANA- DIUM, DIS- SOLVED (MG/L AS V) (01085)	ZINC, DIS- SOLVED (MG/L AS ZN) (01090)	SEDI- MENT, SUS- PENDED (MG/L) (80154)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM (70331)
OCT 17...	<4	31	<0.1	<10	1	<1	<1.0	<6	11	--	--
JAN 10...	<4	110	<0.1	<10	<10	<1	<1.0	<6	18	8	70
MAR 05...	--	--	--	--	--	--	--	--	--	--	--
APR 16...	--	--	--	--	--	--	--	--	--	--	--
MAY 22...	<4	35	<0.1	<10	4	<1	<1.0	<6	11	13	78
AUG 21...	<4	120	<0.1	<10	2	<1	<1.0	<6	16	19	81

CHARLES RIVER BASIN

51

01104000 MOTHER BROOK AT DEDHAM, MA

LOCATION.--Lat 42°15'18", long 71°09'53", Norfolk County, Hydrologic Unit 01090001, on right bank 100 ft upstream from Washington Street Bridge at Dedham and 0.4 mi downstream from point of diversion from Charles River.

PERIOD OF RECORD.--Discharge: October 1931 to current year.
Water-quality records: Water years 1959, 1969-70.

REVISED RECORDS.--WSP 1301: 1932(M).

GAGE.--Water-stage recorder. Concrete control since June 10, 1960. Datum of gage is 0.03 ft below National Geodetic Vertical Datum of 1929. Dec. 9, 1931, to June 9, 1960, nonrecording gage at site 200 ft upstream at same datum.

REMARKS.-- Records good except those for estimated daily discharges, which are poor. Mother Brook is a diversion from Charles River to Neponset River through Dedham and Hyde Park.

AVERAGE DISCHARGE.--59 years, 78.0 ft³/s.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 1,040 ft³/s, Mar. 21, 1968, gage height, 87.18 ft; maximum gage height, 92.90 ft Aug. 24, 1955, from graph based on gage readings; no flow at times.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 300 ft³/s, Oct. 24; minimum, 0.83 ft³/s, Sept. 19, 20, 22, 26, 27.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	46	e85	120	10	221	77	26	83	177	54	23	5.3
2	37	e80	105	12	235	85	45	77	170	64	8.4	2.1
3	65	e85	92	16	269	127	99	73	159	55	6.8	1.2
4	60	e90	57	18	269	129	199	79	146	43	7.6	9.3
5	51	e100	66	30	266	122	206	95	126	32	2.8	17
6	46	e120	66	50	233	115	205	91	100	27	3.2	3.5
7	51	187	58	48	212	105	211	93	90	37	6.6	2.1
8	40	193	44	42	181	92	210	93	89	29	9.2	1.8
9	28	212	35	34	160	83	198	84	70	21	7.5	1.1
10	22	210	30	28	169	75	178	74	55	17	19	4.9
11	18	192	40	25	173	74	166	107	38	11	125	18
12	15	186	61	24	165	86	153	94	31	14	247	17
13	25	172	54	23	159	128	133	94	27	17	221	8.1
14	23	146	40	18	157	133	117	107	23	12	232	1.3
15	48	135	31	13	147	133	128	102	15	12	242	2.7
16	57	149	27	14	160	130	151	101	8.4	11	234	1.4
17	88	181	21	32	156	124	144	140	3.9	7.6	213	1.6
18	135	167	19	36	146	130	152	152	1.5	4.3	179	1.1
19	136	169	21	45	142	121	148	161	6.7	2.0	145	.88
20	e180	173	20	46	141	119	140	159	20	1.3	106	1.6
21	e230	190	15	44	123	127	140	165	19	1.2	67	1.0
22	e260	167	12	29	113	116	135	163	20	1.2	51	1.7
23	e280	151	10	27	119	114	139	151	14	1.1	65	1.8
24	e290	136	8.5	36	133	109	179	138	11	1.9	42	1.5
25	e280	116	7.5	37	133	98	173	127	12	51	59	1.2
26	e260	105	6.7	82	129	88	161	116	26	117	44	.85
27	e210	91	5.1	127	118	76	134	116	22	93	33	.85
28	e170	127	5.3	130	97	62	113	89	21	77	36	1.7
29	e130	138	8.3	141	---	43	97	97	27	67	25	1.9
30	e110	124	3.3	233	---	22	89	201	53	65	14	1.5
31	e95	---	3.7	240	---	27	---	193	---	53	9.2	---
TOTAL	3486	4377	1092.4	1690	4726	3070	4369	3615	1581.5	999.6	2483.3	115.98
MEAN	112	146	35.2	54.5	169	99.0	146	117	52.7	32.2	80.1	3.87
MAX	290	212	120	240	269	133	211	201	177	117	247	18
MIN	15	80	3.3	10	97	22	26	73	1.5	1.1	2.8	.85

CAL YR 1989 TOTAL 28539.5 MEAN 78.2 MAX 343 MIN 1.4
WTR YR 1990 TOTAL 31605.78 MEAN 86.6 MAX 290 MIN .85

e Estimated

CHARLES RIVER BASIN

01104200 CHARLES RIVER AT WELLESLEY, MA

LOCATION.--Lat 42°18'59", long 71°13'42", Norfolk County, Hydrologic Unit 01090001, on left bank at east limits of Wellesley, 30 ft upstream from a horseshoe-shaped dam and 50 ft upstream from bridge on State Highway 9.

DRAINAGE AREA.--211 mi².

PERIOD OF RECORD.--Discharge: August 1959 to current year.
Water-quality records: Water year 1968.

GAGE.--Water-stage recorder and masonry dam. Datum of gage is 67.92 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Records good except those for estimated daily discharges, which are fair. Flow affected by diversion to Mother Brook (station 01104000), and by diversions to and from basin for municipal supplies. Occasional regulation at dam 0.2 mi upstream and by other ponds upstream.

AVERAGE DISCHARGE.--31 years, 282 ft³/s.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 2,410 ft³/s, Mar. 21, 1968, gage height, 6.20 ft; no flow Sept. 15, Oct. 6, 1959 (caused by closing of gates at dam at gage); minimum daily discharge, 1.0 ft³/s, Aug. 24, 31, Sept. 8, 1965.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,020 ft³/s, Feb. 1; minimum, 19 ft³/s, Sept. 10; minimum daily, 60 ft³/s, Sept. 11.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	271	648	441	e220	e1000	e520	e360	e400	e580	106	261	e200
2	208	602	402	e240	e940	e500	e350	e390	e560	142	219	e180
3	251	616	408	e250	e880	e440	e350	e360	e540	143	151	e160
4	258	650	e370	e250	e800	e440	e580	e340	e520	143	129	e140
5	265	635	e360	e240	e720	e440	e700	e340	e480	133	116	e130
6	232	483	e350	e240	e700	e430	e780	e390	e430	88	83	120
7	230	462	e340	e230	e700	e420	e740	e390	344	80	89	110
8	233	496	e320	e230	e660	e400	e700	e380	316	84	135	107
9	219	559	e300	e230	e620	e390	e680	e380	e290	81	164	101
10	202	577	e280	e230	e640	e390	e620	e380	e260	76	202	62
11	186	566	e260	e230	e660	e380	e600	e440	e270	77	541	60
12	140	550	e220	e230	e640	e370	e560	e450	e290	102	875	69
13	135	560	e220	e230	e610	e350	e540	e480	e340	131	844	74
14	150	556	e210	e220	e610	e380	e500	e500	e320	131	862	81
15	262	575	e220	e210	e600	e390	e560	e560	302	142	903	101
16	253	605	e210	e200	e660	e400	e600	e600	277	146	896	113
17	303	622	e200	e160	e640	e420	e600	e700	e260	142	860	109
18	427	606	e200	e180	e620	e430	e580	e740	e220	132	788	113
19	449	608	e200	e210	e580	e450	e580	e740	e150	118	708	113
20	562	630	e210	e220	e580	e450	e580	e740	135	103	631	113
21	693	610	e200	e220	e560	e450	e580	e740	127	93	559	113
22	720	617	e200	e200	e560	e450	e560	e740	129	82	e500	112
23	758	597	e190	e220	e580	e450	e520	e700	134	73	e350	136
24	787	576	e190	e230	e640	e440	e420	e660	131	72	e330	126
25	814	550	e180	e260	e620	e430	407	e620	85	263	e360	123
26	809	528	e180	e350	e600	e400	412	e620	82	416	e360	114
27	774	405	e170	e450	e580	e380	e410	e620	94	379	e350	80
28	728	423	e170	e470	e560	e360	e410	e580	98	362	e310	90
29	676	453	e160	e500	---	e350	e400	e580	75	356	e280	100
30	629	455	e190	e800	---	e350	e400	e600	88	274	e250	99
31	602	---	e200	e940	---	e370	---	e600	---	267	e220	---
TOTAL	13226	16820	7751	9090	18560	12820	16079	16760	7927	4937	13326	3349
MEAN	427	561	250	293	663	414	536	541	264	159	430	112
MAX	814	650	441	940	1000	520	780	740	580	416	903	200
MIN	135	405	160	160	560	350	350	340	75	72	83	60

CAL YR 1989 TOTAL 138166 MEAN 379 MAX 1160 MIN 70
WTR YR 1990 TOTAL 140645 MEAN 385 MAX 1000 MIN 60

e Estimated

CHARLES RIVER BASIN

53

01104500 CHARLES RIVER AT WALTHAM, MA

LOCATION.--Lat 42°22'20", long 71°14'03", Middlesex County, Hydrologic Unit 01090001, on right bank 800 ft downstream from Moody Street Bridge in Waltham and 0.3 mi upstream from Beaver Brook.

DRAINAGE AREA.--227 mi², excludes 23.6 mi² drained by Stony Brook, from which flow is diverted for municipal supply of Cambridge.

PERIOD OF RECORD.--Discharge: October 1903 to October 1909 (figures of average weekly discharge, equivalent to records of unadjusted discharge at present site), August 1931 to current year.
Water-quality records: Water years 1953, 1959, 1968-70.

REVISED RECORDS.--WSP 781: 1933(M). WSP 851: Drainage area. WSP 971: 1942.

GAGE.--Water-stage recorder and concrete control. Datum of gage is 20.02 ft above National Geodetic Vertical Datum of 1929. Prior to July 10, 1904, at dam 700 ft upstream and July 10, 1904, to Oct. 2, 1909, at dam 0.7 mi downstream at different datums; discharge computed from flow over dam and through wheels and gates of Boston Manufacturing Co. and Waltham Bleachery, respectively.

REMARKS.--Records good. Flow affected by diversion to Mother Brook (station 01104000), diversions to and from basin for municipal supplies, and at times by water released from Stony Brook Reservoir. Prior to 1960, some regulation by mills upstream. Low flow completely regulated by Boston Edison Co. powerplant prior to 1954.

AVERAGE DISCHARGE.--59 years (water years 1932-90), 304 ft³/s.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 4,150 ft³/s, Feb. 3, 1976, gage height, 6.54 ft, caused by release of water stored behind ice jam upstream; minimum, 0.1 ft³/s, Oct. 1, 12, 1943; minimum daily, 0.2 ft³/s, Oct. 4, 1943. Maximum discharge since 1886, that of Feb. 3, 1976.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,240 ft³/s, Aug. 11, gage height, 3.53 ft; minimum, 76 ft³/s, Sept. 11; minimum daily, 79 ft³/s, Sept. 11.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	280	672	461	277	947	568	403	432	620	154	292	252
2	264	613	424	278	886	506	370	414	596	196	260	224
3	267	636	433	283	881	457	366	387	583	198	199	181
4	268	663	381	295	883	474	777	339	563	198	153	129
5	272	637	366	287	746	469	773	424	525	189	141	136
6	262	563	361	261	761	462	725	424	488	165	121	163
7	238	460	353	273	746	445	708	414	437	123	109	149
8	244	497	326	273	684	428	702	402	379	126	172	135
9	233	591	305	268	663	414	683	397	360	127	181	131
10	220	614	295	264	700	408	652	401	340	122	224	120
11	213	580	266	264	726	412	642	519	334	116	681	79
12	189	554	221	270	692	399	602	478	364	141	971	88
13	150	550	227	270	675	370	557	496	366	176	878	91
14	165	572	218	262	657	408	528	557	362	164	849	100
15	285	573	219	257	653	424	612	573	348	172	875	138
16	293	630	222	213	714	434	666	571	329	177	871	144
17	318	665	210	164	691	441	642	749	304	168	834	138
18	435	630	208	190	660	468	630	777	280	158	772	134
19	458	613	204	212	640	461	629	766	231	145	709	137
20	574	635	212	233	615	483	615	749	178	133	637	141
21	729	631	211	235	598	491	628	784	184	123	573	136
22	754	611	205	210	589	491	624	778	174	114	478	136
23	754	599	197	214	626	479	538	735	179	101	392	166
24	764	576	192	240	695	467	439	694	178	102	373	153
25	779	556	187	271	676	457	465	661	160	433	473	141
26	771	537	185	401	628	434	467	663	119	510	429	137
27	738	475	180	501	607	408	454	669	136	455	381	120
28	695	437	167	503	583	388	446	599	150	409	354	99
29	652	471	164	539	---	372	427	527	140	385	349	114
30	608	474	197	984	---	373	428	673	126	345	322	118
31	592	---	189	1050	---	401	---	672	---	288	288	---
TOTAL	13464	17315	7986	10242	19622	13692	17198	17724	9533	6413	14341	4130
MEAN	434	577	258	330	701	442	573	572	318	207	463	138
MAX	779	672	461	1050	947	568	777	784	620	510	971	252
MIN	150	437	164	164	583	370	366	339	119	101	109	79

CAL YR 1989 TOTAL 123744 MEAN 339 MAX 779 MIN 57
WTR YR 1990 TOTAL 151660 MEAN 416 MAX 1050 MIN 79

NEPONSET RIVER BASIN

01105000 NEPONSET RIVER AT NORWOOD, MA

LOCATION.--Lat 42°10'39", long 71°12'05", Norfolk County, Hydrologic Unit 01090001, on left bank 200 ft upstream from Pleasant Street Bridge, 200 ft downstream from railroad bridge, 0.45 mi downstream from Hawes Brook, and 0.5 mi south of Norwood.

DRAINAGE AREA.--34.7 mi².

PERIOD OF RECORD.--Discharge: October 1939 to current year. October 1939 monthly discharge only, published in WSP 1301.

Water-quality records: Water years 1958-59, 1966-68.

REVISED RECORDS.--WDR MA-RI-78-1: 1976(M). WDR MA-RI-84-1: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 44.04 ft above National Geodetic Vertical Datum of 1929. Since Oct. 1, 1960, recording orifice at upstream side of railroad bridge, at same datum.

REMARKS.--Records fair. Flow regulated by mills and reservoirs upstream. Flow affected by several diversions upstream for municipal and industrial use.

AVERAGE DISCHARGE.--51 years, 55.1 ft³/s.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 1,490 ft³/s, Aug. 19, 1955, gage height, 14.65 ft, from floodmarks; minimum daily, 1.4 ft³/s, Oct. 20, 1963.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum discharge since 1886, that of Aug. 19, 1955. Flood of July 24, 1938, reached a stage of 11.05 ft, from floodmarks.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 626 ft³/s, Aug. 11, gage height, 9.14 ft, minimum daily, 7.7 ft³/s, July 23.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	40	117	73	77	169	75	62	69	118	29	26	31
2	41	110	62	67	154	74	57	68	93	37	22	27
3	54	123	63	52	156	80	83	60	78	31	19	25
4	49	131	58	45	143	85	244	53	71	28	17	22
5	41	122	52	47	120	78	212	75	60	23	15	20
6	34	108	50	46	109	73	170	77	55	19	15	19
7	31	96	52	41	100	67	133	67	53	16	16	19
8	29	89	50	37	93	64	113	59	49	15	40	17
9	27	130	47	38	98	62	99	54	47	14	54	16
10	27	138	42	39	133	62	91	57	51	13	100	15
11	26	127	35	41	149	66	93	107	63	12	351	15
12	25	113	40	40	128	78	85	95	64	20	460	15
13	23	97	38	37	109	85	74	76	57	36	322	15
14	24	91	36	33	100	82	68	100	47	35	230	14
15	76	98	33	30	96	76	117	97	41	28	147	21
16	69	120	34	30	137	72	154	86	36	22	118	22
17	88	139	34	30	138	70	139	147	33	18	96	21
18	138	128	33	34	121	87	123	144	31	15	78	17
19	133	114	32	39	107	85	106	123	29	11	69	14
20	168	106	32	35	95	95	93	104	27	11	59	16
21	235	102	31	37	81	99	96	114	24	10	55	16
22	203	90	30	39	79	87	103	114	26	9.4	50	18
23	156	86	28	37	92	76	95	106	24	7.7	45	33
24	126	82	26	36	116	66	83	93	24	11	44	30
25	118	79	24	49	113	61	75	86	21	93	102	23
26	104	81	26	151	96	57	67	77	19	93	84	19
27	91	81	25	187	86	51	67	70	18	78	71	17
28	82	86	24	135	80	48	62	64	25	54	58	17
29	79	86	22	116	---	43	58	72	20	41	47	16
30	73	80	23	268	---	44	62	162	19	28	42	15
31	76	---	31	230	---	61	---	158	---	29	49	---
TOTAL	2486	3150	1186	2123	3198	2209	3084	2834	1323	887.1	2901	585
MEAN	80.2	105	38.3	68.5	114	71.3	103	91.4	44.1	28.6	93.6	19.5
MAX	235	139	73	268	169	99	244	162	118	93	460	33
MIN	23	79	22	30	79	43	57	53	18	7.7	15	14

CAL YR 1989 TOTAL 22335 MEAN 61.2 MAX 273 MIN 14
WTR YR 1990 TOTAL 25966.1 MEAN 71.1 MAX 460 MIN 7.7

NEPONSET RIVER BASIN

55

01105500 EAST BRANCH NEPONSET RIVER AT CANTON, MA

LOCATION.--Lat 42°09'16", long 71°08'47", Norfolk County, Hydrologic Unit 01090001, on right bank 100 ft downstream from Washington Street Bridge at Canton, 200 ft downstream from Forge Pond Dam, and 900 ft downstream from Massapoag Brook.

DRAINAGE AREA.--27.2 mi².

PERIOD OF RECORD.--Discharge: October 1952 to current year.
Water-quality records: Water years 1959, 1967-68.

REVISED RECORDS.--WSP 1901: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 80.18 ft above National Geodetic Vertical Datum of 1929 (Massachusetts Department of Public Works benchmark).

REMARKS.--Records good except those for estimated daily discharges, which are poor. Flow regulated by Forge, Bolivar, Massapoag, and Reservoir Ponds, and other ponds upstream. Flow affected by diversions for municipal supply of Canton and Stoughton.

AVERAGE DISCHARGE.--38 years, 51.2 ft³/s.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 1,790 ft³/s, Aug. 19, 1955, gage height, 8.18 ft, from rating curve extended above 690 ft³/s; minimum daily, 0.60 ft³/s, July 7, Sept. 1, 1957.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 276 ft³/s, Jan. 30, gage height, 3.12 ft; minimum daily, 7.1 ft³/s, Sept. 14.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	42	122	59	e80	132	67	52	62	94	17	13	16
2	41	100	54	e72	131	66	40	55	79	35	12	14
3	58	109	54	e50	140	73	73	49	59	28	11	13
4	46	126	51	e40	124	69	221	45	50	20	9.9	12
5	37	100	46	e37	114	56	150	71	33	15	9.3	10
6	38	88	43	e37	105	51	106	67	32	13	8.7	9.8
7	33	81	51	e34	96	48	96	54	41	12	11	14
8	30	77	44	e31	70	47	90	52	41	11	28	9.5
9	28	134	40	e31	76	46	82	48	39	11	35	8.5
10	27	156	38	e31	103	47	75	58	45	11	49	8.1
11	29	114	35	e32	108	50	82	114	46	10	86	8.5
12	28	94	32	e32	88	57	66	92	51	13	165	7.8
13	26	83	31	e31	78	54	65	70	42	37	94	7.3
14	25	79	29	e29	74	54	59	91	36	29	60	7.1
15	74	88	27	e26	73	51	100	86	33	22	66	11
16	71	115	32	e25	113	47	126	76	29	25	58	15
17	104	148	36	e26	118	54	96	153	26	7.6	50	13
18	200	114	34	e28	109	80	88	132	24	11	39	11
19	151	85	33	e29	97	76	73	119	22	10	37	9.7
20	186	85	33	e28	89	79	65	103	21	8.8	35	10
21	229	87	31	e29	79	84	71	113	21	8.1	28	9.8
22	174	76	29	e30	77	70	78	110	21	8.7	25	10
23	126	73	27	e30	85	62	64	96	17	7.8	e23	33
24	114	71	26	e29	96	56	57	85	19	14	e13	23
25	105	69	25	e45	95	52	54	72	18	75	64	16
26	99	71	26	142	82	50	49	60	17	70	54	13
27	e95	71	26	139	73	46	52	41	15	26	30	12
28	e89	72	24	92	71	44	50	44	16	24	28	10
29	e80	73	24	87	---	42	48	50	15	21	22	9.7
30	e76	64	24	232	---	41	62	146	14	18	20	9.7
31	73	---	29	173	---	55	---	129	---	16	17	---
TOTAL	2534	2825	1093	1757	2696	1774	2390	2543	1016	635.0	1200.9	361.5
MEAN	81.7	94.2	35.3	56.7	96.3	57.2	79.7	82.0	33.9	20.5	38.7	12.0
MAX	229	156	59	232	140	84	221	153	94	75	165	33
MIN	25	64	24	25	70	41	40	41	14	7.6	8.7	7.1

CAL YR 1989 TOTAL 20720 MEAN 56.8 MAX 337 MIN 11
WTR YR 1990 TOTAL 20825.4 MEAN 57.1 MAX 232 MIN 7.1

e Estimated

WEYMOUTH BACK RIVER BASIN

01105600 OLD SWAMP RIVER NEAR SOUTH WEYMOUTH, MA

LOCATION.--Lat 42°11'25", long 70°56'43", Norfolk County, Hydrologic Unit 01090001, on left bank between divided lanes of State Highways 3 and 128, 100 ft downstream from unnamed tributary entering from left, 0.4 mi upstream from Whitmans Pond, and 1.2 mi north of South Weymouth.

DRAINAGE AREA.--4.29 mi².

PERIOD OF RECORD.--Discharge: May 1966 to current year.
Water-quality records: Water years 1967-68.

GAGE.--Water-stage recorder. Elevation of gage is 70 ft above National Geodetic Vertical Datum of 1929, from topographic map.

REMARKS.--Records fair except those for estimated daily discharges, which are poor.

AVERAGE DISCHARGE.--24 years, 9.24 ft³/s, 27.88 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 590 ft³/s, May 31, 1984, gage height, 5.02 ft; maximum gage height, 5.35 ft, Feb. 15, 1971 (ice jam); minimum discharge, 0.11 ft³/s, Sept. 5, 6, 9, 10, 1971.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 90 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
Jan. 30	unknown	110	unknown	Aug. 11	1415	115	3.99
Apr. 4	0315	*116	*4.00	Aug. 25	0345	*116	*4.00

Minimum discharge, 0.68 ft³/s, July 21-23, 24.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2.9	32	8.2	e15	e25	e9.4	9.8	17	9.4	1.6	2.1	1.4
2	3.9	23	6.8	e10	e18	10	8.3	9.1	5.8	2.2	1.4	1.3
3	5.5	26	6.3	e6.4	e15	13	22	5.8	4.5	1.6	1.1	1.1
4	3.7	32	6.4	e5.6	e13	13	104	6.9	3.9	1.2	.91	1.0
5	2.8	19	4.9	e4.7	e12	11	49	22	3.3	1.1	.81	1.0
6	2.4	13	4.3	e4.8	11	9.8	21	14	2.7	.86	.81	1.1
7	2.3	11	5.7	e4.4	11	e9.4	16	8.8	3.2	.78	1.6	1.2
8	2.0	9.2	5.0	e3.7	11	e9.1	15	5.2	2.5	.97	12	1.2
9	1.9	26	4.0	e4.6	15	8.8	12	7.2	2.7	1.1	4.0	1.0
10	1.7	29	3.4	e4.0	26	9.5	10	9.6	3.8	1.1	2.0	1.0
11	3.1	19	3.2	e4.4	24	12	16	34	7.3	.83	54	1.1
12	2.5	13	3.3	e4.0	15	15	13	12	7.1	6.2	51	e1.1
13	2.2	10	3.3	e3.6	12	13	9.8	8.3	3.6	9.3	11	.97
14	2.4	9.0	e3.1	e3.2	12	11	8.6	33	2.6	3.5	4.1	.88
15	18	12	e2.8	e2.9	11	9.5	32	21	2.2	2.1	2.6	4.0
16	11	18	e2.9	e2.9	25	8.8	34	11	1.9	1.6	1.7	2.4
17	21	24	e3.0	e3.0	19	8.7	16	41	1.7	1.1	1.5	1.9
18	38	17	e3.0	e3.4	13	15	13	30	1.5	1.0	1.2	1.2
19	27	11	e2.9	e3.5	10	12	10	17	1.6	e.96	2.2	e1.2
20	36	12	e2.8	e3.6	8.9	13	8.5	10	1.8	e.78	2.6	e1.2
21	43	14	e2.7	e3.7	e7.5	13	15	16	1.9	.74	1.3	.86
22	27	10	e2.6	e3.8	7.9	11	16	14	1.8	.68	1.1	4.0
23	16	8.8	e2.5	e4.0	11	9.2	11	9.3	1.5	.72	5.5	20
24	11	9.5	e2.4	e4.5	14	8.2	8.7	7.2	1.4	23	2.4	5.4
25	9.3	9.1	e2.3	e8.0	13	7.7	7.9	5.6	1.3	32	65	2.3
26	8.1	10	e2.8	e35	18	7.2	7.6	4.4	1.3	20	28	1.5
27	7.4	11	e2.5	e25	12	6.8	7.3	3.7	1.1	6.8	6.8	1.3
28	6.9	14	e2.3	e19	9.7	6.2	6.7	3.1	1.1	4.3	3.8	1.2
29	6.2	17	e2.2	e17	---	6.2	5.9	11	.90	3.1	2.7	1.1
30	5.9	11	e2.5	e90	---	7.0	12	56	1.2	2.7	2.0	1.0
31	6.7	---	e4.5	e50	---	12	---	28	---	2.2	1.5	---
TOTAL	337.8	479.6	114.6	357.7	400.0	315.5	526.1	481.2	86.60	136.12	278.73	65.91
MEAN	10.9	16.0	3.70	11.5	14.3	10.2	17.5	15.5	2.89	4.39	8.99	2.20
MAX	43	32	8.2	90	26	15	104	56	9.4	32	65	20
MIN	1.7	8.8	2.2	2.9	7.5	6.2	5.9	3.1	.90	.68	.81	.86
CFSM	2.42	3.55	.82	2.56	3.17	2.26	3.90	3.45	.64	.98	2.00	.49
IN.	2.79	3.96	.95	2.96	3.31	2.61	4.35	3.98	.72	1.13	2.30	.54

CAL YR 1989 TOTAL 3413.67 MEAN 9.35 MAX 58 MIN .66 CFSM 2.08 IN. 28.22
WTR YR 1990 TOTAL 3579.86 MEAN 9.81 MAX 104 MIN .68 CFSM 2.18 IN. 29.59

e Estimated

NORTH RIVER BASIN

57

01105730 INDIAN HEAD RIVER AT HANOVER, MA

LOCATION.--Lat 42°06'02", long 70°49'23", Plymouth County, Hydrologic Unit 01090002, on right bank at downstream side of Elm Street Bridge, 0.3 mi upstream from Iron Mine Brook, and 1 mi southwest of Hanover.

DRAINAGE AREA.--30.3 mi².

PERIOD OF RECORD.--Discharge: July 1966 to current year.
Water-quality records: Water years 1970-71.

GAGE.--Water-stage recorder. Datum of gage is 3.16 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Records good except those for estimated daily discharges, which are poor. Some regulation by mills and by Wampatuck, Indian Head, Maquan, and other ponds upstream.

AVERAGE DISCHARGE.--24 years, 62.2 ft³/s, 27.97 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 1,390 ft³/s, Mar. 18, 1968, gage height, 7.13 ft; minimum, 0.14 ft³/s, Sept. 26, 27, 1980; minimum daily, 0.18 ft³/s, Sept. 27, 29, 1980.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 310 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
Oct. 21	0330	320	4.06	Apr. 4	1645	311	4.02
Jan. 27	0030	320	4.06	Aug. 12	unknown	*600	unknown
Jan. 30	1900	346	4.18				

Minimum discharge, 5.0 ft³/s, July 8; minimum daily, 5.3 ft³/s, July 8.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	34	171	84	e90	183	68	70	102	121	16	e20	20
2	32	164	69	e70	155	71	61	82	86	18	e18	18
3	43	169	67	e60	174	87	81	63	71	18	e16	16
4	40	222	59	e50	149	90	285	55	63	15	e14	14
5	32	174	51	e45	120	79	250	95	56	13	e13	13
6	28	134	47	e45	106	70	162	97	50	11	e12	12
7	26	110	53	e43	101	63	123	74	49	7.2	e15	12
8	25	96	48	e40	98	62	111	65	45	5.3	e40	10
9	24	167	42	e37	109	64	93	59	43	8.6	e60	9.8
10	22	217	39	e38	161	66	82	56	50	9.2	e150	10
11	27	167	39	e38	173	77	94	123	57	8.3	e500	9.9
12	28	130	39	e38	135	94	97	96	65	20	e550	9.4
13	28	104	38	e37	107	95	77	75	51	52	e300	8.8
14	26	93	34	e35	97	84	69	137	41	34	e170	8.3
15	79	132	31	e32	90	76	94	136	37	23	e130	14
16	88	159	33	e30	150	70	132	97	34	17	e90	17
17	105	172	34	e30	155	67	102	195	31	13	e70	15
18	228	140	34	e35	118	84	93	183	29	11	e60	13
19	205	111	33	e40	98	92	78	156	28	9.8	e54	10
20	244	106	31	e40	87	88	70	117	31	e8.0	e50	10
21	303	119	e28	e37	74	96	86	122	31	e6.8	e45	9.6
22	242	98	e27	e37	74	85	117	126	28	e6.0	e41	11
23	169	89	e26	e39	91	74	88	102	25	e8.0	e40	63
24	129	85	e25	e40	111	65	74	88	23	e9.0	e40	48
25	104	83	e24	e64	108	60	67	78	21	e110	e100	28
26	89	87	e23	e165	84	57	64	70	19	e80	e80	20
27	80	92	e22	280	75	52	62	65	18	e70	e66	16
28	73	105	e21	186	71	50	58	59	16	e40	e48	14
29	67	128	e20	138	---	48	55	66	14	e35	e36	13
30	62	100	e20	310	---	48	70	204	15	e25	e30	12
31	60	---	e25	281	---	73	---	191	---	e23	e25	---
TOTAL	2742	3924	1166	2450	3254	2255	2965	3234	1248	730.2	2883	484.8
MEAN	88.5	131	37.6	79.0	116	72.7	98.8	104	41.6	23.6	93.0	16.2
MAX	303	222	84	310	183	96	285	204	121	110	550	63
MIN	22	83	20	30	71	48	55	55	14	5.3	12	8.3
CFSM	2.93	4.33	1.25	2.62	3.85	2.41	3.27	3.45	1.38	.78	3.08	.54
IN.	3.38	4.83	1.44	3.02	4.01	2.78	3.65	3.98	1.54	.90	3.55	.60

CAL YR 1989 TOTAL 24651 MEAN 67.5 MAX 359 MIN 11 CFSM 2.24 IN. 30.36
WTR YR 1990 TOTAL 27336.0 MEAN 74.9 MAX 550 MIN 5.3 CFSM 2.48 IN. 33.67

e Estimated

JONES RIVER BASIN

01105870 JONES RIVER AT KINGSTON, MA

LOCATION.--Lat 41°59'27", long 70°44'03", Plymouth County, Hydrologic Unit 01090002, on left bank 100 ft downstream from Elm Street Bridge at Kingston and 2.8 mi upstream from mouth.

DRAINAGE AREA.--15.7 mi², excludes 4.09 mi² above outlet of Silver Lake, from which flow is diverted for municipal supply of Brockton, Whitman, and Hanson.

PERIOD OF RECORD.--Discharge: August 1966 to current year.
Water-quality records: Water years 1970-71.

REVISED RECORDS.--WDR MA-RI-84-1: Drainage area.

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 4.76 ft above National Geodetic Vertical Datum of 1929 (levels by Massachusetts Department of Public Works).

REMARKS.--Records fair. Flow regulated by pond upstream. Flow affected at times during 1968-76, 1978-79, 1982-84 by wastage from Silver Lake. Surface flow may be affected by ground water that enters from or moves into adjacent basins.

AVERAGE DISCHARGE.--24 years, 31.7 ft³/s.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 575 ft³/s, Mar. 19, 1968, gage height, 4.60 ft; maximum gage height, 5.88 ft, Feb. 7, 1978, from peak-stage indicator (backwater from tide); minimum daily discharge, 0.59 ft³/s, Aug. 11, 1966.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 237 ft³/s, July 25, gage height, 4.61 ft; minimum daily, 8.7 ft³/s, Oct. 2.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	15	53	49	54	75	55	35	45	81	16	25	19
2	8.7	60	42	54	57	46	33	46	65	18	20	18
3	10	62	41	40	56	53	37	43	50	19	17	17
4	11	79	38	30	57	56	107	40	41	18	14	17
5	12	76	25	28	43	52	104	51	35	16	13	15
6	11	63	21	27	42	43	79	58	30	15	11	15
7	9.4	53	22	22	38	39	61	55	27	14	13	17
8	9.7	45	20	19	37	42	54	51	25	14	16	16
9	10	69	21	21	40	41	46	46	22	14	25	16
10	9.6	115	20	23	48	40	41	41	23	14	21	16
11	10	102	20	21	53	39	41	50	27	14	23	16
12	14	92	19	22	49	41	43	54	29	15	22	15
13	16	73	20	21	42	44	40	50	27	24	19	15
14	14	59	18	19	37	38	36	57	24	25	16	14
15	25	54	17	15	33	36	35	60	22	20	15	16
16	27	56	16	14	41	35	41	58	20	17	14	16
17	30	67	14	14	54	35	42	75	19	15	13	15
18	51	64	15	18	47	39	42	81	17	14	13	14
19	61	56	16	19	40	42	38	73	19	12	13	18
20	79	51	17	17	34	45	35	61	43	12	14	10
21	106	56	21	14	29	50	39	59	44	13	14	10
22	95	53	21	15	27	49	54	63	40	13	14	12
23	76	49	18	16	32	44	57	61	32	14	15	28
24	61	45	16	17	43	39	54	57	e25	79	16	36
25	45	44	17	30	51	35	50	50	21	216	34	25
26	39	44	17	87	51	32	46	48	18	174	45	22
27	41	47	14	105	47	30	43	45	17	96	39	17
28	42	54	12	74	44	28	38	42	16	60	34	14
29	42	62	11	57	---	27	34	45	15	39	28	13
30	37	56	12	98	---	26	37	84	16	31	23	11
31	34	---	17	90	---	30	---	94	---	23	20	---
TOTAL	1051.4	1859	647	1101	1247	1251	1442	1743	890	1084	619	503
MEAN	33.9	62.0	20.9	35.5	44.5	40.4	48.1	56.2	29.7	35.0	20.0	16.8
MAX	106	115	49	105	75	56	107	94	81	216	45	36
MIN	8.7	44	11	14	27	26	33	40	15	12	11	10

CAL YR 1989 TOTAL 10980.6 MEAN 30.1 MAX 131 MIN 4.2
WTR YR 1990 TOTAL 13437.4 MEAN 36.8 MAX 216 MIN 8.7

e Estimated

QUASHNET RIVER BASIN

59

011058837 QUASHNET RIVER AT WAQUOIT VILLAGE, MA

LOCATION.--Lat 41°35'32", long 70°30'30", Barnstable County, Hydrologic Unit 01090002, on right bank 15 ft upstream from bridge on Martins Road, 0.5 mi northeast of Waquoit Village, and 1.4 mi upstream from mouth.

DRAINAGE AREA.--Surface drainage, from topography, about 2.58 mi², excludes area drained by Johns Pond. This stream drains from a ground-water basin which is larger than, and not coincident with, the surface-water basin.

PERIOD OF RECORD.--October 1988 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 0.86 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Records good except those for estimated daily discharges, which are fair. Flow at times includes overflow and leakage from Johns Pond. Occasional regulation by cranberry bog upstream.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 41 ft³/s, Jan 28, 1989, gage height, 2.87 ft; minimum, 6.7 ft³/s, Oct. 29, 1988.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 37 ft³/s, Nov. 16, gage height, 2.85 ft; minimum, 7.8 ft³/s, Jan 14.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990 MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	12	29	12	19	14	14	16	22	19	15	14	14
2	12	20	12	13	14	15	15	20	18	16	14	13
3	13	18	12	12	14	14	18	19	18	16	14	13
4	12	16	12	13	15	19	23	19	19	16	13	13
5	11	14	9.7	13	15	16	17	22	18	16	13	13
6	11	14	9.0	12	14	17	17	20	17	16	13	13
7	11	14	9.1	12	14	15	18	19	19	15	13	13
8	11	14	8.9	12	14	15	17	20	18	15	13	13
9	11	20	8.8	13	14	11	16	19	18	16	14	12
10	11	19	8.8	13	16	11	16	19	19	16	16	12
11	12	14	8.8	11	15	10	19	24	19	15	16	12
12	12	13	8.8	8.6	14	10	17	20	19	16	15	12
13	11	13	8.8	8.1	13	12	17	20	17	19	14	12
14	11	13	8.5	7.8	10	10	17	26	18	16	14	12
15	14	13	9.0	8.1	9.8	12	17	20	18	16	14	13
16	13	16	17	8.1	11	29	17	20	18	15	13	12
17	12	13	13	8.1	11	26	17	22	17	15	13	12
18	12	13	13	9.4	11	e19	18	21	18	15	13	12
19	9.8	13	15	16	12	e19	17	20	18	14	13	11
20	12	13	13	21	13	e19	19	19	18	14	14	12
21	11	14	14	17	13	e18	21	20	18	14	14	12
22	9.2	13	13	14	13	16	21	19	17	16	13	12
23	8.7	13	12	13	16	16	20	19	20	15	13	15
24	8.5	13	12	13	18	15	19	19	21	15	13	13
25	8.9	13	12	14	15	15	19	18	19	17	15	12
26	9.6	15	12	16	14	15	19	19	18	16	15	12
27	10	14	12	15	14	15	19	18	17	16	14	12
28	11	14	12	13	14	15	19	18	17	15	14	12
29	14	13	11	13	---	15	19	19	17	15	14	12
30	25	13	11	21	---	16	21	25	17	15	14	12
31	32	---	15	16	---	18	---	20	---	15	14	---
TOTAL	381.7	447	353.2	403.2	380.8	487	545	625	544	481	429	373
MEAN	12.3	14.9	11.4	13.0	13.6	15.7	18.2	20.2	18.1	15.5	13.8	12.4
MAX	32	29	17	21	18	29	23	26	21	19	16	15
MIN	8.5	13	8.5	7.8	9.8	10	15	18	17	14	13	11

CAL YR 1989 TOTAL 4939.1 MEAN 13.5 MAX 38 MIN 7.3
WTR YR 1990 TOTAL 5449.9 MEAN 14.9 MAX 32 MIN 7.8

e Estimated

TAUNTON RIVER BASIN

01109000 WADING RIVER NEAR NORTON, MA

LOCATION.--Lat 41°56'51", long 71°10'38", Bristol County, Hydrologic Unit 01090004, on left bank 200 ft downstream from bridge on State Highway 140, 0.9 mi upstream from confluence with Rumford River, and 1.5 mi southeast of Norton.

DRAINAGE AREA.--43.3 mi².

PERIOD OF RECORD.--Discharge: June 1925 to current year.
Water-quality records: Water year 1967-68.

REVISED RECORDS.--WSP 871: 1938. WSP 1301: 1929-33(M). WSP 1621: 1925-58 (monthly runoff). WDR MA-RI-84-1: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 55.14 ft above National Geodetic Vertical Datum of 1929. Prior to Oct. 1, 1930, nonrecording gage at same site at datum 0.62 ft higher and Oct. 1, 1930, to May 5, 1933, at same site at present datum.

REMARKS.--Records good. Flow regulated to some extent by Lake Mirimichi and other lakes and reservoirs upstream. Diversion upstream for municipal supply of Attleboro and small diversions to and from basin for other municipal supplies.

AVERAGE DISCHARGE.--65 years, 73.4 ft³/s.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 1,460 ft³/s, Mar. 19, 1968, gage height, 11.47 ft; minimum, 0.3 ft³/s, Sept. 10, 1926.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 280 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
Oct. 21	1900	*365	*8.47	Apr. 4	2200	297	7.91
Jan. 30	2300	357	8.39	Aug. 12	2300	345	8.20

Minimum discharge, 9.0 ft³/s, Aug. 6.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	44	151	109	68	239	92	81	91	134	19	23	24
2	40	162	92	82	210	92	78	92	113	47	19	21
3	50	158	90	72	205	105	88	84	100	59	15	19
4	56	177	80	63	188	109	240	77	90	41	13	17
5	47	163	70	66	168	100	256	91	80	31	11	15
6	40	148	64	66	156	92	195	102	71	24	9.4	14
7	40	136	66	59	144	83	171	94	66	20	9.4	14
8	34	124	63	55	135	83	157	90	62	19	37	13
9	29	161	e56	52	135	83	142	83	57	20	71	13
10	26	225	52	53	156	80	129	78	61	18	83	13
11	26	201	52	57	172	81	129	115	68	15	105	12
12	25	172	53	57	154	89	128	127	79	18	266	11
13	24	148	51	54	137	103	115	109	69	48	301	11
14	21	133	46	46	128	100	105	139	60	58	225	11
15	33	145	42	40	121	96	135	148	54	47	175	13
16	57	177	41	39	153	96	207	127	48	37	135	18
17	82	215	e41	41	178	92	183	163	43	29	103	20
18	177	198	e40	49	147	105	175	176	41	23	79	17
19	205	171	e38	56	128	124	165	158	38	20	66	15
20	242	158	37	50	113	127	150	137	55	17	61	14
21	345	160	e36	48	99	133	147	144	43	14	55	13
22	313	150	e35	49	100	121	170	160	34	11	49	13
23	246	135	31	50	112	108	149	143	30	10	43	34
24	212	120	30	49	135	98	130	127	28	12	40	38
25	196	112	28	60	145	90	116	114	25	21	55	29
26	185	118	28	164	127	83	108	103	23	54	67	23
27	166	123	27	252	108	76	101	93	21	64	57	20
28	152	123	26	194	98	72	94	84	19	53	48	17
29	136	131	25	167	---	68	85	83	17	39	40	15
30	122	120	25	297	---	66	82	145	16	31	33	14
31	109	---	29	309	---	76	---	167	---	26	28	---
TOTAL	3480	4615	1503	2764	4091	2923	4211	3644	1645	945	2321.8	521
MEAN	112	154	48.5	89.2	146	94.3	140	118	54.8	30.5	74.9	17.4
MAX	345	225	109	309	239	133	256	176	134	64	301	38
MIN	21	112	25	39	98	66	78	77	16	10	9.4	11

CAL YR 1989 TOTAL 29517 MEAN 80.9 MAX 358 MIN 11
WTR YR 1990 TOTAL 32663.8 MEAN 89.5 MAX 345 MIN 9.4

e Estimated

TAUNTON RIVER BASIN

61

01109060 THREEMILE RIVER AT NORTH DIGHTON, MA

LOCATION.--Lat 41°51'58", long 71°07'24", Bristol County, Hydrologic Unit 01090004, on right bank 800 ft downstream from Warner Boulevard at North Dighton and 1.4 mi upstream from mouth.

DRAINAGE AREA.--84.3 mi².

REVISED RECORDS.--WDR MA-RI-84-1: Drainage area.

PERIOD OF RECORD.--Discharge: July 1966 to current year.
Water-quality records: Water years 1967-68.

GAGE.--Water-stage recorder. Datum of gage is 11.38 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Records fair except those for estimated daily discharges, which are poor. Flow regulated by Lake Mirimichi and other lakes and reservoirs upstream. Diversions to and from basin upstream for municipal supplies may be compensating.

AVERAGE DISCHARGE.--24 years, 171 ft³/s.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 2,490 ft³/s, Mar. 19, 1968, gage height, 8.30 ft; minimum, 5.1 ft³/s, Sept. 8, 1980.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 600 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
Oct. 21	unknown	*900	unknown	Jan. 31	1500	842	5.07
Jan. 27	2330	626	4.57	Apr. 5	1545	693	4.73

Minimum discharge, 31 ft³/s, July 23, 24, Sept. 22.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990 MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	e90	387	298	183	725	236	175	182	400	46	55	57
2	e100	392	252	206	599	224	175	193	337	104	48	52
3	e110	428	245	202	539	239	207	184	282	108	43	48
4	e120	439	210	182	506	253	436	167	239	93	38	44
5	e130	440	189	179	458	248	646	198	201	72	34	42
6	e120	410	186	169	417	230	604	223	170	60	32	40
7	e110	373	173	153	386	206	486	224	153	52	33	39
8	e96	345	165	139	356	188	422	205	140	45	107	38
9	e90	390	141	135	345	183	373	186	133	42	152	36
10	e80	472	148	136	370	180	333	175	139	44	137	35
11	e74	551	135	143	408	179	322	257	146	41	171	36
12	e70	496	e120	145	413	192	318	291	161	46	245	35
13	e64	429	e110	138	375	224	294	291	164	88	467	34
14	e60	382	e95	125	343	234	260	319	142	95	541	33
15	e100	379	e92	111	322	224	282	358	124	88	429	41
16	e150	423	e90	105	367	211	393	356	109	74	335	44
17	e200	528	e88	105	415	202	481	386	99	62	250	45
18	e450	549	e90	115	426	228	444	425	91	53	181	45
19	e560	491	e88	130	376	265	409	427	85	46	138	41
20	e700	440	e90	128	329	296	374	384	95	41	119	42
21	e850	424	e82	128	285	311	362	366	107	37	103	38
22	e840	400	e78	131	253	306	384	378	91	34	91	35
23	e700	377	e78	129	278	279	389	383	78	32	82	77
24	e600	343	e74	131	312	244	348	347	71	120	75	70
25	e540	322	76	157	335	214	307	305	65	115	99	62
26	463	313	77	358	331	190	275	268	60	113	110	53
27	423	312	74	534	287	173	251	236	55	108	112	48
28	384	321	73	598	265	158	231	203	50	103	97	44
29	350	330	72	496	---	147	202	200	42	86	84	41
30	319	325	72	655	---	146	184	323	54	71	73	38
31	289	---	83	806	---	165	---	391	---	62	64	---
TOTAL	9232	12211	3844	7052	10821	6775	10367	8831	4083	2181	4545	1333
MEAN	298	407	124	227	386	219	346	285	136	70.4	147	44.4
MAX	850	551	298	806	725	311	646	427	400	120	541	77
MIN	60	312	72	105	253	146	175	167	42	32	32	33

CAL YR 1989 TOTAL 72425 MEAN 198 MAX 850 MIN 40
WTR YR 1990 TOTAL 81275 MEAN 223 MAX 850 MIN 32

e Estimated

TAUNTON RIVER BASIN

01109070 SEGREGANSET RIVER NEAR DIGHTON, MA

LOCATION.--Lat 41°50'25", long 71°08'36", Bristol County, Hydrologic Unit 01090004, on left bank 50 ft upstream from twin culverts on Center Street and 1.8 mi northwest of Dighton.

DRAINAGE AREA.--10.6 mi².

PERIOD OF RECORD.--Discharge: July 1966 to current year.
Water-quality records: Water years 1967-68.

GAGE.--Water-stage recorder. Elevation of gage is 30 ft above National Geodetic Vertical Datum of 1929, from topographic map.

REMARKS.--Records good except those for estimated daily discharges and those below 1.0 ft³/s, which are fair. Occasional regulation by ponds upstream. Diversion upstream for Dighton Water District.

AVERAGE DISCHARGE.--24 years, 22.6 ft³/s, 28.95 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 867 ft³/s, Mar. 18, 1968, gage height, 7.51 ft; no flow at times in several water years.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 170 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
Jan. 27	0915	*301	*4.82	Apr. 4	1715	237	4.35
Jan. 30	1630	201	4.23				

Minimum discharge, 0.17 ft³/s, Sept. 13, 14, 15.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	7.4	63	24	46	73	20	24	21	42	2.9	5.2	.71
2	7.0	67	19	52	50	20	20	22	24	9.8	4.0	.59
3	16	55	18	39	45	27	34	18	18	9.1	2.6	.44
4	15	53	15	27	39	31	204	16	15	6.3	2.0	.31
5	11	46	12	28	35	26	156	26	13	3.9	1.1	.26
6	8.0	31	11	25	30	22	74	33	11	2.7	.76	.24
7	6.2	25	14	20	28	19	48	25	10	2.2	.73	.25
8	4.8	21	12	17	28	17	39	21	10	1.9	4.6	.24
9	4.4	52	10	16	34	17	32	19	12	1.7	17	.22
10	3.9	97	8.7	18	50	18	27	17	26	1.5	26	.20
11	4.2	63	9.0	22	63	19	32	45	26	1.2	26	.21
12	4.5	40	9.4	24	46	23	36	44	22	1.5	24	.22
13	4.3	28	9.0	21	32	30	30	28	16	12	15	.20
14	3.6	23	8.1	17	28	27	24	40	11	10	8.8	.18
15	8.1	29	6.6	14	25	23	33	45	9.1	7.3	6.0	.50
16	16	57	6.8	13	45	20	68	32	7.5	5.3	5.0	1.1
17	18	104	7.4	14	62	18	57	55	6.7	4.1	4.1	1.2
18	50	74	8.1	18	42	27	45	68	5.6	3.1	3.0	1.1
19	65	43	8.6	20	30	35	35	52	5.3	2.4	3.3	.89
20	77	34	8.9	16	25	39	28	36	5.4	1.7	3.4	.84
21	155	37	9.1	16	20	44	32	34	9.1	1.2	3.1	.79
22	116	33	9.3	17	19	35	49	42	7.9	.83	2.8	1.1
23	61	27	9.6	16	31	27	41	34	5.9	.57	2.1	7.4
24	38	25	10	17	44	22	30	e25	4.6	29	1.8	9.1
25	26	22	11	27	46	19	25	e21	3.6	42	4.7	4.7
26	22	27	10	137	35	17	22	e17	3.3	38	6.1	3.0
27	19	32	11	186	24	15	21	e15	2.8	23	5.0	2.2
28	17	35	9.7	80	21	15	19	e14	2.4	15	4.1	2.0
29	16	38	9.1	53	---	14	17	e15	2.4	10	3.0	1.9
30	14	31	9.0	168	---	13	17	68	2.3	7.5	2.0	1.9
31	13	---	10	124	---	20	---	79	---	5.7	1.1	---
TOTAL	831.4	1312	333.4	1308	1050	719	1319	1027	339.9	263.40	198.39	43.99
MEAN	26.8	43.7	10.8	42.2	37.5	23.2	44.0	33.1	11.3	8.50	6.40	1.47
MAX	155	104	24	186	73	44	204	79	42	42	26	9.1
MIN	3.6	21	6.6	13	19	13	17	14	2.3	.57	.73	.18
CFSM	2.53	4.13	1.01	3.98	3.54	2.19	4.15	3.13	1.07	.80	.60	.14
IN.	2.92	4.60	1.17	4.59	3.68	2.52	4.63	3.60	1.19	.92	.70	.15

CAL YR 1989 TOTAL 8018.34 MEAN 22.0 MAX 156 MIN .48 CFSM 2.07 IN. 28.14
WTR YR 1990 TOTAL 8745.48 MEAN 24.0 MAX 204 MIN .18 CFSM 2.26 IN. 30.69

e Estimated

TEN MILE RIVER BASIN

63

01109403 TEN MILE RIVER AT PAWTUCKET AVENUE AT EAST PROVIDENCE, RI

LOCATION.--Lat 41°49'51", long 71°21'06", Providence County, Hydrologic Unit 01090004, on right bank on upstream side of bridge on State Highways 1A and 114, 0.3 mi south of junction with State Highway 114A, and 0.7 mi upstream from mouth.

DRAINAGE AREA.--53.1 mi².

PERIOD OF RECORD.--October 1986 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 5 ft above National Geodetic Vertical Datum of 1929, from topographic map.

REMARKS.--Records good except those for estimated daily discharges, which are fair. Flow affected by regulation and diversions from reservoirs upstream.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 1,090 ft³/s, Apr. 6, 1987, gage height, 7.78 ft; minimum discharge, 7.4 ft³/s, Feb. 26, 1989.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 624 ft³/s, Oct. 21, gage height, 6.11 ft; minimum, 15 ft³/s, July 6, 11; minimum daily, 18 ft³/s, July 7.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	102	264	e155	147	334	124	106	127	182	50	36	44
2	105	257	e112	141	280	121	104	129	140	104	31	41
3	103	240	e121	121	267	130	134	114	123	83	28	43
4	102	e250	e118	106	252	138	382	102	113	86	27	36
5	101	e225	118	104	214	133	428	135	102	86	27	35
6	100	192	87	102	187	128	277	142	85	33	27	37
7	98	176	74	94	179	120	233	127	84	18	30	38
8	97	165	101	84	169	113	202	106	82	19	136	37
9	91	234	100	89	165	111	187	95	102	19	161	30
10	70	332	96	86	185	111	164	89	142	45	98	32
11	39	e280	95	93	214	111	158	173	126	53	197	32
12	39	215	95	93	195	122	145	158	103	25	498	31
13	39	e187	93	87	164	144	127	125	88	45	432	31
14	39	177	86	78	154	142	115	164	77	69	220	31
15	48	220	79	73	146	122	180	174	68	55	140	49
16	65	312	85	73	200	111	272	157	63	46	110	57
17	107	e377	76	73	238	105	254	224	56	40	94	51
18	e108	e330	73	76	201	129	221	242	52	36	82	43
19	227	e260	72	81	171	144	185	211	56	33	78	38
20	389	e229	72	81	154	155	159	173	78	30	71	41
21	576	e233	70	89	138	159	166	172	68	31	67	38
22	e538	e201	64	87	130	139	197	194	61	30	62	44
23	e421	e176	65	81	146	128	184	178	54	28	61	102
24	e313	e166	61	79	176	112	158	152	50	31	66	71
25	262	e161	59	101	182	105	142	133	46	82	161	53
26	233	162	61	233	156	101	132	120	44	105	109	46
27	211	e168	57	381	139	95	125	113	42	85	81	43
28	194	e174	59	282	130	90	120	106	42	56	69	39
29	174	e175	57	214	---	86	113	114	40	45	60	37
30	161	e162	57	412	---	88	108	227	42	42	55	35
31	162	---	66	488	---	106	---	261	---	40	49	---
TOTAL	5314	6700	2584	4329	5266	3723	5478	4737	2411	1550	3363	1285
MEAN	171	223	83.4	140	188	120	183	153	80.4	50.0	108	42.8
MAX	576	377	155	488	334	159	428	261	182	105	498	102
MIN	39	161	57	73	130	86	104	89	40	18	27	30

CAL YR 1989 TOTAL 41449 MEAN 114 MAX 576 MIN 31
WTR YR 1990 TOTAL 46740 MEAN 128 MAX 576 MIN 18

e Estimated

BLACKSTONE RIVER BASIN

01110000 QUINSIGAMOND RIVER AT NORTH GRAFTON, MA

LOCATION.--Lat 42°13'49", long 71°42'41", Worcester County, Hydrologic Unit 01090003, on right bank 800 ft downstream from dam at outlet of Hovey Pond at North Grafton and 0.3 mi upstream from Bummett Brook.

DRAINAGE AREA.--25.6 mi².

PERIOD OF RECORD.--October 1939 to current year.

REVISED RECORDS.--WDR MA-RI-84-1: Drainage area.

GAGE.--Water-stage recorder. Elevation of gage is 335 ft above National Geodetic Vertical Datum of 1929, from topographic map. Prior to Dec. 7, 1939, staff gage at same site and datum.

REMARKS.--No estimated daily discharges. Records good. Some regulation by Lake Quinsigamond 2.3 mi upstream and by ponds upstream.

AVERAGE DISCHARGE.--51 years, 41.3 ft³/s.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 820 ft³/s, Aug. 20, 1955, gage height, 5.15 ft; no flow Aug. 6-9, 22, 1966 (caused by unusual regulation), Sept. 13-17, 1980.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 199 ft³/s, Oct. 21, gage height, 2.70 ft; minimum daily, 1.9 ft³/s, June 26.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	26	74	50	31	120	68	42	45	86	16	11	17
2	27	69	45	31	112	63	42	45	76	16	8.5	15
3	41	74	45	29	112	62	49	41	69	15	6.8	13
4	38	84	43	28	106	62	104	38	66	14	5.8	11
5	33	72	39	29	96	58	106	51	61	14	4.9	9.5
6	29	66	37	28	83	55	96	54	53	11	4.9	8.8
7	28	62	39	26	72	53	87	51	50	10	12	8.9
8	25	58	36	25	66	50	77	47	46	8.4	58	10
9	23	71	34	24	64	48	66	43	43	7.7	59	8.0
10	21	88	33	24	77	47	60	42	42	7.8	49	9.6
11	22	80	32	24	87	47	66	79	41	6.7	54	10
12	22	73	31	23	80	52	69	76	39	11	64	9.3
13	21	63	30	23	71	58	61	76	36	20	51	8.8
14	20	58	29	21	68	56	55	91	33	18	42	8.3
15	39	58	28	21	65	54	64	85	30	16	34	12
16	41	66	30	20	73	53	79	80	28	15	27	15
17	48	87	29	20	74	51	74	110	26	13	22	14
18	73	79	27	21	66	58	74	111	24	11	19	12
19	71	71	26	21	64	55	63	104	22	9.8	18	9.9
20	104	65	25	20	62	61	58	93	22	8.3	19	11
21	192	71	25	23	54	66	59	101	21	11	16	9.1
22	182	59	24	25	53	58	62	103	20	9.9	14	8.2
23	153	55	23	24	72	56	59	94	19	8.5	13	8.6
24	130	53	22	23	102	52	54	86	18	8.3	15	7.8
25	111	51	22	28	105	47	51	78	4.2	25	60	6.4
26	96	50	21	52	94	47	50	72	1.9	30	56	5.9
27	85	50	18	66	85	43	48	67	2.8	25	47	5.9
28	74	53	19	62	75	41	46	63	12	21	38	5.8
29	66	58	19	59	---	38	43	63	10	17	31	5.8
30	60	52	19	139	---	37	43	95	15	15	25	5.7
31	56	---	20	140	---	43	---	96	---	13	21	---
TOTAL	1957	1970	920	1130	2258	1639	1907	2280	1016.9	432.4	905.9	290.3
MEAN	63.1	65.7	29.7	36.5	80.6	52.9	63.6	73.5	33.9	13.9	29.2	9.68
MAX	192	88	50	140	120	68	106	111	86	30	64	17
MIN	20	50	18	20	53	37	42	38	1.9	6.7	4.9	5.7

CAL YR 1989 TOTAL 16495.8 MEAN 45.2 MAX 192 MIN 9.8
WTR YR 1990 TOTAL 16706.5 MEAN 45.8 MAX 192 MIN 1.9

BLACKSTONE RIVER BASIN

65

01111200 WEST RIVER BELOW WEST HILL DAM, NEAR UXBRIDGE, MA

LOCATION.--Lat 42°06'17", long 71°36'28", Worcester County, Hydrologic Unit 01090003, on right bank 250 ft downstream from West Hill Dam, 2.2 mi northeast of Uxbridge, and 3.5 mi upstream from mouth.

DRAINAGE AREA.--27.9 mi².

PERIOD OF RECORD.--March 1962 to September 1990 (discontinued).

REVISED RECORDS.--WDR MA-RI-83-1: 1982(M).

GAGE.--Water-stage recorder and concrete control. Datum of gage is 234.35 ft above National Geodetic Vertical datum of 1929 (U.S. Army Corps of Engineers benchmark).

REMARKS.--Records good except those for estimated daily discharges, which are fair. Flow regulated by West Hill Reservoir (station 01111195), usable capacity, 542,000,000 ft³. See table below for figures of monthend contents.

AVERAGE DISCHARGE.--28 years, 48.9 ft³/s, 23.80 in/yr, adjusted for storage.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 607 ft³/s, June 6, 1984, gage height, about 4.27 ft (mean of surge); no flow for part of Aug. 17, 1967, caused by unusual regulation; minimum daily discharge, 1.1 ft³/s, Sept. 12, 1963, Aug. 12, 1965.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 429 ft³/s, Oct. 24, gage height, 3.67 ft; minimum, 2.3 ft³/s, May 22; minimum daily, 7.3 ft³/s, Aug. 5, 6.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990 MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	23	85	78	35	235	76	58	52	122	17	11	17
2	22	122	66	42	133	71	58	55	98	15	9.5	15
3	37	112	62	41	127	68	57	52	76	14	8.4	13
4	48	125	55	36	134	68	113	48	60	13	7.7	12
5	40	129	50	39	156	68	182	56	52	12	7.3	12
6	32	111	49	43	112	67	151	72	46	e11	7.3	12
7	28	97	50	40	95	57	124	69	43	10	9.0	11
8	25	89	49	37	80	54	106	63	41	9.6	38	11
9	23	89	45	34	79	54	85	55	39	8.9	52	10
10	22	114	41	33	e94	54	81	49	40	8.6	37	9.9
11	22	129	39	37	118	54	80	103	39	8.2	45	10
12	24	116	38	38	163	59	90	134	37	10	116	10
13	24	101	37	37	119	72	74	113	34	23	180	10
14	23	87	35	31	88	77	65	118	30	31	99	9.9
15	32	78	32	30	82	77	78	133	26	22	57	13
16	55	93	32	29	e86	72	123	118	22	15	38	17
17	60	161	32	29	e98	66	107	131	19	12	28	15
18	e84	186	32	34	103	64	102	175	17	11	22	12
19	e107	149	32	40	e98	69	96	161	16	9.7	20	11
20	e73	118	32	38	e91	70	84	142	15	8.7	21	11
21	111	106	32	35	82	77	75	134	15	8.4	19	10
22	e168	99	30	35	73	81	79	144	15	8.2	17	9.7
23	e275	89	29	34	e76	79	84	138	14	7.6	15	9.5
24	e372	80	28	33	e98	70	72	120	13	7.9	16	9.5
25	e281	79	25	35	118	64	65	105	13	35	40	9.2
26	182	77	26	64	116	61	61	91	12	50	58	8.8
27	118	76	23	101	e100	56	58	79	11	29	49	8.8
28	93	77	23	114	e87	48	54	67	21	20	40	8.8
29	87	88	22	127	---	42	50	62	20	17	32	8.8
30	83	88	23	176	---	41	48	102	18	15	25	8.6
31	69	---	24	279	---	46	---	134	---	13	20	---
TOTAL	2643	3150	1171	1756	3041	1982	2560	3075	1024	480.8	1144.2	333.5
MEAN	85.3	105	37.8	56.6	109	63.9	85.3	99.2	34.1	15.5	36.9	11.1
MAX	372	186	78	279	235	81	182	175	122	50	180	17
MIN	22	76	22	29	73	41	48	48	11	7.6	7.3	8.6
(†)	8.9	5.1	2.2	22.6	8.9	5.5	5.1	8.9	2.0	1.3	1.5	1.1
MEAN‡	87.8	104	36.7	64.3	103	62.7	85.2	101	31.5	15.2	37.0	11.0
CFSM‡	3.15	3.73	1.32	2.30	3.69	2.25	3.05	3.62	1.13	.54	1.33	.39
IN.‡	3.63	4.14	1.52	2.66	3.84	2.59	3.41	4.16	1.26	.63	1.53	.44

CAL YR 1989 TOTAL 21570.3 MEAN 59.1 MAX 372 MIN 9.5 MEAN‡ 59.1 CFSM‡ 2.12 IN.‡ 28.75
WTR YR 1990 TOTAL 22360.5 MEAN 61.3 MAX 372 MIN 7.3 MEAN‡ 61.2 CFSM‡ 2.19 IN.‡ 29.80

e Estimated

† Monthend contents, in millions of cubic feet, in West Hill Reservoir, records provided by U.S. Army Corps of Engineers.

‡ Adjusted for change in contents in West Hill Reservoir.

BLACKSTONE RIVER BASIN

01111230 BLACKSTONE RIVER AT MILLVILLE, MA
(National stream-quality accounting network station)

LOCATION.--Lat 42°01'16", long 71°34'04", Worcester County, Hydrologic Unit 01090003, on left bank 400 ft above railroad bridge, 0.8 mi southeast of Millville, and 1.4 mi upstream from Branch River.

DRAINAGE AREA.--277 mi³.

PERIOD OF RECORD.--Water years 1969 to current year.

PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: July 1969 to December 1980.

pH: July to December 1980.

WATER TEMPERATURES: July 1969 to December 1980.

DISSOLVED OXYGEN: July 1969 to December 1980.

WATER QUALITY DATA, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	SPE- CIFIC CON- DUCT- ANCE (µS/CM) (00095)	PH (STAND- ARD UNITS) (00400)	TEMPER- ATURE AIR (DEG C) (00020)	TEMPER- ATURE WATER (DEG C) (00010)	COLOR (PLAT- INUM- COBALT UNITS) (00080)	TUR- BID- ITY (NTU) (00076)	BARO- METRIC PRES- SURE (MM OF HG) (00025)	OXYGEN, DIS- SOLVED (MG/L) (00300)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION) (00301)	OXYGEN DEMAND, CHEM- ICAL (HIGH LEVEL) (MG/L) (00340)
OCT												
04...	1000	526	204	6.9	13.5	14.0	--	--	750	7.0	69	--
NOV												
08...	0945	822	183	6.8	12.0	9.0	--	--	755	10.6	93	--
DEC												
06...	1000	E468	240	6.3	4.0	0.0	--	1.6	750	13.2	92	16
JAN												
17...	0945	326	252	6.4	9.0	2.0	--	--	765	12.8	92	--
FEB												
07...	1023	891	251	6.6	4.5	1.0	--	--	758	13.4	95	--
MAR												
07...	0935	623	264	6.6	1.0	1.0	12	3.3	777	13.8	96	20
APR												
11...	1000	731	244	6.6	12.0	9.0	--	--	745	9.6	85	--
MAY												
09...	0905	488	238	6.7	21.5	12.5	--	--	758	9.6	91	--
JUN												
06...	0940	528	234	6.4	23.0	17.0	--	3.0	758	8.5	88	25
JUL												
11...	1005	120	344	6.3	24.0	20.0	--	--	761	6.9	76	--
AUG												
08...	0933	852	194	6.4	24.0	22.0	--	--	763	7.1	81	--
SEP												
05...	0930	189	270	7.1	24.5	18.0	25	1.5	762	7.7	82	56

DATE	OXYGEN DEMAND, BIO- CHEM- ICAL, 5 DAY (MG/L) (00310)	COLI- FORM, TOTAL, IMMED. (COLS. PER 100 ML) (31501)	COLI- FORM, FECAL, 0.7 KF AGAR (COLS. UM-MF PER 100 ML) (31625)	STREP- TOCOCCHI FECAL, KF AGAR (COLS. PER 100 ML) (31673)	HARD- NESS TOTAL (MG/L AS CACO3) (00900)	HARD- NESS NONCARB WH WAT TOT FLD MG/L AS CACO3 (00902)	CALCIUM DIS- SOLVED (MG/L AS CA) (00915)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG) (00925)	SODIUM, DIS- SOLVED (MG/L AS NA) (00930)	SODIUM PERCENT (00932)	SODIUM AD- SORP- TION RATIO (00931)	POTAS- SIUM, DIS- SOLVED (MG/L AS K) (00935)
OCT												
04...	--	17500	>950	190	--	--	--	--	--	--	--	--
NOV												
08...	2.0	26000	>1300	300	--	--	--	--	--	--	--	--
DEC												
06...	--	36000	>1600	960	35	13	11	1.9	27	60	2	2.7
JAN												
17...	1.0	132000	>2700	2300	--	--	--	--	--	--	--	--
FEB												
07...	--	39000	3200	720	--	--	--	--	--	--	--	--
MAR												
07...	1.0	14000	K180	88	36	13	11	2.1	32	64	2	2.4
APR												
11...	--	7400	460	120	--	--	--	--	--	--	--	--
MAY												
09...	3.0	980	K44	K28	--	--	--	--	--	--	--	--
JUN												
06...	--	2500	84	25	38	16	12	2.0	29	61	2	2.3
JUL												
11...	1.0	4800	70	K16	--	--	--	--	--	--	--	--
AUG												
08...	--	32000	>880	2400	--	--	--	--	--	--	--	--
SEP												
05...	<1.0	820	160	K60	45	31	14	2.3	33	59	2	3.7

BLACKSTONE RIVER BASIN

67

01111230 BLACKSTONE RIVER AT MILLVILLE, MA--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DATE	CAR- BONATE WATER DIS IT FIELD MG/L AS CO3 (00452)	BICAR- BONATE WATER DIS IT FIELD MG/L AS HCO3 (00453)	ALKA- LITY WAT DIS TOT IT FIELD MG/L AS CACO3 (39086)	SULFATE DIS- SOLVED (MG/L AS SO4) (00945)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL) (00940)	FLUO- RIDE, DIS- SOLVED (MG/L AS F) (00950)	SILICA, DIS- SOLVED (MG/L AS SIO2) (00955)	SOLIDS, RESIDUE AT 180 DEG. C DIS- SOLVED (MG/L) (70300)	SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L) (70301)	RESIDUE TOTAL AT 105 DEG. C, SUS- PENDE (MG/L) (00530)	SOLIDS, RESIDUE AT 105 DEG. C, TOTAL (MG/L) (00500)	NITRO- GEN, NITRATE TOTAL (MG/L AS N) (00620)
OCT												
04...	0	20	17	--	--	--	--	--	--	--	--	1.03
NOV												
08...	0	26	22	--	--	--	--	--	--	--	--	0.550
DEC												
06...	0	27	22	17	40	0.20	8.7	128	127	3	138	0.580
JAN												
17...	0	31	25	--	--	--	--	--	--	--	--	0.590
FEB												
07...	0	19	16	--	--	--	--	--	--	--	--	0.480
MAR												
07...	0	26	21	12	48	<0.10	6.4	138	131	6	152	0.670
APR												
11...	0	21	17	--	--	--	--	--	--	--	--	0.670
MAY												
09...	0	26	21	--	--	--	--	--	--	--	--	1.04
JUN												
06...	0	26	21	12	46	0.40	4.7	131	128	1	143	1.11
JUL												
11...	0	33	27	--	--	--	--	--	--	--	--	2.59
AUG												
08...	0	20	16	--	--	--	--	--	--	--	--	1.37
SEP												
05...	0	17	14	18	51	0.20	5.1	166	143	2	148	1.59

DATE	NITRO- GEN, NITRITE TOTAL (MG/L AS N) (00615)	NITRO- GEN, NITRITE DIS- SOLVED (MG/L AS N) (00613)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N) (00630)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N) (00631)	NITRO- GEN, AMMONIA TOTAL (MG/L AS N) (00610)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N) (00608)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS NH4) (71846)	NITRO- GEN, ORGANIC TOTAL (MG/L AS N) (00605)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	NITRO- GEN, TOTAL (MG/L AS N) (00600)	NITRO- GEN, TOTAL (MG/L AS NO3) (71887)
OCT											
04...	0.070	--	1.10	--	0.140	--	--	0.56	0.70	1.8	8.0
NOV											
08...	0.050	--	0.600	--	0.310	--	--	0.29	0.60	1.2	5.3
DEC											
06...	0.020	0.030	0.600	0.650	1.10	1.10	1.4	0.40	1.5	2.1	9.3
JAN											
17...	0.010	--	0.600	--	1.50	--	--	0.40	1.9	2.5	11
FEB											
07...	0.020	--	0.500	--	0.630	--	--	1.2	1.8	2.3	10
MAR											
07...	0.030	0.020	0.700	0.610	0.810	0.850	1.1	0.39	1.2	1.9	8.4
APR											
11...	0.030	--	0.700	--	0.630	--	--	0.47	1.1	1.8	8.0
MAY											
09...	0.060	--	1.10	--	0.390	--	--	0.41	0.80	1.9	8.4
JUN											
06...	0.090	0.080	1.20	1.20	0.220	0.200	0.26	0.48	0.70	1.9	8.4
JUL											
11...	0.010	--	2.60	--	0.020	--	--	0.78	0.80	3.4	15
AUG											
08...	0.030	--	1.40	--	<0.010	--	--	--	1.7	3.1	14
SEP											
05...	0.010	<0.010	1.60	1.50	<0.010	<0.010	--	--	0.70	2.3	10

BLACKSTONE RIVER BASIN

01111230 BLACKSTONE RIVER AT MILLVILLE, MA--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DATE	PHOS- PHORUS TOTAL (MG/L AS P) (00665)	PHOS- PHORUS DIS- SOLVED (MG/L AS P) (00666)	PHOS- PHORUS ORTHO TOTAL (MG/L AS P) (70507)	PHOS- PHORUS ORTHO, DIS- SOLVED (MG/L AS P) (00671)	ALUM- INUM, TOTAL RECOV- ERABLE (MG/L AS AL) (01105)	ALUM- INUM, DIS- SOLVED (MG/L AS AL) (01106)	ARSENIC TOTAL (MG/L AS AS) (01002)	ARSENIC DIS- SOLVED (MG/L AS AS) (01000)	BARIUM, DIS- SOLVED (MG/L AS BA) (01005)	BERYL- LIUM, DIS- SOLVED (MG/L AS BE) (01010)	BORON, TOTAL RECOV- ERABLE (MG/L AS B) (01022)
OCT 04...	0.340	--	0.230	--	--	--	--	--	--	--	--
NOV 08...	0.160	--	0.110	--	--	--	--	--	--	--	--
DEC 06...	0.150	0.080	0.130	0.080	--	30	--	1	13	<0.5	--
JAN 17...	0.330	--	0.280	--	--	--	--	--	--	--	--
FEB 07...	0.140	--	0.090	--	--	--	--	--	--	--	--
MAR 07...	0.040	0.060	0.190	0.060	120	20	1	1	13	<0.5	20
APR 11...	0.140	--	0.080	--	--	--	--	--	--	--	--
MAY 09...	0.220	--	0.170	--	--	--	--	--	--	--	--
JUN 06...	0.230	0.120	0.180	0.120	--	30	--	2	13	<0.5	--
JUL 11...	0.440	--	0.410	--	--	--	--	--	--	--	--
AUG 08...	1.10	--	0.290	--	--	--	--	--	--	--	--
SEP 05...	0.360	0.300	0.330	0.270	40	20	3	3	11	<0.5	70

DATE	CADMIUM TOTAL RECOV- ERABLE (MG/L AS CD) (01027)	CADMIUM DIS- SOLVED (MG/L AS CD) (01025)	CHRO- MIUM, TOTAL RECOV- ERABLE (MG/L AS CR) (01034)	CHRO- MIUM, DIS- SOLVED (MG/L AS CR) (01030)	COBALT, DIS- SOLVED (MG/L AS CO) (01035)	COPPER, TOTAL RECOV- ERABLE (MG/L AS CU) (01042)	COPPER, DIS- SOLVED (MG/L AS CU) (01040)	IRON, TOTAL RECOV- ERABLE (MG/L AS FE) (01045)	IRON, DIS- SOLVED (MG/L AS FE) (01046)	LEAD, TOTAL RECOV- ERABLE (MG/L AS PB) (01051)	LEAD, DIS- SOLVED (MG/L AS PB) (01049)
OCT 04...	--	--	--	--	--	--	--	--	--	--	--
NOV 08...	--	--	--	--	--	--	--	--	--	--	--
DEC 06...	--	<1	--	1	<3	--	8	--	230	--	1
JAN 17...	--	--	--	--	--	--	--	--	--	--	--
FEB 07...	--	--	--	--	--	--	--	--	--	--	--
MAR 07...	1	<1	3	<5	<3	7	<10	480	82	5	<10
APR 11...	--	--	--	--	--	--	--	--	--	--	--
MAY 09...	--	--	--	--	--	--	--	--	--	--	--
JUN 06...	--	<1	--	<1	<3	--	6	--	230	--	1
JUL 11...	--	--	--	--	--	--	--	--	--	--	--
AUG 08...	--	--	--	--	--	--	--	--	--	--	--
SEP 05...	4	<1	3	<1	<3	10	8	530	87	4	1

BLACKSTONE RIVER BASIN

69

01111230 BLACKSTONE RIVER AT MILLVILLE, MA--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DATE	LITHIUM DIS- SOLVED (µG/L AS LI) (01130)	MANGA- NESE, TOTAL RECOV- ERABLE (µG/L AS MN) (01055)	MANGA- NESE, DIS- SOLVED (µG/L AS MN) (01056)	MERCURY TOTAL RECOV- ERABLE (µG/L AS HG) (71900)	MERCURY DIS- SOLVED (µG/L AS HG) (71890)	MOLYB- DENUM, TOTAL RECOV- ERABLE (µG/L AS MO) (01062)	MOLYB- DENUM, DIS- SOLVED (µG/L AS MO) (01060)	NICKEL, TOTAL RECOV- ERABLE (µG/L AS NI) (01067)	NICKEL, DIS- SOLVED (µG/L AS NI) (01065)	SELE- NIUM, TOTAL (µG/L AS SE) (01147)	SELE- NIUM, DIS- SOLVED (µG/L AS SE) (01145)
OCT 04...	--	--	--	--	--	--	--	--	--	--	--
NOV 08...	--	--	--	--	--	--	--	--	--	--	--
DEC 06...	<4	--	92	--	<0.1	--	<10	--	6	--	<1
JAN 17...	--	--	--	--	--	--	--	--	--	--	--
FEB 07...	--	--	--	--	--	--	--	--	--	--	--
MAR 07...	<4	100	90	<0.10	<0.1	<1	<10	10	<10	<1	<1
APR 11...	--	--	--	--	--	--	--	--	--	--	--
MAY 09...	--	--	--	--	--	--	--	--	--	--	--
JUN 06...	<4	--	77	--	<0.1	--	<10	--	4	--	<1
JUL 11...	--	--	--	--	--	--	--	--	--	--	--
AUG 08...	--	--	--	--	--	--	--	--	--	--	--
SEP 05...	<4	30	18	<0.10	<0.1	<1	<10	8	7	<1	<1

DATE	SILVER, TOTAL RECOV- ERABLE (µG/L AS AG) (01077)	SILVER, DIS- SOLVED (µG/L AS AG) (01075)	STRON- TIUM, DIS- SOLVED (µG/L AS SR) (01080)	VANA- DIUM, DIS- SOLVED (µG/L AS V) (01085)	ZINC, TOTAL RECOV- ERABLE (µG/L AS ZN) (01092)	ZINC, DIS- SOLVED (µG/L AS ZN) (01090)	PHENOLS TOTAL (µG/L) (32730)	OIL AND GREASE, TOTAL RECOV. GRAVI- METRIC (MG/L) (00556)	PCB, TOTAL (µG/L) (39516)	PCB, TOTAL IN BOT- TOM MA- TERIAL (µG/KG) (39519)	ALDRIN, TOTAL (µG/L) (39330)
OCT 04...	--	--	--	--	--	--	--	--	--	--	--
NOV 08...	--	--	--	--	--	--	--	--	--	--	--
DEC 06...	--	<1	66	<6	--	32	--	--	--	--	--
JAN 17...	--	--	--	--	--	--	--	--	--	--	--
FEB 07...	--	--	--	--	--	--	--	--	--	--	--
MAR 07...	<1	<1	68	<6	40	29	--	<1	<0.1	--	<0.010
APR 11...	--	--	--	--	--	--	--	--	--	--	--
MAY 09...	--	--	--	--	--	--	--	--	--	--	--
JUN 06...	--	<1	67	<6	--	25	--	--	--	--	--
JUL 11...	--	--	--	--	--	--	--	--	--	--	--
AUG 08...	--	--	--	--	--	--	--	--	--	--	--
SEP 05...	<1	<1	77	<6	<10	16	13	<1	<0.1	110	<0.010

BLACKSTONE RIVER BASIN

01111230 BLACKSTONE RIVER AT MILLVILLE, MA--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DATE	ALDRIN, TOTAL IN BOT- TOM MA- TERIAL (µG/KG) (39333)	CHLOR- DANE, TOTAL IN BOT- TOM MA- TERIAL (µG/L) (39350)	CHLOR- DANE, TOTAL IN BOT- TOM MA- TERIAL (µG/KG) (39351)	DDD, TOTAL IN BOT- TOM MA- TERIAL (µG/L) (39360)	DDD, TOTAL IN BOT- TOM MA- TERIAL (µG/KG) (39363)	DDE, TOTAL IN BOT- TOM MA- TERIAL (µG/L) (39365)	DDE, TOTAL IN BOT- TOM MA- TERIAL (µG/KG) (39368)	DDT, TOTAL IN BOT- TOM MA- TERIAL (µG/L) (39370)	DDT, TOTAL IN BOT- TOM MA- TERIAL (µG/KG) (39373)	DI- ELDRIN TOTAL IN BOT- TOM MA- TERIAL (µG/L) (39380)	DI- ELDRIN TOTAL IN BOT- TOM MA- TERIAL (µG/KG) (39383)
OCT 04...	--	--	--	--	--	--	--	--	--	--	--
NOV 08...	--	--	--	--	--	--	--	--	--	--	--
DEC 06...	--	--	--	--	--	--	--	--	--	--	--
JAN 17...	--	--	--	--	--	--	--	--	--	--	--
FEB 07...	--	--	--	--	--	--	--	--	--	--	--
MAR 07...	--	<0.1	--	<0.010	--	<0.010	--	<0.010	--	<0.010	--
APR 11...	--	--	--	--	--	--	--	--	--	--	--
MAY 09...	--	--	--	--	--	--	--	--	--	--	--
JUN 06...	--	--	--	--	--	--	--	--	--	--	--
JUL 11...	--	--	--	--	--	--	--	--	--	--	--
AUG 08...	--	--	--	--	--	--	--	--	--	--	--
SEP 05...	<0.1	<0.1	13	<0.010	3.3	<0.010	2.3	<0.010	<0.1	<0.010	9.2

DATE	ENDO- SULFAN, TOTAL IN BOT- TOM MA- TERIAL (µG/L) (39388)	ENDO- SULFAN, TOTAL IN BOT- TOM MA- TERIAL (µG/KG) (39389)	ENDRIN, TOTAL IN BOT- TOM MA- TERIAL (µG/L) (39390)	ENDRIN, TOTAL IN BOT- TOM MA- TERIAL (µG/KG) (39393)	HEPTA- CHLOR, TOTAL IN BOT- TOM MA- TERIAL (µG/L) (39410)	HEPTA- CHLOR, TOTAL IN BOT- TOM MA- TERIAL (µG/KG) (39413)	HEPTA- CHLOR EPOXIDE TOT. IN BOTTOM MATL. TOTAL (µG/L) (39420)	HEPTA- CHLOR EPOXIDE TOT. IN BOTTOM MATL. TOTAL (µG/KG) (39423)	LINDANE TOTAL IN BOT- TOM MA- TERIAL (µG/L) (39340)	LINDANE TOTAL IN BOT- TOM MA- TERIAL (µG/KG) (39343)	METH- OXY- CHLOR, TOTAL (µG/L) (39480)
OCT 04...	--	--	--	--	--	--	--	--	--	--	--
NOV 08...	--	--	--	--	--	--	--	--	--	--	--
DEC 06...	--	--	--	--	--	--	--	--	--	--	--
JAN 17...	--	--	--	--	--	--	--	--	--	--	--
FEB 07...	--	--	--	--	--	--	--	--	--	--	--
MAR 07...	<0.010	--	<0.010	--	<0.010	--	<0.010	--	<0.010	--	<0.01
APR 11...	--	--	--	--	--	--	--	--	--	--	--
MAY 09...	--	--	--	--	--	--	--	--	--	--	--
JUN 06...	--	--	--	--	--	--	--	--	--	--	--
JUL 11...	--	--	--	--	--	--	--	--	--	--	--
AUG 08...	--	--	--	--	--	--	--	--	--	--	--
SEP 05...	<0.010	<0.1	<0.010	<0.1	<0.010	<0.1	<0.010	<0.1	<0.010	<0.1	<0.01

BLACKSTONE RIVER BASIN

71

01111230 BLACKSTONE RIVER AT MILLVILLE, MA--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DATE	MIREX, TOTAL (µG/L) (39755)	MIREX, IN BOT- TOM MA- TERIAL (µG/KG) (39758)	NAPH- THA- LENES, POLY- CHLOR. TOTAL (µG/L) (39250)	PCN, IN BOT- TOM MA- TERIAL (µG/KG) (39251)	PER- THANE TOTAL (µG/L) (39034)	PER- THANE IN BOT- TOM MA- TERIAL (µG/KG) (81886)	TOX- APHENE, TOTAL (µG/L) (39400)	TOXA- PHENE, TOTAL (µG/KG) (39403)	SEDI- MENT, SUS- PENDE (MG/L) (80154)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM (70331)
OCT 04...	--	--	--	--	--	--	--	--	--	--
NOV 08...	--	--	--	--	--	--	--	--	--	--
DEC 06...	--	--	--	--	--	--	--	--	10	59
JAN 17...	--	--	--	--	--	--	--	--	--	--
FEB 07...	--	--	--	--	--	--	--	--	--	--
MAR 07...	<0.01	--	<0.10	--	<0.1	--	<1	--	8	66
APR 11...	--	--	--	--	--	--	--	--	--	--
MAY 09...	--	--	--	--	--	--	--	--	--	--
JUN 06...	--	--	--	--	--	--	--	--	11	79
JUL 11...	--	--	--	--	--	--	--	--	--	--
AUG 08...	--	--	--	--	--	--	--	--	--	--
SEP 05...	<0.01	<0.1	<0.10	<1	<0.1	<1.0	<1	<1	8	65

BLACKSTONE RIVER BASIN

01111300 NIPMUC RIVER NEAR HARRISVILLE, RI

LOCATION.--Lat 41°58'52", long 71°41'11", Providence County, Hydrologic Unit 01090003, on left bank 1.0 mi upstream from mouth and 1.2 mi northwest of Harrisville.

DRAINAGE AREA.--16.0 mi².

PERIOD OF RECORD.--Discharge: March 1964 to current year.
Water-quality records: Water year 1968.

GAGE.--Water-stage recorder. Elevation of gage is 340 ft above National Geodetic Vertical Datum of 1929, from topographic map.

REMARKS.--Records good except those above 80 ft³/s, and those for estimated daily discharges, which are fair.

AVERAGE DISCHARGE.--26 years, 30.7 ft³/s, 26.06 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 1,840 ft³/s, Jan. 25, 1979, gage height, 8.53 ft, from rating curve extended above 530 ft³/s; minimum, 0.09 ft³/s, Sept. 10, 1964.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 270 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
Oct. 21	0445	a448	6.23	Aug. 11	1845	*a539	6.47
Jan. 30	0900	a313	5.74				

a From rating curve extended above 77 ft³/s

Minimum discharge, 2.2 ft³/s, July 23-25, Aug. 5, 6.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	19	89	39	e40	78	e34	38	46	40	5.4	4.8	14
2	21	66	e33	e38	74	33	32	38	31	5.4	3.9	13
3	38	76	e33	e31	88	39	39	30	27	5.1	3.2	12
4	29	98	e32	e27	e62	40	161	26	26	4.5	2.7	11
5	23	64	e32	e30	e53	33	93	47	23	4.0	2.4	10
6	20	54	30	e28	e45	30	57	44	21	3.8	2.4	9.9
7	18	48	e29	e26	42	e28	48	34	21	3.6	5.0	9.9
8	17	44	e28	e24	42	e27	45	33	20	3.0	153	9.4
9	17	75	e28	e23	50	26	38	29	19	2.8	63	8.4
10	14	97	27	e23	81	28	35	29	21	2.8	85	8.1
11	16	63	25	e24	77	30	48	179	19	2.6	242	8.1
12	19	52	e21	e23	52	41	47	83	18	6.3	242	8.1
13	17	45	21	e22	42	45	37	57	15	20	77	7.9
14	15	41	e19	e20	41	37	33	95	14	11	43	7.6
15	58	54	e20	20	39	33	93	70	12	7.3	30	16
16	59	119	e21	16	67	30	116	53	11	5.4	24	19
17	75	160	e20	16	80	29	67	103	10	4.4	20	14
18	138	89	e20	23	e61	48	62	91	9.1	3.7	18	12
19	84	64	e20	25	48	47	49	62	8.5	2.9	22	9.7
20	147	63	e19	e19	41	49	42	49	8.5	2.6	25	9.8
21	342	71	e19	24	e36	50	48	76	8.5	2.4	20	9.6
22	155	55	e18	31	36	39	55	77	8.4	2.4	18	8.6
23	101	51	e18	e20	62	34	43	54	7.9	2.4	16	8.5
24	76	e47	e18	17	80	30	37	45	7.3	2.2	28	8.3
25	63	42	e17	29	60	28	34	39	6.6	62	191	7.5
26	55	43	e17	127	e54	27	35	35	6.2	32	71	6.9
27	51	47	e17	106	e47	25	33	31	5.6	e15	39	6.7
28	47	55	e16	57	e38	23	29	28	5.2	e11	27	6.3
29	44	60	e16	49	---	22	26	30	4.7	e9.4	22	6.3
30	40	46	e16	248	---	23	28	108	4.7	e7.6	19	5.7
31	40	---	e17	130	---	35	---	64	---	e5.7	16	---
TOTAL	1858	1978	706	1336	1576	1043	1548	1785	439.2	258.7	1535.4	292.3
MEAN	59.9	65.9	22.8	43.1	56.3	33.6	51.6	57.6	14.6	8.35	49.5	9.74
MAX	342	160	39	248	88	50	161	179	40	62	242	19
MIN	14	41	16	16	36	22	26	26	4.7	2.2	2.4	5.7
CFSM	3.75	4.12	1.42	2.69	3.52	2.10	3.22	3.60	.91	.52	3.10	.61
IN.	4.32	4.60	1.64	3.11	3.66	2.42	3.60	4.15	1.02	.60	3.57	.68

CAL YR 1989 TOTAL 13127.3 MEAN 36.0 MAX 342 MIN 5.0 CFSM 2.25 IN. 30.52
WTR YR 1990 TOTAL 14355.6 MEAN 39.3 MAX 342 MIN 2.2 CFSM 2.46 IN. 33.38

e Estimated

BLACKSTONE RIVER BASIN

73

01111500 BRANCH RIVER AT FORESTDALE, RI

LOCATION.--Lat 41°59'47", long 71°33'47", Providence County, Hydrologic Unit 01090003, on left bank 20 ft upstream from abandoned bridge site, 400 ft downstream from milldam at Forestdale, 1 mi east of Slatersville, and 1.6 mi upstream from mouth.

DRAINAGE AREA.--91.2 mi².

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--September to December 1909 and January 1912 to July 1913 (gage heights only; published as "at Branch Village"), January 1940 to current year.

REVISED RECORDS.--WSP 2101: Drainage area.

GAGE.--Water-stage recorder. Elevation of gage is 180 ft above National Geodetic Vertical Datum of 1929, from topographic map. Prior to July 28, 1913, nonrecording gage at site 1 mi downstream at different datum.

REMARKS.--No estimated daily discharges. Records good. Occasional regulation by pond upstream. Prior to 1957, greater regulation by mills and reservoirs upstream.

AVERAGE DISCHARGE.--50 years, 174 ft³/s, 25.91 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 5,470 ft³/s, Jan. 25, 1979, gage height, 11.80 ft; maximum gage height, 11.90 ft, Mar. 18, 1968; minimum daily discharge, 5.2 ft³/s, Oct. 7, 1948.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum discharge since at least 1886, about 5,800 ft³/s, Mar. 19, 1936, by computation of flow over dam 1 mi upstream.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 880 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
Oct. 21	1200	1,820	7.08	Jan. 30	1600	1,270	5.92
Nov. 17	0545	904	5.06	Aug. 12	0315	*2,670	*8.54

Minimum daily discharge, 23 ft³/s, July 24.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990 MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	127	422	286	235	535	236	209	271	366	51	45	103
2	134	414	256	251	432	231	191	288	280	51	40	95
3	201	405	293	207	443	253	217	230	224	51	36	85
4	182	521	261	181	387	247	696	189	196	46	33	75
5	144	458	209	205	322	216	571	252	175	39	32	68
6	126	373	201	201	282	202	379	279	160	36	30	64
7	115	323	210	174	265	194	286	235	149	33	41	63
8	103	301	195	159	260	209	265	225	142	33	400	57
9	95	420	181	156	280	214	239	209	137	31	488	54
10	109	528	172	155	374	218	220	201	202	38	554	52
11	110	407	173	170	417	223	252	633	201	33	974	51
12	99	328	175	167	331	230	282	604	183	35	2070	50
13	93	292	159	157	277	260	234	455	165	43	934	49
14	86	276	145	138	253	233	209	519	144	48	542	48
15	151	317	135	131	245	215	377	489	127	54	319	69
16	221	506	142	126	356	205	668	380	118	47	194	96
17	271	824	134	127	437	198	436	558	106	41	149	82
18	636	579	134	146	388	259	440	572	96	43	126	69
19	526	440	131	169	316	290	401	457	85	39	130	61
20	677	393	134	149	272	289	350	323	81	34	140	61
21	1600	420	128	155	235	311	356	345	83	28	122	58
22	1060	356	121	146	233	264	359	424	82	26	104	56
23	692	323	121	138	290	228	295	344	76	26	92	59
24	504	300	119	136	375	194	250	283	72	23	114	55
25	408	285	118	171	360	176	226	228	60	26	688	55
26	361	291	123	508	275	168	219	208	55	32	570	64
27	329	330	118	642	250	161	205	194	50	38	399	59
28	306	339	114	398	249	158	181	180	46	48	254	53
29	289	376	113	323	---	155	160	173	44	60	172	49
30	272	320	117	1020	---	157	203	445	48	56	151	45
31	281	---	123	850	---	193	---	494	---	49	129	---
TOTAL	10308	11867	5041	7891	9139	6787	9376	10687	3953	1238	10072	1905
MEAN	333	396	163	255	326	219	313	345	132	39.9	325	63.5
MAX	1600	824	293	1020	535	311	696	633	366	60	2070	103
MIN	86	276	113	126	233	155	160	173	44	23	30	45
CFSM	3.65	4.34	1.78	2.79	3.58	2.40	3.43	3.78	1.44	.44	3.56	.70
IN.	4.20	4.84	2.06	3.22	3.73	2.77	3.82	4.36	1.61	.50	4.11	.78

CAL YR 1989 TOTAL 79358 MEAN 217 MAX 1600 MIN 48 CFSM 2.38 IN. 32.37
WTR YR 1990 TOTAL 88264 MEAN 242 MAX 2070 MIN 23 CFSM 2.65 IN. 36.00

BLACKSTONE RIVER BASIN

01111500 BRANCH RIVER AT FORESTDALE, RI--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1954, 1968, 1979 to current year.

WATER QUALITY DATA, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	SPE- CIFIC CON- DUCT- ANCE (μ S/CM) (00095)	PH (STAND- ARD UNITS) (00400)	TEMPER- ATURE AIR (DEG C) (00020)	TEMPER- ATURE WATER (DEG C) (00010)	COLOR (PLAT- INUM- COBALT UNITS) (00080)	TUR- BID- ITY (NTU) (00076)	BARO- METRIC PRES- SURE (MM OF HG) (00025)	OXYGEN, DIS- SOLVED (MG/L) (00300)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION) (00301)	OXYGEN DEMAND, CHEM- ICAL (HIGH LEVEL) (MG/L) (00340)
OCT												
04...	1115	182	84	7.0	14.0	14.0	--	--	750	7.1	70	--
NOV												
08...	1115	300	67	6.5	14.5	8.0	--	--	755	11.5	98	--
DEC												
06...	1215	198	78	7.2	7.0	1.0	--	0.60	750	13.9	99	13
JAN												
17...	1145	126	106	6.9	12.0	2.0	--	--	764	11.7	85	--
FEB												
07...	1145	263	76	6.4	7.0	1.0	--	--	757	12.8	91	--
MAR												
07...	1300	191	97	5.8	1.0	3.0	12	--	775	12.8	93	17
APR												
11...	1115	237	79	6.6	14.0	8.0	--	--	745	10.8	94	--
MAY												
09...	1110	210	82	6.8	27.0	14.0	--	--	757	10.4	101	--
JUN												
06...	1200	163	73	6.3	22.5	18.5	--	1.5	758	8.6	92	32
JUL												
11...	1120	32	108	6.5	24.5	22.5	--	--	761	8.6	100	--
AUG												
08...	1055	355	98	6.3	24.0	23.5	--	--	763	8.5	101	--
SEP												
05...	1130	69	74	6.9	24.5	20.5	55	1.8	762	8.2	91	21

DATE	OXYGEN DEMAND, BIO- CHEM- ICAL, 5 DAY (MG/L) (00310)	COLI- FORM, TOTAL, IMMED. (COLS. PER 100 ML) (31501)	COLI- FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML) (31625)	STREP- TOCOCCHI FECAL, KF AGAR (COLS. PER 100 ML) (31673)	HARD- NESS TOTAL (MG/L AS CAC03) (00900)	HARD- NESS NONCARB WH WAT TOT FLD MG/L AS CAC03 (00902)	CALCIUM DIS- SOLVED (MG/L AS CA) (00915)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG) (00925)	SODIUM, DIS- SOLVED (MG/L AS NA) (00930)	SODIUM PERCENT (00932)	SODIUM AD- SORP- TION RATIO (00931)	POTAS- SIUM, DIS- SOLVED (MG/L AS K) (00935)
OCT												
04...	--	1700	260	45	--	--	--	--	--	--	--	--
NOV												
08...	1.0	1500	100	26	--	--	--	--	--	--	--	--
DEC												
06...	--	780	80	27	--	--	--	--	--	--	--	--
JAN												
17...	1.0	440	800	22	--	--	--	--	--	--	--	--
FEB												
07...	--	440	92	K13	--	--	--	--	--	--	--	--
MAR												
07...	1.0	62	K4	K4	13	9	3.8	0.81	11	63	1	1.2
APR												
11...	--	950	29	32	--	--	--	--	--	--	--	--
MAY												
09...	1.0	1100	28	K18	--	--	--	--	--	--	--	--
JUN												
06...	--	800	29	K6	--	--	--	--	--	--	--	--
JUL												
11...	1.0	600	44	38	--	--	--	--	--	--	--	--
AUG												
08...	--	3400	580	1400	--	--	--	--	--	--	--	--
SEP												
05...	<1.0	820	92	170	12	2	3.7	0.72	8.7	58	1	1.0

BLACKSTONE RIVER BASIN

75

01111500 BRANCH RIVER AT FORESTDALE, RI--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DATE	BICAR- BONATE WATER WH IT FIELD MG/L AS HCO3 (00450)	CAR- BONATE WATER WH IT FIELD MG/L AS CO3 (00447)	ALKA- LINITY, CARBON- ATE IT-FLD (MG/L - CAC03) (99430)	SULFATE DIS- SOLVED (MG/L AS SO4) (00945)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL) (00940)	SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L) (70301)	RESIDUE TOTAL AT 105 DEG. C, SUS- PENDE (MG/L) (00530)	SOLIDS, RESIDUE AT 105 DEG. C, TOTAL (MG/L) (00500)	NITRO- GEN, NITRATE TOTAL (MG/L AS N) (00620)	NITRO- GEN, NITRITE TOTAL (MG/L AS N) (00615)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N) (00630)	NITRO- GEN, AMMONIA TOTAL (MG/L AS N) (00610)
OCT 04...	7	0	6	--	--	--	--	--	0.280	0.020	0.300	0.090
NOV 08...	4	0	3	--	--	--	--	--	0.190	0.010	0.200	0.070
DEC 06...	4	0	4	--	--	--	5	72	0.290	0.010	0.300	0.160
JAN 17...	11	0	9	--	--	--	--	--	--	<0.010	0.400	0.190
FEB 07...	7	0	6	--	--	--	--	--	--	<0.010	0.200	0.110
MAR 07...	5	0	4	9.7	16	45	17	66	--	<0.010	0.300	0.130
APR 11...	5	0	4	--	--	--	--	--	0.290	0.010	0.300	0.080
MAY 09...	6	0	5	--	--	--	--	--	--	<0.010	0.200	0.050
JUN 06...	5	0	4	--	--	--	1	48	--	<0.010	0.200	0.070
JUL 11...	7	0	6	--	--	--	--	--	--	<0.010	0.400	0.100
AUG 08...	8	0	6	--	--	--	--	--	--	0.010	<0.100	<0.010
SEP 05...	12	0	10	5.4	14	39	3	57	--	<0.010	0.200	0.170

DATE	NITRO- GEN, ORGANIC TOTAL (MG/L AS N) (00605)	NITRO- GEN, AM- MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	NITRO- GEN, TOTAL (MG/L AS N) (00600)	NITRO- GEN, TOTAL (MG/L AS NO3) (71887)	PHOS- PHORUS TOTAL (MG/L AS P) (00665)	PHOS- PHORUS ORTHO TOTAL (MG/L AS P) (70507)	ALUM- INUM, TOTAL RECOV- ERABLE (MG/L AS AL) (01105)	ARSENIC TOTAL (MG/L AS AS) (01002)	BORON, TOTAL RECOV- ERABLE (MG/L AS B) (01022)	CADMIUM TOTAL RECOV- ERABLE (MG/L AS CD) (01027)	CHRO- MIUM, TOTAL RECOV- ERABLE (MG/L AS CR) (01034)	COPPER, TOTAL RECOV- ERABLE (MG/L AS CU) (01042)
OCT 04...	0.41	0.50	0.80	3.5	0.020	0.020	--	--	--	--	--	--
NOV 08...	0.23	0.30	0.50	2.2	0.020	0.010	--	--	--	--	--	--
DEC 06...	0.24	0.40	0.70	3.1	0.020	0.030	--	--	--	--	--	--
JAN 17...	0.21	0.40	0.80	3.5	0.030	0.010	--	--	--	--	--	--
FEB 07...	0.29	0.40	0.60	2.7	0.020	0.010	--	--	--	--	--	--
MAR 07...	0.87	1.0	1.3	5.8	<0.010	<0.010	140	<1	<10	<1	<1	3
APR 11...	0.42	0.50	0.80	3.5	0.020	<0.010	--	--	--	--	--	--
MAY 09...	0.35	0.40	0.60	2.7	0.030	<0.010	--	--	--	--	--	--
JUN 06...	0.43	0.50	0.70	3.1	0.020	0.010	--	--	--	--	--	--
JUL 11...	0.50	0.60	1.0	4.4	0.030	0.010	--	--	--	--	--	--
AUG 08...	--	0.90	--	--	0.040	<0.010	--	--	--	--	--	--
SEP 05...	0.43	0.60	0.80	3.5	<0.010	<0.010	120	<1	<10	<1	2	3

BLACKSTONE RIVER BASIN

01111500 BRANCH RIVER AT FORESTDALE, RI--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DATE	IRON, TOTAL RECOV- ERABLE (µG/L AS FE) (01045)	LEAD, TOTAL RECOV- ERABLE (µG/L AS PB) (01051)	MANGA- NESE, TOTAL RECOV- ERABLE (µG/L AS MN) (01055)	MERCURY TOTAL RECOV- ERABLE (µG/L AS HG) (71900)	MOLYB- DENUM, TOTAL RECOV- ERABLE (µG/L AS MO) (01062)	NICKEL, TOTAL RECOV- ERABLE (µG/L AS NI) (01067)	SELE- NIUM, TOTAL RECOV- ERABLE (µG/L AS SE) (01147)	SILVER, TOTAL RECOV- ERABLE (µG/L AS AG) (01077)	ZINC, TOTAL RECOV- ERABLE (µG/L AS ZN) (01092)	PHENOLS TOTAL (µG/L) (32730)	OIL AND GREASE, TOTAL RECOV. GRAVI- METRIC (MG/L) (00556)	PCB, TOTAL (µG/L) (39516)
OCT 04...	--	--	--	--	--	--	--	--	--	--	--	--
NOV 08...	--	--	--	--	--	--	--	--	--	--	--	--
DEC 06...	--	--	--	--	--	--	--	--	--	--	--	--
JAN 17...	--	--	--	--	--	--	--	--	--	--	--	--
FEB 07...	--	--	--	--	--	--	--	--	--	--	--	--
MAR 07...	300	1	70	<0.10	<1	2	<1	<1	20	4	<1	<0.1
APR 11...	--	--	--	--	--	--	--	--	--	--	--	--
MAY 09...	--	--	--	--	--	--	--	--	--	--	--	--
JUN 06...	--	--	--	--	--	--	--	--	--	--	--	--
JUL 11...	--	--	--	--	--	--	--	--	--	--	--	--
AUG 08...	--	--	--	--	--	--	--	--	--	--	--	--
SEP 05...	770	1	30	<0.10	<1	1	<1	<1	<10	3	<1	<0.1

DATE	PCB, TOTAL IN BOT- TOM MA- TERIAL (µG/KG) (39519)	ALDRIN, TOTAL (µG/L) (39330)	ALDRIN, TOTAL IN BOT- TOM MA- TERIAL (µG/KG) (39333)	CHLOR- DANE, TOTAL (µG/L) (39350)	CHLOR- DANE, TOTAL IN BOT- TOM MA- TERIAL (µG/KG) (39351)	DDD, TOTAL (µG/L) (39360)	DDD, TOTAL IN BOT- TOM MA- TERIAL (µG/KG) (39363)	DDE, TOTAL (µG/L) (39365)	DDE, TOTAL IN BOT- TOM MA- TERIAL (µG/KG) (39368)	DDT, TOTAL (µG/L) (39370)	DDT, TOTAL IN BOT- TOM MA- TERIAL (µG/KG) (39373)
OCT 04...	--	--	--	--	--	--	--	--	--	--	--
NOV 08...	--	--	--	--	--	--	--	--	--	--	--
DEC 06...	--	--	--	--	--	--	--	--	--	--	--
JAN 17...	--	--	--	--	--	--	--	--	--	--	--
FEB 07...	--	--	--	--	--	--	--	--	--	--	--
MAR 07...	--	<0.010	--	<0.1	--	<0.010	--	<0.010	--	<0.010	--
APR 11...	--	--	--	--	--	--	--	--	--	--	--
MAY 09...	--	--	--	--	--	--	--	--	--	--	--
JUN 06...	--	--	--	--	--	--	--	--	--	--	--
JUL 11...	--	--	--	--	--	--	--	--	--	--	--
AUG 08...	--	--	--	--	--	--	--	--	--	--	--
SEP 05...	10	<0.010	<1	<0.1	9.0	<0.010	6.8	<0.010	6.0	<0.010	15

BLACKSTONE RIVER BASIN

77

01111500 BRANCH RIVER AT FORESTDALE, RI--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DATE	DI-ELDRIN, TOTAL (µG/L) (39380)	DI-ELDRIN, IN BOT-TOM MA-TERIAL (µG/KG) (39383)	ENDO-SULFAN, TOTAL (µG/L) (39388)	ENDO-SULFAN, IN BOT-TOM MA-TERIAL (µG/KG) (39389)	ENDRIN, TOTAL (µG/L) (39390)	ENDRIN, IN BOT-TOM MA-TERIAL (µG/KG) (39393)	HEPTA-CHLOR, TOTAL (µG/L) (39410)	HEPTA-CHLOR, IN BOT-TOM MA-TERIAL (µG/KG) (39413)	HEPTA-CHLOR, EPOXIDE TOTAL (µG/L) (39420)	HEPTA-CHLOR, EPOXIDE TOT. IN BOTTOM MATL. (µG/KG) (39423)	LINDANE TOTAL (µG/L) (39340)
OCT 04...	--	--	--	--	--	--	--	--	--	--	--
NOV 08...	--	--	--	--	--	--	--	--	--	--	--
DEC 06...	--	--	--	--	--	--	--	--	--	--	--
JAN 17...	--	--	--	--	--	--	--	--	--	--	--
FEB 07...	--	--	--	--	--	--	--	--	--	--	--
MAR 07...	<0.010	--	<0.010	--	<0.010	--	<0.010	--	<0.010	--	<0.010
APR 11...	--	--	--	--	--	--	--	--	--	--	--
MAY 09...	--	--	--	--	--	--	--	--	--	--	--
JUN 06...	--	--	--	--	--	--	--	--	--	--	--
JUL 11...	--	--	--	--	--	--	--	--	--	--	--
AUG 08...	--	--	--	--	--	--	--	--	--	--	--
SEP 05...	<0.010	0.1	<0.010	<1	<0.010	<1	<0.010	<1	<0.010	<1	<0.010

DATE	LINDANE TOTAL IN BOT-TOM MA-TERIAL (µG/KG) (39343)	METH-OXY-CHLOR, TOTAL (µG/L) (39480)	METH-OXY-CHLOR, TOT. IN BOTTOM MATL. (µG/KG) (39481)	MIREX, TOTAL (µG/L) (39755)	MIREX, IN BOT-TOM MA-TERIAL (µG/KG) (39758)	NAPH-THA-LENES, POLY-CHLOR. TOTAL (µG/L) (39250)	PCN, TOTAL IN BOT-TOM MA-TERIAL (µG/KG) (39251)	PER-THANE TOTAL (µG/L) (39034)	PER-THANE IN BOT-TOM MA-TERIAL (µG/KG) (81886)	TOX-APHENE, TOTAL (µG/L) (39400)	TOXA-PHENE, TOTAL IN BOT-TOM MA-TERIAL (µG/KG) (39403)
OCT 04...	--	--	--	--	--	--	--	--	--	--	--
NOV 08...	--	--	--	--	--	--	--	--	--	--	--
DEC 06...	--	--	--	--	--	--	--	--	--	--	--
JAN 17...	--	--	--	--	--	--	--	--	--	--	--
FEB 07...	--	--	--	--	--	--	--	--	--	--	--
MAR 07...	--	<0.01	--	<0.01	--	<0.10	--	<0.1	--	<1	--
APR 11...	--	--	--	--	--	--	--	--	--	--	--
MAY 09...	--	--	--	--	--	--	--	--	--	--	--
JUN 06...	--	--	--	--	--	--	--	--	--	--	--
JUL 11...	--	--	--	--	--	--	--	--	--	--	--
AUG 08...	--	--	--	--	--	--	--	--	--	--	--
SEP 05...	<1	<0.01	--	<0.01	30	<0.10	<10	<0.1	<10.0	<1	<100

BLACKSTONE RIVER BASIN

01112500 BLACKSTONE RIVER AT WOONSOCKET, RI

LOCATION.--Lat 42°00'22", long 71°30'13", Providence County, Hydrologic Unit 01090003, on right bank 50 ft upstream from Peters River pressure conduit at Woonsocket. Records include flow of Peters River.

DRAINAGE AREA.--416 mi².

PERIOD OF RECORD.--Discharge: February 1929 to current year.

Water-quality records: Water years 1952-53, 1957-58, 1962-67.

REVISED RECORDS.--WSP 756: Drainage area. WSP 781: 1931(M). WSP 871: 1938. WSP 1051: 1931.

GAGE.--Water-stage recorder. Datum of gage is 107.42 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Records good except those for estimated daily discharges, which are fair. Flow regulated by powerplants, by West Hill Reservoir since May 1961, and by other reservoirs upstream. Extremes and figures of daily discharge include flow diverted from Nashua River basin and, at times since January 1966, from Quabbin Reservoir for supply of Worcester, MA, and, prior to July 1964, flow diverted around station in Hamlet Trench. See table with station 01111200 for monthend contents of West Hill Reservoir.

AVERAGE DISCHARGE.--61 years, 771 ft³/s.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 32,900 ft³/s, Aug. 19, 1955, gage height, 21.8 ft, from floodmarks, from rating curve extended above 15,000 ft³/s on basis of slope-area measurement of peak flow (affected by failure of Horseshoe Dam on Mill River); minimum daily, 21 ft³/s, Aug. 11, 1934 (flow diverted around station in Hamlet Trench not included).

Maximum discharge since at least 1645, that of Aug. 19, 1955.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 6,080 ft³/s, Oct. 21, gage height, 8.57 ft; minimum daily, 143 ft³/s, July 21.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	537	1650	1240	852	2340	1190	869	935	1640	366	253	399
2	524	1730	1090	1040	1910	1130	815	996	1300	345	237	374
3	863	1740	1110	763	2050	1190	919	876	1070	316	221	341
4	826	2040	979	655	1870	1200	2450	767	956	267	215	314
5	688	1830	920	751	1660	1110	2470	962	866	251	211	297
6	546	1580	860	732	1500	1030	1870	1280	773	242	208	274
7	535	1430	880	643	1350	962	1520	1080	720	325	253	254
8	475	1290	820	565	1270	944	1350	953	659	200	1300	273
9	455	1580	741	563	1300	929	1200	853	650	193	1430	251
10	426	2090	684	563	1630	914	1070	809	706	183	1270	229
11	427	1910	687	603	1980	923	1140	1910	731	184	2350	287
12	496	1640	687	601	1720	1010	1290	2000	660	293	4230	285
13	429	1460	652	573	1500	1230	1130	1680	602	479	2350	254
14	402	1370	602	514	1320	1160	1000	1970	538	398	1590	252
15	757	1410	548	483	1240	1070	1380	1940	486	328	1090	331
16	1130	1840	551	459	1500	1000	2140	1610	459	277	742	418
17	1150	2790	559	456	1680	943	1770	2170	417	239	563	347
18	1970	2280	516	519	1600	1070	1630	2440	379	237	442	301
19	1870	1850	e490	606	1410	1190	1480	2130	362	215	437	271
20	2340	1650	481	545	1290	1200	1320	1740	338	168	496	263
21	5020	1640	e470	549	1130	1310	1290	1800	347	143	416	256
22	4480	1500	e460	542	1080	1180	1390	2100	337	168	385	245
23	3000	1390	e450	522	1320	1050	1270	1830	314	177	354	267
24	2490	1340	e450	507	1820	918	1120	1550	302	173	407	245
25	2170	1300	e445	620	1910	842	1000	1350	293	941	1710	248
26	1860	1300	e440	1650	1550	788	964	1180	262	1120	1710	251
27	1660	1350	e440	2340	1360	739	918	1060	251	600	1220	249
28	1520	1390	438	1660	1260	697	846	969	451	445	923	243
29	1360	1520	434	1420	---	673	781	944	496	365	720	238
30	1240	1380	416	3320	---	671	800	1770	396	302	562	239
31	1190	---	445	3470	---	819	---	2140	---	278	472	---
TOTAL	42836	49270	19985	29086	43550	31082	39192	45794	17761	10218	28767	8496
MEAN	1382	1642	645	938	1555	1003	1306	1477	592	330	928	283
MAX	5020	2790	1240	3470	2340	1310	2470	2440	1640	1120	4230	418
MIN	402	1290	416	456	1080	671	781	767	251	143	208	229

CAL YR 1989 TOTAL 339452 MEAN 930 MAX 5020 MIN 190
WTR YR 1990 TOTAL 366037 MEAN 1003 MAX 5020 MIN 143

e Estimated

BLACKSTONE RIVER BASIN

79

01112900 BLACKSTONE RIVER AT MANVILLE, RI

LOCATION.--Lat 41°58'18", long 71°28'14", Providence County, Hydrologic Unit 01090003, at Manville Road Bridge, 400 ft downstream from milldam at Manville, and 2.5 mi downstream from Woonsocket Sewage Treatment Plant.

PERIOD OF RECORD.--Water years 1970, 1979 to current year.

WATER QUALITY DATA, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	SPE- CIFIC CON- DUCT- ANCE (µS/CM) (00095)	PH (STAND- ARD UNITS) (00400)	TEMPER- ATURE AIR (DEG C) (00020)	TEMPER- ATURE WATER (DEG C) (00010)	COLOR (PLAT- INUM- COBALT UNITS) (00080)	TUR- BID- ITY (NTU) (00076)	BARO- METRIC PRES- SURE (MM OF HG) (00025)	OXYGEN, DIS- SOLVED (MG/L) (00300)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION) (00301)	OXYGEN DEMAND, CHEM- ICAL (HIGH LEVEL) (MG/L) (00340)
OCT												
04...	1330	836	207	7.3	17.0	14.0	--	--	755	7.0	68	--
NOV												
08...	1315	1320	162	6.9	15.0	9.0	--	--	760	10.5	91	--
DEC												
06...	1400	876	208	6.6	14.0	1.0	--	2.0	752	13.8	98	16
JAN												
17...	1330	437	253	6.9	11.5	2.5	--	--	766	11.4	83	--
FEB												
07...	1414	1370	226	6.5	8.0	1.5	--	--	758	12.0	86	--
MAR												
07...	1600	986	248	7.0	0.0	2.0	15	--	777	12.8	91	24
APR												
11...	1345	1190	203	6.7	13.5	9.5	--	--	748	10.2	91	--
MAY												
09...	1305	884	202	6.9	25.0	14.0	--	--	760	10.4	101	--
JUN												
06...	1420	761	208	6.2	21.0	18.0	--	1.8	759	8.5	90	29
JUL												
11...	1330	204	342	7.1	24.0	23.0	--	--	764	8.3	97	--
AUG												
08...	1346	1420	248	6.7	23.0	22.5	--	--	767	8.6	99	--
SEP												
05...	1345	297	224	7.1	28.5	20.5	30	2.0	763	7.6	84	29

DATE	OXYGEN DEMAND, BIO- CHEM- ICAL, 5 DAY (MG/L) (00310)	COLI- FORM, TOTAL, IMMED. (COLS. PER 100 ML) (31501)	COLI- FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML) (31625)	STREP- TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML) (31673)	HARD- NESS TOTAL (MG/L AS CACO3) (00900)	HARD- NESS NONCARB WH WAT TOT FLD MG/L AS CACO3 (00902)	CALCIUM DIS- SOLVED (MG/L AS CA) (00915)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG) (00925)	SODIUM, DIS- SOLVED (MG/L AS NA) (00930)	SODIUM PERCENT (00932)	SODIUM AD- SORP- TION RATIO (00931)	POTAS- SIUM, DIS- SOLVED (MG/L AS K) (00935)
OCT												
04...	--	7700	960	72	--	--	--	--	--	--	--	--
NOV												
08...	1.0	24000	>1500	190	--	--	--	--	--	--	--	--
DEC												
06...	--	7700	390	170	--	--	--	--	--	--	--	--
JAN												
17...	1.0	36000	88	170	--	--	--	--	--	--	--	--
FEB												
07...	--	32500	720	340	--	--	--	--	--	--	--	--
MAR												
07...	2.0	6900	K60	K50	32	16	9.9	1.7	31	66	2	2.3
APR												
11...	--	11000	350	150	--	--	--	--	--	--	--	--
MAY												
09...	2.0	1900	84	K14	--	--	--	--	--	--	--	--
JUN												
06...	--	2000	100	22	--	--	--	--	--	--	--	--
JUL												
11...	2.0	750	100	23	--	--	--	--	--	--	--	--
AUG												
08...	--	34000	>2700	2400	--	--	--	--	--	--	--	--
SEP												
05...	<1.0	3400	340	K56	35	21	11	1.9	28	61	2	3.0

BLACKSTONE RIVER BASIN

01112900 BLACKSTONE RIVER AT MANVILLE, RI--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DATE	BICARBONATE WATER WH IT FIELD MG/L AS HCO3 (00450)	CARBONATE WATER WH IT FIELD MG/L AS CO3 (00447)	ALKALINITY, CARBONATE IT-FLD (MG/L - CAC03) (99430)	SULFATE DIS- SOLVED (MG/L AS SO4) (00945)	CHLORIDE, DIS- SOLVED (MG/L AS CL) (00940)	SOLIDS, SUM OF CONSTITUENTS, DIS- SOLVED (MG/L) (70301)	RESIDUE TOTAL AT 105 DEG. C, SUS- PENDED (MG/L) (00530)	SOLIDS, RESIDUE AT 105 DEG. C, TOTAL (MG/L) (00500)	NITROGEN, NITRATE TOTAL (MG/L AS N) (00620)	NITROGEN, NITRITE TOTAL (MG/L AS N) (00615)	NITROGEN, NO2+NO3 TOTAL (MG/L AS N) (00630)	NITROGEN, AMMONIA TOTAL (MG/L AS N) (00610)
OCT												
04...	20	0	17	--	--	--	--	--	1.23	0.070	1.30	0.110
NOV												
08...	17	0	14	--	--	--	--	--	0.570	0.030	0.600	0.290
DEC												
06...	21	0	18	--	--	--	7	134	0.570	0.030	0.600	0.690
JAN												
17...	29	0	24	--	--	--	--	--	--	<0.010	0.800	1.00
FEB												
07...	14	0	12	--	--	--	--	--	0.590	0.010	0.600	0.470
MAR												
07...	19	0	15	15	47	116	13	157	0.580	0.020	0.600	0.710
APR												
11...	19	0	15	--	--	--	--	--	0.660	0.040	0.700	0.460
MAY												
09...	19	0	15	--	--	--	--	--	0.850	0.050	0.900	0.200
JUN												
06...	18	0	15	--	--	--	2	125	0.850	0.050	0.900	0.100
JUL												
11...	21	0	17	--	--	--	--	--	1.88	0.020	1.90	0.290
AUG												
08...	17	0	14	--	--	--	--	--	1.58	0.020	1.60	0.010
SEP												
05...	17	0	14	15	42	--	4	105	1.19	0.010	1.20	0.110

DATE	NITROGEN, ORGANIC TOTAL (MG/L AS N) (00605)	NITROGEN, AMMONIA + ORGANIC TOTAL (MG/L AS N) (00625)	NITROGEN, TOTAL (MG/L AS N) (00600)	NITROGEN, TOTAL (MG/L AS NO3) (71887)	PHOSPHORUS TOTAL (MG/L AS P) (00665)	PHOSPHORUS ORTHO TOTAL (MG/L AS P) (70507)	ALUMINUM, TOTAL RECOVERABLE (MG/L AS AL) (01105)	ARSENIC TOTAL (MG/L AS AS) (01002)	BORON, TOTAL RECOVERABLE (MG/L AS B) (01022)	CADMIUM TOTAL RECOVERABLE (MG/L AS CD) (01027)	CHROMIUM, TOTAL RECOVERABLE (MG/L AS CR) (01034)	COPPER, TOTAL RECOVERABLE (MG/L AS CU) (01042)
OCT												
04...	0.59	0.70	2.0	8.9	0.390	0.300	--	--	--	--	--	--
NOV												
08...	0.21	0.50	1.1	4.9	0.170	0.120	--	--	--	--	--	--
DEC												
06...	0.41	1.1	1.7	7.5	0.200	0.160	--	--	--	--	--	--
JAN												
17...	0.50	1.5	2.3	10	0.230	0.180	--	--	--	--	--	--
FEB												
07...	0.43	0.90	1.5	6.6	0.160	0.120	--	--	--	--	--	--
MAR												
07...	0.79	1.5	2.1	9.3	0.250	0.150	710	1	10	1	3	18
APR												
11...	0.64	1.1	1.8	8.0	0.170	0.120	--	--	--	--	--	--
MAY												
09...	0.30	0.50	1.4	6.2	0.220	0.170	--	--	--	--	--	--
JUN												
06...	0.70	0.80	1.7	7.5	0.230	0.170	--	--	--	--	--	--
JUL												
11...	0.91	1.2	3.1	14	0.610	0.510	--	--	--	--	--	--
AUG												
08...	1.2	1.2	2.8	12	0.520	0.290	--	--	--	--	--	--
SEP												
05...	0.49	0.60	1.8	8.0	0.250	0.240	80	2	28	<1	2	11

BLACKSTONE RIVER BASIN

81

01112900 BLACKSTONE RIVER AT MANVILLE, RI--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DATE	IRON, TOTAL RECOV- ERABLE (µG/L AS FE) (01045)	LEAD, TOTAL RECOV- ERABLE (µG/L AS PB) (01051)	MANGA- NESE, TOTAL RECOV- ERABLE (µG/L AS MN) (01055)	MERCURY TOTAL RECOV- ERABLE (µG/L AS HG) (71900)	MOLYB- DENUM, TOTAL RECOV- ERABLE (µG/L AS MO) (01062)	NICKEL, TOTAL RECOV- ERABLE (µG/L AS NI) (01067)	SELE- NIUM, TOTAL RECOV- ERABLE (µG/L AS SE) (01147)	SILVER, TOTAL RECOV- ERABLE (µG/L AS AG) (01077)	ZINC, TOTAL RECOV- ERABLE (µG/L AS ZN) (01092)	PHENOLS TOTAL (µG/L) (32730)	OIL AND GREASE, TOTAL RECOV- ERABLE GRAVI- METRIC (MG/L) (00556)	PCB, TOTAL (µG/L) (39516)
OCT 04...	--	--	--	--	--	--	--	--	--	--	--	--
NOV 08...	--	--	--	--	--	--	--	--	--	--	--	--
DEC 06...	--	--	--	--	--	--	--	--	--	--	--	--
JAN 17...	--	--	--	--	--	--	--	--	--	--	--	--
FEB 07...	--	--	--	--	--	--	--	--	--	--	--	--
MAR 07...	1900	49	130	<0.10	<1	6	<1	<1	50	5	<1	<0.1
APR 11...	--	--	--	--	--	--	--	--	--	--	--	--
MAY 09...	--	--	--	--	--	--	--	--	--	--	--	--
JUN 06...	--	--	--	--	--	--	--	--	--	--	--	--
JUL 11...	--	--	--	--	--	--	--	--	--	--	--	--
AUG 08...	--	--	--	--	--	--	--	--	--	--	--	--
SEP 05...	610	4	90	<0.10	<1	9	<1	<1	<10	9	<1	<0.1

DATE	PCB, TOTAL IN BOT- TOM MA- TERIAL (µG/KG) (39519)	ALDRIN, TOTAL IN BOT- TOM MA- TERIAL (µG/L) (39330)	ALDRIN, TOTAL IN BOT- TOM MA- TERIAL (µG/KG) (39333)	CHLOR- DANE, TOTAL IN BOT- TOM MA- TERIAL (µG/L) (39350)	CHLOR- DANE, TOTAL IN BOT- TOM MA- TERIAL (µG/KG) (39351)	DDD, TOTAL IN BOT- TOM MA- TERIAL (µG/L) (39360)	DDD, TOTAL IN BOT- TOM MA- TERIAL (µG/KG) (39363)	DDE, TOTAL IN BOT- TOM MA- TERIAL (µG/L) (39365)	DDE, TOTAL IN BOT- TOM MA- TERIAL (µG/KG) (39368)	DDT, TOTAL IN BOT- TOM MA- TERIAL (µG/L) (39370)	DDT, TOTAL IN BOT- TOM MA- TERIAL (µG/KG) (39373)
OCT 04...	--	--	--	--	--	--	--	--	--	--	--
NOV 08...	--	--	--	--	--	--	--	--	--	--	--
DEC 06...	--	--	--	--	--	--	--	--	--	--	--
JAN 17...	--	--	--	--	--	--	--	--	--	--	--
FEB 07...	--	--	--	--	--	--	--	--	--	--	--
MAR 07...	--	<0.010	--	<0.1	--	<0.010	--	<0.010	--	<0.010	--
APR 11...	--	--	--	--	--	--	--	--	--	--	--
MAY 09...	--	--	--	--	--	--	--	--	--	--	--
JUN 06...	--	--	--	--	--	--	--	--	--	--	--
JUL 11...	--	--	--	--	--	--	--	--	--	--	--
AUG 08...	--	--	--	--	--	--	--	--	--	--	--
SEP 05...	120	<0.010	<1	<0.1	<10	<0.010	<1	<0.010	<10	<0.010	<100

BLACKSTONE RIVER BASIN

01112900 BLACKSTONE RIVER AT MANVILLE, RI--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DATE	DI-ELDRIN TOTAL (µG/L) (39380)	DI-ELDRIN IN BOT- TOM MA- TERIAL (µG/KG) (39383)	ENDO-SULFAN, TOTAL (µG/L) (39388)	ENDO-SULFAN, IN BOT- TOM MA- TERIAL (µG/KG) (39389)	ENDRIN, TOTAL (µG/L) (39390)	ENDRIN, IN BOT- TOM MA- TERIAL (µG/KG) (39393)	HEPTA- CHLOR, TOTAL (µG/L) (39410)	HEPTA- CHLOR, IN BOT- TOM MA- TERIAL (µG/KG) (39413)	HEPTA- CHLOR EPOXIDE TOTAL (µG/L) (39420)	HEPTA- CHLOR EPOXIDE TOT. IN BOTTOM MATL. (µG/KG) (39423)	LINDANE TOTAL (µG/L) (39340)
OCT 04...	--	--	--	--	--	--	--	--	--	--	--
NOV 08...	--	--	--	--	--	--	--	--	--	--	--
DEC 06...	--	--	--	--	--	--	--	--	--	--	--
JAN 17...	--	--	--	--	--	--	--	--	--	--	--
FEB 07...	--	--	--	--	--	--	--	--	--	--	--
MAR 07...	<0.010	--	<0.010	--	<0.010	--	<0.010	--	<0.010	--	<0.010
APR 11...	--	--	--	--	--	--	--	--	--	--	--
MAY 09...	--	--	--	--	--	--	--	--	--	--	--
JUN 06...	--	--	--	--	--	--	--	--	--	--	--
JUL 11...	--	--	--	--	--	--	--	--	--	--	--
AUG 08...	--	--	--	--	--	--	--	--	--	--	--
SEP 05...	<0.010	<1	<0.010	<1	<0.010	<1	<0.010	<1	<0.010	<1	<0.010

DATE	LINDANE TOTAL IN BOT- TOM MA- TERIAL (µG/KG) (39343)	METH- OXY- CHLOR, TOTAL (µG/L) (39480)	METH- OXY- CHLOR, TOT. IN BOTTOM MATL. (µG/KG) (39481)	MIREX, TOTAL (µG/L) (39755)	MIREX, IN BOT- TOM MA- TERIAL (µG/KG) (39758)	NAPH- THA- LENES, POLY- CHLOR. TOTAL (µG/L) (39250)	PCN, TOTAL IN BOT- TOM MA- TERIAL (µG/KG) (39251)	PER- THANE TOTAL (µG/L) (39034)	PER- THANE IN BOT- TOM MA- TERIAL (µG/KG) (81886)	TOX- APHENE, TOTAL (µG/L) (39400)	TOXA- PHENE, TOTAL IN BOT- TOM MA- TERIAL (µG/KG) (39403)
OCT 04...	--	--	--	--	--	--	--	--	--	--	--
NOV 08...	--	--	--	--	--	--	--	--	--	--	--
DEC 06...	--	--	--	--	--	--	--	--	--	--	--
JAN 17...	--	--	--	--	--	--	--	--	--	--	--
FEB 07...	--	--	--	--	--	--	--	--	--	--	--
MAR 07...	--	<0.01	--	<0.01	--	<0.10	--	<0.1	--	<1	--
APR 11...	--	--	--	--	--	--	--	--	--	--	--
MAY 09...	--	--	--	--	--	--	--	--	--	--	--
JUN 06...	--	--	--	--	--	--	--	--	--	--	--
JUL 11...	--	--	--	--	--	--	--	--	--	--	--
AUG 08...	--	--	--	--	--	--	--	--	--	--	--
SEP 05...	<1	<0.01	--	<0.01	<1	<0.10	<10	<0.1	<10.0	<1	<100

MOSHASSUCK RIVER BASIN

83

01114000 MOSHASSUCK RIVER AT PROVIDENCE, RI

LOCATION.--Lat 41°50'02", long 71°24'42", Providence County, Hydrologic Unit 01090004, on left bank 800 ft upstream from bridge on U.S. Highway 44 at Providence and 0.5 mi above mouth.

DRAINAGE AREA.--23.1 mi².

PERIOD OF RECORD.--Discharge: June 1963 to current year.
Water-quality records: Water year 1971.

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 8.19 ft above National Geodetic Vertical Datum of 1929. Prior to Nov. 7, 1973, at datum 0.88 ft lower. Mar. 10, 1972, to Nov. 7, 1973, stage record obtained at site 200 ft upstream.

REMARKS.--Records good except those for estimated daily discharge, which are fair. Occasional regulation at low flow.

AVERAGE DISCHARGE.--27 years, 41.1 ft³/s, 24.16 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 2,390 ft³/s, Mar. 18, 1968, gage height, 3.46 ft, present datum, from rating curve extended above 460 ft³/s; maximum gage height, 5.81 ft, July 30, 1976; minimum discharge, 1.3 ft³/s, Aug. 23, 1970; minimum daily, 1.7 ft³/s, Aug. 10, 1970.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 600 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
Oct. 20	2215	621	4.13	June 10	1745	1,030	4.91
Oct. 31	2300	672	4.24	July 1	2015	734	4.37
Apr. 4	0115	621	4.13	Aug. 8	0600	969	4.81
June 9	1900	890	4.67	Aug. 11	1245	*1,140	*5.09

Minimum discharge, 6.3 ft³/s, Sept. 19, 27; minimum daily, 7.3 ft³/s, Sept. 30.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990 MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	14	168	41	97	83	42	40	50	57	78	13	8.6
2	61	75	34	44	77	44	37	42	48	44	8.7	8.4
3	45	96	39	34	76	48	142	36	41	22	8.4	8.4
4	29	78	34	31	70	48	300	34	39	15	8.3	11
5	22	60	31	36	62	42	114	79	38	16	8.0	11
6	20	54	30	33	60	41	77	50	33	15	9.9	8.7
7	21	49	32	29	56	37	68	42	37	11	21	8.4
8	14	50	30	28	55	36	60	46	31	9.5	180	8.1
9	19	163	28	31	54	36	53	39	135	9.9	33	7.6
10	16	98	27	31	77	36	50	74	129	13	18	10
11	19	64	26	33	67	36	83	121	56	9.9	354	8.4
12	17	53	26	31	52	51	61	61	38	53	155	9.8
13	17	45	26	28	47	48	49	62	32	47	53	11
14	19	44	24	25	46	42	45	91	30	23	33	7.6
15	59	104	19	26	47	38	169	60	28	18	25	42
16	28	157	25	26	116	35	119	67	24	14	20	9.5
17	151	132	25	23	78	36	92	106	20	11	19	16
18	116	77	23	26	59	65	80	94	21	10	13	11
19	92	62	20	30	53	49	62	65	48	13	16	7.5
20	228	69	24	27	47	66	56	52	30	14	17	10
21	259	71	23	33	39	59	87	73	22	12	16	9.4
22	106	52	22	30	43	46	79	63	20	e11	11	40
23	74	51	33	31	63	43	61	52	19	e9.0	13	37
24	63	49	23	32	82	38	51	48	15	e17	38	17
25	51	46	15	73	62	36	47	44	18	107	41	10
26	46	48	22	182	47	35	46	42	16	25	22	10
27	43	49	22	106	44	33	44	39	17	16	19	7.9
28	42	57	18	65	43	32	41	36	12	17	15	7.5
29	39	53	19	102	---	31	39	85	14	11	14	8.3
30	38	44	17	292	---	39	46	163	16	11	13	7.3
31	98	---	51	116	---	45	---	84	---	12	10	---
TOTAL	1866	2218	829	1731	1705	1313	2298	2000	1084	694.3	1225.3	377.4
MEAN	60.2	73.9	26.7	55.8	60.9	42.4	76.6	64.5	36.1	22.4	39.5	12.6
MAX	259	168	51	292	116	66	300	163	135	107	354	42
MIN	14	44	15	23	39	31	37	34	12	9.0	8.0	7.3
CFSM	2.61	3.20	1.16	2.42	2.64	1.83	3.32	2.79	1.56	.97	1.71	.54
IN.	3.00	3.57	1.34	2.79	2.75	2.11	3.70	3.22	1.75	1.12	1.97	.61

CAL YR 1989 TOTAL 15955.1 MEAN 43.7 MAX 314 MIN 9.5 CFSM 1.89 IN. 25.69
WTR YR 1990 TOTAL 17341.0 MEAN 47.5 MAX 354 MIN 7.3 CFSM 2.06 IN. 27.93

e Estimated

WOONASQUATUCKET RIVER BASIN

01114500 WOONASQUATUCKET RIVER AT CENTERDALE, RI

LOCATION.--Lat 41°51'32", long 71°29'16", Providence County, Hydrologic Unit 01090004, on right bank 75 ft downstream from bridge on U.S. Highway 44 at Centerdale and 6.5 mi upstream from mouth.

DRAINAGE AREA.--38.3 mi².

PERIOD OF RECORD.--Discharge: July 1941 to current year.
Water-quality records: Water years 1955-56.

GAGE.--Water-stage recorder. Elevation of gage is 95 ft above National Geodetic Vertical Datum of 1929, from topographic map.

REMARKS.--No estimated daily discharges. Records poor. Some regulation by reservoirs upstream; regulation greater prior to 1956. Discharge figures prior to 1966 included leakage around station through bypass canal; leakage negligible subsequently.

AVERAGE DISCHARGE.--49 years, 73.6 ft³/s.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 1,440 ft³/s, Mar. 18, 1968, gage height, 7.75 ft, from floodmarks; minimum daily, 2.1 ft³/s, Aug. 26, 1963.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum discharge during March 1936, 1,000 ft³/s, by computation of flow over dam 0.7 mi downstream.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 619 ft³/s, Aug. 11, gage height, 504 ft; minimum daily, 15 ft³/s, July 22.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	36	179	128	76	199	96	60	104	125	31	18	34
2	49	139	118	64	179	95	58	97	110	33	17	33
3	72	146	123	60	179	98	73	89	99	30	16	32
4	54	153	114	61	173	97	201	85	94	28	17	31
5	45	145	106	62	161	88	179	110	83	25	17	32
6	41	143	102	61	148	77	162	102	74	24	17	34
7	42	135	103	60	143	72	151	96	72	24	22	33
8	43	128	100	58	140	69	139	98	67	23	78	31
9	46	213	95	58	141	66	124	91	80	23	30	32
10	43	227	85	58	155	66	114	93	88	23	22	32
11	42	194	73	59	161	65	128	171	89	22	271	32
12	33	175	66	59	147	68	123	133	83	34	300	32
13	17	162	62	58	136	67	109	125	76	39	214	32
14	20	155	59	58	128	65	102	148	71	31	149	32
15	33	177	57	57	123	63	168	134	66	28	104	44
16	39	247	58	58	174	62	209	128	63	27	73	36
17	79	321	57	58	176	61	188	175	61	25	56	34
18	145	272	56	61	156	69	182	164	53	24	46	31
19	122	242	55	63	144	68	162	149	29	23	40	31
20	222	237	54	64	132	78	149	134	47	22	36	33
21	402	229	53	68	122	78	153	143	53	21	33	30
22	275	170	52	68	118	71	159	140	53	15	31	36
23	221	150	52	68	134	68	145	126	52	16	31	46
24	192	139	53	68	145	64	133	115	52	19	45	35
25	166	130	52	82	136	62	124	107	50	36	89	33
26	144	131	51	186	119	61	118	100	50	29	61	32
27	130	136	51	189	107	59	112	93	49	23	55	34
28	120	151	50	149	102	58	107	84	48	21	49	32
29	106	151	50	140	---	57	101	90	34	21	45	32
30	97	138	51	339	---	59	98	170	30	20	39	32
31	104	---	56	257	---	61	---	144	---	19	36	---
TOTAL	3180	5315	2242	2827	4078	2188	4031	3738	2001	779	2057	1003
MEAN	103	177	72.3	91.2	146	70.6	134	121	66.7	25.1	66.4	33.4
MAX	402	321	128	339	199	98	209	175	125	39	300	46
MIN	17	128	50	57	102	57	58	84	29	15	16	30

CAL YR 1989 TOTAL 29894 MEAN 81.9 MAX 402 MIN 14
WTR YR 1990 TOTAL 33439 MEAN 91.6 MAX 402 MIN 15

PAWTUXET RIVER BASIN

85

01116000 SOUTH BRANCH PAWTUXET RIVER AT WASHINGTON, RI

LOCATION.--Lat 41°41'24", long 71°33'59", Kent County, Hydrologic Unit 01090004, on right bank 150 ft downstream from highway bridge at Washington and 0.9 mi upstream from outlet of Tiogue Lake.

DRAINAGE AREA.--63.8 mi².

PERIOD OF RECORD.--Discharge: October 1940 to current year.
Water-quality records: Water years 1955-1956, 1963.

GAGE.--Water-stage recorder. Datum of gage is 217.76 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Records good except those for estimated daily discharges, which are fair. Flow regulated by Flat River Reservoir (station 01115960) 2 mi upstream (see table below), usable capacity, 250,000,000 ft³, and smaller reservoirs. Prior to May 1972, diversion from Carr Pond for municipal supply of Coventry, Warwick, and West Warwick.

AVERAGE DISCHARGE.--50 years, 131 ft³/s.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 1,980 ft³/s, June 6, 1982, gage height, 5.30 ft; minimum daily, 2.8 ft³/s, Aug. 27, 1944.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in March 1936 reached a discharge of 1,810 ft³/s, by computation of flow over dam just upstream.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 426 ft³/s, Nov. 17, gage height, 2.68 ft; minimum daily, 26 ft³/s, Sept. 5.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	144	252	248	132	264	225	119	118	191	67	66	36
2	148	313	243	87	297	222	118	109	167	85	60	33
3	198	313	263	80	299	221	128	107	151	87	58	31
4	201	315	261	83	298	220	159	107	140	83	57	28
5	195	295	264	122	293	217	231	122	131	76	56	26
6	192	271	264	123	290	215	231	117	122	66	57	27
7	189	252	264	122	288	213	230	115	103	62	59	65
8	186	238	261	150	275	210	242	119	106	59	87	70
9	183	284	258	155	209	208	239	115	111	58	72	70
10	180	354	256	156	215	207	237	116	137	58	66	72
11	178	346	252	160	216	205	240	134	148	57	101	73
12	176	308	250	178	212	205	234	125	139	68	212	99
13	172	265	247	178	215	204	231	147	131	88	209	101
14	159	245	240	175	244	201	228	220	121	94	155	101
15	123	254	234	175	245	198	245	253	112	96	120	105
16	115	321	234	175	253	191	246	234	104	88	96	102
17	127	412	229	171	251	123	244	243	98	76	79	105
18	139	389	227	180	245	116	243	247	92	66	67	101
19	137	326	224	179	244	114	240	225	85	60	59	101
20	207	297	220	178	240	118	237	197	80	57	55	96
21	267	319	217	181	236	118	241	193	79	56	52	50
22	269	280	210	178	231	117	239	201	78	56	51	49
23	307	263	e205	177	240	116	234	194	73	58	51	58
24	307	253	e205	176	241	115	231	179	71	58	63	49
25	288	246	e200	185	238	115	230	155	68	90	78	48
26	272	245	e195	206	233	115	227	155	64	97	87	48
27	259	243	e190	206	230	115	225	148	62	108	87	49
28	248	248	e190	202	228	115	222	142	60	105	56	48
29	245	255	e185	230	---	115	221	147	60	93	49	48
30	240	253	e180	266	---	119	207	195	67	83	44	47
31	189	---	179	255	---	123	---	217	---	73	39	---
TOTAL	6240	8655	7095	5221	6970	5116	6599	5096	3151	2328	2448	1936
MEAN	201	288	229	168	249	165	220	164	105	75.1	79.0	64.5
MAX	307	412	264	266	299	225	246	253	191	108	212	105
MIN	115	238	179	80	209	114	118	107	60	56	39	26
(t)	257.5	250	77	229.5	182	168	152	272	250	250	253.5	206.5

CAL YR 1989 TOTAL 60078 MEAN 165 MAX 507 MIN 44
WTR YR 1990 TOTAL 60855 MEAN 167 MAX 412 MIN 26

e Estimated

† Monthend contents, in millions of cubic feet, in Flat River Reservoir; records furnished by Quidnick Reservoir Co.

PAWTUXET RIVER BASIN

01116500 PAWTUXET RIVER AT CRANSTON, RI

LOCATION.--Lat 41°45'03", long 71°26'44", Providence County, Hydrologic Unit 01090004, on left bank at Cranston, and 0.7 mi upstream from Pocasset River.

DRAINAGE AREA.--200 mi².

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--December 1939 to current year.

REVISED RECORDS.--WSP 971: 1940-42. WSP 1381: 1940-41(M). WDR-MA-NH-RI-VT-73-1: 1972 (adjusted monthly and yearly figures only).

GAGE.--Water-stage recorder. Datum of gage is 8.00 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--No estimated daily discharges. Records good. Flow regulated by powerplants and by Scituate Reservoir (station 01115450) 13 mi upstream, Flat River Reservoir, and other reservoirs, combined usable capacity, about 6,000,000,000 ft³. Diversion from Scituate Reservoir for municipal supply of Providence, East Providence, North Providence, Cranston, Greenville, Johnston, East Smithfield, Smithfield, Warwick, West Warwick, Coventry, East Greenwich, and West Greenwich. See table below for figures of diversion and monthend contents in Scituate Reservoir and five smaller reservoirs, and see table with station 01116000 for monthend contents in Flat River Reservoir.

AVERAGE DISCHARGE.--50 years (water years 1941-90), 345 ft³/s.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 5,440 ft³/s, June 7, 1982, gage height, 14.5 ft, from floodmark; minimum daily, 22 ft³/s, Sept. 4, 1944.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,650 ft³/s, Jan. 30, gage height, 8.13 ft, minimum daily, 86 ft³/s, Sept. 6.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	247	1220	672	472	1260	584	348	527	665	184	155	100
2	351	966	605	320	1170	556	342	432	570	269	140	90
3	427	1010	630	285	1130	560	460	405	491	188	124	90
4	358	1020	591	282	1090	544	1050	384	449	188	111	88
5	332	926	549	339	1030	518	823	520	408	179	104	90
6	319	851	529	336	952	510	802	452	361	170	105	86
7	313	768	534	329	889	495	747	427	328	159	123	90
8	298	701	493	338	839	474	712	460	302	155	385	123
9	290	1000	470	371	726	464	663	416	316	151	201	121
10	285	1150	453	373	778	456	614	426	390	144	151	123
11	293	1090	440	381	818	447	695	757	418	135	474	123
12	283	980	426	392	761	468	665	618	399	224	621	134
13	279	847	413	388	707	471	606	614	359	359	585	151
14	271	749	397	369	707	456	569	865	322	206	404	151
15	413	882	381	366	689	446	830	842	289	188	275	214
16	266	1100	394	363	857	426	1000	804	262	178	217	165
17	483	1400	379	358	842	388	987	882	239	164	177	174
18	758	1340	371	375	784	392	1000	856	221	140	154	151
19	516	1200	364	379	743	384	910	799	208	142	134	142
20	935	1100	358	367	702	439	832	708	198	139	142	151
21	1360	1110	346	404	637	465	838	717	182	134	100	115
22	1010	980	330	402	611	440	851	699	184	134	115	121
23	1010	895	318	395	720	426	793	643	177	140	110	239
24	1010	828	313	395	770	407	728	590	173	144	226	118
25	951	767	307	490	752	388	674	510	167	386	554	103
26	878	751	300	890	703	373	645	474	162	239	239	98
27	802	734	211	939	645	353	604	440	161	244	204	100
28	737	752	196	848	616	338	567	408	146	225	168	95
29	688	749	195	862	---	323	530	442	148	200	126	93
30	654	705	193	1530	---	338	547	714	181	187	113	92
31	645	---	232	1380	---	367	---	728	---	170	105	---
TOTAL	17462	28571	12390	15718	22928	13696	21432	18559	8876	5865	6842	3731
MEAN	563	952	400	507	819	442	714	599	296	189	221	124
MAX	1360	1400	672	1530	1260	584	1050	882	665	386	621	239
MIN	247	701	193	282	611	323	342	384	146	134	100	86
(†)	5303	5640	5634	5533	5738	5624	5584	5626	5659	5406	5093	5370
(‡)	102	98.9	101	99.4	99.5	101	101	105	129	136	127	115

CAL YR 1989 TOTAL 144973 MEAN 397 MAX 1400 MIN 133
WTR YR 1990 TOTAL 176070 MEAN 482 MAX 1530 MIN 86

† Monthend contents, in millions of cubic feet, of Scituate Reservoir and five smaller reservoirs.

‡ Diversion, in cubic feet per second, for municipal supplies. Figures of diversion and monthend contents provided by Providence Water Supply Board.

PAWTUXET RIVER BASIN

87

01116500 PAWTUXET RIVER AT CRANSTON, RI--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--November 1961 to current year.

PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: June 1969 to September 1981.

WATER TEMPERATURES: November 1961 to September 1981.

WATER QUALITY DATA, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	SPE- CIFIC CON- DUCT- ANCE (µS/CM) (00095)	PH (STAND- ARD UNITS) (00400)	TEMPER- ATURE AIR (DEG C) (00020)	TEMPER- ATURE WATER (DEG C) (00010)	COLOR (PLAT- INUM- COBALT UNITS) (00080)	TUR- BID- ITY (NTU) (00076)	BARO- METRIC PRES- SURE (MM OF HG) (00025)	OXYGEN, DIS- SOLVED (MG/L) (00300)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION) (00301)	OXYGEN DEMAND, CHEM- ICAL (HIGH LEVEL) (MG/L) (00340)
OCT												
03...	1010	427	211	6.9	23.5	16.0	--	--	755	6.2	63	--
NOV												
07...	1000	769	155	6.1	14.5	10.5	--	--	765	10.6	94	--
DEC												
05...	0945	554	164	6.3	-1.0	0.5	--	0.80	755	13.1	92	16
JAN												
18...	0930	367	236	7.0	13.0	4.5	--	--	759	12.8	99	--
FEB												
06...	1145	948	172	6.8	6.5	2.0	--	--	760	11.5	83	--
MAR												
06...	1021	504	195	6.6	-2.0	2.5	20	--	775	13.1	94	17
APR												
10...	1005	618	154	6.5	14.0	7.5	--	--	765	11.4	95	--
MAY												
08...	0933	470	211	6.3	12.0	12.0	--	--	764	9.6	89	--
JUN												
05...	0900	412	180	6.3	15.5	17.0	--	1.3	761	8.3	86	27
JUL												
10...	1210	142	350	6.4	25.5	22.0	--	--	761	5.1	59	--
AUG												
07...	1000	129	338	6.2	24.5	23.0	--	--	765	4.1	48	--
SEP												
04...	1015	168	382	6.7	22.0	20.0	65	1.0	775	3.4	37	24

DATE	OXYGEN DEMAND, BIO- CHEM- ICAL, 5 DAY (MG/L) (00310)	COLI- FORM, TOTAL, IMMED. (COLS. PER 100 ML) (31501)	COLI- FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML) (31625)	STREP- TOCOC- CI, KF AGAR (COLS. PER 100 ML) (31673)	HARD- NESS TOTAL (MG/L AS CACO3) (00900)	HARD- NESS NONCARB WH WAT TOT FLD MG/L AS CACO3 (00902)	CALCIUM DIS- SOLVED (MG/L AS CA) (00915)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG) (00925)	SODIUM, DIS- SOLVED (MG/L AS NA) (00930)	SODIUM PERCENT (00932)	SODIUM AD- SORP- TION RATIO (00931)	POTAS- SIUM, DIS- SOLVED (MG/L AS K) (00935)
OCT												
03...	--	5800	500	580	--	--	--	--	--	--	--	--
NOV												
07...	1.0	3500	120	27	--	--	--	--	--	--	--	--
DEC												
05...	--	560	K3	K3	--	--	--	--	--	--	--	--
JAN												
18...	3.0	270	21	21	--	--	--	--	--	--	--	--
FEB												
06...	--	2800	K14	K1	--	--	--	--	--	--	--	--
MAR												
06...	1.0	1000	K8	K4	23	7	7.3	1.1	24	68	2	1.7
APR												
10...	--	1100	K18	K3	--	--	--	--	--	--	--	--
MAY												
08...	4.0	5300	150	54	--	--	--	--	--	--	--	--
JUN												
05...	--	4500	160	22	--	--	--	--	--	--	--	--
JUL												
10...	4.0	3000	--	27	--	--	--	--	--	--	--	--
AUG												
07...	--	5200	420	140	--	--	--	--	--	--	--	--
SEP												
04...	<1.0	1000	140	63	42	30	14	1.8	54	71	4	4.7

PAWTUXET RIVER BASIN

01116500 PAWTUXET RIVER AT CRANSTON, RI--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DATE	BICARBONATE WATER WH IT FIELD MG/L AS HCO3 (00450)	CARBONATE WATER WH IT FIELD MG/L AS CO3 (00447)	ALKALINITY, CARBONATE IT-FLD (MG/L - CAC03) (99430)	SULFATE DIS- SOLVED (MG/L AS SO4) (00945)	CHLORIDE, DIS- SOLVED (MG/L AS CL) (00940)	SOLIDS, SUM OF CONSTITUENTS, DIS- SOLVED (MG/L) (70301)	RESIDUE TOTAL AT 105 DEG. C, SUS- PENDED (MG/L) (00530)	SOLIDS, RESIDUE AT 105 DEG. C, TOTAL (MG/L) (00500)	NITROGEN, NITRATE TOTAL (MG/L AS N) (00620)	NITROGEN, NITRITE TOTAL (MG/L AS N) (00615)	NITROGEN, NO2+NO3 TOTAL (MG/L AS N) (00630)	NITROGEN, AMMONIA TOTAL (MG/L AS N) (00610)
OCT 03...	32	0	27	--	--	--	--	--	0.640	0.060	0.700	0.450
NOV 07...	17	0	14	--	--	--	--	--	0.290	0.010	0.300	0.310
DEC 05...	24	0	19	--	--	--	6	103	0.390	0.010	0.400	0.430
JAN 18...	21	0	17	--	--	--	--	--	--	<0.010	0.600	0.530
FEB 06...	21	0	18	--	--	--	--	--	--	<0.010	0.300	0.250
MAR 06...	20	0	17	19	29	92	9	111	--	<0.010	0.400	0.530
APR 10...	16	0	13	--	--	--	--	--	0.290	0.010	0.300	0.370
MAY 08...	27	0	22	--	--	--	--	--	--	<0.010	0.400	0.400
JUN 05...	16	0	13	--	--	--	3	93	0.380	0.020	0.400	0.520
JUL 10...	19	0	16	--	--	--	--	--	1.16	0.440	1.60	0.560
AUG 07...	24	0	20	--	--	--	--	--	1.22	0.180	1.40	0.170
SEP 04...	16	0	13	41	71	194	1	227	1.58	0.120	1.70	0.130

DATE	NITROGEN, ORGANIC TOTAL (MG/L AS N) (00605)	NITROGEN, AMMONIA + ORGANIC TOTAL (MG/L AS N) (00625)	NITROGEN, TOTAL (MG/L AS N) (00600)	NITROGEN, TOTAL (MG/L AS NO3) (71887)	PHOSPHORUS TOTAL (MG/L AS P) (00665)	PHOSPHORUS ORTHO TOTAL (MG/L AS P) (70507)	ALUMINUM, TOTAL RECOVERABLE (MG/L AS AL) (01105)	ARSENIC TOTAL (MG/L AS AS) (01002)	BORON, TOTAL RECOVERABLE (MG/L AS B) (01022)	CADMIUM TOTAL RECOVERABLE (MG/L AS CD) (01027)	CHROMIUM, TOTAL RECOVERABLE (MG/L AS CR) (01034)	COPPER, TOTAL RECOVERABLE (MG/L AS CU) (01042)
OCT 03...	0.65	1.1	1.8	8.0	0.280	0.200	--	--	--	--	--	--
NOV 07...	0.29	0.60	0.90	4.0	0.090	0.070	--	--	--	--	--	--
DEC 05...	0.37	0.80	1.2	5.3	0.170	0.170	--	--	--	--	--	--
JAN 18...	0.47	1.0	1.6	7.1	0.250	0.210	--	--	--	--	--	--
FEB 06...	0.25	0.50	0.80	3.5	0.090	0.070	--	--	--	--	--	--
MAR 06...	0.57	1.1	1.5	6.6	0.100	0.120	60	<1	20	1	<1	11
APR 10...	0.43	0.80	1.1	4.9	0.130	0.100	--	--	--	--	--	--
MAY 08...	0.20	0.60	1.0	4.4	0.160	0.070	--	--	--	--	--	--
JUN 05...	0.48	1.0	1.4	6.2	0.190	0.160	--	--	--	--	--	--
JUL 10...	0.84	1.4	3.0	13	0.370	0.290	--	--	--	--	--	--
AUG 07...	1.3	1.5	2.9	13	0.260	0.220	--	--	--	--	--	--
SEP 04...	0.67	0.80	2.5	11	0.270	0.250	40	<1	10	2	1	13

PAWTUXET RIVER BASIN

89

01116500 PAWTUXET RIVER AT CRANSTON, RI--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DATE	IRON, TOTAL RECOV- ERABLE (µG/L AS FE) (01045)	LEAD, TOTAL RECOV- ERABLE (µG/L AS PB) (01051)	MANGA- NESE, TOTAL RECOV- ERABLE (µG/L AS MN) (01055)	MERCURY TOTAL RECOV- ERABLE (µG/L AS HG) (71900)	MOLYB- DENUM, TOTAL RECOV- ERABLE (µG/L AS MO) (01062)	NICKEL, TOTAL RECOV- ERABLE (µG/L AS NI) (01067)	SELE- NIUM, TOTAL RECOV- ERABLE (µG/L AS SE) (01147)	SILVER, TOTAL RECOV- ERABLE (µG/L AS AG) (01077)	ZINC, TOTAL RECOV- ERABLE (µG/L AS ZN) (01092)	PHENOLS TOTAL (µG/L) (32730)	OIL AND GREASE, TOTAL RECOV. GRAVI- METRIC (MG/L) (00556)	PCB, TOTAL (µG/L) (39516)
OCT 03...	--	--	--	--	--	--	--	--	--	--	--	--
NOV 07...	--	--	--	--	--	--	--	--	--	--	--	--
DEC 05...	--	--	--	--	--	--	--	--	--	--	--	--
JAN 18...	--	--	--	--	--	--	--	--	--	--	--	--
FEB 06...	--	--	--	--	--	--	--	--	--	--	--	--
MAR 06...	280	2	120	<0.10	<1	8	<1	<1	20	6	<1	<0.1
APR 10...	--	--	--	--	--	--	--	--	--	--	--	--
MAY 08...	--	--	--	--	--	--	--	--	--	--	--	--
JUN 05...	--	--	--	--	--	--	--	--	--	--	--	--
JUL 10...	--	--	--	--	--	--	--	--	--	--	--	--
AUG 07...	--	--	--	--	--	--	--	--	--	--	--	--
SEP 04...	650	3	30	<0.10	<1	12	<1	<1	<10	8	<1	<0.1

DATE	PCB, TOTAL IN BOT- TOM MA- TERIAL (µG/KG) (39519)	ALDRIN, TOTAL ALDRIN, TOTAL (µG/L) (39330)	ALDRIN, TOTAL IN BOT- TOM MA- TERIAL (µG/KG) (39333)	CHLOR- DANE, TOTAL CHLOR- DANE, TOTAL (µG/L) (39350)	CHLOR- DANE, TOTAL IN BOT- TOM MA- TERIAL (µG/KG) (39351)	DDD, TOTAL DDD, TOTAL (µG/L) (39360)	DDD, TOTAL IN BOT- TOM MA- TERIAL (µG/KG) (39363)	DDE, TOTAL DDE, TOTAL (µG/L) (39365)	DDE, TOTAL IN BOT- TOM MA- TERIAL (µG/KG) (39368)	DDT, TOTAL DDT, TOTAL (µG/L) (39370)	DDT, TOTAL IN BOT- TOM MA- TERIAL (µG/KG) (39373)
OCT 03...	--	--	--	--	--	--	--	--	--	--	--
NOV 07...	--	--	--	--	--	--	--	--	--	--	--
DEC 05...	--	--	--	--	--	--	--	--	--	--	--
JAN 18...	--	--	--	--	--	--	--	--	--	--	--
FEB 06...	--	--	--	--	--	--	--	--	--	--	--
MAR 06...	--	<0.010	--	<0.1	--	<0.010	--	<0.010	--	<0.010	--
APR 10...	--	--	--	--	--	--	--	--	--	--	--
MAY 08...	--	--	--	--	--	--	--	--	--	--	--
JUN 05...	--	--	--	--	--	--	--	--	--	--	--
JUL 10...	--	--	--	--	--	--	--	--	--	--	--
AUG 07...	--	--	--	--	--	--	--	--	--	--	--
SEP 04...	47	<0.010	<1	<0.1	<10	<0.010	<1	<0.010	<10	<0.010	<10

PAWTUXET RIVER BASIN

01116500 PAWTUXET RIVER AT CRANSTON, RI--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DATE	DI-ELDRIN TOTAL (µG/L) (39380)	DI-ELDRIN IN BOT- TOM MA- TERIAL (µG/KG) (39383)	ENDO- SULFAN, TOTAL (µG/L) (39388)	ENDO- SULFAN, IN BOT- TOM MA- TERIAL (µG/KG) (39389)	ENDRIN, TOTAL (µG/L) (39390)	ENDRIN, IN BOT- TOM MA- TERIAL (µG/KG) (39393)	HEPTA- CHLOR, TOTAL (µG/L) (39410)	HEPTA- CHLOR, IN BOT- TOM MA- TERIAL (µG/KG) (39413)	HEPTA- CHLOR EPOXIDE TOTAL (µG/L) (39420)	HEPTA- CHLOR EPOXIDE TOT. IN BOTTOM MATL. (µG/KG) (39423)	LINDANE TOTAL (µG/L) (39340)
OCT 03...	--	--	--	--	--	--	--	--	--	--	--
NOV 07...	--	--	--	--	--	--	--	--	--	--	--
DEC 05...	--	--	--	--	--	--	--	--	--	--	--
JAN 18...	--	--	--	--	--	--	--	--	--	--	--
FEB 06...	--	--	--	--	--	--	--	--	--	--	--
MAR 06...	<0.010	--	<0.010	--	<0.010	--	<0.010	--	<0.010	--	<0.010
APR 10...	--	--	--	--	--	--	--	--	--	--	--
MAY 08...	--	--	--	--	--	--	--	--	--	--	--
JUN 05...	--	--	--	--	--	--	--	--	--	--	--
JUL 10...	--	--	--	--	--	--	--	--	--	--	--
AUG 07...	--	--	--	--	--	--	--	--	--	--	--
SEP 04...	<0.010	<1	<0.010	<1	<0.010	<1	<0.010	<1	<0.010	<1	<0.010

DATE	LINDANE TOTAL IN BOT- TOM MA- TERIAL (µG/KG) (39343)	METH- OXY- CHLOR, TOTAL (µG/L) (39480)	METH- OXY- CHLOR, TOT. IN BOTTOM MATL. (µG/KG) (39481)	MIREX, TOTAL (µG/L) (39755)	MIREX, IN BOT- TOM MA- TERIAL (µG/KG) (39758)	NAPH- THA- LENES, POLY- CHLOR. TOTAL (µG/L) (39250)	PCN, TOTAL IN BOT- TOM MA- TERIAL (µG/KG) (39251)	PER- THANE TOTAL (µG/L) (39034)	PER- THANE IN BOT- TOM MA- TERIAL (µG/KG) (81886)	TOX- APHENE, TOTAL (µG/L) (39400)	TOXA- PHENE, TOTAL IN BOT- TOM MA- TERIAL (µG/KG) (39403)
OCT 03...	--	--	--	--	--	--	--	--	--	--	--
NOV 07...	--	--	--	--	--	--	--	--	--	--	--
DEC 05...	--	--	--	--	--	--	--	--	--	--	--
JAN 18...	--	--	--	--	--	--	--	--	--	--	--
FEB 06...	--	--	--	--	--	--	--	--	--	--	--
MAR 06...	--	<0.01	--	<0.01	--	<0.10	--	<0.1	--	<1	--
APR 10...	--	--	--	--	--	--	--	--	--	--	--
MAY 08...	--	--	--	--	--	--	--	--	--	--	--
JUN 05...	--	--	--	--	--	--	--	--	--	--	--
JUL 10...	--	--	--	--	--	--	--	--	--	--	--
AUG 07...	--	--	--	--	--	--	--	--	--	--	--
SEP 04...	<1	<0.01	--	<0.01	<1	<0.10	<10	<0.1	<10.0	<1	<100

PAWTUXET RIVER BASIN

91

01116617 PAWTUXET RIVER AT PAWTUXET, RI

WATER-QUALITY RECORDS

LOCATION.--Lat 41°46'03", long 71°24'21", Providence County, Hydrologic Unit 01090004, at Warwick Ave. Road Bridge at Pawtuxet, and 3.2 mi downstream from Cranston Sewage Treatment Plant.

PERIOD OF RECORD.--Water years 1979 to current year.

WATER QUALITY DATA, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	SPE- CIFIC CON- DUCT- ANCE (µS/CM) (00095)	PH (STAND- ARD UNITS) (00400)	TEMPER- ATURE AIR (DEG C) (00020)	TEMPER- ATURE WATER (DEG C) (00010)	COLOR (PLAT- INUM- COBALT UNITS) (00080)	TUR- BID- ITY (NTU) (00076)	BARO- METRIC PRES- SURE (MM OF HG) (00025)	OXYGEN, DIS- SOLVED (MG/L) (00300)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION) (00301)	OXYGEN DEMAND, CHEM- ICAL (HIGH LEVEL) (MG/L) (00340)
OCT												
03...	1130	449	225	7.0	27.5	16.0	--	--	755	4.8	49	--
NOV												
07...	1115	721	175	6.6	12.5	10.5	--	--	765	9.2	82	--
DEC												
05...	1145	565	200	7.0	2.0	1.0	--	1.6	755	10.8	77	17
JAN												
18...	1030	403	266	6.4	14.0	5.0	--	--	758	11.2	88	--
FEB												
06...	1030	962	210	6.6	5.0	2.0	--	--	762	12.8	93	--
MAR												
06...	1240	488	241	7.0	-3.0	3.0	25	--	775	12.9	94	22
APR												
10...	1105	691	184	6.5	17.0	8.0	--	--	765	10.4	87	--
MAY												
08...	1020	542	218	6.7	12.5	12.0	--	--	765	8.9	83	--
JUN												
05...	1030	455	207	6.2	--	17.0	--	2.3	762	6.9	72	42
JUL												
10...	1100	158	365	6.4	27.0	22.0	--	--	761	3.0	34	--
AUG												
07...	1045	177	360	6.4	26.5	23.0	--	--	766	1.9	22	--
SEP												
04...	1240	142	379	6.7	22.5	20.5	50	1.4	775	2.0	22	31

DATE	OXYGEN DEMAND, BIO- CHEM- ICAL, 5 DAY (MG/L) (00310)	COLI- FORM, TOTAL, IMMED. (COLS. PER 100 ML) (31501)	COLI- FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML) (31625)	STREP- TOCOC- CI, KF AGAR (COLS. PER 100 ML) (31673)	HARD- NESS TOTAL AS (MG/L CACO3) (00900)	HARD- NESS NONCARB TOT FLD MG/L AS CACO3 (00902)	CALCIUM DIS- SOLVED (MG/L AS CA) (00915)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG) (00925)	SODIUM, DIS- SOLVED (MG/L AS NA) (00930)	SODIUM PERCENT (00932)	SODIUM AD- SORP- TION RATIO (00931)	POTAS- SIUM, DIS- SOLVED (MG/L AS K) (00935)
OCT												
03...	--	2800	280	200	--	--	--	--	--	--	--	--
NOV												
07...	1.0	930	32	21	--	--	--	--	--	--	--	--
DEC												
05...	--	170	K2	K5	--	--	--	--	--	--	--	--
JAN												
18...	4.0	960	44	K16	--	--	--	--	--	--	--	--
FEB												
06...	--	100	K3	K4	--	--	--	--	--	--	--	--
MAR												
06...	1.0	K55	K3	K7	28	11	9.1	1.4	29	67	2	2.2
APR												
10...	--	280	K9	K3	--	--	--	--	--	--	--	--
MAY												
08...	4.0	4800	40	23	--	--	--	--	--	--	--	--
JUN												
05...	--	4400	200	53	--	--	--	--	--	--	--	--
JUL												
10...	3.0	620	--	K15	--	--	--	--	--	--	--	--
AUG												
07...	--	2900	390	240	--	--	--	--	--	--	--	--
SEP												
04...	1.0	1100	120	99	49	32	16	2.1	51	67	3	5.3

PAWTUXET RIVER BASIN

01116617 PAWTUXET RIVER AT PAWTUXET, RI--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DATE	BICARBONATE WATER WH IT FIELD MG/L AS HCO3 (00450)	CARBONATE WATER WH IT FIELD MG/L AS CO3 (00447)	ALKALINITY, CARBON- ATE IT-FLD (MG/L - CAC03) (99430)	SULFATE DIS- SOLVED (MG/L AS SO4) (00945)	CHLORIDE, DIS- SOLVED (MG/L AS CL) (00940)	SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L) (70301)	RESIDUE TOTAL AT 105 DEG. C, SUS- PENDE (MG/L) (00530)	SOLIDS, RESIDUE AT 105 DEG. C, TOTAL (MG/L) (00500)	NITRO- GEN, NITRATE TOTAL (MG/L AS N) (00620)	NITRO- GEN, NITRITE TOTAL (MG/L AS N) (00615)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N) (00630)	NITRO- GEN, AMMONIA TOTAL (MG/L AS N) (00610)
OCT 03...	25	0	20	--	--	--	--	--	0.700	0.100	0.800	0.710
NOV 07...	19	0	16	--	--	--	--	--	0.380	0.020	0.400	0.520
DEC 05...	22	0	18	--	--	--	15	121	0.480	0.020	0.500	1.20
JAN 18...	27	0	22	--	--	--	--	--	--	<0.010	0.700	1.10
FEB 06...	10	0	9	--	--	--	--	--	0.390	0.010	0.400	0.650
MAR 06...	21	0	17	19	40	111	8	136	0.490	0.010	0.500	1.10
APR 10...	28	0	23	--	--	--	--	--	0.390	0.010	0.400	0.740
MAY 08...	27	0	22	--	--	--	--	--	0.480	0.020	0.500	1.00
JUN 05...	21	0	17	--	--	--	1	114	0.460	0.040	0.500	1.00
JUL 10...	27	0	22	--	--	--	--	--	1.45	0.450	1.90	1.50
AUG 07...	29	0	23	--	--	--	--	--	1.78	0.320	2.10	2.10
SEP 04...	20	0	16	34	66	184	3	228	2.39	0.210	2.60	1.00

DATE	NITRO- GEN, ORGANIC TOTAL (MG/L AS N) (00605)	NITRO- GEN, AM- MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	NITRO- GEN, TOTAL (MG/L AS N) (00600)	NITRO- GEN, TOTAL (MG/L AS NO3) (71887)	PHOS- PHORUS TOTAL (MG/L AS P) (00665)	PHOS- PHORUS ORTHO TOTAL (MG/L AS P) (70507)	ALUM- INUM, TOTAL RECOV- ERABLE (MG/L AS AL) (01105)	ARSENIC TOTAL (MG/L AS AS) (01002)	BORON, TOTAL RECOV- ERABLE (MG/L AS B) (01022)	CADMIUM TOTAL RECOV- ERABLE (MG/L AS CD) (01027)	CHROMIUM, TOTAL RECOV- ERABLE (MG/L AS CR) (01034)	COPPER, TOTAL RECOV- ERABLE (MG/L AS CU) (01042)
OCT 03...	0.59	1.3	2.1	9.3	0.380	0.260	--	--	--	--	--	--
NOV 07...	0.48	1.0	1.4	6.2	0.150	0.110	--	--	--	--	--	--
DEC 05...	0.60	1.8	2.3	10	0.250	0.210	--	--	--	--	--	--
JAN 18...	0.50	1.6	2.3	10	0.340	0.280	--	--	--	--	--	--
FEB 06...	0.55	1.2	1.6	7.1	0.150	0.110	--	--	--	--	--	--
MAR 06...	0.60	1.7	2.2	9.7	0.180	0.200	110	<1	10	<1	<1	10
APR 10...	0.86	1.6	2.0	8.9	0.190	0.150	--	--	--	--	--	--
MAY 08...	0.30	1.3	1.8	8.0	0.290	0.200	--	--	--	--	--	--
JUN 05...	0.90	1.9	2.4	11	0.300	0.240	--	--	--	--	--	--
JUL 10...	0.80	2.3	4.2	19	0.690	0.620	--	--	--	--	--	--
AUG 07...	0.90	3.0	5.1	23	0.890	0.850	--	--	--	--	--	--
SEP 04...	0.70	1.7	4.3	19	0.520	0.520	50	1	30	1	2	11

PAWTUXET RIVER BASIN

93

01116617 PAWTUXET RIVER AT PAWTUXET, RI--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DATE	IRON, TOTAL RECOV- ERABLE (µG/L AS FE) (01045)	LEAD, TOTAL RECOV- ERABLE (µG/L AS PB) (01051)	MANGA- NESE, TOTAL RECOV- ERABLE (µG/L AS MN) (01055)	MERCURY TOTAL RECOV- ERABLE (µG/L AS HG) (71900)	MOLYB- DENUM, TOTAL RECOV- ERABLE (µG/L AS MO) (01062)	NICKEL, TOTAL RECOV- ERABLE (µG/L AS NI) (01067)	SELE- NIUM, TOTAL RECOV- ERABLE (µG/L AS SE) (01147)	SILVER, TOTAL RECOV- ERABLE (µG/L AS AG) (01077)	ZINC, TOTAL RECOV- ERABLE (µG/L AS ZN) (01092)	PHENOLS TOTAL (µG/L) (32730)	OIL AND GREASE, TOTAL RECOV- GRAVI- METRIC (MG/L) (00556)	PCB, TOTAL (µG/L) (39516)
OCT 03...	--	--	--	--	--	--	--	--	--	--	--	--
NOV 07...	--	--	--	--	--	--	--	--	--	--	--	--
DEC 05...	--	--	--	--	--	--	--	--	--	--	--	--
JAN 18...	--	--	--	--	--	--	--	--	--	--	--	--
FEB 06...	--	--	--	--	--	--	--	--	--	--	--	--
MAR 06...	500	3	140	<0.10	<1	8	<1	<1	30	<1	<1	<0.1
APR 10...	--	--	--	--	--	--	--	--	--	--	--	--
MAY 08...	--	--	--	--	--	--	--	--	--	--	--	--
JUN 05...	--	--	--	--	--	--	--	--	--	--	--	--
JUL 10...	--	--	--	--	--	--	--	--	--	--	--	--
AUG 07...	--	--	--	--	--	--	--	--	--	--	--	--
SEP 04...	540	2	140	<0.10	<1	11	<1	<1	<10	6	<1	<0.1

DATE	PCB, TOTAL IN BOT- TOM MA- TERIAL (µG/KG) (39519)	ALDRIN, TOTAL IN BOT- TOM MA- TERIAL (µG/L) (39330)	ALDRIN, TOTAL IN BOT- TOM MA- TERIAL (µG/KG) (39333)	CHLOR- DANE, TOTAL IN BOT- TOM MA- TERIAL (µG/L) (39350)	CHLOR- DANE, TOTAL IN BOT- TOM MA- TERIAL (µG/KG) (39351)	DDD, TOTAL IN BOT- TOM MA- TERIAL (µG/L) (39360)	DDD, TOTAL IN BOT- TOM MA- TERIAL (µG/KG) (39363)	DDE, TOTAL IN BOT- TOM MA- TERIAL (µG/L) (39365)	DDE, TOTAL IN BOT- TOM MA- TERIAL (µG/KG) (39368)	DDT, TOTAL IN BOT- TOM MA- TERIAL (µG/L) (39370)	DDT, TOTAL IN BOT- TOM MA- TERIAL (µG/KG) (39373)
OCT 03...	--	--	--	--	--	--	--	--	--	--	--
NOV 07...	--	--	--	--	--	--	--	--	--	--	--
DEC 05...	--	--	--	--	--	--	--	--	--	--	--
JAN 18...	--	--	--	--	--	--	--	--	--	--	--
FEB 06...	--	--	--	--	--	--	--	--	--	--	--
MAR 06...	--	<0.010	--	<0.1	--	<0.010	--	<0.010	--	<0.010	--
APR 10...	--	--	--	--	--	--	--	--	--	--	--
MAY 08...	--	--	--	--	--	--	--	--	--	--	--
JUN 05...	--	--	--	--	--	--	--	--	--	--	--
JUL 10...	--	--	--	--	--	--	--	--	--	--	--
AUG 07...	--	--	--	--	--	--	--	--	--	--	--
SEP 04...	1400	<0.010	<1	<0.1	<10	<0.010	<1	<0.010	<20	<0.010	<100

PAWTUXET RIVER BASIN

01116617 PAWTUXET RIVER AT PAWTUXET, RI--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DATE	DI-ELDRIN TOTAL (µG/L) (39380)	DI-ELDRIN, TOTAL IN BOT- TOM MA- TERIAL (µG/KG) (39383)	ENDO- SULFAN, TOTAL (µG/L) (39388)	ENDO- SULFAN, TOTAL IN BOT- TOM MA- TERIAL (µG/KG) (39389)	ENDRIN, TOTAL (µG/L) (39390)	ENDRIN, TOTAL IN BOT- TOM MA- TERIAL (µG/KG) (39393)	HEPTA- CHLOR, TOTAL (µG/L) (39410)	HEPTA- CHLOR, TOTAL IN BOT- TOM MA- TERIAL (µG/KG) (39413)	HEPTA- CHLOR EPOXIDE TOTAL (µG/L) (39420)	HEPTA- CHLOR EPOXIDE BOT. IN MATL. (µG/KG) (39423)	LINDANE TOTAL (µG/L) (39340)
OCT 03...	--	--	--	--	--	--	--	--	--	--	--
NOV 07...	--	--	--	--	--	--	--	--	--	--	--
DEC 05...	--	--	--	--	--	--	--	--	--	--	--
JAN 18...	--	--	--	--	--	--	--	--	--	--	--
FEB 06...	--	--	--	--	--	--	--	--	--	--	--
MAR 06...	<0.010	--	<0.010	--	<0.010	--	<0.010	--	<0.010	--	<0.010
APR 10...	--	--	--	--	--	--	--	--	--	--	--
MAY 08...	--	--	--	--	--	--	--	--	--	--	--
JUN 05...	--	--	--	--	--	--	--	--	--	--	--
JUL 10...	--	--	--	--	--	--	--	--	--	--	--
AUG 07...	--	--	--	--	--	--	--	--	--	--	--
SEP 04...	<0.010	<1	<0.010	<1	<0.010	<1	<0.010	<1	<0.010	<1	<0.010

DATE	LINDANE TOTAL IN BOT- TOM MA- TERIAL (µG/KG) (39343)	METH- OXY- CHLOR, TOTAL (µG/L) (39480)	METH- OXY- CHLOR, TOT. IN BOT. IN MATL. (µG/KG) (39481)	MIREX, TOTAL (µG/L) (39755)	MIREX, TOTAL IN BOT- TOM MA- TERIAL (µG/KG) (39758)	NAPH- THA- LENES, POLY- CHLOR. TOTAL (µG/L) (39250)	PCN, TOTAL IN BOT- TOM MA- TERIAL (µG/KG) (39251)	PER- THANE TOTAL (µG/L) (39034)	PER- THANE BOT. IN TOM MA- TERIAL (µG/KG) (81886)	TOX- APHENE, TOTAL (µG/L) (39400)	TOXA- PHENE, TOTAL IN BOT- TOM MA- TERIAL (µG/KG) (39403)
OCT 03...	--	--	--	--	--	--	--	--	--	--	--
NOV 07...	--	--	--	--	--	--	--	--	--	--	--
DEC 05...	--	--	--	--	--	--	--	--	--	--	--
JAN 18...	--	--	--	--	--	--	--	--	--	--	--
FEB 06...	--	--	--	--	--	--	--	--	--	--	--
MAR 06...	--	<0.01	--	<0.01	--	<0.10	--	<0.1	--	<1	--
APR 10...	--	--	--	--	--	--	--	--	--	--	--
MAY 08...	--	--	--	--	--	--	--	--	--	--	--
JUN 05...	--	--	--	--	--	--	--	--	--	--	--
JUL 10...	--	--	--	--	--	--	--	--	--	--	--
AUG 07...	--	--	--	--	--	--	--	--	--	--	--
SEP 04...	<1	<0.01	--	<0.01	<1	<0.10	<10	<0.1	<10.0	<1	<100

POTOWOMUT RIVER BASIN

95

01117000 HUNT RIVER NEAR EAST GREENWICH, RI

LOCATION.--Lat 41°38'28", long 71°26'45", Washington County, Hydrologic Unit 01090004, on right bank 45 ft upstream from Old Forge Dam in North Kingstown, 1.5 mi south of East Greenwich, and 2.5 mi upstream from mouth.

DRAINAGE AREA.--23.0 mi².

PERIOD OF RECORD.--Discharge: August 1940 to current year. Prior to October 1977, published as "Potowomut River." Water-quality records: Water years 1977-81.

REVISED RECORDS.--WSP 1621: 1957-58.

GAGE.--Water-stage recorder. Datum of gage is 5.42 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Records good. Flow affected by diversions for supply of East Greenwich, North Kingstown, Warwick, and Quonset Point (formerly U.S. Naval establishments).

AVERAGE DISCHARGE.--50 years, 46.6 ft³/s.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 1,020 ft³/s, June 6, 1982, gage height, 3.73 ft, from rating curve extended above 440 ft³/s; maximum gage height, 6.78 ft, Aug. 31, 1954 (backwater from hurricane tidal wave); no flow at times in water years 1948, 1960, 1971, 1975-77, 1983, 1986-87, due to closing of gate at Old Forge Dam.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1915, about 8.5 ft Sept. 21, 1938 (backwater from hurricane tidal wave).

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 230 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
Oct. 21	0700	280	2.28	Jan. 30	0100	266	2.25
Nov. 1	0830	266	2.25	Apr. 4	0730	*334	*2.43

Minimum discharge, 6.8 ft³/s; Sept. 8, 13, 14, 15.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990 MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	26	210	76	156	117	64	57	100	62	26	17	8.2
2	39	156	68	108	99	63	51	74	53	58	14	8.4
3	89	124	69	75	98	71	80	60	48	35	12	8.6
4	56	118	63	65	96	71	278	54	46	23	11	8.1
5	39	95	57	72	91	65	176	102	42	17	11	7.4
6	32	81	56	65	80	62	110	90	38	15	11	7.6
7	30	74	62	56	82	58	88	71	41	13	11	7.6
8	26	71	56	52	78	55	80	79	41	13	23	7.1
9	24	136	53	54	75	55	71	69	43	13	25	7.2
10	22	177	51	58	97	57	67	64	77	12	18	7.7
11	24	131	51	62	122	58	89	147	66	11	19	7.8
12	25	101	52	58	96	62	88	108	48	21	32	7.3
13	23	85	50	54	80	63	71	81	39	68	19	7.1
14	21	78	46	48	74	56	64	135	35	43	14	7.0
15	71	101	43	46	71	53	96	109	32	26	11	12
16	55	133	47	46	94	50	127	85	31	20	10	14
17	57	162	47	46	94	48	99	114	29	15	9.5	11
18	122	121	46	52	76	60	95	112	24	13	9.1	9.3
19	99	98	45	51	70	58	77	89	24	11	9.2	8.5
20	167	94	45	48	67	67	69	75	24	10	9.5	10
21	245	102	43	56	61	70	77	79	24	9.6	9.0	9.2
22	169	87	42	59	62	59	88	83	23	10	8.9	11
23	118	83	42	53	98	53	75	73	21	12	8.5	42
24	92	81	42	53	105	49	66	67	22	25	17	22
25	78	77	42	74	94	47	62	61	20	65	63	13
26	70	84	42	154	76	43	63	58	17	48	29	10
27	66	87	42	154	67	43	60	55	16	57	18	9.6
28	63	98	42	101	66	41	56	53	16	54	14	9.1
29	60	106	42	83	---	39	53	57	16	40	12	8.7
30	56	86	42	225	---	44	58	106	26	29	9.7	8.9
31	58	---	50	172	---	66	---	84	---	22	8.8	---
TOTAL	2122	3237	1554	2456	2386	1750	2591	2594	1044	834.6	493.2	315.4
MEAN	68.5	108	50.1	79.2	85.2	56.5	86.4	83.7	34.8	26.9	15.9	10.5
MAX	245	210	76	225	122	71	278	147	77	68	63	42
MIN	21	71	42	46	61	39	51	53	16	9.6	8.5	7.0

CAL YR 1989 TOTAL 22892 MEAN 62.7 MAX 257 MIN 12
WTR YR 1990 TOTAL 21377.2 MEAN 58.6 MAX 278 MIN 7.0

PAWCATUCK RIVER BASIN

01117350 CHIPUXET RIVER AT WEST KINGSTON, RI

LOCATION.--Lat 41°28'56", long 71°33'06", Washington County, Hydrologic Unit 01090005, on right bank at West Kingston, at downstream side of bridge on State Highway 138, 1.5 mi west of Kingston, and 3.1 mi upstream from Worden Pond.

DRAINAGE AREA.--9.99 mi².

PERIOD OF RECORD.--Discharge: February 1958 to July 1960 in Rhode Island Water Resources Board Geologic Bulletin 13. September 1973 to current year. Water-quality records: Water years 1974-83.

GAGE.--Water-stage recorder. Datum of gage is 89.80 ft above National Geodetic Vertical Datum of 1929 (Rhode Island State Board of Public Roads benchmark).

REMARKS.--No estimated daily discharges. Records good. Diversion upstream for supply of University of Rhode Island.

AVERAGE DISCHARGE.--18 years (water years 1959, 1974-90), 22.0 ft³/s.

EXTREMES FOR PERIOD OF RECORD (SINCE 1973).--Maximum discharge, about 250 ft³/s, June 6, 1982; minimum, 2.1 ft³/s, Aug. 27-31, Sept. 2, 1981. Instantaneous maximum and minimum discharges not available prior to Sept. 14, 1973.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 72 ft³/s, Apr. 5, gage height, 6.17 ft; minimum, 4.6 ft³/s, Sept. 6, 7.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	19	41	39	36	61	34	24	34	34	17	17	5.8
2	20	52	36	48	53	32	24	38	31	19	15	5.5
3	23	52	34	45	48	32	26	36	29	20	13	5.5
4	26	49	32	40	46	32	51	33	28	20	11	5.1
5	25	46	31	37	44	32	71	36	27	19	10	4.9
6	23	42	30	35	42	31	62	39	25	17	9.5	4.8
7	21	38	29	32	40	30	52	39	25	16	9.2	4.7
8	19	36	28	30	39	29	45	38	25	15	8.9	4.7
9	18	41	28	30	38	28	40	36	24	14	9.0	4.8
10	17	58	27	29	38	28	36	35	24	13	9.5	4.9
11	17	60	26	29	42	26	36	39	23	12	9.3	4.9
12	16	54	25	30	43	26	38	43	22	12	9.2	4.8
13	16	47	25	29	41	27	36	41	22	15	9.1	4.7
14	15	43	24	27	39	27	34	42	21	17	8.6	4.7
15	18	41	23	25	37	27	35	43	20	18	8.0	5.6
16	21	42	25	24	37	27	38	42	19	17	7.7	6.2
17	24	46	26	23	38	26	40	42	19	16	7.4	6.4
18	29	48	25	23	38	26	40	43	19	14	7.0	6.1
19	33	45	24	23	36	27	38	41	19	12	6.8	5.8
20	39	41	24	22	34	28	35	38	18	10	6.6	6.0
21	57	41	23	24	32	29	34	37	18	9.6	6.6	5.9
22	65	39	23	25	31	29	35	36	18	9.2	6.6	6.1
23	57	39	23	26	35	27	35	36	17	9.2	6.5	7.3
24	48	37	23	25	41	26	34	34	17	10	7.1	7.4
25	42	36	23	27	44	24	32	33	17	20	8.7	7.3
26	38	35	22	39	43	23	31	31	16	32	8.9	7.0
27	34	35	22	51	39	21	30	30	15	34	8.4	6.7
28	32	37	22	51	36	21	29	29	15	31	7.6	6.2
29	31	40	21	45	---	20	28	29	15	26	7.0	6.0
30	29	41	21	57	---	20	28	31	16	23	6.5	5.7
31	29	---	22	68	---	23	---	33	---	19	6.0	---
TOTAL	901	1302	806	1055	1135	838	1117	1137	638	536.0	271.7	171.5
MEAN	29.1	43.4	26.0	34.0	40.5	27.0	37.2	36.7	21.3	17.3	8.76	5.72
MAX	65	60	39	68	61	34	71	43	34	34	17	7.4
MIN	15	35	21	22	31	20	24	29	15	9.2	6.0	4.7

CAL YR 1989 TOTAL 10002.8 MEAN 27.4 MAX 73 MIN 9.2
WTR YR 1990 TOTAL 9908.2 MEAN 27.1 MAX 71 MIN 4.7

PAWCATUCK RIVER BASIN

97

01117420 USQUEPAUG RIVER NEAR USQUEPAUG, RI

LOCATION.--Lat 41°28'36", long 71°36'19", Washington County, Hydrologic Unit 01090005, on left bank at upstream side of Heaton Orchard Bridge on State Highway 2 in South Kingstown, 1.2 mi upstream from Chickasheen Brook, 1.8 mi south of Usquepaug, and 2.6 mi west of West Kingston.

DRAINAGE AREA.--36.1 mi².

PERIOD OF RECORD.--Discharge: February 1958 to July 1960 in Rhode Island Water Resources Board Geologic Bulletin 13. December 1974 to current year.
Water-quality records: Water years 1975-83.

GAGE.--Water-stage recorder. Datum of gage is 81.28 ft above National Geodetic Vertical Datum of 1929 (State of Rhode Island benchmark).

REMARKS.--Records good. Flow affected at times by irrigation upstream.

AVERAGE DISCHARGE.--16 years, (water years 1959, 1976-90), 78.5 ft³/s, 29.53 in/yr.

EXTREMES FOR PERIOD OF RECORD (SINCE 1974).--Maximum discharge, 1,060 ft³/s, June 6, 1982, gage height, 9.23 ft; minimum, 3.9 ft³/s, Sept. 10, 1977, Sept. 30, 1980. Instantaneous maximum and minimum discharges not available prior to Dec. 5, 1974.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 235 ft³/s, Jan. 31, gage height, 5.57 ft; maximum gage height, 5.89 ft Oct. 21; minimum discharge, 14 ft³/s, at times each day Sept. 4-7, 10-13.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	38	150	134	137	199	108	86	123	115	46	36	19
2	40	189	119	163	171	104	77	130	96	53	32	19
3	73	176	112	132	160	111	83	110	87	50	30	19
4	70	168	106	99	154	114	179	95	84	43	28	17
5	54	154	99	102	151	106	218	118	79	38	27	16
6	46	137	95	100	141	100	178	141	73	34	26	16
7	40	126	97	88	136	95	148	127	75	32	27	17
8	37	118	94	77	132	91	133	118	76	31	31	18
9	36	134	90	82	126	90	121	118	70	32	36	17
10	35	193	82	86	130	91	111	108	69	31	34	15
11	38	191	80	92	172	91	117	148	69	29	32	15
12	39	167	80	90	172	93	134	175	67	30	37	16
13	36	146	77	83	150	97	126	152	62	61	35	15
14	34	133	73	73	136	92	110	152	58	58	31	15
15	59	131	69	69	126	87	114	164	55	44	27	23
16	75	154	75	69	129	84	153	148	53	38	25	26
17	69	186	80	70	140	81	158	152	51	33	25	21
18	98	182	75	75	133	90	152	164	50	30	24	18
19	112	161	73	80	121	96	139	159	49	28	22	16
20	127	146	72	73	112	97	124	141	47	26	23	19
21	192	144	70	79	104	102	118	132	48	26	21	18
22	209	140	68	89	102	94	132	137	47	26	21	17
23	184	133	67	79	130	85	130	133	45	35	21	36
24	151	130	66	77	154	78	119	122	44	33	27	32
25	133	122	67	93	155	74	110	113	43	102	49	24
26	123	122	67	142	139	72	108	106	40	128	38	20
27	114	127	65	192	120	69	104	100	37	81	31	20
28	107	134	65	175	114	67	98	94	36	62	28	19
29	101	158	63	146	---	66	92	92	35	53	24	18
30	95	150	63	185	---	68	93	118	45	44	21	17
31	93	---	68	230	---	90	---	131	---	40	19	---
TOTAL	2658	4502	2511	3327	3909	2783	3765	4021	1805	1397	888	578
MEAN	85.7	150	81.0	107	140	89.8	125	130	60.2	45.1	28.6	19.3
MAX	209	193	134	230	199	114	218	175	115	128	49	36
MIN	34	118	63	69	102	66	77	92	35	26	19	15
CFSM	2.38	4.16	2.24	2.97	3.87	2.49	3.48	3.59	1.67	1.25	.79	.53
IN.	2.74	4.64	2.59	3.43	4.03	2.87	3.88	4.14	1.86	1.44	.92	.60

CAL YR 1989 TOTAL 31839 MEAN 87.2 MAX 281 MIN 24 CFSM 2.42 IN. 32.81
WTR YR 1990 TOTAL 32144 MEAN 88.1 MAX 230 MIN 15 CFSM 2.44 IN. 33.12

PAWCATUCK RIVER BASIN

01117468 BEAVER RIVER NEAR USQUEPAUG, RI

LOCATION.--Lat 41°29'33", long 71°37'43", Washington County, Hydrologic Unit 01090005, on right bank 10 ft downstream from Beaver River Bridge on State Highway 138 in Richmond, 1.2 mi southwest of Usquepaug, 3.3 mi north of Kenyon, and 3.6 mi upstream from mouth.

DRAINAGE AREA.--8.87 mi².

PERIOD OF RECORD.--Discharge: December 1974 to current year.
Water-quality records: Water years 1979-83.

REVISED RECORDS.--WDR MA-RI-79-1: 1978. WDR MA-RI-81-1: 1978-80 (P).

GAGE.--Water-stage recorder. Datum of gage is 107.68 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Records good except those for estimated daily discharges, which are fair.

AVERAGE DISCHARGE.--15 years (water years 1976-90), 22.3 ft³/s, 34.14 in/yr.

EXTREMES FOR PERIOD OF RECORD.---Maximum discharge, 370 ft³/s, June 6, 1982, gage height, 3.83 ft; minimum, 1.3 ft³/s, Aug. 21, 22, 1987.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 70 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
Oct. 21	1045	*87	*2.51	Apr. 4	0630	76	2.25
Nov. 1	0700	71	2.33				

Minimum discharge, 2.9 ft³/s, Sept. 4, 5.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	7.9	68	34	43	48	31	25	39	27	13	7.4	3.6
2	11	53	30	34	43	31	23	34	25	15	6.0	3.5
3	24	46	30	26	42	32	29	28	23	12	5.3	3.2
4	16	45	28	23	42	33	72	27	23	9.9	4.9	3.2
5	11	39	27	26	41	30	54	43	21	8.6	4.6	3.0
6	9.3	35	28	25	37	29	40	39	20	7.9	4.4	3.1
7	8.7	33	30	24	37	28	35	31	21	7.1	5.1	3.1
8	7.5	31	28	22	37	28	35	32	20	6.6	10	3.6
9	7.1	49	25	23	35	28	33	31	19	6.4	11	3.8
10	7.0	64	24	24	44	28	31	29	18	6.3	7.5	3.5
11	7.8	50	24	25	54	28	39	55	18	5.9	12	3.4
12	7.8	41	23	24	43	29	40	44	18	7.1	13	3.3
13	7.5	37	22	22	37	29	33	37	17	20	8.6	3.3
14	6.6	36	21	20	35	27	30	48	16	14	6.9	3.3
15	19	43	20	19	33	26	41	43	15	9.6	5.7	7.3
16	19	52	21	19	38	24	53	39	15	8.0	5.0	7.1
17	19	60	22	20	39	24	44	46	14	6.8	4.6	5.5
18	37	51	21	21	35	28	44	49	14	5.7	4.3	4.8
19	32	43	20	22	33	28	38	42	13	5.4	4.2	4.1
20	44	42	19	20	31	29	35	37	13	5.0	4.3	4.9
21	80	43	20	22	30	30	38	39	13	4.6	4.1	4.8
22	68	39	21	24	30	27	43	40	12	6.7	4.0	5.3
23	52	37	18	21	46	25	37	36	12	9.4	3.9	12
24	45	37	18	21	45	23	33	33	11	6.8	7.2	8.2
25	40	35	17	27	41	23	32	31	11	48	15	5.7
26	38	35	16	50	35	22	32	30	10	34	9.8	4.7
27	35	36	16	51	33	22	31	29	9.9	e18	6.8	5.1
28	33	43	16	40	32	21	29	27	9.2	e14	5.6	4.7
29	30	45	16	35	---	21	28	28	9.0	e11	4.7	4.3
30	28	38	15	65	---	22	30	39	14	e9.9	4.1	3.9
31	31	---	18	59	---	27	---	34	---	8.8	4.0	---
TOTAL	789.2	1306	688	897	1076	833	1107	1139	481.1	351.5	204.0	139.3
MEAN	25.5	43.5	22.2	28.9	38.4	26.9	36.9	36.7	16.0	11.3	6.58	4.64
MAX	80	68	34	65	54	33	72	55	27	48	15	12
MIN	6.6	31	15	19	30	21	23	27	9.0	4.6	3.9	3.0
CFSM	2.87	4.91	2.50	3.26	4.33	3.03	4.16	4.14	1.81	1.28	.74	.52
IN.	3.31	5.48	2.89	3.76	4.51	3.49	4.64	4.78	2.02	1.47	.86	.58

CAL YR 1989 TOTAL 9336.6 MEAN 25.6 MAX 80 MIN 6.0 CFSM 2.88 IN. 39.16
WTR YR 1990 TOTAL 9011.1 MEAN 24.7 MAX 80 MIN 3.0 CFSM 2.78 IN. 37.79

e Estimated

PAWCATUCK RIVER BASIN

99

01117500 PAWCATUCK RIVER AT WOOD RIVER JUNCTION, RI

LOCATION.--Lat 41°26'42", long 71°40'53", Washington County, Hydrologic Unit 01090005, on right bank 10 ft downstream from bridge on Alton-Carolina road, 0.8 mi northeast of Wood River Junction, 1.5 mi southwest of Carolina, and 2.9 mi upstream from Wood River.

DRAINAGE AREA.--100 mi².

PERIOD OF RECORD.--October 1940 to current year. October and November 1940, monthly discharge only, published in WSP 1301. Prior to October 1943, published as Charles River at Wood River Junction.

REVISED RECORDS.--WSP 1051: Drainage area. WSP 1201: 1948.

GAGE.--Water-stage recorder and concrete control. Datum of gage is 43.86 ft above National Geodetic Vertical Datum of 1929. Prior to June 19, 1984, at site 10 ft upstream at same datum.

REMARKS.--Records good except those for estimated daily discharges and discharges above 300 ft³/s, which are fair. Occasional regulation by fish hatchery on White Brook. Prior to 1972, occasional regulation at low flow by powerplant and mills upstream; regulation greater prior to 1969.

AVERAGE DISCHARGE.--50 years, 196 ft³/s, 26.62 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 1,860 ft³/s, June 7, 1982, gage height, 8.75 ft; minimum, 7.4 ft³/s, Oct. 10, 1947; minimum daily, 15 ft³/s, Oct. 11, 1947.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 693 ft³/s, Feb. 1, gage height, 4.37 ft; minimum, 46 ft³/s, Sept. 13.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	159	436	375	266	683	291	218	272	267	123	114	56
2	151	505	321	281	630	286	211	285	247	130	100	56
3	174	573	310	297	560	290	222	277	227	127	91	54
4	194	570	267	281	520	289	367	257	216	117	84	53
5	199	518	267	273	492	277	457	280	207	104	82	50
6	187	466	248	264	443	265	468	305	197	94	80	48
7	173	415	256	244	408	247	429	304	195	89	81	50
8	161	376	241	228	379	241	382	297	195	86	89	51
9	151	460	222	231	354	238	341	287	191	84	109	50
10	144	610	212	243	363	237	313	277	184	82	101	50
11	142	659	207	254	408	234	311	316	179	77	98	50
12	144	618	206	256	439	234	318	336	175	80	100	49
13	144	536	202	246	418	236	312	345	168	117	97	48
14	140	474	195	225	373	233	294	353	160	134	90	48
15	147	445	184	215	343	228	297	348	154	121	80	60
16	163	463	180	214	349	221	330	343	149	103	74	72
17	180	527	182	213	352	216	353	357	145	92	70	63
18	e216	545	182	216	340	222	357	363	140	81	68	57
19	e274	511	178	223	324	230	336	357	136	74	66	53
20	e368	459	180	220	300	244	312	334	132	71	65	57
21	511	434	175	220	276	251	300	321	130	67	64	56
22	625	393	170	234	270	242	310	318	129	75	62	56
23	646	369	167	234	318	231	309	309	124	95	58	93
24	578	354	162	225	374	217	296	296	123	93	72	92
25	487	340	160	237	407	208	280	281	116	185	107	76
26	419	344	163	340	370	201	271	267	111	246	106	65
27	370	346	161	458	323	194	263	253	104	230	88	67
28	330	373	160	488	304	188	253	242	102	198	76	63
29	304	403	160	454	---	185	242	237	99	165	69	59
30	284	406	160	584	---	188	240	260	114	144	64	56
31	282	---	168	670	---	209	---	272	---	127	58	---
TOTAL	8447	13928	6421	9034	11120	7273	9392	9349	4816	3611	2563	1758
MEAN	272	464	207	291	397	235	313	302	161	116	82.7	58.6
MAX	646	659	375	670	683	291	468	363	267	246	114	93
MIN	140	340	160	213	270	185	211	237	99	67	58	48
CFSM	2.72	4.64	2.07	2.91	3.97	2.35	3.13	3.02	1.61	1.16	.83	.59
IN.	3.14	5.18	2.39	3.36	4.14	2.71	3.49	3.48	1.79	1.34	.95	.65

CAL YR 1989 TOTAL 89914 MEAN 246 MAX 689 MIN 79 CFSM 2.46 IN. 33.45
WTR YR 1990 TOTAL 87712 MEAN 240 MAX 683 MIN 48 CFSM 2.40 IN. 32.63

e Estimated

PAWCATUCK RIVER BASIN

01117800 WOOD RIVER NEAR ARCADIA, RI

LOCATION.--Lat 41°34'26", long 71°43'16", Washington County, Hydrologic Unit 01090005, on left bank at upstream side of bridge on Ten Rod Road, 1.8 mi northwest of Arcadia, and 4.5 mi north of Hope Valley.

DRAINAGE AREA.--35.2 mi².

PERIOD OF RECORD.--Discharge: January 1964 to September 1981, October 1982 to current year.
Water-quality records: Water years 1967-74.

GAGE.--Water-stage recorder. Datum of gage is 118.20 ft above National Geodetic Vertical Datum of 1929 (Rhode Island State Board of Public Roads benchmark). Prior to Oct. 1, 1985, datum erroneously published as 137.97 ft above NGVD of 1929.

REMARKS.--Records good except those for estimated daily discharges, which are fair.

AVERAGE DISCHARGE.--25 years (water years 1965-81, 1983-90), 77.6 ft³/s, 29.99 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 896 ft³/s, Mar. 18, 1968, gage height, 8.64 ft; minimum, 4.9 ft³/s, Sept. 24-26, Sept. 29 to Oct. 1, 1980.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of June 6, 1982, reached a discharge of 1,010 ft³/s, gage height, 8.97 ft.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 280 ft³/s, and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
Oct. 21	1500	*361	*5.91	Jan. 30	1300	304	5.31
Nov. 17	1645	297	5.36	Aug. 12	1945	309	5.50

Minimum discharge, 15 ft³/s, Sept. 12-15.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	46	188	123	124	213	109	98	119	112	35	24	24
2	55	155	112	114	183	107	90	110	100	45	21	22
3	87	156	111	102	171	111	100	100	85	37	20	22
4	77	151	104	94	159	111	199	92	78	32	18	21
5	67	141	99	105	147	105	187	130	72	28	17	20
6	61	130	95	95	136	102	156	126	66	28	17	20
7	48	118	99	91	134	95	134	114	67	25	22	21
8	62	108	92	87	130	91	121	117	62	23	40	20
9	61	170	87	85	127	92	109	107	60	22	57	17
10	51	198	86	86	162	93	101	105	62	22	62	17
11	49	175	83	90	187	95	119	196	61	21	140	17
12	48	149	80	90	165	100	121	171	58	28	275	16
13	43	130	80	86	146	101	112	148	62	66	254	15
14	40	120	77	79	134	96	103	167	56	48	156	15
15	79	152	74	77	126	95	160	148	52	39	103	21
16	87	208	e72	74	145	88	221	137	49	35	77	20
17	90	284	e70	73	150	87	202	156	46	29	60	23
18	148	247	e69	83	139	101	186	147	45	26	49	22
19	157	199	e67	91	128	100	159	129	43	23	42	22
20	204	177	e65	88	121	117	142	115	40	22	39	22
21	350	177	65	91	109	120	143	117	43	21	35	20
22	321	155	e63	92	105	116	159	120	40	20	32	20
23	233	141	e61	85	151	106	149	112	40	21	30	31
24	177	147	e60	83	154	96	134	104	41	21	37	27
25	145	135	e60	102	147	89	123	96	36	51	58	23
26	130	134	e59	201	131	85	119	92	33	49	54	21
27	120	133	e59	234	119	82	116	87	31	44	53	24
28	107	150	e58	187	114	79	113	83	30	39	45	24
29	106	157	e58	157	---	76	103	85	28	34	37	21
30	106	136	e60	283	---	82	104	116	37	31	29	20
31	112	---	70	273	---	105	---	119	---	27	25	---
TOTAL	3467	4821	2418	3602	4033	3032	4083	3765	1635	992	1928	628
MEAN	112	161	78.0	116	144	97.8	136	121	54.5	32.0	62.2	20.9
MAX	350	284	123	283	213	120	221	196	112	66	275	31
MIN	40	108	58	73	105	76	90	83	28	20	17	15
CFSM	3.18	4.57	2.22	3.30	4.09	2.78	3.87	3.45	1.55	.91	1.77	.59
IN.	3.66	5.09	2.56	3.81	4.26	3.20	4.31	3.98	1.73	1.05	2.04	.66

CAL YR 1989 TOTAL 32352 MEAN 88.6 MAX 350 MIN 18 CFSM 2.52 IN. 34.19
WTR YR 1990 TOTAL 34404 MEAN 94.3 MAX 350 MIN 15 CFSM 2.68 IN. 36.36

e Estimated

PAWCATUCK RIVER BASIN

101

01118000 WOOD RIVER AT HOPE VALLEY, RI

LOCATION.--Lat 41°29'53", long 71°43'01", Washington County, Hydrologic Unit 01090005, on right bank 0.2 mi downstream from highway bridge at Hope Valley and 6.6 mi upstream from mouth.

DRAINAGE AREA.--72.4 mi².

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--Discharge: August to December 1909 (gage heights only), March 1941 to current year. Records of daily discharge for August to December 1909, published in WSP 261, have been found to be unreliable and should not be used.

REVISED RECORDS.--WSP 1201: 1948(P). See also PERIOD OF RECORD.

GAGE.--Water-stage recorder and concrete control. Datum of gage is 61.11 ft above National Geodetic Vertical Datum of 1929. August to December 1909, nonrecording gage at site 1,000 ft upstream at different datum.

REMARKS.--No estimated daily discharges. Records excellent. Some seasonal regulation by Locustville Pond on Brushy Brook since 1968. Some regulation at low flow by mills and ponds upstream until 1952; regulation greater prior to 1948.

AVERAGE DISCHARGE.--49 years, 156 ft³/s, 29.26 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 2,390 ft³/s, June 6, 1982, gage height, 10.26 ft; minimum, 4.0 ft³/s, Sept. 9, 1987; minimum daily, 10 ft³/s, Oct. 13, 1941.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since 1711, at least 12.4 ft in February 1886. Flood in November 1927 reached a stage of 11.7 ft, and flood in March 1936 reached a discharge of 1,540 ft³/s.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 580 ft³/s, and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
Oct. 21	1830	*925	*5.87	Jan. 30	1900	717	5.07

Minimum discharge, 30 ft³/s, Sept. 14, 15; minimum daily, 31 ft³/s, Sept. 14.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	97	431	254	278	458	210	189	241	217	78	52	48
2	115	386	227	262	378	207	171	223	198	91	46	45
3	223	353	224	208	355	221	193	195	176	83	43	44
4	184	365	206	187	333	221	468	181	165	70	41	41
5	140	313	192	206	306	205	424	264	152	63	38	39
6	124	281	186	200	275	198	324	278	138	58	38	38
7	106	258	193	179	271	186	279	238	140	55	43	38
8	100	239	180	167	259	177	256	241	138	51	65	38
9	107	379	167	174	245	178	230	227	129	50	81	35
10	95	519	160	174	312	182	212	213	129	49	87	35
11	96	416	156	186	437	184	249	405	125	47	117	35
12	96	339	152	182	351	191	265	374	120	55	341	33
13	92	290	149	168	298	197	230	305	116	124	350	33
14	85	269	141	151	274	186	207	356	109	112	243	31
15	163	312	133	144	258	180	295	334	102	84	157	43
16	194	431	146	141	286	170	471	292	97	72	115	45
17	192	557	143	140	304	165	401	341	92	63	92	42
18	395	505	140	157	270	193	371	337	88	56	77	40
19	374	404	134	178	248	199	315	292	86	51	68	38
20	480	352	136	164	232	222	277	256	84	48	63	41
21	852	354	125	178	210	240	278	258	85	45	58	37
22	772	311	123	183	208	220	318	272	83	45	55	38
23	573	289	121	164	300	200	289	249	82	48	52	58
24	431	280	116	160	330	180	258	231	83	48	64	56
25	348	263	117	200	306	168	240	213	77	117	102	47
26	300	264	120	410	261	159	236	199	71	132	95	41
27	275	271	115	523	232	150	224	190	68	99	83	43
28	250	301	114	394	223	144	216	178	64	90	74	43
29	236	337	112	320	---	140	199	179	61	75	66	40
30	222	284	114	612	---	151	199	245	78	67	59	37
31	227	---	130	614	---	198	---	257	---	60	52	---
TOTAL	7944	10353	4726	7404	8220	5822	8284	8064	3353	2186	2917	1222
MEAN	256	345	152	239	294	188	276	260	112	70.5	94.1	40.7
MAX	852	557	254	614	458	240	471	405	217	132	350	58
MIN	85	239	112	140	208	140	171	178	61	45	38	31
CFSM	3.54	4.77	2.11	3.30	4.05	2.59	3.81	3.59	1.54	.97	1.30	.56
IN.	4.08	5.32	2.43	3.80	4.22	2.99	4.26	4.14	1.72	1.12	1.50	.63

CAL YR 1989 TOTAL 68862 MEAN 189 MAX 852 MIN 46 CFSM 2.61 IN. 35.38
WTR YR 1990 TOTAL 70495 MEAN 193 MAX 852 MIN 31 CFSM 2.67 IN. 36.22

PAWCATUCK RIVER BASIN

01118000 WOOD RIVER AT HOPE VALLEY, RI--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--October 1977 to current year.

PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: October 1977 to current year.

WATER TEMPERATURES: October 1977 to current year.

INSTRUMENTATION.--Water-quality monitor since October 1977.

REMARKS.--Interruptions in the record were due to malfunctions of the instrument.

EXTREMES FOR PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: Maximum recorded, 298 microsiemens, Feb. 12, 1988; minimum recorded, 21 microsiemens, Jan. 23, 1979.

WATER TEMPERATURES: Maximum recorded, 29.5°C, July 24, 1987, July 26, 27, 28, 1989; minimum recorded, 0.0°C, on many days during winter periods.

EXTREMES FOR CURRENT YEAR.--

SPECIFIC CONDUCTANCE: Maximum recorded, 278 microsiemens, Dec. 31; minimum recorded, 28 microsiemens, Aug. 13.

WATER TEMPERATURES: Maximum recorded, 28.0°C, Aug. 29; minimum recorded, 0.0°C, on many days during winter period.

SPECIFIC CONDUCTANCE, $\mu\text{S}/\text{CM}$ @ 25 DEGREES CENTIGRADE, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
OCTOBER			NOVEMBER			DECEMBER			JANUARY			
1	80	70	76	75	59	67	65	64	65	188	96	126
2	80	71	75	74	59	67	68	65	66	96	87	91
3	76	66	71	68	58	65	69	68	68	96	82	85
4	76	67	72	69	57	63	72	68	69	89	79	82
5	76	71	73	69	56	65	73	70	71	82	77	79
6	76	72	73	58	56	57	76	72	73	76	74	75
7	78	72	75	59	57	58	77	71	73	76	75	75
8	81	74	77	61	59	60	74	71	73	76	75	75
9	79	75	78	63	56	60	75	74	75	115	77	93
10	80	74	77	56	53	55	76	75	75	91	79	84
11	83	71	78	55	52	53	78	75	77	87	78	81
12	81	72	75	56	53	54	78	76	77	78	76	77
13	84	78	81	58	55	57	77	76	77	76	75	76
14	88	81	85	60	57	59	79	77	78	76	75	76
15	85	74	81	61	59	60	81	79	80	106	76	85
16	83	76	81	60	55	57	94	79	83	86	79	81
17	82	75	78	56	51	54	85	79	82	80	79	79
18	78	65	72	51	49	50	91	79	83	80	78	79
19	71	64	67	53	51	52	84	79	81	77	73	75
20	66	59	63	59	53	55	97	80	85	86	73	75
21	72	60	63	58	56	56	81	79	80	116	87	97
22	67	52	57	57	55	56	82	81	82	90	80	83
23	63	53	59	72	56	60	82	80	81	96	78	83
24	66	56	60	72	59	63	82	81	81	90	78	83
25	69	56	64	66	60	62	82	80	81	94	78	83
26	71	64	67	72	62	66	81	79	80	81	67	76
27	70	60	64	64	62	63	80	79	79	66	58	61
28	73	64	68	84	62	70	81	79	80	61	58	59
29	76	63	70	66	62	63	82	79	80	66	60	61
30	71	63	68	64	62	63	125	80	96	72	56	62
31	75	64	70	---	---	---	278	90	132	55	51	53
MONTH	88	52	72	84	49	60	278	64	79	188	51	79

PAWCATUCK RIVER BASIN

01118000 WOOD RIVER AT HOPE VALLEY, RI--Continued

WATER-QUALITY RECORDS

WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
OCTOBER			NOVEMBER			DECEMBER			JANUARY			
1	16.0	13.5	14.5	16.0	14.5	15.0	2.5	2.0	2.5	1.5	1.0	1.5
2	15.5	14.0	15.0	14.5	12.5	13.5	2.0	1.5	2.0	1.0	.5	1.0
3	17.5	15.5	16.0	12.5	11.0	12.0	3.0	2.0	2.5	1.5	1.0	1.0
4	16.0	14.0	15.5	11.0	9.0	10.0	2.5	1.5	1.5	2.0	1.5	1.5
5	14.5	13.0	13.5	8.5	7.5	8.0	2.0	1.0	1.5	3.0	2.0	2.5
6	14.0	12.5	13.0	9.5	8.0	8.5	3.0	1.5	2.0	2.5	1.5	2.0
7	15.0	13.5	14.0	11.0	9.5	10.0	3.5	2.5	3.0	2.0	1.5	1.5
8	14.0	12.5	13.0	12.0	11.0	11.5	2.5	1.5	2.0	2.5	1.5	2.0
9	13.0	11.0	12.0	13.0	12.0	12.5	2.0	1.5	1.5	2.5	1.5	2.0
10	12.0	10.0	11.0	13.0	12.0	12.5	2.0	1.5	2.0	3.0	2.0	2.5
11	12.5	10.5	11.5	12.0	10.5	11.0	2.5	1.5	2.0	3.0	2.5	3.0
12	12.5	10.0	11.5	11.0	10.0	10.5	2.5	2.0	2.5	3.5	2.5	3.0
13	14.0	11.5	12.5	10.0	8.5	9.0	2.5	2.0	2.0	2.5	1.5	2.0
14	14.0	11.5	12.5	11.5	8.5	10.0	2.0	1.5	2.0	1.5	1.0	1.0
15	13.5	13.0	13.0	13.5	11.5	12.5	2.0	1.0	1.5	1.5	1.0	1.0
16	14.0	13.5	13.5	15.5	13.5	14.5	1.5	.5	1.5	2.5	1.0	2.0
17	15.0	14.0	14.5	15.0	11.0	13.0	1.5	1.0	1.5	3.5	2.0	3.0
18	14.0	12.0	13.0	11.0	8.0	9.5	1.5	1.0	1.5	4.5	3.5	4.0
19	12.0	10.5	11.0	8.0	6.5	7.0	1.5	1.0	1.0	4.0	3.0	3.5
20	12.5	10.5	11.5	7.0	6.0	6.5	1.5	.5	1.0	2.5	2.0	2.5
21	13.0	12.5	13.0	7.0	4.5	6.0	1.0	.5	.5	2.0	1.5	2.0
22	12.0	11.0	11.5	4.5	3.0	3.5	1.0	.5	.5	2.0	1.5	1.5
23	10.5	9.5	10.5	3.0	1.5	2.0	1.0	.5	.5	2.5	1.5	2.0
24	10.5	9.5	10.0	1.5	1.0	1.5	1.0	.5	.5	3.0	2.0	2.5
25	11.5	9.5	10.5	2.0	1.0	1.5	1.0	.5	.5	3.5	2.5	3.0
26	12.5	10.0	11.0	3.5	2.0	3.0	1.0	.5	.5	4.0	2.5	3.5
27	12.5	11.0	11.5	4.0	3.5	3.5	1.0	.5	.5	2.5	1.5	2.0
28	13.5	11.5	12.5	6.0	4.0	5.0	1.0	.5	.5	2.5	1.0	2.0
29	14.5	12.5	13.5	6.0	3.5	5.0	1.0	.5	.5	3.0	2.5	2.5
30	14.0	12.5	13.0	3.5	2.5	3.0	1.0	.5	.5	3.5	2.5	3.0
31	14.5	13.0	14.0	---	---	---	1.5	1.0	1.0	2.5	1.5	2.0
MONTH	17.5	9.5	12.5	16.0	1.0	8.5	3.5	.5	1.5	4.5	.5	2.0

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
FEBRUARY			MARCH			APRIL			MAY			
1	3.0	2.0	2.5	2.5	.5	1.5	8.0	5.5	6.5	16.0	12.5	14.0
2	4.0	3.5	4.0	3.0	1.0	2.0	7.5	7.0	7.5	18.0	15.0	16.5
3	4.0	3.5	4.0	4.0	2.5	3.5	7.0	6.5	7.0	17.5	15.0	16.0
4	3.0	2.0	2.5	4.5	3.0	3.5	6.5	6.0	6.5	18.0	15.0	16.0
5	2.0	1.5	2.0	3.5	2.0	2.5	8.0	5.5	7.0	15.5	13.0	14.5
6	2.0	1.0	1.5	2.5	1.0	2.0	8.0	7.5	7.5	14.5	12.0	13.5
7	3.0	2.0	2.5	2.0	.0	1.0	8.0	7.0	7.5	15.0	13.5	14.0
8	3.5	2.0	3.0	3.0	.5	1.5	7.5	6.0	7.0	16.0	13.5	14.5
9	5.0	3.0	4.0	4.0	1.0	2.5	8.5	5.5	7.0	16.5	14.0	15.5
10	6.0	5.0	5.5	5.5	2.5	4.0	9.5	7.5	8.5	18.0	15.5	16.5
11	5.5	3.5	4.5	7.5	4.5	6.0	11.5	9.0	10.5	17.5	16.0	17.0
12	4.0	3.0	3.5	7.5	7.0	7.5	11.5	9.5	10.5	16.0	14.5	15.5
13	3.5	2.5	3.0	9.5	6.5	8.0	11.0	8.5	9.5	15.5	15.0	15.5
14	5.0	3.0	4.0	11.0	8.5	9.5	11.0	8.0	9.5	18.0	15.0	16.5
15	5.0	3.5	4.5	12.5	10.0	11.0	10.0	9.5	10.0	18.5	17.0	18.0
16	4.0	3.5	3.5	14.0	11.5	12.5	12.5	9.5	11.0	18.0	16.5	17.5
17	5.0	3.5	4.5	13.5	13.0	13.0	12.5	10.0	11.5	16.5	15.5	16.0
18	3.5	2.0	3.0	13.5	11.5	12.5	10.5	9.0	10.0	16.5	14.5	15.5
19	3.5	2.0	2.5	12.5	10.5	11.0	10.5	8.5	9.5	16.5	15.0	16.0
20	3.0	1.5	2.5	10.5	9.5	10.0	11.5	9.5	10.5	15.5	14.0	15.0
21	2.5	.5	1.5	10.5	9.0	9.5	11.5	11.0	11.0	14.0	11.5	12.5
22	4.5	1.5	2.5	10.0	8.0	9.0	14.0	11.0	12.0	11.5	10.5	11.5
23	7.5	4.5	6.5	10.5	8.5	9.5	16.0	13.0	14.0	11.5	10.5	11.0
24	7.5	5.0	6.5	9.0	7.5	8.5	16.5	14.0	15.0	13.0	10.5	12.0
25	5.0	1.5	3.5	8.5	6.5	7.5	14.5	12.0	13.5	15.0	12.0	13.5
26	1.0	.0	.5	9.5	6.5	7.5	14.0	11.5	12.5	16.0	13.5	14.5
27	1.0	.0	.0	8.5	6.0	7.0	17.5	13.0	15.0	18.0	14.5	16.0
28	1.5	.0	.5	7.5	5.0	6.5	20.5	17.0	18.5	18.5	15.5	17.0
29	---	---	---	8.0	5.0	6.0	19.0	15.5	18.0	17.0	16.0	16.5
30	---	---	---	6.5	5.5	6.0	15.5	13.0	14.5	16.0	14.5	15.5
31	---	---	---	5.5	5.0	5.5	---	---	---	16.5	14.5	15.5
MONTH	7.5	.5	3.0	14.0	.0	6.5	20.5	5.5	10.5	18.5	10.5	15.0

PAWCATUCK RIVER BASIN

01118500 PAWCATUCK RIVER AT WESTERLY, RI
(National stream-quality accounting network station)

LOCATION.--Lat 41°23'01", long 71°50'01", Washington County, Hydrologic Unit 01090005, on left bank at Westerly, 2.1 mi downstream from Shunock River.

DRAINAGE AREA.--295 mi².

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--November 1940 to current year.

REVISED RECORDS.--WSP 1051: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 1.76 ft below National Geodetic Vertical Datum of 1929.

REMARKS.--Records good except those for estimated daily discharges, which are fair. Diurnal fluctuation at low flow prior to 1962 by mills upstream; regulation much greater prior to 1958. Diversion upstream for municipal supply of Westerly.

AVERAGE DISCHARGE.--49 years (water years 1942-90), 581 ft³/s, 26.75 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 7,070 ft³/s, June 6, 1982, gage height, 12.86 ft; minimum daily, 25 ft³/s, Aug. 17, 1941.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in March 1936 reached a discharge of 3,150 ft³/s, by computation of flow over dam 1.5 mi upstream. Maximum discharge since 1886 occurred in November 1927 and was possibly more than twice that in March 1936. Maximum stage since at least 1635, 15.0 ft Sept. 21, 1938, due to hurricane tidal wave.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 2,200 ft³/s, Oct. 22; minimum daily, 134 ft³/s, Sept. 13.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	443	1120	1110	915	1820	884	703	827	816	287	252	160
2	457	1360	1020	1180	1670	857	679	860	752	304	223	156
3	820	1400	940	983	1530	878	707	829	689	297	199	152
4	843	1440	874	882	1420	890	1330	779	638	269	187	147
5	e743	1380	851	894	1360	856	1540	882	592	243	181	145
6	e600	1260	812	886	1240	820	1450	1010	545	219	178	140
7	e500	1150	804	822	1150	783	1300	975	530	203	184	140
8	e446	1070	782	754	1100	743	1180	923	533	195	197	140
9	e441	1260	717	789	1040	729	1060	897	515	191	225	145
10	e409	1650	685	804	1080	735	962	866	498	190	237	145
11	e407	1680	661	827	1330	727	958	1070	477	182	267	143
12	e410	1580	645	835	1340	734	1010	1160	443	183	375	137
13	e404	1440	622	801	1240	751	978	1110	417	263	513	134
14	e385	1300	583	729	1120	740	910	1130	397	324	511	135
15	e530	1230	552	675	1050	706	966	1110	376	306	392	158
16	e610	1350	528	657	1060	679	1280	1050	357	262	294	187
17	e636	1560	e520	646	1110	657	1310	1090	340	230	246	158
18	e900	1590	e530	665	1060	695	1260	1180	325	204	221	145
19	e1000	1500	e520	710	993	747	1150	1120	325	190	200	137
20	e1300	1390	e510	703	936	796	1040	1040	309	184	197	142
21	e2000	1300	513	736	875	862	989	991	299	172	187	142
22	e2150	1210	e510	807	838	841	1020	991	289	172	178	147
23	e1900	1150	e480	766	981	787	1010	965	280	200	169	194
24	1700	1080	e470	731	1150	726	965	907	280	217	169	209
25	1490	1040	e470	816	1180	669	907	859	271	369	239	188
26	1300	1050	e470	1190	1110	627	866	812	255	521	270	169
27	1160	1070	e465	1530	996	596	843	775	243	522	252	176
28	1070	1120	e465	1510	925	565	804	726	230	464	225	174
29	1000	1220	e460	1400	---	552	775	685	218	398	202	168
30	940	1200	e465	1740	---	559	760	789	254	330	187	163
31	907	---	470	1910	---	661	---	843	---	285	170	---
TOTAL	27901	39150	19504	29293	32704	22852	30712	29251	12493	8376	7527	4676
MEAN	900	1305	629	945	1168	737	1024	944	416	270	243	156
MAX	2150	1680	1110	1910	1820	890	1540	1180	816	522	513	209
MIN	385	1040	460	646	838	552	679	685	218	172	169	134
CFSM	3.05	4.42	2.13	3.20	3.96	2.50	3.47	3.20	1.41	.92	.82	.53
IN.	3.52	4.94	2.46	3.69	4.12	2.88	3.87	3.69	1.58	1.06	.95	.59

CAL YR 1989 TOTAL 264730 MEAN 725 MAX 2150 MIN 190 CFSM 2.46 IN. 33.38
WTR YR 1990 TOTAL 264439 MEAN 724 MAX 2150 MIN 134 CFSM 2.46 IN. 33.35

e Estimated

PAWCATUCK RIVER BASIN

107

01118500 PAWCATUCK RIVER AT WESTERLY, RI--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1953, 1963, 1976 to current year.

PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: June 1978 to current year.

WATER TEMPERATURES: June 1978 to current year.

INSTRUMENTATION.--Water-quality monitor since June 1978.

REMARKS.--Interruptions in the record were due to instrument malfunction. Instantaneous records are representative of the cross section while continuous records are based on point samples. The instantaneous record values will not necessarily fall within the corresponding daily range of the continuous records.

EXTREMES FOR PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: Maximum, 354 microsiemens, June 25, 1985; minimum, 27 microsiemens June 7, 1982.

WATER TEMPERATURES: Maximum, 30.0°C, Aug. 9, 1980, Aug. 17, 18, 1987; minimum, 0.0°C, on many days during winter periods.

EXTREMES FOR CURRENT YEAR.--

SPECIFIC CONDUCTANCE: Maximum, 153 microsiemens, Dec. 31; minimum, 56 microsiemens, Nov. 4.

WATER TEMPERATURES: Maximum, 26.0°C, July 20; minimum, 0.0°C on many days during winter period.

WATER QUALITY DATA, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	SPE- CIFIC CON- DUCT- ANCE (µS/CM) (00095)	PH (STAND- ARD UNITS) (00400)	TEMPER- ATURE AIR (DEG C) (00020)	TEMPER- ATURE WATER (DEG C) (00010)	COLOR (PLAT- INUM- COBALT UNITS) (00080)	TUR- BID- ITY (NTU) (00076)	OXYGEN, DIS- SOLVED DIS- SOLVED (MG/L) (00300)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION) (00301)	OXYGEN DEMAND, CHEM- ICAL (HIGH LEVEL) (MG/L) (00340)	OXYGEN DEMAND, BIO- CHEM- ICAL, 5 DAY (MG/L) (00310)
OCT												
18...	0925	1250	72	6.5	9.5	13.0	--	2.2	9.7	92	--	--
NOV												
17...	1040	1600	66	6.4	8.0	12.0	--	0.80	9.7	90	--	1.0
DEC												
04...	0950	882	85	6.5	-4.0	0.5	--	0.85	13.9	96	16	--
JAN												
16...	1115	653	89	6.5	11.5	1.5	--	1.1	13.2	93	--	1.0
FEB												
07...	1225	1140	75	6.5	8.0	2.0	--	0.75	13.5	98	--	--
MAR												
14...	1055	743	84	6.7	14.0	9.0	17	0.80	11.6	100	14	1.0
APR												
11...	1025	957	77	6.7	13.0	9.0	--	0.94	10.9	96	--	--
MAY												
09...	0925	907	80	6.7	20.0	15.0	--	0.80	9.8	97	--	2.0
JUN												
13...	0925	424	88	6.9	26.5	18.0	--	1.5	9.2	96	19	--
JUL												
18...	1250	207	102	7.5	32.0	25.0	--	1.6	9.4	113	--	1.0
AUG												
08...	0930	194	104	7.0	26.5	23.0	--	1.4	7.4	87	--	--
SEP												
06...	0930	142	106	7.3	30.0	21.5	42	1.2	9.9	113	15	<1.0

PAWCATUCK RIVER BASIN

01118500 PAWCATUCK RIVER AT WESTERLY, RI--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DATE	COLI-FORM, TOTAL, IMMEDIATE (COLS. PER 100 ML) (31501)	COLI-FORM, FECAL, 0.45 UM-MF (COLS./100 ML) (31616)	STREP-TOCOCCHI, FECAL, KF AGAR (COLS. PER 100 ML) (31673)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./100 ML) (31625)	HARDNESS, TOTAL (MG/L AS CACO3) (00900)	CALCIUM, DIS-SOLVED (MG/L AS CA) (00915)	MAGNESIUM, DIS-SOLVED (MG/L AS MG) (00925)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	POTASSIUM, DIS-SOLVED (MG/L AS K) (00935)	ALKALINITY, LAB (MG/L AS CACO3) (90410)	SULFATE, DIS-SOLVED (MG/L AS SO4) (00945)	CHLORIDE, DIS-SOLVED (MG/L AS CL) (00940)
OCT 18...	5200	2200	37000	--	14	3.7	1.2	--	--	--	9.0	11
NOV 17...	1700	650	2400	600	12	3.2	0.96	8.2	1.0	5.0	9.0	10
DEC 04...	1400	K15	46	--	16	4.2	1.3	--	--	--	11	12
JAN 16...	170	K11	31	K18	15	4.2	1.2	11	1.1	7.0	11	12
FEB 07...	50	K4	35	K6	--	--	--	--	--	--	--	--
MAR 14...	200	K2	K7	--	14	3.8	1.1	9.2	1.0	6.0	9.6	13
APR 11...	2600	150	970	--	14	3.8	1.1	--	--	--	9.1	12
MAY 09...	3100	K11	26	24	13	3.5	1.1	10	0.90	7.2	8.4	12
JUN 13...	4700	K8	88	--	16	4.3	1.2	--	--	--	9.3	14
JUL 18...	120	K4	26	K12	18	4.8	1.4	13	1.1	11	12	17
AUG 08...	2700	700	1300	--	20	5.4	1.5	--	--	--	10	16
SEP 06...	440	K1	500	--	20	5.2	1.6	12	1.3	13	11	10

DATE	FLUORIDE, DIS-SOLVED (MG/L AS F) (00950)	SILICA, DIS-SOLVED (MG/L AS SIO2) (00955)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L) (70300)	RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L) (00530)	SOLIDS, RESIDUE AT 105 DEG. C, TOTAL (MG/L) (00500)	NITROGEN, NITRATE TOTAL (MG/L AS N) (00620)	NITROGEN, NITRITE TOTAL (MG/L AS N) (00615)	NITROGEN, NO2+NO3 TOTAL (MG/L AS N) (00630)	NITROGEN, NO2+NO3 DIS-SOLVED (MG/L AS N) (00631)	NITROGEN, AMMONIA TOTAL (MG/L AS N) (00610)	NITROGEN, DIS-SOLVED (MG/L AS N) (00608)	NITROGEN, ORGANIC TOTAL (MG/L AS N) (00605)
OCT 18...	--	--	66	--	74	--	<0.01	0.20	--	0.02	--	0.48
NOV 17...	0.10	8.5	50	--	--	--	<0.01	0.20	0.26	0.03	0.05	0.37
DEC 04...	--	--	70	10	67	--	<0.01	0.50	--	0.08	--	0.32
JAN 16...	0.10	9.3	69	--	80	--	<0.01	0.50	0.48	0.07	0.07	0.33
FEB 07...	--	--	--	--	--	--	<0.01	0.30	--	0.05	--	0.55
MAR 14...	--	--	65	2	58	0.380	0.02	0.40	--	0.03	--	0.27
APR 11...	--	--	50	--	59	--	<0.01	0.30	--	0.03	--	0.27
MAY 09...	<0.10	4.0	57	--	58	--	<0.01	0.20	0.20	0.03	0.03	0.37
JUN 13...	--	--	51	1	50	--	<0.01	0.40	--	0.06	--	0.34
JUL 18...	<0.10	8.1	74	--	63	--	<0.01	0.40	0.40	0.02	0.02	0.48
AUG 08...	--	--	74	--	80	--	<0.01	0.60	--	0.04	--	0.76
SEP 06...	--	--	67	2	66	--	<0.01	0.50	--	0.04	--	0.46

PAWCATUCK RIVER BASIN

109

01118500 PAWCATUCK RIVER AT WESTERLY, RI--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DATE	NITRO- GEN, AM- MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	NITRO- GEN, TOTAL (MG/L AS N) (00600)	PHOS- PHORUS TOTAL (MG/L AS P) (00665)	PHOS- PHORUS DIS- SOLVED (MG/L AS P) (00666)	PHOS- PHORUS ORTHO TOTAL (MG/L AS P) (70507)	PHOS- PHORUS ORTHO, DIS- SOLVED (MG/L AS P) (00671)	ALUM- INUM, TOTAL RECOV- ERABLE (MG/L AS AL) (01105)	ALUM- INUM, DIS- SOLVED (MG/L AS AL) (01106)	ARSENIC TOTAL (MG/L AS AS) (01002)	ARSENIC DIS- SOLVED (MG/L AS AS) (01000)	BARIUM, DIS- SOLVED (MG/L AS BA) (01005)
OCT 18...	0.5	0.7	0.04	0.02	0.03	--	--	--	--	--	--
NOV 17...	0.4	0.6	0.04	0.01	0.03	0.01	--	130	--	<1	14
DEC 04...	0.4	0.9	0.03	0.02	0.03	--	--	--	--	--	--
JAN 16...	0.4	0.9	0.03	0.02	0.03	0.01	--	80	--	<1	11
FEB 07...	0.6	0.9	0.01	--	<0.01	--	--	--	--	--	--
MAR 14...	0.3	0.7	0.01	0.02	<0.01	--	270	--	<1	--	--
APR 11...	0.3	0.6	0.03	0.02	--	--	--	--	--	--	--
MAY 09...	0.4	0.6	0.03	0.02	<0.01	<0.01	--	100	--	<1	11
JUN 13...	0.4	0.8	0.03	0.02	0.01	--	--	--	--	--	--
JUL 18...	0.5	0.9	0.03	0.02	0.02	0.02	--	40	--	<1	11
AUG 08...	0.8	1.4	0.05	0.02	<0.01	--	--	--	--	--	--
SEP 06...	0.5	1.0	0.03	0.03	--	--	90	--	<1	--	--

DATE	BERYL- LIUM, DIS- SOLVED (MG/L AS BE) (01010)	BORON, TOTAL RECOV- ERABLE (MG/L AS B) (01022)	CADMIUM TOTAL RECOV- ERABLE (MG/L AS CD) (01027)	CADMIUM DIS- SOLVED (MG/L AS CD) (01025)	CHRO- MIUM, TOTAL RECOV- ERABLE (MG/L AS CR) (01034)	CHRO- MIUM, DIS- SOLVED (MG/L AS CR) (01030)	COBALT, DIS- SOLVED (MG/L AS CO) (01035)	COPPER, TOTAL RECOV- ERABLE (MG/L AS CU) (01042)	COPPER, DIS- SOLVED (MG/L AS CU) (01040)	IRON, TOTAL RECOV- ERABLE (MG/L AS FE) (01045)	IRON, DIS- SOLVED (MG/L AS FE) (01046)
OCT 18...	--	--	--	<1.0	--	<1	--	--	1	--	--
NOV 17...	<0.5	--	--	<1.0	--	<1	<3	--	1	--	350
DEC 04...	--	--	--	<1.0	--	<1	--	--	1	--	--
JAN 16...	<0.5	--	--	<1.0	--	<1	<3	--	2	--	200
FEB 07...	--	--	--	--	--	--	--	--	--	--	--
MAR 14...	--	<10	<1	<1.0	<1	<5	--	11	1	230	--
APR 11...	--	--	--	<1.0	--	<1	--	--	1	--	--
MAY 09...	<0.5	--	--	1.0	--	<1	4	--	1	--	230
JUN 13...	--	--	--	<1.0	--	<1	--	--	2	--	--
JUL 18...	<0.5	--	--	<1.0	--	<1	<3	--	2	--	300
AUG 08...	--	--	--	<1.0	--	1	--	--	2	--	--
SEP 06...	--	<10	2	<1.0	<1	<1	--	2	2	520	--

PAWCATUCK RIVER BASIN

01118500 PAWCATUCK RIVER AT WESTERLY, RI--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DATE	LEAD, TOTAL RECOV- ERABLE (µG/L AS PB) (01051)	LEAD, DIS- SOLVED (µG/L AS PB) (01049)	LITHIUM DIS- SOLVED (µG/L AS LI) (01130)	MANGA- NESE, TOTAL RECOV- ERABLE (µG/L AS MN) (01055)	MANGA- NESE, DIS- SOLVED (µG/L AS MN) (01056)	MERCURY TOTAL RECOV- ERABLE (µG/L AS HG) (71900)	MERCURY DIS- SOLVED (µG/L AS HG) (71890)	MOLYB- DENUM, TOTAL RECOV- ERABLE (µG/L AS MO) (01062)	MOLYB- DENUM, DIS- SOLVED (µG/L AS MO) (01060)	NICKEL, TOTAL RECOV- ERABLE (µG/L AS NI) (01067)	NICKEL, DIS- SOLVED (µG/L AS NI) (01065)
OCT 18...	--	1	--	--	--	--	--	--	--	--	<1
NOV 17...	--	1	<4	--	29	--	0.1	--	<10	--	1
DEC 04...	--	<1	--	--	--	--	--	--	--	--	1
JAN 16...	--	1	<4	--	40	--	<0.1	--	<10	--	<1
FEB 07...	--	--	--	--	--	--	--	--	--	--	--
MAR 14...	2	<1	--	30	--	<0.10	--	<1	--	5	<1
APR 11...	--	<1	--	--	--	--	--	--	--	--	1
MAY 09...	--	1	<4	--	28	--	0.1	--	<10	--	1
JUN 13...	--	<1	--	--	--	--	--	--	--	--	<1
JUL 18...	--	1	<4	--	19	--	0.3	--	<10	--	2
AUG 08...	--	1	--	--	--	--	--	--	--	--	1
SEP 06...	1	<1	--	10	--	0.20	--	<1	--	1	<1

DATE	SELE- NIUM, TOTAL RECOV- ERABLE (µG/L AS SE) (01147)	SELE- NIUM, DIS- SOLVED (µG/L AS SE) (01145)	SILVER, TOTAL RECOV- ERABLE (µG/L AS AG) (01077)	SILVER, DIS- SOLVED (µG/L AS AG) (01075)	STRON- TIUM, DIS- SOLVED (µG/L AS SR) (01080)	VANA- DIUM, DIS- SOLVED (µG/L AS V) (01085)	ZINC, TOTAL RECOV- ERABLE (µG/L AS ZN) (01092)	ZINC, DIS- SOLVED (µG/L AS ZN) (01090)	CARBON, ORGANIC TOTAL (MG/L AS C) (00680)	PHENOLS TOTAL (µG/L) (32730)	OIL AND GREASE, TOTAL RECOV- ERABLE GRAVI- METRIC (MG/L) (00556)
OCT 18...	--	--	--	--	--	--	--	15	10	--	--
NOV 17...	--	<1	--	<1.0	25	<6	--	8	7.8	--	--
DEC 04...	--	--	--	--	--	--	--	6	4.9	--	--
JAN 16...	--	<1	--	<1.0	30	<6	--	7	5.1	--	--
FEB 07...	--	--	--	--	--	--	--	--	--	--	--
MAR 14...	<1	--	<1	--	--	--	20	3	3.5	<1	<1
APR 11...	--	--	--	--	--	--	--	6	5.0	--	--
MAY 09...	--	<1	--	<1.0	27	<6	--	10	5.8	--	--
JUN 13...	--	--	--	--	--	--	--	5	6.0	--	--
JUL 18...	--	<1	--	<1.0	35	<6	--	12	5.7	--	--
AUG 08...	--	--	--	--	--	--	--	6	5.9	--	--
SEP 06...	<1	--	<1	--	--	--	<10	<10	5.9	1	<1

PAWCATUCK RIVER BASIN

111

01118500 PAWCATUCK RIVER AT WESTERLY, RI--Continued

PESTICIDE ANALYSES, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DATE	TIME	PCB, TOTAL (µG/L) (39516)	PCB, TOTAL IN BOT- TOM MA- TERIAL (µG/KG) (39519)	NAPH- THA- LENES, POLY- CHLOR. TOTAL (µG/L) (39250)	PCN, TOTAL IN BOT- TOM MA- TERIAL (µG/KG) (39251)	ALDRIN, TOTAL (µG/L) (39330)	ALDRIN, TOTAL IN BOT- TOM MA- TERIAL (µG/KG) (39333)	CHLOR- DANE, TOTAL (µG/L) (39350)	CHLOR- DANE, TOTAL IN BOT- TOM MA- TERIAL (µG/KG) (39351)	DDD, TOTAL (µG/L) (39360)	DDD, TOTAL IN BOT- TOM MA- TERIAL (µG/KG) (39363)	DDE, TOTAL (µG/L) (39365)
MAR 14...	1055	<0.1	--	<0.10	--	<0.010	--	<0.1	--	<0.010	--	<0.010
SEP 06...	0930	<0.1	5	<0.10	<1.0	<0.010	<0.1	<0.1	2.0	<0.010	0.7	<0.010

DATE	DDE, TOTAL IN BOT- TOM MA- TERIAL	DDT, TOTAL IN BOT- TOM MA- TERIAL	DI- ELDRIN, TOTAL IN BOT- TOM MA- TERIAL	ENDO- SULFAN, TOTAL IN BOT- TOM MA- TERIAL	ENDRIN, TOTAL IN BOT- TOM MA- TERIAL	HEPTA- CHLOR, TOTAL IN BOT- TOM MA- TERIAL	HEPTA- CHLOR EPOXIDE TOTAL
	(µG/KG)	(µG/L)	(µG/KG)	(µG/L)	(µG/KG)	(µG/L)	(µG/L)
	(39368)	(39370)	(39373)	(39380)	(39383)	(39388)	(39389)
MAR 14...	--	<0.010	--	<0.010	--	<0.010	--
SEP 06...	1.1	<0.010	0.9	<0.010	0.3	<0.010	<0.1

DATE	TIME	HEPTA- CHLOR EPOXIDE TOT. IN BOTTOM MATL. (µG/KG) (39423)	LINDANE TOTAL (µG/L) (39340)	LINDANE TOTAL IN BOT- TOM MA- TERIAL (µG/KG) (39343)	METH- OXY- CHLOR, TOTAL (µG/L) (39480)	METH- OXY- CHLOR, TOT. IN BOTTOM MATL. (µG/KG) (39481)	MIREX, TOTAL (µG/L) (39755)	MIREX, TOTAL IN BOT- TOM MA- TERIAL (µG/KG) (39758)	PER- THANE TOTAL (µG/L) (39034)	PER- THANE TOTAL IN BOT- TOM MA- TERIAL (µG/KG) (81886)	TOX- APHENE, TOTAL (µG/L) (39400)	TOXA- PHENE, TOTAL IN BOT- TOM MA- TERIAL (µG/KG) (39403)
MAR 14...	--	<0.010	--	<0.01	--	<0.01	--	<0.1	--	<1	--	--
SEP 06...	<0.1	<0.010	<0.1	<0.01	<10	<0.01	<0.1	<0.1	<1.00	<1	<10	<10

SUSPENDED SEDIMENT DISCHARGE, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	SEDI- MENT, DIS- CHARGE, SUS- PENDED (MG/L) (80154)	SEDI- MENT, DIS- CHARGE, SUS- PENDED (T/DAY) (80155)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM (70331)
NOV 17...	1040	1600	6	26	79
JAN 16...	1115	653	6	11	60
MAY 09...	0925	907	6	15	77
JUL 18...	1250	207	2	1.1	67

PAWCATUCK RIVER BASIN

01118500 PAWCATUCK RIVER AT WESTERLY, RI--Continued

SPECIFIC CONDUCTANCE, $\mu\text{S}/\text{CM}$ @ 25 DEGREES CENTIGRADE, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990--Continued

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
OCTOBER			NOVEMBER			DECEMBER			JANUARY			
1	83	81	82	71	63	66	71	70	70	138	111	120
2	83	81	83	63	58	62	74	70	72	115	101	108
3	82	76	79	59	57	58	75	73	74	100	89	95
4	79	75	77	59	56	57	75	71	74	88	84	86
5	77	76	77	61	58	59	79	75	77	87	71	83
6	78	75	76	62	59	60	81	66	77	83	81	82
7	80	78	79	62	60	61	81	80	81	81	79	80
8	81	80	80	63	62	63	81	80	80	79	78	79
9	82	79	81	64	61	63	-	-	-	96	79	85
10	82	78	80	64	58	61	83	80	82	97	91	94
11	83	78	81	60	57	58	83	82	83	92	89	90
12	84	82	83	65	59	62	84	82	83	88	86	87
13	85	83	84	68	65	66	85	83	84	86	83	83
14	85	81	83	67	66	66	87	84	86	83	81	81
15	85	82	83	67	66	67	-	-	-	84	81	82
16	82	79	81	67	66	67	90	73	82	87	81	84
17	80	75	78	67	61	65	95	79	85	88	85	86
18	75	70	72	62	61	61	92	84	87	88	86	87
19	73	69	71	66	62	64	-	-	-	86	84	85
20	69	67	68	68	66	67	-	-	-	91	83	85
21	67	57	62	68	67	67	-	-	-	93	86	89
22	59	57	58	68	66	67	-	-	-	94	90	92
23	61	58	60	69	67	68	-	-	-	95	91	93
24	66	61	64	70	68	69	-	-	-	92	89	90
25	69	65	67	74	69	71	-	-	-	92	88	90
26	69	66	67	74	72	73	89	86	88	92	84	88
27	68	66	67	73	72	72	89	87	88	84	75	80
28	68	66	68	75	71	73	89	88	88	73	67	69
29	69	66	68	72	70	70	-	-	-	73	71	73
30	70	65	69	72	70	71	-	-	-	73	63	70
31	71	69	70	---	---	---	153	90	107	63	61	62
MONTH	85	57	74	75	56	65	153	66	-	138	61	86

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
FEBRUARY			MARCH			APRIL			MAY			
1	67	61	63	84	81	83	87	85	86	84	83	83
2	73	67	70	83	80	82	86	83	84	84	82	83
3	75	73	74	82	80	81	83	82	83	82	81	82
4	77	73	75	82	79	80	84	77	82	83	81	82
5	75	73	74	80	79	79	78	68	74	85	81	83
6	75	74	74	82	78	80	74	68	71	84	80	82
7	76	73	75	84	81	83	75	73	74	80	77	79
8	77	75	76	87	83	85	75	74	75	81	77	79
9	77	75	76	87	84	85	76	73	75	81	79	80
10	79	75	77	85	83	84	77	74	75	82	79	81
11	77	74	75	84	82	83	80	76	79	81	77	79
12	75	72	74	83	81	82	80	78	79	79	76	78
13	73	72	72	84	82	83	80	78	79	76	73	75
14	74	72	73	83	81	82	79	77	78	75	73	74
15	74	71	73	83	81	82	79	77	78	75	73	74
16	76	74	75	84	81	82	78	74	76	75	74	74
17	76	75	75	85	82	84	76	73	75	76	74	75
18	75	74	74	86	84	85	74	73	73	76	75	76
19	74	73	74	85	83	84	74	73	74	76	74	75
20	75	73	74	85	82	83	75	73	74	75	74	75
21	77	75	76	85	83	83	77	75	76	76	74	75
22	78	77	77	84	83	83	78	77	78	77	76	76
23	78	76	77	83	82	82	77	75	76	77	76	76
24	77	72	75	84	82	83	78	75	76	78	76	77
25	79	73	75	84	83	83	80	77	79	80	77	78
26	82	77	79	84	82	83	81	79	80	80	78	79
27	81	79	81	85	83	84	82	79	81	81	78	79
28	85	80	83	86	84	85	84	80	82	81	78	80
29	---	---	---	88	86	87	85	82	83	81	78	80
30	---	---	---	89	87	88	84	82	83	83	80	82
31	---	---	---	90	88	89	---	---	---	82	80	81
MONTH	85	61	75	90	78	83	87	68	78	85	73	78

PAWCATUCK RIVER BASIN

113

01118500 PAWCATUCK RIVER AT WESTERLY, RI--Continued

SPECIFIC CONDUCTANCE, $\mu\text{S}/\text{CM}$ @ 25 DEGREES CENTIGRADE, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990--Continued

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	JUNE			JULY			AUGUST			SEPTEMBER		
1	80	78	79	108	105	107	114	107	110	103	99	101
2	80	77	79	111	106	108	115	110	113	104	101	102
3	81	79	80	113	111	112	115	112	113	105	102	103
4	81	80	81	111	107	109	116	111	113	104	102	103
5	83	80	81	111	106	109	116	111	114	106	102	103
6	85	82	83	108	106	107	115	109	112	-	-	-
7	87	84	85	110	108	109	112	101	107	-	-	-
8	89	87	88	112	109	110	106	104	105	-	-	-
9	90	87	88	113	111	112	108	103	104	-	-	-
10	89	87	88	117	112	114	107	104	105	-	-	-
11	88	86	87	117	113	115	106	103	104	-	-	-
12	89	86	87	116	114	115	103	88	93	-	-	-
13	92	88	89	115	113	114	92	83	88	-	-	-
14	92	89	90	117	109	114	82	70	74	-	-	-
15	93	90	91	110	98	104	70	63	67	-	-	-
16	94	90	92	103	97	101	68	63	65	-	-	-
17	94	92	93	103	98	101	77	69	73	-	-	-
18	94	93	94	108	101	105	83	76	80	-	-	-
19	94	92	93	112	105	109	89	83	85	-	-	-
20	93	92	92	119	111	115	92	88	90	-	-	-
21	99	93	96	127	119	122	94	91	92	-	-	-
22	102	99	101	131	122	126	97	93	95	-	-	-
23	106	100	102	131	120	124	99	94	96	-	-	-
24	108	102	104	123	115	120	99	95	97	-	-	-
25	107	100	104	120	106	112	105	98	102	-	-	-
26	106	100	101	127	109	117	107	100	104	-	-	-
27	105	99	101	109	101	104	100	97	99	-	-	-
28	103	99	101	106	103	104	100	99	99	-	-	-
29	106	102	104	107	103	105	100	98	99	-	-	-
30	108	104	106	107	104	105	99	96	97	-	-	-
31	---	---	---	109	105	107	101	98	99	---	---	---
MONTH	108	77	92	131	97	111	116	63	97	106	99	-
YEAR	153	56	84									

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
1	-	-	-	14.5	13.5	13.5	3.0	1.5	1.5	.5	.0	.0
2	-	-	-	14.0	12.5	12.5	2.0	1.0	1.0	.5	.0	.0
3	-	-	-	12.5	11.0	11.0	2.0	1.5	1.5	.5	.0	.0
4	-	-	-	11.0	9.5	9.5	1.5	1.0	1.0	.5	.0	.0
5	-	-	-	9.0	8.5	8.5	1.5	1.0	1.0	1.0	.5	.5
6	14.0	13.0	13.0	9.0	8.5	8.5	1.5	1.0	1.0	1.0	.5	.5
7	14.5	13.5	13.5	10.5	9.0	9.0	2.0	1.5	1.5	1.0	.5	.5
8	13.5	13.0	13.0	11.5	10.5	10.5	1.0	1.0	1.0	1.5	1.0	1.0
9	13.5	12.0	12.0	12.5	11.5	11.5	1.0	1.0	1.0	1.5	1.0	1.0
10	12.5	11.0	11.0	12.5	11.5	11.5	1.0	.5	.5	2.0	1.5	1.5
11	12.5	11.5	11.5	11.5	10.5	10.5	1.5	.5	.5	2.5	2.0	2.0
12	12.5	11.0	11.0	10.5	10.0	10.0	1.0	.5	.5	2.5	2.0	2.0
13	13.0	11.5	11.5	10.0	9.0	9.0	1.0	.5	.5	2.0	1.0	1.0
14	13.5	11.5	11.5	10.5	9.0	9.0	.5	.5	.5	1.5	1.0	1.0
15	13.5	13.0	13.0	12.0	10.5	10.5	.5	.5	.5	1.5	1.0	1.0
16	13.5	13.0	13.0	13.5	12.0	12.0	.5	.5	.5	2.0	1.0	1.0
17	14.0	13.5	13.5	13.0	11.0	11.0	.5	.5	.5	2.5	1.5	1.5
18	13.5	12.5	12.5	11.0	8.5	8.5	.5	.5	.5	4.0	2.5	2.5
19	12.5	11.0	11.0	8.5	7.0	7.0	.5	.0	.0	3.5	3.0	3.0
20	12.5	11.0	11.0	7.0	6.5	6.5	.5	.0	.0	3.0	2.0	2.0
21	12.5	12.0	12.0	7.0	5.5	5.5	.0	.0	.0	2.0	2.0	2.0
22	12.0	11.5	11.5	5.0	4.0	4.0	.0	.0	.0	2.0	1.5	1.5
23	11.5	10.5	10.5	4.0	2.0	2.0	.0	.0	.0	2.0	1.5	1.5
24	11.0	10.0	10.0	2.0	1.5	1.5	.0	.0	.0	2.5	1.5	1.5
25	11.0	10.0	10.0	2.5	1.5	1.5	.0	.0	.0	3.0	2.5	2.5
26	11.0	10.5	10.5	3.0	2.5	2.5	.0	.0	.0	3.5	3.0	3.0
27	12.0	11.0	11.0	3.0	2.5	2.5	.0	.0	.0	3.0	2.5	2.5
28	12.5	11.5	11.5	5.0	3.5	3.5	.0	.0	.0	2.5	2.0	2.0
29	13.0	12.0	12.0	5.0	4.0	4.0	.5	.0	.0	2.5	2.5	2.5
30	13.5	12.5	12.5	4.0	3.0	3.0	.0	.0	.0	3.0	2.5	2.5
31	13.5	13.0	13.0	---	---	---	.5	.0	.0	3.0	2.5	2.5
MONTH	14.5	10.0	11.5	14.5	1.5	7.5	3.0	.0	.5	4.0	.0	1.5

THAMES RIVER BASIN

115

01123360 QUINEBAUG RIVER BELOW EAST BRIMFIELD DAM, AT FISKDALE, MA

LOCATION.--Lat 42°06'31", long 72°07'27", Worcester County, Hydrologic Unit 01100001, on right bank at Fiskdale, 750 ft downstream from East Brimfield Dam, and 2.4 mi upstream from Cedar Pond outlet.

DRAINAGE AREA.--67.4 mi².

PERIOD OF RECORD.--October 1972 to September 1990 (discontinued).

REVISED RECORDS.--WDR MA-RI-84-1: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 613.51 ft above National Geodetic Vertical Datum of 1929 (U.S. Army Corps of Engineers benchmark).

REMARKS.--Records good except those for period of doubtful gage-height record, Nov. 21 to Mar. 15, which are fair. Flow regulated by East Brimfield Lake (Reservoirs in Thames River basin).

AVERAGE DISCHARGE.--18 years, 131 ft³/s, 26.39 in/yr, adjusted for storage.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge 1,040 ft³/s, Jan. 30, 1976, gage height, 6.42 ft; maximum gage height, 6.52 ft, Mar. 17, 1977; minimum daily discharge, 2.2 ft³/s, Sept. 10, 1983.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum discharge since at least 1886, 15,400 ft³/s, Aug. 19, 1955, by slope-area measurement. Flood of Mar. 18, 1936, reached a discharge of 2,390 ft³/s and flood in September 1938, 7,000 ft³/s, both by computation of flow over dam.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 926 ft³/s, Oct. 24, gage height, 6.28 ft; minimum daily, 8.4 ft³/s, Sept. 29.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	77	238	187	86	423	e237	145	150	317	78	19	29
2	74	271	175	109	402	e228	157	147	266	73	16	26
3	94	268	148	121	399	e216	168	136	221	65	15	23
4	102	266	125	124	384	e206	249	131	193	57	13	20
5	100	262	87	132	347	e199	307	156	166	50	12	19
6	92	254	81	135	294	e189	296	169	145	43	13	18
7	82	242	76	136	251	181	257	168	135	38	21	18
8	71	225	75	132	223	175	212	161	125	33	43	16
9	64	234	70	116	221	166	185	153	122	31	59	15
10	58	261	65	95	230	157	148	177	134	31	65	24
11	58	266	65	88	328	157	131	305	135	29	119	31
12	61	256	65	86	501	175	150	354	129	36	209	33
13	63	233	63	76	429	210	163	358	117	59	235	23
14	81	226	60	75	283	216	248	377	104	72	204	12
15	161	210	60	72	246	199	261	348	92	76	154	17
16	199	222	60	70	239	192	239	317	80	70	110	17
17	211	290	59	70	251	168	256	339	70	58	79	13
18	234	322	60	76	268	200	255	369	62	49	60	20
19	240	314	65	82	276	211	253	367	56	43	50	24
20	204	299	64	86	258	228	253	337	54	38	46	25
21	297	253	61	83	246	235	296	342	53	35	40	16
22	712	104	60	82	239	227	251	360	56	32	36	17
23	819	191	59	76	251	217	249	348	56	31	32	17
24	873	193	55	74	305	192	245	317	61	33	32	17
25	871	201	58	85	307	172	222	284	60	35	42	14
26	781	201	69	170	283	159	190	253	55	33	48	12
27	518	201	70	256	e268	144	176	219	54	31	53	12
28	369	202	70	305	e251	135	159	190	79	30	56	11
29	313	201	70	323	---	128	145	173	73	25	49	8.4
30	279	199	67	444	---	127	144	234	78	22	40	8.7
31	254	---	69	484	---	134	---	308	---	21	34	---
TOTAL	8412	7105	2418	4349	8403	5780	6410	8047	3348	1357	2004	556.1
MEAN	271	237	78.0	140	300	186	214	260	112	43.8	64.6	18.5
MAX	873	322	187	484	501	237	307	377	317	78	235	33
MIN	58	104	55	70	221	127	131	131	53	21	12	8.4
MEAN†	276	235	75.5	148	294	185	214	264	105	41.3	65.9	16.7
CFSM†	4.09	3.49	1.12	2.20	4.36	2.74	3.18	3.92	1.56	.61	.98	.25
IN.†	4.72	3.90	1.29	2.54	4.55	3.16	3.54	4.52	1.74	.71	1.13	.28

CAL YR 1989 TOTAL 59807 MEAN 164 MAX 873 MIN 23 MEAN† 191 CFSM† 2.83 IN.† 33.01
WTR YR 1990 TOTAL 58189.1 MEAN 159 MAX 873 MIN 8.4 MEAN† 159 CFSM† 2.36 IN.† 32.06

e Estimated

† Adjusted for change in contents in East Brimfield Lake.

THAMES RIVER BASIN

01123600 QUINEBAUG RIVER BELOW WESTVILLE DAM, NEAR SOUTHBRIDGE, MA

LOCATION.--Lat 42°04'58", long 72°03'27", Worcester County, Hydrologic Unit 01100001, on right bank 200 ft downstream from Westville Dam, 1.0 mi upstream from McKinstry Brook, and 1.3 mi west of Southbridge.

DRAINAGE AREA.--99.0 mi².

PERIOD OF RECORD.--October 1962 to September 1990 (discontinued).

REVISED RECORDS.--WDR MA-RI-75-1: 1963-64 (monthly runoff). WDR MA-RI-84-1: Drainage area.

GAGE.--Water-stage recorder and concrete control. Datum of gage is 511.33 ft above National Geodetic Vertical Datum of 1929 (U.S. Army Corps of Engineers benchmark).

REMARKS.--Records good below 200 ft³/s, fair above. Flow regulated by mills, by East Brimfield and Westville Lakes (Reservoirs in Thames River basin), and by other reservoirs upstream.

AVERAGE DISCHARGE.--28 years, 173 ft³/s.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 1,850 ft³/s, Mar. 23, 1980, gage height, 6.83 ft; minimum daily, 7.3 ft³/s, Nov. 21, 28, 1964, July 30, 1965.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,680 ft³/s, Oct. 24, gage height, 6.65 ft; minimum daily, 21 ft³/s, Sept. 30.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	120	339	266	137	617	295	211	218	459	111	31	48
2	130	355	235	147	477	272	214	218	375	104	29	44
3	179	352	199	151	519	272	226	205	308	92	27	44
4	160	408	146	156	529	267	414	190	268	81	26	41
5	148	369	125	163	502	252	429	239	233	73	24	37
6	138	342	116	152	445	245	406	242	207	65	24	35
7	121	315	109	140	366	226	364	232	192	58	38	33
8	105	294	104	127	e342	214	326	221	175	52	68	29
9	96	303	105	117	e326	209	265	206	166	48	78	27
10	86	363	102	112	e315	212	252	210	184	47	86	27
11	84	370	102	113	e358	223	251	483	182	45	175	38
12	86	351	104	114	e540	245	232	500	172	54	279	44
13	84	316	108	109	606	259	228	492	155	97	311	45
14	89	295	106	100	479	272	230	599	139	98	263	32
15	207	278	102	92	398	273	252	515	125	98	206	31
16	248	303	108	90	426	253	458	460	113	92	153	30
17	251	471	106	90	463	241	416	535	103	78	111	30
18	344	466	110	107	449	258	383	515	93	67	87	31
19	379	427	110	121	394	275	358	491	85	59	74	42
20	290	400	111	116	364	295	347	489	85	50	71	50
21	448	381	108	120	309	301	371	515	85	48	62	46
22	1120	345	99	117	273	306	399	520	85	45	56	36
23	1500	293	92	111	392	315	354	487	84	42	49	37
24	1620	258	84	106	465	274	332	459	86	42	47	36
25	1380	241	82	124	510	255	329	409	84	44	72	35
26	1120	237	82	292	478	229	300	368	79	44	72	32
27	814	247	78	388	395	203	268	321	74	43	75	26
28	498	288	78	375	347	194	248	293	117	42	89	24
29	427	306	76	380	---	183	230	253	107	38	77	23
30	372	277	79	638	---	180	213	462	116	36	65	21
31	315	---	84	780	---	202	---	452	---	32	56	---
TOTAL	12959	9990	3516	5885	12084	7700	9306	11799	4736	1925	2881	1054
MEAN	418	333	113	190	432	248	310	381	158	62.1	92.9	35.1
MAX	1620	471	266	780	617	315	458	599	459	111	311	50
MIN	84	237	76	90	273	180	211	190	74	32	24	21

CAL YR 1989 TOTAL 86869 MEAN 238 MAX 1620 MIN 39
WTR YR 1990 TOTAL 83835 MEAN 230 MAX 1620 MIN 21

e Estimated

THAMES RIVER BASIN

117

01124000 QUINEBAUG RIVER AT QUINEBAUG, CT

LOCATION.--Lat 42°01'20", long 71°57'22", Windham County, Hydrologic Unit 01100001, on right bank at Quinebaug, 500 ft upstream from bridge on State Highway 197, 0.2 mi downstream from Massachusetts-Connecticut State line, 7.8 mi upstream from French River, and at mile 46.

DRAINAGE AREA.--155 mi².

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--September 1931 to current year.

REVISED RECORDS.--WSP 851: 1936(M). WSP 1201: 1939-43, 1949. WSP 1381: 1938(M). WDR MA-RI-83-1: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 341.52 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Records good except those for estimated daily discharges, which are fair. Flow regulated by East Brimfield and Westville Lakes, (Reservoirs in Thames River basin), and by smaller reservoirs upstream.

AVERAGE DISCHARGE.--59 years, 273 ft³/s, 23.94 in/yr, adjusted for storage.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 49,300 ft³/s, Aug. 19, 1955, gage height, 18.96 ft, from floodmarks, from rating curve extended above 5,100 ft³/s on basis of slope-area measurement of peak flow; minimum, about 1 ft³/s, Sept. 9, 1943, July 12, 1949, Sept. 17, 18, 1950, July 9, 1951, Sept. 4 and Oct. 29, 1956, Jan. 27, 1985 (result of freezeup); minimum gage height, 1.74 ft Aug. 20, 1940; minimum daily discharge, about 1 ft³/s, Sept. 4, 1956.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 2,170 ft³/s, Oct. 20, gage height, 5.77 ft; minimum, 5.2 ft³/s, Aug. 3, 4, 5, gage height, 1.87 ft.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990 MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	179	535	e390	e250	929	e390	307	325	584	140	34	51
2	231	527	e350	e290	814	e400	321	311	511	150	29	79
3	343	548	e310	e300	847	e410	383	283	433	79	29	41
4	309	588	e280	e260	776	e380	795	259	377	84	30	11
5	226	535	e260	e230	e670	e360	716	346	274	113	11	45
6	203	508	e230	e200	e590	e340	611	358	319	66	37	31
7	129	474	e200	e190	e520	e320	555	360	209	56	70	37
8	157	448	e190	e180	e470	e305	489	291	227	59	152	35
9	144	534	e180	e170	493	e295	421	286	250	36	87	24
10	142	609	e165	e160	657	e285	397	309	236	70	136	38
11	167	577	e150	e155	689	e280	457	807	230	50	225	15
12	189	527	e145	e150	685	396	405	716	219	73	371	16
13	149	480	e140	e140	e630	439	358	709	198	153	359	36
14	147	443	e135	e135	e560	434	353	832	179	70	261	53
15	464	434	e130	e130	507	422	498	727	165	99	227	52
16	406	585	e125	123	580	403	686	656	128	135	171	17
17	491	780	e120	131	645	388	645	842	122	84	133	56
18	689	731	e118	152	e570	455	593	790	157	81	95	27
19	678	650	e115	181	e520	449	531	732	97	59	79	35
20	1150	623	e112	176	e470	485	495	660	135	29	74	47
21	1840	591	e110	165	e440	496	532	742	94	73	27	37
22	1720	e500	e108	e160	e420	468	574	749	102	25	32	58
23	1780	e450	e106	e155	660	442	518	682	130	62	72	36
24	1740	e400	e104	e150	823	403	463	573	85	41	81	34
25	1480	e370	e102	176	751	348	445	531	121	71	114	30
26	1250	e360	e99	635	e620	316	433	482	66	51	64	32
27	988	402	e97	687	e530	287	391	434	109	27	119	36
28	721	481	e95	577	e470	265	356	351	112	56	76	27
29	613	495	e94	553	---	253	328	366	93	53	100	66
30	542	439	e92	1400	---	251	300	707	123	30	89	62
31	492	---	e90	1180	---	297	---	679	---	37	40	---
TOTAL	19759	15624	4942	9541	17336	11462	14356	16895	6085	2212	3424	1164
MEAN	637	521	159	308	619	370	479	545	203	71.4	110	38.8
MAX	1840	780	390	1400	929	496	795	842	584	153	371	79
MIN	129	360	90	123	420	251	300	259	66	25	11	11
MEAN†	643	518	156	319	611	368	479	550	196	68.7	111	36.9
CFSM†	4.15	3.34	1.01	2.06	3.94	2.37	3.09	3.55	1.26	.44	.72	.24
IN.†	4.78	3.72	1.16	2.38	4.10	2.73	3.45	4.09	1.41	.51	.83	.27

CAL YR 1989 TOTAL 135780 MEAN 372 MAX 2400 MIN 16 MEAN† 372 CFSM† 2.40 IN.† 32.57
WTR YR 1990 TOTAL 122800 MEAN 336 MAX 1840 MIN 11 MEAN† 336 CFSM† 2.17 IN.† 29.43

e Estimated

† Adjusted for change in contents in East Brimfield and Westville Lakes.

THAMES RIVER BASIN

01124000 QUINEBAUG RIVER AT QUINEBAUG, CT--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical analyses available for water years 1953 (WSP 1290), 1960 (WSP 1741), 1963 (WSP 1941), 1969 (WSP 2143). Water temperatures available for water year 1960 (WSP 1741), 1980 to current year.

PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: October 1959 to September 1960, October 1968 to September 1969.

pH: October 1959 to September 1960, October 1968 to September 1969.

WATER TEMPERATURES: October 1959 to September 1960, October 1968 to September 1969.

DISSOLVED OXYGEN: October 1959 to September 1960, October 1968 to September 1969.

INSTRUMENTATION.--Multiple parameter water-quality monitor located on right bank 50 ft upstream from bridge on Massachusetts State Highway 131, 0.2 mi upstream from State line, 0.4 mi upstream from gaging station, 2.0 mi southwest of Dudley, Massachusetts.

EXTREMES FOR PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: Maximum, 308 microsiemens, Jan. 31, 1969; minimum, 49 microsiemens, Apr. 2, 1960.

pH: Maximum, 7.7 units, June 14, 1969; minimum, 5.8 units, July 18, 1969.

WATER TEMPERATURES: Maximum, 30.5 C, July 16, 1969; minimum, 0.0 C, on many days during winter periods.

DISSOLVED OXYGEN: Maximum, 15.1 mg/L, Dec. 28, 1968; minimum, 1.4 mg/L, Sept. 7, 1969.

WATER QUALITY DATA, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	SPE- CIFIC CON- DUCT- ANCE (µS/CM) (00095)	PH (STAND- ARD UNITS) (00400)	TEMPER- ATURE AIR (DEG C) (00020)	TEMPER- ATURE WATER (DEG C) (00010)	TUR- BID- ITY (NTU) (00076)	OXYGEN, DIS- SOLVED (MG/L) (00300)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION) (00301)	COLI- FORM, FECAL, 0.45 UM-MF (COLS./ 100 ML) (31616)
OCT										
17...	0925	389	100	7.0	16.5	13.5	2.0	9.6	93	500
NOV										
15...	1115	442	88	7.1	17.5	10.0	1.6	11.6	104	190
DEC										
08...	1115	101	120	6.9	<-5.0	0.5	1.1	14.8	102	68
JAN										
11...	1045	155	127	6.8	4.0	2.0	1.4	13.6	101	88
MAR										
19...	1050	454	113	7.2	12.0	8.0	1.4	12.4	105	40
APR										
12...	0830	410	115	7.0	5.0	8.0	1.2	12.2	103	100
MAY										
04...	1035	259	116	7.5	18.0	15.5	1.6	11.2	113	34
JUN										
11...	0930	230	108	7.1	16.0	19.0	2.7	8.7	96	39
JUL										
09...	1245	10	143	7.4	29.5	24.5	1.7	9.2	112	58
AUG										
09...	1000	123	151	7.3	27.5	23.0	2.7	8.6	101	330
SEP										
05...	1505	41	159	8.0	28.0	24.0	1.4	9.7	117	K13

DATE	STREP- TOCOCCHI FECAL, KF AGAR (COLS. PER 100 ML) (31673)	HARD- NESS TOTAL (MG/L AS CACO3) (00900)	CALCIUM DIS- SOLVED (MG/L AS CA) (00915)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG) (00925)	ALKA- LINITY LAB (MG/L AS CACO3) (90410)	SULFATE DIS- SOLVED (MG/L AS SO4) (00945)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL) (00940)	SILICA, DIS- SOLVED (MG/L AS SIO2) (00955)	SOLIDS, RESIDUE AT 180 DEG. C DIS- SOLVED (MG/L) (70300)	SOLIDS, RESIDUE AT 105 DEG. C, TOTAL (MG/L) (00500)
OCT										
17...	870	21	5.6	1.8	--	9.0	17	--	69	62
NOV										
15...	550	18	4.7	1.5	10	9.0	13	8.3	61	70
DEC										
08...	85	23	6.2	1.8	--	12	21	--	73	80
JAN										
11...	270	23	6.1	1.9	11	10	24	9.1	79	93
MAR										
19...	K12	19	5.3	1.5	--	8.8	22	--	81	74
APR										
12...	170	22	6.0	1.7	--	10	21	--	73	82
MAY										
04...	K16	23	6.4	1.6	11	8.5	22	3.1	66	67
JUN										
11...	160	22	5.9	1.7	--	8.1	21	--	63	73
JUL										
09...	180	28	8.1	2.0	17	8.7	26	4.6	83	89
AUG										
09...	250	30	8.5	2.2	--	10	32	--	88	102
SEP										
05...	72	28	7.8	2.1	--	9.0	33	--	93	122

THAMES RIVER BASIN

119

01124000 QUINEBAUG RIVER AT QUINEBAUG, CT--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DATE	NITRO- GEN, NITRATE TOTAL (MG/L AS N) (00620)	NITRO- GEN, NITRITE TOTAL (MG/L AS N) (00615)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N) (00630)	NITRO- GEN, AMMONIA TOTAL (MG/L AS N) (00610)	NITRO- GEN, ORGANIC TOTAL (MG/L AS N) (00605)	NITRO- GEN, AM- MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	NITRO- GEN, TOTAL (MG/L AS N) (00600)	PHOS- PHORUS TOTAL (MG/L AS P) (00665)	PHOS- PHORUS DIS- SOLVED (MG/L AS P) (00666)
OCT 17...	--	<0.01	0.20	0.03	0.47	0.50	0.70	0.05	0.04
NOV 15...	0.28	0.02	0.30	0.03	0.27	0.30	0.60	0.05	0.04
DEC 08...	0.39	0.01	0.40	0.14	0.36	0.50	0.90	0.06	0.04
JAN 11...	--	<0.01	0.30	0.29	0.21	0.50	0.80	0.07	0.06
MAR 19...	--	<0.01	0.20	0.07	0.33	0.40	0.60	0.04	0.03
APR 12...	--	<0.01	0.20	0.01	--	<0.20	--	0.03	0.02
MAY 04...	--	<0.01	0.10	0.01	0.39	0.40	0.50	0.05	0.03
JUN 11...	--	<0.01	0.20	0.03	0.57	0.60	0.80	0.07	0.05
JUL 09...	0.69	0.01	0.70	0.03	0.37	0.40	1.1	0.16	0.13
AUG 09...	0.39	0.01	0.40	0.07	0.43	0.50	0.90	0.15	0.10
SEP 05...	--	<0.01	0.60	0.01	0.49	0.50	1.1	0.20	0.21

DATE	CADMIUM DIS- SOLVED (µG/L AS CD) (01025)	CHRO- MIUM, DIS- SOLVED (µG/L AS CR) (01030)	COPPER, DIS- SOLVED (µG/L AS CU) (01040)	IRON, DIS- SOLVED (µG/L AS FE) (01046)	LEAD, DIS- SOLVED (µG/L AS PB) (01049)	MANGA- NESE, DIS- SOLVED (µG/L AS MN) (01056)	NICKEL, DIS- SOLVED (µG/L AS NI) (01065)	ZINC, DIS- SOLVED (µG/L AS ZN) (01090)	CARBON, ORGANIC TOTAL (MG/L AS C) (00680)
OCT 17...	<1.0	1	2	--	1	--	2	4	5.8
NOV 15...	<1.0	<1	<1	280	<1	29	1	8	3.9
DEC 08...	<1.0	<1	2	--	2	--	4	7	3.9
JAN 11...	<1.0	<1	1	200	1	50	<1	5	3.3
MAR 19...	<1.0	<1	2	--	<1	--	1	6	3.2
APR 12...	<1.0	<1	1	--	1	--	<1	3	3.3
MAY 04...	<1.0	<1	1	210	1	50	<1	6	4.2
JUN 11...	<1.0	<1	2	--	1	--	<1	8	5.0
JUL 09...	<1.0	<1	4	520	2	33	1	13	4.6
AUG 09...	<1.0	<1	3	--	2	--	1	15	6.6
SEP 05...	<1.0	<1	3	--	1	--	1	11	5.0

THAMES RIVER BASIN

01124350 FRENCH RIVER BELOW HODGES VILLAGE DAM, AT HODGES VILLAGE, MA

LOCATION.--Lat 42°07'06", long 71°52'54", Worcester County, Hydrologic Unit 01100001, on right bank at Hodges Village, 240 ft downstream from Hodges Village Dam, 0.8 mi west of Oxford, and 1.2 mi upstream from Little River.

DRAINAGE AREA.--31.2 mi².

PERIOD OF RECORD.--Discharge: March 1962 to September 1990 (Discontinued).
Water-quality records: Water year 1962.

GAGE.--Water-stage recorder and concrete control. Datum of gage is 466.98 ft U.S. Army Corps of Engineers datum.

REVISED RECORDS.--WDR MA-RI-84-1: Drainage area.

REMARKS.--Records excellent except those for estimated daily discharges, which are good. Flow regulated by Hodges Village Reservoir (Reservoirs in Thames River basin).

AVERAGE DISCHARGE.--28 years, 56.1 ft³/s, 24.42 in/yr, adjusted for storage.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 628 ft³/s, Jan. 28, 1978, gage height, 3.47 ft; no flow for part of July 17, 1968 (caused by unusual regulation); minimum daily discharge, 1.4 ft³/s, Sept. 14, 1980.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 455 ft³/s, Oct. 23, gage height, 3.11 ft; minimum, 0.39 ft³/s, Apr. 26; minimum daily, 3.7 ft³/s, Aug. 5, 6.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	32	92	65	33	183	83	55	26	124	57	6.2	e9.1
2	30	97	55	39	159	73	60	25	87	43	5.2	e11
3	51	84	52	34	197	73	77	26	68	32	4.5	e11
4	57	101	48	31	154	74	129	27	57	25	4.0	e7.5
5	50	104	42	36	112	70	175	151	49	21	3.7	e8.1
6	43	90	38	35	93	64	89	153	45	50	3.7	e16
7	38	79	40	31	75	58	85	43	40	47	13	e27
8	31	72	38	28	67	55	80	26	37	19	71	e29
9	27	78	33	26	66	51	77	29	34	12	50	e29
10	24	124	31	25	96	48	68	30	35	10	30	e30
11	24	126	30	26	154	55	74	123	32	8.5	37	e35
12	26	101	29	26	151	69	80	228	29	10	69	e31
13	25	83	31	25	119	86	73	211	26	24	51	30
14	23	69	35	23	98	111	66	202	23	22	31	29
15	38	104	28	21	91	98	70	190	20	18	22	30
16	60	122	26	20	91	84	104	142	18	14	17	29
17	66	149	25	20	99	78	82	158	16	12	15	23
18	124	150	26	24	102	87	82	199	15	9.4	e12	20
19	146	115	24	30	90	125	84	184	14	7.9	e10	14
20	107	91	25	27	81	117	102	147	14	7.1	e12	14
21	110	109	23	28	70	115	74	133	13	7.8	e11	13
22	260	116	19	32	64	108	81	163	13	7.2	e9.9	12
23	393	79	17	27	101	90	138	155	11	6.9	e9.1	12
24	420	61	16	26	179	78	135	74	11	6.7	e14	12
25	396	53	15	29	213	67	81	89	10	16	e59	11
26	346	54	15	68	184	58	69	140	9.2	17	e70	12
27	262	56	14	123	137	52	53	81	8.2	12	e47	23
28	197	62	14	128	107	48	42	66	52	11	e34	11
29	151	79	14	88	---	45	46	56	90	9.4	e30	5.3
30	111	73	14	219	---	42	36	117	70	8.2	e27	3.9
31	56	---	15	226	---	48	---	164	---	7.1	e10	---
TOTAL	3724	2773	897	1554	3333	2310	2467	3558	1070.4	558.2	788.3	547.9
MEAN	120	92.4	28.9	50.1	119	74.5	82.2	115	35.7	18.0	25.4	18.3
MAX	420	150	65	226	213	125	175	228	124	57	71	35
MIN	23	53	14	20	64	42	36	25	8.2	6.7	3.7	3.9
MEAN†	121	91.9	28.5	55.5	114	74.1	84.1	114	34.9	17.7	28.5	18.2
CFSM†	3.88	2.95	.91	1.78	3.65	2.38	2.70	3.65	1.12	.57	.82	.58
IN.†	4.46	3.29	1.06	2.05	3.80	2.74	3.01	4.21	1.25	.65	.94	.65

CAL YR 1989 TOTAL 23455.2 MEAN 64.3 MAX 420 MIN 8.1 MEAN† 64.3 CFSM† 2.06 IN.† 27.97
WTR YR 1990 TOTAL 23580.8 MEAN 64.6 MAX 420 MIN 3.7 MEAN† 64.6 CFSM† 2.07 IN.† 28.10

e Estimated

† Adjusted for change in contents in Hodges Village Reservoir.

THAMES RIVER BASIN

121

01124500 LITTLE RIVER NEAR OXFORD, MA

LOCATION.--Lat 42°06'57", long 71°53'26", Worcester County, Hydrologic Unit 01100001, on left bank 0.6 mi upstream from mouth, 1.1 mi downstream from Buffumville Dam, and 1.5 mi west of Oxford.

DRAINAGE AREA.--26.0 mi².

PERIOD OF RECORD.--Discharge: July 1939 to September 1990 (discontinued). Prior to October 1977, published as "at Buffumville."
Water-quality records: Water year 1973.

REVISED RECORDS.--WSP 1201: 1940, 1948. WDR MA-RI-84-1: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 457.00 ft above National Geodetic Vertical Datum of 1929, (levels by U.S. Army Corps of Engineers).

REMARKS.--Records good except those for estimated daily discharges and those for period of backwater from leaves, Sept. 12-30, which are poor. Flow regulated by Buffumville Lake since 1958 (Reservoirs in Thames River basin) and by other reservoirs upstream. July 1982 to about January 1983, flow affected by draining of Buffum Pond. Prior to 1958, flow regulated by mill upstream.

AVERAGE DISCHARGE.--51 years, 49.7 ft³/s, 25.96 in/yr, adjusted for storage.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 8,340 ft³/s, Aug. 19, 1955, gage height, 15.53 ft, from rating curve extended above 1,200 ft³/s on basis of computation of peak flow over dam; minimum, 0.1 ft³/s, Sept. 25, 26, 1957. Maximum discharge since construction of Buffumville Dam in 1958, 429 ft³/s, Apr. 7, 1959, gage height, 5.04 ft.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 295 ft³/s, Jan. 31, gage height, 4.72 ft; minimum, 1.0 ft³/s, Aug. 5, 6.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990 MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	38	102	76	22	227	106	47	46	107	11	3.0	e17
2	38	101	62	23	142	82	49	47	88	11	2.1	e17
3	50	109	54	25	122	73	54	45	71	10	1.6	e16
4	51	118	49	25	123	70	97	41	57	9.6	1.3	e15
5	45	114	41	26	139	66	118	50	48	8.3	1.2	e14
6	40	106	34	27	134	60	118	58	41	7.6	1.3	e13
7	36	99	32	26	98	56	117	59	35	6.8	15	e11
8	34	94	30	24	81	51	112	56	31	5.7	41	e9.0
9	33	103	27	24	75	48	103	51	29	5.1	45	e7.0
10	30	121	25	23	94	47	80	49	29	4.8	37	e5.0
11	31	121	24	23	134	48	75	88	28	4.1	49	e3.5
12	32	111	23	23	135	57	77	119	26	6.6	80	e2.7
13	31	101	22	23	113	74	72	117	24	10	63	2.4
14	30	94	21	22	95	83	64	124	22	9.3	47	2.1
15	48	92	20	20	86	83	70	129	20	7.9	37	5.7
16	59	105	21	20	89	78	99	115	18	7.3	30	6.6
17	67	143	20	19	93	74	109	128	17	6.5	26	6.9
18	102	143	20	21	95	79	108	147	15	5.5	23	5.1
19	119	124	20	24	89	84	93	133	14	4.7	21	3.9
20	126	112	19	23	80	87	80	112	13	4.8	21	5.2
21	89	106	19	25	70	90	76	108	12	6.6	19	3.9
22	169	98	19	25	64	87	82	115	12	5.0	16	4.1
23	246	93	18	25	84	78	81	112	11	5.0	15	4.4
24	268	88	18	26	118	68	74	99	10	5.3	e16	3.5
25	259	86	17	30	121	59	55	85	8.8	16	e32	3.2
26	249	86	16	65	121	53	68	74	7.8	14	e30	3.1
27	238	86	16	113	120	48	59	65	7.1	12	e25	4.1
28	224	90	16	117	116	44	54	56	8.5	9.5	e23	5.5
29	174	96	15	117	---	41	48	52	8.4	7.2	e22	7.3
30	109	94	16	169	---	38	45	82	11	5.5	e20	11
31	93	---	17	270	---	43	---	110	---	4.1	e18	---
TOTAL	3158	3136	827	1445	3058	2055	2384	2672	829.6	236.8	781.5	218.2
MEAN	102	105	26.7	46.6	109	66.3	79.5	86.2	27.7	7.64	25.2	7.27
MAX	268	143	76	270	227	106	118	147	107	16	80	17
MIN	30	86	15	19	64	38	45	41	7.1	4.1	1.2	2.1
MEAN†	104	104	24.0	53.6	106	63.5	79.5	88.6	23.4	7.00	25.8	6.96
CFSM†	4.00	4.00	.92	2.06	4.08	2.44	3.06	3.41	.90	.27	.99	.27
IN.†	4.61	4.47	1.06	2.38	4.25	2.82	3.41	3.93	1.01	.31	1.15	.30

CAL YR 1989 TOTAL 22469.1 MEAN 61.6 MAX 303 MIN 4.1 MEAN† 61.5 CFSM† 2.37 IN.† 32.12
WTR YR 1990 TOTAL 20801.1 MEAN 57.0 MAX 270 MIN 1.2 MEAN† 56.9 CFSM† 2.19 IN.† 29.69

e Estimated

† Adjusted for change in contents in Buffumville Lake.

THAMES RIVER BASIN

RESERVOIRS IN THAMES RIVER BASIN

01123350 EAST BRIMFIELD LAKE.--Lat 42°06'32", long 72°07'35", Worcester County, Hydrologic Unit 01100001, on Quinebaug River, 0.7 mi southwest of Fiskdale, Mass., 1.2 mi east of East Brimfield. Completed in 1960 by U.S Army Corps of Engineers for storage of water for recreation, conservation, and flood control. Usable capacity, 1,400,000,000 ft³, including 101,000,000 ft³ storage in recreation and conservation pool. Records provided by U.S. Army Corps of Engineers.

01123550 WESTVILLE LAKE.--Lat 42°04'55", long 72°03'28", Worcester County, Hydrologic Unit 01100001, on Quinebaug River, 1.3 mi west of Southbridge, Mass. Completed in 1962 by U.S Army Corps of Engineers for storage of water for recreation and flood control. Usable capacity, 484,000,000 ft³, including 4,400,000 ft³ storage in recreation pool. Records provided by U.S. Army Corps of Engineers.

01124300 HODGES VILLAGE RESERVOIR.--Lat 42°07'09", long 71°52'51", Worcester County, Hydrologic Unit 01100001, on French River at Hodges Village, Mass. Completed in 1960 by U.S Army Corps of Engineers for storage of water for flood control. Usable capacity, 577,000,000 ft³. Records provided by U.S. Army Corps of Engineers.

01124400 BUFFUMVILLE LAKE.--Lat 42°06'58", long 71°54'29", Worcester County, Hydrologic Unit 01100001, on Little River at Charlton, Mass., 2.2 mi west of Oxford. Completed in 1958 by U.S. Army Corps of Engineers for storage of water for recreation and flood control. Usable capacity, 553,000,000 ft³, including 61,000,000 ft³ storage in recreation pool. Records provided by U.S. Army Corps of Engineers.

MONTHEND USABLE CONTENTS, IN MILLIONS OF CUBIC FEET, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

	East Brimfield Lake	Westville Lake	Hodges Village Reservoir	Buffumville Lake
Sept. 30, 1989.....	107.7	5.3	1.4	68.8
Oct. 31.....	119.9	9.9	3.0	74.3
Nov. 30.....	116.0	6.4	1.7	73.4
Dec. 31.....	109.3	5.3	.7	66.2
Jan. 31, 1990.....	131.2	12.7	15.2	84.9
Feb. 28.....	117.6	6.6	2.3	77.2
Mar. 31.....	112.6	6.1	1.2	69.7
Apr. 30.....	112.6	5.8	6.0	69.7
May 31.....	124.4	8.1	3.5	76.2
June 30.....	107.7	5.2	1.4	65.3
July 31.....	101.1	4.6	.5	63.6
Aug. 31.....	104.4	4.8	.6	65.3
Sept. 30.....	99.6	4.6	.4	64.5

CONNECTICUT RIVER BASIN

123

01162000 MILLERS RIVER NEAR WINCHENDON, MA

LOCATION.--Lat 42°41'03", long 72°05'02", Worcester County, Hydrologic Unit 01080202, on right bank 10 ft downstream from Nolan Bridge, 0.3 mi downstream from Tarbell Brook, 2 mi west of Winchendon, and at mile 32.8.

DRAINAGE AREA.--81.8 mi².

PERIOD OF RECORD.--Discharge: June 1916 to current year. March to May 1917, monthly discharge only, published in WSP 1301. Water-quality records: Water years 1957, 1965-66.

REVISED RECORDS.--WSP 451: 1916. WSP 1051: 1919, 1920-21(M), 1922-24, 1928(M), 1933-34.
WDR MA-RI-84-1: Drainage area.

GAGE.--Water-stage recorder. Concrete control since Oct. 6, 1933. Datum of gage is 826.66 ft above National Geodetic Vertical Datum of 1929. Prior to July 27, 1916, nonrecording gage at bridge at same datum.

REMARKS.--Records good except those for estimated daily discharges, which are fair. Flow regulated by powerplant and by Lake Monomonic and other reservoirs upstream.

AVERAGE DISCHARGE.--74 years, 144 ft³/s.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 8,500 ft³/s, Sept. 22, 1938, gage height, 21.55 ft, from flood-marks, from rating curve extended above 2,000 ft³/s, on basis of computation of peak flow over dam; practically no flow because of regulation Sept. 20, 1918, Jan. 14, 1925.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,000 ft³/s, Mar. 18; minimum daily, 13 ft³/s, July 19, 22.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	101	e180	162	68	124	e250	208	138	294	23	17	56
2	114	e190	154	72	139	216	219	133	226	21	21	48
3	177	e190	145	65	158	200	227	121	173	20	17	41
4	178	e200	e140	60	152	190	343	111	185	18	21	35
5	135	e200	154	62	143	173	385	132	175	21	17	29
6	111	e190	125	58	e135	159	390	133	144	19	17	27
7	110	e190	117	56	121	165	350	133	122	19	60	33
8	95	184	121	54	116	149	297	185	107	17	84	32
9	82	206	97	53	118	134	258	197	97	16	64	27
10	81	235	71	53	180	114	237	149	95	16	60	27
11	81	209	65	53	202	133	293	230	101	14	171	24
12	113	185	64	53	182	207	303	179	97	14	274	24
13	133	167	60	50	160	274	280	227	85	20	232	23
14	128	153	56	46	151	341	251	284	77	20	183	27
15	217	150	54	46	148	361	279	245	70	14	129	37
16	195	225	57	46	156	415	320	212	75	14	102	36
17	191	290	55	45	142	519	314	269	73	14	76	33
18	225	249	53	59	141	e900	298	321	62	16	61	33
19	204	218	51	62	120	e790	262	316	56	13	57	38
20	315	203	50	57	117	e700	232	288	55	14	53	65
21	e650	198	47	60	124	e770	250	362	56	15	47	64
22	586	173	44	64	113	673	266	376	53	13	30	60
23	474	162	43	63	309	524	241	341	55	20	27	61
24	392	162	42	60	403	428	215	291	55	28	27	57
25	339	141	42	65	356	367	201	243	43	34	58	56
26	e295	138	42	159	e330	321	192	211	36	34	68	54
27	e250	123	39	168	e315	280	179	191	27	27	76	58
28	e210	135	39	150	276	245	162	156	24	25	105	70
29	e180	162	37	142	---	221	142	145	23	21	103	70
30	e170	166	37	177	---	208	136	303	24	19	86	72
31	e170	---	39	139	---	211	---	336	---	18	68	---
TOTAL	6702	5574	2302	2365	5131	10638	7730	6958	2765	597	2411	1317
MEAN	216	186	74.3	76.3	183	343	258	224	92.2	19.3	77.8	43.9
MAX	650	290	162	177	403	900	390	376	294	34	274	72
MIN	81	123	37	45	113	114	136	111	23	13	17	23

CAL YR 1989 TOTAL 52130 MEAN 143 MAX 655 MIN 14
WTR YR 1990 TOTAL 54490 MEAN 149 MAX 900 MIN 13

e Estimated

CONNECTICUT RIVER BASIN

01162500 PRIEST BROOK NEAR WINCHENDON, MA

LOCATION.--Lat 42°40'57", long 72°06'56", Worcester County, Hydrologic Unit 01080202, on right bank 100 ft downstream from highway bridge, 3 mi upstream from mouth, and 3.5 mi west of Winchendon.

DRAINAGE AREA.--19.4 mi².

PERIOD OF RECORD.--Discharge: May 1916 to current year. Monthly discharge only October 1917 to July 1918 (published in WSP 1301) and September 1935 to September 1936.
Water-quality records: Water years 1965-66.

REVISED RECORDS.--WSP 451: 1916. WSP 871: Drainage area. WSP 1051: 1919, 1922-24. WSP 1301: 1917(M), 1919-24(M), 1926-27(M), 1929(M), 1931-35(M).

GAGE.--Water-stage recorder. Concrete control since September 1936. Datum of gage is 849.67 ft above National Geodetic Vertical Datum of 1929. Prior to Sept. 11, 1936, nonrecording gage on left bank at same datum.

REMARKS.--Records good. Prior to 1962, occasional diurnal fluctuation at low flow by mill upstream; prior to 1953, regulation at low flow by mill and ponds.

AVERAGE DISCHARGE.--74 years, 32.7 ft³/s, 22.9 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 3,000 ft³/s, Sept. 21, 1938, gage height, 9.90 ft, from rating curve extended above 620 ft³/s on basis of contracted-opening measurements at gage heights 8.4 ft and 9.90 ft; minimum, 0.08 ft³/s, several times in September 1929.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 190 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
Oct. 21	1200	365	4.96	Mar. 18	0900	*391	*5.07

Minimum discharge, 1.5 ft³/s, July 20, 21.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	24	24	e31	11	31	e43	29	25	74	4.3	4.1	12
2	21	26	27	12	e31	41	37	20	54	4.2	6.2	9.7
3	35	28	25	12	36	39	43	13	38	3.8	5.0	8.4
4	41	38	23	12	35	35	77	18	33	3.4	3.4	7.0
5	38	41	21	12	e34	e30	112	24	33	3.5	2.8	6.4
6	32	37	20	12	e30	27	103	31	26	3.8	2.8	6.1
7	29	35	21	11	27	24	87	31	20	3.5	13	5.9
8	23	29	18	11	24	22	71	29	17	3.2	83	5.4
9	19	39	16	11	24	21	55	26	14	2.8	80	4.8
10	15	77	14	10	35	22	39	25	16	2.6	46	5.0
11	16	85	14	11	50	29	53	58	22	2.1	89	5.3
12	18	75	13	11	52	52	73	101	19	2.2	137	5.4
13	15	62	12	11	45	84	68	81	14	2.9	97	4.9
14	12	49	11	10	37	121	57	87	11	2.6	72	4.6
15	15	42	9.5	9.3	32	131	55	76	10	2.3	56	5.5
16	20	61	10	9.0	30	157	70	63	9.4	2.0	41	7.0
17	23	88	10	9.3	29	199	68	71	12	1.8	30	6.5
18	48	87	10	13	26	354	61	98	9.4	2.0	19	5.5
19	55	73	9.9	16	23	273	52	105	7.6	1.9	18	4.9
20	69	61	10	14	21	244	49	90	8.9	1.7	20	5.3
21	313	54	9.7	13	20	271	65	92	8.4	1.9	15	5.2
22	301	48	9.2	13	21	202	72	99	8.0	5.6	12	5.4
23	225	44	8.6	12	57	159	66	87	7.1	18	10	6.0
24	159	e34	7.9	12	98	129	67	71	7.8	47	10	5.3
25	119	34	7.7	13	124	104	55	56	6.6	43	33	4.7
26	92	32	8.1	27	e105	85	37	45	5.7	21	41	4.4
27	72	31	7.8	50	e81	69	32	41	4.8	12	27	4.2
28	45	34	7.6	53	59	56	28	34	4.2	8.4	25	4.1
29	26	43	7.6	47	---	47	25	31	3.7	6.3	31	4.0
30	21	40	7.6	36	---	41	24	69	4.1	5.3	25	4.0
31	22	---	8.1	37	---	32	---	93	---	4.5	16	---
TOTAL	1963	1451	415.3	540.6	1217	3143	1730	1790	508.7	229.6	1070.3	172.9
MEAN	63.3	48.4	13.4	17.4	43.5	101	57.7	57.7	17.0	7.41	34.5	5.76
MAX	313	88	31	53	124	354	112	105	74	47	137	12
MIN	12	24	7.6	9.0	20	21	24	13	3.7	1.7	2.8	4.0
CFSM	3.26	2.49	.69	.90	2.24	5.23	2.97	2.98	.87	.38	1.78	.30
IN.	3.76	2.78	.80	1.04	2.33	6.03	3.32	3.43	.98	.44	2.05	.33

CAL YR 1989 TOTAL 14552.2 MEAN 39.9 MAX 313 MIN 3.5 CFSM 2.06 IN. 27.90
WTR YR 1990 TOTAL 14231.4 MEAN 39.0 MAX 354 MIN 1.7 CFSM 2.01 IN. 27.29

e Estimated

CONNECTICUT RIVER BASIN

125

01163200 OTTER RIVER AT OTTER RIVER, MA

LOCATION.--Lat 42°35'18", long 72°02'29", Worcester County, Hydrologic Unit 01080202, on right bank at upstream side of Turner Street Bridge, 0.2 mi upstream from Bailey Brook, 0.8 mi southeast of Otter River, and 2 mi northwest of Gardner.

DRAINAGE AREA.--34.1 mi².

PERIOD OF RECORD.--Discharge: December 1964 to current year.
Water-quality records: Water years 1965-66.

REVISED RECORDS.--WDR MA-RI-84-1: Drainage area.

GAGE.--Water-stage recorder. Elevation of gage is 900 ft above National Geodetic Vertical Datum of 1929 from topographic map.

REMARKS.--Records good except those for estimated daily discharges, which are poor.

AVERAGE DISCHARGE.--25 years (water years 1966-90), 61.8 ft³/s, 24.61 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 948 ft³/s, Mar. 7, 1979, gage height, 5.02 ft; minimum, 2.2 ft³/s, Aug. 13, 1974.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 398 ft³/s, Oct. 21, gage height, 3.34 ft; minimum, 9.2 ft³/s, Aug. 5.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	42	72	72	e47	68	98	82	55	147	28	12	22
2	46	73	e61	e42	80	80	87	53	103	26	12	19
3	106	74	e52	e33	101	78	93	48	76	23	12	18
4	111	95	e48	e29	83	77	157	44	72	20	11	16
5	83	90	e42	e26	e73	71	198	64	69	19	9.9	16
6	62	77	e39	e24	e66	61	167	77	58	18	10	15
7	53	69	e39	e23	59	62	128	67	50	15	20	15
8	45	64	e36	e22	56	58	101	59	45	14	60	14
9	40	86	e33	e21	61	52	85	52	42	13	60	13
10	36	124	e29	e20	120	56	77	51	49	13	48	13
11	37	119	e28	e21	150	73	113	167	47	12	110	12
12	44	94	e26	e22	125	123	131	192	46	12	210	12
13	41	79	e24	e22	96	170	110	166	39	15	171	12
14	35	68	e23	e20	83	199	88	192	34	15	111	12
15	65	66	e22	e19	81	194	99	172	30	14	71	14
16	79	94	e23	e18	80	202	138	124	27	13	47	18
17	79	162	e22	e20	72	222	137	143	25	12	36	16
18	98	166	e22	e28	70	265	123	192	21	12	29	15
19	95	127	e21	e32	57	249	98	186	20	12	31	14
20	119	97	e20	e30	55	219	83	149	20	11	39	14
21	340	90	e19	e28	e48	231	92	166	20	12	33	14
22	e345	74	e18	e31	51	205	112	180	21	13	28	14
23	e245	73	e17	e28	188	163	101	154	35	44	25	15
24	e170	e66	e17	e27	297	133	83	125	116	50	27	15
25	e130	62	e17	e33	281	109	73	102	110	36	95	18
26	e105	62	e16	111	228	96	72	88	69	25	117	19
27	90	65	e16	148	166	83	68	78	44	21	87	20
28	78	76	e15	109	111	73	61	69	33	17	51	20
29	71	99	e15	83	---	68	55	65	26	14	38	19
30	65	87	e15	83	---	66	53	150	29	13	30	18
31	62	---	e17	82	---	76	---	191	---	13	25	---
TOTAL	3017	2650	864	1282	3006	3912	3065	3621	1523	575	1665.9	472
MEAN	97.3	88.3	27.9	41.4	107	126	102	117	50.8	18.5	53.7	15.7
MAX	345	166	72	148	297	265	198	192	147	50	210	22
MIN	35	62	15	18	48	52	53	44	20	11	9.9	12
CFSM	2.85	2.59	.82	1.21	3.15	3.70	3.00	3.43	1.49	.54	1.58	.46
IN.	3.29	2.89	.94	1.40	3.28	4.27	3.34	3.95	1.66	.63	1.82	.51

CAL YR 1989 TOTAL 23079.2 MEAN 63.2 MAX 345 MIN 9.6 CFSM 1.85 IN. 25.18
WTR YR 1990 TOTAL 25652.9 MEAN 70.3 MAX 345 MIN 9.9 CFSM 2.06 IN. 27.98

e Estimated

CONNECTICUT RIVER BASIN

01164000 MILLERS RIVER AT SOUTH ROYALSTON, MA

LOCATION.--Lat 42°37'47", long 72°09'03", Worcester County, Hydrologic Unit 01080202, on right bank 500 ft downstream from bridge in South Royalston, 0.4 mi downstream from Beaver Brook, 1.7 mi downstream from Birch Hill Dam, and at mile 25.5.

DRAINAGE AREA.--189 mi².

PERIOD OF RECORD.--Discharge: July 1939 to September 1990 (discontinued). Water-quality records: Water years 1957, 1965-66.

REVISED RECORDS.--WDR MA-RI-84-1: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 792.00 ft above National Geodetic Vertical Datum of 1929 (levels by U.S. Army Corps of Engineers).

REMARKS.--Records good except those for estimated daily discharges, which are poor. Flow regulated by Lake Manomonic and other reservoirs, by mills and powerplants prior to 1955, and at high flow by Birch Hill Reservoir since 1941 (Reservoirs in Connecticut River basin).

AVERAGE DISCHARGE.--51 years, 329 ft³/s, 23.64 in/yr, adjusted for storage.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 4,400 ft³/s, Apr. 13, 1940, gage height, 8.40 ft; maximum gage height, at least 10.6 ft, about Jan. 18, 1982 (ice jam); minimum daily discharge, 9.3 ft³/s, Aug. 4, 1956. Maximum discharge since construction of Birch Hill Reservoir in 1941, 2,830 ft³/s, June 25, 26, 1944, gage height, 7.57 ft.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of Sept. 21 or 22, 1938, reached a stage of 15.9 ft, from floodmarks, discharge not determined.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 2,080 ft³/s, Mar. 22, gage height, 7.28 ft; minimum daily, 36 ft³/s, Aug. 6.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	291	416	400	e180	340	575	437	330	811	83	41	118
2	267	437	e390	e180	347	513	404	323	664	78	38	99
3	413	434	e340	e160	433	462	402	289	516	71	43	86
4	477	497	e320	e150	392	439	461	268	455	63	39	73
5	423	496	e310	e145	e380	392	670	306	447	63	37	64
6	346	453	e300	e140	e350	363	1010	377	385	60	36	60
7	313	425	e280	e130	e320	321	1240	364	322	56	82	62
8	278	400	e260	e125	284	331	1150	357	273	52	291	62
9	245	433	e230	e120	285	297	1050	384	243	49	326	57
10	224	591	e200	e120	438	287	757	341	254	47	239	56
11	228	621	e160	e120	597	332	662	525	260	43	365	54
12	250	564	e150	e120	574	509	720	687	260	42	679	53
13	281	479	e140	e115	490	717	695	697	226	50	737	51
14	270	412	e130	e110	420	908	615	777	187	56	591	49
15	341	378	e125	e105	395	990	591	776	169	48	425	57
16	426	449	e125	e100	377	1070	716	669	157	44	295	68
17	407	720	e120	e105	385	1170	746	664	159	40	212	63
18	488	768	e115	e140	321	592	721	785	140	43	157	57
19	506	688	e110	e160	308	824	647	850	122	39	134	54
20	593	581	e110	e145	269	1000	564	798	115	37	150	68
21	1050	520	e105	e135	275	1020	552	832	116	41	134	82
22	1280	462	e100	e135	266	1970	629	909	116	39	107	84
23	1500	412	e98	e140	627	1960	619	879	116	78	85	90
24	1580	e380	e96	141	1050	1670	555	776	175	136	85	86
25	1310	e370	e96	145	1070	1350	498	654	216	157	229	85
26	911	349	e94	e350	922	1050	464	550	174	116	334	84
27	695	344	e90	e540	820	697	426	482	120	87	297	83
28	581	347	e90	e490	700	540	389	420	92	68	263	98
29	502	431	e86	e400	---	533	345	367	79	58	238	102
30	437	434	e84	373	---	526	319	590	83	51	198	99
31	403	---	e90	e400	---	523	---	831	---	45	152	---
TOTAL	17316	14291	5344	5919	13435	23931	19054	17857	7452	1940	7039	2204
MEAN	559	476	172	191	480	772	635	576	248	62.6	227	73.5
MAX	1580	768	400	540	1070	1970	1240	909	811	157	737	118
MIN	224	344	84	100	266	287	319	268	79	37	36	49
MEAN†	560	477	171	192	484	796	607	583	240	62.3	228	73.4
CFSM†	2.96	2.52	.90	1.02	2.56	4.21	3.21	3.08	1.27	.33	1.21	.39
IN.†	3.41	2.81	1.04	1.17	2.66	4.86	3.58	3.55	1.42	.38	1.39	.43

CAL YR 1989 TOTAL 137794 MEAN 378 MAX 1580 MIN 61 MEAN† 397 CFSM† 1.99 IN.† 27.12
WTR YR 1990 TOTAL 135782 MEAN 372 MAX 1970 MIN 36 MEAN† 372 CFSM† 1.97 IN.† 26.72

e Estimated

† Adjusted for change in contents in Birch Hill Reservoir.

CONNECTICUT RIVER BASIN

127

01165000 EAST BRANCH TULLY RIVER NEAR ATHOL, MA

LOCATION.--Lat 42°38'32", long 72°13'34", Worcester County, Hydrologic Unit 01080202, on right bank 300 ft downstream from Tully Dam, 1.3 mi downstream from Lawrence Brook, 3.5 mi north of Athol, and 4.9 mi upstream from mouth.

DRAINAGE AREA.--50.5 mi².

PERIOD OF RECORD.--Discharge: October 1915 to September 1990 (discontinued). October 1915 to May 1916 monthly discharge only, published in WSP 1301.
Water-quality records: Water years 1965-66.

REVISED RECORDS.--WSP 451: 1916. WSP 1051: 1916(M), 1928. WSP 1301: 1917-35(M), 1937(M). WDR MA-RI-84-1: Drainage area.

GAGE.--Water-stage recorder and concrete control. Datum of gage is 613.71 ft above National Geodetic Vertical Datum of 1929 (U.S. Army Corps of Engineers benchmark). Prior to Oct. 26, 1948, nonrecording gage at site 0.2 mi upstream at datum 14.40 ft higher.

REMARKS.--Records good. Flow regulated by Tully Lake since 1948 (Reservoirs in Connecticut River basin).

AVERAGE DISCHARGE.--75 years, 82.1 ft³/s, 22.08 in/yr, adjusted for storage.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 5,140 ft³/s, Sept. 21, 1938, gage height, 8.60 ft, from flood-marks, site and datum then in use, from rating curve extended above 1,500 ft³/s on basis of contracted-opening measurement and computation of peak flow over dam; minimum, 0.01 ft³/s, Nov. 6-11, 1961; minimum daily, 0.01 ft³/s, Nov. 7-10, 1961. Maximum discharge since construction of Tully Lake in 1948, 828 ft³/s, Apr. 21, 1960, gage height, 5.38 ft.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 610 ft³/s, Mar. 23, gage height, 4.78 ft; minimum, 1.2 ft³/s, Oct. 5, 6; minimum daily, 1.3 ft³/s, Oct. 4, 5, 11, 12.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	e256	113	90	26	83	121	138	91	222	23	22	21
2	e97	78	70	32	85	84	143	96	172	23	21	21
3	e16	69	63	34	85	74	144	95	117	23	21	21
4	e1.3	88	63	34	96	91	199	94	78	22	22	21
5	1.3	96	46	34	100	81	358	85	90	22	22	21
6	25	95	44	34	80	73	402	81	99	22	22	21
7	77	94	47	34	65	56	370	56	98	22	22	21
8	77	79	47	33	62	48	276	52	76	22	93	21
9	76	72	47	29	55	49	183	73	46	23	203	20
10	23	100	39	27	64	57	140	80	57	e22	224	20
11	1.3	158	35	27	87	61	154	149	65	e22	186	20
12	1.3	183	35	27	130	107	209	209	65	e22	232	20
13	18	156	36	27	146	175	188	221	54	e22	267	20
14	46	105	26	27	95	243	156	221	36	e22	212	20
15	53	86	21	27	92	357	148	221	31	e22	109	20
16	82	86	21	27	99	410	153	190	31	e22	69	20
17	94	129	e27	27	81	440	171	177	31	e22	35	20
18	93	170	e35	27	73	171	175	210	31	e22	21	20
19	127	199	e38	28	56	213	172	263	25	e22	24	20
20	143	180	e38	32	49	274	139	237	23	e22	29	20
21	160	123	e32	38	49	309	95	219	23	e22	21	20
22	266	103	e29	39	49	551	126	220	23	e22	30	19
23	420	103	e29	39	84	583	139	227	23	e22	34	19
24	494	83	e24	39	138	570	117	177	23	e22	35	18
25	546	73	e22	39	208	546	97	115	23	e22	60	17
26	529	72	e22	39	243	420	97	125	23	e22	116	17
27	415	72	e22	67	237	207	97	112	23	e22	101	17
28	255	73	e22	130	170	131	97	79	23	e22	59	17
29	226	74	24	151	---	83	76	69	23	e22	44	17
30	125	92	22	149	---	82	77	164	23	e22	44	17
31	103	---	21	96	---	112	---	233	---	22	28	---
TOTAL	4847.2	3204	1137	1419	2861	6779	5036	4641	1677	686	2428	586
MEAN	156	107	36.7	45.8	102	219	168	150	55.9	22.1	78.3	19.5
MAX	546	199	90	151	243	583	402	263	222	23	267	21
MIN	1.3	69	21	26	49	48	76	52	23	22	21	17
MEAN†	151	107	36.0	46.7	102	245	157	151	53.4	20.9	80.0	14.4
CFSM†	2.99	2.12	.71	.92	2.02	4.85	3.11	2.99	1.06	.41	1.58	.29
IN.†	3.44	2.36	.82	1.07	2.10	5.58	3.47	3.45	1.18	.48	1.83	.32

CAL YR 1989 TOTAL 36761.2 MEAN 101 MAX 564 MIN 1.3 MEAN† 101 CFSM† 2.00 IN.† 27.07
WTR YR 1990 TOTAL 35301.2 MEAN 96.7 MAX 583 MIN 1.3 MEAN† 97.0 CFSM† 1.92 IN.† 26.09

e Estimated

† Adjusted for change in contents in Tully Lake.

CONNECTICUT RIVER BASIN

01166105 WHETSTONE BROOK AT DEPOT ROAD AT WENDELL DEPOT, MA

LOCATION.--Lat 42°35'39", long 72°21'41", Franklin County, Hydrologic Unit 01080202, on left bank at downstream side of bridge on Depot Road, 0.2 mi southwest of Wendell Depot, and 600 ft upstream from mouth.

DRAINAGE AREA.--5.22 mi².

PERIOD OF RECORD.--December 1985 to current year.

GAGE.--Water-stage recorder and crest-stage gage. Elevation of gage is 470 ft above National Geodetic Vertical Datum of 1929, from topographic map.

REMARKS.--Records good except those for estimated daily discharges, which are poor.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 513 ft³/s, Oct. 20, 1989, from rating curve extended above 120 ft³/s; maximum gage height, 11.44 ft, Mar. 6, 1987, ice jam; minimum discharge, 0.79 ft³/s, Sept. 10, 11, 1986, Aug. 21-23, 24, 1987.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 120 ft³/s, revised, and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
Oct. 20	2000	*a513	*6.38	July 23	0045	a305	5.50
Mar. 18	0545	143	4.52	Aug. 7	1800	201	4.94
Apr. 4	0445	149	4.57				

a From rating curve extended above 120 ft³/s.

Minimum discharge, 0.97 ft³/s, July 20.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	5.2	19	e8.3	e9.0	6.6	e10	12	8.9	13	2.3	1.3	3.4
2	11	13	8.0	e6.5	10	e9.5	13	7.3	10	2.1	1.2	3.1
3	e19	15	e7.6	e4.7	11	e11	20	6.1	8.8	1.9	1.1	3.0
4	e11	16	e7.4	e4.3	10	e10	87	5.5	11	1.6	1.1	2.7
5	e7.9	13	e7.8	e4.5	e9.0	e8.8	33	13	8.6	1.5	1.1	2.7
6	7.5	11	e7.8	e4.2	e7.4	7.1	23	12	7.2	1.4	1.4	2.7
7	7.0	11	e7.4	e3.8	e6.4	7.3	19	9.0	6.4	1.3	52	2.7
8	7.0	11	e6.8	e3.6	e6.2	7.4	16	7.9	5.7	1.3	30	2.7
9	6.5	27	e7.2	e3.5	e8.0	7.1	14	7.2	5.4	1.3	9.3	2.5
10	5.4	24	e7.2	e3.6	e30	6.9	15	11	6.2	1.3	13	2.7
11	8.3	17	e6.6	e3.8	e22	11	25	35	5.4	1.2	77	2.4
12	8.1	13	e6.0	e3.8	e15	21	19	16	5.2	1.8	34	2.6
13	6.2	11	e5.7	e3.6	e11	27	15	23	4.5	2.2	16	2.7
14	5.4	11	e5.5	e3.4	e10	33	14	25	4.3	1.9	15	2.5
15	15	10	e5.3	3.1	e11	36	18	16	4.1	1.8	10	3.7
16	12	25	e5.1	3.1	e14	39	20	14	3.3	1.6	7.6	3.4
17	15	26	e5.0	3.5	e11	52	16	27	3.1	1.3	6.2	3.2
18	20	17	e4.9	e7.0	e9.0	92	14	30	2.9	1.3	5.0	2.8
19	15	13	e4.8	e6.0	e7.6	33	13	20	2.9	1.1	9.3	2.7
20	155	13	e4.7	e5.0	e6.6	61	11	17	2.9	.99	11	3.5
21	115	12	e4.5	e4.5	e6.0	51	16	33	2.7	1.2	7.1	3.0
22	35	11	e4.2	e4.0	e8.0	28	15	23	2.6	4.6	5.9	2.9
23	24	e9.9	e4.0	3.7	e40	23	12	17	2.6	58	5.5	4.3
24	20	e9.3	e5.0	3.8	e35	19	9.9	13	2.9	20	6.7	3.3
25	17	8.8	e5.8	6.2	e18	15	10	12	2.8	7.7	14	3.3
26	15	8.5	e4.7	32	e13	14	12	10	2.6	3.8	10	3.1
27	13	9.1	e3.5	19	e11	12	11	9.7	2.2	2.7	7.3	2.8
28	12	13	e3.4	10	e11	e10	8.8	8.2	1.9	2.0	5.5	2.7
29	11	14	e3.3	8.1	---	10	7.9	10	2.0	1.7	5.0	2.7
30	10	e9.3	e3.2	14	---	10	8.1	44	2.5	1.4	4.2	2.7
31	11	---	e4.0	8.4	---	11	---	20	---	1.4	3.7	---
TOTAL	630.5	420.9	174.7	203.7	363.8	693.1	527.7	510.8	145.7	135.69	377.5	88.5
MEAN	20.3	14.0	5.64	6.57	13.0	22.4	17.6	16.5	4.86	4.38	12.2	2.95
MAX	155	27	8.3	32	40	92	87	44	13	58	77	4.3
MIN	5.2	8.5	3.2	3.1	6.0	6.9	7.9	5.5	1.9	.99	1.1	2.4
CFSM	3.90	2.69	1.08	1.26	2.49	4.28	3.37	3.16	.93	.84	2.33	.57
IN.	4.49	3.00	1.24	1.45	2.59	4.94	3.76	3.64	1.04	.97	2.69	.63

CAL YR 1989 TOTAL 4396.7 MEAN 12.0 MAX 155 MIN 2.4 CFSM 2.31 IN. 31.33
WTR YR 1990 TOTAL 4272.59 MEAN 11.7 MAX 155 MIN .99 CFSM 2.24 IN. 30.45

e Estimated

CONNECTICUT RIVER BASIN

129

01166500 MILLERS RIVER AT ERVING, MA

LOCATION.--Lat 42°35'51", long 72°26'19", Franklin County, Hydrologic Unit 01080202, on right bank 5 ft downstream from bridge at Farley, 0.6 mi upstream from Mormon Hollow Brook, 2.4 mi downstream from Erving, and 5.5 mi upstream from mouth.

DRAINAGE AREA.--372 mi².

PERIOD OF RECORD.--Discharge: August 1914 to June 1915 (twice-daily gage heights and corresponding discharge), July 1915 to current year.

Water-quality records: Water years 1953, 1965-66.

REVISED RECORDS.--WSP 641: 1920(M). WSP 781: 1928(M), 1933(M). WSP 1301: 1915(M). WDR MA-RI-84-1: Drainage area.

GAGE.--Water-stage recorder. Elevation of gage is 380 ft above National Geodetic Vertical Datum of 1929, from topographic map. Prior to June 30, 1915, nonrecording gage, June 30, 1915, to Sept. 20, 1938, water-stage recorder, and Sept. 21 to Dec. 31, 1938, non-recording gage, at site 2.2 mi upstream at different datum. Jan. 1 to Mar. 29, 1939, nonrecording gage, and Mar. 30, 1939, to Sept. 12, 1941, water-stage recorder, at site 0.4 mi downstream at different datum.

REMARKS.--Records good except those for estimated daily discharges, which are poor. Flow regulated by powerplants and by Lake Monomonic and other reservoirs; high flow regulated by Birch Hill Reservoir 22 mi upstream and Tully Reservoir (Reservoirs in Connecticut River basin); greater regulation by powerplants prior to 1966.

AVERAGE DISCHARGE.--76 years, 632 ft³/s.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 29,000 ft³/s, Sept. 22, 1938, gage height, 13.37 ft, from floodmarks, site and datum then in use, mean of two slope-area measurements; practically no flow at times during 1915 and 1916 because of regulation; minimum daily, 8 ft³/s, Sept. 6, 1926.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 4,140 ft³/s, Oct. 21, gage height, 6.23 ft; minimum daily, 59 ft³/s, July 21.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	613	772	713	e300	e600	988	899	646	1410	184	156	243
2	513	755	609	e370	e600	914	867	632	e1200	185	128	195
3	583	724	638	e350	e740	817	918	578	e1000	156	122	188
4	603	811	549	e310	e740	764	1680	543	e900	145	118	173
5	558	810	e560	e280	e710	709	1590	622	e850	138	91	152
6	485	748	e540	e260	e700	642	1830	676	e740	129	76	151
7	459	734	e500	e250	e600	567	2020	647	e590	131	187	236
8	467	726	e460	e240	e520	568	1870	591	e500	125	851	165
9	558	832	e420	e240	e500	533	1650	607	e460	123	739	137
10	477	1030	e380	e230	e850	527	1310	635	e490	92	657	150
11	351	1070	e350	e240	e1000	592	1280	1200	e500	117	1320	139
12	324	1020	e330	e240	e940	875	1290	1250	e500	100	1430	140
13	326	962	e310	e220	e820	1390	1240	1370	e450	126	1330	136
14	335	742	e290	e210	e750	1820	1100	1540	e400	86	1190	129
15	476	720	e270	e200	e700	2100	1080	1410	353	115	879	146
16	588	894	e280	e210	669	2360	1260	1240	326	119	598	166
17	633	1210	e270	e210	712	2630	1260	1330	286	119	454	161
18	767	1320	e260	e290	627	3330	1220	1610	293	120	340	145
19	764	1240	e250	e330	619	1510	1120	1620	283	115	309	132
20	1550	987	e240	e300	508	3040	1010	1560	258	107	349	144
21	3530	1060	e240	e280	484	2140	971	1760	260	59	312	158
22	2420	784	e240	e270	522	3430	1060	1740	250	73	266	167
23	2390	768	e230	e320	1110	3460	1030	1600	236	e150	234	183
24	2460	704	e220	e290	1930	3130	944	1380	251	e420	245	180
25	2400	593	e220	e280	1850	2560	827	1060	316	479	418	164
26	1950	639	e220	e740	1470	2130	856	936	304	400	575	158
27	1400	633	e210	e1000	1370	1480	771	859	243	318	564	151
28	1150	656	e200	e800	1280	1010	715	751	190	225	477	152
29	949	741	e200	e750	---	905	655	651	173	189	408	171
30	854	735	e200	e700	---	859	591	1330	200	135	362	170
31	756	---	e200	e680	---	887	---	1520	---	121	314	---
TOTAL	31689	25420	10599	11390	23921	48667	34914	33894	14212	5101	15499	4882
MEAN	1022	847	342	367	854	1570	1164	1093	474	165	500	163
MAX	3530	1320	713	1000	1930	3460	2020	1760	1410	479	1430	243
MIN	324	593	200	200	484	527	591	543	173	59	76	129

CAL YR 1989 TOTAL 249921 MEAN 685 MAX 3530 MIN 101
WTR YR 1990 TOTAL 260188 MEAN 713 MAX 3530 MIN 59

e Estimated

CONNECTICUT RIVER BASIN

01168151 DEERFIELD RIVER NEAR ROWE, MA

LOCATION.--Lat 42°40'57", long 72°58'37", Franklin County, Hydrologic Unit 01080203, on left bank 400 ft down-stream from Fife Brook, 600 ft downstream from Fife Brook Dam, 1.2 mi northeast of Hoosac Tunnel, and 4 mi west of Rowe.

DRAINAGE AREA.--254 mi².

PERIOD OF RECORD.--May 1974 to current year.

REVISED RECORDS.--WDR MA-RI-78: 1977.

GAGE.--Water-stage recorder. Datum of gage is 745.00 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--No estimated daily discharges. Records good. Flow regulated by Somerset and Harriman Reservoirs (Reservoirs in Connecticut River basin) and by several powerplants upstream.

AVERAGE DISCHARGE.--16 years, 746 ft³/s.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 20,900 ft³/s, May 29, 1984, gage height, 14.73 ft, from flood-mark in stilling well, from rating curve extended above 8,300 ft³/s, on basis of slope-area measurement of peak flow and conveyance-slope study; maximum gage height, 14.79 ft, Aug. 10, 1976; minimum daily discharge, 28 ft³/s, Nov. 14, 1981.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 8,660 ft³/s, Mar. 17, gage height, 10.67 ft; minimum daily, 85 ft³/s, Sept. 13.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	257	1090	973	233	935	1190	1750	497	957	229	109	165
2	789	1050	975	607	912	1230	1260	742	407	182	122	162
3	612	1050	930	904	911	1230	1200	741	535	107	159	190
4	575	304	938	670	674	1190	2580	906	800	104	106	295
5	577	612	970	637	884	1200	1290	999	621	430	107	269
6	545	1030	972	527	913	1210	1240	950	637	463	672	360
7	164	989	977	260	942	1230	1120	939	641	105	1820	360
8	205	788	952	588	933	1200	830	738	623	156	1300	87
9	227	326	955	640	989	1290	1020	422	421	436	910	113
10	406	773	949	657	1150	1240	1220	702	201	474	1470	505
11	371	536	937	677	1030	1170	1470	1060	567	447	1970	86
12	463	961	994	678	1000	1460	1330	633	409	369	1560	163
13	599	905	986	583	962	1350	1310	1060	581	345	803	85
14	478	989	966	214	977	1640	1250	2130	458	203	802	730
15	433	1020	960	634	989	1480	1300	1400	369	179	729	191
16	743	1060	914	664	1010	3500	1270	1500	318	474	933	151
17	842	1040	906	910	974	4870	1340	2920	242	348	701	572
18	798	993	940	785	956	4570	1270	2960	422	292	1070	642
19	804	974	974	958	969	2700	1270	2520	534	354	1090	647
20	1810	1010	936	926	951	3080	1220	2460	246	432	359	640
21	2960	1010	659	919	966	2870	1290	3240	434	167	108	676
22	1330	995	827	695	860	2440	1280	2680	474	184	315	519
23	1310	993	649	715	1300	2390	1210	2370	219	387	180	201
24	1310	971	619	719	1170	2240	865	2110	497	192	459	533
25	1230	955	586	964	1050	2140	511	1990	307	101	1030	450
26	1130	973	635	1160	995	2100	629	1780	275	357	821	330
27	1080	897	590	781	985	2090	612	1300	396	329	907	381
28	988	1020	564	636	1120	2030	485	1330	104	292	363	308
29	956	991	575	954	---	1880	340	1170	106	182	416	292
30	1050	986	285	1000	---	1800	647	1080	271	114	350	238
31	1050	---	271	908	---	1780	---	1100	---	128	274	---
TOTAL	26092	27291	25364	22203	27507	61790	34409	46429	13072	8562	22015	10341
MEAN	842	910	818	716	982	1993	1147	1498	436	276	710	345
MAX	2960	1090	994	1160	1300	4870	2580	3240	957	474	1970	730
MIN	164	304	271	214	674	1170	340	422	104	101	106	85

CAL YR 1989 TOTAL 294226 MEAN 806 MAX 6010 MIN 81
WTR YR 1990 TOTAL 325075 MEAN 891 MAX 4870 MIN 85

CONNECTICUT RIVER BASIN

131

01168500 DEERFIELD RIVER AT CHARLEMONT, MA

LOCATION.--Lat 42°37'33", long 72°51'20", Franklin County, Hydrologic Unit 01080203, on left bank 0.8 mi east of Charlemont, 2.5 mi downstream from Chickley River, and at mile 24.5.

DRAINAGE AREA.--361 mi².

PERIOD OF RECORD.--Discharge: June 1913 to current year.

Water-quality records: Water years 1954-55, 1958, 1967-69.

REVISED RECORDS.--WSP 781: 1915(M). WSP 1301: 1918(M). WDR MA-RI-84-1: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 517.36 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Records good except those for estimated daily discharges, which are fair. Flow regulated by Somerset Reservoir, since 1924 by Harriman Reservoir (Reservoirs in Connecticut River basin), and by several powerplants upstream.

AVERAGE DISCHARGE.--77 years, 901 ft³/s.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 56,300 ft³/s, Sept. 21, 1938, gage height, 20.17 ft, from floodmarks, from rating curve extended above 31,000 ft³/s on basis of slope-area and contracted-opening measurements at gage heights 17.75 ft and 20.17 ft; minimum daily, 5 ft³/s, June 17, 1921.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 13,700 ft³/s, Mar. 17, gage height, 9.70 ft; minimum daily, 122 ft³/s, Aug. 5.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	226	1380	1050	e350	1040	1390	1870	773	1210	233	144	248
2	747	1200	1000	e700	1140	1410	1520	789	784	336	125	225
3	757	1170	1020	e960	1130	1400	1710	825	599	162	167	249
4	647	684	1010	e640	925	1350	4680	970	1080	152	138	325
5	587	612	1000	e760	985	1340	2020	1250	784	420	122	308
6	573	1120	1040	e600	1020	1330	1700	1180	805	465	728	386
7	255	1080	1020	e420	1050	1300	1550	1100	757	157	2900	375
8	164	1010	993	e520	1030	1300	1220	1030	754	192	1460	161
9	344	753	986	e710	1120	1340	1280	630	596	419	925	125
10	396	1250	981	691	1580	1300	1530	853	372	474	1410	454
11	347	806	971	690	1420	1330	2410	1820	620	430	2020	253
12	441	1140	1020	713	1260	2110	1810	1050	566	380	1600	201
13	737	1060	999	632	1170	2480	1660	1620	583	402	1000	127
14	443	1090	e980	344	1180	2950	1530	2750	576	241	777	641
15	527	1110	e920	604	1190	2840	1720	1750	486	143	772	352
16	768	1430	e1050	635	1190	4640	1600	1780	393	413	950	232
17	910	1440	e940	962	1220	7020	1650	3690	284	452	687	499
18	1010	1210	e980	899	1150	7110	1550	3860	489	310	1020	603
19	916	1150	e980	1110	1140	3420	1500	2950	570	273	1120	630
20	4430	1150	e980	1030	1090	4920	1450	2810	330	488	599	664
21	4510	1240	e700	965	1110	4040	1540	4430	507	223	208	609
22	1810	1130	e790	772	1030	2960	1520	3270	509	151	323	580
23	1540	1110	e700	779	2420	2750	1390	2690	237	425	299	272
24	1450	1080	e650	779	2080	2470	1180	2320	722	250	601	528
25	1340	1060	e640	1060	1540	2340	722	2140	380	129	1330	508
26	1220	1060	e700	1660	1290	2270	927	1970	326	228	992	393
27	1130	1000	e640	1230	1250	2160	794	1510	384	388	973	447
28	1050	1200	e610	831	1360	2120	735	1500	216	291	593	352
29	1030	1180	e620	1100	---	2000	517	1370	168	271	540	341
30	1060	1100	e350	1140	---	1890	703	1700	350	126	431	221
31	1070	---	e310	1030	---	1870	---	1430	---	135	375	---
TOTAL	32435	33005	26630	25316	35110	79150	45988	57810	16437	9159	25329	11309
MEAN	1046	1100	859	817	1254	2553	1533	1865	548	295	817	377
MAX	4510	1440	1050	1660	2420	7110	4680	4430	1210	488	2900	664
MIN	164	612	310	344	925	1300	517	630	168	126	122	125

CAL YR 1989 TOTAL 349143 MEAN 957 MAX 6570 MIN 133
WTR YR 1990 TOTAL 397678 MEAN 1090 MAX 7110 MIN 122

e Estimated

CONNECTICUT RIVER BASIN

01169000 NORTH RIVER AT SHATTUCKVILLE, MA

LOCATION.--Lat 42°38'18", long 72°43'32", Franklin County, Hydrologic Unit 01080203, on right bank in Shattuckville, 1.2 mi south of Griswoldville, and 1.3 mi upstream from mouth.

DRAINAGE AREA.--89.0 mi².

PERIOD OF RECORD.--Discharge: October 1939 to current year. October and November 1939 monthly discharge only, published in WSP 1301.
Water-quality records: Water years 1957, 1967-69.

REVISED RECORDS.--WSP 1111: 1945(M). WDR MA-RI-84-1: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 458.36 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Records good except those for estimated daily discharges, which are poor. Diurnal fluctuation at times caused by mill upstream; because storage capacity is small, daily flows are not affected appreciably. Prior to 1950, greater regulation by mill.

AVERAGE DISCHARGE.--51 years, 186 ft³/s, 28.38 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 14,200 ft³/s, Apr. 5, 1987, gage height, 11.19 ft, from rating curve extended above 2,100 ft³/s on basis of slope-area measurements at gage heights 9.55 ft and 11.19 ft; minimum daily, 5.1 ft³/s, Oct. 3, 1948.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 2,200 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
Oct. 20	2015	*6,840	*8.69	Apr. 4	0545	3,910	7.23
Mar. 17	2200	6,490	8.54	Aug. 7	1145	2,390	6.19
Mar. 20	1230	3,520	6.99				

Minimum discharge, 6.8 ft³/s, Aug. 5, 6; minimum daily, 7.5 ft³/s, Aug. 5.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	40	664	e160	e160	e140	238	269	156	230	70	13	e40
2	60	330	e150	e170	199	e225	292	134	190	56	11	e38
3	132	290	e140	e125	207	207	643	119	169	47	9.8	e37
4	74	285	e135	e105	161	e195	2390	113	207	43	8.6	e35
5	57	223	e125	e92	e155	e185	889	286	161	43	7.5	e33
6	51	208	e120	e84	e150	162	581	273	138	43	74	e32
7	62	200	e115	e82	142	155	450	190	127	42	1040	e31
8	46	218	e110	e80	e145	162	370	164	111	41	239	e30
9	41	533	e105	77	168	e165	324	147	125	41	94	e30
10	38	545	e100	77	369	e155	376	213	172	40	109	e34
11	52	337	e97	e79	316	213	1110	626	130	37	885	e40
12	65	270	e94	79	237	564	546	295	133	35	278	e35
13	51	230	e90	e78	e190	891	385	535	100	42	135	e36
14	45	208	e87	e76	180	1140	329	733	89	41	147	e47
15	119	200	e84	e74	163	1300	445	352	83	36	96	108
16	91	617	e82	72	163	1500	424	313	74	34	73	84
17	129	552	e80	76	195	2550	358	1100	67	31	60	50
18	247	337	e78	148	170	2450	322	1050	61	29	52	e41
19	149	273	e76	e190	e175	1010	272	562	63	27	82	e36
20	2210	264	e74	e120	e145	2300	250	489	90	24	93	e41
21	1790	355	e72	105	141	1570	299	1350	79	26	64	e39
22	578	251	e70	e98	e150	852	272	732	72	26	54	e36
23	370	e210	e68	e91	923	691	230	479	103	26	50	59
24	284	221	e67	89	757	528	203	373	161	36	103	e41
25	230	196	e66	106	393	426	202	318	92	39	190	e34
26	203	193	e64	488	260	370	227	282	69	32	123	e36
27	183	189	e63	343	236	310	199	247	58	26	86	101
28	168	267	e62	e225	254	276	172	212	51	21	66	62
29	154	265	e61	164	---	254	155	217	49	18	62	46
30	142	189	e60	158	---	247	156	566	83	16	50	e39
31	191	---	e65	e150	---	250	---	312	---	15	e42	---
TOTAL	8052	9120	2820	4061	6884	21541	13140	12938	3337	1083	4396.9	1351
MEAN	260	304	91.0	131	246	695	438	417	111	34.9	142	45.0
MAX	2210	664	160	488	923	2550	2390	1350	230	70	1040	108
MIN	38	189	60	72	140	155	155	113	49	15	7.5	30
CFSM	2.92	3.42	1.02	1.47	2.76	7.81	4.92	4.69	1.25	.39	1.59	.51
IN.	3.37	3.81	1.18	1.70	2.88	9.00	5.49	5.41	1.39	.45	1.84	.56

CAL YR 1989 TOTAL 71999 MEAN 197 MAX 2210 MIN 20 CFSM 2.22 IN. 30.09
WTR YR 1990 TOTAL 88723.9 MEAN 243 MAX 2550 MIN 7.5 CFSM 2.73 IN. 37.08

e Estimated

CONNECTICUT RIVER BASIN

133

01169900 SOUTH RIVER NEAR CONWAY, MA

LOCATION.--Lat 42°32'31", long 72°41'39", Franklin County, Hydrologic Unit 01080203, on left bank at upstream side of Reeds Bridge just off Bardwell Road, 2.2 mi north of Conway, and 2.6 mi upstream from mouth.

DRAINAGE AREA.--24.1 mi².

PERIOD OF RECORD.--Discharge: June 1966 to current year.

Water-quality records: Water years 1967-69.

REVISED RECORDS.--WDR MA-NH-RI-VT-73-1: 1968-70(P), 1971(M), 1972(P). WDR MA-RI-84-1: Drainage area.

GAGE.--Water-stage recorder. Elevation of gage is 460 ft above National Geodetic Vertical Datum of 1929, from topographic map. Prior to Oct. 7, 1970, at downstream side of bridge at same site and datum.

REMARKS.--Records good except those for estimated daily discharges, which are poor. Diurnal fluctuation by small powerplant upstream since April 1982.

AVERAGE DISCHARGE.--24 years, 52.6 ft³/s, 29.64 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 5,750 ft³/s, Apr. 4, 1987, gage height, 10.16 ft, minimum, 2.5 ft³/s, Sept. 12-14, 1980.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 660 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
Oct. 20	2000	*2,310	*7.45	Mar. 20	1145	1,170	6.03
Nov. 16	1445	664	5.12	Apr. 4	0500	1,130	5.97
Mar. 17	2345	664	5.12	Aug. 11	0315	1,200	6.08

Minimum discharge, 4.7 ft³/s, Aug. 3.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	15	187	e42	e45	e40	e64	83	50	67	21	7.5	21
2	31	83	e39	e42	e58	e60	91	44	58	34	6.9	19
3	39	82	e35	e30	e56	e56	228	40	53	20	6.2	18
4	25	75	e32	e24	e45	e52	523	38	87	17	5.6	17
5	19	64	e31	e21	e42	e50	177	100	57	15	6.0	17
6	18	61	e29	e19	e40	e44	131	70	49	13	14	17
7	17	58	e27	e18	e39	e42	112	53	45	13	163	16
8	15	60	e25	e17	e38	e45	99	54	41	12	39	16
9	15	109	e24	e17	e45	e48	90	73	41	12	20	14
10	14	90	e23	e16	e100	e43	111	101	43	12	55	20
11	25	68	e22	e16	e80	110	160	140	38	11	340	17
12	21	59	e21	e16	e66	226	104	81	37	18	99	19
13	17	53	e20	e16	e50	212	91	140	31	22	44	17
14	16	51	e19	e16	e50	265	80	142	29	15	50	15
15	56	50	e19	e16	e44	270	119	93	30	13	32	47
16	30	245	e18	e16	e44	279	98	107	26	12	26	27
17	65	127	e18	e20	e52	356	85	233	24	11	23	19
18	71	87	e17	e38	e47	368	76	175	23	10	21	17
19	54	75	e17	e54	e46	174	68	111	36	9.5	48	15
20	820	76	e16	e33	e42	554	65	111	45	9.0	39	19
21	322	81	e16	e28	e38	273	78	240	31	9.6	27	16
22	131	62	e15	e27	e45	171	69	137	27	8.6	24	17
23	98	60	e15	e24	e250	143	60	104	25	14	23	28
24	83	60	e14	e25	e200	117	55	89	25	20	53	18
25	74	62	e14	e30	e110	105	63	77	21	12	129	16
26	67	59	e14	e130	e73	96	67	68	20	9.9	55	15
27	61	57	e13	e90	e65	85	56	61	18	8.9	40	14
28	56	80	e13	e58	e69	79	50	56	17	8.3	32	14
29	53	64	e13	e45	---	74	47	66	17	7.9	31	14
30	49	e51	e13	e42	---	75	51	220	28	7.7	25	13
31	79	---	e14	e39	---	81	---	86	---	7.5	23	---
TOTAL	2456	2396	648	1028	1874	4617	3187	3160	1089	413.9	1507.2	552
MEAN	79.2	79.9	20.9	33.2	66.9	149	106	102	36.3	13.4	48.6	18.4
MAX	820	245	42	130	250	554	523	240	87	34	340	47
MIN	14	50	13	16	38	42	47	38	17	7.5	5.6	13
CFSM	3.29	3.31	.87	1.38	2.78	6.18	4.41	4.23	1.51	.55	2.02	.76
IN.	3.79	3.70	1.00	1.59	2.89	7.13	4.92	4.88	1.68	.64	2.33	.85

CAL YR 1989 TOTAL 19605.2 MEAN 53.7 MAX 820 MIN 8.2 CFSM 2.23 IN. 30.26
WTR YR 1990 TOTAL 22928.1 MEAN 62.8 MAX 820 MIN 5.6 CFSM 2.61 IN. 35.39

e Estimated

CONNECTICUT RIVER BASIN

01170000 DEERFIELD RIVER NEAR WEST DEERFIELD, MA

LOCATION.--Lat 42°32'09", long 72°39'14", Franklin County, Hydrologic Unit 01080203, on right bank 0.4 mi downstream from South River, 1.2 mi west of West Deerfield, 2.5 mi west of Deerfield, and 9.2 mi upstream from mouth.

DRAINAGE AREA.--557 mi².

PERIOD OF RECORD.--Discharge: March to November 1904, January 1905, March to December 1905, October 1940 to current year, published as "at Deerfield" 1904-5.
Water-quality records: Water years 1953, 1967-70.

REVISED RECORDS.--WDR MA-RI-84-1: Drainage area.

GAGE.--Water-stage recorder. Elevation of gage is 155 ft above National Geodetic Vertical Datum of 1929, from topographic map. Prior to Dec. 16, 1905, nonrecording gage at site 1.5 mi downstream at different datum.

REMARKS.--Records good except those for estimated daily discharges, which are fair. Flow regulated since 1913 by Somerset Reservoir, since 1924 by Harriman Reservoir (Reservoirs in Connecticut River basin), and by several powerplants upstream.

AVERAGE DISCHARGE.--50 years (water years 1941-90), 1,305 ft³/s.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 61,700 ft³/s, Apr. 5, 1987, gage height, 17.71 ft; minimum daily, 28 ft³/s, July 29, 1962.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 26,000 ft³/s, Oct. 20, gage height, 10.91 ft; minimum daily, 185 ft³/s, Aug. 2.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	383	2900	1460	e540	1350	1950	2680	1340	1920	467	200	417
2	1010	2040	1380	e1100	1590	2030	2420	1100	1330	455	185	373
3	1250	1740	1450	e1300	1920	1980	2750	1220	1010	362	224	305
4	893	1690	1480	e950	1450	1880	9760	1410	1820	295	198	419
5	679	948	1450	1140	1260	1740	4060	1970	1290	474	205	506
6	804	1600	1380	806	1450	1770	3010	1950	1150	492	493	382
7	542	1790	1380	762	1510	1710	2710	1590	1130	405	4950	491
8	351	1600	1410	672	1470	1750	2130	1660	1100	245	2260	344
9	452	1540	1260	1020	1600	1750	2000	1100	967	476	1420	262
10	464	2440	1380	877	2380	1830	2240	1310	942	603	1610	494
11	580	1690	1330	912	2430	2020	4510	3230	862	590	4410	461
12	669	1620	1390	995	1800	3670	3050	1830	985	534	2670	297
13	938	1690	1300	886	1720	4380	2560	2430	807	532	1620	266
14	706	1620	1270	528	1670	5660	2340	4410	811	411	1170	561
15	926	1670	1170	864	1770	5720	2700	2930	886	228	1110	840
16	1100	2880	1420	909	1690	7460	2680	2610	575	480	1120	364
17	1280	2750	1140	1190	1710	10800	2500	5610	517	529	959	614
18	1910	2120	1350	1180	1650	13800	2400	6670	722	495	1080	755
19	1470	1800	1280	1740	1580	5810	2150	4560	711	283	1410	800
20	9150	1880	1220	1350	1470	9640	2050	3920	708	573	1110	710
21	9520	2100	e920	1300	1430	8250	2190	7180	808	364	317	758
22	3250	1720	e980	1050	1640	5060	2310	5560	625	268	315	735
23	2480	1800	e850	1110	4090	4420	1990	4010	554	498	732	598
24	2190	1610	e850	1070	4000	3850	1930	3460	1120	447	825	536
25	2010	1590	e820	1580	2500	3450	1150	3030	599	249	1960	671
26	1850	1580	e900	2600	1950	3200	1490	2800	539	283	1490	565
27	1510	1620	e760	2140	1800	3100	1410	2250	547	389	1090	591
28	1550	1760	e840	1400	1830	2880	1130	2110	458	436	979	548
29	1530	1900	e750	1460	---	2810	1020	1890	246	330	614	472
30	1550	1590	e540	1640	---	2590	1190	3260	506	213	628	366
31	1660	---	e560	1550	---	2610	---	2390	---	216	554	---
TOTAL	54657	55278	35670	36621	52710	129570	76510	90790	26245	12622	37908	15501
MEAN	1763	1843	1151	1181	1882	4180	2550	2929	875	407	1223	517
MAX	9520	2900	1480	2600	4090	13800	9760	7180	1920	603	4950	840
MIN	351	948	540	528	1260	1710	1020	1100	246	213	185	262

CAL YR 1989 TOTAL 550549 MEAN 1508 MAX 10100 MIN 263
WTR YR 1990 TOTAL 624082 MEAN 1710 MAX 13800 MIN 185

e Estimated

CONNECTICUT RIVER BASIN

135

01170100 GREEN RIVER NEAR COLRAIN, MA

LOCATION.--Lat 42°42'12", long 72°40'16", Franklin County, Hydrologic Unit 01080203, on right bank 0.5 mi upstream from bridge on West Leyden Road and 2.5 mi northeast of Colrain.

DRAINAGE AREA.--41.4 mi².

PERIOD OF RECORD.--Discharge: October 1967 to current year.
Water-quality records: Water years 1968-69.

REVISED RECORDS.--WDR MA-NH-RI-VT-71-1: 1968(M), 1969.

GAGE.--Water-stage recorder. Elevation of gage is 435 ft above National Geodetic Vertical Datum of 1929, from topographic map.

REMARKS.--Records good except those for estimated daily discharges, which are poor.

AVERAGE DISCHARGE.--23 years, 91.7 ft³/s, 30.08 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 4,560 ft³/s, Dec. 21, 1973, gage height, 8.2 ft, from floodmarks, from rating curve extended above 1,500 ft³/s on basis of slope area measurement of peak flow and conveyance-slope study; maximum gage height, 8.87 ft, Jan. 27, 1976 (ice jam); minimum discharge, 1.9 ft³/s, Aug. 1, 1968, caused by unusual regulation.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 800 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
Oct. 20	unknown	*3,000	unknown	Mar. 20	1030	877	4.71
Mar. 17	2115	2,720	6.79	Apr. 4	0500	2,120	6.22

Minimum discharge, 6.3 ft³/s, Aug. 5.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	23	e330	e80	e85	e72	e130	148	80	111	34	8.1	19
2	38	e170	e78	e90	e100	e120	159	69	94	29	7.2	18
3	60	e150	e70	e70	e110	108	318	62	85	26	7.0	17
4	34	e140	e66	e52	e80	e100	1040	59	104	23	6.8	15
5	27	e120	e63	e47	e74	e98	384	141	79	25	6.5	15
6	26	e110	e60	e45	e72	e90	271	133	67	22	32	15
7	24	e100	e57	e42	e72	e90	224	97	63	20	329	15
8	21	e110	e55	e40	e70	e88	189	82	55	18	80	15
9	21	e280	e53	e38	e86	e84	166	74	64	18	36	14
10	21	e290	e51	e40	e180	81	190	110	67	17	33	19
11	31	e190	e49	e41	e150	101	456	289	60	16	379	19
12	34	e140	e48	e38	e120	214	252	142	64	16	123	16
13	28	e120	e47	e36	e94	333	192	247	49	20	67	19
14	26	e110	e45	e36	e84	433	165	333	43	16	71	16
15	44	e100	e44	e39	e76	501	213	172	41	16	48	40
16	40	e310	e42	e40	e78	574	203	163	37	15	37	32
17	57	e280	e41	e38	e92	990	174	455	34	14	31	21
18	e100	e180	e39	e70	e84	800	154	396	31	14	28	18
19	e76	e140	e38	e100	e90	432	133	241	34	12	43	16
20	e800	e160	e37	56	e72	682	125	216	51	13	44	18
21	e760	e180	e36	53	e70	556	135	432	40	20	33	16
22	e250	128	e35	51	e84	397	124	277	36	15	27	16
23	e190	117	e35	49	e410	356	110	202	50	15	25	24
24	e150	104	e34	47	318	288	100	162	74	27	44	21
25	e130	111	e33	56	208	240	99	145	42	19	76	16
26	e110	102	e32	e260	149	209	132	128	35	14	54	16
27	e96	97	e31	e230	147	177	111	116	29	12	39	32
28	e88	132	e31	e130	e145	159	93	102	27	11	32	25
29	e82	126	e30	100	---	147	82	108	26	10	30	18
30	e78	104	e30	e86	---	143	82	264	42	9.1	24	17
31	e100	---	e35	e78	---	144	---	143	---	8.6	21	---
TOTAL	3565	4731	1425	2183	3387	8865	6224	5640	1634	544.7	1821.6	578
MEAN	115	158	46.0	70.4	121	286	207	182	54.5	17.6	58.8	19.3
MAX	800	330	80	260	410	990	1040	455	111	34	379	40
MIN	21	97	30	36	70	81	82	59	26	8.6	6.5	14
CFSM	2.78	3.81	1.11	1.70	2.92	6.91	5.01	4.39	1.32	.42	1.42	.47
IN.	3.20	4.25	1.28	1.96	3.04	7.97	5.59	5.07	1.47	.49	1.64	.52

CAL YR 1989 TOTAL 33837 MEAN 92.7 MAX 806 MIN 12 CFSM 2.24 IN. 30.40
WTR YR 1990 TOTAL 40598.3 MEAN 111 MAX 1040 MIN 6.5 CFSM 2.69 IN. 36.48

e Estimated

CONNECTICUT RIVER BASIN

01170500 CONNECTICUT RIVER AT MONTAGUE CITY, MA

LOCATION.--Lat 42°34'48", long 72°34'30", Franklin County, Hydrologic Unit 01080201, on left bank 75 ft downstream from railroad bridge at Montague City, 1,000 ft downstream from Deerfield River, and at mile 119.0.

DRAINAGE AREA.--7,860 mi².

PERIOD OF RECORD.--March 1904 to current year. Prior to October 1929, published as "at Sunderland." Records published for both sites October 1929 to September 1932.

REVISED RECORDS.--WSP 471: 1904-17. WSP 741: 1930-32. WSP 781: 1928(M). WSP 1051: 1905, 1909-10, 1912-14, 1920, 1922-23, 1925-26, 1928, drainage area at Sunderland. WSP 1301: 1905(M), 1914-19(M), 1930-31(M). WDR MA-RI-84-1: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 99.87 ft above National Geodetic Vertical Datum of 1929. Prior to Oct. 1, 1917, nonrecording gage; Oct. 1, 1917, to Oct. 8, 1921, water-stage recorder used for low stages, nonrecording gage otherwise; and Oct. 9, 1921, to Sept. 30, 1932, water-stage recorder; all at site 9 mi downstream at datum 1.00 ft lower. Since Oct. 1, 1929, water-stage recorder at present site and datum.

REMARKS.--Records good. Flow regulated by powerplants and by First Connecticut and Second Connecticut Lakes, Lake Francis, Moore and Comerford Reservoirs, and other reservoirs, combined usable capacity, about 43,400,000,000 ft³.

AVERAGE DISCHARGE.--86 years, 13,870 ft³/s.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 236,000 ft³/s, Mar. 19, 1936, gage height, 49.2 ft, from floodmarks; minimum daily, 215 ft³/s, Aug. 31, Sept. 1, 1958.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 91,100 ft³/s, Mar. 18, gage height, 30.30 ft; minimum daily, 2,170 ft³/s, July 22.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	5170	19300	17400	5870	15500	18800	17700	20300	16100	8880	7320	3930
2	8870	24100	11900	8520	14800	18300	23700	20800	13800	12800	8090	4110
3	11500	21400	9130	9220	14600	18900	27700	16700	12200	13700	6610	4510
4	11300	23300	11300	9320	11400	18600	58300	17100	12400	13700	2880	5820
5	9700	16800	11500	10700	12000	18300	58600	17400	15500	13500	2390	6410
6	8150	18000	11500	9530	11900	18400	48900	17500	13700	12700	5360	5460
7	6430	18200	11700	7160	13700	16700	38600	24000	16200	14000	25500	4400
8	6320	18200	11400	8190	15300	12800	31900	19000	9890	13800	41900	3840
9	6250	24200	9470	8490	15200	10900	28400	15900	9560	9610	34300	2590
10	6850	28300	6060	6920	16300	13900	26900	16700	8860	12000	30200	5900
11	8630	29300	10100	6850	17200	14700	39800	24100	10600	9890	40100	7560
12	9210	24200	13300	7370	23100	23300	56900	30700	16300	9300	40400	6390
13	9170	21200	10200	6210	20300	30900	48800	26400	19800	9100	35600	5960
14	7780	20200	9520	4940	17000	40100	38500	40800	15400	4630	37900	4740
15	5080	18400	8550	6870	19200	46800	27600	51500	14800	2330	42000	5340
16	8080	22700	6160	7390	18300	57600	29900	39400	11200	4300	29300	3790
17	11100	29800	4920	6790	15100	73700	33700	41000	6160	9500	22500	5550
18	17100	28700	8970	8060	15500	87500	32900	46700	8850	7240	17300	6000
19	19500	24000	10400	9890	14100	74300	32600	39000	9490	8570	13400	8350
20	28300	23100	8670	12100	14900	77400	27000	28200	10500	5710	13800	6040
21	65800	22400	9530	10800	15200	79100	29000	40200	13200	4050	13100	6040
22	51100	25100	10100	9690	14200	71500	22200	42300	15200	2170	12800	5310
23	34900	19500	7830	9450	22600	60600	25000	33800	14500	6860	10100	3700
24	36600	15500	6240	9930	36500	46300	25200	29300	16100	13300	11600	7350
25	30300	14500	4860	14200	31000	39300	24800	27300	21200	13700	9140	7420
26	26300	11100	6970	16700	25200	35500	22100	21900	18800	16700	10800	8630
27	19200	13500	10500	27200	21300	33700	22200	18300	15100	12300	11400	7340
28	16900	17100	8510	22400	18600	27000	19700	17000	13100	4380	10900	6670
29	12300	17900	6890	22300	---	25400	19600	17200	8400	4240	11200	5500
30	13600	17000	5450	17700	---	29900	21100	20600	9510	7580	10100	6090
31	14400	---	4740	18700	---	19300	---	23000	---	6600	6910	---
TOTAL	525890	627000	283770	339460	500000	1159500	959300	844100	396420	287140	574900	170740
MEAN	16960	20900	9154	10950	17860	37400	31980	27230	13210	9263	18550	5691
MAX	65800	29800	17400	27200	36500	87500	58600	51500	21200	16700	42000	8630
MIN	5080	11100	4740	4940	11400	10900	17700	15900	6160	2170	2390	2590

CAL YR 1989 TOTAL 5577700 MEAN 15280 MAX 75600 MIN 2270
WTR YR 1990 TOTAL 6668220 MEAN 18270 MAX 87500 MIN 2170

CONNECTICUT RIVER BASIN

137

01171300 FORT RIVER NEAR AMHERST, MA

LOCATION.--Lat 42°21'30", long 72°30'23", Hampshire County, Hydrologic Unit 01080201, on left bank 400 ft downstream from Southeast Street Bridge, 600 ft downstream from Hop Brook, and 1.3 mi southeast of Amherst.

DRAINAGE AREA.--36.3 mi², excludes 5.16 mi², drained by Nurse and Dean Brooks, flow of which is diverted from basin.

PERIOD OF RECORD.--Discharge: June 1966 to current year.

Water-quality records: Water years 1971, 1973.

REVISED RECORDS.--WDR MA-RI-84-1: 1968-69(M), 1970(P), 1974-77(M), 1979(M), 1980(P), 1983(M), drainage area.

GAGE.--Water-stage recorder. Elevation of gage is 147 ft above National Geodetic Vertical Datum of 1929, from topographic map. Prior to May 10, 1974, at site 400 ft upstream at same datum.

REMARKS.--Records good except those for estimated daily discharges, which are poor. Diversions upstream for municipal supply of Amherst.

AVERAGE DISCHARGE.--24 years, 58.8 ft³/s.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 2,100 ft³/s, Mar. 6, 1979, gage height, 9.94 ft; minimum, 1.9 ft³/s, Sept. 3, 1966, Sept. 6, 7, 1981.

EXTREMES OUTSIDE PERIOD OF RECORD.--Floods in March 1936 and September 1938 reached discharges of 2,360 ft³/s and 1,640 ft³/s, respectively, by computation of flow over dam 1.2 mi downstream.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 500 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
Oct. 21	0230	*1,740	*9.00	Aug. 11	0615	770	5.79
Apr. 4	1200	581	4.98				

Minimum discharge, 6.7 ft³/s, Aug. 5.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	37	111	64	e66	143	e84	85	53	85	24	8.5	22
2	67	100	e55	e70	177	80	82	48	58	21	8.1	21
3	153	92	44	e45	201	86	110	44	49	18	7.6	19
4	103	95	e42	e35	140	84	443	42	53	16	7.5	18
5	71	81	39	e45	e100	74	268	86	49	14	7.3	18
6	58	74	39	e40	e80	61	158	84	42	14	12	18
7	51	67	42	e35	74	e62	119	62	40	14	107	17
8	45	65	41	e30	72	e65	96	59	37	13	200	18
9	41	120	e39	e30	94	61	84	56	36	14	81	17
10	34	154	e35	e32	213	63	78	63	37	18	69	16
11	41	119	e32	e35	214	88	105	208	33	14	623	16
12	43	92	e30	e35	144	172	93	131	32	24	304	17
13	38	79	e27	e33	100	189	74	164	28	33	132	16
14	34	73	e22	e30	98	177	66	210	26	25	96	16
15	114	73	e20	e25	97	156	106	145	26	17	68	22
16	100	121	e22	e26	122	138	126	115	24	16	50	26
17	94	181	e27	e35	152	133	99	215	21	14	37	20
18	119	126	e27	e50	e130	258	85	244	20	14	31	18
19	97	95	e26	e58	103	187	73	162	20	12	47	17
20	432	84	e27	e43	80	243	65	120	20	11	65	21
21	1100	82	e25	e40	e73	285	75	178	20	11	52	21
22	341	73	e22	e38	78	173	79	162	20	11	39	18
23	198	69	e20	37	209	130	69	117	28	20	30	20
24	157	67	e18	35	298	100	61	89	43	15	36	17
25	129	64	e18	45	e180	85	65	73	29	14	88	16
26	115	68	e19	181	e140	77	79	64	23	12	67	15
27	98	70	e18	194	e105	70	69	56	20	12	49	14
28	85	82	e16	132	87	66	57	54	19	10	39	14
29	80	97	e16	98	---	66	51	55	17	9.0	35	14
30	76	70	e17	292	---	66	51	174	29	9.1	29	13
31	76	---	e30	223	---	84	---	132	---	8.8	25	---
TOTAL	4227	2744	919	2113	3704	3663	3071	3465	984	477.9	2450.0	535
MEAN	136	91.5	29.6	68.2	132	118	102	112	32.8	15.4	79.0	17.8
MAX	1100	181	64	292	298	285	443	244	85	33	623	26
MIN	34	64	16	25	72	61	51	42	17	8.8	7.3	13

CAL YR 1989 TOTAL 28948.6 MEAN 79.3 MAX 1100 MIN 8.1
WTR YR 1990 TOTAL 28352.9 MEAN 77.7 MAX 1100 MIN 7.3

e Estimated

CONNECTICUT RIVER BASIN

01171500 MILL RIVER AT NORTHAMPTON, MA

LOCATION.--Lat 42°19'05", long 72°39'21", Hampshire County, Hydrologic Unit 01080201, on right bank at Northampton 3.5 mi upstream from mouth.

DRAINAGE AREA.--54.0 mi².

PERIOD OF RECORD.--Discharge: October 1938 to current year. October 1938 monthly discharge only, published in WSP 1301.

Water-quality records: Water years 1957-59, 1971, 1973.

REVISED RECORDS.--WSP 921: 1940. WSP 1231: 1940-42(M), 1944-45(M), 1948(M), 1949.

GAGE.--Water-stage recorder and concrete control. Elevation of gage is 140 ft above National Geodetic Vertical Datum of 1929, from topographic map.

REMARKS.--Records good except those for estimated daily discharges, which are poor. Prior to 1956, flow regulated by mill upstream.

AVERAGE DISCHARGE.--52 years, 97.0 ft³/s, 24.39 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 6,300 ft³/s, Aug. 19, 1955, gage height, 11.78 ft, from rating curve extended above 3,700 ft³/s on basis of computation of peak flow over dam; minimum, 2.2 ft³/s, Oct. 1, 1950; minimum daily, 4.2 ft³/s, Aug. 21, 23, 24, 1957.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 1,300 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
Oct. 20	2230	*3,530	*8.81	Apr. 4	0630	1,490	5.30
Mar. 20	1300	1,720	5.69				

Minimum discharge, 8.0 ft³/s, Aug. 5, 6.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	32	e300	e100	e60	102	e120	167	94	143	40	12	39
2	69	e250	e70	e80	131	e110	164	82	114	57	11	36
3	118	e170	e82	e66	143	e100	339	74	104	39	11	34
4	60	e150	e70	e60	127	e92	929	71	127	31	9.9	31
5	45	e135	e66	e62	122	e82	369	185	103	26	8.4	30
6	41	e120	e62	e58	118	e73	262	149	88	24	21	30
7	39	e110	e60	e52	96	e68	224	110	84	22	254	30
8	33	e120	e58	e47	96	e66	199	117	74	20	96	29
9	31	e190	e57	e45	102	e68	179	101	72	e20	44	26
10	30	e200	e56	44	161	e70	171	143	83	e25	115	26
11	52	e140	e52	44	148	e130	228	325	71	e25	615	26
12	49	e110	e47	43	121	397	173	168	68	e50	208	32
13	41	e100	e44	e43	111	373	146	260	58	e90	105	29
14	38	e96	e40	e41	110	427	135	310	52	e54	105	26
15	145	e96	e35	39	110	414	191	195	55	e40	69	48
16	93	e350	e35	38	142	383	180	204	48	e32	51	44
17	124	e320	e36	42	167	431	149	439	42	e26	43	31
18	159	e220	e37	69	129	582	136	391	39	e21	38	27
19	122	e170	e37	74	120	287	121	239	91	20	101	26
20	1180	e150	e36	57	107	866	116	210	116	16	112	33
21	1130	e170	e34	e52	105	500	131	414	79	14	65	28
22	365	e130	e33	e49	114	297	126	279	59	19	51	28
23	270	e125	e32	e47	346	238	111	214	62	24	48	46
24	206	e120	e30	46	404	196	101	187	60	28	99	34
25	158	e120	e31	60	199	175	114	164	45	20	297	28
26	152	e115	e31	185	e180	166	145	148	40	16	128	26
27	139	e110	e31	141	e160	151	122	123	35	14	93	25
28	132	e190	e31	102	e150	140	102	116	32	16	71	24
29	e120	e150	e30	95	---	147	92	117	32	13	66	23
30	e110	e130	e30	146	---	165	93	363	56	13	51	22
31	e140	---	e32	116	---	171	---	186	---	13	44	---
TOTAL	5423	4857	1425	2103	4121	7485	5715	6178	2132	868	3042.3	917
MEAN	175	162	46.0	67.8	147	241	190	199	71.1	28.0	98.1	30.6
MAX	1180	350	100	185	404	866	929	439	143	90	615	48
MIN	30	96	30	38	96	66	92	71	32	13	8.4	22
CFSM	3.24	3.00	.85	1.26	2.73	4.47	3.53	3.69	1.32	.52	1.82	.57
IN.	3.74	3.35	.98	1.45	2.84	5.16	3.94	4.26	1.47	.60	2.10	.63

CAL YR 1989 TOTAL 38743 MEAN 106 MAX 1180 MIN 15 CFSM 1.97 IN. 26.69
WTR YR 1990 TOTAL 44266.3 MEAN 121 MAX 1180 MIN 8.4 CFSM 2.25 IN. 30.49

e Estimated

CONNECTICUT RIVER BASIN

139

01172003 CONNECTICUT RIVER BELOW HOLYOKE DAM AT HOLYOKE, MA

LOCATION.--Lat 42°12'36", long 72°35'44", Hampden County, Hydrologic Unit 01080201, on right bank 2,200 ft downstream from dam of Holyoke Water Power Co. in Holyoke, and at mile 86.

DRAINAGE AREA.--8,309 mi².

PERIOD OF RECORD.--December 1983 to current year.

GAGE.--Water-stage recorder. Datum of gage is 43.28 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Records good except those for estimated daily discharges, which are fair. Flow regulated by powerplants, by First Connecticut and Second Connecticut Lakes, Lake Francis, Moore and Comerford Reservoirs and other reservoirs, combined usable capacity, about 44 billion ft³. Records do not include water diverted around gage by Holyoke Water Power Co. for industrial use.

AVERAGE DISCHARGE.--6 years (water years 1985-90), 11,360 ft³/s.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 153,000 ft³/s, June 1, 1984, gage height, 25.62 ft; minimum daily, 519 ft³/s, Sept. 30, 1984.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum discharge since at least 1854, 244,000 ft³/s, Mar. 20, 1936, gage height, 35.0 ft, from floodmarks.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 91,200 ft³/s, Mar. 18, gage height, 17.90 ft; minimum daily, 2,110 ft³/s, July 22.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3170	15000	12200	3610	13000	14900	13200	15100	14600	7870	4840	3710
2	6810	18400	9980	5420	10700	14000	15400	16300	13000	10100	7050	3160
3	9470	18400	7870	6970	11200	14300	19900	13000	12700	12300	4900	4540
4	10200	18200	7080	7330	7650	14700	45800	12700	8140	12300	3030	3840
5	9540	14600	9750	8910	7380	13700	61500	14100	9490	12200	2340	5300
6	7870	12900	9400	9290	8160	13500	51000	13800	9360	11600	3080	5120
7	5200	13300	10300	6810	8720	12400	37300	16600	9550	12200	11300	3570
8	6210	13200	9840	6730	10400	9080	28900	16900	9120	12200	29100	3290
9	4610	15400	8520	7550	10100	8500	24400	12400	6220	10100	29200	2530
10	6110	23200	6980	7280	11600	9250	21200	12200	8720	9280	24400	3470
11	6760	25000	6330	6370	13100	9710	27400	17500	8980	9330	29700	5760
12	7780	20600	10300	6260	15800	13800	47400	23900	9680	7560	36000	6420
13	7920	18100	9930	5980	17100	25700	48400	23500	13500	8590	30700	5530
14	7580	15600	7960	4870	14500	31100	36600	29100	11600	4920	27800	3770
15	5600	14600	8030	4400	13900	46600	25300	47400	9700	3010	35000	4240
16	6420	14300	5240	6380	14200	49200	23700	38900	9210	2220	27100	3390
17	8430	24800	4870	5980	12900	68700	26800	36200	5930	6280	18200	4460
18	12300	25100	4290	6240	10500	85900	27000	44900	5160	6120	14100	5200
19	13300	21300	8340	7520	10000	83200	26600	39700	5430	7220	12700	5220
20	20100	18100	7610	11000	9340	75300	22900	26100	7940	5350	11400	6500
21	63200	17900	7250	10100	10300	84600	21900	31300	8080	4450	10800	3500
22	60200	20000	7770	8960	9330	76300	18100	41000	9680	2110	9700	3790
23	38000	17200	7820	7490	13400	66300	17400	32100	11300	3710	8910	3470
24	33000	11800	5430	7900	16700	49300	19200	27100	10100	8870	7750	5370
25	31100	10100	4440	8690	e26000	37600	17800	23800	14800	9330	7960	5730
26	25600	9030	3650	10800	e27000	32300	17100	19600	13900	9020	9070	5510
27	21300	9290	5600	20000	e21000	28600	15500	15600	11300	9160	9270	7150
28	16600	10800	6970	20000	16200	23900	14200	14800	10500	4530	8080	4210
29	14500	12800	5700	18700	---	21200	18600	13700	6820	3270	9100	3700
30	11600	12000	4190	16500	---	22600	15600	15700	9190	4960	8750	4490
31	13600	---	3580	15000	---	18100	---	18000	---	4940	6780	---
TOTAL	494080	491020	227220	279040	370180	1074340	806100	723000	293700	235100	458110	135940
MEAN	15940	16370	7330	9001	13220	34660	26870	23320	9790	7584	14780	4531
MAX	63200	25100	12200	20000	27000	85900	61500	47400	14800	12300	36000	7150
MIN	3170	9030	3580	3610	7380	8500	13200	12200	5160	2110	2340	2530

CAL YR 1989 TOTAL 4822470 MEAN 13210 MAX 76800 MIN 2000
WTR YR 1990 TOTAL 5587830 MEAN 15310 MAX 85900 MIN 2110

e Estimated

CONNECTICUT RIVER BASIN

01172500 WARE RIVER NEAR BARRE, MA

LOCATION.--Lat 42°25'30", long 72°01'30" Worcester County, Hydrologic Unit 01080204, on left bank 700 ft downstream from Barre Falls Reservoir, 1.6 mi upstream from Burnshirt River, 4 mi east of Barre, and at mile 33.3.

DRAINAGE AREA.--55.1 mi².

PERIOD OF RECORD.--Discharge: July 1946 to current year.
Water-quality records: Water year 1957.

REVISED RECORDS.--WDR MA-RI-84-1: Drainage area. WDR MA-RI-89-1: 1984-88.

GAGE.--Water-stage recorder. Elevation of gage is 745 ft above National Geodetic Vertical Datum of 1929, from topographic map.

REMARKS.--Records good except those for estimated daily discharges, which are fair. Prior to August 1955, slight regulation at low flow at times by Long Pond. Flow regulated by Barre Falls Reservoir (Reservoirs in Connecticut River basin) since 1958. Diversion at times since 1955 from 6.5 mi² upstream of station for municipal supply of Fitchburg.

AVERAGE DISCHARGE.--44 years, 94.8 ft³/s, 23.36 in/yr, adjusted for storage.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 1,890 ft³/s, Oct. 16, 1955, gage height, 6.31 ft; minimum, 0.10 ft³/s, Oct. 5, 1989; minimum daily, 0.5 ft³/s, Sept. 11, 1963. Maximum discharge since construction of Barre Falls Reservoir in 1958, 1,300 ft³/s, Oct. 23, 1989, gage height, 5.30 ft; maximum gage height, 5.62 ft, Mar. 14, 1979.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,300 ft³/s, Oct. 23, gage height, 5.30 ft; minimum, 0.10 ft³/s, Oct. 5; minimum daily, 1.5 ft³/s, Aug. 5.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	85	147	143	e30	e229	e253	133	117	248	35	3.2	31
2	84	149	139	e30	e199	e204	164	117	184	31	2.4	26
3	142	147	121	e55	e222	e173	177	101	147	27	2.2	22
4	154	176	98	e54	e241	e146	261	89	127	23	1.9	18
5	127	172	e66	e64	e215	e145	383	116	113	19	1.5	16
6	108	150	e58	e67	e176	e138	306	142	97	15	2.5	15
7	92	136	58	e67	e129	e141	239	128	89	13	24	14
8	79	127	59	e67	e114	e135	196	113	84	11	87	12
9	69	150	59	e64	118	e114	166	102	75	10	78	10
10	61	208	59	e55	120	e114	150	100	72	9.1	47	9.6
11	63	202	59	e50	e214	e114	187	251	68	8.0	94	9.2
12	67	167	59	e41	245	e128	232	294	66	11	174	9.8
13	66	140	59	e37	241	e229	209	270	62	18	241	11
14	60	124	e45	e37	e203	e277	169	343	50	17	257	9.6
15	102	122	e40	e37	182	292	179	321	42	14	286	17
16	83	160	e40	e37	182	293	251	268	35	12	278	27
17	12	272	e40	e37	e182	291	235	324	31	9.9	73	26
18	142	275	e40	e37	e156	292	215	375	29	8.3	48	21
19	259	217	e41	e37	e140	e328	189	339	26	7.0	54	18
20	254	180	e40	e37	e133	e349	161	278	25	6.1	72	18
21	192	159	e40	e46	e105	e349	168	291	24	6.4	60	16
22	419	117	e40	e49	e97	e339	202	324	24	5.9	47	16
23	725	104	e41	e49	195	e269	182	286	35	6.0	49	15
24	707	105	e46	e49	380	e206	152	244	94	7.2	45	14
25	653	109	e35	e49	446	e167	140	207	90	8.3	165	13
26	273	114	e34	e50	457	156	140	177	60	7.8	198	11
27	224	135	e30	e111	457	156	133	157	44	7.2	143	10
28	194	143	e31	e177	e311	e144	122	138	34	6.1	95	9.2
29	171	143	e31	e182	---	133	112	126	27	5.3	67	8.4
30	154	143	e31	e182	---	133	110	227	34	4.5	49	8.1
31	141	---	e30	e182	---	133	---	305	---	3.8	38	---
TOTAL	5962	4693	1712	2066	6089	6341	5663	6670	2136	372.9	2782.7	460.9
MEAN	192	156	55.2	66.6	217	205	189	215	71.2	12.0	89.8	15.4
MAX	725	275	143	182	457	349	383	375	248	35	286	31
MIN	12	104	30	30	97	114	110	89	24	3.8	1.5	8.1
MEAN†	193	166	52.5	76.3	209	201	182	216	69.9	11.7	90.0	15.2
CFSM†	3.50	3.01	.95	1.38	3.79	3.65	3.30	3.92	1.27	.21	1.63	.28
IN.†	4.03	3.37	1.10	1.60	3.96	4.21	3.69	4.52	1.42	.24	1.88	.31

CAL YR 1989 TOTAL 43661.2 MEAN 120 MAX 725 MIN 8.2 MEAN† 119 CFSM† 2.16 IN.† 29.43
WTR YR 1990 TOTAL 44948.5 MEAN 123 MAX 725 MIN 1.5 MEAN† 123 CFSM† 2.23 IN.† 30.34

e Estimated

† Adjusted for change in contents in Barre Falls Reservoir.

CONNECTICUT RIVER BASIN

141

01173000 WARE RIVER AT INTAKE WORKS, NEAR BARRE, MA

LOCATION.--Lat 42°23'26", long 72°03'39", Worcester County, Hydrologic Unit 01080204, on right bank above diversion dam at Ware River intake works, 2.7 mi downstream from Burnshirt River, 3 mi southeast of Barre, and at mile 29.1.

DRAINAGE AREA.--96.3 mi².

PERIOD OF RECORD.--January 1928 to current year. Prior to October 1977, published as Ware River at Coldbrook.

REVISED RECORDS.--WSP 1031: 1944. WDR MA-RI-84-1: Drainage area.

GAGE.--Venturi meters and water-stage recorder. Datum of gage is 5.65 ft below National Geodetic Vertical Datum of 1929. Prior to Feb. 1, 1936, water-stage recorder at site 0.2 mi downstream at datum 631.91 ft above NGVD.

REMARKS.--No estimated daily discharges. Records good. Figures of discharge include diversion as needed for Boston metropolitan district during period Oct. 15 to June 14 of each year and at other times for emergency flood-control purposes as authorized by U. S. Army Corps of Engineers; diversion began in March 1931. Flow regulated by Barre Falls Reservoir 4.3 mi upstream (Reservoirs in Connecticut River basin) since 1958. Diversion at times since 1955 from 6.5 mi² upstream for municipal supply of Fitchburg.

COOPERATION.--Computations of daily discharge made in cooperation with Water Division, Metropolitan District Commission, which collected gage-height and venturi-meter records.

AVERAGE DISCHARGE.--62 years, 167 ft³/s, 23.55 in/yr, adjusted for storage.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 14,000 ft³/s, Sept. 21, 1938, gage height, 664.28 ft, by computation of flow over dam; minimum daily, 0.46 ft³/s, Sept. 15, 1987, caused by unusual regulation. Maximum daily discharge since construction of Barre Falls Reservoir in 1958, 1,590 ft³/s, Apr. 14, 1987.

EXTREMES FOR CURRENT YEAR.--Maximum daily discharge, 937 ft³/s, Oct. 23; minimum daily, 13 ft³/s, Aug. 5.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	139	243	190	88	312	318	222	233	360	60	16	55
2	169	223	200	87	304	298	275	181	280	60	15	50
3	253	247	170	95	342	263	302	151	233	56	14	45
4	221	307	141	101	312	225	481	149	201	47	14	66
5	161	261	135	112	274	228	542	232	174	47	13	42
6	146	229	130	114	250	201	416	229	154	42	16	39
7	124	205	128	111	172	179	337	193	137	41	43	37
8	109	200	118	109	166	171	287	184	143	40	147	35
9	98	318	114	106	193	172	256	138	135	29	104	32
10	90	347	115	97	309	183	248	270	134	30	72	29
11	95	303	115	95	407	230	339	502	130	30	337	28
12	97	245	112	84	369	357	339	406	123	41	302	28
13	93	209	108	77	348	453	297	500	115	61	303	28
14	100	188	89	76	299	496	255	602	102	52	302	28
15	207	212	83	74	280	492	354	482	79	42	298	48
16	88	365	88	75	287	493	389	447	79	47	262	56
17	125	455	86	76	266	512	351	591	73	36	100	49
18	292	377	88	92	239	565	319	622	69	28	73	42
19	333	326	87	88	223	540	282	519	48	25	106	37
20	598	281	87	83	182	570	253	450	44	23	107	37
21	734	253	85	90	159	556	309	533	36	24	87	36
22	859	186	80	96	215	495	321	552	43	22	73	34
23	937	173	77	94	580	396	279	474	121	22	73	34
24	859	151	76	93	744	320	238	395	171	26	112	31
25	722	181	68	102	623	279	231	339	130	27	254	30
26	378	195	67	158	570	264	229	292	96	26	224	27
27	322	207	66	270	561	253	209	256	77	23	166	26
28	293	252	65	277	439	231	178	234	63	22	130	25
29	258	240	64	282	---	215	160	253	60	21	97	24
30	230	227	66	314	---	214	155	482	72	19	77	23
31	220	---	70	280	---	234	---	471	---	18	70	---
TOTAL	9350	7606	3168	3896	9425	10403	8853	11362	3682	1087	4007	1101
MEAN	302	254	102	126	337	336	295	367	123	35.1	129	36.7
MAX	937	455	200	314	744	570	542	622	360	61	337	66
MIN	88	151	64	74	159	171	155	138	36	18	13	23
MEAN†	302	263	99.5	135	328	332	289	367	121	34.7	130	36.5
CFSM†	3.14	2.73	1.03	1.40	3.41	3.45	3.00	3.81	1.26	.36	1.35	.38
IN.†	3.61	3.05	1.19	1.62	3.55	3.98	3.35	4.40	1.41	.42	1.55	.42

CAL YR 1989 TOTAL 72668 MEAN 199 MAX 937 MIN 25 MEAN† 199 CFSM† 2.07 IN.† 28.05
WTR YR 1990 TOTAL 73940 MEAN 203 MAX 937 MIN 13 MEAN† 203 CFSM† 2.11 IN.† 28.56

† Adjusted for change in contents in Barre Falls Reservoir.

CONNECTICUT RIVER BASIN

01173500 WARE RIVER AT GIBBS CROSSING, MA

LOCATION.--Lat 42°14'10", long 72°16'23", Hampshire County, Hydrologic Unit 01080204, on right bank 0.5 mi upstream from Gibbs Crossing, 1.8 mi upstream from Beaver Brook, 2.5 mi southwest of Ware, and 8.8 mi upstream from mouth.

DRAINAGE AREA.--197 mi².

PERIOD OF RECORD.--Discharge: August 1912 to current year.
Water-quality records: Water years 1953-54.

WSP 1301: 1914(M). WDR MA-RI-84-1: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 379.79 ft above National Geodetic Vertical Datum of 1929. Prior to Mar. 1, 1930, at site 0.5 mi downstream at different datum.

REMARKS.--Records fair except those for estimated daily discharges, which are poor. Diversion at times: Since March 1931 from 96.3 mi² for supply of Boston metropolitan district and since 1955 from 6.5 mi² for municipal supply of Fitchburg. Regulation by Barre Falls Reservoir (Reservoirs in Connecticut River basin) since 1958. Flow regulated by mills upstream.

AVERAGE DISCHARGE.--18 years, (water years 1913-30), 313 ft³/s, 21.36 in/yr; 60 years (water years 1931-90), affected by diversion and storage, 283 ft³/s.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 22,700 ft³/s, Sept. 21, 1938, gage height, 18.2 ft, from floodmarks, from rating curve extended above 4,600 ft³/s on basis of contracted-opening measurement at gage height 12.83 ft and slope-area measurement at gage height 18.2 ft; minimum, 5.0 ft³/s, Oct. 26, 1914; minimum daily, 6.0 ft³/s, Oct. 4, 1914. Maximum discharge since construction of Barre Falls Reservoir in 1958, 5,050 ft³/s, Mar. 6, 1979, gage height, 7.94 ft.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 3,430 ft³/s, Oct. 21, gage height, 6.70 ft; minimum daily, 47 ft³/s, Aug. 6.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	313	451	388	e220	537	e500	484	390	512	152	52	132
2	336	432	e350	e250	675	491	468	367	428	127	53	111
3	703	448	e350	e180	842	422	492	292	380	94	53	111
4	664	530	e400	e180	634	443	843	322	365	113	53	106
5	499	471	e320	e220	e520	375	743	440	304	89	55	109
6	407	432	e290	e190	e500	361	542	451	336	63	47	108
7	387	412	e260	e210	415	e330	470	382	292	67	190	91
8	290	400	e240	e210	379	e280	426	360	308	93	669	118
9	299	528	e230	e200	406	329	403	314	278	66	385	91
10	238	729	e220	e230	948	349	384	353	291	86	279	79
11	240	575	e210	e210	956	405	496	981	254	53	942	110
12	270	484	e200	e190	608	607	494	689	260	101	1320	87
13	256	429	e200	e180	487	679	406	758	221	106	889	91
14	234	396	e190	e170	493	639	374	1040	192	98	876	88
15	512	425	e170	e120	466	556	503	783	185	110	706	118
16	618	610	e170	e140	523	595	678	652	116	87	593	121
17	448	898	e170	e170	591	565	517	966	166	57	496	79
18	522	666	e170	e190	507	826	487	1040	128	77	231	125
19	464	538	e175	e240	438	760	422	828	118	58	203	108
20	948	491	e180	233	432	747	390	675	164	57	306	122
21	2850	477	e140	176	436	852	456	841	104	60	273	93
22	1440	438	e125	296	373	695	525	820	71	56	197	65
23	912	418	e135	259	962	608	447	686	128	56	151	97
24	725	e389	e150	187	1480	511	364	598	404	59	168	81
25	620	e394	e125	230	866	493	369	489	345	75	476	91
26	548	405	e115	787	e680	501	372	473	214	64	643	87
27	499	425	e125	868	e540	399	373	434	168	64	507	73
28	456	473	e125	536	e500	430	330	385	138	62	383	90
29	444	516	e115	433	---	397	328	396	107	61	255	73
30	422	446	e110	939	---	430	327	801	130	62	201	99
31	395	---	e120	772	---	448	---	719	---	61	145	---
TOTAL	17959	14726	6268	9416	17194	16023	13913	18725	7107	2434	11797	2954
MEAN	579	491	202	304	614	517	464	604	237	78.5	381	98.5
MAX	2850	898	400	939	1480	852	843	1040	512	152	1320	132
MIN	234	389	110	120	373	280	327	292	71	53	47	65

CAL YR 1989 TOTAL 120104 MEAN 329 MAX 2850 MIN 39
WTR YR 1990 TOTAL 138516 MEAN 379 MAX 2850 MIN 47

e Estimated

CONNECTICUT RIVER BASIN

143

01174500 EAST BRANCH SWIFT RIVER NEAR HARDWICK, MA

LOCATION.--Lat 42°23'36", long 72°14'21", Worcester County, Hydrologic Unit 01080204, on left bank 100 ft above spillway of regulating dam and 4.6 mi northwest of Hardwick.

DRAINAGE AREA.--43.7 mi².

PERIOD OF RECORD.--Discharge: January 1937 to current year. Published as "near Dana" January 1937 to September 1939. Water-quality records: Water year 1957.

GAGE.--Water-stage recorder. Concrete spillway since Mar. 12, 1940. Datum of gage is 504.70 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Records fair.

AVERAGE DISCHARGE.--53 years, 69.8 ft³/s, 21.69 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 6,780 ft³/s, Sept. 21, 1938, average of slope-area and contracted-opening measurements; maximum gage height since construction of concrete spillway in 1940, 22.49 ft June 25, 1944; no flow at times during several years.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 350 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
Oct. 21	0800	*970	*21.09	Feb. 24	1000	443	20.36

Minimum discharge, 0.55 ft³/s, Aug. 4, 5.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	46	98	93	37	102	69	88	75	137	19	2.7	21
2	53	97	73	44	105	62	95	80	100	18	1.3	19
3	149	99	70	42	151	65	100	73	80	15	.97	17
4	138	120	61	39	138	63	183	63	72	13	.78	14
5	93	116	53	38	109	51	225	84	66	12	.64	13
6	72	111	53	42	85	44	173	99	55	10	1.6	13
7	63	102	58	45	77	34	134	88	51	8.6	20	13
8	56	94	53	42	68	30	108	78	43	6.6	93	13
9	48	122	47	41	65	30	91	71	41	5.8	72	10
10	43	180	43	40	126	32	84	68	38	5.8	50	8.8
11	49	155	42	42	214	44	108	170	35	4.9	142	8.0
12	55	126	42	43	167	92	129	188	31	8.1	209	8.1
13	60	103	40	41	121	135	113	179	28	12	122	8.5
14	54	93	35	37	101	170	94	255	25	10	86	8.7
15	92	92	31	35	106	168	109	214	21	9.0	57	14
16	118	131	34	34	120	161	154	161	19	8.4	39	18
17	116	248	33	34	113	162	140	219	18	7.6	29	17
18	151	200	32	42	97	246	128	272	16	6.3	23	14
19	145	148	30	52	86	258	106	226	16	5.1	28	13
20	215	121	29	47	74	214	91	169	15	4.5	33	15
21	858	113	30	51	61	264	101	194	14	4.5	30	14
22	515	98	31	49	64	204	120	218	13	4.3	26	14
23	300	98	25	42	195	133	107	175	23	6.9	23	14
24	212	87	23	38	412	91	88	138	41	9.9	24	13
25	166	83	20	40	285	76	78	115	33	10	51	12
26	141	83	20	104	167	69	81	101	24	9.1	67	10
27	125	85	24	203	99	61	79	87	18	8.4	57	9.9
28	113	93	23	152	84	72	73	76	15	6.4	45	9.4
29	102	120	23	112	---	74	68	75	13	5.0	36	9.5
30	97	108	25	146	---	70	66	159	19	4.1	30	9.5
31	92	---	27	135	---	80	---	197	---	3.5	25	---
TOTAL	4537	3524	1223	1889	3592	3324	3314	4367	1120	261.8	1424.99	381.4
MEAN	146	117	39.5	60.9	128	107	110	141	37.3	8.45	46.0	12.7
MAX	858	248	93	203	412	264	225	272	137	19	209	21
MIN	43	83	20	34	61	30	66	63	13	3.5	.64	8.0
CFSM	3.35	2.69	.90	1.39	2.94	2.45	2.53	3.22	.85	.19	1.05	.29
IN.	3.86	3.00	1.04	1.61	3.06	2.83	2.82	3.72	.95	.22	1.21	.32

CAL YR 1989 TOTAL 31095.2 MEAN 85.2 MAX 858 MIN 8.1 CFSM 1.95 IN. 26.47
WTR YR 1990 TOTAL 28958.19 MEAN 79.3 MAX 858 MIN .64 CFSM 1.82 IN. 24.65

CONNECTICUT RIVER BASIN

01174600 CADWELL CREEK NEAR PELHAM, MA

LOCATION.--Lat 42°21'16", long 72°23'18", Hampshire County, Hydrologic Unit 01080204, on left bank 0.8 mi east of Knights Corner, 2 mi upstream from mouth, 2.7 mi south of Pelham, and 5 mi north of Belchertown.

DRAINAGE AREA.--0.60 mi².

PERIOD OF RECORD.--July 1961 to current year.

REVISED RECORDS.--WDR MA-RI-84-1: 1962(M), 1964(M), 1968-69(M), 1970(P), 1972-73(P), 1974(M), 1975-77(P), 1979-80(P), 1982-83(P), Drainage area.

GAGE.--Water-stage recorder and concrete control with V-notch sharp-crested weir. Elevation of gage is 860 ft above National Geodetic Vertical Datum of 1929, from topographic map.

REMARKS.--Records good except those for estimated daily discharges, which are fair.

AVERAGE DISCHARGE.--29 years, 1.15 ft³/s, 26.03 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 65 ft³/s, Oct. 20, 1989, gage height, 5.29 ft; no flow at times.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 19 ft³/s, and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
Oct. 20	2015	*65	*5.29	Apr. 4	0400	23	4.64

Minimum discharge, 0.01 ft³/s, Aug. 1-6.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.35	1.5	.95	1.3	2.0	1.2	1.7	1.0	1.4	.16	.02	.11
2	3.9	1.1	.77	.63	4.2	1.2	1.8	.81	1.0	.12	.01	.11
3	4.1	1.5	.78	.50	3.6	1.4	3.4	.71	.89	.09	.02	.08
4	1.6	1.5	.67	.50	2.2	1.4	13	.64	.85	.08	.01	.06
5	.96	1.1	.59	.65	1.7	1.0	4.5	2.7	.68	.06	.01	.06
6	.94	1.1	.61	.54	1.4	.91	2.6	1.8	.56	.06	.03	.07
7	.73	1.0	.72	.46	1.2	.85	2.0	1.3	.63	.05	3.2	.08
8	.56	1.1	.51	.42	1.2	.80	1.7	1.5	.51	.05	1.3	.06
9	.49	3.7	.43	.41	1.9	.84	1.5	1.1	.53	.05	.43	.06
10	.43	2.9	.42	.47	6.9	1.1	1.4	3.0	.51	.04	2.1	.07
11	1.1	1.7	.46	.51	4.5	1.8	2.7	6.5	.41	.04	5.6	.06
12	.75	1.3	.42	.51	2.3	4.3	1.9	2.5	.39	.13	2.8	.06
13	.57	1.1	.35	.46	1.7	3.9	1.5	5.6	.29	.14	1.0	.05
14	.55	1.0	e.30	.42	1.8	3.2	1.3	5.9	.26	.15	1.1	.06
15	4.2	1.2	e.28	.34	1.7	2.5	3.0	2.9	.25	.10	.57	.12
16	2.1	3.9	.33	.37	2.4	2.2	2.4	3.2	.21	.07	.35	.14
17	2.8	3.6	.38	.52	3.5	2.3	2.0	6.5	.20	.05	.24	.12
18	3.3	1.9	.38	.98	1.9	7.2	1.8	5.2	.16	.05	.18	.11
19	2.4	1.5	.37	.77	1.6	3.3	1.4	2.9	.15	.05	.75	.10
20	22	1.3	.38	.56	1.3	6.1	1.2	2.6	.14	.04	.77	.12
21	16	1.3	.35	.53	1.0	5.3	2.1	5.4	.12	.04	.36	.11
22	4.5	1.0	.31	.49	1.5	2.8	1.7	3.4	.11	.05	.28	.12
23	2.8	1.0	.27	.46	7.7	2.1	1.3	2.3	.32	.05	.23	.17
24	2.1	.92	.25	.47	7.7	1.7	1.1	1.8	.47	.04	.49	.14
25	1.7	.88	.25	1.1	2.9	1.5	1.2	1.5	.24	.04	1.5	.09
26	1.5	1.1	.27	7.0	e2.0	1.3	1.5	1.3	.18	.03	.90	.08
27	1.3	1.1	.24	3.2	1.5	1.2	1.2	1.1	.12	.03	.54	.07
28	1.2	1.8	.23	2.0	1.3	1.1	.97	.94	.09	.03	.33	.07
29	1.1	1.6	.22	1.6	---	1.0	.93	1.3	.11	.03	.31	.08
30	.99	1.1	.25	5.7	---	1.1	1.0	4.6	.13	.03	.25	.08
31	1.0	---	.36	2.9	---	1.6	---	2.1	---	.03	.17	---
TOTAL	88.02	46.80	13.10	36.77	74.6	68.20	65.80	84.10	11.91	1.98	25.85	2.71
MEAN	2.84	1.56	.42	1.19	2.66	2.20	2.19	2.71	.40	.064	.83	.090
MAX	22	3.9	.95	7.0	7.7	7.2	13	6.5	1.4	.16	5.6	.17
MIN	.35	.88	.22	.34	1.0	.80	.93	.64	.09	.03	.01	.05
CFSM	4.73	2.60	.70	1.98	4.44	3.67	3.66	4.52	.66	.11	1.39	.15
IN.	5.46	2.90	.81	2.28	4.63	4.23	4.08	5.21	.74	.12	1.60	.17

CAL YR 1989 TOTAL 515.30 MEAN 1.41 MAX 22 MIN .01 CFSM 2.35 IN. 31.95
WTR YR 1990 TOTAL 519.84 MEAN 1.42 MAX 22 MIN .01 CFSM 2.37 IN. 32.23

e Estimated

CONNECTICUT RIVER BASIN

145

01174900 CADWELL CREEK NEAR BELCHERTOWN, MA

LOCATION.--Lat 42°20'08", long 72°22'12", Hampshire County, Hydrologic Unit 01080204, on left bank 200 ft upstream from mouth, 2 mi southeast of Knights Corner, and 4.5 mi north of Belchertown.

DRAINAGE AREA.--2.55 mi².

PERIOD OF RECORD.--July 1961 to current year.

REVISED RECORDS.--WDR MA-RI-84-1: Drainage area.

GAGE.--Water-stage recorder and concrete control with V-notch sharp-crested weir. Elevation of gage is 540 ft above National Geodetic Vertical Datum of 1929, from topographic map.

REMARKS.--Records fair except those for period of doubtful gage-height record, Nov. 27 to July 3, which are poor.

AVERAGE DISCHARGE.--29 years, 4.95 ft³/s, 26.36 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 283 ft³/s, Oct. 20, 1989, gage height, 7.39 ft, from rating curve extended above 92 ft³/s; maximum gage height, 7.42 ft, Mar. 6, 1979; minimum discharge, 0.07 ft³/s, several times in water years 1964-66.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 75 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
Oct. 20	1900	*283	*7.39	Apr. 4	unknown	80	unknown

Minimum discharge, 0.11 ft³/s, Aug. 4, 5, 6.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3.0	8.2	e4.8	e5.6	10	e6.0	e8.5	e5.0	e6.3	e1.0	.13	.83
2	15	6.5	e4.0	e4.1	e18	e6.0	e9.0	e4.5	e4.9	e.85	.13	.72
3	18	7.7	e3.8	e2.5	17	e6.8	e15	e3.7	e4.5	.66	.13	.64
4	8.6	7.9	e3.4	e2.5	12	e6.9	e56	e3.3	e4.2	.54	.13	.57
5	6.3	6.4	e3.0	e3.1	9.8	e5.5	e18	e13	e3.5	.44	.13	.54
6	5.9	6.1	e3.0	e2.8	e7.4	e4.7	e14	e9.0	e2.9	.39	.35	.55
7	4.9	5.8	e3.6	e2.5	e6.2	e4.3	e11	e6.0	e3.2	.36	12	.65
8	4.2	5.9	e2.9	e2.1	e6.0	e4.1	e9.3	e6.9	e2.6	.32	4.9	.77
9	3.8	14	e2.3	e2.0	e10	e4.1	e8.0	e5.7	e2.7	.41	1.8	.53
10	3.4	14	e2.1	e2.1	e29	e5.5	e7.0	e9.6	e2.5	.38	11	.62
11	6.0	8.9	e2.2	e2.4	20	e8.0	e13	e28	e2.0	.29	21	.55
12	4.9	7.2	e2.1	e2.5	12	e18	9.9	e11	e2.0	1.7	11	.53
13	4.2	6.2	e1.9	e2.3	8.9	16	e8.5	e24	e1.5	1.5	4.6	.51
14	3.8	5.9	e1.5	e2.0	8.5	15	e6.6	e25	e1.3	.76	5.7	.47
15	25	6.0	e1.4	e1.7	9.0	e13	e15	e13	e1.2	.62	2.9	1.6
16	13	12	e1.6	e1.8	9.9	e12	12	e14	e1.1	.54	1.8	.97
17	18	17	e1.9	e2.1	e15	e11	10	e27	e1.0	.41	1.3	.68
18	20	10	e1.9	e4.8	e10	e30	e9.3	e21	e.80	.32	1.0	.56
19	15	8.1	e1.8	e4.3	8.3	e18	e7.6	e12	e.75	.29	3.9	.51
20	108	7.2	e1.9	e3.0	6.8	e26	e6.1	e11	e.70	.24	3.5	1.2
21	67	6.8	e1.8	e2.7	e5.0	e24	e10	e23	e.60	.24	2.0	.70
22	24	6.1	e1.6	e2.5	e6.0	e18	e9.0	e15	e.55	.24	1.5	.77
23	16	5.7	e1.4	e2.3	e34	e11	e7.0	e11	e1.3	.36	1.4	1.4
24	12	5.4	e1.2	e2.3	e34	e9.0	e5.6	e8.0	e2.4	.37	2.4	.82
25	10	5.1	e1.2	e3.1	e14	e7.7	e6.0	e7.0	e1.4	.33	6.5	.67
26	9.2	5.2	e1.3	e30	e9.0	e6.9	e7.6	e6.0	e1.0	.23	4.0	.59
27	8.3	5.7	e1.2	e14	e8.0	e6.3	e6.5	e5.2	e.90	.20	2.8	.55
28	7.7	7.0	e1.2	e8.4	e7.0	e5.6	e5.1	e4.5	e.80	.20	2.1	.51
29	7.1	8.3	e1.1	e7.0	---	e5.0	e4.7	5.5	e.74	.16	1.8	.49
30	6.5	e5.6	e1.3	e24	---	e5.4	e4.9	e20	e1.2	.16	1.2	.49
31	6.4	---	e1.6	15	---	e8.0	---	e10	---	.14	.96	---
TOTAL	465.2	231.9	66.0	167.5	350.8	327.8	320.2	367.9	60.54	14.65	114.06	20.99
MEAN	15.0	7.73	2.13	5.40	12.5	10.6	10.7	11.9	2.02	.47	3.68	.70
MAX	108	17	4.8	30	34	30	56	28	6.3	1.7	21	1.6
MIN	3.0	5.1	1.1	1.7	5.0	4.1	4.7	3.3	.55	.14	.13	.47
CFSM	5.88	3.03	.83	2.12	4.91	4.15	4.19	4.65	.79	.19	1.44	.27
IN.	6.79	3.38	.96	2.44	5.12	4.78	4.67	5.37	.88	.21	1.66	.31

CAL YR 1989 TOTAL 2412.07 MEAN 6.61 MAX 108 MIN .31 CFSM 2.59 IN. 35.19
WTR YR 1990 TOTAL 2507.54 MEAN 6.87 MAX 108 MIN .13 CFSM 2.69 IN. 36.58

e Estimated

CONNECTICUT RIVER BASIN

01175500 SWIFT RIVER AT WEST WARE, MA

LOCATION.--Lat 42°16'04", long 72°19'59", Hampshire County, Hydrologic Unit 01080204, on left bank at West Ware, 1.4 mi downstream from Quabbin Reservoir, 3.5 mi east of Belchertown, and 8.0 mi upstream from mouth.

DRAINAGE AREA.--189 mi², includes 1.6 mi² drained by Beaver Brook, flow of which is diverted from Ware River basin. Prior to January 1937, 186 mi².

PERIOD OF RECORD.--Discharge: July 1910 to September 1912 (twice-daily gage heights and corresponding discharge), October 1912 to current year.
Water-quality records: Water years 1952-54.

REVISED RECORDS.--WSP 451: 1916. WSP 871: 1919. WSP 1031: 1944 (changes in reservoir contents and adjusted figures only). WSP 1301: 1925(M). WDR MA-RI-84-1: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 365.18 ft above National Geodetic Vertical Datum of 1929. Prior to Aug. 25, 1912, nonrecording gage at site 400 ft upstream at same datum.

REMARKS.--Records good. Flow regulated since August 1939 by Quabbin Reservoir (Reservoirs in Connecticut River basin). Diversion from Ware River to Quabbin Reservoir since 1940, from Quabbin Reservoir to Wachusett Reservoir since 1941, from Quabbin Reservoir to Chicopee Valley aqueduct since 1950, and from Quabbin Reservoir to city of Worcester at times since 1966.

AVERAGE DISCHARGE.--27 years (water years 1913-39) prior to completion of Quabbin Reservoir, 314 ft³/s, 22.56 in/yr; 51 years (water years 1940-90), affected by storage and diversions, 92.7 ft³/s.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 7,590 ft³/s, Mar. 19, 1936, gage height, 15.00 ft; minimum daily, 9.1 ft³/s, Dec. 15, 1968. Maximum discharge since construction of Quabbin Reservoir in 1939, 3,070 ft³/s, June 1, 1984, gage height, 11.58 ft.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 139 ft³/s, Mar. 28, gage height, 2.75 ft; maximum gage height, 2.85 ft, Dec. 27 (ice jam); minimum daily discharge, 19 ft³/s, Jan 13.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	33	32	31	32	32	31	31	31	32	32	32	30
2	36	31	32	31	36	31	31	31	32	32	32	30
3	35	32	32	31	34	23	32	32	32	31	32	30
4	34	32	32	32	34	31	34	31	32	31	31	29
5	34	31	31	32	33	32	32	33	32	30	31	32
6	34	31	32	26	32	32	31	32	31	30	32	34
7	34	31	32	28	32	32	32	31	32	30	38	30
8	34	31	32	32	33	32	32	32	31	30	31	30
9	33	34	27	32	34	32	32	31	31	31	31	31
10	29	32	23	32	38	32	32	33	31	41	32	31
11	24	31	33	31	34	33	33	34	31	46	37	30
12	47	31	32	32	32	34	32	32	32	29	33	31
13	34	31	30	19	31	32	32	35	32	36	32	30
14	35	34	32	21	33	31	31	35	32	33	35	30
15	38	31	32	27	31	31	34	33	32	33	32	31
16	35	35	32	32	33	32	32	33	31	32	31	31
17	37	33	32	32	33	32	32	34	31	34	31	30
18	36	29	32	32	31	34	32	33	31	33	31	30
19	37	32	32	32	31	32	31	32	31	33	33	30
20	51	32	32	31	32	34	31	33	31	32	31	31
21	49	34	31	32	31	32	28	34	31	32	31	30
22	41	33	e31	31	33	32	32	32	31	32	30	30
23	34	34	e28	31	37	32	31	32	33	31	30	30
24	33	32	e28	31	36	32	31	33	32	31	30	30
25	33	32	25	32	32	32	32	32	32	31	29	30
26	32	31	31	38	32	32	32	32	31	32	30	29
27	32	33	e31	28	32	32	31	33	31	31	29	29
28	32	31	31	33	31	33	32	32	31	31	30	30
29	32	32	31	33	---	23	31	33	31	32	30	29
30	32	31	28	41	---	32	32	35	31	32	30	30
31	32	---	32	32	---	31	---	32	---	32	30	---
TOTAL	1092	959	950	959	923	976	951	1011	944	1006	977	908
MEAN	35.2	32.0	30.6	30.9	33.0	31.5	31.7	32.6	31.5	32.5	31.5	30.3
MAX	51	35	33	41	38	34	34	35	33	46	38	34
MIN	24	29	23	19	31	23	28	31	31	29	29	29

CAL YR 1989 TOTAL 12126 MEAN 33.2 MAX 75 MIN 23
WTR YR 1990 TOTAL 11656 MEAN 31.9 MAX 51 MIN 19

e Estimated

CONNECTICUT RIVER BASIN

147

01175670 SEVENMILE RIVER NEAR SPENCER, MA

LOCATION.--Lat 42°15'54", long 72°00'19", Worcester County, Hydrologic Unit 01080204, on right bank 40 ft upstream from bridge on Cooney Road and 1.5 mi north of Spencer.

DRAINAGE AREA.--8.68 mi².

PERIOD OF RECORD.--Occasional low-flow measurements, water year 1960. October 1960 to current year. October and November 1960 monthly discharge only, published in WSP 1901.

REVISED RECORDS.--WDR MA-RI-84-1: Drainage area.

GAGE.--Water-stage recorder and crest-stage gage. Elevation of gage is 630 ft above National Geodetic Vertical Datum of 1929, from topographic map. Prior to Sept. 25, 1984, at datum 8.83 ft higher.

REMARKS.--Records good except those for estimated daily discharges, which are poor. Occasional regulation by ponds upstream since 1971.

AVERAGE DISCHARGE.--30 years, 14.7 ft³/s, 23.00 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 412 ft³/s, Mar. 18, 1968, gage height, 5.19 ft, datum then in use; maximum gage height, unknown, Apr. 1, 1987, present datum; minimum discharge, 0.04 ft³/s, Sept. 10, 11, 1980 (regulated); minimum daily, 0.13 ft³/s, July 21, 1976.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 60 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
Oct. 21	0330	*200	*11.75	May 14	1230	67	10.51
Feb. 24	0600	84	10.70	May 17	0600	67	10.51
May 11	0600	65	10.48				

Minimum discharge, 0.26 ft³/s, July 30, 31, Aug. 1, 2; minimum daily, 0.35 ft³/s, July 31.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	7.7	22	e19	e10	e23	e26	e21	24	31	2.8	.56	2.2
2	8.7	19	e16	e11	e24	25	e22	22	23	2.2	.42	2.1
3	17	22	15	e10	e35	25	24	20	18	1.9	.44	1.9
4	13	27	e14	e9.0	e33	e24	e55	24	18	1.9	.50	1.3
5	10	23	e13	e10	e26	e21	e47	32	17	1.4	.58	1.3
6	8.2	21	e13	e10	e21	e18	37	27	13	1.2	.72	1.2
7	7.7	19	13	e9.2	e18	e16	29	21	12	1.1	2.6	1.4
8	6.3	18	e11	8.5	e17	e15	22	17	10	.96	4.0	1.7
9	5.6	25	e10	7.9	e20	e15	19	14	10	.70	1.8	1.5
10	4.7	32	e9.5	7.3	e30	e15	18	15	11	.90	1.3	1.3
11	4.8	26	e8.8	7.2	e45	e19	25	59	8.8	.70	23	1.3
12	5.8	21	e8.2	7.3	e38	e27	26	45	8.9	1.6	38	1.3
13	5.5	18	e7.8	e7.2	e30	e32	22	45	e8.2	2.6	31	1.3
14	5.5	15	e7.4	e7.0	e26	e41	19	61	e7.4	1.9	18	1.2
15	26	15	e7.0	e6.6	e25	e40	32	50	e6.4	1.6	11	2.8
16	24	30	e6.8	e6.4	e29	e39	45	42	e5.0	4.6	7.6	2.2
17	24	48	e6.4	e6.4	e28	e39	33	65	e4.7	15	5.3	2.1
18	35	38	e6.4	e8.5	e25	e65	31	63	e4.3	3.8	4.0	1.9
19	26	29	e6.2	e11	e23	e65	25	52	e4.1	2.2	3.5	1.8
20	61	25	e6.0	e9.5	e20	e58	21	44	e3.7	1.5	2.8	1.9
21	166	25	e5.8	e10	e20	e66	28	51	e3.6	1.3	2.4	1.6
22	91	21	e5.6	e9.2	23	e50	34	52	e3.5	1.3	1.8	1.8
23	64	20	e5.6	e8.0	60	e38	28	45	e25	1.1	2.1	1.7
24	51	e19	e5.4	e7.5	75	e30	22	38	e50	2.4	3.5	1.1
25	42	e18	e5.4	e8.0	54	e24	18	33	e45	2.2	19	.96
26	37	18	e5.2	e23	e40	e20	22	29	e18	1.6	14	1.1
27	32	19	e5.2	e40	e34	e18	22	26	e9.3	1.3	10	.99
28	28	25	e5.0	e32	e31	e16	20	21	6.1	1.3	7.0	4.5
29	24	e27	e5.0	e24	---	e15	18	18	3.2	1.1	5.0	3.3
30	21	e23	e5.0	e34	---	e15	17	51	3.6	.72	3.4	2.2
31	20	---	e6.0	e29	---	e18	---	44	---	.35	2.2	---
TOTAL	882.5	708	263.7	394.7	873	935	802	1150	391.8	65.23	227.52	52.95
MEAN	28.5	23.6	8.51	12.7	31.2	30.2	26.7	37.1	13.1	2.10	7.34	1.76
MAX	166	48	19	40	75	66	55	65	50	15	38	4.5
MIN	4.7	15	5.0	6.4	17	15	17	14	3.2	.35	.42	.96
CFSM	3.28	2.72	.98	1.47	3.59	3.47	3.08	4.27	1.50	.24	.85	.20
IN.	3.78	3.03	1.13	1.69	3.74	4.01	3.44	4.93	1.68	.28	.98	.23

CAL YR 1989 TOTAL 6601.7 MEAN 18.1 MAX 166 MIN 2.0 CFSM 2.08 IN. 28.29
WTR YR 1990 TOTAL 6746.40 MEAN 18.5 MAX 166 MIN .35 CFSM 2.13 IN. 28.91

e Estimated

CONNECTICUT RIVER BASIN

01176000 QUABOAG RIVER AT WEST BRIMFIELD, MA

LOCATION.--Lat 42°10'56", long 72°15'51", Hampden County, Hydrologic Unit 01080204, on right bank 10 ft upstream from abandoned highway bridge site at West Brimfield, 0.9 mi upstream from Blodgett Mill Brook, 3.5 mi northeast of Palmer, and 9.9 mi upstream from mouth.

DRAINAGE AREA.--150 mi².

PERIOD OF RECORD.--Discharge: August 1909 to July 1912 (twice-daily gage heights and corresponding discharges), August 1912 to current year.
Water-quality records: Water years 1953, 1967, 1969-70, 1972-74.

REVISED RECORDS.--WSP 451: 1916. WSP 1301: 1918(M). WDR MA-RI-84-1: Drainage area.

GAGE.--Water-stage recorder. Elevation of gage is 390 ft above National Geodetic Vertical Datum of 1929, from topographic map. Prior to Aug. 19, 1912, nonrecording gage, and Aug. 19, 1912, to Oct. 31, 1955, water-stage recorder, at several sites 0.5 mi downstream at different datum.

REMARKS.--Records good except those for estimated daily discharges, which are poor. Slight diurnal fluctuation at low flow caused by mill upstream prior to 1956; regulation much greater prior to 1938. High flow slightly affected by retarding reservoirs since 1965.

AVERAGE DISCHARGE.--78 years (water years 1913-90), 246 ft³/s, 22.27 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 12,800 ft³/s, Aug. 19, 1955, gage height, 15.36 ft, from floodmarks, present site and datum, from rating curve extended above 2,700 ft³/s on basis of slope-area measurement of peak flow; minimum daily, 6.6 ft³/s, Sept. 28, 29, 1957.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 840 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
Oct. 20	2230	*1,140	6.03	No other peak greater than base discharge.			
Dec. 15	0900	Ice jam	*6.15				

Minimum discharge, 46 ft³/s, Aug. 5, 6.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	234	513	365	e240	594	487	340	307	515	139	56	e130
2	233	486	375	e220	632	466	340	283	484	132	51	e120
3	255	481	390	e210	651	458	356	274	447	122	49	e100
4	237	470	313	e220	623	433	489	262	409	113	48	e98
5	230	453	e390	e220	584	416	483	322	365	103	46	e88
6	227	434	e330	e220	544	399	489	314	337	95	53	e80
7	217	416	e300	e220	518	371	485	308	309	89	144	e78
8	206	402	e270	e210	492	351	463	310	277	83	208	e78
9	197	433	e250	e205	492	335	443	293	258	80	153	e72
10	188	439	e230	e200	605	324	422	301	242	76	142	e72
11	186	419	e220	e195	608	322	431	438	221	70	368	e66
12	179	397	e200	188	595	364	412	425	206	85	376	e62
13	171	392	e180	180	568	374	402	484	185	102	327	e60
14	165	377	e170	e155	543	382	391	551	161	92	345	e60
15	225	372	e160	e170	526	387	429	545	146	87	312	e60
16	218	454	e170	e170	546	391	447	554	136	83	276	e64
17	248	477	e140	172	547	399	458	656	126	77	240	e70
18	298	475	e140	180	531	474	458	673	116	75	217	e66
19	318	469	e140	169	507	475	449	652	108	72	209	e65
20	578	468	e140	175	456	510	432	637	102	69	204	68
21	911	430	e130	178	457	515	449	684	99	70	184	68
22	897	424	e120	188	443	508	442	672	93	68	166	63
23	922	425	e115	167	527	486	424	645	100	68	151	63
24	901	414	e115	165	626	457	411	612	122	72	144	60
25	852	391	e115	182	616	443	395	578	112	79	167	59
26	792	389	e115	364	586	410	388	547	108	77	173	58
27	731	380	e110	378	568	384	366	527	104	75	175	56
28	674	400	e110	395	518	366	346	482	125	72	175	55
29	624	386	e110	401	---	350	329	449	129	68	e165	54
30	577	391	e110	636	---	341	314	575	143	65	e160	55
31	538	---	e120	611	---	346	---	539	---	62	e150	---
TOTAL	13229	12857	6143	7584	15503	12724	12483	14899	6285	2620	5634	2148
MEAN	427	429	198	245	554	410	416	481	209	84.5	182	71.6
MAX	922	513	390	636	651	515	489	684	515	139	376	130
MIN	165	372	110	155	443	322	314	262	93	62	46	54
CFSM	2.84	2.86	1.32	1.63	3.69	2.74	2.77	3.20	1.40	.56	1.21	.48
IN.	3.28	3.19	1.52	1.88	3.84	3.16	3.10	3.69	1.56	.65	1.40	.53

CAL YR 1989 TOTAL 104830 MEAN 287 MAX 922 MIN 66 CFSM 1.91 IN. 26.00
WTR YR 1990 TOTAL 112109 MEAN 307 MAX 922 MIN 46 CFSM 2.05 IN. 27.80

e Estimated

CONNECTICUT RIVER BASIN

149

01177000 CHICOPEE RIVER AT INDIAN ORCHARD, MA

LOCATION.--Lat 42°09'38", long 72°30'52", Hampden County, Hydrologic Unit 01080204, on left bank 1,000 ft downstream from West Street Bridge at Indian Orchard, 1.1 mi upstream from Fuller Brook, and 7.2 mi upstream from mouth.

DRAINAGE AREA.--689 mi².

PERIOD OF RECORD.--Discharge: August 1928 to current year. Published as "at Bircham Bend" prior to November 1938. Water-quality records: Water years 1953, 1957.

REVISED RECORDS.--WSP 1231: 1934. WDR MA-RI-84-1: Drainage area.

GAGE.--Water-stage recorder. Elevation of gage is 125 ft above National Geodetic Vertical Datum of 1929, from topographic map. Prior to Nov. 1, 1938, water-stage recorder at site 1.8 mi downstream at different datum.

REMARKS.--Records good except those for estimated daily discharges, which are poor. Diversion since 1941 from 186 mi² in Swift River basin and at times since 1931 from 97 mi² in Ware River basin for Boston metropolitan district; since 1950, for Chicopee; since 1952, for South Hadley; at times since 1966 for Worcester; at times since 1955 from 6.5 mi² in Ware River basin for Fitchburg. Diversion from Ludlow Reservoir for Springfield and, prior to 1952, for Chicopee. Flow regulated by powerplants upstream, by Quabbin Reservoir 21 mi upstream on Swift River since 1939, by Barre Falls Reservoir on Ware River since 1958, by Conant Brook Reservoir since 1966 (Reservoirs in Connecticut River basin), and by smaller reservoirs.

AVERAGE DISCHARGE.--62 years, 899 ft³/s.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 45,200 ft³/s, Sept. 21, by computation of flow over dam; minimum daily, 16 ft³/s, several times in 1929-31.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 6,080 ft³/s, Oct. 21, gage height, 9.80 ft; minimum daily, 146 ft³/s, July 10.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	752	1250	1060	565	1730	1310	1120	932	1520	377	235	370
2	674	1220	834	713	1630	1220	1120	824	1350	524	202	375
3	1010	1210	909	716	2140	1290	1130	870	1080	510	197	312
4	1120	1330	679	677	1810	1190	1780	786	1070	223	184	346
5	931	1240	660	486	1480	1150	1960	1060	961	496	180	350
6	817	1120	618	669	1330	1100	1590	1110	857	272	268	365
7	801	1070	851	699	1270	855	1400	963	835	316	338	309
8	707	1040	750	629	1200	1040	1320	935	753	334	1530	305
9	616	1200	687	585	1170	962	1060	862	805	222	1220	255
10	564	1580	680	564	1790	859	1210	885	782	146	675	245
11	575	1390	679	613	2380	1040	1180	1770	730	432	1100	227
12	622	1200	683	513	1780	1300	1300	1760	675	274	2850	323
13	579	1090	665	525	1480	1500	1100	1540	576	571	2120	254
14	524	1030	497	449	1370	1400	1100	2130	571	516	1650	256
15	841	1020	526	469	1340	1330	1170	1950	564	262	e1600	257
16	1270	1270	549	455	1510	1240	1580	1590	472	406	e1400	342
17	1040	2020	464	472	1710	1340	1470	2110	437	164	e1200	332
18	1220	1640	500	546	1540	1660	1410	2330	450	414	e560	341
19	1140	1410	510	625	1360	1830	1260	2060	387	267	e480	308
20	1880	1300	509	607	1260	1730	1150	1760	351	257	e680	300
21	5440	1260	473	534	1070	1970	1200	1930	390	253	e640	258
22	3970	994	507	488	1130	1730	1330	2130	445	226	e540	263
23	2700	1080	512	484	1630	1490	1240	1820	275	241	483	255
24	2270	1190	470	309	2790	1350	1100	1620	555	247	376	217
25	2010	1030	443	658	2280	1250	1070	1490	826	263	690	243
26	1840	932	501	1480	1620	1090	1110	1380	530	273	999	224
27	1660	1200	483	1910	1450	1140	1070	1310	437	265	854	242
28	1500	1130	407	1400	1390	948	977	1130	562	253	728	226
29	1370	1230	406	1170	---	883	810	1080	367	257	618	248
30	1320	1130	405	2330	---	1210	993	1720	565	235	531	229
31	1220	---	452	2240	---	1010	---	1920	---	247	501	---
TOTAL	42983	36806	18369	24580	44640	39417	37310	45757	20178	9743	25629	8577
MEAN	1387	1227	593	793	1594	1272	1244	1476	673	314	827	286
MAX	5440	2020	1060	2330	2790	1970	1960	2330	1520	571	2850	375
MIN	524	932	405	309	1070	855	810	786	275	146	180	217

CAL YR 1989 TOTAL 310109 MEAN 850 MAX 5440 MIN 176
WTR YR 1990 TOTAL 353989 MEAN 970 MAX 5440 MIN 146

e Estimated

CONNECTICUT RIVER BASIN

01179500 WESTFIELD RIVER AT KNIGHTVILLE, MA

LOCATION.--Lat 42°17'16", long 72°51'53", Hampshire County, Hydrologic Unit 01080206, on left bank at Knightville, 0.2 mi downstream from Knightville Dam, 0.2 mi upstream from Sykes Brook, 2.4 mi upstream from Middle Branch, 3.5 mi north of Huntington, and at mile 29.7.

DRAINAGE AREA.--161 mi².

PERIOD OF RECORD.--Discharge: August 1909 to September 1990 (discontinued).
Water-quality records: Water year 1953.

REVISED RECORDS.--WSP 415: 1909-12. WSP 1001: 1941-43. WSP 1231: 1910, 1912, 1913(M), 1914-15, 1916-19(M), 1921-23(M), 1925-27(M), 1929-33(M), 1935(M). WDR MA-RI-84-1: Drainage area.

GAGE.--Water-stage recorder. Concrete control since Dec. 20, 1940. Datum of gage is 461.25 ft above National Geodetic Vertical Datum of 1929 (levels by U.S. Army Corps of Engineers). Prior to Jan. 11, 1936, nonrecording gage at site 0.5 mi upstream at different datum. Jan. 11, 1935, to May 20, 1940, water-stage recorder at site 700 ft upstream at datum 10.57 ft higher. May 21 to Dec. 19, 1940, nonrecording gage at site 700 ft upstream at datum 18.75 ft higher.

REMARKS.--Records good except those for estimated daily discharges, which are fair. Flow regulated by Knightville Reservoir since 1941 (Reservoirs in Connecticut River basin).

AVERAGE DISCHARGE.--81 years, 329 ft³/s, 27.75 in/yr, adjusted for storage.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 37,900 ft³/s, Sept. 21, 1938, gage height, 29.58 ft, from floodmarks, site and datum then in use, from rating curve extended above 3,800 ft³/s on basis of slope-area measurements at gage heights 24.07 ft and 29.58 ft; minimum, 0.1 ft³/s, Apr. 3, 1965; minimum daily, 1.1 ft³/s, Apr. 2, 1965. Maximum discharge since construction of Knightville Reservoir in 1941, 6,660 ft³/s, Mar. 21, 1945, gage height, 7.45 ft.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 3,630 ft³/s, Mar. 23, gage height, 7.38 ft; minimum, 27 ft³/s, June 15; minimum daily, 44 ft³/s, Aug. 5.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	88	674	259	140	263	352	366	288	469	133	53	133
2	101	632	187	154	222	355	425	254	371	117	50	119
3	281	413	233	237	252	422	390	223	320	114	48	111
4	183	434	209	210	392	362	1150	208	404	99	46	105
5	133	354	203	185	433	253	2550	493	345	81	44	96
6	111	327	231	159	284	265	2180	570	279	72	61	92
7	104	328	244	155	258	271	892	359	253	67	781	90
8	95	314	e170	133	270	228	635	376	223	63	1630	90
9	88	449	e155	141	265	224	534	326	211	61	844	89
10	80	820	e145	129	311	278	524	334	287	67	210	90
11	97	510	158	137	450	312	583	1190	236	59	822	127
12	151	390	e125	141	695	638	628	578	231	73	934	114
13	119	334	e130	140	559	1230	913	837	190	146	387	111
14	104	313	123	120	327	1600	851	1340	169	106	317	102
15	416	300	115	111	342	2130	554	712	159	80	260	145
16	351	330	113	111	343	2670	510	555	147	72	189	275
17	295	1120	119	113	370	1460	363	1420	131	67	152	177
18	639	810	150	178	445	105	378	1860	122	62	130	133
19	357	433	161	345	401	1000	385	1310	124	55	193	111
20	356	394	154	306	256	1260	386	741	198	52	423	107
21	598	481	152	185	227	1370	604	1510	198	50	246	122
22	1350	351	e150	168	270	3120	864	1430	175	49	178	113
23	1990	329	e140	177	463	3490	621	792	145	64	153	129
24	2700	279	e135	173	972	3190	335	606	206	87	362	146
25	2890	302	e130	169	1070	2110	323	495	154	71	814	124
26	1660	308	120	212	1000	515	445	434	133	57	642	107
27	386	308	e120	419	892	526	400	516	117	50	331	134
28	345	362	120	480	620	517	320	386	101	45	238	141
29	317	473	120	460	---	378	282	348	89	48	207	110
30	291	296	123	433	---	324	277	1130	143	58	195	94
31	231	---	118	394	---	344	---	847	---	55	155	---
TOTAL	16907	13168	4812	6615	12652	31299	19668	22468	6330	2280	11095	3637
MEAN	545	439	155	213	452	1010	656	725	211	73.5	358	121
MAX	2890	1120	259	480	1070	3490	2550	1860	469	146	1630	275
MIN	80	279	113	111	222	105	277	208	89	45	44	89
MEAN†	547	437	160	213	454	1011	647	726	210	73.5	358	121
CFSM†	3.40	2.71	.99	1.32	2.82	6.28	4.02	4.51	1.30	.46	2.22	.75
IN.†	3.92	3.03	1.15	1.53	2.93	7.24	4.49	5.20	1.45	.53	2.56	.84

CAL YR 1989 TOTAL 127546 MEAN 349 MAX 2890 MIN 34 MEAN† 349 CFSM† 2.17 IN.† 29.46
WTR YR 1990 TOTAL 150931 MEAN 414 MAX 3490 MIN 44 MEAN† 414 CFSM† 2.57 IN.† 34.87

e Estimated

† Adjusted for change in contents in Knightville Reservoir.

CONNECTICUT RIVER BASIN

151

01180500 MIDDLE BRANCH WESTFIELD RIVER AT GOSS HEIGHTS, MA

LOCATION.--Lat 42°15'31", long 72°52'23", Hampshire County, Hydrologic Unit 01080206, on right bank at upstream side of highway bridge at Goss Heights, 0.3 mi upstream from mouth, 0.7 mi downstream from Littleville Dam, and 1.7 mi north of Huntington.

DRAINAGE AREA.--52.7 mi².

PERIOD OF RECORD.--July 1910 to September 1990 (discontinued).

REVISED RECORDS.--WSP 415: 1910-13. WSP 781: 1933(M). WDR MA-RI-84-1: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 399.30 ft above National Geodetic Vertical Datum of 1929. Prior to June 25, 1930, datum was 2.00 ft higher, and June 25, 1930, to Sept. 30, 1964, datum was 1.00 ft higher. Prior to Sept. 8, 1912, nonrecording gage at same site.

REMARKS.--Records good except those for period of shifting-control, Mar. 21 to Sept. 30, which are fair, and those for estimated daily discharges, which are poor. Some diurnal fluctuation at low flow prior to 1952 caused by mill upstream. Flow regulated by Littleville Lake (Reservoirs in Connecticut River basin) since 1965.

AVERAGE DISCHARGE.--80 years, 105 ft³/s, 27.06 in/yr, adjusted for storage.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 19,900 ft³/s, Sept. 12, 1938, gage height, 11.61 ft, present datum, from rating curve extended above 3,200 ft³/s on basis of mean of two contracted-opening measurements of peak flow; maximum gage height, 14.87 ft, present datum, Mar. 12, 1936, (ice jam); practically no flow Sept. 3, 22, Oct. 20, 1910, July 30, 1912, Oct. 26, 27, 1914. Maximum discharge since construction of Littleville Dam in 1965, 1,670 ft³/s, Mar. 26, 1980, gage height, 5.93 ft.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,140 ft³/s, Oct. 24, gage height, 5.65 ft; minimum, 2.2 ft³/s, Aug. 5; minimum daily, 2.4 ft³/s, Aug. 4, 5.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	59	457	166	e160	206	311	203	116	287	61	14	44
2	89	401	149	e170	281	256	228	101	239	48	13	52
3	128	375	e140	e150	303	250	426	84	212	41	12	61
4	95	364	e130	e130	257	238	964	73	212	35	12	41
5	77	337	e120	e120	218	218	616	229	138	30	12	36
6	74	325	e115	e110	199	203	447	207	113	26	17	34
7	72	313	e110	e105	180	190	355	181	104	24	285	39
8	61	305	e100	e105	175	189	300	226	89	22	213	39
9	64	369	e96	e94	199	173	258	190	97	22	148	33
10	57	416	e90	e88	440	147	236	294	101	22	219	33
11	86	375	e86	e84	408	210	291	644	91	19	592	32
12	76	337	e84	e80	322	390	257	443	89	59	428	32
13	68	314	e80	e78	263	413	226	535	77	87	260	31
14	152	306	e78	e76	252	435	202	678	71	57	175	29
15	341	300	e76	e76	247	407	255	518	69	45	130	37
16	250	606	e74	e76	285	376	254	507	62	40	93	37
17	206	650	e72	81	416	413	241	772	55	34	58	31
18	338	509	e70	180	313	777	238	791	50	30	48	28
19	333	427	e68	191	267	560	206	574	47	26	44	e25
20	2270	396	e66	150	218	984	183	385	53	23	43	31
21	2190	398	e64	e125	204	887	212	784	50	24	39	30
22	1140	340	e62	e110	216	580	213	675	51	23	35	30
23	746	327	e60	e105	639	436	188	524	48	25	43	32
24	596	249	e58	96	799	350	161	411	44	24	122	e27
25	506	174	e56	127	598	297	147	290	38	22	175	e24
26	439	174	e56	424	471	257	191	204	34	20	140	e27
27	393	173	e56	363	406	221	158	187	37	18	104	e27
28	361	214	e56	278	364	194	139	159	30	17	84	e25
29	337	208	e56	231	---	171	125	160	34	15	116	e24
30	317	192	e58	299	---	169	122	464	89	15	113	e22
31	317	---	e70	231	---	180	---	377	---	14	94	---
TOTAL	12238	10331	2622	4693	9146	10882	8042	11783	2711	968	3881	993
MEAN	395	344	84.6	151	327	351	268	380	90.4	31.2	125	33.1
MAX	2270	650	166	424	799	984	964	791	287	87	592	61
MIN	57	173	56	76	175	147	122	73	30	14	12	22
MEAN†	221	139	42.2	78.4	183	300	176	221	40.4	8.22	88.4	26.3
CFSM†	4.19	2.64	.80	1.49	3.47	5.69	3.34	4.19	.77	.16	1.68	.50
IN.†	4.83	2.95	.92	1.72	3.61	6.56	3.74	4.83	.86	.18	1.93	.56

CAL YR 1989 TOTAL 42223.2 MEAN 116 MAX 1050 MIN 8.0 MEAN† 115 CFSM† 2.18 IN.† 29.75
WTR YR 1990 TOTAL 46328.2 MEAN 127 MAX 1050 MIN 2.4 MEAN† 127 CFSM† 2.41 IN.† 32.69

e Estimated

† Adjusted for change in contents in Littleville Lake.

CONNECTICUT RIVER BASIN

01181000 WEST BRANCH WESTFIELD RIVER AT HUNTINGTON, MA

LOCATION.--Lat 42°14'14", long 72°53'46", Hampshire County, Hydrologic Unit 01080206, on left bank at Huntington, 0.4 mi downstream from Roaring Brook, and 1.5 mi upstream from mouth.

DRAINAGE AREA.--94.0 mi².

PERIOD OF RECORD.--Discharge: September 1935 to current year.
Water-quality records: Water years 1957, 1967-74.

REVISED RECORDS.--WDR MA-RI-84-1: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 383.60 ft above National Geodetic Vertical Datum of 1929. Prior to Oct. 1, 1989, at datum 5.00 ft higher.

REMARKS.--Records good except those for estimated daily discharges, which are fair. Prior to 1950, some diurnal fluctuation at low flow caused by small mill upstream.

AVERAGE DISCHARGE.--55 years, 191 ft³/s, 27.59 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 26,100 ft³/s, Aug. 19, 1955, gage height, 15.27 ft, datum then in use, from rating curve extended above 9,500 ft³/s on basis of slope-area measurement of peak flow; minimum, 3.3 ft³/s, Aug. 9, 1955, Nov. 27, 1957.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 2,700 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
Oct. 20	2000	*a10,300	*11.32	Apr. 4	0530	3,180	8.02
Mar. 20	1330	3,510	--				

a From rating curve extended above 3,100 ft³/s.

Minimum discharge, 10 ft³/s, Aug. 5, 6.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	60	459	115	e90	190	255	255	148	309	58	13	53
2	72	286	e83	e139	341	236	265	123	244	46	12	46
3	156	243	e105	e100	385	230	692	107	206	39	11	43
4	88	242	e88	e83	270	203	2070	100	230	34	11	43
5	65	192	e79	87	215	167	e754	432	189	33	10	36
6	58	166	e70	e85	199	e156	e501	368	157	29	16	35
7	56	158	e77	e75	171	e148	e382	241	147	27	864	34
8	49	147	e76	e67	164	e163	e313	289	130	25	278	35
9	44	294	e70	63	203	e153	e268	233	122	25	115	33
10	42	407	72	62	627	e158	268	310	147	32	128	31
11	64	253	67	63	505	298	509	952	123	32	552	40
12	76	196	62	62	323	836	356	454	118	48	260	39
13	61	163	57	e57	245	e864	270	676	95	104	125	40
14	53	153	e48	e56	242	996	232	1060	84	58	144	33
15	396	147	e45	53	245	e857	324	582	83	41	101	44
16	235	545	42	53	321	746	328	527	75	35	71	69
17	279	570	50	60	506	824	267	1260	70	30	57	43
18	424	322	55	221	307	e1540	271	1150	61	26	48	35
19	279	243	e55	244	263	e696	216	698	59	23	60	30
20	3680	245	51	e137	198	e2120	194	551	122	21	131	36
21	2250	e325	e51	108	185	e1160	241	1090	89	20	73	41
22	791	e216	e46	99	211	e677	245	759	70	19	56	34
23	510	e190	e43	97	1280	e523	193	541	60	18	51	39
24	381	164	e41	84	1190	e395	166	433	59	28	259	39
25	304	160	40	111	560	e337	163	358	51	29	408	33
26	252	159	42	564	368	e286	225	307	46	22	214	30
27	230	160	e41	438	301	e229	192	275	41	19	129	37
28	224	213	41	273	292	e204	156	240	37	17	94	40
29	200	e232	40	212	---	e190	135	232	35	16	109	33
30	181	159	41	297	---	e190	139	788	70	15	85	30
31	178	---	44	215	---	e207	---	456	---	14	63	---
TOTAL	11738	7409	1837	4355	10307	16044	10590	15740	3329	983	4548	1154
MEAN	379	247	59.3	140	368	518	353	508	111	31.7	147	38.5
MAX	3680	570	115	564	1280	2120	2070	1260	309	104	864	69
MIN	42	147	40	53	164	148	135	100	35	14	10	30
CFSM	4.03	2.63	.63	1.49	3.92	5.51	3.76	5.40	1.18	.34	1.56	.41
IN.	4.65	2.93	.73	1.72	4.08	6.35	4.19	6.23	1.32	.39	1.80	.46

CAL YR 1989 TOTAL 76579 MEAN 210 MAX 3680 MIN 15 CFSM 2.23 IN. 30.31
WTR YR 1990 TOTAL 88034 MEAN 241 MAX 3680 MIN 10 CFSM 2.57 IN. 34.84

e Estimated

CONNECTICUT RIVER BASIN

153

01183000 LITTLE RIVER AT OUTLET OF COBBLE MOUNTAIN RESERVOIR, NEAR WESTFIELD, MA

LOCATION.--Lat 42°07'34", long 72°53'37", Hampden County, Hydrologic Unit 01080206, at Cobble Mountain Dam, 7.5 mi west of Westfield, and at mile 13.0.

DRAINAGE AREA.--45.8 mi².

PERIOD OF RECORD.--Discharge: July 1905 to current year. Published as Westfield Little River near Blandford 1905-11, as Westfield Little River near Westfield 1912-35, and as Westfield Little River at outlet of Cobble Mountain Reservoir, near Westfield 1936-76.
Water-quality records: Water year 1957.

REVISED RECORDS.--WSP 501: Drainage area. WDR MA-RI-80-1: 1979.

GAGE.--Venturi meters at outlet tunnel at powerhouse 2.4 mi downstream. Prior to Mar. 1, 1910, nonrecording gage at site 0.2 mi upstream, and Mar. 1, 1910, to Sept. 30, 1935, water-stage recorder at diversion dam 2.8 mi downstream.

REMARKS.--Discharge computed on basis of flow through venturi meters and flow over reservoir spillway or through bypass tunnel. Flow regulated by Borden Brook Reservoir since 1910 and Cobble Mountain Reservoir since August 1931 (reservoirs in Connecticut River basin).

COOPERATION.--Records provided by Springfield Board of Water Commissioners.

AVERAGE DISCHARGE.--80 years (water years 1911-90), 90.0 ft³/s, 26.69 in/yr, adjusted for storage.

MONTHLY DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

	Meant	Per square mile†	Runoff, in inches†
October.....	222	4.85	5.60
November.....	121	2.64	2.95
December.....	30.4	.66	.77
Calendar year 1989.....	107	2.34	31.62
January.....	82.1	1.79	2.07
February.....	187	4.08	4.26
March.....	196	4.28	4.95
April.....	172	3.76	4.19
May.....	207	4.52	5.21
June.....	34.2	.75	.83
July.....	8.53	.19	.21
August.....	77.0	1.68	1.94
September.....	.72	.02	.02
Water year 1990.....	111	2.42	32.99

† Adjusted for change in contents in Borden Brook and Cobble Mountain Reservoirs.

CONNECTICUT RIVER BASIN

01183500 WESTFIELD RIVER NEAR WESTFIELD, MA

LOCATION.--Lat 42°06'24", long 72°41'58", Hampden County, Hydrologic Unit 01080206, on left bank 0.7 mi downstream from Great Brook, 3 mi east of Westfield, and 8.1 mi upstream from mouth.

DRAINAGE AREA.--497 mi².

PERIOD OF RECORD.--Discharge: June 1914 to current year.
Water-quality records: Water years 1952-53, 1957, 1967-74.

REVISED RECORDS.--WSP 601: 1924(M). WSP 756: Drainage area. WSP 1051: 1919-21(M), 1925(M). WSP 1231: 1915-16(M), 1920.

GAGE.--Water-stage recorder. Datum of gage is 98.25 ft above National Geodetic Vertical Datum of 1929. Prior to Nov. 3, 1933, on right bank at same datum.

REMARKS.--Records good except those for estimated daily discharges, which are fair. Flow regulated by Borden Brook Reservoir, Cobble Mountain Reservoir since 1931, Knightville Reservoir since 1941, and Littleville Lake since 1965 (Reservoirs in Connecticut River basin). High flow slightly affected by retarding reservoirs since 1963. Diversion from Little River for municipal supply of Springfield.

AVERAGE DISCHARGE.--76 years, 925 ft³/s.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 70,300 ft³/s, Aug. 19, 1955, gage height, 34.2 ft, from floodmarks, from rating curve extended above 18,000 ft³/s on basis of computations of flow over dam at gage heights 27.20 ft, 29.40 ft, and 34.2 ft; minimum, 9 ft³/s, Oct. 2, 1921; minimum daily, 40 ft³/s, Dec. 28, 29, 1914.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 13,400 ft³/s, Oct. 21, gage height, 14.19 ft; minimum, 72 ft³/s, July 28; minimum daily, 81 ft³/s, July 28.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	329	2020	e970	e430	1050	1360	1210	838	1430	375	107	345
2	407	1970	e610	501	1150	1350	1570	784	1100	367	91	316
3	789	1510	e600	556	1460	1420	2300	707	948	304	106	299
4	601	1440	e640	601	1230	1320	6410	658	971	266	108	280
5	448	1120	e820	558	1180	1070	5670	1290	953	236	94	254
6	388	1070	e740	507	982	1030	4920	1640	810	225	158	241
7	360	1150	e740	452	871	929	2680	1170	755	203	1560	241
8	327	984	e640	444	868	921	1750	1150	707	189	2340	224
9	306	1240	e500	408	931	876	1660	1060	646	202	1710	230
10	287	2060	e420	429	1620	872	1530	1050	753	191	882	235
11	352	1530	e410	412	1840	1000	1820	3550	712	188	2510	259
12	437	1210	e440	423	1610	2100	1740	2160	657	280	2270	256
13	396	1070	e580	403	1460	3120	1700	2060	579	451	1150	260
14	358	956	e520	378	1100	3770	1790	3570	513	373	934	250
15	954	966	e450	364	1140	4210	1540	2620	487	271	809	268
16	1100	1600	e390	357	1320	4460	1590	2010	453	246	540	474
17	845	2860	e350	376	1670	3810	1150	4050	411	213	445	351
18	1660	2500	e430	540	1390	2490	1150	4410	370	197	350	283
19	1220	1430	e540	892	1260	2220	1070	3710	368	176	343	241
20	4880	1280	e560	790	1020	4970	1030	2340	442	165	740	238
21	7290	1470	e560	642	828	3890	1470	3860	478	149	601	268
22	3630	1360	e540	541	1120	5510	1620	4100	419	104	446	248
23	3860	1030	e450	521	2480	5980	1690	2640	425	219	391	257
24	4730	904	e350	506	3670	5350	1020	1910	474	182	684	307
25	4980	898	e330	552	2720	3960	958	1490	405	195	1990	266
26	3950	914	e330	1330	2550	2000	1160	1300	339	217	1480	239
27	1900	925	e380	1650	2350	1410	1190	1290	305	111	922	207
28	1440	1010	e330	1330	1860	1380	955	1110	268	81	662	292
29	1240	1330	e310	1180	---	1190	833	1020	262	121	549	248
30	1090	1070	e310	1930	---	1110	807	2810	353	124	516	217
31	1150	---	e320	1340	---	1130	---	2380	---	114	427	---
TOTAL	51704	40877	15560	21343	42730	76208	55983	64737	17793	6735	25915	8094
MEAN	1668	1363	502	688	1526	2458	1866	2088	593	217	836	270
MAX	7290	2860	970	1930	3670	5980	6410	4410	1430	451	2510	474
MIN	287	898	310	357	828	872	807	658	262	81	91	207

CAL YR 1989 TOTAL 366045 MEAN 1003 MAX 7290 MIN 127
WTR YR 1990 TOTAL 427679 MEAN 1172 MAX 7290 MIN 81

e Estimated

CONNECTICUT RIVER BASIN

155

01184000 CONNECTICUT RIVER AT THOMPSONVILLE, CT

(National stream-quality accounting network and radiochemical station)

LOCATION.--Lat 41°59'14", long 72°36'21", Hartford County, Hydrologic Unit 01080205, on right bank just upstream from Enfield Dam, 1 mi downstream from Thompsonville, 3 mi downstream from Massachusetts-Connecticut State line, and at mile 68.2.

DRAINAGE AREA.--9,660 mi².

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--July 1928 to current year.

REVISED RECORDS.--WSP 741: 1932. WDR MA-RI-77-1: 1976. WDR MA-RI-83-1: Drainage area, 1982.

GAGE.--Water-stage recorders on river and on canal of The Dexter Corp. Datum of gage is 38.48 ft above National Geodetic Vertical Datum of 1929. Nov. 28, 1986, to Aug. 2, 1990, recorder at site 200 ft downstream at datum 0.28 ft lower.

REMARKS.--Records good except those for estimated daily discharges, which are fair. Discharge includes water diverted around station by canal of The Dexter Corp. Flow regulated by powerplants, by diversion from Chicopee River basin, and by First Connecticut and Second Connecticut Lakes, Lake Francis, Moore and Comerford Reservoirs, Quabbin Reservoir, (Reservoirs in Connecticut River basin), and other reservoirs, combined usable capacity, about 107 billion cu ft.

AVERAGE DISCHARGE.--62 years, 16,600 ft³/s, unadjusted.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 282,000 ft³/s, Mar. 20, 1936, gage height, 16.6 ft, from floodmarks; minimum daily, 968 ft³/s, Oct. 20, 1963.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 101,000 ft³/s, Mar. 18, gage height, 6.08 ft, datum then in use; minimum daily, 3,920 ft³/s, Sept. 9.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	4950	20600	19400	7050	24300	25100	24500	24300	25500	9970	5880	6590
2	6990	26100	19900	8090	20900	24100	24900	24900	19100	11300	e10500	4740
3	11600	27300	15300	10600	22100	24700	31700	20300	16700	14100	e8500	6220
4	12500	26200	12800	11300	18700	24400	56800	19000	14100	14300	e5800	4980
5	11700	23800	15500	12100	17100	23300	76900	21000	16300	14300	e4800	7030
6	9520	20700	15200	13000	17000	22600	67700	21400	16900	13600	e6000	7170
7	7270	20900	16000	11400	16300	21300	52600	22700	16900	13700	14200	5790
8	7070	20800	15700	10100	19100	18600	42900	27100	16400	14000	34300	4970
9	6070	23900	14100	10800	19500	16200	37400	20600	10100	12800	38400	3920
10	6410	33600	13800	11200	21800	15300	33500	18000	12400	11200	32300	4380
11	7830	35400	9810	10100	25400	17300	37600	28100	12100	11700	38000	e7200
12	8970	31300	13600	9830	26300	22500	56000	34600	14600	10100	46600	8930
13	9500	27700	16000	9850	28400	36900	61100	35500	19300	11400	41800	8080
14	9030	25200	12700	9100	25400	42900	50500	39600	19200	8110	38400	6870
15	8780	24200	11800	7230	23500	53900	39600	56400	16800	5890	44400	5050
16	8650	23400	10000	8660	25500	61000	35900	51100	15000	5800	38900	6180
17	11100	35400	9280	8880	24900	77900	38500	48300	10300	6510	28900	5580
18	18400	33300	7590	8610	20800	94200	39600	56700	7960	9980	23700	6380
19	20500	28000	11400	10200	20200	95000	38600	53600	9960	7750	19300	7840
20	31800	25500	12200	13400	18800	88400	35700	40100	11000	7170	16500	10100
21	77200	28000	11200	13700	18900	98300	33700	41700	13700	6400	17600	5970
22	77600	30300	11600	11600	18600	91200	31400	53400	14700	5800	16000	6030
23	54000	29600	12400	10600	23300	82300	29100	45000	16900	5750	14000	5680
24	45400	23200	11500	9700	41800	65800	30800	38900	15700	9820	14300	5370
25	44500	20500	11500	13000	44900	52500	29200	34300	19900	14100	15000	8220
26	36400	18300	9550	19800	35800	45300	29200	30400	20900	13700	14800	8920
27	29200	17000	10300	28800	31300	40700	27000	25400	18400	15300	15900	10600
28	21900	20700	10600	31100	27400	36400	25600	20600	15800	8120	14300	7680
29	19900	22100	9210	28300	---	32400	24100	20300	10800	5720	14300	6810
30	15400	19500	8030	30400	---	33600	22000	26600	11400	5780	12900	7370
31	17700	---	6840	27100	---	31000	---	29500	---	6970	10500	---
TOTAL	657840	762500	384810	425600	678000	1415100	1164100	1029400	458820	311140	656780	200650
MEAN	21220	25420	12410	13730	24210	45650	38800	33210	15290	10040	21190	6688
MAX	77600	35400	19900	31100	44900	98300	76900	56700	25500	15300	46600	10600
MIN	4950	17000	6840	7050	16300	15300	22000	18000	7960	5720	4800	3920

CAL YR 1989 TOTAL 6927090 MEAN 18980 MAX 89600 MIN 3900
WTR YR 1990 TOTAL 8144740 MEAN 22310 MAX 98300 MIN 3920

e Estimated

CONNECTICUT RIVER BASIN

01184000 CONNECTICUT RIVER AT THOMPSONVILLE, CT--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1956, 1966 to current year.

PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: October 1974 to current year.

WATER TEMPERATURES: October 1955 to September 1956, October 1973 to current year.

INSTRUMENTATION.--Water-quality monitor since October 1973.

REMARKS.--Interruptions in the record are due to malfunctions of the instrument. Instantaneous records are representative of the cross section while continuous records are based on point samples. The instantaneous record values will not necessarily fall within the corresponding daily range of the continuous records.

EXTREMES FOR PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: Maximum, 246 microsiemens, Jan. 26, 1984; minimum, 46 microsiemens, Apr. 2, 1977.

WATER TEMPERATURES: Maximum, 36.5°C, Aug. 30, 1977; minimum, 0.0°C, on many days during winter periods.

EXTREMES FOR CURRENT YEAR.--

SPECIFIC CONDUCTANCE: Maximum, 240 microsiemens, Jan. 2; minimum, 50 microsiemens, Oct. 25, 26.

WATER TEMPERATURES: Maximum, 25.0°C, Aug. 9; minimum, 0.0°C, on many days during winter period.

WATER QUALITY DATA, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	SPE- CIFIC CON- DUCT- ANCE (µS/CM) (00095)	PH (STAND- ARD UNITS) (00400)	TEMPER- ATURE AIR (DEG C) (00020)	TEMPER- ATURE WATER (DEG C) (00010)	TUR- BID- ITY (NTU) (00076)	OXYGEN, DIS- SOLVED (MG/L) (00300)	OXYGEN, DIS- SOLVED CENT- SATUR- ATION) (00301)	COLI- FORM, FECAL, 0.45 KF AGAR (COLS./ 100 ML) (31616)	STREP- TOCOCCHI FECAL, KF AGAR (COLS./ 100 ML) (31673)	COLI- FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML) (31625)
OCT												
20...	1410	31800	97	7.2	11.0	11.0	19	10.7	97	2600	18000	--
NOV												
20...	1230	25500	93	7.5	8.0	6.5	2.3	12.2	101	820	860	950
DEC												
08...	0845	15700	115	7.3	<-5.0	0.5	1.5	13.8	94	900	1000	--
JAN												
12...	1040	9830	142	7.2	8.0	1.0	1.3	13.3	96	800	1400	620
FEB												
06...	1350	17000	108	7.3	7.0	0.5	2.6	13.9	97	--	--	--
21...	1320	18900	104	7.4	9.0	0.5	2.4	14.1	97	--	--	--
MAR												
12...	1030	22500	102	7.4	5.0	4.0	5.8	13.0	99	200	320	--
27...	1245	40700	88	7.5	6.0	3.0	3.4	12.4	91	--	--	--
APR												
09...	0830	37400	81	7.4	11.0	4.0	5.0	13.1	99	25	100	--
24...	1440	30800	89	7.4	25.0	11.0	3.8	11.6	104	--	--	--
MAY												
10...	1150	18000	100	7.4	21.0	14.0	1.0	9.7	95	28	200	27
22...	0830	53400	68	7.2	12.0	10.0	5.0	11.3	100	--	--	--
JUN												
12...	1130	14600	125	7.3	21.0	19.0	2.0	8.3	89	41	100	--
25...	0900	19900	116	7.6	22.5	23.0	1.7	7.5	88	--	--	--
JUL												
10...	1145	11200	126	7.5	27.0	23.0	2.1	8.0	94	39	26	84
25...	0725	14100	155	7.8	26.5	25.5	2.0	6.8	83	--	--	--
AUG												
07...	0815	14200	149	7.6	23.0	24.5	2.4	6.3	76	13000	6000	--
20...	0844	16500	99	7.6	20.0	21.5	3.3	7.6	85	--	--	--
SEP												
04...	1315	4980	126	8.5	23.5	23.5	1.8	11.2	131	22	84	--
21...	1315	5970	136	7.5	21.0	18.0	0.80	9.3	98	--	--	--

CONNECTICUT RIVER BASIN

157

01184000 CONNECTICUT RIVER AT THOMPSONVILLE, Conn.--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DATE	HARD- NESS TOTAL (MG/L AS CACO3) (00900)	CALCIUM DIS- SOLVED (MG/L AS CA) (00915)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG) (00925)	SODIUM, DIS- SOLVED (MG/L AS NA) (00930)	POTAS- SIUM, DIS- SOLVED (MG/L AS K) (00935)	BICAR- BONATE WATER DIS IT FIELD MG/L AS HCO3 (00453)	ALKA- LILITY WAT DIS TOT IT FIELD MG/L AS CACO3 (39086)	ALKA- LILITY LAB (MG/L AS CACO3) (90410)	SULFATE DIS- SOLVED (MG/L AS SO4) (00945)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL) (00940)	FLUO- RIDE, DIS- SOLVED (MG/L AS F) (00950)
OCT 20...	35	11	1.9	--	--	--	--	--	9.0	8.4	--
NOV 20...	31	10	1.5	5.9	1.0	27	22	22	9.0	7.2	0.1
DEC 08...	37	12	1.7	--	--	--	--	--	11	10	--
JAN 12...	44	14	2.1	10	1.6	38	31	30	12	15	0.1
FEB 06...	--	--	--	--	--	--	--	--	--	--	--
FEB 21...	--	--	--	--	--	--	--	--	--	--	--
MAR 12...	31	9.6	1.7	--	--	--	--	--	9.3	12	--
MAR 27...	--	--	--	--	--	--	--	--	--	--	--
APR 09...	26	8.1	1.4	--	--	--	--	--	7.6	8.0	--
APR 24...	--	--	--	--	--	--	--	--	--	--	--
MAY 10...	32	10	1.6	6.3	0.90	28	23	23	8.9	10	<0.1
MAY 22...	--	--	--	--	--	--	--	--	--	--	--
JUN 12...	37	12	1.8	--	--	--	--	--	10	12	--
JUN 25...	--	--	--	--	--	--	--	--	--	--	--
JUL 10...	37	12	1.8	8.0	1.5	45	37	34	8.1	12	0.2
JUL 25...	--	--	--	--	--	--	--	--	--	--	--
AUG 07...	40	13	1.9	--	--	--	--	--	11	16	--
AUG 20...	--	--	--	--	--	--	--	--	--	--	--
SEP 04...	38	12	1.9	--	--	--	--	--	10	14	--
SEP 21...	--	--	--	--	--	--	--	--	--	--	--

DATE	SILICA, DIS- SOLVED (MG/L AS SIO2) (00955)	SOLIDS, RESIDUE AT 180 DEG. C DIS- SOLVED (MG/L) (70300)	SOLIDS, RESIDUE AT 105 DEG. C, TOTAL (MG/L) (00500)	NITRO- GEN, NITRATE TOTAL (MG/L AS N) (00620)	NITRO- GEN, NITRITE TOTAL (MG/L AS N) (00615)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N) (00630)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N) (00631)	NITRO- GEN, AMMONIA TOTAL (MG/L AS N) (00610)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N) (00608)	NITRO- GEN, ORGANIC TOTAL (MG/L AS N) (00605)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N) (00625)
OCT 20...	--	61	97	0.29	0.01	0.30	--	0.10	--	0.50	0.6
NOV 20...	6.9	50	73	--	<0.01	0.30	0.31	0.05	0.05	0.25	0.3
DEC 08...	--	72	85	0.49	0.01	0.50	--	0.16	--	0.64	0.8
JAN 12...	7.2	87	93	0.59	0.01	0.60	0.62	0.26	0.26	0.64	0.9
FEB 06...	--	--	--	--	--	0.50	0.48	0.16	0.16	0.04	0.2
FEB 21...	--	--	--	--	--	0.50	0.50	0.12	0.13	--	<0.2
MAR 12...	--	82	--	--	<0.01	0.50	0.50	0.11	0.11	0.59	0.7
MAR 27...	--	--	--	--	--	0.40	0.40	0.06	0.06	0.34	0.4
APR 09...	--	52	55	--	<0.01	0.40	0.40	0.06	0.05	--	<0.2
APR 24...	--	--	--	--	--	0.40	0.40	0.07	0.07	0.23	0.3
MAY 10...	5.4	52	59	--	<0.01	0.40	0.30	0.11	0.11	0.19	0.3
MAY 22...	--	--	--	--	--	0.20	0.20	0.02	0.03	0.28	0.3
JUN 12...	--	71	84	0.39	0.01	0.40	0.40	0.30	0.32	0.90	1.2
JUN 25...	--	--	--	--	--	0.40	0.40	0.13	0.13	0.27	0.4
JUL 10...	5.6	76	96	--	<0.01	0.40	0.40	0.21	0.20	0.19	0.4
JUL 25...	--	--	--	--	--	0.50	0.40	0.16	0.15	0.44	0.6
AUG 07...	--	88	97	0.37	0.03	0.40	0.40	0.49	0.45	1.3	1.8
AUG 20...	--	--	--	--	--	0.30	0.30	0.10	0.09	0.30	0.4
SEP 04...	--	77	78	0.19	0.01	0.20	0.20	0.07	0.08	0.63	0.7
SEP 21...	--	--	--	--	--	0.30	0.40	0.16	0.18	0.34	0.5

WATER QUALITY DATA, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DATE	CHROMIUM, TOTAL RECOVERABLE (µG/L AS CR) (01034)	CHROMIUM, DIS- SOLVED (µG/L AS CR) (01030)	COBALT, DIS- SOLVED (µG/L AS CO) (01035)	COPPER, TOTAL RECOVERABLE (µG/L AS CU) (01042)	COPPER, DIS- SOLVED (µG/L AS CU) (01040)	IRON, TOTAL RECOVERABLE (µG/L AS FE) (01045)	IRON, DIS- SOLVED (µG/L AS FE) (01046)	LEAD, TOTAL RECOVERABLE (µG/L AS PB) (01051)	LEAD, DIS- SOLVED (µG/L AS PB) (01049)	LITHIUM DIS- SOLVED (µG/L AS LI) (01130)	MANGANESE, DIS- SOLVED (µG/L AS MN) (01056)
0...	2	<1	--	2	2	2600	--	4	1	--	--
0...	<1	<1	<3	2	2	450	88	1	<1	<4	18
8...	<1	<1	--	3	1	250	--	<1	1	--	--
2...	1	<1	<3	2	3	240	100	1	1	<4	38
6... 1...	--	--	--	--	--	--	--	--	--	--	--
2... 7...	<1	<1	--	11	2	490	--	4	<1	--	--
9... 4...	1	<1	--	4	2	690	--	1	<1	--	--
0... 2...	3	2	<3	3	1	240	95	1	<1	<4	35
2... 5...	1	<1	--	5	2	340	--	1	1	--	--
0... 5...	<1	<1	<3	2	3	220	53	<1	1	<4	11
7... 0...	1	<1	--	6	3	250	--	1	<1	--	--
4... 1...	<1	<1	--	3	3	210	--	1	1	--	--

CONNECTICUT RIVER BASIN

159

01184000 CONNECTICUT RIVER AT THOMPSONVILLE, CT--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DATE	MERCURY DIS- SOLVED (µG/L AS HG) (71890)	MOLYB- DENUM, DIS- SOLVED (µG/L AS MO) (01060)	NICKEL, TOTAL RECOV- ERABLE (µG/L AS NI) (01067)	NICKEL, DIS- SOLVED (µG/L AS NI) (01065)	SELE- NIUM, DIS- SOLVED (µG/L AS SE) (01145)	SILVER, DIS- SOLVED (µG/L AS AG) (01075)	STRON- TIUM, DIS- SOLVED (µG/L AS SR) (01080)	VANA- DIUM, DIS- SOLVED (µG/L AS V) (01085)	ZINC, TOTAL RECOV- ERABLE (µG/L AS ZN) (01092)	ZINC, DIS- SOLVED (µG/L AS ZN) (01090)	CARBON, ORGANIC TOTAL (MG/L AS C) (00680)
OCT 20...	--	--	4	1	--	--	--	--	20	11	7.9
NOV 20...	0.1	<10	1	1	<1	<1.0	49	<6	<10	<3	3.8
DEC 08...	--	--	2	2	--	--	--	--	<10	<3	3.2
JAN 12...	<0.1	<10	3	1	<1	1.0	73	<6	10	7	3.2
FEB 06...	--	--	--	--	--	--	--	--	--	--	2.8
21...	--	--	--	--	--	--	--	--	--	--	2.3
MAR 12...	--	--	6	<1	--	--	--	--	10	18	2.8
27...	--	--	--	--	--	--	--	--	--	--	3.2
APR 09...	--	--	2	<1	--	--	--	--	<10	13	2.9
24...	--	--	--	--	--	--	--	--	--	--	2.9
MAY 10...	<0.1	<10	1	1	<2	<1.0	49	<6	<10	4	2.8
22...	--	--	--	--	--	--	--	--	--	--	3.6
JUN 12...	--	--	2	1	--	--	--	--	<10	4	3.2
25...	--	--	--	--	--	--	--	--	--	--	3.2
JUL 10...	0.2	<10	2	1	<1	<1.0	74	<6	<10	7	4.1
25...	--	--	--	--	--	--	--	--	--	--	3.9
AUG 07...	--	--	3	1	--	--	--	--	10	14	4.4
20...	--	--	--	--	--	--	--	--	--	--	5.1
SEP 04...	--	--	3	1	--	--	--	--	<10	4	5.7
21...	--	--	--	--	--	--	--	--	--	--	3.8

SUSPENDED SEDIMENT DISCHARGE, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	SEDI- MENT, SUS- PENDE D (MG/L) (80154)	SEDI- MENT, DIS- CHARGE, SUS- PENDE D (T/DAY) (80155)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM (70331)
NOV 20...	1230	25500		9 620	80
JAN 12...	1040	9830		6 159	94
MAY 10...	1150	18000		9 437	92
JUL 10...	1145	11200		6 181	84

CONNECTICUT RIVER BASIN

01184000 CONNECTICUT RIVER AT THOMPSONVILLE, CT--Continued

SPECIFIC CONDUCTANCE, (MICROSIEMENS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
OCTOBER			NOVEMBER			DECEMBER			JANUARY			
1	130	126	128	96	84	91	97	94	96	227	146	181
2	141	127	134	83	73	77	106	96	102	240	188	227
3	142	128	134	89	80	84	116	106	111	183	148	160
4	129	123	127	90	88	89	127	98	115	148	138	143
5	123	117	120	94	88	90	121	111	116	144	133	138
6	123	118	121	103	95	99	112	106	109	138	131	134
7	127	122	124	101	94	97	115	109	114	136	132	134
8	130	122	128	94	92	93	116	113	114	141	134	137
9	131	125	128	97	93	96	118	112	115	143	134	137
10	134	125	129	94	80	88	122	116	119	137	133	134
11	137	131	134	82	79	81	131	122	127	145	136	142
12	137	131	133	83	79	82	130	123	128	142	137	140
13	139	133	136	86	83	85	123	119	121	142	135	138
14	137	133	135	87	84	86	122	115	118	142	128	138
15	145	134	140	88	85	86	126	119	122	143	138	140
16	142	125	133	95	87	90	125	118	122	148	139	144
17	135	127	129	90	67	77	134	100	123	153	123	148
18	134	107	119	71	61	66	141	119	132	158	144	152
19	112	107	109	78	72	75	140	126	134	147	134	141
20	113	68	97	83	78	80	126	118	121	134	123	129
21	74	61	68	85	82	83	128	120	123	130	120	125
22	76	64	72	86	81	83	129	122	125	130	124	126
23	65	58	63	87	84	85	127	117	124	131	125	127
24	57	51	55	91	86	88	133	126	131	154	131	145
25	52	50	51	96	91	94	139	132	137	153	138	147
26	59	50	53	101	95	97	141	130	139	151	123	134
27	72	60	68	102	99	101	138	128	134	124	101	112
28	82	72	76	100	97	98	136	129	133	102	99	100
29	86	81	83	98	88	93	135	130	133	108	99	101
30	91	86	87	94	89	92	140	135	138	127	98	108
31	94	88	91	---	---	---	151	140	144	116	98	103
MONTH	145	50	107	103	61	88	151	94	123	240	98	138

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
FEBRUARY				MARCH			APRIL			MAY		
1	99	94	96	87	81	84	99	97	98	104	102	103
2	105	96	98	89	84	87	98	94	97	106	101	103
3	104	94	99	91	87	89	95	88	91	108	103	104
4	101	94	96	92	87	90	86	72	76	109	106	108
5	105	100	101	97	90	93	74	64	70	109	103	107
6	112	105	107	99	94	97	71	63	66	103	94	97
7	117	106	111	108	101	105	74	71	73	98	94	96
8	118	111	113	103	98	101	83	73	78	95	93	94
9	111	108	110	106	100	103	84	81	82	98	94	96
10	110	105	108	106	102	105	90	84	87	101	97	99
11	106	92	97	105	100	102	92	89	91	101	79	91
12	93	90	92	104	95	100	88	84	85	85	78	82
13	95	91	93	94	78	83	88	84	85	91	84	89
14	99	94	97	78	70	75	83	75	77	85	75	80
15	103	99	100	70	64	68	89	77	84	82	77	80
16	130	102	121	66	62	64	90	84	87	83	79	82
17	123	101	110	64	60	62	85	81	83	83	70	76
18	101	99	100	66	60	64	88	83	85	74	65	71
19	100	95	97	64	59	61	91	88	89	70	64	67
20	100	96	98	64	58	61	96	91	93	80	70	74
21	106	99	103	60	57	59	99	95	97	82	71	79
22	108	104	106	61	57	59	94	89	91	72	68	70
23	108	92	101	61	58	59	93	83	87	78	71	75
24	90	77	82	60	53	59	95	89	91	84	77	80
25	85	74	79	78	60	65	99	94	96	87	84	86
26	78	71	76	86	72	79	100	97	98	93	87	89
27	81	72	78	90	86	88	102	98	99	97	92	94
28	82	77	79	91	87	89	106	99	101	99	94	96
29	---	---	---	92	89	91	107	102	104	103	99	101
30	---	---	---	93	90	91	104	102	103	103	86	98
31	---	---	---	99	92	95	---	---	---	85	81	83
MONTH	130	71	98	108	53	82	107	63	88	109	64	89

CONNECTICUT RIVER BASIN

161

01184000 CONNECTICUT RIVER AT THOMPSONVILLE, CT--Continued

SPECIFIC CONDUCTANCE, (MICROSIEMENS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990--Continued

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	JUNE			JULY			AUGUST			SEPTEMBER		
1	93	83	88	123	118	120	136	132	134	122	115	119
2	97	91	94	124	116	119	138	130	134	123	114	118
3	100	94	97	117	110	113	136	122	127	126	120	123
4	107	99	101	119	111	115	130	124	128	129	118	124
5	110	105	108	119	114	116	133	128	130	128	120	124
6	107	101	103	115	112	113	132	117	128	130	122	127
7	112	106	109	116	114	115	143	124	133	133	125	130
8	112	106	109	116	113	115	123	94	109	140	129	135
9	116	98	111	124	115	117	95	88	92	139	132	136
10	122	111	116	128	124	126	100	92	97	139	134	137
11	117	111	114	130	126	128	93	80	84	142	134	139
12	119	112	116	130	121	126	83	75	78	141	132	137
13	117	110	113	130	120	124	82	75	78	136	130	133
14	116	111	115	121	113	117	85	79	81	137	130	134
15	123	115	120	121	113	117	86	81	83	138	105	132
16	126	120	122	126	120	122	84	76	80	144	133	139
17	128	122	125	127	122	125	93	84	87	134	132	133
18	130	125	127	125	118	121	94	91	93	138	133	136
19	132	127	130	120	116	118	98	93	95	142	131	136
20	130	126	128	124	118	121	103	96	99	142	132	138
21	129	120	125	133	121	125	102	93	96	138	135	136
22	120	115	118	148	134	141	100	94	97	143	101	136
23	117	112	115	171	147	158	106	99	101	149	137	142
24	116	112	114	146	124	134	109	105	107	139	134	137
25	118	110	114	124	113	117	114	102	107	140	132	135
26	110	106	108	124	114	118	103	101	102	141	134	137
27	112	107	110	123	120	122	105	102	104	144	134	141
28	121	111	116	123	120	122	113	102	106	142	136	138
29	126	121	123	128	120	124	117	112	115	143	137	141
30	130	122	126	131	126	128	116	111	114	148	138	143
31	---	---	---	133	127	130	118	113	116	---	---	---
MONTH	132	83	114	171	110	123	143	75	104	149	101	134
YEAR	240	50	107									

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
1	18.5	17.0	17.5	13.0	12.5	13.0	2.5	2.0	2.0	1.0	.5	.5
2	18.0	17.5	17.5	12.5	12.0	12.5	2.0	1.0	1.5	1.0	.5	.5
3	18.0	17.5	18.0	12.0	11.0	12.0	1.0	.5	1.0	1.0	.5	1.0
4	17.0	16.0	16.5	11.0	10.0	10.5	.5	.0	.0	1.0	.5	1.0
5	16.0	15.5	16.0	10.0	9.5	10.0	.0	.0	.0	1.0	.5	1.0
6	16.5	15.5	16.0	9.5	9.5	9.5	.5	.0	.0	1.0	.5	.5
7	17.0	16.0	16.5	9.5	9.0	9.5	1.0	.5	.5	1.0	.5	.5
8	16.5	15.5	16.0	10.5	9.5	10.0	.5	.0	.0	.5	.5	.5
9	15.5	14.5	15.0	10.5	10.0	10.0	.0	.0	.0	1.0	.5	1.0
10	14.5	14.0	14.5	10.0	9.0	9.5	.5	.0	.0	1.0	1.0	1.0
11	15.0	14.0	14.5	9.0	8.5	9.0	.5	.0	.5	1.0	1.0	1.0
12	15.0	14.0	14.5	8.5	8.0	8.5	.5	.5	.5	1.5	1.0	1.0
13	15.5	14.5	15.0	8.0	7.5	8.0	.5	.0	.5	1.0	.5	1.0
14	15.5	14.5	15.0	8.5	7.5	8.0	.5	.0	.5	1.0	.5	.5
15	15.0	15.0	15.0	10.0	8.5	9.0	.5	.0	.5	1.0	.5	.5
16	15.0	14.5	14.5	11.5	10.0	11.0	.5	.0	.0	1.5	1.0	1.5
17	15.0	14.5	15.0	11.5	9.5	10.5	.5	.0	.5	2.0	1.5	1.5
18	14.0	13.0	13.5	9.0	7.5	8.5	.5	.0	.5	3.0	2.0	2.5
19	13.0	12.0	12.5	7.5	6.5	7.0	.5	.0	.5	3.0	2.0	2.5
20	12.5	11.5	12.0	6.5	6.0	6.5	.5	.5	.5	2.0	1.5	2.0
21	12.0	11.5	12.0	6.0	5.0	5.5	.5	.0	.5	1.5	1.0	1.5
22	11.5	10.5	11.0	5.0	4.0	4.5	.5	.5	.5	1.5	1.0	1.0
23	10.5	10.5	10.5	4.5	3.0	4.0	.5	.0	.5	1.5	1.0	1.5
24	10.5	10.5	10.5	3.0	2.5	3.0	.5	.5	.5	2.0	1.5	2.0
25	10.5	10.0	10.5	2.5	2.0	2.5	.5	.5	.5	2.5	2.0	2.0
26	10.5	10.0	10.5	3.0	2.5	3.0	.5	.5	.5	2.5	1.5	2.0
27	11.5	10.5	11.0	4.0	3.0	3.5	.5	.5	.5	1.5	1.0	1.5
28	12.0	11.5	12.0	4.5	3.5	4.0	.5	.5	.5	1.5	1.0	1.5
29	12.5	12.0	12.5	4.0	3.5	4.0	.5	.5	.5	1.5	1.5	1.5
30	13.0	12.0	12.5	3.5	2.5	3.0	.5	.5	.5	1.5	.5	1.0
31	13.0	12.5	12.5	---	---	---	.5	.5	.5	1.0	.5	.5
MONTH	18.5	10.0	14.0	13.0	2.0	7.5	2.5	.0	.5	3.0	.5	1.0

CONNECTICUT RIVER BASIN

163

01185500 WEST BRANCH FARMINGTON RIVER NEAR NEW BOSTON, MA

LOCATION.--Lat 42°04'45", long 73°04'24", Berkshire County, Hydrologic Unit 01080207, on left bank 5 ft downstream from highway bridge, 0.3 mi downstream from Clam River, 1 mi south of New Boston, and at mile 65.0.

DRAINAGE AREA.--91.7 mi²

PERIOD OF RECORD.--May 1913 to current year. Prior to October 1948, published as Farmington River near New Boston.

REVISED RECORDS.--WSP 641: 1924(M). WSP 781: 1928(M). WSP 1231: 1914. WDR MA-RI-84-1: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 758.21 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Records good except those for estimated daily discharges, which are poor. Flow regulated by Otis Reservoir 7.0 mi upstream on Fall River (Reservoirs in Connecticut River basin). High flow slightly affected by retarding reservoirs since 1966.

AVERAGE DISCHARGE.--77 years, 183 ft³/s, 27.10 in/yr, adjusted for storage.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 34,300 ft³/s, Aug. 19, 1955, gage height, 14.06 ft, from rating curve extended above 9,600 ft³/s on basis of slope-area measurement of peak flow; minimum daily, 2.4 ft³/s, Aug. 20, 21, 1957.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 5,040 ft³/s, Oct. 20, gage height, 8.26 ft; minimum daily, 12 ft /s, Aug. 3-5.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	59	457	166	e160	206	e311	203	116	287	61	14	44
2	89	401	149	e170	281	e256	228	101	239	48	13	52
3	128	375	e140	e150	303	e250	426	84	212	41	12	61
4	95	364	e130	e130	257	e238	964	73	212	35	12	41
5	77	337	e120	e120	218	e218	616	229	138	30	12	36
6	74	325	e115	e110	199	e203	447	207	113	26	17	34
7	72	313	e110	e105	180	e190	355	181	104	24	285	39
8	61	305	e100	e105	175	e189	300	226	89	22	213	39
9	64	369	e96	e94	199	e173	258	190	97	22	148	33
10	57	416	e90	e88	440	147	236	294	101	22	219	33
11	86	375	e86	e84	408	210	291	644	91	19	592	32
12	76	337	e84	e80	322	390	257	443	89	59	428	32
13	68	314	e80	e78	263	413	226	535	77	87	260	31
14	152	306	e78	e76	252	435	202	678	71	57	175	29
15	341	300	e76	e76	247	407	255	518	69	45	130	37
16	250	606	e74	e76	285	376	254	507	62	40	93	37
17	206	650	e72	81	416	413	241	772	55	34	58	31
18	338	509	e70	180	313	777	238	791	50	30	48	28
19	333	427	e68	191	267	560	206	574	47	26	44	e25
20	2270	396	e66	150	218	984	183	385	53	23	43	31
21	2190	398	e64	e125	204	887	212	784	50	24	39	30
22	1140	340	e62	e110	216	580	213	675	51	23	35	30
23	746	327	e60	e105	639	436	188	524	48	25	43	32
24	596	249	e58	96	799	350	161	411	44	24	122	e27
25	506	174	e56	127	598	297	147	290	38	22	175	e24
26	439	174	e56	424	e471	257	191	204	34	20	140	e27
27	393	173	e56	363	e406	221	158	187	37	18	104	e27
28	361	214	e56	278	e364	194	139	159	30	17	84	e25
29	337	208	e56	231	---	171	125	160	34	15	116	e24
30	317	192	e58	299	---	169	122	464	89	15	113	e22
31	317	---	e70	231	---	180	---	377	---	14	94	---
TOTAL	12238	10331	2622	4693	9146	10882	8042	11783	2711	968	3881	993
MEAN	395	344	84.6	151	327	351	268	380	90.4	31.2	125	33.1
MAX	2270	650	166	424	799	984	964	791	287	87	592	61
MIN	57	173	56	76	175	147	122	73	30	14	12	22
MEAN†	368	236	87.9	168	346	393	317	389	90.4	29.8	127	30.2
CFSM†	4.01	2.57	.96	1.83	3.77	4.28	3.46	4.24	.99	.32	1.38	.33
IN.†	4.62	2.87	1.11	2.11	3.92	4.84	3.86	4.94	1.10	.37	1.59	.37
CAL YR 1989	TOTAL 74084	MEAN 203	MAX 2270	MIN 11	MEAN† 203	CFSM† 2.21	IN.† 30.05					
WTR YR 1990	TOTAL 78290	MEAN 214	MAX 2270	MIN 12	MEAN† 214	CFSM† 2.34	IN.† 31.76					

e Estimated

† Adjusted for change in contents in Otis Reservoir.

CONNECTICUT RIVER BASIN

RESERVOIRS IN CONNECTICUT RIVER BASIN

01163500. BIRCH HILL RESERVOIR on Millers River, 1 mi east of South Royalston, Mass., completed in 1941 for flood control, has usable capacity of 2,180,000,000 ft³. Records provided by U.S. Army Corps of Engineers.
01164500. TULLY LAKE on East Branch Tully River, 3.5 mi north of Athol, Mass., completed in 1948 for flood control, has usable capacity of 958,000,000 ft³. Records provided by U.S. Army Corps of Engineers.
- 01167490; 01168000. SOMERSET AND HARRIMAN RESERVOIRS in Deerfield River basin are operated as a unit for storage of water for hydroelectric power development and are used for recreation. The downstream order and usable capacity of each are as follows: Somerset Reservoir on East Branch Deerfield River, 2.5 mi northeast of Somerset, Vt., completed in 1913, 2,500,000,000 ft³; Harriman Reservoir on Deerfield River at Davis Bridge, Vt., completed in 1924, 5,060,000,000 ft³. Records provided by New England Power Co.
01172400. BARRE FALLS RESERVOIR on Ware River, 4 mi east of Barre, Mass., completed in 1958 for flood control, has usable capacity of 1,050,000,000 ft³. Records provided by U.S. Army Corps of Engineers.
01175000. QUABBIN RESERVOIR on Swift River, 3.2 mi east of Belchertown, Mass., completed in August 1939 for storage of water for municipal supply, has usable capacity of 53,800,000,000 ft³. Records provided by Water Division, Metropolitan District Commission.
01176410. CONANT BROOK RESERVOIR in Chicopee River basin, 1.5 mi southeast of South Monson, Mass., completed in September 1966 for flood control, has usable capacity of 163,000,000 ft³. Records provided by U.S. Army Corps of Engineers.
01176500. LUDLOW RESERVOIR in Chicopee River basin, 3.2 mi northwest of Three Rivers, Mass., completed in 1875 for storage of water for municipal supply, has usable capacity of 201,000,000 ft³. Records provided by Board of Water Commissioners, Springfield, Mass.
01179000. KNIGHTVILLE RESERVOIR on Westfield River, 4 mi north of Huntington, Mass., completed in 1941 for flood control, has usable capacity of 2,130,000,000 ft³. Records provided by U.S. Army Corps of Engineers.
01180450. LITTLEVILLE LAKE on Middle Branch Westfield River, 2 mi north of Huntington, Mass., completed in 1965, used for flood control, water supply, and recreation, has usable capacity of 1,410,000,000 ft³. Records provided by U.S. Army Corps of Engineers.
- 01181900; 01182500. BORDEN BROOK AND COBBLE MOUNTAIN RESERVOIRS in Little River basin are operated as a unit for storage of water for municipal supply and for hydroelectric power development. The downstream order and usable capacity of each are as follows: Borden Brook Reservoir on Borden Brook, 3.5 mi south of Blandford, Mass., completed in 1909, 344,000,000 ft³; Cobble Mountain Reservoir on Little River, 6.5 mi west of Westfield, Mass., completed in 1931, 3,050,000,000 ft³. Records provided by Board of Water Commissioners, Springfield, Mass.
01185000. OTIS RESERVOIR in Farmington River basin, 3 mi southeast of Otis, Mass., completed in 1865, used for storage of water for power and for recreation, has usable capacity of 780,000,000 ft³. Records provided by Massachusetts Department of Natural Resources, Division of Forests and Parks.

MONTHEND USABLE CONTENTS, IN MILLIONS OF CUBIC FEET, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

	Birch Hill Reservoir	Tully Lake	Somerset and Harriman Reservoirs	Barre Falls Reservoir	Quabbin Reservoir†	Conant Brook Reservoir
Sept. 30, 1989.....	4.8	41.6	5255.0	3.9	43107	0
Oct. 31.....	7.5	26.6	6197.3	4.4	44873	.1
Nov. 30.....	8.0	26.6	6243.8	30.1	46120	.1
Dec. 31.....	3.0	24.8	4771.1	22.9	45653	.1
Jan. 31, 1990.....	6.0	27.2	4713.8	48.8	46250	.2
Feb. 28.....	15.0	26.0	4915.4	29.2	48265	.1
Mar. 31.....	79.0	95.2	5431.6	20.7	50190	.1
Apr. 30.....	6.0	66.6	5987.5	4.2	51644	.1
May 31.....	23.4	70.5	6449.0	6.5	53926	.2
June 30.....	2.3	64.0	6183.1	3.1	52757	.1
July 31.....	1.5	60.7	5935.5	2.2	51864	0
Aug. 31.....	3.0	65.3	5810.9	2.9	51644	0
Sept. 30.....	2.7	52.1	5389.4	2.4	50300	0

	Ludlow Reservoir	Knightville Reservoir	Littleville Lake	Borden Brook and Cobble Mountain Reservoirs	Otis Reservoir
Sept. 30, 1989.....	177.5	0.2	422.4	2969.3	695.7
Oct. 31.....	184.9	4.4	431.5	3245.8	623.2
Nov. 30.....	185.1	.6	428.9	3147.6	343.0
Dec. 31.....	177.5	14.3	421.1	2864.4	352.0
Jan. 31, 1990.....	177.5	13.4	430.2	2934.9	395.5
Feb. 28.....	179.4	17.7	434.1	3142.0	441.3
Mar. 31.....	179.4	22.1	431.5	3147.6	553.0
Apr. 30.....	179.4	.7	428.9	3156.1	680.3
May 31.....	179.4	3.2	435.4	3241.9	703.3
June 30.....	177.5	.2	421.1	3144.8	703.3
July 31.....	168.6	.1	417.2	2964.6	699.5
Aug. 31.....	174.1	.2	423.7	2972.9	703.3
Sept. 30.....	159.7	.2	421.1	2811.7	695.7

† Affected by diversion from Ware River and diversion to Wachusett Reservoir and Chicopee Valley aqueduct.

HOUSATONIC RIVER BASIN

165

01197000 EAST BRANCH HOUSATONIC RIVER AT COLTSVILLE, MA

LOCATION.--Lat 42°28'10", long 73°11'49", Berkshire County, Hydrologic Unit 01100005, on right bank 40 ft downstream from Hubbard Avenue Bridge at Coltsville, 1.2 mi upstream from Unkamet Brook, and 2 mi northeast of Pittsfield.

DRAINAGE AREA.--57.6 mi².

PERIOD OF RECORD.--Discharge: March 1936 to current year. Prior to October 1945, published as Housatonic River at Coltsville.
Water-quality records: Water years 1963-65.

REVISED RECORDS.--WSP 851: 1936(M). WDR MA-RI-82-1: 1976-77, 1979-80. WDR MA-RI-84-1: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 993.49 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--No estimated daily discharges. Records good. Flow regulated by powerplants upstream and, since 1949, by Cleveland Brook Reservoir, usable capacity, 214,000,000 ft³, 5.4 mi upstream; regulation greater prior to 1955. Diversion upstream from Cleveland Brook Reservoir for municipal supply of Pittsfield since May 1950.

AVERAGE DISCHARGE.--54 years, 106 ft³/s.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 6,400 ft³/s, Sept. 21, 1938, gage height, 10.80 ft, from rating curve extended above 2,300 ft³/s on basis of computation of peak flow over dam; minimum daily, 4.4 ft³/s, Aug. 15, 1936. Maximum discharge since at least 1755, that of Sept. 21, 1938.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 1,200 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage Height (ft)	Date	Time	Discharge (ft ³ /s)	Gage Height (ft)
Oct. 21	0100	2,130	5.78	Aug. 7	1000	*3,850	*7.46
Mar. 18	0130	2,220	5.88				

Minimum daily discharge, 18 ft³/s, Aug. 5.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	31	169	77	73	90	117	157	86	157	64	21	48
2	42	180	57	71	132	119	160	78	125	50	20	45
3	59	140	63	72	160	120	212	67	112	41	19	48
4	52	143	55	65	146	106	791	63	136	34	19	45
5	43	125	59	60	121	86	421	175	112	33	18	41
6	42	104	62	55	109	83	242	198	84	30	426	48
7	41	93	64	49	106	73	185	142	74	28	2010	57
8	38	90	56	47	116	75	156	156	65	27	555	55
9	38	154	50	46	142	76	142	143	68	29	191	49
10	36	272	43	46	274	91	159	158	133	28	123	78
11	46	168	45	47	256	132	376	471	92	27	165	74
12	48	119	47	46	183	430	246	269	92	38	152	50
13	44	88	43	40	130	538	160	344	81	60	114	38
14	42	81	38	39	122	608	133	492	63	46	154	34
15	125	76	36	41	117	619	184	298	55	36	131	97
16	127	153	39	42	127	576	223	244	49	32	71	109
17	96	310	40	49	182	805	175	580	45	28	48	60
18	144	198	42	115	145	1410	166	610	42	26	42	55
19	113	141	41	143	128	496	140	383	53	24	124	61
20	605	106	39	94	99	593	125	289	73	23	194	75
21	1310	136	38	67	89	673	178	507	58	21	97	64
22	451	103	36	59	108	404	179	426	48	20	62	57
23	244	85	33	55	422	316	132	280	102	23	67	52
24	167	77	30	53	478	263	109	201	127	24	194	44
25	146	77	31	68	246	218	107	155	69	22	245	39
26	136	82	32	262	158	196	155	133	53	20	161	43
27	129	88	31	233	130	164	139	132	44	19	101	69
28	124	119	31	186	130	151	103	115	41	19	78	53
29	119	161	31	148	---	128	90	127	43	19	100	41
30	102	118	33	110	---	116	85	337	78	20	78	38
31	94	---	35	98	---	136	---	253	---	21	58	---
TOTAL	4834	3956	1357	2579	4646	9918	5830	7912	2374	932	5838	1667
MEAN	156	132	43.8	83.2	166	320	194	255	79.1	30.1	188	55.6
MAX	1310	310	77	262	478	1410	791	610	157	64	2010	109
MIN	31	76	30	39	89	73	85	63	41	19	18	34

CAL YR 1989 TOTAL 40970 MEAN 112 MAX 1310 MIN 19
WTR YR 1990 TOTAL 51843 MEAN 142 MAX 2010 MIN 18

HOUSATONIC RIVER BASIN

01197500 HOUSATONIC RIVER NEAR GREAT BARRINGTON, MA

LOCATION.--Lat 42°13'55", long 73°21'19", Berkshire County, Hydrologic Unit 01100005, on left bank at upstream side of highway bridge at Van Deusenville, 0.5 mi upstream from Williams River, and 2 mi north of Great Barrington.

DRAINAGE AREA.--282 mi².

PERIOD OF RECORD.--Discharge: May 1913 to current year.

Water-quality records: Water years 1957-59, 1963-64, 1971, 1979-80.

REVISED RECORDS.--WSP 415: 1913-14. WSP 781: 1928(M). WSP 1051: 1928, 1933. WSP 1301: 1914-15(M), 1917-27(M), 1929-31(M). WDR MA-RI-83-1: 1980(P), 1982(P). WDR MA-RI-84-1: Drainage Area.

GAGE.--Water-stage recorder. Datum of gage is 683.04 ft above National Geodetic Vertical Datum of 1929. Prior to Oct. 1, 1931, nonrecording gage at same site and datum.

REMARKS.--Records good except those for estimated daily discharges, which are fair. Regulation at low flow by powerplants upstream. High flow slightly affected by retarding reservoir since 1973.

AVERAGE DISCHARGE.--77 years, 524 ft³/s, 25.23 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 12,200 ft³/s, Jan. 1, 1949, gage height, 12.08 ft, from rating curve extended above 6,400 ft³/s on basis of computations of flow over dams at gage heights 11.72 ft and 12.08 ft; minimum daily, 1.0 ft³/s, Oct. 18, 1914.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 2,400 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
Oct. 22	unknown	3,110	a6.40	May 19	0200	2,650	5.89
Mar. 19	1045	3,740	7.08	Aug. 8	1330	*4,100	*7.47

a From graph based on gage readings.

Minimum daily discharge, 107 ft³/s, Aug. 1.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	244	572	503	e280	696	e709	699	498	1060	404	107	371
2	211	569	e450	e370	794	675	690	464	791	333	111	319
3	e250	580	451	e320	990	675	788	427	660	288	115	299
4	e253	577	e400	e300	865	652	1600	404	610	252	114	278
5	e243	551	e380	e280	747	579	2070	625	590	229	114	267
6	e236	527	393	e260	657	556	1730	820	513	212	204	255
7	e232	513	e370	e250	616	499	1190	735	463	203	2590	252
8	e208	506	e350	e240	575	480	914	746	419	197	3960	262
9	e202	559	e320	e240	610	467	784	723	382	192	2840	252
10	e192	779	334	244	1110	473	738	726	441	190	1330	254
11	e198	881	315	249	1450	556	1020	1550	470	191	985	305
12	e202	700	304	251	1150	895	1180	1610	433	213	840	314
13	e208	648	e290	252	870	1420	1030	1440	394	348	654	262
14	e212	554	e270	237	780	1620	845	2010	361	303	711	229
15	e324	493	e260	225	757	1690	850	2030	340	250	643	259
16	e440	547	256	226	821	1700	983	1650	295	222	516	348
17	e465	782	e240	247	1110	1760	930	1980	270	210	411	331
18	e604	919	e240	394	982	2770	876	2520	254	203	344	263
19	e523	790	e200	507	862	3580	790	2570	390	191	329	238
20	e1480	740	e270	430	748	3110	708	2130	1100	175	570	242
21	e2680	806	e240	378	657	3490	755	2000	699	170	533	247
22	e3040	702	e220	338	629	3190	868	2060	484	162	404	215
23	e2600	682	e200	313	1180	2400	792	1830	397	150	368	218
24	e1980	597	e190	299	1880	1780	682	1420	539	139	781	216
25	e839	528	e180	318	1730	1450	624	1100	481	156	957	211
26	e580	516	e190	1060	e1180	1220	686	910	381	152	856	230
27	e616	520	e190	1450	e924	1070	680	858	325	131	664	309
28	e628	550	e180	1040	866	949	607	803	289	149	529	300
29	e540	573	e180	805	---	869	529	723	267	144	549	258
30	e518	524	e180	853	---	783	503	1170	397	126	528	230
31	500	---	e180	775	---	714	---	1360	---	108	444	---
TOTAL	21448	18785	8726	13431	26236	42781	27141	39892	14495	6393	24101	8034
MEAN	692	626	281	433	937	1380	905	1287	483	206	777	268
MAX	3040	919	503	1450	1880	3580	2070	2570	1100	404	3960	371
MIN	192	493	180	225	575	467	503	404	254	108	107	211
CFSM	2.45	2.22	1.00	1.54	3.32	4.89	3.21	4.56	1.71	.73	2.76	.95
IN.	2.83	2.48	1.15	1.77	3.46	5.64	3.58	5.26	1.91	.84	3.18	1.06

CAL YR 1989 TOTAL 193558 MEAN 530 MAX 3040 MIN 111 CFSM 1.88 IN. 25.53
WTR YR 1990 TOTAL 251463 MEAN 689 MAX 3960 MIN 107 CFSM 2.44 IN. 33.17

e Estimated

HUDSON RIVER BASIN

167

01331500 HOOSIC RIVER AT ADAMS, MA

LOCATION.--Lat 42°36'40", long 73°07'28", Berkshire County, Hydrologic Unit 02020003, on left bank at Adams, 500 ft downstream from Dry Brook, and 0.4 mi upstream from Pecks Brook.

DRAINAGE AREA.--46.7 mi².

PERIOD OF RECORD.--Discharge: October 1931 to current year.

Water-quality records: Water years 1967-69.

REVISED RECORDS.--WDR MA-NH-RI-VT-73-1: 1971-72. WDR MA-RI-84-1: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 828.01 ft above National Geodetic Vertical Datum of 1929. Prior to Oct. 1, 1964, datum was 9.00 ft higher and Oct. 1, 1964, to May 29, 1974, 8.00 ft higher, at site 500 ft upstream.

REMARKS.--No estimated daily discharges. Records good except those for period of backwater from tree, Oct. 1 to May 3, which are fair. Diversion upstream for municipal supply of Adams. Some diurnal fluctuation by mill upstream prior to 1961. Flow regulated by Cheshire Reservoir 5.1 mi upstream.

AVERAGE DISCHARGE.--59 years 90.2 ft³/s.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 5,080 ft³/s, Sept. 21, 1938, gage height, 9.25 ft, site and datum then in use, from rating curve extended above 1,100 ft³/s on basis of computation of peak flow over dam; minimum daily, 8.0 ft³/s, Aug. 31, Sept. 1, 1968.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 900 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
Oct. 20	1900	901	7.99	Aug. 7	0815	*1,390	*8.42
Mar. 17	2045	1,160	8.31				

Minimum discharge, 12 ft³/s, Aug. 2; minimum daily, 16 ft³/s, Aug. 3.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990 MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	35	130	69	93	102	128	109	91	132	62	22	48
2	52	87	60	67	154	124	110	83	102	55	18	43
3	67	83	68	57	139	124	175	76	99	50	16	43
4	48	89	60	52	120	116	462	72	101	46	17	39
5	41	76	61	57	106	97	275	151	92	44	17	39
6	39	79	60	53	96	94	200	125	79	38	205	39
7	40	80	63	49	92	82	169	106	76	37	888	41
8	37	79	56	46	88	81	152	118	72	35	310	41
9	34	158	54	44	104	81	145	103	69	35	138	37
10	33	186	53	44	267	100	224	154	93	34	114	50
11	46	119	54	44	213	132	463	312	81	32	165	45
12	45	102	53	44	143	371	269	180	78	41	152	40
13	41	89	50	44	124	441	204	350	70	49	74	40
14	38	84	45	44	124	502	176	395	68	42	96	36
15	103	79	43	44	118	475	210	255	64	39	78	68
16	69	161	45	47	138	471	200	228	59	38	65	56
17	81	166	46	56	185	630	179	403	56	37	58	44
18	100	111	48	118	128	773	170	418	54	36	54	41
19	77	95	46	99	123	419	149	319	62	33	97	39
20	404	96	46	69	101	526	137	286	91	28	90	46
21	500	127	44	68	95	493	182	424	71	29	62	42
22	241	84	40	65	133	369	166	312	65	29	55	39
23	181	79	39	65	464	321	142	253	84	27	55	41
24	153	75	39	61	336	269	128	220	92	29	144	40
25	136	73	40	72	212	241	126	182	70	26	155	36
26	128	79	41	385	160	222	133	165	61	25	86	38
27	108	77	39	220	142	203	114	163	57	22	68	54
28	67	128	39	154	144	175	103	147	60	22	62	43
29	62	112	38	130	---	86	93	151	54	22	75	39
30	58	80	38	129	---	86	90	280	80	22	61	39
31	61	---	40	111	---	100	---	179	---	22	52	---
TOTAL	3125	3063	1517	2631	4351	8332	5455	6701	2292	1086	3549	1286
MEAN	101	102	48.9	84.9	155	269	182	216	76.4	35.0	114	42.9
MAX	500	186	69	385	464	773	463	424	132	62	888	68
MIN	33	73	38	44	88	81	90	72	54	22	16	36

CAL YR 1989 TOTAL 34895 MEAN 95.6 MAX 500 MIN 25
WTR YR 1990 TOTAL 43388 MEAN 119 MAX 888 MIN 16

HUDSON RIVER BASIN

01332000 NORTH BRANCH HOOSIC RIVER AT NORTH ADAMS, MA

LOCATION.--Lat 42°42'08", long 73°05'37", Berkshire County, Hydrologic Unit 02020003, on left bank at North Adams, 0.4 mi downstream from Hudson Brook, and 1.5 mi upstream from mouth.

DRAINAGE AREA.--40.9 mi².

PERIOD OF RECORD.--Discharge: June 1931 to September 1990 (discontinued).
Water-quality records: Water years 1967-69.

REVISED RECORDS.--WSP 781: 1933(M). WSP 801: 1928(M). WDR MA-NH-RI-VT-73-1: 1971. WDR-MA-RI-84-1: Drainage area.

GAGE.--Water-stage recorder. Concrete control at present site. Datum of gage is 820.46 ft above National Geodetic Vertical Datum of 1929. Prior to Sept. 23, 1938, at site 100 ft upstream at same datum. July 9, 1959, to July 29, 1960, nonrecording gage at site 500 ft upstream at datum about 4.6 ft lower.

REMARKS.--Records good except those for estimated daily discharges, which are poor. Infrequent diurnal fluctuation at low flow by mill upstream; more frequent fluctuation prior to 1948.

AVERAGE DISCHARGE.--59 years 96.8 ft³/s, 32.14 ft³/s.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 8,950 ft³/s, Sept. 21, 1938, gage height, 12.05 ft, from floodmarks, by computation of peak flow over dam; maximum gage height, 12.24 ft, Aug. 10, 1976; minimum discharge, 1.7 ft³/s July 30, 1965; minimum daily, 3.1 ft³/s, July 30, 1965.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 1,300 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
Oct. 20	2100	a3,150	9.70	May 13	2300	1,780	8.68
Mar. 17	2115	2,190	9.01	Aug. 7	0915	*a3,390	*9.86

a From rating curve extended above 1,100 ft³/s on basis of computations of flow over dam at gage heights 10.28 ft and 12.24 ft.

Minimum discharge, 6.3 ft³/s, Aug. 4, 5; minimum daily, 6.3 ft³/s, Aug. 5.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	44	207	63	e85	e88	124	100	77	98	63	8.1	27
2	69	129	e38	e70	e150	119	100	66	81	47	7.7	24
3	112	112	e50	51	e150	96	176	59	70	35	7.2	22
4	75	114	e45	40	e110	78	573	55	80	27	6.5	20
5	60	93	e42	45	e92	69	273	126	66	26	6.3	18
6	55	100	e44	39	e78	64	184	114	56	24	302	17
7	50	98	e45	35	e72	56	146	91	51	20	1150	23
8	44	96	e42	34	e70	58	117	113	43	17	254	31
9	40	156	e38	33	e90	59	105	92	69	19	115	21
10	37	188	e36	33	e300	67	147	127	98	19	76	60
11	55	128	e34	33	e200	94	512	368	70	15	92	38
12	53	107	e33	33	e140	344	237	174	65	18	72	25
13	45	92	e31	29	e110	682	162	598	48	26	57	23
14	43	85	e30	29	100	861	136	669	39	18	384	20
15	131	84	e30	29	91	817	179	267	36	15	140	47
16	91	198	e30	31	102	853	172	224	30	15	89	48
17	142	198	e31	43	151	1140	147	454	26	15	65	30
18	178	130	e29	e80	104	1050	134	406	25	13	50	25
19	118	106	28	e75	98	397	112	318	40	11	107	22
20	923	103	27	e58	75	658	103	293	72	12	91	33
21	900	146	26	e52	74	505	180	584	41	19	60	27
22	311	103	24	e48	86	300	152	318	47	13	47	24
23	193	89	24	e42	509	248	117	216	129	21	40	34
24	143	79	25	e40	351	191	100	167	127	74	92	28
25	119	74	24	e52	187	155	101	134	70	25	122	24
26	103	82	23	e650	129	135	159	113	51	16	85	23
27	91	82	21	e300	126	110	119	105	37	13	60	44
28	83	103	21	e180	131	98	98	91	31	11	51	29
29	76	105	20	e130	---	91	87	90	33	9.1	61	24
30	69	80	20	e110	---	87	82	235	98	8.3	42	24
31	66	---	22	e90	---	93	---	134	---	7.8	32	---
TOTAL	4519	3467	996	2599	3964	9699	5010	6878	1827	672.2	3771.8	855
MEAN	146	116	32.1	83.8	142	313	167	222	60.9	21.7	122	28.5
MAX	923	207	63	650	509	1140	573	669	129	74	1150	60
MIN	37	74	20	29	70	56	82	55	25	7.8	6.3	17
CFSM	3.56	2.83	.79	2.05	3.46	7.65	4.08	5.42	1.49	.53	2.97	.70
IN.	4.11	3.15	.91	2.36	3.61	8.82	4.56	6.26	1.66	.61	3.43	.78

CAL YR 1989 TOTAL 37632 MEAN 103 MAX 1000 MIN 11 CFSM 2.52 IN. 34.23
WTR YR 1990 TOTAL 44258.0 MEAN 121 MAX 1150 MIN 6.3 CFSM 2.96 IN. 40.25

e Estimated

HUDSON RIVER BASIN

169

01332500 HOOSIC RIVER NEAR WILLIAMSTOWN, MA

LOCATION.--Lat 42°42'01", long 73°09'34", Berkshire County, Hydrologic Unit 02020003, on left bank 0.3 mi downstream from Sherman Brook and 2.7 mi east of junction of U.S. Highway 7 and State Highway 2 in Williamstown.

DRAINAGE AREA.--126 mi².

PERIOD OF RECORD.--Discharge: July 1940 to current year.
Water-quality records: Water years 1953-54, 1957-58, 1967-69.

GAGE.--Water-stage recorder and concrete control. Datum of gage is 616.11 ft above National Geodetic Vertical Datum of 1929, (U.S. Army Corps of Engineers benchmark). Prior to June 6, 1979, at site 1.2 mi downstream at different datum.

REMARKS.--Records good except those for June to September, which are fair, and those for estimated daily discharges, which are poor. Prior to 1966, slight diurnal fluctuation at low flow caused by mills upstream. Some regulation by Cheshire Reservoir 16 mi upstream.

AVERAGE DISCHARGE.--50 years, 274 ft³/s, 29.53 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 13,000 ft³/s, Dec. 31, 1948, gage height, 14.85 ft, former site and datum, from rating curve extended above 4,300 ft³/s on basis of contracted-opening measurement of peak flow; minimum, 5.8 ft³/s, Aug. 30, 31, Oct. 26, 1940; minimum daily, 24 ft³/s, Sept. 9, 1980.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 2,400 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
Oct. 20	2145	3,720	9.18	May 13	2315	2,730	8.44
Mar. 18	0115	*3,840	*9.26	Aug. 7	1015	3,620	9.11

Minimum discharge, 46 ft³/s, Aug. 5; minimum daily, 48 ft³/s, Aug. 5.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	128	463	196	e250	e280	345	331	262	343	162	53	105
2	183	306	166	213	e480	339	327	243	272	136	51	100
3	260	280	188	159	398	328	496	228	251	120	49	97
4	187	294	e160	134	323	294	1470	209	265	105	49	89
5	158	247	e160	142	282	255	804	404	234	103	48	88
6	153	254	e160	131	263	245	582	365	210	89	532	89
7	146	255	e170	121	259	219	484	301	196	87	2210	93
8	132	249	e150	120	249	222	423	349	178	85	734	104
9	130	423	e145	118	296	223	393	293	203	87	288	88
10	127	521	e140	120	795	257	547	412	249	85	199	130
11	161	349	e140	120	601	339	1440	1000	210	79	268	118
12	154	296	e130	120	403	1040	750	528	200	92	239	100
13	140	260	e120	109	340	1520	565	1230	172	114	165	92
14	133	250	e110	93	341	1780	484	1520	157	90	470	86
15	322	243	e110	89	309	1690	579	763	152	85	230	130
16	235	482	e115	98	354	1640	562	660	135	87	168	138
17	301	507	e115	118	528	2020	498	1250	127	84	135	104
18	396	344	e115	259	349	2610	470	1260	120	83	116	92
19	272	291	e110	224	333	1120	407	934	144	74	214	87
20	1390	293	e110	157	269	1610	373	842	208	79	218	104
21	2070	394	e105	146	255	1430	538	1480	151	87	145	100
22	795	275	e105	141	340	932	479	956	146	74	122	89
23	544	255	e100	138	1510	784	393	694	261	81	113	101
24	432	232	e100	125	1020	644	349	556	267	134	243	93
25	380	229	e98	166	587	557	350	456	174	86	328	86
26	343	241	e96	1360	425	496	443	399	147	70	211	89
27	314	242	e94	647	386	439	365	384	131	68	161	118
28	246	323	e92	409	383	402	312	335	125	69	142	91
29	232	324	e90	324	---	300	270	341	125	67	167	83
30	210	230	e90	298	---	286	263	762	220	60	139	85
31	205	---	e95	e290	---	310	---	453	---	56	120	---
TOTAL	10879	9352	3875	6939	12358	24676	15747	19869	5773	2778	8327	2969
MEAN	351	312	125	224	441	796	525	641	192	89.6	269	99.0
MAX	2070	521	196	1360	1510	2610	1470	1520	343	162	2210	138
MIN	127	229	90	89	249	219	263	209	120	56	48	83
CFSM	2.79	2.47	.99	1.78	3.50	6.32	4.17	5.09	1.53	.71	2.13	.79
IN.	3.21	2.76	1.14	2.05	3.65	7.29	4.65	5.87	1.70	.82	2.46	.88

CAL YR 1989 TOTAL 105527 MEAN 289 MAX 2070 MIN 76 CFSM 2.29 IN. 31.16
WTR YR 1990 TOTAL 123542 MEAN 338 MAX 2610 MIN 48 CFSM 2.69 IN. 36.47

e Estimated

HUDSON RIVER BASIN

01333000 GREEN RIVER AT WILLIAMSTOWN, MA

LOCATION.--Lat 42°42'32", long 73°11'50", Berkshire County, Hydrologic Unit 02020003, on left bank 0.1 mi upstream from bridge on State Highway 2 at Williamstown and 0.8 mi upstream from mouth.

DRAINAGE AREA.--42.6 mi².

PERIOD OF RECORD.--Discharge: September 1949 to current year.
Water-quality records: Water years 1967-69.

REVISED RECORDS.--WDR MA-RI-84-1: 1977-78(P), 1979, 1980-83(P).

GAGE.--Water-stage recorder. Elevation of gage is 615 ft above National Geodetic Vertical Datum of 1929, from topographic map.

REMARKS.--Records good except those for winter period, which are poor. Slight diurnal fluctuation at times caused by mill upstream.

AVERAGE DISCHARGE.--41 years, 82.9 ft³/s, 26.43 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 4,060 ft³/s, Dec. 21, 1973, gage height, 5.68 ft in gage well, from rating curve extended above 750 ft³/s on basis of slope-area measurement at gage height 4.94 ft; maximum gage height, 6.35 ft, Mar. 13, 1977, from floodmarks, gage height in well unknown; minimum discharge, 3.1 ft³/s, Sept. 20, 22, 24, 25, 1964.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of Dec. 31, 1948, reached a stage of about 7.5 ft, from floodmarks.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 850 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
Oct. 20	2015	1,070	3.90	Apr. 4	0430	1,010	3.83
Mar. 17	2145	1,170	4.02	Apr. 11	0015	927	3.72
Mar. 20	1830	1,030	3.85	Aug. 7	0815	*1,870	*4.79

Minimum discharge, 8.0 ft³/s, Aug. 5.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	32	109	58	44	e100	129	113	94	114	41	13	50
2	51	74	52	e42	e150	123	107	83	100	37	10	46
3	61	76	61	e30	e140	119	217	76	88	34	9.5	43
4	49	79	48	e27	e120	100	595	72	85	31	8.8	39
5	43	68	e50	e35	e105	85	331	116	73	32	8.4	37
6	42	69	e52	e31	e95	80	247	95	66	29	155	36
7	38	65	e50	e29	e90	68	202	90	62	27	564	37
8	34	64	e45	e28	e90	70	172	111	56	25	160	35
9	33	84	e37	e27	e100	71	151	91	60	26	95	31
10	31	94	e32	e26	e250	84	259	142	57	24	77	39
11	42	80	e34	e26	e190	107	528	308	57	21	93	32
12	36	73	e33	e25	e140	321	318	191	53	28	71	29
13	32	66	e31	e24	e132	385	244	451	46	29	66	27
14	31	64	e27	e23	132	386	206	482	43	23	130	25
15	77	64	e32	e23	111	336	226	313	42	21	84	41
16	56	116	e31	26	241	287	189	282	38	20	69	32
17	78	107	e28	37	282	467	186	391	36	18	59	27
18	96	91	e26	e110	158	640	164	386	36	16	52	24
19	80	82	e24	e95	149	374	145	326	117	15	104	23
20	343	84	e23	e75	109	616	136	313	80	18	88	28
21	408	110	e22	e68	98	544	190	410	53	18	70	23
22	209	79	e21	e64	137	389	158	314	46	14	61	22
23	143	75	e20	e62	462	319	142	248	87	22	59	24
24	112	68	e19	e60	311	254	132	202	64	27	95	22
25	98	65	e18	e70	213	214	133	169	51	16	116	20
26	85	70	e19	e350	155	185	148	153	46	14	91	22
27	75	65	e19	e210	147	157	127	137	42	13	77	25
28	67	82	e18	e160	149	139	117	122	38	12	70	20
29	63	74	e18	e130	---	129	107	121	41	11	92	19
30	59	64	e18	e120	---	124	101	195	55	11	64	19
31	58	---	e19	e110	---	119	---	131	---	11	55	---
TOTAL	2662	2361	985	2187	4556	7421	6091	6615	1832	684	2766.7	897
MEAN	85.9	78.7	31.8	70.5	163	239	203	213	61.1	22.1	89.2	29.9
MAX	408	116	61	350	462	640	595	482	117	41	564	50
MIN	31	64	18	23	90	68	101	72	36	11	8.4	19
CFSM	2.02	1.85	.75	1.66	3.82	5.62	4.77	5.01	1.43	.52	2.10	.70
IN.	2.32	2.06	.86	1.91	3.98	6.48	5.32	5.78	1.60	.60	2.42	.78

CAL YR 1989 TOTAL 31194 MEAN 85.5 MAX 685 MIN 12 CFSM 2.01 IN. 27.24
WTR YR 1990 TOTAL 39057.7 MEAN 107 MAX 640 MIN 8.4 CFSM 2.51 IN. 34.11

e Estimated

DISCHARGE AT PARTIAL-RECORD STATIONS AND MISCELLANEOUS SITES

171

As the number of streams on which streamflow information is likely to be desired far exceeds the number of stream-gaging stations feasible to operate at one time, the Geological Survey collects limited streamflow data at sites other than stream-gaging stations. When limited streamflow data are collected on a systematic basis over a period of years for use in hydrologic analyses, the site at which the data are collected is called a partial-record station. Data collected at these partial-record stations are usable in low-flow or floodflow analyses, depending on the type of data collected. In addition, discharge measurements are made at other sites not included in the partial-record program. These measurements are generally made in times of drought or flood to give better areal coverage to those events. Those measurements and others collected for some special reason are called measurements at miscellaneous sites.

Records collected at partial-record stations are presented in two tables. The first is a table of annual maximum stage and discharge at crest-stage stations, and the second, a table of discharge measurements at low-flow partial-record stations. Discharge measurements made at miscellaneous sites for both low flow and high flow are given in a third table.

Crest-stage partial-record stations

The following table contains annual maximum discharges for crest-stage stations. A crest-stage gage is a device which will register the peak stage occurring between inspections of the gage. A stage-discharge relation for each gage is developed from discharge measurements made by indirect measurements of peak flow or by current meter. The date of the maximum discharge is not always certain but is usually determined by comparison with nearby continuous-record stations, weather records, or local inquiry. Only the maximum discharge for each water year is given. Information on some lower floods may have been obtained, and discharge measurements may have been made for purposes of establishing the stage-discharge relation, but these are not published herein. The years given in the period of record represent water years for which the annual maximum has been determined.

Annual maximum discharge at crest-stage partial-record station during water year 1990

Station No.	Station name	Location	Drainage area (mi ²)	Period of record	Date	Annual maximum	
						Gage height (feet)	Dis- charge (ft ³ /s)
BLACKSTONE RIVER BASIN							
01109480	Kettle Brook Diversion Weir at Auburn, MA	Lat 42°13'06", long 71°49'40", Worcester County, on right bank behind MacKensie Machinery Co., on State Highway 12, 1.8 mi north of Massachusetts Turnpike overpass.	--	1979-90	10-21-89	488.38	a752

a Does not include unknown amount of bypass flow.

DISCHARGE AT PARTIAL-RECORD STATIONS AND MISCELLANEOUS SITES

Low-flow partial-record stations

Measurements of streamflow in the area covered by this report made at low-flow partial-record stations are given in the following table. Most of these measurements were made during periods of base flow when streamflow is primarily from ground-water storage. These measurements, when correlated with the simultaneous discharge of a nearby stream where continuous records are available, will give a picture of the low-flow potentiality of a stream. The column headed "period of record" shows the water years in which measurements were made at the same, or practically the same, site.

Discharge measurements made at low-flow partial-record stations during water year 1990

Station No.	Station name	Location	Drainage area (mi ²)	Period of record	Measurements	
					Date	Discharge (ft ³ /s)
MERRIMACK RIVER BASIN						
01096805	North Brook near Berlin, MA	Lat 42°21'15", long 71°37'40", Worcester County, at culvert on Whitney Street, 2.0 mi south of Berlin.	15.5	1975-78, 1990	7-11-90 8- 3-90 8-30-90 9- 7-90	1.64 .83 4.29 1.86
01096935	Elizabeth Brook at Wheeler Street at Stow, MA	Lat 42°25'47", long 71°30'56", Middlesex County, at culvert on Wheeler Street, 1.0 mi southwest of Stow.	--	1975-76, 1990	7-11-90 8- 3-90 8-30-90 9- 7-90	4.28 4.74 8.08 3.58
01097050	Assabet River at Main Street near Concord, MA	Lat 42°27'23", long 71°23'26", Middlesex County, at bridge on State Highway 62, 0.1 mi upstream from railroad bridge, 2.1 mi west of Concord.	--	1968, 1990	7-19-90 8- 3-90 8-31-90	49.3 40.3 75.3
01097280	Fort Pond Brook at West Concord, MA	Lat 42°28'07", long 71°24'31", Middlesex County, at bridge on State Highway 2, 400 ft upstream from confluence with Nashoba Brook, 1.0 mi northwest of West Concord.	24.9	1975-78, 1990	7-12-90 8- 3-90 8-30-90 9- 7-90	3.96 2.59 14.3 3.25
01098860	Sudbury River at Nashawtuc Street at Concord, MA	Lat 42°27'35", long 71°21'35", Middlesex County, at bridge on Nashawtuc Street, 0.5 mi upstream from mouth, at Concord.	--	1984, 1990	7-12-90 8- 3-90 8-31-90	78.4 123 260
01099400	River Meadow Brook at Lowell, MA	Lat 42°37'29", long 71°19'11", Middlesex County, at bridge on Plain Street, at Lowell.	25.7	1975, 1978, 1990	7-12-90 8- 3-90 8-31-90 9- 7-90	10.2 3.39 11.6 6.08
MYSTIC RIVER BASIN						
01102480	Aberjona River at Swanton Street at Winchester, MA	Lat 42°27'39", long 71°08'15", Middlesex County, 20 ft upstream from bridge on Swanton Street, 0.6 mi north of Winchester.	13.4	1973-75, 1989-90	7-11-90 8-30-90 9- 6-90	5.05 14.3 9.05
01103015	Mill Brook at Arlington, MA	Lat 42°25'20", long 71°08'59", Middlesex County, 1200 ft upstream from mouth, 0.4 mi northeast of Arlington.	5.21	1973-74, 1989-90	7-11-90 8- 3-90 8-30-90 9- 6-90	2.38 1.83 3.98 2.95
CHARLES RIVER BASIN						
01103200	Charles River below Box Pond at Bellingham, MA	Lat 42°05'38", long 71°28'56", Norfolk County, at bridge on Depot Street, 800 ft downstream from Box Pond, 0.6 mi northwest of Bellingham.	14.5	1967, 1969-70, 1982, 1989-90	7-11-90 8-30-90 9- 6-90	3.54 13.3 8.49
01103217	Hopping Brook near West Medway, MA	Lat 42°08'31", long 71°27'21", Norfolk County, at culvert on West Street, 1.2 mi west of West Medway.	10.1	1968-71, 1983, 1989-90	7-10-90 8-30-90 9- 6-89	1.42 8.72 3.58

DISCHARGE AT PARTIAL-RECORD STATIONS AND MISCELLANEOUS SITES

173

Discharge measurements made at low-flow partial-record stations during water year 1990--Continued

Station No.	Station name	Location	Drainage area (mi ²)	Period of record	Measurements	
					Date	Discharge (ft ³ /s)
CHARLES RIVER BASIN--Continued						
01103240	Mine Brook near Franklin, MA	Lat 42°07'29", long 71°25'52", Norfolk County, at bridge on Pond Street, 3.4 mi northwest of Franklin.	14.2	1968-70, 1983, 1989-90	7-10-90 8-30-90 9- 6-90	5.07 13.3 5.57
01103253	Chicken Brook near West Medway, MA	Lat 42°08'27", long 71°25'26", Norfolk County, at culvert on Cottage Street, 3.5 mi southeast of West Medway.	7.22	1968-71, 1983, 1989-90	7-10-90 8-30-90 9- 6-90	1.69 4.66 2.65
01103300	Mill River near Norfolk, MA	Lat 42°07'21", long 71°21'59", Norfolk County, at bridge on Miller Street, 0.9 mi above mouth, 2.1 mi west of Norfolk.	13.8	1968-69, 1971, 1983, 1989-90	7-10-90 8-30-90 9- 7-90	16.0 10.8 9.85
01103305	Charles River near Millis, MA	Lat 42°07'59", long 71°21'46", Norfolk County, at bridge on Myrtle Street, 2.5 mi south of Millis.	84.0	1968, 1974-80†, 1982-83, 1989-90	7-10-90 8-30-90 9- 7-90	39.7 100 44.6
01103330	Stop River near Medfield, MA	Lat 42°09'03", long 71°18'18", Norfolk County, at culvert on Seekonk Street, 2.5 mi south of Medfield.	12.8	1967-71, 1983, 1989-90	7-11-90 8-30-90 9- 7-90	7.09 15.5 15.9
01103395	Bogastow Brook, Orchard Street, near Millis, MA	Lat 42°11'17", long 71°21'46", Norfolk County, 100 ft downstream from bridge on Orchard Street, 200 ft downstream from outlet of Bogastow Pond, and 1.5 mi north of Millis.	23.4	1967, 1989-90	7-10-90 8-30-90 9- 6-90	4.49 12.6 6.12
01103400	Charles River near Medfield, MA	Lat 42°12'36", long 71°21'09", Norfolk County, at old highway bridge, 600 ft upstream from bridge on State Highway 27, 2.9 mi northwest of Medfield.	141	1969-70, 1982-83, 1989-90	7-11-90 8-30-90 9- 6-90	33.0 182 84.9
01103435	Waban Brook at Wellesley, MA	Lat 42°17'13", long 71°18'05", Norfolk County, on access road of Wellesley College Golf Course, 800 ft upstream from State Highway 16, 0.8 mi southwest of Wellesley.	10.4	1983, 1989-90	7-19-90 8-30-90 9- 6-90	2.94 12.4 5.50
01103445	Fuller Brook at Wellesley College Golf Course at Wellesley, MA	Lat 42°17'00", long 71°17'57", Norfolk County, at furthest downstream footbridge on Wellesley College Golf Course, 200 ft upstream from confluence with Waban Brook, 0.9 mi southwest of Wellesley.	5.33	1989-90	7-19-90 8-30-90 9- 6-90	1.80 4.43 2.52
01104470	Stony Brook at Waltham, MA	Lat 42°22'04", long 71°16'16", Middlesex County, at railroad bridge, 0.5 mi upstream from Stony Brook Reservoir, 1.0 mi west of Waltham.	22.1	1989-90	7-11-90 8-30-90 9- 6-90	15.9 10.4 5.90
NEPONSET RIVER BASIN						
01104840	Neponset River at Walpole, MA	Lat 42°08'28", long 71°15'25", Norfolk County, at culvert on Main Street, 0.4 mi southwest of Walpole.	11.5	1967-68, 1989-90	7-11-90 8-30-90 9- 7-90	3.61 13.5 7.78
01104850	Mine Brook at Walpole, MA	Lat 42°09'14", long 71°15'52", at inlet to Turner Pond, 0.75 mi northwest of Walpole.	5.98	1966-69, 1985-87, 1989-90	7-11-90 8-30-90 9- 7-90	2.11 7.54 4.58

† Operated as a continuous-record gaging station.

DISCHARGE AT PARTIAL-RECORD STATIONS AND MISCELLANEOUS SITES

Discharge measurements made at low-flow partial-record stations during water year 1990--Continued

Station No.	Station name	Location	Drainage area (mi ²)	Period of record	Measurements	
					Date	Discharge (ft ³ /s)
NEPONSET RIVER BASIN--Continued						
01104980	Hawes Brook at Norwood, MA	Lat 42°10'26", long 71°12'31", Norfolk County, at culvert on Washington Street, 1.4 mi south of Norwood.	8.63	1967-68, 1986-87, 1989-90	7-12-90 8-30-90 9- 7-90	2.86 10.4 2.88
01105270	Massapoag Brook at Canton, MA	Lat 42°08'59", long 71°08'58", Norfolk County, 25 ft upstream from bridge on Walnut Street, 0.7 mi south of Canton.	10.4	1986-87, 1989-90	7-11-90 8-30-90 9- 6-90	1.49 1.70 1.37
01105300	Steep Hill Brook at Canton, MA	Lat 42°08'39", long 71°08'14", Norfolk County, at culvert on Bailey Street, 1.0 mi southeast of Canton.	6.65	1966-68, 1985-90	7-11-90 8-30-90 9- 6-90	6.00 6.27 3.63
01105554	Neponset River near Dedham, MA	Lat 42°12'33", long 71°08'47", Norfolk County, 5 ft upstream from bridge on Green Lodge Street, 0.1 mi upstream from State Highway 128, 2.9 mi southeast of Dedham.	83.7	1989-90	7-19-90 8-30-90 9- 6-90	34.5 101 54.1
WEYMOUTH FORE RIVER BASIN						
01105582	Monatiquot River at Braintree, MA	Lat 42°13'25", long 70°59'49", Norfolk County, at bridge on Middle Street, 0.7 mi northeast of Braintree.	27.6	1967, 1989-90	7-11-90 8-30-90 9- 6-90	1.64 14.0 6.33
WEYMOUTH BACK RIVER BASIN						
01105610	Whitmans Pond Outlet at East Weymouth, MA	Lat 42°12'45", long 70°55'32", Norfolk County, at culvert on Pleasant Street, 0.9 mi southeast of Weymouth.	12.6	1966-67, 1989-90	7-11-90 8-30-90 9- 6-90	1.15 5.28 2.11
WEIR RIVER BASIN						
01105640	Weir River near Hingham, MA	Lat 42°14'31", long 70°51'36", Plymouth County, at culvert on Macadam Road, 0.3 mi above Foundry Pond, 1.5 mi east of Hingham.	14.6	1969-71, 1989-90	7-11-90 8-30-90 9- 6-90	3.60 6.96 3.09
BOUND BROOK RIVER BASIN						
01105660	Bound Brook near Cohasset, MA	Lat 42°12'44", long 70°49'18", Norfolk County, at culvert on Doane Street, 2.2 mi southwest of Cohasset.	4.86	1969, 1970-71†, 1978-79, 1990	7-11-90 8-30-90 9- 6-90	1.25 3.84 2.79
SATUIT RIVER BASIN						
01105670	Satuit River at Scituate, MA	Lat 42°11'35", long 70°43'44", Plymouth County, at bridge on Old Parish Road, at Scituate.	--	1990	7-20-90 8-30-90 9- 6-90	.22 .47 .49

† Operated as a continuous-record gaging station.

DISCHARGE AT PARTIAL-RECORD STATIONS AND MISCELLANEOUS SITES

175

Discharge measurements made at low-flow partial-record stations during water year 1990--Continued

Station No.	Station name	Location	Drainage area (mi ²)	Period of record	Measurements	
					Date	Discharge (ft ³ /s)
NORTH RIVER BASIN						
01105810	Third Herring Brook at Hanover, MA	Lat 42°07'01", lat 70°48'35", Plymouth County, at culvert on River Street, 0.5 mi northeast of Hanover.	9.78	1969-71, 1987, 1990	7-19-90 8-30-90 9- 7-90	1.11 4.63 1.08
01105820	Second Herring Brook at Norwell, MA	Lat 42°09'36", long 70°47'20", Plymouth County, at culvert on State Highway 123, at Norwell.	3.15	1969-71, 1990	7-19-90 8-30-90 9- 6-90	.45 .96 .20
SOUTH RIVER BASIN						
01105845	South River at Marshfield, MA	Lat 42°05'32", long 70°43'50", Plymouth County, at bridge on Old Ocean Street, 0.8 mi west of Marshfield.	7.59	1969-71, 1987, 1990	7-19-90 8-30-90 9- 6-90	4.06 8.77 3.82
TAUNTON RIVER BASIN						
01106430	Trout Brook at Brockton, MA	Lat 42°05'26", long 71°00'45", Plymouth County, at bridge on Elliot Street, 0.2 mi east of Main Street, at Brockton, MA	5.89	1990	7-10-90 8-31-90 9- 7-90	2.56 5.33 4.18
01106500	Matfield River at Elmwood, MA	Lat 42°00'55", long 70°57'42", Plymouth County, at bridge on State Highway 18 at Elmwood, 0.6 mi upstream from Satucket River, and 1.2 mi south of East Bridgewater.	40.5	1958-60†, 1965, 1978-81, 1983, 1990	7-17-90 9- 7-90	25.1 27.0
01106900	Poor Meadow Brook at South Hanson, MA	Lat 42°02'32", long 70°53'56", Plymouth county, at bridge on State Highway 27, 0.9 mi west of South Hanson, and 2.5 mi south of Hanson.	14.6	1958-60†, 1965, 1990	7-11-90 8-30-90 9- 7-90	1.47 8.59 2.82
01106915	Robbins Pond Outlet near East Bridgewater, MA	Lat 42°00'32", long 70°54'29", Plymouth County, at bridge on Pond Street, 3.1 mi southeast of East Bridgewater.	--	1990	7-11-90 9- 6-90	3.31 5.46
01106920	Satucket River at East Bridgewater, MA	Lat 42°01'13", long 70°57'09", Plymouth County, 100 ft downstream from mill on State Highway 106, 0.9 mi southeast of East Bridgewater.	34.8	1966-67, 1990	7-19-90 9- 7-90	6.46 10.5
01107010	Queset Brook at North Easton, MA	Lat 42°03'57", long 71°05'43", Bristol County, at bridge on Main Street, 0.5 mi east of North Easton.	7.49	1990	7-10-90 8-31-90 9- 7-90	1.37 2.74 2.08
01107050	Hockomock River near West Bridgewater, MA	Lat 42°00'40", long 71°03'31", Plymouth County, at bridge on State Highway 106, 2.6 mi west of West Bridgewater.	20.5	1966-68, 1990	7-11-90 8-31-90 9- 7-90	4.33 11.6 6.11
01107100	Town River at Bridgewater, MA	Lat 41°59'49", long 70°58'23", Plymouth County, at bridge on State Highway 18, 0.5 mi north of Bridgewater.	55.6	1966-67, 1990	7-17-90 9- 6-90	21.6 25.1

† Operated as a continuous-record gaging station.

DISCHARGE AT PARTIAL-RECORD STATIONS AND MISCELLANEOUS SITES

Discharge measurements made at low-flow partial-record stations during water year 1990--Continued

Station No.	Station name	Location	Drainage area (mi ²)	Period of record	Measurements	
					Date	Discharge (ft ³ /s)
TAUNTON RIVER BASIN--Continued						
01107188	Winnetuxet River at Thompson Street near Halifax, MA	Lat 41°58'09", long 70°54'03", Plymouth County, at bridge on Thompson Street, 2.4 mi southwest of Halifax.	36.0	1990	7-11-90 8-30-90 9- 6-90	18.5 54.6 22.5
01108140	Poquoy Brook near North Middleboro, MA	Lat 41°54'20", long 70°59'19", Plymouth County, at culvert on Vernon Street, 2.0 mi south of North Middleboro.	8.23	1966-68, 1990	7-10-90 8-30-90 9- 6-90	3.99 7.55 3.34
01108180	Cotley Brook at East Taunton, MA	Lat 41°52'57", long 71°02'54", Bristol County, at bridge on Middleboro Avenue, 1.0 mi west of East Taunton.	7.53	1966-68, 1990	7-10-90 9- 6-90	2.22 1.83
01108280	Forge River near Taunton, MA	Lat 41°54'25", long 71°03'33", Bristol County, at bridge on South Street West, 1.8 mi east of Taunton.	9.23	1966-68, 1990	7-10-90 8-30-90 9- 6-90	5.22 9.77 4.31
01108320	Canoe River near Norton, MA	Lat 41°58'38", long 71°08'40", Bristol County, at bridge on Plain Street, 2.4 mi northeast of Norton.	18.3	1965-68, 1978-81, 1983, 1990	7-10-90 9- 6-90	8.87 5.37
01108350	Mulberry Meadow Brook near Easton Center, MA	Lat 42°01'07", long 71°07'35", Bristol County, at bridge on Highland Street, 1.8 mi southwest of Easton Center.	8.54	1990	7-10-90 8-30-90 9- 6-90	2.17 3.71 1.94
01108400	Mill River near Taunton, MA	Lat 41°55'23", long 71°06'23", Bristol County, at bridge on Whittenton Street, 1.6 mi northwest of Taunton.	41.1	1966-67, 1986-88, 1990	7-10-90 8-30-90 9- 6-90	21.4 42.8 9.66
01108500	Wading River at West Mansfield, MA	Lat 42°00'00", long 71°15'38", Bristol County, 200 ft downstream from bridge on Balcolm Street, at West Mansfield, 2.0 mi upstream from Hodges Brook, and 3.0 mi southwest of Mansfield.	19.2	1954-86†, 1990	7-10-90 8-30-90 9- 6-90	7.49 20.2 9.66
01109020	Rumford River at East Foxboro, MA	Lat 42°03'48", long 71°12'57", Norfolk County, at culvert on Cocasset Street, 0.8 mi west of East Foxboro.	5.09	1966-68, 1990	7-10-90 8-30-90 9- 6-90	.84 1.81 1.24
01109040	Rumford River at Norton, MA	Lat 41°58'23", long 71°10'32", Bristol County, at bridge on State Highway 123, 0.8 mi northeast of Norton.	20.7	1965, 1990	7-10-90 9- 6-90	11.6 12.1
01109087	Assonet River at Assonet, MA	Lat 41°47'57", long 71°03'37", Bristol County, at bridge on Locust Street, 0.5 mi northeast of Assonet.	--	1986-88, 1990	7-10-90 8-30-90 9- 6-90	5.76 10.0 4.95
BLACKSTONE RIVER BASIN						
01109460	Dark Brook at Auburn, MA	Lat 42°12'20", long 71°50'06", Worcester County, at bridge on State Highway 12, 0.7 mi north of Auburn.	11.1	1978-79, 1985-86, 1988-90	7-11-90 8-30-90 9- 6-90	2.38 10.5 3.50
01109570	Tatnuck Brook below Coes Reservoir at Worcester, MA	Lat 42°15'03", long 71°50'15", Worcester County, at outlet below Coes Reservoir, 2.0 mi southwest of Worcester.	11.5	1989-90	7-11-90 8-30-90 9- 6-90	.24 1.77 .55

† Operated as a continuous-record gaging station.

DISCHARGE AT PARTIAL-RECORD STATIONS AND MISCELLANEOUS SITES

177

Discharge measurements made at low-flow partial-record stations during water year 1990--Continued

Station No.	Station name	Location	Drainage area (mi ²)	Period of record	Measurements	
					Date	Discharge (ft ³ /s)
BLACKSTONE RIVER BASIN--Continued						
01109658	Blackstone River near Millbury, MA	Lat 42°12'46", long 71°47'02", Worcester County, 40 ft upstream from bridge on State Highway 20, 2.0 mi northwest of Millbury.	65.1	1989-90	7-11-90 8-30-90 9- 6-90	17.5 59.0 20.2
01110100	Quinsigamond River near Grafton, MA	Lat 42°11'39", long 71°41'35", Worcester County, 0.4 mi upstream from Fisherville Pond, 1.0 mi south of Grafton.	37.2	1985, 1989-90	7-19-90 8-31-90 9- 6-90	.23 .23 .03
01111050	Mumford River at Uxbridge, MA	Lat 42°04'30", long 71°37'35", Worcester County, 10 ft downstream from bridge on State Highway 16, 0.5 mi upstream from mouth, 0.1 mi west of Uxbridge.	57.0	1936, 1989-90	7-19-90 8-30-90 9- 6-90	23.2 79.2 39.3
01112250	Mill River near Blackstone, MA	Lat 42°02'55", long 71°31'15", Worcester County, 40 ft downstream from bridge on Elm Street, 2.2 mi northeast of Blackstone.	25.3	1978-79, 1985-86, 1989-90	7-11-90 8-30-90 9- 6-90	8.70 22.6 9.77
01112380	Peters River at Crooks Corner, MA	Lat 42°01'26", long 71°29'17", Norfolk County, 40 ft downstream from bridge on State Highway 126, 0.2 mi southeast of Crooks Corner.	11.8	1978-79, 1989-90	7-19-90 8-30-90 9- 6-90	2.96 12.2 5.82
01113750	Abbott Run near South Attleboro, MA	Lat 41°55'43", long 71°22'23", Bristol County, 120 ft downstream from culvert on Mendon Road, 1.8 mi north of South Attleboro.	24.7	1970, 1989-90	7-10-90 8-30-90 9- 6-90	53.6 101 38.7

† Operated as a continuous-record station.

DISCHARGE AT PARTIAL-RECORD STATIONS AND MISCELLANEOUS SITES

Measurements at miscellaneous sites

Measurements of streamflow at points other than gaging stations or partial-record stations are given in the following table. Those that are measurements of base flow are designated by an asterisk (*).

Discharge measurements made at miscellaneous sites during water year 1990

Stream	Tributary to	Location	Drainage area (mi ²)	Measured previously (water years)	Measurements	
					Date	Discharge (ft ³ /s)
STONY BROOK RIVER BASIN						
0110588100 Stony Brook River	Cape Cod Bay	Lat 41°44'41", long 70°06'45", Barnstable County, at bridge on Setucket Road, 1.8 mi southwest of Brewster, MA	1.91	--	10-31-78	3.63
COONAMESSETT RIVER BASIN						
0110588304 Coonamessett River	Nantucket Sound	Lat 41°37'07", long 70°34'22", Barnstable County, below weir at Coonamessett Pond, 2500 ft north of Hatchville Road, 2.9 mi northwest of East Falmouth, MA	1.21	--	11- 9-79 12-16-88 1-25-89 4-11-89 5-24-89 7- 5-89 9-21-89	1.06 .32 .40 .44 .98 .15 0
0110588305 Coonamessett River	do.	Lat 41°36'52", long 70°34'24", Barnstable County, at culvert 800 ft north of Hatchville Road, 2.6 mi northwest of East Falmouth, MA	1.28	--	1-25-89 4-12-89 5-24-89 9-21-89	.34 .25 .64 0
0110588306 Coonamessett River	do.	Lat 41°36'39", long 70°34'28", Barnstable County, at inlet to bogs, 500 feet south of Hatchville Road, 2.4 mi northwest of East Falmouth, MA	1.33	--	11- 8-79 4-12-89 5-24-89 7- 6-89	.95 .34 .79 .28
0110588307 Coonamessett River	do.	Lat 41°36'25", long 70°34'24", Barnstable County, 1900 ft south of Hatchville Road, 3500 ft north of Sandwich Road, 2.1 mi northwest of East Falmouth, MA	1.56	--	11- 8-79	3.91
0110588308 Coonamessett River	do.	Lat 41°35'55", long 70°34'20", Barnstable County, at Sandwich Road, 1.5 mi northwest of East Falmouth, MA	1.80	--	11- 9-79 1-25-89 4-12-89 5-24-89 7- 6-89	5.10 2.26 6.23 7.43 5.55
0110588309 Coonamessett River	do.	Lat 41°35'21", long 70°34'23", Barnstable County, at John Parker Road, 3300 ft south of Sandwich Road, 1.0 mi northwest of East Falmouth, MA	2.15	--	1-25-89 5-24-89	-- 10.0
0110588310 Coonamessett River	do.	Lat 41°34'52", long 70°34'26", Barnstable County, at outlet of last set of bogs, 1250 ft north of State Highway 28, 0.8 mi northwest of East Falmouth, MA	2.59	--	7-25-78 11- 9-79 1-25-89 4-12-89 5-23-89 7- 6-89 8- 9-89 9-21-89	13.27 9.01 4.04 10.1 11.1 9.34 8.24 7.60
BACKUS RIVER BASIN						
0110588320 Backus River	Nantucket Sound	Lat 41°34'41", long 70°33'50", Barnstable County, near end of Ashumet Valley, at State Highway 28, 0.2 mi northwest of East Falmouth, MA	1.83	--	11-20-79 1-25-89 7- 6-89 8- 9-89 9-21-89	1.02 .01 2.75 2.29 1.71

179

Stream	Tributary to	Location	Drainage area (mi ²)	Measured previously (water years)	Measurements	
					Date	Discharge (ft ³ /s)
BOURNES RIVER BASIN						
0110588330 Bournes River	Nantucket Sound	Lat 41°34'43", long 70°33'07", Barnstable County, near end of Currier Valley, at second cranberry bog 900 ft north of State Highway 28, 0.6 mi northwest of East Falmouth, MA	1.98	--	4-12-89 7- 6-89 8- 9-89	1.68 1.74 1.5
CHILDS RIVER BASIN						
0110588338 Childs River	Nantucket Sound	Lat 41°36'43", long 70°31'15", Barnstable County, at Old Barnstable Road, 1200 ft south of State Highway 151, 1.6 mi north of Waquoit Village, MA	2.15	--	1-27-89 4-12-89 5-23-89 7- 5-89	1.14 .08 1.68 1.55
0110588339 Childs River	do.	Lat 41°35'51", long 70°31'32", Barnstable County, at bogs east of Falmouth Beagle Club, 1700 ft north of Carriage Shop Road, 0.7 mi north of Waquoit Village, MA	2.67	--	1-25-89 4-12-89 5-23-89 7- 5-89	1.11 .92 3.05 2.54
0110588340 Childs River	do.	Lat 41°35'07", long 70°31'37", Barnstable County, 2200 ft north of State Highway 28, 0.6 mi south of Waquoit Village, MA	3.03	--	7-25-78 1-25-89 4-12-89 5-23-89 7- 5-89 8- 9-89 9-21-89	5.07 3.50 3.94 6.39 5.99 5.98 4.37
QUASHNET RIVER BASIN						
0110588363 Quashnet River	Nantucket Sound	Lat 41°38'08", long 70°30'49", Barnstable County, 300 ft northeast of weir at Johns Pond, 1.3 mi north of State Highway 151, 3.2 mi north of Waquoit Village, MA	2.05	--	10-26-88 11- 2-88 6-29-89 2-22-90 5-10-90	0 0 0.1 0 2.3
0110588364 Quashnet River	do.	Lat 41°37'59", long 70°30'19", Barnstable County, 0.6 mi downstream of weir at Johns Pond, on bridge which crosses downstream end of cranberry bog, 3.2 mi northeast of Waquoit Village, MA	2.98	--	2-22-90 5-10-90	4.4 8.4
0110588365 Quashnet River	do.	Lat 41°37'28", long 70°30'06", Barnstable County, 1.2 mi downstream of outlet from Johns Pond, at intersection with Old Barnstable Road, 2.6 mi northeast of Waquoit Village, MA	3.54	--	11- 2-88	30
0110588366 Quashnet River	do.	Lat 41°37'03", long 70°30'04", Barnstable County, at downstream side of culvert on State Highway 151, 2.2 mi northeast of Waquoit Village, MA	3.92	--	2-22-90	6.82
0110588367 Quashnet River	do.	Lat 41°36'30", long 70°30'09", Barnstable County, on downstream side of fish ladder, 0.6 mi downstream from State Highway 151, 1.6 mi northeast of Waquoit Village, MA	4.25	--	10- 7-88 2-22-90 5-10-90	6.6 8.1 13.6

DISCHARGE AT PARTIAL-RECORD STATIONS AND MISCELLANEOUS SITES

Discharge measurements made at miscellaneous sites during water year 1990--Continued

Stream	Tributary to	Location	Drainage area (mi ²)	Measured previously (water years)	Measurements	
					Date	Discharge (ft ³ /s)
QUASHNET RIVER BASIN--Continued						
0110588368 Quashnet River	do.	Lat 41°36'19", long 70°30'08", Barnstable County, 0.8 mi downstream from State Highway 151, 1.0 mi north of State Highway 28, 1.5 mi northeast of Waquoit Village, MA	4.35	--	10-26-88 11- 2-88 6-29-89 2-22-90 5-10-90	4.5 32 11 8.7 14.3
0110588369 Quashnet River	do.	Lat 41°35'55", long 70°30'15", Barnstable County, 0.5 mi upstream from State Highway 28, 1.1 mi northeast of Waquoit Village, MA	4.61	--	2-22-90 5-10-90	11.1 17.2
011058837 Quashnet River	do.	Lat 41°35'31", long 70°30'29", Barnstable County, 15 ft upstream from bridge on Martins Road and 1.4 mi upstream from mouth, 0.5 mi northeast of Waquoit Village, MA	4.96	--	8- 4-78	19.3
MASHPEE RIVER BASIN						
0110588380 Mashpee River	Nantucket Sound	Lat 41°37'18", long 70°28'51", Barnstable County, at bridge on State Highway 28, 1.8 mi south of Waquoit Village, MA	1.07/3.36	--	8- 4-78	15.5
BLACKSTONE RIVER BASIN						
01110500 Blackstone River	Narragansett Bay (Atlantic Ocean)	Lat 42°09'13", long 71°39'09", Worcester County, 100 ft downstream from Sutton Street Bridge, at Northbridge, MA	139	1940-77†, 1978-89	12- 5-89 2-22-90 4- 4-90 5-25-90 7- 3-90	290 329 1240 471 196
PAWCATUCK RIVER BASIN						
01117355 Queen River	Usquepaug River	Lat 41°33'45", long 71°32'54", Washington County, at bridge on Reynolds Road, 1.2 mi southwest of Exeter, RI	3.69	1959-60, 1988-89	10-13-89 11-19-89 12-13-89 1-13-90 2-16-90 3-17-90 4-19-90 5-21-90 6-17-90 7-18-90 8-20-90 9-12-90	4.02 17.4 8.04 7.88 19.1 7.63 14.4 15.5 4.12 1.65 0.65 0.27
01117360 Fisherville Brook	Queen River	Lat 41°33'51", long 71°33'54", Washington County, at bridge on Liberty Church Road, 1.7 mi southwest of Exeter, RI	8.14	1959-60, 1988-89	10-13-89 11-19-89 12-13-89 1-13-90 2-16-90 3-17-90 4-19-90 5-21-90 6-17-90 7-18-90 8-20-90 9-12-90	8.40 33.0 14.7 14.9 35.4 18.4 27.0 29.2 9.26 5.06 3.54 2.41

See footnotes at end of table.

DISCHARGE AT PARTIAL-RECORD STATIONS AND MISCELLANEOUS SITES

181

Discharge measurements made at miscellaneous sites during water year 1990--Continued

Stream	Tributary to	Location	Drainage area (mi ²)	Measured previously (water years)	Measurements	
					Date	Discharge (ft ³ /s)
PAWCATUCK RIVER BASIN--Continued						
01117365 Queens Fort Brook	do.	Lat 41°32'53", long 71°32'01", Washington County, at bridge on Slocumville Road, 2.0 mi south of Exeter, RI	3.22	1989	10-13-89 11-20-89 12-14-89 1-12-90 2-15-90 3-16-90 4-18-90 5-20-90 6-17-90 7-19-90 8-21-90 9-13-90	0 2.66 0 0.12 1.19 0 3.16 1.71 0 0 0 0
01117370 Queen River	Usquepaug River	Lat 41°32'20", long 71°34'09", Washington County, at bridge on Liberty Road, 0.3 mi east of Liberty, RI	19.1	1988-89	10-13-89 11-19-89 12-13-89 1-13-90 2-16-90 3-17-90 4-19-90 5-21-90 6-17-90 7-18-90 8-20-90 9-12-90	15.9 74.7 37.5 37.0 66.2 37.0 57.7 60.9 22.0 11.9 7.58 6.16
01117375 Queen River tributary	Queen River	Lat 41°32'20", long 71°34'48", Washington County, at bridge on Mail Road, 0.3 mi west of Liberty, RI	0.82	1989	10-13-89 11-20-89 12-14-89 1-12-90 2-15-90 3-16-90 4-18-90 5-20-90 6-15-90 7-19-90 8-21-90 9-13-90	.22 2.95 .90 1.56 1.83 1.34 .92 2.26 .41 .11 .01 0
01117380 Locke Brook	do.	Lat 41°32'14", long 71°35'17", Washington County, at bridge on Mail Road, 0.8 mi west of Liberty, RI	4.37	1959-60, 1988-89	10-14-89 11-20-89 12-14-89 1-12-90 2-15-90 3-16-90 4-18-90 5-20-90 6-15-90 7-19-90 8-21-90 9-13-90	5.87 19.0 9.20 10.9 15.3 10.9 18.8 14.4 4.98 2.67 2.49 1.47
01117385 Rake Factory Brook	Usquepaug River	Lat 41°31'08", long 71°35'58", Washington County, at bridge on Glen Rock Road, 1.2 mi northeast of Usquepaug, RI	0.25	1989	10-13-89 11-20-89 12-14-89 1-12-90 2-15-90 3-16-90 4-18-90 5-20-90 6-15-90 7-19-90 8-21-90 9-13-90	.07 .56 .05 .29 .47 .18 .66 .34 0 0 0 0
01117390 Glen Rock Brook	do.	Lat 41°30'59", long 71°36'23", Washington County, at culvert on Glen Rock Road, 1.0 mi north of Usquepaug, RI	2.83	1989	10-14-89 11-20-89 12-14-89 1-12-90 2-15-90 3-16-90 4-18-90 5-20-90 6-15-90 7-19-90 8-21-90 9-13-90	2.68 9.55 3.75 6.12 6.96 4.75 11.2 7.26 2.10 .97 .30 .47

See footnotes at end of table.

DISCHARGE AT PARTIAL-RECORD STATIONS AND MISCELLANEOUS SITES

Discharge measurements made at miscellaneous sites during water year 1990--Continued

Stream	Tributary to	Location	Drainage area (mi ²)	Measured previously (water years)	Measurements	
					Date	Discharge (ft ³ /s)
PAWCATUCK RIVER BASIN--Continued						
01117400 Sherman Brook	do.	Lat 41°31'04", long 71°36'18", Washington County, at culvert on Glen Rock Road, 1.1 mi north of Usquepaug, RI	1.04	1966-74†, 1989	10-14-89	1.49
					11-20-89	4.30
					12-14-89	2.41
					1-12-90	2.87
					2-15-90	3.67
					3-16-90	2.20
					4-18-90	4.42
					5-20-90	3.82
					6-15-90	1.38
					7-19-90	.70
					8-19-90	.40
					9-13-90	.23
01117410 Usquepaug River	Pawcatuck River	Lat 41°30'09", long 71°36'30", Washington County, at bridge on State Highway 138, 0.1 mi east of Usquepaug, RI	32.8	1972, 1989	10-13-89	32.2
					11-19-89	127
					12-13-89	61.3
					1-13-90	65.2
					3-17-90	62
					4-19-90	107
					5-21-90	105
					6-17-90	38.2
					7-18-90	19.2
					8-20-90	12.6
					9-12-90	7.89
					THAMES RIVER BASIN	
01125000 French River	Quinebaug River	Lat 42°03'03", long 71°53'08", Worcester County, on right bank in Dudley, 50 ft upstream from Pleasant Street Bridge at Webster, 1.1 mi upstream from Potash Brook, in Dudley, MA	85.3	1949-81†, 1982-89	2-20-90	260
					2-20-90	259
					2-21-90	227
					3- 6-90	217
					4- 2-90	176
					5-21-90	404
					7- 2-90	17.5
CONNECTICUT RIVER BASIN						
01165150 Millers River	Connecticut River	Lat 42°35'33", long 72°14'23", Worcester County, at bridge on State Highway 2A, at Athol Center, MA	--	1987-89	3-20-90	2050
					5- 2-90	524
01173180 Ware River	do.	Lat 42°22'48", long 72°06'53", Worcester County, at bridge on Old Furnace Road, 0.3 mi west of Barre Plains, MA	--	1988-89	11-30-89	135
					4- 2-90	162
					5-17-90	315
					6-25-90	133

† Operated as a continuous-record gaging station.

‡ Operated as a crest-stage partial-record station and published as "Glen Rock Brook tributary".

SUPPLEMENTAL WATER-QUALITY DATA FOR GAGING STATIONS IN MASSACHUSETTS

183

DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND	TEMPER- ATURE WATER (DEG C)	SPE- CIFIC CON- DUCT- ANCE (µS/CM)	DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND	TEMPER- ATURE WATER (DEG C)	SPE- CIFIC CON- DUCT- ANCE (µS/CM)
MERRIMACK RIVER BASIN									
01094400 NORTH NASHUA RIVER AT FITCHBURG, MA									
FEB 1990					JUN 1990				
22...	1150	96	6.0	150	26...	1510	58	20.0	203
APR					AUG				
10...	1049	112	7.0	162	07...	1055	30	26.0	274
MAY					SEP				
16...	1019	117	15.0	116	18...	1140	18	--	230
01094500 NORTH NASHUA RIVER NEAR LEOMINSTER, MA									
APR 1990					JUN 1990				
03...	0940	265	6.0	191	26...	1201	112	22.0	256
01096000 SQUANNAHOOK RIVER NEAR WEST GROTON, MA									
JAN 1990					MAY 1990				
04...	1430	60	1.0	--	21...	1030	293	10.0	78
MAR					JUN				
27...	0830	150	--	89	18...	1230	49	22.0	118
01096500 NASHUA RIVER AT EAST PEPPERELL, MA									
MAR 1990					JUN 1990				
26...	1223	800	5.0	147	19...	1707	514	24.5	214
MAY									
07...	0955	852	13.0	180					
01097000 ASSABET RIVER AT MAYNARD, MA									
FEB 1990					JUN 1990				
20...	1315	277	4.0	191	25...	1215	81	25.0	273
APR					AUG				
02...	1240	247	6.0	233	06...	1335	31	26.0	302
MAY					SEP				
14...	1340	391	16.0	176	17...	1313	46	20.0	367
01097300 NASHOBA BROOK NEAR ACTON, MA									
FEB 1990					JUN 1990				
20...	0852	20	0.0	122	25...	0930	9.4	20.0	252
APR					AUG				
02...	0915	32	5.0	186	06...	1010	1.2	25.0	243
MAY					SEP				
14...	0928	54	13.0	155	17...	1108	2.8	20.0	284
01098530 SUDBURY RIVER AT SAXONVILLE, MA									
FEB 1990					JUN 1990				
21...	1140	427	2.0	221	26...	0915	60	22.0	277
APR					AUG				
02...	1605	173	7.0	260	06...	1616	69	--	255
MAY					SEP				
15...	1335	396	17.0	234	18...	0900	64	17.0	249
01099500 CONCORD RIVER BELOW RIVER MEADOW BROOK, AT LOWELL, MA									
APR 1990					MAY 1990				
03...	0851	725	--	244	08...	0804	844	14.0	234
01100000 MERRIMACK RIVER BELOW CONCORD RIVER AT LOWELL, MA									
APR 1990					MAY 1990				
03...	1323	11500	--	218	18...	1651	22400	13.5	166
01100600 SHAWSHOEN RIVER NEAR WILMINGTON, MA									
FEB 1990					MAY 1990				
15...	1107	87	3.0	201	10...	1038	46	15.5	363
MAR					JUN				
28...	1437	36	--	390	21...	1148	0.97	--	384

SUPPLEMENTAL WATER-QUALITY DATA FOR GAGING STATIONS IN MASSACHUSETTS

DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND	TEMPER- ATURE WATER (DEG C)	SPE- CIFIC CON- DUCT- ANCE (μ S/CM)	DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND	TEMPER- ATURE WATER (DEG C)	SPE- CIFIC CON- DUCT- ANCE (μ S/CM)
PARKER RIVER BASIN									
01101000 PARKER RIVER AT BYFIELD, MA									
FEB 1990					MAY 1990				
20...	1139	57	0.0	173	09...	1120	48	13.5	162
MAR					JUN				
28...	1114	43	3.0	152	26...	1137	10	--	199
IPSWICH RIVER BASIN									
01101500 IPSWICH RIVER AT SOUTH MIDDLETON, MA									
MAR 1990					MAY 1990				
05...	0904	106	0.0	253	11...	0839	115	13.0	195
APR					JUN				
02...	1042	65	--	227	22...	1149	21	--	255
01102000 IPSWICH RIVER NEAR IPSWICH, MA									
FEB 1990					MAY 1990				
22...	1130	276	1.0	248	18...	0745	399	13.0	175
MAR					JUN				
29...	1528	220	--	200	27...	1403	45	--	252
MYSTIC RIVER BASIN									
01102500 ABERJONA RIVER AT WINCHESTER, MA									
FEB 1990					MAY 1990				
21...	1137	42	3.0	648	08...	1420	28	13.5	497
MAR					JUN				
29...	1017	21	--	588	21...	1536	12	--	532
CHARLES RIVER BASIN									
01104000 MOTHER BROOK AT DEDHAM, MA									
NOV 1989					JUL 1990				
06...	1155	104	8.0	164	13...	1200	16	21.0	234
MAR 1990					AUG				
06...	0822	115	1.5	227	22...	1338	51	--	159
01104500 CHARLES RIVER AT WALTHAM, MA									
JUN 1990									
04...	1006	552	21.0	220					
NEPONSET RIVER BASIN									
01105000 NEPONSET RIVER AT NORWOOD, MA									
OCT 1989					JUL 1990				
27...	1125	81	11.5	161	17...	1345	17	26.5	230
MAR 1990					AUG				
06...	1330	68	2.0	356	23...	1000	47	--	181
APR									
16...	1715	146	--	179					
01105500 EAST BRANCH NEPONSET RIVER AT CANTON, MA									
NOV 1989					JUN 1990				
01...	1409	133	15.0	145	01...	1145	94	18.0	--
JAN 1990					JUL				
25...	1415	48	1.5	--	18...	1115	11	26.5	188
MAR					AUG				
06...	1630	51	1.5	207	23...	1200	24	--	184
WEYMOUTH BACK RIVER BASIN									
01105600 OLD SWAMP RIVER NEAR SOUTH WEYMOUTH, MA									
OCT 1989					JUL 1990				
23...	1200	16	9.0	162	20...	1100	0.80	22.0	244
MAR 1990					AUG				
07...	1115	9.7	0.0	283	23...	1430	6.2	--	168
APR									
17...	1500	15	--	208					

SUPPLEMENTAL WATER-QUALITY DATA FOR GAGING STATIONS IN MASSACHUSETTS

185

DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND	TEMPER- ATURE WATER (DEG C)	SPE- CIFIC CON- DUCT- ANCE (μ S/CM)	DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND	TEMPER- ATURE WATER (DEG C)	SPE- CIFIC CON- DUCT- ANCE (μ S/CM)
NORTH RIVER BASIN									
01105730 INDIAN HEAD RIVER AT HANOVER, MA									
APR 1990					AUG 1990				
17...	1200	91	--	197	28...	0945	48	--	162
JUL 20...	1245	8.7	--	275					
JONES RIVER BASIN									
01105870 JONES RIVER AT KINGSTON, MA									
OCT 1989					JUL 1990				
24...	1130	62	--	84	20...	1515	12	25.0	104
MAR 1990					AUG 28...	1300	34	--	88
07...	1500	39	--	95					
APR 17...	0930	41	--	90					
QUASHNET RIVER BASIN									
011058837 QUASHNET RIVER AT WAQUOIT VILLAGE, MASS.									
OCT 1989									
24...	1323	8.7	11.5	80					
TAUNTON RIVER BASIN									
01109000 WADING RIVER NEAR NORTON, MA									
NOV 1989					JUL 1990				
01...	1037	148	14.0	136	18...	1715	23	--	184
MAR 1990					AUG 29...	1210	41	--	168
12...	1130	87	--	168					
APR 18...	1615	175	--	147					
01109060 THREEMILE RIVER AT NORTH DIGHTON, MA									
OCT 1989					JUL 1990				
25...	1330	489	9.5	141	18...	1500	47	27.0	182
MAR 1990					AUG 29...	1015	85	--	178
08...	1100	163	--	187					
APR 18...	1030	440	--	148					
01109070 SEGREGANSET RIVER NEAR DIGHTON, MA									
OCT 1989					JUL 1990				
25...	1445	27	10.0	70	09...	1415	1.7	22.0	91
MAR 1990					AUG 21...	1300	3.2	--	90
08...	1320	16	--	87					
APR 18...	1330	47	--	67					
TEN MILE RIVER BASIN									
01109403 TEN MILE RIVER AT PAWTUCKET AVE AT EAST PROVIDENCE, RI									
OCT 1989					JUN 1990				
16...	0915	47	14.5	350	13...	1000	92	19.5	223
DEC 01...	1015	143	2.0	233	AUG 13...	1030	450	25.5	314
MAR 1990					SEP 17...	1515	51	20.5	352
21...	1300	172	11.0	287					
MAY 01...	0945	127	14.5	250					
BLACKSTONE RIVER BASIN									
01110000 QUINSIGAMOND RIVER AT NORTH GRAFTON, MA									
FEB 1990					MAY 1990				
22...	0929	46	3.0	360	23...	1325	93	12.0	309

SUPPLEMENTAL WATER-QUALITY DATA FOR GAGING STATIONS IN MASSACHUSETTS

DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND	TEMPER- ATURE WATER (DEG C)	SPE- CIFIC CON- DUCT- ANCE (µS/CM)	DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND	TEMPER- ATURE WATER (DEG C)	SPE- CIFIC CON- DUCT- ANCE (µS/CM)
BLACKSTONE RIVER BASIN--Continued									
01110500 BLACKSTONE RIVER AT NORTHBRIDGE, MA									
FEB 1990					MAY 1990				
22...	1255	329	6.0	393	25...	1138	471	14.0	301
APR					JUL				
04...	1314	1240	6.5	228	03...	1235	196	--	379
01111200 WEST RIVER BELOW WEST HILL DAM, NEAR UXBRIDGE, MA									
FEB 1990					MAY 1990				
23...	1047	77	7.0	113	24...	1236	103	12.0	110
01111300 NIPMUC RIVER NEAR HARRISVILLE, RI									
OCT 1989					JUN 1990				
19...	1400	76	8.0	40	11...	1100	19	16.5	57
NOV					AUG				
30...	1000	44	1.5	49	06...	1015	2.3	21.0	75
JAN 1990					SEP				
19...	1530	24	2.0	51	17...	1015	14	14.5	57
MAR									
07...	1245	36	0.5	60					
01112500 BLACKSTONE RIVER AT WOONSOCKET, RI									
OCT 1989					JUN 1990				
19...	1245	1830	10.0	80	14...	1530	491	21.5	181
NOV					SEP				
30...	1500	1350	2.5	159	11...	1245	250	20.5	244
JAN 1990									
19...	1230	620	4.0	180					
MOSHASSUCK RIVER BASIN									
01114000 MOSHASSUCK RIVER AT PROVIDENCE, RI									
OCT 1989					MAY 1990				
16...	1500	27	14.5	310	03...	1600	32	17.0	264
DEC					JUN				
06...	1200	30	3.5	328	08...	1415	31	19.5	278
JAN 1990					AUG				
19...	0915	30	4.0	328	06...	1545	8.2	22.0	434
MAR					SEP				
07...	1530	35	4.5	309	19...	1415	7.6	17.0	402
WOONASQUATUCKET RIVER BASIN									
01114500 WOONASQUATUCKET RIVER AT CENTERDALE, RI									
OCT 1989					AUG 1990				
16...	1245	37	14.5	186	08...	1230	88	24.0	183
DEC					SEP				
05...	1515	103	3.0	153	18...	1445	33	17.5	172
JUN 1990									
08...	1200	71	20.0	105					
PAWTUXET RIVER BASIN									
01116000 SOUTH BRANCH PAWTUXET RIVER AT WASHINGTON, RI									
OCT 1989					JUN 1990				
19...	1000	131	10.5	76	13...	1330	129	20.5	80
JAN 1990					AUG				
25...	0930	181	3.0	90	10...	1500	64	25.0	99
MAR					SEP				
21...	1600	116	10.5	88	19...	1230	101	17.0	84
MAY									
04...	1000	106	14.5	68					

SUPPLEMENTAL WATER-QUALITY DATA FOR GAGING STATIONS IN MASSACHUSETTS

187

DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND	TEMPER- ATURE WATER (DEG C)	SPE- CIFIC CON- DUCT- ANCE (µS/CM)	DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND	TEMPER- ATURE WATER (DEG C)	SPE- CIFIC CON- DUCT- ANCE (µS/CM)
POTOMAC RIVER BASIN									
01117000 HUNT RIVER NEAR EAST GREENWICH, RI									
OCT 1989					JUN 1990				
25...	1230	78	10.0	101	11...	1630	61	17.0	118
MAR 1990					AUG				
21...	1000	75	8.5	130	09...	1530	24	24.0	140
MAY					SEP				
03...	0930	64	14.5	117	20...	1400	10	16.5	153
PAWCATUCK RIVER BASIN									
01117350 CHIPUXET RIVER AT WEST KINGSTON, RI									
OCT 1989					MAY 1990				
18...	1415	29	12.5	90	04...	1515	33	19.0	87
DEC					JUN				
07...	1415	29	2.5	87	12...	1500	22	21.5	95
JAN 1990					SEP				
24...	1345	25	5.0	100	21...	1245	5.9	17.5	113
MAR									
12...	1430	27	6.5	97					
01117420 USQUEPAUG RIVER NEAR USQUEPAUG, RI									
OCT 1989					APR 1990				
18...	1130	100	12.0	50	30...	1430	88	12.5	72
DEC					JUN				
07...	1130	98	1.5	64	12...	1245	69	16.0	79
JAN 1990					AUG				
24...	1145	74	3.0	74	10...	1015	34	21.0	--
MAR					SEP				
12...	1200	95	8.0	62	20...	1145	20	15.5	80
01117468 BEAVER RIVER NEAR USQUEPAUG, RI									
OCT 1989					APR 1990				
18...	0945	38	11.0	49	30...	1315	26	11.0	47
DEC					JUN				
07...	0945	30	3.0	56	12...	1115	19	13.0	59
JAN 1990					AUG				
24...	1000	21	4.0	60	09...	1330	11	19.0	63
MAR					SEP				
12...	1030	26	7.5	58	21...	1100	4.9	10.5	64
01117500 PAWCATUCK RIVER AT WOOD RIVER JUNCTION, RI									
JAN 1990					JUL 1990				
30...	1130	554	3.5	58	30...	1200	140	21.0	51
APR					SEP				
27...	1130	267	14.5	43	27...	1300	65	15.5	97
MAY									
30...	1100	258	14.5	41					
01117800 WOOD RIVER NEAR ARCADIA, RI									
OCT 1989					JUN 1990				
17...	1500	82	13.5	46	13...	1515	62	17.0	38
DEC					AUG				
06...	1400	95	3.0	45	09...	1145	59	20.5	41
MAR 1990					SEP				
19...	1530	94	11.0	43	20...	1015	22	13.0	43
MAY									
01...	1600	117	15.5	24					
THAMES RIVER BASIN									
01123360 QUINEBAUG RIVER BELOW EAST BRIMFIELD DAM AT FISKDALE, MA									
MAY 1990									
23...	1125	339	9.5	70					
01123600 QUINEBAUG RIVER BELOW WESTVILLE DAM NEAR SOUTHBRIDGE, MA									
MAR 1990					MAY 1990				
01...	1205	271	1.0	110	23...	1505	472	9.5	85
APR									
08...	1130	256	5.0	114					

SUPPLEMENTAL WATER-QUALITY DATA FOR GAGING STATIONS IN MASSACHUSETTS

DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND	TEMPER- ATURE WATER (DEG C)	SPE- CIFIC CON- DUCT- ANCE (µS/CM)	DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND	TEMPER- ATURE WATER (DEG C)	SPE- CIFIC CON- DUCT- ANCE (µS/CM)
THAMES RIVER BASIN--Continued									
01124350 FRENCH RIVER BELOW DAM, AT HODGES VILLAGE, MA									
APR 1990 02...	1256	62	6.5	127	JUL 1990 02...	1230	41	--	105
01124500 LITTLE RIVER NEAR OXFORD, MA									
FEB 1990 21...	1253	71	4.0	98	SEP 1990 12...	1200	2.7	20.0	104
MAY 23...	0947	114	9.5	90					
01125000 FRENCH RIVER AT WEBSTER, MA									
FEB 1990 20...	1009	260	3.0	126	MAY 1990 21...	1427	404	11.5	99
APR 02...	1008	176	7.0	128	JUL 02...	0959	17	--	120
CONNECTICUT RIVER BASIN									
01162000 MILLERS RIVER NEAR WINCHENDON, MA									
MAR 1990 22...	1527	659	4.0	59	JUN 1990 19...	0903	52	--	74
APR 30...	1242	126	13.0	72	SEP 11...	1203	24	19.5	85
01162500 PRIEST BROOK NEAR WINCHENDON, MA									
OCT 1989 26...	1130	93	7.5	44	JUN 1990 19...	1143	7.7	--	53
FEB 1990 09...	0941	21	1.0	55	SEP 11...	1012	5.4	17.0	48
MAR 24...	1038	161	4.0	51					
01163200 OTTER RIVER AT OTTER RIVER, MA									
FEB 1990 07...	1415	58	--	214	JUL 1990 31...	0845	13	23.5	219
MAY 03...	0932	44	12.5	181					
01164000 MILLERS RIVER AT SOUTH ROYALSTON, MA									
MAR 1990 20...	1540	1350	3.5	93	JUL 1990 30...	1059	51	25.5	253
MAY 02...	1145	328	14.5	129					
01165000 EAST BRANCH TULLY RIVER NEAR ATHOL, MA									
FEB 1990 08...	1226	96	3.0	83	JUN 1990 18...	0839	31	--	40
MAR 19...	1138	207	3.5	32	SEP 10...	1214	20	23.0	42
MAY 01...	1124	95	14.0	38					
01165150 MILLERS RIVER AT ATHOL, MA									
MAR 1990 20...	1143	2050	3.0	48	MAY 1990 02...	1359	524	15.5	109
01168151 DEERFIELD RIVER NEAR ROWE, MA									
JUL 1990 30...	1130	71	20.0	43					

SUPPLEMENTAL WATER-QUALITY DATA FOR GAGING STATIONS IN MASSACHUSETTS

189

DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND	TEMPER- ATURE WATER (DEG C)	SPE- CIFIC CON- DUCT- ANCE (µS/CM)	DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND	TEMPER- ATURE WATER (DEG C)	SPE- CIFIC CON- DUCT- ANCE (µS/CM)
CONNECTICUT RIVER BASIN--Continued									
01169000 NORTH RIVER AT SHATTUCKVILLE, MA									
JAN 1990					MAY 1990				
09...	0850	79	6.0	--	22...	1352	544	13.0	65
FEB					JUN				
21...	1430	177	4.0	--	28...	1253	55	--	188
APR									
03...	1458	449	--	86					
01169900 SOUTH RIVER NEAR CONWAY, MA									
NOV 1989					MAY 1990				
21...	1510	74	3.0	--	22...	1111	143	11.0	93
FEB 1990					JUN				
23...	1210	60	2.0	--	28...	1548	16	--	139
APR									
02...	0806	80	6.0	99					
01170000 DEERFIELD RIVER NEAR WEST DEERFIELD, MA									
APR 1990					JUN 1990				
03...	1126	1090	7.0	85	29...	0856	273	--	85
MAY									
23...	1157	3970	--	49					
01170100 GREEN RIVER NEAR COLRAIN, MA									
NOV 1989					MAY 1990				
21...	1202	183	7.0	--	22...	1613	248	13.0	62
JAN 1990					JUN				
12...	0910	37	2.0	--	28...	1033	27	--	100
APR									
02...	1205	148	4.0	74					
01171300 FORT RIVER NEAR AMHERST, MA									
FEB 1990					AUG 1990				
26...	1445	136	5.0	71	09...	1040	86	--	94
MAY					SEP				
21...	1130	183	9.5	61	20...	0950	18	20.0	119
JUN									
28...	1045	18	21.0	107					
01171500 MILL RIVER AT NORTHAMPTON, MA									
DEC 1989					APR 1990				
06...	1030	62	0.0	--	17...	1200	161	13.0	73
JAN 1990					MAY				
25...	0930	45	6.0	--	30...	1317	366	--	64
MAR					JUL				
08...	0800	58	14.0	--	09...	1208	20	21.5	118
01172500 WARE RIVER NEAR BARRE, MA									
AUG 1990									
06...	1145	2.6	20.0	67					
01173000 WARE RIVER AT INTAKE WORKS NEAR BARRE, MA									
AUG 1990									
06...	1315	12	21.0	62					
01173180 WARE RIVER AT BARRE PLAINS, MA									
APR 1990					JUN 1990				
02...	1129	162	2.0	61	25...	1245	133	17.0	60
MAY									
14...	1122	315	13.0	59					

SUPPLEMENTAL WATER-QUALITY DATA FOR GAGING STATIONS IN MASSACHUSETTS

DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND	TEMPER- ATURE WATER (DEG C)	SPE- CIFIC CON- DUCT- ANCE (µS/CM)	DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND	TEMPER- ATURE WATER (DEG C)	SPE- CIFIC CON- DUCT- ANCE (µS/CM)
CONNECTICUT RIVER BASIN--Continued									
01173500 WARE RIVER AT GIBBS CROSSING, MA									
MAR 1990					JUN 1990				
09...	1025	338	2.0	71	27...	1430	160	26.0	74
APR					AUG				
06...	1145	436	6.0	66	08...	1435	651	26.0	73
MAY					SEP				
18...	1445	1090	15.0	60	19...	1210	131	18.0	92
01174600 CADWELL CREEK NEAR PELHAM, MA									
APR 1990					JUN 1990				
05...	1350	4.5	5.0	50	28...	1430	0.07	18.0	44
MAY					AUG				
22...	1420	3.2	9.5	49	09...	1443	0.35	20.0	40
01174900 CADWELL CREEK NEAR BELCHERTOWN, MA									
APR 1990					JUN 1990				
05...	1100	24	5.0	33	28...	1340	0.78	18.0	32
MAY					AUG				
21...	1400	23	9.5	30	09...	1220	1.9	20.0	34
01175500 SWIFT RIVER AT WEST WARE, MA									
FEB 1990					SEP 1990				
27...	1040	106	5.0	42	21...	0715	15	12.0	50
MAY									
24...	0725	21	5.0	48					
01175670 SEVENMILE RIVER NEAR SPENCER, MA									
JAN 1990					MAY 1990				
12...	0840	7.9	1.0	55	14...	1518	67	15.0	51
FEB					JUN				
20...	1452	22	1.0	35	25...	1540	41	24.0	56
APR					JUL				
02...	1549	22	6.0	51	30...	1000	2.8	21.0	81
01176000 QUABOAG RIVER AT WEST BRIMFIELD, MA									
APR 1990					JUN 1990				
04...	1415	516	7.0	84	27...	1430	101	26.0	140
01177000 CHICOPEE RIVER AT INDIAN ORCHARD, MA									
DEC 1989					APR 1990				
04...	1115	817	0.0	--	16...	0850	1740	--	88
JAN 1990					MAY				
29...	1215	859	12.0	--	30...	0933	1430	--	84
01179500 WESTFIELD RIVER AT KNIGHTVILLE, MA									
JUL 1990									
06...	1015	74	--	75					
01180500 MIDDLE BRANCH WESTFIELD RIVER AT GOSS HEIGHTS, MA									
DEC 1989					APR 1990				
05...	1115	54	3.0	--	17...	0755	58	9.0	44
JAN 1990					MAY				
23...	1315	63	2.0	--	31...	0917	222	--	42
MAR					JUL				
07...	1300	71	6.0	--	03...	1147	14	--	76
01181000 WEST BRANCH WESTFIELD RIVER AT HUNTINGTON, MA									
DEC 1989					APR 1990				
04...	1545	86	0.0	--	06...	1011	520	10.0	84
JAN 1990					16...	1420	283	12.0	63
23...	1040	109	1.5	--	MAY				
MAR					31...	1346	475	--	60
06...	1415	159	12.0	--	JUL				
					03...	0928	39	--	93

SUPPLEMENTAL WATER-QUALITY DATA FOR GAGING STATIONS IN MASSACHUSETTS

191

DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND	TEMPER- ATURE WATER (DEG C)	SPE- CIFIC CON- DUCT- ANCE (μ S/CM)	DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND	TEMPER- ATURE WATER (DEG C)	SPE- CIFIC CON- DUCT- ANCE (μ S/CM)
CONNECTICUT RIVER BASIN--Continued									
01183500 WESTFIELD RIVER NEAR WESTFIELD, MA									
JUL 1990 09...	0956	179	--	144					
01185500 WEST BRANCH FARMINGTON RIVER NEAR NEW BOSTON, MA									
OCT 1989 25...	1215	492	9.0	--	APR 1990 24...	1230	158	9.0	--
DEC 28...	1200	57	0.0	--	JUN 07...	0830	115	16.0	--
FEB 1990 15...	1315	241	0.5	--	AUG 14...	1205	190	21.0	52
HOUSATONIC RIVER BASIN									
01197000 EAST BRANCH HOUSATONIC RIVER AT COLTSVILLE, MA									
NOV 1989 27...	1245	93	8.0	203	JUN 1990 19...	0730	41	20.0	290
MAR 1990 28...	1445	160	3.0	158	SEP 27...	0750	67	14.0	276
01197500 HOUSATONIC RIVER NEAR GREAT BARRINGTON, MA									
APR 1990 05...	0915	2160	5.0	170	SEP 1990 20...	1010	247	14.0	310
JUL 05...	1230	244	24.0	311					
HUDSON RIVER BASIN									
01331500 HOOSIC RIVER AT ADAMS, MA									
JAN 1990 04...	1015	52	2.0	164	JUN 1990 18...	1323	54	20.0	223
FEB 13...	0800	111	2.0	--	JUL 30...	1330	20	21.0	269
MAR 27...	1102	202	2.5	174	SEP 26...	1535	21	14.0	253
MAY 07...	1157	113	11.0	184					
01332000 NORTH BRANCH HOOSIC RIVER AT NORTH ADAMS, MA									
FEB 1990 14...	0810	90	2.0	--	JUN 1990 19...	1540	29	15.0	99
MAR 29...	0858	80	2.0	74	JUL 31...	1443	16	23.0	152
MAY 08...	1520	113	11.0	62					
01332500 HOOSIC RIVER NEAR WILLIAMSTOWN, MA									
NOV 1989 29...	1100	331	--	352	JUL 1990 31...	1215	57	21.0	396
MAY 1990 08...	1315	354	10.0	190	SEP 26...	1155	119	17.0	280
JUN 19...	1046	130	18.5	279					
01333000 GREEN RIVER AT WILLIAMSTOWN, MA									
JAN 1990 09...	1530	25	1.0	172	JUN 1990 19...	1445	36	21.0	194
FEB 13...	1245	119	2.0	--	JUL 31...	1030	10	21.0	242
MAR 28...	1130	139	2.0	153	SEP 27...	1600	22	17.0	209
MAY 08...	1000	114	10.0	159					

GROUND-WATER LEVELS IN MASSACHUSETTS

BARNSTABLE COUNTY

413956070164301. Barnstable well A1W 230.

LOCATION.--Lat 41°39'56", long 70°16'43", Barnstable County, Hydrologic Unit 01090002, 50 ft west of Mary Dunn Road at Hyannis Airport and 0.3 mi north of intersection of Willow Street and State Highway 28 in Barnstable.

Owner: U.S. Geological Survey.

AQUIFER.--Glacial sand and gravel of Pleistocene age.

WELL CHARACTERISTICS.--Augered observation water-table well, diameter 1.25 in, depth 35.8 ft, screened 32.8 to 35.8 ft.

INSTRUMENTATION.--Monthly measurement with chalked tape by observer.

DATUM.--Elevation of land-surface datum is 43.23 ft above National Geodetic Vertical Datum of 1929. Measuring point:

Top of casing, at land-surface datum.

PERIOD OF RECORD.--January 1958 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 20.51 ft below land-surface datum, May 20, 1987; lowest measured, 26.68 ft below land-surface datum, Oct. 25, 1988.

WATER LEVELS, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 26	25.23	DEC 20	24.87	FEB 20	24.20	APR 22	23.90	JUN 26	23.43	AUG 21	24.53
NOV 22	24.81	JAN 26	25.16	MAR 20	23.90	MAY 21	23.63	JUL 21	23.92	SEP 21	25.18

414154070165001. Barnstable well A1W 247.

LOCATION.--Lat 41°41'54", long 70°16'50", Barnstable County, Hydrologic Unit 01090002, 30 ft east of Mary Dunn Road and 0.2 mi south of State Highway 6A in Barnstable.

Owner: U.S. Geological Survey.

AQUIFER.--Glacial sand and gravel of Pleistocene age.

WELL CHARACTERISTICS.--Augered observation water-table well, diameter 1.25 in, depth 52 ft, screened 49 to 52 ft.

INSTRUMENTATION.--Monthly measurement with chalked tape by observer.

DATUM.--Elevation of land-surface datum is 44.52 ft above National Geodetic Vertical Datum of 1929. Measuring point:

Top of casing, 2.0 ft above land-surface datum.

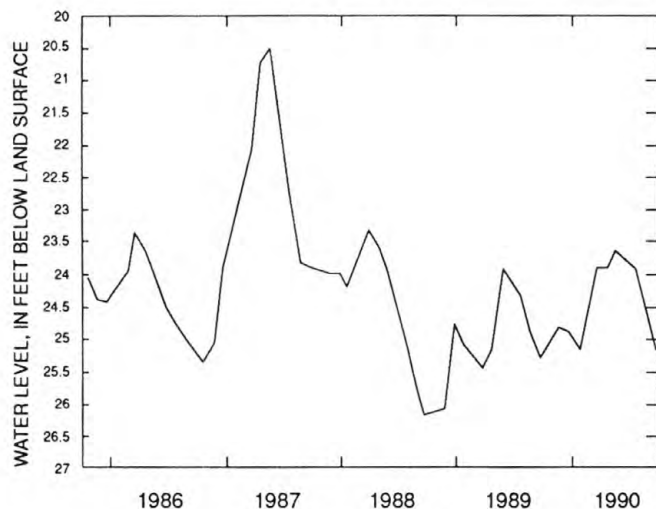
PERIOD OF RECORD.--November 1962 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 20.73 ft below land-surface datum, May 26, 1987; lowest measured, 28.64 ft below land-surface datum, Oct. 25, 1966.

WATER LEVELS, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

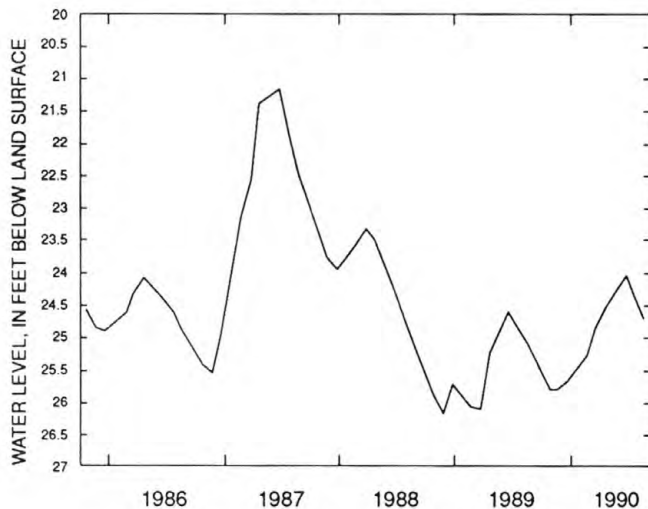
DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 26	25.80	DEC 20	25.67	FEB 20	25.26	APR 22	24.53	JUN 26	24.03	AUG 21	24.71
NOV 22	25.79	JAN 26	25.82	MAR 20	24.83	MAY 21	24.23	JUL 21	24.35	SEP 21	25.10

A1W 230



WATER YEARS

A1W 247



WATER YEARS

GROUND-WATER LEVELS IN MASSACHUSETTS

193

BARNSTABLE COUNTY

414129070361401. Bourne well BHW 198.

LOCATION.--Lat 41°41'29", long 70°36'14", Barnstable County, Hydrologic Unit 01090002, 50 ft west of County Road and 0.3 mi south of Pocasset Road in Bourne.

Owner: U.S. Geological Survey.

AQUIFER.--Glacial sand and gravel of Pleistocene age.

WELL CHARACTERISTICS.--Augered observation water-table well, diameter 1.25 in, depth 50 ft, screened 47 to 50 ft.

INSTRUMENTATION.--Monthly measurement with chalked tape by observer.

DATUM.--Elevation of land-surface datum is 55.56 ft above National Geodetic Vertical Datum of 1929. Measuring point: Top of casing, 2.47 ft above land-surface datum.

PERIOD OF RECORD.--November 1962 to current year. Prior to October 1974, published in Massachusetts Hydrologic-Data Report No. 17.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 29.88 ft below land-surface datum, Apr. 22, 1987; lowest measured, 36.17 ft below land-surface datum, Oct. 25, 1966.

WATER LEVELS, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 25	33.80	DEC 26	33.52	FEB 22	32.85	APR 24	32.29	JUN 22	32.34	AUG 24	33.41
NOV 27	33.55	JAN 29	33.53	MAR 27	32.54	MAY 25	32.22	JUL 26	33.05	SEP 24	33.92

414518070020301. Brewster well BMW 21.

LOCATION.--Lat 41°45'18", long 70°02'03", Barnstable County, Hydrologic Unit 01090002, about 50 ft north of Nook Road, 0.1 mi south of Cliff Pond, 0.3 mi east of Silas Road, and at Nickerson State Park in Brewster.

Owner: U.S. Geological Survey.

AQUIFER.--Glacial sand and gravel of Pleistocene age.

WELL CHARACTERISTICS.--Augered observation water-table well, diameter 2.5 in, depth 25 ft, screened 22 to 25 ft.

INSTRUMENTATION.--Monthly measurement with chalked tape by observer.

DATUM.--Elevation of land-surface datum is 36.97 ft above National Geodetic Vertical Datum of 1929. Measuring point: Top of casing, 2.40 ft above land-surface datum.

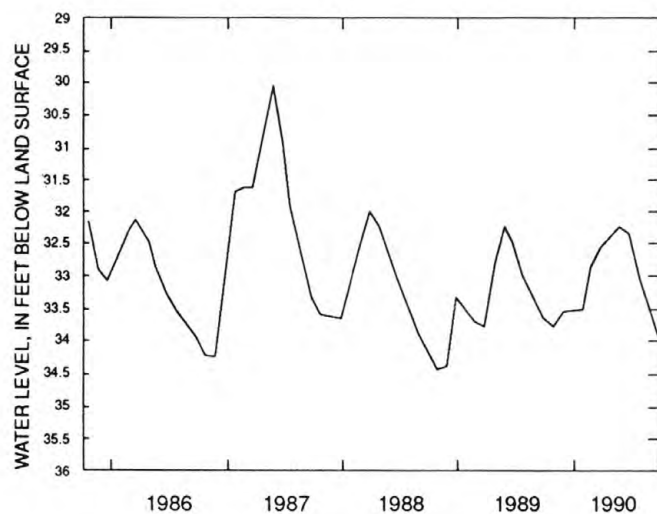
PERIOD OF RECORD.--October 1957 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 6.90 ft below land-surface datum, Apr. 25, 1974; lowest measured, 13.34 ft below land-surface datum, Oct. 25, 1966.

WATER LEVELS, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

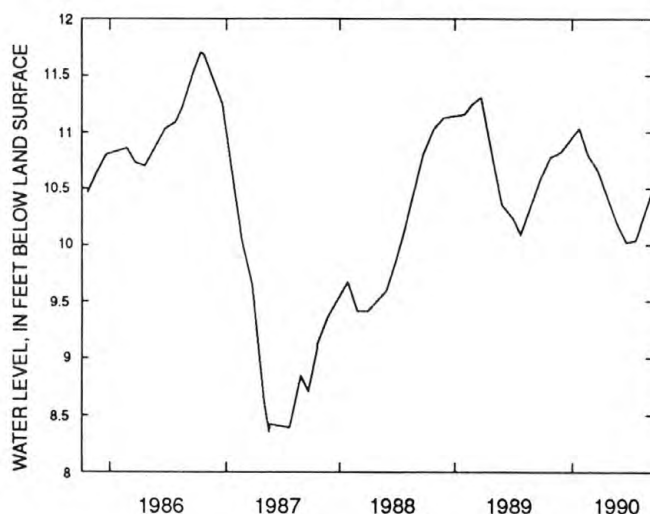
DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 26	10.79	DEC 27	11.07	FEB 21	10.81	APR 24	10.45	JUN 22	10.03	AUG 29	10.28
NOV 27	10.83	JAN 23	11.05	MAR 26	10.66	MAY 24	10.20	JUL 25	10.04	SEP 20	10.54

BHW 198



WATER YEARS

BMW 21



WATER YEARS

GROUND-WATER LEVELS IN MASSACHUSETTS

BARNSTABLE COUNTY--Continued

414630070014901. Brewster well BMW 22.

LOCATION.--Lat 41°46'30", long 70°01'49", Barnstable County, Hydrologic Unit 01090002, 50 ft east of entrance to Nickerson State Park and 50 ft south of State Highway 6A in Brewster.

Owner: U.S. Geological Survey.

AQUIFER.--Glacial sand and gravel of Pleistocene age.

WELL CHARACTERISTICS.--Augered observation water-table well, diameter 1.25 in, depth 52 ft, screened 49 to 52 ft.

INSTRUMENTATION.--Monthly measurement with chalked tape by observer.

DATUM.--Elevation of land-surface datum is 50.45 ft above National Geodetic Vertical Datum of 1929. Measuring point: Top of casing, at land-surface datum.

PERIOD OF RECORD.--November 1962 to current year. Prior to October 1974, published in Massachusetts Hydrologic-Data Report No. 17.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 28.13 ft below land-surface datum, May 26, 1983; lowest measured, 33.60 ft below land-surface datum, Jan. 31, 1966.

WATER LEVELS, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 26	31.61	DEC 27	31.50	FEB 21	31.40	APR 24	30.84	JUN 22	30.38	AUG 29	30.85
NOV 27	31.35	JAN 23	31.92	MAR 26	31.08	MAY 24	30.58	JUL 25	30.43	SEP 20	31.18

414100070011101. Chatham well CGW 138.

LOCATION.--Lat 41°41'00", long 70°01'11", Barnstable County, Hydrologic Unit 01090002, 50 ft east of State Highway 137 and 300 ft north of State Highway 28 in Chatham.

Owner: U.S. Geological Survey.

AQUIFER.--Glacial sand and gravel of Pleistocene age.

WELL CHARACTERISTICS.--Augered observation water-table well, diameter 1.25 in, depth 44 ft, screened 41 to 44 ft.

INSTRUMENTATION.--Monthly measurement with chalked tape by observer.

DATUM.--Elevation of land-surface datum is 35.28 ft above National Geodetic Vertical Datum of 1929. Measuring point: Top of casing, 4.77 ft above land-surface datum; prior to June 1980, 3.80 ft above land-surface datum.

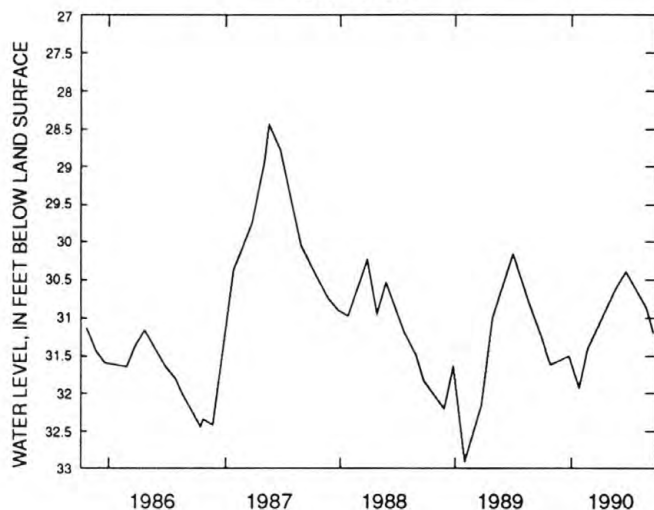
PERIOD OF RECORD.--November 1962 to current year. Prior to October 1974, published in Massachusetts Hydrologic-Data Report No. 17.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 20.94 ft below land-surface datum, Apr. 25, 1983; lowest measured, 26.38 ft below land-surface datum, Sept. 25, 1980.

WATER LEVELS, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

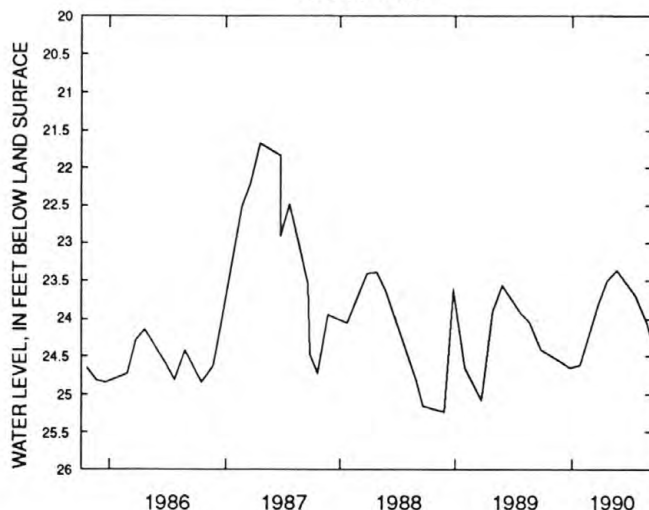
DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 26	24.64	DEC 27	24.64	FEB 21	25.03	APR 24	23.48	JUN 22	23.28	AUG 29	24.05
NOV 27	24.56	JAN 23	24.61	MAR 26	23.78	MAY 24	23.33	JUL 25	23.68	SEP 20	24.36

BMW 22



WATER YEARS

CGW 138



WATER YEARS

GROUND-WATER LEVELS IN MASSACHUSETTS

195

BARNSTABLE COUNTY--Continued

413525070291904. Mashpee well MIW 29.

LOCATION.--Lat 41°35'25", long 70°29'19", Barnstable County, Hydrologic Unit 01090002, 20 ft west of dirt road, 0.8 mi north of intersection of Great Hay Road and dirt road which is 0.12 mi northeast of intersection of Red Brook Road and Great Hay Road in Mashpee.

Owner: Town of Mashpee.

AQUIFER.--Glacial sand and gravel of Pleistocene age.

WELL CHARACTERISTICS.--Hydraulic-rotary drilled observation water-table well, diameter 2.0 in, depth 40.0 ft, screened 37.0 to 40.0 ft.

INSTRUMENTATION.--Monthly measurement with chalked tape by observer.

DATUM.--Elevation of land-surface datum is 15.78 above National Geodetic Vertical Datum of 1929. Measuring point: Top of steel coupling, 1.36 ft above land-surface datum.

PERIOD OF RECORD.--February 1976 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 5.62 ft below land-surface datum, Apr. 22 1987; lowest measured, 10.03 ft below land-surface datum, Oct. 24, 1980.

WATER LEVELS, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 24	9.00	DEC 26	8.94	FEB 22	8.08	APR 24	7.90	JUN 22	7.94	AUG 24	8.97
NOV 27	8.72	JAN 29	8.69	MAR 27	8.20	MAY 25	7.73	JUL 26	8.46	SEP 24	9.39

414418070241601. Sandwich well SDW 252.

LOCATION.--Lat 41°44'18", long 70°24'16", Barnstable County, Hydrologic Unit 01090002, 0.5 mi north of State Highway 6A and 15 ft east of Private Road in Sandwich.

Owner: U.S. Geological Survey.

AQUIFER.--Glacial sand and gravel of Pleistocene age.

WELL CHARACTERISTICS.--Augered observation water-table well, diameter 1.25 in, depth 57 ft, screened 55 to 57 ft.

INSTRUMENTATION.--Monthly measurement with chalked tape by observer.

DATUM.--Elevation of land-surface datum is 53.47 ft above National Geodetic Vertical Datum of 1929. Measuring point: Top of casing, 1.0 ft above land-surface datum.

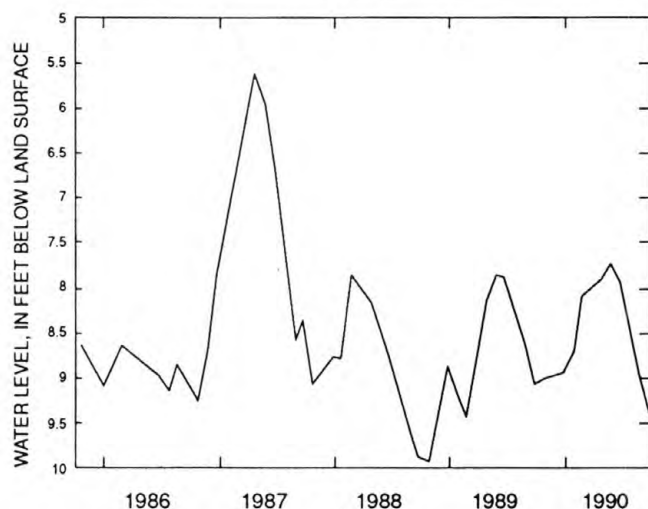
PERIOD OF RECORD.--November 1962 to current year. Prior to October 1974, published in Massachusetts Hydrologic-Data Report No. 17.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 45.88 ft below land-surface datum, Apr. 25, 1983; lowest measured, 48.23 ft below land-surface datum, Oct. 25, 1966.

WATER LEVELS, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

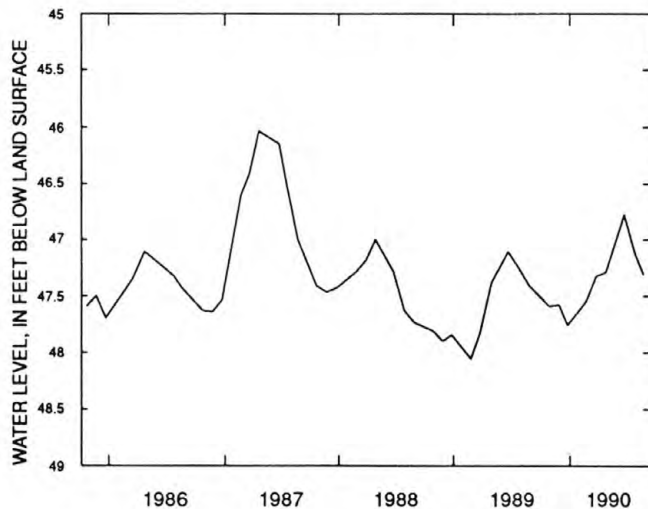
DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 24	47.59	DEC 26	47.75	FEB 22	47.55	APR 24	47.29	JUN 22	46.78	AUG 24	47.30
NOV 27	47.57	JAN 29	47.87	MAR 27	47.33	MAY 25	46.89	JUL 26	47.12	SEP 24	47.34

MIW 29



WATER YEARS

SDW 252



WATER YEARS

GROUND-WATER LEVELS IN MASSACHUSETTS

BARNSTABLE COUNTY--Continued

414124070265901. Sandwich well SDW 253.

LOCATION.--Lat 41°41'24", long 70°26'59", Barnstable County, Hydrologic Unit 01090002, 800 ft west of Stowe Road and 50 ft south of Farmersville Road in Sandwich.

Owner: U.S. Geological Survey.

AQUIFER.--Glacial sand and gravel of Pleistocene age.

WELL CHARACTERISTICS.--Augered observation water-table well, diameter 1.25 in, depth 70 ft, screened 67 to 70 ft.

INSTRUMENTATION.--Monthly measurement with chalked tape by observer.

DATUM.--Elevation of land-surface datum is 111.20 ft above National Geodetic Vertical Datum of 1929. Measuring point: Top of casing, 3.0 ft above land-surface datum.

PERIOD OF RECORD.--November 1962 to current year. Prior to October 1974, published in Massachusetts Hydrologic-Data Report No. 17.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 45.78 ft below land-surface datum, July 30, 1973; lowest measured, 55.05 ft below land-surface datum, Feb. 28, 1967.

WATER LEVELS, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 24	50.75	DEC 26	51.04	FEB 22	50.66	APR 24	50.27	JUN 22	49.81	AUG 24	50.37
NOV 27	50.84	JAN 29	51.00	MAR 27	50.55	MAY 25	49.88	JUL 26	50.12	SEP 24	50.69

420239070062001. Truro well TSW 1.

LOCATION.--Lat 42°02'39", long 70°06'20", Barnstable County, Hydrologic Unit 01090002, near old pumping station about 200 ft north of State Highway 6A and 1.2 mi northwest of North Truro.

Owner: Town of Provincetown.

AQUIFER.--Glacial sand and gravel of Pleistocene age.

WELL CHARACTERISTICS.--Driven observation water-table well, diameter 1.25 in, depth 68 ft, cased to 68 ft, open end.

INSTRUMENTATION.--Monthly measurement with chalked tape by observer.

DATUM.--Elevation of land-surface datum is 16.80 ft above National Geodetic Vertical Datum of 1929. Measuring point: Top of casing, 3.50 ft above land-surface datum.

REMARKS.--Water levels affected by pumping, barometric pressure, and tide.

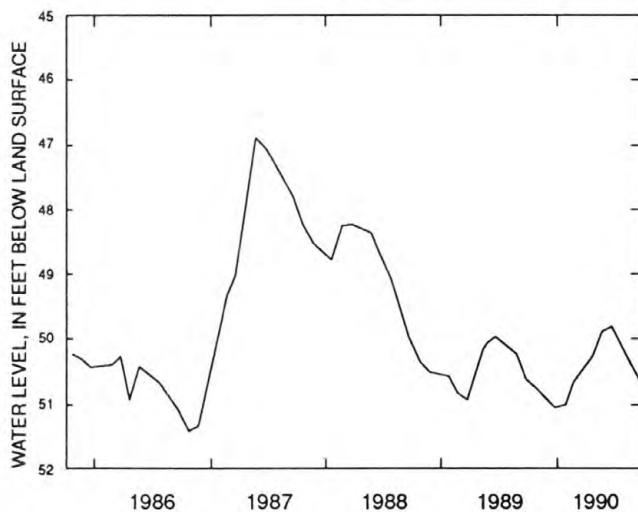
PERIOD OF RECORD.--August 1950 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 9.28 ft below land-surface datum, Mar. 23, 1983; lowest measured, 12.10 ft below land-surface datum, Sept. 11, 1954.

WATER LEVELS, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

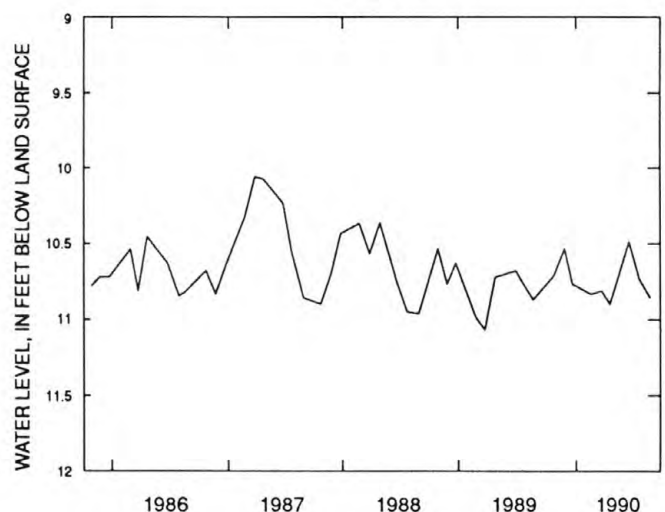
DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 26	10.71	DEC 27	10.76	FEB 21	10.83	APR 24	10.90	JUN 22	10.49	AUG 29	10.85
NOV 27	10.52	JAN 23	10.82	MAR 26	10.80	MAY 24	10.48	JUL 25	10.73	SEP 20	10.64

SDW 253



WATER YEARS

TSW 1



WATER YEARS

GROUND-WATER LEVELS IN MASSACHUSETTS

197

BARNSTABLE COUNTY--Continued

420206070045901. Truro well TSW 89.

LOCATION.--Lat 42°02'06", long 70°04'59", Barnstable County, Hydrologic Unit 01090002, 300 ft west of U.S. Highway 6 and 50 ft north of Highland Road in Truro.

Owner: U.S. Geological Survey.

AQUIFER.--Glacial sand and gravel of Pleistocene age.

WELL CHARACTERISTICS.--Augered observation water-table well, diameter 1.25 in, depth 27.7 ft, screened 24.7 to 27.7 ft.

INSTRUMENTATION.--Monthly measurement with chalked tape by observer.

DATUM.--Elevation of land-surface datum is 16.60 ft above National Geodetic Vertical Datum of 1929. Measuring point: Top of casing, 0.22 ft above land-surface datum.

PERIOD OF RECORD.--September 1962 to current year. Prior to October 1974, published in Massachusetts Hydrologic-Data Report No. 17.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 10.20 ft below land-surface datum, Apr. 25, 1983; lowest measured, 12.96 ft below land-surface datum, Sept. 28, 1965.

WATER LEVELS, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 26	e12.35	DEC 27	12.57	FEB 21	12.34	APR 24	12.35	JUN 22	12.14	AUG 29	12.48
NOV 27	12.35	JAN 23	e12.31	MAR 26	12.38	MAY 24	12.19	JUL 25	12.27	SEP 20	12.53

e Estimated

415353069585401. Wellfleet well WNW 17.

LOCATION.--Lat 41°53'53", long 69°58'54", Barnstable County, Hydrologic Unit 01090002, about 150 ft east of old pumping station and 45 ft west of road to the public beach at Cape Cod National Seashore in Wellfleet.

Owner: Cape Cod National Seashore.

AQUIFER.--Glacial sand and gravel of Pleistocene age.

WELL CHARACTERISTICS.--Driven observation water-table well, diameter 2.5 in, depth 42 ft, screen information not available.

INSTRUMENTATION.--Monthly measurement with chalked tape by observer.

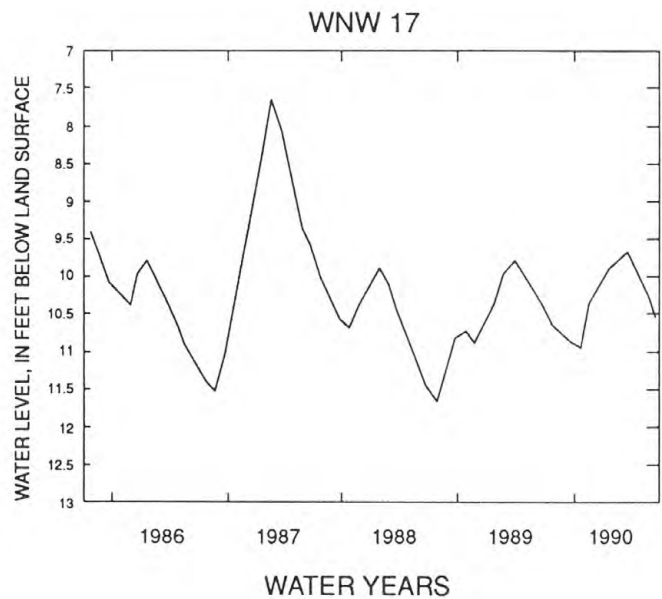
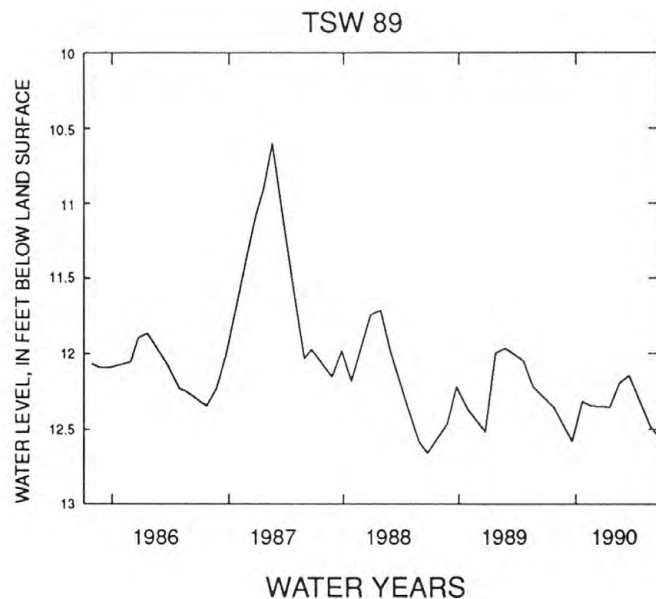
DATUM.--Elevation of land-surface datum is 19.10 ft above National Geodetic Vertical Datum of 1929. Measuring point: Top of casing, 1.13 ft above land-surface datum.

PERIOD OF RECORD.--November 1962 to current year. Prior to October 1974, published in Massachusetts Hydrologic-Data Report No. 17.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 7.27 ft below land-surface datum, June 27, 1967; lowest measured, 12.75 ft below land-surface datum, Jan. 31, 1967.

WATER LEVELS, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 26	10.63	DEC 27	10.85	FEB 21	10.35	APR 24	9.90	JUN 22	9.67	AUG 29	10.28
NOV 27	10.73	JAN 23	10.94	MAR 26	10.01	MAY 24	9.77	JUL 25	9.96	SEP 20	10.52



GROUND-WATER LEVELS IN MASSACHUSETTS

BERKSHIRE COUNTY

421550073025101. Becket well A3W 12.

LOCATION.--Lat 42°15'50", long 73°02'51", Berkshire County, Hydrologic Unit 01080206, at edge of Bonny Rigg Restaurant parking lot, 30 ft north of Route 20 and 0.2 mi east of Route 8.

Owner: Jim McCann.

AQUIFER.--Glacial sand and gravel of Pleistocene age.

WELL CHARACTERISTICS.--Augered observation water-table well, diameter 2.0 in, depth 35 ft, screened 25 to 35 ft.

INSTRUMENTATION.--Monthly measurement with chalked tape by observer.

DATUM.--Elevation of land-surface datum is 1285 ft above National Geodetic Vertical Datum of 1929. Measuring point: Top of casing 3.00 ft above land-surface datum.

PERIOD OF RECORD.--October 1986 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 2.56 ft below land-surface datum, July 22, 1988; lowest measured, 4.62 ft below land-surface datum, Aug. 23, 1988.

WATER LEVELS, IN FEET BELOW LAND SURFACE DATUM, WATER YEARS OCTOBER 1989 TO SEPTEMBER 1990

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 24	3.39	JAN 02	3.50	FEB 22	3.73	APR 22	3.76	JUN 22	4.33	AUG 23	4.10
NOV 22	3.76	24	4.12	MAR 23	3.28	MAY 22	3.04	JUL 24	4.47	SEP 24	4.44

423503073075401. Cheshire well CJW 2.

LOCATION.--Lat 42°35'03", long 73°07'54", Berkshire County, Hydrologic Unit 02020003, at intersection of Wells and Jenks Roads 2.3 mi northeast of Cheshire.

Owner: John Jayko.

AQUIFER.--Glacial till of Pleistocene age.

WELL CHARACTERISTICS.--Dug observation water-table well, diameter 30 in, depth 22 ft, cased with stone to 22 ft, open end.

INSTRUMENTATION.--Monthly measurement with chalked tape by observer.

DATUM.--Elevation of land-surface datum is 1,210 ft, above National Geodetic Vertical Datum of 1929. Measuring point: Inside rim of concrete well top, 1.0 ft above land-surface datum.

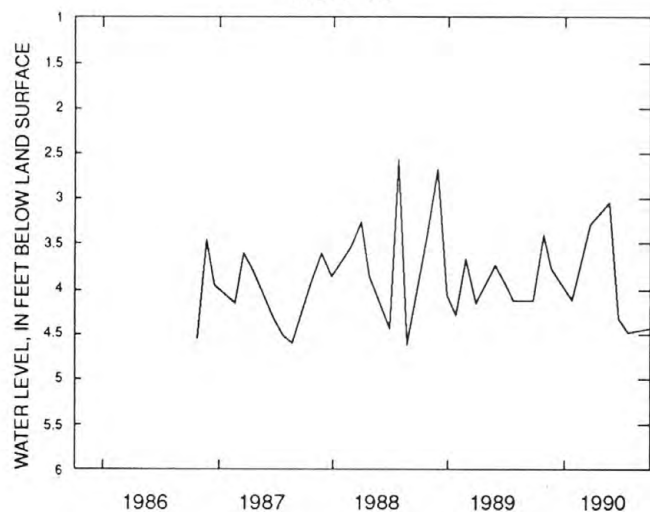
PERIOD OF RECORD.--October 1951 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 0.09 ft below land-surface datum, Jan. 19, 1952; lowest measured, 14.03 ft below land-surface datum, Nov. 20, 1964.

WATER LEVELS, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

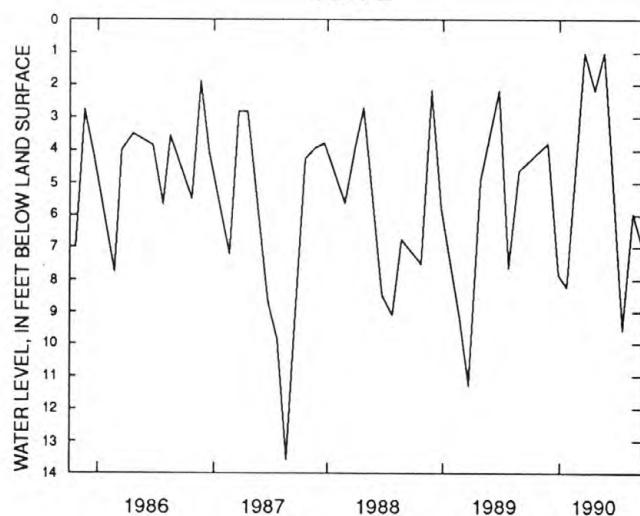
DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 23	2.97	DEC 29	7.85	FEB 23	5.34	APR 23	2.14	JUN 23	5.39	AUG 25	5.96
NOV 24	3.81	JAN 25	8.22	MAR 23	.99	MAY 23	1.02	JUL 25	9.58	SEP 25	7.04

A3W 12



WATER YEARS

CJW 2



WATER YEARS

GROUND-WATER LEVELS IN MASSACHUSETTS

199

BERKSHIRE COUNTY

421316073212801. Great Barrington well GMW 2.

LOCATION.--Lat 42°13'16", long 73°21'28", Berkshire County, Hydrologic Unit 01100005, 30 ft west of State Highway 41 and 1.5 mi north of intersection of State Highway 41 and U.S. Highway 7 in Great Barrington.

Owner: Mr. Jacobson.

AQUIFER.--Glacial outwash of Pleistocene age.

WELL CHARACTERISTICS.--Dug observation water-table well, diameter 36 in, depth 15 ft, cased with stone to 15 ft, open end.

INSTRUMENTATION.--Monthly measurement with chalked tape by observer.

DATUM.--Elevation of land-surface datum is 732 ft above National Geodetic Vertical Datum of 1929. Measuring point: Top of stone curbing, east side of well 1.12 ft above land-surface datum. Prior to July 25, 1978, measured at land-surface datum.

REMARKS.--Water level affected by stream.

PERIOD OF RECORD.--June 1951 to current year. Continuous graphic recorder January 1968 to August 1982.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 3.99 ft below land-surface datum, Apr. 21, 1983; lowest measured, 14.97 ft below land-surface datum, Nov. 20, 1964.

WATER LEVELS, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 25	7.57	DEC 29	12.12	FEB 23	8.87	APR 23	7.55	JUN 23	8.51	AUG 25	8.31
NOV 24	8.70	JAN 25	11.38	MAR 23	6.04	MAY 23	7.31	JUL 25	11.98	SEP 25	11.72

420912073043001. Otis well OTW 7.

LOCATION.--Lat 42°09'12", long 73°04'30", Berkshire County, Hydrologic Unit 01080207, about 400 ft south of Hawley Road and 15 ft west of State Highway 8 in Otis.

Owner: U.S. Geological Survey.

AQUIFER.--Glacial sand and gravel of Pleistocene age.

WELL CHARACTERISTICS.--Augered observation water-table well, diameter 2.0 in, depth 17.5 ft, screened 15.5 to 17.5 ft.

INSTRUMENTATION.--Monthly measurement with chalked tape by observer.

DATUM.--Elevation of land-surface datum is 1,145 ft above National Geodetic Vertical Datum of 1929. Measuring point: Top of casing, 3.5 ft above land-surface datum.

REMARKS.--Water levels affected by Minor Brook and Farmington River.

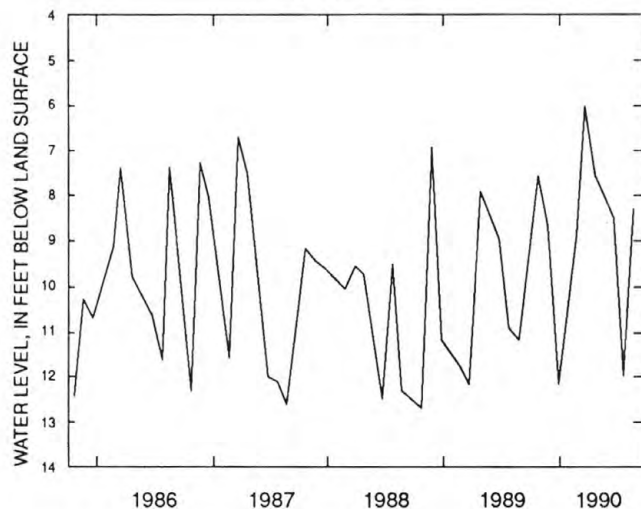
PERIOD OF RECORD.--January 1965 to current year. Prior to October 1974, published in Massachusetts Hydrologic-Data Report No. 17.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 4.55 ft below land-surface datum, Apr. 21, 1983; lowest measured, 10.16 ft below land-surface datum, Sept. 21, 1983.

WATER LEVELS, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

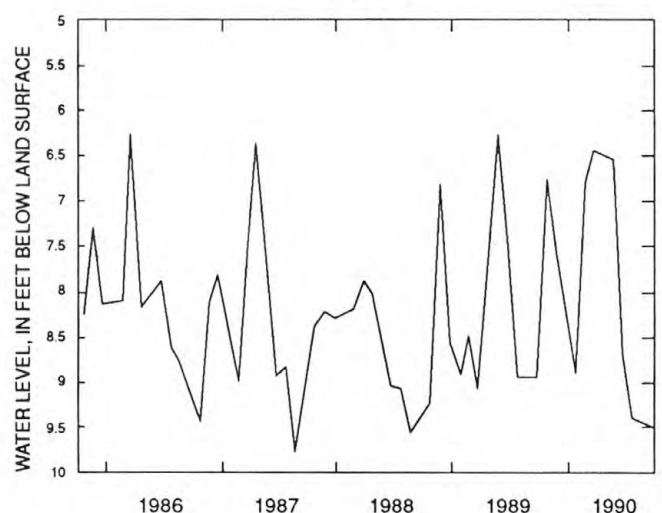
DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 25	6.75	JAN 02	8.83	FEB 23	6.78	APR 23	7.44	JUN 23	8.68	AUG 23	8.85
NOV 24	7.57	25	8.88	MAR 23	6.43	MAY 23	6.54	JUL 24	9.39	SEP 25	9.50

GMW 2



WATER YEARS

OTW 7



WATER YEARS

GROUND-WATER LEVELS IN MASSACHUSETTS

BERKSHIRE COUNTY--Continued

422745073112001. Pittsfield well PTW 51.

LOCATION.--Lat 42°27'45", long 73°11'20", Berkshire County, Hydrologic Unit 01100005, 30 ft east of Hubbard Ave. and about 100 ft north of Barton Brook in Pittsfield.

Owner: U.S. Geological Survey.

AQUIFER.--Glacial sand and gravel of Pleistocene age.

WELL CHARACTERISTICS.--Augered observation water-table well, diameter 2.0 ft, depth 31.5 ft, screened 26.5 to 31.5 ft. Prior to July 1986, augered observation water-table well, diameter 1.25 in depth 31.5 ft, screened 29.5 to 31.5 ft.

INSTRUMENTATION.--Monthly measurement with chalked tape by observer. Digital recorder (60-min punch) July 1986 to current year.

DATUM.--Elevation of land-surface datum is 1,050 ft above National Geodetic Vertical Datum of 1929. Measuring point: Top of casing, 1.83 ft above land-surface datum; prior to July 1986, top of casing, 2.50 ft above land-surface datum.

PERIOD OF RECORD.--August 1963 to current year. Prior to October 1974, published in Massachusetts Hydrologic Data Report No. 17.

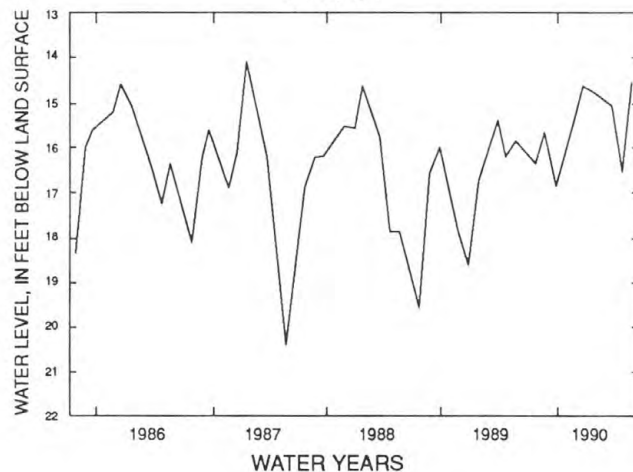
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 12.30 ft below land-surface datum, Apr. 25, 1969; lowest measured, 27.57 ft below land-surface datum, Dec. 11, 1964.

WATER LEVELS, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	17.76	15.92	---	---	15.93	15.24	14.74	14.84	14.44	15.20	16.83	14.48
2	17.82	15.90	---	---	15.87	15.24	14.77	14.84	14.47	15.24	16.89	14.48
3	17.68	15.85	---	---	15.83	15.24	14.78	14.90	14.49	15.28	16.94	14.49
4	17.61	15.78	---	m16.62	15.79	15.24	14.62	14.93	14.51	15.30	16.98	m14.55
5	17.65	15.78	---	16.66	15.78	15.29	14.57	14.90	14.56	15.33	17.02	---
6	17.77	15.78	---	16.66	15.78	15.35	14.57	14.90	14.64	15.39	16.99	---
7	17.83	15.73	---	16.66	15.76	15.41	14.57	14.95	14.68	15.46	16.36	---
8	17.87	15.72	---	16.64	15.76	15.42	14.57	14.98	14.75	15.53	15.92	---
9	17.99	15.68	---	16.63	15.76	15.44	14.57	15.01	14.78	15.61	15.76	---
10	18.07	15.59	---	16.61	15.65	15.48	14.60	15.01	14.80	15.66	15.59	---
11	18.13	15.57	---	16.59	15.56	15.49	14.56	14.95	14.83	15.75	15.43	---
12	18.05	15.55	---	16.58	15.56	15.41	14.60	14.98	14.86	15.82	15.32	---
13	18.03	15.58	---	16.61	15.58	15.28	14.64	14.94	14.89	15.85	15.23	---
14	18.11	15.60	---	16.63	15.59	15.20	14.66	14.88	14.94	15.88	15.11	---
15	18.17	15.60	---	16.64	15.59	15.12	14.66	14.86	14.98	15.92	15.03	---
16	17.98	15.57	---	16.66	15.55	15.10	14.65	14.84	15.00	15.97	14.99	---
17	17.81	15.53	---	16.64	15.54	15.07	14.65	14.70	---	16.04	14.96	---
18	17.63	15.53	---	16.52	15.55	14.91	14.70	14.57	---	16.09	14.93	---
19	17.47	15.55	---	16.46	15.50	14.87	14.75	14.51	15.12	16.15	14.90	---
20	17.34	15.55	---	16.44	15.51	14.79	14.77	14.48	15.07	16.21	14.82	---
21	16.99	15.55	---	16.39	15.53	14.69	14.76	14.40	15.08	16.27	14.76	---
22	16.63	15.64	---	16.39	15.51	14.67	14.75	14.35	15.11	16.32	14.74	---
23	16.48	15.65	---	16.42	15.40	14.63	14.75	14.35	15.10	16.37	14.72	---
24	16.40	15.65	---	16.43	15.30	14.61	14.79	14.35	15.07	16.42	14.64	---
25	16.31	15.65	---	16.45	15.32	14.64	14.80	14.35	15.09	16.49	14.56	m15.36
26	16.24	15.66	---	16.28	15.33	14.65	14.79	14.36	15.12	16.53	14.53	---
27	16.18	15.73	---	16.22	15.27	14.65	14.79	14.37	15.14	16.58	14.50	---
28	16.13	15.76	---	16.18	15.24	14.66	14.80	14.40	15.17	16.63	14.49	---
29	16.08	15.76	m16.81	16.11	---	14.68	14.83	14.42	15.19	16.68	14.46	---
30	16.04	15.76	---	16.01	---	14.71	14.84	14.37	15.20	16.73	14.46	---
31	16.00	---	---	15.99	---	14.72	---	14.40	---	16.79	14.47	---
MEAN	17.30	15.67	---	---	15.58	15.03	14.70	14.68	---	15.98	15.37	---
LOW	18.17	15.92	---	---	15.93	15.49	14.84	15.01	---	16.79	17.02	---
HIGH	16.00	15.53	---	---	15.24	14.61	14.56	14.35	---	15.20	14.46	---
WTR YR 1990	HIGH 14.35 MAY 22-26 LOW 18.22 OCT 15											

PTW 51

m Measured



GROUND-WATER LEVELS IN MASSACHUSETTS

201

BERKSHIRE COUNTY--Continued

420351073193602. Sheffield well SJW 58.

LOCATION.--Lat 42°03'51", long 73°19'36", Berkshire County, Hydrologic Unit 01100005, about 100 ft east of U.S. Highway 7 and 30 ft north of Hewins Road in Sheffield.

Owner: U.S. Geological Survey.

AQUIFER.--Glacial sand and gravel of Pleistocene age.

WELL CHARACTERISTICS.--Augered observation water-table well with sand point, diameter 2.0 in, depth 32 ft, screened 27 to 32 ft.

INSTRUMENTATION.--Monthly measurement with chalked tape by observer.

DATUM.--Elevation of land-surface datum is 680 ft above National Geodetic Vertical Datum of 1929. Measuring point: Top of casing, 1.6 ft above land-surface datum.

PERIOD OF RECORD.--October 1987 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 11.02 ft below land-surface datum, June 23, 1990; lowest measured, 15.82 ft below land-surface datum, Oct. 16, 1987.

WATER LEVELS, IN FEET BELOW LAND SURFACE DATUM, WATER YEARS OCTOBER 1989 TO SEPTEMBER 1990

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 25	12.40	DEC 29	12.54	FEB 23	12.13	APR 23	11.50	JUN 23	11.02	AUG 25	12.13
NOV 24	12.28	JAN 25	13.00	MAR 23	12.02	MAY 23	11.14	JUL 25	11.80	SEP 25	12.35

BRISTOL COUNTY

415447071155301. Attleboro well ATW 83.

LOCATION.--Lat 41°54'47", long 71°15'53", Bristol County, Hydrologic Unit 01090004, about 150 ft north of parking lot and 200 ft west of dirt road at Bristol County Nursing Home in Attleboro.

Owner: U.S. Geological Survey.

AQUIFER.--Glacial sand and gravel of Pleistocene age.

WELL CHARACTERISTICS.--Augered observation water-table well, diameter 2.0 in, depth 20.6 ft, screened 18.6 to 20.6 ft.

INSTRUMENTATION.--Monthly measurement with chalked tape by observer.

DATUM.--Elevation of land-surface datum is 145 ft above National Geodetic Vertical Datum of 1929. Measuring point: Top of casing, 2.5 ft above land-surface datum.

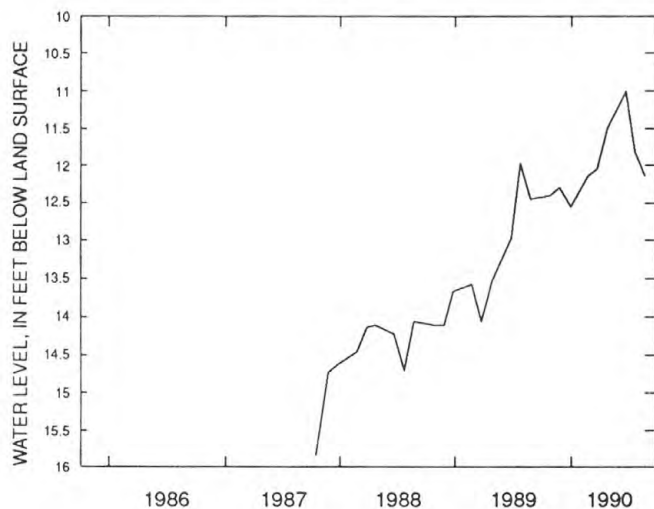
PERIOD OF RECORD.--June 1964 to current year. Prior to October 1974, published in Massachusetts Hydrologic-Data Report No. 17.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 1.98 ft below land-surface datum, Jan. 27, 1978; lowest measured, 5.23 ft below land-surface datum, Aug. 26, 1964.

WATER LEVELS, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

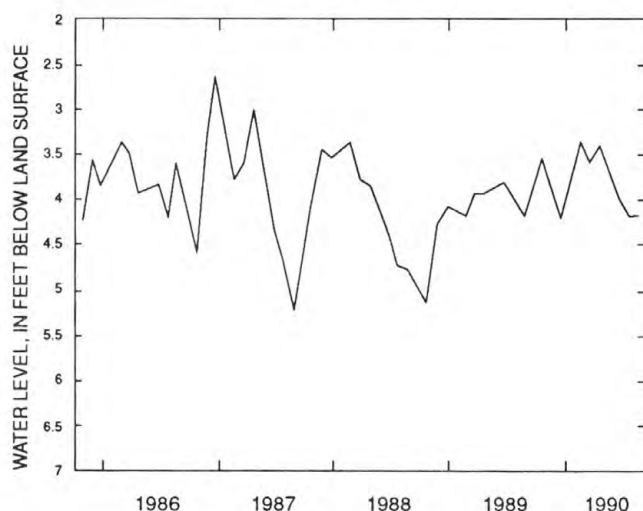
DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 21	3.54	DEC 21	4.21	FEB 20	3.36	APR 21	3.41	JUN 23	3.98	AUG 25	4.18
NOV 24	3.91	JAN 20	3.70	MAR 25	3.58	MAY 20	3.48	JUL 22	4.19	SEP 22	4.45

SJW 58



WATER YEARS

ATW 83



WATER YEARS

GROUND-WATER LEVELS IN MASSACHUSETTS

BRISTOL COUNTY--Continued

414705071045301. Freetown well F3W 23.

LOCATION.--Lat 41°47'05", long 71°04'53", Bristol County, Hydrologic Unit 01090004, about 300 ft west of State Highway 24 and 200 ft north of State Highway 79 in Freetown.

Owner: U.S. Geological Survey.

AQUIFER.--Glacial sand and gravel of Pleistocene age.

WELL CHARACTERISTICS.--Augered observation water-table well, diameter 2.0 in, depth 42 ft, screened 40 to 42 ft.

INSTRUMENTATION.--Monthly measurement with chalked tape by observer.

DATUM.--Elevation of land-surface datum is 38 ft above National Geodetic Vertical Datum of 1929. Measuring point: Top of casing, 2.0 ft above land-surface datum.

REMARKS.--Water level affected by tide.

PERIOD OF RECORD.--June 1964 to current year. Prior to October 1974, published in Massachusetts Hydrologic-Data Report No. 17.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 8.72 ft below land-surface datum, Apr. 22, 1983; lowest measured, 15.70 ft below land-surface datum, Jan. 29, 1966.

WATER LEVELS, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 21	13.67	DEC 21	13.25	FEB 20	12.87	APR 21	12.99	JUN 23	12.92	AUG 25	13.14
NOV 24	13.89	JAN 20	13.66	MAR 25	13.16	MAY 20	12.95	JUL 22	13.65	SEP 22	14.76

414025070572801. New Bedford well NGW 116.

LOCATION.--Lat 41°40'25", long 70°57'28", Bristol County, Hydrologic Unit 01090002, New Bedford Municipal Airport, 30 ft east of control tower building in New Bedford.

Owner: U.S. Geological Survey.

AQUIFER.--Glacial sand and gravel of Pleistocene age.

WELL CHARACTERISTICS.--Augered observation water-table well, diameter 2 in, depth 27.3 ft, screened 25.3 to 27.3 ft.

INSTRUMENTATION.--Monthly measurement with chalked tape by observer.

DATUM.--Elevation of land-surface datum is 65 ft above National Geodetic Vertical Datum of 1929. Measuring point: Top of casing, 1.0 ft above land-surface datum.

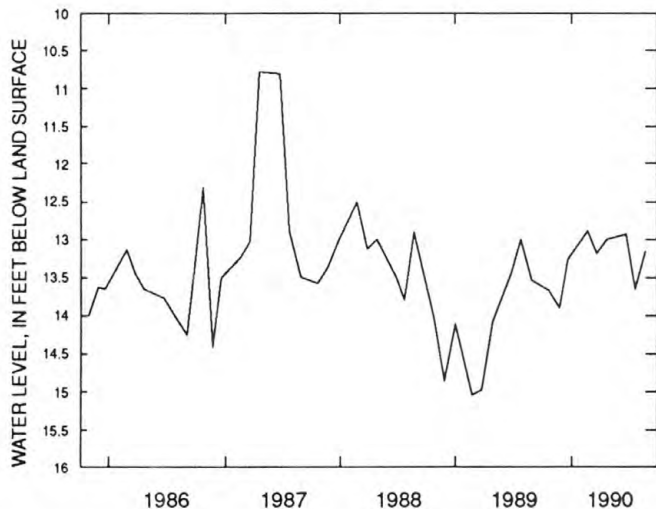
PERIOD OF RECORD.--June 1964 to current year. Prior to October 1974, published in Massachusetts Hydrologic-Data Report No. 17.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 2.31 ft below land-surface datum, Mar. 26, 1969; lowest measured, 5.20 ft below land-surface datum, July 24, 1964.

WATER LEVELS, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

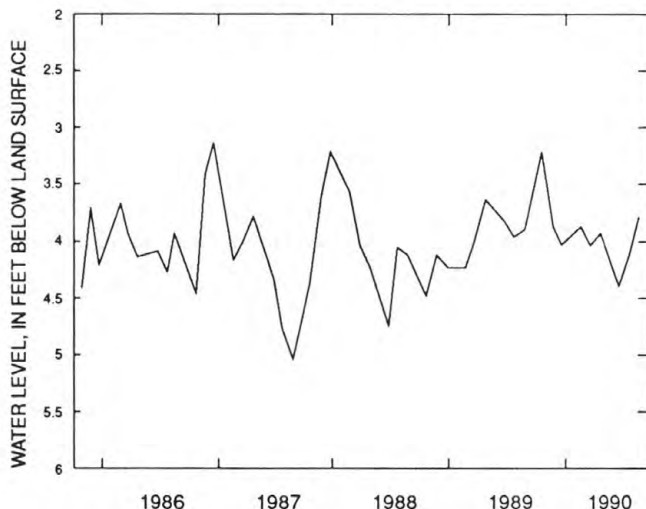
DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 21	3.21	DEC 21	4.02	FEB 20	3.86	APR 21	3.93	JUN 23	4.39	AUG 25	3.79
NOV 24	3.87	JAN 21	4.02	MAR 25	4.03	MAY 20	3.80	JUL 22	4.11	SEP 22	4.29

F3W 23



WATER YEARS

NGW 116



WATER YEARS

GROUND-WATER LEVELS IN MASSACHUSETTS

203

BRISTOL COUNTY--Continued

415812071111101. Norton well N4W 37.

LOCATION.--Lat 41°58'12", long 71°11'11", Bristol County, Hydrologic Unit 01090004, at Wheaton College, 250 ft northeast of observatory in Norton.

Owner: U.S. Geological Survey.

AQUIFER.--Glacial sand and gravel of Pleistocene age.

WELL CHARACTERISTICS.--Augered observation water-table well, diameter 2.0 in, depth 19.4 ft, screened 17.4 to 19.4 ft.

INSTRUMENTATION.--Monthly measurement with chalked tape by observer.

DATUM.--Elevation of land-surface datum is 105 ft above National Geodetic Vertical Datum of 1929. Measuring point: Top of casing, 3.0 ft above land-surface datum.

PERIOD OF RECORD.--June 1964 to current year. Prior to October 1974, published in Massachusetts Hydrologic-Data Report No. 17.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 2.35 ft below land-surface datum, Dec. 29, 1969; lowest measured, 11.24 ft below land-surface datum, Oct. 23, 1980.

WATER LEVELS, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 21	4.38	DEC 17	7.92	FEB 20	5.33	APR 21	5.88	JUN 23	7.01	AUG 25	8.74
NOV 24	5.57	JAN 20	7.78	MAR 25	6.34	MAY 20	6.13	JUL 22	8.99	SEP 22	9.71

414714071175901. Seekonk well SHW 275.

LOCATION.--Lat 41°47'14", long 71°17'59", Bristol County, Hydrologic Unit 01090004, middle of median strip of Interstate Highway 195 and 1.1 mi west of Palmer River in Seekonk.

Owner: U.S. Geological Survey.

AQUIFER.--Glacial sand and gravel of Pleistocene age.

WELL CHARACTERISTICS.--Augered observation water-table well, diameter 2.0 in, depth 14.4 ft, screened 12.4 to 14.4 ft.

INSTRUMENTATION.--Monthly measurement with chalked tape by observer.

DATUM.--Elevation of land-surface datum is 21 ft above National Geodetic Vertical Datum of 1929. Measuring point: Top of casing, 3.0 ft above land-surface datum.

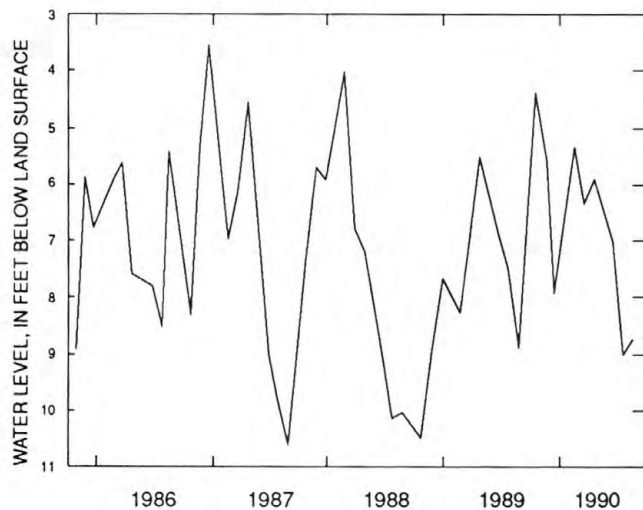
PERIOD OF RECORD.--June 1964 to current year. Prior to October 1974, published in Massachusetts Hydrologic-Data Report No. 17.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 5.02 ft below land-surface datum, Dec. 20, 1986; lowest measured, 8.02 ft below land-surface datum, Sept. 26, 1980.

WATER LEVELS, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

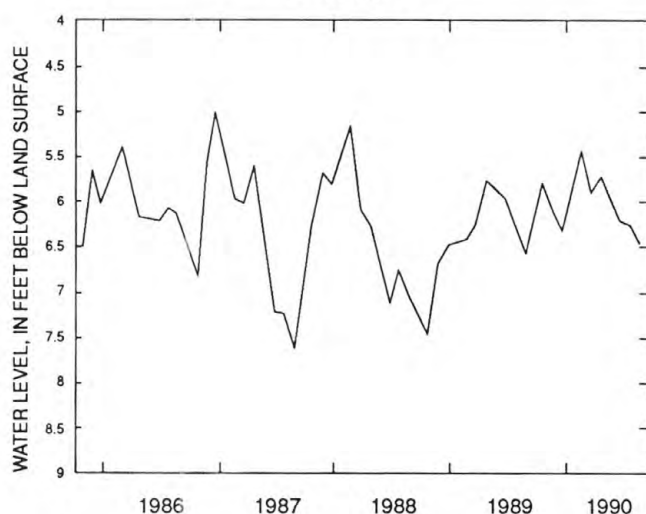
DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 21	5.78	DEC 21	6.32	FEB 20	5.44	APR 21	5.73	JUN 23	6.20	AUG 25	6.46
NOV 24	6.13	JAN 20	5.88	MAR 25	5.88	MAY 20	5.67	JUL 22	6.25	SEP 22	6.72

N4W 37



WATER YEARS

SHW 275



WATER YEARS

GROUND-WATER LEVELS IN MASSACHUSETTS

BRISTOL COUNTY--Continued

415457071060101. Taunton well TAW 337.

LOCATION.--Lat 41°54'57", long 71°06'01", Bristol County, Hydrologic Unit 01090004, Taunton State Hospital, about 200 ft west of Mill River and about 300 ft east of Danforth Street in Taunton.

Owner: U.S. Geological Survey.

AQUIFER.--Glacial sand and gravel of Pleistocene age.

WELL CHARACTERISTICS.--Augered observation water-table well, diameter 2.0 in, depth 20 ft, screened 18 to 20 ft.

INSTRUMENTATION.--Monthly measurement with chalked tape by observer.

DATUM.--Elevation of land-surface datum is 50 ft above National Geodetic Vertical Datum of 1929. Measuring point: Top of casing, 2.5 ft above land-surface datum.

REMARKS.--Water levels affected by Mill River.

PERIOD OF RECORD.--June 1964 to current year. Prior to October 1974, published in Massachusetts Hydrologic-Data Report No. 17.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 5.96 ft below land-surface datum, Dec. 29, 1969; lowest measured, 12.43 ft below land-surface datum, Oct. 22, 1988.

WATER LEVELS, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 21	8.05	DEC 21	9.49	FEB 20	7.93	APR 21	8.08	JUN 23	8.92	AUG 25	9.15
NOV 24	7.85	JAN 20	9.04	MAR 25	8.38	MAY 20	8.11	JUL 22	9.49	SEP 22	9.68

DUKES COUNTY

412346070353403. Edgartown well ENW 52.

LOCATION.--Lat 41°23'46", long 70°35'34", Dukes County, Hydrologic Unit 01090002, 0.5 mi west of Airport Road and 0.6 mi north of West Tisbury Road in Edgartown.

Owner: Martha's Vineyard State Forest.

AQUIFER.--Glacial sand, gravel and cobbles of Pleistocene age.

WELL CHARACTERISTICS.--Drilled observation water-table well, diameter 2 in, depth 64.02 ft, screened 61.02 to 64.02 ft.

INSTRUMENTATION.--Monthly measurement with chalked tape by observer.

DATUM.--Elevation of land-surface datum is 34 ft above National Geodetic Vertical Datum of 1929. Measuring point: Top of casing, 0.02 ft below land-surface datum.

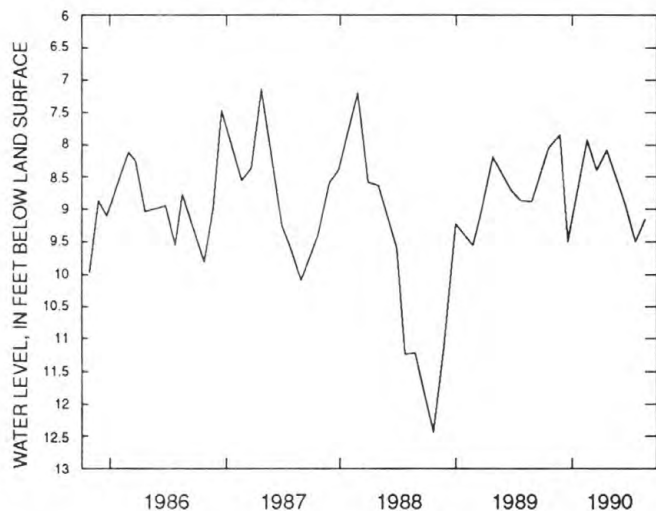
PERIOD OF RECORD.--December 1976 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 12.93 ft below land-surface datum, May 24 and June 27, 1987; lowest measured, 20.51 ft below land-surface datum, Feb. 26, 1981.

WATER LEVELS, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

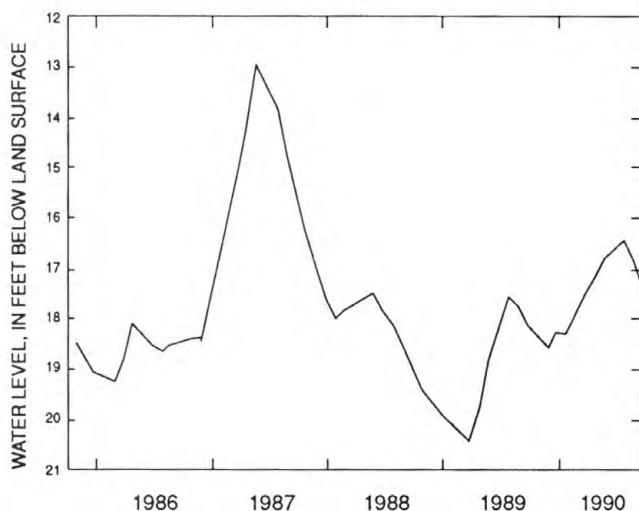
DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 27	18.50	DEC 22	18.28	FEB 22	17.94	APR 26	17.17	JUN 25	16.32	AUG 28	16.83
NOV 27	18.56	JAN 26	18.29	MAR 29	17.50	MAY 26	16.78	JUL 27	16.42	SEP 24	17.31

TAW 337



WATER YEARS

ENW 52



WATER YEARS

GROUND-WATER LEVELS IN MASSACHUSETTS

205

ESSEX COUNTY

423734071080901. Andover well AJW 26.

LOCATION.--Lat 42°37'34", long 71°08'09", Essex County, Hydrologic Unit 01070002, 90 ft north of Ballardvale Road and 30 ft west of Sunset Rock Road in Andover.

Owner: Harry K. Jenkins.

AQUIFER.--Glacial till of Pleistocene age.

WELL CHARACTERISTICS.--Dug observation water-table well, diameter 25 in, depth 15 ft, cased with stone to 15 ft, open end.

INSTRUMENTATION.--Monthly measurement with chalked tape by observer.

DATUM.--Elevation of land-surface datum is 189 ft above National Geodetic Vertical Datum of 1929. Measuring point: Upper edge of brick lip in corner of opening, 2.5 ft above land-surface datum.

PERIOD OF RECORD.--June 1962 to current year. Prior to October 1974, published in Massachusetts Hydrologic-Data Report No. 17.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 3.47 ft below land-surface datum, Mar. 26, 1969; lowest measured, dry, Oct. 26, 1986.

WATER LEVELS, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 26	12.42	DEC 17	11.50	FEB 20	9.47	APR 22	8.97	JUN 24	11.33	AUG 20	12.04
NOV 26	10.40	JAN 27	12.06	MAR 25	10.87	MAY 20	8.87	JUL 22	12.15	SEP 23	12.17

423641071102501. Andover well AJW 462.

LOCATION.--Lat 42°36'41", long 71°10'25", Essex County, Hydrologic Unit 01070002, about 1,200 ft south of Shawsheen River, and 30 ft west of Interstate Highway 93 in Andover.

Owner: U.S. Geological Survey.

AQUIFER.--Glacial sand and gravel of Pleistocene age.

WELL CHARACTERISTICS.--Augered observation water-table well, diameter 1.25 in, depth 32.5 ft, screened 30.5 to 32.5 ft.

INSTRUMENTATION.--Monthly measurement with chalked tape by observer.

DATUM.--Elevation of land-surface datum is 110 ft above National Geodetic Vertical Datum of 1929. Measuring point: Top of casing, 2.0 ft above land-surface datum.

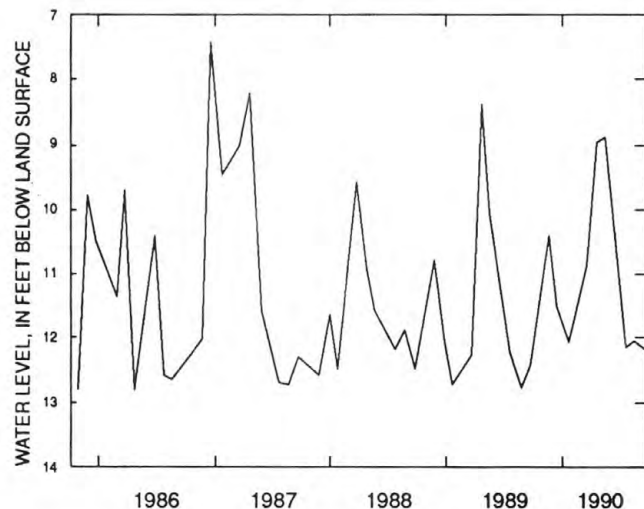
PERIOD OF RECORD.--November 1968 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 11.72 ft below land-surface datum, June 20, 1984; lowest measured, 15.80 ft below land-surface datum, Oct. 23, 1980.

WATER LEVELS, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

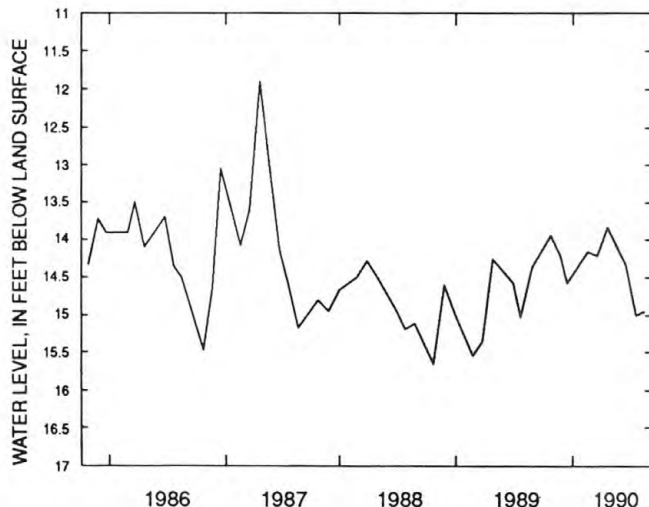
DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 26	13.93	DEC 17	14.57	FEB 20	14.15	APR 22	13.82	JUN 24	14.31	AUG 20	14.95
NOV 26	14.21	JAN 27	14.76	MAR 25	14.20	MAY 20	13.73	JUL 22	15.00	SEP 23	15.19

AJW 26



WATER YEARS

AJW 462



WATER YEARS

GROUND-WATER LEVELS IN MASSACHUSETTS

ESSEX COUNTY--Continued

424322070592401. Georgetown well GCW 168.

LOCATION.--Lat 42°43'22", long 70°59'24", Essex County, Hydrologic Unit 01090001, 18 ft south of State Highway 133 and 25 ft east of Winter Street at Murca Park in Georgetown.

Owner: U.S. Geological Survey.

AQUIFER.--Glacial outwash of Pleistocene age.

WELL CHARACTERISTICS.--Augered observation water-table well, diameter 2.0 in, depth 21 ft, screened 19 to 21 ft.

INSTRUMENTATION.--Monthly measurement with chalked tape by observer.

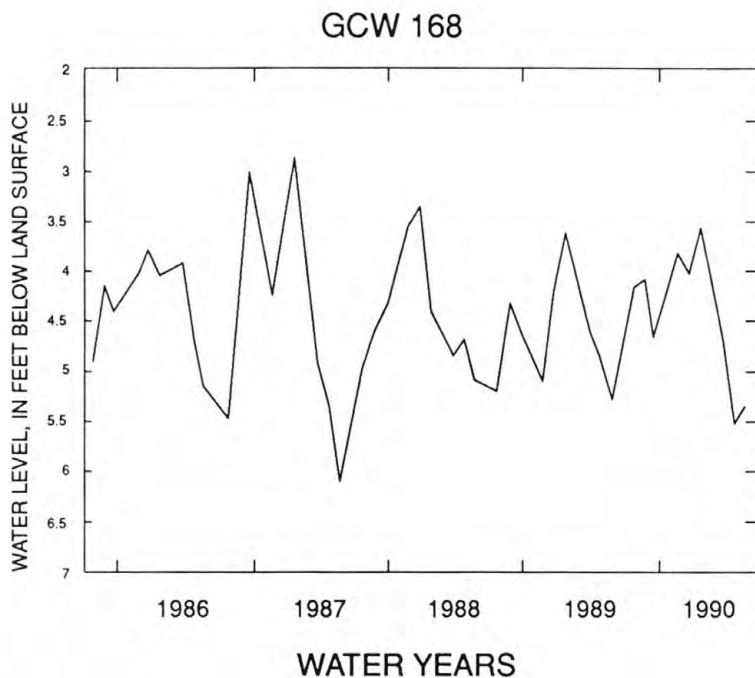
DATUM.--Elevation of land-surface datum is 80 ft above National Geodetic Vertical Datum of 1929. Measuring point: Top of casing, 2.0 ft above land-surface datum.

PERIOD OF RECORD.--January 1965 to current year. Prior to October 1974, published in Massachusetts Hydrologic-Data Report No. 17.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 2.42 ft below land-surface datum, Mar. 27, 1969; lowest measured, 6.65 ft below land-surface datum, Sept. 22, 1965.

WATER LEVELS, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 26	4.16	DEC 17	4.65	FEB 20	3.82	APR 22	3.57	JUN 24	4.69	AUG 20	5.35
NOV 26	4.08	JAN 27	4.26	MAR 25	4.02	MAY 20	3.55	JUL 22	5.52	SEP 23	5.25



GROUND-WATER LEVELS IN MASSACHUSETTS

207

ESSEX COUNTY--Continued

424841071004101. Haverhill well HLW 23.

LOCATION.--Lat 42°48'41", long 71°00'41", Essex County, Hydrologic Unit 01070002, about 50 ft north of Amesbury Line Road and 0.9 mi south of State Highway 110 in Haverhill.

Owner: Mrs. Benjamin Hamm.

AQUIFER.--Glacial sand of Pleistocene age.

WELL CHARACTERISTICS.--Dug observation water-table well, diameter 12 in, depth 15.1 ft, cased with tile to 15.1 ft, open end.

INSTRUMENTATION.--Monthly measurement with chalked tape by observer. Continuous graphic recorder October 1960 to September 1982, digital recorder (60-minute punch) October 1984 to current year.

DATUM.--Elevation of land-surface datum is 105 ft above National Geodetic Vertical Datum of 1929. Measuring point: Top edge of hole in base of wooden recorder shelter, 1.65 ft above land-surface datum.

PERIOD OF RECORD.--October 1960 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level, 4.96 ft below land-surface datum, Apr. 7, 8, 1987; lowest, 15.02 ft below land-surface datum, Feb. 2, 1966.

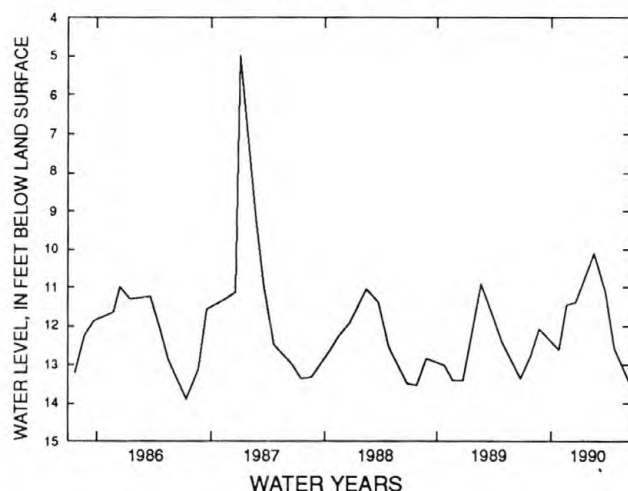
WATER LEVELS, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	13.41	12.78	12.06	12.44	11.75	10.99	11.38	10.21	10.08	11.50	12.92	13.15
2	13.42	12.76	12.07	12.39	11.70	10.99	11.40	10.24	10.11	11.55	12.94	13.18
3	13.42	12.76	12.03	12.39	11.56	11.04	11.41	10.29	10.12	11.61	12.96	13.22
4	13.42	12.71	12.02	12.40	11.45	11.09	11.21	10.32	10.13	11.66	13.00	13.26
5	13.42	12.62	12.02	12.42	11.44	11.15	10.84	10.33	10.17	11.72	13.03	13.29
6	13.43	12.52	12.03	12.44	11.46	11.19	10.60	10.34	10.21	11.77	13.06	13.33
7	13.44	12.45	12.03	12.45	11.51	11.23	10.46	10.38	10.25	11.83	13.10	13.36
8	13.46	12.41	12.05	12.46	11.58	11.26	10.40	10.42	10.29	11.89	13.13	13.39
9	13.47	12.37	12.06	12.48	11.63	11.29	10.36	10.46	10.33	11.94	13.15	13.42
10	13.48	12.33	12.07	12.50	11.54	11.32	10.32	10.48	10.37	11.99	13.18	13.44
11	13.49	12.30	12.07	12.53	11.36	11.35	10.28	10.46	10.42	12.04	13.20	13.47
12	13.49	12.27	12.08	12.54	11.27	11.38	10.29	10.48	10.47	12.08	13.13	13.50
13	13.50	12.23	12.10	12.56	11.27	11.39	10.30	10.48	10.52	12.13	13.12	13.51
14	13.51	12.20	12.11	12.59	11.28	11.41	10.30	10.44	10.57	12.18	13.16	13.53
15	13.53	12.18	12.13	12.61	11.32	11.43	10.27	10.43	10.62	12.23	13.19	13.55
16	13.54	12.15	12.13	12.63	11.36	---	10.23	10.39	10.68	12.28	13.21	13.56
17	13.55	12.13	12.15	12.66	11.41	---	10.20	10.34	10.74	12.33	13.24	13.57
18	13.54	12.12	12.16	12.69	11.48	---	10.20	10.25	10.79	12.37	13.28	13.59
19	13.52	12.11	12.19	12.71	11.50	---	10.19	10.18	10.84	12.41	13.31	13.61
20	13.48	12.09	12.21	12.73	11.56	---	10.16	10.10	10.90	12.46	13.34	13.62
21	13.35	12.08	12.23	12.75	11.62	---	10.12	10.03	10.96	12.51	13.37	13.64
22	13.13	12.10	12.25	12.76	11.64	---	10.09	9.99	11.01	12.56	13.40	13.65
23	12.97	12.10	12.27	12.78	11.49	---	10.07	9.97	11.06	12.60	13.43	13.67
24	12.88	12.09	12.29	12.81	11.32	---	10.08	9.96	11.11	12.64	13.46	13.68
25	12.83	12.09	12.30	12.83	11.20	m11.37	10.08	9.97	11.17	12.67	13.38	13.69
26	12.80	12.09	12.33	12.81	11.03	---	10.08	9.98	11.23	12.70	13.15	13.71
27	12.78	12.09	12.35	12.60	11.00	11.30	10.10	10.00	11.29	12.73	13.05	13.73
28	12.77	12.08	12.38	12.35	10.98	11.35	10.14	10.04	11.34	12.76	13.04	13.75
29	12.77	12.07	12.40	12.21	---	11.37	10.19	10.07	11.40	12.80	13.05	13.76
30	12.78	12.06	12.42	12.10	---	11.39	10.21	10.04	11.45	12.84	13.07	13.77
31	12.79	---	12.44	11.86	---	11.38	---	10.04	---	12.88	13.11	---
MEAN	13.27	12.28	12.18	12.53	11.42	---	10.40	10.23	10.69	12.25	13.17	13.52
LOW	13.55	12.78	12.44	12.83	11.75	---	11.41	10.48	11.45	12.88	13.46	13.77
HIGH	12.77	12.06	12.02	11.86	10.98	---	10.07	9.96	10.08	11.50	12.92	13.15

WTR YR 1990 HIGH 9.96 MAY 23, 24 LOW 13.78 SEP 30

m Measured

HLW 23



GROUND-WATER LEVELS IN MASSACHUSETTS

ESSEX COUNTY--Continued

424520070562401. Newbury well NIW 27.

LOCATION.--Lat 42°45'20", long 70°56'24", Essex County, Hydrologic Unit 01090001, about 300 ft east of Interstate Highway 95 and 100 ft north of Central Street in Newbury.

Owner: Mrs. George Brown.

AQUIFER.--Glacial sand and gravel of Pleistocene age.

WELL CHARACTERISTICS.--Dug observation water-table well, diameter 31 in, depth 19.8 ft, cased with tile to 19.8 ft, open end.

INSTRUMENTATION.--Monthly measurement with chalked tape by observer. Continuous graphic recorder January 1967 to September 1982, digital recorder (60-minute punch) October 1984 to current year.

DATUM.--Elevation of land-surface datum is 55 ft above National Geodetic Vertical Datum of 1929. Measuring point: Top edge of hole in base of steel recorder shelter, 2.15 ft above land-surface datum. Prior to October 1978, 2.0 ft above land-surface datum; October 1978 to Sept. 18, 1990, 1.95 ft above land-surface datum.

PERIOD OF RECORD.--February 1965 to current year. Prior to October 1974, published in Massachusetts Hydrologic-Data Report No. 17.

EXTREMES FOR PERIOD OF RECORD.--Highest water level, 1.48 ft below land-surface datum, Apr. 5, 1987; lowest, 12.68 ft below land-surface datum, Nov. 24, 1965.

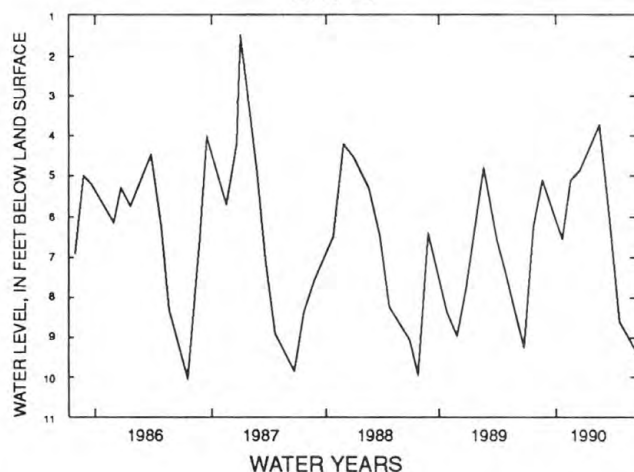
WATER LEVELS, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	9.01	6.72	5.16	7.26	5.42	4.71	5.11	4.28	3.91	6.79	9.07	---
2	9.02	6.59	5.22	7.08	5.38	4.74	5.09	4.34	4.03	6.88	9.12	---
3	8.95	6.42	5.22	7.16	5.08	4.73	5.05	4.45	4.13	6.97	9.18	---
4	8.85	5.57	5.26	7.26	5.14	4.68	3.64	4.52	4.21	7.06	9.25	---
5	8.81	5.00	5.35	7.35	5.26	4.75	3.44	4.46	4.33	7.17	9.29	---
6	8.80	4.97	5.42	7.42	5.41	4.82	3.52	4.40	4.44	7.28	9.36	---
7	8.79	5.03	5.49	7.49	5.50	4.89	3.57	4.48	4.53	7.39	9.36	---
8	8.81	5.10	5.59	7.55	5.55	4.95	3.64	4.54	4.65	7.49	9.46	---
9	8.84	5.06	5.66	7.60	5.41	4.99	3.70	4.59	4.73	7.58	---	---
10	8.88	4.85	5.72	7.64	4.68	5.06	3.71	4.64	4.80	7.66	---	---
11	8.91	4.79	5.80	7.68	4.49	5.10	3.66	4.47	4.88	7.77	---	---
12	8.92	4.82	5.88	7.71	4.63	5.15	3.75	4.51	4.96	7.86	---	9.18
13	8.92	4.90	5.96	7.78	4.77	5.14	3.83	4.46	5.04	7.94	---	9.24
14	8.94	4.93	6.02	7.86	4.86	5.17	3.88	4.28	5.13	8.01	---	9.29
15	8.96	4.98	6.13	7.92	4.96	5.18	3.76	4.28	5.22	8.08	---	e9.32
16	8.96	4.97	6.19	7.95	4.99	5.20	3.61	4.34	5.32	8.16	---	e9.35
17	8.94	4.91	6.29	7.99	5.05	5.19	3.64	4.18	5.41	8.26	---	e9.38
18	8.76	4.90	6.39	8.01	5.14	5.18	3.71	3.80	5.50	8.34	---	9.39
19	8.52	4.93	6.47	8.03	5.15	5.16	3.81	3.70	5.59	8.42	---	9.44
20	8.13	4.91	6.56	8.07	5.19	5.10	3.86	3.76	5.70	8.50	m9.40	9.47
21	7.12	4.89	6.61	8.08	5.24	4.93	3.83	3.70	5.80	8.58	---	9.50
22	6.25	4.98	6.69	8.10	5.16	4.87	3.79	3.67	5.89	8.67	---	9.54
23	5.98	5.03	6.79	8.13	4.56	4.82	3.86	3.71	5.99	8.75	---	9.55
24	5.99	5.06	6.89	8.17	4.33	4.88	3.95	3.78	6.08	8.82	---	9.55
25	6.09	5.10	6.93	8.16	4.33	4.92	4.02	3.86	6.19	8.86	---	9.57
26	6.22	5.13	6.98	7.68	4.44	4.95	4.07	3.95	6.31	8.81	---	9.60
27	6.36	5.16	7.07	6.78	4.57	5.02	4.15	4.02	6.41	8.80	---	9.63
28	6.48	5.13	7.17	6.62	4.63	5.08	4.24	4.12	6.52	8.85	---	9.66
29	6.60	5.10	7.26	6.60	---	5.15	4.34	4.21	6.63	8.90	---	9.70
30	6.70	5.10	7.37	5.93	---	5.20	4.36	3.87	6.71	8.96	---	9.72
31	6.79	---	7.44	5.32	---	5.18	---	3.80	---	9.01	---	---
MEAN	7.98	5.17	6.23	7.50	4.98	5.00	3.95	4.17	5.30	8.08	---	---
LOW	9.02	6.72	7.44	8.17	5.55	5.20	5.11	4.64	6.71	9.01	---	---
HIGH	5.98	4.79	5.16	5.32	4.33	4.68	3.44	3.67	3.91	6.79	---	---

WTR YR 1990 HIGH 3.39 APR 4 LOW 9.72 SEPT 30

e Estimated
m Measured

NIW 27



GROUND-WATER LEVELS IN MASSACHUSETTS

209

ESSEX COUNTY--Continued

423845070542501. Topsfield well TQW 1.

LOCATION.--Lat 42°38'45", long 70°54'25", Essex County, Hydrologic Unit 01090001, 0.7 mi south of Ipswich Road and 120 ft west of Hamilton Road in Topsfield.

Owner: Mr. Sullivan.

AQUIFER.--Glacial till of Pleistocene age.

WELL CHARACTERISTICS.--Dug observation water-table well, diameter 30 in, depth 22.0 ft, cased with stone to 22.0 ft, open end.

INSTRUMENTATION.--Monthly measurement with chalked tape by observer.

DATUM.--Elevation of land-surface datum is 130 ft above National Geodetic Vertical Datum of 1929. Measuring point: Top edge of steel rim in concrete cover, 0.6 ft above land-surface datum.

PERIOD OF RECORD.--February 1936 to October 1947, April 1957 to current year. Prior to October 1974, published in Massachusetts Hydrologic-Data Report No. 17.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 5.22 ft below land-surface datum, Mar. 23, 1983; lowest measured, 17.52 ft below land-surface datum, Jan. 27, 1966.

WATER LEVELS, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 26	14.38	DEC 17	10.95	FEB 20	8.17	APR 22	8.58	JUN 24	11.75	AUG 20	14.04
NOV 26	10.39	JAN 27	11.37	MAR 25	9.46	MAY 20	9.27	JUL 22	13.36	SEP 23	14.47

423505070491702. Wenham well WPW 76.

LOCATION.--Lat 42°35'05", long 70°49'17", Essex County, Hydrologic Unit 01090001, 45 ft west of State Highway 128 and 120 ft of Grapevine Road in Wenham.

Owner: U.S. Geological Survey.

AQUIFER.--Glacial sand and gravel of Pleistocene age.

WELL CHARACTERISTICS.--Augered observation water-table well, diameter 2.0 in, depth 22.0 ft, screened 20.0 to 22.0 ft.

INSTRUMENTATION.--Monthly measurement with chalked tape by observer.

DATUM.--Elevation of land-surface datum is 60 ft above National Geodetic Vertical Datum of 1929. Measuring point: Top of casing, 3.0 ft above land-surface datum.

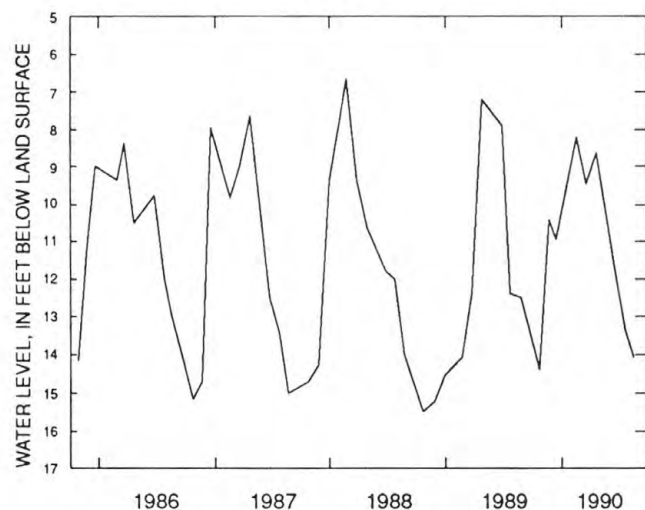
PERIOD OF RECORD.--January 1965 to current year. Prior to October 1974, published in Massachusetts Hydrologic-Data Report No. 17.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 0.39 ft below land-surface datum, Jan. 26, 1978; lowest measured, 4.36 ft below land-surface datum, Sept. 28, 1971.

WATER LEVELS, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

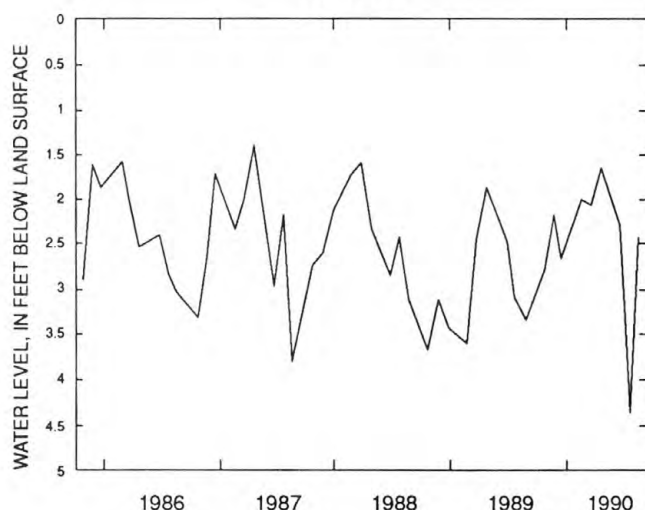
DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 26	2.78	DEC 17	2.66	FEB 20	2.00	APR 22	1.65	JUN 24	2.28	AUG 20	2.43
NOV 26	2.17	JAN 27	2.70	MAR 25	2.06	MAY 20	1.69	JUL 22	4.35	SEP 23	3.01

TQW 1



WATER YEARS

WPW 76



WATER YEARS

GROUND-WATER LEVELS IN MASSACHUSETTS

FRANKLIN COUNTY

423809072435601. Colrain well CSW 8.

LOCATION.--Lat 42°38'09", long 72°43'56", Franklin County, Hydrologic Unit 01080203, 15 ft east of State Highway 112 and 100 ft north of North River Bridge in Colrain.

Owner: U.S. Geological Survey.

AQUIFER.--Glacial sand and gravel of Pleistocene age.

WELL CHARACTERISTICS.--Augered observation water-table well, diameter 1.25 in, depth 32.3 ft, screened 30.3 to 32.3 ft.

INSTRUMENTATION.--Monthly measurement with chalked tape by observer.

DATUM.--Elevation of land-surface datum is 460 ft above National Geodetic Vertical Datum of 1929. Measuring point: Top of casing, 1.5 ft above land-surface datum.

REMARKS.--Water levels affected by North River.

PERIOD OF RECORD.--December 1964 to current year. Prior to October 1974, published in Massachusetts Hydrologic-Data Report No. 17.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 14.62 ft below land-surface datum, Apr. 24, 1969; lowest measured, 23.48 ft below land-surface datum, Jan. 31, 1965.

WATER LEVELS, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 23	20.10	DEC 28	18.87	FEB 22	19.09	APR 22	16.60	JUN 22	18.18	AUG 23	20.44
NOV 22	19.02	JAN 24	19.62	MAR 22	15.48	MAY 22	16.96	JUL 23	19.63	SEP 24	20.98

423310072355801. Deerfield well DFW 44.

LOCATION.--Lat 42°33'10", long 72°35'58", Franklin County, Hydrologic Unit 01080203, 1.2 mi south of Deerfield River Bridge and 15 ft east of U.S. Highway 5 in Deerfield.

Owner: U.S. Geological Survey.

AQUIFER.--Glacial sand and gravel of Pleistocene age.

WELL CHARACTERISTICS.--Augered observation water-table well, diameter 2.0 in, depth 27.6 ft, screened 25.6 to 27.6 ft.

INSTRUMENTATION.--Monthly measurement with chalked tape by observer.

DATUM.--Elevation of land-surface datum is 140 ft above National Geodetic Vertical Datum of 1929. Measuring point: Top of casing, 3.0 ft above land-surface datum.

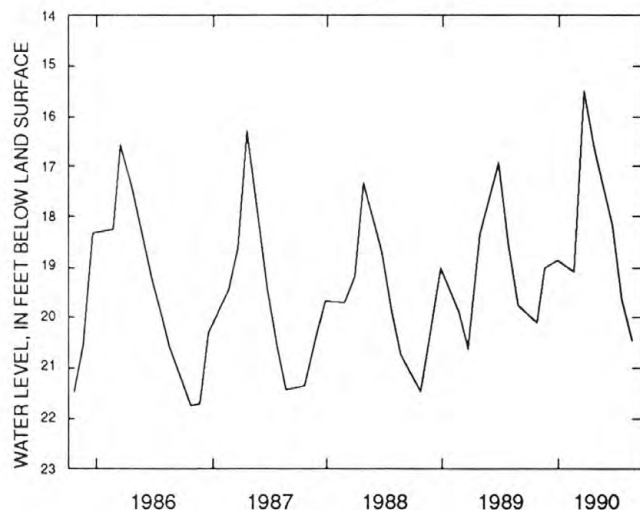
PERIOD OF RECORD.--December 1964 to current year. Prior to October 1974, published in Massachusetts Hydrologic-Data Report No. 17.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 1.42 ft below land-surface datum, May 29, 1979; lowest measured, 6.16 ft below land-surface datum, Sept. 25, 1980.

WATER LEVELS, IN FEET BELOW LAND SURFACE DATUM, WATER YEARS OCTOBER 1989 TO SEPTEMBER 1990

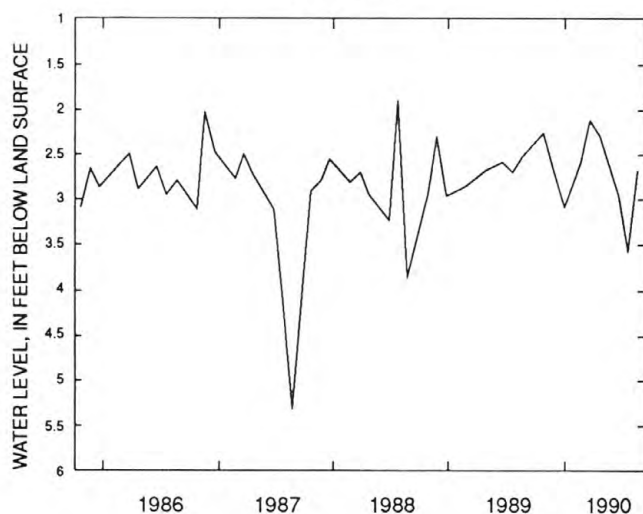
DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 23	2.26	DEC 28	3.09	FEB 21	2.56	APR 21	2.29	JUN 21	2.95	AUG 21	2.67
NOV 25	2.65	JAN 23	2.78	MAR 22	2.12	MAY 21	1.84	JUL 23	3.58	SEP 23	2.80

CSW 8



WATER YEARS

DFW 44



WATER YEARS

GROUND-WATER LEVELS IN MASSACHUSETTS

211

FRANKLIN COUNTY--Continued

423339072524101. Hawley well HMW 8.

LOCATION.--Lat 42°33'39", long 72°52'41", Franklin County, Hydrologic Unit 01080206, in state forest parking area on west side of Plainfield Road opposite East Cemetery.

Owner: State Forest.

AQUIFER.--Glacial till and gravel of Pleistocene age.

WELL CHARACTERISTICS.--Augered observation water-table well, diameter 2.0 in, depth 17 ft, screened 7 to 17 ft.

INSTRUMENTATION.--Monthly measurement with chalked tape by observer.

DATUM.--Elevation of land-surface datum is 1700 ft above National Geodetic Vertical Datum of 1929. Measuring point: Top of casing, 3.0 ft above land-surface datum.

PERIOD OF RECORD.--October 1986 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 2.92 ft below land-surface datum, May 23, 1990; lowest measured, 6.45 ft below land-surface datum, Aug. 22, 1987.

WATER LEVELS, IN FEET BELOW LAND SURFACE DATUM, WATER YEARS OCTOBER 1989 TO SEPTEMBER 1990

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 23	3.89	DEC 29	4.60	FEB 22	4.23	APR 22	3.54	JUN 22	4.13	AUG 23	4.20
NOV 22	4.00	JAN 24	4.54	MAR 22	3.34	MAY 23	2.92	JUL 23	4.72	SEP 24	4.48

423305072320301. Montague well M5W 5.

LOCATION.--Lat 42°33'05", long 72°32'03", Franklin County, Hydrologic Unit 01080201, about 15 ft west of Montague Road, 0.2 mi north of Old Northfield Road, and 1.0 mi north of Montague.

Owner: Thomas C. Kurtyka.

AQUIFER.--Glacial outwash of Pleistocene age.

WELL CHARACTERISTICS.--Driven observation water-table well, diameter 1.25 in, depth 12 ft, screened 9 to 12 ft.

INSTRUMENTATION.--Monthly measurement with chalked tape by observer.

DATUM.--Elevation of land-surface datum is 240 ft above National Geodetic Vertical Datum of 1929. Measuring point: Top of casing, 1.75 ft above land-surface datum.

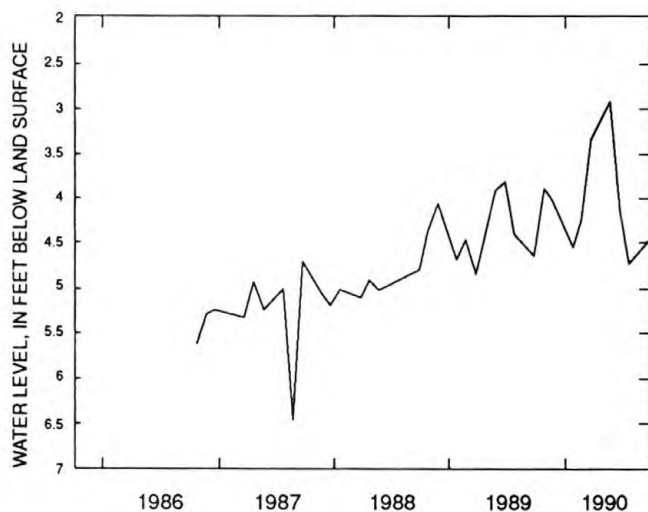
PERIOD OF RECORD.--January 1936 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 0.41 ft below land-surface datum, Feb. 26, 1976; lowest measured, 8.00 ft below land-surface datum, Dec. 28, 1966.

WATER LEVELS, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

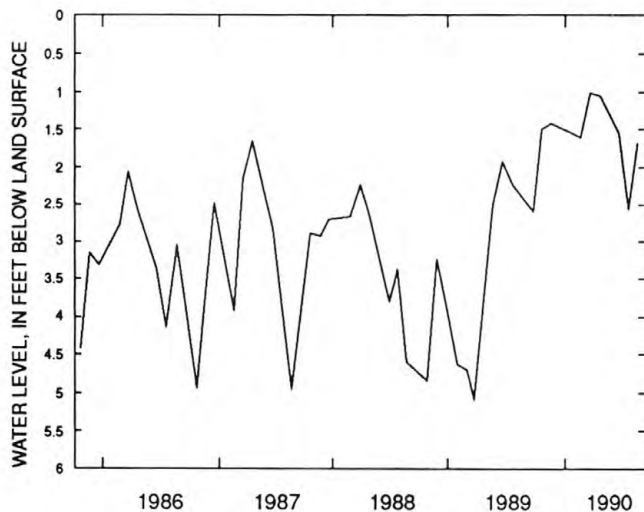
DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 22	1.49	JAN 23	2.81	MAR 22	1.02	MAY 21	.84	JUL 23	2.55	SEP 23	2.60
NOV 21	1.41	FEB 21	1.60	APR 21	1.04	JUN 21	1.55	AUG 21	1.67		

HMW 8



WATER YEARS

M5W 5



WATER YEARS

GROUND-WATER LEVELS IN MASSACHUSETTS

FRANKLIN COUNTY--Continued

423441072170701. Orange well ORW 63.

LOCATION.--Lat 42°34'41", long 72°17'07", Franklin County, Hydrologic Unit 01080202, at Orange Airport, 100 ft along and 50 ft northwest of main entrance road to airport, off East River Street in Orange.

Owner: U. S. Geological Survey.

AQUIFER.--Glacial sand and gravel of Pleistocene age.

WELL CHARACTERISTICS.--Augered observation water-table well, diameter 2.0 in, depth 20.6 ft, screened 18.6 to 20.6 ft. INSTRUMENTATION.--Monthly measurement with chalked tape by observer.

DATUM.--Elevation of land-surface datum is 530 ft above National Geodetic Vertical Datum of 1929. Measuring point: Top of casing, 3.45 ft above land-surface datum.

PERIOD OF RECORD.--January 1985 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 5.20 ft below land-surface datum, June 21, 1989; lowest measured, 8.44 ft below land-surface datum, Mar. 22, 1989.

WATER LEVELS, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 23	5.68	DEC 28	7.15	FEB 23	7.70	APR 22	6.55	JUN 21	6.49	AUG 23	7.03
NOV 25	6.14	JAN 23	7.75	MAR 22	7.18	MAY 22	6.03	JUL 23	7.48	SEP 23	6.68

422607072324401. Sunderland well S6W 7.

LOCATION.--Lat 42°26'07", long 72°32'44", Franklin County, Hydrologic Unit 01080201, about 100 ft east of State Highway 116 and 30 ft north of Russellville Brook in Sunderland.

AQUIFER.--Glacial outwash of Pleistocene age.

WELL CHARACTERISTICS.--Driven observation water-table well, diameter 2.5 in, depth 54 ft, cased to 54 ft, open end.

INSTRUMENTATION.--Monthly measurement with chalked tape by observer.

DATUM.--Elevation of land-surface datum is 210 ft above National Geodetic Vertical Datum of 1929. Measuring point: Top of casing, at land-surface datum.

REMARKS.--Water level affected by pumping and nearby Russellville Brook.

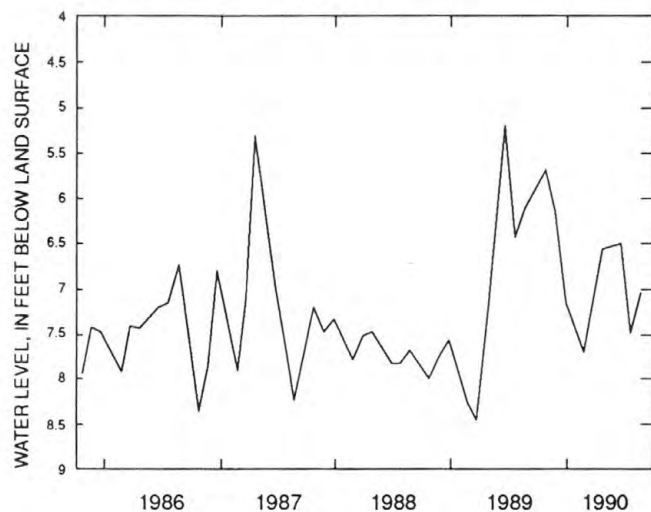
PERIOD OF RECORD.--November 1957 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 6.25 ft below land-surface datum, Apr. 24, 1984; lowest measured, 23.26 ft below land-surface datum, Feb. 24, 1966.

WATER LEVELS, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

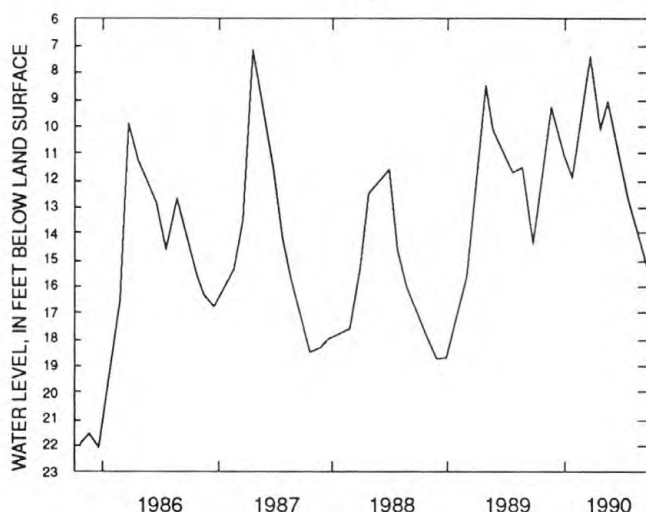
DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 22	10.48	DEC 28	11.06	FEB 21	8.22	APR 21	10.10	JUN 21	11.74	AUG 21	13.88
NOV 21	9.30	JAN 23	11.92	MAR 22	7.39	MAY 21	9.08	JUL 23	12.68	SEP 23	15.42

ORW 63



WATER YEARS

S6W 7



WATER YEARS

GROUND-WATER LEVELS IN MASSACHUSETTS

213

FRANKLIN COUNTY--Continued

422559072332402. Sunderland well S6W 68.

LOCATION.--Lat 42°25'59", long 72°33'24", Franklin County, Hydrologic Unit 01080201, about 175 ft east of North Plain Road and 500 ft north of Plum Tree Road in Sunderland.

Owner: Robert Laurenitis.

AQUIFER.--Glacial lacustrine deposits of late Pleistocene age.

WELL CHARACTERISTICS.--Drilled observation water-table well, diameter 1.25 in, depth 28 ft, screened 25 to 28 ft.

INSTRUMENTATION.--Monthly measurement with chalked tape by observer.

DATUM.--Elevation of land-surface datum is 160 ft above National Geodetic Vertical Datum of 1929. Measuring point: Top of casing, 2.0 ft above land-surface datum.

PERIOD OF RECORD.--October 1983 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 1.09 ft below land-surface datum, Oct. 22, 1989, May 21, 1990; lowest measured, 5.00 ft below land-surface datum, Aug. 23, Sept. 22, 1985.

WATER LEVELS, IN FEET BELOW LAND SURFACE DATUM, WATER YEARS OCTOBER 1989 TO SEPTEMBER 1990

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 22	1.09	JAN 02	2.49	FEB 21	2.51	APR 21	1.66	JUN 21	2.63	AUG 21	2.52
NOV 21	2.03	23	3.30	MAR 22	1.28	MAY 21	1.09	JUL 23	2.59	SEP 23	3.50

HAMPDEN COUNTY

421228072585301. Blandford well BEW 9.

LOCATION.--Lat 42°12'28", long 72°58'53", Hampden County, Hydrologic Unit 01080206, 10 ft west of Blair Road and 0.25 mi south of intersection with North Blandford Road.

Owner: Springfield Water Department.

AQUIFER.--Glacial sand and gravel of Pleistocene age.

WELL CHARACTERISTICS.--Augured observation water-table well, diameter 2.0 in, depth 15 ft, screened 5 to 15 ft.

INSTRUMENTATION.--Monthly measurement with chalked tape by observer.

DATUM.--Elevation of land-surface datum is 1140 ft above National Geodetic Vertical Datum of 1929. Measuring point: Top of casing, 3.0 ft above land-surface datum.

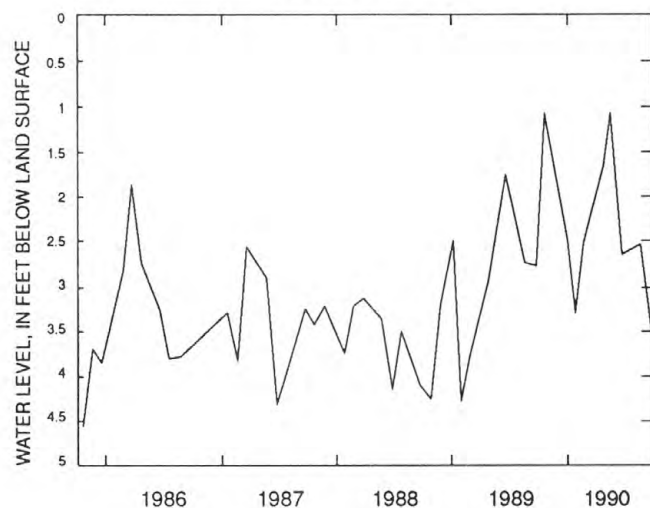
PERIOD OF RECORD.--October 1986 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 1.89 ft below land-surface datum, May 22, 1990; lowest measured, 3.85 ft below land-surface datum, Aug. 22, 1987.

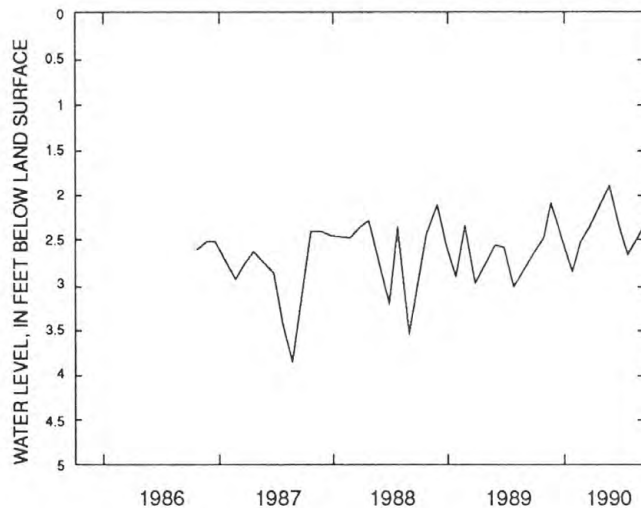
WATER LEVELS, IN FEET BELOW LAND SURFACE DATUM, WATER YEARS OCTOBER 1989 TO SEPTEMBER 1990

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 24	2.48	JAN 02	2.50	FEB 22	2.51	APR 22	2.29	JUN 22	2.33	AUG 23	2.45
NOV 22	2.08	24	2.84	MAR 23	2.35	MAY 22	1.89	JUL 23	2.66	SEP 24	2.25

S6W 68



BEW 9



WATER YEARS

WATER YEARS

GROUND-WATER LEVELS IN MASSACHUSETTS

HAMPDEN COUNTY--Continued

421012072324501. Chicopee well CMW 95.

LOCATION.--Lat 42°10'12", long 72°32'45", Hampden County, Hydrologic Unit 01080204, in Chicopee Memorial State Park, 100 ft east of check-in house on north side of road in Chicopee.

Owner: Commonwealth of Massachusetts.

AQUIFER.--Glacial sand and gravel of Pleistocene age.

WELL CHARACTERISTICS.--Augered observation water-table well, diameter 2.0 in PVC, depth 34.0 ft, screened 30.0 to 34.0 ft.

INSTRUMENTATION.--Monthly measurement with chalked tape by observer.

DATUM.--Elevation of land-surface datum is 200 ft above National Geodetic Vertical Datum of 1929. Measuring point: Top of casing, 3.0 ft above land-surface datum.

PERIOD OF RECORD.--August 1984 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 19.40 ft below land-surface datum, Aug. 21, 1984; lowest measured, 23.62 ft below land-surface datum, Mar. 22, 1989.

WATER LEVELS, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 22	21.91	DEC 26	21.21	FEB 21	21.04	APR 21	20.03	JUN 21	20.06	AUG 21	20.50
NOV 21	20.90	JAN 23	21.58	MAR 21	20.80	MAY 21	20.10	JUL 22	20.63	SEP 23	20.83

420357072511601. Granville well GLW 5.

LOCATION.--Lat 42°03'57", long 72°51'16", Hampden County, Hydrologic Unit 01080206, near Granville Public School, 275 ft south of State Highway 57 and 0.2 mi west of Sodom Street in Granville.

Owner: U.S. Geological Survey.

AQUIFER.--Glacial sand and gravel of Pleistocene age.

WELL CHARACTERISTICS.--Augered observation water-table well, diameter 2.0 in, depth 67.7 ft, screened 65.7 to 67.7 ft.

INSTRUMENTATION.--Monthly measurement with chalked tape by observer.

DATUM.--Elevation of land-surface datum is 675 ft above National Geodetic Vertical Datum of 1929. Measuring point: Top of casing, 2.0 ft above land-surface datum.

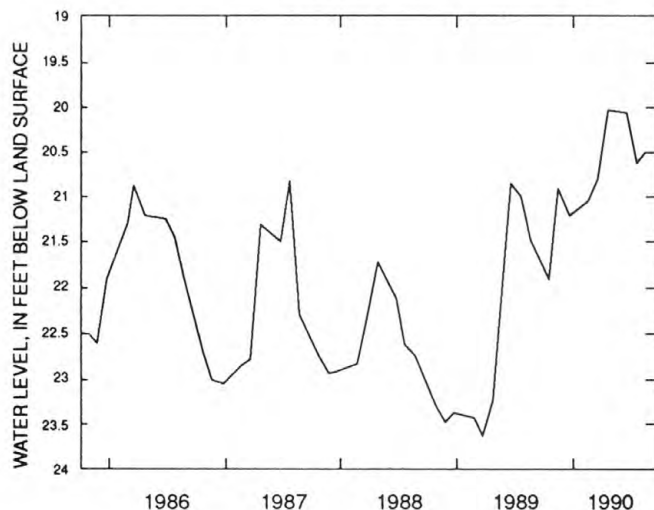
PERIOD OF RECORD.--January 1965 to current year. Prior to October 1974, published in Massachusetts Hydrologic-Data Report No. 17.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 28.06 ft below land-surface datum, June 21, 1983; lowest, 37.20 ft below land-surface datum, Jan. 24, 1966.

WATER LEVELS, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

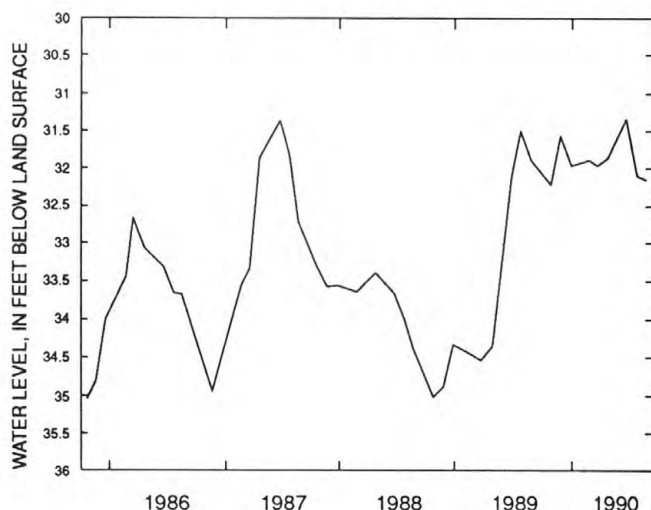
DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 25	32.23	DEC 29	31.95	FEB 23	31.88	APR 22	31.86	JUN 23	31.33	AUG 23	32.14
NOV 24	31.56	JAN 25	32.35	MAR 23	31.96	MAY 23	31.22	JUL 27	32.09	SEP 25	32.41

CMW 95



WATER YEARS

GLW 5



WATER YEARS

GROUND-WATER LEVELS IN MASSACHUSETTS

215

HAMPDEN COUNTY--Continued

420259072581701. Granville well GLW 6.

LOCATION.--Lat 42°02'59", long 72°58'17", Hampden County, Hydrologic Unit 01080207, at Granville State Forest, 20 ft west of West Hartland Road and 0.9 mi north of state boundary in Granville.

Owner: U.S. Geological Survey.

AQUIFER.--Glacial sand and gravel of Pleistocene age.

WELL CHARACTERISTICS.--Augered observation water-table well, diameter 2.0 in, depth 20.8 ft, screened 18.8 to 20.8 ft.

INSTRUMENTATION.--Monthly measurement with chalked tape by observer.

DATUM.--Elevation of land-surface datum is 1,160 ft above National Geodetic Vertical Datum of 1929. Measuring point: Top of casing, 2.5 ft above land-surface datum.

REMARKS.--Water levels affected by Halfway Brook.

PERIOD OF RECORD.--January 1965 to current year. Prior to October 1974, published in Massachusetts Hydrologic-Data Report No. 17.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 2.49 ft below land-surface datum, Apr. 26, 1972; lowest measured, 8.42 ft below land-surface datum, Aug. 25, 1981.

WATER LEVELS, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 25	3.35	DEC 29	6.18	FEB 23	3.09	APR 22	3.58	JUN 23	5.79	AUG 23	4.96
NOV 24	3.82	JAN 25	5.45	MAR 23	3.12	MAY 23	3.06	JUL 24	7.03	SEP 25	6.50

421240072490201. Montgomery well M7W 19.

LOCATION.--Lat 42°12'40", long 72°49'02", Hampden County, Hydrologic Unit 01080206, at corner of Russell Road and road to cemetery, about 500 ft south of intersection of Main Road and Russell Road.

Owner: Westfield Water Department.

AQUIFER.--Glacial sand and gravel of Pleistocene age.

WELL CHARACTERISTICS.--Augered observation water-table well, diameter 2.0 in, depth 18 ft, screened 8 to 18 ft.

INSTRUMENTATION.--Monthly measurement with chalked tape by observer.

DATUM.--Elevation of land-surface datum is 1060 ft above National Geodetic Vertical Datum of 1929. Measuring point: Top of casing, 1.0 ft above land-surface datum.

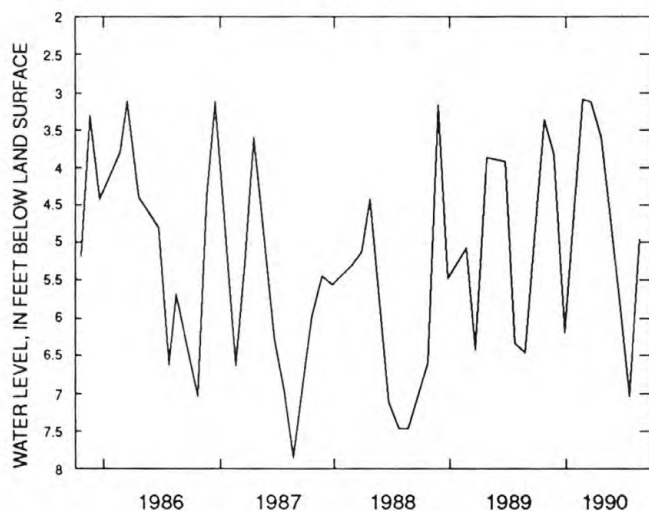
PERIOD OF RECORD.--October 1986 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 0.22 ft below land-surface datum, Apr. 22, 1990; lowest measured, 5.86 ft below land-surface datum, Aug. 22, 1987.

WATER LEVELS, IN FEET BELOW LAND SURFACE DATUM, WATER YEARS OCTOBER 1989 TO SEPTEMBER 1990

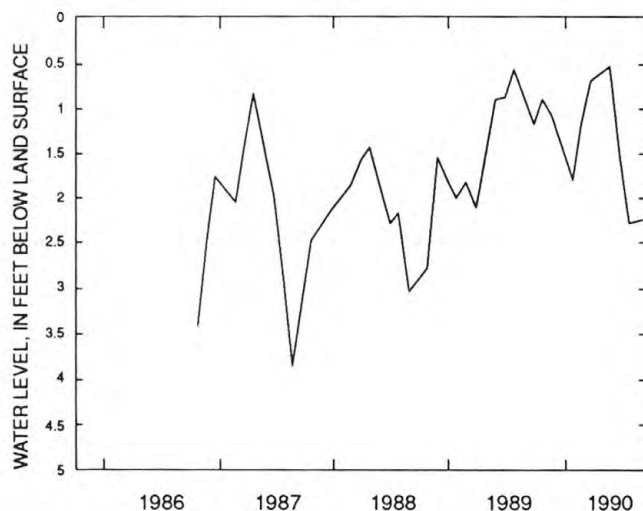
DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 22	.91	JAN 02	1.65	FEB 22	1.18	APR 22	.22	JUN 22	1.50	AUG 21	1.85
NOV 22	1.08	24	1.78	MAR 24	.69	MAY 22	.54	JUL 23	2.29	SEP 23	2.22

GLW 6



WATER YEARS

M7W 19



WATER YEARS

GROUND-WATER LEVELS IN MASSACHUSETTS

HAMPDEN COUNTY--Continued

420430072491201. Southwick well SVW 95.

LOCATION.--Lat 42°04'30", long 72°49'12", Hampden County, Hydrologic Unit 01080206, in garden 100 ft north of Route 57 and about 600 ft west of intersection with Loomis Street.

Owner: Paul Zaschack.

AQUIFER.--Glacial sand and gravel of Pleistocene age.

WELL CHARACTERISTICS.--Augered observation water-table well, diameter 2.0 in, depth 37 ft, screened 27 to 37 ft.

INSTRUMENTATION.--Monthly measurement with chalked tape by observer.

DATUM.--Elevation of land-surface datum is 270 ft above National Geodetic Vertical Datum of 1929. Measuring point: Top of casing, 3.0 ft above land-surface datum.

PERIOD OF RECORD.--October 1986 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 0.66 ft below land-surface datum, July 24, 1989; lowest measured, 4.87 ft below land-surface datum, Oct. 22, 1986.

WATER LEVELS, IN FEET BELOW LAND SURFACE DATUM, WATER YEARS OCTOBER 1989 TO SEPTEMBER 1990

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 25	1.89	DEC 29	2.69	FEB 23	1.72	APR 22	1.46	JUN 23	2.11	AUG 23	2.66
NOV 24	1.96	JAN 25	2.73	MAR 23	1.59	MAY 23	1.28	JUL 23	2.84	SEP 25	3.56

420646072420101. Westfield well WWV 62.

LOCATION.--Lat 42°06'46", long 72°42'01", Hampden County, Hydrologic Unit 01080206, at Western Massachusetts Hospital about 200 ft east of East Mountain Road and 0.4 mi north of U.S. Highway 20 in Westfield.

Owner: Commonwealth of Massachusetts.

AQUIFER.--Glacial outwash of Pleistocene age.

WELL CHARACTERISTICS.--Driven observation water-table well, diameter 2.5 in, depth 25 ft, casing information not available.

INSTRUMENTATION.--Monthly measurement with chalked tape by observer.

DATUM.--Elevation of land-surface datum is 210 ft above National Geodetic Vertical Datum of 1929. Measuring point: Top of casing, 3.5 ft above land-surface datum.

REMARKS.--Water level affected by pumping.

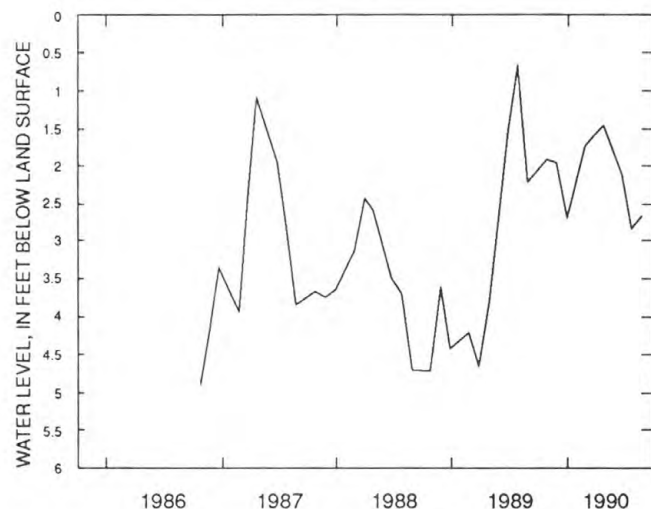
PERIOD OF RECORD.--August 1957 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 3.70 ft below land-surface datum, Oct. 29, 1975; lowest measured, well dry, Sept. 22, 1983, Nov. 21, 1983, Mar. 21, 1985.

WATER LEVELS, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

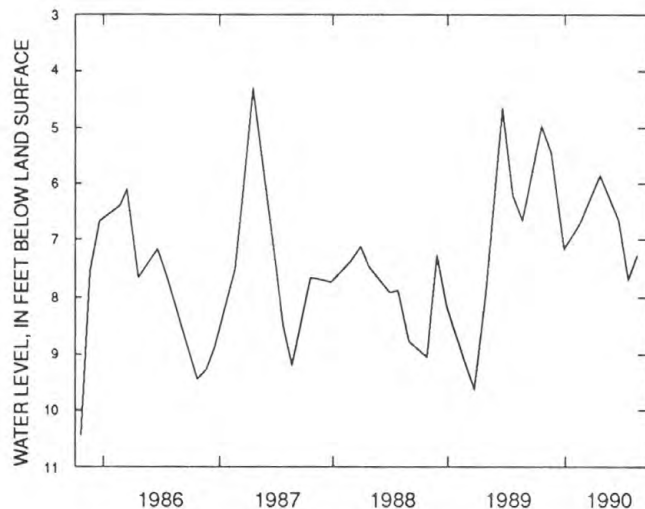
DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 22	4.97	DEC 29	7.14	FEB 21	6.68	APR 21	5.84	JUN 21	6.62	AUG 21	7.27
NOV 21	5.42	JAN 24	7.67	MAR 24	6.27	MAY 21	5.66	JUL 22	7.69	SEP 23	8.10

SVW 95



WATER YEARS

WWV 62



WATER YEARS

GROUND-WATER LEVELS IN MASSACHUSETTS

217

HAMPDEN COUNTY--Continued

420924072422602. Westfield well WVW 152.

LOCATION.--Lat 42°09'24", long 72°42'26", Hampden County, Hydrologic Unit 01080206, about 100 ft south of Owen District Road, 0.4 mi west of intersection of Owen District Road and Mountain Road at East Mountain Country Club, 0.4 mi east of Barnes Municipal Airport.

Owner: City of Westfield.

AQUIFER.--Glacial sand and gravel of Pleistocene age.

WELL CHARACTERISTICS.--Driven observation water-table well, diameter 2.0 in, depth 16 ft, screened 6 to 16 ft.

INSTRUMENTATION.--Monthly measurement with chalked tape by observer.

DATUM.--Elevation of land-surface datum is 215.69 ft above National Geodetic Vertical Datum of 1929. Measuring point: Top of casing, 2.0 ft above land-surface datum.

PERIOD OF RECORD.--October 1986 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 2.20 ft below land-surface datum, June 21, 1989; lowest measured, 4.72 ft below land-surface datum, Dec. 21, 1986, Jan. 24, 1987.

WATER LEVELS, IN FEET BELOW LAND SURFACE DATUM, WATER YEARS OCTOBER 1989 TO SEPTEMBER 1990

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 22	2.29	DEC 29	3.59	FEB 21	3.36	APR 21	3.30	JUN 21	3.77	AUG 21	3.64
NOV 21	3.34	JAN 24	3.38	MAR 24	3.16	MAY 21	2.92	JUL 22	3.97	SEP 23	3.92

420905072254001. Wilbraham well XJW 55.

LOCATION.--Lat 42°09'05", long 72°25'40", Hampden County, Hydrologic Unit 01080204, 45 ft south of U.S. Highway 20 and 0.1 mi west of North Main Street in Wilbraham.

Owner: U.S. Geological Survey.

AQUIFER.--Glacial sand and gravel of Pleistocene age.

WELL CHARACTERISTICS.--Augered observation water-table well, diameter 2.0 in, depth 62.5 ft, screened 60.5 to 62.5 ft.

INSTRUMENTATION.--Monthly measurement with chalked tape by observer.

DATUM.--Elevation of land-surface datum is 255 ft above National Geodetic Vertical Datum of 1929. Measuring point: Top of casing, 1.0 ft above land-surface datum.

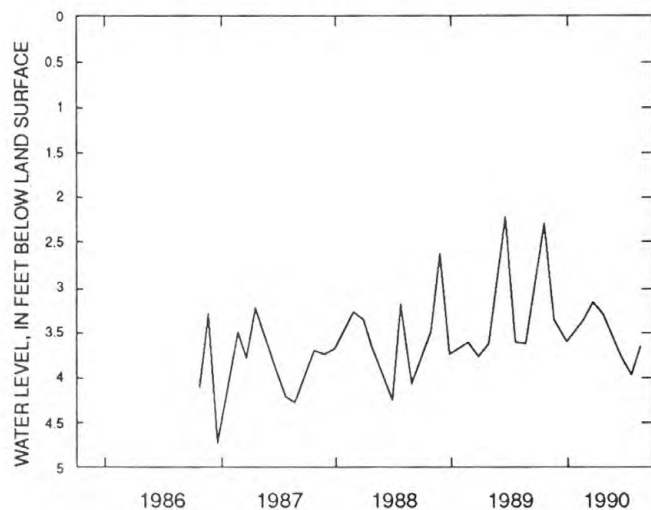
PERIOD OF RECORD.--January 1965 to current year. Prior to October 1974, published in Massachusetts Hydrologic-Data Report No. 17.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 30.56 ft below land-surface datum, Mar. 28, 1979; lowest measured, 45.44 ft below land-surface datum, Jan. 24, 1966.

WATER LEVELS, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

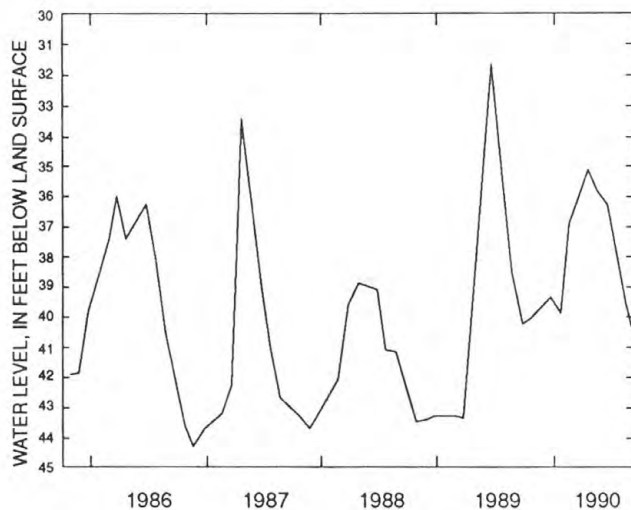
DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 22	40.01	DEC 26	39.37	FEB 21	36.88	APR 21	35.07	JUN 21	36.29	AUG 21	39.61
NOV 21	38.21	JAN 23	39.87	MAR 21	35.65	MAY 21	35.78	JUL 22	39.60	SEP 23	41.00

WVW 152



WATER YEARS

XJW 55



WATER YEARS

GROUND-WATER LEVELS IN MASSACHUSETTS

HAMPSHIRE COUNTY

422733072532601. Cummington well CYW 13.

LOCATION.--Lat 42°27'33", long 72°53'26", Hampshire County, Hydrologic Unit 01080206, at end of dirt road between lumber yard and elementary school in Cummington center.

Owner: Cummington Town.

AQUIFER.--Glacial sand and gravel of Pleistocene age.

WELL CHARACTERISTICS.--Augered observation water-table well, diameter 2.0 in, depth 39 ft, screened 29 to 39 ft.

INSTRUMENTATION.--Monthly measurement with chalked tape by observer.

DATUM.--Elevation of land-surface datum is 988 ft above National Geodetic Vertical Datum of 1929. Measuring point: Top of casing, 3.0 ft above land-surface datum.

PERIOD OF RECORD.--October 1986 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 2.11 ft below land-surface datum, Mar. 22, 1990; lowest measured, 6.12 ft below land-surface datum, Aug. 22, 1987.

WATER LEVELS, IN FEET BELOW LAND SURFACE DATUM, WATER YEARS OCTOBER 1989 TO SEPTEMBER 1990

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 23	2.71	DEC 29	5.01	FEB 22	4.45	APR 22	3.32	JUN 22	4.95	AUG 23	5.25
NOV 22	3.97	JAN 24	4.90	MAR 22	2.11	MAY 23	2.46	JUL 23	5.98	SEP 24	5.68

421355072322001. Granby well GWK 68.

LOCATION.--Lat 42°13'55", long 72°32'20", Hampshire County, Hydrologic Unit 01080201, about 15 ft east of Morgan Street, 0.3 mi south of East Street, and 2.0 mi southwest of Granby.

Owner: Holyoke Water Power Co.

AQUIFER.--Glacial outwash of Pleistocene age.

WELL CHARACTERISTICS.--Driven observation water-table well, diameter 1.25 in, depth 18 ft, screened 16 to 18 ft.

INSTRUMENTATION.--Monthly measurement with chalked tape by observer.

DATUM.--Elevation of land-surface datum is 239.17 ft above National Geodetic Vertical Datum of 1929. Measuring point: Top of casing, at land-surface datum.

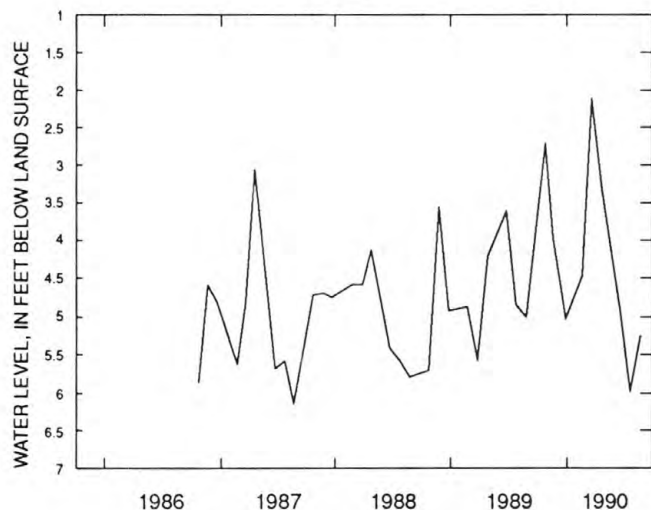
PERIOD OF RECORD.--April 1954 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 4.25 ft below land-surface datum, Apr. 21, 1983; lowest measured, 11.17 ft below land-surface datum, Nov. 25, 1964.

WATER LEVELS, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

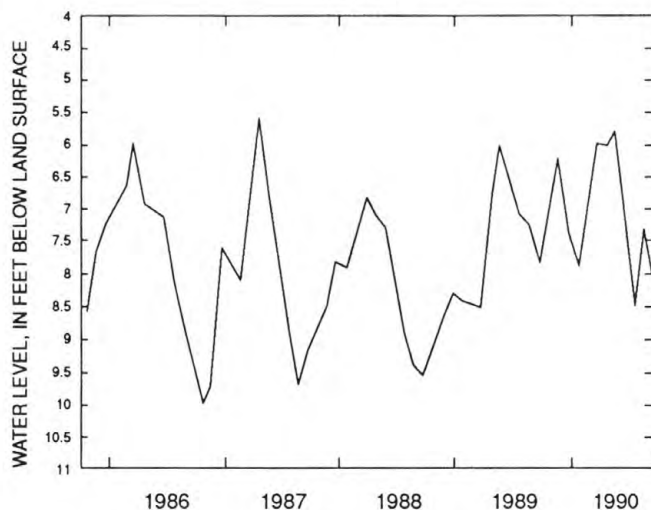
DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 22	5.61	DEC 26	7.38	FEB 21	6.28	APR 21	6.02	JUN 21	7.21	AUG 21	7.31
NOV 21	6.20	JAN 23	7.88	MAR 21	5.98	MAY 21	5.80	JUL 22	8.48	SEP 23	8.27

CYW 13



WATER YEARS

GWK 68



WATER YEARS

GROUND-WATER LEVELS IN MASSACHUSETTS

219

HAMPSHIRE COUNTY--Continued

422103072241102. Pelham well PDW 23.

LOCATION.--Lat 42°21'03", long 72°24'11", Hampshire County, Hydrologic Unit 01080204, at Knight's Corner, 50 ft east of U.S. Highway 202 and 75 ft south of small pond in Pelham.

Owner: Massachusetts Department of Public Works.

AQUIFER.--Glacial sand and gravel of the Pleistocene age and bedrock.

WELL CHARACTERISTICS.--Air-percussion observation water-table well, diameter 6.0 in, depth 740 ft, cased to 740 ft, open end.

INSTRUMENTATION.--Monthly measurement with chalked tape by observer. Continuous graphic recorder October 1981 to December 1983, April 1986 to current year.

DATUM.--Elevation of land-surface datum is 939 ft above National Geodetic Vertical Datum of 1929. Measuring point: Top of hole in base of wooden recorder shelter, 1.6 ft above land-surface datum.

PERIOD OF RECORD.--October 1981 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level, 9.44 ft below land-surface datum, Apr. 7, 1982; lowest, 15.72 ft below land-surface datum, Sept. 21, 1983.

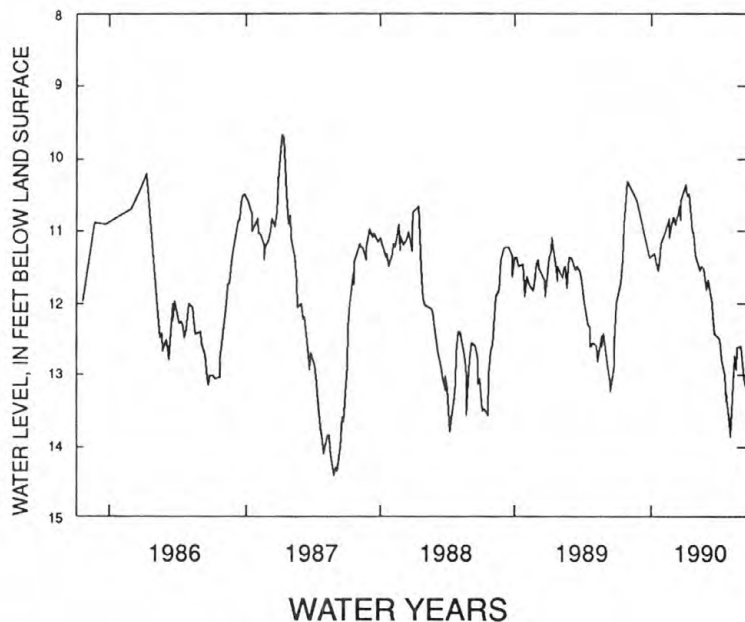
WATER LEVELS, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

HIGH FOR DAY

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 05	11.69	JAN 23	11.63	MAR 15	10.88	MAY 05	11.50	JUN 25	12.32	AUG 20	12.70
10	11.71	25	11.42	20	10.67	10	11.52	30	12.48	21	12.92
15	11.39	31	11.17	22	10.86	15	11.55	JUL 05	12.49	25	12.61
22	10.92	FEB 05	11.05	25	10.59	20	11.49	10	12.78	31	12.59
25	10.53	10	10.92	31	10.62	21	11.68	15	12.86	SEP 05	12.87
31	10.33	15	10.93	APR 05	10.37	25	11.52	20	12.99	10	13.03
NOV 25	10.59	20	10.84	10	10.52	31	11.81	22	13.38	15	13.15
DEC 28	11.38	21	11.10	15	10.51	JUN 05	11.66	25	13.25	20	13.20
JAN 05	11.27	25	10.75	20	10.69	10	11.87	31	13.56	23	13.34
10	11.30	28	10.82	21	10.99	15	12.01	AUG 05	13.87		
15	11.44	MAR 05	10.81	25	11.04	20	12.16	10	13.32		
20	11.55	10	10.92	30	11.33	21	12.44	15	12.72		

WTR YR 1990 HIGH 10.21 NOV 2 LOW 13.91 AUG 6

PDW 23



GROUND-WATER LEVELS IN MASSACHUSETTS

HAMPSHIRE COUNTY--Continued

422103072241103. Pelham well PDW 24.

LOCATION.--Lat 42°21'03", long 72°24'11", Hampshire County, Hydrologic Unit 01080204, at Knight's Corner, 50 ft east of U.S. Highway 202 and 75 ft south of small pond in Pelham.

Owner: Massachusetts Department of Public Works.

AQUIFER.--Glacial sand and till of the Pleistocene age.

WELL CHARACTERISTICS.--Augered observation water-table well, diameter 2.0 in, PVC, depth 25.0 ft, screened 21.0 to 25.0 ft.

INSTRUMENTATION.--Monthly measurement with chalked tape by observer.

DATUM.--Elevation of land-surface datum is 940 ft above National Geodetic Vertical Datum of 1929. Measuring point: Top of casing, 3.0 ft above land-surface datum.

PERIOD OF RECORD.--August 1984 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 2.30 ft below land-surface datum, May 21, 1990; lowest water level measured, 6.79 ft below land-surface datum, Aug. 23, 1987.

WATER LEVELS, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 22	2.40	DEC 28	4.77	FEB 21	3.21	APR 21	2.85	JUN 21	4.50	AUG 21	4.22
NOV 21	3.15	JAN 23	4.60	MAR 22	2.41	MAY 21	2.30	JUL 22	5.81	SEP 23	5.34

421627072201701. Ware well WEW 43.

LOCATION.--Lat 42°16'27", long 72°20'17", Hampshire County, Hydrologic Unit 01080204, 30 ft north of State Highway 9 and 200 ft east of Swift River in Ware.

Owner: U.S. Geological Survey.

AQUIFER.--Glacial sand and gravel of Pleistocene age.

WELL CHARACTERISTICS.--Augered observation water-table well, diameter 2.0 in, depth 27.2 ft, screened 25.2 to 27.2 ft.

INSTRUMENTATION.--Monthly measurement with chalked tape by observer.

DATUM.--Elevation of land-surface datum is 380 ft above National Geodetic Vertical Datum of 1929. Measuring point: Top of casing, 3.0 ft above land-surface datum.

REMARKS.--Water levels affected by Swift River.

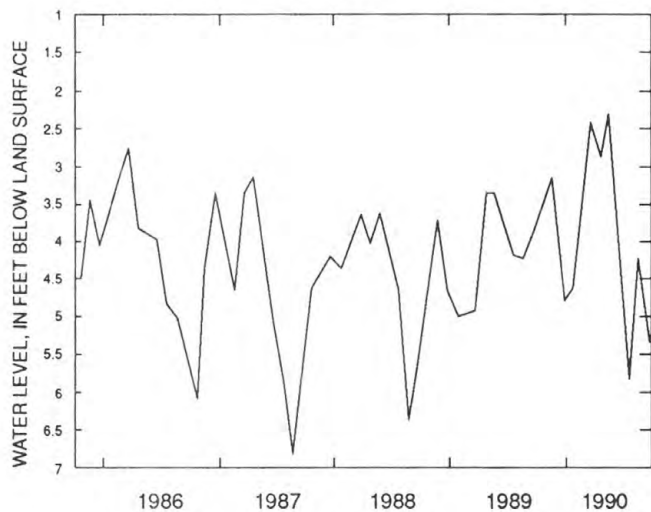
PERIOD OF RECORD.--January 1965 to current year. Prior to October 1975, published in Massachusetts Hydrologic-Data Report No. 17.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 5.17 ft below land-surface datum, June 22, 1984; lowest measured, 10.34 ft below land-surface datum, Jan. 26, 1971.

WATER LEVELS, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

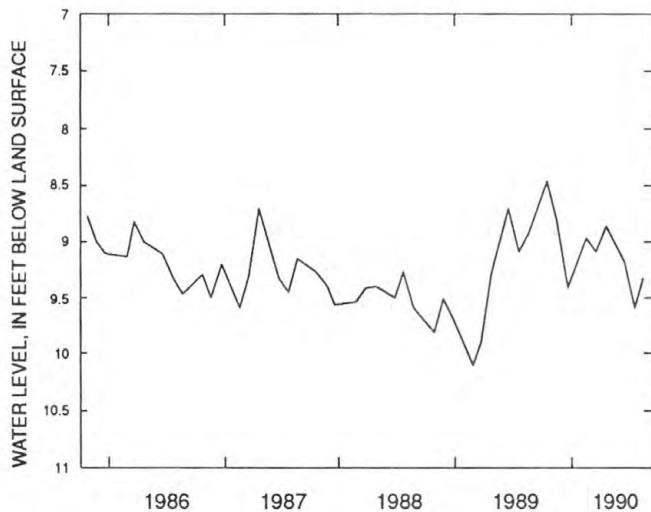
DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 22	8.46	DEC 26	9.40	FEB 21	8.95	APR 21	8.85	JUN 21	9.18	AUG 21	9.31
NOV 21	8.80	JAN 23	9.40	MAR 21	9.08	MAY 21	8.83	JUL 22	9.58	SEP 23	9.51

PDW 24



WATER YEARS

WEW 43



WATER YEARS

GROUND-WATER LEVELS IN MASSACHUSETTS

221

HAMPSHIRE COUNTY--Continued

421923072451001. Westhampton well WXW 20.

LOCATION.--Lat 42°19'23", long 72°45'10", Hampshire County, Hydrologic Unit 01080206, 20 ft north of Northwest Road and 0.75 mi west of intersection of Kings Road and Northwest Road, 4 mi northwest of Westhampton.

Owner: Daniel Krug.

AQUIFER.--Glacial sand and gravel of Pleistocene age.

WELL CHARACTERISTICS.--Augered observation water-table well, diameter 2.0 in, depth 42 ft, screened 32 to 42 ft.

INSTRUMENTATION.--Monthly measurement with chalked tape by observer.

DATUM.--Elevation of land-surface datum is 1175 ft above National Geodetic Vertical Datum of 1929. Measuring point: Top of casing, 3.0 ft above land-surface datum.

PERIOD OF RECORD.--July 1987 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 5.30 ft below land-surface datum, June 22, 1989; lowest measured, 15.52 ft below land-surface datum, Sep. 21, 1987.

WATER LEVELS, IN FEET BELOW LAND SURFACE DATUM, WATER YEARS OCTOBER 1989 TO SEPTEMBER 1990

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 24	13.43	DEC 29	14.13	FEB 22	13.21	APR 22	6.81	JUN 22	7.94	AUG 23	13.43
NOV 22	10.00	JAN 24	12.90	MAR 22	10.50	MAY 22	7.48	JUL 23	11.37	SEP 24	14.23

MIDDLESEX COUNTY

422812071244401. Acton well ACW 158.

LOCATION.--Lat 42°28'12", long 71°24'44", Middlesex County, Hydrologic Unit 01070005, 30 ft north of State Highway 2 and 150 ft east of Wetherbee Street in Acton.

Owner: U.S. Geological Survey.

AQUIFER.--Glacial sand and gravel of Pleistocene age.

WELL CHARACTERISTICS.--Augered observation water-table well, diameter 2.0 in, depth 33.8 ft, screened 31.8 to 33.8 ft.

INSTRUMENTATION.--Monthly measurement with chalked tape by observer.

DATUM.--Elevation of land-surface datum is 153 ft above National Geodetic Vertical Datum of 1929. Measuring point: Top of casing, 3.0 ft above land-surface datum.

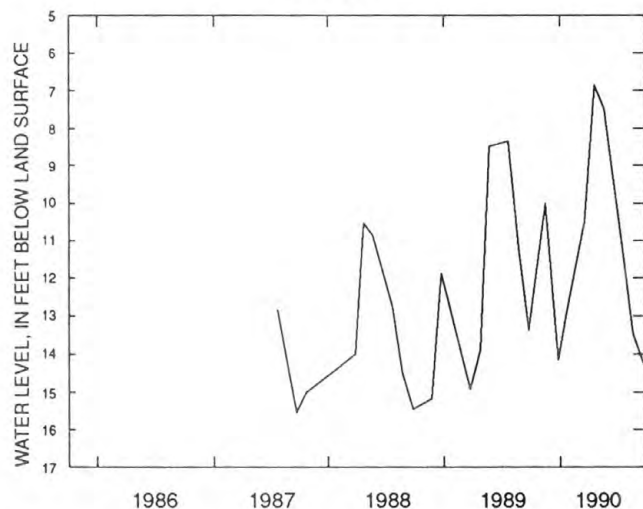
PERIOD OF RECORD.--January 1965 to current year. Prior to October 1974, published in Massachusetts Hydrologic-Data Report No. 17.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 14.98 ft below land-surface datum, Apr. 23, 1987; lowest measured, 21.86 ft below land-surface datum, Jan. 26, 1966.

WATER LEVELS, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

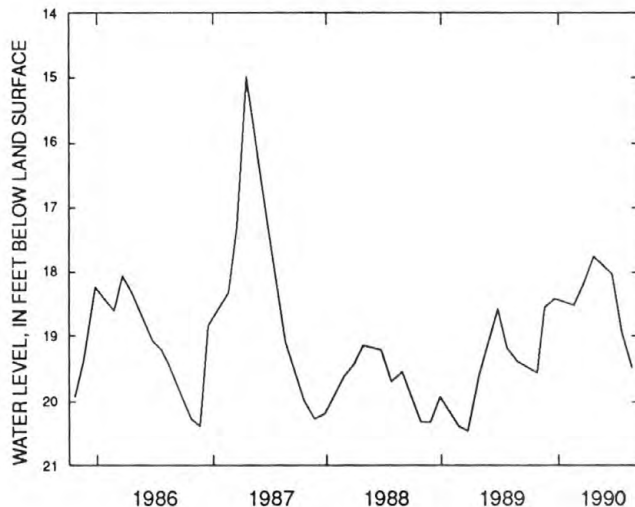
DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 24	19.56	DEC 21	18.42	FEB 22	18.52	APR 24	17.75	JUN 22	18.03	AUG 23	19.49
NOV 21	18.54	JAN 23	19.13	MAR 22	18.19	MAY 22	17.84	JUL 24	18.93	SEP 27	19.91

WXW 20



WATER YEARS

ACW 158



WATER YEARS

GROUND-WATER LEVELS IN MASSACHUSETTS

MIDDLESEX COUNTY--Continued

423349071134101. Billerica well BCW 363.

LOCATION.--Lat 42°33'49", long 71°13'41", Middlesex County, Hydrologic Unit 01070002, 20 ft south of Baldwin Road and 50 ft west of Westminster Road in Billerica.

Owner: Robert M. Young.

AQUIFER.--Glacial sand and gravel of Pleistocene age.

WELL CHARACTERISTICS.--Dug observation water-table well, diameter 30 in, depth 15.5 ft, cased with stone to 15.5 ft, open end.

INSTRUMENTATION.--Monthly measurement with chalked tape by observer.

DATUM.--Elevation of land-surface datum is 166 ft above National Geodetic Vertical Datum of 1929. Measuring point: Top of hole in wooden cover, 2.35 ft above land-surface datum.

PERIOD OF RECORD.--June 1962 to current year. Prior to October 1974, published in Massachusetts Hydrologic-Data Report No. 17.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 1.13 ft below land-surface datum, Mar. 22, 1984; lowest measured, dry Aug. 24, Sept. 22, Oct. 25, 1983.

WATER LEVELS, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 24	6.87	DEC 21	7.32	FEB 22	4.53	APR 23	3.77	JUN 22	6.67	AUG 23	9.07
NOV 21	4.98	JAN 25	8.29	MAR 22	4.68	MAY 21	3.61	JUL 24	9.55	SEP 27	10.48

423845071231401. Chelmsford well CHW 68.

LOCATION.--Lat 42°38'45", long 71°23'14", Middlesex County, Hydrologic Unit 01070002, 1,300 ft north of intersection of Wharton Lane and the B and M Railroad, 400 ft east of Middlesex Street, and 0.5 mi north of Vinal Square in North Chelmsford.

Owner: Wellman Realty Company.

AQUIFER.--Glacial outwash of Pleistocene age.

WELL CHARACTERISTICS.--Drilled observation water-table well, diameter 6 in, depth 50 ft, cased to 50 ft, open end.

INSTRUMENTATION.--Monthly measurement with chalked tape by observer.

DATUM.--Elevation of land-surface datum is 100.83 ft above National Geodetic Vertical Datum of 1929. Measuring point: Top of hole in cap on casing, 1.40 ft below land-surface datum.

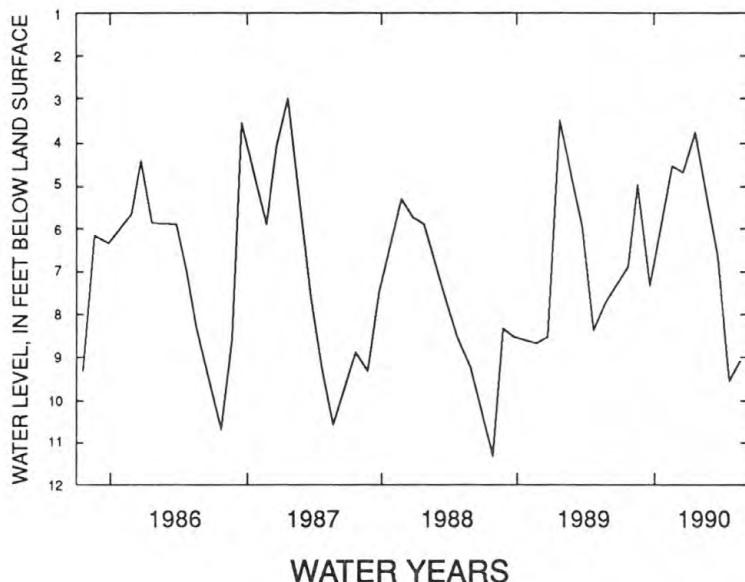
PERIOD OF RECORD.--August 1939 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 3.83 ft below land-surface datum, Apr. 23, 1987; lowest measured, 12.24 ft below land-surface datum, Sept. 28, 1957.

WATER LEVELS, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 24	6.66	DEC 21	8.60	FEB 22	7.19	APR 24	6.05	JUN 22	7.49	AUG 23	7.78
NOV 21	6.39	JAN 25	9.40	MAR 22	5.81	MAY 21	6.12	JUL 24	8.40	SEP 27	9.25

BCW 363



GROUND-WATER LEVELS IN MASSACHUSETTS

223

MIDDLESEX COUNTY--Continued

423546071190702. Chelmsford well CHW 385.

LOCATION.--Lat 42°35'46", long 71°19'07", Middlesex County, Hydrologic Unit 01070002, 15 ft east of U.S. Highway 3 and 0.4 mi north of State Highway 129 in Chelmsford.

Owner: U.S. Geological Survey.

AQUIFER.--Glacial sand and gravel of Pleistocene age.

WELL CHARACTERISTICS.--Augered observation water-table well, diameter 2.0 in, depth 42.8 ft, screened 40.8 to 42.8 ft.

INSTRUMENTATION.--Monthly measurement with chalked tape by observer.

DATUM.--Elevation of land-surface datum is 123.30 ft above National Geodetic Vertical Datum of 1929. Measuring point: Top of casing, 0.3 ft below land-surface datum.

PERIOD OF RECORD.--January 1965 to current year. Prior to October 1974, published in Massachusetts Hydrologic-Data Report No. 17.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 13.83 ft below land-surface datum, June 25, 1982; lowest measured, 19.04 ft below land-surface datum, Nov. 21, 1965.

WATER LEVELS, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 24	15.56	DEC 21	16.25	MAR 22	15.65	MAY 21	15.26	JUL 24	16.42	SEP 27	16.29
NOV 21	15.47	JAN 21	16.25	APR 24	15.47	JUN 22	15.86	AUG 23	15.92		

422637071202701. Concord well CTW 165.

LOCATION.--Lat 42°26'37", long 71°20'27", Middlesex County, Hydrologic Unit 01070005, 30 ft south of State Highway 2 and 0.1 mi west of State Highway 126 in Concord.

Owner: U.S. Geological Survey.

AQUIFER.--Glacial sand and gravel of Pleistocene age.

WELL CHARACTERISTICS.--Augered observation water-table well, diameter 2.0 in, depth 66.7 ft, screened 64.7 to 66.7 ft.

INSTRUMENTATION.--Monthly measurement with chalked tape by observer.

DATUM.--Elevation of land-surface datum is 201.12 ft above National Geodetic Vertical Datum of 1929. Measuring point: Top of casing, 2.0 ft above land-surface datum.

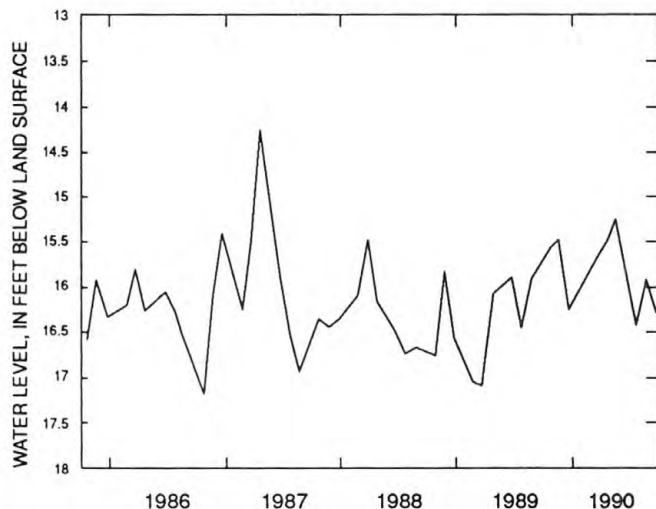
PERIOD OF RECORD.--February 1965 to current year. Prior to October 1974, published in Massachusetts Hydrologic-Data Report No. 17.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 35.50 ft below land-surface datum, July 20, 1984; lowest measured, 47.10 ft below land-surface datum, Feb. 28, 1967.

WATER LEVELS, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

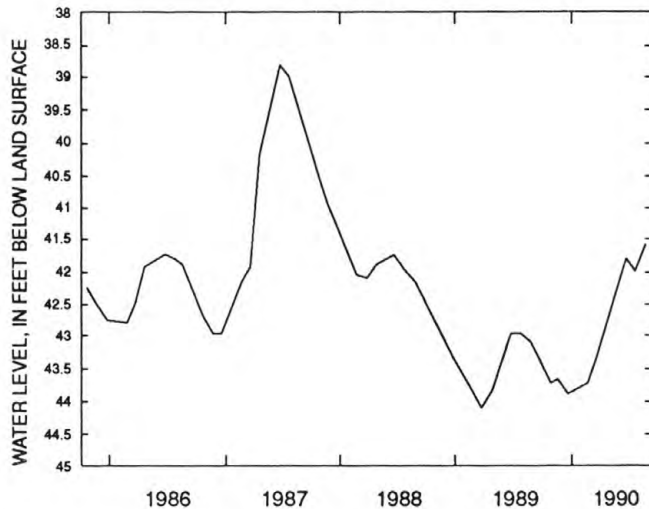
DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 24	43.71	DEC 21	43.90	FEB 22	43.72	APR 24	42.79	JUN 22	41.78	AUG 23	41.59
NOV 21	43.67	JAN 23	44.10	MAR 22	43.30	MAY 22	42.26	JUL 24	41.98	SEP 27	41.93

CHW 385



WATER YEARS

CTW 165



WATER YEARS

GROUND-WATER LEVELS IN MASSACHUSETTS

MIDDLESEX COUNTY--Continued

422650071214402. Concord well CTW 167.

LOCATION.--Lat 42°26'50", long 71°21'44", Middlesex County, Hydrologic Unit 01070005, 10 ft south of State Highway 2 and 10 ft west of Sudbury Road in Concord.

Owner: U.S. Geological Survey.

AQUIFER.--Glacial sand and gravel of Pleistocene age.

WELL CHARACTERISTICS.--Augered observation water-table well, diameter 2.0 in, depth 24.8 ft, screened 21.8 to 24.8 ft.

INSTRUMENTATION.--Monthly measurement with chalked tape by observer.

DATUM.--Elevation of land-surface datum is 135 ft above National Geodetic Vertical Datum of 1929. Measuring point: Top of casing, 3.30 ft above land-surface datum.

PERIOD OF RECORD.--January 1965 to current year. Prior to October 1974, published in Massachusetts Hydrologic-Data Report No. 17.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 4.47 ft below land-surface datum, Apr. 21, 1984; lowest measured, 10.59 ft below land-surface datum, Sept. 27, 1966.

WATER LEVELS, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 24	6.52	DEC 21	7.21	FEB 22	6.54	APR 24	5.94	JUN 22	6.84	AUG 23	7.07
NOV 21	6.12	JAN 23	7.67	MAR 22	6.02	MAY 22	5.42	JUL 24	7.65	SEP 27	7.82

422627071154002. Lexington well LTW 104.

LOCATION.--Lat 42°26'27", long 71°15'40", Middlesex County, Hydrologic Unit 01090001, at The Commonwealth of Massachusetts Department of Public Works maintenance depot, 0.2 mi west of State Highway 128 and 500 ft south of State Highway 2A in Lexington.

Owner: U.S. Geological Survey.

AQUIFER.--Glacial sand and gravel of Pleistocene age.

WELL CHARACTERISTICS.--Augered observation water-table well, diameter 2.0 in, depth 20.7 ft, screened 18.7 to 20.7 ft.

INSTRUMENTATION.--Monthly measurement with chalked tape by observer.

DATUM.--Elevation of land-surface datum is 180 ft above National Geodetic Vertical Datum of 1929. Measuring point: Top of casing, 4.5 ft above land-surface datum.

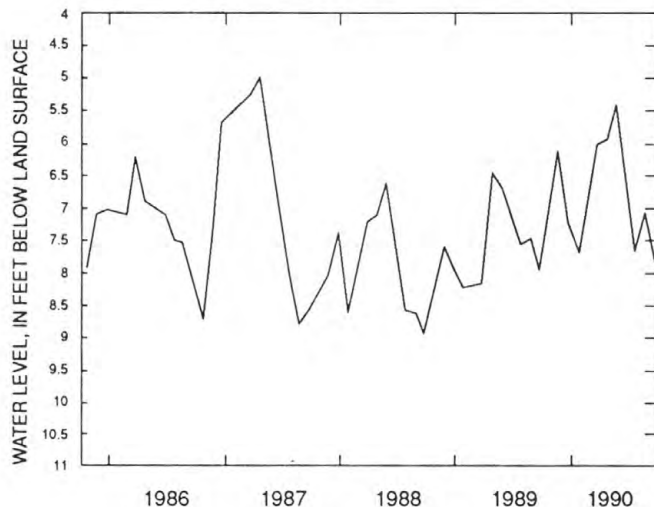
PERIOD OF RECORD.--January 1965 to current year. Prior to October 1974, published in Massachusetts Hydrologic-Data Report No. 17.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 1.22 ft below land-surface datum, Mar. 20, 1984; lowest measured, 4.35 ft below land-surface datum, Aug. 26, 1975.

WATER LEVELS, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

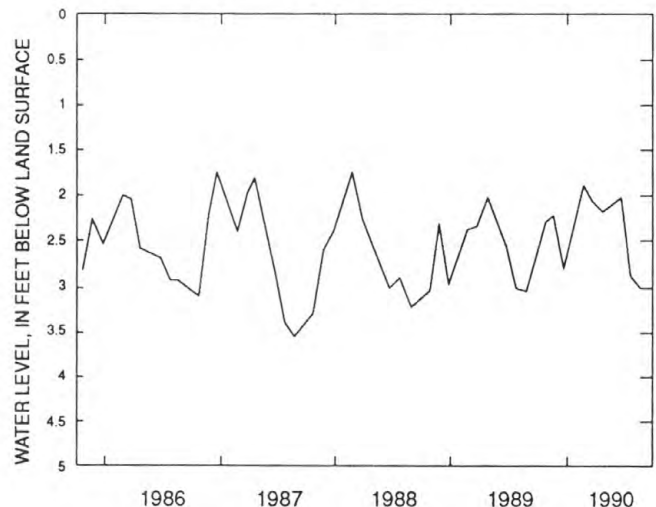
DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 24	2.28	DEC 21	2.79	FEB 22	1.88	APR 24	2.17	JUN 22	2.01	AUG 23	3.00
NOV 21	2.22	JAN 25	2.56	MAR 22	2.06	MAY 22	1.86	JUL 24	2.87	SEP 27	3.14

CTW 167



WATER YEARS

LTW 104



WATER YEARS

GROUND-WATER LEVELS IN MASSACHUSETTS

225

MIDDLESEX COUNTY--Continued

424055071435301. Townsend well TRW 13.

LOCATION.--Lat 42°40'55", long 71°43'43", Middlesex County, Hydrologic Unit 01070004, 15 ft south of Dudley Road and 15 ft north of Turnpike Road in Townsend.

Owner: U.S. Geological Survey.

AQUIFER.--Glacial sand and gravel of Pleistocene age.

WELL CHARACTERISTICS.--Augered observation water-table well, diameter 2.0 in, depth 32.9 ft, screened 30.9 to 32.9 ft.

INSTRUMENTATION.--Monthly measurement with chalked tape by observer.

DATUM.--Elevation of land-surface datum is 313 ft above National Geodetic Vertical Datum of 1929. Measuring point: Top of casing, 3.0 ft above land-surface datum.

PERIOD OF RECORD.--January 1965 to current year. Prior to October 1974, published in Massachusetts Hydrologic-Data Report No. 17.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 9.55 ft below land-surface datum, Apr. 24, 1987; lowest measured, 17.41 ft below land-surface datum, Jan. 26, 1966.

WATER LEVELS, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 24	13.38	DEC 21	13.16	FEB 22	13.52	APR 24	12.06	JUN 22	12.26	AUG 23	13.50
NOV 21	13.07	JAN 23	13.65	MAR 22	12.74	MAY 24	11.84	JUL 24	13.04	SEP 27	14.03

423115071032001. Wakefield well WAW 38.

LOCATION.--Lat 42°31'15", long 71°03'20", Middlesex County, Hydrologic Unit 01090001, 75 ft north of State Highway 128 and 0.4 mi southeast of Saugus River in Wakefield.

Owner: U.S. Geological Survey.

AQUIFER.--Glacial sand and gravel of Pleistocene age.

WELL CHARACTERISTICS.--Augered observation water-table well, diameter 2.0 in, depth 25.5 ft, screened 23.5 to 25.5 ft.

INSTRUMENTATION.--Monthly measurement with chalked tape by observer.

DATUM.--Elevation of land-surface datum is 80 ft above National Geodetic Vertical Datum of 1929. Measuring point: Top of casing, 3.0 ft above land-surface datum.

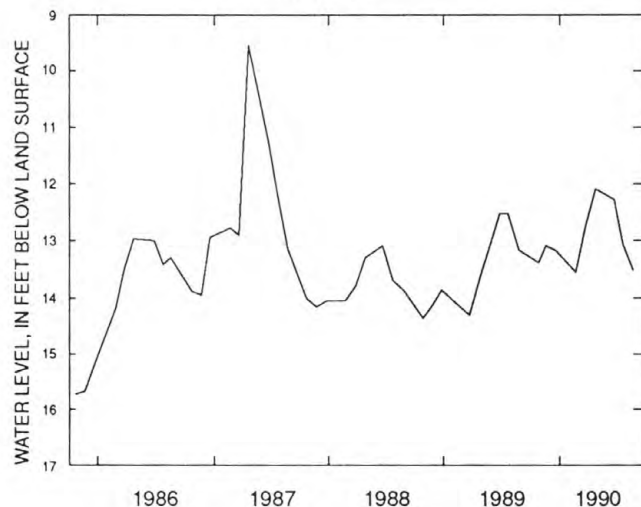
PERIOD OF RECORD.--January 1965 to current year. Prior to October 1974, published in Massachusetts Hydrologic-Data Report No. 17.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 4.51 ft below land-surface datum, Mar. 27, 1969; lowest measured, 9.99 ft below land-surface datum, Sept. 22, 1965.

WATER LEVELS, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

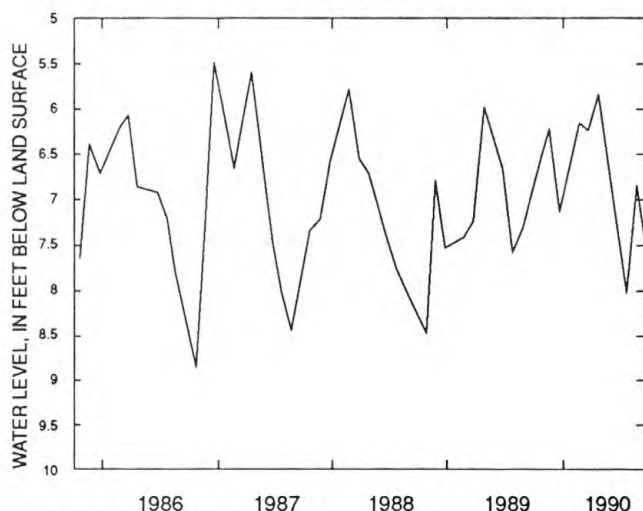
DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 24	6.52	DEC 21	7.12	FEB 22	6.16	APR 23	5.85	JUL 24	8.02	SEP 27	7.59
NOV 21	6.22	JAN 25	7.41	MAR 22	6.24	JUN 26	6.95	AUG 23	6.84		

TRW 13



WATER YEARS

WAW 38



WATER YEARS

GROUND-WATER LEVELS IN MASSACHUSETTS

MIDDLESEX COUNTY--Continued

421852071220501. Wayland well WKW 2.

LOCATION.--Lat 42°18'52", long 71°22'05", Middlesex County, Hydrologic Unit 01070005, 0.25 mi west of State Highway 27 and 100 ft south of State Highway 30, at Cochituate State Park in Wayland.

Owner: U.S. Geological Survey.

AQUIFER.--Glacial sand and gravel of Pleistocene age.

WELL CHARACTERISTICS.--Augered observation water-table well, diameter 2.0 in, depth 33.0 ft, screened 31.0 to 33.0 ft.

INSTRUMENTATION.--Monthly measurement with chalked tape by observer.

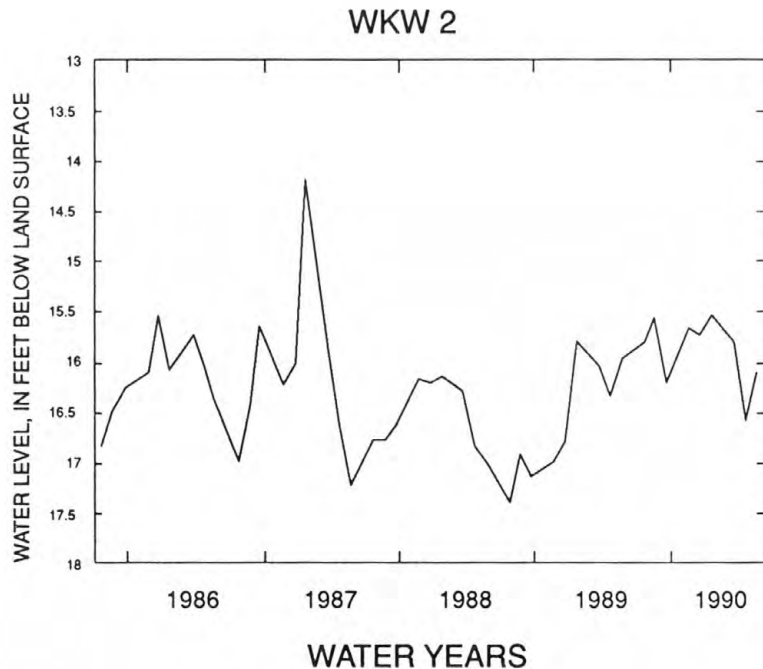
DATUM.--Elevation of land-surface datum is 157.75 ft above National Geodetic Vertical Datum of 1929. Measuring point: Top of casing, 4.0 ft above land-surface datum.

PERIOD OF RECORD.--January 1965 to current year. Prior to October 1974, published in Massachusetts Hydrologic-Data Report No. 17.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 13.96 ft below land-surface datum, Mar. 27, 1972; lowest measured, 17.47 ft below land-surface datum, Jan. 22, 1981.

WATER LEVELS, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 24	15.80	DEC 21	16.20	FEB 22	15.65	APR 24	15.53	JUN 22	15.80	AUG 23	16.10
NOV 21	15.56	JAN 23	16.72	MAR 22	15.71	MAY 24	15.35	JUL 24	16.56	SEP 27	16.68



GROUND-WATER LEVELS IN MASSACHUSETTS

227

MIDDLESEX COUNTY--Continued

423401071093801. Wilmington well XMW 78.

LOCATION.--Lat 42°34'01"N, long 71°09'38"W, Middlesex County, Hydrologic Unit 01090001, at Whitefield Public School in Wilmington, about 30 ft west of State Highway 62, and 0.3 mi north of Concord Street.

Owner: Town of Wilmington.

AQUIFER.--Glacial sand and gravel of Pleistocene age.

WELL CHARACTERISTICS.--Dug observation water-table well, diameter 42 in, depth 12 ft, cased with stone to 12 ft, open end.

INSTRUMENTATION.--Monthly measurement with chalked tape by observer. Continuous graphic recorder March 1958 to September 1982, digital recorder (60-minute punch) October 1984 to current year.

DATUM.--Elevation of land-surface datum is 95 ft above National Geodetic Vertical Datum of 1929. Measuring point: Top edge of hole in base of wooden recorder shelter, 0.42 ft above land-surface datum.

PERIOD OF RECORD.--July 1951 to current year. Prior to October 1974, published in Massachusetts Hydrologic-Data Report No. 17.

EXTREMES FOR PERIOD OF RECORD.--Highest water level, 4.19 ft below land-surface datum, Apr. 19, 20, 1987; lowest measured, 11.27 ft below land-surface datum, Oct. 30, 1957.

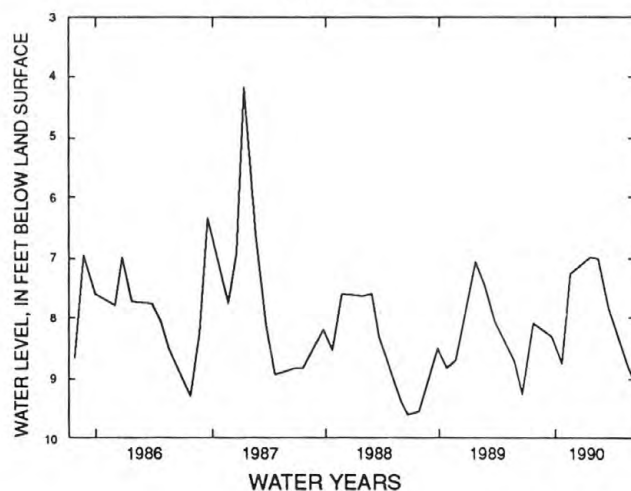
WATER LEVELS, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	9.12	7.95	7.81	8.45	7.84	---	7.40	7.16	6.97	8.27	9.01	8.53
2	9.09	8.02	7.81	8.51	7.77	---	7.41	7.19	6.97	8.31	9.05	8.55
3	9.01	7.99	7.80	8.55	7.67	---	7.37	7.23	6.98	8.35	9.08	8.60
4	9.03	7.94	7.84	8.57	7.59	---	6.77	7.25	7.01	8.38	9.12	8.65
5	9.02	7.92	7.87	8.58	7.55	---	6.79	7.24	7.10	8.43	9.15	8.68
6	9.01	7.88	7.90	8.58	7.51	---	6.71	7.27	7.16	8.47	9.17	8.71
7	9.00	7.85	7.94	8.59	7.49	---	6.65	7.29	7.20	8.52	9.19	8.74
8	8.99	7.83	7.98	8.61	7.49	---	6.64	7.32	7.26	8.56	9.18	8.77
9	8.99	7.79	7.99	8.62	7.47	---	6.66	7.34	7.30	8.60	9.20	8.81
10	9.00	7.75	8.01	8.62	7.38	---	6.67	7.35	7.34	8.64	9.22	8.83
11	8.99	7.73	8.04	8.64	7.30	---	6.69	7.11	7.38	8.68	8.77	8.86
12	8.97	7.71	8.07	8.64	7.24	---	6.77	7.25	7.43	8.72	8.73	8.89
13	8.98	7.70	8.09	8.66	7.21	---	6.83	7.19	7.47	8.75	8.72	8.92
14	8.99	7.67	8.13	8.67	7.19	---	6.86	7.15	7.52	8.79	8.69	8.94
15	8.96	7.67	8.16	8.68	7.18	7.26	6.84	7.13	7.56	8.83	8.66	8.96
16	8.95	7.65	8.18	8.70	---	7.27	6.83	7.11	7.61	8.86	8.65	8.98
17	8.94	7.62	8.21	8.71	---	7.27	6.83	7.05	7.65	8.90	8.65	9.01
18	8.87	7.63	8.24	8.71	---	7.29	6.89	7.02	7.69	8.94	8.67	9.03
19	8.85	7.63	8.26	8.72	---	7.30	6.92	6.99	7.74	8.97	8.69	9.06
20	8.70	7.61	8.29	8.71	---	7.27	6.93	6.99	7.78	9.01	8.71	9.08
21	8.44	7.62	8.32	8.72	---	7.24	6.93	6.96	7.83	9.04	8.74	9.10
22	8.36	7.66	8.35	8.73	m7.27	7.26	6.94	6.94	7.87	9.07	8.76	9.12
23	8.23	7.66	8.38	8.73	---	7.23	6.95	6.93	7.91	9.11	8.79	9.13
24	8.14	7.69	8.40	8.74	---	7.25	6.98	6.93	7.96	9.14	8.81	9.15
25	8.09	7.72	8.42	8.69	---	7.26	7.00	6.95	8.01	8.85	8.45	9.17
26	8.06	7.75	8.44	8.42	---	7.28	7.02	6.97	8.06	8.81	8.53	9.19
27	8.04	7.79	8.47	8.32	---	7.32	7.05	7.02	8.10	8.88	8.52	9.21
28	8.04	7.78	8.49	8.29	---	7.34	7.09	7.09	8.15	8.91	8.51	9.23
29	8.06	7.80	8.50	8.27	---	7.36	7.14	7.13	8.19	8.93	8.49	9.25
30	8.08	7.78	8.52	7.90	---	7.38	7.16	6.94	8.23	8.96	8.49	9.27
31	8.10	---	8.56	7.88	---	7.39	---	6.97	---	8.98	8.50	---
MEAN	8.68	7.76	8.18	8.56	---	---	6.92	7.11	7.58	8.76	8.80	8.95
LOW	9.12	8.02	8.56	8.74	---	---	7.41	7.35	8.23	9.14	9.22	9.27
HIGH	8.04	7.61	7.80	7.88	---	---	6.64	6.93	6.97	8.27	8.45	8.53

WTR YR 1990 HIGH 6.44 APR 4 LOW 9.28 SEP 30

XMW 78

m Measured



GROUND-WATER LEVELS IN MASSACHUSETTS

MIDDLESEX COUNTY--Continued

422819071065701. Winchester well XOW 14.

LOCATION.--Lat 42°28'19", long 71°06'57", Middlesex County, Hydrologic Unit 01090001, at 220 Forest Street and 100 ft north of Forest Street in Winchester.

Owner: J. E. Sharkey.

AQUIFER.--Glacial till of Pleistocene age.

WELL CHARACTERISTICS.--Dug observation water-table well, diameter 36 in, depth 17.0 ft, cased with stone to 17.0 ft, open end.

INSTRUMENTATION.--Monthly measurement with chalked tape by observer.

DATUM.--Elevation of land-surface datum is 116.29 ft above National Geodetic Vertical Datum of 1929. Measuring point: Top edge of angle iron, at land-surface datum.

PERIOD OF RECORD.--July 1940 to current year. Prior to October 1974, published in Massachusetts Hydrologic-Data Report No. 17.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 4.03 ft below land-surface datum, Mar. 26, 1969; lowest measured, 15.60 ft below land-surface datum, Oct. 31, 1957.

WATER LEVELS, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 24	8.00	DEC 21	10.91	FEB 22	7.98	APR 24	8.36	JUN 22	12.33	AUG 23	11.12
NOV 21	8.11	JAN 25	11.18	MAR 22	9.15	MAY 21	7.44	JUL 24	13.54	SEP 27	12.45

NANTUCKET COUNTY

411555070021901. Nantucket well NBW 228.

LOCATION.--Lat 41°15'55", long 70°02'19", Nantucket County, Hydrologic Unit 01090002, 165 ft south of Milestone Road and 300 ft east of Madequecham Valley Brook in Nantucket.

Owner: Nantucket Conservation Foundation.

AQUIFER.--Glacial sand and gravel of Pleistocene age.

WELL CHARACTERISTICS.--Augered observation water-table well, diameter 2.0 in, depth 35.6 ft, screened 32.6 to 35.6 ft.

INSTRUMENTATION.--Monthly measurement with chalked tape by observer.

DATUM.--Elevation of land-surface datum is 39 ft above National Geodetic Vertical Datum of 1929. Measuring point: Top of casing, 0.7 ft above land-surface datum.

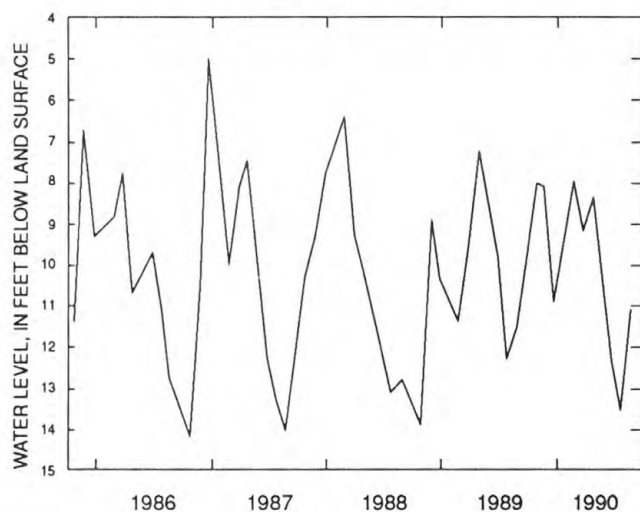
PERIOD OF RECORD.--March 1976 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 21.45 ft below land-surface datum, Apr. 21, 1978; lowest measured, 27.90 ft below land-surface datum, Feb. 23, 1981.

WATER LEVELS, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

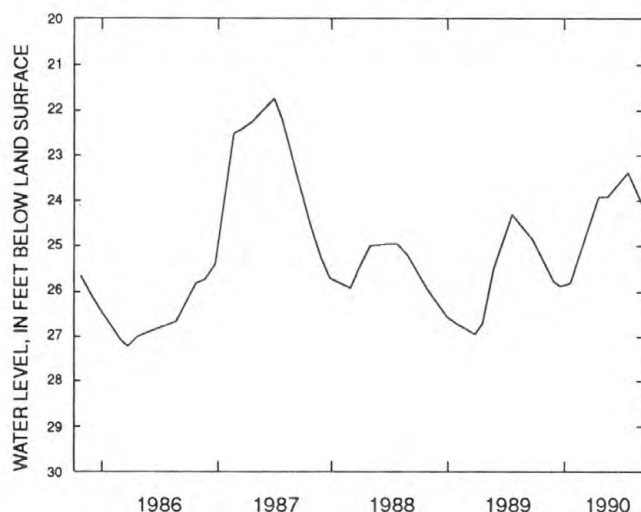
DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 24	25.31	DEC 22	25.89	FEB 28	25.18	APR 23	23.90	JUN 22	23.63	AUG 24	23.79
NOV 28	25.75	JAN 22	25.82	MAR 24	24.58	MAY 22	23.90	JUL 26	23.39	SEP 25	24.30

XOW 14



WATER YEARS

NBW 228



WATER YEARS

GROUND-WATER LEVELS IN MASSACHUSETTS

229

NORFOLK COUNTY

421250071090901. Dedham well DDW 231.

LOCATION.--Lat 42°12'50", long 71°09'09", Norfolk County, Hydrologic Unit 01090001, 50 ft south of State Highway 128 and 0.3 mi west of University Avenue in Dedham.

Owner: U.S. Geological Survey.

AQUIFER.--Glacial till of Pleistocene age.

WELL CHARACTERISTICS.--Augered observation water-table well, diameter 2.0 in, depth 21.9 ft, screened 19.9 to 21.9 ft. INSTRUMENTATION.--Monthly measurement with chalked tape by observer.

DATUM.--Elevation of land-surface datum is 65 ft above National Geodetic Vertical Datum of 1929. Measuring point: Top of casing, 2.3 ft above land-surface datum. Prior to July 17, 1978, 1.5 ft above land-surface datum.

PERIOD OF RECORD.--January 1965 to current year. Prior to October 1974, published in Massachusetts Hydrologic-Data Report No. 17.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 2.45 ft below land-surface datum, Mar. 28, 1978; lowest measured, 13.81 ft below land-surface datum, Sept. 27, 1965.

WATER LEVELS, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 26	6.81	DEC 17	7.53	FEB 20	4.64	APR 22	4.62	JUN 24	5.51	AUG 20	8.35
NOV 26	5.04	JAN 27	7.15	MAR 25	5.49	MAY 20	4.41	JUL 22	10.15	SEP 22	10.24

421435071165701. Dover well DVW 10.

LOCATION.--Lat 42°14'35", long 71°16'57", Norfolk County, Hydrologic Unit 01090001, at Dover Public School about 400 ft southwest of and about 400 ft west of Center Street in Dover.

Owner: U.S. Geological Survey.

AQUIFER.--Glacial sand and gravel of Pleistocene age.

WELL CHARACTERISTICS.--Augered observation water-table well, diameter 2 in, depth 54 ft, screened 52 to 54 ft.

INSTRUMENTATION.--Monthly measurement with chalked tape by observer.

DATUM.--Elevation of land-surface datum is 160 ft above National Geodetic Vertical Datum of 1929. Measuring point: Top of casing, 3.0 ft above land-surface datum.

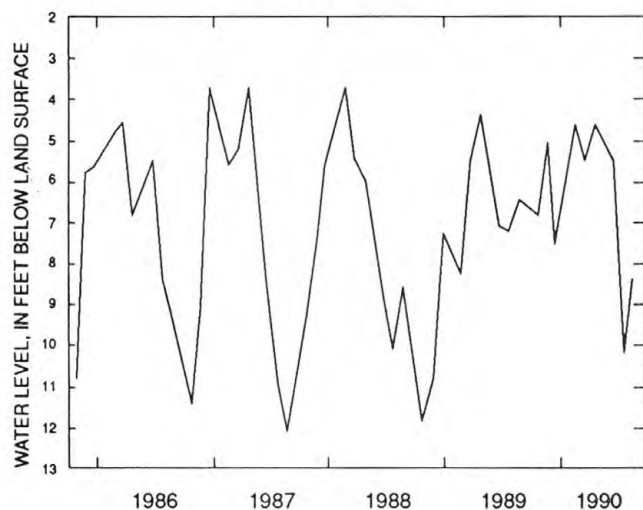
PERIOD OF RECORD.--January 1965 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 29.95 ft below land-surface datum, Apr. 20, 1987; lowest measured, 36.87 ft below land-surface datum, Jan. 21, 1966.

WATER LEVELS, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

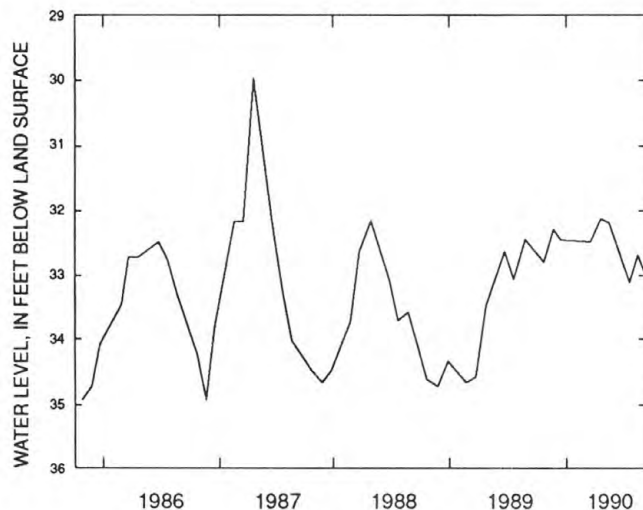
DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 26	32.80	DEC 17	32.47	MAR 25	32.48	MAY 20	32.19	JUL 22	33.12	SEP 22	33.14
NOV 26	32.29	FEB 20	32.60	APR 22	32.14	JUN 24	32.23	AUG 20	32.69		

DDW 231



WATER YEARS

DVW 10



WATER YEARS

GROUND-WATER LEVELS IN MASSACHUSETTS

NORFOLK COUNTY--Continued

420432071151201. Foxborough well FXW 3.

LOCATION.--Lat 42°04'32", long 71°15'12", Norfolk County, Hydrologic Unit 01090004, at Foxborough State Hospital, near railroad tracks, 100 ft east of driveway, and 250 ft north of Chestnut Street in Foxborough.

Owner: U.S. Geological Survey.

AQUIFER.--Glacial sand and gravel of Pleistocene age.

WELL CHARACTERISTICS.--Augered observation water-table well, diameter 2 in, depth 32 ft, screened 30 to 32 ft.

INSTRUMENTATION.--Monthly measurement with chalked tape by observer.

DATUM.--Elevation of land-surface datum is 290 ft above National Geodetic Vertical Datum of 1929. Measuring point: Top of casing, 3.0 ft above land-surface datum.

PERIOD OF RECORD.--January 1965 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 16.24 ft below land-surface datum, Mar. 25, 1968; lowest measured, 21.42 ft below land-surface datum, Dec. 28, 1965.

WATER LEVELS, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 26	18.29	DEC 17	18.98	FEB 20	18.42	APR 22	18.19	JUN 24	18.97	AUG 20	18.53
NOV 26	18.39	JAN 27	19.18	MAR 25	18.71	MAY 20	18.43	JUL 22	19.63	SEP 22	19.60

420545071174001. Norfolk well NNW 27.

LOCATION.--Lat 42°05'45", long 71°17'40", Norfolk County, Hydrologic Unit 01090001, 15 ft northwest of State Highway 1A and 0.1 mi northeast of Valley Street in Norfolk.

Owner: U.S. Geological Survey.

AQUIFER.--Glacial sand and gravel of Pleistocene age.

WELL CHARACTERISTICS.--Augered observation water-table well, diameter 1.25 in, depth 18.4 ft, screened 16.4 to 18.4 ft.

INSTRUMENTATION.--Monthly measurement with chalked tape by observer.

DATUM.--Elevation of land-surface datum is 160 ft above National Geodetic Vertical Datum of 1929. Measuring point: Top of casing, 1.7 ft above land-surface datum.

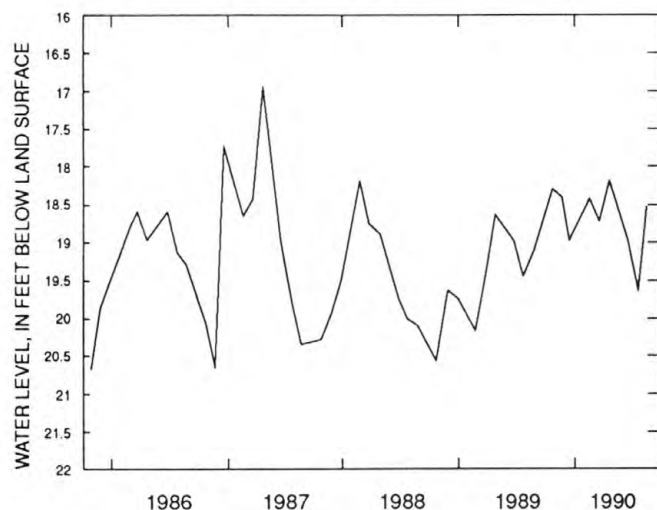
PERIOD OF RECORD.--January 1965 to current year. Prior to October 1974, published in Massachusetts Hydrologic-Data Report No. 17.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 4.20 ft below land-surface datum, Dec. 20, 1986, and Apr. 20, 1987; lowest measured, 7.97 ft below land-surface datum, Sept. 24, 1980.

WATER LEVELS, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

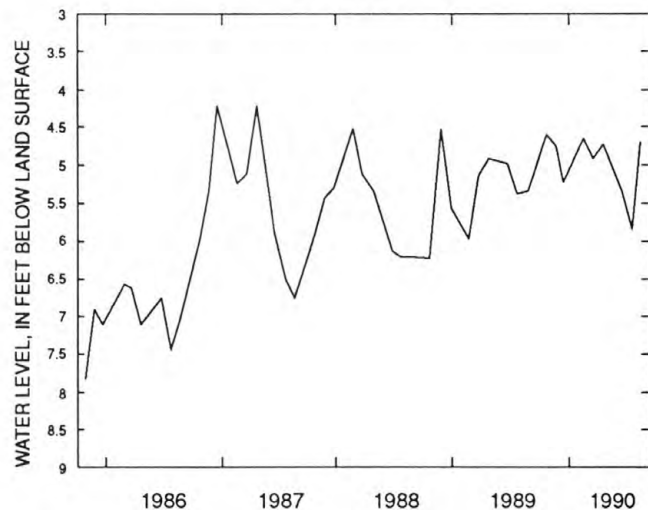
DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 26	4.60	DEC 17	5.23	FEB 20	4.65	APR 22	4.72	JUN 24	5.33	AUG 20	4.71
NOV 26	4.75	JAN 27	5.00	MAR 25	4.92	MAY 20	4.71	JUL 22	5.83	SEP 22	5.63

FXW 3



WATER YEARS

NNW 27



WATER YEARS

GROUND-WATER LEVELS IN MASSACHUSETTS

231

NORFOLK COUNTY--Continued

420954070564501. Weymouth well XGW 2.

LOCATION.--Lat 42°09'54", long 70°56'45", Norfolk County, Hydrologic Unit 01090001, 40 ft south of main gate guard house at U.S. Naval Air Station at Weymouth.

Owner: U.S. Geological Survey.

AQUIFER.--Glacial till of Pleistocene age.

WELL CHARACTERISTICS.--Augered observation water-table well, diameter 2 in, depth 30 ft, screened 28 to 30 ft.

INSTRUMENTATION.--Monthly measurement with chalked tape by observer.

DATUM.--Elevation of land-surface datum is 180 ft above National Geodetic Vertical Datum of 1929. Measuring point: Top of casing, 3.0 ft above land-surface datum.

PERIOD OF RECORD.--January 1965 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 5.25 ft below land-surface datum, Jan. 28, 1970; lowest measured, 22.63 ft below land-surface datum, Nov. 21, 1980.

WATER LEVELS, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
NOV 27	7.29	JAN 27	9.58	MAR 25	7.97	MAY 20	6.79	JUL 22	13.19	SEP 22	13.96
DEC 17	9.72	FEB 20	6.89	APR 22	7.02	JUN 24	9.79	AUG 20	12.50		

421147070571901. Weymouth well XGW 3.

LOCATION.--Lat 42°11'47", long 70°57'19", Norfolk County, Hydrologic Unit 01090001, about 100 ft east of State Highway 18 and about 600 ft off State Highway 3 in Weymouth.

Owner: U.S. Geological Survey.

AQUIFER.--Glacial sand and gravel of Pleistocene age.

WELL CHARACTERISTICS.--Augered observation water-table well, diameter 2 in, depth 22.3 ft, screened 20.3 to 22.3 ft.

INSTRUMENTATION.--Monthly measurement with chalked tape by observer.

DATUM.--Elevation of land-surface datum is 90 ft above National Geodetic Vertical Datum of 1929. Measuring point: Top of casing, 2.5 ft above land-surface datum.

REMARKS.--Water level affected by pumping.

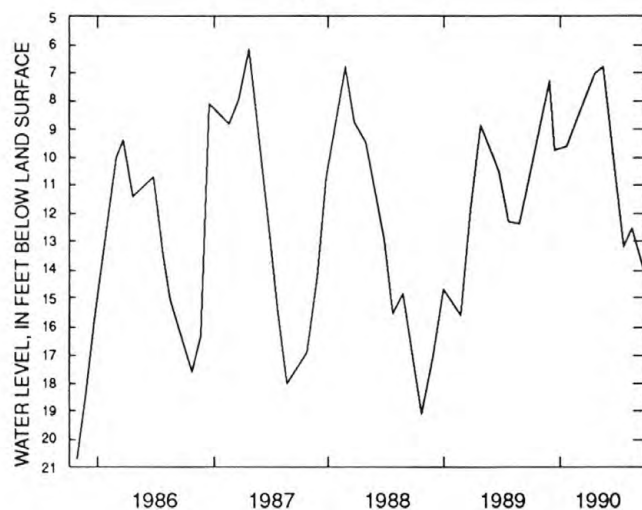
PERIOD OF RECORD.--January 1965 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 2.91 ft below land-surface datum, Jan. 27, 1978; lowest measured, 18.10 ft below land-surface datum, Sept. 27, 1965.

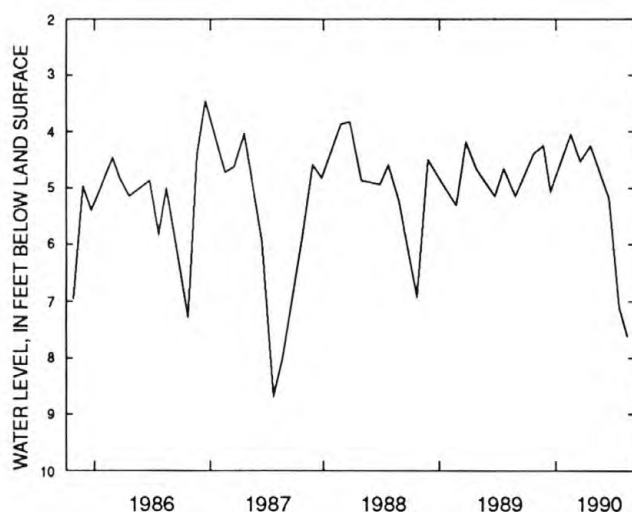
WATER LEVELS, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 26	4.36	DEC 17	5.05	FEB 20	4.03	APR 22	4.25	JUN 24	5.16	AUG 20	7.61
NOV 26	4.24	JAN 27	4.01	MAR 25	4.50	MAY 20	4.15	JUL 22	7.08	SEP 22	6.40

XGW 2



XGW 3



GROUND-WATER LEVELS IN MASSACHUSETTS

NORFOLK COUNTY--Continued

421120070562801. Weymouth well XGW 4.

LOCATION.--Lat 42°11'20", long 70°56'28", Norfolk County, Hydrologic Unit 01090001, at median strip of State Highway 3 and 0.8 mi south of State Highway 18 in Weymouth.

Owner: U.S. Geological Survey.

AQUIFER.--Glacial sand and gravel of Pleistocene age.

WELL CHARACTERISTICS.--Augered observation water-table well, diameter 2 in, depth 22.6 ft, screened 20.6 to 22.6 ft.

INSTRUMENTATION.--Monthly measurement with chalked tape by observer.

DATUM.--Elevation of land-surface datum is 90 ft above National Geodetic Vertical Datum of 1929. Measuring point: Top of casing, 2.5 ft above land-surface datum.

PERIOD OF RECORD.--January 1965 to current year. Prior to October 1974, published in Massachusetts Hydrologic-Data Report No. 17.

EXTREMES FOR PERIOD OF RECORD.--Highest water-level measured, 4.75 ft below land-surface datum, Mar. 29, 1983; lowest measured, 10.45 ft below land-surface datum, Sept. 27, 1965.

WATER LEVELS, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 26	5.87	DEC 17	6.86	FEB 20	5.73	APR 22	5.84	JUN 24	6.90	AUG 20	6.61
NOV 26	6.06	JAN 27	5.76	MAR 25	6.32	MAY 20	5.59	JUL 22	7.59	SEP 22	7.27

PLYMOUTH COUNTY

420321070433502. Duxbury well D4W 79.

LOCATION.--Lat 42°03'21", long 70°43'35", Plymouth County, Hydrologic Unit 01090002, 30 ft west of State Highway 3 and about 300 ft north of State Highway 14 in Duxbury.

Owner: U.S. Geological Survey.

AQUIFER.--Glacial sand and silty clay of Pleistocene age.

WELL CHARACTERISTICS.--Augered observation water-table well, diameter 2.0 in, depth 23.5 ft, screened 21.5 to 23.5 ft.

INSTRUMENTATION.--Monthly measurement with chalked tape by observer.

DATUM.--Elevation of land-surface datum is 55 ft above National Geodetic Vertical Datum of 1929. Measuring point: Top of casing, 1.5 ft above land-surface datum.

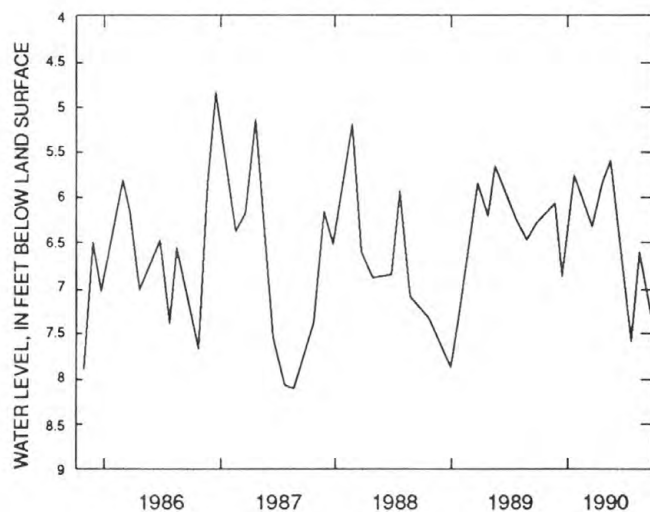
PERIOD OF RECORD.--January 1965 to current year. Prior to October 1974, published in Massachusetts Hydrologic-Data Report No. 17.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 6.10 ft below land-surface datum, Jan. 26, 1978; lowest measured, 10.68 ft below land-surface datum, Sept. 28, 1965.

WATER LEVELS, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

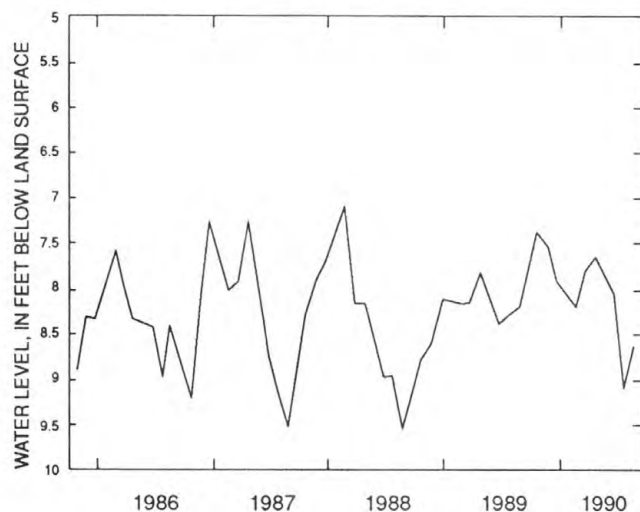
DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 21	7.36	DEC 21	7.91	FEB 20	8.19	APR 21	7.63	JUN 23	8.06	AUG 25	8.63
NOV 24	7.53	JAN 20	8.02	MAR 25	7.80	MAY 20	7.52	JUL 22	9.08	SEP 22	9.02

XGW 4



WATER YEARS

D4W 79



WATER YEARS

GROUND-WATER LEVELS IN MASSACHUSETTS

233

PLYMOUTH COUNTY--Continued

420317070432901. Duxbury well D4W 80.

LOCATION.--Lat 42°03'17", long 70°43'29", Plymouth County, Hydrologic Unit 01090002, 78 ft south of State Highway 14 and 250 ft east of State Highway 3 in Duxbury.

Owner: The Commonwealth of Massachusetts Department of Public Works.

AQUIFER.--Bedrock.

WELL CHARACTERISTICS.--Drilled observation water-table well, diameter 6.0 in, depth 181 ft, cased to 59 ft, open hole.

INSTRUMENTATION.--Monthly measurement with chalked tape by observer.

DATUM.--Elevation of land-surface datum is 65 ft above National Geodetic Vertical Datum of 1929. Measuring point: Top of hole in concrete cover, at land-surface datum.

PERIOD OF RECORD.--April 1965 to current year. Prior to October 1974, published in Massachusetts Hydrologic-Data Report No. 17.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 19.53 ft below land-surface datum, Jan. 26, 1978; lowest measured, 24.02 ft below land-surface datum, Sept. 28, 1965.

WATER LEVELS, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 21	20.85	DEC 21	20.73	FEB 20	20.57	APR 21	21.31	JUN 23	21.73	AUG 25	22.21
NOV 24	21.08	JAN 20	21.07	MAR 25	21.49	MAY 20	21.16	JUL 22	22.45	SEP 22	22.61

420056070575701. East Bridgewater well EBW 30.

LOCATION.--Lat 42°00'56", long 70°57'57", Plymouth County, Hydrologic Unit 01090004, about 100 ft north of State Highway 106 and 800 ft west of State Highway 18 in East Bridgewater.

Owner: East Bridgewater Medical Center.

AQUIFER.--Glacial till of Pleistocene age.

WELL CHARACTERISTICS.--Dug observation water-table well, diameter 36 in, depth 24 ft, cased with stone to 24 ft, open end.

INSTRUMENTATION.--Monthly measurement with chalked tape by observer.

DATUM.--Elevation of land-surface datum is 85 ft above National Geodetic Vertical Datum of 1929. Measuring point: Top of stone casing curb, 2.6 ft above land-surface datum.

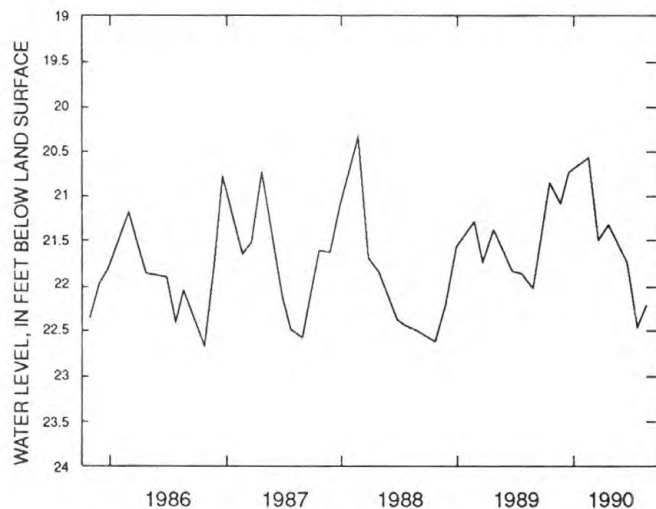
PERIOD OF RECORD.--July 1958 to current year. Prior to October 1974, published in Massachusetts Hydrologic-Data Report No. 17.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 2.40 ft below land-surface datum, Mar. 27, 1969; lowest measured, 17.83 ft below land-surface datum, Dec. 28, 1965.

WATER LEVELS, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

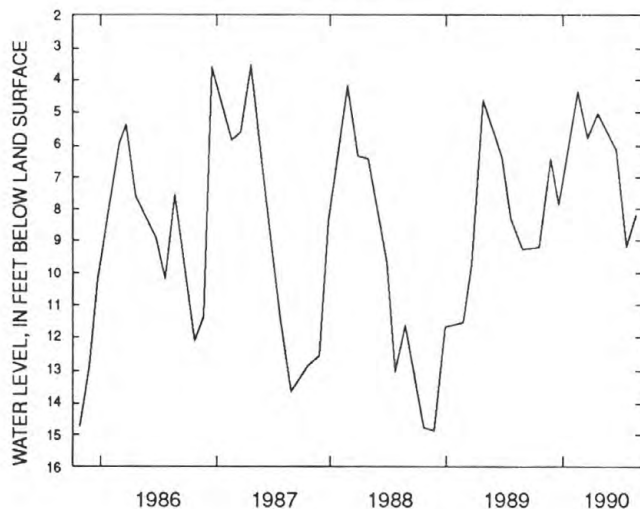
DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 21	9.21	DEC 21	7.85	FEB 20	4.37	APR 21	5.02	JUN 23	6.17	AUG 25	8.21
NOV 24	6.42	JAN 20	9.13	MAR 25	5.81	MAY 20	5.07	JUL 22	9.17	SEP 22	10.77

D4W 80



WATER YEARS

EBW 30



WATER YEARS

GROUND-WATER LEVELS IN MASSACHUSETTS

PLYMOUTH COUNTY--Continued

415820070522801. Halifax well HBW 97.

LOCATION.--Lat 41°58'20", long 70°52'28", Plymouth County, Hydrologic Unit 01090004, 1,950 ft west of South Street and 130 ft south of River Street in Halifax.

Owner: Richard W. Green.

AQUIFER.--Sandstone interbedded with shale and conglomerate of Carboniferous age.

WELL CHARACTERISTICS.--Drilled observation water-table well, diameter 3.0 in, depth 945 ft, cased to 90 ft, open hole.

INSTRUMENTATION.--Monthly measurement with chalked tape by observer.

DATUM.--Elevation of land-surface datum is 35 ft above National Geodetic Vertical Datum of 1929. Measuring point: Top of casing, 0.5 ft above land-surface datum.

PERIOD OF RECORD.--April 1977 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 2.30 ft below land-surface datum, Jan. 26, 1978; lowest measured, 5.82 ft below land-surface datum, Oct. 24, 1980.

WATER LEVELS, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 21	3.31	DEC 21	3.69	FEB 20	3.06	APR 21	3.44	JUN 23	3.94	AUG 25	4.01
NOV 24	3.31	JAN 20	3.72	MAR 25	3.60	MAY 20	3.53	JUL 22	4.66	SEP 22	4.15

420353070520301. Hanson well HGW 76.

LOCATION.--Lat 42°03'53", long 70°52'03", Plymouth County, Hydrologic Unit 01090002, 100 ft south of State Highway 14 and 150 ft west of town hall in Hanson.

Owner: U.S. Geological Survey.

AQUIFER.--Glacial sand and gravel of Pleistocene age.

WELL CHARACTERISTICS.--Augered observation water-table well, diameter 2.0 in, depth 26.6 ft, screened 24.6 to 26.6 ft.

INSTRUMENTATION.--Monthly measurement with chalked tape by observer.

DATUM.--Elevation of land-surface datum is 71 ft above National Geodetic Vertical Datum of 1929. Measuring point: Top of casing, 1.5 ft above land-surface datum.

REMARKS.--Water level affected by Wampatuck Pond.

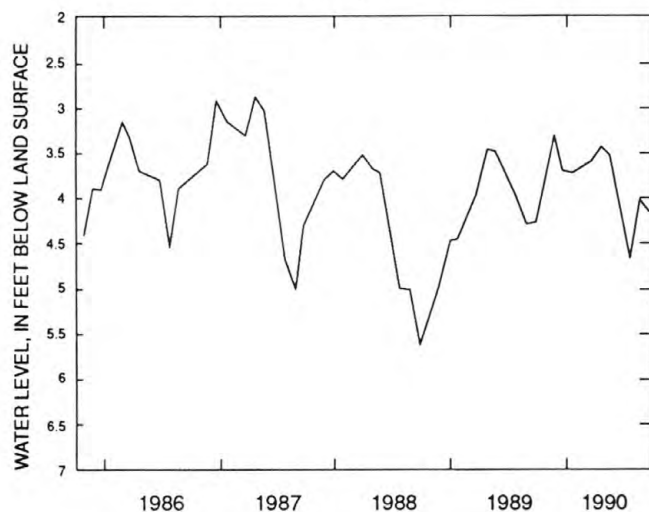
PERIOD OF RECORD.--June 1964 to current year. Prior to October 1974, published in Massachusetts Hydrologic-Data Report No. 17.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 2.50 ft below land-surface datum, Mar. 26, 1969; lowest measured, 6.53 ft below land-surface datum, Sept. 25, 1980.

WATER LEVELS, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

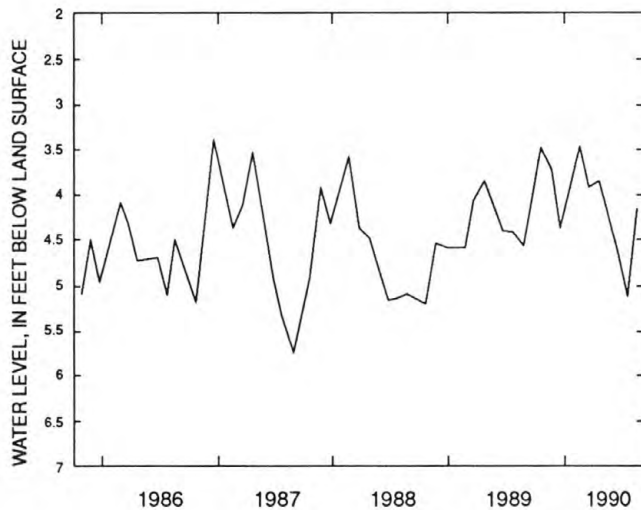
DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 21	3.49	DEC 21	4.37	FEB 20	3.47	APR 21	3.84	JUN 23	4.60	AUG 25	4.16
NOV 24	3.72	JAN 20	4.33	MAR 25	3.91	MAY 20	3.64	JUL 22	5.11	SEP 22	4.75

HBW 97



WATER YEARS

HGW 76



WATER YEARS

GROUND-WATER LEVELS IN MASSACHUSETTS

235

PLYMOUTH COUNTY--Continued

415228070554601. Lakeville well LKW 14.

LOCATION.--Lat 41°52'28", long 70°55'46", Plymouth County, Hydrologic Unit 01090004, 30 ft west of parking lot at Lakeville State Hospital in Lakeville.

Owner: U.S. Geological Survey.

AQUIFER.--Glacial sand and gravel of Pleistocene age.

WELL CHARACTERISTICS.--Augered observation water-table well, diameter 2 in, depth 41 ft, screened 39 to 41 ft.

INSTRUMENTATION.--Monthly or more frequent measurements with chalked tape by observer. Digital recorder (60-min punch) July 1986 to current year.

DATUM.--Elevation of land-surface datum is 105 ft above National Geodetic Vertical Datum of 1929. Measuring point: Top of casing, 1.5 ft above land-surface datum.

PERIOD OF RECORD.--June 1964 to current year. Prior to October 1974, published in Massachusetts Hydrologic-Data Report No. 17.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 9.28 ft below land-surface datum, Mar. 29, 1983; lowest measured, 23.59 ft below land-surface datum, Oct. 26, 1966.

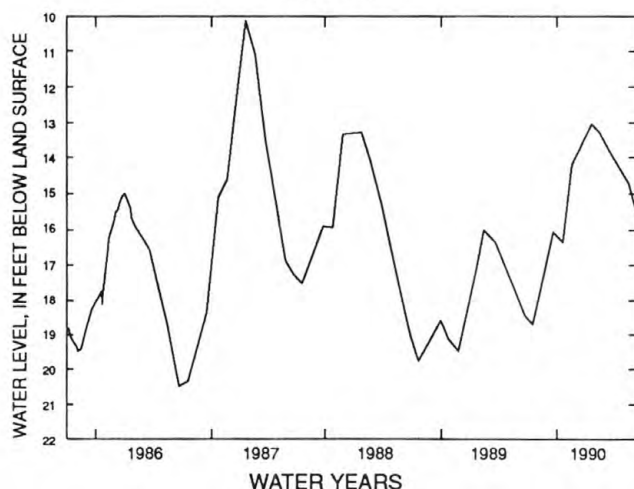
WATER LEVELS, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	18.48	17.91	---	16.26	---	---	13.87	12.96	12.93	---	---	14.98
2	18.48	17.89	---	16.30	---	---	13.89	12.96	12.93	---	---	15.02
3	18.48	17.85	---	16.31	---	---	13.91	12.97	12.91	---	---	15.06
4	18.47	17.83	---	16.30	---	---	13.83	13.07	12.87	---	---	15.10
5	18.47	17.80	---	16.27	---	---	13.74	13.05	12.83	---	---	15.10
6	18.47	17.76	---	16.27	---	---	13.63	13.05	12.84	---	---	---
7	18.50	17.74	---	16.26	---	---	13.53	13.07	12.87	---	---	---
8	18.51	17.72	---	16.25	---	---	13.45	13.15	12.88	---	---	---
9	18.54	17.71	---	16.23	---	---	13.39	13.17	12.91	m14.52	---	---
10	18.55	17.71	---	16.19	---	---	13.31	13.17	---	14.63	---	---
11	18.55	---	---	16.17	---	---	13.22	13.18	---	14.73	---	---
12	18.56	---	---	16.16	---	---	13.20	13.27	---	14.79	---	---
13	18.57	---	---	16.16	---	m13.60	13.18	13.28	---	14.84	14.17	---
14	18.57	---	m15.85	16.19	---	---	13.16	13.26	---	14.89	14.18	---
15	18.60	---	15.87	16.20	---	---	13.10	13.28	---	14.94	14.22	---
16	18.61	---	15.85	16.19	---	---	13.07	13.28	---	---	14.28	---
17	18.62	---	15.85	16.18	---	---	13.05	13.24	---	---	14.34	---
18	18.62	---	15.88	16.12	---	---	13.05	13.21	---	---	14.39	---
19	18.63	---	15.89	16.11	---	---	13.05	13.18	---	---	14.45	---
20	18.63	---	15.89	16.13	m14.17	---	13.02	13.16	---	---	14.50	---
21	18.62	---	15.91	16.11	---	---	12.98	13.09	---	---	14.55	---
22	18.57	---	15.93	16.10	---	---	12.96	13.04	---	m15.47	14.59	m15.85
23	18.51	---	15.96	16.10	---	---	12.95	13.00	m13.81	---	14.64	---
24	18.42	m16.49	15.97	16.11	---	---	12.94	12.98	---	---	14.67	---
25	18.33	---	15.97	16.11	---	---	12.94	12.96	---	---	14.70	---
26	18.25	---	16.03	16.07	---	---	12.92	12.93	---	---	14.71	---
27	18.18	---	16.12	16.03	---	---	12.92	12.91	---	---	14.72	---
28	18.12	---	16.15	15.93	---	---	12.91	12.91	---	---	14.78	---
29	18.06	---	16.20	15.86	---	13.71	12.95	12.91	---	---	14.84	---
30	18.02	---	16.23	15.81	---	13.89	12.96	12.90	---	---	14.89	---
31	17.97	---	16.25	15.79	---	13.86	---	12.91	---	---	14.94	---
MEAN	18.45	---	---	16.14	---	---	13.24	13.08	---	---	---	---
LOW	18.63	---	---	16.31	---	---	13.91	13.28	---	---	---	---
HIGH	17.97	---	---	15.79	---	---	12.91	12.90	---	---	---	---

WTR YR 1990 HIGH 12.83 JUNE 5, 6 LOW 18.63 OCT 19-21

m Measured

LKW 14



GROUND-WATER LEVELS IN MASSACHUSETTS

PLYMOUTH COUNTY--Continued

415433070583302. Middleborough well MTW 82.

LOCATION.--Lat 41°54'33", long 70°58'33", Plymouth County, Hydrologic Unit 01090004, 15 ft southeast of southbound side of State Highway 25 and 435 ft southeast of Puddingshear Brook in Middleborough.

Owner: U.S. Geological Survey.

AQUIFER.--Glacial till of Pleistocene age.

WELL CHARACTERISTICS.--Augered observation water-table well, diameter 2.0 in, depth 26.5 ft, screened 24.5 to 26.5 ft.

INSTRUMENTATION.--Monthly measurement with chalked tape by observer.

DATUM.--Elevation of land-surface datum is 45 ft above National Geodetic Vertical Datum of 1929. Measuring point: Top of casing, 3.5 ft above land-surface datum.

PERIOD OF RECORD.--January 1965 to current year. Prior to October 1974, published in Massachusetts Hydrologic-Data Report No. 17.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 1.50 ft below land-surface datum, Mar. 24, 1983; lowest measured, 17.58 ft below land-surface datum, Oct. 24, 1980.

WATER LEVELS, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 21	12.17	DEC 21	6.15	FEB 20	4.11	APR 21	4.82	JUN 23	7.48	AUG 25	8.41
NOV 24	4.41	JAN 20	8.07	MAR 25	5.63	MAY 20	5.93	JUL 22	11.28	SEP 22	11.81

415453070434901. Plymouth well PWW 22.

LOCATION.--Lat 41°54'53", long 70°43'49", Plymouth County, Hydrologic Unit 01090004, 10 ft from northeast corner of main building at Plymouth Airport.

Owner: U.S. Geological Survey.

AQUIFER.--Glacial outwash of Pleistocene age.

WELL CHARACTERISTICS.--Driven observation water-table well, diameter 1.25 in, depth 42 ft, screened 40 to 42 ft.

INSTRUMENTATION.--Monthly measurement with chalked tape by observer.

DATUM.--Elevation of land-surface datum is 145 ft above National Geodetic Vertical Datum of 1929. Measuring point: Top of casing, at land-surface datum.

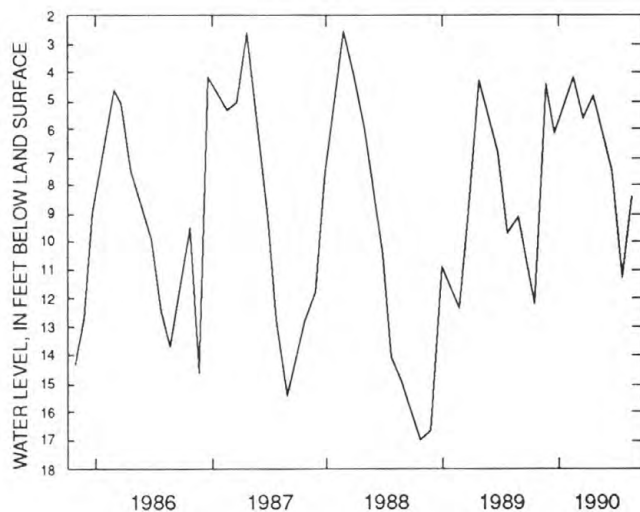
PERIOD OF RECORD.--November 1956 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 19.82 ft below land-surface datum, May 26, 1958; lowest measured, 28.99 ft below land-surface datum, Jan. 28, 1966.

WATER LEVELS, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

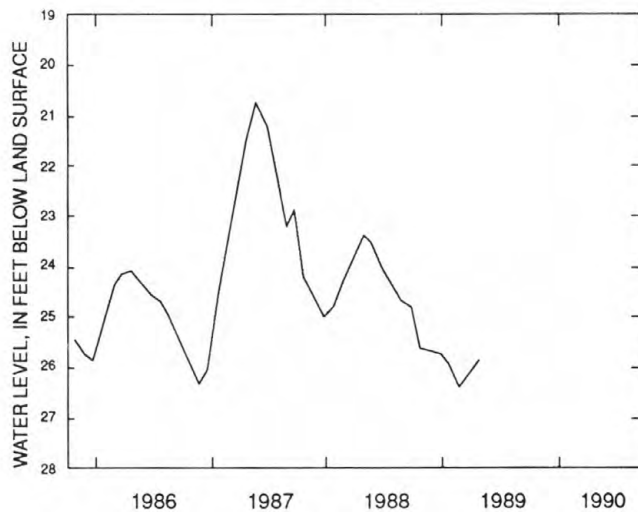
DATE	WATER LEVEL	DATE	WATER LEVEL
AUG 25	24.06	SEP 22	24.62

MTW 82



WATER YEARS

PWW 22



WATER YEARS

GROUND-WATER LEVELS IN MASSACHUSETTS

237

PLYMOUTH COUNTY--Continued

415217070393102. Plymouth well PWW 494.

LOCATION.--Lat 41°52'17", long 70°39'31", Plymouth County, Hydrologic Unit 01090002, in Myles Standish State Forest, in gravel pit 50 ft southeast of intersection of Lower College Pond Road and Crawford Road, approximately five miles northeast of South Carver.

Owner: Massachusetts Department of Environmental Management.

AQUIFER.--Glacial outwash of Pleistocene age.

WELL CHARACTERISTICS.--Driven observation water-table well, diameter 1.5 in, depth 47 ft, screened 42 to 47 ft.

INSTRUMENTATION.--Monthly measurement with chalked tape by observer.

DATUM.--Elevation of land-surface datum is 129 ft above National Geodetic Vertical Datum of 1929. Measuring point: Top of casing, 1.17 ft above land-surface datum.

PERIOD OF RECORD.--August 1985 to current year. Prior to April 1989, three random measurements.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 27.24 ft below land-surface datum, May 14, 1987; lowest measured, 31.87 ft below land-surface datum, Dec. 21, 1989.

WATER LEVELS, IN FEET BELOW LAND SURFACE DATUM, WATER YEARS OCTOBER 1989 TO SEPTEMBER 1990

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 21	31.44	DEC 21	31.87	FEB 20	30.78	APR 21	30.65	JUN 23	30.44	AUG 25	30.39
NOV 24	31.35	JAN 20	31.40	MAR 25	30.57	MAY 20	30.07	JUL 22	30.05	SEP 22	30.90

414518070435701. Wareham well WFW 51.

LOCATION.--Lat 41°45'18", long 70°43'57", Plymouth County, Hydrologic Unit 01090002, 50 ft east of U.S. Highway 6 and 100 ft north of Exxon service station in Wareham.

Owner: Thomas B. Rogers.

AQUIFER.--Glacial outwash of Pleistocene age.

WELL CHARACTERISTICS.--Dug observation water-table well, diameter 30 in, depth 9.65 ft, cased with tile to 9.65 ft, open end. Prior to September 1980, well depth was 12.5 ft.

INSTRUMENTATION.--Monthly measurement with chalked tape by observer.

DATUM.--Elevation of land-surface datum is 21 ft above National Geodetic Vertical Datum of 1929. Measuring point: Top edge of tile casing, 2.3 ft above land-surface datum.

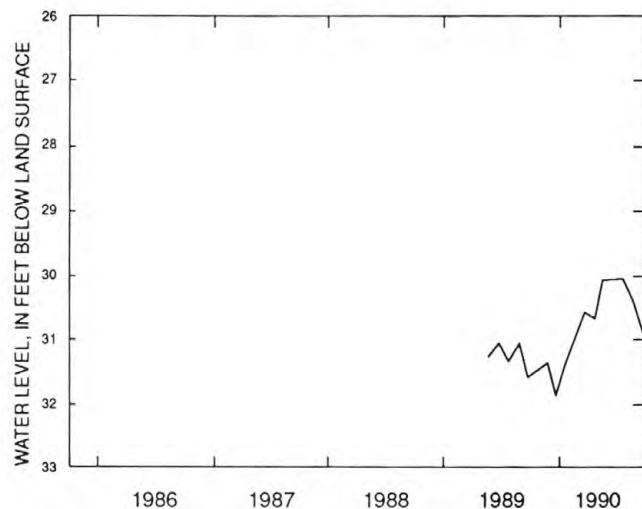
PERIOD OF RECORD.--July 1959 to current year. Prior to October 1974, published in Massachusetts Hydrologic-Data Report No. 17.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 3.34 ft below land-surface datum, Jan. 26, 1978; lowest measured, 10.98 ft below land-surface datum, Dec. 28, 1965; well found dry several months in water years 1980-84.

WATER LEVELS, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

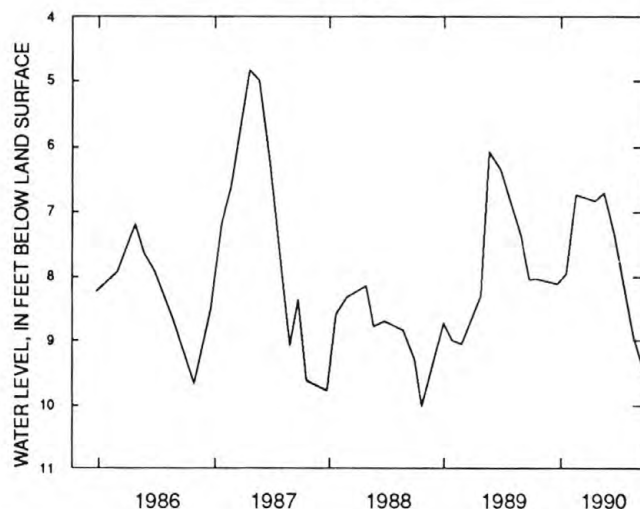
DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 21	8.02	DEC 21	8.11	FEB 20	6.73	APR 21	6.83	JUN 23	7.39	AUG 25	8.93
NOV 24	7.44	JAN 20	7.96	MAR 25	6.73	MAY 20	6.71	JUL 22	7.64	SEP 22	9.46

PWW 494



WATER YEARS

WFW 51



WATER YEARS

GROUND-WATER LEVELS IN MASSACHUSETTS

SUFFOLK COUNTY

422133071033801. Boston well BGW 925.

LOCATION.--Lat 42°21'33", long 71°03'38", Suffolk County, Hydrologic Unit 01090001, in basement room at Scollay Building, intersection of Court and Tremont Streets in Boston.
 Owner: United States Trust.

AQUIFER.--Cambridge slate of Carboniferous age.

WELL CHARACTERISTICS.--Drilled observation water-table well, diameter 8.0 in, depth 624 ft, cased to 90 ft, open hole.

INSTRUMENTATION.--Monthly measurement with chalked tape by observer.

DATUM.--Elevation of land-surface datum is 35 ft above National Geodetic Vertical Datum of 1929. Measuring point: Top of casing, 15 ft below land-surface datum.

REMARKS.--Water levels affected by tide and barometric pressure.

PERIOD OF RECORD.--February 1960 to current year. Water-level recorder October 1977 to September 1982. Prior to October 1974, published in Massachusetts Hydrologic-Data Report No. 17.

EXTREMES FOR PERIOD OF RECORD.--Highest water-level measured, 17.49 ft below measuring point, Jan. 22, 1985; lowest measured, 26.20 ft below measuring point, Oct. 7, 1966.

WATER LEVELS, IN FEET BELOW MEASURING POINT, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 26	22.82	DEC 28	22.44	MAR 26	22.06	MAY 20	22.43	JUL 27	22.38		
NOV 29	22.65	JAN 26	22.38	APR 22	22.30	JUN 29	22.41	SEP 26	22.20		

WORCESTER COUNTY

422058072085501. Hardwick well HHW 1.

LOCATION.--Lat 42°20'58", long 72°08'55", Worcester County, Hydrologic Unit 01080204, 30 ft southeast of State Highway 32 and 0.6 mi southwest of Hardwick Road in Hardwick.

Owner: U.S. Geological Survey.

AQUIFER.--Glacial sand and gravel of Pleistocene age.

WELL CHARACTERISTICS.--Augered observation water-table well, diameter 2.0 in, depth 33.2 ft, screened 31.2 to 33.2 ft.

INSTRUMENTATION.--Monthly measurement with chalked tape by observer.

DATUM.--Elevation of land-surface datum is 580 ft above National Geodetic Vertical Datum of 1929. Measuring point: Top of casing, 3.5 ft above land-surface datum.

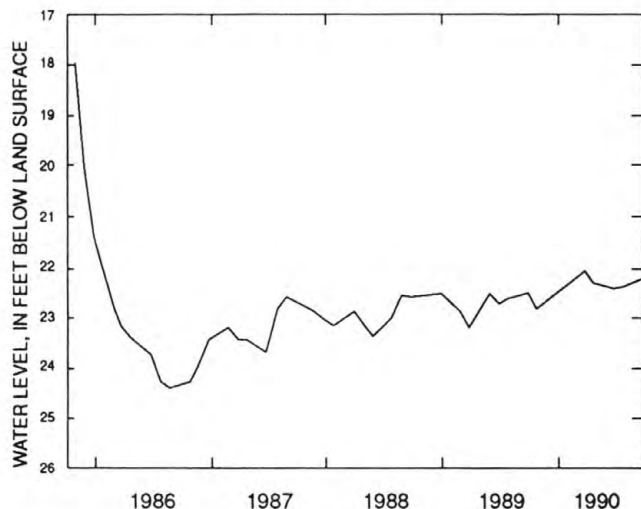
PERIOD OF RECORD.--January 1965 to current year. Prior to October 1974, published in Massachusetts Hydrologic-Data Report No. 17.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 9.21 ft below land-surface datum, Apr. 21, 1983; lowest measured, 17.77 ft below land-surface datum, Nov. 22, 1965.

WATER LEVELS, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

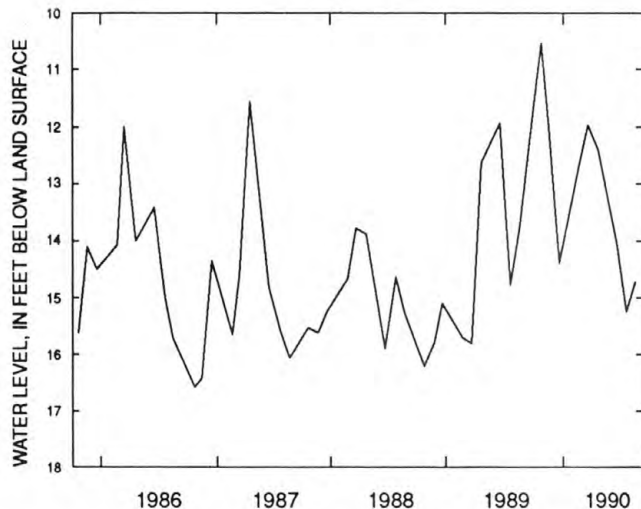
DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 23	10.53	DEC 20	14.38	FEB 20	12.72	APR 23	12.40	JUN 21	14.02	AUG 17	14.70
NOV 20	12.02	JAN 23	15.36	MAR 21	11.97	MAY 23	11.72	JUL 19	15.21	SEP 20	15.57

BGW 925



WATER YEARS

HHW 1



WATER YEARS

GROUND-WATER LEVELS IN MASSACHUSETTS

239

WORCESTER COUNTY--Continued

422020072145901. Hardwick well HHW 31.

LOCATION.--Lat 42°20'20", lat 72°14'59", Worcester County, Hydrologic Unit 01080204, 5 ft north of Patrill Hollow Road and approximately 250 ft west of Muddy Brook in Hardwick.

Owner: Town of Hardwick.

AQUIFER.--Glacial sand and gravel of Pleistocene age.

WELL CHARACTERISTICS.--Augered observation water-table well, diameter 2.0 in, depth 71.0 ft, screened 67.0 ft to 71.0 ft.

INSTRUMENTATION.--Monthly measurement with chalked tape by observer.

DATUM.--Elevation of land-surface datum is 490 ft above National Geodetic Vertical Datum of 1929. Measuring point: Top of casing, 3.0 ft above land-surface datum.

PERIOD OF RECORD.--November 1984 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 10.25 ft below land-surface datum, Oct. 22, 1989; lowest measured, 12.00 ft below land-surface datum, Nov. 25, 1984.

WATER LEVELS, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 22	10.25	DEC 26	11.10	FEB 21	10.85	APR 21	10.67	JUN 21	10.79	AUG 21	11.37
NOV 21	10.60	JAN 23	11.25	MAR 21	10.40	MAY 21	10.44	JUL 22	11.56	SEP 23	11.55

420610071421402. Northbridge well NXW 54.

LOCATION.--Lat 42°06'10", long 71°42'14", Worcester County, Hydrologic Unit 01090003, about 100 ft northeast of the intersection of State Highway 146 and Main Street in Northbridge.

Owner: U.S. Geological Survey.

AQUIFER.--Glacial sand and gravel of Pleistocene age.

WELL CHARACTERISTICS.--Augered observation water-table well, diameter 2 in, depth 12 ft, screened 10 to 12 ft.

INSTRUMENTATION.--Monthly measurement with chalked tape by observer.

DATUM.--Elevation of land-surface datum is 370 ft above National Geodetic Vertical Datum of 1929. Measuring point: Top of casing, 2.0 ft above land-surface datum.

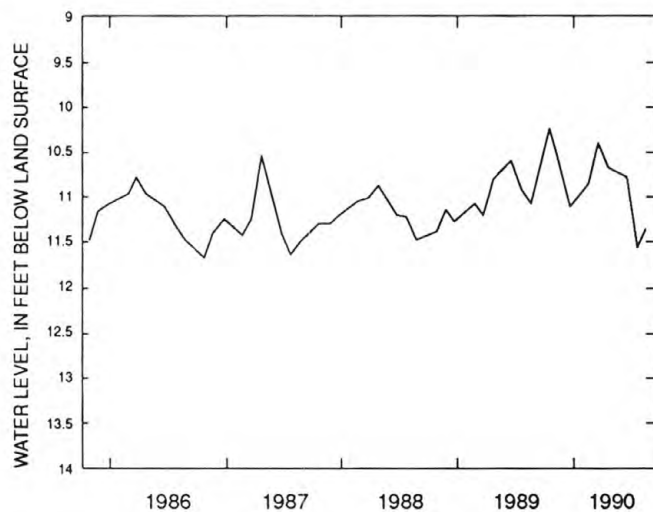
PERIOD OF RECORD.--August 1984 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 3.33 ft below land-surface datum, Apr. 21, 1987; lowest measured, 5.14 ft below land-surface datum, Oct. 22, 1986.

WATER LEVELS, IN FEET BELOW LAND SURFACE DATUM, OCTOBER 1989 TO SEPTEMBER 1990

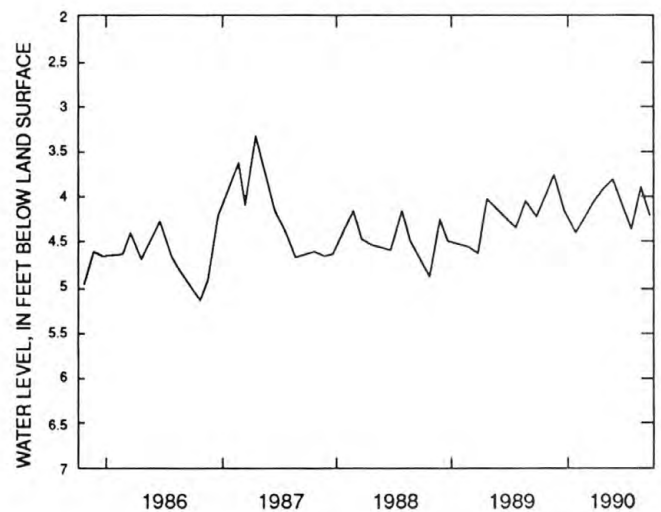
DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 23	3.64	DEC 20	4.16	FEB 20	3.90	APR 23	3.92	JUN 20	4.16	AUG 17	3.88
NOV 20	3.75	JAN 23	4.40	MAR 21	4.06	MAY 23	3.80	JUL 18	4.37	SEP 19	4.20

HHW 31



WATER YEARS

NXW 54



WATER YEARS

GROUND-WATER LEVELS IN MASSACHUSETTS

WORCESTER COUNTY--Continued

422906072124301. Petersham well PHW 16.

LOCATION.--Lat 42°29'06", long 72°12'43", Worcester County, Hydrologic Unit 01080204, 0.6 mi east of West Street Cemetery, 500 ft south of West Street, and 100 ft west of access road in Petersham.
 Owner: Mr. Berry.

AQUIFER.--Glacial sand and gravel of the Pleistocene age.

WELL CHARACTERISTICS.--Augered observation water-table well, diameter 2.0 in PVC, depth 39.0 ft, screened 29.0 to 39.0 ft.

INSTRUMENTATION.--Monthly measurement with chalked tape by observer.

DATUM.--Elevation of land-surface datum is 790 ft above National Geodetic Vertical Datum of 1929. Measuring point: Top of casing, 3.0 ft above land-surface datum.

PERIOD OF RECORD.--January 1984 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 4.71 ft below land-surface datum, June 5, 1984; lowest measured, 16.53 ft below land-surface datum, Oct. 24, 1984

WATER LEVELS, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 22	10.66	DEC 26	14.11	FEB 21	13.24	APR 21	12.43	JUN 21	13.76	AUG 21	15.46
NOV 21	12.29	JAN 23	14.85	MAR 21	12.87	MAY 21	11.91	JUL 22	15.08	SEP 23	15.58

422805071480801. Sterling well SYW 1.

LOCATION.--Lat 42°28'05", long 71°48'08", Worcester County, Hydrologic Unit 01070004, 45 ft northeast of Justice Hill Road and 0.8 mi west of South Nelson Road in Sterling.
 Owner: N. Lanciani.

AQUIFER.--Glacial till of Pleistocene age.

WELL CHARACTERISTICS.--Dug observation water-table well, diameter 24 in, depth 15 ft, cased with stone to 15 ft, open end.

INSTRUMENTATION.--Monthly measurement with chalked tape by observer.

DATUM.--Elevation of land-surface datum is 710 ft above National Geodetic Vertical Datum of 1929. Measuring point: Top edge of angle iron, at land-surface datum.

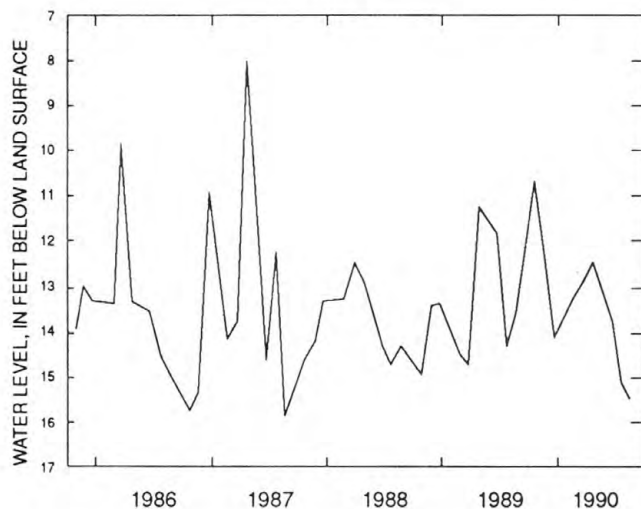
PERIOD OF RECORD.--May 1947 to current year. Prior to October 1974, published in Massachusetts Hydrologic-Data Report No. 17.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 1.66 ft below land-surface datum, Mar. 26, 1969; dry, Nov. 28, 1964

WATER LEVELS, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

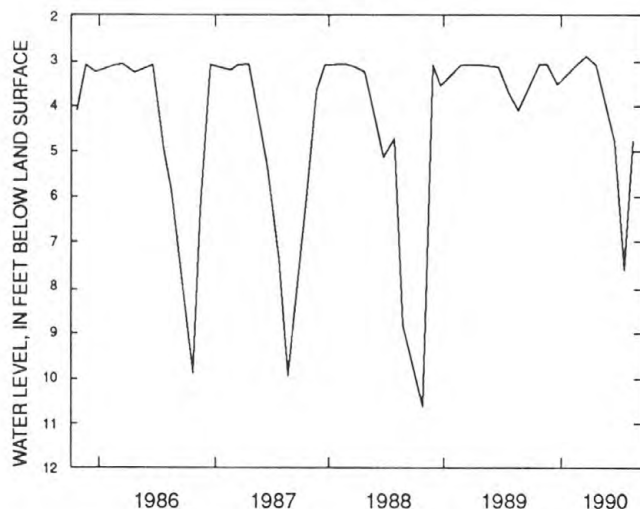
DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 23	3.09	DEC 20	3.52	FEB 20	3.10	APR 23	3.10	JUN 21	4.82	AUG 17	4.77
NOV 20	3.09	JAN 23	3.21	MAR 21	2.92	MAY 23	3.00	JUL 19	7.60	SEP 19	7.73

PHW 16



WATER YEARS

SYW 1



WATER YEARS

GROUND-WATER LEVELS IN MASSACHUSETTS

241

WORCESTER COUNTY--Continued

423717072043101. Templeton well TMW 3.

LOCATION.--Lat 42°37'17"N, long 72°04'31"W, Worcester County, Hydrologic Unit 01080202, 60 ft east of U.S. Highway 202 and 0.2 mi south of Winchendon town line in Templeton.

Owner: U.S. Geological Survey.

AQUIFER.--Glacial sand and gravel of Pleistocene age.

WELL CHARACTERISTICS.--Augered observation water-table well, diameter 1.25 in, depth 14 ft, screened 12 to 14 ft.

INSTRUMENTATION.--Monthly measurement with chalked tape by observer.

DATUM.--Elevation of land-surface datum is 900 ft above National Geodetic Vertical Datum of 1929. Measuring point: Top of casing, 4.2 ft above land-surface datum.

PERIOD OF RECORD.--December 1957 to current year. Prior to October 1974, published in Massachusetts Hydrologic-Data Report No. 17.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 2.42 ft below land-surface datum, Oct. 23, 1989; lowest measured, 5.10 ft below land-surface datum, Sept. 29, 1964.

WATER LEVELS, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 23	2.42	DEC 20	3.76	FEB 20	3.45	APR 23	3.36	JUN 21	3.86	AUG 17	3.72
NOV 20	3.17	JAN 23	3.82	MAR 21	2.60	MAY 23	3.17	JUL 19	4.27	SEP 20	4.08

420314071514001. Webster well WLW 1.

LOCATION.--Lat 42°03'14"N, long. 71°51'40"W, Worcester County, Hydrologic Unit 01100001, 100 ft east of State Highway 52 and 100 ft south of Memorial Beach Drive in Webster.

Owner: Town of Webster.

AQUIFER.--Glacial sand and gravel of Pleistocene age.

WELL CHARACTERISTICS.--Driven observation water-table well, diameter 2.5 in, depth 27.0 ft, cased to 27.0 ft, open end.

INSTRUMENTATION.--Monthly measurement with chalked tape by observer.

DATUM.--Elevation of land-surface datum is 500 ft above National Geodetic Vertical Datum of 1929. Measuring point: Top of casing, 3.4 ft above land-surface datum.

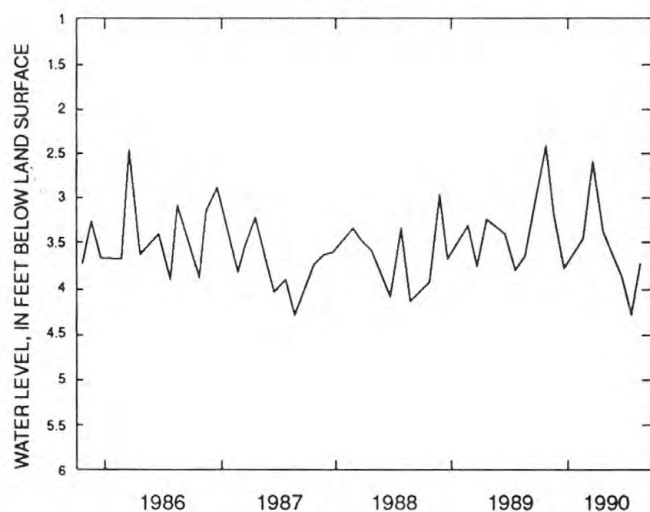
PERIOD OF RECORD.--September 1958 to November 1979, October 1981 to current year. Prior to October 1974, published in Massachusetts Hydrologic-Data Report No. 17.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 10.28 ft below land-surface datum, Mar. 25, 1968; lowest measured, dry, Oct. 27, 1981.

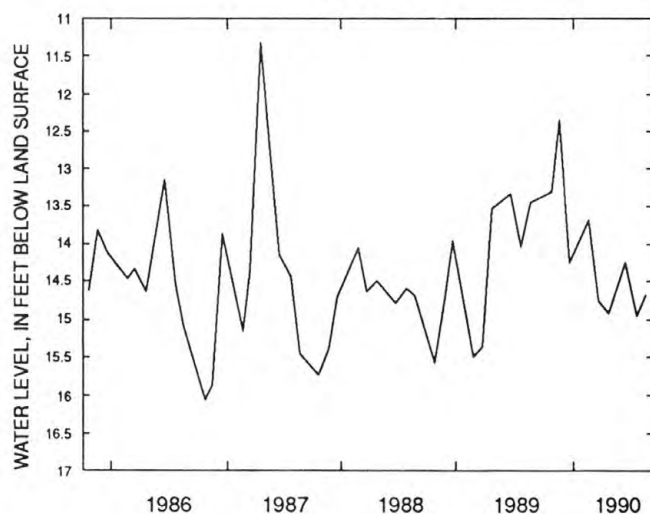
WATER LEVELS, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 23	13.29	DEC 20	14.25	FEB 20	13.69	APR 23	14.91	JUN 20	14.24	AUG 17	14.66
NOV 20	12.33	JAN 23	15.15	MAR 21	14.74	MAY 23	13.70	JUL 18	14.96	SEP 19	15.12

TMW 3



WLW 1



GROUND-WATER LEVELS IN MASSACHUSETTS

WORCESTER COUNTY--Continued

421410072081301. West Brookfield well WUW 2.

LOCATION.--Lat 42°14'10", long 72°08'13", Worcester County, Hydrologic Unit 01080204, about 50 ft north of State Highway 9 and about 500 ft south of State Highway 67 in West Brookfield.

Owner: U.S. Geological Survey.

AQUIFER.--Glacial sand and gravel of Pleistocene age.

WELL CHARACTERISTICS.--Augered observation water-table well, diameter 1.25 in, depth 43.0 ft, screened 40 to 43 ft.

INSTRUMENTATION.--Monthly measurement with chalked tape by observer.

DATUM.--Elevation of land-surface datum is 630 ft above National Geodetic Vertical Datum of 1929. Measuring point: Top of casing, 0.3 ft above land-surface datum.

PERIOD OF RECORD.--October 1959 to current year. Prior to October 1974, published in Massachusetts Hydrologic-Data Report No. 17.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 15.79 ft below land-surface datum, May 22, 1983; lowest measured, 23.63 ft below land-surface datum, Feb. 21, 1966.

WATER LEVELS, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 23	18.45	DEC 20	18.01	FEB 20	18.01	APR 23	17.65	JUN 21	17.24	AUG 17	17.75
NOV 20	17.85	JAN 23	18.43	MAR 21	17.87	MAY 23	17.48	JUL 19	17.70	SEP 20	18.14

421522072113401. West Brookfield well WUW 10.

LOCATION.--Lat 42°15'22", long 72°11'34", Worcester County, Hydrologic Unit 01080204, 15 ft east of Coy Hill Road and 1,850 ft south of State Highway 9 in West Brookfield.

Owner: The Commonwealth of Massachusetts Department of Public Works.

AQUIFER.--Brimfield schist.

WELL CHARACTERISTICS.--Drilled observation water-table well, diameter 2.5 in, depth 64.5 ft, cased to 40 ft, open hole.

INSTRUMENTATION.--Monthly measurement with chalked tape by observer.

DATUM.--Elevation of land-surface datum is 833.23 ft above National Geodetic Vertical Datum of 1929. Measuring point: Top of casing, 2.85 ft above land-surface datum.

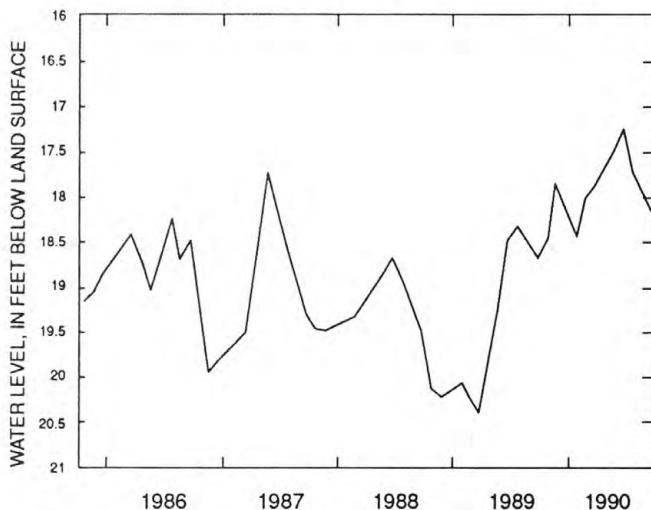
PERIOD OF RECORD.--October 1970 to current year. Prior to October 1974, published in Massachusetts Hydrologic-Data Report No. 17.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 1.57 ft below land-surface datum, Feb. 2, 1976; lowest measured, 12.36 ft below land-surface datum, Nov. 20, 1985.

WATER LEVELS, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

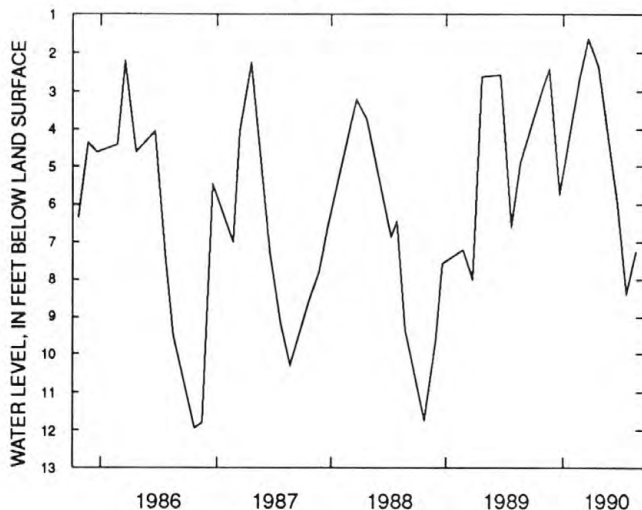
DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 23	2.94	DEC 20	5.70	FEB 20	2.65	APR 23	2.33	JUN 21	6.00	AUG 17	7.22
NOV 20	2.39	JAN 23	7.11	MAR 21	1.62	MAY 23	1.95	JUL 19	8.36	SEP 20	9.28

WUW 2



WATER YEARS

WUW 10



WATER YEARS

GROUND-WATER LEVELS IN MASSACHUSETTS

243

WORCESTER COUNTY--Continued

424204072015201. Winchendon well XNW 13.

LOCATION.--Lat 42°42'04", long 72°01'52", Worcester County, Hydrologic Unit 01080202, about 50 ft east of Forristall Road, 0.2 mi north of Elmwood Road, and 1.6 mi northeast of Winchendon.

Owner: W. B. Hart.

AQUIFER.--Glacial till of Pleistocene age.

WELL CHARACTERISTICS.--Dug observation water-table well, diameter 24 in, depth 12 ft, cased with stone to 12 ft, open end.

INSTRUMENTATION.--Monthly measurement with chalked tape by observer.

DATUM.--Elevation of land-surface datum is 1,209.36 ft above National Geodetic Vertical Datum of 1929. Measuring point: Top of extension pipe, 3.8 ft above land-surface datum.

PERIOD OF RECORD.--October 1939 to current year. Prior to October 1974, published in Massachusetts Hydrologic-Data Report No. 17.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 1.86 ft below land-surface datum, Mar. 20, 1948; lowest measured, 13.36 ft below land-surface datum, Dec. 24, 1964.

WATER LEVELS, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 23	6.47	DEC 20	6.19	FEB 20	4.51	APR 23	3.76	JUN 21	6.14	AUG 17	10.73
NOV 20	4.48	JAN 23	6.98	MAR 21	2.83	MAY 23	3.60	JUL 19	9.25	SEP 20	10.95

421538071451301. Worcester well XSW 274.

LOCATION.--Lat 42°15'38", long 71°45'13", Worcester County, Hydrologic Unit 01090003, about 300 ft north of Hamilton Street and about 300 ft east of North Lake Avenue in Worcester.

Owner: U.S. Geological Survey.

AQUIFER.--Glacial sand and gravel of Pleistocene age.

WELL CHARACTERISTICS.--Augered observation water-table well, diameter 2.0 in, depth 54.6 ft, screened 52.6 to 54.6 ft.

INSTRUMENTATION.--Monthly measurement with chalked tape by observer.

DATUM.--Elevation of land-surface datum is 400 ft above National Geodetic Vertical Datum of 1929. Measuring point: Top of casing, 3.0 ft above land-surface datum.

REMARKS.--Water levels affected by Lake Quinsigamond.

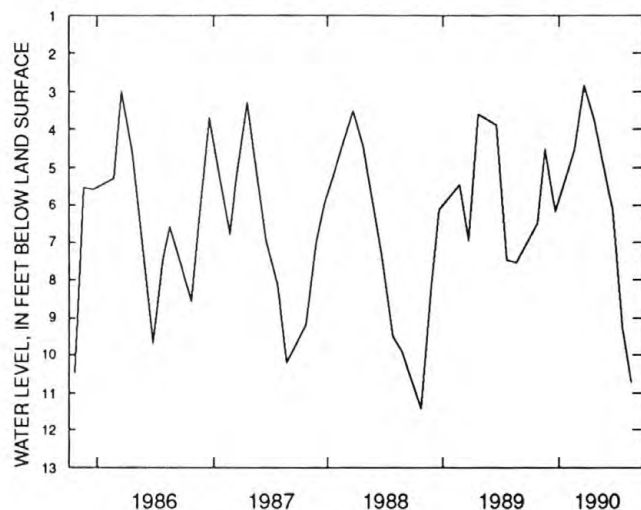
PERIOD OF RECORD.--January 1965 to current year. Prior to October 1974, published in Massachusetts Hydrologic-Data Report No. 17.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 22.23 ft below land-surface datum, Mar. 27, 1972; lowest measured, 24.70 ft below land-surface datum, Oct. 26, 1983.

WATER LEVELS, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

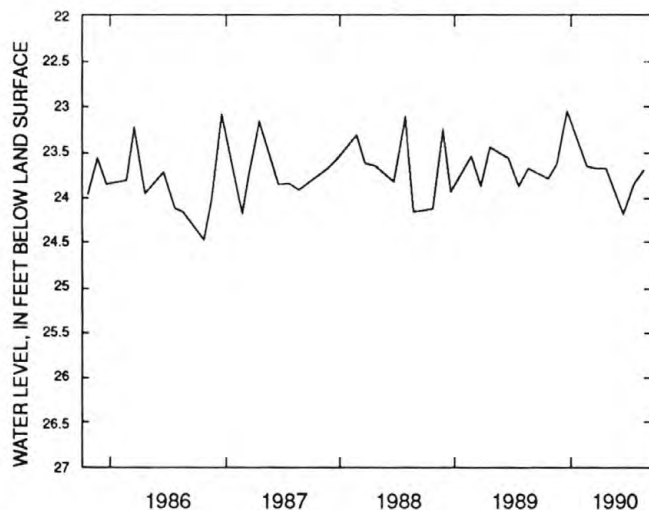
DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 22	23.79	DEC 20	23.05	FEB 20	23.66	APR 23	23.67	JUN 20	24.17	AUG 17	23.69
NOV 20	23.61	JAN 23	24.05	MAR 21	23.67	MAY 23	23.37	JUL 18	23.84	SEP 19	23.82

XNW 13



WATER YEARS

XSW 274



WATER YEARS

GROUND-WATER LEVELS IN RHODE ISLAND

KENT COUNTY

414022071332801. Coventry well COW 411.

LOCATION.--Lat 41°40'22", long 71°33'28", Kent County, Hydrologic Unit 01090004, town of Coventry, about 75 ft west of house on Powhattan Avenue, 1.3 mi southeast of Washington.

Owner: Robert Card.

AQUIFER.--Sand and gravel of Pleistocene age.

WELL CHARACTERISTICS.--Dug observation water-table well, diameter 24 in, depth 26 ft, cased with concrete to 26 ft, open end.

INSTRUMENTATION.--Monthly measurement with chalked tape by U.S. Geological Survey personnel.

DATUM.--Elevation of land-surface datum is 260 ft. Measuring point: Hole in top of concrete cover, 1.24 ft above land-surface datum.

PERIOD OF RECORD.--October 1961 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 16.43 ft below land-surface datum, Apr. 23, 1983; dry on Oct. 25, 1986.

WATER LEVELS, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1989

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 26	20.78	DEC 28	21.17	FEB 22	20.13	APR 26	20.50	JUN 27	21.47	AUG 28	22.06
NOV 24	19.87	JAN 26	21.36	MAR 27	21.25	MAY 29	20.41	JUL 25	21.77	SEP 26	22.44

413907071465001. West Greenwich well GWG 181.

LOCATION.--Lat 41°39'07", long 71°46'50", Kent County, Hydrologic Unit 01090005, town of West Greenwich, about 50 ft from southeast corner of a house 1.3 mi north of intersection of Hazard and Muddy Brook Roads, and 1.8 mi northwest of West Greenwich Center.

Owner: E. Lambert.

AQUIFER.--Sand and gravel of Pleistocene age.

WELL CHARACTERISTICS.--Dug observation water-table well, diameter 30 in, depth 18.5 ft, lined with stone to 18.5 ft, shored.

INSTRUMENTATION.--Monthly measurement with chalked tape by U.S. Geological Survey personnel.

DATUM.--Elevation of land-surface datum is 380 ft. Measuring point: Hole in top of concrete cover, 0.54 ft above land-surface datum.

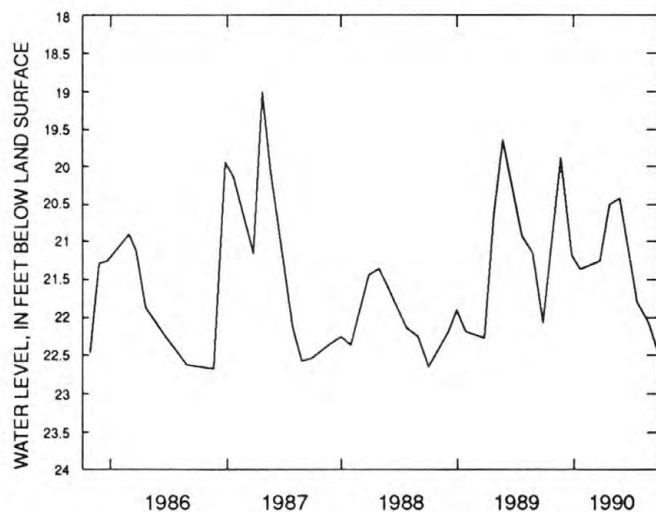
PERIOD OF RECORD.--January 1969 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 12.15 ft below land-surface datum, Jan. 27, 1979; lowest measured, 17.78 ft below land-surface datum, Dec. 22, 1984.

WATER LEVELS, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

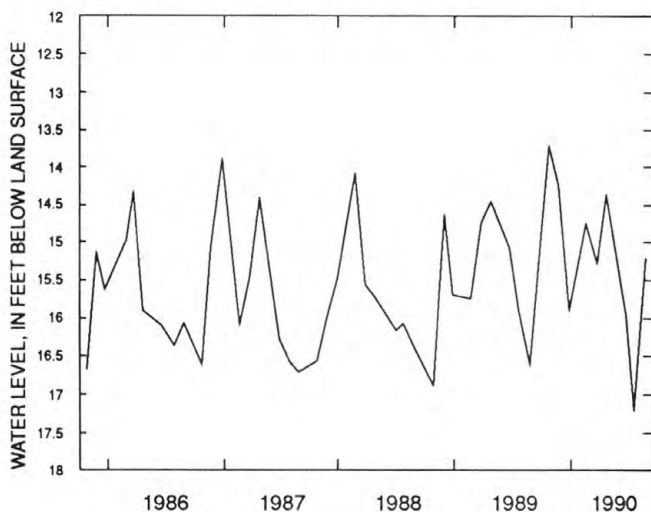
DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 26	13.70	DEC 28	15.89	FEB 22	14.75	APR 26	14.35	JUN 27	15.93	AUG 28	15.20
NOV 25	14.25	JAN 26	15.22	MAR 27	15.26	MAY 29	14.71	JUL 25	17.21	SEP 26	16.15

COW 411



WATER YEARS

WGW 181



WATER YEARS

GROUND-WATER LEVELS IN RHODE ISLAND

245

PROVIDENCE COUNTY

415710071402201. Burrillville well BUW 187.

LOCATION.--Lat 41°57'10", long 71°40'22", Providence County, Hydrologic Unit 01090003, town of Burrillville, 25 ft east of road and 75 ft southwest of a house 0.6 mi north of intersection of Harrisville and Lapham Farm Roads, and 0.9 mi south of Harrisville.

Owner: Brothers of the Sacred Heart.

AQUIFER.--Sand and gravel of Pleistocene age.

WELL CHARACTERISTICS.--Dug observation water-table well, diameter 24 in, depth 19.8 ft, lined with stone to 19.8 ft, shored.

INSTRUMENTATION.--Monthly measurement with chalked tape by U.S. Geological Survey personnel.

DATUM.--Elevation of land-surface datum is 462 ft. Measuring point: Hole in top of concrete cover, 0.58 ft above land-surface datum.

PERIOD OF RECORD.--January 1968 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 10.74 ft below land-surface datum, Apr. 23, 1983; lowest measured, 18.83 ft below land-surface datum, Nov. 3, 1970.

WATER LEVELS, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 26	13.88	DEC 28	14.36	FEB 22	14.15	APR 26	14.03	JUN 27	14.83	AUG 28	14.40
NOV 25	13.44	JAN 26	14.49	MAR 27	14.50	MAY 29	14.05	JUL 25	15.47	SEP 26	15.16

415626071254601. Cumberland well CUW 265.

LOCATION.--Lat 41°56'26", long 71°25'46", Providence County, Hydrologic Unit 01090003, town of Cumberland, at 27 Scott Street, 900 ft northeast of intersection of Scott Street and Mendon Road in Ashton.

Owner: Francis J. Varone.

AQUIFER.--Sand and gravel of Pleistocene age.

WELL CHARACTERISTICS.--Dug observation water-table well, diameter 24 in, depth 20 ft, lined with stone to 20 ft, shored.

INSTRUMENTATION.--Monthly measurement with chalked tape by U.S. Geological Survey personnel.

DATUM.--Elevation of land-surface datum is 130 ft. Measuring point: Hole in wooden cover, 0.06 ft above land-surface datum.

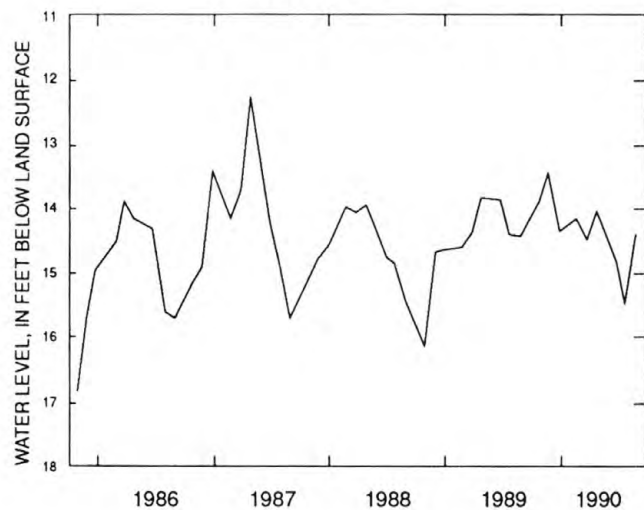
PERIOD OF RECORD.--August 1946 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 9.20 ft below land-surface datum, Jan. 27, 1979; lowest measured, 17.20 ft below land-surface datum, Sept. 29, 1949.

WATER LEVELS, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

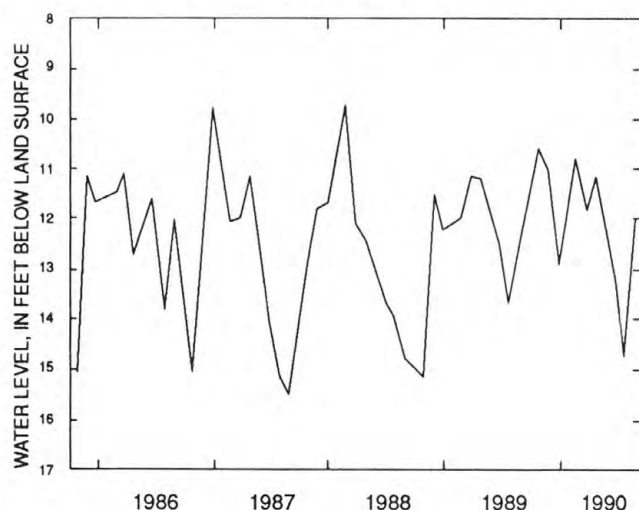
DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 26	10.59	DEC 28	12.90	FEB 22	10.78	APR 26	11.16	JUN 27	13.24	AUG 28	11.96
NOV 25	11.02	JAN 26	12.19	MAR 27	11.81	MAY 29	11.71	JUL 25	14.72	SEP 26	13.92

BUW 187



WATER YEARS

CUW 265



WATER YEARS

GROUND-WATER LEVELS IN RHODE ISLAND

PROVIDENCE COUNTY--Continued

415437071242201. Lincoln well LIW 84.

LOCATION.--Lat 41°54'37", long 71°24'22", Providence County, Hydrologic Unit 0190003, town of Lincoln, at north side of Maplehurst Farms building, and 800 ft west of Blackstone River bridge in Lonsdale.

Owner: Maplehurst Farms, Inc.

AQUIFER.--Sand and gravel of Pleistocene age.

WELL CHARACTERISTICS.--Drilled observation water-table well, diameter 8 in, depth 107 ft, cased to 107 ft, open end.

INSTRUMENTATION.--Monthly measurement with chalked tape by U.S. Geological Survey personnel.

DATUM.--Elevation of land-surface datum is 60 ft. Measuring point: Inside lower lip of 8-in pipe, 3.32 ft above land-surface datum.

REMARKS.--Water level affected by Blackstone River floods.

PERIOD OF RECORD.--June 1946 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 0.97 ft above land-surface datum, Jan. 28, 1976, lowest measured, 7.30 ft below land-surface datum, Aug. 24, 1966.

WATER LEVELS, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 26	2.83	DEC 28	4.01	FEB 22	3.86	APR 26	4.08	JUN 27	4.93	AUG 28	4.07
NOV 25	3.90	JAN 26	4.28	MAR 27	4.37	MAY 29	4.09	JUL 25	4.91	SEP 26	5.28

415948071325001. North Smithfield Well NSW 21.

LOCATION.--Lat 41°59'48", long 71°32'50", Providence County, Hydrologic Unit 1090003, town of North Smithfield, 500 ft southwest of State Highway 146A, 900 ft west of intersection of State Highway 146A and Harkness Road at Branch Village.

Owner: Thomas E. Esty.

AQUIFER.--Sand and gravel of Pleistocene age.

WELL CHARACTERISTICS.--Dug domestic water-table well, diameter 24 in, depth 16 ft, cased with tile to 16 ft, open end.

INSTRUMENTATION.--Monthly measurement with chalked tape by U.S. Geological Survey personnel.

DATUM.--Land-surface datum is 238.68 ft above National Geodetic Vertical Datum of 1929. Measuring point: Hole in concrete cover at top of tile casing, 1.84 ft below land-surface datum.

REMARKS.--Well used for domestic supply. Water levels affected by pumping.

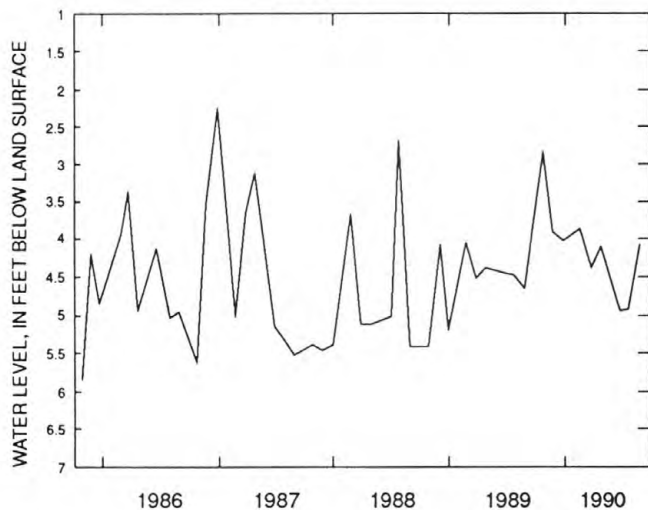
PERIOD OF RECORD.--May 1947 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 3.67 ft below land-surface datum, Mar. 26, 1969; lowest measured, 11.71 ft below land-surface datum, Oct. 28, 1957.

WATER LEVELS, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

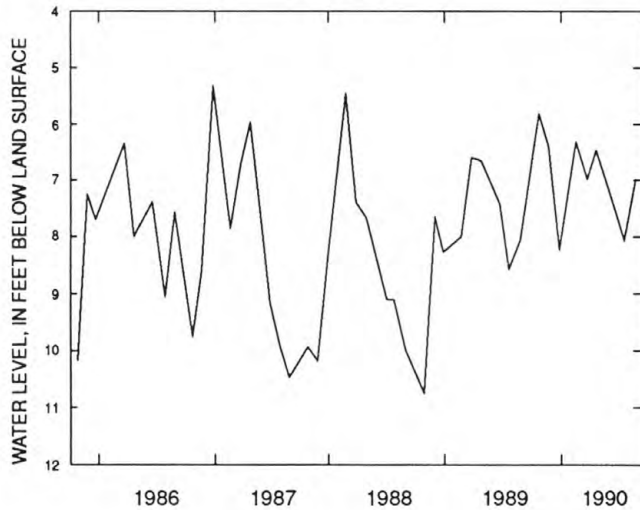
DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 26	5.79	DEC 28	8.22	FEB 22	6.29	APR 26	6.46	JUN 27	7.59	AUG 28	6.95
NOV 25	6.38	JAN 26	7.64	MAR 27	6.95	MAY 29	6.93	JUL 25	8.06	SEP 26	8.73

LIW 84



WATER YEARS

NSW 21



WATER YEARS

GROUND-WATER LEVELS IN RHODE ISLAND

247

PROVIDENCE COUNTY--Continued

415317071220601. Pawtucket well PAW 136.

LOCATION.--Lat 41°53'17", long 71°22'06", Providence County, Hydrologic Unit 01090004, city of Pawtucket, at 314 Woodbine Street, and 1,500 ft northeast of intersection of Cottage Street and Central Avenue.

Owner: Greenhalgh Mills, Inc.

AQUIFER.--Gravel of Pleistocene age.

WELL CHARACTERISTICS.--Drilled observation water-table well, diameter 2 in, depth 43 ft, cased to about 40 ft, screened about 40 to 43 ft.

INSTRUMENTATION.--Monthly measurement with chalked tape by U.S. Geological Survey personnel.

DATUM.--Elevation of land-surface datum is 86 ft. Measuring point: Top of casing, 3.15 ft above land-surface datum.

PERIOD OF RECORD.--January 1962 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 1.98 ft below land-surface datum, Apr. 23, 1983; lowest measured, 7.28 ft below land-surface datum, Jan. 29, 1966.

WATER LEVELS, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 26	3.84	DEC 28	3.83	FEB 22	3.62	APR 26	3.69	JUL 25	4.07	SEP 26	4.80
NOV 25	3.19	JAN 26	4.24	MAR 27	3.98	MAY 29	3.63	AUG 28	4.15		

414746071255601. Providence well PRW 48.

LOCATION.--Lat 41°47'46", long 71°25'56", Providence County, Hydrologic Unit 01090004, city of Providence, at 333 Adelaide Avenue, and 800 ft northwest of Adelaide and 800 ft west of Narragansett Avenues.

Owner: Gorham Division of Textron.

AQUIFER.--Sand and gravel of Pleistocene age.

WELL CHARACTERISTICS.--Drilled observation artesian well, diameter 8 in, depth 124 ft, cased to 116 ft, screened 116 to 124 ft.

INSTRUMENTATION.--Monthly measurement with chalked tape by U.S. Geological Survey personnel.

DATUM.--Land-surface datum is 45.79 ft, above National Geodetic Vertical Datum of 1929. Measuring point: Top edge of hole in center of steel cover, 0.48 ft below land-surface datum.

REMARKS.--Water level affected by pumping from one or more nearby wells.

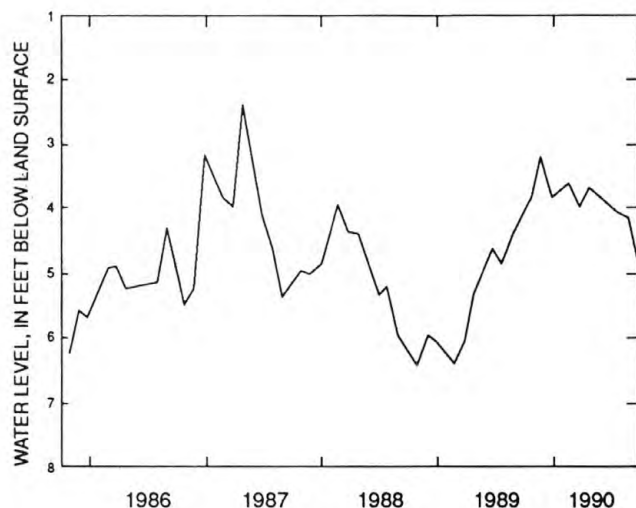
PERIOD OF RECORD.--December 1944 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 2.78 ft below land-surface datum, Apr. 23, 1983; lowest measured, 10.22 ft below land-surface datum, Oct. 20, 1947.

WATER LEVELS, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

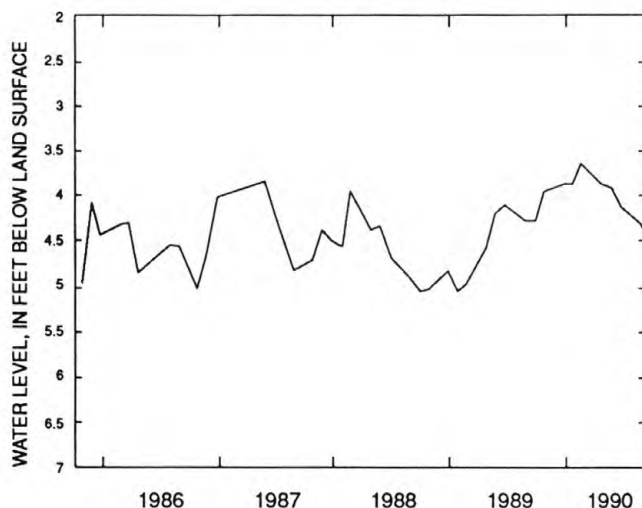
DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 26	3.94	DEC 28	3.87	FEB 22	3.65	APR 26	3.86	JUN 27	4.12	AUG 28	4.32
NOV 24	3.81	JAN 26	3.87	MAR 27	4.08	MAY 29	3.91	JUL 25	4.26	SEP 26	4.54

PAW 136



WATER YEARS

PRW 48



WATER YEARS

GROUND-WATER LEVELS IN RHODE ISLAND

PROVIDENCE COUNTY--Continued

414939071260801. Providence well PRW 1051.

LOCATION.--Lat 41°49'39", long 71°26'08", Providence County, Hydrologic Unit 01090004, city of Providence, at 10 Eagle Street, and 200 ft south of Valley and 300 ft east of Eagle Streets.

Owner: Licht Industries.

AQUIFER.--Sand and gravel of Pleistocene age.

WELL CHARACTERISTICS.--Drilled observation water-table well, diameter 10 in, depth 82 ft, cased to 82 ft, open end.

INSTRUMENTATION.--Monthly measurement with chalked tape by U.S. Geological Survey personnel.

DATUM.--Elevation of land-surface datum is 10 ft. Measuring point: Top of extension on pipe, 2.83 ft above land-surface datum.

REMARKS.--Water level affected by pumping from one or more nearby wells. Since October 1971, reduced pumping has resulted in higher water levels.

PERIOD OF RECORD.--January 1948 to current year. January 1948 to March 1949, weekly water level measurements.

April 1949 to February 1976, continuous graphic recorder (published water levels were monthly lows). Since April 1976, water levels measured near end of month.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, observed flowing at times in 1978-80, 1987-88; lowest measured, 16.10 ft below land-surface datum, Jan. 16, 1948.

WATER LEVELS, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
(READINGS ABOVE LAND SURFACE INDICATED BY "-")

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 26	.01	DEC 28	.03	FEB 22	-.03	APR 26	-.04	JUN 27	-.11	AUG 28	.02
NOV 24	-.02	JAN 26	.01	MAR 27	.01	MAY 29	-.01	JUL 25	-.03	SEP 26	.02

WASHINGTON COUNTY

412214071394001. Charlestown well CHW 18.

LOCATION.--Lat 41°22'14", long 71°39'40", Washington County, Hydrologic Unit 01090005, town of Charlestown, 1,900 ft southeast of U.S. Highway 1, at former U.S. Navy Auxiliary Air Station.

Owner: U.S. General Services Administration.

AQUIFER.--Sand and clay of Pleistocene age.

WELL CHARACTERISTICS.--Drilled observation water-table well, diameter 8 in, depth 32 ft, cased to 32 ft, open end.

INSTRUMENTATION.--Monthly measurement with chalked tape by U.S. Geological Survey personnel.

DATUM.--Elevation of land-surface datum is 26 ft. Measuring point: Top of casing, at land-surface datum.

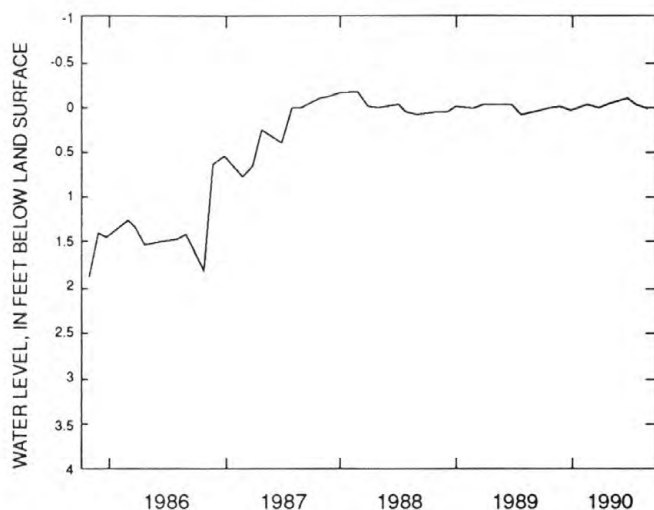
PERIOD OF RECORD.--October 1946 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 10.09 ft below land-surface datum, Apr. 23, 1983; lowest measured, 21.63 ft below land-surface datum, Dec. 29, 1965.

WATER LEVELS, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

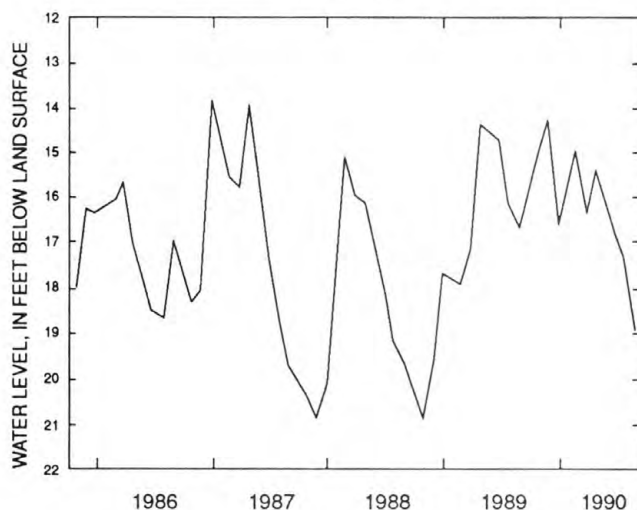
DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 26	15.00	DEC 28	16.61	FEB 22	14.95	APR 26	15.37	JUN 27	16.82	AUG 28	18.90
NOV 25	14.27	JAN 26	17.15	MAR 27	16.34	MAY 29	15.12	JUL 25	17.29	SEP 26	19.35

PRW 1051



WATER YEARS

CHW 18



WATER YEARS

GROUND-WATER LEVELS IN RHODE ISLAND

249

WASHINGTON COUNTY--Continued

413423071431901. Exeter well EXW 6.

LOCATION.--Lat 41°34'23", long 71°43'19", Washington County, Hydrologic Unit 01090005, town of Exeter, in Arcadia State Forest, 150 ft west of Wood River, 250 ft south of Ten Rod Road, and 2.0 mi west of Millville.

Owner: State Dept. of Natural Resources.

AQUIFER.--Sand and gravel of Pleistocene age.

WELL CHARACTERISTICS.--Dug observation water-table well, diameter 30 in, depth 10 ft, cased with concrete to 10 ft, open end.

INSTRUMENTATION.--Monthly measurement with chalked tape by U.S. Geological Survey personnel.

DATUM.--Land-surface datum is 132.80 ft above National Geodetic Vertical Datum of 1929. Measuring point: Hole in top of wooden cover, at land-surface datum.

REMARKS.--Water level affected by stage of nearby Wood River.

PERIOD OF RECORD.--December 1948 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 2.34 ft below land-surface datum, Jan. 27, 1979; lowest measured, 7.97 ft below land-surface datum, Sept. 26, 1981.

WATER LEVELS, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 26	4.47	DEC 28	5.28	FEB 22	4.62	APR 26	4.73	JUN 27	5.73	AUG 28	6.23
NOV 25	4.11	JAN 26	3.12	MAR 27	5.13	MAY 29	4.94	JUL 25	5.83	SEP 26	6.64

413307071323601. Exeter well EXW 16.

LOCATION.--Lat 41°33'07", long 71°32'36", Washington County, Hydrologic Unit 01090005, town of Exeter, about 25 ft southwest of fire station at Exeter State (Dr. Joseph H. Ladd) School.

Owner: State Dept. of Public Welfare.

AQUIFER.--Sand and gravel of Pleistocene age.

WELL CHARACTERISTICS.--Driven observation water-table well, diameter 2.5 in, depth 27 ft, cased to 27 ft, open end.

INSTRUMENTATION.--Monthly measurement with chalked tape by U.S. Geological Survey personnel.

DATUM.--Land-surface datum is 154.47 ft above National Geodetic Vertical Datum of 1929. Measuring point: Top of casing, 1.78 ft above land-surface datum.

REMARKS.--Nearby well either being pumped or pumped recently.

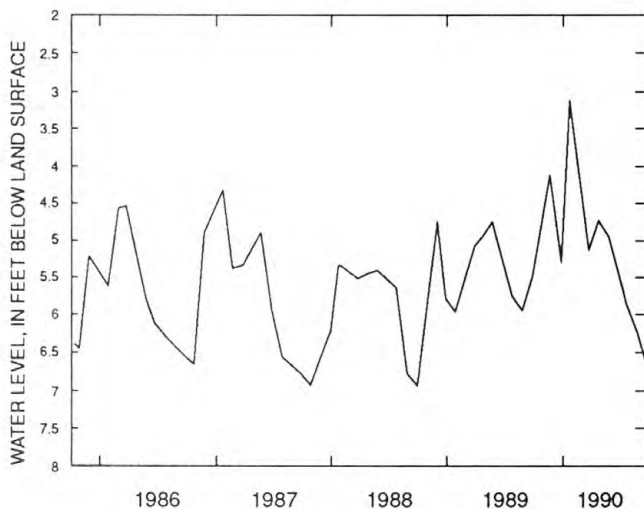
PERIOD OF RECORD.--July 1946 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 5.90 ft below land-surface datum, Jan. 26, May 15, 1990; lowest measured, 15.40 ft below land-surface datum, Oct. 30, 1957.

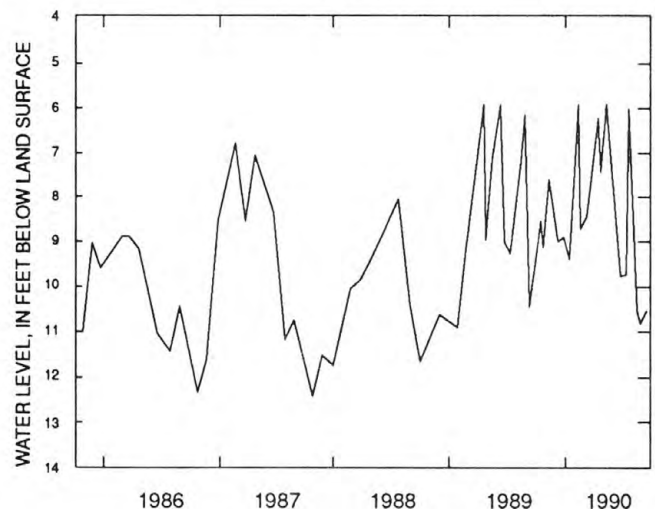
WATER LEVELS, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 17	8.53	DEC 14	8.97	FEB 16	5.92	APR 17	6.24	JUN 27	9.75	AUG 18	10.52
26	9.12	28	8.90	22	8.70	26	7.43	JUL 17	9.71	28	10.82
NOV 13	7.61	JAN 17	9.36	MAR 16	8.44	MAY 15	5.90	25	6.04	SEP 26	10.73
25	7.10	26	5.90	27	8.90	JUN 13	9.22	AUG 16	10.69		

EXW 6



EXW 16



GROUND-WATER LEVELS IN RHODE ISLAND

WASHINGTON COUNTY--Continued

413358071433801. Exeter well EXW 475.

LOCATION.--Lat 41°33'58", long 71°43'38", Washington County, Hydrologic Unit 01090005, town of Exeter, 70 ft east of Mt. Tom Road, 50 ft north of Blitzkrieg Trail, and 2.4 mi northwest of Barberville.

Owner: State Department of Environmental Management.

AQUIFER.--Sand and gravel of Pleistocene age.

WELL CHARACTERISTICS.--Drilled observation water-table well, diameter 8 in, depth 40 ft, cased to 38 ft, screened 38 to 40 ft.

INSTRUMENTATION.--Continuous graphic recorder March 1981 to May 1988, digital recorder (60 minute punch) June 1988 to current year.

DATUM.--Land-surface datum is 142.92 ft above National Geodetic Vertical Datum of 1929. Measuring point: floor of recorder shelter, 3.38 ft above land-surface datum.

PERIOD OF RECORD.--March 1981 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level, 9.58 ft below land-surface datum, Apr. 28, 29, 1983; lowest, 16.74 ft below land-surface datum, Oct. 19, 1981.

WATER LEVELS, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	14.70	13.14	12.57	13.39	12.99	12.88	13.30	13.10	13.15	14.09	15.03	15.55
10	14.73	12.98	12.72	13.47	12.91	12.97	13.23	13.17	13.28	14.29	15.14	15.67
15	14.75	12.83	12.86	13.58	12.83	13.08	13.24	13.04	13.44	14.42	15.11	15.77
20	14.42	12.59	13.00	13.68	12.80	13.18	13.07	12.96	13.59	14.58	15.23	15.86
25	13.60	12.54	13.15	13.74	12.77	13.27	13.00	12.93	13.76	14.74	15.32	15.94
EOM	13.32	12.50	13.33	13.26	12.78	13.38	13.06	13.03	13.93	14.87	15.44	16.02

WTR YR 1990 HIGH 12.49 NOV 30, DEC 2, 3 LOW 16.03 SEP 30

413148071281601. North Kingstown well NKW 255.

LOCATION.--Lat 41°31'48", long 71°28'16", Washington County, Hydrologic Unit 01090004, town of North Kingstown, 100 ft east of Pendar Road, 0.6 mi south of intersection of Pendar and Tower Hill Roads, and 1.0 mi south of Allenton.

Owner: Marcel Lacroix.

AQUIFER.--Sand and gravel of Pleistocene age.

WELL CHARACTERISTICS.--Dug observation water-table well, diameter 24 in, depth 14 ft, cased with concrete to 14 ft, open end.

INSTRUMENTATION.--Monthly measurement with chalked tape by U.S. Geological Survey personnel.

DATUM.--Elevation of land-surface datum is 50 ft. Measuring point: Hole in top of concrete cover, 0.24 ft above land-surface datum.

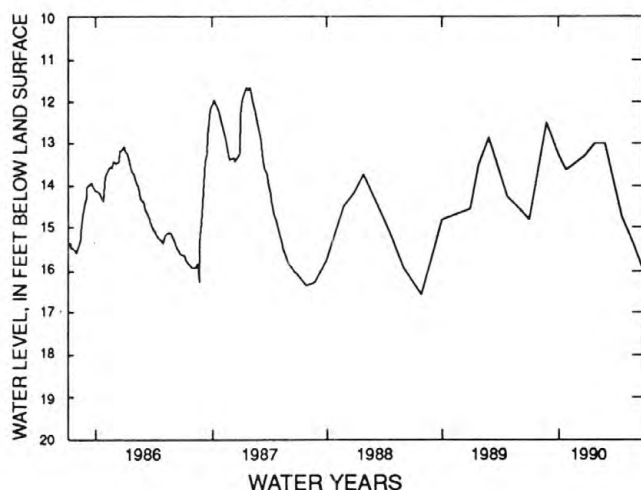
PERIOD OF RECORD.--August 1954 to December 1963, January 1966 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 3.81 ft below land-surface datum, Mar. 26, 1968; lowest measured, 13.03 ft below land-surface datum, Oct. 26, 1981.

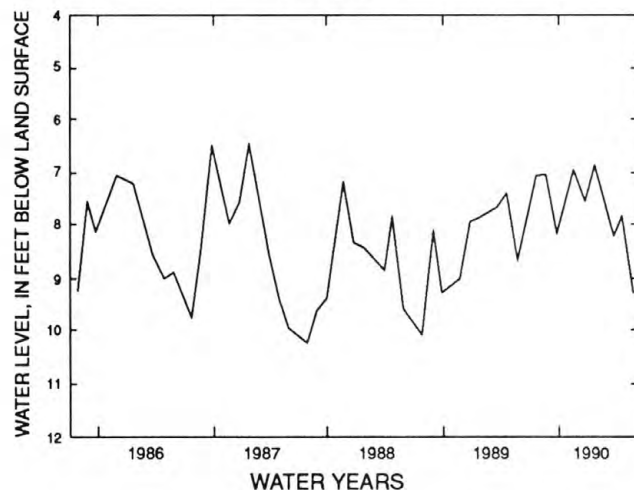
WATER LEVELS, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 26	7.04	DEC 28	8.15	FEB 22	6.93	APR 26	6.86	JUN 27	8.20	AUG 28	9.27
NOV 25	7.02	JAN 26	7.26	MAR 27	7.53	MAY 29	7.11	JUL 25	7.81	SEP 26	9.59

EXW 475



NKW 255



GROUND-WATER LEVELS IN RHODE ISLAND

251

WASHINGTON COUNTY--Continued

413308071280501. North Kingstown well NKW 450.

LOCATION.--Lat 41°33'08", long 71°28'05", Washington County, Hydrologic Unit 01090004, town of North Kingstown, at 890 Tower Hill Road in Belleville, and 0.35 mi north of intersection of alternate U.S. Highway 1 and West Allenton Road.

Owner: Richard S. Bannister.

AQUIFER.--Sand and gravel of Pleistocene age.

WELL CHARACTERISTICS.--Dug observation water-table well, diameter 24 in, depth 17 ft, cased with concrete to 17 ft, open end.

INSTRUMENTATION.--Monthly measurement with chalked tape by U.S. Geological Survey personnel.

DATUM.--Elevation of land-surface datum is 60 ft. Measuring point: Hole in top of concrete cover, 1.96 ft above land-surface datum.

PERIOD OF RECORD.--October 1961 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 8.32 ft below land-surface datum, Apr. 23, 1983; lowest measured, well dry several times in water years 1980-82, 1984, 1988.

WATER LEVELS, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 26	12.19	DEC 28	12.28	FEB 22	11.26	APR 26	11.23	JUN 27	12.51	AUG 28	13.94
NOV 25	11.30	JAN 26	12.23	MAR 27	12.03	MAY 29	11.36	JUL 25	12.44	SEP 26	14.50

412717071415301. Richmond well RIW 231.

LOCATION.--Lat 41°27'17", long 71°41'53", Washington County, Hydrologic Unit 01090005, town of Richmond, about 50 ft west of Narragansett Trail, and 1.2 mi north of Wood River Junction.

Owner: Tuckahoe Turf Farms.

AQUIFER.--Sand and gravel of Pleistocene age.

WELL CHARACTERISTICS.--Dug observation water-table well, diameter 30 in, depth 29 ft, lined with stone to 29 ft, shored.

INSTRUMENTATION.--Monthly measurement with chalked tape by U.S. Geological Survey personnel.

DATUM.--Elevation of land-surface datum is 84 ft. Measuring point: Hole in top of concrete cover, 0.06 ft above land-surface datum.

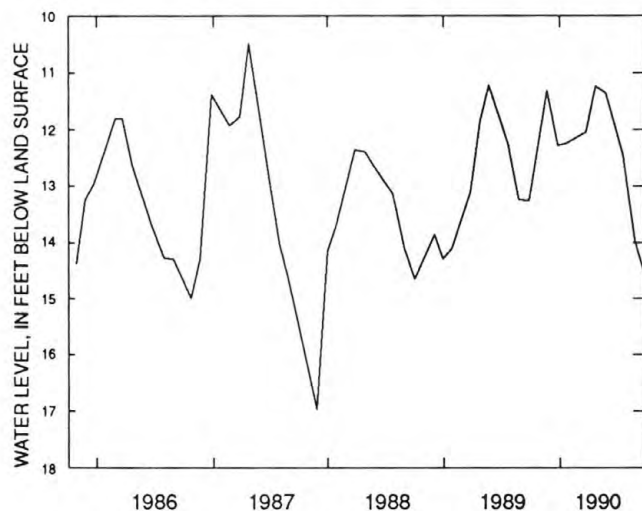
PERIOD OF RECORD.--May 1955 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 19.38 ft below land-surface datum, May 21, 1983. Dry several times in water years 1965-67, 1977, 1981-82, 1988.

WATER LEVELS, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

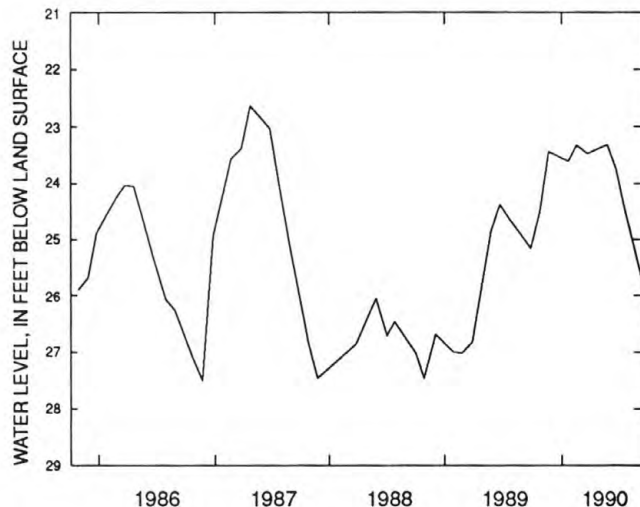
DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 26	24.50	DEC 28	23.47	FEB 22	23.33	APR 26	23.28	JUN 27	23.76	AUG 28	25.23
NOV 25	23.43	JAN 26	23.60	MAR 27	23.47	MAY 29	23.29	JUL 25	24.47	SEP 26	25.97

NKW 450



WATER YEARS

RIW 231



WATER YEARS

GROUND-WATER LEVELS IN RHODE ISLAND

WASHINGTON COUNTY--Continued

412932071374302. Richmond well RIW 417.

LOCATION.--Lat 41°29'32", long 71°37'43", Washington County, Hydrologic Unit 01090005, town of Richmond, about 50 ft south of State Highway 138, about 75 ft west of Beaver River, and 3.3 mi north of Kenyon.

Owner: State Department of Transportation.

AQUIFER.--Sand and gravel of Pleistocene age.

WELL CHARACTERISTICS.--Drilled observation water-table well, diameter 6 in, depth 40 ft, cased to 37 ft, screened 37 to 40 ft.

INSTRUMENTATION.--Continuous graphic recorder December 1975 to May 1988, digital recorder (60 minute) June 1988 to current year.

DATUM.--Land-surface datum is 115.56 ft, above National Geodetic Vertical Datum of 1929. Measuring point: Floor of recorder shelter, 0.60 ft above land-surface datum.

REMARKS.--Water level affected by stage of nearby Beaver River.

PERIOD OF RECORD.--December 1975 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level, 4.08 ft below land-surface datum, Apr. 25, 1983; lowest, 8.02 ft below land-surface datum, Oct. 3, 1980.

WATER LEVELS, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	7.08	5.99	6.08	6.50	5.98	6.12	6.06	6.06	6.33	7.01	7.27	7.58
10	7.18	5.77	6.22	6.56	6.01	6.23	6.14	6.12	6.51	7.12	7.27	7.61
15	7.06	5.86	6.37	6.62	6.03	6.33	6.10	5.87	6.70	7.10	7.33	7.60
20	6.63	5.79	6.46	6.65	6.08	6.39	6.00	5.86	6.83	7.25	7.40	7.65
25	6.23	5.93	6.57	6.57	5.96	6.47	6.05	5.97	6.89	6.84	7.32	7.60
EOM	6.36	5.89	6.69	5.98	6.02	6.53	6.15	6.08	6.91	7.11	7.51	7.67

WTR YR 1990 HIGH 5.70 NOV 17, 18 LOW 7.67 SEP 29, 30

412844071422802. Richmond well RIW 600.

LOCATION.--Lat 41°28'44", long 71°42'28", Washington County, Hydrologic Unit 01090005, town of Richmond, about 50 ft west of Hope Valley Road, and 1.5 mi northeast of Woodville.

Owner: State Department of Transportation.

AQUIFER.--Sand and gravel of Pleistocene age.

WELL CHARACTERISTICS.--Drilled observation water-table well, diameter 8 in, depth 54 ft, cased to 49 ft, screened 49 to 54 ft.

INSTRUMENTATION.--Continuous graphic recorder September 1977 to May 1988, digital recorder (60 minute) June 1988 to current year.

DATUM.--Land-surface datum is 100.17 ft, above National Geodetic Vertical Datum of 1929. Measuring point: Floor of recorder shelter, 2.63 ft above land-surface datum.

PERIOD OF RECORD.--September 1977 to current year.

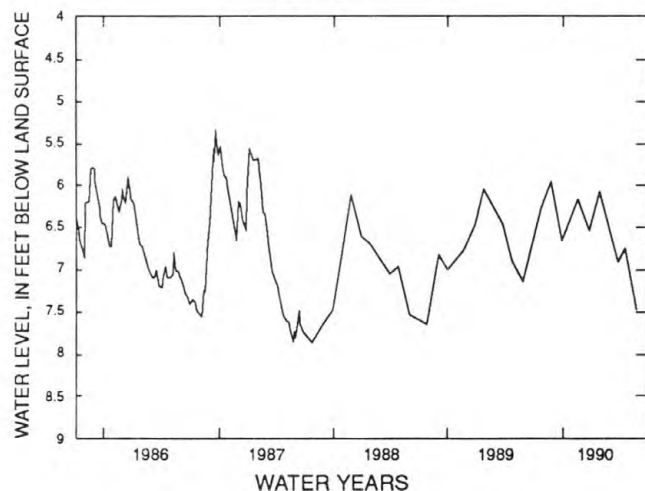
EXTREMES FOR PERIOD OF RECORD.--Highest water level, 31.42 ft below land-surface datum, June 11, 1982; lowest, 35.94 ft below land-surface datum, Feb. 2, 1981.

WATER LEVELS, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

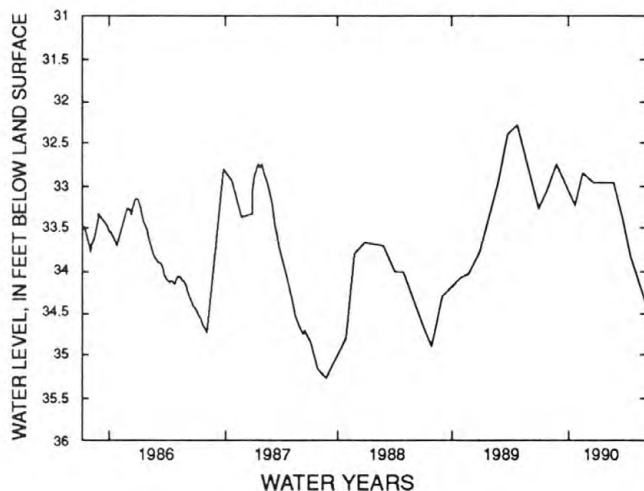
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	33.22	32.88	32.81	33.10	32.96	32.82	32.95	32.94	33.03	33.53	33.91	34.28
10	33.20	32.85	32.89	33.14	32.93	32.87	32.91	32.96	33.10	33.61	33.97	34.37
15	33.21	32.81	32.98	33.21	32.93	32.93	32.94	32.89	33.18	33.69	34.01	34.45
20	33.13	32.78	33.05	33.25	32.94	32.99	32.88	32.85	33.28	33.75	34.07	34.51
25	33.06	32.74	33.13	33.27	32.76	32.96	32.86	32.89	33.36	33.81	34.13	34.55
EOM	32.96	32.75	33.13	33.08	32.75	32.93	32.92	32.98	33.46	33.83	34.20	34.59

WTR YR 1990 HIGH 32.73 NOV 26, 28 LOW 34.60 SEP 30

RIW 417



RIW 600



GROUND-WATER LEVELS IN RHODE ISLAND

253

WASHINGTON COUNTY--Continued

412918071321001. South Kingstown well SNW 6.

LOCATION.--Lat 41°29'18", long 71°32'10", Washington County, Hydrologic Unit 01090005, town of South Kingstown, at northwest corner of Mead Field at University of Rhode Island, and 0.9 mi northwest of Kingston.
 Owner: University of Rhode Island.

AQUIFER.--Sand and gravel of Pleistocene age.

WELL CHARACTERISTICS.--Drilled observation water table well, diameter 10 in, depth 34 ft, cased to 34 ft, open end.

INSTRUMENTATION.--Continuous graphic recorder July 1973 to May 1988, digital recorder (60 minute) June 1988 to current year.

DATUM.--Land-surface datum is 111.89 ft above National Geodetic Vertical Datum of 1929. Measuring point: Floor of recorder shelter, 0.04 ft above land-surface datum.

RECORD OF PERIOD.--November to December 1947, February 1955 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level, 6.91 ft below land-surface datum, Apr. 25, 26, 1983; lowest, 15.06 ft below land-surface datum, Dec. 29, 1965.

WATER LEVELS, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	11.63	10.37	10.15	11.06	10.26	10.45	10.52	10.59	10.89	11.83	12.25	12.92
10	11.72	10.12	10.35	11.18	10.19	10.53	10.48	10.65	11.03	12.02	12.41	13.06
15	11.78	10.01	10.57	11.22	10.27	10.64	10.44	10.62	11.20	12.13	12.55	13.17
20	11.44	9.80	10.79	11.32	10.35	10.76	10.44	10.59	11.37	12.27	12.68	13.19
25	10.70	10.04	10.96	11.33	10.32	10.86	10.52	10.65	11.56	12.23	12.77	13.21
EOM	10.61	9.99	11.29	10.49	10.35	11.07	10.65	10.77	11.71	12.03	12.72	13.28

WTR YR 1990 HIGH 9.76 NOV 20 LOW 12.29 SEP 30

412923071361601. South Kingstown well SNW 515.

LOCATION.--Lat 41°29'23", long 71°36'16", Washington County, Hydrologic Unit 01090005, town of South Kingstown, at Laurel Lane Golf Course, 2.7 mi west of West Kingston.
 Owner: R. R. Holley.

AQUIFER.--Sand and gravel of Pleistocene age.

WELL CHARACTERISTICS.--Dug observation water-table well, diameter 36 in, depth 30 ft, lined with stone to 30 ft, shored.

INSTRUMENTATION.--Monthly measurement with chalked tape by U.S. Geological Survey personnel.

DATUM.--Land-surface datum is 127.84 ft above National Geodetic Vertical Datum of 1929. Measuring point: Top edge of concrete casing on south rim of well, 2.11 ft above land-surface datum. Dec. 27, 1975, to Apr. 25, 1981, measuring point 1.61 ft lower.

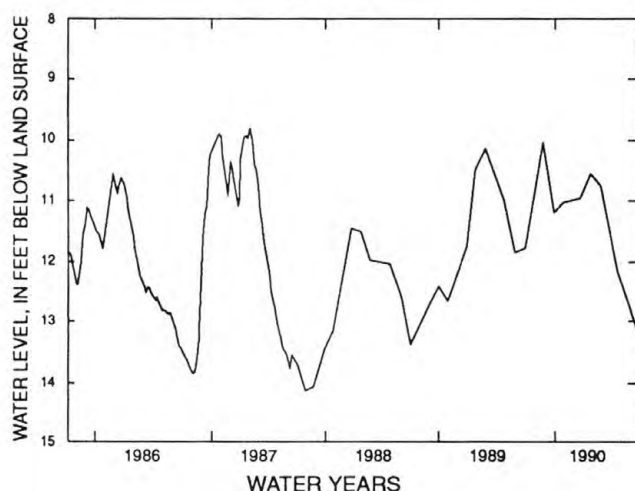
PERIOD OF RECORD.--May 1955 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 23.73 ft below land-surface datum, Apr. 23, 1983, Dry several times in water years 1978, 1980-85, 1987-88.

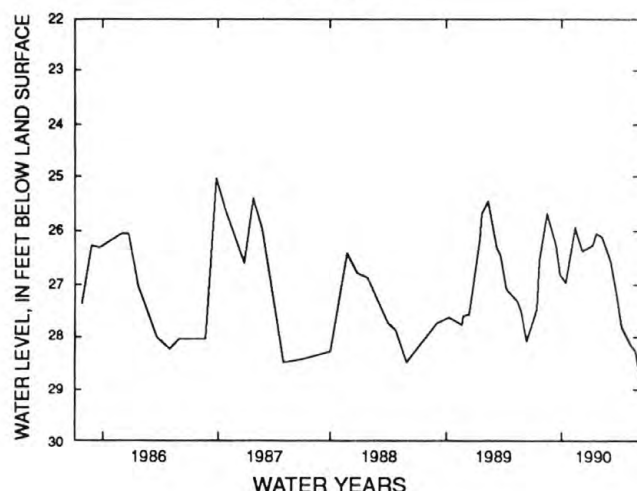
WATER LEVELS, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 18	27.47	DEC 15	26.25	FEB 15	25.91	APR 16	26.25	JUN 12	26.57	AUG 15	28.17
26	26.56	28	26.82	22	26.01	26	26.05	27	27.17	18	28.95
NOV 14	25.67	JAN 16	26.95	MAR 15	26.38	MAY 14	26.12	JUL 16	27.81	28	28.28
25	25.58	26	27.02	27	26.67	29	26.11	25	27.95	SEP 26	28.84

SNW 6



SNW 515



GROUND-WATER LEVELS IN RHODE ISLAND

WASHINGTON COUNTY--Continued

412154071462901. Westerly well WEW 522.

LOCATION.--Lat 41°21'54", long 71°46'29", Washington County, Hydrologic Unit 01090005, town of Westerly, 350 ft northwest of intersection of Pound and Old Shore Roads and 1.0 mi north of Dunn Corner.

Owner: S. Panciera.

AQUIFER.--Sand and gravel of Pleistocene age.

WELL CHARACTERISTICS.--Dug observation water-table well, diameter 30 in, depth 16 ft, lined with stone to 16 ft, shored.

INSTRUMENTATION.--Monthly measurement with chalked tape by U.S. Geological Survey personnel.

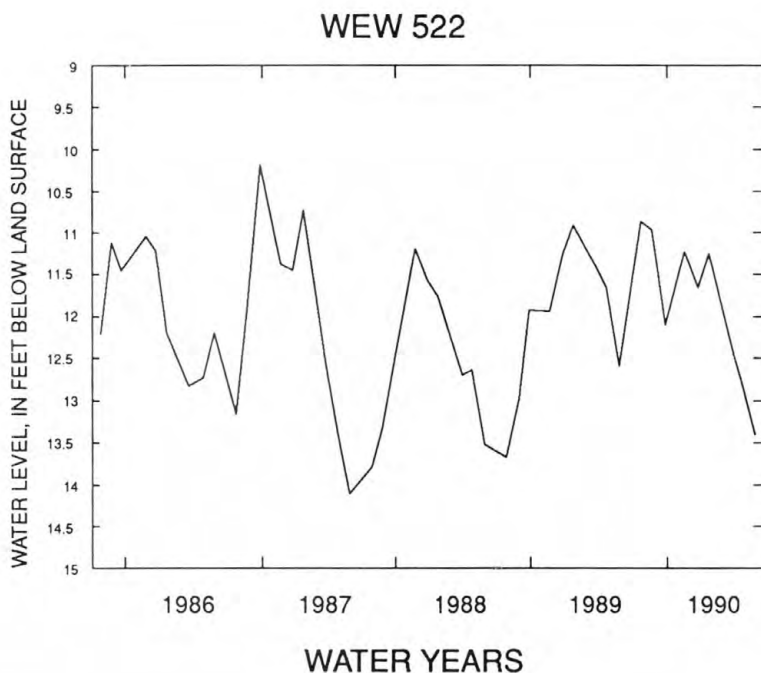
DATUM.--Elevation of land-surface datum is 45 ft. Measuring point: Southwest corner of stone casing, 0.91 ft above land-surface datum.

PERIOD OF RECORD.--January 1969 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 9.23 ft below land-surface datum, Apr. 23, 1983; lowest measured, 14.61 ft below land-surface datum, Sept. 24, 1980.

WATER LEVELS, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 26	10.86	DEC 28	12.08	FEB 22	11.22	APR 26	11.25	JUN 27	12.39	AUG 28	13.39
NOV 25	10.96	JAN 26	11.63	MAR 27	11.64	MAY 29	11.53	JUL 25	12.76	SEP 26	13.55



	Page		Page
Abbot Run near South Attleboro, MA	177	Bound Brook near Cohasset, MA	174
Aberjona River at Winchester, MA	47, 184	Bournes River basin, discharge measurements at miscellaneous sites in	179
at Swanton Street at	172	Braintree, MA, Monatiquot River at	174
Access to WATSTORE Data	19	Branch River at Forestdale, RI	73-77
Accuracy of the records, explanation of	14	Bridgewater, MA, Town River at	175
Acre-foot, definition of	19	Bristol County, ground-water levels in	201-204
Acton, MA, Nashoba Brook near	39, 183	Brockton, MA, Trout Brook at	175
Adams, MA, Hoosic River at	167, 191	Buffumville Lake, MA, contents of	122
Adenosine triphosphate, definition of	19	Byfield, MA, Parker River at	44, 184
Algae, definition of	19		
Algal growth potential, definition of	19	Cadwell Creek near Belchertown, MA	145, 190
Amherst, MA, Fort River near	137, 189	near Pelham, MA	144, 190
Aquifer, definition of	19	Canoe River near Norton, MA	176
Arcadia, RI, Wood River near	100, 187	Canton, MA, Massapoag Brook at	174
Arlington, MA, Mill Brook at	172	East Branch Neponset River at	55, 184
Arrangement of records, explanation of	15	Steep Hill Brook at	174
Artesian, definition of	19	Cells/volume, definition of	20
Artificial substrate, definition of	25	Centerdale, RI, Woonasquatucket River at	84, 186
Ash mass, definition of	20	Charlmont, MA, Deerfield River at	131
Assabet River at Main Street near Concord, MA	172	Charles River below Box Pond	
at Maynard, MA	38, 183	at Bellingham, MA	172
Assonet River at Assonet, MA	176	at Dover, MA	48-50
Athol, MA, East Branch Tully River near	127, 188	at Waltham, MA	53, 184
Millers River at	188	at Wellesley, MA	52
Auburn, MA, Dark Brook at	176	near Medfield, MA	173
Kettle Brook diversion weir at	171	near Millis, MA	173
		Charles River basin, gaging-station records in	48-53
Backus River basin, discharge measurements		low-flow partial record stations in	172, 173
at miscellaneous sites in	178	supplemental water-quality data	
Bacteria, definition of	19	for gaging-stations in	184
Barnstable County, ground-water levels in	192-197	Chemical oxygen demand, definition of	20
Barre Plains, MA, Ware River at	189	Chicken Brook near West Medway, MA	173
Barre Falls Reservoir, MA, contents of	164	Chicopee River at Indian Orchard, MA	149, 190
Barre, MA, Ware River at intakes works, near	141, 189	Childs River basin, discharge measurements at	
Ware River near	140, 189	miscellaneous sites in	179
Beaver River near Usquepaug, RI	98, 187	Chipuxet River at West Kingston, RI	96, 187
Bed load discharge, definition of	24	Chlorophyll, definition of	20
Bed load, definition of	24	Classification of records, explanation of	14
Bed material, definition of	20	Cleveland Brook Reservoir, MA, capacity of	165
Belchertown, MA, Cadwell Creek near	145, 190	Clinton, MA, Nashua River at	33
Bellingham, MA, Charles River below		Cobble Mountain Reservoir, MA, contents of	164
Box Pond at	172	Cohasset, MA, Bound Brook near	174
Berkshire County, ground-water levels in	198-201	Coliform bacteria, definition of	19
Berlin, MA, North Brook near	172	Color unit, definition of	20
Biochemical oxygen demand, definition of	20	Colrain, MA, Green River near	135, 189
Biomass, definition of	20	Coltsville, MA,	
Birch Hill Reservoir, MA	164	East Branch Housatonic River at	165, 191
Blackstone, MA, Mill River near	177	Conant Brook Reservoir, MA, contents of	164
Blackstone River at Manville, RI	79-82	Concord, MA, Assabet River at Main Street	
at Millville, MA	66-71	near Concord, MA	172
at Northbridge, MA	186	Sudbury River	
at Woonsocket, RI	78, 186	at Nashawtuc Street near	172
near Millbury, MA	177	Concord River, below River Meadow Brook	
Blackstone River basin, crest-stage		at Lowell, MA	41, 183
partial-record station in	171	Connecticut River at Montague City, MA	136
discharge measurements at miscellaneous sites in	180	at Thompsonville, CT	155-162
gaging-station records in	64-82	below Holyoke Dam at Holyoke, MA	139
low-flow partial record stations in	176-177	Connecticut River basin, discharge measurements	
supplemental water-quality data for		at miscellaneous sites in	182
gaging-stations and miscellaneous sites in	185, 186	gaging-station records in	123-163
Blue-green algae, definition of	23	reservoirs in	164
Bogastow Brook, Orchard Street,		supplemental water-quality data for	
near Millis, MA	173	gaging-stations and miscellaneous sites in	188-191
Borden Brook Reservoir, MA, contents of	164		
Bottom material, definition of	20		

	Page		Page
Contents, definition of	20	Fort Pond Brook at West Concord, MA.	172
Control, definition of	20	Fort River near Amherst, MA.	137, 189
Control structure, definition of	20	Franklin County, ground-water levels in	210-213
Conway, MA, South River near	133	Franklin, MA, Mine Brook near	173
Coonamesset River basin, discharge measurements at miscellaneous sites in	178	French River below Hodges Village Dam, at Hodges Village, MA	120, 188
Cooperation	5	at Webster, MA	188
Cotley Brook at East Taunton, MA	176	Fuller Brook at Wellesley, MA	173
Cranston, RI, Pawtuxet River at	86-90	Fuller Brook at Wellesley College Golf Course at Wellesley, MA	173
Crooks Corner, MA, Peters River at	177		
Cubic feet per second per square mile, definition of	20	Gage height, definition of	21
Cubic foot per second, definition of	20	Gaging station number	9
		Gaging station, definition of	21
Dark Brook at Auburn, MA	176	Gibbs Crossing, MA, Ware River at	142, 190
Data collection and computation, explanation of	11, 17	Goss Heights, MA, Middle Branch Westfield River at	151, 190
Data presentation, explanation of	12, 16, 18	Grafton, MA, Quinsigamond River near	177
Dedham, MA, Mother Brook at	51, 184	Great Barrington, MA, Housatonic River near	166, 191
Neponset River near	174	Green algae, definition of	23
Deerfield River at Charlemont, MA	131	Green River, (Connecticut River basin) near Colrain, MA	135, 189
near Rowe, MA	130, 188	(Hudson River basin) at Williamstown, MA	170, 191
near West Deerfield, MA	134, 189	Ground-water level records, explanation of	17, 18
Definition of terms	19-26	Ground-water levels in Massachusetts	192-243
Diatoms, explanation of	23	in Rhode Island	244-254
Dighton, MA, Segreganset River near	62, 185		
Discharge, definition of	20	Halifax, MA, Winnetuxet River at Thompson Street near	176
Dissolved, definition of	21	Hampden County, ground-water levels in	213-217
Dissolved-solids concentration, definition of	21	Hampshire County, ground-water levels in	218-221
Dover, MA, Charles River at	48-50	Hanover, MA, Indian Head River at	57, 185
Downstream order system, explanation of	9	Third Herring Brook at	175
Drainage area, explanation of	21	Hardness, definition of	21
Drainage basin, definition of	21	Hardwick, MA, East Branch Swift River near	143
Dry mass, definition of	20	Harriman Reservoir, VT, contents of	164
Dukes County, ground-water levels in,	204	Harrisville, RI, Nipmuc River near	72, 186
		Hawes Brook at Norwood, MA	174
East Bridgewater, MA, Robbins Pond Outlet near	175	Hingham, MA, Weir River near	174
Satucket River at	175	Hockomock River near West Bridgewater MA	175
East Brimfield Lake, MA, contents of	122	Hodges Village Reservoir, MA, contents of	122
East Foxboro, MA, Rumford River at	176	Hodges Village, MA, French River below Hodges Village Dam at	120, 188
East Greenwich, RI, Hunt River near	95, 187	Holyoke, MA, Connecticut River below Holyoke Dam at	139
East Pepperell, MA, Nashua River at	35, 183	Hoosic River at Adams, MA.	167, 191
East Providence, RI, Ten Mile River at Pawtucket Avenue at	63, 185	near Williamstown, MA.	169, 191
East Taunton, MA, Cotley Brook at	176	North Branch, at North Adams, MA	168, 191
East Weymouth, MA, Whitmans Pond Outlet at	174	Hope Valley, RI, Wood River at	101-105
Easton Center, MA, Mulberry Meadow Brook near	176	Hopping Brook near West Medway, MA	172
Elizabeth Brook at Wheeler Street at Stow, MA	172	Housatonic River basin, gaging-station records in	165, 166
Elmwood, MA, Matfield River at	175	supplemental water-quality data for gaging-stations in	191
Erving, MA, Millers River at	129	Housatonic River, East Branch, at Coltsville, MA	165, 191
Essex County, ground water levels in	205-209	near Great Barrington, MA	166, 191
Explanation of the records, explanation of	9	Hudson River basin, gaging-station records in	167-170
		supplemental water-quality data for gaging-stations in	191
Farmington River, West Branch, near New Boston, MA	163, 191	Hunt River near East Greenwich, RI	95, 187
Fecal coliform bacteria, definition of	19	Huntington, MA, West Branch Westfield River at	152, 190
Fecal streptococcal bacteria, definition of	20	Hydrologic Bench-Mark Network, definition of	21
Fiskdale, MA, Quinebaug River below East Brimfield Dam, at	115, 187		
Fitchburg, MA, North Nashua River at	31, 183		
Flat River Reservoir, RI, contents of	85		
Forestdale, RI, Branch River at	73-77		
Forge River near Taunton, MA	176		

	Page		Page
Hydrologic conditions, summary of	5, 6	Manville, RI, Blackstone River at	79-82
graphs of	7, 8	Marshfield, MA, South River at	175
Hydrologic unit, definition of	21	Mashpee River basin, discharge measurements at miscellaneous sites in	180
Identifying Estimated Daily Discharge, explanation of	14	Massapoag Brook at Canton, MA	174
Indian Head River at Hanover, MA	57, 185	Matfield River at Elmwood, MA	175
Indian Orchard, MA, Chicopee River at	149, 190	Maynard, MA, Assabet River at	38, 183
Instantaneous discharge, definition of	21	Mean concentration (sediment), definition of	24
Introduction	1, 5	Mean discharge, definition of	20
Ipswich, MA, Ipswich River near	46, 184	Measuring point, definition of	21
Ipswich River, at South Middleton, MA	45, 184	Medfield, MA, Charles River near	173
near Ipswich, MA	46, 184	Stop River near	173
Ipswich River basin, gaging-station records in	45, 46	Merrimack River above Lowell, MA	36, 37
supplemental water-quality data for gaging-stations in	184	below Concord River, at Lowell, MA	42, 183
Jones River at Kingston, MA	58, 185	Merrimack River basin, gaging-station records in	31-43
Kent County, ground-water levels in	244	low-flow partial record stations in	172
Kettle Brook Diversion Weir at Auburn, MA	171	supplemental water-quality data for gaging-stations in	183
Kingston, MA, Jones River at	58, 185	Metamorphic stage, definition of	21
Knightville, MA, Westfield River at	150, 190	Methylene blue active substances, definition of	21
Knightville Reservoir, MA, contents of	164	Micrograms per gram, definition of	21
Laboratory measurements, explanation of	16	Micrograms per liter, definition of	21
Lakes and reservoirs:		Middlesex County, ground water levels in	221-228
Barre Falls Reservoir, MA	164	Mill Brook at Arlington, MA	172
Birch Hill Reservoir, MA	164	Mill River, at Northampton, MA	138, 189
Borden Brook Reservoir, MA	164	near Blackstone, MA	177
Buffumville Lake, MA	122	near Norfolk, MA	173
Cleveland Brook Reservoir, MA, capacity of	165	near Taunton, MA	176
Cobble Mountain Reservoir, MA	164	Millbury, MA, Blackstone River near	177
Conant Brook Reservoir, MA	164	Millers River at Athol, MA	188
East Brimfield Lake, MA	122	at Erving, MA	129
Flat River Reservoir, RI	85	at South Royalston, MA	126, 188
Harriman Reservoir, VT	164	near Winchendon, MA	123, 188
Hodges Village Reservoir, MA	122	Milligrams of carbon, definition of	23
Knightville Reservoir, MA	164	Milligrams of oxygen, definition of	23
Littleville Lake, MA	164	Milligrams per liter, definition of	21
Ludlow Reservoir, MA	164	Millis, MA, Bogastow Brook, Orchard Street near	173
Otis Reservoir, MA	164	Charles River near	173
Quabbin Reservoir, MA	164	Millville, MA, Blackstone River at	66-71
Scituate Reservoir, RI	86	Mine Brook near Franklin, MA	173
Somerset Reservoir, VT	164	at Walpole, MA	173
Tully Lake, MA	164	Monatiquot River at Braintree, MA	174
West Hill Reservoir, MA	65	Montague City, MA, Connecticut River at	136
Westville Lake, MA	122	Moshassuck River at Providence, RI	83, 186
Land-surface datum, definition of	21	Mother Brook at Dedham, MA	51, 184
Latitude-Longitude System, explanation of	10	Mulberry Meadow Brook near Easton Center, MA	176
Leominster, MA, North Nashua River near	32, 183	Mumford River at Uxbridge, MA	177
Little River (Connecticut River basin) at outlet of Cobble Mountain Reservoir, near Westfield, MA	153	Mystic River basin, gaging-station record in	47
(Thames River basin) near Oxford, MA	121, 188	low-flow partial-record stations in	172
Littleville Lake, MA, contents of	164	supplemental water-quality data for gaging-stations in	184
Lowell, MA, Concord River below River Meadow Brook at	41, 183	Nantucket County, ground-water levels in	228
Merrimack River above	36, 37	Nashoba Brook near Acton, MA	39, 183
Merrimack River below Concord River at	42, 183	Nashua River, at Clinton, MA	33
River Meadow Brook at	172	at East Pepperell, MA	35, 183
Ludlow Reservoir, MA, contents of	164	National Geodetic Vertical Datum of 1929 (NGVD of 1929), definition of	22
		National stream quality accounting network station	36, 48, 66, 106, 155
		description of	22
		explanation of	6

	Page		Page
National Trends Network, definition of	22	Pawtuxet River at Cranston, RI	86-90
Natural substrate, definition of	24	at Pawtuxet, RI	91-94
Neponset River, at Norwood MA	54, 184	South Branch, at Washington, RI	85, 186
East Branch, at Canton, MA	55, 184	Pawtuxet River basin, gaging-station records in	85-94
at Walpole, MA	173	supplemental water-quality data	
near Dedham, MA	174	for gaging-stations in	186
Neponset River basin,		Pelham, MA, Cadwell Creek near	144, 190
gaging-station records in	54, 55	Percent composition, definition of	22
low-flow partial-record stations in	173, 174	Periphyton, definition of	23
supplemental water-quality data for		Pesticides, definition of	23
gaging-stations in	184	Peters River at Crooks Corner, MA	177
Networks, special, explanation of	6	Phytoplankton, definition of	23
New Boston, MA, West Branch		Picocurie, definition of	23
Farmington River near	163, 191	Plankton, definition of	23
Nipmuc River near Harrisville, RI	72, 186	Plymouth County, ground-water levels in	232-237
Norfolk County, ground-water levels in	229-232	Poor Meadow Brook at South Hanson, MA	175
Norfolk, MA, Mill River near	173	Poquoy Brook near North Middleboro, MA	176
North Adams, MA, North Branch Hoosic River		Potowomut River basin, gaging-station record in	95
at	168, 191	supplemental water-quality data for	
North Brook near Berlin, MA	172	gaging-stations in	187
North Dighton, MA, Threemile River at	61, 185	Priest Brook near Winchendon, MA	124, 188
North Grafton, MA, Quinsigamond River at	64, 185	Primary productivity, definition of	23
North Easton, MA, Queset Brook at	175	Programs, special, explanation of	6
North Middleboro, MA, Poquoy Brook near	176	Providence, RI, Moshassuck River at	83, 186
North Nashua River at Fitchburg, MA	31, 183	Providence County, ground-water levels in	245-248
near Leominster, MA	32, 183	Publications on techniques of	
North River basin, gaging-station record in	57	water-resources investigations	26-28
low-flow partial-record stations in	175		
supplemental water-quality data		Quabbin Reservoir, MA	164
for gaging-stations in	185	Quaboag River at West Brimfield, MA	148, 190
North River at Shattuckville, MA	132, 189	Quashnet River at Waquoit Village, MA	59, 185
Northbridge, MA, Blackstone River at	186	Quashnet River basin, discharge measurements	
Northampton, MA, Mill River at	138, 189	at miscellaneous sites in	179, 180
Norton, MA, Canoe River near	176	Queset Brook at North Easton, MA	175
Rumford River at	176	Quinebaug River at Quinebaug, CT	117-119
Wading River near	60, 185	below East Brimfield Dam at Fiskdale, MA	115, 187
Norwell, MA, Second Herring Brook at	175	below Westville Dam,	
Norwood, MA, Hawes Brook at	174	near Southbridge, MA	116, 187
Neponset River at	54, 184	Quinsigamond River near Grafton, MA	177
Numbering system for wells, description of	10	at North Grafton, MA	64, 185
Old Swamp River near South Weymouth, MA	56, 184	Radiochemical program, description of	23
On-site measurements and sample collection,		Records of ground-water levels, explanation of	17, 18
explanation of	15	Records of stage and water discharge,	
Order of listing stations	9	explanation of	10
Organic mass, definition of	20	Records of surface-water quality, explanation of	14
Organism count/volume, definition of	22	Recoverable from bottom material, definition of	23
Other records available, explanation of	14	Remark codes	17, 29
Otis Reservoir, MA, contents of	164	Reservoirs (see Lakes and reservoirs)	
Otter River at Otter River, MA	125, 188	Return period, definition of	24
Oxford MA, Little River near	121, 188	River Meadow Brook at Lowell, MA	172
		Robbins Pond Outlet near East Bridgewater, MA	175
Parameter code, definition of	22	Rowe, MA, Deerfield River near	130, 188
Parker River at Byfield, MA	44, 184	Rumford River at East Foxboro, MA	176
Partial-record station, definition of	22	at Norton, MA	176
Particle size, definition of	22	Runoff in inches, definition of	24
Particle-size classification, definition of	22		
Pawcatuck River, at Westerly, RI	106-114	Satucket River at East Bridgewater, MA	175
at Wood River Junction, RI	99, 187	Satuit River at Scituate, MA	174
Pawcatuck River basin, discharge measurements		Saxonville, MA, Sudbury River at	40, 183
at miscellaneous sites in	180-182	Scituate Reservoir, RI, contents of	
gaging-station records in	96-114	and diversion from	86
supplemental water-quality data		Scituate, MA, Satuit River at	174
for gaging-stations in	187		

	Page		Page
Second Herring Brook at Norwell, MA	175	Techniques of water-resources investigations, publications on	27-28
Sediment, definition of	24	Temperature, water, explanation of	16
explanation of	16	Ten Mile River at Pawtucket Avenue at East Providence, RI	63, 185
Segreganset River near Dighton, MA	62, 185	Terms, definition of	19-26
7-day 10-year low flow, definition of	24	Thames River basin, discharge measurement at miscellaneous sites in	182
Sevenmile River near Spencer, MA	147, 190	gaging-station records in	115-121
Shattuckville, MA, North River at	132, 189	reservoirs in	122
Shawsheen River near Wilmington, MA	43, 183	supplemental water-quality data for gaging-stations in	187, 188
Sodium-adsorption-ratio, definition of	24	Thermograph, definition of	25
Solute, definition of	24	Third Herring Brook at Hanover, MA	175
Somerset Reservoir, VT, contents of	164	Thompsonville, CT, Connecticut River at	155-162
South Attleboro, MA, Abbot Run near	177	Threemile River at North Dighton, MA	61, 185
South Hanson, MA, Poor Meadow Brook at	175	Time-weighted average, definition of	25
South Middleton, MA, Ipswich River at	45, 184	Tons per acre-foot, definition of	25
South River near Conway, MA	133, 189	Tons per day, definition of	26
at Marshfield, MA	175	Total, definition of	26
South Royalston, MA, Millers River at	126, 188	Total discharge, definition of	26
South Weymouth, MA, Old Swamp River near	56, 184	Total organism count, definition of	22
Southbridge, MA, Quinebaug River below Westville Dam, near	116, 187	Total, recoverable, definition of	26
Special networks and programs, explanation of	6	Total coliform bacteria, definition of	19
Specific conductance, definition of	24	Total sediment discharge, definition of	24
Spencer, MA, Sevenmile River near	147, 190	Total-sediment load, definition of	24
Squannacook River near West Groton, MA	34, 183	Town River at Bridgewater, MA	175
Stage and water-discharge records, explanation of	9, 10	Tritium Network, description of	26
Stage-discharge relation, definition of	24	Trout Brook at Brockton, MA	175
Station-identification numbers, explanation of	9	Tully Lake, MA, contents of	164
Steep Hill Brook at Canton, MA	174	Tully River, East Branch, near Athol, Mass	127, 188
Stony Brook at Waltham, MA	173	Usquepaug, RI, Beaver River near	98, 187
Stony Brook River basin, discharge measurements at miscellaneous sites in	178	Usquepaug River near	97, 187
Stop River near Medfield, MA	173	Uxbridge MA, Mumford River at	177
Stow, MA, Elizabeth Brook at Wheeler Street at	172	West River below West Hill Dam, near	65, 186
Streamflow, definition of	24	Waban Brook at Wellesley, MA	173
Streptococcal bacteria, definition of	20	Wading River at West Mansfield, MA	176
Substrate, definition of	24	near Norton, MA	60, 185
Sudbury River at Saxonville, MA	40, 183	Walpole, MA, Mine Brook at	173
at Nashawtuc Street near Concord, MA	172	Neponset River at	173
Suffolk County, ground-water levels in	238	Waltham, MA, Charles River at	53, 184
Surface area, definition of	25	Stony Brook at	173
Surface-water records of stage and discharge, explanation of	9-14	Wauquoit Village, MA, Quashnet River at	59, 185
Surficial bed material, definition of	25	Ware River at Barre Plains, MA	189
Suspended, definition of	25	at Gibbs Crossing, MA	142, 190
Suspended, recoverable, definition of	25	at intake works, near Barre, MA	141, 189
Suspended sediment, definition of	24	near Barre, MA	140, 189
Suspended-sediment concentration, definition of	24	Washington County, ground-water levels in	248-254
Suspended-sediment discharge, definition of	24	Washington, RI, South Branch Pawtuxet River at	85, 186
Suspended-sediment load, definition of	24	Water-quality records, explanation of	14-17
Suspended, total, definition of	25	Water temperature, explanation of	16
Swift River at West Ware, MA	146, 190	Water year, definition of	26
East Branch, near Hardwick, MA	143	WATSTORE (National WATER Data STORage and RETrieval System), access to and explanation of	19
Tatnuck Brook below Coes Reservoir at Worcester, MA	176	WDR, definition of	26
Taunton, MA, Cotley Brook at	176	Webster, MA, French River at	188
Forge River near	176	Weighted average, definition of	26
Mill River near	176	Weir River near Hingham, MA	174
Taunton River basin, gaging-station records in	60-62	Well number, definition of	9
low-flow partial-record stations in	175, 176		
supplemental water-quality data for gaging-stations in	185		
Taxonomy, definition of	25		

	Page		Page
Wellesley, MA, Charles River at	52	Weymouth Back River basin,	
Fuller Brook at	173	gaging-station record in.	56
Fuller Brook at Wellesley College		low-flow partial record-station in	174
Golf Course at.	173	supplemental water-quality data	
Waban Brook at	173	for gaging-stations in	184
Wendell Depot, MA, Whetstone Brook		Weymouth Fore River basin, low-flow	
at Depot Road at.	128	partial record-station in.	174
West Bridgewater, MA, Hockomock River near.	175	Whetstone Brook at Depot Road	
West Brimfield, MA, Quaboag River at	148, 190	at Wendell Depot, MA	128
West Concord, MA, Fort Pond Brook at	172	Whitmans Pond Outlet	
West Deerfield, MA, Deerfield River near	134, 189	at East Weymouth, MA.	174
West Groton, MA, Squannacook River near	34, 183	Williamstown, MA, Green River at	170, 191
West Hill Reservoir, contents of.	65	Hoosic River near	169, 191
West Kingston, RI, Chipuxet River at	96, 187	Wilmington, MA, Shawsheen River near.	43, 183
West Mansfield, MA, Wading River at.	176	Winchendon, MA, Millers River near	123, 188
West Medway, MA, Hopping Brook near.	172	Priest Brook near.	124, 188
Chicken Brook near	173	Winchester, MA, Aberjona River at	47, 184
West River, below West Hill Dam,		Aberjona River at Swanton Street at.	172
near Uxbridge MA.	65, 186	Winnetuxet River at Thompson Street	
West Ware, MA, Swift River at	146, 190	near Halifax, MA.	176
Westerly, RI, Pawcatuck River at.	106-114	Wood River at Hope Valley, RI	101-105
Westfield, MA, Little River at outlet of		near Arcadia, RI	100, 187
Cobble Mountain Reservoir, near	153	Wood River Junction, RI, Pawcatuck River at.	99, 187
Westfield River near	154, 191	Woonasquatucket River at Centerdale, RI.	84, 186
Westfield River at Knightville, MA	150, 190	Woonsocket, RI, Blackstone River at.	78, 186
Middle Branch, at Goss Heights, MA	151, 190	Worcester, MA, Tatnuck Brook below	
West Branch, at Huntington, MA	152, 190	Coes Reservoir at.	176
near Westfield, MA	154, 191	Worcester County, ground-water levels in	238-243
Westville Lake, contents of.	122	WSP, definition of	26
Wet mass, definition of.	20	Zooplankton, definition of.	23

FACTORS FOR CONVERTING INCH-POUND UNITS TO INTERNATIONAL SYSTEM UNITS (SI)

The following factors may be used to convert the inch-pound units published herein to the International System of Units (SI).

Multiply inch-pound units	By	To obtain SI units
<i>Length</i>		
inches (in)	2.54×10^1	millimeters (mm)
	2.54×10^{-2}	meters (m)
feet (ft)	3.048×10^{-1}	meters (m)
miles (mi)	1.609×10^0	kilometers (km)
<i>Area</i>		
acres	4.047×10^3	square meters (m ²)
	4.047×10^{-1}	square hectometers (hm ²)
	4.047×10^{-3}	square kilometers (km ²)
square miles (mi ²)	2.590×10^0	square kilometers (km ²)
<i>Volume</i>		
gallons (gal)	3.785×10^0	liters (L)
	3.785×10^0	cubic decimeters (dm ³)
	3.785×10^{-3}	cubic meters (m ³)
million gallons	3.785×10^3	cubic meters (m ³)
	3.785×10^{-3}	cubic hectometers (hm ³)
cubic feet (ft ³)	2.832×10^1	cubic decimeters (dm ³)
	2.832×10^{-2}	cubic meters (m ³)
cfs-days	2.447×10^3	cubic meters (m ³)
	2.447×10^{-3}	cubic hectometers (hm ³)
acre-feet (acre-ft)	1.233×10^3	cubic meters (m ³)
	1.233×10^{-3}	cubic hectometers (hm ³)
	1.233×10^{-6}	cubic kilometers (km ³)
<i>Flow</i>		
cubic feet per second (ft ³ /s)	2.832×10^1	liters per second (L/s)
	2.832×10^1	cubic decimeters per second (dm ³ /s)
	2.832×10^{-2}	cubic meters per second (m ³ /s)
gallons per minute (gal/min)	6.309×10^{-2}	liters per second (L/s)
	6.309×10^{-2}	cubic decimeters per second (dm ³ /s)
	6.309×10^{-5}	cubic meters per second (m ³ /s)
million gallons per day	4.381×10^1	cubic decimeters per second (dm ³ /s)
	4.381×10^{-2}	cubic meters per second (m ³ /s)
<i>Mass</i>		
tons (short)	9.072×10^{-1}	megagrams (Mg) or metric tons

USGS LIBRARY - RESTON



3 1818 00083851 4

POSTAGE AND FEES PAID
U.S. DEPARTMENT OF THE INTERIOR
INT 413



U.S. DEPARTMENT OF THE INTERIOR
U.S. Geological Survey
10 Causeway Street, Suite 926
Boston, MA 02222-1040

OFFICIAL BUSINESS
PENALTY FOR PRIVATE USE \$300
SPECIAL 4TH CLASS BOOK RATE